VILLAGE OF OTTAWA HILLS, OHIO

ORDINANCE No. 2007-2

ADOPTING RULES REGULATING DRAINAGE AND STORMWATER RUNOFF FROM DEVELOPMENT, CONSTRUCTION, RECONSTRUCTION AND IMPROVEMENTS UPON PRIVATE PROPERTY IN THE VILLAGE OF OTTAWA HILLS.

WHEREAS, the Village of Ottawa Hills wishes to control stormwater runoff and drainage during construction and after construction of improvements to property in the Village of Ottawa Hills; and,

WHEREAS, requirements of the Ohio Environmental Protection Agency mandate that such controls be put in place; and

WHEREAS, improving water quality in the Ottawa River is of significant importance to the Village of Ottawa Hills;

NOW, THEREFORE BE IT ORDAINED BY THE COUNCIL OF THE VILLAGE OF OTTAWA HILLS, THAT:

SECTION 1. Rules regulating drainage for development, construction, reconstruction and improvements on private property in the Village of Ottawa Hills identified in Attachment A hereto are adopted by the Council of the Village of Ottawa Hills. Such rules shall be in full force and effect concurrent with the effective date of this legislation.

SECTION 2. It is hereby found and determined that all formal actions of this Council concerning and relating to the passage of this Ordinance were adopted in an open meeting of this Council, and that all deliberations of this Council and any of its committees that resulted in such formal action, were in meetings open to the public, in compliance with all legal requirements, including Section 121.22 of the Revised Code of Ohio.

SECTION 3. This Ordinance shall be in full force and effect from and after the earliest period allowed by law.

Vote on emergency measure: Yeas 5 Nays 0

Passed as an emergency measure: Yeas 5 Nays 0

April 16, 2007
Date of passage

Kevin M. Dowling
President of Council

Attest:
Norma Kemp
Clerk of Council

ATTACHMENT A

01/30/07

Village of Ottawa Hills
Rules regulating drainage for development, construction, reconstruction and improvement upon private property within the Village of Ottawa Hills, Ohio

The purpose of these rules is to minimize the adverse effect of new construction on the quantity and quality of storm water runoff generated by such new construction in the Village of Ottawa Hills.

1. No zoning permit shall be issued by the Village of Ottawa Hills until all relevant conditions of these rules and regulations are fully and completely satisfied.

2. It shall be the responsibility of the permit applicant (responsible party) and/or the property owner (responsible party) to assure compliance with these requirements.

DRAINAGE/STORM WATER RUNOFF CONTROL DURING CONSTRUCTION

1. It shall be the duty of the responsible parties and any person operating or driving a concrete delivery vehicle to assure that no cleanout of any concrete truck will occur in a manner which allows waste water from that cleanout operation to flow on the public right-of-way, any paved street, into any catch basin or manhole in the Village of Ottawa Hills.

   Any responsible party or person driving or operating a concrete deliver vehicle who allows waste water from a cleanout operation to flow onto the public right-of-way, any paved street, into any catch basin or manhole in the Village of Ottawa Hills shall be guilty of a minor misdemeanor for the first offense. Each subsequent offense in a 24 month period shall be a misdemeanor of the fourth degree.

   Additionally, any responsible party or person driving or operating a concrete delivery vehicle who allows waste water from a cleanout operation to flow onto the public right-of-way, any paved street, into any catch basin or manhole in the Village of Ottawa Hills shall be responsible to reimburse the Village of Ottawa Hills and other public agencies involved the cost of any cleanup necessary.

2. Any construction or reconstruction or improvement involving excavation, disturbance of soil, and/or clearing of an area in excess of 1 acre (43,560 sq. ft.) shall include a storm water management plan approved by the Village of Ottawa Hills. Such plan shall have the following minimum requirements and each such requirement shall be implemented using best management practices as approved by the Village of Ottawa Hills. The Village will provide specifications regarding best management practices for requirements.

A. Minimize soil disruption – area of disruption must be identified on a plot plan.
B. Sod, seed or site stabilization must occur as soon as possible – may be temporary.
C. Silt fencing shall be in place and maintained – prior to excavation, clearing, grading, or grubbing.
D. Storm drain inlet protection may be required – prior to excavation, clearing or grubbing.
E. Streets must be kept clean and free from mud, dirt and stone from the construction site. The Village may require appropriate construction site entrances in order to aid in maintaining the street cleaning.
F. Each construction site shall also
    - Have on-site restroom facilities available for use by construction workers
    - Be maintained in a professional, workmanlike manner, kept free of excessive litter, waste materials, etc.

To assure that no trash, liter or debris is permitted to accumulate in such a manner as to be an eyesore or detrimental to nearby properties the Village may require a covered dumpster to be on site during construction.

A plan must be submitted which provides for compliance with these requirements. Failure to comply with the requirements of the plan, once approved by the Village, may result in revocation of the zoning permit and issuance of a stop work order. The property may be assessed for cost incurred by the Village, plus an administrative fee to assure compliance with the approved plan.

The Village of Ottawa Hills reserves the right to require other storm water runoff control measures in addition to those identified above, and to waive such requirements including items A, B, C, D, E above if they are deemed unnecessary by the Village. The Village may require a storm water management plan for excavation, disturbance of soil and/or clearance of an area of less than one acre if particular features of the site warrant such a plan.

Any responsible party failing to comply with these requirements shall be guilty of a minor misdemeanor for the first offense. Each subsequent offense shall be a misdemeanor of the fourth degree.

DRAINAGE/STORM WATER RUNOFF CONTROL POST CONSTRUCTION

These drainage/storm water runoff control rules and regulations shall be applicable when the amount of impervious surface on a parcel or lot increases by more than 200 sq. ft. on a lot or parcel less than 35,000 sq. ft. or increases by more than 500 sq. ft. on a lot or parcel in excess of 35,000 sq. ft.

These requirements may be waived by the Village when the applicant can articulate specific conditions which make the compliance with this portion of the drainage/storm water plans unnecessary. Such articulated conditions may include location of the lot or parcel, location of existing drainage courses, or other circumstances which, in the judgment of the Village, make the following requirements unnecessary.

After the effective date of these rules, direct connection of downspouts, yard drains, privately installed catch basins, or similar devices to the public storm sewer system shall be prohibited. Such connections existing prior to the effective date may be required to be disconnected if such connection can be shown as detrimental to the functioning of the storm sewer system.

For purposes of these rules impervious surface shall include but not be limited to increased roof area, pool decks, asphalt or concrete driveways, patios or other impervious surfaces. Excluded in any calculations regarding impervious surfaces will be wooden decks or pervious surfaces.

Prior to issuance of a zoning permit a plan must be submitted and approved by the Village, when applicable, which includes the following:

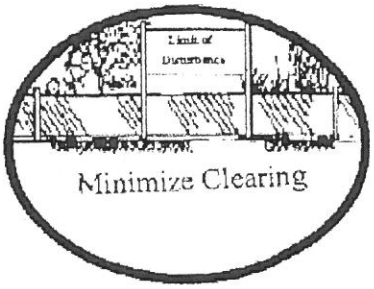
A. The plan must be certified by a landscape architect or professional engineer registered in the State of Ohio

B. The plan must include
    1. Plot plan identifying existing and proposed impervious surfaces.
    2. Information identifying the amount of additional impervious surface-in square feet.
    3. Existing and proposed drainage patterns.
    4. A twenty year storm calculations regarding run-off created by the additional impervious surface.
    5. Proposed drainage for all new impervious surface.
    6. A statement by the landscape architect or engineer that there will be no adverse impact on any nearby property caused by the run-off from the additional impervious surface.
    7. A statement describing the ability of the existing storm sewer system to accommodate the additional flow, if appropriate.
    8. Additional information as may be required by the Village.

New home construction shall include the following additional information.

1. Plot Plan.
2. A grading plan for the lot.
3. Elevations at each corner of the lot.
4. Proposed elevation of the home at grade.
5. Elevations of structures at grade on adjoining property.
6. Benchmark used to determine elevation (may be local benchmark).

1 Minimize Clearing



Description/Goals

In this technique, land cleared for construction is kept to a minimum. Land cleared for construction produces as much as 2,000 times more sediment than forest or meadow (Paterson et al., 1993). In addition to its value for preventing erosion, minimizing clearing preserves forest, wildlife habitat and riparian corridors.

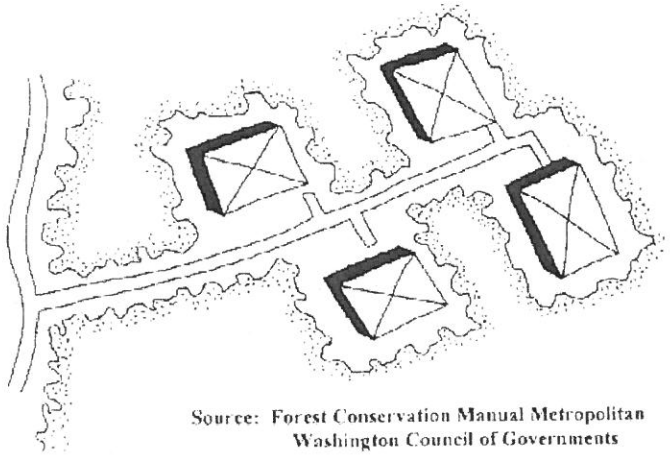
Techniques

Before construction begins, the "limits of disturbance" should be clearly marked, using flags or fencing (e.g., silt fencing). Clearing should only be performed within the context of an overall stream protection strategy. Some areas, such as stream buffers, forest conservation areas, wetlands, highly erodible soils, steep slopes, environmental features and stormwater infiltration areas should never be cleared.

In "site fingerprinting," clearing is restricted only to the areas where clearing is absolutely necessary for construction access, buildings, roads and utilities. This technique can save up to $5,000 per acre on earthwork and erosion and sediment controls (Schueler, 1995). Innovative site designs, such as cluster development, minimize disturbance by reducing the total area to be built on in a development.

Limitations/Challenges

The greatest challenge to implementing techniques that minimize clearing is the planning required throughout design and construction. Careful



Source: Forest Conservation Manual Metropolitan Washington Council of Governments

Approximate Cost: No Additional Construction Cost

Effectiveness

	Low	Mod	High
Erosion/ Sediment Control			✓
Long-Term Pollutant Reduction			✓
Habitat / Stream Protection			✓

Ease of Application

	Difficult	Average	Easy
Installation		✓	
Maintenance			✓

Limitations

- Where zoning prevents alternative site designs
- Sites with excessively steep slopes
- Small sites for some techniques

site plans are needed to ensure that needless clearing does not occur. Areas that should not be cleared should be clearly marked on the site plan and in the field. Although this is not a limitation, it is a major challenge to successfully minimizing clearing.

Zoning requirements for lot geometry or road standards which hinder cluster development or narrower streets may limit the use of innovative site designs. Furthermore, developers may be unfamiliar with these site designs, and therefore hesitant to design developments using these techniques.

Site size and steep slopes are probably the biggest physical limitations governing the use of minimization techniques. On small sites, minimizing clearing is more difficult because a large percentage of the site may be reserved for construction staging or equipment storage. On sites with steep slopes, retaining walls and other expensive construction techniques will be needed to successfully implement site fingerprinting.

Innovations/Improvements

Using an innovative technique for digging utility trenches developed by a Maryland consulting firm, a standard 25 foot wide clearing limit can be reduced to just 10 to 15 feet (Corish, 1995). Construction equipment is kept on one side of the trench and excavation spoils are deposited on the same side. A geotextile fabric is laid across the top of the spoil area prior to starting excavation, which can help preserve existing vegetation and help avoid excessive compaction of the native soils by the construction equipment. Once the trench is backfilled and the fabric removed, only the excavated portion of the trench must be re-vegetated.

References

Corish, K. 1995. *Clearing and Grading: Strategies for Urban Watersheds. Environmental Land Planning Series*. Metropolitan Washington Council of Governments. Washington, DC 66 pp.

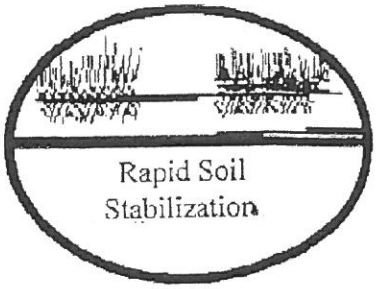
Paterson, R.G., M.I. Luger, R.J. Burby, E.J. Kaiser, H.R. Malcolm and A.C. Beard. 1993. Costs and Benefits of Erosion and Sediment Control: The North Carolina Experience. *Environmental Management* 17(2):167-178

Schueler, T.R. 1995. *Site Planning for Urban Stream Protection*. Center for Watershed Protection. Metropolitan Washington Council of Governments. Silver Spring, MD. 222 pp.

1. Minimize Clearing

- Objectives:
  - Prevent erosion by never clearing/grading portions of the work site
  - Protect sensitive areas from grading
  - Preserve natural vegetation/forest
- Techniques:
  - Site fingerprinting
  - Restrict clearing to minimum needed
  - Use of "tree-save"

6 *Vegetative Stabilization*



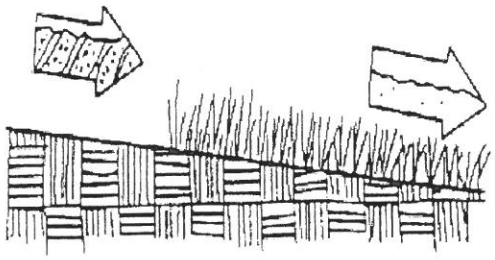
DESCRIPTION/GOALS

Vegetative stabilization is the process of establishing vegetation on a construction site to prevent erosion. Establishing vegetation as fast as possible is the next alternative to limiting clearing, and should be used to at least some extent on every construction site. The approach is a relatively inexpensive and effective (up to 99% erosion reduction) erosion control. In addition, permanent vegetation adds to the value of both commercial and residential properties.

TECHNIQUES

Two options available for establishing vegetation are seeding and sodding. Regardless of which technique is used, some basic requirements need to be met to ensure good vegetative establishment. Seeding is the least expensive option, and is almost always the method used for temporary vegetation (e.g., vegetation that will be paved over or disturbed during subsequent phases of construction). Seeds can be hand-applied (known as "broadcast seeding"), usually to seed relatively small areas of less than one acre. When broadcast seeding is used, straw or some other cover is needed to protect the seeds (See Fact Sheets 7 and 9).

In hydroseeding, often used on larger areas, seeds are mixed with water, fertilizer, lime and a fiber mulch (See Fact Sheet 7) and sprayed onto the soil. An advantage to this technique is that seeding and mulching are completed in the same step, saving time.



Source : The Construction BMP Handbook - State of CA
California State Water Resouces Control Board

APPROXIMATE COST: $.60 - $.90/sy*

* Cost for fiber mulch, seed and fertilizer

EFFECTIVENESS

	Low	Mod	High
Erosion/ Sediment Control			✓
Long-Term Pollutant Reduction		✓	
Habitat / Stream Protection		✓	

EASE OF APPLICATION

	Difficult	Average	Easy
Installation		✓	
Maintenance		✓	

LIMITATIONS

- Arid Climates
- Infertile soils
- Steep slopes
- Outside the growing season

Sodding provides immediate vegetative cover and can withstand higher flow velocities. This technique is used for final landscaping and in drainageways, where high velocities would prevent grass seed from establishing. Although sodding is relatively expensive ($4/sy), it is often incorporated in the landscaping costs of construction.

Limitations/Challenges

The two greatest challenges to successfully establishing vegetation are extreme climates (e.g., cold or arid) and poor soil conditions. In arid areas, irrigation is almost always needed and drought tolerant species should be selected where possible. Because of these challenges, designers in these areas may choose non-vegetative erosion controls (see Fact Sheets 7 and 9). In cold regions, the greatest challenge is the relatively short growing season, which shortens the window of opportunity for planting. In cold climates, a heavy mulch application is preferable to vegetative stabilization when construction continues into the fall season (see Fact Sheet 7).

The poor soil conditions found at many construction sites also make establishing vegetation challenging. Soil ammendments such as organic matter, fertilizer and lime often need to be added to the soil to make it more fertile. Alternatively, topsoil can be imported to a construction site.

Innovations/Improvements

The use of a soil test to determine fertilizer application can improve plant growth and reduce nitrogen and phosphorous pollution. Soil and Water Conservation Districts or university extension offices can help apply these tests. Another option is to use alternative species, such as wildflowers or low maintenance ground cover, instead of grass as a cover because of wildlife and aesthetic value. Unfortunately, many of these species, particularly wildflowers, do not establish as quickly as grass (Johnson, 1992).

Seed/Plant Suppliers

Nationwide
Briargreen International
Kent, WA
(206) 630-5024

Northeast/ Mid Atlantic
Jonathan Green, Inc.
Farmingdale, NJ
(908) 938-7007

South/Southeast
Red River Hydro-Seeding, Inc.
Texarkana, AR
(501) 772-2028

Midwest/Plains
CRM Systems- Prarie Ridge Nursery
Mt. Horeb, WI
(608) 437-5245

Southwest/ Mountain
Arkansas Valley Seed Co.
Denver, CO
(303) 320-7500

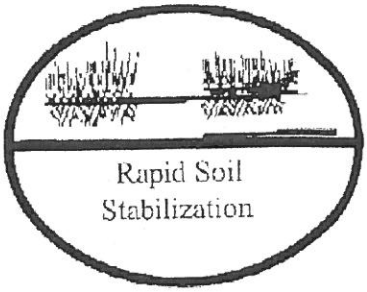
West Coast
L&H Seed Co.
Connell, WA
(509) 234-4433

For more information contact the International Erosion Control Association at (800) 455-4322 or ask your county Soil and Water Conservation District about local suppliers.

References

Johnson, A.M. 1992. *Turf Establishment and Erosion Control.* Braun Intertec Pavement. Minnesota Local Road Research Board. St. Paul, MN. 21 pp.

8 Stabilized Construction Entrance



Description/Goals

A construction site entrance is a stabilized area where vehicles enter and leave a construction site. The entrance usually consists of stones spread over geotextile fabric. The construction entrance serves two purposes for erosion and sediment control. As vehicles are driven over the rocks, mud from the construction site is knocked off the tires, preventing tracking of the mud onto the street. Secondly, the gravel entrance will not be "torn up" by vehicles as much as a dirt road would.

Techniques

Construction site entrances should be designed with large, sharp-edged stones, because these are the best for knocking mud off tires. In addition, they should be wide enough for all construction vehicles to pass. If the entrance becomes clogged with mud, stones should be replaced.

Limitations/Challenges

Construction entrances can be used on most construction sites. One challenge is that the large, sharp stones that are the best for sediment removal are also the least popular among developers. Sharp stones have the potential to pop tires. In addition, developers often want to convert the entrance into a road subgrade or driveway, and larger stones are not appropriate for these purposes.

Innovations/ Improvements

Sometimes, wash racks are used at the entrance to hose tires off. These cost about $2,000 and require water hook-up. Alternatively, "cow guards" can be used. These devices, which are similar to wash racks, consist of a series of cement strips, approximately one or two inches wide, that knock mud off tires, as vehicles drive over them.

Approximate Cost: $7 -$8/sy

Effectiveness

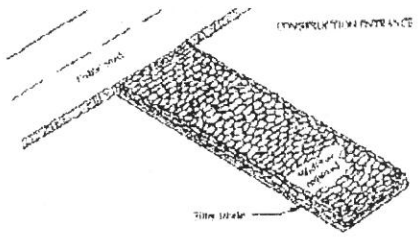
	Low	Mod	High
Erosion/ Sediment Control			✓
Long-Term Pollutant Reduction		✓	
Habitat / Stream Protection		✓	

Ease of Application

	Difficult	Average	Easy
Installation			✓
Maintenance		✓	

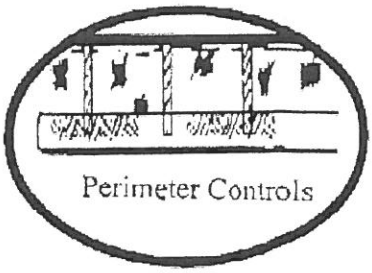
Limitations

- Extremely small sites
- Sites with no flat areas



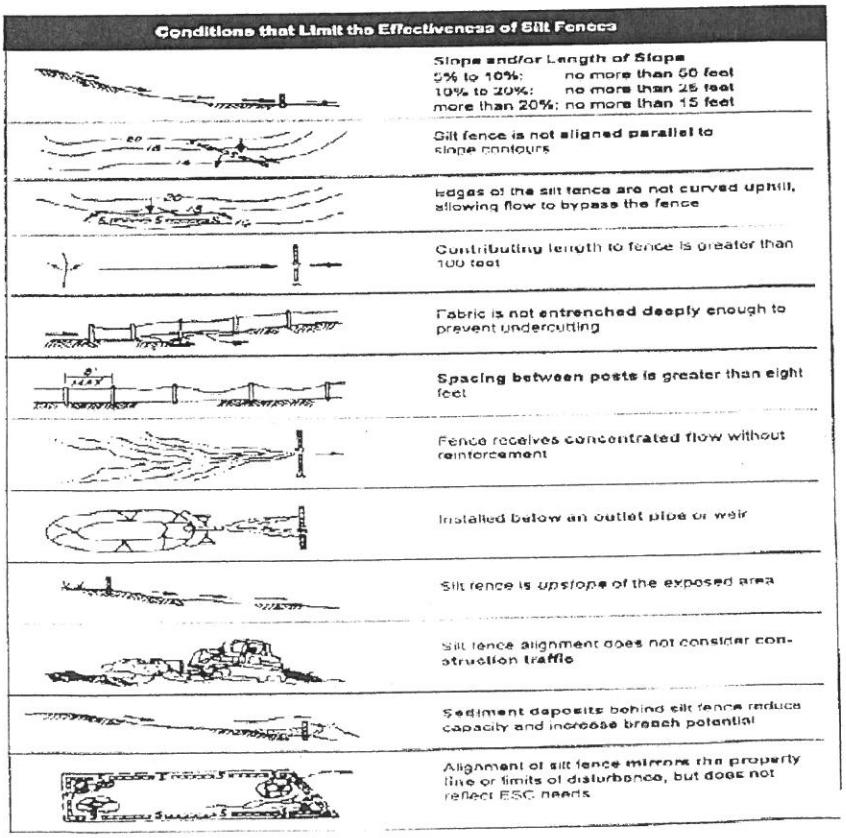
Source: Soil Erosion & Sediment Control Handbook - Rhode Island Department of Environmental Management

11 Silt Fences



Description/Goals

Silt fences are geotextile, semi-permeable sheets supported by posts and anchored in the ground to intercept sediment-laden runoff. They remove sediment partially by filtering the runoff and partially by slowing it down, providing an opportunity for settling. Silt fences are a "perimeter control", or a device used to prevent eroded sediment from leaving the construction site. Their efficiency for sediment removal ranges from 35% (W&H Pacific and CH2M-Hill, 1993) to 86% (Horner et al., 1990) depending on site conditions. They can be an effective tool when used properly.



Source: *Watershed Protection Techniques* Vol. 2 #3

Approximate Cost: $2.50 - $3.50/lf

Effectiveness

	Low	Mod	High
Erosion/ Sediment Control			✓
Long-Term Pollutant Reduction		✓	
Habitat / Stream Protection		✓	

Ease of Application

	Difficult	Average	Easy
Installation		✓	
Maintenance		✓	

Limitations

- Steep slopes or channels
- Construction traffic

Techniques/Challenges and Limitations

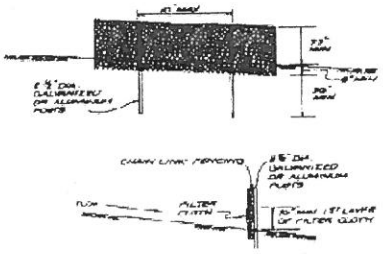
Silt fences can be used on most construction sites, but their effectiveness is limited by improper design, installation and maintenance. The previous table outlines twelve conditions that can limit the effectiveness of silt fences. Rectifying these situations can greatly improve the performance of silt fences.

Innovations/Improvements

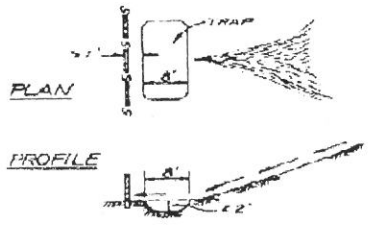
Two silt fence innovations, demonstrated below are the use of a "Super Silt Fence", a Scoop Trap and Silt Fence Anchors. The super silt fence, used in suburban Maryland, uses a chain link fence as a backing for the silt fence and uses stronger geotextile fabric. This technique, however, is very expensive compared with traditional silt fence (about $9/linear foot). The scoop trap, a "mini-sediment trap" used before a silt fence, provides extra settling and protects the silt fence when it is used in an area of concentrated flow.

A third innovation, the Silt Fence Anchor, clips to the bottom of the geotextile, ensuring that it remains in place throughout construction. For more information on this product, contact Brooks Emory of EnviroGuard, Inc. at (205) 324-3250.

Super Silt Fence



Scoop Trap



Source: *Watershed Protection Techniques* Vol. 2 #3

Silt Fence Suppliers

Acme Bag Company
San Diego, CA
(619) 235-4460

Nicolon/Mirafi Group
Lake Forest, CA
(714) 859-2850

Santa Fe Bag Company
Vernon, CA
(213) 585-7225

Synthetic Industries
Chattanooga, TN
(800) 621-0444

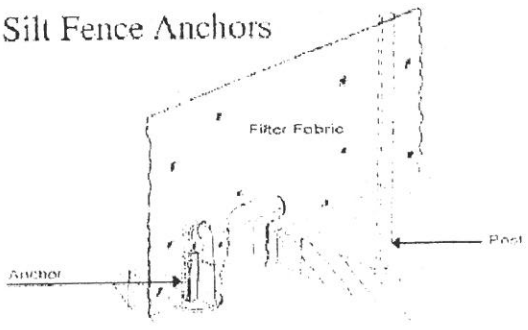
For more information contact the International Erosion Control Association at (800) 455-4322 or ask your county Soil and Water Conservation District about local suppliers.

References

Horner, R.R., J. Guedry and M.H. Kortenhog. 1990. *Improving the Cost Effectiveness of Highway Construction Site Erosion and Pollution Control*. Washington State Transportation Center. Federal Highway Administration. Seattle, WA. 79 pp.

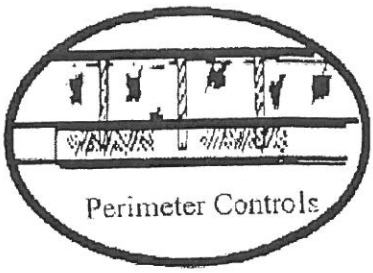
W&H Pacific and CH2M-Hill. 1993. *Demonstration Project Using Yard Debris Compost for Erosion Control*. Portland Metropolitan Service District. Portland, OR. 90 pp.

Silt Fence Anchors



Source: EnviroGuard, Inc., Birmingham, Alabama

12 Inlet Protection



Description/Goals

Inlet protection systems are structures designed to filter runoff as it flows into the storm drain system. Sediment can clog pipes or discharge directly to receiving waters through the storm drain system. In most inlet protection systems, a filtering system on or around an inlet filters runoff.

Techniques

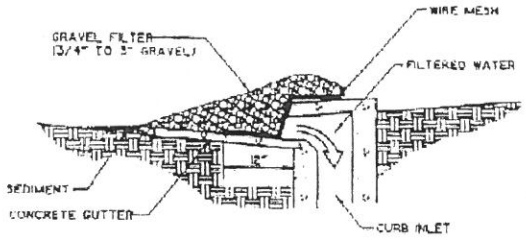
There are a few variations on inlet protection devices. The use of concrete block wrapped with wire and stones is quite common. Other alternatives include using a silt fence around the inlet or placing geotextile fabric and stones directly over a grate inlet or in front of a curb inlet. Periodic inspection and maintenance of inlet protection systems are crucial. Maintenance includes removing sediment and replacing stones.

Limitations/Challenges

When designed or maintained improperly, inlet protection devices can pose a hazard both in terms of traffic safety and flooding. Inlet protection structures can often become clogged, restricting flow into the storm drain system, and causing flooding. They can be a traffic hazard if located on busy streets. Inlet protection devices are generally not very effective at filtering fine-grained sediment or large loads of sediment.

Innovations/Improvements

Synthetic commercial products are now available to cover both curb and grate inlets. Synthetic material is wrapped over the inlet



Source: The Construction BMPs Handbook - State of CA
California State Water Resources Control Board

Approximate Cost: $150 - $250/inlet

Effectiveness

	Low	Mod	High
Erosion/ Sediment Control		✓	
Long-Term Pollutant Reduction		✓	
Habitat / Stream Protection		✓	

Ease of Application

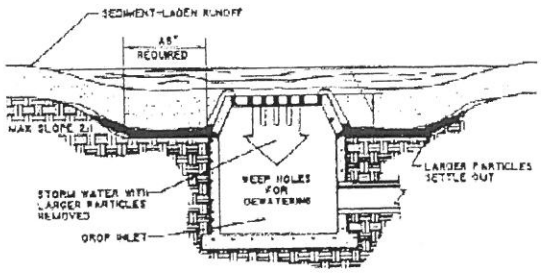
	Difficult	Average	Easy
Installation			✓
Maintenance		✓	

Limitations

- High traffic areas

to filter runoff. These products are relatively inexpensive at $30 to $55 plus installation, and do not hinder traffic. There are some concerns that these products can clog or cause flooding, like traditional inlet protection.

Another option is available for curb inlets. A curb inlet is a concrete box with a horizontal slot at the curb face. When the inlet is installed, the slot can be blocked with concrete (only perforations to mark the inlet). Then, the inlet can be "punched out" after the site is stabilized. Although this method does not filter runoff, it acts as a barrier to flow, protecting the new storm drain inlets.



Source: The Construction BMPs Handbook - State of CA
California State Water Resources Control Board