DRY WELL SPECS AND MAINTENANCE Material Specifications for Dry Wells Material Specification VDOT No. 57 nstall a vertical 4 or 6-inch Schedule 40 PVC perforated pipe, with a Observation Well/ pop-up emitter and anchor plate. Pipe perforations are 3/8 inches at 6 Overflow inches on center. nstall a 6" square metal plate for installations with 4" PVC pipe. Install **Anchor Plate** an 8" square plate for installations with 6" PVC pipe. Surface Install a 3-inch layer of river stone or pea gravel. Turf is acceptable when there is subsurface inflow (e.g., a roof leader). Cover Must be installed on the dry well sides. When turf is used as a surface cover, fabric shall be installed along the top between the stone layer Filter Fabric and the surface cover. Use non-woven polyprene geotextile with a flow rate of > 110 gallons/min./sq. ft. (e.g., Geotex 351 or equivalent).

Below is the standard maintenance schedule for dry wells to be included on plans. If a manufactured device is proposed the manufacturer's guidance can be used instead. Maintenance Schedule for Dry Wells:

well to facilitate cleanout.

Cleanout

UNDISTURBÉD

METAL PLATE/ANCHOR -

TYPICAL DRYWELL

MATERIAL

Maintenance Activity	Schedule
 Remove leaves and debris in gutter at leaf guard. Remove leaves and debris from observation well/overflow. Inspect the condition of the overflow or pop-up emitter and make sure it is still capped and functioning. 	Annually
Inspected and certified by a professional licensed in the State of Virginia	Once every s

Threaded metal rod with plate at the end installed in the observation

Construction Installation. Projects with only dry wells to meet the sheetflow requirement (no other SWMFs are needed) need to submit a completed dry well construction inspection checklist, photos and materials tickets (Appendix G). The completed checklist does not need to be signed by a professional.

PLANTER DESIGN

AREA TO URBAN BIORETENTION STORMWATER PLANTER TREAT 1" STORM RUNOFF PER DEQ SPEC. #9

 $TvBMP = 0.95 \times 790 \text{ SF } \times 0.0833' = 63 \text{ CF}$ SIZE OF THE PLANTER = 36 SF V1 (PONDING DEPTH) = 36 SF X 1

V2 (SOIL MEDIA) = 36 SF X 1.5 X 0.25 (VOIDS) = 13 CF V3 (#57 & PEA GRAVEL) = 36 SF X 1 X 0.4 (VOIDS) = 14 CF

Planter # 2A

AREA TO URBAN BIORETENTION STORMWATER PLANTER TREAT 1" STORM RUNOFF PER DEQ SPEC. #9 TvBMP = 0.95 x 1032 SF x 0.0833' = 82 CF

SIZE OF THE PLANTER = 48.4 SF V1 (PONDING DEPTH) = 48.4 SF X 1 = 48 CF V2 (SOIL MEDIA) = 48.4 SF X 1.5 X 0.25 (VOIDS = 18 CF V3 (#57 & PEA GRAVEL) = 48.4 SF X 1 X 0.4 (VOIDS) = 19 CF

TOTAL VOLUME = 85 CF PROVIDED Planter # 1B 790 SF AREA TO URBAN BIORETENTION STORMWATER PLANTER

TREAT 1" STORM RUNOFF PER DEQ SPEC. #9 $TvBMP = 0.95 \times 790 \text{ SF } \times 0.0833' = 63 \text{ CF}$ SIZE OF THE PLANTER = 36 SF

V1 (PONDING DEPTH) = 36 SF X 1= 36 CF V2 (SOIL MEDIA) = 36 SF X 1.5 X 0.25 (VOIDS) = 13 CF V3 (#57 & PEA GRAVEL) = 36 SF X 1 X 0.4 (VOIDS) = 14 CF

DOWNSPOUT-

Planter # 2B

(TOP OF OVERFLOW PIPE)

AREA TO URBAN BIORETENTION STORMWATER PLANTER TREAT 1" STORM RUNOFF PER DEQ SPEC. #9 TvBMP = 0.95 x 1032 SF x 0.0833' = 82 CF

ATRIUM

SIZE OF THE PLANTER = 48.4 SF V1 (PONDING DEPTH) = 48.4 SF X 1V2 (SOIL MEDIA) = 48.4 SF X 1.5 X 0.25 (VOIDS = 18 CF V3 (#57 & PEA GRAVEL) = 48.4 SF X 1 X 0.4 (VOIDS) = 19 CF

1032 SF

BUILDING WALL

2" MIN. FREEBOARD

(WATER PROOF AS NEEDED)

I WIDTH LENGTH SURFACE

(FT) (FT) (FT) AREA (SF) 3.83 3.00 12.00 36.0

3.83 3.50 13.83 48.4 3.83 2.00 18.00 36.0

3.83 3.50 13.83 48.4

PROP. 5'X5'X3'-

DRY WELL #2A

WITH POP-UP

EMITTER

PROP. 5'X5'X3'-

DRY WELL #2B

WITH POP-UP

EMITTER

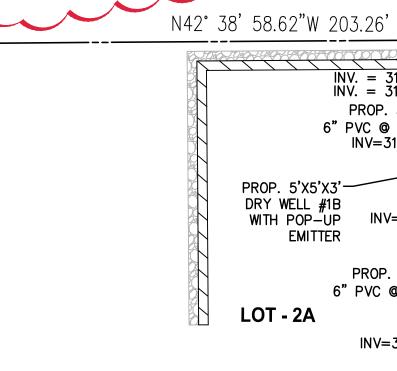
790 SF

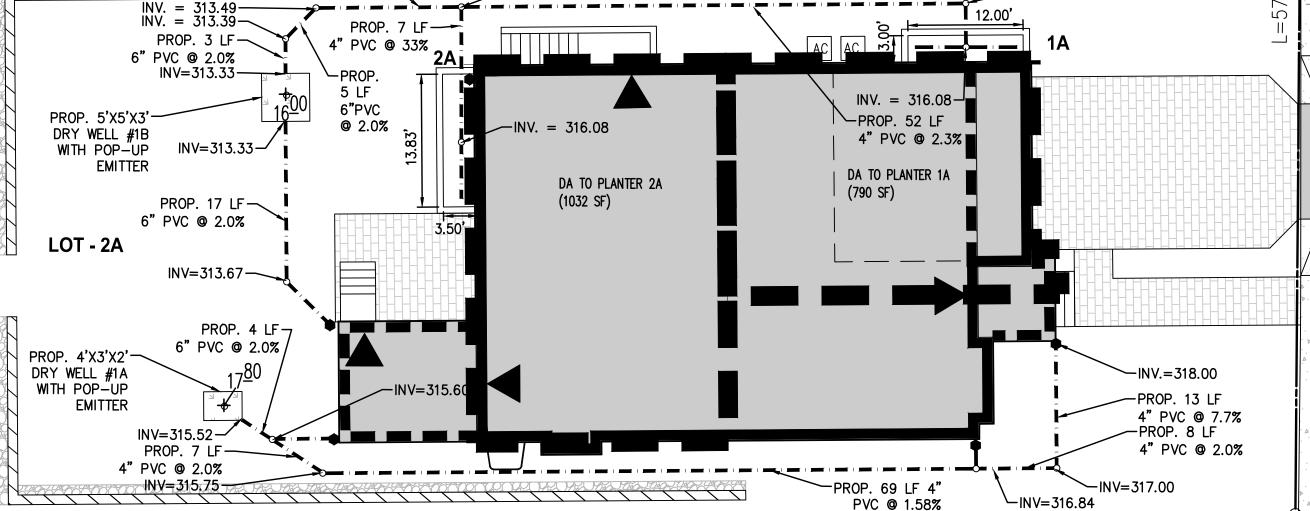
1032 SF

TOTAL VOLUME = 63 CF PROVIDED

TOTAL VOLUME = 63 CF PROVIDED

TOTAL VOLUME = 85 CF PROVIDED





DA TO PLANTER 2B

(1032 SF)

-INV. = 309.00

4" PVC @ 12.0%

(TOP OF WALL) G* PONDING HEIGHT FINISH GRADE¬ - 2" DOUBLE SHREDDED HARDWOOD MULCH STONE DISSIPATER STRUCTURE WALL WITH WATERPROOF H1* FILTER MEDIA (TOP OF FILTER MEDIA) MEMBRANE (30 MIL. PVC LINER OR **EQUIVALENT) ON SIDES AND BOTTOM** WIDTH 3" PEA GRAVEL POP-UP EMITTER/ 4" RIGID SCHED. 40 PVC 9" VDOT #57 STONE **OBSERVATION WELL** (MIN. SLOPE 0.5%) TO DRYWELL 1"-3" RIVER ROCK OR 6"-8" TOPSOIL/TURF DOWNSTREAM BMP (GRADE) 4" PERFORATED 4" DIA PERFORATED PVC UNDERDRAIN WITH SCHED. 40 PVC PIPE 3/8-INCH PERFORATIONS AT 6" O.C., MAX. 3 ROWS (INSIDE BOTTOM OF BOX) OF HOLES (PIPE TO RUN LENGTH OF PLANTER) COMPACTED BASE PER ARCHITECTURAL PLAN CAP -SEE BMP SCHEMATIC FOR ORIENTATION **TYPICAL PLANTER BOX** 4" RIGID SCHED. 40 PVC (SEE NOTE 8) AND PLACEMENT SECTION A-A —(MIN. SLOPE 0.5%) FROM PLANTER BOX *SEE CHARTS BELOW FOR DIMENSION AND ELEVATION REFERENCES. NON-WOVEN GEOTEXTILE FABRIC (SIDES AND TOP)

1. LENGTH (L) AND WIDTH (W) DIMENSIONS MUST BE A MINIMUM OF 2 FEET EACH.

- 2. NO STORAGE VOLUME CREDIT IS GIVEN FOR THE MULCH LAYER.
- 3. SEE VIRGINIA DEQ STORMWATER DESIGN SPECIFICATION NO. 9 FOR ADDITIONAL DESIGN AND CONSTRUCTION INFORMATION. . THE PLANTER BOX MAY BE CONTAINED IN A PRECAST CONCRETE, CAST-IN-PLACE CONCRETE OR 6"X6" PRESSURE TREATED WOOD
- DESIGN SPECIFICATION NO. 9, SECTION 9-A-1). 5. SINCE PLANTER BOXES ARE LOCATED NEAR THE BUILDING FOUNDATION, WATERPROOFING BY USING A WATERTIGHT CONCRETE SHELI
- OR AN IMPERMEABLE LINER IS REQUIRED TO PREVENT SEEPAGE

ELEVATIONS

2B 312.83 312.67 311.50 VARIES 309.00 306.5

- AN ATRIUM GRATE OR EQUIVALENT MAY BE USED FOR THE OVERFLOW ON TOP OF THE PVC STANDPIPE. CONTRACTOR TO ENSURE THAT THE PROPER DOWNSPOUTS DISCHARGE INTO THE PLANTER BOX. RIVER ROCK OR OTHER ENERGY
- DISSIPATION SHALL BE USED WHERE DOWNSPOUTS TIE INTO THE PLANTER BOX. 8. FOR PLANTER BOXES ATTACHED TO THE FOUNDATION AND/OR A RETAINING WALL, SEE ARCHITECTURAL PLANS FOR STRUCTURAL

DETAILS/REQUIREMENTS.

PLANTER DESIGN DATA

NOTES.	PLANTER			ELEVA	ATIONS					כ
4. MANUSALISA CIZE ICA EFET LONG DVA EFET MUDE DVA EFET MUDE								G	H1	
1. MINIMUM SIZE IS 2 FEET LONG BY 2 FEET WIDE BY 2 FEET HIGH.	BOX ID	Α	В	С	D	E	F	(FT)	(FT)	ı
2. MAXIMUM HEIGHT IS 3 FEET.	1A	319.91	319.75	318.58	VARIES	316.08	316.00	1.00	1.50	Ī
3. THE UNDERDRAIN MUST DISCHARGE TO A DRY WELL AND MULTIPLE UNDERDRAINS MUST NOT DISCHARGE TO THE SAME LOCATION UNLESS IT	2A	319.91	319.75	318.58	VARIES	316.08	316.00	1.00	1.50	Ī
IS DESIGNED FOR 25% OF THE REMAINING RUNOFF FROM THE BMP.	1B	318.16	318.00	316.83	VARIES	314.33	306.5	1.00	1.50	
13 DESIGNED FOR 23/8 OF THE REMAINING RONOTT FROM THE DIVIR.		100 100 1000 100 100		200 00 0 0000	0 0 0 0 0 0 0 0	Section with the section	500 TO 1000 TO 1	B 90 000	007 107 0 107	

FEET FROM THE PROPERTY LINE FOR AN UP-GRADIENT PROPERTY.

PROPERTY LINE FOR A DOWN-GRADIENT PROPERTY, AND A MINIMUM OF 5

4. FACILITIES SHALL BE SET BACK A MINIMUM OF 10 FEET FROM THE

URBAN BIORETENTION - PLANTER BOX DETA

- VDOT #57 STONE

BOTTOM OPEN TO NATIVE SOIL (NO

GEOTEXTILE FABRIC)

- UNCOMPACTED SUBGRADE

4" PERFORATED SCHED. 40 PVC

DRYWELL DESIGN DATA								
4" INVERT								
F IN								
(ELEV) (ELEV)								
317.80 315.52								
316.00 313.33								
307.50 303.92								
308.50 306.50								
-								

COORDINATE SIZE WITH MEP PLANS

4" DOWNSPOUT.

4" WYE CONNECTION FOR OVERFLOW AND CLEAN OUT

MIN 1.5' COVER @ 1.0% MIN SEE SCHEMATIC ON THIS SHEET FOR DOWNSPOUTS

4" GRATE CAP ¬

SPLASH BLOCK -

- THAT ARE TO BE PIPED TO THE DRY WELLS. ROOF GUTTERS SHALL BE SCREENED/COVERED TO PREVENT LARGE DEBRIS FROM ENTERING THE TRENCH.
- 2. ROOF DRAIN PIPES ARE TO BE 6" PVC WITH MINIMUM 1.5 FT OF COVER AND A SLOPE OF: 1.0% MIN. FINAL LOCATION, SLOPE AND COVER ARE TO BE FIELD COORDINATED.
- 3. KEEP ROOF DRAINS DISCONNECTED UNTIL THE DRYWELL INSTALLATION IS COMPLETE AND THE SITE IS STABILIZED.

ROOF DOWNSPOUT PIPE SCHEMATIC

SCALE: NTS

PLANTER BOX MAINTENANCE

PROP. 64 LF-

6" PVC @ 5.7%

INV. = 307.25

PROP. 14 LF-

PROP. 20 LF-

INV. = 308.00 -

6"PVC @ 2.0%

PROP. 15 LF —

4" PVC @ 12.5%

4" PVC @ 3.75%

PROP. 10 LF-

INV. = 304.64 -

6" PVC @ 2.0%

INV. = 304.40

PROP. 21 LF-

 $\$ INV. = 303.92

PROP. 40 LF-

6" PVC @ 1.9%

-INV. = 306.50

LOT - B1

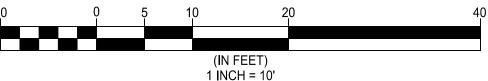
6" PVC @ 2.3%

	Maintenance	Frequency
•	Spot weeding, erosion repair, trash removal, and mulch raking	Twice during growing season
•	Add reinforcement planting to maintain the desired vegetation density	As needed
•	Remove invasive plants using recommended control methods	
•	Stabilize the contributing drainage area to prevent erosion	
	Spring inspection and cleanup	
•	Supplement mulch to maintain a 2-3 inch layer	Annually
,	Prune trees and shrubs	•
	Examine for the ponding depth and adjust accordingly	
	Inspect inflows and overflow for erosion	
•	Inspect for structural deficiencies and repair	
•	Remove sediment in pre-treatment cells and inflow points	Once every 2 to 3 year
•	Replace the mulch layer	Every 3 years
_	Inspected and certified by a professional licensed in the State of Virginia	Once every 5 years

PLANTER BOX MATERIAL SPECS

ponding area

Material	Specification	Notes
Waterproofing	Watertight shell or impermeable liner	Use a thirty mil (minimum) PVC Geomembrane liner or equivalent.
Filter Media Composition	Filter Media to contain: • 80%-90% sand with >75% being coarse to very coarse • 10%-20% soil fines • 3%-5% organic matter in the form of plant based compost meeting Clearinghouse Design Specification #4, Section 6.5	The volume of filter media based of 110% of the plan volume, to account for settling or compaction.
Filter Media Testing	Plant available P within Low+ (L+) to Medium (M) per DCR 2014 Nutrient Management Criteria (18-40 mg/kg P for the Mehlich III procedure) and CEC >5	The media must be procured from approved filter media vendors.
Mulch Layer	Use aged, shredded hardwood bark mulch	Lay a 2 to 3 inch layer on the surfactor of the filter bed.
Choking Layer	3 inch layer of pea gravel or VDOT underdrain stone.	#8 stone which is laid over the
Stone Jacket for Underdrain and/or Storage Layer	1 inch stone should be double- washed and clean and free of all fines (e.g., VDOT #57 stone).	12 inches for the underdrain
Underdrains and Overflows	Use 4 inch rigid schedule 40 PVC pipe with 3/8-inch perforations at 6 inches on center, maximum of 3 rows of perforations; position each underdrain on a 1% or 2% slope.	Lay the perforated pipe under the length of the planter box, and install non-perforated pipe as needed to connect with the storm drain system Install T's and Y's as needed, depending on the underdrain configuration. Extend overflow pipes the surface with vented caps.
Plant Materials	1 quart-sized perennial installed per 1-2 sf and/or 1 3-gallon shrub installed per 7.5 sf over entire	Choose either herbaceous and/or shrubs



1. NOTE LEAF SCREENS TO BE INSTALLED AT ALL DOWNSPOUTS FOR PRETREATMENT PURPOSES.

WATER PROOFING NOTES

-INV. = 308.50

DA TO PLANTER 1B

314.33

(790 SF)

-PROP. 15 LF

-PROP. 17 LF

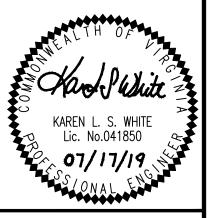
4" PVC @ 25%

-INV. = 315.00

4" PVC @ 17% -INV. = 311.00

NOTE: WALTER L. PHILLIPS. INC. IS NOT RESPONSIBLE FOR WATER PROOFING DESIGN REQUIRED AT BUILDING FOUNDATION. CONTRACTOR AND OWNER TO PROVIDE PROPER WATERPROOFING ESPECIALLY NEAR PROPOSED BMP FACILITIES.

ARLINGTON COUNTY DOES NOT REVIEW THE WATERPROOFING DESIGN AND THE OWNER/DEVELOPER AGREES TO HOLD ARLINGTON COUNTY HARMLESS IN THE EVENT OF FAILURE.



BMP DETAILS - URBAN BIO-RETENTION



Engineers • Surveyors • Planners Landscape Architects • Arborists 207 PARK AVENUE

FALLS CHURCH, VIRGINIA 22046 (703) 532-6163 Fax (703) 533-1301

ARLINGTON, VIRGINIA DEPARTMENT OF ENVIRONMENTAL SERVICES

4219/4221 LORCOM LANE

THE PROPERTY OF R.A. PHILLIPS **GRADING PLAN**

4219/4221 LORCOM LANE, ARLINGTON, VIRGINIA 22207

SCALE: 1" = 10'	DRAWN C	CR		CHECKED TPB/	/KW
SUBMITTED DATE 03/05/2019 05/07/2019 06/24/2019 07/17/2019				A DDD OVED	DATE
				APPROVED DIRECTOR (DATE OF ENVIRONMENTAL SERVICES
			SHEET: C-07	′03	