Received
5-1-2008

Department of Public Works

WILLIAM J. LEE MEMORIAL TOWN HALL
ONE LAFAYETTE STREET
WAKEFIELD, MASSACHUSETTS 01880

Tel. (781) 246-6300
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Richard F. Stinson
Director of Public Works

April 30, 2008

Thelma Murphy, Regional Stormwater Coordinator
United States Environmental Protection Agency
NPDES Stormwater Phase II Program
Municipal Assistance Unit (CMU)
One Congress Street, Suite 1100
Boston, MA 02114-2023

RE: NPDES Stormwater Phase II Permit
Annual Report Permit Year Five
Wakefield, Massachusetts

Dear Sir or Madam:

The Town of Wakefield, Massachusetts is pleased to submit this Annual Report covering Permit Year Five (May 1, 2007 through April 30, 2008.) This submittal is in accordance with the Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) Stormwater Phase II Regulations and the Massachusetts DEP requirements.

The format of this report follows the Section F listing of information items under Part II Massachusetts Small MS4 Storm Water Management Program. See the Table of Contents following this cover letter for identification of each report section.

In summary, the Town of Wakefield has met compliance with the Town's permit application submittal dated July 28, 2003.

The only permit component that was changed was the Adopt-A-Stream Program. In lieu of this program, the Department of Public Works (DPW) implemented a stream-cleaning program, starting in the spring of 2007.

In addition to the permit activities, we corresponded with the Massachusetts Historical Commission (MHC) and National Heritage and Endangered Species Program (NHESP)

to ensure that the guidance provided in the Addendum A and B of the NPDES Stormwater Permit is followed. **Correspondence has been received from both MHC and NHESP that verifies that we have no active projects at this time that will require their review and certification.** Their correspondence goes further to provide guidance on what type of projects would require their review and certification, and the process for submitting a proposed project for review.

At the Annual Town Meeting in April 2008, a Storm Drain System Bylaw was adopted which includes three Articles:

Art. I - Discharges to the Storm Drain System: identifying allowed and prohibited discharges to storm drain system;

Art. II - Stormwater Management and Land Disturbance: a permit must be applied for and obtained if exceeding criteria;

Art. III - Post Construction Stormwater System Management: required if a land disturbance permit is required, primary concern is identification of an effective operation and maintenance plan for the stormwater management system, if one is constructed as part of the work

Bylaw passed at the April 2008 Annual Town Meeting; the Town adopted the attached Storm Drain System bylaw.

If you have any questions or comments, please contact me at 781-246-6300

Very truly yours,

Richard F Stinson
Director of Public Works

cc: Fred Civian, MA Department of Environmental Protection
Thomas P. Butler, Town Administrator
Michael M. Martello, DPW Business Manager
Michael P. Collins, P. E., Town Engineer
Wakefield NPDES Committee

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EXECUTIVE SUMMARY

During the Permit Year Five (May 1, 2007 through April 30, 2008) the Town of Wakefield complied with the Town's permit application submittal dated July 28, 2003. The overall five-year permit planned permit program is presented on the charts following this page.

During Permit Year Five, work activities occurred for each of the six planned Best Management Practices. The details of work activity conducted for each BMP are presented in Section I of this report.

We do not recommend as of this date, that the identified BMP's or measurable goals be changed with the exception of the Adopt-A-Stream Program, which has been changed to a Department of Public Works Annual Stream Cleaning Program.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Watershed Management
BRP WM 08A NPDES Stormwater General Permit Notice of Intent
for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)
F. Storm Water Management Program TIME FRAMES

Transmittal Number W040850
Facility ID (if known)
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		PERMIT YEAR ONE				PERMIT YEAR TWO				PERMIT YEAR THREE				PERMIT YEAR				PERMIT YEAR				
BMP ID #	Task	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	Next Permit
	Education / Materials																					
1.1	Brochure																					
1.2	Web Page																					
1.3	Poster Picture Display																					
1.4	Press Release (1/year)					X				X				X				X				
1.5	Public Works Newsletter Article							X				X				X				X		
1.6	Cable TV Program																X					
1.7	Fact Sheets									X				X				X				
1.8	Mailing to Local Businesses/Residents						X															
1.9	Brochure (Public Meeting & Hearing Process)																					
	Event Education & Outreach																					
1.10	Develop Program																					
1.11	Festival by the Lake					X				X				X				X				
1.12	FOLQ (Lake Cleanup)					X				X				X				X				
1.13	Library Date									X				X				X				
1.14	Household Hazardous Waste Day (1/year)			X				X				X				X				X		
1.15	Post-Tributary Signage																					
	Public Involvement & Participation																					
2.1	FOLQ (Lake Clean up)					X				X				X				X				
2.2	Hazardous Waste Day (1/year)			X				X				X				X				X		
2.3	Citizens Volunteer Group																					
2.4	Youth Group Involvement																					
	Steering Committee																					
2.5	Quarterly Mtgs (1st year)		X	X	X	X																
2.6	Bi-annual Mtgs (future years)						X		X		X		X		X		X		X		X	
2.7	Annual Town SW Forum/Workshop						X				X				X				X			
	Distribute Educational Materials																					
2.8	Newsletter Article (Annual)					X				X				X				X				
2.9	Brochure (General/Business)																					
2.10	Adopt-A-Stream Program																					
2.11	Implement Volunteer Adopt-A-Stream Program																					
	Illicit Discharge Detection & Elimination																					
3.1	Criteria for Identifying Illicit Discharges																					
3.2	Identify & Characterize Illicit Discharges																					
3.3	Map Locations of Illicit Discharges																					
3.4	Evaluate Impacts to Receiving Waters																					
3.5	Ongoing Mapping of MS4s																					
3.6	Potential Approaches to Abate Illicit Discharges																					
3.7	Review & Document Existing Local & State Regs																					
3.8	Additional Separate By-Laws																					

Massachusetts Department of Environmental Protection
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F. Storm Water Management Program TIME FRAMES

Transmittal Number W040850

Facility ID (if known)

		PERMIT YEAR ONE				PERMIT YEAR TWO				PERMIT YEAR THREE				PERMIT YEAR				PERMIT YEAR				
BMP ID #	**Task**	**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**	**Next Permit**
3.9	Legality of Publicizing Violations																					
3.1O	Potential Funding Programs																					
3.11	Establish Hot-Line							X														
	Construction Site Runoff Control																					
4.1	Develop Guidelines (including ESC)																					
4.2	Develop Procedures for Site Inspection of Control Meas.																					
4.3	Update Existing Site Plan Review & Const. Regs.																					
4.4	Update Existing Policies & Procedures Relating to Compliance & Enforcement																					
4.5	Separate By-Law to Implement & Enforce																					
4.6	Brochure (Public Meeting & Hearing Process)																					
	Post-Construction Runoff Control																					
5.1	Review Existing Policies, Regs & Guidelines																					
5.2	Develop Guidelines																					
5.3	Procedures & Guidelines (Structural & Non-structural BMPs)																					
5.4	By-Law to Implement & Enforce																					
	Pollution Prevention / Good Housekeeping																					
6.1	Review Existing Practices, Guidelines & Training						D				D				D				D			
6.2	Catchbasin Cleaning Guidelines						D				T				T				I			
6.3	Street Sweeping Guidelines						D				T				T				I			
6.4	Maintain Streams & Channels Guidelines						D				D				T				I			
6.5	Calibrating Salt/Sand Speaders Guidelines						D				T				T				I			
6.6	Spill Control/Containment Guidelines						D				T				I							
6.7	Recycling Refuse Program Guidelines						D				D				T				I			
6.8	Employee Training Program																					
6.9	Animal Solid Waste Secretion By-Law		D				D				I											
6.1O	Fertilizers/Pesticides Recommended Use Guidelines						D				T				I				I			
6.11	Identify Sensitive Waterway & Waterbody Criteria		D				D				D											
6.12	Idenifiy Sensitive Waterway & Waterbodies														I				I			
6.13	Identify Non-Stormwater Discharges																		D			
6.14	Good Housekeeping monitoring Program																		D			

D = Review / Develop
T = Test
I = Implement

WAKEFIELD, MA NPDES STORMWATER PHASE II PERMIT

ANNUAL REPORT COVERING MAY 2007 through APRIL 2008

SECTION I. SELF-ASSESSMENT OF COMPLIANCE WITH PERMIT CONDITIONS

PERMIT YEAR FIVE

BMP ID #	Task	Spring 07	Summer 07	Fall 07	Winter 07-08	SELF-ASSESSMENT OF COMPLIANCE WITH PERMIT CONDITIONS
	Education / Materials					
1.4	Press Release (1/year)	x			x	Press Release in local paper on Annual Stormwater Forum with information on stormwater program
1.5	Public Works Newsletter Article	x		x		Articles on Town's Stormwater Management Program in Spring and Fall DPW Newsletters
1.6	Cable TV Program				x	NPDES Stormwater Management Program scope and funding needs presented at Selectmen's meeting on Cable TV, discussion of storm
1.7	Fact Sheets	x				Fact Sheets developed and maintained in DPW office, available to public
	Event Education & Outreach					
1.11	Festival by the Lake	x				Held June 16, 2007, with citizen participation
1.12	FOLQ (Lake Cleanup)	X				Held May 5, 2007 with citizen participation
1.13	Library Date	x				Newsletter and Literature Display at Library late spring into early summer 2007
1.14	Household Hazardous Waste Day (1/year)	x		x		Held May 19, 2007 and September 22, 2007
	Public Involvement & Participation					
2.1	FOLQ (Lake Clean up)	x				Held May 5, 2007 with citizen participation
2.2	Hazardous Waste Day (1/year)	x		x		Held May 19, 2007 and September 22, 2007
2.3	Citizens Volunteer Group					Involved in 1.11 and 1.12, above
	Steering Committee					
2.6	Bi-annual Mtgs (future years)	x	x		x	Meetings conducted October 31, 2007, December 19, 2007 and March 6, 2008, positive input received
2.7	Annual Town SW Forum/Workshop				x	Conducted April 24, 2008
	Distribute Educational Materials					
2.8	Newsletter Article (Annual)	x		x		In Spring and Fall DPW newsletters
2.1O	Adopt-a-Stream Program changed to Stream Maintenance Program				x	Changed Adopt-A-Stream program to DPW personnel using a boat and barge to go along rivers removing debris and blockages
	Illicit Discharge Detection & Elimination					
3.2	Identify & Characterize Illicit Discharges					Upstream drainage system investigations during mapping, summary report of potential suspect locations summary report for sampling / testing during 2007
3.3	Map Locations of Illicit Discharges					None found yet for mapping
3.4	Evaluate Impacts to Receiving Waters					Sampling and testing conducted

WAKEFIELD, MA NPDES STORMWATER PHASE II PERMIT

ANNUAL REPORT COVERING MAY 2007 through APRIL 2008

SECTION I. SELF-ASSESSMENT OF COMPLIANCE WITH PERMIT CONDITIONS

PERMIT YEAR FIVE

BMP ID #	Task	Spring 07	Summer 07	Fall 07	Winter 07-08	SELF-ASSESSMENT OF COMPLIANCE WITH PERMIT CONDITIONS
3.5	Ongoing Mapping of MS4s					Ongoing mapping of trunk drains, all available paper plans organized and sketched paper maps, investigating for signs of illicit discharges
3.8	Additional Separate By-Laws					Storm drain system bylaw adopted at April 2008 Town Meeting
3.1O	Potential Funding Programs					Grant applied for and selected to work with MAPC on developing stormwater by-law
	Construction Site Runoff Control					
4.5	Separate By-Law to Implement & Enforce					Storm drain system bylaw adopted at April 2008 Town Meeting
	Post-Construction Runoff Control					
5.4	By-Law to Implement & Enforce					Storm drain system bylaw adopted at April 2008 Town Meeting
	Pollution Prevention / Good Housekeeping					
6.1	Review Existing Practices, Guidelines & Training		D			Ongoing activity as needed
6.2	Catchbasin Cleaning Guidelines		T			In place, being followed
6.3	Street Sweeping Guidelines		T			In place, being followed
6.4	Maintain Streams & Channels Guidelines		T			DPW Highway and Forestry/Park personel using boat with motor, barge and trucks to remove debris from streams
6.5	Calibrating Salt/Sand Spreaders Guidelines		T			In place, being followed
6.7	Recycling Refuse Program Guidelines		T			In place, being followed
6.8	Employee Training Program					NPDES Program Training provided for all DPW Staff April 23, 2008
6.9	Animal Solid Waste Secretion By-Law					By-law in place, enforced as needed
6.1O	Fertilizers/Pesticides Recommended Use Guidelines		I			Conforms to State guidelines / Child Protection Act
6.12	Identify Sensitive Waterway & Waterbodies		I			Field investigations, sampling and testing using Flow-Chart Method

WAKEFIELD, MA NPDES STORMWATER PHASE II PERMIT

ANNUAL REPORT COVERING MAY 2007 through APRIL 2008

SECTION III. ASSESSMENT OF PROGRESS TOWARD ACHIEVING MEASURABLE GOALS

PERMIT YEAR FIVE

BMP ID #	Task	Spring 07	Summer 07	Fall 07	Winter 07-08	ASSESSMENT OF PROGRESS TOWARD MEASURABLE GOALS
	Education / Materials					
1.4	Press Release (1/year)	x			x	Fifth year goal achieved
1.5	Public Works Newsletter Article	x		x		Fifth year goal achieved
1.6	Cable TV Program				x	Fifth year goal achieved
1.7	Fact Sheets	x				Fifth year goal achieved
	Event Education & Outreach					
1.11	Festival by the Lake	x				Held June 16, 2007 with citizen participation
1.12	FOLQ (Lake Cleanup)	x				Held May 5, 2007 with citizen participation
1.13	Library Date	x				Newsletter and material at Library late-spring into early summer 2007
1.14	Household Hazardous Waste Day (1/year)	x		x		Held May 19, 2007 and September 22, 2007
	Public Involvement & Participation					
2.1	FOLQ (Lake Clean up)	x				Held May 5, 2007 with citizen participation
2.2	Hazardous Waste Day (1/year)	x		x		Held May 19, 2007 and September 22, 2007
2.3	Citizens Volunteer Group					Fifth year goal achieved
	Steering Committee					
2.6	Bi-annual Mtgs (future years)			x	x	Held October 31, 2007, December 19, 2007 and March 6, 2008
2.7	Annual Town SW Forum/Workshop				x	Held April 24, 2008
	Distribute Educational Materials					
2.8	Newsletter Article (Annual)	x		x		Fifth year goal achieved
2.1O	Stream Maintenance Program (formerly Adopt-a-Stream Program)				x	Fifth year goal achieved
	Illicit Discharge Detection & Elimination					
3.2	Identify & Characterize Illicit Discharges					Fifth year goal achieved
3.3	Map Locations of Illicit Discharges					Fifth year goal achieved
3.4	Evaluate Impacts to Receiving Waters					Fifth year goal achieved
3.5	Ongoing Mapping of MS4s					Fifth year goal achieved
3.8	Additional Separate By-Laws					Storm Drain System Bylaw adopted at April 2008 Town Meeting
3.1O	Potential Funding Programs					Fifth year goal achieved
	Construction Site Runoff Control					

WAKEFIELD, MA NPDES STORMWATER PHASE II PERMIT

ANNUAL REPORT COVERING MAY 2007 through APRIL 2008

SECTION III. ASSESSMENT OF PROGRESS TOWARD ACHIEVING MEASURABLE GOALS

PERMIT YEAR FIVE

BMP ID #	Task	Spring 07	Summer 07	Fall 07	Winter 07-08	ASSESSMENT OF PROGRESS TOWARD MEASURABLE GOALS
4.5	Separate By-Law to Implement & Enforce					Storm Drain System Bylaw adopted at April 2008 Town Meeting
	Post-Construction Runoff Control					
5.4	By-Law to Implement & Enforce					Storm Drain System Bylaw adopted at April 2008 Town Meeting
	Pollution Prevention / Good Housekeeping					
6.1	Review Existing Practices, Guidelines & Training		D			Fifth year goal achieved
6.2	Catchbasin Cleaning Guidelines		T			Fifth year goal achieved
6.3	Street Sweeping Guidelines		T			Fifth year goal achieved
6.4	Maintain Streams & Channels Guidelines		T			Fifth year goal achieved
6.5	Calibrating Salt/Sand Spreaders Guidelines		T			Fifth year goal achieved
6.7	Recycling Refuse Program Guidelines		I			Fifth year goal achieved
6.8	Employee Training Program					Held April 23, 2008
6.9	Animal Solid Waste Secretion By-Law					Fifth year goal achieved
6.1O	Fertilizers/Pesticides Recommended Use		I			Fifth year goal achieved
6.12	Identify Sensitive Waterway & Waterbodies		I			Fifth year goal achieved

Town of Wakefield, MA
NPDES Phase II Stormwater Permit

Reference Information Collected

File: 0027

(Typical Document Types: Report/Study, Tech. Data, Form, Workbook, Guidelines, Fact Sheet, Instructions, Product Spec, Pamphlet, Poster, Article, List, Manual, Map, Letter, Memo, Email, Magazine, Video, CD, Seminar Material, Misc. Notes, Misc. Info)

	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
1	After The Storm (2 copies)		co-produced by the EPA & The Weather Channel	1/2 hours T.V. program about watersheds	Video	http://www.epa.gov/weatherchannel/announcement.htm	2/4/2004	1.6					
2	The Snout	Best Management Products, Inc. (T.J. Mullen, President)	BMP, Inc.	Oil-Water-Debris Separator, Affordable Stormwater Quality	Letter & Product Specs	www.bestmp.com						5.2	6.6
3	Stormwater Symposium - Phas II: How to DO it all (well almost)	Comprehensive Environmental, Inc.		Material distributed at symposium (Design guidelines and criteria for	3-Ring Folder	www.ceiengineers.com	3/24/2004		2.7				
4	Stormwater - The Journal for Surface Water Quality Professionals				Magazine	www.stormh2o.com	May/June 2004						6.1
5		Friends of Lake Quannapowitt		Letter to the Board of Selectmen regarding lake cleanup	Letter		3/16/2004		2.1	3.4			
6	Wakefield/ENV: Explanation & Analysis of Clean Water Act Section 303(d) Listing of Lake	RSS ?			Memo		11/1/2002			3.4			
7	Stormwater Management - Volume One: Stormwater Policy Handbook	DEP & MA Office of Coastal Zone Management			Manual		3/1/1997				4.1		
8	Stormwater Management - Volume Two Stormwater Technical Handbook	DEP & MA Office of Coastal Zone Management			Manual		3/1/1997				4.1		
9	Massachusetts Year 2002 Integrated List of Waters - Part 1: Context & Rationale for	Commonwealth of Massachusetts: Executive		Proposed Listing for Public Comment	Report		10/1/2002			3.4			
10	Massachusetts Year 2002 Integrated List of Waters - Part 2: Proposed Listing of Individual Categories of Waters	Commonwealth of Massachusetts: Executive Office of Environmental Affairs, MA DEP, Bureau of Resource Protection, Division of Watershed Management		Proposed Listing for Public Comment	Report		10/1/2002			3.4			
11	FINAL - Massachusetts Section 303(d) List of Waters, 1998	Commonwealth of Massachusetts: Executive Office of Environmental Affairs, MA DEP, Bureau of Resource Protection, Division of Watershed Management					February-99			3.4			
12	Lake Quannapowitt Bathymetrics				Map		None			3.4			
13	Stream Channel Reference Sites - An Illustrated Guide to Field Technique	Cheryl C. Harrelson, C.L. Rawlins & John P. Potyondy	U.S. Dept of Agriculture, Forest Service, Rocky Mountain Forest & Range Experiment Station	Document is a guide to establishing permanent reference site for gathering data about the physical characteristics of streams and rivers	Report		April-94		2.11				
14	(Report) "Ambient Water Quality Criteria for Chloride-1998", (monitoring data), (newspaper article) "Lake Quannapowitt is Getting Saltier", (newspaper article) "Salt Not So Great for Lake", (public record) Topical Applications of Copper Sulfate & Sodium Arsenite in Lake Quannapowitt, 1922-1964", (study) "Lake Quannapowitt Diagnostic/Feasibiilty Study Final Report July 1986", (data) "Lake Quannapowitt Elevations, Outflow, Inflow & Water Quality, (data) "Water-Quality Sampling of Ground Water from Private Wells in the Lake Quannapowitt Watershed", (data) "Lake Testing Data Reporting Sheet 2001", (article) "Arsenic & Old Weeds"	Doug Heath / EPA		Packet sent by Doug Heath	Various					3.4			
15	Is your property on the National Register of Historic Places?				List	http://www.wakefieldma.org/nationalregister.html		file 0027.0.4					

4/29/2008

Reference Information Collected

	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
16	Certified Professional in Erosion & Sediment Control - CPESC Exam Review Course Workbook	CPESC Council			Workbook		October-02				4.1		
17	Massachusetts Erosion & Sediment Control Guidelines for Urban & Suburban Areas, A Guide for Planners, Designers and Municipal Officials	MA DEP, Executive Office of Environ. Affairs, State Commission for Conservation of Soil, Water and Related Resources, Natural Resources Conservation Service U.S. Dept. of Agriculture	Franklin, Hampden, Hampshire Conservation Districts	Table of Contents Only	Guidelines		March-97				4.1		
18	DEP's Proposed Total Maximum Daily Loads (TMDL's) Strategy to Improve the Water Quality of Massachusetts Rivers and Lakes				Report					3.4			
19	NPDES Phase II Stormwater Regulations Compliance Assistance, Instructions for 5-Step Process to Facilitate Stormwater Management Program Planning			EPA BMPs	Instructions						4.1		
20	MA DEP website information (Stormwater, Industrial Wastewater, Watersheds, Chapter 91 Watersheds)	MA DEP		website print outs	Misc Info	http://www.mass.gov/dep/brp/stormwtr/stormpub.htm		1.2					
21	Stormwater Management Policy	MA DEP			Policy						4.1		
22	MA DEP - WPA Appendix C --Stormwater Management Form (MA Wetlands Protection Act M.G.L. c 131, Section 40)	MA DEP			Form						4.1		
23	MA DEP - BRP WM 08A NPDES Stormwater General Permit, Notice of Intent for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) / Permit Fact Sheet	MA DEP			Instructions								
24	National Pollutant Discharge Elimination System (NPDES) Phase II Rule	Thomas Hayes, P.E. (Wakefield Town Engineer)			Fact Sheet		3/14/2000	file 0027.0.1					
25	Bay Savers, Stormwater Quality Systems That Make Sense	Bay Saver		Technical And Design Manual	Folder	www.baysaver.com	10/2/2004				4.1	5.1	
26	Erosion Control Blankets and Mats	CONTECH			Folder,Pamphlets	www.armortec.com					4.1		
27	Stormwater Management	SYNTHETIC INDUSTRIES		Stormwater, Drainage and Erosion Prevention Reference guide	Three ring binder	www.fixsoil.com	6/22/1905				4.1	5.1	
28	Storm Water / Combined Sewer Overflow	CDS Technologies		Performance review,info packet,pollutant traps,Design examples	Three ring binder	www.cdstech.com	10/29/2002				4.1	5.1	
29	Stormwater Management	Hydro International	H.I.L Technology	Stormwater Management design catalog containing reference materials and design information	Three ring binder	hiltech@hil-tech.com	6/23/1905				4.1	5.1	
30	Phase II Up Date	Camp Dresser & McKee Inc	CDM	Phase II update. Improving water quality in Norwood	Three ring binder,		3/1/2001	file 0027.0.1					
31	Office Of Wastewater Management	EPA	Office of Wastewater Management	Stormwater Pollution , Guides, stormwater outreach materials	Folder	www.epa.gov/npdes/stormwater	9/1/2002			3.4			
32	EPA Info. NPDES Phase II Final Rule	NPDES	NPDES	Phase II final rule, Phase II fact sheets, Municipal Tech fact sheets	Three ring binder		12/8/1999	file 0027.0.1					
33	Phase II NPDES Stormwater Regulation Workshop	Comprehensive Environmental, Inc.	NPDES	Phase II Stormwater Regulation Workshop	Three ring binder			file 0027.0.1					
34	NPDES Stormwater Phase II Regulations	NPDES	Vanasse Hangen Brustlin,Inc	Phase II Stormwater Regulations. Presentation, fact sheets	Three ring binder			file 0027.0.1					

Reference Information Collected

	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
35		Christine Odiaga		Phase II General Info, Planning Structural Non-Structural BMP's. Overview of referance manuals	Three ring binder						4.1	5.1	
36	Plastic Septic and Stormwater Chambers	Cultec	Contactor and Recharger	Fabric Interface, Test method and Test results. Info about Plastic Leaching Chambers. Design tools CD	Three ring binder	www.cultec.com	6/25/1905				4.1	5.1	
37	The Complete Stormwater Treatment Solution	StormTreat Systems		Technology assessment report,. StormTreat Systems Price Sheet, Specification Sheet of StormTreat Tank. Pollutant Removal Effectiveness and Storm Water Technology Fact Sheet.	Folder	www.eco-cycle.com	September 1997-1999				4.1	5.1	
38	Stormdrain Solutions is Committed to Clean Water			A Better Solptotion For Treating Runoff.:...Details, Installation, Performance, And Inceptors Design,Report of Analysis and Certificate of Analysis	Folder		8/6/2003				4.1	5.1	
39	CONTECH Construction Products	Mark H. McCormick		CONTECH's Underground Stormwater Detention Systems software. Underground System Design Program User Manual and Tutorial, With Techical Commentary.	Packet (Downloads)	water-detention-system@contech-cpi.com					4.1	5.1	
40	Water Quality Structures and Systems		ADS	EPA Phase II Compliance. Helping you througth Phase II, Water quality units, Sediment Control, Nyloplast Catch it,Nyloplast Interal Hood, Hydro-Kleen Filtration System.	Pamphlet	www.ads-pipe.com	6/25/1905				4.1	5.1	
41	Storm Drain Filtrtion System DrainPac		New England Environmental Equipment	Document is a guide to establishing permanent reference site for gathering data about the physical characteristics of streams and rivers	Packet -CD		9/8/2000		2.11	3.4			
42	The Premium Water Application		PETRATECH	Geolink's premium design inhibits the transport of soil during the erosion process and help on the cos keep our waterways free from silt and hazardous pollutants. Design and research, Installation, Placement Techniques.	Booklet	www.petraflex.com	6/24/1905				4.1	5.1	
43	Erosion Control Service		Bark Tech Express	Erosion control. , Non-Vegetative uses of organic materials for soil erosion control,DEP information sheet.Organic soil mulches, Filter berms for sediments control, compost, rules of thumb	Folder						4.1	5.1	
44	Engineered for Excellence		EcreoFib	Stormwater management ,Erosion and dust control, New technology that is being applied to construction sites, that will eliminate sediment loss from rainfall and storm events and aid in dust control	Brochure	www.hydrograsstech.com	9/19/2001				4.1	5..1	
45	MODULAR GABION SYSTEMS		Erosion Control Specialists	Design guide for gabion retaining walls, Diaphragms,	Booklet	grmobile@aol.com					4.1	5.1	

Reference Information Collected

	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
46	ECO-Stone Permeable Pavement for Stormwater Managemeny		Ideal Concrete Block CO., INC	Guide yand research summar, Magazine on landscaping, Garden products, Concrete Pavers	Folder, Magazine	wwwidealconcreteblock.com	9/30/2003				4.1	5.1	
47	Storm Water Sampler Information		VORTOX	Instructions for the Assembly and installation of the VORTOX SAMPLER. City expands stormwater surveillance with in-pipe sampling device. Computer-monitored rain gauge	Sampler Package					3.4			
48	Hydrocarbon Test Kit For soil		PetroFlag	How to.. Comparison to laboratory Test Methods.Strategies, Test Methodology	Folder	www.DEXSIL.COM				3.4			
49	DEXSIL Accurate, Cost-Effective, Environmental		DEXSIL	How to.. Proforming field testing, Methods and Results. Quantitative test for water content. Chlorine in used oil. Used oil and PPM levels in waste water. On-site Lubricant test kits. Acid Number determination. Comparisons of ASTM Laboratory methods with titra-lube TBN and titra-lube Tan. Field Instrumentation, Environmental Laboratory Services.	Catalog	http://www.dexsil.com				3.4			
50	The global Authority in erosion control technology		North American Green	Global erosion control has never been more important or as advanced.North American Green is the leading product technology provider assisting engineers and contractors in complying with erosion and sediment control regulations. Throughtout this catolog is extended-term and long-term degradable Erosion Blankets in many designs and forms.	Catalog	www.nagreen.com					4.1	5.1	
51	Jensen Precast Stormvault Development and Monitoring 2003 Report	Steve Phelps	Storm Vault	Developing and Montoring Report 2003 . Idealize stormwater Mitigation System, Jensen Precast Stormvault Stormwater Mitigation System. Water Quality Capture Volume sizing, Mean Storm Sizing Methodolgy. Results in field testing. Also is included REFERNCES	Report	www.jensenprecast.com	6/24/1905			3.4	4.1	5.1	
52	Contact Directory, Making Every Drop Count	Debbra Strokes-Haglund DRiWATER,INC	DRiWATER	Erosion Control, Agriculture Replants, Mitigation, Revegetation, Reclamation, Award winning project.100-acre Mitigation Planting for Talega Development, Vineyard Planting.User guilde. Plant Detail for shrubs and trees.Testimonials	Report						4.1	5.1	

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	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
53	CONTECH , TENSAR Geogrides for Soil Reinforcement			TENSAR--- Economical, Efficient soil reinforcement .Increases soil stability, Performance options, proven performance, Slope management, Retaining wall options, Integrated foundation support system, soft soil solutions,Installation Guide, Tensar Biaxial Geogrid V.S. Geotextiles for Construction over soft soil. Provided in packet is a SAMPLE PIECE of TENSAR.	Folder						4.1	5.1	
54	ARMORTEC		CONTECH	Interlocking Concrete Structual Grid Pavement System interlocking concrete Erosion Control System, Concrete Erosion Protection, Artculating Concrete Block Revetment System, ArmorStone - ArmorFlex - ArmorWedge - ArmorTurf - ArmorLoc - Features, Functions, Textures, Design Guidelines, Installation Diagrams, A - Jacks , ARticulating Concrete Block Mat System..	Folder.Pamphlets	www.contect-cpi.com	2000-2002				4.1	5.1	
55	The Stormceptor System		CSR	Technical Manual ,Stormceptor - Applications, System Operation, Testing, Configuration of the Storm Drain System , Location in the Storm drain System, Technical Specifications, Design Parameters, Sizing Guidelines. Installation Procedures, Drawings and patent information	Catalog	www.csrstormceptor.com	10/1/2000				4.1	5.1	
56	Environmental Compliance Solutions		HYDRO COMPLIANCE MANAGEMENT, INC>	About HYDRO-KLEEN Storm Water Filtration System.. Tells about System.. Application Profile ,Analytical Test of Filtration System. Efficiency of System, Diagram, Specifications	Folder	www.hydrocompliance.com	10/22/2003				4.1	5.1	
57	Netting Trashtrap Systems		Fresh Creek Technologies, INC.	Cost-effective control of trash, floatables and solids in stormwater and combined sewer systems. Fact sheet, Modular prefabricated Design, Low operation and maintenance cost, Program and project details, Press Release, Diagrams,	catalog, pamphlets	www.freshcreek.com	7/2/2003			3.4	4.1	5.1	
58	OIL AND GREASE REMOVAL BY FLOATING SORBENT IN A CDS DEVICE	Michael K. Stenstorm Sim-Lin Lau	Civil and Environmental Engineering Department University of California, Los Angeles	Executive Summary, Introduction, Experimental Methods, Diagramss, Testing and the results, Fact sheets. Conclusions and recommendations, Appendix - Raw Data, Also included REFERENCES	Booklet		7/2/1998			3.4	4.1	5.1	6.6

Reference Information Collected

	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
59	Grassy Pavers		RK Manufacturing, INC.	Storm water management and green space compliance problem GRASSY PAVERS is all you need. Installation, diagrams	Packet,	www.rkmfg.com					4.1	5.1	
60	ULTRA TECH		ULTRA TECH international, INC.	Catalog of all there products	catalog	www.spillcontainment.com	2002-2003				4.1	5.1	6.6
61	Stormwater Management INC.			Treatment Solutions, Filter Media, The storm filter cartridge, Stormgate, Stormfilter	Folder	stowatermgt.com					4.1	5.1	
62	Invisible Structures		Invisible Structures,INC.	Invisible Structure Partner List, Grass Pave 2, Rain store 3, Slopetame 2, Draincore 2,	Info. Packet	www.invisiblestructures.com	8/4/2003				4.1	5.1	
63	Soil & Groundwater Sampling Technology Catalog		AMS	The world's finest Soil and groundwater Sampling Equipment	Catalog	www.ams-samplers.com	5/17/2001			3.4			
64	Total Stormwater Solutions		Vortechnics	Vortechs Systems, Coparisons, Product Perforance, Work Sheets	Booklet	vortechnics.com					4.1		6.6
65	Environmental Sampling Technology		EST	Reliable Field Services For the Environmental Industry	Pamphlet	www.environmentalsampling.com				3.4			
66	STABILATOR Erosion Prevention System		Water's Edge Technology, LLC	New Product Design For Erosion Control for , Streambank,/ Riverbank Stabilization, Bridge Pier, Channel Stabilization, slope Stabilization, Riverbed / Steambed Stabilization, Outfall Protection . Brochure on Installation, And Product Specifications;	Info. Packet	www.WatersEdgeTechnology.com			2.11		4.1		
67	Hickenbottom Inlet - Intake Products		Hickenbottom, INC.	General information for Installation inlet - Intake Products, Surface Inlets , Description & Uses, 8" intake Description and use , 10" , 12" , 5" , 6' , .. llet - Intake Capacity charts.	Folder					3.4			
68	Pollution Solution Sediments Control & Storm Drain Filtration		Pollution Solutions, INC.	Siltsifter , Effective & affordable solutions for a healthier environment , Product Price Sheet, Construction Phase , Controling Stormwater Pollution,	Folder		6/25/1905				4.1	5.1	
69	Pro Bark Incorporated			Silt Fence Replacement (Phase II Compliant) , Slope Sabilization , Filtrexx , Filtersoxx , Compost Filter Berms , Ditch Checks , Compost Product Performance	Folder	www.probark.com						4.1	5.1
70	Getting In Step		United States Environment Protection Agency	A video guide for conducting watershed outreach campaigns.	Video	www.epa.gov/ncepihom/index.htm	6/1/2003	1.1					
71	Engineering Stormwater Products		Vortechnics Inc.	Product Literature and Specifications, Technical Bulletins, Testing Data, and News and Reviews	3 Ring Binder	www.vortechnics.com	Revised: 07/2002					5.1	
72	Design Guidelines and Criteria for Stormwater Management	Comprehensive Environmental, Inc.		Design Criteria for communities, states, engineers, and other who are trying to minimize the impacts of stormwater management systems on the end users.	Booklet		11/1/2003				4.1	5.1	
73	EPA Storm Water Permit for Construction Projects	Abby Swaine	EPA	Resources: Massachusetts Edition	Newsletter		2/1/2004				4.1		

Reference Information Collected

	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
74	Portadam		Portadam Inc.	The Portadam concept utilizes a steel supporting structure with a continuous reinforced vinyl liner membrance to effectively provide a means of water division, retention or impoundment.	Booklet	www.portadam.com					4.1	5.1	
75	Aqua Dam: Water-Controlling Water		Aqua Dam	Stream diversions, flood control, hazardous waste containment, dams, prevention of levee overtopping, silt barriers and temporary water storage are just a few applications of Aqua Dams, an exciting new method of controlling water with water.	Literature	www.aquadam.com	7/31/2001				4.1	5.1	
76	Hydro-Solutions: Aqua Barrier		Hydro-Solutions Inc.	Aqua-Barriers are a patented water inflated damming device.	Booklet	www.hyrdologicalsolutions.com	6/24/1905				4.1	5.1	
77	Low Impact Development Design Strategies: An Integrated Design Approach	DES: Programs and Planning Division		Site Planning, Hydrology, Distributed IMP Technologies, Erosion and Sediment Control, Public Outreach	Literature		6/1/1999				4.1	5.1	
78	Polyflex: Reference Manual		Poly Flex: Polyethylene Geomembranes	An engineering approach to groundwater protection.	3 Ring Binder	www.poly-flex.com					4.1	5.1	
79	H.I.L Technology Inc.		H.I.L Technology Inc.	H.I.L Technology Inc. provides cost-effective solutions for controlling the quantity and improving the quality of water.	3 Ring Binder	hiltech@hil-tech.com	6/23/1905				4.1	5.1	
80	Rinker Materials: Product and Technical Information for Stormceptor		Rinker Materials	The Stormceptor is a stormwater separator the efficiently removes sediment and hydrocarbons from stormwater run-off, and stores the pollutant for safe and easy removal. The versatile Stormceptor product line consists of In-Line, Inlet, Series and Submerged desgins. Unit sizes range from the 450 gallon Inlet Stormceptor to the 16, 000 gallon Series Stormceptor.	3 Ring Binder and CD	www.rinkerstormcepter.com	8/1/2003					5.1	
81	Product Design Manual		Stormwater Management Inc.	Stormwater Management is the leading provider of innovative, long-term, stormwater treatment products the help engineers, develops, contractors, and jurisdictional authorities keep our waterways clean.	3 Ring Binder	www.stormwaterinc.com	4/1/2002					5.1	
82	The Infiltrator Chamber Systems: Technical Manual		Inflitrator Systems Inc.	The engineer can use units combined with stone for shallow or deep systems that meet any requirement for storage and treatment, require no heavy equipment except a backhoe for installation, and are highly cost effective.	3 Ring Binder		1/1/1994					5.1	
83	HMI: Hydro-Seeding and Erosion Control Products Equipment and Acessories		HMI	See Title	Folder	www.hmi-mfg.com					4.1	5.1	

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	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
84	Sediment Control Solutions for All Stormwater Systems and Dewatering Projects		Dandy Products Inc.	The Dandy Bag, The Beaver Dam, The True Dam, The Dandy Dewatering Bag, The Dandy Pipe Sock	Folder	www.dandyproducts.com	4/9/2001				4.1	5.1	
85	Geosystems for Soil Containment	TC Mirafi		Geotubes, Geocontainers, and Geobags	Folder	www.tcmirafi.com					4.1	5.1	
86	GreenfiX America: "Doing What Comes Naturally"		GreenfiX America	Services, Products, Testing and Properties, Product Selection Guidelines, Installation Instructions	Folder	www.greenfix.com					4.1	5.1	
87	How to Create a Stormwater Utility!	City of Chicopee: Pioneer Valley Planning Commission	MASS DEP	Stormwater utilities are proven effective mechanisms for generating revenue to manage stormwater.	Folder			file 0027.0.3					
88	Storm Vault		Jensen Precast	The innovative design of the Stormvault out performs traditional stormwater treatment units which demonstrate various deficiencies in removing pollutants and slowing runoff velocities.	Folder	www.stormvault.com, www.jensenprecast.com	8/3/2003				4.1	5.1	
89	Kristar: Fossil Filter FloGard- Storm Water Filtration System		Kristar	Protects drains against storm water runoff pollution from silt, debris, oils and grease, with FloGard catch basin inserts.	Folder	www.kristar.com					4.1	5.1	6.2
90	River Morph: Stream Restoration Software		RIVERMorph LLC	The revolutionary new stream assessment and restoration software that significantly reduces your calculation time.	CD	www.rivermorph.com	8/17/2002			3.4			
91	das Curb Marker		das Manufacturing Incorporated	The das Curb Marker is used to permanently mark a variety of underground equipment locations including cable routes, valves, test stations, and road crossings.	Literature	www.dasmanufacturing.com	6/4/2004			2.3			
92	Blue Folder: "Drop-In-Drain-Inceptor"		Robert's Design Inc.	Can be manufactured to fit any basin dimension. Curvature of the S/S frame sheds debris, which negates clogging. Suspension hardware will not impact tires or snowplows. Pillow absorption is unaffected by winter conditions.	Blue Folder	www.stormdrains.com	11/28/2000				4.1	5.1	6.2
93	Pyramat		Synthetic Industries/ Geosynthetic Products Division	High Performance Turf Reinforcement Mat	Booklet	www.fixsoil.com					4.1	5.1	
94	Environmental Data Resources, Inc.		Environmental Data Resources, Inc.	Quality environmental information, state-of-the-art technology, and world class customer service.	Folder	www.edrnet.com				3.4			
95	Consultants		Various	Provides services throughout the Commonwealth related to wet land delineations.	Folder	Various	11/7/2002				4.1		

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96	Total Stormwater Solutions: Committed to Clean Water- Vortechs System		Vortechnics	Vortechs Systems are custom designed and sized to meet specific water quality objectives; precast modelsare available to treat flow rate from 1.6 cfs to 25 cfs. Larger design storms are treated using Vortechs Systems that are constructed on site using cast-in-place concrete structures.	Booklet	www.vortechnics.com					4.1	5.1	
97	PetroFlag: To Quantitative Field Test Method For Total Petroleum Hydrocarbons in Soil		Dexsil Corporation	This unique method allows the user to quantify total hydrocarbons in soil from 2000 ppm to above 20,000 ppm while using a 10 gram sample. This method allows for quantification of all hydrocarbons in soil, onsite, without the use of Freon or other chlorinated solvents.	Piece of Paper	www.dexsil.com				3.4			
99	*Land and Water*: The Magazine of Natural Resource Management and Resoration		Land and Water	Addressing Phase II NPDES: Problems Before They Become a Headache	Magazine		May/June 2002	file 0027.0.1					
100	Wetlands Protection Act- Regulations 310 CMR 10 00		MASS DEP	Relating to the Definition of "Extended Drought" and Distinguishing "Perennial Rivers" From "Intermittent Streams"	Literature		May 12 2000			3.4			
101	Measureable Goals Guidance For Phase II Small MS4s		EPA	Background and Regulatory Context, Process for Developing Measurable Goals, Examples of BMPs and Associated Measureable Goals, Process for Developing a Storm Water Management Program, and Environmental Indicators.	Literature			file 0027.0.1					
102	Illicit Discharge Detection and Elimination Manual: A Handbook for Municipalities		New England Interstate Water Pollution Control Commission	See Title	Booklet	www.neiwpcc.org	1/1/2003			3.1			
104	NPDES Storm Water General Permit Number: MAR041065	U.S. Environmental Protection Agency		The letter summarizes the key topics we discussed and provides comments and recommendations concerning the implrementation of your SWMP.	Letter	www.epa.gov/region1	9/15/2004	File 0027.0.1					
105	Global Positioning System Coordinates of Lake Quannapowitt Stormdrains, Wakefield, MA	Douglass Heath	Friends of Lake Quannapowitt	Stormdrain ID numbers correspond to those assigned by camp, Dresser McKee Inc, on a map and table published in the August 17, 1989 Wakefield Daily Item.	Piece of Paper		3/14/2001			3.5			
106	Keeping Soil in Its Place: Article 55		Stormwater Center	Sediment Removal Efficiency of Surficial Erosion Controls	Article	www.stormwatercenter.net/Library/Practice_Articles.htm					4.1	5.1	
107	Strengthening Silt Fence: Article 56		Stormwater Center	A Summary of Recent Performance Monitoring of Silt Fences	Article	www.stormwatercenter.net/Library/Practice_Articles.htm					4.1		

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108	Managing the Earth For Environmental and Financial Success		Stormwater Management	Need to have an open exchange about how we can meet environmental goals while addressing the financial and liability concerns of the contruction industry.	Article		March/April 2002	File 0027.0.1					
109	Industrial Wastewater		Mass. Gov	Massachusetts Surface Water Quality Standards	Literature	www.mass.gov	7/1/2001			3.4			
110	Spill Reporting Telephone Number Change MWRA Permit # 33101397		Massachusetts Water Resources Authority	(MWRA) has changed the telephone number for contacting.	Memo		11/52003						6.6
112	EPA Environmental Education: Role of Plants in Water Filtration		EPA	Experiments can be done to show how a plume of dissolved materials can move through soil and enter a groundwater aquifer.	Childrens Literature			1.1					
113	Excuse Me, Is this the Way to the Drainpipe?	Ellen Frye		Explain where drinking water comes from and where wastewater goes once it leaves the homes. Explain how the water we use fits into the water cycle.	Childrens Literature			1.1					
114	Case Studies: The Residential Conservation Assistance Program (ReCAP)		Product of Canada	(ReCAP) provided a free home visit service to the residents of Oshawa, Ontario, aimed at helping householders reduce their use of energy and water and improve their 3Rs practices.	Internet Literature	www.toolsofchange.com	5/26/2004	1.1					
115	Make Less Waste: How you can help the Environment!	Tara Shade, Vanessa Hinkle	OhioEPA	Childrens Literature/Coloring Book	Childrens Literature/Coloring Book	www.epa.state.oh.us		1.1					
116	The Happy Earth Day: Coloring and Activities Book		United States Environment Protection Agency	See Title	Childrens Coloring Book		4/1/1990	1.1					
117	Canadian Pollution Prevention Information Clearinghouse-Cool Sites		Product of Canada	Listing of "cool" sites for kids.	Internet Literature	www.ec.gc.ca/cppic/youth/en/coolsite.efm	5/26/2004	1.1					
118	Community-Based Social Marketing	Doug McKenzie-Mohr Ph.D		When members of a community use resources wisely, for example by recycling or taking mass transit, a community moves toward substainability.	Quick Reference	www.cbsm.com		1.1					
119	NPDES Stormwater Phase II Permit- Annual Report Permit Year One		Wakefield DEP	Annual Report Permit: Year One	Literature		4/27/2004	File 0027.0.2					
120	NPDES Report Generation Flowchart	Joe LoBuglio	ENQUAD	See Title	Literature		1/10/2001	File 0027.0.2					
121	Town of Wakefield- 1st Annual Forum: NPDES Stormwater Phase II Permit		Town of Wakefield	See Title	Literature		8/30/2004		2.7				
122	Stormwater Management Program Summary-Outline to DEP		Town of Wakefield	See Title	Outline		7/1/2003	File 0027.0.1					
123	Sir Speedy Bill		Sir Speedy	For Posters	Bill	paolini2@primushost.com	10/4/2004	1.1					
124	New Federal Requirements Letter		United States Environment Protection Agency	New federal requirements dealing with stormwater and construction activity.	Letter	www.epa.gov/region1	3/1/2004				4.1	5.1	
125	Outfall Reconnaissance Survey and Source Identification		United States Environment Protection Agency: NE Regional Laboratory	Slide show presentation.	Power Point Presentation					3.3			
126	Sonar: An Effective Herbicide That Poses Negligible Risk To Human Health and the Environment		Aquatic Control Technology Inc.	Humans who are exposed to Sonar-treated water are at negligible risk.	Booklets	www.aquaticcontroltech.com	7/30/2003						6.1
127	GeoPerm instead of EcoAegis		HydroGrass Technologies Inc.	The most cost-effective erosion control protection on the market today!	E-mail/ Internet Literature	www.hyrdrograsstech.com	11/25/2003				4.1	5.1	

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128	Putting Wetlands to Work		Environmental Protection: Aero Tec Laboratories Inc.	Natural and constructed wetlands are being used to treat successfully a broad range of industrial and municipal wastewater.	Literature	www.pillowtanks.com	4/9/2004				4.1	5.1	
129	Town of Wakefield: Household Hazardous Waste Day		Town of Wakefield	Household Hazardous Waste Day	Newsletter		3/15/2004	1.14					
130	"After The Storm" video to be shown on WCAT		Town of Wakefield: D.P.W.	"After The Storm" is a 22 minute long television program currently being shown on the Weather Channel.	Memo	www.epa.gov/weatherchannel	8/30/2004	1.6					
131	Town of Wakefield Lake Quannapowitt Filter Berm-First Draft		Town of Wakefield: D.P.W.	The filter berm will be cleaned each spring prior to May 31st and each fall prior to October 31st. All weeds and debris will be removed. The top layer of sand will be scraped of debris. The structure will be repaired as needed. Sand will be added to insure the proper operation of the filter berm.	Memo		8/18/2004						6.4
132	2002-2003: The Year of Clean Water- Stormwater Month Outreach Materials and Reference Documents		U.S. Environmental Protection Agency	Stormwater Month Outreach Materials and Reference Documents	Literature	www.stormwatermonth.html	4/26/2004	1.1					
133	Community Based Approaches: Massachusetts		U.S. Environmental Protection Agency	Urban Environmental Program, Buzzards Bay, Charles River, Massachusetts Bay, Rumney Marsh, Woonasquatucket and Blackstone Rivers, Northern New England Rail Action Project.	Internet Literature		5/26/2004	0027.0.1					
134	Storm Filter		Cultec Inc.	Stormfilter is designed to be an in-line filter system that effectively removes many of the smaller particles not eliminated during the pretreatment process performed by conventional structures.	Literature	www.cultec.com	1/1/2003				4.1	5.1	
135	Sediment Control & Storm Drain Filtration: Product Catalog		Pollution Solutions, INC.	Provides economical and effective solutions to counter the negative impact on the environment that occurs thorugh land development as well as unavoidable natural events.	Booklet	www.psiyes.com	Summer-Fall 2003				4.1	5.1	
136	Draft NPDES Phase II Stormwater Permit Submittal		Town of Wakefield D.P.W.	The NPDES permit submittal prepared for submittal by the end of this month.	Permit		7/17/2003	0027.0.1					
137	Haz Mat- Pollution Control Response Trailer		Town of Wakefield	It is a 14' Car Mate cargo trailer and is loaded with absorbant material. It is designed for the fire department to CONTROL a large petroleum product spill.	E-mail/Picture		8/20/2004						6.6
138	Water Detention/Recharge Systems		Contech Construction Products Inc.	Innovative civil engineering solutions	Booklet	www.contech-cpi.com	1/1/2001				4.1	5.1	
139	CDS Stops Storm Water Pollution: Before vs. After		CDS Technologies	CDS is the most effective system for the sustainable removal and retention of suspended solids and floatables from storm water.	Booklet	www.cdstech.com	4/11/2001				4.1	5.1	

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140	Diversion of Dry Weather Flows: Protects Our Beaches and Oceans From Harmful Urcan Pollutants.		CDS Technologies	CDS technologies has added a unique feature to its highly successful Continuous Deflective Separation (CDS) technology that will filter and divert dry weather nuisance flows from storm drains to sanitary sewer systems.	Booklet	www.cdstech.com					4.1	5.1	
141	Fine Solids Separator		CDS Technologies	Solids Removal, Applications, Testing Results, CDS Advantages	Literature	www.cdstech.com					4.1	5.1	
142	NPDES Stormwater General Permit Number: MAR041065		U.S. Environmental Protection Agency	See Title	Letter	www.epa.gov/region1	9/15/2004	0027.0.1					
143	Catch Basin Alternative Reduces Cost of Stormwater Treatment	Janice Kaspersen		It uses the natural motion of water to screen and trap pollutants.	Newsletter	www.cdstech.com	May-June 2000				4.1	5.1	
144	NPDES Stormwater Phase II Permit- 2004 Annual Report		Town of Wakefield D.P.W.	Enclosed is the Annual Report covering the period thorugh April 30, 004. The submittal is in accordance with the (EPA)'s NPDES Stormwater Phase II Regulations and the Mass DEP requirements.	Literature		4/30/2004	0027.0.2					
145	Water Trivia Facts		U.S. Environmental Protection Agency	Trivia	Literature		4/1/1995	1.1					
146	Bare Ground Solution Anti-Snow/De-Ice		Bare Ground Solution	Prevent snow and ice from adhering to the pavement for 10-14 days because of residual reactivation effect.	Literature	burnetts@technobrands.com	1/1/1998				4.1	5.1	6.5
147	Triangular Silt Dike Barrier		Triangular Silt Dike Co. Inc.	This barrier is a positive solution to many construction site drainage and erosion problems.	Literature	www.tri-siltdike.com					4.1		
148	Permanent Turf Reinforcement Mats		Western Excelsior Corporation	Stitched Erosion Control Blankets & Turf Reinforcement Mats: Excelsior, Straw, Coconut/Straw, 100% Coconut, Geo-Composites, 100% Synthetic	Booklet	westernexcelsior@fone.net					4.1	5.1	
149	DriWater Time-Release Water: Gel Products and Hydro Mix Tackifier		DriWater	DriWater will improve the results and reduce the costs of your project.	Literature	www.driwater.com	8/3/2000				4.1	5.1	
150	GroLife: Mycorrhizal Inoculum/Soil Conditioner		GroLife	It is a natural product that contains various types of mycorrhizal fungi with an organic soil conditioner. GroLife is effective in any type of soil, helping to create a healthy beneficial environment for plants.	Booklet	www.grolife.com					4.1	5.1	
151	Curlex: Silt Trap		American Excelsior Company: Earth Science Division	Excelsior Buffer Strip to Capture Sediment Before it Washes off Job Site.	Booklet	www.curlex.com					4.1		
152	Wakefield Works: Municipal Stormwater Management Program		Wakefield D.P.W.	Lawn Care, Septic Systems, Pet Waste, Residential Landscaping, and Commercial Facilities.	Newsletter		Spring 2004	1.1					
153	EnviroBerm: Runoff Control System		Cascade Geotechnical Inc.	Replaces strawbales and rock ditch checks.	Literature	www.cascade.ab.ca					4.1	5.1	
154	Silt-Saver: A better way to a Cleaner Environment		Silt-Saver	Its fail-safe design features ease of installation and allows you to exceed existing and pending "Best Management Practices" and physically protect the job site with one revolutionary device.	Booklet	www.siltsaver.com					4.1		

Reference Information Collected

	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
155	High Performance Turf Reinforcement Mat		Pyramat: Earthstopping Solutions	Site Prepartion, Seeding, Placement: Banks and Slopes, Placement: Channels, Ground Anchoring Devices, Anchor Pattern Guide, Soil Filling.	Booklet	www.fixsoil.com					4.1		
156	Curlex I: The Industry Standard for Most Slope & Channel Protection Needs		Curlex	It is an erosion control blanket combining their unique, barbed Curlex fiber and a top layer of polypropylene netting.	Literature	www.curlex.com					4.1		
157	Introduction to Community-Based Social Marketing	Doug McKenzie-Mohr Ph.D	St. Thomas University	When members of a community adopt healthy habits the community becomes a healthier one. When members use resources wisely the community moves towards sustainability.	Internet Literature	www.toolsofchange.com	5/26/2004	1.1					
158	Drinking Water Bloopers: Embarrassing moments in the life of a water drinker.		U.S. Environmental Protection Agency	Waiting a week to fix a leak. Taking a shortcut and using the hot water tap when cooking. Slipping used motor oil into a storm sewer or burying it in the trash. Tossing toxics in the trash. Watering your lawn at high noon. Using your garbage disposal all the time.	Internet Literature	www.epa.gov/OGWDW/kids/bloopers.html	5/26/2004	1.1					6.1
159	Stormceptor: The Leader In Stormwater Quality Treatment		CSR	Research and Testing, Patented Design and Operation, Lower Life-Cycle Costs, Ease of Maintenance, Pretreatment, and Experience in Manufacturing	Folder	www.csrstormceptor.com	3/22/2001				4.1	5.1	
160	Nonpoint Source Pollution (NPS) Word Search: Kids Word Search		EPA	Childrens Word Search	Internet Word Search	www.epa.gov/owow/nps/kids/word.html	5/26/2004	1.1					
161	Engineered Products for Stormwater Treatment		Vortechnics	It is a highly efficient technology for removal of floating pollutants and settleable solids from surface runoff.	Booklet	www.vortechnics.com						5.1	
162	WrapidSeal Manhole Encapsulation System		CCI Pipeline Services	WrapidSeal's unique heat-shrinkable characteristics are based upon thirty-five years of plastics engineering, as well as sealant and coatings technology developed by Canusa-CPS for the gas and oil pipeline transmission industry.	Letter	ccipipe@earthlink.net	10/3/2003					5.1	6.1
163	Dirtbag: Pumped Sediment Removal System		SI Geosolutions	Whenever accumulated water must be pumped!	Booklet	www.sigeosolutions.com					4.1		6.2
164	Wakefield Rainfall Information for NPDES		Town of Wakefield D.P.W.	Information on rainfall: average annual rainfall, maximum annual rainfall, and minimum annual rainafall.	Letter		1/30/2004	0027.0.1					
165	Landlok Report-An Erosion Control Case Study From Synthetic Industries:Pyramat High Performance TRM Enhances Stormwater Management in Channels		Synthetic Industries/ Geosynthetic Products Division	Pyramat High Performance TRM Enhances Stormwater Management in Channels	Booklet	www.fixsoil.com							6.4
166	Continuous Deflective Separation (CDS) - Treatment of Storm Water Runoff		CDS Technologies	(CDS) technology is a non-blocking, non-mechanical screening process uniquely suited to treat storm water runoff.	Letter	www.cdstech.com	9/24/2003					5.1	

Reference Information Collected

	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
167	Straw Wattles: Erosion Control, Stormwater Runoff Control		California Straw Works	A solution to erosion and sediment control.	Literature	www.strawwattles.com					4.1		
168	Protecting Your Hardscape and Landscape Investments		Bio Barrier	Biobarrier Root Control System protects your hardscapes and landscapes from damage caused by tree and shrub root intrusion.	Booklet	www.reemay.com					4.1	5.1	6.1
169	AgroSolutions: Are you concerned about the environmental impact of your erosion control products?		Cognis	Terra-Control Soil Stabilizer: Environmentally Favorable Erosion Control with Polyvinyl Acetate	Folder						4.1	5.1	6.1
170	Curlex Enforcer, RoadRunner, Silt Trap, Curlex III, Sediment Log		American Excelsior Company: Earth Science Division	Bio-Composite Soil Reinforcement For Long-Term Protection Against Erosion	Packet	www.curlex.com					4.1	5.1	
171	Meeting Regulatory Requirements for Stormwater Pollution Control		BaySaver Inc.	The BaySaver Separation System removes free oils, suspended solids and floating debris from stormwater runoff.	Packet	www.BaySaver.com	2/15/2002				4.1	5.1	
172	An Order of Environmental Publications		U.S. Environmental Protection Agency (NSCEP)	See Title	Packet	www.epa.gov/ncepihom/ordering.html	3/29/2004	1.1					
173	Control of Oil and Grease In Stormwater Runoff		CDS Technologies	Oil and Grease Capture and Removal Efficiencies of CDS Stormwater Treatment Units	Piece of Paper	www.cdstech.com					4.1	5.1	6.6
174	Geosynthetic Products		Dust Pro Inc.	Geo Textiles, Geo Grids, Geo Cells, Drainage Products, Installation, Erosion Control Blankets, Liquid Stabilizer, Plastic Barrier Fence, Geo Membranes, and Consulting	Piece of Paper	www.dustpro.com					4.1	5.1	
175	Dura-Drain Models P8 & P6: Area Drains-Flexibility of Plastic and Durability of Concrete		Kristar	The Dura-Drain Model P8 or P6 Area Drain is packed with features that make it the obvious solution to your construction project.	Booklet	www.kristar.com					4.1		
176	DPW Newsletter (Spring 2004)		Town of Wakefield D.P.W.	The project information below is the Engineering Division's listing of known NPDES Phase II Stormwater Permit work that has occurred in the last 9-months.	Letter		3/10/2004	1.1					
177	What you can do to prevent NPS pollution.		U.S. Environmental Protection Agency	Urban Stormwater Runoff, Mining, Forestry, Agriculture.	Internet Literature	www.era.gov/owow/nps/whatudo.html	5/26/2004				4.1	5.1	
178	Quick Grass Green-Woof Excelsior Erosion Control Blanket		American Excelsior Company: Earth Science Division	Prevent erosion, assist in germination and protect seedlings with Quick Grass.	Booklet	www.curlex.com					4.1	5.1	
179	Curlex Excelsior Blankets		American Excelsior Company: Earth Science Division	Curlex blankets also have a natural "mechanical" action, by its ability to expand and contract during weather conditions.	Booklet	www.curlex.com					4.1	5.1	
180	Draft Npdes General Permit for Storm Water Discharges from regulated small Municipal Separate Storm Sewer Systems (MS4s)		U. S. Environmental Protection Agency	Fact Sheet and Supplemental Information	Booklet		9/30/2002	0027.0.1					
181	United States Court of Appeals for the Ninth Circuit Volume 1 of 2		Environmental Defense Center v. EPA	Petitioners challenge a rule issued by the United States Environmental Protection Agency pursuant to the Clean Water Act, 33 U. S. C. 1251-1387, to control pollutants introduced into the nation's water by storm sewers.	Booklet		filed january 14, 2003	0027.0.1					

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	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
182	Smart Growth for Clean Water		The Trust for Public Land	Helping communities Address the Water Quality Impacts of Sprawl	Booklet	www.tpl.org	1/1/2003			3.7			
183	Pollution Prevention at Municipal DPWs OTA Fact Sheet		Mass Office at Technical Assistance	The fact sheet higlights some of the simple pollution prevention practices specifically for DPWs to integrate into their daily routine that will improve worker safety and protect the environment.	Fact Sheet	www.mass.gov/ota							6.1
184	Storm Water Permit Basics		Abby Swaine, EPA	The Federal (EPA) Storm Water Permit for Large & Small Construction Projects	Literature	swaine.abby@epa.gov					4.1	5.1	
185	Oil Absorbent pillow		SI Geosolutions	Removes Oil & Grease from Water	Brochure	www.sigeosolutions.com					4.1	5.1	6.6
186	Gutterbuddy		SI Geosolutions	Curb Gutter Storm Drains	Brochure	www.sigeosolutions.com						5.1	
187	Siltsack		SI Geosolutions	Catch Basin Sediment apture Device-Keeping cath basins free of silt	Brochure	www.sigeosolutions.com					4.1	5.1	
188	Grassy Pavers		RK Manufacturing, INC.	They harmoniously blend your architecture into the landscape in an attractive, functional and environmentally responsible way.	Brochure and Literature	www.rkmfg.com						5.1	
189	Geolink		Petratech	premium design inhibits the transport of soil during the erosion process and helps keep our waterway free from silt and hazardous pollutants	Booklet						4.1	5.1	
190	Tri-lock Articulated Erosion Control System		American Excelsoir Company	The Tri-Lock erosion control system	Brochure	www.curlex.com					4.1	5.1	
191	Petraflex		Petratech, Inc	Articulated Concrete Revetment System	Brochure						4.1	5.1	
192	Aqua Barrier Dimensions and Accessories		Hydro Solutions Inc	equipped with 3 in id, industrial grade, threaded fill parts,, fill parts are installed in pairs located 10 ft from each end of the barrier.	Brochure	www.hydrologicalsolutions.com					4.1	5.1	
193	Superior Dam			fast installations for flood control. Water diversion and containment, dewatering. Cofferdams. Ground water recharge, sediment traps, and many other uses	Brochure						4.1	5.1	6.6
194	The Slammer		Alpine Stomwater management company	Provides an appliance that will help make your projects NPDES permit compliant. Slammers are DOT approvd alternatives in may state and are easy to specify	Brochure						4.1	5.1	
195	Airtrol			General Specifications for erosion Control	Literature						4.1	5.1	
196	Biostorm treatment systems		Bio-Microbics Inc	Bio Storm pre engineered design removes trash, sediment, oil and other pollutants from Stormwater flows. The unique off line design consists of a patented sani TEE self cleaning feflector screen and a modular separation/coalescing unit, all housed in readily available precast concrete tanks	Literature	www.biomicrobics.com					4.1	5.1	
197	Fibrelog/Plantlog, Prairielog, plant blanket, plant basket		Banksaver	Erosion/sediment control and re-vegetation with a masterful array of the highest quality	Brochure	www.kingfibre.com					4.1	5.1	

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	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
198	Conwed Fibers		Profile Products LLC	Accessory Products	Brochure	www.comwedfibers.com					4.1	5.1	
199	Waterlogs		Maccaferri Gabions, Inc		Literature	www.maccaferri-usa.com					4.1	5.1	
200	GeoHay Temporary Sediment-Erosion Control		Mary Ann Industries	GeoHay is completely recyclable, readily available, and will not decompose. GeoHay is strong, durable, and an excellent temporary sediment and erosion control device.	Brochure						4.1	5.1	6.6
201	Gro Power Commerical Product Line		Gro Power Inc.	The following information is provided to introduce you to the quality components that are included in all Gro-Power Products.	Booklet	www.gropower.com					4.1	5.1	
202	Agresource- The Source For Compost: The Agresource Dispatch		Agresource Inc.	Artificial Wetland is Created Using Agresoil Compost	Packet	www.agresource.com	Fall 2002				4.1	5.1	
203	SEPA Nature's best: Erosion Control		SEPA Exports	To facilitate the removal of water from the soft subsoil region, for rapid consolidation we have designed a breakthrough system called the Vertical Fibre Drain, which is a 100% natural, bio-degradable and environmentally friendly product.	Brochure	sepa@sltnet.lk					4.1	5.1	
204	Subject: Cyber Rain Gauge and automatic stormwater samplers		Durham Geo Slope Indicator	Wireless gauge posts rainfall data to web site in near-real time. Ideal for storm water management.	Packet	www.StormwaterSamplers.com	8/4/2003			3.4			
205	Ameri-Fibers By Mat, Inc.		Mat. Inc.	Corn Fiber Mulch With Added Tackifier For Hydraulic Planting	Packet	www.soilguard.com					4.1	5.1	
206	EcoAegis Bonded Fiber Matrix: When and Where a Bonded Fiber Matrix Should Be Specified		Fiber Marketing International Inc.	A bonded fiber matrix is a versatile erosion control material that can offer a cost-effective way to keep soils on slopes in a variety of situations.	Packet	www.canforpfd.com					4.1	5.1	
207	SureTurf Seeded Mats		SureTurf	A lot of turf professionals won't be doing the same old, same old again this year.	Booklet	www.eagleonegolf.com					4.1	5.1	
208	Dust Pro Inc: Solutions for stabilizing your environment into the next Millenium.		Dust Pro Inc.	Dust Suppressants, Soil Stabilization, Erosion Control, Hydroseeding, Soil Conditioning	Packet	www.dustpro.com					4.1	5.1	
209	Excel Fibermulch II with Tackifier		American Excelsior Company: Earth Science Division	You can now be assured of a high quality mulch to provide trouble-free applications.	Sheet	www.curlex.com					4.1	5.1	
210	Geotextile: Coco Fibre Products		Islandwide Suppliers Limited	Ideal to protect embankments of waterways etc., against earth slips is most suitable for plant growth along the banks enabling long term erosion control and bank stabilization.	Booklet						4.1	5.1	
211	Contech: Erosion Control Products- Innovative Civil Engineering Solutions		Contech Construction Products Inc.	Contech offers a complete line of biodegradable erosion control fiber blankets and permanent geosynthetic turf reinforcement mats.	Booklet	www.contech-cpi.com					4.1	5.1	
212	Geocoir DeKowe: 100% Natural Erosion Control Landscape and Engineering Products		Belton Industries Inc.	Stabilization Fencing System	Booklet	www.beltonindustries.com					4.1	5.1	
213	Anti-Wash/Geojute Natural Erosion Control Fabric		Belton Industries Inc.	Anti-Wash/Geojute Is The Natural For Tough Erosion Control.	Booklet	www.beltonindustries.com					4.1	5.1	

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214	Xcel CC-4 100% Coconut Mat		Western Excelsior Corporation	Stitched Erosion Control Blankets & Turf Reinforcement Mats: Excelsior, Straw, Coconut/Straw, 100% Coconut, Geo-Composites, 100% Synthetic	Booklet & Mat	www.westernexcelsior@fone.net					4.1	5.1	
215	Town of Wakefield, MA: Catch Basin Cleaning		Town of Wakefield, Engineering Division	Catch Basin Cleaning	Map		6/11/2004						6.2
216	Meeting Notes		Micheal Collins	Various Meeting Notes	Collection of Notes			0027.0.1					
217	Stormwater and the Construction Industry		EPA	Maintain Your BMPs!!!	Poster	www.epa.gov/npdes/menuofbmps		1.3					
218	StormTreat Systems: The Complete Stormwater Treatment Solution		StormTreat Systems Inc.	Complies with Water Quality Standards, Saves Space, Cost Effective, Low Maintenance	Sheet	www.eco-cycle.com	1/1/1999				4.1	5.1	
219	Keep Wakefield's Ponds, Rivers & Brooks Clean!		Town of Wakefield, Department of Public Works	Wakefield Municipal Stormwater Management Program (SWMP)	Flier		8/20/2004	1.1					
220	Airtrol: It's more than erosion control. It's "Erosion Prevention."		United States Gypsum Company	Airtrol Geobinder is a low cost, cementitious binder which, when mixed with water and mulch, sets in a controlled, predictable way to form an erosion-resistant crust.	Booklet		01/0/1/1997				4.1	5.1	
221	EarthBound: Soil Stabilizer and Mulch Tackifier		Frontier Environmental Technologies, LLC	EarthBound is specifically formulated to stabilize soil structure and to hold mulch in place.	Brochure	erosion_solutions@msn.com					4.1	5.1	
222	EarthGuard Erosion Control Polymer		terra novo INC.	EarthGuard is specifically designed to dramatically reduce erosion and silt pollution caused by rain and wind.	Brochure	www.terranovo.com					4.1	5.1	
223	Conwed Fibers: Creating Innovative Revegetation Solutions For Over 35 Years		Conwed Fibers: PROFILE Products LLC	Conwed Fibers products lead the industry in innovation, quality and performance. It is through our vast knowledge and product depth, that we offer unparalleled solutions to agronomic challenges in the erosion/revegetation market.	Booklet	www.conwedfibers.com					4.1	5.1	
224	To: Cities & Towns in MS4 Program		DEP	To improve these conditions, the Stormwater Phase 2 permit program has been designed to be implemented at the local level over time, using a variety of approaches to manage storm water and reduce contaminants associated with storm water.	Letter	www.state.ma.us/dep	4/12/2004	0027.0.1					
225	CDS Technologies Purple CD		CDS Technologies		Little CD	www.cdstech.com	1/1/2002				4.1	5.1	
226	Come Rain, We Shine CD		Stormwater Management Inc.		CD	www.stormwaterince.com		1.6					
227	EC-Design 2000: Stormwater Management and Erosion Control Design Software		Synthetic Industries/ Geosynthetic Products Division	Based on FHWA's HEC 15 and USDA's RUSLE	CD	www.fixsoil.com					4.1	5.1	
228	Stormceptor: The Stormceptor System Stormwater Quality Treatment		Stormceptor: Rinker Materials		CD	www.rinkerstormcepter.com					4.1	5.1	
229	2003 Conference Workshop Proceedings CD-ROM		StormCon: The North American Surface Water Quality Conference & Exposition		CD	www.StormCon.com	July 28-31 2003	1.1					

Reference Information Collected

	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
230	EOS Webster: Customized Earth Sciene Data Products		EOS-WEBSTER	Mission: To make data and information products and services concerning terrestrial ecosystem processes available to the Earth System Science community.	CD	http://eos-webster.sr.unh.edu		1.1					
231	The Stormceptor System: Stormwater Quality Treatment		CSR: Stormceptor		CD	www.csrstormceptor.com					4.1	5.1	
232	Watershed Management: Integrating Environment, People, Processes, and Practices		DRCOG	International Erosion Control Association: 2001 IECA.	CD			1.1					
233	Underground Detention Systems for Storm Water Management		Contech Construction Products Inc.		CD	www.contech-cpi.com					4.1	5.1	
234	Stormwater Outreach Materials		EPA	Office of Wastewater Management Stormwater Resources 833-C-03-001	CD	www.epa.gov	2/1/2003	1.1					
235	Intrepreting The Analytical Report	James Todaro	Alpha Analytical Labs		CD					3.4			
236	STABILATOR Erosion Prevention System		Water's Edge Technology, LLC	Stabilator CD v 1.03	CD	www.WatersEdgeTechnology.com	3/1/2002				4.1	5.1	
237	Stormwater Strategies: Community Responses to Runoff Pollution		NRDC	Documents the most effective strategies employed by communities around the country to control urban runoff pollution.	CD	www.nrdc.org	1/1/2001						6.1
238	Powerful Environmental Software		Envista Technologies	Developed an environmental information management system that supports the complete life cycle of your environmental program.	CD	www.envistatech.com							6.1
239	Sacramento Bag Erosion Program		Sacramento Bag Mfg. Co.	Erosion and Sediment Control: Power Point Program	CD		3/8/2002				4.1	5.1	
240	Storm Treat: Stormwater Treatment System		Eco-Cycle Incorporated		CD						4.1	5.1	
241	Better Storm Water Management Through Vegetation		SI Geosolutions	An Assesment and Proposed Classification of Current Sediment Control and Storm Water Treatment Devices	CD	www.fixsoil.com					4.1	5.1	
242	Nutrient Separating Baffle Box, Grate Inlet Skimmer Box, Curb Inlet Basket		Suntree Technologies Inc.	Drawings CD: Version 3.3	CD	www.suntreetech.com	6/9/2003				4.1	5.1	6.6
243	E & S Inspector Trial: Measurable Goals Manager Trial	Kevin Lenahan	eFieldSystems Inc.		CD	www.efieldsystems.com	6/4/2003				4.1	5.1	
244	Technical Resources Library		Presto Products Company	Solutions for an Unstable World	CD	www.prestogeo.com	1/1/2003						6.1
245	Design Specifications		Filtrexx International		CD		9/1/2003						
246	Site Solution Force		ACF Environmental	Your Source For Environmental BMP's & SWPPP CADD Files	CD	www.acfenvironmental.com	1/1/2001						6.1
247	Design Tools: Plastic Ceptic and Storm Water Chambers		Cultec Inc.		CD	www.cultec.com	1/1/2002				4.1	5.1	
248	ETV Program	Phyl Kimball	UltraTech International Inc.		CD	www.stormwater.products.com						5.1	6.1
249	A World In Our Backyard		New England Interstate Water Pollution Control Commission	A Wetlands Education and Stewardship Program	Video		1/1/1993	1.1					
250	Around the Cracker Barrel			Pleasure Island	Video		1/31/2003	1.1					
251	Storm Stories: "After the Storm"		Weather Channel		Video		2/4/2004	1.6					
252	Pay As You Throw		EPA	A New Trend In Substainable Solid Waste Management	Video	www.epa.gov/payt.					4.1	5.1	6.1
253	The Used Oil Management Standards		EPA	Designed primarily for generators of used oil.	Video	www.epa.gov							6.1
254	Stormwater Pollution		DWJ Television	Protecting Our Communities From Storm Water Pollution	Video		1/1/2001	1.1					

Reference Information Collected

	Title:	Author:	Published By:	Literature Description:	Document Type:	Website Link:	Date:	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5	BMP #6
255	Private Screening: Best Management Products		American Environmental Review	Custom Demo	Video			1.1					
256	Storm Drain Markers,magnet		ACP International	The ACO Storm Drian Markers are an excellent way to comply with mandatory storm drain makrking requirements	Brochure	www.acpinternational.com			2.3				
257	BioMap and Living Waters	Natural Heritage & Endangered Species Program		This report and associated map provide information about important ditrs for biodiversity conservation in your area	Brochure	www.nhesp.org.		0027.0.1					
258	2005 Household Hazardous Waste Colletion Agreement	Mitchell P Garrity		Collection event at 75 New Crossing Road in Reading	Letter		1/31/2005	1.14					
259	Stormwater Pollution prevention tips: Outdoor liquid container storage, part 1		Stevens Publishing Corp	Prevention tips	Letter	www.casqa.org.							6.6
260	Science beats geese at their own game	R.W. Delanehy		The best way to flush unwanted Canada geese from golf courses, Corporate campuses, residential ponds, rural airfields, bike paths, and city parks	Literature								6.9
261	The Effects of Urbanization on the Biological, Physical, and Chemical Characteristics of Coastal new England Streams	James F Colesm,Thomas F Cuffney, Gerard McMahon, Karen M Beaulieu		During August 2000, responses of biological communities(invertebrates, fish, and algae), physical habitat, and water chemistry to urban	Literature								6.11
262	Uncalculated Risks in Some Pesticides		Innov-X systems	Researchers at the Univ. of Calf., Riverside have demonstrated that isomers--or the mirror-image structures-of some pesticides, although chemically identical, hve very different biological nad environmental impacts between the two sides. This may have significant implications for risk assessment and research and development directions of new products.	Literature	www.stevenpublishing_com							6.1
263	Investigation of Inappropriate Pollutant Entries into Storm Drainage Systems, A User's Guide	Robert Pitt, Richard Field	EPA	Guide to invetsigating pollutants inappropriately entering drainage systems	Literature	epa.gov	1/1/1993			3.1			
264	Futerra F4netless		Profile Products LLc	New erosion control blanket - a new way to look at blankets	Brochure		2/16/2005					5.1	
265	Product Design Manual		Stormwater Management Inc.	version 3.1	Binder		2/1/2004				4.1	5.1	
266	Controlling sediment at construction sites		Ameican Watr Works Association	Eroded soil at construction sites can pollute rivers, streams and lakes via stormwater runoff. One way to heklp keep this pollution to a minimum is by implementing sediment control practices at these sites	Newsletter	www.stevenpublishing.com	2/24/2004					5.1	
267	Water Guide	Ben Meadows Co.	Ben Meadows Co.	Equipment for water quality testing	Brochure	benmeadows.com	4/24/2006			3.4			6.12
268	Illicit Discharge Detection and Elimination A Guidance Manual for Program Development and Technical Asessments	Center for Watershed Protection & Robert Pitt, University of Alabama	EPA	Complete guide to locating and eliminating illicit connections	Paperback manual		4/24/2006			3.1			
269	Model Stormwater By-Law	Hanover, Wendy Garpow	Hanover agent	Information on callaborative efforts by Towns on developing a stormwater by-law	printout	wendy@nsrwa.org	4/24/2006			3.8			

SECTION V

ONGOING ACTIVITIES

As there has not yet been, a permit submittal required to define the BMP work items for the future, the Town will be continuing the items listed below which we believe will provide the most benefit to the Town's stormwater management program.

- Public education (Press releases, Articles for Newsletters, Additional Fact Sheets, Public Participation at Community Events; i.e. Festival By the Lake, Stormwater Forum, etc.)

- Cleanup activities (FOLQ Lake Quannapowitt Cleanup, DPW Stream Cleaning Program, Hazardous Waste Collection Day)

- Continuation of Sweeping, Catch basin and Stream Cleaning Programs. Also, continuation of the good housekeeping programs adopted in the first 5-year permit.

- Additional training of municipal staff

- Continuation of our mapping program and monitoring for illicit discharges

SECTION VI.

CHANGES IN IDENTIFIED BMP'S OR MEASURABLE GOALS

At the time of preparing this annual report for Permit Year Five (May 1, 2007 through April 30, 2008) we have identified that all of the pre-planned work items, including one change which is the Department of Public Works Annual Stream Cleaning Program (implemented in lieu of the Adopt-A-Stream Program), have provided implementation of the planned Best Management Practices and achieving Measurable Goals as identified in the Town's permit application submittal dated July 28, 2003.

SECTION VII

RELIANCE ON ANOTHER ENTITY FOR ACHIEVING ANY MEASURABLE GOAL.

The Town's water bodies do receive stormwater flows from the following entities, upon which the Town relies on the quality of their stormwater discharges in achieving any measurable goal:

1. Massachusetts Highway Department:

   Route 95/128, which crosses, through the northern end of Town, from Stoneham to Lynnfield. Stormwater discharges from this interstate-highway discharge either to Lake Quannapowitt or the downstream Saugus River, which also receives flows from Lake Quannapowitt.

2. Massachusetts Department of Conservation and Recreation:

   Breakheart Reservation located along the eastern boundary of Wakefield, of which a portion drains to the Mill and Saugus Rivers in Wakefield.

3. Regional School:

   Northeast Regional Vocation School (code #853) serving 12-communities, is located along the eastern boundary of Wakefield, also abutting the Breakheart Reservation, which drains to the Mill and Saugus Rivers in Wakefield.

4. Commonwealth of Massachusetts:

   Camp Curtis Guild, Massachusetts Army National Guard located at the northern boundary of Wakefield, of which a small portion may drain to the Saugus River.

5. United States Government:

   United States Military Reservation, Tarrant Lane military housing located in the northwest corner of Wakefield, if which the stormwater from this area drains to Lake Quannapowitt, which in turn drains to the Saugus River.

6. Surrounding Communities:

The Town of Wakefield has a number of abutting municipalities, which share Wakefield's municipal boundary. Along these boundaries, there are some watershed areas that may flow from one community to the other. These municipalities include: Lynnfield, Melrose, Reading, Saugus and Stoneham.

Chapter 170

STORM DRAIN SYSTEM

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ARTICLE I
Discharges to Storm Drain System

§ 170-1. Authority

This bylaw is adopted under the authority granted by the Home Rule Amendment of the Massachusetts Constitution and the Home Rule Procedures Act, and pursuant to the regulations of the federal Clean Water Act found at 40 CFR 122.34.

§ 170-2. Definitions

For the purposes of this bylaw, the following shall mean:

AUTHORIZED ENFORCEMENT AGENCY: The Town of Wakefield Advisory Board of Public Works, its employees or agents designated to enforce this bylaw.

BOARD: The Town of Wakefield Advisory Board of Public Works.

BEST MANAGEMENT PRACTICE (BMP): An activity, procedure, restraint, or structural improvement that helps to reduce the quantity or improve the quality of stormwater runoff.

CLEAN WATER ACT: The Federal Water Pollution Control Act (33 U.S.C. § 1251 *et seq.*) as hereafter amended.

DISCHARGE OF POLLUTANTS: The addition from any source of any pollutant or combination of pollutants into the municipal storm drain system or into the waters of the United States or Commonwealth from any source.

GROUNDWATER: Water beneath the surface of the ground.

ILLICIT CONNECTION: A surface or subsurface drain or conveyance which allows an illicit discharge into the municipal storm drain system, including without limitation sewage, process wastewater, or wash water and any connections from indoor drains, sinks, or toilets, regardless of whether said connection was previously allowed, permitted, or approved before the effective date of this bylaw.

ILLICIT DISCHARGE: Direct or indirect discharge to the municipal storm drain system that is not composed entirely of stormwater, except as exempted in Section 170-8. The term does not include a discharge in compliance with an NPDES Storm Water Discharge Permit or a Surface Water Discharge Permit, or resulting from fire fighting activities exempted pursuant to Section 170-8, subsection 4, of this bylaw.

IMPERVIOUS SURFACE: Any material or structure on or above the ground that prevents water infiltrating the underlying soil. Impervious surface includes without limitation roads, paved parking lots, sidewalks, and rooftops.

MUNICIPAL STORM DRAIN SYSTEM (MS4): The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Wakefield.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER DISCHARGE PERMIT: A permit issued by United States Environmental Protection Agency or jointly with the State that authorizes the discharge of pollutants to waters of the United States.

NON-STORMWATER DISCHARGE: Discharge to the municipal storm drain system not composed entirely of stormwater.

PERSON: An individual, partnership, association, firm, company, trust, corporation, agency, authority, department or political subdivision of the Commonwealth or the federal government, to the extent permitted by law, and any officer, employee, or agent of such person.

POLLUTANT: Any element or property of sewage, agricultural, industrial or commercial waste, runoff, leachate, heated effluent, or other matter whether originating at a point or nonpoint source, that is or may be introduced into any sewage treatment works or waters of the Commonwealth. Pollutants shall include without limitation:

(1) paints, varnishes, and solvents;

(2) oil and other automotive fluids;

(3) non-hazardous liquid and solid wastes and yard wastes;

(4) refuse, rubbish, garbage, litter, or other discarded or abandoned objects, accumulations and floatables;

(5) pesticides, herbicides, and fertilizers;

(6) hazardous materials and wastes; sewage, fecal coliform and pathogens;

(7) dissolved and particulate metals;

(8) animal wastes;

(9) rock, sand, salt, soils;

(10) construction wastes and residues; and

(11) noxious or offensive matter of any kind.

PROCESS WASTEWATER: Water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any material, intermediate product, finished product, or waste product.

RECHARGE: The process by which groundwater is replenished by precipitation through the percolation of runoff and surface water through the soil.

STORMWATER: Storm water runoff, snow melt runoff, and surface water runoff and drainage.

SURFACE WATER DISCHARGE PERMIT. A permit issued by the Department of Environmental Protection (DEP) pursuant to 314 CMR 3.00 that authorizes the discharge of pollutants to waters of the Commonwealth of Massachusetts.

TOXIC OR HAZARDOUS MATERIAL or WASTE: Any material, which because of its quantity, concentration, chemical, corrosive, flammable, reactive, toxic, infectious or radioactive characteristics, either separately or in combination with any substance or substances, constitutes a present or potential threat to human health, safety, welfare, or to the environment. Toxic or hazardous materials include any synthetic organic chemical, petroleum product, heavy metal, radioactive or infectious waste, acid and alkali, and any substance defined as Toxic or Hazardous under G.L. Ch. 21C and Ch. 21E, and the regulations at 310 CMR 30.000 and 310 CMR 40.0000.

WATERCOURSE: A natural or man-made channel through which water flows or a stream of water, including a river, brook or underground stream.

WATERS OF THE COMMONWEALTH: All waters within the jurisdiction of the Commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, costal waters, and groundwater.

WASTEWATER: Any sanitary waste, sludge, or septic tank or cesspool overflow, and water that during manufacturing, cleaning or processing, comes into direct contact with or results from the

production or use of any raw material, intermediate product, finished product, byproduct or waste product.

§ 170-3. Purpose

Increased and contaminated stormwater runoff is a major cause of impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater; contamination of drinking water supplies; alteration or destruction of aquatic and wildlife habitat; and flooding.

Regulation of illicit connections and discharges to the municipal storm drain system is necessary for the protection of the Wakefield water bodies and groundwater, and to safeguard the public health, safety, welfare and the environment.

The objectives of this bylaw are:

1. to prevent pollutants from entering the Wakefield municipal separate storm sewer system (MS4);
2. to prohibit illicit connections and unauthorized discharges to the MS4;
3. to require the removal of all such illicit connections;
4. to comply with state and federal statutes and regulations relating to stormwater discharges; and
5. to establish the legal authority to ensure compliance with the provisions of this bylaw through inspection, monitoring, and enforcement.

§ 170-4. Responsibility for Administration

The Board shall administer, implement and enforce this bylaw. Any powers granted to or duties imposed upon the Board may be delegated in writing by the Board to employees or agents of the Board.

§ 170-5. Applicability

This bylaw shall apply to flows entering the municipally owned storm drainage system.

§ 170-6. Regulations

The Board may promulgate rules and regulations to effectuate the purposes of this bylaw. Failure by the Board to promulgate such rules and regulations shall not have the effect of suspending or invalidating this bylaw.

§ 170-7. Prohibited Activities

Illicit Discharges. No person shall dump, discharge, or cause or allow to be discharged any pollutant or non-stormwater discharge into the municipal separate storm sewer system (MS4), into a watercourse, or into the waters of the Commonwealth.

Illicit Connections. No person shall construct, use, allow, maintain or continue any illicit connection to the municipal storm drain system, regardless of whether the connection was permissible under applicable law, regulation or custom at the time of connection.

Obstruction of Municipal Storm Drain System. No person shall obstruct or interfere with the normal flow of stormwater into or out of the municipal storm drain system without prior written approval from the Board.

§ 170-8. Exemptions

Discharge or flow resulting from fire fighting activities shall be exempt from the terms of this bylaw.

The following non-stormwater discharges or flows are exempt from the prohibition of non-stormwaters provided that the source is not a significant contributor of a pollutant to the municipal storm drain system:

(1) Waterline flushing;

(2) Flow from potable water sources;

(3) Springs;

(4) Natural flow from riparian habitats and wetlands;

(5) Diverted stream flow;

(6) Rising groundwater;

(7) Uncontaminated groundwater infiltration as defined in 40 CFR 35.2005(20), or uncontaminated pumped groundwater;

(8) Water from exterior foundation drains, footing drains (not including active groundwater dewatering systems), crawl space pumps, or air conditioning condensation;

(9) Discharge from landscape irrigation or lawn watering;

(10) Water from individual residential car washing;

(11) Discharge from dechlorinated swimming pool water (less than one ppm chlorine) provided the water is allowed to stand for one week prior to draining and the pool is drained in such a way as not to cause a nuisance;

(12) Discharge from street sweeping (not including the flushing of machines into or near storm water basins);

(13) Non-toxic dye testing, provided verbal notification is given to the Board prior to the time of the test;

(14) Non-stormwater discharge permitted under an NPDES permit or a Surface Water Discharge Permit, waiver, or waste discharge order administered under the authority of the United States Environmental Protection Agency or the Department of Environmental Protection, provided that the discharge is in full compliance with the requirements of the permit, waiver, or order and applicable laws and regulations; and

(15) Discharge for which advanced written approval is received from the Board as necessary to protect public health, safety, welfare or the environment.

§ 170-9. Emergency Suspension of Storm Drainage System Access

The Board may suspend municipal storm drain system access to any person or property without prior written notice when such suspension is necessary to stop an actual or threatened discharge of pollutants that presents imminent risk of harm to the public health, safety, welfare or the environment. In the event any person fails to comply with an emergency suspension order, the Authorized Enforcement Agency may take all reasonable steps to prevent or minimize harm to the public health, safety, welfare or the environment.

§ 170-10. Notification of Spills

Notwithstanding other requirements of local, state or federal law, as soon as a person responsible for a facility or operation, or responsible for emergency response for a facility or operation, has information of or suspects a release of materials at that facility or operation resulting in or which may result in discharge of pollutants to the municipal drainage system or waters of the Commonwealth, the person shall take all necessary steps to ensure containment and cleanup of the release. In the event of a release of oil or hazardous materials, the person shall immediately notify the Wakefield Fire and Police Departments, the Department of Public Works and the Board of Health. In the event of a release of non-hazardous material, the reporting person shall notify the Authorized Enforcement Agency no later than the next business day. The reporting person shall provide to the Authorized Enforcement Agency written confirmation of all telephone, facsimile or in-person notifications within three business days thereafter. If the discharge of prohibited materials is from a commercial or industrial facility, the facility owner or operator of the facility shall retain on-site a written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

§ 170-11. Enforcement

The Board or an authorized agent of the Board shall enforce this bylaw, regulations, orders, violation notices, and enforcement orders, and may pursue all civil and criminal remedies for such violations.

Civil Relief. If a person violates the provisions of this bylaw, regulations, permit, notice, or order issued thereunder, the Board may seek injunctive relief in a court of competent jurisdiction

restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

Orders. The Board or an authorized agent of the Board may issue a written order to enforce the provisions of this bylaw or the regulations thereunder, which may include: (a) elimination of illicit connections or discharges to the MS4; (b) performance of monitoring, analyses, and reporting; (c) that unlawful discharges, practices, or operations shall cease and desist; and (d) remediation of contamination in connection therewith.

If the enforcing person determines that abatement or remediation of contamination is required, the order shall set forth a deadline by which such abatement or remediation must be completed. Said order shall further advise that, should the violator or property owner fail to abate or perform remediation within the specified deadline, the Town may, at its option, undertake such work, and expenses thereof shall be charged to the violator.

Within thirty (30) days after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner will be notified of the costs incurred by the Town, including administrative costs. The violator or property owner may file a written protest objecting to the amount or basis of costs with the Board within thirty (30) days of receipt of the notification of the costs incurred. If the amount due is not received by the expiration of the time in which to file a protest or within thirty (30) days following a decision of the Board affirming or reducing the costs, or from a final decision of a court of competent jurisdiction, the costs shall become a special assessment against the property owner and shall constitute a lien on the owner's property for the amount of said costs. Interest shall begin to accrue on any unpaid costs at the statutory rate provided in G.L. Ch. 59, § 57 after the thirty-first day at which the costs first become due.

Criminal Penalty. Any person who violates any provision of this bylaw, regulation, order or permit issued thereunder, shall be punished by a fine of $1,000.00. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.

Non-Criminal Disposition. As an alternative to criminal prosecution or civil action, the Town may elect to utilize the non-criminal disposition procedure set forth in G.L. Ch. 40, §21D and in § 1-7 of the Code of the Town of Wakefield, in which case the Town Engineer of the Town of Wakefield or other authorized agent of the Town shall be the enforcing person. The penalty for the 1st violation shall be $100.00. The penalty for the 2nd violation shall be $200.00. The penalty for the 3rd and subsequent violations shall be $300.00. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.

Entry to Perform Duties Under this Bylaw. To the extent permitted by state law, or if authorized by the owner or other party in control of the property, the Board, its agents, officers, and employees may enter upon privately owned property for the purpose of performing their duties under this bylaw and regulations and may make or cause to be made such examinations, surveys or sampling as the Board deems reasonably necessary.

Appeals. The decisions or orders of the Board shall be final. Further relief shall be to a court of competent jurisdiction.

Remedies Not Exclusive: The remedies listed in this bylaw are not exclusive of any other remedies available under any applicable federal, state or local law.

§ 170-12. Severability

The provisions of this bylaw are hereby declared to be severable. If any provision, paragraph, sentence, or clause, of this bylaw or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this bylaw.

§ 170-13. Transitional Provisions

Residential property owners shall have ninety (90) days from the effective date of the bylaw to comply with its provisions provided good cause is shown for the failure to comply with the bylaw during that period.

ARTICLE II
Stormwater Management and Land Disturbance

§ 170-14. Authority

This bylaw is adopted under authority granted by the Home Rule Amendment of the Massachusetts Constitution, the Home Rule statutes, and pursuant to the regulations of the federal Clean Water Act found at 40 CFR 122.34

§ 170-15. Definitions

ABUTTER: The owner(s) of land abutting the activity.

AGRICULTURE: The normal maintenance or improvement of land in agricultural or aquacultural use, as defined by the Massachusetts Wetlands Protection Act and its implementing regulations.

APPLICANT: Any person, individual, partnership, association, firm, company, corporation, trust, authority, agency, department, or political subdivision, of the Commonwealth or the Federal government to the extent permitted by law requesting a soil erosion and sediment control permit for proposed land-disturbance activity.

AUTHORIZED ENFORCEMENT AGENCY: The Town of Wakefield Advisory Board of Public Works, its employees or agents designated to enforce this bylaw.

BOARD: The Town of Wakefield Advisory Board of Public Works.

CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC): A certified specialist in soil erosion and sediment control. This certification program, sponsored by the Soil and

Water Conservation Society in cooperation with the American Society of Agronomy, provides the public with evidence of professional qualifications.

CONSTRUCTION AND WASTE MATERIALS: Excess or discarded building or site materials, including but not limited to concrete truck washout, chemicals, litter and sanitary waste at a construction site that may adversely impact water quality.

CLEARING: Any activity that removes the vegetative surface cover.

EROSION: The wearing away of the land surface by natural or artificial forces such as wind, water, ice, gravity, or vehicle traffic and the subsequent detachment and transportation of soil particles.

EROSION AND SEDIMENTATION CONTROL PLAN: A document containing narrative, drawings and details developed by a qualified professional engineer (PE) or a Certified Professional in Erosion and Sedimentation Control (CPESC), which includes best management practices, or equivalent measures designed to control surface runoff, erosion and sedimentation during pre-construction and construction related land disturbance activities.

ESTIMATED HABITAT OF RARE WILDLIFE AND CERTIFIED VERNAL POOLS: Habitats delineated for state-protected rare wildlife and certified vernal pools for use with the Wetlands Protection Act Regulations (310 CMR 10.00) and the Forest Cutting Practices Act Regulations (304 CMR 11.00).

LAND-DISTURBING ACTIVITY: Any activity that causes a change in the position or location of soil, sand, rock, gravel, or similar earth material.

MASSACHUSETTS ENDANGERED SPECIES ACT: (G.L. c. 131A) and its implementing regulations at (321 CMR 10.00) which prohibit the "taking" of any rare plant or animal species listed as Endangered, Threatened, or of Special Concern.

MASSACHUSETTS STORMWATER MANAGEMENT POLICY: The policy issued by the Department of Environmental Protection, and as amended, that coordinates the requirements prescribed by state regulations promulgated under the authority of the Massachusetts Wetlands Protection Act G.L. c. 131, § 40 and Massachusetts Clean Waters Act G.L. c. 21, §§ 23-56. The policy addresses stormwater impacts through implementation of performance standards to reduce or prevent pollutants from reaching water bodies and control the quantity of runoff from a site.

MUNICIPAL STORM DRAIN SYSTEM (MS4): The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Wakefield.

OWNER: A person with a legal or equitable interest in property.

PERSON: An individual, partnership, association, firm, company, trust, corporation, agency,

authority, department or political subdivision of the Commonwealth or the federal government, to the extent permitted by law, and any officer, employee, or agent of such person.

PRE-CONSTRUCTION: All activity in preparation for construction.

PRIORITY HABITAT OF RARE SPECIES: Habitats delineated for rare plant and animal populations protected pursuant to the Massachusetts Endangered Species Act and its regulations.

RUNOFF: Rainfall, snowmelt, or irrigation water flowing over the ground surface.

SEDIMENT: Mineral or organic soil material that is transported by wind or water, from its origin to another location; the product of erosion processes.

SEDIMENTATION: The process or act of deposition of sediment.

SITE: Any lot or parcel of land or area of property where land-disturbing activities are, were, or will be performed.

SLOPE: The incline of a ground surface expressed as a ratio of horizontal distance to vertical distance.

SOIL: Any earth, sand, rock, gravel, or similar material.

STABILIZATION: The use, singly or in combination, of mechanical, structural, or vegetative methods, to prevent or retard erosion.

STORMWATER: Storm water runoff, snow melt runoff, and surface water runoff and drainage.

STRIP: Any activity which removes the vegetative ground surface cover, including tree removal, clearing, grubbing, and storage or removal of topsoil.

VERNAL POOLS: Temporary bodies of freshwater which provide critical habitat for a number of vertebrate and invertebrate wildlife species.

WATERCOURSE: A natural or man-man channel through which water flows or a stream of water, including a river, brook, or underground stream.

WETLAND RESOURCE AREA: Areas specified in the Massachusetts Wetlands Protection Act G.L. c. 131, § 40 and in any wetland bylaw hereafter adopted by the Town of Wakefield.

WETLANDS: Tidal and non-tidal areas characterized by saturated or nearly saturated soils most of the year that are located between terrestrial (land-based) and aquatic (water-based) environments, including freshwater marshes around ponds and channels (rivers and streams), brackish and salt marshes; common names include marshes, swamps and bogs.

§ 170-16. Purpose

A. The harmful impacts of soil erosion and sedimentation are:

1. impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater;

2. contamination of drinking water supplies;

3. alteration or destruction of aquatic and wildlife habitat;

4. flooding; and

5. overloading or clogging of municipal catch basins and storm drainage systems.

B. The objectives of this bylaw are to:

1. protect water resources;

2. require practices that eliminate soil erosion and sedimentation and control the volume and rate of stormwater runoff resulting from land disturbance activities;

3. promote infiltration and the recharge of groundwater;

4. ensure that soil erosion and sedimentation control measures and stormwater runoff control practices are incorporated into the site planning and design process and are implemented and maintained;

5. require practices to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;

6. comply with state and federal statutes and regulations relating to stormwater discharges; and

7. establish the Town's legal authority to ensure compliance with the provisions of this bylaw through inspection, monitoring, and enforcement.

§ 170-17. Applicability

This bylaw shall apply to the following activities:

1.) LAND DISTURBANCE of greater than 15,000 square feet, associated with construction or reconstruction of structures, that drains to the municipal storm drain system;

2.) Paving or other change in surface material over an area of more than 15,000 square feet causing a significant reduction of permeability, or increase in runoff rate or volume;

3.) LAND DISTURBANCE of more than 6,000 square feet within a slope area which is greater than 33% (rises greater than 33-feet, 4-inches in a horizontal distance of 100-feet) in any general direction as can be determined either from the Wakefield Digital Basemap on file at the Department of Public Works Engineering Division, or otherwise documented by a Massachusetts Registered Professional Land Surveyor (PLS). This paragraph does not limit or regulate slopes.

Except as authorized by the Board in a Land Disturbance Permit or as otherwise provided in this bylaw, no person shall perform any of these listed activities.

Normal maintenance and improvement of land in agricultural or aquacultural use, as defined by the Wetlands Protection Act regulation 310 CMR 10.4, are exempt.

In addition, as authorized in the Phase II Small MS4 General Permit for Massachusetts, storm water discharges resulting from the above activities that are subject to jurisdiction under the Wetlands Protection Act and demonstrate compliance with the Massachusetts Storm Water Management Policy as reflected in an Order of Conditions issued by the Conservation Commission are exempt from compliance with this bylaw.

Furthermore, storm water discharges resulting from the above activities or from development or construction relating to any project, or portion thereof, that has received any of the following:

a. Site Plan Approval or Subdivision Approval or a Special Permit from the Planning Board; or

b. A Finding or Special Permit or Variance from the Board of Appeals; or

c. Drainage or Subdivision Approval from the Board of Health

are exempt from compliance with this bylaw.

§ 170-18. Responsibility for Administration

A. The Board shall administer, implement and enforce this bylaw. Any powers granted to or duties imposed upon the Board may be delegated in writing by the Board to its employees or agents.

B. Waiver. The Board may waive strict compliance with any requirement of this bylaw or the rules and regulations promulgated hereunder, where such waiver is:

(1) allowed by federal, state and local statutes and/or regulations,

(2) in the public interest, and

(3) not inconsistent with the purpose and intent of this bylaw.

C. Rules and Regulations. The Board may adopt, and periodically amend rules and regulations to

effectuate the purposes of this bylaw. Failure by the Board to promulgate such rules and regulations shall not have the effect of suspending or invalidating this bylaw.

§ 170-19. Permits and Procedure

A. Application. A completed application for a Land Disturbance Permit shall be filed with the Board at the office of the Department of Public Works. A permit must be obtained prior to the commencement of land disturbing activity as identified under § 170-17, Applicability. A completed application shall include:

1. a completed application form with original signatures of all owners plus ten (10) copies thereof;

2. a list of abutters, certified by the Assessors' Office;

3. ten (10) copies of the Erosion and Sediment Control Plan as specified in Section 170-19 of this bylaw; and

4. payment of the application and review fees.

After the foregoing is filed with the Board, one (1) copy of the application form and the list of abutters shall be filed with the Town Clerk. The date of filing with the Town Clerk shall be the date on which the application is deemed filed with the Board, provided that the filing of the package with the Board precedes the filing with the Town Clerk. Additionally, for proposed work disturbing more than one (1) acre of land provide one (1) copy of the NPDES General Permit issued for Storm Water Discharges from Construction Activities shall be filed with the Board.

B. Entry. Filing an application for a permit grants the Board or its agent permission to enter the site to verify the information in the application and to inspect for compliance with permit conditions.

C. Other Boards. The Board shall notify the Town Clerk of receipt of the application, and shall give one copy of the application package to the Planning Board, Board of Health, Conservation Commission and Department of Public Works, or others as appropriate or required by the Board.

D. Public Hearing. The Board shall hold a public hearing within twenty-one (21) days of the receipt of a complete application and shall take final action within twenty-one (21) days from the time of the close of the hearing unless such time is extended by agreement between the applicant and the Board. Notice of the public hearing shall be given by publication and posting and by first-class mailings to abutters at least seven (7) days prior to the hearing. The Board shall make the application available for inspection by the public during business hours at the Department of Public Works Engineering Division office at the William J. Lee Memorial Town Hall, 1 Lafayette Street in Wakefield.

E. Information requests. The applicant shall submit all additional information requested by the Board to issue a decision on the application.

F. Action by The Board.

The Board may:

1. Approve the Land Disturbance Permit Application and issue a permit if it finds that the proposed plan will protect water resources and meets the objectives and requirements of this bylaw;

2. Approve the Land Disturbance Permit Application and issue a permit with conditions, modifications or restrictions that The Board determines are required to ensure that the project will protect water resources and meets the objectives and requirements of this bylaw;

3. Disapprove the Land Disturbance Permit Application and deny the permit if it finds that the proposed plan will not protect water resources or fails to meet the objectives and requirements of this bylaw.

G. Failure of the Board to take final action. Failure of the Board to take final action upon an application within the time specified above shall be deemed to be approval of said application. Upon certification by the Town Clerk that the allowed time has passed without the Board's action, the Land Disturbance Permit shall be issued by the Board.

H. Fee Structure. Each application must be accompanied by the appropriate application fee as established by the Board. Applicants shall pay review fees as determined by the Board sufficient to cover any expenses connected with the public hearing and review of the Land Disturbance Permit Application before the review process commences. The Board is authorized to retain a Registered Professional Engineer or other professional consultant to advise the Board on any or all aspects of the Application.

I. Project Changes. The permittee, or its agent, must notify the Board in writing of any change or alteration of a land-disturbing activity authorized in a Land Disturbance Permit before any change or alteration occurs. If the Board determines that the change or alteration is significant, based on the design requirements listed in Section 170-19 and accepted construction practices, The Board may require that an amended Land Disturbance Permit application be filed and a public hearing held. If any change or alteration from the Land Disturbance Permit occurs during any land disturbing activities, the Board may require the installation of interim erosion and sedimentation control measures before approving the change or alteration.

§ 170-20. Erosion and Sediment Control Plan

A. The Erosion and Sediment Control Plan shall contain sufficient information to describe the nature and purpose of the proposed development, pertinent conditions of the site and the adjacent areas, and proposed erosion and sedimentation controls. The applicant shall submit such material as is necessary to show that the proposed development will comply with the design requirements listed in Section 170-19.B. below.

B. The design requirements of the Erosion and Sediment Control Plan are to:

1. Minimize total area of disturbance;

2. Sequence activities to minimize simultaneous areas of disturbance;

3. Minimize peak rate of runoff in accordance with the Massachusetts Stormwater Policy;

4. Minimize soil erosion and control sedimentation during construction, provided that prevention of erosion is preferred over sedimentation control;

5. Divert uncontaminated water around disturbed areas;

6. Maximize groundwater recharge;

7. Install and maintain all erosion and sediment control measures in accordance with the manufacturers' specifications and good engineering practices;

8. Prevent off-site transport of sediment;

9. Protect and manage on and off-site material storage areas (overburden and stockpiles of dirt, borrow areas, or other areas used solely by the permitted project are considered a part of the project);

10. Comply with applicable federal, state and local laws and regulations including waste disposal, sanitary sewer or septic system regulations, and air quality requirements, including dust control;

11. Prevent significant alteration of habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or Of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools, and Priority Habitats of Rare Species from the proposed activities;

12. Institute interim and permanent stabilization measures, which shall be instituted on a disturbed area as soon as practicable but no more than 14 days after construction activity has temporarily or permanently ceased on that portion of the site;

13. Properly manage on-site construction and waste materials; and

14. Prevent off-site vehicle tracking of sediments.

C. Erosion and Sedimentation Control Plan Content. The Plan shall contain the following information:

1. Names, addresses, and telephone numbers of the owner, applicant, and person(s) or firm(s) preparing the plan;

2. Title, date, north arrow, names of abutters, scale, legend, and locus map;

3. Location and description of natural features including:

   (a) Watercourses and water bodies, wetland resource areas and all floodplain information, including the 100-year flood elevation based upon the most recent Flood Insurance Rate Map, or as calculated by a professional engineer for areas not assessed on these maps;

   (b) Existing vegetation including tree lines, canopy layer, shrub layer, and ground cover, and trees with a caliper of twelve (12) inches or larger, noting specimen trees and forest communities; and

   (c) Habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools, and Priority Habitats of Rare Species within five hundred (500) feet of any construction activity;

4. Lines of existing abutting streets showing drainage and driveway locations and curb cuts;

5. The nature of existing soils, and the volume and nature of imported soil materials;

6. Topographical features including existing and proposed contours at intervals no greater than two (2) feet with spot elevations provided when needed;

7. Surveyed property lines showing distances and monument locations, all existing and proposed easements, rights-of-way, and other encumbrances, the size of the entire parcel, and the delineation and number of square feet of the land area to be disturbed;

8. Drainage patterns and approximate slopes anticipated after major grading activities (Construction Phase Grading Plans);

9. Location and details of erosion and sediment control measures with a narrative of the construction sequence/phasing of the project, including both operation and maintenance for structural and non-structural measures, interim grading, and material stockpiling areas;

10. Path and mechanism to divert uncontaminated water around disturbed areas, to the maximum extent practicable;

11. Location and description of industrial discharges, including stormwater discharges from dedicated asphalt plants and dedicated concrete plants, which are covered by this permit;

12. Stormwater runoff calculations in accordance with the Department of Environmental Protection's Stormwater Management Policy;

13. Location and description of and implementation schedule for temporary and permanent

seeding, vegetative controls, and other stabilization measures;

14. A description of construction and waste materials expected to be stored on-site. The Plan shall include a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response;

15. A description of provisions for phasing the project;

16. Plans must be stamped and certified by a qualified Professional Engineer registered in Massachusetts or a Certified Professional in Erosion and Sediment Control; and

17. Such other information as is required by the Board by regulation or order.

§ 170-21. Inspection and Site Supervision

A. Pre-construction Meeting. Prior to starting clearing, excavation, construction, or land disturbing activity the applicant, the applicant's technical representative, the general contractor or any other person with authority to make changes to the project, shall meet with the Board, to review the permitted plans and their implementation.

B. Board Inspection. The Board or its designated agent shall make inspections as hereinafter required and shall either approve that portion of the work completed or shall notify the permittee wherein the work fails to comply with the land disturbance permit as approved. The permit and associated plans for grading, stripping, excavating, and filling work, bearing the signature of approval of the Board, shall be maintained at the site during the progress of the work. In order to obtain inspections, the permittee shall notify the Board at least two (2) working days before each of the following events:

1. Erosion and sediment control measures are in place and stabilized;
2. Site clearing has been substantially completed;
3. Rough grading has been substantially completed;
4. Final grading has been substantially completed;
5. Close of the construction season; and
6. Final landscaping (permanent stabilization) and project final completion.

C. Permittee Inspections. The permittee or his/her agent shall conduct and document inspections of all control measures no less than weekly or as specified in the permit, and prior to and following anticipated storm events. The purpose of such inspections will be to determine the overall effectiveness of the control plan, and the need for maintenance or additional control measures. The permittee or his/her agent shall submit monthly reports to the Board or designated agent in a format approved by the Board.

D. Access Permission. To the extent permitted by state law, or if authorized by the owner or other

party in control of the property, the Board its agents, officers, and employees may enter upon privately owned property for the purpose of performing their duties under this bylaw and may make or cause to be made such examinations, surveys or sampling as the Board deems reasonably necessary to determine compliance with the permit.

§ 170-22. Reserved

§ 170-23. Final Reports

Upon completion of the work, the permittee shall submit a report (including certified as-built construction plans) from a Professional Engineer (P.E.), surveyor, or Certified Professional in Erosion and Sediment Control (CPESC), certifying that all erosion and sediment control devices, and approved changes and modifications, have been completed in accordance with the conditions of the approved permit. Any discrepancies should be noted in the cover letter.

§ 170-24. Enforcement

A. The Board or an authorized agent of the Board shall enforce this bylaw, regulations, orders, violation notices, and enforcement orders, and may pursue all civil and criminal remedies for such violations.

B. Orders

1. The Board or an authorized agent of the Board may issue a written order to enforce the provisions of this bylaw or the regulations thereunder, which may include:

(a) a requirement to cease and desist from the land-disturbing activity until there is compliance with the bylaw and provisions of the land-disturbance permit;

(b) maintenance, installation or performance of additional erosion and sediment control measures;

(c) monitoring, analyses, and reporting; and/or

(d) remediation of erosion and sedimentation resulting directly or indirectly from the land-disturbing activity.

2. If the enforcing person determines that abatement or remediation of erosion and sedimentation is required, the order shall set forth a deadline by which such abatement or remediation must be completed. Said order shall further advise that, should the violator or property owner fail to abate or perform remediation within the specified deadline, the Town may, at its option, undertake such work, and the property owner shall reimburse the Town's expenses.

3. Within thirty (30) days after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner shall be notified of the costs

incurred by the Town, including administrative costs. The violator or property owner may file a written protest objecting to the amount or basis of costs with the Board within thirty (30) days of receipt of the notification of the costs incurred. If the amount due is not received by the expiration of the time in which to file a protest or within thirty (30) days following a decision of the Board affirming or reducing the costs, or from a final decision of a court of competent jurisdiction, the costs shall become a special assessment against the property owner and shall constitute a lien on the owner's property for the amount of said costs. Interest shall begin to accrue on any unpaid costs at the statutory rate, as provided in G.L. Ch. 59, § 57, after the thirty-first day following the day on which the costs were due.

C. Criminal Penalty. Any person who violates any provision of this bylaw, regulation, order or permit issued there under, shall be punished by a fine of $1,000.00. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.

D. Non-Criminal Disposition. As an alternative to criminal prosecution or civil action, the Town may elect to utilize the non-criminal disposition procedure set forth in G.L. Ch.. 40, §21D and in § 1-7 of the Code of the Town of Wakefield, in which case the Town of Wakefield Town Engineer shall be the enforcing person. The penalty for the 1st violation shall be $100.00. The penalty for the 2nd violation shall be $200.00. The penalty for the 3rd and subsequent violations shall be $300.00. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.

E. Appeals. The decisions or orders of the Board shall be final. Further relief shall be to a court of competent jurisdiction.

F. Remedies Not Exclusive. The remedies listed in this bylaw are not exclusive of any other remedies available under any applicable federal, state or local law.

§ 170-25. Certification of Completion

The issuing authority will issue a letter certifying completion upon receipt and approval of the final reports and/or upon otherwise determining that all work of the permit has been satisfactorily completed in conformance with this bylaw.

§ 170-26. Severability

If any provision, paragraph, sentence, or clause of this bylaw shall be held invalid for any reason, all other provisions shall continue in full force and effect.

§ 170-27. LAND DISTURBANCE PERMIT APPLICATION

To the Wakefield Advisory Board of Public Works:

The undersigned hereby submits this Land Disturbance Permit Application as defined in the Bylaws of the Town of Wakefield Section, 170 – Storm Drain System, and requests a review and determination by the Board of the enclosed Land Disturbance Plan. The applicant hereby authorizes the Board and/or its designees to inspect the property described below from time to time for the purpose of establishing compliance with any permit or order of the Board, pursuant to the said bylaw.

The Land Disturbance Plan involves property where owner's title to the land is derived under deed from_____, dated_____, and recorded in the Middlesex County South Registry of Deeds, Book _____, Page_____, or Land Court Certificate of Title No. ___, Registered in _____ District, Book _____, Page

Give a brief summary of the nature of the project.

The property (building) is described as being located at _____; it is currently used as _____and the changes proposed to be made are _____.

The project is located on the parcel shown on Assessors Map _____, Parcel _____.

Applicant's Signature _____ Owners' Signature(s) _____

Applicant's Name (print) _____ Owners' Names(s) _____

Applicant's Address _____ Owners' Address _____

Date Received by Town Clerk: _____

Signature _____

Please note: 1) An applicant for a Land Disturbance Plan Review must file with the Board a completed an original Land Disturbance Permit Application and ten (10) copies, a list of abutters, ten (10) copies of the Land Disturbance Plan Package, and the application and review fees as noted in the Land Disturbance Plan Review Fee Schedule. 2) The applicant shall also file a copy of the Land Disturbance Plan and the application with the Town Clerk after filing with the Board. The date of receipt by the Town Clerk shall be the official filing date.

§ 170-28. Land Disturbance Plan Review Fee Schedule

The following fee schedules are minimum fees. The Board may require higher fees if deemed necessary for proper review of an application or to ensure compliance.

A pre-application meeting may be requested to review the project and to seek a waiver or reduction from the Professional Review Fee based on the project complexity. The waiver or reduction of said fee is at the sole discretion of the Board.

Lot Area	Professional Review Fee	Application Fee
Less Than 1 Acre	$ 2,000.00	$100.00
1 to 3 Acres	$3,000.00	$150.00
Greater than 3 Acres	$2,000.00 times the number of acres to the nearest tenth of an acre	$200.00

Resubmittal/Amendment (provided the area shall not be increased)

Filing Fee	$50.00
Review Fee	$2,000.00

GENERAL

1. Any application not accompanied by the appropriate fee shall be deemed incomplete. Payment must be made to the Board in money order or bank or certified check payable to the Town of Wakefield.

2. An applicant's failure to pay any additional review or inspection fee within five business days of receipt of the notice that further fees are required shall be grounds for disapproval.

3. Funds received by the Board for professional review services pursuant to this section shall be deposited with the Wakefield Treasurer, who shall establish a special account for this purpose. Expenditures from this account may be made at the direction of the Board without further appropriation. Expenditures from this special account shall be made only in connection with the professional review of the application for which the fee has been collected. Accrued interest may also be spent for this purpose. Upon approval, disapproval or failure to take action by the Board within the time specified under § 170-18 on the application, any excess amount in the special account, including interest, shall be repaid to the applicant.

4. The Board will publish the public notice and send abutter notifications. Abutter notification shall be by certified mail-return receipt requested. The applicant shall pay all costs associated with the publication and notification requirements. These costs shall not be imposed on the applicant if the applicant completes the public notice and abutter notification

requirements, and provides the Board with copies of the public notices and the return receipt cards.

Professional review fees include engineering review, legal review, and clerical fees associated with the public hearing and permit processing. A fee estimate may be provided by the Board's consulting engineer.

ARTICLE III
POST-CONSTRUCTION STORMWATER MANAGEMENT OF NEW DEVELOPMENTS & REDEVELOPMENTS

§ 170-29. Authority

This bylaw is adopted under authority granted by the Home Rule Amendment of the Massachusetts Constitution, the Home Rule statutes and pursuant to the regulations of the federal Clean Water Act found at 40 CFR 122.34.

§ 170-30. Definitions

ALTERATION OF DRAINAGE CHARACTERISTICS: Any activity on an area of land that changes the water quality, force, direction, timing or location of runoff flowing from the area. Such changes include: change from distributed runoff to confined, discrete discharge, change in the volume of runoff from the area; change in the peak rate of runoff from the area; and change in the recharge to groundwater on the area.

BEST MANAGEMENT PRACTICE (BMP): An activity, procedure, restraint, or structural improvement that helps to reduce the quantity or improve the quality of stormwater runoff.

BOARD – The Town of Wakefield Advisory Board of Public Works

CLEARING: Any activity that removes the vegetative surface cover.

DEVELOPMENT: The modification of land to accommodate a new use or expansion of use, usually involving construction.

DISTURBANCE OF LAND: Any action that causes a change in the position, location, or arrangement of soil, sand rock, gravel of similar earth material.

GRADING: Changing the level or shape of the ground surface.

GRUBBING: The act of clearing land surface by digging up roots and stumps.

IMPERVIOUS SURFACE: Any material or structure on or above the ground that prevents water infiltrating the underlying soil. Impervious surface includes without limitation roads, paved parking lots, sidewalks, and roof tops.

MASSACHUSETTS STORMWATER MANAGEMENT POLICY: The policy issued by the Department of Environmental Protection, and as amended, that coordinates the requirements prescribed by state regulations promulgated under the authority of the Massachusetts Wetlands Protection Act G.L. c. 131 § 40 and Massachusetts Clean Waters Act G.L. c. 21, §§ 23-56. The policy addresses stormwater impacts through implementation of performance standards to reduce or prevent pollutants from reaching water bodies and control the quantity of runoff from a site.

MUNICIPAL STORM DRAIN SYSTEM (MS4): The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Wakefield.

OPERATION AND MAINTENANCE PLAN: A plan setting up the functional, financial and organizational mechanisms for the ongoing operation and maintenance of a stormwater management system to insure that it continues to function as designed.

OUTFALL: The point at which stormwater flows out from a point source into waters of the Commonwealth.

OUTSTANDING RESOURCE WATERS (ORWs): Waters designated by Massachusetts Department of Environmental Protection as ORWs. These waters have exceptional sociologic, recreational, ecological and/or aesthetic values and are subject to more stringent requirements under both the Massachusetts Water Quality Standards (314 CMR 4.00) and the Massachusetts Stormwater Management Standards. ORWs include vernal pools certified by the Natural Heritage Program of the Massachusetts Department of Fisheries and Wildlife and Environmental Law Enforcement, all Class A designated public water supplies with their bordering vegetated wetlands, and other waters specifically designated.

OWNER: A person with a legal or equitable interest in property.

PERSON: An individual, partnership, association, firm, company, trust, corporation, agency, authority, department or political subdivision of the Commonwealth or the federal government, to the extent permitted by law, and any officer, employee, or agent of such person.

POINT SOURCE: Any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, or container from which pollutants are or may be discharged.

REDEVELOPMENT: Development, rehabilitation, expansion, demolition or phased projects that disturb the ground surface or increase the impervious area on previously developed sites.

RUNOFF: Rainfall, snowmelt, or irrigation water flowing over the ground surface.

STORMWATER MANAGEMENT PLAN: A plan required as part of the application for a Stormwater Management Permit. See Section 170-34.

STORMWATER: Storm water runoff, snow melt runoff, and surface water runoff and drainage.

TSS: Total Suspended Solids.

§ 170-31. Purpose

Regulation of discharges to the municipal separate storm sewer system (MS4) is necessary for the protection of the Town's water bodies and groundwater, and to safeguard the public health, safety, welfare and the environment. Increased and contaminated stormwater runoff associated with developed land uses and the accompanying increase in impervious surface are major causes of:

1) impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater;

2) contamination of drinking water supplies;

3) erosion of stream channels;

4) alteration or destruction of aquatic and wildlife habitat; and

5) flooding.

Therefore, this bylaw establishes stormwater management standards for the final conditions that result from development and redevelopment projects to minimize adverse impacts offsite and downstream which would be born by abutters and the general public.

The objectives of this bylaw are:

1. To require practices to control the flow of stormwater from newly developed and redeveloped sites into the Town storm drainage system in order to prevent flooding and erosion;
2. To protect groundwater and surface water from degradation;
3. To promote groundwater recharge;
4. To prevent pollutants from entering the Town's municipal separate storm sewer system (MS4) and to minimize discharge of pollutants from the MS4;
5. To ensure adequate long-term operation and maintenance of structural stormwater best management practices so that they work as designed;
6. To comply with state and federal statutes and regulations relating to stormwater discharges; and
7. To establish the Town's legal authority to ensure compliance with the provisions of this bylaw through inspection, monitoring, and enforcement.

§ 170-32. Applicability

A. No person may undertake a construction activity, including clearing, grading and excavation that results in a land disturbance meeting the thresholds set forth in § 170-17, Applicability without a permit from the Board hereunder.

B. construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity or the original purpose of the site.

C. Exemptions

The following shall be exempt from the provisions of this bylaw:

1. Normal maintenance and improvement of land in agricultural use as defined by the Wetlands Protection Act regulation 310 CMR 10.04;

2. Maintenance of existing landscaping, gardens or lawn areas associated with a single family dwelling;

3. The construction of fencing that will not substantially alter existing terrain or drainage patterns;

4. Construction of utilities other than drainage (gas, water, electric, telephone, etc.), which will not alter terrain or drainage patterns;

5. As authorized in the Phase II Small MS4 General Permit for Massachusetts, storm water discharges resulting from the activities identified in Section 4 that are wholly subject to jurisdiction under the Wetlands Protection Act and demonstrate compliance with the Massachusetts Storm Water Management Policy as reflected in an Order of Conditions issued by the Conservation Commission are exempt from compliance with this bylaw;

6. Furthermore, storm water discharges resulting from the above activities or from development or construction relating to any project, or portion thereof, that has received any of the following:

    a. site plan approval or subdivision approval or a special permit from the Planning Board; or

    b. a finding or special permit or variance from the Board of Appeals; or

    c. drainage or subdivision approval from the Board of Health.

§ 170-33. Responsibility for Administration

A. The Board shall administer, implement and enforce this bylaw. Any powers granted to or duties imposed upon the Board may be delegated in writing by the Board to its employees or agents.

B. Rules and Regulations. The Board may adopt and periodically amend rules and regulations relating to the procedures and administration of this Stormwater Management Bylaw, by majority vote of the Board after conducting a public hearing to receive comments on any proposed revisions. Such hearing dates shall be advertised in a newspaper of general local circulation at least seven (7) days prior to the hearing date.

§ 170-34. Permits and Procedure

A. Filing Application. The site owner shall file with the Board at the office of the Department of Public Works a completed application package for a Stormwater Management Permit (SMP). Permit issuance is required prior to any site altering activity. While the applicant can be a representative, the permittee must be the owner of the site. The SMP Application package shall include:

1. a completed application form with original signatures of all owners plus ten (10) copies thereof;
2. a list of abutters, certified by the Assessors' Office;
3. for proposed work disturbing more than one (1) acre of land, one (1) copy of the NPDES General Permit issued for Storm Water Discharges from Construction Activities;
4. ten (10) copies of the Stormwater Management Plan and project description as specified in § 170-34;
5. ten (10) copies of the Operation and Maintenance Plan as required by § 170-35 of this bylaw; and
6. payment of the application and review fees.

After the foregoing is filed with the Board, one (1) copy of the application form, the Stormwater Management Plan, the Operation & Maintenance Plan, and the list of abutters shall be filed with the Town Clerk. The date of filing with the Town Clerk shall be the date on which the application is deemed filed with the Board, provided that the filing of the package with the Board precedes the filing with the Town Clerk.

B. Entry. Filing an application for a permit grants the Board, or its agent, permission to enter the site to verify the information in the application and to inspect for compliance with the resulting permit.

C. Other Boards. The Board shall notify the Town Clerk of receipt of the application, and shall give one copy of the application package to Planning Board, Board of Health, Conservation Commission and Department of Public Works, or others as appropriate or required by the Board.

D. Fee Structure. The Board shall obtain with each submission an Application Fee established by the Board to cover expenses connected with the public hearing and application review of the Stormwater Management Permit and a technical Review Fee sufficient to cover professional review. The Board is authorized to retain a Registered Professional Engineer or other professional consultant to advise the Board on any or all aspects of these plans. Applicants must pay review fees before the review process may begin.

E. Public Hearing. The Board shall hold a public hearing within twenty-one (21) days of the receipt of a complete application and shall take final action within twenty-one (21) days from the close of the hearing unless such time is extended by agreement between the applicant and the Board. Notice of the public hearing shall be given by publication in a local paper of general circulation, by posting and by first-class mailings to abutters at least seven (7) days prior to the hearing.

F. Actions. The Board's action, rendered in writing, shall consist of either:

1. Approval of the Stormwater Management Permit Application based upon determination that the proposed plan meets the Standards in Section 170-34 and will adequately protect the water resources of the community and is in compliance with the requirements set forth in this bylaw;
2. Approval of the Stormwater Management Permit Application subject to any conditions, modifications or restrictions required by the Board which will ensure that the project meets the Standards in Section 170-34 and adequately protect water resources, set forth in this bylaw;
3. Disapproval of the Stormwater Management Permit Application based upon a determination that the proposed plan, as submitted, does not meet the Standards in Section 170-34 or adequately protect water resources, as set forth in this bylaw.

G. Failure of the Board to take final action upon an Application within the time specified above shall be deemed to be approval of said Application. Upon certification by the Town Clerk that the allowed time has passed without Board action, the Board must issue a Stormwater Management Permit.

H. Plan Changes. The permittee must notify the Board in writing of any drainage change or alteration in the system authorized in a Stormwater Management Permit before any change or alteration is made. If the Board determines that the change or alteration is significant, based on the Stormwater Management Standards in Section 170-34. B. and accepted construction practices, the Board may require that an amended application be filed and a public hearing held.

I. Project Completion. At completion of the project the permittee shall submit as-built record drawings of all structural stormwater controls and treatment best management practices required for the site. The as-built drawing shall show deviations from the approved plans, if any, and be certified by a Registered Professional Engineer.

§ 170-35. Stormwater Management Plan

A. The application for a stormwater management permit shall consist of submittal of a Stormwater Management Plan to the Board. This Stormwater Management Plan shall contain sufficient information for the Board to evaluate the environmental impact, effectiveness, and acceptability of the measures proposed by the applicant for reducing adverse impacts from stormwater. The Plan shall be designed to meet the Massachusetts Stormwater Management Standards as set forth in Part B of this section and DEP Stormwater Management Handbook Volumes I and II. The Stormwater Management Plan shall fully describe the project in drawings and narrative. It shall include:

1. A locus map,
2. The existing zoning, and land use at the site,
3. The proposed land use,
4. The location(s) of existing and proposed easements,
5. The location of existing and proposed utilities,
6. The site's existing & proposed topography with contours at 2 foot intervals,
7. The existing site hydrology,
8. A description & delineation of existing stormwater conveyances, impoundments, and wetlands on or adjacent to the site or into which stormwater flows,
9. A delineation of 100-year flood plains, if applicable,
10. Estimated seasonal high groundwater elevation (November to April) in areas to be used for stormwater retention, detention, or infiltration,
11. The existing and proposed vegetation and ground surfaces with runoff coefficients for each,
12. A drainage area map showing pre and post construction watershed boundaries, drainage area and stormwater flow paths,
13. A description and drawings of all components of the proposed drainage system including:
    a. locations, cross sections, and profiles of all brooks, streams, drainage swales and their method of stabilization,
    b) all measures for the detention, retention or infiltration of water,
    c) all measures for the protection of water quality,
    d) the structural details for all components of the proposed drainage systems and stormwater management facilities,
    e) notes on drawings specifying materials to be used, construction specifications, and typicals, and
    f) expected hydrology with supporting calculations.
14. Proposed improvements including location of buildings or other structures, impervious surfaces, and drainage facilities, if applicable,
15. Timing, schedules, and sequence of development including clearing, stripping, rough grading, construction, final grading, and vegetative stabilization,
16. A maintenance schedule for the period of construction, and
17. Any other information requested by the Board

B. Standards

Projects shall meet the Standards of the Massachusetts Stormwater Management Policy, which are as follows:

1) No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or water of the Commonwealth.

2) Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.

3) Loss of annual recharge to groundwater should be avoided through the use of infiltration measures to the maximum extent practicable.

4) For new development, stormwater management systems must be designed to remove 80% of the

average annual load (post development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when:

(a) Suitable nonstructural practices for source control and pollution prevention and implemented;
(b) Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and
(c) Stormwater management BMPs are maintained as designed.

5) Stormwater discharges from areas with higher potential pollutant loads require the use of specific stormwater management BMPs (see Stormwater Management Volume I: Stormwater Policy Handbook). The use of infiltration practices without pretreatment is prohibited.

6) Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas (see Stormwater Management Volume I: Stormwater Policy Handbook). Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold-water fisheries and recharge areas for public water supplies.

7) Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. However, if it is not practicable to meet all the Standards, new (retrofitted or expanded) stormwater management systems must be designed to improve existing conditions.

8) Erosion and sediment controls must be implemented to prevent impacts during disturbance and construction activities.

9) All stormwater management systems must have an operation and maintenance plan to ensure that systems function as designed.

When one or more of the Standards cannot be met, an applicant may demonstrate that an equivalent level of environmental protection will be provided.

C. Project Changes

The permittee, or its agent, shall notify the Board in writing of any change or alteration of a land-disturbing activity authorized in a Stormwater Management Permit before any change or alteration occurs. If the Board determines that the change or alteration is significant, based on the design requirements listed in this § 170-34 and accepted construction practices, the Board may require that an amended Stormwater Management Permit application be filed and a public hearing held. If any change or deviation from the Stormwater Management Permit occurs during a project, the Board may require the installation of interim measures before approving the change.

§ 170-36. Operation and Maintenance Plans

An Operation and Maintenance plan (O&M Plan) is required at the time of application for all projects. The maintenance plan shall be designed to ensure compliance with the permit and this bylaw and that the Massachusetts Surface Water Quality Standards, 314, CMR 4.00 are met in all

seasons and throughout the life of the system. The Board shall make the final decision of what maintenance option is appropriate in a given situation. The Board will consider natural features, proximity of site to water bodies and wetlands, extent of impervious surfaces, size of the site, the types of stormwater management structures, and potential need for ongoing maintenance activities when making this decision. The Operation and Maintenance Plan shall remain on file with the Board and shall be an ongoing requirement. The O&M Plan shall include:

A. The name(s) of the owner(s) for all components of the system

B. Maintenance agreements that specify:

1. The names and addresses of the person(s) responsible for operation and maintenance

2. The person(s) responsible for financing maintenance and emergency repairs.

3. A maintenance schedule for all drainage structures, including swales and ponds.

4. A list of easements with the purpose and location of each.

5. The signature(s) of the owner(s).

C. Stormwater Management Easement(s).

1. Stormwater management easements shall be provided by the property owner(s) as necessary for:

a. access for facility inspections and maintenance,

b. preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event.

c. direct maintenance access by heavy equipment to structures requiring regular cleanout.

2. The purpose of each easement shall be specified in the maintenance agreement signed by the property owner.

3. Stormwater management easements are required for all areas used for off-site stormwater control, unless a waiver is granted by the Board.

4. Easements shall be recorded with the Middlesex County South Registry of Deeds prior to issuance of a Certificate of Completion by the Board.

D. Changes to Operation and Maintenance Plans

1. The owner(s) of the stormwater management system must notify the Board of changes in ownership or assignment of financial responsibility.

2. The maintenance schedule in the Maintenance Agreement may be amended to achieve the purposes of this bylaw by mutual agreement of the Board and the Responsible Parties. Amendments must be in writing and signed by all Responsible Parties. Responsible Parties shall include owner(s), persons with financial responsibility, and persons with operational responsibility.

§ 170-37. Reserved

§ 170-38. Inspections

The Board shall inspect the project site at the following stages:

A. Initial Site Inspection: prior to approval of any plan.

B. Erosion Control Inspection: to ensure erosion control practices are in accord with the filed plan.

C. Bury Inspection: prior to backfilling of any underground drainage or stormwater conveyance structures.

D. Final Inspection. After the stormwater management system has been constructed and before the surety has been released, the applicant must submit a record plan detailing the actual stormwater management system as installed. The Board shall inspect the system to confirm its "as-built" features. This inspector shall also evaluate the effectiveness of the system in an actual storm. If the inspector finds the system to be adequate he shall so report to The Board, which will issue a Certificate of Completion.

If the system is found to be inadequate by virtue of physical evidence of operational failure, even though it was built as called for in the Stormwater Management Plan, it shall be corrected by the permittee. Examples of inadequacy shall be limited to: errors in the infiltrative capability, errors in the maximum groundwater elevation, failure to properly define or construct flow paths, or erosive discharges from basins.

§ 170-39. Waivers

A. The Board may waive strict compliance with any requirement of this bylaw or the rules and regulations promulgated hereunder, where:

1) such action is allowed by federal, state and local statutes and/or regulations,
2) is in the public interest, and
3) is not inconsistent with the purpose and intent of this bylaw.

B. Any applicant may submit a written request to be granted such a waiver. Such a request shall be accompanied by an explanation or documentation supporting the waiver request and demonstrating that strict application of the bylaw does not further the purposes or objectives of this bylaw.

C. All waiver requests shall be discussed and voted on at the public hearing for the project.

D. If in the Board's opinion, additional time or information is required for review of a waiver request, the Board may continue a hearing to a date certain announced at the meeting. In the event the applicant objects to a continuance, or fails to provide requested information, the waiver request shall be denied.

§ 170-40. Certificate of Completion

The Board will issue a letter certifying completion upon receipt and approval of the final inspection reports and/or upon otherwise determining that all work of the permit has been satisfactorily completed in conformance with this bylaw.

§ 170-41. Enforcement

A. The Board or an authorized agent of the Board shall enforce this bylaw, regulations, orders, violation notices, and enforcement orders, and may pursue all civil and criminal remedies for such violations.

B. Orders

1. The Board or an authorized agent of the Board may issue a written order to enforce the provisions of this bylaw or the regulations thereunder, which may include requirements to:

a. cease and desist from construction or land disturbing activity until there is compliance with the bylaw and the stormwater management permit;

b. repair, maintain, or replace the stormwater management system or portions thereof in accordance with the operation and maintenance plan.

c. perform monitoring, analyses, and reporting; and/or

d. remediate adverse impact resulting directly or indirectly from malfunction of the stormwater management system.

2. If the enforcing person determines that abatement or remediation of adverse impacts is required, the order shall set forth a deadline by which such abatement or remediation must be completed. Said order shall further advise that, should the violator or property owner fail to abate or perform remediation within the specified deadline, the Town may, at its option, undertake such work, and the property owner shall reimburse the Town's expenses.

3. Within thirty (30) days after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner shall be notified of the costs incurred by the Town, including administrative costs. The violator or property owner may file a written protest objecting to the amount or basis of costs with the Board within thirty (30) days of receipt of the notification of the costs incurred. If the amount due is not received by the expiration of the time in which to file a protest or within thirty (30) days following a decision of the Board affirming or reducing the costs, or from a final decision of a court of competent jurisdiction, the costs shall

become a special assessment against the property owner and shall constitute a lien on the owner's property for the amount of said costs. Interest shall begin to accrue on any unpaid costs at the statutory rate provided in G.L. Ch. 59, § 57, after the thirty-first day at which the costs first become due.

C. Criminal Penalty. Any person who violates any provision of this bylaw, or regulation, order or permit issued thereunder, shall be punished by a fine of $1,000.00. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.

D. Non-Criminal Disposition. As an alternative to criminal prosecution or civil action, the Board may elect to utilize the non-criminal disposition procedure set forth in G.L. Ch. 40, §21D and §1-7 of the Code of the Town of Wakefield, in which case the Town of Wakefield Town Engineer shall be the enforcing person. The penalty for the 1st violation shall be $100.00. The penalty for the 2nd violation shall be $200.00. The penalty for the 3rd and subsequent violations shall be $300.00. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.

E. Appeals
The decisions or orders of the Board shall be final. Further relief shall be to a court of competent jurisdiction.

F. Remedies Not Exclusive
The remedies listed in this bylaw are not exclusive of any other remedies available under any applicable federal, state or local law.

§ 170-42. Severability

If any provision, paragraph, sentence, or clause of this bylaw shall be held invalid for any reason, all other provisions shall continue in full force and effect.

§ 170-43. Stormwater Management Permit Application

To the Wakefield Advisory Board of Public Works:

The undersigned hereby submits a Stormwater Management Permit Application as defined in the Bylaws of the Town of Wakefield Section 170-Storm Drain System and requests a review and determination by the Board of the enclosed Stormwater Management Plan. The applicant hereby authorizes the Board and/or its designees to inspect the property described below from time to time for the purpose of establishing compliance with any permit or order of the Board, pursuant to the said bylaw.

The Stormwater Management Plan involves property where owner's title to the land is derived under deed from_____, dated_____, and recorded in the Middlesex County South Registry of Deeds, Book _____, Page____, or Land Court Certificate of Title No. _____, Registered in _____ District, Book _____, Page _____.

Give a brief summary of the nature of the project.

The property (building) is described as being located at _____ ; it is currently used as _____, and the changes proposed to be made are _____ _____.

The project is located on the parcel shown on Assessors Map _____, Parcel _____.

Applicant's Signature _____ Owners' Signature(s)_____
Applicant's Name (print) _____ Owners' Names(s) _____
Applicant's Address _____ Owners' Address _____
_____ _____

Date Received by Town Clerk: _____
Signature _____

Please note: 1) An applicant for a Stormwater Management Plan Review must file with the Board an original Stormwater Management Permit Application Form and ten (10) copies thereof, a list of abutters, ten (10) copies of the Stormwater Management Plan Package, ten (10) copies of the Operation and Maintenance Plan, and the application and review fees as noted in the Stormwater Management Plan Review Fee Schedule. 2) The applicant shall also file a copy of the Stormwater Management Plan, Operation & Maintenance Plan, and the application form with the Town Clerk after filing with the Board. The date of receipt by the Town Clerk shall be the official filing date.

§ 170-44. Stormwater Management Plan Review Fee Schedule

The following fee schedules are minimum fees. The Board may require higher fees if deemed necessary for proper review of an application or to ensure compliance.

NO APPLICATION FEE REQUIRED

GENERAL

1. Any application not accompanied by the appropriate fee shall be deemed incomplete. Payment must be made to the Board in money order or bank or certified check payable to the Town of Wakefield.

2. An Applicant's failure to pay any additional review or inspection fee within five business days of receipt of the notice that further fees are required shall be grounds for disapproval.

3. Funds received by the Board for professional review services pursuant to this section shall be deposited with the Wakefield Treasurer, who shall establish a special account for this purpose. Expenditures from this account may be made at the direction of the Board without further appropriation. Expenditures from this special account shall be made only in connection with the professional review of the application for which the fee has been collected. Accrued interest may also be spent for this purpose. Upon approval, disapproval or failure to take action by the Board within the time specified under § 170-33 on the application, any excess amount in the special account, including interest, shall be repaid to the applicant.

4. The Board will publish the public notice and send abutter notifications. Abutter notification shall be by certified mail-return receipt requested. The applicant shall pay all costs associated with the publication and notification requirements. These costs shall not be imposed on the applicant if the applicant completes the public notice and abutter notification requirements, and provides the Board with copies of the public notices and the return receipt cards.

Professional review fees include engineering review, legal review, and clerical fees associated with the public hearing and permit processing. A fee estimate may be provided by the Board's consulting engineer.

c:\StormwaterBylawFinal