

2021 Stormwater Code and Manual Update (BMPs)

Photo by John Skelton



City of Seattle

SDCI Training

May, 2021

AGENDA

- OSM BMP Overview for the 2021 Stormwater Code and Manual Update

Visit the Stormwater Code Page for all the documents discussed in this presentation

[www.seattle.gov/sdci/codes/codes-we-enforce-\(a-z\)/stormwater-code](http://www.seattle.gov/sdci/codes/codes-we-enforce-(a-z)/stormwater-code)

OSM BMP OVERVIEW

Volume 3, Chapter 5, Sections 5.1 and 5.2

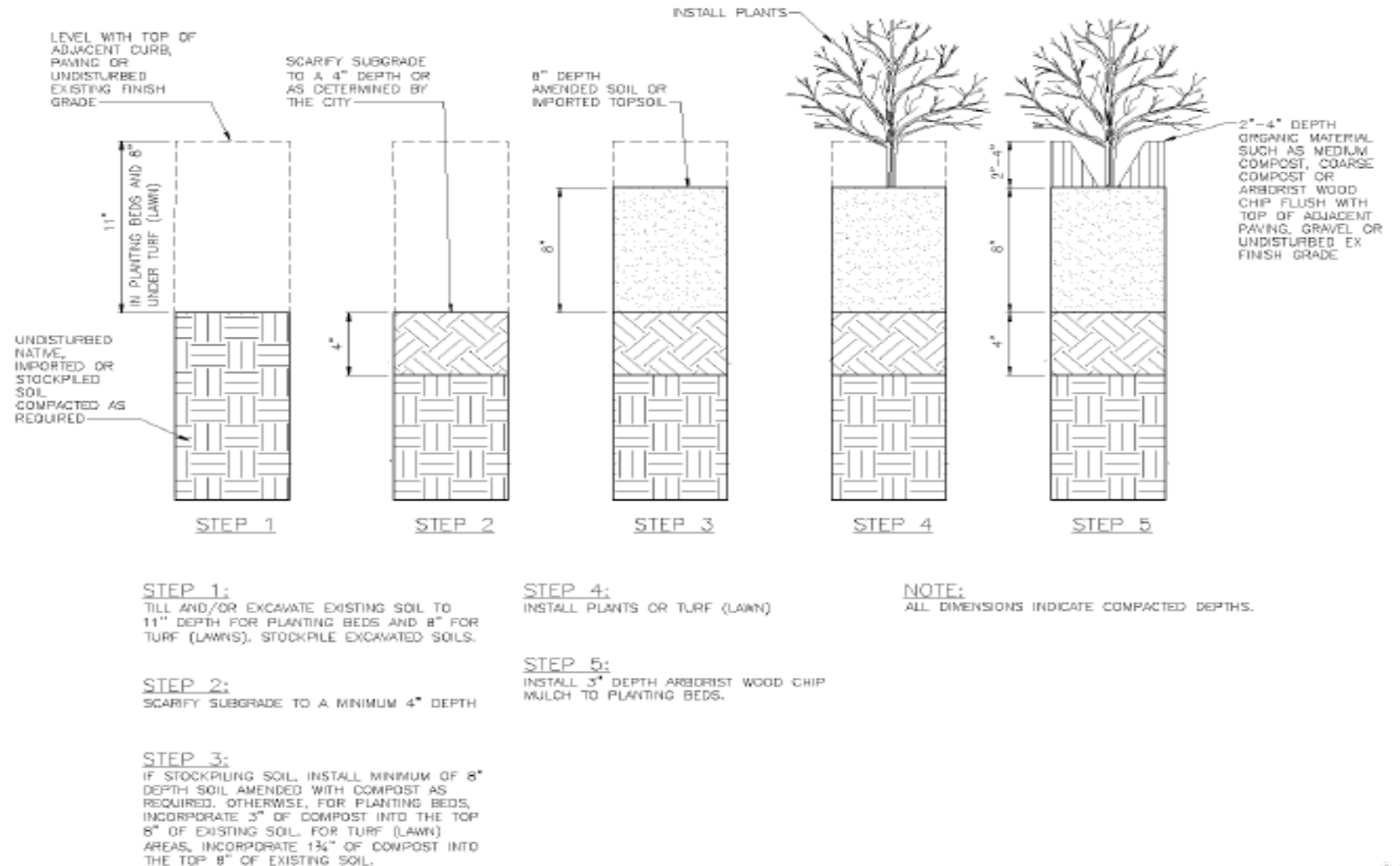
Updated BMPs (Chapter 5)	Setbacks	Design Criteria	Modeling Guidance	Sizing Factors	O&M	Figures
Soil Amendment BMP		X	X			X
Tree Planting and Retention	X	X			X	

X = change from 2016 Manual

OSM BMP OVERVIEW

Volume 3, Chapter 5 Section 5.1

- Soil Amendment BMP



OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.2

- Tree Planting and Retention



Table 5.2. Pre-sized [On-site Stormwater Management and Flow Control Credits](#) for Retained Trees.

Tree Type	Credit
Evergreen	20% of canopy area (minimum of 100 square feet/tree)
Deciduous	10% of canopy area (minimum of 50 square feet/tree)

Hard Surface Area Managed = Σ Canopy Area x Credit (%) / 100.

Table 5.3. Pre-sized [On-site Stormwater Management and Flow Control Credits](#) for Newly Planted Trees.

Tree Type	Credit
Evergreen	50 square feet/tree
Deciduous	20 square feet/tree

Hard Surface Area Managed = Σ Number of Trees x Credit (square feet/tree).

OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.3 – Dispersion BMPs

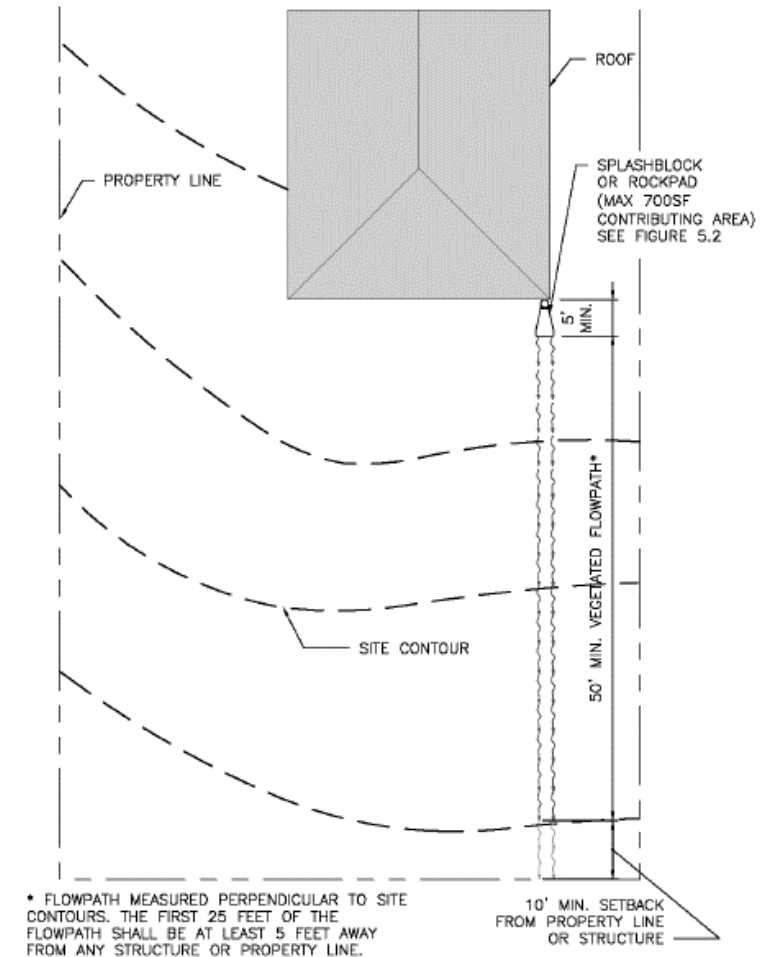
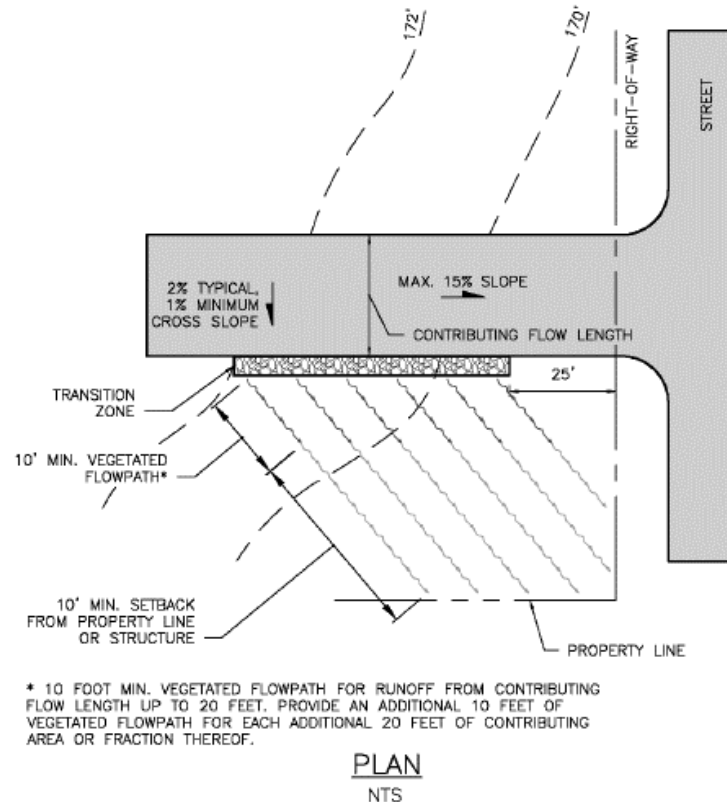
Updated BMPs (Chapter 5)	Setbacks	Design Criteria	Modeling Guidance	Sizing Factors	O&M	Figures
Dispersion BMPs		X	X	X		X
Sidewalk/Trail Compost-Amended Strip	X	X	X	X	X	X

X = change from 2016 Manual

OSM BMP OVERVIEW

Volume 3, Chapter 5, Sections 5.3.2 through 5.3.6

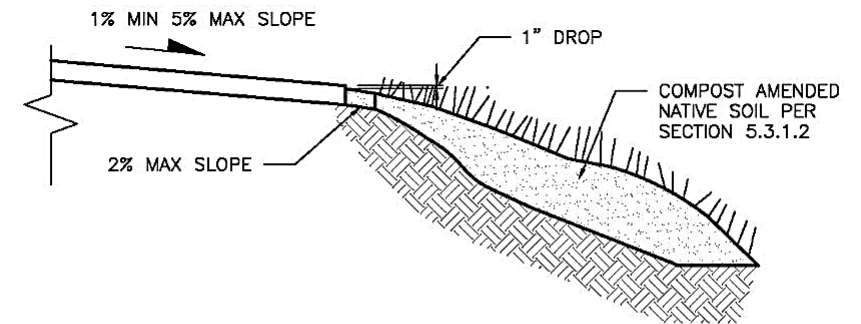
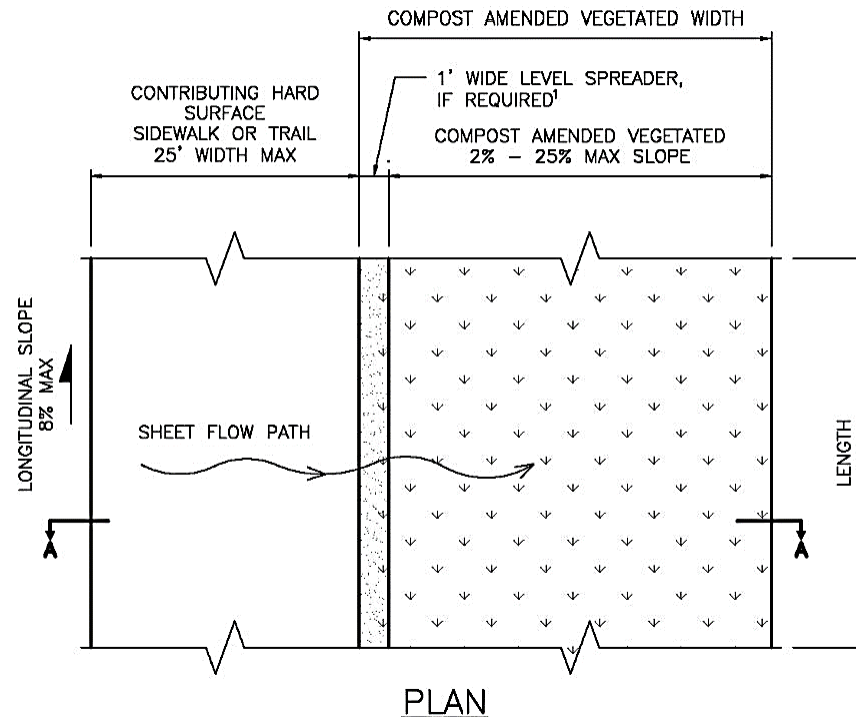
- Dispersion BMPs



OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.3.7

- Sidewalk/trail compost-amended strip



SECTION A-A

1. LEVEL SPREADER REQUIRED IF CONTRIBUTING HARD SURFACE WIDTH $>$ OR $=$ 10'. LEVEL SPREADER CAN BE COUNTED TOWARDS THE REQUIRED BMP WIDTH.

OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.4 – Infiltration BMPs

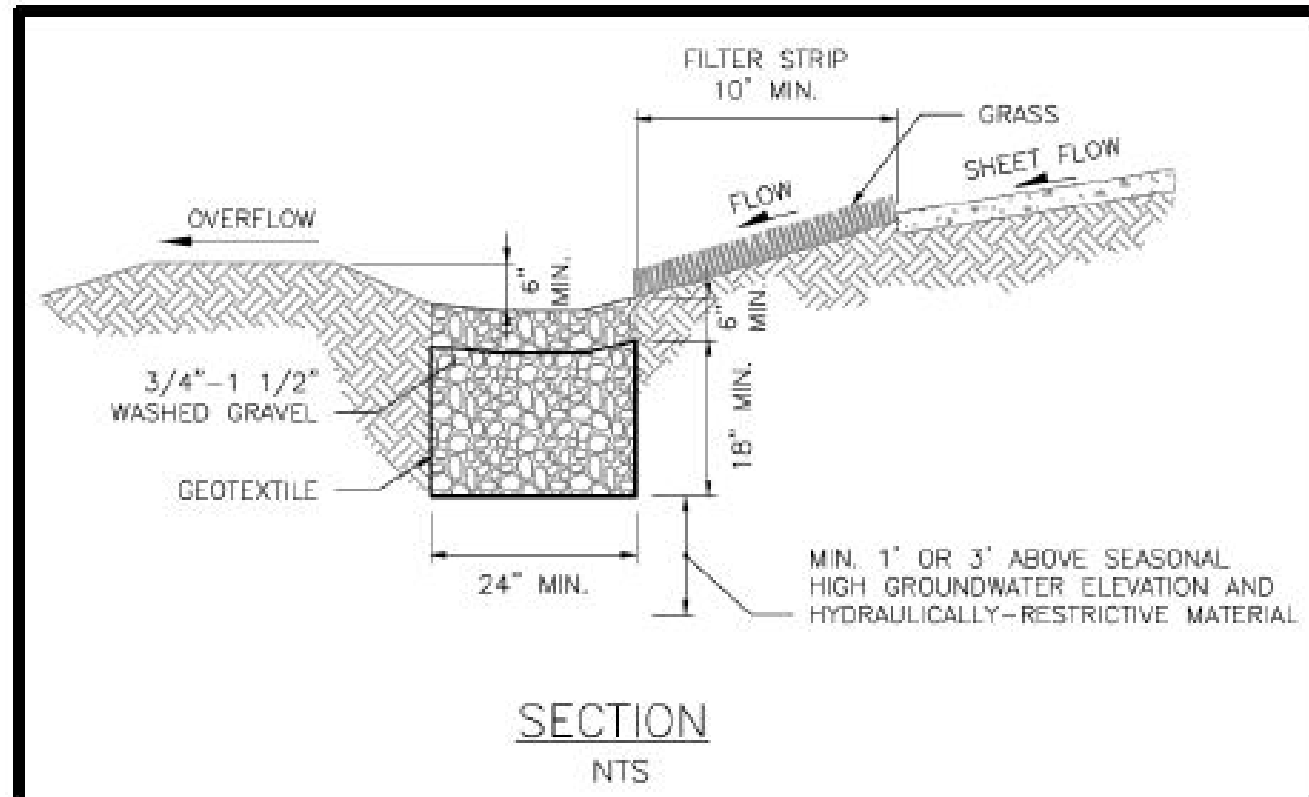
Updated BMPs (Chapter 5)	Setbacks	Design Criteria	Modeling Guidance	Sizing Factors	O&M	Figures
Infiltration Trenches		X	X			X
Drywells		X		X		X
Infiltrating Bioretention		X	X	X		X
Rain Gardens	X	X		X		
Permeable Pavement Facilities		X	X	X		X
Perforated Stub-Out Connections		X				X
Infiltration Basins						
Infiltration Chambers/ Vaults		X	X		X	X

X = change from 2016 Manual

OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.4.2

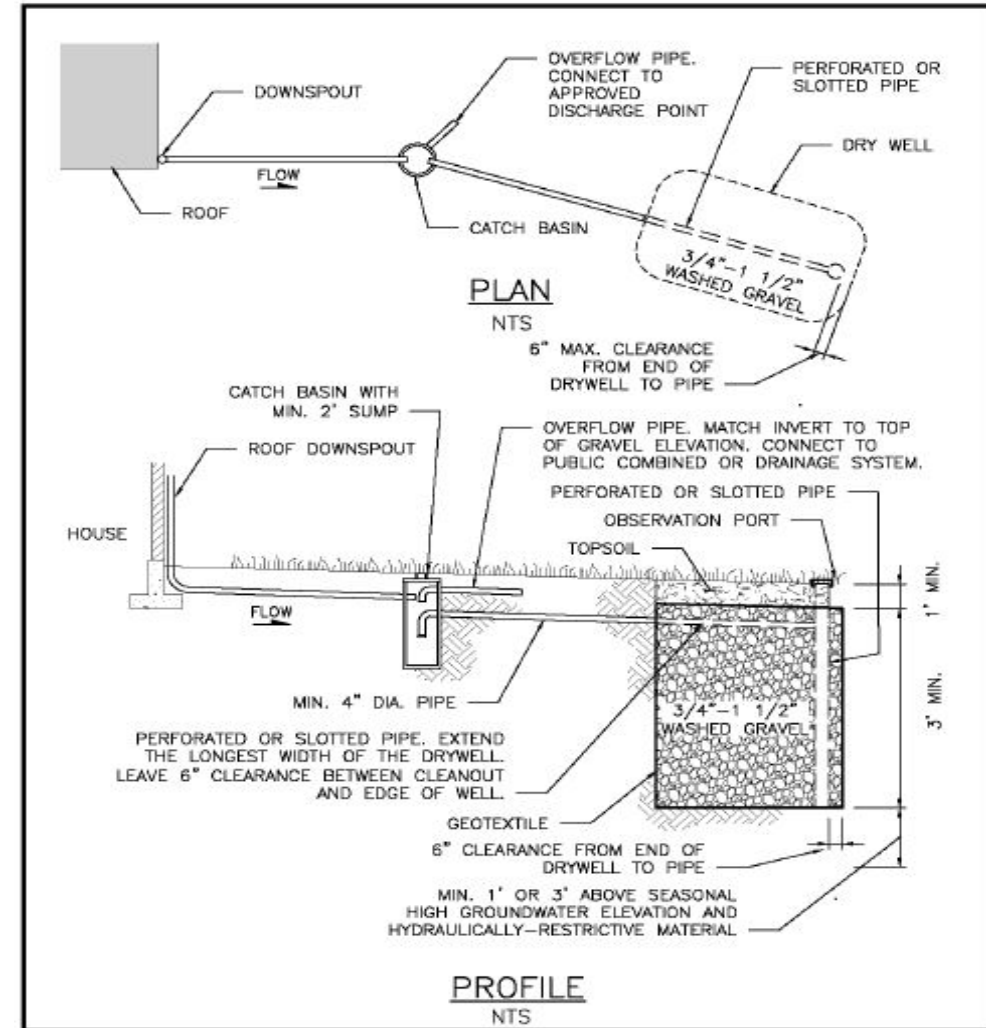
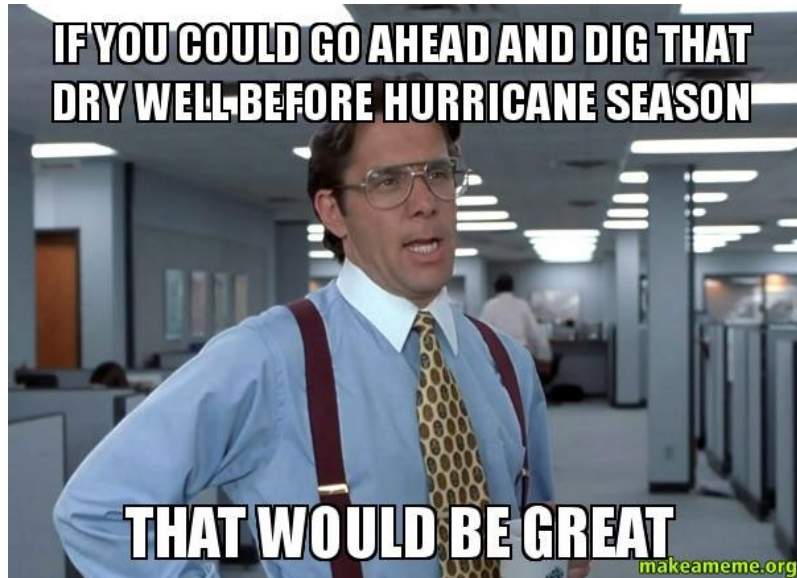
- Infiltration Trenches



OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.4.3

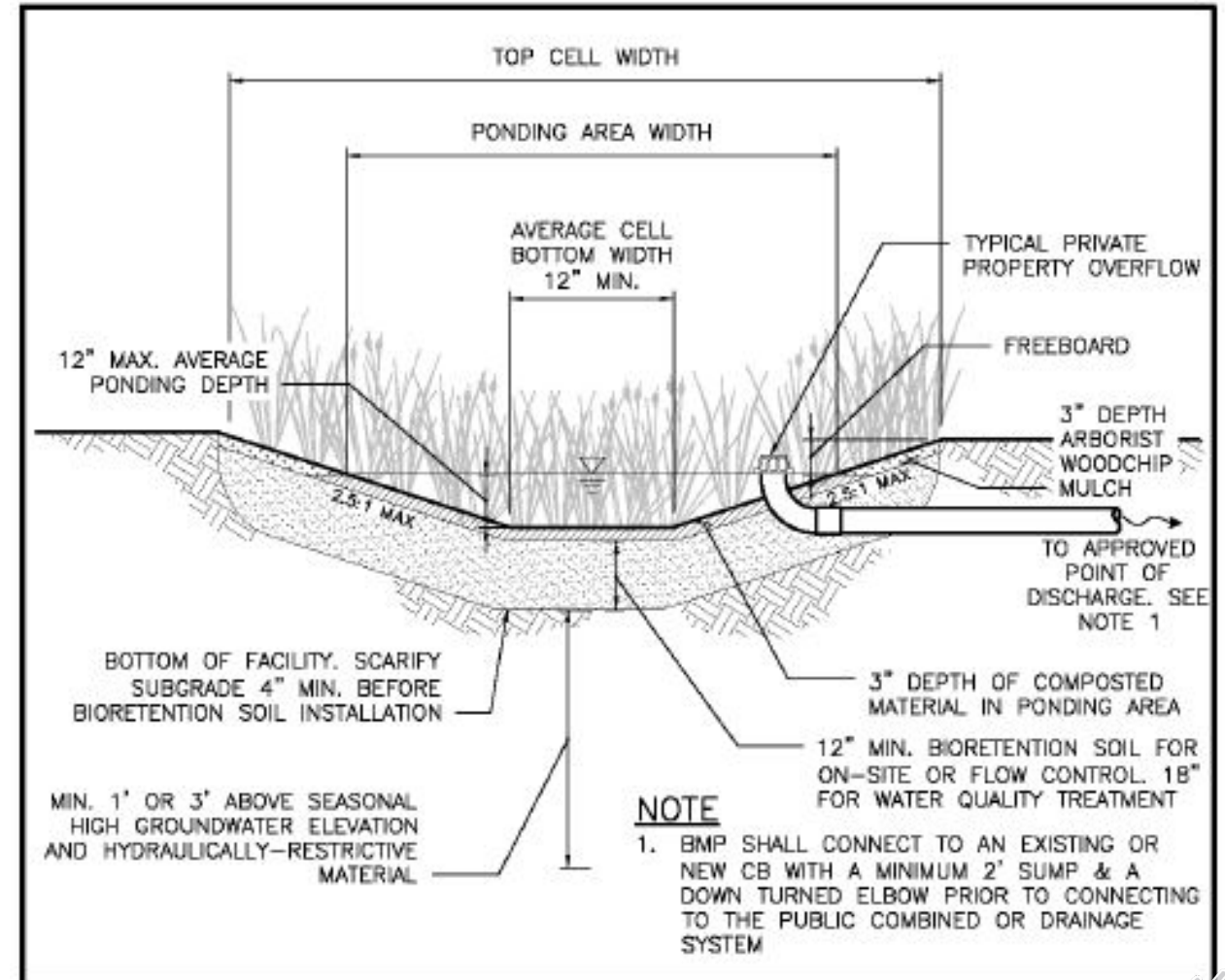
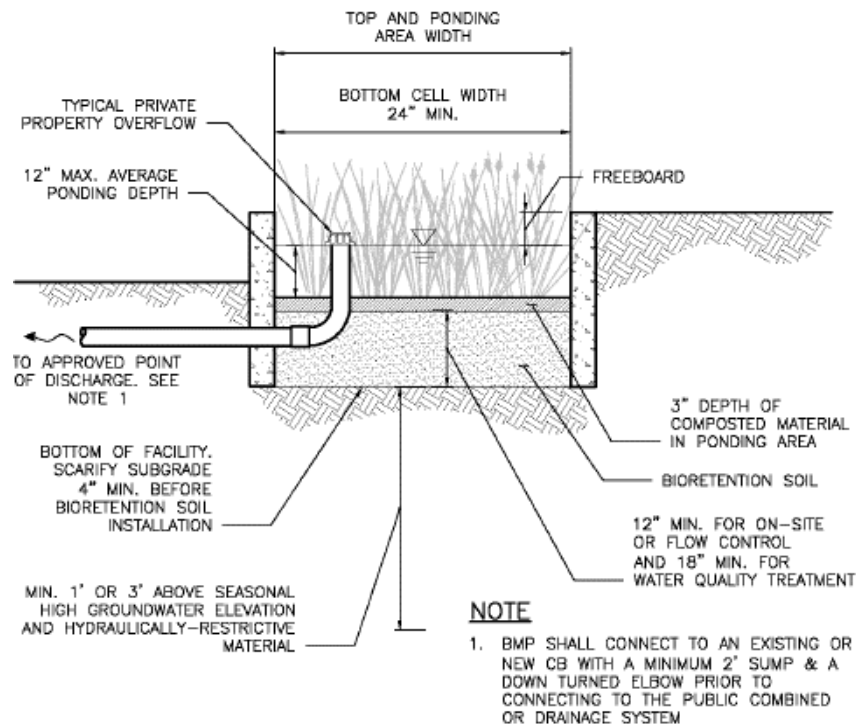
- Drywells



OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.4.4

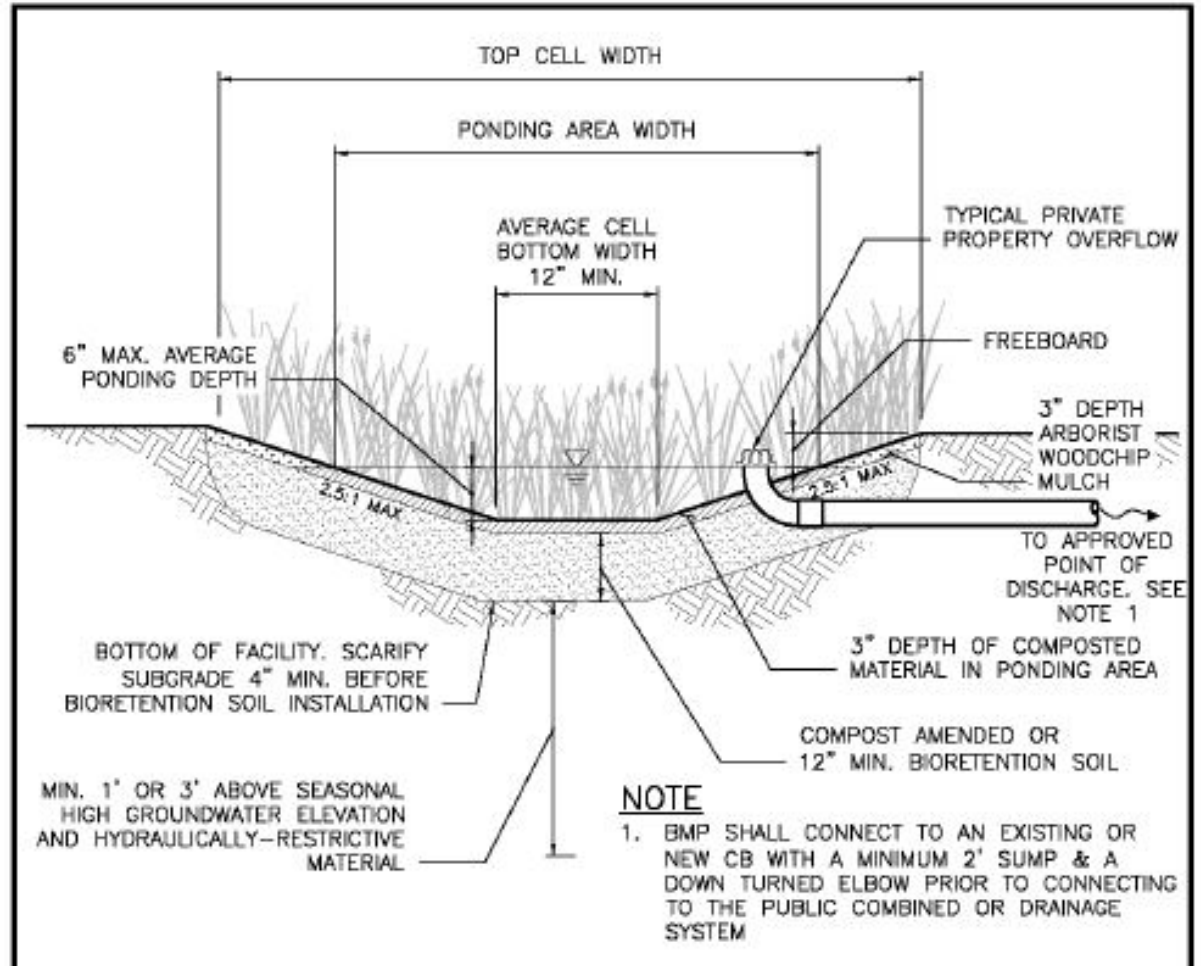
- Infiltrating Bioretention



OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.4.5

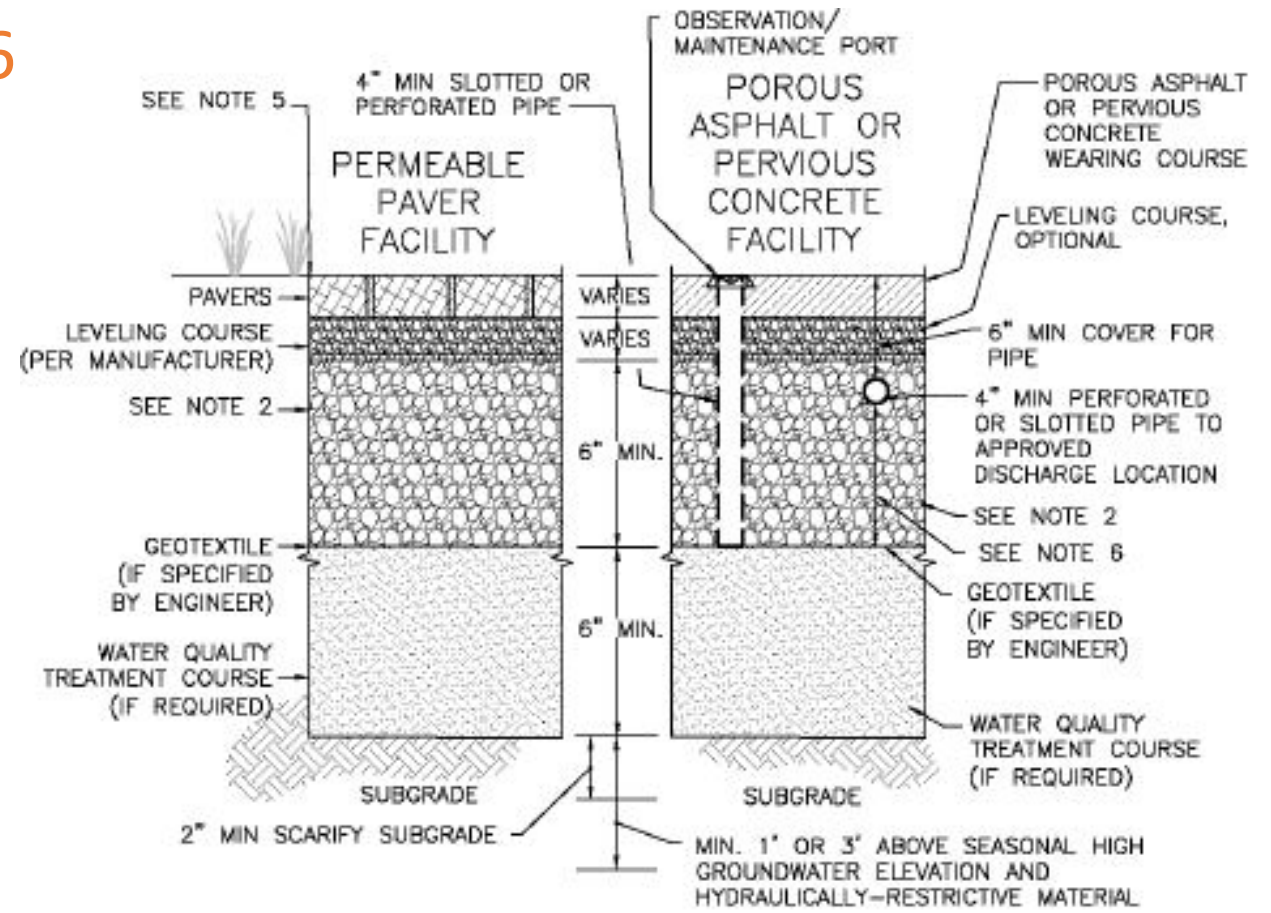
- Rain Gardens



OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.4.6

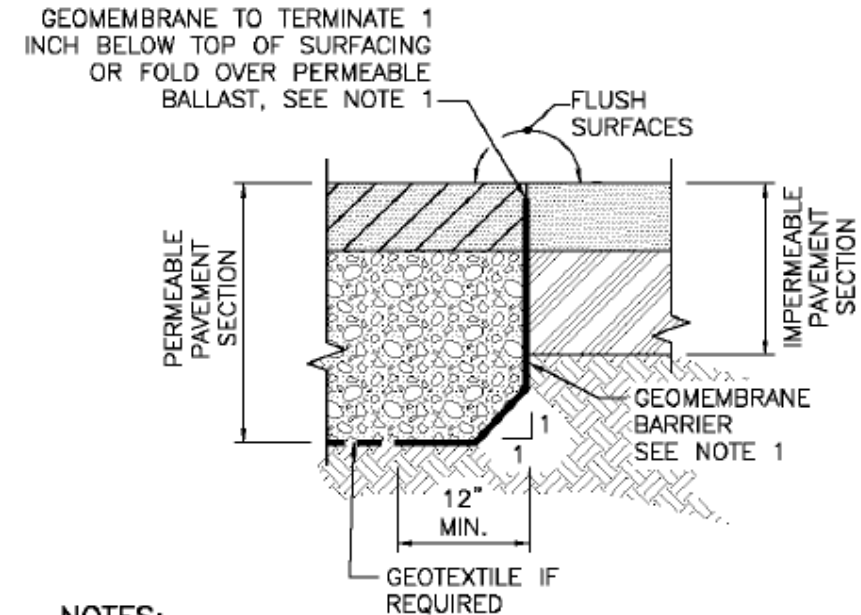
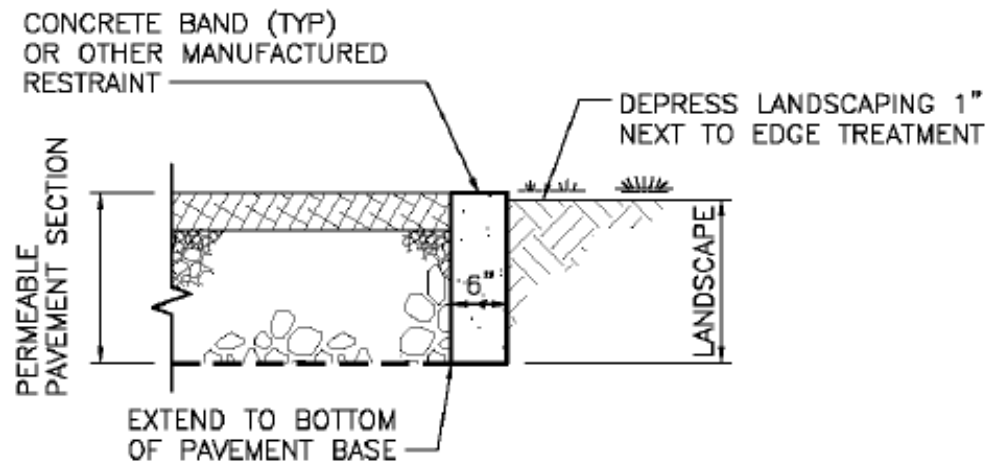
- Permeable Pavement Facilities



OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.4.6

- Permeable Pavement Facilities



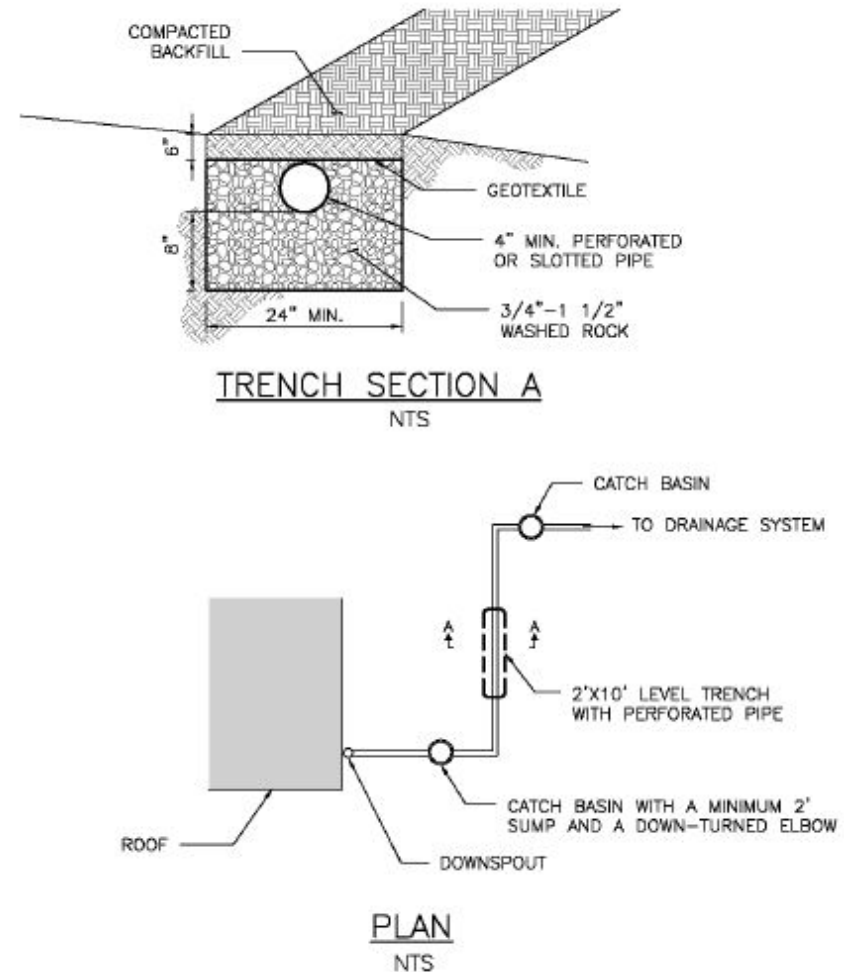
NOTES:

1. GEOMEMBRANE BARRIER SHALL PROVIDE AN IMPERMEABLE BARRIER BETWEEN STANDARD AND PERMEABLE SECTION. IT SHALL BE INSTALLED 1" BELOW FINISHED GRADE OF SURFACING, AS SHOWN. ALTERNATIVELY, THE LINER SHALL FOLD OVER THE PERMEABLE BALLAST A MINIMUM OF 6" OR FURTHER IF RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
2. GEOMEMBRANE BARRIER SEAMS SHALL OVERLAP AT LEAST 18" OR PER MANUFACTURER'S RECOMMENDATIONS. GEOMEMBRANE BARRIER SHALL EXTEND THE LINEAR LENGTH OF THE PERMEABLE SECTION WHEN ADJACENT TO STANDARD PAVEMENT.

OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.4.7

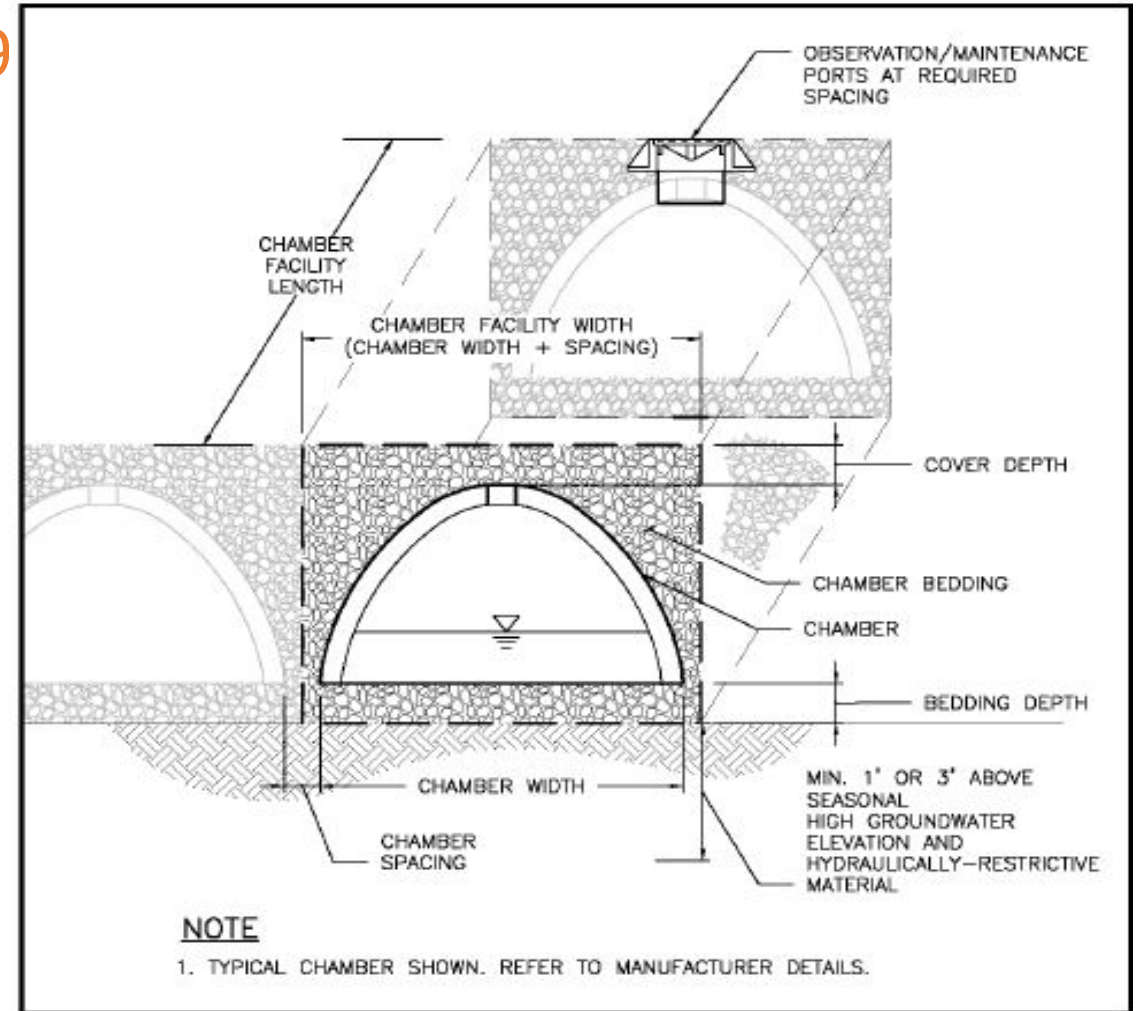
- Perforated Stub-Out Connections



OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.4.9

- Infiltration Chambers/Vaults



OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.5 – Rainwater Harvesting BMPs

Updated BMPs (Chapter 5)	Site Considerations	Design Criteria	Modeling Guidance	Sizing Factors	O&M	Figures
Rainwater Harvesting	X	X	X			
SFR Cisterns	X	X		X		

X = change from 2016 Manual

OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.5.1

- Rainwater Harvesting



Table 5.295.31. Typical Assumptions for Potable Rainwater Demand Calculations.

Use	Usage	Duration	Source
Commercial Building Uses for Employees			
Lavatory faucet	3 uses/day	30 seconds/use	LEED Reference Guide
Shower	0.1 uses/day	300 seconds/use	LEED Reference Guide
Kitchen sink	1 use/day	15 seconds/use	LEED Reference Guide
Faucet, shower and sink fixture flow rates	Actual (gallons/minute)	–	Manufacturer's data
Commercial Building Uses for Visitors			
Lavatory faucet	0.5 use/day	30 seconds/use	LEED Reference Guide
Faucet fixture flow rates	Actual (gallons/minute)	–	Manufacturer's data
Residential Building Uses^a			
Faucets	<u>11.149-0</u> gallons/day/capita	–	Residential End Uses of Water Executive Report, Version 2 Study (WRF 2016-1000) -AAAA
Shower	<u>11.144-8</u> gallons/day/capita	–	Residential End Uses of Water Executive Report, Version 2 Study (WRF 2016-1000) -AAAA
Bath	<u>1.5</u> gallons/day/capita	=	Residential End Uses of Water Executive Report, Version 2 (WRF 2016)
Dishwasher	<u>0.7</u> gallons/day/capita	=	Residential End Uses of Water Executive Report, Version 2 (WRF 2016)
Faucet and shower fixture flow rates	Actual (gallons/minute)	–	Manufacturer's data

^a Additional residential potable water use rates can be obtained from the Water Research Foundation (WRF 2016) executive report: www.allianceforwaterefficiency.org/resources/residential <http://www.allianceforwaterefficiency.org/residential-end-uses-of-water-study-1000.aspx>. This study is in the process of being updated and new data may be available in 2016 or 2018.

OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.5.2

- Single-Family Residential (SFR) Cistern

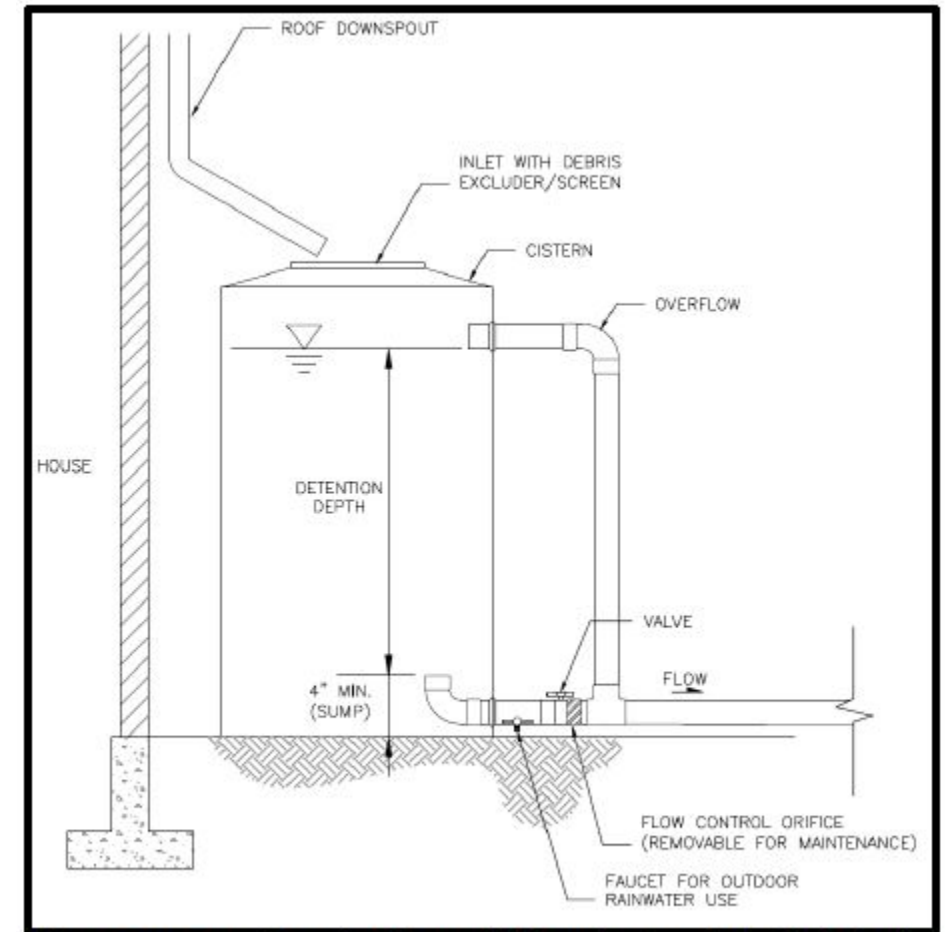


Figure 5.235-19. Detention Cistern with Harvesting Capacity for Single-Family Residential Projects Only.

OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.6 – Alternative Surface BMPs

Updated BMPs (Chapter 5)	Site Considerations	Design Criteria	Modeling Guidance	Sizing Factors	O&M	Figures
Vegetated Roof Systems		X	X	X	X	
Permeable Pavement Surfaces		X	X	X		

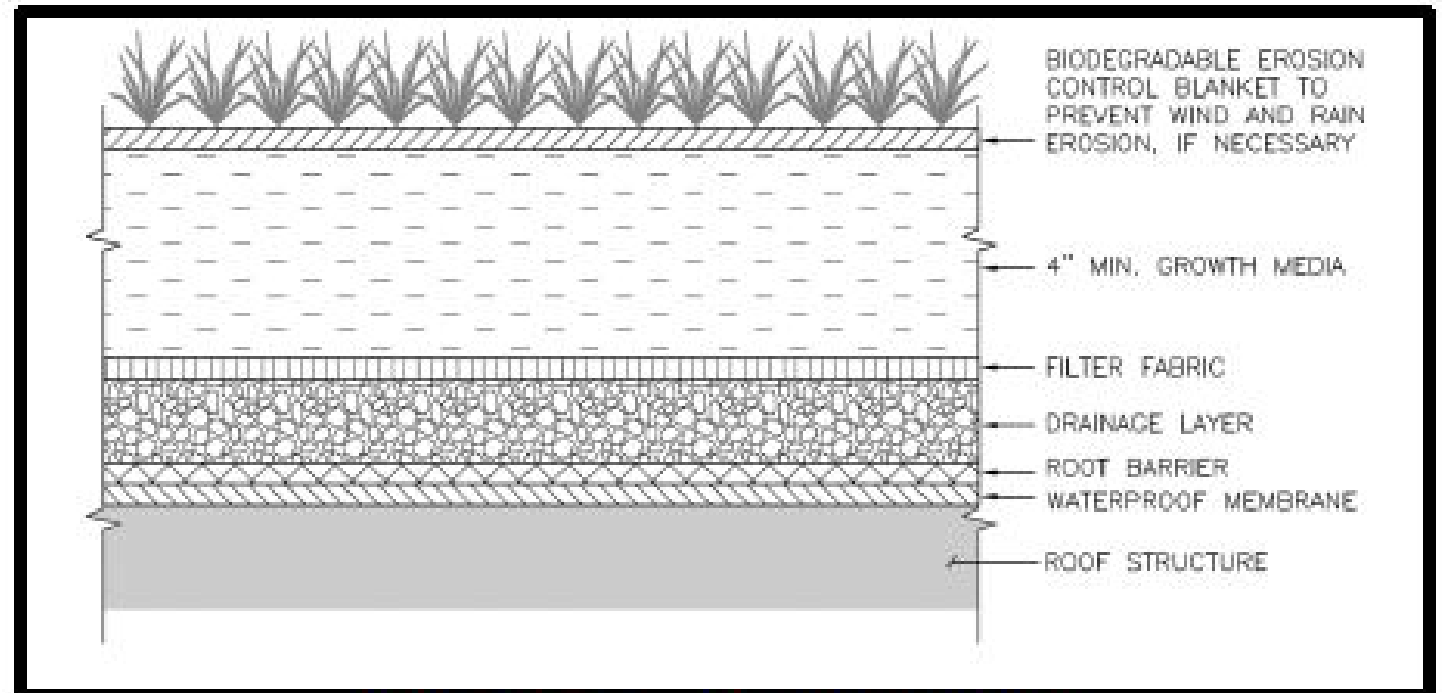
X = change from 2016 Manual



OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.6.1

- Vegetated Roof Systems

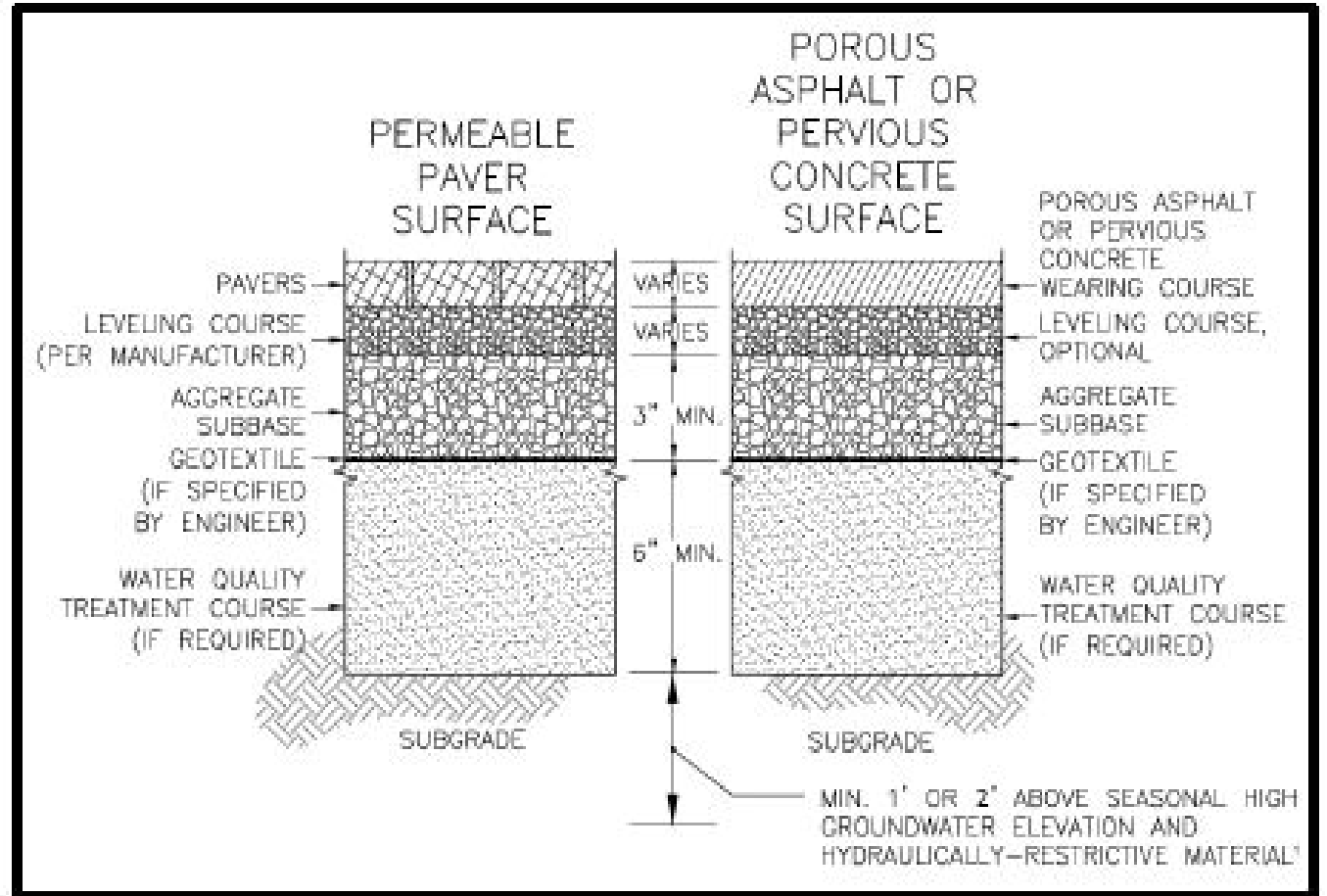


OSM BMP OVERVIEW

Volume 3, Chapter 5

Section 5.6.2

- Permeable Pavement Surfaces



OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.8 – Non-infiltrating BMPs

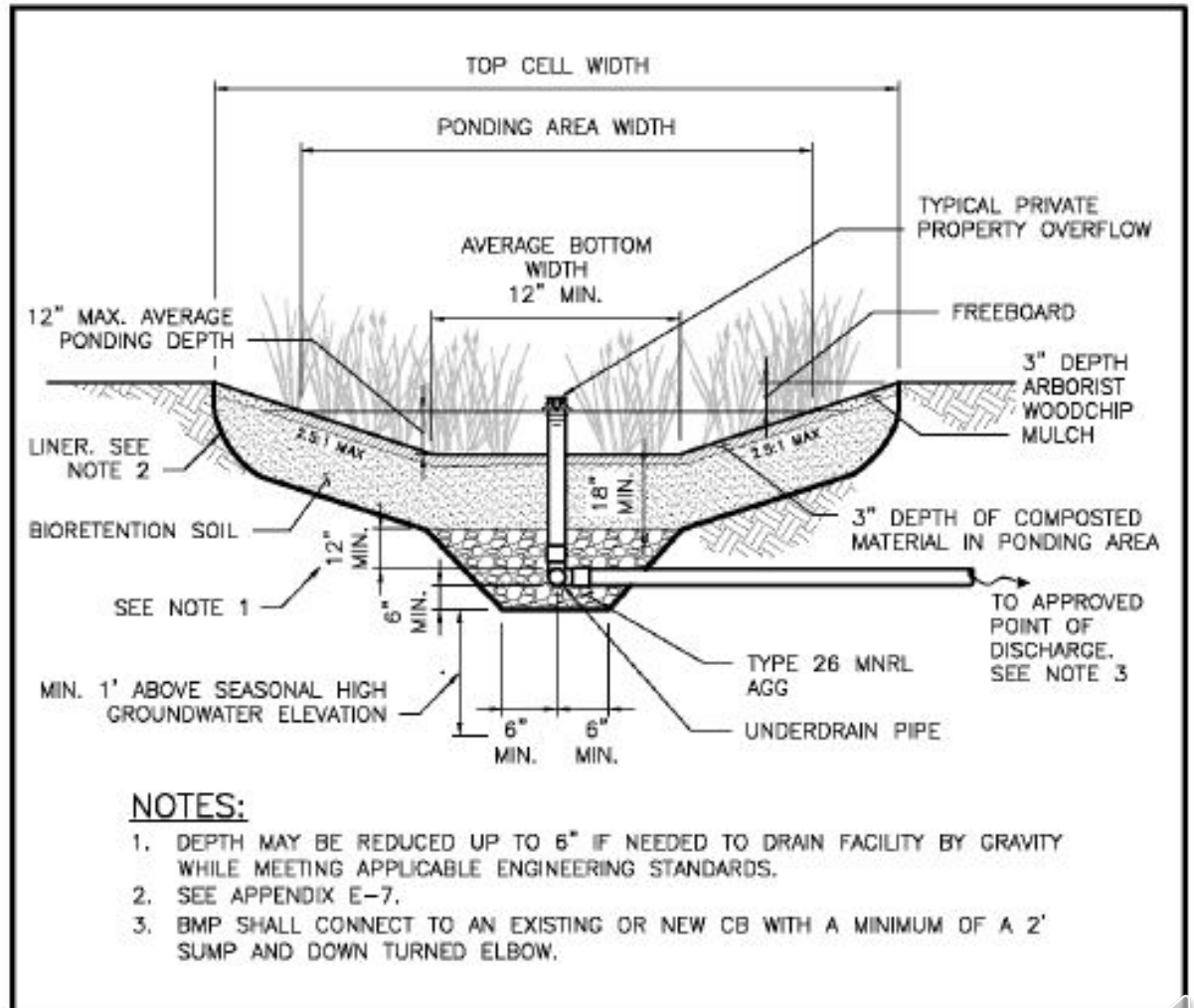
Updated BMPs (Chapter 5)	Site Considerations	Design Criteria	Modeling Guidance	Sizing Factors	O&M	Figures
Non-infiltrating Bioretention	X	X	X	X		X

X = change from 2016 Manual

OSM BMP OVERVIEW

Volume 3, Chapter 5, Section 5.8.2

- Non-infiltrating Bioretention



QUESTIONS?

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