

NEW HAMPSHIRE STORMWATER MANUAL



VOLUME 3 EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION

DECEMBER 2008



NEW HAMPSHIRE STORMWATER MANUAL

VOLUME 3

Erosion and Sediment Controls During Construction

Written, Compiled and Edited

by Comprehensive Environmental Inc.
and the New Hampshire Department of Environmental
Services

The compilation of this document was drawn extensively from the following sources, as well as other references cited in the text:

Hubert, M (Eds.). (March 2003). *Maine Erosion and Sediment Control BMPs*. Augusta, ME: Bureau of Land and Water Quality, Maine Department of Environmental Protection (ME DEP). Accessed May 2007: <http://maine.gov/dep/blwq/docstand/escbmps/index.htm>

Minnick, E.L. and H.T. Marshall. (August 1992). *Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire*. Exeter, NH: Rockingham County Conservation District.

Rothchild, J.A. (Eds.). (2001). *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*. Hartford, CT: Connecticut Department of Environmental Protection.

Salix, Applied Earthcare. (2004). *Erosion Draw 5.0: Erosion Control Standards and Construction Drawings*. Redding, CA: Salix, Applied Earthcare.

Design and Layout

by Comprehensive Environmental Inc.

Illustrations adapted from cited reference material.

Photography by New Hampshire Department of Environmental Services

Cover Photograph by David Price, New Hampshire Department of Environmental Services.

Development of a residential community in Exeter, NH.

NEW HAMPSHIRE STORMWATER MANUAL

VOLUME 3 Erosion and Sediment Controls During Construction

December 2008

Revision 1.0

Thomas S. Burack, *Commissioner*

Michael J. Walls, *Assistant Commissioner*

Harry Stewart, P.E., *Director, Water Division*

This manual is funded in part through a
Clean Water Act Section 319
Nonpoint Source Program grant and a
Clean Water Act Section 104(b)(3) grant from the U.S.
Environmental Protection Agency through the
New Hampshire Department of
Environmental Services,
Watershed Assistance Section.



Printed on Recycled Paper

Acknowledgements

To the individuals who assisted in the creation of this manual, a special thank you for your time, commitment, and support, and for your dedication to the protection of New Hampshire's environment.

NHDES Project Team

Amy C. Clark, P.E., *NHDES Terrain Alteration Bureau*
Gregg Comstock, P.E., *NHDES Water Quality Section*
Paul Currier, P.E., *NHDES Watershed Management Bureau*
Ridgely Mauck, P.E., *NHDES Terrain Alteration Bureau*
Jillian McCarthy, *NHDES Watershed Assistance Section*
Eric Williams, *NHDES Watershed Assistance Section*

Provided Support and Assistance

Laura Aibel, *City of Concord, NH*
Arlene Allen, *NHDES Wetlands Bureau*
Jeffrey G. Andrews, P.E., *NHDES Wastewater Engineering Bureau*
Bill Arcieri, CPESC, *Vanasse Hangen Brustlin, Inc.*
Richard G. Ball, *Town of Belmont, NH*
Sara Carbonneau, *Town of Swanzey, NH*
Alicia Carlson, *NHDES Drinking Water and Groundwater Bureau*
Jeffrey K. Clifford, P.E., *Altus Engineering, Inc.*
Karen H. Dudley, CPSC, *Natural Resources Conservation Services*
Darlene Forst, *NHDES Wetlands Bureau*
James P. Gove, CSS, CWS, CPSC, CPESC,
Gove Environmental Services, Inc.
Tony Marcotte, P.E., *MDP Development, Inc.*
Kevin A. McCaffery, P.E., *Stantec*
Tyler Phillips, CPESC, *Horizons Engineering*
Michael J. Redding, P.E., CPESC, *GeoInsight, Inc.*
Pierce Rigrod, *NHDES Drinking Water and Groundwater Bureau*
Robert Roseen, P.E., Ph.D., *University of New Hampshire*
Randall Shuey, CPESC, *New England Environmental, Inc.*
Gary Springs, CPESC, *Certified Erosion Control – NH*
J. Daniel Tatem, *Stantec*

Project Team at Comprehensive Environmental, Inc.

Rebecca Balke, P.E., Senior Engineer
Julia Capurso, E.I.T., Project Engineer
David Nyman, P.E., Project Manager
Eileen Pannetier, Program Director

Table of Contents

Chapter 1 Introduction.....	1
1-1. About the New Hampshire Stormwater Manual	2
1-2. About Volume 3	4
Chapter 2 Regulation & Permitting.....	7
2-1. New Hampshire Regulatory Programs.....	9
NH Statutes	9
NH Surface Water Quality Regulations.....	9
401 Water Quality Certification.....	9
NH Alteration of Terrain Permit	10
NHDES Wetlands Bureau Dredge and Fill Permit.....	11
NHDES Shoreland Permit.....	12
2-2. Federal Permit Programs.....	13
National Pollutant Discharge Elimination System Program	13
Department of the Army Programmatic General Permit - State of New Hampshire.....	15
Chapter 3 Planning & Selecting Erosion & Sediment Controls.....	17
3-1. Erosion and Sediment Control Strategies	17
3-2. The Erosion and Sediment Control Plan	23
Erosion and Sediment Control Plan Narrative	24
Erosion and Sediment Control Drawings.....	25
3-3. Erosion and Sediment Control Selection Table.....	28
Chapter 4 Construction Phase Erosion & Sediment Controls.....	30
4-1. Erosion Control Practices	31
Construction Phasing.....	32
Dust Control	38
Surface Roughening	42
Soil Stockpile Practices	46
Temporary & Permanent Mulching	48
Temporary Vegetation	54

Permanent Vegetation	60
Temporary Erosion Control Blanket	68
Diversion	76
Slope Drain.....	82
4-2. Sediment Control Practices	89
Silt Fence	90
Straw or Hay Bale Barrier.....	100
Erosion Control Mix Berms	106
Temporary Check Dams	114
Temporary Storm Drain Inlet Protection	118
Temporary Construction Exit	124
Temporary Sediment Trap.....	128
Temporary Sediment Basin	138
Construction Dewatering.....	144
Flocculants.....	150
4-3. Winter Weather Stabilization	
& Construction Practices	152
4-4. Erosion and Sediment Control Monitoring.....	156
Inspection of Erosion and Sediment Controls	156
Contingency Measures During Construction	158
 Appendix A. References	 159
 Appendix B. Sample Inspection Report	 161

List of Tables

Table 3-1. Selection of Erosion and Sediment Control Practices.....	29
Table 4-1. Seeding Recommendations for Temporary Vegetation	58
Table 4-2. Seed Mixture Selection Based on Soil Type.....	65
Table 4-3. Seed Mixtures for Permanent Vegetation	66

List of Figures

Figure 2-1. Applicability of Permit Programs.....	8
---	---