

# ESDv REQUIRED

## STORMWATER MANAGEMENT ANALYSIS - WESTWOOD SHOPPING CENTER

Combined SWM Concept	
TOTAL SITE AREA:	450,000 SF
Existing Impervious Area	414,000 SF
Percent Impervious (I)	92.0%
Therefore Redevelopment	>40%
TOTAL DISTURBED AREA:	480,000 SF
Impervious Area	422,400 SF
Percent Impervious (I)	88.0%
Target PE (Table 5-3)	1.80 in.
(iv)	0.94
TOTAL ESD VOLUME REQUIRED:	60,624 CF

# ESDv PROVIDED

## STORMWATER MANAGEMENT ANALYSIS - WESTWOOD SHOPPING CENTER

TOTAL OF ALL STORMWATER FACILITIES						
Name	Media Depth (in)	Area (ft <sup>2</sup> )	Storage Capacity of BMP (CF)	Impervious Area Draining to BMP (SF)	Maximum ESD Volume 2.6" To BMP (CF)	ESD Volume (CF)
Green Roof	8	46,030	6,168	0	9,475	6,168
Bioretention	24	14,038	28,075	151,233	27,933	26,497
<b>TOTAL</b>	<b>N/A</b>	<b>60,068</b>	<b>34,243</b>	<b>151,233</b>	<b>37,407</b>	<b>32,665</b>
ESDv Required =						60,624
ESDv % =						53.9%
Equiv. PE =						0.97

Green Roof						
Name	Media Depth (in)	Area (ft <sup>2</sup> )	Storage Capacity of BMP (CF)	Impervious Area Draining to BMP (SF)	Maximum ESD Volume of 2.6" To BMP (CF)	ESD Volume (CF)
Extensive GR - (Grocery-1)	8	6,040	809	0	1,243	809
Extensive GR - (Grocery-2)	8	14,990	2,069	0	3,085	2,069
Extensive GR - (Multi)	8	35,000	3,350	0	5,148	3,350

Extensive Green Roof Table 1			
Roof Thickness	RCN	ESDv/sf	Equiv. PE (in.)
4"	88.00	0.077	1
8"	77.00	0.134	1.7

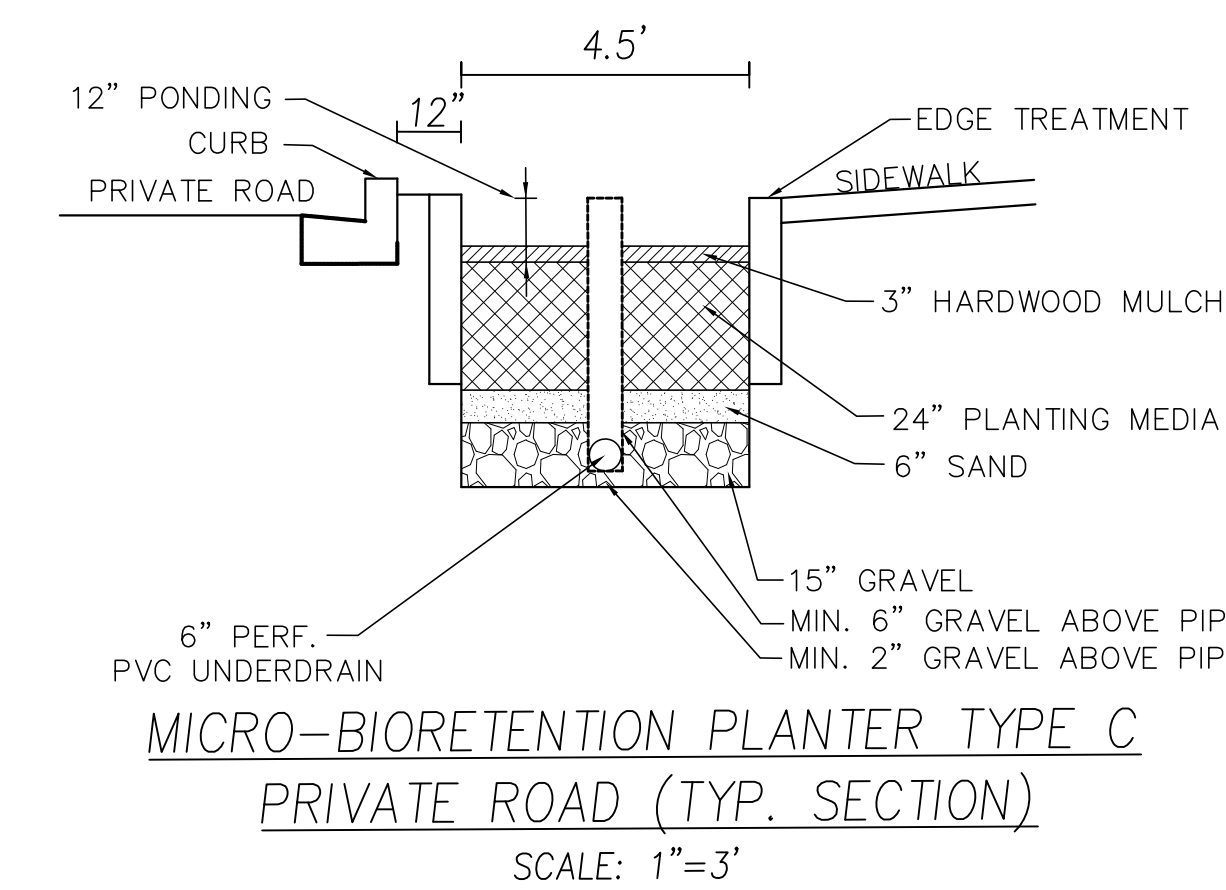
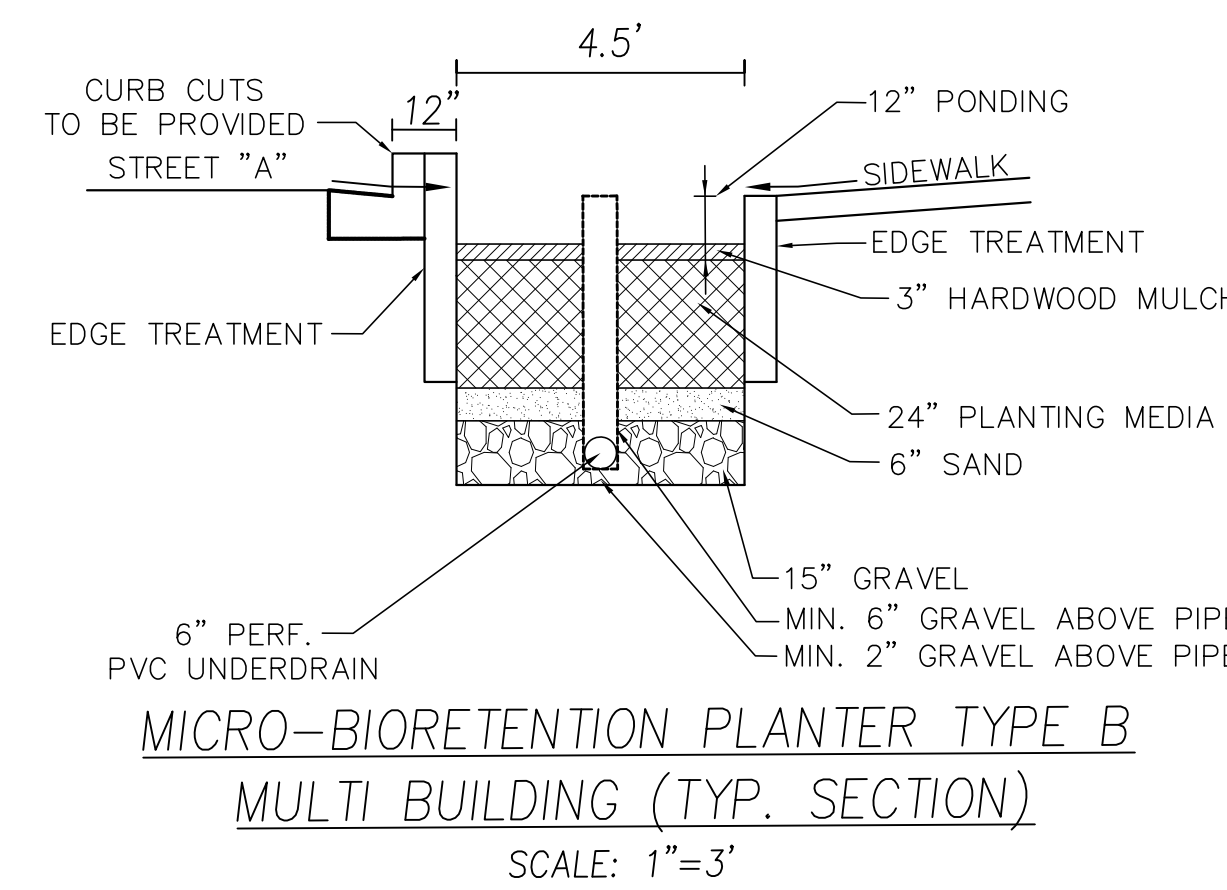
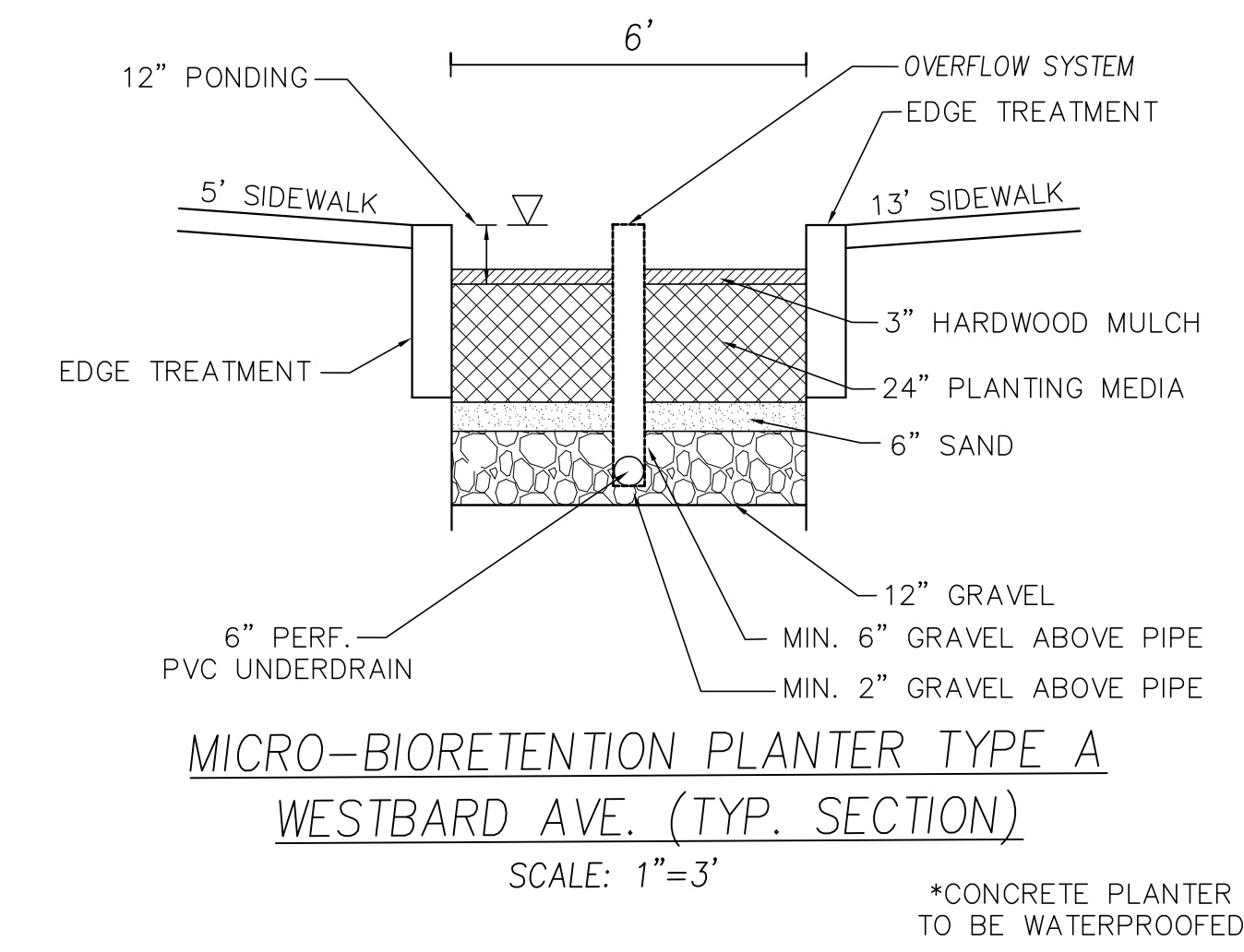
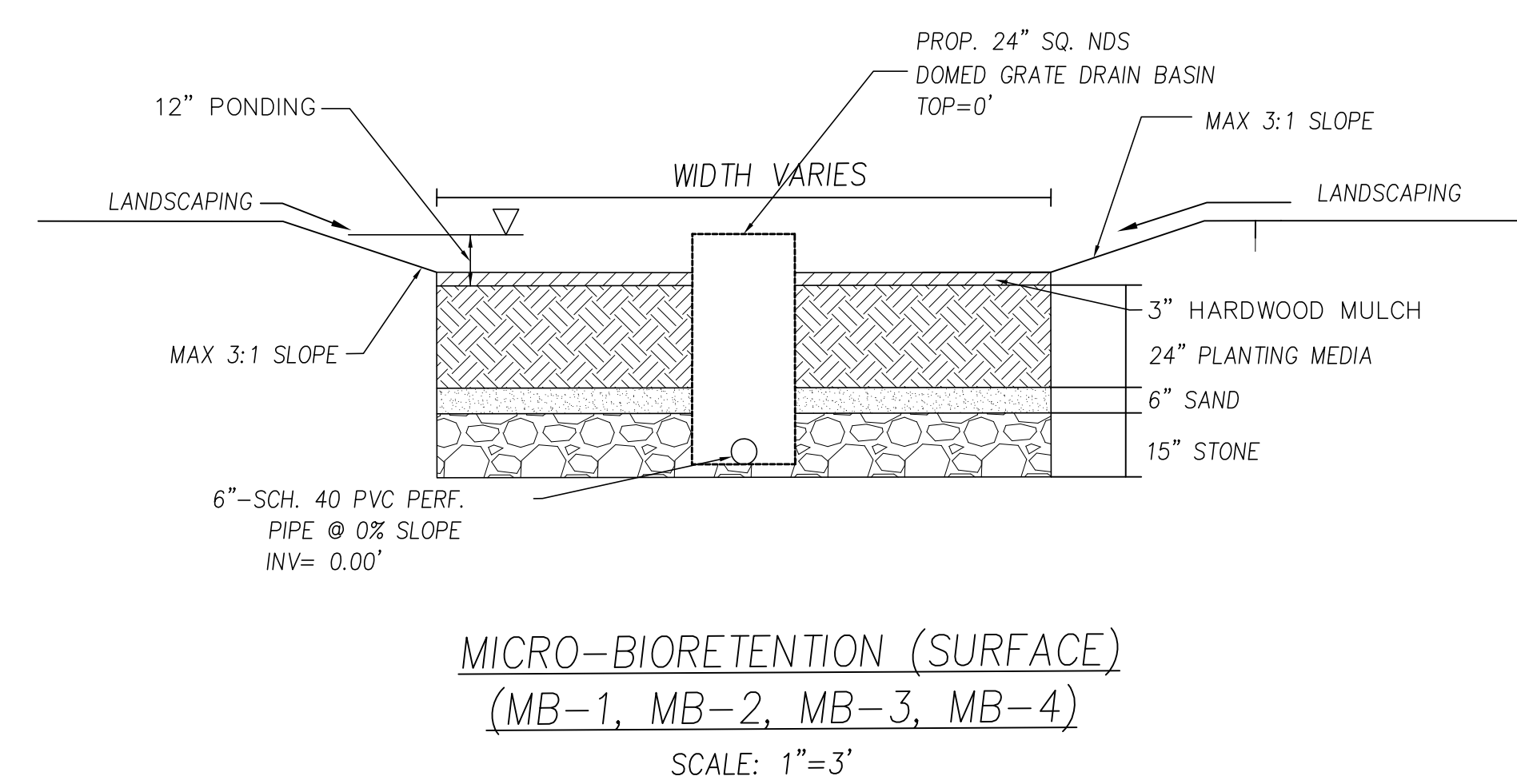
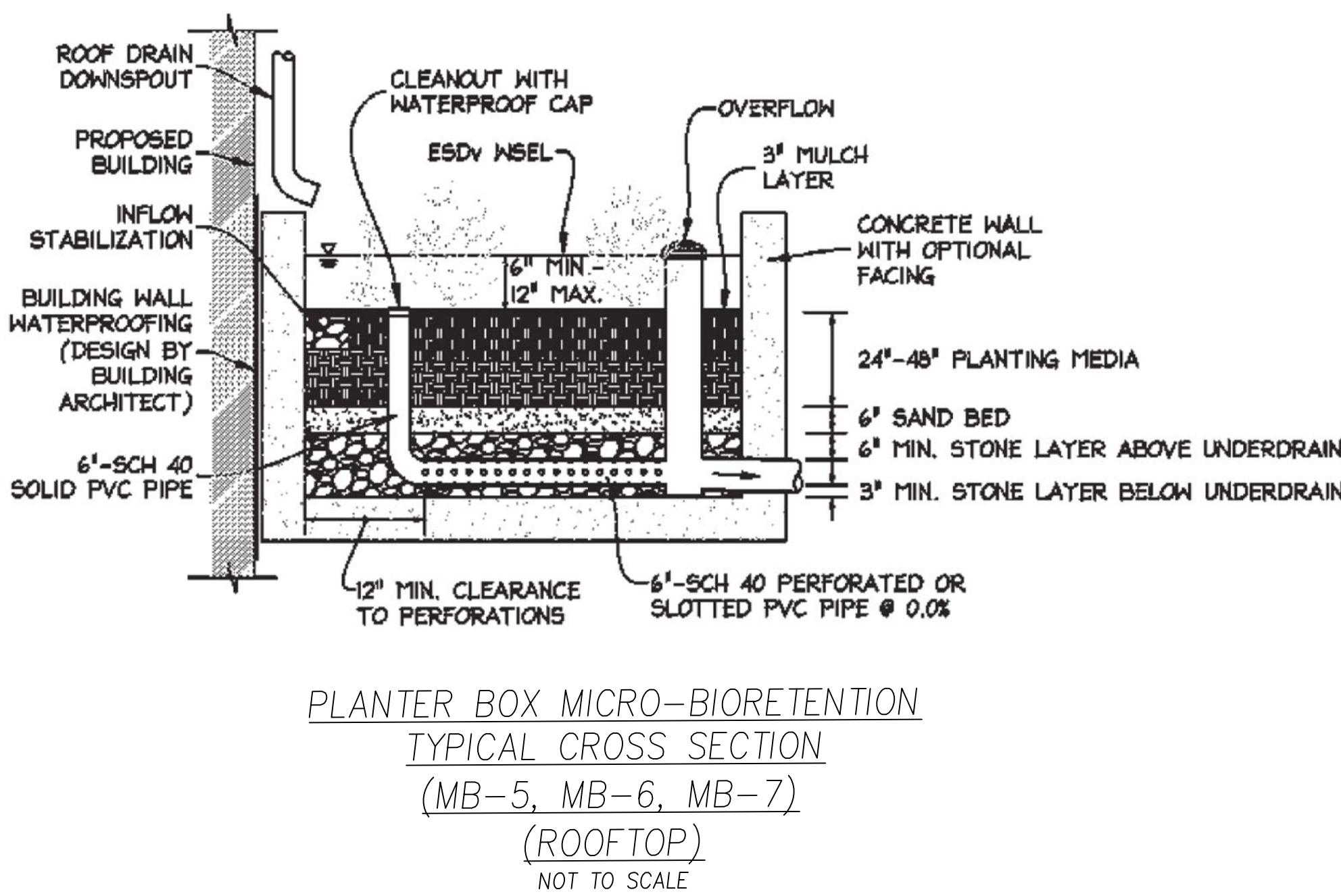
Bioretention (STANDARD WITH UNDERDRAIN)										
Name	Filter Media Depth (ft)	Ponding Depth (ft)	Sand Layer Depth (ft)	Area (ft <sup>2</sup> )	Storage Capacity of BMP (CF)	Impervious Area Draining to BMP (SF)	Total Area Draining to BMP (SF)	Maximum ESD Volume 2.6" To BMP (CF)	Volumetric Runoff Coeff. (Rv) =	ESD Volume (CF)
*Micro-Bio	2	1	0.5	67.5	135	903	1,070	170	0.81	135
Multiple by # of Planters	47			3172.5	6345	42418	50290	7962	0.345	27633
**Micro-Bio	2	1	0.5	116	232	1,234	1,328	237	0.57	232
Multiple by # of Planters	15			1740	3480	18510	31914	2510	0.70	3480
MB-1	2	1	0.5	680	1,360	2,200	10,000	1,361	0.70	1,360
MB-2	2	1	0.5	510	1,020	5,500	10,000	1,024	0.55	1,020
MB-3	2	1	0.5	940	1,880	10,000	12,000	1,918	0.80	1,880
MB-4	2	1	0.5	610	1,220	6,400	10,000	1,229	0.63	1,220
MB-5 (GRDCERY)	2	1	0.5	2025	4,050	17,975	20,000	3,506	0.86	3,506
MB-6 (MULTI)	2	1	0.5	500	1,000	5,500	6,000	1,052	0.88	1,000
MB-7 (MULTI)	2	1	0.5	2270	4,540	17,730	20,000	3,506	0.85	3,506
MB-8 (TOTAL PLAZA)	2	1	0.5	1580	3,160	20,000	24,000	3,785	0.80	3,180

TOTAL						
Name	Media Depth (in)	Area (ft <sup>2</sup> )	Storage Capacity of BMP (CF)	Impervious Area Draining to BMP (SF)	Maximum ESD Volume 2.6" To BMP (CF)	ESD Volume (CF)
Green Roof	Varies	46,030	6,168	0	9,475	6,168
Micro-Bio	N/A	14,038	28,075	151,233	27,933	26,497
<b>TOTAL</b>	<b>N/A</b>	<b>60,068</b>	<b>34,243</b>	<b>151,233</b>	<b>37,407</b>	<b>32,665</b>

\*Typical TH with green area and s/w draining to micro-bio TYPE B or TYPE C (including area of micro-bio)  
 \*\*Typical Westbard Planter with green area, bike path, and s/w draining to micro-bio TYPE A (including area of micro-bio)

# STORMWATER ALTERNATIVE

Title: ESD Volume Calculations		Project: Westwood Shopping Center		By: JBA Date: 4/20/2018	
Location: Bethesda					
Project No.: 17-255					
ESD Facility SWM VAULT SUMMARY					
Area:					
Remaining Volume (REQUIRED)					
ESDv Required (DISTURBED AREA) = 60,624 cf					
ESDv Provided = 32,665 cf					
Pe Provided = 0.97 in					
Since the Pe provided is less than 1", there will be no reduction in CN calculated and the remaining ESDv will be provided via a SWM Alternative (i.e. structural)					
Remaining ESDv Required = 27,959 cf					
Volume Provided in Grocery Vault = 9,900 cf					
Volume Provided in Multi Vault = 9,900 cf					
Volume Provided in Plaza = 1,620 cf					
Volume Provided in Alley-1 = 2,430 cf					
Volume Provided in Pavers = 2,520 cf					
Volume Provided in Alley-2 = 2,520 cf					
<b>CREDIT = -931 cf</b>					



## WESTWOOD SHOPPING CENTER

7TH ELECTION DISTRICT  
 BETHESDA, MARYLAND

Applicant / Owner:  
 Equity One (Northeast Portfolio) LLC  
 c/o Regency Centers, L.P.

Regency  
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 Sam Steibel

THE ENGINEERS OF  
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 Nancy Randall

SITE PLAN NO. 820180190

## STORMWATER MANAGEMENT CONCEPT PLAN DETAILS

SEPTEMBER 19, 2019

DRAWN BY: AMB CHECKED BY: KJJ

REV.	ISSUE	DATE

DRAWING  
 STAMP

SHEET  
 NUMBER

SP-SWM-2