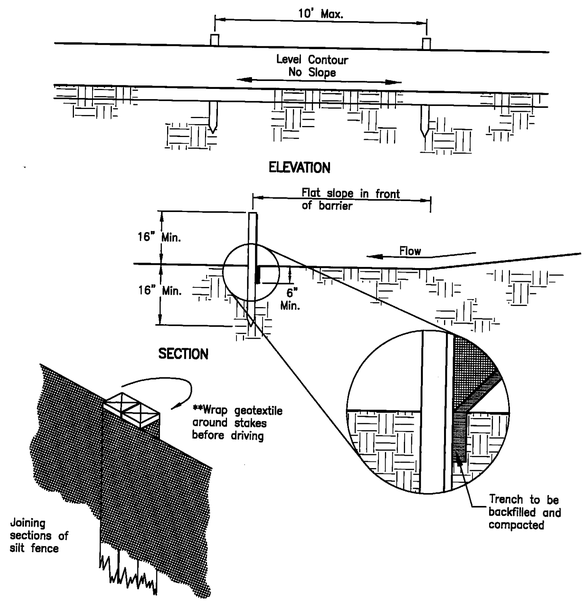
Silt Fence (SF)

Description

Silt fence is a sediment–trapping practice utilizing a geotextile fence, topography and sometimes vegetation to cause sediment deposition. Silt fence reduces runoff's ability to transport sediment by ponding runoff and dissipating small rills or concentrated flow into uniform sheet flow. Silt fence is used to prevent sediment–laden sheet runoff from entering into downstream creeks and sewer systems.

Specifications for Silt Fence



1. Silt fence shall be constructed before upslope land disturbance begins.
2. All silt fence shall be placed as close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions that may carry concentrated flows to the silt fence are dissipated along its length.
3. Ends of the silt fence should be brought upslope slightly so that water ponded by the silt fence will be prevented from flowing around the ends.
4. Silt fence shall be placed on the flattest area available.
5. Where possible, vegetation shall be preserved for 5 feet (or as much as possible) upslope from the silt fence. If vegetation is removed, it shall be reestablished within 7 days from the installation of the silt fence.
6. The height of the silt fence shall be a minimum of 16 inches above the original ground surface.
7. The silt fence shall be placed in an excavated or sliced trench cut a minimum of 6 inches deep. The trench shall be made with a trencher, cable laying machine, slicing machine, or other suitable device that will ensure an adequate uniform trench depth.
8. The silt fence shall be placed with the stakes on the downslope side of the geotextile. A minimum of 8 inches of geotextile must be below the ground surface. Excess material shall lay on the bottom of the 6–inch deep trench. The trench shall be backfilled and compacted on both sides of the fabric.
9. Seams between sections of silt fence shall be spliced together only at a support post with a minimum 6–in. overlap prior to driving into ground, (see detail).
10. Maintenance – Silt fence shall allow runoff to pass only as diffuse flow through the geotextile. If runoff overtops the silt fence, flows under the fabric or around the fence ends, or in any other way allows a concentrated flow discharge, one of the following shall be preformed, as appropriate: 1) the layout of the silt fence shall be changed, 2) accumulated sediment shall be removed, or 3) other practices shall be installed.
    - Sediment deposits shall be routinely removed when the deposit reaches approximately one–half the height of the silt fence.
    - Silt fences shall be inspected after each rainfall and at least daily during prolonged rainfall. The location of the existing silt fence shall be reviewed daily to ensure its proper location and effectiveness. If damaged, the silt fence shall be repaired immediately.

Criteria for Silt Fence Materials

1. Fence post – The length shall be a minimum of 32 inches. Wood post will be 2–by–2–in. nominal dimensioned hardwood of sound quality. They shall be free of knots, splits, and other visible imperfections, that will weaken the posts. The maximum spacing between posts shall be 10 ft. Posts shall be driven a minimum 16 inches into the ground, where possible. If not possible, the posts shall be adequately secured to prevent overturning of the fence due to sediment/water loading.
2. Silt fence fabric – See chart below.

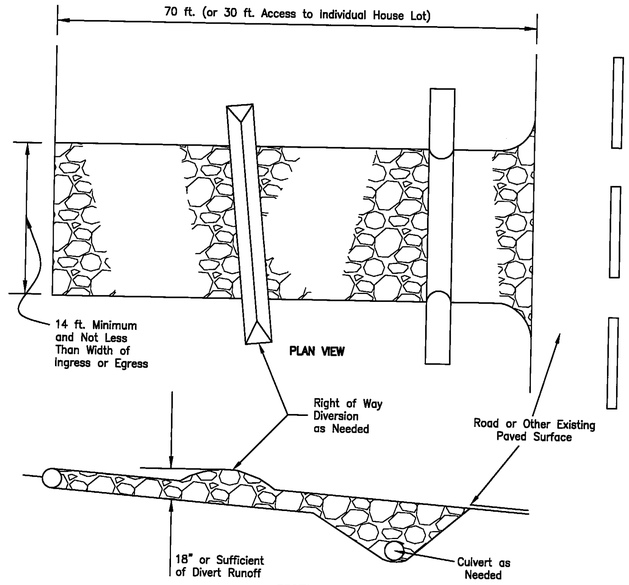
Fabric Properties	Values	Test Method
Minimum Tensile Strength	120 lbs (535 N)	ASTM D4632
Maximum Elongation at 60 lbs	50%	ASTM D4632
Minimum Puncture Strength	50 lbs (220 N)	ASTM D4833
Minimum Tear Strength	40 lbs (180 N)	ASTM D4533
Apparent Opening Size	≤ 0.84 mm	ASTM D4751
Minimum Permittivity	1X10–2 sec.–1	ASTM D4491
UV Exposure Strength Retention	70%	ASTM D4355

Construction Entrance (CE)

Description

A construction entrance is a stabilized pad of stone underlain with a geotextile and is used to reduce the amount of mud tracked off–site with construction traffic. Located at points of ingress/egress, the practice is used to reduce the amount of mud tracked off–site with construction traffic.

Specifications for Construction Entrance



1. Stone Size – ODOT # 2 (1.5–2.5 inch) stone shall be used, or recycled concrete equivalent.
2. Length – The Construction entrance shall be as long as required to stabilize high traffic areas but not less than 70 ft. (exception: apply 30 ft. minimum to single residence lots).
3. Thickness – The stone layer shall be at least 6 inches thick for light duty entrances or at least 10 inches for heavy duty use.
4. Width – The entrance shall be at least 14 feet wide, but not less than the full width at points where ingress or egress occurs.
5. Geotextile – A geotextile shall be laid over the entire area prior to placing stone. It shall be composed of strong rot–proof polymeric fibers and meet the following specifications:

Geotextile Specifications for Construction Entrances	
Minimum Tensile Strength	200 lbs.
Minimum Puncture Strength	80 psi.
Minimum Tear Strength	50 lbs.
Minimum Burst Strength	320 psi.
Minimum Elongation	20%
Equivalent Opening Size	EOS<0.6mm.
Permittivity	1x10–3 cm/sec.

6. Timing – The construction entrance shall be installed as soon as is practicable before major grading activities.
7. Culvert – A pipe or culvert shall be constructed under the entrance if needed to prevent surface water from flowing across the entrance or to prevent runoff from being directed out onto paved surfaces.
8. Water Bar – A water bar shall be constructed as part of the construction entrance if needed to prevent surface runoff from flowing the length of the construction entrance and out onto paved surfaces.
9. Maintenance – Top dressing of additional stone shall be applied as conditions demand. Mud spilled, dropped, washed or tracked onto public roads, or any surface where runoff is not checked by sediment controls, shall be removed immediately. Removal shall be accomplished by scraping or sweeping.
10. Construction entrances shall not be relied upon to remove mud from vehicles and prevent off–site tracking. Vehicles that enter and leave the construction–site shall be restricted from muddy areas.
11. Removal – The entrance shall remain in place until the disturbed area is stabilized or replaced with a permanent roadway or entrance.

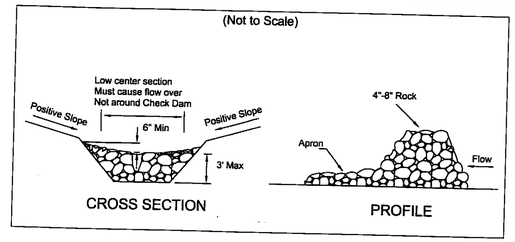
CHECK DAM (CD)

Description

Check dams are small rock dams construed in swales, grassed waterways or diversions. They reduce the velocity of concentrated flows, thereby reducing erosion within the swale or waterway. While this practice often traps some sediment, its trapping efficiency is extremely poor, thus, it should not be used as a sediment trapping practice.

Specifications for

Rock Check Dam



1. The check dam shall be constructed of 4–8 inch diameter stone, placed so that it completely covers the width of the channel. ODOT Type D stone is acceptable, but should be underlain with a gravel filter consisting of ODOT No. 3 or 4 or suitable filter fabric.
2. Maximum height of check dam shall not exceed 3.0 feet.
3. The midpoint of the rock check dam shall be a minimum of 6 inches lower than the sides in order to direct across the center and away from the channel sides.
4. The base of the check dam shall be entrenched approximately 6 inches.
5. Spacing of check dams shall be in a manner such that the toe of the upstream dam is at the same elevation as the top of the downstream dam.
6. A Splash Apron shall be constructed where check dams are expected to be in use for an extended period of time, a stone apron shall be constructed immediately downstream of the check dam to prevent flows from undercutting the structure. The apron should be 6 in. thick and its length two times the height of the dam.
7. Stone placement shall be performed either by hand or mechanically as long as the center of check dam is lower than the sides and extends across entire channel.
8. Side slopes shall be a minimum of 2:1.

JOB NO 12269F	SCALE NO SCALE
DRAWN BY MJD	CHK'D BY CJO
DWG NAME 12269F-ds3p	DATE SEPTEMBER, 2014

HILLSIDE ESTATES - PHASE 4

STORMWATER POLLUTION PREVENTION DETAILS

TOWNSHIP OF COPLEY, COUNTY OF SUMMIT, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neff-assoc.com

REV NO	DATE	DESCRIPTION	BY
1	09/15/14	ORIGINAL SUBMITTAL	CJO

SHEET NO. C2.6