



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.

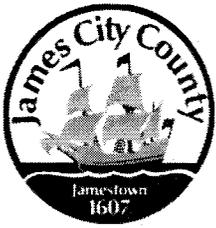
BMP NUMBER: SC016

DATE VERIFIED: April 13, 2012

QUALITY ASSURANCE TECHNICIAN: Leah Hardenbergh

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA



Stormwater Division

MEMORANDUM

DATE: March 10, 2010
TO: Michael J. Gillis, Virginia Correctional Enterprises Document Management Services
FROM: Jo Anna Ripley, Stormwater
PO: 270712
RE: Files Approved for Scanning

General File ID or BMP ID: SC016

PIN: 5920600001A

Subdivision, Tract, Business or Owner

Name (if known):

Carters Village

Property Description:

Common Area & Private Road

Site Address:

(For internal use only)

Box 8

Drawer: 5

Agreements: (in file as of scan date)

Y

Book or Doc#:

010015439

Page:

63

22

020008198

030001075

46

03

44

100

798

951

Comments

Carters Village Parcel B Created out of parcel (59-2)(1-15) created lots 1-31, new PINs (59-2)(6-1 through 31)

DECLARATION OF COVENANTS

COPY

INSPECTION/MAINTENANCE OF DRAINAGE SYSTEM

THIS DECLARATION made this 15th day of August, 2001, between Greensprings Plantation, Inc.

and all successors in interest, hereinafter referred to as the "COVENANTOR(S)," owner(s) of the following property: 8998 Pocahontas Trail, Williamsburg, Virginia 23185

* Deed Book 63, Page No. 22 or Instrument No. 59-2,1-15

and James City County, Virginia, hereinafter referred to as the "COUNTY."

Also on: Deed Book 46, Page No. 03
Deed Book 44, Page No. 100
Deed Book 798, Page No. 951

WITNESSETH:

We, the COVENANTOR(S), with full authority to execute deeds, mortgages, other covenants, and all rights, titles and interests in the property described above, do hereby covenant with the COUNTY as follows:

1. The COVENANTOR(S) shall provide maintenance for the drainage system including any runoff control facilities, conveyance systems and associated easements, hereinafter referred to as the "SYSTEM," located on and serving the above-described property to ensure that the SYSTEM is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations. The SYSTEM shall not include any elements located within any Virginia Department of Transportation rights-of-way.
2. If necessary, the COVENANTOR(S) shall levy regular or special assessments against all present or subsequent owners of property served by the SYSTEM to ensure that the SYSTEM is properly maintained.
3. The COVENANTOR(S) shall provide and maintain perpetual access from public right-of-ways to the SYSTEM for the COUNTY, its agent and its contractor.
4. The COVENANTOR(S) shall grant the COUNTY, its agent and its contractor a right of entry to the SYSTEM for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the SYSTEM.
5. If, after reasonable notice by the COUNTY, the COVENANTOR(S) shall fail to maintain the SYSTEM in accordance with the approved design standards and with the law and applicable executive regulations, the COUNTY may perform all necessary repair or maintenance work, and the COUNTY may assess the COVENANTOR(S) and/or all property served by the SYSTEM for the cost of the work and any applicable penalties.
6. The COVENANTOR(S) shall indemnify and save the COUNTY harmless from any and all claims for damages to persons or property arising from the installation, construction, maintenance, repair, operation or use of the SYSTEM.
7. The COVENANTOR(s) shall promptly notify the COUNTY when the COVENANTOR(S) legally transfers any of the COVENANTOR(S)' responsibilities for the SYSTEM. The COVENANTOR(S)' shall supply the COUNTY with a copy of any document of transfer, executed by both parties.
8. The covenants contained herein shall run with the land and shall bind the COVENANTOR(S) and the COVENANTOR(S)' heirs, executors, administrators, successors and assignees, and shall bind all present and subsequent owners of property served by the SYSTEM.
9. This COVENANT shall be recorded in the County Land Records.

*Instrument # 010015439
Recorded on Aug. 27, 2001*

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of this 15th day of August, 2001.

COVENANTOR(S)

Marc B. Sharp

Print Name/Title Marc B. Sharp/President

ATTEST:

Michelle Z. Ball

COVENANTOR(S)

Print Name/Title _____

ATTEST:

COMMONWEALTH OF VIRGINIA
~~CITY~~/COUNTY OF James City

I hereby certify that on this 15th day of August, 2001, before the subscribed, a Notary Public of the State of Virginia, and for the ~~City~~/County of James City, aforesaid personally appeared Marc B. Sharp and did acknowledge the foregoing instrument to be their Act.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this 15th day of August, 2001.

Gloria M. Judah
Notary Public

My Commission expires: August 31, 2004

Approved as to form:

Lee P. Royce
Deputy County Attorney

This Declaration of Covenants prepared by:

Marc B. Sharp
(Print Name)

President
(Title)

4029 Iron Bound Rd. Suite 200
(Address)

Williamsburg, VA 23188
(City) (State) (Zip)

drainage.pre
Revised 2/97

**James City County, Virginia
Environmental Division**

**Stormwater Management/BMP
Record Drawing and Construction Certification Review
Tracking Form**

County Plan No.: SP-5-01; Amend SP-28-02
 Project Name: Carters Village (form Skittes Creek Village Panel B)
 Stormwater Management Facility: Dry SWALE BEHIND North Units

Phase: I II III
 Information Received. Date/By: 5/13/03 FES (LL)

Administrative Check.

Record Drawing Date/By: _____

Construction Certification Date/By: 6/17/03 FES

RD/CC Standard Forms (Required for all BMPs after Feb 1st 2001 Only)

Insp/Maint Agreement #/Date: # 010015439 AUG 27 '01

BMP Maintenance Plan Location: PLAN

Other: _____

Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review file.
 Yes No Location: Note 20 sheet 4 of 5

Assign County BMP ID Code: Code: SC 016

Preliminary Input into Division's "As-Built Tracking Log"

Add Location to GIS Database Map. Obtain site information (GPIN, Owner, Site Area, Address, etc.)

Preliminary Log into Access BMP Database (BMP ID #, Plan No., GPIN, Project Name, etc.)

Active Project File Review (correspondence, H&H, etc.).

Initial As-Built File setup (Label, copy hydraulics, BMP plan and detail information, etc.).

Inspector Check of RD/CC (forward to inspector using transmittal for cursory review).

Pre-Inspection Drawing Review - Approved Plan (Quick look prior to Field Inspection).

Final Inspection (FI) Performed Date: 6/6/03

Record Drawing (RD) Review (***) Date: 6/9/03

Construction Certification (CC) Review Date: 6/9/03

Actions:

No comments.

Comments. Letter Forwarded. Date: 6/9/03

Record Drawing (RD)

Construction Certification (CC)

Construction-Related (CR)

Site Issues (SI)

Other: _____

Second Submission: 7/1/03 SIRINE (RD)

Reinspection (if necessary): 6-27-03 SJT

Acceptable for stormwater management facility purposes (RD/CC/CR/Other). Proceed with bond release.

If ok for full release, notify Inspector and Inspector Supervisor using "Surety Request Form".

Check/Clean active file of any remaining material and finish "As-Built" file.

Add to County BMP Inventory/Inspection schedule (Phase I, II or III).

Copy Final Inspection Report into County BMP Inspection Program file.

Obtain Digital Photographs of BMP and log into computer.

Add to JCC Hydrology & Hydraulic database (optional).

Complete "As-built Tracking Log".

BMP Certification Information Acceptable

Plan Reviewer: [Signature] Date: 7-2-03

*** See separate checklist.

James City County BMP Guidelines

Table 1: BMP Point System for evaluating acceptable water quality BMPs and preservation of open space

BMP	Treatment Volume (in)	Average Total P Removal Efficiency	Points
A. WET POND			
1. Small Wet Pond	1.5 in / imp acre	40%	6
2. Wet Pond	2.0 in / imp acre	50%	8
3. Wet ED Pond	2.0 in / imp acre	60%	10
B. WETLANDS			
1. Shallow Marsh	1.0 in / imp acre	40%	6
2. ED Shallow Wetland	1.0 in / imp acre	40%	6
3. Pond/Wetland System	1.0 in / imp acre	60%	10
4. Pocket Wetland	1.0 in / imp acre	40%	6
C. INFILTRATION (TRENCH OR BASIN)			
1. Infiltration Trench	0.5 in / imp acre	50%	8
2. Infiltration Trench	1.0 in / imp acre	60%	10
3. Infiltration Basin	0.5 in / imp acre	50%	8
4. Infiltration Basin	1.0 in / imp acre	60%	10
D. FILTERING SYSTEMS			
1. Bioretention	1.0 in / imp acre	50%	8
2. Surface Sand Filter	1.0 in / imp acre	50%	8
3. Underground Sand Filter	1.0 in / imp acre	50%	8
4. Perimeter Sand Filter	1.0 in / imp acre	50%	8
5. Organic Filter	1.0 in / imp acre	50%	8
6. Pocket Sand Filter	1.0 in / imp acre	40%	6
E. OPEN CHANNEL SYSTEMS			
1. Wet Swale (check dams)	1.0 in / imp acre	30%	4
2. Dry Swale	1.0 in / imp acre	60%	10
3. Biofilters	1.0 in / imp acre	30%	4
F. EXTENDED DRY DETENTION			
1. Timber Walls	1.0 in / imp acre	30%	4
2. Dry ED with forebay	1.0 in / imp acre	30%	4
G. OPEN SPACE CONSERVATION EASEMENTS			
1. Accepts and treats stormwater runoff from the development site per design specification			0.15 per 1% of site area
2. Adjacent to a wetland, mature forest, or RPA			0.15 per 1% of site area
3. All other open space			0.10 per 1% of site area

Table 2

Worksheet for BMP Point System

A. STRUCTURAL BMP POINT ALLOCATION

BMP	BMP Points		Fraction of Site Served by BMP		Weighted BMP Points
			$4.34 - 1.1 = 3.24$		
B-1/B-2 E-2 ED WETLAND	6	x	$3.1 / 3.24$	=	5.74
DRY SWALE	10	x	$0.6 / 3.24$	=	1.85
		x		=	
		x		=	
TOTAL WEIGHTED STRUCTURAL BMP POINTS:					<u>7.6</u>

B. NATURAL OPEN SPACE CREDIT

Fraction of Site		Natural Open Space Credit		Points for Natural Open Space
<u>25%</u>	x	<u>.1</u> (0.1 per 1%)	=	<u>2.5</u>
	x	<u>(0.15 per 1%)</u>	=	
TOTAL NATURAL OPEN SPACE CREDIT: <u>2.5</u>				

C. TOTAL WEIGHTED POINTS

<u>7.6</u>	+	<u>2.5</u>	=	<u>10.1</u>
Structural BMP Points		Natural Open Space Points		Total

J.O. # 9757

SKIFFES CREEK, PARCEL "B"

MAY 30, 2001

PAGE TWO

WATER QUALITY VOLUME REQUIRED (DRY SWALE)

0.185 IMP. AC. X 1"/IMP. AC X 1 FT/1 IN. = 675 CF

USE 310 LF SWALE; 3 FT BOTTOM (WIDTH AT 0.25' = D, W = 4.5')

3:1 SIDE SLOPE

WQ DEPTH = 0.5'

VOL = 697 CF > 675 CF - OK

BASIN OUTLET CONTROL

USE AN VDOT EW-11A(MOD.); 4:1 SLOPE

W/H = 2'-11"

L = 11'-8"

W = 3'-0"

WALL THICKNESS = 8"

15" OUTLET PIPE

INVERT = 50.42

LOCATE 3 INCH DIAMETER (INV 50.42)

ORIFICE IN 4" THICK, 1.28 FT HIGH

WALL. CENTER LINE OF WALL IS TO BE

9.07 FT FROM INLET END (3.27 FT FROM

ENDWALL.)

ORIFICE TRASH RACK OF 3 LB/SF EXPANDED STEEL GRATE IS REQUIRED

FROM EL 51.62 ON ORIFICE WALL TO EW-11A(MOD.) BASE

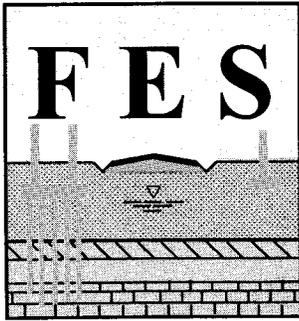
4.0 FT FROM ORIFICE WALL.

REQUIRED FORBAY VOLUME = 0.1"/IMPAC X 1.12 AC X 1'/12" = 407 CF

FORBAY VOLUME PROVIDED = 1033 CF + 185 CF = 1218 CF > 407 CF - OK

FILE:9757SWM/WORD2000

FOUNDATION ENGINEERING SCIENCE, INC.



- Drilling Services [Geotechnical & Environmental]
- Geotechnical Engineering [Shallow & Deep Foundations, Retaining Walls & Pavement Design]
- Environmental Management [Phase I & II]
- Construction Inspection Services [Quality Control & Quality Assurance]
- Foundation/Structure & Pavement Distress Evaluations
- Value Engineering During Design & Construction
- Design & Build Segmental Reinforced Retaining Walls [SRRW]

Mr. James M. Pagano
Plantation Group, LLC
4029 Ironbound Road, Suite 200
Williamsburg, Virginia 23692

Re: Dry Swale Certification Report
Parcel "B" - Carter Village
BMP - Dry Swale [SC 016]
James City County, Virginia
FES Report No. N354.050



June 17, 2003

Dear Mr. Pagano:

Pursuant to your request, an experienced Professional Engineer with Foundation Engineering Science, Inc. (FES) visited the project site on June 16, 2003. The specific purpose of this visit was to inspect the recommended two (2) test holes along the dry swale that was located at the back of the northern units. James City County – Environmental Division requested this area of the dry swale to be certified. Our inspection also consisted of reviewing of the project plans and specifications, Sheet 3 of 5 Notes, Sections, and Details, drawn by The Sirine Group, LTD on January 12, 2001.

1.0 REVIEW PLANS AND SITE OBSERVATION

The faxed letter from James City County – Environmental Division requested that the certification of the water quality [dry swale] BMP situated along the back of the north unit specified as [SC 016] be submitted for their review. During our site visit, the contractor reported that two (2) test holes were excavated along the dry swale line that was situated along the back of the north units. The two (2) test holes were excavated to the elevation of the filter fabric and ready for inspections.

Based on this site visit and plans review, it appeared that the excavated soils from the test holes were classified as gray, moist, silty sand (SM) materials and a filter layer at the base of the test holes. Below the filter fabric a layer of gravel was encountered. The bottom width ranged from approximately three (3) to six (6) feet with a minimum depth of fifteen (15) inches and approximate side slope of 2H : 1V and flatter. The layer of filter fabric was encountered at approximate depth ranging from three (3) to four (4) feet below the bottom of the dry swale.

The geotechnical engineering study report, prepared by Foundation Engineering Science, Inc. (FES) for the subject project [FES Report No. N305.007, dated July 24, 2001] was reviewed. The soils encountered during our site observation appeared to generally be consistent with the soils described within the geotechnical engineering study report for the parking area.

2.0 CONCLUSIONS AND RECOMMENDATIONS

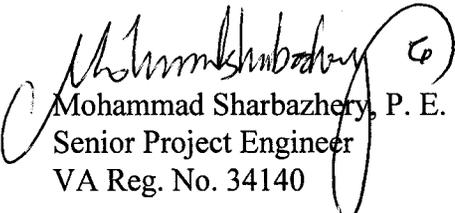
Based on the site visit, review of the project plans and details, the following conclusions and recommendations are presented.

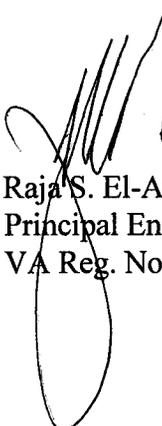
1. The excavated silty sand (SM) materials from the test holes is considered permeable soils as recommended by the project plans and specifications.
2. A layer of filter fabric and gravel were encountered as recommended by the project plans and specifications.
3. The thickness of the permeable soils above the filter fabric ranged from approximately three (3) to four (4) feet, which is more than the required thirty (30) inches as recommended by the projects plans and specifications.
4. The approximate bottom of the dry swale ranging from three (3) to six (6) feet, depth of fifteen (15) inches and side slopes of 2H : 1V that met the project plans and specifications.
5. Based on the visual inspection of these two (2) holes and observation of the gravel, filter fabric and permeable soils, it appeared that the contractor constructed the dry swale (SC 016) in general accordance with the project plans and specifications.

FES appreciates the opportunity to be of service to **Bush Construction Company** on this important project and looks forward to its successful completion. Should you have any questions regarding this report, please do not hesitate to contact the undersigned.

Respectfully submitted,

FOUNDATION ENGINEERING SCIENCE, INC.

 6/17/03
Mohammad Sharbazhery, P. E.
Senior Project Engineer
VA Reg. No. 34140

 6/17/03
Raja S. El-Awar, P.E.
Principal Engineer
VA Reg. No. 26383

XCopies: (1) Client

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- Foundation/Structure & Pavement Distress Evaluations
- Value Engineering During Design & Construction
- Design & Build Segmental Retaining Walls [SRW]

Fax Cover Sheet

Date	June 17, 2003	Fax	(757) 259-4032	Pages	3
To	Mr. Scott Thomas	Client	Plantation Group, LLC		
From	Mohammad Sharbazhery, P.E.	Ref.	FES Report No. N354.050 – Parcel B – Carter Village BMP – Dry Swale		
URGENT	FOR REVIEW	PLEASE COMMENT	PLEASE REPLY	ORIGINAL MAILED – YES/NO	

Please let me know at 757-873-4113 if you do not receive a clear transmission of all pages.

Sincerely,

Lil

SP-5-01
 SC 016
 Dry Swale -
 OK As Const. Cert.

The information contained in this facsimile is privileged and confidential and is intended only for the individual or entity named above. If the reader of this facsimile is not the intended recipient or employee responsible for delivering to the intended recipient, you are hereby notified that any dissemination or copying of this facsimile is strictly prohibited. If you have received this facsimile in error, please notify us immediately by telephone.

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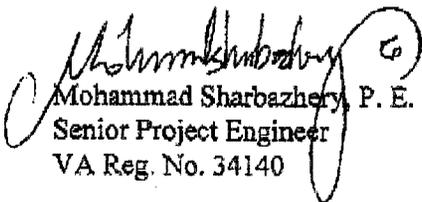
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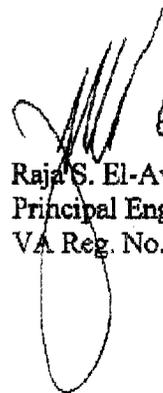
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JAMES CITY COUNTY - ENVIRONMENTAL DIVISION

Office Phone: 757-253-6670

Fax Number: 757-259-4032

DATE SENT: 6/06/03

Name: JAMES PAGANO
 Firm or Company: BUSH CONSTRUCTION
 Facsimile Number: 229-2542
 Number of pages including this transmittal: 5
 From: Scott J. Thomas

James City County
 P O Box 8784
 Williamsburg VA 23187-8784

Comments: Certification issues, BMPs at Carter's Village
County BMP ID Codes SC05 + SC06,
County Plan No. SP-5-01, Amended SP-28-02

If you do not receive all pages, call 757-253-6670 as soon as possible

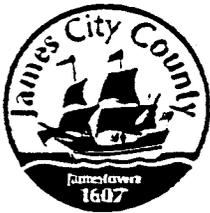
cc: (fax only)
 James Leigh, Sirine Group LTD
 804-693-9548
 Mohammad Sharbazerly, FES
 757-873-4114
 Gary Albertson, VICO
 757-487-8680



SCOTT J. THOMAS, P.E.
 CIVIL ENGINEER

ENVIRONMENTAL DIVISION

101 MOUNTS BAY ROAD, P.O. Box 8784 (757) 253-6639
 WILLIAMSBURG, VIRGINIA 23187-8784 FAX: (757) 259-4032
 E-MAIL: scottt@james-city.va.us



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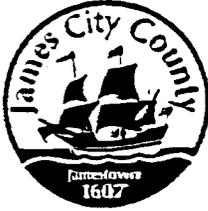
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- Foundation/Structure & Pavement Distress Evaluations
- Value Engineering During Design & Construction
- Design & Build Segmental Reinforced Retaining Walls [SRPW]



Mr. James M. Pagano, Vice President
Bush Construction Corporation
4029 Ironbound Road, Suite 200
Williamsburg, Virginia 23692

Re: Earthen Dam Certification Report
Skiffes Creek Village – Dam Area
James City County, Virginia
FES Report No: N354.048

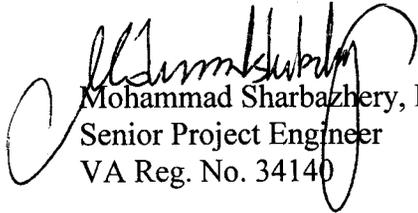
SC 015
not SC 016

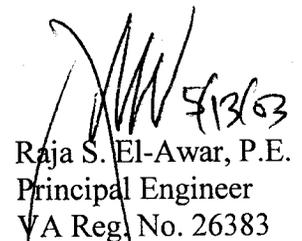
Foundation Engineering Science, Inc. (FES) hereby certifies to the best of our knowledge and belief that the Earthen Dam for the Storm Water Management/BMP facility for the Skiffes Creek Village was monitored and constructed in general accordance with the provisions of the approved design plans, specifications and storm water management plan.

FES appreciates the opportunity to be of service to **Bush Construction Corporation** on this important project and looks forward to its successful completion. Should you have any questions regarding this report, please do not hesitate to contact the undersigned.

Respectfully submitted,

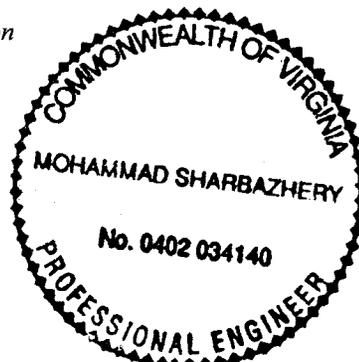
FOUNDATION ENGINEERING SCIENCE, INC.


Mohammad Sharbазhery, P. E.
Senior Project Engineer
VA Reg. No. 34140


Raja S. El-Awar, P.E.
Principal Engineer
VA Reg. No. 26383

XCopies (1) James City County – Environmental Division

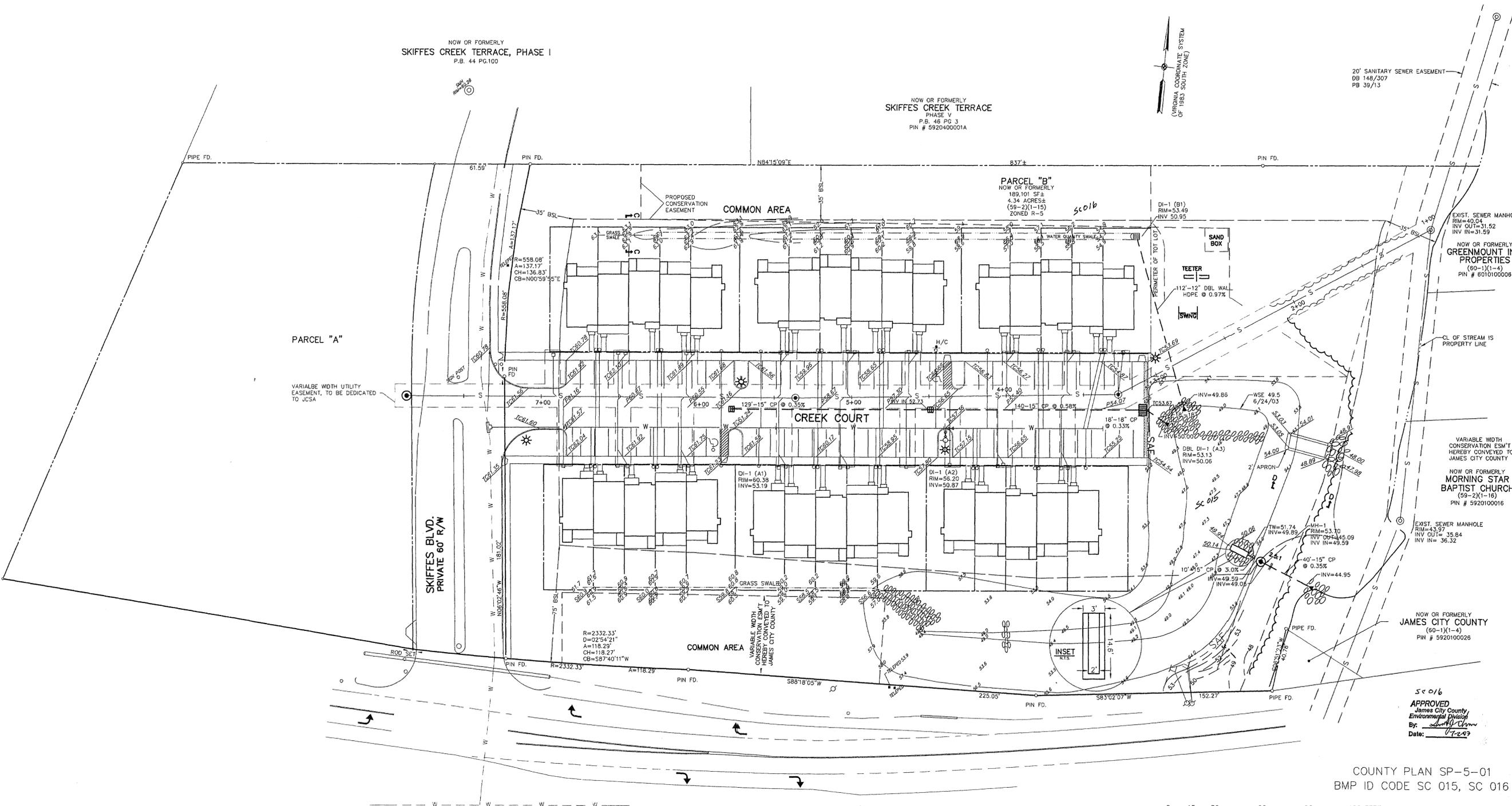
C:\company\oldfiles\2001\cmt\N354\N354.048



NOW OR FORMERLY
SKIFFES CREEK TERRACE, PHASE I
P.B. 44 PG.100

NOW OR FORMERLY
SKIFFES CREEK TERRACE
PHASE V
P.B. 46 PG. 3
PIN # 592040001A

20' SANITARY SEWER EASEMENT
DB 148/307
PB 39/13



EXIST. SEWER MANHOLE
RIM=40.04
INV OUT=31.52
INV IN=31.59
NOW OR FORMERLY
GREENMOUNT INC.
PROPERTIES
(60-1)(1-4)
PIN # 60100008

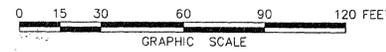
VARIABLE WIDTH
CONSERVATION ESM'T
HEREBY CONVEYED TO
JAMES CITY COUNTY
NOW OR FORMERLY
MORNING STAR
BAPTIST CHURCH
(59-2)(1-16)
PIN # 592000016

EXIST. SEWER MANHOLE
RIM=43.97
INV OUT= 35.84
INV IN= 36.32

NOW OR FORMERLY
JAMES CITY COUNTY
(60-1)(1-4)
PIN # 5920100026

SC 016
APPROVED
James City County
Environmental Division
By: *[Signature]*
Date: 7-23-03

COUNTY PLAN SP-5-01
BMP ID CODE SC 015, SC 016



U.S. ROUTE 60
POCAHONTAS TRAIL
(VARIABLE WIDTH R/W)

"THE DRAINAGE LOCATIONS AND GRADES SHOWN ON THESE DRAWINGS ARE ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF AND I CERTIFY THAT I, OR MY AGENT, HAS MADE SUFFICIENT INSPECTIONS TO INSURE THE ACCURACY OF THIS STATEMENT."

[Signature]
JAMES S. LEIGH L.S.#1758



FILE: 114340RAINAGEASBUILT.GDRIVE

DRAINAGE ASBUILT

PARCEL "B"
CARTER'S VILLAGE

ROBERT'S DISTRICT - JAMES CITY COUNTY, VIRGINIA

THE SIRINE GROUP, LTD.
SURVEYORS • ENGINEERS • PLANNERS
GLOUCESTER COUNTY, VIRGINIA
PH: 1-804-693-9548
FAX: 1-804-693-9550
EMAIL: TSGL@PRODIGY.NET

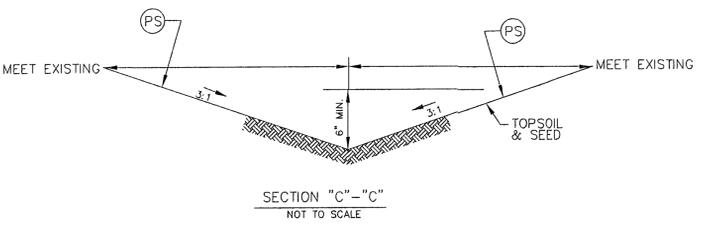
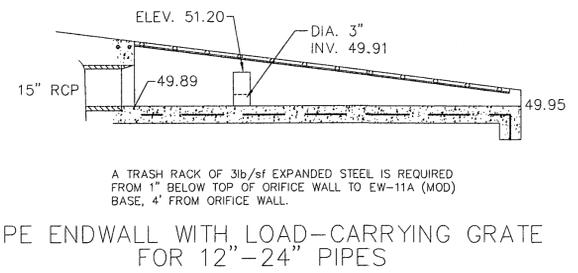
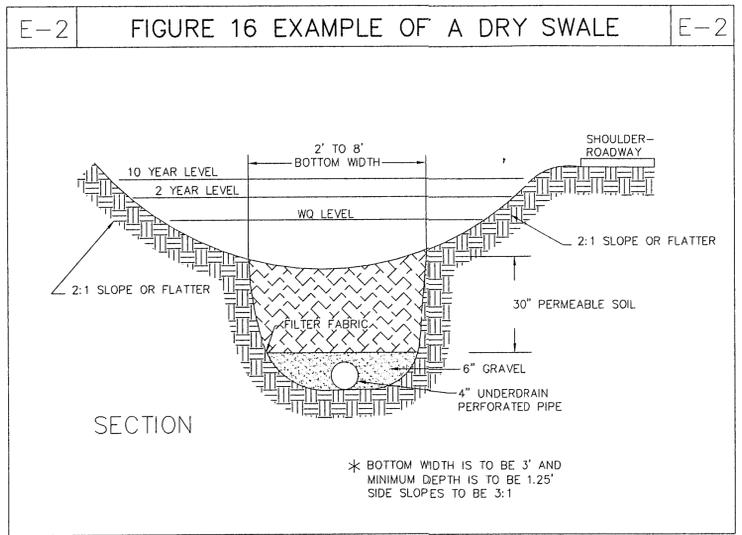
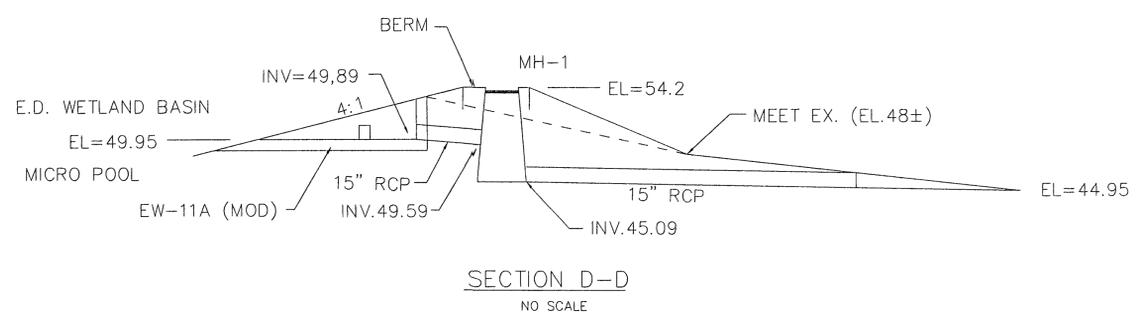
DESIGN:	SCALE:	REF. BOOK:	DATE:	JOB NO.:	SHEET NO.:
DRAWN:	1"=30'	PS. 73 PG.	5/9/03	11434	1 OF 2
CHECK:					

RECEIVED
JUL 2003
ENVIRONMENTAL DIVISION

STORMWATER POND MAINTENANCE PLAN

BOTH ROUTINE AND NON-ROUTINE MAINTENANCE ARE REQUIRED TO ENSURE THE PERFORMANCE OF THESE FACILITIES.

1. ROUTINE MAINTENANCE - THE STORM WATER WETLAND WILL BE INSPECTED AFTER HEAVY RAINS BETWEEN THE TIME OF CONSTRUCTION AND FULL VEGETATION ESTABLISHMENT. INSPECTION FOR OTHER CONDITIONS WILL BE MADE TWICE PER YEAR. WHEN NECESSARY, REPAIRS WILL BE PERFORMED WITHIN THIRTY DAYS OF DEFICIENCY REPORT.
 - A. SITE INSPECTIONS - INSPECTIONS ARE THE BASE OF THE ROUTINE MAINTENANCE PROGRAM. THEY SHOULD FOCUS ON BOTH THE AESTHETIC QUALITY AND STRUCTURAL INTEGRITY OF THE FACILITY. RECORDS OF ALL INSPECTIONS ARE TO BE KEPT DETAILING CONDITIONS FOUND AND ANY REQUIRED ACTIONS ALONG WITH WHEN ALL MAINTENANCE IS ACCOMPLISHED.
 - B. ALL MAINTENANCE OF TEMPORARY AND PERMANENT SEDIMENTATION AND EROSION CONTROL FACILITIES SHALL BE CARRIED OUT IN ACCORDANCE WITH SECTION 1.7 OF YESCH REGULATIONS (VR 525-02-00). DURING THE PERIOD THAT THE PROJECT SITE IS UNDER CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE AND THE INSPECTION OF THE SEDIMENTATION AND EROSION CONTROL FACILITIES ON A REGULAR BASIS, ESPECIALLY AFTER PERIODS OF HEAVY RAINFALL. ANY DAMAGE DISCOVERED WILL BE REPAIRED PROMPTLY BY THE CONTRACTOR.
 - C. BANK STABILIZATION - ANY AREAS THAT HAVE BECOME UNSTABLE SHOULD BE PROTECTED AND STABILIZED.
 - D. FREQUENT MONITORING/INSPECTION WITHIN FIRST THREE YEARS AFTER PRIMARY VEGETATION IS INSTALLED. SITE WILL BE MONITORED FOR EXCESS SCOUR PROBLEMS, SEDIMENT ACCUMULATION IN THE FOREBAY AND MICROPOOL (LOW NEAR OUTLET), DENuded AREAS, PRESENCE OF INVASIVE SPECIES, PLANT STRESS, WEED INFESTATION, ETC.
 - E. OBSERVATIONS REGARDING WATER INFLOW AND OUTFLOW WILL BE MADE TO DETERMINE IF ACCEPTABLE MOISTURE REGIMES CAN BE MAINTAINED. THE DRAINAGE ARE CONTRIBUTING TO THE STORMWATER WETLAND IS SMALL AND THEREFORE THE BASE GRADE OF THE FACILITY HAS BEEN ESTABLISHED TO TAKE ADVANTAGE OF GROUNDWATER INFLUENCES.
 - F. INSECT/MOSQUITO CONTROL - INSECT ACTIVITY, INCLUDING MOSQUITO, SHOULD BE MONITORED AND APPROPRIATE ACTION TAKEN.
 - G. TRASH AND LITTER WILL BE REMOVED FROM INLET AND OUTLET STRUCTURES AS NEEDED.
 - H. VEGETATION SURVIVAL WILL BE MONITORED TO ENSURE ADEQUATE COVERAGE OF THE FACILITY. DENuded AREAS OF DEAD PLANT STOCK WILL BE REPLACED AS NEEDED.
2. NON-ROUTINE MAINTENANCE - THESE TASKS SHOULD BE ACCOMPLISHED AS REQUIRED TO MAINTAIN THE FACILITY'S STRUCTURAL INTEGRITY AND EFFECTIVENESS. REPAIR AND/OR REPLACEMENT OF THE OUTFALL AND INLET PIPING SYSTEMS EVERY 10-15 YEARS. PARTICULAR ATTENTION WILL BE GIVEN TO THE ACCUMULATION OF SEDIMENT IN THE FOREBAY AND WITHIN THE FLOOR AND MICROPOOL AREAS. IT IS ANTICIPATED THAT CLEAN-OUT OF THE FOREBAY WILL BE NEEDED EVERY 5-7 YEARS. SPOIL MATERIALS WILL BE TAKEN OFF-SITE. PROPER SEDIMENTATION AND EROSION CONTROL PRACTICES WILL BE FOLLOWED.



APPROVED
James City County
Environmental Division
By: *[Signature]*
Date: 7-2-03

COUNTY PLAN SP-5-01
BMP ID CODE SC 015, SC 016

FILE 9757-11434DRAINAGEASBUILT; GDRIVE

"THE DRAINAGE LOCATIONS AND GRADES SHOWN ON THESE DRAWINGS ARE ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF AND I CERTIFY THAT I, OR MY AGENT, HAS MADE SUFFICIENT INSPECTIONS TO INSURE THE ACCURACY OF THIS STATEMENT."

[Signature]
JAMES S. LEIGH L.S.#1758



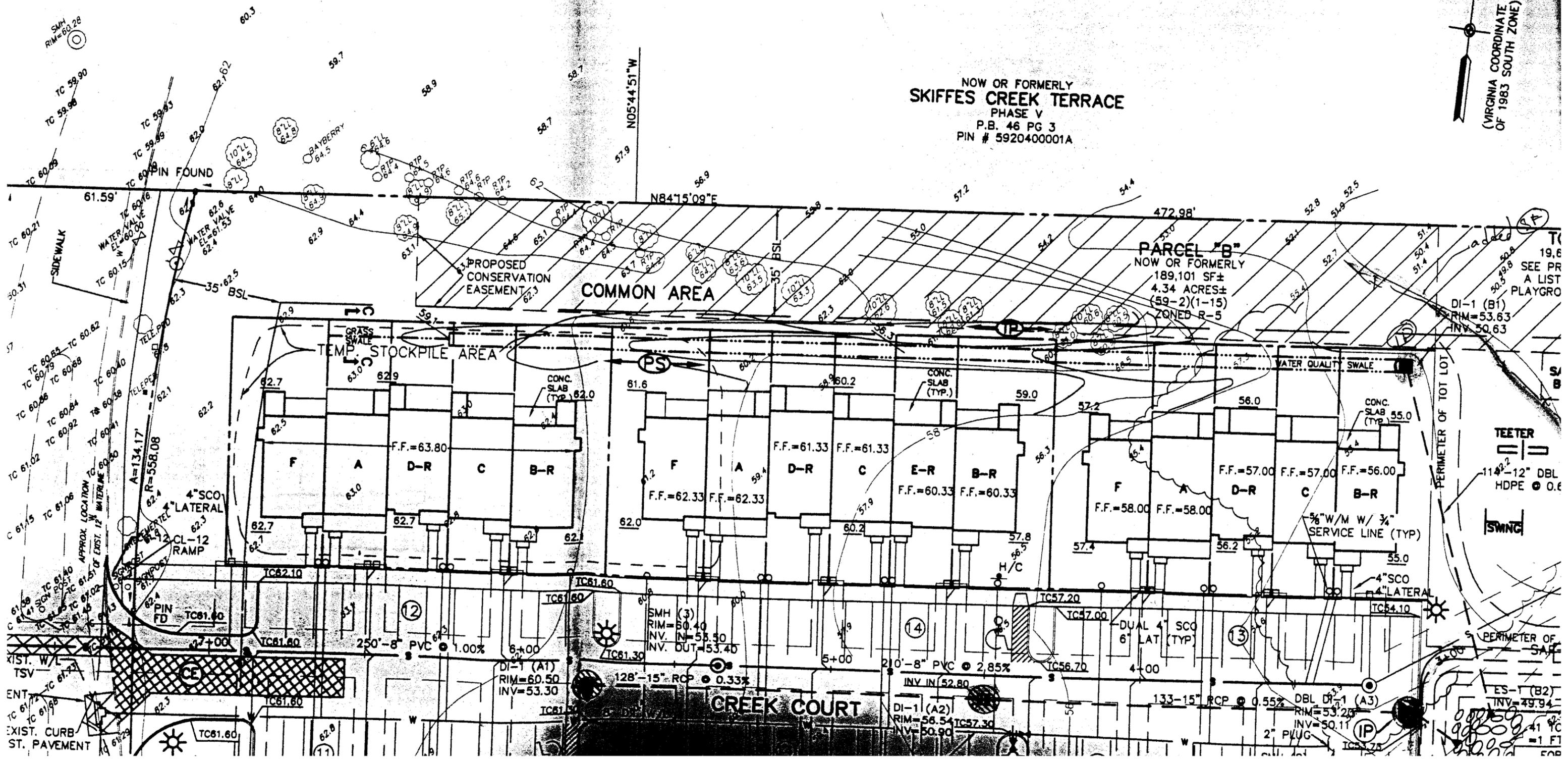
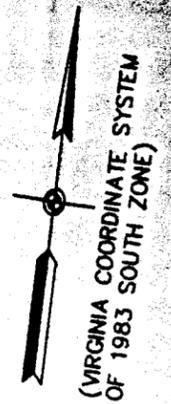
DRAINAGE ASBUILT				
PARCEL "B"				
CARTER'S VILLAGE				
ROBERT'S DISTRICT - JAMES CITY COUNTY, VIRGINIA				
THE SIRINE GROUP, LTD.				
SURVEYORS • ENGINEERS • PLANNERS				
GLOUCESTER COUNTY, VIRGINIA				
DESIGN:	SCALE:	REF. BOOK:	DATE:	SHEET NO.:
DRAWN:	N.T.S.	PS. 73 PG.	5/9/03	11434
CHECK:				2 OF 2



NOW OR FORMERLY
CREEK TERRACE, PHASE I
P.B. 44 PG.100

NOTE:
ALL DIMENSIONS ARE
TO THE FACE OF CURB
UNLESS OTHERWISE NOTED

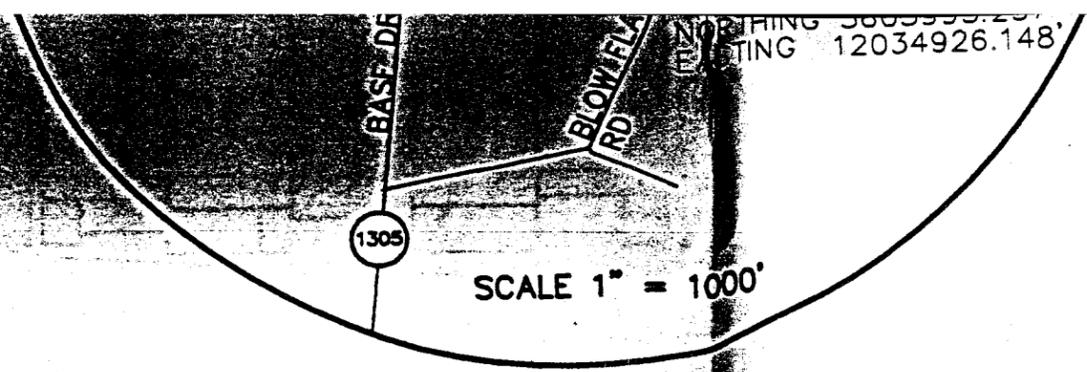
NOW OR FORMERLY
SKIFFES CREEK TERRACE
PHASE V
P.B. 46 PG 3
PIN # 5920400001A



THE SANITARY SEWER SHALL BE DESIGNED TO PROVIDE FUTURE CONNECTION TO THE MAIN SEWER LINE (PARCEL A) ON THE WEST SIDE OF POCAHONTAS TRAIL. THE DESIGN, CONSTRUCTION MATERIALS, DETAILS AND COLORS OF DEVELOPMENT OF THE UNITS SHALL BE COMPATIBLE WITH THE EXISTING SKIFFE'S CREEK TOWNHOUSE DEVELOPMENT AND SHALL BE APPROVED BY THE DIRECTOR OF PLANNING.

8. PARCEL "B" OF THE PROPERTY SHALL NOT BE ACCESSED DIRECTLY OFF OF POCAHONTAS TRAIL AND THE ENTRANCE TO PARCEL "B" SHALL BE NO LESS THAN 140 FEET FROM THE POCAHONTAS TRAIL RIGHT OF WAY.

9. A PERPETUAL ROAD MAINTENANCE AGREEMENT APPROVED BY THE COUNTY ATTORNEY AND SIGNED BY THE OWNER AND SKIFFE'S CREEK TERRACE HOMEOWNERS ASSOCIATION SHALL BE RECORDED AFTER THE TIME A SITE PLAN HAS BEEN APPROVED BY THE COUNTY FOR THE DEVELOPMENT OF PARCEL B, BUT PRIOR TO THE TIME ANY SITE WORK HAS BEGUN AND/OR A BUILDING PERMIT IS ISSUED BY THE COUNTY, WHICHEVER SHALL FIRST OCCUR.



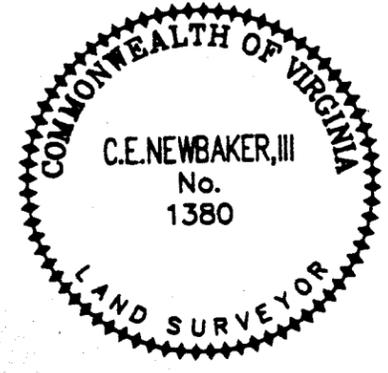
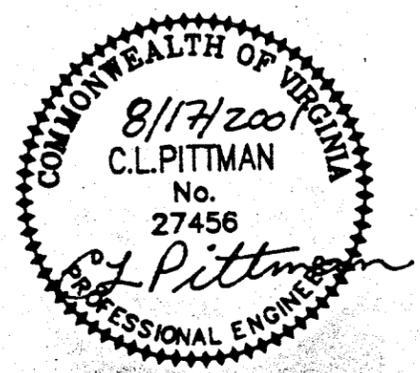
7. VDOT RESIDENCY FOR THE PROJECT. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL CONSULT WITH THE DEVELOPERS ENGINEER TO VERIFY THE FINAL APPROVAL OF THE PLANS, FOR ANY REVISED PLANS, BY THE VARIOUS AGENCIES (COUNTY, VDOT, ETC.).
8. VDOT APPROVAL OF THESE PLANS WILL EXPIRE IN FIVE (5) YEARS FROM THE DATE OF APPROVAL.
9. VDOT AND THE COUNTY APPROVAL OF THE SITE/SUBDIVISION PLANS DO NOT PRECLUDE THE RIGHT OF THE OWNER TO ADD OTHER FACILITIES (LANDSCAPING, IRRIGATION SYSTEMS, ETC.) WITHOUT PRIOR APPROVAL BY VDOT AND THE COUNTY.
10. VDOT IS TO RECEIVE WRITTEN NOTIFICATION 48 HOURS PRIOR TO THE START OF ANY WORK. A PRE-CONSTRUCTION MEETING WILL BE REQUIRED PRIOR TO ANY LAND DISTURBANCE OF THE SITE. THE DEVELOPER, HIS ENGINEER, GEOTECHNICAL (SOILS) ENGINEER, AND CONTRACTOR SHALL ATTEND THE PRE-CONSTRUCTION MEETING. THE DEVELOPERS CONTRACTOR SHALL HAVE A PROPOSED PROGRESS SCHEDULE OF WORK.
11. ANY ERRORS, CONFLICTS, OR DISCREPANCIES ON THE APPROVED PLANS SHALL BE REPORTED TO THE DEVELOPER'S ENGINEER AND VDOT FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
12. THE DEVELOPERS ENGINEER AND CONTRACTOR (SUB-CONTRACTOR) SHALL VERIFY IN THE FIELD THE ELEVATIONS OF ALL POINTS OF CONNECTION OF PROPOSED WORK TO EXISTING CURBS, SANITARY SEWER, STORM SEWER, DRAINAGE STRUCTURES, WATERLINES, ETC., PRIOR TO THE CONSTRUCTION IN THE FIELD.
13. AN OPERATIONAL PROJECT (ACCOUNTS RECEIVABLE) NUMBER MAY BE ASSIGNED TO THE SITE/SUBDIVISION. THE DEVELOPER WILL BE RESPONSIBLE FOR THIS BY PROVIDING THE NECESSARY INFORMATION REQUESTED BY VDOT.
14. ALL MATERIALS AND CONSTRUCTION WITHIN THE PROPOSED PUBLIC RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE CURRENT VDOT SPECIFICATIONS AND STANDARDS.
15. ANY REQUEST FOR A CHANGE OF SPECIFIED MATERIALS OR DESIGN FROM THE APPROVED PLANS WILL NEED TO BE SUBMITTED TO VDOT. A LETTER MUST ACCOMPANY THE PROPOSED CHANGES AND REVISED PLAN SHEETS AND/OR DRAINAGE CALCULATIONS FOR REVIEW AND APPROVAL BY THE VDOT RESIDENT ENGINEER.

TABLE OF LAND USE AND STATISTICAL DATA:

1. AREA OF SITE = 189,101± SQ.FT. OR 4.341 ACRES
2. NUMBER OF PROPOSED TOWNHOUSES UNITS = 31
3. ZONING DISTRICT IS R-5 WITH PROFFERS
4. AREAS:
 - GREEN SPACE = 138,383 SQ.FT., 3.177 ACRES, OR 73.2%
 - PARKING LOTS, SIDEWALKS & OTHER = 29,095 SQ.FT., 0.668 ACRES OR 15.4%
 - BUILDING AREA = 21,623 SQ.FT., 0.495 ACRES, OR 11.4%
 - TOTAL AREA OF IMPERVIOUSNESS = 50,718 SQ.FT., 1.164 ACRES, OR 26.8%
5. MINIMUM SETBACKS:
 - NORTH SIDE = 35'
 - SKIFFE'S CREEK BLVD. = 35'
 - U.S. ROUTE 60, POCAHONTAS TRAIL VARIABLE WIDTH R/W = 75'
 - EAST SIDE = 35'
6. MAXIMUM BUILDING HEIGHT = 23'
7. AREA OF DISTURBANCE = 131,231 SQ.FT., 3.01 ACRES, OR 69.4%
8. PARKING SPACE REQUIRMENTS: 2.5 SPACES/S.F. UNIT x 31=78 SPACES
 PARKING PROVIDED: 78 SPACES
 0 HANDICAPPED SPACES REQUIRED
 2 HANDICAPPED SPACES PROVIDED
9. NET DEVELOPABLE AREA = (4.341-1.1) AC
 = 3.241±AC.

INDEX OF DRAWINGS:

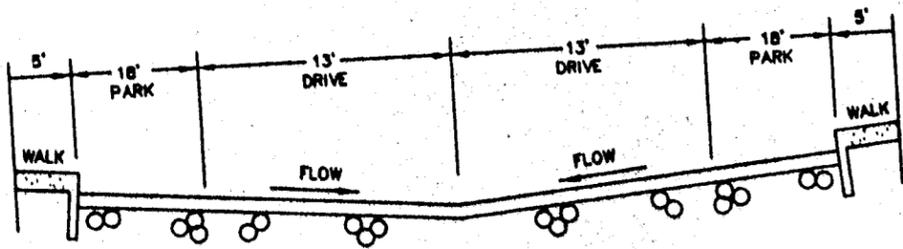
- SHEET 1 SITE DEVELOPMENT PLAN
- SHEET 2 LAYOUT PLAN
- SHEET 3 NOTES, SECTIONS, AND DETAILS
- SHEET 4 PROFILES, DRAINAGE AREAS & SOILS
- SHEET 5 EROSION & SEDIMENT CONTROL NOTES &



PAVEMENT PATCH
NOT TO SCALE

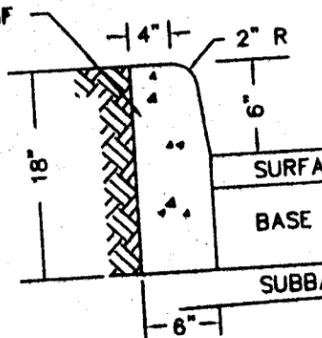
9-1/2" COLLAR 9-1/2"

D.I.-1 IN GUTTER DETAIL
N.T.S.

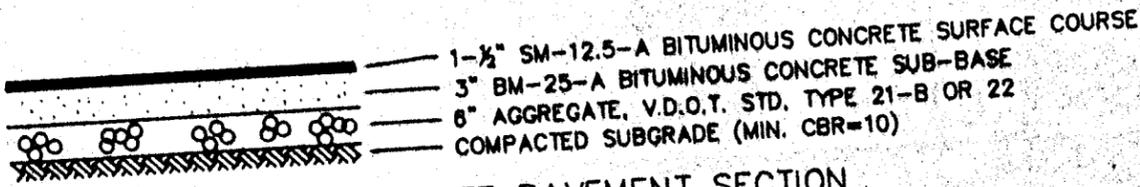


STANDARD STREET SECTION

CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST



CG-2 CURE
(V.D.O.T. STD.)



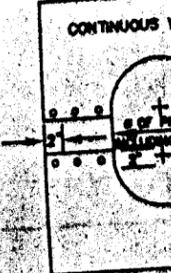
ON-SITE PAVEMENT SECTION
NO SCALE

PAVEMENT CONSTRUCTION SHALL BE IN ACCORDANCE WITH VDOT GENERAL NOTES AS SHOWN ON THE COVER SHEET.

1992

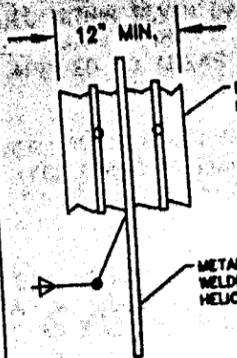
DETAILS

INSTALL COLLAR WITH CORRUGATIONS VERTICAL



ELEVATION OF UNA
NOTES FOR COLLARS:
1. ALL MATERIALS TO BE CONSTRUCTION AND CON SPECIFICATIONS.
2. WHEN SPECIFIED ON COLLARS SHALL BE IN CONSTRUCTION AND CON SPECIFICATIONS.

SIZE AND SPACING OF OPENINGS SHALL BE AS SHOWN FOR CM CO USE RODS AND LUGS TO BANDS SECURELY TO F



PARTIAL ELEV
REF: ENGR. FIELD W

SOURCE: USDA-SCS

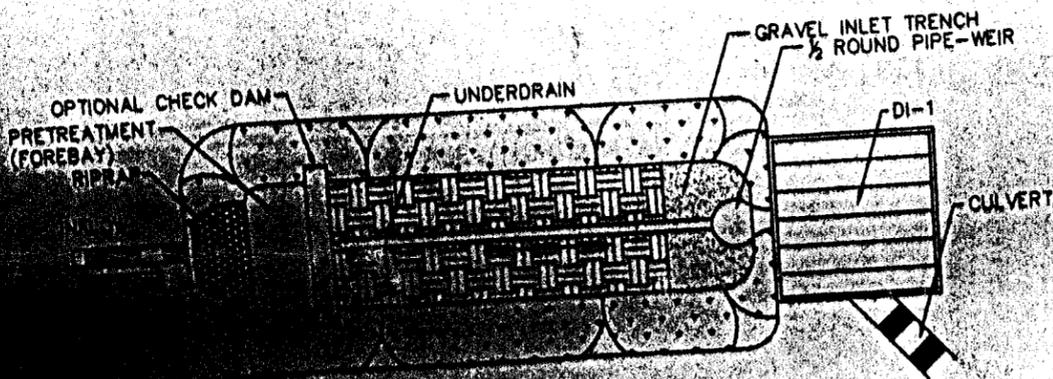
E.D. WETLAND BA

EL=50.42 -

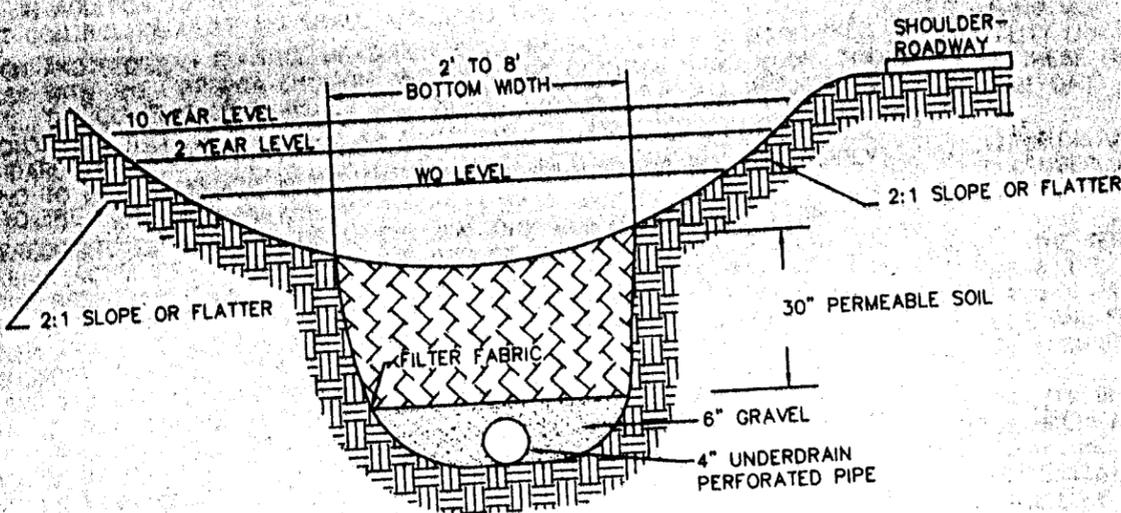
MICRO POOL

EW-

E-2 FIGURE 16 EXAMPLE OF A DRY SWALE E-2



PLAN VIEW



SECTION

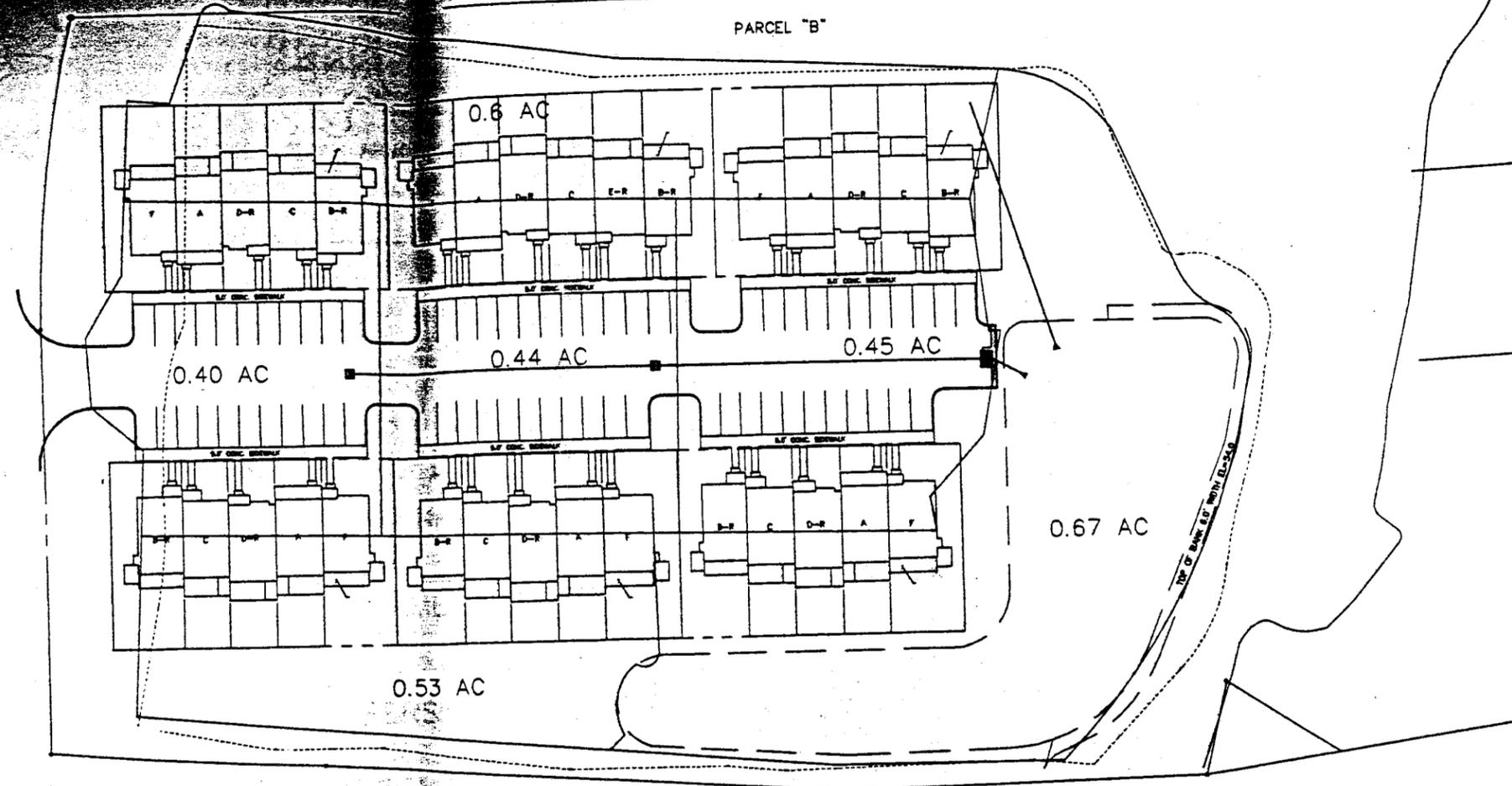
* BOTTOM WIDTH IS TO BE 3' AND MINIMUM DEPTH IS TO BE 1.25' SIDE SLOPES TO BE 3:1

DRY SWALES ARE USED AT LOW DENSITY RESIDENTIAL PROJECTS OR FOR VERY SMALL IMPERVIOUS AREAS.

AND EASILY FILLED. THE SUBSOIL HAS HIGH SWELL POTENTIAL.

DRAINAGE AREA MAP (3.1 ACRES TO BASIN)

POST CONSTRUCTION ———
 PRE CONSTRUCTION - - - - -



ACCOMPLISHED DURING THE MONTHS OF... SHALL CONSIST OF MULCHING (STD. & SPEC. 3.36) SOON AS THE SEASON PERMITS.

OR STABILIZATION ON THIS PLAN SHALL REQUIRE THE ESTABLISHMENT OF A STABLE GRASS COVERING THE SPECIFIED AMOUNTS OF SEED, MULCHING, STD. & SPEC. 3.36, SOIL STABILIZATION SHALL BE REQUIRED AS NECESSARY.

REQUIRE THE USE OF EROSION CONTROL MEASURES INCLUDING THE INSTALLATION OF A VEGETATIVE COVER. INSTALLATION OF MULCHING, STD. & SPEC. 3.36, SOIL STABILIZATION SHALL BE REQUIRED AS NECESSARY.

08) SHALL BE PROVIDED FOR ALL STORMWATER COLLECTION OF THE SAME.

2 SHEETS, SHALL BE PROVIDED FOR ALL SHEETS WHERE THE LINER IS INSTALLED.

EVER ACCELERATED EROSION IS EVIDENT. AREAS WHERE GRADES EXCEED 2 PERCENT.

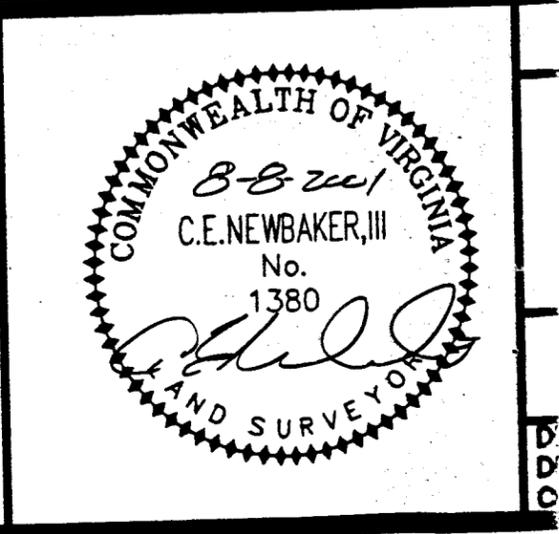
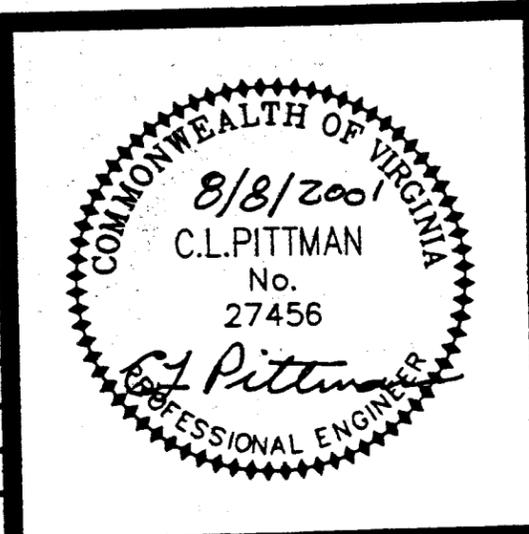
1 AS SILT FENCE ARE NOT TO BE REMOVED UNTIL TRAPPED SEDIMENT SHALL BE SPREAD, STABILIZATION IS COMPLETE, ALL EROSION CONTROL MEASURES REMOVED WITHIN 30 DAYS.

ALL BE REMOVED UNTIL A) AT LEAST 75 PERCENT OF THE AREA TO THE TRAP OR BASIN HAVE BEEN DEVELOPED (BY THE DEVELOPER) FOR THE CONSTRUCTION OF FAMILY LOTS WITHIN THE DRAINAGE AREA AND THE SOIL STABILIZED. A BULK SALE OF LAND SHALL BE PERMITTED WITHOUT THIS PROVISION. SEDIMENT TRAPS SHALL BE REMOVED WITHOUT THE EXPRESS AUTHORIZATION OF THE COUNTY ENGINEER.

OPERATION CERTIFICATIONS ARE BOTH REQUIRED FOR STORMWATER MANAGEMENT/BMP FACILITIES. CERTIFICATIONS SHALL BE OBTAINED AND PERFORMED BEFORE, DURING AND AFTER CONSTRUCTION OF THE CURRENT VERSION OF THE JAMES RIVER STORMWATER MANAGEMENT/BMP FACILITIES, RECORD DRAWINGS AND STANDARD FORMS & INSTRUCTIONS.

THE SITE DRAINAGE SYSTEMS OUTSIDE VDOT JURISDICTION SHALL BE IN ACCORDANCE WITH THE CURRENT VERSION OF THE JAMES RIVER STORMWATER DRAINAGE CONVEYANCE AND CONSTRUCTION GUIDELINES.

DATE	REVISION
8/6/01	COUNTY COMMENTS
7/13/01	COUNTY AND OWNER COMMENTS
5/30/01	COUNTY AND OWNER COMMENTS

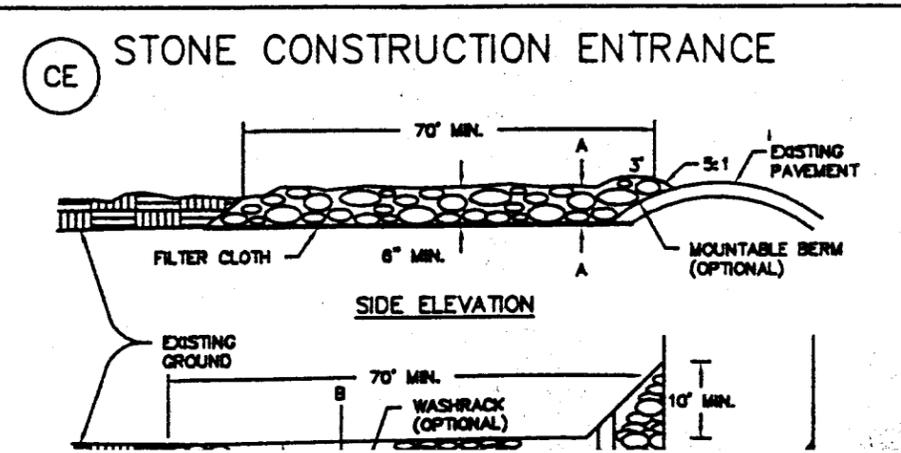
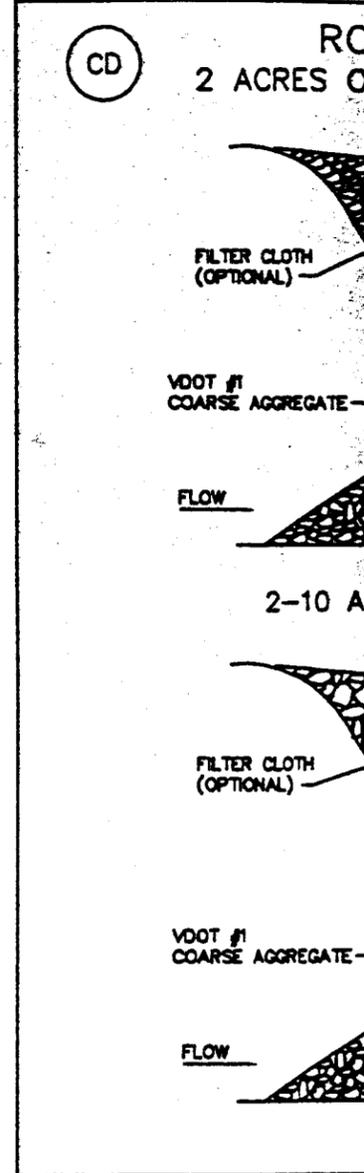
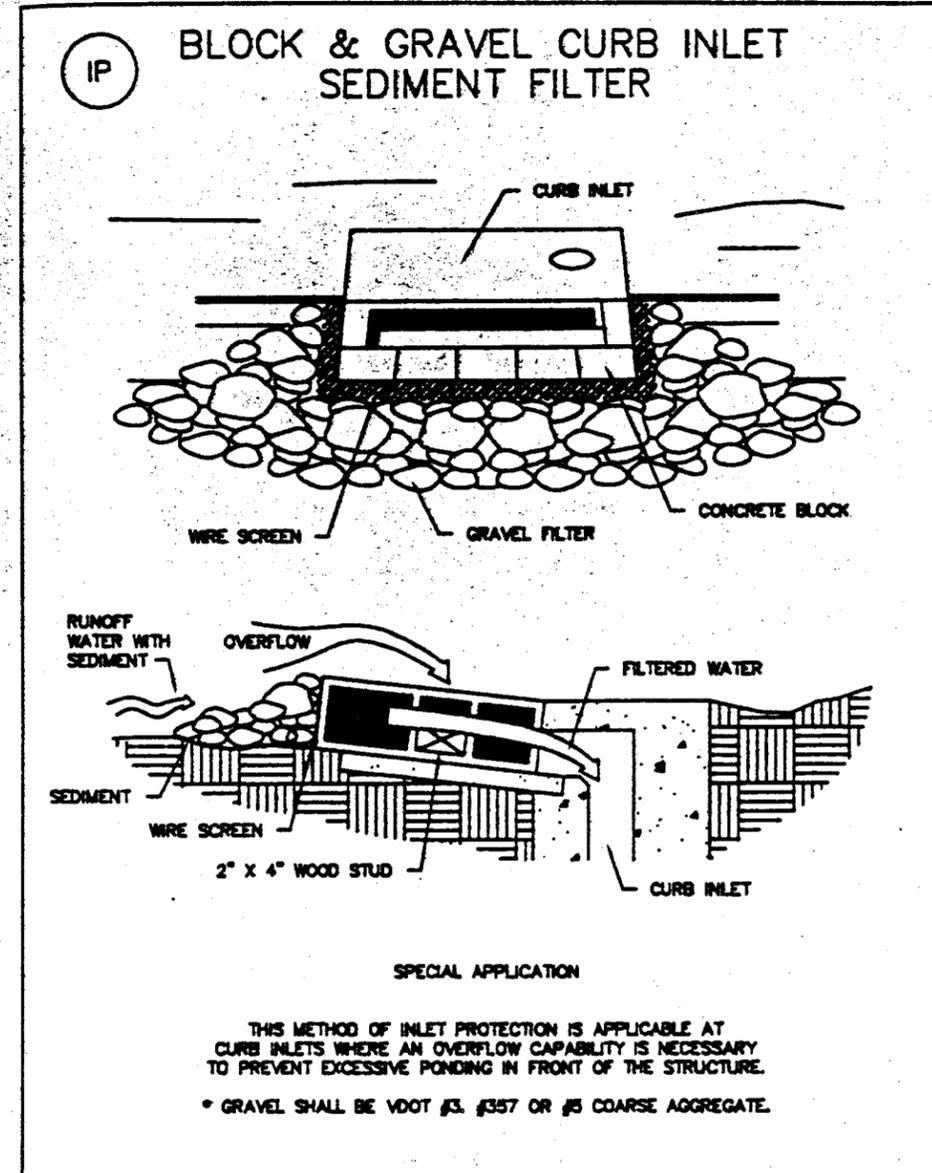


STORMWATER POND MAINTENANCE PLAN

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 - E. OBSERVATIONS REGARDING WATER INFLOW AND OUTFLOW WILL BE MADE TO DETERMINE IF ACCEPTABLE MOISTURE REGIMES CAN BE MAINTAINED. THE DRAINAGE ARE CONTRIBUTING TO THE STORMWATER WETLAND IS SMALL AND THEREFORE THE BASE GRADE OF THE FACILITY HAS BEEN ESTABLISHED TO TAKE ADVANTAGE OF GROUNDWATER INFLUENCES.
 - F. INSECT/MOSQUITO CONTROL - INSECT ACTIVITY, INCLUDING MOSQUITO, SHOULD BE MONITORED AND APPROPRIATE ACTION TAKEN.
 - G. TRASH AND LITTER WILL BE REMOVED FROM INLET AND OUTLET STRUCTURES AS NEEDED.
 - H. VEGETATION SURVIVAL WILL BE MONITORED TO ENSURE ADEQUATE COVERAGE OF THE FACILITY. DENUDED AREAS OF DEAD PLANT STOCK WILL BE REPLACED AS NEEDED.

2. NON-ROUTINE MAINTENANCE - THESE TASKS SHOULD BE ACCOMPLISHED AS REQUIRED TO MAINTAIN THE FACILITY'S STRUCTURAL INTEGRITY AND EFFECTIVENESS. REPAIR AND/OR REPLACEMENT OF THE OUTFALL AND INLET PIPING SYSTEMS EVERY 10-15 YEARS. PARTICULAR ATTENTION WILL BE GIVEN TO THE ACCUMULATION OF SEDIMENT IN THE FOREBAY AND WITHIN THE FLOOR AND MICROPOOL AREAS. IT IS ANTICIPATED THAT CLEAN-OUT OF THE FOREBAY WILL BE NEEDED EVERY 5-7 YEARS. SPOIL MATERIALS WILL BE TAKEN OFF-SITE. PROPER SEDIMENTATION AND EROSION CONTROL PRACTICES WILL BE FOLLOWED.



SE MUST BE CROSSED BY CONSTRUCTION VEHICLES EVERY SIX-MONTH PERIOD, A TEMPORARY STREAM OF NONERODIBLE MATERIAL SHALL BE

STATE AND LOCAL REGULATIONS PERTAINING TO LIVE WATERCOURSES SHALL BE MET.

A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETED.

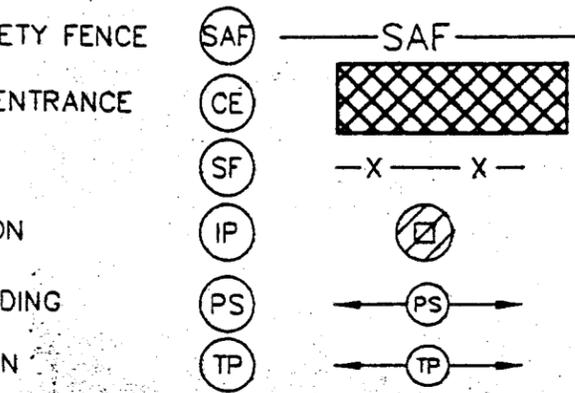
THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE ACTIONS AND PERFORMANCE OF ALL PARTIES PERFORMING WORK ON THIS PROJECT.

EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE MAINTAINED ON A DAILY BASIS AND AFTER EACH RAINFALL PRODUCING EROSION. ADJUSTMENT AND/OR REPLACEMENT SHALL BE MADE AS NEEDED. DURING RAINY SEASONS OR WET PERIODS WILL BE OF SPECIAL CONCERN AND THE PROJECT SHALL BE INSPECTED DAILY.

CONSTRUCTION ACTIVITIES SHALL BE CONTROLLED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AFTER FINAL SITE STABILIZATION OR AFTER THE FACILITY IS NO LONGER NEEDED, UNLESS OTHERWISE SPECIFIED. TRAPPED SEDIMENT AND THE DISTURBED SOIL SHALL BE DISPOSED OF TEMPORARILY MEASURES SHALL BE MAINTAINED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

E. & S. LEGEND

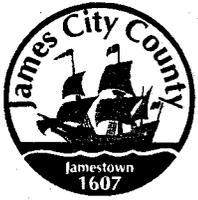


EROSION AND SEDIMENT CONTROL HANDBOOK, 1992, FOR

STRATEGIES AND SEQUENCE OF EROSION CONTROL MEASURES

CONSTRUCTION SCHEDULE FOR THIS PROJECT AND SHALL APPLY TO ALL EVENTS AND EROSION CONTROL MEASURES SHALL BE





DEVELOPMENT MANAGEMENT

101-E MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6671 Fax: (757) 253-6850 E-MAIL: devtman@james-city.va.us

CODE COMPLIANCE
(757) 253-6626

codecomp@james-city.va.us

ENVIRONMENTAL DIVISION
(757) 253-6670

environ@james-city.va.us

PLANNING
(757) 253-6685

planning@james-city.va.us

COUNTY ENGINEER
(757) 253-6678

INTEGRATED PEST MANAGEMENT
(757) 253-2620

June 9, 2003

Mr. James Pagano
Bush Construction
4029 Ironbound Road, Suite 200
Williamsburg, Va. 23188

Re: Carter's Village Parcel B
County Plan No. SP-5-01; Amended Plan SP-28-02
County BMP ID Codes: SC 015 and SC 016

Dear Mr. Pagano:

The Environmental Divisions has reviewed a record drawing (asbuilt) and construction certification as submitted to our office for stormwater management facilities associated with the above referenced project. The record drawing provides as-built information for a shallow marsh detention basin situated at the east end of the project (SC 015) and a water quality swale (SC 016) situated along the back of the north units adjacent to Skiffes Creek Terrace.

Based on our review of the project and a concurrent field inspection as performed on June 6th 2003, the following items must be addressed prior to release of the developer's surety instrument for the stormwater management/BMP facility at the site and to proceed with closing out the project. For simplicity purposes, this letter will cover outstanding issues associated with both the shallow marsh and water quality swale onsite BMPs (SC 015 and SC 016, respectively).

Construction Certification:

1. The construction certification for the shallow marsh detention basin (SC 015) is **satisfactory**.
2. In accordance with the Note # 20 on Sheet 4 of the approved plan, construction certification was required for all BMP facilities. None was provided for the water quality (dry swale) BMP situated along the back of the north units (SC 016). This is especially important since the facility has subsurface permeable soil and under drain layers. The certification can be in letter format or by use of the certification statements in Section 4 of the JCC, Stormwater Management/BMP Facilities, Record Drawing and Construction Certification, Standard Forms & Instructions.

Record Drawing:

SC 015 - Shallow Marsh Detention Basin at East End of Project

3. Provide an asbuilt elevation for normal pool (water surface elevation) of the shallow marsh and show the size (diameter) of the MH-1 access (grade control) structure along the outfall barrel.

4. Add "Section D-D" from Sheet 3 of the approved plan, annotated as necessary to show as-built conditions, to the record drawing set. This detail shows specific information about the principal flow control structure for the facility.

SC 016 - Water Quality (Dry Swale) along North Side of Project

5. Add "Section C-C" and "Figure 16 Dry Swale" from Sheet 3 of the approved plan, annotated as necessary to show as-built conditions, to the record drawing set. These sections show specific information about the water quality swale for the project.

For Both BMP Facilities (SC 015 & SC 016)

6. Along with the record drawing set, submit completed record drawing and construction certification forms, Sections 1 through 5, from the *James City County, Stormwater Management/BMP Facilities, Record Drawing and Construction Certification, Standard Forms & Instructions* (packet). The Environmental Division began use of the forms and checklists in this packet effective February 1st 2001. (Note: Each BMP should have a set of forms.)
7. Add the maintenance plan from Sheet 5 of the approved plan to the record drawing set.
8. If possible add the following County identifiers to the lower right hand corner of the record drawing: County Plan Number SP-5-01 and BMP ID Codes: SC 015 & SC 016.

Construction - Related Items:

SC 015 - Shallow Marsh Detention Basin at East End of Project

9. Clean the interior of the access (grade control) structure of all woody material and debris. Also, anchor the aluminized cap to the access structure. During the time of the inspection, the aluminum cap was easily able to be lifted off the concrete manhole structure. Provide an extra set of keys for any locking mechanisms to the Environmental Division. (Note: the access structure is a MH-1 concrete manhole with an aluminized cap which provides a grade change for the 15-inch barrel from the BMP.)
10. Approximately 2 to 3 ft. of subsidence was present around the access MH-1 structure on the dam. Fill subsided areas around the access (grade control) structure on the principal spillway with compacted fill material. Seed and mulch disturbed areas associated with this work.
11. Approximately 2 ft. of subsidence was present around both sides of the outfall barrel at the bottom end. This is the end at the downstream toe of dam near the riprap outlet protection pad. Fill subsided areas along the 15-inch barrel with compacted fill material. Seed and mulch disturbed areas associated with this work.
12. Provide a transition channel at the outlet end of the existing drainage channel from Pocahontas Trail (US 60) to safely convey channel flow from the existing channel to the outlet protection pad at the outfall end of the barrel through the dam. Currently riprap associated with the outlet protection pad is piled up enough that it obstructs positive drainage from the existing channel to the rock pad. If a proper transition is not provided, erosive velocities from the existing channel will continue to scour soils at the outfall end of the pipe barrel. This may promote erosion and piping of the dam embankment and displacement of the pipe which may lead to dam failure.

13. The concrete emergency spillway needs to be flat across the entire crest section. Based on the approved design the emergency spillway crest is at El. 53. The emergency spillway crest should be flat between El. 53 on the upslope face of the dam to El. 53 on the downslope face of the dam. Currently, there is no level crest portion on the concrete spillway. If the emergency spillway is used in an overflow situation, the lining would be undermined at the concrete/soil interface.
14. Repair channel erosion at the end of the stormwater conveyance channel behind (south of) Lot 26. This channel segment is situated just prior to (above and west of) the top of the riprap along the slope at the back west corner of the BMP (near Pocahontas Trail).

SC 016 - Water Quality (Dry Swale) along North Side of the Project

15. Because of newly placed fencing around the back yard of Lot 16, proper inspection could not be performed on the DI-1 grate which receives drainage from the water quality swale behind the north units. Lot 16 is the last (eastern) townhouse on the north side nearest the playground area. The water quality, dry swale BMP is a second onsite BMP for the project. Dry swales consist of an open channel on the surface with a subsurface permeable soil layer (typically 30 inch deep) and under drain pipe. Ensure the DI-I inlet in back of Lot 16 does not contain excessive sediment, debris or trash that could affect the function of the under drain pipe. Proper coordination to inspect and/or clean this inlet may be necessary with the current tenant.

Other Issues:

Recently, our division has received various complaints concerning the proximity of the playground/tot lot area to the pretreatment forebay for shallow marsh BMP (SC 015). The approved plan did not call for any fencing or landscaping to provide separation between the playground and the BMP area. Normally, the owner or homeowner's association would decide what provisions are necessary to address this issue to reduce or minimize liability.

Currently, there are no formal local policies or guidelines relative to this issue. Fencing of stormwater management facilities is highly dependent on many factors such as the facility type, location, adjacent land uses, site conditions, soils, development plan characteristics, site amenities and character, facility design features and the level of future monitoring and maintenance by the Owner. Over the recent past, the Environmental Division has made substantial effort during the plan of development review process to evaluate access and safety and has strived to ensure non-structural measures (which complement our water quality program) are provided for stormwater management facilities, rather than use of purely structural measures such as fencing. Our informal approach follows applicable James City County zoning and BMP manual guidelines in conjunction with other established state agency criteria.

Normally, fencing is *not* required and is *not* used for most facilities, unless there are vertical walls present or distinct hazards are anticipated, such as adjacent school facilities. Newer stormwater management facilities are required to incorporate features into the design which tend to deter unauthorized access, entry and provide for safety enhancement. These features include better siting and configuration; screening; landscaping; buffering/setbacks; shoreline plantings; gentler (flatter) side slopes; and use of aquatic and safety benching. Signs and fencing are used as last resort if a substantial danger/risk is anticipated by the designer, owner or County.

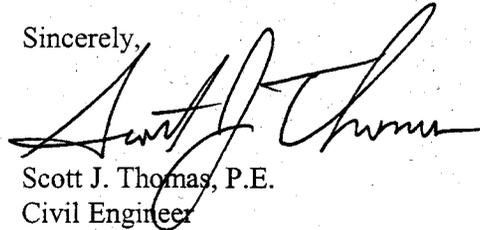
Although fencing can deter unauthorized access, it can sometimes work in an opposite manner by creating curiosity, restricting passive recreation use, lowering aesthetic value, restricting routine inspection and limiting routine maintenance activities such as mowing and cleaning. In addition, a facility that is enclosed by fencing is difficult to observe and monitor consistently thus possibly decreasing the chance of detecting unauthorized entry.

In either case (fencing or not), specific determinations are made on a case-by-case basis. Based on our current observations of the situation at this time, fencing would not be a requirement from our division based on a stormwater management perspective. This was primarily based on our field observation of uses at the playground, the rolling terrain between the playground and the BMP, the horizontal distance between the playground and the normal water pool of the BMP and design features which were provided for the BMP including flatter interior side slopes for the BMP (4H:1V) and relatively shallow water depth in the pretreatment forebay area. However, we do **highly suggest** that the owner provide a single row of landscape shrubbery between the general location of the playground and the BMP forebay. The shrubbery should be situated outside and along the south (BMP) side of the sanitary sewer line and easement. This will provide an additional physical buffer and screen between the playground and the BMP area and also minimize access to the BMP directly from the playground area. Access to the top of dam area of the BMP should not be obstructed for future inspection and maintenance purposes. Also, the situation should be closely assessed and monitored on a regular basis as they could change quickly.

Once this work is satisfactorily completed, contact our office appropriately for reinspection. We can then proceed with final release of the surety and/or closing out the project. One reproducible and one blue/black line set of the record drawings will be required once the above items are adequately addressed.

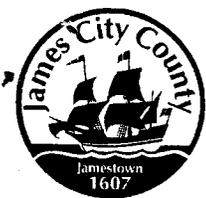
Please contact me at 757-253-6639 or the assigned Environmental Division inspector, Gerry Lewis at 757-253-6672 if you have any further comments or questions.

Sincerely,



Scott J. Thomas, P.E.
Civil Engineer
Environmental Division

cc: James S. Leigh, Sirine Group LTD - via fax
Mohammad Sharbary, FES - via fax
Gary Albertson, Vico Construction - via fax
Gerry Lewis, Environmental Division Inspector



**James City County Environmental Division
Stormwater Management / BMP Inspection Report
Detention and Retention Pond Facilities**

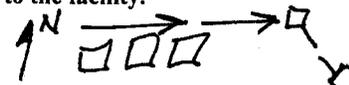
SP-5-01 PH 3

County BMP ID Code (if known): SC016
 Name of Facility: Carters Village Parcel B BMP No.: 2 of 2 Date: 6-6-03
 Location: Carters Village Back of North Units
 Name of Owner: _____
 Name of Inspector: SJ Thomas, GE Lewis
 Type of Facility: Dry Swale
 Weather Conditions: Sunny, hot 70's Type: Final Inspection County BMP Inspection Program Owner Inspection

If an inspection item is not applicable, mark NA, otherwise mark the appropriate column.

- O.K. - The item checked is in adequate condition and the maintenance program is currently satisfactory. No action required.
- Routine - The item checked requires attention, but does not present an immediate threat to the function/integrity of the BMP.
- Urgent - The item checked requires immediate attention to keep the BMP operational and to prevent damage to the facility.

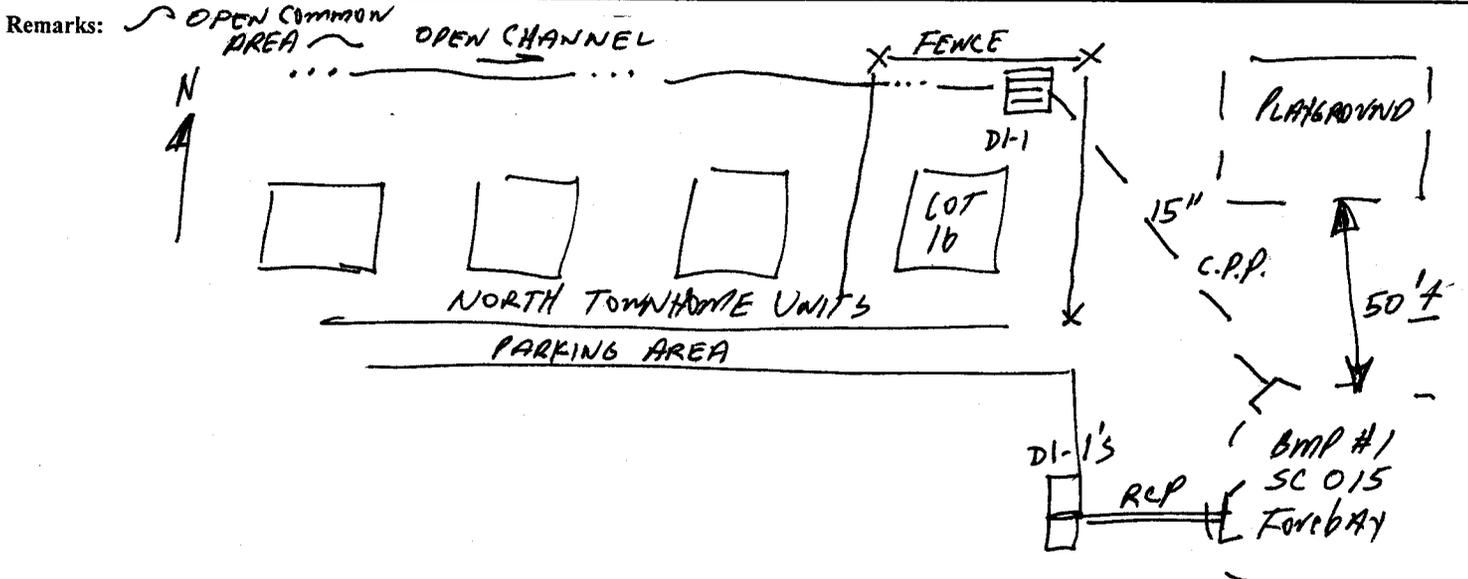
Provide an explanation and details in the comment column, if routine or urgent are marked.



Facility Item	O.K.	Routine	Urgent	Comments
Embankments and Side Slopes: <u>NA</u>				
Grass Height				
Vegetation Condition				
Tree Growth				
Erosion				
Trash & Debris				
Seepage				
Fencing or Benches				
Interior Landscaping/Planted Areas: <input type="checkbox"/> None <input type="checkbox"/> Constructed Wetland/Shallow Marsh <input type="checkbox"/> Naturally Established Vegetation				
Vegetated Conditions	✓			<u>YARD AREAS, SWALE</u>
Trash & Debris	✓			
Floating Material	✓			
Erosion	✓			<u>Some</u>
Sediment	✓			
Dead Plant	✓			
Aesthetics	✓			
Other				
Notes:	<u>Serves Back of North Townhouse Units; Backyards</u>			

Facility Item	O.K.	Routine	Urgent	Comments
Water Pools: <input type="checkbox"/> Permanent Pool (Retention Basin) <input type="checkbox"/> Shallow Marsh (Detention Basin) <input type="checkbox"/> None, Dry (Detention Basin)				
Shoreline Erosion				NA
Algae				
Trash & Debris				
Sediment				
Aesthetics				
Other				
Inflows (Describe Types/Locations): BACKYARD DOWNSPOUT + YARD RUNOFF;				
Condition of Structure	✓			Sheet + Conc.
Erosion	✓			
Trash and Debris	✓			
Sediment	✓			
Outlet Protection				NA
Other				
Principal Flow Control Structure - Riser, Intake, etc. (Describe Type): OPEN SWALE 1-1.5' deep				
Condition of Structure	✓			
Corrosion	✓			
Trash and Debris	✓			
Sediment	✓			
Vegetation	✓			Grass Lining
Other				
Principal Outlet Structure - Barrel, Conduit, etc. : Permeable Soil & Underdrain to D1-1				
Condition of Structure				Could not observe
Settlement				due to underground nature
Trash & Debris				& fence around lot 16
Erosion/Sediment				restricting access to D1-1
Outlet Protection				control inlet.
Other				
Emergency Spillway (Overflow): yard to woods				
Vegetation	✓			
Lining	✓			
Erosion	✓			slight at NE corner.
Trash & Debris				
Other				
Notes:				

Facility Item	O.K.	Routine	Urgent	Comments
Nuisance Type Conditions:				
Mosquito Breeding	✓			
Animal Burrows	✓			
Graffiti	✓			
Other				
Surrounding Perimeter Conditions: <i>North: Skittes Creek Terrace; South Carters Village TH</i>				
Land Uses	✓			
Vegetation	✓			
Trash & Debris	✓			
Aesthetics				
Access /Maintenance Roads or Paths				
Other				



Overall Environmental Division Internal Rating: 3

Signature: *[Handwritten Signature]* P.E.
 Title: Civil Engineer ENV DIV

Date: 6/06/03

WATERSHED	SC	MAINTENANCE PLAN	Yes	CTRL STRUC DESC	Perf Pipe
BMP ID NO	016	SITE AREA acre	4.341	CTRL STRUC SIZE inches	4
PLAN NO	SP-5-01	LAND USE	MF Residential	OTLT BARRL DESC	Perf Pipe
TAX PARCEL	(59-02)(06-1A)	old BMP TYP		OTLT BARRL SIZE inch	4
PIN NO	5920600001A	JCC BMP CODE	E2 Dry Swale		
CONSTRUCTION DATE		POINT VALUE	10	EMERG SPILLWAY	No
PROJECT NAME	Carters Village			DESIGN HW ELEV	60.35
FACILITY LOCATION	8998 Pocahantas Trail			PERM POOL ELE	na
CITY-STATE	Williamsburg, Va. 23185	SVC DRAIN AREA acres	0.6	2-YR OUTFLOW cfs	0.00
CURRENT OWNER	Greensprings Plantation Inc.			10-YR OUTFLOW cfs	0.00
OWNER ADDRESS	4029 Ironbound Road			REC DRAWING	No
OWNER ADDRESS 2	Suite 200	SERVICE AREA DESCRI	Bldg & Yard, Back of North Units		
CITY-STATE-ZIP CODE	Williamsburg, Va. 23188	IMPERV AREA acres	0.19	CONSTR CERTI	No
OWNER PHONE	220-2874	RECV STREAM	UT of Skiffes Creek		
MAINT AGREEMENT	Yes	EXT DET-WQ-CTRL	Yes	LAST INSP DATE	
EMERG ACTION PLAN	No	WTR QUAL VOL acre-ft	0.016	INTERNAL RATING	
		CHAN PROT CTRL	No	MISC/COMMENTS	
		CHAN PROT VOL acre-ft	0		30" perm soil w/ underdrain. Channel is 1.25' deep.
		SW/FLOOD CONTROL	Yes		
		GEOTECH REPORT	No		

[Get Last BMP No](#)

[Return to Menu](#)

Parcel B

ENVIRONMENTAL DIVISION REVIEW COMMENTS
Skiffes Creek Village
SP-005-01
February 2, 2001

MDW/DEC

General: Resp. Land Disturber

- ✓1. A Land Disturbing Permit and Siltation Agreement, with surety, are required for this project.
- ✓2. Water and sewer inspection fees must be paid prior to the issuance of a Land Disturbing Permit.
- ✓3. An Inspection/Maintenance Agreement shall be executed with the county for the BMP facility for this project.
- ✓4. As-built drawings must be provided for the detention basin on completion. Also, a note shall be provided on the plan stating that upon completion, the construction of the dam will be certified by a professional engineer who has inspected the structure during construction.
- ✓5. Environmental Inventory. Please provide an environmental inventory in accordance with Section 23-10(2) of the Chesapeake Bay Preservation ordinance. Components include tidal wetlands, tidal shores, non-tidal wetlands in RPA, resource protection areas, non-tidal wetlands in RMA, hydric soils and slopes 25 percent or greater. If none of these features are present on the site, provide a note to that effect.

Erosion & Sediment Control Plan:

- ✓6. Provide and label the limits of construction on the plan. Include the limits of clearing for the sewer connection to the existing line.
7. ✓ Show any temporary soil stockpile areas, staging and equipment storage areas.
8. Need to provide final topography or more spot elevation information. It is not apparent how the front of the units will drain towards the parking lots. The spot elevation information provided shows that the curb and corner elevations of the units are approximately the same and therefore will not drain properly.
- ✓9. Address in the sequence of construction how the sewer line installation will be handled. The sewer is to be constructed through the berm for the BMP.
10. More information is needed to describe how the detention basin will function as a sediment basin during construction. Submit a Sediment Basin Design Data Sheet for the sediment basin proposed to ensure design is in accordance with the 1992 VESCH criteria. Given that the drainage area is very close to the 3 acre threshold for use of a basin vs a trap, there may be other configurations of the outlet structure that can be used in place of a temporary riser and anti-vortex device. A variance would be needed to vary from the standard sediment basin design. -Need
- ✓11. Provide temporary safety fence around the basin while it is in sediment basin mode.
12. Provide more detailed information on what needs to be done to convert the sediment basin to the permanent SWM facility. inc removal of sed, fence, etc

Stormwater Management / Drainage:

- ✓13. The BMP calculation worksheet needs to be modified to demonstrate compliance with the 10-point system. The fraction of the site served by the BMP needs to be based on the drainage area of the BM divided by the site area. However, in situations such as this where there are Natural Open Space (NOS) areas downstream of the BMP facility, the site area can be modified for the purposes of calculating the structural BMP points. We allow the site area to be reduced by the NOS area that does not drain to the BMP. Therefore, the site area for the BMP calculation is 4.34 - 1.1 or 3.24 acres. This yields 0.956 x 6 points or 5.74 points for the BMP. The calculation for the dry swale would be 0.6/3.24 x 10 or 1.85 points for a total of 7.6 structural points.



James City County, Virginia
Environmental Division

**Stormwater Management / BMP Facilities
Record Drawing and Construction Certification**

Standard Forms & Instructions

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SC 016; SP-5-01

*Issue Date
February 1, 2001*



James City County, Virginia
Environmental Division

Stormwater Management / BMP Facilities
Record Drawing and Construction Certification Forms

(Note: In accordance with the requirements of the Chesapeake Bay Preservation Ordinance, Chapter 23, Section 23-10(4), BMP's shall be designed and constructed in accordance with the manual entitled James City County Guidelines for Design and Construction of Stormwater Management BMP's. Erosion and sediment control policy and approved plans generally require that at the completion of the project and prior to release of surety, an "as-built" plan prepared by a registered Professional Engineer or Certified Land Surveyor must be provided for the drainage system for the project, including any Best Management Practice (BMP) facilities. In addition, for BMP facilities involving the construction of an impounding structure or dam embankment, certification is required by a Professional Engineer who has inspected the structure during its construction. Currently there are over 20 water quality type BMP's accepted by the County.)

Section 1 - Site Information:

Project Name: CARTER'S VILLAGE
Structure/BMP Name: DRY SWALE
Project Location: NORTHEAST QUADRANT OF SKIFFES BLVD / U.S. RT. 60
BMP Location: NORTH END OF NORTHERN TOWN HOUSE LOTS
County Plan No.: SP - 5 - 01 AMENDED PLAN SP-28-02

Project Type: Residential Business Tax Map/Parcel No.: (59-2) (1-15)
 Commercial Office BMP ID Code (if known): SC 016
 Institutional Industrial Zoning District: R-5 WITH PROFFERS
 Public Roadway Land Use: RESIDENTIAL
 Other Site Area (sf or acres): 4.341

Brief Description of Stormwater Management/BMP Facility: DRY SWALE

Nearest Visible Landmark to SWM/BMP Facility: NORTHERN ROW OF TOWN HOUSES

Nearest Vertical Ground Control (if known):
 JCC Geodetic Ground Control USGS Temporary Arbitrary Other
Station Number or Name: BM 350
Datum or Reference Elevation: EL 59.90
Control Description: 3 1/4" DISK SET APPROX. 3" BELOW SURFACE
Control Location from Subject Facility: EAST SIDE OF BLOW FLATS RD APPROX. 0.1 MILES SOUTH OF U.S. ROUTE 60

Section 2 - Stormwater Management / BMP Facility Construction Information:

PreConstruction Meeting Held for Construction of SWM/BMP Facility: Yes No Unknown
Approx. Construction Start Date for SWM/BMP Facility: _____
Facility Monitored by County Representative during Construction: Yes No Unknown
Name of Site Work Contractor Who Constructed Facility: VICO CONST.
Name of Professional Firm Who Routinely Monitored Construction: F.R.S.
Date of Completion for SWM/BMP Facility: _____
Date of Record Drawing/~~Construction Certification~~ Submittal: _____

(Note: Record Drawing and Construction Certifications are required within thirty (30) days of the completion of Stormwater Management and/or BMP facility construction. Record Drawings and Construction Certifications must be reviewed and approved by the James City County Environmental Division prior to final inspection, acceptance and bond or surety release.)

Section 3 - Owner / Designer / Contractor Information:

Owner/Developer: *(Note: Site Owner or Applicant responsible for development of the project.)*

Name: THE BUSH COMPANIES
Mailing Address: 4029 IRONBOUND RD., SUITE 200
WILLIAMSBURG, VA 23188
Business Phone: (757) 220-2874 Fax: (757) 229-2542
Contact Person: MISCHELE BALL Title: _____

Design Professional: *(Note: Professional Engineer or Certified Land Surveyor responsible for the design and preparation of plans and specifications for the Stormwater Management / BMP facility.)*

Firm Name: THE SIRINE GROUP, LTD.
Mailing Address: PO BOX 450, WHITE MARSH, VA 23183
Business Phone: 804-693-9548
Fax: 804-693-9550
Responsible Plan Preparer: C.L. PITTMAN
Title: PROFESSIONAL ENGINEER
Plan Name: SITE PERMITS DEV. PLAN FOR SUBDIVISION OF CARTER'S VILLAGE
Firm's Project No. 9757
Plan Date: 7-13-2001
Sheet No.'s Applicable to SWM/BMP Facility: 1 / 2 / 3 / 4 / 5

BMP Contractor: *(Note: Site Work Contractor directly responsible for construction of the Stormwater Management / BMP facility.)*

Name: Vico Construction CO
Mailing Address: PO BOX 6186
CHESAPEAKE VA 23323
Business Phone: 757 487-3441
Fax: 757 487 6680
Contact Person: PAT UIOLA
Site Foreman/Supervisor: GRANT PARKER
Specialty Subcontractors & Purpose (for BMP Construction Only):
VICO CONSTRUCTION CO

Section 4 - Professional Certifications:

Certifying Professionals: (Note: A Registered Professional Engineer or Certified Land Surveyor is responsible for preparation of a Record Drawing, sometimes referred to as an As-Built plan, for the drainage system for the project including any Stormwater Management/BMP Facilities. A Registered Professional Engineer is responsible for the inspection, monitoring and certification of Stormwater Management / BMP facilities during its construction.)

Record Drawing and Construction Certifications for Stormwater Management / BMP Facilities

Record Drawing Certification

Firm Name: THE SIRINE GROUP, LTD.
Mailing Address: PO BOX 450
WHITE MARSH, VA 23103
Business Phone: 804-693-9548
Fax: 804-693-9550

Name: JAMES S. LEIGH, L.S.
Title: PRESIDENT

Signature: *James S. Leigh*
Date: 6/30/2003

I hereby certify to the best of my knowledge and belief that this record drawing represents the actual condition of the Stormwater Management / BMP facility. The facility appears to conform with the provisions of the approved design plan, specifications and stormwater management plan, except as specifically noted.

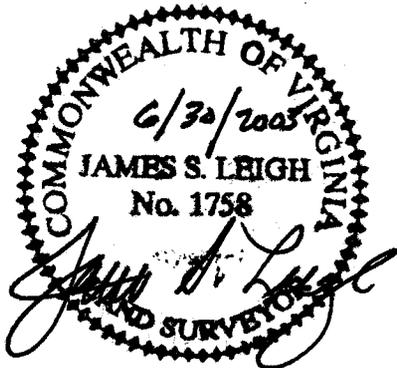
Construction Certification

Firm Name: _____
Mailing Address: _____
Business Phone: _____
Fax: _____

Name: _____
Title: _____

Signature: _____
Date: _____

I hereby certify to the best of my knowledge and belief that this Stormwater Management/BMP facility was monitored and constructed in accordance with the provisions of the approved design plan, specifications and stormwater management plan, except as specifically noted.



(Seal)

Virginia Registered Professional Engineer
or Certified Land Surveyor

(Seal)

Virginia Registered
Professional Engineer

Section 5 - Record Drawing and Construction Certification Requirements and Instructions:

- PreConstruction Meeting - Provides an opportunity to review SWM / BMP facility construction, maintenance and operation plans and address any questions regarding construction and/or monitoring of the structure. The design engineer, certifying professionals (if different), Owner/Applicant, Contractor and County representative(s) are encouraged to attend the preconstruction meeting. Advanced notice to the Environmental Division is requested. Usually, this requirement can be met simultaneously with Erosion and Sediment Control preconstruction meetings held for the project.
- A fully completed ***STORMWATER MANAGEMENT / BMP FACILITIES, RECORD DRAWING and CONSTRUCTION CERTIFICATION FORM*** and ***RECORD DRAWING CHECKLIST***. All applicable sections shall be completed in their entirety and certification statements signed and sealed by the registered professional responsible for individual record drawing and/or construction certification.
- The Record Drawing shall be prepared by a Registered Professional Engineer or Certified Land Surveyor for the drainage system of the project including any Best Management Practices.
- Construction Certification. Construction of Stormwater Management / BMP facilities which contain impoundments, embankments and related engineered appurtenances including subgrade preparation, compacted soils, structural fills, liners, geosynthetics, filters, seepage controls, cutoffs, toe drains, hydraulic flow control structures, etc. shall be visually observed and monitored by a Registered Professional Engineer or his/her authorized representative. The Engineer must certify that the structure, embankment and associated appurtenances were built in accordance with the approved design plan, specifications and stormwater management plan and standard accepted construction practice and shall submit a written certification and/or drawings to the Environmental Division as required. Soil and compaction test reports, concrete test reports, inspection reports, logs and other required construction material or installation documentation may be required by the Environmental Division to substantiate the certification, if specifically requested. The Engineer shall have the authority and responsibility to make minor changes to the approved plan, in coordination with the assigned County inspector, in order to compensate for unsafe or unusual conditions encountered during construction such as those related to bedrock, soils, groundwater, topography, etc. as long as changes do not adversely affect the integrity of the structure(s). Major changes to the approved design plan or structure must be reviewed and approved by the original design professional and the James City County Environmental Division.
- Record Drawing and Construction Certifications are required within **thirty (30) days** of the completion of Stormwater Management / BMP facility construction. Submittals must be reviewed and accepted by James City County Environmental Division prior to final inspection, acceptance and bond/surety release.

Dual Purpose Facilities - Completion of construction also includes an interim stage for Stormwater Management / BMP facilities which serve dual purpose as temporary sediment basins during construction and as permanent stormwater management / BMP facilities following construction, once development and stabilization are substantially complete. For these dual purpose facilities, construction certification is required once the temporary sediment basin phase of construction is complete. Final record drawing and construction certification of additional permanent components is required once permanent facility construction is complete.

Interim Construction Certification is required for those dual purpose embankment-type facilities that are generally ten (10) feet or greater in dam height (*) and may not be converted, modified or begin function as a permanent SWM / BMP structure for a period generally ranging from six (6) to eighteen (18) months or more from issuance of a Land Disturbance permit for construction.

Interim or final record drawing and construction certifications are not required for temporary sediment basins which are designed and constructed in accordance with current minimum standards and specifications for temporary sediment basins per the Virginia Erosion and Sediment Control Handbook (VESCH); have a temporary service life of less than eighteen (18) months; and will be removed completely once associated disturbed areas are stabilized, unless a distinct hazard to the public's health, safety and welfare is determined by the Environmental Division due to the size or presence of the structure or due to evidence of improper construction.

(*Note: Dam Height as referenced above is generally defined as the vertical distance from the natural bed of the stream or waterway at the downstream toe of the embankment to the top of the embankment structure in accordance with 4VAC50-20-30, Virginia Impoundment Structure Regulations and the Virginia Dam Safety Program.)

- Record Drawings shall provide, at a minimum, all information as shown within these requirements and the attached **RECORD DRAWING CHECKLIST** specific to the type of SWM/BMP facility being constructed. Other additional record data may be formally requested by the James City County Environmental Division. *(Note: Refer to the current edition of the James City County Guidelines for Design and Construction of Stormwater Management BMP's manual for a complete list of acceptable BMP's. Currently there are over 20 acceptable water quality type BMP's accepted by the County.)*
- Record Drawings shall consist of blue/black line prints and a reproducible (mylar, sepia, diazo, etc.) set of the approved stormwater management plan including applicable plan views, profiles, sections, details, maintenance plans, etc. as related to the subject SWM / BMP facility. The set shall indicate "**RECORD DRAWING**" in large text in the lower right hand corner of each sheet with record elevations, dimensions and data drawn in a clearly annotated format and/or boxed beside design values. Approved design plan values, dimensions and data shall not be removed or erased. Drawing sheet revision blocks shall be modified as required to indicate record drawing status. Elevations to the nearest 0.1' are sufficiently accurate except where higher accuracy is needed to show positive drainage. Certification statements as shown in Section 4 of the Record Drawing and Construction Certification Form, *or similar forms thereof*, and professional signatures and seals, with dates matching that of the record drawing status in the revision or title block, are also required on all associated record drawing plans, prints or reproducible.
- Submission Requirements. Initial and subsequent submissions for review shall consist of a minimum of one (1) blue/black line set for record drawings and one copy of the construction certification documents with appropriate transmittal. Under certain circumstances, it is understood that the record drawing and construction certification submissions may be performed by different professional firms. Therefore, record drawing submission may be in advance of construction certification or vice versa. Upon approval and prior to release of bond/surety, final submission shall include one (1) reproducible set of the record drawings, one (1) blue/black line set of the record drawings and one (1) copy of the construction certification. Also for current and/or future incorporation into the County BMP database and GIS system, it is requested that the record drawings also be submitted to the Environmental Division on a diskette or CD-ROM in an acceptable electronic file format such as *.dxf, *.dwg, etc. or in a standard scanned and readable format. The electronic file requirement can be discussed and coordinated with Environmental Division staff at the time of final submission.

**STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST**

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

I. Methods and Presentation: (Required for all Stormwater Management / BMP facilities.)

- _____ 1. All constructed facilities meet approved design plans, unless otherwise shown. Record information or deviations from approved design plan shown in clearly annotated format and/or boxed beside design values.
- _____ 2. Elevations to the nearest 0.1' unless higher accuracy is needed to show positive drainage.
- _____ 3. All plan sheets labeled with "RECORD DRAWING" in large text in lower right hand corner (Approved County Plan Number and BMP ID Code can be included if known).
- _____ 4. All plan sheet revision blocks modified to indicate date and record drawing status.
- _____ 5. All plan sheets have certification statements and certifying professional's signature and seal.

II. Minimum Standards: (Required for all Stormwater Management / BMP facilities, as applicable.)

- _____ 1. All requirements of Section I (Methods and Presentation) apply to this section.
- _____ 2. Plan Views: Show general location, arrangement and dimensions. Location and alignment shall generally match approved design plans.
- _____ 3. Profile or elevations along top or berm of the facility. At a minimum, elevations are required at each end, at intervals not to exceed 50 feet and where low spots may be present. Top of embankment or berm elevations must be no less than design elevation plus any settlement allowances.
- _____ 4. Top widths, berm widths and embankment side slopes.
- _____ 5. Show length, width and depth of facility or grading, contours or spot elevations as required to verify permanent pool and design storage volumes were met or were reasonably close to the approved design. Evaluation of as-built grading, contours, spot elevations, or cross-sections, may be necessary by the professional to ensure approved design configurations, depths and volumes were closely maintained. If grading or elevations are significantly different from the approved plan, the Environmental Division shall be contacted immediately to determine whether the variation is acceptable or whether further evidence will be required. Facilities which do not closely resemble approved plan grades, elevations or configurations may require regrading by the Contractor; check volumetric computations; and/or a check hydraulic routing to ensure approved design water surface elevations, discharges or freeboard were closely maintained.
- _____ 6. Cross-section of the embankment through the principal spillway or outlet barrel. Must extend at least 100 ft. downstream of the pipe outlet or to recorded site property line, whichever is closer. Proper correlation is required between principal spillway (control structure) crest, emergency spillway crest, orifice and weirs and the top of the dam or facility. All elevations and dimensions must reasonably match the design plan or be sequentially relative to each other and the facility must reflect the required design storage volume(s) and/or design depth.
- _____ 7. Profile or elevations along the entire centerline of the emergency spillway. Emergency spillway may be steeper, but no flatter or narrower than design.
- _____ 8. Elevation of the principal spillway crest or outlet crest of the structure.

- ___ 9. Primary control structure (riser) diameter or dimensions, height, type of material and base size. Indicate provisions for access that are present such as steps, ladders, etc.
- ___ 10. Dimensions, locations and elevations of outlet orifices, weirs, slots and drains.
- ___ 11. Type and size of anti-vortex and trash rack device. Height, diameter, dimensions, bar spacings (if applicable) and elevations relative to the principal spillway crest. Indicate if lockable hatch is present or not.
- ___ 12. Type, location, size and number of anti-seep collars or documentation of other methods utilized for seepage control. **May need to obtain this information during construction.**
- ___ 13. Top of impervious core embankment, core trench limits and elevation of cut-off trench bottom. **May need to obtain this information during construction.**
- ___ 14. Elevation of the principal spillway barrel (outlet pipe) inlet and outlet invert.
- ___ 15. Outlet barrel diameter, length, slope, type and thickness class of material and type of flared end sections, headwall or endwall.
- ___ 16. Outfall protection dimension, type and depth of rock and if underlain filter fabric is present.
- ___ 17. BMP interior and periphery landscaping zones conform with arrangements and requirements of the approved design plan.
- ___ 18. Maintenance plan taken from approved design plan transposed onto record drawing set.
- ___ 19. Fencing location and type, if applicable to facility.
- ___ 20. BMP vicinity properly cleaned of stockpiles and construction debris.
- ___ 21. No visual signs of erosion or channel degradation immediately downstream of facility.
- ___ 22. Any other information formally requested by the Environmental Division specific to the constructed SWM/BMP facility.

**STORMWATER MANAGEMENT / BMP FACILITIES
AS-BUILT PLAN CHECKLIST**

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

VII. Group E - Open Channel Systems (Includes E-1 Wet Swales (Check Dams); E-2 Dry Swales; and E-3 Biofilters)

- E1. All requirements of Section II, Minimum Standards, apply to Group E facilities as applicable.
- E2. Open channel system has constructed longitudinal slope of less than four (4) percent.
- E3. No visual signs of erosion in the open channel system's soil and/or vegetative cover.
- E4. Open channel side slopes are no steeper than 2H:1V at any location. Preferred channel sideslope is 3H:1V or flatter.
- E5. No visual signs of ponding are present at any location in the open channel system, except at rock check dam locations for E-1 systems (Wet Swales).
- E6. For E-2 BMPs (Dry Swales), an underdrain system was provided.
- E7. Treated timber or rock check dams provided as pretreatment devices for the open channel system.
- E8. Gravel diaphragm provided in areas where lateral sheet flow from impervious surfaces are directly connected to the open channel system.
- E9. Grass cover/stabilization in the open channel system appears adaptable to the specific soils and hydric conditions for the site and along the channel system.
- E10. Open channel system areas with grass covers higher than four (4) to six (6) inches were properly mowed.
- E11. Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.
- E12. No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed and no adverse affects to the function of the facility are anticipated.
- E13. For E-3 BMPs (Biofilters), the bottom width is six (6) feet maximum at any location.
- E14. For E-3 BMPs (Biofilters), sideslopes are 3H:1V maximum at any location.
- E15. For E-3 BMPs (Biofilters), the constructed channel slope is less than or equal to three (3) percent at any location.
- E16. For E-3 BMPs (Biofilters), the constructed grass channel is approximately equivalent to the constructed roadway length.

**STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST**

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

X. Storm Drainage Systems (Associated with BMP's Only)

(Includes all incidental stormwater drainage conveyance systems associated with SWM/BMP facilities such as onsite or offsite storm drains, open channels, inlets, manholes, junctions, outlet protections, deflectors, etc. These facilities are external to the treatment function of, but are directly associated with drainage to and/or from a constructed SWM/BMP facility. The intent of this portion of the certification is to accurately identify the type and quantity of inflow or outflow points associated with the facility for future reference. The Professional may use his/her own discretion to determine inclusive facilities to meet the intent of this section. As a general rule, storm drainage systems would include incidental facilities to the nearest access structure upslope or downslope from the normal physical limits of the facility or 800 feet of storm drainage conveyance system length, whichever is less.)

- _____ SD1. All requirements of Section II, Minimum Standards, apply to Storm Drainage Systems.
- _____ SD2. Horizontal location of all pipe and structures relative to the SWM/BMP facility.
- _____ SD3. Type, top elevation and invert elevation of all access type structures (inlets, manholes, etc.).
- _____ SD4. Material type, size or diameter, class, invert elevations, lengths and slopes for all pipe segments.
- _____ SD5. Class, length, width and depth of riprap and outlet protections or dimensions of special energy dissipation structures.

XII. Other Systems

(Includes any non-typical, specialty, manufactured or innovative stormwater management/BMP practices or systems generally accepted for use as or in conjunction with other acceptable stormwater management / BMP practices. Requires evidence of prior satisfactory industry use and prior Environmental Division approval, waiver or exception .)

- _____ O1. All requirements of Section II, Minimum Standards, apply to this section.
- _____ O2. Certification criteria to be determined on a case-by-case basis by the Environmental Division specific to the proposed SWM/BMP facility.