

D.A.	WATER QUALITY		RECHARGE		CHANNEL PROTECTION	
	REQUIRED	PROVIDED	REQUIRED	PROVIDED	REQUIRED	PROVIDED
A	2.52acft(1)	5.084cft(1)	558cft(1)	6,888cft(1)	0.0833acft(2)	0.00acft(2)
B	44.562cft(1)	45.064cft(1)	13,151cft(1)	0.5cft(1) *	1.420acft(2)	1.73acft(2)
C	2.701cft(1)	2.702cft(1)	819cft(1)	3.848cft(1)	0.1238acft(2)	0.38acft(2)
D	3.048cft(1)	3.084cft(1)	797cft(1)	2.780cft(1)	0.0871acft(2)	0.98cft(2)

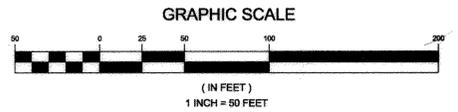
NOTES:
 1. WATER QUALITY (WQV) AND RECHARGE (REV) HAVE BEEN CALCULATED FOR THE AREAS SUBJECT TO GRADING AND LAND COVER CHANGE. TREATMENT FOR WQV AND REV WILL BE PROVIDED AS FOLLOWS:
 DRAINAGE AREA 'A': A BIORETENTION FACILITY (F-6) (BIORETENTION FACILITY 3)
 DRAINAGE AREA 'B': AN EXTENDED DETENTION WET POND FOR (WQV). FOR (REV) SEE BELOW *
 DRAINAGE AREA 'C': A BIORETENTION FACILITY (F-6) (BIORETENTION FACILITY 1)
 DRAINAGE AREA 'D': A BIORETENTION FACILITY (F-6) (BIORETENTION FACILITY 2)
 2. CHANNEL PROTECTION HAS BEEN CALCULATED FOR THE AREAS SUBJECT TO GRADING AND LAND COVER CHANGE. TREATMENT FOR CPV WILL BE PROVIDED FOR AS FOLLOWS:
 DRAINAGE AREA 'A': AN EXTENDED DETENTION WET POND IN AREA-B
 DRAINAGE AREA 'B': AN EXTENDED DETENTION WET POND
 DRAINAGE AREA 'C': AN EXTENDED DETENTION WET POND IN AREA-B
 DRAINAGE AREA 'D': AN EXTENDED DETENTION WET POND IN AREA-B
 3. OVERBANK FLOOD PROTECTION VOLUME, OP, IS NOT REQUIRED FOR THIS SITE.
 4. EXTREME FLOOD VOLUME, QF, IS NOT REQUIRED FOR THIS SITE.
 * SINCE WE ARE PROVIDING AN EXTENDED DETENTION WET POND AT AREA - B THE RECHARGE VOLUME WILL BE PROPORTIONALLY DISTRIBUTED IN AREAS A, C, AND D

D.A.	Pe		ESDV		CHANNEL PROTECTION	
	REQUIRED	PROVIDED	REQUIRED	PROVIDED	REQUIRED	PROVIDED
B-1	2.0'	2.0'	1,997 CF (1)	1,980 CF (1)	N/A (3)	N/A (3)

NOTES:
 1) TREATMENT FOR THE ENVIRONMENTAL SITE DESIGN VOLUMES (ESDV) WILL BE PROVIDED FOR AS FOLLOWS:
 DRAINAGE AREA B-1: TEMPORARY BIORETENTION FACILITY (F-6)
 TEMPORARY STORAGE HAS BEEN DESIGNED TO TREAT STORMWATER MANAGEMENT RUNOFF FROM THE MOUNT VILLA PARKWAY EXTENSION (UNDER F14-096) THIS FLOW UNDER ULTIMATE PROPOSED CONDITIONS WILL BE TREATED IN THE EXTENDED DETENTION FACILITY. WITH THE CONSTRUCTION OF THE EXTENDED DETENTION FACILITY THE TEMPORARY FACILITY WILL BE REMOVED AND FLOW WILL BE DIRECTED TO THE POND.
 2) CHANNEL PROTECTION IS NOT REQUIRED SINCE ALL ESDV HAVE BEEN TREATED FULLY.
 3) OVERBANK FLOOD PROTECTION VOLUME, OP, IS NOT REQUIRED FOR THIS SITE.
 4) EXTREME FLOOD VOLUME, QF, IS NOT REQUIRED FOR THIS SITE.

LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING WATER VALVE
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREES
- EXISTING TREELINE
- PROPOSED TREELINE
- SOIL BOUNDARY
- SLOPES 15.00% TO 24.99%
- SLOPES GREATER THAN 25.00%
- SILT FENCE
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EXISTING SOIL BORING
- PROPOSED EARTH DIKE
- PROPOSED CLEAN WATER EARTH DIKE
- STABILIZED CONSTRUCTION ENTRANCE
- GRASS FILTER STRIP



OWNER/DEVELOPER
 MANGIONE ENTERPRISES OF TURF VALLEY, LP
 LOU MANGIONE
 1205 YORK ROAD
 LUTHERVILLE, MARYLAND 21093
 410.825.8400

GRADING, SEDIMENT AND EROSION CONTROL PLAN
TURF VALLEY
 REGIONAL STORMWATER MANAGEMENT FACILITIES
 PGCC MULTI-USE SUBDISTRICT

TAX MAP 16 GRID 16 & 17 PART OF PARCELS 8 & 394
 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

Sill · Adcock & Associates · LLC
 Engineers · Surveyors · Planners
 3300 North Ridge Road, Suite 160
 Ellicott City, Maryland 21043
 Phone: 443.325.7682 Fax: 443.325.7685
 Email: info@silladcock.com

DESIGN BY: DB
 DRAWN BY: BK
 CHECKED BY: PS
 SCALE: 1" = 50'
 DATE: APRIL 30, 2013
 PROJECT #: 08-026
 SHEET #: 2 of 12

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 5/2/13

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 5/2/13

ENGINEER'S CERTIFICATE
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.
 DATE: 4/30/13

DEVELOPER'S CERTIFICATE
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODICAL SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.
 DATE: 4/15/13

APPROVED
 PLANNING BOARD OF HOWARD COUNTY
 DATE: 04/15/2013

NO.	DESCRIPTION	DATE
2	TO ADD ADDITIONAL STOCKPILE AREA	08/01/14
1	ADD TEMPORARY BIORETENTION FACILITY 4	03/19/14
	FOR MOUNT VILLA ROAD CONSTRUCTION	



E 1,342,400
N 684,000

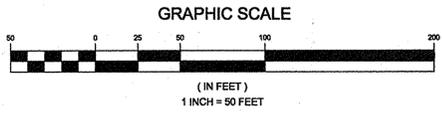
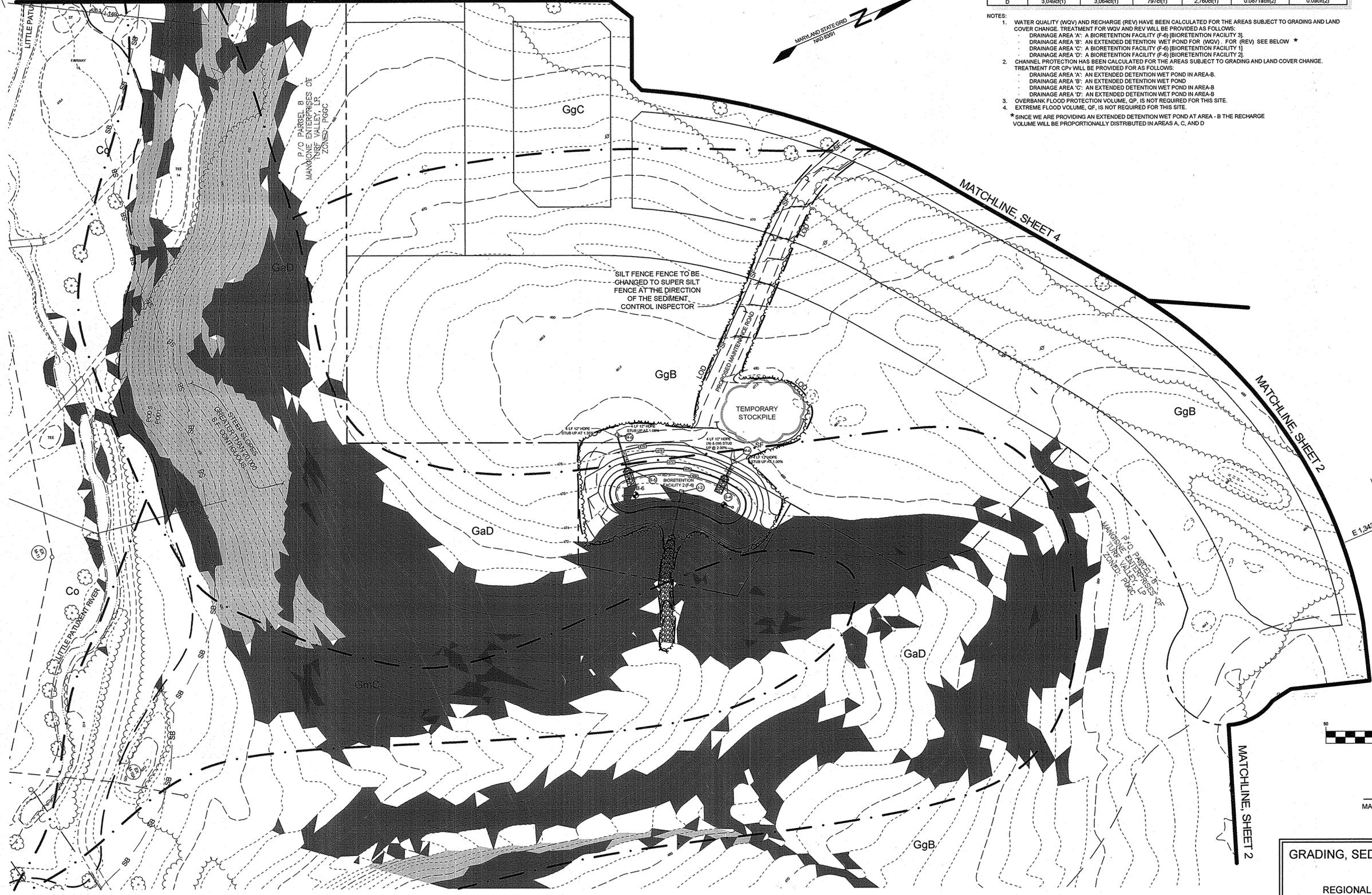
MATCHLINE, SHEET 4

D.A.	WATER QUALITY		RECHARGE		CHANNEL PROTECTION	
	REQUIRED	PROVIDED	REQUIRED	PROVIDED	REQUIRED	PROVIDED
A	2.52ac(1)	5.064c(1)	555c(1)	6,988c(1)	0.0833ac(2)	0.09ac(2)
B	44.562c(1)	45.064c(1)	13,151c(1)	0.0c(1) *	1,420ac(2)	1,73ac(2)
C	2.707c(1)	2.702c(1)	0.19c(1)	3,848c(1)	0.122ac(2)	0.0ac(2)
D	3.049c(1)	3.064c(1)	797c(1)	2,760c(1)	0.0871ac(2)	0.0ac(2)

NOTES:
 1. WATER QUALITY (WQV) AND RECHARGE (REV) HAVE BEEN CALCULATED FOR THE AREAS SUBJECT TO GRADING AND LAND COVER CHANGE. TREATMENT FOR WQV AND REV WILL BE PROVIDED AS FOLLOWS:
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 DRAINAGE AREA 'C': A BIORETENTION FACILITY (F-6) (BIORETENTION FACILITY 1).
 DRAINAGE AREA 'D': A BIORETENTION FACILITY (F-6) (BIORETENTION FACILITY 2).
 2. CHANNEL PROTECTION HAS BEEN CALCULATED FOR THE AREAS SUBJECT TO GRADING AND LAND COVER CHANGE. TREATMENT FOR QP WILL BE PROVIDED FOR AS FOLLOWS:
 DRAINAGE AREA 'A': AN EXTENDED DETENTION WET POND IN AREA-B.
 DRAINAGE AREA 'B': AN EXTENDED DETENTION WET POND
 DRAINAGE AREA 'C': AN EXTENDED DETENTION WET POND IN AREA-B
 DRAINAGE AREA 'D': AN EXTENDED DETENTION WET POND IN AREA-B
 3. OVERBANK FLOOD PROTECTION VOLUME, QP, IS NOT REQUIRED FOR THIS SITE.
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LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREES
- EXISTING TREELINE
- PROPOSED TREELINE
- SOIL BOUNDARY
- EXISTING STREAM BUFFER
- EXISTING 100 YEAR FLOODPLAIN
- EXISTING 100 YEAR FLOODPLAIN CROSS SECTION
- SLOPES 15.00% TO 24.99%
- SLOPES GREATER THAN 25.00%
- SILT FENCE
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EXISTING SOIL BORING



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GRADING, SEDIMENT AND EROSION CONTROL PLAN
TURF VALLEY
 REGIONAL STORMWATER MANAGEMENT FACILITIES
 PGCC MULTI-USE SUBDISTRICT

TAX MAP 16 GRID 16 & 17 PART OF PARCELS 8 & 394
 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 5/2/13
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 5/2/13
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 5/4/13
 DIRECTOR

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 4/30/13
 HOWARD SCD

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 [Signature] 4/30/13
 SIGNATURE OF ENGINEER
 PAUL M. SILL, P.E.

DEVELOPER'S CERTIFICATE
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 4/15/13
 SIGNATURE OF DEVELOPER

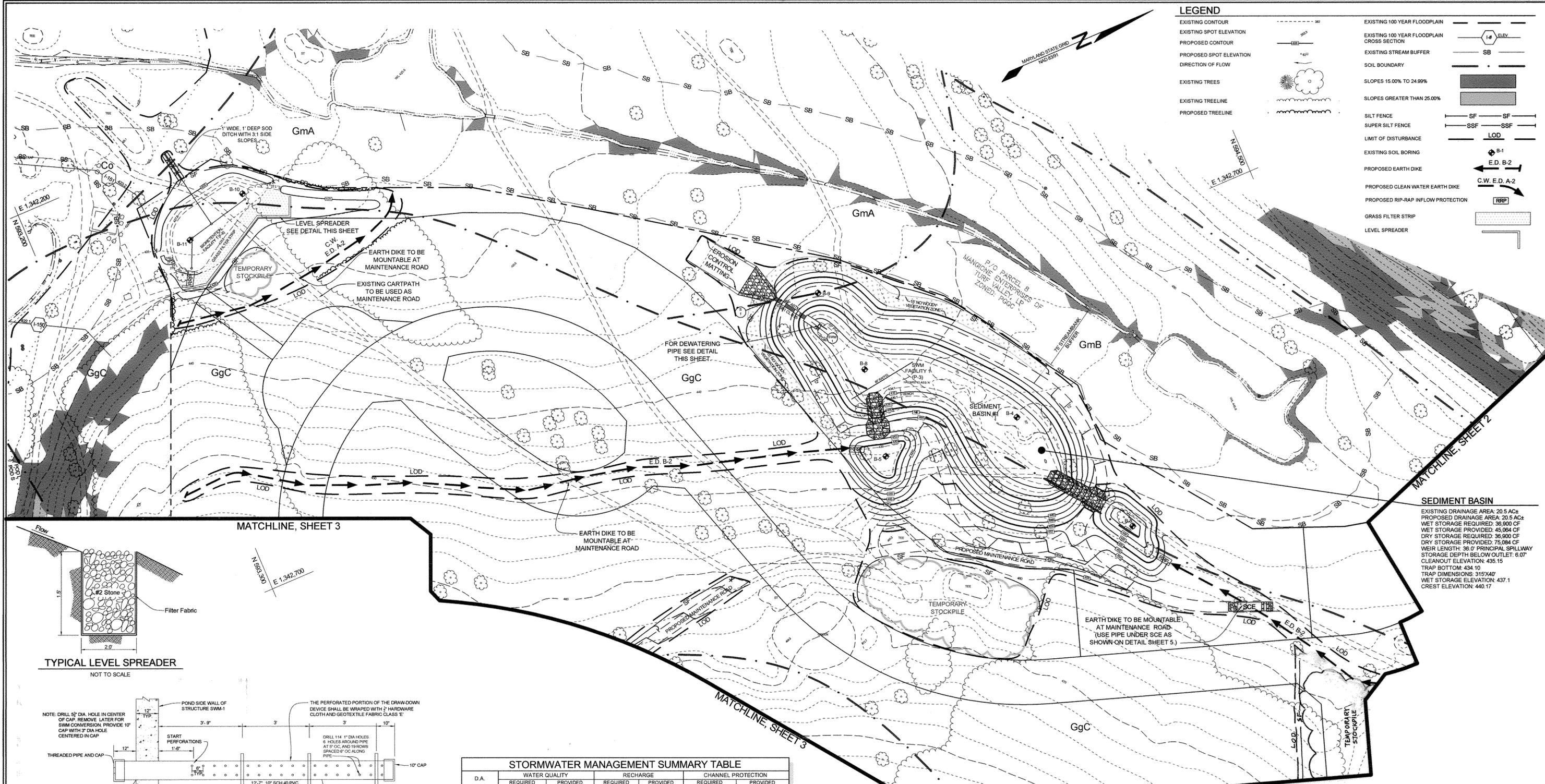
APPROVED
 PLANNING BOARD OF HOWARD COUNTY
 DATE 04/15/2013
 [Signature]

NO.	DESCRIPTION	DATE

Sill · Adcock & Associates · LLC
 Engineers · Surveyors · Planners
 3300 North Ridge Road, Suite 160
 Ellicott City, Maryland 21043
 Phone: 443.325.7682 Fax: 443.325.7685
 Email: info@silladcock.com

DESIGN BY: DB
 DRAWN BY: BK
 CHECKED BY: PS
 SCALE: 1"=50'
 DATE: APRIL 30, 2013
 PROJECT #: 06-025
 SHEET #: 3 of 12

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 20263, EXP. DATE: JUNE 30, 2013

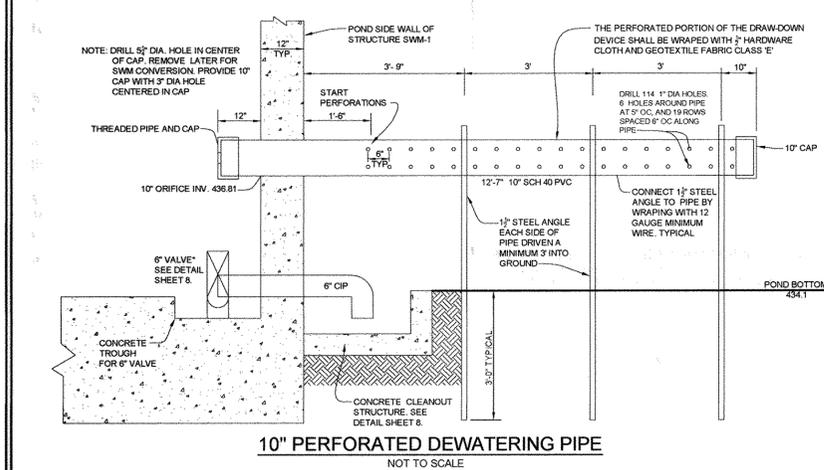
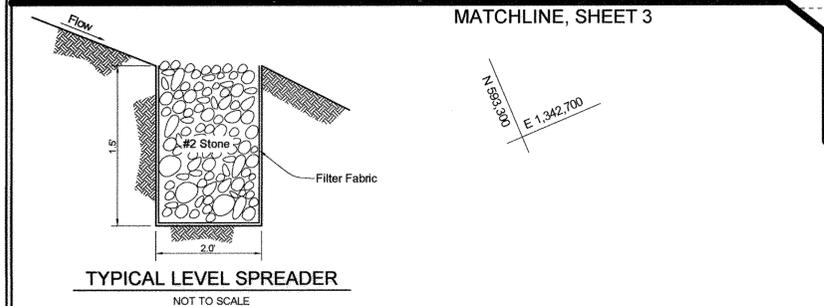


LEGEND

EXISTING CONTOUR	---	EXISTING 100 YEAR FLOODPLAIN	---
EXISTING SPOT ELEVATION	120.0	EXISTING 100 YEAR FLOODPLAIN CROSS SECTION	1-4 ELEV
PROPOSED CONTOUR	---	EXISTING STREAM BUFFER	SB
PROPOSED SPOT ELEVATION	120.0	SOIL BOUNDARY	---
DIRECTION OF FLOW	---	SLOPES 15.00% TO 24.99%	---
EXISTING TREES	---	SLOPES GREATER THAN 25.00%	---
EXISTING TREELINE	---	SILT FENCE	SF
PROPOSED TREELINE	---	SUPER SILT FENCE	SSF
		LIMIT OF DISTURBANCE	LOD
		EXISTING SOIL BORING	B-1
		PROPOSED EARTH DIKE	E.D. B-2
		PROPOSED CLEAN WATER EARTH DIKE	C.W. E.D. A-2
		PROPOSED RIP-RAP INFLOW PROTECTION	RRP
		GRASS FILTER STRIP	---
		LEVEL SPREADER	---

SEDIMENT BASIN

EXISTING DRAINAGE AREA: 20.5 AC±
 PROPOSED DRAINAGE AREA: 20.5 AC±
 WET STORAGE REQUIRED: 36,900 CF
 DRY STORAGE PROVIDED: 45,064 CF
 WET STORAGE PROVIDED: 36,900 CF
 DRY STORAGE PROVIDED: 75,084 CF
 WEIR LENGTH: 36.0' PRINCIPAL SPILLWAY
 STORAGE DEPTH BELOW OUTLET: 6.07'
 CLEANOUT ELEVATION: 435.15
 TRAP BOTTOM: 434.10
 TRAP DIMENSIONS: 315'X40'
 WET STORAGE ELEVATION: 437.1
 CREST ELEVATION: 440.17



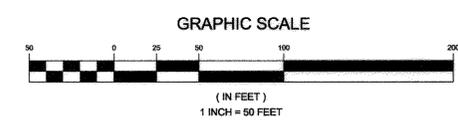
STORMWATER MANAGEMENT SUMMARY TABLE

D.A.	WATER QUALITY		RECHARGE		CHANNEL PROTECTION	
	REQUIRED	PROVIDED	REQUIRED	PROVIDED	REQUIRED	PROVIDED
A	2,528cf(1)	5,084cf(1)	558cf(1)	6,888cf(1)	0.0833acft(2)	0.09acft(2)
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C	2,701cf(1)	2,702cf(1)	819cf(1)	3,848cf(1)	0.1278acft(2)	0.0acft(2)
D	3,049cf(1)	3,084cf(1)	797cf(1)	2,786cf(1)	0.0871acft(2)	0.0acft(2)

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GRADING, SEDIMENT AND EROSION CONTROL PLAN

TURF VALLEY

REGIONAL STORMWATER MANAGEMENT FACILITIES
 PGCC MULTI-USE SUBDISTRICT

TAX MAP 16 GRID 16 & 17
 3RD ELECTION DISTRICT

PART OF PARCELS 8 & 394
 HOWARD COUNTY, MARYLAND

DESIGN BY: DB
 DRAWN BY: BK
 CHECKED BY: PS
 SCALE: 1"=50'
 DATE: APRIL 30, 2013
 PROJECT #: 06-026
 SHEET #: 4 of 12

Sill · Adcock & Associates · LLC
 Engineers · Surveyors · Planners
 3300 North Ridge Road, Suite 160
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 Email: info@sasland.com

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32925, EXPIRATION DATE: JUNE 20, 2013

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* 5/2/13
 CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* 5/2/13
 DIRECTOR: *[Signature]* 5/2/13

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

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[Signature] 4/30/13
 SIGNATURE OF ENGINEER
 PAUL M. SILL, P.E.

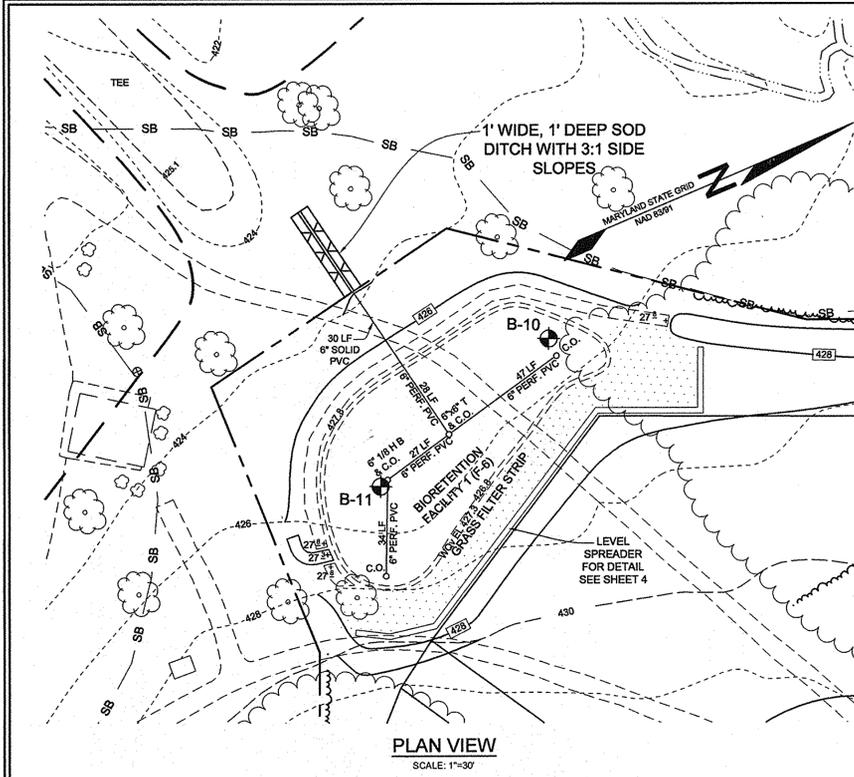
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[Signature] 4/21/13
 SIGNATURE OF DEVELOPER

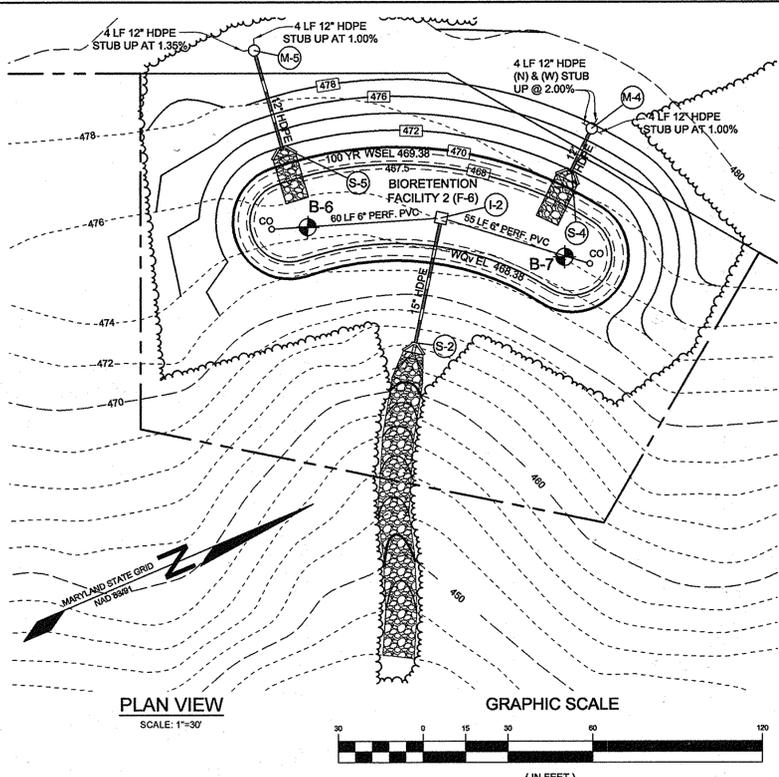
APPROVED
 PLANNING BOARD OF HOWARD COUNTY

DATE: 04/15/2013
[Signature]

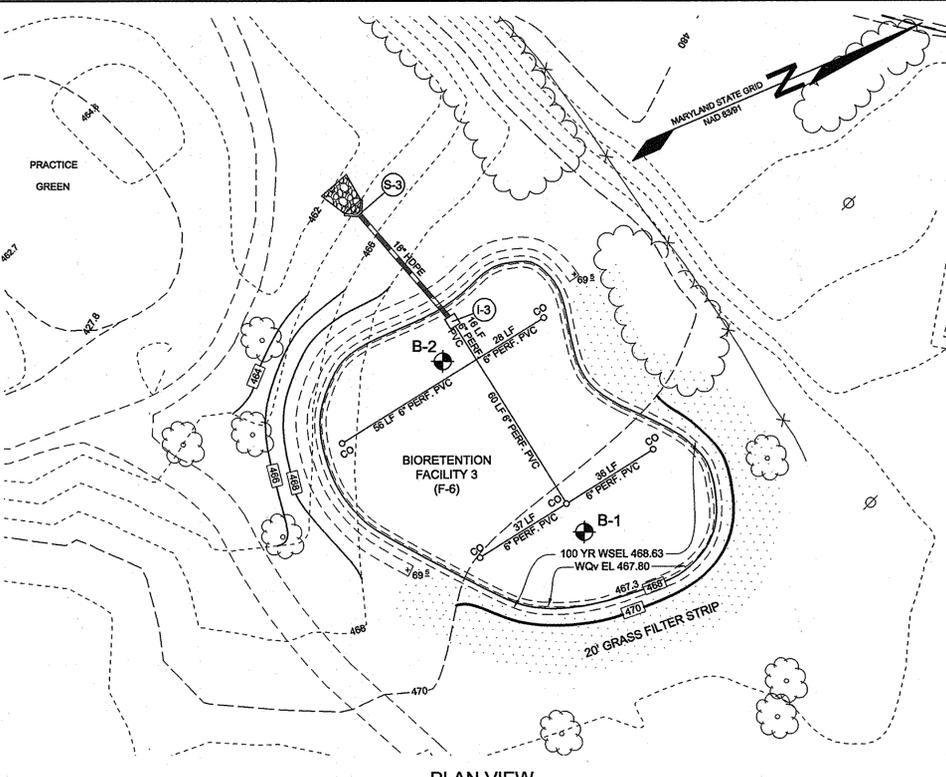
NO.	DESCRIPTION	DATE
1	TO ADD ADDITIONAL STOCKPILE AREA	08/01/16



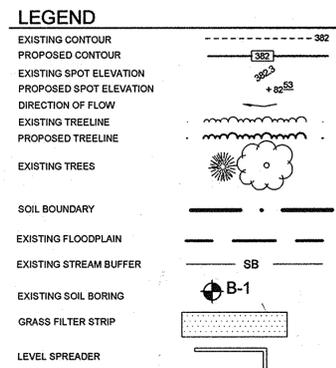
PLAN VIEW
SCALE: 1"=30'



PLAN VIEW
SCALE: 1"=30'

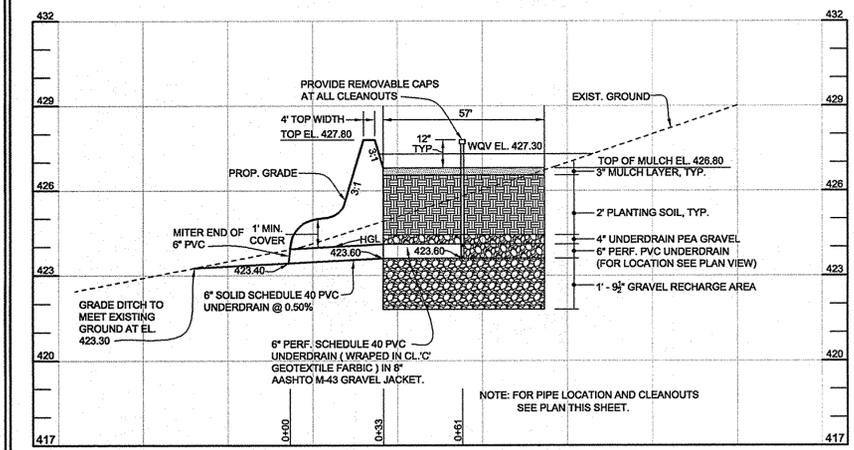


PLAN VIEW
SCALE: 1"=30'

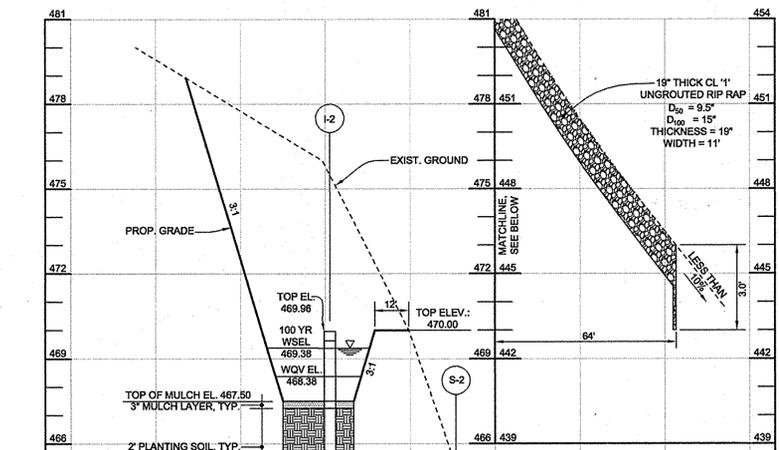


NOTE: FOR BIORETENTION PLANTING LOCATIONS SEE SHEET 11.

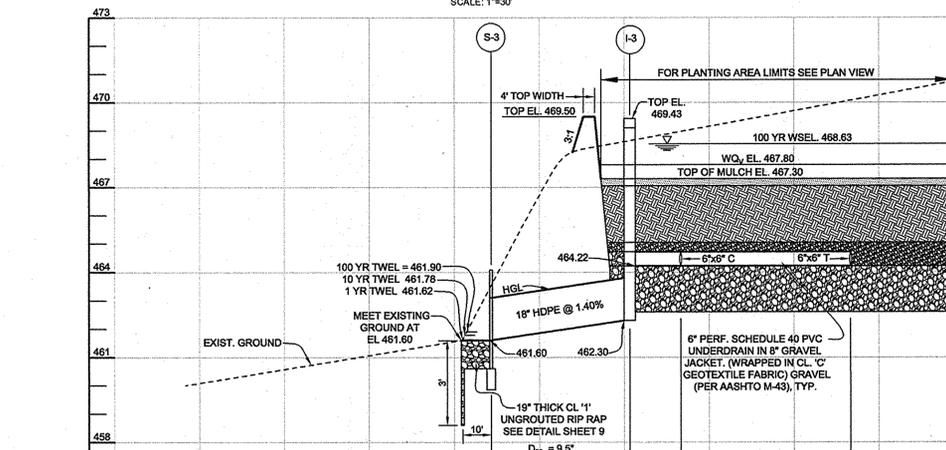
NOTE: FOR SWM BORING LOGS SEE SHEET 10.



BIORETENTION FACILITY 1 PROFILE
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'



BIORETENTION FACILITY 2 PROFILE
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'



BIORETENTION FACILITY 3 PROFILE
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'

MATERIALS SPECIFICATIONS FOR BIORETENTION FACILITIES			
MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE PLANT LIST THIS SHEET	N/A	PLANTINGS ARE SITE-SPECIFIC. SEE PLANT LIST THIS SHEET
PLANTING SOIL (2' DEEP)	SAND 35% - 60% SILT 0% - 25% GROUND COMPOST 40%-50%	N/A	EXISTING SOIL SUITABLE TO MEET PLANTING SOIL SPECIFICATIONS TO BE STOCKPILED IN DESIGNATED AREA & SUPPLEMENTED WITH COMPOST AS NECESSARY
MULCH	SHREDDED HARDWOOD		AGED 6 MONTHS, MINIMUM
PEA GRAVEL DIAPHRAGM AND CURTAIN DRAIN, IF REQUIRED	ORNAMENTAL STONE: WASHED COBBLES	PEA GRAVEL: NO. 6 STONE; 2" TO 5"	
HARDWARE CLOTH	0.035" THICK - 1/4" MESH OR SMALLER GALVANIZED WIRE HARDWARE CLOTH		FOR USE AS A WRAP AROUND PERFORATED UNDERDRAIN PIPING
UNDERDRAIN PEA GRAVEL	# 7 OR # 8 STONE	0.25" TO 0.50"	CLEAN WASHED STONE
UNDERDRAIN GRAVEL	AASHTO M-43	0.375" TO 0.75"	CLEAN WASHED STONE
UNDERDRAIN PIPING	F 788, TYPE PS 28 OR AASHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR35	- 3/8" PERF. @ 6" ON CENTER, 4 HOLES PER ROW. - SLOTTED PIPE MAY BE USED IN-LIEU OF PERFORATED PIPE (HARDWARE CLOTH WRAP NOT REQUIRED) - MINIMUM OF 3" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERNEATH PIPES

STRUCTURE SCHEDULE						
NO.	TYPE & OWNERSHIP	LOCATION	TOP ELEV.	INV. IN	INV. OUT	REMARKS
S-1*	TYPE 'A' HEADWALL 48" DIA. PIPE	N 593,950.24 E 1,342,621.15	—	433.79	433.79	HO CO DTL D-5.11
SWM-1	MODIFIED A-10 INLET	N 593,978.06 E 1,342,662.07	442.17	434.00	434.00	SPECIAL SEE PLAN
I-2	MODIFIED D-INLET	N 593,342.93 E 1,343,183.77	469.96	464.30	463.00	HO CO DTL D-4.11
S-2	TYPE 'A' HEADWALL 15" DIA. PIPE	N 593,317.21 E 1,343,220.69	—	462.50	462.50	HO CO DTL D-5.11
I-3	MODIFIED D-INLET	N 594,862.72 E 1,343,519.45	469.43	464.22	462.30	HO CO DTL D-4.11
S-3	TYPE 'A' HEADWALL 18" DIA. PIPE	N 594,847.11 E 1,343,471.24	—	461.60	461.60	HO CO DTL D-5.11
M-4**	STD 4' PRECAST MANHOLE	N 593,404.25 E 1,343,175.60	477.50	473.00	469.00	HO CO DTL G-5.12
S-4*	TYPE 'A' HEADWALL 12" DIA. PIPE	N 593,391.38 E 1,343,186.71	—	468.38	468.38	MODIFIED HO CO DTL 5.11
M-5**	STD 4' PRECAST MANHOLE	N 593,305.29 E 1,343,103.38	478.80	473.00	469.12	HO CO DTL G-5.12
S-5*	TYPE 'A' HEADWALL 12" DIA. PIPE	N 593,300.81 E 1,343,139.14	—	468.38	468.38	MODIFIED HO CO DTL 5.11

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED BIORETENTION FACILITIES (F-6)

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.
- THE OWNER SHALL PERFORM A PLANT INSPECTION IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD OR DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Approved: *Howard S.C.D.* 4/20/13
Date

OWNER/DEVELOPER
MANGIONE ENTERPRISES OF TURF VALLEY, LP
LOU MANGIONE
1205 YORK ROAD
LUTHERVILLE, MARYLAND 21093
410.925.8400

BIORETENTION PLAN & DETAILS
TURF VALLEY
REGIONAL STORMWATER MANAGEMENT FACILITIES
PGCC MULTI-USE SUBDISTRICT

TAX MAP 16 GRID 16 & 17
3RD ELECTION DISTRICT

PART OF PARCELS 8 & 394
HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Robert D. ... 5/2/13
CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: PLANNING BOARD OF HOWARD COUNTY
Robert D. ... 5/2/13
CHIEF, DIVISION OF LAND DEVELOPMENT

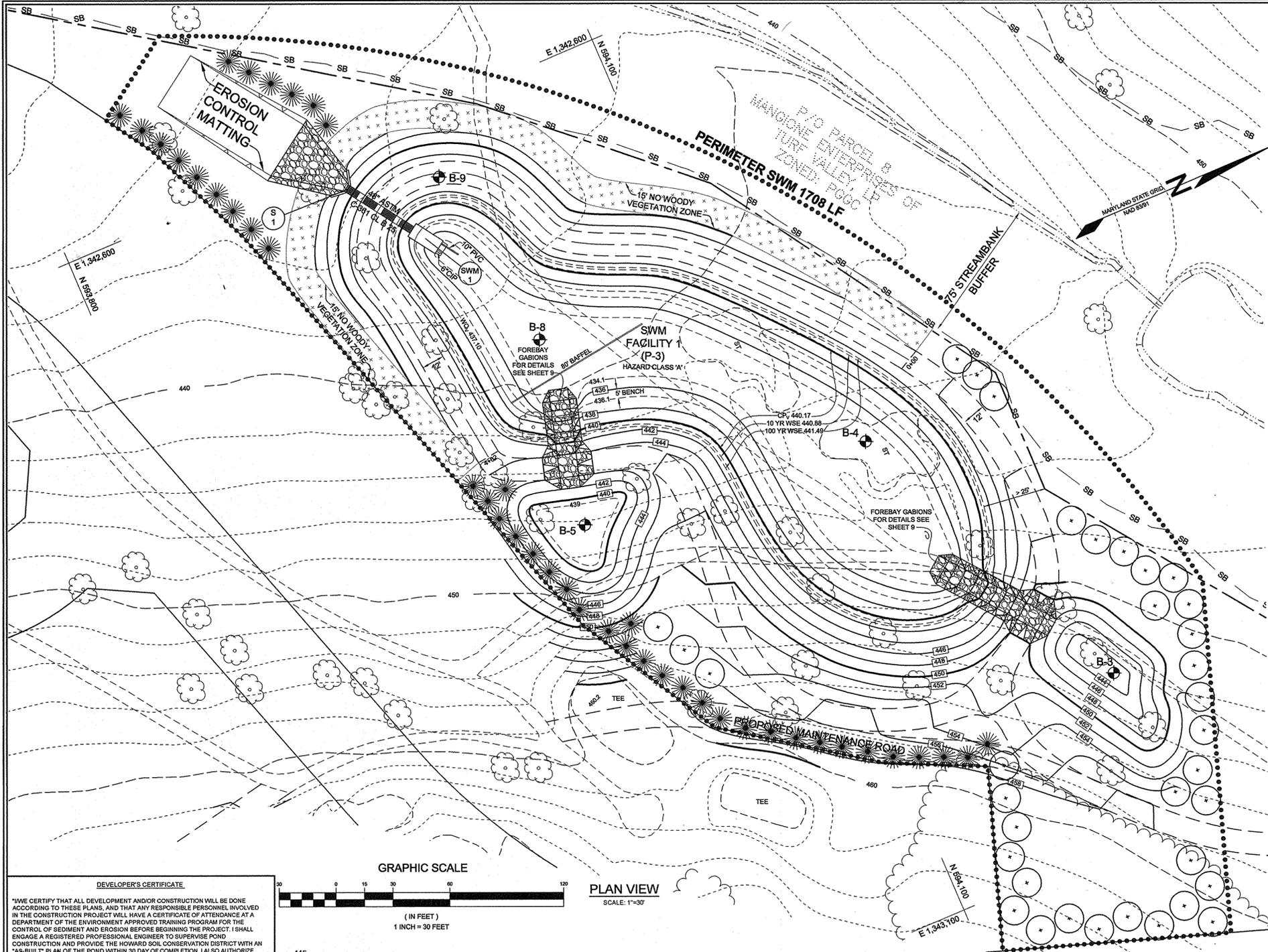
APPROVED: DIRECTOR
Robert D. ... 5/2/13

APPROVED: PLANNING BOARD OF HOWARD COUNTY
DATE: 04/15/2013
Robert D. ...

DESIGN BY: DB
DRAWN BY: BK
CHECKED BY: PS
SCALE: AS SHOWN
DATE: APRIL 30, 2013
PROJECT #: 06-025
SHEET #: 6 OF 12

Sill · Adcock & Associates · LLC
Engineers · Surveyors · Planners
3300 North Ridge Road, Suite 160
Ellicott City, Maryland 21043
Phone: 443.325.7682 Fax: 443.325.7685
Email: info@silladcock.com

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2013.



STORMWATER MANAGEMENT SUMMARY TABLE

D.A.	WATER QUALITY		RECHARGE		CHANNEL PROTECTION	
	REQUIRED	PROVIDED	REQUIRED	PROVIDED	REQUIRED	PROVIDED
A	2,526cft(1)	5,084cft(1)	558cft(1)	6,888cft(1)	0.0833actft(2)	0.00actft(2)
B	44,562cft(1)	45,064cft(1)	13,151cft(1)	0.0cft(1) *	1,420actft(2)	1,73actft(2)
C	2,701cft(1)	2,702cft(1)	619cft(1)	3,848cft(1)	0.1278actft(2)	0.00actft(2)
D	3,548cft(1)	3,064cft(1)	797cft(1)	2,766cft(1)	0.0871actft(2)	0.00actft(2)

- NOTES:
- WATER QUALITY (WQV) AND RECHARGE (REV) HAVE BEEN CALCULATED FOR THE AREAS SUBJECT TO GRADING AND LAND COVER CHANGE. TREATMENT FOR WQV AND REV WILL BE PROVIDED AS FOLLOWS:
 - DRAINAGE AREA 'A': A BIOTENTION FACILITY (F-6) (BIOTENTION FACILITY 3)
 - DRAINAGE AREA 'B': AN EXTENDED DETENTION WET POND FOR (WQV) FOR (REV) SEE BELOW *
 - DRAINAGE AREA 'C': A BIOTENTION FACILITY (F-6) (BIOTENTION FACILITY 1)
 - DRAINAGE AREA 'D': A BIOTENTION FACILITY (F-6) (BIOTENTION FACILITY 2)
 - CHANNEL PROTECTION HAS BEEN CALCULATED FOR THE AREAS SUBJECT TO GRADING AND LAND COVER CHANGE. TREATMENT FOR CPV WILL BE PROVIDED FOR AS FOLLOWS:
 - DRAINAGE AREA 'A': AN EXTENDED DETENTION WET POND IN AREA-B
 - DRAINAGE AREA 'B': AN EXTENDED DETENTION WET POND
 - DRAINAGE AREA 'C': AN EXTENDED DETENTION WET POND IN AREA-B
 - DRAINAGE AREA 'D': AN EXTENDED DETENTION WET POND IN AREA-B
 - OVERBANK FLOOD PROTECTION VOLUME, QP, IS NOT REQUIRED FOR THIS SITE. EXTREME FLOOD VOLUME, QF, IS NOT REQUIRED FOR THIS SITE.
 - * SINCE WE ARE PROVIDING AN EXTENDED DETENTION WET POND AT AREA - B THE RECHARGE VOLUME WILL BE PROPORTIONALLY DISTRIBUTED IN AREAS A, C, AND D

LEGEND

- EXISTING CONTOUR: ---
- EXISTING SPOT ELEVATION: 392.3
- PROPOSED CONTOUR: [Symbol]
- PROPOSED SPOT ELEVATION: +62 SB
- DIRECTION OF FLOW: [Symbol]
- EXISTING TREES: [Symbol]
- EXISTING TREELINE: [Symbol]
- PROPOSED TREELINE: [Symbol]
- APPROX. CL. STREAM: [Symbol]
- EXISTING STREAM BUFFER: SB
- EXISTING SOIL BORING: B-1
- PROPOSED SHADE TREE: [Symbol]
- PROPOSED EVERGREEN TREE: [Symbol]

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER PONDS (P-3)

- ROUTINE MAINTENANCE:
- THE OWNER SHALL INSPECT THE FACILITY ANNUALLY AND AFTER EVERY HEAVY STORM. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
 - THE OWNER SHALL MOW THE TOP AND SIDE SLOPES OF THE EMBANKMENT A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
 - THE OWNER SHALL REMOVE ANY DEBRIS AND LITTER FROM THE FACILITY.
 - THE OWNER SHALL REPAIR ANY EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA AS SOON AS IT IS NOTICED.
 - STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
 - THE OWNER SHALL REMOVE SEDIMENT FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS

SCHEDULE D: STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	1,708
NUMBER OF TREES REQUIRED	1:50 = 35
SHADE TREES	1:40 = 43
EVERGREEN TREES	
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO
NUMBER OF TREES PROVIDED	1:50 = 35
SHADE TREES	1:40 = 43
EVERGREEN TREES	1:40 = 43
OTHER TREES (2:1 SUBSTITUTION)	

*NOTE: STORMWATER MANAGEMENT AREA LANDSCAPING AS REQUIRED BY SCHEDULE D SHALL BE PROVIDED AS PART OF THE INITIAL SITE DEVELOPMENT PLAN SUBMITTED FOR THE TURF VALLEY CLUBHOUSE SUBDIVISION.

NOTE: FOR SWM BORING LOGS, EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION SPECIFICATIONS SEE SHEET 10.

DEVELOPER'S CERTIFICATE

"I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC OF-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Signature: [Signature] DATE: 4/30/13

ENGINEERS CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Signature: [Signature] DATE: 4/30/13

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

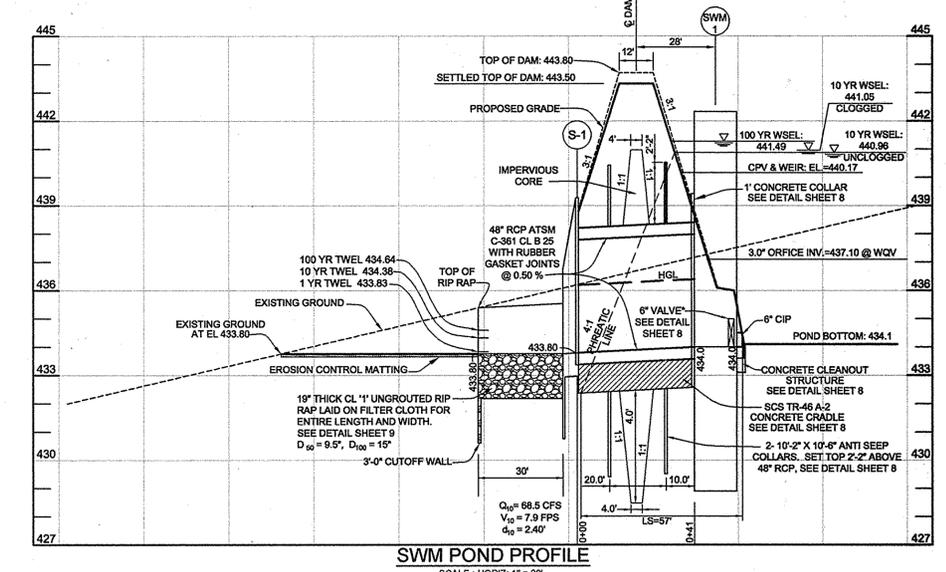
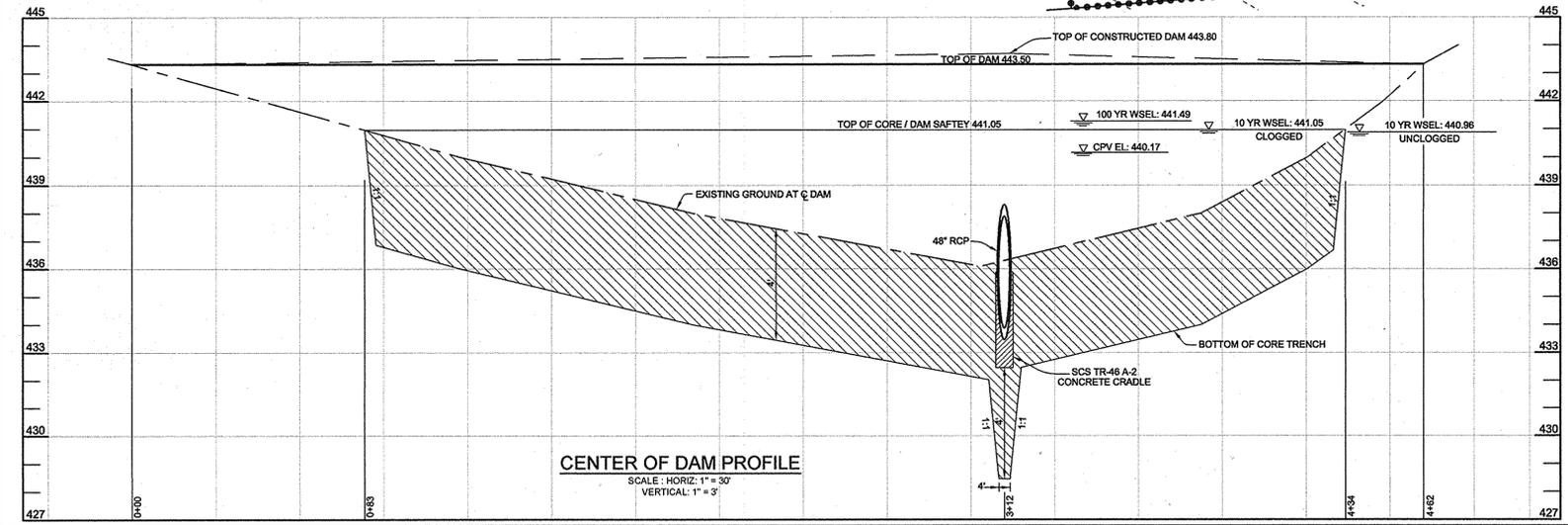
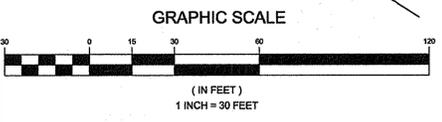
Signature: [Signature] DATE: 4/30/13

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Signature: [Signature] DATE: 5/2/13

Signature: [Signature] DATE: 5/2/13

Signature: [Signature] DATE: 5/4/13



APPROVED PLANNING BOARD OF HOWARD COUNTY

DATE: 04/15/2013

REVISIONS

NO.	DESCRIPTION	DATE

OWNER/DEVELOPER
MANGIONE ENTERPRISES OF TURF VALLEY, LP
LOU MANGIONE
1205 YORK ROAD
LUTHERVILLE, MARYLAND 21093
410.825.5400

EXTENDED DETENTION FACILITY PLAN & DETAILS
TURF VALLEY
REGIONAL STORMWATER MANAGEMENT FACILITIES
PGCC MULTI-USE SUBDISTRICT

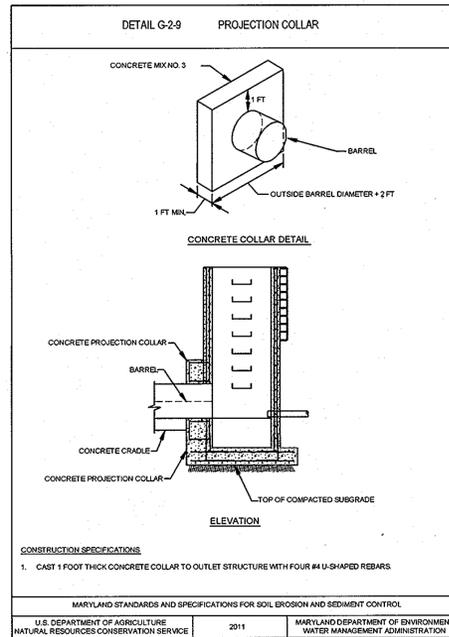
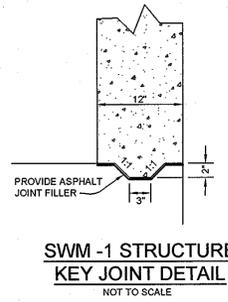
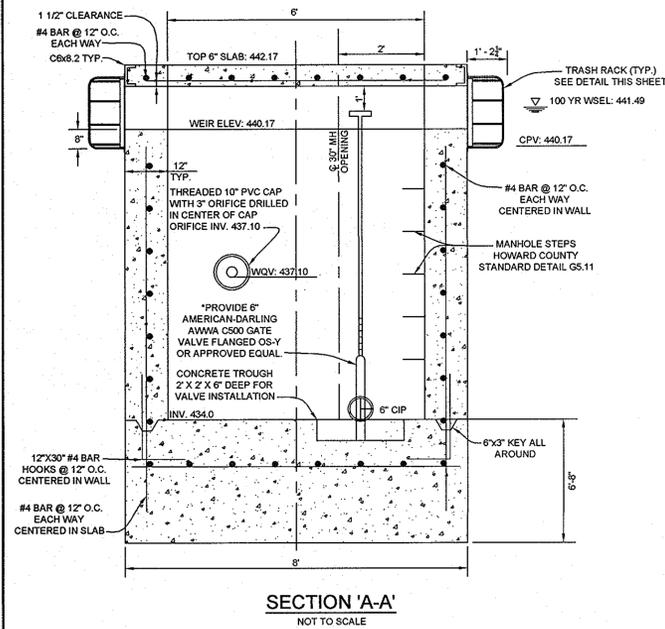
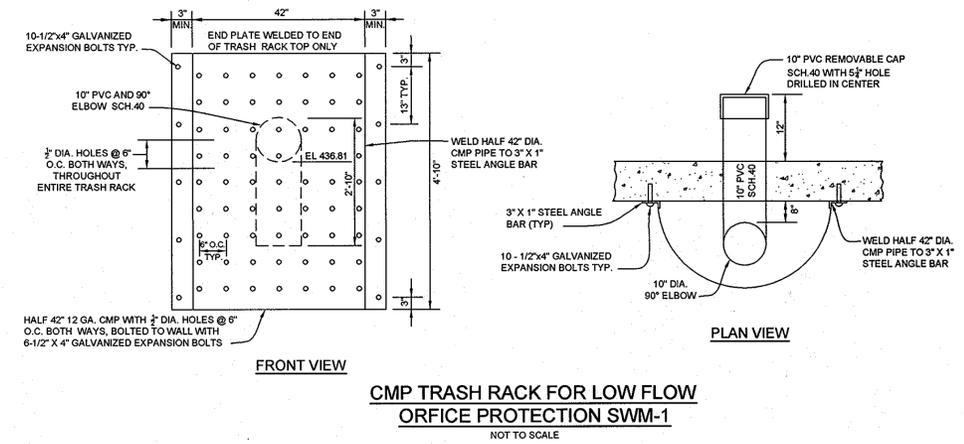
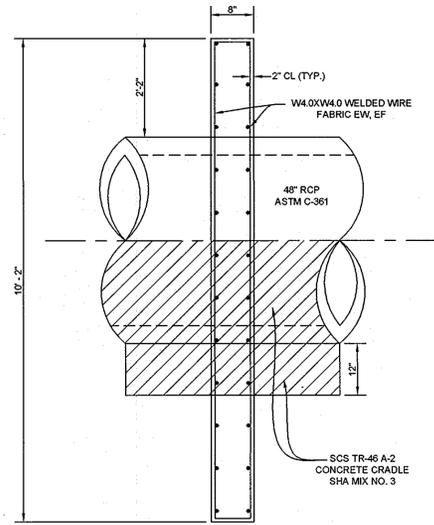
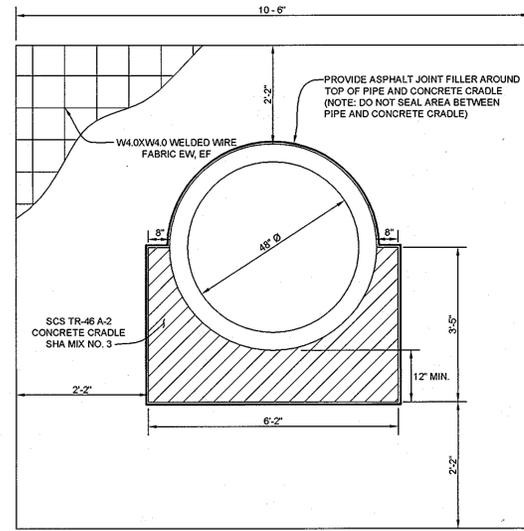
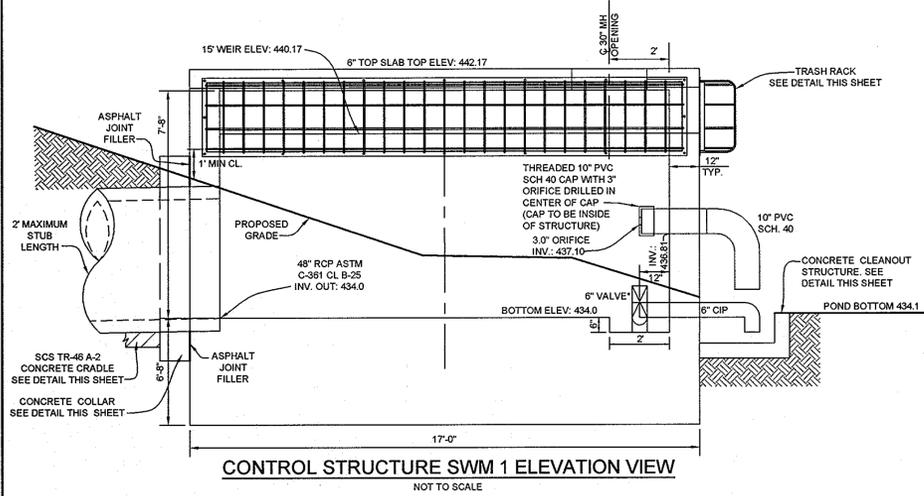
TAX MAP 16 GRID 16 & 17
3RD ELECTION DISTRICT

PART OF PARCELS 8 & 394
HOWARD COUNTY, MARYLAND

Sill · Adcock & Associates · LLC
Engineers · Surveyors · Planners
3300 North Ridge Road, Suite 160
Ellicott City, Maryland 21043
Phone: 443.325.7682 Fax: 443.325.7685
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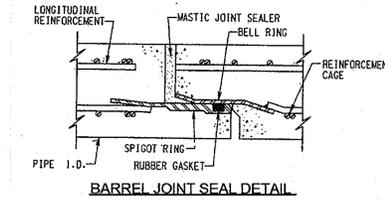
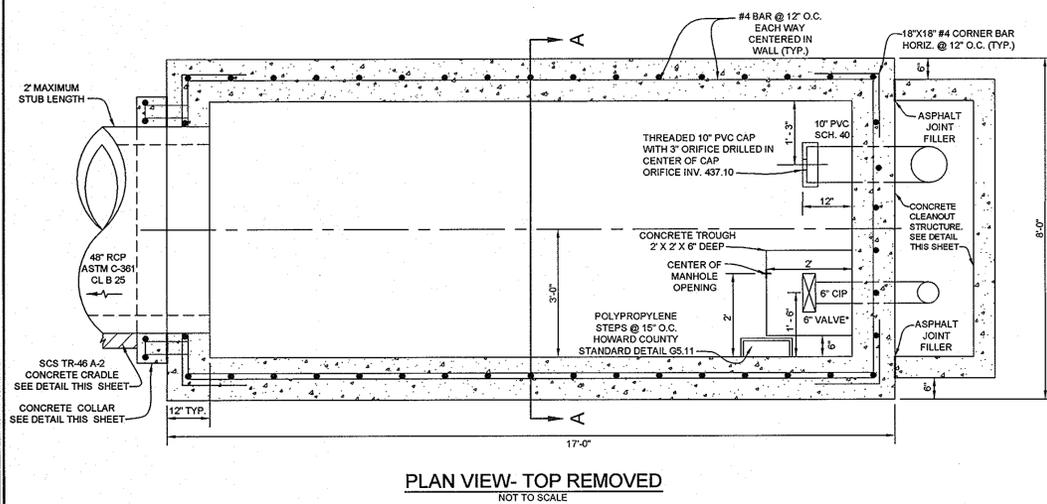
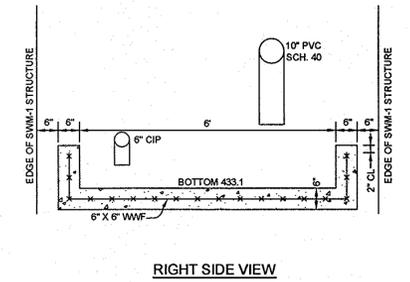
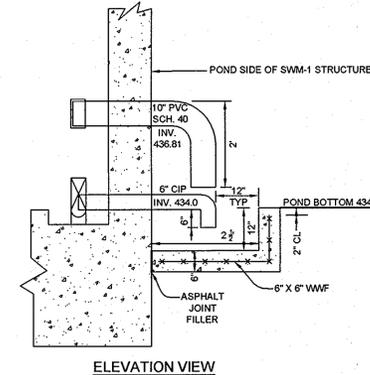
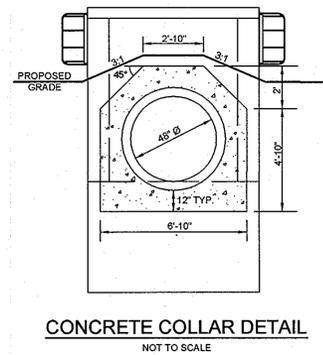
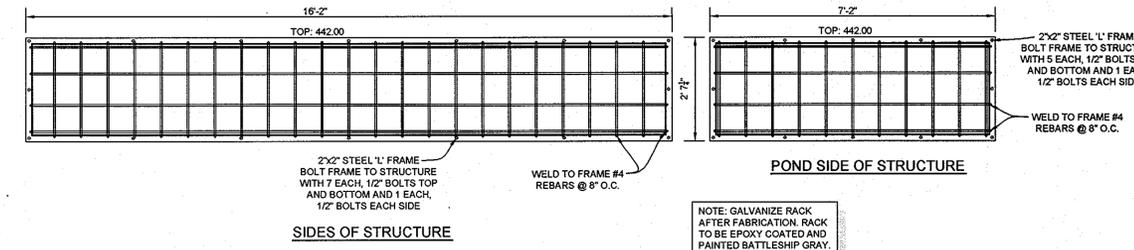
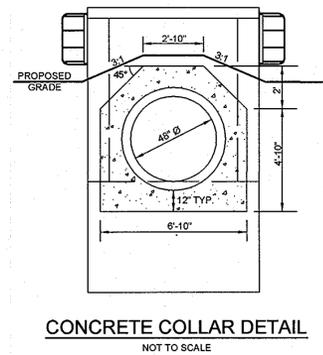
DESIGN BY: DB
DRAWN BY: BK
CHECKED BY: PS
SCALE: AS SHOWN
DATE: APRIL 30, 2013
PROJECT #: 06-025
SHEET #: 7 of 12

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2013



CONSTRUCTION SPECIFICATIONS
 1. CAST 1 FOOT THICK CONCRETE COLLAR TO OUTLET STRUCTURE WITH FOUR #4 U-SHAPED REBARS

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT ADMINISTRATION



OWNER/DEVELOPER
 MANGIONE ENTERPRISES OF TURF VALLEY, LP
 LOU MANGIONE
 1205 YORK ROAD
 LUTHERVILLE, MARYLAND 21093
 410.825.8400

POND DETAILS
TURF VALLEY
 REGIONAL STORMWATER MANAGEMENT FACILITIES
 PGCC MULTI-USE SUBDISTRICT

TAX MAP 16 GRID 16 & 17 PART OF PARCELS 8 & 394
 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 5/2/13
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 5/2/13
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 5/2/13
 DIRECTOR DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 4/30/13
 HOWARD SCD DATE

ENGINEER'S CERTIFICATE
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

[Signature] 4/30/13
 SIGNATURE OF ENGINEER DATE
 PAUL M. SILL, P.E.

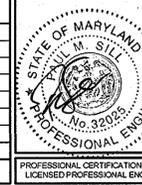
DEVELOPER'S CERTIFICATE
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 4/30/13
 SIGNATURE OF DEVELOPER DATE

APPROVED
 PLANNING BOARD OF HOWARD COUNTY

DATE 04/15/2013
 [Signature]

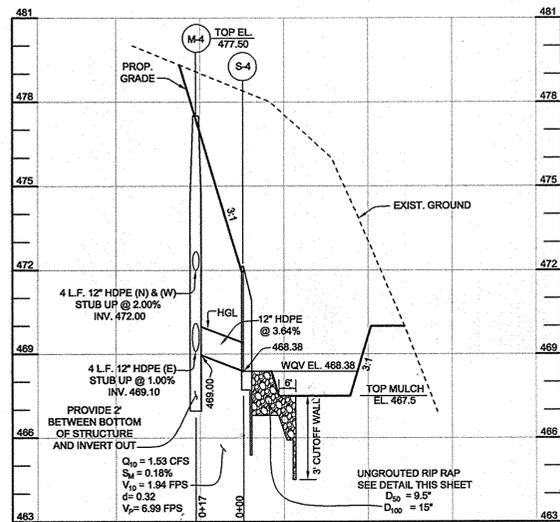
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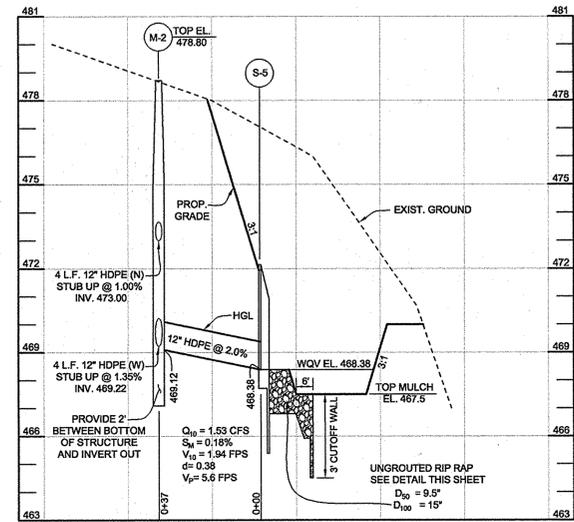
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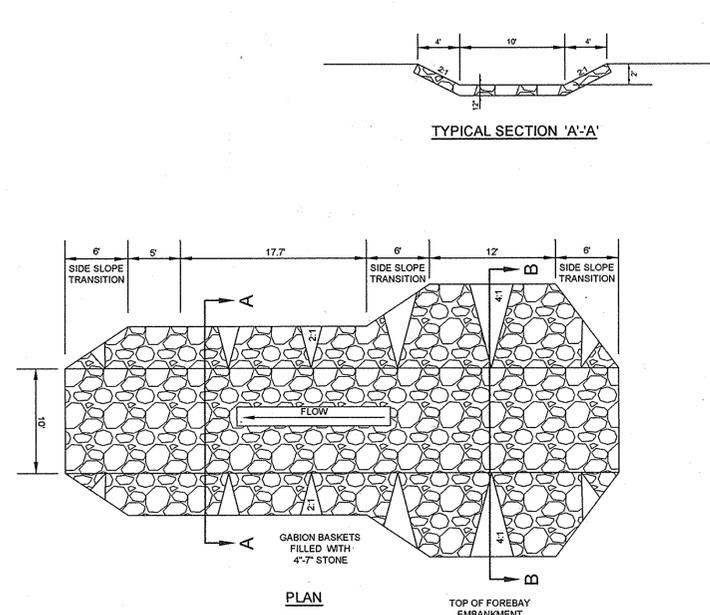
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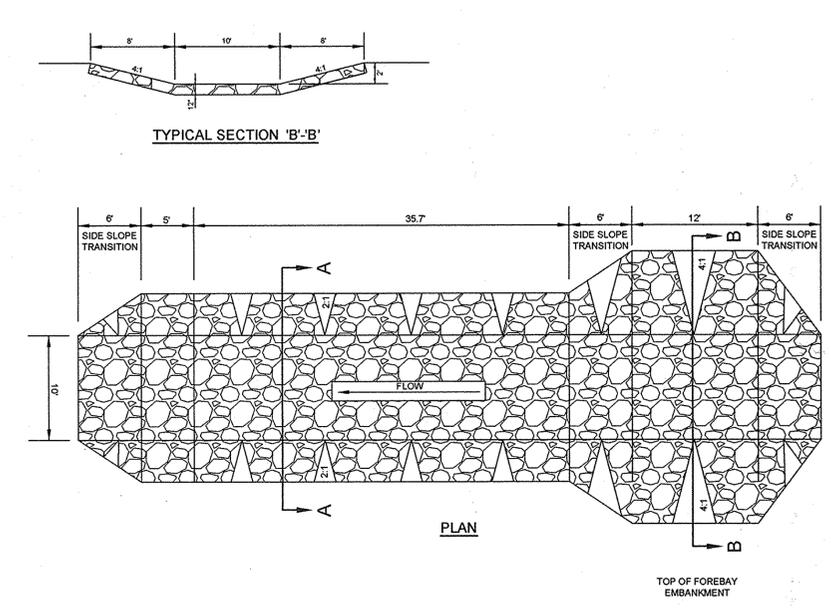
STORMDRAIN PROFILE I-4 TO S-4
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



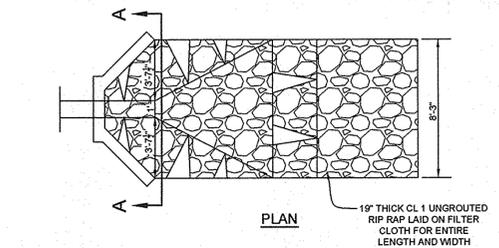
STORMDRAIN PROFILE I-5 TO S-5
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



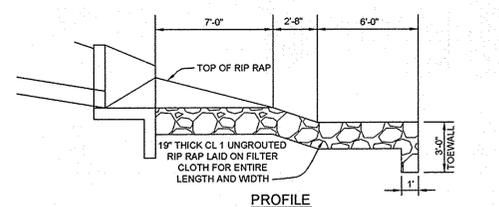
FOREBAY DAM PROFILE



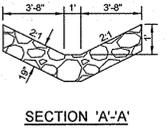
FOREBAY DAM PROFILE



PLAN

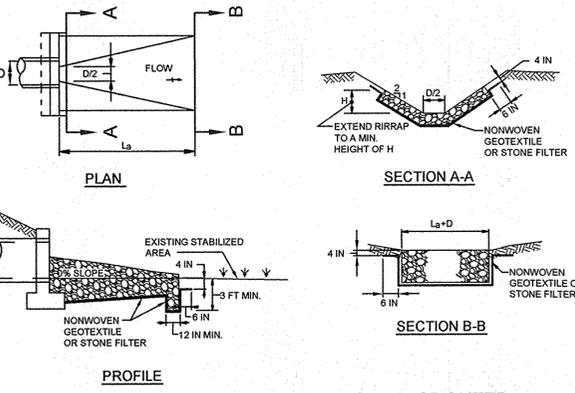


PROFILE



SECTION 'A-A'

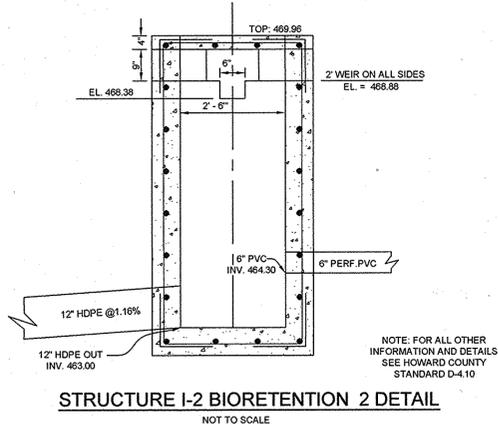
STRUCTURE S-4 AND S-5 UNGROUTED RIP RAP OUTFALL DETAIL
NOT TO SCALE



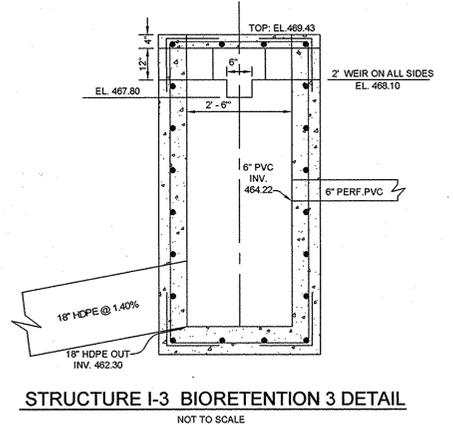
SWM-1, S-2 & S-3 UNGROUTED RIP RAP OUTFALL DETAIL
NOT TO SCALE

STR.No.	La	D	La+D	H	RIP RAP CL.
SWM-1	28'	48"	32'	2'8"	CL-1
S-2	10'	12"	11'	15"	CL-1
S-3	11'	18"	12'8"	18"	CL-1

19" THICK CL 1 UNGROUTED RIP RAP LAID ON FILTER CLOTH FOR ENTIRE LENGTH AND WIDTH
D₅₀ = 9.5", D₁₀₀ = 15"
SEE PLAN VIEW SHEETS 2-4



STRUCTURE I-2 BIORETENTION 2 DETAIL
NOT TO SCALE



STRUCTURE I-3 BIORETENTION 3 DETAIL
NOT TO SCALE

GABION INFLOW PROTECTION NO. 1 DETAIL
NOT TO SCALE

GABION INFLOW PROTECTION NO. 2 DETAIL
NOT TO SCALE

- CONSTRUCTION SPECIFICATIONS:**
- PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL GABION BASKETS.
 - USE BASKETS MADE OF MINIMUM 11 GAGE WIRE.
 - CONSTRUCT GABION INFLOW PROTECTION BY ARRANGING 12" THICK GABION BASKETS PER MANUFACTURE TO FORM A TRAPEZOIDAL SECTION WITH A 10 FOOT BOTTOM WIDTH 2 FOOT MINIMUM DEPTH SIDE WALLS AT 2:1 AND 4:1 SLOPES. SEE GABION INFLOW PROTECTION DETAIL ON THE PLANS. FILL GABION BASKETS WITH 4 TO 7 INCH STONE.
 - INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PLANS.
 - INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
 - BLEND GABIONS INTO EXISTING GROUND.

OWNER/DEVELOPER
MANGIONE ENTERPRISES OF TURF VALLEY, LP
LOU MANGIONE
1205 YORK ROAD
LUTHERVILLE, MARYLAND 21093
410.825.9400

DETAILS & STORMDRAIN PROFILES
TURF VALLEY
REGIONAL STORMWATER MANAGEMENT FACILITIES
PGCC MULTI-USE SUBDISTRICT

TAX MAP 16 GRID 16 & 17
3RD ELECTION DISTRICT

PART OF PARCELS 8 & 394
HOWARD COUNTY, MARYLAND

Sill · Adcock & Associates · LLC
Engineers · Surveyors · Planners
3300 North Ridge Road, Suite 160
Ellicott City, Maryland 21043
Phone: 443.325.7682 Fax: 443.325.7685
Email: info@silladcock.com

DESIGN BY: DB
DRAWN BY: BK
CHECKED BY: PS
SCALE: AS SHOWN
DATE: APRIL 30, 2013
PROJECT #: 06-025
SHEET #: 9 of 12

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2013.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
5/2/13
DATE
5/2/13
DATE
5/2/13
DATE

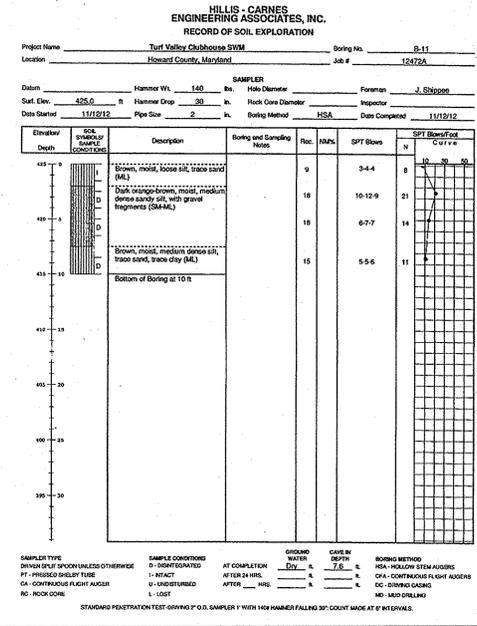
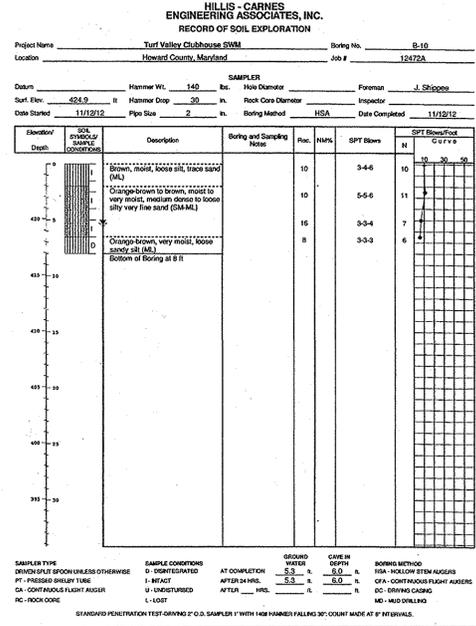
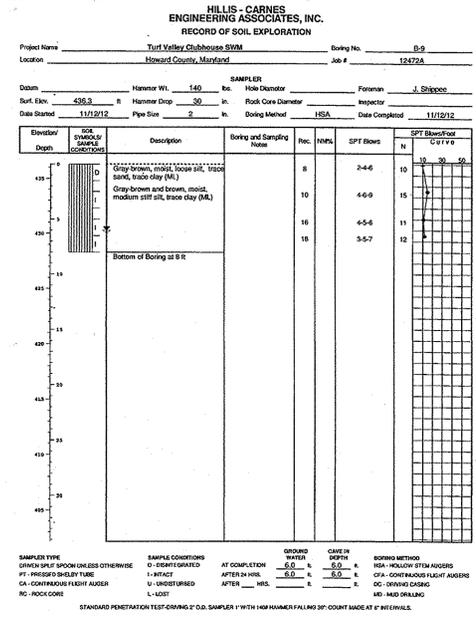
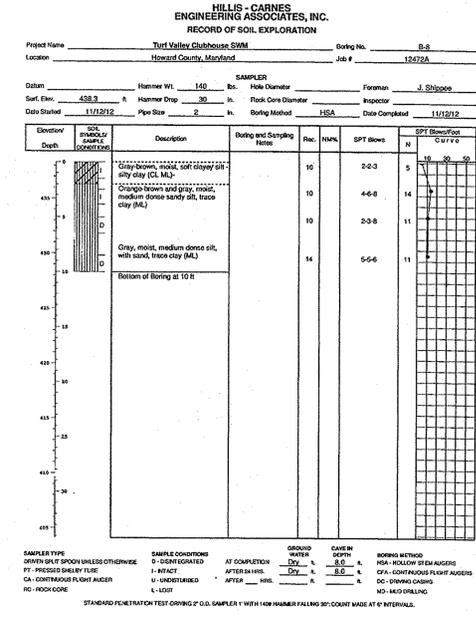
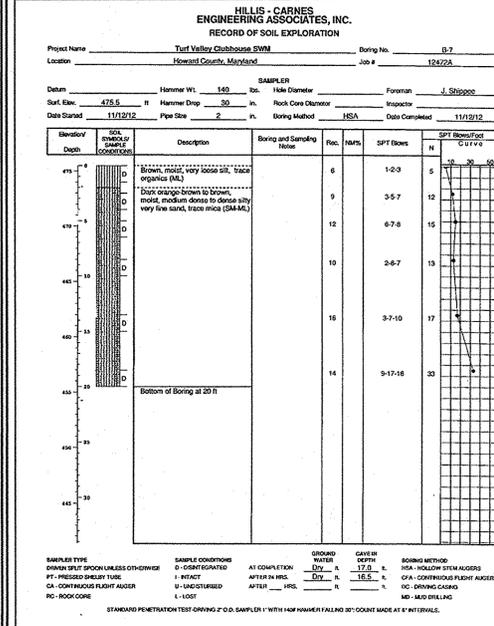
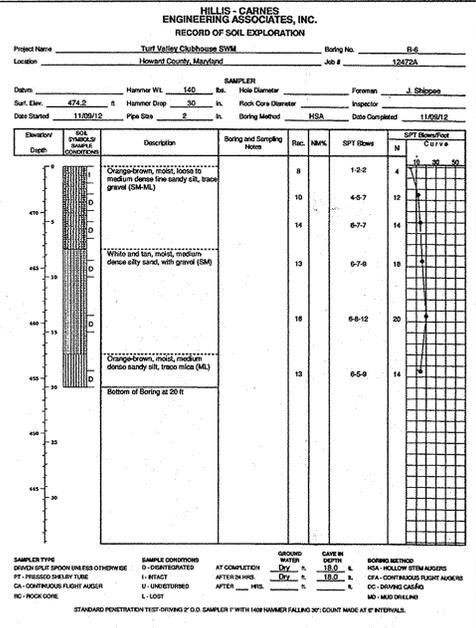
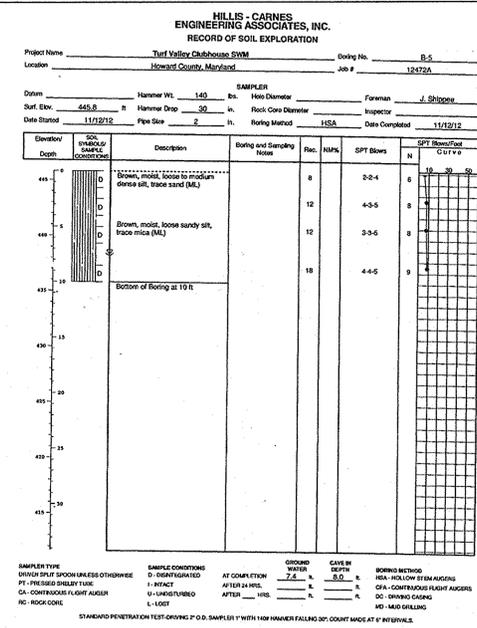
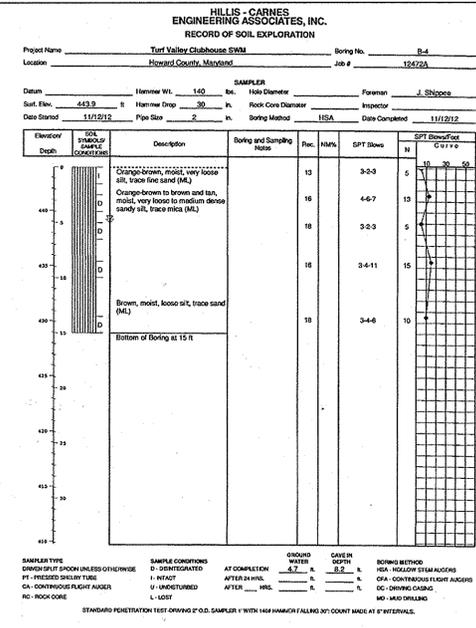
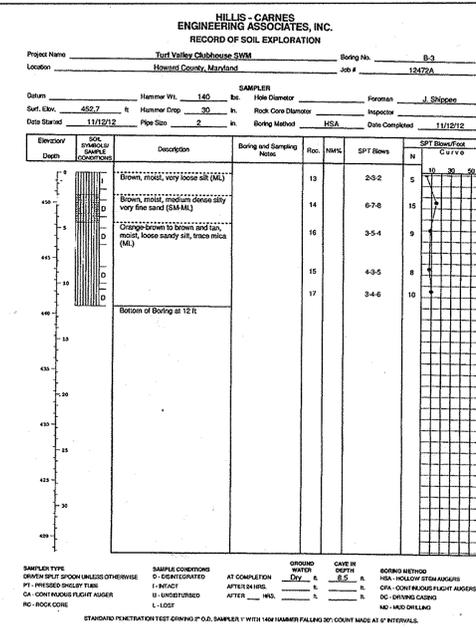
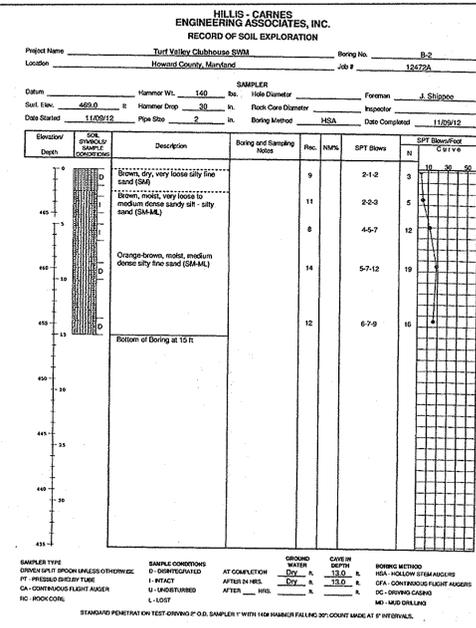
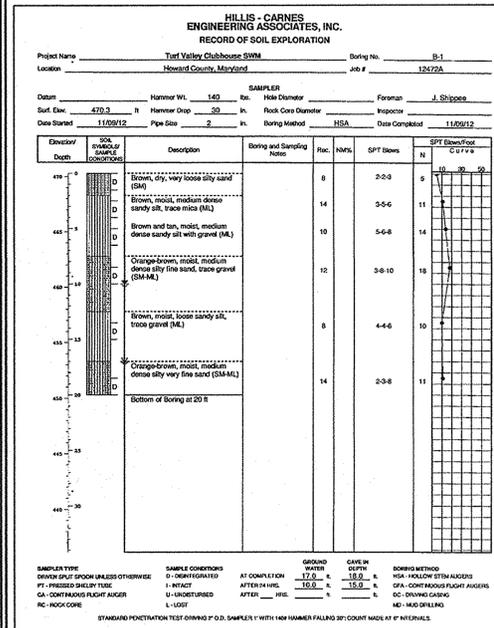
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
5/13/13
DATE

ENGINEER'S CERTIFICATE
"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
5/2/13
DATE

DEVELOPER'S CERTIFICATE
"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."
5/2/13
DATE

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE 04/15/2013

NO.	DESCRIPTION	DATE



EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION SPECIFICATIONS

All SWM areas should be stripped of topsoil and any other unsuitable materials from the embankment or structure areas in accordance with Soil Conservation Guidelines. After stripping operations have been completed, the exposed subgrade materials should be profiled with a loaded dump truck or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by proofrolling or penetrometer testing should be excavated to suitable firm soil, and then grades re-established by backfilling with suitable soil. A representative of the Geotechnical Engineer should be present to monitor placement and compaction of fill for the embankment and cut-off trench. In accordance with NRCSSMD Code No. 378 Pond Standards/Specifications, soils considered suitable for the center of embankment and cut-off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve.

It is our professional opinion that in addition to the soil materials described above a fine-grained soil, including Silt (ML) with a plasticity index of 10 or more can be utilized for the center of the embankment and core trench. All fill materials must be placed and compacted in accordance with NRCSS-MD Code No. 378 specifications.

(See pages 3-4 of Hillis-Carnes Geotechnical Report)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: 5/2/13

DATE: 5/2/13

DATE: 5/14/12

APPROVED: PLANNING BOARD OF HOWARD COUNTY

DATE: 04/15/2013

OWNER/DEVELOPER

MANGIONE ENTERPRISES OF TURF VALLEY, LP

1205 YORK ROAD

LUTHERVILLE, MARYLAND 21093

410.525.5400

BORING LOGS

TURF VALLEY

REGIONAL STORMWATER MANAGEMENT FACILITIES

PGCC MULTI-USE SUBDISTRICT

TAX MAP 16 GRID 16 & 17 PART OF PARCELS 8 & 394

3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

Sill · Adcock & Associates · LLC

Engineers · Surveyors · Planners

3300 North Ridge Road, Suite 160

Elliott City, Maryland 21043

Phone: 443.325.7682 Fax: 443.325.7685

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DESIGN BY: DB

DRAWN BY: BK

CHECKED BY: PS

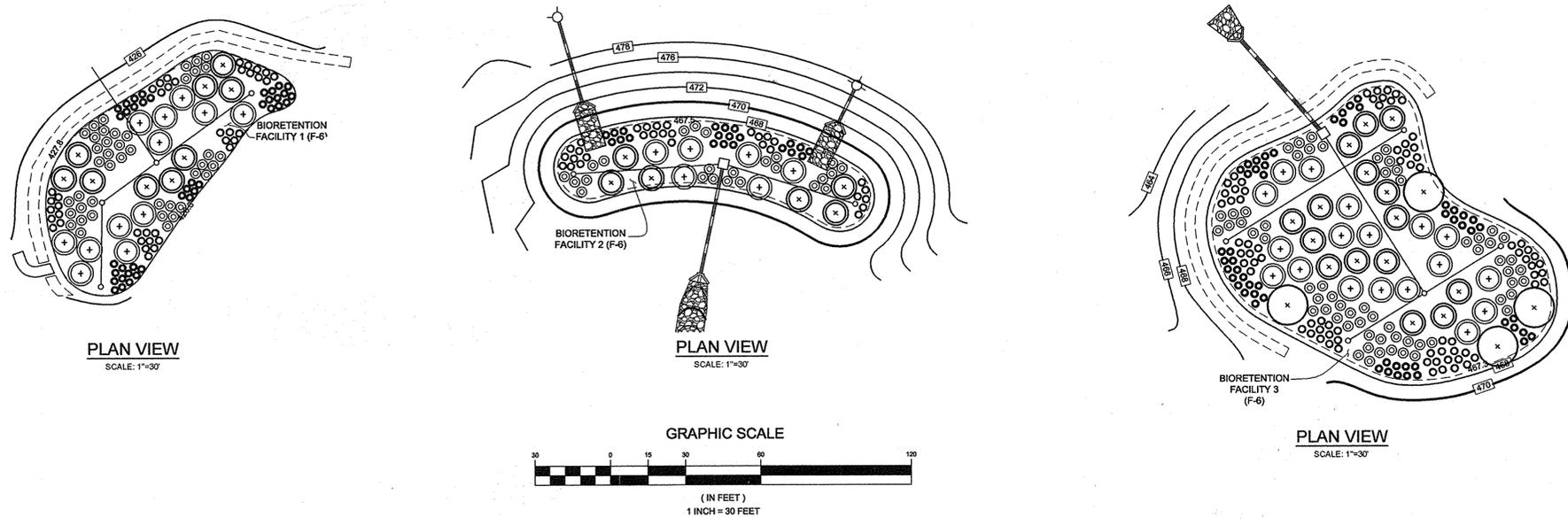
SCALE: NONE

DATE: APRIL 30, 2013

PROJECT #: 06-025

SHEET #: 10 of 12

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32020, EXPIRATION DATE, JUNE 20, 2013



BIORETENTION PLANT LIST									
LEGEND	TREES			SPACING	SIZE	REMARKS	QUANTITY BIO 1	QUANTITY BIO 2	QUANTITY BIO 3
	KEY	BOTANICAL NAME	COMMON NAME						
(X)	ARU	ACER RUBRUM	RED MAPLE	AS SHOWN	1'-1 1/2' CAL.	BB	0	0	4
SHRUBS									
(*)	CAM	CORNUS AMOMUM	SILKY DOGWOOD	AS SHOWN (MIN. 10' O.C.)	18'-24" HT.	CONT.	9	6	15
(*)	VDE	VIBURNUM DENTATUM	ARROWWOOD	AS SHOWN (MIN. 10' O.C.)	18'-24" HT.	CONT.	12	6	18
HERBACEOUS SPECIES									
(O)	EPM	EUPATORIUM FISTULOSUM	JOE-PYE WEED	AS SHOWN (MIN. 4' O.C.)	1 QT./1/2' HT.	CONT. (3 O.C.)	42	24	63
(O)	MDI	MONARDA DIDYMA	BEEBALM	AS SHOWN (MIN. 3' O.C.)	1 QT.	CONT.	39	21	54
(O)	RLA	RUDEBECKIA LACINIATA	TALL CONEFLOWER	AS SHOWN (MIN. 3' O.C.)	1 QT.	CONT.	39	30	75

NOTE: PLANT MATERIAL MUST COVER 50% OF THE MULCH AREA AT MATURE GROWTH.
 BIO 1 - BIORETENTION AREA = 5,090 S.F. OR 0.12 AC. BIO 2 - BIORETENTION AREA = 3,094 S.F. OR 0.07 AC. BIO 3 - BIORETENTION AREA = 10,090 S.F. OR 0.23 AC.
 PROVIDED: 21 SHRUBS AND 120 HERBACEOUS SPECIES PROVIDED: 12 SHRUBS AND 75 HERBACEOUS SPECIES PROVIDED: 4 TREES, 33 SHRUBS AND 192 HERBACEOUS SPECIES

STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS (MD. 378 - JANUARY, 2000)

I. SITE PREPARATION
 AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25 FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

II. EARTH FILL
MATERIAL
 THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6" FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 50% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

PLACEMENT
 AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8-INCH THICK LAYERS THAT ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION
 THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVELLED BY NOT LESS THAN ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEP FOOT, RUBBER TIRE OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL, IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.

WHEN REQUIRED BY THE REVIEWING AGENCY, THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN ±2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

CUTOFF TRENCH
 THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1:1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

EMBANKMENT CORE
 THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1:1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

III. STRUCTURE BACKFILL
 BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO BE PLACED COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI, 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM pH OF 4.0 AND A MINIMUM SOLIDITY OF 2,000 CPM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7" TO ASSURE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

IV. PIPE CONDUITS
 ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.
 A. CORRUGATED METAL PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:
 1. MATERIALS - POLYMER COATED STEEL PIPE
 STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-245 & M-246 WITH WATERTIGHT COUPLING BANDS OR FLANGES.
 MATERIALS - (ALUMINUM COATED STEEL PIPE)
 THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-274 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM COATED STEEL PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT.

MATERIALS - (ALUMINUM PIPE)
 THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-211 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC., MUST BE COMPOSED OF THE SAME MATERIAL AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT.

ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BAND WIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24" IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, FREE PUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12 INCH WIDE STANDARD LAP BAND WITH 12 INCH WIDE BY 3/8 INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET AND A 12 INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF 1/2 INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 RODS AND NUTS, 2 ON EACH CONNECTING PIPE END. A 24 INCH WIDE BY 3/8 INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGE JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.

HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

B. REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:
 1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM DESIGNATION C-361.
 2. BEDDING - ALL REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/GRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING/GRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.
 3. LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.
 4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".
 5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

C. PLASTIC PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIALS - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4" - 10" PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M-252 TYPE 5 AND 12" - 24" SHALL MEET THE REQUIREMENTS OF AASHTO M-264 TYPE 5.

2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.

3. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

D. DRAINAGE DIAPHRAGMS - WHEN A DRAINAGE DIAPHRAGM IS USED A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

V. CONCRETE
 CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MIX NO. 3.

VI. ROCK RIPRAP
 ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311.

GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.

VII. CARE OF WATER DURING CONSTRUCTION

ALL WORK ON THE PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE AND MAINTAIN ALL NECESSARY PUMPS AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM THE VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHAT-SO-EVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM OF REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER TO SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

VIII. STABILIZATION
 ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

IX. EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

X. STORMWATER MANAGEMENT INSPECTION AND MAINTENANCE SCHEDULE

1. INSPECT ANNUALLY AND AFTER A MAJOR STORM TO ENSURE PROPER OPERATION. WHEN POSSIBLE, INSPECTIONS SHOULD BE CONDUCTED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.

2. GRASS ON TOP OF THE EMBANKMENT AND THE SIDE SLOPES ONLY SHALL (AT A MINIMUM) BE MOWED TWICE A YEAR, ONCE IN JUNE AND AGAIN IN SEPTEMBER.

3. CLEAN ALL TRASH AND DEBRIS FROM THE POND AND RISER PIPE AREAS.

4. REPAIR ANY VISIBLE SIGNS OF EROSION IN THE POND AREA AS WELL AS THE RIP RAP OUTFALL AREA.

5. THE DAM INSPECTION CHECKLIST SHALL BE INCLUDED AS PART OF THE OPERATION AND MAINTENANCE PLAN AND PERFORMED AT LEAST ANNUALLY. WRITTEN RECORDS OF MAINTENANCE AND MAJOR REPAIRS NEED TO BE RETAINED IN A FILE. THE ISSUANCE OF A MAINTENANCE AND REPAIR PERMIT FOR ANY REPAIRS OR MAINTENANCE THAT INVOLVES THE MODIFICATION OF THE DAM OR SPILLWAY FROM ITS ORIGINAL DESIGN AND SPECIFICATIONS IS REQUIRED. A PERMIT IS ALSO REQUIRED FOR ANY REPAIRS OR RECONSTRUCTION THAT INVOLVE A SUBSTANTIAL PORTION OF THE STRUCTURE. ALL INDICATED REPAIRS ARE TO BE MADE AS SOON AS PRACTICAL.

XI. CONSTRUCTION CHECK DATA/AS-BUILT

RECORD ON SURVEY NOTE PAPER, SCS-ENG-28. SURVEY DATA FOR PONDS WILL BE PLOTTED IN RED. ALL CONSTRUCTION INSPECTION VISITS SHALL BE RECORDED ON THE CPA-6 OR APPROPRIATE DOCUMENTATION PAPER. THE DOCUMENTATION SHALL INCLUDE THE DATE, WHO PERFORMED THE INSPECTION, SPECIFICS AS TO WHAT WAS INSPECTED, ALL ALTERNATIVES DISCUSSED AND DECISIONS MADE AND BY WHOM. THE FOLLOWING IS A LIST OF THE MINIMUM DATA NEEDED FOR AS-BUILTS:

1. A PROFILE OF THE TOP OF DAM
2. A CROSS SECTION OF THE EMERGENCY SPILLWAY AT THE CONTROL SECTION
3. A PROFILE ALONG THE CENTERLINE OF THE EMERGENCY SPILLWAY.
4. A PROFILE ALONG THE CENTERLINE OF THE PRINCIPAL SPILLWAY EXTENDING AT LEAST 100 FEET DOWNSTREAM OF FILL
5. THE ELEVATION OF THE PRINCIPAL SPILLWAY CREST.
6. THE ELEVATION OF THE PRINCIPAL SPILLWAY CONDUIT INVERT (INLET AND OUTLET)
7. THE DIAMETER, LENGTH, THICKNESS AND TYPE OF MATERIAL FOR THE RISER.
8. THE DIAMETER, LENGTH, AND TYPE OF MATERIAL FOR THE CONDUIT.
9. THE SIZE AND TYPE OF ANTI-VORTEX AND TRASH RACK DEVICE AND ITS ELEVATIONS IN RELATION OF THE PRINCIPAL SPILLWAY CREST.
10. THE NUMBER, SIZE, AND LOCATION OF THE ANTI-SEEP COLLARS.
11. THE DIAMETER AND SIZE OF ANY LOW STAGE ORIFICES OR DRAIN PIPES.
12. SHOW THE LENGTH, WIDTH, AND DEPTH OF CONTOURS OF THE POOL AREA SO THAT DESIGN VOLUME CAN BE VERIFIED.
13. NOTES AND MEASUREMENTS TO SHOW THAT ANY SPECIAL DESIGN FEATURES WERE MET.
14. STATEMENT ON SEEDING AND FENCING.
15. NOTES ON SITE CLEANUP AND DISPOSAL.
16. SIGN AND DATE CHECK NOTES TO INCLUDE STATEMENT THAT PRACTICE MEETS OR EXCEEDS PLANS AND SPECIFICATIONS.
17. COMPACTION TEST RESULTS ON ALL FILL PLACEMENT, CERTIFIED BY A PROFESSIONAL ENGINEER.
18. CONCRETE TEST RESULTS. FOR ALL CAST IN PLACE CONCRETE, CERTIFIED BY A PROFESSIONAL ENGINEER.
19. A STATEMENT REGARDING THE STABILITY OF ALL CUTOFF SLOPES.
20. A STATEMENT REGARDING THE PRESENCE OF SOIL PERMEABILITY, GROUNDWATER AND/OR BEDROCK IN POOL AREA.
21. EVIDENCE THAT THE CUT-OFF/CORE TRENCH WAS INSTALLED PER PLANS AND SPECIFICATIONS.
22. EVIDENCE THAT THE EMERGENCY SPILLWAY AND/OR ACCESS ROAD WAS INSTALLED AS REQUIRED BY PLANS AND SPECIFICATIONS.

OWNER/DEVELOPER
 MANGIONE ENTERPRISES OF TURF VALLEY, LP
 LOU MANGIONE
 1205 YORK ROAD
 LUTHERVILLE, MARYLAND 21093
 410.825.6400

BIORETENTION PLANTING PLAN & MD 378 POND NOTES
TURF VALLEY
 REGIONAL STORMWATER MANAGEMENT FACILITIES
 PGCC MULTI-USE SUBDISTRICT
 TAX MAP 16 GRID 16 & 17 PART OF PARCELS 8 & 394
 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: DB
 DRAWN BY: BK
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: APRIL 30, 2013
 PROJECT #: 06-025
 SHEET #: 11 OF 12

Sill · Adcock & Associates · LLC
 Engineers · Surveyors · Planners
 3300 North Ridge Road, Suite 160
 Ellicott City, Maryland 21043
 Phone: 443.325.7682 Fax: 443.325.7685
 Email: info@silladcock.com

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32023, EXPIRATION DATE: JUNE 20, 2013

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 5/2/13
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 5/2/13
 CHIEF, DIVISION OF LAND DEVELOPMENT
 5/4/13
 DIRECTOR

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 4/30/13
 HOWARD SCD

ENGINEERS CERTIFICATE
 "I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
 5/2/13
 SIGNATURE OF ENGINEER
 PAUL M. SILL, P.E.

DEVELOPER'S CERTIFICATE
 "I HAVE CERTIFY THAT ALL CONSTRUCTION AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE WITH THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODIC INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."
 4/30/13
 SIGNATURE OF DEVELOPER

APPROVED
 PLANNING BOARD
 OF HOWARD COUNTY
 DATE: 04/15/2013
 [Signature]

NO.	DESCRIPTION	DATE

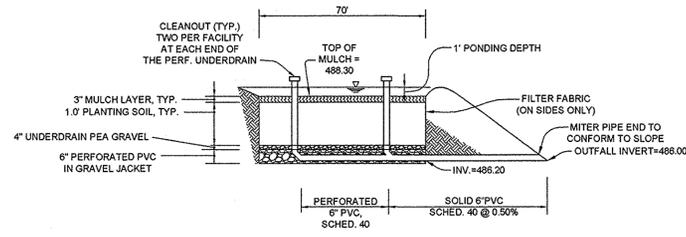
MATERIALS SPECIFICATIONS FOR TEMPORARY BIORETENTION FACILITY			
MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE PLANT LIST THIS SHEET	N/A	PLANTINGS ARE SITE-SPECIFIC, SEE PLANT LIST THIS SHEET
PLANTING SOIL (1.0' DEEP)	SAND 35% - 60% SILT 0% - 25% GROUND COMPOST 40% - 50%	N/A	EXISTING SOIL SUITABLE TO MEET PLANTING SOIL SPECIFICATIONS TO BE STOCKPILED IN DESIGNATED AREA & SUPPLEMENTED WITH COMPOST AS NECESSARY
MULCH	SHREDDED HARDWOOD		AGED 6 MONTHS, MINIMUM
PEA GRAVEL DIAPHRAGM AND CURTAIN DRAIN, IF REQUIRED	PEA GRAVEL: ASTM-D-448 ORNAMENTAL STONE: WASHED COBBLES	PEA GRAVEL: NO. 6 STONE: 2" TO 5"	
HARDWARE CLOTH	0.035" THICK - 1/4" MESH OR SMALLER GALVANIZED WIRE HARDWARE CLOTH		FOR USE AS A WRAP AROUND PERFORATED UNDERDRAIN PIPING
UNDERDRAIN PEA GRAVEL	# 7 OR # 8 STONE	0.25" TO 0.50"	CLEAN WASHED STONE
UNDERDRAIN GRAVEL	AASHTO M-43	0.375" TO 0.75"	CLEAN WASHED STONE
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR AASHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR35	- 3/8" PERF. @ 6" ON CENTER, 4 HOLES PER ROW, - SLOTTED PIPE MAY BE USED IN LIEU OF PERFORATED PIPE (HARDWARE CLOTH WRAP NOT REQUIRED) - MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES

TEMPORARY BIORETENTION PLANT LIST					
SHRUBS					
BOTANICAL NAME	COMMON NAME	SPACING	SIZE	REMARKS	QTY
CORNUS AMOMUM	SILKY DOGWOOD	MIN. 10' O.C.*	18"-24" HT.	CONT.	3
VIBURNUM DENTATUM	ARROWWOOD	MIN. 10' O.C.*	18"-24" HT.	CONT.	6
HERBACEOUS SPECIES					
EUPATORIUM FISTULOSUM	JOE-PYE WEED	MIN. 4' O.C.*	1 QT./12" HT.	CONT. (3' O.C.)	9
RUDEBECKIA LACINIATA	TALL CONEFLOWER	MIN. 3' O.C.*	1 QT.	CONT.	6

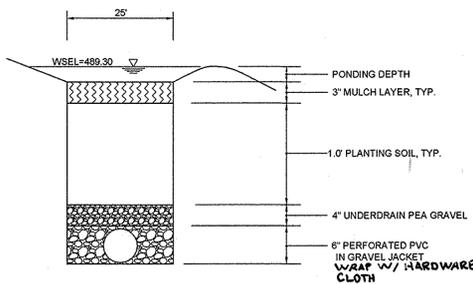
NOTE: PLANT MATERIAL MUST COVER 50% OF THE MULCH AREA AT MATURE GROWTH.
*INTERPERSE PLANTINGS THROUGHOUT BIORETENTION FILTER/MULCH AREA

TEMPORARY STORMWATER MANAGEMENT SUMMARY TABLE						
D.A.	Pe		ESDV		CHANNEL PROTECTION	
	REQUIRED	PROVIDED	REQUIRED	PROVIDED	REQUIRED	PROVIDED
B-1	2.0'	2.0'	1,957 CF (1)	1,980 CF (1)	N/A (3)	N/A (3)

- NOTES:
- TREATMENT FOR THE ENVIRONMENTAL SITE DESIGN VOLUMES (ESDV) WILL BE PROVIDED FOR AS FOLLOWS:
 - DRAINAGE AREA B-1: TEMPORARY BIORETENTION FACILITY (F-6)
 - CHANNEL PROTECTION IS NOT REQUIRED SINCE ALL ESDV HAVE BEEN TREATED FULLY.
 - OVERBANK FLOOD PROTECTION VOLUME, QP, IS NOT REQUIRED FOR THIS SITE.
 - EXTREME FLOOD VOLUME, QF, IS NOT REQUIRED FOR THIS SITE.



TEMPORARY BIORETENTION FACILITY
TYPICAL PROFILE
NOT TO SCALE



TEMPORARY BIORETENTION FACILITY
TYPICAL SECTION
NOT TO SCALE

NOTES:
* FOR ADDITIONAL INFORMATION, SEE THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I AND II.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED BIORETENTION FACILITIES (F-6)

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE 4-4.1 AND 2.
- THE OWNER SHALL PERFORM A PLANT INSPECTION IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD OR DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

LEGEND

EXISTING CONTOUR ----- 382.5

EXISTING SPOT ELEVATION ----- 266

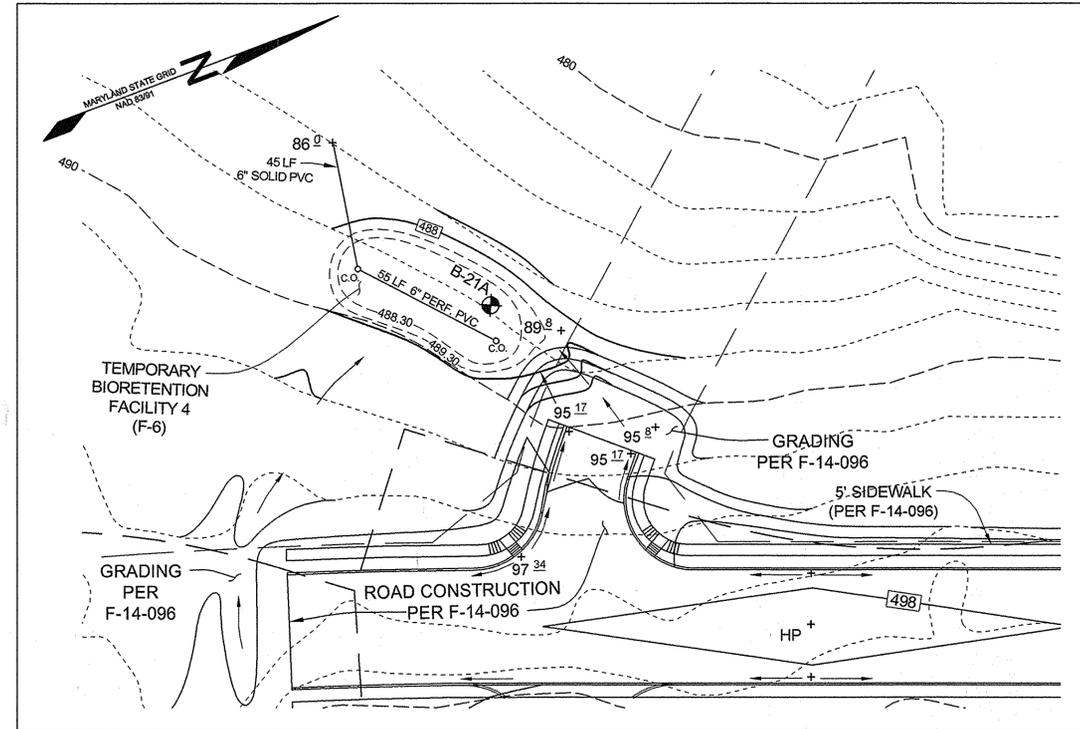
PROPOSED CONTOUR ----- 266

PROPOSED WORK (BY OTHERS) ----- 266

PROPOSED SPOT ELEVATION ----- 82.53

DIRECTION OF FLOW -----

EXISTING SOIL BORING ----- B-1



TEMPORARY BIORETENTION FACILITY PLAN VIEW BRAVA COURT
1"=30'

THE PURPOSE OF THIS ADDITIONAL SHEET IS TO PROVIDE TEMPORARY STORMWATER MANAGEMENT FOR THE CONSTRUCTION OF MOUNT VILLA PARKWAY UNDER F-14-096.

OWNER/DEVELOPER
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1205 YORK ROAD
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410.825.8400

STORMWATER MANAGEMENT DETAILS
TURF VALLEY
REGIONAL STORMWATER MANAGEMENT FACILITIES
PGCC MULTI-USE SUBDISTRICT

TAX MAP 16 GRID 16 & 17
3RD ELECTION DISTRICT

PART OF PARCELS 8 & 394
HOWARD COUNTY, MARYLAND

DESIGN BY: DB/BK
DRAWN BY: BK
CHECKED BY: PS
SCALE: AS SHOWN
DATE: JUNE 23, 2014
PROJECT #: 06-025
SHEET #: 12 of 12

Sill Adcock & Associates LLC
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Email: info@silladcock.com

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2015

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Robinson 6/26/14
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

W. J. Sauerbrey 6/30/14
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mark A. G. G. G. 6/30/14
DIRECTOR DATE

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE 4/15/13
[Signature]

NO.	DESCRIPTION	DATE