

# Erosion Control On A Postage Stamp



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PhD, CPC, CPESC



# Lead or Follow

- Home Building Industry
- Stewarts of the Environment
- History

# Home Building Industry

- Part of a Big Picture
- Public
- Change the Way We Build

# Stewarts of the Environment

- Future Use
- Marketing
- Can We Lead



*Andersen KWA Studio*











4 2:09 PM



5 9:12 AM





49<sup>th</sup> Ave S

STREET  
CLOSED

**Owner/ Agent**  
Custom Town  
Home  
Deluxe Gourmet  
Kitchen  
Fantastic Master  
Bedroom Suite  
Mable Cabinets  
& Doors  
Gas Fireplace  
**701-361-2902**

9/6/2006





5 9:12 AM





30 1:05 PM



19 5:13 PM

**CONCRETE  
CLEAN OUT AREA**

**CONCRETE IS TO  
BE FROM THIS  
DEVELOPMENT ONLY.  
MUST BE INSIDE SNOW  
FENCE AREA ONLY.**









20 4:45 PM



# Available Information

- City Guides
- MPCA
- EPA
- NAHB
  - Storm Water Permitting, a guide for Builders and Developers
- ND Department of Health

# Around The State

- Bismarck
- Williston
- Dickinson
- Grand Forks
- Fargo
- West Fargo

# Fargo

- Guide to Erosion and Sediment Control Practices



**GUIDE TO EROSION AND SEDIMENT  
CONTROL PRACTICES**

Revised January 2007

# TYPICAL SINGLE FAMILY LOT EROSION CONTROL PLAN

PERIMETER  
SEDIMENT (Silt) FENCE  
or FIBER ROLLS

NOTE:  
Perimeter Sediment (silt) fence or  
fiber rolls will be required only  
where the adjacent area or lot has  
been graded, sodded or seeded.

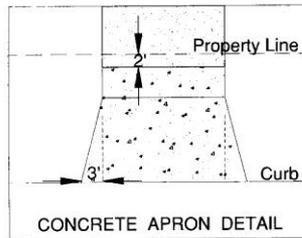
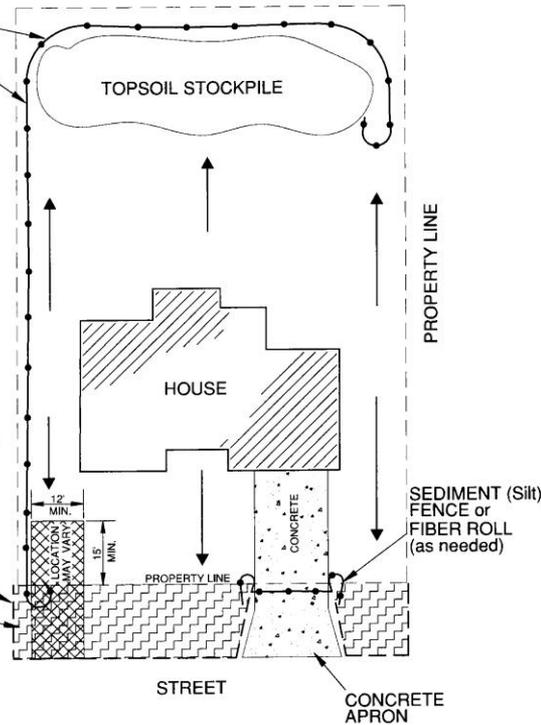
All silt fence or fiber rolls should  
terminate with J-Hooks.

If a permanent driveway is in  
place it may be used in place of a  
temporary construction entrance.

If a grass buffer strip is missing or  
damaged, use sediment (silt)  
fence or fiber roll as needed to  
create continuous line of  
protection.

TEMPORARY FENCE  
(as needed)

GRASS BUFFER STRIP



NOTE:  
Temporary fence may be used to  
further protect the grass buffer  
strip.

- Sediment (Silt) Fence or Fiber Rolls
- ▨ Construction Entrance
- Direction of Surface Water Runoff
- ▤ Grass Buffer Strip
- - - - - Temporary Fence
- - - - - Property Line

REV.D. December 2006

## TYPICAL EROSION CONTROL PLAN

CITY OF FARGO  
ENGINEERING DEPARTMENT

APPROVED

DATE

# West Fargo

- Storm Water Management Standards for Single or Two Family Residential Construction

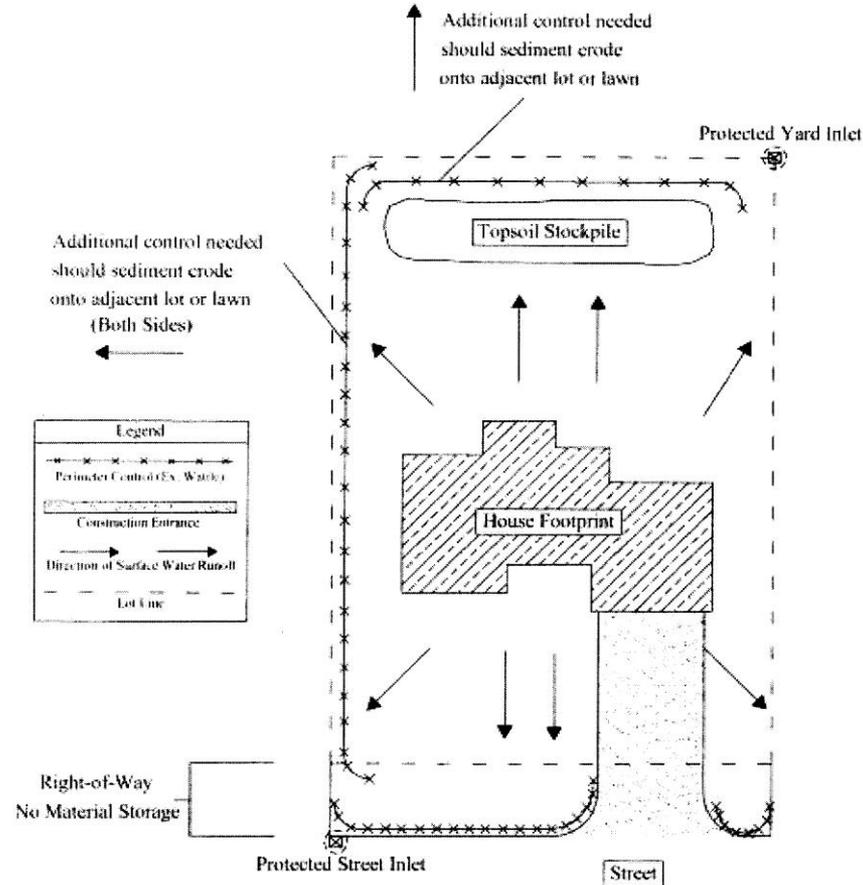


**Storm Water Management  
Standards for Single or  
Two Family Residential  
Construction**

Updated 2008



# RESIDENTIAL EROSION CONTROL PLAN A

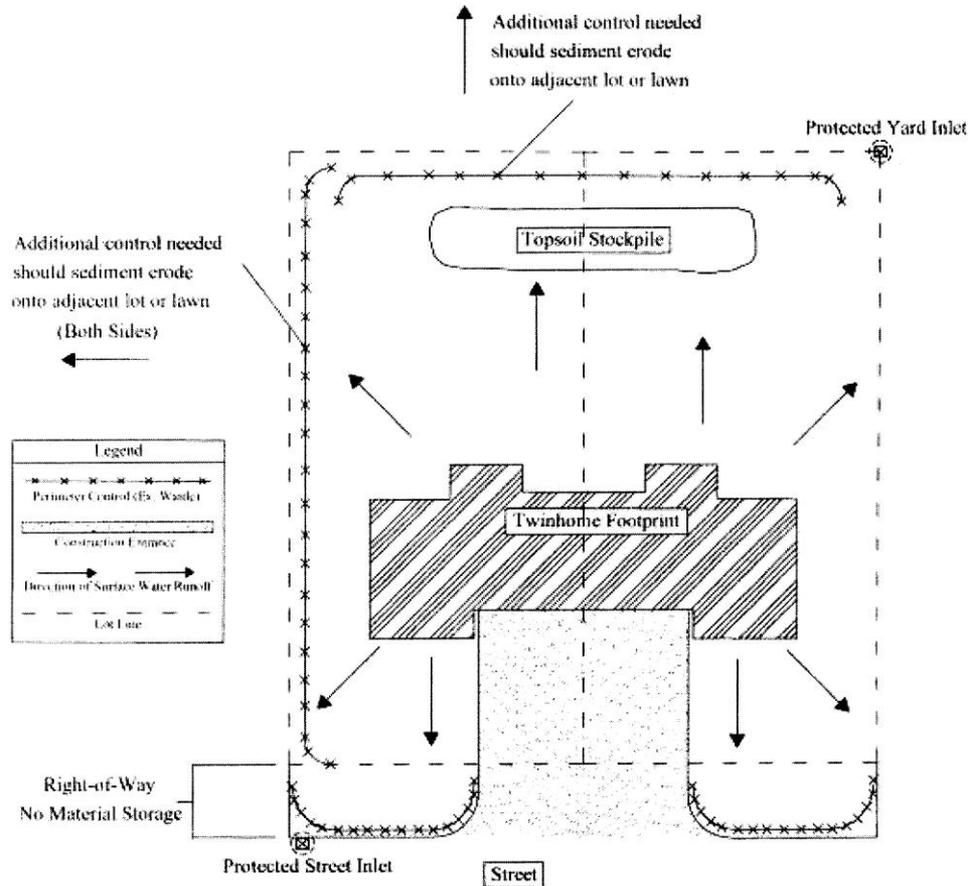


**Notes for Plan A: - Single Family Home**

- Typical drainage, perimeter controls along curblines, front access, street and/or yard inlets
- Perimeter controls needed on sides and back if sediment is eroding onto adjacent seeded or sodded lots
- Construction entrance or permanent access installed
- Rear yard topsoil stockpile
- Concrete washout required on site if no regional washout is provided



## RESIDENTIAL EROSION CONTROL PLAN B



Notes for Plan B: - Twinhome

- Typical drainage, perimeter controls along curblines, front access, street and/or yard inlets
- Perimeter controls needed on sides and back if sediment is eroding onto adjacent seeded or sodded lots
- Construction entrance or permanent access installed
- Rear yard topsoil stockpile
- Concrete washout required on site if no regional washout is provided

Bismarck

# Bismarck

## Title 14.1—Stormwater Management

### Ordinance and User's Guide

#### Chapter 14.1-01—General Provisions

##### 14.1-01-01. Purpose and Policy

This Title sets forth uniform requirements for stormwater management systems within the City and its extraterritorial jurisdiction. It is the intent of the Board of City Commissioners that the requirements and standards contained in this Title comply with all applicable state and federal laws. In the event of any conflict between the provisions of this Title and the provisions of an erosion control, shoreland protection, or floodplain ordinance, or other regulations adopted by the City, County, State or Federal authorities, the more restrictive standard prevails.

# CITY OF BISMARCK STORMWATER DESIGN STANDARDS MANUAL

Stormwater Management Plan  
Stormwater Facility Design Policy Manual  
Stormwater Plan and Permit Requirements

City of Bismarck, North Dakota

March 2000

*Swenson, Hagen & Co.  
in association with Houston Engineering, Inc.  
and BlueStem, Inc.*

GENERAL PROVISIONS

STORMWATER MANAGEMENT PLAN REPORT  
STORMWATER HYDROLOGY  
STORM SEWER DESIGN  
STORM SEWER INLET DESIGN  
HYDRAULIC DESIGN OF STREETS, CURB AND GUTTER  
OPEN CHANNEL DESIGN  
CULVERT AND BRIDGE DESIGN  
STORMWATER DETENTION  
WATER QUALITY PROTECTION  
EROSION AND SEDIMENTATION CONTROL  
STORMWATER/DRAINAGE EASEMENTS  
OPERATION AND MAINTENANCE  
DESIGN REFERENCES  
FORMS  
CURRENT FEE SCHEDULE  
STORMWATER CONSTRUCTION SPECIFICATIONS  
STANDARD DETAILS  
STORMWATER MANAGEMENT ORDINANCE

*Page 11*

# Williston

Scott R Molstad- Public Works - Operations Engineer	
	Location
	809 5th Street East
	Phone
	701-577-6368
	Fax
	701-577-6360
	Email
	scottm@ci.williston.nd.us
	Hours
	Summer Hours: Mon-Thurs: 7:00 AM to 4:30 PM Friday: 7:00 AM to 11:00 AM Winter Hours: Mon - Fri: 7:30 AM to 4:00 PM

# Minot

- No Documents Located
- Assume you contact the Building Department
- Information Included with Building Permit?

# Grand Forks

- Includes a sample plot plan
- Many BMP Samples/Drawings

Perimeter Protection

- Silt Fence at PROW Line
- Gravel Pad
- Grass Filter Strip
- Restrict traffic flow on/off site w/temp fence
- w/o temp fence
- Fiber roll
- Other \_\_\_\_\_

Storm Inlet Protection

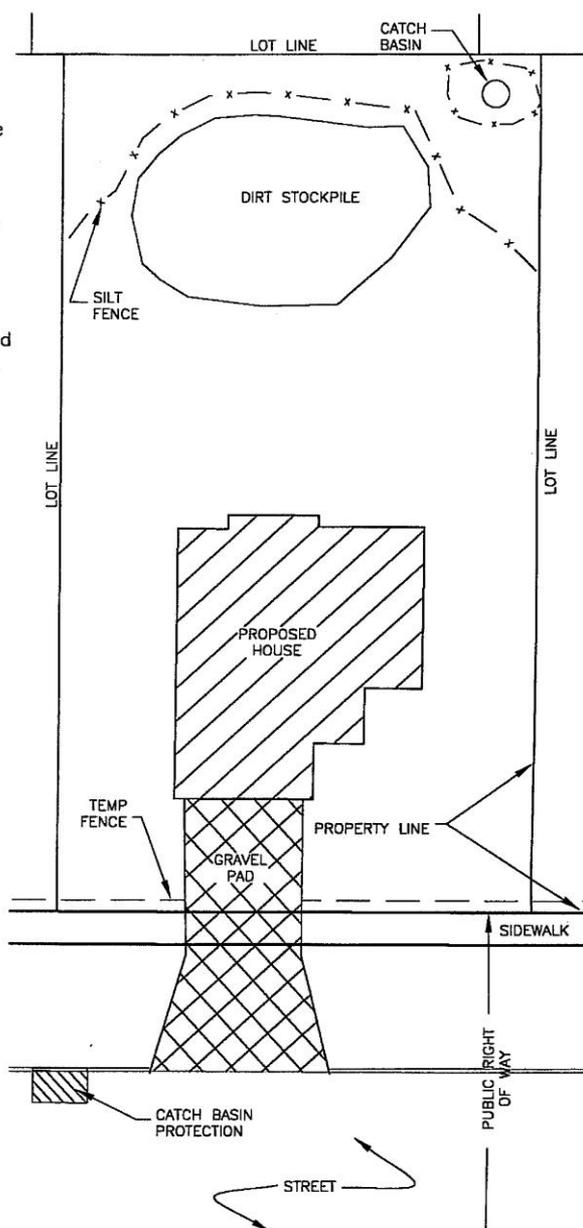
- Cover Structures
- Silt
- Turf Establishment, seed or sod
- Other \_\_\_\_\_

Dirt Stockpile Protection

- Silt Fence
- Grass Filter Strip
- Seed/Sod
- Cover
- Other \_\_\_\_\_

NOTES:

- 1- ANY DIRT THAT IS ACCIDENTALLY TRANSFERRED TO THE PROW MUST BE REMOVED BY THE END OF THE WORKING DAY.
- 2- ALL ND STATE REGS IN REGARD TO EROSION CONTROL MUST BE FOLLOWED  
A- INSPECTION LOGS  
B- REPORTS
- 3- THIS PLAN MUST BE KEPT AT THE CONSTRUCTION SITE.
- 4- ALL UPDATES AND CHANGES MUST BE SUBMITTED AND APPROVED BY THE BUILDING INSPECTIONS OFFICE.



Received by: \_\_\_\_\_  
Date: \_\_\_\_\_

ADDRESS \_\_\_\_\_  
CONTRACTOR/ PERMIT HOLDER \_\_\_\_\_



PROJECT: \_\_\_\_\_

Storm Water Pollution Prevention Plan

SCALE: NONE

PAGE: 1

# Jamestown

- Includes a Stormwater Section
- Provide a plan with building permit

# Dickinson

- Limited Information

Municipal Code Excerpts and Erosion Control Guides for Residential Storm Water Permitting

Section 38.12.420.1 **"Mandatory Permits.** Any person proposing a development or project which involves land development, land disturbing, or other activities as define in this title, shall obtain a Storm Water management permit before initiating those activities."

Section 38.14.430 **"Construction Activities**

1. **Site Dewatering.** Water pumped from the site shall be treated by temporary sedimentation basins, grit chambers, sand filters, up flow chambers, hydro-cyclones, soil concentrators or other appropriate controls as deemed necessary. Water may not be discharged in a manner that causes erosion, sedimentation, or flooding on the site; the receiving channels; or any wetland.

2. **Waste and Material Disposal.** All waste materials (including garbage, debris, cleaning wastes, wastewater, toxic materials, or hazardous materials) shall be properly disposed of off-site and not allowed to be carried by runoff or wind.

3. **Tracking Management.** At the end of each work day any material placed on a public or private road shall be removed (not by flushing) to prevent sediment tracking.

4. **Water Quality Protection.** The construction contractor shall be required to control oil and fuel spills, and the discharge of any chemicals to prevent such spills or discharges from entering any water course, sump, sewer system, water body, or wetland.

5. **Site Erosion and Sedimentation Control.** Construction operations must include erosion and sedimentation control measures meeting accepted design criteria, standards and specifications. (Ord. No. 1282 § 2)"

Section 38.14.620 **"Costs of Damage**

Any person violating any of the provisions of this title or who initiates an activity which causes deposit, obstruction, or damage or other impairment to the City's storm water management system is liable to the City for any expense, loss, or damage caused by the violation or the discharge. The City may bill the person violating this title the costs for any cleaning, repair or replacement work caused by the violation of storm water discharge. (Ord. No. 1282 § 2)"

[http://www.ndhealth.gov/WQ/Storm/Construction/Homebuilder\\_brochure2007.pdf](http://www.ndhealth.gov/WQ/Storm/Construction/Homebuilder_brochure2007.pdf)

[http://www.ndhealth.gov/WQ/Storm/Construction/Homeowner\\_brochure2007.pdf](http://www.ndhealth.gov/WQ/Storm/Construction/Homeowner_brochure2007.pdf)

[http://www.ndhealth.gov/WQ/Storm/Construction/Basic\\_Requirements2007.pdf](http://www.ndhealth.gov/WQ/Storm/Construction/Basic_Requirements2007.pdf)

# Minnesota

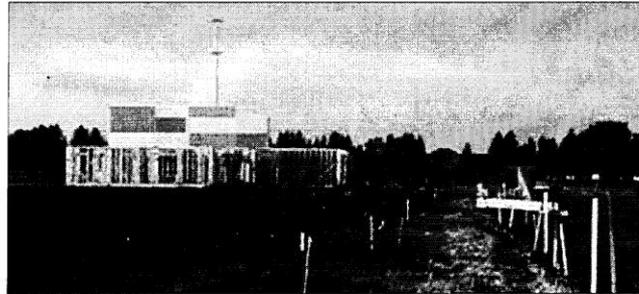
- MPA
- Moorhead

# Moorhead

- Residential Erosion/Sediment Control Standards
- 2009

**MOORHEAD**

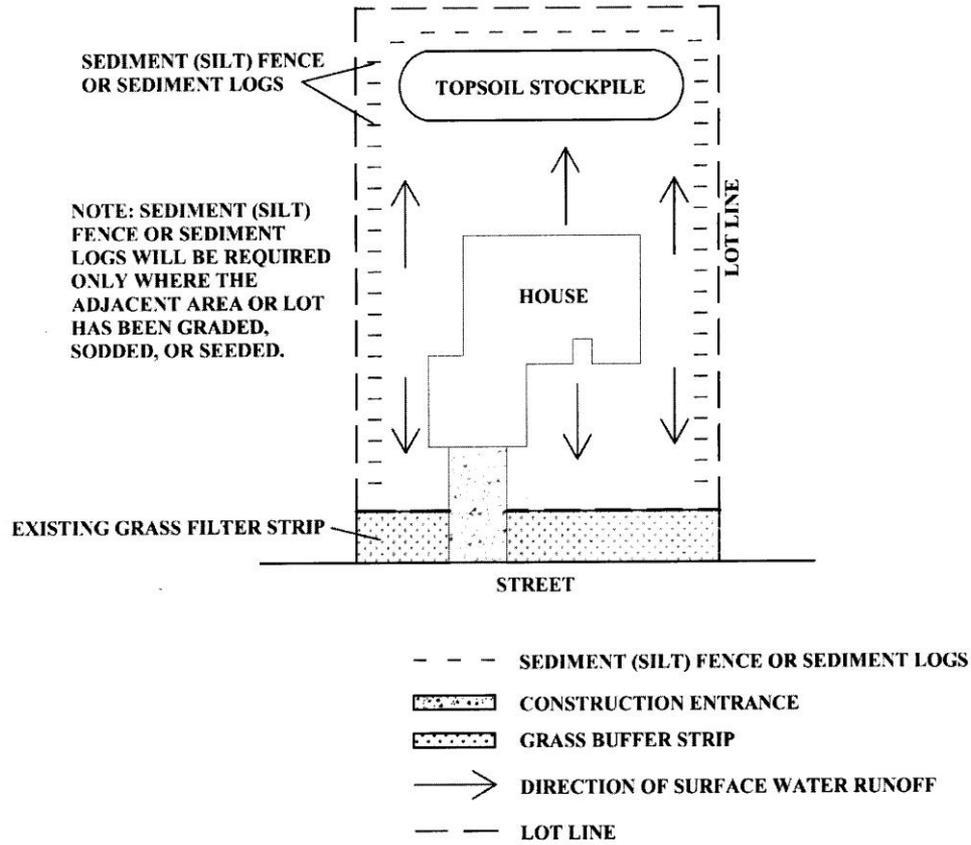
# Residential Erosion/Sediment Control Standards



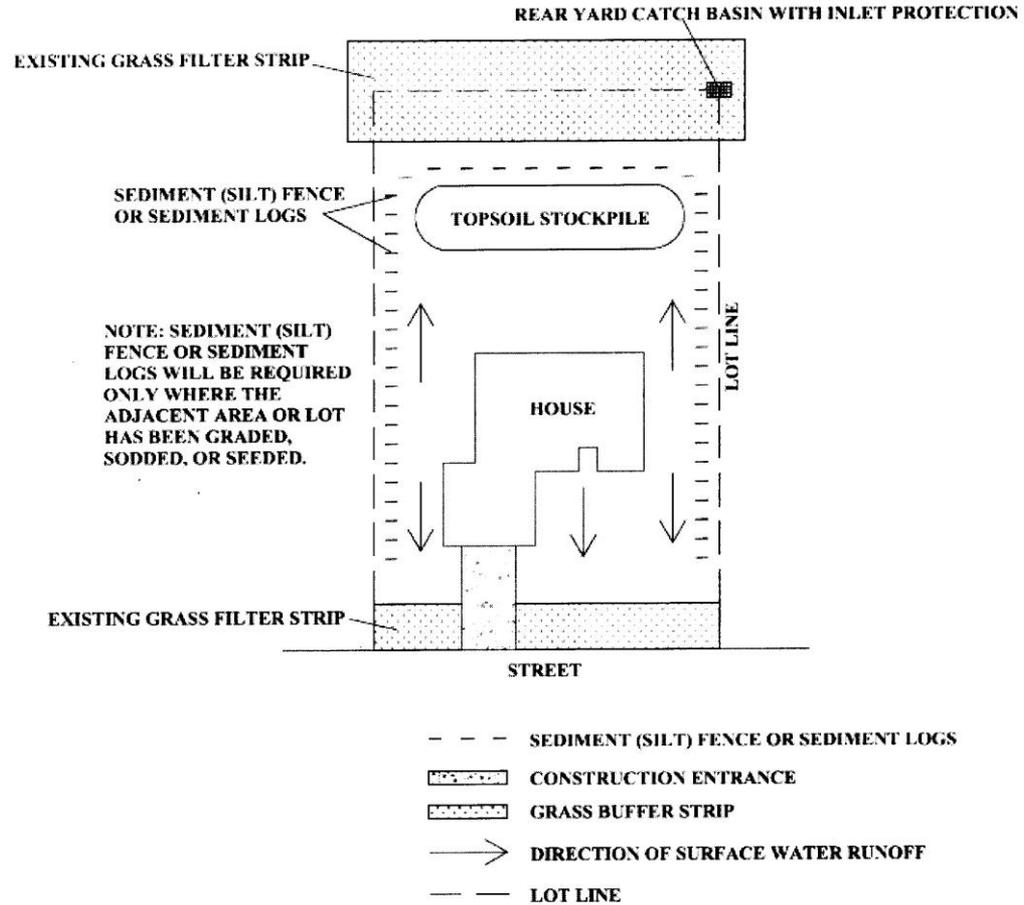
Engineering Department

2/1/09

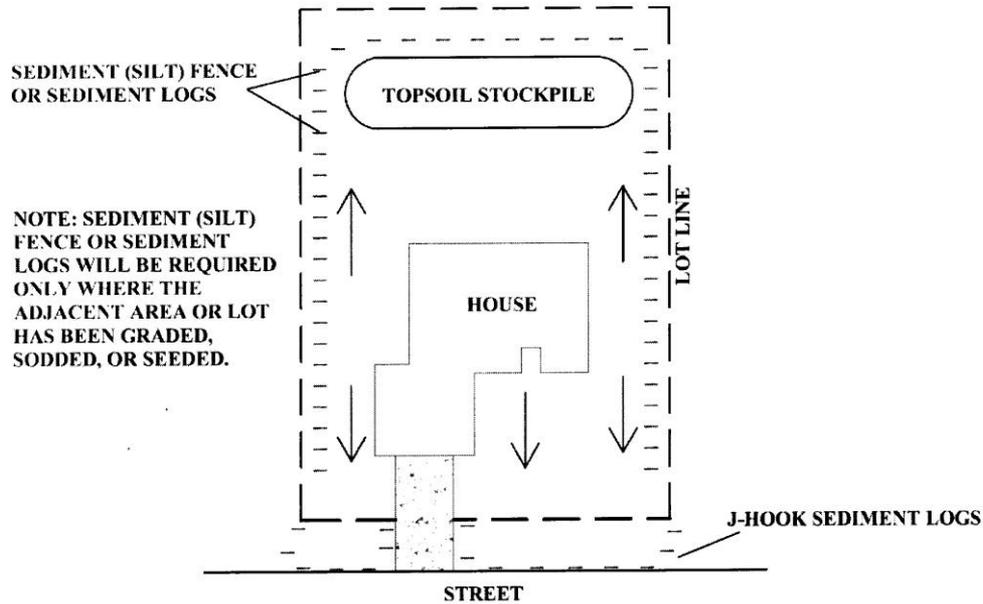
# SINGLE FAMILY LOT EROSION CONTROL PLAN – TYPE A



# SINGLE FAMILY LOT EROSION CONTROL PLAN – TYPE B

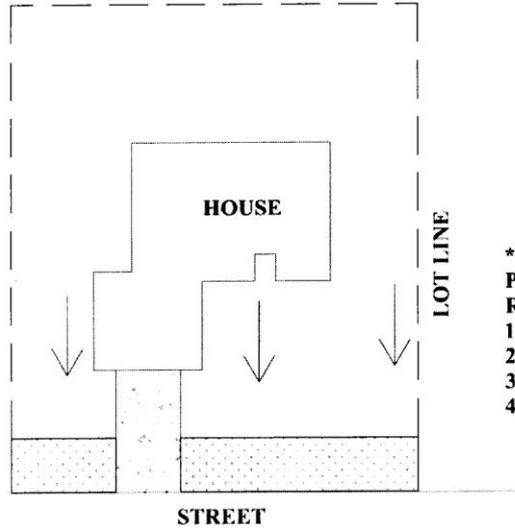


# SINGLE FAMILY LOT EROSION CONTROL PLAN – TYPE C



- - - SEDIMENT (SILT) FENCE OR SEDIMENT LOGS
-  CONSTRUCTION ENTRANCE
-  GRASS BUFFER STRIP
-  DIRECTION OF SURFACE WATER RUNOFF
- - - LOT LINE

# BOULEVARD (RIGHT-OF-WAY) RE-VEGETATION REQUIREMENTS



- \* ONE OF THE FOLLOWING MUST BE PLACED ON THE ENTIRE STREET RIGHT-OF-WAY:**
- 1. SOD**
  - 2. SEED WITH EROSION MAT**
  - 3. SEED SPRAYED WITH FIBER MULCH**
  - 4. SEED WITH ANCHORED STRAW**

-  **DRIVEWAY**
-  **RE-VEGETATED RIGHT-OF-WAY\***
-  **DIRECTION OF SURFACE WATER RUNOFF**
-  **LOT LINE**



*Andersen KWA Studio*

# Minnesota Pollution Control Agency

- In Minnesota, recent droughts coupled with growing water demands are putting a strain on our water resources. Water leaks are both costly and wasteful. Nationally, the U.S. Environmental Protection Agency estimates that 1 trillion gallons of water are wasted each year through household leaks — enough to supply the needs of Chicago, Miami and Los Angeles combined.
- Toilets are especially leak-prone (20 percent of all toilets leak), but because toilet leaks are often silent, you may not know that you have one. A leaky toilet can waste as much as 200 gallons of water every day.

# MPCA

- Stormwater Compliance Assistance Toolkit for Small Construction Operators
- Erosion & Sediment Control Field Guide (Home Builders)
- Stormwater Construction Inspector's Field Guide
- The Minnesota Stormwater Manual

# Points to Consider When Selecting BMP's

- Physical Site Suitability
- Effectiveness in Reducing Peak Discharges
- Effectiveness in Improving Water Quality
- Cost Effectiveness
- Maintenance Requirements
- Effect on Other Resources
- Public Acceptance
- Potential for Multiple Use
- Liability

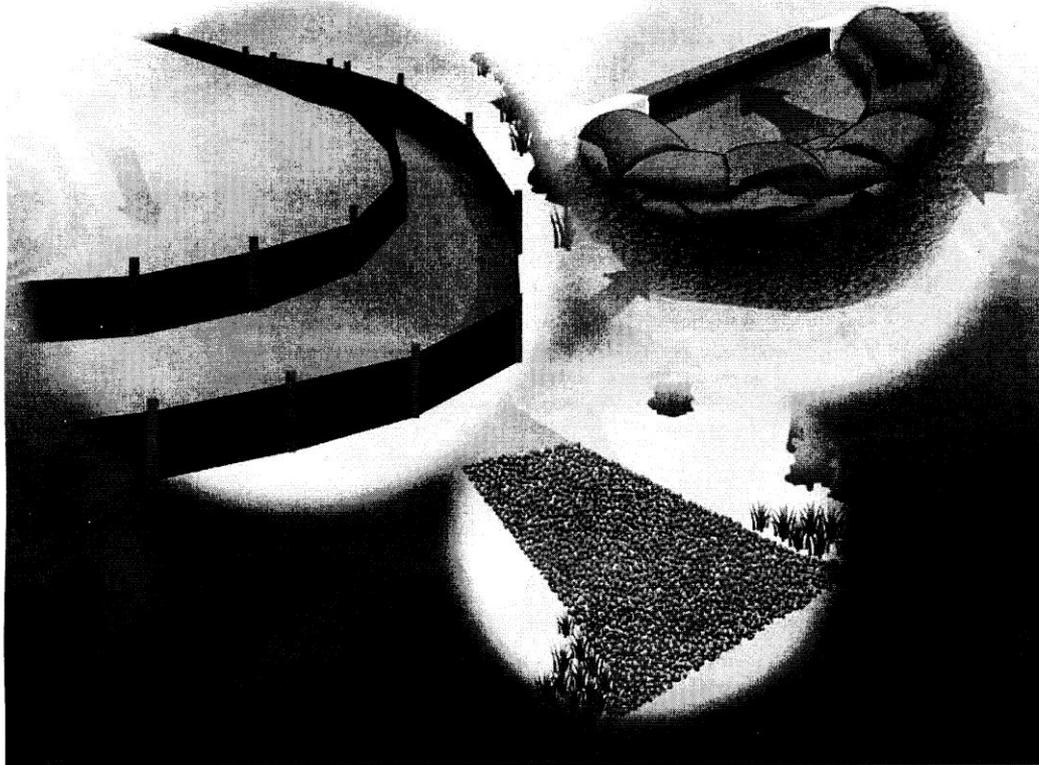
# Stormwater Management & Site Design

- Integrate Into Land Plan
- Minimizing Impervious Surface Areas
- Storm Water Facilities as Amenities

# Problems & Approaches

- No Clear Cut Solution
- Some BMP's Work Better than Others
- Inspection
- Site Specific
- Be Creative





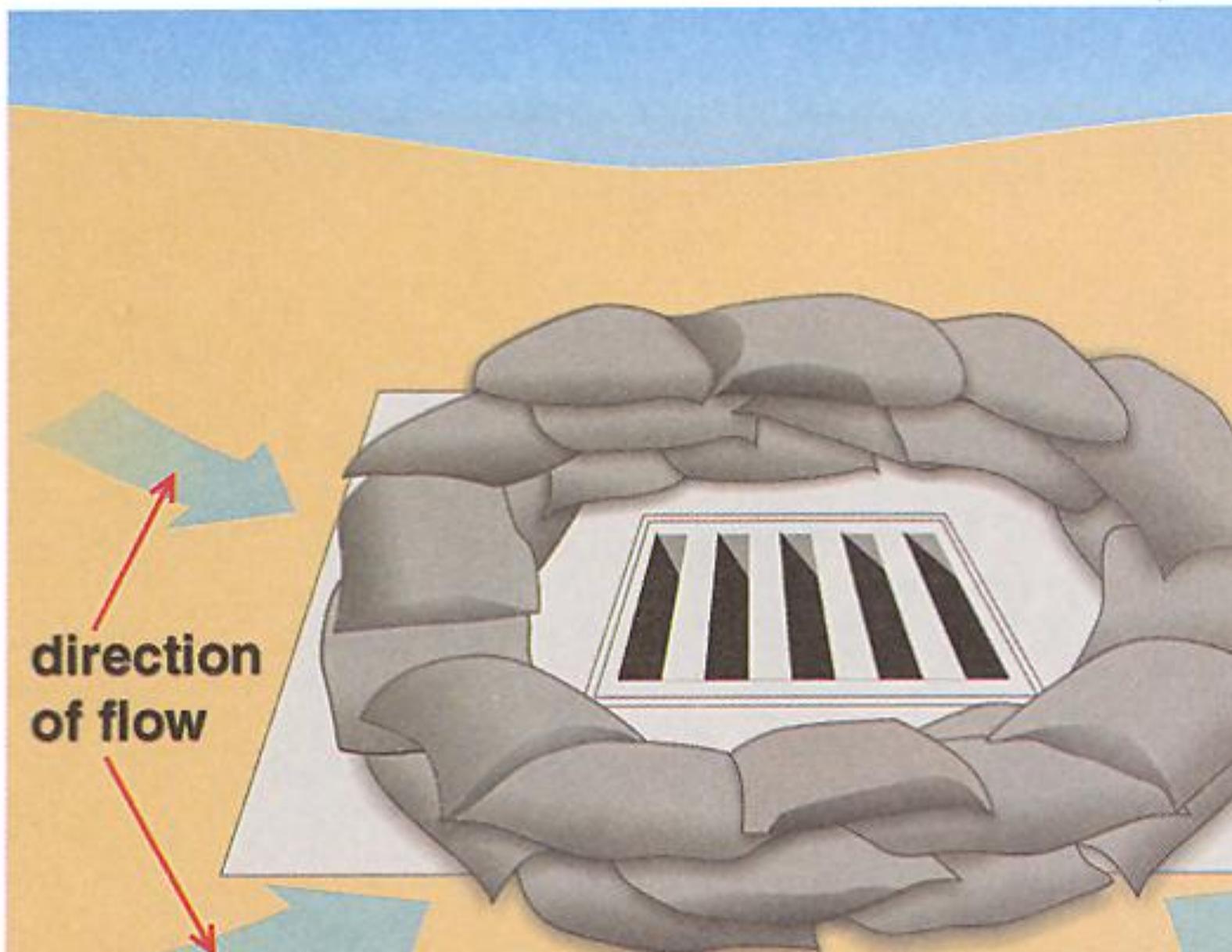
# Stormwater Compliance Assistance Toolkit for Small Construction Operators



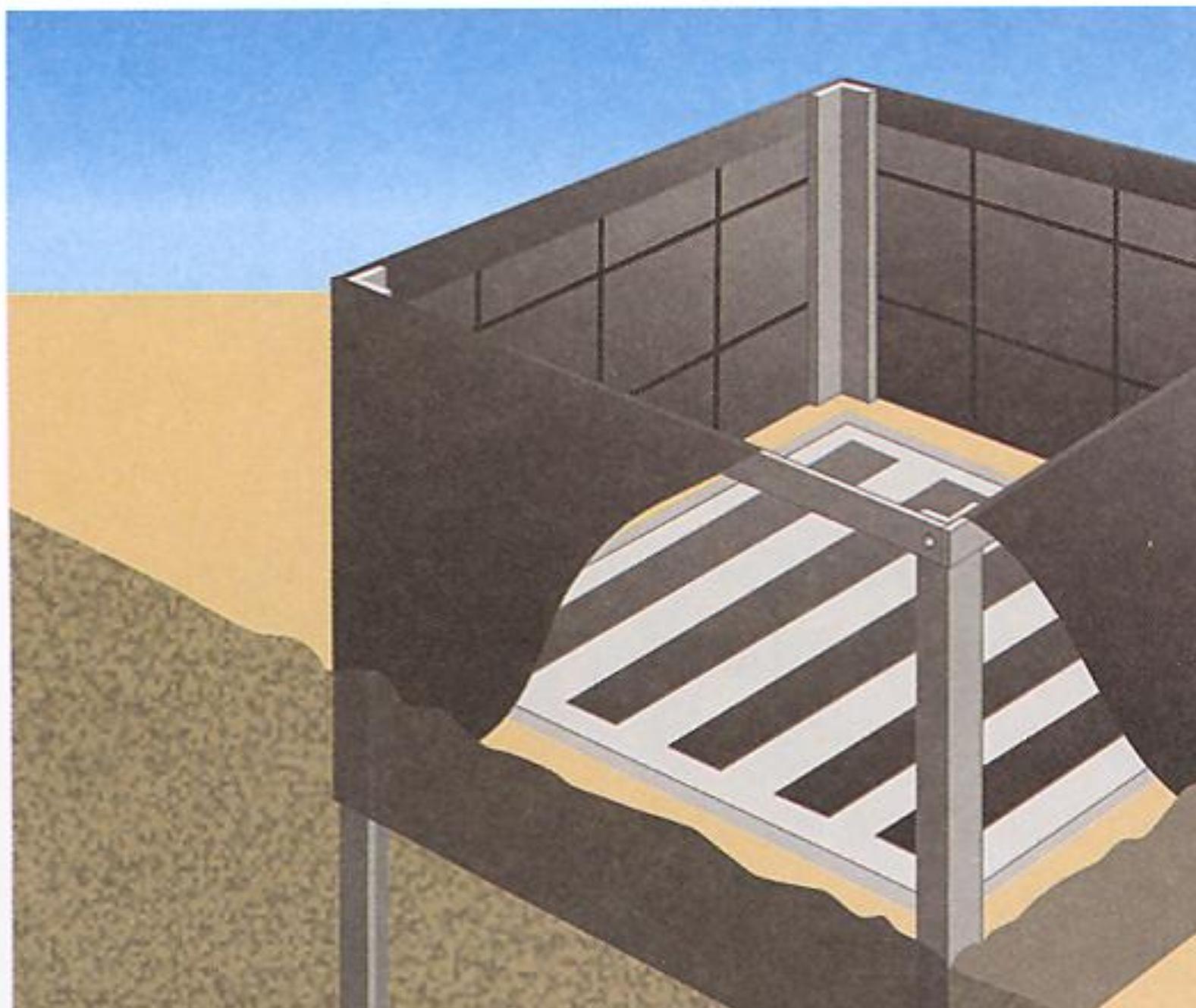
Minnesota Pollution Control Agency

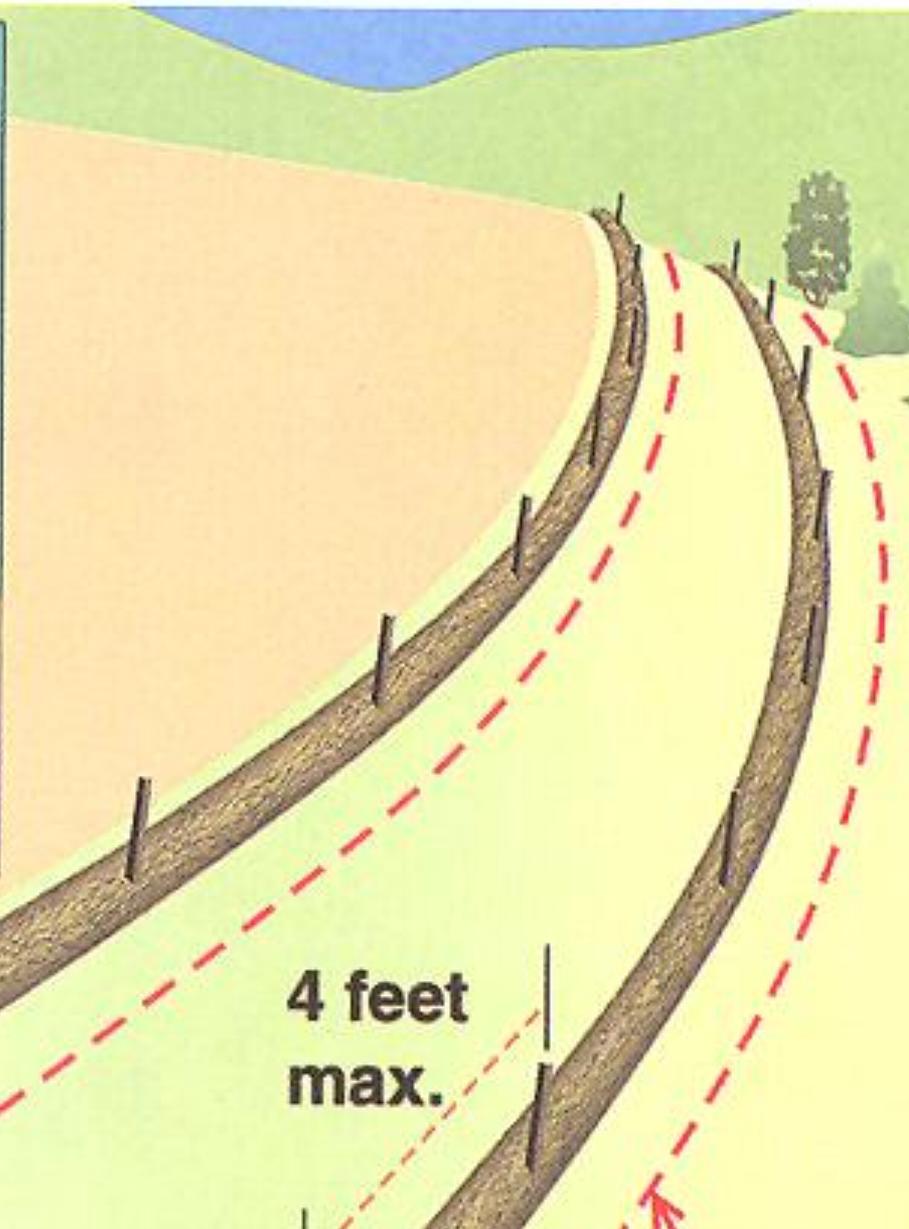
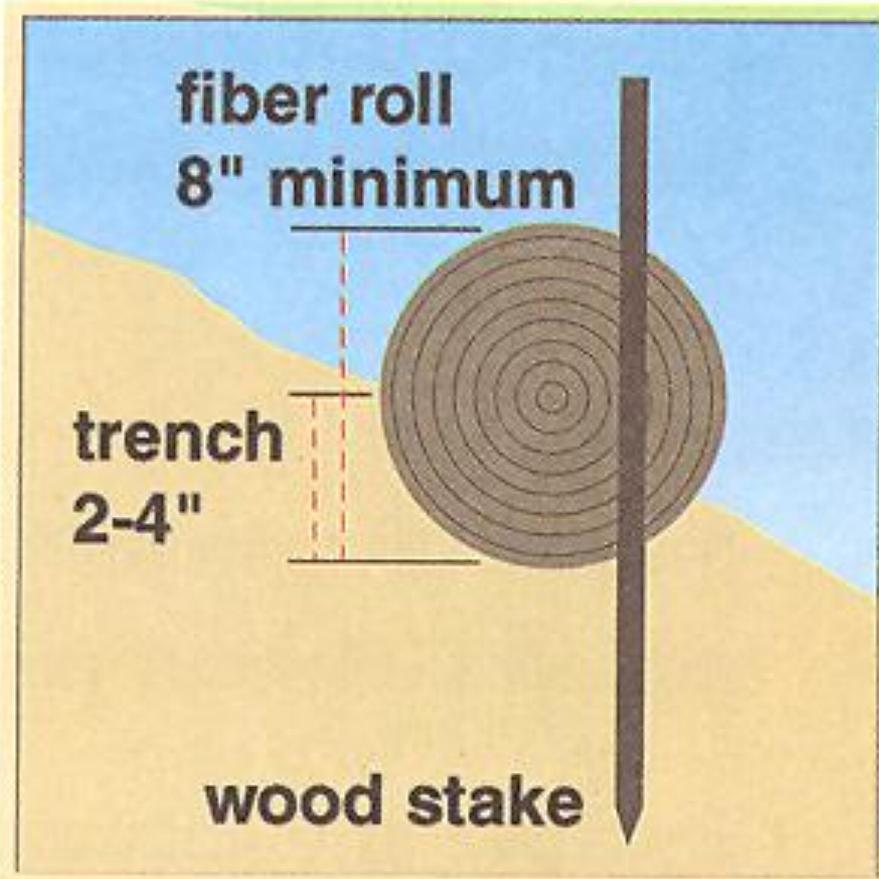
August 2008

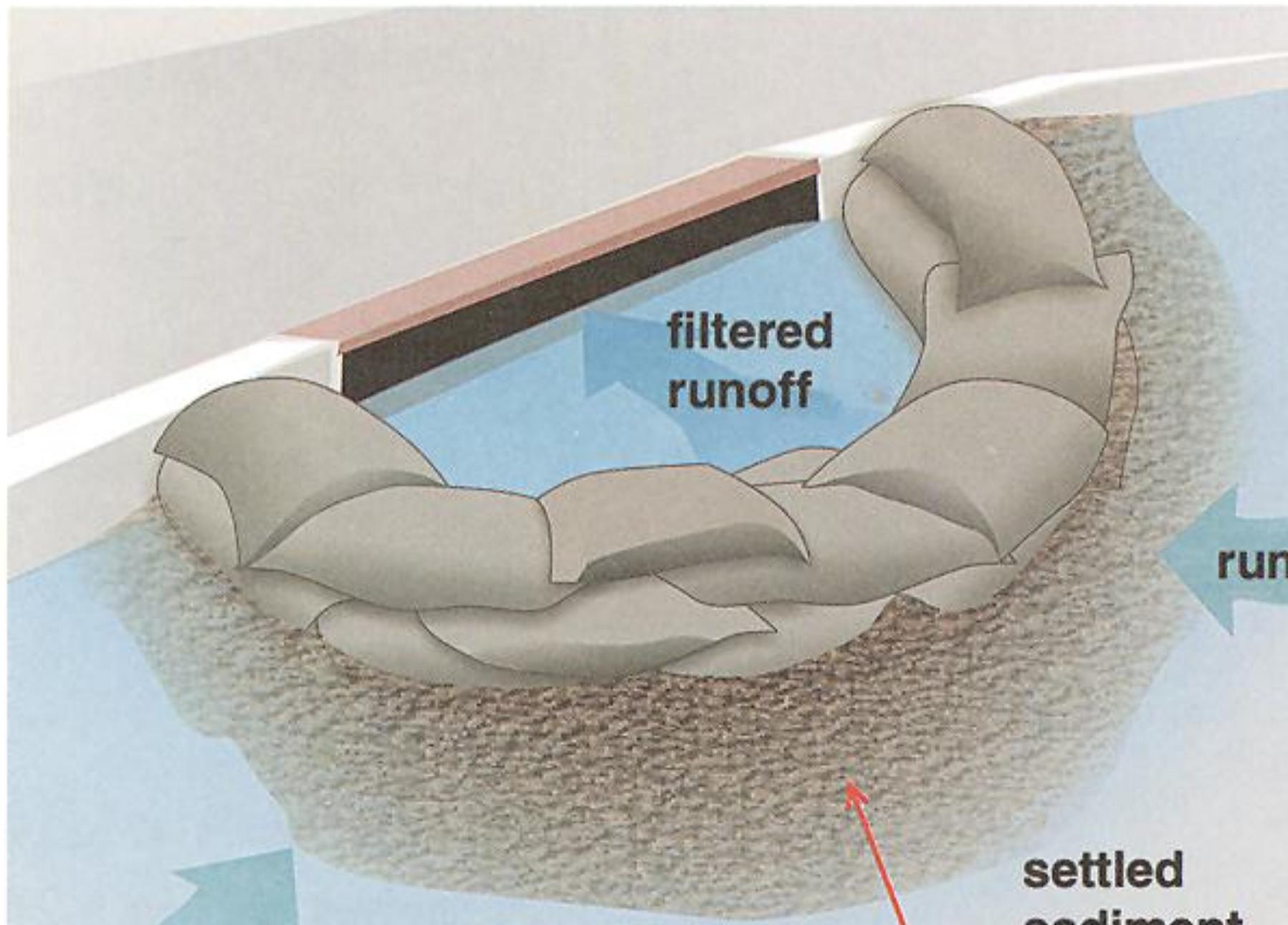
wq-strm2-09



**direction  
of flow**







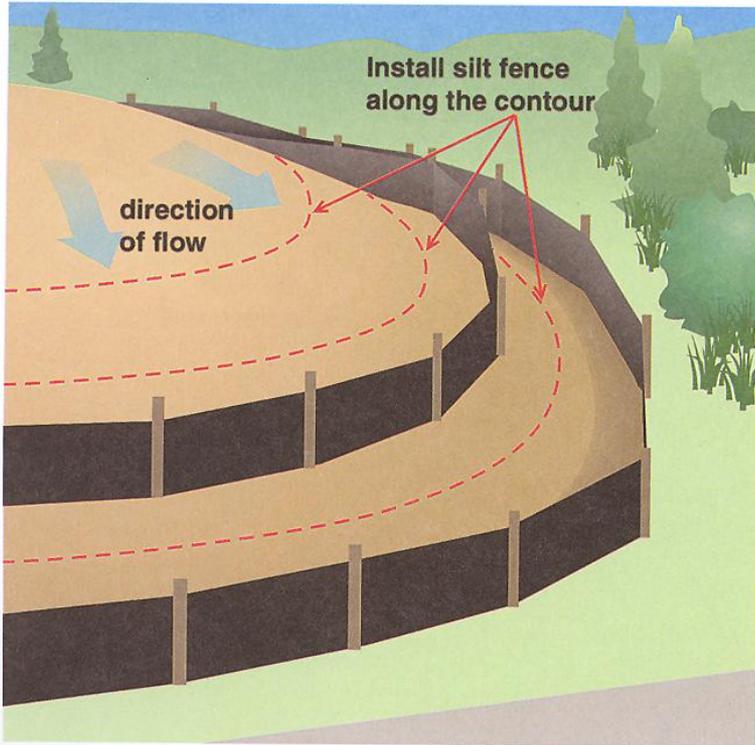


Figure 5. Illustration of silt fences installed along the

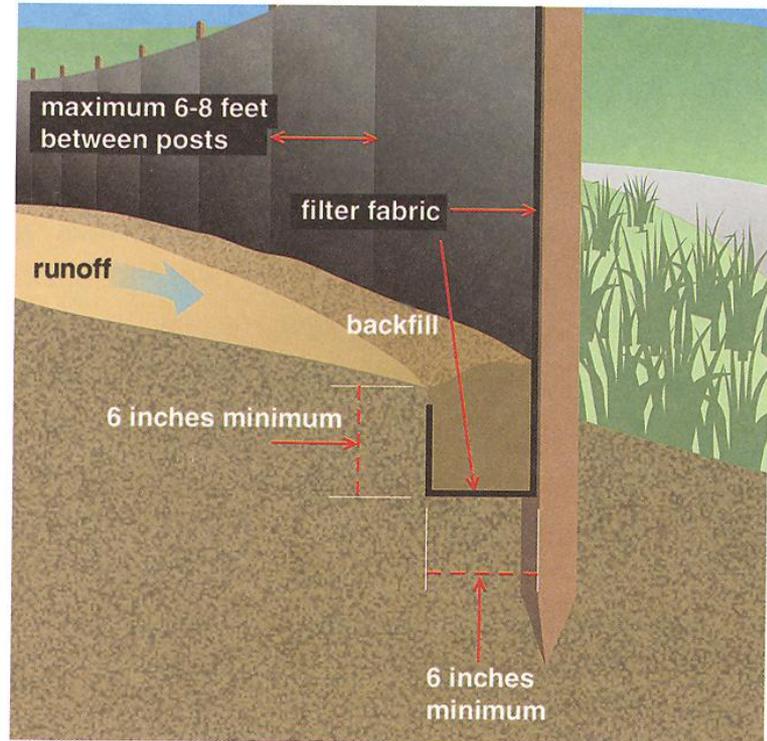
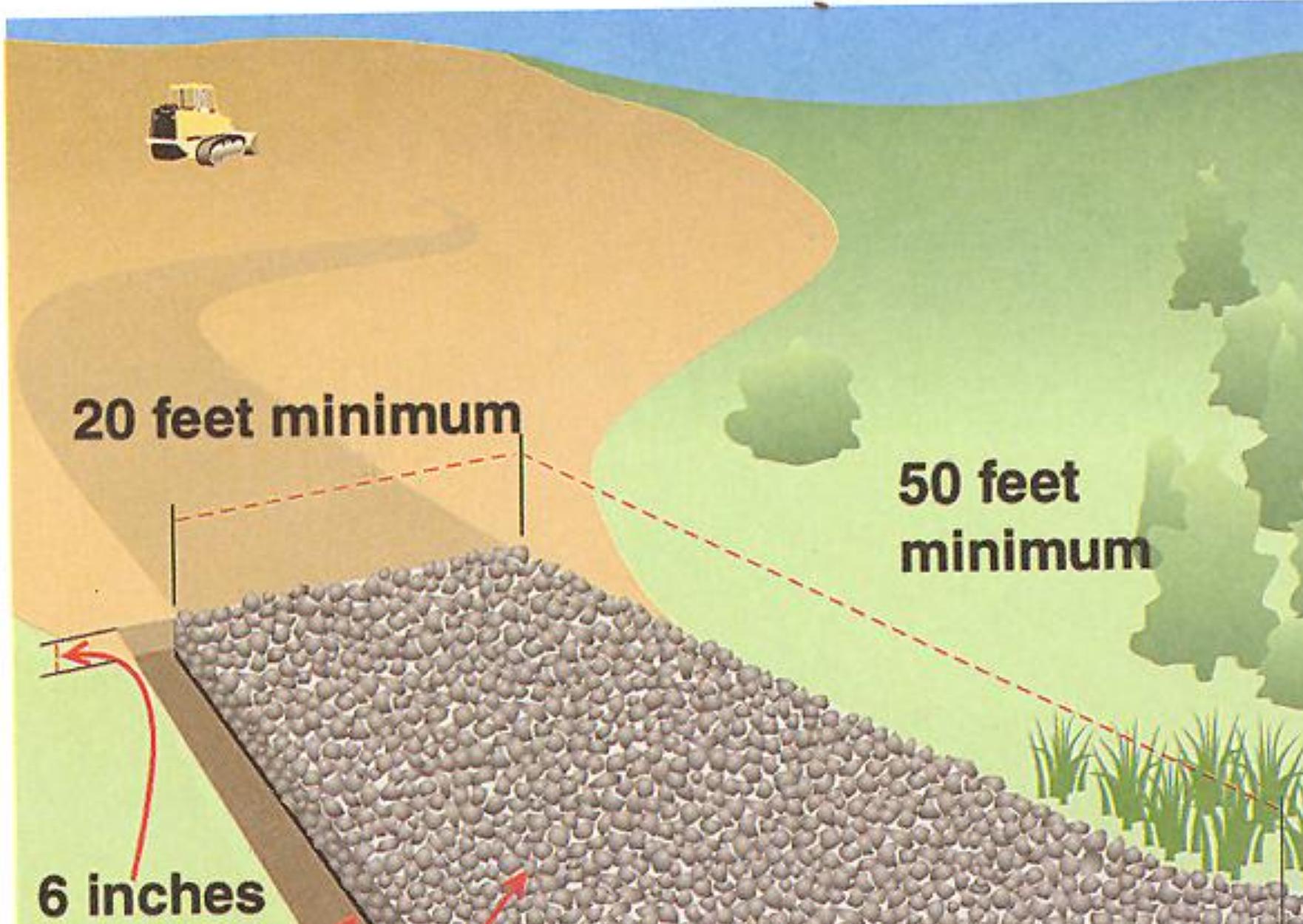


Figure 6. Detail of silt fence installation.

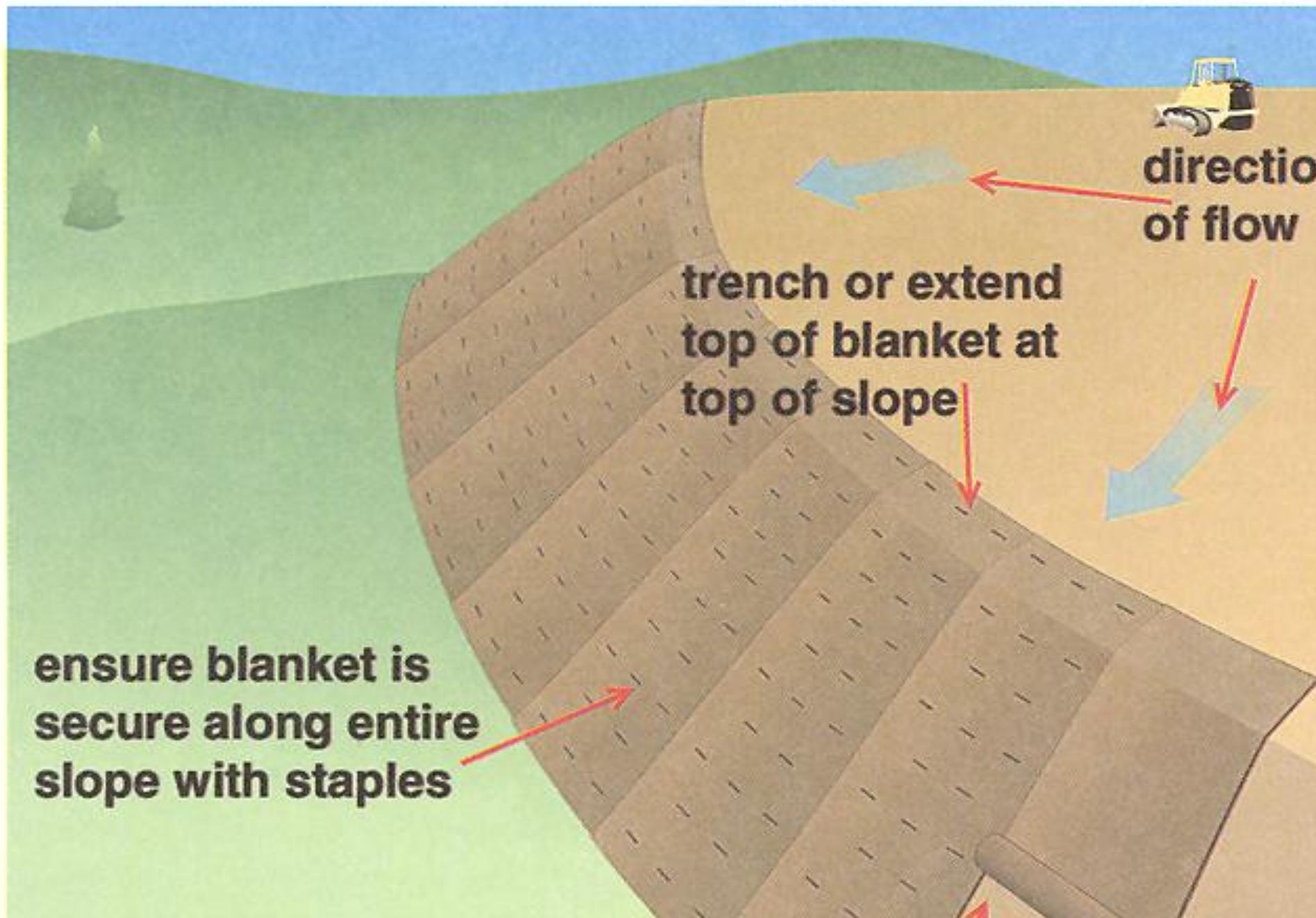
and must not be discharged into...



**20 feet minimum**

**50 feet minimum**

**6 inches**

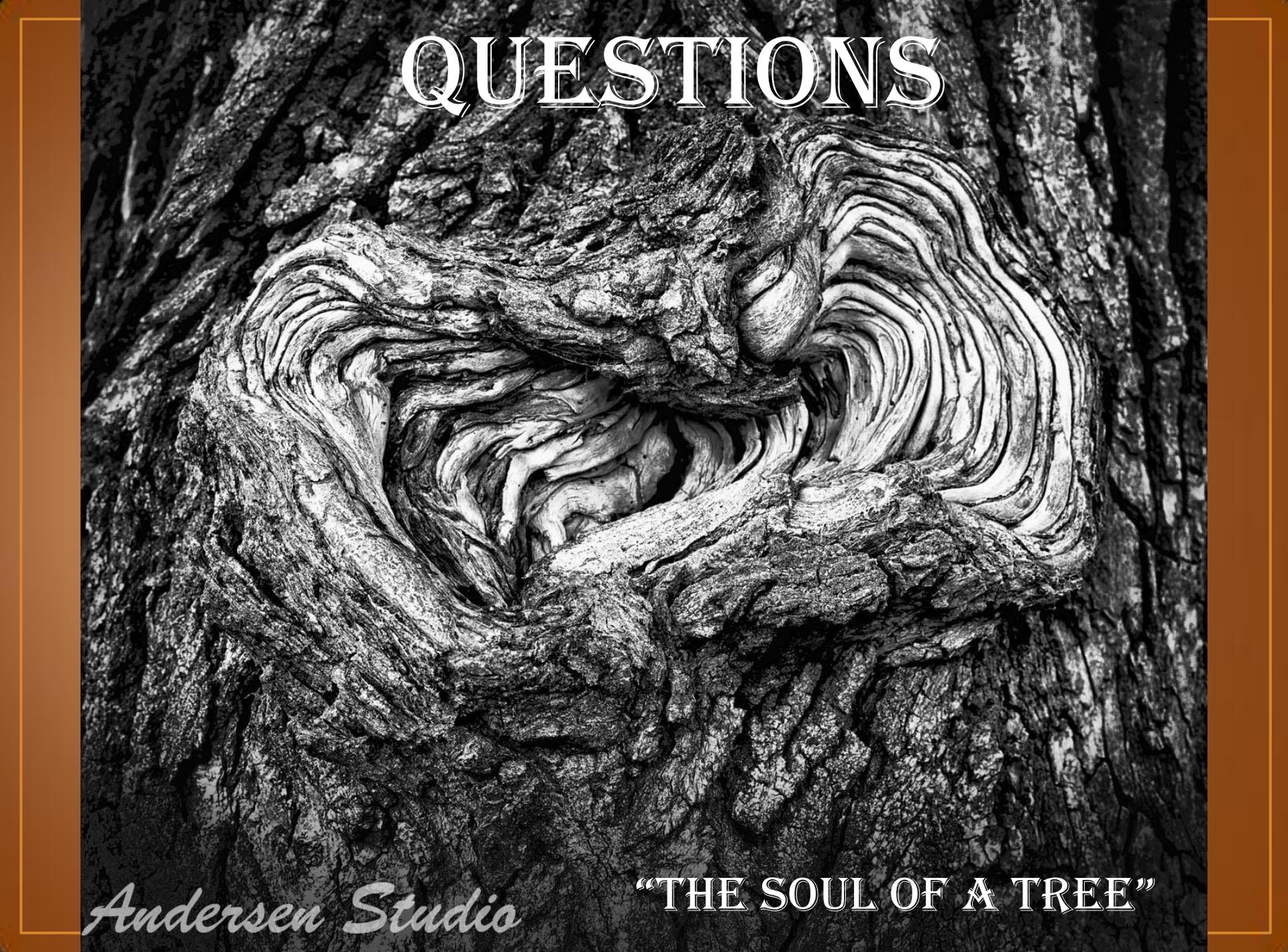


**direction  
of flow**

**trench or extend  
top of blanket at  
top of slope**

**ensure blanket is  
secure along entire  
slope with staples**

# QUESTIONS



*Andersen Studio*

“THE SOUL OF A TREE”