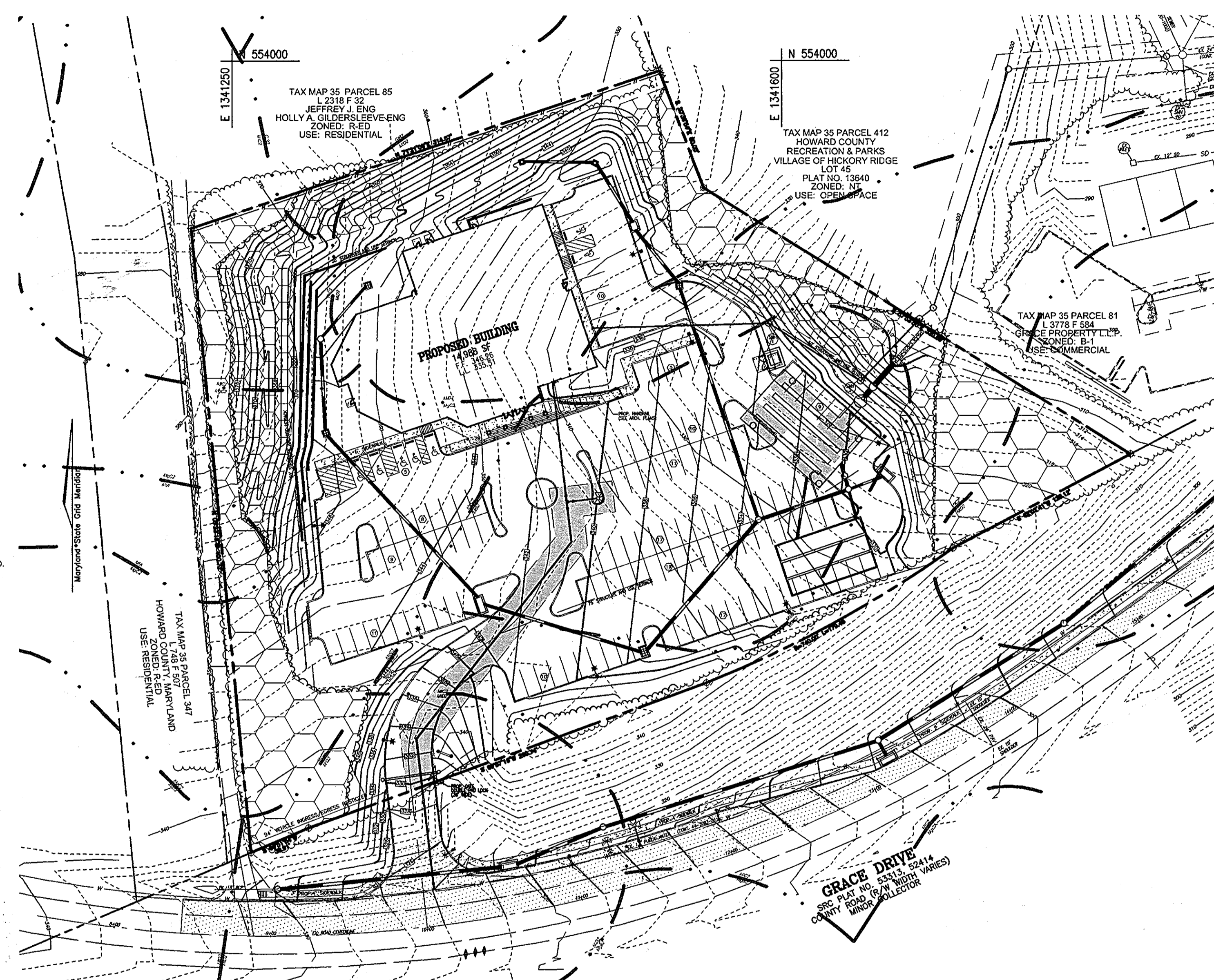


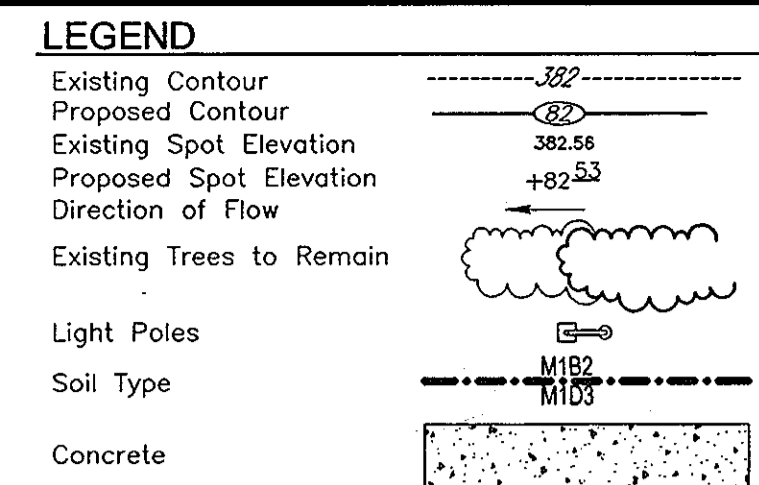
BALTIMORE SEVENTH DAY ADVENTIST KOREAN CHURCH SITE DEVELOPMENT PLAN PARCEL 86

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
 - THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
 - THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:
 - MISS UTILITY 1-800-257-7777
 - VERIZON TELEPHONE COMPANY: 1-410-954-6281
 - HOWARD COUNTY BUREAU OF UTILITIES: 313-2366
 - AT&T CABLE LOCATION DIVISION: 393-3553
 - B.G.&E. CO. CONTRACTOR SERVICES: 850-4620
 - B.G.&E. CO. UNDERGROUND DAMAGE CONTROL: 787-4620
 - STATE HIGHWAY ADMINISTRATION: 531-5533
 - SITE ANALYSIS:
 - AREA OF PARCEL: 3.84 AC.
 - PRESENT ZONING: R-ED
 - USE OF STRUCTURE: CHURCH
 - BUILDING FLOOR AREA: 14,988 SF.
 - BUILDING COVERAGE ON-SITE: 0.99 AC. OR 9.1% OF GROSS AREA
 - PAVED PARKING LOT/AREA ON SITE: 1.48 AC. OR 38.5% OF GROSS AREA
 - AREA OF LANDSCAPE ISLAND: 0.05 AC. OR 1.3% OF GROSS AREA
 - LIMIT OF DISTURBED AREA ON-SITE: 3.17 AC. OR 82.6% OF GROSS AREA
 - LIMIT OF DISTURBED AREA IN RIGHT-OF-WAY: 0.90 AC.
 - TOTAL LIMIT OF DISTURBED AREA: 3.97 AC.
 - CUT: 55750 CY
 - FILL: 55750 CY
 - PROJECT BACKGROUND:
 - LOCATION: COLUMBIA, MD.; TAX MAP 35, BLOCK 22, PARCEL 86
 - ZONING: R-ED
 - SUBDIVISION: N/A
 - SECTION/AREA: N/A
 - SITE AREA: 3.84 AC.
 - DPZ REFERENCES: BA-04-027C&V-F-07-042
 - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
 - ANY DAMAGE TO PUBLIC RIGHT-OF-WAYS, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
 - EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS, APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTOR'S INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
 - ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3,500 P.S.I. ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCO). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
 - ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING FEES.
 - SOIL COMPACTION SPECIFICATIONS, REQUIREMENTS, METHODS AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER, GEOTECHNICAL ENGINEER TO CONFIRM ACCEPTABILITY OF PROPOSED PAVING SECTION, BASED ON SOIL TEST PRIOR TO CONSTRUCTION.
 - THE EXISTING TOPOGRAPHY SURVEY HEREON IS BASED ON A FIELD TOPOGRAPHICAL SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC., DATED JULY 2005.
 - THE PROPERTY LINES SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MAY 2005.
 - A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
 - ALL PAVING TO BE MINIMUM HOWARD COUNTY STANDARD DETAIL P-2 UNLESS OTHERWISE NOTED. (SEE DETAILS, SHEET 3)
 - THE GEOTECHNICAL ENGINEER TO CONFORM PAVING SECTION PRIOR TO CONSTRUCTION.
 - ALL CURB AND GUTTER TO BE HOWARD COUNTY STANDARD DETAIL 3.01 UNLESS OTHERWISE NOTED. (SEE DETAIL, SHEET 3)
 - CONTRACTOR RESPONSIBLE TO CONSTRUCT ALL HANDICAP RAMPS AND HANDICAP ACCESS IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
 - WHERE DRAINAGE FLOWS AWAY FROM CURB, CONTRACTOR TO REVERSE THE GUTTER PAN.
 - ALL ELEVATIONS ARE TO FLOWLINE/BOTTOM OF CURB UNLESS OTHERWISE NOTED.
 - ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 - PUBLIC WATER AVAILABLE THROUGH CONTRACT R-3479-D.
 - PUBLIC SEWER AVAILABLE THROUGH CONTRACT R-3479-D. THIS PROPERTY IS LOCATED IN THE PATAPSCO DRAINAGE AREA.
 - STORMWATER MANAGEMENT IS PROVIDED BY AN UNDERGROUND DETENTION FACILITY AND SANDFILTERS TO MEET THE ROW, WOV, AND C&V REQUIREMENTS. THESE FACILITIES ARE SIZED TO MANAGE ULTIMATE SITE CONDITIONS AND ARE PRIVATELY OWNED AND MAINTAINED.
 - ALL EXTERIOR LIGHTING TO CONFORM TO SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS. ALL LIGHTING SHALL BE DIRECTED DOWNWARD AND AWAY FROM THE NEIGHBORING PROPERTIES. (DETAIL ON SHEET 4)
 - GEOTECHNICAL REPORT PREPARED BY HERBERT JOHNSON & ASSOCIATES, DATED DECEMBER 7, 2005.
 - ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
 - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
 - FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$15,270.00 FOR 25 SHADE TREES, 16 EVERGREEN TREES, 74 SHRUBS, AND 315LF OF FENCE.
 - TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP DATED DECEMBER 12, 2005; APPROVED 12-12-05.
 - APPO STUDY APPROVED 08-07-06.
 - ALL STORMWATER PIPE BEDDING IS TO BE CLASS 'C'.
 - BUILDING TO HAVE INSIDE WATER METER SETTING.
 - THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
 - NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS AND FOREST CONSERVATION EASEMENT AREAS.
 - THE FOREST CONSERVATION OBLIGATIONS WILL BE FULFILLED BY THE RETENTION OF 0.61 ACRES OF FOREST, BY THE REFORESTATION OF 0.39 ACRES OF FOREST, AND BY A FEE-IN-LIEU PAYMENT IN THE AMOUNT OF \$22,215.60 FOR THE REMAINING 0.68 ACRES OF FOREST REQUIRED. FINANCIAL SURETY FOR THE REQUIRED FOREST CONSERVATION IN THE AMOUNT OF \$13,808.52 WILL BE PAID AS PART OF THE DEVELOPER'S AGREEMENT.
 - RETENTION (26871 SF OR 0.61 AC @ 0.20 = \$5,141.20)
 - REFORESTATION (16988.40 SF OR 0.39 AC @ 0.50 = \$8,494.20)
 - FEE-IN-LIEU (2020.92 SF OR 0.46 AC @ 0.75 = \$2,215.60)
 - THERE ARE NO WETLAND OR FLOODPLAINS ON SITE.
 - THE SUBJECT PROPERTY IS ZONED R-ED PER THE 2/2/04 COMPREHENSIVE ZONING PLAN.
 - THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL 45-2003 AND THE ZONING REGULATIONS AS AMENDED BY 08-75-2003.
 - THIS PLAN IS SUBJECT TO BOA CASE NO. 04-027C&V, APPROVED FEBRUARY 1, 2005; FOR (1) A CONDITIONAL USE FOR A STRUCTURE USED PRIMARILY FOR RELIGIOUS ACTIVITIES, AND (2) A VARIANCE TO REDUCE THE REQUIRED 75' USE SETBACK FROM AN EXTERNAL PUBLIC STREET RIGHT-OF-WAY TO ZERO FEET FOR A PROPOSED PARKING LOT IN AN R-ED ZONING DISTRICT, PURSUANT TO SECTIONS 131.N.38 AND 130.B.2 OF THE HOWARD COUNTY ZONING REGULATIONS.
 - STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". A MINIMUM SPACING OF 30' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
 - 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 TUBE SLEEVE (12 GAUGE) 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
 - A KNOX BOX IS REQUIRED TO BE PLACED ON THE FRONT OF THE BUILDING. IT SHALL BE PLACED TO THE RIGHT OF THE MAIN ENTRANCE AT A RANGE OF 4'-5' IN HEIGHT AND NO MORE THAN 8' LATERSALLY FROM THE DOOR. ITS LOCATION IS SHOWN ON THESE PLANS. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSSED (INTEGRATED WITH THE FIRE ALARM SYSTEM).
 - THE RETAINING WALL ALONG THE NORTH FACE OF THE BUILDING IS ATTACHED TO THE BUILDING AND SHALL BE CONSTRUCTED AS PART OF THE FOUNDATION.
 - THIS PLAN IS SUBJECT TO BA-04-027C&V, A CONDITIONAL USE FOR A STRUCTURE USED PRIMARILY FOR RELIGIOUS ACTIVITIES, AND A VARIANCE TO REDUCE THE REQUIRED 75' USE SETBACK FROM AN EXTERNAL PUBLIC STREET RIGHT-OF-WAY TO ZERO FEET FOR A PROPOSED PARKING LOT IN AN R-ED (RESIDENTIAL ENVIRONMENTAL DEVELOPMENT) ZONING DISTRICT, FILLED PURSUANT TO SECTIONS 131.N.38 AND 130.B.2 OF THE HOWARD COUNTY ZONING REGULATIONS, APPROVED FEB 01, 2005. APPROVAL SUBJECT TO THE FOLLOWING CONDITION:
 - THE PETITIONER WILL INSTALL A DECELERATION LANE TO THE EAST OF THE PROPOSED DRIVEWAY. BUILDING PERMIT MUST BE OBTAINING WITHIN 2 YEARS (FEBRUARY 1, 2007) AND SUBSTANTIAL CONSTRUCTION COMPLETED WITHIN THREE YEARS (FEBRUARY 1, 2008) FROM THE DATE OF THE APPROVAL OF THE CONDITIONAL USE.
- * ON JANUARY 17, 2007, THE TWO-YEAR TIME PERIOD FOR OBTAINING A BUILDING PERMIT WAS EXTENDED TO 2/1/2010 AND THE THREE-YEAR TIME PERIOD FOR COMPLETION OF SUBSTANTIAL CONSTRUCTION HAS BEEN EXTENDED TO FEBRUARY 1, 2011.

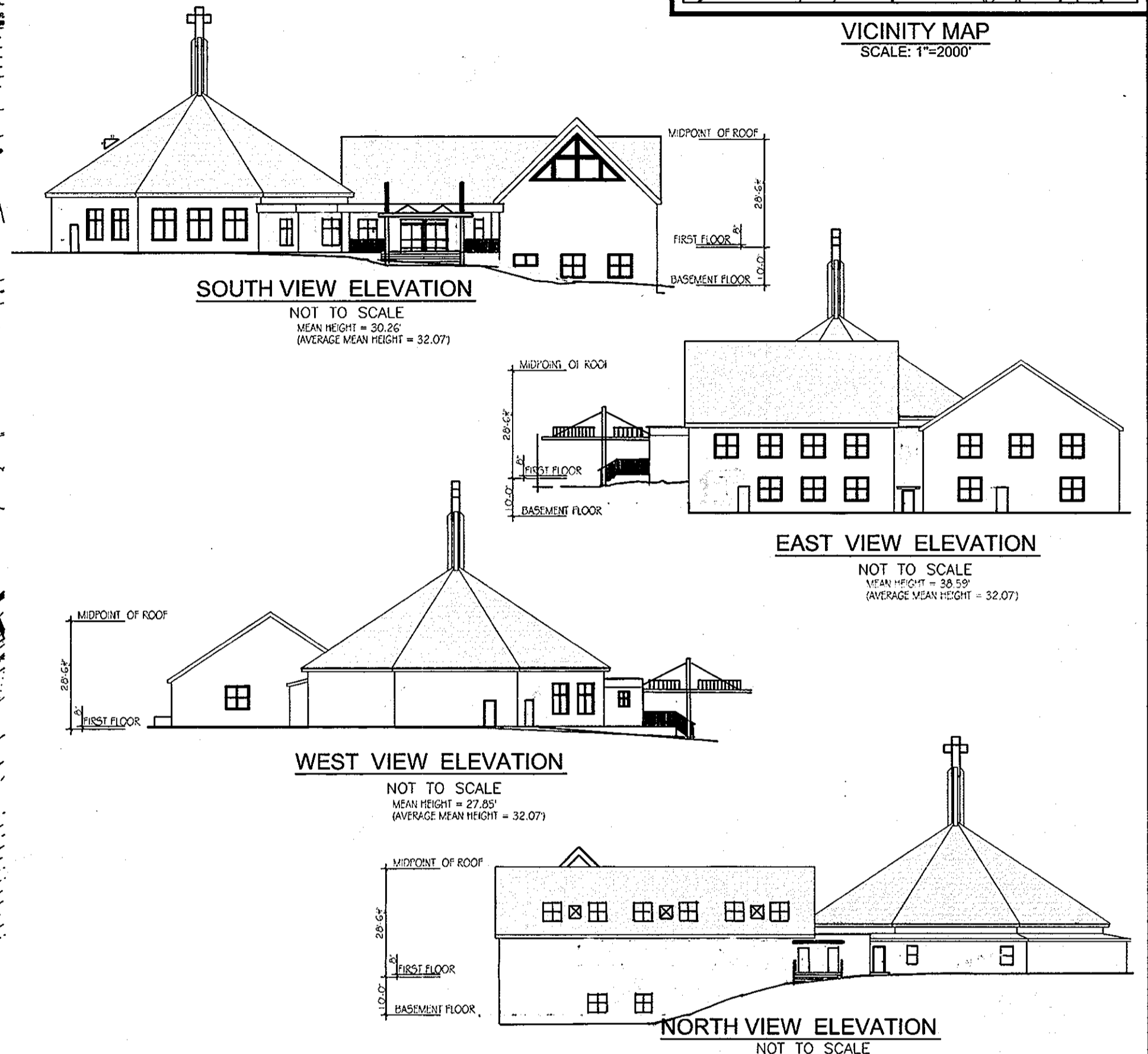
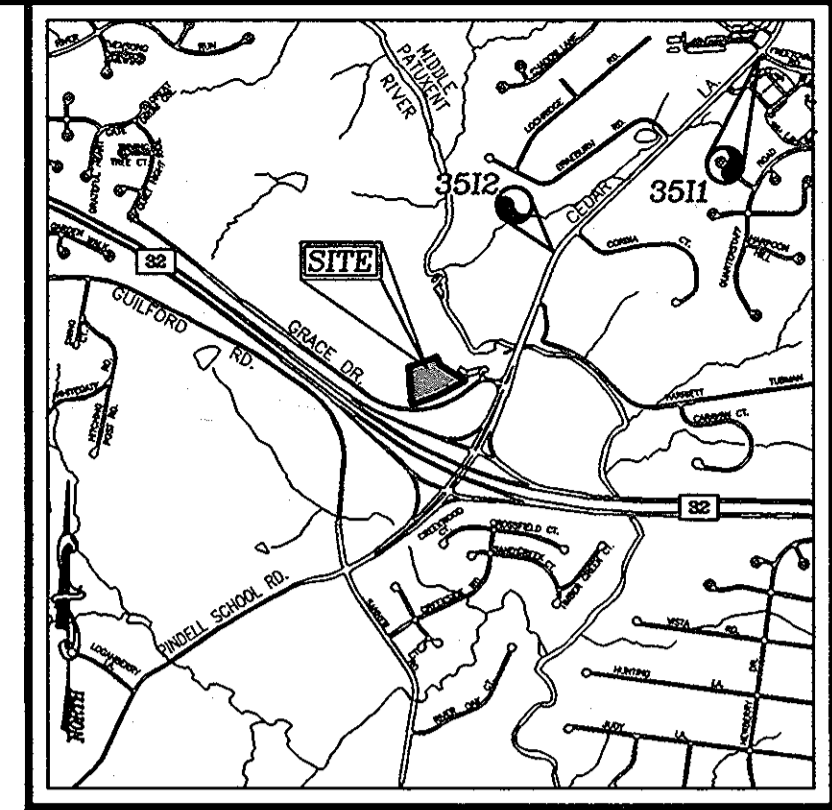


LOCATION MAP
SCALE: 1"=60'



BENCHMARKS

HOWARD COUNTY BENCHMARK 3511	N 557,110.367	E 1,344,893.647	ELEV. 400.068
HOWARD COUNTY BENCHMARK 3512	N 555,100.814	E 1,342,733.092	ELEV. 329.743



OWNER/DEVELOPER
CHESAPEAKE CONFERENCE ASSOCIATION
OF SEVENTH DAY ADVENTISTS
6600 MARTIN ROAD
COLUMBIA, MARYLAND 21044
PH. 202-298-5767

PARKING TABULATION

REQUIREMENT DESCRIPTION	REQUIRED	PROVIDED
CHURCH W/ 425 SEATS (1 SPACE PER 3 SEATS)	142 SPACES	142 SPACES (INCLUDING 6 HANDICAP)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* 2/12/08
CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* 2/15/08
DIRECTOR: *[Signature]* 2/19/08

APPROVED
PLANNING BOARD
OF HOWARD COUNTY
DATE 2/19/08

SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 12
SITE LAYOUT PLAN	2 OF 12
SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN	3 OF 12
SEDIMENT AND EROSION CONTROL NOTES AND DETAILS	4 OF 12
STORM DRAIN DRAINAGE AREA MAP	5 OF 12
UTILITY PROFILES	6 OF 12
UTILITY PROFILES	7 OF 12
STORMWATER MANAGEMENT NOTES AND DETAILS	8 OF 12
LANDSCAPE AND FOREST CONSERVATION PLAN	9 OF 12
SLOPE INSETS, PAVEMENT MARKING & ROAD SECTIONS	10 OF 12
RETAINING WALL	11 OF 12
RETAINING WALL	12 OF 12

ADDRESS CHART

LOT/PARCEL#	STREET ADDRESS
86	7410 GRACE DRIVE

PERMIT INFORMATION CHART

SUBDIVISION NAME	SECTION/AREA	PARCEL NUMBER
N/A	N/A	86

DEED REF.	GRID	ZONE	TAX/ZONE	ELECT. DIST.	CENSUS TR.
8684/5 PLAT NO. 18441	22	R-ED	35	5TH	6055.01

WATER CODE: E24 SEWER CODE: 6580000

ROBERT H. VOGEL ENGINEERING, INC.

ENGINEERS • SURVEYORS • PLANNERS

8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

DESIGN BY: WJZ
DRAWN BY: DZ
CHECKED BY: RHW
DATE: FEB. 2008
SCALE: AS SHOWN
W.O. NO.: 04-08

1 SHEET OF 12

TAX MAP 35 PARCEL 85
L 2318 F 32
JEFFREY J. ENG
HOLLY A. GILDERSLEEVE ENG
ZONED: R-ED
USE: RESIDENTIAL

TAX MAP 35 PARCEL 412
HOWARD COUNTY
RECREATION & PARKS
VILLAGE OF HICKORY RIDGE
LOT 45
PLAT NO. 13640
ZONED: NT
USE: OPEN SPACE

TAX MAP 35 PARCEL 81
L 3778 F 584
GRACE PROPERTY L.L.P.
ZONED: B-1
USE: COMMERCIAL

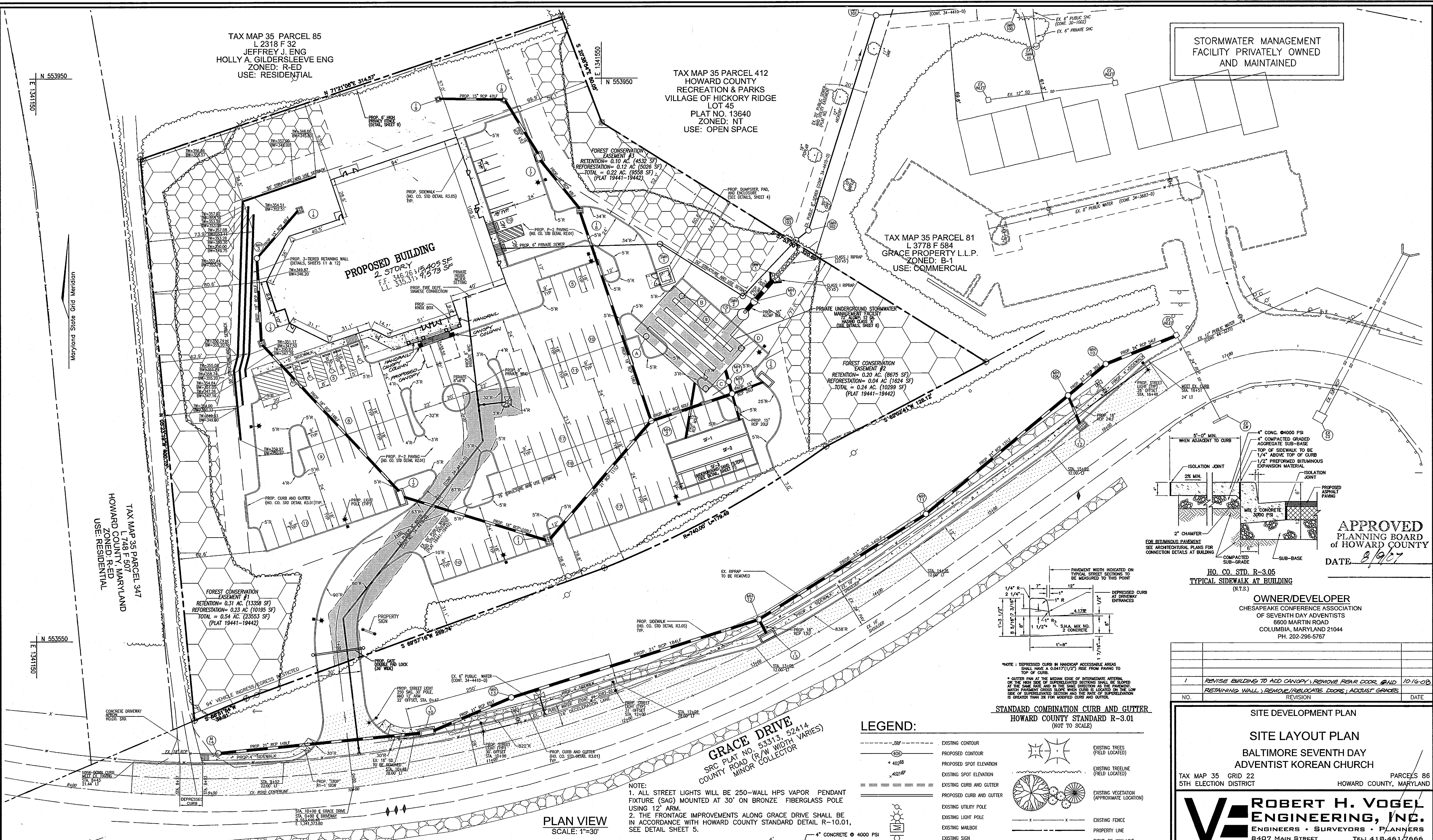
STORMWATER MANAGEMENT
FACILITY PRIVATELY OWNED
AND MAINTAINED

TAX MAP 38 PARCEL 347
L 748 F 507
HOWARD COUNTY MARYLAND
ZONED: R-ED
USE: RESIDENTIAL

FOREST CONSERVATION
EASEMENT #1
RETENTION= 0.31 AC. (13136 SF)
REFORESTATION= 0.23 AC. (10185 SF)
TOTAL = 0.54 AC. (23321 SF)
(PLAT 19441-19442)

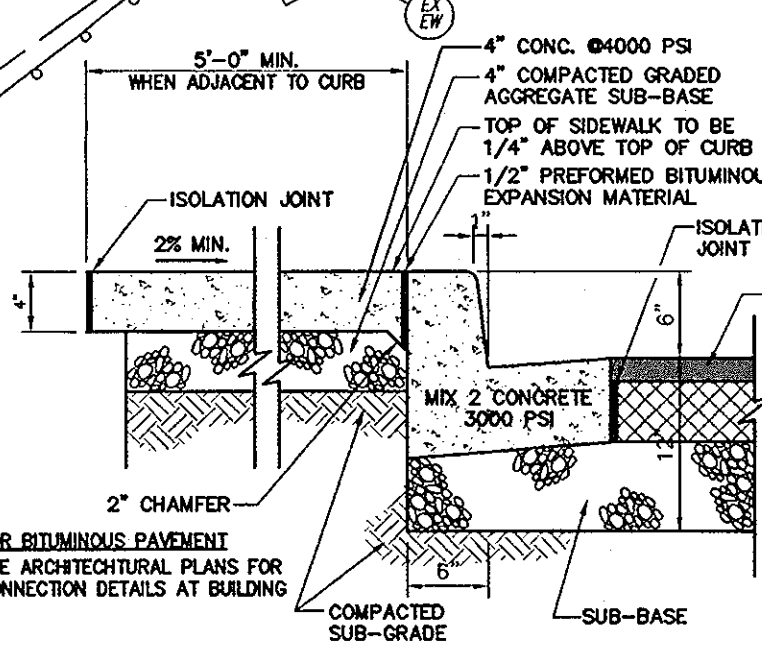
FOREST CONSERVATION
EASEMENT #3
RETENTION= 0.10 AC. (4532 SF)
REFORESTATION= 0.12 AC. (5026 SF)
TOTAL = 0.22 AC. (9558 SF)
(PLAT 19441-19442)

FOREST CONSERVATION
EASEMENT #2
RETENTION= 0.20 AC. (8675 SF)
REFORESTATION= 0.04 AC. (1624 SF)
TOTAL = 0.24 AC. (10299 SF)
(PLAT 19441-19442)



NOTE:
1. ALL STREET LIGHTS WILL BE 250-WALL HPS VAPOR PENDANT
FIXTURE (SAG) MOUNTED AT 30' ON BRONZE FIBERGLASS POLE
USING 12' ARM.
2. THE FRONTAGE IMPROVEMENTS ALONG GRACE DRIVE SHALL BE
IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL R-10.01,
SEE DETAIL SHEET 5.

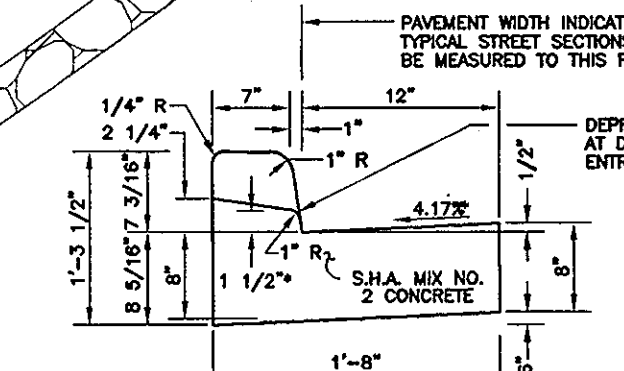
PLAN VIEW
SCALE: 1"=30'



HO. CO. STD. R-3.05
TYPICAL SIDEWALK AT BUILDING
(N.T.S.)

OWNER/DEVELOPER
CHESAPEAKE CONFERENCE ASSOCIATION
OF SEVENTH DAY ADVENTISTS
6600 MARTIN ROAD
COLUMBIA, MARYLAND 21044
PH. 202-296-5767

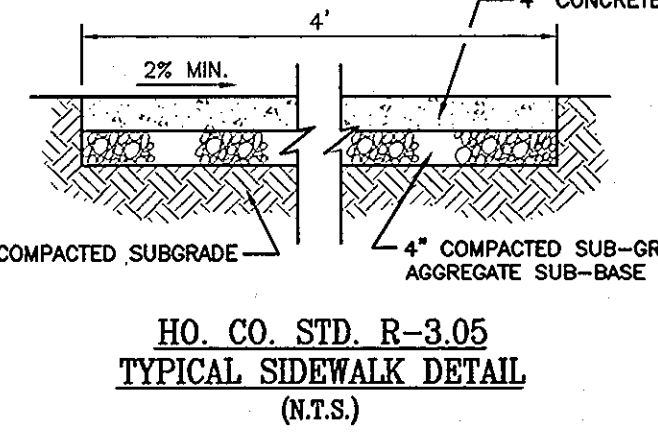
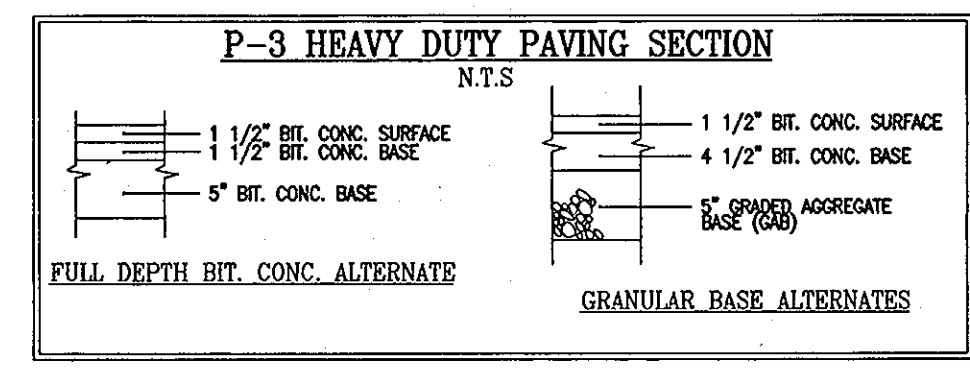
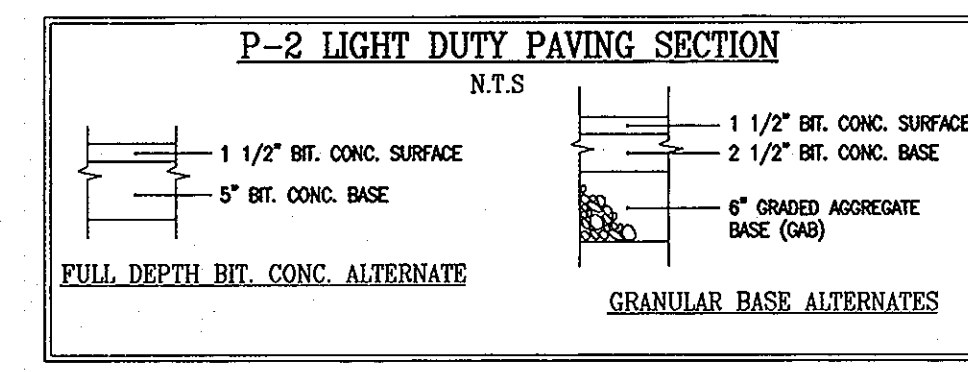
APPROVED
PLANNING BOARD
OF HOWARD COUNTY
DATE 8/9/07



STANDARD COMBINATION CURB AND GUTTER
HOWARD COUNTY STANDARD R-3.01
(NOT TO SCALE)

LEGEND:

- EXISTING CONTOUR
- - - PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- LIMITS OF P-3 PAVING
- EXISTING TREES (FIELD LOCATED)
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING VEGETATION (APPROXIMATE LOCATION)
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PROPOSED SIDEWALK
- STEEP SLOPE (>25%)
- FOREST CONSERVATION EASEMENT 'RETENTION'
- FOREST CONSERVATION EASEMENT 'REFORESTATION'



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 DATE: 8/15/08
 DATE: 2/13/07

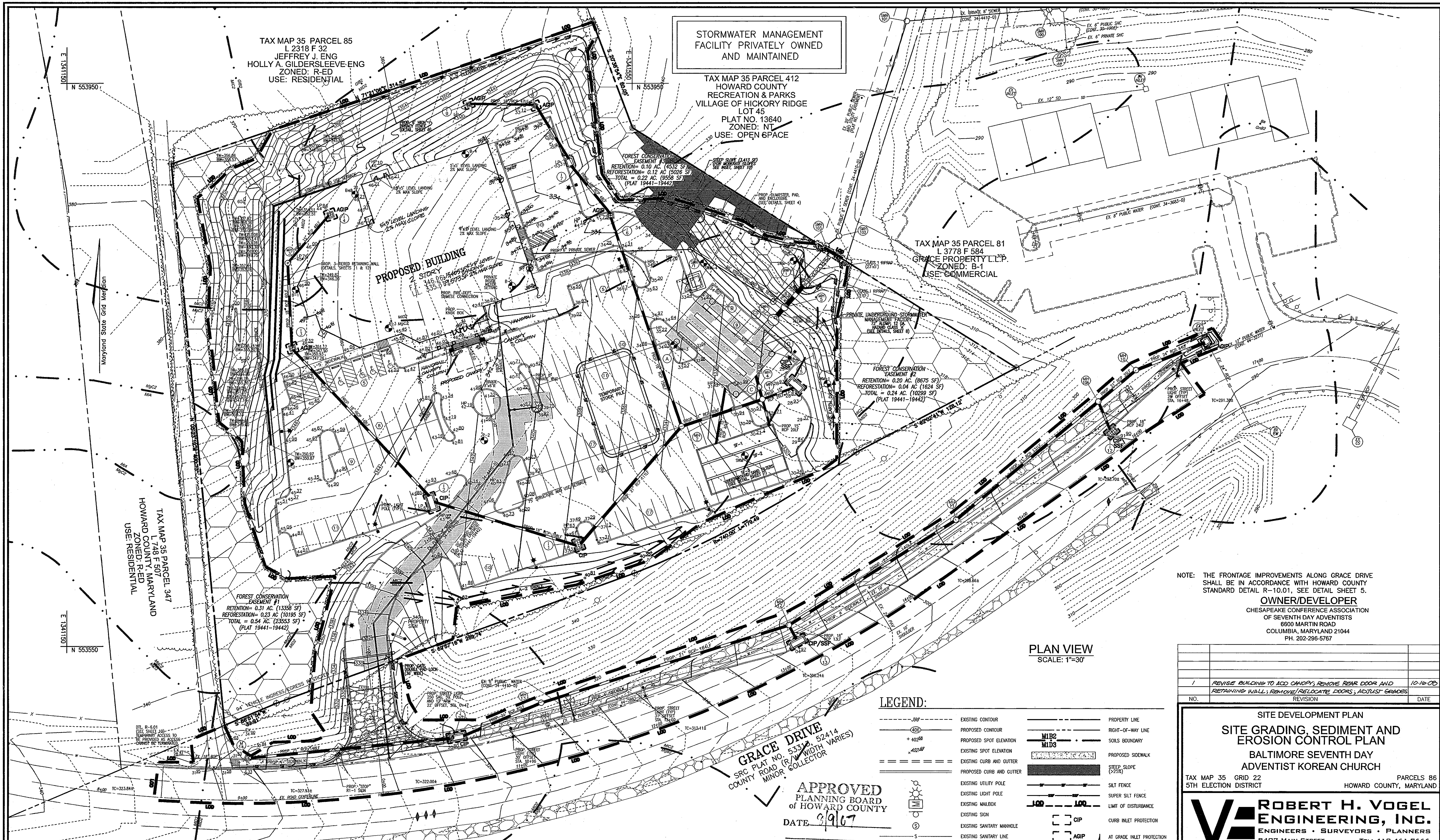
NO.	REVISION	DATE
1	REVISE BUILDING TO ADD CANOPY; REMOVE REAR DOOR. #140	10/16/08
	RETAINING WALL; REMOVE/RELOCATE DOORS; ADJUST GRADES	

SITE DEVELOPMENT PLAN
 SITE LAYOUT PLAN
 BALTIMORE SEVENTH DAY
 ADVENTIST KOREAN CHURCH
 TAX MAP 35 GRID 22
 5TH ELECTION DISTRICT
 PARCELS 86
 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET
 ELLICOTT CITY, MD 21043
 TEL: 410.461.7666
 FAX: 410.461.8961

DESIGN BY: W.G.Z.
 DRAWN BY: D.Z.
 CHECKED BY: R.H.V.
 DATE: FEB. 2008
 SCALE: AS SHOWN
 W.O. NO.: 04-06

2 SHEET OF 12



NOTE: THE FRONTAGE IMPROVEMENTS ALONG GRACE DRIVE SHALL BE IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL R-10.01, SEE DETAIL SHEET 5.

OWNER/DEVELOPER
CHESAPEAKE CONFERENCE ASSOCIATION
OF SEVENTH DAY ADVENTISTS
6600 MARTIN ROAD
COLUMBIA, MARYLAND 21044
PH. 202-296-5767

PLAN VIEW
SCALE: 1"=30'

LEGEND:

- - - - - EXISTING CONTOUR
- - - - - PROPOSED CONTOUR
- + 402.68 EXISTING SPOT ELEVATION
- + 402.87 PROPOSED SPOT ELEVATION
- - - - - EXISTING CURB AND GUTTER
- - - - - PROPOSED CURB AND GUTTER
- - - - - EXISTING UTILITY POLE
- - - - - EXISTING LIGHT POLE
- - - - - EXISTING MAILBOX
- - - - - EXISTING SIGN
- - - - - EXISTING SANITARY MANHOLE
- - - - - EXISTING SANITARY LINE
- - - - - EXISTING CLEANOUT
- - - - - EXISTING FIRE HYDRANT
- - - - - EXISTING WATER LINE
- - - - - PROPOSED STORM DRAIN
- - - - - PROPOSED STORM DRAIN INLET
- - - - - EXISTING TREE LINE (FIELD LOCATED)
- - - - - EXISTING FENCE
- - - - - LIMITS OF P-3 PAVING
- - - - - PROPERTY LINE
- - - - - RIGHT-OF-WAY LINE
- - - - - SOILS BOUNDARY
- - - - - PROPOSED SIDEWALK
- - - - - STEEP SLOPE (>2%)
- - - - - SILT FENCE
- - - - - SUPER SILT FENCE
- - - - - LIMIT OF DISTURBANCE
- - - - - CURB INLET PROTECTION
- - - - - AT GRADE INLET PROTECTION
- - - - - STABILIZED CONSTRUCTION ENTRANCE
- - - - - FOREST CONSERVATION EASEMENT "RETENTION"
- - - - - FOREST CONSERVATION EASEMENT "REFORESTATION"

NO.	REVISION	DATE
1	REVISE BUILDING TO ADD CANOPY, REMOVE REAR DOOR AND RETAINING WALL; REMOVE/RELOCATE DOORS; ADJUST GRADES	10/16/08

SITE DEVELOPMENT PLAN
SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN
BALTIMORE SEVENTH DAY ADVENTIST KOREAN CHURCH

TAX MAP 35 GRID 22 PARCELS 86
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET TEL: 410.461.7666
ELLCOTT CITY, MD 21043 FAX: 410.461.8961

DESIGN BY: WGL
DRAWN BY: DZ
CHECKED BY: RHV
DATE: FEB. 2008
SCALE: AS SHOWN
W.O. NO.: 04-06

3 SHEET OF 12

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 2/2/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 2/15/08
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 2/15/08
DIRECTOR DATE

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS

[Signature] DATE

USDA NATURAL RESOURCES CONSERVATION SERVICE

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

[Signature] 2/11/08
HOWARD S.C.D. DATE

BY THE DEVELOPER:

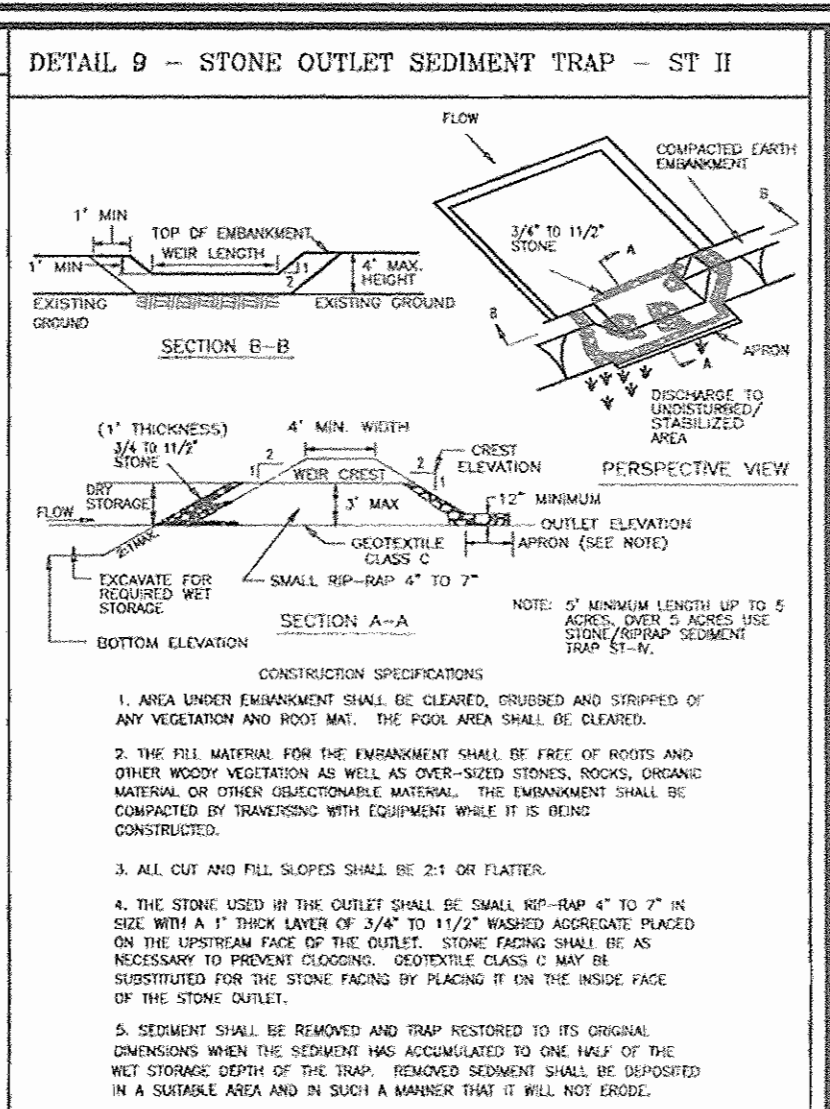
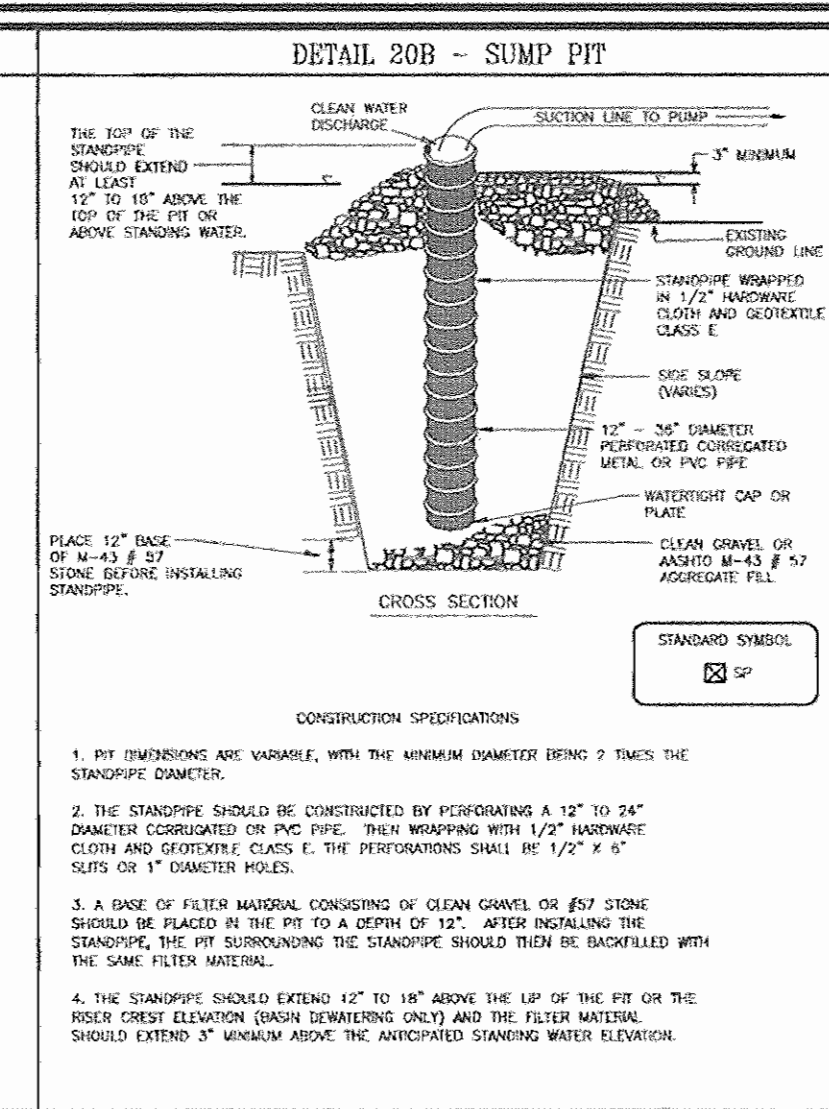
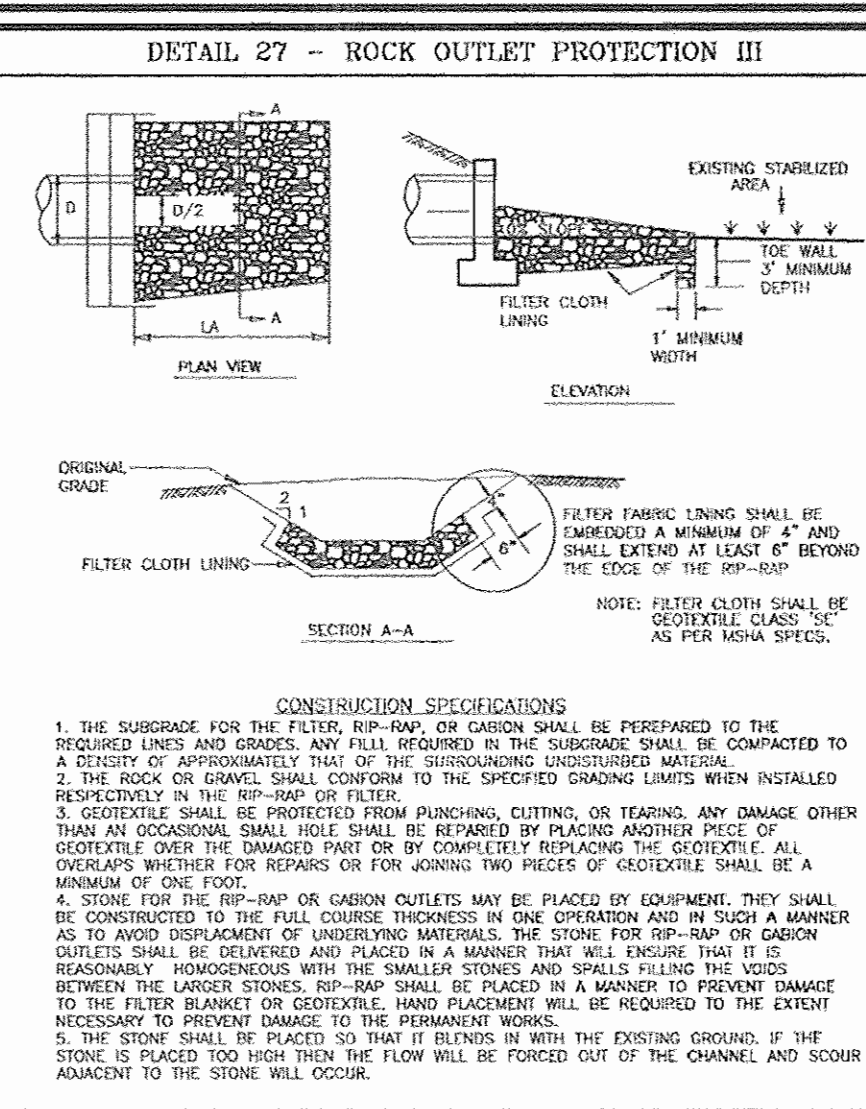
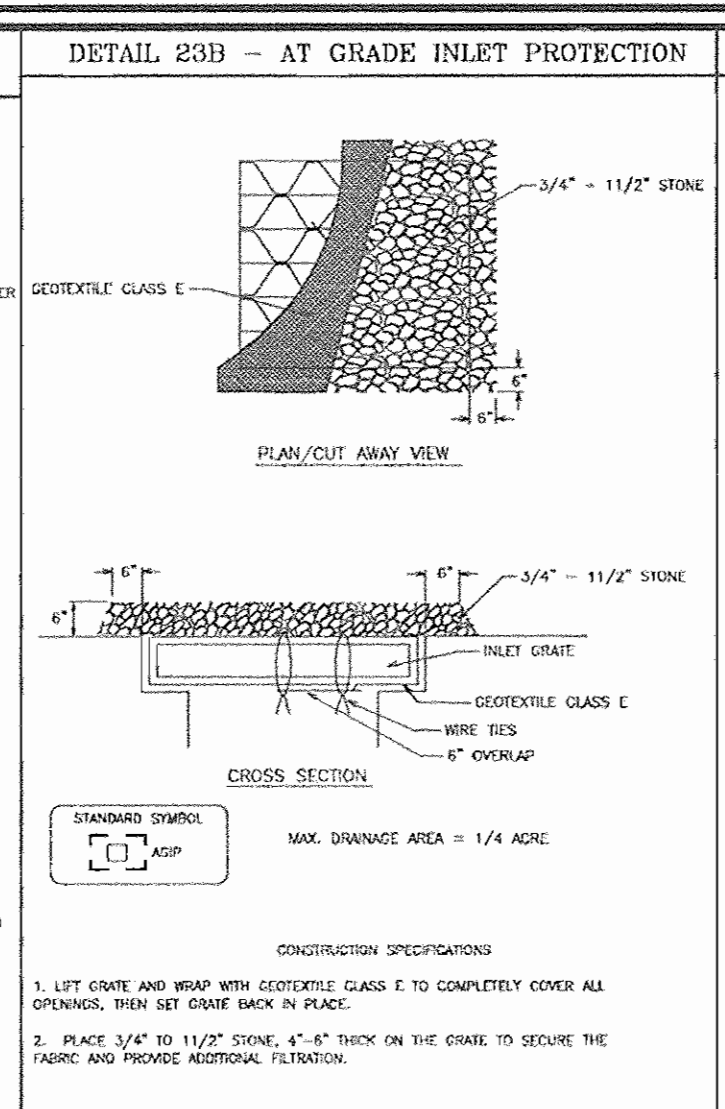
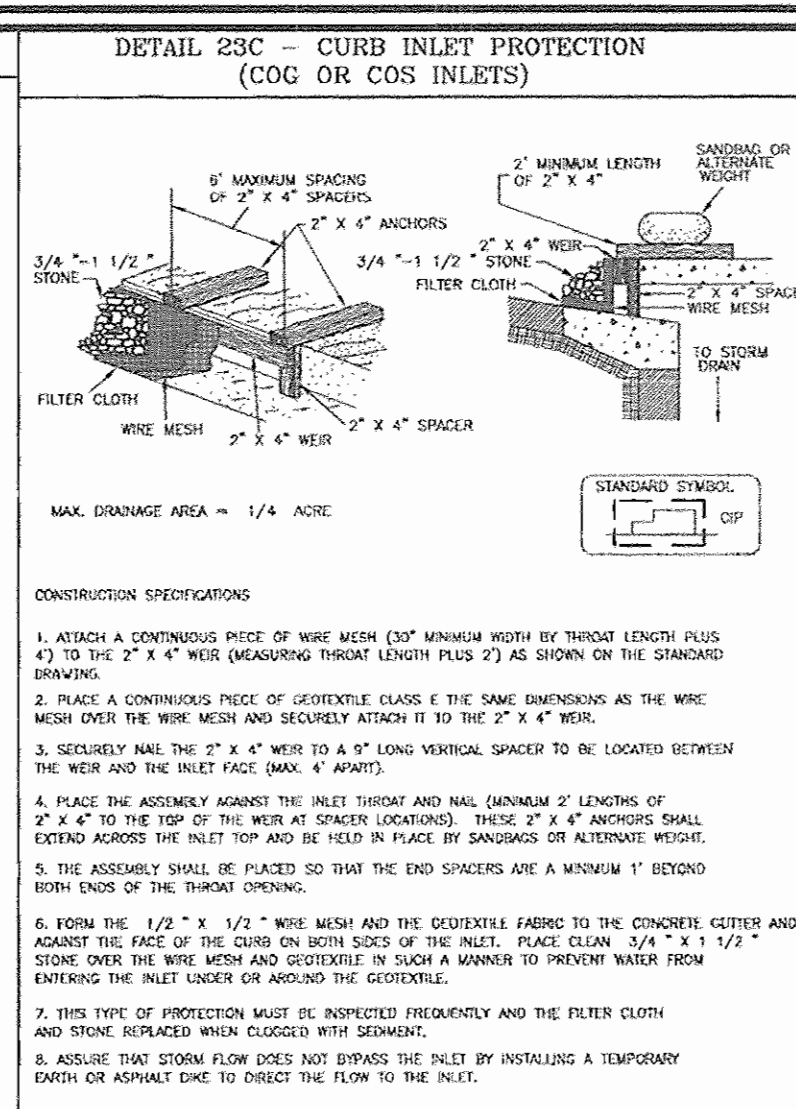
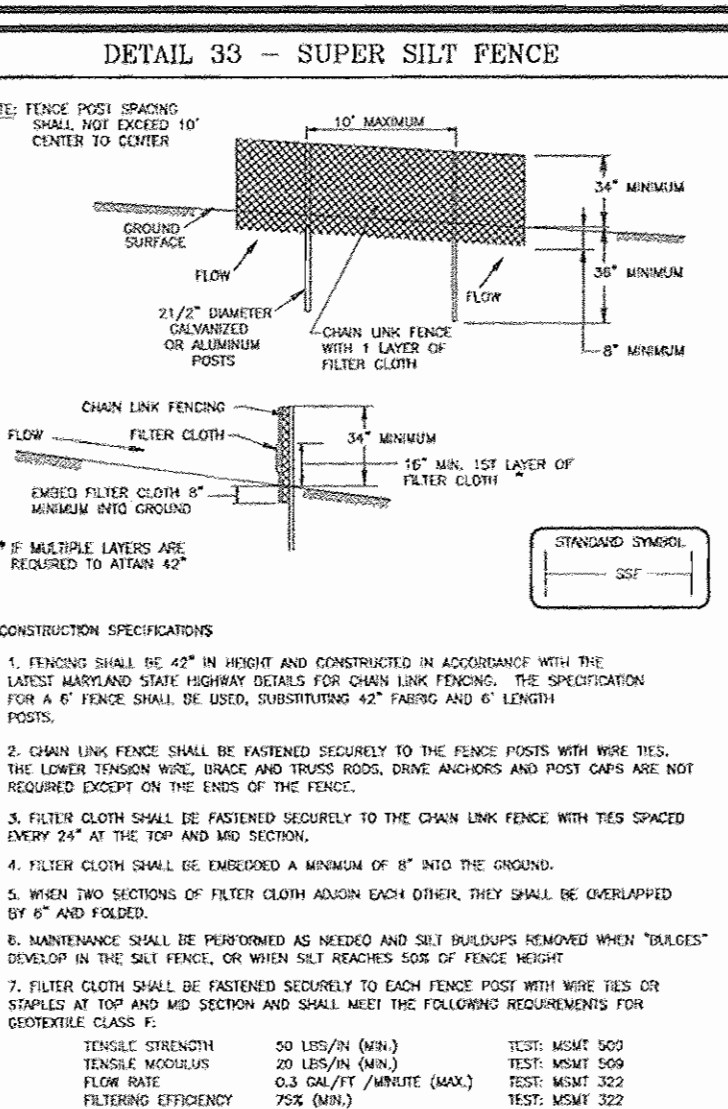
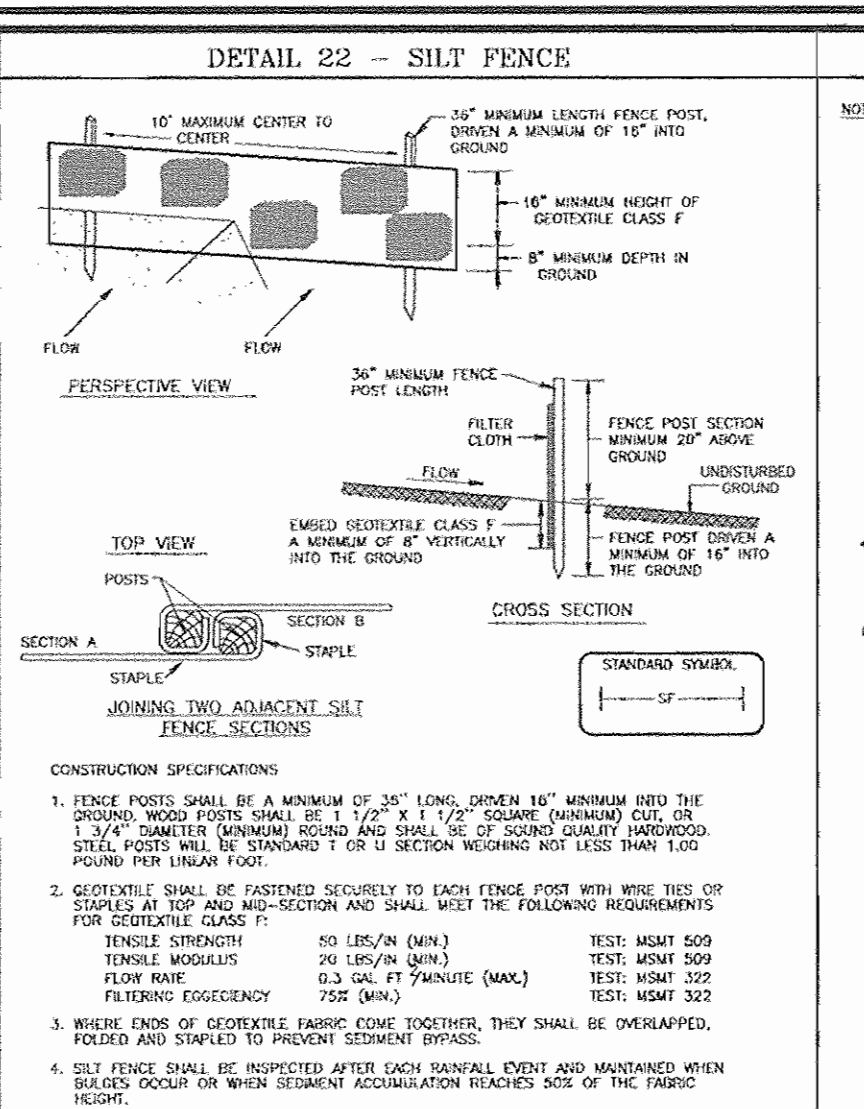
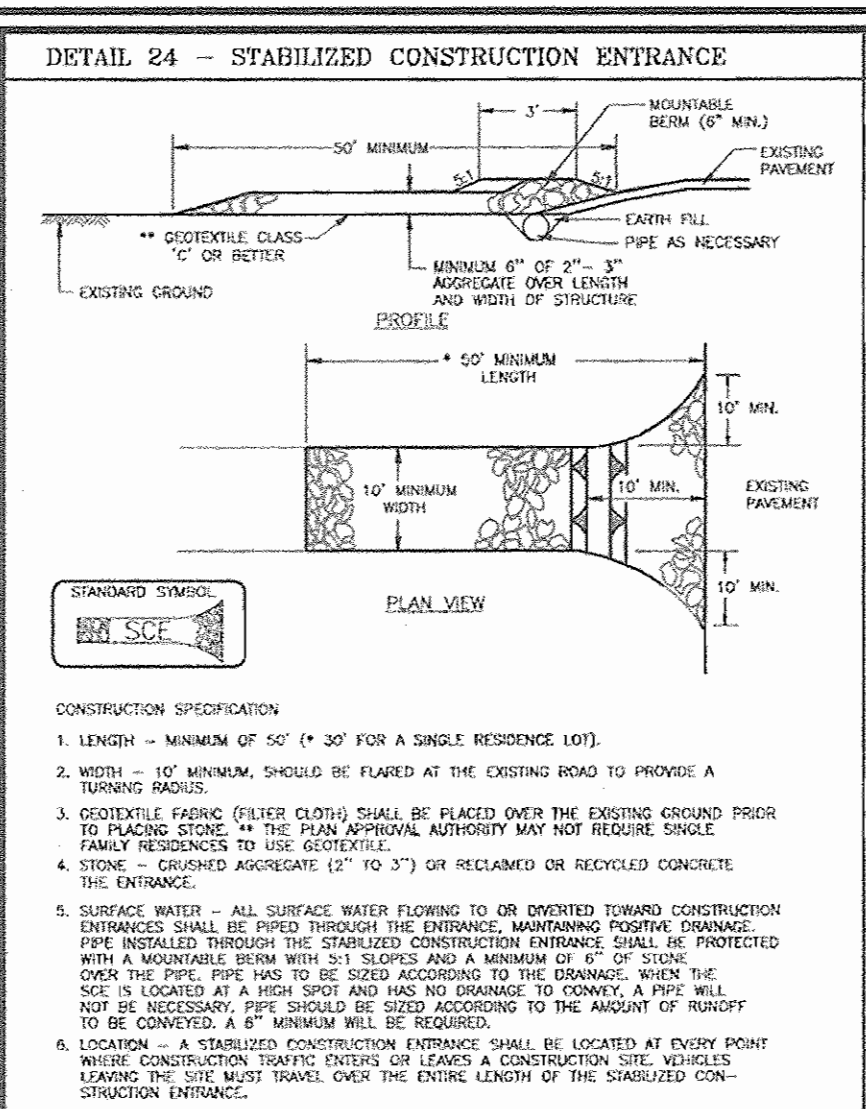
"I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

[Signature] 1-29-08
SIGNATURE OF DEVELOPER DATE
Chesapeake Conf. Assn. of Seventh Day Adventists

BY THE ENGINEER:

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

[Signature] 2/11/08
SIGNATURE OF ENGINEER DATE



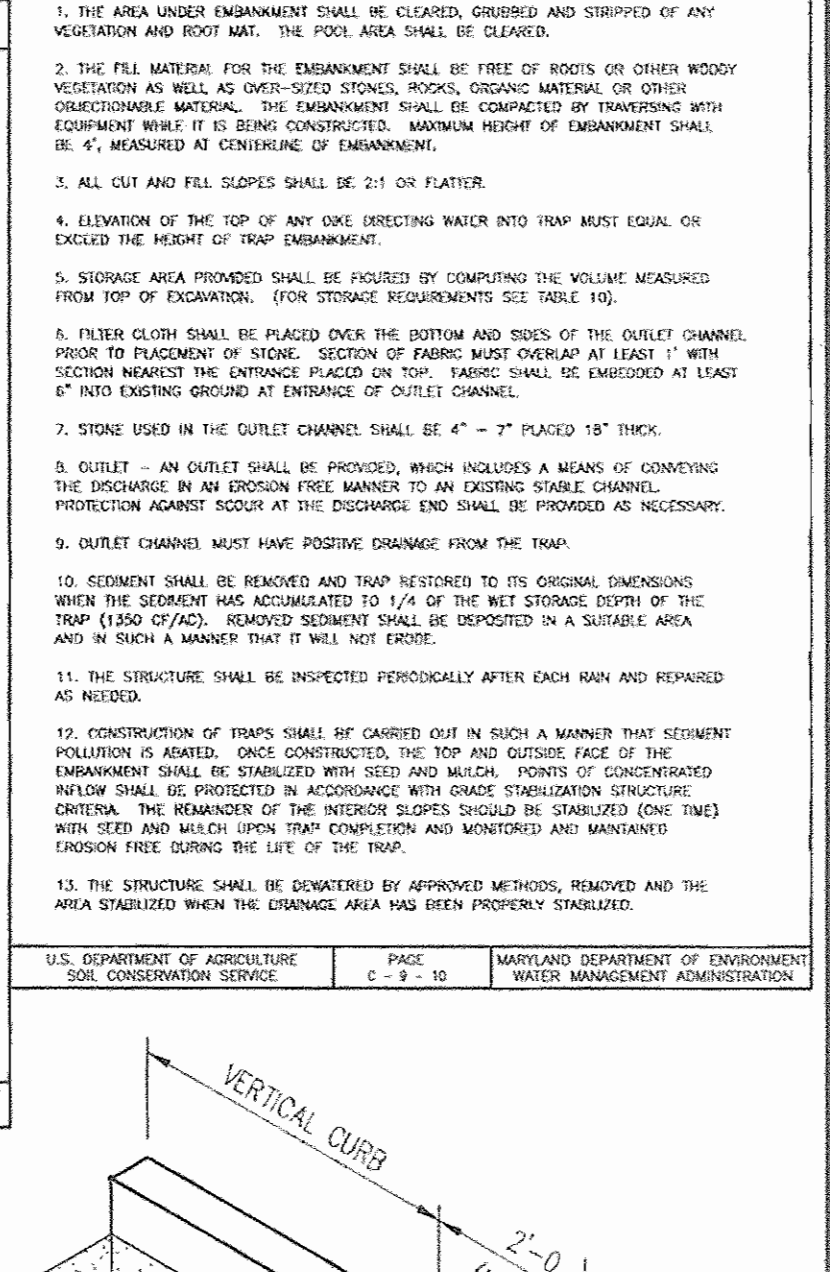
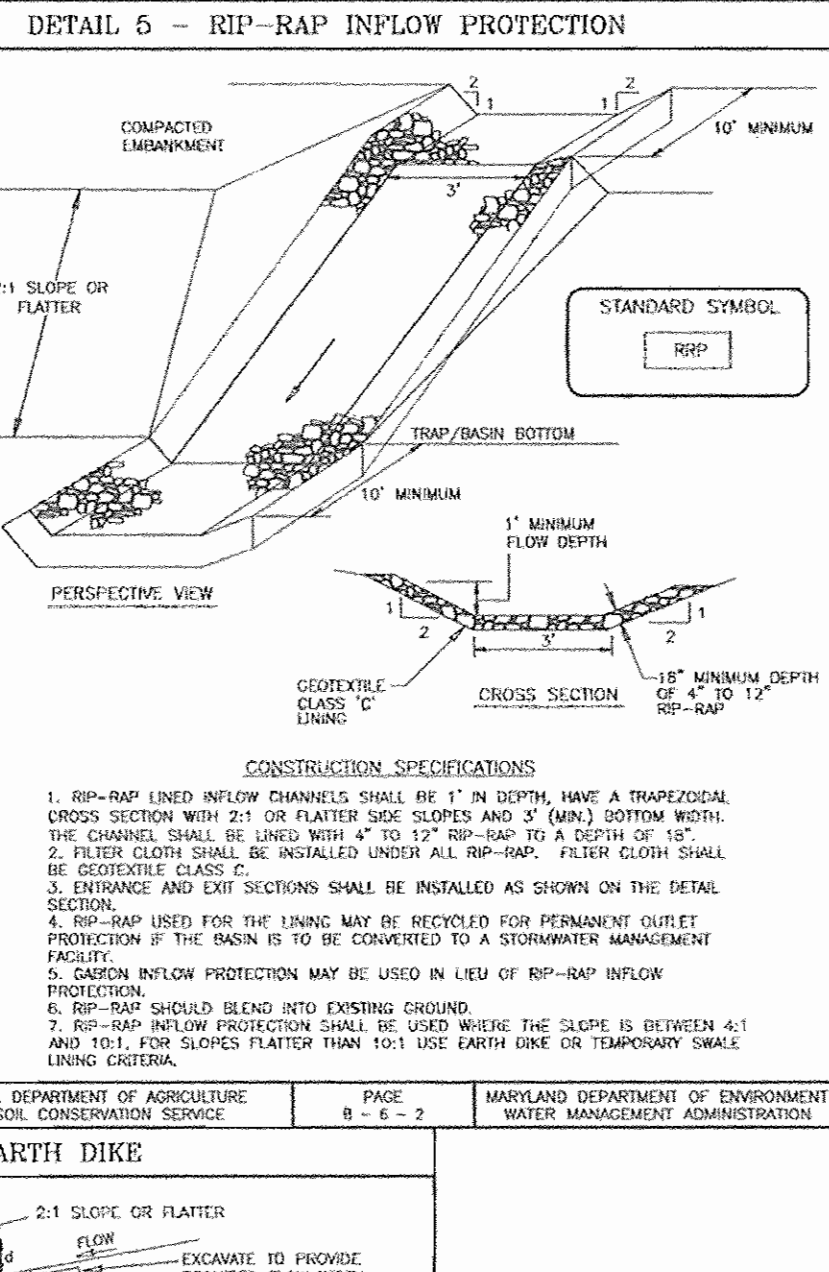
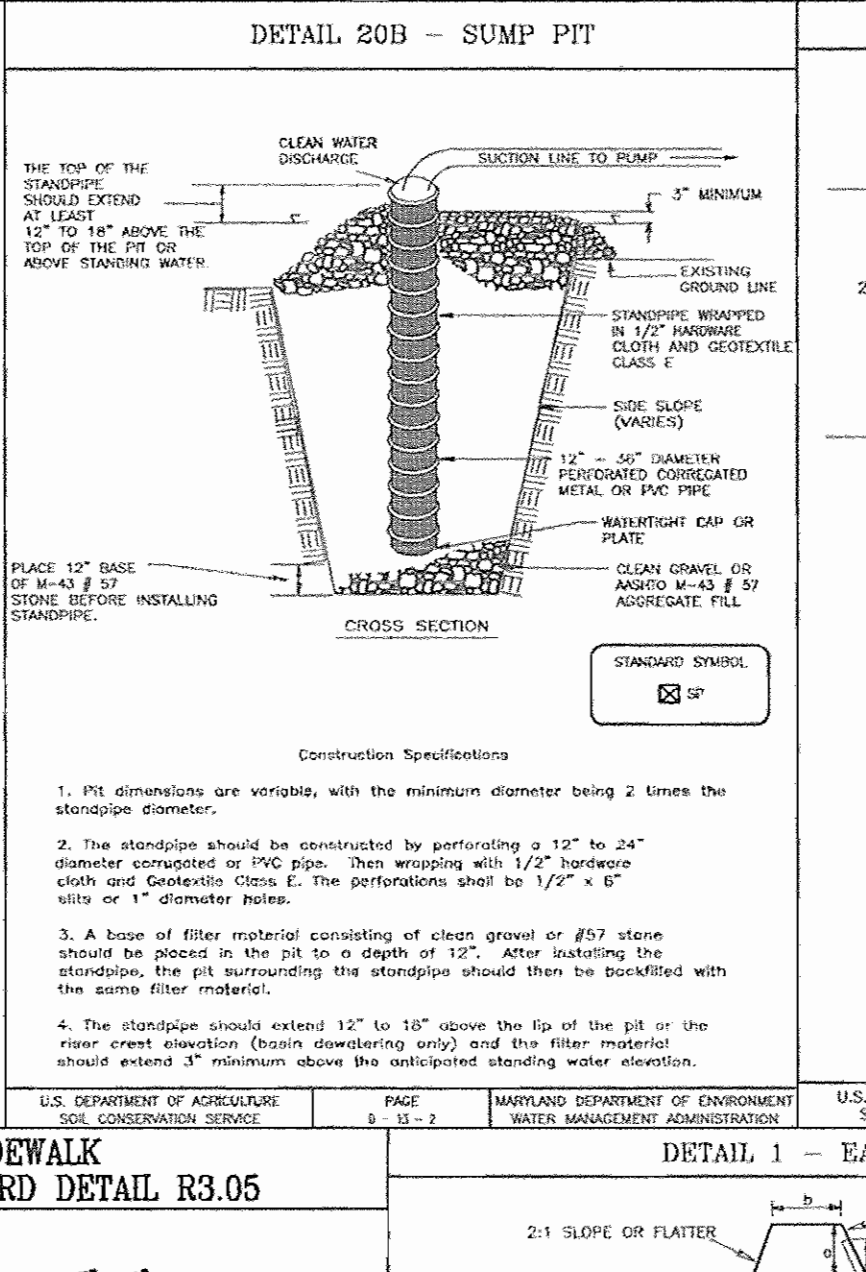
PERMANENT SEEDING NOTES
1. LENGTH - MINIMUM OF 50' (30' FOR A SINGLE RESERVE LOT)
2. WIDTH - MINIMUM OF 10'
3. SOIL PREPARATION - TOPSOIL SHALL BE PLACED ON THE EXISTING GRADE TO PROVIDE A TURNING SPACE...

21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL
Definition: Placement of topsoil over a prepared subsoil prior to establishing permanent vegetation.
Purpose: To provide a suitable soil medium for vegetable growth...

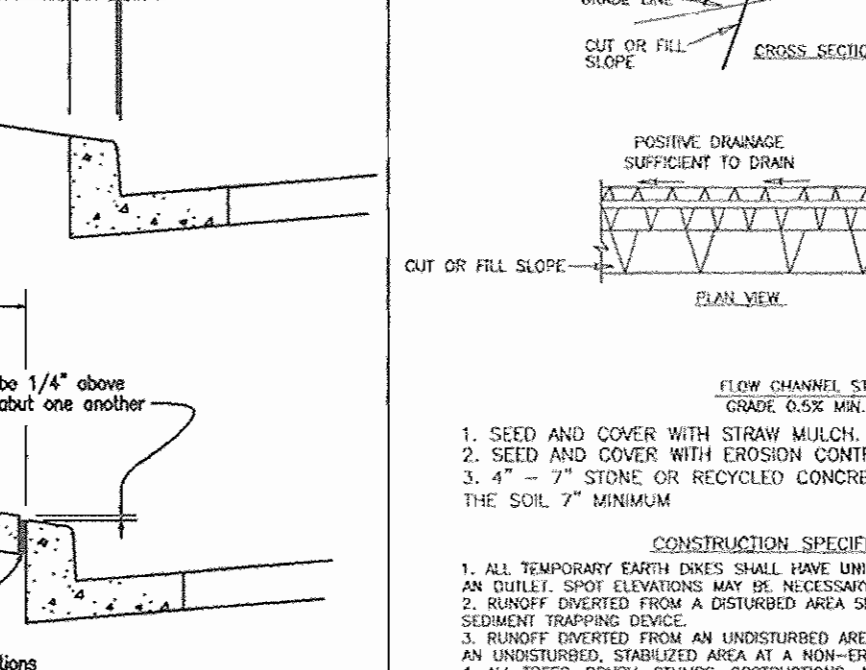
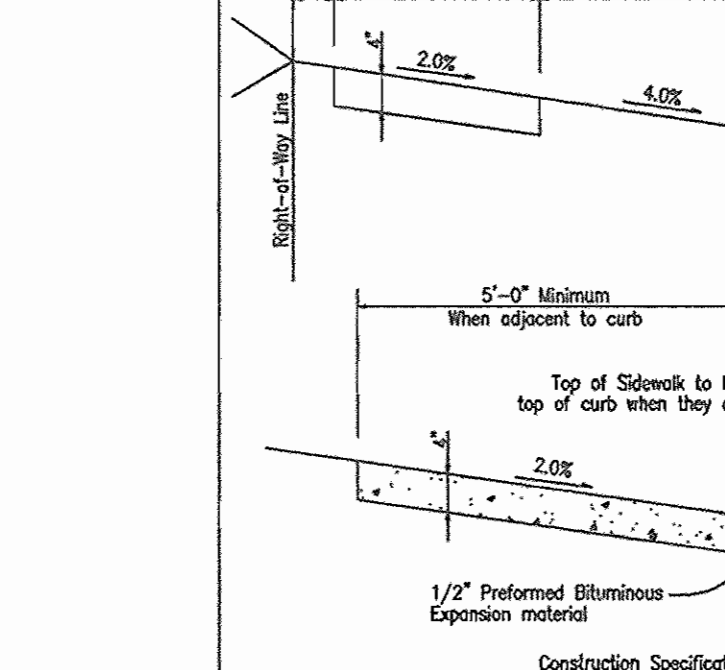
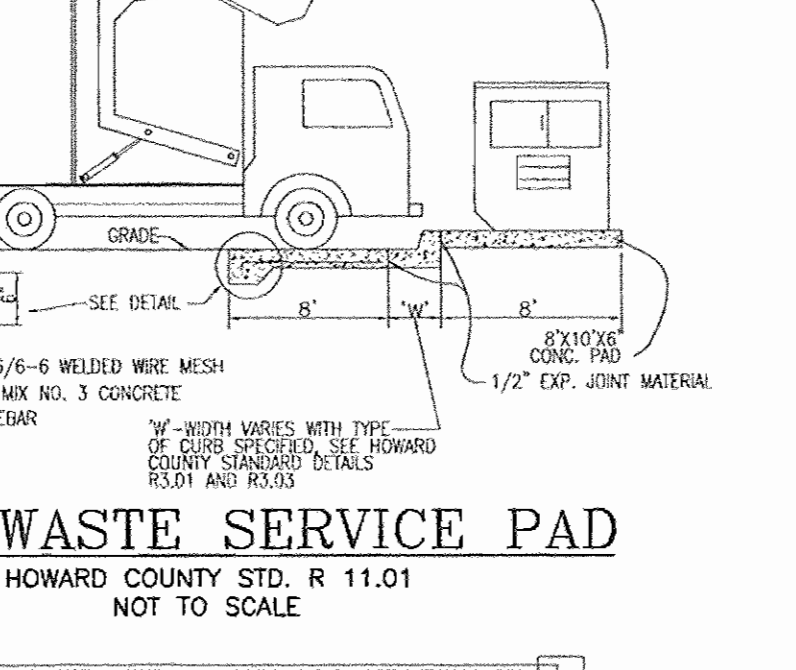
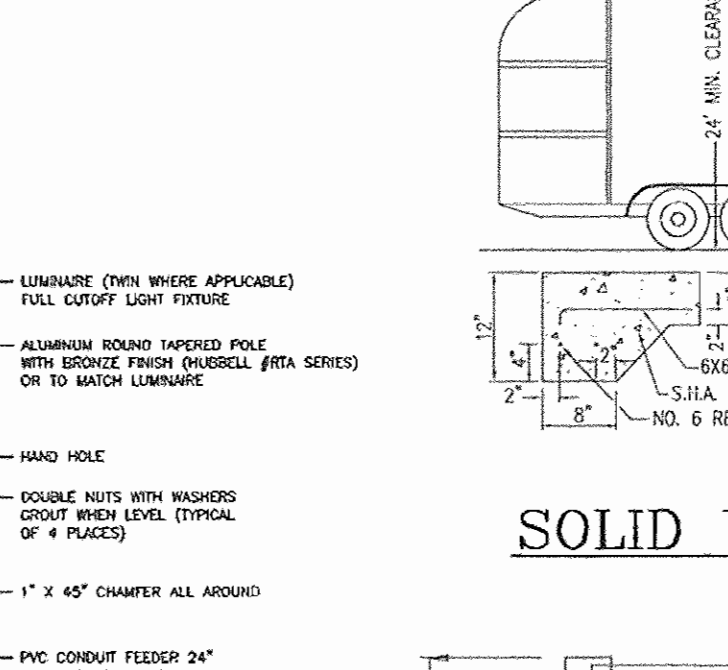
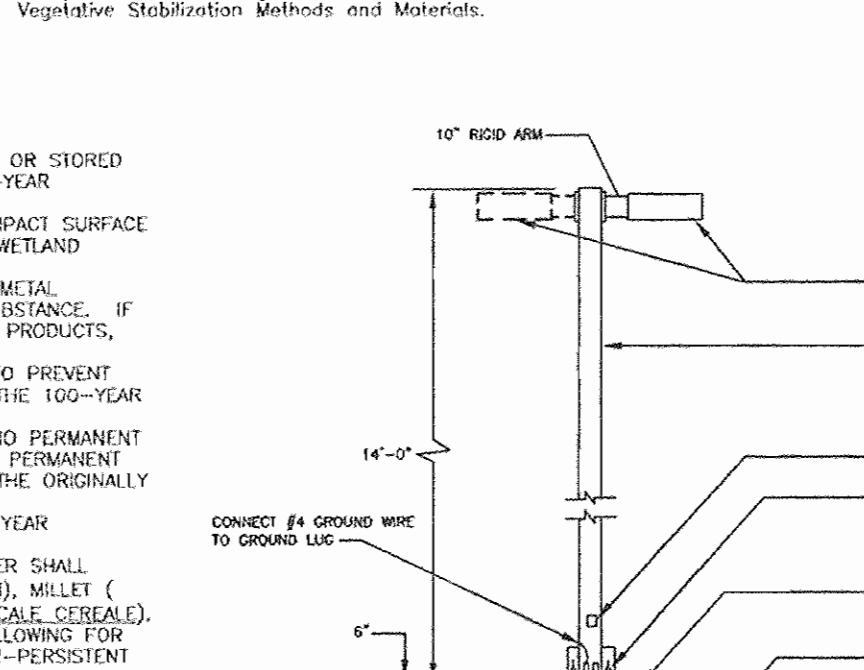
SEQUENCE OF CONSTRUCTION
1. OBTAIN HOWARD COUNTY GRADING PERMIT. (WEEK 1)
2. NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION. (WEEK 1)
3. CONDUCT A PRE-CONSTRUCTION MEETING WITH THE SEDIMENT CONTROL INSPECTOR PRIOR TO ANY LAND DISTURBANCE. (WEEK 1)...

SEDIMENT CONTROL NOTES
1. A minimum of 48 hours notice must be given to the Howard County Department of Inspection, License and Permits Sediment Control Division prior to the start of any construction (313-1855).
2. All vegetation and structural practices are to be installed according to the provisions of this plan and are to be in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL...

DETAIL 20B - SUMP PIT (continued)
CONSTRUCTION SPECIFICATIONS
1. THE SUBGRADE FOR THE FILTER, RIP-RAP OR GRASS SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED TO BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE UNDERLYING UNDISTURBED MATERIAL...



BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS AND 100-YEAR FLOODPLAINS
1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.

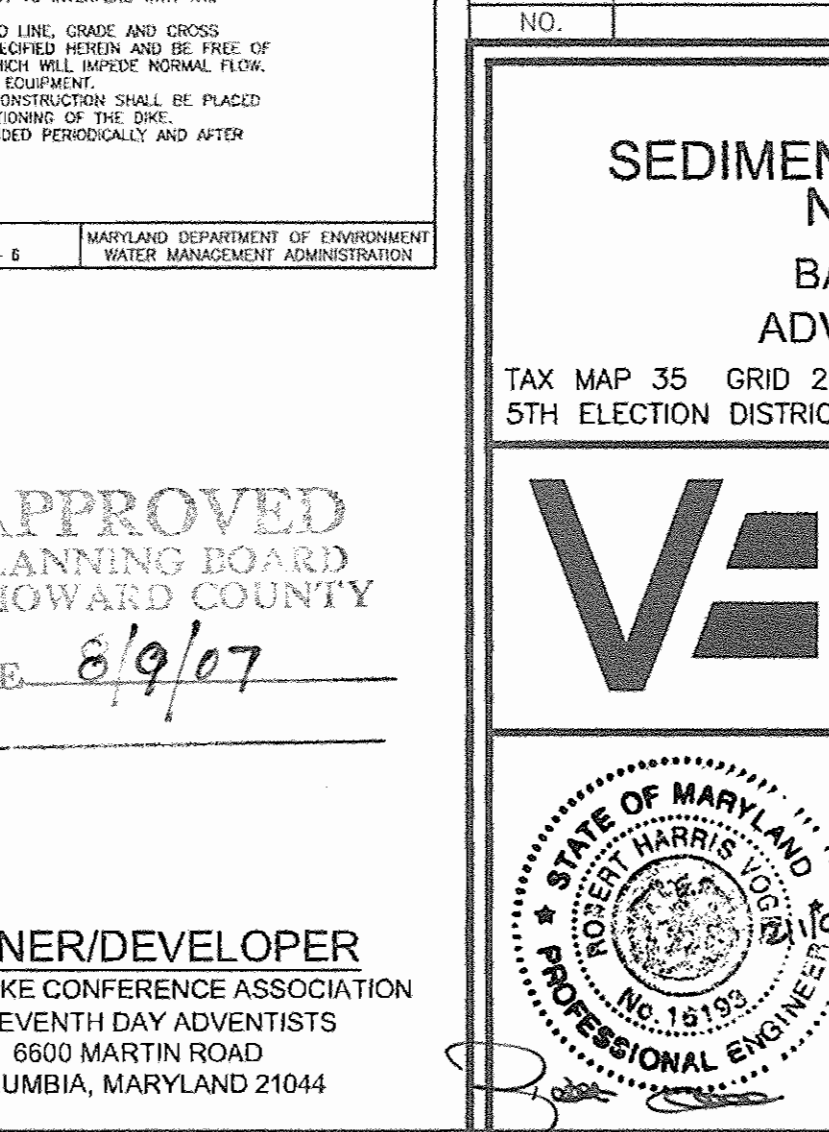
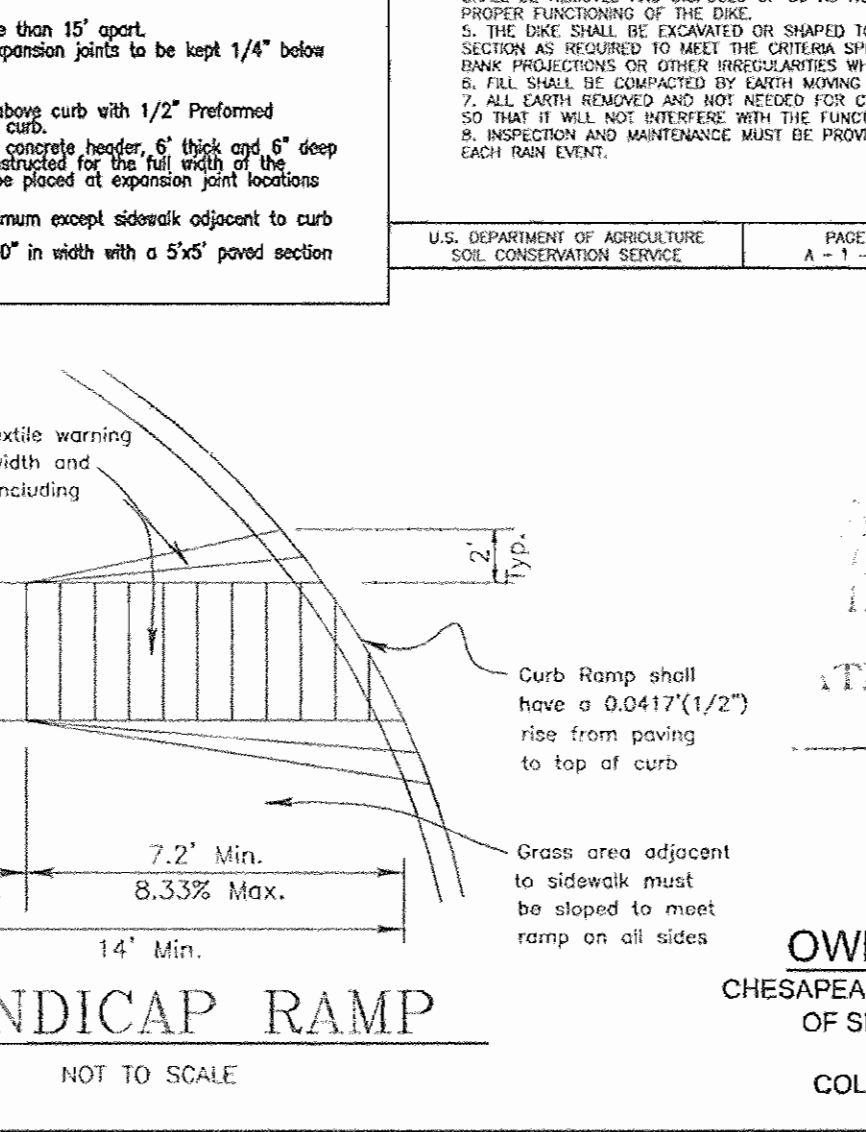
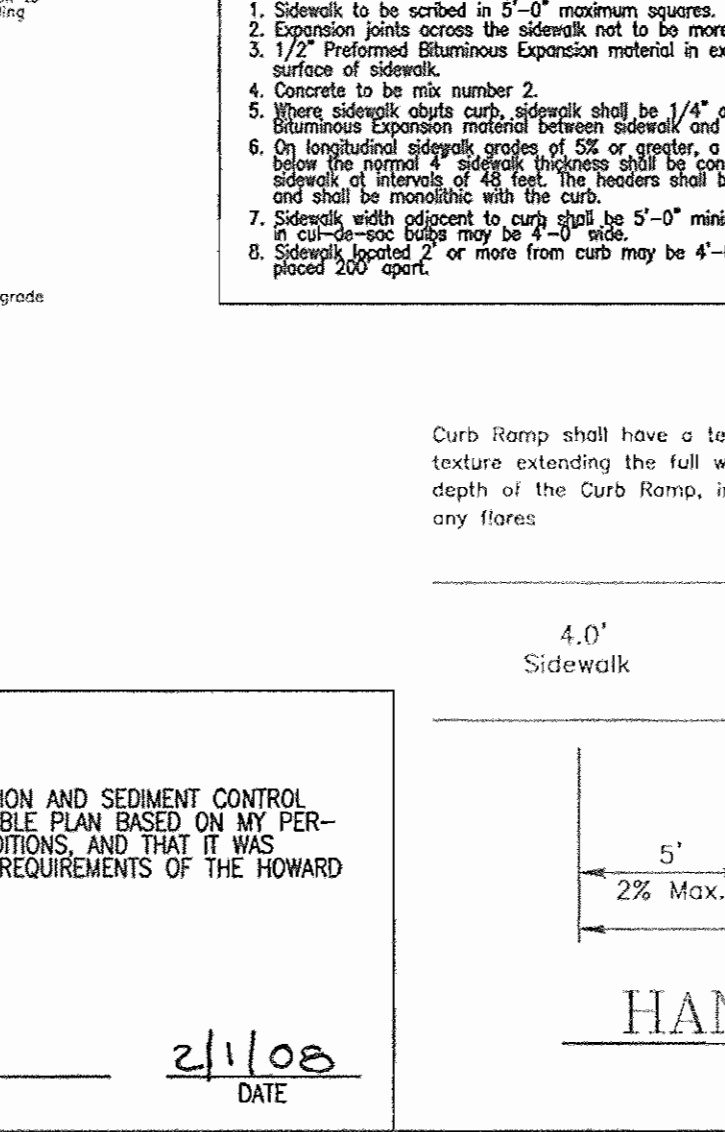


APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 2/13/08

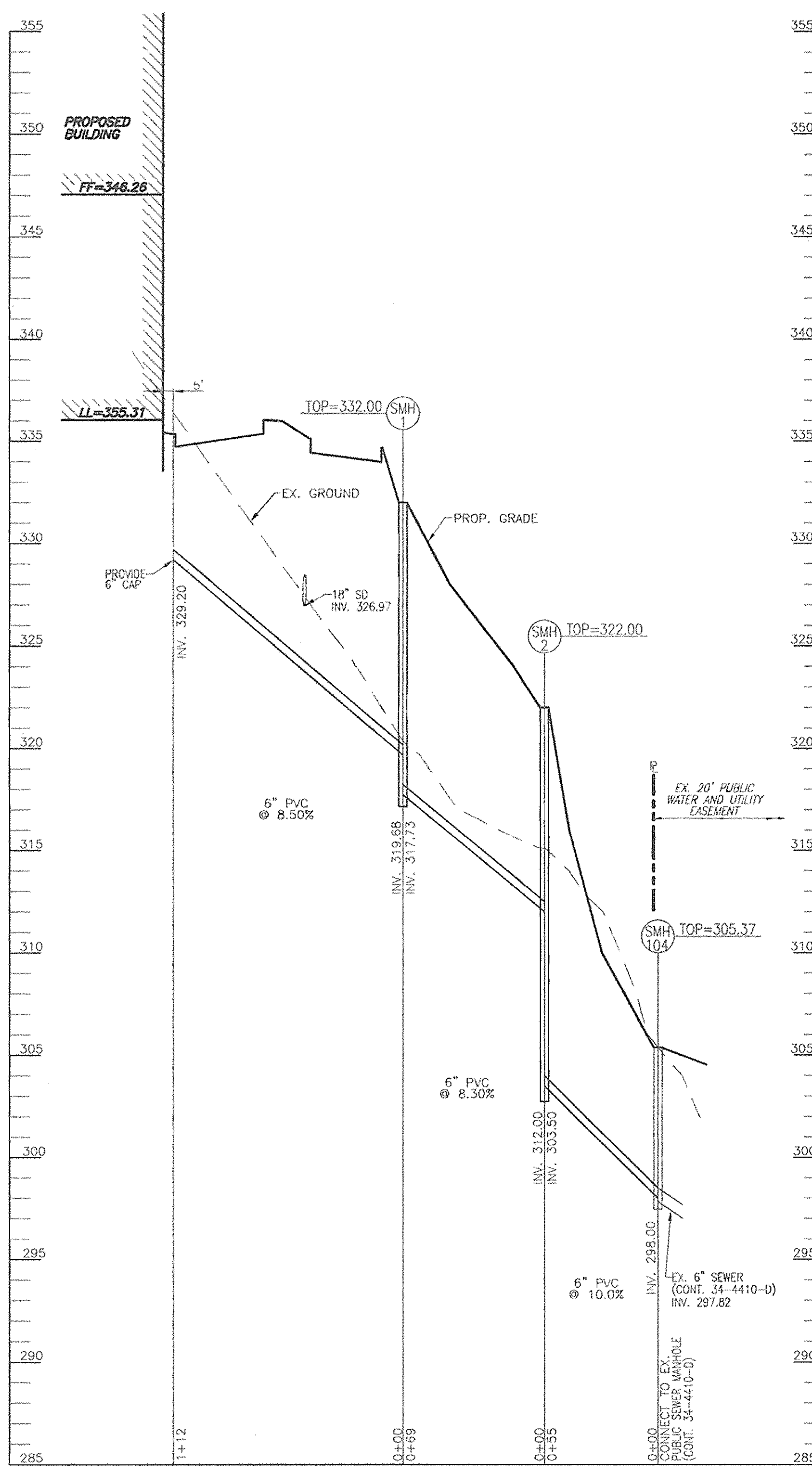
REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS
USDA-NATURAL RESOURCES CONSERVATION SERVICE
DATE: 2/15/08

BY THE DEVELOPER:
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE IN ACCORDANCE WITH THE PLAN FOR EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTING OF THE SEDIMENTATION AND EROSION TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE ALSO AUTHORIZE PERIODIC NON-SITE INSPECTIONS BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

BY THE ENGINEER:
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR EROSION CONTROL AND THAT I AM A REGISTERED PROFESSIONAL ENGINEER WITH PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.



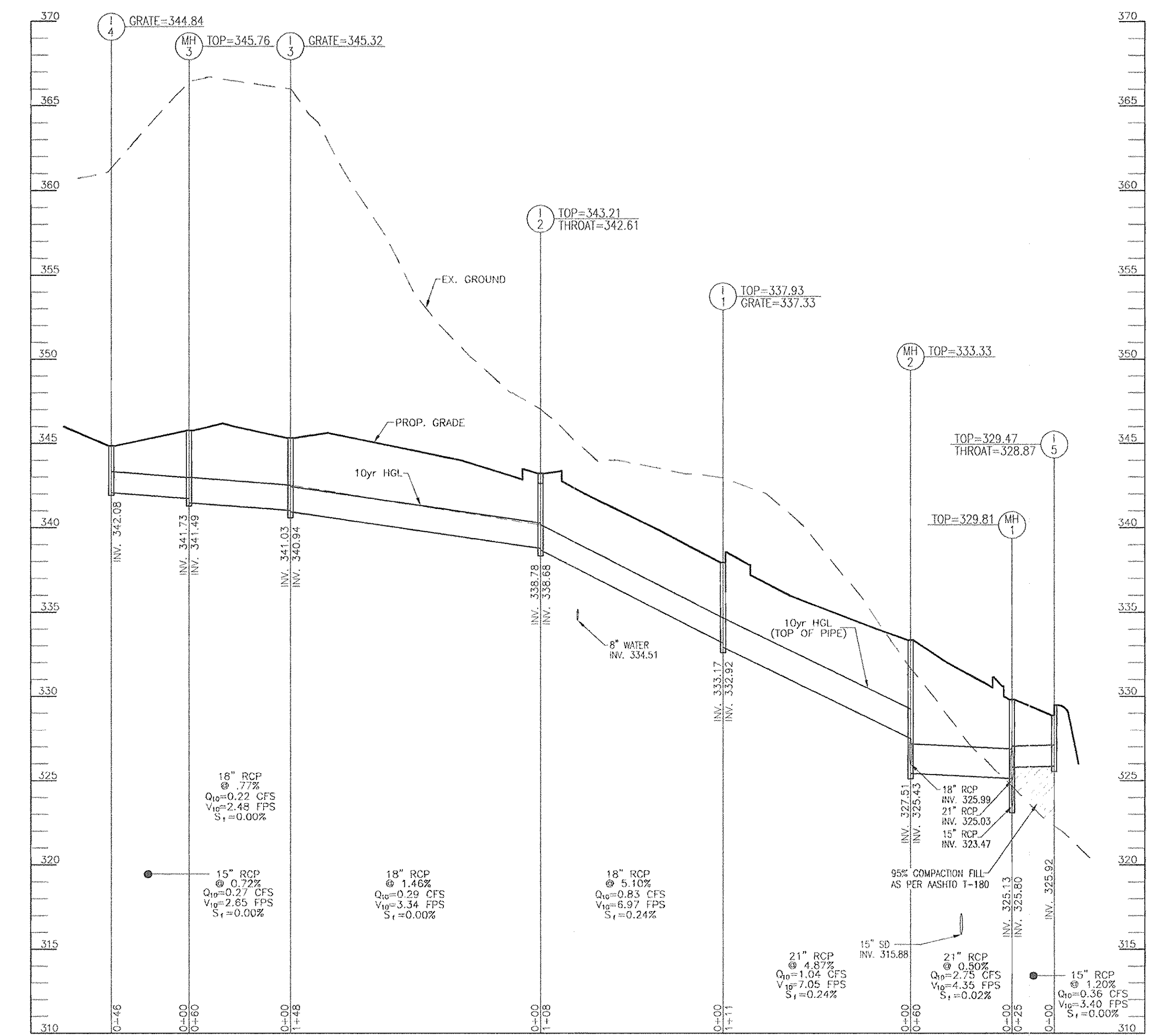
SITE DEVELOPMENT PLAN
SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
BALTIMORE SEVENTH DAY ADVENTIST KOREAN CHURCH
APPROVED PLANNING BOARD HOWARD COUNTY
OWNER/DEVELOPER: CHESAPEAKE CONFERENCE ASSOCIATION OF SEVENTH DAY ADVENTISTS
6800 MARTIN ROAD, COLUMBIA, MARYLAND 21044



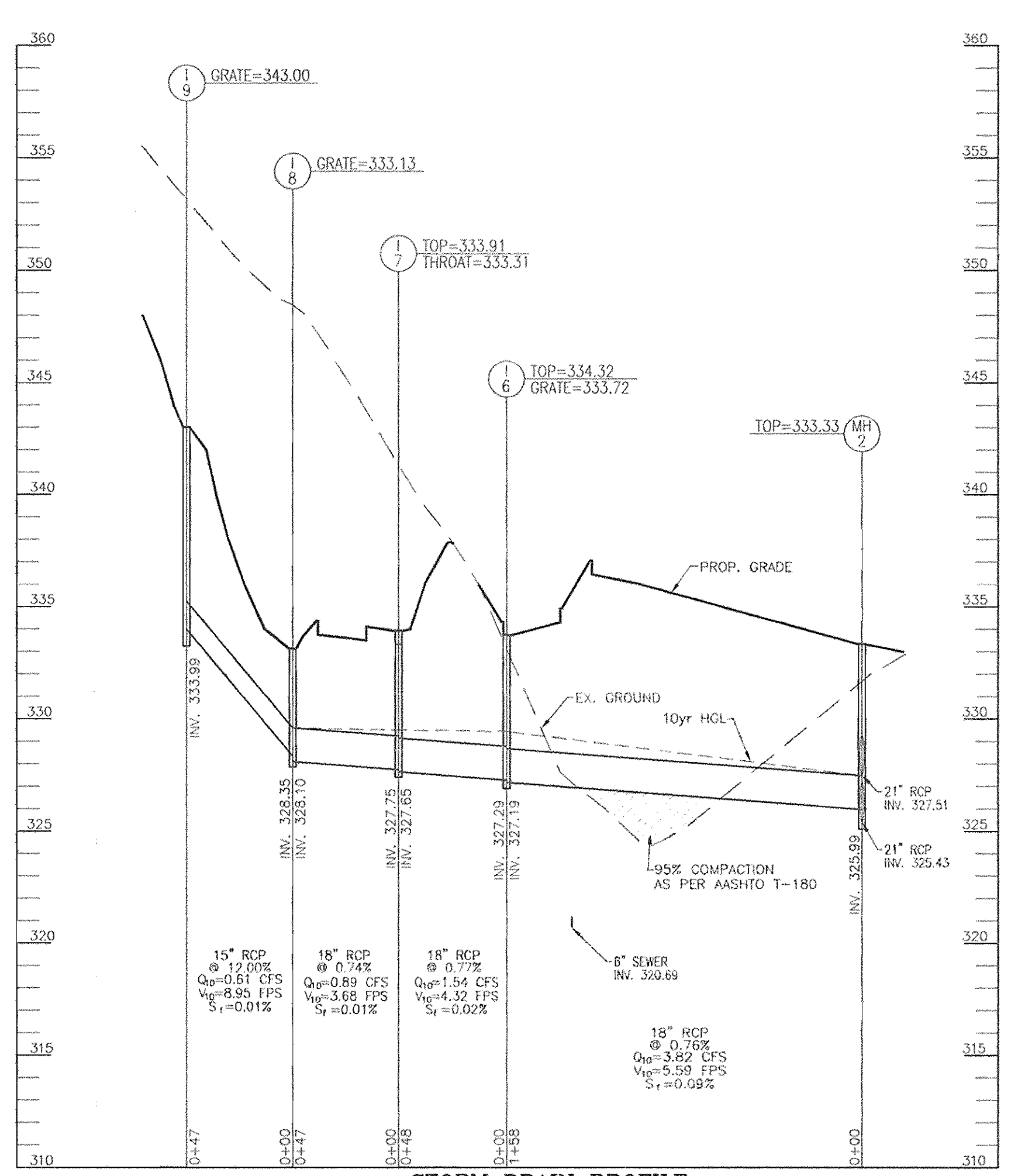
PRIVATE SEWER PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

SIZE	TYPE	LENGTH
6"	PVC	282 LF
6"	WHC	68 LF
6"	SHC	200 LF
15"	RCP, CLIV	199 LF
18"	RCP, CLIV	569 LF
21"	RCP, CLIV	188 LF
36"	AL-CMP, 12 GA	28 LF
72"	AL-CMP, 12 GA	372 LF

SIZE	TYPE	LENGTH
18"	RCP, CLIV	37 LF
21"	RCP, CLIV	397 LF
74"	RCP, CLIV	360 LF



STORM DRAIN PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



STORM DRAIN PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	COMMENTS	MAINTENANCE RESPONSIBILITY
I-1	DOUBLE TYPE 'S' COMB. INLET - PARALLEL (MODIF.)	N 553623 E 1341513	337.93	333.17	332.92	HO. CO. STD SD-4.34, SEE DETAIL SHEET 7	PRIVATE
I-2	TYPE 'A-10' INLET	N 553651 E 1341405	493.91	338.78	338.68	HO. CO. STD SD-4.02	PRIVATE
I-3	TYPE 'S' INLET (MODIF.)	N 553762 E 1341309	506.72	341.03	340.84	HO. CO. STD SD-4.22, SEE DETAIL SHEET 7	PRIVATE
I-4	TYPE 'S' INLET	N 553856 E 1341336	506.15	---	342.08	HO. CO. STD SD-4.22	PRIVATE
I-5	TYPE 'A-10' INLET	N 553733 E 1341663	481.20	---	326.22	HO. CO. STD SD-4.02	PRIVATE
I-6	TYPE 'S' INLET (MODIF.)	N 553856 E 1341534	485.23	327.29	327.19	HO. CO. STD SD-4.22, SEE DETAIL SHEET 7	PRIVATE
I-7	TYPE 'A-5' INLET	N 553803 E 1341503	493.60	327.75	327.65	HO. CO. STD SD-4.01	PRIVATE
I-8	TYPE 'D' INLET - 4 OPENINGS (MODIF.)	N 553934 E 1341481	493.60	328.35	328.10	HO. CO. STD SD-4.11, SEE DETAIL SHEET 7	PRIVATE
I-9	TYPE 'D' INLET - 1 OPENINGS	N 553935 E 1341434	493.60	---	333.99	HO. CO. STD SD-4.11	PRIVATE
I-10	TYPE 'A-10' INLET, 3' INSIDE WIDTH	CL STA 10+58, 28.00' LT	321.40	317.60	317.55	HO. CO. STD SD-4.11	PUBLIC
I-12	DOUBLE TYPE 'S' COMB. INLET - PARALLEL (MODIF.)	CL STA 15+87, 15.16' LT	292.50	---	288.67	HO. CO. STD SD-4.11	PUBLIC
I-13	TYPE 'A-10' INLET, 2'-6" INSIDE WIDTH (MODIF.)	CL STA 13+16, 12.00' LT	305.57	---	295.27	HO. CO. STD SD-4.11	PUBLIC
MH-1	4'-0" STANDARD PRECAST MANHOLE	N 553725 E 1341642	329.81	329.99	324.61	HO. CO. STD. G-5.12	PRIVATE
MH-2	4'-0" STANDARD PRECAST MANHOLE	N 553706 E 1341585	333.33	332.59	325.43	HO. CO. STD. G-5.12	PRIVATE
MH-3	4'-0" STANDARD PRECAST MANHOLE	N 553822 E 1341306	345.76	341.73	341.49	HO. CO. STD. G-5.12	PRIVATE
MH-4	4'-0" STANDARD PRECAST MANHOLE	N 553734 E 1341639	330.00	324.61	311.48	HO. CO. STD. G-5.12	PRIVATE
MH-5	4'-0" STANDARD PRECAST MANHOLE	N 553781 E 1341658	321.00	315.70	307.20	HO. CO. STD. G-5.12	PRIVATE
MH-10	4'-0" STANDARD PRECAST MANHOLE	CL STA 16+25, 39.30' LT	290.00	289.58	287.90	HO. CO. STD. G-5.12	PUBLIC
MH-10A	4'-0" STANDARD PRECAST MANHOLE	CL STA 15+92, 36.21' LT	284.33	283.43	287.90	HO. CO. STD. G-5.12	PUBLIC
MH-11	4'-0" STANDARD PRECAST MANHOLE	CL STA 14+81, 27.29' LT	287.31	283.38	293.28	HO. CO. STD. G-5.12	PUBLIC
MH-12	4'-0" STANDARD PRECAST MANHOLE	CL STA 13+16, 26.33' LT	305.56	303.88	294.88	HO. CO. STD. G-5.12	PUBLIC
MH-13	4'-0" STANDARD PRECAST MANHOLE	CL STA 11+25, 41.43' LT	320.00	314.10	314.00	HO. CO. STD. G-5.12	PUBLIC
MH-14	4'-0" STANDARD PRECAST MANHOLE	CL STA 9+05, 29.90' LT	330.84	327.69	327.44	HO. CO. STD. G-5.12	PUBLIC
CS-1	CAST-IN-PLACE CONTROL STRUCTURE (SEE SHEET 7)	N 553791 E 1341658	327.32	316.00	315.90	MD 384.08	PRIVATE
SMH-1		N 553832 E 1341591	332.00	319.68	317.73	HO. CO. STD. G-5.12	PRIVATE
SMH-2		N 553795 E 1341650	322.00	312.00	303.50	HO. CO. STD. G-5.12	PRIVATE

NOTE: 1. Top elevations are at center top of headpiece for Type 'A-5', 'A-10' and Double Type 'S' Comb. inlets at center top of grate for Double Type 'S' and Type 'K' inlets and top of Manhole cover for Precast Manholes.
2. For top slab slopes see grading plan.
3. See Architectural plans for roof drain details.
4. All custom and non-standard structures to be designed by a qualified structural engineer.
5. Manholes M-1 and M-5 to have a granite bottom, minimum thickness of 4".

APPROVED
PLANNING BOARD
OF HOWARD COUNTY
DATE: 8/9/07

OWNER/DEVELOPER
CHESAPEAKE CONFERENCE ASSOCIATION
OF SEVENTH DAY ADVENTISTS
6600 MARTIN ROAD
COLUMBIA, MARYLAND 21044
PH. 202-296-5767

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
UTILITY PROFILES
BALTIMORE SEVENTH DAY
ADVENTIST KOREAN CHURCH
TAX MAP 35 GRID 22 PARCELS 86
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET ELICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8961

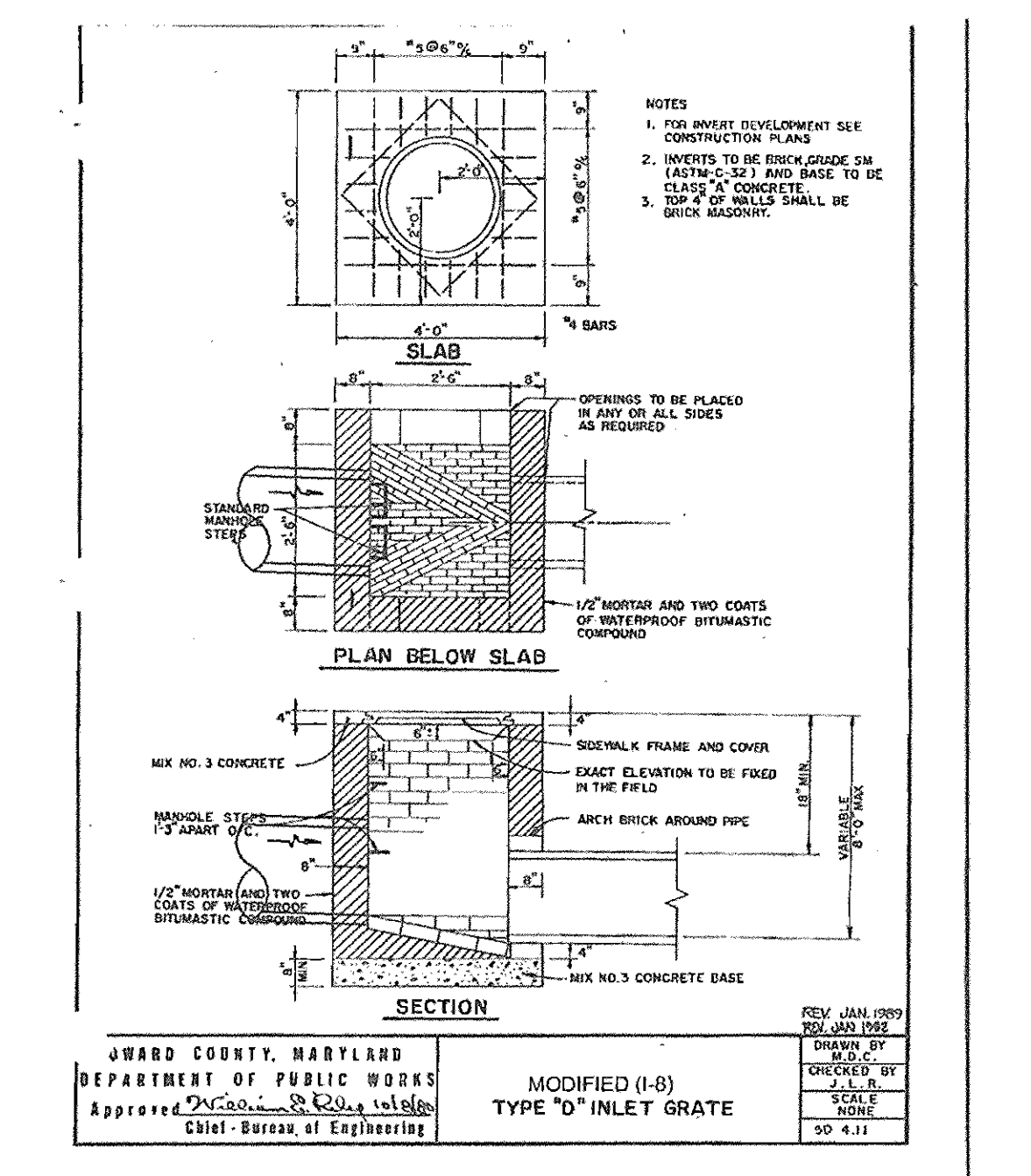
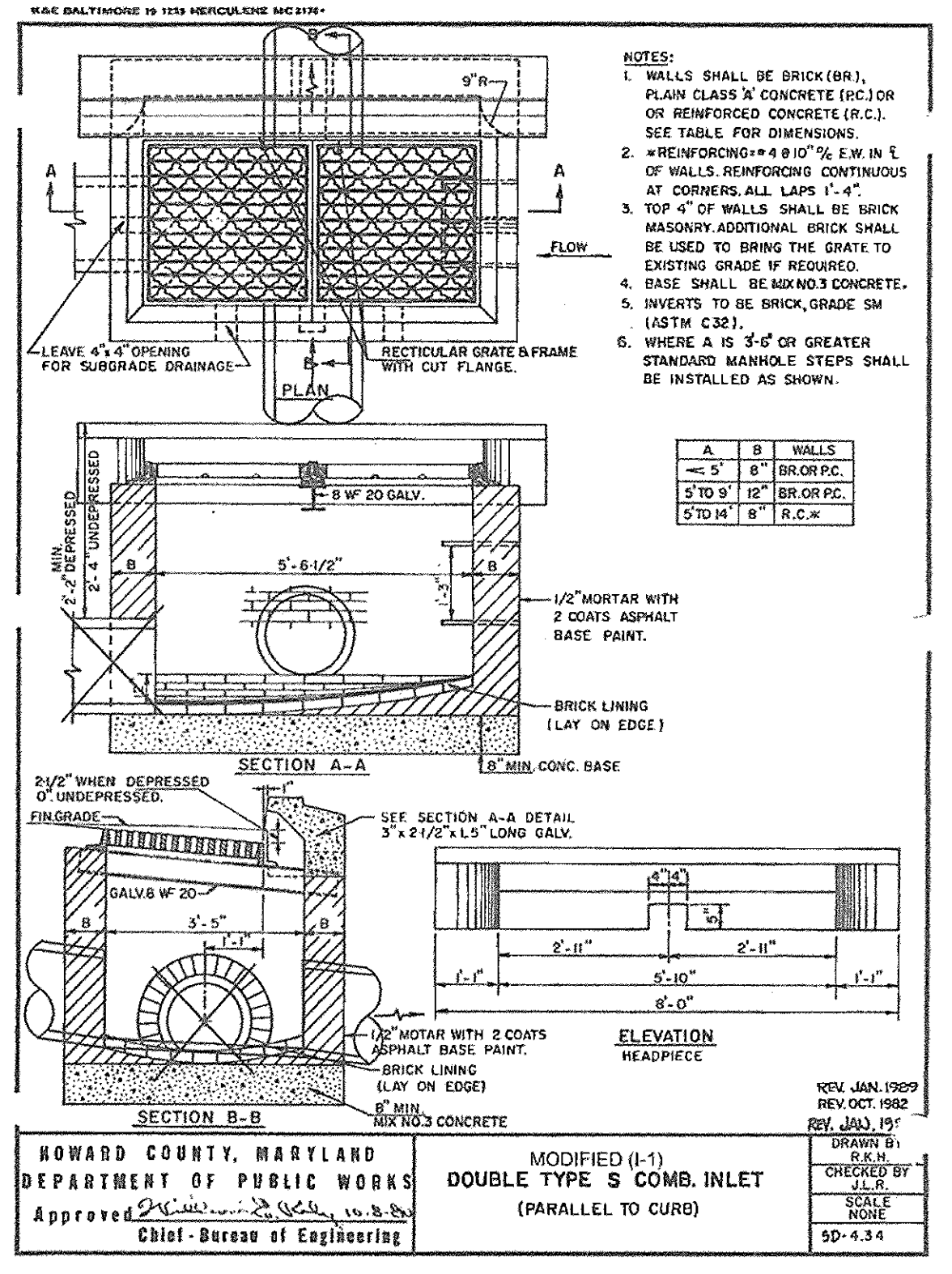
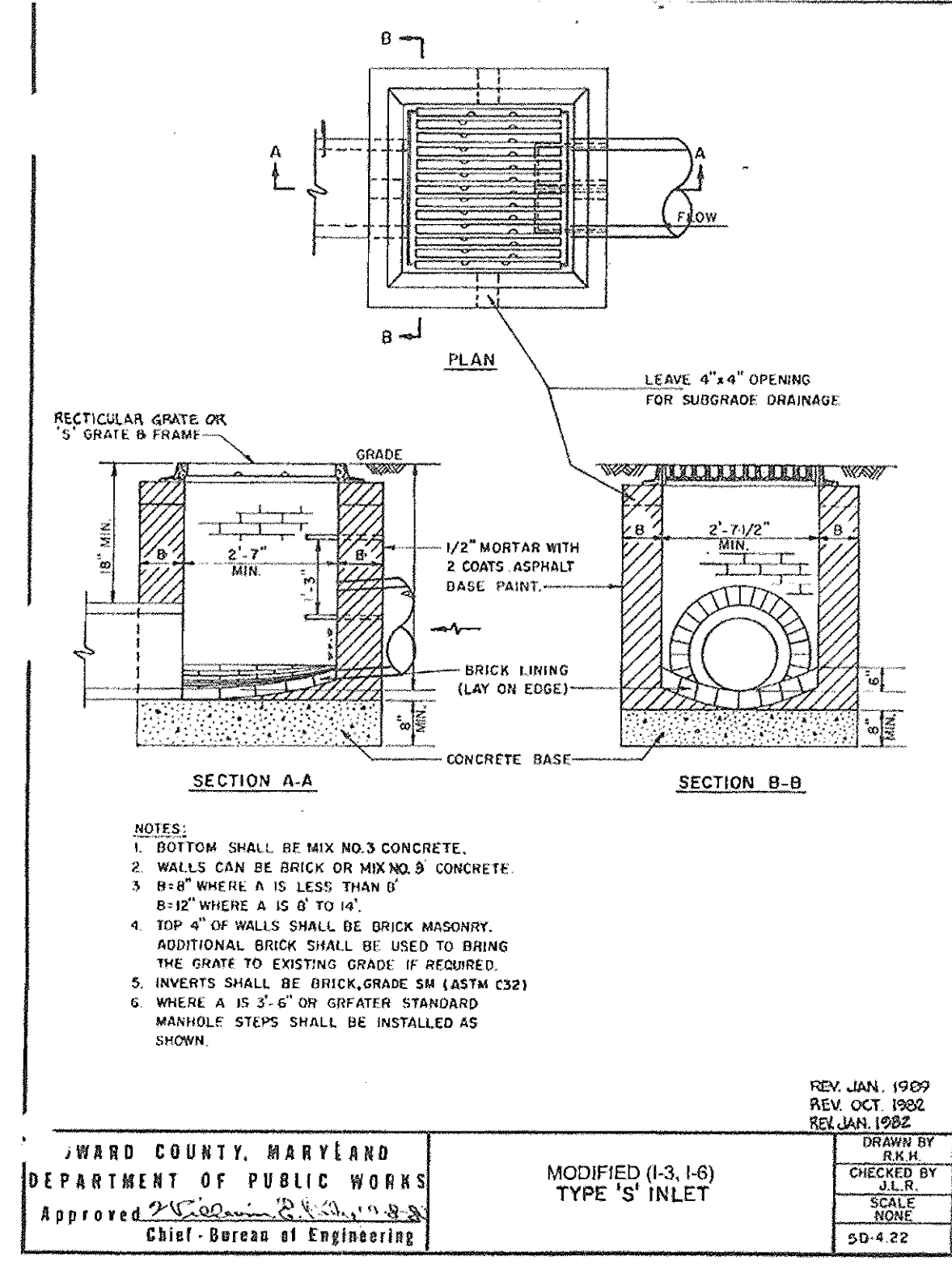
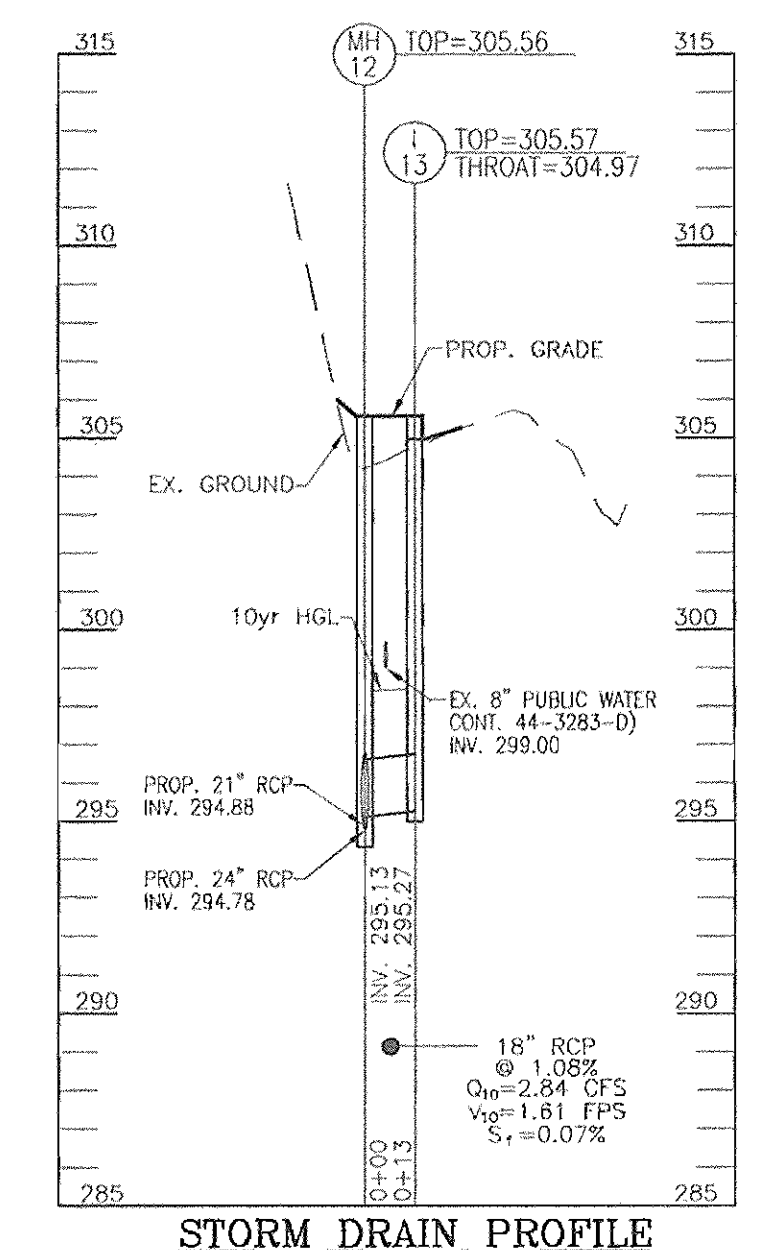
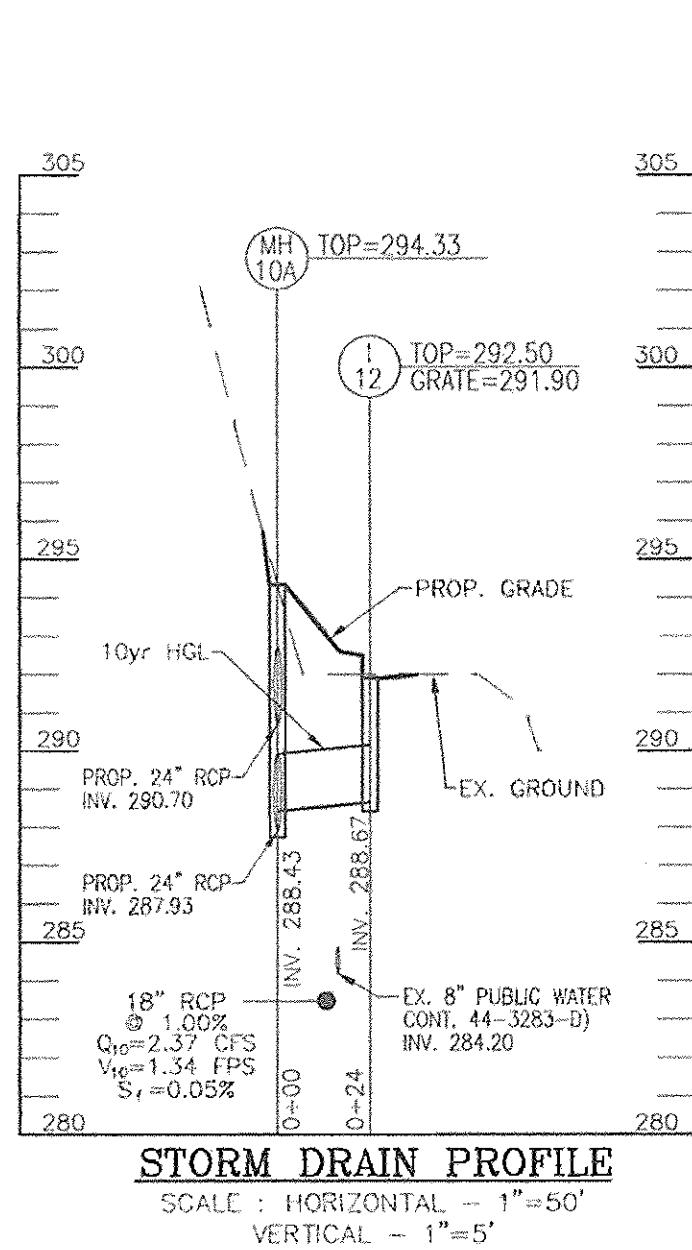
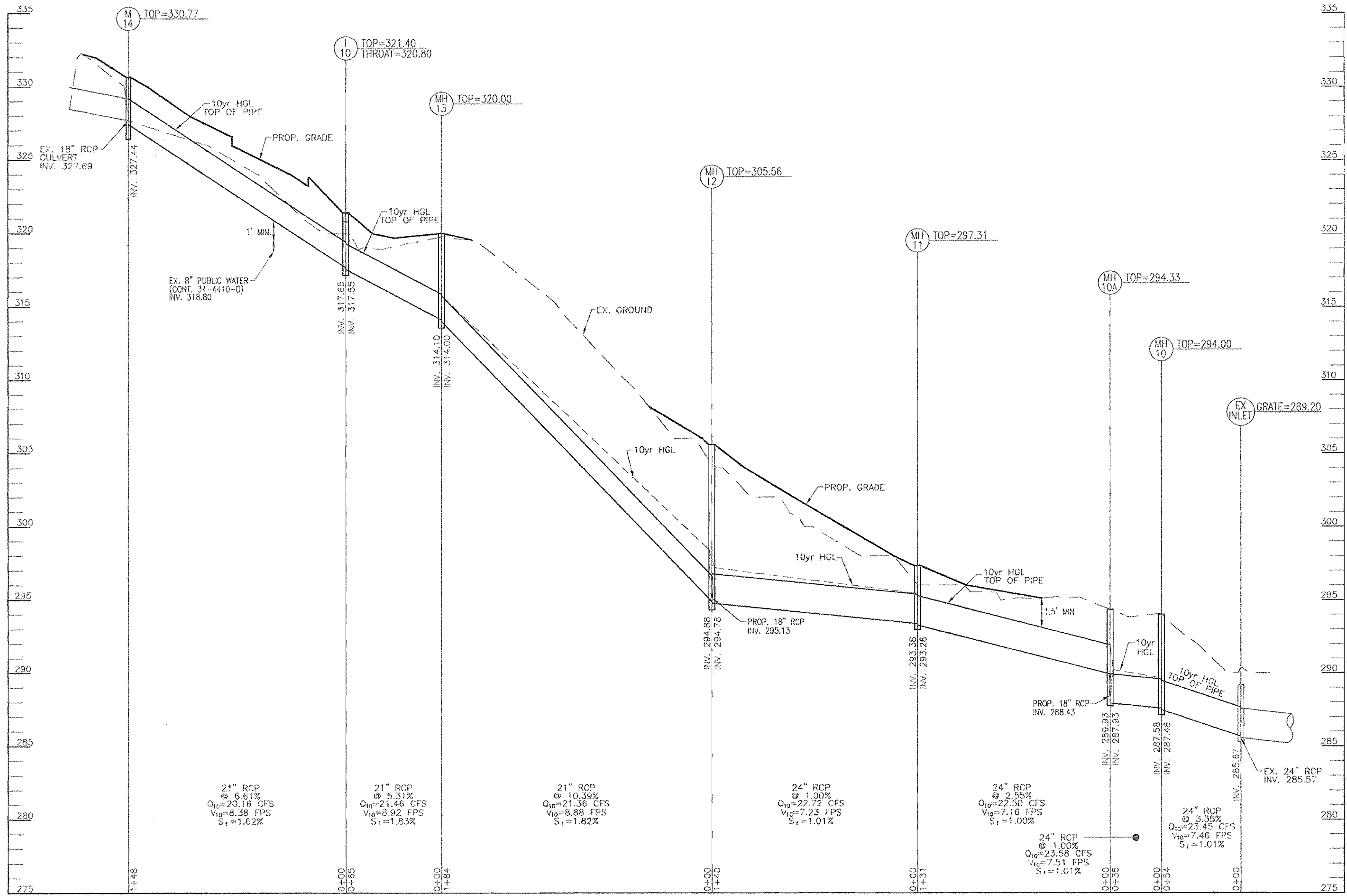
DESIGN BY: WGZ
DRAWN BY: DZ
CHECKED BY: RHV
DATE: FEB. 2008
SCALE: 1"=50'
W.O. NO.: 04-06

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 2/15/08
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 2/15/08
DIRECTOR

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.
USDA-NATURAL RESOURCES CONSERVATION SERVICES
DATE: 2/15/08
HOWARD S.C.D.
DATE:

BY THE DEVELOPER:
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
Signature of Developer: Charles J. [unclear], Sec. 1-29-08
Date: 2/15/08
Signature of Conf. Assn. of Seventh Day Adventists

BY THE ENGINEER:
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Signature of Engineer: [unclear]
Date: 2/15/08



APPROVED
PLANNING BOARD
OF HOWARD COUNTY
DATE: 8/9/07

OWNER/DEVELOPER
CHESAPEAKE CONFERENCE ASSOCIATION
OF SEVENTH DAY ADVENTISTS
6600 MARTIN ROAD
COLUMBIA, MARYLAND 21044
PH. 202-296-5767

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
UTILITY PROFILES
BALTIMORE SEVENTH DAY
ADVENTIST KOREAN CHURCH

TAX MAP 35 GRID 22 PARCELS 86
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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8407 MAIN STREET TEL: 410.461.7666
ELLCOTT CITY, MD 21043 FAX: 410.461.8961

DESIGN BY: WGZ
DRAWN BY: RHV
CHECKED BY: RHV
DATE: FEB. 2008
SCALE: 1"=50'
W.O. NO.: 04-06

7 SHEET OF 12
SDP-06-102

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 2/12/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 2/15/08
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 2/19/08
DIRECTOR DATE

REVIEWED FOR HOWARD S.C.D. & MEETS 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 S.C.D. DATE

BY THE DEVELOPER:

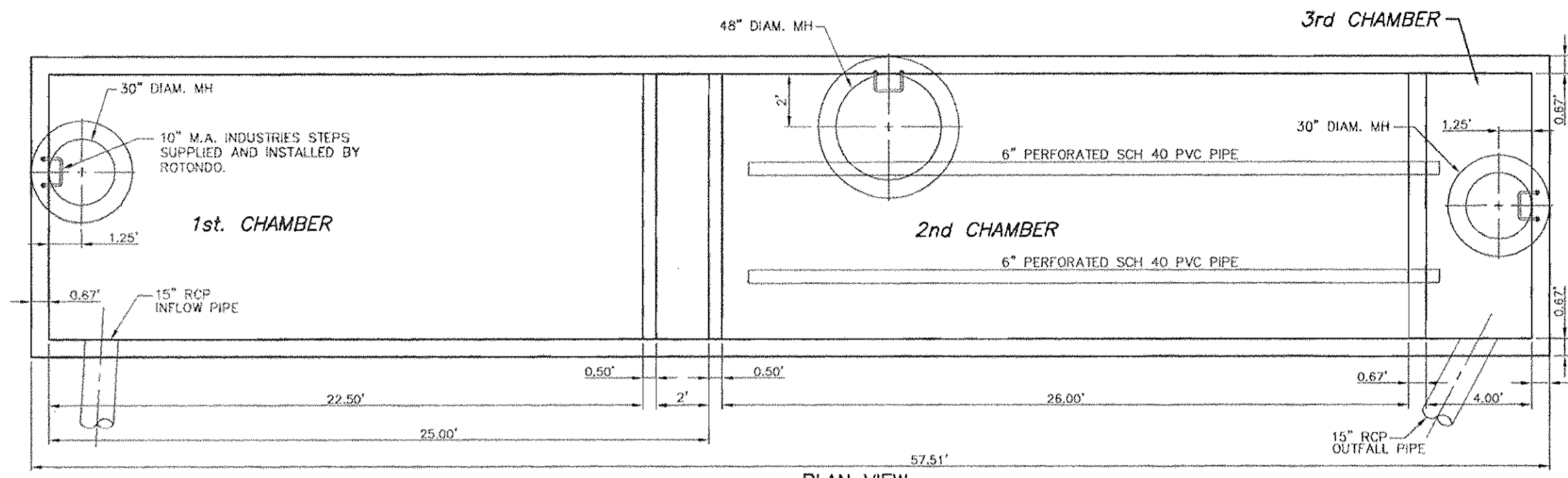
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[Signature] Sec. 1-29-08 DATE
Signature of Developer
Chesapeake Conf. Assoc.

BY THE ENGINEER:

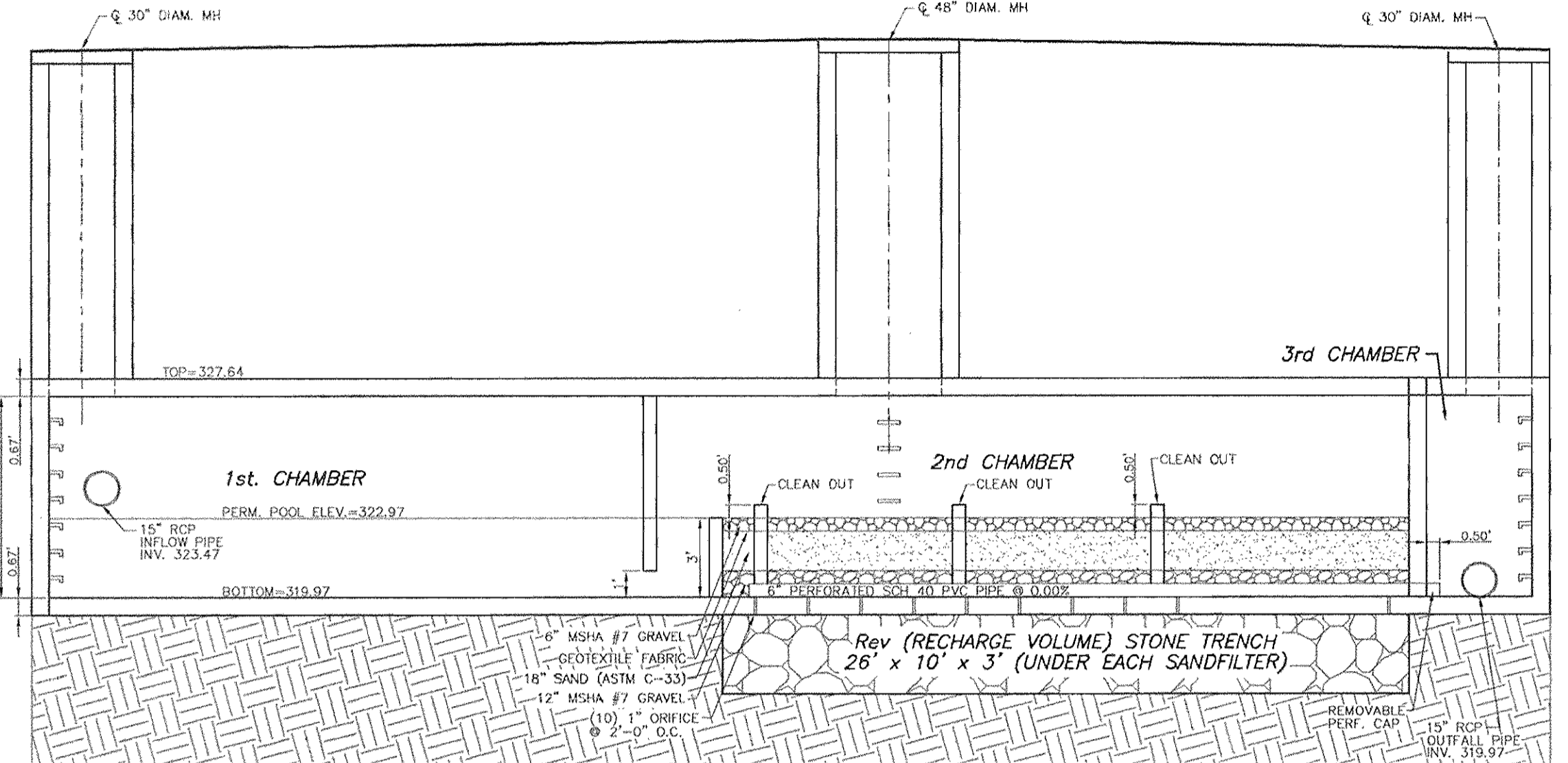
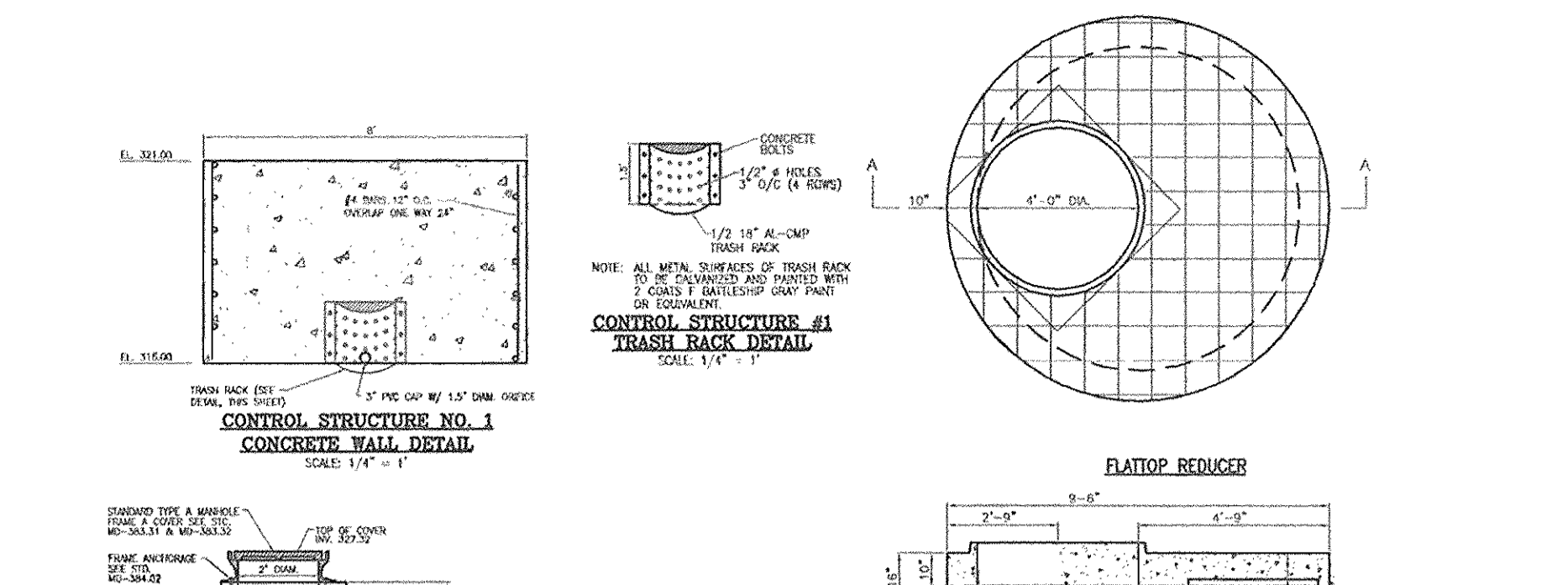
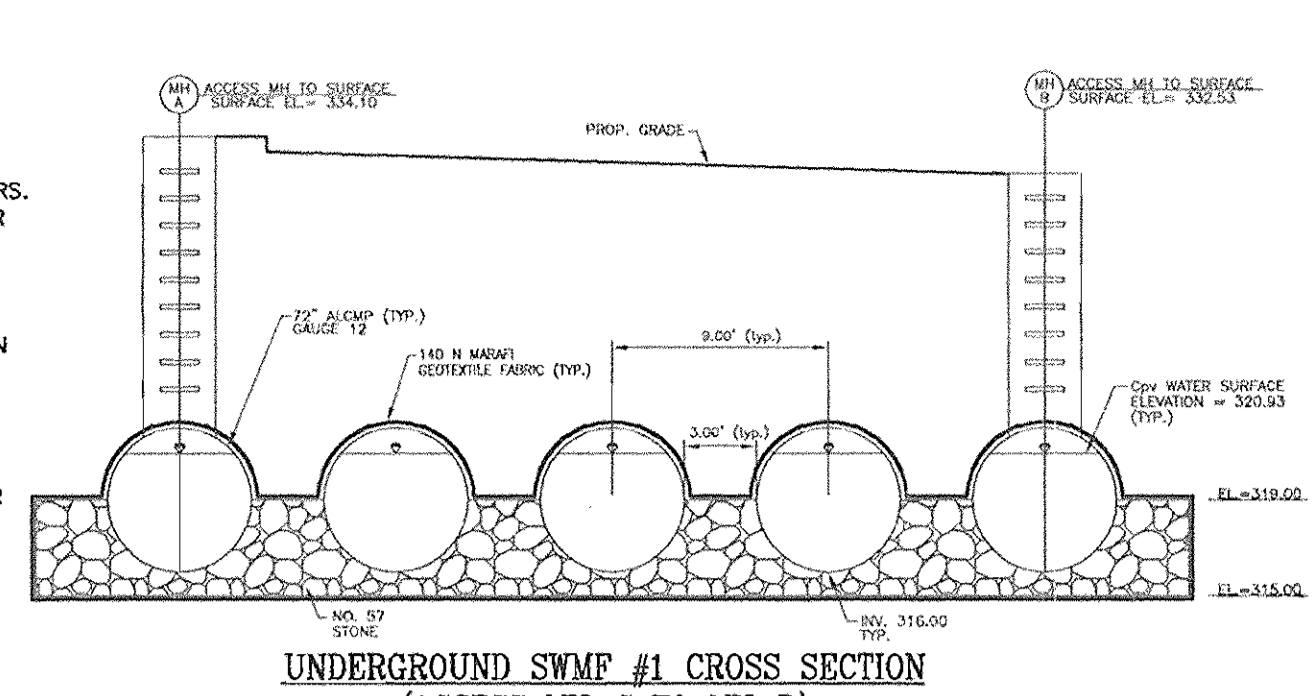
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[Signature] 2/1/08 DATE
Signature of Engineer



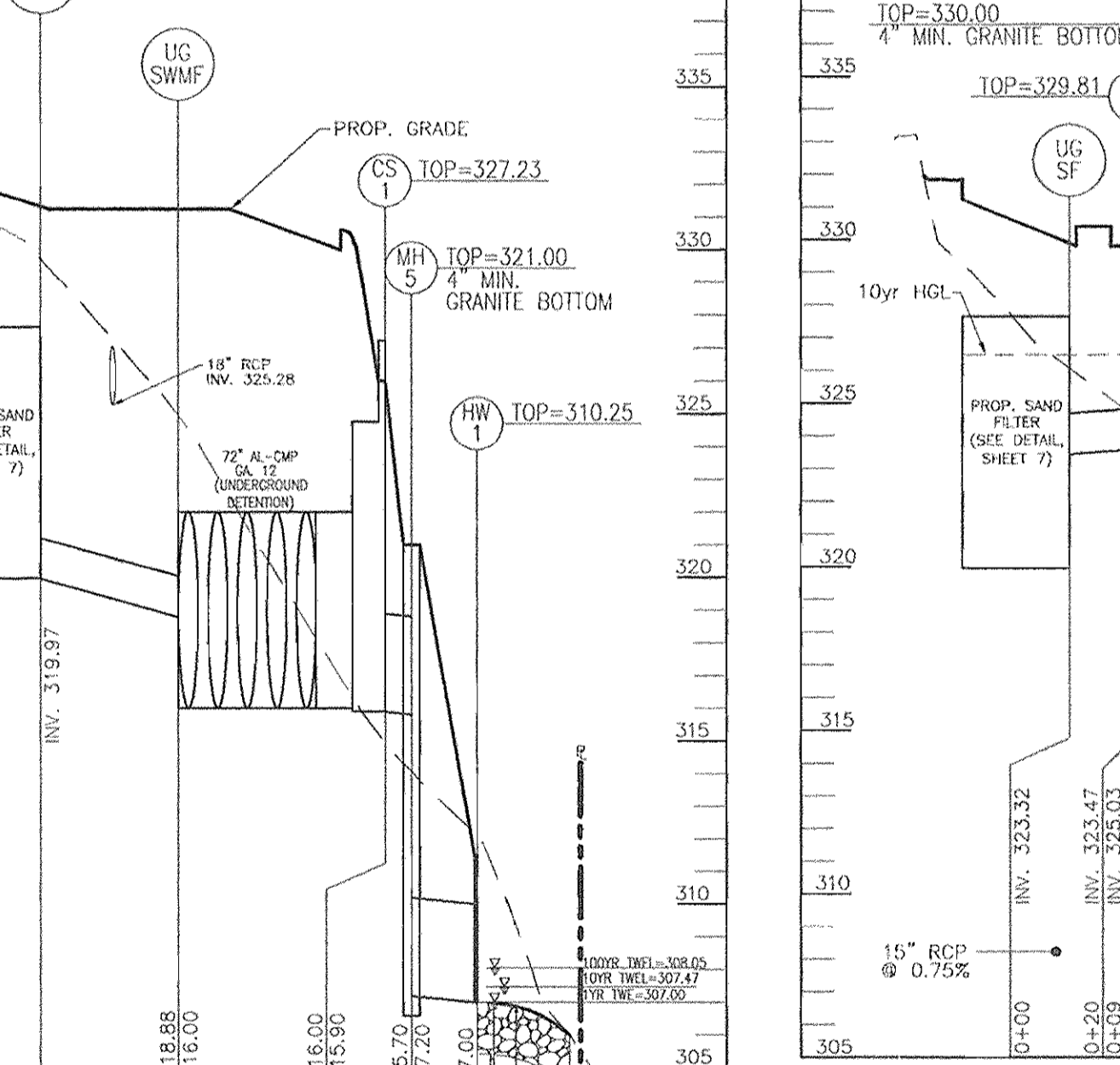
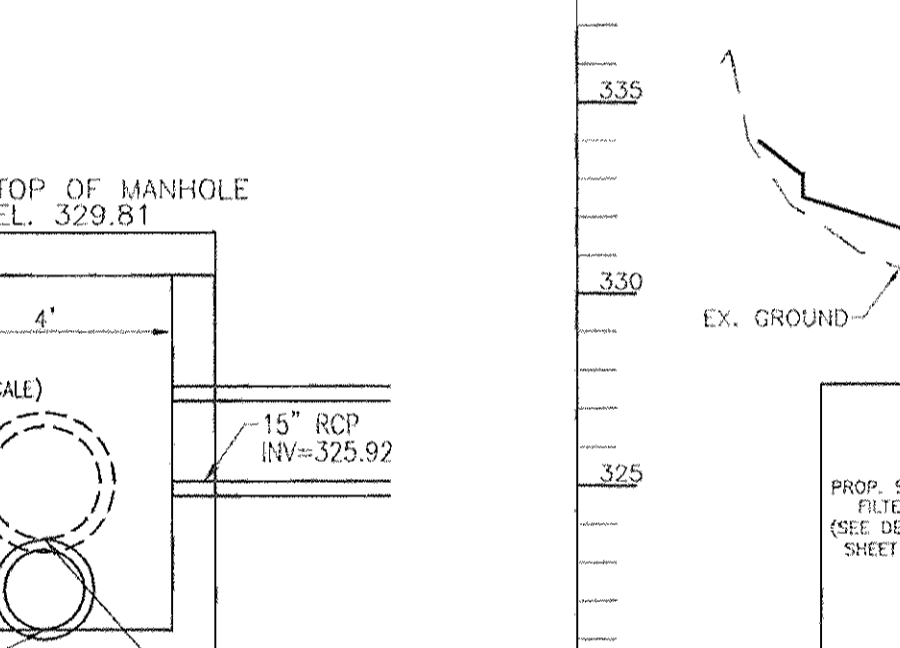
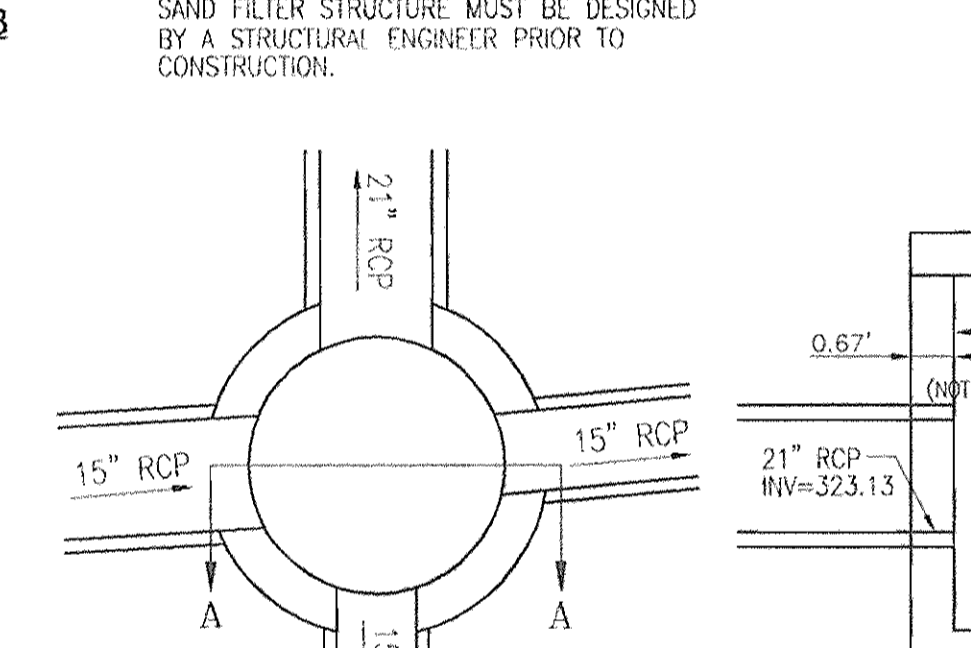
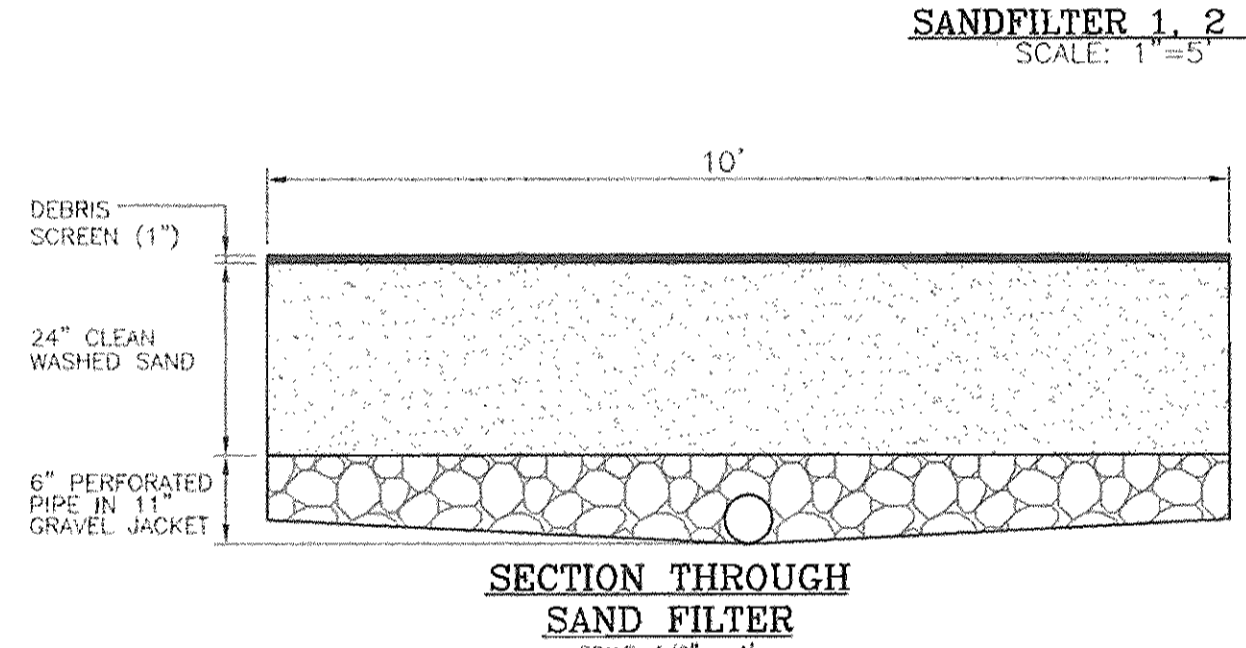
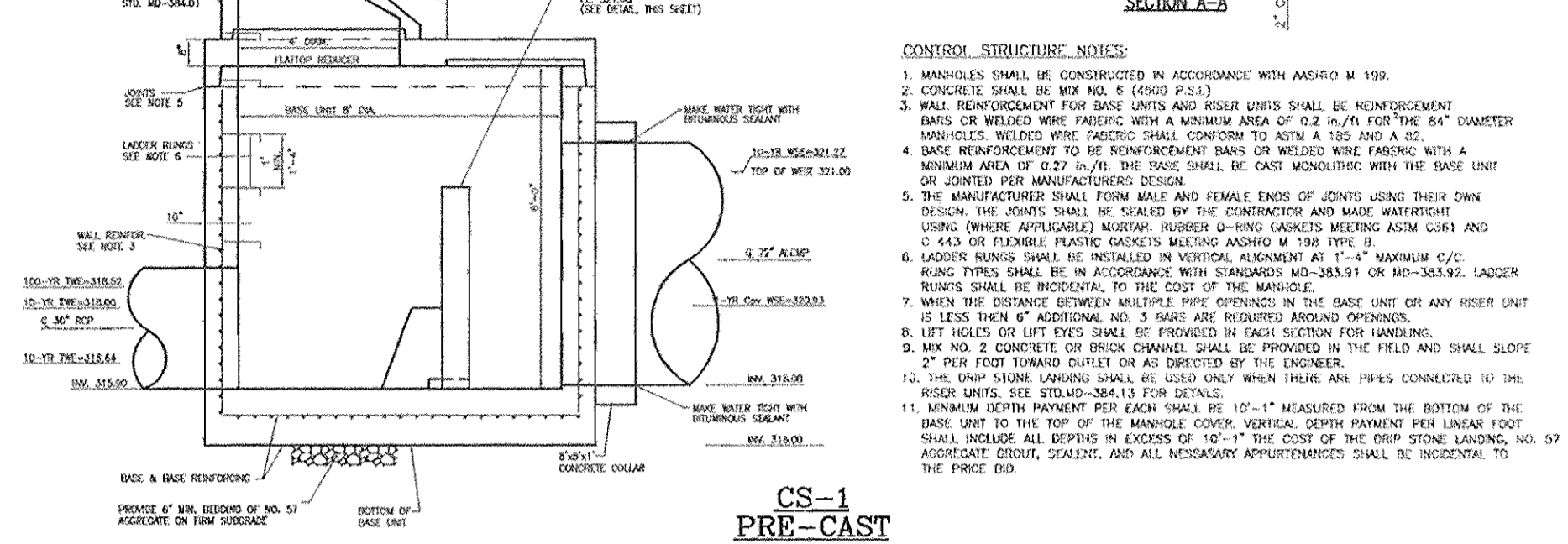
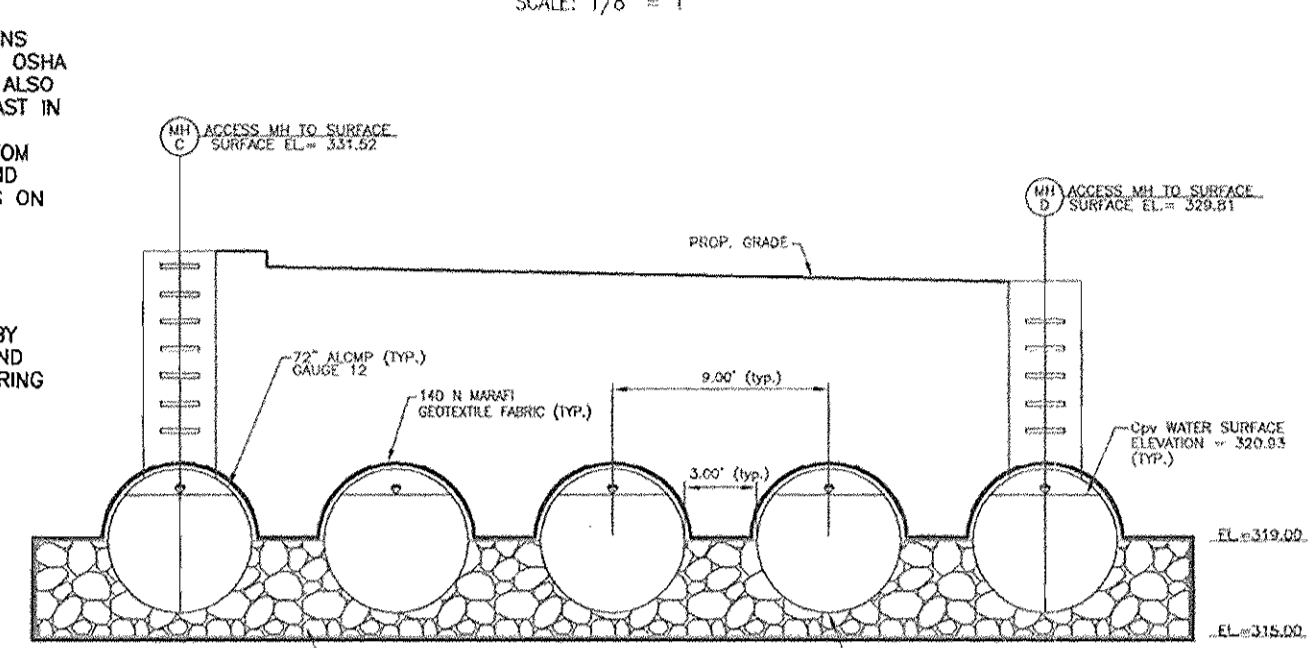
OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND STORMWATER FILTRATION SYSTEM (F-2)

- THE SEDIMENT CHAMBER OUTLET DEVICES SHALL BE CLEANED AND/OR REPAIRED WHEN DRAW-DOWN TIMES WITHIN THE CHAMBER EXCEED 36 HOURS.
- DEBRIS AND LITTER SHALL BE REMOVED AS NECESSARY TO ENSURE PROPER OPERATION OF THE SYSTEM.
- SEDIMENT SHALL BE CLEANED OUT OF THE SEDIMENTATION CHAMBER WHEN IT ACCUMULATES TO A DEPTH OF 6 INCHES. VEGETATION WITHIN THE SEDIMENT CHAMBER SHALL BE LIMITED TO A HEIGHT OF 18 INCHES.
- WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUID MUST BE FOLLOWED BY THE OWNER.
- A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO ENSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- ONCE THE PERFORMANCE CHARACTERISTICS OF THE FILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.



UNDERGROUND SAND FILTER CONSTRUCTION SPECIFICATIONS

- PROVIDE MANHOLE AND/OR GRATES TO ALL UNDERGROUND AND BELOW GRADE STRUCTURES. MANHOLES SHALL BE IN COMPLIANCE WITH STANDARD SPECIFICATIONS FOR EACH COUNTY, BUT DIAMETERS SHOULD BE 30" MINIMUM (TO COMPLY WITH OSHA CONFINED SPACE REQUIREMENTS). ALUMINUM AND STEEL LOUVERED DOORS ARE ALSO ACCEPTABLE. TEN INCH WIDE (MINIMUM) MANHOLE STEPS (12"x12") SHALL BE CAST IN PLACE OR DRILLED AND MORTARED INTO THE WALL BELOW EACH MANHOLE. A 5" MINIMUM HEIGHT CLEARANCE (FROM THE TOP OF THE SAND LAYER TO THE BOTTOM OF THE UPPER/SURFACE SLAB) IS REQUIRED FOR ALL PERMANENT UNDERGROUND STRUCTURES. LIFT RINGS ARE TO BE SUPPLIED TO REMOVE/REPLACE TOP SLABS ON PRE-FABRICATED STRUCTURES. MANHOLE COVERS SHOULD ALLOW FOR PROPER VENTILATION.
- UNDERGROUND SANDFILTERS SHOULD BE CONSTRUCTED WITH A GATE VALVE LOCATED JUST ABOVE THE TOP OF THE FILTER BED FOR DEWATERING IN THE EVENT THAT CLOGGING OCCURS.
- UNDERGROUND SAND BEDS SHALL BE PROTECTED FROM TRASH ACCUMULATION BY A WIDE MESH GEOTEXTILE SCREEN TO BE PLACED ON THE SURFACE OF THE SAND BED. SCREEN IS TO BE ROLLED UP, REMOVED, CLEANED AND RE-INSTALLED DURING MAINTENANCE OPERATIONS.



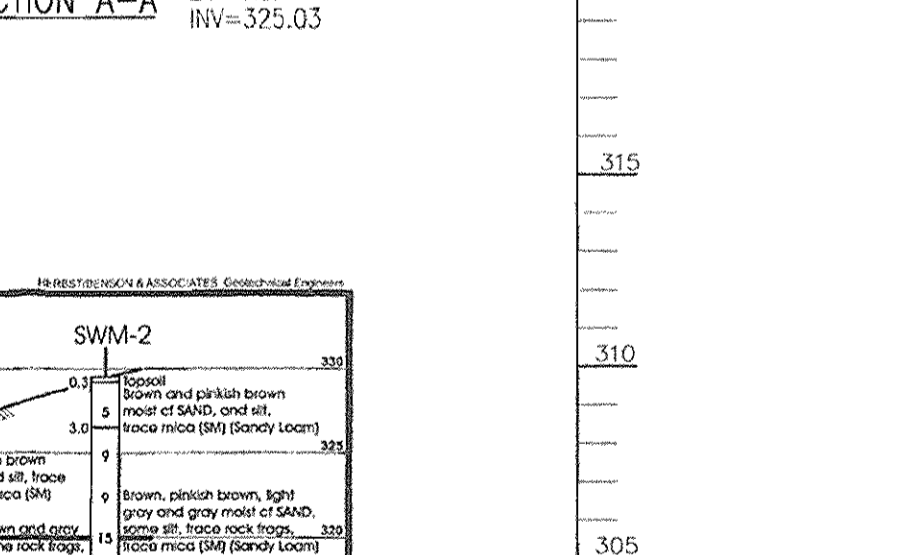
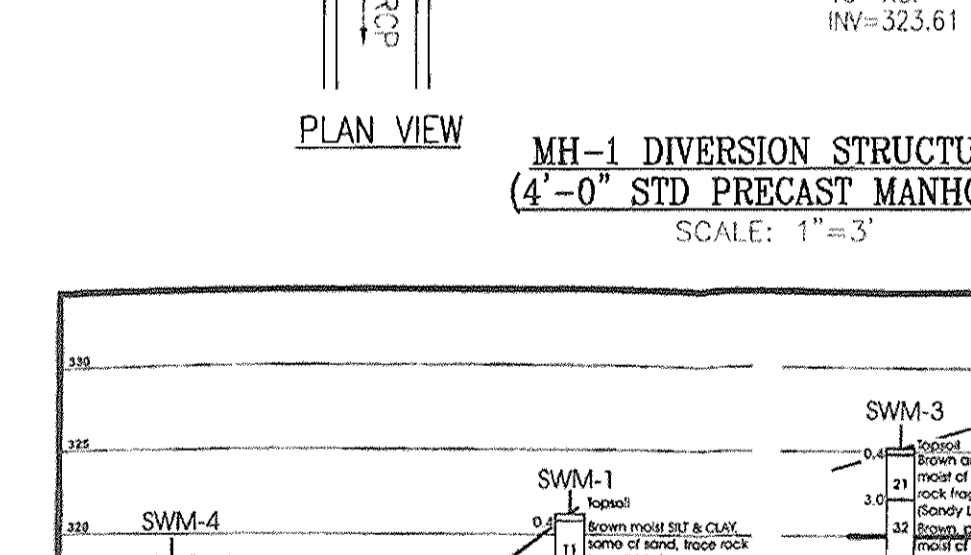
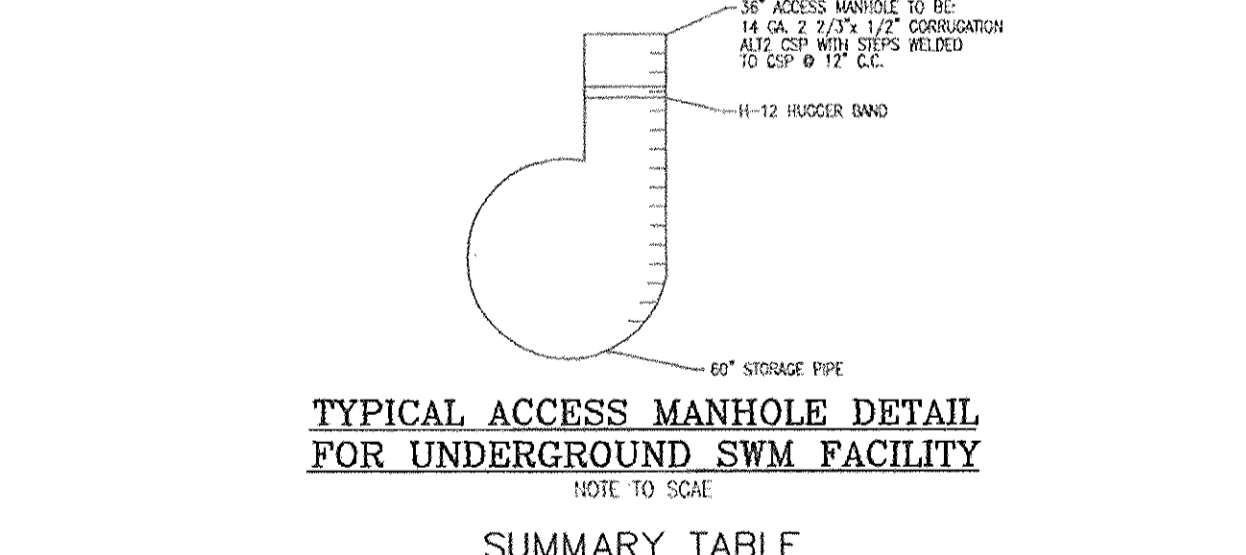
SUMMARY TABLE

SP#3 0.18 AC.	REQUIREMENT	VOLUME REQUIREMENT W/O CREDITS	CREDITS	VOLUME REQUIREMENT AFTER CREDITS	NOTES
1	WATER QUALITY VOLUME, WQV	N/A	N/A	N/A	SEE NOTE BELOW
2	RECHARGE VOLUME, REV	N/A	N/A	N/A	
3	CHANNEL PROTECTION VOLUME, CPV	N/A	N/A	N/A	
4	OVERHEAD FLOOD PROTECTION, O1OP	N/A	N/A	N/A	
5	EXTREME FLOOD VOLUME, E1OOP	N/A	N/A	N/A	

NOTE: SWM PROVIDED BY: NO STORM WATER MANAGEMENT IS PROPOSED FOR THIS AREA SINCE THE EXISTING AND PROPOSED CONDITIONS ARE TO RETURN AS WOODS.

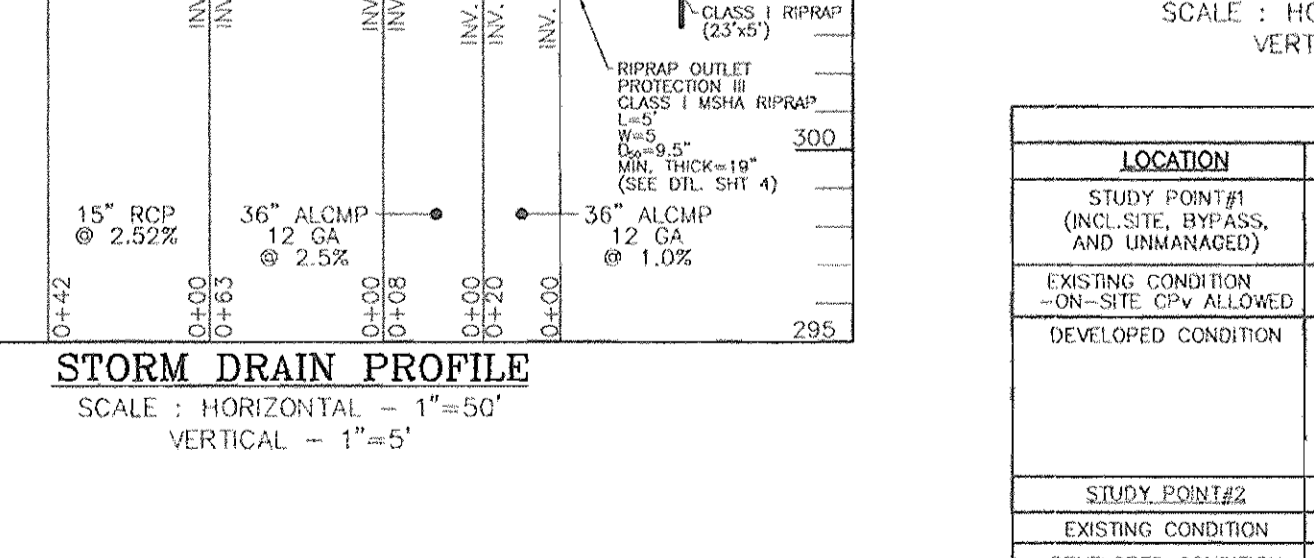
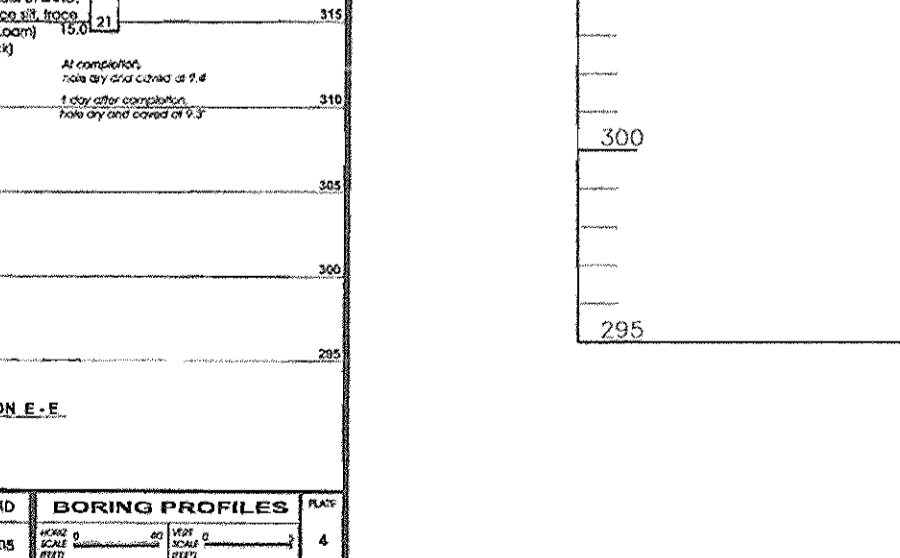
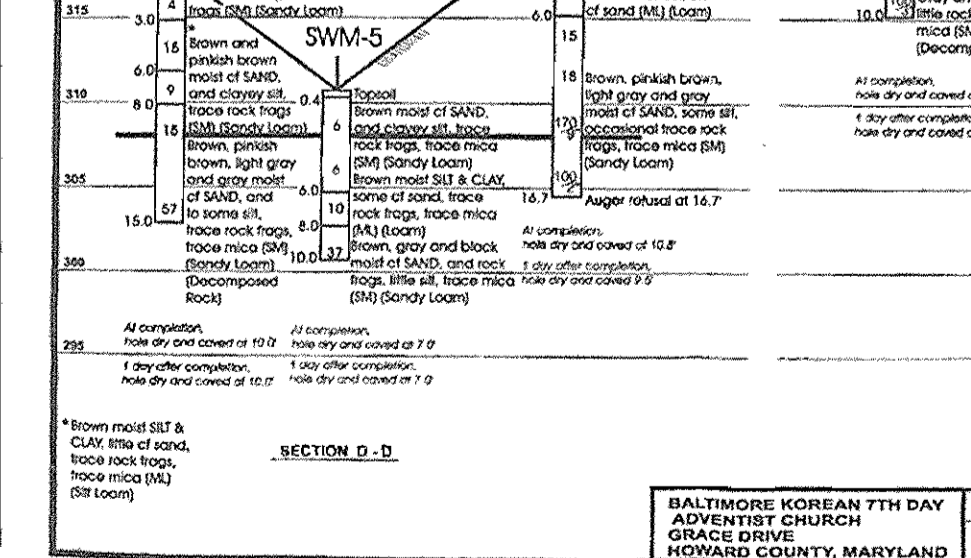
SP#2 12.39 AC.	REQUIREMENT	VOLUME REQUIREMENT W/O CREDITS	CREDITS	VOLUME REQUIREMENT AFTER CREDITS	NOTES
1	WATER QUALITY VOLUME, WQV	N/A	N/A	N/A	SEE NOTE BELOW
2	RECHARGE VOLUME, REV	N/A	N/A	N/A	
3	CHANNEL PROTECTION VOLUME, CPV	N/A	N/A	N/A	
4	OVERHEAD FLOOD PROTECTION, O1OP	N/A	N/A	N/A	
5	EXTREME FLOOD VOLUME, E1OOP	N/A	N/A	N/A	

NOTE: SWM PROVIDED BY: EX. EXTENDED DETENTION FACILITY ON THE SOUTHWEST CORNER OF THE INTERSECTION OF GRACE DRIVE AND CEDAR LANE. SEE STORMWATER RUNOFF SUMMARY TABLE THIS SHEET.



SUMMARY TABLE

SP#1 3.08 AC.	REQUIREMENT	VOLUME REQUIREMENT W/O CREDITS	CREDITS	VOLUME REQUIREMENT AFTER CREDITS	NOTES
1	WATER QUALITY VOLUME, WQV	0.20 AC.FT.	N/A	0.20 AC.FT.	PROVIDED IN 3 UNDERGROUND SANDFILTERS
2	RECHARGE VOLUME, REV	0.05 AC.FT. OR 0.30 AC.	N/A	0.05 AC.FT. OR 0.30 AC.	PROVIDED IN REV TRENCH UNDER ALL SANDFILTERS
3	CHANNEL PROTECTION VOLUME, CPV	0.20	N/A	0.10 AC.FT. OR B105 CV.FT	CPV PROVIDED IN 372 LF OF 72" 12 GA AL-CMP UNDERGROUND STORAGE
4	OVERHEAD FLOOD PROTECTION, O1OP	N/A	N/A	N/A	NOT REQUIRED
5	EXTREME FLOOD VOLUME, E1OOP	N/A	N/A	N/A	NOT REQUIRED



STORMWATER RUNOFF SUMMARY

LOCATION	AREA	Q1(cfs)	Q10(cfs)
STUDY POINT#1 (ENCL. SITE, BYPASS, AND UNMANAGED)	3.32	0.14	4.46
EXISTING CONDITION (ON-SITE CPV ALLOWED)	0.46 (UNMANAGED)	0.21 (TR-20 OF ALL AREAS)	10.14 (TR-20 OF ALL AREAS)
DEVELOPED CONDITION	3.08 (ON-SITE) 3.54 (TOTAL)	0.10	9.23
STUDY POINT#2	12.62	0.54	2.63
EXISTING CONDITION	12.39	0.52	2.50
DEVELOPED CONDITION	12.39	0.52	2.50
STUDY POINT#3	0.18	0.01	0.21
EXISTING CONDITION	0.18	0.01	0.21
DEVELOPED CONDITION	0.18	0.01	0.21

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION, DATE: 2/12/08

CHIEF, DIVISION OF LAND DEVELOPMENT, DATE: 2/18/08

DIRECTOR, DATE: 2/19/08

RENEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

BY THE DEVELOPER:

DATE: 2/12/08

DATE: 2/18/08

DATE: 2/19/08

BY THE ENGINEER:

DATE: 2/12/08

DATE: 2/18/08

DATE: 2/19/08

NOTE: DEBRIS IS TO BE KEPT OUT OF STORMWATER MANAGEMENT FACILITIES DURING AND AFTER CONSTRUCTION.

SITE DEVELOPMENT PLAN

STORMWATER MANAGEMENT NOTES AND DETAILS

BALTIMORE SEVENTH DAY ADVENTIST KOREAN CHURCH

TAX MAP 35 GRID 22 PARCELS 86

5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERS • SURVEYORS • PLANNERS

8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: WGZ

DRAWN BY: DZ

CHECKED BY: RHV

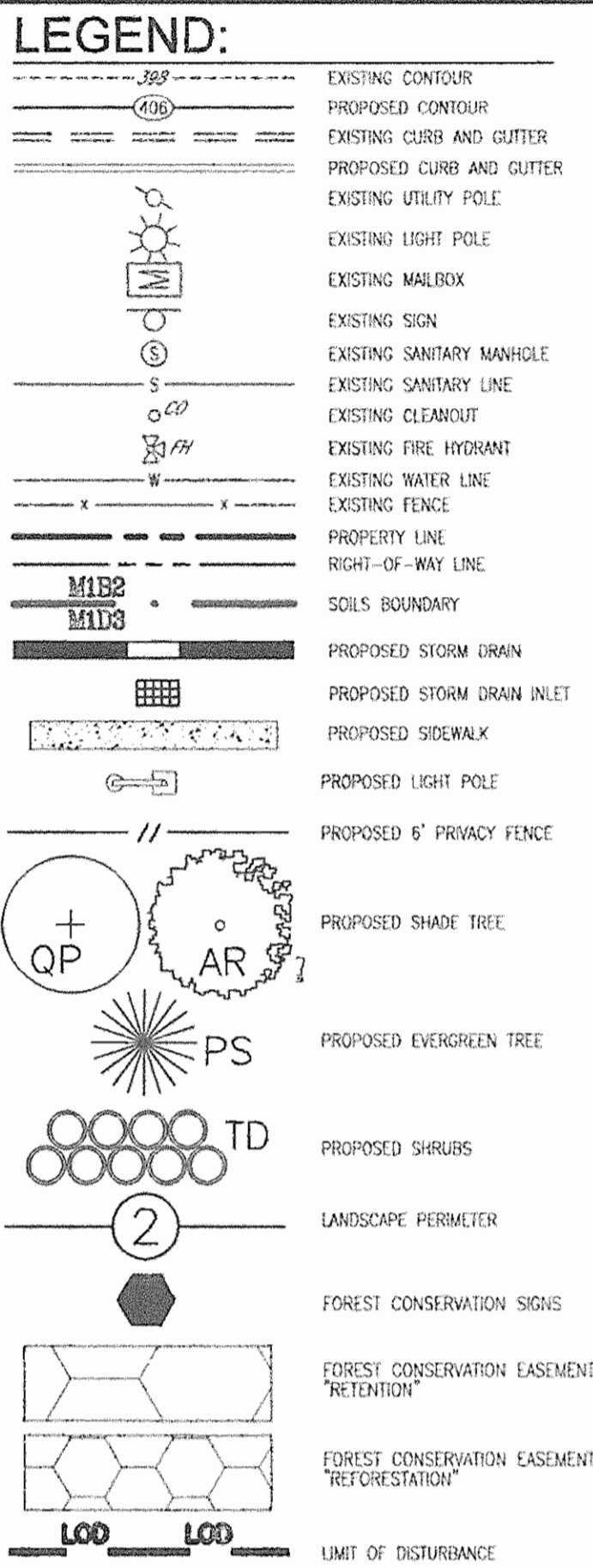
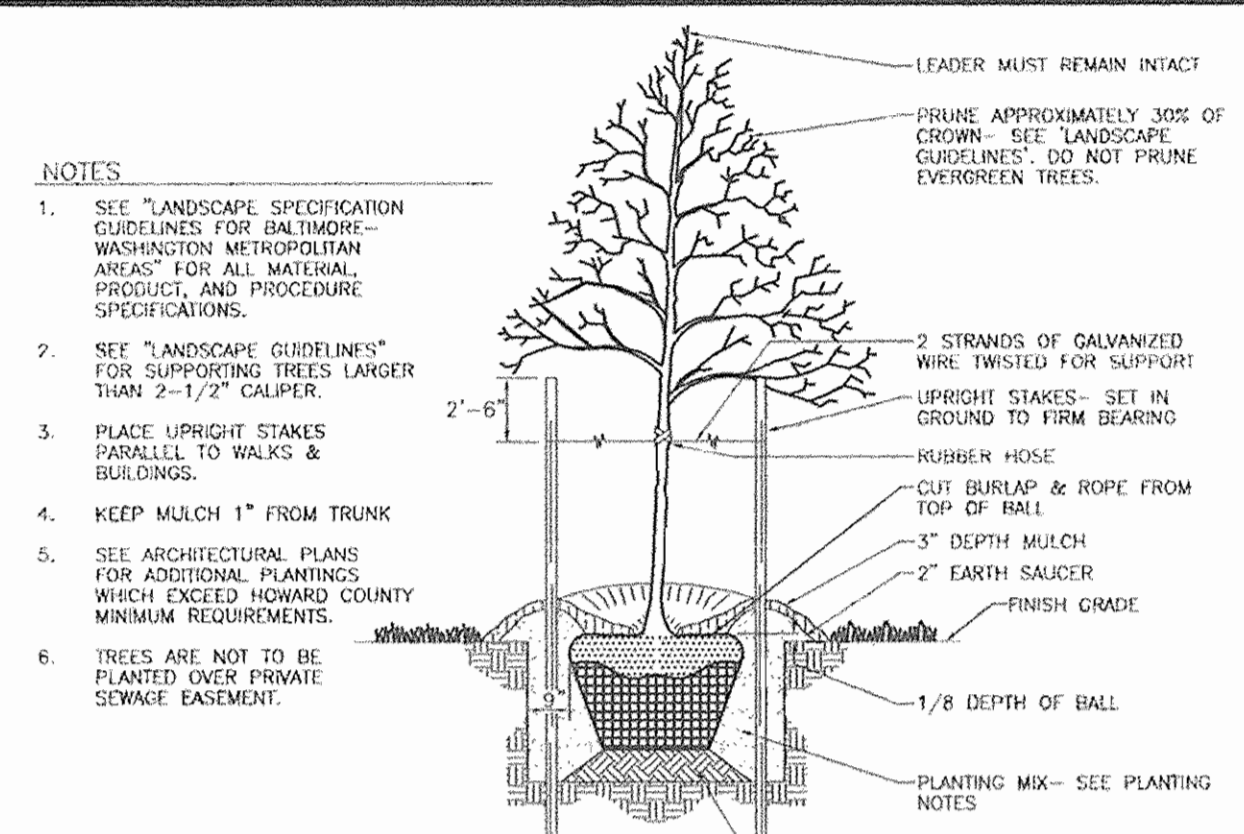
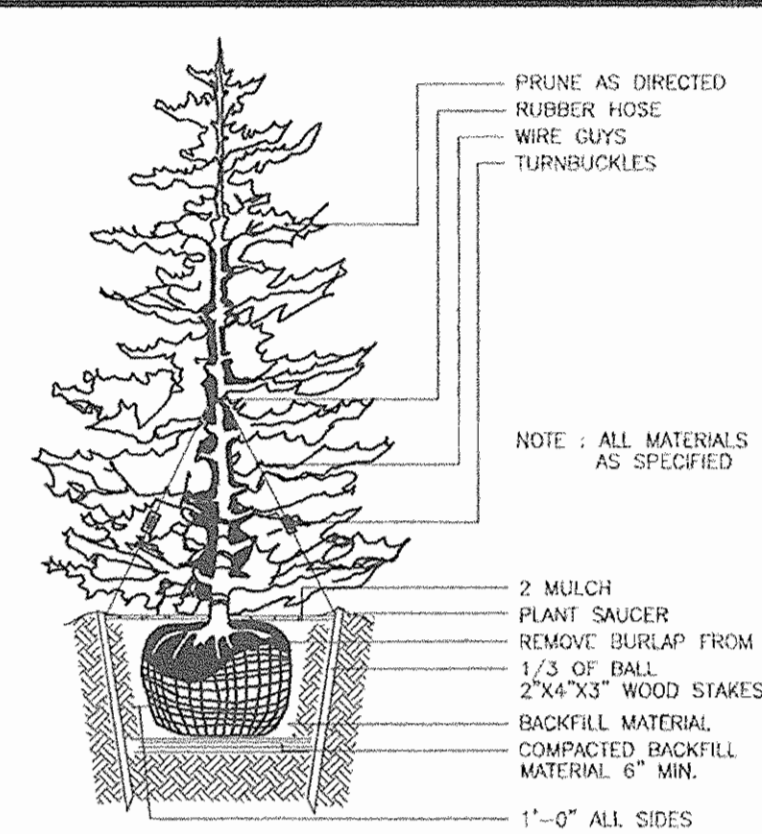
DATE: FEB. 2008

SCALE: AS SHOWN

W.D. NO.: 04-06

8 SHEET OF 12

SDP-06-102



SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS AND PERIMETER PROPERTIES	ADJACENT TO DUMPSTER
LANDSCAPE TREE	1 2 3 4 5 6 7 8	9
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	401 315 401 210 257 66 94 34	6
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DISCOUNT IF NEEDED)	YES 238 NO YES 215 YES 162 NO NO NO YES 24	NO
CREDIT FOR WELL FENCE OR BERM (YES, NO, LINEAR FEET DISCOUNT IF NEEDED)	NO YES 315	NO
NUMBER OF PLANTS REQUIRED		
SHADE TREES	1:40 4 1:40 1:40 3 1:50 2 1:40 6 1:50 1 1:50 1 1:40 1	1:20 2 1:20 1 1:40 3 1:40 6 1:40 2 1:40 1
EVERGREEN TREES		
SHRUBS		
NUMBER OF PLANTS PROVIDED		
SHADE TREES	4	1
EVERGREEN TREES	9	1
OTHER TREES (2:1 SUBSTITUTION)	6	2
SHRUBS (10:1 SUBSTITUTION)	64	10
DISCOUNT PLANT SUBSTITUTION CREDITS BELOW IF NEEDED		

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING

Number of parking spaces	143
Number of trees required	7
Number of trees provided	7
Shade Trees	7
Other Trees (2:1 Substitution)	

LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	CAT.
AR	15	ACER RUBRUM	2 1/2"-3" CAL.	B & B
OR	7	QUERCUS PHELLOS	2 1/2"-3" CAL.	B & B
QA	15	QUERCUS ALBIFORMIS	2 1/2"-3" CAL.	B & B
PA	22	PRINUS STROBILUS	6'-8' HT.	B & B
TD	74	TAXUS MEDIA 'DENSIFORMIS'	2 1/2"-3" HT.	B & B

STREET TREE CALCULATIONS

STREET NAME	LINEAR FEET	REQUIRED	PROVIDED
GRACE DRIVE (MINOR COLLECTION)	610	15	15

REFORESTATION EASEMENT AREA-1 0.23 AC +46 TREES 200 TPA

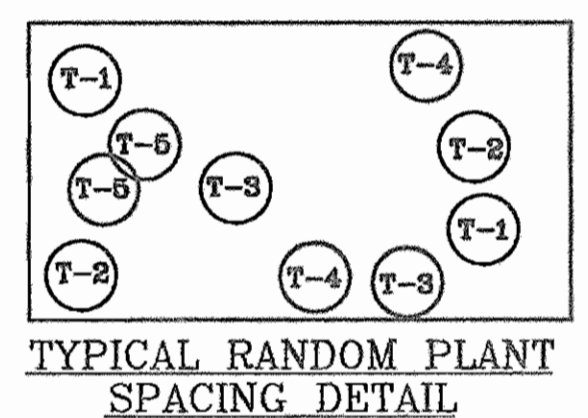
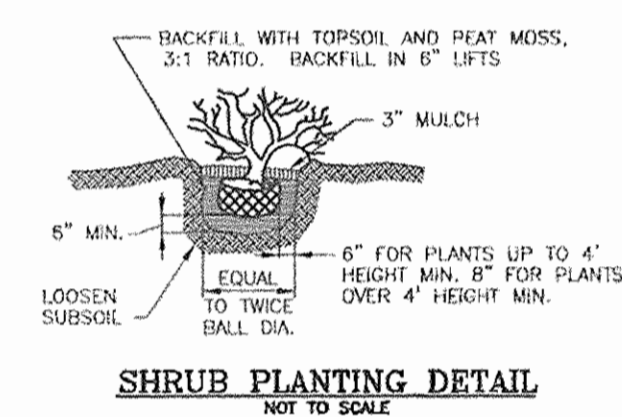
QUAN.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	SPACING	NOTES
10	Acer Rubrum	Red Maple	1" CAL	15' X 15'	B & B
9	Quercus rubra	Northern Red Oak	1" CAL	15' X 15'	B & B
9	Platanus occidentalis	Sycamore	1" CAL	15' X 15'	B & B
9	CORNUS FLORIDA	Flowering Dogwood	1" CAL	15' X 15'	B & B
9	Liquidambar styraciflua	Sweet Gum	1" CAL	15' X 15'	B & B

REFORESTATION EASEMENT AREA-2 0.04 AC +8 TREES 200 TPA

QUAN.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	SPACING	NOTES
1	Acer Rubrum	Red Maple	1" CAL	12' X 12'	B & B
1	Quercus rubra	Northern Red Oak	1" CAL	12' X 12'	B & B
1	Platanus occidentalis	Sycamore	1" CAL	12' X 12'	B & B
1	CORNUS FLORIDA	Flowering Dogwood	1" CAL	12' X 12'	B & B
1	Liquidambar styraciflua	Sweet Gum	1" CAL	12' X 12'	B & B

REFORESTATION EASEMENT AREA-3 0.12 AC +24 TREES 200 TPA

QUAN.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	SPACING	NOTES
3	Acer Rubrum	Red Maple	1" CAL	12' X 12'	B & B
4	Quercus rubra	Northern Red Oak	1" CAL	12' X 12'	B & B
3	Platanus occidentalis	Sycamore	1" CAL	12' X 12'	B & B
3	CORNUS FLORIDA	Flowering Dogwood	1" CAL	12' X 12'	B & B
3	Liquidambar styraciflua	Sweet Gum	1" CAL	12' X 12'	B & B



LANDSCAPE SCHEDULE NOTE:

1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAS AND SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HED PLANTING SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
3. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.

GENERAL NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THE REQUIRED PARKING AND PERIMETER LANDSCAPING WILL BE BONDED PER THIS SUBMISSION.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$15,270.00 FOR THE REQUIRED 25 SHADE TREES, 16 EVERGREEN TREES, 74 SHRUBS, AND FOR 315L.F. OF FENCE.

APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE: 8/9/07

OWNER/DEVELOPER
CHESAPEAKE CONFERENCE ASSOCIATION
OF SEVENTH DAY ADVENTISTS
6600 MARTIN ROAD
COLUMBIA, MARYLAND 21044
PH. 202-296-6767

FOREST PROTECTION NOTES

PRE-CONSTRUCTION ACTIVITIES
PRIOR TO THE START OF ANY CONSTRUCTION, THE APPLICANT SHALL ARRANGE A PRE-CONSTRUCTION MEETING WITH THE HOWARD COUNTY DPZ ENVIRONMENTAL PLANNER TO ADDRESS IMPLEMENTATION OF THE FOREST CONSERVATION PLAN. THE INSTALLATION OF SIGNAGE, AND ANY REQUIRED FENCING WILL BE INSPECTED AT THAT MEETING.

1. INSTALL BLAZE ORANGE FENCE AND FOREST CONSERVATION SIGNS BEFORE CONSTRUCTION BEGINS.
2. FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.

CONSTRUCTION PHASE
1. NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE AFFORESTATION AREA.
2. NO EQUIPMENT SHALL BE OPERATED INSIDE THE AFFORESTATION AREA INCLUDING TREE CANOPIES.
3. IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.

POST-CONSTRUCTION ACTIVITIES
1. AT THE DISCRETION OF A QUALIFIED TREE CARE EXPERT, DAMAGES TO RETAINED TREES SHALL BE REPAIRED BY THE CONTRACTOR.
2. FENCE REMOVAL AND STABILIZATION SHALL BE AS PER THE SEDIMENT AND EROSION CONTROL PLAN.
3. FOLLOWING CONSTRUCTION, THE APPLICANT SHALL ARRANGE A POST-CONSTRUCTION MEETING WITH THE HOWARD COUNTY DPZ ENVIRONMENTAL PLANNER TO ADDRESS COMPLIANCE WITH THE FOREST CONSERVATION PLAN. DO NOT REMOVE SIGNS.

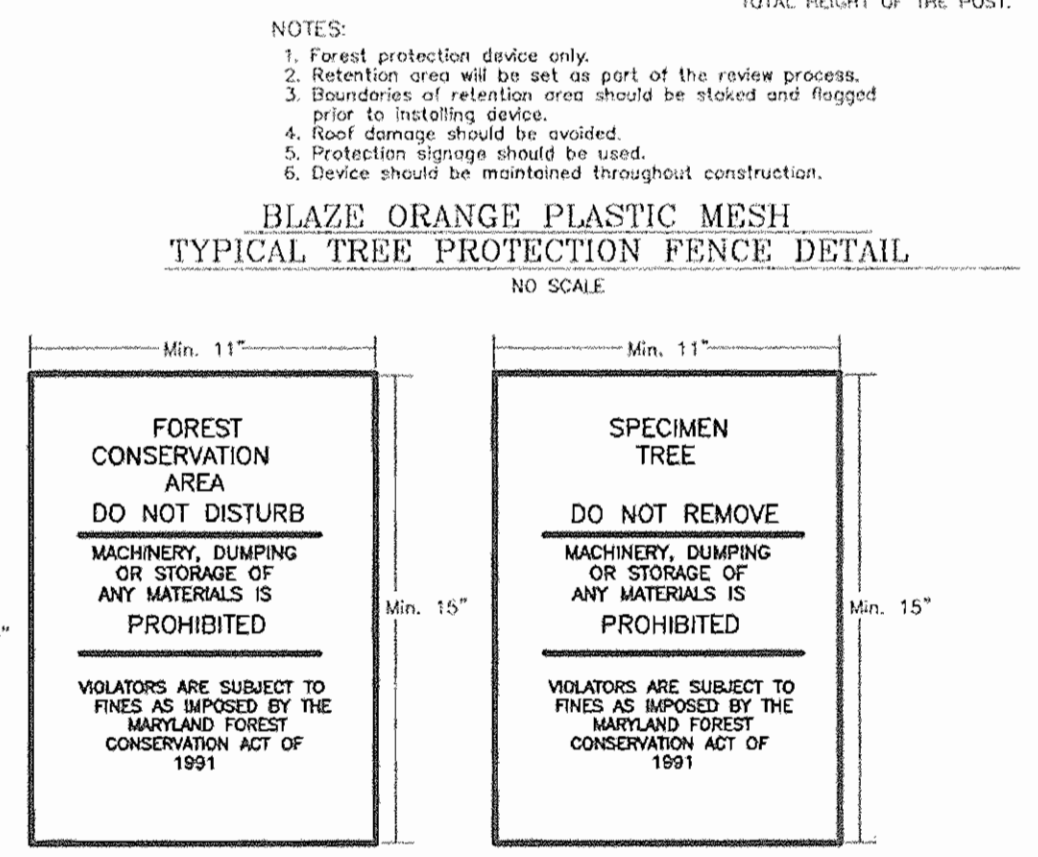
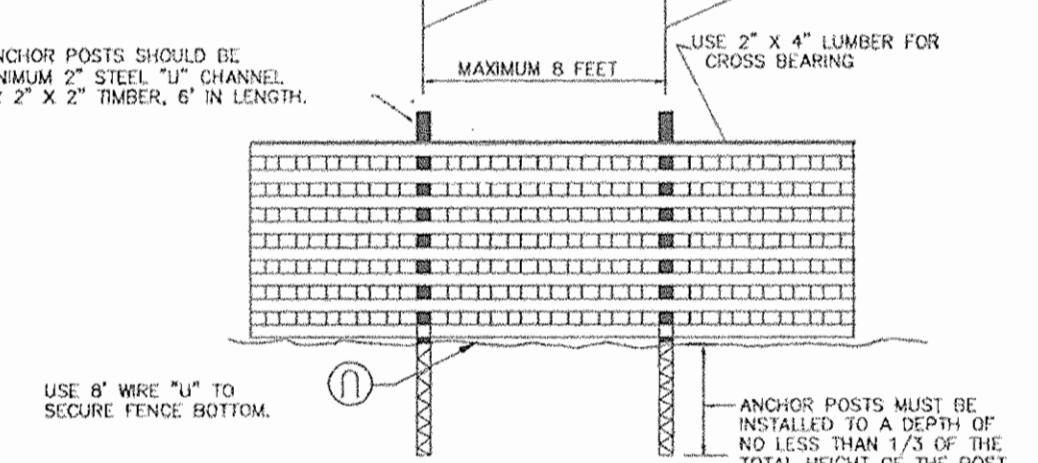
STORMWATER MANAGEMENT FACILITY PRIVATELY OWNED AND MAINTAINED

SCALE: 1"=40'

SIZE IN DIA (DBH)	SPECIES
20"	RED OAK
18"	TULIP POPLAR
10"	MAPLE
12"	HICKORY
11"	OAK
71"	TOTAL

50% OF 71" = 35.5" X \$63.85 = \$2,266.68

THE DEPARTMENT OF RECREATION AND PARKS TO GRANT A 20' PUBLIC SEWER AND UTILITY EASEMENT AND A 10' CONSTRUCTION STRIPE ON BOTH SIDES TO CONSTRUCT A SEWER MAIN SUBJECT TO THE FOLLOWING: TOTAL TREE LOSS IS 71 D.B.H. INCHES (DIAMETER AT BREAST HEIGHT), A FEE-IN-LIEU FOR MITIGATION OF 50% OF THE D.B.H. INCHES LOST, WHICH IS 35.5 D.B.H. INCHES. THE CALCULATION FOR THE FEE-IN-LIEU IS AS FOLLOWS: 35.5 D.B.H. INCHES X \$ 63.85 = \$2,266.68 TO BE PAID UPON APPROVAL OF THIS PLAN.



FOREST CONSERVATION WORKSHEET

NET TRACT AREA:
A. TOTAL TRACT AREA = 3.84 AC
B. DEDUCTIONS = 0.00 AC
C. NET TRACT AREA = 3.84 AC

LAND USE CATEGORY (FROM TABLE 3.2.1, PAGE 40, MANUAL)
INPUT THE NUMBER "1" UNDER THE APPROPRIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY.

AREA	MDR	IDA	HDR	MPD	CA
A	0	1	0	0	0

D. AFFOREST THRESHOLD = 15% X D = 0.58 AC
E. CONSERVATION THRESHOLD = 15% X D = 0.77 AC

EXISTING FOREST COVER:
F. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN) = 3.77 AC
G. AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 3.00 AC

BREAK EVEN POINT:
H. BREAK EVEN POINT = 1.37 AC
I. CLEARING PERMITTED WITHOUT MITIGATION = 1.47 AC

PROPOSED FOREST CLEARING:
J. TOTAL AREA OF FOREST TO BE CLEARED = 3.16 AC
K. TOTAL AREA OF FOREST TO BE RETAINED = 0.61 AC

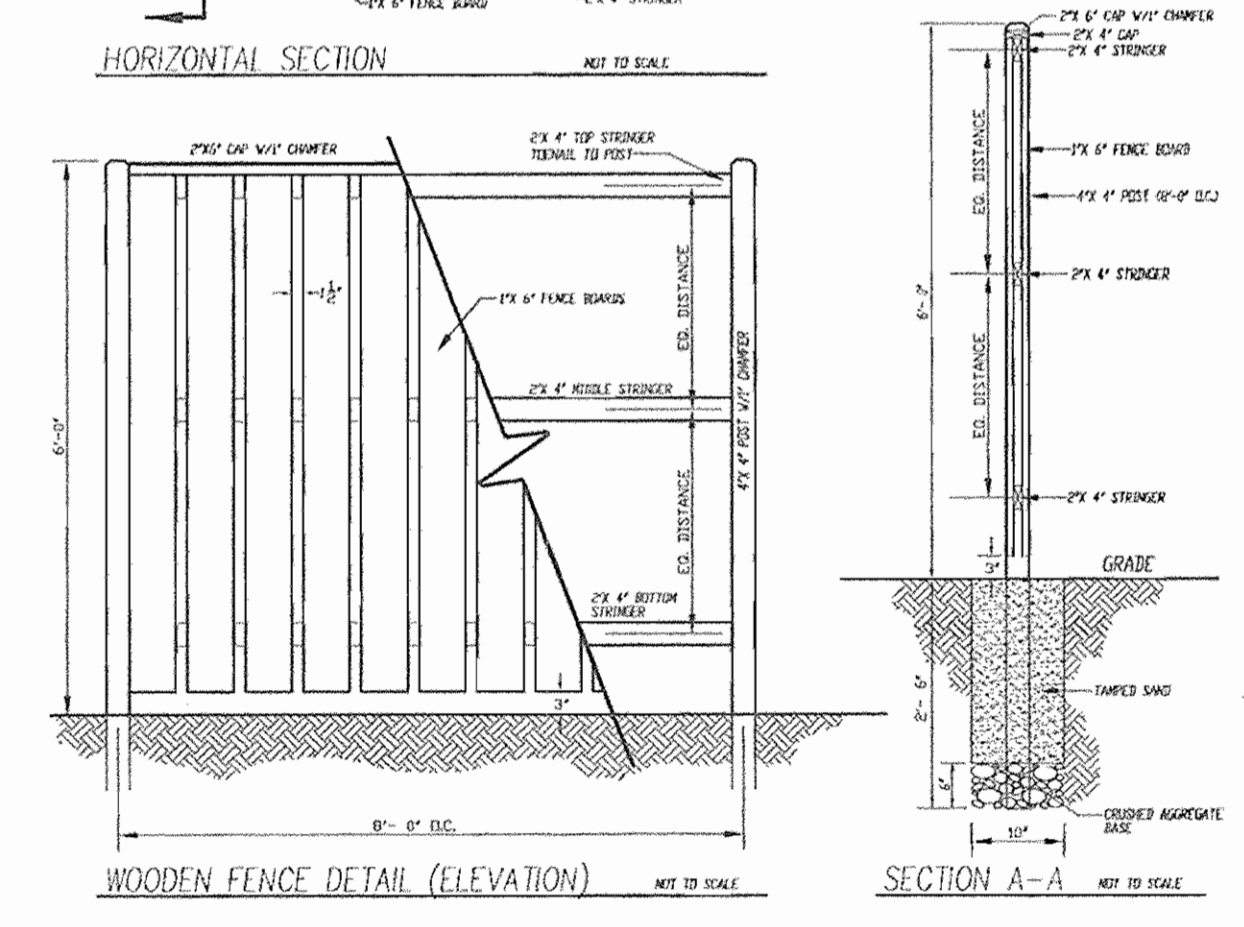
PLANTING REQUIREMENTS:
L. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD = 0.75 AC
M. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD = 0.32 AC
N. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD = 0.00 AC
P. TOTAL REFORESTATION REQUIRED = 1.07 AC
Q. TOTAL AFFORESTATION REQUIRED = 0.00 AC
R. TOTAL REFORESTATION AND AFFORESTATION REQUIRED = 1.07 AC

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 CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Signature of Developer: *Charles J. Boyle, Sec* DATE: 1-29-08
Signature of Assoc. Assn.: *Scotty Adams*
Signature of Director: *John Vanaman* DATE: 2/12/08
Signature of Chief of Land Development: *Guido Hart* DATE: 2/15/08
Signature of Director: *Charles J. Boyle* DATE: 2/19/08

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING



SITE DEVELOPMENT PLAN
SITE LANDSCAPE AND FOREST CONSERVATION PLAN
BALTIMORE SEVENTH DAY ADVENTIST KOREAN CHURCH

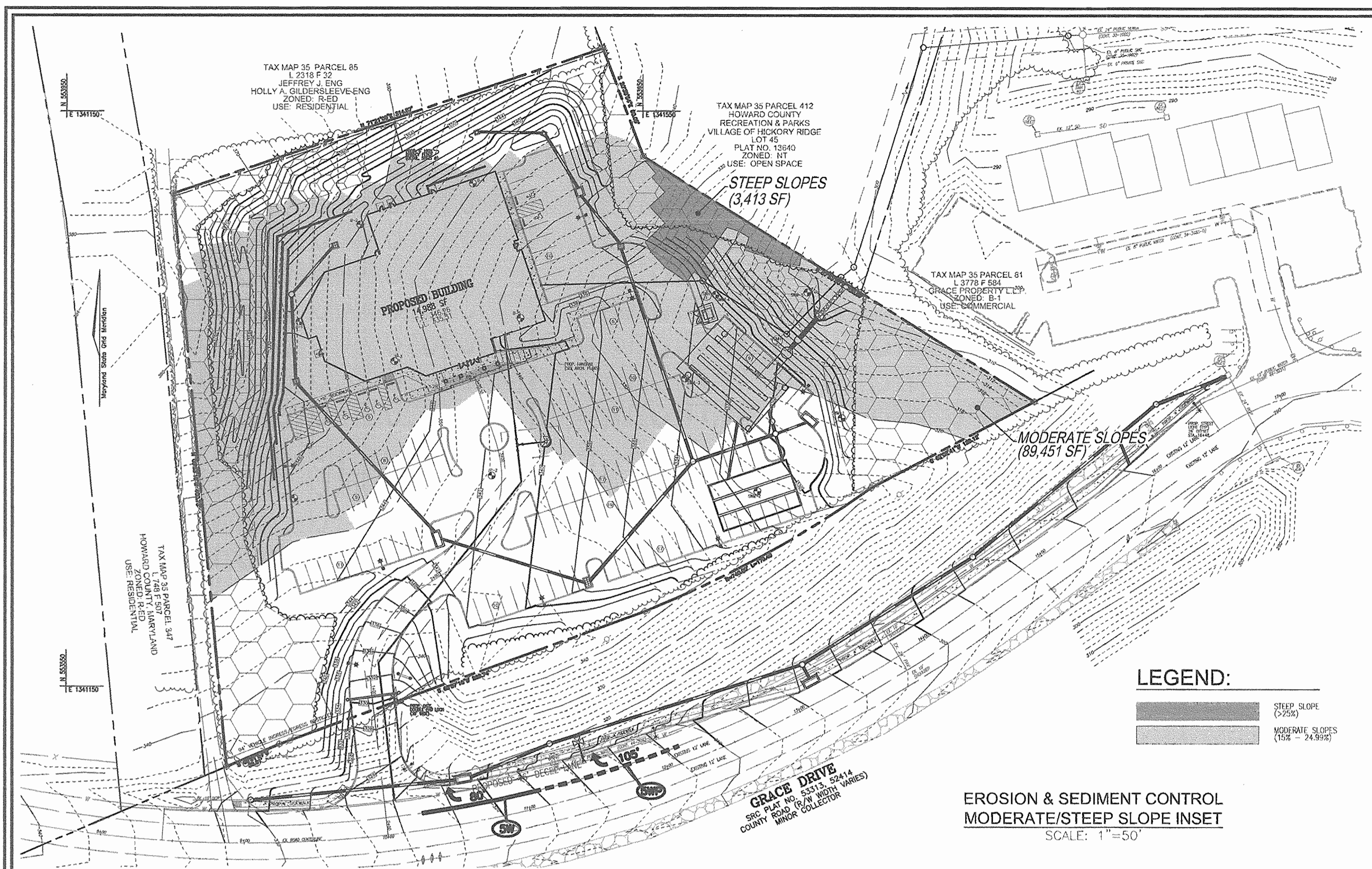
TAX MAP 35 GRID 22 PARCELS 86
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410.461.7656 FAX: 410.461.8951

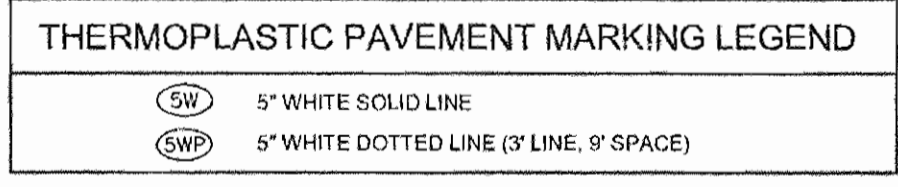
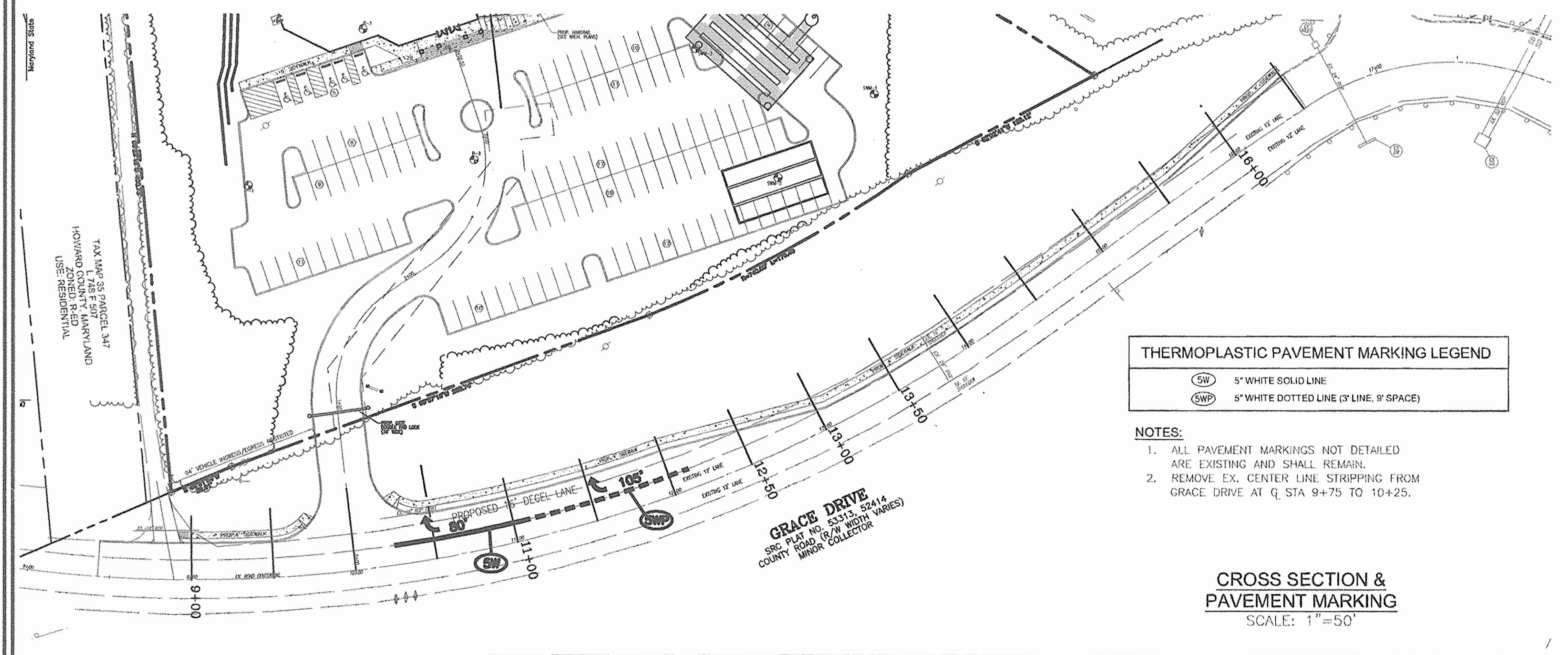
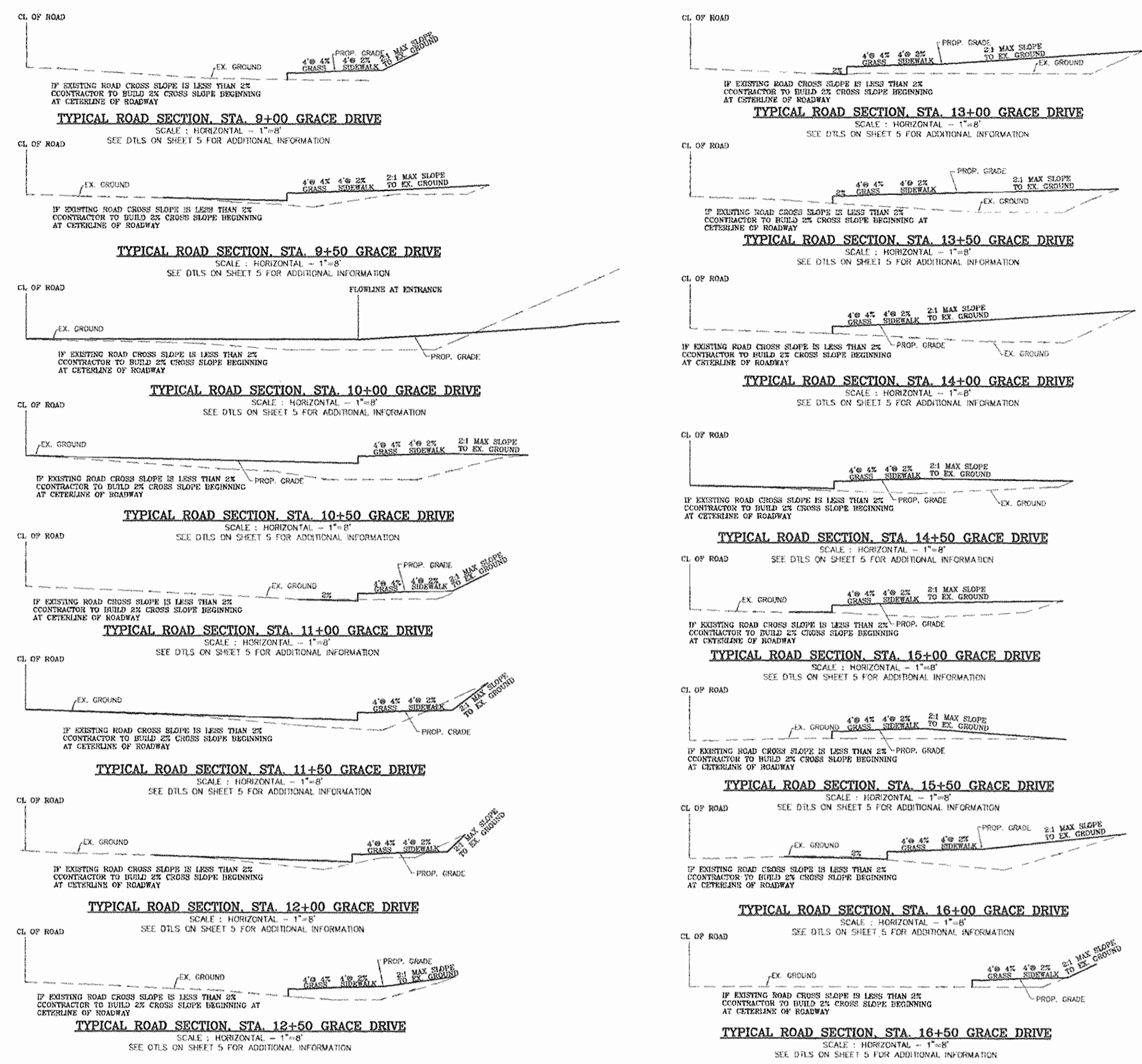
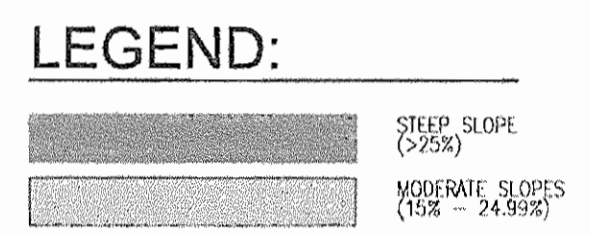
DESIGN BY: *WGZ*
DRAWN BY: *DZ*
CHECKED BY: *RHV*
DATE: *FEB. 2008*
SCALE: *AS SHOWN*
W.D. NO.: *04-06*

9 SHEET OF 12

SDP-06-102

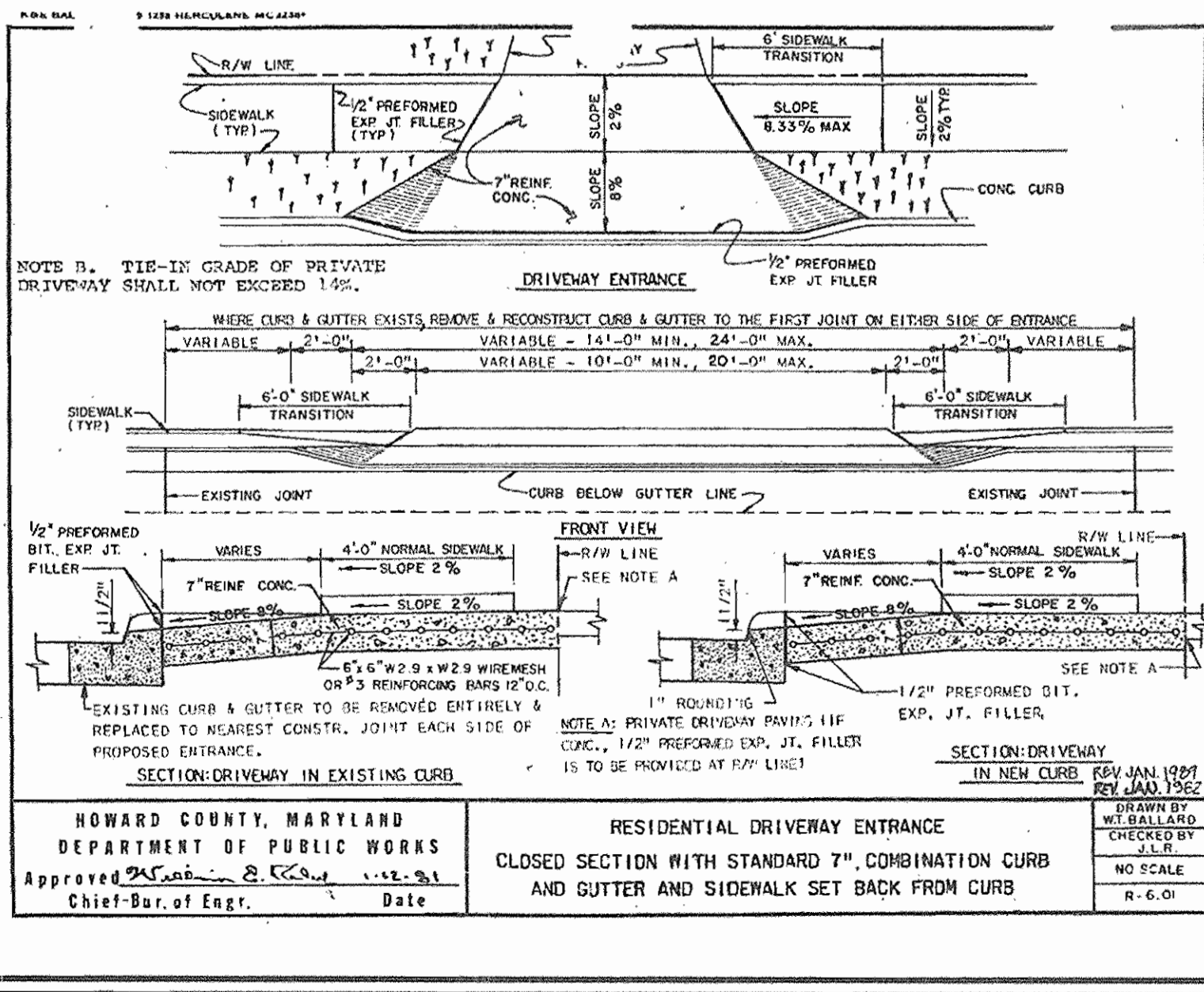


**EROSION & SEDIMENT CONTROL
MODERATE/STEEP SLOPE INSET**
SCALE: 1"=50'



- NOTES:**
- ALL PAVEMENT MARKINGS NOT DETAILED ARE EXISTING AND SHALL REMAIN.
 - REMOVE EX. CENTER LINE STRIPPING FROM GRACE DRIVE AT Q STA 9+75 TO 10+25.

**CROSS SECTION &
PAVEMENT MARKING**
SCALE: 1"=50'



HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved: *[Signature]* Date: *[Date]*
Chief-Dir. of Engr.

RESIDENTIAL DRIVEWAY ENTRANCE
CLOSED SECTION WITH STANDARD 7\"/>

APPROVED
FOR THE BOARD OF ZONING
DATE: 8/9/07

OWNER/DEVELOPER
CHESAPEAKE CONFERENCE ASSOCIATION
OF SEVENTH DAY ADVENTISTS
6800 MARTIN ROAD
COLUMBIA, MARYLAND 21044
PH. 202-296-6767

NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN
SLOPE INSETS, PAVEMENT MARKING &
ROAD SECTIONS**
BALTIMORE SEVENTH DAY
ADVENTIST KOREAN CHURCH

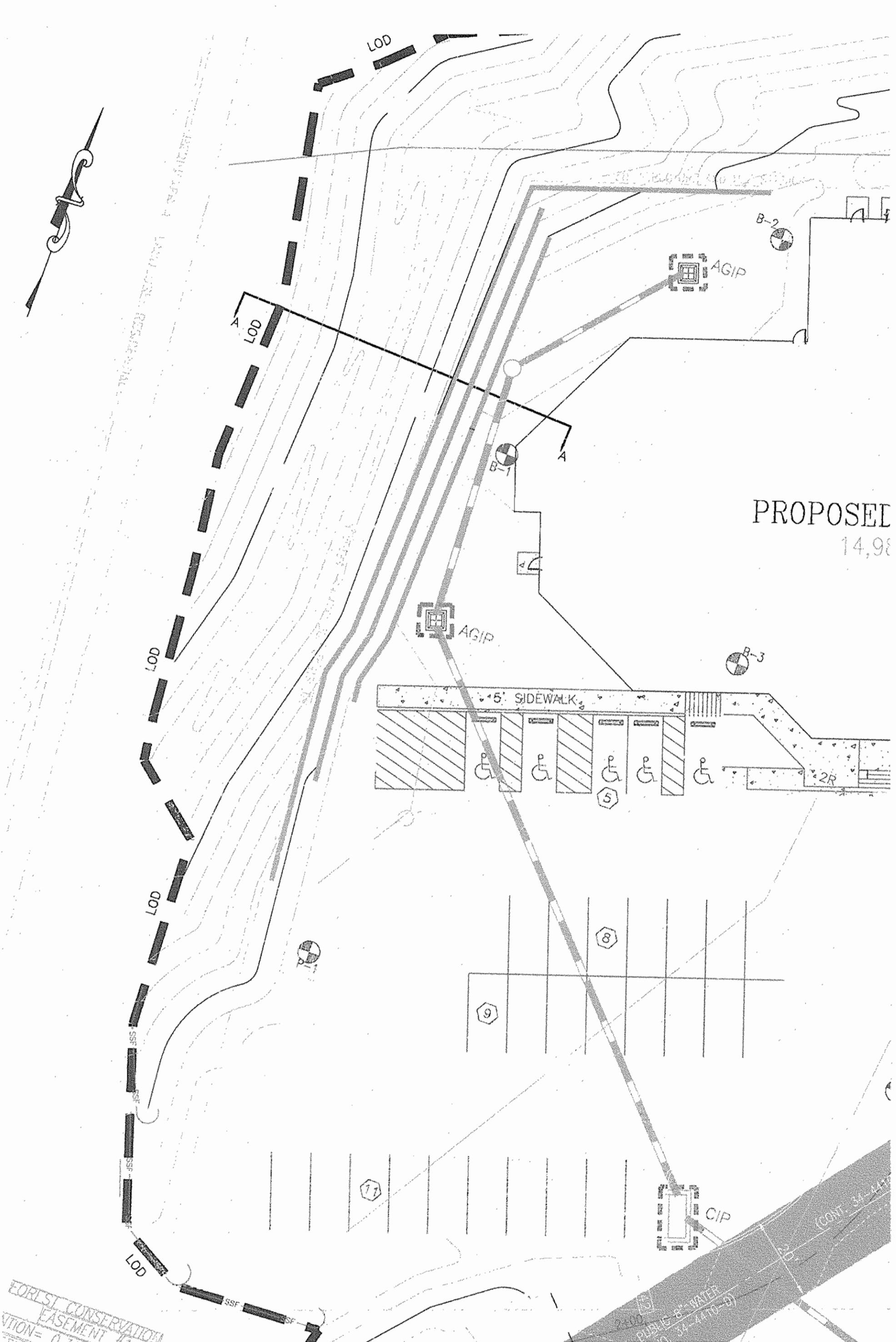
TAX MAP 35 GRID 22 PARCELS 86
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL
ENGINEERING, INC.**
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET TEL: 410.461.7666
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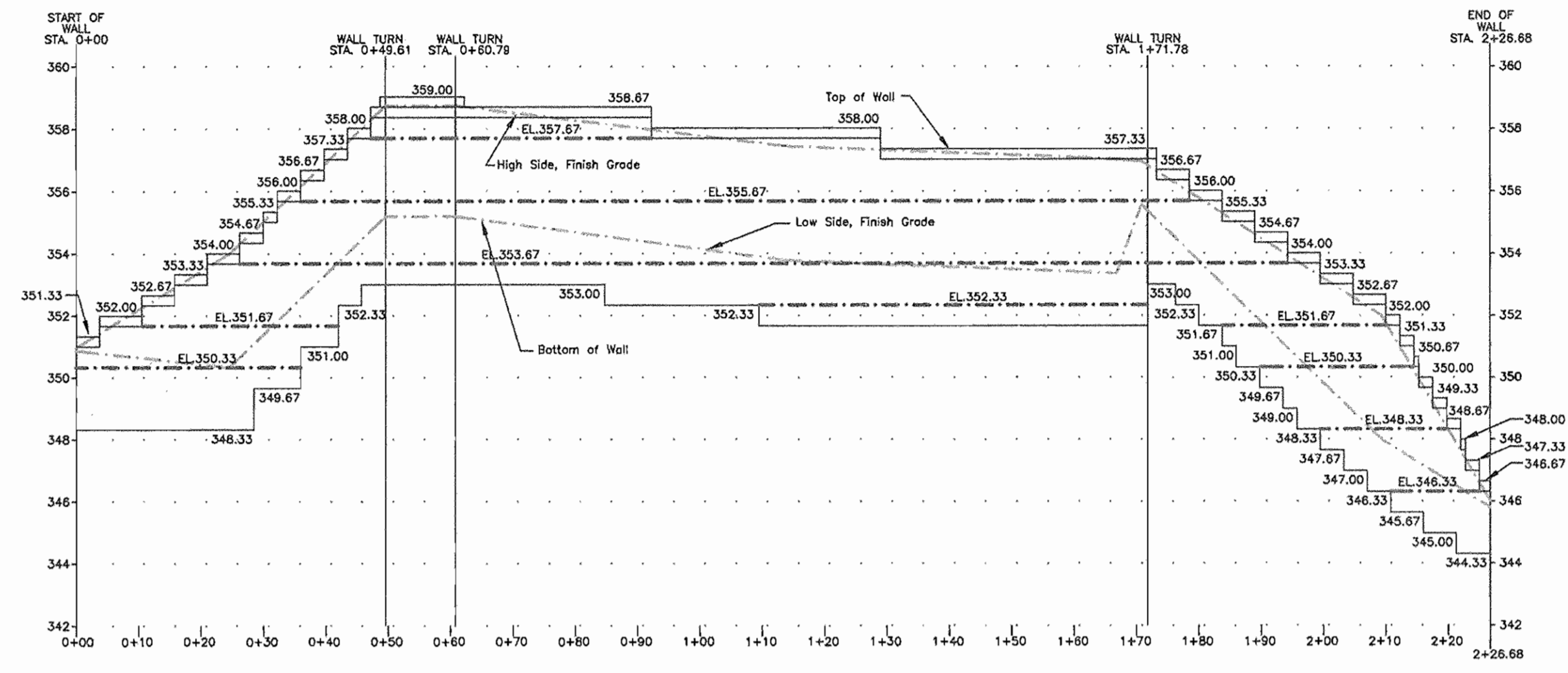
DESIGN BY: *[Signature]* W.G.Z.
DRAWN BY: *[Signature]* R.H.V.
CHECKED BY: *[Signature]* R.H.V.
DATE: FEB. 2008
SCALE: AS SHOWN
W.O. NO.: 04-06

STATE OF MARYLAND
PROFESSIONAL ENGINEER
No. 18123

10 SHEET OF 12

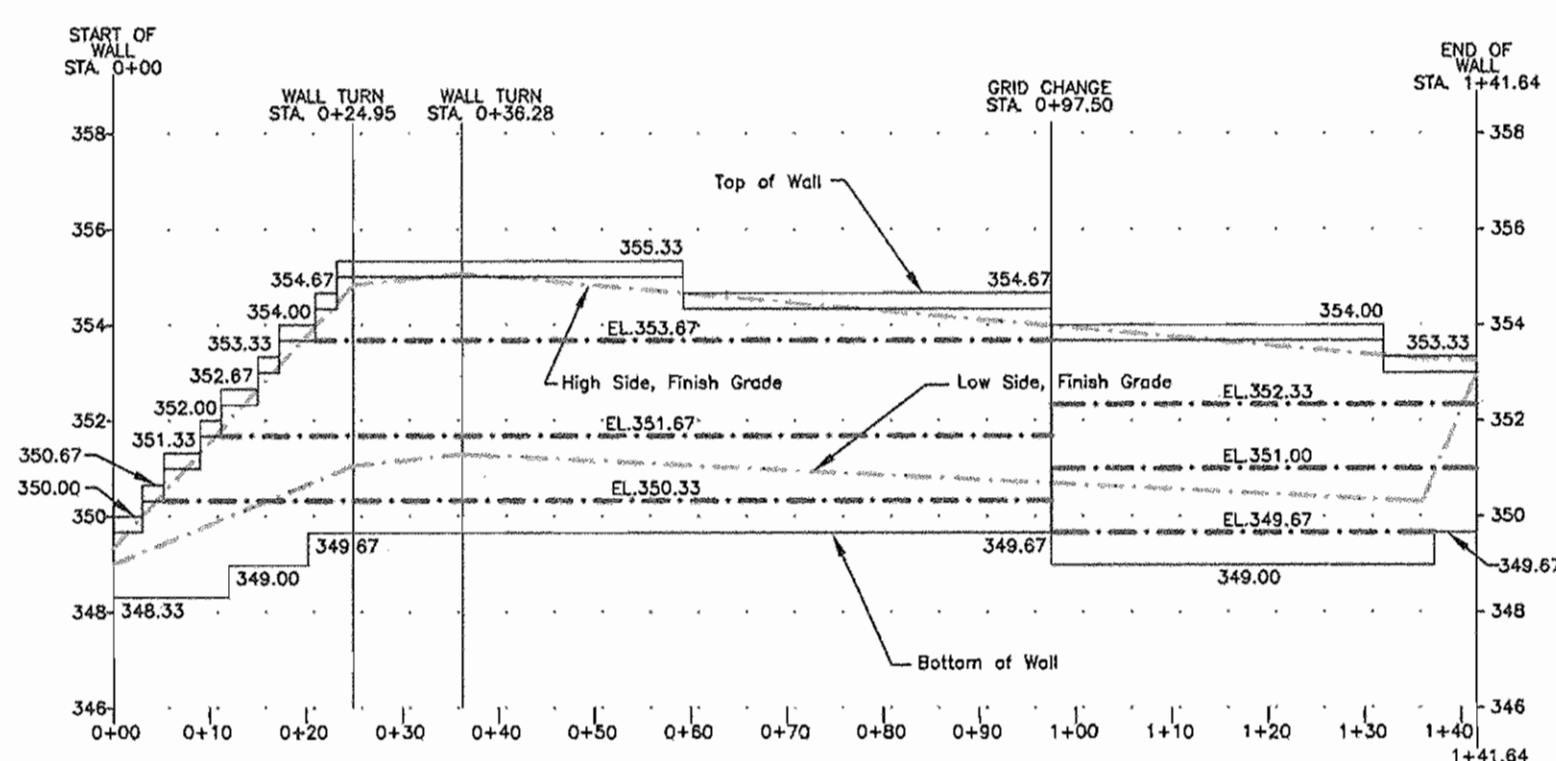


WALL #2 PLAN VIEW
SCALE: 1"=20'



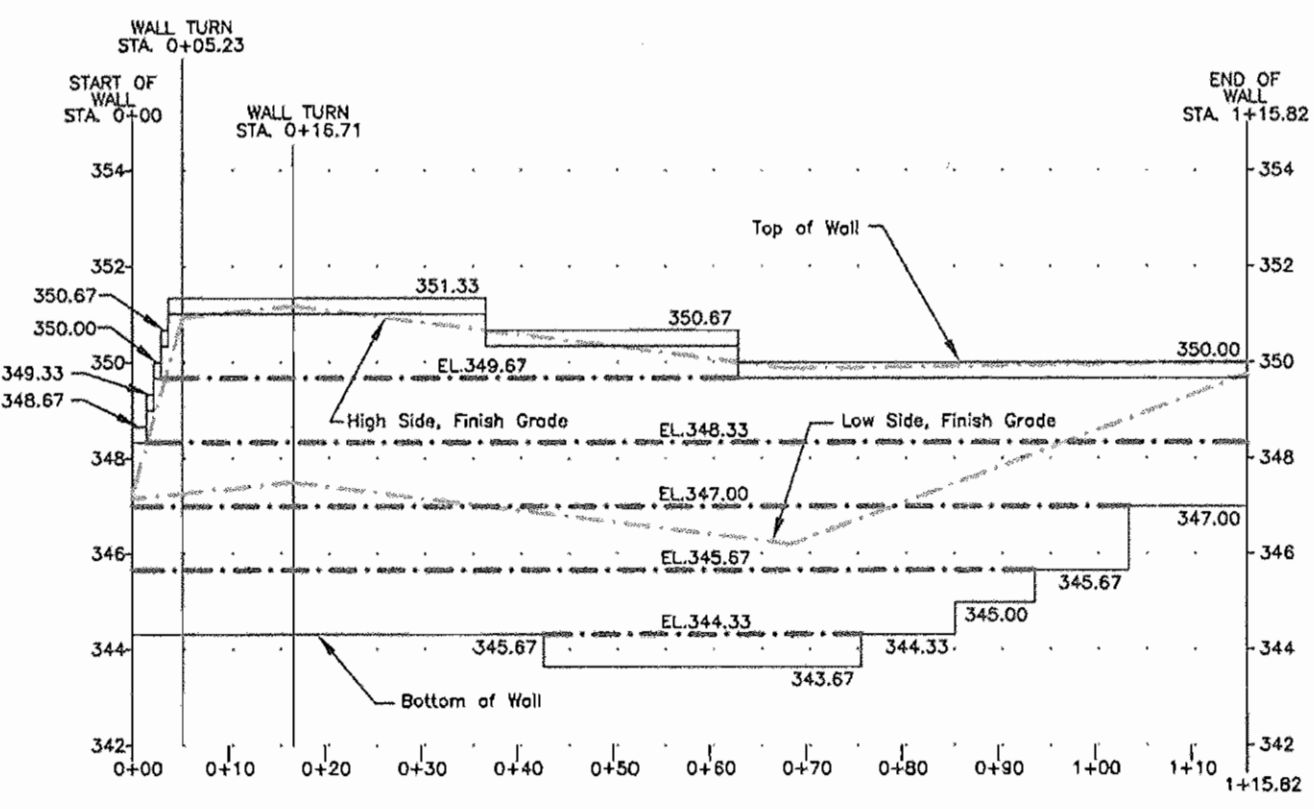
WALL #2T PROFILE
VERTICAL SCALE 1"=4'
HORIZONTAL SCALE 1"=20'

Note: Some grid layers at EL.352.33 and EL.353.67 may be continued through Wall 2T from Wall 2M below.



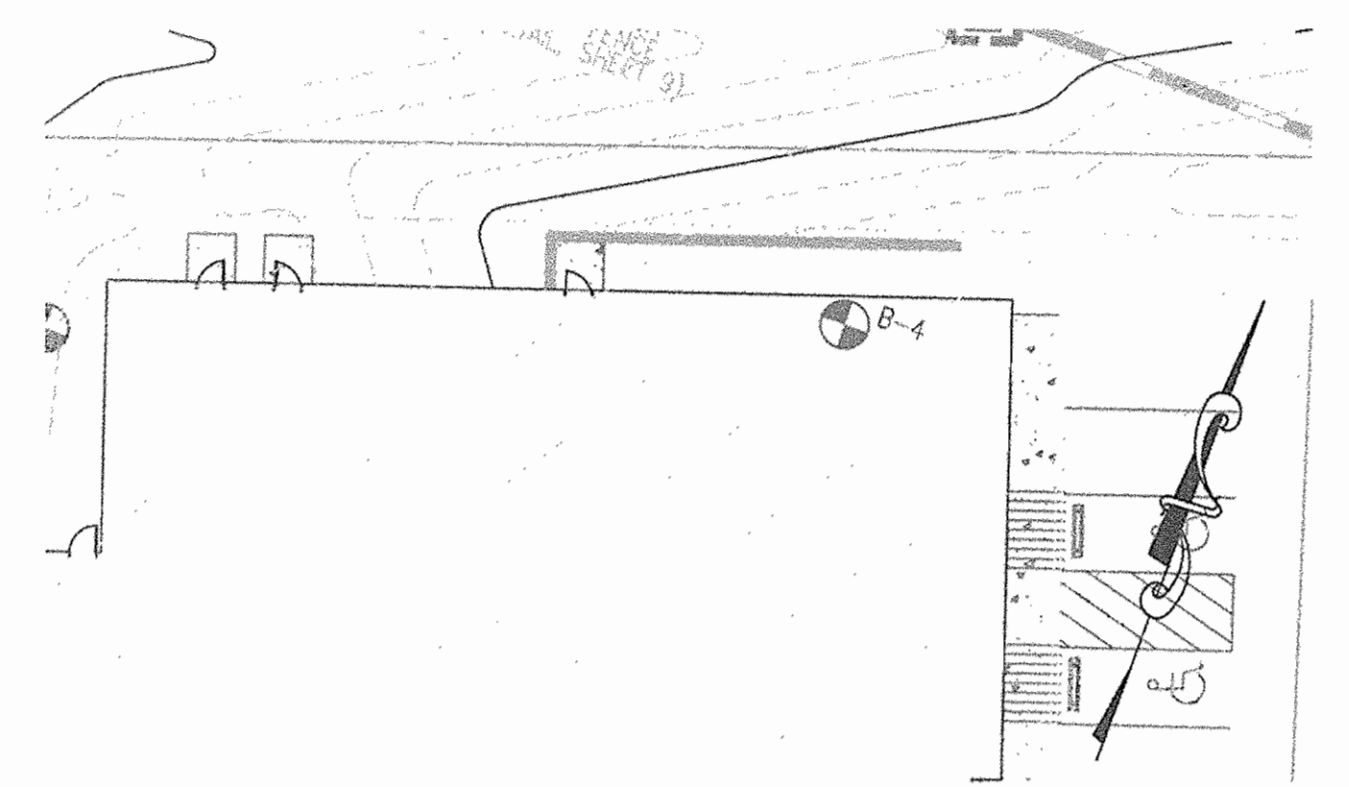
WALL #2M PROFILE
VERTICAL SCALE 1"=4'
HORIZONTAL SCALE 1"=20'

Note: Some grid layers at EL.349.67 may be continued through Wall 2M from Wall 2B below.

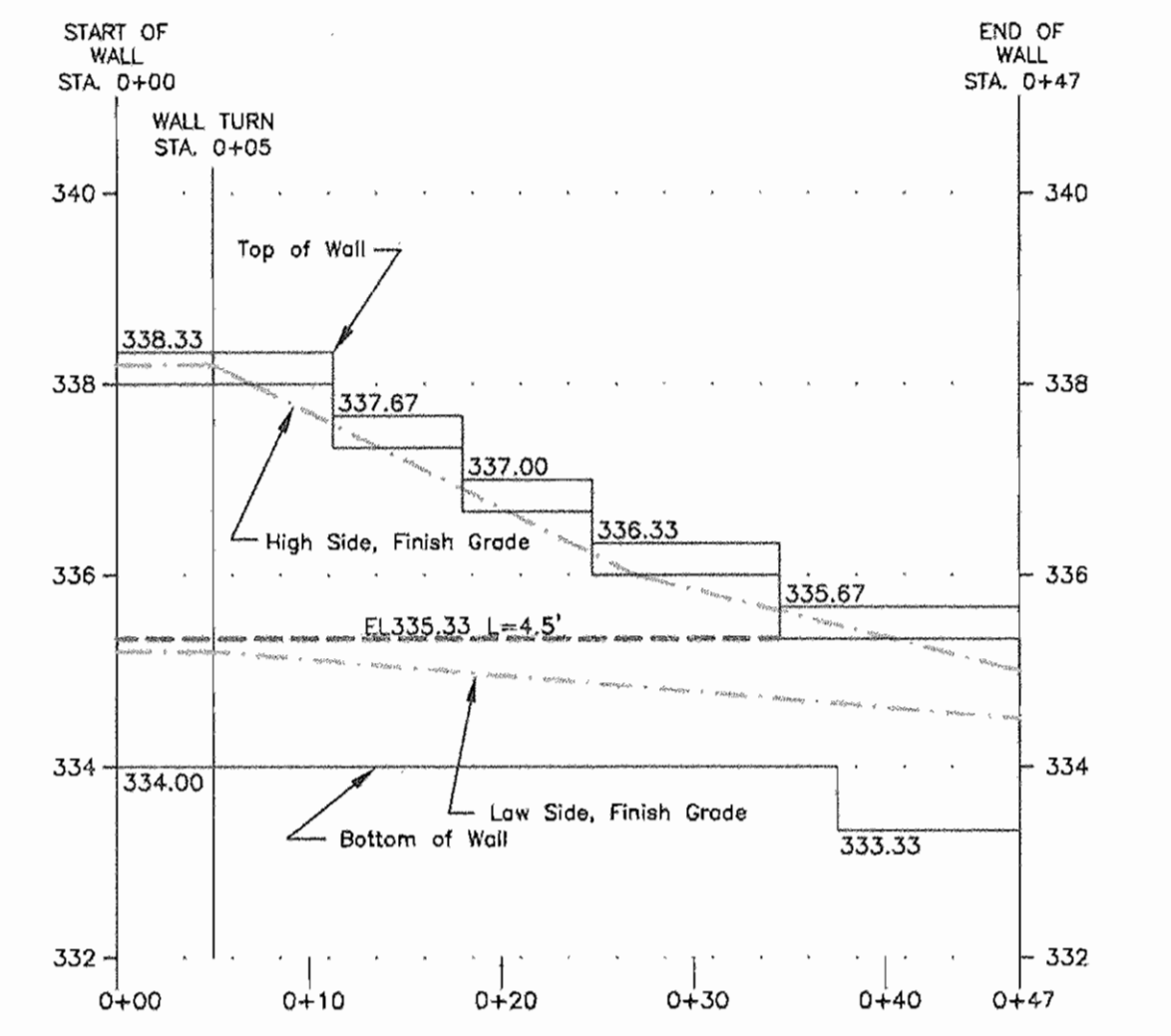


WALL #2B PROFILE
VERTICAL SCALE 1"=4'
HORIZONTAL SCALE 1"=20'

Note: Some grid layers at EL.349.67 may be continued through Wall 2M from Wall 2B below.



WALL #1 PLAN VIEW
SCALE: 1"=20'



WALL #1 PROFILE
SCALE
VERTICAL SCALE 1"=2'
HORIZONTAL SCALE 1"=10'

TENSAR UKK110047 GEOGRID

OWNER/DEVELOPER

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
John Dammann 2/12/08
Candy Khat 2/15/08
Heather K. Weyer 2/19/08

APPROVED
 HOWARD COUNTY
 DATE: 8/9/07

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28553, Expiration Date: 12/31/09

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
RETAINING WALL
 PLAN VIEW & PROFILES
 BALTIMORE SEVENTH DAY
 ADVENTIST KOREAN CHURCH

TAX MAP 35 GRID 22 PARCELS B6
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ECS MID-ATLANTIC, LLC
 1340 CHARWOOD ROAD, SUITE P
 HANOVER, MARYLAND 21076
 OFFICE (410) 855-4300
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 "Setting The Standard For Service"

ECS LLC
 MID-ATLANTIC

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RETAINING WALL SPECIFICATION GUIDELINES

PART 1: GENERAL

- 1.01 Description**
- A. Retaining walls must be constructed under the supervision of a Maryland Registered Professional Engineer.
 - B. Work includes furnishing and installing concrete modular block retaining wall units to the lines and grades shown on the construction drawings and as specified herein.
 - C. Work includes preparing foundation soil, furnishing and installing leveling pad, unit fill and reinforced backfill to the lines and grades shown on the construction drawings.
 - D. Work includes furnishing and installing all related materials required for construction of the retaining wall as shown on the construction drawings.

- 1.02 Reference Standards**
- A. ASTM C 90 Load Bearing Concrete Masonry Units.
 - B. ASTM C 140 Sampling and Testing Concrete Masonry Units.
 - C. ASTM D 448 Sizes of Aggregate for Road and Bridge Construction.
 - D. ASTM D 698 Laboratory Compaction Characteristics using Standard Effort.

- 1.03 Delivery, Storage and Handling**
- A. Contractor shall check the materials upon delivery to assure that proper materials have been received.
 - B. Contractor shall prevent excessive mud, wet cement, epoxy, and similar materials (which may off themselves) from coming in contact with the materials.
 - C. Contractor shall protect the materials from damage and exposure to sunlight. Damaged materials shall not be incorporated into the retaining wall structure and backfill.

- 1.04 Quality Assurance**
- A. Owner will be responsible for soil testing and construction observations for quality control during earthwork and retaining wall construction operations.

PART 2: MATERIALS

- 2.01 Definitions**
- A. Modular Wall Units – KEYSTONE or equivalent modular concrete facing and corner units, machine made from portland cement, water, and mineral aggregates.
 - B. Structural Geogrid – a structural geogrid formed by a regular network of integrally connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock, or earth and function primarily as reinforcement.
 - C. Unit Fill/Drainage Aggregate – drainage aggregate, such as No. 57 Stone, which is placed within the cells of the modular concrete units and immediately behind the units to a width of at least 12 inches.
 - D. Reinforced Backfill – compacted soil which is within the reinforced soil volume as shown on the plans.
 - E. Excavation Face – the interface between the reinforced backfill and the retained fill. During construction, measures shall be taken to avoid developing a shear plane at this interface.
 - F. Retained Backfill – On-site material located behind the reinforced zone of soil.

- 2.02 Concrete Units**
- A. Concrete segmental units shall conform to the requirements of NCMAT TEK 2-4 and have a minimum 28-day compression strength of 4,000 psi. The units shall also pass 150 freeze thaw cycles in water with less than 1% weight loss for samples tested in accordance with ASTM C-1262.
 - B. Wall Face Units for general wall construction shall be KEYSTONE Standard II units or equivalent. Sculptured face or straight (flat) face may be used.
 - C. Top of wall Cap Units shall be KEYSTONE Cap Units or equivalent with fiberglass connecting pins.

- 2.03 Fiberglass Connecting Pins**
- A. Connecting pins shall be 1/2" diameter thermoset isophthalic polyester resin-pultruded fiberglass reinforcement rods supplied by the unit manufacturer.

- 2.04 Construction Adhesive**
- A. Construction adhesive for top of wall cap blocks shall be KEYSTONE KapSealTM or an approved equivalent construction adhesive. Material shall conform to ASTM 2339 and shall be supplied by the block unit supplier.

- 2.05 Soil Fill Materials**
- A. Base Leveling and Pad Material
 - 1. Material shall consist of crushed stone (GA S/B) as shown on the construction drawing. The leveling pad shall be, at a minimum, 6-inches thick. MSHA No. 57 Stone or pea gravel is not permitted.
 - B. Unit Fill/Drainage Aggregate
 - 1. Fill for units shall be free draining crushed stone or gravel, with a maximum aggregate size of 1/2" to 3/4" and no more than 5% passing the No. 50 sieve and conforming to ASTM D 448. Gradation of the unit fill shall be approved by the Geotechnical Engineer. Pea gravel shall not be used. MSHA No. 57 stone may be used.
 - C. Reinforced Backfill
 - 1. Material shall consist of soil classified as SM, SC, or more granular soils per USCS with minimum soil parameters as indicated under design parameters. The backfill material shall contain no particles greater than 2.5 inches in diameter. Other backfill materials may be approved by the Geotechnical Engineer.
 - D. Impervious Soil
 - 1. Material may be imported or site excavated soils exhibiting a USCS designation of a lean clay (CL) or clayey sand (SC). The material shall contain no less than 40 percent by weight passing the US Standard No. 200 sieve and exhibit a plasticity index no less than 4 and no greater than 20. Other materials may be approved by the Geotechnical Engineer.
 - E. Sample Submittal
 - 1. The contractor shall submit samples and material specifications of the proposed backfill soils (unit fill, pad material, reinforced backfill) to the Geotechnical Engineer for approval.
 - 2. Soil must meet or exceed the friction angle specified in design parameters.
 - 3. Direct shear testing is required for all soil samples used for Reinforced Backfill.

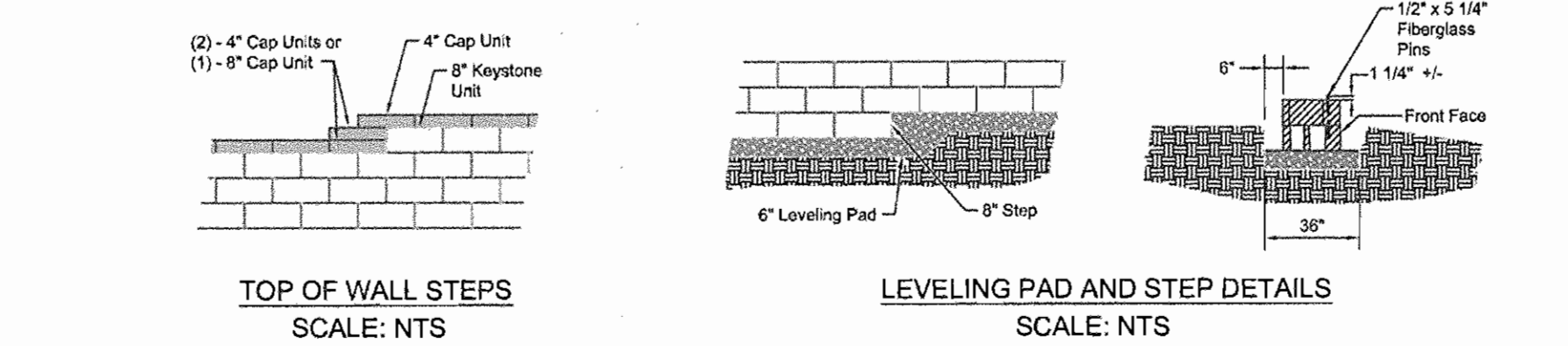
- 2.06 Structural Geogrid**
- A. The geogrid identified for the retaining wall consists of the following:
Tensor UXK110047, UXK150060
 - B. Other geogrid may be utilized provided the materials meet or exceed the minimum strength with similar or better strain characteristics of the Tensor geogrid and are approved by the Geotechnical Engineer for use with soil backfill. The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation.

- 2.07 Geotextile**
- A. A non-woven geotextile shall be utilized as shown on the plans to provide a filter between the unit fill/drainage aggregate and the reinforced backfill. The geotextile shall consist of a Mirafi 140N, or an approved equivalent.
 - B. Where geogrids are located, the geotextile shall be placed as illustrated on the plans. At junctions and ends, the geotextile shall be overlapped at least 12 inches. The geotextile shall be placed so that intimate contact is made between the geotextile and the backfill material.
 - C. The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation. Ripped or otherwise damaged material shall not be used.

- 2.08 Drainage Pipe**
- A. Drainage pipe shall consist of solid or perforated Schedule 40 PVC pipe, as required.

- 2.09 Drainage Pipe**
- A. Drainage pipe shall consist of solid or perforated Schedule 40 PVC pipe, as required.

- 2.10 Drainage Pipe**
- A. Drainage pipe shall consist of solid or perforated Schedule 40 PVC pipe, as required.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

John Dammann 2/12/08
Andy K... 2/15/08
Janice D. ... 2/19/08

- PART 3: INSTALLATION**
- 3.01 Excavation**
- A. Contractor shall excavate to the lines and grades shown on the construction drawings. Contractor shall be careful not to disturb embankment and foundation materials beyond lines shown.
 - B. All existing topsoil, rootrot and other soft or unsuitable materials shall, at a minimum, be removed from the footprint of the retained soil mass.
 - C. If groundwater is encountered during the excavation of the backslope, a backslope drainage system shall be utilized. The system shall tie into the internal wall drainage system to provide adequate release of any water which accumulates behind the reinforced zone.

- 3.02 Foundation Preparation**
- A. Foundation shall be excavated as required for leveling pad dimensions shown on the construction drawings, or as directed by the Geotechnical Engineer.
 - B. The required bearing pressure beneath the footing of the wall must be verified in the field by a Geotechnical Engineer.
 - C. Unsuitable soils shall be removed and replaced with approved material.
 - D. Over-excavated areas shall be backfilled with approved, compacted backfill material or as approved by the Geotechnical Engineer.

- 3.03 Base Leveling Pad**
- A. Leveling pad materials shall be placed upon an approved foundation as shown on the construction drawings to a minimum thickness of 6 inches.
 - B. Aggregate material shall be compacted to provide a dense, level surface on which to place the first course of modular units. Compaction shall be to at least 95% of the maximum dry density as determined by the Standard Proctor Compaction Test (ASTM D 698). Leveling pad shall be prepared and leveled to ensure complete contact of retaining wall unit with base.

- 3.04 Unit Installation**
- A. The first course of concrete modular units shall be carefully placed on the base leveling pad. Each unit shall be checked for level (in both directions) and alignment.
 - B. Install fiberglass connecting pins and fill all voids in and around the modular units with unit fill material. Tamp or rod unit fill to ensure that all voids are completely filled.
 - C. Sweep excess material from top of units and install the next course. Ensure that the units of each course are completely filled, backfilled and compacted prior to proceeding to next course.
 - D. Place each subsequent course, ensuring that pins protrude into adjoining courses a minimum of 1 inch. Two pins are required per unit. Pull each unit forward to obtain the desired offset (as noted on the plans), away from the fill zone, locking against the pins in the previous course and backfill as the course is completed.
 - E. Repeat procedure to the exterior of wall height. Wall construction shall not exceed 2 courses in height before reinforced backfill is placed.
 - F. Follow wall erection and unit fill placement closely with any other backfilling required. Compaction of all soils shall be to 95% of the maximum dry density as determined in accordance with ASTM D 698.
 - G. As appropriate where the wall changes elevation, units can be stopped with the grade or turned into the embankment with a convex return end. Provide appropriate buried units on compacted leveling pad in area of convex return end.

- 3.05 Drain Pipe Installation**
- A. Provide 4-inch diameter perforated PVC pipe continuously along the rear of the wall, at a minimum of 4 inches above final grade at the front of the wall.
 - B. Install 4-inch diameter solid PVC outlet pipes through the face of the wall every 10 feet on-center and at wall ends. Cut wall blocks as needed.

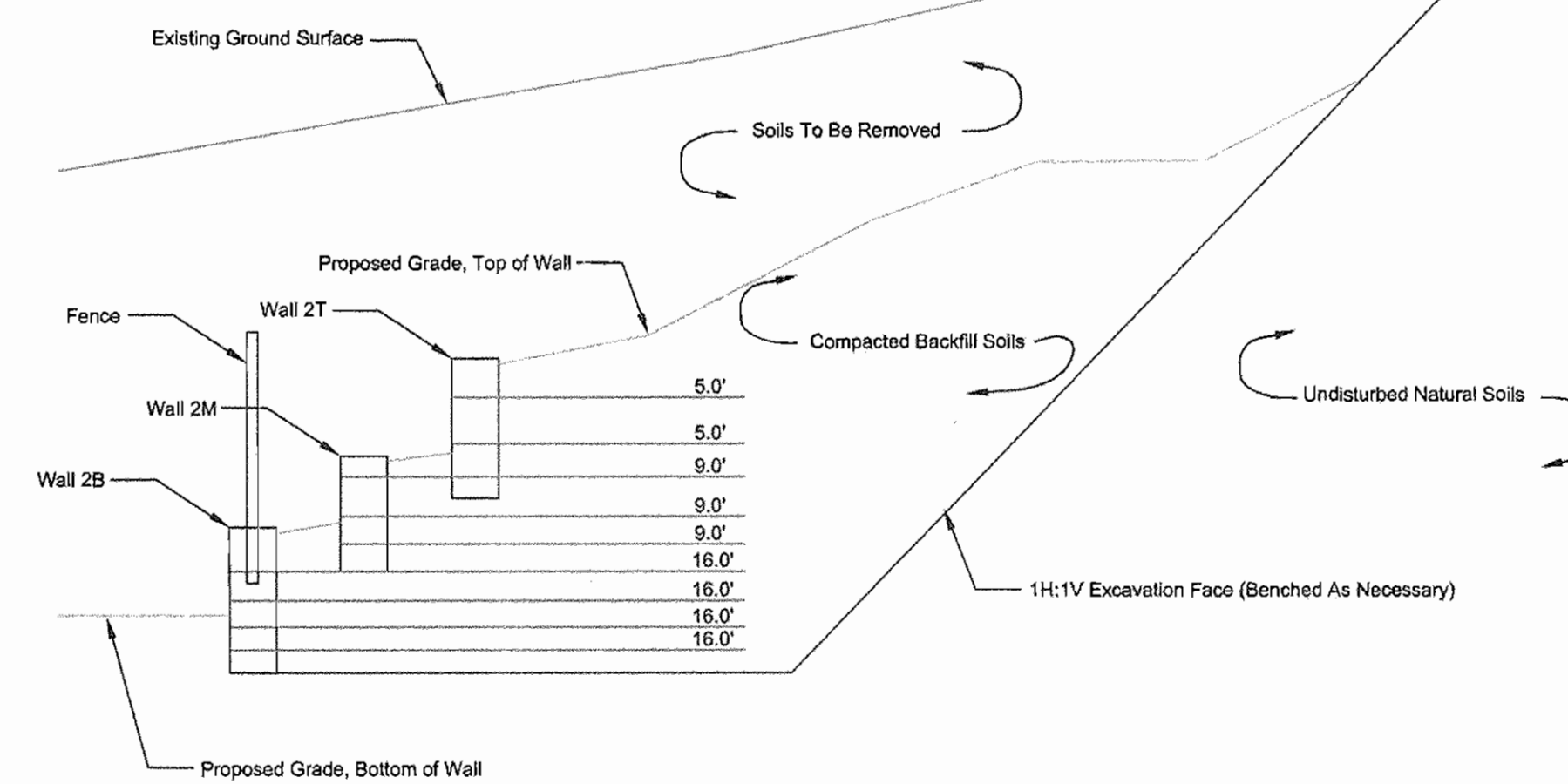
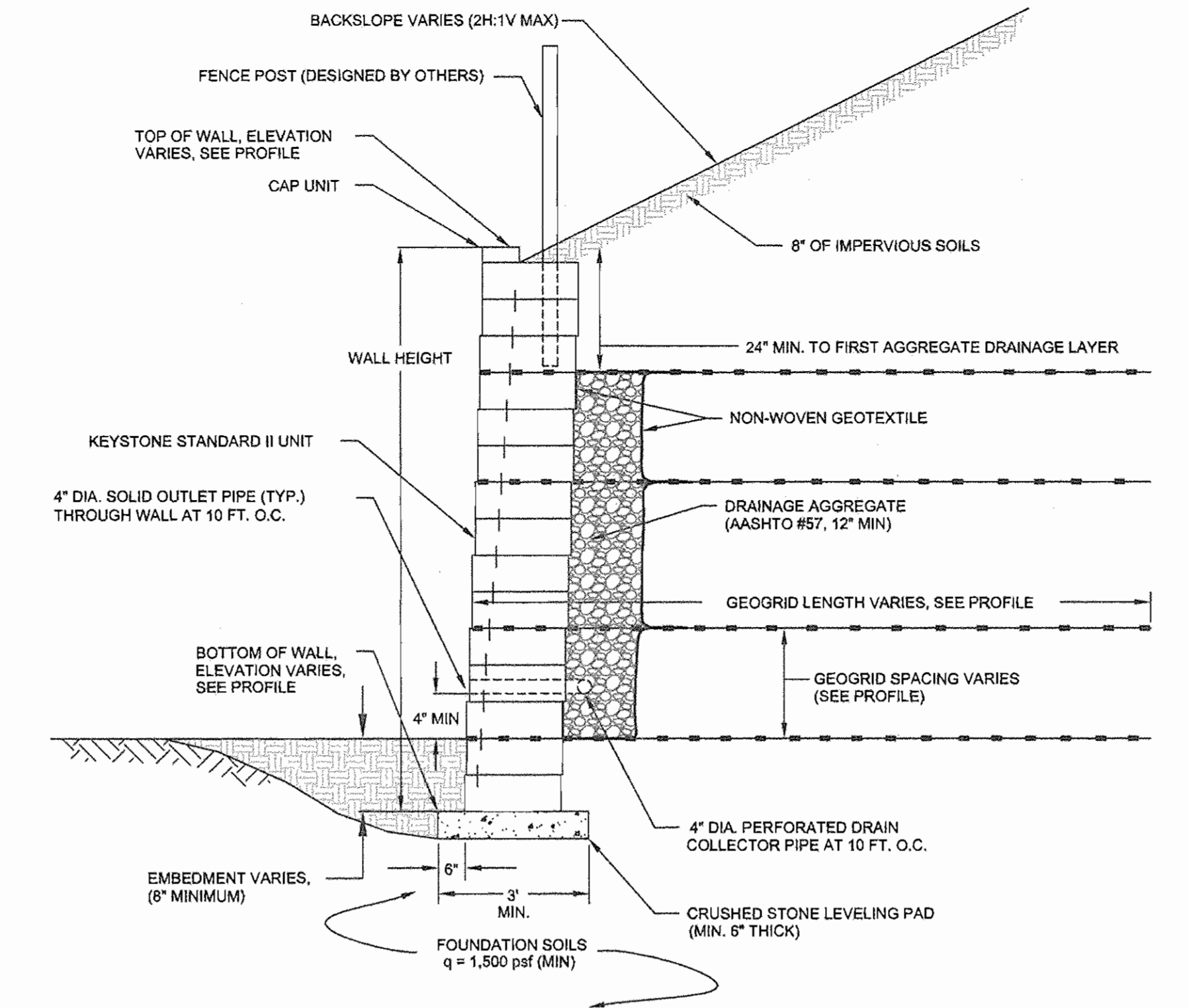
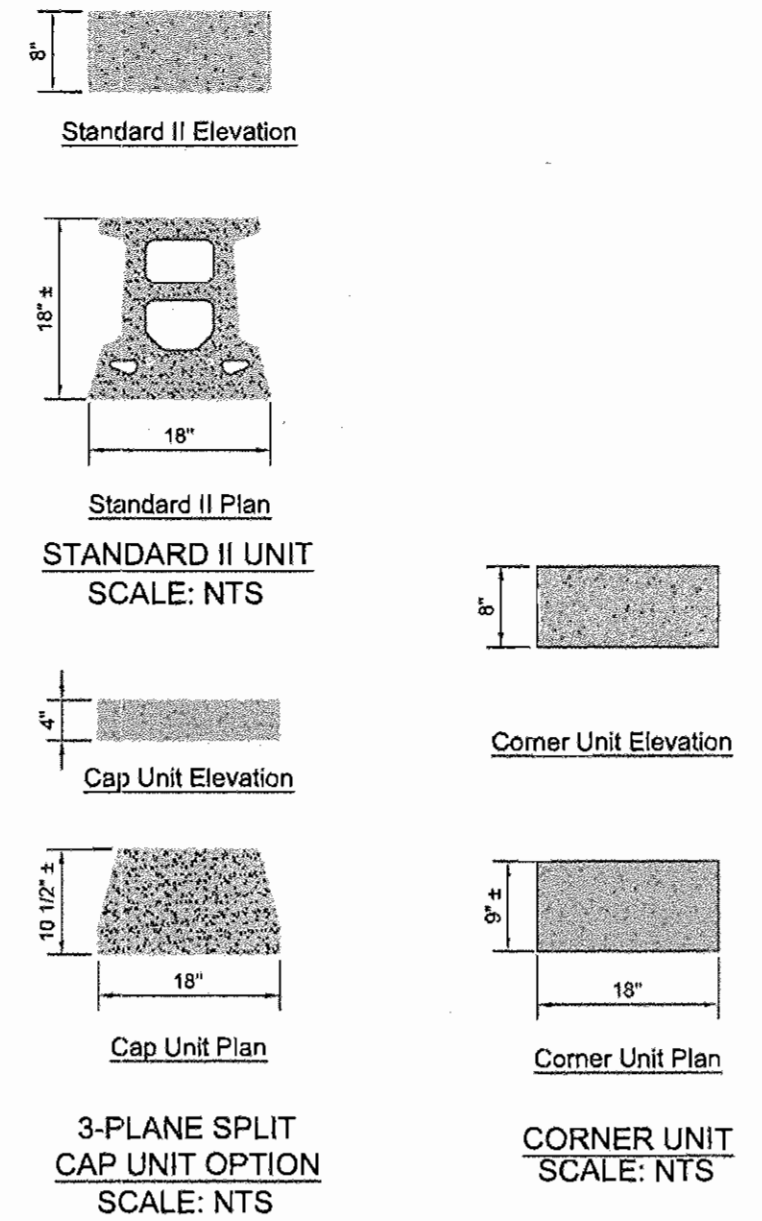
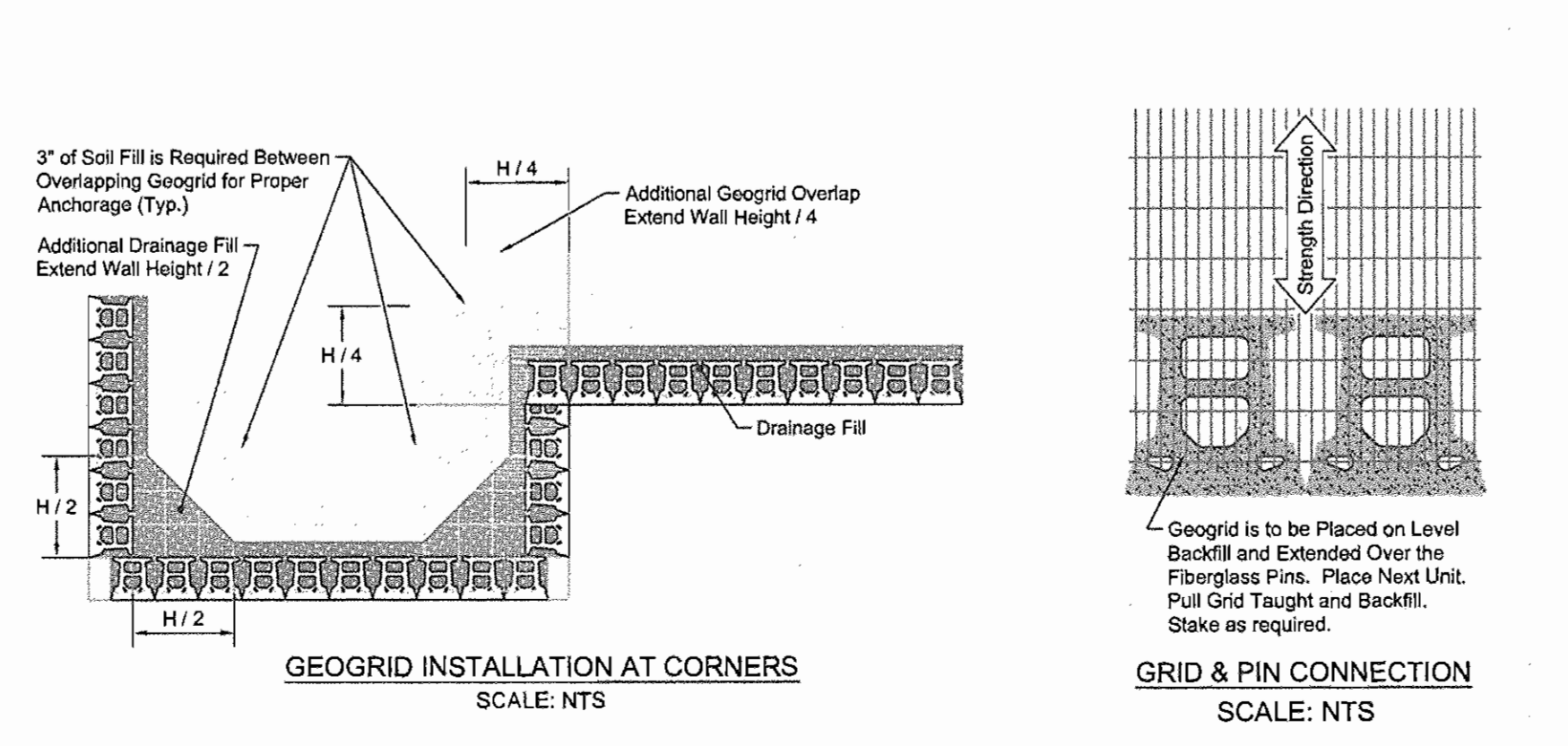
- 3.06 Geogrid Installation**
- A. The geogrid type and length (direction perpendicular to the wall face) shall conform to those indicated on the construction drawings. Geogrid shall be laid continuously at the proper elevations and orientation as shown on the construction drawings or as directed by the Geotechnical Engineer.
 - B. Correct orientation (roll direction) of the geogrid shall be verified by the Contractor.
 - C. The geogrid shall be connected to the modular wall units by placing the geogrid over fiberglass pins and laying the grid back to the fill side.
 - D. A filtering, non-woven geotextile shall be located between the drainage aggregate/unit fill and the reinforced backfill. The geotextile shall be folded back parallel, above and below the geogrid as necessary to ensure continuous grid placement.
 - E. The geogrid shall be pulled taut to set the geogrid against the fiberglass pins and to eliminate loose folds in the material. The fill surface shall be level. To tension the geogrid, backfill shall be placed over the geogrid from immediately behind the wall to the back end of the geogrid.
 - F. No geogrid overlaps will be allowed in any length of geogrid perpendicular to the wall face except at corners or angled locations. The geogrid shall overlap rather than provide no coverage. A minimum of 4 inches of soil cover is required between overlapping layers of geogrid.

- 3.07 Fill Placement**
- A. Backfill material shall be placed in 8 inch loose lifts and compacted to at least 95% of the maximum dry density as determined by ASTM D 698. The in-place moisture content shall be in the range of at the optimum moisture content to 2 percentage points higher than the optimum moisture content, as determined in accordance with ASTM D 698.
 - B. Backfill shall be placed, spread and compacted in such a manner that minimizes the development of slack or loss of pretension of the geogrid. Backfill shall be placed in horizontal layers. Where applicable, the excavation face shall be benched into the natural, on-site soils to provide compaction of backfill on a level surface and to increase the interlock between the retained soils and the reinforced backfill. Bench heights shall not exceed 24 inches.
 - C. Only hand-operated compaction equipment shall be allowed within 5 feet of the back surface of the KEYSTONE or equivalent units.
 - D. Backfill shall be placed from immediately behind the wall towards the excavation face/retained soils and compacted to the specifications presented herein with appropriate compaction equipment.
 - E. Tracked construction equipment shall not be operated directly on the geogrid. A minimum backfill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Turning of tracked vehicles shall not be permitted overtop the geogrid.
 - F. Rubber-tired equipment may pass over the geogrid reinforcement at slow speeds (less than 10 mph). Avoid sudden braking and sharp turning.
 - G. The suitability of the fill material must be confirmed by a Geotechnical Engineer.
 - H. The upper 8 inches of wall backfill shall consist of impervious soil, compacted to at least 95% of the maximum dry density as determined by ASTM D 698. The in-place moisture content shall be in the range of at the optimum moisture content to 2 percentage points higher than the optimum moisture content, as determined in accordance with ASTM D 698.

- 3.08 Cap Installation**
- A. Provide permanent mechanical connection to wall units with KEYSTONE KapSealTM or equivalent construction adhesive. Apply adhesive to top surface of lower unit and place cap unit atop adhesive.
 - B. Place Cap Units over projecting pins from the units below. Pull forward to setback position.
 - C. Backfill and compact to finished grade.

DESIGN PARAMETERS

Characteristics:	Soil Parameters:	Minimum Friction Angle	Minimum Unit Weight (pcf)
Configuration:	Battered face wall (4.4%)		
Maximum Grade Differential & Minimum Allowable Bearing Pressure:	Wall #1 = 3'-0" / 1,500 psf Wall #2B = 4'-1" / 2,000 psf Wall #2M = 4'-4" / 1,500 psf Wall #2T = 4'-8" / 1,500 psf	32	110
Backslope Angle:	Varies (2H:1V max)	30	105
Wall Embedment:	Varies (8 inch min)	28	110
		30	105



NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
RETAINING WALL
SPECIFICATIONS & DETAILS
BALTIMORE SEVENTH DAY
ADVENTIST KOREAN CHURCH

TAX MAP 35 GRID 22 PARCELS B6
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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"Setting The Standard For Service"

APPROVED
PLANNING BOARD
OF HOWARD COUNTY
DATE: 8/9/07

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 29553, Expiration Date: 12/31/09

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