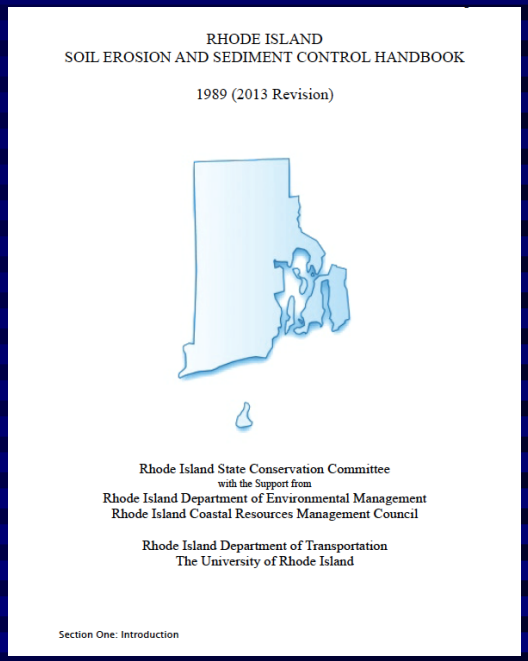
A Guided Tour of the 2014 Update to the *Rhode Island Soil Erosion and Sediment Control Handbook*



2015 Land and Water Conservation Summit

Saturday, March 14, 2015

URI Memorial Union, Kingston, RI

Introduction of Presenters

J. Eric Scherer, CPESC, CPSWQ, CESSWI, CPSS
Southern Rhode Island Conservation District
PO Box 1636
Kingston, RI 02881
j.eric.scherer@gmail.com

Brian Lafaille, PE, MBA
Senior Sanitary Engineer
Rhode Island Department of Environmental Management
Office of Water Resources - RIPDES Permitting Program
235 Promenade Street
Providence, RI 02908-5767
brian.lafaille@dem.ri.gov

The Big Picture

The *Rhode Island Soil Erosion and Sediment Control Handbook* , first issued in 1988, was last updated and in 1989. Some 24 years ago. What has changed since then? A lot. So, it was easy to assume early on that the current version of the *Handbook* was in need of updating.

The *Handbook* is an important guidance tool for local, state and federal agencies, the general public and the private sector in the application of appropriate soil erosion and sediment control measures in Rhode Island.

Early Challenges …

- Accessibility to this 1989 Handbook, either electronic or hard copy was unavailable or limited to a copy found on-line as a portable document format (.pdf) offered by RI DOT.

- Sponsorship, who of the three original organizations who worked on the Handbook in 1988 were ‘responsible’ for its update and maintenance?

- Funding, with tight state budgets, funds for an update were going to be limited.

…and Opportunities

- Create an updated, state of the science and more accessible version of the *Handbook* - for both public and private use;
- Develop training materials and workshops for state and local agencies and departments;
- Develop tools and other resources for public and private use; and
- Maintain the *Handbook* through regular updates and inclusion of new and developing technologies that improve the performance of measures.

Phase 1 – The Process

In 2012 a technical review process was established to update the *Handbook*. To aid in this update a Technical Review Committee (TRC), represented by both public agencies and the private sector, was formed. Members below contributed over 2 staff years to this update:

- Dean Audet, Fuss and O'Neill, Inc.
- Chuck Eaton, CME Associates
- Jason Ringler, The Louis Berger Group
- Sam Whitin, EA Engineering
- Eric Beck, RI DEM
- Brian Lafaille, RI DEM
- Beverly Migliore, RI DEM
- Jim Boyd, CRMC
- Allison Hamel, RI DOT
- Jeff Peterson, Vanasse Hangen Brustin, Inc.
- Peter Hanrahan, E.J. Prescott
- Fred Presley, Town of Warwick
- Lorraine Joubert, NEMO, URI
- J. Eric Scherer, Southern Rhode Island Conservation District

Process - What it took...

The Technical Review Committee was comprised of local experts in their fields of interest and disciplines, who were familiar with soil erosion and sediment control measures including their planning, design, installation and maintenance.

This committee met over the course of eight months to gather information, compare the best known technology being used in control measures, and present their findings to the whole membership for incorporation in a final draft update.

During the review process, the TRC drew heavily from other existing applicable state and federal documents, particularly:

- *2002 Connecticut Guidelines for Soil Erosion and Sediment Control;*

- US Environmental Protection Agency (EPA) erosion control Best Management Practices (BMPs);

- 2010 *Rhode Island Stormwater Design and Installation Standards Manual;* and

- 2005 *New York Standards and Specifications for Erosion and Sedimentation.*

To make this *Handbook* update "*easy to use and understand*" - the TRC looked at the format of the original 1989 document and the format of others and decided to create a document that was easy to open up and locate what the reader needed without having to hunt for it.

We agreed to keep it simple by using a format that utilized the three major processes in soil erosion and sediment control.

Table of Contents

FOCUS ON FUNDAMENTALS

The bulk of the *Handbook* is made up of measures that fall within one of three processes:

- Erosion Control Practices
- Runoff Control Practices
- Sediment Control Practices

Any measure* we considered would need to fall into one of these processes.

(* we also decided early on to manage terminology to help reduce confusion, i.e. BMP vs. practice vs. measure – even to create a dictionary and something to help with the alphabet soup of acronyms.)

Clear, Consistent, & Predictable Rules

Unifying State Regulations and Local Ordinances for Better Outcomes

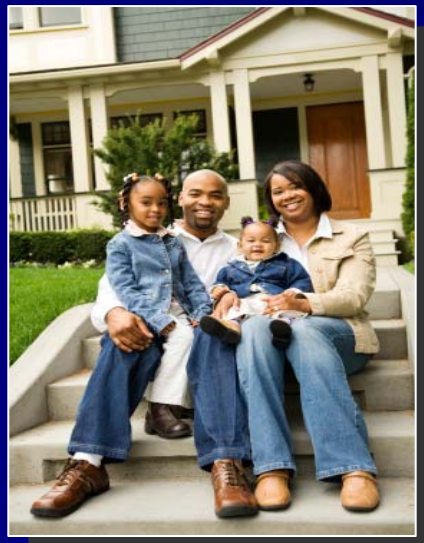
Brian Lafaille, PE, MBA
Senior Sanitary Engineer, RIDEM

Who Should Use the Handbook?

Designers

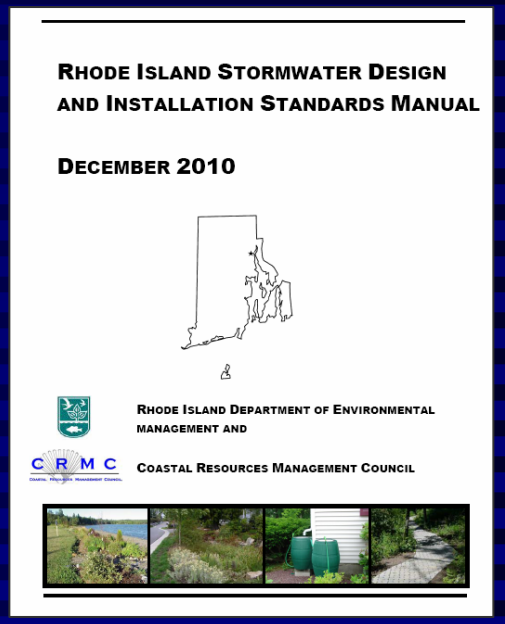
Municipal Officials

Property Owners



Regulatory Reviewers

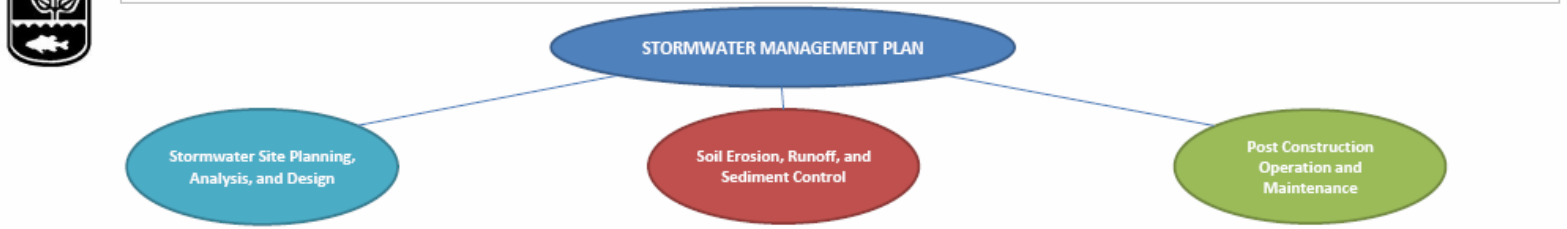
The Stormwater Manual Established Eleven (11) Stormwater Management Design Standards



1. LID Site Planning and Design
2. Groundwater Recharge
3. Water Quality
4. Conveyance and Channel Protection
5. Overbank Protection
6. Redevelopment Projects
7. Pollution Prevention
8. LUHPPLs
9. Illicit Discharges
10. **Construction Erosion and Sedimentation Control**
11. Operation and Maintenance

STORMWATER MANAGEMENT PLAN GUIDANCE

The three (3) key elements to include in a Stormwater Management Plan for any project subject to the *RI Stormwater Design and Installation Standards Manual* (RISDISM)



Section One:
Stormwater Site Planning, Analysis, and Design Report

Includes:
- Project Narrative
- RISDISM Appendix A Checklist
- Low Impact Development (LID) and LID Credits
- Hydrologic and Hydraulic Analysis
- Best Management Practices (BMPs)
- Calculations

Addresses: RISDISM Minimum Standards:
1. LID Site Planning and Design Strategies
2. Groundwater Recharge
3. Water Quality
4. Conveyance and Natural Channel Protection
5. Overbank Flood Protection
6. Redevelopment and Infill Projects
8. LUHHPLs
9. Illicit Discharges

Guidance: RISDISM Appendices:
B. Vegetation Guidelines and Planting List
C. Retrofitting for Stormwater Management
F. BMP Construction Specifications
I. RI River and Stream Order
K. Hydrologic and Hydraulic Modeling Guidance

Section Two:
Soil Erosion and Sediment Control (SESC) Plan

(formerly known as a SWPPP-Stormwater Pollution Prevention Plan)

Includes:
- LID Site Planning and Management
- Erosion, Runoff, and Sediment Control Practices
- Construction Activity Pollution Prevention Practices
- Control Practice Installation, Inspection, & Maint. Reqs
- Site Plans

Addresses: RISDISM Minimum Standard:
10. Construction Erosion and Sedimentation Control

Guidance: Guidance Documents:
RI Soil Erosion & Sediment Control Handbook (RISESCH)
RI Model Soil Erosion and Sediment Control (SESC) Plan

Regs: Regulatory Requirements:
RIPDES Construction General Permit (CGP) (≥ 1ac)

Section Three:
Operation and Maintenance (O&M) Plan

Includes:
- Responsible party(s) and Maintenance Agreement
- Long term O&M for each stormwater practice/BMP
- Post-construction Pollution Prevention
- 8-1/2" x 11" map (to scale) showing location of BMPs
- Budget and Funding Source(s)

Addresses: RISDISM Minimum Standards:
7. Pollution Prevention
11. Operation and Maintenance

Guidance: RISDISM Appendices:
E. Developing Operation and Maintenance Plans
G. Pollution Prevention and Source Controls

Regs: Regulatory Requirements:
RIPDES Multi-Sector General Permit (MSGP)
(for Industrial Sites as defined in RIPDES Rule 31.b.15)

ACRONYMS AND ABBREVIATIONS:

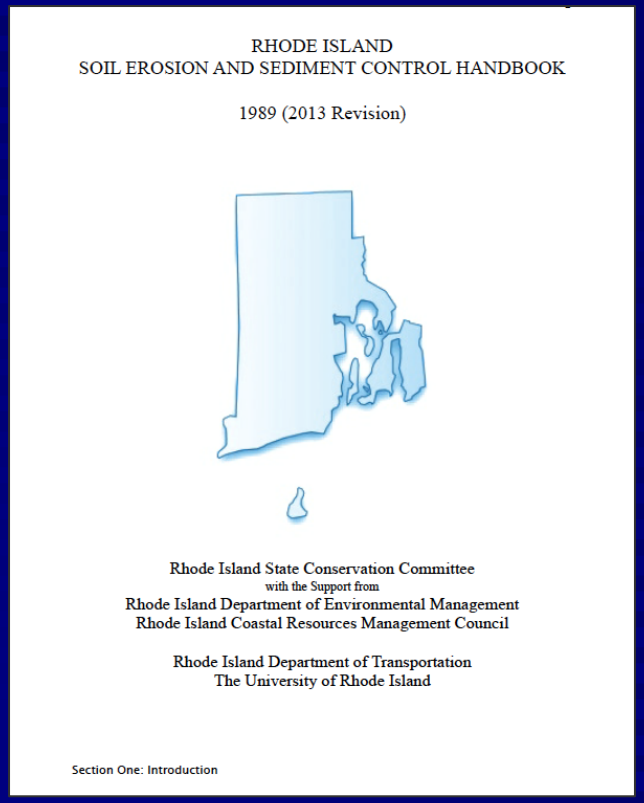
BMP - Best Management Practice
CGP - Construction General Permit (RIPDES)
LID - Low Impact Development
LUHPPLs - Land Uses with Higher Potential Pollutant Loads
MSGP - Multi-Sector General Permit (RIPDES)
O&M Plan - Operation and Maintenance Plan
RIDEM - Rhode Island Department of Environmental Management
RIPDES - Rhode Island Pollutant Discharge Elimination System
RISDISM - *Rhode Island Stormwater Design and Installation Standards Manual*
RISESCH - *Rhode Island Soil Erosion and Sediment Control Handbook*
SESC Plan - Soil Erosion and Sediment Control Plan
SMP - Stormwater Management Plan

RI Department of Environmental Management - Office of Water Resources
235 Promenade Street, Providence, RI 02908 | Telephone: (401) 222-4700 | Fax: (401) 222-6177

October 2013

Soil Erosion and Sediment Control Performance Criteria Are Now Aligned

Part D – SESC Plans


RHODE ISLAND
SOIL EROSION AND SEDIMENT CONTROL HANDBOOK

1989 (2013 Revision)

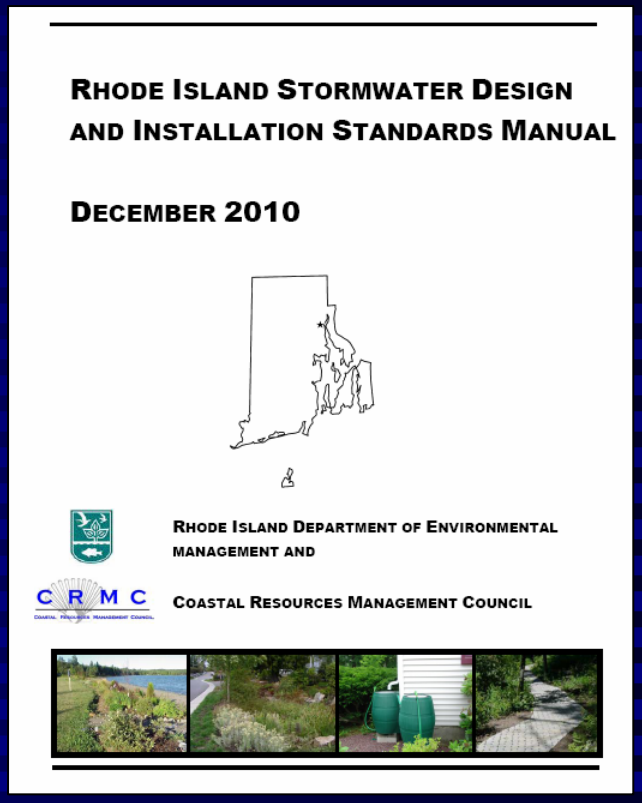
Rhode Island State Conservation Committee
with the Support from
Rhode Island Department of Environmental Management
Rhode Island Coastal Resources Management Council

Rhode Island Department of Transportation
The University of Rhode Island

Section One: Introduction

=

Minimum Standard 10 - SESC


RHODE ISLAND STORMWATER DESIGN AND INSTALLATION STANDARDS MANUAL

DECEMBER 2010

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT AND

COASTAL RESOURCES MANAGEMENT COUNCIL

Statement of the Problem – Overview of Part B.

Each year more than one million acres of land in the United States are converted to urban use. These land use changes are the source of much of the sediment that pollutes our streams, rivers, lakes, and reservoirs.

- Erosion on developing land, erosion is usually in the form of gully erosion on land disturbed for a year or less.

- Sheet and rill erosion involve shallow, low energy flows, which transport soil particles comparatively short distances, with soil usually remaining on site.

- Gully erosion is the result of concentrated flows of surface runoff. These high-energy flows increase the cutting action and transport of soil as sediment. Both conditions result in a lower-quality soil resource.

- Disturbed land associated with development often has relatively short but steep slopes with much of the vegetative cover removed.

- Excavation, filling, and stockpiling operations result in un-compact soil subject to the erosive action of concentrated surface flows.

- The high sediment volumes resulting from gully erosion require costly on- and off-site cleanup and the continual need for site stabilization during site development.

- Soil erosion is the process by which the surface of the land is worn away by the action of wind, water, ice, and gravity. Natural, or geologic, erosion is a major factor in creating the topographic features of the Earth.

- Natural erosion occurs at a very slow and uniform rate, except for some cases of shoreline and stream channel erosion.

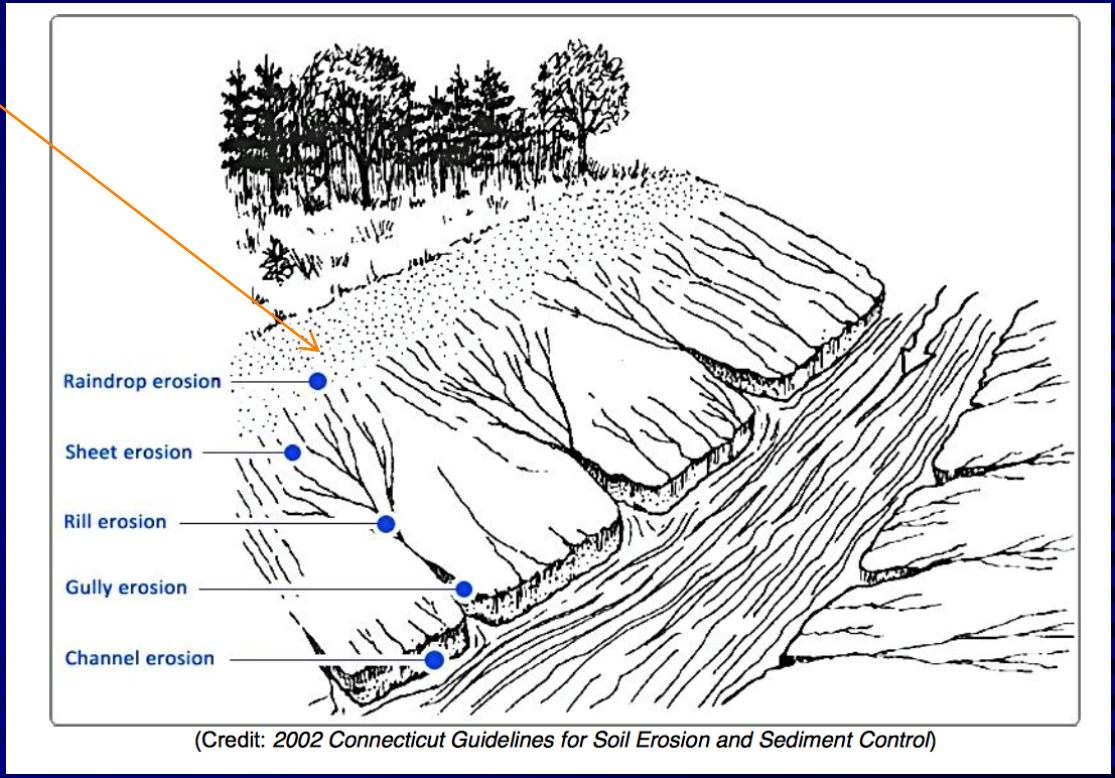
- Accelerated erosion occurs when the surface of the land is disturbed, vegetation is removed (by either natural forces or man's activities), and exposed, unprotected soil is subject to erosion by wind or water.

- Accelerated water erosion on disturbed areas, particularly construction sites, is the problem these guidelines address.

Types of Erosion

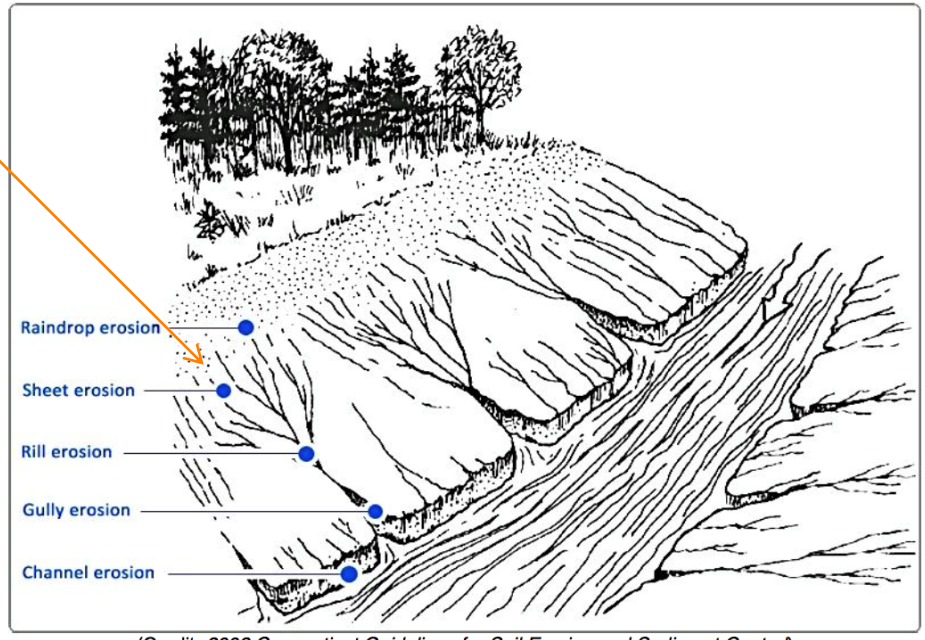
Raindrop Erosion: Raindrop erosion initiates the water erosion process.

The impact of raindrops dislodges soil particles and splashes them into the air. These detached particles are then available for transport by flowing water.



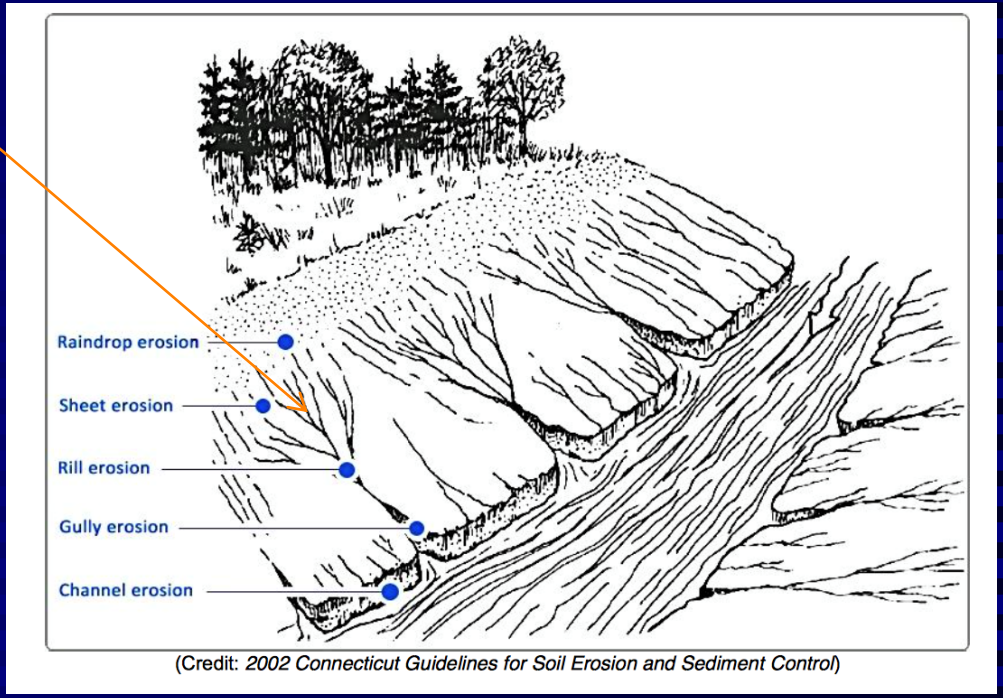
(Credit: *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*)

Sheet Erosion: Sheet erosion is caused by shallow sheets of water flowing off the land. These very shallow moving sheets of water are seldom the detaching agent, but the flow transports soil particles that are detached by raindrop impact. The shallow surface flow rarely moves as a uniform sheet for more than a few feet on land surfaces before concentrating in the surface irregularities.



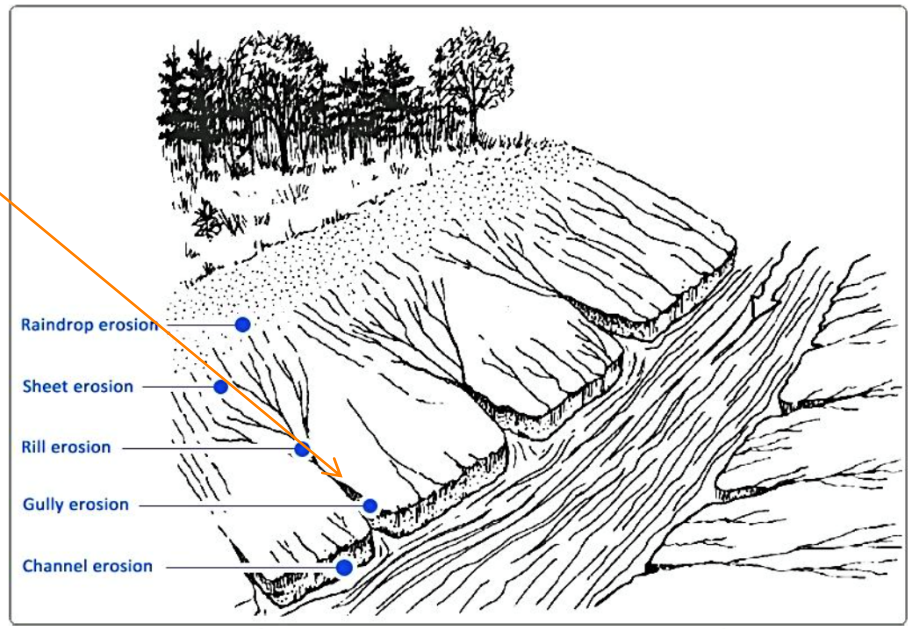
(Credit: *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*)

Rill Erosion: Rill erosion develops as shallow surface flows begin to concentrate in the low spots of the irregular conformation of the land surface. As the flow changes from the shallow sheets to the deeper flow in these low areas, the velocity and turbulence of flow increase. The energy of this concentrated flow is able to both detach and transport soil materials. This action begins to cut tiny channels of its own. Rills are small, but well defined channels that are, at most, only a few inches deep.



(Credit: *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*)

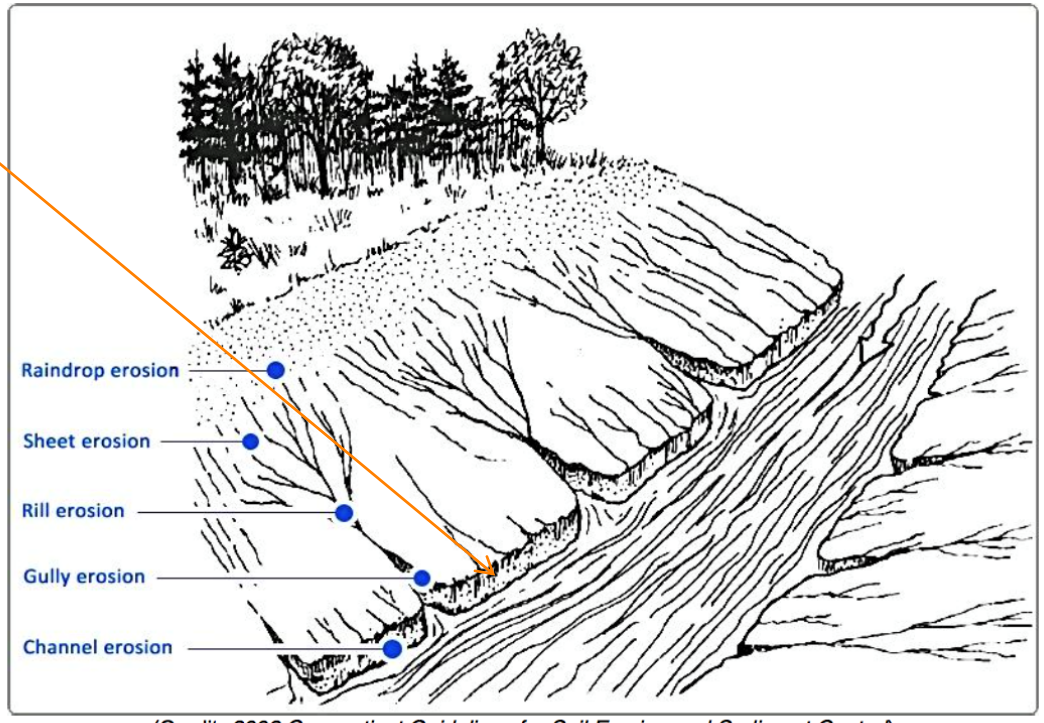
Gully Erosion: Gully erosion occurs as the flow in rills comes together in larger and larger channels. Size is the major difference between this and rill erosion. Gullies are too large to be repaired with conventional tillage equipment and usually require heavy equipment and special techniques for stabilization.



(Credit: *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*)

Channel Erosion:

Channel erosion occurs as the volume and velocity of runoff concentrates in channels and waterways and causes movement of streambed, channel, swale, and bank materials.



(Credit: *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*)

New Handbook Features

J. Eric Scherer
Southern Rhode Island Conservation District

Handbook Table of Contents

SECTION ONE: INTRODUCTION

SECTION TWO: SITE PLANNING AND MANAGEMENT NEW

SECTION THREE: POLLUTION PREVENTION AND GOOD HOUSEKEEPING NEW

SECTION FOUR: EROSION CONTROL MEASURES

SECTION FIVE: RUNOFF CONTROL MEASURES

SECTION SIX: SEDIMENT CONTROL MEASURES

Many new or updated measures, organized by process

SECTION SEVEN: APPENDICES

Format

To keep the format simple, each measure followed the same outline:

- Measure No. and Name;
- Photo to demonstrate a good illustration of measure;
- Purpose;
- Applicability;
- Planning and Design Requirements;

19.Seeding for Temporary Vegetative Cover

(Photo Credit: MACC ESC Guide)

Definition

- Establishment of temporary vegetative cover (grass and/or legumes) on soils exposed for a period greater than one month but less than 12 months

Purpose

- To stabilize the soil with vegetation for one to 12 months
- To reduce damage from wind and/or water erosion and sedimentation until permanent stabilization is achieved

Applicability

- On exposed soils that have the potential for producing sediment and causing on-or off-site damages. Such areas may include road banks, stockpiles, borrow pits as well as other unstable or disturbed areas
- Following soil preparation and topsoiling as required in **Measure 18, Soil Preparation and Topsoiling.**
- Not for stabilizing areas that are to be left inactive for more than one year.

Planning and Design Requirements

- Plan to use native species appropriate for the site, soil, and climatic conditions.
- Planting dates and methods in concert with proper handling of the seed shall occur to ensure satisfactory rates of survival.
- Only seed labeled in accordance with the provisions of the Rhode Island Seed Act of 1956 (Volume 8, Title 2, Chapter 6) and its amendments shall be used.
- The seeding rates and methods shall be adequate to accomplish the planned purpose with only the current year's seed being acceptable.

- Installation Requirements
- Inspection, Maintenance and Removal Requirements

Vegetative Cover > 19. Seeding for Temporary Vegetative Cover

Installation Requirements

Site Preparation

- Install needed erosion control practices such as diversions, grade stabilization structures, sediment basins and grassed waterways.
- Grade as needed and feasible to permit the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring.

Seedbed Preparation

Loosen the soil to a depth of three to four inches with a slightly rough surface. This preparation may be accomplished by raking, discing, dragging a section of chain link fence and/or traversing the area with tracked equipment. Over compaction should be avoided and tracked equipment cleat marks shall be perpendicular to the anticipated direction of surface water flow.

Inspection, Maintenance, and Removal Requirements

Seeded areas should be inspected at least once per week and within 24 hours following a precipitation event with a rainfall amount of 0.25 inch or greater for erosion and seed and mulch movement.

Where erosion has occurred or seed has moved, the cause of the failure should be identified and the area reseeded and remulched. If wind was the cause of the movement, the erosion damage should be repaired (reseed and remulch) and supplemented with a mulch anchor. Should concentrated runoff be the cause of the failure, additional practices to control water and sediment movement should be installed, the erosion damage repaired, and the area reseeded with the new mulch and anchoring or use temporary Erosion Control Blanket. Caution should be used when using synthetic products as they may be difficult to remove prior to the establishment of permanent vegetative cover.

Temporary vegetative cover shall not be considered established until ground cover (approximately 80% vegetative surface cover) controls soil erosion and withstands severe weather conditions.

Although the *Handbook's* focus is on providing guidance on the planning and design of control measures within one of the three principle erosion processes (Erosion Control, Runoff Control and Sediment Control), the TRC decided to also add and update two other sections with control measures:

Site Planning and Management

and

Pollution Prevention and Good Housekeeping

Site Planning and Management

Updates to the 1989 *Handbook* started within Section Two, *Site Planning and Management*.

The TRC wanted to ensure that the right measure was being used for the right situation. It was decided to 'borrow' a control measure selection matrix from the 2005 *New York Standards and Specifications for Erosion and Sedimentation* to assist a planner and designer with selection of the right control measure.

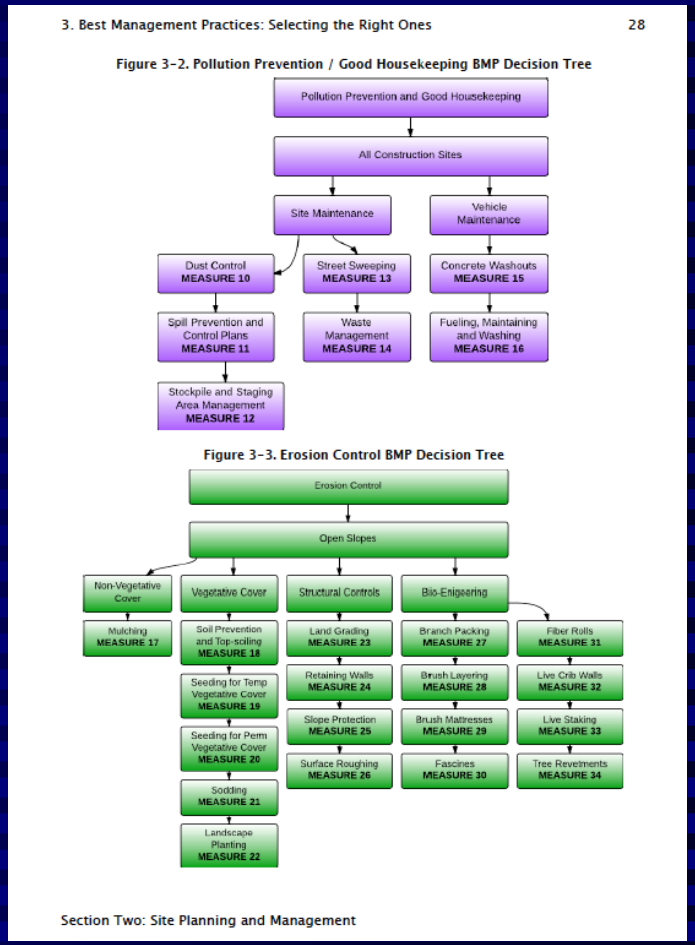
SECTION TWO:
SITE PLANNING AND MANAGEMENT

(Photo Credit: US EPA)

This matrix is made of five Decision Trees, one for each of the five major sections of the *Handbook* that contain control measures follows a 4-step selection process.

The review and selection of any one of the 58 control measures follows the "Avoid, Reduce and Manage (ARM)" approach of stormwater management and low impact development where one is to:

- Avoid erosion by controlling it with appropriate measure;
- Reduce runoff volumes with appropriate measure; and
- Manage the moving sediment that is unavoidable with appropriate measure.



3. Best Management Practices: Selecting the Right Ones 28

Figure 3-2. Pollution Prevention / Good Housekeeping BMP Decision Tree

Figure 3-3. Erosion Control BMP Decision Tree

Section Two: Site Planning and Management

What's new to look for in the updated Handbook …

Section Two: Site Planning and Management

- Construction Phasing and Sequencing
- Minimizing Disturbed Areas: Preserving Soils and Vegetation
- Protecting Vegetative Buffers
- Limits of Work and Site Access Control

Section Three: Pollution Prevention and Good Housekeeping

- Dust Control
- Spill Prevention and Control Plans
- Stockpile and Staging Area Management
- Street Sweeping
- Waste Management
- Concrete Washouts
- Vehicle Fueling, Maintenance and Washing

Something New – A Constraints Map

During the initial conceptual design phase of a land development project, the project design engineer will be asked to provide the information on sensitive, vulnerable, or high value areas, ideally through development of a Constraints Map to be included in the site plan.

Another feature of the updated Handbook was the addition of Bio-engineering measures in Section Four.

SECTION FOUR: EROSION CONTROL PRACTICES

(Photo Credit: US EPA)

The TRC felt it important to add these measures to the Handbook to help address erosion control issues within the riparian zones not addressed in the earlier 1989 version of the Handbook.

These measures were adapted out of the NYS Design Manual.

27. Branch Packing

(Photo Credit: Adaptation of NY State Standards and Specifications for Erosion and Sediment Control, 2005)

Definition

- Branch packing consists of alternate layers of live branch cuttings and tamped backfill between long posts driven in to the ground for support.

Purpose

- To provide repair to small, localized slumps, slips, and holes in existing slopes by filling in the failed area with plant materials and soil.

Applicability

- This is an appropriate technique for repairing slip areas that do not exceed 4 feet deep or 6 feet wide.
- Not to be used for areas larger than 4-feet deep or 6-feet wide.
- Not to be used as a slope stability measure if structural embankment support is needed.

Planning and Design Requirements

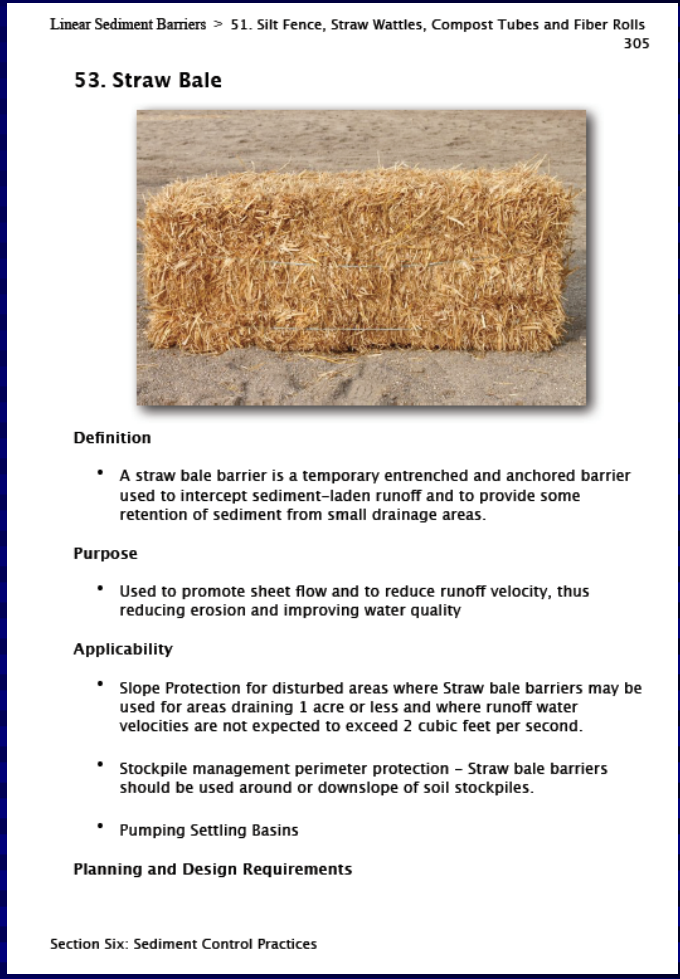
- Selection of materials used for branch packing should be identified for appropriateness and availability prior to start of construction. Consult with local plant specialist, landscape architects or URI specialist for plant selection.
- The live branch cuttings shall be 0.5-2 inches in diameter and long enough to touch the undisturbed soil at the back of the area to be repaired.

Installation Requirements

- Beginning at the bottom of the slip area, 4-6 inch layers of live branch cuttings

The TRC reviewed what was working and what was not. They looked more current technical information on some of the more 'commonly' used measures, such as hay bales as sediment barriers.

Over the years the lack of proper installation, maintenance and the increase in the incidence of invasive species from hay bales has resulted in moving away from this material and use of straw bales where it is appropriate.



53. Straw Bale

Definition

- A straw bale barrier is a temporary entrenched and anchored barrier used to intercept sediment-laden runoff and to provide some retention of sediment from small drainage areas.

Purpose

- Used to promote sheet flow and to reduce runoff velocity, thus reducing erosion and improving water quality

Applicability

- Slope Protection for disturbed areas where Straw bale barriers may be used for areas draining 1 acre or less and where runoff water velocities are not expected to exceed 2 cubic feet per second.
- Stockpile management perimeter protection – Straw bale barriers should be used around or downslope of soil stockpiles.
- Pumping Settling Basins

Planning and Design Requirements

Straw Bales

This measure was updated to reflect the current limitations in the use of this material as a soil erosion and sediment control measure.

Definition

- A straw bale barrier is a temporary entrenched and anchored barrier used to intercept sediment–laden runoff and to provide some retention of sediment from small drainage areas.

Purpose

- Used to promote sheet flow and to reduce runoff velocity, thus reducing erosion and improving water quality

Applicability

- Slope Protection for disturbed areas where Straw bale barriers may be used for areas draining 1 acre or less and where runoff water velocities are not expected to exceed 2 cubic feet per second.
- Stockpile management perimeter protection – Straw bale barriers should be used around or downslope of soil stockpiles.
- Pumping Settling Basins

The TRC was able to split out more measures as they became more readily available and technology improved the materials in which were used to create them. Two new measures are Compost Filter Barriers and Straw Wattles, Compost Tubes and Fiber Rolls.

50. Compost Filter Berms

(Photo Credit: US EPA)

Definition

- A compost filter berm is a dike (trapezoidal in cross section) of compost or a compost product that is placed perpendicular to sheet flow runoff to control erosion in disturbed areas and retain sediment.
- Compost may be made from municipal yard trimmings, food residuals, separated municipal solid waste, biosolids, and manure
- Typical compost or mulch berms are constructed a minimum of one (1) foot high and three (3) feet wide.

Purpose

- To provide a three-dimensional filter that retains sediment and other pollutants (e.g., suspended solids, metals, oil and grease) while allowing the cleaned water to flow through the berm
- To be used in place of a traditional sediment and erosion control tool such as a silt fence
- To reduce slope lengths in disturbed areas
- To retain transported sediment on site
- To protect adjacent property and wetlands and waterways from unwanted sediment deposition.
- Vegetated filter berms are normally left in place and provide long-term filtration of stormwater as a post-construction best management practice (BMP).

Applicability

- Compost berms can be installed at any location where sediment can exit the jobsite or property.
- Compost filter berms are applicable to construction sites with relatively small drainage areas, where stormwater runoff occurs as sheet flow. Common industry practice is to use compost filter berms in drainage areas that do not exceed 0.25 acre per 100 feet of berm length and where flow does not typically exceed 1 cubic foot per second

52. Straw Wattles, Compost Tubes and Fiber Rolls

(Photo Credit: US EPA)

Definition

- Silt fence: A temporary barrier of geotextile fabric installed on the contours across a slope
- Straw Wattles: Straw-filled tubes of flexible netting materials. Commonly used filler materials include wheat and rice straw.
- Compost Tubes: Three-dimensional tubular filtration devices constructed by filling a mesh tube with a compost filter media.
- Fiber rolls: Wood excelsior or coconut fiber filled tubes of flexible netting materials.
- Many wattles, tubes and rolls are totally biodegradable.

Purpose

- To intercept sediment laden runoff from small drainage areas of disturbed soil
- To break up longer slopes, reduce runoff velocity, and cause deposition of transported sediment
- To retain transported sediment on site and protect adjacent property and wetlands and waterways from unwanted sediment deposition

Applicability

- Trenched and/or staked perimeter controls can be used at many locations where sediment can exit the jobsite or property, as long as design limitations are respected (see below).
- Not for use in concentrated flow areas
- Not for use to define property boundaries
- Note: Readers will note that hay bales do not appear in this section as sediment control devices. While hay bales were used extensively early in the evolution of jobsite sediment control, new innovations and technology, discussed thoroughly

Appendices

- Appendix A. Glossary
- Appendix B. Model Ordinance: Erosion and Sediment Control
- **Appendix C. Request Form to Submit Updates to the Handbook**
- **Appendix D. Subscription for Updates and other Notices for the Handbook**
- **Appendix E. Model SESC Plan Templates**
- Appendix F. Site Constraint Maps
- **Appendix G. Spill Prevention, Control and Countermeasures Plans (SPCCP)**
- Appendix H. Soil Classification Systems
- Appendix I. Revised Universal Soil Loss Equation -- RUSLE2
- **Appendix J. Chemical Treatment for Erosion and Sediment Control**
- **Appendix K. Turf Reinforcement Mats**
- **Appendix L. Riprap**
- **Appendix M. Gabions**
- **Appendix N. Erosion Control Blankets (ECBs)**
- **Appendix O. Earth Fill**

Soil Erosion and Sediment Control Plan
For:
Project Name
Project Site Location/Address
City, State, Zip Code
Assessor's Plat and Lot Number

Owner: Louis Allen D'Agostino, 37 Sanderson Rd. Smithfield, RI 02917, (401) 949-3271

Environmental Management
OCT 31 2014
Office of Water Resources

Operator: John Rocchio, 20 Lark Industrial Parkway, Smithfield, RI 02828, 401-949-5620

Estimated Project Dates: Start Date: Start Date; Completion Date: End Date

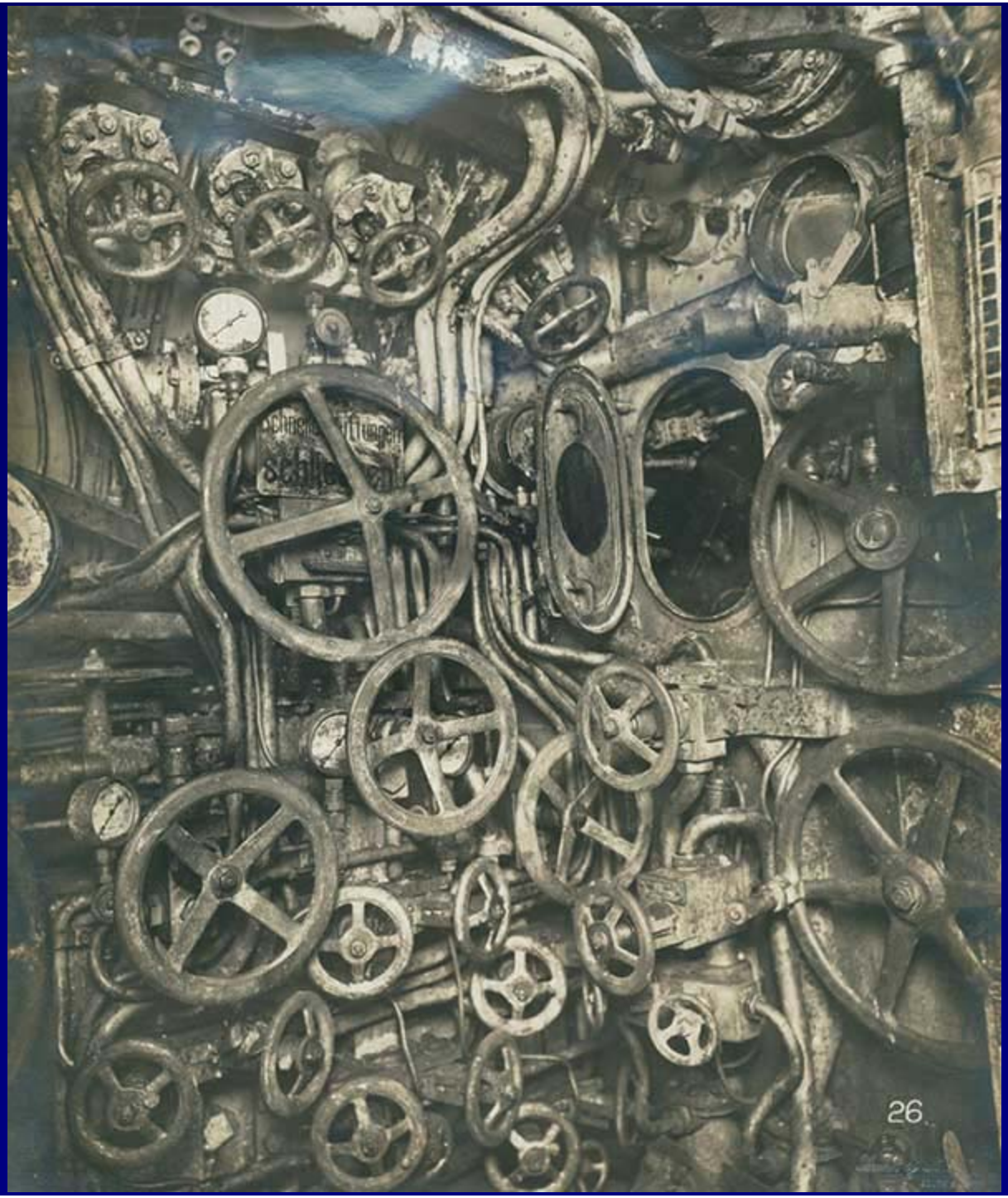
SESC Plan Prepared By: Hudson Place Associates, Civil and Environmental Engineering, 91 Carriage Dr. Warwick, RI 02886, Attention: Peter Alviti Jr., P.E., 401-821-6600, info@hudsonplaceassociates.com

SESC Plan Preparation Date: September 2014

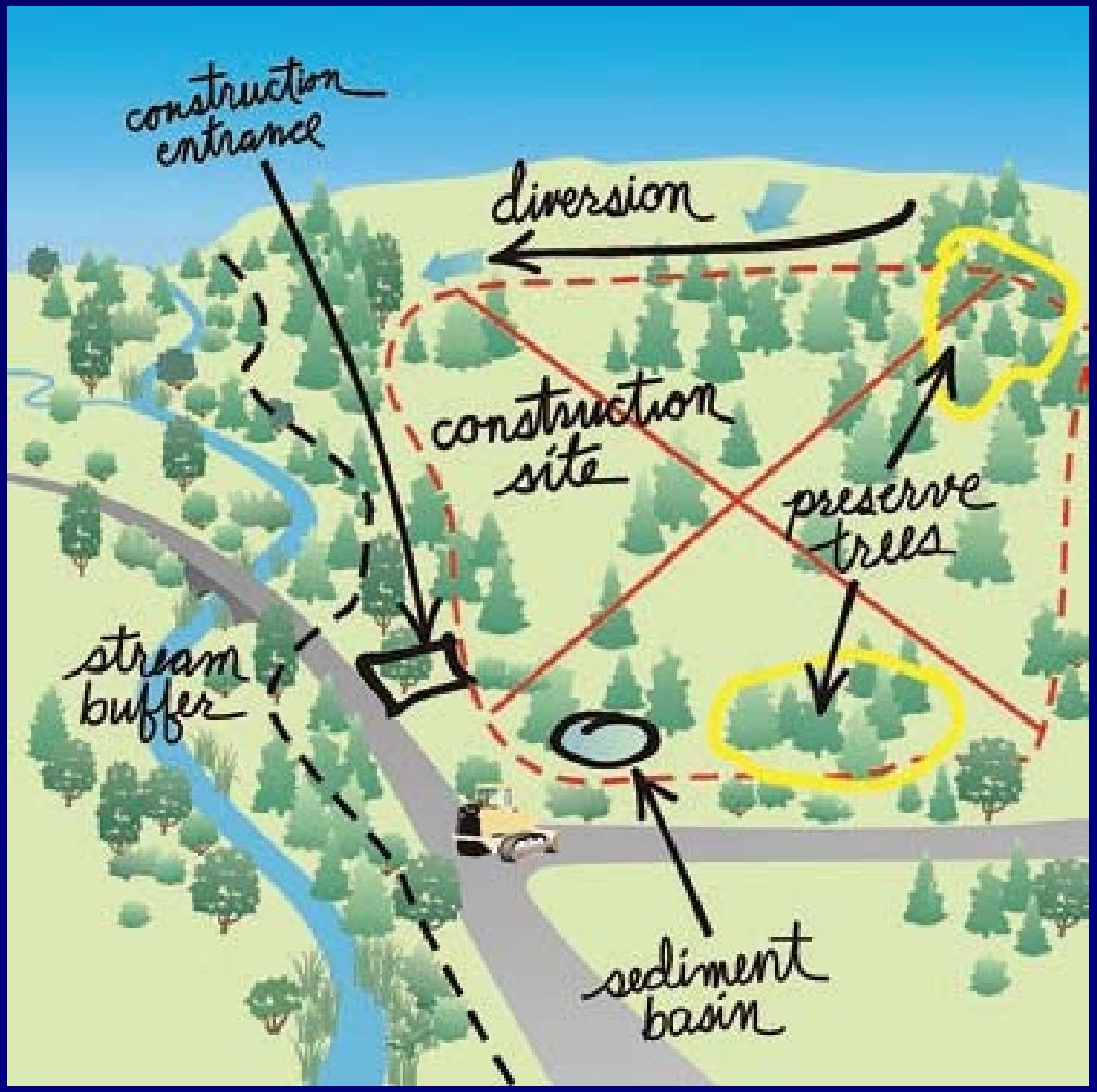
Revision Date: 01/09/2014

Part D.
Soil Erosion and Sediment Control Plans

Brian Lafaille
RIDEM RIPDES Permitting Program


26

Soil Erosion and Sediment Control Plan



Soil Erosion and Sediment Control Plan Format

Narrative (Written Document)

Soil Erosion and Sediment Control Plan

For:

Project Name

Project Site Location/Address

City, State, Zip Code

Assessor's Plat and Lot Number

Owner:	Louis Allen D'Agostino 37 Sanderson Rd. Smithfield, RI 02917 (401) 949-3271
Operator:	John Rocchio 20 Lark Industrial Parkway Smithfield, RI 02828 401-949-5620
Estimated Project Dates:	Start Date: Start Date Completion Date: End Date
SESC Plan Prepared By:	Hudson Place Associates Civil and Environmental Engineering 91 Carriage Dr. Warwick, RI 02886 Attention: Peter Alviti Jr., P.E. 401-821-6600 info@hudsonplaceassociates.com
SESC Plan Preparation Date:	September 2014

Environmental Management
OCT 31 2014
Office of Water Resources

Revision Date: 01/09/2014

Site Plans (Construction Drawings)

Soil Erosion and Sediment Control Performance Criteria

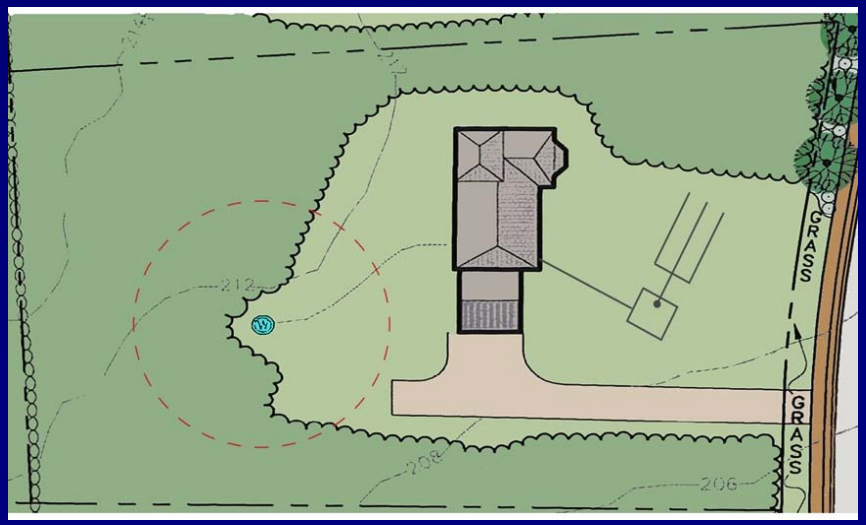
1. Avoid and Protect Sensitive Areas and Natural Features
2. Minimize Area of Disturbance
3. Minimize the Disturbance of Steep Slopes
4. Preserve Topsoil
5. Stabilize Soils
6. Protect Storm Drain Inlets
7. Protect Storm Drain Outlets
8. Establish Temporary Controls for the Protection of Post-Construction Stormwater Treatment Practices
9. Establish Perimeter Controls and Sediment Barriers
10. Divert or Manage Run-on from Up-gradient Areas
11. Properly Design Construction Stormwater Conveyance Channels
12. Retain Sediment Onsite
13. Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows
14. Construction Activity Pollution Prevention Control Measures
15. Control Measure Installation, Inspections, Maintenance, and Corrective Actions

Avoid and Protect Sensitive Areas and Natural Features

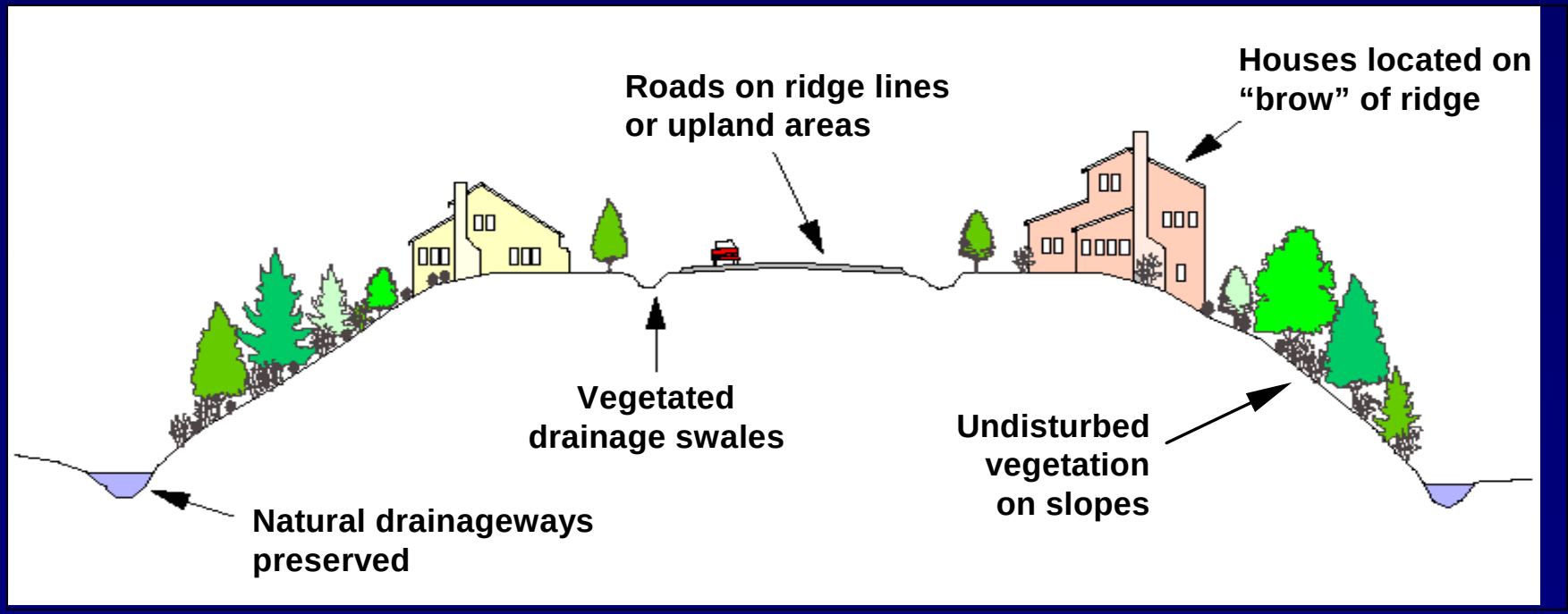
Example signage and fencing protecting wetland buffers and forest. Source: RI LID Site Planning and Design Guidance Manual

Minimize Area of Disturbance

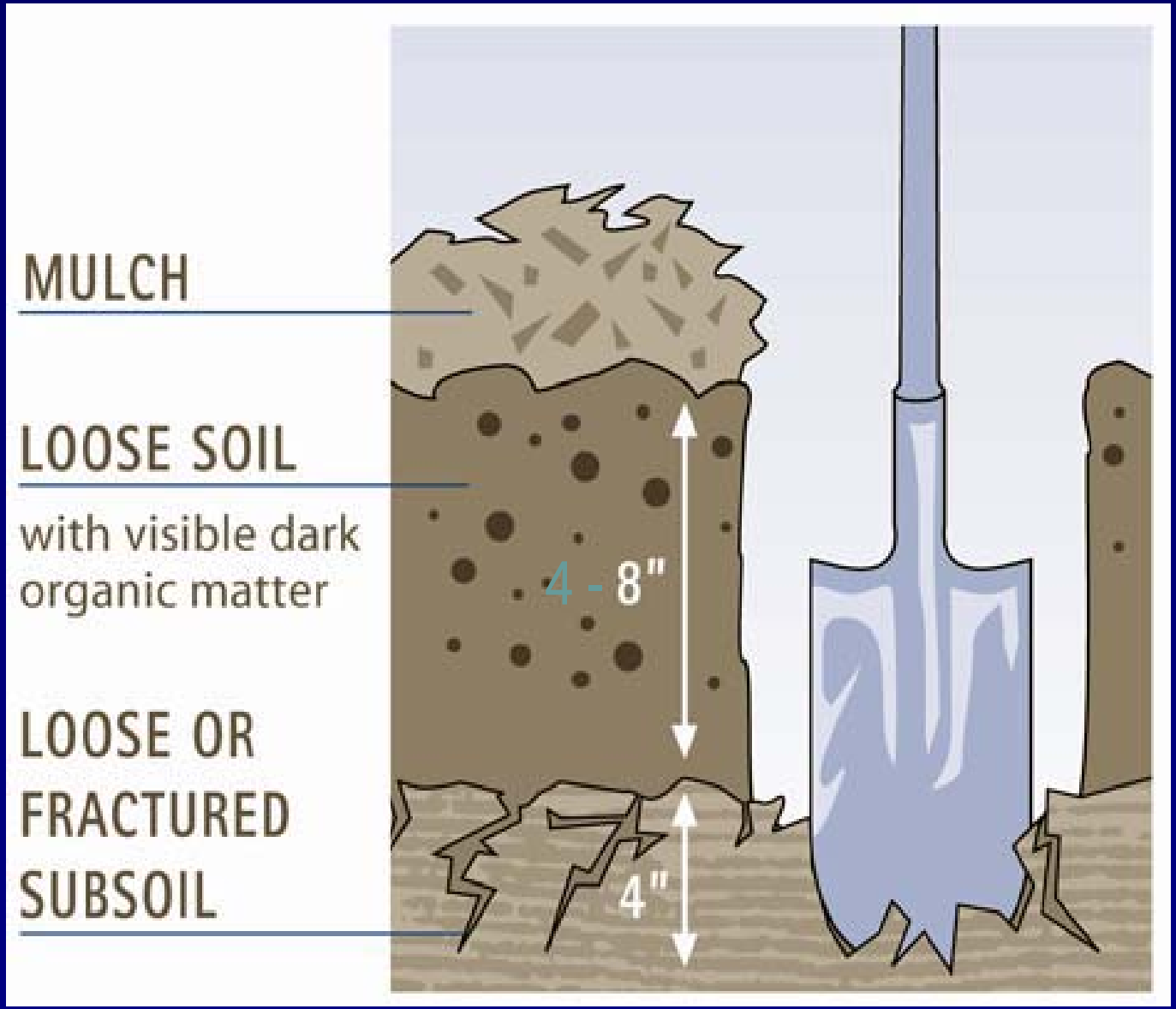
Figure 15. Sign posted at construction site informs workers of forest protection area.



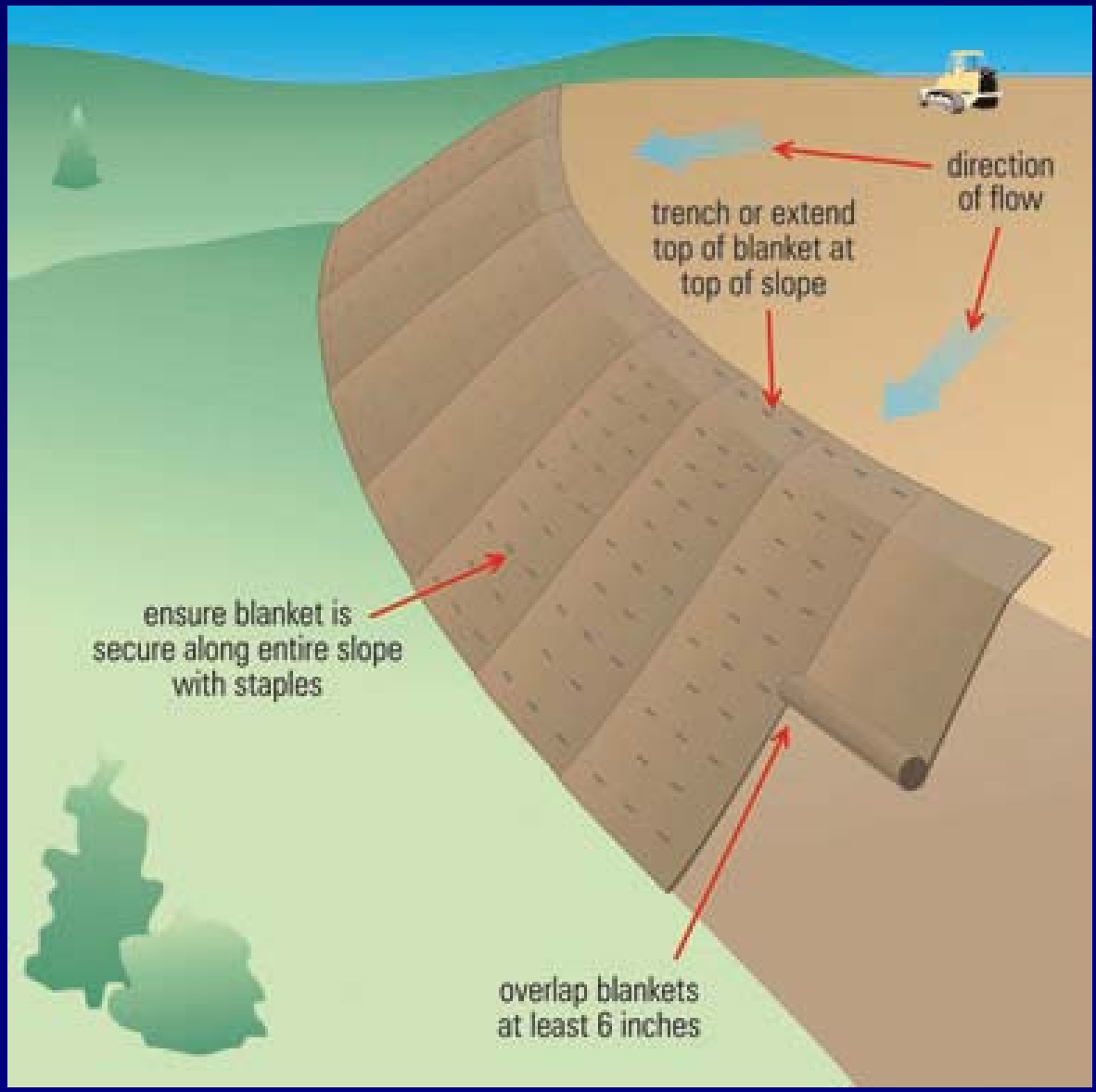
Minimize Disturbance of Steep Slopes



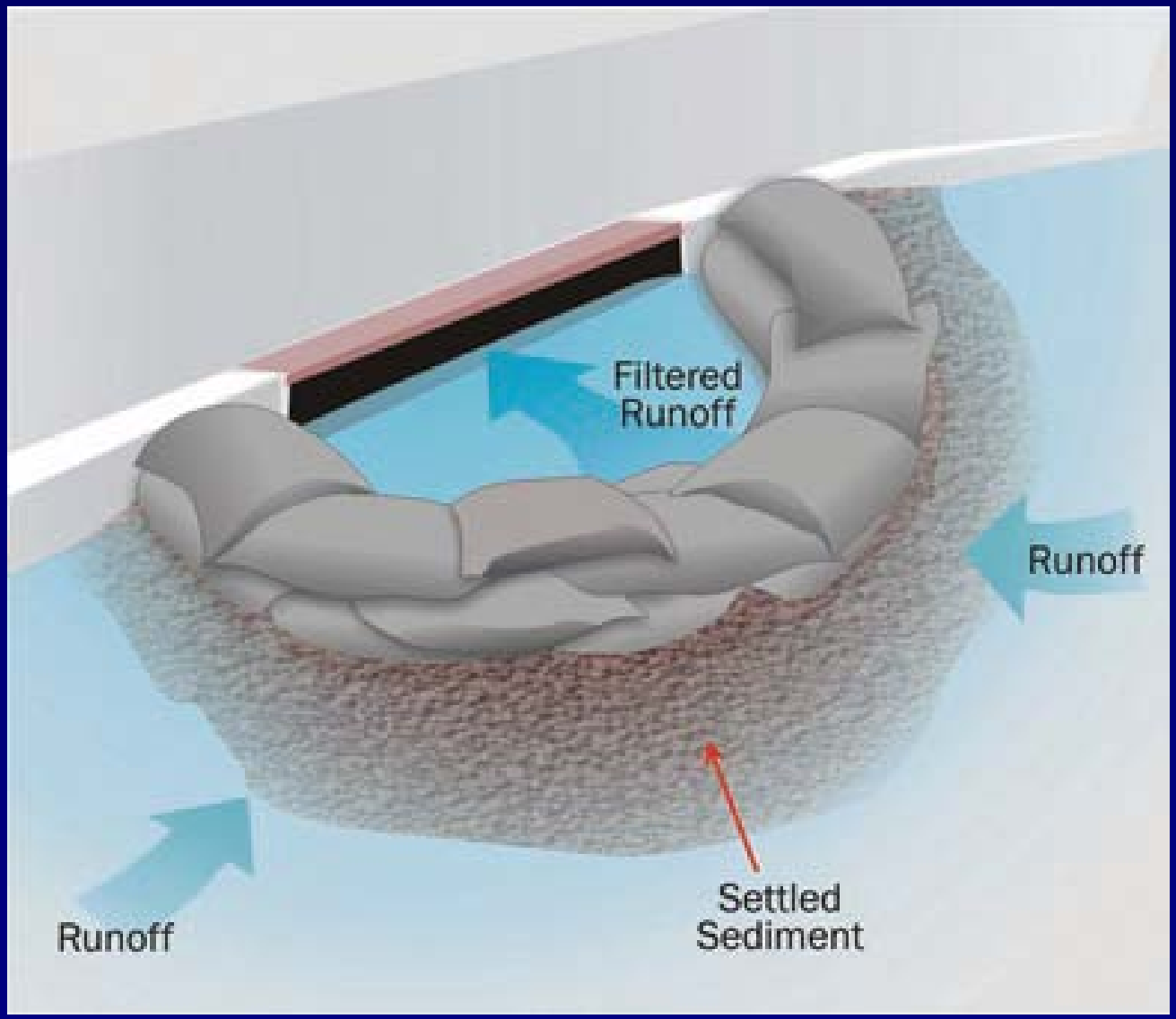
Preserve Topsoil



Stabilize Soils

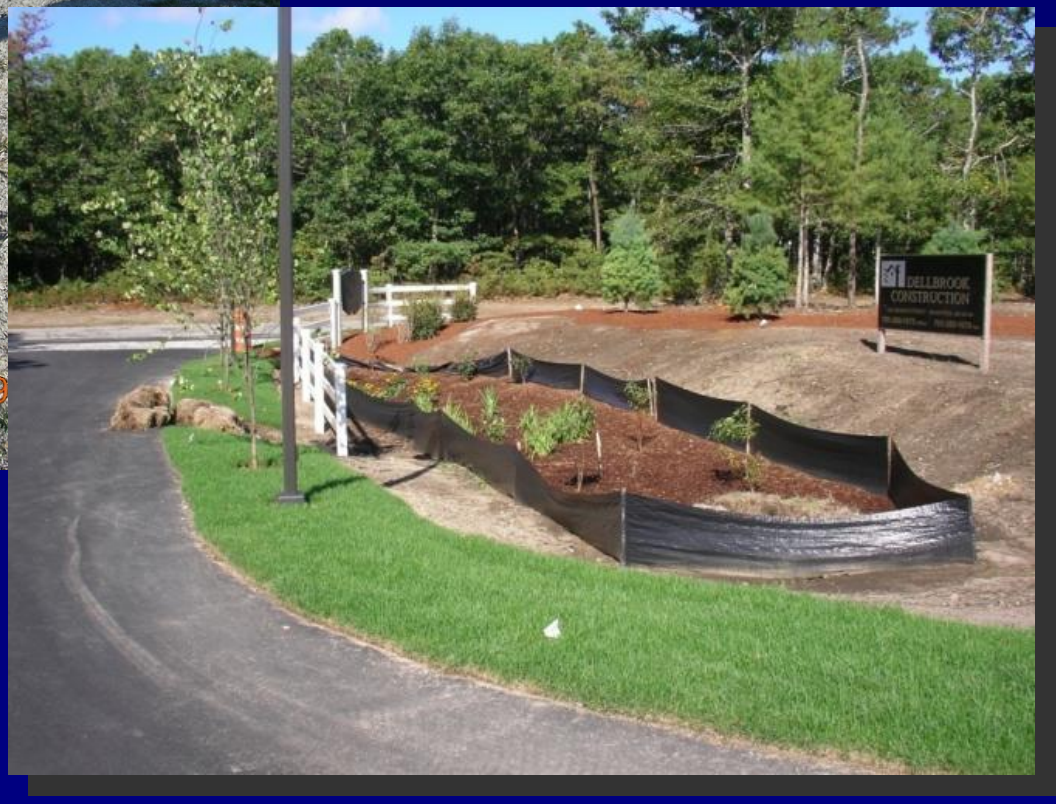


Protect Storm Drain Inlets

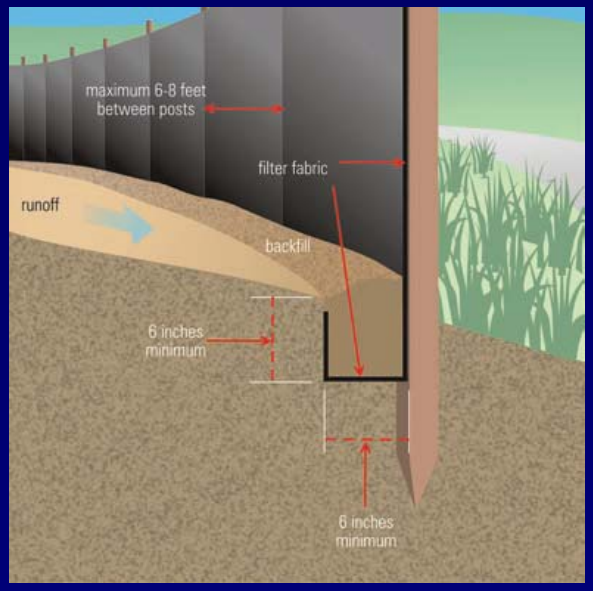


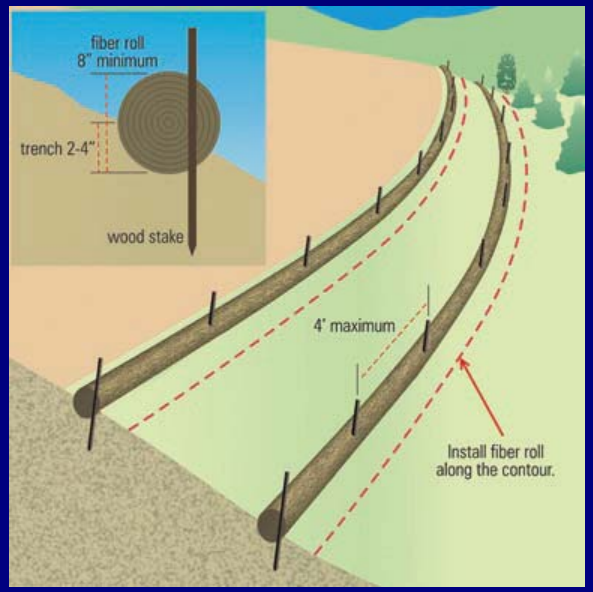
Protect Storm Drain Outlets

Establish Temporary Controls for the Protection of Post-Construction Stormwater Treatment Practices

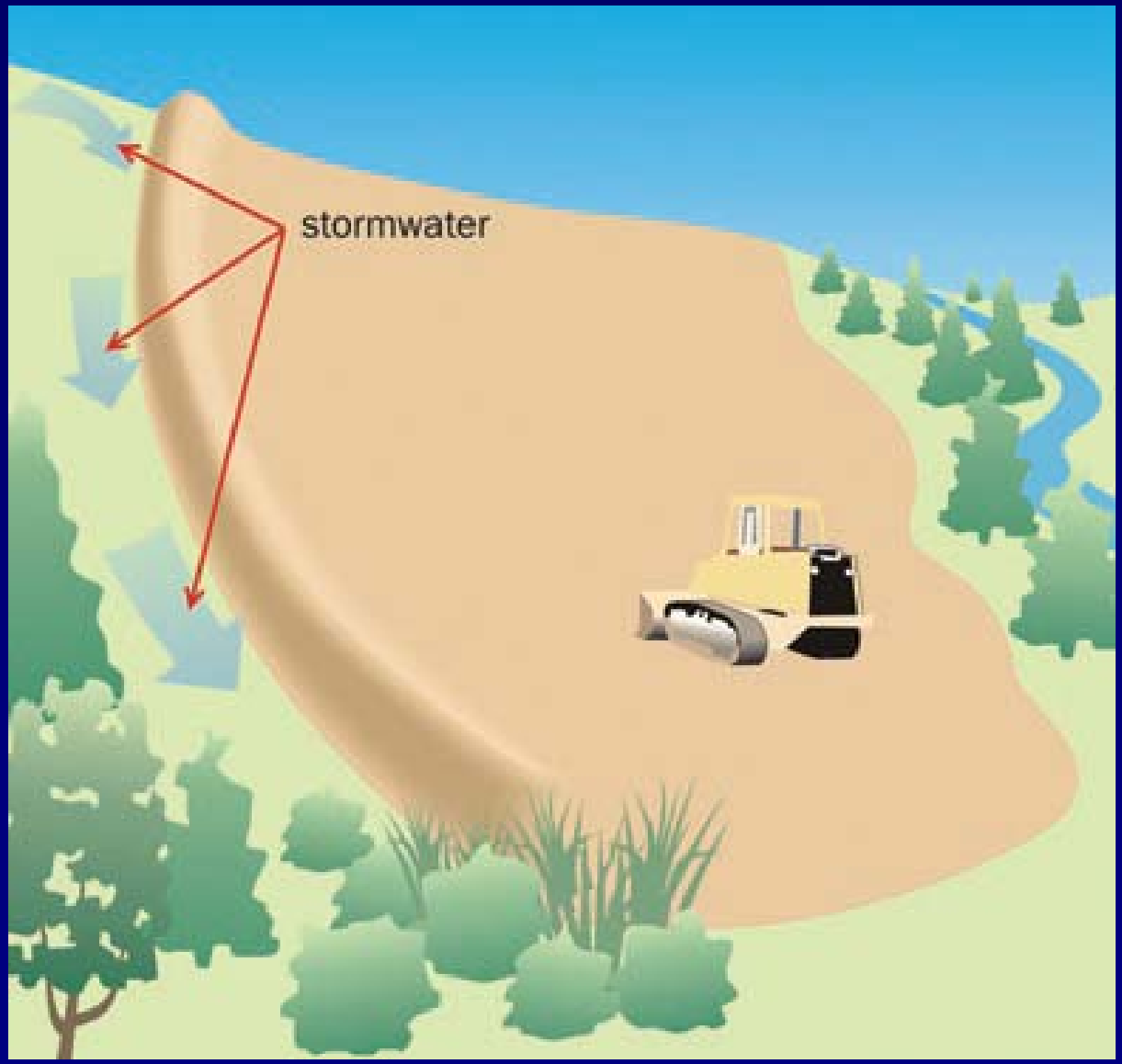


Establish Sediment Barriers





Divert or Manage Run-on from Up-gradient Areas



Source: USEPA-833-R-06-004 May 2007

Properly Design Construction Stormwater Conveyance Channels

Temporary Conveyance Channels must be designed to handle the 10 Year, 24 Hour Type III Design Storm

Retain Sediment Onsite

Sediment Traps are Mandatory for Common Drainage Locations Where 1-5 Acres of Land Will Be Disturbed

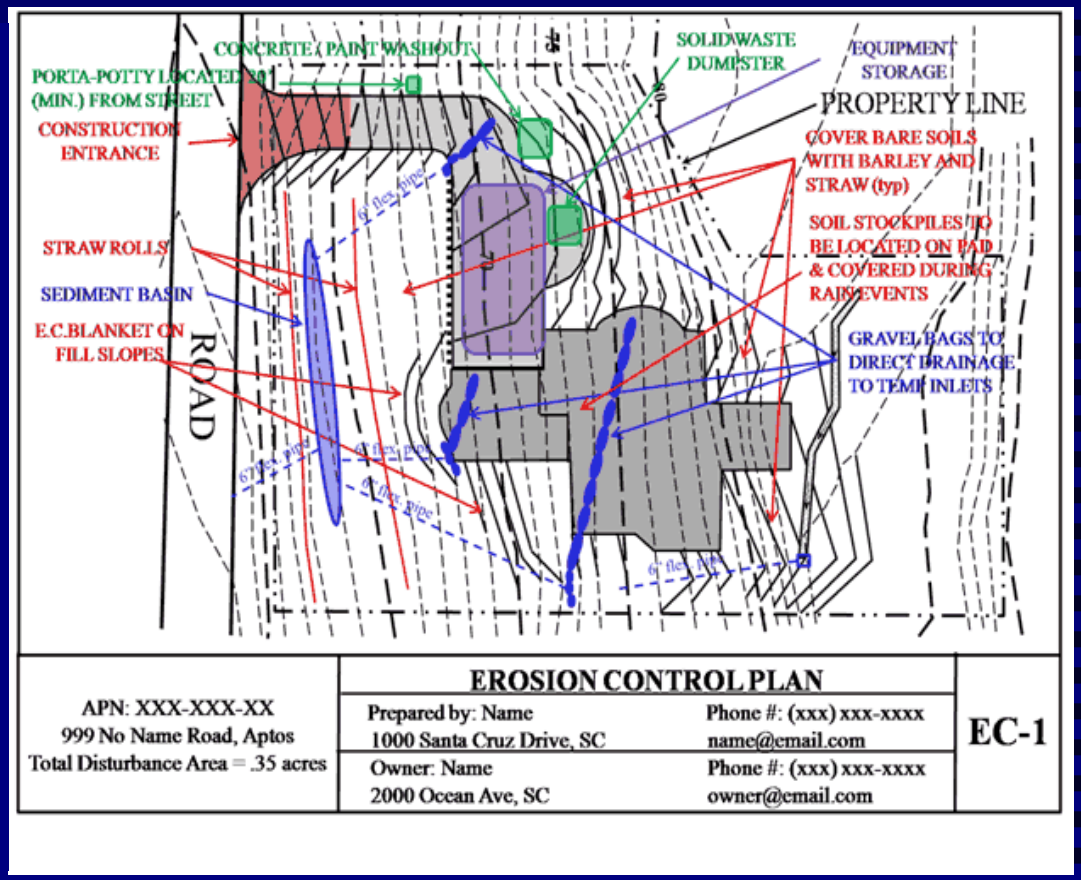
Sediment Basins are Mandatory for Common Drainage Locations Where >5 Acres of Land Will Be Disturbed

Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows

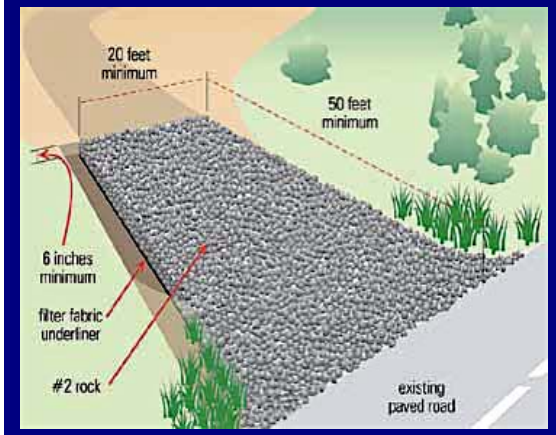
Goal: Protect Downstream Receiving Waters, Conveyances, and Drainage Systems During Construction.

•In most cases the combination of all other performance criteria will be adequate.

•SESC Plan Preparer must evaluate the need for additional velocity, peak, and volume controls.



Construction Activity Pollution Prevention Control Measures



Control Measure Installation, Inspections, Maintenance, and Corrective Actions

What's Next?
Phase 2

Supporting Documentation

- Development of a field guide, table of BMPS in poster format, summary factsheet on the manual, etc.

Public Outreach

- Publicize availability of the final draft.
- Organize and conduct workshops.

How do we make sure that the *Handbook* and its *Users* stay up to date?

- The Handbook will be maintained and updated by the Rhode Island State Conservation Committee and as new technology and information becomes available, updates to the Handbook will be issued through a public notification process. Plans are to do an annual review and update as needed to help keep the Handbook current.
- This notification process will be accomplished through website updates and list-serve announcements.
- See Handbook Factsheet for more information.

Ongoing Public Comment Process

To be able to be part of the ongoing public comment process on the Handbook contact the Office of Customer and Technical Assistance at the RI Department of Environmental Management

RI State Conservation Committee
c/o Beverly Migliore, Supervising Environmental Scientist
Office of Customer and Technical Assistance
RI Department of Environmental Management
235 Promenade Street
Providence, RI 02908
Phone: 401-222-4700 x 7503
Email: Beverly.migliore@dem.ri.gov


Questions?