CERTIFICATE OF AUTHENTICITY

THIS IS TO CERTIFY THAT THE FOLLOWING ELECTRONIC RECORDS ARE TRUE AND ACCURATE REPRODUCTIONS OF THE ORIGINAL RECORDS OF JAMES CITY COUNTY GENERAL SERVICES DEPARTMENT- STORMWATER DIVISION; WERE SCANNED IN THE REGULAR COURSE OF BUSINESS PURSUANT TO GUIDELINES ESTABLISHED BY THE LIBRARY OF VIRGINIA AND ARCHIVES; AND HAVE BEEN VERIFIED IN THE CUSTODY OF THE INDIVIDUAL LISTED BELOW.

BMP NUMBER: **PC154**

DATE VERIFIED: **May 31, 2012**

QUALITY ASSURANCE TECHNICIAN: **Leah Hardenbergh**

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA

Stormwater Division

MEMORANDUM

DATE: February 24, 2010

TO: Michael J. Gillis, Virginia Correctional Enterprises Document Management Services

FROM: Jo Anna Ripley, Stormwater

PO: 270712

RE: Files Approved for Scanning

BMP ID or General File ID PC154

PIN: 3810100002

Subdivision, Tract, Business or Owner Name (if known): Fords Colony

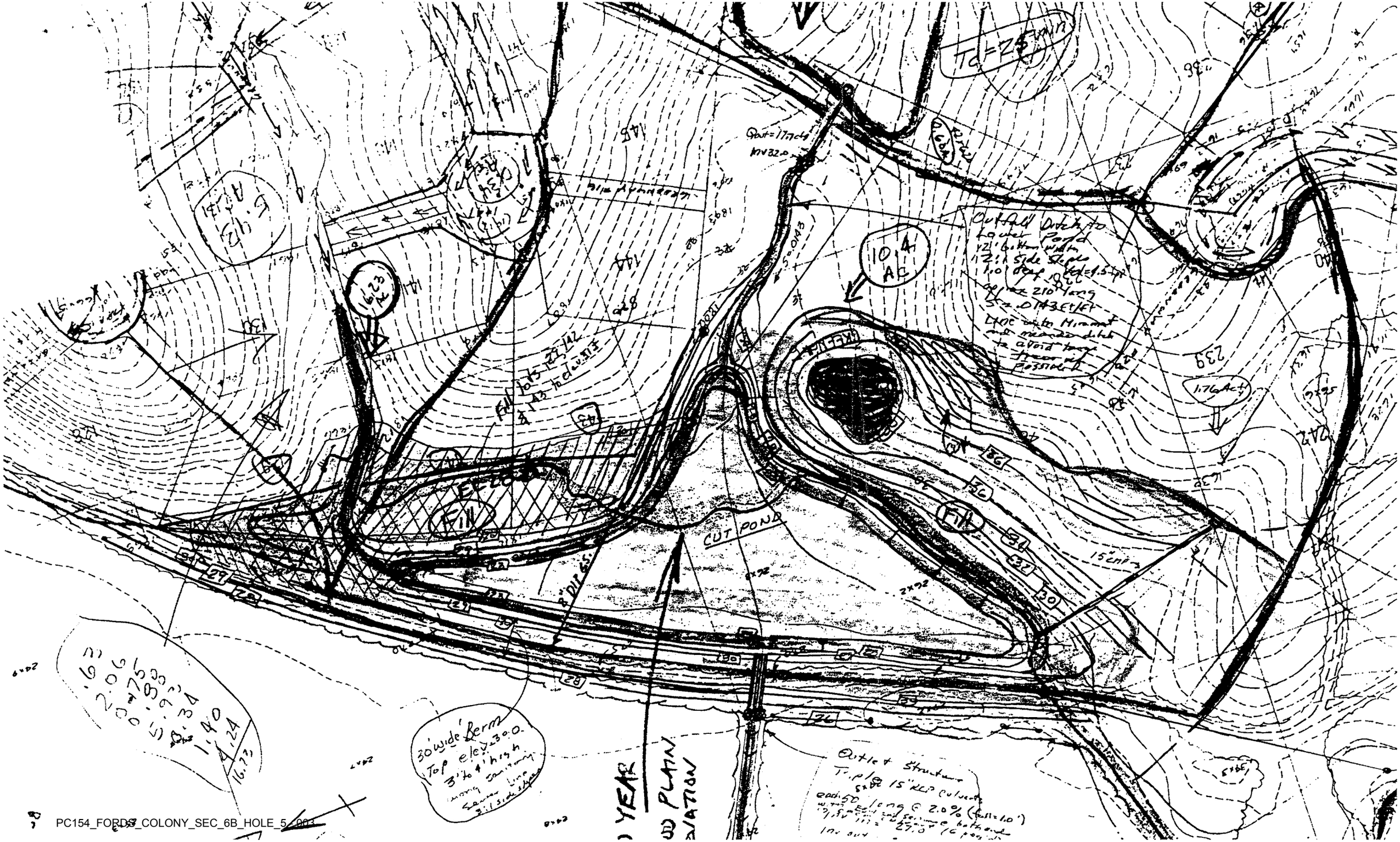
Property Description: Meadowfield

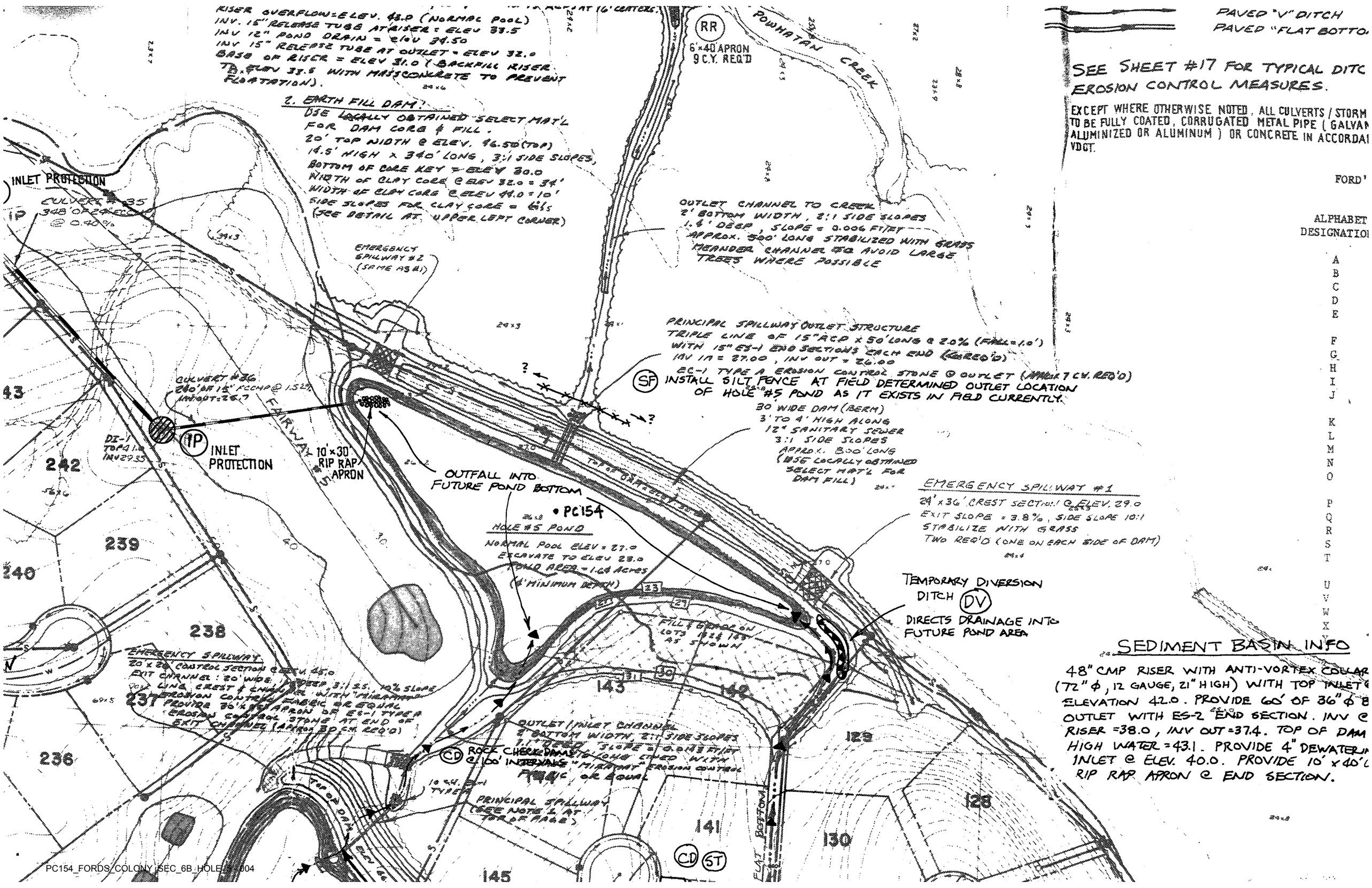
Site Address:

(For internal use only) **Box:** FC001 **Drawer:** 1

Agreements: (in file as of scan date) **N** **Book or Doc#:** **Page:**

Comments:


Tc=25 min
Qout=17.7 cfs
Inv 32.0
10.4 Ac
Outfall Ditch to Lower Pond
12' bottom width
2:1 side slopes
1.0' deep
approx 210' long
S=.0143 ft/ft
Line with Miramar and meander ditch to avoid large trees if possible
1.76 Ac
16.23 Ac
Fill
CUT POND
15" CMP
30' wide Berm
Top elev 30.0
3' to 4' high
along sanitary sewer line
3:1 side slopes
YEAR
PLAIN
Outlet Structure
Triple 15" RCP culverts
each 50' long @ 2.0% (fall=1.0')
Inv out



PAVED "V" DITCH
PAVED "FLAT BOTTO

SEE SHEET #17 FOR TYPICAL DITC
EROSION CONTROL MEASURES.

EXCEPT WHERE OTHERWISE NOTED, ALL CULVERTS / STORM
TO BE FULLY COATED, CORRUGATED METAL PIPE (GALVAN
ALUMINIZED OR ALUMINUM) OR CONCRETE IN ACCORDA
VDOT.

FORD'

ALPHABET
DESIGNATIO

A
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X

SEDIMENT BASIN INFO

48" CMP RISER WITH ANTI-VORTEX COLLAR
(72" ϕ, 12 GAUGE, 21" HIGH) WITH TOP INLET @
ELEVATION 42.0. PROVIDE 60' OF 36" ϕ B
OUTLET WITH ES-2 END SECTION. INV @
RISER = 38.0, INV OUT = 37.4. TOP OF DAM
HIGH WATER = 43.1. PROVIDE 4" DEWATERIN
INLET @ ELEV. 40.0. PROVIDE 10' x 40' L
RIP RAP APRON @ END SECTION.

11/16/86

PC154

Analysis and Design of

Hole #5 Pond downslope of 5th Green vicinity of lots 143 & 233

(This is the cut pond downstream of the Hole #6 pond)

1. **Drainage Area** = 16.23 Acres — From the North (lots 129, 130, & 141)
   + 10.36 Acres — Below Hole #6 Pond
   ST 26.59 Acres

(Pond receives outflow of 17.7 cfs from Hole #6 Pond .... This is about half of Q_2 for the 37.17 Acres tributary to Hole #6 pond

2. **Stormflows**: $C = 0.35$, $t_c = 25$ min, $I_2 = 3.0$, $I_{10} = 4.0$, $I_{100} = 5.8$

(Use Rational Formula) $Q = CIA$

Post-Development

$Q_2 = 0.35(3.0)(26.59) + 17.7 = 27.92 + 17.7 = 45.6$ cfs

$Q_{10} = .35(4.0)(26.59) + 17.7 = 37.23 + 17.7 = 54.9$ cfs

$Q_{100} = .35(5.8)(26.59) + 17.7 = 53.98 + 17.7 = 71.7$ cfs

$Q_{2\ \text{pre-dev}} = 0.2(3.0)(26.59 + 37.17) = 38.26$ cfs

3. **Runoff Volumes**: assume simple unit hydrograph where length of storm = 3 tc and neglect outflow ..... This is a very conservative assumption.

Vol of 2 yr storm, $Vol_2 = \frac{1}{2} Q_2 (3t_c)(60) = 90\, Q_2 t_c = 90(45.6)(25) = 102{,}600$ c.f.

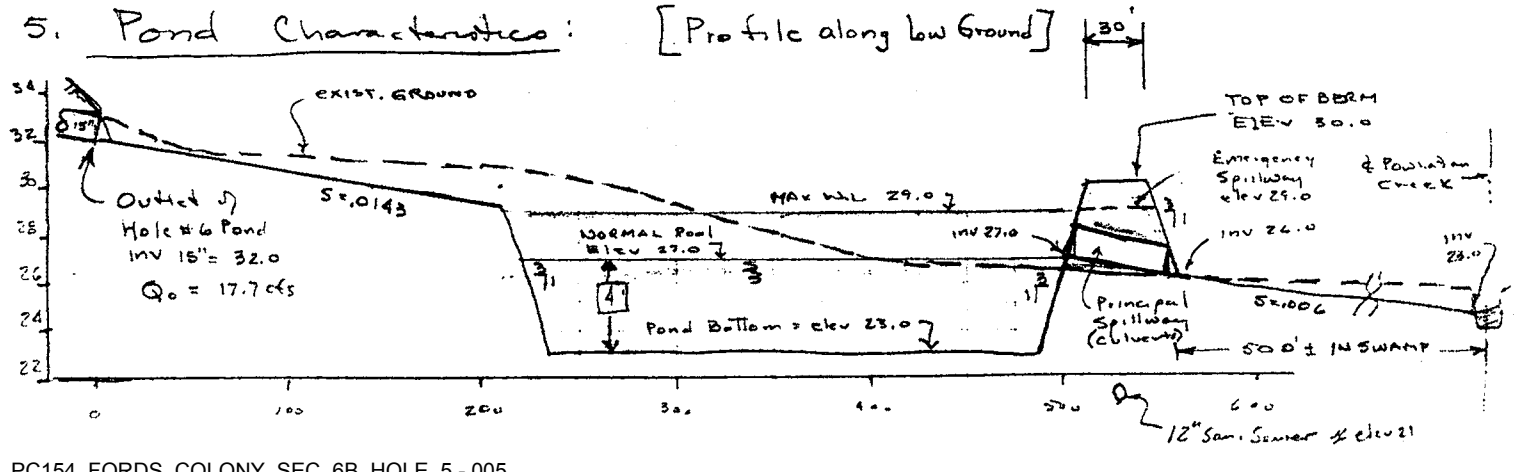
Vol of 10 yr storm, $Vol_{10} = 90(54.9)(25) = 123{,}525$ c.f.

Vol of 100 yr storm, $Vol_{100} = 90(71.7)(25) = 161{,}325$ c.f.

4. **Reqd Sediment Volume**: assume sediment for Hole #6 pond is entirely trapped by same.

Reqd Sed. Vol. = 67 CY/Ac × 26.59 Ac = 1782 C.Y. = 48,101 c.f.

5. **Pond Characteristics**: [Profile along low Ground]



5. Pond Characteristics (Con't)

elev	Area	Avg Area	d	Δ vol
23	54,700 sf	63100	4'	252,400 cf
27	71,500 sf	73810	1'	73,810 cf
28	76,120 sf	78520	1'	78,520 cf
29	80,920 sf			

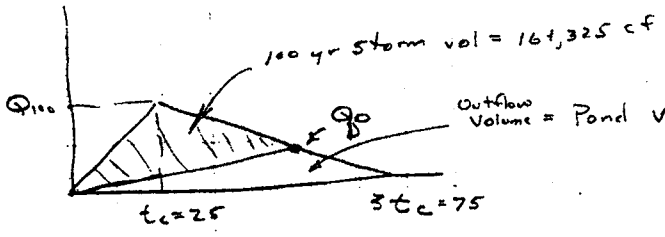
> sum = 152,330 cf

a. Req'd sediment vol is contained within the first foot

b. volume between normal pool (elev 27) and emergency spillway (elev 29) = 152,330 cf
volume of 100 yr storm = 161,325 c.f. or 6% more (about 9000 cf)

thus, if outflow during 100 yr storm event equals or exceeds 9000 cf, then the 100 yr storm will be stored between elev 27 and elev 29.

c. Back calculation of minimum release rate:



outflow volume = Pond vol. deficit = 9000 cf = $(1/2)q_o(3t_c)60$

$$q_o = \frac{9000}{1/2 \cdot 3(25)60} = 4 \text{ cfs} \left(\text{minimum release rate}\right)$$

6. Check Critical Storm: (T_c for two year event)

$$T_c = \sqrt{\frac{2CA\,a(b - t_c/4)}{q_o}} - b$$

$C = 0.35$
$A = 16.23$ Acres
$a = 126.3$ Norfolk
$b = 17.3$ Norfolk

$t_c = 25$ min
$q_o = 15.95$ = Q2 pre- from 16.23Ac

$$= \sqrt{\frac{2(0.35)(16.23)(126.3)(17.3 - 25/4)}{15.95}} - 17.3$$

$$= \sqrt{994} - 17.3 = 31.5 - 17.3 = 14.2 \text{ min}$$ let $T_c = 25$ min

i.e. Critical storm is peak design storm as assumed

The same will hold for the 100 yr storm event

7. <u>Principal Spillway</u>: Use a culvert type design

<u>Note</u>: Predevelopment Q_2 from incremental DA of 26.59 Ac $= 0.2(3.0)(26.59) = 15.95$ cfs
Add release rate from upstream pond $\Rightarrow q_o = 16.0 + 17.7 = 33.7$ cfs
Check against Q_2 pre-development for entire basin (DA = 26.59 + 37.17 = 63.76 Ac)
Q_2, entire basin $= 0.2(3.0)(63.76) = 38.26$ cfs

a. Select a culvert that will pass at least 4.0 cfs, but no more than 38.26 cfs.

b. Try a 15" RCP with inlet control and AHW = 2.0' $\Rightarrow$ HW/D = 2.0/1.25 = 1.6
From Chart 2 VDH&T, Q = 7.6 cfs (greater than 4.0 but less than 38.3)

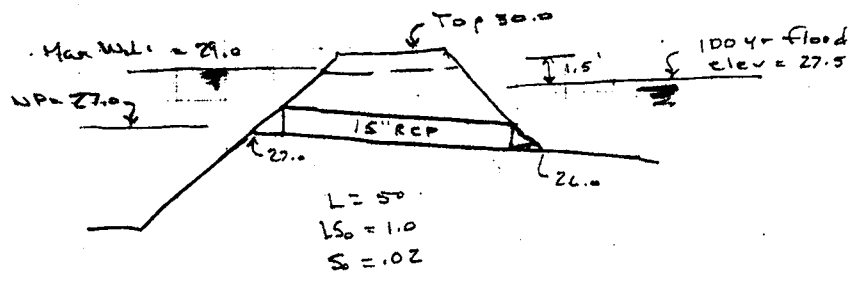
c. Check outlet control: L = 50', $K_e = 0.5$, $S_o = .02$, $LS_o = 1.0$

$$h_o = \frac{d_c + D}{2} = \frac{1.1 + 1.25}{2} = 1.18' \qquad H = HW - h_o + LS_o = 2.0 - 1.18 + 1.0 = 1.82$$

From Chart 9 VDH&T d = 15", H = 1.82 $\Rightarrow$ Q = 9.5 cfs

d. Thus, inlet controls and Q = 7.6 cfs

e. Check submerged inlet & outlet condition



$$V = \sqrt{\frac{h}{\frac{1+K_e}{2g} + \frac{n^2 L}{2.21(R_H)^{4/3}}}} \qquad R_H = \frac{D}{4} = \frac{1.25}{4} = 0.31' \qquad n = .012 \text{ concrete pipe}$$

$$= \sqrt{\frac{1.5}{\frac{1+.5}{2(32.2)} + \frac{(.012)^2 50}{2.21(.31)^{4/3}}}} = \sqrt{\frac{1.5}{0.0233 + .0154}} = \sqrt{38.81} = 6.23 \text{ fps}$$

$$Q = AV = \frac{\pi(1.25)^2}{4}(6.23) = 7.64 \text{ cfs} \quad \text{(inlet still controls)}$$

f. Provide a Triple line of 15" culverts $Q_{\text{all three}} = 7.6 \times 3 = 22.8$ cfs

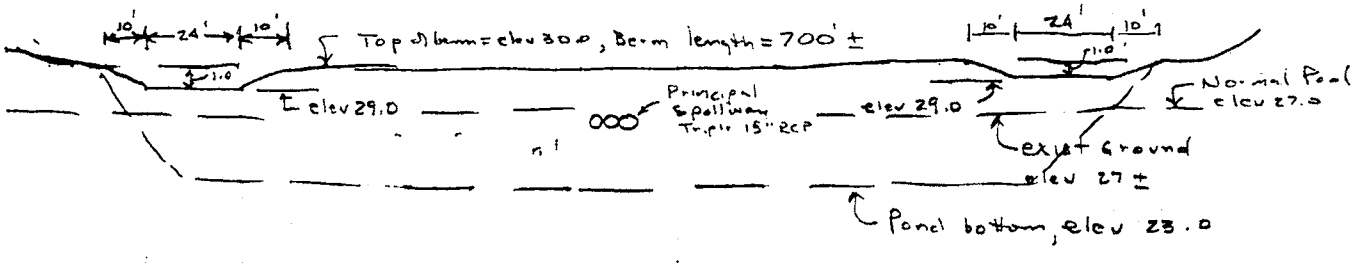
This will assure adequate outflow capacity as a precaution against clogging and it will keep water level fluctuations to a minimum. Outlet capacity is still less than predevelopment Q_2 by about 15.5 cfs and is about ½ of post development Q_2.

8. <u>Emergency Spillway</u>: Since pond will store the 100 year peak design storm, a minimum grass emergency spillway to protect against overtopping is in order. Design spillway to operate on a frequency of once every 10 years and ignore storage.

Design for Q_{10} = 54.9 cfs − 22.8 cfs = 32.1 cfs

a 24' bottom width spillway with 2:1 side slopes will pass 17 cfs with about 0.5' of head at a velocity 2.7 fps if it has an exit channel of 33' on a 3.8% slope.

Provide <u>two of these</u> at each end of the pond (ΣQ = 34 cfs) flatten side slopes to 10:1 so that a vehicle can drive across the dam with a minimum of ease.



Profile along Dam Looking Upstream.

9. Check size of inlet channel (ditch between ponds)

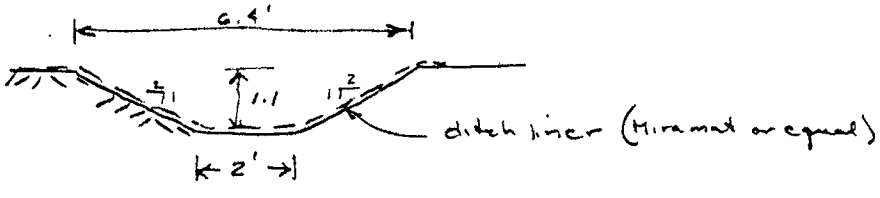
$$S = \frac{32.0 - 29.0}{210} = \frac{3'}{210'} = .0143$$

Q = 17.7 cfs + 1/4 of Q_{10} from 10.4 Ac
= 17.7 cfs + 1/4 (.35)(4.0)(10.4) =
= 17.7 + 3.64 = 21.34 cfs

use trapezoidal section b = 2.0', S.S. = 2:1 and n = 0.03

with Q = 21.3 cfs from Fig 2.8.51 (VDHET) ⇒ D = 1.1', v = 4.6 fps

Line ditch with Mira mat (good for 3.5 to 18.0 fps)

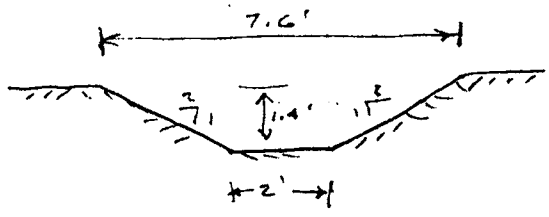


10. Check size of Pond Outlet ditch to Powhatan Creek

$S = 3/500 = .006$, $Q = 22.8$ cfs (from triple 15" RCP), $n = .03$

Use trapezoidal ditch w/ 2' bottom and 2:1 side slopes

From Fig 2.8.51, $D = 1.4'$, Vel = 3.4 fps (No Liner req'd)



Joanna Ripley

From: Fran Geissler
Sent: Tuesday, May 10, 2016 12:03 PM
To: Charles Lovett; Joanna Ripley
Subject: FW: Response to Inquiry - Swale at Greenway 119 Formby RE: Address
Attachments: E&S-015-15.approval.pdf; RE: 109 Formby

Follow Up Flag: Follow up
Flag Status: Flagged

I'm not sure of the process but this needs to be added to the file for PC154 since it involves drainage in the watershed of the BMP. THANKS

From: Scott Thomas
Sent: Monday, May 09, 2016 9:35 AM
To: Bryan Hill <Bryan.Hill@jamescitycountyva.gov>
Cc: Tom Coghill <Tom.Coghill@jamescitycountyva.gov>; Fran Geissler <Fran.Geissler@jamescitycountyva.gov>; Paul Holt <Paul.Holt@jamescitycountyva.gov>; Joseph Buchite <Joseph.Buchite@jamescitycountyva.gov>
Subject: Response to Inquiry - Swale at Greenway 119 Formby RE: Address

Bryan

Yes the swale along the east lot line of the 119 Formby lot was required by our division in order to approve a home situated upstream at 109 Formby. Ford's Colony HOA made application to install the swale, they installed it, and they are responsible for it's maintenance.

A copy of the plan approval is attached. We approved a plan, but it did not require a local land disturbing permit or a state VPDES construction general permit because disturbance was less than 2,500 square feet. We did have to process a Chesapeake Bay Exception for the swale outfall at the lake.

The second page of the approval document are notes/sequence of work provided by the Ford's Colony HOA. Note # 11 clearly indicates the FCHOA takes full responsibility for construction and maintenance of these alterations.

Installation of the swale was necessary because of topography in this area and for home construction at 109 Formby to not cause drainage problems at downstream lots at 102 Little Ashton and 119 Formby. It is intended to safely take drainage from the 109 Formby lot to the lake without impact to the downstream lots. It was intended to be 250 ft. in length, 1 ft. deep, with a 3 ft. bottom width (parabolic in shape) and have an 11 ft. top width.

(I am also attaching an email from June of last year to show the association's correspondence with our division on this situation.)

Scott J. Thomas, P.E.
Director of Engineering and Resource Protection

101-E Mounts Bay Road
Williamsburg, VA 23185
P: 757-253-6639
F: 757-259-4032
jamescitycountyva.gov

From: Bryan Hill
Sent: Monday, May 09, 2016 8:14 AM
To: Fran Geissler <Fran.Geissler@jamescitycountyva.gov>; Scott Thomas <Scott.Thomas@jamescitycountyva.gov>; Tom Coghill <Tom.Coghill@jamescitycountyva.gov>
Subject: Address

All,

Good morning, I received a call from Mike Hipple who is doing work on Steve Constantino's house address 119 Formby. There seems to be a drainage issue caused by new construction at 109 Formby. The HOA is stating the county made them do the swale and they are not responsible for the drainage issue. If you have any information on our involvement I would appreciate that you pass it to me as soon as you can.

Regards and I hope you all had a great weekend.

Bryan J. Hill
County Administrator

101-D Mounts Bay Road
Williamsburg, VA 23185
P: 757-253-6602
Bryan.Hill@jamescitycountyva.gov

James City County
VIRGINIA
Jamestown 1607

James City County
Engineering and Resource Protection Division

Project:	Ford's Colony Section 6 – Lots 255 and 258 109 Formby / 102 Little Aston Greenway Drainage Plan
Division Plan No.:	E&S - 015 - 15
Date:	August 4, 2015

The site erosion and sediment control plan is approved by the Engineering and Resource Protection Division (VESCP/VSMP authority).

The purpose of the project is to install a stormwater conveyance channel within the greenway in order to approve and minimize the effect of lot-to-lot drainage associated with construction of a single family detached structure on Lot 255 (Building Permit #A15-0722; GPIN 3720300255). This will be accomplished by installation of a parabolic shaped stormwater conveyance channel within the greenway with the following approximate dimensions and specifications: 250 ft. length; 1 ft. depth; 3 ft. bottom width (shaped); and 11 ft. top width. County standard Stormwater Pollution Prevention Plan (SWPPP) notes (attached) apply to the project as well as Minimum Standard & Specification 3.17 (Stormwater Conveyance Channels) of the Virginia Erosion and Sediment Control Handbook (VESCH). Virginia DEQ Stormwater Design Specification No. 3 (Grass Channels) may also be referred to if needed for construction and maintenance information.

Because total land disturbing area as proposed is less than 2,500 square feet, a local land disturbing/stormwater construction (VESCP/VSMP authority) permit and registration for a state VPDES construction general permit are <u>not</u> required for this project.

The project is subject to the provisions of approved Chesapeake Bay Exception CBE-16-016. A sample maintenance plan for grass channels is attached.

Scott Thom
08-04-15

E+S-015-15

CBE-16-016

Section 6 Lots 255 and 258 Greenway Maintenance Drainage Plan Notes

1. All work to take place in the FCHOA greenspace and not to disturb any more than 2,500 SF.
2. Silt fence to be installed at the south end of the greenway before the pond edge for the duration of construction. In addition to this silt fence to be installed on the east and northeast end of the greenway along Lot 258 for the duration of construction. Silt fence to be removed once greenway is stabilized.
3. Check dams to be installed every 50'.
4. Level Spreader (per specs provided by Joe Buchite with JCC) to be installed if determined on-site that needed. Otherwise water will naturally pan out towards the pond.
5. Trees will need to be removed but there are no plans to remove mature trees that provide significant canopy.
6. The goal is to eliminate cross lot drainage from the soon to be improved portions of Lot 255. The area left natural on Lot 255 will be mirrored in the FCHOA greenway. Majority of the surface water will be absorbed by the natural landscape.
7. Berm to be constructed at a minimum height of 2' and no more than 3'. Soil to be removed from the limits of disturbance on the northwest end and will be used to construct the berm. If needed clay will be added to the berm for additional compaction. Berm to be stabilized with ECSC-3 matting and pine straw and left to become natural.
8. Swale to be stabilized with ECSC-3 matting and seed in the portion that is under tree canopy.
9. Swale to be hyrdoseeded or sod installed in the portion that receives sunlight and is currently being maintained by the owners of Lot 255 as part of their property.
10. Swale being constructed to allow for owners of Lot 255 to continue to easily maintain the greenway as part of their property.
11. The FCHOA takes full responsibility for construction and maintenance of these alterations.

Engineering & Resource Protection
JUL 09 2015
RECEIVED

APPROVED
James City County
Eng & Res Protection
By: [signature]
Date: 08-04-15

E+S-015-15
CBE-016-16
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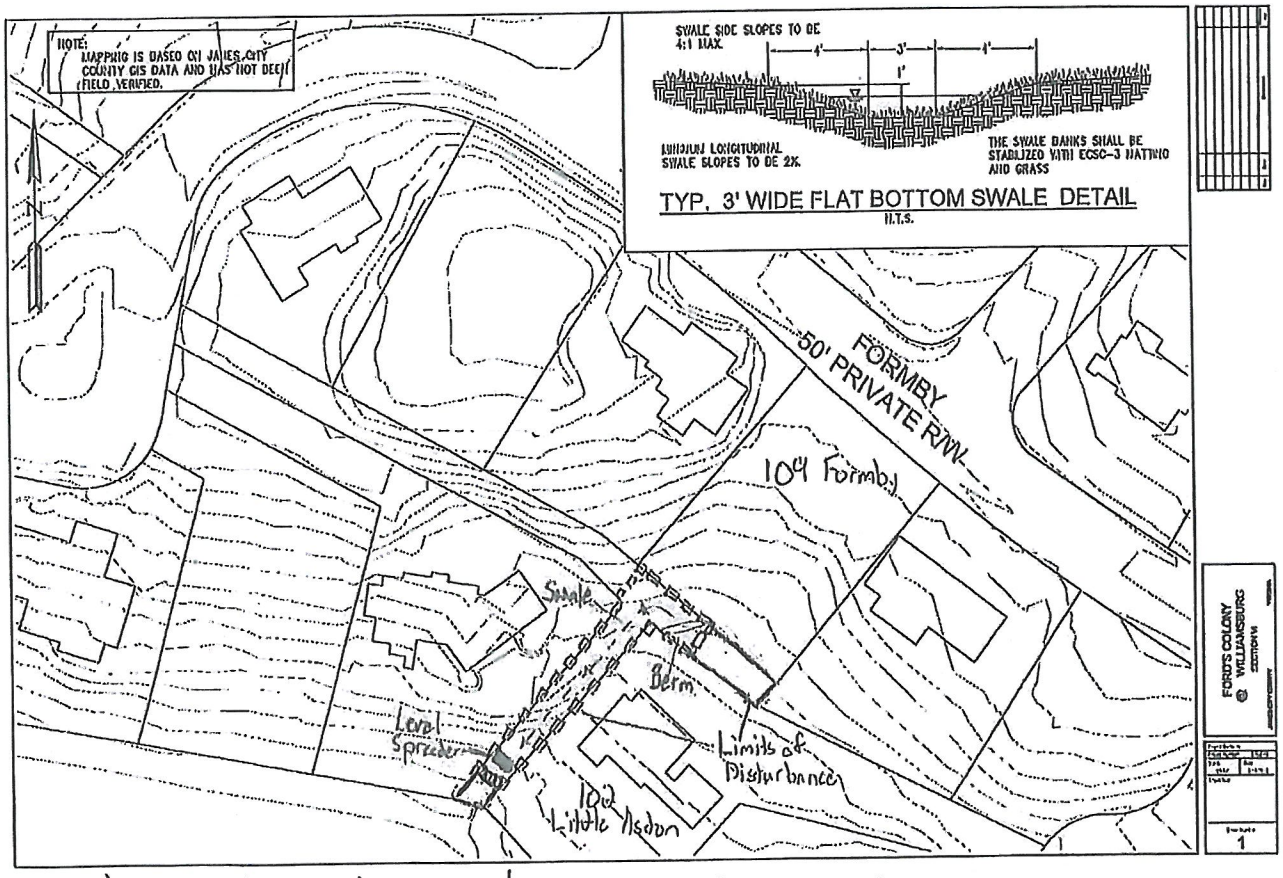
E-S-015-15



· Limit of work not to exceed 2,500 SF

Engineering & Resource Protection
JUL 09 2015
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James City County
Eng & Res Protection
By: [signature]
Date: 08-04-15

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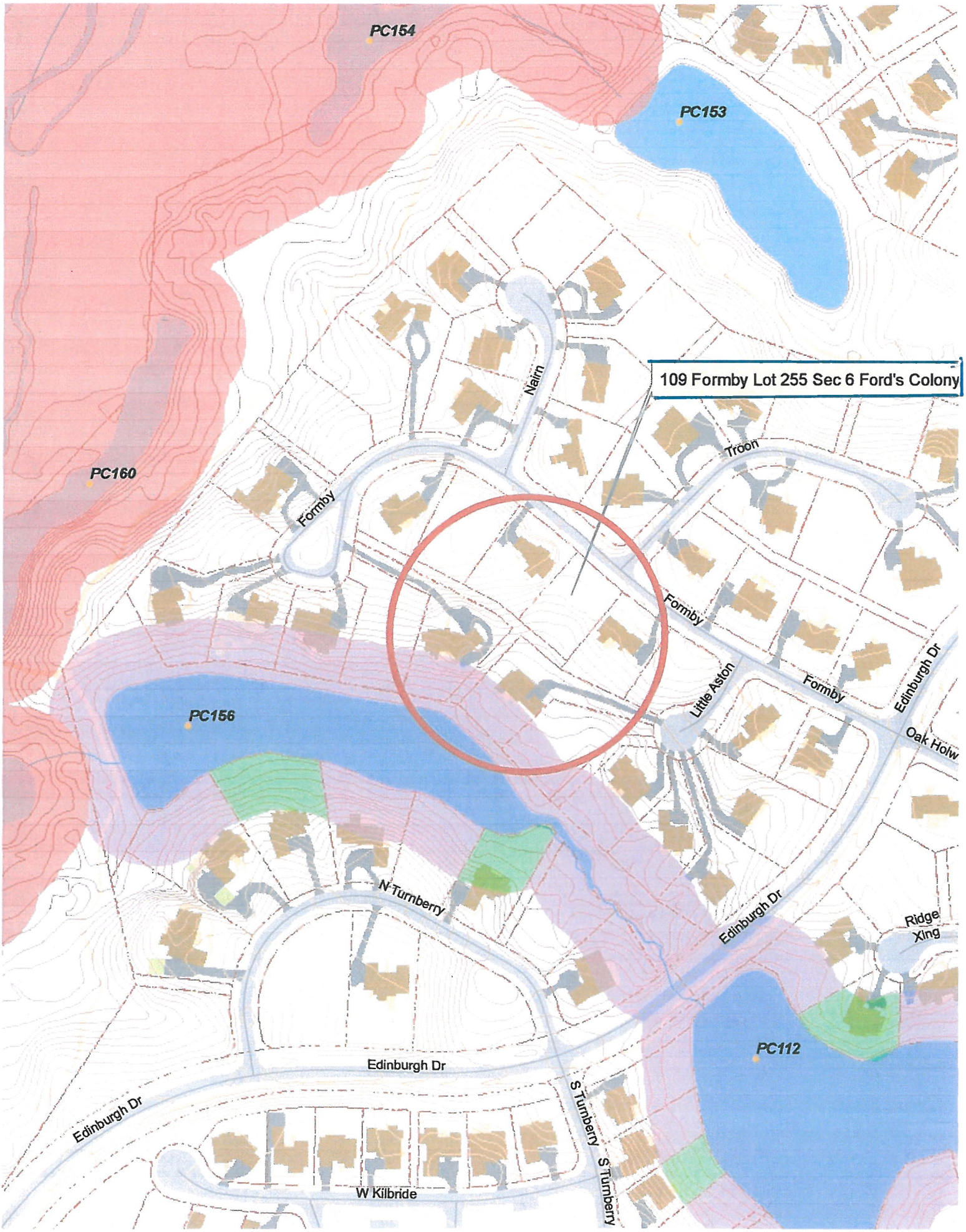
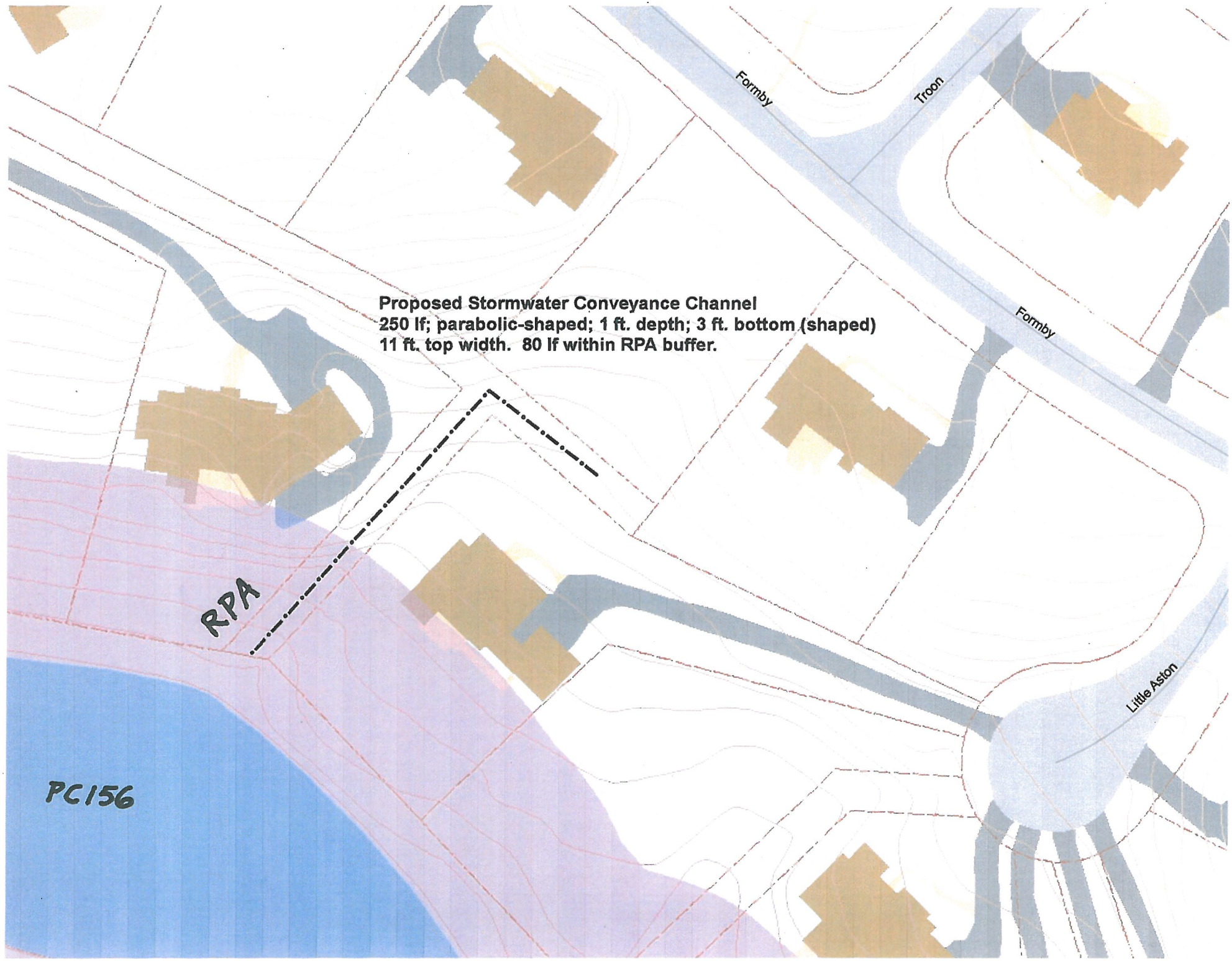

PC154
PC153
109 Formby Lot 255 Sec 6 Ford's Colony
Nairn
Troon
PC160
Formby
Formby
Little Aston
Formby
Edinburgh Dr
Oak Holw
PC156
N Turnberry
Edinburgh Dr
Ridge Xing
PC112
Edinburgh Dr
Edinburgh Dr
S Turnberry
S Turnberry
W Kilbride


Formby
Troon
Formby
Little Aston
Proposed Stormwater Conveyance Channel
250 lf; parabolic-shaped; 1 ft. depth; 3 ft. bottom (shaped)
11 ft. top width. 80 lf within RPA buffer.
RPA
PC156

Standard County Stormwater Pollution Prevention Plan Notes (Revised: July 1, 2014) E&S-015-15

The following standard County notes shall become part of any approved stormwater pollution prevention plan (SWPPP) for plan of development projects in James City County, Virginia. Components of a SWPPP may include, as applicable, a site erosion and sediment control (E&SC) plan, ~~a site stormwater management (SWM) plan, and a site pollution prevention plan (PPP)~~. The County's Division of Engineering and Resource Protection is designated by Chapter 8 of the County Code as the local Virginia Erosion and Sediment Control Program (VESCP) authority and Virginia Stormwater Management Program (VSMP) authority.

1. All the provisions of Virginia Erosion and Sediment Control (E&SC) Law, Regulations, the Virginia Stormwater Management Act and Regulations (VSMP), the Virginia BMP Clearinghouse website, State Erosion and Sediment Control and Stormwater Management Handbooks, and any associated technical bulletins and guidance documents as published by the State Water Control Board, the Virginia Department of Environmental Quality (DEQ), and the local VESCP and VSMP authority shall apply to the project.

2. Minimum Standards No. 1 through No. 19 of the Virginia Erosion and Sediment Control Regulations *9VAC25-840* et seq. shall apply to the project.

3. ~~The owner, applicant, operator, or permittee shall be responsible to register for construction general permit (CGP) coverage, as applicable, in accordance with the General VPDES Permit for Discharge of Stormwater from Construction Activities (VAR10) Chapter 880; the Virginia Stormwater Management Program Regulations Chapter 870; and in accordance with current requirements of the Virginia Stormwater Management Program (VSMP), the State Water Control Board, the Virginia Department of Environmental Quality, Chapter 8 of the County Code and the local VESCP/VSMP authority.~~

4. ~~The owner, applicant, operator or permittee shall provide the name of an individual holding a valid Responsible Land Disturber (RLD) certificate of competence who will be responsible for the land disturbing activity prior to engaging in the land disturbing activity. This will be necessary prior to issuance of a local land disturbing and/or stormwater construction permit for the project. The RLD is required to attend the preconstruction conference for the project.~~

5. The contractor is responsible to contact Miss Utility (Dial 811 in VA or 1-800-552-7001) prior to any utility or site work excavations.

6. All erosion and sediment control measures shall be planned, designed, implemented, installed and maintained in accordance with the provisions of the latest edition of the Virginia Erosion and Sediment Control Handbook (VESCH). The Contractor shall maintain, inspect, and repair all erosion and sediment control measures as needed throughout the life of the project to ensure continued acceptable performance.

7. ~~A preconstruction conference (meeting) shall be held on site and include representatives from the local VESCP/VSMP authority, the owner/applicant/operator/permittee, the Responsible Land Disturber (RLD), and the contractor, engineer, and other responsible agencies, as applicable, prior to authorization and issuance of a local land disturbing or stormwater construction permit. The owner, applicant, operator or permittee is required to coordinate scheduling of the preconstruction conference between all applicable parties. The contractor shall submit a Sequence of Construction and a revised Pollution Prevention Plan (P2 plan or PPP), if applicable, to the local VESCP/VSMP authority for review and approval prior to the preconstruction meeting.~~

8. ~~A pollution prevention plan (P2 plan or PPP), if required, shall be developed, implemented and updated as necessary and must detail the design, installation, implementation, and maintenance of effective pollution prevention measures to: minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water and other wash waters; minimize the exposure of all materials on the site (such as building materials and products, construction waste, trash, landscape materials, fertiizers, pesticides, herbicides, detergents, sanitary waste, etc.) to precipitation and stormwater; minimize the discharge of pollutants from spills and leaks; implement chemical spill and leak prevention and response procedures; and include effective best management practices to prohibit the discharge of wastewater from: concrete washout areas, discharge of wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials; discharge of fuels, oils, other pollutants used in vehicle and equipment operation and maintenance activities; and the discharge of soaps and solvents used for vehicle and equipment washing. This plan shall be available onsite for review at reasonable times by the local VESCP/VSMP authority when requested.~~

9. ~~The owner, applicant, operator, or permittee is responsible for all operator self-inspections as required in the pollution prevention plan (P2 plan or PPP) or as required as part of a developed Stormwater Pollution Prevention Plan (SWPPP). These inspections shall be made available, upon request, by the local VESCP/VSMP authority.~~

10. All perimeter erosion and sediment control (E&SC) measures shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance activity takes place.

11. Additional safety fence or dust control measures, in accordance with the provisions of Minimum Standards & Specs. 3.01 and 3.39 of the Virginia Erosion and Sediment Control Handbook (VESCH), may be required to be implemented on the site in addition to that shown on the approved plan and specifications in order to ensure adequate protection of the health, safety and welfare of the public or if site conditions change, become apparent or alter significantly following the date of plan approval.

12. Erosion and sediment control measures may require minor field adjustments at or following time of construction to ensure their intended purpose is accomplished, to ensure adequate protection of the health, safety, and welfare of the public, or if site conditions change, become apparent or alter significantly following the date of plan approval. ~~Local VESCP/VSMP authority approval shall be required for any deviation of erosion and sediment control measures from the approved plan.~~

13. Off-site waste or borrow areas shall be approved by the local VESCP/VSMP authority prior to the import of any borrow or export of any waste to or from the project site.

14. Temporary soil stockpiles shall comply with the provisions of Section 24-46 of the County Code.

15. ~~Culvert and storm drain inlet protections, in accordance with the provisions of Minimum Standards & Specs. 3.07 and 3.08 of the Virginia Erosion and Sediment Control Handbook (VESCH), may be removed at the discretion of the assigned local VESCP/VSMP authority compliance inspector, should placement of the measure result in excessive road flooding, traffic or safety hazard, or result in the redirection of drainage onto or toward existing lots, homes, driveways, garages or other structures. Decisions shall be made by the VESCP/VSMP authority on a case-by-case basis based on field situations encountered.~~

16. Drainage facilities shall be installed and functional within 30 days following completion of rough grading at any point within the project.

17. ~~No more than 300 feet of trench may be open at one time for underground utility lines, including storm water conveyances. All other provisions of Minimum Standard No. 16 of the Virginia Erosion and Sediment Control regulations apply.~~

18. Permanent or temporary stabilization of disturbed soil areas shall comply with Minimum Standard # 1 and # 3 of the Virginia Erosion and Sediment Control Regulations.

19. The term seeding, final vegetative cover or stabilization on the approved plan shall mean the successful germination and establishment of a stable grass cover from a properly prepared seedbed, in accordance with Minimum Standard # 1 and # 3 from the Virginia Erosion and Sediment Control Regulations, Minimum Standards & Specs. 3.29 through 3.37 of the Virginia Erosion and Sediment Control Handbook (VESCH), and any technical bulletins issued by the State Water Control Board or Virginia DEQ, as applicable. Irrigation, if necessary, shall comply with all applicable seasonal outdoor water use restrictions of the James City Service Authority.

20. If disturbed area stabilization is to be accomplished during the months of December, January or February, stabilization shall consist of Mulching in accordance with Minimum Standard & Spec. 3.35 of the Virginia Erosion and Sediment Control Handbook (VESCH). Seeding will then take place as soon as the season permits.

21. Temporary erosion and sediment control measures shall not be removed until all disturbed areas are stabilized. ~~Removal shall not occur without authorization by the local VESCP/VSMP authority~~. Disturbances associated with the removal of temporary erosion and sediment control measures shall be properly stabilized.

22. ~~No sediment trap or sediment basin shall be removed until a) at least 75 percent of the single-family lots within the drainage area to the trap or basin have been sold to a third-party for the construction of homes (unrelated to the developer); and/or, b) 60 percent of the single-family lots within the drainage area to the trap or basin are completed and stabilized. A bulk sale of the lots to another builder does not satisfy this provision. Sediment traps and sediment basins shall not be removed without authorization of the local VESCP/VSMP authority~~.

23. Design and construction of private-type storm drainage systems, outside VDOT right-of-way, shall be performed in accordance with the current version of the James City County, Engineering and Resource Protection Division, Stormwater Drainage Conveyance Systems (Non-BMP related), General Design and Construction Guidelines (ie. County Drainage Standards).

~~24. Record Drawings (Asbuilts) and Construction Certifications are required for all stormwater facilities including stormwater management/BMP facilities and storm drainage conveyance systems. The certification process shall include an internal closed-circuit television camera (CCTV) post installation inspection performed by the owner in accordance with standards and specifications developed by the VSMP authority. Record drawings and construction certifications must meet established program requirements of the County's Chapter 8 Erosion and Sediment Control and VSMP Ordinance and the local VESCP/VSMP authority.~~

~~25. All stormwater facilities including BMPs, storm drainage pipes, stormwater conveyances, inlets, manholes, outfalls and roadside and other open channels shall be inspected by the local VESCP/VSMP authority and owner, applicant/operator/permittee designated geotechnical engineer for the project in accordance with established County stormwater facility inspection program requirements.~~

How to Maintain Your Grass Channel

What is a grass channel?

A grass channel is a vegetated channel that collects rainwater from hard surfaces and allows it to infiltrate into the ground, thereby reducing the amount of sediment and nutrients in the stormwater leaving the road or property. The grass covering the side slopes and channel bottom filters the water and helps reduce flow velocity. In steeper areas, some channels have stone or concrete check dams built across the width to prevent erosion and encourage infiltration. During large storms, grass channels can direct extra runoff to other stormwater management areas.

Why are grass channels important?

Grass channels:

- Help reduce street flooding
- Improve the health of local waterways by removing pollutants and sediment from stormwater runoff

Why is it important to maintain your grass channel?

An unmaintained grass channel may:

- Lose the ability to filter stormwater runoff and will allow pollutants to enter local waterways
- Become blocked which can lead to flooding and breeding of insects such as mosquitos

By maintaining your grass channel, you are doing your part to help protect your local streams and the Chesapeake Bay. Accordingly, maintaining your grass channel may be required by your local VSMP (Virginia Stormwater Management Program) Authority.

Good to do:

Monthly:

- Remove leaves, trash and debris from the grass channel

Seasonally:

- Each spring, add reinforcement plantings to maintain a 90 percent turf cover
- Each fall, remove leaves
- Mow grasses no shorter than 3 inches; remove or compost grass clippings
- Inspect check dams. Repair and clean, if needed.
- Inspect channel bottom for excessive ponding or dead vegetation.

As needed:

- Inspect channel after storm events for erosion or debris accumulation
- Contact your local VSMP authority for continued maintenance concerns or issues

Don't...

- Use fertilizer or pesticides in your grass channel
- Mow directly after a rain event
- Mow grasses shorter than 3 inches

Sidebar: Grass channels need regular maintenance, similar to other landscaped areas. This includes removing trash/debris and mowing grass.

Troubleshooting:

Symptom	Possible Cause	Solution
Standing water	If standing water occurs for over 48 hours, the grass channel could be clogged. The surface of the channel may need to be amended with more permeable soil, tilled, and replanted.	The surface of the channel may need to be amended with more permeable soil, tilled, and replanted.
Erosion	The runoff is moving too fast or the vegetation has died.	Stabilize the soil by planting new grass. Use rocks to stabilize the flow if needed.

Sidebar: You can prolong the life of your grass chanbel and save on maintenance costs by keeping your stormwater facility clean and regularly inspecting and maintaining the stormwater facility to ensure it is functioning properly

Recommended timeframes for typical maintenance

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Leaves and Debris Removal	X	X	X	X	X	X	X	X	X	X	X	X
Mowing (at least twice per year)			X					X				

Can I remove the grass channel?
If your grass channel was installed as a condition of development, it cannot be removed. It is best to contact your local Virginia Stormwater Management Program (VSMP) to discuss options before making any changes to your grass channel.

What if I need help or have additional questions?
Your local VSMP (Virginia Stormwater Management Program) Authority can answer your questions and provide additional guidance about maintaining your stormwater facility. No matter where you are in Hampton Roads, askHRgreen.org can assist you in connecting with the stormwater professionals in your locality. For assistance, please email us at hrgreen@hrpdcva.gov, call (757) 420-8300, or visit us online at askHRgreen.org/WaterQuality.

Content originally developed by Department of Environmental Protection, Montgomery County, Maryland.

Joanna Ripley

From: Ryan Lee <rlee@fchoa.net>
Sent: Monday, June 01, 2015 2:03 PM
To: Joseph Buchite; Amy Parker; Scott Thomas
Subject: RE: 109 Formby

All,

I received a call from Getting today and he stated that he couldn't submit a plan for 109 Formby until the FCHOA came up with one on our end. I need some guidance on the below e-mail to proceed. Again, I would prefer that this be labeled as maintenance and present a simple site plan showing that we will get the water down the greenway and towards the golf course and not have to have an engineer create a plan. The FCHOA is spending an exorbitant amount of money in engineering and I feel items such as this don't require an engineer. I realize we are changing a drainage pattern but all of the water is ending up in the same place and the water would now be getting there via FCHOA property rather than resident property.

Best Regards,

Ryan Lee, PCAM®, CMCA®, AMS®
Project Maintenance Manager
Ford's Colony at Williamsburg Homeowners' Association
Realtec Community Services, Inc.
100 Manchester Dr .
Williamsburg , VA 23188
757-258-4230
fax 757-258-4065
rlee@fchoa.net

From: Joseph Buchite [mailto:Joseph.Buchite@jamescitycountyva.gov]
Sent: Thursday, May 28, 2015 2:12 PM
To: 'Ryan Lee'
Subject: RE: 109 Formby

Ryan,
Amy is out of the office today but will follow up with her and Scott to see what we will need submittal wise for the proposal.
Thanks,
Joe

From: Ryan Lee [mailto:rlee@fchoa.net]
Sent: Thursday, May 28, 2015 11:24 AM
To: Amy Parker
Cc: Joseph Buchite; Scott Thomas
Subject: RE: 109 Formby

Amy,

I spoke with Mr. Getting just now and he is going to re-submit a site plan to you all and the ARC with the water going towards our greenway. I told him once he had that approved I would meet him on site to come up with a game plan going forward.

I spoke with Scott and Joe yesterday about treating this as maintenance and I am hoping that can be the case. The area is already open, very few trees would need to be removed and all we would be doing is directing the water down the greenway rather than through 102 Little Aston. This will only be an earth swale and all the water will end up in the same place as it does now (golf course and eventually pond). AES will be marking the property pins in the near future.

Best Regards,

Ryan Lee, PCAM®, CMCA®, AMS®
Project Maintenance Manager
Ford's Colony at Williamsburg Homeowners' Association
Realtec Community Services, Inc.
100 Manchester Dr .
Williamsburg , VA 23188
757-258-4230
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rlee@fchoa.net

From: Ryan Lee [mailto:rlee@fchoa.net]
Sent: Thursday, May 21, 2015 10:53 AM
To: 'Amy Parker'
Cc: 'Joseph Buchite'; 'Scott Thomas'
Subject: RE: 109 Formby

Amy,

I spoke with Drew and we are going to talk to the builder about directing the water (including gutters) in the footprint of construction (no further than silt fence in the back as this is all natural and nothing is being changed in the natural area and we would like to continue to encourage absorption of the water) towards the right portion of the lot. From the back right portion of silt fence on the right side of the lot, either piping to the greenway or clearing the trees and cutting a swale. We are going to encourage them to pipe the water as we would rather leave the trees and vegetation.

So you know Amy, I don't do anything with the Architectural Review Committee (ARC). That being said after the incident at Deal I told them we need to look at plans holistically and not just approve a plan because they are getting water to the greenway (that is all that is required on their end but that doesn't mean the ARC can't require the builder to direct water a certain way for the betterment of surrounding lots). I spoke with Drew about this and he is going to have a talk with the ARC so we can try and avoid this in the future.

If the FCHOA needs to cut trees down and create a swale on the greenway on the left side of 102 Little Aston, would JCC be willing to call this maintenance and not have to submit anything to the County? I am not saying we are doing this because we need to review the area but I would like to know if we went this route that we wouldn't need JCC approval.

Best Regards,

Ryan Lee, PCAM®, CMCA®, AMS®
Project Maintenance Manager

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From: Amy Parker [mailto:Amy.Parker@jamescitycountyva.gov]
Sent: Thursday, May 21, 2015 8:44 AM
To: Ryan Lee (rlee@fchoa.net)
Cc: Joseph Buchite
Subject: 109 Formby

Ryan,

I have an application in for 109 Formby. The drainage concerns are much like the one on Deal last year (plat shows a "drainage easement," but does not direct runoff.) As you recall, you wanted me to handle the situation on Deal because JCC approved the development plan. I don't want to run into this again with this application.

I spoke with Don Getting last week to express the concerns on 109 Formby and asked that he revise the plan to direct/mitigate the drainage so as to reduce impacts to the downstream property owner. He has since met with George on site. Evidently George told him it was designed to drain back and the water was supposed to go wherever it wants to. As you well know, as impervious cover increases, so does runoff. It appears that the property owner behind this lot already has already tried to control the existing runoff with the use of a "dry creek bed" of stone.

I am not comfortable approving this plan without an acceptable drainage pattern, which includes Ford's Colony making some improvements within the drainage easement.

Please contact me at your earliest convenience.

Thank you,

Amy Parker
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James City County VIRGINIA Jamestown 1607
Division of Engineering and Resource Protection
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