

Specifications for Open Channels and Filter Strips

Material Specifications

The recommended construction materials for open channels and filter strips are detailed in Table G.3.

Dry Swales

Roto-till soil/gravel interface approximately 6" to avoid a sharp soil/gravel interface.

Permeable soil mixture (20" to 30" deep) should meet the bioretention planting soil specifications.

Check dams, if required, shall be placed as specified.

System to have 6" of freeboard, minimum.

Side slopes to be 3:1 minimum; (4:1 or greater preferred).

No gravel or perforated pipe is to be placed under driveways.

Bottom of facility to be above the seasonably high water table.

Seed with flood/drought resistant grasses; see your local NRCS Standards and Specifications guidance.

Longitudinal slope to be 1 to 2%, maximum [up to 5% with check dams].

Bottom width to be 8'= maximum to avoid braiding; larger widths may be used if proper berming is supplied.
Width to be 2'= minimum.

Wet Swales

Follow above information for dry swales, with the following exceptions: the seasonally high water table may inundate the swale; but not above the design bottom of the channel [NOTE: if the water table is stable within the channel; the WQv storage may start at this point]

Excavate into undisturbed soils; do not use an underdrain system.

Filter Strips

Construct pea gravel diaphragms 12" wide, minimum, and 24" deep minimum.

Pervious berms to be a sand/gravel mix (35-60% sand, 30-55% silt, and 10-25% gravel). Berms to have overflow weirs with 6 inch minimum available head.

Slope range to be 2% minimum to 6% maximum.

Table C.3 Open Vegetated Swale and Filter Strip Materials Specifications

Parameter	Specification	Size	Notes
Dry swale soil	USCS; ML, SM, SC	n/a	soil with a higher percent organic content is preferred
Dry Swale sand	ASTM C-33 fine aggregate concrete sand	0.02" to 0.04"	
Check Dam (pressure treated)	AWPA Standard C6	6" by 6" or 8" by 8"	<i>do not</i> coat with creosote; embed at least 3" into side slopes
Check Dam (natural wood)	Black Locust, Red Mulberry, Cedars, Catalpa, White Oak, Chestnut Oak, Black Walnut	6" to 12" diameter; notch as necessary	<i>do not</i> use the following, as these species have a predisposition towards rot: Ash, Beech, Birch, Elm, Hackberry, hemlock, Hickories, Maples, Red and Black Oak, Pines, Poplar, Spruce, Sweetgum, Willow
Filter Strip sand/gravel pervious berm	sand: per dry swale sand gravel; AASHTO M-43 No. 57	sand: 0.02" to 0.04" gravel: 2" to 1"	mix with approximately 25% loan soil to support grass cover crop; see Bioretention planting soil notes for more detail.
pea gravel diaphragm and curtain drain	ASTM D 448	varies (No. 6) or (1/8" to 3/8")	use clean bank-run gravel
under drain gravel	AASHTO M-43 No. 67	0.25" to 0.75"	
under drain	ASTM D -1785 or AASHTO M-278	6" rigid Schedule 40 PVC	3/8" perf. @ 6" o.c.; 4 holes per row
Geotextile	See local DOT Standards and Specs	n/a	
rip rap	per local DOT criteria	size per New York State DOT requirements based on 10-year design flows	

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Master Specifications (MF04)

Division 31 - Earthwork

Section	Description
310000	Earthwork (Broadscope)
310000	Earthwork Mechanical And Electrical 6/1/09
310000	Earthwork Short Version
310101	Site Restoration
310140	Maintenance of Shoring And Under Pinning
311000	Site Clearing
312316	Rock Removal
312319	Dewatering
312513	Erosion and Sediment Control
313119	Vegetation Control
313223	Pressure Grouting Soil Stabilization
313510	Dry Boulder Headwall
313600	Gabions
313700	Riprap
315200	Cofferdams 10/29/07
316216	Steel Pipes
316333	Drilled Micropiles
317800	Horizontal Earth Boring And Pipe Jacking

Last Updated: 06/01/2009

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Name	Size	Type	Date Modified
310000EarthworkBroadscope.pdf	40 KB	Adobe Acrobat Docu...	3/19/2008 10:58 AM
310101SiteRestoration.pdf	23 KB	Adobe Acrobat Docu...	3/19/2008 10:59 AM
311000SiteClearing.pdf	13 KB	Adobe Acrobat Docu...	3/19/2008 10:59 AM
312513ErosionandSedimentControl.doc	22 KB	Microsoft Word Doc...	6/24/2009 3:01 PM
312513ErosionandSedimentControl.pdf	23 KB	Adobe Acrobat Docu...	3/19/2008 10:59 AM
313510DryBoulderHeadwall.pdf	11 KB	Adobe Acrobat Docu...	3/19/2008 10:59 AM
313700Riprap.pdf	12 KB	Adobe Acrobat Docu...	3/19/2008 10:59 AM
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