

Wayne Conservation District

EROSION CONTROL GUIDELINES FOR SMALL PROJECTS

Plan Development

Introduction

In an attempt to alleviate the continuing problems of controlling sediment pollution, the Commonwealth of Pennsylvania, through the Department of Environmental Protection (DEP), adopted Chapter 102, Erosion Control Rules and Regulations. Chapter 102 requires that anyone undertaking an earth disturbance activity develop and implement an Erosion and Sedimentation (E&S) Control Plan. The plan must be submitted to the County Conservation District for review if required by the local municipality or if requested by the District. The E&S plan must be available at all times at the site of the earth disturbance activity, regardless of the size of the project. Failure to have an E&S plan on site is a violation of Chapter 102. It is important to remember that both landowners and contractors may be held responsible for any violation of the Chapter 102 Regulations.

Use of This Guide

This pamphlet may be used in the development of E&S plans for small projects where:

- Disturbance is less than one acre.
- There are no steep slopes in excess of 10%.
- There are no streams or major drainage courses.
- The landowner is submitting a General Permit for acknowledgement.

Due to changes in the Commonwealth's NPDES permit program, projects disturbing one acre or more may need a NPDES permit. Contact your local Conservation District to determine if your project meets these requirements or if there are any questions regarding the suitability of this guide for your project. For larger, more complex projects, a detailed *Erosion and Sediment Pollution Control Manual* is available or contact a consultant to aid in plan development. In addition, check with your local municipality regarding specific ordinances or permit requirements.

SAVE EXISTING VEGETATION – Vegetation cover is the best and most economical protection against soil erosion. Protect existing vegetation during the construction process. Trees and shrubs should be marked and roped off to protect them from damage by construction equipment. Filling and soil compaction around trees should be avoided.

SAVE TOPSOIL FOR REVEGETATING – All of the topsoil from areas where cuts and fills have been made should be stockpiled and re-distributed uniformly after grading. This is a key to revegetating a site.

MINIMIZE THE AREA AND TIME OF EXPOSURE – Disturb as little of the area as is required to construct the project. The construction sequence should be planned to keep the size and time of exposure to a minimum. In other words, stabilize disturbed areas as they are completed.

AVOID STEEP SLOPES – Steep sites generally will require more E&S controls than gently sloping sites. Avoid excessive cutting and filling and road grades in excess of 10%.

PROTECT DITCHES, STREAMS, OR OTHER BODIES OF WATER – Maintain vegetated buffers where possible. Install temporary controls, such as filter fabric fence, straw bale barriers, or rock filters to keep sediment pollution out of streams and other water sources.

PLAN TO MAINTAIN EROSION CONTROL MEASURES – Straw bale barriers deteriorate, filter fabric fences clog, and seeded areas wash out. Schedule regular maintenance to ensure properly functioning control measures. Continuous maintenance problems and failure of E&S facilities indicate a need to consider upgraded control measures.

Considerations in

What to Include in an Erosion & Sedimentation Control Plan

- The existing topography of the site – slope or grade of the land, location of any water (streams, ponds, wetlands, springs, etc.) and any other significant features of the site.
- Types of soils on the site – refer to County Soil Survey, available at Conservation District office.
- A description of the proposed alterations to the site.
- The staging of earth disturbance activities. Determine the sequence in which the earth disturbance will occur, always keeping in mind that the most effective method of controlling erosion is to disturb only those areas necessary for construction. Disturbed areas should be stabilized immediately after earth disturbance has been completed or earth disturbance activities cease.
- Types of control measures, both temporary (such as straw bale barriers, filter fabric fences, stone filters, etc.) and permanent (such as seeding and mulching, rock-lined or geotextile-lined channels).
- A maintenance plan for all of the control measures being used.

Suggested Sequence of Earth Disturbance Activity

1. Install a tire cleaning, rock construction entrance (see detail).
2. Install temporary control measures such as straw bale barriers, filter fabric fences, etc. (see detail).
3. Rough grade site and stockpile topsoil. Temporary protection (straw bale barrier or filter fabric fence) should be installed down slope (lower side) of the stockpile and the stockpiles should be immediately stabilized with temporary seed (e.g., annual ryegrass).
4. Install and immediately stabilize any watercourses (swales, ditches, etc.) with appropriate lining (e.g., seed and mulch, matting or netting, sod or stone).
5. Construction building(s).
6. Finish grade and permanently stabilize (seed and mulch, sod, stone, etc) the site.

Seeding and Mulching Specifications

Time of Seeding – For best results, grass and legume seeding should be completed in the spring. Seedings that are primarily grass are best suited for fall planting. However, through proper seed selection and seeding methods, disturbed sites may be re-vegetated at almost any time from spring to fall. Check for recommended spring and fall seeding dates in your area.

Surface Preparation – Spread topsoil and prepare smooth seed bed by rolling and/or raking.

Lime and Fertilizer – Lime and fertilizer should be applied in accordance with soil test recommendations. If soil test results are not available, apply at least 6 tons of agricultural grade limestone and 1000 pounds of 10-20-20 fertilizer per acre.

Seeding Methods – Apply seed at required rates. If legumes are planted, be sure to inoculate the seed with the correct legume inoculant. Seed may be broadcast on the surface and a layer of mulch applied at the necessary rates. Hydroseeding is another method of seeding, where the seed, fertilizer, and mulch are mixed with water to form an emulsion. This method should only be done with the correct equipment or by professionals.

Mulching – All earth disturbance areas, regardless of seeding method, should be mulched to reduce erosion and aid seed germination. Hay or straw are the preferred mulches and should be applied to produce a layer $\frac{3}{4}$ to 1 inch deep. Generally, 3 tons of mulch per acre (approximately 3 bales per 100 sq.ft.) is sufficient.

For more information – Consult the *Penn State Agronomy Guide* or your local Extension Office.

SMALL PROJECT EROSION CONTROL PLAN

Property Owner: _____ Date: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Municipality: _____

Contact person (if other than property owner): _____

Location (include copy of topographic map): _____

Name of nearest receiving stream or body of water: _____

Estimated dates for start-up and completion: Start: _____ End: _____

Type of project (house, addition, store, etc.): _____

Project acres (entire property): _____ Disturbed acres: _____

Present site conditions (vegetative cover, existing disturbance, type of land use, etc.): _____

Soil type(s) (include Soil Map): _____

NARRATIVE (Give detailed description of proposed work.)

SEQUENCE OF CONSTRUCTION (Label each step in numerical order – be specific.)

TEMPORARY CONTROLS

Detail any temporary erosion control practices that will be implemented. List each control practice separately, explain why it is needed, and when it can safely be removed. Drawings and designs for any practice not illustrated in this guide should be attached and referenced in this section.

Crownvetch, plus	10	0.2 (3 oz.)
Tall Fescue, or	20	0.5 (8 oz.)
Perennial Ryegrass	20	0.5 (8 oz.)
Flatpea, plus	20	0.5 (8 oz.)
Tall Fescue, or	20	0.5 (8 oz.)
Perennial Ryegrass	20	0.5 (8 oz.)

**Slopes & Banks (mowed)
Variable Drainage/Shaded**

Birdsfoot Trefoil, plus	6	0.15 (3 oz.)
Tall Fescue, plus	30	0.7 (11 oz.)
Redtop	3	0.1 (2 oz.)
Tall Fescue, plus	60	1.4 (22 oz.)
Redtop	3	0.1 (2 oz.)

**Slopes & Banks (mowed)
Well Drained/Shaded**

Tall Fescue	60	1.4 (22 oz.)
Red (fine) Fescue, or	35	0.8 (13 oz.)
Kentucky Bluegrass, plus	25	0.6 (10 oz.)
Redtop, or	3	0.1 (2 oz.)
Perennial Ryegrass	15	0.3 (5 oz.)
Tall Fescue, plus	40	1.0 (16 oz.)
Red (fine) Fescue	10	0.2 (3 oz.)

TEMPORARY SEEDING

Spring Oats, or	96	2.2 (35 oz.)
Winter Wheat, or	180	4.1 (66 oz.)
Winter Rye, or	168	3.8 (62 oz.)
Annual Ryegrass	40	1/0 (16 oz.)

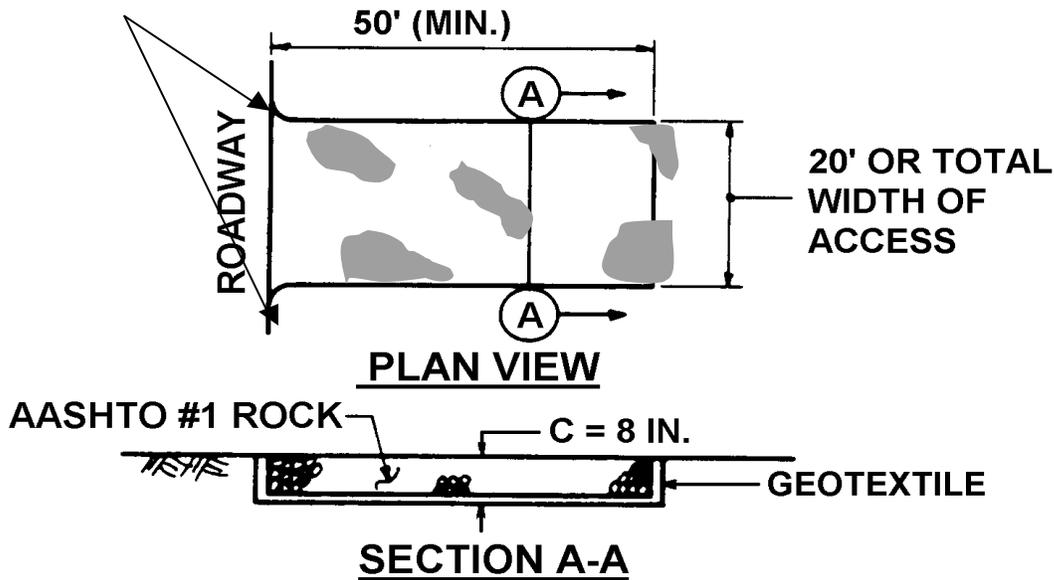
For more information about Erosion and Sediment Control contact:

Wayne Conservation District
648 Park Street
Honesdale, Pa 18431
Telephone: 570-253-0930
FAX: 570-253-9741
Email: waynecd@co.wayne.pa.us

Rock Construction Entrance

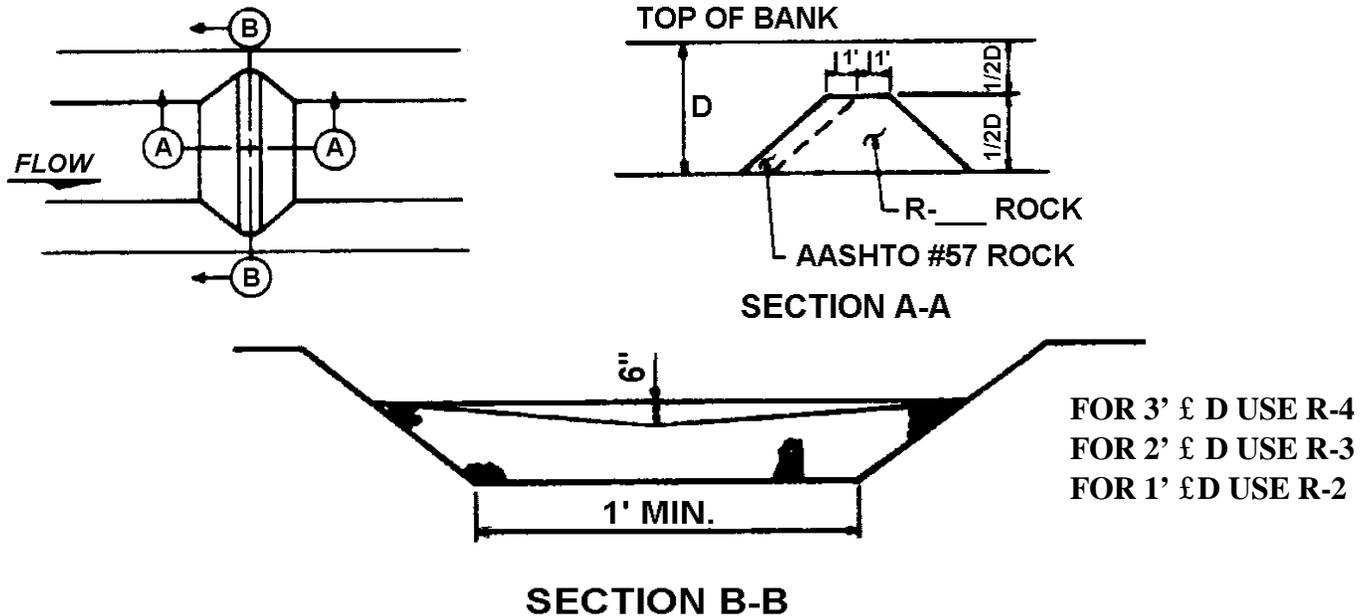
Flair intersection area to allow for turns

**EROSION CONTROL
MEASURE DETAILS**



MAINTENANCE: Rock Construction Entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile shall be maintained on site for this purpose. At the end of each construction day, all sediment deposited on paved roadways shall be removed and returned to the construction site.

Rock Filters



The filter should be equal in height to 1/2 the total depth of the channel with a 6" depression in the center.

A one-foot thick layer of AASHTO #57 stone should be placed on the upstream side of the filter.

NOTE: Filter Fabric and straw bales should not be used in rock filters!

Rock filters should be inspected weekly and after each runoff event.

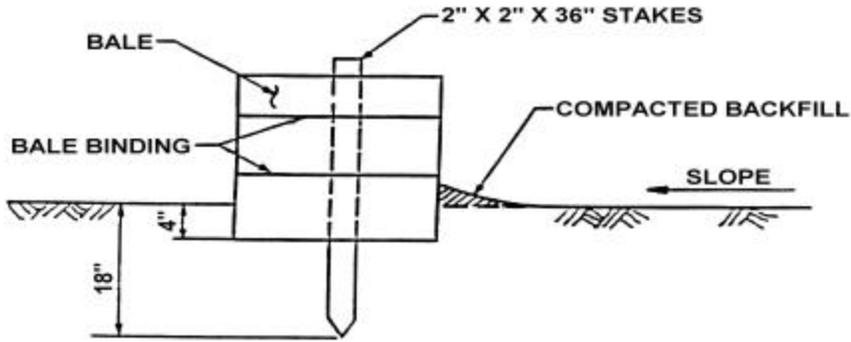
Sediment must be removed when accumulations reach 1/2 the height of the filters.

Clogged filter stone (AASHTO #57) should be replaced.

Immediately upon stabilization of each channel, remove accumulated sediment, remove Rock Filter, and stabilize disturbed areas.

Straw Bale Barriers

**EROSION CONTROL
MEASURE DETAILS**

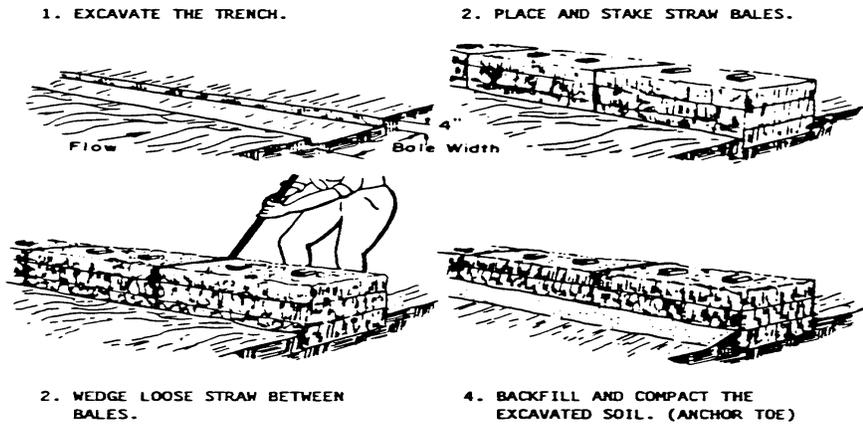


Straw Bale Barriers should not be used for more than 3 months.

Straw Bale Barriers shall be placed at existing level grade. Both ends of the barrier shall be extended at least 8 feet up slope at 45 degrees to the main barrier alignment.

Sediment shall be removed when accumulations reach 1/3 the above ground height of the barrier.

Any section of Straw Bale Barrier that has been undermined or topped shall be immediately replaced with a Rock Filter Outlet.



Maximum Slope Length for Straw Bale Barriers

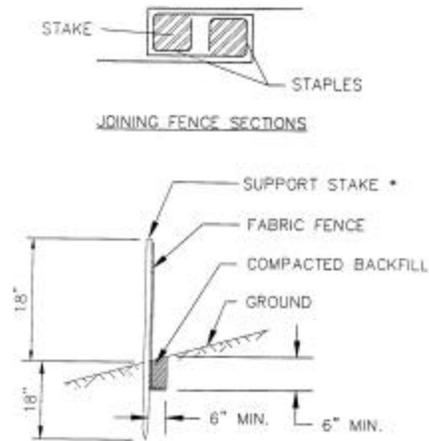
Slope - Percent	Maximum Slope Length (ft) Above Barrier
2 (or less)	150
5	100
10	50
15	35
20	25
25	20

Maximum Slope Lengths for Filter Fabric Fence

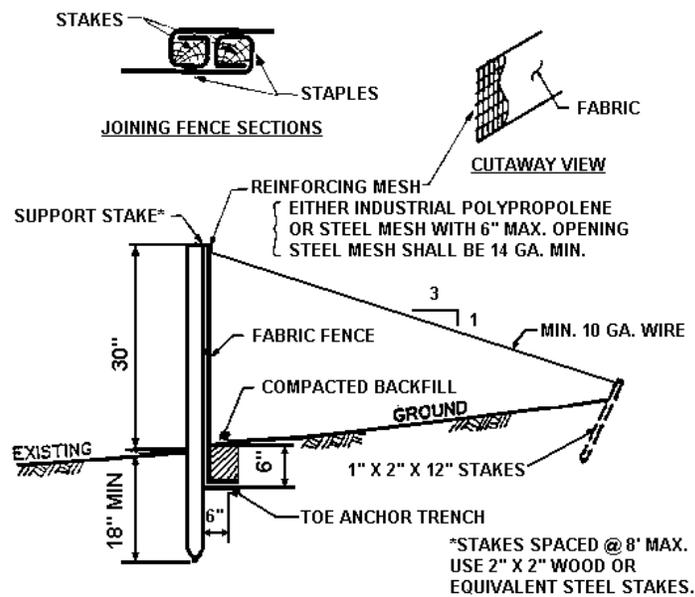
Slope - Percent	Maximum Slope Length (ft) Above Fence	
	18" High Fence	30" High Fence*
2 (or less)	150	500
5	100	250
10	50	150
15	35	100
20	25	70
25	20	55

**EROSION CONTROL
MEASURE DETAILS**

Standard Filter Fabric Fence (18" High)



*Stakes spaced @ 8' maximum. Use 2"x 2" wood or equivalent steel stakes.



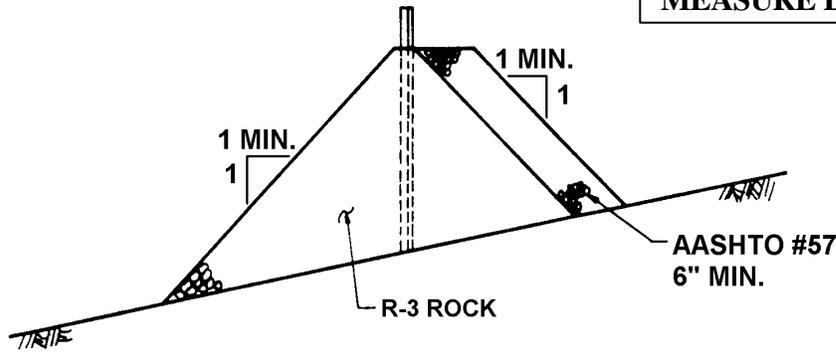
Filter Fabric Fence must be placed at level existing grade. Both ends of the barrier must be extended at least 8 feet up slope at 45 degrees to the main barrier alignment.

Sediment must be removed when accumulations reach 1/2 the above ground height of the fence.

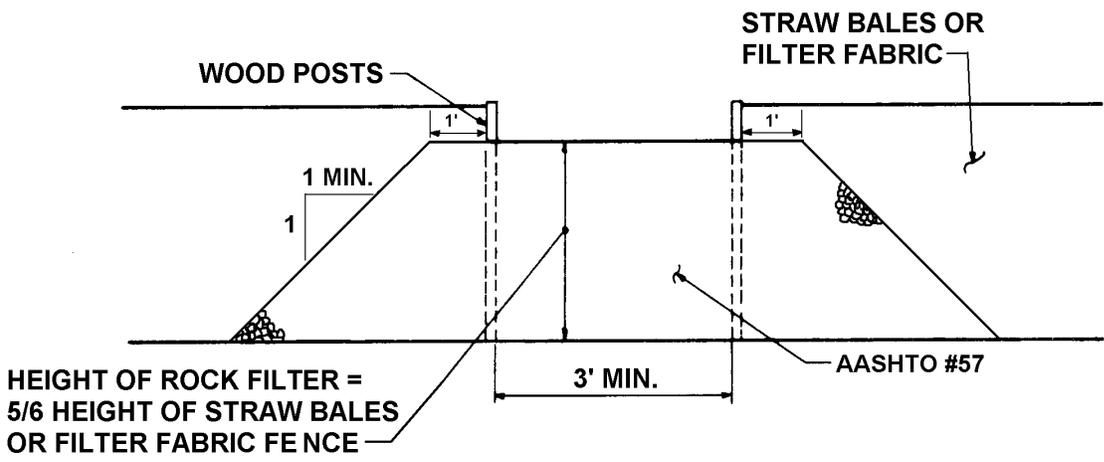
Any section of Filter fabric fence that has been undermined or topped must be immediately replaced with a Rock Filter Outlet.

Rock Filter Outlets

**EROSION CONTROL
MEASURE DETAILS**



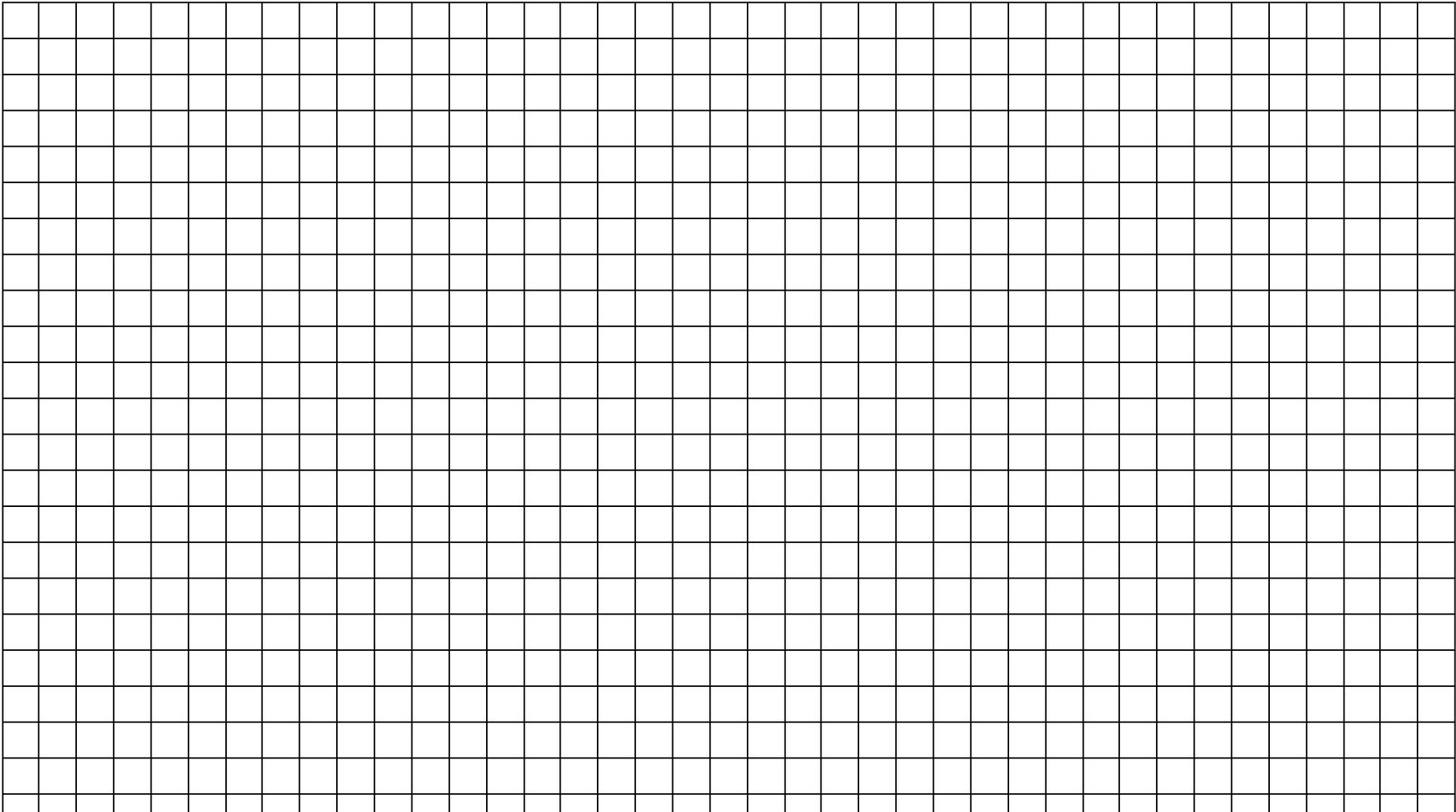
OUTLET CROSS-SECTION

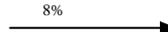


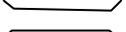
HEIGHT OF ROCK FILTER =
5/6 HEIGHT OF STRAW BALES
OR FILTER FABRIC FENCE

UP-SLOPE FACE

Sediment must be removed when accumulations reach 1/3 the height of the outlet.



ROAD 
STREAM 
BOUNDARY LINE 
SLOPE 
ROCK CONSTRUCTION ENTRANCE 

CULVERT 
STRAW BALE BARRIER 
FILTER FABRIC FENCE 
ROCK FILTER BERM 
LIMIT OF DISTURBANCE 

PROPERTY OWNER; _____
PROJECT; _____
MUNICIPALITY; _____
DATE; _____
APPROXIMATE SCALE; 1" = _____