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## Unlined Filtration Rain Garden

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LID 1.05  
1 of 3  
Scale: NTS

## SEPERATION/FILTER ROCK SPECIFICATIONS

1. SEPERATION/FILTER ROCK SHALL BE WASHED ROCK.
2. THE COARSE SAND PORTION SHALL MEET HAVE THE FOLLOWING GRADATION:

US. STANDARD SIEVE SIZE	PERCENT PASSING
$\frac{3}{8}$ "	100
#4	54-82
#10	34-56
#40	9-17
#100	0-3

3. THE  $\frac{1}{2}$ "- $\frac{3}{8}$ " CRUSHED GRAVEL PORTION SHALL MEET THE FOLLOWING GRADATION (ASTM C-33):

US. STANDARD SIEVE SIZE	PERCENT PASSING
$\frac{1}{2}$ "	100
$\frac{3}{8}$ "	85-100
#4	10-30
#10	0-10
#8	0-10
#16	0-5

4. UNIFORMLY GRADED STORAGE ROCK SHALL MEET THE FOLLOWING GRADATION:

US. STANDARD SIEVE SIZE	PERCENT PASSING
$1\frac{1}{2}$ "	100
1"	95-100
$\frac{1}{2}$ "	25-60
#4	0-10
#8	0-5

5. UNIFORMLY GRADED STORAGE ROCK SHALL HAVE A MINIMUM VOID RATIO OF 30%.

## GEOTEXTILE FABRIC SPECIFICATIONS

NON WOVEN GEOTEXTILE (DRAINAGE FILTER FABRIC) SHALL CONFORM TO THE FOLLOWING:

1. MINIMUM FLOW RATE OF 95 GAL/MIN/FT<sup>2</sup> ASTM D-4491-85
2. GRAB TENSILE STRENGTH MIN 115 LB ASTM D-4632-86
3. BURST STRENGTH MIN 150 PSI ASTM D-3786-80A
4. PUNCTURE RESISTANCE MIN 45 LB ASTM D-4833-88
5. APPARENT OPENING SIZE 60-90 U.S. STANDARD SIEVE
6. NON-WOVEN GEOTEXTILE SHALL BE MIRAFI 160N, OR APPROVED EQUAL.

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LID 1.05  
3 of 3  
Scale: NTS

# FILTRATION RAIN GARDEN NOTES

## DESIGN NOTES:

1. PLANT WITH PLANTS PER LANDSCAPE ARCHITECT DWGS. NATIVE PLANTS ARE PREFERRED, BECAUSE NON-NATIVE AND INVASIVE SPECIES CAN MOVE DOWNSTREAM AND DAMAGE HABITAT. IF NON-NATIVES ARE CHOSEN, BE SURE THAT THEY WILL NOT DAMAGE DOWNSTREAM HABITAT.

## CONSTRUCTION NOTES:

2. BUILD AND VEGETATE RAIN GARDEN AS EARLY AS POSSIBLE TO ESTABLISH PLANTINGS BEFORE DIRECTING STORMWATER RUNOFF TO IT OR DIVERT STORMWATER AROUND FACILITY. PREFERABLY, THIS PERIOD WOULD LAST A MINIMUM OF 3 MONTHS.
3. INFILTRATION AREAS (THE AREA OF THE RAIN GARDEN AS DEFINED BY THE TOP ELEVATION OF THE FACILITY) SHALL BE FENCED OFF FROM THE FIRST DAY OF EARTH MOVING UNTIL PROJECT COMPLETION TO PREVENT COMPACTION OF THE SUBGRADE, DIRT TRACKING ONTO ANY LAYER OF THE FACILITY AND STOCKPILING OF CONSTRUCTION MATERIALS THAT MAY CLOG THE SURFACE.
4. DURING EXCAVATION OF NATIVE SOILS TO THE BOTTOM OF THE FACILITY, RAINFALL MAY CAUSE FINES TO CLOG THE SURFACE OF THE FACILITY. IF THE NATIVE SOIL HAS BEEN EXPOSED TO RAINFALL, HAND RAKE THE SURFACE TO A DEPTH OF 3" TO RESTORE INFILTRATION CAPACITY.
5. CALL THE CIVIL ENGINEER, [ENTER NAME HERE] AT [ENTER PHONE NUMBER HERE] 24 HOURS IN ADVANCE OF CONSTRUCTING THIS FACILITY SO VARIATIONS IN THE FIELD CAN BE IDENTIFIED BY CONSTRUCTION INSPECTION.
6. DURING AREA DRAIN INSTALLATION, DISTURB NATIVE SOILS AS LITTLE AS POSSIBLE.

## AMENDED PLANTING SOIL MIX SPECIFICATIONS

1. AMENDED PLANTING SOIL MIX SHALL HAVE THE FOLLOWING CHARACTERISTICS:
  - a. 60% LOAMY SAND AND 40% COMPOST.
  - b. ORGANIC CONTENT MATTER FROM 8-10% BY WEIGHT
  - c. CATION EXCHANGE CAPACITY (CEC) GREATER THAN OR EQUAL TO 5 MILLIEQUIVALENTS/100 GRAMS OF DRY SOIL
  - d. 2-5% MINERAL FINES CONTENT
  - e.
 

US STANDARD SIEVE SIZE	PERCENT PASSING
$\frac{3}{8}$ "	100
#4	95-100
#10	75-90
#40	25-40
#100	4-10
#200	2-5
  - f. MINIMUM LONG-TERM HYDRAULIC CONDUCTIVITY OF 1 INCH/HOUR PER ASTM D2434 AT 85% COMPACTION PER ASTM D 1557.
  - g. MAXIMUM IMMEDIATE HYDRAULIC CONDUCTIVITY OF 12 INCHES/HOUR.
2. AMENDED PLANTING SOIL MIX MAY BE CREATED BY TESTING ON-SITE NATIVE SOILS AND MIXING MATERIALS FROM OFF-SITE AS NEEDED TO ACHIEVE THE CHARACTERISTICS DESCRIBED IN NOTE 1 ABOVE.
3. AMENDED PLANTING SOIL MIX SHOULD BE UNIFORMLY MIXED WITH A SOIL MIXER.
4. PLACEMENT OF AMENDED PLANTING SOIL MIX SHALL OCCUR PER THE FOLLOWING GUIDELINES:
  - a. PLACE SOIL IN 12" LIFTS TO A DEPTH OF 24" TOTAL (AFTER COMPACTION) WITH MACHINERY ADJACENT STORMWATER QUALITY FACILITY.
  - b. DO NOT PLACE SOILS IF SATURATED.
  - c. COMPACT TO 85% COMPACTION WITH WATER LIFTS UNTIL SATURATED. DO NOT COMPACT WITH HEAVY MACHINERY OR WITH VIBRATORY COMPACTION. BOOT PACKING THE LIFTS IS ACCEPTABLE.

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2 of 3  
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