EDGEWOOD FARM

ROADS, STORMWATER MANAGEMENT AND STORM DRAIN CONSTRUCTION PLANS

GENERAL NOTES

1.) THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.

2.) THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL SURVEY WITH 2-FOOT CONTOUR INTERVALS PREPARED BY WINGS AERIAL MAPPING CO., INC. FLOWN ON APRIL 6, 2004.

3.) THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 21A AND 27CA WERE USED FOR THIS PROJECT.

4.) WATER IS PRIVATE.

5.) SEWER IS PRIVATE.

6.) STORMWATER MANAGEMENT SHALL BE PROVIDED BY 4 EXTENDED DETENTION WITH MICRO-POOL FACILITIES AND BY NATURAL AREA CONSERVATION AND SHEETFLOW TO BUFFER CREDITS, THE FACILITIES SHALL BE PRIVATELY OWNED AND JOINTLY MAINTAINED BY THE HOMEOWNERS ASSOCIATION AND HOWARD COUNTY.

7.) EXISTING UTILITIES ARE BASED UPON AERIAL SURVEY LOCATIONS.

8.) THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY BENCHMARK ENGINEERING, INC., DATED JULY, 2004 AND APPROVED UNDER SP-05-014.

9.) THE WETLANDS DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. IN MARCH, 2004.

10.) THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, INC. IN NOVEMBER, 2004.

11.) A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.

12.) THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS CARNES ENGINEERING ASSOCIATES, INC. IN NOVEMBER, 2004 AND SUPPLEMENTED IN APRIL, 2005.

13.) THE SUBJECT PROPERTY IS ZONED RC-DEO PER THE 2-2-04 COMPREHENSIVE ZONING PLAN. ALL ADJACENT PROPERTIES ARE ZONED RC-DEO PER THE 2-2-04 COMPREHENSIVE ZONING PLAN.

14.) TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS SITE.

15.) THERE SHALL BE NO DISTURBANCE WITHIN THE 100-YR FLOODPLAIN, WETLANDS, STREAMS, THEIR BUFFERS OR 25% OR GREATER STEEP SLOPES THAT ARE AT LEAST 20,000 S.F. OF CONTIGUOUS AREA EXCEPT FOR THE DISTURBANCES TO THE FLOODPLAIN IN THE AREA OF THE OUTFALL OF SWMF#2 AND THE STREAM BUFFER IN THE AREA OF THE OUTFALL OF SWMF#3. THESE AREAS HAVE BEEN DEEMED AS NECESSARY DISTURBANCES BY DPZ AND HSCD IN ACCORDANCE WITH SECTION 16.116(a) OF THE SUBDIVISION REGULATIONS IN ORDER TO DISCHARGE ONTO SLOPES LESS THAN 10%.

16.) BOUNDARY IS BASED ON A FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED DURING JULY, 2004 BY BENCHMARK ENGINEERING, INC.

17.) FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. IN NOVEMBER, 2004.

18.) THIS PROJECT IS NOT LOCATED WITHIN THE METROPOLITAN DISTRICT.

19.) THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL NO. 45-2003 AND THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL NO. 75-2003. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE BUILDING OR GRADING PERMIT APPLICATION.

20.) THIS AREA DESIGNATES A PRIVATE SEWERAGE EASEMENT OF 10,000 SQUARE FEET AS REQUIRED BY THE STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWERAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA IS RESTRICTED UNTIL PUBLIC SEWER IS AVAILABLE. THIS EASEMENT SHALL BECOME NULL AND VOID UPON CONNECTION TO A PU...C SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWERAGE EASEMENT. RECORDATION OF A MODIFIED SEWERAGE EASEMENT PLAT SHALL NOT BE REQUIRED.

21.) THE PURPOSE OF THE PRESERVATION PARCELS AND THE JUSTIFICATION FOR THE DESIGN OF THE CLUSTER SUBDIVISION IS AS FOLLOWS:

PRESERVATION PARCELS 'A' AND 'B' ARE PROPOSED AS NON-BUILDABLE PARCELS THAT SHALL INCLUDE BUT NOT BE LIMITED TO STORM DRAINS, UTILITY EASEMENTS, AND NATURAL AREA CONSERVATION CREDIT. PARCEL 'A' SHALL HELP PRESERVE THE RURAL CHARACTER OF SCENIC ROXBURY ROAD BY PROVIDING LANDSCAPING AND STREET TREES. THEY WILL BE PRIVATELY OWNED. THEY ARE ENCUMBERED BY AN EASEMENT AGREEMENT WITH HOWARD COUNTY AND THE HOMEOWNERS ASSOCIATION. THIS AGREEMENT PROHIBITS FURTHER SUBDIVISION OF THE PARCEL. OUTLINES THE MAINTENANCE RESPONSIBILITIES OF ITS OWNER AND ENUMERATES THE USES PERMITTED ON THE PROPERTY.

PRESERVATION PARCEL 'C' IS PROPOSED AS A NON-BUILDABLE PARCEL TO PRESERVE ENVIRONMENTALLY SENSITIVE AREAS INCLUDING STEEP SLOPES, STREAM BUFFERS, WETLANDS, FLOODPLAIN AND EXISTING FOREST AND TO PRESERVE THE RURAL CHARACTER OF SCENIC ROXBURY ROAD BY PROVIDING LANDSCAPING AND STREET TREES. IT WILL BE DEDICATED TO THE HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS. IT IS ENCUMBERED BY AN EASEMENT AGREEMENT WITH THE HOMEOWNERS ASSOCIATION. THIS AGREEMENT PROHIBITS FURTHER SUBDIVISION OF THE PARCEL, OUTLINES THE MAINTENANCE RESPONSIBILITIES OF ITS OWNER AND ENUMERATES THE USES PERMITTED ON THE PROPERTY.

PRESERVATION PARCELS 'D', 'E', 'F', AND 'G' ARE PROPOSED AS NON-BUILDABLE PARCELS FOR STORMWATER MANAGEMENT FACILITIES AS A REQUIREMENT TO CONTROL STORMWATER RUNOFF. THEY WILL BE OWNED BY THE HOMEOWNERS ASSOCIATION. THEY ARE ENCUMBERED BY AN EASEMENT AGREEMENT WITH HOWARD COUNTY. THIS AGREEMENT PROHIBITS FURTHER SUBDIVISION OF THE PARCEL, OUTLINES THE MAINTENANCE RESPONSIBILITIES OF ITS OWNER AND ENUMERATES THE USES PERMITTED ON THE PROPERTY.

BULK PARCELS 'AA' THRU 'HH' ARE PROPSED AS NON-BUILDABLE BULK PARCELS. THEY ARE TO BE RESUBDIVIDED AT A LATER DATE AS PHASE 2 OF THIS SUBDIVISION. THEY WILL BE SUBDIVIDED IN 53 ADDITIONAL 1 ACRE LOTS, 1 NON-BUILDABLE PRESERVATION PARCEL FOR THE SHARED SEPTIC SYSTEM AND 1 NON-BUILDABLE PRESERVATION PARCEL.

22.) THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.

23.) WELLS SHALL BE DRILLED PRIOR TO RECORD PLAT SUBMITTAL FOR SIGNATURE. IT IS THE DEVELOPER'S RESPONSIBILITY TO DRILL THE WELLS. IT WILL NOT BE CONSIDERED TO BE GOVERNMENTAL DELAY IF THE WELLS ARE NOT COMPLETED PRIOR TO THE SUBMISSION'S MILESTONE DATE.

24.) GROUNDWATER APPROPRIATION PERMIT SHALL BE OBTAINED PRIOR TO THE SUBMITTAL OF THE RECORD PLAT FOR SIGNATURE.

25.) DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:

A) WIDTH – 12' (14' SERVING MORE THAN ONE RESIDENCE).
B) SURFACE – 6" OF COMPACT CRUSHER RUN BASE WITH TAR AND CHIP COATING.
C) GEOMETRY – MAX. 15% GRADE, MAX. 10% GRADE CHANGE & MIN. 45' TURNING RADIUS.
D) STRUCTURES(CULVERTS/BRIDGES) – CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOAD)
E) DRAINAGE ELEMENTS – CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.
F) STRUCTURE CLEARANCES – MINIMUM 12 FEET.
G) MAINTENANCE – SUFFICIENT TO INSURE ALL WEATHER USE.

26.) LANDSCAPING FOR THIS SUBDIVISION IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN INCLUDED WITH THE ROAD CONSTRUCTION PLAN SET IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL WITH A DPW, DEVELOPER'S AGREEMENT WITH SURETY IN THE AMOUNT OF $87,750.00.

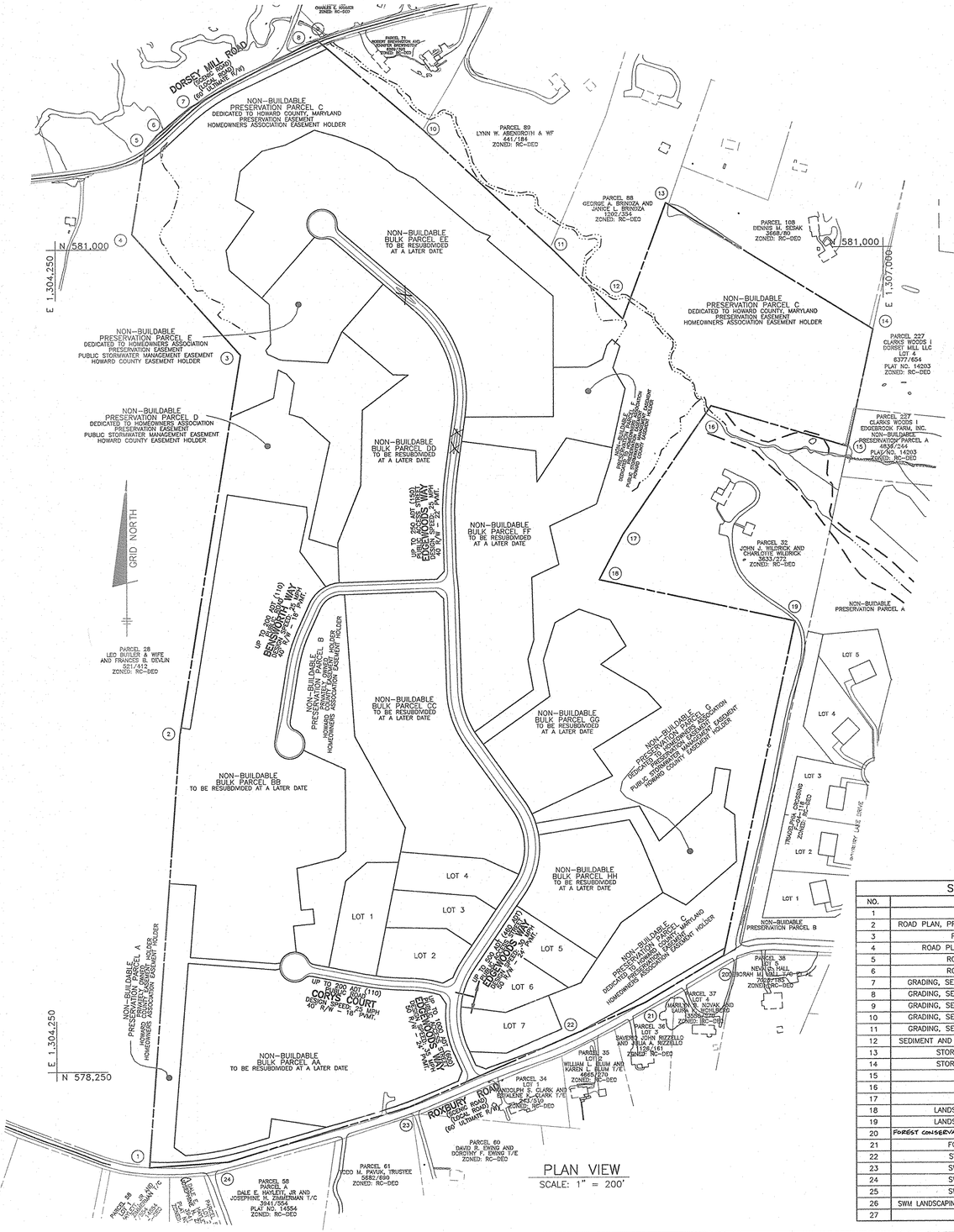
27.) THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

28.) THE TOTAL FOREST CONSERVATION OBLIGATION AMOUNT OF 27.0 ACRES SHALL BE MET BY THE ON-SITE RETENTION OF 10.9 AC. OF NET TRACT AREA FOREST WITHIN A FOREST CONSERVATION EASEMENT, THE ON-SITE AFFORESTATION OF 13.1 AC. WITHIN A FOREST CONSERVATION EASEMENT AND BY THE ON-SITE REFORESTATION OF 3.0 AC. WITHIN A FOREST CONSERVATION EASEMENT. WITH A DPW DEVELOPER'S AGREEMENT WITH SURETY IN THE TOTAL AMOUNT OF $45,618.60.

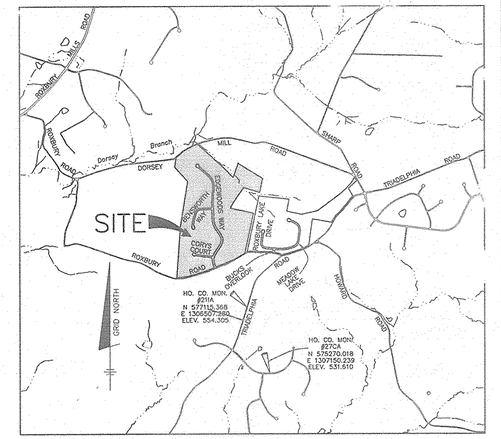
29.) OPEN SPACE IS NOT REQUIRED AS PRESERVATION PARCEL 'C' SHALL BE DEDICATED TO HOWARD COUNTY, MARYLAND.

30.) ALL DRIVEWAY CULVERTS SHALL BE 15" RCP OR ELLIPTICAL EQUIVALENT EXCEPT FOR THE CULVERT FOR LOT 21 WHICH SHALL BE 21" RCP.

31.) AN ADDITIONAL 7.79 AC. OF REFORESTATION ABOVE THE REQUIREMENT SHALL BE USED FOR THE ESTABLISHMENT OF A PRIVATE FOREST MITIGATION BANK WITH A DPW DEVELOPERS AGREEMENT WITH SURETY IN THE AMOUNT OF $169,066.20.



PLAN VIEW
SCALE: 1" = 200'



21IA – STAMPED BRASS DISC SET 1'-2" BELOW SURFACE ON A CONCRETE COLUMN (3' DEEP). LOCATED 4' FROM WEST EDGE OF TRADELPHIA ROAD 99' FROM BGE POLE #134679.

27CA – STAMPED BRASS DISC SET 1'-9" BELOW SURFACE ON A CONCRETE COLUMN (3' DEEP). LOCATED 2.8' FROM PK NAIL IN MACADAM CURB ON NORTH SIDE OF MICHELLE DRIVE. (APPROX. 156' FROM SAPLING DRIVE).

VICINITY MAP
SCALE: 1" = 2000'

SITE ANALYSIS DATA CHART

GENERAL SITE DATA

1.) PRESENT ZONING:	RC-DEO
2.) APPLICABLE DPZ FILE REFERENCES:	SP-05-014
3.) PROPOSED USE OF SITE:	RESIDENTIAL (SFD)
4.) PROPOSED WATER AND SEWER SYSTEMS:	PRIVATE

AREA TABULATION

1.) GROSS TRACT AREA	131.87 AC.±
2.) AREA WITHIN 100-YEAR FLOODPLAIN	4.28 AC.±
3.) TOTAL AREA OF 25% OR GREATER STEEP SLOPES AREA NOT IN FLOODPLAIN (FOR NTA CALC)	7.07 AC.± 6.97 AC.±
4.) NET TRACT AREA	120.62 AC.±
5.) TOTAL NUMBER OF LOTS ALLOWED PER ZONING 1 UNIT PER 4.25 GROSS ACRES 1 UNIT PER 2 NET ACRES (MAX)	31 60
6.) TOTAL NUMBER OF RESIDENTIAL UNITS/LOTS PROPOSED ON THIS SUBMISSION	7
7.) AREA OF CLUSTER LOTS	7.51 AC.±
8.) AREA OF NON-BUILDABLE PRESERVATION PARCELS (PARCELS A – H)	57.26 AC.±
9.) AREA OF BUILDABLE PRESERVATION PARCELS	N/A
10.) AREA OF NON-BUILDABLE BULK PARCELS	60.67 AC.±
11.) AREA OF BUILDABLE BULK PARCELS	N/A
12.) AREA OF ROAD RIGHT-OF-WAY	6.43 AC.±
13.) OPEN SPACE ON-TOTAL SITE *	N/A
14.) AREA OF RECREATIONAL OPEN SPACE REQUIRED	N/A

* 5% OF GROSS REQUIRED (6.59 AC.±) OR NONE IF THE PRES. PARCEL IS DEDICATED TO THE HOMEOWNERS ASSOCIATION OR HOWARD COUNTY. (PRESERVATION PARCEL 'C' SHALL BE DEDICATED TO HOWARD COUNTY)

SHEET INDEX

NO.	TITLE
1	TITLE SHEET
2	ROAD PLAN, PROFILES, AND TRAFFIC CONTROL DETAILS
3	ROAD PLAN AND PROFILES
4	ROAD PLAN ~~AND SPEED CONTROL DETAILS~~
5	ROAD PROFILES AND DETAILS
6	ROAD PROFILES AND DETAILS
7	GRADING, SEDIMENT AND EROSION CONTROL PLAN
8	GRADING, SEDIMENT AND EROSION CONTROL PLAN
9	GRADING, SEDIMENT AND EROSION CONTROL PLAN
10	GRADING, SEDIMENT AND EROSION CONTROL PLAN
11	GRADING, SEDIMENT AND EROSION CONTROL PLAN
12	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
13	STORM DRAIN DRAINAGE AREA MAP
14	STORM DRAIN DRAINAGE AREA MAP
15	STORM DRAIN PROFILES
16	STORM DRAIN PROFILES
17	STORM DRAIN PROFILES
18	LANDSCAPE AND STREET TREE PLAN
19	LANDSCAPE AND STREET TREE PLAN
20	FOREST CONSERVATION AND FOREST MITIGATION BANK PLAN
21	FOREST CONSERVATION PLAN
22	SWM DETAILS – FACILITY #1
23	SWM DETAILS – FACILITY #2
24	SWM DETAILS – FACILITY #3
25	SWM DETAILS – FACILITY #4
26	SWM LANDSCAPING AND SHEETFLOW TO BUFFER CREDIT PLAN
27	SOILS BORING LOGS

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 8-21-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/7/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 9/6/06

NO.	DATE	REVISION
2	3-10-2008	REVISE GENERAL NOTE 30 TO INDICATE RCP PIPE.
1	5-11-2007	ADD GENERAL NOTE 31.

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Donald Moon 7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: TITLE PAGE

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

DATE: JULY, 2006 | PROJECT NO. 1550

SCALE: AS SHOWN | SHEET 1 OF 27

F-06-108

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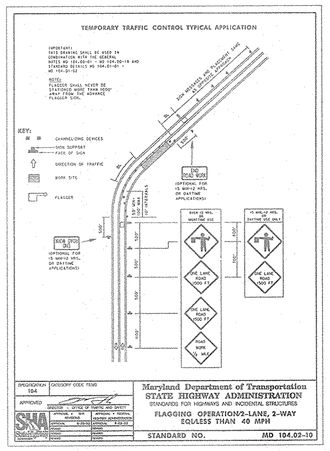

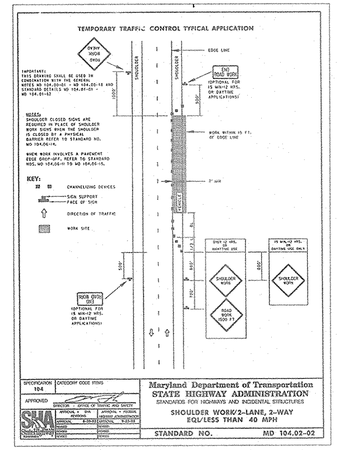

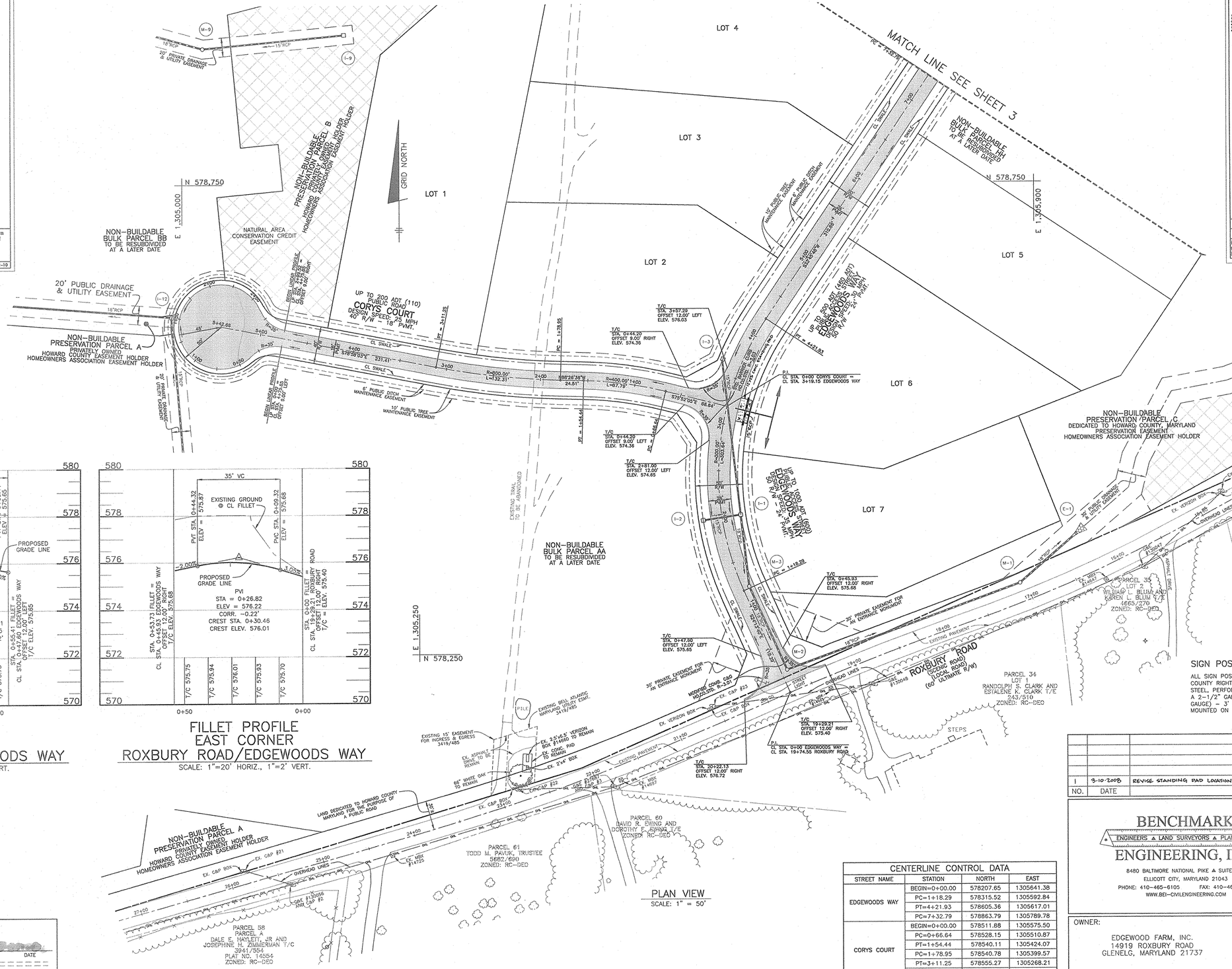
N 578,750
E 1,305,000
GRID NORTH
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
MATCH LINE SEE SHEET 3
NON-BUILDABLE BULK PARCEL BB TO BE RESUBDIVIDED AT A LATER DATE
NON-BUILDABLE PRESERVATION PARCEL B PRIVATELY OWNED HOWARD COUNTY EASEMENT HOLDER HOMEOWNERS ASSOCIATION EASEMENT HOLDER
NATURAL AREA CONSERVATION CREDIT EASEMENT
20' PUBLIC DRAINAGE & UTILITY EASEMENT
18"RCP
15"RCP
NON-BUILDABLE PRESERVATION PARCEL A PRIVATELY OWNED HOWARD COUNTY EASEMENT HOLDER HOMEOWNERS ASSOCIATION EASEMENT HOLDER
UP TO 200 ADT (110) PUBLIC ROAD
CORYS COURT
DESIGN SPEED: 25 MPH
40' R/W - 18' PVMT.
CL SWALE
6' PUBLIC DITCH MAINTENANCE EASEMENT
10' PUBLIC TREE MAINTENANCE EASEMENT
UP TO 200 ADT (110) PUBLIC ROAD
EDGEWOODS WAY
DESIGN SPEED: 25 MPH
50' R/W - 24' PVMT.
NON-BUILDABLE BULK PARCEL AA TO BE RESUBDIVIDED AT A LATER DATE
EXISTING TRAIL TO BE ABANDONED
E 1,305,250
N 578,250
ROXBURY ROAD (SCENIC ROAD) (LOCAL ROAD) (60' ULTIMATE R/W)
30' PRIVATE EASEMENT FOR AN ENTRANCE MONUMENT
MOUNTED COMB. CABLE HOUSING
EX. CAP #23
EX. 2-2"x4.5" VERIZON BOX #14690 TO REMAIN
EX. 6' CONC. PAD TO REMAIN
EX. 2"x4" BOX
EXISTING 15' EASEMENT FOR INGRESS & EGRESS 3419/485
EXISTING BELL ATLANTIC MARYLAND UTILITY ESMT. 3419/485
EX. ASPHALT DRIVE TO BE REMAIN
66" WHITE OAK TO REMAIN
EX. CAP BOX
EX. MBX #14697
EX. MBX #14725
EX. CAP #21
EX. CAP #22
EX. CAP #24
EX. CAP #25
EX. CAP #26
EX. CAP #27
EX. CAP #28
EX. CAP #29
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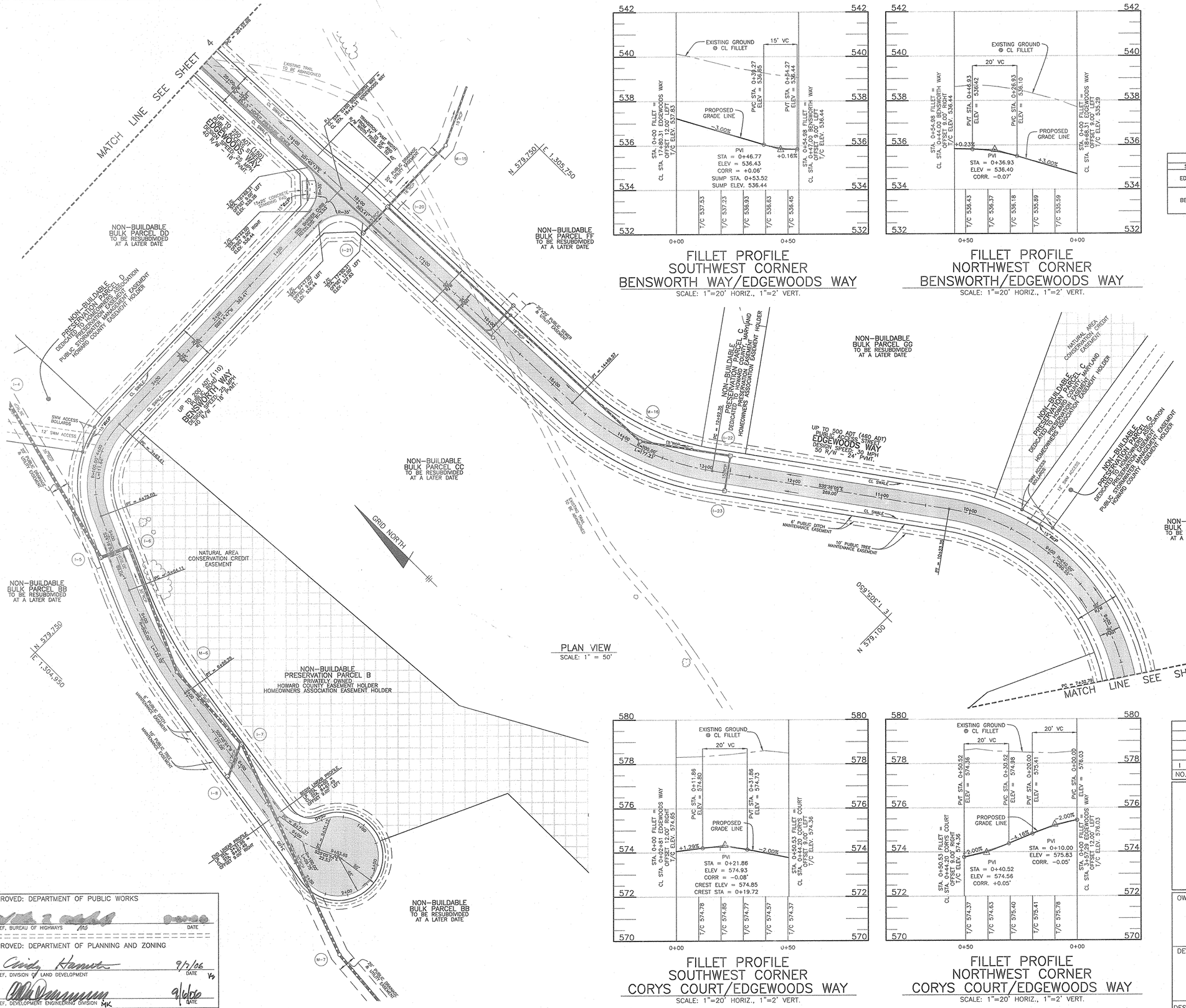
EX. CAP #36
EX. CAP



PLAN VIEW
SCALE: 1" = 50'

FILLET PROFILE
SOUTHWEST CORNER
BENSWORTH WAY/EDGEWOODS WAY
SCALE: 1"=20' HORIZ., 1"=2' VERT.

FILLET PROFILE
NORTHWEST CORNER
BENSWORTH/EDGEWOODS WAY
SCALE: 1"=20' HORIZ., 1"=2' VERT.

CENTERLINE CONTROL DATA			
STREET NAME	STATION	NORTH	EAST
EDGEWOODS WAY	PC = 7+32.79	578863.79	1305789.78
	PT = 10+23.35	579136.89	1305785.40
	PC = 12+92.35	579355.61	1305628.80
	PT = 14+69.57	579521.07	1305572.87
	PC = 20+32.98	580084.22	1305555.63
BENSWORTH WAY	BEGIN = 0+00.00	579875.64	1305562.01
	PC = 3+63.41	579864.52	1305198.77
	PT = 4+75.05	579805.69	1305110.68
	PC = 5+64.11	579724.51	1305074.05
	PT = 6+96.29	579598.28	1305036.16
	PC = 8+71.37	579425.42	1305008.37
	PT = 9+31.12	579367.13	1305016.54
	END = 9+53.65	579346.72	1305026.10

CENTER LINE CURVE DATA						
STREET NAME	STATION	RADIUS	LENGTH	DELTA	TANGENT	CHORD
EDGEWOODS WAY	STA. 7+32.79 TO 10+23.35	240.00'	290.55'	69°21'52"	166.07'	N00°55'09"W 273.13'
	STA. 12+92.35 TO 14+69.57	300.00'	177.23'	33°50'52"	91.28'	N18°40'39"W 174.66'
BENSWORTH WAY	STA. 3+63.41 TO 4+75.05	100.00'	111.64'	63°57'54"	62.44'	S56°15'50"W 105.93'
	STA. 5+64.11 TO 6+96.29	500.00'	132.18'	15°08'49"	66.48'	S16°42'28"W 131.80'
	STA. 8+71.37 TO 9+31.12	100.00'	59.75'	34°13'58"	30.80'	S07°58'55"E 58.86'

FILLET PROFILE
SOUTHWEST CORNER
CORYS COURT/EDGEWOODS WAY
SCALE: 1"=20' HORIZ., 1"=2' VERT.

FILLET PROFILE
NORTHWEST CORNER
CORYS COURT/EDGEWOODS WAY
SCALE: 1"=20' HORIZ., 1"=2' VERT.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/7/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 9/6/06

NO.	DATE	REVISION
1	3-10-2008	REVISE CULVERTS TO RCP.

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD MOON — No. 21431 — PROFESSIONAL ENGINEER
Donald Moon 9/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: ROAD PLAN AND PROFILES

DATE: JULY, 2006 PROJECT NO. 1550

DESIGN: DBT DRAFT: DBT CHECK: DAM

SCALE: AS SHOWN SHEET 3 OF 27

F-06-108

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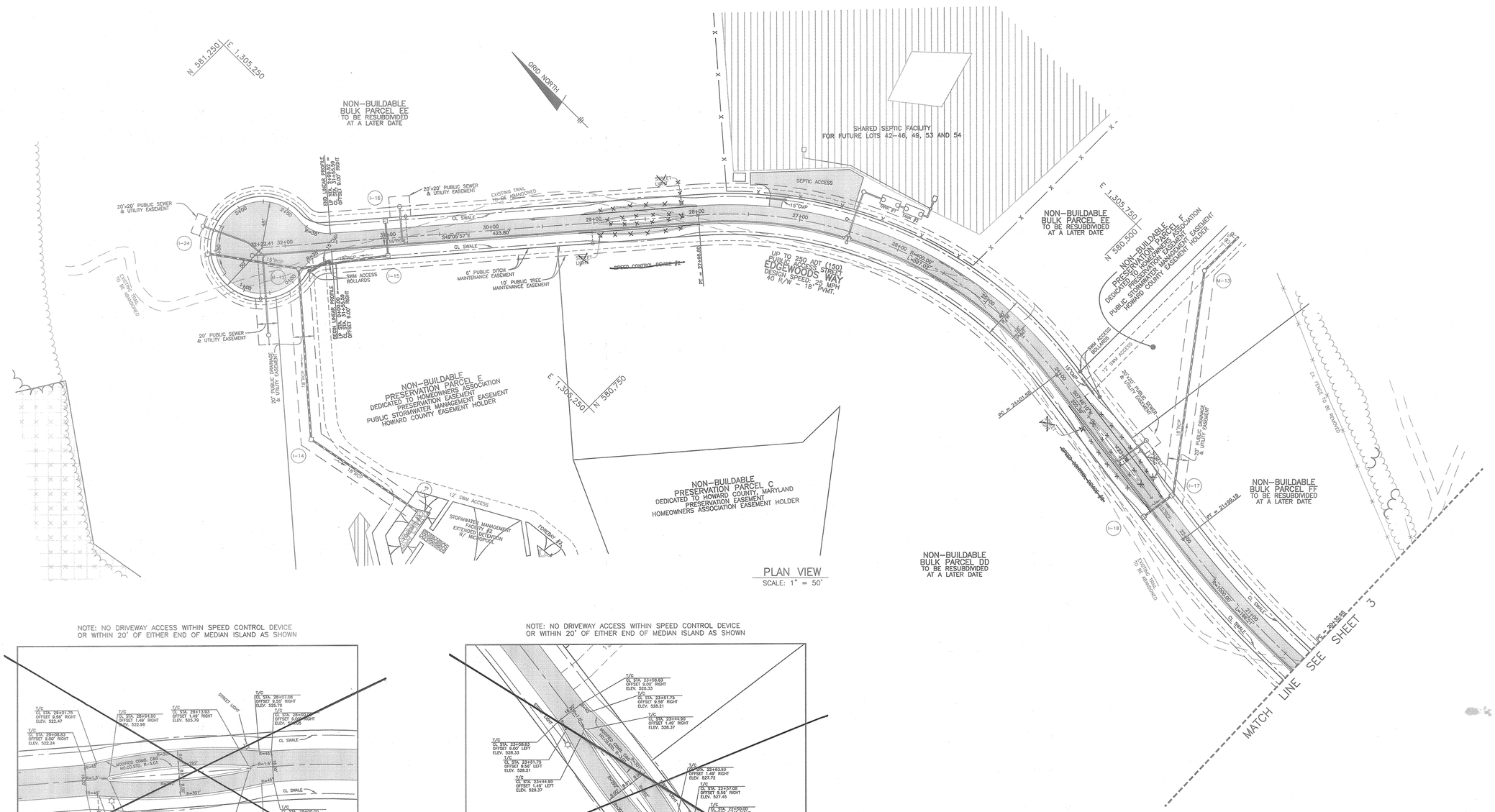
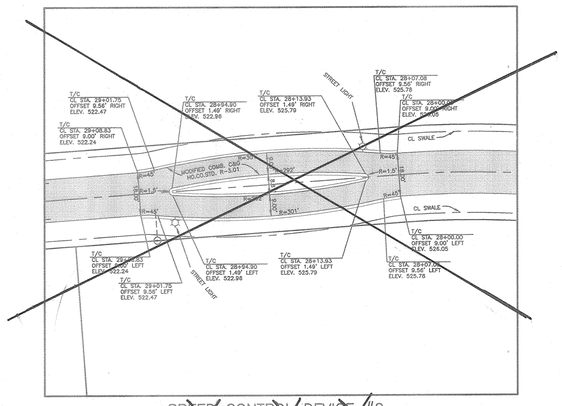


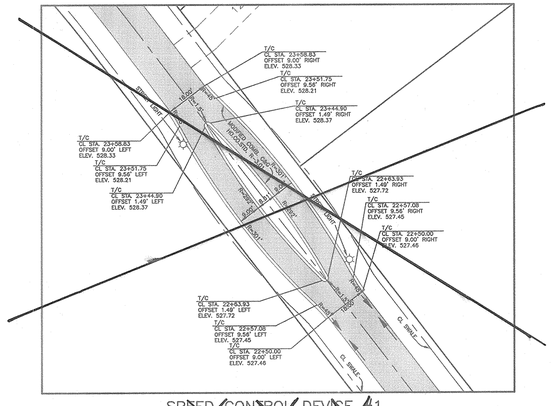
PLAN VIEW
SCALE: 1" = 50'

NOTE: NO DRIVEWAY ACCESS WITHIN SPEED CONTROL DEVICE OR WITHIN 20' OF EITHER END OF MEDIAN ISLAND AS SHOWN



SPEED CONTROL DEVICE #2
CENTER MEDIAN ISLAND
SCALE: 1" = 30'

NOTE: NO DRIVEWAY ACCESS WITHIN SPEED CONTROL DEVICE OR WITHIN 20' OF EITHER END OF MEDIAN ISLAND AS SHOWN



SPEED CONTROL DEVICE #1
CENTER MEDIAN ISLAND
SCALE: 1" = 30'

NO.	DATE	REVISION

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/7/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/6/06

STREET LIGHT SCHEDULE

SYMBOL	LOCATION		DESCRIPTION
☼	EDGEWOODS WAY	CL STA. 22+64 OFFS. 13' RIGHT	250 WATT HIGH VAPOR PENDANT MOUNTED ON A 30' BRONZE FIBERGLASS POLE W/ 6' MAST ARM
		CL STA. 23+45 OFFS. 13' LEFT	
		CL STA. 28+17 OFFS. 13' RIGHT	
		CL STA. 28+95 OFFS. 13' LEFT	

CENTERLINE CONTROL DATA

STREET NAME	STATION	NORTH	EAST
EDGEWOODS WAY	PC = 20+32.98	580084.22	1305555.63
	PT = 21+99.19	580250.01	1305564.34
	PC = 24+01.58	580450.54	1305591.70
	PT = 27+98.60	580806.95	1305457.27
	END = 32+22.41	581084.44	1305136.94

CENTER LINE CURVE DATA

STREET NAME	STATION	RADIUS	LENGTH	DELTA	TANGENT	CHORD	
EDGEWOODS WAY	STA. 20+32.98 TO 21+99.19	1000.00'	166.21'	9°31'23"	83.30'	N03°00'29"E	166.02'
	STA. 24+01.58 TO 27+98.60	400.00'	397.02'	56°52'08"	216.59'	N20°39'53"W	380.92'

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD MANN — REGISTERED PROFESSIONAL ENGINEER
Donald Mann 7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

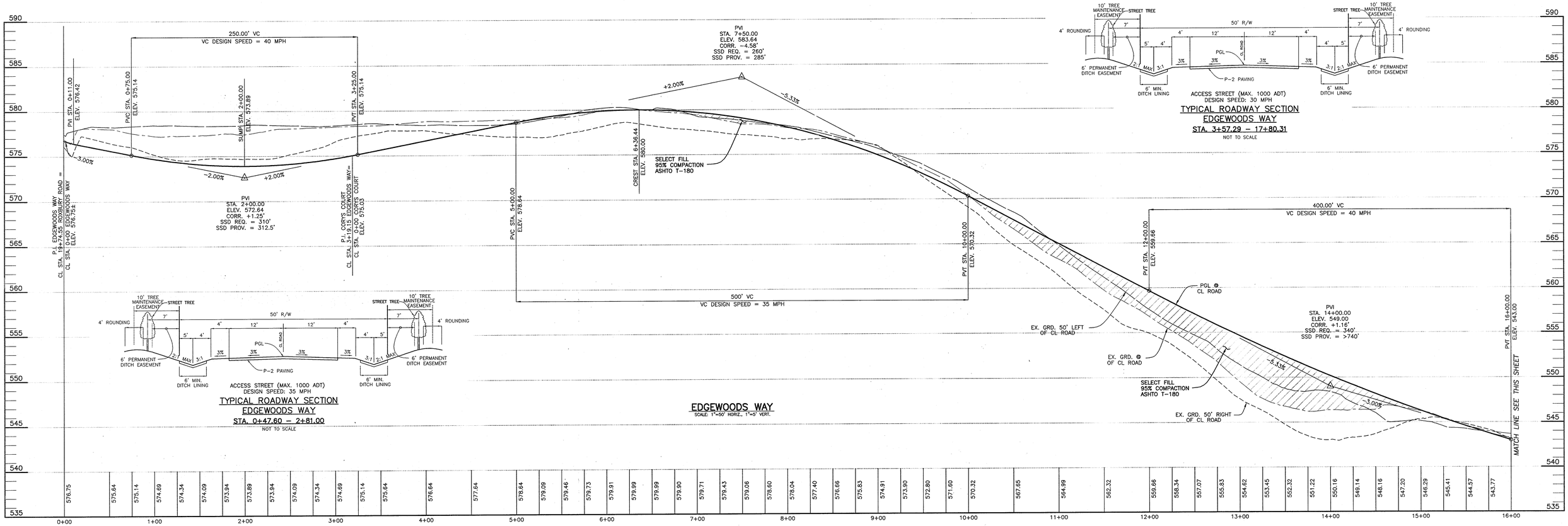
LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

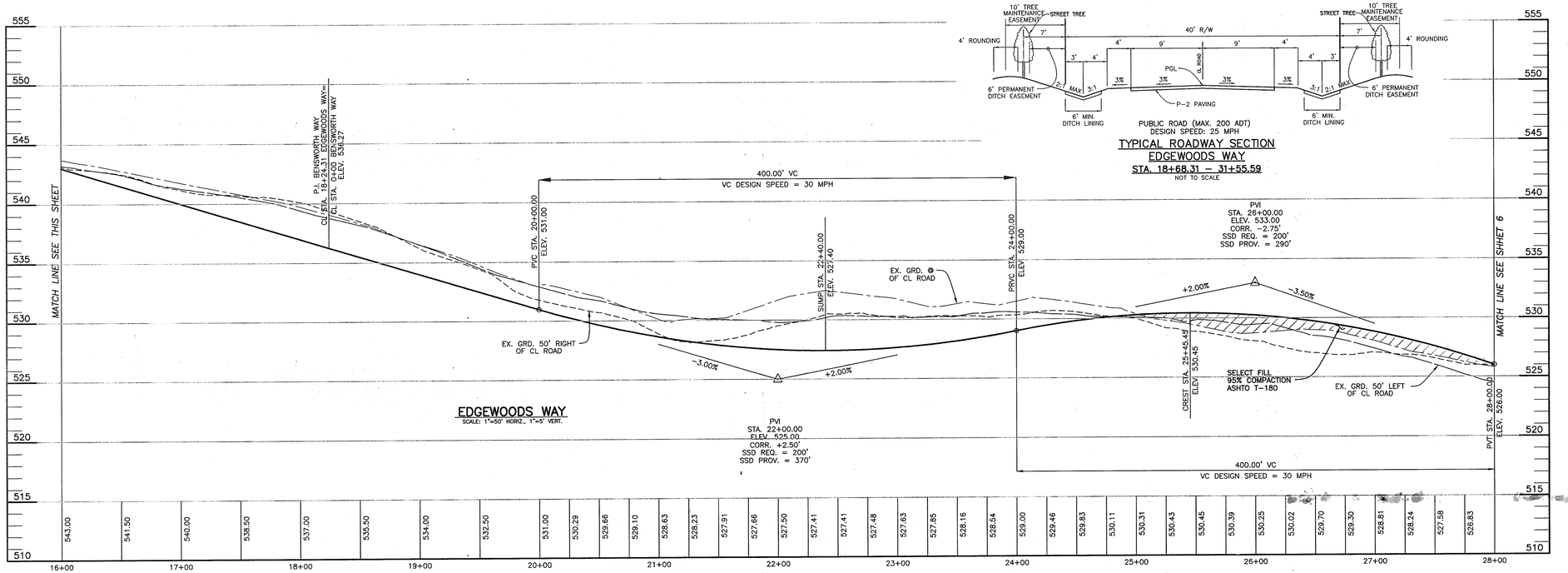
TITLE: ROAD PLAN AND ~~SPEED CONTROL DETAILS~~

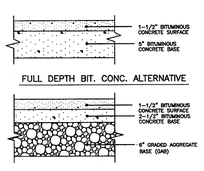
DATE: JULY, 2006 PROJECT NO. 1550

DESIGN: DBT DRAFT: DBT CHECK: DAM SCALE: AS SHOWN SHEET 4 OF 27

F-06-108







APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/7/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 9/6/06

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD B. MANN — No. 21612 — REGISTERED PROFESSIONAL ENGINEER

9/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1–7; NON-BUILDABLE BULK PARCELS 'AA'–'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'–'G'

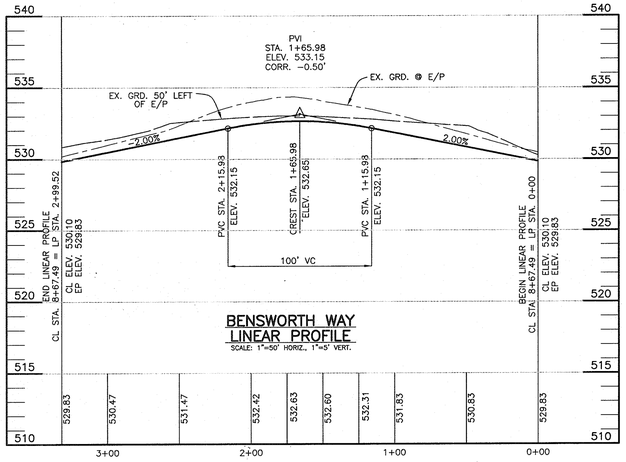
LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: ROAD PROFILES

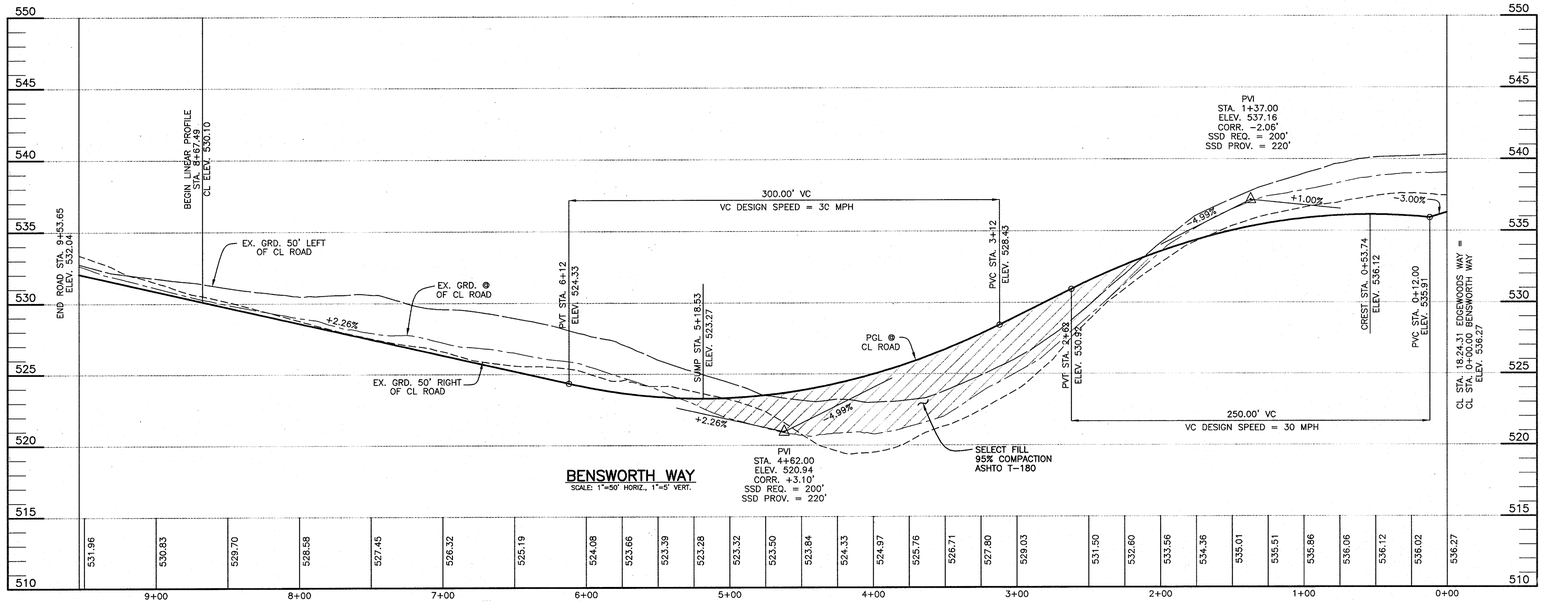
DESIGN: DBT	DRAFT: DBT	CHECK: DAM

DATE:	JULY, 2006	PROJECT NO. 1550
SCALE:	AS SHOWN	SHEET 5 OF 27

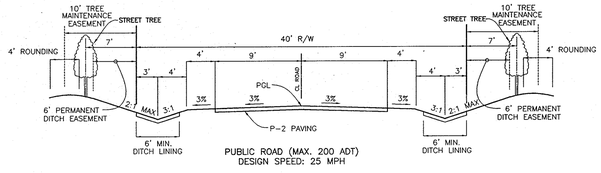
F-06-108



BENSWORTH WAY
LINEAR PROFILE
SCALE: 1"=50' HORIZ., 1"=5' VERT.

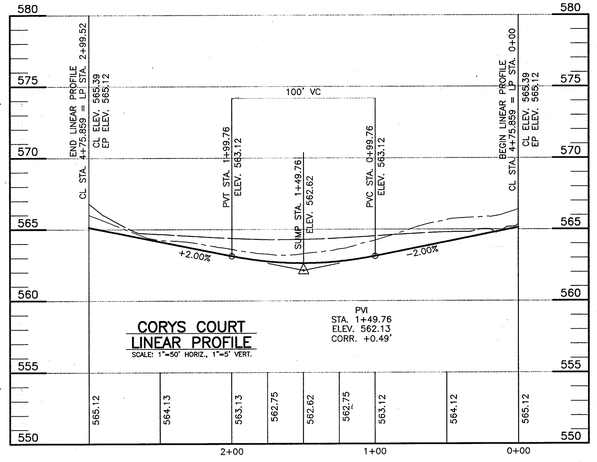


BENSWORTH WAY
SCALE: 1"=50' HORIZ., 1"=5' VERT.



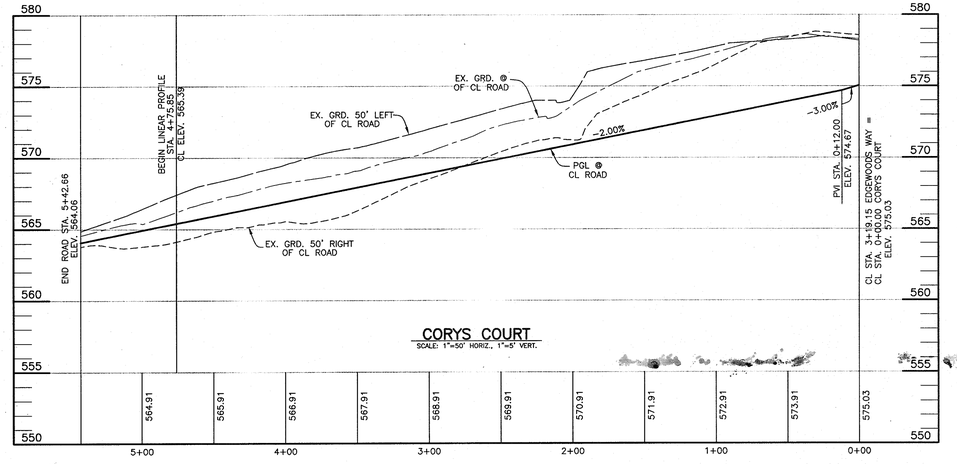
PUBLIC ROAD (MAX. 200 ADT)
DESIGN SPEED: 25 MPH

TYPICAL ROADWAY SECTION
CORYS COURT STA. 0+44.20 – 4+81.92
BENSWORTH WAY STA. 0+47.00 – 8+67.49
NOT TO SCALE

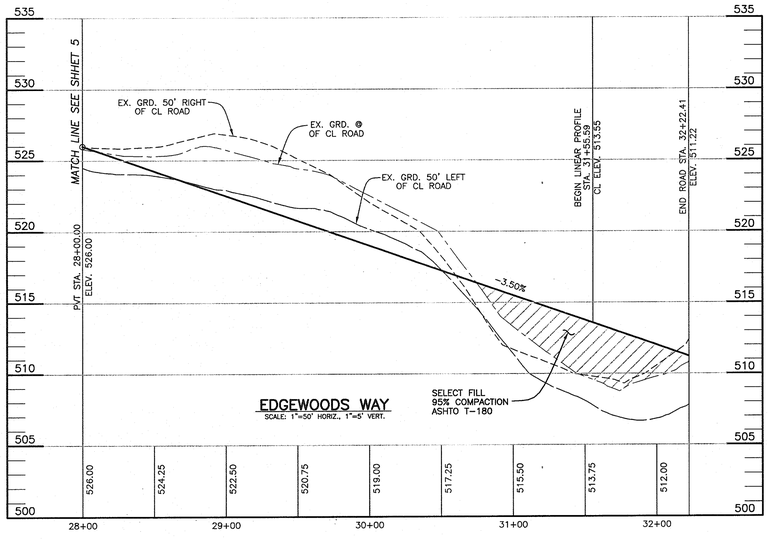


PVI
STA. 1+49.76
ELEV. 562.13
CORR. +0.49'

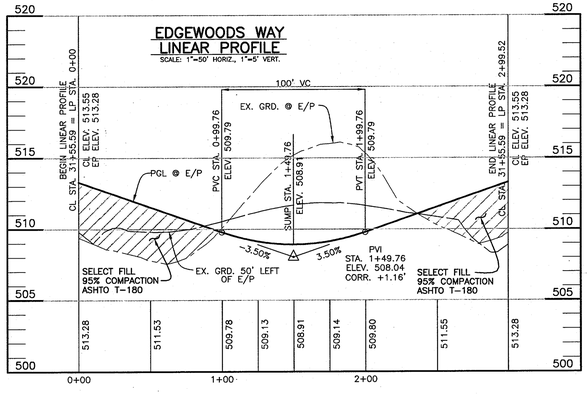
CORYS COURT
LINEAR PROFILE
SCALE: 1"=50' HORIZ., 1"=5' VERT.

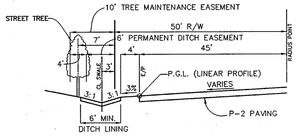


CORYS COURT
SCALE: 1"=50' HORIZ., 1"=5' VERT.



EDGEWOODS WAY
SCALE: 1"=50' HORIZ., 1"=5' VERT.





TYPICAL ROADWAY SECTION
AT CUL-DE-SAC
LINEAR PROFILE
NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 9/7/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 9/6/06 DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD MOON — No. 21467 — REGISTERED PROFESSIONAL ENGINEER
Donald Moon 7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: ROAD PROFILES

DESIGN: DBT	DRAFT: DBT	CHECK: DAM

DATE: JULY, 2006 PROJECT NO. 1550
SCALE: AS SHOWN SHEET 6 OF 27

F-06-108

PLAN VIEW
SCALE: 1" = 50'

LEGEND

- EXISTING CONTOURS (AERIAL)
- EXISTING TREELINE (AERIAL)
- NATURAL AREA CONSERVATION CREDIT EASEMENT
- 1500 S.F. WELL BOX
- SEWAGE DISPOSAL AREA EASEMENT
- SSF — SUPER SILT FENCE
- SF — SILT FENCE
- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING
- EARTH DIKE

NOTES:

1. EROSION CONTROL MATTING TO BE PLACED IN ALL ROADSIDE DITCHES.
2. CONTRACTOR SHALL CURL ALL ENDS OF SILT FENCE AND SUPER SILT FENCE UPHILL BY 2 FEET IN ELEVATION.
3. NO MORE THAN 20 AC MAY BE UNSTABILIZED AT ANY TIME.

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

[signature] 8/9/06
USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

[signature] 8/9/06
HOWARD SCD — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature]
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 9/7/06
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 9/6/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE

NO.	DATE	REVISION
1	3-10-2008	REVISE BERM ALONG LOTS 12 & 13, REVISE STANDING PAD LOCATION & SIZE.

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
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PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER
[signature] 7/11/06

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 7/10/06
ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 7-13-06
DEVELOPER — DATE

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1–7; NON-BUILDABLE BULK PARCELS 'AA'–'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'–'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT AND EROSION CONTROL PLAN

DATE:	JULY, 2006	PROJECT NO. 1550
SCALE:	AS SHOWN	SHEET 7 OF 27

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

F-06-108

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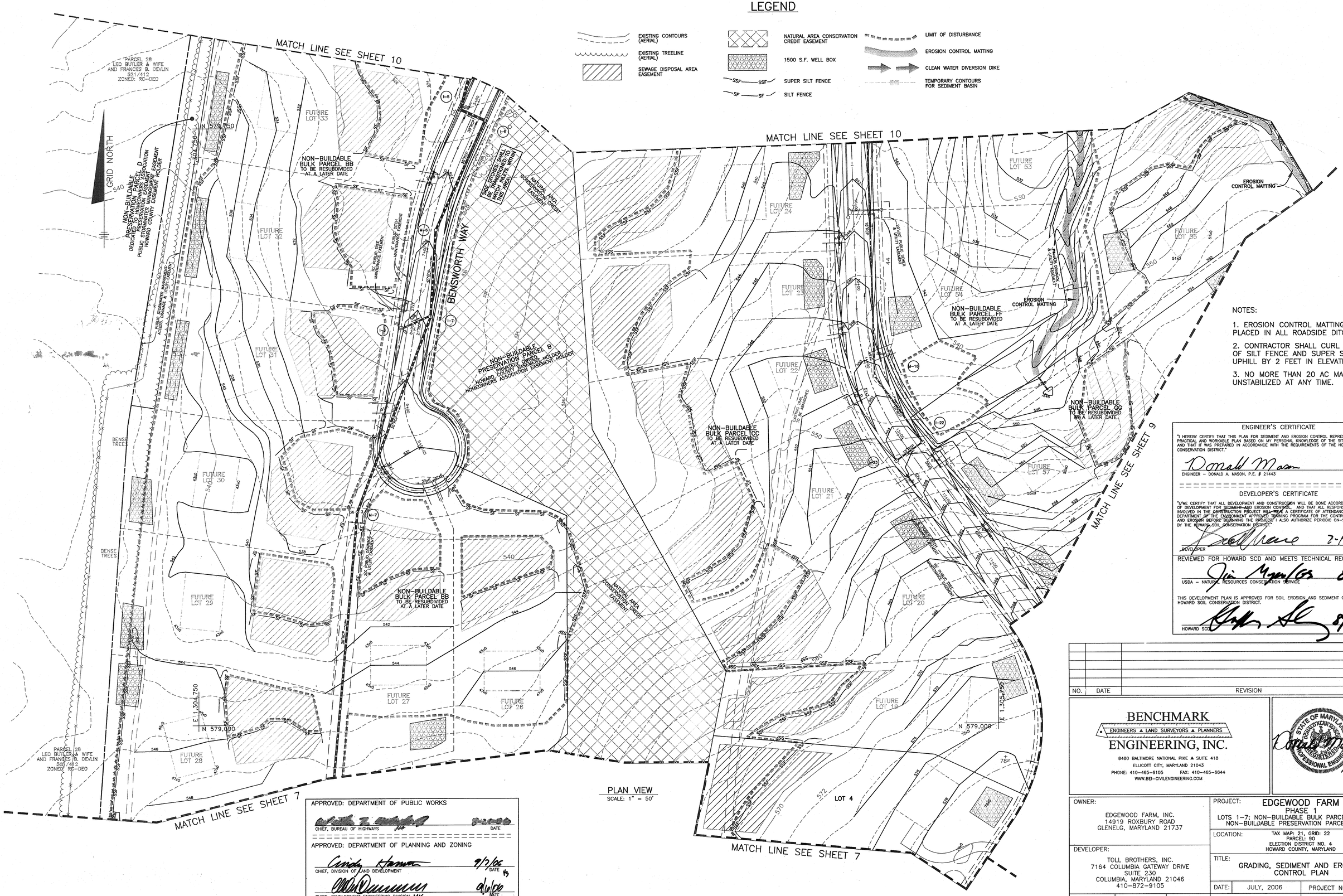
LEGEND

- EXISTING CONTOURS (AERIAL)
- EXISTING TREELINE (AERIAL)
- SEWAGE DISPOSAL AREA EASEMENT
- NATURAL AREA CONSERVATION CREDIT EASEMENT
- 1500 S.F. WELL BOX
- SSF — SSF SUPER SILT FENCE
- SF — SF SILT FENCE
- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING
- CLEAN WATER DIVERSION DIKE
- 555 TEMPORARY CONTOURS FOR SEDIMENT BASIN



PLAN VIEW
SCALE: 1" = 50'

NOTES:

1. EROSION CONTROL MATTING TO BE PLACED IN ALL ROADSIDE DITCHES.
2. CONTRACTOR SHALL CURL ALL ENDS OF SILT FENCE AND SUPER SILT FENCE UPHILL BY 2 FEET IN ELEVATION.
3. NO MORE THAN 20 AC MAY BE UNSTABILIZED AT ANY TIME.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Donald Mason — 7/10/06
ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER — 7-13-06 DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

USDA – NATURAL RESOURCES CONSERVATION SERVICE — 8/4/06 DATE

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

HOWARD SCD — 8/9/06 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 9/7/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 8/16/06 DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD ALLEN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER — 7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1–7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT AND EROSION CONTROL PLAN

DESIGN: DBT	DRAFT: DBT	CHECK: DAM

DATE: JULY, 2006 — PROJECT NO. 1550
SCALE: AS SHOWN — SHEET 8 OF 27

F-06-108

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AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 21443

DONALD A. MASON — DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT 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 THE POND CONSTRUCTION AND PROVIDE THE HOWARD SOILS CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason — 7/10/06

ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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 INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER — 7-13-06 DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

USDA – NATURAL RESOURCES CONSERVATION SERVICE — 8/9/06 DATE

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

HOWARD SCD — 8/9/06 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

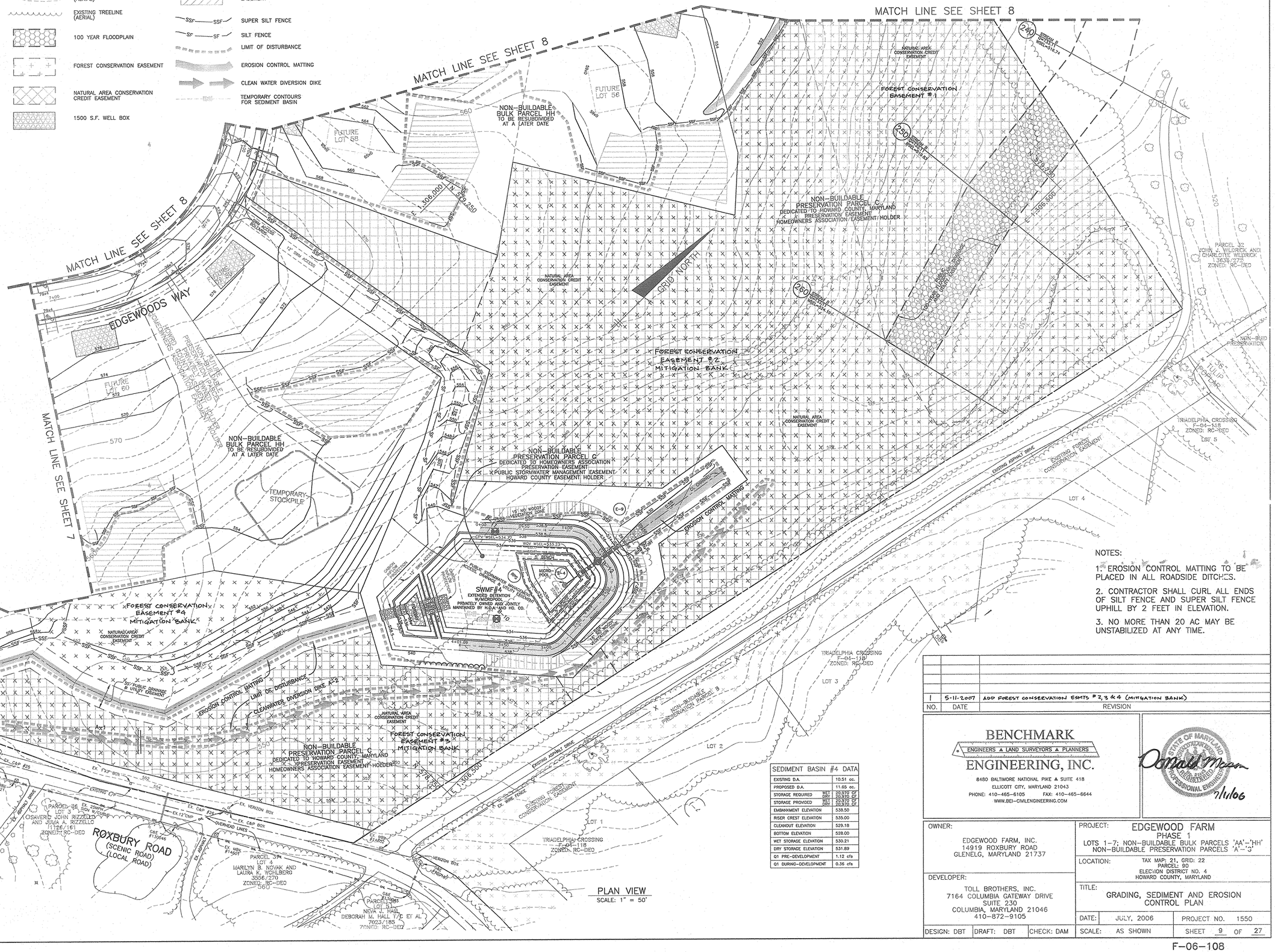
APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 9/1/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 9/6/06 DATE

LEGEND

- EXISTING CONTOURS (AERIAL)
- EXISTING TREELINE (AERIAL)
- 100 YEAR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- NATURAL AREA CONSERVATION CREDIT EASEMENT
- 1500 S.F. WELL BOX
- SEWAGE DISPOSAL AREA EASEMENT
- SSF SUPER SILT FENCE
- SF SILT FENCE
- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING
- CLEAN WATER DIVERSION DIKE
- TEMPORARY CONTOURS FOR SEDIMENT BASIN



SEDIMENT BASIN #4 DATA		
EXISTING D.A.		10.51 ac.
PROPOSED D.A.		11.65 ac.
STORAGE REQUIRED	WET	20,970 CF
	DRY	20,970 CF
STORAGE PROVIDED	WET	20,970 CF
	DRY	20,970 CF
EMBANKMENT ELEVATION		538.50
RISER CREST ELEVATION		535.00
CLEANOUT ELEVATION		529.18
BOTTOM ELEVATION		528.00
WET STORAGE ELEVATION		530.21
DRY STORAGE ELEVATION		531.89
Q1 PRE-DEVELOPMENT		1.12 cfs
Q1 DURING-DEVELOPMENT		0.36 cfs

NOTES:

1. EROSION CONTROL MATTING TO BE PLACED IN ALL ROADSIDE DITCHES.
2. CONTRACTOR SHALL CURL ALL ENDS OF SILT FENCE AND SUPER SILT FENCE UPHILL BY 2 FEET IN ELEVATION.
3. NO MORE THAN 20 AC MAY BE UNSTABILIZED AT ANY TIME.

NO.	DATE	REVISION
1	5-11-2007	ADD FOREST CONSEEVATION ESMTS #2,3 & 4 (MITIGATION BANK)

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD ALLEN MASON — REGISTERED PROFESSIONAL ENGINEER — Donald Mason — 7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'C'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT AND EROSION CONTROL PLAN

DATE: JULY, 2006 — PROJECT NO. 1550

DESIGN: DBT — DRAFT: DBT — CHECK: DAM

SCALE: AS SHOWN — SHEET 9 OF 27

F-06-108

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SEDIMENT BASIN #1 DATA		
EXISTING D.A.		41.49 ac.
PROPOSED D.A.		47.72 ac.
STORAGE REQUIRED	WET	85,995 CF
	DRY	85,995 CF
STORAGE PROVIDED	WET	88,103 CF
	DRY	85,995 CF
EMBANKMENT ELEVATION		515.50
RISER CREST ELEVATION		513.50
CLEANOUT ELEVATION		505.95
BOTTOM ELEVATION		504.00
WET STORAGE ELEVATION		508.00
DRY STORAGE ELEVATION		510.37
Q1 PRE-DEVELOPMENT		2.23 cfs
Q1 DURING-DEVELOPMENT		2.08 cfs

SEDIMENT BASIN #3 DATA		
EXISTING D.A.		6.54 ac.
PROPOSED D.A.		19.63 ac.
STORAGE REQUIRED	WET	33,334 CF
	DRY	33,334 CF
STORAGE PROVIDED	WET	33,334 CF
	DRY	33,334 CF
EMBANKMENT ELEVATION		502.00
RISER CREST ELEVATION		499.00
CLEANOUT ELEVATION		491.64
BOTTOM ELEVATION		490.00
WET STORAGE ELEVATION		493.05
DRY STORAGE ELEVATION		495.36
Q1 PRE-DEVELOPMENT		0.30 cfs
Q1 DURING-DEVELOPMENT		0.40 cfs

MATCH LINE SEE SHEET 11

MATCH LINE SEE SHEET 11

MATCH LINE SEE SHEET 8

MATCH LINE SEE SHEET 8

PARCEL 28
LEO BUTLER & WIFE
AND FRANCES B. DEVLIN
231/412
ZONED: RC-DEO

GRID NORTH

N 580,500
E 1,305,400

N 580,900
E 1,305,900

N 580,000
E 1,306,100

NON-BUILDABLE PRESERVATION PARCEL D DEDICATED TO HOMEOWNERS ASSOCIATION PUBLIC STORMWATER MANAGEMENT EASEMENT & PRESERVATION EASEMENT HOWARD COUNTY EASEMENT HOLDER

NON-BUILDABLE PRESERVATION PARCEL F DEDICATED TO HOMEOWNERS ASSOCIATION PRESERVATION EASEMENT & PUBLIC STORMWATER MANAGEMENT EASEMENT HOWARD COUNTY EASEMENT HOLDER

NON-BUILDABLE BULK PARCEL EE TO BE RESUBDIVIDED AT A LATER DATE

SWMF#1
EXTENDED DETENTION W/MICROPOOL
PRIVATELY OWNED AN JOINTLY MAINTAINED BY H.O.A. AND HO. CO.

SWMF#3
EXTENDED DETENTION W/MICROPOOL
PRIVATELY OWNED AND JOINTLY MAINTAINED BY H.O.A. AND HO. CO.

NON-BUILDABLE PRESERVATION PARCEL C DEDICATED TO HOMEOWNERS ASSOCIATION & PRESERVATION EASEMENT HOWARD COUNTY EASEMENT HOLDER

NON-BUILDABLE BULK PARCEL BB TO BE RESUBDIVIDED AT A LATER DATE

NON-BUILDABLE BULK PARCEL CC TO BE RESUBDIVIDED AT A LATER DATE

NON-BUILDABLE BULK PARCEL DD TO BE RESUBDIVIDED AT A LATER DATE

NON-BUILDABLE BULK PARCEL FF TO BE RESUBDIVIDED AT A LATER DATE

NON-BUILDABLE PRESERVATION PARCEL C DEDICATED TO HOWARD COUNTY & PRESERVATION EASEMENT MARYLAND HOMEOWNERS ASSOCIATION EASEMENT HOLDER

NATURAL AREA CONSERVATION CREDIT EASEMENT

NO DISTURBANCE SHALL OCCUR IN THESE AREAS UNTIL SF, SSF, & DIKE IS IN PLACE & STABILIZED

SEPTIC AREA FOR FUTURE LOT 35 TO BE STAKED PRIOR TO INSTALLATION OF SEDIMENT BASIN #1

TEMPORARY STOCKPILE

EROSION CONTROL MATTING

EARTH DIKE A-2

CLEAN WATER DIVERSION DIKE

SEWAGE DISPOSAL & UTILITY EASEMENT

PUBLIC DRAINAGE & UTILITY EASEMENT

SWM ACCESS BOLLARDS

12' SWM ACCESS

18"RCP

STREAM A
WSEL=517.95

STREAM A
WSEL=518.33

STREAM B
WSEL=493.69

CL INTERMITTENT STREAM

100-YR FLOODPLAIN AND FOREST CONSERVATION EASEMENT

100' STREAM BUFFER

150' STREAM BUFFER

EX. WOOD BOX W/ PVC ROOF

FUTURE LOT 40
FUTURE LOT 39
FUTURE LOT 38
FUTURE LOT 37
FUTURE LOT 36
FUTURE LOT 34
FUTURE LOT 48
FUTURE LOT 49
FUTURE LOT 50
FUTURE LOT 51
FUTURE LOT 52
FUTURE LOT 53
FUTURE LOT 25

LEGEND

- EXISTING CONTOURS (AERIAL)
- EXISTING TREELINE (AERIAL)
- 100 YEAR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- NATURAL AREA CONSERVATION CREDIT EASEMENT
- 1500 S.F. WELL BOX
- SEWAGE DISPOSAL AREA EASEMENT
- SSF SUPER SILT FENCE
- SF SILT FENCE
- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING
- CLEAN WATER DIVERSION DIKE
- TEMPORARY CONTOURS FOR SEDIMENT BASIN

PLAN VIEW
SCALE: 1" = 50'

NOTES:

1. EROSION CONTROL MATTING TO BE PLACED IN ALL ROADSIDE DITCHES.
2. CONTRACTOR SHALL CURL ALL ENDS OF SILT FENCE AND SUPER SILT FENCE UPHILL BY 2 FEET IN ELEVATION.
3. NO MORE THAN 20 AC MAY BE UNSTABILIZED AT ANY TIME.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 21443

DONALD A. MASON

DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT 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 THE POND CONSTRUCTION AND PROVIDE THE HOWARD SOILS CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason 11/6/06

ENGINEER – DONALD A. MASON, P.E. # 21443 DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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 INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHN.CAL REQUIREMENTS

USDA – NATURAL RESOURCES CONSERVATION SERVICE DATE

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

HOWARD SCD DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT 9/7/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 9/6/06 DATE

NO.	DATE	REVISION
1	3-10-2008	REMOVE EARTH DIKE IN REAR OF LOTS 30-40, ADD SSF, ADD SWM#1 NOTE, ADD DISTUBANCE NOTE ADD TP AT SWM#1 OUTFALL, REVISE SWM#3 CONFIGURATION

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD ALLEN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER

Donald Mason 7/11/06

OWNER:	EDGEWOOD FARM, INC. 14919 ROXBURY ROAD GLENELG, MARYLAND 21737
DEVELOPER:	TOLL BROTHERS, INC. 7164 COLUMBIA GATEWAY DRIVE SUITE 230 COLUMBIA, MARYLAND 21046 410-872-9105
PROJECT:	EDGEWOOD FARM PHASE 1 LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH' NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'
LOCATION:	TAX MAP: 21, GRID: 22 PARCEL: 90 ELECTION DISTRICT NO. 4 HOWARD COUNTY, MARYLAND
TITLE:	GRADING, SEDIMENT AND EROSION CONTROL PLAN
DATE:	JULY, 2006
PROJECT NO.	1550
SCALE:	AS SHOWN
SHEET	10 OF 27
DESIGN: DBT	DRAFT: DBT CHECK: DAM

F-06-108

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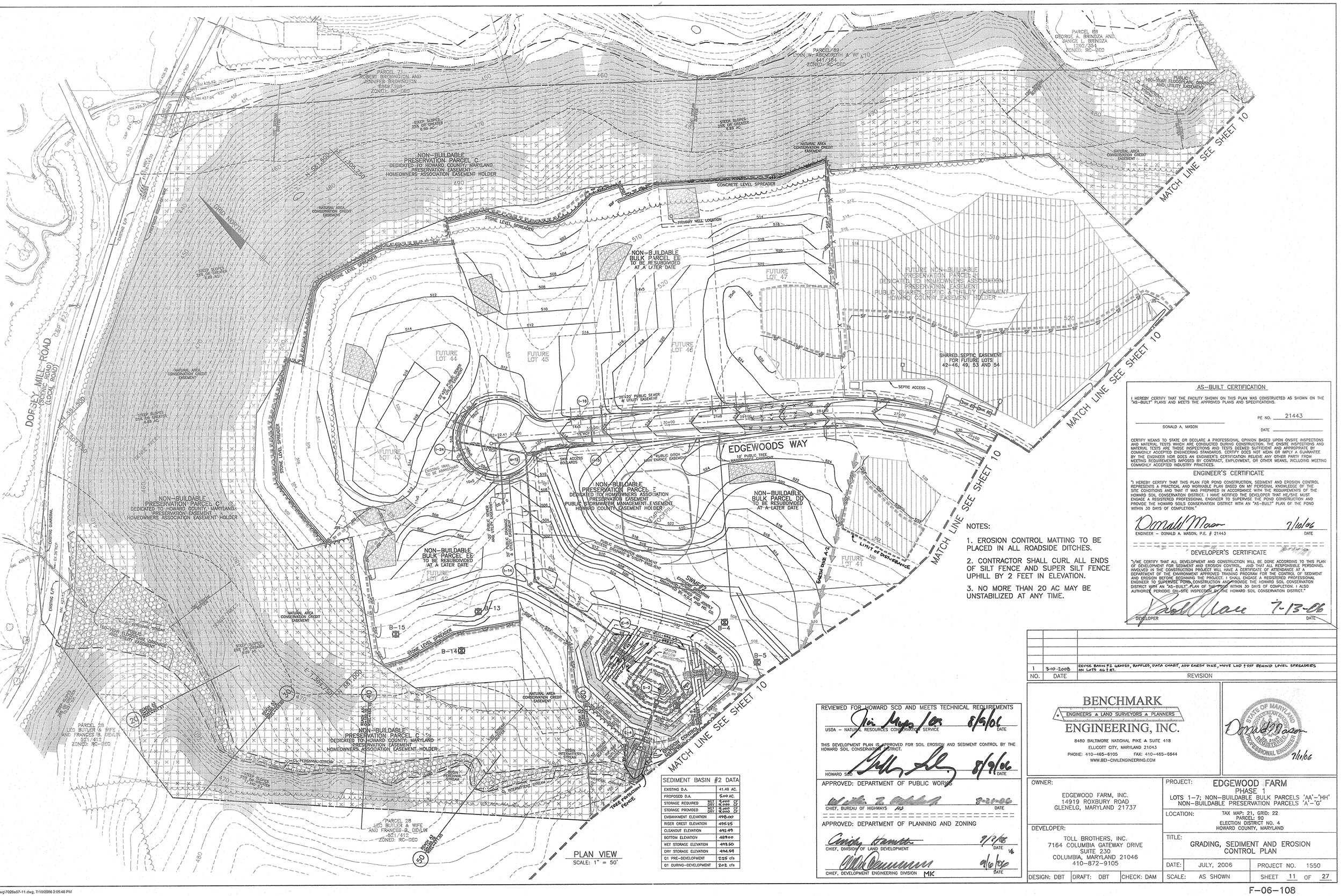

NOTES:

1. EROSION CONTROL MATTING TO BE PLACED IN ALL ROADSIDE DITCHES.
2. CONTRACTOR SHALL CURL ALL ENDS OF SILT FENCE AND SUPER SILT FENCE UPHILL BY 2 FEET IN ELEVATION.
3. NO MORE THAN 20 AC MAY BE UNSTABILIZED AT ANY TIME.

SEDIMENT BASIN #2 DATA		
EXISTING D.A.	41.49 AC.	
PROPOSED D.A.	6.00 AC.	
STORAGE REQUIRED	WET	9,000 CY
	DRY	9,000 CY
STORAGE PROVIDED	WET	9,000 CY
	DRY	9,000 CY
EMBANKMENT ELEVATION	498.00	
RISER CREST ELEVATION	495.25	
CLEANOUT ELEVATION	492.49	
BOTTOM ELEVATION	489.00	
WET STORAGE ELEVATION	493.50	
DRY STORAGE ELEVATION	494.54	
Q1 PRE-DEVELOPMENT	225 cfs	
Q1 DURING-DEVELOPMENT	202 cfs	

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE 8/5/06

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

HOWARD SCD — DATE 8/9/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 8-21-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/31/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 9/6/06

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 21443

DONALD A. MASON — DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT 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 THE POND CONSTRUCTION AND PROVIDE THE HOWARD SOILS CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason — 7/10/06
ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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 INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER — DATE 7-13-06

NO.	DATE	REVISION
1	3-10-2008	REVISE BASIN #2 GRADES, BAFFLES, DATA CHART, AND EARTH DIKE, MOVE LOD & SSF BEHIND LEVEL SPREADERS ON LOTS 46 & 47.

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
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PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD ALLEN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER — 7/10/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT AND EROSION CONTROL PLAN

DATE: JULY, 2006 — PROJECT NO. 1550

DESIGN: DBT — DRAFT: DBT — CHECK: DAM — SCALE: AS SHOWN — SHEET 11 OF 27

F-06-108

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CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped to 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.

Earth Fill

Material – The fill material shall be taken from approved designated borrow areas. If shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable material. 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 30% 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 (before compaction) layers which 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 traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with teh 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).

Cut Off 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 a least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 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 cores 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 to 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.

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 fill 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 resistively of 2,000 ohm-cm. 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 sided 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 material outside the structural 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.

Pipe Conduits

All pipes shall be circular in cross section

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.

Maerials – (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. Aluminum surfaces that are to be 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 and coatings 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 connection 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 bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type 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 (four) rods and lugs, 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. Flanged 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.

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 C-361.

2. Bedding – Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle 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 a described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe – Bell and spigot pipe shall be places 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 form 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 shown on the drawings.

Plastic Pipe – 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) pipe, couplings and fittings shall conform to the following: 4" – 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.

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.

Drainage Diaphragms – When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

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.

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.

Care of Water during Construction

All work on 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 pumping and other equipment required for removal of water from various parts of the work and for maintaining the evacuations, 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 whatsoever 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 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 location being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a sightly 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.

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.

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313-1850).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL", REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN SHALL HAVE SUITABLE WARNING SIGNS POSTED AROUND THEIR PERIMETER AT INTERVALS NO GREATER THAN 100 FEET IN ACCORDANCE WITH VOLUME I, CHAPTER 7 OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	131.9	ACRES
AREA DISTURBED	67.7	ACRES
AREA TO BE ROOFED OR PAVED	2.7	ACRES
AREA TO BE VEGETATIVELY STABILIZED	65.0	ACRES
TOTAL CUT	96,000	CY
TOTAL FILL	96,000	CY
OFFSITE WASTE AREA LOCATION	N/A	

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

TEMPORARY SEEDBED PREPARATIONS

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT).

SEEDING: FOR PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

PERMANENT SEEDBED PREPARATIONS

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ON OF THE FOLLOWING SCHEDULES:

1. PREFERRED – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0- UREAFORM FERTILIZER (9 LBS/1000 SQ FT).
2. ACCEPTABLE – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THROUGH APRIL 30 AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TOPSOIL SPECIFICATIONS

I. Topsoil salvaged from the existing site may be used provided that it meets that standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications – Soil to be used as topsoil must meet the following:

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting texture subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1-1/2" in diameter.

ii. Topsoil must be free of plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nutsedge, poison ivy, thistle, or others as specified.

iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres:

i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

IV. For sites having disturbed areas over 5 acres:

i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.

b. Organic content or topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

V. Topsoil Application

i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, grade stabilization structures, earth dikes, slope silt fence and sediment traps and basins.

ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" – 8" higher in elevation.

iii. Topsoil shall be uniformly distributed in a 4" – 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding – Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

i. Composted Sludge Material for use as a soil conditioner for sites having distributed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guidelines Specifications, Soil Preparation and Sodding. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes, Revised 1973.

30.0 DUST CONTROL

Definition

Controlling dust blowing and movement on construction sites and roads.

Purpose

To prevent blowing and movement of dust from exposed soil surfaces, reduce on and off-site damage, health hazards, and improve traffic safety.

Conditions Where Practice Applies

This practice is applicable to areas subject to dust blowing and movement where on and off-site damage is likely without treatment.

Specifications

Temporary Methods

1. Mulches – See standards for vegetative stabilization with mulches only. Mulch should be crimped or tracked to prevent blowing.
2. Vegetative Cover – See standards for temporary vegetative cover.
3. Tillage – To roughen surface and bring clods to the surface. This is an emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12" apart, spring-toothed harrows, and similiar plows are examples of equipment which may produce the desired effect.
4. Irrigation – This is generally done as an emergency treatment. Site is sprinkled with water until the surface is moist. Repeat as needed. At no time should the site be irrigated to the point that runoff begins to flow.
5. Barriers – Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similiar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 10 times their height are effective in controlling soil blowing.
6. Calcium Chloride – Apply at rates that will keep surface moist. May need retreatment.

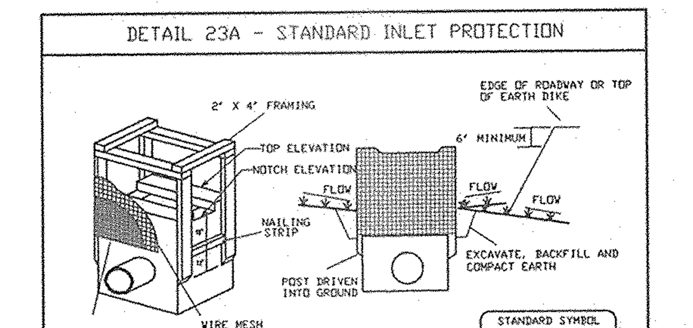
Permanent Methods

1. Permanent Vegetation – See standards for permanent vegetative cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection if left in place.
2. Topsoiling – Covering with less erosive soil materials. See standards for topsoiling.
3. Stone – Cover surface with crushed stone or coarse gravel.

References

1. Agriculture Handbook 346. Wind Erosion Forces in the United States and Their Use in Predicting Soil Loss.
2. Agriculture Information Bulletin 354. How to Control Wind Erosion, USDA-ARS.

DETAIL 23A – STANDARD INLET PROTECTION



MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

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SEQUENCE OF CONSTRUCTION

NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF CONSTRUCTION

1. OBTAIN GRADING PERMIT. (DAY 1)
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE, TREE PROTECTION FENCES, SUPER SILT FENCES, SILT FENCES, AND TEMPORARY CLEANWATER DIVERSION DIKES. (DAY 2–12) DO NOT INSTALL SUPER SILT FENCE ALONG LOTS 37-40 AT THIS TIME
3. INSTALL ALL 4 SEDIMENT BASINS (DAY 13–60)
4. INSTALL EARTH DIKES (DAY 61-63)
5. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, BRING ROAD BEDS TO SUBGRADE AND STABILIZE SLOPES IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES. UTILIZE DUST CONTROL METHODS. NO MORE THAN 20 AC. MAY BE UNSTABILIZED AT ANY TIME. (DAY 64–81)
6. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, INSTALL STORM DRAINS AND SWALES. DO NOT INSTALL SWALE ALONG REAR OF LOTS 37 TO BASIN #2 AT THIS TIME. (DAY 82-112)
7. PAVE ROADWAYS. (DAY 113–128)
8. COMPLETE MASS GRADING OF SITE AND STABLIZE DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDBED NOTES. DO NOT GRADE OR DISTURB ON LOTS 37-40 AT THIS TIME. (DAY 129-144)
9. ONCE SITE HAS BEEN STABILIZED, INSTALL SUPER SILT FENCE ON LOTS 37-40. (DAY 145)
10. MASS GRADE LOTS 37-40. (DAY 146-147)
11. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CONVERT SEDIMENT BASINS TO PERMANENT STORMWATER MANAGEMENT FACILITIES. SHAPE FACILITIES PER FINAL GRADES SHOWN ON THE PLANS AND STABILIZE DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDBED NOTES. CONTRACTOR SHALL REMOVE ALL OLD AND NEW TRASH, JUNK AND DEBRIS FROM ENTIRE SITE. (DAY 148-156)
12. INSTALL SWALE ALONG REAR OF LOTS 36-40 TO SWMF #2. (DAY 157-158) IMMEDIATELY STABILIZE SWALE AT END OF EACH DAY.
13. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE IN ACCORDANCE WITH THE PERMANENT SEEDBED NOTES. (DAY 159-161)

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Donald Mason 7/10/06

ENGINEER – DONALD A. MASON, P.E. # 21443 DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 7-13-06

DEVELOPER DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

Jim Myers/CGS 8/9/06

USDA – NATURAL RESOURCES CONSERVATION SERVICE DATE

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

[signature] 8/9/06

HOWARD SCD DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] [date]

CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

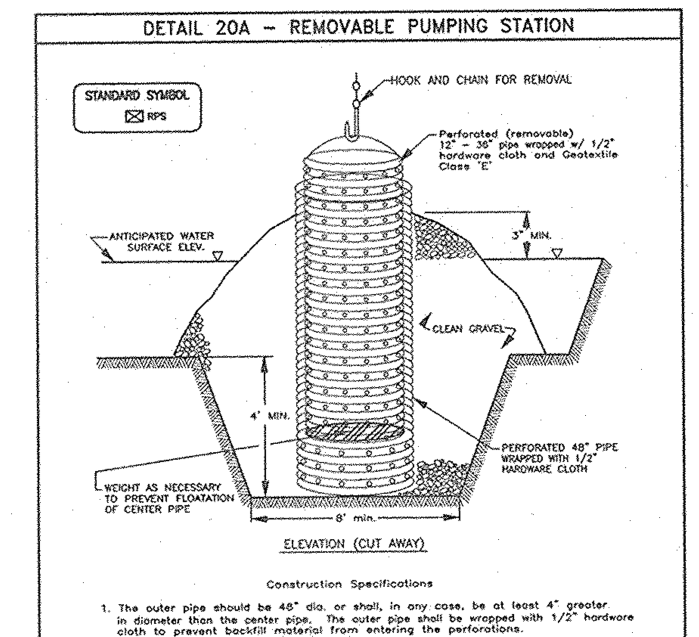
Cindy Hamilton 9/7/06

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[signature] 9/6/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

DETAIL 20A – REMOVABLE PUMPING STATION



ELEVATION (CUT AWAY)

Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

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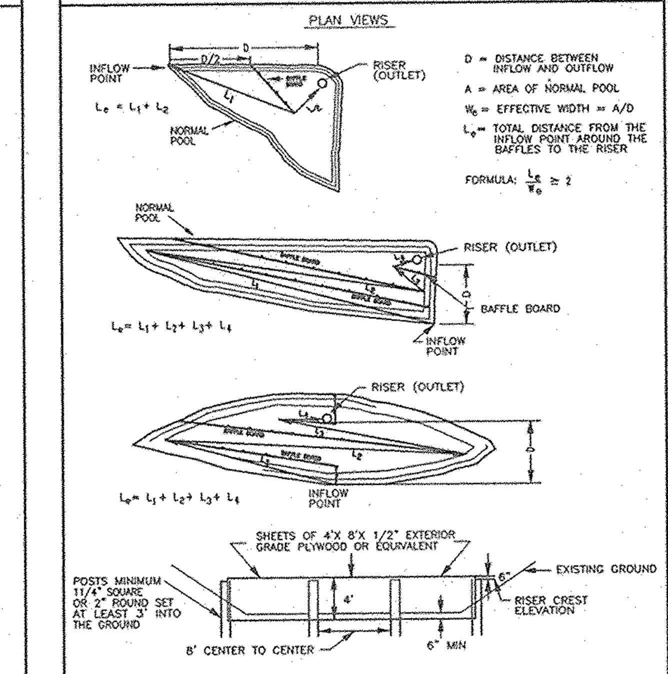
DETAIL 18 – SEDIMENT BASIN BAFFLES



BAFFLE DETAIL

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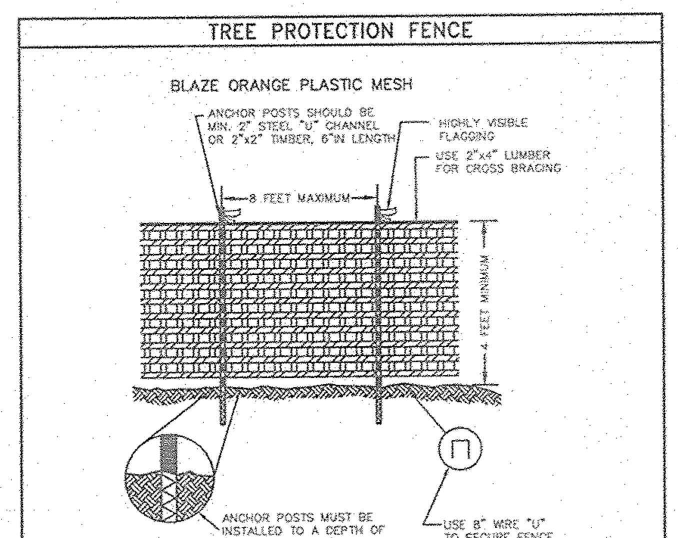
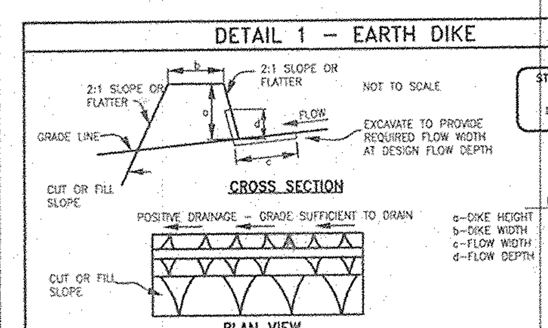
TREE PROTECTION FENCE



NOTES:

1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
4. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS.
5. DEVICE SHOULD BE PROPERLY MAINTAINED DURING CONSTRUCTION
6. PROTECTIVE SIGNAGE IS ALSO REQUIRED.

DETAIL 1 – EARTH DIKE



	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" – 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

CONSTRUCTION SPECIFICATIONS

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each rain event.

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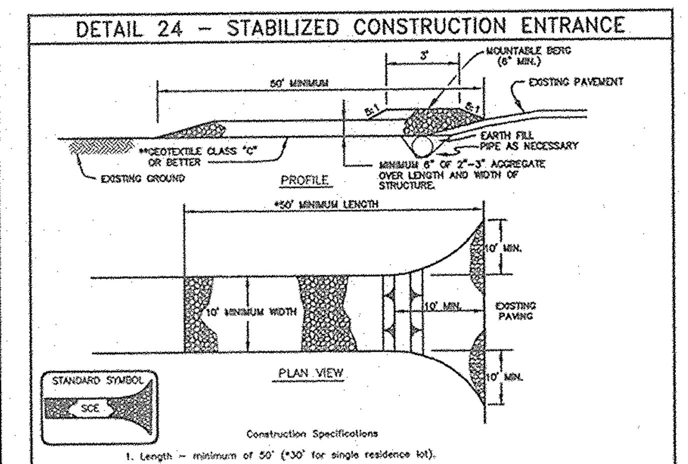
DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specifications

1. Length – minimum of 50' (*30' for single residence lot).
2. Width– 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residence to use geotextile.
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounted berg with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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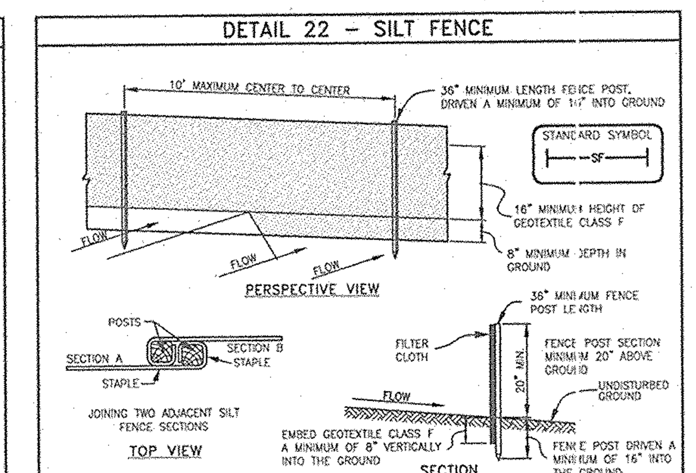
DETAIL 22 – SILT FENCE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pond per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

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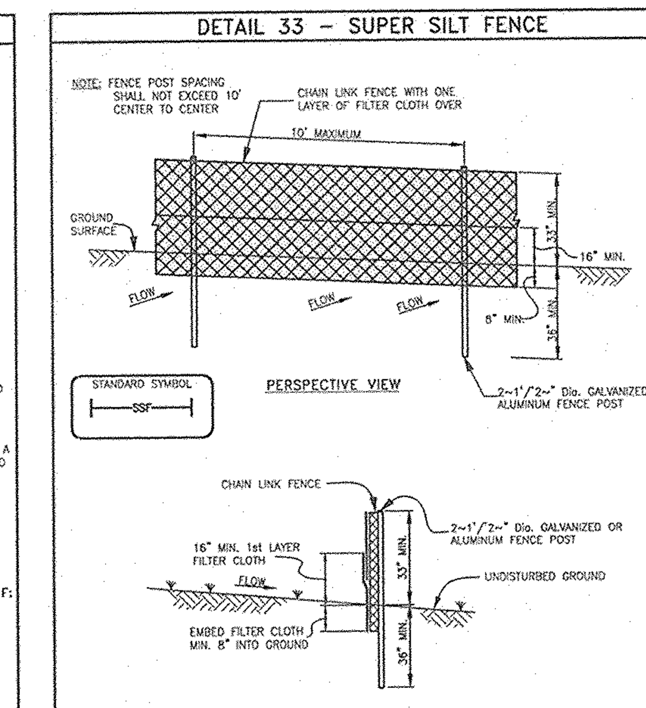
DETAIL 33 – SUPER SILT FENCE



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

SUPER SILT FENCE DESIGN CRITERIA

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 – 10%	0 – 10:1	Unlimited	Unlimited
10 – 20%	10:1 – 5:1	200 feet	1,500 feet
20 – 33%	5:1 – 3:1	100 feet	1,000 feet
33 – 50%	3:1 – 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 26 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

NO.	DATE	REVISION
1	3-10-2008	REVISE SEQUENCE OF CONSTRUCTION #2,4,6,8-13; REVISE SEDIMENT CONTROL NOTE #4.

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND – DONALD A. MASON – REGISTERED PROFESSIONAL ENGINEER – Donald Mason 7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: SEDIMENT AND EROSION CONTROL NOTES AND DETAILS

DATE: JULY, 2006	PROJECT NO. 1550
SCALE: AS SHOWN	SHEET 12 OF 27

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

F-06-108

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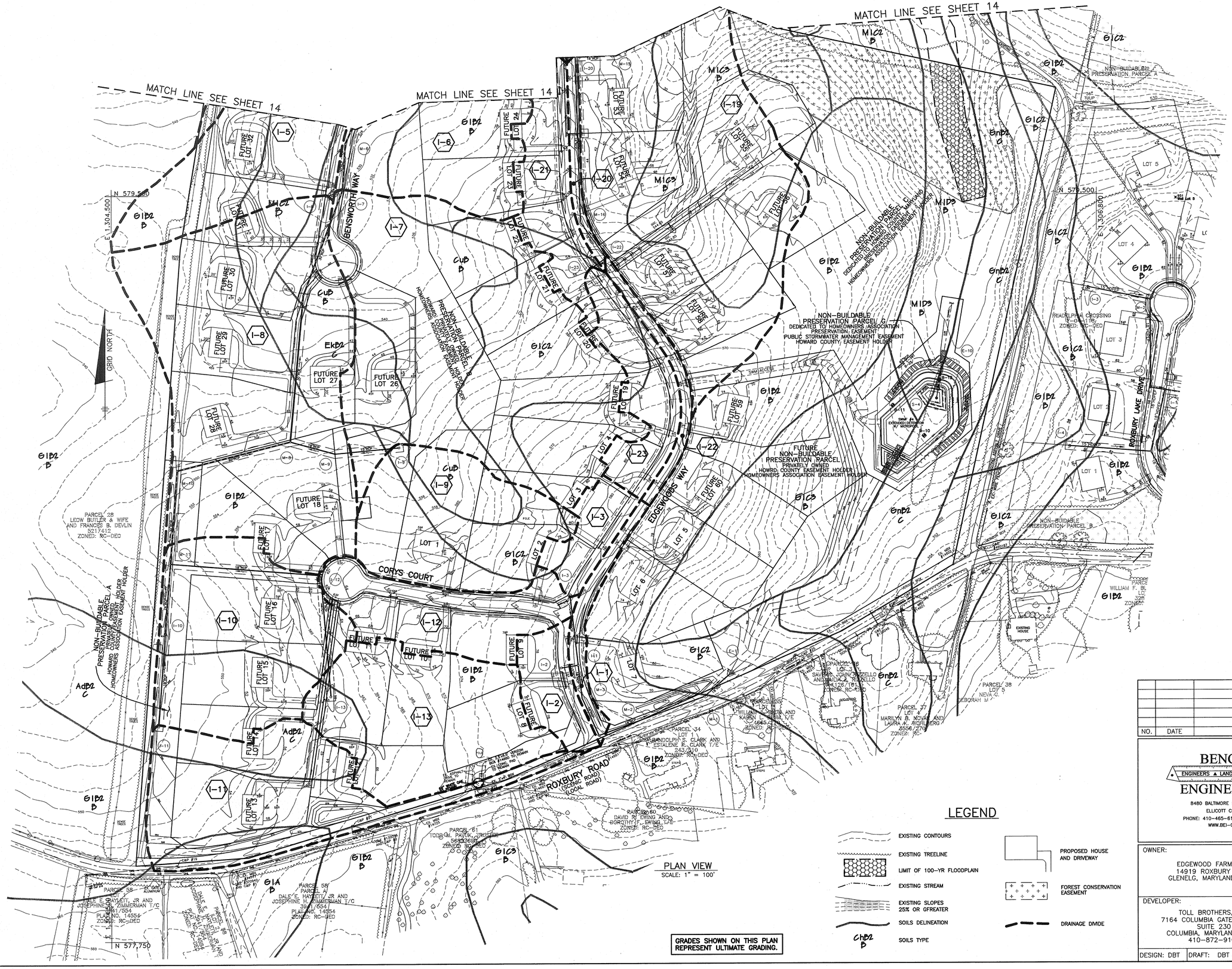

STORM DRAIN DATA

INLET NO.	AREA (AC)	% IMPERVIOUS	SOIL CLASS	ZONING	'C' FACTOR
I-1	0.46	40.9	B	RC-DEO	0.43
I-2	0.79	25.8	B	RC-DEO	0.28
I-3	0.68	25.9	B	RC-DEO	0.27
I-4	3.35	18.2	B	RC-DEO	0.21
I-5	3.18	22.6	B	RC-DEO	0.27
I-6	3.47	16.3	B	RC-DEO	0.22
I-7	8.14	15.0	B	RC-DEO	0.20
I-8	8.06	19.5	B	RC-DEO	0.21
I-9	2.93	15.5	B	RC-DEO	0.20
I-10	3.80	9.7	B	RC-DEO	0.20
I-11	3.70	19.6	B,C	RC-DEO	0.25
I-12	1.95	32.3	B	RC-DEO	0.33
I-13	3.47	17.8	B,C	RC-DEO	0.21
I-14	1.32	6.7	B	RC-DEO	0.18
I-15	0.28	41.4	B	RC-DEO	0.44
I-16	0.80	26.8	B	RC-DEO	0.29
I-17	0.70	32.6	B	RC-DEO	0.35
I-18	1.62	27.7	B	RC-DEO	0.29
I-19	8.23	16.6	B	RC-DEO	0.20
I-20	0.29	51.7	B	RC-DEO	0.52
I-21	1.50	26.1	B	RC-DEO	0.27
I-22	0.38	50.0	B	RC-DEO	0.51
I-23	1.33	28.6	B	RC-DEO	0.30
I-24	0.90	35.1	B	RC-DEO	0.34

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 9/7/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 9/6/06 DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD T. MASON — REGISTERED PROFESSIONAL ENGINEER — 7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN
DRAINAGE AREA MAP

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

DATE: JULY, 2006 | PROJECT NO. 1550

SCALE: AS SHOWN | SHEET 13 OF 27

F-06-108

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PLAN VIEW
SCALE: 1" = 100'

LEGEND

- EXISTING CONTOURS
- EXISTING TREELINE
- LIMIT OF 100-YR FLOODPLAIN
- EXISTING STREAM
- EXISTING SLOPES 25% OR GFREATER
- SOILS DELINEATION
- SOILS TYPE (e.g. ChD2 / D)
- PROPOSED HOUSE AND DRIVEWAY
- FOREST CONSERVATION EASEMENT
- DRAINAGE DIVIDE

GRADES SHOWN ON THIS PLAN REPRESENT ULTIMATE GRADING.

STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP ELEV.	HO. CO. STD.
E-1	18" CONC. END SECT.	N 578375.41 E 1305944.17	---	560.00	---	SD - 5.51
E-2	42" CONC. END SECT.	N 580523.22 E 1305007.52	---	498.00	---	SD - 5.51
E-3	42" CONC. END SECT.	N 580231.04 E 1305093.97	---	512.00	---	SD - 5.51
E-4	36" CONC. END SECT.	N 580667.38 E 1304980.52	---	488.00	---	SD - 5.51
E-5	18" CONC. END SECT.	N 580796.21 E 1305060.70	---	494.00	---	SD - 5.51
E-6	36" CONC. END SECT.	N 580579.01 E 1306075.19	---	490.00	---	SD - 5.51
E-7	18" CONC. END SECT.	N 580420.49 E 1305961.98	---	496.00	---	SD - 5.51
E-8	21" CONC. END SECT.	N 580409.38 E 1305964.97	---	496.00	---	SD - 5.51
E-9	42" CONC. END SECT.	N 579100.28 E 1306439.43	---	529.56	---	SD - 5.51
I-1	TYPE 'D' INLET	CL STA. 2+00.00 OFFSET 20.00' RIGHT (EDGEWOODS WAY)	567.52 (12") 567.52 (15")	567.27	572.91	SD - 4.11 OR 4.39
I-2	TYPE 'D' INLET	CL STA. 2+00.00 OFFSET 20.00' LEFT (EDGEWOODS WAY)	---	568.83	572.91	SD - 4.11 OR 4.39
I-3	TYPE 'D' INLET	CL STA. 3+64.22 OFFSET 20.00' LEFT (EDGEWOODS WAY)	---	570.86	574.94	SD - 4.11 OR 4.39
I-4	MOD. TYPE 'D' INLET	N 579985.79 E 1305133.41	514.14	513.64	520.33	MODIFIED SEE DETAIL SHEET 16
I-5	MOD. TYPE 'D' INLET	CL STA. 5+18.53 OFFSET 17.00' RIGHT (BENSWORTH WAY)	515.34	515.24	522.38	
I-6	MOD. TYPE 'D' INLET	CL STA. 5+18.53 OFFSET 17.00' LEFT (BENSWORTH WAY)	515.78	515.68	522.38	
I-7	MOD. TYPE 'D' INLET	CL STA. 7+80.00 OFFSET 17.00' LEFT (BENSWORTH WAY)	521.04 (12") 520.29 (30")	520.09	527.23	
I-8	TYPE 'D' INLET	CL STA. 8+00.00 OFFSET 17.00' RIGHT (BENSWORTH WAY)	---	523.55	527.68	SD - 4.11 OR 4.39
I-9	TYPE 'D' INLET	N 578908.48 E 1305171.37	---	547.75	551.83	SD - 4.11 OR 4.39
I-10	TYPE 'D' INLET	N 578473.28 E 1304626.25	541.25	540.75	545.33	SD - 4.11 OR 4.39
I-11	TYPE 'D' INLET	N 578256.45 E 1304610.58	---	545.34	549.67	SD - 4.11 OR 4.39
I-12	TYPE 'D' INLET	LP STA. 14+49.76 OFFSET 8.00' LEFT (CORYS COURT)	551.32	551.07	562.00	SD - 4.11 OR 4.39
I-13	TYPE 'D' INLET	N 578324.94 E 1305011.90	---	552.75	556.83	SD - 4.11 OR 4.39
I-14	TYPE 'D' INLET	N 580918.66 E 1305038.00	495.45	495.25	499.83	SD - 4.11 OR 4.39
I-15	TYPE 'D' INLET	CL STA. 31+01.53 OFFSET 17.00' LEFT (EDGEWOODS WAY)	510.31	510.06	51456	SD - 4.11 OR 4.39
I-16	TYPE 'D' INLET	CL STA. 31+01.53 OFFSET 17.00' RIGHT (EDGEWOODS WAY)	---	510.48	514.56	SD - 4.11 OR 4.39
I-17	TYPE 'D' INLET	CL STA. 22+40.00 OFFSET 17.00' RIGHT (EDGEWOODS WAY)	522.26	522.01	526.51	SD - 4.11 OR 4.39
I-18	TYPE 'D' INLET	CL STA. 22+40.00 OFFSET 17.00' LEFT (EDGEWOODS WAY)	---	522.43	526.51	SD - 4.11 OR 4.39
I-19	TYPE 'D' INLET	N 579945.34 E 1305930.30	515.00	514.75	519.33	SD - 4.11 OR 4.39
I-20	TYPE 'D' INLET	CL STA. 17+72.30 OFFSET 20.00' RIGHT (EDGEWOODS WAY)	532.52 (15") 532.32 (18")	532.12	536.85	SD - 4.11 OR 4.39
I-21	TYPE 'D' INLET	CL STA. 17+72.30 OFFSET 20.00' LEFT (EDGEWOODS WAY)	---	532.77	536.85	SD - 4.11 OR 4.39
I-22	TYPE 'D' INLET	CL STA. 12+75.00 OFFSET 20.00' RIGHT (EDGEWOODS WAY)	550.57	550.32	554.85	SD - 4.11 OR 4.39
I-23	TYPE 'D' INLET	CL STA. 12+75.00 OFFSET 20.00' RIGHT (EDGEWOODS WAY)	---	550.77	554.85	SD - 4.11 OR 4.39
I-24	TYPE 'D' INLET	LP STA. 1+47.76 OFFSET 8.00' LEFT (EDGEWOODS WAY)	---	503.40	508.38	SD - 4.11 OR 4.39
M-1	4'-0" MANHOLE	N 578322.68 E 1305884.47	562.50	562.30	569.50	G - 5.12
M-2	4'-0" MANHOLE	CL STA. 0+23.54 OFFSET 7.00' RIGHT (EDGEWOODS WAY)	565.33	565.13	575.96	G - 5.12
M-3	4'-0" MANHOLE	CL STA. 1+20.40 OFFSET 7.00' RIGHT (EDGEWOODS WAY)	566.50	566.30	574.19	G - 5.12
M-4	5'-0" MANHOLE	N 580198.80 E 1305117.65	512.30	512.20	518.50	G - 5.03
M-5	5'-0" MANHOLE	N 580021.78 E 1305079.01	513.31	513.21	520.20	G - 5.03
M-6	5'-0" MANHOLE	CL STA. 6+71.15 OFFSET 5.72' LEFT (BENSWORTH WAY)	519.00	518.50	525.50	G - 5.13
M-7	5'-0" MANHOLE	N 579267.26 E 1304948.35	528.20	528.00	536.30	G - 5.13
M-8	5'-0" MANHOLE	N 578923.09 E 1304917.97	544.92 (18") 535.32 (36")	535.12	551.00	G - 5.13
M-9	4'-0" MANHOLE	N 578894.27 E 1305022.04	546.25	546.00	554.00	G - 5.13
M-10	5'-0" MANHOLE	N 578855.36 E 1304653.87	536.89	536.69	548.06	G - 5.13
M-11	5'-0" MANHOLE	N 578637.16 E 1304638.10	544.03 (18") 538.69 (24")	537.99	549.42	G - 5.13
M-12	4'-0" MANHOLE	CL STA. 31+88.65 OFFSET 23.27' LEFT (EDGEWOODS WAY)	503.41 (15") 506.58 (18")	503.16	512.00	G - 5.12
M-13	4'-0" MANHOLE	N 580420.49 E 1305764.35	515.35	510.24	521.26	G - 5.12
M-14	4'-0" MANHOLE	N 580249.54 E 1305859.15	507.70	507.50	517.50	G - 5.12
M-15	4'-0" MANHOLE	N 579827.18 E 1305678.66	530.22	530.02	539.00	G - 5.12
M-16	4'-0" MANHOLE	CL STA. 13+80.96 OFFSET 7.32' RIGHT (EDGEWOODS WAY)	544.16	543.96	550.75	G - 5.12
S-1	SEE DETAIL	N 580376.11 E 1304983.86	508.00 511.00	507.50	516.15	--
S-2	SEE DETAIL	N 580694.07 E 1305037.01	489.00 493.00	489.00	497.00	--
S-3	SEE DETAIL	N 580505.59 E 1306051.98	491.00 495.00	491.00	499.67	--
S-4	SEE DETAIL	N 579039.13 E 1306429.53	530.00 533.00	530.00	537.17	--

1) STRUCTURE ELEVATION AND LOCATION FOR MANHOLES IS AT THE TOP AND CENTER OF RIM.
2) STRUCTURE ELEVATION AND LOCATION FOR INLETS IS AT THE TOP CENTER OF SLAB FOR "D" INLETS.
3) STRUCTURE ELEVATION AND LOCATION FOR ENDSECTIONS IS AT THE MIDPOINT AT THE END OF STRUCTURE.
4) PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/21/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 9/6/06

NO.	DATE	REVISION
1	3-10-2008	REVISE TOP ELEV. OF I-12 IN STRUCTURE SCHEDULE

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD MASON — REG. NO. 21431 — PROFESSIONAL ENGINEER — 7/14/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN
DRAINAGE AREA MAP

DATE: JULY, 2006 — PROJECT NO. 1550

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

SCALE: AS SHOWN — SHEET 14 OF 27

F-06-108

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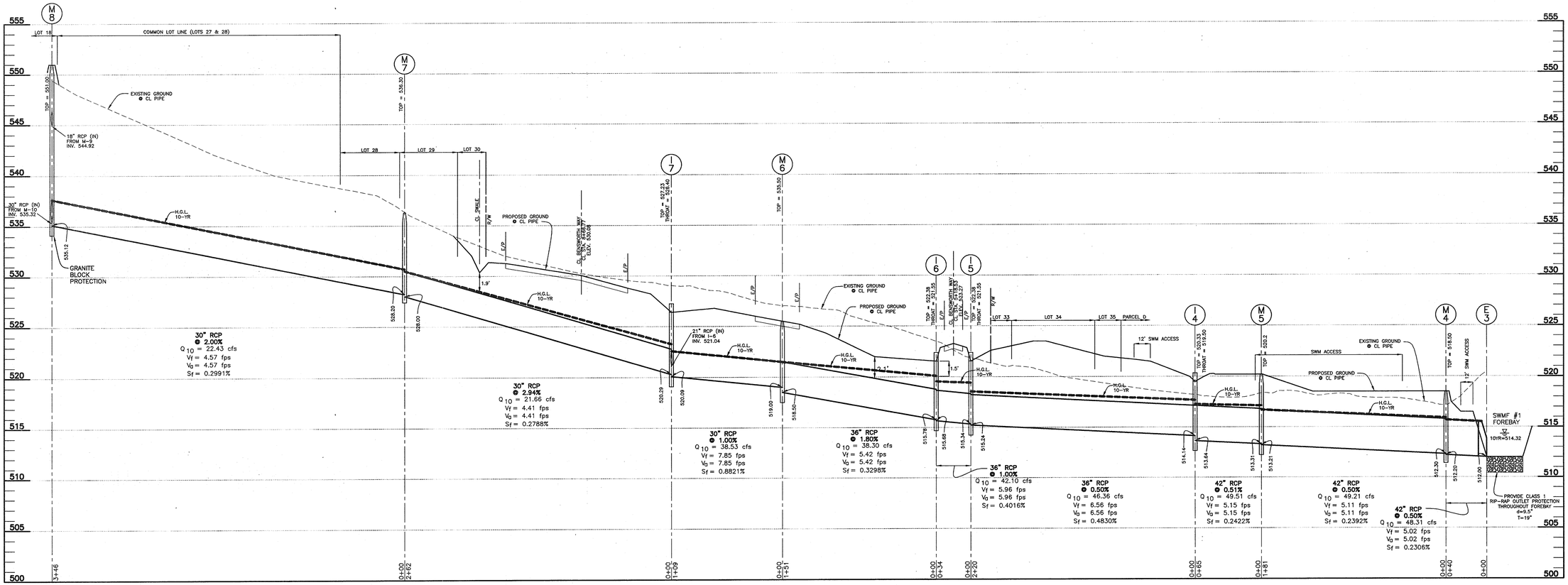

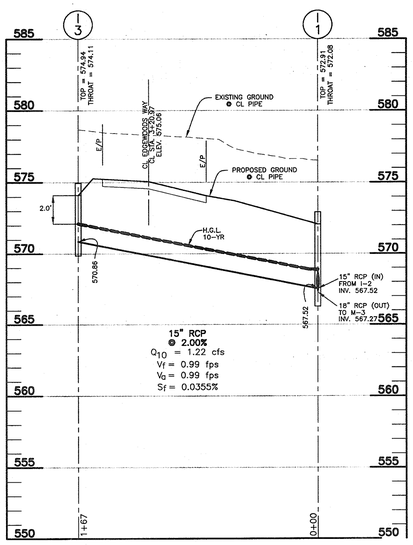

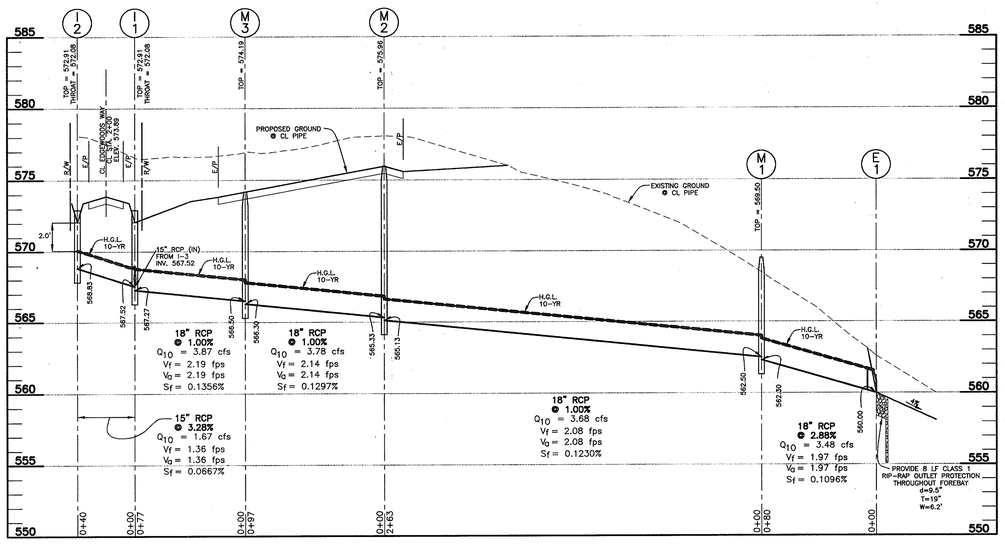

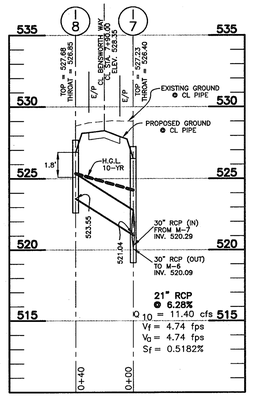

* ALL STORM DRAIN PIPE SHALL HAVE A MINIMUM OF 1.5 FEET OF COVER.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/1/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 9/6/06

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD BRUCE MASON — No. 21612 — REGISTERED PROFESSIONAL ENGINEER
7/10/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN PROFILES

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

DATE: JULY, 2006 | PROJECT NO. 1550

SCALE: 1" = 50' HORIZ. 1" = 5' VERT.

SHEET 15 OF 27

F-06-108

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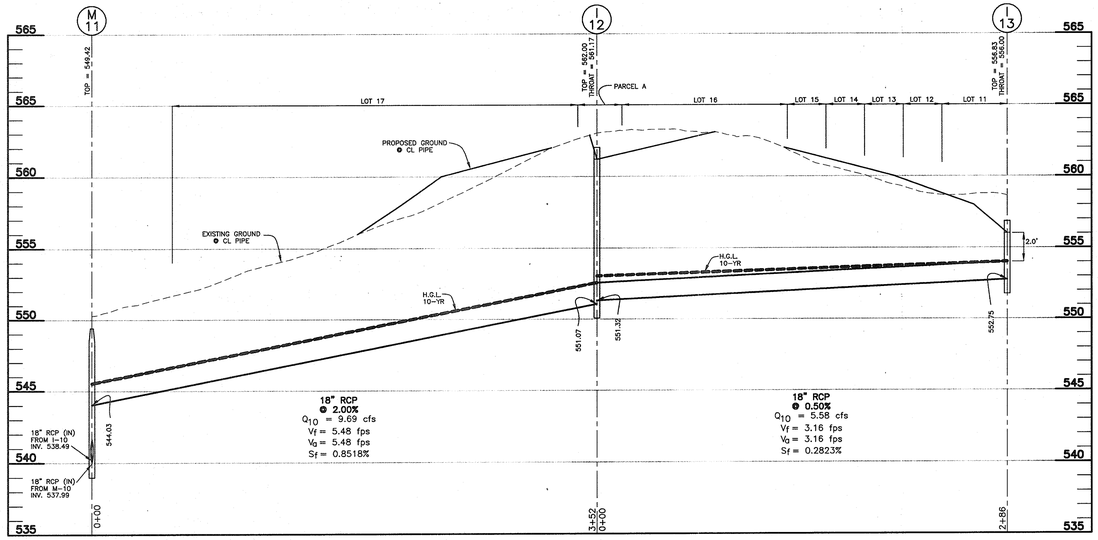
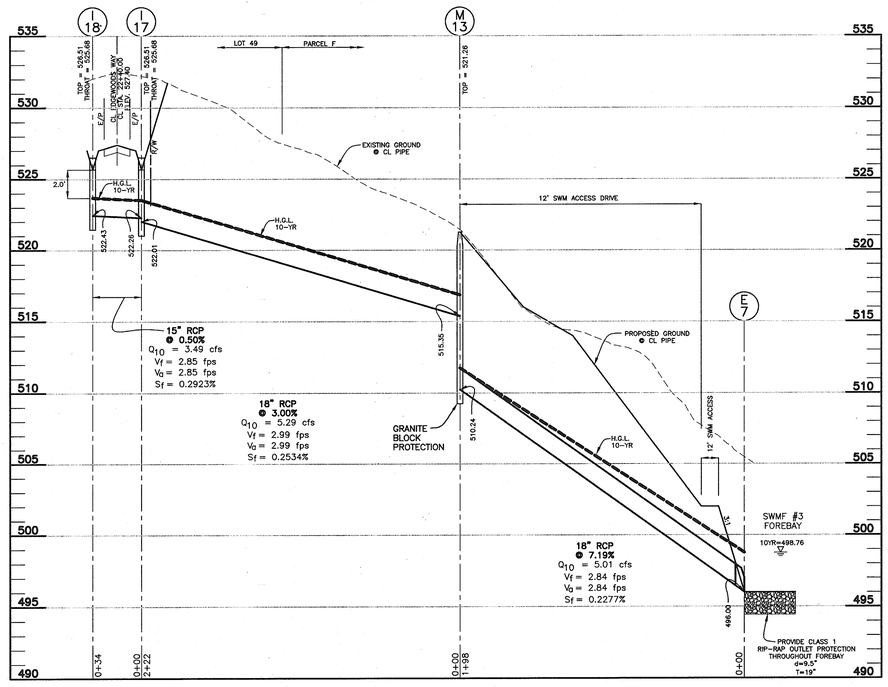
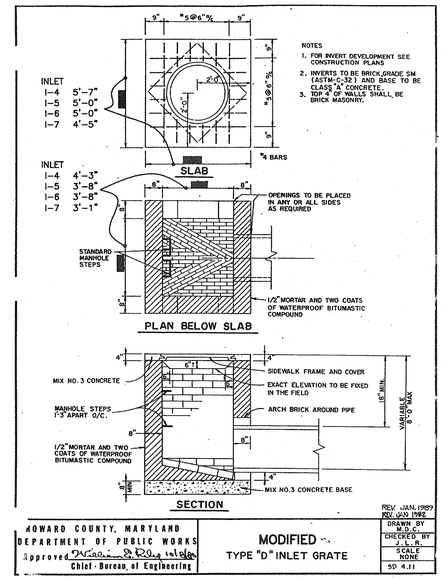






REV. JAN. 1989
REV. JAN 1992

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved: Chief - Bureau of Engineering

MODIFIED - TYPE "D" INLET GRATE

DRAWN BY: B.D.C.
CHECKED BY: J.L.R.
SCALE: NONE
SD 4.11

* ALL STORM DRAIN PIPE SHALL HAVE A MINIMUM OF 1.5 FEET OF COVER.

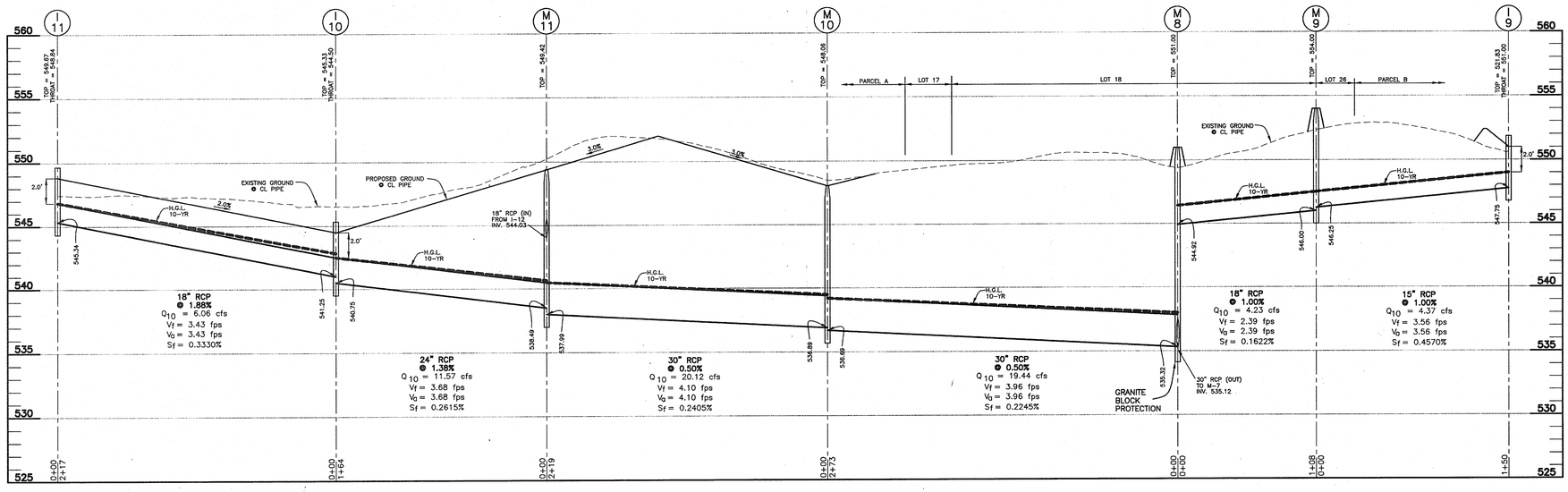
APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/1/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/6/06



NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD ALEXANDER WASHINGTON — No. 21612 — REGISTERED PROFESSIONAL ENGINEER
7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN PROFILES

DATE: JULY, 2006 — PROJECT NO. 1550

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

SCALE: 1" = 50' HORIZ. 1" = 5' VERT.

SHEET 16 OF 27

F-06-108

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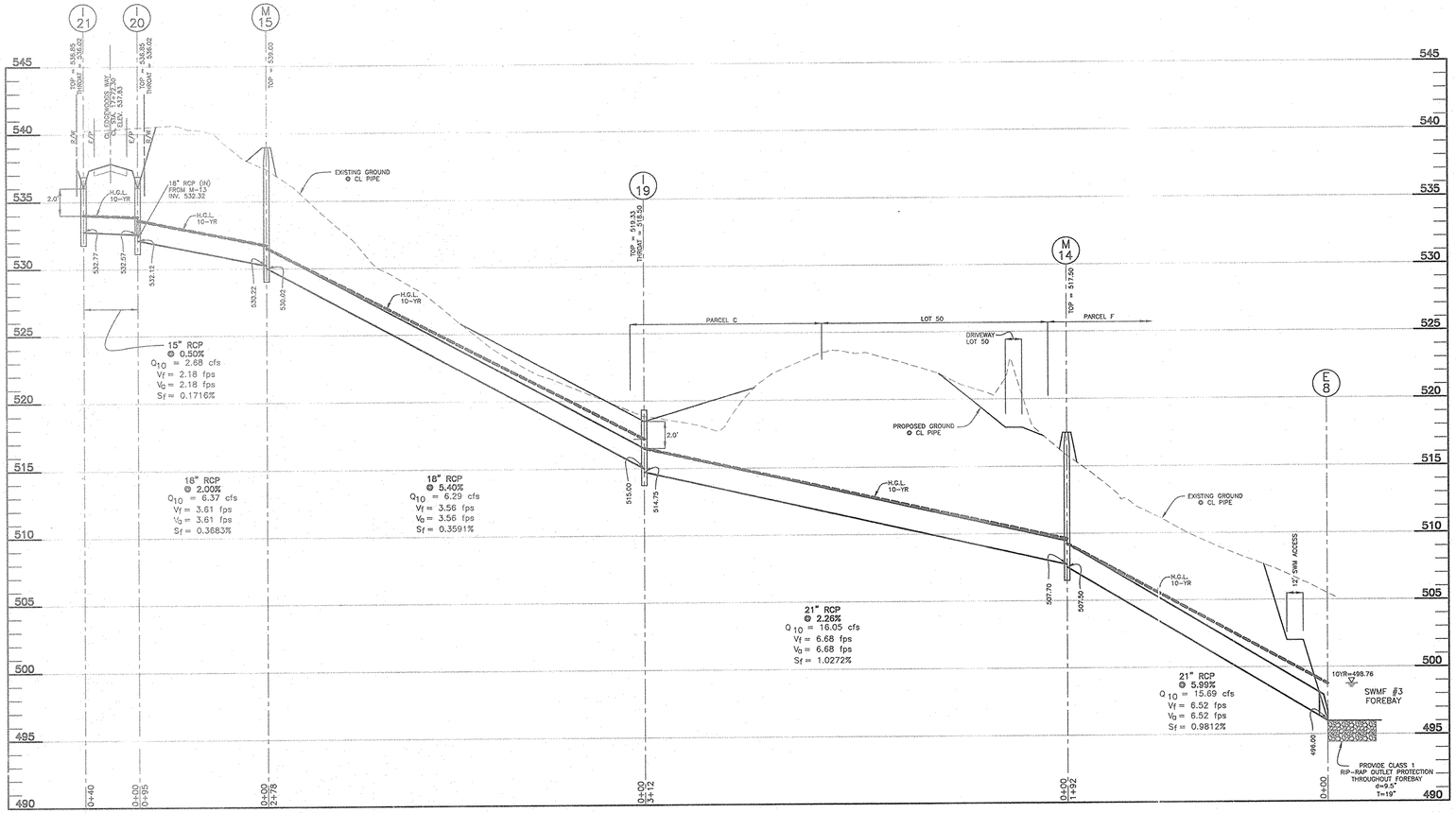
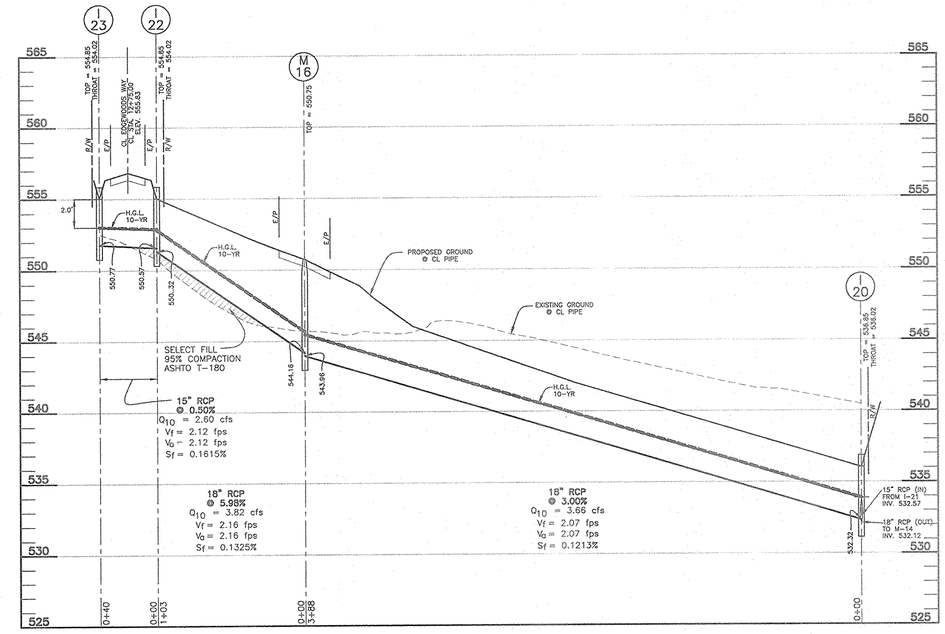
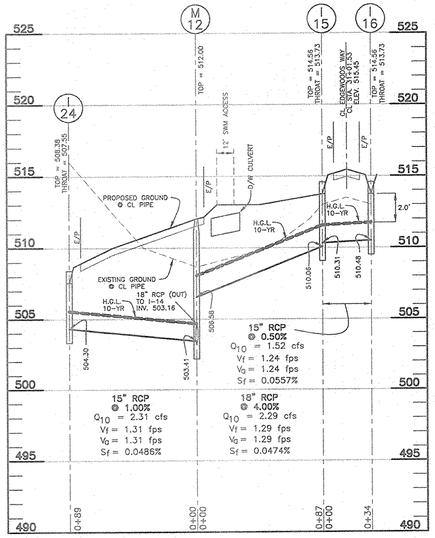
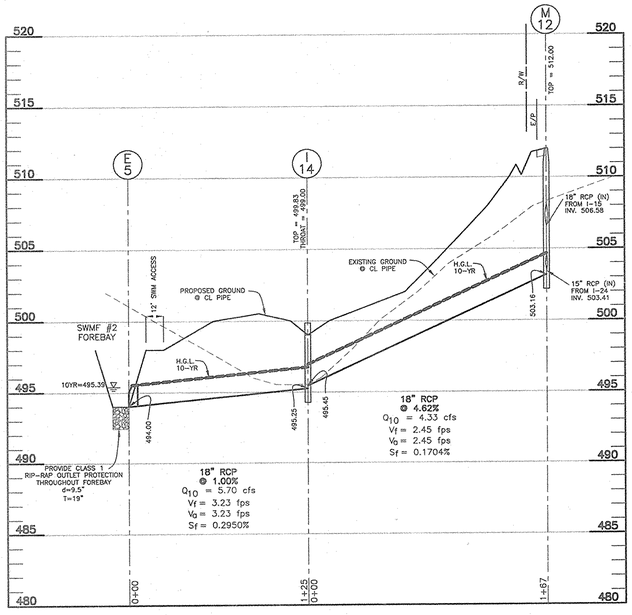








CONSTRUCTION SPECIFICATIONS

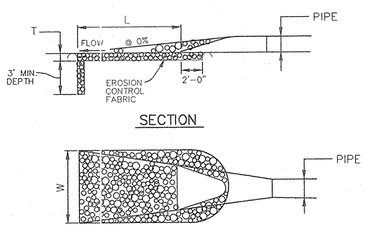
1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.

2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.

3. GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.

4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR THE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.

5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

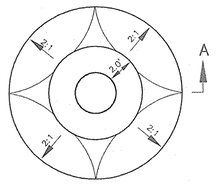


SECTION

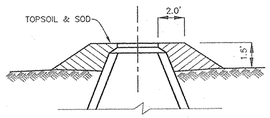
PLAN

STRUCTURE	D-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
E-1	9.5"	10'	5.5'	19"	I
E-2	9.5"	55'	24.7'	19"	I
E-3	9.5"	FOREBAY	FOREBAY	19"	I
E-4	9.5"	23'	12.2'	19"	I
E-5	9.5"	FOREBAY	FOREBAY	19"	I
E-6	9.5"	30'	15'	19"	I
E-7	9.5"	FOREBAY	FOREBAY	19"	I
E-8	9.5"	FOREBAY	FOREBAY	19"	I
E-9	9.5"	25'	13.5'	19"	I

OUTLET PROTECTION DETAIL
NOT TO SCALE



PLAN VIEW



SECTION A-A

NOTES:
1.) ALL MANHOLE FRAME AND COVERS SHALL BE FLUSH WITH GRADE EXCEPT WHEN SHOWN ON PROFILE TO BE SET HIGHER THAN GRADE.
2.) MANHOLE FRAME AND COVERS TO BE SET HIGHER THAN GRADE SHALL BE SET IN ACCORDANCE WITH THIS DETAIL.

FILL AROUND MANHOLE
NOT TO SCALE

* ALL STORM DRAIN PIPE SHALL HAVE A MINIMUM OF 1.5 FEET OF COVER.

PIPE SCHEDULE

PIPE SIZE	LENGTH	TYPE
* 15"	1200'	RCCP CLASS IV
* 21"	20'	RCCP CLASS IV
15"	560'	RCCP CLASS IV
18"	3143'	RCCP CLASS IV
21"	544'	RCCP CLASS IV
24"	164'	RCCP CLASS IV
30"	1210'	RCCP CLASS IV
36"	405'	RCCP CLASS IV
42"	286'	RCCP CLASS IV
36"	135'	ASTM C-361 (B-25)
42"	207'	ASTM C-361 (B-25)

* DRIVEWAY CULVERTS

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/1/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 9/6/06

NO.	DATE	REVISION
1	3-10-2008	REVISE PIPE SCHEDULE TO INDICATE RCCP CLASS IV FOR DRIVEWAY CULVERTS

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD MASON — PROFESSIONAL ENGINEER — 11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN PROFILES

DATE: JULY, 2006 | PROJECT NO. 1550

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

SCALE: 1" = 50' HORIZ. / 1" = 5' VERT.

SHEET 17 OF 27

F-06-108

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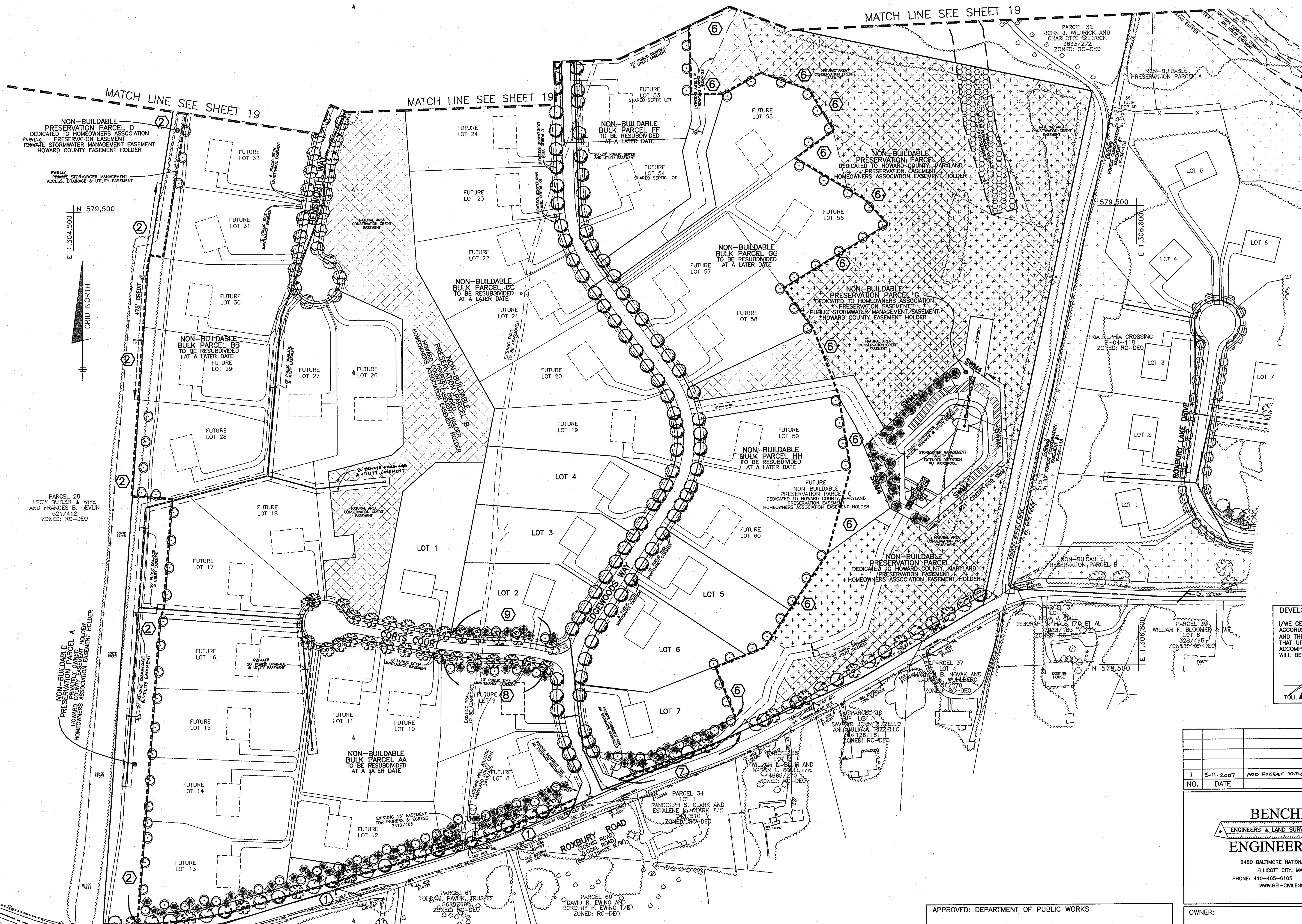

PLAN VIEW
SCALE: 1" = 100'

THIS PLAN IS IN COMPLIANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.

LEGEND

- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING STREAM
- LIMIT OF 100-YR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- (5) LANDSCAPE PERIMETER DESIGNATION
- 2406' CREDIT — LANDSCAPE CREDIT PERIMETER
- NATURAL AREA CONSERVATION CREDIT EASEMENT
- SWM 15' NO WOODY VEGETAION ZONE

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

[signature] 9-13-06
TOLL BROTHERS, INC. DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 8-21-06
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 9/7/06
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[signature] 9/6/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

NO.	DATE	REVISION
1	5-11-2007	ADD FOREST MITIGATION BANK EASEMENTS

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD ALAN MASON — NO. 21443 — REGISTERED PROFESSIONAL ENGINEER [signature] 7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: LANDSCAPE AND STREET TREE PLAN

DESIGN: DBT	DRAFT: DBT	CHECK: DAM	DATE: JULY, 2006	PROJECT NO. 1550
			SCALE: AS SHOWN	SHEET 18 OF 27

F-06-108

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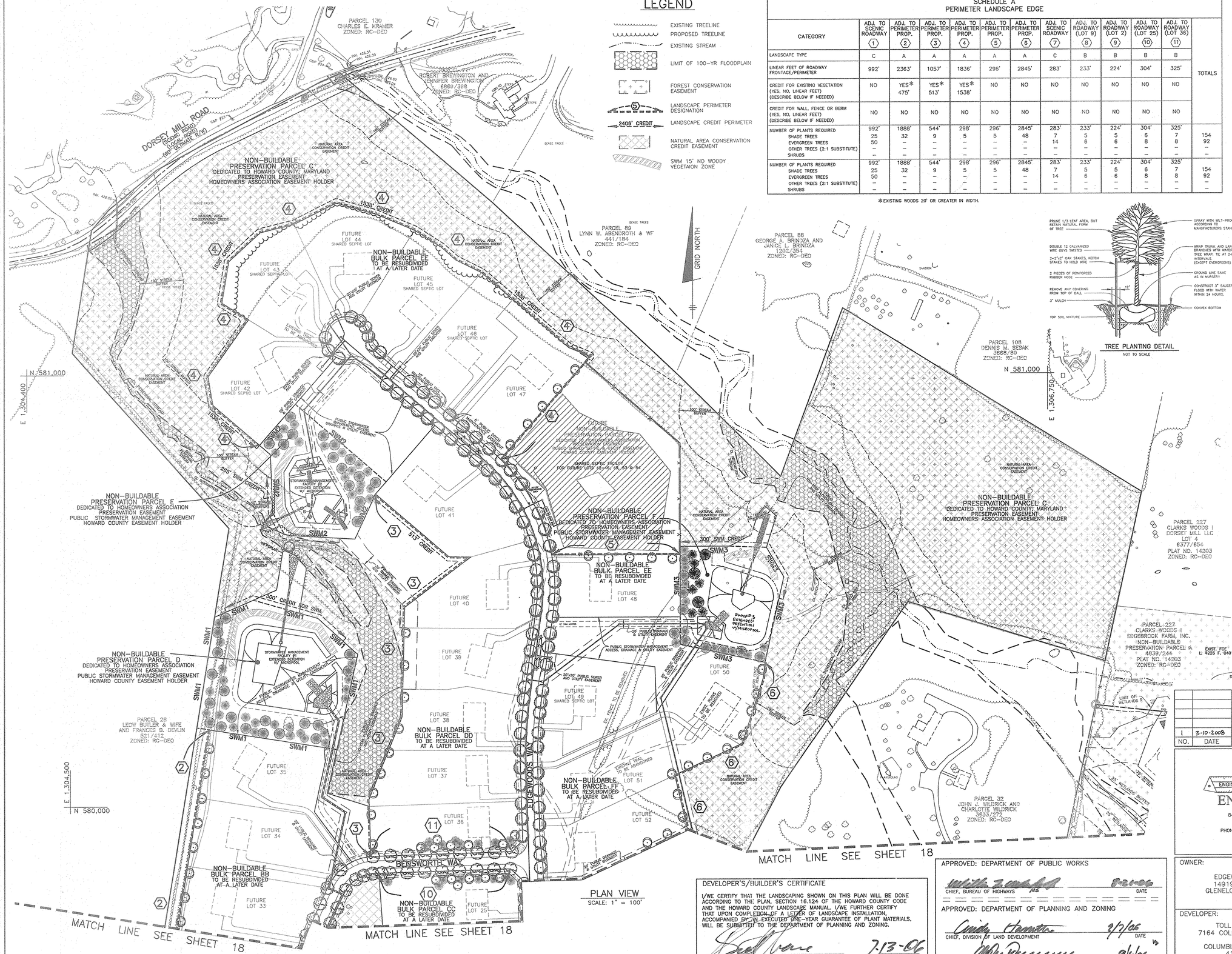

LEGEND

- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING STREAM
- LIMIT OF 100-YR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- LANDSCAPE PERIMETER DESIGNATION
- 240B' CREDIT — LANDSCAPE CREDIT PERIMETER
- NATURAL AREA CONSERVATION CREDIT EASEMENT
- SWM 15' NO WOODY VEGETAION ZONE

SCHEDULE A
PERIMETER LANDSCAPE EDGE

CATEGORY	ADJ. TO SCENIC ROADWAY ⟨1⟩	ADJ. TO PERIMETER PROP. ⟨2⟩	ADJ. TO PERIMETER PROP. ⟨3⟩	ADJ. TO PERIMETER PROP. ⟨4⟩	ADJ. TO PERIMETER PROP. ⟨5⟩	ADJ. TO PERIMETER PROP. ⟨6⟩	ADJ. TO SCENIC ROADWAY ⟨7⟩	ADJ. TO ROADWAY (LOT 9) ⟨8⟩	ADJ. TO ROADWAY (LOT 2) ⟨9⟩	ADJ. TO ROADWAY (LOT 25) ⟨10⟩	ADJ. TO ROADWAY (LOT 36) ⟨11⟩	TOTALS
LANDSCAPE TYPE	C	A	A	A	A	A	C	B	B	B	B	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	992'	2363'	1057'	1836'	296'	2845'	283'	233'	224'	304'	325'	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	YES* 475'	YES* 513'	YES* 1538'	NO	NO	NO	NO	NO	NO	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	
NUMBER OF PLANTS REQUIRED	992'	1888'	544'	298'	296'	2845'	283'	233'	224'	304'	325'	
SHADE TREES	25	32	9	5	5	48	7	5	5	6	7	154
EVERGREEN TREES	50	–	–	–	–	–	14	6	6	8	8	92
OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–	–	–	–	–	–	–	–	–
SHRUBS	–	–	–	–	–	–	–	–	–	–	–	
NUMBER OF PLANTS REQUIRED	992'	1888'	544'	298'	296'	2845'	283'	233'	224'	304'	325'	
SHADE TREES	25	32	9	5	5	48	7	5	5	6	7	154
EVERGREEN TREES	50	–	–	–	–	–	14	6	6	8	8	92
OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–	–	–	–	–	–	–	–	–
SHRUBS	–	–	–	–	–	–	–	–	–	–	–	

*EXISTING WOODS 20' OR GREATER IN WIDTH.

SCHEDULE D
SWM PERIMETER LANDSCAPING

	SWMF 1	SWMF 2	SWMF 3	SWMF 4	TOTALS
LINEAR FEET OF PERIMETER	1187'	939	908'	999'	
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	YES, 25.3%	YES, 28.2%	YES, 33.0%	YES, 42.1%	
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO	NO	NO	NO	
LINEAR FEET OF REQUIRED PLANTING	887'	674'	608'	578'	
BUFFER TYPE	"B"	"B"	"B"	"B"	
NUMBER OF TREES REQUIRED					
SHADE TREES	18	14	13	12	57
EVERGREEN TREES	23	17	16	15	71
NUMBER OF TREES PROVIDED					
SHADE TREES	18	14	13	12	57
EVERGREEN TREES	23	17	16	15	71

STREET TREE SCHEDULE

ROAD NAME	PERIMETER	TREES REQ.	TREES PROV.
EDGEWOODS WAY	6330'	159	159
CORYS COURT	1163'	29	29
BENSWORTH WAY	1984'	50	50
ROXBURY ROAD	1960'	49	49
TOTAL		287	287

TREE PLANTING DETAIL
NOT TO SCALE

LANDSCAPE NOTES:

1. TREES SHOULD BE PLANTED A MINIMUM OF 6 FEET FROM THE EDGE OF PAVING AND MUST BE A MINIMUM OF 5 FEET FROM ANY STORM DRAIN.

2. TREES MUST BE PLANTED A MINIMUM OF 5 FEET FROM AN OPEN SPACE ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.

3. SEE TREE PLANTING DETAIL – THIS SHEET.

4. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.

5. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATIONS.

6. THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.

7. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $87,750.00. ($63,300.00 FOR 211 SHADE TREES, $24,450.00 FOR 163 EVERGREENS)

PUBLIC STREET TREE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS	
	45	PLATANUX X ACERFOLIO 'BLOODGOOD' (Bloodgood London Plane)	2 1/2" MIN. CAL. B&B FULL HEAD	STREET TREES TO BE PROVIDED BY THE DEVELOPER
	176	ACER RUBRUM 'OCTOBER GLORY' (October Glory Red Maple)	2 1/2" MIN. CAL. B&B FULL HEAD	
	66	ACER SACCHARUM 'GREEN MOUNTAIN' (Green Mountain Sugar Maple)	2 1/2" MIN. CAL. B&B FULL HEAD	

LANDSCAPE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
	154	QUERCUS RUBRA (Red Oak)	2-1/2" – 3"cal.	SHADE TREES ALONG PERIMETER TO BE PROVIDED BY THE DEVELOPER
	163	PINUS STROBUS (Eastern White Pine)	6' – 8' ht.	EVERGREEN TREES ALONG PERIMETER AND SWM FACILITIES TO BE PROVIDED BY THE DEVELOPER
	57	TILIA CORDATA 'GREENSPIRE' (Greenspire Littleleaf Linden)	2-1/2" – 3"cal.	SHADE TREES ALONG SWM FACILITIES TO BE PROVIDED BY THE DEVELOPER

NO.	DATE	REVISION
1	3-10-2008	REVISED SHAPE OF SWMF #3 AND PERIMETER TREE LOCATIONS

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THI: PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

TOLL BROTHERS, INC. — DATE 7-13-06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 8-21-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/7/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 9/6/06

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD MASON — REGISTERED PROFESSIONAL ENGINEER
Donald Mason 7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: LANDSCAPE AND STREET TREE PLAN

DESIGN: DBT	DRAFT: DBT	CHECK: DAM	DATE: JULY, 2006	PROJECT NO. 1550
			SCALE: AS SHOWN	SHEET 19 OF 27

F-06-106

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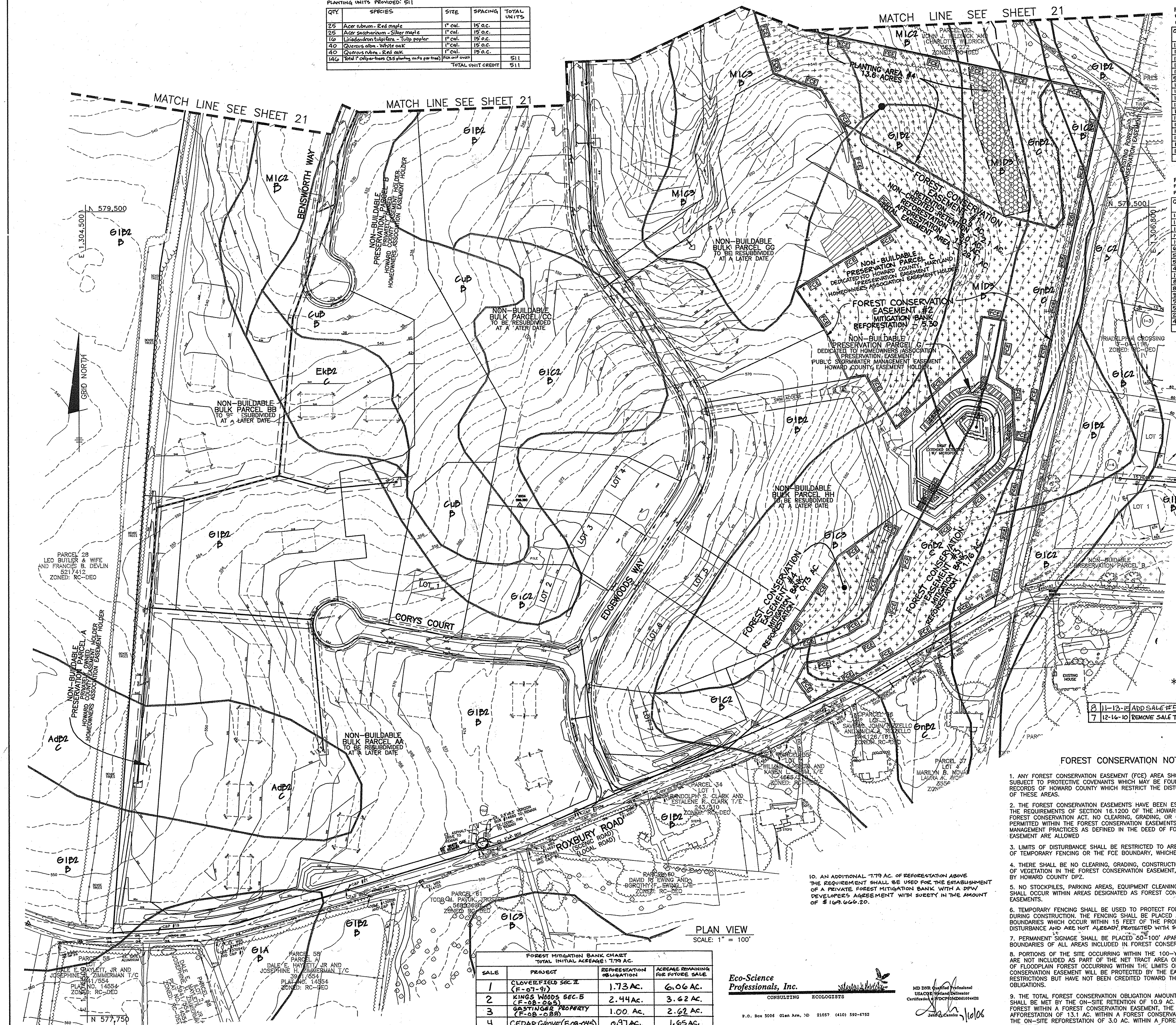
FCE #4 MITIGATION BANK - 0.73 AC.
PLANTING UNITS REQUIRED: 511
PLANTING UNITS PROVIDED: 511

QTY.	SPECIES	SIZE	SPACING	TOTAL UNITS
25	Acer rubrum - Red maple	1" cal.	15' o.c.	
25	Acer saccharinum - Silver maple	1" cal.	15' o.c.	
16	Liriodendron tulipifera - Tulip poplar	1" cal.	15' o.c.	
40	Quercus alba - White oak	1" cal.	15' o.c.	
40	Quercus rubra - Red oak	1" cal.	15' o.c.	
146	Total 1" caliper trees (3.5 planting units per tree)	FCA unit credit		511
			TOTAL UNIT CREDIT	511



FCE #2 MITIGATION BANK - 5.30 AC.
PLANTING UNITS REQUIRED: 3710
PLANTING UNITS PROVIDED: 3711

QTY	SPECIES	SIZE	SPACING	TOTAL UNITS
10	Acer rubrum - Red maple	1" cal.	15' o.c.	
10	Acer saccharinum - Silver maple	1" cal.	15' o.c.	
14	Liriodendron tulipifera - Tulip poplar	1" cal.	15' o.c.	
10	Quercus alba - White oak	1" cal.	15' o.c.	
10	Quercus rubra - Red oak	1" cal.	15' o.c.	
53	Total 1" caliper trees (3.5 planting units per tree)	FCA UNIT CREDIT		189
176	Acer rubrum - Red maple	2-3' whip	11' o.c.	
176	Acer saccharinum - Silver maple	2-3' whip	11' o.c.	
176	Cornus florida - Flowering dogwood	2-3' whip	11' o.c.*	
176	Diospyros virginiana - Persimmon	2-3' whip	11' o.c.*	
176	Liriodendron tulipifera - Tulip poplar	2-3' whip	11' o.c.	
176	Platanus occidentalis - Sycamore	2-3' whip	11' o.c.	
176	Prunus serotina - Black cherry	2-3' whip	11' o.c.*	
176	Quercus alba - White oak	2-3' whip	11' o.c.*	
176	Quercus rubra - Red Oak	2-3' whip	11' o.c.	
177	Viburnum prunifolium - Blackhaw	2-3' whip	11' o.c.*	
1761	Total whip plantings (2 planting units per tree)	FCA unit credit		3522
			TOTAL UNIT CREDIT	3711

FCE #3 MITIGATION BANK - 1.76 AC.
PLANTING UNITS REQUIRED: 1232
PLANTING UNITS PROVIDED: 1232

QTY	SPECIES	SIZE	SPACING	TOTAL UNITS
10	Acer rubrum - Red maple	1" cal.	15' o.c.	
10	Acer saccharinum - Silver maple	1" cal.	15' o.c.	
19	Liriodendron tulipifera - Tulip poplar	1" cal.	15' o.c.	
15	Quercus alba - White oak	1" cal.	15' o.c.	
15	Quercus rubra - Red oak	1" cal.	15' o.c.	
69	Total 1" caliper trees (3.5 planting units per tree)	FCA unit credit		242
50	Acer rubrum - Red maple	2-3' whip	11' o.c.	
50	Acer saccharinum - Silver maple	2-3' whip	11' o.c.	
40	Cornus florida - Flowering dogwood	2-3' whip	11' o.c.*	
15	Diospyros virginiana - Persimmon	2-3' whip	11' o.c.*	
85	Liriodendron tulipifera - Tulip poplar	2-3' whip	11' o.c.	
85	Platanus occidentalis - Sycamore	2-3' whip	11' o.c.	
35	Prunus serotina - Black cherry	2-3' whip	11' o.c.*	
55	Quercus alba - White oak	2-3' whip	11' o.c.*	
55	Quercus rubra - Red Oak	2-3' whip	11' o.c.	
25	Viburnum prunifolium - Blackhaw	2-3' whip	11' o.c.*	
495	Total whip plantings (2 planting units per tree)	FCE unit credit		990
			TOTAL UNIT CREDIT	1232

APPENDIX G
FOREST CONSERVATION WORKSHEET

NOTE: THIS SUBDIVISION PLAN IS USING "RURAL CLUSTER OPTION B" OF THE APPENDIX L OF THE FOREST CONSERVATION MANUAL BY INCLUDING THE ENTIRE SITE AREA IN THE CALCULATIONS TO SATISFY IT'S FOREST CONSERVATION REQUIREMENT.

ACRES (1/10 acre)

I. BASIC SITE DATA

GROSS SITE AREA ____ 131.9
AREA WITHIN 100 YEAR FLOODPLAIN ____ 4.3
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE) ____ N/A
NET TRACT AREA ____ 127.6
LAND USE CATEGORY (R-RLD, R-RMD, R-S, C/I/O, I) ____ R-RMD

II. INFORMATION FOR CALCULATIONS

A. NET TRACT AREA ____ 127.6
B. REFORESTATION THRESHOLD (25% x A) ____ 31.9
C. AFFORESTATION MINIMUM (20% x A) ____ 25.5

D. EXISTING FOREST ON NET TRACT AREA ____ 12.4
E. FOREST AREAS TO BE CLEARED ____ 1.5
F. FOREST AREAS TO BE RETAINED ____ 10.9

III. DETERMINIG REQUIREMENTS: AFFORESTATION OR REFORESTATION

1. Reforestation

If existing forest areas equal or exceed the afforestation minimum (if D equals or is more than C), and clearing of forest areas is proposed, reforestation requirements may apply.

GO TO SECTION IV

If existing forest areas equal or exceed the afforestation minimum (if D equals or is more than C), and no clearing of existing forest resources is proposed, no reforestation is required. No further calculations are needed.

2. Afforestation

If existing forest areas are less than the afforestation minimum (if D is less than C), afforestation requirements apply.

GO TO SECTION V

ACRES (1/10 acre)

V. AFFORESTATION CALCULATIONS

A. NET TRACT AREA ____ 127.6
B. AFFORESTATION MINIMUM (20% x A) ____ 25.5
C. EXISTING FOREST ON NET TRACT AREA ____ 12.4
D. FOREST AREAS TO BE CLEARED ____ 1.5
E. FOREST AREAS TO BE RETAINED ____ 10.9

SELECT THE ALTERNATE THAT APPLIES.

1. No clearing below the minimum

If existing forests are less than the afforestation minimum (if C is less than B) and NO clearing is proposed, the following calculations apply:

TOTAL AFFORESTATION REQUIRED ____
B - C

Afforesation must make total forest area equal the minimum required.

2. Clearing below the minimum

If existing forests are less than the afforestation minimum (if C is less than B) and clearing is proposed, the following calculations apply:

AFFORESTATION FOR UNFORESTED AREAS BELOW MINIMUM 13.1
B - C
REFORESTATION FOR CLEARING BELOW MINIMUM 3.0
D x 2
TOTAL AFFORESTATION + REFORESTATION REQUIRED 16.1
(B - C) + (D x 2)

Afforestation requires the total forest area to be equal to the minimum and it requires compensation for clearing.

LEGEND

EXISTING CONTOURS
EXISTING TREELINE
LIMIT OF 100-YR FLOODPLAIN
EXISTING STREAM
EXISTING SLOPES 25% OR GREATER
SOILS DELINEATION
ChB2 B — SOILS TYPE
FOREST CONSERVATION EASEMENT
FCE FCE — FOREST CONSERVATION SIGNAGE
TF — TREE PROTECTION FENCE

FOREST MITIGATION NOTE:

THE SALE OF FOREST CREDITS MAY BEGIN UPON ACCEPTANCE BY THE COUNTY OF THE PROFESSIONAL CERTIFICATION AND VERIFICATION OF THE AFFORESTATION PLANTING AND INSTALLATION OF REQUIRED PROTECTION MEASURES, SIGNATURE APPROVAL OF THE FOREST CONSERVATION PLAN, EXECUTION OF THE LEGAL DOCUMENTS PROCESSED UNDER THE DEVELOPER'S AGREEMENT, POSTING OF THE REQUIRED FINANCIAL SURETY AND RECORDATION OF THE FINAL PLAT ESTABLISHING THE FOREST CONSERVATION EASEMENTS.

* FOREST CONSERVATION EASEMENT BEARING AND DISTANCE DESCRIPTIONS ARE PROVIDED ON THE FINAL PLATS (19255 - 19261)

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS ____ DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT ____ 9/7/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION ____ 9/6/06 DATE

NO.	DATE	REVISION
8	11-13-15	ADD SALE #5 TO FOREST MIT. CHART (CLARKSVILLE SQ.)
7	12-16-10	REMOVE SALE TO HAWES PROPERTY & REVISE BANK CHART
6	9-10-08	REVISE FOREST MIDIGATION BANK CHART TO ADD CEDAR GROVE 0.97 AC.
5	7-31-08	REVISE FOREST MIDIGATION BANK CHART #3 FROM 1.24 AC TO 1.00 AC. & CHART 4 FROM 0.73 AC TO 0.97 AC
4	3-10-2008	REVISE FOREST CONSERVATION NOTE 6.
3	12-6-07	ADD SALES FOR F-08-065, F-08-088, & F-07-110 TO FOREST MITIGATION BANK
2	9-27-07	ADD SALE FOR CLOVERFIELD SECT. II TO FOREST MIDIGATION BANK
1	5-11-2007	ADD FOREST MITIGATION BANK EASEMENTS, PLANTING CHARTS, NOTES. REVISE SHEET TITLE.

FOREST CONSERVATION NOTES:

1. ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.

2. THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENTS; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED

3. LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.

4. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.

5. NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.

6. TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION. THE FENCING SHALL BE PLACED ALONG ALL FCE RETENTION BOUNDARIES WHICH OCCUR WITHIN 15 FEET OF THE PROPOSED LIMITS OF DISTURBANCE AND ARE NOT ALREADY PROTECTED WITH SUPER SILT FENCE.

7. PERMANENT SIGNAGE SHALL BE PLACED 50-100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.

8. PORTIONS OF THE SITE OCCURRING WITHIN THE 100-YEAR FLOODPLAIN ARE NOT INCLUDED AS PART OF THE NET TRACT AREA OF THE SITE. AREAS OF FLOODPLAIN FOREST OCCURRING WITHIN THE LIMITS OF A FOREST CONSERVATION EASEMENT WILL BE PROTECTED BY THE EASEMENT RESTRICTIONS BUT HAVE NOT BEEN CREDITED TOWARD THE PROJECTS FCA OBLIGATIONS.

9. THE TOTAL FOREST CONSERVATION OBLIGATION AMOUNT OF 27.0 ACRES SHALL BE MET BY THE ON-SITE RETENTION OF 10.9 AC. OF NET TRACT AREA FOREST WITHIN A FOREST CONSERVATION EASEMENT, THE ON-SITE AFFORESTATION OF 13.1 AC. WITHIN A FOREST CONSERVATION EASEMENT AND BY THE ON-SITE REFORESTATION OF 3.0 AC. WITHIN A FOREST CONSERVATION EASEMENT.

10. AN ADDITIONAL 7.79 AC. OF REFORESTATION ABOVE THE REQUIREMENT SHALL BE USED FOR THE ESTABLISHMENT OF A PRIVATE FOREST MITIGATION BANK WITH A DPW DEVELOPERS AGREEMENT WITH SURETY IN THE AMOUNT OF $169,666.20.

PLAN VIEW
SCALE: 1" = 100'

FOREST MITIGATION BANK CHART
TOTAL INITIAL ACREAGE: 7.79 AC.

SALE	PROJECT	REFORESTATION OBLIGATION	ACREAGE REMAINING FOR FUTURE SALE
1	CLOVERFIELD SEC. II (F-07-91)	1.73 AC.	6.06 AC.
2	KINGS WOODS SEC. 5 (F-08-065)	2.44 AC.	3.62 AC.
3	GASTINGER PROPERTY (F-08-088)	1.00 AC.	2.62 AC.
4	CEDAR GROVE (F-08-045)	0.97 AC.	1.65 AC.
5	CLARKSVIIE SQ SDP-15-002	0.47 AC	1.18 AC.

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. Box 5006 Glen Arm, MD 21057 (410) 592-6752

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B2
John P. Canoles 7/10/06

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — PROFESSIONAL ENGINEER
7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: FOREST CONSERVATION AND FOREST MITIGATION BANK PLAN

DATE: JULY, 2006 | PROJECT NO. 1550
DESIGN: DBT | DRAFT: DBT | CHECK: DAM | SCALE: AS SHOWN | SHEET 20 OF 27

FOREST RETENTION AREA

MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS *PROHIBITED*

VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1991

MIN. 15"

MIN. 11"

Forest Conservation Area

REFORESTATION PROJECT

Trees For Your Future

MIN. 15"

MIN. 11"

SIGNAGE
NOT TO SCALE

MULTIFLORA ROSE CONTROL NOTE

MULTIFLORA ROSE IS PREVALENT IN CERTAIN AREAS TO BE AFFORESTED. PRIOR TO PLANTING ALL MULTIFLORA ROSE SHOULD BE REMOVED. REMOVAL OF THE ROSE MAY BE PERFORMED WITH MOWING AND HERBICIDE TREATMENTS. PHYSICAL REMOVAL OF ALL TOP GROWTH FOLLOWED BY A PERIODIC HERBICIDE TREATMENT OF STUMP SPROUTS IS RECOMMENDED. NATIVE TREE AND SHRUB SPECIES OCCURRING WITHIN THE ROSE THICKETS SHOULD BE RETAINED WHEREVER POSSIBLE. HERBICIDE TREATMENTS SHALL OCCUR ON 2 MONTH INTERVALS DURING THE FIRST GROWING SEASON AND ONCE EACH IN THE SPRING AND FALL FOR SUBSEQUENT YEARS. HERBICIDE USED SHALL BE MADE SPECIFICALLY TO ADDRESS WOODY PLANT MATERIAL AND SHALL BE APPLIED AS PER MANUFACTURERS SPECIFICATIONS. CARE SHOULD BE TAKEN NOT TO SPRAY PLANTED TREES OR NATURALLY OCCURRING NATIVE TREE/SHRUB SEEDLINGS. IT IS RECOMMENDED THAT INITIATION OF ROSE REMOVAL BEGIN AT LEAST SIX MONTHS PRIOR TO PLANTING.

PLANTING NOTES:

1. MULTIFLORA ROSE CONTROL MAY BE REQUIRED AS PART OF THIS PLANTING PLAN.
2. BAREROOT PLANT MATERIAL MAY BE USED TO OFFSET THE COST OF MULTIFLORA ROSE REMOVAL AND MAINTENANCE. IF BAREROOT MATERIAL IS USED IT MUST BE PLANTED IN MARCH — APRIL AND AN ANTI-DESICCANT GEL SHOULD BE UTILIZED TO PROTECT ROOT SYSTEMS. CONTAINER GROWN STOCK IS RECOMMENDED.
3. PLANTS SHOULD BE FLAGGED TO AID ON LOCATION DURING MAINTENANCE. PLANTINGS SHOULD ALSO BE PLANTED IN A GRID PATTERN TO FACILITATE MAINTENANCE AND REMOVAL OF INVASIVE AND EXOTIC SPECIES.

PLANTING/SOIL SPECIFICATIONS

1. PLANTING OF NURSERY STOCK SHALL TAKE PLACE BETWEEN MARCH 15TH AND APRIL 30TH. CONTAINER STOCK MAY BE PLANTED BETWEEN SEPTEMBER 15 AND OCTOBER 30TH.
2. A MINIMUM (12) INCH LAYER OF TOPSOIL SHALL BE SPREAD OVER ALL REFORESTATION AREAS IMPACTED BY SITE GRADING TO ASSURE A SUITABLE PLANTING AREA. DISTURBED AREAS SHALL BE SEEDED AND STABILIZED AS PER GENERAL CONSTRUCTION PLAN FOR PROJECT. PLANTING AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL TOPSOIL INSTALLED.
3. ALL BAREROOT PLANTING STOCK SHALL HAVE THEIR ROOT SYSTEMS DIPPED INTO AN ANTI-DESICCANT GEL PRIOR TO PLANTING.
4. PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE. BACKFILL IN THE PLANTING PITS SHALL CONSIST OF 3 PARTS EXISTING SOIL TO 1 PART FINE FINES OR EQUIVALENT.
5. FERTILIZER SHALL BE 10-10-10 OR UNIFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURERS SPECIFICATIONS.
6. A TWO (2) INCH LAYER OF HARDWOOD MULCH SHALL BE PLACED OVER THE ROOT AREA OF ALL PLANTINGS.
7. PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING.
8. ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

SEQUENCE OF CONSTRUCTION

1. PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
2. UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS PER THE FOREST RETENTION AREA PROTECTION DEVICES SHOWN ON THE FOREST CONSERVATION PLAN.
3. PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

MAINTENANCE OF PLANTINGS

1. MAINTENANCE OF ALL PLANTINGS SHALL LAST FOR A PERIOD OF 24 MONTHS.
2. ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON. WATERING MAY BE MORE OR LESS FREQUENT DEPENDING ON WEATHER CONDITIONS. DURING SECOND GROWING SEASON, ALL PLANTS SHALL BE WATERED AS NEEDED TO ENSURE SURVIVAL.
3. INVASIVE EXOTICS AND NOXIOUS WEEDS WILL BE REMOVED FROM REFORESTATION AREAS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
4. PLANTS WILL BE EXAMINED A MINIMUM OF TWO TIMES DURING THE GROWING SEASON FOR SERIOUS PLANT PESTS AND DISEASES. SERIOUS PROBLEMS WILL BE TREATED WITH THE APPROPRIATE AGENT.
5. DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

GUARANTEE REQUIREMENTS

1. AFTER ONE GROWING SEASON, PLANT MATERIAL SHALL BE MAINTAINED AT 90% SURVIVAL THRESHOLD. A 75% SURVIVAL RATE OF FORESTATION PLANTINGS WILL BE REQUIRED AT THE END OF THE 24 MONTH MAINTENANCE PERIOD. ALL PLANT MATERIAL BELOW THE 75% THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE NEXT GROWING SEASON.
2. THE CONTRACTOR WILL NOT BE LIABLE FOR PLANT LOSS DUE TO THEFT OR VANDALISM. HOWEVER, DEVELOPER SHALL BE RESPONSIBLE UNTIL RELEASE FROM THE FOREST SURETY OBLIGATION.

SURETY FOR REFORESTATION

1. THE DEVELOPER SHALL POST A SURETY (BOND, LETTER OF CREDIT) TO ENSURE THAT REFORESTATION PLANTINGS ARE COMPLETED. UPON ACCEPTANCE OF THE PLANTINGS BY THE COUNTY, THE BOND SHALL BE RELEASED.

FCE Planting Area # 1 - 0.6 acres

Planting units required: 420
Planting units proposed: 420

Qty	Species	Size	Spacing	Total Units
4	Acer rubrum - Red maple	1" cal.	15' o.c.	
4	Acer saccharinum - Silver maple	1" cal.	15' o.c.	
8	Liriodendron tulipifera - Tulip poplar	1" cal.	15' o.c.	
4	Quercus alba - White oak	1" cal.	15' o.c.	
4	Quercus rubra - Red oak	1" cal.	15' o.c.	
24	Total 1" caliper trees (3.5 planting units per tree)	FCA unit credit		84
17	Liquidambar Styraciflua	2-3' whip	11' o.c.	
23	Quercus Palustris	2-3' whip	11' o.c.	
59	Acer Saccharinum	2-3' whip	11' o.c.	
9	Cercis Canadensis	2-3' whip	11' o.c.	
22	Quercus alba - White oak	2-3' whip	11' o.c.	
36	Quercus rubra - Red Oak	2-3' whip	11' o.c.	
8	Viburnum Lentago	2-3' whip	11' o.c.	
168	Total whip plantings (2 planting units per tree)	FCA unit credit		336
			Total Unit Credit	420

FCE Planting Area # 2 - 1.4 acres

Planting units required: 980
Planting units proposed: 981

Qty	Species	Size	Spacing	Total Units
8	Acer rubrum - Red maple	1" cal.	15' o.c.	
8	Acer saccharinum - Silver maple	1" cal.	15' o.c.	
18	Liriodendron tulipifera - Tulip poplar	1" cal.	15' o.c.	
8	Quercus alba - White oak	1" cal.	15' o.c.	
8	Quercus rubra - Red oak	1" cal.	15' o.c.	
50	Total 1" caliper trees (3.5 planting units per tree)	FCA unit credit		175
41	Liquidambar Styraciflua	2-3" whip	11' o.c.	
56	Quercus Palustris	2-3" whip	11' o.c.	
101	Acer Saccharinum	2-3" whip	11' o.c.	
20	Cercis Canadensis	2-3" whip	11' o.c.	
55	Quercus alba - White oak	2-3" whip	11' o.c.	
90	Quercus rubra - Red Oak	2-3" whip	11' o.c.	
20	Viburnum Lentago	2-3" whip	11' o.c.	
403	Total whip plantings (2 planting units per tree)	FCA unit credit		806
			Total Unit Credit	981

FCE Planting Area # 3 – 0.5 acres

Planting units required: 350
Planting units proposed: 351

Qty	Species	Size	Spacing	Total Units
1	Acer rubrum - Red maple	1" cal.	15' o.c.	
1	Liriodendron tulipifera - Tulip poplar	1" cal.	15' o.c.	
2	Quercus alba - White oak	1" cal.	15' o.c.	
2	Quercus rubra - Red oak	1" cal.	15' o.c.	
6	Total 1" caliper trees (3.5 planting units per tree)	FCA unit credit		21
22	Liquidambar Styraciflua	2-3' whip	11' o.c.	
28	Quercus Palustris	2-3' whip	11' o.c.	
21	Cercis Canadensis	2-3' whip	11' o.c.	
20	Quercus alba - White oak	2-3' whip	11' o.c.	
39	Quercus rubra - Red oak	2-3' whip	11' o.c.	
20	Acer Saccharinum	2-3' whip	11' o.c.	
15	Viburnum Lentago	2-3' whip	11' o.c.	
165	Total whip trees (2 planting units per tree)	FCA unit credit		330
			Total Unit Credit	351

FCE Planting Area # 4 – 13.6 acres

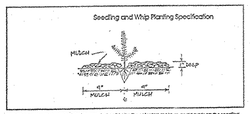
Planting units required: 6520
Planting units proposed: 9021

Qty	Species	Size	Spacing	Total Units
35	Acer rubrum - Red maple	1" cal.	15' o.c.	
35	Liriodendron tulipifera - Tulip poplar	1" cal.	15' o.c.	
40	Quercus alba - White oak	1" cal.	15' o.c.	
40	Quercus rubra - Red oak	1" cal.	15' o.c.	
150	Total 1" caliper trees (3.5 planting units per tree)	FCA unit credit		525
395	Liquidambar Styraciflua	2-3' whip	11' o.c.	
760	Quercus Palustris	2-3' whip	11' o.c.	
550	Cercis Canadensis	2-3' whip	11' o.c.	
555	Quercus alba - White oak	2-3' whip	11' o.c.	
1096	Quercus rubra - Red oak	2-3' whip	11' o.c.	
849	Acer Saccharinum	2-3' whip	11'o.c.	
375	Viburnum Lentago	2-3' whip	11' o.c.	
4498	Total whip trees (2 planting units per tree)	FCA unit credit		8996
			Total Unit Credit	9521

2" CALIPER TREES = 7 PLANTING UNITS
1" CALIPER TREES = 3.5 PLANTING UNITS
WHIPS W/SHELTERS = 2 PLANTING UNITS
SEEDLINGS = 1 PLANTING UNIT

PLANTING SHALL BE INSTALLED IN A CURVILINEAR FASHION ALONG A CONTOUR TO AVOID A GRID APPEARANCE BUT SHOULD BE SPACED TO FACILITATE MAINTENANCE. LARGER STOCK TREES (1" AND 2" CALIPER) SHOULD BE STAGGERED ALONG THE OUTER PERIMETER OF THE PLANTING AREAS TO SERVE AS A DEMARCATION OF THE FCE.

Seedling and Whip Planting Specification

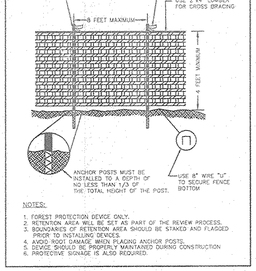


Mulching new transplanted seedlings is essential as it helps the soil retain moisture and it protects the seedling from compaction and from injury.

LEGEND

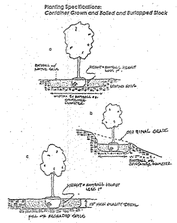
- EXISTING CONTOURS
- EXISTING TREELINE
- LIMIT OF 100-YR FLOODPLAIN
- EXISTING STREAM
- EXISTING SLOPES 25% OR GREATER
- SOILS DELINEATION
- ChB2 B — SOILS TYPE
- FOREST CONSERVATION EASEMENT
- FCE FCE — FOREST CONSERVATION SIGNAGE
- TF — TREE PROTECTION FENCE

TREE PROTECTION FENCE



NOTES:
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARY OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
4. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS.
5. DEVICE SHOULD BE PROPERLY MAINTAINED DURING CONSTRUCTION.
6. PROTECTIVE SIGNAGE IS ALSO REQUIRED.

Planting Specifications:
Container Grown and Balled and Burlapped Stock



PLAN VIEW
SCALE: 1" = 100'

* FOREST CONSERVATION EASEMENT BEARING AND DISTANCE DESCRIPTIONS SHALL BE PROVIDED ON THE FINAL PLAT.

NO.	DATE	REVISION
1	3-10-2008	REMOVE TREE PROTECTION FENCE EXCEPT AROUND OUTFALLS OF SWMF #1 AND #2. REVISE WHIP SPECIES AND QUANTITIES.

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD MOSER — REGISTERED PROFESSIONAL ENGINEER — 9/11/06

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. Box 5006 Glen Arm, MD 21057 (410) 592-6752

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WPCPMAD0510044M
John F. Castelli 9/10/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 9-21-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/7/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 9/6/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'C'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: FOREST CONSERVATION PLAN

DESIGN: DBT	DRAFT: DBT	CHECK: DAM

DATE: JULY, 2006	PROJECT NO. 1550
SCALE: AS SHOWN	SHEET 21 OF 27

F-06-108

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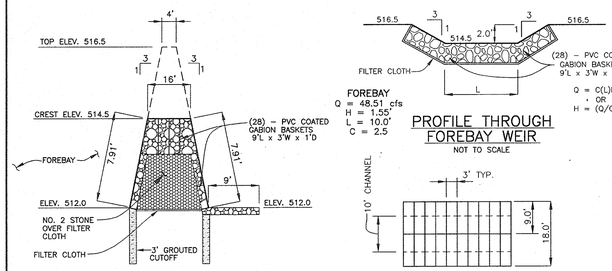
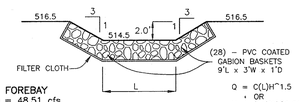


TYPICAL SECTION OF GABION WEIR AT FOREBAY

NOT TO SCALE

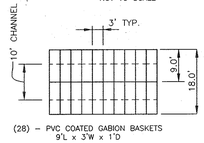


FOREBAY
Q = 48.51 cfs
H = 1.55'
L = 10.0'
C = 2.5

Q = C(L)H^1.5
OR
H = (Q/CL)^0.666

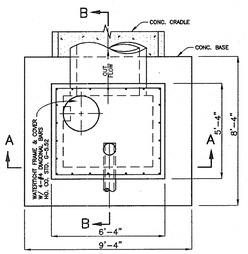
PROFILE THROUGH FOREBAY WEIR

NOT TO SCALE

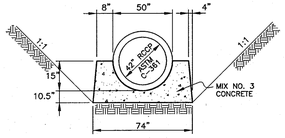


GABION BASKET LAYOUT

NOT TO SCALE

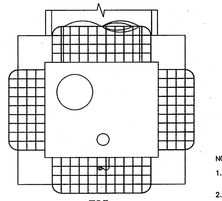


PLAN



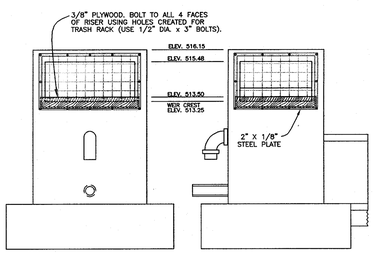
TYPE A–2 CONCRETE CRADLE

NOT TO SCALE

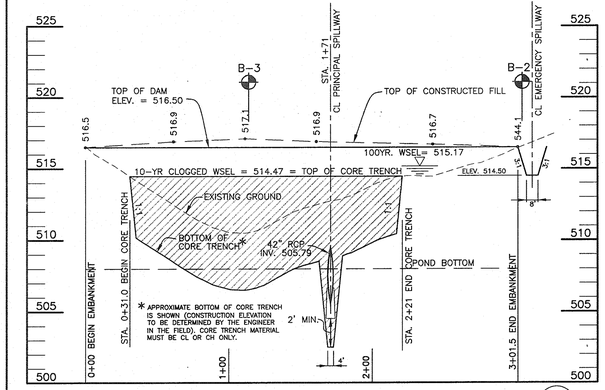


TOP

NOTES:
1. TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION
2. TRASH RACK SHALL BE PAINTED BATTLESHIP GRAY.
3. TRASH RACK TO BE INSTALLED UPON CONVERSION TO SWM POND.

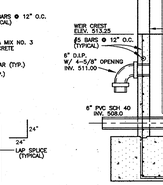


FRONT ELEVATION — SIDE ELEVATION

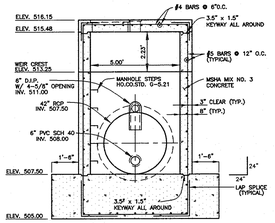


PROFILE ALONG CL OF EMBANKMENT

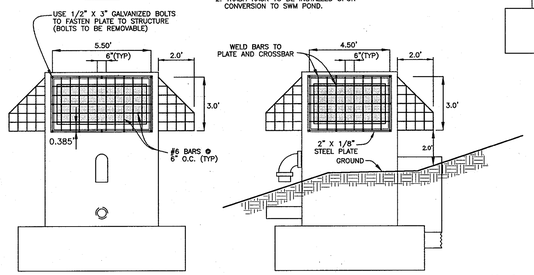
SCALE: 1"=50' HORIZ., 1"=5' VERT.



SECTION B–B
SIDE VIEW



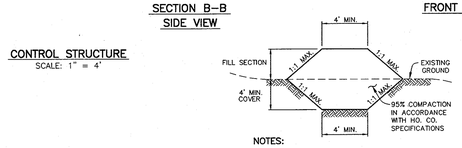
SECTION A–A
FRONT VIEW



FRONT ELEVATION — SIDE ELEVATION

BASIN #1 BLOCKING DETAIL FOR TEMP. SWM

SCALE: 1" = 4'



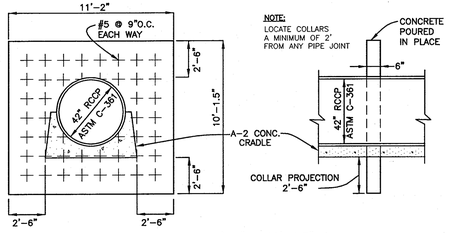
NOTES:
1. IF WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH, IT IS TO BE REMOVED BY PUMPING.
2. CORE TRENCH SHALL CONSIST OF IMPERVIOUS MATERIAL (GC, SC, CL, CH) AS DIRECTED BY A GEOTECHNICAL ENGINEER ONSITE AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.

CONTROL STRUCTURE

SCALE: 1" = 4'

CORE TRENCH SECTION

NOT TO SCALE



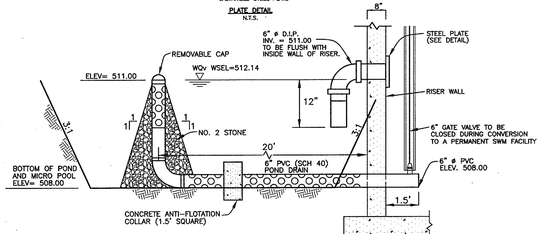
COLLAR SIZE: 11'–2" X 10'–1.5"

ANTI–SEEP COLLAR

NOT TO SCALE

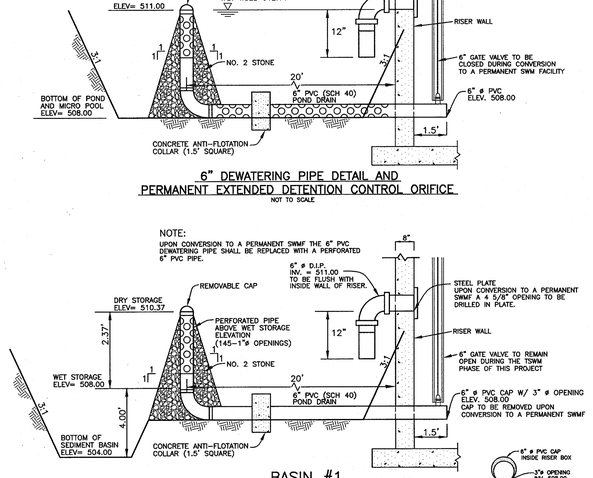
TRASH RACK DETAIL

SCALE: 1" = 4'



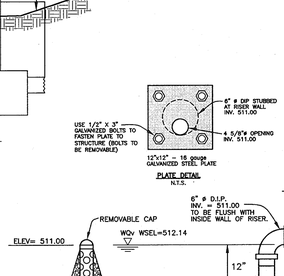
6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE

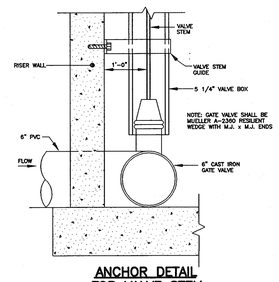
NOT TO SCALE



BASIN #1 6" TEMPORARY SWM VERTICAL DRAW–DOWN DEVICE

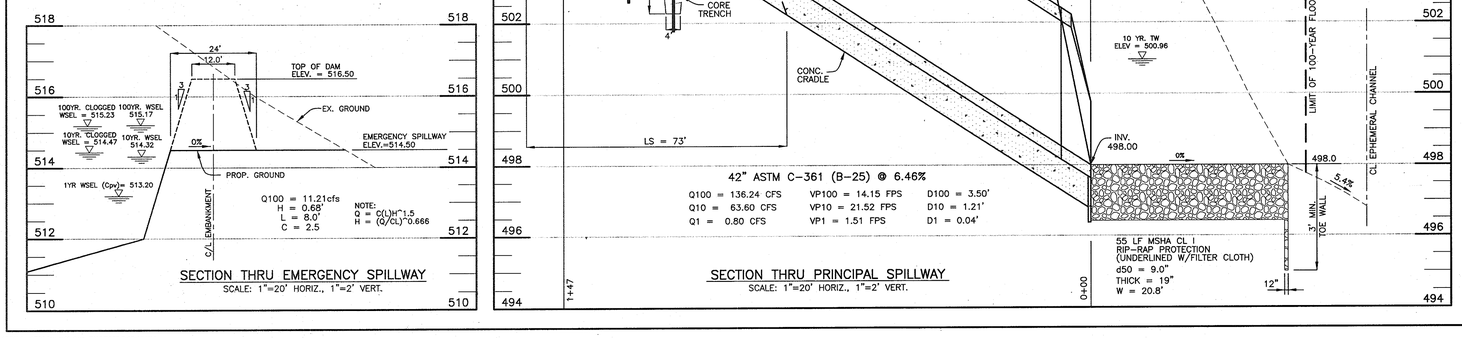
NOT TO SCALE





ANCHOR DETAIL FOR VALVE STEM

NOT TO SCALE



GEOTECHNICAL ENGINEER RECOMMENDATIONS:

EMBANKMENT AND CUT–OFF TRENCH CONSTRUCTION

THE AREAS OF THE PROPOSED SWM FACILITIES 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 PROOFROLLED 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 NRCS–MD CODE NO. 378 POND STANDARDS/SPECIFICATIONS, SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUTOFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CC, 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 NRCS–MD CODE NO. 378 SPECIFICATIONS.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED EXTENDED DETENTION POND

ROUTINE MAINTENANCE TO BE PERFORMED BY H.O.A.:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED 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.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP–RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON–ROUTINE MAINTENANCE TO BE PERFORMED BY HO. CO.:

1. 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.
2. SEDIMENTS SHALL BE REMOVED 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.

AS–BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS–BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 21443

DONALD A. MASON

DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"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."

DEVELOPER — 7-13-06 DATE

BY THE ENGINEER:

"I/WE 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."

ENGINEER – DONALD A. MASON, P.E. # 21443 — 7/16/06 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.

USDA – NATURAL RESOURCES CONSERVATION SERVICE — 8/4/06 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 8/4/06 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 9/7/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 9/6/06 DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410–465–6105 ▲ fax: 410–465–6644
WWW.BEI–CMLENGINEERING.COM

STATE OF MARYLAND — DONALD ALEXANDER MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER — 7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410–872–9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1–7; NON–BUILDABLE BULK PARCELS 'AA'–'HH'
NON–BUILDABLE PRESERVATION PARCELS 'A'–'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORMWATER MANAGEMENT FACILITY #1 DETAILS

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

DATE: JULY, 2006 | SCALE: 1" = 100' | PROJECT NO. 1550 | SHEET 22 OF 27

F–06–108

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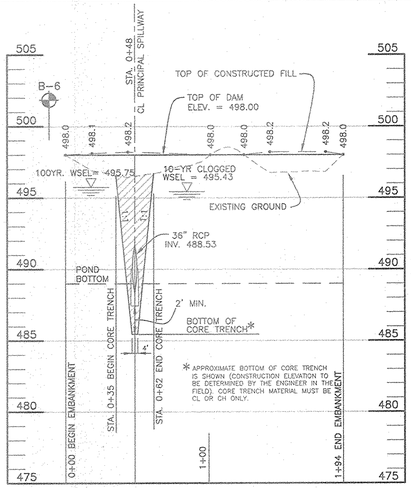
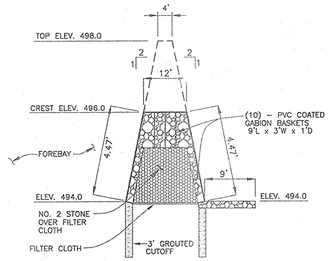
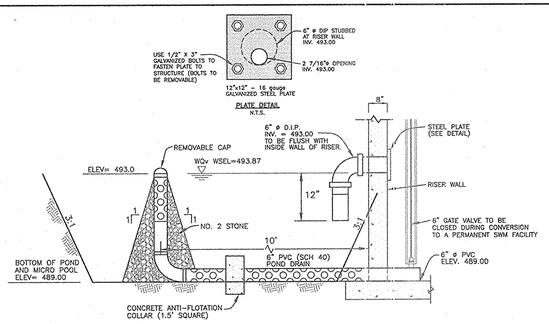


PROFILE ALONG CL OF EMBANKMENT
SCALE: 1"=50' HORIZ., 1"=5' VERT.

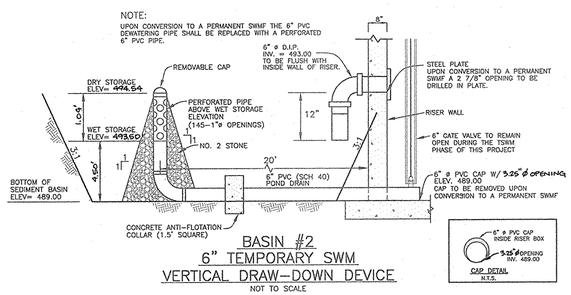


TYPICAL SECTION OF
GABION WEIR AT FOREBAY #1 AND #2
NOT TO SCALE

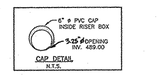


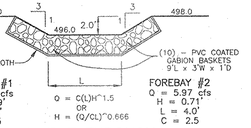
6" DEWATERING PIPE DETAIL AND
PERMANENT EXTENDED DETENTION CONTROL ORIFICE
NOT TO SCALE

NOTE:
UPON CONVERSION TO A PERMANENT SWMF THE 6" PVC DEWATERING PIPE SHALL BE REPLACED WITH A PERFORATED 6" PVC PIPE.

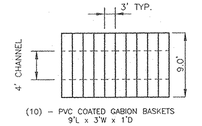


BASIN #2
6" TEMPORARY SWM
VERTICAL DRAW-DOWN DEVICE
NOT TO SCALE

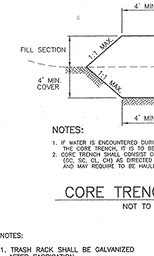




PROFILE THROUGH
FOREBAY WEIR
NOT TO SCALE



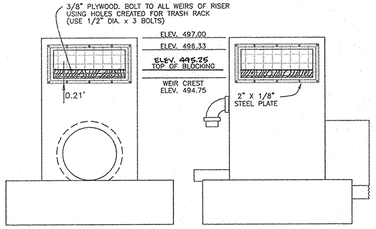
GABION BASKET LAYOUT
AT FOREBAY WEIR
NOT TO SCALE



TOP

NOTES:
1. IF WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH IT IS TO BE REMOVED BY PUMPING.
2. CORE TRENCH SHALL CONSIST OF IMPERVIOUS MATERIAL (GC, SC, CL, CH) AS DIRECTED BY A GEOTECHNICAL ENGINEER ONSITE AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.

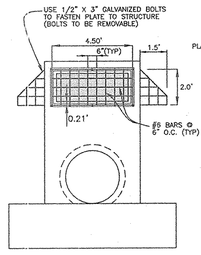
CORE TRENCH SECTION
NOT TO SCALE



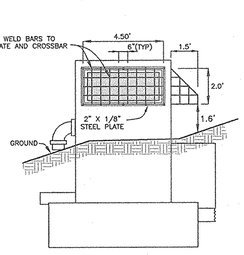
REAR ELEVATION SIDE ELEVATION

BASIN #2
BLOCKING DETAIL
FOR TEMP. SWM
SCALE: 1" = 4'

NOTES:
1. TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION
2. TRASH RACK SHALL BE PAINTED BATTLESHIP GRAY.
2. TRASH RACK TO BE INSTALLED UPON CONVERSION TO SWM POND.

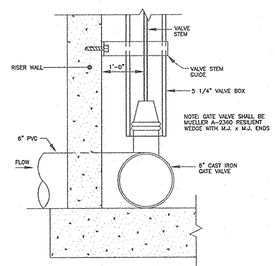


REAR ELEVATION

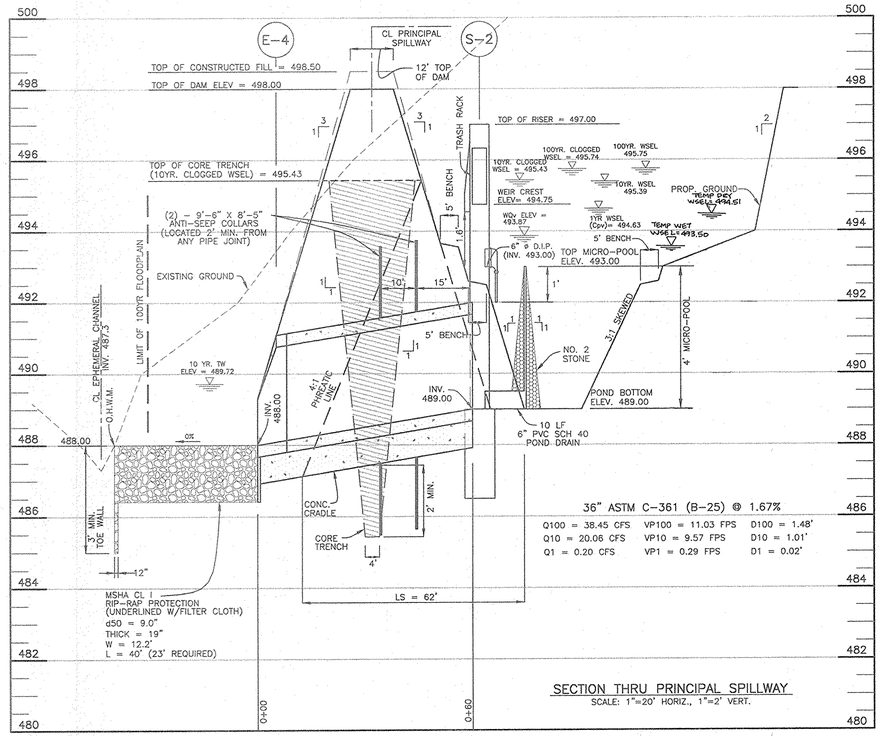


SIDE ELEVATION

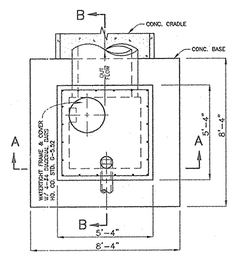
TRASH RACK DETAIL
SCALE: 1" = 4'



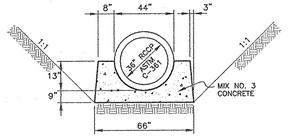
ANCHOR DETAIL
FOR VALVE STEM
NOT TO SCALE



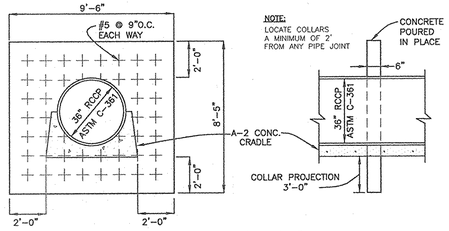
SECTION THRU PRINCIPAL SPILLWAY
SCALE: 1"=20' HORIZ., 1"=2' VERT.



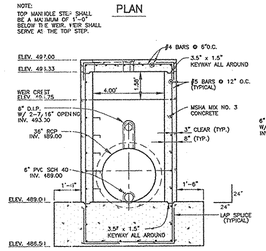
PLAN



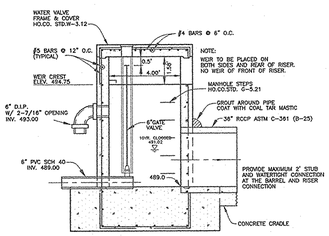
TYPE A-2
CONCRETE CRADLE
NOT TO SCALE



COLLAR SIZE: 9'-6" X 8'-5"
ANTI-SEEP COLLAR
NOT TO SCALE



SECTION A-A
FRONT VIEW



SECTION B-B
SIDE VIEW

CONTROL STRUCTURE
SCALE: 1" = 4'

GEOTECHNICAL ENGINEER RECOMMENDATIONS:

EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

THE AREAS OF THE PROPOSED SWM FACILITIES 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 PROOFROLLED 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 PROFROLLING 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 NRCS-MD CODE NO. 378 POND STANDARDS/SPECIFICATIONS, SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUTOFF 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 NRCS-MD CODE NO. 378 SPECIFICATIONS.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED EXTENDED DETENTION POND

ROUTINE MAINTENANCE TO BE PERFORMED BY H.O.A.:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED 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.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE TO BE PERFORMED BY HO. CO.:

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF SIGNS OF DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENTS SHALL BE REMOVED 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.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 21443

DONALD A. MASON

DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"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."

DEVELOPER — DATE 7-13-06

BY THE ENGINEER:

"I/WE 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."

ENGINEER - DONALD A. MASON, P.E. # 21443 — DATE 7/10/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 8/9/06

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 8/9/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/1/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/6/06

NO.	DATE	REVISION
1	3-10-2008	REVISE TEMP. DRAW-DOWN DETAIL, BLOCKING DETAIL, TEMP. WET/DRY WSEL'S ON PRINCIPAL SPILLWAY PROFILE

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD ALLEN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER — 7/10/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: STORMWATER MANAGEMENT FACILITY #2 DETAILS

DATE: JULY, 2006 — PROJECT NO. 1550

DESIGN: DBT — DRAFT: DBT — CHECK: DAM — SCALE: AS SHOWN — SHEET 23 OF 27

F-06-108

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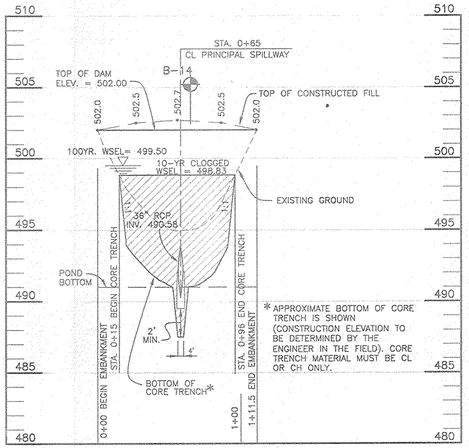
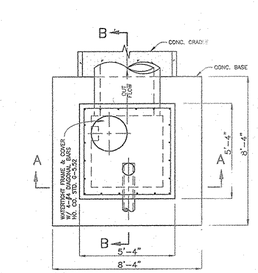
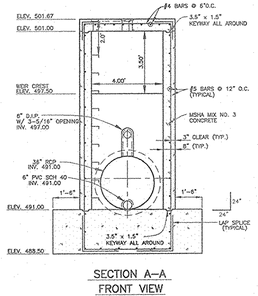


* APPROXIMATE BOTTOM OF CORE TRENCH IS SHOWN (CONSTRUCTION ELEVATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD). CORE TRENCH MATERIAL MUST BE CL OR CH ONLY.

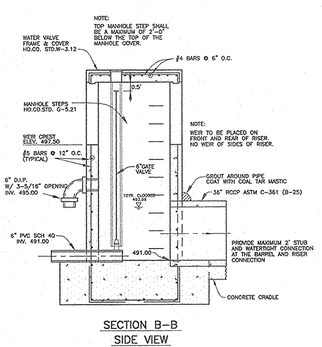
PROFILE ALONG CL OF EMBANKMENT
SCALE: 1"=50' HORIZ., 1"=5' VERT.



PLAN

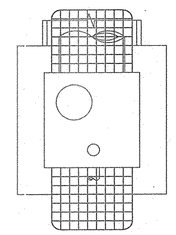


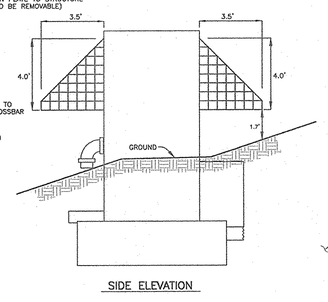
SECTION A–A
FRONT VIEW



SECTION B–B
SIDE VIEW

CONTROL STRUCTURE
SCALE: 1" = 4'

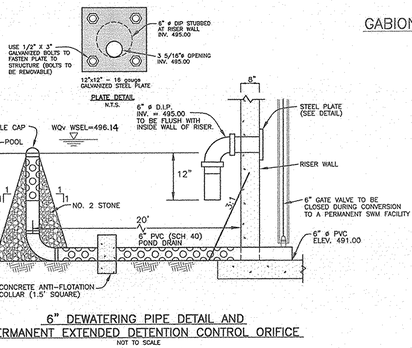




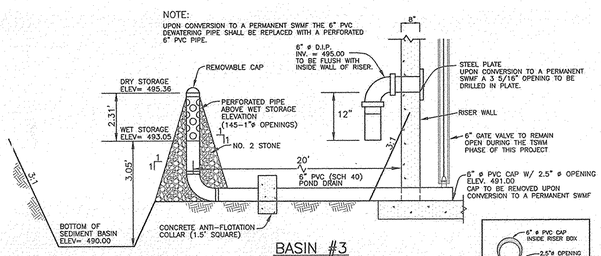
NOTES:

1. TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION
2. TRASH RACK SHALL BE PAINTED BATTLESHIP GRAY.
2. TRASH RACK TO BE INSTALLED UPON CONVERSION TO SWM POND.

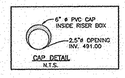
TRASH RACK DETAIL
SCALE: 1" = 4'

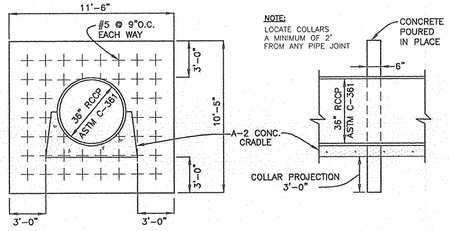


6" DEWATERING PIPE DETAIL AND
PERMANENT EXTENDED DETENTION CONTROL ORIFICE
NOT TO SCALE

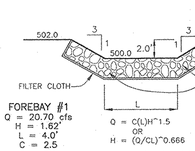


BASIN #3
6" TEMPORARY SWM
VERTICAL DRAW-DOWN DEVICE
NOT TO SCALE

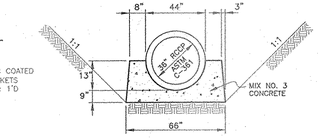




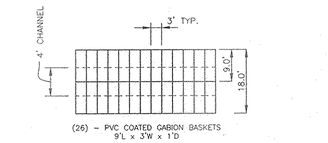
COLLAR SIZE: 11'-6" X 10'-5"
ANTI-SEEP COLLAR
NOT TO SCALE



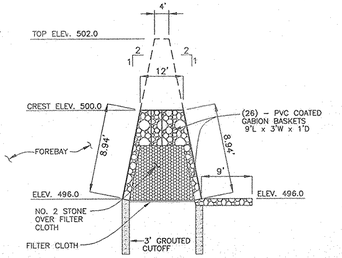
PROFILE THROUGH
FOREBAY WEIR
NOT TO SCALE



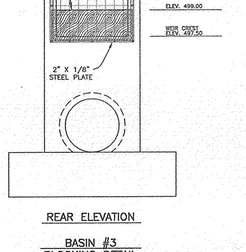
TYPE A–2
CONCRETE CRADLE
NOT TO SCALE



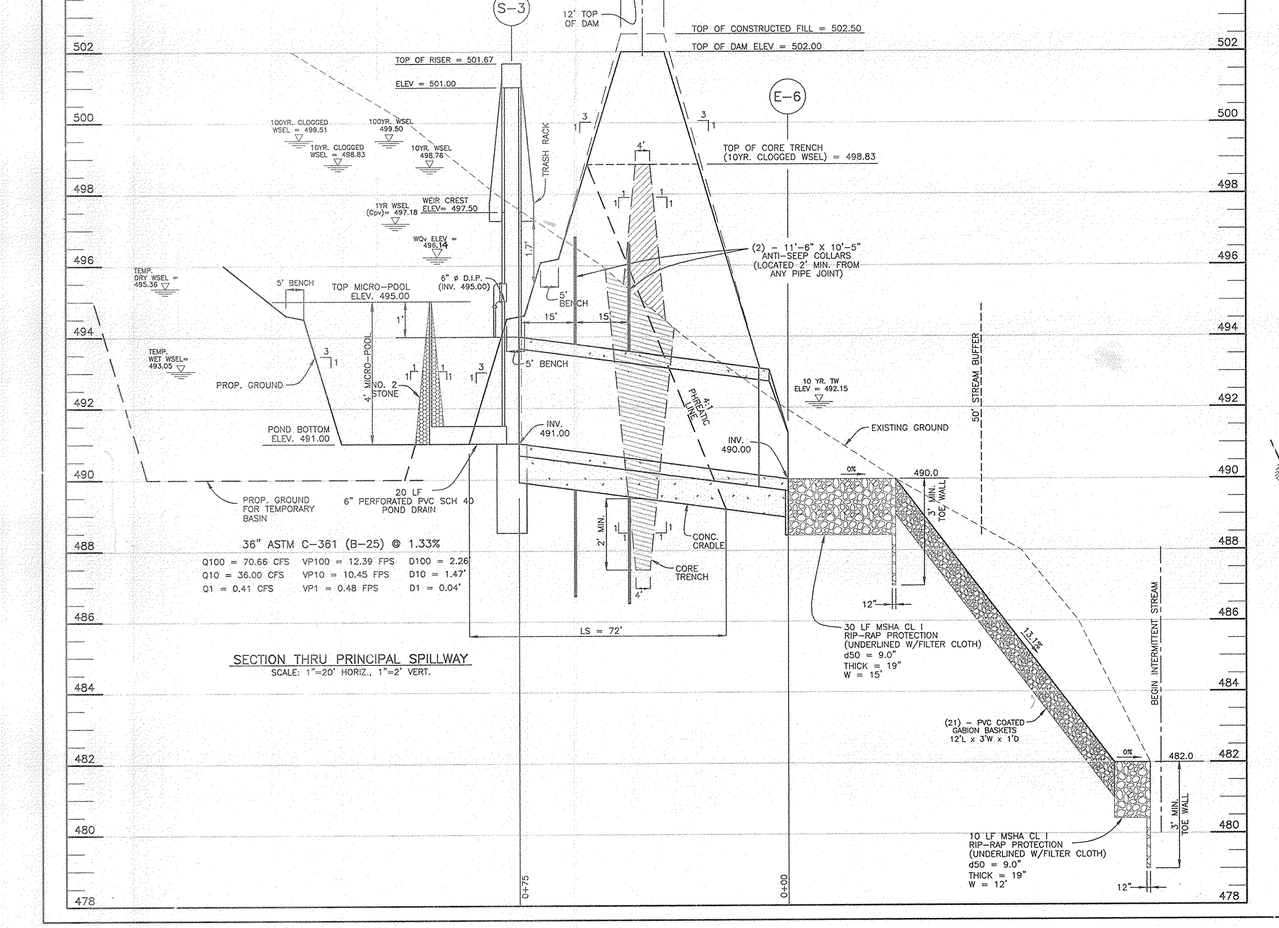
GABION BASKET LAYOUT
NOT TO SCALE



TYPICAL SECTION OF
GABION WEIR AT FOREBAY #1 AND #2
NOT TO SCALE



BASIN #3
BLOCKING DETAIL
FOR TEMP. SWM
SCALE: 1" = 4'



SECTION THRU PRINCIPAL SPILLWAY
SCALE: 1"=20' HORIZ., 1"=2' VERT.

GEOTECHNICAL ENGINEER RECOMMENDATIONS:

EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

THE AREAS OF THE PROPOSED SWM FACILITIES 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 PROOFROLLED 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.

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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 NRCS-MD CODE NO. 378 SPECIFICATIONS.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED EXTENDED DETENTION POND

ROUTINE MAINTENANCE TO BE PERFORMED BY H.O.A.:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED 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.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE TO BE PERFORMED BY HO. CO.:

1. 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.
2. SEDIMENTS SHALL BE REMOVED 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.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 21443

DONALD A. MASON

DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER FOR GOOD AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"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 ONSITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER — 7-13-06 DATE

BY THE ENGINEER:

"I/WE 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."

ENGINEER – DONALD A. MASON, P.E. # 21443 — 7/10/06 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.

USDA – NATURAL RESOURCES CONSERVATION SERVICE — 8/4/06 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 8/4/06 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 9/7/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 9/6/06 DATE

NO.	DATE	REVISION
1	3-10-2008	REVISE WQv ELEVATION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD ALLEN MASON — REGISTERED PROFESSIONAL ENGINEER
Donald Mason 7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: STORMWATER MANAGEMENT FACILITY #3 DETAILS

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

DATE: JULY, 2006 | PROJECT NO. 1550

SCALE: AS SHOWN | SHEET 24 OF 27

F-06-108

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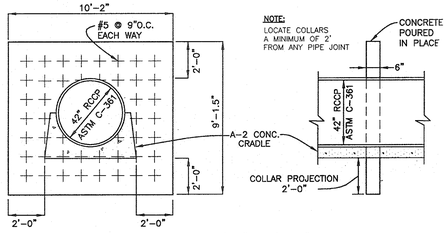
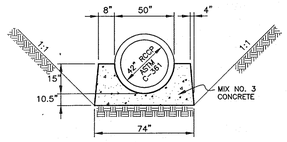


COLLAR SIZE: 10'-2" X 9'-1.5"

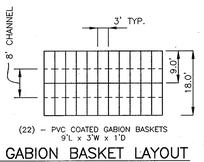
ANTI-SEEP COLLAR

NOT TO SCALE



TYPE A-2 CONCRETE CRADLE

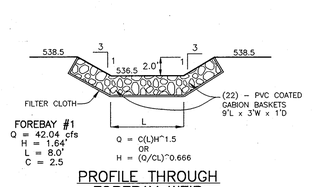
NOT TO SCALE



(22) – PVC COATED GABION BASKETS
9'L x 3'W x 1'D

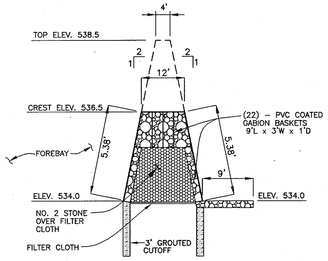
GABION BASKET LAYOUT

NOT TO SCALE



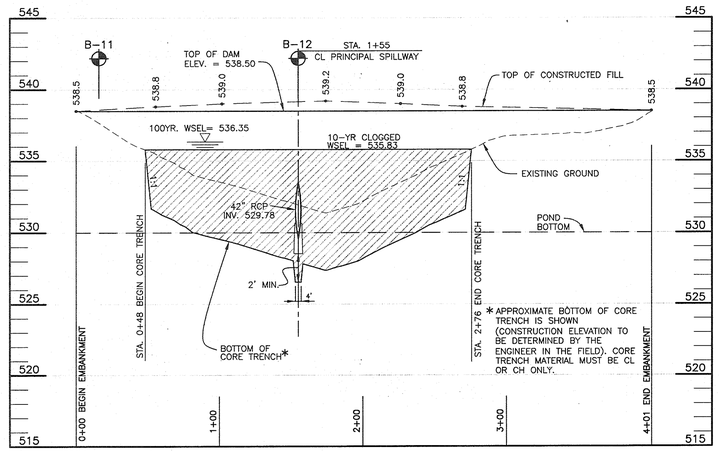
PROFILE THROUGH FOREBAY WEIR

NOT TO SCALE



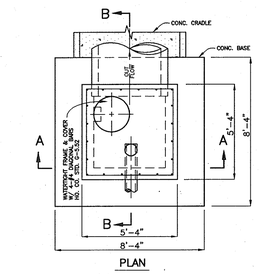
TYPICAL SECTION OF GABION WEIR AT FOREBAY #1 AND #2

NOT TO SCALE

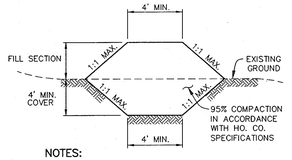


PROFILE ALONG CL OF EMBANKMENT

SCALE: 1"=50' HORIZ., 1"=5' VERT.



PLAN

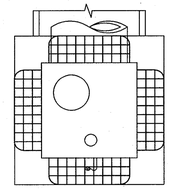


NOTES:

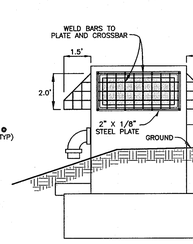
1. IF WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH, IT IS TO BE REMOVED BY PUMPING.
2. CORE TRENCH SHALL CONSIST OF IMPERVIOUS MATERIAL (GC, SC, CL, CH) AS DIRECTED BY A GEOTECHNICAL ENGINEER ONSITE AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.

CORE TRENCH SECTION

NOT TO SCALE



TOP

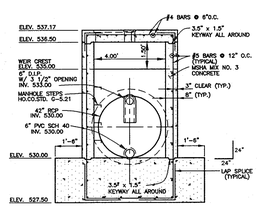


REAR ELEVATION

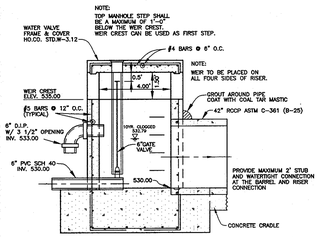
SIDE ELEVATION

NOTES:

1. TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION
2. TRASH RACK SHALL BE PAINTED BATTLESHIP GRAY.
2. TRASH RACK TO BE INSTALLED UPON CONVERSION TO SWM POND.



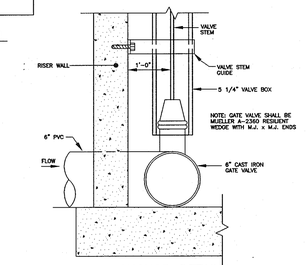
SECTION A–A FRONT VIEW



SECTION B–B SIDE VIEW

CONTROL STRUCTURE

SCALE: 1" = 4'



ANCHOR DETAIL FOR VALVE STEM

NOT TO SCALE

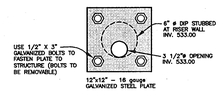
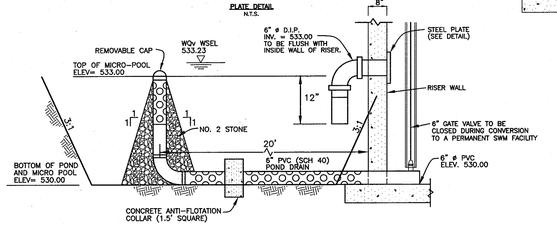
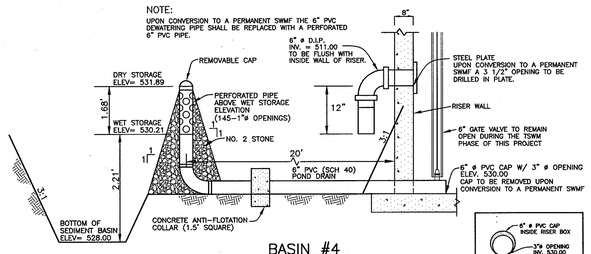


PLATE DETAIL
N.T.S.



6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE

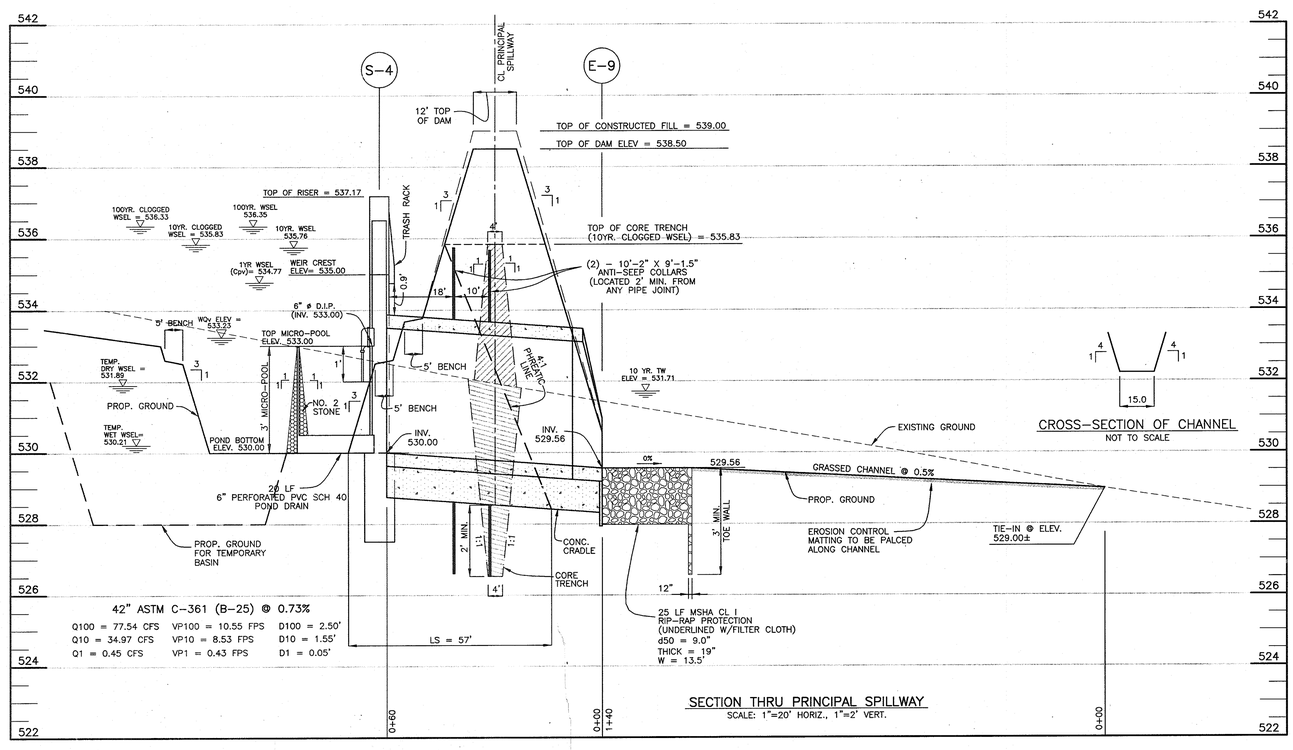
NOT TO SCALE



CAP DETAIL
N.T.S.

BASIN #4 6" TEMPORARY SWM VERTICAL DRAW-DOWN DEVICE

NOT TO SCALE



SECTION THRU PRINCIPAL SPILLWAY

SCALE: 1"=20' HORIZ., 1"=2' VERT.

CROSS-SECTION OF CHANNEL

NOT TO SCALE

GEOTECHNICAL ENGINEER RECOMMENDATIONS:

EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

THE AREAS OF THE PROPOSED SWM FACILITIES 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 PROOFROLLED 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 NRCS-MD CODE NO. 378 POND STANDARDS/SPECIFICATIONS, SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUTOFF 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 NRCS-MD CODE NO. 378 SPECIFICATIONS.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED EXTENDED DETENTION POND

ROUTINE MAINTENANCE TO BE PERFORMED BY H.O.A.:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED 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.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE TO BE PERFORMED BY HO. CO.:

1. 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.
2. SEDIMENTS SHALL BE REMOVED 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.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 21443

DONALD A. MASON

DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"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."

DEVELOPER — DATE 7-13-06

BY THE ENGINEER:

"I/WE 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."

ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE 7/13/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.

USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE 8/9/06

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 8/9/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/7/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 9/6/06

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — DONALD ALLEN MASON — 21443 — REGISTERED PROFESSIONAL ENGINEER — 7/11/06

OWNER:	EDGEWOOD FARM, INC. 14919 ROXBURY ROAD GLENELG, MARYLAND 21737
DEVELOPER:	TOLL BROTHERS, INC. 7164 COLUMBIA GATEWAY DRIVE SUITE 230 COLUMBIA, MARYLAND 21046 410-872-9105
PROJECT:	EDGEWOOD FARM PHASE 1 LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH' NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'
LOCATION:	TAX MAP: 21, GRID: 22 PARCEL: 90 ELECTION DISTRICT NO. 4 HOWARD COUNTY, MARYLAND
TITLE:	STORMWATER MANAGEMENT FACILITY #4 DETAILS
DATE:	JULY, 2006
PROJECT NO.	1550
DESIGN: DBT	DRAFT: DBT CHECK: DAM
SCALE:	AS SHOWN
SHEET	25 OF 27

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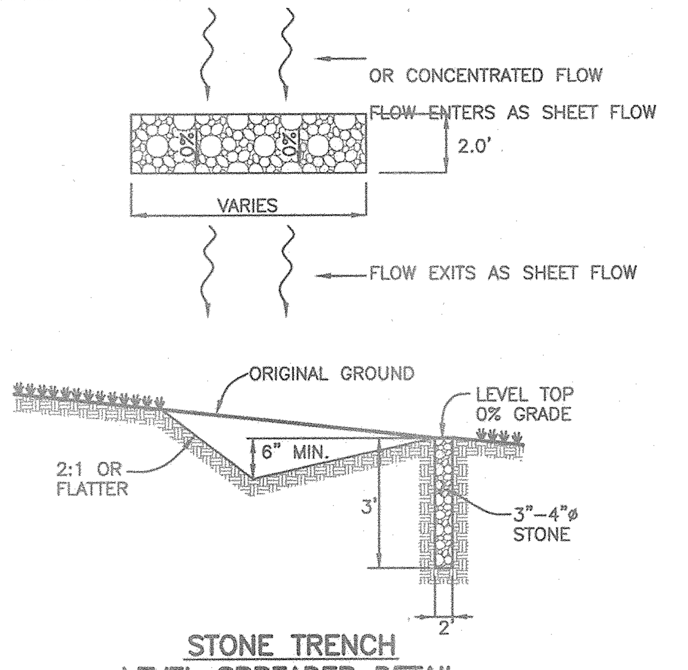
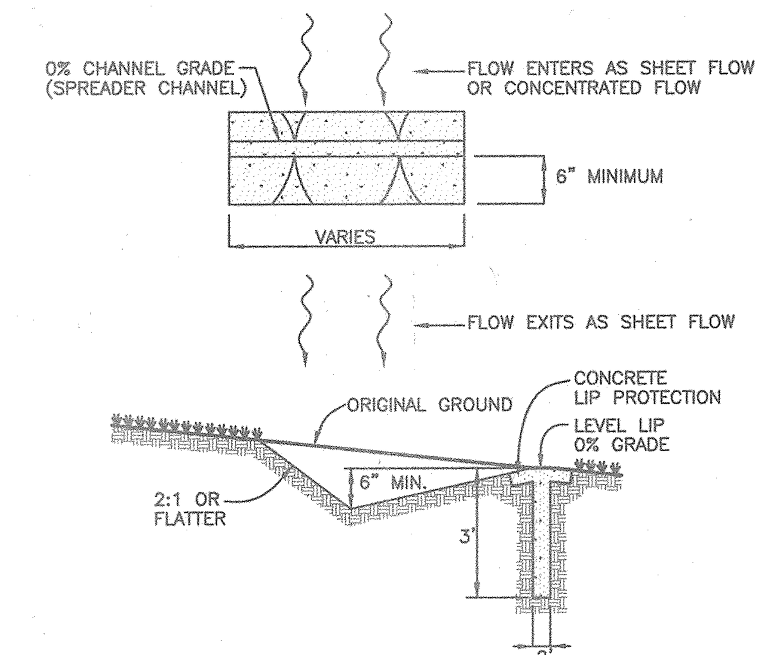
F-06-108

PLANTING SCHEDULE FOR EXTENDED DETENTION FACILITY #1				
ZONE	AREA (SF)	ELEVATION RANGE	PLANT MIX	QUANTITIES
1 DEEP WATER POOL	7,740	508.00 – 510.50	100% WATER LILLY	860
2 SHALLOW WATER BENCH (low marsh)	2,368	510.50 – 511.00	50% BROAD WATER WEED	131
			25% DUCK POTATO	66
			25% ARROW ARUM	66
3 SHORELINE FRINGE (high marsh)	12,145	511.00 – 512.20	50% CUTGRASS, RICE	675
			50% SWITCHGRASS	675
4 RIPARIAN FRINGE	1,791	512.20 – 513.20	50% LOVEGRASS–MEADOW	100
			25% VIOLETS, COMMON BLUE	50
			25% CONEFLOWER, CUT–LEAF	50
5 FLOODPLAIN TERRACE	3,734	513.20 – 515.17	75% WITCHGRASS, NEEDLE–LEAF	311
			25% CONEFLOWER, SWEET	104
6 UPLAND SLOPES	0	N/A	N/A	N/A

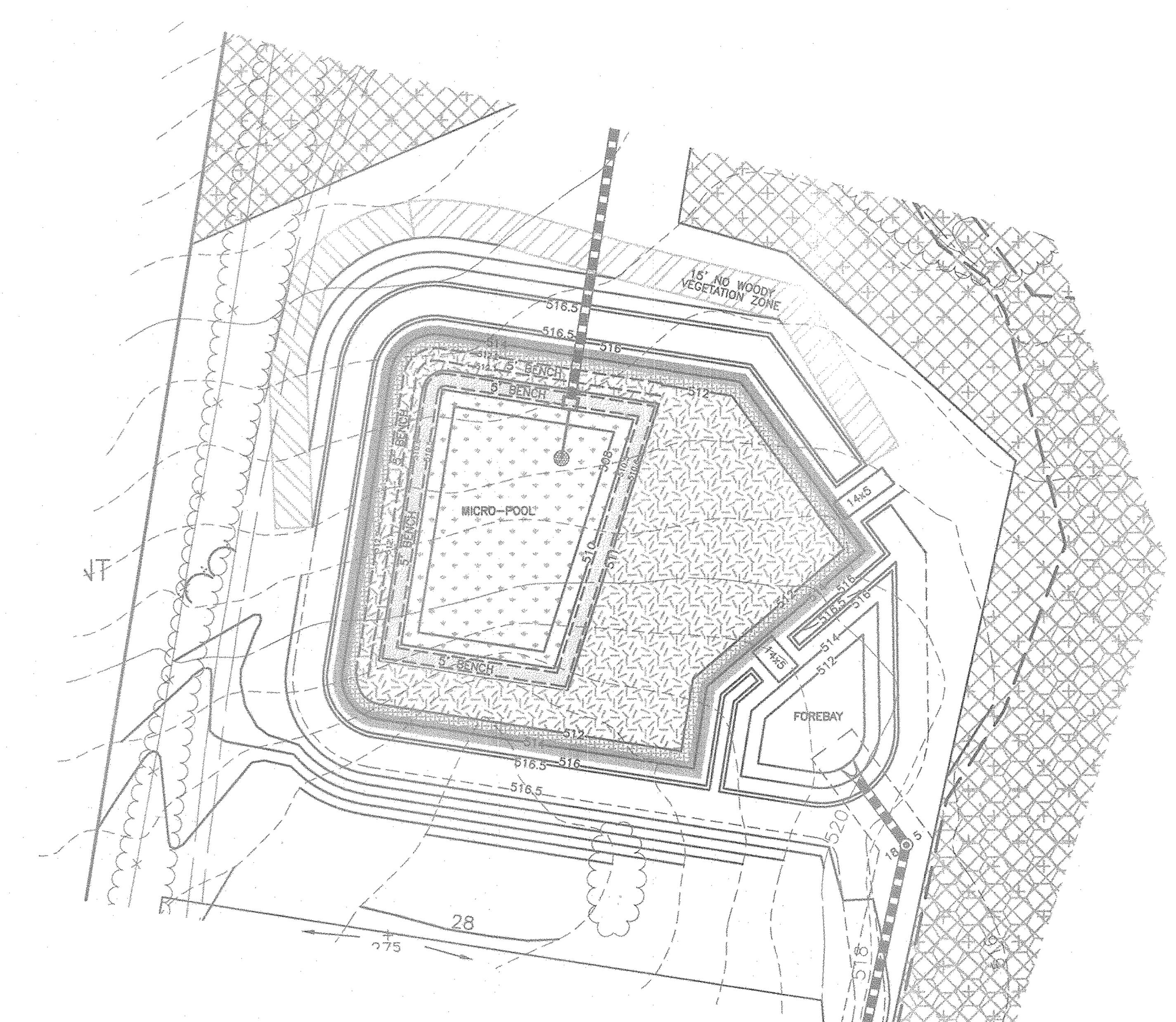
NOTE:
ALL PLANTINGS TO BE QUART BULBS SPACED AT 3' O.C.



STONE TRENCH
LEVEL SPREADER DETAIL
NOT TO SCALE



CONCRETE
LEVEL SPREADER DETAIL
NOT TO SCALE



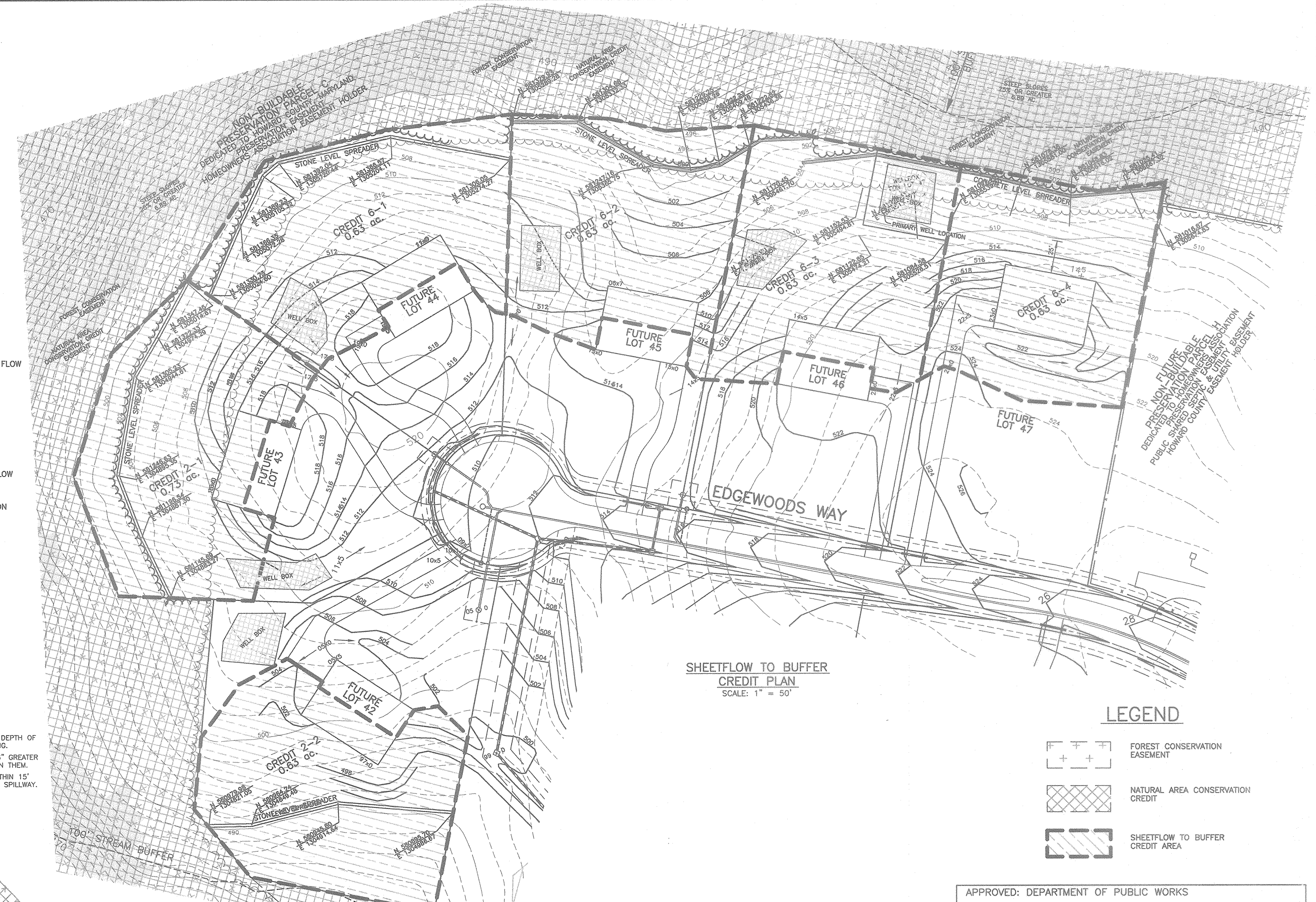
INTERNAL LANDSCAPING FOR
EXTENDED DETENTION FACILITY #1
SCALE: 1" = 50'

LEGEND

ZONE 1
ZONE 2
ZONE 3
ZONE 4
ZONE 5

NOTES:

1. LOOSEN SOIL IN PLANTING ZONES TO A DEPTH OF THREE TO FIVE INCHES BEFORE PLANTING.
2. PLANTING HOLES TO HAVE A DIAMETER 6" GREATER THAN THE ROOT BALL BEING PLANTED IN THEM.
3. NO WOODY VEGETATION IS PERMITTED WITHIN 15' OF THE TOE OF SLOPE OR 25' OF THE SPILLWAY.



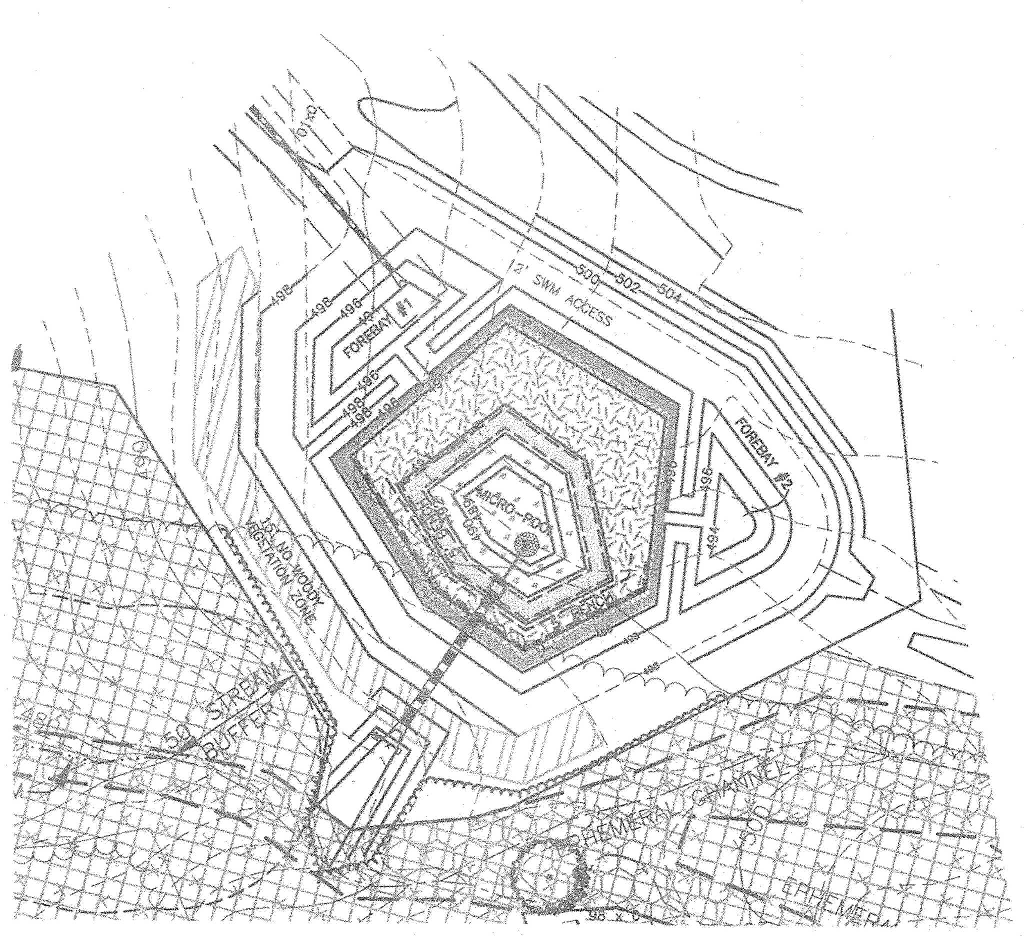
SHEETFLOW TO BUFFER
CREDIT PLAN
SCALE: 1" = 50'

LEGEND

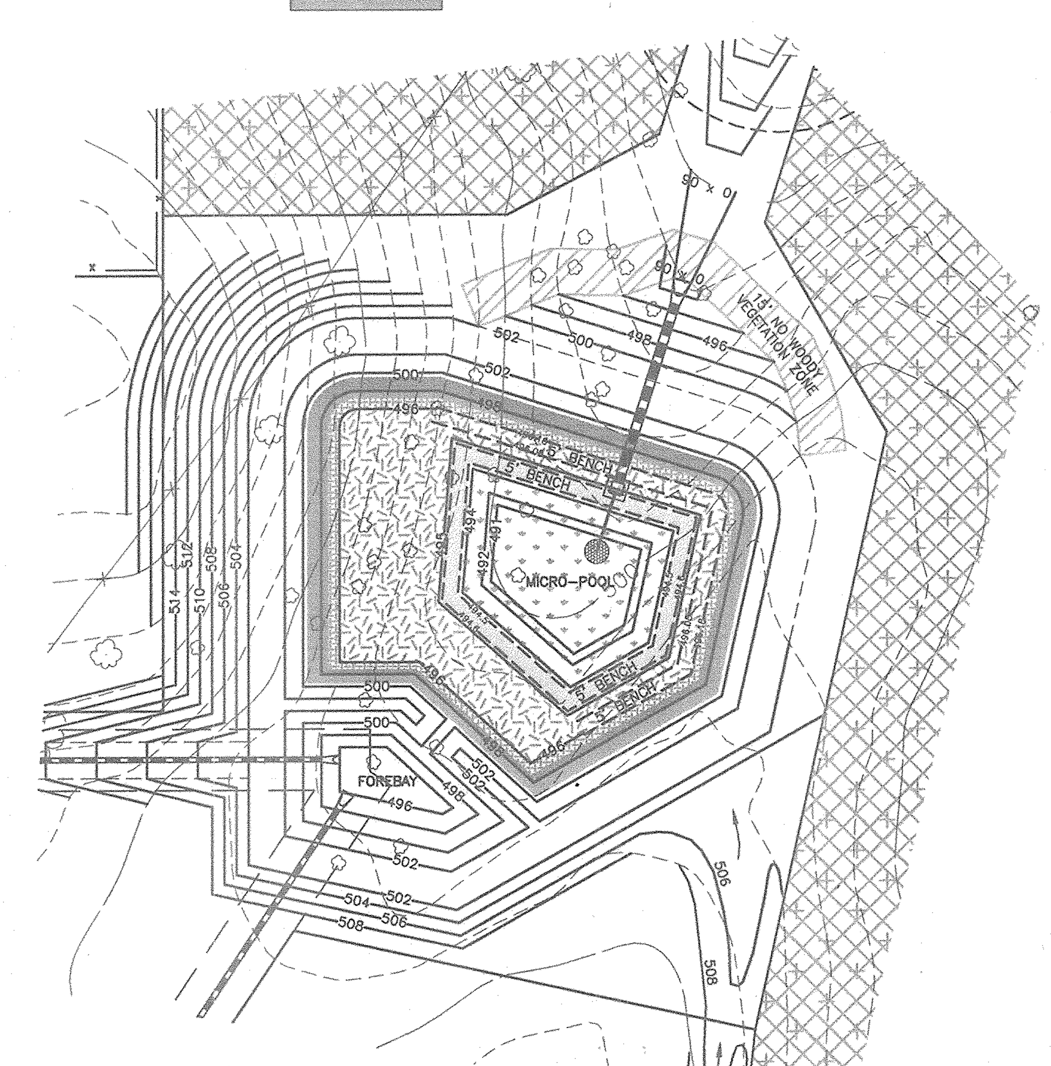
FOREST CONSERVATION EASEMENT

NATURAL AREA CONSERVATION CREDIT

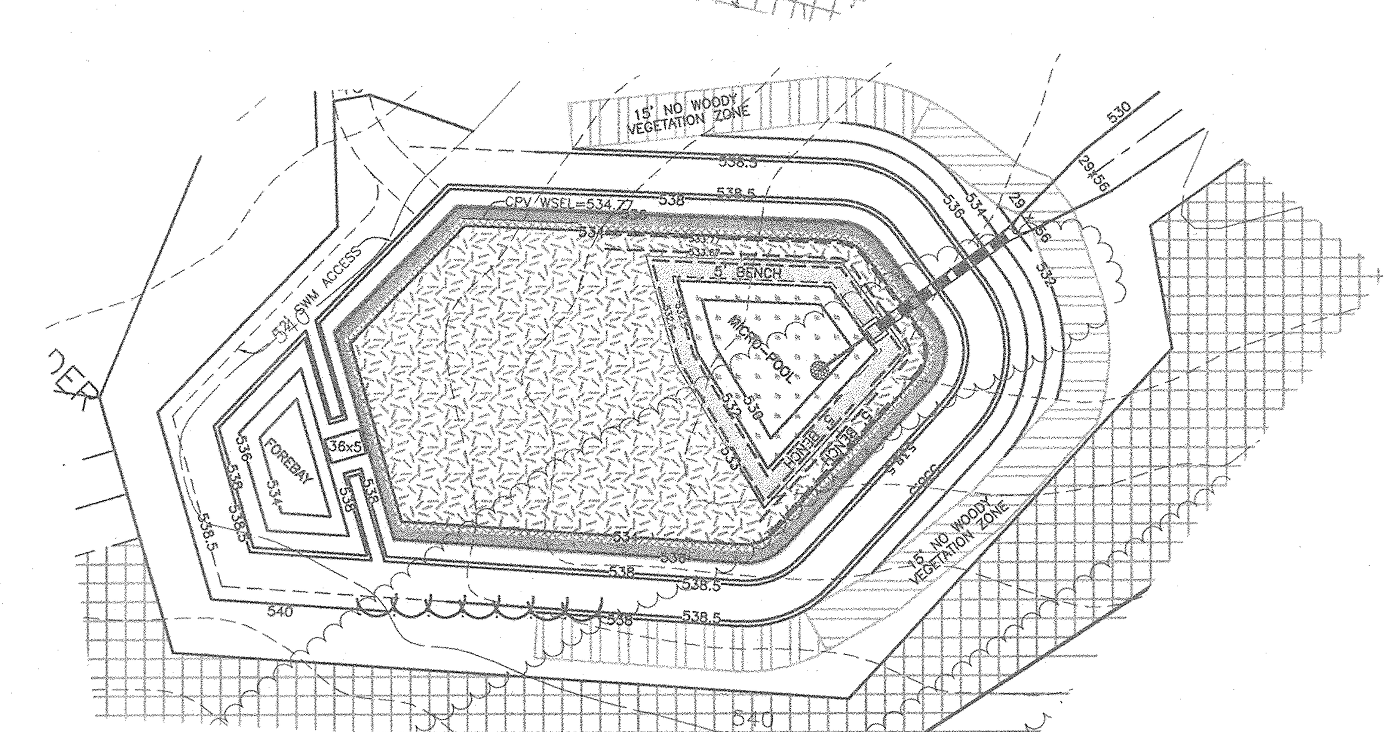
SHEETFLOW TO BUFFER CREDIT AREA



INTERNAL LANDSCAPING FOR
EXTENDED DETENTION FACILITY #2
SCALE: 1" = 50'



INTERNAL LANDSCAPING FOR
EXTENDED DETENTION FACILITY #3
SCALE: 1" = 50'



INTERNAL LANDSCAPING FOR
EXTENDED DETENTION FACILITY #4
SCALE: 1" = 50'

PLANTING SCHEDULE FOR EXTENDED DETENTION FACILITY #2				
ZONE	AREA (SF)	ELEVATION RANGE	PLANT MIX	QUANTITIES
1 DEEP WATER POOL	1,953	489.00 – 492.50	100% WATER LILLY	217
2 SHALLOW WATER BENCH (low marsh)	1,191	492.50 – 493.00	50% BROAD WATER WEED	66
			25% DUCK POTATO	33
			25% ARROW ARUM	33
3 SHORELINE FRINGE (high marsh)	3,982	493.00 – 494.00	50% CUTGRASS, RICE	221
			50% SWITCHGRASS	221
4 RIPARIAN FRINGE	534	494.00 – 494.63	50% LOVEGRASS–MEADOW	30
			25% VIOLETS, COMMON BLUE	15
			25% CONEFLOWER, CUT–LEAF	15
5 FLOODPLAIN TERRACE	993	494.63 – 495.75	75% WITCHGRASS, NEEDLE–LEAF	83
			25% CONEFLOWER, SWEET	28
6 UPLAND SLOPES	0	N/A	N/A	N/A

NOTE:
ALL PLANTINGS TO BE QUART BULBS SPACED AT 3' O.C.

PLANTING SCHEDULE FOR EXTENDED DETENTION FACILITY #3				
ZONE	AREA (SF)	ELEVATION RANGE	PLANT MIX	QUANTITIES
1 DEEP WATER POOL	3,623	491.00 – 494.50	100% WATER LILLY	403
2 SHALLOW WATER BENCH (low marsh)	1,620	494.50 – 495.00	50% BROAD WATER WEED	90
			25% DUCK POTATO	45
			25% ARROW ARUM	45
3 SHORELINE FRINGE (high marsh)	5,586	495.00 – 496.18	50% CUTGRASS, RICE	310
			50% SWITCHGRASS	310
4 RIPARIAN FRINGE	1,172	496.18 – 497.18	50% LOVEGRASS–MEADOW	65
			25% VIOLETS, COMMON BLUE	33
			25% CONEFLOWER, CUT–LEAF	33
5 FLOODPLAIN TERRACE	2,965	497.18 – 499.50	75% WITCHGRASS, NEEDLE–LEAF	247
			25% CONEFLOWER, SWEET	82
6 UPLAND SLOPES	0	N/A	N/A	N/A

NOTE:
ALL PLANTINGS TO BE QUART BULBS SPACED AT 3' O.C.

PLANTING SCHEDULE FOR EXTENDED DETENTION FACILITY #4				
ZONE	AREA (SF)	ELEVATION RANGE	PLANT MIX	QUANTITIES
1 DEEP WATER POOL	2,664	530.00 – 532.50	100% WATER LILLY	296
2 SHALLOW WATER BENCH (low marsh)	1,467	532.50 – 533.00	50% BROAD WATER WEED	82
			25% DUCK POTATO	41
			25% ARROW ARUM	41
3 SHORELINE FRINGE (high marsh)	11,648	533.00 – 534.00	50% CUTGRASS, RICE	647
			50% SWITCHGRASS	647
4 RIPARIAN FRINGE	1,100	534.00 – 534.77	50% LOVEGRASS–MEADOW	61
			25% VIOLETS, COMMON BLUE	31
			25% CONEFLOWER, CUT–LEAF	31
5 FLOODPLAIN TERRACE	2,321	534.77 – 536.35	75% WITCHGRASS, NEEDLE–LEAF	193
			25% CONEFLOWER, SWEET	65
6 UPLAND SLOPES	0	N/A	N/A	N/A

NOTE:
ALL PLANTINGS TO BE QUART BULBS SPACED AT 3' O.C.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MS — DATE 8-21-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/2/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 9/6/06

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
phone: 410–465–6105 ▲ fax: 410–465–6644
WWW.BEI–CIVILENGINEERING.COM

STATE OF MARYLAND — PROFESSIONAL ENGINEER — 7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410–872–9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1–7; NON–BUILDABLE BULK PARCELS 'AA'–'HH'
NON–BUILDABLE PRESERVATION PARCELS 'A'–'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO. 4
HOWARD COUNTY, MARYLAND

TITLE: INTERNAL SWMF LANDSCAPING PLAN AND SHEETFLOW TO BUFFER CREDIT PLAN

DATE: JULY, 2006 — PROJECT NO. 1550

DESIGN: DBT — DRAFT: DBT — CHECK: DAM — SCALE: AS SHOWN — SHEET 26 OF 27

F–06–108

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HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Page 1 of 1

Project Name: Edgewood Farm SWM — Location: Howard County, Maryland — Boring Number: B-1 — Job #: 04660A

SAMPLER — Datum: — Surf. Elev.: — Date Started: 11/29/2004 — Hammer Wt.: 140 Lbs. — Hammer Drop: 30 Inches — Pipe Size: 2.0 Inches OD — Hole Diameter: — Rock Core Dia.: — Boring Method: HSA — Foreman: Rick Rider — Inspector: — Completed: 11/29/2004

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					9" Topsoil
	Brown, moist, loose silt, trace sand (ML)	2.0		I	2-3-4	1	9"	No groundwater encountered while drilling
	Tan, moist, loose to medium dense micaceous fine sandy silt (ML)			D	2-4-5	2	13"	
		7.5	5.0	D	4-6-7	3	3"	Caved in at 6.0' at Completion Caved in at 8.5' after 24 hours
	Brown, dry, dense fine to coarse sandy silt, with rock fragments (ML)	12.0	10.0	D	5-8-28	4	16"	
	Auger refusal at 12.0' Bottom of Test Hole at 12.0'		15.0 20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs Dry FT. AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

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Project Name: Edgewood Farm SWM — Location: Howard County, Maryland — Boring Number: B-2 — Job #: 04660A

SAMPLER — Datum: — Surf. Elev.: — Date Started: 11/29/2004 — Hammer Wt.: 140 Lbs. — Hammer Drop: 30 Inches — Pipe Size: 2.0 Inches OD — Hole Diameter: — Rock Core Dia.: — Boring Method: HSA — Foreman: Rick Rider — Inspector: — Completed: 11/29/2004

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					8" Topsoil
	Brown, moist, loose sandy silt (ML)			D	2-3-3	1	14"	No groundwater encountered while drilling
	Tan, moist, medium dense micaceous silt, trace fine sand (ML)			D	4-6-7	2	12"	
	Gray-brown, moist, medium dense fine to coarse sandy silt, with rock fragments (ML)	8.0	5.0	D	7-8-8	3	7"	Caved in at 6.5' at Completion Caved in at 2.0' after 24 hours
	Auger refusal at 8.0' Bottom of Test Hole at 8.0'		10.0 15.0 20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs 1.9 FT. AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

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Project Name: Edgewood Farm SWM — Location: Howard County, Maryland — Boring Number: B-3 — Job #: 04660A

SAMPLER — Datum: — Surf. Elev.: — Date Started: 12/1/2004 — Hammer Wt.: 140 Lbs. — Hammer Drop: 30 Inches — Pipe Size: 2.0 Inches OD — Hole Diameter: — Rock Core Dia.: — Boring Method: HSA — Foreman: Rick Rider — Inspector: — Completed: 12/1/2004

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, moist, medium dense silt (ML)	2.0		D	4-6-8	1	12"	No groundwater encountered while drilling
	Orange-brown and tan, moist, loose to medium dense micaceous sandy silt (ML)			D	2-3-5	2	13"	
			5.0	D	3-5-5	3	7"	
		12.0	10.0	D	4-7-10	4	13"	
	Gray-brown, moist, medium dense sandy silt, trace rock fragments (ML)	17.0	15.0	D	8-10-14	5	13"	Caved in at 15.2 at Completion Caved in at 15.2' after 24 hours
	Gray-brown, moist, very dense silty sand with decomposed rock fragments (SM) Decomposed Rock		20.0	D	50/5"	6	2"	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs Dry FT. AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

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Project Name: Edgewood Farm SWM — Location: Howard County, Maryland — Boring Number: B-3 — Job #: 04660A

SAMPLER — Datum: — Surf. Elev.: — Date Started: 12/1/2004 — Hammer Wt.: 140 Lbs. — Hammer Drop: 30 Inches — Pipe Size: 2.0 Inches OD — Hole Diameter: — Rock Core Dia.: — Boring Method: HSA — Foreman: Rick Rider — Inspector: — Completed: 12/1/2004

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		20.0					
		21.0		D	50/3"	7	1"	
	Bottom of Test Hole at 21.0'		25.0 30.0 35.0 40.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs Dry FT. AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

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Project Name: Edgewood Farm SWM — Location: Howard County, Maryland — Boring Number: B-4 — Job #: 04660A

SAMPLER — Datum: — Surf. Elev.: — Date Started: 12/8/2004 — Hammer Wt.: 140 Lbs. — Hammer Drop: 30 Inches — Pipe Size: 2.0 Inches OD — Hole Diameter: — Rock Core Dia.: — Boring Method: HSA — Foreman: Jerry Hersl — Inspector: — Completed: 12/8/2004

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					1.0' Topsoil
	Gray-brown, moist, very loose sandy silt, with rock fragmens (ML)	2.5		I/D	2-2-3	1	12"	No groundwater encountered while drilling
	Orange-brown and brown, moist, medium dense silt, trace to little fine sand (ML)		5.0	I	3-6-8	2	18"	Caved in at 5.5' at Completion
				D	9-14-15	3	12"	Caved in at 5.5' after 24 hours
		12.0	10.0	I/D	4-8-11	4	12"	
	Gray, moist, dense silty sand, with rock fragments (SM)	15.0	15.0	D	20-16-21	5	14"	Backfilled after 24 hours
	Bottom of Test Hole at 15.0'		20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs Dry FT. AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

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Project Name: Edgewood Farm SWM — Location: Howard County, Maryland — Boring Number: B-5 — Job #: 04660A

SAMPLER — Datum: — Surf. Elev.: — Date Started: 11/29/04 — Hammer Wt.: 140 Lbs. — Hammer Drop: 30 Inches — Pipe Size: 2.0 Inches OD — Hole Diameter: — Rock Core Dia.: — Boring Method: HSA — Foreman: Jerry Hersl — Inspector: — Completed: 11/29/04

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, moist, very loose silt, trace organics (ML)	2.0		I	1-3-2	1	15"	No groundwater encountered while drilling
	Orange-brown, moist, medium dense micaceous sandy silt (ML)	4.5		D	6-8-9	2	8"	
	Gray and tan, moist, medium dense sandy silt, with weathered rock fragments (ML)		5.0	D	3-10-19	3	9"	Caved in at 5.7' at Completion Caved in at 5.7' after 24 hours
		10.0	10.0	D	4-6-11	4	17"	
	Bottom of Test Hole at 10.0'		15.0 20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs Dry FT. AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

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Project Name: Edgewood Farm SWM — Location: Howard County, Maryland — Boring Number: B-6 — Job #: 04660A

SAMPLER — Datum: — Surf. Elev.: — Date Started: 11/30/04 — Hammer Wt.: 140 Lbs. — Hammer Drop: 30 Inches — Pipe Size: 2.0 Inches OD — Hole Diameter: — Rock Core Dia.: — Boring Method: HSA — Foreman: Rick Rider — Inspector: — Completed: 11/30/04

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					Offset Auger refusal at 1'
	Brown, moist, very loose silt, trace sand (ML)	2.0		D	3-2-3	1	12"	8" Topsoil No groundwater encountered while drilling
	Tan, moist to wet, soft clayey silt (ML)	4.0		D	3-2-50/3"	2	6"	Caved in at 3.5' at Completion Caved in at 5.3' after 24 hours
	Auger refusal at 4.0' Bottom of Test Hole at 4.0'		5.0 10.0 15.0 20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs Dry FT. AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

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Project Name: Edgewood Farm SWM — Location: Howard County, Maryland — Boring Number: B-7 — Job #: 04660A

SAMPLER — Datum: — Surf. Elev.: — Date Started: 12/8/2004 — Hammer Wt.: 140 Lbs. — Hammer Drop: 30 Inches — Pipe Size: 2.0 Inches OD — Hole Diameter: — Rock Core Dia.: — Boring Method: HSA — Foreman: Jerry Hersl — Inspector: — Completed: 12/8/2004

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					1.0" Topsoil
	Brown, moist, soft silt, trace clay (ML)	2.5		I	2-2-2	1	14"	No groundwater encountered while drilling
	Orange-brown and brown, moist, medium dense fine sandy silt (ML)						14"	Caved in at 3.0' at Completion
			5.0	I	2-2-4	2	14"	Caved in at 2.6' after 24 hours
				I	4-7-12	3	16"	
		10.0	10.0	I	4-11-114	4	16"	
	Bottom of Test Hole at 10.0'		15.0 20.0					Backfilled after 24 hours

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs Dry FT. AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

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Project Name: Edgewood Farm SWM — Location: Howard County, Maryland — Boring Number: B-8 — Job #: 04660A

SAMPLER — Datum: — Surf. Elev.: — Date Started: 12/8/2004 — Hammer Wt.: 140 Lbs. — Hammer Drop: 30 Inches — Pipe Size: 2.0 Inches OD — Hole Diameter: — Rock Core Dia.: — Boring Method: HSA — Foreman: Jerry Hersl — Inspector: — Completed: 12/8/2004

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					1.0" Topsoil
	Brown, moist, loose sandy silt (ML)	2.5		I	2-3-3	1	10	No groundwater encountered while drilling
	Brown and gray, moist, dense silty sand, with rock fragments (SM)		5.0	I/D	14-16-20	2	16"	
		8.0		I/D	7-17-24	3	12"	
	Gray, moist, medium dense to dense sandy silt - silty sand, with rock fragments (SM-ML)		10.0	D	12-11-18	4	14"	Caved in at 8.5' at Completion Caved in at 8.2' after 24 hours
			15.0	D	8-16-24	5	6"	Backfilled after 24 hours
	Bottom of Test Hole at 20.0'	20.0	20.0	D	10-15-22	6	5"	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs Dry FT. AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

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Project Name: Edgewood Farm SWM — Location: Howard County, Maryland — Boring Number: B-9 — Job #: 04660A

SAMPLER — Datum: — Surf. Elev.: — Date Started: 12/8/2004 — Hammer Wt.: 140 Lbs. — Hammer Drop: 30 Inches — Pipe Size: 2.0 Inches OD — Hole Diameter: — Rock Core Dia.: — Boring Method: HSA — Foreman: Jerry Hersl — Inspector: — Completed: 12/8/2004

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					1.0" Topsoil
	Brown, moist, soft silt, trace clay, trace organics (ML)	2.5		I	2-2-2	1	10"	No groundwater encountered while drilling
	Orange-brown, moist, loose silt, trace sand (ML)	5.5		I	2-2-4	2	14"	Caved in at 3.5' at Completion Caved in at 3.5' after 24 hours
	Gray, most to dry, very dense silty sand, with rock fragments (SM) Decomposed Rock			I/D	14-29-50/4"	3	12"	
		9.0		D	50/6"	4	4"	
	Bottom of Test Hole at 9.0'		10.0 15.0 20.0					Backfilled after 24 hours

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs Dry FT. AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

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Project Name: Edgewood Farm SWM — Location: Howard County, Maryland — Boring Number: B-10 — Job #: 04660A

SAMPLER — Datum: — Surf. Elev.: — Date Started: 11/30/2004 — Hammer Wt.: 140 Lbs. — Hammer Drop: 30 Inches — Pipe Size: 2.0 Inches OD — Hole Diameter: — Rock Core Dia.: — Boring Method: HSA — Foreman: Rick Rider — Inspector: — Completed: 11/30/2004

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					8" Topsoil
	Dark brown, moist, soft silt, trace clay (ML)	2.0		D	2-2-2	1	10"	No groundwater encountered while drilling
	Orange-brown to red-brown, moist, medium dense fine sandy silt (ML)			D	6-6-9	2	8"	
			5.0	D	5-5-7	3	18"	Caved in at 7.0' at Completion Caved in at 6.7' after 24 hours
		10.0	10.0	D	5-10-10	4	15"	
	Bottom of Test Hole at 10.0'		15.0 20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs Dry FT. AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

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Project Name: Edgewood Farm SWM — Location: Howard County, Maryland — Boring Number: B-11 — Job #: 04660A

SAMPLER — Datum: — Surf. Elev.: — Date Started: 12/1/2004 — Hammer Wt.: 140 Lbs. — Hammer Drop: 30 Inches — Pipe Size: 2.0 Inches OD — Hole Diameter: — Rock Core Dia.: — Boring Method: HSA — Foreman: Rick Rider — Inspector: — Completed: 12/1/2004

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					8" Topsoil
	Brown, moist, soft silt, trace clay (ML)	2.0		D	1-2-2	1	8"	No groundwater encountered while drilling
	Orange-brown and brown, moist, medium dense sandy silt, trace clay, with rock fragments (ML)			D	4-8-12	2	18"	
		7.5	5.0	D	4-10-10	3	6"	
	Red-brown and tan, moist, medium dense sandy silt (ML)		10.0	D	4-10-13	4	12"	Caved in at 10.0' at Completion
		13.0		D	4-5-7	5	17"	
	Bottom of Test Hole at 13.0'		15.0 20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER ___ FT. AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

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Project Name: Edgewood Farm SWM — Location: Howard County, Maryland — Boring Number: B-12 — Job #: 04660A

SAMPLER — Datum: — Surf. Elev.: — Date Started: 11/30/2004 — Hammer Wt.: 140 Lbs. — Hammer Drop: 30 Inches — Pipe Size: 2.0 Inches OD — Hole Diameter: — Rock Core Dia.: — Boring Method: HSA — Foreman: Rick Rider — Inspector: — Completed: 11/30/2004

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					8" Topsoil
	Brown, moist, medium stiff silt, trace clay (ML)	2.0		I	2-3-3	1	14"	No groundwater encountered while drilling
	Orange-brown, moist, medium dense silt, trace fine sand (ML)	4.5		D	5-5-13	2	18"	
	Red-brown to tan, moist, medium dense silty fine sand, with rock fragments (SM-ML)		6.0	D	8-11-11	3	14"	
		10.0	10.0	D	8-15-18	4	7"	Caved in at 8.0' at Completion Caved in at 7.0' after 24 hours
	Bottom of Test Hole at 10.0'		15.0 20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE, CA-CONTINUOUS FLIGHT AUGER, RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED, I-INTACT, U-UNDISTURBED, L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT. AFTER 24 hrs Dry FT. AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONT. FLIGHT AUGERS, DC-DRIVING CASING, MD-MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Edgewood Farms SWM — Boring No.: B-13
Location: Howard County, MD — Job #: 04660A

SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6 — Foreman: Lamont Smith
Surf. Elev.: 493.0 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 3/25/05 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 3/25/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N	SPT Blows/Foot Curve (10 30 50)
0	I	Brown, moist, soft, clay, trace mica, sand and organics (CL)	Topsoil-5"	13		1-2-2	4	
490 / 3.5	D	Reddish brown, moist, dense, silty sand, trace mica (SM)		16		6-10-32	42	
	D	Gray, moist, very dense, silty sand, trace rock fragments (SM) (Decomposed Rock)	No groundwater encountered while drilling.	3		51/3	100+	100+
486.5 / 7		Bottom of hole/ Auger refusal at 8'		0		51/0	100+	100+
483 / 10.5								
479.5 / 14								
476 / 17.5								
472.5 / 21								

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER / CAVE IN DEPTH: AT COMPLETION dry ft. ___ ft.; AFTER 24 HRS. ___ ft. ___ ft.; AFTER ___ HRS. ___ ft. ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Edgewood Farms SWM — Boring No.: B-14
Location: Howard County, MD — Job #: 04660A

SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6 — Foreman: Lamont Smith
Surf. Elev.: 488.0 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 3/24/05 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 3/25/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N	SPT Blows/Foot Curve (10 30 50)
0	D	Reddish brown, moist, loose, micaceous silty sand, trace organics (SM)	Topsoil-6"	13		1-2-3	5	
486.5 / 3.5	D	Reddish brown to gray, moist, medium dense to loose, micaceous silty sand to sandy silt, none to trace rock fragments (SM-ML)		15		4-5-7	12	
483 / 7	D		No groundwater encountered while drilling.	16		5-6-7	13	
479.5	D			18		4-5-5-7	10	
10.5		Bottom of hole at 10'	Offset boring, insitu pipe installed at 3' depth.					
476 / 14								
472.5 / 17.5								
469 / 21								
465.5								

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER / CAVE IN DEPTH: AT COMPLETION dry ft. 6.5 ft.; AFTER 24 HRS. ___ ft. ___ ft.; AFTER ___ HRS. ___ ft. ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Edgewood Farms SWM — Boring No.: B-15
Location: Howard County, MD — Job #: 04660A

SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6 — Foreman: Lamont Smith
Surf. Elev.: 496.0 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 3/25/05 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 3/25/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N	SPT Blows/Foot Curve (10 30 50)
0	I	Reddish brown, moist, loose, micaceous clayey sand (SC)	Topsoil-5"	16		2-3-5	8	
493.5 / 3.5	D	Gray, moist, very dense, micaceous silty coarse sand and gravel (GM-SM) (Decomposed Rock)		4		51/4	100+	100+
490 / 7	D		No groundwater encountered while drilling.	4		51/4	100+	100+
		Bottom of hole/ Auger refusal at 7'		0		51/0	100+	100+
486.5 / 10.5								
483 / 14								
479.5 / 17.5								
476 / 21								

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER / CAVE IN DEPTH: AT COMPLETION dry ft. 5.5 ft.; AFTER 24 HRS. ___ ft. ___ ft.; AFTER ___ HRS. ___ ft. ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] — CHIEF, BUREAU OF HIGHWAYS — DATE [signature]

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton — CHIEF, DIVISION OF LAND DEVELOPMENT — 9/7/06 DATE

[signature] — CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 9/6/06 DATE

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER — Donald Mason 7/11/06

OWNER:
EDGEWOOD FARM, INC.
14919 ROXBURY ROAD
GLENELG, MARYLAND 21737

DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046
410-872-9105

PROJECT: EDGEWOOD FARM
PHASE 1
LOTS 1-7; NON-BUILDABLE BULK PARCELS 'AA'-'HH'
NON-BUILDABLE PRESERVATION PARCELS 'A'-'G'

LOCATION: TAX MAP: 21, GRID: 22
PARCEL: 90
ELECTION DISTRICT NO.4
HOWARD COUNTY, MARYLAND

TITLE: SOIL BORING LOGS

DESIGN: DBT	DRAFT: DBT	CHECK: DAM	DATE: JULY, 2006	SCALE: AS SHOWN	PROJECT NO. 1550	SHEET 27 OF 27

F-06-108

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