A G E N D A
JAMES CITY COUNTY CHESAPEAKE BAY BOARD
REGULAR MEETING
County Government Center, Building F
101 Mounts Bay Road, Williamsburg, VA 23185
February 14, 2018
5:00 PM

A. CALL TO ORDER

B. ROLL CALL

C. MINUTES

1. Minutes from December 13, 2017 regular meeting

D. PUBLIC HEARINGS

1. CBE-18-028 : 19 and 20 Mile Course
2. CBE-18-060 : 4029 South Riverside Drive
3. CBE-18-052 : 124 Mathews Grant
4. CBE-18-046 : 2405 Sarah Spence

E. BOARD CONSIDERATIONS

1. CBV-18-008 : 4069 South Riverside Drive

F. MATTERS OF SPECIAL PRIVILEGE

1. Resignation of Roger Schmidt

G. ADJOURNMENT

AGENDA ITEM NO. C.1.

ITEM SUMMARY

DATE: 2/14/2018

TO: Chesapeake Bay Board

FROM: Michael Woolson, Senior Watershed Planner

SUBJECT: December 13, 2017 Minutes

ATTACHMENTS:

	Description	Type
🗋	December 13, 2017 Minutes	Minutes

REVIEWERS:

Department	Reviewer	Action	Date
Chesapeake Bay Group	Woolson, Michael	Approved	2/9/2018 - 9:05 AM
Chesapeake Bay Group	Geissler, Fran	Approved	2/12/2018 - 1:30 PM
Publication Management	Burcham, Nan	Approved	2/12/2018 - 1:48 PM
Chesapeake Bay Group	Secretary, ChesBay	Approved	2/12/2018 - 3:54 PM

M I N U T E S
JAMES CITY COUNTY CHESAPEAKE BAY BOARD
REGULAR MEETING
County Government Center, Building F
101 Mounts Bay Road, Williamsburg 23185
December 13, 2017
5:00 PM

A. CALL TO ORDER

The Chesapeake Bay Board meeting December 13, 2017, was Called to Order.

The responsibility of this Board is to carry out locally the Commonwealth policy to protect against and minimize pollution and deposition of sediment in wetlands, streams and lakes in James City County which are tributaries of the Chesapeake Bay.

B. ROLL CALL

Board Members Present:	Absent:
David Gussman - Chair	Larry Waltrip
William Apperson	
Charles Roadley	
John Hughes	

Others Present: County Staff (Staff):
Michael Woolson, Senior Watershed Planner
Frances Geissler, Director, Stormwater and Resource Protection
Liz Parman, Assistant County Attorney
Janice Petty, Engineering Assistant, Stormwater and Resource Protection

C. MINUTES

1. October 11, 2017, Regular Meeting Minutes

The minutes from the October 11, 2017, regular meeting were approved as written.

D. PUBLIC HEARINGS

1. CBE-18-030 : 2521 Manion Drive

Mr. Michael Woolson presented a Chesapeake Bay Exception submitted by Mr. Daniel Winall on behalf of Mr. Brian Clair. The request was to construct a retaining wall and step access to an existing pier and bank grading at 2521 Manion Drive, within the Drummonds Field subdivision, encroaching into the Resource Protection Area (RPA). Mr. Woolson explained that staff recommends approval of the application with the following conditions: that the applicant obtain any other local, state or federal permits; that a pre-construction meeting be held on site; that a $4,000 surety acceptable to the County Attorney's Office be put in place to guarantee the proposed mitigation; and that this project is null and void if not started by December 13, 2018. Written requests for extension shall be submitted no later than six weeks

prior to the expiration date.

The Board deliberated on the pros and cons of the application.

Mr. Hughes opened the Public Comment period.

A. Mr. Daniel Winall, the agent and contractor, addressed the Board and answered any further questions.

Mr. Hughes closed the Public Hearing as no one else wished to comment.

Mr. Apperson made a motion to grant the exception request for CBE-18-030.

The motion was approved: 4-0

Ayes: Roadley, Hughes, Apperson, Gussman

2. CBE-18-013 : Stonehouse Land Bay 3 & 5

Mr. Woolson updated the case continued from the October 11, 2017 meeting. Mr. Woolson further explained the details of the construction and mitigation plans associated with Kerr Environmental. Mr. Woolson explained that staff recommends the approval of this project with the following conditions: the applicant obtain any other local, state or federal permits; a conservation easement of 2.27 acres be recorded in Tract 3; a $5,000 surety be put in place to guarantee mitigation components; and that this approval would expire December 11, 2018.

The Board deliberated on the pros and cons of this application.

Mr. Gussman opened the Public Comment period.

A. Mr. Jeff Floyd, representing the project manager associated with Kerr Environmental, addressed the Board and answered any further questions.

Mr. Gussman closed the Public Comment period as no one else wished to comment.

Mr. Hughes made a motion to adopt the exception request for CBE-18-013.

The motion was approved: 4-0

Ayes: Roadley, Hughes, Apperson, Gussman

3. CBE-18-024 : 116 Nottinghamshire

Mr. Woolson presented a Chesapeake Bay Exception on behalf of Mr. Larry Walk of Walk-Wright Construction. The request was to construct a single-family home with an attached deck which would encroach into the RPA, located in the Ford's Colony subdivision. The applicant has proposed mitigation plantings which exceed County standards. Mr. Woolson explained that staff recommends this property be enrolled in the Turf Love program once construction is complete. Staff recommends approval of this exception with the following conditions: the applicant meet all other local, state and federal laws; a $3,500 surety acceptable to the County Attorney's Office be put in place to guarantee the proposed mitigation; the applicant record an affidavit in the land records of the Williamsburg-James City County Circuit Court regarding the environmental resource restriction on this lot; and that this project is null and void if not started by December 13, 2018. Written requests for extension shall be submitted no later than six

weeks prior to the expiration date.

The Board deliberated the pros and cons of this request.

Mr. Gussman opened the Public Comment period.

A. Mr. Larry Walk, associated with Walk-Wright Construction, addressed the Board and answered any further question associated with the request.

Mr. Gussman closed the Public Comment period as no one else chose to comment.

Mr. Apperson made a motion to grant application CBE-18-024.

The motion was approved: 4-0.

Ayes: Roadley, Hughes, Apperson, Gussman

4. CBE-18-040 : 112 Constance Avenue

Mr. Hughes recused himself from this hearing prior to commencement. Mr. Woolson presented a Chesapeake Bay Exception on behalf of Mr. Larry Walk of Walk-Wright construction. The request was to construct a single-family home with a pool, pool deck and a spa in the RPA. The project is located in the Powhatan Shores subdivision off of Neck-O-Land Road. Mr. Woolson explained that staff recommends approval for this exception with the following conditions: that the applicant obtain all other local, state and federal permits;a $4,000 surety acceptable to the County Attorney's Office be put in place to guarantee the proposed mitigation; and that this project is null and void if not started by December 13, 2018. Written requests for an extension to this expiration shall be submitted no later than six weeks prior to the expiration date.

The Board deliberated the pros and cons of this request

Mr. Gussman opened the Public Comment period.

A. Mr. Matt Conley, of LandTech Resources, addressed the Board and answered any further questions associated with the request.

Mr. Woolson was called to answer questions from Mr. Roadley.

Mr. Gussman closed the Public Comment period as no one else wished to speak.

Mr. Roadley proposed an additional permit requirement be included in the vegetation plan requiring the entire 50-foot seaward RPA be replanted.

Mr. Roadley made a motion to grant application CBE-18-040 subject to the proposed revision.

The motion was approved: 3-0

Ayes: Roadley, Apperson, Gussman

Abstain: Hughes

5. CBE-18-032 : 38 Ensigne Spence

Mr. Woolson presented a Chesapeake Bay Exception on behalf of Ms. Beverly Olson of Olson Fine Home Building. The request was to construct a deck with step access to the water that would encroach into the RPA. Mr. Woolson explained that the parcel was platted in 1974, prior to the adoption of the Chesapeake Bay Ordinance. Additionally, the home was recently constructed and received administrative approval to build in the landward 50-foot RPA. Mr. Woolson explained that staff recommends approval with the following conditions: the applicant obtain any local, state or federal permits: a $250 surety acceptable to the County Attorney's Office be put in place to guarantee the proposed mitigation; and that this project is null and void if not started by December 13, 2018. Written requests for extension to the expiration shall be submitted no later than six weeks prior to the expiration date.

The Board deliberated the pros and cons of this request

Mr. Gussman opened the Public Comment period

A. Mrs. Gay Moth addressed the Board on the details of her request.

Mr. Gussman closed the Public Comment period as no one else wished to speak.

Mr. Hughes made a motion to grant approval for CBE-18-032.

The motion was approved: 4-0

Ayes: Hughes, Gussman, Roadley, Apperson

6. CBE-18-039 : 109 Mahogany Run

Mr. Woolson presented a Chesapeake Bay Exception on behalf of Mr. Robert Root, of Williams Landscape and Design. The request was to construct a retaining wall which would encroach into the RPA located at 109 Mahogany Run. Mr. Woolson explained that an administrative exception for construction of the single-family dwelling was granted and that the impervious coverage associated with this application is an additional 100 square feet. Five mitigation units are required for this exception and the County requests that this house be enrolled in the Turf Love program. Mr. Woolson explained that staff recommends approval of this request under the following conditions: the applicant obtains all local, state and federal permits necessary and that this project is null and void if not started by December 13, 2018. Written requests for extension to the expiration shall be submitted no later than six weeks prior to the expiration date. There is no additional surety required for this request given the existing $3,000 surety currently in place.

The Board deliberated the pros and cons of this request.

Mr. Gussman opened the Public Comment period.

A. Mr. Tony Orbane associated with Williams Landscape addressed the Board and answered any further questions the board had.

Mr. Gussman closed the Public Comment period as no one else wished to speak.

Mr. Apperson made a motion to grant approval for CBE-18-039.

The motion was approved: 4-0

Ayes: Apperson, Gussman, Hughes, Roadley

7. CBE-18-038 : 153 John Pott Drive

Mr. Woolson presented a Chesapeake Bay Exception on behalf of Mr. Andy Flint, of Hertzler & George. The request was to construct a patio, walkway and retaining wall that would encroach into the RPA on property located on 153 John Pott Drive. Mr. Woolson explained that the parcel was platted in 1974, prior to the adoption of the Chesapeake Bay Preservation Ordinance. Staff requests that the home be enrolled in the Turf Love program. Mr. Woolson explained that staff recommends approval for this request with the following conditions: the applicant obtain any local, state and federal permits required; a $500 surety acceptable to the County Attorney's Office be put in place to guarantee the proposed mitigation and Turf Love registration; and that this project is null and void if not started by December 13, 2018. Any written requests to extend the expiration shall be submitted no later than six weeks prior to the expiration date.

The Board deliberated the pros and cons of this request.

Mr. Gussman opened the Public Comment period.

A. Mr. Joe Hertzler, of Hertzler & George, addressed the Board and answered any further questions.

Mr. Gussman closed the Public Comment period.

Mr. Hughes made a motion to grant approval for CBE-18-038.

The motion was approved: 4-0

Ayes: Gussman, Apperson, Hughes, Roadley

8. CBE-18-028 : 19 and 20 Mile Course

Mr. Woolson explained that the applicant requested a deferral to this case and to move the hearing to the next scheduled meeting on February 14, 2018. County staff concurred with this request and asked that the Board open the Public Hearing for this case.

Mr. Gusman opened the Public Comment period.

E. BOARD CONSIDERATIONS

1. CBE-17-009 : 3 West Circle

Mr. Woolson explained that Mr. Rafael and Mrs. Florina Tusa requested a one-year extension to CBE-17-009. Staff concurred with this request granted that all stipulations, except the expiration date, be reauthorized and that the new expiration date be January 11, 2019.

The Board deliberated the pros and cons of this request.

Mr. Roadley made a motion to grant this request.

Motion was approved: 4-0

Ayes: Roadley, Gussman, Hughes, Apperson

2. Election of Officers for 2018

Chairman: Gussman 4-0
Vice Chairman: Apperson 4-0
Secretary: Woolson 4-0

3. 2018 Calendar

2018 calendar approved.

F. MATTERS OF SPECIAL PRIVILEGE

None

G. ADJOURNMENT

The meeting adjourned at 6:42 p.m.

AGENDA ITEM NO. D.1.

ITEM SUMMARY

DATE: 2/14/2018

TO: Chesapeake Bay Board

FROM: Michael Woolson, Senior Watershed Planner

SUBJECT: CBE-18-028 : 19 and 20 Mile Course

RVA Construction, on behalf of Ms. Susan Anton and Mr. and Mrs. Lawrence and Penny Pulley, has filed an exception request for encroachment into the RPA buffer for construction of a retaining wall/bulkhead at 19 and 20 Mile Course in the Kingsmill subdivision, JCC Parcel No 5040200019 and JCC Parcel No 5040200020.

ATTACHMENTS:

	Description	Type
🗋	Deferral Request	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Chesapeake Bay Group	Woolson, Michael	Approved	2/9/2018 - 9:05 AM
Chesapeake Bay Group	Geissler, Fran	Approved	2/12/2018 - 1:30 PM
Publication Management	Burcham, Nan	Approved	2/12/2018 - 1:48 PM
Chesapeake Bay Group	Secretary, ChesBay	Approved	2/12/2018 - 3:54 PM

Michael Woolson

From: AA Legacy <aa@legacyportfolio.co.uk>
Sent: Monday, January 08, 2018 4:53 PM
To: Michael Woolson
Cc: Mark Fallin; Dean Van Arsdale; Justin Bultman; Susan Anton; Penny Pulley
Subject: Re: 19 Mile Course - Proposed Meeting for 1/8/18

Dear Mike

Thank you for the meeting today and your positive suggestions. We will work up a new scheme which will incorporate the coir logs as you have suggested. In order to give all parties sufficient time to prepare and submit a revised proposal, please may we withdraw the application on 14th February and submit it on March 10th instead.

Best regards

Alexander

AGENDA ITEM NO. D.2.

ITEM SUMMARY

DATE: 2/14/2018

TO: Chesapeake Bay Board

FROM: Michael Woolson, Senior Watershed Planner

SUBJECT: CBE-18-060 : 4029 South Riverside Drive

Kevin Cottingham has applied for an exception for encroachments into the RPA for the construction of a single family dwelling with attached deck on property located at 4029 South Riverside Drive in the Chickahominy Haven subdivision.

ATTACHMENTS:

	Description	Type
🗋	Staff Report	Staff Report
🗋	Resolution	Resolution
🗋	Water Quality Impact Assessment	Backup Material
🗋	Site Plan	Backup Material
🗋	Public Hearing Notice	Backup Material
🗋	APO Notification Letter	Backup Material
🗋	APO Notification List	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Chesapeake Bay Group	Woolson, Michael	Approved	2/9/2018 - 9:05 AM
Chesapeake Bay Group	Geissler, Fran	Approved	2/12/2018 - 1:30 PM
Publication Management	Burcham, Nan	Approved	2/12/2018 - 1:49 PM
Chesapeake Bay Group	Secretary, ChesBay	Approved	2/12/2018 - 3:54 PM

CHESAPEAKE BAY BOARD EXCEPTION No. CBE-18-060. 4029 South Riverside Drive
Staff report for the February 14, 2018, Chesapeake Bay Board Public Hearing

This staff report is prepared by James City County Stormwater and Resource Protection to provide information to the Chesapeake Bay Board to assist them in making a recommendation on this assessment. It may be useful to members of the general public interested in this assessment.

EXISTING SITE DATA AND INFORMATION

Applicant:	Mr. Kevin Cottingham
Agent:	Mr. Jon Liebler
Location:	4029 South Riverside Drive
Tax Map/Parcel No.:	1910300005
Parcel:	Lot 5, Section 2B, Chickahominy Haven
Lot Size:	0.29 acre
Area of Lot in Resource Protection Area (RPA):	0.18 acre +/- (64%)
Watershed:	Chickahominy River (HUC JL28)
Floodplain:	Zone AE, base flood elevation 7 .0 M.S.L. Panel 0082D
Proposed Activity:	Construction of a single-family dwelling and deck
Impervious Cover:	2,936 square feet
RPA Encroachment:	2,459 square feet in the landward 50-foot RPA buffer 477 square feet in the seaward 50-foot RPA buffer
Staff Contact:	Michael D. Woolson, Senior Watershed Planner Phone: 253-6823

BRIEF SUMMARY AND DESCRIPTION OF ACTIVITIES

Mr. Kevin Cottingham has applied for an exception to both the 50 foot seaward and 50 foot landward Resource Protection Area (RPA) buffer to build a single-family home with attached deck at 4029 South Riverside Drive within the Chickahominy Haven subdivision and the Chickahominy River watershed. The property is further identified as James City County Real Estate Tax Map Parcel No. 1910300005. The parcel was platted in 1959, prior to the adoption of the Chesapeake Bay Preservation Ordinance in 1990. The exception request before the Board for a decision to approve or deny by resolution, is for encroachments into the RPA buffer for the construction of a single-family dwelling with attached deck with a total RPA impact of 2,936 square feet. This application received a previous approval under CBE-16-059 and the applicant has already posted a $2,000 surety for the proposed mitigation.

STAFF EVALUATION

Staff has evaluated the application and exception request for 4029 South Riverside Drive as described above; finds that the application has met the conditions in Sections 23-11 and 23-14; and that the application should

be heard by the Board because the improvements encroaches into the 50-foot seaward RPA buffer. Therefore, the request for 2,936 square feet of RPA impact for the construction of a single-family dwelling and attached deck must be considered by the Board following a public hearing under the formal exception process.

WATER QUALITY IMPACT ASSESSMENT (WQIA)

A WQIA was submitted, per Sections 23-11 and 23-14 of the County Ordinance, for the proposed land disturbing activity resulting from development or redevelopment within RPAs. The applicant has submitted the required information as outlined in the *James City County Sensitive Area Activity Application* and has submitted a mitigation proposal which includes seven planting units, meeting the County requirements. The total mitigation proposed is seven canopy trees, 14 understory trees and 21 shrubs.

CONSIDERATION BY THE CHESAPEAKE BAY BOARD

The exception granting body is permitted to require reasonable and appropriate conditions in granting the exception request in accordance with Section 23-14 of the County Code. The Chesapeake Bay Board should fully consider Chesapeake Bay Exception CBE-18-060 as outlined and presented above and review the request for exception along with the WQIA. The Board may grant the exception with such conditions and safeguards as deemed necessary to further the purpose and intent of the County's Chesapeake Bay Preservation Ordinance.

STAFF RECOMMENDATIONS

Staff has reviewed the application and exception request and has determined impacts associated with the proposal to be moderate for the proposed development. Staff recommends approval of this exception request with the following conditions incorporated into the approval:

1. The applicant must obtain all other necessary federal, state and local permits as required for the project; and

2. This exception request approval shall become null and void if construction has not begun by February 14, 2019; and

3. Written requests for an extension to an exception shall be submitted to the Stormwater and Resource Protection Division no later than six weeks prior to the expiration date.

MDW/nb
CBE18-060-4029SRvrsdeDr

Attachments:
1. Resolution
2. Water Quality Impact Assessment Package
3. Site Plan
4. Mitigation Plan

R E S O L U T I O N

CASE NO. CBE-18-060. 4029 SOUTH RIVERSIDE DRIVE

JAMES CITY COUNTY CHESAPEAKE BAY PRESERVATION ORDINANCE EXCEPTION

WHEREAS, Mr. Kevin Cottingham (the "Applicant"), has applied to the Chesapeake Bay Board of James City County (the "Board") on February 14, 2018, to request an exception to use the Resource Protection Area (the "RPA") on a parcel of property identified as James City County Real Estate Tax Map Parcel No. 1910300005 and further identified as 4029 South Riverside Drive in the Chickahominy Haven subdivision (the "Property") as set forth in the application CBE-18-060 for the purpose of constructing a patio and retaining wall; and

WHEREAS, the Board has listened to the arguments presented and has carefully considered all evidence entered into the record.

NOW, THEREFORE, BE IT RESOLVED that the Chesapeake Bay Board of James City County, Virginia, following a public hearing, by a majority vote of its members FINDS that:

1. The exception request is the minimum necessary to afford relief.

2. Granting the exception will not confer upon the applicant any special privileges denied by Chapter 23, Chesapeake Bay Preservation, of the James City County Code, to other property owners similarly situated in the vicinity.

3. The exception request will be in harmony with the purpose and intent of Chapter 23 of the James City County Code and is not of substantial detriment to water quality.

4. The exception request is not based on conditions or circumstances that are self-created or self-imposed nor does the request arise from conditions or circumstances either permitted or non-conforming that are related to adjacent parcels.

5. Reasonable and appropriate conditions are hereby imposed, as set forth below, which will prevent the exception request from causing a degradation of water quality.

6. In granting this exception, the following conditions are hereby imposed to prevent this exception request from causing degradation of water quality:

    a. The applicant must obtain all other necessary federal, state and local permits and permissions as required for the project; and

    b. This exception request approval shall become null and void if construction has not begun by February 14, 2018; and

c. Written requests for an extension to this exception shall be submitted to the Stormwater and Resource Protection Division no later than six weeks prior to the expiration date.

_____	_____
David Gussman	Michael Woolson
Chair, Chesapeake Bay Board	Senior Watershed Planner

Adopted by the Chesapeake Bay Board of James City County, Virginia, this 14th day of February, 2018.

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 20___ IN THE COMMONWEALTH OF VIRGINIA, IN THE COUNTY OF JAMES CITY.

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

CBB18-060-4029SRvrsdeDr-res

Chesapeake Bay Preservation Ordinance
Sensitive Area Activity Application

JAN 24 2018

FEB 6 2018

Engineering & Resource Protection

RECEIVED

For Office Use Only
CB Number CBE 16-059
CBE 18-0600

Submission Requirements: (Check all applicable)

- [X] A $25 non-refundable processing fee payable to Treasurer, James City County.
- [X] RPA - landward 50' – Complete Items 1 – 5, and sign on Page 3.
- [X] RPA - seaward 50' – Complete Items 1 – 5, sign on Page 3 and submit an additional $100 non-refundable fee payable to Treasurer, James City County, for the Chesapeake Bay Board.
- [ ] Conservation Easement – Complete Items 1, 2, 3, and 5, and sign on Page 3.
- [ ] Steep Slopes ≥ 25 percent - Complete Items 1, 2, 3, and 5, and sign on Page 3.
- [ ] Attach plans as required (see instruction on Page 4, Item 4).
- [ ] Applicable surety as required for mitigation (see **Mitigation Rates Table** on Page 2).

Engineering & Resource Protection

Upon completion, please return pages 1-3 to the JCC Engineering and Resource Protection Division

RECEIVED

Property Owner Information:

Kevin Gottingham Date: 11-23-15

Name: ~~Tebu Development~~

757-810-6646

Address: 2702 John Tyler Hwy 3149 Parkside Lane Williamsburg VA 23185

Phone: ~~757-220-2956~~ 757-269-9696 Fax: _____ Email: ~~morebldr@aol.com~~ ~~JonLiebler@robertsonliebler.com~~ Kgottingham@juniper.net

Contact (if different from above):

Name: ~~David Moore~~ Jon Liebler

Phone: ~~757-220-2956~~

Email: ~~morebldr@aol.com~~ jon@robertsonliebler.com

Project Information:

Project Address: 4029 S. Riverside Drive, Wmbg VA 23188

Subdivision Name, Lot, and Section No.: Chickahominy Haven, Lot 5

Parcel Identification No. or Tax Map No.: 1910300005

Date Lot was platted: _____ Line or Bldg Permit No.: ~~A15-1912~~ B-1126-12

Activity Location and Impacts (Square Feet - SF): (check all that apply)

- [ ] Steep Slopes ≥ 25 percent _____ (SF)
- [ ] Conservation Easement _____ (SF)
- [ ] Trees to be Removed _____ (#)
- [X] RPA - Landward 50' ~~2,459~~ 1,459 (SF)
- [X] RPA - Seaward 50' 477 (SF) gnem
- [X] Proposed Impervious Cover 2,936 (SF)

Activity involves: (check all that apply)

- [X] New principal structure construction
- [ ] Permitted buffer modifications:
- [ ] Building addition to principal structure
- [ ] Dead/diseased/dying tree removal
- [ ] Invasive/noxious weed removal
- [ ] Redevelopment: _____
- [ ] Attached Deck
- [ ] Sightline
- [ ] Access path/trail
- [ ] Accessory (Detached) Structure or Patio
- [ ] Other: _____

JAN 13 2016

For Office Use Only
CB Number CBE-16-059

1. **Description of requested sensitive area activity and reason for request:**

(In the description, please indicate the reason for the proposed structure or activity, the location, sizes and dimensions of feature. For decks or expansions, indicate if ground floor, first floor or other levels)
Can only meet 50 setback

2. As per Section 23-9 of the Chesapeake Bay Preservation Ordinance, if there is an on-site sewage disposal system on this property, has it been inspected and/or pumped out is the past five years? [ ] **Yes** [X] **No**

3. Are permits from other local, State or Federal agencies required for any portion of this project? [X] **Yes** [ ] **No**
(If yes, please explain) Septic & Well

4. **Water Quality Impact Assessment**

The purpose of a water quality impact assessment is to demonstrate that the project will result in the removal of no less than 75 percent of sediments and 40 percent of nutrients from post-development stormwater run-off and that it will retard runoff, prevent accelerated erosion, promote infiltration, and filter non-point source pollution equivalent to the full undisturbed 100-foot buffer.

A. Why is this encroachment necessary? Can it be relocated to avoid RPA impacts?
No

B. What measures will be used to minimize impervious area? Examples: pervious pavers, removal of existing impervious surfaces (concrete, pavement, etc.) in the RPA not needed for the project
~~House built on Piends~~ Block foundation

5. **Proposed mitigation measures:**

Note: All mitigation measures must be shown in detail on a mitigation plan. Show both location of mitigation measures and plant species if applicable. All mitigation plants must be native species and be located in the sensitive area (RPA or Conservation Easement).

Mitigation Rates Table

Impervious Area (SF)	Mitigation Required	Surety
<400	1 tree and 3 shrubs	$250
400-1,000	1 canopy tree, 2 understory trees and 3 shrubs per 400 SF (or fraction thereof)	$1,000
>1,000	Plant at same rate as 400 – 1,000; or may be determined by Director of Engineering and Resource Protection Division	To be determined

Engineering & Resource Protection

RECEIVED

For Office Use Only
CB Number CBE16-09

A. Vegetation/ground cover enhancement of buffer (see Mitigation Rates Table on previous page).

- [x] Number of native canopy trees 7
- [x] Number of native understory trees 14
- [x] Number of native shrubs 21
- [ ] Square feet of native ground cover
- [ ] Square feet of mulch

B. Best Management Practices (BMPs)

- [ ] EC-2 (degradable) erosion control matting
- [ ] Dry Swale
- [x] Silt fence
- [x] Turf (Nutrient) Management Plan
- [x] Gravel under deck (3" of gravel over synthetic filter fabric under entire deck area)
- [ ] Other:
- [ ] Bioretention or rain garden practice
- [ ] Infiltration Area/Trench/Drywell
- [ ] Structural BMP (Wet or Dry Pond)
- [ ] Rain Barrel

I understand that the following are approval conditions:

1) **Mitigation for the above activity shall follow the approved mitigation plan and be guaranteed with a form of surety acceptable to the County Attorney.**
2) **Limits of disturbance as shown on the approved plan shall not be exceeded.**
3) **This approval shall become null and void if construction has not begun within 12 months of the approval date.**
4) **Surety will be released following the completion and inspection of mitigation plantings.**

Property owner signature ~~David J. Mann~~ Kevin Cottingham Date ~~11-23-15~~ 01-24-16

Program Administrator _____ Date _____
Authorized Signature

For Office Use Only

11/24/15 Pending plat w/ RPA (50'+100')
Mitigation Plan Rec'd.

Surety Amount: _____
Date/Rec No.: _____
Fee Paid? [x] Yes [ ] No
Amount: 25
Date/Rec No.: 11/24/15 #3814

JAN 13 2016

General Notes:

1. Boundary, easements and setback information as shown was taken from record plat. Other easements and/or encumberances may exist. Topography, as shown, is based upon a current field survey. No underground utilities have been located with the exception of visible structures which may be shown. Contractor to contact "Miss Utility" prior to any land disturbance.

2. House dimensions are based upon information supplied by the owner and/or builder. Contractor shall verify all dimensions, alignments and provisions shown hereon prior to beginning construction.

3. All trees may be removed within the clearing limits shown hereon.

4. Silt fence to be provided on downslope side of all disturbed areas.

5. Contractor to provide standard V.D.O.T. coarse aggregate #1 stone construction entrance and 15" RCP unless shown otherwise.

6. The licensed surveyor shown hereon shall not be considered as the "Responsible Land Disturber".

THIS PROPERTY APPEARS TO LIE ENTIRELY WITHIN FLOODZONE AE (BFE DETERMINED TO BE 7.5). PER F.I.R.M. # 51095C0085C. EFFECTIVE DATE 09/28/2007.

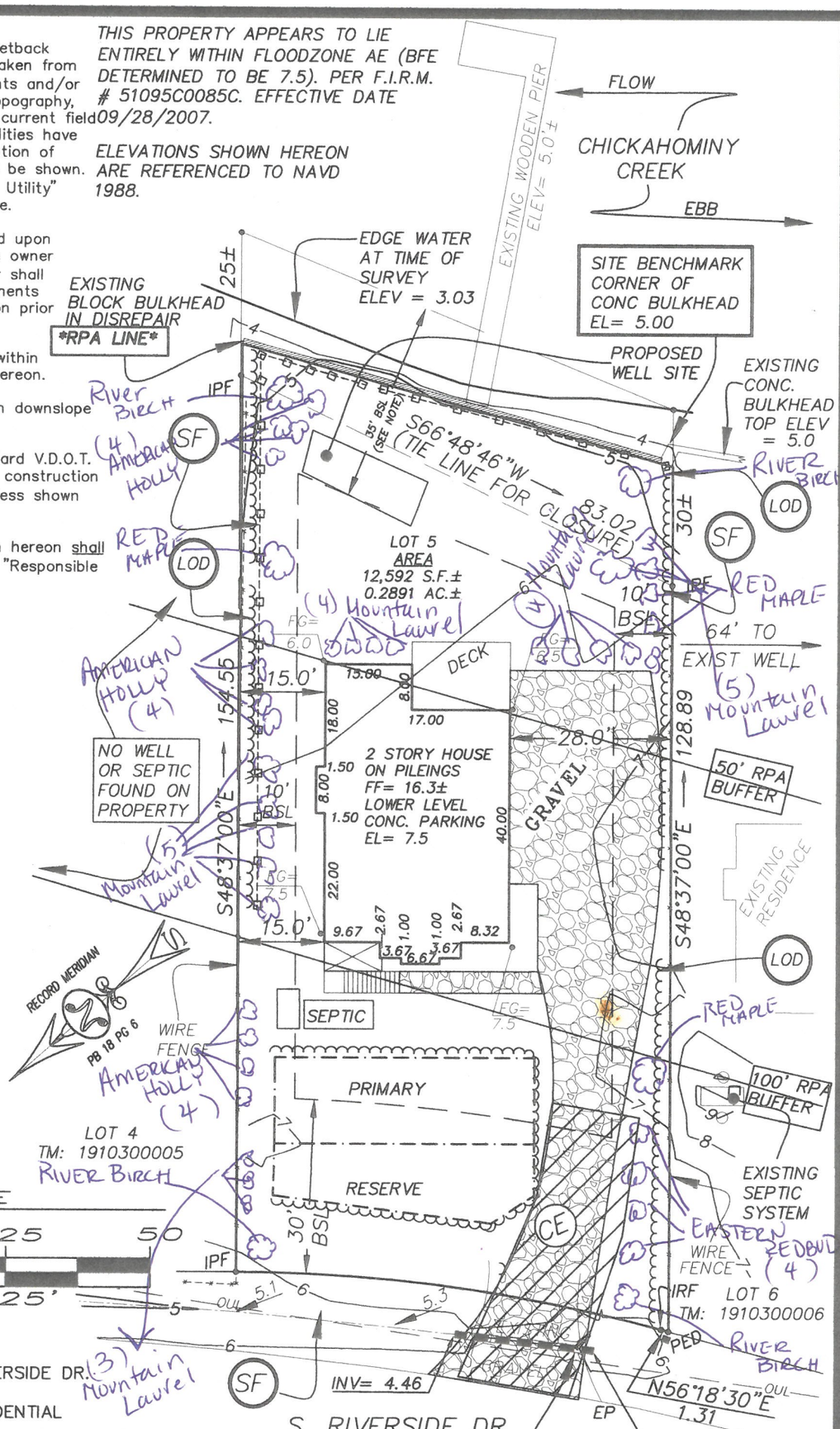
ELEVATIONS SHOWN HEREON ARE REFERENCED TO NAVD 1988.

LEGEND

NS NAIL SET
IRF IRON ROD FOUND
IRS IRON ROD SET
IPF IRON PIPE FOUND
CATV CABLE TELEVISION
PED PEDESTAL
SCO SANITARY CLEANOUT
EP EDGE PAVEMENT
OUL OVERHEAD UTILITY LINE
BSL BUILDING SETBACK LINE
(SF) SILTFENCE
LOD LIMITS OF DISTURBANCE
0.00 X EXISTING GRADE

BUILDING SETBACK LIMITS
FRONT= 30' (PER PLAT)
SIDE= 10'
REAR= 35' *SEE NOTE*

NOTE:
REAR SETBACK LINE IS SHOWN FROM APPROXIMATE LOW WATER LINE. SUBJECT TO APPROVAL BY JCC.



GRAPHIC SCALE

25 0 25 50

SCALE: 1" = 25'

ST. ADDRESS: 4029 S. RIVERSIDE DR.
TAX ID: 1910300005
ZONE: R2 GENERAL RESIDENTIAL

RESIDENTIAL SITE PLAN
LOT 5 SECTION 2B
CHICKAHOMINY HAVEN
PREPARED FOR D L MOORE

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

CURVE TABLE

DELTA	14°55'30"
RADIUS	286.30
LENGTH	74.58
TANGENT	37.50
CHORD	74.36
CHORD BRG.	N48°50'48"E

SCALE: 1"= 25'
DATE: 05/15/2015
JOB NO: J191-6

REFERENCES:

REVISIONS:
11/23/15 ADDED RPA BUFFERS & MOVED HOUSE
12/9/15 SHIFTED HOUSE REVISED RPA

COMMONWEALTH OF VIRGINIA
05/15/2015
A.D. SEBERT
LIC. NO. 2221
LAND SURVEYOR

THIS PLAT IS BASED UPON A CURRENT FIELD SURVEY. PROPERTY LINES AS SHOWN AND LOCATION OF IMPROVEMENTS ARE BASED UPON FOUND MONUMENTS AS NOTED. THIS SURVEY WAS PERFORMED WITHOUT BENEFIT OF A CURRENT TITLE REPORT. EASEMENTS ARE SHOWN PER RECORD INFORMATION. OTHER EASEMENTS AND/OR ENCUMBRANCES MAY EXIST.

SEBERT SURVEYING & LAYOUT, LLC
173 BARLOW ROAD
WILLIAMSBURG, VA 23188
PHONE/ FAX: (757) 345-0931
CELL: (757) 784-2413

\J191-6.dwg 12/9/2015 10:32:31 AM EST

JAN 13 2016

PUBLIC HEARING NOTICE

THE CHESAPEAKE BAY BOARD OF JAMES CITY COUNTY, VIRGINIA WILL HOLD A PUBLIC HEARING ON **WEDNESDAY FEBRUARY 14, 2018 AT 5 P.M.** IN THE BOARD ROOM OF BUILDING F, 101 MOUNTS BAY ROAD, JAMES CITY COUNTY, VIRGINIA.

THE CHESAPEAKE BAY BOARD WILL CONSIDER THE FOLLOWING CASES:

CBE-18-052: TSP Lawn and Landscape, on behalf of Ms. Catherine Hortenstine, has filed an exception request for encroachment into the RPA buffer for construction of a patio and retaining walls at 124 Mathews Grant in the Kingsmill subdivision, JCC Parcel No 5030300054.

CBE-18-060: Toby Development LLC has filed an exception request for encroachment into the RPA buffer for construction of a single family house and deck at 4029 South Riverside Drive in the Chickahominy Haven subdivision, JCC Parcel No 1910300005.

CBE-18-046: Delightful Gardens, on behalf of Ms. Lisa Goodman, has filed an exception request for encroachment into the RPA buffer for construction of a detached garage and swimming pool at 2405 Sarah Spence in the Vineyards subdivision, JCC Parcel No 4840200017.

Appeals from decisions under the Chesapeake Bay Preservation Ordinance may also be heard.

All interested parties are invited to attend the meetings. The applications and plans are on file and may be viewed during normal office hours in the Stormwater and Resource Protection Division, 101 Mounts Bay Road, Building E, James City County, Virginia.

NOT FOR PUBLICATION

DISPLAY: WEDNESDAY – January 31, 2017 and February 7, 2018.
ACCOUNT NO.: 0011040200 - VIRGINIA GAZETTE

COPIES: PLANNING
ASSISTANT COUNTY ATTORNEY
WETLAND/CHESAPEAKE BAY BOARD MEMBERS

General Services
Stormwater and Resource
Protection Division
101-E Mounts Bay Road
Williamsburg, VA 23185

Resource.Protection@jamescitycountyva.gov

January 23, 2018

RE: CBE-18-060
4029 S Riverside Drive
SFD & deck

Dear Adjacent Property Owner:

In accordance with State and County Codes, this letter is to notify you that a request has been filed with the James City County Chesapeake Bay Board by Toby Development LLC, for encroachment into the Resource Protection Area (RPA) associated with construction of a single family dwelling with a deck at 4029 S Riverside Drive in the Chickahominy Haven subdivision. The property is further identified by James City County Real Estate as Parcel No. 1910300005.

A complete description, plan, and other information are on file in the Stormwater and Resource Protection Division and are available for inspection during normal business hours, should anyone desire to review them.

The Chesapeake Bay Board will hold an advertised public hearing **Wednesday**, **February 14, 2018 at 5 p.m.** in the Board Room of Building F, 101 Mounts Bay Road, James City County, Virginia, at which time you may request to speak on the above referenced project.

Sincerely,

Janice Petty

Janice Petty
Stormwater Assistant

cc: Toby Development LLC

Mailing List for: CBE-18-060 – 4029 S Riverside Dr – SFD & Deck

1910300005 – Owner 4029 S Riverside Dr
Toby Development, LLC
3149 Parkside Lane
Williamsburg, VA 23188-7696

Robertson Liebler Development Group
5400 Discovery Park Boulevard, Suite 102
Williamsburg, VA 23188
Attn: Mr. Jon Liebler

1910300004 – 4031 S Riverside Dr.
Bland Enterprises
P O Box 3491
Williamsburg, VA 23187

1910300006
Todd C and Donna J Gill
4027 S Riverside Drive
Lanexa, VA 23089-9415

1910300012 – 4022 S Riverside
Kevin P Waitman
8620 Beatties Mill Rd
Mechanicsville, VA 23111-4937

1910300010
Shannon K Burley
4026 S Riverside Drive
Lanexa, VA 23089-9411

Chickahominy Haven Citizens Association
P O Box 106
Toano, VA 23168-0106

AGENDA ITEM NO. D.3.

ITEM SUMMARY

DATE: 2/14/2018

TO: Chesapeake Bay Board

FROM: Trevor Long

SUBJECT: CBE-18-052 : 124 Mathews Grant

Catherine Hortenstine has applied for an exception for encroachments into the RPA buffer associated with the installation of a patio and retaining walls on property located at 124 Mathews Grant in the Kingsmill subdivision.

ATTACHMENTS:

	Description	Type
🗋	Staff Report	Staff Report
🗋	Resolution	Resolution
🗋	Water Quality Impact Assessment	Backup Material
🗋	Site Plan	Backup Material
🗋	Public Hearing Notice	Backup Material
🗋	APO Notification Letter	Backup Material
🗋	APO Notification List	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Chesapeake Bay Group	Woolson, Michael	Approved	2/9/2018 - 9:06 AM
Chesapeake Bay Group	Geissler, Fran	Approved	2/12/2018 - 1:28 PM
Publication Management	Burcham, Nan	Approved	2/12/2018 - 1:37 PM
Chesapeake Bay Group	Secretary, ChesBay	Approved	2/12/2018 - 1:39 PM

CHESAPEAKE BAY BOARD EXCEPTION No. CBE-18-052. 124 Mathews Grant
Staff report for the February 14, 2018, Chesapeake Bay Board Public Hearing

This staff report is prepared by James City County Stormwater and Resource Protection to provide information to the Chesapeake Bay Board to assist them in making a recommendation on this assessment. It may be useful to members of the general public interested in this assessment.

EXISTING SITE DATA AND INFORMATION

Applicant:	Ms. Catherine Hortenstine
Agent:	Mr. Mike Burling, TSP Lawn & Landscapes
Location:	124 Mathews Grant
Tax Map/Parcel No.:	5030300054
Parcel:	Lot 54, Tutter's Neck, Kingsmill
Lot Size:	0.46 acre
Area of Lot in Resource Protection Area (RPA):	0.21 acre +/- (46%)
Watershed:	College Creek (HUC JL34)
Floodplain:	Not Applicable
Proposed Activity:	Construction of a patio and retaining wall
Impervious Cover:	660 square feet
RPA Encroachment:	Landward 50-foot RPA buffer
Staff Contact:	Michael D. Woolson, Senior Watershed Planner Phone: 253-6823

BRIEF SUMMARY AND DESCRIPTION OF ACTIVITIES

Mike Burling of TSP Lawn & Landscapes, on behalf of Catherine Hortenstein, has applied for a Chesapeake Bay Exception for encroachments into the RPA buffer for the construction of a retaining wall, patio and steps on property located at 124 Mathews Grant within the Tutter's Neck section of the Kingsmill subdivision and the College Creek watershed. The property is further identified as James City County Real Estate Tax Map Parcel No. 5030300054. The parcel was platted in 1978, prior to the adoption of the Chesapeake Bay Preservation Ordinance in 1990.

The existing condition of this property is a moderately maintained single-family dwelling and back yard on the creek system within the Kingsmill subdivision. The retaining wall, patio and steps are considered accessory structures; therefore, the entire proposal for 660 square feet of RPA impact is before the Board. The applicant is proposing the plantings of three to 15 native understory trees, 20+ native shrubs, 50+ square feet of native ground cover and 2,500 square feet of mulch to compensate for the impacts.

STAFF EVALUATION

Staff has evaluated the application and exception request for the construction of a retaining wall, patio and

steps and finds that the application has met the conditions in Sections 23-11 and 23-14 and that the application should be heard by the Board because there are accessory structures proposed. Therefore, this request must be considered by the Board following a public hearing under the formal exception process.

WATER QUALITY IMPACT ASSESSMENT (WQIA)

A WQIA was submitted, per Sections 23-11 and 23-14 of the County Ordinance, for any proposed land disturbing activity resulting from development or redevelopment within RPAs. The applicant has submitted the required information as outlined in the *James City County Sensitive Area Activity Application* and has submitted a mitigation proposal which includes over two planting units, exceeding the County requirements. The total mitigation proposed is three to 15 understory trees, over 20 shrubs and over 50 square feet of native ground cover.

CONSIDERATION BY THE CHESAPEAKE BAY BOARD

The exception granting body is permitted to require reasonable and appropriate conditions in granting the exception request in accordance with Section 23-14 of the County Code. The Chesapeake Bay Board should fully consider Chesapeake Bay Exception CBE-18-060 as outlined and presented above and review the request for exception along with the WQIA. The Board may grant the exception with such conditions and safeguards as deemed necessary to further the purpose and intent of the County's Chesapeake Bay Preservation Ordinance.

STAFF RECOMMENDATIONS

Staff has reviewed the application and exception request and has determined impacts associated with the proposal to be minor for the proposed development. Staff recommends approval of this exception request with the following conditions incorporated into the approval:

1. The applicant must obtain all other necessary federal, state and local permits as required for the project; and

2. Surety of $500 will be required in a form acceptable to the County Attorney's office to guarantee the mitigation plantings; and

3. This exception request approval shall become null and void if construction has not begun by February 14, 2019; and

4. Written requests for an extension to an exception shall be submitted to the Stormwater and Resource Protection Division no later than six weeks prior to the expiration date.

MDW/nb
CBE18-052-124MathewsGr

Attachments:
1. Resolution
2. Water Quality Impact Assessment Package
3. Site and Mitigation Plan

R E S O L U T I O N

CASE NO. CBE-18-052. 124 MATHEWS GRANT

JAMES CITY COUNTY CHESAPEAKE BAY PRESERVATION ORDINANCE EXCEPTION

WHEREAS, Ms. Catherine Hortenstine (the "Applicant"), has applied to the Chesapeake Bay Board of James City County (the "Board") on February 14, 2018, to request an exception to use the Resource Protection Area (the "RPA") on a parcel of property identified as James City County Real Estate Tax Map Parcel No. 5030300054 and further identified as 124 Mathews Grant in the Kingsmill subdivision (the "Property") as set forth in the application CBE-18-052 for the purpose of constructing a patio and retaining wall; and

WHEREAS, the Board has listened to the arguments presented and has carefully considered all evidence entered into the record.

NOW, THEREFORE, BE IT RESOLVED that the Chesapeake Bay Board of James City County, Virginia, following a public hearing, by a majority vote of its members FINDS that:

1. The exception request is the minimum necessary to afford relief.

2. Granting the exception will not confer upon the applicant any special privileges denied by Chapter 23, Chesapeake Bay Preservation, of the James City County Code, to other property owners similarly situated in the vicinity.

3. The exception request will be in harmony with the purpose and intent of Chapter 23 of the James City County Code and is not of substantial detriment to water quality.

4. The exception request is not based on conditions or circumstances that are self-created or self-imposed nor does the request arise from conditions or circumstances either permitted or non-conforming that are related to adjacent parcels.

5. Reasonable and appropriate conditions are hereby imposed, as set forth below, which will prevent the exception request from causing a degradation of water quality.

6. In granting this exception, the following conditions are hereby imposed to prevent this exception request from causing degradation of water quality:

    a. The applicant must obtain all other necessary federal, state and local permits and permissions as required for the project; and

    b. Surety of $500 will be required in a form acceptable to the County Attorney's office to guarantee the mitigation plantings; and

    c. This exception request approval shall become null and void if construction has not begun by February 14, 2018; and

d. Written requests for an extension to this exception shall be submitted to the Stormwater and Resource Protection Division no later than six weeks prior to the expiration date.

_____	_____
David Gussman	Michael Woolson
Chair, Chesapeake Bay Board	Senior Watershed Planner

Adopted by the Chesapeake Bay Board of James City County, Virginia, this 14th day of February, 2018.

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 20___ IN THE COMMONWEALTH OF VIRGINIA, IN THE COUNTY OF JAMES CITY.

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

CBB18-052-124MathewsGr-res

Chesapeake Bay Preservation Ordinance
Sensitive Area Activity Application

DEC 28 2017

For Office Use Only
CBE
CB Number 18-0052

Submission Requirements: **(Check all applicable)**

- ☐ A $25 non-refundable processing fee payable to Treasurer, James City County.
- ☐ RPA - landward 50' – Complete Items 1 – 5, and sign on Page 3.
- ☐ RPA - seaward 50' – Complete Items 1 – 5, sign on Page 3 and submit an additional $100 non-refundable fee payable to Treasurer, James City County, for the Chesapeake Bay Board.
- ☐ Conservation Easement – Complete Items 1, 2, 3, and 5, and sign on Page 3.
- ☐ Steep Slopes ≥ 25 percent - Complete Items 1, 2, 3, and 5, and sign on Page 3.
- ☐ Attach plans as required (see instruction on Page 4, Item 4).
- ☐ Applicable surety as required for mitigation (see **Mitigation Rates Table** on Page 2).

Upon completion, please return pages 1-3 to the JCC Engineering and Resource Protection Division

Property Owner Information: Date: 12-21-17

Name: Catherine Hortenstine
Address: 124 Matthews Grant
Phone: 804-839-9676 Fax: _____ Email: Cathyhortenstine@Gmail.com

Contact (if different from above):

Name: Mike Burling - TSP Landscapes Phone: 757-369-9076
Email: tye@TSPlawns.com

Project Information:

Project Address: 124 Matthews Grant, Kingsmill, Wburg VA 23185
Subdivision Name, Lot, and Section No.: Tuttes neck Lot 54
Parcel Identification No. or Tax Map No.: 5030500054
Date Lot was platted: 3/31/78 Line or Bldg Permit No.: _____

Activity Location and Impacts (Square Feet - SF): (check all that apply)

- ☐ Steep Slopes ≥ 25 percent _____ (SF)
- ☐ Conservation Easement _____ (SF)
- ☐ Trees to be Removed _____ (#)
- ☐ RPA - Landward 50' _____ (SF)
- ☐ RPA - Seaward 50' _____ (SF)
- ☐ Proposed Impervious Cover _____ (SF)

Activity involves: (check all that apply)

- ☐ New principal structure construction
- ☐ Permitted buffer modifications:
- ☐ Building addition to principal structure
- ☐ Dead/diseased/dying tree removal
- ☐ Invasive/noxious weed removal
- ☐ Redevelopment: _____
- ☐ Attached Deck
- ☐ Sightline
- ☐ Access path/trail
- ☑ Accessory (Detached) Structure or Patio
- ☐ Other: Construct Retaining Wall around Patio ; Install steps down Hill

For Office Use Only
CB Number CBE 18-052

1. **Description of requested sensitive area activity and reason for request:**

(In the description, please indicate the reason for the proposed structure or activity, the location, sizes and dimensions of feature. For decks or expansions, indicate if ground floor, first floor or other levels)

Install patio near Deck to have a level surface for living area in back
Retaining wall to allow for leveling of area and to reduce soil erosion
Steps down hill to allow for access Othra fencing and to lower part of garden. 660 sq. ft.

2. As per Section 23-9 of the Chesapeake Bay Preservation Ordinance, if there is an on-site sewage disposal system on this property, has it been inspected and/or pumped out is the past five years? ☐ **Yes** ☒ **No**

3. Are permits from other local, State or Federal agencies required for any portion of this project? ☐ **Yes** ☒ **No**
(If yes, please explain) _____

4. **Water Quality Impact Assessment**

The purpose of a water quality impact assessment is to demonstrate that the project will result in the removal of no less than 75 percent of sediments and 40 percent of nutrients from post-development stormwater run-off and that it will retard runoff, prevent accelerated erosion, promote infiltration, and filter non-point source pollution equivalent to the full undisturbed 100-foot buffer.

A. Why is this encroachment necessary? Can it be relocated to avoid RPA impacts?
no, most of Backyard in RPA

B. What measures will be used to minimize impervious area? Examples: pervious pavers, removal of existing impervious surfaces (concrete, pavement, etc.) in the RPA not needed for the project
Lots of compacted soil; Erosion from previous neglect. Replace eroded soil; mulch, Add perennial Bed, shrubs and small plants to help maintain soil.

5. **Proposed mitigation measures:**

Note: All mitigation measures must be shown in detail on a mitigation plan. Show both location of mitigation measures and plant species if applicable. All mitigation plants must be native species and be located in the sensitive area (RPA or Conservation Easement).

Mitigation Rates Table

Impervious Area (SF)	Mitigation Required	Surety
<400	1 tree and 3 shrubs	$250
400-1,000	1 canopy tree, 2 understory trees and 3 shrubs per 400 SF (or fraction thereof)	$1,000
>1,000	Plant at same rate as 400 – 1,000; or may be determined by Director of Engineering and Resource Protection Division	To be determined

For Office Use Only
CB Number CBE 18-052

A. Vegetation/ground cover enhancement of buffer (see Mitigation Rates Table on previous page).

- ☐ Number of native canopy trees _____
- ☑ Number of native understory trees 3 – 15
- ☑ Number of native shrubs 20+
- ☐ Square feet of native ground cover 50+
- ☑ Square feet of mulch 2,500

B. Best Management Practices (BMPs)

- ☐ EC-2 (degradable) erosion control matting
- ☐ Dry Swale
- ☑ Silt fence
- ☐ Turf (Nutrient) Management Plan
- ☐ Bioretention or rain garden practice
- ☐ Infiltration Area/Trench/Drywell
- ☐ Structural BMP (Wet or Dry Pond)
- ☐ Rain Barrel
- ☑ Gravel under deck (3" of gravel over synthetic filter fabric under entire deck area)
- ☐ Other: _____

I understand that the following are approval conditions:

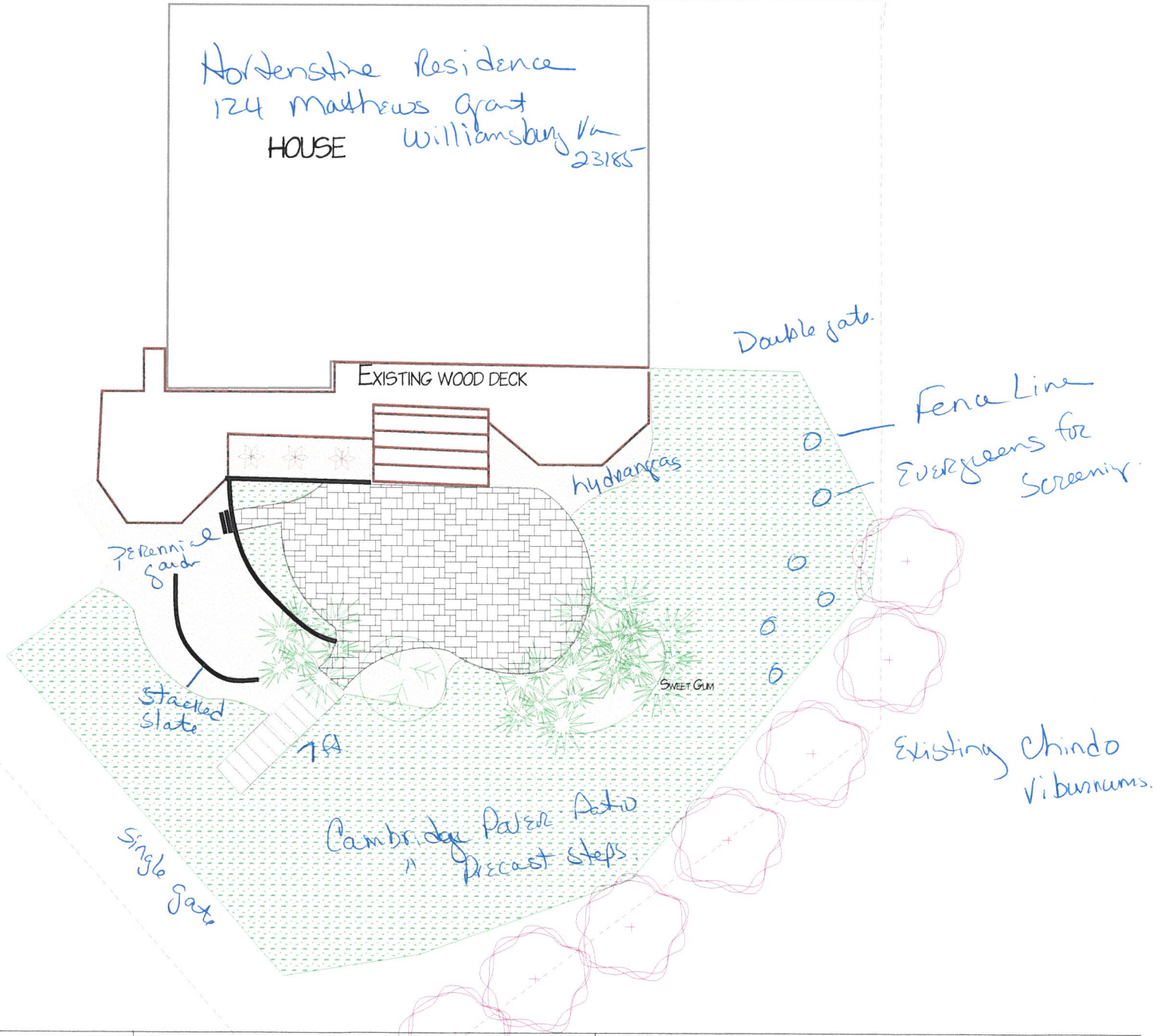
1) **Mitigation for the above activity shall follow the approved mitigation plan and be guaranteed with a form of surety acceptable to the County Attorney.**
2) **Limits of disturbance as shown on the approved plan shall not be exceeded.**
3) **This approval shall become null and void if construction has not begun within 12 months of the approval date.**
4) **Surety will be released following the completion and inspection of mitigation plantings.**

Property owner signature _____ Date 12-21-17

Program Administrator _____ Date _____
Authorized Signature

For Office Use Only	**Surety Amount:** _____ **Date/Rec No.:** _____ **Fee Paid?** ☑ **Yes** ☐ **No** **Amount:** 125.00 **Date/Rec No.:** 12/27/17 #3211

CME 18-057



Revision #: 1 Date: 12/22/2017	Scale: 1/16" = 1'	Landscape Plan: 1 Hortenstine Residence	Landscape Design by: Michael Burling TSP Lawn & Landscaping, Inc

PUBLIC HEARING NOTICE

THE CHESAPEAKE BAY BOARD OF JAMES CITY COUNTY, VIRGINIA WILL HOLD A PUBLIC HEARING ON **WEDNESDAY FEBRUARY 14, 2018 AT 5 P.M.** IN THE BOARD ROOM OF BUILDING F, 101 MOUNTS BAY ROAD, JAMES CITY COUNTY, VIRGINIA.

THE CHESAPEAKE BAY BOARD WILL CONSIDER THE FOLLOWING CASES:

CBE-18-052: TSP Lawn and Landscape, on behalf of Ms. Catherine Hortenstine, has filed an exception request for encroachment into the RPA buffer for construction of a patio and retaining walls at 124 Mathews Grant in the Kingsmill subdivision, JCC Parcel No 5030300054.

CBE-18-060: Toby Development LLC has filed an exception request for encroachment into the RPA buffer for construction of a single family house and deck at 4029 South Riverside Drive in the Chickahominy Haven subdivision, JCC Parcel No 1910300005.

CBE-18-046: Delightful Gardens, on behalf of Ms. Lisa Goodman, has filed an exception request for encroachment into the RPA buffer for construction of a detached garage and swimming pool at 2405 Sarah Spence in the Vineyards subdivision, JCC Parcel No 4840200017.

Appeals from decisions under the Chesapeake Bay Preservation Ordinance may also be heard.

All interested parties are invited to attend the meetings. The applications and plans are on file and may be viewed during normal office hours in the Stormwater and Resource Protection Division, 101 Mounts Bay Road, Building E, James City County, Virginia.

NOT FOR PUBLICATION

DISPLAY: WEDNESDAY – January 31, 2017 and February 7, 2018.
ACCOUNT NO.: 0011040200 - VIRGINIA GAZETTE

COPIES: PLANNING
ASSISTANT COUNTY ATTORNEY
WETLAND/CHESAPEAKE BAY BOARD MEMBERS

General Services
Stormwater and Resource
Protection Division
101-E Mounts Bay Road
Williamsburg, VA 23185

Resource.Protection@jamescitycountyva.gov

January 23, 2012

RE: CBE-18-052
124 Mathews Grant
Patio and Retaining Wall

Dear Adjacent Property Owner:

In accordance with State and County Codes, this letter is to notify you that a request has been filed with the James City County Chesapeake Bay Board by Mrs. Catherine E Hortenstine for encroachment into the Resource Protection Area (RPA) buffer associated with installation of a patio and retaining wall. The project is located at 124 Mathew's Grant in the Kingsmill on the James subdivision. The property is further identified by James City County Real Estate as Parcel No 5030300054.

A complete description, plan and other information are on file in the Stormwater Division and are available for inspection during normal business hours, should anyone desire to review them.

The Chesapeake Bay Board will hold an advertised public hearing on **Wednesday, February 14, 2018 at 5:00 p.m.**, in the Board Room of Building F, 101 Mounts Bay Road, James City County, Virginia, at which time you may request to speak on the above referenced project.

Sincerely,

Janice Petty

Janice Petty
Stormwater Assistant

cc: Mike Burling, TSP Lawn & Landscapes

Mailing List for: CBE-18-052 – 124 Mathews Grant – Catherine –Hortenstine- Wall, Access Stairs, Slope Stabilization

Owner: 5030300054
Hortenstine, Henry R, III & Catherine E
124 Mathews Grant
Williamsburg, VA 23185-5143

TSP Lawn & Landscapes
Attn: Mr. Mike Burling
310 Grafton Drive
Yorktown, VA 23692

5030300052 – 116 Mathews Grant
Bonday, Steven R
P.O. Box 378
Kitty Hawk, NC 27949-0378

5030300001F – 206 Tutter's Neck
James City Service Authority
119 Tewning Road
Williamsburg, VA 23188-2639

5030300055
Gajda, Thomas A & Ellen S
128 Mathews Grant
Williamsburg, VA 23185-5143

4940200056
Weiner, Eric A & Valerie H
125 Mathews Grant
Williamsburg, VA 23185-5142

4940200053
Simmons, Roger R & Sheila J
120 Mathews Grant
Williamsburg, VA 23185-5143

Kingsmill Community Services Association
P.O. Box 348
Williamsburg, VA 23187-0348

AGENDA ITEM NO. D.4.

ITEM SUMMARY

DATE: 2/14/2018

TO: Chesapeake Bay Board

FROM: Michael Woolson, Senior Watershed Planner

SUBJECT: CBE-18-046 : 2405 Sarah Spence

Lisa Goodman has applied for an exception for encroachments into the RPA buffer associated with the installation of a detached garage and swimming pool on property located at 2405 Sarah Spence in the Yineyards subdivision.

ATTACHMENTS:

	Description	Type
	Staff Report	Staff Report
	Resolution	Resolution
	Water Quality Impact Assessment	Backup Material
	Site Plan	Backup Material
	Bio-Retention Specifications	Backup Material
	Public Hearing Notice	Backup Material
	APO Notification Letter	Backup Material
	APO Notification List	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Chesapeake Bay Group	Woolson, Michael	Approved	2/12/2018 - 10:15 AM
Chesapeake Bay Group	Geissler, Fran	Approved	2/12/2018 - 1:29 PM
Publication Management	Burcham, Nan	Approved	2/12/2018 - 1:50 PM
Chesapeake Bay Group	Secretary, ChesBay	Approved	2/12/2018 - 3:54 PM

CHESAPEAKE BAY BOARD EXCEPTION No. CBE-18-046. 2405 Sarah Spence
Staff report for the February 14, 2018, Chesapeake Bay Board Public Hearing

This staff report is prepared by James City County Stormwater and Resource Protection to provide information to the Chesapeake Bay Board to assist them in making a recommendation on this assessment. It may be useful to members of the general public interested in this assessment.

EXISTING SITE DATA AND INFORMATION

Applicant:	Ms. Lisa Goodman
Agent:	Mr. Don Newsom, Delightful Gardens
Location:	2405 Sarah Spence
Tax Map/Parcel No.:	4840200017
Parcel:	Lot 17, Phase 2, Vineyards at Jockey's Neck
Lot Size:	0.78 acre
Area of Lot in Resource Protection Area (RPA):	0.41 acre +/- (53%)
Watershed:	College Creek (HUC JL34)
Floodplain:	Not Applicable
Proposed Activity:	Construction of a detached garage and a lap pool
Impervious Cover:	1,181 square feet
RPA Encroachment:	Landward 50-foot RPA buffer
Staff Contact:	Michael D. Woolson, Senior Watershed Planner Phone: 253-6823

BRIEF SUMMARY AND DESCRIPTION OF ACTIVITIES

Mr. Don Newsom, of Delightful Gardens, on behalf of Ms. Lisa Goodman, has applied for a Chesapeake Bay Exception for encroachments into the RPA buffer for the construction of a detached garage and lap pool on property located at 2405 Sarah Spence within the Vineyards at Jockey's Neck subdivision and the College Creek watershed. The property is further identified as James City County Real Estate Tax Map Parcel No. 4840200017. The house was built in 1996, after to the adoption of the Chesapeake Bay Preservation Ordinance in 1990 but before the 2004 Ordinance revisions.

The existing condition of this property is a moderately maintained single-family dwelling and back yard on the lake with minimal intact RPA buffer within the Vineyards at Jockey's Neck subdivision. The detached garage and pool are considered are considered accessory structures; therefore, the entire proposal for 1,181 square feet of RPA impact is before the Board. This also includes a portion of new driveway to reach the proposed garage. The applicant is proposing the four planting units (four canopy trees, eight understory trees and 12 shrubs) plus mulch within the seaward 50-foot RPA buffer. In addition, they are proposing a bioretention basin capturing 4,831 square feet of impervious cover. The bioretention basin will also be planted with appropriate plant material in addition to the four planting units.

STAFF EVALUATION

Staff has evaluated the application and exception request for the construction of a detached garage and lap pool and finds that the application has met the conditions in Sections 23-11 and 23-14 and that the application should be heard by the Board because there are accessory structures proposed. Therefore, this request must be considered by the Board following a public hearing under the formal exception process.

WATER QUALITY IMPACT ASSESSMENT (WQIA)

A WQIA was submitted, per Sections 23-11 and 23-14 of the County Ordinance, for any proposed land disturbing activity resulting from development or redevelopment within RPAs. The applicant has submitted the required information as outlined in the *James City County Sensitive Area Activity Application* and has submitted a mitigation proposal which includes four planting units plus a bioretention basin, exceeding the County requirements. The total mitigation proposed is four canopy trees, eight understory trees, 12 shrubs and a bioretention basin.

CONSIDERATION BY THE CHESAPEAKE BAY BOARD

The exception granting body is permitted to require reasonable and appropriate conditions in granting the exception request in accordance with Section 23-14 of the County Code. The Chesapeake Bay Board should fully consider Chesapeake Bay Exception CBE-18-046 as outlined and presented above and review the request for exception along with the WQIA. The Board may grant the exception with such conditions and safeguards as deemed necessary to further the purpose and intent of the County's Chesapeake Bay Preservation Ordinance.

STAFF RECOMMENDATIONS

Staff has reviewed the application and exception request and has determined impacts associated with the proposal to be moderate for the proposed development. Staff recommends approval of this exception request with the following conditions incorporated into the approval:

1. The applicant must obtain all other necessary federal, state and local permits as required for the project; and

2. Surety of $2,000 will be required in a form acceptable to the County Attorney's office to guarantee the mitigation plantings and bioretention facility; and

3. The Bioretention facility shall conform to the guidelines set forth in the Virginia DEQ Stormwater Design Specification No. 9, latest version; and

4. This exception request approval shall become null and void if construction has not begun by February 14, 2019; and

5. Written requests for an extension to an exception shall be submitted to the Stormwater and Resource Protection Division no later than six weeks prior to the expiration date.

MDW/nb
CBE18-046-2405SarahS

Attachments:
1. Resolution
2. Water Quality Impact Assessment Package
3. Site and Mitigation Plan
4. Bioretention Specification Sheet

R E S O L U T I O N

CASE NO. CBE-18-046. 2405 SARAH SPENCE

JAMES CITY COUNTY CHESAPEAKE BAY PRESERVATION ORDINANCE EXCEPTION

WHEREAS, Ms. Lisa Goodman (the "Applicant"), has applied to the Chesapeake Bay Board of James City County (the "Board") on February 14, 2018, to request an exception to use the Resource Protection Area (the "RPA") on a parcel of property identified as James City County Real Estate Tax Map Parcel No. 4840200017 and further identified as 2405 Sarah Spence in the Vineyards at Jockey's Neck subdivision (the "Property") as set forth in the application CBE-18-046 for the purpose of constructing a detached garage and lap pool; and

WHEREAS, the Board has listened to the arguments presented and has carefully considered all evidence entered into the record.

NOW, THEREFORE, BE IT RESOLVED that the Chesapeake Bay Board of James City County, Virginia, following a public hearing, by a majority vote of its members FINDS that:

1. The exception request is the minimum necessary to afford relief.

2. Granting the exception will not confer upon the applicant any special privileges denied by Chapter 23, Chesapeake Bay Preservation, of the James City County Code, to other property owners similarly situated in the vicinity.

3. The exception request will be in harmony with the purpose and intent of Chapter 23 of the James City County Code and is not of substantial detriment to water quality.

4. The exception request is not based on conditions or circumstances that are self-created or self-imposed nor does the request arise from conditions or circumstances either permitted or non-conforming that are related to adjacent parcels.

5. Reasonable and appropriate conditions are hereby imposed, as set forth below, which will prevent the exception request from causing a degradation of water quality.

6. In granting this exception, the following conditions are hereby imposed to prevent this exception request from causing degradation of water quality:

    a. The applicant must obtain all other necessary federal, state and local permits and permissions as required for the project; and

    b. Surety of $2,000 will be required in a form acceptable to the County Attorney's office to guarantee the mitigation plantings and bioretention facility; and

    c. This exception request approval shall become null and void if construction has not begun by February 14, 2019; and

d. Written requests for an extension to this exception shall be submitted to the Stormwater and Resource Protection Division no later than six weeks prior to the expiration date.

_____	_____
David Gussman	Michael Woolson
Chair, Chesapeake Bay Board	Senior Watershed Planner

Adopted by the Chesapeake Bay Board of James City County, Virginia, this 14th day of February, 2018.

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 20___ IN THE COMMONWEALTH OF VIRGINIA, IN THE COUNTY OF JAMES CITY.

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

CBE18-046-2405SarahS-res

NOV 30 2017

Chesapeake Bay Preservation Ordinance
Sensitive Area Activity Application

For Office Use Only
CB Number CBE 18-046

Submission Requirements: (Check all applicable)

- ☐ A $25 non-refundable processing fee payable to Treasurer, James City County.
- ☐ RPA - landward 50' – Complete Items 1 – 5, and sign on Page 3.
- ☐ RPA - seaward 50' – Complete Items 1 – 5, sign on Page 3 and submit an additional $100 non-refundable fee payable to Treasurer, James City County, for the Chesapeake Bay Board.
- ☐ Conservation Easement – Complete Items 1, 2, 3, and 5, and sign on Page 3.
- ☐ Steep Slopes ≥ 25 percent - Complete Items 1, 2, 3, and 5, and sign on Page 3.
- ☐ Attach plans as required (see instruction on Page 4, Item 4).
- ☐ Applicable surety as required for mitigation (see **Mitigation Rates Table** on Page 2).

Upon completion, please return pages 1-3 to the JCC Engineering and Resource Protection Division

Property Owner Information: Date: 11/30/17

Name: MRS. LISA GOODMAN
Address: 2405 SARAH SPENCE COURT
Phone: 804 854 3863 Fax: _____ Email: BLOWFLOWERS.LISA@YAHOO.COM

Contact (if different from above):

Name: DON NEWSOM Phone: 757 345 0123
Email: DON@DELIGHTFULGARDENS.COM

Project Information:

Project Address: 2405 SARAH SPENCE COURT
Subdivision Name, Lot, and Section No.: THE VINEYARDS AT JOCKEY'S NECK LOT 17 PHASE II
Parcel Identification No. or Tax Map No.: 4840200017
Date Lot was platted: 3/2/07 Line or Bldg Permit No.: _____

Activity Location and Impacts (Square Feet - SF): (check all that apply)

- ☐ Steep Slopes ≥ 25 percent _____ (SF)
- ☐ Conservation Easement _____ (SF)
- ☐ Trees to be Removed _____ (#)
- ☐ RPA - Landward 50' _____ (SF)
- ☐ RPA - Seaward 50' _____ (SF)
- ☐ Proposed Impervious Cover _____ (SF)

Activity involves: (check all that apply)

- ☐ New principal structure construction
- ☐ Permitted buffer modifications:
- ☐ Accessory (Detached) Structure or Patio
- ☐ Other: _____
- ☐ Building addition to principal structure
- ☐ Dead/diseased/dying tree removal
- ☐ Invasive/noxious weed removal
- ☐ Redevelopment: _____
- ☐ Attached Deck
- ☐ Sightline
- ☐ Access path/trail

For Office Use Only
CB Number CBE 18-016

1. Description of requested sensitive area activity and reason for request:

(In the description, please indicate the reason for the proposed structure or activity, the location, sizes and dimensions of feature. For decks or expansions, indicate if ground floor, first floor or other levels)
CONSTRUCTION OF DETACHED GARAGE AND LAP SWIMMING POOL

2. As per Section 23-9 of the Chesapeake Bay Preservation Ordinance, if there is an on-site sewage disposal system on this property, has it been inspected and/or pumped out is the past five years? ☐ **Yes** ☐ **No** N/A

3. Are permits from other local, State or Federal agencies required for any portion of this project? ☑ **Yes** ☐ **No**
(If yes, please explain) BUILDING PERMITS

4. Water Quality Impact Assessment

The purpose of a water quality impact assessment is to demonstrate that the project will result in the removal of no less than 75 percent of sediments and 40 percent of nutrients from post-development stormwater run-off and that it will retard runoff, prevent accelerated erosion, promote infiltration, and filter non-point source pollution equivalent to the full undisturbed 100-foot buffer.

A. Why is this encroachment necessary? Can it be relocated to avoid RPA impacts?

B. What measures will be used to minimize impervious area? Examples: pervious pavers, removal of existing impervious surfaces (concrete, pavement, etc.) in the RPA not needed for the project

5. Proposed mitigation measures:

Note: All mitigation measures must be shown in detail on a mitigation plan. Show both location of mitigation measures and plant species if applicable. All mitigation plants must be native species and be located in the sensitive area (RPA or Conservation Easement).

Mitigation Rates Table

Impervious Area (SF)	Mitigation Required	Surety
<400	1 tree and 3 shrubs	$250
400-1,000	1 canopy tree, 2 understory trees and 3 shrubs per 400 SF (or fraction thereof)	$1,000
>1,000	Plant at same rate as 400 – 1,000; or may be determined by Director of Engineering and Resource Protection Division	To be determined

For Office Use Only
CB Number CBE18-044

A. Vegetation/ground cover enhancement of buffer (see Mitigation Rates Table on previous page).

- [x] Number of native canopy trees 2
- [ ] Number of native understory trees
- [x] Number of native shrubs 6
- [ ] Square feet of native ground cover
- [ ] Square feet of mulch

B. Best Management Practices (BMPs)

- [ ] EC-2 (degradable) erosion control matting
- [ ] Dry Swale
- [ ] Silt fence
- [ ] Turf (Nutrient) Management Plan
- [x] Bioretention or rain garden practice
- [ ] Infiltration Area/Trench/Drywell
- [ ] Structural BMP (Wet or Dry Pond)
- [ ] Rain Barrel
- [ ] Gravel under deck (3" of gravel over synthetic filter fabric under entire deck area)
- [ ] Other: ELIMINATE TURF NEXT TO LAKE. PIPE DOWNSPOUTS INTO RAIN GARDEN.

I understand that the following are approval conditions:

1) **Mitigation for the above activity shall follow the approved mitigation plan and be guaranteed with a form of surety acceptable to the County Attorney.**
2) **Limits of disturbance as shown on the approved plan shall not be exceeded.**
3) **This approval shall become null and void if construction has not begun within 12 months of the approval date.**
4) **Surety will be released following the completion and inspection of mitigation plantings.**

Property owner signature _____ Date Nov 30 2017

Program Administrator _____ Date _____
Authorized Signature

For Office Use Only	**Surety Amount:** _____ **Date/Rec No.:** _____ **Fee Paid?** ☒ **Yes** ☐ **No** **Amount:** 175.00 **Date/Rec No.:** 11/30/17 # 3265

GENERAL NOTES

1. A TITLE REPORT HAS NOT BEEN FURNISHED TO THIS FIRM.
2. ELEVATION SHOWN HEREON ARE IN FEET AND ARE RELATIVE TO JAMES CITY COUNTY GIS CONTOURS.
3. WETLANDS, IF ANY, WERE NOT RESEARCHED OR LOCATED FOR THIS PLAT.
4. THIS FIRM MADE NO ATTEMPT TO LOCATE UNDERGROUND UTILITIES.
5. PARCEL LIES IN F.I.R.M. ZONE "X" ACCORDING TO COMMUNITY PANEL #51095C0201D, DATED DECEMBER 16, 2015.
6. LOT SERVED BY PUBLIC WATER AND SEWER.
7. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS SHOWN HEREON.
8. TOPOGRAPHIC DATA AS SHOWN IS BASED ON A CURRENT FIELD SURVEY.
9. CONTRACTOR SHALL DETERMINE EXACT FINISH FLOOR ELEVATION AFTER EXCAVATION.

EROSION & SEDIMENT CONTROL NOTES

ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE "VIRGINIA EROSIONS AND SEDIMENT CONTROL HANDBOOK 1992 THIRD EDITION". THE CONTRACTOR SHALL BE THOROUGHLY FAMILIAR WITH ALL APPLICABLE MEASURES CONTAINED THEREIN WHICH MAY BE PERTINENT TO THIS PROJECT.

IMPROVEMENT INFORMATION

PROPOSED 8' x 14' ABOVE GROUND SWIMMING POOL

PROPOSED DETACHED 22' x 24' GARAGE

SITE INFORMATION

LOT NUMBER 17, PHASE II,
THE VINEYARD AT JOCKEY'S NECK

TOTAL AREA: ±34,434 S.F. / ±0.791 AC.

IMPERVIOUS WITHIN RPA

EXISTING	2,652 S.F.
REMOVED	−291 S.F.
PROPOSED	+1,181 S.F.
TOTAL	3,542 S.F.

DISTURBED AREA: 0.13 ACRES

PARCEL ID: 4840200017

ZONING DISTRICT: R1

PROPERTY IS LOCATED IN A RESOURCE PROTECTION AREA

EXISTING SITE IS CLEARED AS SHOWN

BUILDING SETBACK (SBL)

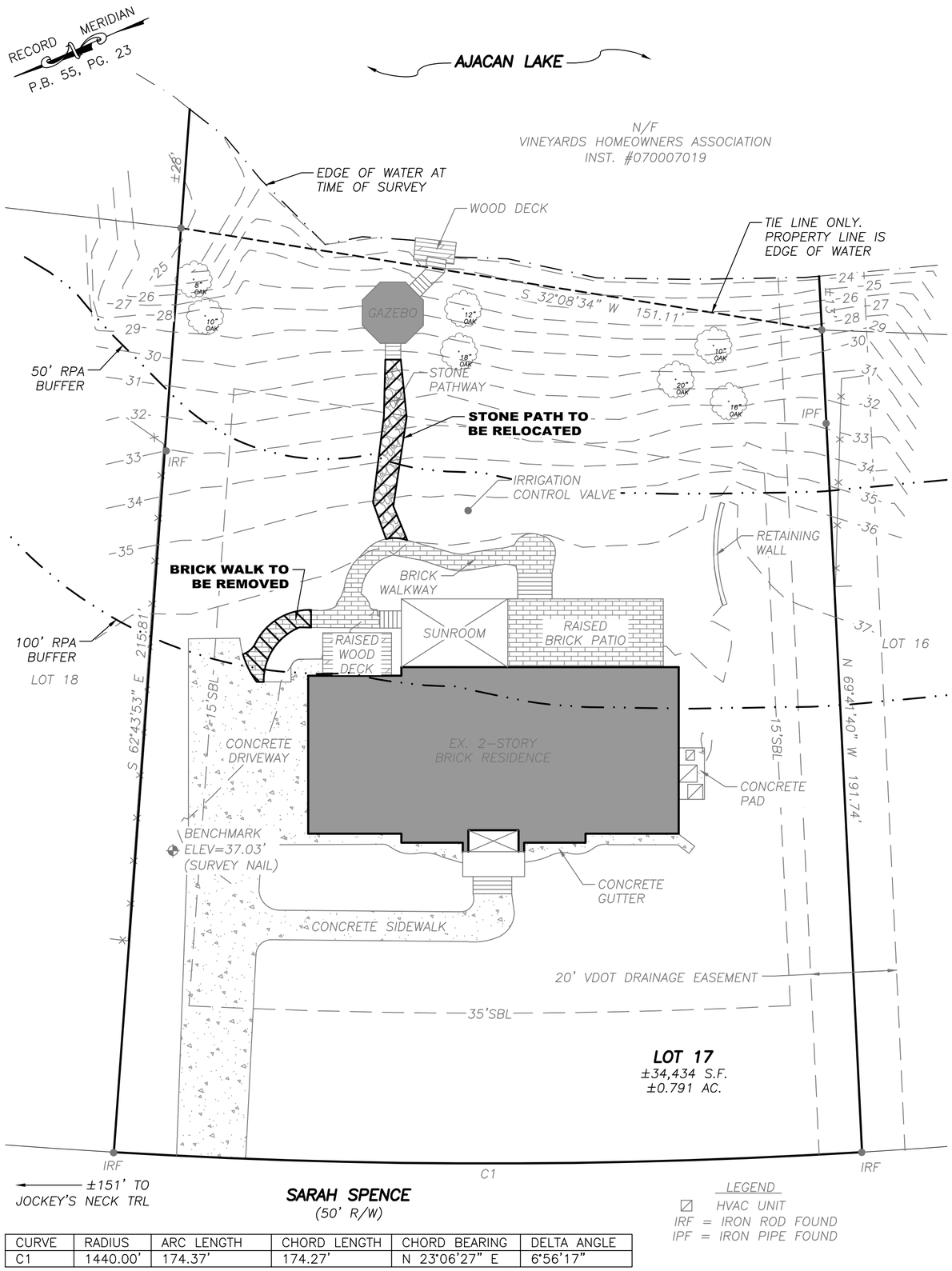
FRONT: 35'

REAR: 35'

SIDE: 15'

EXISTING ADDRESS:

2405 SARAH SPENCE
WILLIAMSBURG, VIRGINIA

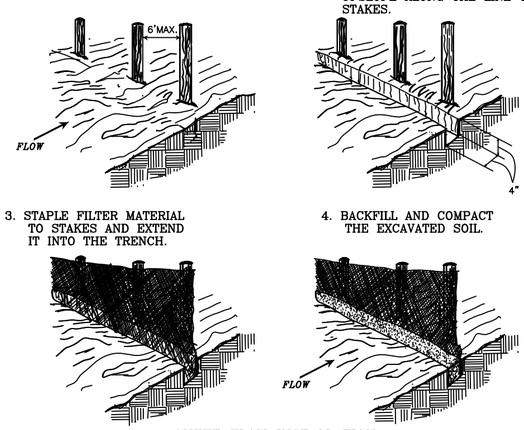


CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	1440.00'	174.37'	174.27'	N 23°06'27" E	6°56'17"

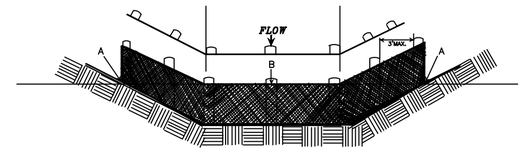
20 0 20 40 60
Scale: 1" = 20'

CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)

1. SET THE STAKES.
2. EXCAVATE A 4"X 4" TRENCH UPSLOPE ALONG THE LINE OF STAKES.
3. STAPLE FILTER MATERIAL TO STAKES AND EXTEND IT INTO THE TRENCH.
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



SHEET FLOW INSTALLATION
(PERSPECTIVE VIEW)



POINTS A SHOULD BE HIGHER THAN POINT B.

DRAINAGEWAY INSTALLATION
(FRONT ELEVATION)

SOURCE: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control,VA. DSWC Sherwood and Wyant

PLATE. 3.05-2

SHEET: 1 OF 3

COMMONWEALTH OF VIRGINIA
WILLIAM S. FELTS
Lic. No. 3149
02/09/2018
LAND SURVEYOR

DATE: 11-29-2017
DRAWN BY: CMH
PROJECT No. 17-371
FILE NAME: 17-371 - Design.dwg
REFERENCES:
P.B. 55, PG. 23

GARAGE & POOL ADDITION PLAN OF
LOT 17, PHASE II,
THE VINEYARD AT JOCKEY'S NECK
FOR
LISA GOODMAN
JAMES CITY COUNTY VIRGINIA

NO.	DATE	REVISION / COMMENT / NOTE
1	2/2/2018	REVISED POOL DESIGN
2	2/7/2018	REVISED FIRST PAGE NOTE
3	2/8/2018	REVISED POOL LOCATION
4	2/9/2018	ADDED PAGE 3 MITIGATION PLAN

LRI LANDTECH RESOURCES, INC.
ENGINEERING . SURVEYING . GPS
3925 Midlands Road Williamsburg, VA 23188
Ph: (757) 565-1677 Fax: (757) 565-0782
web: landtechresources.com

CONTRACTOR TO PROVIDE RIVER ROCK AT OUTFALL OF UNDERDRAIN

6" PVC UNDERDRAIN INV=±30.0

RELOCATED STONE PATH

BMP #1 SA=150 S.F. TOP=33.5

CONTRACTOR TO PROVIDE 2 ROWS OF SILT FENCE

18" OAK

10" OAK

20" OAK

16" OAK

SF

xx xx xx xx xx xx

30 31 32 33 34 35

IRF

33 34 35 36

5.5'

24.00'

GARAGE F.F.=37.0

22.00' 22.00'

FG=36.7

7.1'

24.00'

10.7'

EC=36.3

EC=36.5

EC=37.0

EC=36.8

EC=37.1

S 62°43'53" E 215.81'

35'SBL

15'SBL

RETAINING WALL

8' x 14' ABOVE GROUND SWIM SPA TO MATCH BRICK PATIO

SUNROOM

RAISED BRICK PATIO

RAISED WOOD DECK

CONCRETE DRIVEWAY

EX. 2-STORY BRICK RESIDENCE

CONCRETE PAD

CONCRETE GUTTER

CONCRETE SIDEWALK

BENCHMARK ELEV=37.03' (SURVEY NAIL)

10 0 10 20 30

Scale: 1" = 10'

SHEET: 2 OF 3

BMP #1–BIO–RETNETION FILTER

IMPERVIOUS AREA –
4,831 S.F.

TREATMENT VOLUME –
T_V = 5,288 S.F. x 0.04'
T_V = 212 cf

MEDIA DEPTH –

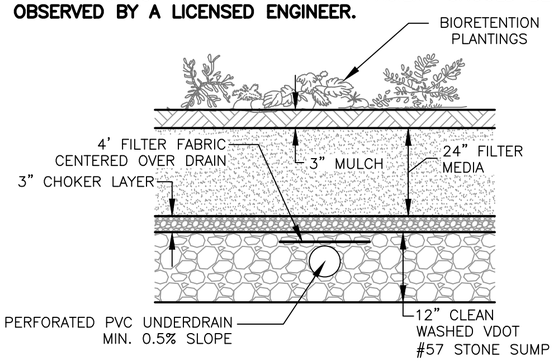
SOIL MEDIA (V_r=0.25):	DEPTH=24"
GRAVEL (V_r=0.40):	DEPTH=12"
CHOKER (V_r=0.20):	DEPTH=3"
SURFACE PONDING (V_r=1.00):	DEPTH=6"

BIO FILTER EQUIVALENT STORAGE DEPTH –
D_{eq} = (2.00' x 0.25) + (1.00' x 0.40)
+ (0.25 x 0.20) + (0.50' x 1.00)
D_{eq} = 1.45'

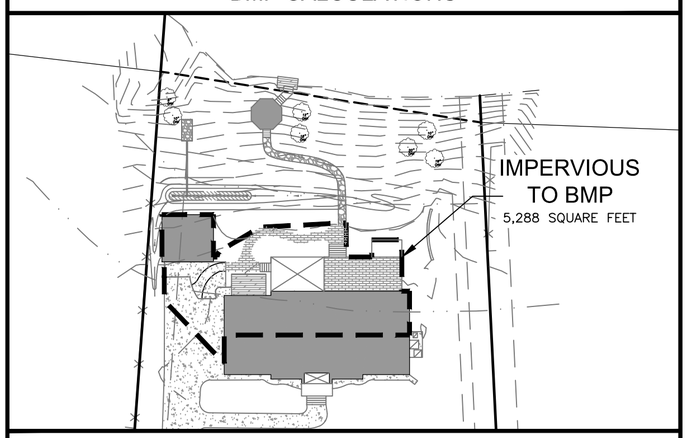
BIO FILTER SURFACE AREA –
SURFACE AREA (SA) = TREATMENT VOLUME (T_v) / D_{eq}
SA = 212 cf / 1.45'
SA = 146 S.F.*

* THE MINIMUM REQUIRED SURFACE AREA FOR A BIO–RETENTION FILTER IS 150 S.F.

NOTES:
1. A 6" UNDERDRAIN IS REQUIRED WITHOUT PROPER INFILTRATION TESTING.
2. SIDE SLOPE EXCAVATION IS NOT TO BE VERTICAL.
3. BIO–RETENTION PLANTINGS TO BE TAKEN FROM VA DEQ STORMWATER DESIGN SPECIFICATION NO. 9 TABLE 9.4.
4. BIO–RETENTION MATERIAL SPECIFICATIONS TO BE TAKEN FROM VA DEQ STORMWATER DESIGN SPECIFICATION NO. 9 TABLE 9.6.
5. **INSTALLATION OF THE BIO–RETENTION FACILITY SHOULD BE OBSERVED BY A LICENSED ENGINEER.**



BMP CALCULATIONS



DRAINAGE MAP

COMMONWEALTH OF VIRGINIA
WILLIAM S. FELTS
Lic. No. 3149
02/09/2018
LAND SURVEYOR

DATE: 11–29–2017
DRAWN BY: CMH
PROJECT No. 17–371
FILE NAME: 17–371 – Design.dwg
REFERENCES:
P.B. 55, PG. 23

GARAGE & POOL ADDITION PLAN OF
LOT 17, PHASE II,
THE VINEYARD AT JOCKEY'S NECK
FOR
LISA GOODMAN
JAMES CITY COUNTY VIRGINIA

NO.	DATE	REVISION / COMMENT / NOTE
1	2/2/2018	REVISED POOL DESIGN
2	2/7/2018	REVISED FIRST PAGE NOTE
3	2/8/2018	REVISED POOL LOCATION
4	2/9/2018	ADDED PAGE 3 MITIGATION PLAN

LRI LANDTECH RESOURCES, INC.
ENGINEERING . SURVEYING . GPS
3925 Midlands Road Williamsburg, VA 23188
Ph: (757) 565–1677 Fax: (757) 565–0782
web: landtechresources.com

EDGE OF WATER AT TIME OF SURVEY

WOOD DECK

TIE LINE ON PROPERTY L EDGE OF W

GAZEBO

8" OAK

10" OAK

12" OAK

18" OAK

10" OAK

20" OAK

16" OAK

SEAWARD 50' BUFFER (UNLESS OTHERWISE SHOWN) TO BE MULCHED AND PLANTED WITH 4 MITIGATION CREDITS. (4 CANOPY TREES, 8 UNDERSTORY TREES, AND 12 SHRUBS OR EQUIVALENT.

35' SBL

IRF

33

34

34

34

35

35

36

36

36

50' RPA

RETAINING WALL

SUNROOM

RAISED BRICK PATIO

RAISED WOOD DECK

15' SBL

CONCRETE DRIVEWAY

EX. 2-STORY BRICK RESIDENCE

100' RPA

15' SBL

CONCRETE

10 0 10 20 30

Scale: 1" = 10'

SHEET: 3 OF 3

MITIGATION LEGEND (4 CREDITS)

IMPERVIOUS WITHIN RPA

EXISTING	2,652 S.F.
REMOVED	−291 S.F.
PROPOSED	+1,181 S.F.
TOTAL	3,542 S.F.

CANOPY TREE (4)

UNDERSTORY TREE (8)

SHRUB (12)

COMMONWEALTH OF VIRGINIA
WILLIAM S. FELTS
Lic. No. 3149
02/09/2018
LAND SURVEYOR

DATE: 11-29-2017
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MITIGATION PLAN
GARAGE & POOL ADDITION PLAN OF
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LISA GOODMAN
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VIRGINIA DEQ STORMWATER DESIGN SPECIFICATION No. 9

BIORETENTION

VERSION 1.9
March 1, 2011

SECTION 1: DESCRIPTION

Individual bioretention areas can serve highly impervious drainage areas less than two (2) acres in size. Surface runoff is directed into a shallow landscaped depression that incorporates many of the pollutant removal mechanisms that operate in forested ecosystems. The primary component of a bioretention practice is the filter bed, which has a mixture of sand, soil, and organic material as the filtering media with a surface mulch layer. During storms, runoff temporarily ponds 6 to 12 inches above the mulch layer and then rapidly filters through the bed. Normally, the filtered runoff is collected in an underdrain and returned to the storm drain system. The underdrain consists of a perforated pipe in a gravel layer installed along the bottom of the filter bed. A bioretention facility with an underdrain system is commonly referred to as a *Bioretention Filter*.

Bioretention can also be designed to infiltrate runoff into native soils. This can be done at sites with permeable soils, a low groundwater table, and a low risk of groundwater contamination. This design features the use of a "partial exfiltration" system that promotes greater groundwater recharge. Underdrains are only installed beneath a portion of the filter bed, above a stone "sump" layer, or eliminated altogether, thereby increasing stormwater infiltration. A bioretention facility without an underdrain system, or with a storage sump in the bottom is commonly referred to as a *Bioretention Basin.*

Small-scale or Micro-Bioretention used on an individual residential lot is commonly referred to as a *Rain Garden*.

SECTION 2: PERFORMANCE

Bioretention creates a good environment for runoff reduction, filtration, biological uptake, and microbial activity, and provides high pollutant removal. Bioretention can become an attractive landscaping feature with high amenity value and community acceptance. The overall stormwater functions of the bioretention are summarized in **Table 9.1**.

Table 9.1. Summary of Stormwater Functions Provided by Bioretention Basins

Stormwater Function	Level 1 Design	Level 2 Design
Annual Runoff Volume Reduction (RR)	40%	80%
Total Phosphorus (TP) EMC Reduction[1] by BMP Treatment Process	25%	50%
Total Phosphorus (TP) Mass Load Removal	55%	90%
Total Nitrogen (TN) EMC Reduction[1] by BMP Treatment Process	40%	60%
Total Nitrogen (TN) Mass Load Removal	64%	90%
Channel and Flood Protection	• Use the Runoff Reduction Method (RRM) Spreadsheet to calculate the Cover Number (CN) Adjustment ***OR*** • Design extra storage (optional; as needed) on the surface, in the engineered soil matrix, and in the stone/underdrain layer to accommodate a larger storm, and use NRCS TR-55 Runoff Equations[2] to compute the CN Adjustment.	

[1] Change in event mean concentration (EMC) through the practice. Actual nutrient mass load removed is the product of the removal rate and the runoff reduction rate(see Table 1 in the *Introduction to the New Virginia Stormwater Design Specifications*).
[2] NRCS TR-55 Runoff Equations 2-1 thru 2-5 and Figure 2-1 can be used to compute a curve number adjustment for larger storm events based on the retention storage provided by the practice(s).

Sources: CWP and CSN (2008) and CWP (2007)

SECTION 3: DESIGN TABLES

The most important design factor to consider when applying bioretention to development sites is the **scale** at which it will be applied, as follows:

Micro-Bioretnetion or Rain Gardens. These are small, distributed practices designed to treat runoff from small areas, such as individual rooftops, driveways and other on-lot features in single-family detatched residential developments. Inflow is typically sheet flow, or can be concentrated flow with energy dissipation, when located at downspouts.

Bioretention Basins. These are structures treating parking lots and/or commercial rooftops,

usually in commercial or institutional areas. Inflow can be either sheetflow or concentrated flow. Bioretention basins may also be distributed throughout a residential subdivision, but ideally they should be located in common area or within drainage easements, to treat a combination of roadway and lot runoff.

Urban Bioretention. These are structures such as expanded tree pits, curb extensions, and foundation planters located in ultra-urban developed areas such as city streetscapes. Please refer to **Appendix 9-A** of this specification for design criteria for Urban Bioretention.

Figure 9.1. A typical Bioretention Filter treating a commercial rooftop

The major design goal for bioretention is to maximize runoff volume reduction and nutrient removal. To this end, designers may choose to go with the baseline design (Level 1) or choose an enhanced design (Level 2) that maximizes nutrient and runoff reduction. If soil conditions require an underdrain, bioretention areas can still qualify for the Level 2 design if they contain a stone storage layer beneath the invert of the underdrain.

Both stormwater quality and quantity credits are accounted for in the Runoff Reduction Method (RRM) spreadsheet. The water quality credit represents an annual load reduction as a combination of the annual reduction of runoff volume (40% and 80% from Level 1 and Level 2 designs, respectively) and the reduction in the pollutant event mean concentration (EMC) (25% and 50% from Level 1 & 2 designs, respectively).

To compute the water quantity reduction for larger storm events, the designer can similarly use the RRM spreadsheet or, as an option, the designer may choose to compute the adjusted curve number associated with the retention storage using the TR-55 Runoff Equations, as noted in **Table 9.1**. The adjusted curve number is then used to compute the peak discharge for the required design storms.

Tables 9.2 and 9.3 outline the Level 1 and 2 design guidelines for the two scales of bioretention design.

Table 9.2. Micro-Bioretention (Rain Garden) Design Criteria[1]

Level 1 Design (RR 40 TP: 25)	Level 2 Design (RR: 80 TP: 50)
Sizing: Filter surface area (sq. ft.) = 3% [2] of the contributing drainage area (CDA).	Sizing: Filter surface area (sq. ft.) = 4% [2] of the CDA (can be divided into different cells at downspouts).
Maximum contributing drainage area = 0.5 acres; 25% Impervious Cover (IC) [2]	
One cell design (can be divided into smaller cells at downspout locations) [2]	
Maximum Ponding Depth = 6 inches	
Filter Media Depth minimum = 18 inches; Recommended maximum = 36 inches	Filter Media Depth minimum = 24 inches; Recommended maximum = 36 inches
Media: mixed on-site or supplied by vendor	Media: supplied by vendor
All Designs: Media mix tested for an acceptable phosphorus index (P-Index) of between 10 and 30, ***OR*** Between 7 and 21 mg/kg of P in the soil media	
Sub-soil testing: not needed if an underdrain is used; Min infiltration rate > 1 inch/hour in order to remove the underdrain requirement.	Sub-soil testing: one per practice; Min infiltration rate > 1/2 inch/hour; Min infiltration rate > 1 inch/hour in order to remove the underdrain requirement.
Underdrain: corrugated HDPE or equivalent.	Underdrain: corrugated HDPE or equivalent, with a minimum 6-inch stone sump below the invert; ***OR*** none, if soil infiltration requirements are met
Clean-outs: not needed	
Inflow: sheetflow or roof leader	
Pretreatment: external (leaf screens, grass filter strip, energy dissipater, etc.).	Pretreatment: external *plus* a grass filter strip
Vegetation: turf, herbaceous, or shrubs (min = 1 out of those 3 choices).	Vegetation: turf, herbaceous, shrubs, or trees (min = 2 out of those 4 choices).
Building setbacks: 10 feet down-gradient; 25 feet up-gradient	

[1] Consult **Appendix 9-A** for design criteria for Urban Bioretention Practices.

[2] Micro-Bioretention (Rain Gardens) can be located at individual downspout locations to treat up to 1,000 sq. ft. of impervious cover (100% IC); the surface area is sized as 5% of the roof area (Level 1) or 6% of the roof area (Level 2), with the remaining Level 1 and Level 2 design criteria as provided in **Table 9.2**. If the Rain Garden is located so as to capture multiple rooftops, driveways, and adjacent pervious areas, the sizing rules within **Table 9.2** should apply.

Table 9.3. Bioretention Filter and Basin Design Criteria

<table>
<tr><th>Level 1 Design (RR 40 TP: 25)</th><th>Level 2 Design (RR: 80 TP: 50)</th></tr>
<tr><td>Sizing (Section 6.1):
Surface Area (sq. ft.) = (T_v – the volume reduced by an upstream BMP) / Storage Depth [1]</td><td>Sizing (Section 6.1):
Surface Area (sq. ft.) = [(1.25)(T_v) – the volume reduced by an upstream BMP] /Storage Depth [1]</td></tr>
<tr><td colspan="2">Recommended maximum contributing drainage area = 2.5 acres</td></tr>
<tr><td>Maximum Ponding Depth = 6 to 12 inches [2]</td><td>Maximum Ponding Depth = 6 to 12 inches [2]</td></tr>
<tr><td>Filter Media Depth minimum = 24 inches; recommended maximum = 6 feet</td><td>Filter Media Depth minimum = 36 inches; recommended maximum = 6 feet</td></tr>
<tr><td colspan="2">Media & Surface Cover (Section 6.6) = supplied by vendor; tested for acceptable phosphorus index (P-Index) of between 10 and 30, OR
Between 7 and 21 mg/kg of P in the soil media</td></tr>
<tr><td>Sub-soil Testing (Section 6.2): not needed if an underdrain used; Min infiltration rate > 1/2 inch/hour in order to remove the underdrain requirement.</td><td>Sub-soil Testing (Section 6.2): one per 1,000 sq. ft. of filter surface; Min infiltration rate > 1/2 inch/hour in order to remove the underdrain requirement.</td></tr>
<tr><td>Underdrain (Section 6.7) = Schedule 40 PVC with clean-outs</td><td>Underdrain & Underground Storage Layer (Section 6.7) = Schedule 40 PVC with clean outs, and a minimum 12-inch stone sump below the invert; OR, none, if soil infiltration requirements are met (Section 6.2)</td></tr>
<tr><td colspan="2">Inflow: sheetflow, curb cuts, trench drains, concentrated flow, or the equivalent</td></tr>
<tr><td>Geometry (Section 6.3):
Length of shortest flow path/Overall length = 0.3; OR, other design methods used to prevent short-circuiting; a one-cell design (not including the pre-treatment cell).</td><td>Geometry (Section 6.3):
Length of shortest flow path/Overall length = 0.8; OR, other design methods used to prevent short-circuiting; a two-cell design (not including the pretreatment cell).</td></tr>
<tr><td>Pre-treatment (Section 6.4): a pretreatment cell, grass filter strip, gravel diaphragm, gravel flow spreader, or another approved (manufactured) pre-treatment structure.</td><td>Pre-treatment (Section 6.4): a pretreatment cell plus one of the following: a grass filter strip, gravel diaphragm, gravel flow spreader, or another approved (manufactured) pre-treatment structure.</td></tr>
<tr><td>Conveyance & Overflow (Section 6.5)</td><td>Conveyance & Overflow (Section 6.5)</td></tr>
<tr><td>Planting Plan (Section 6.8): a planting template to include turf, herbaceous vegetation, shrubs, and/or trees to achieve surface area coverage of at least 75% within 2 years.</td><td>Planting Plan (Section 6.8): a planting template to include turf, herbaceous vegetation, shrubs, and/or trees to achieve surface area coverage of at least 90% within 2 years. If using turf, must combine with other types of vegetation [1].</td></tr>
<tr><td colspan="2">Building Setbacks [3] (Section 5):
0 to 0.5 acre CDA = 10 feet if down-gradient from building or level (coastal plain); 50 feet if up-gradient.
0.5 to 2.5 acre CDA = 25 feet if down-gradient from building or level (coastal plain); 100 feet if up-gradient. (Refer to additional setback criteria in Section 5)</td></tr>
<tr><td colspan="2">Deeded Maintenance O&M Plan (Section 8)</td></tr>
<tr><td colspan="2">[1] Storage depth is the sum of the Void Ratio (V_r) of the soil media and gravel layers multiplied by their respective depths, plus the surface ponding depth. Refer to Section 6.1.
[2] A ponding depth of 6 inches is preferred. Ponding depths greater than 6 inches will require a specific planting plan to ensure appropriate plant selection (Section 6.8).
[3] These are recommendations for simple building foundations. If an in-ground basement or other special conditions exist, the design should be reviewed by a licensed engineer. Also, a special footing or drainage design may be used to justify a reduction of the setbacks noted above.</td></tr>
</table>

SECTION 3: TYPICAL DETAILS

Figures 9.2 through 9.5 provide some typical details for several bioretention configurations. Also see additional details in **Appendix 9-B** of this design specification.

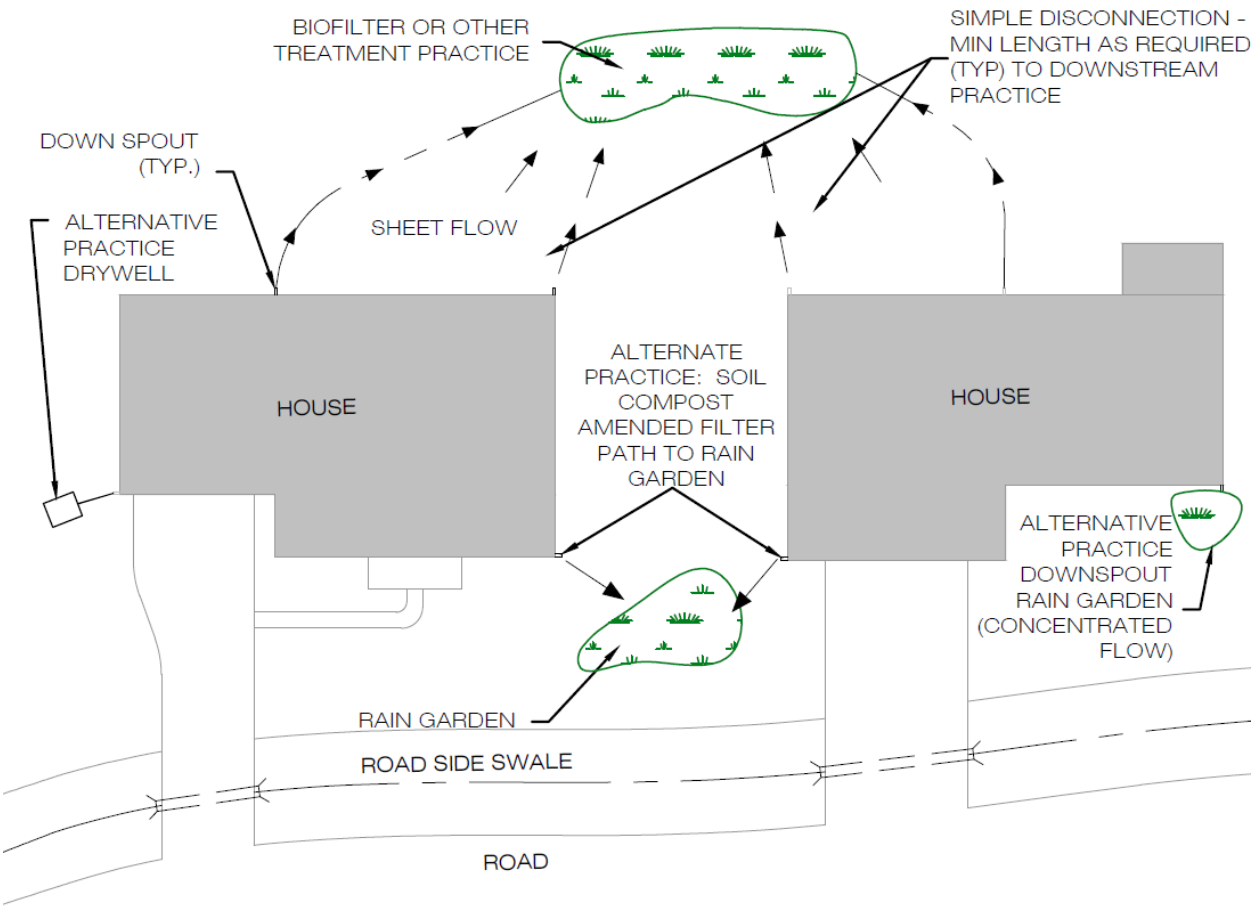

Figure 9.2. Residential Rooftop Treatment – Plan View:
(a) Simple Disconnection to downstream Raingarden;
(b) Disconnection – Alternative Practice: Raingarden;
(c) Disconnection – Alternative Practice: Compost Amended Flow Path to downstream Raingarden

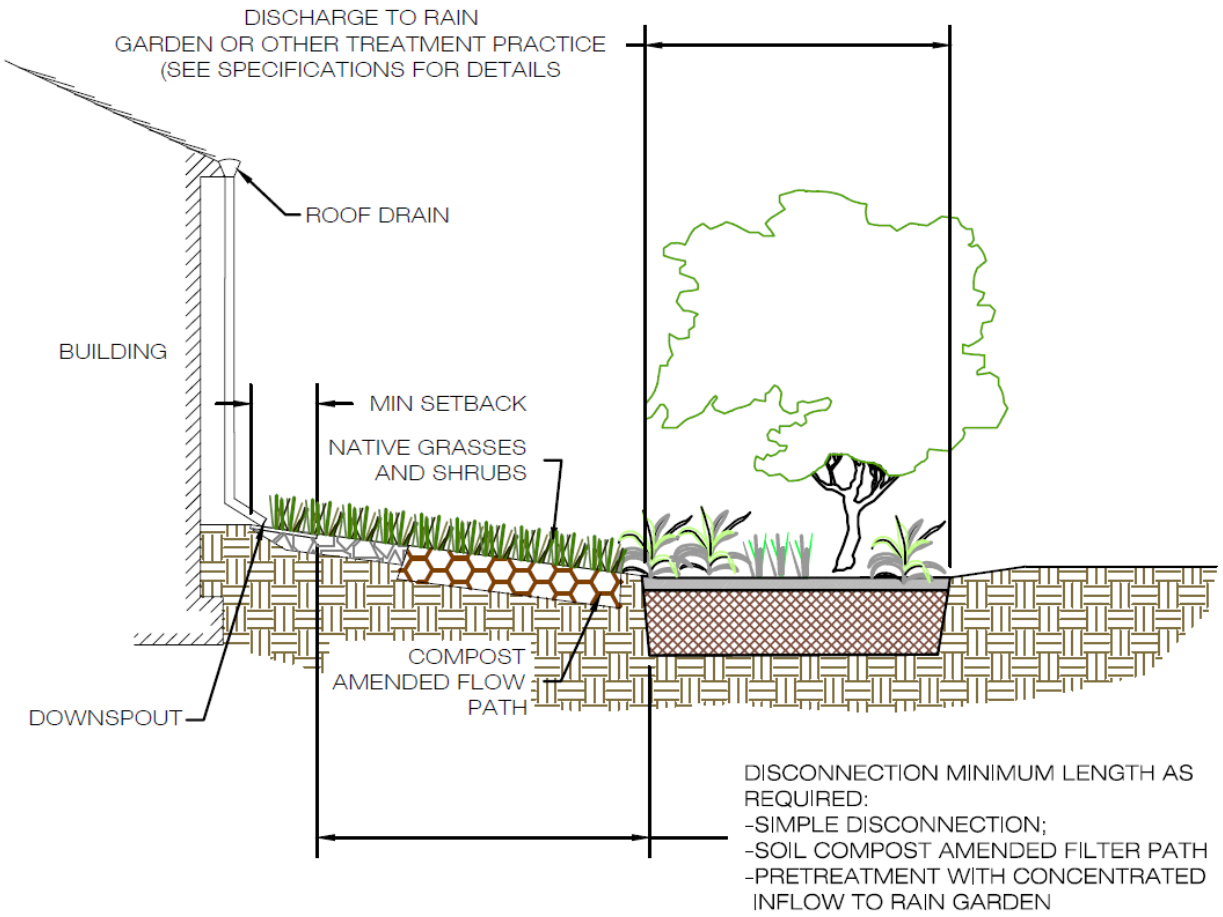

Figure 9.3A. Residential Rooftop Disconnection – Section View: (a) Simple Disconnection to downstream Raingarden; (b) Disconnection – Alternative Practice: Compost Amended Flow Path to downstream Raingarden

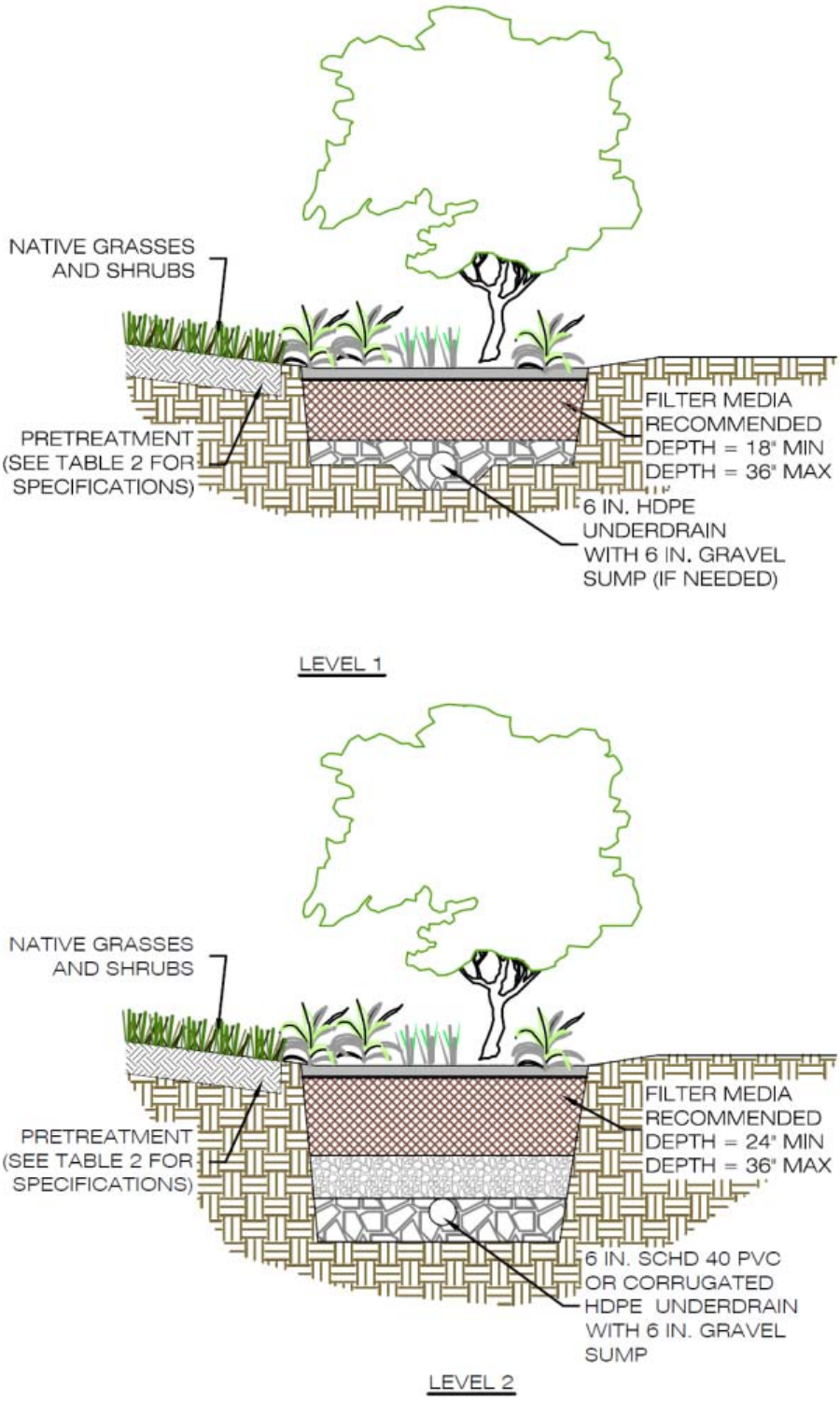

Figure 9.3B. Typical Micro-Bioretention Basin (Rain Garden) Level I and Level II – Section View:

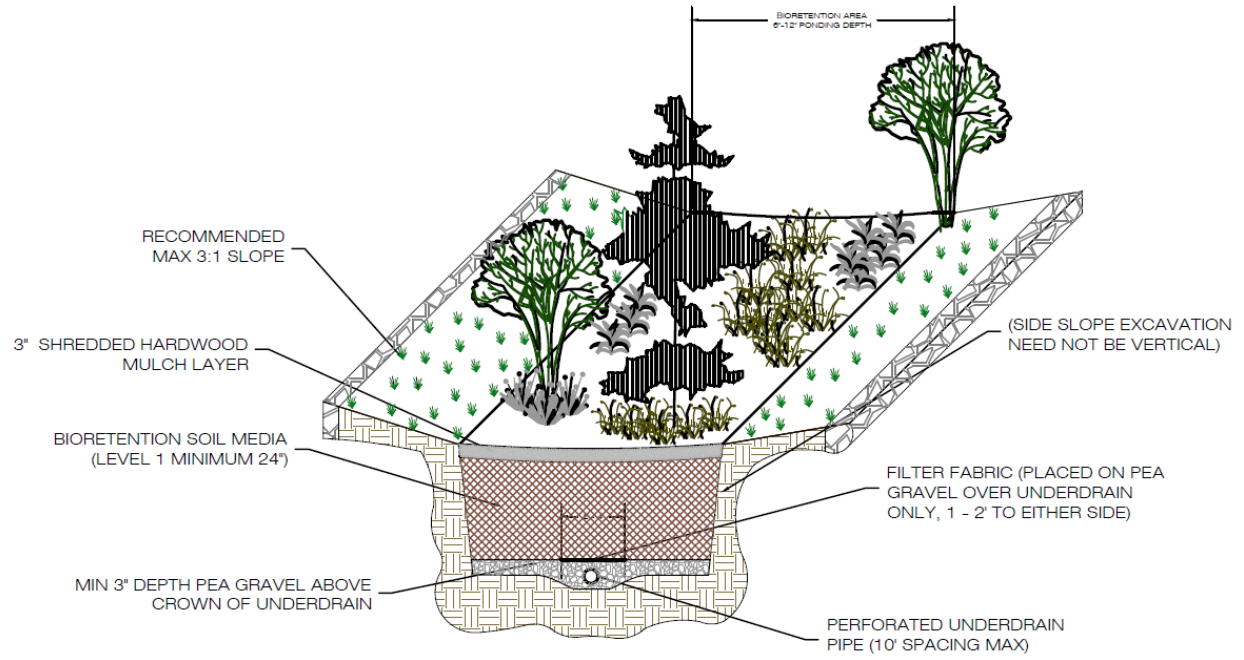

Figure 9.4a: Typical Detail of Bioretention Basin Level 1 Design

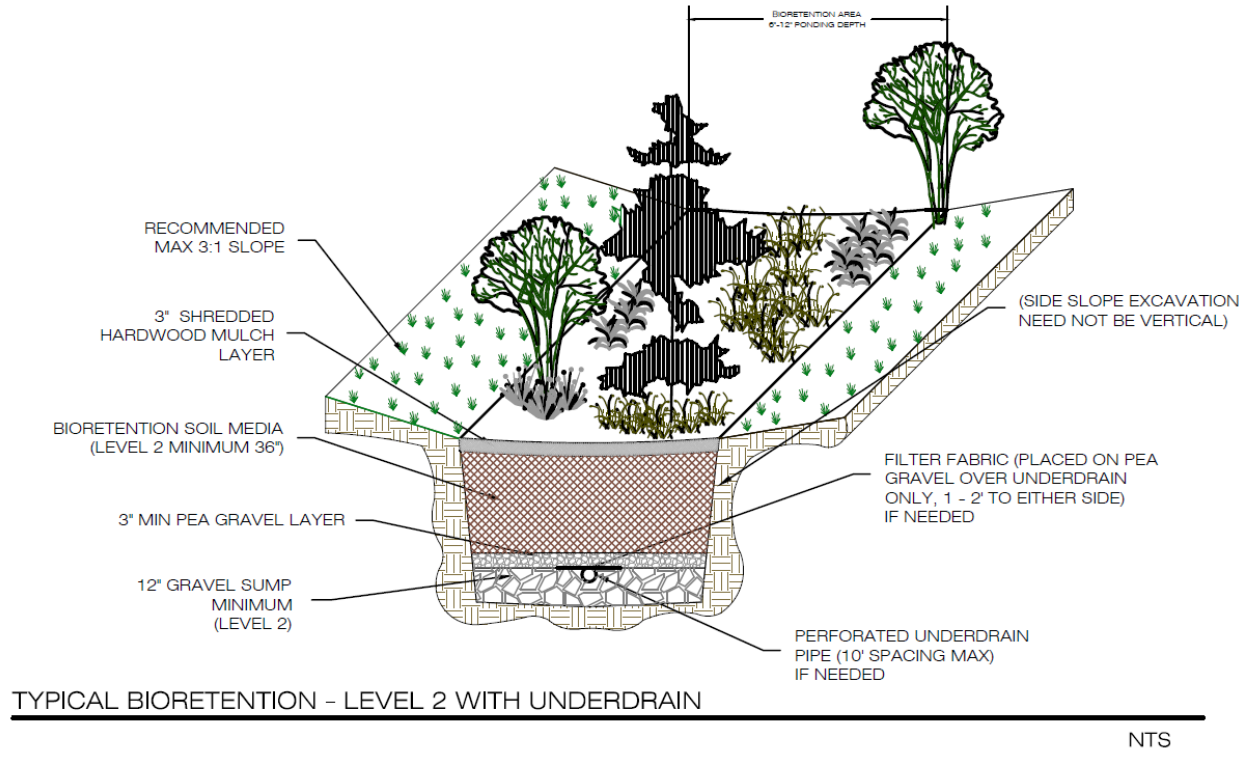

Figure 9.4b: Typical Detail of Bioretention Basin Level 2 Design

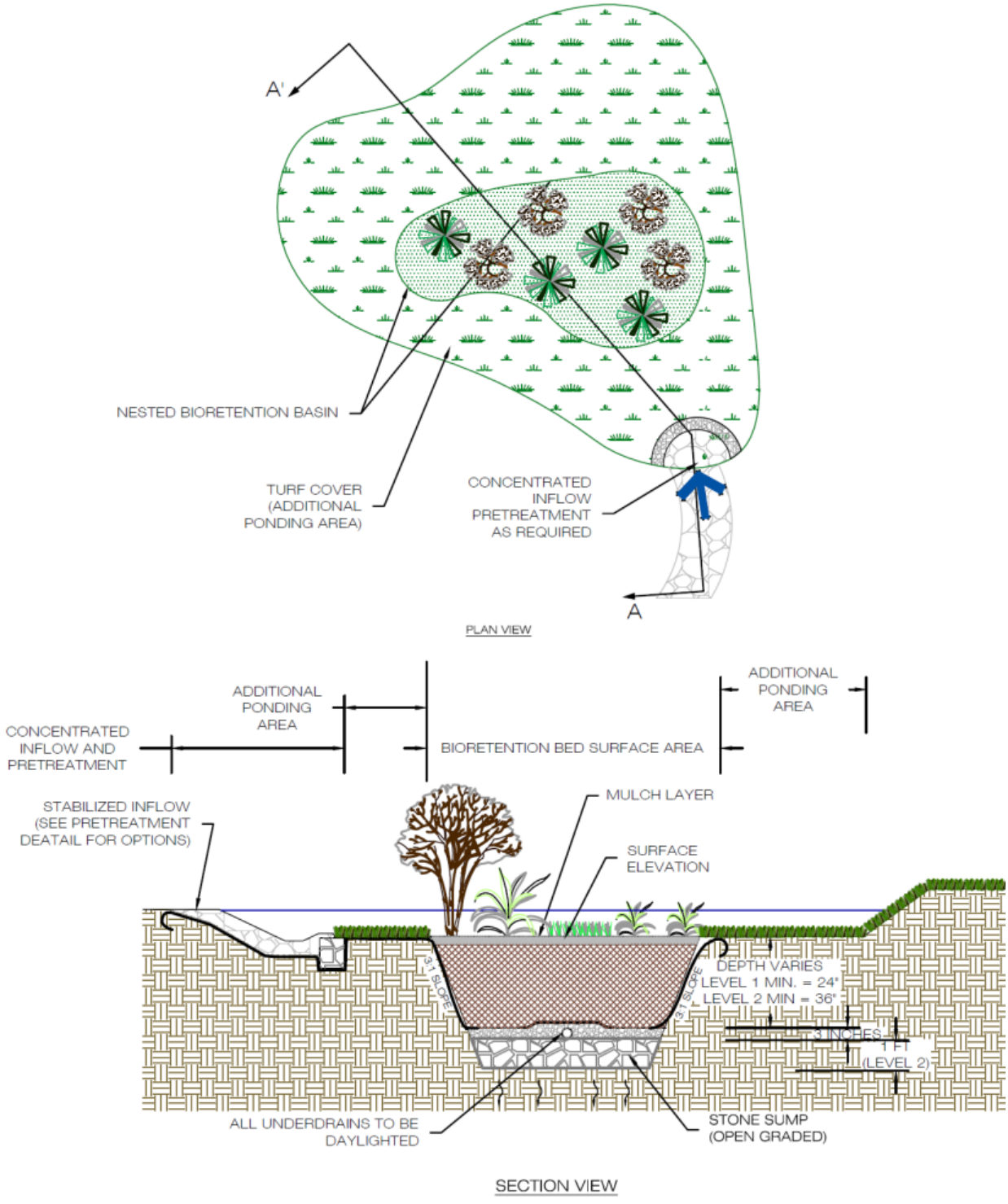

Figure 9.5. Typical Detail of Bioretention with Additional Surface Ponding

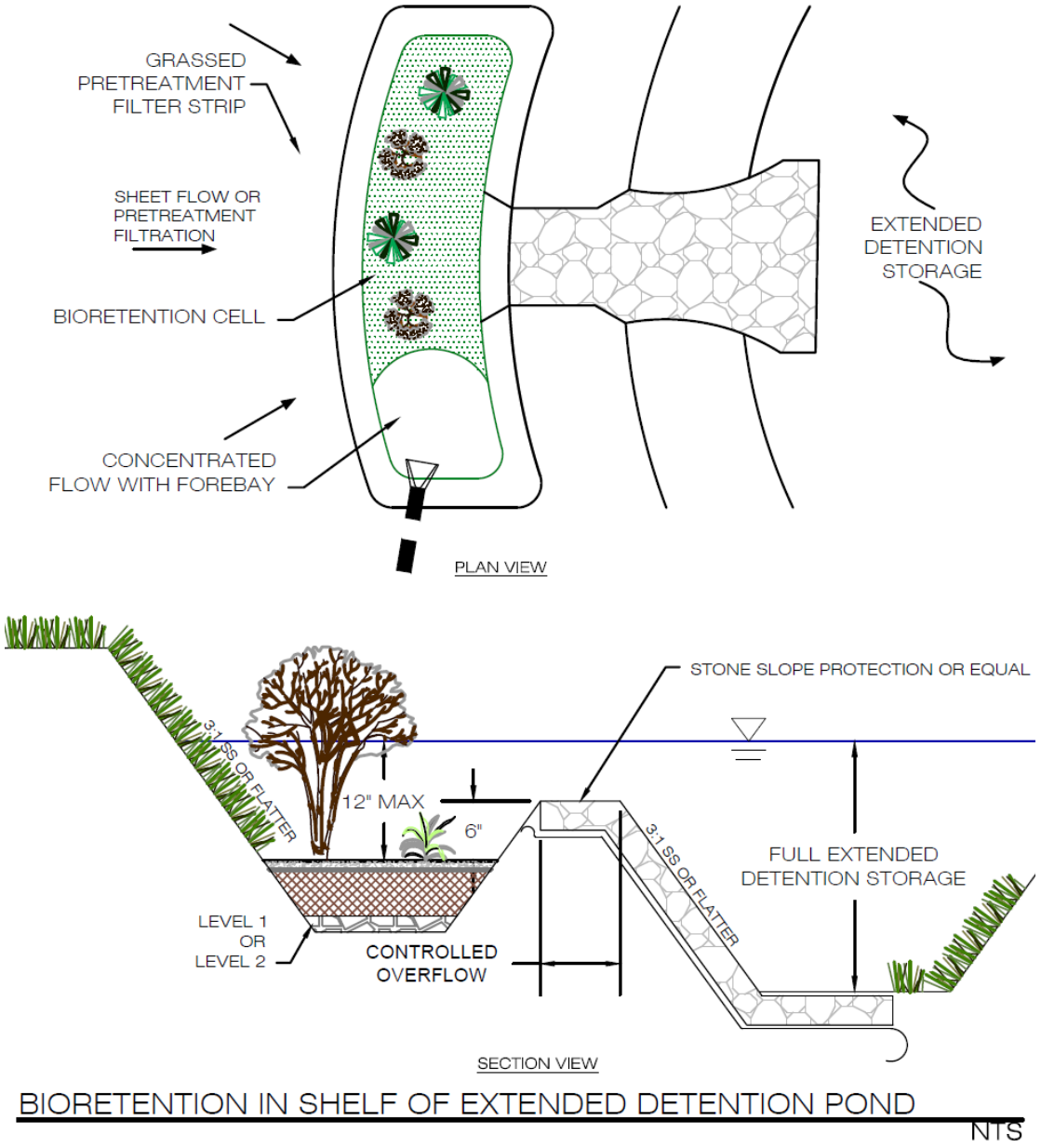

Figure 9.6. Typical Detail of a Bioretention Basin within the Upper Shelf of an ED Pond

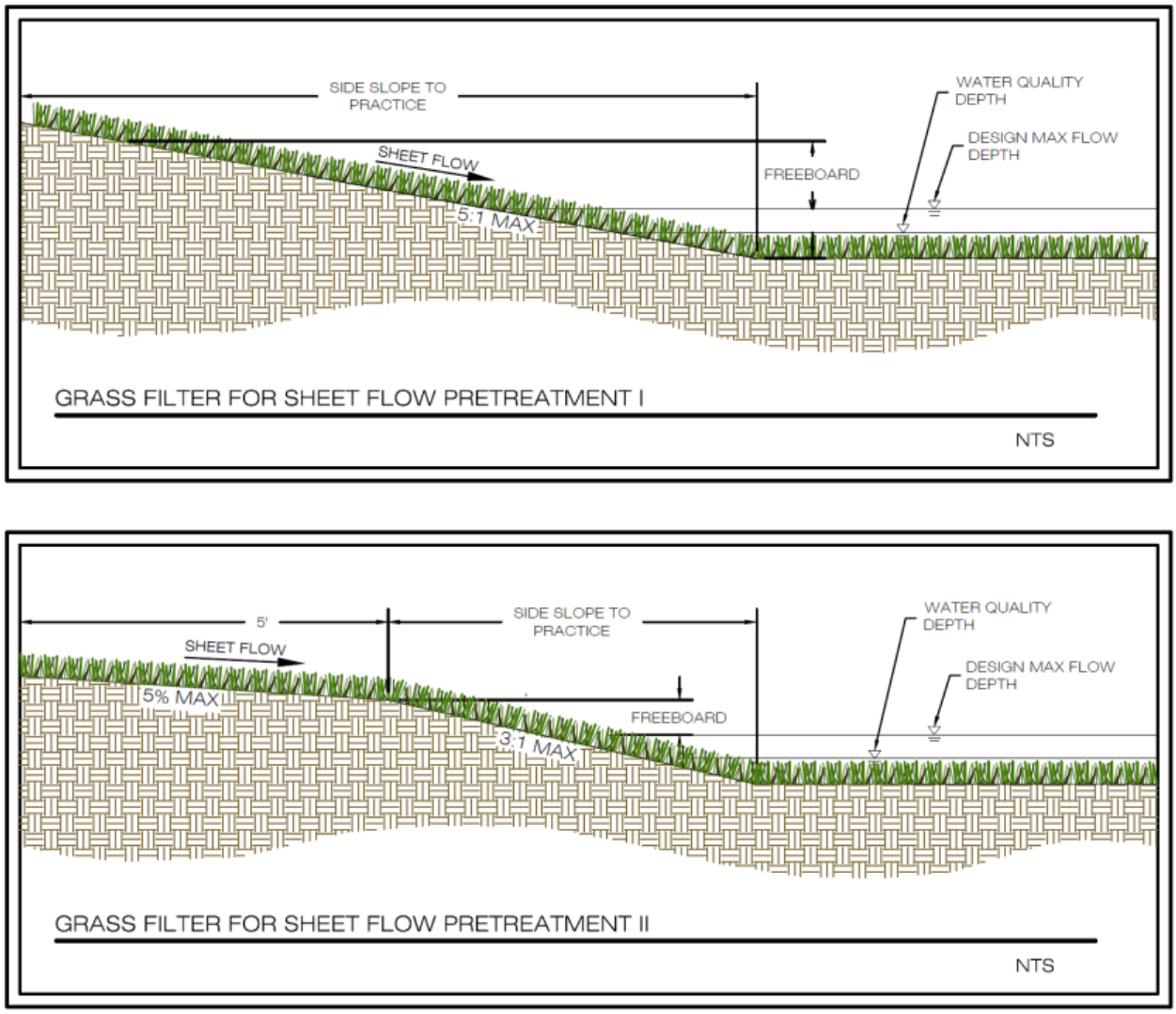

Figure 9.7 - Pretreatment I and II - Grass Filter for Sheet Flow

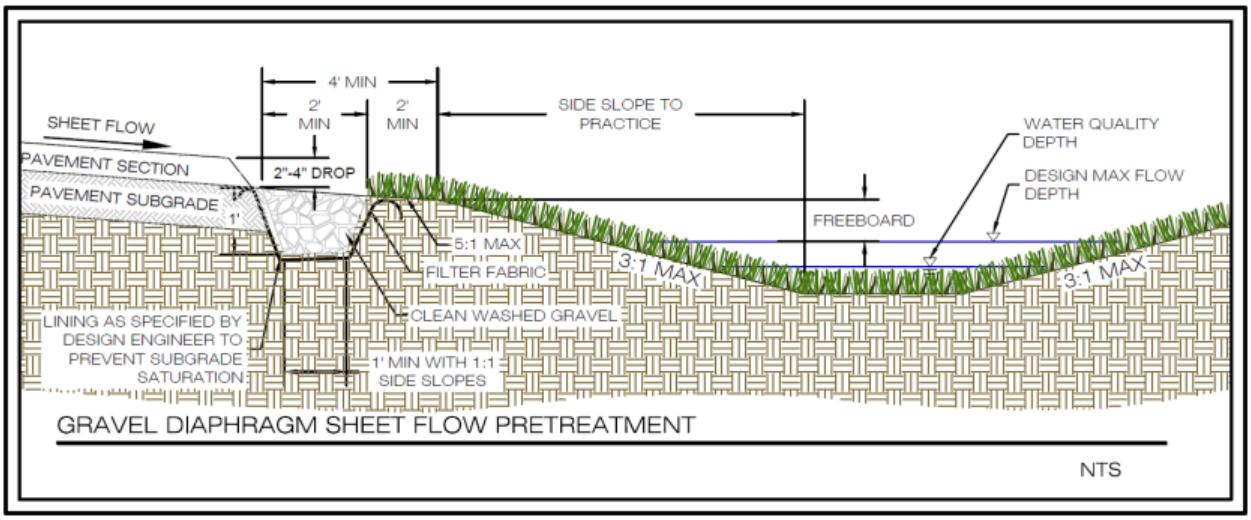

Figure 9.8 - Pretreatment – Gravel Diaphragm for Sheet Flow from Impervious or Pervious

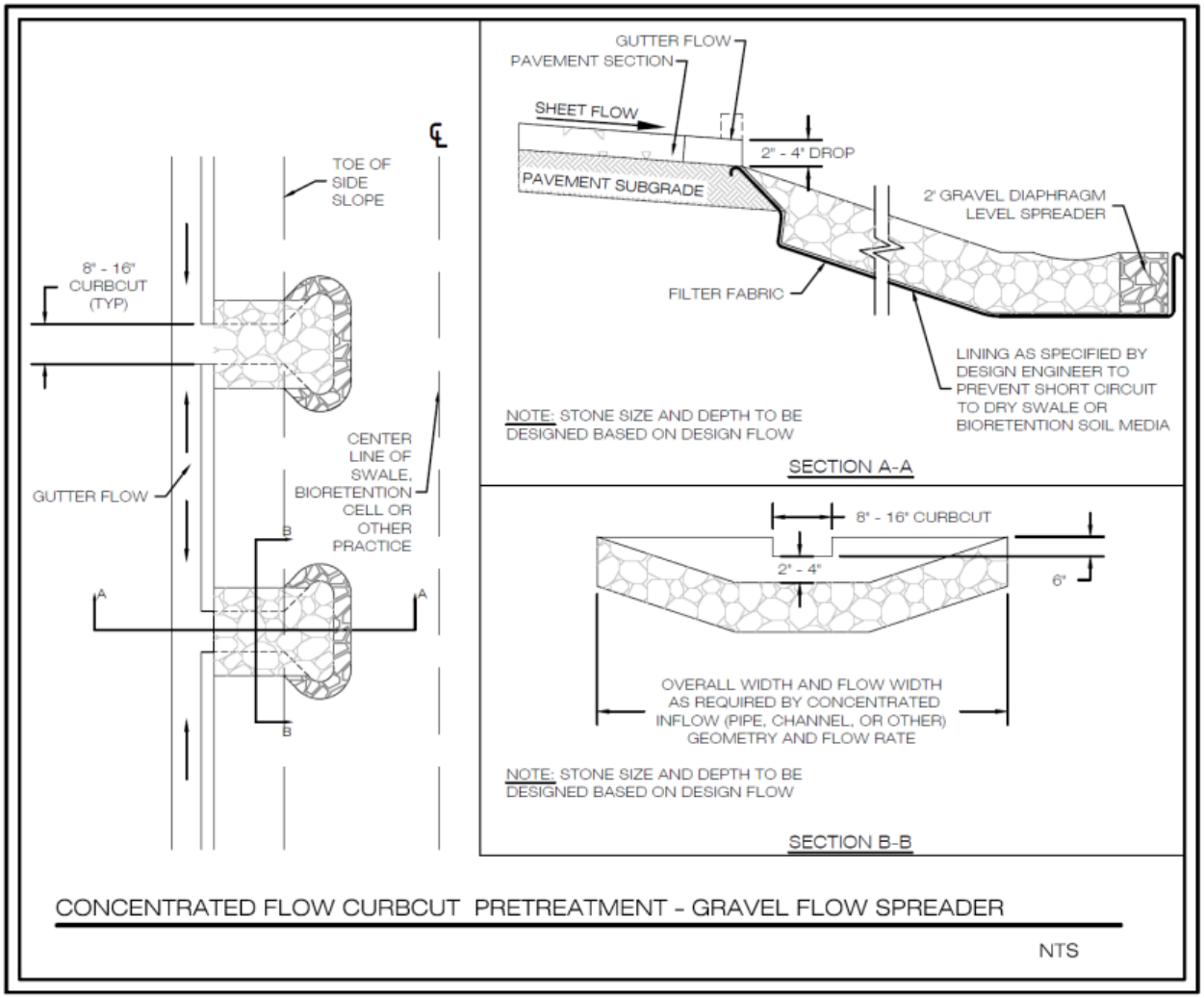

Figure 9.9: Pre-Treatment – Gravel Flow Spreader for Concentrated Flow

SECTION 5: PHYSICAL FEASIBILITY & DESIGN APPLICATIONS

5.1 Physical Feasibility

Bioretention can be applied in most soils or topography, since runoff simply percolates through an engineered soil bed and is returned to the stormwater system. Key constraints with bioretention include the following:

Available Space. Planners and designers can assess the feasibility of using bioretention facilities based on a simple relationship between the contributing drainage area and the corresponding required surface area. The bioretention surface area will be approximately 3% to 6% of the contributing drainage area, depending on the imperviousness of the CDA and the desired bioretention design level.

Site Topography. Bioretention is best applied when the grade of contributing slopes is greater than 1% and less than 5%.

Available Hydraulic Head. Bioretention is fundamentally constrained by the invert elevation of the existing conveyance system to which the practice discharges (i.e., the bottom elevation needed to tie the underdrain from the bioretention area into the storm drain system. In general, 4 to 5 feet of elevation above this invert is needed to create the hydraulic head needed to drive stormwater through a proposed bioretention filter bed. Less hydraulic head is needed if the underlying soils are permeable enough to dispense with the underdrain.

Water Table. Bioretention should always be separated from the water table to ensure that groundwater does not intersect the filter bed. Mixing can lead to possible groundwater contamination or failure of the bioretention facility. A separation distance of 2 feet is recommended between the bottom of the excavated bioretention area and the seasonally high ground water table. The separation distance may be reduced to 12 inches in coastal plain residential settings (Refer to **Section 7.2 –** Regional Adaptations).

Utilities. Designers should ensure that future tree canopy growth in the bioretention area will not interfere with existing overhead utility lines. Interference with underground utilities should also be avoided, particularly water and sewer lines. Local utility design guidance should be consulted in order to determine the horizontal and vertical clearance required between stormwater infrastructure and other dry and wet utility lines.

Soils. Soil conditions do not constrain the use of bioretention, although they determine whether an underdrain is needed. Impermeable soils in Hydrologic Soil Group (HSG) B, C or D usually require an underdrain, whereas HSG A soils generally do not. When designing a bioretention practice, designers should verify soil permeability by using the on-site soil investigation methods provided in Appendix 8-A of Stormwater Design Specification No. 8 (Infiltration).

Contributing Drainage Area. Bioretention cells work best with smaller contributing drainage areas, where it is easier to achieve flow distribution over the filter bed. Typical drainage area size can range from 0.1 to 2.5 acres and consist of up to 100% impervious cover. Three scales of bioretention are defined in this specification: (1) micro-bioretention or *Rain Gardens* (up to 0.5 acre contributing drainage area); (2) bioretention basins (up to 2.5 acres of contributing drainage area); and (3) Urban Bioretention (**Appendix 9-A**). Each of these has different design requirements (refer to **Tables 9.2 and 9.3** above). The maximum drainage area to a single bioretention basin or single cell of a bioretention basin is 5 acres, with a maximum recommended impervious cover of 2.5 acres (50% impervious cover) due to limitations on the ability of bioretention to effectively manage large volumes and peak rates of runoff. However, if hydraulic considerations are adequately addressed to manage the potentially large peak inflow of larger drainage areas (such as off-line or low-flow diversions, forebays, etc.), there may be case-by-case instances where the plan approving authority may allow these recommended maximums to be adjusted. In such cases, the bioretention facility should be located within the drainage area so as to capture the Treatment Volume (T_v) equally from the entire contributing area, and not fill the entire volume from the immediately adjacent area, thereby bypassing the runoff from the more remote portions of the site.

Hotspot Land Uses. Runoff from hotspot land uses should not be treated with infiltrating bioretention (i.e., constructed *without* an underdrain). For a list of potential stormwater hotspots, please consult Section 10.1 of Stormwater Design Specification No. 8 (Infiltration). An impermeable bottom liner and an underdrain system must be employed when bioretention is used to receive and treat hotspot runoff.

Floodplains. Bioretention areas should be constructed outside the limits of the ultimate 100-year floodplain.

No Irrigation or Baseflow. The planned bioretention area should not receive baseflow, irrigation water, chlorinated wash-water or other such non-stormwater flows that are not stormwater runoff.

Setbacks. To avoid the risk of seepage, do not allow bioretention areas to be hydraulically connected to structure foundations or pavement. Setbacks to structures and roads vary, based on the scale of the bioretention design (see **Table 9.2** above). At a minimum, bioretention basins should be located a horizontal distance of 100 feet from any water supply well (50 feet if the biofilter is lined), 50 feet from septic systems (20 feet if the biofilter is lined), and at least 5 feet from down-gradient wet utility lines. Dry utility lines such as gas, electric, cable and telephone may cross under bioretention areas if they are double-cased.

5.2 Potential Bioretention Applications

Bioretention can be used wherever water can be conveyed to a surface area. Bioretention has been used at commercial, institutional, and residential sites in spaces that are traditionally pervious and landscaped. It should be noted that special care must be taken to provide adequate pre-treatment for bioretention cells in space-constrained high traffic areas. Typical locations for bioretention include the following:

Parking lot islands. The parking lot grading is designed for sheet flow towards linear landscaping areas and parking islands between rows of spaces. Curb-less pavement edges can be used to convey water into a depressed island landscaping area. Curb cuts can also be used for this purpose, but they are more prone to blockage, clogging and erosion.

Parking lot edge. Small parking lots can be graded so that flows reach a curb-less pavement edge or curb cut before reaching catch basins or storm drain inlets. The turf at the edge of the parking lot functions as a filter strip to provide pre-treatment for the bioretention practice. The depression for bioretention is located in the pervious area adjacent to the parking lot.

Road medians, roundabouts, interchanges and cul-de-sacs. The road cross-section is designed to slope towards the center median or center island rather than the outer edge, using a curb-less edge.

Right-of-way or commercial setback. A linear configuration can be used to convey runoff in sheet flow from the roadway, or a grass channel or pipe may convey flows to the bioretention practice.

Courtyards. Runoff collected in a storm drain system or roof leaders can be directed to courtyards or other pervious areas on site where biorention can be installed.

Individual residential lots. Roof leaders can be directed to small bioretention areas, often called "rain gardens," located at the front, side, or rear of a home in a drainage easement. For smaller lots, the front yard bioretention corridor design may be preferable (See Stormwater Design Specification No. 1: Rooftop Disconnection).

Unused pervious areas on a site. Storm flows can be redirected from a a storm drain pipe to discharge into a bioretention area.

Dry Extended Detention (ED) basin. A bioretention cell can be located on an upper shelf of an extended detention basin, after the sediment forebay, in order to boost treatment. Depending on the ED basin design, the designer may choose to locate the bioretention cell in the bottom of the basin. However, the design must carefully account for the potentially deeper ponding depths (greater than 6 or 12 inches) associated with extended detention.

Retrofitting. Numerous options are available to retrofit bioretention in the urban landscape, as described in Profile Sheet ST-4 of Schueler et al (2007).

SECTION 6: DESIGN CRITERIA

6.1. Sizing of Bioretention Practices

6.1.1 Stormwater Quality

Sizing of the surface area (SA) for bioretention practices is based on the computed Treatment Volume (T_v) of the contributing drainage area and the storage provided in the facility. The required surface area (in square feet) is computed as the Treatment Volume (in cubic feet) divided by the equivalent storage depth (in feet). The equivalent storage depth is computed as the depth of media, gravel, or surface ponding (in feet) multiplied by the accepted void ratio.

The accepted Void Ratios (V_r) are (see **Figure 9.10** below):

Bioretention Soil Media $V_r = 0.25$
Gravel $V_r = 0.40$
Surface Storage $V_r = 1.0$

The equivalent storage depth for Level 1 with a 6-inch surface ponding depth and a 12-inch gravel layer is therefore computed as:

Equation 9.1. Bioretention Level 1 Design Storage Depth

$$(2 \text{ ft.} \times 0.25) + (1 \text{ ft.} \times 0.40) + (0.5 \times 1.0) = 1.40 \text{ ft.}$$

And the equivalent storage depth for Level 2 with a 6-inch surface ponding depth and a 12-inch gravel layer is computed as:

Equation 9.2. Bioretention Level 2 Design Storage Depth

$$(3 \text{ ft. x } 0.25) + (1 \text{ ft. x } 0.40) + (0.5 \text{ x } 1.0) = 1.65 \text{ ft}$$

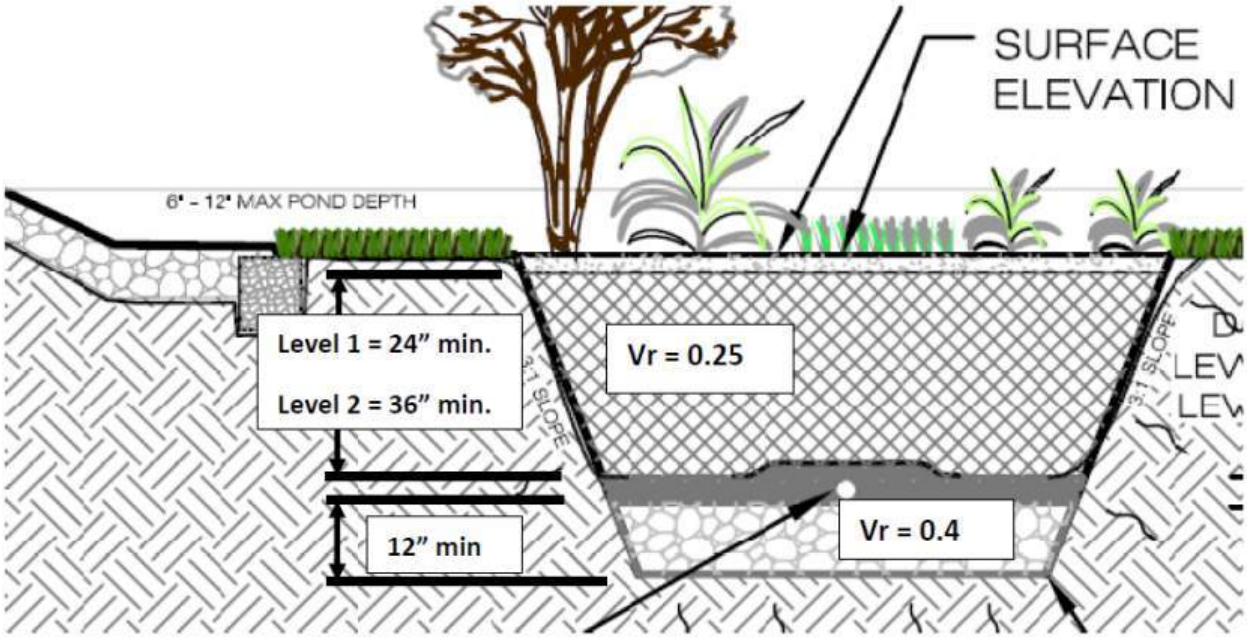

Figure 9.10. Typical Bioretention Section with Void Ratios for Volume Computations

Therefore, the Level 1 Bioretention Surface Area (SA) is computed as:

Equation 9.3. Bioretention Level 1 Design Surface Area

$$SA \text{ (sq. ft.)} = \{T_v - \text{the volume reduced by an upstream BMP}\} / 1.40 \text{ ft.}$$

And the Level 2 Bioretention Surface Area is computed as:

Equation 9.4. Bioretention Level 2 Design Surface Area

$$SA \text{ (sq. ft.)} = [(1.25 * Tv) - \text{the volume reduced by an upstream BMP}] / 1.65 \text{ ft.}$$

Where:

SA = Minimum surface area of bioretention filter (sq. ft.)

T_v = Treatment Volume (cu. ft.) = $[(1.0 \text{ in.})(R_v)(A) / 12]$

(NOTE: R_v = the composite runoff coefficient from the RR Method)

Equations 9.1 through 9.4 should be modified if the storage depths of the soil media, gravel layer, or ponded water vary in the actual design or with the addition of any surface or subsurface storage components (e.g., additional area of surface ponding, subsurface storage chambers, etc.).

6.1.2 Stormwater Quantity

The water quality Treatment Volume (T_v) can be counted as part of the Channel Protection Volume or Overbank Flood Protection Volume to satisfy stormwater quantity control requirements. In addition, designers may be able to create additional surface storage by expanding the surface ponding footprint in order to accommodate a greater quantity credit for channel and/or flood protection, without necessarily increasing the soil media footprint. In other words, the engineered soil media would only underlay part of the surface area of the bioretention (see **Figure 9.10** above).

In this regard, the ponding footprint can be increased as follows to allow for additional storage:

- 50% surface area increase if the ponding depth is 6 inches or less.
- 25% surface area increase if the ponding depth is between 6 and 12 inches.

These values may be modified as additional data on the long term permeability of bioretention filters becomes available.

6.2. Soil Infiltration Rate Testing

In order to determine if an underdrain will be needed, one must measure the infiltration rate of subsoils at the invert elevation of the bioretention area, as noted in the soil testing requirements for each scale of bioretention, in Design **Tables 9.2 and 9.3** above. The infiltration rate of subsoils must exceed 1 inch per hour in order to dispense with the underdrain requirement for Rain Gardens, and 1/2 inch per hour for bioretention basins. On-site soil infiltration rate testing procedures are outlined in Appendix 8-A of the Stormwater Design Specification No. 8 (Infiltration). Soil testing is not needed for Level 1 bioretention areas, where an underdrain is used.

6.3. BMP Geometry

Bioretention basins must be designed with an internal flow path geometry such that the treatment mechanisms provided by the bioretention are not bypassed or short-circuited. Examples of short-circuiting include inlets or curb cuts that are very close to outlet structures (see **Figure 9.11** below), or incoming flow that is diverted immediately to the underdrain through stone layers. Short-circuiting can be particularly problematic when there are multiple curb cuts or inlets.

Figure 9.11. Examples of Short-Circuiting at Bioretention Facilities

In order for these bioretention areas to have an acceptable internal geometry, the "travel time" from each inlet to the outlet should be maximized, and incoming flow must be distributed as evenly as possible across the filter surface area.

One important characteristic is the length of the shortest flow path compared to the overall length, as shown in **Figure 9.12** below. In this figure, the ratio of the shortest flow path to the overall length is represented as:

Equation 9.5. Ratio of Shortest Flow Path to Overall Length

$$SFP / L$$

Where:

SFP = length of the shortest flow path
L = length from the most distant inlet to the outlet

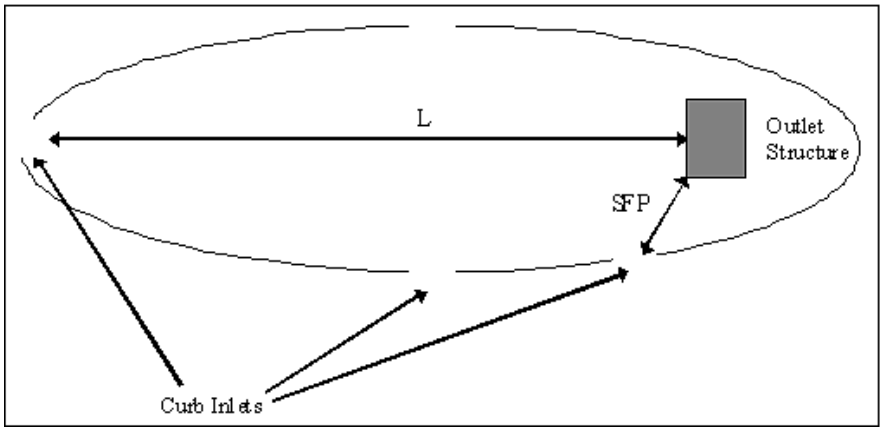

Figure 9.12. Diagram showing shortest flow path as part of BMP geometry

For Level 1 designs, the SFP/L ratio must be 0.3 or greater; the ratio must be 0.8 or greater for Level 2 designs. In some cases, due to site geometry, some inlets may not be able to meet these ratios. However, the drainage area served by such inlets should constitute no more than 20% of the contributing drainage area. Alternately, the designer may incorporate other design features that prevent short-circuiting, including features that help spread and distribute runoff as evenly as possible across the filter surface.

> ***Note: Local reviewers may waive or modify the guideline for the shortest flow path ratio in cases where (1) the outlet structure within the bioretention area is raised above the filter surface to the ponding depth elevation; and (2) the filter surface is flat.***

With regard to the first condition stated in the note above, field experience has shown that soil media immediately around a raised outlet structure is prone to scouring, erosion and, thus, short-circuiting of the treatment mechanism. For example, water can flow straight down through scour holes or sinkholes to the underdrain system (Hirschman et al., 2009). Design options should be used to prevent this type of scouring. One example is shown in **Figure 9.13**.

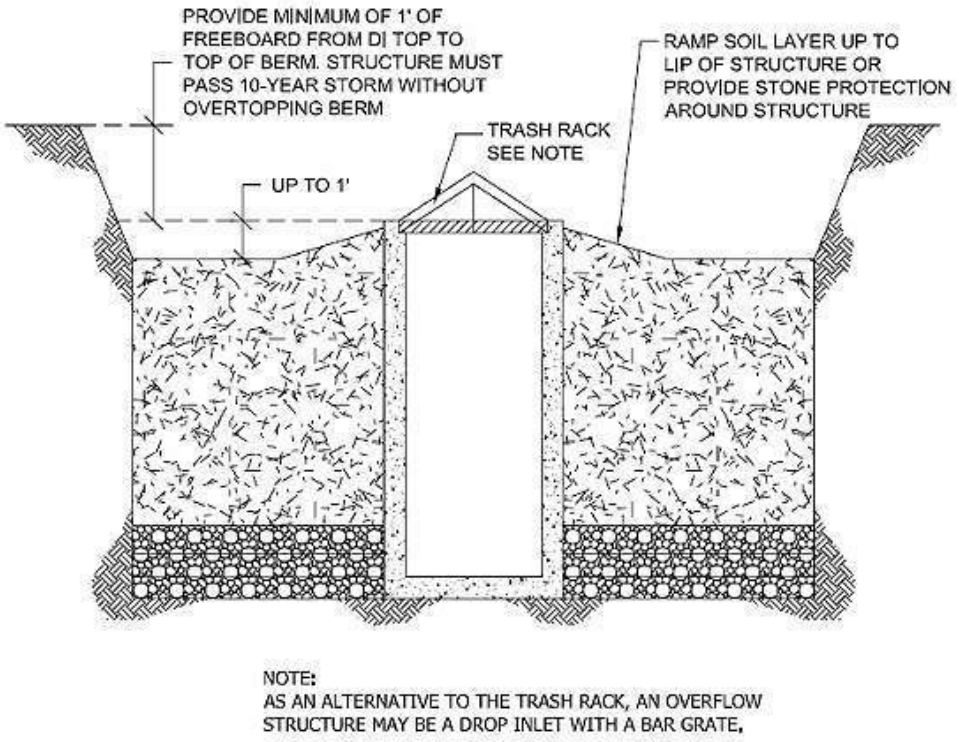

Figure 9.13. Typical Detail of how to prevent bypass or short-circuiting around the overflow structure

The designer should ensure that incoming flow is spread as evenly as possible across the filter surface to maximize the treatment potential.

6.4. Pre-treatment

Pre-treatment of runoff entering bioretention areas is necessary to trap coarse sediment particles before they reach and prematurely clog the filter bed. Pre-treatment measures must be designed to evenly spread runoff across the entire width of the bioretention area. Several pre-treatment measures are feasible, depending on the scale of the bioretention practice and whether it receives sheet flow, shallow concentrated flow or deeper concentrated flows. The following are appropriate pretreatment options:

For Micro Bioretention (Rain Gardens):

- **Leaf Screens** as part of the gutter system serve to keep the heavy loading of organic debris from accumulating in the bioretention cell.
- ***Grass Filter Strips*** (for sheet flow), applied on residential lots, where the lawn area can serve as a grass filter strip adjacent to a rain garden.
- ***Gravel or Stone Diaphragm*** (for either sheet flow or concentrated flow); this is a gravel diaphragm at the end of a downspout or other concentrated inflow point that should run perpendicular to the flow path to promote settling.

For Bioretention Basins:

- ***Pre-treatment Cells*** (channel flow): Similar to a forebay, this cell is located at piped inlets or curb cuts leading to the bioretention area and consists of an energy dissipater sized for the expected rates of discharge. It has a storage volume equivalent to at least 15% of the total Treatment Volume (inclusive) with a 2:1 length-to-width ratio. The cell may be formed by a wooden or stone check dam or an earthen or rock berm. Pretreatment cells do not need underlying engineered soil media, in contrast to the main bioretention cell.
- ***Grass Filter Strips*** (for sheet flow): Grass filter strips extend from the edge of pavement to the bottom of the bioretention basin at a 5:1 slope or flatter. Alternatively, provide a combined 5 feet of grass filter strip at a maximum 5% (20:1) slope and 3:1 or flatter side slopes on the bioretention basin. (**See Figure 9.7**)
- ***Gravel or Stone Diaphragms*** (sheet flow). A gravel diaphragm located at the edge of the pavement should be oriented perpendicular to the flow path to pre-treat lateral runoff, with a 2 to 4 inch drop. The stone must be sized according to the expected rate of discharge. (**See Figure 9.8**)
- ***Gravel or Stone Flow Spreaders*** (concentrated flow). The gravel flow spreader is located at curb cuts, downspouts, or other concentrated inflow points, and should have a 2 to 4 inch elevation drop from a hard-edged surface into a gravel or stone diaphragm. The gravel should extend the entire width of the opening and create a level stone weir at the bottom or treatment elevation of the basin. (**See Figure 9.9**)
- ***Innovative or Proprietary Structure*****:** An approved proprietary structure with demonstrated capability of reducing sediment and hydrocarbons may be used to provide pre-treatment. Refer to the Virginia BMP Clearinghouse web site (http://www.vwrrc.vt.edu/swc/) for information on approved proprietary structures.

6.5. Conveyance and Overflow

For On-line bioretention: An overflow structure should always be incorporated into on-line designs to safely convey larger storms through the bioretention area. The following criteria apply to overflow structures:

- The overflow associated with the 2 and 10 year design storms should be controlled so that velocities are non-erosive at the outlet point (i.e., to prevent downstream erosion).
- Common overflow systems within bioretention practices consist of an inlet structure, where the top of the structure is placed at the maximum water surface elevation of the bioretention area, which is typically 6 to 12 inches above the surface of the filter bed (6 inches is the preferred ponding depth).
- The overflow capture device (typically a yard inlet) should be scaled to the application – this may be a landscape grate inlet or a commercial-type structure.
- The filter bed surface should generally be flat so the bioretention area fills up like a bathtub.

Off-line bioretention: Off-line designs are preferred (see **Figure 9.14** for an example). One common approach is to create an alternate flow path at the inflow point into the structure such that when the maximum ponding depth is reached, the incoming flow is diverted past the facility. In this case, the higher flows do not pass over the filter bed and through the facility, and additional flow is able to enter as the ponding water filtrates through the soil media.

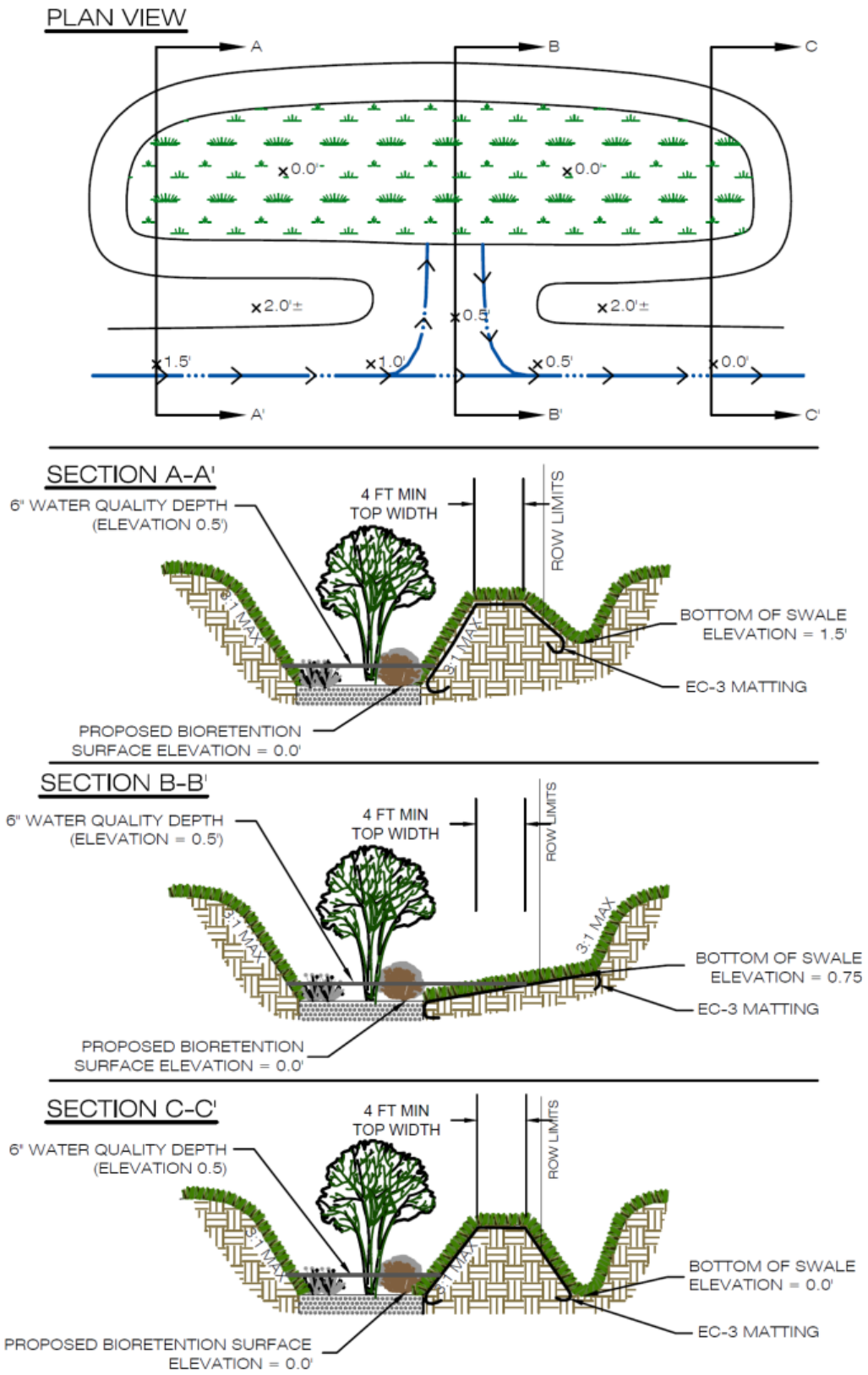

Figure 9.14. Typical Details for Off-Line Biofiltrattion

Another option is to utilize a low-flow diversion or flow splitter at the inlet to allow only the Treatment Volume to enter the facility. This may be achieved with a weir or curb opening sized for the target flow, in combination with a bypass channel. Using a weir or curb opening helps minimize clogging and reduces the maintenance frequency. (Further guidance on determining the Treatment Volume design peak flow rate will be necessary in order to ensure proper design of the diversion structure.)

6.6. Filter Media and Surface Cover

The filter media and surface cover are the two most important elements of a bioretention facility in terms of long-term performance. The following are key factors to consider in determining an acceptable soil media mixture.

- ***General Filter Media Composition.*** The recommended bioretention soil mixture is generally classified as a loamy sand on the USDA Texture Triangle, with the following composition:
  - 85% to 88% sand;
  - 8% to 12% soil fines; and
  - 3% to 5% organic matter.

It may be advisable to start with an open-graded coarse sand material and proportionately mix in topsoil that will likely contain anywhere from 30% to 50% soil fines (sandy loam, loamy sand) to achieve the desired ratio of sand and fines. An additional 3% to 5% organic matter can then be added. (The exact composition of organic matter and topsoil material will vary, making particle size distribution and recipe for the total soil media mixture difficult to define in advance of evaluating the available material.)

- ***P-Index.*** The P-Index provides a measure of soil phosphorus content and the risk of that phosphorus moving through the soil media. The risk of phosphorus movement through a soil is influenced by several soil physical properties: texture, structure, total pore space, pore-size, pore distribution, and organic matter. A soil with a lot of fines will hold phosphorus while also limiting the movement of water. A soil that is sandy will have a high permeability, and will therefore be less likely to hold phosphorus within the soil matrix.

  A primary factor in interpreting the desired P-Index of a soil is the bulk density. Saxton et. al. (1986) estimated generalized bulk densities and soil-water characteristics from soil texture. The expected bulk density of the loamy sand soil composition described above should be in the range of 1.6 to 1.7 g/cu. cm. Therefore, ***the recommended range for bioretention soil P-index of between 10 and 30*** corresponds to a ***phosphorus content range (mg of P to kg of soil) within the soil media of 7 mg/kg to 23 mg/kg***.

- ***Cation Exchange Capacity (CEC).*** The CEC of a soil refers to the total amount of positively charged elements that a soil can hold; it is expressed in milliequivalents per 100 grams (meq/100g) of soil. For agricultural purposes, these elements are the basic cations of calcium (Ca^{+2}), magnesium (Mg^{+2}), potassium (K^{+1}) and sodium (Na^{+1}) and the acidic cations of hydrogen (H^{+1}) and aluminum (Al^{+3}). The CEC of the soil is determined in part by the amount of clay and/or humus or organic matter present. ***Soils with CECs exceeding 10 are***

preferred for pollutant removal. Increasing the organic matter content of any soil will help to increase the CEC, since it also holds cations like the clays.

- ***Infiltration Rate.*** The bioretention soil media should have a minimum infiltration rate of 1 to 2 inches per hour (a proper soil mix will have an initial infiltration rate that is significantly higher).

- ***Depth.*** The standard minimum filter bed depth ranges from 24 and 36 inches for Level 1 and Level 2 designs, respectively, (18 to 24 inches for rain gardens or micro-bioretention). If trees are included in the bioretention planting plan, tree planting holes in the filter bed must be at least 4 feet deep to provide enough soil volume for the root structure of mature trees. Use turf, perennials or shrubs instead of trees to landscape shallower filter beds.

- ***Filter Media for Tree Planting Areas.*** A more organic filter media is recommended within the planting holes for trees, with a ratio of 50% sand, 30% toposoil and 20% acceptable leaf compost.

- ***Mulch.*** A 2 to 3 inch layer of mulch on the surface of the filter bed enhances plant survival, suppresses weed growth, and pre-treats runoff before it reaches the filter media. Shredded, aged hardwood bark mulch makes a very good surface cover, as it retains a significant amount of nitrogen and typically will not float away.

- ***Alternative to Mulch Cover.*** In some situations, designers may consider alternative surface covers such as turf, native groundcover, erosion control matting (coir or jute matting), river stone, or pea gravel. The decision regarding the type of surface cover to use should be based on function, cost and maintenance. Stone or gravel are not recommended in parking lot applications, since they increase soil temperature and have low water holding capacity.

- ***Media for Turf Cover.*** One adaptation is to design the filter media primarily as a sand filter with organic content only at the top. Leaf compost tilled into the top layers will provide organic content for the vegetative cover. If grass is the only vegetation, the ratio of compost may be reduced.

6.7. Underdrain and Underground Storage Layer

Some Level 2 designs will not use an underdrain (where soil infiltration rates meet minimum standards; see **Section 6.2** and **Section 3** design tables). For Level 2 designs with an underdrain, an underground storage layer of at 12 inches should be incorporated below the invert of the underdrain. The depth of the storage layer will depend on the target treatment and storage volumes needed to meet water quality, channel protection, and/or flood protection criteria. However, the bottom of the storage layer must be at least 2 feet above the seasonally high water table. The storage layer should consist of clean, washed #57 stone or an approved infiltration module.

All bioretention basins should include observation wells. The observation wells should be tied into any T's or Y's in the underdrain system, and should extend upwards to be flush with the

surface, with a vented cap. In addition, cleanout pipes should be provided if the contributing drainage area exceeds 1 acre.

6.8. Bioretention Planting Plans

A landscaping plan must be provided for each bioretention area. Minimum plan elements shall include the proposed bioretention template to be used, delineation of planting areas, the planting plan, including the size, the list of planting stock, sources of plant species, and the planting sequence, including post-nursery care and initial maintenance requirements. It is highly recommended that the planting plan be prepared by a qualified landscape architect, in order to tailor the planting plan to the site-specific conditions.

Native plant species are preferred over non-native species, but some ornamental species may be used for landscaping effect if they are not aggressive or invasive. Some popular native species that work well in bioretention areas and are commercially available can be found in **Table 9.4**. Internet links to more detailed bioretention plant lists developed in piedmont and coastal plain communities of the Chesapeake Bay region are provided in **Table 9.5**.

The planting template refers to the form and combination of native trees, shrubs, and perennial ground covers that maintain the appearance and function of the bioretention area. The six most common bioretention templates are as follows:

- ***Turf.*** This option is typically restricted to on-lot micro-bioretention applications, such as a front yard rain garden. Grass species should be selected that have dense cover, are relatively slow growing, and require the least mowing and chemical inputs (e.g., fine fescue, tall fescue).

- ***Perennial garden.*** This option uses herbaceous plants and native grasses to create a garden effect with seasonal cover. It may be employed in both micro-scale and small scale bioretention applications. This option is attractive, but it requires more maintenance in the form of weeding.

- ***Perennial garden with shrubs.*** This option provides greater vertical form by mixing native shrubs and perennials together in the bioretention area. This option is frequently used when the filter bed is too shallow to support tree roots. Shrubs should have a minimum height of 30 inches.

- ***Tree, shrub and herbaceous plants.*** This is the traditional landscaping option for bioretention. It produces the most natural effect, and it is highly recommended for bioretention basin applications. The landscape goal is to simulate the structure and function of a native forest plant community.

- ***Turf and tree.*** This option is a lower maintenance version of the tree-shrub-herbaceous option 4, where the mulch layer is replaced by turf cover. Trees are planted within larger mulched islands to prevent damage during mowing operations.

- ***Herbaceous meadow.*** This is another lower maintenance approach that focuses on the herbaceous layer and may resemble a wildflower meadow or roadside vegetated area (e.g., with Joe Pye Weed, New York Ironweed, sedges, grasses, etc.). The goal is to establish a more natural look that may be appropriate if the facility is located in a lower maintenance area (e.g., further from buildings and parking lots). Shrubs and trees may be incorporated around the perimeter. Erosion control matting can be used in lieu of the conventional mulch layer.

Table 9.4. Popular Native Plant Materials for Bioretention

Perennials/Herbaceous	Shrubs	Trees
Virginia Wild Rye *(Elymus virginicus)*	Common Winterberry *(Ilex verticillatta)*	River Birch *(Betula nigra*)
Redtop Grass *(Agrostis alba)*	Inkberry *(Ilex glabra)*	Red Maple *(Acer rubrum)*
Swamp Milkweed *(Asclepias incarnata)*	Sweet Pepperbush *(Clethra ainifolia)*	Pin Oak *(Quercus palustris)*
Switchgrass *(Panicum virgatum)*	Wax Myrtle *(Myrica cerifera)*	Willow Oak *(Quercus phellos)*
Cardinal Flower *(Lobelia cardinalis)*	Virginia Sweetspire *(Itea virginica)*	Sweetgum *(Liquidambar styraciflua)*
Common Three Square *(Scirpus americanus)*	Swamp Azeala *(Azeala viscosum)*	Black Willow *(Salix nigra)*
Sensitive Fern *(Onoclea sensibilis)*	Button Bush *(Cephalanthus occidentalis)*	Grey Birch *(Betula populifolia)*
Blue Flag *(Iris versicolor)*	Black Haw *(Virburnum prunifolium))*	Black Gum *(Nyassa sylvatica)*
Woolgrass *(Scirpus cyperninus)*	Indigo Bush *(Amorpha fruticosa)*	Sycamore *(Platanus occidentalis)*
Indian Grass *(Sorghastrum nutans)*	Arrowwood *(Virburum dentatum)*	Green Ash *(Fraxinus pennsylvanica*
Marsh Marigold *(Caltha palustris)*		Sweetbay Magnolia* *(Magnolia virginiana)*
Joe Pye Weed *(Eupatorium purpureum)*		Atlantic White Cedar* *(Charnaecyparis thyoides)*
Turk's cap lily (*Lilium superbum*)		Bald Cypress* *(Taxodium distichum)*
Bee Balm *(Mornarda didyma)*		Grey Dogwood *(Cornus racernosa)*
Northern Sea Oats *(Chasmanthium latifolium)*		Smooth Alder *(Alnus serrulata))*
		Serviceberry *(Amelanchier canadensis)*
		Redbud (*Cercis candensis*)
		Box Elder *(Acer negundo)*
		Fringe Tree (*Chionanthus virginicus*)
Note: Prior to selection, please consult bioretention plant lists for more detailed information regarding inundation, drought and salt tolerance for each species. * most applicable to the coastal plain		

Table 9.5. Sources of Bioretention Plant Lists

Fairfax County, VA
https://166.94.9.135/dpwes/publications/lti/07-03attach3.pdf

Prince Georges County, MD
http://www.co.pg.md.us/Government/AgencyIndex/DER/ESD/Bioretention/pdf/Plant_list.pdf

City of Suffolk, VA
http://www.suffolk.va.us/citygovt/udo/apdx_c/appendix_c9-2_plant_list.pdf

Virginia
http://www.ext.vt.edu/pubs/waterquality/426-043/426-043.html

Bay Directory of Native Plant Nurseries
http://www.montgomerycountymd.gov/Content/DEP/Rainscapes/nurseries.htm

Delaware Green Technology Standards and Specifications
http://www.dnrec.state.de.us/DNREC2000/Divisions/Soil/Stormwater/New/GT_Stds%20&%20Specs_06-05.pdf

The choice of which planting template to use depends on the scale of bioretention, the context of the site in the urban environment, the filter depth, the desired landscape amenities, and the future owner's capability to maintain the landscape. In general, the vegetative goal is to cover up the filter surface with vegetation in a short amount of time. This means that the herbaceous layer is equally or more important than widely-spaced trees and shrubs. In the past, many bioretention areas in Virginia did not include enough herbaceous plants.

The following additional guidance is provided regarding developing an effective bioretention landscaping plan:

- Plants should be selected based on a specified zone of hydric tolerance and must be capable of surviving both wet and dry conditions.
- "Wet footed" species should be planted near the center, whereas upland species do better planted near the edge.
- Woody vegetation should not be located at points of inflow; trees should not be planted directly above underdrains, but should be located closer to the perimeter.
- If trees are part of the planting plan, a tree density of approximately one tree per 250 square feet (i.e., 15 feet on-center) is recommended.
- Shrubs and herbaceous vegetation should generally be planted in clusters and at higher densities (10 feet on-center and 1 to 1.5 feet on-center, respectively).

- Temporary or supplemental irrigation may be needed for the bioretention plantings in order for plant installers to provide a warranty regarding plant material survival.

- Supplemental irrigation by a rain tank system is also recommended (See Stormwater Design Specification No. 6: Rainwater Harvesting).

- Designers should also remember that planting holes for trees need must be at least 4 feet deep to provide enough soil volume for the root structure of mature trees. This applies even if the remaining soil media layer is shallower than 4 feet.

- If trees are used, plant shade-tolerant ground covers within the drip line.

- Maintenance is an important consideration in selecting plant species. Plant selection differs if the area will be frequently mowed, pruned, and weeded, in contrast to a site which will receive minimum annual maintenance.

- If the bioretention area is to be used for snow storage or is to accept snowmelt runoff, it should be planted with salt-tolerant, herbaceous perennials.

6.9. Bioretention Material Specifications

Table 9.6 outlines the standard material specifications used to construct bioretention areas.

Table 9.6. Bioretention Material Specifications

Material	Specification	Notes
Filter Media Composition	Filter Media to contain: • 85%-88% sand • 8%-12% soil fines • 3%-5% organic matter in the form of leaf compost	The volume of filter media based on 110% of the plan volume, to account for settling or compaction.
Filter Media Testing	P-Index range = 10-30, ***OR*** Between 7 and 21 mg/kg of P in the soil media. CECs greater than 10	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 surface of the filter bed.
Alternative Surface Cover	Use river stone or pea gravel, coir and jute matting, or turf cover.	Lay a 2 to 3 inch layer of to suppress weed growth.
Top Soil For Turf Cover	Loamy sand or sandy loam texture, with less than 5% clay content, pH corrected to between 6 and 7, and an organic matter content of at least 2%.	3 inch surface depth.
Geotextile/Liner	Use a non-woven geotextile fabric with a flow rate of > 110 gal./min./sq. ft. (e.g., Geotex 351 or equivalent)	Apply only to the sides and above the underdrain. For hotspots and certain karst sites only, use an appropriate liner on bottom.
Choking Layer	Lay a 2 to 4 inch layer of sand over a 2 inch layer of choker stone (typically #8 or #89 washed gravel), which is laid over the underdrain stone.	
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; 12 to 18 inches for the stone storage layer, if needed
Underdrains, Cleanouts, and Observation Wells	Use 6 inch rigid schedule 40 PVC pipe (or equivalent corrugated HDPE for micro-bioretention), with 3/8-inch perforations at 6 inches on center; position each underdrain on a 1% or 2% slope located nor more than 20 feet from the next pipe.	Lay the perforated pipe under the length of the bioretention cell, 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 cleanout pipes to the surface with vented caps at the Ts and Ys.
Plant Materials	Plant one tree per 250 square feet (15 feet on-center, minimum 1 inch caliper). Shrubs a minimum of 30 inches high planted a minimum of 10 feet on-center. Plant ground cover plugs at 12 to 18 inches on-center; Plant container-grown plants at 18 to 24 inches on-center, depending on the initial plant size and how large it will grow.	Establish plant materials as specified in the landscaping plan and the recommended plant list. In general, plant spacing must be sufficient to ensure the plant material achieves 80% cover in the proposed planting areas within a 3-year period. If seed mixes are used, they should be from a qualified supplier, should be appropriate for stormwater basin applications, and should consist of native species (unless the seeding is to establish maintained turf).

SECTION 7: REGIONAL & SPECIAL CASE DESIGN ADAPTATIONS

7.1 Karst Terrain

Karst regions are found in much of the Ridge and Valley province of Virginia, which complicates both land development and stormwater design. While bioretention areas produce less deep ponding than conventional stormwater practices (e.g., ponds and wetlands), Level 2 bioretention designs (i.e., infiltration) are not recommended in any area with a moderate or high risk of sinkhole formation (Hyland, 2005). On the other hand, Level 1 designs that meet separation distance requirements (3 feet) and possess an impermeable bottom liner and an underdrain should work well. In general, micro-bioretention and bioretention basins with contributing drainage areas not exceeding 20,000 square feet are preferred (compared to bioretention with larger drainage areas), in order to prevent possible sinkhole formation. However, it may be advisable to increase standard setbacks to buildings.

7.2 Coastal Plain

The flat terrain, low hydraulic head, and high water table of many coastal plain sites can constrain the application of deeper bioretention areas (particularly Level 2 designs). In such settings, the following design adaptations may be helpful:

- A linear approach to bioretention, using multiple cells leading to the ditch system, helps conserve hydraulic head.

- The minimum depth of the filter bed may be 18 to 24 inches. It is useful to limit surface ponding to 6 to 9 inches and avoid the need for additional depth by establishing a turf cover rather than using mulch. The shallower media depth and the turf cover generally comply with the Dry Swale specification, and therefore will be credited with a slightly lower pollutant removal (See Stormwater Design Specification No. 10: Dry Swales).

- The minimum depth to the seasonally high water table from the invert of the system can be 1 foot, as long as the bioretention area is equipped with a large-diameter underdrain (e.g., 6 inches) that is only partially efficient at dewatering the bed.

- It is important to maintain at least a 0.5% slope in the underdrain to ensure positive drainage.

- The underdrain should be tied into the ditch or conveyance system.

- The mix of plant species selected should reflect coastal plain plant communities and should be more wet-footed and salt-tolerant than those used in typical Piedmont applications.

While these design criteria permit bioretention to be used on a wider range of coastal plain sites, it is important not to avoid using bioretention on marginal sites. Other stormwater practices, such as wet swales, ditch wetland restoration, and smaller linear wetlands, are often preferred alternatives for coastal plain sites.

7.3 Steep Terrain

In steep terrain, land with a slope of up to 15% may drain to a bioretention area, as long as a two cell design is used to dissipate erosive energy prior to filtering. The first cell, between the slope and the filter media, functions as a forebay to dissipate energy and settle any sediment that migrates down the slope. Designers may also want to terrace a series of bioretention cells to manage runoff across or down a slope. The drop in slope between cells should be limited to 1 foot and should be armored with river stone or a suitable equivalent.

7.4 Cold Climate and Winter Performance

Bioretention areas can be used for snow storage as long as an overflow is provided and they are planted with salt-tolerant, non-woody plant species. (NOTE: Designers may want to evaluate Chesapeake Bay wetland plant species that tolerate slightly brackish water.) Tree and shrub locations should not conflict with plowing and piling of snow into storage areas.

While several studies have shown that bioretention facilities operate effectively in Pennsylvania and West Virginia winters, it is a good idea to extend the filter bed and underdrain pipe below the frost line and/or oversize the underdrain by one pipe size to reduce the freezing potential.

7.5 Linear Highway Sites

Bioretention is a preferred practice for constrained highway right of ways when designed as a series of individual on-line or off-line cells. In these situations, the final design closely resembles that of dry swales. Salt tolerant species should be selected if salt compounds will be used to de-ice the contributing roadway in the winter.

SECTION 8: CONSTRUCTION

8.1. Construction Sequence

***Construction Stage E&S Controls*.** Micro-bioretention and small-scale bioretention areas should be fully protected by silt fence or construction fencing, particularly if they will rely on infiltration (i.e., have no underdrains). Ideally, bioretention should remain outside the limit of disturbance during construction to prevent soil compaction by heavy equipment. Bioretention basin locations may be used as small sediment traps or basins during construction. However, these must be accompanied by notes and graphic details on the E&S plan specifying that (1) the maximum excavation depth at the construction stage must be at least 1 foot above the post-construction installation, and (2) the facility must contain an underdrain. The plan must also show the proper procedures for converting the temporary sediment control practice to a permanent bioretention facility, including dewatering, cleanout and stabilization.

8.2 Bioretention Installation

The following is a typical construction sequence to properly install a bioretention basin (also see **Figure 9.16**). The construction sequence for micro-bioretention is more simplified. These steps may be modified to reflect different bioretention applications or expected site conditions:

Step 1. Construction of the bioretention area may only begin after the entire contributing drainage area has been stabilized with vegetation. It may be necessary to block certain curb or other inlets while the bioretention area is being constructed. The proposed site should be checked for existing utilities prior to any excavation.

Step 2. The designer and the installer should have a preconstruction meeting, checking the boundaries of the contributing drainage area and the actual inlet elevations to ensure they conform to original design. Since other contractors may be responsible for constructing portions of the site, it is quite common to find subtle differences in site grading, drainage and paving elevations that can produce hydraulically important differences for the proposed bioretention area. The designer should clearly communicate, in writing, any project changes determined during the preconstruction meeting to the installer and the plan review/inspection authority.

Step 3. Temporary E&S controls are needed during construction of the bioretention area to divert stormwater away from the bioretention area until it is completed. Special protection measures such as erosion control fabrics may be needed to protect vulnerable side slopes from erosion during the construction process.

Step 4. Any pre-treatment cells should be excavated first and then sealed to trap sediments.

Step 5. Excavators or backhoes should work from the sides to excavate the bioretention area to its appropriate design depth and dimensions. Excavating equipment should have scoops with adequate reach so they do not have to sit inside the footprint of the bioretention area. Contractors should use a cell construction approach in larger bioretention basins, whereby the basin is split into 500 to 1,000 sq. ft. temporary cells with a 10-15 foot earth bridge in between, so that cells can be excavated from the side.

Step 6. It may be necessary to rip the bottom soils to a depth of 6 to 12 inches to promote greater infiltration.

Step 7. Place geotextile fabric on the sides of the bioretention area with a 6-inch overlap on the sides. If a stone storage layer will be used, place the appropriate depth of #57 stone on the bottom, install the perforated underdrain pipe, pack #57 stone to 3 inches above the underdrain pipe, and add approximately 3 inches of choker stone/pea gravel as a filter between the underdrain and the soil media layer. If no stone storage layer is used, start with 6 inches of #57 stone on the bottom, and proceed with the layering as described above.

Step 8. Deliver the soil media from an approved vendor, and store it on an adjacent impervious area or plastic sheeting. Apply the media in 12-inch lifts until the desired top elevation of the

bioretention area is achieved. Wait a few days to check for settlement, and add additional media, as needed, to achieve the design elevation.

Step 9. Prepare planting holes for any trees and shrubs, install the vegetation, and water accordingly. Install any temporary irrigation.

Step 10. Place the surface cover in both cells (mulch, river stone or turf), depending on the design. If coir or jute matting will be used in lieu of mulch, the matting will need to be installed prior to planting (**Step 9**), and holes or slits will have to be cut in the matting to install the plants.

Step 11. Install the plant materials as shown in the landscaping plan, and water them during weeks of no rain for the first two months.

Step 12. Conduct the final construction inspection (see **Section 9.2**). Then log the GPS coordinates for each bioretention facility and submit them for entry into the local maintenance tracking database.

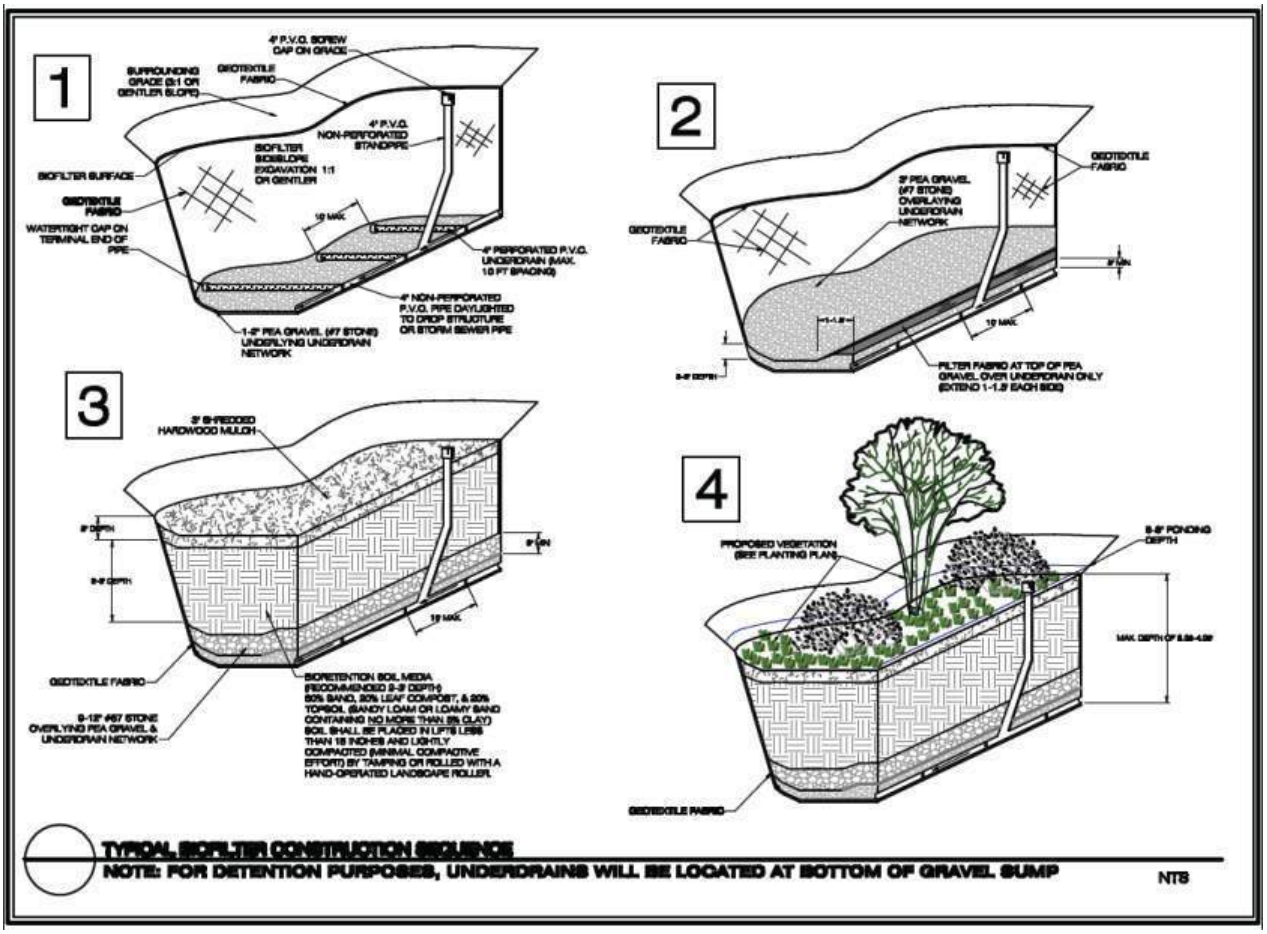

Figure 9.16. Typical Biofilter Construction Sequence

8.3.Construction Inspection

An example construction phase inspection checklist for Bioretention areas can be accessed at the CWP website at:

http://www.cwp.org/Resource_Library/Controlling_Runoff_and_Discharges/sm.htm
(scroll to Tool6: Plan Review, BMP Construction, and Maintenance Checklists)

SECTION 9: MAINTENANCE

9.1. Maintenance Agreements

Section 4 VAC 50-60-124 of the regulations specifies the circumstances under which a maintenance agreement ~~to~~ must be executed between the owner and the local program. This section sets forth inspection requirements, compliance procedures if maintenance is neglected, notification of the local program upon transfer of ownership, and right-of-entry for local program personnel.

For bioretention, maintenance agreements must contain recommended maintenance tasks and a copy of an annual inspection checklist. When micro-scale bioretention practices are applied on private residential lots, homeowners will need to be educated regarding their routine maintenance needs. A deed restriction, drainage easement or other mechanism enforceable by the qualifying local program must be in place to help ensure that rain gardens and bioretention filters are maintained and not converted or disturbed, as well as to pass the knowledge along to any subsequent owners. The mechanism should, if possible, grant authority for local agencies to access the property for inspection or corrective action.

9.2. First Year Maintenance Operations

Successful establishment of bioretention areas requires that the following tasks be undertaken in the first year following installation:

- ***Initial inspections.*** For the first 6 months following construction, the site should be inspected at least twice after storm events that exceed 1/2 inch of rainfall.
- ***Spot Reseeding.*** Inspectors should look for bare or eroding areas in the contributing drainage area or around the bioretention area, and make sure they are immediately stabilized with grass cover.
- ***Fertilization.*** One-time, spot fertilization may be needed for initial plantings.
- ***Watering.*** Watering is needed once a week during the first 2 months, and then as needed during first growing season (April-October), depending on rainfall.
- ***Remove and replace dead plants.*** Since up to 10% of the plant stock may die off in the first year, construction contracts should include a care and replacement warranty to ensure that vegetation is properly established and survives during the first growing season following construction. The typical thresholds below which replacement is required are 85% survival of plant material and 100% survival of trees.

9.3. Maintenance Inspections

It is highly recommended that a spring maintenance inspection and cleanup be conducted at each bioretention area. The following is a list of some of the key maintenance problems to look for:

- Check to see if 75% to 90% cover (mulch plus vegetative cover) has been achieved in the bed, and measure the depth of the remaining mulch.
- Check for sediment buildup at curb cuts, gravel diaphragms or pavement edges that prevents flow from getting into the bed, and check for other signs of bypassing.
- Check for any winter- or salt-killed vegetation, and replace it with hardier species.
- Note presence of accumulated sand, sediment and trash in the pre-treatment cell or filter beds, and remove it.
- Inspect bioretention side slopes and grass filter strips for evidence of any rill or gully erosion, and repair it.
- Check the bioretention bed for evidence of mulch flotation, excessive ponding, dead plants or concentrated flows, and take appropriate remedial action.
- Check inflow points for clogging, and remove any sediment.
- Look for any bare soil or sediment sources in the contributing drainage area, and stabilize them immediately.
- Check for clogged or slow-draining soil media, a crust formed on the top layer, inappropriate soil media, or other causes of insufficient filtering time, and restore proper filtration characteristics.

Example maintenance inspection checklists for Bioretention areas can be accessed in Appendix C of Chapter 9 of the *Virginia Stormwater Management Handbook* (2010) or at the Center for Watershed Protection website at:

http://www.cwp.org/Resource_Library/Controlling_Runoff_and_Discharges/sm.htm
(scroll to Tool6: Plan Review, BMP Construction, and Maintenance Checklists)

9.4. Routine and Non-Routine Maintenance Tasks

Maintenance of bioretention areas should be integrated into routine landscape maintenance tasks. If landscaping contractors will be expected to perform maintenance, their contracts should contain specifics on unique bioretention landscaping needs, such as maintaining elevation differences needed for ponding, proper mulching, sediment and trash removal, and limited use of fertilizers and pesticides. A customized maintenance schedule must be prepared for each bioretention facility, since the maintenance tasks will differ depending on the scale of bioretention, the landscaping template chosen, and the type of surface cover. A generalized summary of common maintenance tasks and their frequency is provided in **Table 9.7**.

The most common non-routine maintenance problem involves standing water. If water remains on the surface for more than 48 hours after a storm, adjustments to the grading may be needed or underdrain repairs may be needed. The surface of the filter bed should also be checked for accumulated sediment or a fine crust that builds up after the first several storm events. There are

several methods that can be used to rehabilitate the filter (try the easiest things first, as listed below):

- Open the underdrain observation well or cleanout and pour in water to verify that the underdrains are functioning and not clogged or otherwise in need of repair. The purpose of this check is to see if there is standing water all the way down through the soil. If there is standing water on top, but not in the underdrain, then there is a clogged soil layer. If the underdrain and stand pipe indicates standing water, then the underdrain must be clogged and will need to be snaked.
- Remove accumulated sediment and till 2 to 3 inches of sand into the upper 8 to 12 inches of soil.
- Install sand wicks from 3 inches below the surface to the underdrain layer. This reduces the average concentration of fines in the media bed and promotes quicker drawdown times. Sand wicks can be installed by excavating or augering (using a tree auger or similar tool) down to the gravel storage zone to create vertical columns which are then filled with a clean open-graded coarse sand material (ASTM C-33 concrete sand or similar approved sand mix for bioretention media). A sufficient number of wick drains of sufficient dimension should be installed to meet the design dewatering time for the facility.
- Remove and replace some or all of the soil media.

Table 9.7. Suggested Annual Maintenance Activities for Bioretention

Maintenance Tasks	Frequency
• Mowing of grass filter strips and bioretention turf cover	At least 4 times a year
• Spot weeding, erosion repair, trash removal, and mulch raking	Twice during growing season
• Add reinforcement planting to maintain desired the vegetation density • Remove invasive plants using recommended control methods • Stabilize the contributing drainage area to prevent erosion	As needed
• Spring inspection and cleanup • Supplement mulch to maintain a 3 inch layer • Prune trees and shrubs	Annually
• Remove sediment in pre-treatment cells and inflow points	Once every 2 to 3 years
• Replace the mulch layer	Every 3 years

SECTION 9: REFERENCES

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In addition, the following individuals provided review and input for this version of the specification. Rick Scafidi (EQR), Bill Hunt (NCSU), Scott Thomas (JCC), Dave Hirschman (CWP) Don Rissmeyer (VA ASCE), Randy Greer (DENRC), Doug Biesch (WEG), Stuart Stein (GKY), Tim Schueler (MC), Christie Minami (MD SHA). Special thanks to the staff at WEG for providing the design schematics and details.

APPENDIX 9-A

URBAN BIORETENTION

Stormwater Planters
Expanded Tree Pits
Stormwater Curb Extensions

VERSION 1.7
March 8, 2010

SECTION 9-A-1: DESCRIPTION

Urban bioretention practices are similar in function to regular bioretention practices except they are adapted to fit into "containers" within urban landscapes. Typically, urban bioretention is installed within an urban streetscape or city street right-of-way, urban landscaping beds, tree pits and plazas, or other features within an *Urban Development Area*. Urban bioretention is not intended for large commercial areas, nor should it be used to treat small sub-areas of a large drainage area such as a parking lot. Rather, urban bioretention is intended to be incorporated into small fragmented drainage areas such as shopping or pedestrian plazas within a larger urban development.

Urban bioretention features hard edges, often with vertical concrete sides, as contrasted with the more gentle earthen slopes of regular bioretention. These practices may be open-bottomed, to allow some infiltration of runoff into the sub-grade, but they generally are served by an underdrain.

Stormwater planters (also known as vegetative box filters or foundation planters) take advantage of limited space available for stormwater treatment by placing a soil filter in a container located above ground or at grade in landscaping areas between buildings and roadways (**Figure 9-A.1**). The small footprint of foundation planters is typically contained in a precast or cast-in-place concrete vault. Other materials may include molded polypropylene cells and precast modular block systems.

Figure 9-A.1. Stormwater Planters

Extended tree pits are installed in the sidewalk zone near the street where urban street trees are normally installed. The soil volume for the tree pit is increased and used as a stormwater (**Figure 9-A.2**). Treatment is increased by using a series of connected tree planting areas together in a row. The surface of the enlarged planting area may be mulch, grates, permeable pavers, or conventional pavement. The large and shared rooting space and a reliable water supply increase the growth and survival rates in this otherwise harsh planting environment.

Figure 9-A.2. Expanded Tree Pits

Stormwater curb extensions (also known as parallel bioretention) are installed in the road right-of way either in the sidewalk area or in the road itself. In many cases, curb extensions serve as a traffic calming or street parking control device. The basic design adaptation is to move the raised concrete curb closer to the street or in the street, and then create inlets or curb cuts that divert street runoff into depressed vegetated areas within the expanded right of way (**Figure 9-A.3**).

Figure 9-A.3. Stormwater Curb Extensions

Each urban bioretention variant is planted with a mix of trees, shrubs, and grasses as appropriate for its size and landscaping context.

SECTION 9-A-2: PERFORMANCE

The typical stormwater functions of an urban bioretention area are described in **Table 9-A.1**. The three major design variants of urban bioretention are described below:

Table 9-A.1. Summary of Stormwater Functions Provided by Urban Bioretention Areas

Stormwater Function	Level 1 Design	Level 2 Design
Annual Runoff Volume Reduction (RR)	40% (for Water Quality credit in the RRM spreadsheet only) 0% credit for Channel Protection	NA
Total Phosphorus (TP) EMC Reduction[1] by BMP Treatment Process	25%	NA
Total Phosphorus (TP) Mass Load Removal	55%	
Total Nitrogen (TN) EMC Reduction[1] by BMP Treatment Process	40%	NA
	64%	
Channel Protection	None; or if sized according to Bioretention Basin, follow the Level 1 Bioretention basin criteria.	
Flood Mitigation	None	

[1] Change in the event mean concentration (EMC) through the practice. The actual nutrient mass load removed is the product of the removal rate and the runoff reduction rate (see Table 1 in the *Introduction to the New Virginia Stormwater Design Specifications*).

Sources: CWP and CSN (2008) and CWP (2007)

SECTION 9-A-3: DESIGN TABLE

Table 9-A.2. Urban Bioretention Design Criteria

Level 1 Design Only (RR: 40; TP: 25)
Sizing (Refer to **Section 9-A-6.1**): Surface Area (sq. ft.) = $T_V/2$ = {[(1.0 inch)(R_V)(A)/12)] – the volume reduced by an upstream BMP}/2
Underdrain = Schedule 40 PVC with clean-outs (Refer to the Main Bioretention Design Specification, **Section 9.8**)
Maximum Drainage Area = 2,500 sq. ft.
Maximum Ponding Depth = 6 to 12 inches [1]
Filter media depth minimum = 30 inches; recommended maximum = 48 inches
Media and Surface Cover (Refer to the Main Bioretention Design Specification, **Section 9.8**)
Sub-soil testing (Refer to the Main Bioretention Design Specification, **Section 9.8**)
Inflow = sheetflow, curb cuts, trench drains, roof drains, concentrated flow, or equivalent
Building setbacks (Refer to **Section ~~A-4~~ 9-A-5**)
Deeded maintenance O&M plan (Refer to the Main Bioretention Design Specification, **Section 9.1**)
[1] Ponding depth above 6 inches will require a specific planting plan to ensure appropriate plants (Refer to the Main Bioretention Design Specification, **Section 6.8**).

SECTION 9-A-4: TYPICAL DETAILS

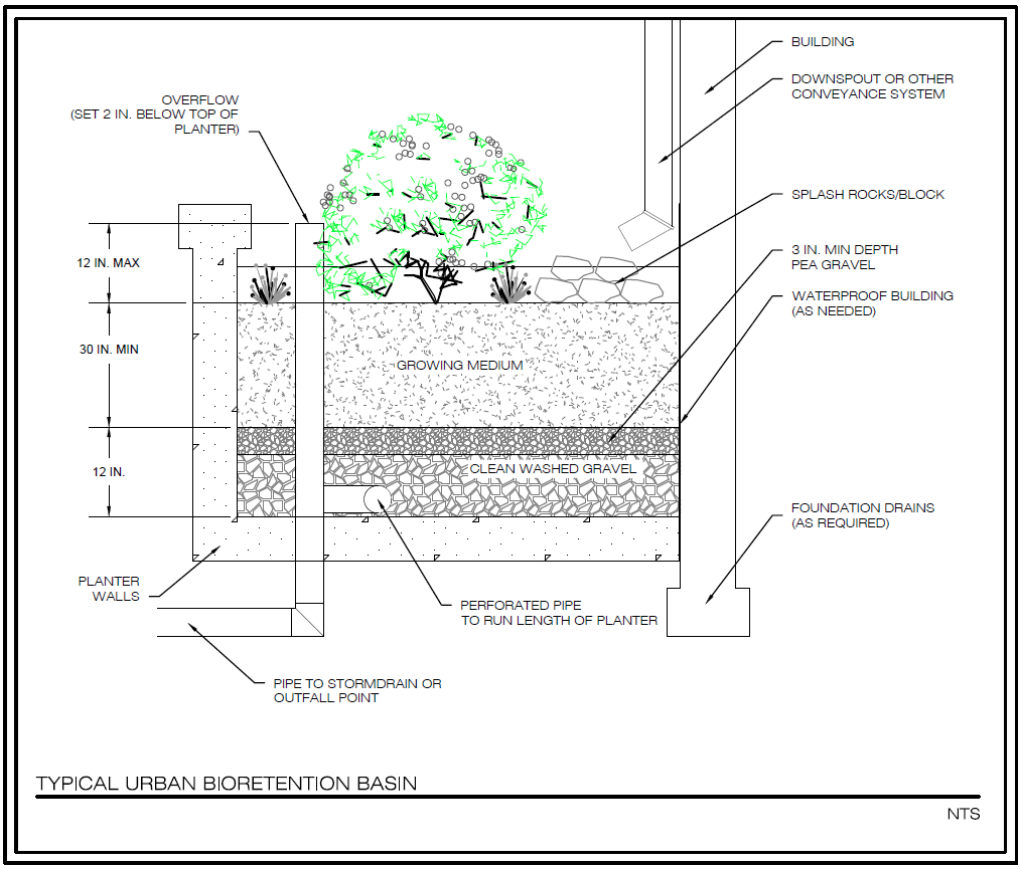

Figure 9-A.4. Stormwater Planter Cross-Section

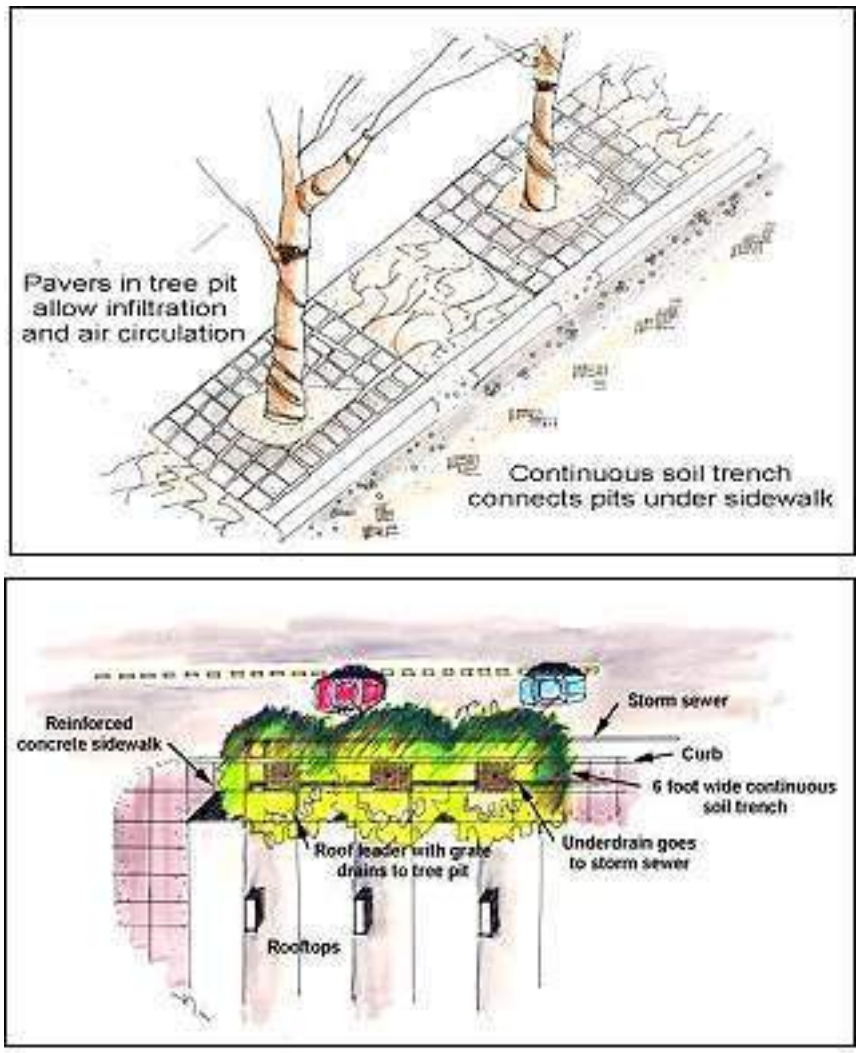

Figure 9-A.5. Expanded Tree Pit Details

Portland, Oregon (Portland BES, 2004) has thorough construction details for stormwater curb extensions, expanded tree pits, and utility house connections, available online at http://www.portlandonline.com/bes/index.cfm?c=44213& .

SECTION 9-A-5: PHYSICAL FEASIBILITY & DESIGN APPLICATIONS

In general, urban bioretention has the same constraints as regular bioretention, along with a few additional constraints as noted below:

Contributing Drainage Area. Urban bioretention is classified as a micro-bioretention practice and is therefore limited to 2,500 sq. ft. of drainage area to each unit. However, this is considered a general rule; larger drainage areas may be allowed with sufficient flow controls and other mechanisms to ensure proper function, safety, and community acceptance. The drainage areas in

these urban settings are typically considered to be 100% impervious. While multiple units can be installed to maximize the treatment area in ultra-urban watersheds, urban bioretention is not intended to be used as treatment for large impervious areas (such as parking lots).

Adequate Drainage. Urban bioretention practice elevations must allow the untreated stormwater runoff to be discharged at the surface of the filter bed and ultimately connect to the local storm drain system.

Available Hydraulic Head. In general, 3 to 5 feet of elevation difference is needed between the downstream storm drain invert and the inflow point of the urban bioretention practice. This is generally not a constraint, due to the standard depth of most storm drains systems.

Setbacks from Buildings ~~Roads~~. If an impermeable liner and an underdrain are used, no setback is needed from the building. Otherwise, the standard 10 foot down-gradient setback applies.

Proximity to Underground Utilities. Urban bioretention practices frequently compete for space with a variety of utilities. Since they are often located parallel to the road right-of-way, care should be taken to provide utility-specific horizontal and vertical setbacks. However, conflicts with water and sewer laterals (e.g., house connections) may be unavoidable, and the construction sequence must be altered, as necessary, to avoid impacts to existing service.

Overhead Wires. Designers should also check whether future tree canopy heights achieved in conjunction with urban bioretention practices will interfere with existing overhead telephone, cable communications and power lines.

Minimizing External Impacts. Because urban bioretention practices are installed in ~~a~~ highly urban settings, individual units may be subject to higher public visibility, greater trash loads, pedestrian ~~use~~ traffic, vandalism, and even vehicular loads. Designers should design these practices in ways that prevent, or at least minimize, such impacts. In addition, designers should clearly recognize the need to perform frequent landscaping maintenance to remove trash, check for clogging, and maintain vigorous vegetation. The urban landscape context may feature naturalized landscaping or a more formal deign. When urban bioretention is used in sidewalk areas of high foot traffic, designers should not impede pedestrian movement or create a safety hazard. Designers may also install low fences, grates or other measures to prevent damage from pedestrian short-cutting across the practices.

SECTION 9-A-6: DESIGN CRITERIA

Urban bioretention practices are similar in function to regular bioretention practices except they are adapted to fit into “containers” within urban landscapes. Therefore, special sizing accommodations are made to allow these practices to fit in very constrained areas where other surface practices may not be feasible.

6.1. Sizing of Urban Bioretention

The required surface area of the urban bioretention filter is one-half of the Treatment Volume (**Equation 9-A.1** below). This criterion represents a balance between the need to size these structures so as to provide a reasonable alternative in ultra urban settings and the relationship between the surface area size, media permeability, and drawdown requirements. Ideally, urban bioretention facilities are in close proximity to the public or users of the adjacent buildings and/or commercial areas, and thus subjected to increased scrutiny. This provides a theoretical basis for adjusting the clogging factor for the media permeability coefficient (k, ft/day), or an increase in the allowable maximum drawdown time, resulting in the smaller sizing. However, as a result, Level 1 urban bioretention will only count towards water quality credit through the 40% volume reduction and/or the 25% TP pollutant removal. There is no credit given to channel protection due to the reduced surface area and storage volume.

Equation 9-A.1. Urban Bioretention Sizing

$$SA \text{ (sq. ft.)} = T_v \text{ (cu. ft.)} / 2.0 \text{ ft.}$$

Where:

SA = the surface area of the urban bioretention facility (in square feet)

T_v = the required Treatment Volume (in cubic feet)

6.2 General Design Criteria for Urban Bioretention

Design of urban bioretention should follow the general guidance presented in the main part of this Bioretention design specification. The actual geometric design of urban bioretention is usually dictated by other landscape elements such as buildings, sidewalk widths, utility corridors, retaining walls, etc. Designers can divert fractions of the runoff volume from small impervious surfaces into micro-bioretention units that are integrated with the overall landscape design. Inlets and outlets should be located as far apart as possible. The following is additional design guidance that applies to all variations of urban bioretention:

- The ground surface of the micro-bioretention cell should slope 1% towards the outlet, unless a stormwater planter is used.
- The soil media depth should be a minimum of 30 inches.
- If large trees and shrubs are to be installed, soil media depths should be a minimum of 4 feet.
- Each individual urban bioretention unit should be stenciled or otherwise permanently marked to designate it as a stormwater management facility. The stencil or plaque should indicate (1) its water quality purpose, (2) that it may pond briefly after a storm, and (3) that it is not to be disturbed except for required maintenance.
- All urban bioretention practices should be designed to fully drain within 24 hours.
- Any grates used above urban bioretention areas must be removable to allow maintenance access.
- The inlet(s) to urban bioretention should be stabilized using VDOT #3 stone, splash block, river stone or other acceptable energy dissipation measures. The following forms of inlet stabilization are recommended:

  - Downspouts to stone energy dissipators.
  - Sheet flow over a depressed curb with a 3-inch drop.
  - Curb cuts allowing runoff into the bioretention area.
  - Covered drains that convey flows across sidewalks from the curb or downspouts.
  - Grates or trench drains that capture runoff from the sidewalk or plaza area.
- Pre-treatment options overlap with those of regular bioretention practices. However, the materials used may be chosen based on their aesthetic qualities in addition to their functional properties. For example, river rock may be used in lieu of rip rap. Other pretreatment options may include one of the following:
  - A trash rack between the pre-treatment cell and the main filter bed. This will allow trash to be collected from one location.
  - A trash rack across curb cuts. While this trash rack may clog occasionally, it keeps trash in the gutter, where it can be picked up by street sweeping equipment.
  - A pre-treatment area above ground or a manhole or grate directly over the pre-treatment area.
- Overflows can either be diverted from entering the bioretention cell or dealt with via an overflow inlet. Optional methods include the following:
  - Size curb openings to capture only the Treatment Volume and bypass higher flows through the existing gutter.
  - Use landscaping type inlets or standpipes with trash guards as overflow devices.
  - Use a pre-treatment chamber with a weir design that limits flow to the filter bed area.

6.3 Specific Design Issues for Stormwater Planters

Since stormwater planters are often located near building foundations, waterproofing by using a watertight concrete shell or an impermeable liner is required to prevent seepage.

6.4 Specific Design Issues for Expanded Tree Pits

- The bottom of the soil layer must be a minimum of 4 inches below the root ball of plants to be installed.
- Extended tree pits designs sometimes cover portions of the filter media with pervious pavers or cantilevered sidewalks. In these situations, it is important that the filter media is connected beneath the surface so that stormwater and tree roots can share this space.
- Installing a tree pit grate over filter bed media is one possible solution to prevent pedestrian traffic and trash accumulation.
- Low, wrought iron fences can help restrict pedestrian traffic across the tree pit bed and serve as a protective barrier if there is a dropoff from the pavement to the micro-bioretention cell.
- A removable grate capable of supporting typical H-20 axel loads may be used to allow the tree to grow through it.
- Each tree needs a minimum of 400 cubic feet of shared root space.

6.5 Specific Design Issues for Stormwater Curb Extensions

Roadway stability can be a design issue where stormwater curb extensions are installed. Consult design standards pertaining to roadway drainage. It may be necessary to provide a barrier to keep water from saturating the road's sub-base and demonstrate it is capable of supporting H-20 axel loads.

6.6 Planting and Landscaping Considerations

The degree of landscape maintenance that can be provided will determine some of the planting choices for urban bioretention areas. The planting cells can be formal gardens or naturalized landscapes.

In areas where less maintenance will be provided and where trash accumulation in shrubbery or herbaceous plants is a concern, consider a "turf and trees" landscaping model. Spaces for herbaceous flowering plants can be included. This may be attractive at a community entrance location.

Native trees or shrubs are preferred for urban bioretention areas, although some ornamental species may be used. As with regular bioretention, the selected perennials, shrubs, and trees must be tolerant of salt, drought, and inundation. Additionally, tree species should be those that are known to survive well in the compacted soils and polluted air and water of an urban landscape.

SECTION 9-A-7: URBAN BIORETENTION MATERIAL SPECIFICATIONS

Please consult the **main part of this design specification** (**Table 9.6**) for the typical materials needed for filter media, stone, mulch and other bioretention features. The unique components for urban bioretention may include the inlet control device, a concrete box or other containing shell, protective grates, and an underdrain that daylights to another stormwater practice or connects to the storm drain system. The underdrain should:

- Consist of slotted pipe greater than or equal to 4 inches in diameter, placed in a layer of washed (less than 1% passing a #200 sieve) VDOT #57 stone.
- Have a minimum of 2 inches of gravel laid above and below the pipe.
- Be laid at a minimum slope of 0.5 %.
- Extend the length of the box filter from one wall to within 6 inches of the opposite wall, and may be either centered in the box or offset to one side.
- Be separated from the soil media by non-woven, geotextile fabric or a 2 to 3 inch layer of either washed VDOT #8 stone or 1/8 to 3/8 inch pea gravel.

SECTION 9-A.8: CONSTRUCTION

The construction sequence and inspection requirements for urban bioretention are generally the same as micro-bioretention practices. Consult the construction sequence and inspection guidance provided in **the main part of this design specification**. In cases where urban bioretention is constructed in the road or right-of-way, the construction sequence may need to be adjusted to account for traffic control, pedestrian access and utility notification.

Urban bioretention areas should only be constructed after the drainage area to the facility is completely stabilized. The specified growth media should be placed and spread by hand with minimal compaction, in order to avoid compaction and maintain the porosity of the media. The media should be placed in 8 to 12 inch lifts with no machinery allowed directly on the media during or after construction. The media should be overfilled above the proposed surface elevation, as needed, to allow for natural settling. Lifts may be lightly watered to encourage settling. After the final lift is placed, the media should be raked (to level it), saturated, and allowed to settle for at least one week prior to installation of plant materials.

SECTION 9-A-9: MAINTENANCE

Routine operation and maintenance are essential to gain public acceptance of highly visible urban bioretention areas. Weeding, pruning, and trash removal should be done as needed to maintain the aesthetics necessary for community acceptance. During drought conditions, it may be necessary to water the plants, as would be necessary for any landscaped area.

To ensure proper performance, inspectors should check that stormwater infiltrates properly into the soil within 24 hours after a storm. If excessive surface ponding is observed, corrective measures include inspection for soil compaction and underdrain clogging. Consult the maintenance guidance outlined in **the main part of this design specification**.

SECTION 9-A-10: DESIGN REFERENCES

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APPENDIX 9-B

ADDITIONAL DETAILS AND SCHEMATICS FOR REGULAR BIORETENTION PRACTICES

VERSION 1.6
September 31, 2009

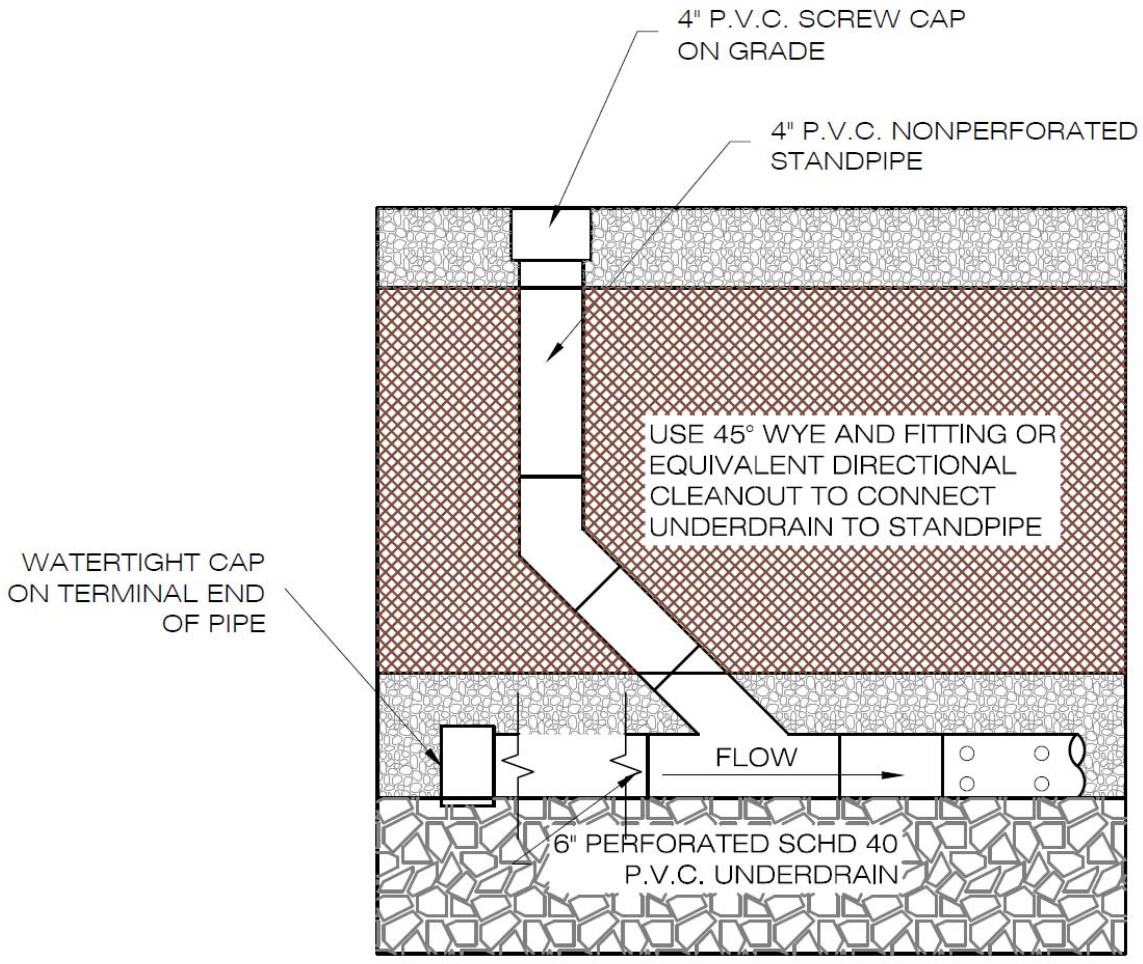
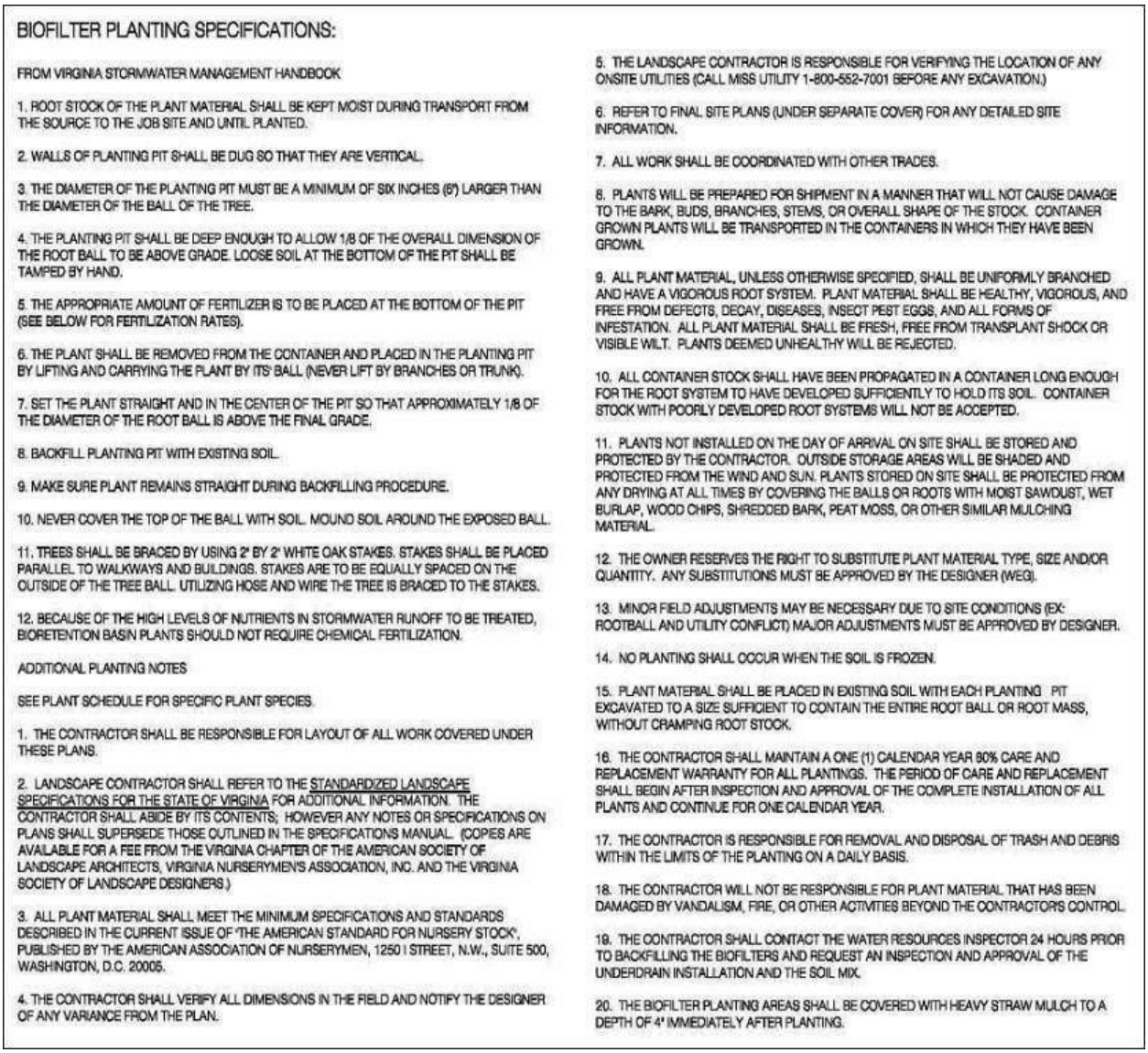


Figure 9-B.1. 4" P.V.C. Cleanout Detail



BIOFILTER PLANTING SPECIFICATIONS:

FROM VIRGINIA STORMWATER MANAGEMENT HANDBOOK

1. ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT FROM THE SOURCE TO THE JOB SITE AND UNTIL PLANTED.

2. WALLS OF PLANTING PIT SHALL BE DUG SO THAT THEY ARE VERTICAL.

3. THE DIAMETER OF THE PLANTING PIT MUST BE A MINIMUM OF SIX INCHES (6") LARGER THAN THE DIAMETER OF THE BALL OF THE TREE.

4. THE PLANTING PIT SHALL BE DEEP ENOUGH TO ALLOW 1/8 OF THE OVERALL DIMENSION OF THE ROOT BALL TO BE ABOVE GRADE. LOOSE SOIL AT THE BOTTOM OF THE PIT SHALL BE TAMPED BY HAND.

5. THE APPROPRIATE AMOUNT OF FERTILIZER IS TO BE PLACED AT THE BOTTOM OF THE PIT (SEE BELOW FOR FERTILIZATION RATES).

6. THE PLANT SHALL BE REMOVED FROM THE CONTAINER AND PLACED IN THE PLANTING PIT BY LIFTING AND CARRYING THE PLANT BY ITS' BALL (NEVER LIFT BY BRANCHES OR TRUNK).

7. SET THE PLANT STRAIGHT AND IN THE CENTER OF THE PIT SO THAT APPROXIMATELY 1/8 OF THE DIAMETER OF THE ROOT BALL IS ABOVE THE FINAL GRADE.

8. BACKFILL PLANTING PIT WITH EXISTING SOIL.

9. MAKE SURE PLANT REMAINS STRAIGHT DURING BACKFILLING PROCEDURE.

10. NEVER COVER THE TOP OF THE BALL WITH SOIL. MOUND SOIL AROUND THE EXPOSED BALL.

11. TREES SHALL BE BRACED BY USING 2' BY 2' WHITE OAK STAKES. STAKES SHALL BE PLACED PARALLEL TO WALKWAYS AND BUILDINGS. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL. UTILIZING HOSE AND WIRE THE TREE IS BRACED TO THE STAKES.

12. BECAUSE OF THE HIGH LEVELS OF NUTRIENTS IN STORMWATER RUNOFF TO BE TREATED, BIORETENTION BASIN PLANTS SHOULD NOT REQUIRE CHEMICAL FERTILIZATION.

ADDITIONAL PLANTING NOTES

SEE PLANT SCHEDULE FOR SPECIFIC PLANT SPECIES.

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYOUT OF ALL WORK COVERED UNDER THESE PLANS.

2. LANDSCAPE CONTRACTOR SHALL REFER TO THE STANDARDIZED LANDSCAPE SPECIFICATIONS FOR THE STATE OF VIRGINIA FOR ADDITIONAL INFORMATION. THE CONTRACTOR SHALL ABIDE BY ITS CONTENTS; HOWEVER ANY NOTES OR SPECIFICATIONS ON PLANS SHALL SUPERSEDE THOSE OUTLINED IN THE SPECIFICATIONS MANUAL. (COPIES ARE AVAILABLE FOR A FEE FROM THE VIRGINIA CHAPTER OF THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS, VIRGINIA NURSERYMEN'S ASSOCIATION, INC. AND THE VIRGINIA SOCIETY OF LANDSCAPE DESIGNERS.)

3. ALL PLANT MATERIAL SHALL MEET THE MINIMUM SPECIFICATIONS AND STANDARDS DESCRIBED IN THE CURRENT ISSUE OF "THE AMERICAN STANDARD FOR NURSERY STOCK", PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, 1250 I STREET, N.W., SUITE 500, WASHINGTON, D.C. 20005.

4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD AND NOTIFY THE DESIGNER OF ANY VARIANCE FROM THE PLAN.

5. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ANY ONSITE UTILITIES (CALL MISS UTILITY 1-800-552-7001 BEFORE ANY EXCAVATION.)

6. REFER TO FINAL SITE PLANS (UNDER SEPARATE COVER) FOR ANY DETAILED SITE INFORMATION.

7. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES.

8. PLANTS WILL BE PREPARED FOR SHIPMENT IN A MANNER THAT WILL NOT CAUSE DAMAGE TO THE BARK, BUDS, BRANCHES, STEMS, OR OVERALL SHAPE OF THE STOCK. CONTAINER GROWN PLANTS WILL BE TRANSPORTED IN THE CONTAINERS IN WHICH THEY HAVE BEEN GROWN.

9. ALL PLANT MATERIAL, UNLESS OTHERWISE SPECIFIED, SHALL BE UNIFORMLY BRANCHED AND HAVE A VIGOROUS ROOT SYSTEM. PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS, AND FREE FROM DEFECTS, DECAY, DISEASES, INSECT PEST EGGS, AND ALL FORMS OF INFESTATION. ALL PLANT MATERIAL SHALL BE FRESH, FREE FROM TRANSPLANT SHOCK OR VISIBLE WILT. PLANTS DEEMED UNHEALTHY WILL BE REJECTED.

10. ALL CONTAINER STOCK SHALL HAVE BEEN PROPAGATED IN A CONTAINER LONG ENOUGH FOR THE ROOT SYSTEM TO HAVE DEVELOPED SUFFICIENTLY TO HOLD ITS SOIL. CONTAINER STOCK WITH POORLY DEVELOPED ROOT SYSTEMS WILL NOT BE ACCEPTED.

11. PLANTS NOT INSTALLED ON THE DAY OF ARRIVAL ON SITE SHALL BE STORED AND PROTECTED BY THE CONTRACTOR. OUTSIDE STORAGE AREAS WILL BE SHADED AND PROTECTED FROM THE WIND AND SUN. PLANTS STORED ON SITE SHALL BE PROTECTED FROM ANY DRYING AT ALL TIMES BY COVERING THE BALLS OR ROOTS WITH MOIST SAWDUST, WET BURLAP, WOOD CHIPS, SHREDDED BARK, PEAT MOSS, OR OTHER SIMILAR MULCHING MATERIAL.

12. THE OWNER RESERVES THE RIGHT TO SUBSTITUTE PLANT MATERIAL TYPE, SIZE AND/OR QUANTITY. ANY SUBSTITUTIONS MUST BE APPROVED BY THE DESIGNER (WEG).

13. MINOR FIELD ADJUSTMENTS MAY BE NECESSARY DUE TO SITE CONDITIONS (EX: ROOTBALL AND UTILITY CONFLICT) MAJOR ADJUSTMENTS MUST BE APPROVED BY DESIGNER.

14. NO PLANTING SHALL OCCUR WHEN THE SOIL IS FROZEN.

15. PLANT MATERIAL SHALL BE PLACED IN EXISTING SOIL WITH EACH PLANTING PIT EXCAVATED TO A SIZE SUFFICIENT TO CONTAIN THE ENTIRE ROOT BALL OR ROOT MASS, WITHOUT CRAMPING ROOT STOCK.

16. THE CONTRACTOR SHALL MAINTAIN A ONE (1) CALENDAR YEAR 80% CARE AND REPLACEMENT WARRANTY FOR ALL PLANTINGS. THE PERIOD OF CARE AND REPLACEMENT SHALL BEGIN AFTER INSPECTION AND APPROVAL OF THE COMPLETE INSTALLATION OF ALL PLANTS AND CONTINUE FOR ONE CALENDAR YEAR.

17. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DISPOSAL OF TRASH AND DEBRIS WITHIN THE LIMITS OF THE PLANTING ON A DAILY BASIS.

18. THE CONTRACTOR WILL NOT BE RESPONSIBLE FOR PLANT MATERIAL THAT HAS BEEN DAMAGED BY VANDALISM, FIRE, OR OTHER ACTIVITIES BEYOND THE CONTRACTOR'S CONTROL.

19. THE CONTRACTOR SHALL CONTACT THE WATER RESOURCES INSPECTOR 24 HOURS PRIOR TO BACKFILLING THE BIOFILTERS AND REQUEST AN INSPECTION AND APPROVAL OF THE UNDERDRAIN INSTALLATION AND THE SOIL MIX.

20. THE BIOFILTER PLANTING AREAS SHALL BE COVERED WITH HEAVY STRAW MULCH TO A DEPTH OF 4" IMMEDIATELY AFTER PLANTING.

Figure 9-B.2. Typical Biofilter Planting Specifications

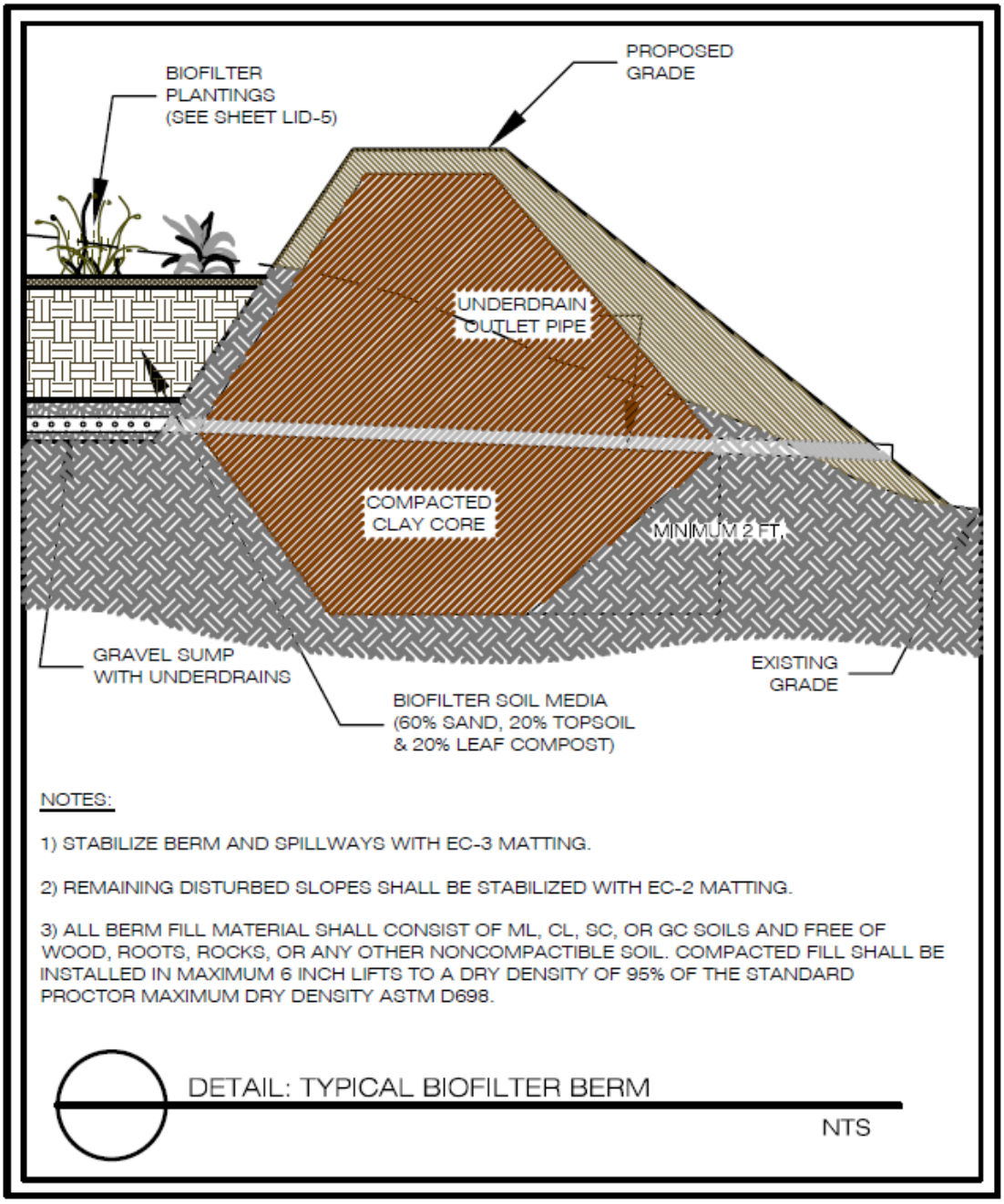


Figure 9-B.3. Typical Bioretention Basin Berm

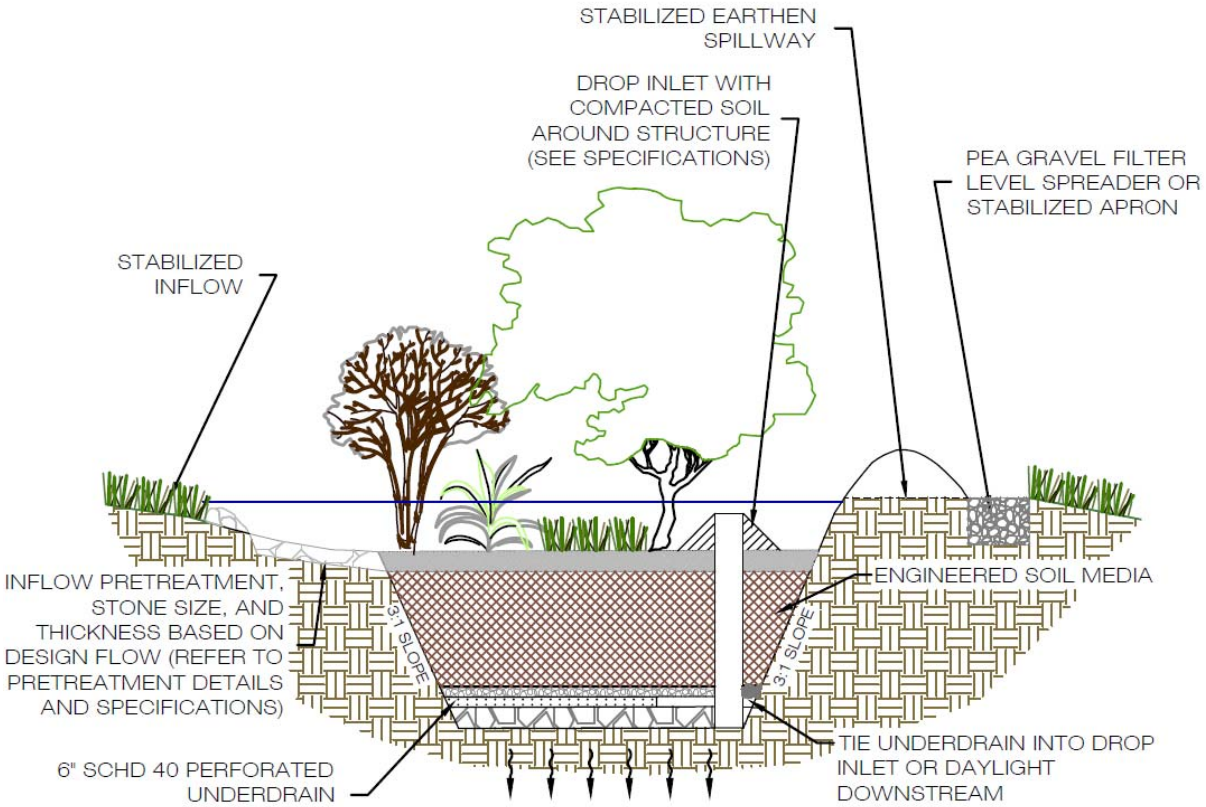


Figure 9-B.4. Typical Bioretention Basin – Inflow & Outflow - Section

PUBLIC HEARING NOTICE

THE CHESAPEAKE BAY BOARD OF JAMES CITY COUNTY, VIRGINIA WILL HOLD A PUBLIC HEARING ON **WEDNESDAY FEBRUARY 14, 2018 AT 5 P.M.** IN THE BOARD ROOM OF BUILDING F, 101 MOUNTS BAY ROAD, JAMES CITY COUNTY, VIRGINIA.

THE CHESAPEAKE BAY BOARD WILL CONSIDER THE FOLLOWING CASES:

CBE-18-052: TSP Lawn and Landscape, on behalf of Ms. Catherine Hortenstine, has filed an exception request for encroachment into the RPA buffer for construction of a patio and retaining walls at 124 Mathews Grant in the Kingsmill subdivision, JCC Parcel No 5030300054.

CBE-18-060: Toby Development LLC has filed an exception request for encroachment into the RPA buffer for construction of a single family house and deck at 4029 South Riverside Drive in the Chickahominy Haven subdivision, JCC Parcel No 1910300005.

CBE-18-046: Delightful Gardens, on behalf of Ms. Lisa Goodman, has filed an exception request for encroachment into the RPA buffer for construction of a detached garage and swimming pool at 2405 Sarah Spence in the Vineyards subdivision, JCC Parcel No 4840200017.

Appeals from decisions under the Chesapeake Bay Preservation Ordinance may also be heard.

All interested parties are invited to attend the meetings. The applications and plans are on file and may be viewed during normal office hours in the Stormwater and Resource Protection Division, 101 Mounts Bay Road, Building E, James City County, Virginia.

NOT FOR PUBLICATION

DISPLAY: WEDNESDAY – January 31, 2017 and February 7, 2018.
ACCOUNT NO.: 0011040200 - VIRGINIA GAZETTE

COPIES: PLANNING
ASSISTANT COUNTY ATTORNEY
WETLAND/CHESAPEAKE BAY BOARD MEMBERS

General Services
Stormwater and Resource
Protection Division
101-E Mounts Bay Road
Williamsburg, VA 23185

Resource.Protection@jamescitycountyva.gov

January 23, 2017

RE: CBE-18-046
2405 Sarah Spence Court
Accessory Structure and Pool

Dear Adjacent Property Owner:

In accordance with State and County Codes, this letter is to notify you that a request has been filed with the James City County Chesapeake Bay Board by Ms. Lisa Goodman for encroachment into the Resource Protection Area (RPA) buffer associated with installation of an accessory structure and pool. The project is located at 2405 Sarah Spence Court in the Vineyards at Jockeys Neck subdivision. The property is further identified by James City County Real Estate as Parcel No 4840200017.

A complete description, plan and other information are on file in the Stormwater Division and are available for inspection during normal business hours, should anyone desire to review them.

The Chesapeake Bay Board will hold an advertised public hearing on **Wednesday, February 14, 2018 at 5:00 p.m.**, in the Board Room of Building F, 101 Mounts Bay Road, James City County, Virginia, at which time you may request to speak on the above referenced project.

Sincerely,

Janice Petty

Janice Petty
Stormwater Assistant

cc: Don Newsom, Delightful Gardens

Mailing List for: CBE-18-046 – 2405 Sarah Spence Court – Lisa –Goodman- Accessory Structure & Pool

Owner: 4840200017
Kidd, Valrie B & Nancy D & Goodman, Lisa Glenn & Alan
2405 Sarah Spence
Williamsburg, VA 23185-8060

Delightful Gardens Landscape Co
Attn: Mr. Don Newsom
7242 Merrimac Trail
Williamsburg, VA 23185

4840200018
Clemens, David R, Trustee & Heather D
2401 Sarah Spence
Williamsburg, VA 23185-8060

4840200019
Switzer, Daniel F, Trustee & Diana H
2697 Jockeys Neck Trail
Williamsburg, VA 23185-8058

48402000020
Sherlock, Daniel C & Jacqueline C
2693 Jockeys Neck Trail
Williamsburg, VA 23185-8058

4840200016
Eshelman, Carolyn B, Trustee
2409 Sarah Spence
Williamsburg, VA 23185-8060

4840200012
Atalay, Michael & Janie E
2408 Sarah Spence
Williamsburg, VA 23185-8060

4840200011
Coffield, David Robert, Jr., Trustee & Martha Cottrell, Trustee
2400 Sarah Spence
Williamsburg, VA 23185-8060

Vineyards Homeowners Association, Inc.
907 Richmond Road
Williamsburg, VA 23186-0001

AGENDA ITEM NO. E.1.

ITEM SUMMARY

DATE: 2/14/2018

TO: Chesapeake Bay Board

FROM: Michael Woolson, Senior Watershed Planner

SUBJECT: CBV-18-008 : 4069 South Riverside Drive

Vladimir Arana is appealing the Notice of Violation dated December 28, 2018.

ATTACHMENTS:

	Description	Type
🗋	Staff Memo	Staff Report
🗋	Resolution	Resolution
🗋	Exhibit A	Backup Material
🗋	Exhibit B	Backup Material
🗋	Exhibit C	Backup Material
🗋	Exhibit D	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Chesapeake Bay Group	Woolson, Michael	Approved	2/12/2018 - 4:25 PM
Chesapeake Bay Group	Geissler, Fran	Approved	2/12/2018 - 4:27 PM
Publication Management	Burcham, Nan	Approved	2/12/2018 - 4:30 PM
Chesapeake Bay Group	Secretary, ChesBay	Approved	2/12/2018 - 4:36 PM

M E M O R A N D U M

DATE: February 14, 2018

TO: The Chesapeake Bay Board

FROM: Michael D. Woolson, Senior Watershed Planner

SUBJECT: Granting an Appeal on James City County Real Estate Tax Parcel No. 1910500017

Carlos and Vladimir Arana, owners of 4069 South Riverside Drive, have filed an appeal to the James City County Chesapeake Bay Board (Board) on February 14, 2018. The Arana's are appealing an administrative order to remove a patio and retaining wall from the Resource Protection Area (RPA).

Background Information

On or about December 22, 2017, staff became aware that a patio and retaining wall were built within the RPA at the rear of the home at 4069 South Riverside Drive, within the Chickahominy Haven subdivision. Staff has no record of any approvals being issued for either the patio or the retaining wall.

On December 28, 2017, staff issued a Notice of Violation (NOV) to the Arana's stating that there was no exception request on file at the Engineering and Resource Protection Division office for the patio or retaining wall, that the patio and retaining wall were in violation of the Chesapeake Bay Preservation Ordinance and the patio and retaining wall needed to be removed and the disturbed area restored with native trees and shrubs (Exhibit A).

On December 29, 2017, Mr. Valdimir Arana submitted a written appeal of the NOV, meeting the 30-day deadline as stated in the Ordinance (Exhibit B). Photographs are provided for the structures in question (Exhibit C).

Staff Guidance and Recommendations

Staff has reviewed the appeal and violation documents and offers the following information for the Board's consideration.

1. Carlos and Vladimir Arana are currently the owners of the property, 4069 South Riverside Drive, where a violation of the RPA has taken place.

2. The lot was platted on December 7, 1959, and the house was built in 1963.

3. The patio and retaining wall were built sometime between October 17, 2017 (the sale date of the property) and December 22, 2017. There is no room outside of the RPA for the same sized patio or retaining wall to have been built.

Section 23-17(b) of the Ordinance gives guidance to the Board and states "In rendering its decision, the board shall balance the hardship to the property owner with the purpose, intent and objectives of this chapter. The board shall not decide in favor of the appellant unless it finds:

1. The hardship is not generally shared by other properties in the vicinity;

2. The Chesapeake Bay, its tributaries and other properties in the vicinity will not be adversely affected; and

3. The appellant acquired the property in good faith and the hardship is not self-inflicted."

Staff's guidance to the Board on deciding this matter is as follows:

1. The hardship is shared by other properties within the Chickahominy Haven subdivision that have RPA on them.

2. The granting of the appeal in this case will adversely affect the Chesapeake Bay, its tributaries and other properties in the vicinity. In this specific case, granting relief to the appellant resulting from the violation of the Ordinance may result in other similar unauthorized actions by other property owners in the vicinity.

3. The appellant acquired the property in good faith, but the hardship is self-inflicted.

Staff contends that the owner should have known that there was RPA on the property when they bought the property. Staff believes that the patio and retaining wall should be removed and the area revegetated with native trees and shrubs, per the NOV. There is no room outside of the RPA for the patio or retaining wall to have been placed. However, should the Board grant the appeal, the Board should direct the appellant to submit a Sensitive Area Activity Application and application fee for a public hearing at the next available Chesapeake Bay Board meeting. Staff requests that the Board double the required mitigation for that application.

MDW/nb
AplNOV-4069SRvrseDr-mem

Attachments:
1. Resolution
2. Exhibit A - Arana NOV, December 28, 2017
3. Exhibit B - Arana Appeal, December 29, 2017
4. Exhibit C - December 22, 2017, photographs

R E S O L U T I O N

GRANTING AN APPEAL ON JAMES CITY COUNTY REAL ESTATE

TAX PARCEL NO. 1910500017

WHEREAS, Mr. Vladimir Arana, (the "Appellant") has submitted a request to the Chesapeake Bay Board of James City County (the "Board") to appeal a Notice of Violation (NOV) (CBV-18-008) dated December 28, 2017, ordering the removal of a patio and retaining wall in the Resource Protection Area (RPA), on a property identified as James City County Real Estate Tax Parcel No. 1910500017 and further identified as 4069 South Riverside Drive in the Chickahominy Haven subdivision (the "Property"); and

WHEREAS, the Board has listened to the arguments presented and has carefully considered all evidence entered into the record.

NOW, THEREFORE, BE IT RESOLVED that the Chesapeake Bay Board of James City County, Virginia, following a public meeting on February 14, 2018, by a majority vote of its members FINDS that all of the following conditions have been met:

1. The hardship is not generally shared by other properties in the vicinity;

2. The Chesapeake Bay, its tributaries and other properties in the vicinity will not be adversely affected: and

3. The appellant acquired the property in good faith and the hardship is not self-inflicted.

THEREFORE, the Chesapeake Bay Board of James City County, Virginia, is granting the appeal filed by Mr. Arana on December 29, 2017 and overturning the December 28, 2017 NOV issued by James City County Stormwater and Resource Protection Division.

In granting this appeal, the following conditions are hereby imposed to prevent this project from causing degradation of water quality:

1. Submit a Sensitive Area Activity Application and Application Fee for the patio and retaining wall for review and approval by the Chesapeake Bay Board at a public hearing, at the next available Chesapeake Bay Board meeting.

2. The required mitigation rates are doubled for the impervious impact to the RPA from the patio and retaining wall.

_____	_____
David Gussman	Michael Woolson
Chair, Chesapeake Bay Board	Senior Watershed Planner

Adopted by the Chesapeake Bay Board of James City County, Virginia, this 14th day of February, 2018.

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 20___ IN THE COMMONWEALTH OF VIRGINIA, IN THE COUNTY OF JAMES CITY.

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

AplNOV-4069SRvrseDr-res

General Services
Stormwater & Resource Protection
101 Mounts Bay Road, Bldg. E
Williamsburg, VA 23187-8784
P: 757-253-6670
resource.protection@jamescitycountyva.gov

jamescitycountyva.gov

NOTICE OF VIOLATION

of James City County's Environmental Regulations

December 28, 2017

Carlos Arana
c/o 2 Brothers Investments, LLC
6831 West Road
Chesterfield, VA 23832

Re: **Chesapeake Bay Preservation Ordinance Violation**
4069 South Riverside Drive
James City County PIN 1910500017
CBV-18-008

Dear Mr. Arana:

On or about December 22, 2017, it was brought to the attention of the James City County Stormwater and Resource Protection Division staff that work was occurring within the resource protection area (RPA) on this property. The work in question is the addition of a decking structure on existing pilings. Upon further investigation by staff, the decking structure, a retaining wall and associated fill within the floodplain, tree removal, patio addition and home renovations had or were occurring. There are no active exception requests or permits for the work on file at the county and all of this work is/was done without proper permits from the various agencies.

Section 23-7 of the James City County Chesapeake Bay Preservation Ordinance (CBPO), which regulates activities within the RPA, prohibits development or redevelopment within the RPA and removal of vegetation without approval from the Stormwater and Resource Protection Division or the Chesapeake Bay Board.

The removal of the tree, addition of the retaining wall and associated fill and addition of the patio are violations of the CBPO, subject to a Civil Penalty of up to $5,000 per day per violation under section 23-18(a). If agreeable between the parties, a Civil Penalty may be issued, not to exceed $10,000 per violation under section 23-18(b).

Furthermore, because the retaining wall and associated fill are within a regulated floodplain, you must comply with the associated floodplain regulations. This includes providing the county with documentation such as a survey or elevation certificate showing the special flood hazard area and existing ground elevations on the property. All structures and/or development must be reviewed and approved if they are located in the special flood hazard area to ensure the proposed construction or other developments will be reasonably safe from flooding. Please see Chapter 24, Article VI Division 3 of the James City County Zoning Ordinance for additional information.

This letter is the official notification that the retaining wall and associated fill, tree removal and patio are violations of the CBPO. In order to rectify these violations, the patio, retaining wall and associated fill must be

removed in their entirety and the entire disturbed RPA restored. Please contact our office at your earliest convenience to arrange a meeting with representatives of the Stormwater and Resource Protection Division staff to discuss entering into a Chesapeake Bay Restoration Agreement.

Under Section 23-17 of the Chesapeake Bay Preservation Ordinance, the "owner of property subject to an administrative decision, order or requirement under this chapter may appeal by submitting a written application for review to the board no later than 30 days from the rendering of such decision, order or requirement. The board shall hear the appeal as soon as practical after receipt of the application." The Board that this section refers to is the Chesapeake Bay Board.

Please contact our office at 757-253-6670 to discuss this matter within the next 30 days. After 30 days from the date of this letter, the matter is no longer appealable to the Chesapeake Bay Board.

Sincerely,

Michael Woolson
Senior Watershed Planner
Stormwater and Resource Protection Division

cc: Frances Geissler, Stormwater and Resource Protection Division Director, via email
Liz Parman, Assistant County Attorney, via email
Paul Holt, Community Development Director, via email
Christy Parrish, Zoning Administrator, via email

Michael Woolson

From: Vladimir Arana <vladimiracq@hotmail.com>
Sent: Friday, December 29, 2017 12:06 PM
To: michael.woolson@jamescitycountyva.gob
Subject: 4069 South riverside Drove, James city county PIN 1910500017

Mr. Woolson,
I want to apologize for the any inconvenience . We never meant to hurt or disrespect anybody. I am writing this email to appeal the decision of removing the retaining wall on the above address, please keep me post whats the next step, i will really appreciate it , thank you and have a bless 2018

Vladimir Arana

AGENDA ITEM NO. F.1.

ITEM SUMMARY

DATE: 2/14/2018

TO: Chesapeake Bay Board

FROM: Michael Woolson, Senior Watershed Planner

SUBJECT: Resignation of Roger Schmidt

ATTACHMENTS:

	Description	Type
🗋	Resignation Letter	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Chesapeake Bay Group	Secretary, ChesBay	Approved	2/12/2018 - 5:07 PM

Michael Woolson

To: T&R Schmidt
Subject: Resignation

Memorandum for Mike Woolson
Senior Watershed Planner
Division of Stormwater and Resource Protection
James City County, Virginia

Hello Mike Woolson,
this is to inform you that I, Roger Schmidt, want to resign from my volunteer position as an Alternate member of the JCC Chesapeake Bay Board, as well as the Wetlands Board, effective February 2018.

I appreciate the quality time I was privileged to spend on these Boards, and I wish all the members and the County Administration continued success.

Thank you very much for the opportunity to serve until now. Sincerely,

Roger Schmidt
3042 Cider House Road
Toano, VA 23168
757.566.1660
rog11ter7@verizon.net