



University of New Hampshire
University of New Hampshire Scholars'
Repository

PREP Reports & Publications

Institute for the Study of Earth, Oceans, and Space
(EOS)

3-31-2010

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

Piscataqua Region Estuaries Partnership

Ken Hickey

FB Environmental Associates, Inc.

Cayce Dalton

FB Environmental Associates, Inc.

Jeff Clifford

Altus Engineering, Inc.

Follow this and additional works at: <https://scholars.unh.edu/prep>

 Part of the [Marine Biology Commons](#)

Recommended Citation

Piscataqua Region Estuaries Partnership; Hickey, Ken; Dalton, Cayce; and Clifford, Jeff, "Review of Erosion and Sedimentation Control Programs in the Piscataqua Region" (2010). *PREP Reports & Publications*. 33.
<https://scholars.unh.edu/prep/33>

This Report is brought to you for free and open access by the Institute for the Study of Earth, Oceans, and Space (EOS) at University of New Hampshire Scholars' Repository. It has been accepted for inclusion in PREP Reports & Publications by an authorized administrator of University of New Hampshire Scholars' Repository. For more information, please contact nicole.hentz@unh.edu.

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

March 31, 2010



Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

The Review of Erosion and Sediment Control (E&SC) Programs in the Piscataqua Region provides an assessment of the current status of E&SC programs in the two states and 52 municipalities of the Piscataqua Region watershed and recommendations for improving these programs.

Prepared by:

Ken Hickey and Cayce Dalton of FB Environmental Associates, Inc.
and Jeff Clifford of Altus Engineering, Inc.

for

Piscataqua Region Estuaries Partnership

March 2010

This report was funded by a grant from the Piscataqua Region Estuaries Partnership, as authorized by the U.S. Environmental Protection Agency's National Estuaries Program.

Table of Contents

1. Introduction..... 1

 1.1. Statement of Problem..... 1

 1.2. Overview of Applicable Regulations..... 2

 1.3. Project Goals and Approach 2

2. State and Federal Programs Assessment..... 5

 2.1. Overview of Applicable State Regulatory Programs..... 5

 2.2. Review of Available New Hampshire Data 8

 2.3. Review of Available Maine Data 11

 2.4. New Hampshire Survey Responses 15

 2.5. Maine Survey Responses..... 16

 2.6. Summary..... 17

3. Municipal Programs Assessment..... 20

 3.1. Overview of Applicable Municipal Regulatory Programs..... 20

 3.2. Available E&SC-related Data and Associated Limitations for 15 Municipalities 21

 3.3. Summary of 15 Town Data Review..... 23

 3.4. Summary of Available Data for 6 Municipalities 27

 3.5. Municipal Survey Responses..... 34

 3.6. Recommendations based on Municipal Staff Interviews 35

 3.7. Summary..... 37

4. Construction Contractor and Site Inspector Survey Summary 39

 4.1. Participating Firms 39

 4.2. Contractor Survey Results..... 40

 4.3. Inspector Survey Results 42

 4.4. Summary..... 45

5. Summary and Recommendations 47

 5.1. Summary..... 47

 5.2. Recommendations..... 53

Appendix A: Municipal Interviews..... 56

Appendix B: Contractor Questionnaire..... 80

Appendix C: Inspection Firm Questionnaire..... 83

List of Tables

Table 2-2: Summary of Maine state permits from 2006-2008..... 12
Table 2-3: Breakdown of Permit-by-Rule (PBR) Permits by Type (i.e., activity code)..... 14
Table 3-1: Summary of geospatial, electronic data available at state and municipal level. 24
Table 3-2: Overview of E&S Control Permit Information Obtained from 15 PREP Towns. 25
Table 3-4: Number of permits in the 6 selected towns by permit type. 29
Table 3-5: Permit Cross-referencing: Exeter, Rochester, and Rye, New Hampshire Data..... 30

List of Figures

Error! No table of figures entries found.

1. Introduction

The Piscataqua Region Estuaries Partnership (PREP) seeks to minimize adverse impacts to water resources associated with construction site development activities. In order to achieve this goal, PREP must understand the strengths and weaknesses of existing erosion and sedimentation control (E&SC) programs in the 52 municipalities of the PREP watershed (Figure 1-1). A detailed understanding of the existing E&SC programs will enable PREP and other stakeholders to identify and implement actions to improve E&SC programs and minimize adverse impacts.

This report provides a review and assessment of existing erosion and sedimentation control programs and a set of recommendations for improving these programs. Our approach in conducting the review was to obtain available federal, state and municipal programs data and to interview people who work with E&SC programs on a daily basis, including state, municipal, construction contractor and site inspector staff. A statement of the problem, an introduction to applicable regulations, and a description of our project approach are provided below.

1.1. Statement of Problem

Nonpoint source pollution, including stormwater runoff, is a major source of pollution affecting estuaries in the Piscataqua Region. Stormwater runoff from construction sites is a potentially large source of nonpoint source pollution. There are hundreds of construction projects ongoing each year in the PREP watershed. These projects range from single homes and small commercial buildings to large residential subdivisions and large-scale retail complexes. At each construction site, the land surface is cleared and soils are exposed making them vulnerable to stormwater runoff. Construction site stormwater runoff can carry large volumes of soil and associated pollutants to receiving waterbodies.

There are several regulations designed to minimize the potentially adverse impacts of construction area stormwater runoff. These regulations exist at the municipal, state, and Federal government level and are generally referred to as erosion and sedimentation control programs. If E&SC programs are not well designed and executed, adverse impacts to surface waters can occur. These adverse impacts can include large loads of sediment and associated contaminants delivered to surface waters without the buffering capacity to filter, dilute, and absorb the pollutants. As a direct result, surface water quality and biological community can be degraded.

The PREP watershed population grew by 40% over the past 25 years and is expected to grow by an additional 25% in the next 25 years. Population growth often spurs new construction activity. Due to the presence of increasing construction activity and limited governmental resources available to conduct E&SC programs, there is concern that construction site nonpoint source pollution will be growing problem.

In this context, it is important that we carefully evaluate how well E&SC programs are working. There appears to be a paucity of data and information to support evaluation of on-the-ground success of

construction site E&SC programs. This study attempts to provide an assessment of existing programs and their strengths and weaknesses. The next step is to recommend and then enact improvements to these programs, as needed, to ensure that our surface water resources are protected during this period of increasing development and population growth.

1.2. Overview of Applicable Regulations

Stormwater management during construction is governed by federal, state, and municipal regulations depending on the size of the project, its location relative to sensitive habitats, municipal ordinances, and other factors. The PREP watershed includes 52 municipalities in New Hampshire and Maine (Figure 1-1). A set of potentially applicable regulations are listed below:

➤ In New Hampshire

- Municipal permit – individual house lot
- Municipal permit – site plan review for subdivisions and non-residential development
- NHDES Wetlands/Shoreland Program permits
- NHDES Alteration of Terrain Program permits
- NH Construction General Permits
- NH 401 Water Quality Certification Program

➤ In Maine

- Municipal permit – individual house lot
- Municipal permit – site plan review for subdivisions and non-residential development
- Maine Mandatory Shoreland Zoning Act
- Natural Resources Protection Act – Full Permit
- Natural Resources Protection Act – Permit by Rule
- Maine Construction General Permit

Each of these programs is described in the state and municipal program assessment sections below.

1.3. Project Goals and Approach

The primary goal of the project is to make recommendations to improve stormwater management during construction to protect surface waters from sedimentation and associated contaminants. A comprehensive review and assessment of the existing E&SC program is required prior to making recommendations. Thus, project goals included collecting available data and surveying key personnel issuing permits and working with E&SC at construction sites.

The project has three primary components:

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

1. State and Federal program assessment (Section 2);
2. Municipal program assessment (Section 3); and
3. Construction contractor and site inspector surveys (Section 4).

Each of these components is presented as a section of this report. Initially, it was envisioned that the state and municipal program reviews would be primarily based on review of E&SC data. As the review proceeded, it became clear that there was insufficient data available to support a data-only review. We found that most towns had paper-only data that could not be efficiently searched for E&SC program information. Some towns had electronically available data, but had fundamental technical limitations on its availability, such as inability to export data from their software to enable analysis. In addition, data frequently lacked consistent project identifying information (i.e., unique identifiers) to enable cross referencing of permit data. State data were also found to be, in some cases, difficult to obtain and review.

Our approach to conducting the review was modified in coordination with PREP staff to increase emphasis on conducting survey interviews with E&SC program staff, while continuing to pursue quantitative permit data. This approach was successful in obtaining sufficient data to support the review and yielded valuable insights from practitioners.

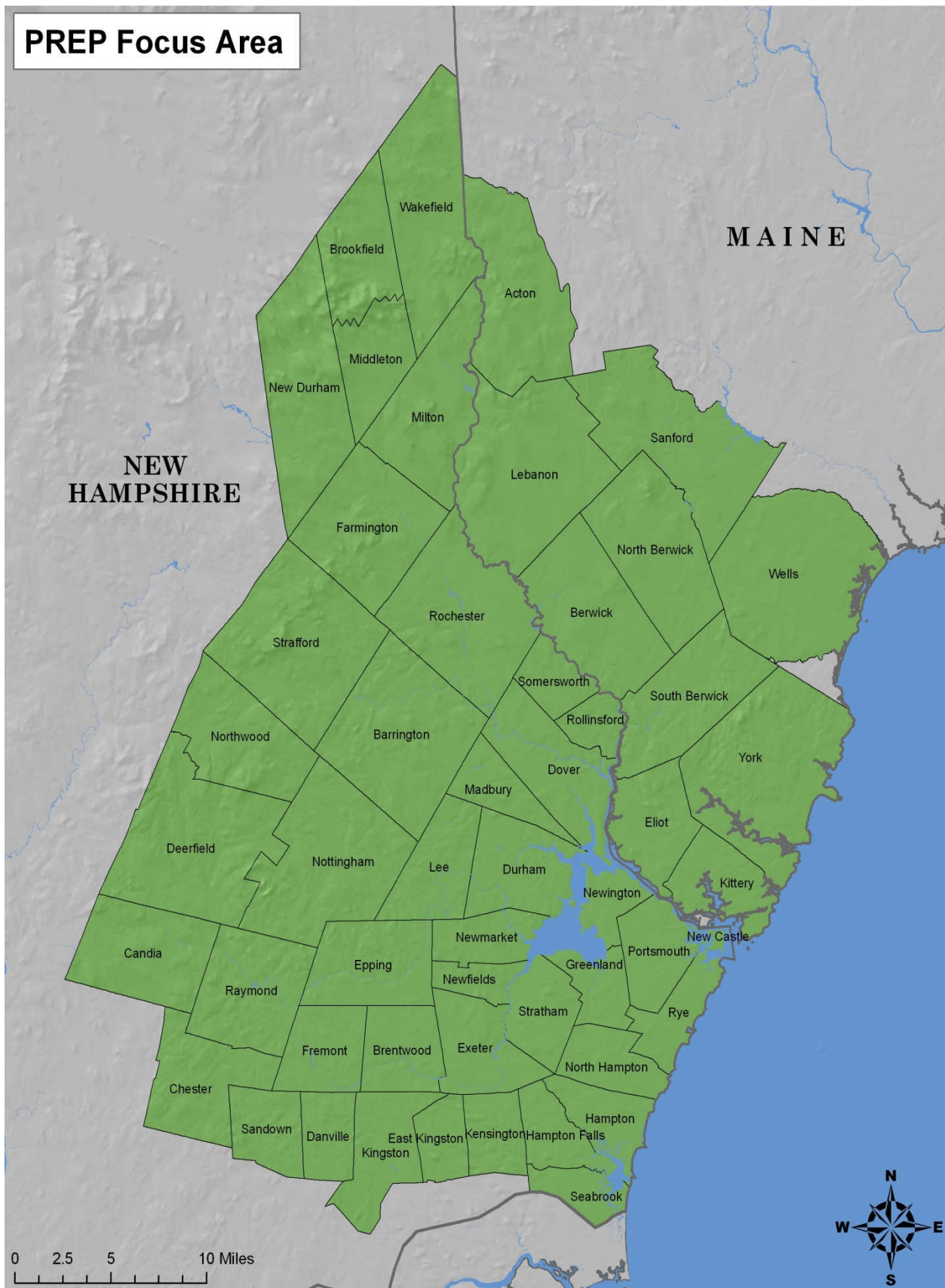


Figure 1-1: Map of the PREP Focus Area - 52 municipalities in New Hampshire and Maine.

2. State and Federal Programs Assessment

This section provides an analysis of available E&SC-related state data and a summary of interviews with New Hampshire and Maine staff working with E&SC programs. Most Federal programs are administered by the states, including in the case of Maine, the Federal level construction permit. As a result, our primary contacts were with the state, rather than Federal, staff.

Information to support the assessment is provided in two forms: (1) review of available data, and (2) interviews with state staff working with the programs. New Hampshire and Maine staff provided valuable data and useful insights to support assessment of the E&SC program performance and their contributions are greatly appreciated.

2.1. Overview of Applicable State Regulatory Programs

An overview of applicable E&SC programs in New Hampshire and Maine is provided below.

New Hampshire Program Overview

In New Hampshire, there are three primary programs focused on E&SC at construction sites:

- 1) Alteration of Terrain (AoT);
- 2) Wetlands/Shoreland Program; and
- 3) Construction General Permits.

Each of these programs is introduced below. New Hampshire's 401 Water Quality Certification Program was considered as a fourth New Hampshire program because it applies to road construction and various other construction projects. We spoke with Gregg Comstock of NHDES, who oversees the 401 program and he advised us that virtually all permits under the 401 WQ certification program also require a Wetlands Permit from NHDES. Based on his recommendation, we have relied on Wetland program information and have excluded the 401 program from this review.

Alteration of Terrain

The Alternation of Terrain program (AoT) is intended to protect surface water, drinking water supplies, and groundwater by addressing erosion and sedimentation, and stormwater discharge from developed areas. Inspection is handled by a multi-program inspection team within NH DES. The program regulates large construction sites, with variable size thresholds depending on location relative to surface water, slopes, and shoreland areas.

The Alteration of Terrain (AoT) program applies if a disturbance affects:

- 100,000 sq ft or more, or
- 50,000 in protected shoreland (250 feet from "reference line of public waters"), or
- Slopes >25% within 50 feet of surface water, or

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

- Permit by rule applies to smaller sites.

Activities covered include earth-moving operations (industrial, commercial, residential, sand and gravel pits, quarries), and the permit application requires project plans and supporting documents. Additional information about the NHDES Alteration of Terrain Program is available at:

<http://des.nh.gov/organization/divisions/water/aot/index.htm>.

Wetland/Shoreland Program

The NHDES Wetlands Program covers diverse activities in and adjacent to wetlands, including shoreline stabilization, dredge and fill, docks, and sensitive habitat development. The NHDES Wetlands Program includes the Comprehensive Shoreland Protection Act (CSPA) Program under its umbrella. CSPA underwent a major revision in April 1, 2008, with the state assuming much greater responsibility for work adjacent to major waterbodies, including issuing permits and conducting inspections. Permits prior to this date may not be comparable to permits after this date. Inspections are handled by NH DES multi-program inspectors. Additional information about the NHDES Wetland/Shoreland Program is available at: <http://des.nh.gov/organization/divisions/water/wetlands/cspa/index.htm>.

NH Construction General Permits

The Construction General Permit for NH (NHCGP) falls under the Clean Water Act, National Pollutant Discharge and Elimination System (NPDES), Phase II Federal Stormwater Regulations. In New Hampshire, the program is administered by EPA Region 1. Technically, applicants file Notice of Intent to be covered under an existing state-wide permit. This program covers projects with a developed area greater than one acre, and requires permittees (including municipalities) to develop stormwater pollution prevention plans. The area of disturbance threshold applies to any “common plan of development or sale” (thus, a single building, lot, or project less than one acre may still need a NHCGP if part of a larger project). Area disturbed is considered on a cumulative basis, and it does not need to be contiguous. Additional information about NHDES and EPA Construction General Permits is available at: <http://des.nh.gov/organization/divisions/water/stormwater/construction.htm> and <http://cfpub.epa.gov/npdes/stormwater/cgp.cfm>

Maine Program Overview

In Maine, there are three primary programs focused on E&SC at construction sites:

- Natural Resources Protection Act (NRPA) – Full NRPA and Permit-by-Rule;
- Stormwater Management Law and Site Location of Development Law; and
- Maine Construction General Permits.

Maine also has a Mandatory Shoreland Zoning Act establishing minimum requirements for shoreland areas. This program is administered at the municipal level, however, and is included in Section 3 of this report.

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

Natural Resources Protection Act (NRPA)

Maine's Natural Resources Protection Act (NRPA) permitting program aims to regulate activities within 250 feet of a protected natural resource. Resources, such as coastal sand dune systems, coastal wetlands, significant wildlife habitat, fragile mountain areas, freshwater wetlands, great ponds and rivers, streams or brooks, are nationally protected habitats. A NRPA permit is required for activities such as dredging, filling, dewatering, and any construction. There are two tracks under NRPA, Full NRPA Permits and NRPA Permit by Rule.

- *Full NRPA Permits* - The Full NRPA Permits are tiered based on the amount of area disturbed and the activity, with increasing oversight and regulations at higher tiers. Full NRPA applicants contact DEP in writing to request a pre-application meeting with a DEP licensing staff member to go over the permitting process and expectations. Certain projects require more than one type of permit. The licenser is in charge of the file and permit from start to finish, and enforcement staff participates only if compliance issues arise.
- *NRPA Permit by Rule* - The Permit by Rule (PBR) program was created to streamline smaller projects that fall under NRPA regulations. The PBR is automatically approved if the applicant does not hear back from MEDEP within 14 days of submittal. Most PBR projects affect small areas and have little impact on the environment when conducted properly. Projects include (but are not limited to) freshwater rip rap, stream crossings, replacement of structures, placement of utilities, and movement of rocks and vegetation. Most NRPA PBR projects are not inspected, due the high volume of permits.

Additional information about the Maine DEP NRPA Program is available at: <http://www.maine.gov/dep/blwq/docstand/nrpapage.htm>.

Site Location of Development

Maine's Site Location of Development (Site Law) program regulations are written, administered, and enforced by ME DEP. Site Law regulations focus on stormwater discharges and erosion and sedimentation control. The law covers a diverse set of activities, including developments greater than 20 acres, subdivisions, large structures, mining, oil terminals, and other large projects. Pre-application meetings are mandatory, except for small residential subdivisions. Inspections are first handled by the ME DEP licensing staff, and then if compliance issues arise, enforcement staff participates. Additional information about the Maine Site Location of Development Program is available at: <http://www.maine.gov/dep/blwq/docstand/sitelawpage.htm>.

Maine Construction General Permits

The Maine Construction General Permit (MECGP) is required under the Clean Water Act as in NH, but in Maine is administered by the ME DEP Stormwater Program. The current MECGP was most recently revised in 2004 and technically expired in 2008, however, it has been administratively continued and remains in force. The program applies to construction activities which disturb greater than one acre. A Notice of Intent is submitted to ME DEP, it is time stamped and logged into the NRPA PBR database,

and geolocated. Additional information about Maine's Construction General Permit Program is available at: <http://www.maine.gov/dep/blwq/docstand/stormwater/construction.htm>.

The MECGP requires permittees to have an Erosion and Sedimentation Control (ESC) Plan. A draft "Citizen's Guide to Best Management Practices" for use with the MECGP is available from ME DEP (see the "Supplementary materials" item on the online site listed above). This guide contains BMP descriptions and diagrams, along with a checklist for creating an ESC.

2.2. Review of Available New Hampshire Data

Table 2-1 provides a compilation of erosion and sedimentation control program permit data for each of the 42 New Hampshire towns in the PREP study area during the 2006-2008 time period. Program data is available online using the OneStop site. This site provides access to the NH DES permit database through pre-existing queries. FBE used the "Wetland and Shoreland Permits" and "Alteration of Terrain Permits" links to run queries.

NHDES Alteration of Terrain Program

The Alteration of Terrain OneStop query returned a total of 217 permits for the PREP towns over the study period. The query returned a summary table by town, with additional data accessible by clicking on each permit individually. The additional data included an "area disturbed" field. There were 210 permits containing data for area disturbed, and 175 permits with a permit date.

The records contained map and lot numbers, project names, permit numbers and application numbers, but did not contain street addresses or lat/long information. FBE was able to obtain GIS parcel maps for 13 of 42 towns, and created a GIS shapefile of AoT permits in those towns. It was not possible to integrate into GIS format the permit data from the other 29 towns.

The total area disturbed for the New Hampshire portion of the PREP study area was obtained by adding up all 42 towns for the 2006-2008 time period. This total estimated area disturbed during this time period is 1,787 acres, as shown in the bottom row of Table 2-1.

NHDES Wetlands / Shoreland Program

The "Wetlands and Shoreland Permits" query returned 998 permits for PREP area towns during the 2006-2008 time period. A town-by-town breakdown of Wetland/Shoreland permits is provided in Table 2-1. The data report contained the following fields (number of data points in parenthesis, if some entries were missing).

- File number
- Owner name
- Street location and City
- Waterbody (639)
- Dates received, administratively complete, and decided

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

- Tax map and lot (947)
- Project category (984, of which 163 labeled as "major impact")

FBE derived lat/long from street address and city using geocoding software, and a GIS point file was created of this dataset. Project category provides some information on the extent of the proposed project, with categories including major impact, minor impact, minimal impact, expedited minimal, and several shoreland categories. Shoreland/Wetland permits categorized as having "major impact" were observed in relatively few towns, including Hampton (42), Dover (29), Durham (14), and Portsmouth (13) (Table 2-1).

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

Table 2-1: Summary of NH state permits and estimated area disturbed from 2006-2008.

Town	AoT permits	AoT Disturbed Area (sq ft)	AoT Disturbed Area (acres)	Shoreland/Wetland Permits	Shoreland/Wetland Permits ("Major Impact")	Construction General Permits
Barrington	2	506,000	11.6	23	5	10
Brentwood	16	4,865,284	111.9	15	0	6
Brookfield	0	0	0.0	23	0	0
Candia	5	1,828,645	42.1	12	5	12
Chester	8	5,139,000	118.2	15	6	6
Danville	3	676,100	15.6	5	0	2
Deerfield	5	1,710,887	39.4	34	2	3
Dover	19	7,184,615	165.2	70	29	41
Durham	4	899,000	20.7	37	14	4
East Kingston	1	190,000	4.4	4	0	2
Epping	8	3,346,098	77.0	12	0	13
Exeter	11	3,653,644	84.0	19	3	17
Farmington	5	1,546,252	35.6	14	0	2
Fremont	1	1,399,000	32.2	4	0	1
Greenland	3	823,732	18.9	14	2	11
Hampton	4	1,464,000	33.7	146	42	7
Hampton Falls	2	365,879	8.4	9	0	0
Kensington	2	275,000	6.3	2	0	2
Kingston	5	1,247,700	28.7	15	2	6
Lee	6	1,338,188	30.8	43	0	5
Madbury	1	170,000	3.9	8	0	0
Middleton	0	0	0.0	18	0	0
Milton	3	901,500	20.7	24	0	6
New Castle	1	75,100	1.7	26	0	0
Newfields	0	0	0.0	3	4	0
New Durham	1	250,000	5.8	21	0	3
Newington	5	1,184,290	27.2	22	4	7
Newmarket	3	375,174	8.6	11	2	1
North Hampton	2	713,630	16.4	17	0	0
Northwood	1	390,000	9.0	22	2	0
Nottingham	0	0	0.0	15	0	0
Portsmouth	19	6,094,880	140.2	50	13	30
Raymond	14	5,274,200	121.3	17	2	11
Rochester	24	8,847,315	203.5	30	4	51
Rollinsford	1	150,860	3.5	5	0	0
Rye	1	174,000	4.0	47	8	6
Sandown	4	1,516,000	34.9	28	0	2
Seabrook	7	4,397,148	101.1	34	6	9
Somersworth	6	2,316,900	53.3	9	0	13
Strafford	0	0	0.0	10	1	1
Stratham	9	4,185,825	96.3	17	5	8
Wakefield	5	2,220,831	51.1	48	2	9
TOTAL	217	77,696,677.00	1,787.0	998	163	307

NH Construction General Permits (CGP)

NH CGP data are available online through the EPA Region 1 NPDES site. This dataset was obtained electronically and includes 307 construction site entries for the study area towns in the 2006-2008 time period (Table 2-1). For each construction site, the following information is provided:

- NH tracking number
- Town
- Lat/Long coordinates
- Area disturbed (often listed as "unavailable")
- Estimated start and end date
- Receiving water (often listed as "unknown")
- Street locations
- Project name and organization name

These data have been compiled electronically

2.3. Review of Available Maine Data

Table 2-2 provides a compilation of erosion and sedimentation control program permit data for each of the 10 Maine towns in the PREP study area during the 2006-2008 time period. Maine permit data was more difficult to obtain than New Hampshire data. A description of the data collection process and the permit data itself is provided by program below.

Maine Full NRPA Permits

FBE found 57 NRPA Full Permits meeting the minimum size threshold of a single house construction or equivalent. NRPA Full Permit information was obtained for the full NRPA permits by contacting ME DEP and receiving access to the paper files and photocopies of the permit applications. The 57 full NRPA permits for the 10 study area towns during the 2006-2008 time period (Table 2-2). Most (36 of 57) of the full NRPA permits were obtained by Wells (23) and York (13). Nearly all towns (9 of 10) had at least one permit during the study period. A total of three NRPA Full Permits had a Notices of Violation on record.

The Maine Full NRPA permit data contains an entry on the application form entitled; "amount of impact", however, only 31 of 57 permits (54%) had entered values. The reported areas of impact were highly variable from permit to permit. Of the 31 permits with information reported:

- 19 were less than 0.3 acres;
- 7 were between 1 and 10 acres;
- 4 were between 10 and 20 acres, and;
- 1 was 230 acres.

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

The average area impacted for these 31 permits was 11.3 acres. These permits were considered a sufficiently representative sample of all NRPA Full Permits to allow an estimate of total area disturbed for the NRPA Full Permit program. The average value was multiplied by the total number of permits (57) and an estimated total area disturbed of 644 acres (product of 11.3 x 57) for this program. Note that the NRPA program is only triggered when development occurs in or near sensitive habitat, thus is likely to underestimate the total area disturbed throughout the Maine PREP focus area.

Table 2-2: Summary of Maine state permits from 2006-2008.

Town	Permits				Violations	
	Full NRPA	NRPA Permit by Rule	Site Location for Development	Construction General	Resulting from PBR compliance inspection	Resulting from complaint inspection
Acton	0	105	0	0	0	3
Berwick	2	14	3	3	0	2
Eliot	5	13	2	0	1	1
Kittery	4	15	3	3	0	0
Lebanon	1	23	0	2	1	3
North Berwick	1	19	0	1	0	0
Sanford	6	64	5	7	0	2
South Berwick	2	10	1	0	0	0
Wells	23	41	5	5	0	2
York	13	46	1	4	1	3
TOTAL:	57	350	20	25	3	16

NRPA Permit-by-Rule (PBR)

Maine NRPA PBR data were obtained from the ME DEP online datasets as an MS Word table. We converted this data to Excel in order to conduct the analysis. The table contains detailed information about town, waterbody affected, type of project, a brief description of activity, and lat/long. It does not, however, indicate the area disturbed.

A total of 350 PBRs were issued in the 10 Maine towns during the study period, as shown in Table 2-2. At least 10 permits had been issued in each town indicating that this type of permit is widely and relatively frequently used. Acton had the most PBR permits with 100 followed by Sanford with 64 permits.

Table 2-3 provides a breakdown of PBR permits by type (i.e., activity code). The 350 PBRs are divided into 20 activity types with some types similar to construction sites, such as stormwater permits, and other types not similar, such as shoreline stabilization or restoration of natural areas.

We evaluated alternative approaches and determined that it was infeasible to estimate area disturbed for the NRPA PBR program. Analysis of the NRPA PBR permit data yielded a small number of NRPA PBR applicants (1.7%) had provided a project size in their narrative description of their project. This sample

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

size is too small to support estimation of area disturbed for the program. Also, paper copies of NRPA PBR applications did not have an area disturbed or equivalent field.

Site Location of Development

A total of 20 Site Location of Development permits were issued in the 10 Maine towns during the study period (Table 2-2). This permit information was extracted from the ME DEP Google Earth dataset. ME DEP GIS department did not have this data readily available in any other format, and advised FBE to search for conversion methods online. The KMZ file (a proprietary file type for Google Earth) was converted to Excel format. Of the 20 permits, 8 were residential, 7 were commercial, 3 were health care facilities, 1 was industrial, and 1 was a cemetery. Data were sparse, containing project name, brief description, town, map and lot. Street addresses were available for only 15 of the 20 records. Area disturbed or any other size information was not included in the data set and no information about violations was included.

Construction General Permit

A total of 25 Construction General Permits were obtained and are provided in Table 2-2. The Maine CGP were obtained by directly contacting ME DEP and receiving data in a paper format. All entries include town, project name, and a brief description and most entries included waterbody affected and a street address.

Maine Construction General Permit (MECGP) application contains a field labeled "size of disturbed area proposed." Of the 25 permits examined, 37% had a response for this field. The average area disturbed for those permits was 3.1 acres, and the range was 0.07 to 15.2 acres. Total area disturbed under the Maine CGP program was estimated by multiplying the average area disturbed by the total number of permits (3.1 acres x 25 permits). The estimated total area disturbed via the Maine CGP is 78 acres.

A summary of the state data review is provided in Section 2.6 below.

Table 2-3: Breakdown of Permit-by-Rule (PBR) Permits by Type (i.e., activity code).

Number of Permit by Rule permits from 2006 to 2008 by type in the Maine PREP area		
Activity Code	Activity Description	Number of permit type
2	ACT ADJACENT TO A PROTECTED NATURAL RESOURCE	126
3	INTAKE PIPES	2
4	MAINT REPAIR AND REPLACEMENT OF STRUCTURE	68
5	REPEALED	0
6	MOVEMENT OF ROCKS OR VEGETATION BY HAND	9
7	OUTFALL PIPES	8
8	SHORELINE STABILIZATION	23
9	CROSSINGS (UTILITY LINES ETC.)	7
10	STREAM CROSSING	26
11	GENERAL PERMITS OF STATE TRANSPORT FACILITIES	9
12	RESTORATION OF NATURAL AREAS	15
13	FISH AND WILDLIFE CREATION ENHANCEMENT AND WATER QUALITY	11
14	REPEALED	0
15	PUBLIC BOAT RAMPS	2
16	SELECT SAND DUNE PROJECTS	3
17	TRANSFERS/PERMIT EXTENSION	3
18	MAINTENANCE DREDGING	0
19	IN/ON/OVER SIGNIFICANT VERNAL POOL HABITAT	1
20	IN/ON/OVER SIGNIFICANT HABITAT IN EXISTING DEVELOPMENT	0
		313

Number of Stormwater Permit by Rule permits from 2006 to 2008 in the Maine PREP area	
Activity Description	Number of permit type
SW PBR - LAKE NOT AT RISK GREATER THAN 1 ACRE DISTURBED LESS THAN 1 ACRE IMPERV.	22
1 - 3 ACRES DISTURBED	8
3 - 5 ACRES WITH EROSION CONTROL PLAN	1
SW PBR - LAKE MOST AT RISK GREATER THAN 1 ACRE DISTURBED LESS THAN 20,000 IMPERV.	5
STORMWATER COASTAL/STREAM WATERSHED NON-WOODED BUFFER PLAN	1
	37

2.4. New Hampshire Survey Responses

NHDES staff associated with the Alteration of Terrain and Wetlands programs were interviewed to support assessment of E&SC programs in New Hampshire.

Staff Availability for the E&SC Program

The NHDES inspector for the Wetlands and Alteration of Terrain programs strives to spend 50% of his time with each of the two programs and there are 2 or 3 inspectors state wide. In practice, he spends most of his time on the Wetlands Program because there are more complaints associated with that program. The Wetlands Program deals primarily with dredging and filling of wetlands, and not with E&SC per se. The AoT program deals mainly with sites that require permit compliance, including construction sequencing and E&SC checks. The combined effect is that about 25-30% of his time is ultimately spent on E&SC. Under the Wetlands Program, responding to complaints requires the most time. Under AoT, complaints take a much smaller proportion of time. Travel time is moderate (about 10% of total time) since the East Region's field office is well-situated to the towns covered.

The level of staff resources dedicated to E&SC by program has been affected by NH's recent effort to create an integrated Land Resource Management Program. Under this program, which is in its initial implementation phase, inspectors are cross-trained under multiple programs (e.g., AoT, Wetlands, Subsurface, etc.). When the integration is complete, a single visit by one inspector will satisfy inspection requirements for multiple programs. This will streamline the inspection process, reduce travel miles, and increase efficiency. It will also enable each inspector to answer questions on a full range of land management programs, providing better service and reducing the "run-around" sensation the public sometimes feels. In the near term, however, it appears that there are more assignments for the same number of staff. In summary, one person at NHDES is available to spend 30% of his time on E&SC program issues in the PREP study area.

Recommendations

NHDES staff recommendations for program improvements were focused on getting more staff site inspectors. It is currently impossible for AoT and Wetland inspectors to visit all the sites they need to and contractors know this. As a result, they "push the envelope" on what is allowable. If there were more of a field presence, the field program would begin to work more efficiently, since contractors would be less inclined to attempt the activities that generate many complaints and violations.

Field inspectors spend a significant amount of time on paperwork (e.g., notices of violations), significantly impairing their time available to speak directly with people in the field. Typically, program paperwork requires many steps and approvals before being sent. There is an alternative program whereby DES inspectors may issue field reports at the site that are co-signed by site practitioners, committing to resolving issues promptly. This field report format has been found to be effective in some cases.

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

There is a process review underway ("LEAN") aimed at reducing the number of administrative steps required throughout NH DES, part of a 2008 EPA State Innovation Grant. While this effort may be helping some, there remains plenty of room for continued efficiency gains.

Another direct solution would be hiring more people and reduce the size of the region they operate in. The integration effort underway will ultimately help somewhat, but in the near term it means more work for the staff, thereby reducing the time available for inspections.

NHDES staff also recommended conducting more education and outreach to contractors and other site practitioners. Staff also identified difficult site conditions as those featuring steep slopes and erodible soils. Seasonal changes and associated conditions can also be problematic and can result in excessive sediment runoff.

2.5. Maine Survey Responses

Maine DEP staff who support Southern Maine NRPA-Full, NRPA-Permit by Rule, Site Law programs were interviewed to support assessment of E&SC programs in Maine. Maine DEP Land and Water inspectors were interviewed because they deal with compliance, complaints and violations across the entire spectrum of land and water regulations in Maine. They deal with NRPA Full Permit and Permit-by-Rule primarily. Site Location of Development issues are dealt with first by the licenser at DEP, and if no resolution is achieved, then Enforcement staff step in.

Staff Availability for E&SC Program

ME DEP inspectors deal with erosion and sedimentation control issues wherever they find them, regardless of program. One inspector covers 20 towns in southern Maine, and estimated that his time was split approximately evenly between compliance inspections and responding to complaints or violations. He indicated that when in the field, he spends approximately 3 hours each day (38%) of his time traveling. Inspectors are assigned towns, so it was not possible to clearly determine the amount of staff resources dedicated by program.

Recommendations

The types of scenarios that lead to E&SC problems were identified by Maine DEP staff as difficult site/soil conditions, seasonal conditions when winter BMP's are not in place, contractor and owner indifference to E&S, and minimal regulation or involvement by municipalities. In particular, inspectors noted that most towns do not have a town-wide E&SC ordinance and focus instead only on the Shoreland Zone.

Inspectors recommended that towns should adopt town-wide ordinance language that is similar to the state regulations on E&SC. This would empower municipal officials to deal with E&SC issues directly and that would provide greater enforcement coverage. It would also reduce travel time, since municipal enforcement is much more local. Infrequent state-level inspections were cited as a problem, due to large geographic areas, and an intensely busy summer season. Inadequate E&SC information on plans and resistance to regulatory processes were also seen as limitations.

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

If the inspectors had additional time and resources for their program, they indicated they would spend more time conducting inspections, particularly unscheduled inspections, unrelated to complaints. They mentioned that they often did not have time to stop and inquire when they noticed something that looked like a potential E&SC problem.

Maine DEP inspectors recommended the creation of a "citation" as a new enforcement tool. This would enable inspectors to essentially write short-form violation notices, analogous to speeding tickets, whenever they come across an E&SC violation in the field. Currently, there is no formal enforcement tool for such situations, and when issues are encountered in the field, the inspector has two primary options. The first is to have the land-owner make an informal promise to correct the conditions. The second is a letter of warning, or a notice of violation.

The latter approach requires returning to the office, researching landowner, contractor, instances of the law or regulation that were violated, and administrative review of the letter prior to its mailing, all of which take about a week to accomplish. The citation approach would fill an intermediate role, with resolution possible by mail, for example, by sending in photos. This would allow an on-the-spot document to be created which in most cases would avoid an expensive follow-up visit.

Another suggestion for improvements was more outreach and education. Since contractors are generally aware of E&S requirements, one inspector recommended focusing on homeowner education. In his experience in the PREP focus area, residential projects done by homeowners were the most likely to have no E&S control measures at all. Funding through non-profits or soil and water conservation districts would be one means of conducting this outreach. The Acton-Shapleigh Youth Conservation Corps was cited as an excellent example of an organization working to assist residential property owners improve and protect their waterways from E&S.

2.6. Summary

Summary of State Data

Obtaining and reviewing E&SC program data for the study area in New Hampshire and Maine during the 2006 – 2008 time period was successfully conducted. Several key observations resulted from the state data review including that:

- New Hampshire DES data was relatively straightforward to obtain using the One Stop online system.
- Maine's data should be made electronically available (difficult to obtain and paper versions are often incomplete and difficult to assess)
- Data incompatibility is a problem for both New Hampshire and Maine making comparison and cross referencing difficult. A unique identifier is needed to make data comparable.
- In the 42 New Hampshire towns, there were:
 - 217 AoT permits for an average of 1.7 AoT permits per town per year;
 - 998 Shoreland/Wetland permits for an average of 7.9 permits per town per year; and

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

- 307 Construction General Permits for an average of 2.4 permits per town per year.
- In the 10 Maine towns, there were:
 - 57 full NRPA permits for an average of 1.9 permits per town per year;
 - 350 NRPA permits by rule for an average of 12 permits per town per year;
 - 20 Site Location for Development permits for an average of 0.7 permits per town per year; and
 - 25 Construction General Permits for an average of 0.8 permits per town per year.
- Total area disturbed estimates are rough because area disturbed was not provided for some permits. Area disturbed was estimated at 2,560 acres total with 1,790 acres in NH (based on AoT program estimates) and 722 in Maine (based on Full NRPA and CGP estimates).
- There are relatively few documented violations in the state record (e.g., 16 total violations for the 10 Maine towns).

State Staff Interview Summary

New Hampshire and Maine E&SC program staff generally had similar observations and recommendations. Staff from both states observed that steep slopes, erodible soils, and seasonal changes were important factors in identifying difficult sites. Staff also agreed that they needed more manpower devoted to site visits and inspections and that education and outreach to practitioners would be beneficial.

NH DES E&SC program staff provided the following recommendations:

- Increase staff and time for site inspections, increase presence on construction sites;
- Reduce the level of effort for paperwork associated with site inspections;
- Specifically, make process of creating Notice of Violation more efficient;
- Conduct more outreach and education

Maine DEP E&SC program staff provided the following recommendations:

- Encourage towns to adopt town-wide E&SC ordinances, since most Maine towns currently have ordinances only under Shoreland Zoning;
- Increase staff and time for site visits and inspections;
- Create a simplified violation "citation" that could be issued on-site.
- Conduct more outreach and education for permittees, including homeowners

A set of common recommendations is provided below.

- 1) Conduct more site inspections (increase staffing)

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

- 2) Revise violation notices - make issuing citations or resolution agreements more efficient; look at new approaches
- 3) Increase education and outreach for practitioners
- 4) Encourage towns to create better E&SC ordinances
- 5) Make sure construction plans include sufficient E&SC program information

3. Municipal Programs Assessment

This section provides an analysis of available E&SC-related municipal data and a summary of interviews with municipal staff working with E&SC programs. There are 52 cities and towns in the PREP study area. The approach to assessing municipality E&SC programs was to survey a representative set of municipalities because it would be impractical (e.g., too labor intensive) assess all 52 towns. A set of 15 representative municipalities was selected for the municipal program review.

The 15 representative municipalities were selected collaboratively by the PREP advisory committee and are:

Berwick, Maine	Brentwood, NH	Epping, NH
Exeter, NH	Farmington, NH	Greenland, NH
Kittery, Maine	Lebanon, Maine	Madbury, NH
Middleton, NH	Newmarket, NH	Portsmouth, NH
Rochester, NH	Wakefield, NH	York, Maine

An attempt was made to select a representative set of towns in terms of size, location, and level of development activity. Preference was also given to towns with relatively robust data records.

An additional, more intensive review and assessment was conducted for 6 towns that had electronically available data. For these towns, all permits were compiled and an attempt was made to cross-reference municipal and state permits for each construction site. The results of the intensive 6 town review are presented in Section 3.4.

Information to support the assessment is provided in two forms;

- 1) Review of available data, and
- 2) Interviews with state staff working with the programs.

Each of these sources of information provided useful insights to support assessment of the E&SC program performance. Town staff were very cooperative and their contributions are greatly appreciated.

3.1. Overview of Applicable Municipal Regulatory Programs

Municipal construction erosion and sedimentation control programs are generally regulated as part of building permit and site plan review processes. In Maine, shoreland areas are also covered as part of the state-wide Shoreland Zoning Act. A brief overview of each of these programs is provided below.

Building Permits

In Maine and NH, municipalities issue permits for, inspect, and authorize occupancy of buildings. Typically, enforcement of land use laws through zoning ordinances occurs simultaneously with

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

administering building permits. The building permit system is one of the most fundamental powers exercised by municipalities.

In NH, a state-wide building code went into effect in 2003, and municipalities have the right to issue permits and conduct enforcement of that code. Towns are allowed to pass local provisions which are more stringent than the state-wide code. In Maine, towns have adopted a variety of building codes, some with erosion and sedimentation control requirements and others without. In addition to the variety in the building codes themselves, there are significant variations in the numbers and types of inspections that each town performs. In July 2010, pending certain state-level approvals, it appears that a Maine uniform building code will supersede locally adopted codes.

In both Maine and NH, zoning ordinances typically do not have municipal-wide erosion and sedimentation control requirements, but some do. More frequently, there is a shoreland, wetland, and/or sensitive areas section within the ordinance which set erosion and sedimentation requirements within a subset of municipal zones or overlays.

Site Plan Review and Subdivisions

In both Maine and NH, Planning Boards conduct Site Plan Review for non-residential developments, multi-family buildings, and subdivisions. This review addresses issues such as zoning ordinance conformity, traffic safety and parking, and environmental protection, including E&SC. The Site Plan Review process includes defining the conditions of inspection, which tend to occur at multiple points during the construction process. Several towns have significantly modernized their Site Plan Review regulations during the study period.

Maine Mandatory Shoreland Zoning Act

Maine Shoreland Zoning is mandated by state law. MEDEP has drafted minimum guidelines and oversees the municipal implementation of the program. Municipalities must adopt zoning ordinance language that is at least as restrictive as the state minimums, but may modify portions or make requirements more restrictive. Municipalities in Maine are responsible for administering the provisions (except for certain variances which require state approval) and enforcement.

3.2. Available E&SC-related Data and Associated Limitations for 15 Municipalities

Obtaining municipal data on E&SC-related programs proved to be difficult and time consuming. Most of the 15 towns surveyed had data available in paper-only format. Also, town record keeping systems are set up to support efficient access to building permits and site plans, but not E&SC program components. As a result, data gathering proceeded slowly.

Initially, it was envisioned that a full set of E&SC program permit data would be obtained and reviewed for the 15 municipalities. It became clear as work proceeded that obtaining detailed data from 15 towns would be difficult due to the lack of efficiently available data (e.g., paper records in storage). As a result, an intensive full collection of available permit data was conducted at a subset of 6 of the 15 municipalities, three in New Hampshire and three in Maine. In collaboration with PREP staff, we

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

modified our approach to conduct more surveys (e.g., interviews) in order to obtain sufficient information.

An overview of the types of data obtained, the review of data for 15 towns, and the more intensive review of data for 6 towns are provided below. The results of the interviews of staff from the 15 towns are provided in Section 3.5.

Overview of Types of Available Data

Three types of available municipal E&SC program data were identified:

1. Paper-only format;
2. Limited electronic data through Construction Data New England (CDNE); and
3. Electronic data directly from towns.

Each of these data formats is described below.

1) Paper-only format

These data were generally embedded in building permit and site plan files in the town offices. This data format is likely useful and appropriate for town uses, but does not lend itself to efficient review. In towns with paper-only data, town staff interviews were the primary method of obtaining information.

2) Limited electronic data through CDNE

Construction Data New England (CDNE) is a company that visits each town office when requested by a client and records building permit data. CDNE clients are usually contractors looking for work and the building permits inform them of possible projects that may require their services. We contacted CDNE and purchased available building permit and construction data from them for the study area towns. The dataset is partial in that they only serve 10 of the study area towns and, for some towns, only collected data during part of the 2006 to 2008 time period. The number of construction permits obtained for each of the 10 available towns is provided below.

Berwick – 134
Eliot* -- 6
Kittery – 80
North Berwick – 67
South Berwick – 57
Durham* -- 33
Hampton Falls* -- 15
Newmarket* -- 18
Portsmouth – 71
Rye – 39

*Towns that do not have the complete time frame.

For each construction permit, the following information was provided:

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

- Building type
- Town
- Date
- Map number
- Lot number(s)
- Dimensions (e.g., "1 story with garage")

The CDNE data are useful, but certainly not comprehensive.

3) Electronically Available Data Sets

Rochester and Exeter, New Hampshire and York, Maine had electronic data available. In addition, Rye, New Hampshire, Kittery and Berwick, Maine have relatively strong CDNE data sets. These 6 towns were compiled together to support an intensive permit review, summarized in Section 3.4.

A full compilation of available geospatially-referenced, electronic data at both the state and municipal level is provided in Table 3-1. This table highlights the paucity of data available in electronic format to support review of E&SC programs in the PREP study area.

3.3. Summary of 15 Town Data Review

Table 3-2 provides summary information for the 15 towns surveyed. The survey found that E&S control programs are in place in all towns, but the program was not applied to single house development sites in some of the towns. Most of the 15 towns have paper-only records. Only a few E&S violations are recorded each year by the towns surveyed. Table 3-3 provides a summary of the number of building permits issued for all PREP area towns where data were readily available. Blank spaces in Table 3-3 indicate that data were not readily available.

Record keeping varied between paper-based and electronic. Only 1 of 15 municipalities, Rochester, seemed to have a true database, and was able to produce an electronic data file of building permits. Other towns that had electronic records were unable to "data mine" those records to produce an electronic file of building permits. Kittery and York both indicated that they will be upgrading their permit software soon, with York intending to implement a true database. Exeter, Farmington, Greenland, Newmarket, Portsmouth, and Wakefield all had some form of electronic records. Berwick, Lebanon, Madbury, and Middleton kept records only on paper. None of the 15 towns has a geographic information system (GIS) system in place for building permits.

Table 3-1: Summary of geospatial, electronic data available at state and municipal level.

Program	File Format	Source
NH Wetland Program	GIS shapefile	NH DES One Stop Wetland/Shoreland Query spreadsheet converted to GIS
NH Alteration of Terrain	GIS shapefile	NH DES internal GIS file
Maine DEP NRPA-PBR	GIS shapefile	Google Earth, MS Word with lat/long converted to GIS
Maine DEP NRPA-Full	GIS shapefile	Paper records, manual data entry
Maine Construction General Permit	Spreadsheet	Paper records, manual data entry
Maine Site Location of Development	Spreadsheet	Google Earth, .kmz file converted to GIS per DEP recommendation
NH Construction General Permits	GIS shapefile	EPA Region 1 NPDES website, text data converted to GIS
Town of Exeter	GIS shapefile	Exeter Assessing Department spreadsheet
Town of York	GIS shapefile	York Assessing Department spreadsheet
City of Rochester	Spreadsheet	Rochester Building Department database
Town of Berwick	Spreadsheet	Construction Data New England spreadsheet
Town of Kittery	Spreadsheet	Construction Data New England spreadsheet
Town of Rye	Spreadsheet	Construction Data New England spreadsheet
City of Portsmouth	GIS shapefile	Paper records, manual data entry
City of Portsmouth	GIS shapefile	Paper records, manual data entry

Table 3-2: Overview of E&S Control Permit Information Obtained from 15 PREP Towns.

Town	Site Plan Review & Subdivisions, covered by E&S?	Single House Lots Covered by an E&S Program?	Permit Record Keeping	E&S Violations per Year	Inspections Considered Sufficient?
Berwick ME	Yes	Yes	Paper only	<1	Yes
Brentwood NH	Yes	No	Paper only	<1	Yes, except for single houses
Epping NH	Yes	No	Electronic	2	Yes ¹
Exeter NH	Yes	No	Electronic	none recalled	Yes
Farmington NH	Yes	Yes	Paper only	2-3	Yes
Greenland NH	Yes	Yes	Paper only	<1	Yes ¹
Kittery ME	Yes	Yes	Semi-electronic	none on file	Yes
Lebanon ME	Yes	Yes	Paper only	<1	Yes
Madbury NH	Yes	No	Paper only	none recalled	Yes
Middleton NH	Yes	No	Paper only	0	Yes
Newmarket NH	Yes	No	Electronic	1-2	Yes
Portsmouth NH	Yes	No	Electronic	1-2	Probably not
Rochester NH	Yes	No	Electronic	3-4	Yes
Wakefield NH	Yes	Yes	Electronic	very few	Yes
York ME	Yes	Shoreland only	Electronic	4-5	No

Individual house lots not inspected for E&S.

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

Table 3-3: Summary of Building Permits by Town for 2006-2008.

State	Town	Year			Notes	
		2006	2007	2008		
ME	Acton				*Reported by fiscal year (July to June)	
	Berwick	75	38			
	Eliot					
	Kittery	27	21	32		
	Lebanon	37	25	16		
	North Berwick		34	18		
	Sanford		83			
	South Berwick	31	18	18		
	Wells		102	80		
	York	95	80	68		
NH	Barrington					*Number based on occupancy permits
	Brentwood	39	27	20		
	Brookfield					
	Candia					
	Chester					
	Danville					
	Deerfield					
	Dover					
	Durham	13				
	East Kingston					
	Epping		18	36		
	Exeter	85	21	59		
	Farmington		35	10		
	Fremont					
	Greenland	16	32	20		
	Hampton			46		
	Hampton Falls					
	Kensington					
	Kingston			19		
	Lee					
	Madbury	14	16	11		
	Middleton		26 total			
	Milton					
	New Durham					
	Newcastle					
	Newfields					
	Newington					
	Newmarket	14	2	7		
	North Hampton					
	Northwood					
	Nottingham					
	Portsmouth		178 total*			
	Raymond					
	Rochester	98	111	83		
Rollinsford						
Rye	12	2	19			
Sandown						
Seabrook						
Somersworth						
Strafford						
Stratham						
Wakefield		40	23			

Blank spaces indicate that data is not readily available

*Includes building permits, Site Review, and Conditional Use permits

3.4. Summary of Available Data for 6 Municipalities

An intensive review of E&SC-related permits was conducted for 6 towns; Rochester, Exeter, and Rye, New Hampshire and York, Kittery, and Berwick, Maine. Excel spreadsheets were created with municipal permits from these towns during the 2006 – 2008 time period. In addition, available state permits for these towns were compiled and included in the spreadsheet. An attempt was then made to cross-reference town and state permits and the results are described below.

Data available to support this assessment are described by town below. Please note that GIS-based data formats were not available for any of these datasets.

Rochester, New Hampshire – 292 permits

The data set was provided by the Rochester Buildings Department and included the following entries:

- Permit ID
- Date issued
- Zone, Map, Lot
- Name and address of person or entity permit issued to
- Permit type (new home, building non-residential, etc)
- Status (open, closed)
- Waiver (e.g., municipal)
- Person or company performing contracting, plumbing, electrical, mechanical, fire protection, fire alarm work, and associated permit fee.
- Renewal (yes, no)
- Comment (mostly blank or "renewal")

York, Maine – 245 permits

A data set of new buildings was provided by York Assessing Department and included the following entries:

- Map and lot (under both old and new systems)
- Permit ID
- Address
- Building value
- Year built
- Use (residential, res condo, commercial, mobile home, etc)
- Area (square footage of building)

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

Exeter NH –103 unique project sites (165 permits)

The data set of new buildings was provided by Exeter Assessing Department and included the following entries:

- Map, lot, and unit
- Address
- Year built
- Use description (single family, mobile home, bank, kennel, etc)
- Living area (i.e., finished floor space)
- Gross building area
- Building permit ID

Rye, NH (39 permits), Kittery ME (80 permits), and Berwick ME (134 permits)

The data set for all three of these towns was provided by Construction Data New England and included the following entries:

- Project (new house, new commercial, new duplex, etc)
- Building Type (new residential construction, new commercial construction, etc)
- Date
- Street address, town, state
- Map and lot
- Cost (for all towns except Berwick)
- Dimensions (varying level of detail)

Table 3-4 provides a compilation of the number of municipal and state permits issued for each of the 6 towns during the 2006–2008 study period. In the 3 New Hampshire towns, there were 36 AoT, 96 shoreland/wetland, and 74 Construction General Permits issued by the state and 490 permits issued by the towns. In the 3 Maine towns, there were 19 full NRPA, 75 NRPA PBR, and 10 Construction General Permits issued by the state and 457 permits issued by the town. It proved to be difficult to cross-reference the permit data for the construction sites in these 6 towns, as described below.

Table 3-5 provides a compilation of 109 construction projects that had state level permits in the New Hampshire towns of Exeter, Rochester, and Rye during the 2006–2008 time period. Each row of Table 3-5 presents one construction project. There are 4 permits represented, NH Alteration of Terrain, NH Shoreland/Wetland, NH Construction General Permit, and Town Permits. Each type of permit occupies a column in Table 3-5 and an "x" in the project permit column indicates a permit of that type was issued for the project. There are more than one permit issued for 45 of the 109 construction projects compiled in Table 3-5.

Table 3-6 provide a compilation of 35 construction projects that had state level permits in the Maine towns of Berwick, Kittery, and York during the 2006–2008 time period. The format of Table 3-6 is the

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

same as that of Table 3-5 and includes Full NRPA, NRPA Permit by Rule, Site Location, Construction General Permits, and Town Permits. There are more than one permit issued for 11 of the 25 construction projects compiled in Table 3-6. Unfortunately, only 2 construction projects listed in Table 3-6 were documented as having both town and state level permits.

In many cases, it was difficult to cross-reference permits because there was no unique identifier for the construction projects. It appears that each applicant (e.g., the owner, agent, or builder) fills out their own permit paperwork. Locations are not always described in the same manner (e.g., street number, lot/map, or other identifier) at the town and state offices. Similarly, project names are often not the same in towns vs. state permits. In many cases, there was no direct evidence that two permits were issued to the same project, so cross-referencing could not be completed.

As stated above, cross-referencing permits is difficult under the current recordkeeping system. For example, item #51 in Table 3-5 is a construction project in Rochester, NH with an estimated area disturbed of over 38 acres. This project likely has more than a single state construction general permit, but we were unable to locate any other permits. Similarly, item #13 in Table 3-6 is a subdivision construction project in Kittery, Maine with an estimated area disturbed of over 23 acres. This project likely required additional permits beyond the Maine CGP, but we were not able to locate additional permits. For many of these projects, it is likely that there are additional permits beyond those cross-referenced in Tables 3-5 and 3-6. The problem with cross-referencing permits highlights a data and recordkeeping problem in the E&SC program.

Table 3-4: Number of permits in the 6 selected towns by permit type.

Town	Town Permits	Other Permits - Maine				Other Permits - New Hampshire		
		Full NRPA	NRPA Permit by Rule	Site Location of Development	Construction General	Alteration of Terrain	Shoreland-Wetland	Construction General
Berwick	134	2	14	3	3			
Kittery	80	4	15	3	3			
York	243	13	46	1	4			
Exeter	165					11	19	17
Rochester	292					24	30	51
Rye	33					1	47	6

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

Table 3-5: Permit Cross-referencing: Exeter, Rochester, and Rye, New Hampshire Data.

Count	Project Permits				Project Address	Location City	Tax Map	Lot Number	Waterbody Impacted	Final Decision Date	Area Disturbed (Sq ft)	Area Disturbed (Acres)	Disturbance description
	Alteration of Terrain	Shoreland-Wetland	Construction General	Town									
1	X			X		Exeter	11, 19	12, 14, 17 and 16			1,133,000	26.0	Forest Ridge Subdivision
2	X		X	X	55 Beech Hill Road	Exeter	27	11 & 12		7/26/2007	170,000	3.9	Beech Hill Road Subdivision
3	X					Exeter	46	7		8/10/2007	270,000	6.2	Professional/Tech Park Building
4	X					Exeter	47	4.1		8/23/2006	129,000	3.0	Phase Two
5	X					Exeter	54	2		3/6/2006	127,000	2.9	The Meeting Place
6	X		X		20 Main Street	Exeter	71	119		5/15/2006	118,000	2.7	Athletic Field Improvements
7	X					Exeter	82	8 & 9		6/26/2007	120,000	2.8	Additions & Alterations
8	X	X	X		Pickpocket Road	Exeter	98	37		2/1/2008	924,200	21.2	The Boulders At Riverwoods
9	X	X	X		131 Portsmouth Avenue	Exeter	52	112		7/24/2007	279,690	6.4	
10			X		Kingsway Avenue At Epping Road	Exeter				5/29/2007			Crown Place
11			X		8 Continental Drive	Exeter				7/17/2006			
12			X		89 Epping Road	Exeter			Norris Brook	6/22/2007	87,120	2.000	Epping Road Water Storage Tank
13			X	X	23 Hampton Road	Exeter	86	9	Dearborn Brook	9/4/2007	56,628	1.300	Exeter Healthreach
14			X		138 Portsmouth Ave	Exeter				10/1/2008			Fairfield Inn And Suites
15			X		Meadowood Drive And Ashbrook Road	Exeter				10/12/2007			Meadowood Gravity Sewer
16			X		75 Portsmouth Ave	Exeter				10/3/2008			Rite Aid
17		X			99 Brentwood Road	Exeter	60	25		1/14/2008	950	0.0	Dredge And Fill
18		X			Epping Road (Route 27)	Exeter	63	ROW		2/1/2007	100	0.0	
19		X			109 Portsmouth Ave	Exeter	65	123		8/17/2007	8,000	0.2	Dredge
20	X	X			High St	Exeter	70	101, 102		9/8/2006	107,084	2.5	Professional Park Expansion
21	X	X			30 Linden Street	Exeter	82	8, 13	Prime Wetland	4/3/2008	369,546	8.5	Squamscott Community Commons
22		X			Chadwick Way	Exeter	83	2		8/24/2007	205	0.0	
23		X			Portsmouth Ave & Alumni Drive	Exeter	64, 65	133, 131		7/30/2008	3,750	0.1	Construction
24	X		X		150 Wakefield Street	Rochester	113	17, 18 & 21		2/16/2006	269,000	6.2	Rochester Community Center
25	X			X	Anderson Lane	Rochester	119	100		2/21/2006	397,000	9.1	Anderson Lane Subdivision
26	X	X	X		11 Whitehall Road	Rochester	126	49, 50 & 52		7/21/2006	206,970	4.8	Hospital Expansion And Renovation
27	X		X	X	Washington Street (Route 202)	Rochester	130	38		6/5/2006	1,450,000	33.3	The Rochester Shoppes
28	X			X	Cross Road	Rochester	203	25		12/17/2007	212,000	4.9	Highland Oaks
29	X		X		Rte11, 123 Farmington Road	Rochester	208	18		5/7/2008	75,000	1.7	
30	X			X		Rochester	208	18-2		4/23/2008	71,500	1.6	Medical Office Bldg
31	X		X		Norway Plans Road	Rochester	215	16	Cochecho River, Heath Bog, Wardley Brook	7/5/2006	182,952	4.200	
32	X		X	X	7 Crane Drive	Rochester	216	24	Unnamed Tributary to Cochecho River	8/10/2006	196,020	4.500	
33	X	X	X	X	619 Salmon Falls Road	Rochester	224	321,324, & 328		5/22/2008	794,260	18.2	Great Woods Subdivision
34	X					Rochester	230	18		2/1/2007	364,812	8.4	Facility Expansion
35	X			X		Rochester	242	3		10/27/2008	149,000	3.4	
36	X		X	X	Secretariat Way	Rochester	250	35		3/15/2007	432,000	9.9	Secretariat Estates - Phases Ii & Iii
37	X		X		Flagg Road	Rochester	259	36, 38	Isinglass River	8/28/2006	588,060	13.500	Proposed 57-LOT Subdivision
38	X					Rochester	263	10		5/15/2008	289,500	6.6	Subdivision

*Refer to original spreadsheet for additional information

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

Table 3-5, Continued: Permit Cross-referencing: Exeter, Rochester, and Rye, New Hampshire Data.

Count	Project Permits				Project Address	Location City	Tax Map	Lot Number	Waterbody Impacted	Final Decision Date	Area Disturbed (Sq ft)	Area Disturbed (Acres)	Disturbance description
	Alteration of Terrain	Shoreland-Wetland	Construction General	Town									
39	X			X		Rochester	121-124	NUMEROUS		8/20/2007	373,023	8.6	Washington Street Reconstruction
40	X					Rochester					322,000	7.4	Nh Route 108/South Main Street
41	X			X		Rochester	267	2					Borrow Area / Tlr II
42	X					Rochester							Subdivision
43	X			X		Rochester					1,310,000	30.1	Tlr-III Phases 9-14
44	X	X	X		Ten Rod Road	Rochester	221	48	Unnamed Tributary to Cochecho River	7/20/2007	740,520	17.000	Pinewood Real Estate
45	X		X	X	245 Rochester Hill Road	Rochester	234	38-1	Champlin Pond	4/17/2007	130,680	3.000	Rochester Hill Family Practice
46			X		Ten Rod Rd Industrial Park	Rochester				11/28/2006			Building Addition
47					539 Salmon Falls Road	Rochester				9/14/2006			Crimson Lane
48			X		Rochester Hill Rd	Rochester				11/1/2006			Gravity Sewer & Force Main
49			X		Hanson Street	Rochester				9/11/2007			Hanson Street
50			X		Heritage Street	Rochester			Unnamed Tributary to Cochecho River	9/4/2007	226,512	5.200	Heritage Street Development
51			X		Washington Street (Nh Route 202)	Rochester			Axe Handle Brook and Rickers Brook to Cochecho River	9/1/2006	1,672,704	38.400	Highfield Commons
52			X		83 Farmington Rd/Route 11	Rochester				10/17/2006			Holiday Inn Express
53			X	X	Route 11/Farmington Road	Rochester	208	8	Unnamed Tributary to Cochecho River	7/9/2007	76,230	1.750	R V Park
54			X	X	Swq Route 16 & Route 202	Rochester	130	38	Unnamed Tributary to Cochecho River	3/1/2007	65,340	1.500	
55			X		12 Columbus Ave	Rochester			Unnamed Tributary to Cochecho River	8/15/2006	87,120	2.000	Linscott Court Apartments
56			X		Nh Route 11	Rochester				3/16/2006			Nh Route 11 Reconstruction
57			X	X	Norway Plains Road	Rochester			Heath Bog	6/1/2006	522,720	12.000	Norway Plains
58			X	X	3 Gonic Road (Nh Route 125)	Rochester			Cochecho River	3/1/2006	54,450	1.250	Advance Auto Parts
59			X		Wakefield St And Chestnut Hill Connector	Rochester				7/11/2006	43,560	1.0	Brooks Pharmacy
60			X	X	Chestnut Hill Road Connector	Rochester			Unnamed Tributary to Cochecho River	7/19/2006			Raspberries Retail Center
61			X		Ledgeview Drive	Rochester				2/1/2006			Ridgeview Condominiums
62			X		Us Route 202/Nh Route 16	Rochester				9/28/2006			Roadway Improvements
63			X		Rt 108/South Main Street	Rochester			Willow Brook	6/4/2007	321,908	7.390	Roadway Reconstruction
64			X		Rte 16 Southbound	Rochester				12/21/2007			Rochester 10620G
65			X		Farmington Road	Rochester			Unnamed Tributary To The Cochecho River	10/23/2006	98,010	2.250	Rochester Holiday Inn
66	X		X		Route 202/Washington Street	Rochester			Unnamed Tributary To The Cochecho River	3/15/2008	157,720	3.6	Staples Site Plan
67			X	X	Old Dover Road	Rochester	104	75		6/7/2007			Subdivision
68			X		116 Farmington Road	Rochester				2/8/2006			Wal*Mart
69			X		Intersection Brock & Washington	Rochester				4/1/2008			Washington St / Brock St
70			X		Washington Street	Rochester				8/1/2006			Washington Street Water Mains
71		X		X	Keith Dr & Jeffrey Lane	Rochester	104	120, 138		8/8/2006	7,200	0.2	Dredge And Fill
72		X			56 Highland St	Rochester	107	26		8/10/2006	1,344	0.0	Dredge And Fill
73		X		X	Eastern Ave	Rochester	110	10		6/13/2007	2,970	0.1	Dredge And Fill
74		X		X	No Main St	Rochester	121	10	Cochecho River	5/8/2006	3,214	0.1	Fill
75	X	X	X		Gagne St	Rochester	121	32, 32-1, 37		8/9/2006	192,000	4.4	Fownes Mill Condominiums
76		X			Washington & Brock Streets	Rochester	123	ROW	Hurd Brook	7/27/2007	3,754	0.1	Dredge And Fill

*Refer to original spreadsheet for additional information

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

Table 3-5, Continued: Permit Cross-referencing: Exeter, Rochester, and Rye, New Hampshire Data.

Count	Project Permits				Project Address	Location City	Tax Map	Lot Number	Waterbody Impacted	Final Decision Date	Area Disturbed (Sq ft)	Area Disturbed (Acres)	Disturbance description
	Alteration of Terrain	Shoreland-Wetland	Construction General	Town									
77		X		X	51 Four Rod Road	Rochester	220	4		10/17/2006	2,250	0.1	Pond Creation
78		X	X	X	109 Chestnut Hill Road	Rochester	222	16	Unnamed Tributary to Large Wetland	4/11/2008	62,250	1.4	Dredge And Fill
79		X			Meaderboro Road	Rochester	232	16-2		11/19/2007	2,752	0.1	Construction
80		X			Route 108	Rochester	243	18		10/17/2007	236,966	5.4	Dredge And Fill
81		X			Chesley Hill Road	Rochester	246	ROW	Axe Handle Brook	6/8/2007	3,800	0.1	Utilities
82		X			301 Washington Street	Rochester	247	22-2		11/30/2007	170	0.0	Dredge And Fill
83		X		X	Hynes Court	Rochester	251	189		3/28/2007	510	0.0	Dredge And Fill
84		X		X	Peaseley Road & Tebbetts Road	Rochester	253	47		10/5/2007	1,458	0.0	Dredge And Fill
85		X			Nh Route 108 (Main Street)	Rochester	119, 125	ROW	Willow Brook	11/5/2007	1,919	0.0	Dredge And Fill
86	X					Rye	10	15		3/14/2008	174,000		The Housing Partnership
87			X		Elwyn Rd	Rye				5/24/2007			Elwyn Rd & R1A Road Construct
88			X		Nh Route 1A , Bridge Over Seavey Creek	Rye			Seavey Creek	10/28/2008			Nh Rte 1A Bridge
89			X		Route 1A (Aka Pioneer Road)	Rye				5/3/2007	58,370	1.3	Rye, 13064-F
90			X		Winslow Way	Rye				7/27/2006			Winslow Way Extension
91		X			10 Whitehorse Drive	Rye		13		9/13/2007	175	<0.01	Dredge And Fill
92		X			2320 Ocean Blvd	Rye	5	54-2	Atlantic Ocean	5/20/2008	556	0.0	
93		X		X	2238 Ocean Boulevard	Rye	5.3	68	Atlantic Ocean	2/2/2008	2,722	0.1	
94		X		X	50 Old Beach Road	Rye	8.4	113	Atlantic Ocean	2/20/2008	650	0.0	Construction
95		X		X	68 Old Beach Rd	Rye	8.4	115	Atlantic Ocean	8/28/2008	1,821	0.0	
96		X		X	35 Foss Circle	Rye	8.4	138	Tidal Buffer Zone	5/7/2008	2,335	0.1	
97		X			Old Beach Road & Foss Circle	Rye	8.4	150		5/23/2007	900	0.0	Dredge And Fill
98		X			1667 Ocean Blvd	Rye	13	12, 13, 14	Awcowin Salt Marsh	7/10/2007	1,185	0.0	
99		X			1191 Ocean Blvd	Rye	17.3	30	Parsons Creek	3/31/2007	8,055	0.2	
100		X			180 Parsons Rd	Rye	19	114	Salt Marsh	2/23/2006	869	0.0	Construction
101		X			Appledore Avenue	Rye	19.4	55	Tidal Buffer	8/7/2008	2,937	0.1	
102		X			1170 Ocean Blvd	Rye	19.4	93	Atlantic Ocean	11/22/2008	3,150	0.1	Construction
103		X			125 Wentworth Road	Rye	24	34	Tidal Buffer Zone	7/10/2007	1,684	0.0	
104		X			60 Wentworth Road	Rye	24	61-26		4/12/2007	45,686	1.0	Golf Course
105		X			5 Harbor View Drive	Rye	26	7	Sagamore Creek	1/10/2008	8,194	0.2	Construction
106		X			33 Wentworth Road	Rye	26	10	Sagamore Creek	12/16/2008	1,276	0.0	
107		X			23 Wentworth Rd	Rye	26	12	Sagamore Creek / Back Channel	4/6/2006	904	0.0	
108		X			Lunging Island	Rye	28	2	Atlantic Ocean	6/11/2007	600	0.0	Construction
109		X			2420 Ocean Blvd	Rye Beach	2	21	Atlantic Ocean	9/24/2008	7,922	0.2	

*Refer to original spreadsheet for additional information

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

Table 3-6: Permit Cross-referencing: Berwick, Kittery, and York, Maine Data.

Count	Project Permits					Project Address	Location City	Tax Map	Lot Number	Waterbody Impacted	Final Decision Date	Area Disturbed (Sq ft)	Area Disturbed (Acres)	Disturbance description
	Full NRPA	NRPA Permit by Rule	Site Location	Construction General	Town									
1		X		X		Route 4	Berwick	70	16	Perkins and Adams Brooks	10/29/2008	2,880	0.07	Construct 2880 sq ft bank, office
2				X	X	474 Portland St.	Berwick			Hilton Brook	2/24/2006	0		Construct 12 multiunit storage facility buildings
3		X		X		Worster Rd	Berwick	R-33	42-1	Pine Hill Brook and Little River	12/13/2006	6,300	0.14	Roadways and utilities for 2 residential lots
4	X	X				Ridlon Road	Berwick	R33	14			0		commercial subdivision
5	X						Berwick					0		Construction of accessway
6			X			Pine Hill Rd	Berwick	U3 43	49,49-11		8/22/2006	0		Penny Pond Residential Subdivision
7			X			Route 4	Berwick	72	12		1/10/2006	0		Construct 6-Lot Commercial Development
8			X			Route 4, Berwick	Berwick	72	10		7/6/2006	0		
9		X		X		Devon Woods Drive	Kittery	54	16	Unnamed freshwater wetland	9/26/2007	0		12 lot subdivision -- Devon Woods
10				X			Kittery	38	13B-13F	Spruce Creek	3/12/2008	662,112	15.2	Construct 4 2 unit town houses -- Kittery Shore Condos
11	X			X		Lewis Rd	Kittery			Fuller Brook		0		residential subdivision
12	X						Kittery					0		Boathouse construction
13	X					167 Haley Road	Kittery	39	17A-1	Fuller Brook		1,007,978	23.14	8 Lot subdivision -- Fuller Brook Estates
14	X						Kittery			Fuller Brook		0		Private access road
15			X		X	Lewis Road	Kittery	61	27		10/3/2006	0		Durgin Pines Nursing Home
16			X			Us Route 1	Kittery	60	24,24A		12/8/2006	0		US Route 1 Mixed Use Development
17			X				Kittery				2/16/2007	0		Transduce Test/Calibration Facility
18		X		X		Route 1	York			Unnamed stream	5/30/2006	0		Construct 2 office buildings
19		X		X		64 Pine Hill Rd	York				3/28/2006	0		5 lot subdivision
20		X		X		Route 1	York			Unnamed stream	3/28/2006	0		Storage facility
21				X		401 Route 1	York	53	2A		4/10/2008	0		commercial building with associated impervious
22	X					14 Cider Hill Road	York	53	9		6/14/2005	283,140	6.50	Hotel, retail, restaurant, office space
23	X					Pine St	York	30	45		3/2/2006	3,500	0.08	New dwelling
24	X					Pine St	York	30	42D		3/2/2006	3,500	0.08	New dwelling
25	X					Pine St	York	30	42A		3/2/2006	3,500	0.08	New dwelling
26	X					Ridge Road	York	94	84		4/24/2006	812	0.02	17 elderly housing units
27	X						York					0		Construction of paved road
28	X					125 Long Beach Ave	York					1,439	0.03	Raise home to post pilings, same footprint
29	X						York					0		relocation of structure, add beach sand
30	X						York					0		Roadways
31	X						York					0		construct access way
32	X	X				12 Oceanside Ave	York	131	394	Unnamed freshwater wetland	7/24/2006	10,260	0.24	Condominium project
33	X						York					0		Reconstruct roadways and sidewalks
34	X					93 Long Beach Ave	York	31	112		9/15/2006	3,800	0.09	Raise home to post pilings, same footprint
35			X				York	109	135		5/4/2007	0		York Hospital Improvement Projects

*Refer to original spreadsheet for additional information

3.5 Municipal Survey Responses

FBE staff visited 15 town offices and conducted interviews with staff working with E&SC programs. Summaries of each town visit and interview are provided in Appendix A. An overview of municipal survey responses is provided below and includes:

- Discussion of Site Plan Review programs;
- Discussion of Building Permits programs;
- Summary of Administrative Resources Available; and
- Town Staff Interview Summary and Recommendations.

Readers seeking detailed accounts of municipal staff responses are encouraged to read Appendix A.

Site Plan Review and Subdivision Projects

Large construction projects are covered by Site Plan Review and Subdivision regulations in virtually every town. Site Plan Review and Subdivision rules require a licensed engineer to produce an E&S control plan, which is submitted with the application. These plans are closely scrutinized by the Planner and Planning Board, who have the authority to issue approvals.

Many interviewees praised their Planning Boards for their ability to obtain additional information from the applicant whenever needed. In many cases, site inspections are conducted by third-party engineers who were chosen by the town and paid for by the applicant. Reportedly, these construction projects are executed in a professional manner, with trained and experienced personnel on both the regulatory and construction side. Violations are rarely reported and are usually resolved within one day in the field, according to interviewees. Exeter and Newmarket each have engineers on their Planning Boards and cited this expertise as an important resource supporting their E&S programs.

Individual House Lot Development

Single house construction has widely divergent levels of E&SC programs among the 15 towns surveyed. Some towns have strong single house construction E&SC programs, while other towns have virtually none. Several different levels of control programs were reported, as follows:

- Wakefield checks E&S controls for every home construction project before the foundation footer is poured, then checks E&S control at each of eleven required building inspections.
- Berwick, Farmington, Lebanon, and Kittery all report that they check for E&S controls at least once during the construction of single family homes, usually at the foundation inspection. In Farmington, for example, the entire town is included in a Watershed Protection Overlay zone with E&S control requirements.
- York, Exeter, and Newmarket require E&S controls in the shoreland zone or near sensitive wetlands, but not elsewhere for single family construction.

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

- Brentwood, Epping, Madbury, and Rochester indicated that they have thorough E&S programs for creation of subdivisions (lot lines, roads, utilities, etc), but individual house construction within those developments is not subject to any E&S regulation or inspection.
- In Middleton and Portsmouth, it appeared from the interview that E&S was not needed, not required, and rarely encountered during single house construction.

Administrative Level of Effort at Municipalities

Town staff resources available to administrate E&SC programs varied widely from nearly no time to more than one full time staff person. A representative set of responses is provided below (each item below corresponds to one town's information):

- 1 full time equivalent (FTE) staff person; ½ time on permits and ½ time on inspections;
- Nearly no staff; less than 10% FTE;
- 25% of FTE total, split between 3 town staff;
- 1 to 2 FTE total, split between 6 town staff;
- 10% of FTE total;
- 25% of FTE total; and
- 20% of FTE total.

These levels of labor expended are rough estimates provided by town staff.

3.6.Recommendations based on Municipal Staff Interviews

Town interviewees had numerous recommendations for improving E&S control programs. Recommendations have been compiled into 6 key points and summarized below. Each of these six recommendations was provided by staff from multiple towns independently. A detailed account of municipal interviews is provided in Appendix A.

1) Review and Improve Town E&SC Ordinances

Several towns suggested that each town should review its E&SC ordinances and attempt to improve them. This process would likely result in creating more comprehensive and consistent town E&SC programs. Town ordinance revision would also likely reduce the disparate approaches to single home E&SC and other construction-related scenarios.

2) Improved Single Home Construction E&SC Regulation.

All 15 towns reported having E&SC programs in place for subdivision development, but only 6 had programs in place for single home construction. Single home E&SC was handled differently in each town. Some towns required site inspections, while others did not. Increased and consistent E&SC regulation for single home construction was recommended by several towns including Brentwood,

Madbury, and Rochester. Municipalities should consider improving ordinances related to single home construction.

Several towns mentioned that it was inconsistent for subdivision infrastructure to meet high standards of planning and inspection, while single house construction that fill those subdivisions get little-to-no environmental oversight. Some towns suggested reviewing and revising each town's ordinances, while others suggested applying a region-wide approach to E&SC programs. Clearly, single home construction sites are regulated very differently from town to town. It appears likely that this practice leads to some cases of excessive loading of soils and associated contaminants to receiving waterbodies.

3) Simplify and Clarify E&SC Program Requirements.

Many towns expressed frustration that E&SC programs were overly complex and were not clearly communicated to them. Towns seek more standardized and more consistent programs and associated guidance from the state. Some towns suggested that state and municipal E&SC programs should be integrated and made more consistent.

Towns argued that when permittees perceive that permit programs are redundant, inconsistent, or difficult to comprehend, they are less apt to buy into them. Lack of clear guidance allow for misunderstanding and can lead to poor practices. Several towns cited problems due to an over-complicated or inconsistent environmental permitting process between municipal and state-level permits. Towns stated that inconsistency and slow response times sometimes lead to violations of E&SC program requirements. Towns suggested that they would be able to successfully enforce E&SC programs if they were more straightforward and if state-town communication were more efficient.

4) Improve Muni-state Coordination.

Some towns advocated for municipal-state coordination to create simple E&SC guidelines and educational handouts to contractors. Others suggested that the state review E&SC programs and make data requirements and guidance more straightforward. Others recommended thinking about putting all E&SC requirements into one program and simplify. Several towns lamented that there are sometimes extended delays in responses from the state and that these delays can make E&SC program implementation difficult.

5) Contractor Education

More education, especially for contractors, excavators and owners was recommended by more than 8 of the 15 towns, including Berwick, Farmington, Newmarket, Portsmouth, Rochester, and Wakefield. The towns recommended providing workshops and developing handouts to educate contractors and excavators. Education handouts could be in the form of a straightforward "punch list" of E&SC tasks. Others thought that a well-designed and illustrated handout would be most successful.

Several towns suggested that a certification program be created for builders. Another interviewee suggested a series of in-the-field demonstration events. State-level contractor and/or excavator certification was recommended as a way to reward those who complete additional education through

streamlined permitting or inspection processes (or towns could require certification to work in sensitive areas). In general, increased education would increase implementation of good E&SC practices.

6) Inspections

12 of 15 towns responded that they currently conducted sufficient inspections. Three towns stated a preference to conduct more site inspections. Specifically, these three towns wanted to conduct more frequent inspections (particularly in the shoreland zone), conduct inspections prior to soil disturbance, and more single home construction site inspections.

3.7. Summary

The municipal survey was successfully completed by iteratively, attempting to obtain information, partially succeeding, revising our approach, and trying again. The resulting review includes of some, but certainly not all, town E&SC program data. The municipal survey also includes more detailed interviews with staff from 15 PREP area towns with associated useful insights than original envisioned. A summary of findings is provided below.

- Lack of data accessibility. With few exceptions, town E&SC-related data is not readily accessible. In most towns surveyed, data were available in paper-only format. E&SC-related data are typically filed by building permit number or some other system that is useful and appropriate for town needs, but does not lend itself to efficient access and review.
- Paucity of electronic data. Only 3 of the 15 towns surveyed, Exeter and Rochester, New Hampshire and York, Maine had readily reviewable electronic data records. This percentage likely overestimates that of the total population of 52 towns because the 15 towns were selected for having relatively strong recordkeeping.
- Need for unique data identifiers. Town permits often do not contain sufficient unique identifiers or spatial information to support cross referencing to other permits or efficient geolocation.
- Building permit data was compiled for 13 to 20 PREP area towns by year. An average of 33 to 43 building permits were issued per town per year, with a range of 2 to 111 building permits per year.
- Intensive six town review found that:
 - Rochester (NH) had a total of 292 E&SC-related permits and an average of 97 per year;
 - York (ME) had a total of 245 permits and an average of 82 permits per year;
 - Exeter (NH) had a total of 165 permits and 55 permits per year;
 - Berwick (ME) had 134 permits and 45 permits per year;
 - Kittery (ME) had 80 permits and 27 permits per year; and
 - Rye (NH) had 39 permits and 13 permits per year.

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

- Cross-referencing municipal and state permits for common construction sites was difficult due to a lack of unique data identifiers. A more detailed site-by-site analysis would be required to establish whether or not all required permits had been obtained for each individual construction site. Cross-referencing permits would be easily achievable if data were readily accessible and common formats.
- Gap in E&SC at single home construction sites is handled very differently from town to town. Some towns report having virtually no E&SC programs in place for single home construction, while others report having robust programs.
- Few violations. Most towns reported 1 or 2 E&SC violations per year, with a ranged from less than 1 to 5 violations per year reported.
- Sufficient site inspections. Most town staff (12 of 15) stated that a sufficient level of site inspections was currently being conducted.
- Town staffing levels of E&SC programs was typically one person for approximately 1 day per week. Some towns had up to one or two full time staff, but most towns reported a total of 10% to 25% of one persons time was devoted to E&SC programs.
- Town staff recommendations are summarized in Section 3-6 and include:
 - Review and improve E&SC ordinances;
 - Improve single home construction site E&SC regulation;
 - Simplify and clarify E&SC program requirements;
 - Improve municipality to state coordination; and
 - Provide contractor education.

The municipal review yielded sufficient data to support analysis and many useful insights to support development of recommendations.

4. Construction Contractor and Site Inspector Survey Summary

A survey of construction contractors and site inspectors working in the PREP region was conducted and the results are summarized below. Survey questionnaires were developed and focused on construction site sediment and erosion control programs. The contractor questionnaire form is attached as Appendix B and the site inspector questionnaire form is attached as Appendix C. Lists of participating firms are provided below followed by a summary of survey results.

4.1. Participating Firms

A set of 16 firms voluntarily participated in the E&SC survey and their contributions are greatly appreciated. The following 9 construction contractors participated in the survey:

- Andrews Construction
- Bell & Flynn
- Bourassa Construction
- DBU
- Mick Construction
- Park Construction
- Schibblehute
- Severino Trucking
- SUR

The following 7 site inspection firms participated in the survey:

- Attar
- Civilworks
- Fraggle Rock
- Gove Environmental
- Jeff Hyland
- MSC Engineers
- VHB

The participating firms requested that their responses be anonymous. To respect that request and still obtain maximum value from the surveys, a number or letter was randomly assigned to each participant. Contractors were lettered A through I and site inspectors were numbered 1 through 7. Please note that the numbering was not done sequentially (e.g., "A" is not the Andrews Constructions response)

4.2. Contractor Survey Results

Construction contractor responses to questions 1 through 16 in the survey form are compiled in Table 4-1. Please refer to the survey form in Appendix B for the full questions. The questions sought to characterize the types of ES&C control programs required for sites, specifications of program requirements, the extent of site inspections performed and by whom.

In general, the questionnaire was designed so that higher scores (e.g., 5) indicated that ES&C programs were always in place and good control practices were followed. Low scores (1) indicated programs were lacking and practices not followed. Contractors generally indicated that programs were sometimes (3) to mostly (4) followed. The highest average scores (4.0 to 4.2) indicated that Stormwater Pollution Prevention Plan (SWPPP) were required for most projects (Q2), that ES&C measures were installed, even if not shown in the plan (Q7), and that inspector reports provide clear direction to address conditions observed (Q13). Lower average scores (3.0) were received for ES&C programs on sites less than an acre (Q4) and for monthly site visits from state or municipal staff during construction (Q12).

Survey results indicate that SWPPP inspections are conducted by in-house contractor staff for approximately 39% of projects (Q16). Owner’s representatives conduct SWPPPs for 34% of projects and construction contractor or subcontractors conduct 23% of SWPPP project work. Two-thirds (6 of 9) of contractors indicated that they have qualified SWPPP personnel in-house.

Table 4-1: Compilation of Construction Survey Results for Questions 1 through 16.

Q#	Abbreviated Question	A	B	C	D	E	F	G	H	I	Avg
1	Projects require Nol	5	3	1	3	2	5	5	2	5	3.4
2	Projects require SWPPP	5	5	3	3	2	5	5	3	5	4.0
3	E&S plans for over 1 acre projects	4	3	3	2	4	3	3	4	3	3.2
4	E&S plans for under 1 acre projects	4	5	1	1	3	3	3	4	3	3.0
5	Bid documents include E&S costs	5	3	3	3	2	5	3	3	3	3.3
6	Sufficient plan detail provided	4	5	4	3	4	5	3	4	2	3.8
7	E&SC are installed if not in plan	4	1	4	5	4	5	5	5	5	4.2
8	All attend pre-meeting, E&S discussed	4	3	3	3	3	5	3	2	5	3.4
9	State/muni visit once during constr.	4	5	4	3	4	3	3	4	5	3.9
10	State/muni visit monthly during constr.	3	3	3	2	2	3	3	3	5	3.0
11	Design eng visit once during constr.	3	3	4	2	3	5	3	4	5	3.6
12	Design eng visit monthly during constr.	3	5	4	2	2	3	3	4	3	3.2
13	Inspection reports - clear direction	5	3	4	2	5	3	5	4	5	4.0
14	SWPPP certified or qual. Person	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	
15	Qualifications of staff resp. for E&SC	(blank)	Certified	P.E.	P.E.	(blank)	(blank)	Certified	(blank)	(blank)	
16	% of SWPPP by:										
	in-house staff	50%	50%	0%	10%	50%	90%	50%	50%	5%	39%
	your subcontractor	40%	0%	40%	0%	0%	0%	50%	0%	75%	23%
	Owner's representative	10%	50%	40%	90%	50%	0%	0%	50%	20%	34%
	Other	0%	0%	20%	0%	0%	10%	0%	0%	0%	3%

Table 4-2: Compilation of Contractor Survey Results for Factor Contributing to Difficulties

Q#	Abbreviated Question	A	B	C	D	E	F	G	H	I	Avg
17.g	Intense Storms	5	4	2	5	4	3	5	4	4	4.0
17.e	E&SC budgetary restraints	*	5	4	3	2	4	4	4	5	3.9
17.h	Time of year	5	5	3	4	4	3	4	3	3	3.8
17.k	Vulnerable stages of Const.	*	4	3	5	5	3	3	4	3	3.8
17.f	Difficult soils	5	4	1	4	4	3	5	3	3	3.6
17.l	Sequence of Const.	*	5	2	4	3	3	3	3	3	3.3
17.d	Regulatory constraints	*	1	3	2	2	4	4	2	4	2.8
17.i	Const. Period too short	*	3	3	4	2	2	3	3	2	2.8
17.c	Insp. Reports lack direction	*	1	3	4	1	1	2	2	5	2.4
17.j	Const Period too long	*	5	2	2	2	1	3	2	2	2.4
17.a	Inadequate E&SC info on plans	*	1	1	4	2	2	3	3	2	2.3
17.b	Inadequate # of inspection	*	3	1	1	3	1	3	1	5	2.3

The contractor survey also sought to characterize factors contributing to difficulties with implementing a successful E&SC program. Question 17 provided a list of factors and asked respondents to rank the importance of the factor, where 5 is very problematic and 1 is not problematic. Table 4-2 provides a compilation of results. The rows of Table 4-2 have been sorted so that factors that scored as more problematic are at the top.

Contractors characterized intense storms, budgetary restraints, time of year, and vulnerable stages of construction as the most problematic factors. Inadequate numbers of inspections, inadequate E&SC information, and long construction periods were characterized as less problematic.

Lastly, contractors were asked to provide comments and suggestions (Q18) and provided the following:

- A. *The projects are completed in one season – seeded in Sept/Oct. Accepted by the owner but not 85% to 90% vegetated – and things get torn up during the winter plowing and spring runoff. Who has responsibility to cleanup in the spring?*
- B. *Some jobs don't need E&SC, but it always seem they put them in. Engineers use erosion silt fence as a border or property line.*
- 1. *Unrealistic regulations by the State and EPA make it hard to implement SWPPP because it prohibits the use of large equipment in areas that the plan seeks to protect.*
- I. *The best way to provide an accurate and workable plan is to have the site contractor and SWPPP designer work together on the plan. We do this with the D.O.T. projects. Also, (we should) not be afraid to do phases for the SWPPP, (because) the site continues to change daily.*

4.3. Inspector Survey Results

The inspection firm survey form is provided in Appendix C. This questionnaire was different from the contractor survey form and requested more narrative responses. Inspection firm staff qualifications included professional engineers, certified CPESCs, and wetland scientists (Q1). Nearly all of firms reported that they prepared SWPPPs and developed standard inspection forms for inspectors (Q3 and Q4). Respondents reported working for owners on 50% of their projects, with all 7 firms doing some work for owners. The firms reported working for municipalities on 24% of projects, for contractors for 17% of projects, and for state agencies for 9% of projects.

Inspection firms were asked to rank factors contributing to difficulties with E&SC on construction projects. Table 4-3 provides the results with highest ranked factors at the top. Factors described as most problematic were intense storms and difficult sites and soils. Several contractor-related factors, specifically lack of planning, inability to adapt, and indifference were also ranked as problematic

Inspection firms also provided narrative responses to questions (7 through 11). A full set of the inspection firm survey questions and responses (by firm ID number) follows.

Table 4-3: Compilation of Inspection Firms Survey Results for Factor Contributing to Difficulties.

Q#	Abbreviated Question	#1	#2	#3	#4	#5	#6	#7	Avg
6.b	Intense Storms	5	2	4	5	4	4	5	4.14
6.a	Difficult site/soils	5	5	3	5	2	5	3	4.00
6.h	Lack of contractor planning	5	5	3	4	3	2	4	3.71
6.i	Contractor inability to adapt ES&C	4	5	3	5	3	3	2	3.57
6.j	Contractor indifference to ES&C	5	5	3	4	2	3	3	3.57
6.m	Budget constraints for ES&C	3	4	3	4	3	2	4	3.29
6.k	Owner indifference to ES&C	5	3.5	3	4	2	2	2	3.07
6.c	Seasonal Conditions	4	3	2	5	3	2	2	3.00
6.f	Vulnerable stages of construction	3	3	2	4	4	2	2	2.86
6.o	Inadequate budget for inspection	3	4	4	3	1	2	3	2.86
6.g	Inadequate ES&C info. on plans	5	2	2	4	1	2	2	2.57
6.l	Municipal involvement	1	1	2	4	3	2	2	2.14
6.e	Const. period too long	2	1	2	3	3	1	1	1.86
6.d	Const. period too compressed	1	1	2	4	1	2	1	1.71
6.n	Regulatory resistance to innov.	1	1	2	3	1	2	2	1.71

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

Q7. List site conditions at construction sites where E&SC was problematic

- 1. Steep slopes; highly erosive soils*
- 2. (none)*
- 3. Limited working space between outlet and wetlands combined with loamy, highly erodible soils. (Also,) very steep slopes.*
- 4. Large exposed areas during winter/spring. Silty sand material. Long slopes allowing water to concentrate.*
- 5. Steep slopes. Proximity of resources (wetlands, streams) to construction areas. Intense storm events.*
- 6. Marine sediments designed too close to wetlands and waterbodies. (When) engineered plans don't represent field conditions, (when plans are) too general or don't incorporate field conditions. Construction schedule related to seasonal constraints.*
- 7. Steep topography and difficult soil conditions.*

Q8. List contractor issues observed at construction sites where E&SC was problematic

- 1. Poor communication; poor execution of proper E&SC*
- 2. (none)*
- 3. Contractor not dedicated to E&SC. Don't know if it was due to lack of knowledge or budget (limitations).*
- 4. No temporary controls while area sits idle. Delayed response after final grading. No proper sequencing. Clear and grub entire area even though only portions of the site will be active.*
- 5. Poor maintenance of BMPs. Improper installation of BMPs. Inadequate use of temporary seeding and mulch.*
- 6. Don't know how to read plans correctly. Don't care. Don't have time to respond. Open up more acreage than can manage. Not familiar with environmental regulations. The "I have always done it that way" response.*
- 7. Difficulty allotting manpower to maintain E&SC measures, underestimated cost of E&SC maintenance. Construction schedule with contractual milestones resulted in contractor inattention to E&SC.*

Q9. List contractor qualities and techniques observed in properly managed construction sites

- 1. Excellent communication and excellent execution and maintenance of the E&SC*
- 2. (none)*
- 3. Followed plans & SWPPP*

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

- 4. Hands-on and conscientious Foreman. Has various EC controls available onsite. Pays attentions to weather forecasts.*
- 5. Proper installation/maintenance of BMPs. Responsiveness to corrective actions identified in E&SC reports/inspections.*
- 6. Present, prepared, responsible, knowledgeable. Budgeted EC. Contractors that are proactive and review ES&C Plans and revise based on design, field conditions, and SWPPP/monitoring requirements. Aware of weather conditions, forecast and timing of construction activities. Direct line of communication. Contractor respect for inspectors.*
- 7. Contractor understanding that proper E&SC is crucial to project success and is more cost effective in the end. Linear progression of site work done in a phased approach. Rather than clearing and grubbing large areas, small areas were intensely worked until final or temporary seeding takes place.*

Q10. In general, are E&SC programs effective (Y/N)? If not, what could be done better?

- 1. (none)*
- 2. Yes, but only when the Owner has the design professional oversee construction and implementation of the SWPPP. Most site contractors do not comprehend or respect the design and permitting process and, therefore, are not diligent in proper implementation. There is a "paper chase to implementation" gap.*
- 3. Yes. Although we experience some difficulties with contractors not being 100% dedicated to E&SC. They would be less dedicated if an E&SC plan was not implemented at all.*
- 4. Yes. Effective in most cases, especially on small sites, relatively flat, and depends on rainfall conditions. It is large sites and unusual, intense rain events where typical EC measures tend to be inadequate. Contractors need to be more willing to sequence or phase contraction and have contingency measures. Having mulch or EC blankets on hand is a good start. Third party inspectors reporting to Town or Regulatory Agency should also be included for large sites.*
- 5. Yes, as long as regular inspections are done and reports issued to owner, contractor, and involved regulatory agencies.*
- 6. Yes. E&SC (SWPPP?) programs are effective, but there is always more that can be done. One of the main issues is trust and communication. Inspectors often times have to prioritize E&SC issues. Construction sites where all parties are involved (i.e., owner, contractor, town, and state) perform better on E&SC Programs. Independent inspectors can focus better on issues and protecting the environment. Sites with 401 WQ certifications due to monitoring & WQ requirements sample turbidity 10 NTU or more exceeds state WQ for most rivers/surface waters.*

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

- 7. More time could be spent at the planning phase to develop achievable construction phasing plans. Including the site contractor in discussions early in the process would help. The cost of maintaining E&SC measures should be evaluated in greater detail.*

Q11. Other comments and suggestions to improve E&SC programs/ Additional comments

- 1. (none)*
- 2. Owners need to embrace the need and costs of design, implementation, and oversight in order for the effective practice of E&SC to become an integral part of site development.*
- 3. (none)*
- 4. For large site and/or insensitive areas, financial incentives or penalties through a performance bond may be necessary. Performance would be based on whether or not there was a significant, uncontrolled release of turbid waters. Working through winter and spring months is especially challenging and requires additional measures and phasing.*
- 5. I have found that contractors are generally responsive to corrective actions recommended through regular inspections. If no inspections are required and performed, maintenance of BMPs can be an issue.*
- 6. Just to be clear, there is a difference between E&SC and SWPPP plans. This issue often comes up. EPA inspects site SWPPP which include E&SC plans. We have had (situations) where EPA inspectors have written up engineers on differing SWPPP plans and E&SC plans.*
- 7. (none)*

4.4. Summary

The construction contractor and site inspector surveys were very successful because these practitioners provided thoughtful and candid responses. Their cooperation is greatly appreciated and has enhanced the overall study. A summary of contractor and site inspector responses is provided below.

- Site conditions. Intense storms, steep grades, and difficult soils were consistently identified as important factors contributing to difficulties in conducting E&SC programs. Storms at vulnerable stages in construction were also identified as challenging.
- Grubbing the construction area too early, opening up larger areas than necessary, and leaving areas opened up for extended periods were reportedly often problematic;
- Contractor coordination problems. Inspectors found contractor-related problems also contributed to difficulties (indifference and lack of planning) and reported that contractors and owners need to buy-in to the E&SC program early on.
- Characteristics of good E&SC implementation. Good foreman, proactive management, and adaptive plans are strong positive factors. Successful programs have clear documentation and

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

sufficient funds to support the program throughout the project. Good communication, planning, and buy-in from owners and contractors would greatly improve E&SC programs.

- Characteristics of poor E&SC implementation. Site inspectors identified several factors associated with poor E&SC implementation including improper installation and poor maintenance of BMPs, lack of temporary controls when sites are idle.
- Site Inspections. Practitioners responded that state or town staff usually inspected construction sites at least once. Construction contractors responded that no additional site inspections were necessary, while site inspectors responded strongly that additional site inspections were necessary to ensure the E&SC programs were properly implemented.

Site inspectors surveyed recommended getting buy-in from contractors through education, inspection, and enforcement. They advocated for improved communication between contractors, inspectors, and regulators. Lastly, site inspectors recommended that more projects be conducted in a phased manner with more adaptive E&SC plans that would be better suited to changing site conditions (e.g., adverse weather)

5. Summary and Recommendations

5.1. Summary

The E&SC program review was successfully completed through analysis of available data and surveys. Many interesting and important topics arose from the review process. We have summarized important E&SC program topics into a “top ten” list. A set of recommendations is provided in Section 5.2 and was designed to address problems identified below.

1. Availability and Usefulness of E&SC Program Data

A review of E&SC program data for the PREP study area in New Hampshire and Maine state agencies and municipalities was successfully conducted. In general, data were less readily available and in less useful formats than had been anticipated. New Hampshire DES data were relatively straightforward to obtain using the OneStop online system. Maine DEP data were difficult to obtain and often did not contain sufficient information to support review. In most municipalities, E&SC program data are available in paper-only format and are typically filed by building permit number or some other system that is useful and appropriate for town needs, but does not lend itself to efficient access and review.

Data incompatibility is a problem between New Hampshire, Maine and municipal data, making comparison of permit information difficult. A unique identifier would make data comparable between programs. For example, a construction site project may be referenced by map and lot location in one permit and by street address in another. In most cases, this inconsistency in identifying construction sites makes cross referencing difficult.

2. Data Summary

The data analysis resulted in the following observations:

- Total area disturbed by construction site development was estimated at 2,560 acres, based on a partial set of permits, for the 3-year study period. For New Hampshire, area disturbed was estimated to be 1,790 acres, based on AoT program estimates. For Maine, area disturbed was estimated to be 722 acres, based on Full NRPA and CGP estimates. This estimate likely underestimates the actual area disturbed because some types of construction were not included due to lack of available data. Another factor contributing to underestimation of area disturbed is that towns typically do not compile area disturbed data, so projects with town-only permits are not counted.
- Violations. There are relatively few documented violations in the data records. Municipalities typically record 1 or 2 violations per year and Maine DEP recorded a total of 16 total violations for the 10 Maine towns over the 3-year study period.

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

- Building permit data was compiled for 20 PREP area towns by year. An average of 33-43 building permits were issued per town each year, with a range of 2 to 111 building permits per year.
- In the 42 New Hampshire towns, there were:
 - 217 AoT permits for an average of 1.7 AoT permits per town per year;
 - 998 Shoreland/Wetland permits for an average of 7.9 permits per town per year; and
 - 307 Construction General Permits for an average of 2.4 permits per town per year.
- In the 10 Maine towns, there were:
 - 57 full NRPA permits for an average of 1.9 permits per town per year;
 - 350 NRPA permits by rule for an average of 12 permits per town per year;
 - 20 Site Location for Development permits for an average of 0.7 permits per town per year; and
 - 25 Construction General Permits for an average of 0.8 permits per town per year.

Available state and municipal permit data were useful in supporting assessment of existing E&SC programs.

3. Ordinances and Regulations

All groups surveyed strongly recommended revising E&SC ordinances and regulations. State staff encouraged towns to adopt town-wide E&SC ordinances. Municipal and construction contractor staff recommended simplifying and clarifying E&SC program requirements. Site inspection staff suggested that ordinances be revised to encourage more phased and adaptable E&SC plans.

Single family home construction sites were identified as a major gap in ordinances and regulations. Some towns conduct virtually no E&SC programs at these sites, while some other towns have relatively robust programs in place. According to the surveys, revision of ordinances should include developing and implementing minimum E&SC requirements for single family home and other types of construction. Interviewees also advocated for making ordinance and regulation requirements more readily understandable and clearly communicated. A summary of existing regulatory thresholds and requirements is provided below.

Summary of Existing Regulatory Thresholds and Requirements

Regulatory programs pertaining to E&SC in Maine and New Hampshire are identified and reviewed in Sections 2 and 3. Table 5-1 (page 52) lists various thresholds for E&SC requirements under stormwater and land use programs within the Piscataqua Region. Programs are listed by extent of soil disturbance and program type in an effort to illustrate the breadth and complexity of E&SC requirements. Comparison of requirements in Table 5-1 also provides a basis for identifying regulatory gaps. Since the study area spans two states, there are differences in state regulatory thresholds, particularly for larger

projects. Differences between the 52 municipal ordinances and regulations are significant and beyond the scope of Table 5-1.

Preparation of E&SC plans is required for all projects over one acre, but agency review varies. For example, projects in New Hampshire between one and 2.3 acres (100,000 sq. ft.) require preparation of a SWPPP under USEPA requirements, but the plan is not necessarily reviewed by any agency and the contractor can prepare the inspection reports if they have "qualified personnel".

Contractor certification is being used on a voluntary basis in Maine with certain regulatory incentives provided for contractors that participate. New Hampshire does not have a certification program.

Preconstruction conferences are not required under specific regulations, but state agencies or local planning boards may require them as a condition to granting a permit. The Contractor Questionnaire indicated that preconstruction conferences occur on about 50% of their projects.

Municipal inspections are generally done in two ways. Most Code Enforcement Officers (CEO) will typically check for E&SC during one or more of their building inspections, although many municipal regulations may not have specific E&SC requirements. For subdivisions and mid to large commercial site development, planning boards will often require E&SC inspections by the design engineer or a third party inspector with the cost borne by the developer. State inspections are typically limited to one per site for projects that require state permits. On large projects or particularly sensitive sites MDEP and NHDES may require that E&SC inspections be performed by a 3rd party inspector, recently this has been linked to SWPPP inspection requirements.

The E&SC program review found a consensus among state, municipal, and contractors for the need for revision of existing ordinances and regulations. A discussion of recommendations for revising ordinances and regulations are provided in Section 5.2.

4. Challenging Site Conditions

Intense storms, steep grades, and difficult soils were consistently identified as important factors contributing to difficulties in conducting E&SC programs. Storms at vulnerable stages in construction were also identified as challenging. Sites situated near sensitive receiving waterbodies (e.g., wetlands and streams) were identified as challenging scenarios. Seasonal changes (e.g., fall to winter) were also cited as potentially problematic.

5. On-site Performance Issues

Several types of performance on construction sites were identified as problematic by site inspector, municipal, and state staff. Poor planning by contractors was referred to as a problem at some sites resulting in poor execution of the E&SC plan, inadequate information in the plan, and slow response to changing conditions at the site. Some contractors stated that unrealistic and/or confusing regulations are a problem.

Grubbing construction areas too early and opening up larger areas than necessary was identified as a major problem at some construction sites. Leaving areas opened up for extended periods can lead to

excess sedimentation. Failure to provide temporary controls when sites are idle was also referenced as problematic.

Characteristics of good E&SC implementation. Good foreman, proactive management, and adaptive plans are strong positive factors. Successful programs have clear documentation and sufficient funds to support programs throughout the project. Good communication, planning, and buy-in from owners and contractors greatly improves E&SC programs.

Characteristics of poor E&SC implementation. Improper installation and poor maintenance of BMPs, inadequate plan documentation, and construction contractor apathy are factors associated with poor performance. Poor communication and inadequate budgets can contribute to failure to maintain BMPs was also mentioned as problematic at some sites.

6. Site Inspections

The group surveyed was divided on the issue of site inspections. Construction contractors and municipal staff reported that there were presently sufficient site inspections, while state staff and site inspectors strongly reported the need for more inspections. Contractors indicated that state or municipal staff typically visits sites at least once.

State staff reported that contractors are more inclined to follow E&SC plans if they expect site inspections. Site inspectors reported that E&SC problems can often be identified and resolved during site inspections and that those problems would likely not be resolved in the absence of inspections. The strongest recommendations from state staff surveys were for increased resources and staffing to conduct more site inspections.

7. Enforcement

Maine and New Hampshire staff seek to optimize their time dedicated to E&SC programs. They reported that some tasks, such as formal Notices of Violation (NoVs) require excessive paperwork and are time consuming. Another option presently available is to provide the site contractor with a verbal warning. State staff suggested that an intermediate enforcement tool, between the NoV and the verbal warning would be useful. One suggestion was to provide a quick on-site citation, similar to a speeding ticket. Another suggestion was to provide a field notice, co-signed by the contractor and inspector, documenting the contractor's commitment to resolve a problem. The field notice would not contain a fine, whereas the citation would.

8. Education and Outreach

Survey participants often recommended that education and outreach be conducted to support better buy-in of E&SC programs by contractors and better understanding to the programs by all parties. Suggestions included conducting workshops, creating "punch lists" of E&SC program requirements, and handing out brochures at construction sites.

9. Communication and Coordination

Poor communication and coordination were frequently cited as key components of failed E&SC program implementation. Based on the survey results, it appears that communication and coordination at several levels should be improved, including:

- Data coordination. Review of available data shows that E&SC program data are not shared between municipalities and states. Data are not in comparable formats and are not readily transferable. Regulators would benefit from access to available E&SC program data and changes should be made to make data sharing feasible.
- Contractor - Regulator communication. Contractors sometimes report finding regulations difficult to understand and regulators sometimes report finding contractors apathetic and uncooperative regarding E&SC. Clearly, improved coordination would result in better E&SC program implementation.
- Municipal – State Agency coordination. Some municipalities report receiving unclear guidance and slow response times from state staff. Municipal and state site inspections are often not conducted in a coordinated manner. Improved communication and coordination would be beneficial.

10. E&SC Administrative Resources

Municipalities reported having available staff of approximately one person for one day per week to support E&SC programs. Some municipalities had up to one or two full time staff, but most municipalities reported a total of 10% to 25% of one person's time was devoted to E&SC programs. In New Hampshire, 2 or 3 people cover the entire state for E&SC programs, although the staff allocation program is currently in transition. In Maine, 1 or 2 people cover all site visits and inspections for the southern Maine region related to E&SC.

In summary, at the state level it appears that there is less than one full time staff person assigned to E&SC programs in the PREP region, with several people working part-time in the area. In each municipality, there is, on average, one person working one day per week on E&SC program.

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

Table 5-1: Summary of E&SC Regulatory Thresholds ¹

Jurisdiction	Site Disturbance (by extent and program type)	E&SC Plan Required	Contractor Certification ²	Preconstruction Conference	Municipal inspections	State staff Inspections	Other Inspection Requirements
ME	Large projects under MDEP Stormwater Program ³ (Stormwater Management Law and Site Law)	Yes	Maine VCCP can prepare SWM plan if < 3 acres	MDEP may require on sensitive sites	By CEO or town's review engineer if Planning Board reviewed project	Limited (typically one inspection)	MDEP may require "3 rd party" on large or sensitive sites
NH	>100,000 sf (2.3 acres) under NHDES AofT Program ⁴	Yes	N/A	NHDES may require on large or sensitive sites	Often by town's review engineer	Limited (typically one inspection)	Inspection report qualified professional ⁵ every 14 days and after 0.5" rain event
NH	< 100,000 sf (2.3 acres)	Yes, if Planning Board reviews project	N/A	Not required	Limited (CEO; or town's review engineer if a permit condition)	Limited to Shoreland/wetland projects	SWPPP inspection reports, if project is over 1 acre, see below
ME and NH	>1 acre (NPDES – Phase II threshold for Construction Activity) ⁶	SWPPP ⁷ per USEPA and ME Construction General Permit	N/A	Not required	Varies depending on other thresholds	Limited as noted above	SWPPP inspection report by a qualified personnel ⁸ every 7 days or 14 days and after 0.5" rain event
ME	< 1 acre (non-Shoreland)	Only if Planning Board reviewed project ⁹	Maine VCCP Contractor can prepare SWM plan	Not required	Very limited (CEO may visit site for building inspections)	No	N/A
NH	< 1 acre (non-Shoreland/wetland)	Only if Planning Board reviewed project	Maine VCCP Contractor can prepare SWM plan	Not required	Very limited (CEO may visit site for building inspections)	No	N/A
NH	Within Shoreland sites (any size)	Yes	N/A	Not required	State has jurisdictional responsibility	Limited	Project specific, see other thresholds
ME	Within Shoreland sites (any size)	Yes	N/A	Not required	CEO	Limited	Project specific, see other thresholds
ME & NH	Site and Subdivision projects	Yes, as part of Planning Board Review	N/A	Municipality or state occasionally require as a permit condition	Often by town's review engineer, especially subdivisions	Minimal and only if project triggered state permit	MDEP or municipality may require "3 rd party" on large or sensitive sites
ME & NH	Single family house lot	Only if in Shoreland	Not required	Not required	Limited; CEO may inspect during other building inspections ¹⁰	n/a	n/a

¹ For general comparison only, see applicable laws and regulations for specific requirements

² Maine Voluntary Contractor Certification Program (VCCP) is a non-regulatory, incentive driven program coordinated by MDEP's Nonpoint Source Training and Resource Center

³ Refer to Maine Chapter 500 and 502 rules for thresholds

⁴ New Hampshire Alteration of Terrain Permit thresholds (100,000 sf in non-shoreland, 50,000 sf in shoreland)

⁵ NHDES Env-wq 1500 requires inspection be performed by: a qualified engineer, a CPESC specialist, a certified wetland scientist or a qualified employee of DRED

⁶ Maine administers their General Construction Permit as authorized under NPDES – Phase II; in NH the NPDES-Phase II program is administered by USEPA

⁷ Stormwater Pollution Prevention Plan meeting the requirements of USEPA, however the plan is not submitted to USEPA

⁸ Refer to USEPA definition of "qualified personnel"; contractor staff can prepare SWPPP inspection reports if they have possess adequate qualifications

⁹ The Maine Erosion and Sediment Control Law requires that a person take measures on any size site to prevent erosion and sediment beyond the site or into a protected natural resource, but the law does not specifically require a E&SC plan

¹⁰ E&SC reviewed by most CEOs during building inspections such as foundation inspection, subsurface system inspections; some CEOs perform additional E&SC inspections prior to soil disturbance and during loam placement

5.2 Recommendations

We have identified the following recommendations based on the E&SC program assessment.

1. Review and Revise E&SC Ordinances and Regulations.

Municipal ordinances and state regulations should be revised to establish uniform, minimal E&SC measures throughout the PREP study area. Ideally, the improved ordinances would support consistency in conducting E&SC programs across municipalities and would provide clear and straightforward guidance to municipal staff, construction contractors, and site inspectors. A major gap in E&SC programs is single family house development site regulations. This issue was identified by many of the participants in this review. The ordinance revision process would help to resolve that single family house development E&SC program issue.

Revised and improved ordinances and regulations could potentially resolve several of the major problems identified during the review including data sharing, on-site performance issues, and communication between all parties. As part of ordinance revision, collaboration between state agency and municipalities could be improved including creating common data sets that may be cross-referenced (e.g., with common spatial reference data).

A potential framework for revising E&SC ordinances is to create a “Watershed Management District” as provided in the Maine Municipal Stormwater Management Program (Chapter 500, Section 9, available online²). This would enable adoption of model base level municipal ordinances. There are several available enabling statutes and examples of model municipal ordinances including:

- a. NHDES Model Ordinance—New Hampshire has an Innovative Land Use Planning Techniques Handbook that provides guidance and models for municipal E&SC ordinance revision. Enabling statutes for New Hampshire include RSA 674:16, Grant of Power, RSA 674:17, Purposes of Zoning Ordinance, and RSA 674:21, Innovative Land Use Controls. Information available at:
http://des.nh.gov/organization/divisions/water/wmb/repp/innovative_land_use.htm.
- b. Maine Erosion and Sediment Control Law – Provides pertinent text for enabling statutes in Maine communities and could serve as model text for New Hampshire communities. Information available at:
<http://www.maine.gov/dep/blwq/docstand/stormwater/erosion.htm>.
- c. Town of Berwick E&SC Land Use Ordinance – Adopted in 2009, this ordinance provides an example of successful development of E&SC municipal ordinances. Additional information about Berwick Land Use Ordinance is available at:
<http://www.berwickmaine.org/>. At the site, select “Planning Department” from left side list and then “Land Use Ordinance” link within text.

² <http://www.maine.gov/dep/blwq/docstand/stormwater/rule500and502/9.htm>

Review of Erosion and Sedimentation Control Programs in the Piscataqua Region

Revised ordinances should include E&SC program specification as part of pulling a Building Permit. Requiring E&SC compliance as part of the signed Building Permit promotes discussion of E&SC and provides a basis for enforcement when necessary. The process should identify "At-Risk" sites by soils, slope and proximity to water body (in addition to Shoreland and Resource Protection areas) and require additional inspections for such sites. In order to be reasonable, town staff could be allowed to exempt small sites that pose no threat to surface water resources. For larger projects, site and subdivisions approvals should include a condition that a Site Agreement, outlining E&SC responsibilities, be signed by the property owner, as is currently done in Exeter, Somersworth, and Portsmouth.

In developing E&SC ordinances, stakeholders should consider the key issues identified in this review including:

- Contractor certification;
- Pre-construction meetings;
- Increased staffing for site inspections,
- Mid-level problem notification;
- Single family house permitting uniformity issues;
- E&SC as part of building permits;
- Improved E&SC plans; and
- Data recordkeeping and uniformity,

The first four key issues above are provided as recommendations below. There are likely additional key issues that will be identified and addressed as part of ordinance and regulation revision.

2. Develop and Implement E&SC Certification Programs

A contractor certification program should be implemented in both Maine and New Hampshire and construction contractors should be certified. Contractor certification would address several problems identified by survey respondents including state, municipal, and site inspector staff by increasing contractor buy-in to E&SC programs and improving on-site implementation. The certification programs would be implemented through hands-on workshops conducted at construction sites. State and municipal staff or other qualified professionals would conduct the training and would provide educational information, handouts in the form of checklists, and clear guidance regarding E&SC requirements for various types of sites. At the completion of the workshops, contractors would be certified. It may also be beneficial to include other practitioners in the certification process.

The contractor certification program could potentially enhance the existing Maine Voluntary Contractor Certification Program (VCCP). The incentive based approach used in the current VCCP could carry over and be expanded to make the program more attractive to stakeholders. Information regarding the VCCP is available online at: <http://www.maine.gov/dep/blwq/training/ip-vccp.htm>.

3. Conduct E&SC Preconstruction Conferences.

State, municipal and third-party inspectors should meet with contractors and owners prior to soil disturbance to review E&SC requirements and expectations. The inspectors can explain their role and provide information, whereas the contractor can present their plan for addressing E&SC. This will help to improve communication throughout the construction process and could be included in ordinance revision.

4. Increase Frequency of Site Inspections.

Increase staffing state, municipal and third-party inspections and other site visits. This will help to improve communication and coordination between all stakeholders and could be included in ordinance revision. More frequent site visits will also lead to prompt identification of problems, improved problem mitigation, and reduction in adverse impacts to receiving waterbodies.

5. Develop Innovative Mid-Level Site Problem Notifications.

Develop an innovative new tool for communicating between site inspectors and contractors. Each site inspection should have a simple written report or checklist provided in the field to the contractor. For problematic site situations, there should be an intermediate tool between a Notice of Violation and a verbal warning. Specific ideas include a field notice or “field consent declaration” that is a co-signed informal agreement between the inspector and the contractor indicating that a problem will be resolved (and without a fine).

Appendix A: Municipal Interviews

Municipal E&S Control Program

Interviews at

15 PREP Study Area Towns

Municipal site visit interview summaries for Task 3: PREP E&S project

Conducted December 2009 – January 2010 with Municipal Staff

New Hampshire Town #1

General E&S Process

Site Plan Review and Subdivision regulations currently cover E&S. The shoreland protection along the Exeter River is covered by the state-level shoreland program. The shoreland areas of other rivers in town are covered by an ordinance.

The town recently received a Land Use Planning Grant from PREP, and as a result has drafted ordinance-level stormwater (including E&S) protections. This draft ordinance is expected to pass into law. If that happens, the E&S program will be strengthened, since a Zoning Board of Adjustment action would be required for any variance, and this is much more restrictive and difficult to obtain than current variance procedures.

Data availability

All records are paper. See reports on file at FBE.

Inspections and violations

All Planning Board approved work, which means subdivisions and non-residential development, are inspected for E&S. The Planning Board and Planner, in the permitting phase, review all stormwater devices and bonding, to ensure adequate techniques and financial backing are in place to protect the town's environment. Individual house lot construction is not necessarily inspected for E&S. The Planner felt that the town's building staff did not check specifically for E&S measures at single family dwelling construction sites.

There has been one major violation in the town in the past three years. A subdivision next to a major river in a "topographically challenged" site experienced significant erosion. This site was identified in the permit review process as being at risk, and a condition that all facilities associated with construction were subject to inspection. Town planning / building staff visited the site during the phase of active erosion and violation, and noted that by coincidence of good weather, no sediment plumes reached the river, although the town believes that minor amounts of sediment probably entered the river at some point after the visit. Financial problems with the development caused delays in soil stabilization, exacerbating the violation. The site was ultimately stabilized to the satisfaction of the town by seeding exposed soil.

Staff Resources

The Planner serves one day a week in the town. The Planning Board is well trained, and has made a concerted effort to update E&S and stormwater efforts in. The PREP Planning Grant has enabled the town to greatly modernize its laws and regulations regarding stormwater, including E&S. Building

Appendix A: Municipal Interviews

inspector works from home by appointment only. There is a Town Engineer who inspects all Planning Board approved work, by appointment. There is no full-time permitting or enforcement staff.

The planner estimates that 30% of Planning Board permit review time is spent on stormwater control issues, and 10-20% of time is spent on post-approval activities, primarily inspections. Violations, excepting above-mentioned incident, are not a significant demand on the town's time.

How could the program be improved?

The Stormwater Management Ordinance, which is expected to pass at the next election, will be a big step forward toward restricting, regulating via permits, and inspecting E&S in the town.

Residential construction less than 25,000 square feet could be more thoroughly inspected for E&S. There is a major gap in permitting and oversight between subdivision construction and the individual house lot construction which follows.

What additional information would you like to have about construction projects?

The Planning Board is "sophisticated and effective" in getting the information they need from applicants.

What additional resources (from State or contractors) would make program work better?

The Planning Board is interested in low impact development. Currently, there is a good understanding of vegetated swales and natural buffers, but a more comprehensive approach to low-impact development would be an appropriate step forward. Examples include better integration of pervious pavement and overall reduction in impervious surfaces into the town's land development programs.

The UNH Stormwater Center has provided good ongoing education and training to the Planning Board.

What would you do with more time available to spend on this program?

Better integration of low impact development in all development projects, including those which do not require Planning Board oversight.

Do you think that the number of inspections conducted is sufficient?

Yes, although lot-by-lot development is the weakness. The big projects are well controlled.

General comments and thoughts

The PREP Planning Grant was very helpful in modernizing and strengthening land use ordinances and regulations in the town.

New Hampshire Town #2

General E&S Process

Site Plan Review and Subdivision regulations have specific requirements for erosion and sedimentation control. The Shoreland and Wetlands sections of the ordinance indirectly deal with erosion and

Appendix A: Municipal Interviews

sedimentation, insofar as they require setbacks from sensitive natural resources. All ordinances are available online.

The Planning Board and Planner review Site Plan and Subdivision applications, and these are inspected by the Building Inspector, a third-party engineer hired for that purpose, and occasionally by the Planner.

Data availability

Permits are paper-based.

There is no GIS system in place for construction projects in the town. All GIS resources for the town are handled by the regional planning commission.

Inspections and violations

Only Site Review and Subdivision projects are inspected for erosion and sedimentation control. Single lot buildings (including development of house lots within Planning Board approved subdivisions) are not inspected for erosion and sedimentation.

There are approximately 2 violations dealing with erosion and sedimentation per year in the town.

Staff Resources

There are three positions in the town that handle erosion and sedimentation, and the total time spent on it amounts to about ¼ of a full time position. These positions are: Planner, Building Inspector, and third-party engineer.

How could the program be improved?

More standardization among programs would be helpful. The town used to look to the state for current environmental protection standards, including erosion and sedimentation. However, the state has frequently changed their guidelines and regulations, and has not kept the town in the loop and updated. The town has since stopped trying to stay on top of the frequent changes at NH state programs such as Alteration of Terrain and Wetlands. These state programs could be much more collaborative.

What additional information would you like to have about construction projects?

The EPA Stormwater program has enhanced the level of inspections in town, and has been very collaborative. The EPA is currently looking at anything larger than 1 acre of developed area, and the town appreciates this level of EPA oversight. EPA has visited town offices when they were in town conducting inspections, and they provided useful “how to” documents to staff. The collaboration and information sharing is valuable to the town. The town’s philosophy is that if another program at the state or federal level is providing good, consistent oversight of an inspection requirement, the town can rely on that program and avoid parallel and redundant programs.

Appendix A: Municipal Interviews

What additional resources (from State or contractors) would make program work better?

The state could conduct more outreach and be more open in its environmental programs (Alteration of Terrain, and Wetlands). The Wetlands program in particular “won’t talk to towns.” The problem is that state and town regulations are different (not that one is stricter than the other). These different types of programs are overlapping, confusing, and frustrating to applicants, and to the town. There should be more consistency and integration between levels of regulation.

One suggested model is to have state minimum requirements which towns adopt. Then towns may adopt regulations which are more stringent than this “state floor” if municipalities have specific natural resources or circumstances that call for added protections. This approach would create a basic level of consistency among the various towns, harmonize enforcement, and still enable strong local control.

What would you do with more time available to spend on this program?

The town would spend time in the field, perhaps annually in the spring, with the construction workers who are actually doing the work (sometimes different people than the applicant, contractor, or developer) to explain why environmental requirements are important. In-field demonstrations would be one good way to accomplish this goal.

Do you think that the number of inspections conducted is sufficient?

Yes.

General comments and thoughts

None.

New Hampshire Town #3

General E&S Process

The town has specific erosion and sedimentation requirements in the Site Plan Review and Subdivision regulations. The zoning ordinance, under section 9.3 on Natural Resources, has setback requirements which are more stringent than state guidelines (no structures within 300’ for largest streams, 150’ for second order streams), and therefore indirectly protects streams from erosion and sedimentation.

There are no erosion and sedimentation requirements in the building code. Single family dwelling projects are not required to have any E&S control measures, although the town may recommend such measures if the project is especially close to a sensitive wetland or stream.

Data availability

Data are kept electronically. There are no GIS records of building projects.

Inspections and violations

Typical Site Plan and Subdivision projects undergo scores of inspections, with the smallest projects having approximately 5 inspections at a minimum. Erosion and sedimentation control is reviewed in most of these inspections. There are no E&S violations recalled over the study period.

Appendix A: Municipal Interviews

Staff Resources

There are a total of six staff members who work at least part of the time on erosion and sedimentation control issues: Planner, Code Enforcement Officer / Building Inspector, 2 Site Plan / Subdivision Inspectors, 2 office staff. In addition, there are two engineers on the Planning Board. The total time spent on erosion and sedimentation control, however, is a small fraction of available time.

How could the program be improved?

Not sure the program needs to be improved. The town follows the state guidelines and BMP's. (When asked, town building staff did not know which specific state guidelines). The impetus is placed on the engineer of record associated with each Site Plan and Subdivision development proposal.

What additional information would you like to have about construction projects?

Town building staff states that there is already too much information.

What additional resources (from State or contractors) would make program work better?

None.

What would you do with more time available to spend on this program?

Make sure contractors are aware of the rules and regulations, so they don't have to be "led by the hand" through the requirements.

Do you think that the number of inspections conducted is sufficient?

Yes.

General comments and thoughts

The town engineers on the Planning Board, and adequate staff. Erosion and sedimentation just doesn't crop up as a significant problem.

When asked about other environmental concerns the town might be experiencing, the building staff mentioned road salt and stormwater in general. In the town, stormwater is piped directly to the river with no treatment at all. Town staff also mentioned that septic systems are often implicated in reducing Great Bay water quality.

New Hampshire Town #4

General E&S Process

There are several sections of the ordinance which deal with stormwater and E&S: Site Plan Review, Subdivisions, Sensitive Area Development Standards (steep slopes), and Watershed Protection Overlay (applies to entire town).

There are extra inspections required for construction projects within 50' of class III wetlands, within 100' of class II wetlands, or adjacent to shoreland areas. Shoreland proposals must be approved by the state before the town issues its permits.

Appendix A: Municipal Interviews

NOTE: Although town staff members have worked in similar positions within the watershed for years, they are new to the town.

During the interview, town planning staff noted several laws which needed changing within the ordinances and regulations. For example, the Subdivision Regulations implied that excess stormwater could be diverted to adjacent properties so long as there were no adverse impacts. That law needed to be changed to state that no excess stormwater can leave a developed site. It was also noted that the Subdivision ordinance had no specific E&S language.

Data availability

Permit data were not available electronically; instead the town was able to provide the sum total of permits by type for 2007-08 only. Building Permit records for 2006 could not be located.

Inspections and violations

Compliance has not been a problem for commercial development projects. There have been 2-3 minor issues over the past 1½ years with residential development.

Staff Resources

There is a CEO, a Planner, and one shared Administrative Assistance, plus a Planning Board, working on permitting in the town.

Approximately 10% of time is spent on E&S issues overall, and virtually all of that time occurs during inspections. It is among the first item inspected in new construction, and then there is continuing review during subsequent inspections.

How could the program be improved?

At the planning level, revise Subdivision regulations. At the building levels, program is working OK, given the community size.

What additional information would you like to have about construction projects?

Wetland delineations are somewhat vague. When there is a question regarding proximity of a proposed project to a wetland, the town has the applicant hire a wetland scientist to measure distances. A GIS map of protected resources might help, although wetland boundaries probably change through time.

What additional resources (from State or contractors) would make program work better?

Existing handbooks from NH are very good:

- NH Water Resources Primer. 2008. NHDES.
- Innovative Land Use Planning Techniques: A handbook for sustainable development. Oct 2008. NHDES, Planning Commissions, NH Energy Department, et al.

More information in layman's terms, specific to a cold climate, would be helpful. Town staff believes that the NH Stormwater Center's results are not necessarily applicable to the town's climate, which is

Appendix A: Municipal Interviews

colder. There is skepticism that pervious pavement is effective when frozen ground conditions meet warm rains.

What would you do with more time available to spend on this program?

At the buildings level, none needed. Erosion/sedimentation controls are reviewed as ongoing inspections happen.

Do you think that the number of inspections conducted is sufficient?

At the buildings levels, no additional time needed right now. Stormwater is a major topic now, and new subdivisions affect drainage and neighbors are concerned about the additional water running off.

General comments and thoughts

There is more focus on stormwater than erosion and sedimentation control now.

New Hampshire Town #5

General E&S Process

The town has a single permit that covers buildings (building code), wetlands (town ordinance Ch. 18), stream and tidal waters. The town is able to print out a table of the number of permits of each type by year, but not a detailed list from an electronic database of permit information. The process of building begins with a driveway approach, which includes wetland and setback review. Prior to any building permit, a driveway with culvert needs to be approved and septic systems need to be reviewed. All single family homes receive E&S inspection. For example, foundation drains need to reach daylight.

Data availability

Permits can be viewed online, but not printed.

Inspections and violations

Every building permit is inspected for E&S. There have been no intentional violations of E&S in town during the project timeframe. There have been two minor and unintentional violations. These and other minor corrections to E&S issues are typically corrected within hours or a day at most.

The serious violations have all been referred to DES. None occurred during the project timeframe. These older problems were:

- Stream alteration;
- Clear-cut in the shoreland zone; and
- Filling wetlands.

The Conservation Commission and the Rockingham Planning Commission review all wetlands permit applications.

Appendix A: Municipal Interviews

Staff Resources

Town building staff could not say at all how his time is divided between permitting/inspections/violations/etc. However, staff feel that the time devoted to it is adequate.

Other Notes

How could the program be improved?

Thoughts on E&S in town:

- Education of contractors has reached good levels.
- E&S programs will continue to be successful so long as they are reasonable and “not confiscatory”
- Cited the importance good Town Hall relationship with citizens: quick response time (especially people who need approvals to begin working), an open door policy in Town Hall, a focus on what the citizens need.

What additional information would you like to have about construction projects?

A statewide safe drinking water program which would require regular, uniform testing (apparently this is being developed) that will be useful for protecting people’s health. It would also supply a useful stream of environmental data.

What additional resources (from State or contractors) would make program work better?

Cooperation with DES is currently good.

Sometimes the NH Building Inspectors Association or the Seacoast Building Inspectors Association have trainings or meetings for CEO’s to updates skills and knowledge, and these are helpful.

What would you do with more time available to spend on this program?

None needed.

Do you think that the number of inspections conducted is sufficient?

Yes

General comments and thoughts

- The town needs better sewage treatment, and needs to eliminate its CSO.
- Concerned about a Great Bay unified sewer system plans, because it will disturb a great deal of surface ecology to put in all the pipes, including running them through wetlands.
- Salt is a major contaminant in the area, creating dead zones due to high localized concentrations. For example, we need to avoid paving swales.
- There’s a major drinking water aquifer in town.
- The town (or perhaps the Building Inspectors Trade Group?) has hired a lobbyist to work with state legislators to provide support on statewide drinking water standards. Specifically, they are concerned that legislators are often not fully informed.

Appendix A: Municipal Interviews

Recently, E&S controls were active in two large developments in town.

New Hampshire Town #6

General E&S Process

All land use rules in effect in the town are found in the zoning ordinance. The town follows the state guidelines for shoreland, wetland, and aquifer protection ordinances. Any variances for shoreland or wetland zoning require the Building Inspector to deny the permit application, and then the applicant must take the denied permit to the Planning Board. The state also reviews all variances for shoreland zoning.

The town ordinance discourages single-family development that is not part of a cluster subdivision. In order to gain cluster subdivision approval, there is an extensive review process, which includes E&S for subdivision-level work. As such, town staff feel that by the time individual house lots are under construction, the site has undergone close scrutiny for environmental concerns.

Town staff live in town and stay well-informed of construction activities.

Data availability

All data for the study period were kept by hand in a spiral bound notebook.

There was 1 construction project which required E&S control due to its proximity to water in 2006, and none in 2007-08.

Overall building construction is as follows:

2006: 10 homes, zero multi-family or commercial

2007: 8 homes, zero multi-family or commercial

2008: 6 homes, zero multi-family or commercial

Currently, construction permitting records are stored electronically; however, this system is not available to the public via web or other means.

In the past year, construction on a large new public water treatment facility has begun, which will require formal E&S plans and implementation.

Inspections and violations

All homes are inspected, although only ones near water or a large wetland are required to have E&S.

There have been no violations over the study period, as far as the town staff are aware. Twice over the past year, the town has asked for E&S to be installed at a work site, and obtained compliance within 24 hours each time.

Staff Resources

There is a single part-time Building Inspector (10 hours/week). There is a Planning Board that is active in shoreland and wetland variance requests.

Appendix A: Municipal Interviews

How could the program be improved?

E&S needs to be integrated into the “punch list” builders receive when they pull a permit, and a draft of this new checklist being created now. Beyond that significant upgrade, there are simply housekeeping issues, such as better tracking of permits, which would improve E&S.

What additional information would you like to have about construction projects?

None needed. Plot plans that are typically presented in a building permit application to allow for easy identification of sensitive resources.

What additional resources (from State or contractors) would make program work better?

Explanatory handouts that can be provided to contractors when they pull permits would be helpful. Classes for Building Inspectors would be useful, as well. For example, additional clarification could be provided regarding exactly how close to a protected resource does an activity need to be before E&S needs are triggered. A 2 to 3 hour seminar would be a good format.

What would you do with more time available to spend on this program?

Drive around town and check for compliance issues.

Do you think that the number of inspections conducted is sufficient?

Yes. The town tries to visually inspect all permit activity for E&S and environmental issues on an ongoing basis. Most work occurs in Planning Board approved subdivisions, though, which means they have been very closely examined for all environmental issues at the time the subdivision layout was created and approved.

General comments and thoughts

None.

New Hampshire Town #7

General E&S Process

Town staff were not immediately familiar with where E&S was mentioned in the zoning ordinance, but quickly located it. The ordinance refers to “Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire,” prepared by the Rockingham County Conservation District document from August of 1992.

Town staff mentioned no E&S issues associated with construction during the study period years, but did note that a local road has been washing out each year at a culverted wetland crossing.

Data availability

All records are in paper files only.

There were 26 building permits of house-size or larger over the study period.

Appendix A: Municipal Interviews

Inspections and violations

Town building staff permit and inspect all construction, with the exception of a soon-to-be approved airport, which is handled by the Planning Board. Building staff state there have been no violations at all regarding E&S in the town NH over the past three years. The Conservation Commission is very active and attentive in town, although their role is advisory, and not regulatory. They would notify the town if there were environmental issues that needed to be addressed.

Staff Resources

There is one part-time CEO, and a Planning Board. No information available on division of time between permitting, inspection, violations, etc. The Conservation Commission advises and assists.

How could the program be improved?

None mentioned.

What additional information would you like to have about construction projects?

None mentioned.

What additional resources (from State or contractors) would make program work better?

There needs to be better communication with the state, particularly regarding the periodic road washouts.

What would you do with more time available to spend on this program?

No more time is needed.

Do you think that the number of inspections conducted is sufficient?

Yes.

General comments and thoughts

Better communication with the state is needed regarding the road washout issue.

New Hampshire Town #8

General E&S Process

The zoning ordinance contains many references to E&S, including sections on:

- BMP's required for agricultural uses
- Wetlands protection
- Shoreland protection, which exceeds the state minimum requirements
- Aquifer protection
- Steep slope development limitations
- Class A watershed overlay protection

In addition, the Site Plan Review (non-residential and multi-family) and Subdivision (major subdivisions being ≥ 5 lots, minor subdivisions being anything smaller), both have design, review, and inspection requirements.

Appendix A: Municipal Interviews

In addition, the town checks that required state and EPA permits have been secured before granting a permit.

Data availability

Permits are entered into an electronic format using permitting software, but there is no ability within the town to export these data electronically.

Inspections and violations

The Town hires an engineer at the developer's expense to review all Site Review and Subdivision plans. The Building Inspector inspects single family dwellings.

Staff Resources

The Planning Board includes two engineers, and as a whole is very effective at reviewing development proposals.

A former town planning staff member was an environmental lawyer, therefore the town ordinances and regulations have received close attention with respect to environmental planning.

Coastal Zone Management in NH funds state-level inspectors which include the town in their jurisdiction.

How could the program be improved?

Contractor education. Some builders "do not have a clue" about E&S.

What additional information would you like to have about construction projects?

Town staff mentioned that they used to have a nice poster explaining in simple, accessible terms what erosion and sedimentation control is, illustrating common BMP's. A handout of that sort for contractors, which is quickly and easily understood, would be helpful.

What additional resources (from State or contractors) would make program work better?

Extra copies of the updated "Green Book" (Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire?). Town staff have heard that such an update is available, but has not seen a copy. It is important that resources such as these make it into the hands of those who need them.

What would you do with more time available to spend on this program?

More field inspections. For example, planning staff could go out with Building staff and see what happens at job sites.

Do you think that the number of inspections conducted is sufficient?

Hard to answer, because in all of 2009 no single family dwelling permits were issued. Therefore virtually no inspections have been occurring for a year for that type of construction.

Appendix A: Municipal Interviews

General comments and thoughts

An existing development seems to be experiencing encroachment of lawns into the vegetated buffer area, and there apparently was some illegal filling in that area. The Building Inspector is looking into it.

There has been significant mixed-use, urban redevelopment in the town. A Shoreland Urban Exemption was obtained for one large mill redevelopment project, because it abuts a tidal river. The Planning Board examined the environmental protections closely, and required the developer to take additional measures to protect the river.

New Hampshire Town #9

NOTE: During the interview, city staff appeared to be responding to stormwater issues in general, more than E&S specifically. By the meeting's end, we had clarified that E&S is a subset of stormwater.

General E&S Process

There are practically no new lots being cleared and built on in the city. All development is re-development in existing urbanized areas. Therefore, there is generally much less disturbed soil than in areas where new subdivisions are going in.

E&S is not part of building permit process. It is part of Site Plan Review Permit (SPRP) process, which applies to commercial, ≥ 3 unit residential, parking lots of ≥ 7 spaces.

Site Plan Review Permit is reviewed by Technical Advisory Committee of utilities, police, fire, environmental, DPW. This committee recommends to Planning Board to approve or deny.

There's also a Conditional Use Permit which handles a 100' setback from wetlands, there have only been 1-2 of these each year.

There's also an Earth Products Removal and Replacement permit which applies to anything over 100 cubic yards of material. There have only been 1-2 of these over 9 years, because most activity of this sort falls within the SPRP.

Data availability

FBE had already obtained a report from Building Dept.

City staff provided paper copies of Site Plan Review Permit summary data. They are not available electronically. The full paper files are huge.

Inspections and violations

All SPRP are inspected. SPRP Inspections done by a Public Works engineer or 3rd party hired by applicant. Applicants are required to post site bonds, which they can only get back once they pass all inspections.

Planning Board approves Conditional Use Permits, and Conservation Commission and Environmental Planner inspect them. There's no formal sign-off as with SRPR (i.e., no bond that gets released).

Appendix A: Municipal Interviews

Staff Resources

There are 4-5 people on staff who deal with E&S, although most do so for only a small part of their time. Public Works staff fill the primary E&S staff role, spending about 25% of his time on it. About 10% of his time goes to permitting, and 15% to inspections. Violations take up a very small fraction of their time. Travel is negligible.

Information obtained is usually adequate, because the SPRP are done on a case-by-case basis. If more information is needed, it is requested and obtained by the review committee.

Other Notes

Building department staff (not interviewed) may have additional information regarding individual home construction.

How could the program be improved?

The city experiences re-development primarily, perhaps with smaller and more temporary soil disturbance than other towns. There are no new subdivisions in the city, because there is no room.

Phase II (NPDES Stormwater) compliance and improvement is absorbing a lot of attention. Site Plan Review is working very well.

There could be more education provided or required for contractors working on smaller projects, such as single family houses.

What additional information would you like to have about construction projects?

Projects are primarily dealt with on a case-by-case basis, and information is requested if missing. New Site Plan Review regulations are very well defined, so applications should be more complete from the beginning.

What additional resources (from State or contractors) would make program work better?

Full time inspection staff for stormwater, which would cover E&S. That might avoid the need to hire third party engineer.

What would you do with more time available to spend on this program?

If more time available, city environmental compliance staff would focus on being tighter on compliance. Inspections are probably not quite sufficient.

Do you think that the number of inspections conducted is sufficient?

Probably not. It's difficult to stay on top of, given the constant increase in regulatory requirements.

General comments and thoughts

Very happy with where the regulations are going. New Site Plan Review regulations will be adopted soon. Stormwater regulations seem well-written.

Appendix A: Municipal Interviews

The Phase II requirements are significant, including walking all the streams in the city (stormwater regulations). It is difficult to imagine how the city will find the resources to comply with existing Phase II regulations.

New Hampshire Town #10

General E&S Process

Erosion and sedimentation control is mentioned in the general zoning ordinance, the stormwater management ordinance, and shoreland portion of the ordinance.

Any building over 5000 square feet of floor space requires erosion and sedimentation control, per the building code.

The town will not issue permits if required state permits have not been issued.

A Department of Public Works engineer reviews stormwater permits, and the CEO or the DWP inspects these projects, depending on size. This program has been in place only since mid-2008.

Data availability

Building permits are all maintained electronically in a database, which the town has supplied to FBE.

GIS data are not available.

Inspections and violations

All house-size or larger construction is inspected for erosion and sedimentation control.

There have been about 3-4 violations per year dealing with erosion and sedimentation. Violations take up a minimal amount of staff time.

Staff Resources

There are four staff members that focus on erosion and sedimentation, including a member of the Department of Public Works (DPW). One full time staff member focuses on permitting, plus a portion of the DPW employee's staff time. There is a full time inspection officer, as well.

How could the program be improved?

Better education of contractors. The entire permitting and inspection process could be simplified, as well.

SWPPP cover the access road, utilities, and lot locations, but not individual house construction, and therefore, they are sometimes ineffective at preventing stormwater pollution.

What additional information would you like to have about construction projects?

SWPPP's should be required for the individual house lot construction phase of subdivisions.

Appendix A: Municipal Interviews

What additional resources (from State or contractors) would make program work better?

A brief and consolidated BMP resource, with a focus on illustrations, would be helpful.

There has also been a conflict recently between the town and the state inspectors over how deep silt fences need to be dug in. Also, there has been some uncertainty regarding whether tributaries are covered under the shoreland program.

What would you do with more time available to spend on this program?

A separate E&S inspection prior to soil disturbance, rather than at the time the foundation is inspected.

Do you think that the number of inspections conducted is sufficient?

The town has established a reputation for enforcement, and therefore is not having issues.

General comments and thoughts

There needs to be a cohesive interpretation of regulations and ordinances. For example, there was a disagreement with the state shoreland officials regarding whether or not mobile home parks were allowed a single shed, or whether every trailer had a right to a shed. The issue revolved around whether the mobile home park was considered a single lot or multiple lots.

Unclear regulations promote cheating.

A Stormwater Management Plan, implemented in May 2008, collects data on area disturbed. This plan is implemented on a tiered basis, with 5000 square feet being the first threshold, and 20000 square feet the second.

The UNH Stormwater Center participated in development of a pervious pavement installation for a storage facility on a grandfathered lot surrounded by wetlands, which needed multiple variances.

New Hampshire Town #11

General E&S Process

The building code contains a requirement for a silt fence around all new construction. Erosion and sedimentation controls are reviewed at the first building inspection (prior to pouring the foundation footer), and is reviewed at each of the 12 total inspections.

The state has recently modified its CSPA (Cooperative Shoreland Protection Act) to put the state in charge of most shoreland related violations and enforcement. Unfortunately, the state responds slowly.

Overall, the town is very sensitive to environmental issues, since it is a summer lake-side community, with very high assessed property values along the lakes and ponds. Excellent water quality is considered a key element in the town.

Appendix A: Municipal Interviews

Data availability

Data are stored electronically, but they are not available to the public. There is no GIS data for building permits.

- In 2007, there were 39 SFD, 1 commercial.
- In 2008, there were 21 SFD, 2 commercial.

Inspections and violations

There are about 30 or so issues that come up related to erosion and sedimentation control each year, but most deal with starting work without a permit, and very few involve actual erosion. It is common for silt fences to be installed improperly (not dug into the ground) when first installed, but this gets fixed at the first inspection.

Staff Resources

There are 2 full time, 1 part time staff members working on, among other things, erosion and sedimentation control.

How could the program be improved?

Things are generally going well, regarding erosion and sedimentation.

Educate the people on the effects of what they are doing, so they understand the purpose for the regulations.

The state permit process is too complicated and takes too long to process. Erosion and sedimentation might be continuing while people try to obtain permits.

What additional information would you like to have about construction projects?

None needed.

What additional resources (from State or contractors) would make program work better?

The state was probably well intentioned when they re-worked the CSPA (Shoreland Act); however, it was defined by non-lakefront owners, who are among the citizens most protective of the environment. Plus, they state assumed big responsibilities for an understaffed program, and they can't keep up with the needs. More local control would streamline the process, and especially facilitate dealing with small issues.

What would you do with more time available to spend on this program?

None needed. Erosion and sediment control is just not a significant problem these days. In the town, there is probably more natural than manmade erosion and sedimentation. Overall, the lakes in the town are well respected and protected.

In addition, the local watershed alliance works on 10-15 environmental improvement projects per year, many of which focus on erosion and sedimentation.

Appendix A: Municipal Interviews

Do you think that the number of inspections conducted is sufficient?

Yes.

General comments and thoughts

There needs to be more consistency at the state level regarding shoreland policy and permitting. For example, there was a lakeside cottage that was destroyed in a fire. The state did not require a permit to remove the burnt debris, which involved excavation and bare soil in the shoreland zone. The town would have required a permit for that action.

Maine Town #1

General E&S Process

There is a single permit, covering building, erosion and sedimentation (E&S), shoreland, etc. Ordinances are available on website. The building permit specifically includes E&S as a requirement. There is a single permit issuer and inspector, the Code Enforcement Officer (CEO).

Data availability

FBE obtained data from Construction Data New England (CDNE). No other data is available electronically.

Inspections and violations

E&S is inspected at time when foundation footings are inspected.

A reputation for consistent enforcement has meant increased compliance over time.

Staff Resources

Town engineer provides a good level of data. DEP also provides good information when needed. Within in the building department, about half of staff time is spent on permitting and half on inspections. Violations take up a very small percentage of time.

How could the program be improved?

- Improve the ordinances; for example, reduce the setbacks in the commercial zones. Small workshops don't need the same amount of space around them that residences do.
- More education among excavators would help, even though currently there are only about 10% of E&S that are improperly installed at first (corrected at inspection).
- The town has adopted the alternative shoreland expansion rules; that is, maximum fixed building area in shoreland zone, regardless of original size of structure. The standard ordinance states a 30% expansion within the shoreland zone is allowed. This model is easier for everyone to understand and simpler for the town to enforce.
- Excavators will need to be certified to work in the shoreland zone in a few years.

What additional information would you like to have about construction projects?

Builders should be certified, like plumbers and electricians.

Appendix A: Municipal Interviews

What additional resources (from State or contractors) would make program work better?

The town engineer currently provides good information.

ME DEP also provides good information.

What would you do with more time available to spend on this program?

Work on the ordinances; specifically reduce setbacks in the commercial zone. Town officials and voters, however, won't do it.

Do you think that the number of inspections conducted is sufficient?

Yes.

General comments and thoughts

There is no need for 25' setbacks from waterways which are dry for most of the year. Reliance on setbacks does not always accomplish the goal of environmental protection, because the conditions in the area matter more than distance alone.

Maine Town #2

General E&S Process

Currently, there are E&S clauses and references scattered throughout the zoning ordinance, including in the shoreland zoning section. There is a Stormwater Control Ordinance that deals more directly and comprehensively with the issue, although it does not apply to single-family dwellings. Town building staff inspects all single-family dwellings at rough-in (i.e., after the foundation and rough framing have been completed), which is later in the building process than most other towns. However, once the new state-wide mandatory building code is adopted this year or next, inspections will happen earlier and more frequently, providing increased E&S oversight. The town also has created an 8 hour per week position dedicated to patrol and enforcement. That person drives through town twice a week, looking for unpermitted construction activities and has, on occasion, found E&S issues, particularly tree removal in the shoreland zone.

Non-residential and large projects which must obtain Planning Board review undergo on-site inspection by a town-hired engineering firm.

Data availability

There is currently no electronic database of building or Planning Board permits, nor is there a GIS shapefile. They make use of an online calendar, though, to track building permit inspection requirements. In the near future, the town is planning to implement an electronic permitting system, which will improve electronic data availability.

Inspections and violations

The town has fewer building permit inspections than most towns, although that will change due to adoption of state-wide building code in the near future. The town has more inspection staff, including an unusual twice weekly, part-time patrol position. Town-hired engineering firms inspecting Planning

Appendix A: Municipal Interviews

Board approved sites also report suspected violations in town if they observe them, whether at their sites or elsewhere.

The town reports no erosion and sedimentation control violations *per se*, noting that there are occasional tree-cutting violations under shoreland zoning. Town staff noted that these have all been resolved without resorting to formal, written Notice of Violations.

Staff Resources

There are two Code Enforcement Officers, and one part-time (8 hours / week) Building Inspection patrol officer in the town. There are over 400 building permits per year. The CEO notes that about 10% of available time is spent dealing with violations, mostly tree removal in the shoreland zone. The remaining time is split evenly between permitting and inspection.

The Planner and the Planning Board review permitting for non-residential and subdivision construction. A town-hired engineering firm provides inspection services during construction under these permits.

How could the program be improved?

Capturing improved technologies and techniques as they become available. For example, the town frequently recommends the “sock” type of sedimentation barrier, which is seen as an improvement over the silt fence or hay bale method. The level of training from the State Planning Office (responsible for Code Enforcement training and licenses in the state of Maine) relating to new erosion and sedimentation control technologies is very minimal.

What additional information would you like to have about construction projects?

A handout that explains the basics of E&S that can be given to home builders at the time a building permit is issued.

What additional resources (from State or contractors) would make program work better?

None needed.

What would you do with more time available to spend on this program?

More frequent visits to shoreland zone sites, even when there are no scheduled inspections there. A somewhat frequent violation is removal of trees in the shoreland zone.

Do you think that the number of inspections conducted is sufficient?

Currently, the first inspection is relatively late in the building process, after the foundation is finished and the framing has begun. Inspections will be much earlier and more frequent when the town adopts the standardized building code recently mandated by the state.

General comments and thoughts

None.

Maine Town #3

General E&S Process

E&S is covered under the zoning ordinance via shoreland zoning. The ordinance is not available electronically (though it may be available from the ME DEP Shoreland Zoning office).

The CEO and Planning Board review and approve all development in the town, and the CEO inspects.

Major violations are passed on to the ME DEP for enforcement.

Data availability

Data are not available electronically, and there is no GIS system in place.

- 37 new houses in 2006
- 25 new houses in 2007
- 16 new houses in 2008

Inspections and violations

There are two inspections for single family dwellings that specifically address erosion and sedimentation control. These are foundations and septic systems.

There has been a serious land use enforcement case in town in recent years, and it has been handed over to ME DEP. Besides this case, there has been only one violation in the study period which related to E&S, and it related to removing vegetation in the shoreland zone. The issue was promptly identified and the town went to court to resolve this zoning ordinance violation.

Staff Resources

There is a single full time CEO, with Planning Board (3-4 people) participation. Approximately 5% of the CEO's time is dedicated to E&S. Further subdivision of E&S time into permitting, inspections, and violations was not possible.

How could the program be improved?

There have been giant steps in the past few years, due largely to State Planning Office classes.

What additional information would you like to have about construction projects?

Mandatory soil engineer oversight and Planning Board participation for new subdivisions are providing very good levels of information currently.

What additional resources (from State or contractors) would make program work better?

The Maine Municipal Association, especially their "Maine Townsman" newsletter, is a great resource. There is a lot of information available for builders, but few people pick it up.

What would you do with more time available to spend on this program?

Appendix A: Municipal Interviews

No additional time is needed. Town building staff take professional development classes periodically. All the waterfront lots in the town are already developed. The only remaining building sites by and large require the services of an engineer, which provides good oversight.

Do you think that the number of inspections conducted is sufficient?

Yes.

General comments and thoughts

Town staff live in town and are well aware of construction activity. In addition, concerned citizens keep a close eye on construction activities help keep the town informed.

Maine Town #4

General E&S Process

E&S is specifically required only through the Shoreland Zoning provisions of the town ordinance. In cases where E&S is required, there is a multi-page handout with pictures and examples of E&S. The applicant is required to initial each page, and sign the final page.

Data availability

Permit and assessing data is recorded electronically in a quasi-database called BMSI. Although permit data is recorded there, the software does not allow data mining or exporting to other file formats. Because of these limitations, the town is planning to migrate to a more sophisticated permit database package.

Inspections and violations

Violations are dealt with in a tiered approach, with verbal warnings first, followed by a written note(s), and finally a formal Notice of Violation. Each year, there have been approximately 12-24 compliance issues, with 4-5 per year involving active erosion or sedimentation that threatened a waterway.

Staff Resources

There are two staff members (CEO's) that focus on permitting, with a third Building Inspector doing primarily construction-oriented inspections. The Planner and Planning Board are also active in Site Review and Subdivision permitting.

Approximately 5-10% of permitting time is spent on E&S. The same proportion, approximately 5-10% of inspection time is spent on E&S. A relatively large amount of time is spent on compliance issues and violations.

How could the program be improved?

The permitting requirements could be strengthened, and more time could be spent reviewing E&S plans specifically. Town land use staff have drawn up a policy requiring additional E&S in some cases.

Appendix A: Municipal Interviews

Additional protections are needed for non-shoreland listed streams. These are streams which are too small to be covered by the Shoreland Zoning ordinance, and therefore are exempt from E&S requirements.

Another need is to determine a better way to assess permits for E&S risk, so that detailed E&S plans are required when needed, and only when needed.

What additional information would you like to have about construction projects?

Information on how E&S will be accomplished, which is not currently a requirement. It would be helpful to have information on the area of soil to be disturbed, as well as the duration of the disturbance.

What additional resources (from State or contractors) would make program work better?

The ME DEP recommendations for how to accomplish E&S are good, and frequently referenced by town officials. The state could provide assistance in writing permitting policies. The state has a very simple definition of when a violation occurs: if erosion or sedimentation reaches a protected resource, it is a violation. However, it would be helpful to clarify what policies would be best to put in place to prevent violations.

What would you do with more time available to spend on this program?

The town would focus more time on permitting. In addition, the ordinance would be re-written. Also, the town would spend more time inspecting, so that at each subsequent inspection, E&S would be included. Ideally, all active construction sites would be inspected 1-2 times per month.

Do you think that the number of inspections conducted is sufficient?

No.

General comments and thoughts

E&S is not taken seriously enough by many contractors. They see requests for E&S in some situations as a joke. Some excavators who have worked in town for a long time do not see it as important.

Appendix B: Contractor Questionnaire

Piscataqua Region Estuaries Partnership

“Improvement of Erosion and Sediment Control Programs”

CONTRACTOR QUESTIONNAIRE:

Please answer the following 1 to 5:

1. ____ Projects completed or underway that required a Notice of Intent (NOI) be filed with U.S.E.P.A. *[1 = none, 3 = 50% of projects, 5 = most projects]*
2. ____ Projects completed or underway that required a Stormwater Pollution Prevention Plan (SWPPP) be prepared to meet local, state or federal regulations *[1 = none 3 = 50% of projects, 5 = most projects]*
3. ____ Erosion and Sediment Control (E&SC) plans are provided to the contractor for projects over one (1) acre of disturbance *[1 = never, 3 = 50% of projects, 5 = always]*
4. ____ E&SC plans are provided to the contractor for projects under one (1) acre of disturbance *[1 = never, 3 = 50% of projects, 5 = always]*
5. ____ Bid documents include specific bid items for Erosion and Sediment Control E&SC costs *[1 = never, 3 = 50% of projects, 5 = always]*
6. ____ E&SC plans provide sufficient detail for materials and placement to protect the site throughout the construction period *[1 = never, 3 = 50% of projects, 5 = always]*
7. ____ E&SC practices are installed on sites even if not shown on plans? *[1 = never, 3 = 50% of projects, 5 = always]*
8. ____ Owner, regulatory agencies, design engineer and contractor attend a preconstruction conference where erosion and sediment control are discussed *[1 = never, 3 = 50% of projects, 5 = always]*
9. ____ A representative from the state or municipality visited the site at least once during construction to inspect E&SC *[1 = never, 3 = 50% of projects, 5 = always]*
10. ____ A representative from the state or municipality visited the site monthly during construction period to inspect E&SC *[1 = never, 3 = 50% of projects, 5 = always]*

Appendix B: Contractor Questionnaire

11. ____ The design engineer visited the site at least once during the construction period to inspect E&SC
[1 = never, 3 = 50% of projects, 5 = always]
12. ____ The design engineer visited the site monthly during construction period to inspect E&SC
[1 = never, 3 = 50% of projects, 5 = always]
13. ____ Inspection reports provide clear direction to address conditions observed
[1 = never, 3 = 50% of projects, 5 = always]
14. Do you have certified or “qualified persons” on staff performing SWPPP inspections for your projects?
(yes / no)
15. Circle qualifications of your staff responsible for E&SC:
- a. Certified under a state recognized program
 - b. Professional engineer
 - c. Certified as a CPESC by the International Erosion Control Association?
 - d. Other qualifications? _____
16. What percentage (%) of SWPPP inspections on your construction projects are performed by:
- ____% In-house staff
 - ____% your subcontractor
 - ____% Owner’s representative
 - ____% Other
 - 100 %** Total
17. Factors contributing to difficulties with implementing a successful E&SC program:
[1 = not problematic; 5 = highly problematic]
- a. ____ Inadequate E&SC information on plans
 - b. ____ Inadequate number of inspections for scope of project
 - c. ____ Inspection reports do not provide adequate direction
 - d. ____ Regulatory constraints to using innovative practices
 - e. ____ E&SC budgetary constraints
 - f. ____ Difficult site/soil conditions (e.g. colloidal material that won’t settle)
 - g. ____ Intense storms
 - h. ____ Time of year (e.g. spring thaw)
 - i. ____ Construction period too compressed
 - j. ____ Construction period is so long that E&SC materials don’t last
 - k. ____ Vulnerable stages of construction (e.g. recently placed loam)
 - l. ____ Sequence of construction (e.g. not being able to send stormwater to practice until site or practice is fully stabilized)

Appendix B: Contractor Questionnaire

18. Other comments and suggestions:

Appendix C: Inspection Firm Questionnaire

Piscataqua Region Estuaries Partnership

“Improvement of Erosion and Sediment Control Programs”

INSPECTION FIRM QUESTIONNAIRE

1. Qualifications of your Erosion and Sediment Control (E&SC) or SWPPP inspectors? (circle any that apply to your inspectors)
 - a. Certified under a state recognized program
 - b. Professional engineer
 - c. Soil Scientist
 - d. Certified as a CPESC by the International Erosion Control Association?
 - e. Other qualifications? _____

2. Average number of years of staff experience in related fields? ____ years

3. Does your firm prepare SWPPPs for contractors? (yes / no)

4. Have you developed a standard inspection form for inspectors? (yes / no)

5. Percentage of projects your firm is hired for inspections by:
 - a. ___% Owner
 - b. ___% Contractor
 - c. ___% Municipality
 - d. ___% State
 - e. ___% Other

100 % Total

6. Factors contributing to difficulties with E&SC on construction projects:
[1 = not problematic; 5 = highly problematic]
 - a. ____ Difficult site/soil conditions (e.g. colloidal material that won't settle)
 - b. ____ Intense storms
 - c. ____ Seasonal conditions (e.g. spring thaw)
 - d. ____ Construction period too compressed
 - e. ____ Construction period is so long that E&SC materials don't last
 - f. ____ Vulnerable stages of construction (e.g. recently placed loam)
 - g. ____ Inadequate E&SC information on plans

Appendix C: Inspection Firm Questionnaire

- h. ____ Lack of contractor's planning for E&SC
- i. ____ Contractor's inability to adapt E&SC practices to changing site conditions
- j. ____ Contractor indifference toward E&SC
- k. ____ Owner indifference toward E&SC
- l. ____ Minimal regulation or construction involvement by municipality
- m. ____ Project budgetary constraints for E&SC (e.g. inadequate budget)
- n. ____ Regulatory resistance to using innovative practices
- o. ____ Inadequate budget for inspection services

7. List site conditions encountered at construction sites where E&SC was problematic:

8. List contractor issues observed at construction sites where E&SC was problematic:

9. List contractor qualities and techniques observed at properly managed construction sites:

10. In general, are E&SC programs effective? (Y / N) If not, what could be done better?

Appendix C: Inspection Firm Questionnaire

11. Additional comments:

Date _____