THE PRESERVE AT CLARKSVILLE
LOTS 1 - 32; BUILDABLE PRESERVATION 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' - 'G'
NON-BUILDABLE BULK PARCELS 'H' - 'J'

GENERAL NOTES

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

2.) THE EXISTING TOPOGRAPHY IS BASED ON A FIELD SURVEY PERFORMED BY BENCHMARK ENGINEERING INC. IN MARCH, 2002. THE ADJOINING PARCELS TOPOGRAPHY IS BASED ON HOWARD COUNTY DIGITAL.

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. 34E5 AND 34EA WERE USED FOR THIS PROJECT.

4.) WATER IS PRIVATE.

5.) SEWER IS PRIVATE.

6.) STORMWATER MANAGEMENT SHALL BE PROVIDED BY 2 EXTENDED DETENTION FACILITIES WITH MICROPOOL AND BY NATURAL AREA CONSERVATION AND GRASS SWALE CREDITS. THE FACILITIES SHALL BE PRIVATELY OWNED BY THE H.O.A. AND JOINTLY MAINTAINED BY THE H.O.A. AND HOWARD COUNTY.

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

8.) THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY BENCHMARK ENGINEERING, INC., DATED NOVEMBER, 2004 AND WAS SUBMITTED UNDER P-05-013.

9.) THE WETLANDS DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. IN NOVEMBER, 2001.

10.) THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP, INC. IN NOVEMBER, 2001 AND REVISED IN JANUARY, 2002 AND WAS SUBMITTED WITH P-05-013.

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

12.) THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY GEO-TECHNOLOGY ASSOCIATES, INC. (GTA) IN DECEMBER, 2004. IT WAS SUBMITTED WITH P-05-013.

13.) THE SUBJECT PROPERTY IS ZONED RR-DEO PER THE 2-2-04 COMPREHENSIVE ZONING PLAN AND THE COMP LITE ZONING REGULATION AMENDMENTS EFFECTIVE 7/28/2006.

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

15.) NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES OR PLACEMENT OF NEW STRUCTURES IS PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS OR THEIR BUFFERS.

16.) THERE ARE NO STEEP SLOPES (SLOPES 25% OR GREATER OVER 10 VERTICAL FEET) ON THIS SITE.

17.) BOUNDARY IS BASED ON A FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED DURING NOVEMBER, 2002 BY BENCHMARK ENGINEERING, INC.

18.) FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. IN NOVEMBER, 2001.

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

20.) THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE FOURTH EDITION OF THE SUBDIVISION REGULATIONS AS A CONSEQUENCE FOR ITS SUBMISSION PRIOR TO 1-15-01. THIS PROJECT IS SUBJECT TO COMPLIANCE WITH COUNTY COUNCIL BILL 50-2001 WHICH AMENDS PORTIONS OF THE ZONING REGULATIONS AS A CONSEQUENCE FOR NOT HAVING PRELIMINARY PLAN APPROVAL PRIOR TO 11-1-2001. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS OR PARCELS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF THE SUBMISSION OF A BUILDING OR GRADING PERMIT APPLICATION.

21.) 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 PUBLIC 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 NECESSARY.

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

PRESERVATION PARCEL 'A' IS PROPOSED AS A BUILDABLE PARCEL. ONE (1) HOUSING ALLOCATION ALLOWING ONE (1) BUILDABLE UNIT SHALL BE UTILIZED. THIS PARCEL SHALL INCLUDE BUT NOT BE LIMITED TO STORM DRAIN AND UTILITY EASEMENTS. IT WILL BE PRIVATELY OWNED. IT IS 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 PARCELS 'B' AND 'C' ARE PROPOSED AS NON-BUILDABLE PARCELS TO PRESERVE EXISTING FOREST AND PROVIDE OPEN AREAS OF GREENERY. 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 'D' IS PROPOSED AS A NON-BUILDABLE PARCEL FOR THE PRESERVATION OF THE RURAL CHARACTER OF TEN OAKS ROAD AND ADJACENT PROPERTIES BY PROVIDING AFFORESTATION AND LANDSCAPING ALONG THE PROPERTY FRONTAGE AND BY THE PRESERVATION OF ENVIRONMENTALLY SENSITIVE AREAS SUCH AS STREAMS, WETLANDS AND 100-YEAR FLOODPLAIN. IT WILL BE DEDICATED TO THE HOWARD COUNTY. 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 'E' AND 'F' 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.

PRESERVATION PARCEL 'G' IS PROPOSED AS A NON-BUILDABLE PARCEL FOR A STORMWATER MANAGEMENT FACILITY FOR THE ST. LOUIS CHURCH (SDP-03-064). IT WILL BE DEDICATED TO THE ST. LOUIS CHURCH. IT IS 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. THE 20' MINIMUM PUBLIC ROAD FRONTAGE REQUIREMENT FOR PARCEL 'G' IS NOT PROVIDED THROUGH THIS SUBDIVISION BUT IS PROVIDED FRONTAGE AND ACCESS AS PART OF THE ST. LOUIS CHURCH PROPERTY, PARCEL 196 AND SDP-03-64.

23.) LANDSCAPING FOR THIS SUBDIVISION IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN INCLUDED IN THIS 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 $50,400.00.

24.) 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.

25.) THE TOTAL FOREST CONSERVATION OBLIGATION AMOUNT OF 15.7 ACRES (7.5 Ac. AFFORESTATION AND 8.2 Ac. REFORESTATION) SHALL BE MET BY THE ON-SITE RETENTION OF 2.3 Ac. ON PARCEL 'B' AND 4.7 Ac. ON PARCEL 'D' AT A 2:1 RATIO AS PARCELS 'B' AND 'D' ARE CONSIDERED AS "OFF-SITE" SINCE THOSE PARCELS WERE EXCLUDED FROM THE FOREST CALCULATIONS. (7.0 AC. TOTAL = 3.5 AC. CREDITED) AND BY THE ON-SITE AFFORESTATION/REFORESTATION OF 12.2 AC. ON PARCEL 'D'. FOREST CONSERVATION SURETY IN THE AMOUNT OF $326,700.00 WAS PAID AS PART OF THE DPW, DEVELOPER'S AGREEMENT.

26.) ALL DRIVEWAY CULVERTS ARE TO BE 15" RCP OR HDPE.

27.) 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.

28.) THERE ARE NO EXISTING STRUCTURES LOCATED ON THIS SITE.

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

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

31.) THE EXISTING MONITORING WELLS LOCATED ON THE PRESERVATION PARCEL SHALL BE PROPERLY ABANDONED BY A CERTIFIED WELL DRILLER PRIOR TO RECORDATION OF THE SUBDIVISION PLAT.

32.) SEPTIC EASEMENTS SHALL BE STAKED PRIOR TO LOT GRADING.

33.) NON-BUILDABLE BULK PARCEL 'I' SHALL BE TRANSFERRED TO THE NAECKER PROPERTY LOT 1 FREE OF COST. AREA OF BULK PARCEL SHALL NOT BE CREDITED TOWARD DENSITY CALCULATIONS FOR NAECKER PROPERTY.

34. THE ACREAGE OF BULK PARCEL J CANNOT BE USED IN THE DENSITY CALCULATIONS AS THAT PARCEL IS TO BE CONVEYED TO THE ST. LOUIS CHURCH. THE 20' MINIMUM PUBLIC ROAD FRONTAGE REQUIREMENT FOR BULK PARCEL J IS NOT PROVIDED THROUGH THIS SUBDIVISION, BUT FRONTAGE AND ACCESS IS PROVIDED AS PART OF THE ST. LOUIS CHURCH PROPERTY, PARCEL 196.

35. AN ADDITIONAL 15.69 ACRES OF PLANTING ABOVE THE REQUIREMENT SHALL BE USED FOR THE ESTABLISHMENT OF A PRIVATE MITIGATION BANK. FOREST CONSERVATION SURETY IN THE AMOUNT OF $341,728.20 WAS PAID AS PART OF THE DPW DEVELOPERS AGREEMENT.

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 5-10-07
CHIEF, BUREAU OF HIGHWAYS HS — DATE

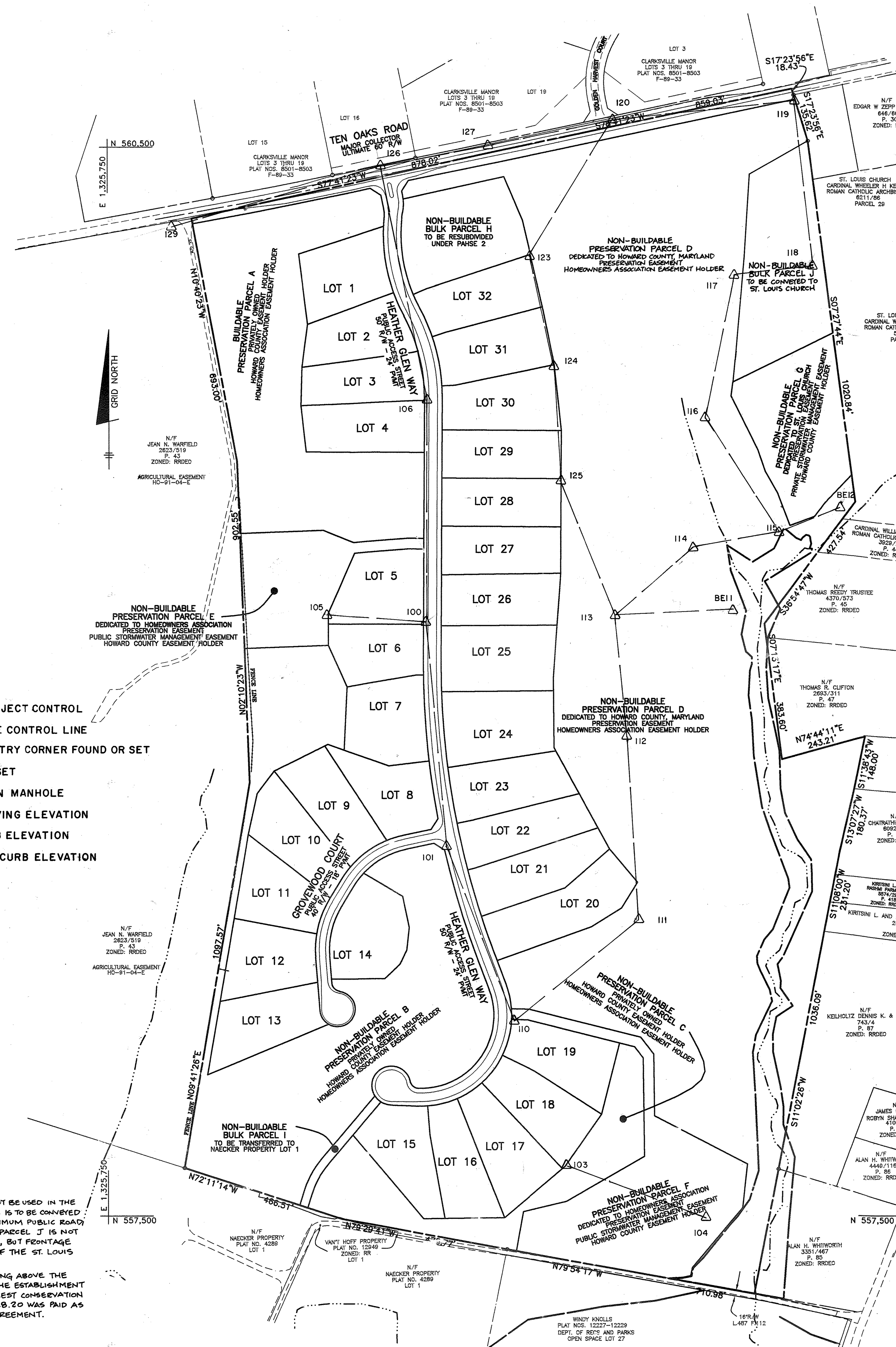
APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 5/16/07
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

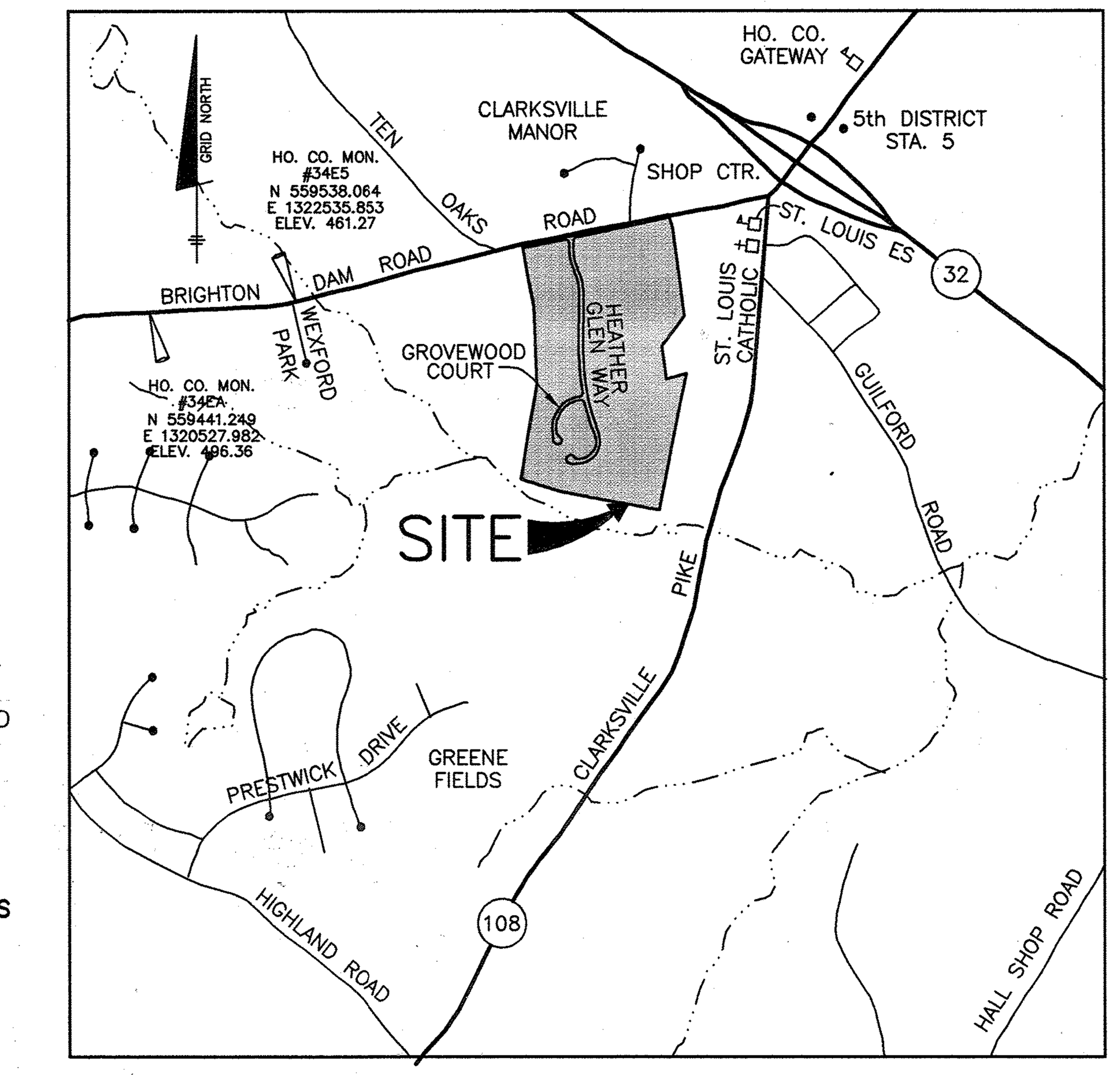
[signature] 5/14/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

LEGEND

- △ SURVEY PROJECT CONTROL
- ——— INTERVISIBLE CONTROL LINE
- ◉ ROAD GEOMETRY CORNER FOUND OR SET
- ■ MONUMENT SET
- (SD) STORM DRAIN MANHOLE
- EP= EDGE OF PAVING ELEVATION
- TC= TOP OF CURB ELEVATION
- BC= BOTTOM OF CURB ELEVATION



PLAN VIEW
SCALE: 1" = 200'



34E5 – STAMPED BRASS DISK SET ON TOP OF CONCRETE BASE
34EA – STAMPED BRASS DISK SET ON TOP OF CONCRETE BASE

VICINITY MAP
SCALE: 1" = 2000'

GENERAL ASBUILT NOTES

1. LOCATIONS AND COORDINATES, AND ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE ORIGINAL PLAN SET DATUMS USED FOR INITIAL TOPOGRAPHIC SURVEY(S) AND SUBSEQUENT CONSTRUCTION, APPEARING TO BE MARYLAND STATE PLANE COORDINATE SYSTEM NAD83 HORIZONTALLY, AND NGVD29 VERTICALLY, PROJECTED FROM THE SITE CONTROL SHOWN HEREON. COORDINATES AND ELEVATIONS WERE BEST FIT TO EXISTING PROPERTY CORNERS AND EXISTING ELEVATION FEATURES, SET AND/OR SHOWN BY BENCHMARK ENGINEERING, INC. ON THE PLAN SET, AND IN PLACE PRIOR TO ANY HOWARD COUNTY SURVEY EFFORTS.

2. FIELDWORK FOR THE INFORMATION SHOWN ON THIS ASBUILT SURVEY WAS PERFORMED AT THE FOLLOWING TIMES BY HO. CO. - DPW:
INTERNAL ROAD AND STORM DRAIN LOCATIONS - OCTOBER 2015 & MARCH 2016
ROAD CORNERS RECOVERED OR SET - OCTOBER AND NOVEMBER 2016
TEN OAKS ROAD IMPROVEMENTS & ROAD CORNERS - JULY 2017

SURVEY PROJECT CONTROL

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	559169.19	1326654.69	447.29	REBAR & CAP SET
101	558539.97	1326708.03	438.66	REBAR & CAP SET
103	557639.18	1327042.61	418.67	REBAR & CAP FOUND "BEI 351"
104	557490.44	1327436.12	394.91	REBAR & CAP SET
105	559192.36	1326374.33	437.41	REBAR & CAP FOUND "BEI 351"
106	559797.64	1326658.10	459.86	REBAR & CAP SET
110	558046.97	1326894.94	420.60	REBAR & CAP SET
111	558332.18	1327249.01	426.58	REBAR & CAP SET
112	558846.38	1327217.46	430.75	REBAR & CAP SET
113	559186.90	1327185.73	440.08	REBAR & CAP SET
114	559377.84	1327406.53	427.30	REBAR & CAP SET
115	559419.50	1327648.42	427.12	REBAR & CAP SET
116	559743.59	1327442.70	443.56	REBAR & CAP SET
117	560142.70	1327525.25	445.63	REBAR & CAP SET
118	560166.47	1327748.21	451.06	REBAR & CAP FOUND "BEI 351"
119	560632.75	1327697.15	468.00	REBAR & CAP FOUND "SNL"
120	560581.94	1327184.36	462.93	PK NAIL SET
123	560198.28	1326947.35	451.24	REBAR & CAP FOUND "AD SURV 48"
124	559889.44	1327014.88	451.47	REBAR & CAP FOUND "CLSI 258"
125	559569.41	1327034.32	444.35	REBAR & CAP FOUND "BEI 351"
126	560456.22	1326528.67	473.95	REBAR & CAP SET
127	560510.38	1326831.52	466.63	MAG NAIL SET
128	560456.35	1326852.70	464.12	REBAR & CAP SET
129	560285.23	1325938.94	464.16	REBAR & CAP SET
BEI1	559200.53	1327517.34	423.65	REBAR & CAP FOUND "BEI 351"
BEI2	559488.69	1327822.09	432.75	REBAR & CAP FOUND "BEI 351"

INCLUDES ONLY POINTS STILL KNOWN OR BELIEVED TO EXIST. SOME LOCATIONS SHOWN IN THIS SET WERE ESTABLISHED FROM POINTS NOW DESTROYED.

AS-BUILT CERTIFICATION

I HEARBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

PE NAME ______ PE NO. ______ DATE ______

CERTIFICATION STAMP FROM DPW

(A) AS-BUILT INFORMATION PROVIDED BY BUREAU OF ENGINEERS ON SHEETS 1-7, 9, 14-16 AND REMOVAL OF THE SWALE BEHIND LOTS 25-32 AND BULK PARCEL H AS SHOWN ON SHEETS 6 & 7.

(B) THERE IS NO AS-BUILT INFORMATION ON SHEETS 8, 10-13, 17-20, 23 & 24.

(C) AS-BUILT CERTIFICATION PROVIDED BY McCORMICK TAYLOR FOR SHEETS 7, 9, 21 & 22.

SITE ANALYSIS DATA CHART
(DOES NOT INCLUDE AREA FOR CLARKS WOODS 2)

GENERAL SITE DATA

1.) PRESENT ZONING: RR-DEO
2.) APPLICABLE DPZ FILE REFERENCES: S-02-011, P-05-013, RE-06-05
3.) PROPOSED USE OF SITE: RESIDENTIAL (SFD)
4.) PROPOSED WATER AND SEWER SYSTEMS: PRIVATE

AREA TABULATION

1.) GROSS TRACT AREA: 117.63 AC.±
2.) AREA WITHIN 100-YEAR FLOODPLAIN: 3.73 AC.±
3.) TOTAL AREA OF 25% OR GREATER STEEP SLOPES: 0.00 AC.±
AREA NOT IN FLOODPLAIN (FOR NTA CALC): 0.00 AC.±
4.) NET TRACT AREA: 113.90 AC.±
5.) TOTAL NUMBER OF LOTS ALLOWED PER ZONING
1 UNIT PER 4.25 GROSS ACRES: 27
1 UNIT PER 2 NET ACRES (MAX): 56
6.) TOTAL NUMBER OF RESIDENTIAL UNITS/LOTS PROPOSED ON THIS SUBMISSION: 33 (32 CLUSTER, 1 BUILDABLE PRES. PARCEL)
7.) AREA OF CLUSTER LOTS: 35.23 AC.±
8.) AREA OF NON-BUILDABLE PRESERVATION PARCELS (PARCELS B – G): 64.62 AC.±
9.) AREA OF BUILDABLE PRESERVATION PARCELS (PARCEL A): 7.41 AC.±
10.) AREA OF NON-BUILDABLE BULK PARCELS (PARCELS H & I): 5.02 AC.±
11.) AREA OF BUILDABLE BULK PARCELS: N/A
12.) AREA OF ROAD RIGHT-OF-WAY: 5.35 AC.±
13.) OPEN SPACE ON-TOTAL SITE*: N/A
14.) AREA OF RECREATIONAL OPEN SPACE REQUIRED: N/A

* 5% OF GROSS REQUIRED (5.89 AC.±) OR NONE IF THE PRES. PARCEL IS DEDICATED TO THE HOA OR HOWARD COUNTY.
PRESERVAION PARCEL 'D' (45.32 AC.) SHALL BE DEDICATED TO HOWARD COUNTY, MARYLAND

SHEET INDEX

AS-BUILT BY	NO.	TITLE
DPW	(A) 1	TITLE SHEET
DPW	(A) 2	ROAD PLAN
DPW	(A) 3	ROAD PLAN
DPW	(A) 4	ROAD PROFILES AND TYPICAL SECTIONS
DPW	(A) 5	ROAD PROFILES AND TYPICAL SECTIONS
DPW	(A) 6	GRADING, SEDIMENT AND EROSION CONTROL PLAN
DPW/M/T	(A) 7 (C)	GRADING, SEDIMENT AND EROSION CONTROL PLAN
NONE	8 (B)	GRADING, SEDIMENT AND EROSION CONTROL PLAN
DPW/M/T	(A) 9 (C)	GRADING, SEDIMENT AND EROSION CONTROL PLAN
NONE	10 (B)	GRADING, SEDIMENT AND EROSION CONTROL PLAN
NONE	11 (B)	GRADING, SEDIMENT AND EROSION CONTROL PLAN
NONE	12 (B)	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
NONE	13 (B)	STORM DRAIN DRAINAGE AREA MAP
DPW	(A) 14	STORM DRAIN DRAINAGE AREA MAP
DPW	(A) 15	STORM DRAIN PROFILES
DPW	(A) 16	STORM DRAIN PROFILES
NONE	17 (B)	LANDSCAPE AND STREET TREE PLAN
NONE	18 (B)	LANDSCAPE AND STREET TREE PLAN
NONE	19 (B)	FOREST CONSERVATION PLAN
NONE	20 (B)	FOREST CONSERVATION PLAN, NOTES AND DETAILS
M/T	(C) 21	SWM DETAILS – FACILITY #1
M/T	(C) 22	SWM DETAILS – FACILITY #2
NONE	23 (B)	TEN OAKS ROAD STRIPING & TRAFFIC CONTROL PLAN
NONE	24 (B)	TEN OAKS ROAD CROSS-SECTIONS

NO.	DATE	REVISION
3	8-9-2021	AS-BUILT SET 9/31/12/21
2	6-13-2007	ADD NBBP 'J', NOTES 34 & 35, REVISE SITE ANALYSIS DATA CHART & TITLE BLOCK
1	4-24-2007	ADD LOTS 1 AND 24, REVISE LOT #s, OWNER INFO, SUBDIVISION NAME, ADD CUL-DE-SAC @ HEATHER GLEN, REVISE SITE ANALYSIS CHART

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

[seal: STATE OF MARYLAND PROFESSIONAL ENGINEER] [signature: Donald Mason] 4/24/07

OWNER/DEVELOPER:
DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18; PARCEL: 77; FIFTH ELECTION DISTRICT; HOWARD COUNTY, MARYLAND

TITLE: REVISED TITLE SHEET

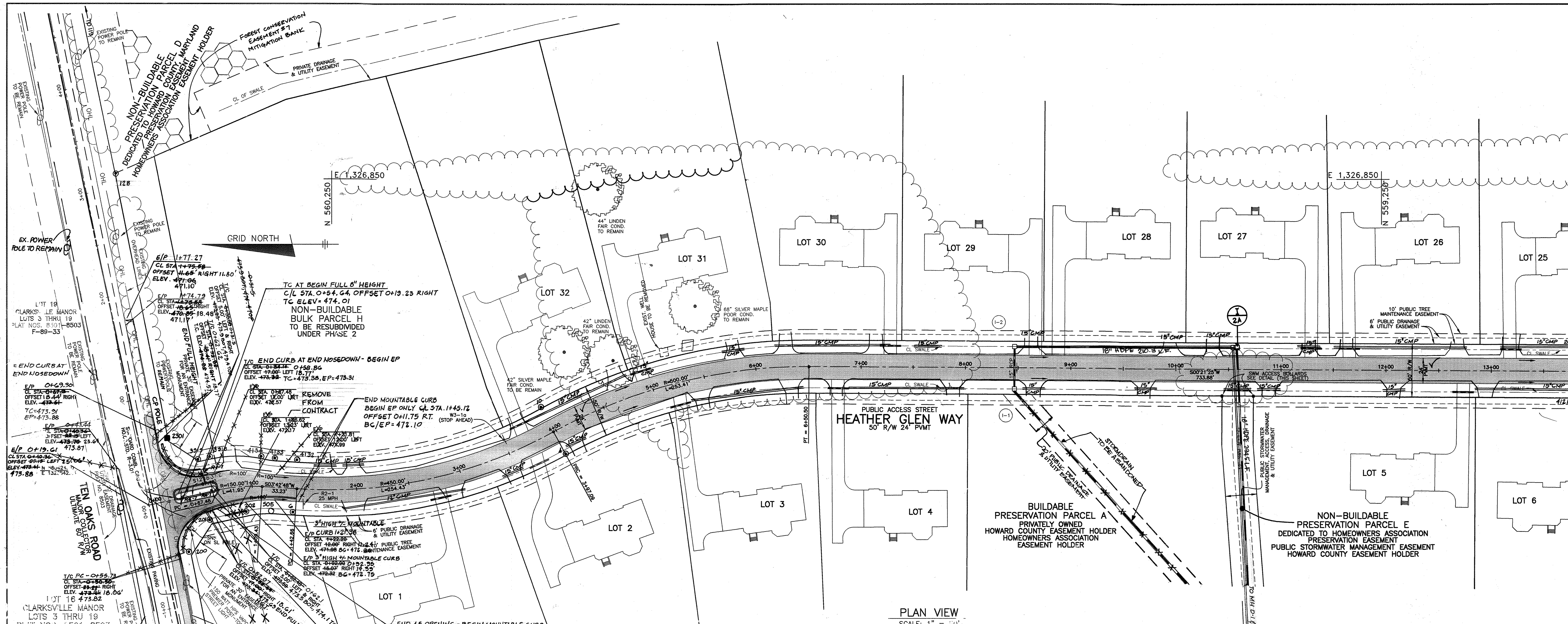
DATE: APRIL, 2007 — PROJECT NO. 1407

DESIGN: DBT — DRAFT: DBT — CHECK: DAM — SCALE: AS SHOWN — SHEET 1 OF 24

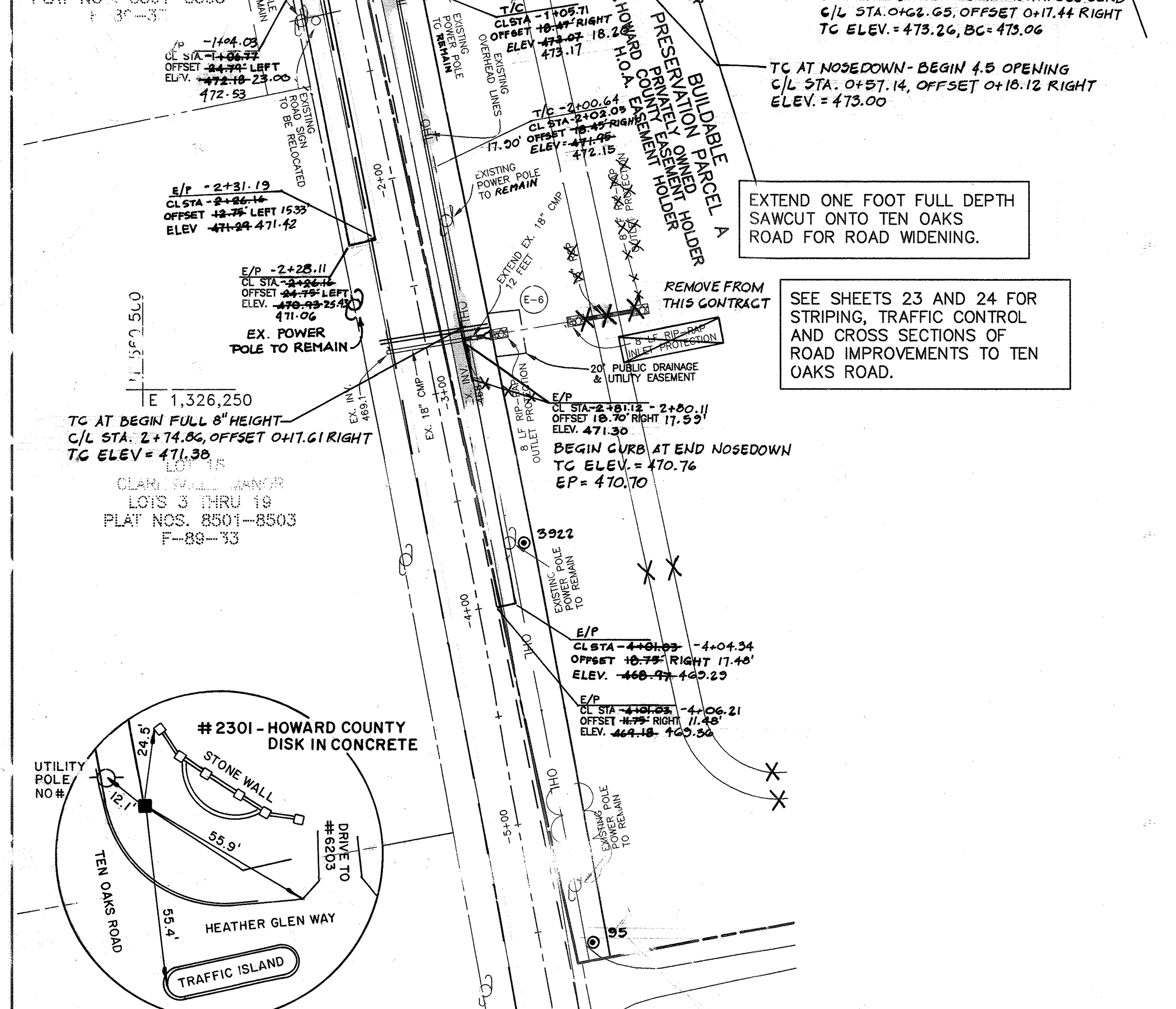
F-06-72

ROAD CORNER ELEVATIONS & DESCRIPTIONS

NO.	ELEV.	DESCRIPTION
4	465.80	REBAR AND "BEI 351" CAP FOUND
6	471.62	REBAR AND "BEI 351" CAP FOUND
10	467.06	REBAR AND "AD SUR 48" CAP FOUND
95	466.08	REBAR AND "BEI 351" CAP FOUND
119	468.00	REBAR AND "SNL" CAP FOUND
128	464.12	REBAR AND "HOWARD COUNTY" CAP SET
200	472.85	REBAR AND "BEI 351" CAP FOUND
201	472.64	REBAR AND "BEI 351" CAP FOUND
202	472.23	REBAR AND "BEI 351" CAP FOUND
206	446.12	REBAR AND "BEI 351" CAP FOUND
207	459.32	REBAR AND "CLSI 58" CAP FOUND
505		NOT SET, FELL IN GAS VALVE
3918	472.80	REBAR AND "HOWARD COUNTY" CAP SET
3919	472.56	REBAR AND "HOWARD COUNTY" CAP SET
3922	470.81	REBAR AND "BEI 351" CAP FOUND
4120	460.47	REBAR AND "HOWARD COUNTY" CAP SET
4121	446.77	REBAR AND "HOWARD COUNTY" CAP SET
4132	471.39	REBAR AND "HOWARD COUNTY" CAP SET
4133	471.72	REBAR AND "HOWARD COUNTY" CAP SET
4134	471.94	REBAR AND "HOWARD COUNTY" CAP SET



PLAN VIEW
SCALE: 1" = [illegible]0'



MONUMENT DETAIL

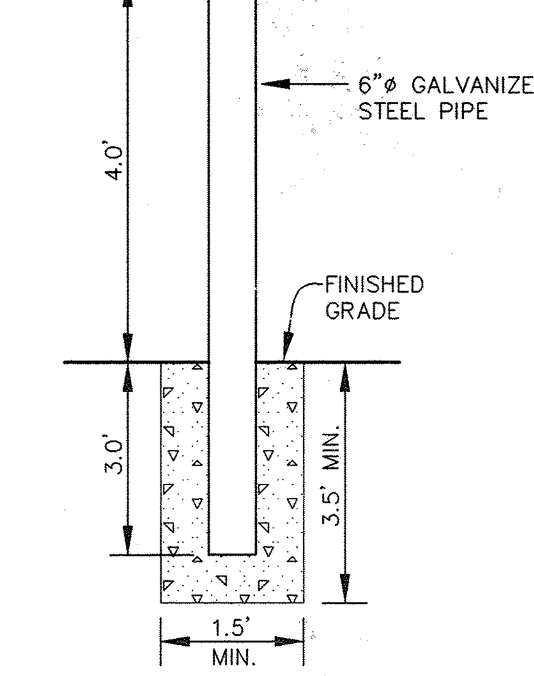
STREET LIGHT SCHEDULE			
SYMBOL	LOCATION		DESCRIPTION
☼	HEATHER GLEN WAY	CL STA. 0+36 OFFS. 34' RIGHT	150 WATT HPS VAPOR PREMIER POST TOP

CENTER LINE CURVE DATA							
STREET NAME	STATION	RADIUS	LENGTH	DELTA	TANGENT	CHORD	
HEATHER GLEN WAY	STA. 0+67.48 TO 1+09.43	150.00'	41.95'	16°01'24"	21.11'	N04°17'55"W	41.81'
	STA. 1+42.65 TO 3+97.09	450.00'	254.43'	32°23'41"	130.72'	S12°29'03"E	251.05'
	STA. 3+79.09 TO 6+50.50	500.00'	253.41'	29°02'19"	129.49'	N14°09'44"W	250.71'

CENTERLINE CONTROL DATA			
STREET NAME	STATION	NORTH	EAST
HEATHER GLEN WAY	BEGIN=0+00.00	560424.31	1326542.24
	PC=0+67.48	560358.37	1326556.63
	PT=1+09.43	560316.68	1326559.76
	PC=1+42.66	560283.52	1326557.61
	PRC=3+97.09	560038.40	1326611.88
	PT=6+50.50	559795.32	1326673.22
	PC=13+84.38	559061.45	1326668.65

SIGN POSTS:

ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE SLEEVE (12 GAUGE) – 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.



6"ø PIPE BOLLARD, CONCRETE FILLED. SET IN CONCRETE 3 FEET BELOW FINISHED GRADE, EXTEND 4 FEET ABOVE FINISHED GRADE AND PAINT OSHA REGULATION YELLOW

BOLLARD DETAIL
NOT TO SCALE

CERTIFICATION STAMP FROM DPW

AS-BUILT CERTIFICATION

I HEARBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. ______

PE NAME. ______ DATE. ______

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5-10-07

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/16/07

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/14/07

8/15/07
REVISION NO. 3 IS BY DALE THOMPSON BUILDERS INC. THE ENGINEER'S SEAL AND SIGNATURE ARE HEREWITH AFFIXED.

NO.	DATE	REVISION
5	8-9-2021	AS-BUILT SET
4	07/09/12	REVISE THE WIDTH & STATIONING OF THE ACCEL/DECEL LANE AND SHOW ADDITIONAL EXISTING UTILITY POLES
3	8-15-2007	CHANGE PIPE MATERIAL TO HDPE, REALIGN STORM DRAIN FROM I-1 TO E-2
2	6-13-2007	ADD FCE #7, REVISE TITLE BLOCK
1	4-24-2007	REVISE ENTRANCE TO INCLUDE MEDIAN ISLAND, REVISE LOT NUMBERS, OWNER INFO, SUBDIVISION NAME

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

4/24/07

OWNER/DEVELOPER:
DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18
PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED ROAD PLAN

DATE: APRIL, 20[illegible]7	PROJECT NO. 1407
SCALE: AS SHOWN	SHEET 2 OF 24

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

F-06-72

PLAN VIEW
SCALE: 1" = 50'

ROAD CORNER ELEVATIONS & DESCRIPTIONS

NO.	ELEV.	DESCRIPTION
30	431.14	REBAR AND "BEI 351" CAP FOUND
31	434.16	REBAR AND "BEI 351" CAP FOUND
38	410.27	REBAR AND CAP FOUND
45	440.51	REBAR AND "AD SUR 48" CAP FOUND
205	439.17	REBAR AND "AD SUR 48" CAP FOUND
518	421.29	REBAR AND "HOWARD COUNTY" CAP SET
2300	437.82	"HOWARD COUNTY" DISK IN CONCRETE SET
2301	474.27	"HOWARD COUNTY" DISK IN CONCRETE SET
3912	412.75	REBAR AND "BEI 351" CAP FOUND
4113	420.22	REBAR AND "HOWARD COUNTY" CAP SET
4114	423.25	REBAR AND "HOWARD COUNTY" CAP SET
4115	423.04	REBAR AND "HOWARD COUNTY" CAP SET
4116	420.35	REBAR AND "HOWARD COUNTY" CAP SET
4117	412.26	REBAR AND "HOWARD COUNTY" CAP SET
4118	410.94	REBAR AND "HOWARD COUNTY" CAP SET
4123	438.82	REBAR AND "HOWARD COUNTY" CAP SET
4124	435.97	REBAR AND "HOWARD COUNTY" CAP SET
4125	432.55	REBAR AND "HOWARD COUNTY" CAP SET
4126	439.75	REBAR AND "HOWARD COUNTY" CAP SET
4127	425.04	REBAR AND "HOWARD COUNTY" CAP SET
4128	420.11	REBAR AND "HOWARD COUNTY" CAP SET
4129	420.27	REBAR AND "HOWARD COUNTY" CAP SET
4130	440.38	NAIL SET IN CENTERLINE
4131	424.61	REBAR AND "BEI 351" CAP FOUND

NO.	DATE	REVISION
5	8-9-2021	AS-BUILT SET
4	8-14-2009	REVISE D/W AND CULVERT FOR LOT 11.
3	8-15-2007	CHANGE PIPE MATERIAL TO HDPE
2	6-13-2007	ADD FCE #8 MITIGATION BANK, REVISE TITLE BLOCK TO REFLECT NBBP 'J'
1	4-24-2007	ADD CUL-DE-SAC @ HEATHER GLEN WAY, REVISE STORM DRAIN, LOT #5, OWNER INFO, SUBDIVISION NAME, CURVE DATA CHART & CENTERLINE CONTROL DATA

REVISION NO. 3 IS BY DALE THOMPSON BUILDER'S INC. THE ENGINEER SEAL AND SIGNATURE ARE HEREWITH AFFIXED. 8/15/07

CENTERLINE CONTROL DATA

STREET NAME	STATION	NORTH	EAST
HEATHER GLEN WAY	PC=13+84.38	559061.45	1326668.65
	PT=22+36.22	558228.00	1326819.41
	PC=23+25.96	558144.09	1326851.23
	PCC=27+80.20	557832.72	1326626.61
	PT=28+34.65	557849.33	1326575.46
	END=28+64.65	557865.92	1326550.47
GROVEWOOD COURT	BEGIN=0+00.00	558575.88	1326717.39
	PC=1+31.40	558548.96	1326588.79
	PT=3+35.49	558434.52	1326426.62
	PC=4+01.02	558378.60	1326392.48
	PT=5+57.79	558228.60	1326356.65
	PC=6+32.80	558153.83	1326362.57
	PT=6+92.55	558099.11	1326384.28
	END=7+15.00	558081.54	1326398.39

CENTER LINE CURVE DATA

STREET NAME	STATION	RADIUS	LENGTH	DELTA	TANGENT	CHORD	
HEATHER GLEN WAY	STA. 13+84.38 TO 22+36.22	2300.00'	851.84'	21°13'13"	430.86'	S10°15'11"E	846.98'
	STA. 23+25.96 TO 27+80.20	230.00'	454.24'	113°09'25"	348.53'	S35°48'22"W	383.93'
	STA. 27+80.20 TO 28+34.65	100.00'	54.45'	31°11'48"	27.92'	N72°01'01"W	53.78'
GROVEWOOD COURT	STA. 1+31.40 TO 3+35.49	250.00'	204.10'	46°46'32"	108.12'	S54°47'22"W	198.48'
	STA. 4+01.02 TO 5+57.79	250.00'	156.78'	35°55'52"	81.06'	S13°26'10"W	154.22'
	STA. 6+32.80 TO 6+92.55	100.00'	59.75'	34°13'58"	30.80'	S21°38'45"E	58.86'

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5-10-07

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/16/07

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/14/07

CERTIFICATION STAMP FROM DPW

AS-BUILT CERTIFICATION

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PE NAME. ____________ PE NO. ____________ 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

Donald Mason 4/24/07

OWNER/DEVELOPER:
DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18
PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED ROAD PLAN

DATE: APRIL 2007 | PROJECT NO. 1407
DESIGN: DBT | DRAFT: DBT | CHECK: DAM | SCALE: AS SHOWN | SHEET 3 OF 24

F-06-72

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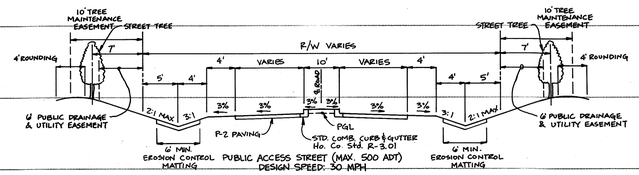
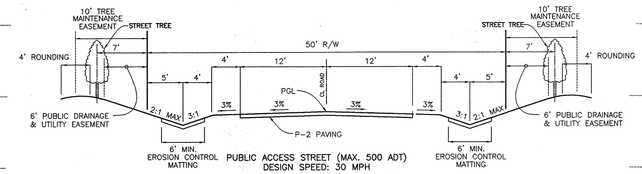


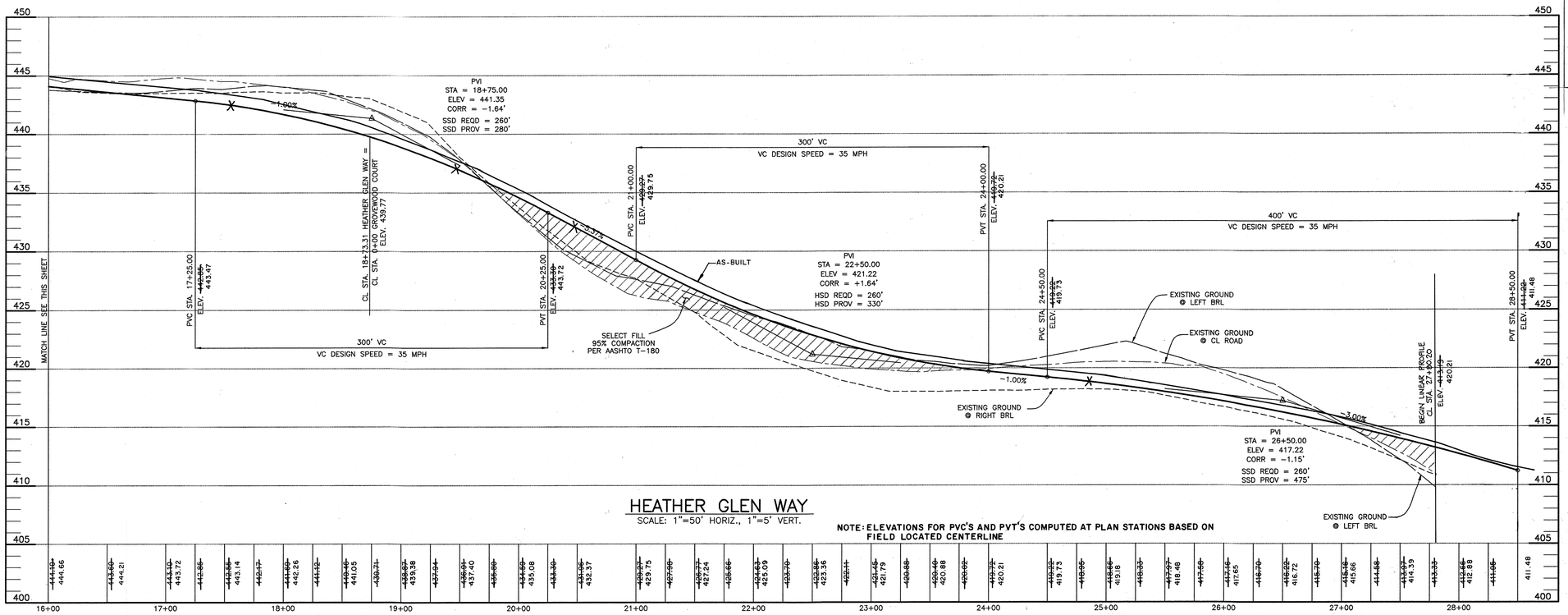
TYPICAL ROADWAY SECTION
HEATHER GLEN WAY
STA. 0+25 TO STA. 0+67.48
NOT TO SCALE



TYPICAL ROADWAY SECTION
HEATHER GLEN WAY
NOT TO SCALE

NOTE: ELEVATIONS FOR PVC'S AND PVT'S FIELD SHOT AT PLAN STATION

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



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

NOTE: ELEVATIONS FOR PVC'S AND PVT'S COMPUTED AT PLAN STATIONS BASED ON FIELD LOCATED CENTERLINE

CERTIFICATION STAMP FROM DPW

AS-BUILT CERTIFICATION

I HEARBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

PE NAME. PE NO. DATE.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/20/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/20/06

NO.	DATE	REVISION
3	8-9-2021	AS-BUILT SET
2	6-13-2007	REVISE TITLE BLOCK TO REFLECT NBBP 'J'
1	4-24-2007	ADD TYPICAL SECTION HEATHER GLEN STA. 0+25 TO 0+67.48, REVISE OWNER & SUBDIVISION NAME

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

Donald Maan 3/20/06

OWNER/DEVELOPER:
DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18 PARCEL: 77 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: ROAD PROFILES AND TYPICAL SECTIONS

DESIGN: DBT	DRAFT: DBT	CHECK: DAM	DATE: APRIL, 2006	PROJECT NO. 1407
			SCALE: AS SHOWN	SHEET 4 OF 24

F-06-72

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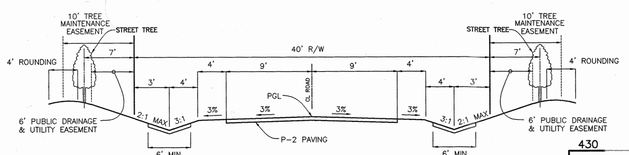
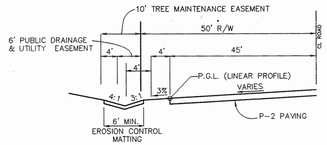


PUBLIC ACCESS STREET (MAX. 500 ADT)
DESIGN SPEED: 30 MPH

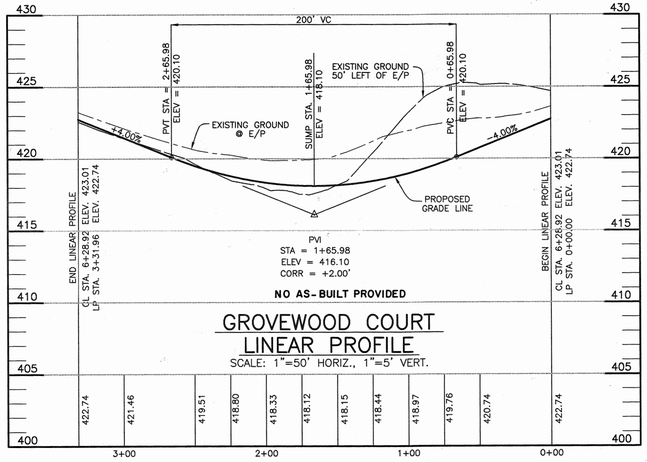
TYPICAL ROADWAY SECTION GROVEWOOD COURT

NOT TO SCALE



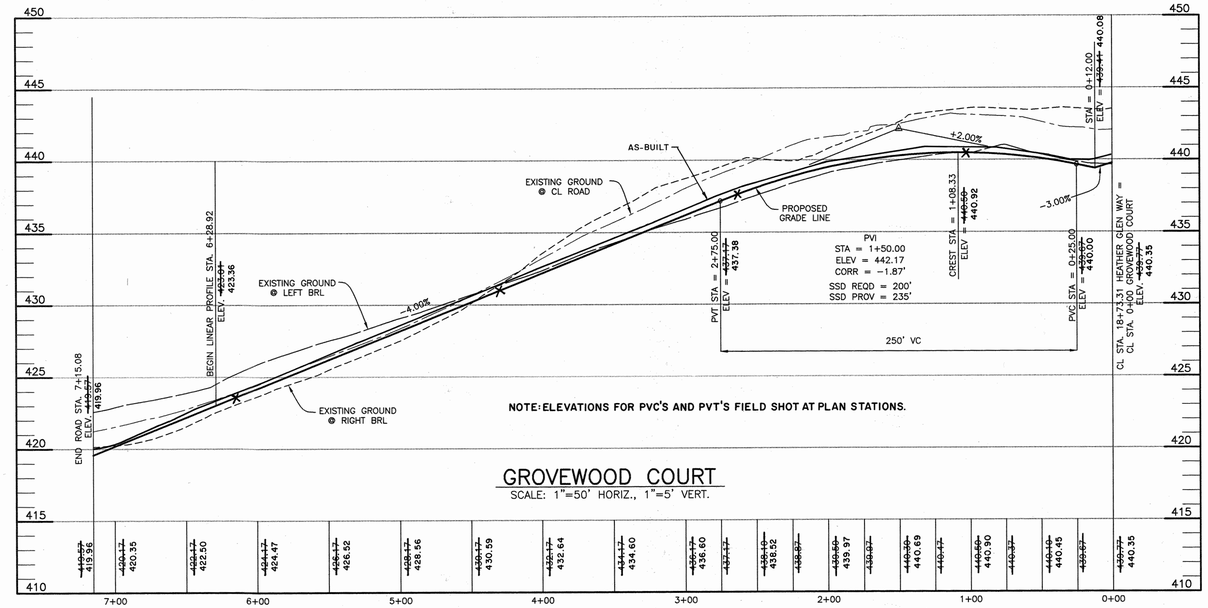
TYPICAL ROADWAY SECTION AT CUL-DE-SAC FOR GROVEWOOD COURT

NOT TO SCALE



GROVEWOOD COURT LINEAR PROFILE

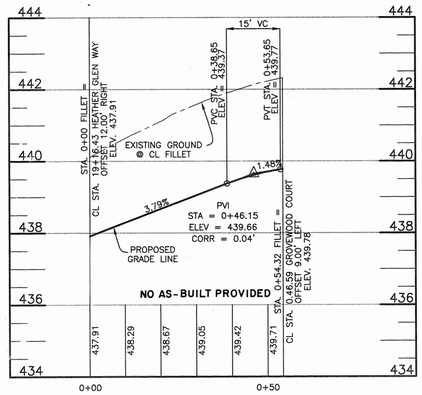
SCALE: 1"=50' HORIZ., 1"=5' VERT.



NOTE: ELEVATIONS FOR PVC'S AND PVT'S FIELD SHOT AT PLAN STATIONS.

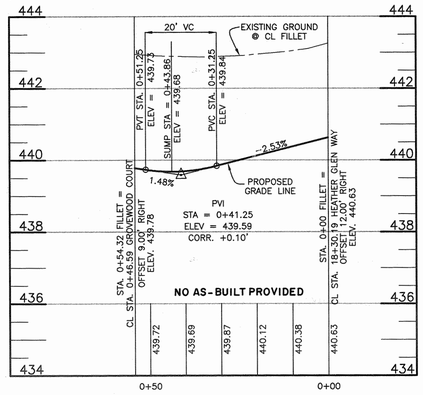
GROVEWOOD COURT

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



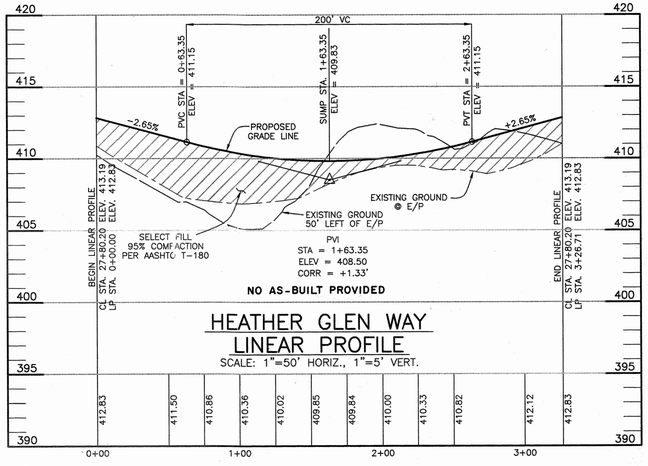
FILLET PROFILE SOUTH CORNER GROVEWOOD COURT/HEATHER GLEN WAY

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



FILLET PROFILE EAST CORNER GROVEWOOD COURT/HEATHER GLEN WAY

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

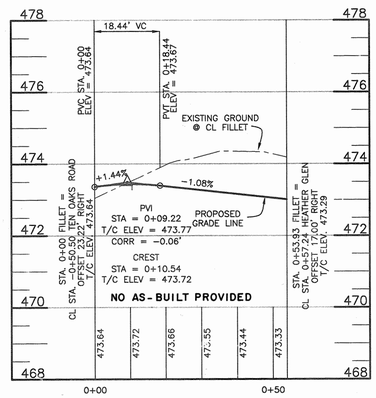


HEATHER GLEN WAY LINEAR PROFILE

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

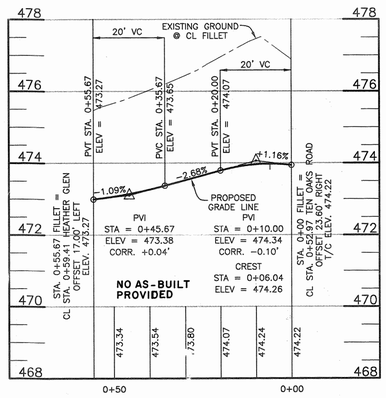
TYPICAL ROADWAY SECTION AT CUL-DE-SAC FOR HEATHER GLEN WAY

NOT TO SCALE



FILLET PROFILE WEST CORNER TEN OAKS/HEATHER GLEN

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



FILLET PROFILE EAST CORNER TEN OAKS/HEATHER GLEN

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

CERTIFICATION STAMP FROM DPW

AS-BUILT CERTIFICATION

I HEARBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

PE NAME. _____ PE NO. _____

DATE. _____

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5-10-07

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/26/07

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/14/07

NO.	DATE	REVISION
3	8-9-2021	AS-BUILT SET
2	6-13-2007	REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	ADD LINEAR PROFILE FOR HEATHER GLEN WAY, ADD TEN OAKS/HEATHER GLEN FILLET PROFILES

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 — 4/24/07

OWNER/DEVELOPER:

DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE

LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18
PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED
ROAD PROFILES AND
TYPICAL SECTIONS

DESIGN: DBT	DRAFT: DBT	CHECK: DAM	DATE: APRIL, 2007	PROJECT NO. 1407
			SCALE: AS SHOWN	SHEET 5 OF 24

F-06-72

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PLAN VIEW
SCALE: 1" = 50'

LEGEND

- EXISTING CONTOURS (2' INTERVALS)
- EXISTING TREELINE
- PROPOSED TREELINE
- FOREST CONSERVATION EASEMENT
- NATURAL AREA CONSERVATION CREDIT EASEMENT
- SEPTIC EASEMENT
- 1500 S.F. WELL BOX
- SF — SF SILT FENCE
- SSF — SSF SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- LIMIT OF DISTURBANCE (PHASE 2)
- EROSION CONTROL MATTING

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 4/24/07
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 : DALE THOMPSON 16 April 2007
DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

USDA – NATURAL RESOURCES CONSERVATION SERVICE 5/2/07
DATE

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

HOWARD SCD 5/2/07
DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS 5-10-07
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT 5/16/07
DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 5/14/07
DATE

AS-BUILT CERTIFICATION

I HEARBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

PE NAME. PE NO. DATE.

CERTIFICATION STAMP FROM DPW

NOTE:
CONTRACTOR SHALL CURL ALL ENDS OF SILT FENCE AND SUPER SILT FENCE UPHILL BY 2 FEET IN ELEVATION.

NOTE:
EROSION CONTROL MATTING TO BE PLACED IN ALL ROADSIDE DITCHES.

NO.	DATE	REVISION
AS-BUILT	8-9-2021	CULVERTS AND REAR YARD DRAINAGE SWALE REMOVED BY DPW
4	07/19/12	REVISE THE WIDTH OF THE ACCEL./DECEL LANES, REVISE CURB, AND SHOW ADDITIONAL EXISTING UTILITY POLES
3	6-13-2007	ADD FOREST MITIGATION BANK ESMTS, REVISE TITLE TO REFLECT NBBP 'J'
2	5-2-2007	REVISE LOT #'S OWNER INFO, SUBDIVISION NAME, SSF TO SF (REAR OF LOTS 30-34), ADD MEDIAN ISLAND ON HEATHER GLEN WAY.
1	4-24-2007	

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
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ELLICOTT CITY, MARYLAND 21043
phone: 410-465-6105 ▲ fax: 410-465-6644
www.bei-civilengineering.com

Donald Mason 4/24/07

OWNER/DEVELOPER:
DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE

LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18
PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED
GRADING, SEDIMENT AND EROSION CONTROL PLAN

DATE: APRIL, 2007 PROJECT NO. 1407

DESIGN: DBT DRAFT: DBT CHECK: DAM SCALE: AS SHOWN SHEET 6 OF 24

F-06-72

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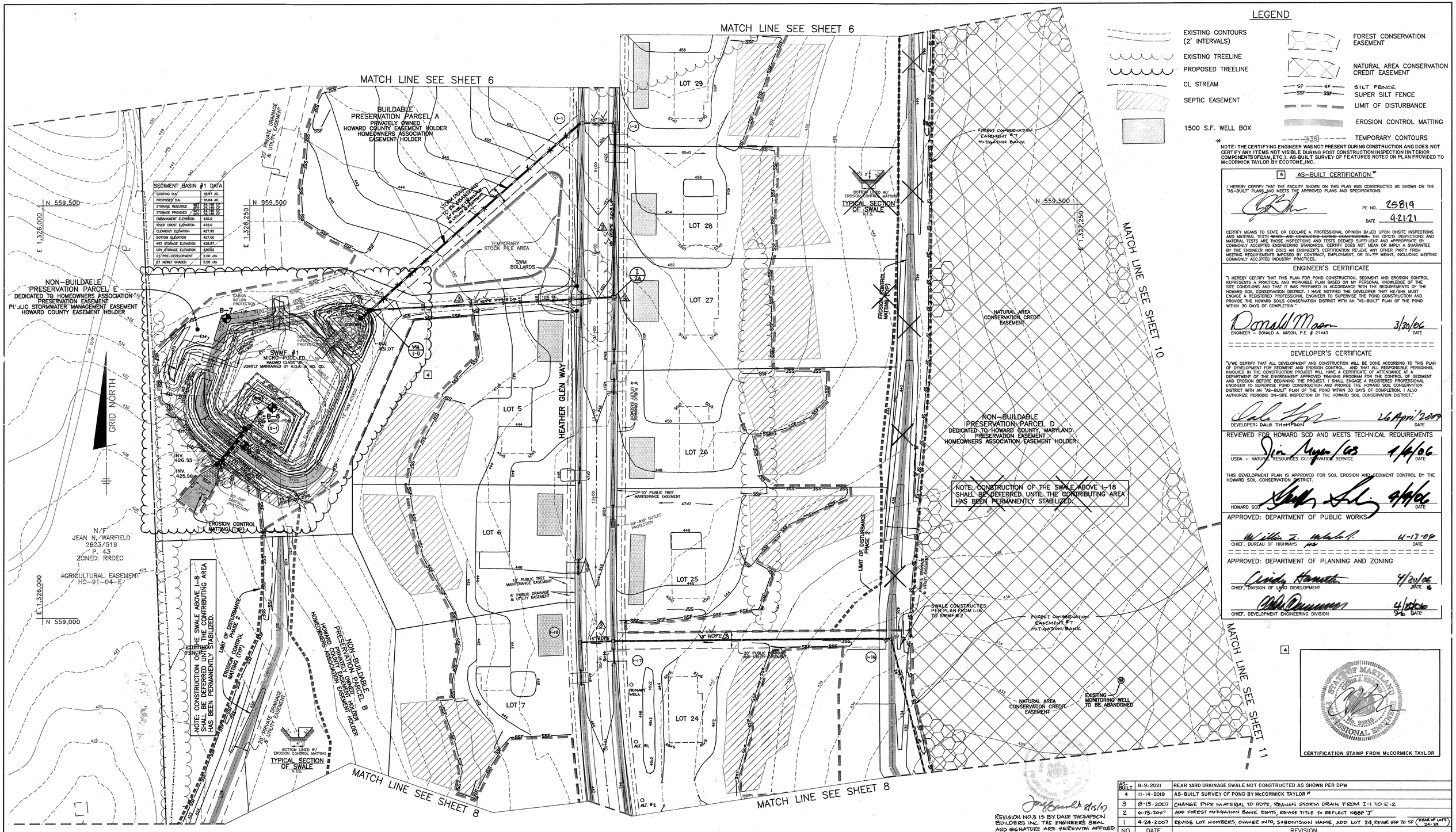

LEGEND

- EXISTING CONTOURS (2' INTERVALS)
- EXISTING TREELINE
- PROPOSED TREELINE
- CL STREAM
- SEPTIC EASEMENT
- 1500 S.F. WELL BOX
- FOREST CONSERVATION EASEMENT
- NATURAL AREA CONSERVATION CREDIT EASEMENT
- SF — SF — SILT FENCE
- SSF — SSF — SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING
- 435 TEMPORARY CONTOURS

NOTE: THE CERTIFYING ENGINEER WAS NOT PRESENT DURING CONSTRUCTION AND DOES NOT CERTIFY ANY ITEMS NOT VISIBLE DURING POST CONSTRUCTION INSPECTION (INTERIOR COMPONENTS OF DAM, ETC.). AS-BUILT SURVEY OF FEATURES NOTED ON PLAN PROVIDED TO McCORMICK TAYLOR BY ECOTONE, INC.

4 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. 25819

DATE 9.21.21

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 3/30/06

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."

26 April 2006

DEVELOPER: DALE THOMPSON DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

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

HOWARD SCD 4/4/06 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS 4-13-06 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT 4/20/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 4/6/06 DATE

4

STATE OF MARYLAND DONALD A. MASON No. 25819 PROFESSIONAL ENGINEER

CERTIFICATION STAMP FROM McCORMICK TAYLOR

NO.	DATE	REVISION
AS-BUILT	8-9-2021	REAR YARD DRAINAGE SWALE NOT CONSTRUCTED AS SHOWN PER DPW
4	11-14-2019	AS-BUILT SURVEY OF POND BY McCORMICK TAYLOR *
3	8-15-2007	CHANGE PIPE MATERIAL TO HDPE, REALIGN STORM DRAIN FROM I-1 TO E-2
2	6-13-2007	ADD FOREST MITIGATION BANK ESMTS, REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	REVISE LOT NUMBERS, OWNER INFO, SUBDIVISION NAME, ADD LOT 24, REVISE SSF TO SF (REAR OF LOTS 24-29)

8/15/07

REVISION NO.3 IS BY DALE THOMPSON BUILDERS INC. THE ENGINEER'S SEAL AND SIGNATURE ARE HEREWITH AFFIXED.

PLAN VIEW
SCALE: 1" = 50'

NOTE:
CONTRACTOR SHALL CURL ALL ENDS OF SILT FENCE AND SUPER SILT FENCE UPHILL BY 2 FEET IN ELEVATION.

NOTE:
EROSION CONTROL MATTING TO BE PLACED IN ALL ROADSIDE DITCHES.

AS-BUILT CERTIFICATION

I HEARBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

PE NAME. PE NO. DATE.

CERTIFICATION STAMP FROM DPW

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

Donald Mason 3/30/06

OWNER/DEVELOPER:
DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE

LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18 PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT AND EROSION CONTROL PLAN

DATE: APRIL, 2006 PROJECT NO. 1407

DESIGN: DBT DRAFT: DBT CHECK: DAM SCALE: AS SHOWN SHEET 7 OF 24

F-06-72

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PLAN VIEW
SCALE: 1" = 50'

LEGEND

- EXISTING CONTOURS (2' INTERVALS)
- EXISTING TREELINE
- PROPOSED TREELINE
- FOREST CONSERVATION EASEMENT
- NATURAL AREA CONSERVATION CREDIT EASEMENT
- SEPTIC EASEMENT
- 1500 S.F. WELL BOX
- SILT FENCE (SF) / SUPER SILT FENCE (SSF)
- LIMIT OF DISTURBANCE
- LIMIT OF DISTURBANCE (PHASE 2)
- EROSION CONTROL MATTING

NOTE:
CONTRACTOR SHALL CURL ALL ENDS OF SILT FENCE AND SUPER SILT FENCE UPHILL BY 2 FEET IN ELEVATION.

NOTE:
EROSION CONTROL MATTING TO BE PLACED IN ALL ROADSIDE DITCHES.

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET

PE NAME. _____ PE NO. _____ DATE. _____

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."

ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE 3/30/06

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: DALE THOMPSON — DATE 26 April 2006

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

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

HOWARD SCD — DATE 4/4/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/20/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/20/06

LOG OF BORING NO. B-05

Sheet 1 of 1

PROJECT: Palmer Property
PROJECT NO: 041307
PROJECT LOCATION: Howard County, Maryland
DATE STARTED: December 1, 2004
DATE COMPLETED: December 1, 2004
DRILLING CONTRACTOR: GTA
DRILLER: T.C.
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon
WATER LEVEL: ▽ 10.1 ▼ 7.8 ▽
DATE: 12/01/04 12/04/04
CAVED (ft): 11.5 11.2
GROUND SURFACE ELEVATION: 425.0
DATUM: MSL
EQUIPMENT: CME 45
LOGGED BY: CW
CHECKED BY: K. Ngozi

SAMPLE NUMBER	SAMPLE DEPTH (ft)	RECOVERY (in)	SAMPLE BLOWS/6inch	N Value/ft	ELEVATION (ft)	DEPTH (ft)	USCS SYMBOL	DESCRIPTION	REMARKS
1	0.0	18	3-3-2	5	425.0	0	CL	Brown, moist, medium stiff Lean CLAY. AASHTO: A-6	Topsoil: 9 in.
2	2.5	18	1-1-1	2	424.5	5	CL	Brown and gray, moist, very stiff, Micaceous CLAY. AASHTO: A-6	Water encountered at 12.5 feet.
3	5.0	18	11-13-12	25	424.0	10	SM	Gray and brown, slightly moist to wet, loose to medium dense, Silty SAND with Gravel and Mica. AASHTO: A-4/A-2-4	
4	8.5	18	4-4-5	11					
5	13.5	18	6-6-8	14	414.0	15		Bottom of Hole at 15.0 Feet.	

NOTES:
GTA GEO-TECHNOLOGY ASSOCIATES, INC. 14280 Park Center Drive Suite A Laurel, MD 20707
LOG OF BORING NO. B-05
Sheet 1 of 1

LOG OF BORING NO. B-06

Sheet 1 of 1

PROJECT: Palmer Property
PROJECT NO: 041307
PROJECT LOCATION: Howard County, Maryland
DATE STARTED: December 1, 2004
DATE COMPLETED: December 1, 2004
DRILLING CONTRACTOR: GTA
DRILLER: T.C.
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon
WATER LEVEL: ▽ 10.4 ▼ 10.3 ▽
DATE: 12/01/04 12/04/04
CAVED (ft): 10.2 8.6
GROUND SURFACE ELEVATION: 431.1
DATUM: MSL
EQUIPMENT: CME 45
LOGGED BY: CW
CHECKED BY: K. Ngozi

SAMPLE NUMBER	SAMPLE DEPTH (ft)	RECOVERY (in)	SAMPLE BLOWS/6inch	N Value/ft	ELEVATION (ft)	DEPTH (ft)	USCS SYMBOL	DESCRIPTION	REMARKS
1	0.0	18	3-3-3	6	431.1	0	CL	Brown, moist, medium stiff Lean CLAY with Sand. AASHTO: A-7-6	Topsoil: 9 in.
2	2.5	18	3-4-7	11					Water encountered at 12.5 feet.
3	5.0	18	6-8-12	21	426.1	5	SM	Olive, moist, loose, Micaceous Silty SAND. AASHTO: A-4	
4	8.5	18	9-4-3	7	421.1	10	SM	Gray and white, moist, medium dense, fine to medium grained SAND, some Silt. AASHTO: A-1-b/A-2-4	
5	13.5	18	5-5-11	16	416.1	15	SP SM	Bottom of Hole at 15.0 Feet.	

Borehole Infiltration Test at 5.0 Feet.

Water Level	Drop (in)
Start	0.00
1	0.00
2	0.00
3	0.00
4	0.00

Average Infiltration Rate: < 0.01 in/hr.

NOTES:
GTA GEO-TECHNOLOGY ASSOCIATES, INC. 14280 Park Center Drive Suite A Laurel, MD 20707
LOG OF BORING NO. B-06
Sheet 1 of 1

LOG OF BORING NO. B-07

Sheet 1 of 1

PROJECT: Palmer Property
PROJECT NO: 041307
PROJECT LOCATION: Howard County, Maryland
DATE STARTED: December 1, 2004
DATE COMPLETED: December 1, 2004
DRILLING CONTRACTOR: GTA
DRILLER: T.C.
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon
WATER LEVEL: ▽ Dry ▼ 11.8 ▽
DATE: 12/01/04 12/04/04
CAVED (ft): 11.5 10.5
GROUND SURFACE ELEVATION: 434.6
DATUM: MSL
EQUIPMENT: CME 45
LOGGED BY: CW
CHECKED BY: K. Ngozi

SAMPLE NUMBER	SAMPLE DEPTH (ft)	RECOVERY (in)	SAMPLE BLOWS/6inch	N Value/ft	ELEVATION (ft)	DEPTH (ft)	USCS SYMBOL	DESCRIPTION	REMARKS
1	0.0	18	3-3-4	8	434.6	0	CL	Reddish brown, moist, medium stiff to stiff, Sandy Lean CLAY. AASHTO: A-6	Topsoil: 9 in.
2	2.5	18	4-5-9	14	430.1	5	SP SC	Multicolored, slightly moist to moist, medium dense, poorly graded SAND with Clay and Gravel. AASHTO: A-2-4	No water encountered while drilling.
3	5.0	18	5-6-11	19					
4	8.5	18	4-5-6	11	425.1	10	SM	Olive, moist to wet, loose to medium dense, Micaceous Silty SAND. AASHTO: A-4	
5	13.5	18	5-5-6	11	419.6	15		Bottom of Hole at 15.0 Feet.	

NOTES:
GTA GEO-TECHNOLOGY ASSOCIATES, INC. 14280 Park Center Drive Suite A Laurel, MD 20707
LOG OF BORING NO. B-07
Sheet 1 of 1

REVISION NO. 4 IS BY DALE THOMPSON BUILDERS, INC. THE ENGINEERS SEAL AND SIGNATURE ARE HEREWITH AFFIXED

NO.	DATE	REVISION
4	8-9-2021	AS-BUILT SET
3	8-14-2009	REVISE D/U, CULVERT AND GRADES IN FRONT OF LOT 11.
A	8-13-2007	CHANGE PIPE TO MATERIAL
2	6-13-2007	ADD FOREST MITIGATION BANK ESMTS, REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	REVISE LOT NUMBERS, OWNER INFO, SUBDIVISION NAME, REVISE SSF TO SF (REAR OF LOTS 20-23)

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.bel-civilengineering.com

3/30/06

OWNER/DEVELOPER:
DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE

LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18 PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT AND EROSION CONTROL PLAN

DESIGN: DBT	DRAFT: DBT	CHECK: DAM	DATE: APRIL, 2006	PROJECT NO. 1407
			SCALE: AS SHOWN	SHEET 8 OF 24

F-06-72

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SEDIMENT BASIN #2 DATA		
EXISTING D.A.		15.69 AC.
PROPOSED D.A.		33.99 AC.
STORAGE REQUIRED	WET / DRY	61,182 CF / 61,182 CF
STORAGE PROVIDED	WET / DRY	61,182 CF / 61,182 CF
EMBANKMENT ELEVATION		394.0
RISER CREST ELEVATION		392.0
CLEANOUT ELEVATION		385.69
BOTTOM ELEVATION		385.00
WET STORAGE ELEVATION		386.33
DRY STORAGE ELEVATION		387.55
Q1 PRE-DEVELOPMENT		1.01 cfs
Q1 NEWLY GRADED		0.69 cfs

4 CERTIFICATION STAMP FROM McCORMICK TAYLOR

CERTIFICATION STAMP FROM DPW

N/F NAECKER PROPERTY PLAT NO. 4289 LOT 1

AS-BUILT CERTIFICATION

I HEARBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

PE NAME. ______ PE NO. ______

DATE. ______

PLAN VIEW
SCALE: 1" = 50'

* NOTE: THE CERTIFYING ENGINEER WAS NOT PRESENT DURING CONSTRUCTION AND DOES NOT CERTIFY ANY ITEMS NOT VISIBLE DURING POST CONSTRUCTION INSPECTION (INTERIOR COMPONENTS OF DAM, ETC.). AS-BUILT SURVEY OF FEATURES NOTED ON PLAN PROVIDED TO McCORMICK TAYLOR BY ECOTONE, INC.

NOTE:
CONTRACTOR SHALL CURL ALL ENDS OF SILT FENCE AND SUPER SILT FENCE UPHILL BY 2 FEET IN ELEVATION.

NOTE:
EROSION CONTROL MATTING TO BE PLACED IN ALL ROADSIDE DITCHES.

LEGEND

Symbol	Description	Symbol	Description
	EXISTING CONTOURS (2' INTERVALS)		NATURAL AREA CONSERVATION CREDIT EASEMENT
	EXISTING TREELINE		LIMIT OF 100YR FLOODPLAIN
	PROPOSED TREELINE		CL STREAM
	CL STREAM		LIMIT OF WETLANDS
	SEPTIC EASEMENT	—SF— —SF—	SILT FENCE
	1500 S.F. WELL BOX	—SSF— —SSF—	SUPER SILT FENCE
	FOREST CONSERVATION EASEMENT		LIMIT OF DISTURBANCE
			EROSION CONTROL MATTING

REVISION NO. 3 IS BY DALE THOMPSON BUILDERS, INC. THE ENGINEER'S SEAL AND SIGNATURE ARE HEREWITH AFFIXED. (signed) 8/15/07

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
(signed) 5/2/07
USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
(signed) 5/2/07
HOWARD SCD — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
(signed) 5-10-07
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
(signed) 5/16/07
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

(signed) 5/14/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

4 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.

(signed) PE NO. 25819
DATE 9.21.21

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."

(signed) Donald Mason 4/24/07
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."

(signed) 26 April 2007
DEVELOPER : DALE THOMPSON — DATE

NO.	DATE	REVISION
AS-BUILT	8-9-2021	ADDITIONAL SURVEY INFORMATION BY DPW
4	11-14-2019	AS-BUILT SURVEY OF POND BY MCCORMICK TAYLOR *
3	8-15-2007	CHANGE PIPE MATERIAL TO HDPE
2	6-13-2007	ADD FOREST MITIGATION BANK ESMTS, REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	ADD CUL-DE-SAC AT HEATHER GLEN WAY, REVISE STORM DRAIN, LOT #5, OWNER INFO, SUBDIVISION NAME

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

(signed) Donald Mason 4/24/07

OWNER/DEVELOPER:
DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18
PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED
GRADING, SEDIMENT AND EROSION CONTROL PLAN

DATE: APRIL, 2007	PROJECT NO. 1407
SCALE: AS SHOWN	SHEET 9 OF 24

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

F-06-72

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PLAN VIEW
SCALE: 1" = 50'

LEGEND

- EXISTING CONTOURS (2' INTERVALS)
- EXISTING TREELINE
- CL STREAM
- FOREST CONSERVATION EASEMENT
- NATURAL AREA CONSERVATION CREDIT EASEMENT
- LIMIT OF 100YR FLOODPLAIN
- LIMIT OF WETLANDS

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET

PE NAME. ____________ PE NO. ____________

DATE. ____________

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 3/30/06

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."

Dale Thompson 26 April 2007

DEVELOPER: DALE THOMPSON DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

Jim Myers 4/4/06

USDA – NATURAL RESOURCES CONSERVATION SERVICE DATE

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

4/4/06

HOWARD SCD DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

4-13-06

CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton 4/20/06

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

4/20/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	DATE	REVISION
	8-9-2021	"AS-BUILT" SET
2	6-13-2007	ADD FOREST MITIGATION BANK ESMTS, NBBP 'J', REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	REVISE OWNER INFO, SUBDIVISION NAME

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
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Donald Mason 3/30/06

OWNER/DEVELOPER:

DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE

LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18
PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT AND EROSION CONTROL PLAN

DESIGN: DBT	DRAFT: DBT	CHECK: DAM	DATE: APRIL, 2006	PROJECT NO. 1407
			SCALE: AS SHOWN	SHEET 10 OF 24

F-06-72

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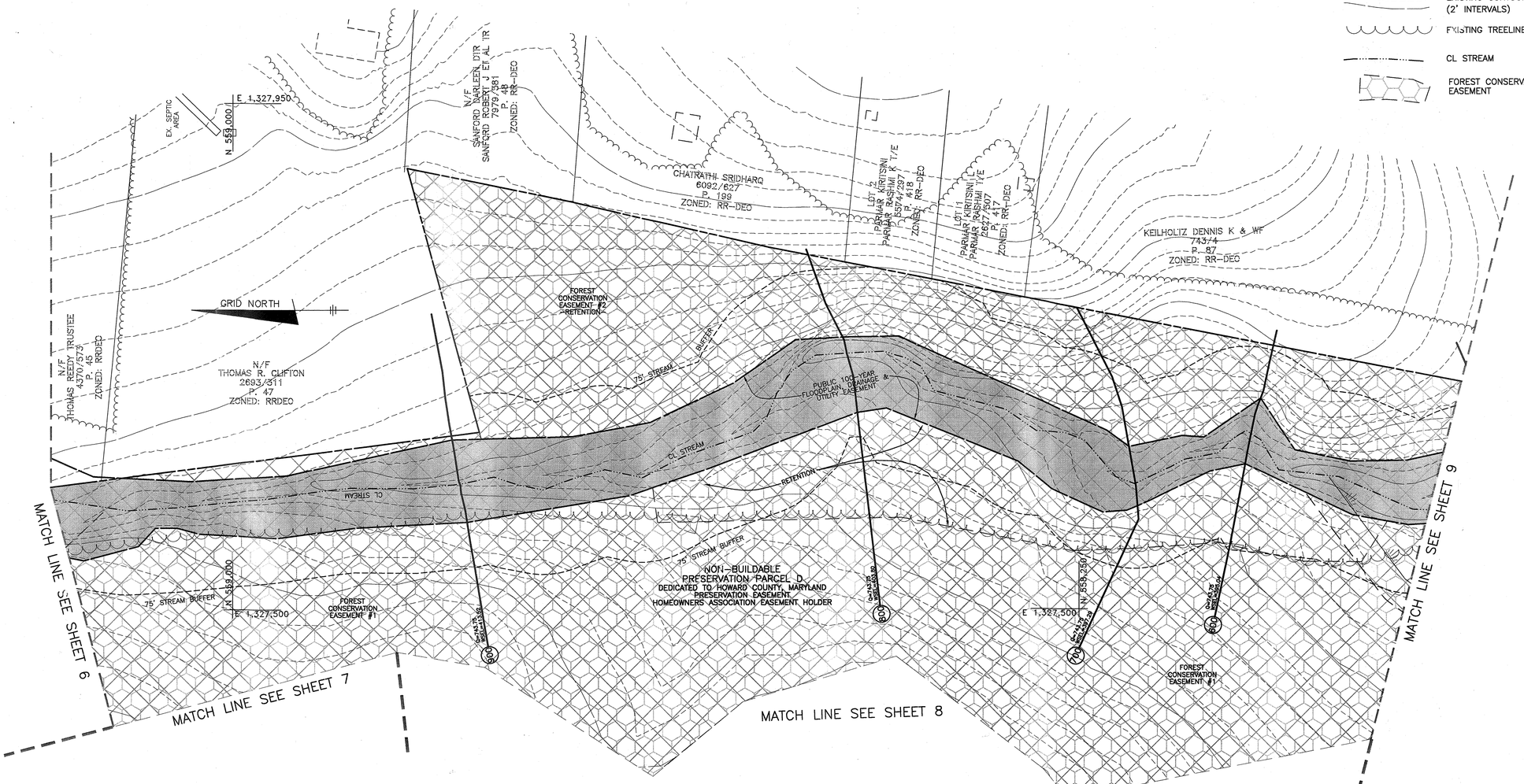
LEGEND

- EXISTING CONTOURS (2' INTERVALS)
- EXISTING TREELINE
- CL STREAM
- FOREST CONSERVATION EASEMENT
- NATURAL AREA CONSERVATION CREDIT EASEMENT
- LIMIT OF 100YR FLOODPLAIN
- LIMIT OF WETLANDS



PLAN VIEW
SCALE: 1" = 50'

LOG OF BORING NO. B-01

Sheet 1 of 1

PROJECT: Palmer Property
PROJECT NO: 041307
PROJECT LOCATION: Howard County, Maryland
DATE STARTED: December 1, 2004
DATE COMPLETED: December 1, 2004
DRILLING CONTRACTOR: GTA
DRILLER: T.C.
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon
WATER LEVEL: ▽ Dry ▽ 6.9 ▽
DATE: 12/01/04 12/02/04
CAVED (ft): 15.3 9.9
GROUND SURFACE ELEVATION: 393.7
DATUM: MSL
EQUIPMENT: CME 45
LOGGED BY: CW
CHECKED BY: K. Ngozi

SAMPLE NUMBER	SAMPLE DEPTH (ft)	SAMPLE RECOVERY (in)	SAMPLE BLOWS/6 inches	N (blows/ft)	ELEVATION (ft)	DEPTH (ft)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
1	0.0	18	3-4-4	8	393.7	0	CL ML		Red, moist, medium stiff Sandy Lean CLAY with Mica. AASHTO: A-6/A-4	Topsoil: 7 in.
2	2.5	18	3-4-5	9						No water encountered while drilling.
3	5.0	18	5-6-6	12						
4	8.5	18	3-4-4	8	385.7	10	SM		Reddish brown, moist, loose Micaceous fine Silty SAND. AASHTO: A-4	
5	13.5	18	5-4-5	9	381.2	15	SP SC		Tan and white, moist, loose, medium to fine Grained SAND with Clay and Gravel. (Quartz) AASHTO: A-2-4 Bottom of Hole at 15.0 Feet.	
					378.7					

NOTES:

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14280 Park Center Drive Suite A
Laurel, MD 20707

LOG OF BORING NO. B-01

Sheet 1 of 1

LOG OF BORING NO. B-02

Sheet 1 of 1

PROJECT: Palmer Property
PROJECT NO: 041307
PROJECT LOCATION: Howard County, Maryland
DATE STARTED: December 1, 2004
DATE COMPLETED: December 1, 2004
DRILLING CONTRACTOR: GTA
DRILLER: T.C.
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon
WATER LEVEL: ▽ 11.8 ▽ 8.6 ▽
DATE: 12/01/04 12/02/04
CAVED (ft): 15.8 11.7
GROUND SURFACE ELEVATION: 391.0
DATUM: MSL
EQUIPMENT: CME 45
LOGGED BY: CW
CHECKED BY: K. Ngozi

SAMPLE NUMBER	SAMPLE DEPTH (ft)	SAMPLE RECOVERY (in)	SAMPLE BLOWS/6 inches	N (blows/ft)	ELEVATION (ft)	DEPTH (ft)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
1	0.0	18	3-3-4	7	391.0	0	CL		Red, slightly moist, medium stiff, Sandy Lean CLAY with Mica. AASHTO: A-6/A-7-6	Topsoil: 8 in.
2	2.5	18	3-4-6	10						Water encountered at 12.5 feet.
3	5.0	18	4-6-6	11	386.5	5	SM		Tan, slightly moist, medium dense, Micaceous Silty SAND. AASHTO: A-4	
4	8.5	18	3-4-5	9		10				
5	13.5	18	4-5-7	12	378.0	15	SP SM		Olive, moist, medium dense, Micaceous fine SAND with Silt. AASHTO: A-2-5	
6	18.5	18	7-10-12	22	371.0	20			Bottom of Hole at 20.0 Feet. Borehole Infiltration Test at 4.0 Feet. Water Level: Hour / Drop (in) 1 0.00, 2 0.00, 3 0.00, 4 0.00. Average Infiltration Rate: < 0.01 in/hr.	

NOTES:

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14280 Park Center Drive Suite A
Laurel, MD 20707

LOG OF BORING NO. B-02

Sheet 1 of 1

LOG OF BORING NO. B-03

Sheet 1 of 1

PROJECT: Palmer Property
PROJECT NO: 041307
PROJECT LOCATION: Howard County, Maryland
DATE STARTED: December 1, 2004
DATE COMPLETED: December 1, 2004
DRILLING CONTRACTOR: GTA
DRILLER: T.C.
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon
WATER LEVEL: ▽ Dry ▽ 9.6 ▽
DATE: 12/01/04 12/02/04
CAVED (ft): 11.8 10.5
GROUND SURFACE ELEVATION: 388.9
DATUM: MSL
EQUIPMENT: CME 45
LOGGED BY: CW
CHECKED BY: K. Ngozi

SAMPLE NUMBER	SAMPLE DEPTH (ft)	SAMPLE RECOVERY (in)	SAMPLE BLOWS/6 inches	N (blows/ft)	ELEVATION (ft)	DEPTH (ft)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
1	0.0	18	2-2-5	6	388.9	0	CL		Red, slightly moist, medium stiff, Sandy Lean CLAY with Gravel (Quartz) and Mica. AASHTO: A-6	Topsoil: 8 in.
2	2.5	18	4-4-5	9	384.9	5	SM		Brown to olive, slightly moist to moist, loose to medium dense, Silty SAND with Mica. AASHTO: A-4	No water encountered while drilling.
3	5.0	18	5-5-6	11						
4	8.5	18	3-3-5	8		10				
5	13.5	18	3-5-5	10	373.9	15			Bottom of Hole at 15.0 Feet.	

NOTES:

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14280 Park Center Drive Suite A
Laurel, MD 20707

LOG OF BORING NO. B-03

Sheet 1 of 1

LOG OF BORING NO. B-04

Sheet 1 of 1

PROJECT: Palmer Property
PROJECT NO: 041307
PROJECT LOCATION: Howard County, Maryland
DATE STARTED: December 1, 2004
DATE COMPLETED: December 1, 2004
DRILLING CONTRACTOR: GTA
DRILLER: T.C.
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon
WATER LEVEL: ▽ Dry ▽ Dry ▽
DATE: 12/01/04 12/02/04
CAVED (ft): 16.1 11.8
GROUND SURFACE ELEVATION: 395.4
DATUM: MSL
EQUIPMENT: CME 45
LOGGED BY: CW
CHECKED BY: K. Ngozi

SAMPLE NUMBER	SAMPLE DEPTH (ft)	SAMPLE RECOVERY (in)	SAMPLE BLOWS/6 inches	N (blows/ft)	ELEVATION (ft)	DEPTH (ft)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
1	0.0	18	2-3-4	7	395.4	0	CL		Red, slightly moist, medium stiff Lean CLAY. AASHTO: A-6	Topsoil: 8 in.
2	2.5	18	5-6-7	13	392.9	5	SM		Red, slightly moist, medium dense, Micaceous Silty SAND. AASHTO: A-4	No water encountered while drilling.
3	5.0	18	5-6-4	10	390.9		SP SM		Brown, slightly moist to moist, loose to medium dense, fine SAND, some Silt. AASHTO: A-2-4/A-3	
4	8.5	18	8-11-11	22	383.4	10			Auger Refusal at 12.0 Feet.	

NOTES:

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14280 Park Center Drive Suite A
Laurel, MD 20707

LOG OF BORING NO. B-04

Sheet 1 of 1

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET

PE NAME: _____ PE NO. _____ DATE. _____

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 3/30/06
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."

Dale Thompson 26 April 2007
DEVELOPER: DALE THOMPSON DATE

REVIEWED FOR HOWARD SCD TECHNICAL 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

William J. Carbaugh Jr. 4-13-06
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton 4/20/06
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	DATE	
	8-9-2021	"AS-BUILT" SET
2	6-13-2007	REVISE TITLE TO REFLECT NBBP'S'
1	4-24-2007	REVISE OWNER INFO & SUBDIVISION NAME

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

Donald Mason 3/30/06

OWNER/DEVELOPER:
DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE

LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18
PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT AND EROSION CONTROL PLAN

DATE: APRIL, 2006 PROJECT NO. 1407
DESIGN: DBT DRAFT: DBT CHECK: DAM SCALE: AS SHOWN SHEET 11 OF 24

F-06-72

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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 bave 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 MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, 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	117.71	ACRES
AREA DISTURBED	43.63	ACRES
AREA TO BE ROOFED OR PAVED	6.36	ACRES
AREA TO BE VEGETATIVELY STABILIZED	37.27	ACRES
TOTAL CUT	46050	CY
TOTAL FILL	46050	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.

SEQUENCE OF CONSTRUCTION

NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF CONSTRUCTION

1. OBTAIN GRADING PERMIT. (DAY 1)

PHASE 1

2. INSTALL STABILIZED CONSTRUCTION ENTRANCE, TREE PROTECTION FENCES, SUPER SILT FENCES, SILT FENCES. (DAY 2-12)
3. INSTALL SEDIMENT BASINS. (DAY 13–60)
4. INSTALL ANY REMAINING SEDIMENT CONTROL DEVICES. (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. (DAY 64–81)
6. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, INSTALL REMAINING STORM DRAINS. THE SWALES ABOVE I–5 AND I–16 SHALL NOT BE INSTALLED UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED. (DAY 82–112)
7. PAVE ROADWAYS. (DAY 113–128)
8. COMPLETE GRADING OF SITE AND STABLIZE DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDBED NOTES. (DAY 129–144)

PHASE 2

9. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, INSTALL THE SWALES ABOVE I–5 AND I–16. (DAY 145–147)
10. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CONVERT SEDIMENT BASINS TO STORMWATER MANAGEMENT FACILITIES. SHAPE FACILITIES PER FINAL GRADES SHOWN ON THE PLANS AND STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDBED NOTES. CONTRACTOR SHALL REMOVE ALL OLD AND NEW TRASH, JUNK AND DEBRIS FROM ENTIRE SITE. (DAY 148–153)
11. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES, AND STABILIZED DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDBED NOTES(DAY 154–161)

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET

PE NO. ____________

PE NAME. ____________

DATE. ____________

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."

ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE 3/30/06

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: DALE THOMPSON — DATE 26 April 2007

REVIEWED FOR HOWARD [illegible] TECHNICAL REQUIREMENTS

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

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

HOWARD SCD — DATE 4/4/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

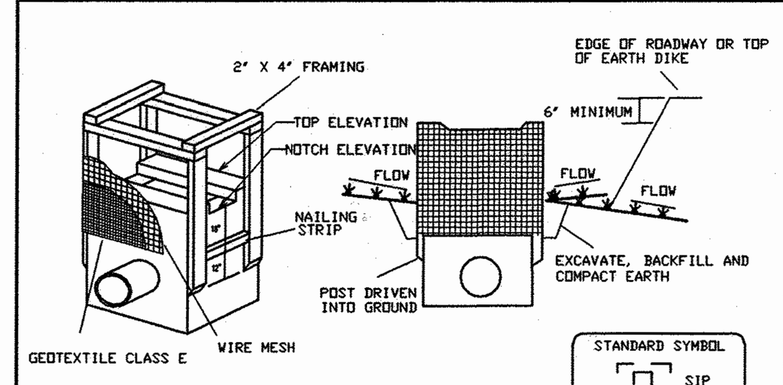
CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/20/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/20/06

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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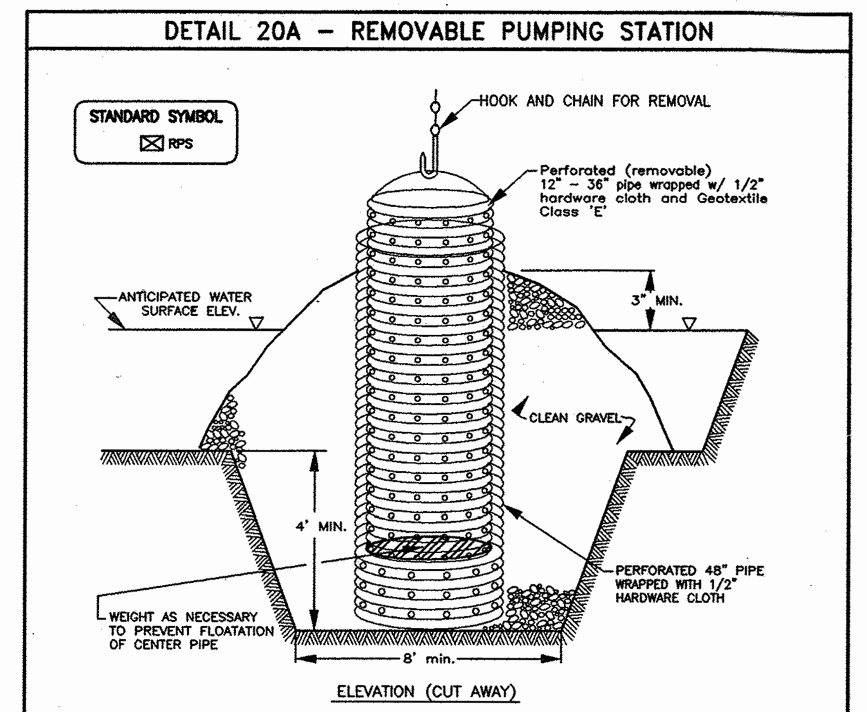
DETAIL 20A - REMOVABLE PUMPING STATION



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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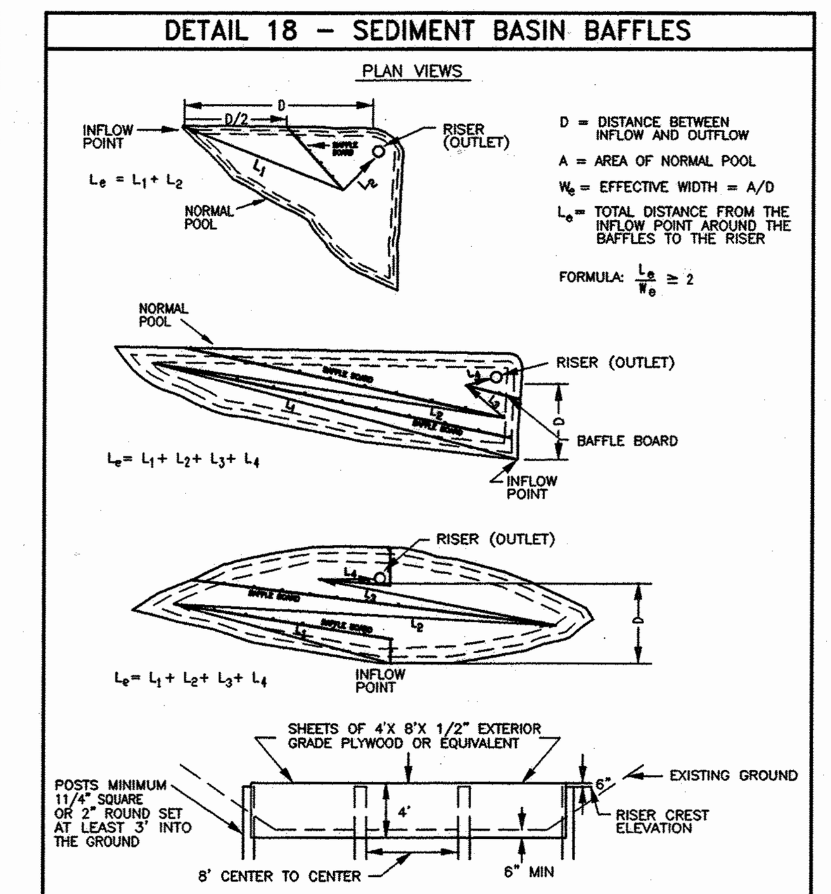
DETAIL 18 - SEDIMENT BASIN BAFFLES



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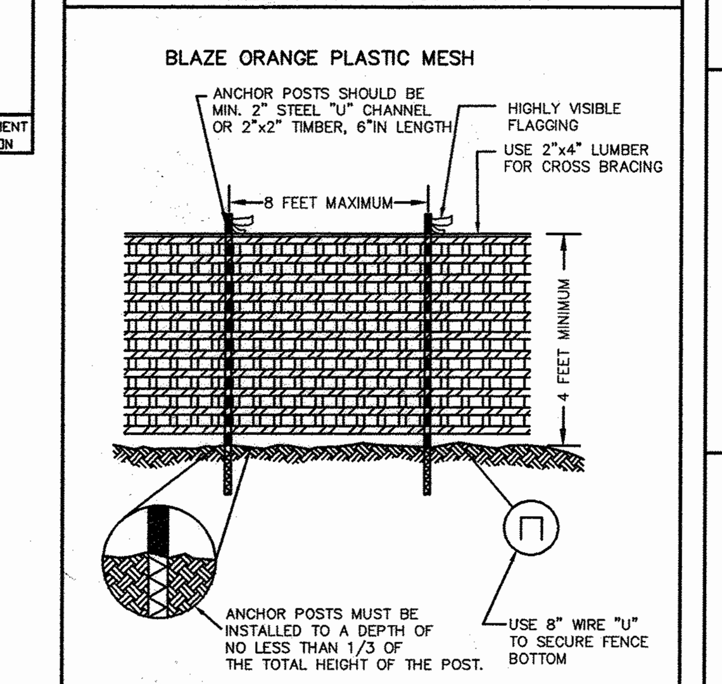
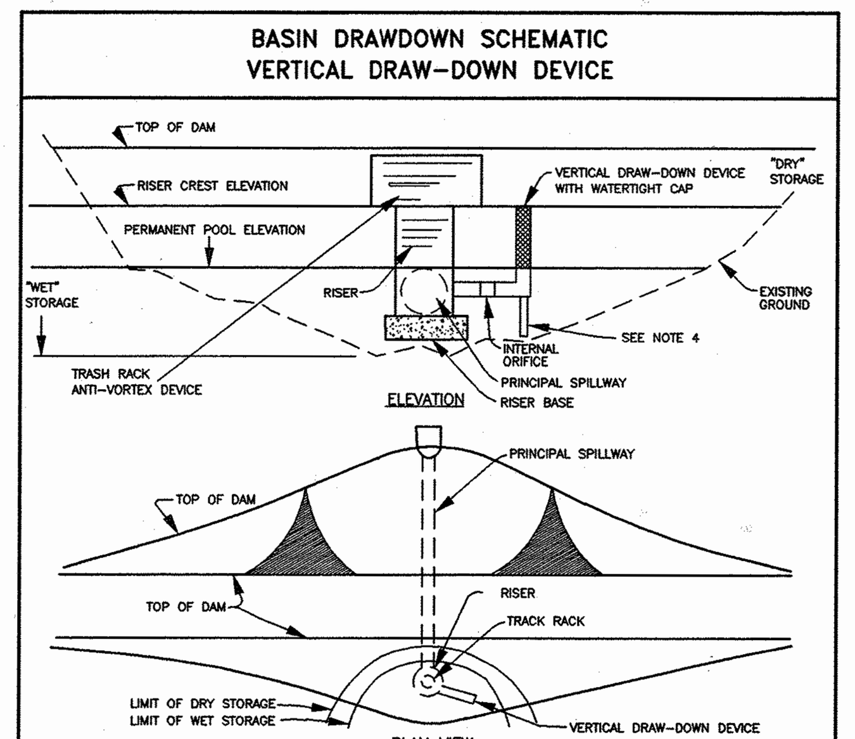
TREE PROTECTION FENCE



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.

BASIN DRAWDOWN SCHEMATIC VERTICAL DRAW-DOWN DEVICE



Construction Specifications

1. Perforations in the draw–down device may not extend into the wet storage.
2. The total area of the perforations must be greater than 2 times the area of the internal orifice.
3. The perforated portion of the draw–down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
4. Provide support of draw–down device to prevent sagging and floatation. An acceptable preventative measure is to stake both sides of draw–down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3' minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.

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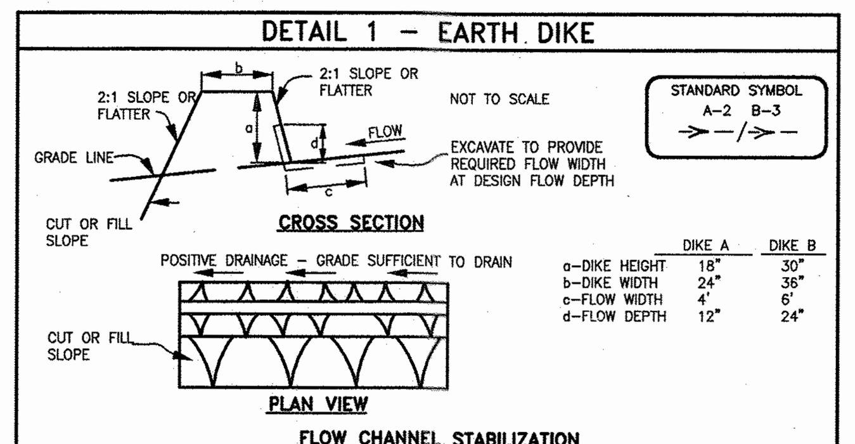
DETAIL 1 - EARTH DIKE



	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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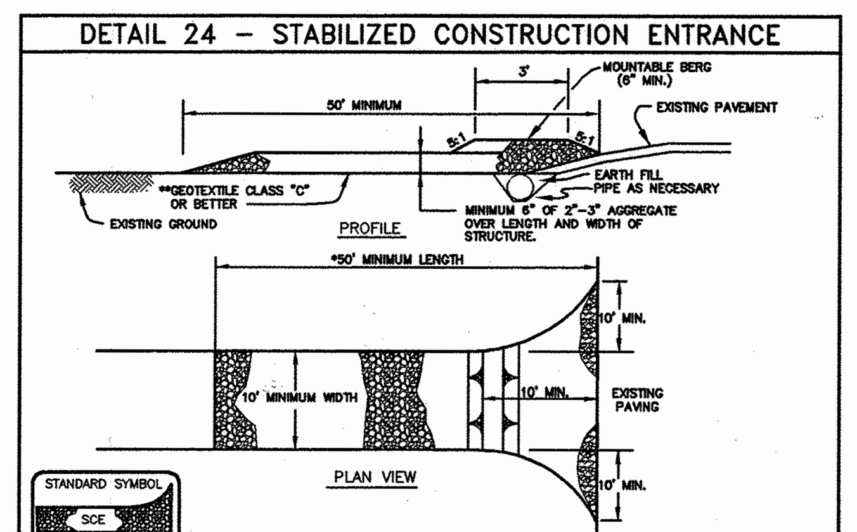
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



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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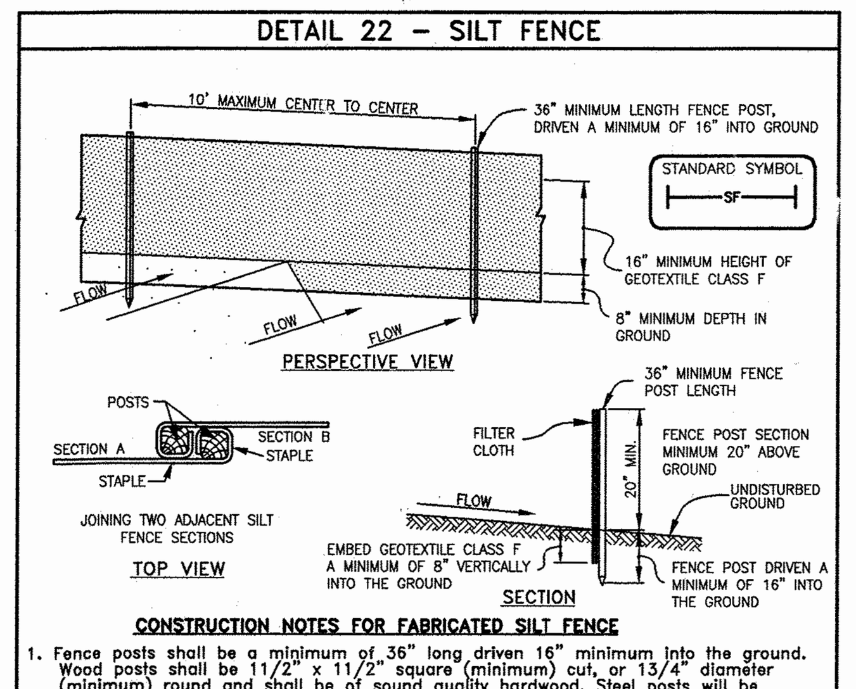
DETAIL 22 - SILT FENCE



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 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" 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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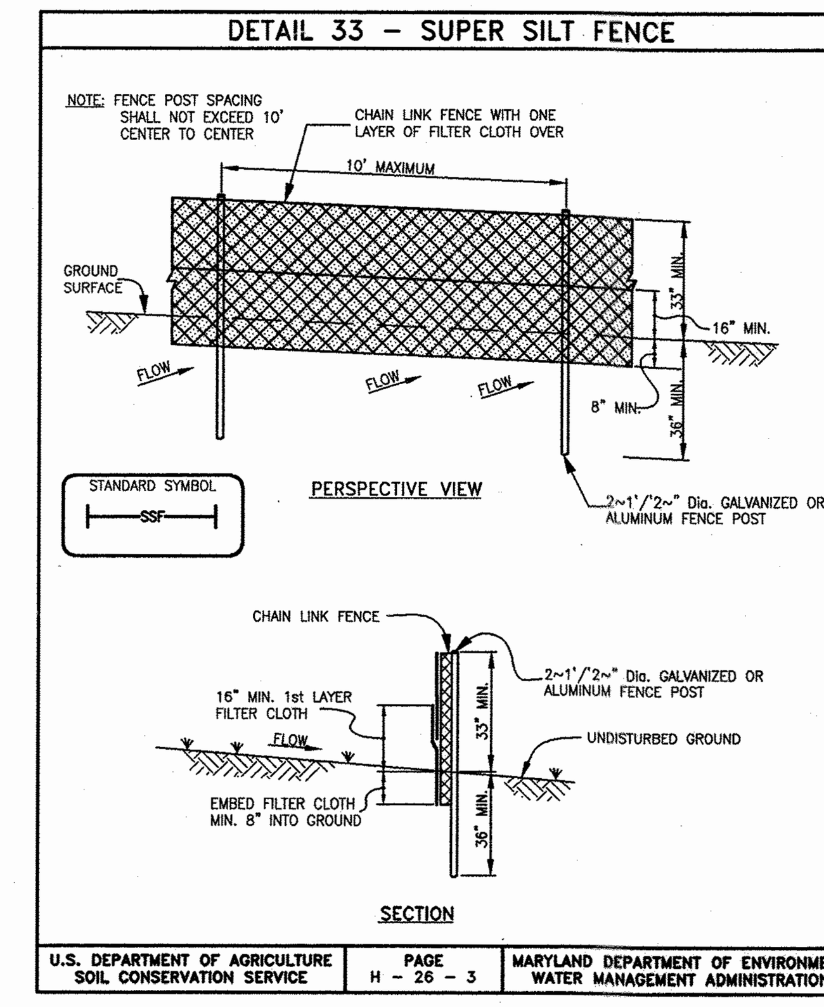
DETAIL 33 - SUPER SILT FENCE



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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

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NO.	DATE	REVISION
	8-9-2021	"AS-BUILT" SET
2	6-13-2007	REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	REVISE SEQUENCE OF CONSTRUCTION, OWNER INFO & SUBDIVISION NAME

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
email: Benchmrk@cais.com

3/30/06

OWNER/DEVELOPER:
DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18
PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE:
SEDIMENT AND EROSION CONTROL DETAILS

DATE:	APRIL, 2006	PROJECT NO.	1407
SCALE:	AS SHOWN	SHEET 12 OF 24	

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

P:\1407 Palmer\dwg\7023s12.dwg, 3/29/2006 5:48:08 PM

F-06-72

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
Ba	D*	BAILE SILT LOAM
CgB2	B	CHESTER GRAVELLY SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
CgC2	B	CHESTER GRAVELLY SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
ChA	B	CHESTER SILT LOAM, 0 TO 3 PERCENT SLOPES
ChB2	B	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
Ca	B	COMUS SILT LOAM
EkA	B	ELIOAK SILT LOAM, 0 TO 3 PERCENT SLOPES
EkB2	B	ELIOAK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
EkC2	B	ELIOAK SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
GlA	B	GLENELG LOAM, 0 TO 3 PERCENT SLOPES
GlB2	B	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
GlC2	B	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
GlD2	B	GLENELG LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED
GnA	C*	GLENVILLE SILT LOAM, 0 TO 3 PERCENT SLOPES
GnB2	C*	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MgB2	B	MANOR GRAVELLY LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MgC2	B	MANOR GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
MgC3	B	MANOR GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED
MlD2	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED
MlE	B	MANOR LOAM, 25 TO 45 PERCENT SLOPES

* INDICATES HYDRIC SOILS

TAKEN FROM SOIL SURVEY, HOWARD COUNTY, MARYLAND (ISSUED JULY 1968) MAP NO. 23

LEGEND

- EXISTING CONTOURS (2' INTERVALS)
- EXISTING TREELINE
- PROPOSED TREELINE
- CL STREAM
- LIMIT OF WE LANDS
- LIMIT OF 100YR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- Tc TRAVEL PATH
- DRAINAGE DIVIDE
- I-7 DRAINAGE DESIGNATION
- SOILS DELINEATION
- EkC2 B SOILS TYPE AND CLAGS

STORM DRAIN DATA					
INLET NO.	AREA (AC)	% IMPERVIOUS	SOIL CLASS	ZONING	'C' FACTOR
I-1	0.49	51.0	B	RR-DEO	C 52
I-2	1.69	29.0	B	RR-DEO	0.56 A
I-3	1.15	19.3	B,C	RR-DEO	0.22
I-4	6.41	17.5	B,C	RR-DEO	0.27
I-8	0.68	25.6	B	RR-DEO	0.27
A I-2A	0.63	25.4	B	RR-DEO	0.34
				RR-DEO	
I-5	8.60	14.7	B	RR-DEO	0.20
I-6	1.97	27.1	B	RR-DEO	0.28
I-7	0.24	35.0	B	RR-DEO	0.38
I-9	0.80	30.5	B	RR-DEO	0.32
I-10	5.15	8.2	B	RR-DEO	0.18
I-11	0.90	2.0	B	RR-DEO	0.17
I-12	2.01	24.5	B,C	RR-DEO	0.28
I-13	0.55	48.5	B,C	RR-DEO	0.51
I-14	3.84	11.8	B,C	RR-DEO	0.20
I-15	0.20	0.0	C	RR-DEO	0.19
I-16	8.76	17.7	B,C,D	RR-DEO	0.2
A I-17	0.99	22.0	B	RR-DEO	0.36
I-18	0.48	44.2	B	RR-DEO	0.45
CULVERT 1	1.40	29.3	B	RR-DEO	0.29
CULVERT 2	7.94	[illegible]	B,C	RR-DEO	0.28
CULVERT 3	2.17	42.6	B	RR-DEO & B-2	0.39

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET

PE NAME.

PE NO.

DATE.

GRADES SHOWN ON THIS PLAN ARE ULTIMATE GRADES

ALL DRIVEWAY CULVERTS ARE TO BE 15" RCCP PER COMPUTATIONS.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/20/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/20/06

REVISION NO. 3 IS BY DALE THOMPSON BUILDERS, INC. THE ENGINEER'S SEAL AND SIGNATURE ARE HEREWITH AFFIXED.

NO.	DATE	REVISION
	8-9-2021	"AS-BUILT" SET
A 3	8-15-2007	CHANGE PIPE MATERIAL TO HDPE, REALIGN STORM DRAIN FROM I-1 TO E-2
2	6-13-2007	ADD FOREST MITIGATION BANK ESMTS, NSBP 'J', REVISE TITLE TO REFLECT NSBP 'J'
1	4-24-2007	ADD LOTS 1 AND 24, RENUMBER STRUCTURES, LOTS, DA'S, REVISE OWNER INFO SUBDIVISION NAME AND S.P. DATA CHART

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

3/30/06

OWNER/DEVELOPER:

DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'; NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G' NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18 PARCEL: 77 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: DRAINAGE AREA MAP

DESIGN: DBT	DRAFT: DBT	CHECK: DAM	DATE: APRIL, 2006	PROJECT NO. 1407
			SCALE: AS SHOWN	SHEET 13 OF 24

F-06-72

PLAN VIEW
SCALE: 1" = 100'

P:\1407 Palmer\dwg\7025s13-14.dwg, 3/29/2006 5:50:00 PM

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
Ba	D*	BAILE SILT LOAM
CgB2	B	CHESTER GRAVELLY SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
CgC2	B	CHESTER GRAVELLY SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
ChA	B	CHESTER SILT LOAM, 0 TO 3 PERCENT SLOPES
ChB2	B	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
Cs	B	COMUS SILT LOAM
EkA	B	ELIOAK SILT LOAM, 0 TO 3 PERCENT SLOPES
EkB2	B	ELIOAK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
EkC2	B	ELIOAK SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
GIA	B	GLENELG LOAM, 0 TO 3 PERCENT SLOPES
GIB2	B	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
GIC2	B	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
GID2	B	GLENELG LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED
GnA	C*	GLENVILLE SILT LOAM, 0 TO 3 PERCENT SLOPES
GnB2	C*	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MgB2	B	MANOR GRAVELLY LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MgC2	B	MANOR GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
MgC3	B	MANOR GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED
MID2	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED
MIE	B	MANOR LOAM, 25 TO 45 PERCENT SLOPES

* INDICATES HYDRIC SOILS
TAKEN FROM SOIL SURVEY, HOWARD COUNTY, MARYLAND (ISSUED JULY 1968) MAP NO. 23

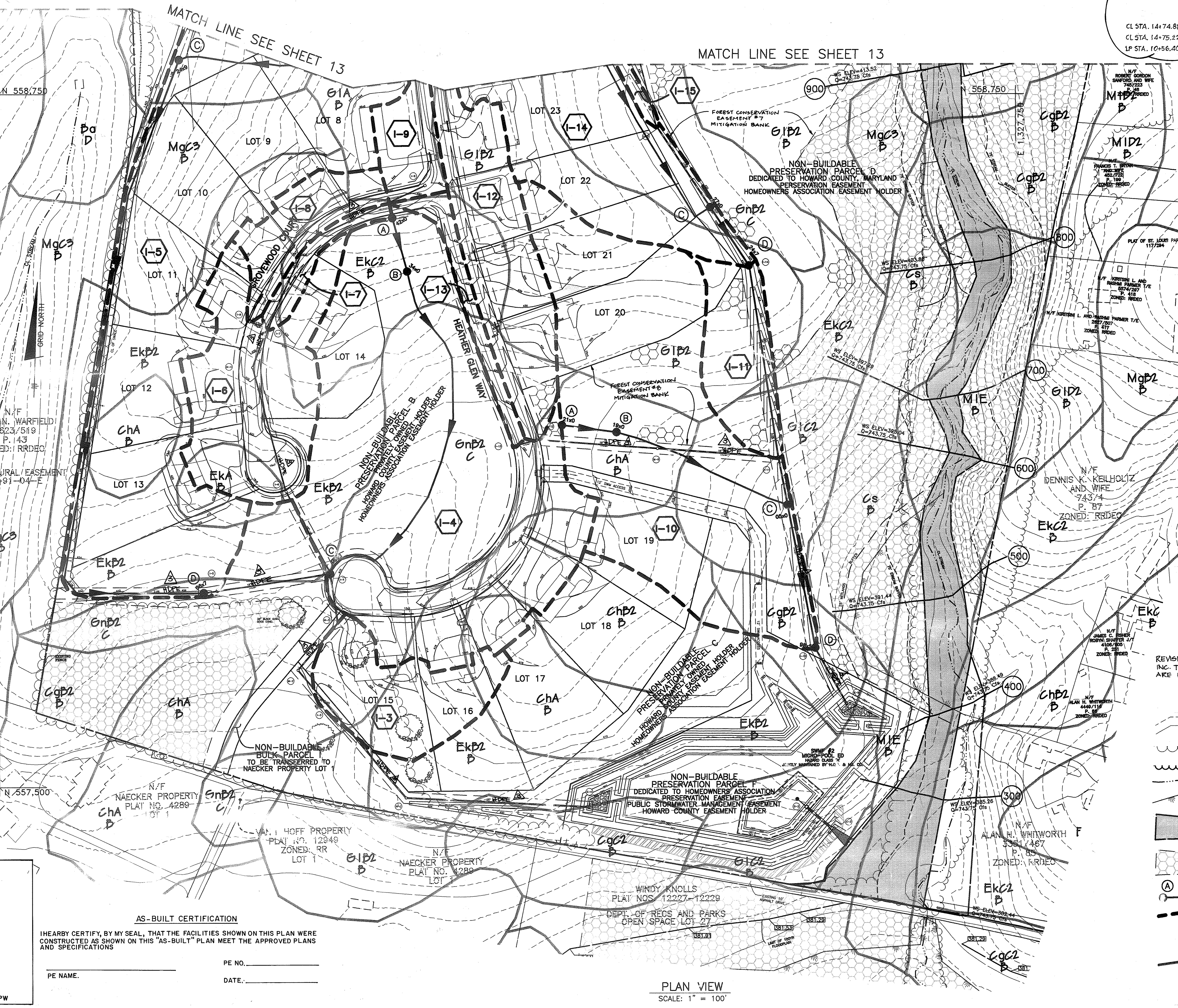
STRUCTURE SCHEDULE

(margin note)	NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP ELEV.	HO. CO. STD.
	*E-1	36" CONC. END SECT.	N 559183.03 E 1326211.47	---	426.00	---	SD - 5.51
	E-2	18" CONC. END SECT.	~~N 559364.91 E 1326386.31~~ N559365.92 E1326387.44	---	~~431.00~~ .44	---	SD - 5.51
	*E-3	48" CONC. END SECT.	N 557423.73 E 1327414.25	---	384.00	---	SD - 5.51
	E-4	30" CONC. END SECT.	~~N 557464.51 E 1326970.80~~ N557469.91 E1326967.81	---	~~389.00~~ .12	---	SD - 5.51
	E-5	24" CONC. END SECT.	~~N 557649.15 E 1327440.53~~ N557654.48 E1327436.69	---	~~389.00~~ .45	---	SD - 5.51
	E-6	18" METAL END SECT.	~~N 560340.19 E 1326274.62~~ N560338.08 E1326274.84	---	~~468.50~~ .1	---	SD - 5.61
CL STA. 8+46.54, 20.22 R	I-1	TYPE 'D' INLET	~~CL STA. 8+46.40 OFFSET 20.00' RIGHT~~ (HEATHER GLEN)	N/A ~~449.26~~	~~449.01~~ 450.25	453.~~74~~.95	SD - 4.11 OR 4.39
CL STA. 8+46.73, 19.81 L	I-2	TYPE 'D' INLET	~~CL STA. 8+46.40 OFFSET 20.00' LEFT~~ (HEATHER GLEN)	~~---~~ 449.30	449.~~66~~.26	453.~~74~~.84	SD - 4.11 OR 4.39
	I-3	TYPE 'D' INLET	~~N 557654.69 E 132649053~~ N 557657.68 E1326494.50	393.~~64~~.42	393.14 ✓	~~401.68~~ 402.04	SD - 4.11 OR 4.39*
CL STA. 1+63.68, 8.18 L	I-4	TYPE 'D' INLET	~~LP STA. 1+63.35 OFFSET 8.00' LEFT~~ (HEATHER GLEN)	401.65 ~~401.61~~ 18" 401.65 ~~401.61~~ 18"	401.~~11~~.12	~~410.66~~ 408.73	SD - 4.11 OR 4.39*
	I-5	TYPE 'D' INLET	~~N 557850.55 E 1326272.06~~ N 557850.68 E1326271.95	---	403.~~70~~.96	407.~~75~~.92	SD - 4.11 OR 4.39
LP STA. 1+65.96, 7.86 L	I-6	TYPE 'D' INLET	~~LP STA. 1+65.98 OFFSET 8.00' LEFT~~ (GROVEWOOD)	413.15 ✓	~~412.95~~ 413.14	417.~~48~~ 43	SD - 4.11 OR 4.39
CL STA. 4+49.78, 17.21 L	I-7	TYPE 'D' INLET	~~CL STA. 4+50.00 OFFSET 17.00' LEFT~~ (GROVEWOOD)	425.02 ~~424.81~~ 18" 425.15 ~~424.86~~ 15"	424.~~61~~.77	429.~~28~~.15	SD - 4.11 OR 4.39
CL STA. 4+49.67, 16.72 R	I-8	MODIFIED INLET	~~CL STA. 4+50.00 OFFSET 17.00' RIGHT~~ (GROVEWOOD)	428.00	425.~~20~~.60	~~429.70~~ 430.56	MODIFIED SEE DETAIL SHT 15
CL STA. 0+38.70, 19.29 R	I-9	TYPE 'D' INLET	~~CL STA. 0+38.64 OFFSET 18.20' RIGHT~~ (GROVEWOOD)	---	~~434.98~~ 435.33	439.~~06~~.19	SD - 4.11 OR 4.39
	I-10	TYPE 'D' INLET	~~N 557751.33 E 1327383.74~~ N557751.95 E1327384.02	~~390.84~~ 391.13	390.~~64~~.96	399.~~38~~.22	SD - 4.11 OR 4.39*
	I-11	TYPE 'D' INLET	~~N 558095.00 E 1327317.47~~ N558096.14 E1327317.68	405.32 ~~404.70~~ 24" 405.54 ~~405.00~~ 18"	~~404.50~~ 405.27	~~409.33~~ 410.00	SD - 4.11 OR 4.39*
CL STA. 23+50.26, 19.92 L	I-12	TYPE 'D' INLET	~~CL STA. 23+50.00 OFFSET 20.00' LEFT~~ (HEATHER GLEN)	~~414.94~~ 415.35	~~414.69~~ 415.13	419.~~42~~.55	SD - 4.11 OR 4.39
CL STA. 23+49.96, 19.24 R	I-13	TYPE 'D' INLET	~~CL STA. 23+50.00 OFFSET 20.00' RIGHT~~ (HEATHER GLEN)	---	415.~~34~~.88	419.~~42~~.66	SD - 4.11 OR 4.39
	I-14	TYPE 'D' INLET	~~N 558440.91 E 1327264.17~~ N558440.94 E1327264.48	~~420.70~~ 421.01	420.~~50~~.64	425.~~55~~.61	SD - 4.11 OR 4.39*
	I-15	TYPE 'D' INLET	~~N 558692.51 E 1327096.66~~ N558693.33 E1327097.59	426.~~08~~.47	~~425.89~~ 426.18	~~430.92~~ 431.02	SD - 4.11 OR 4.39*
	I-16	TYPE 'D' INLET	~~N 558974.01 E 1327026.16~~ N558974.34 E1327026.96	431.~~50~~.94	431.~~00~~.28	436.~~05~~.37	SD - 4.11 OR 4.39*
CL STA. 14+74.88, 20.26 L	I-17	TYPE 'D' INLET	~~CL STA. 14+75.00 OFFSET 20.00' LEFT~~ (HEATHER GLEN)	~~439.89~~ 440.39	~~439.64~~ 440.12	444.~~37~~.18	SD - 4.11 OR 4.39
CL STA. 14+75.22, 19.78 R	I-18	TYPE 'D' INLET	~~CL STA. 14+75.00 OFFSET 20.00' RIGHT~~ (HEATHER GLEN)	~~---~~	440.~~29~~.75	444.~~37~~.59	SD - 4.11 OR 4.39
LP STA. 10+56.40, 20.00 L	(3) I-2A	TYPE 'K' INLET	~~CL STA. 10+58 OFFSET 20.00' LEFT (HEATHER GLEN)~~	~~444.13~~ ~~443.60~~	439~~.60~~.33	449.~~2~~.54	SD - 4.12 OR [illegible]
	M-1	4'-0" MANHOLE	~~N 557480.90 E 1326638.79~~ N557480.46 E1326638.55	390.86 ✓	390.~~66~~.71	406.~~00~~.06	G - 5.12
	M-2	4'-0" MANHOLE	~~N 557711.75 E 1326441.86~~ N557712.30 E1326441.59	394.~~57~~.11	~~394.37~~ 393.93	~~402.00~~ 401.80	G - 5.12
	M-3	4'-0" MANHOLE	~~N 557796.69 E 1326514.80~~ N557797.13 E1326515.13	~~397.01~~ 396.99	396.~~81~~.74	408.~~00~~.13	G - 5.12
	M-4	4'-0" MANHOLE	~~CL STA. 5+28.57 OFFSET 5.00' LEFT~~ (GROVEWOOD)	420.~~57~~.61	420.37 ✓	~~426.88~~ 427.22	G - 5.12
	M-5	4'-0" MANHOLE	~~CL STA. 2+75.00 OFFSET 5.00' RIGHT~~ (GROVEWOOD)	432.~~60~~.93	432.~~35~~.77	437.~~02~~.68	G - 5.12
	M-6	4'-0" MANHOLE	~~N 558110.76 E 1327097.10~~ N558112.07 E1327097.49	412.~~48~~.74	412.~~29~~.51	418.~~78~~.80	G - 5.12
	M-I.D		N 559374.68 E1326397.14 (CL STA. 5+29.56, 4.64 L)	432.17	431.97	435.82	
	*S-1	SEE DETAIL	N 559232.08 E 1326249.39 (CL STA. 2+74.20, 6.56 R)	427.00 430.00	427.00	435.00	--
	*S-2	SEE DETAIL	N 557463.87 E 1327367.00	385.00 388.00	385.00	394.00	--

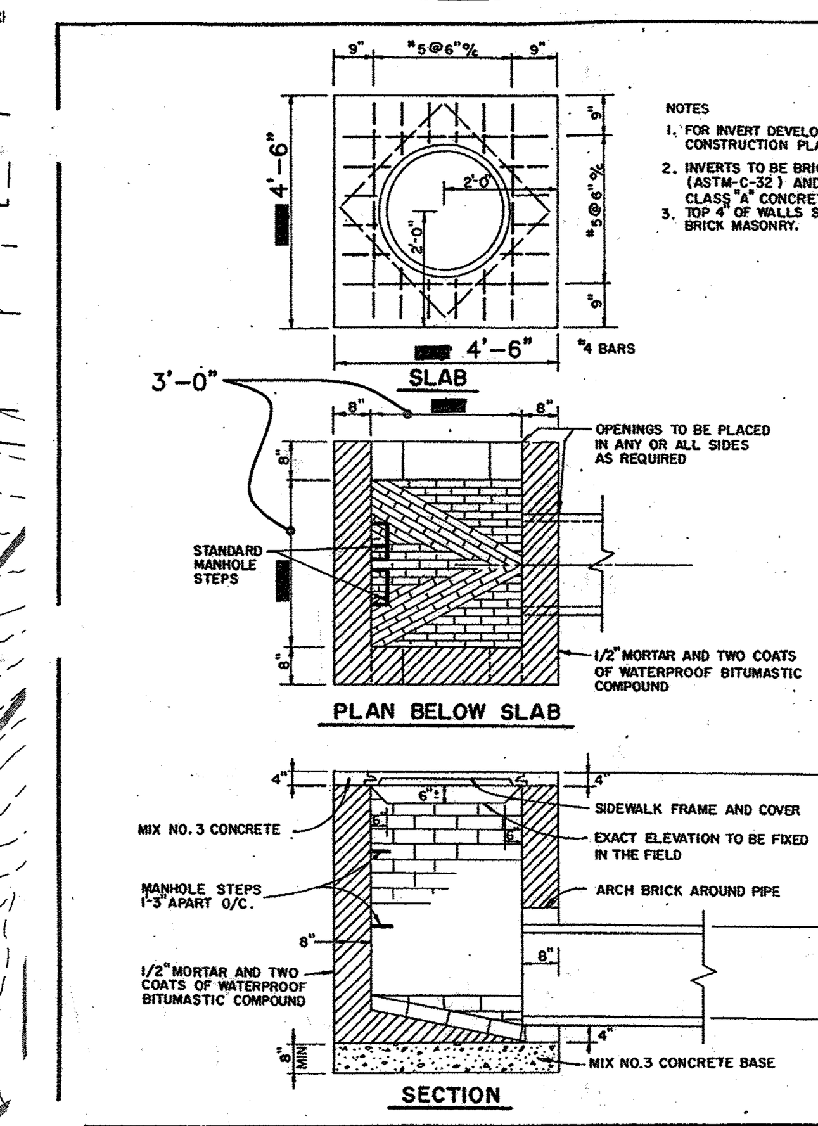
1) STRUCTURE ELEVATION AND LOCATION FOR MANHOLES IS AT THE TOP AND CENTER OF RIM.
2) STRUCTURE ELEVATION AND LOCATION FOR INLETS IS AT THE TOP OF CURB AT MIDPOINT OF THE INLET OR AT THE CENTER OF SLAB FOR "D" INLETS.
3) STRUCTURE ELEVATION AND LOCATION FOR ENDSECTIONS IS AT THE MIDPOINT AT THE END OF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

* MODIFIED SEE DETAIL BELOW

* SEE SHEETS 21 AND 22 FOR E1, S1, E3 AND S2, SURVEY



PLAN VIEW
SCALE: 1" = 100'



HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Engineering
MODIFIED
TYPE "D" INLET GRATE
REV. JAN. 1989 / REV. JAN 1982 | DRAWN BY M.D.C. | CHECKED BY J.L.R. | SCALE NONE | SD 4.11

GRADES SHOWN ON THIS PLAN ARE ULTIMATE GRADES

ALL DRIVEWAY CULVERTS ARE TO BE 15" RCCP OR HDPE PER COMPUTATIONS.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 5-10-07 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 5/16/07 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 5/14/07 DATE

REVISION NO. (3) IS BY DALE THOMPSON BUILDERS INC. THE ENGINEER'S SEAL AND SIGNATURE ARE HEREWITH AFFIXED.

NO.	DATE	REVISION
5	8-9-2021	AS-BUILT SET
4	8-14-2009	REVISE I-8 IN STRUCTURE SCHEDULE.
(3)	8-15-2007	CHANGE PIPE MATERIAL TO HDPE
2	6-13-2007	ADD FOREST MITIGATION BANK ESMTS, REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	ADD CUL-DE-SAC ON HEATHER GLEN, REVISE LOT #5, STORM DRAINS, STRUCTURE SCHEDULE, OWNER INFO, SUBDIVISION NAME

LEGEND

- EXISTING CONTOURS (2' INTERVALS)
- EXISTING TREELINE
- PROPOSED TREELINE
- CL STREAM
- LIMIT OF WETLANDS
- LIMIT OF 100YR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- Tc TRAVEL PATH
- DRAINAGE DIVIDE
- DRAINAGE DESIGNATION
- SOILS DELINEATION
- SOILS TYPE AND CLASS

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

4/24/07

OWNER/DEVELOPER:
DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18; PARCEL: 77; FIFTH ELECTION DISTRICT; HOWARD COUNTY, MARYLAND

TITLE: REVISED DRAINAGE AREA MAP

DATE: APRIL, 2007 | PROJECT NO. 1407
DESIGN: DBT | DRAFT: DBT | CHECK: DAM | SCALE: AS SHOWN | SHEET 14 OF 21

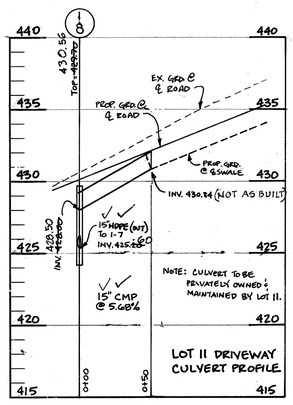
F-06-72

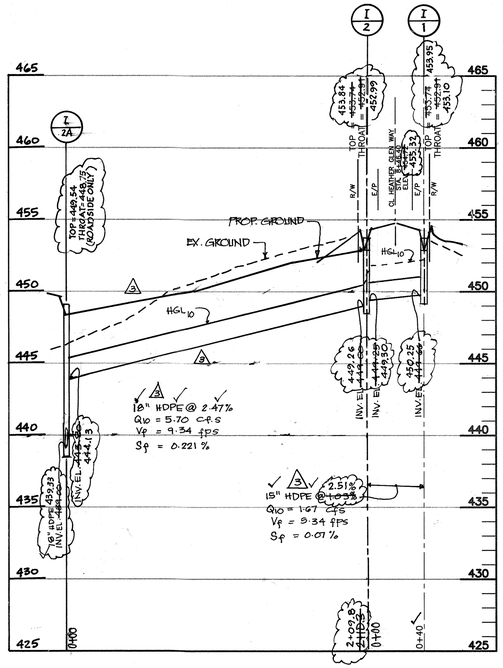
AS-BUILT CERTIFICATION

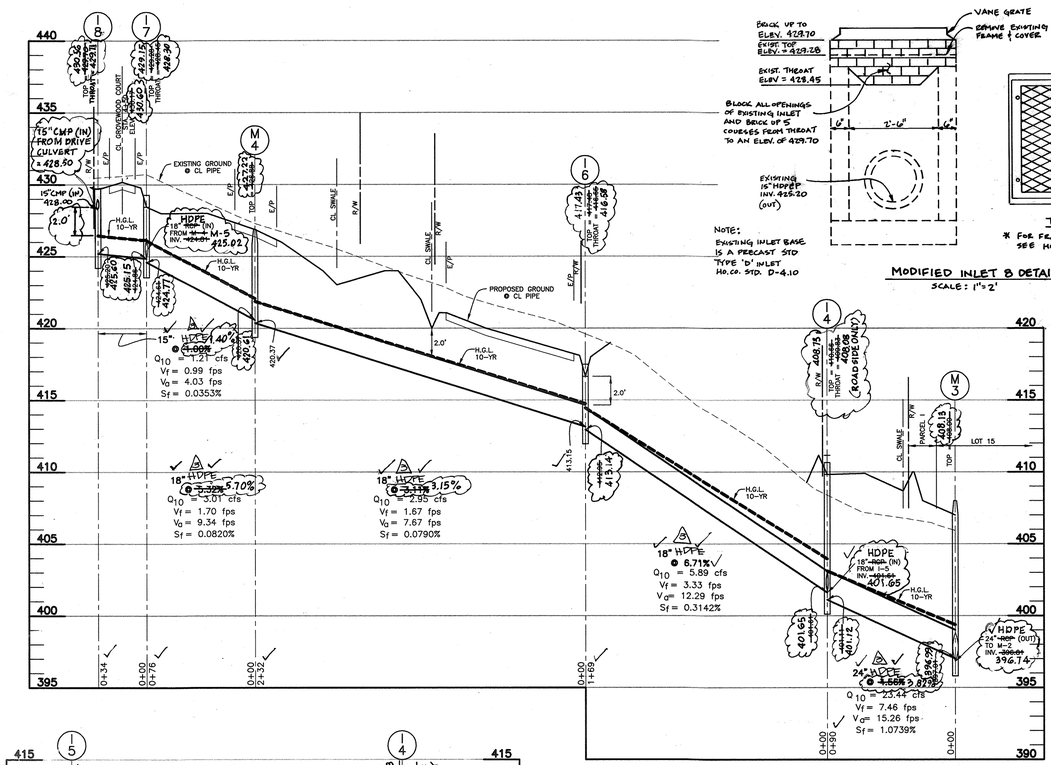
I HEARBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS

PE NAME. ________ PE NO. ________ DATE. ________

CERTIFICATION STAMP FROM DPW

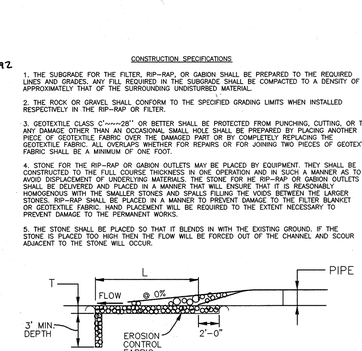




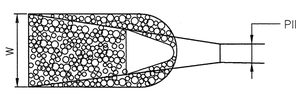


NOTE: EXISTING INLET BASE IS A PRECAST STD "TYPE 'D' INLET HO.CO. STD. D-4.10

MODIFIED INLET B DETAIL
SCALE: 1"=2'



SECTION



PLAN

STRUCTURE	D-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
E-1	9.5"	20'	23'	19"	I
E-2	9.5"	FOREBAY	FOREBAY	19"	I
E-3	9.5"	26'	30'	19"	I
E-4	9.5"	FOREBAY	FOREBAY	19"	I
E-5	9.5"	FOREBAY	FOREBAY	19"	I
E-6	9.5"	8'	4.7'	19"	I

OUTLET PROTECTION DETAIL
NOT TO SCALE

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 C'~~~28" 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 HE. 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.

AS-BUILT CERTIFICATION

I HEARBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS

PE NO. _____

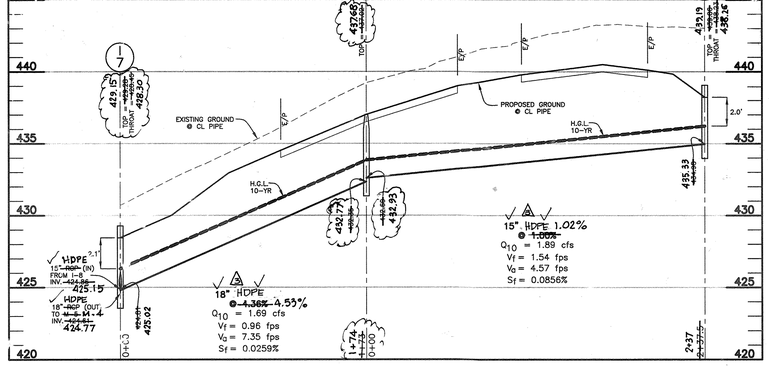
PE NAME. _____

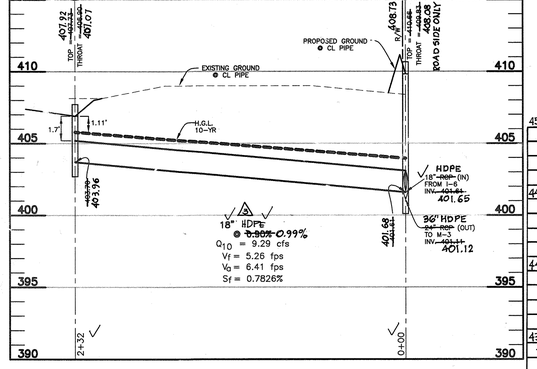
DATE. _____

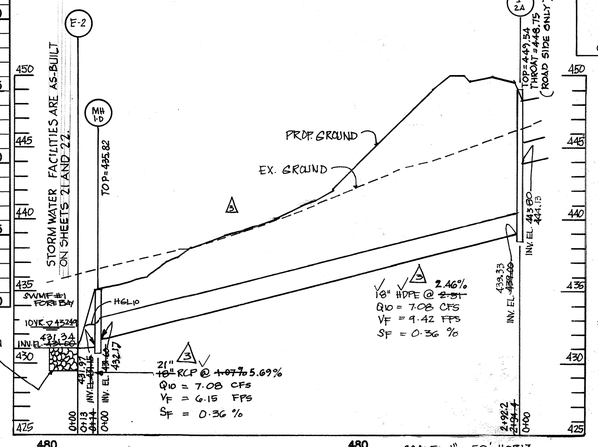
CERTIFICATION STAMP FROM DPW

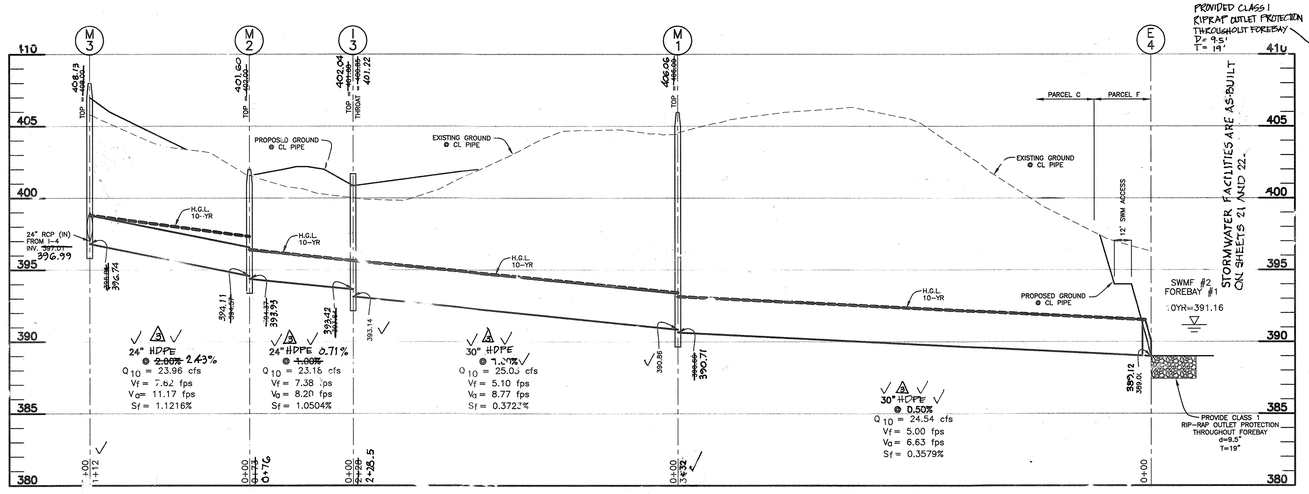
* ALL STORM DRAIN PIPE SHALL HAVE A MINIMUM OF 1.5 FEET OF COVER.

* ALL DRIVEWAY CULVERT PIPES TO BE 15"CMP OR RCP PER COMPUTATIONS

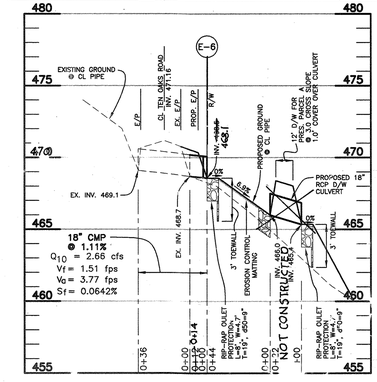








PROVIDED CLASS I RIPRAP OUTLET PROTECTION THROUGHOUT FOREBAY D= 9.5" T= 19"



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

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 5-10-07

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/16/07

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/14/07

REVISION NO. 5 IS BY DALE THOMPSON BUILDERS, INC. THE ENGINEERS SEAL AND SIGNATURE ARE HEREWITH AFFIXED. 4/5/07

NO.	DATE	REVISION
5	8-9-2021	AS-BUILT SET
4	8-14-2009	REVISE INLET 8 IN PROFILE, ADD MODIFIED INLET 8 DETAIL, ADD LOT 11 D/W CULVERT PROFILE
3	8-15-2007	CHANGE PIPE MATERIAL TO HDPE, ADD S.D. PROFILE, I-1 TO MH-1 O. CHANGE Rs, I-1 O TO E-2
2	6-13-2007	REVISE TITLE TO REFLECT NBSP 'J'
1	4-24-2007	REVISE PROFILES, OWNER INFO, SUBDIVISION NAME

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

4/24/07

OWNER/DEVELOPER:
DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18 PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED
STORM DRAIN PROFILES

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

DATE: APRIL, 2007 | PROJECT NO. 1407

SCALE: AS SHOWN | SHEET 15 OF 24

F-06-72

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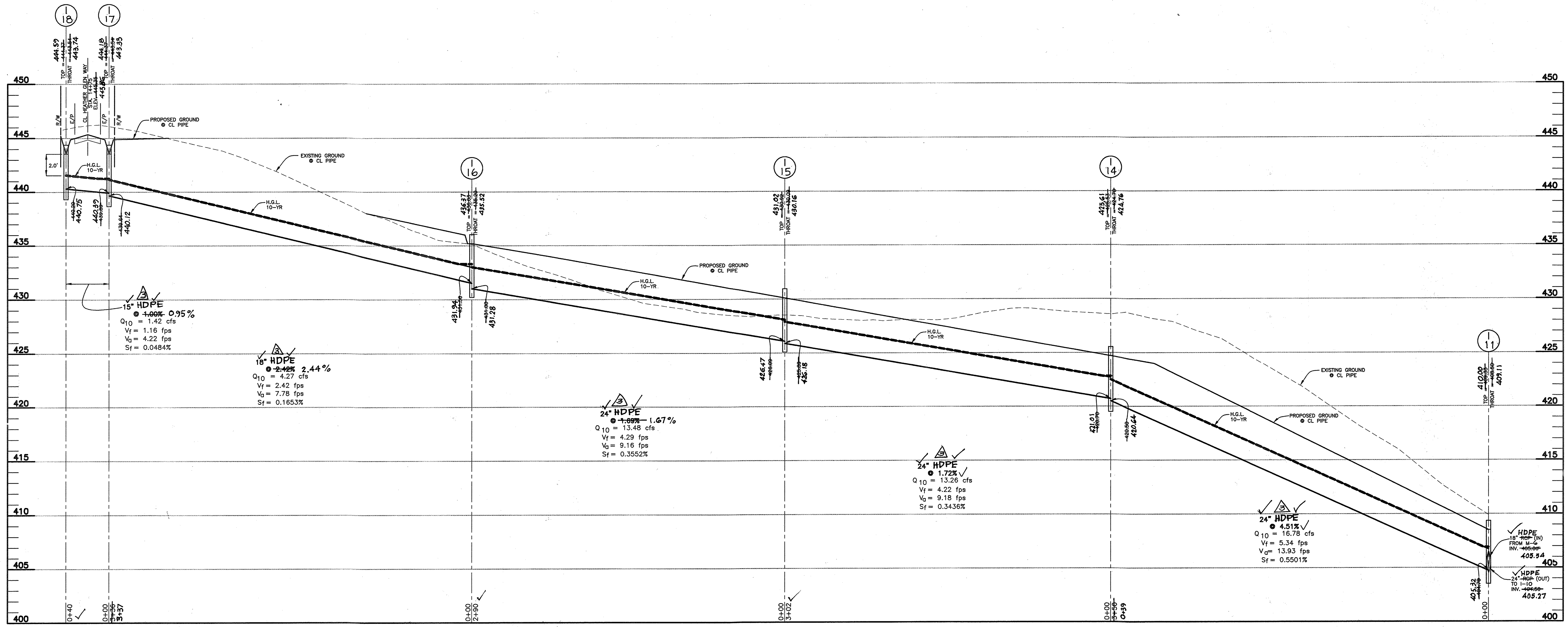
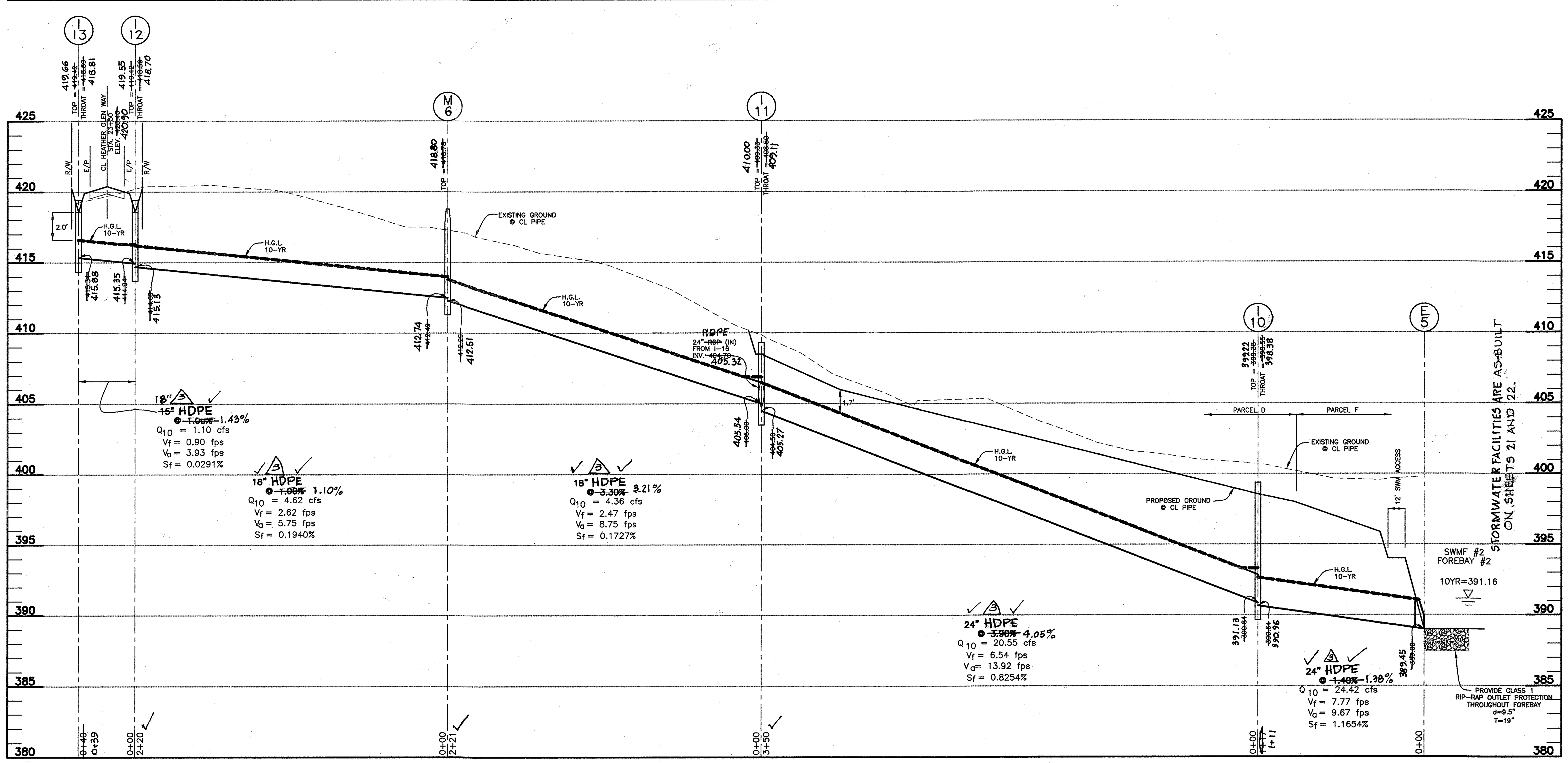
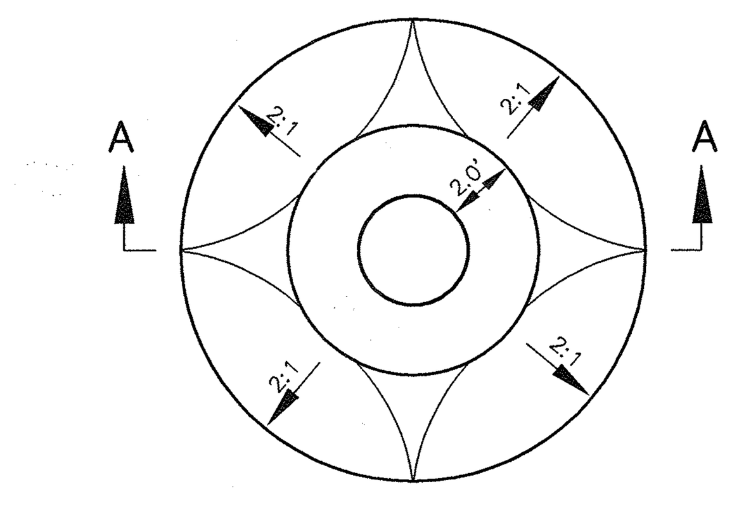
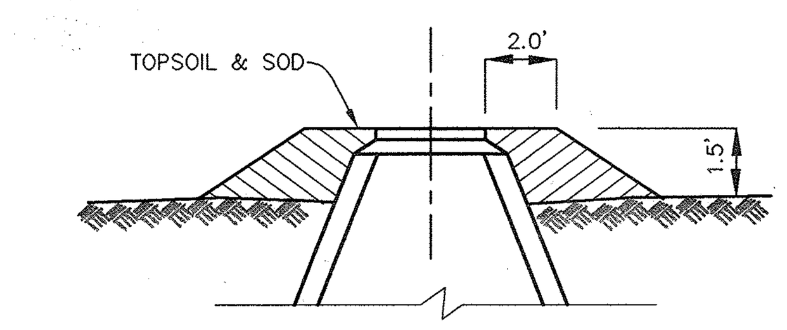






PLAN VIEW



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.

* ALL DRIVEWAY CULVERT PIPES TO BE 15" RCP CL IV PER COMPUTATIONS

PIPE SCHEDULE		
PIPE SIZE	LENGTH	TYPE
15"	1131.5 *	HDPE
18"	14'	RCCP CL III
24"	90'	HDPE
18"	2163'	HDPE
24"	1594'	HDPE
30"	560'	HDPE

* INCLUDES 740 L.F. FOR DRIVEWAY CULVERTS

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/20/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/20/06

REVISION NO. 3 IS BY DALE THOMPSON BUILDERS, INC. THE ENGINEER'S SEAL AND SIGNATURE ARE HEREWITH AFFIXED

8/15/07

NO.	DATE	REVISION
	8-9-2021	AS BUILT SET
3	8-15-2007	CHANGE PIPE MATERIAL TO HDPE
2	6-13-2007	REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	REVISE STRUCTURE #5, PIPE SCHEDULE, OWNER INFO, SUBDIVISION NAME

AS-BUILT CERTIFICATION

I HEARBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

PE NAME. ____________ PE NO. ____________ DATE. ____________

CERTIFICATION STAMP FROM DPW

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

3/30/06

OWNER/DEVELOPER:

DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE

LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

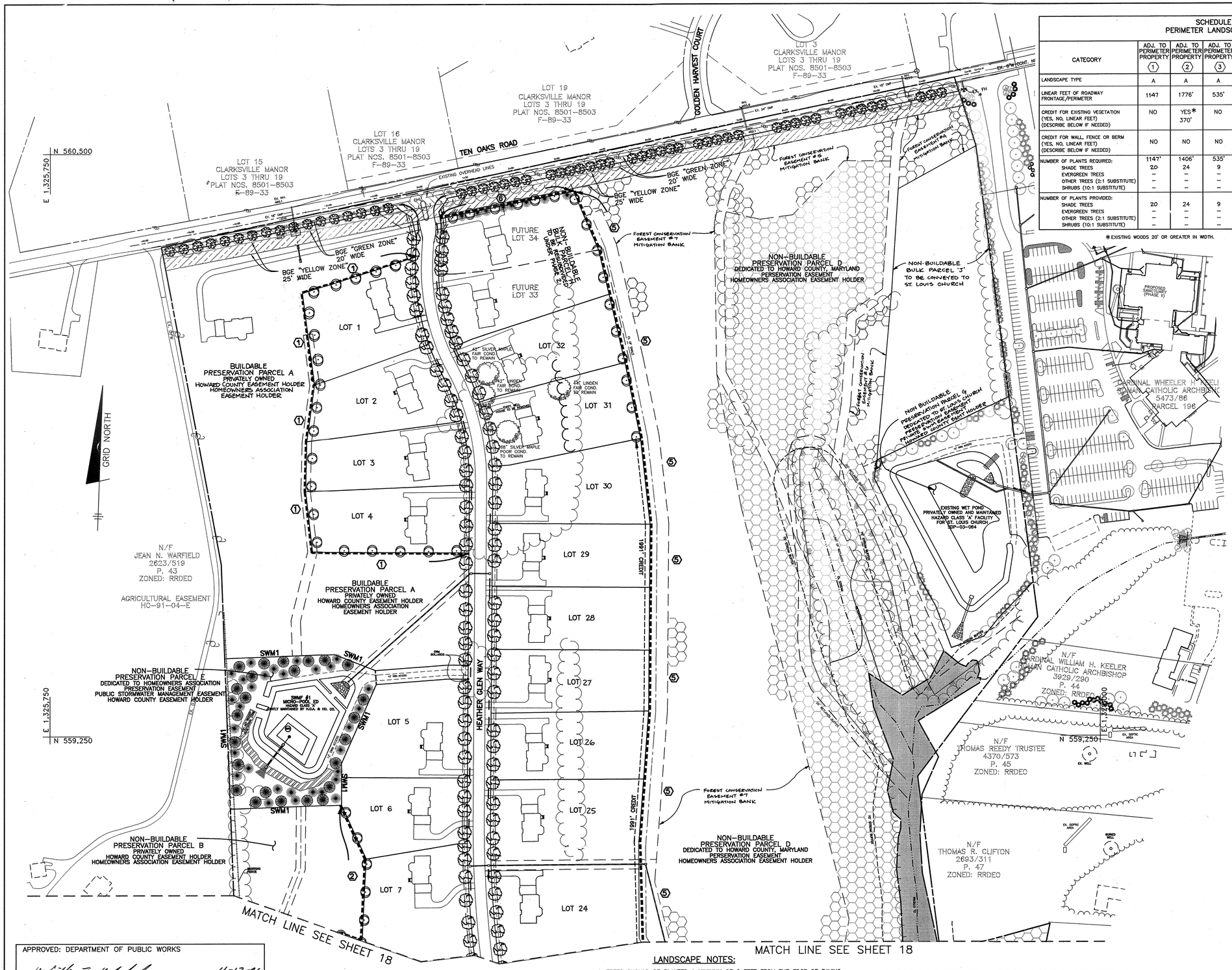
LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18
PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN PROFILES

DATE: APRIL, 2006	PROJECT NO. 1407
SCALE: AS SHOWN	SHEET 16 OF 24

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

F-06-72



PLAN VIEW
SCALE: 1" = 100'

SCHEDULE A
PERIMETER LANDSCAPE EDGE

CATEGORY	ADJ. TO PERIMETER PROPERTY ⟨1⟩	ADJ. TO PERIMETER PROPERTY ⟨2⟩	ADJ. TO PERIMETER PROPERTY ⟨3⟩	ADJ. TO PERIMETER PROPERTY ⟨4⟩	ADJ. TO PERIMETER PROPERTY ⟨5⟩	ADJ. TO ROADS ⟨6⟩	ADJ. TO ROADS (LOT 8) ⟨7⟩	TOTALS
LANDSCAPE TYPE	A	A	A	A	A	B	B	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	1147	1776'	535'	1463'	2546	290	165'	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	YES* 370'	NO	YES** 1007'	YES* 1991'	NO	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO	
NUMBER OF PLANTS REQUIRED:	1147'	1406'	535'	456'	555	290	165'	
SHADE TREES	20	24	9	8	10	6	4	81
EVERGREEN TREES	–	–	–	–	–	8	4	12
OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–	–	–	–	–
SHRUBS (10:1 SUBSTITUTE)	–	–	–	–	–	–	–	–
NUMBER OF PLANTS PROVIDED:								
SHADE TREES	20	24	9	8	10	6	4	81
EVERGREEN TREES	–	–	–	–	–	8	4	12
OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–	–	–	–	–
SHRUBS (10:1 SUBSTITUTE)	–	–	–	–	–	–	–	–

TOTALS

*EXISTING WOODS 20' OR GREATER IN WIDTH. **SWM LANDSCAPING

SCHEDULE D
SWM PERIMETER LANDSCAPING

	SWMF 1	SWMF 2	
LINEAR FEET OF PERIMETER	1195'	1709'	
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO	YES, 25.0%	TOTALS
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO	NO	
LINEAR FEET OF REQUIRED PLANTING	1195'	1281'	
BUFFER TYPE	"B"	"B"	
NUMBER OF TREES REQUIRED			
SHADE TREES	24	26	50
EVERGREEN TREES	30	32	62
NUMBER OF TREES PROVIDED			
SHADE TREES	24	26	50
EVERGREEN TREES	30	32	62

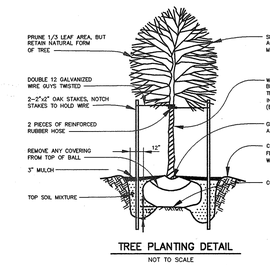
STREET TREE SCHEDULE

ROAD NAME	PERIMETER	TREES REQ.	TREES PROV.
TEN OAKS ROAD	1640'	55 *	55
HEATHER GLEN WAY	5717'	143	143
GROVEWOOD COURT	1502'	38	38
TOTAL		236	236

*1 PER 30 L.F. FOR SMALL TREES

LEGEND

- EXISTING TREELINE
- PROPOSED TREELINE
- CL STREAM
- LIMIT OF WETLANDS
- LIMIT OF 100YR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- (5) LANDSCAPE PERIMETER DESIGNATION
- 2406' CREDIT LANDSCAPE CREDIT PERIMETER
- BGE "GREEN ZONE"
- BGE "YELLOW ZONE"



TREE PLANTING DETAIL
NOT TO SCALE

PUBLIC STREET TREE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS	
	55	ACER CAMPESTRE (Hedge Maple)	2 1/2" MIN. CAL. B&B FULL HEAD	STREET TREES TO BE PROVIDED BY THE DEVELOPER
	38	ACER RUBRUM 'OCTOBER GLORY' (October Glory Red Maple)	2 1/2" MIN. CAL. B&B FULL HEAD	
	159	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
	81	QUERCUS RUBRA (Red Oak)	2-1/2" – 3"cal.	SHADE TREES ALONG PERIMETER TO BE PROVIDED BY THE DEVELOPER
	74	PINUS STROBUS (Eastern White Pine)	6' – 8' ht.	EVERGREEN TREES ALONG PERIMETER AND SWM FACILITIES TO BE PROVIDED BY THE DEVELOPER
	50	TILIA CORDATA 'GREENSPIRE' (Greenspire Littleleaf Linden)	2-1/2" – 3"cal.	SHADE TREES ALONG SWM FACILITIES TO BE PROVIDED BY THE DEVELOPER

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.

DALE THOMPSON
DAYTON OAKS, LLC

26 April 2006
DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/3/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/20/06

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT INFORMATION PROVIDED ON THIS SHEET

PE NAME. _____ PE NO. _____ DATE. _____

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. 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.
4. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $50,400.00. ($39,500.00 FOR 131 SHADE TREES, $11,100.00 FOR 74 EVERGREENS)
5. TREE HEIGHTS AT MATURITY SHALL BE 25 FEET MAXIMUM WITHIN THE "GREEN ZONE". TREE HEIGHTS AT MATURITY SHALL BE 40 FEET MAXIMUM WITHIN THE "YELOW ZONE". IF TREES ARE TO BE PLANTED ON BERMS THE TREE HEIGHTS SHALL BE REDUCED BY THE HEIGHT OF THE BERM AS MEASURED ABOVE MEAN GROUND ELEVATION OF THE UTILITY POLE LINE.
6. 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.
7. 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.

NO.	DATE	REVISION
	8-9-2021	AS BUILT SET
2	6-13-2007	ADD FOREST MITIGATION BANK ESMTS, NBBP'J', REVISE TITLE TO REFLECT NBBP'J'
1	4-24-2007	REVISE LOT NUMBERS, OWNER INFO, SUBDIVISION NAME, PERIMETER #1, SCHEDULE A, STREET TREE SCHEDULE SURETY AMOUNT

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
3/30/06

OWNER/DEVELOPER:

DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE

LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18 PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: LANDSCAPE AND STREET TREE PLAN

DESIGN: DBT	DRAFT: DBT	CHECK: DAM	DATE: APRIL, 2006	PROJECT NO. 1407
			SCALE: AS SHOWN	SHEET 17 OF 24

F-06-72

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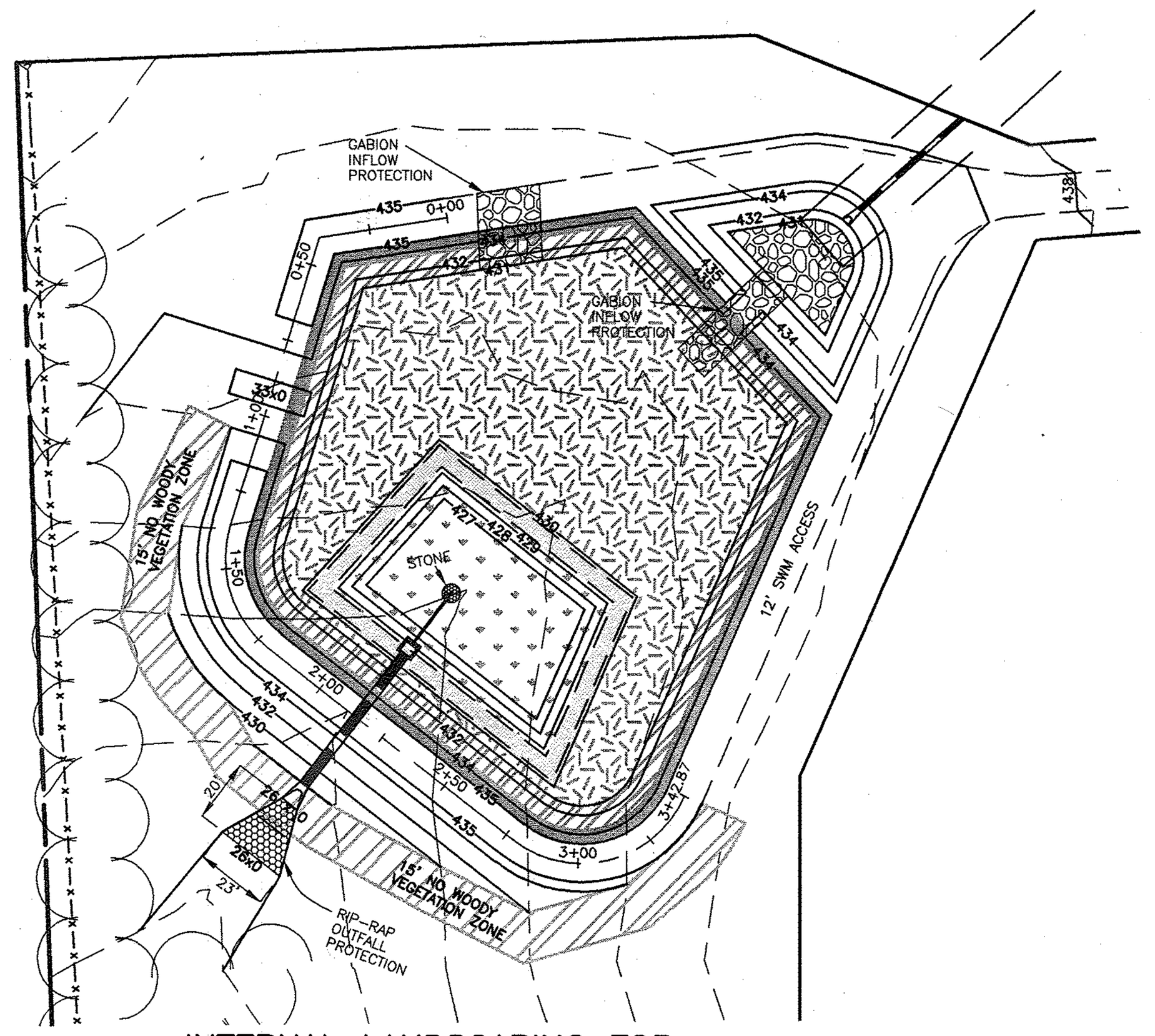
NOTES:

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.

PLANTING SCHEDULE FOR EXTENDED DETENTION FACILITY #1

ZONE	AREA (SF)	ELEVATION RANGE	PLANT MIX	QUANTITIES
1	4,032	427.00 – 429.50	100% WATER LILLY	448
2	1,775	429.50 – 430.00	50% BROAD WATER WEED	99
			25% DUCK POTATO	49
			25% ARROW ARUM	49
3	12,758	430.00 – 431.00	50% CUTGRASS, RICE	709
			50% SWITCHGRASS	709
4	3,856	431.00 – 433.38	50% LOVEGRASS–MEADOW	214
			25% VIOLETS, COMMON BLUE	107
			25% CONEFLOWER,CUT–LEAF	107
5	2,819	433.38 – 435.00	75% WITCHGRASS, NEEDLE–LEAF	235
			25% CONEFLOWER, SWEET	78
6	0	N/A	N/A	0

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



INTERNAL LANDSCAPING FOR EXTENDED DETENTION FACILITY #1
SCALE: 1" = 60'

LEGEND

- ZONE 1
- ZONE 2
- ZONE 3
- ZONE 4
- ZONE 5

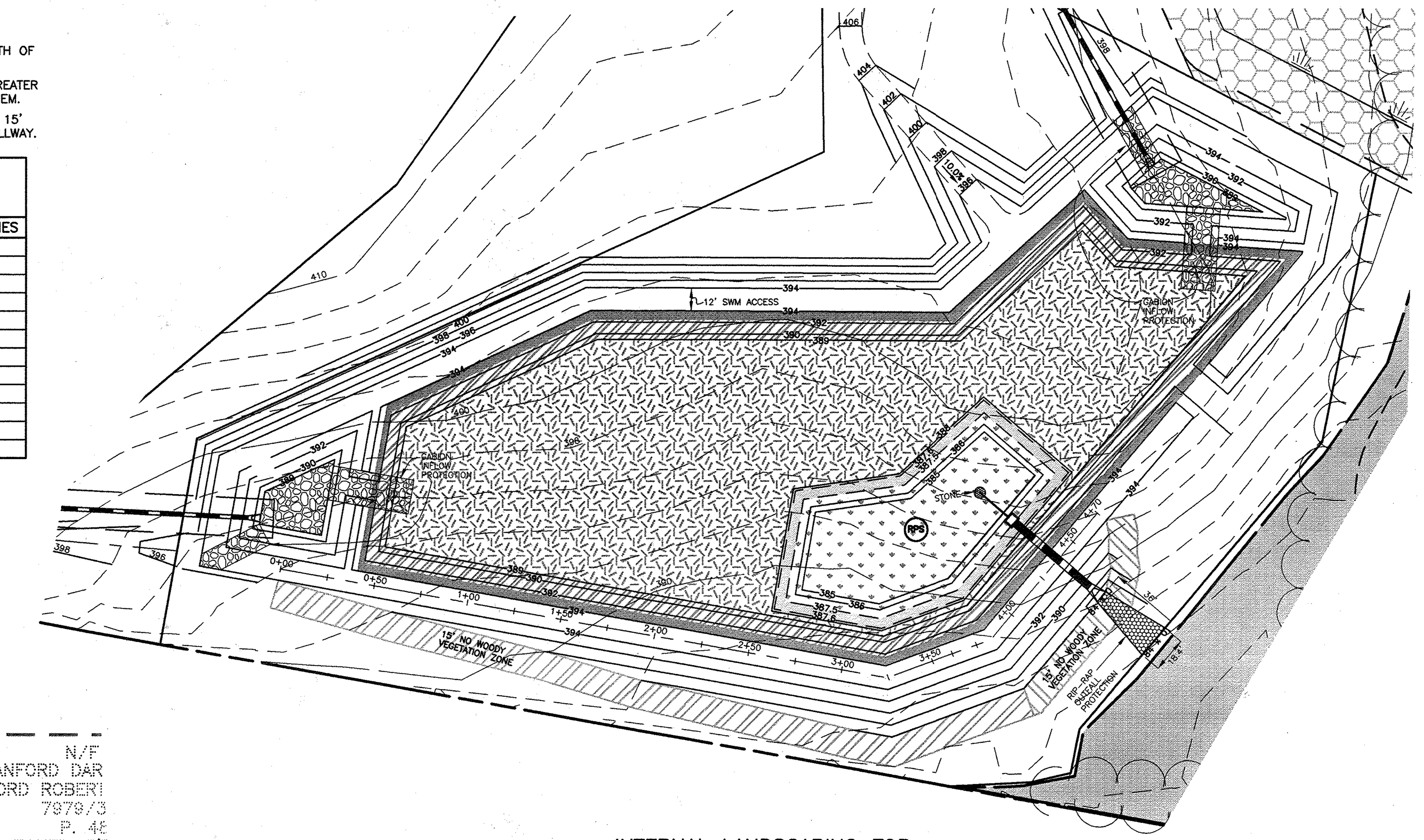
NOTES:

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.

PLANTING SCHEDULE FOR EXTENDED DETENTION FACILITY #2

ZONE	AREA (SF)	ELEVATION RANGE	PLANT MIX	QUANTITIES
1	8,168	385.00 – 387.50	100% WATER LILLY	908
2	2,574	387.50 – 388.00	50% BROAD WATER WEED	143
			25% DUCK POTATO	72
			25% ARROW ARUM	72
3	39,985	388.00 – 389.00	50% CUTGRASS, RICE	2221
			50% SWITCHGRASS	2221
4	11,724	389.00 – 392.49	50% LOVEGRASS–MEADOW	651
			25% VIOLETS, COMMON BLUE	326
			25% CONEFLOWER,CUT–LEAF	326
5	5,303	392.49 – 394.00	75% WITCHGRASS, NEEDLE–LEAF	442
			25% CONEFLOWER, SWEET	147
6	0 SF	N/A	N/A	0

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



INTERNAL LANDSCAPING FOR EXTENDED DETENTION FACILITY #2
SCALE: 1" = 60'

PLAN VIEW
SCALE: 1" = 100'

LEGEND

- EXISTING TREELINE
- PROPOSED TREELINE
- CL STREAM
- LIMIT OF WETLANDS
- LIMIT OF 100YR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- (5) LANDSCAPE PERIMETER DESIGNATION
- 2406' CREDIT — LANDSCAPE CREDIT PERIMETER

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 5-10-07
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton 5/16/07
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 5/14/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET

PE NO. ________

PE NAME. ________

DATE. ________

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, 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] 26 April 2007
DALE THOMPSON
DAYTON OAKS, LLC — DATE

NO.	DATE	REVISION
	8-9-2021	AS BUILT SET
2	6-13-2007	ADD FOREST MITIGATION BANK ESMTS, REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	ADD CUL-DE-SAC ON HEATHER GLEN WAY, REVISE LOT #S, OWNER INFO, SUBDIVISION NAME.

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

[seal: STATE OF MARYLAND PROFESSIONAL ENGINEER] Donald Mason 4/26/07

OWNER/DEVELOPER:

DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A';
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18
PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED
LANDSCAPE AND STREET TREE PLAN

DATE: APRIL, 2007 — PROJECT NO. 1407

DESIGN: DBT — DRAFT: DBT — CHECK: DAM — SCALE: AS SHOWN — SHEET 18 OF 24

F-06-72

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FOREST MITIGATION BANK CHART TOTAL INITIAL ACREAGE: 15.69 AC.			
SALE NO.	PROJECT	REFORESTATION OBLIGATION	ACREAGE REMAINING FOR FUTURE SALE
1	SIMPSON MILL SDP-12-015	5.38 AC.	10.31 AC.
2	PARK AT LOCUST THICKET F-17-022	0.69 AC.	9.62 AC.
3	FUTURE PROJECT BY SDC GROUP, INC.	1.83 AC.	7.79 AC.

As of February 2017, SDC Group has a total of 2.52 AC. available to use against this site's bank. In November 2017, 0.69 is used (Sale No. 2) for F-17-022. The remainder available to them shall be 1.83 AC. The balance of 7.79 AC. shall under control of Howard County.

MITIGATION BANK 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.

PLAN VIEW
SCALE: 1" = 100'

LEGEND

— — —	EXISTING CONTOURS (2' INTERVALS)
	EXISTING TREELINE
	PROPOSED TREELINE
	CL STREAM
	LIMIT OF WETLANDS
	LIMIT OF 100YR FLOODPLAIN
	FOREST CONSERVATION EASEMENT
	FOREST CONSERVATION EASEMENT RETENTION AREA
FCE	FOREST CONSERVATION SIGNAGE
	SPECIMEN TREE

FOR BEARINGS AND DISTANCES OF THE FOREST CONSERVATION EASEMENTS SEE RECORDED PLAT.

APPENDIX G
FOREST CONSERVATION WORKSHEET

NOTE: THIS SUBDIVISION PLAN IS USING "RURAL CLUSTER OPTION A" OF APPENDIX "L" OF THE FOREST CONSERVATION MANUAL BY INCLUDING ALL THE AREAS OF LAND USE CHANGE: (57.79 Ac. TOTAL)
- AREA OF CLUSTER LOTS = 34.47 Ac.
- AREA OF BUILDABLE PRESERVATION PARCEL 'A' = 8.50 Ac.
- AREA OF PUBLIC ROAD R/W = 5.63 AC.
- AREA OF NON-BUILDABLE PRES. PARCELS 'C', 'E', & 'F' = 9.19 Ac.

ACRES (1/10 acre)

I. BASIC SITE DATA

GROSS SITE AREA	117.7
AREA WITHIN 100 YEAR FLOODPLAIN	3.7
AREA WITHIN PRESERVATION PARCELS (PARCELS 'B' & 'D' OUTSIDE OF FLOODPLAIN) (59.92 AC. – 3.73 FLOODPLAIN)	56.2
NET TRACT AREA	57.8
LAND USE CATEGORY (R-RLD, R-RMD, R-S, C/I/O, I)	R-RMD

II. INFORMATION FOR CALCULATIONS

A. NET TRACT AREA	57.8
B. REFORESTATION THRESHOLD (25% x A)	14.5
C. AFFORESTATION MINIMUM (20% x A)	11.6
D. EXISTING FOREST ON NET TRACT AREA	4.1
E. FOREST AREAS TO BE CLEARED	4.1
F. FOREST AREAS TO BE RETAINED	0.0

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	57.8
B. AFFORESTATION MINIMUM (20% x A)	11.6
C. EXISTING FOREST ON NET TRACT AREA	4.1
D. FOREST AREAS TO BE CLEARED	4.1
E. FOREST AREAS TO BE RETAINED	0.0

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 B – C	7.5
REFORESTATION FOR CLEARING BELOW MINIMUM D x 2	8.2
TOTAL AFFORESTATION + REFORESTATION REQUIRED (B – C) + (D x 2)	15.7

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

8-9-2021 AS BUILT SET

NO.	DATE	REVISION
7	2-20-17	REVISE/ADD SALES #2 & 3 OF FOREST MITIGATION CHART
6	8-17-2012	REVISE FOREST MITIGATION BANK CHART. (SALE #1 AND #2)
5	1-26-11	ADD SALE #1 TO FOREST MITIGATION BANK CHART
3	8-15-2007	CHANGE PIPE MATERIAL TO HDPE, REALIGN STORM DRAIN FROM I-1 TO E-2
2	5-24-2007	ADD FOREST MITIGATION BANK EASEMENTS, SALE CHART AND MITIGATION BANK NOTE, REVISE TITLE TO REFLECT NBBP J
1	4-24-2007	ADD LOTS 1 AND 24, RENUMBER LOTS, REVISE OWNER INFO, SUBDIVISION NAME

REVISION NO. 3 IS BY DALE THOMPSON BUILDERS INC. THE ENGINEER'S SEAL AND SIGNATURE ARE HEREWITH AFFIXED.

STATE OF MARYLAND PROFESSIONAL ENGINEER (seal) 8/18/07

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
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6/18/07

OWNER/DEVELOPER:
DAYTON OAKS, LLC
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THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'; NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G' NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18 PARCEL: 77 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: REVISED FOREST CONSERVATION PLAN

DATE:	APRIL, 2007	PROJECT NO. 1407
SCALE:	AS SHOWN	SHEET 19 OF 24

DESIGN: DBT | DRAFT: DBT | CHECK: DAM

F-06-72

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 6-26-07

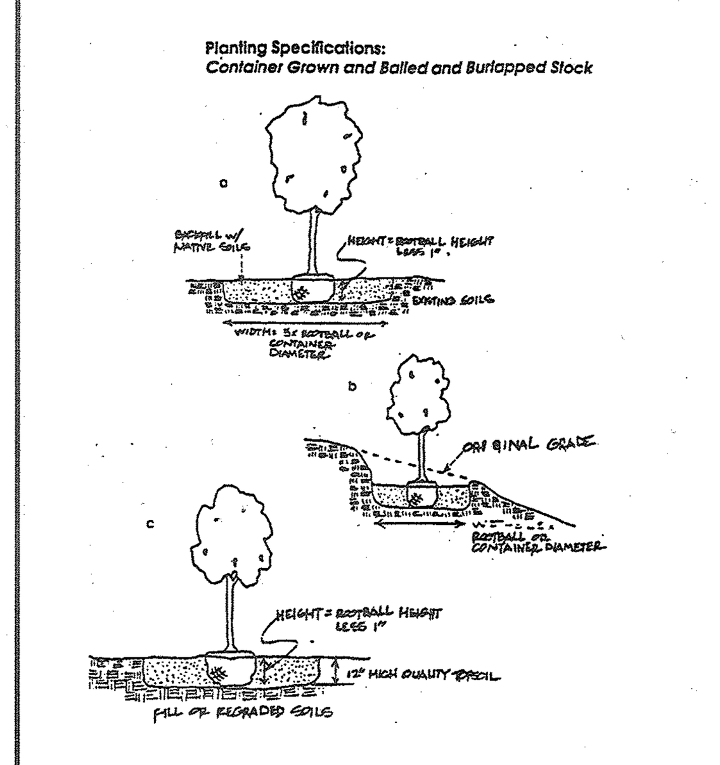
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/28/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/25/07

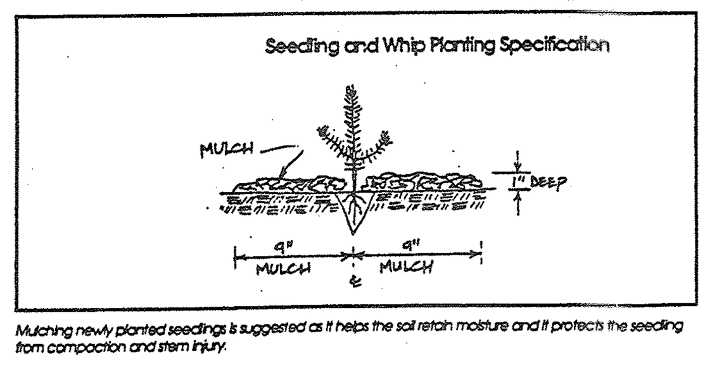
AS-BUILT CERTIFICATION
NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET
PE NAME ______ PE NO. ______ DATE. ______

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

P:\1407 Palmer\dwg\Redline2_r052s19-20.dwg, 6/18/2007 1:39:30 PM

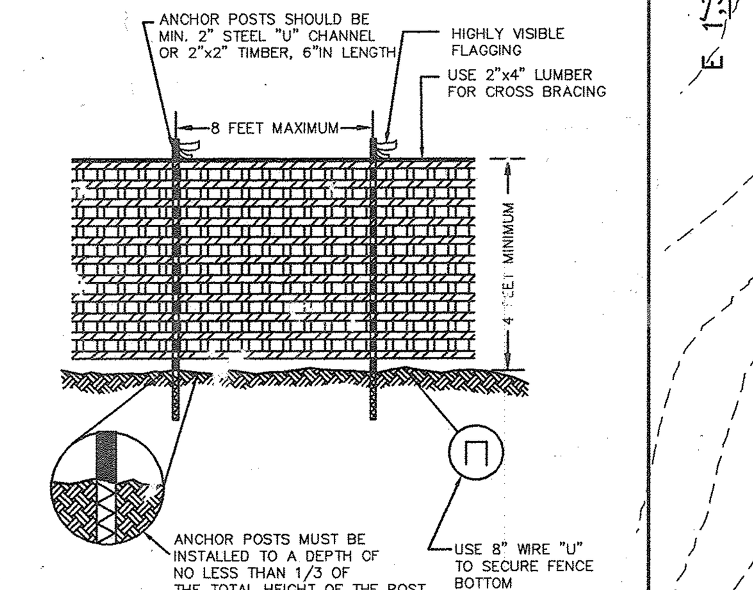




Mulching newly planted seedlings is suggested as it helps the soil retain moisture and protects the seedling from compaction and stem injury.

TREE PROTECTION FENCE

BLAZE ORANGE PLASTIC MESH



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.

FCE #4 - Mitigation Bank	0.41 Ac.			
planting units required:	287			
planting units provided:	287			
QTY	**Species**	**Size**	**Spacing**	**Total units**
2	Acer Rubrum - Red Maple	1" cal.	15' o.c.	
2	Acer Saccharinum - Silver Maple	1" cal.	15' o.c.	
2	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.	
10	**Total 1" caliper trees (3.5 planting units per tree)**			**35**
15	Acer Rubrum - Red Maple	2-3" whip	11" o.c.	
10	Acer Saccharinum - Silver Maple	2-3" whip	11" o.c.	
12	Cornus Florida - Flowering Dogwood	2-3" whip	11" o.c.	
15	Diospyros Virginiana - Persimmon	2-3" whip	11" o.c.	
10	Liriodendron Tulipifera - Tulip Poplar	2-3" whip	11" o.c.	
12	Platanus Occidentalis - Sycamore	2-3" whip	11" o.c.	
12	Prunus Serotina - Black Cherry	2-3" whip	11" o.c.	
15	Quercus Alba - White Oak	2-3" whip	11" o.c.	
15	Quercus Rubra - Red Oak	2-3" whip	11" o.c.	
10	Viburnum Prunifolium - Blackhaw	2-3" whip	11" o.c.	
126	**Total whips (2.0 planting units per tree)**			**252**
		Total Planting Units		**287**

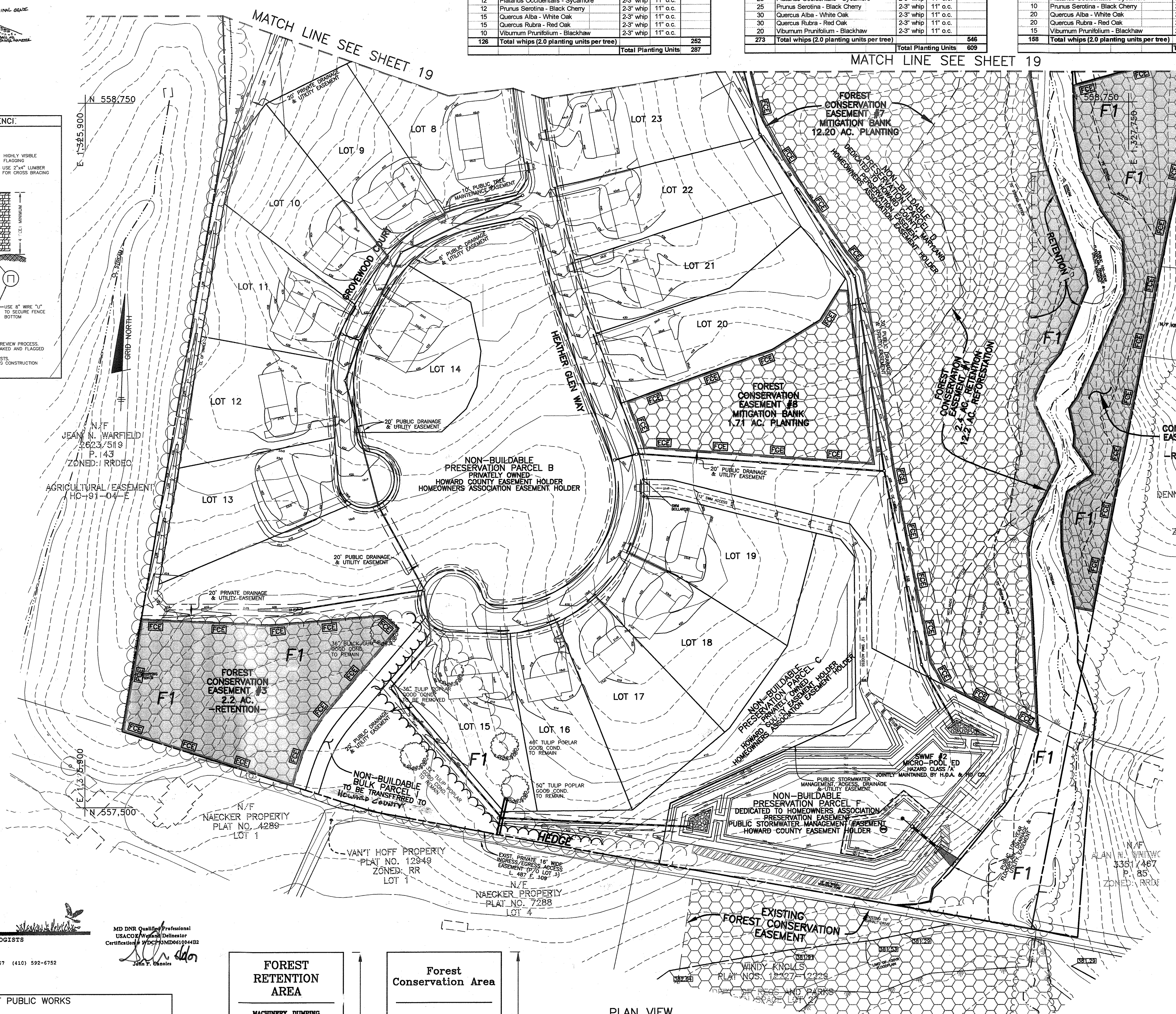
FCE #5 - Mitigation Bank	0.87 Ac.			
planting units required:	609			
planting units provided:	609			
QTY	**Species**	**Size**	**Spacing**	**Total units**
3	Acer Rubrum - Red Maple	1" cal.	15' o.c.	
3	Acer Saccharinum - Silver Maple	1" cal.	15' o.c.	
4	Liriodendron Tulipifera - Tulip Poplar	1" cal.	15' o.c.	
4	Quercus Alba - White Oak	1" cal.	15' o.c.	
4	Quercus Rubra - Red Oak	1" cal.	15' o.c.	
18	**Total 1" caliper trees (3.5 planting units per tree)**			**63**
45	Acer Rubrum - Red Maple	2-3" whip	11" o.c.	
13	Acer Saccharinum - Silver Maple	2-3" whip	11" o.c.	
25	Cornus Florida - Flowering Dogwood	2-3" whip	11" o.c.	
40	Diospyros Virginiana - Persimmon	2-3" whip	11" o.c.	
20	Liriodendron Tulipifera - Tulip Poplar	2-3" whip	11" o.c.	
25	Platanus Occidentalis - Sycamore	2-3" whip	11" o.c.	
25	Prunus Serotina - Black Cherry	2-3" whip	11" o.c.	
30	Quercus Alba - White Oak	2-3" whip	11" o.c.	
30	Quercus Rubra - Red Oak	2-3" whip	11" o.c.	
20	Viburnum Prunifolium - Blackhaw	2-3" whip	11" o.c.	
273	**Total whips (2.0 planting units per tree)**			**546**
		Total Planting Units		**609**

FCE #6 - Mitigation Bank	0.5 Ac.			
planting units required:	350			
planting units provided:	351			
QTY	**Species**	**Size**	**Spacing**	**Total units**
2	Acer Rubrum - Red Maple	1" cal.	15' o.c.	
2	Acer Saccharinum - Silver Maple	1" cal.	15' o.c.	
2	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.	
10	**Total 1" caliper trees (3.5 planting units per tree)**			**35**
25	Acer Rubrum - Red Maple	2-3" whip	11" o.c.	
10	Acer Saccharinum - Silver Maple	2-3" whip	11" o.c.	
15	Cornus Florida - Flowering Dogwood	2-3" whip	11" o.c.	
20	Diospyros Virginiana - Persimmon	2-3" whip	11" o.c.	
13	Liriodendron Tulipifera - Tulip Poplar	2-3" whip	11" o.c.	
10	Platanus Occidentalis - Sycamore	2-3" whip	11" o.c.	
10	Prunus Serotina - Black Cherry	2-3" whip	11" o.c.	
20	Quercus Alba - White Oak	2-3" whip	11" o.c.	
20	Quercus Rubra - Red Oak	2-3" whip	11" o.c.	
15	Viburnum Prunifolium - Blackhaw	2-3" whip	11" o.c.	
158	**Total whips (2.0 planting units per tree)**			**316**
		Total Planting Units		**351**

FCE #7 - Mitigation Bank	12.2 Ac.			
planting units required:	8540			
planting units provided:	8540			
QTY	**Species**	**Size**	**Spacing**	**Total units**
88	Acer Rubrum - Red Maple	1" cal.	15' o.c.	
88	Acer Saccharinum - Silver Maple	1" cal.	15' o.c.	
148	Liriodendron Tulipifera - Tulip Poplar	1" cal.	15' o.c.	
88	Quercus Alba - White Oak	1" cal.	15' o.c.	
88	Quercus Rubra - Red Oak	1" cal.	15' o.c.	
500	**Total 1" caliper trees (3.5 planting units per tree)**			**1750**
425	Acer Rubrum - Red Maple	2-3" whip	11" o.c.	
375	Acer Saccharinum - Silver Maple	2-3" whip	11" o.c.	
325	Cornus Florida - Flowering Dogwood	2-3" whip	11" o.c.	
325	Diospyros Virginiana - Persimmon	2-3" whip	11" o.c.	
300	Liriodendron Tulipifera - Tulip Poplar	2-3" whip	11" o.c.	
225	Platanus Occidentalis - Sycamore	2-3" whip	11" o.c.	
225	Prunus Serotina - Black Cherry	2-3" whip	11" o.c.	
430	Quercus Alba - White Oak	2-3" whip	11" o.c.	
430	Quercus Rubra - Red Oak	2-3" whip	11" o.c.	
335	Viburnum Prunifolium - Blackhaw	2-3" whip	11" o.c.	
3395	**Total whips (2.0 planting units per tree)**			**6790**
		Total Planting Units		**8540**

FCE #8 - Mitigation Bank	1.71 Ac.			
planting units required:	1197			
planting units provided:	1197			
QTY	**Species**	**Size**	**Spacing**	**Total units**
7	Acer Rubrum - Red Maple	1" cal.	15' o.c.	
7	Acer Saccharinum - Silver Maple	1" cal.	15' o.c.	
10	Liriodendron Tulipifera - Tulip Poplar	1" cal.	15' o.c.	
7	Quercus Alba - White Oak	1" cal.	15' o.c.	
7	Quercus Rubra - Red Oak	1" cal.	15' o.c.	
38	**Total 1" caliper trees (3.5 planting units per tree)**			**133**
70	Acer Rubrum - Red Maple	2-3" whip	11" o.c.	
70	Acer Saccharinum - Silver Maple	2-3" whip	11" o.c.	
35	Cornus Florida - Flowering Dogwood	2-3" whip	11" o.c.	
35	Diospyros Virginiana - Persimmon	2-3" whip	11" o.c.	
55	Liriodendron Tulipifera - Tulip Poplar	2-3" whip	11" o.c.	
45	Platanus Occidentalis - Sycamore	2-3" whip	11" o.c.	
55	Prunus Serotina - Black Cherry	2-3" whip	11" o.c.	
65	Quercus Alba - White Oak	2-3" whip	11" o.c.	
67	Quercus Rubra - Red Oak	2-3" whip	11" o.c.	
35	Viburnum Prunifolium - Blackhaw	2-3" whip	11" o.c.	
532	**Total whips (2.0 planting units per tree)**			**1064**
		Total Planting Units		**1197**

MATCH LINE SEE SHEET 19



PLAN VIEW
SCALE: 1" = 100'

Planting Notes:

2" caliper trees = 7 planting units, 1" caliper trees = 3.5 planting units, whips with shelter = 2 planting units

1" caliper trees should be staggered along the outer perimeter of the planting area to serve as demarcation of the boundary, the trees should be no closer than 15 foot spacing.

Planting shall be made in a curvilinear fashion along contour. The planting should avoid a grid appearance but should be spaced to facilitate maintenance.

Multiflora rose removal/control may be required prior to installation of planting.

FCE #1 - Reforestation	12.2 Ac.			
planting units required:	8540			
planting units provided:	8542.5			
QTY	**Species**	**Size**	**Spacing**	**Total units**
35	Acer Rubrum - Red Maple	1" cal.	15' o.c.	
35	Acer Saccharinum - Silver Maple	1" cal.	15' o.c.	
35	Liriodendron Tulipifera - Tulip Poplar	1" cal.	15' o.c.	
25	Quercus Alba - White Oak	1" cal.	15' o.c.	
25	Quercus Rubra - Red Oak	1" cal.	15' o.c.	
155	**Total 1" caliper trees (3.5 planting units per tree)**			**542.5**
750	Acer Rubrum - Red Maple	2-3" whip	11" o.c.	
350	Acer Saccharinum - Silver Maple	2-3" whip	11" o.c.	
250	Cornus Florida - Flowering Dogwood	2-3" whip	11" o.c.	
150	Diospyros Virginiana - Persimmon	2-3" whip	11" o.c.	
650	Liriodendron Tulipifera - Tulip Poplar	2-3" whip	11" o.c.	
350	Platanus Occidentalis - Sycamore	2-3" whip	11" o.c.	
450	Prunus Serotina - Black Cherry	2-3" whip	11" o.c.	
350	Quercus Alba - White Oak	2-3" whip	11" o.c.	
350	Quercus Rubra - Red Oak	2-3" whip	11" o.c.	
350	Viburnum Prunifolium - Blackhaw	2-3" whip	11" o.c.	
4000	**Total whips (2.0 planting units per tree)**			**8000**
		Total Planting Units		**8542.5**

PLANTING/SOIL SPECIFICATIONS

1. PLANTING OF NURSERY STOCK SHALL TAKE PLACE BETWEEN MARCH 15TH AND APRIL 30TH. CONTAINER STOCK MAY BE PLANTED BETWEEN SEPTEMBER 1ST AND OCTOBER 30TH.
2. A TWELVE (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 PINE FINES OR EQUIVALENT.
5. FERTILIZER SHALL CONSIST OF AGRIFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S 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, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
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.

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.

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.

FCP 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 BOUNDARIES WHICH OCCUR WITHIN 15 FEET OF THE PROPOSED LIMITS OF DISTURBANCE.

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

8. THE TOTAL FOREST CONSERVATION OBLIGATION AMOUNT OF 15.7 ACRES (7.5 Ac. AFFORESTATION AND 8.2 Ac. OF REFORESTATION) SHALL BE MET BY ON-SITE RETENTION OF 2.2 AC. ON PARCEL 'B' AND 4.8 Ac. OF RETENTION ON PARCEL 'D' AT A 2:1 RATIO AS PARCELS 'B' AND 'D' ARE CONSIDERED AS OFF-SITE SINCE THOSE PARCELS WERE EXCLUDED FROM THE FOREST CALCULATIONS (7.0 AC. TOTAL - 3.5 AC. CREDITED) AND 12.2 Ac. OF AFFORESTATION/REFORESTATION ON PARCEL 'D'. AN ADDITIONAL 15.69 ACRES OF PLANTING ABOVE THE REQUIREMENT SHALL BE USED FOR THE ESTABLISHMENT OF A PRIVATE FOREST MITIGATION BANK. FOREST CONSERVATION SURETY IN THE AMOUNT OF $668,428.20 ($326,700.00 FOR SITE OBLIGATION AND $341,728.20 FOR MITIGATION BANK) WAS PAID AS PART OF THE DPW, DEVELOPER'S AGREEMENT.

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.

4. ONE INCH (1") CALIPER TREES SHOULD BE PLANTED ALONG THE OUTER EDGE OF THE FCE. THE SPECIES MAY BE RANDOMLY PLACED.

5. WHIP PLANTINGS SHOULD BE INSTALLED IN A CURVATURE PATTERN TO FACILITATE MAINTENANCE BUT AVOID A GRID APPEARENCE. TREE SHELTERS SHOULD BE INSTALLED ON ALL WHIP PLANTINGS.

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET

PE NAME.

PE NO.

DATE.

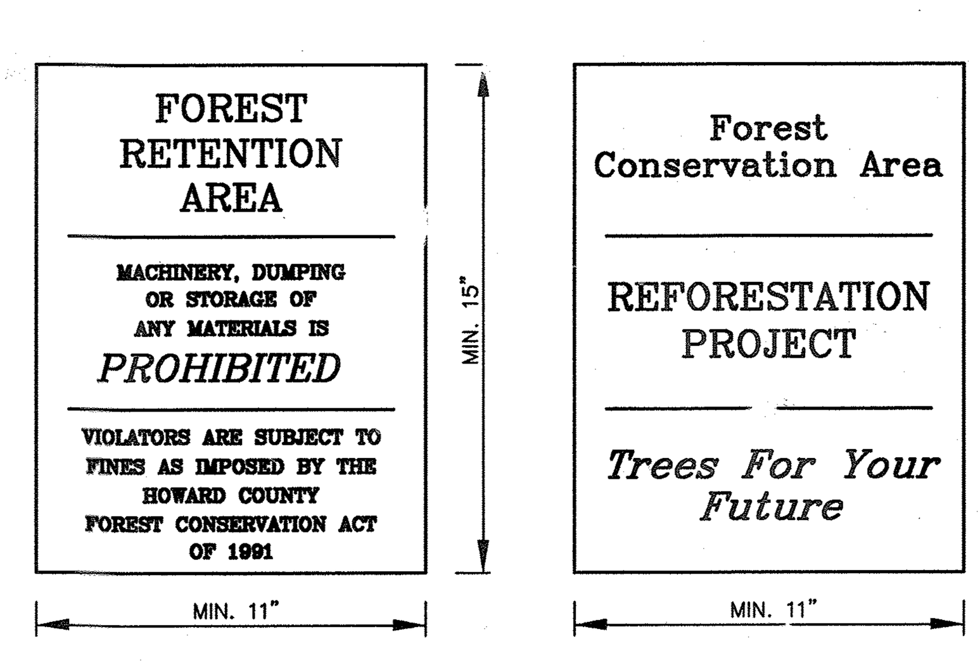
LEGEND

- EXISTING CONTOURS (2' INTERVALS)
- EXISTING TREELINE
- PROPOSED TREELINE
- CL STREAM
- LIMIT OF WETLANDS
- LIMIT OF 100YR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- FOREST CONSERVATION EASEMENT RETENTION AREA
- FCE — FOREST CONSERVATION SIGNAGE
- SPECIMEN TREE

FLOODPLAIN NOTE:

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.

FOR BEARINGS AND DISTANCES OF THE FOREST CONSERVATION EASEMENTS SEE RECORDED PLAT.



SIGNAGE
NOT TO SCALE

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

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-26-07

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/28/07

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/25/07

NO.	DATE	REVISION
	8-9-2021	AS BUILT SET
2	5-24-2007	ADD FOREST MITIGATION BANK EASEMENTS AND PLANTING CHARTS, REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	ADD CUL-DE-SAC ON HEATHER GLEN WAY, REVISE LOT #'S, OWNER INFO, SUBDIVISION NAME

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 — 6/18/07

OWNER/DEVELOPER:

DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE

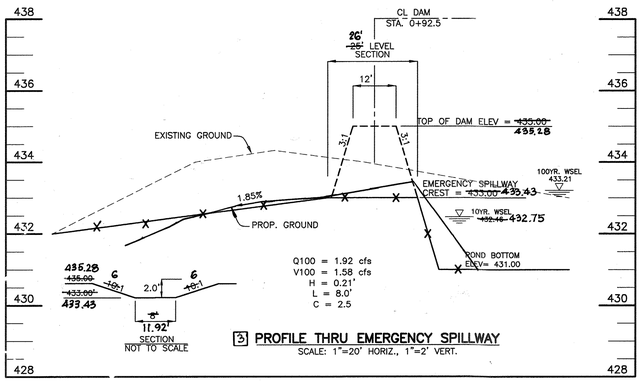
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'; NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G' NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18; PARCEL: 77; FIFTH ELECTION DISTRICT; HOWARD COUNTY, MARYLAND

TITLE: REVISED FOREST CONSERVATION PLAN, NOTES AND DETAILS

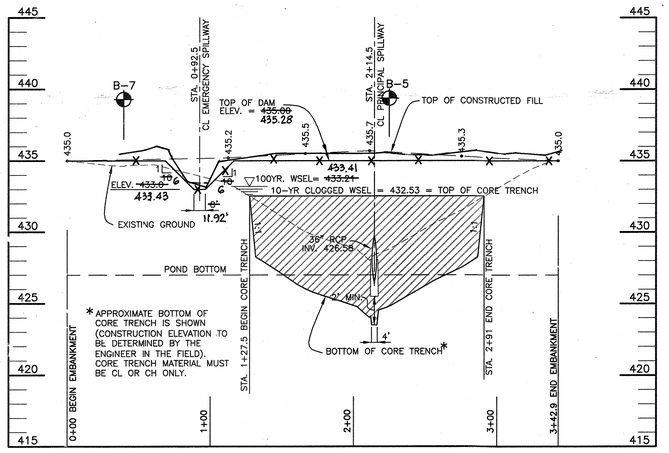
DATE: APRIL, 2007	PROJECT NO. 1407
SCALE: AS SHOWN	SHEET 20 OF 24

DESIGN: DBT | DRAFT: DBT | CHECK: DAM



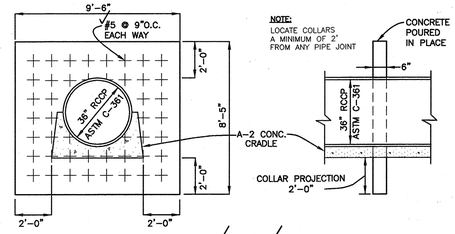
3 PROFILE THRU EMERGENCY SPILLWAY

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



3 PROFILE ALONG CL OF EMBANKMENT

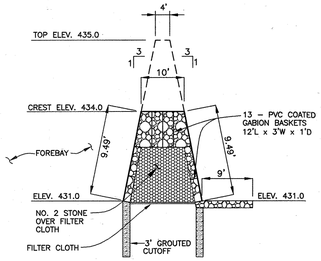
SCALE: 1"=50' HORIZ., 1"=5' VERT.



COLLAR SIZE: 9'-6" X 8'-5"

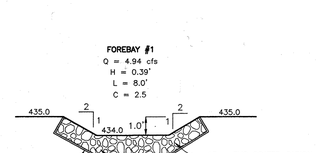
3 ANTI-SEEP COLLAR

NOT TO SCALE



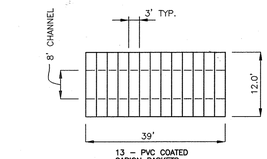
TYPICAL SECTION OF GABION WEIR AT FOREBAY

NOT TO SCALE



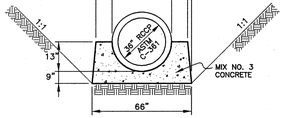
PROFILE THROUGH FOREBAY WEIR

NOT TO SCALE



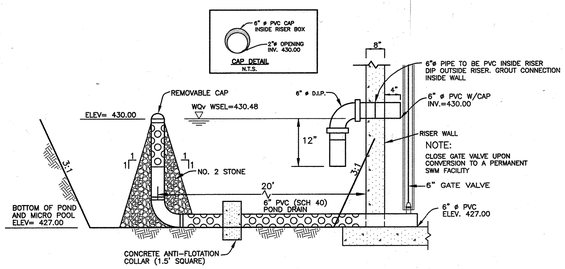
GABION BASKET LAYOUT

NOT TO SCALE



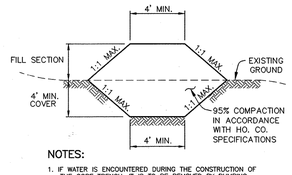
3 TYPE A-2 CONCRETE CRADLE

NOT TO SCALE



6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE

NOT TO SCALE

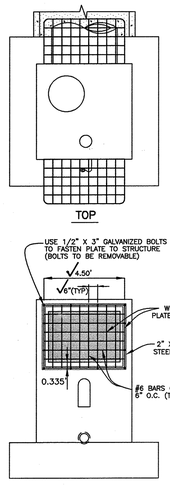


NOTES:

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 (SC, SC-CL, CH) AS DIRECTED BY A GEOTECHNICAL ENGINEER ONSITE AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.

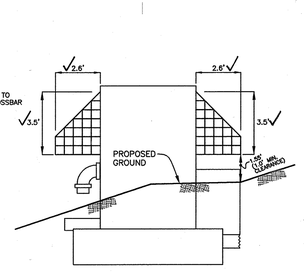
3 CORE TRENCH SECTION

NOT TO SCALE



TOP

FRONT ELEVATION



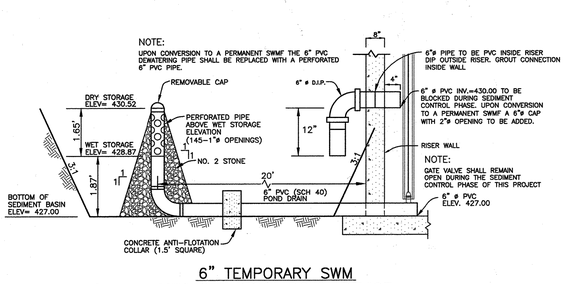
SIDE ELEVATION

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.

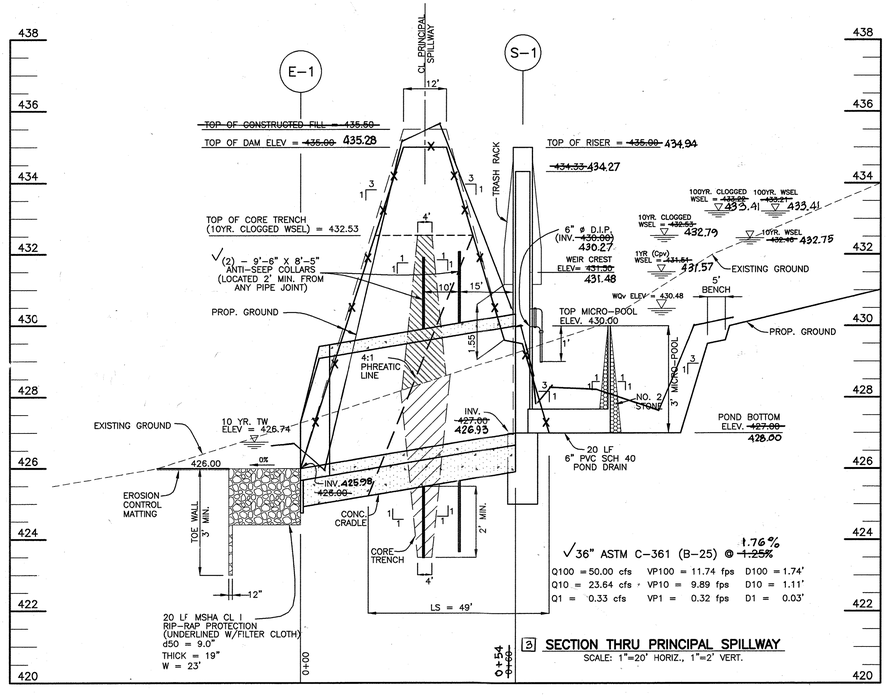
3 TRASH RACK DETAIL

SCALE: 1" = 4'



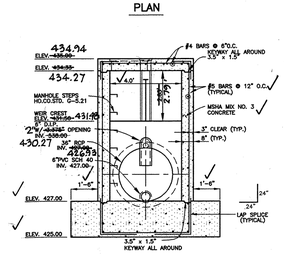
6" TEMPORARY SWM VERTICAL DRAW-DOWN DEVICE

NOT TO SCALE

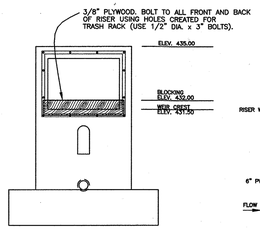


3 SECTION THRU PRINCIPAL SPILLWAY

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



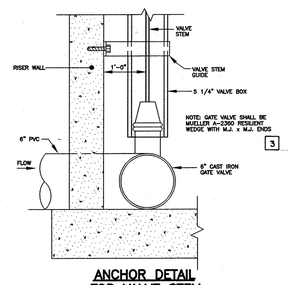
PLAN



FRONT ELEVATION

BLOCKING DETAIL FOR TEMPORARY SWM

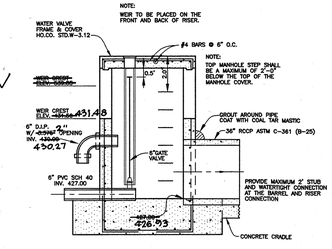
SCALE: 1" = 4'



ANCHOR DETAIL FOR VALVE STEM

NOT TO SCALE

SECTION A-A FRONT VIEW



SECTION B-B SIDE VIEW

3 CONTROL STRUCTURE

SCALE: 1" = 4'

OPERATION AND MAINTENANCE SCHEDULE FOR JOINTLY MAINTAINED EXTENDED DETENTION FACILITY

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.

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.

*** NOTE: THE CERTIFYING ENGINEER WAS NOT PRESENT DURING CONSTRUCTION AND DOES NOT CERTIFY ANY ITEMS NOT VISIBLE DURING POST CONSTRUCTION INSPECTION (INTERIOR COMPONENTS OF DAM, ETC.). AS-BUILT SURVEY OF FEATURES NOTED ON PLAN PROVIDED TO McCORMICK TAYLOR BY ECOTONE, INC.**

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

3 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. 25819

DATE 9.21.21

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: DALE THOMPSON — DATE 2.6 April 2007

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 3/30/06

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 4/6/06

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 4/6/06

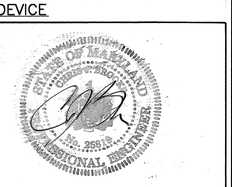
APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/20/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/20/06



CERTIFICATION STAMP FROM McCORMICK TAYLOR

NO.	DATE	REVISION
	8-9-2021	AS-BUILT SET
3	11-14-2019	AS-BUILT SURVEY BY McCORMICK TAYLOR *
2	6-13-2007	REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	REVISE OWNER INFO, SUBDIVISION NAME

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

3/30/06

OWNER/DEVELOPER:

DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18
PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORMWATER MANAGEMENT DETAILS FACILITY #1

DATE: APRIL, 2006 — PROJECT NO. 1407

DESIGN: DBT | DRAFT: DBT | CHECK: DAM | SCALE: AS SHOWN | SHEET 21 OF 24

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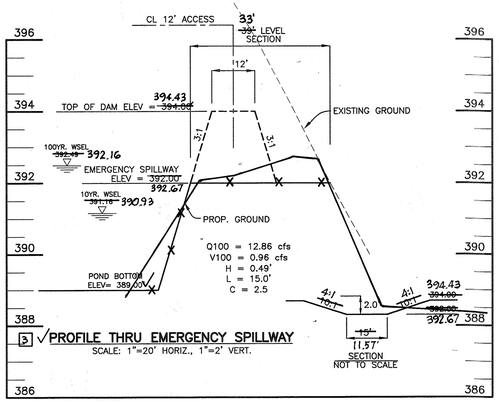
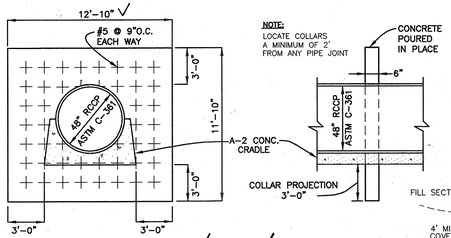
F-06-72



396 394 392 390 388 386

[3] PROFILE THRU EMERGENCY SPILLWAY

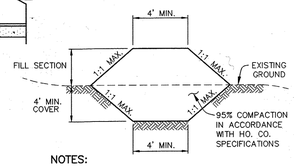
SCALE: 1"=20' HORIZ., 1"=2' VERT.



COLLAR SIZE: 12'-10" X 11'-10"

[3] ANTI-SEEP COLLAR

NOT TO SCALE

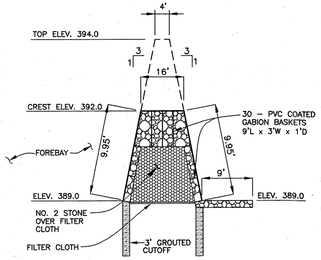


NOTES:

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.

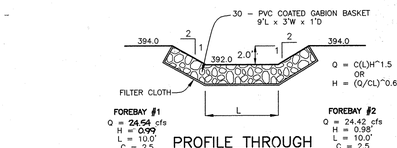
[3] CORE TRENCH SECTION

NOT TO SCALE



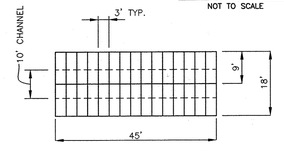
TYPICAL SECTION OF GABION WEIR AT FOREBAYS #1 & #2

NOT TO SCALE



PROFILE THROUGH FOREBAY WEIR

NOT TO SCALE



GABION BASKET LAYOUT

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.

NOTE: THE CERTIFYING ENGINEER WAS NOT PRESENT DURING CONSTRUCTION AND DOES NOT CERTIFY ANY ITEMS NOT VISIBLE DURING POST CONSTRUCTION INSPECTION (INTERIOR COMPONENTS OF DAM, ECT.). AS-BUILT SURVEY OF FEATURES NOTED ON PLAN PROVIDED TO McCORMICK TAYLOR BY ECOTONE, INC.

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

[3] 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. 25819

DATE 9.21.21

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 : DALE THOMPSON — 2-6 April 2007 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 — 3/30/06 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 — 4/4/06 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 — 4/4/06 DATE

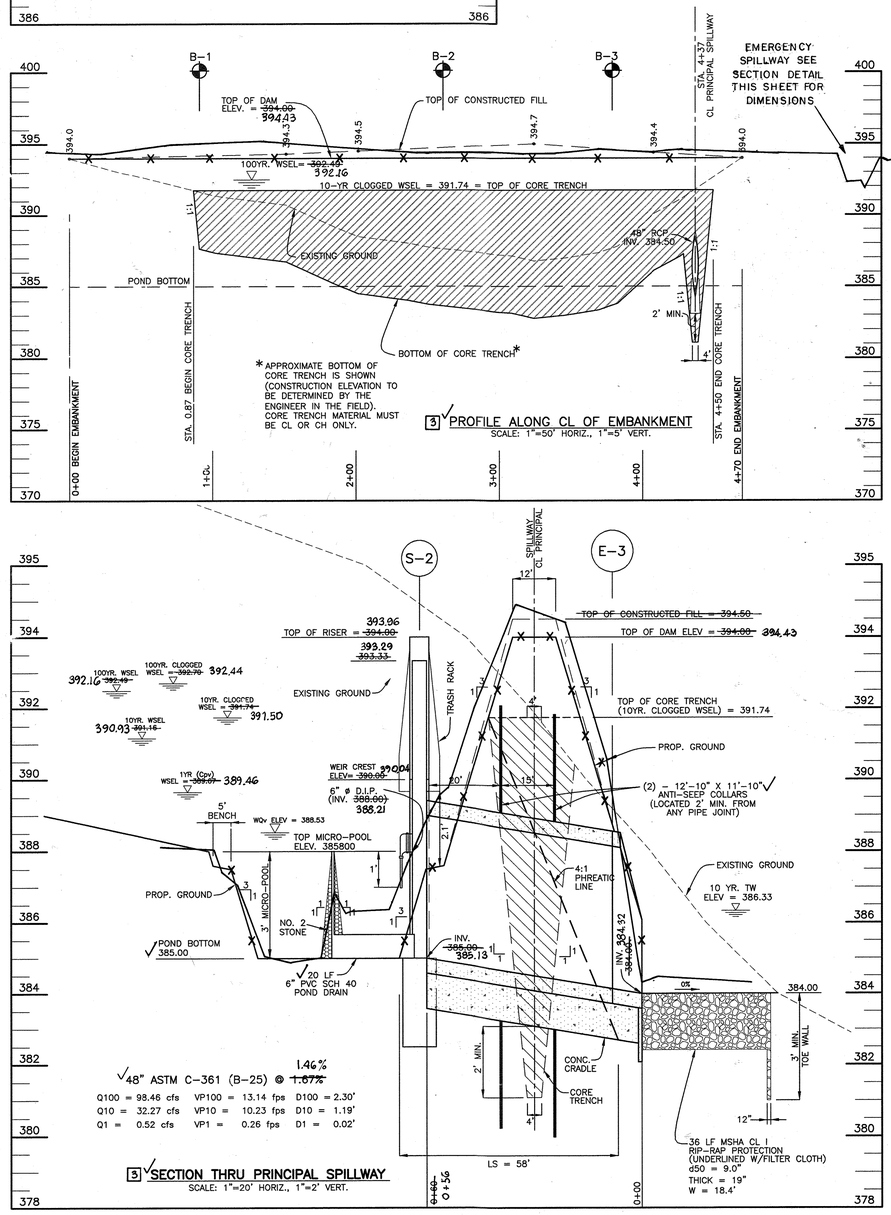
APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 4-13-06 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 4/20/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 4/20/06 DATE



* 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.

[3] PROFILE ALONG CL OF EMBANKMENT

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

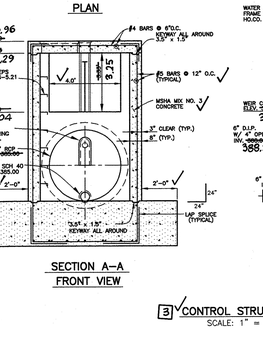
1.46%
~~1.67%~~

48" ASTM C-361 (B-25) @

Q100 = 98.46 cfs	VP100 = 13.14 fps	D100 = 2.30'
Q10 = 32.27 cfs	VP10 = 10.23 fps	D10 = 1.19'
Q1 = 0.52 cfs	VP1 = 0.26 fps	D1 = 0.02'

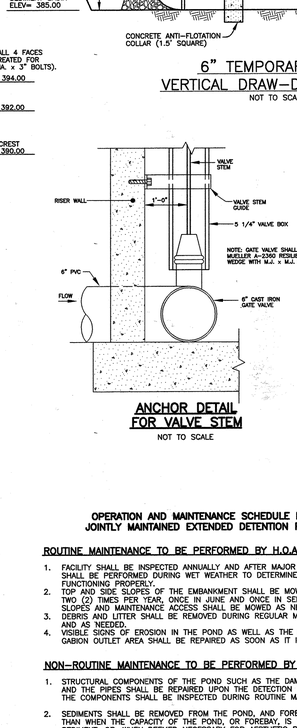
[3] SECTION THRU PRINCIPAL SPILLWAY

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



[3] TRASH RACK DETAIL

SCALE: 1" = 4'



6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE

NOT TO SCALE

6" TEMPORARY SWM VERTICAL DRAW-DOWN DEVICE

NOT TO SCALE

BLOCKING DETAIL FOR TEMP. SWM

SCALE: 1" = 4'

ANCHOR DETAIL FOR VALVE STEM

NOT TO SCALE

[3] CONTROL STRUCTURE

SCALE: 1" = 4'

OPERATION AND MAINTENANCE SCHEDULE FOR 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.

CERTIFICATION STAMP FROM McCORMICK TAYLOR

NO.	DATE	REVISION
	8-9-2021	AS-BUILT SET
3	11-14-2019	AS-BUILT SURVEY BY McCORMICK TAYLOR *
2	6-13-2007	REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	REVISE OWNER INFO, SUBDIVISION NAME

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 Mason 3/30/06

OWNER/DEVELOPER:

DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE

LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A' NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G' NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18 PARCEL: 77 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: STORMWATER MANAGEMENT DETAILS FACILITY #2

DESIGN: DBT	DRAFT: DBT	CHECK: DAM	DATE: APRIL, 2006	PROJECT NO. 1407
			SCALE: AS SHOWN	SHEET 22 OF 24

F-06-72

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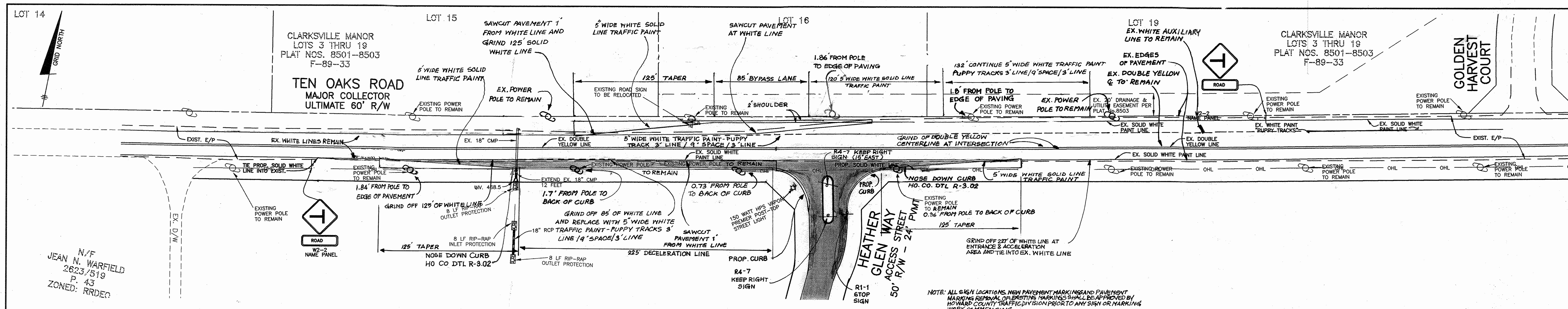
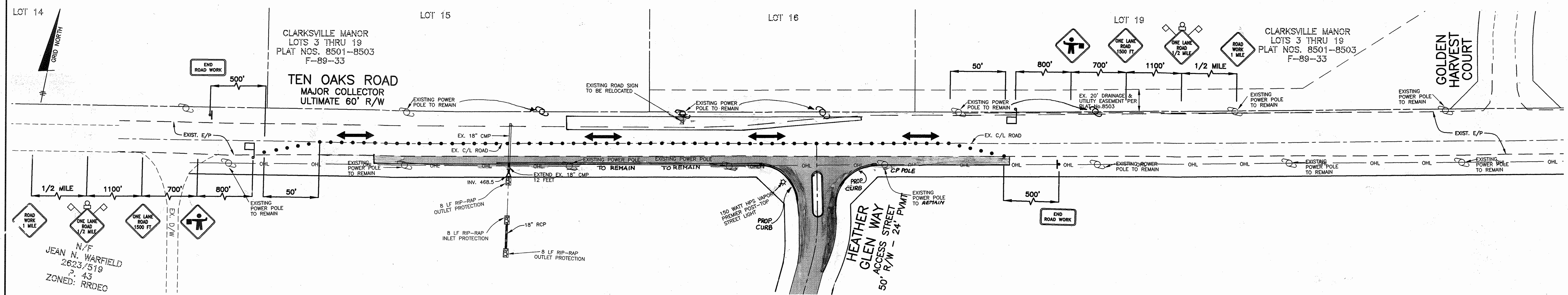
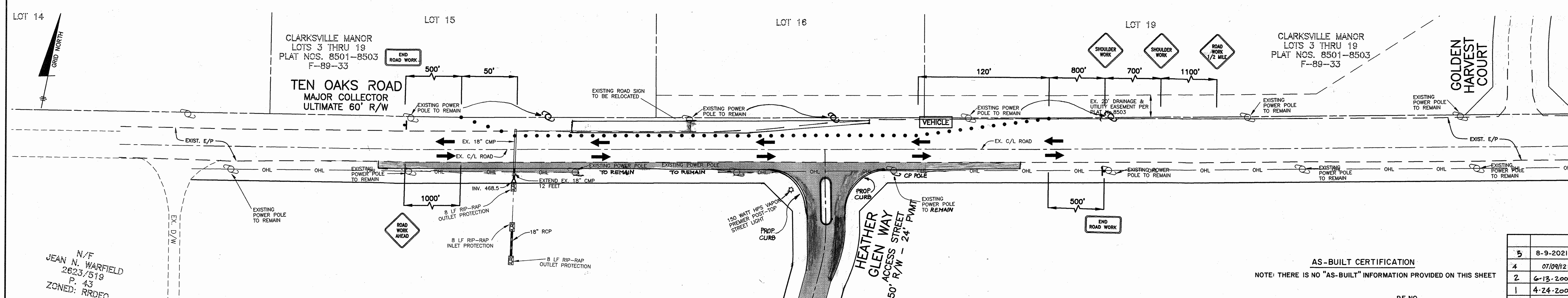


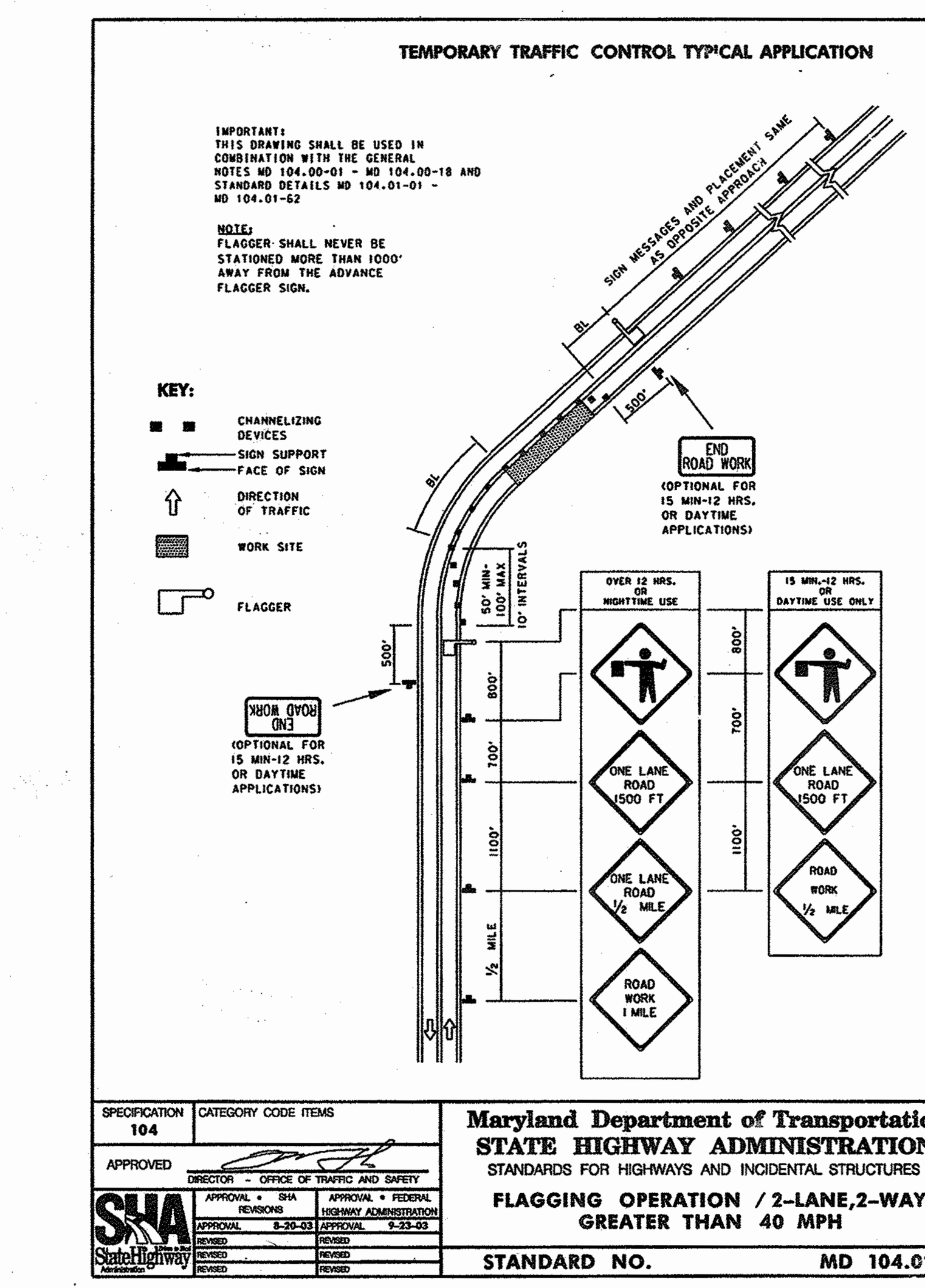
PLAN VIEW – STRIPING
SCALE: 1" = 50'

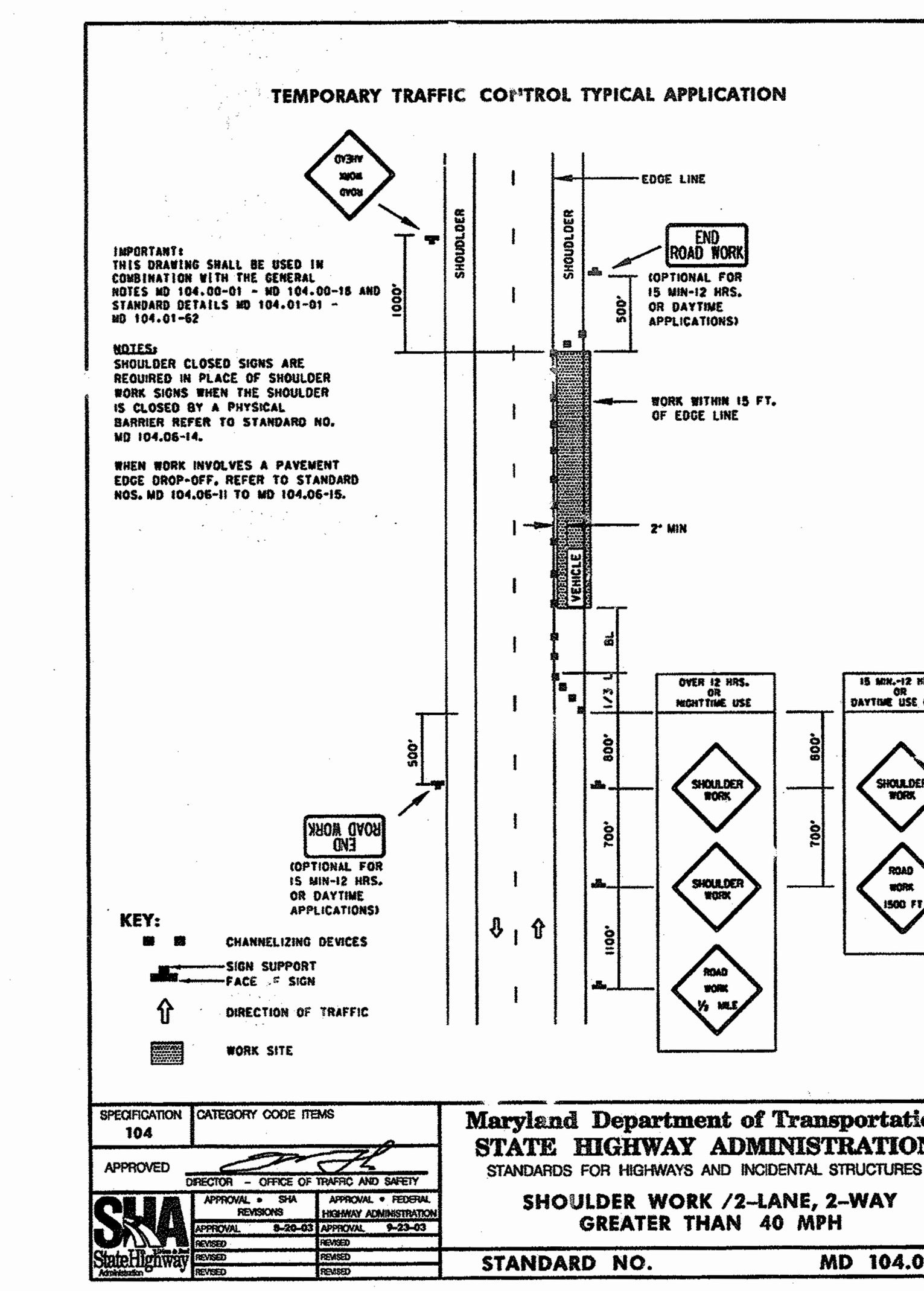


PLAN VIEW – TRAFFIC CONTROL – SOUTH SIDE IMPROVEMENTS
SCALE: 1" = 50'



PLAN VIEW – TRAFFIC CONTROL – NORTH SIDE IMPROVEMENTS
SCALE: 1" = 50'





NO.	DATE	REVISION
3	8-9-2021	AS BUILT SET
4	07/09/12	REVISE THE WIDTH OF THE ACCELERATION / DECELERATION LANE AND SHOW ADDITIONAL EXISTING UTILITY POLES
2	6-13-2007	REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	ADD ISLAND TO HEATHER GLEN WAY, REVISE OWNER INFO, SUBDIVISION NAME

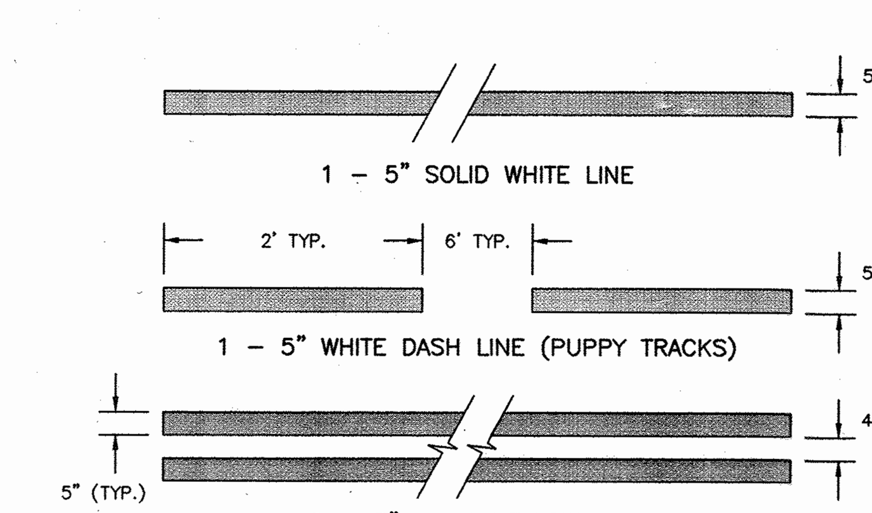
AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET

PE NAME ________ PE NO. ________ DATE ________

PAVEMENT MARKING NOTES

1) ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (2003 EDITION)
2) ALL EXISTING PAVEMENT MARKINGS TO BE REMOVED MUST BE PERFORMED BY GRINDING.
3) ALL NEW PAVEMENT MARKINGS TO BE 5" WIDE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS.
4) ALL PAVEMENT MARKINGS SHALL BE LAYED-OUT AND APPROVED BY THE TRAFFIC ENGINEER BEFORE INSTALLATION.



TRAFFIC STRIPING
PAVEMENT MARKINGS
NOT TO SCALE

THIS PLAN IS FOR TRAFFIC STRIPING, SIGNAGE AND CONTROL PURPOSES ONLY

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 Mason 3/30/06

OWNER/DEVELOPER:
DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18
PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: TEN OAKS ROAD
STRIPING AND TRAFFIC CONTROL PLAN

DES: MCR/DBT	DRAFT: MCR/DBT	CHECK: DAM	DATE: APRIL, 2006	PROJECT NO. 1407
			SCALE: AS SHOWN	SHEET 23 OF 24

APPROVED: DEPARTMENT OF PUBLIC WORKS
William Z. Mulas Jr. 4-13-06
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Hamilton 4/20/06
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
4/20/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

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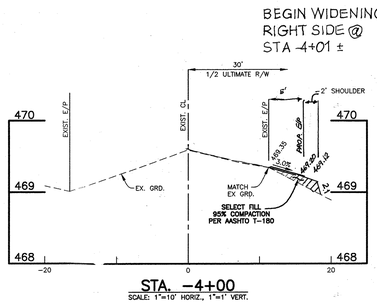

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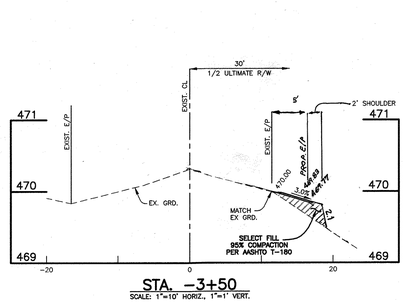

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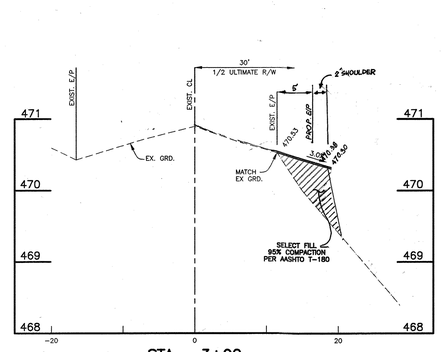

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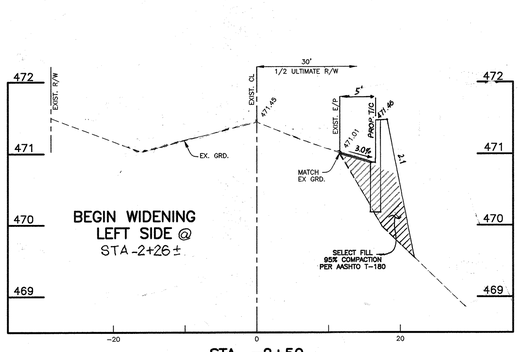

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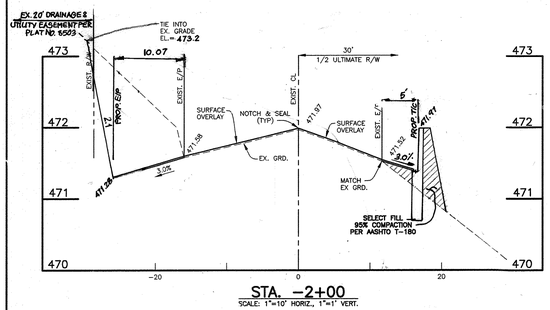

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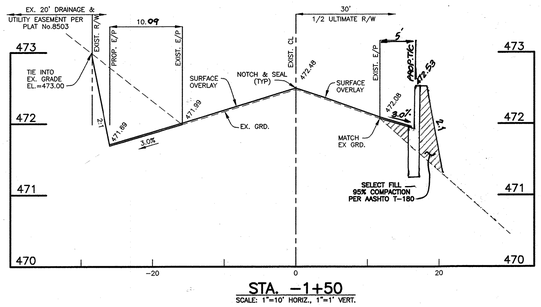

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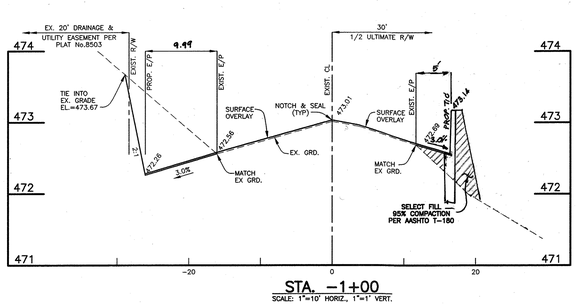

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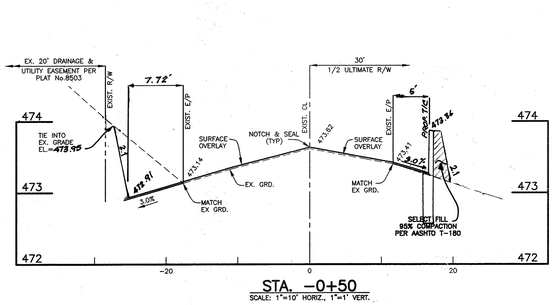

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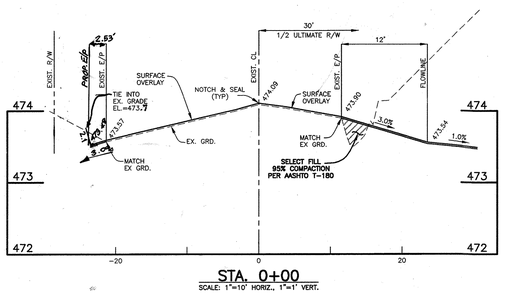

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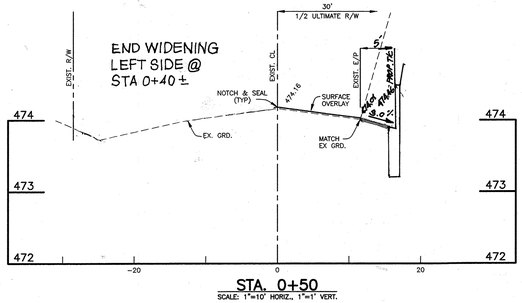

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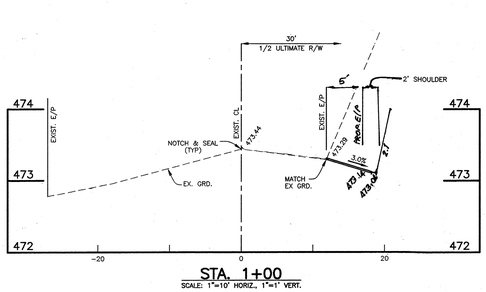

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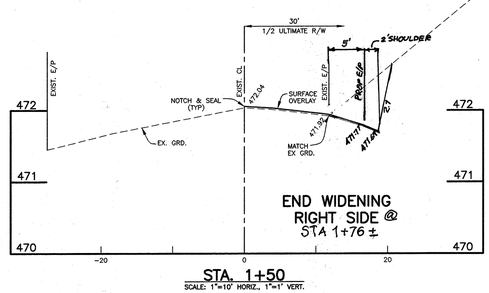

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SCALE: 1"=10' HORIZ., 1"=1' VERT.

AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET

PE NAME. _____ PE NO. _____

DATE. _____

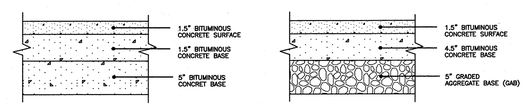
APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-13-06

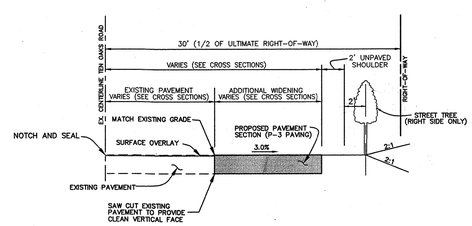
APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/20/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/25/06



P-3 PAVING DETAIL
NOT TO SCALE



NOTES:
1. THE SURFACE OVERLAY SHALL BE CARRIED TO THE CENTERLINE OF THE ROAD AND NOTCHED AND SEALED.
2. SURFACE OVERLAY COURSE TO BE EQUAL TO SURFACE COURSE OF TYPICAL PAVING SECTION OF SUBDIVISION.
3. CENTERLINE OF ROAD TO BE MILLED AT DEPTH OF 1-1/2" x 1' WIDE USING A MILLING MACHINE.

TYPICAL SECTION
PAVEMENT DETAIL FOR TEN OAKS ROAD IMPROVEMENTS
NOT TO SCALE

NO.	DATE	REVISION
5	8-9-2021	AS BUILT SET
4	07/10/12	REVISE CROSS SECTIONS TO CHANGE THE WIDTH OF THE ACCELERATION/DECELERATION LANES
2	6-13-2007	REVISE TITLE TO REFLECT NBBP 'J'
1	4-24-2007	REVISE OWNER INFO AND SUBDIVISION NAME

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 3/30/06

OWNER/DEVELOPER:

DAYTON OAKS, LLC
6300 WOODSIDE COURT
COLUMBIA, MARYLAND 21046

THE PRESERVE AT CLARKSVILLE
LOTS 1 thru 32, BUILDABLE PRESERVATION PARCEL 'A'
NON-BUILDABLE PRESERVATION PARCELS 'B' thru 'G'
NON-BUILDABLE BULK PARCELS 'H' thru 'J'

LOCATION: TAX MAP: 34, GRID: 11, 12, 17 & 18
PARCEL: 77
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: TEN OAKS ROAD
CROSS SECTIONS

DATE: APRIL, 2006 PROJECT NO. 1407

DESIGN: DBT DRAFT: DBT CHECK: DAM SCALE: AS SHOWN SHEET 24 OF 24

F-06-72

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