



CITY OF BURLINGTON

PHASE II STORMWATER
2004 ANNUAL REPORT

General Permit #3-9014
NPDES Permit #VTR040000

Submitted by:
Burlington Public Works

February 2005

A. INTRODUCTION

This report is being submitted as part of the City of Burlington's Phase II Stormwater Plan per the NPDES (National Pollution Discharge Elimination System) requirements. It follows the same format used in previous years and includes the following information as discussed in Section H of the city's plan:

- Status of compliance with permit conditions.
- Results of information collected.
- A summary of stormwater activities planned for the next annual cycle.
- Any proposed changes as outlined in Section F of the stormwater plan.
- If applicable, provide notice as to whether or not another entity is responsible for any of the permit obligations.

B. STATUS OF COMPLIANCE WITH PERMIT CONDITIONS AND INFORMATION RESULTS

This section will outline the tasks originally proposed for the first year of this permit, the status of compliance with the plan, and applicable results. Each of these tasks are arranged in accordance with the six minimum control measures.

1. Public Education/Outreach Program

The City of Burlington is a participant in the Chittenden County Regional Stormwater Education Program (RSEP) in accordance with section E1 of the stormwater plan.

Marketing Partners Inc., a local marketing consultant, was selected to develop this 5 year program based upon their experience and commitment to socially responsible projects. In 2004, they launched a media campaign that included television and radio ads, newspaper ads, news releases and the regional stormwater website located at: www.smartwaterways.org

Appendix A at the end of this report lists all the public education and outreach activities accomplished by Marketing Partners.

2. Public Involvement/Participation

On May 8, 2004 the Community and Economic Development Office (CEDO) of Burlington sponsored a Green Up Day that was based out of Champlain School. Volunteers that arrived were given "Clean Up - Green Up Burlington" t-shirts and were dispersed throughout the city to pick up trash, remove graffiti, and "spruce up" the city. As in past years the Englesby Brook watershed was targeted for trash removal. Debris sites were mapped ahead of time by Public Works and volunteers were sent to different areas of the watershed. At noon, food, refreshments and ice cream were provided by CEDO. Mayor Clavelle helped out plus thanked everyone after lunch.

Over a dozen people showed up at different times of the morning and were sent to various sites along with trash bags and instructions on where to leave the debris. The Public Works Department later collected all the trash, which included paper and plastic trash, metals, tires

and shopping carts that had been dumped into the brook. The total volume of debris collected amounted to 2-3 small dump truck loads.

News Channel 5 was covering Green Up Day around Chittenden County and had the Champlain School site featured throughout the morning.

3. Illicit Discharge and Elimination

An illicit discharge monitoring program was initiated in 2004 in accordance with the Phase II plan. All of the stormwater outfalls mapped in 2003 were visited and were sampled whenever possible. In order to look for direct or indirect wastewater discharges into stormwater systems, grab samples for *E. Coli* bacteria were taken on those outfalls that had dry weather flow and pads for optical brightener (OB) testing were placed in all outfalls. The optical brightener test is a low cost procedure that detects fluorescent white dyes added to nearly all the laundry detergents to whiten cotton fabrics without the use of chlorine bleach. These dyes fluoresce in the blue region of the visible spectrum when exposed to longwave ultraviolet (UV) light. Unbleached cotton pads are placed in stormwater outfalls where they continuously sample flow and absorb traces of this dye, if present, for the period of time they are in service, usually 1 to 2 weeks. The pads are removed, dried and then viewed under a UV lamp. Pads from stormwater outfalls that fluoresce more than the control pad would indicate a possible direct or indirect contamination from wastewater. More information can be found on this procedure at: <http://www.naturecompass.org/8tb/sampling/>. Appendix B at the end of this document shows the outfall locations along with discharge monitoring reports for sampled outfalls in a format approved by the Vermont Department of Environmental Conservation (VTDEC). Note that some of the sites were resampled for optical brightener multiple times as the pads or mounting hardware were lost during storm events.

Based upon the above results, our first illicit discharge was detected this fall in a Plattsburgh Avenue outfall that flows into the Winooski River. Extensive bacteria and video work around Plattsburgh Avenue resulted in finding a house connection into the stormwater pipe on Turf Road. The property owner was alerted to this situation and corrected the problem within a few weeks of notice. A follow up *E. Coli* sample a few weeks after the separation work showed bacteria concentrations greatly reduced but still above background levels. It is believed that with the absence of storm events to flush residual solids out of the pipe network we may be seeing bacteria from this household discharge. Unfortunately, cold weather does not allow the use of city equipment to flush out these stormwater pipes. Additional field testing will be performed as weather conditions allow.

A second illicit discharge was detected in a stormwater outfall that serves Shelburne Street and discharges into Englesby Brook. The source of wastes has not yet been determined because of limited access to the storm pipe for sampling or video cameras. Unlike most systems that have manholes at regular intervals, this system has catch basins tied into the main pipe without the use of manholes. With the onset of cold weather, we had to abandon our search for the source(s) of contamination, but will continue to look as weather conditions allow.

4. Construction Site Stormwater Runoff Control

It is the opinion of the city that erosion is generated by all projects that disturb soils and that construction site erosion can be controlled in all cases. The Burlington Conservation Board, Public Works and other interested parties have developed an erosion and sediment control checklist to be filled out by permittees that disturb soils, regardless of project size. Appendix C includes this checklist. It was designed to capture projects that fall under the State of Vermont's Construction General Permit thresholds with the intent of:

- Educating the permittee on construction site erosion with means for control,
- Providing the city with pertinent information on the project, and
- Providing a means for enforcement action if necessary.

This checklist will soon be added to the Planning and Zoning permit application with review and approvals from Public Works. Issues yet to be resolved include inspection and enforcement responsibilities.

The VTDEC had requested that the city provide a list of projects under construction in 2004 that met the one acre impervious and five acre disturbed area thresholds for state permitting requirements. While the city's database does not record this particular data, projects under construction that are known to meet these thresholds are the Fletcher Allen Health Care (FAHC) expansion and the University Heights student housing project for the University of Vermont (UVM).

5. Post-Construction Stormwater Management in New Development and Redevelopment

Our permit plan included recommendations that all development and redevelopment at least attempt to meet standards set forth in the 2002 VTDEC Stormwater Management Manuals, and have the city create a requirement that all projects disturbing one acre or more of land conform to these standards. These requirements were informally started in 2003. Through the Technical Review Committee process, Public Works has been able to add this condition to projects. Those projects that have structural treatment systems are also required to provide an operation and maintenance (O&M) plan for their system.

6. Pollution Prevention and Good Housekeeping for Municipal Operations

As discussed in the stormwater plan, the only requirement in year 1 was preparation for issuance of VTDEC's Multi-Sector General Permit (MSGP). Although the issuance of these permits are on hold, the city had their Public Works and wastewater facilities inspected by an Environmental Assistance Specialist from the State's Environmental Assistance Division. In summary, these facilities were deemed in excellent condition and only a few minor procedural changes were necessary to be in full compliance with provisions of the MSGP and other safety or environmental regulations.

A system for the inspection, cleaning and repair of catch basins was started in 2004. According to the right-of-way group in Public Works, we cleaned 637 and repaired 67 catch

basins for the year. City street sweepers removed about 1735 cubic yards of debris for a total weight of around 2,600 tons.

In terms of education, a draft MS Powerpoint presentation has been developed to train municipal employees on the telltale signs of illicit discharges, construction site erosion issues, and good housekeeping practices for municipal operations. Our intent is to provide employees with the tools to become stewards of water quality. We plan on starting this presentation with Public Works employees, continue with the Parks Department and then move on to other City departments. Training of all employees will help to provide continuous coverage in the City of Burlington.

C. ACTIVITIES PLANNED FOR THE CURRENT ANNUAL CYCLE

This section outlines all activities planned for 2005 in accordance with the approved stormwater management plan.

1. Public Education/Outreach Program

As noted above, the RSEP consultant will begin media spots to increase awareness of stormwater pollution and show ways to minimize our impact to the environment. Burlington will continue to fund its share of this effort.

2. Public Involvement/Participation

Clean-Up Day 2005 will be once again sponsored in part by Public Works, both in Englesby Brook and throughout the city in the form of debris pickup and disposal. Additional stormdrain stenciling and public stormwater workshops are planned.

3. Illicit Discharge and Elimination

The storm outfall monitoring will continue in 2005 for those outfalls where data was unavailable due to no flow or OB pad loss. More importantly, we plan on finding and eliminating the illicit discharge along Shelburne Street.

4. Construction Site Stormwater Runoff Control

We expect implementation of the draft erosion and sediment control checklist shown in Appendix C of this document, including designation of inspection and enforcement responsibilities. Training of municipal employees to spot and report construction site erosion will commence this year.

5. Post-Construction Stormwater Management in New Development and Redevelopment

Since 2003, the city has been requesting or requiring that developers meet the standards set forth in the 2002 Vermont Stormwater Manual, depending on project size. We plan on continuing this practice while determining whether or not we need a formal ordinance. As part of the original plan, additional training for municipal employees is encouraged.

6. Pollution Prevention and Good Housekeeping for Municipal Operations

The city will pursue application for a MSGP when that becomes available. In addition,

various other municipal programs are planned for development and implementation this year.

D. PROPOSED CHANGES TO THE STORMWATER PLAN OR TIMELINE

As discussed above and as seen in the updated Phase II timeline shown in Appendix D, the only changes at this time are the timing of some of the program tasks. In particular, some of the construction site runoff control and post-construction management programs were not fully developed and implemented in 2004. This was due in part to available resources working on permit applications for coverage under general permit 3-9015 for those systems with expired stormwater permits.

E. CHANGE IN RESPONSIBILITY FOR PERMIT OBLIGATIONS

At this time, there are no changes in responsibility for any of the tasks outline in the approved plan.

F. CERTIFICATION

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Steven Goodkind, P.E. Director of Public Works

Date Signed

APPENDIX A – REGIONAL STORMWATER EDUCATIONAL PROGRAM

2004 Recap of Public Education and Outreach Activities

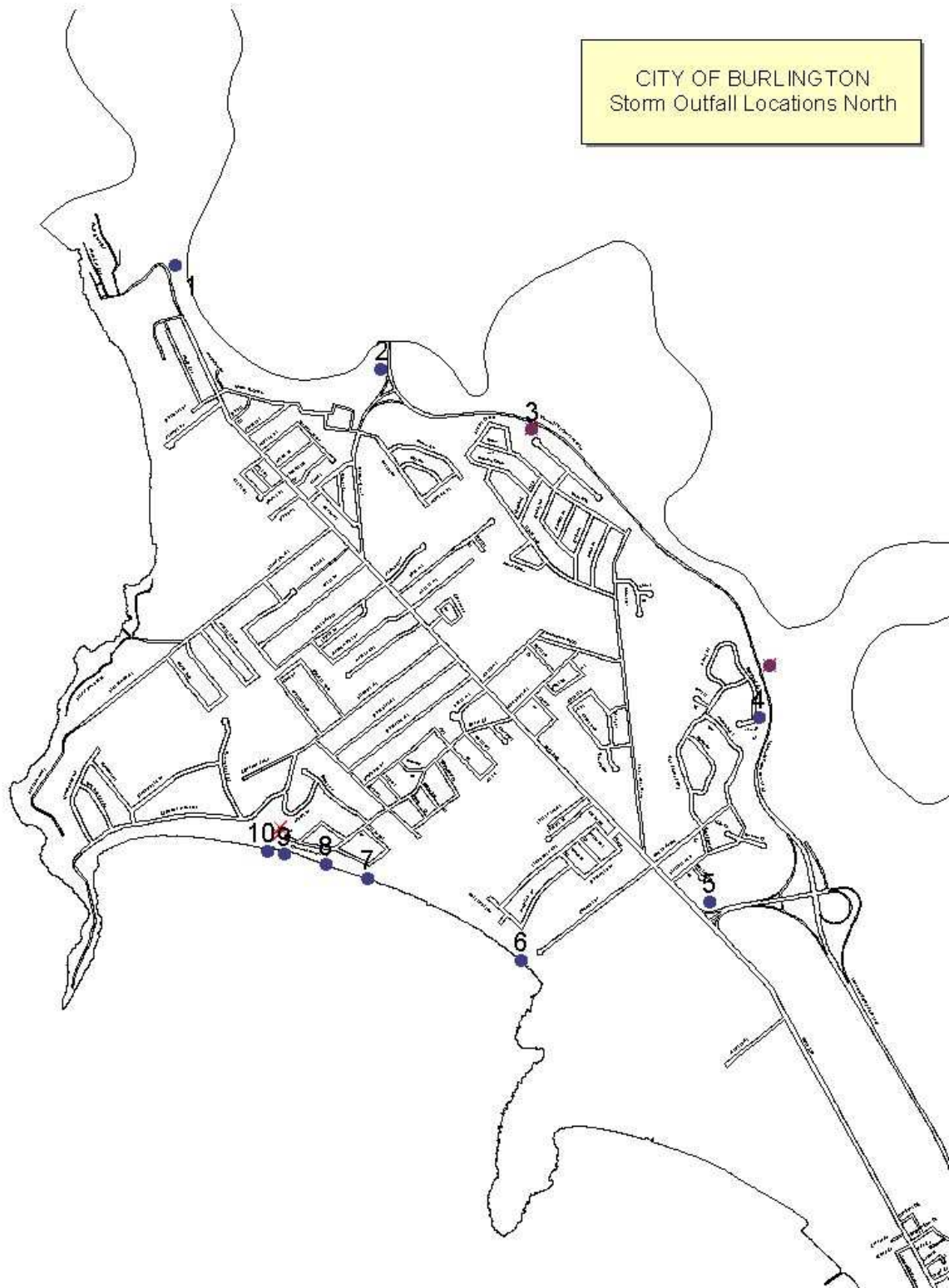
During 2004, RSEP continued its work on a public education and outreach campaign. The multi-faceted campaign included both paid and unpaid media with an overall goal of increasing awareness and understanding of stormwater runoff pollution, prevention methods, the connection between stormwater runoff and water quality, and the impact of the behavior of individuals. Marketing Partners, Inc., continues to work as the social marketing contractor to RSEP to implement the public outreach campaign. RSEP accomplished the goals outlined in the initial Communication Plan. The 2004 accomplishments include:

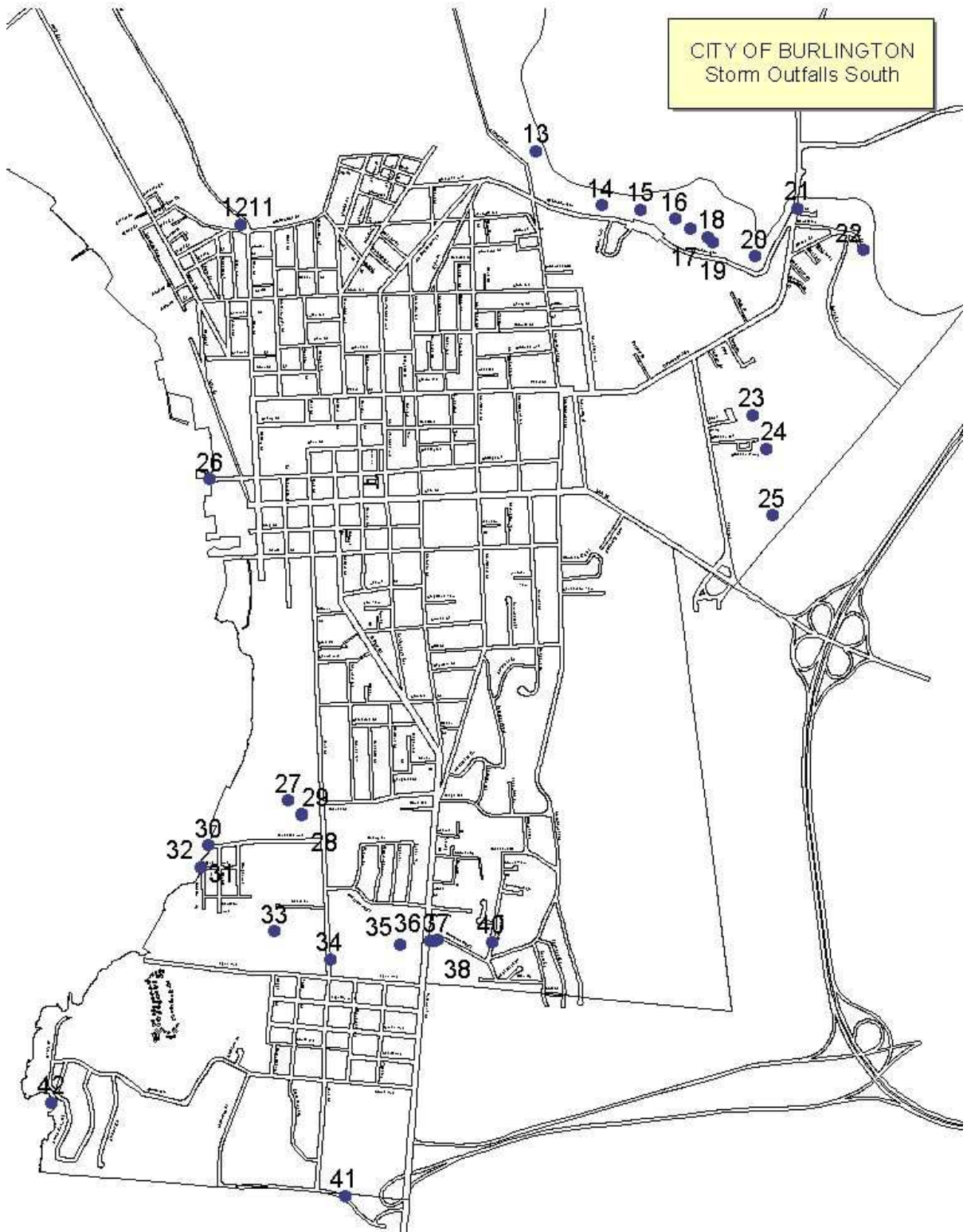
- Development and completion of initial RSEP communication toolbox: 5 television ads, 5 radio ads and 5 print ads, tip sheets, news releases, and Smart Waterways Website. The five subjects for the ads were selected based on lack of knowledge identified in a survey of local residents. Each ad uses a Problem-Solution approach.
 - What is stormwater runoff?
 - Pet waste disposal
 - Car washing on lawns
 - Improper use or disposal of fertilizers and other chemicals
 - Non-use of berms or other erosion controls for home construction and landscaping projects
- 4-week paid media campaign throughout Chittenden County. The multi-media campaign included cable television, community newspapers and top rated radio stations. The campaign flight was a two-month period with ads inserted every other week in 9 community newspapers and airing for four straight weeks on cable television and radio.
- Launch website which includes full toolkits materials and stormwater educational event calendar.
- Completion of the Annual Review for 2003, including documentation of accomplishments, visibility reports, website reports, and master CD-ROMs of all materials produced.
- Develop a Communication Plan for the upcoming year which identifies goals, strategies and program objectives.
- Building on program accomplishments from the previous year, refine and update messaging consistent with campaign brand identity.
- Monitor, update website and evaluate tracking data. Compile website tracking data in order to monitor outreach effectiveness.
- Creating increased visibility throughout Chittenden County. From August through December 2004, there were a series of newspaper articles, and television and radio newscasts on stormwater and water quality, including initiatives by the Lake Champlain Committee, Vermont Department of Environmental Conservation, the Lake Champlain Basin Program and Governor James Douglas' Clean and Clear

Action Plan. Each of these initiatives had its own website featured in the news, which linked to the new smartwaterways.org website. Also during that time period, members of the RSEP steering committee made community presentations in which they mentioned the smartwaterways.org website and materials.

- Filmed raw footage for a 5-minute stormwater educational video to add to the communication toolbox. Work with outside vendors in capturing stormwater runoff video files.
- Development of a stormwater panel TV show concept, to feature the new video. Work with local resources in identifying appropriate panel participants and secure a broadcast commitment on local cable TV channels.
- Continued collaboration with partners in furthering stormwater educational outreach. Develop and use distribution lists with contacts at schools, environmental businesses and organizations, government and water quality groups.

APPENDIX B – OUTFALL LOCATIONS AND DISCHARGE MONITORING REPORTS





APPENDIX C – DRAFT CONSTRUCTION EROSION AND SEDIMENT CONTROL PLAN

**CITY OF BURLINGTON
SMALL PROJECT EROSION AND SEDIMENT CONTROL PLAN**

1. Project Location_____
2. Brief Project Description (i.e. house foundation, swimming pool)_____

3. Will the Project Require:
 - a. ___ Building Permit (Contact Public Works at 863-9094)
 - b. ___ Zoning Permit (Contact Planning and Zoning at 865-7188)
 - c. ___ Development Review Board Approval
4. Owner Name/Address/Phone_____
5. Contractor Name/Address/Phone_____
6. Estimated Project Start Date_____ Estimated End Date_____
7. Area and Depth of Soil Disturbance ___ ft long by ___ ft wide by ___ ft deep
8. Distance in feet to nearest: Drainage Ditch_____
 Catch Basin_____
 Lake/River/Stream_____
 City Sidewalk_____
 City Street_____

QUESTIONNAIRE *(See last page for typical solutions to these questions)*

A) Nature of all site disturbances (check all that apply): Underground utility trench(es),
 curb cut/driveway foundation cut/fill/regarding landscaping
 other _____

B) Will excavated soil be stockpiled on the site? Yes No

- If yes, how long will the stockpile be on site? (i.e. 1 day, 1 week)_____. How do you propose to control erosion of the stockpile? _____

- If no, where is the ultimate disposal of excess soil? _____

C) Will site conditions (i.e. slope, soil type, distance to property boundary) allow disturbed soils to leave the property during rainstorms or snowmelt? Yes No

- If yes, tell us how you agree to prevent this situation or control soils from entering nearby ditches, catch basins or lakes, rivers, streams and/or city sidewalks and streets? _____

- If no, tell us why runoff from storms or snowmelt events will not leave the site.

D) Does your project require an Erosion Prevention and Sediment Control Plan (EPSCP) under either Construction General Permits #3-9001 or #3-9013? Yes No

If yes, please submit a copy of your state approved project EPSCP with this review application.

If no, have you demonstrated that the total amount of earth disturbance is less than one acre in area?

If you are not sure, contact Kim Greenwood at ANR Water Quality Division, 802-241-3770 and/or the ANR web page at

http://www.vtwaterquality.org/stormwater/htm/sw_cgp.htm

E) Do you plan to park construction vehicles on or disturb City owned property like the greenbelt area? Yes No

- If yes, tell us how you agree to repair all disturbances or damage to City owned property and provide a written approval from the City allowing construction vehicles to park on City owned property.
- If no, then please monitor all construction and visitor vehicles and advise all not to park on City owned property.

F) How do you propose to either prevent or clean sediment generated from construction vehicles and activities that becomes deposited on City streets, sidewalks, or bikepaths and how frequently this will be done.

G) Will stockpiles or disturbed soils be present and/or exposed after Nov. 1st of any construction year? Yes No

- If yes, tell us how you plan to stabilize any stockpile and/or disturbed soils.

AGREEMENT

By filling out and signing this plan, I agree to abide by the terms and conditions outlined above. Failure to follow this plan can result in a stop work order by the City of Burlington, fines, or both.

By: Owner Contractor Architect/Engineer

Name Signature Date

REVIEW STATUS

Reviewed by: _____ Date: _____

Current Status: Approved Approved as Noted Revise and Resubmit.

Site visit required? Yes No

Comments or Conditions: _____

TYPICAL SOLUTIONS TO PREVENT OR CONTROL SEDIMENT AND EROSION

STOCKPILES

- Cover stockpiles with a tarp when not being used.
- Install silt fencing or other appropriate device around the stockpiles to filter sediment.
- Cover stockpiles with straw or other approved mulching material.
- Plant grass and mulch stockpiles that will be on site for more than 14 days.
 - Cover, vegetate or install erosion matting on stockpiles that will remain disturbed over the winter.

DISTURBED AREAS

- Cover disturbed areas with a tarp when not being used.
- Maintain vegetated buffers around disturbed areas.
- Install silt fencing or other appropriate device to filter sediment washing off from disturbed areas.
- Cover disturbed areas with straw or other approved mulching material.
- Plant grass and mulch all disturbed areas that will remain exposed for more than 14 days.
- Cover, vegetate or install erosion matting on areas that will remain disturbed over the winter.

Protect ditches, catch basins or water bodies off-site by using silt fencing, gravel check dams or other approved sediment control methods.

CONSTRUCTION VEHICLES

- Do not park construction vehicles on City owned green space. Vehicles disturb vegetation and compact the soil, thereby reducing its ability to infiltrate stormwater.
- Prevent sediment from leaving the project by cleaning the tires of vehicles.
- Sweep city streets, sidewalks and bikepaths daily or as needed to remove sediment transported from the project.

RESOURCES

The Vermont Handbook for Erosion Prevention and Sediment Control at:

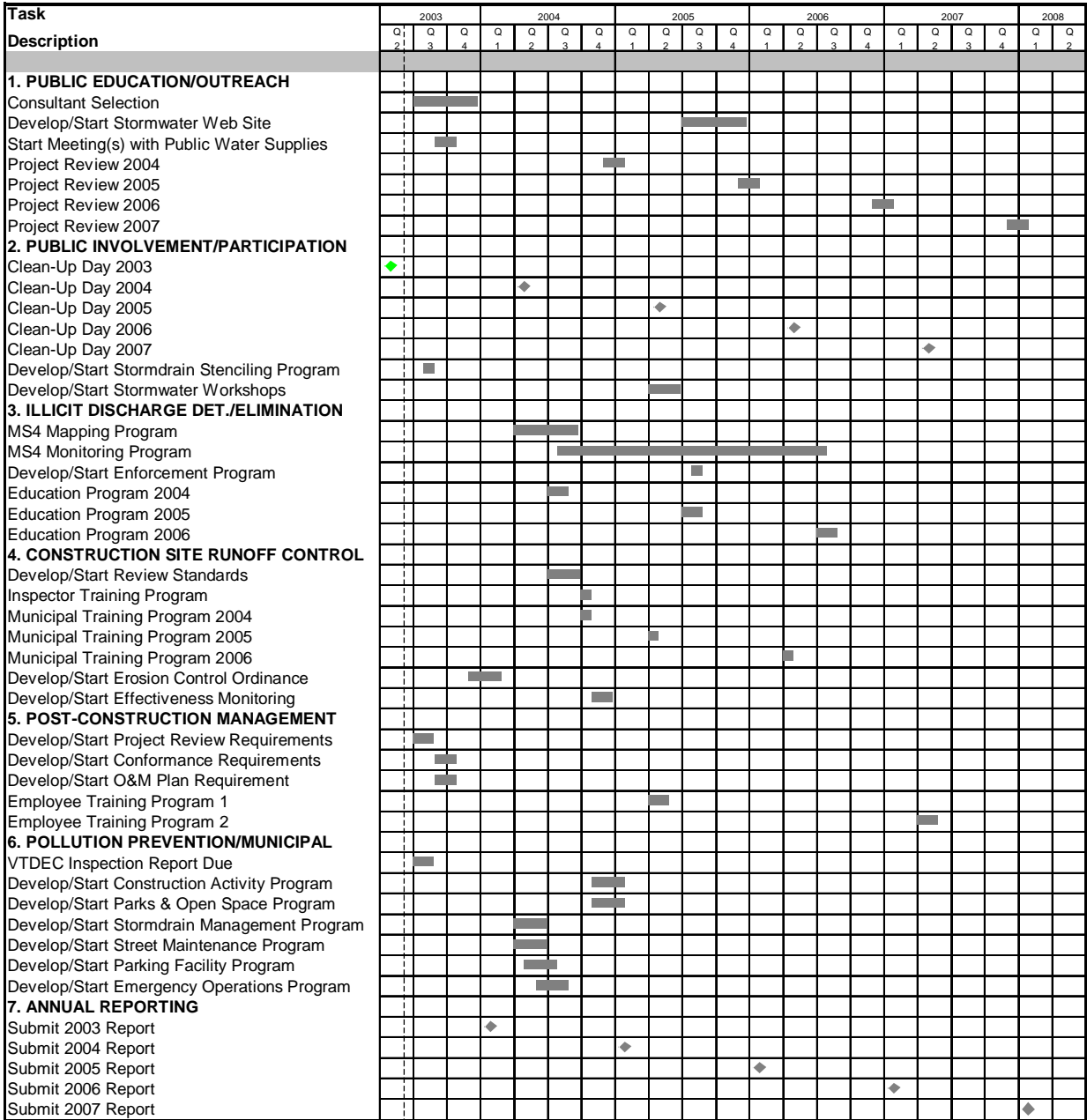
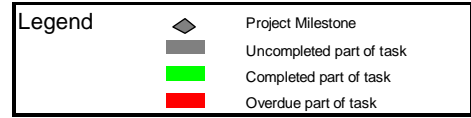
http://www.anr.state.vt.us/dec/waterq/stormwater/htm/sw_erosionhandbk.htm

The Environmental Protection Agency's National Pollutant Discharge Elimination System web page at: http://cfpub1.epa.gov/npdes/faqs.cfm?program_id=6#181

The City of Burlington Conservation Board Stormwater and Erosion Control Fact sheet at <http://www.ci.burlington.vt.us/planning/cb/stormwater/management.html>

APPENDIX D – ORIGINAL AND UPDATED PHASE II TIMELINES

BURLINGTON PHASE II TIMELINE



BURLINGTON PHASE II TIMELINE
February 2005 Update

Legend	
	Project Milestone
	Uncompleted part of task
	Completed part of task
	Overdue part of task

Task Description	2003			2004				2005				2006				2007					
	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2
1. PUBLIC EDUCATION/OUTREACH																					
Consultant Selection																					
Develop/Start Stormwater Web Site																					
Start Meeting(s) with Public Water Supplies																					
Project Review 2004																					
Project Review 2005																					
Project Review 2006																					
Project Review 2007																					
2. PUBLIC INVOLVEMENT/PARTICIPATION																					
Clean-Up Day 2003																					
Clean-Up Day 2004																					
Clean-Up Day 2005																					
Clean-Up Day 2006																					
Clean-Up Day 2007																					
Develop/Start Stormdrain Stenciling Program																					
Develop/Start Stormwater Workshops																					
3. ILLICIT DISCHARGE DET./ELIMINATION																					
MS4 Mapping Program																					
MS4 Monitoring Program																					
Develop/Start Enforcement Program																					
Education Program 2004																					
Education Program 2005																					
Education Program 2006																					
4. CONSTRUCTION SITE RUNOFF CONTROL																					
Develop/Start Review Standards																					
Inspector Training Program																					
Municipal Training Program 2004																					
Municipal Training Program 2005																					
Municipal Training Program 2006																					
Develop/Start Erosion Control Ordinance																					
Develop/Start Effectiveness Monitoring																					
5. POST-CONSTRUCTION MANAGEMENT																					
Develop/Start Project Review Requirements																					
Develop/Start Conformance Requirements																					
Develop/Start O&M Plan Requirement																					
Employee Training Program 1																					
Employee Training Program 2																					
6. POLLUTION PREVENTION/MUNICIPAL																					
VTDEC Inspection Report Due																					
Develop/Start Construction Activity Program																					
Develop/Start Parks & Open Space Program																					
Develop/Start Stormdrain Management Program																					
Develop/Start Street Maintenance Program																					
Develop/Start Parking Facility Program																					
Develop/Start Emergency Operations Program																					
7. ANNUAL REPORTING																					
Submit 2003 Report																					
Submit 2004 Report																					
Submit 2005 Report																					
Submit 2006 Report																					
Submit 2007 Report																					

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