

**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: 1-410-994-6261
  - HOWARD COUNTY BUREAU OF UTILITIES: 313-2556
  - AIRTEL CABLE LOCATION DIVISION: 393-3653
  - B.G.E. CO. CONTRACTOR SERVICES: 850-4620
  - B.G.E. CO. UNDERGROUND DAMAGE CONTROL: 787-4620
  - STATE HIGHWAY ADMINISTRATION: 531-5533
- SITE ANALYSIS:
  - TOTAL AREA OF PARCEL A (PARCEL 427): 3.3985 AC.
  - PRESENT ZONING: POR
  - USE OF STRUCTURE: HOWARD COUNTY HOUSING COMMISSION HOUSING DEVELOPMENT
  - BUILDING COVERAGE: 2940 SF (0.5935 AC. OR 17.52% OF GROSS AREA)
  - INDOOR COMMUNITY SPACE WITHIN PRINCIPLE STRUCTURE:
    - UNITS 1-99 (20 SF @ 99 UNITS) = 1980 SF
    - UNITS 100-106 (10 SF @ 7 UNITS) = 70 SF
    - TOTAL SF REQUIRED = 2,050 SF
    - TOTAL SF PROVIDED = 4960 SF (SEE TENANT AMENITY SPACE CHART, THIS SHEET)
  - OPEN SPACE (20% GROSS AC. FOR A.R.A.H.) REQUIRED = 0.6797 AC. (0.3402 AC. 2002)
  - REQUIRED = 1.23 AC. (WITHIN 23% CONSERVATION AREA)
  - PAVED PARKING LOT/AREA WITHIN LOD: 0.6017 AC. OR 17.70% OF GROSS AREA
  - AREA OF LANDSCAPE ISLAND: 0.031 AC. OR 0.92% OF GROSS AREA
  - LIMIT OF DISTURBED AREA: 2.62 AC.
  - CUT: 8,300 CY, FILL: 14,550 CY.
- PROJECT BACKGROUND:
  - LOCATION: COLUMBIA, MD; TAX MAP 31, BLOCK 19, PARCEL 427
  - ZONING: POR
  - SUBDIVISION: N/A
  - DEED REF: 10190/263
  - SITE AREA: 3.3985 AC.
  - DPZ REFERENCES: DEED 10190/263, DEED 9538/501, WF-08-028, AA-07-021, P-08-009, L-11060 F306, PLAT N/A 1902-1930
- 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 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 NOTIFY UTILITIES BEFORE 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 3500 P.S.I.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). 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 PAVEMENT SECTION, BASED ON TESTS PRIOR TO CONSTRUCTION.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH TWO FOOT CONTOUR INTERVALS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC. DATED AUGUST 2004. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS CONTROL UPON THE MARIANO STATIC FLAME COORDINATE SYSTEM.
- THE PROPERTY LINES SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC. DATED NOVEMBER 2004.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- ALL PAVING TO BE P-2 UNLESS OTHERWISE NOTED. GEOTECHNICAL ENGINEER TO CONFIRM PAVING SECTION PRIOR TO CONSTRUCTION. (SEE DETAILS, SHEET 3)
- ALL CURB AND CUTTER TO BE HOWARD COUNTY STANDARD DETAIL 3.01 UNLESS OTHERWISE NOTED. (SEE DETAILS, SHEET 3)
- CONTRACTOR RESPONSIBLE TO CONSTRUCT ALL HANDICAP RAMPS AND HANDICAP ACCESS IN ACCORDANCE WITH CURRENT ADA REGULATIONS. (SEE DETAILS, SHEET 3)
- WHERE URNAGE 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 NO. 14-4363-D
- PUBLIC SEWER AVAILABLE THROUGH CONTRACT NO. 14-4363-U
- STORMWATER MANAGEMENT QUALITY IS PROVIDED BY THE 2-PROPOSED UNDERGROUND SAND FILTER SYSTEMS. STORMWATER MANAGEMENT QUALITY IS TO BE PROVIDED IN AN UNDERGROUND FACILITY, WHICH PROVIDES CUP. REV IS PROVIDED UNDER THE SANDFILTERS. THE PROPOSED STORMWATER FACILITIES TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOUSING COMMISSION.
- ALL EXTERIOR LIGHTING TO CONFORM TO SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS. (DETAIL ON SHEET 3)
- GEOTECHNICAL REPORT WAS PREPARED BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC., DATED SEPTEMBER 29, 2006.
- ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
- THE SUBJECT PROPERTY IS ZONED POR PER THE 2004 COMPREHENSIVE ZONING PLAN.
- NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS AND FOREST CONSERVATION EASEMENT AREAS.
- BUILDING TO HAVE INSIDE WATER METER SETTINGS.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.121 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 \$9,120.00 FOR THE REQUIRED 26 SHADE TREES AND 5 EVERGREEN TREES AND 14 SHRUBS.
- THE APFO TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, DATED SEPT. 21, 2006, AND WAS APPROVED NOV. 30, 2006.
- ALL STORMDRAIN PIPE BEDDING IS TO BE CLASS 'C'.
- THIS PLAN IS SUBJECT TO THE FIVE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, PER COUSING BILL 45-2003 AND THE ZONING REGULATIONS AS AMENDED BY CD 75-2003.
- FOREST CONSERVATION OBLIGATIONS HAS BEEN FULFILLED BY THE RETENTION OF 1.23 ACRES OF FOREST. FINANCIAL SURETY IN THE AMOUNT OF \$10,715.76 (\$5,378 SF x \$20.20) FOR THE ONSITE FOREST RESTORATION HAS BEEN POSTED AS PART OF THE AGREEMENT.
- WETLAND DELINEATION PREPARED BY ECO-SCIENCE PROFESSIONAL, INC., DATED FEBRUARY 1, 2006
- THERE IS NO FLOODPLAIN LOCATED ON SITE, PER FIRM MAP PANEL #240044 0035 B, DATED DECEMBER 4, 1998.
- STREET LIGHT PLACEMENT AND TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME II (1993) AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993) A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- A KNOX BOX IS REQUIRED TO BE PLACED ON THE FRONT OF THE BUILDING. IT SHALL BE PLACED TO THE RIGHT OF THE FRONT ENTRANCE AT A DISTANCE OF 5' TO 8' FROM THE CURB. THE BOX SHALL BE LOCKED FROM THE DOOR. ITS LOCATION IS SHOWN ON THESE PLANS. THE BOX SHALL BE ELECTRICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSSED (INTEGRATED WITH THE FIRE ALARM SYSTEM).
- THE PROJECT IS SUBJECT TO A DESIGN MANUAL WAIVER, APPROVED FEBRUARY 17, 2006; TO VOLUME III OF THE RETAINING WALL SETBACK RULE OF 10' SEPARATION FROM THE PROPERTY LINE. RETAINING WALL #1 IS A KEYSTONE WALL WITH THE LOW SIDE NEAREST TO THE PROPERTY LINE, AND IS TO BE CONSTRUCTED 7.5' FROM THE PROPERTY LINE. RETAINING WALL #2 IS TO BE CONSTRUCTED 6' FROM THE PROPERTY LINE. THIS WALL IS A CONCRETE WALL THAT DOES NOT REQUIRE ANY GEOTEXT.
- ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTRY RIGHT-OF-WAY SHALL BE MOUNTED ON A GALVANIZED STEEL, PERFORATED SQUARE TUBE POST (1 1/2" DIA.) INSERTED INTO 7 1/2" DIA. GALVANIZED STEEL, PERFORATED SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- IN ACCORDANCE WITH SECTION 13.402(B) OF THE HOWARD COUNTY CODE, THE DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT HAS APPROVED THE TRANSFER OF MODERATE INCOME HOUSING UNITS ("MIHU") FROM THE FOLLOWING PROJECTS TO THE RESIDENCES AT ELLICOTT GARDENS (SDP-07-038):
  - SDP-06-036 RA-12
  - SDP-06-037 RA-12
  - SDP-06-038 RA-12
  - SDP-06-039 RA-12
  - SDP-06-016 RA-15
  - SDP-05-012 RSA-8
  - SDP-05-117 R-20A
  - SDP-07-066 RSA-8

# ELLICOTT GARDENS

## PHASE I & II

### (DEED: 10190/263)

# SITE DEVELOPMENT PLAN

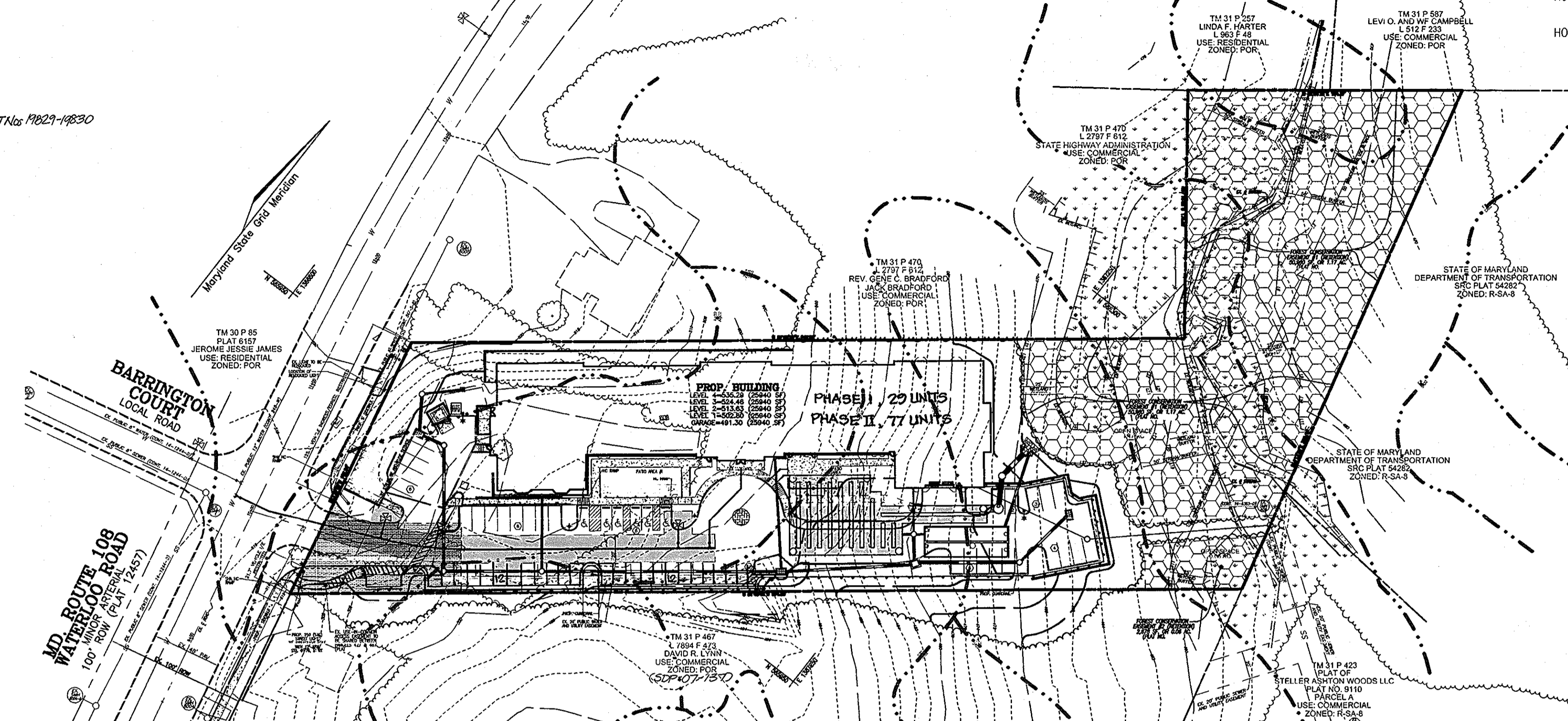
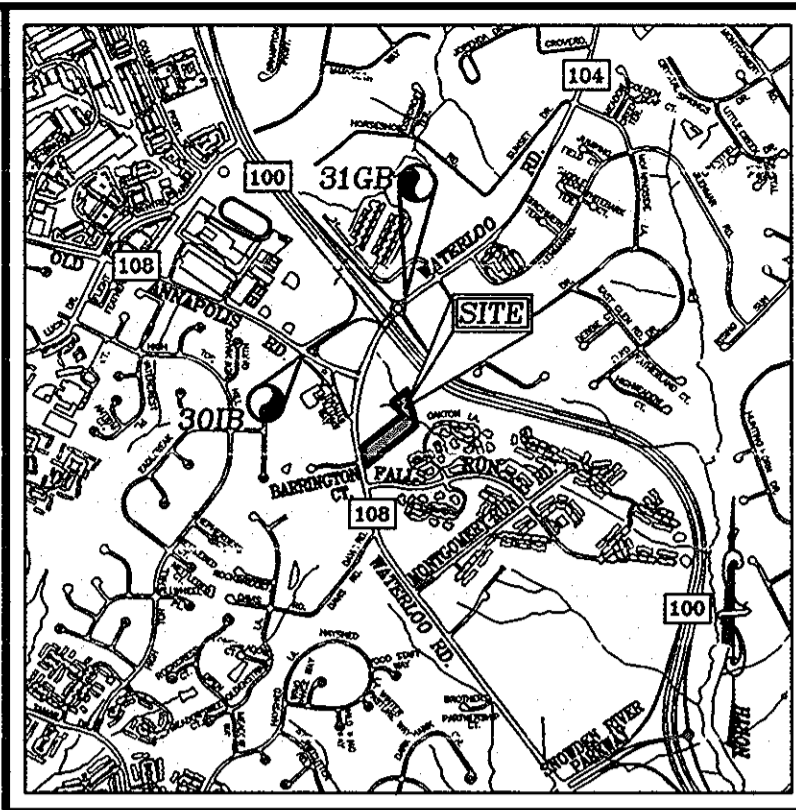
## PARCEL A (PARCEL 427)

**LEGEND**

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREES TO REMAIN
- LIGHT POLES: ○ SINGLE OVERHEAD, ⊕ DOUBLE OVERHEAD
- CONCRETE

**BENCHMARKS**

HOWARD COUNTY BENCHMARK 301B	N 566937.926	E 1366270.75	ELEV. 526.868
HOWARD COUNTY BENCHMARK 316B	N 567567.473	E 1367353.38	ELEV. 512.080



**SHEET INDEX**

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 15
SITE LAYOUT PLAN	2 OF 15
SITE LAYOUT PLAN	3 OF 15
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**SHARED PARKING TABULATION**

USE	WEEKDAY				WEEKEND		NIGHT
	MORNING	MID-DAY	AFTERNOON	EVENING	DAYTIME	EVENING	
OFFICE	80%	100%	100%	10%	10%	5%	5%
225	180	225	225	25	23	12	12
RESIDENTIAL	80%	60%	60%	100%	100%	100%	100%
130	144	108	108	180	180	190	190
TOTAL SPACE REQUIRED	324	333	333	203	203	192	192
TOTAL SPACE PROVIDED	336	336	336	336	336	336	336

\* ADDITIONAL PARKING PROVIDED ON ADJACENT TM PARCELS 428, 467. SEE GENERAL NOTES 46, D. AND 49.

**SHARED PARKING ANALYSIS:**

ELLICOTT GARDENS (SDP-07-038) FULL PARKING REQUIREMENT: (106 APARTMENTS) (1.70 SPACES/APARTMENT) = 180 SPACES

WATERLOO OFFICE (SDP-07-137) BUILDING FULL PARKING REQUIREMENT: (18,000 SF GENERAL OFFICE) (3.3 SPACES/1000 SF) = 60 SPACES (34,950 SF MEDICAL OFFICE) (5.0 SPACES/1000 SF) = 178 SPACES  
TOTAL SPACES = 225 SPACES

**SPACES PROVIDED ON-SITE AND OFF-SITE:**  
 ELLICOTT GARDENS (SDP-07-038) 182 SPACES ON-SITE  
 WATERLOO OFFICE (SDP-07-137) 106 SPACES OFF-SITE  
 TOTAL SPACES PROVIDED = 288 SPACES

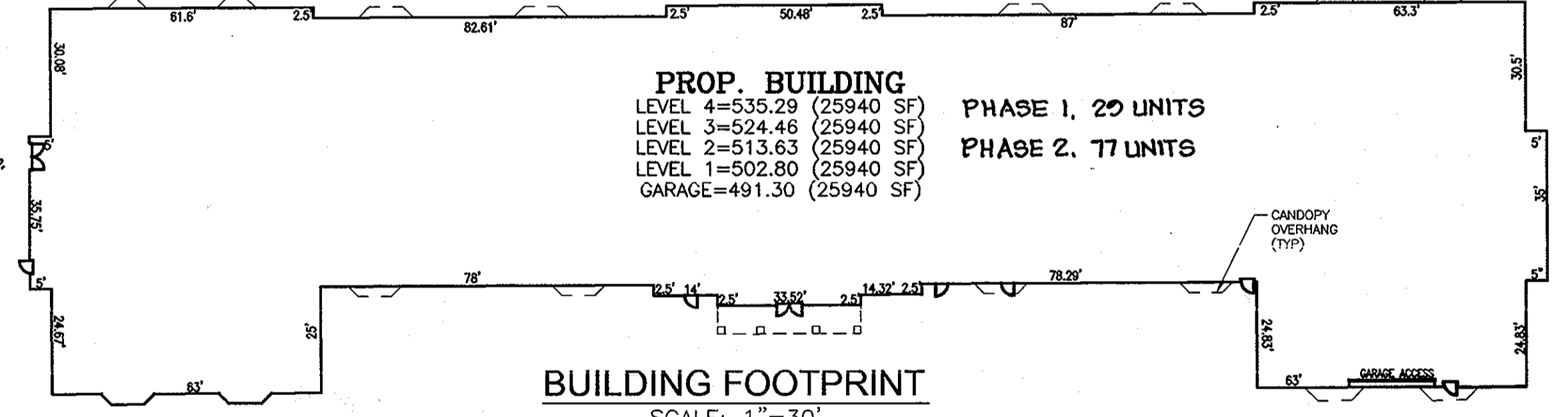
**OWNER: HOWARD COUNTY HOUSING COMMISSION**  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21064  
 410-730-3725

**DEVELOPER: BENDER PROPERTY II, LLC**  
 5304 DORSEY HALL DRIVE  
 ELLICOTT CITY, MD 21042  
 410-730-3725

**LOCATION MAP**  
SCALE: 1" = 60'

**GENERAL NOTES (continued...)**

- IN ACCORDANCE WITH ZONING SECTIONS 133.0.2 AND 133.E, THE PLANNING DIRECTOR HAS APPROVED REQUEST TO REDUCE THE REQUIREMENT OF 2 PARKING SPACES PER APARTMENT UNIT AS REQUIRED BY ZONING SECTION 133.0.2.A TO 1.70 PARKING SPACES PER APARTMENT UNIT. SEE THE SHARED PARKING ANALYSIS AND TABULATION, THIS SHEET. THIS DECISION IS BASED ON THE FOLLOWING:
  - A. THE SHARED PARKING ANALYSIS AND TABULATION FOR THIS SITE AND ADJACENT TM PARCELS 428 & 467, WATERLOO OFFICE BUILDING, PARCEL A/SDP-07-137, DATED AND SUBMITTED TO THIS OFFICE ON 12/05/07.
  - B. THE BROWNE APARTMENT PROJECT, SDP-07-038, CONSIST OF 95 ONE-BEDROOM UNITS AND 11 TWO-BEDROOMS, AND IS TO BE OWNED AND MANAGED BY HOWARD COUNTY.
  - C. THE OWNER OF THE APARTMENT PROJECT, SDP-07-038, WILL MANAGE IT AND RESPOND TO ANY PARKING INADEQUACIES SHOULD THEY ARISE.
  - D. THE APARTMENT UNITS WILL BE ABLE TO USE/SHARE PARKING ON ADJACENT TM PARCELS 428 & 467, WATERLOO OFFICE BUILDING, PARCEL A/SDP-07-137, BASED ON THE SUBMITTED SHARED PARKING ANALYSIS AND TABULATION, THIS SHEET.
- THIS PROJECT IS SUBJECT TO A JOINT USE EASEMENT AND COVENANT AGREEMENT RECORDED AT L 11060 F306.
- THE PROJECT IS SUBJECT TO WF-08-028, APPROVED OCTOBER 8, 2007; TO WAIVE SECTION 16.121(A)(4)(v), TO NOT BE REQUIRED TO PROVIDE RECREATIONAL OPEN SPACE FOR SDP-07-038.
- BUILDING TO BE CONSTRUCTED AS SHOWN ON THIS PLAN AND MUST BE DONE IN ACCORDANCE WITH NEPA IS.
- THIS PROJECT IS SUBJECT TO A JOINT USE EASEMENT AND COVENANT AGREEMENT (L 11060, F 306); RECORDED JANUARY 15, 2008; BY AND BETWEEN HOWARD COUNTY HOUSING COMMISSION (ELLICOTT GARDENS, SDP-07-038) AND TSC/MIT WATERLOO ROAD, LLC (WATERLOO OFFICE BUILDING, SDP-07-137).
- IN ACCORDANCE WITH SECTION 13.402(B) OF THE HOWARD COUNTY CODE, THE DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT HAS APPROVED THE TRANSFER OF MODERATE INCOME HOUSING UNITS ("MIHU") FROM THE FOLLOWING PROJECTS TO THE RESIDENCES AT ELLICOTT GARDENS (SDP-07-038):
  - SDP-06-036 RA-12
  - SDP-06-037 RA-12
  - SDP-06-038 RA-12
  - SDP-06-039 RA-12
  - SDP-06-016 RA-15
  - SDP-05-012 RSA-8
  - SDP-05-117 R-20A
  - SDP-07-066 RSA-8



**MIHU PHASING TABULATION**

PROJECT NAME	SDP #	ZONE	# AND TYPE OF MIHU TRANSFER	# MIHU ON ELLICOTT GARDENS SITE
DORSEY CROSSING	SDP-06-036	RA-12	10 SFA	11.5
ELLICOTT MILLS II	SDP-06-037	RA-12	4 SFA	11.25
ELLICOTT MILLS II	SDP-06-038	R-20A	5 SFA	11.25
FEDERLINE	SDP-06-016	RA-15	5 SFA	1.2
ELLICOTT SQUARE	SDP-05-012	RSA-8	7 SFA	11.75
VILLAGES OF ATHLONE	SDP-05-117	R-20A	7 SFA	11.75
OAKHURST III	SDP-07-066	RSA-8	2 SFA	11.75
<b>TOTAL</b>			<b>37</b>	<b>61</b>

**PARKING TABULATION**

HO.C. HOUSING COMMISSION HOUSING DEVELOPMENT REQUIRED  
 1.7 SPACES @ 106 UNITS = 180 SPACES

TOTAL SPACES REQUIRED: 180 SPACES  
 TOTAL SPACES PROVIDED IN GARAGE: 60 SPACES (INCLUDING 6 HANDICAP)  
 TOTAL SPACES PROVIDED OUTSIDE GARAGE: 59 SPACES (INCLUDING 6 HANDICAP)  
 TOTAL SPACES PROVIDED ON SITE: 124 SPACES (INCLUDING 12 HANDICAP)

\* ADDITIONAL PARKING PROVIDED ON ADJACENT TM PARCELS 428 AND 467. SEE GENERAL NOTES 46, D. AND 49.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 3/4/08

*[Signature]*  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 4/24/08

**TENANT AMENITY SPACE**

COMMUNITY ROOM	1,073 SF
ACTIVITY ROOM	868 SF
COMPUTER ROOM	190 SF
LOUNGE	134 SF
FITNESS ROOM	226 SF
LAUNDRY ROOM	204 SF
MANAGERS SUITE	578 SF
TENANT STORAGE	1,162 SF
<b>TOTAL</b>	<b>4,558 SF</b>



**ADDRESS CHART**

LOT/PARCEL # | STREET ADDRESS  
 PARCEL A (PARCEL 427) | 5505 WATERLOO ROAD

**PERMIT INFORMATION CHART**

SUBDIVISION NAME	SECTION/AREA	PARCEL NUMBER
ELLICOTT GARDENS	N/A	PARCEL A (PARCEL 427)
DEED REF.	BLOCK NO.	ZONE
10190/263	19	POR
1982-1786		
WATER CODE:	007	
		ELECT. DIST. CENSUS TR. #
		1ST 6011.02
		SEWER CODE: 2780000

**SITE DEVELOPMENT PLAN**  
**COVER SHEET**

**ELLICOTT GARDENS**  
 PHASE I & II (DEED: 10190/263) PARCEL A (PARCEL 427)  
 1ST ELECTION DISTRICT 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

**PROFESSIONAL CERTIFICATE**

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE PROVISIONS OF THE STATE ENGINEERING AND SURVEYING ACT, NO. 15, 1938 (AS AMENDED), AND THAT MY LICENSE IS IN FULL FORCE AND EFFECT. EXPIRATION DATE: 09-27-2008

DESIGN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: RHV DATE: FEBRUARY 2008  
 DATE: \_\_\_\_\_  
 SCALE: AS SHOWN  
 W.O. NO.: 08-39

1 SHEET OF 15

STORMWATER MANAGEMENT  
FACILITY TO BE OWNED AND  
MAINTAINED BY THE HOWARD  
COUNTY HOUSING COMMISSION

TM 31 P 470,  
L 2797 F 612  
REV. GENE C. BRADFORD  
JACK BRADFORD  
USE: COMMERCIAL  
ZONED: POR

TM 30 P 85  
PLAT 6157  
JEROME JESSIE JAMES  
USE: RESIDENTIAL  
ZONED: POR

STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
SRC PLAT 54282  
ZONED: R-SA-8

TM 31 P 423  
PLAT OF  
STELLER ASHTON WOODS LLC  
PARCEL A  
1110  
USE: COMMERCIAL  
ZONED: R-SA-8

PROP. BUILDING  
LEVEL 4=535.29 (25940 SF)  
LEVEL 3=524.46 (25940 SF)  
LEVEL 2=513.63 (25940 SF)  
LEVEL 1=502.80 (25940 SF)  
GARAGE=491.30 (25940 SF)  
PHASE I, 29 UNITS  
PHASE II, 77 UNITS

See Sheet 15 of 15 for  
new parking layout, grading  
and handicapped sidewalk

TM 31 P 467  
L 7894 F 473  
DAVID R. LYNIN  
USE: COMMERCIAL  
ZONED: POR  
(S&T 07-137)

BARRINGTON COURT  
LOCAL ROAD

MD. ROUTE 108  
WATERLOO ROAD  
100' MINOR ARTERIAL  
(PLAT 12457)

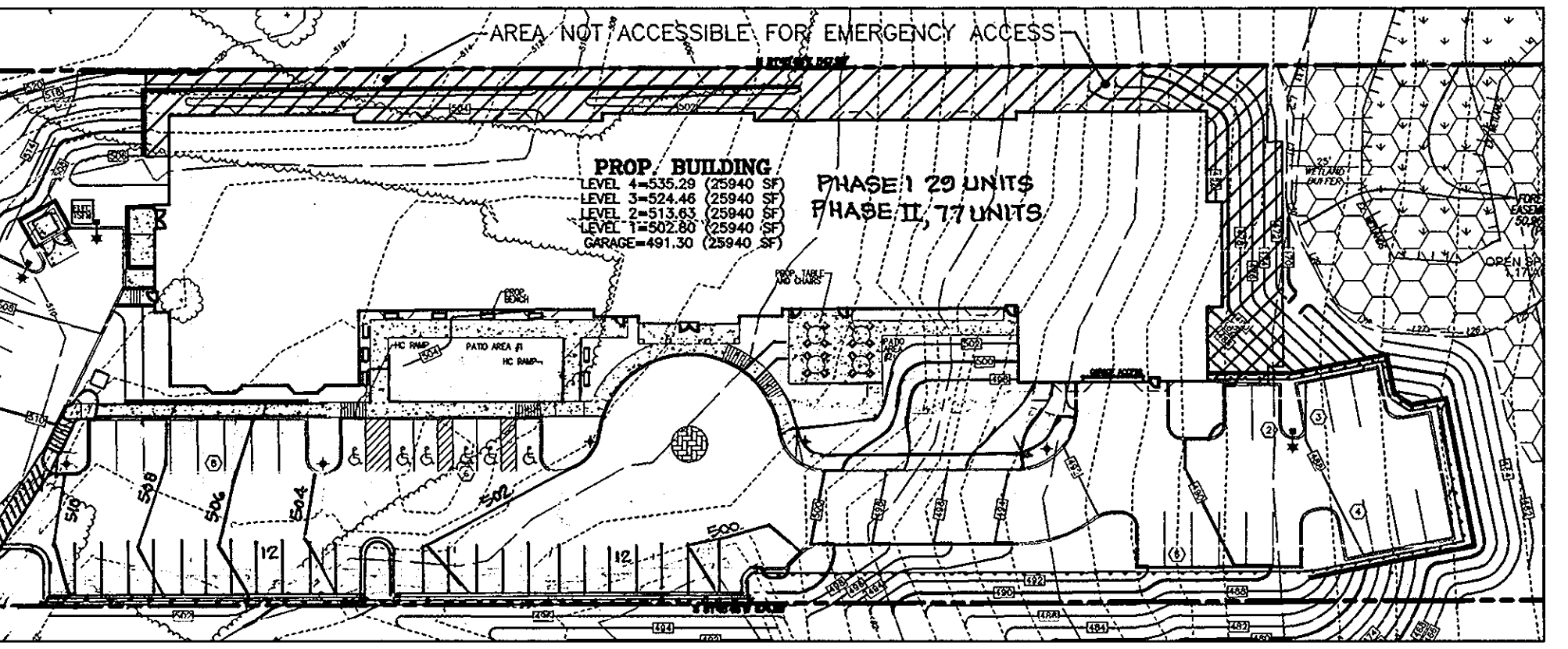
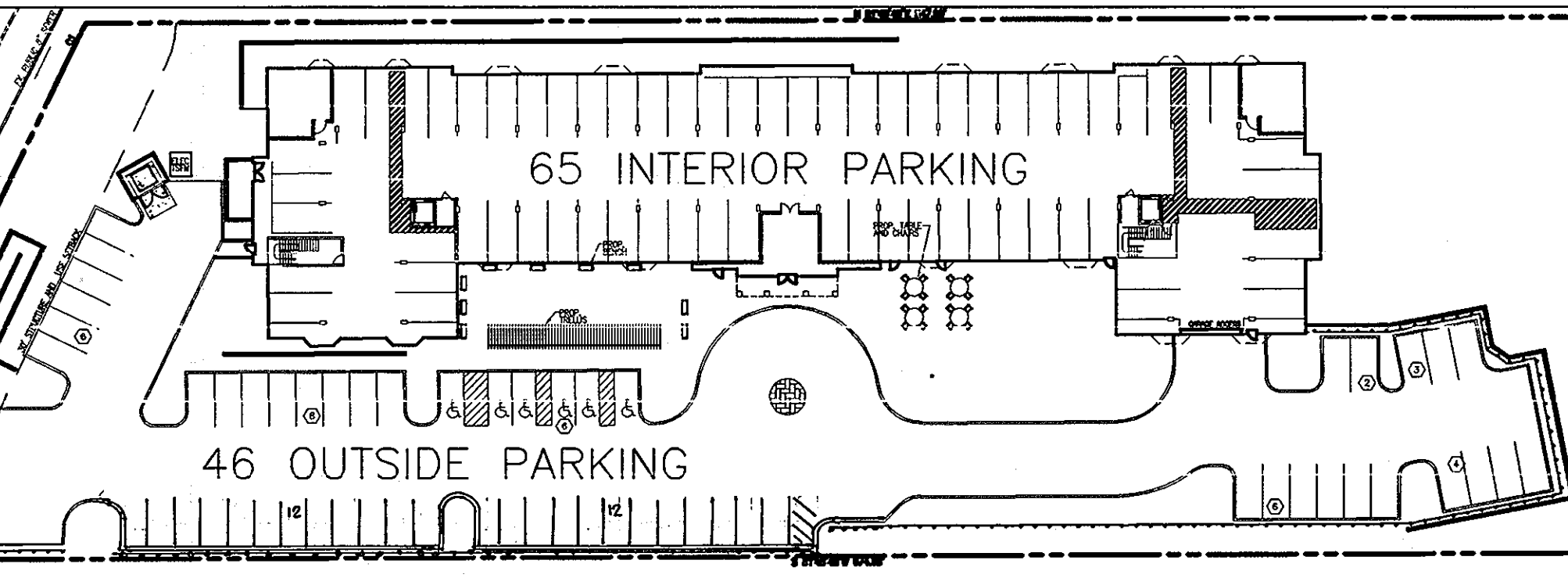
TAX MAP 31 PARCEL 428  
L 7630 F 365  
LYNN CYNTHIA W  
KEARNEY SHELISSA A TIC

TM 31 P 423  
PLAT OF ASHTON WOODS  
PARCEL 'A' AND 'B'  
PLAT NO. 9110  
PARCEL A

FALLS RUN ROAD

**LEGEND:**

	EXISTING CONTOUR		EXISTING FENCE
	PROPOSED CONTOUR		PROPERTY LINE
	PROPOSED SPOT ELEVATION		RIGHT-OF-WAY LINE
	EXISTING SPOT ELEVATION		SOILS BOUNDARY
	EXISTING CURB AND GUTTER		PROPOSED SIDEWALK
	PROPOSED CURB AND GUTTER		EX. 20' PUBLIC WATER AND UTILITY EASEMENT
	EXISTING UTILITY POLE		FOREST CONSERVATION EASEMENT RETENTION
	EXISTING LIGHT POLE		EXISTING WETLANDS
	EXISTING MAILBOX		EXISTING STREAM
	EXISTING SIGN		EXISTING STREAM BUFFER
	EXISTING SANITARY MANHOLE		PROP. LIGHT POLE
	EXISTING SANITARY LINE		PROP. STREET LIGHT
	EXISTING CLEANOUT		PROPOSED TREELINE
	EXISTING FIRE HYDRANT		EXISTING TREELINE
	EXISTING WATER LINE		BURNING LOCATION
	PROPOSED STORM DRAIN		10' NO TREE ZONE
	PROPOSED STORM DRAIN INLET		RETAINING WALL CONSTRUCTION AND MAINTENANCE EASEMENT
	EXISTING TREES (FIELD LOCATED)		



NOTE:  
FOR WETLAND BUFFER METES AND BOUNDS  
SEE CHART ON SHEET 5.

OWNER: HOWARD COUNTY HOUSING COMMISSION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21064  
410-730-3725

DEVELOPER: BENDER PROPERTY II, LLC  
5304 DORSEY HALL DRIVE  
ELLICOTT CITY, MD 21042  
410-730-3725

1	Removed switchook handicap sidewalk & added windmill. Revised sidewalk to reflect new handicap accessible sidewalk & revised sheet numbers to reflect added sheet by F.C.C.	6-15-09
2	Rev. pksp. along S.E. prop. to add additional spaces, rev. H.C. SWWK Stamp at Md. Rte 108 ent. parcels built elev. by F.C.C. Inc.	6-25-09
NO.	REVISION	DATE

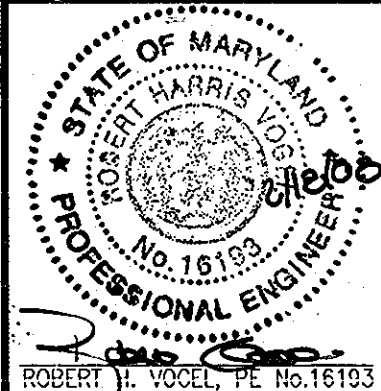
**SITE DEVELOPMENT PLAN**

**SITE LAYOUT PLAN**

**ELLICOTT GARDENS**

TAX MAP 31 BLOCK 19 (DEED: 10190/263) PARCEL A (PARCEL 427)  
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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



**PROFESSIONAL CERTIFICATE**

DESIGN BY: DZ  
DRAWN BY: DZ  
CHECKED BY: RHV  
DATE: FEBRUARY 2008  
SCALE: 1"=30'  
W.O. NO.: 06-39

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. 15193, EXPIRATION DATE 09-27-2008.

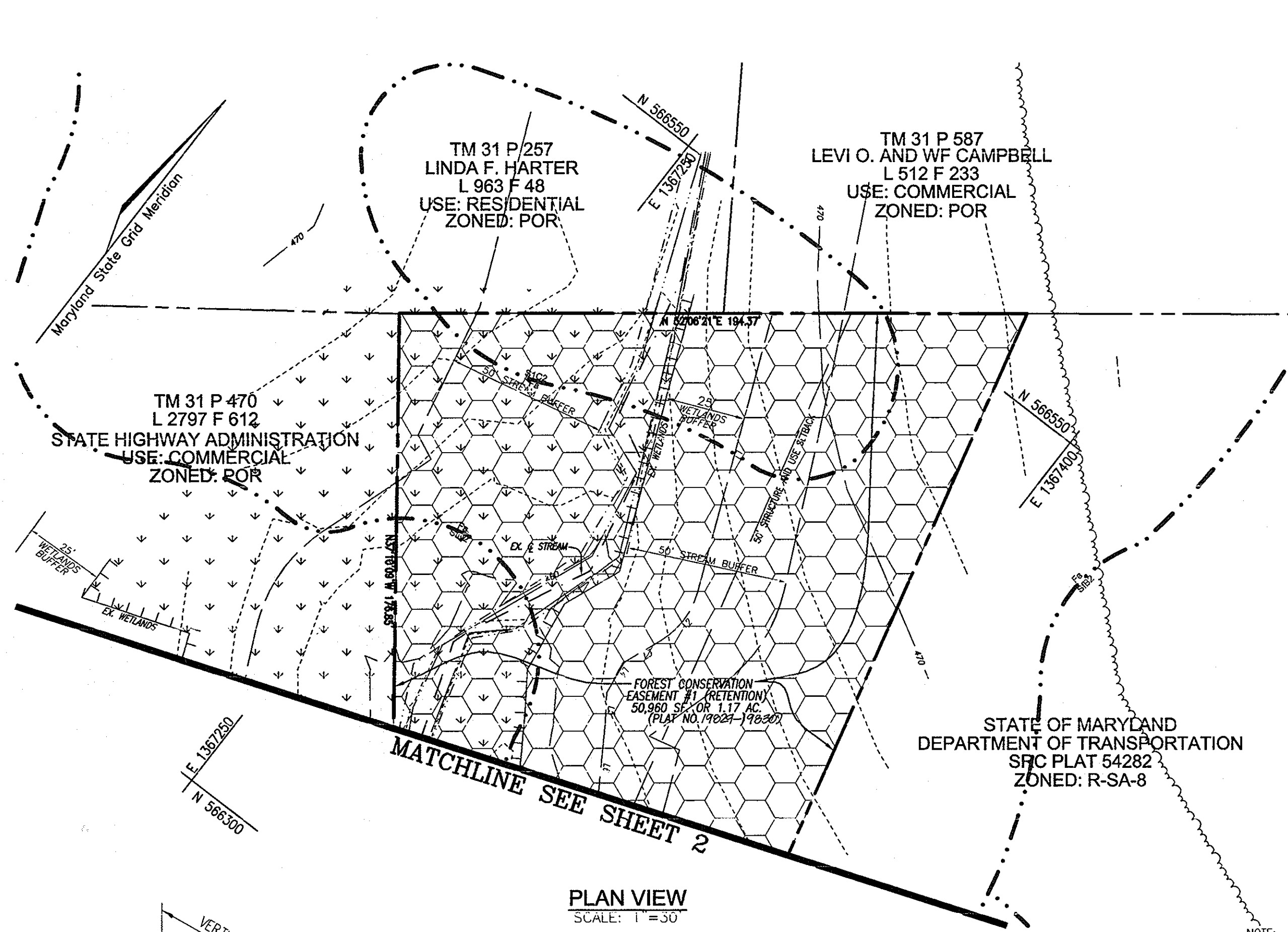
**2 SHEET OF 15**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *[Signature]* DATE: 4/24/08

Chief, Division of Land Development: *[Signature]* DATE: 4/24/08

Director: *[Signature]* DATE: 4/24/08



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

Project Name: Bendor Property, Howard County, MD  
 Location: Howard County, MD  
 Date Started: 11/29/05  
 Date Completed: 11/29/05

Depth	Description	Soil and Sampling Notes	Moisture (%)	Specific Gravity	SPT Blows	SPT Blows (N)
0-1'	Dark brown, moist, medium stiff, silty sand, trace sand, gravel and organic (SM-CL)	No groundwater encountered while drilling	20.0	2.65	3-5	10
1-2'	Medium brown, moist, medium dense, silty sand, trace gravel (SM-SC)		20.0	2.65	7-9	15
2-3'	Light brown, moist, medium dense, silty sand, trace sand and clay lenses (SM)		20.0	2.65	6-7	14
3-4'	Light brown, moist, medium dense, silty sand, trace sand and clay lenses (SM)		20.0	2.65	6-9	14
4-5'	Light brown, moist, medium dense, silty sand, trace sand and gravel (GM-SM)		20.0	2.65	8-10-11	21
5-6'	Light brown, moist, medium dense, silty sand, trace sand and gravel (GM-SM)		20.0	2.65	10-11-14	25
6-7'	Yellow and light gray, moist, medium dense, silty sand, trace sand, trace gravel (SM-SC)		20.0	2.65	8-10-12	22
7-8'	Light brown, moist, medium dense, silty sand, trace sand, trace gravel and clay lenses (SC)		20.0	2.65	12-13-15	28

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

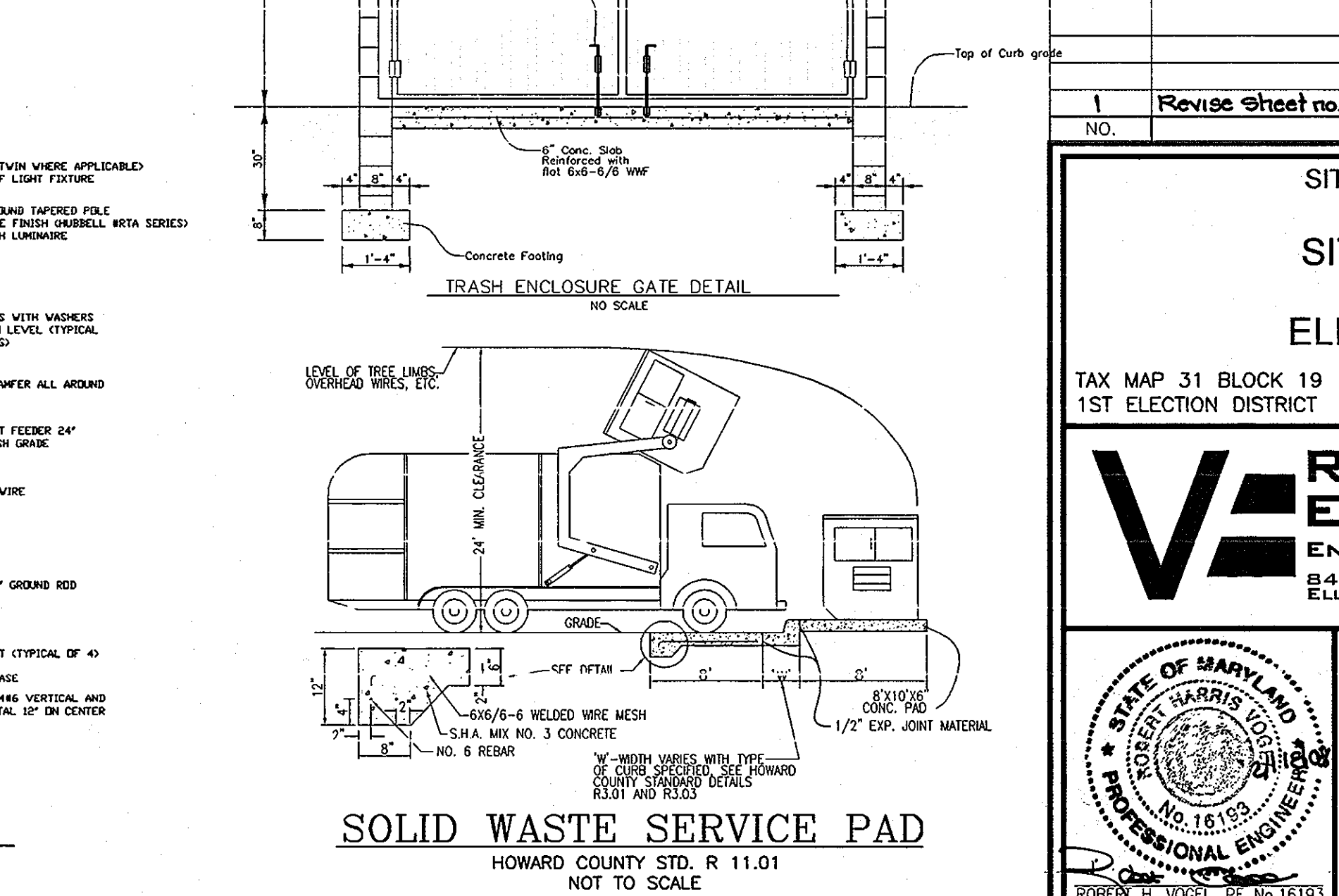
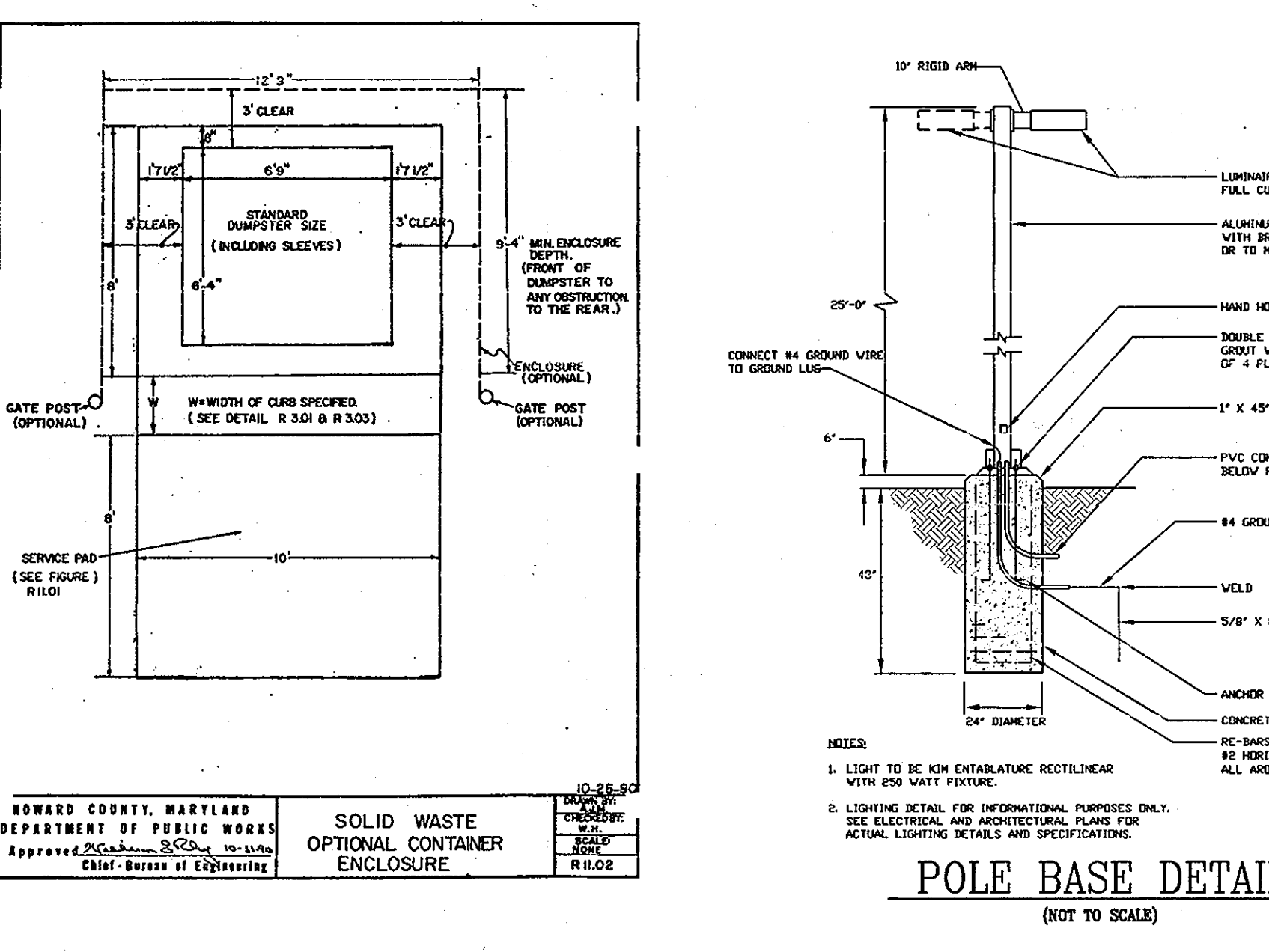
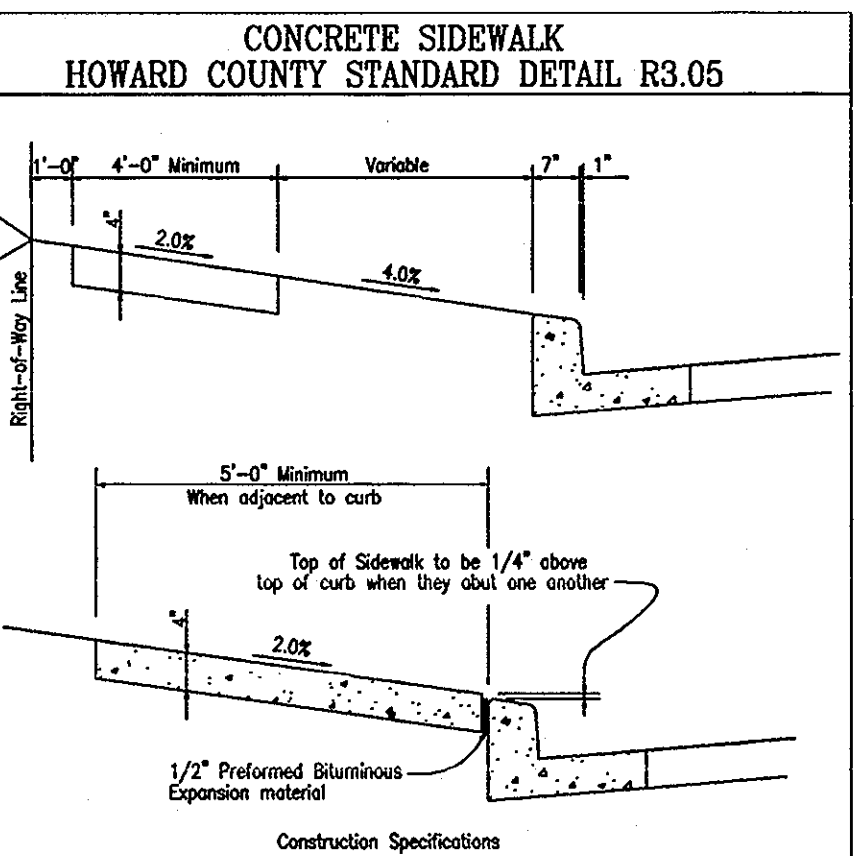
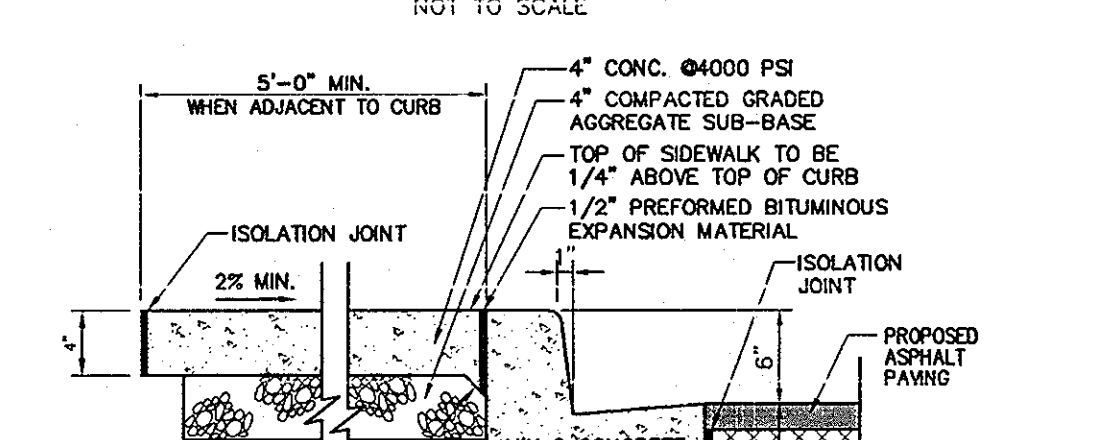
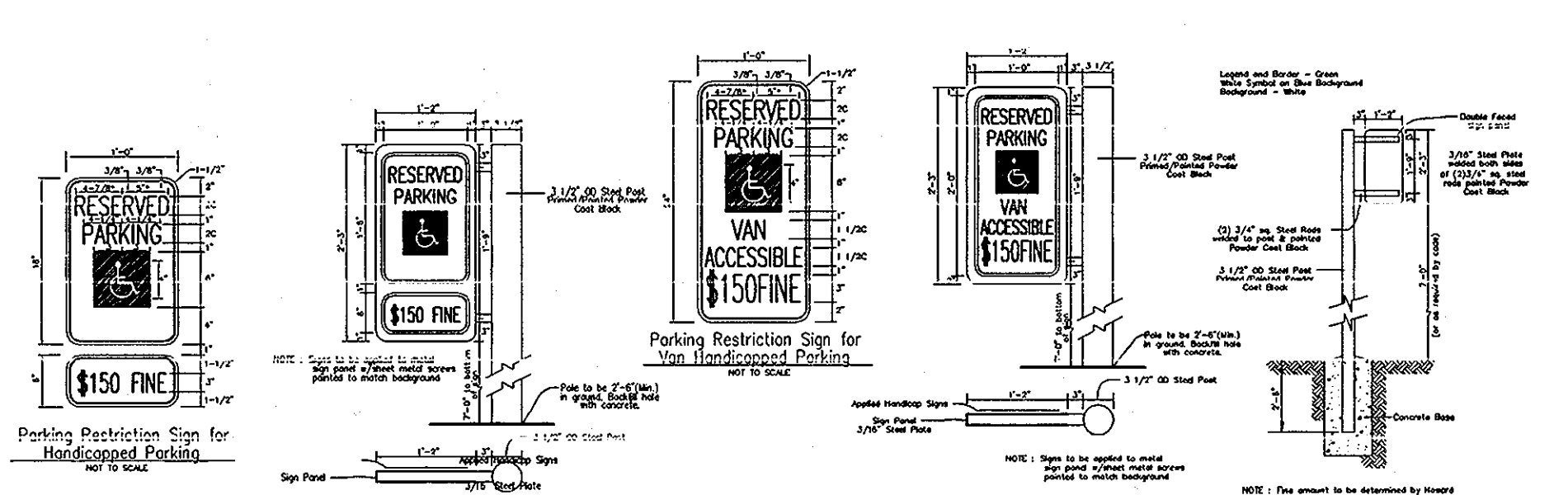
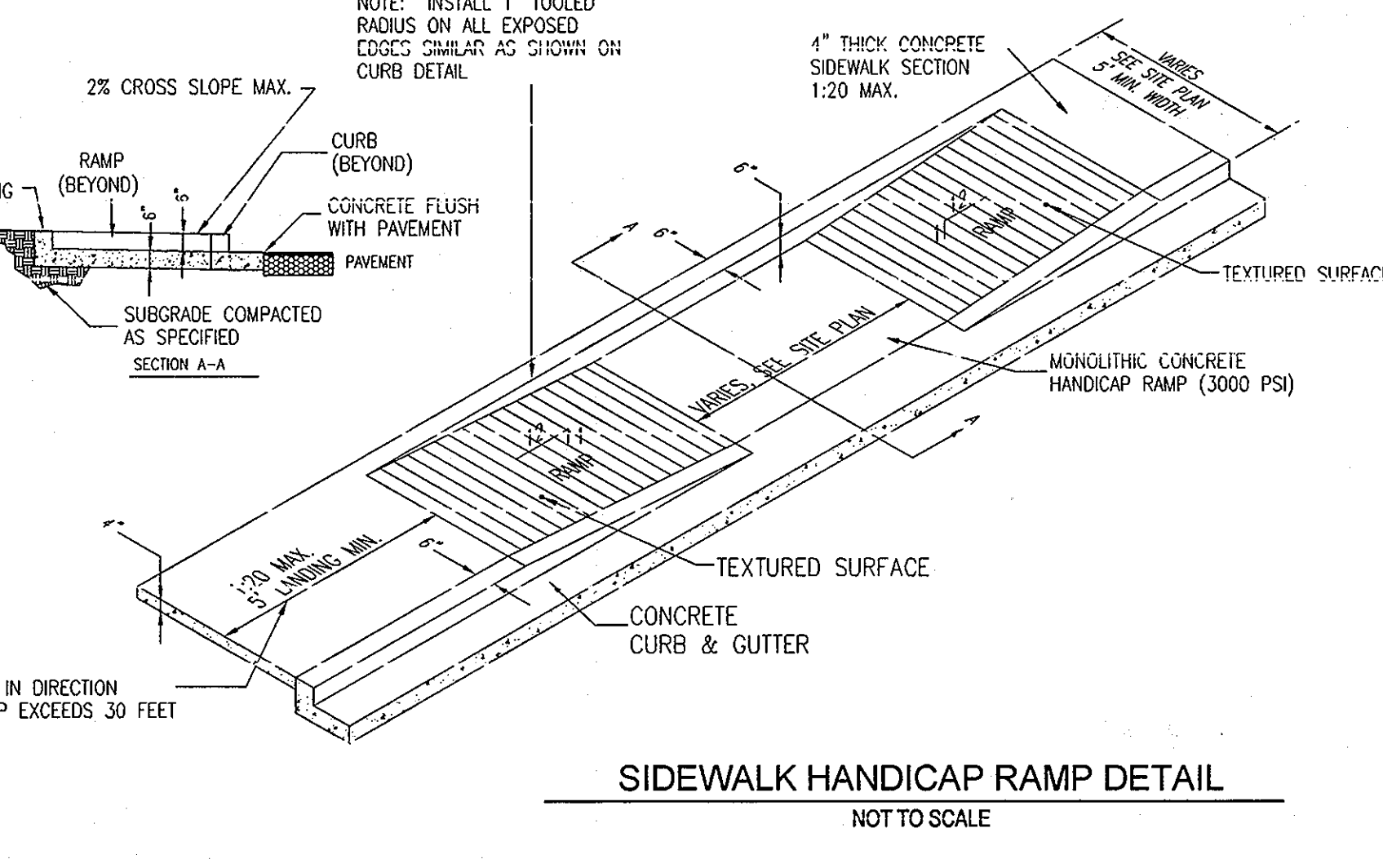
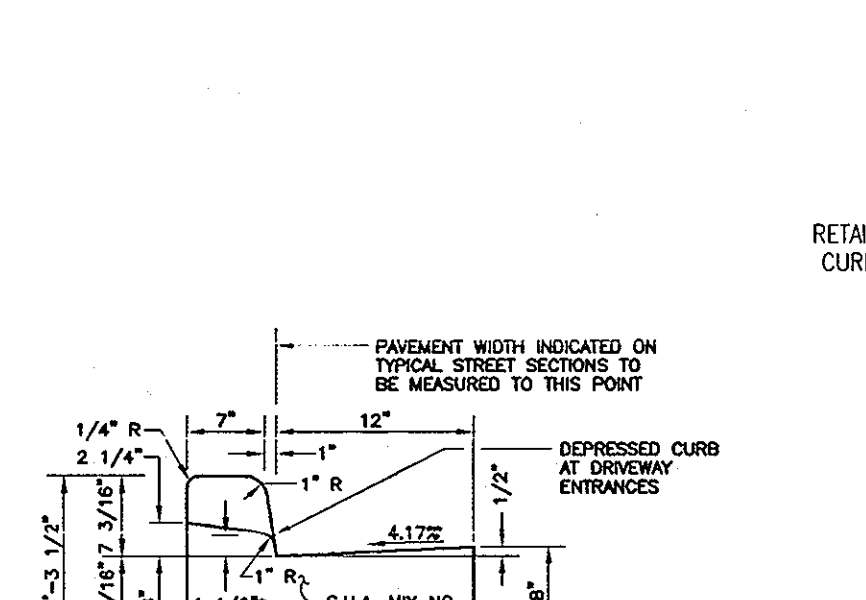
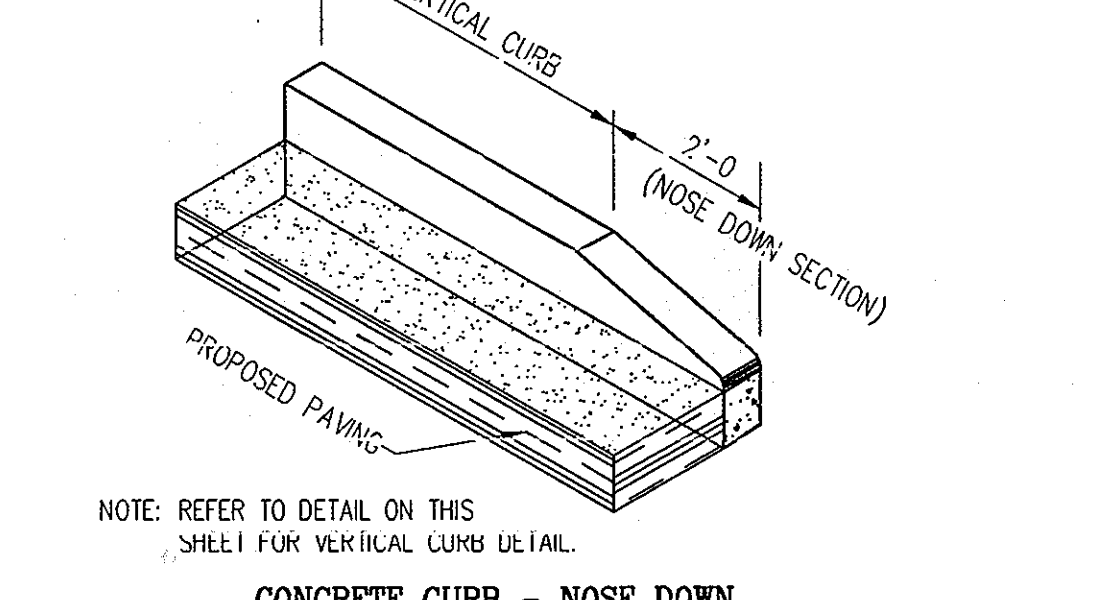
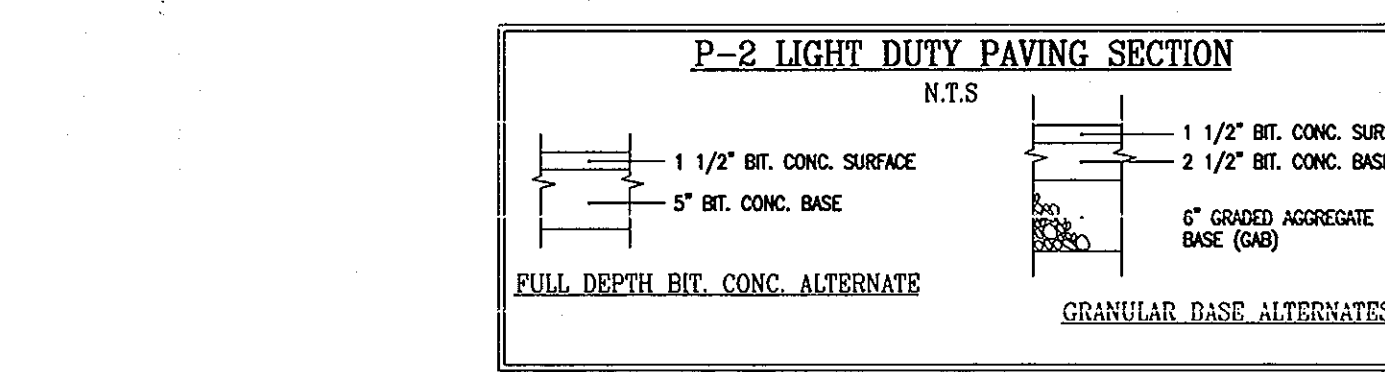
Project Name: Elliott Gardens, Howard County, MD  
 Location: Howard County, MD  
 Date Started: 11/29/05  
 Date Completed: 11/29/05

Depth	Description	Soil and Sampling Notes	Moisture (%)	Specific Gravity	SPT Blows	SPT Blows (N)
0-1'	Dark brown, moist, silty sand, trace sand, gravel and organic (SM-CL)	No groundwater encountered while drilling	20.0	2.65	4-7	13
1-2'	Medium brown, moist, medium dense, silty sand, trace sand and gravel (SM-SC)		20.0	2.65	10-9-7	18
2-3'	Light and light brown, moist, silty sand, trace sand and gravel (SM-SC)		20.0	2.65	5-7-8	15
3-4'	Light brown, moist, medium dense, silty sand, trace sand, trace gravel (SM-SC)		20.0	2.65	10-11-13	24
4-5'	Yellow, moist, medium dense, silty sand, trace sand and gravel (SM)		20.0	2.65	6-9-9	17
5-6'	Light brown, moist, medium dense, silty sand and gravel (GM-SM)		20.0	2.65	7-7-12	19
6-7'	Light brown, moist, medium dense, silty sand, trace sand, trace gravel (SM-SC)		20.0	2.65	8-8-9	17

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

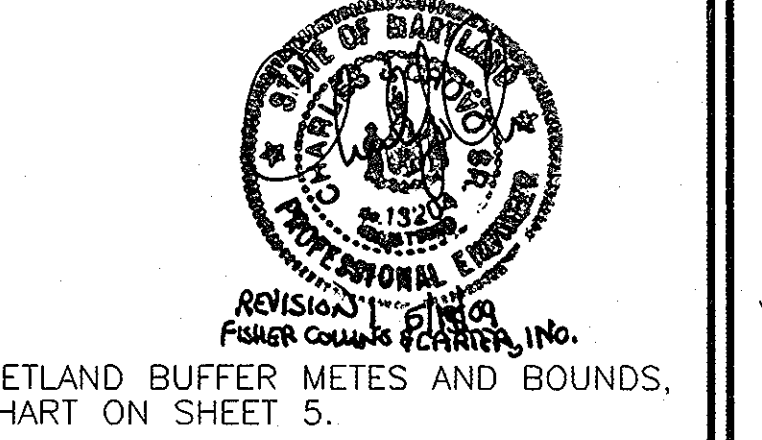
Project Name: Elliott Gardens, Howard County, MD  
 Location: Howard County, MD  
 Date Started: 11/29/05  
 Date Completed: 11/29/05

Depth	Description	Soil and Sampling Notes	Moisture (%)	Specific Gravity	SPT Blows	SPT Blows (N)
0-1'	Bluish and reddish brown, moist, medium dense, silty sand, trace sand and trace gravel (GM-CL)		20.0	2.65	12-8-8	16
1-2'	Light brown and white, moist, medium dense, silty sand and gravel (GM-SC)		20.0	2.65	5-7-5	12
2-3'	Light brown and white, moist, medium dense, silty sand and gravel (GM-SC)		20.0	2.65	7-12-11	23
3-4'	Light brown and white, moist, medium dense, silty sand and gravel (GM-SC)		20.0	2.65	7-8-8	17
4-5'	Light brown and white, moist, medium dense, silty sand and gravel (GM-SC)		20.0	2.65	7-10-10	20
5-6'	Yellow to light gray, moist, loose to medium dense, silty sand and gravel (SM)	Groundwater encountered @ 23.5' while drilling	20.0	2.65	4-5-4	9
6-7'	Light brown, moist, medium dense, silty sand and gravel (GM-SM)		20.0	2.65	8-7-8	15



**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
- EXISTING TREES (FIELD LOCATED)
- EXISTING FREELINE (FIELD LOCATED)
- EXISTING VEGETATION (APPROXIMATE LOCATION)
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-UP-WAY LINE
- SOLS BOUNDARY
- PROPOSED SIDEWALK
- EX. 20\"/>



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Cheryl Brown*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 4/24/08

*Paul A. Leugli*  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 4/24/08

- Construction Specifications
- Sidewalk to be surfaced in 5'-0" maximum squares.
  - Expansion joints across the sidewalk not to be more than 15' apart.
  - 1/2" Preformed Bituminous Expansion material in expansion joints to be kept 1/4" below surface of sidewalk.
  - Concrete to be mix number 2.
  - Where sidewalk abuts curb, sidewalk shall be 1/4" above curb with 1/2" Preformed Bituminous Expansion material between sidewalk and curb.
  - On longitudinal sidewalk grades of 5% or greater, a concrete border, 6" thick and 6" deep below the normal 4" sidewalk thickness shall be constructed for the full width of the sidewalk at intervals of 10 feet. The borders shall be placed at expansion joint locations and shall be monolithic with the curb.
  - Sidewalk width adjacent to curb shall be 5'-0" minimum except sidewalk adjacent to curb in 20'-0" wide bays may be 4'-0" wide.
  - Sidewalk, border, or more from curb may be 4'-0" in width with a 5'-0" paved section placed 300' apart.

HOWARD COUNTY, MARYLAND  
 DEPARTMENT OF PUBLIC WORKS  
 Approved: *[Signature]*  
 Chief, Bureau of Engineering

SOLID WASTE  
 OPTIONAL CONTAINER  
 ENCLOSURE

OWNER: HOWARD COUNTY HOUSING COMMISSION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21064  
 410-730-3725

DEVELOPER: BENDER PROPERTY II, LLC  
 5304 DORSEY HALL DRIVE  
 ELLICOTT CITY, MD 21042  
 410-730-3725

Revise sheet no. to reflect added sheet By F.C.C., Inc. 5-19-09

**SITE DEVELOPMENT PLAN**

**SITE LAYOUT PLAN**

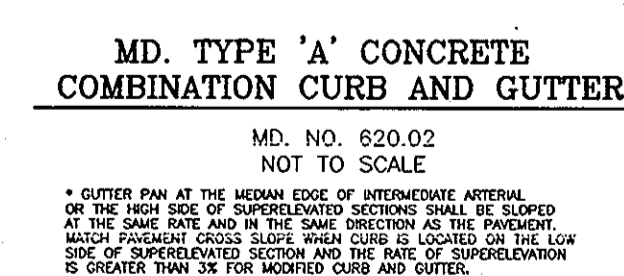
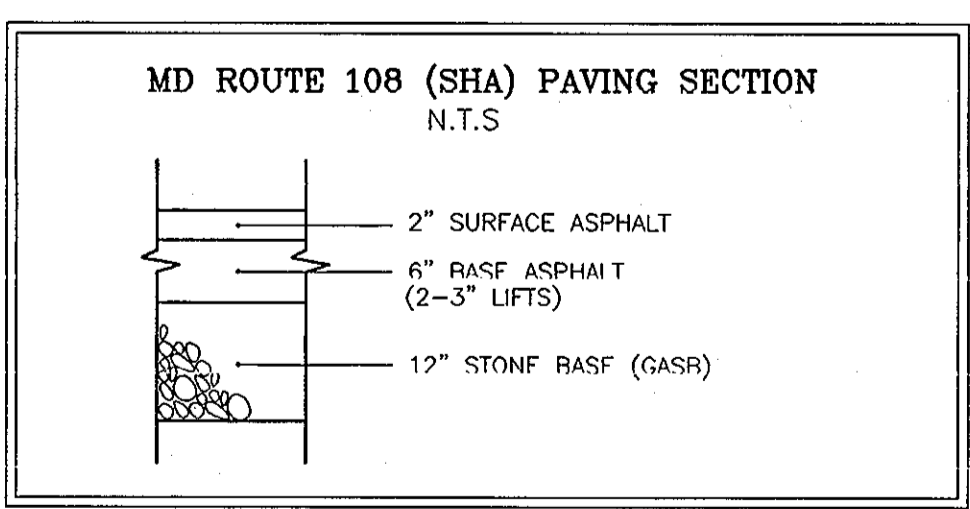
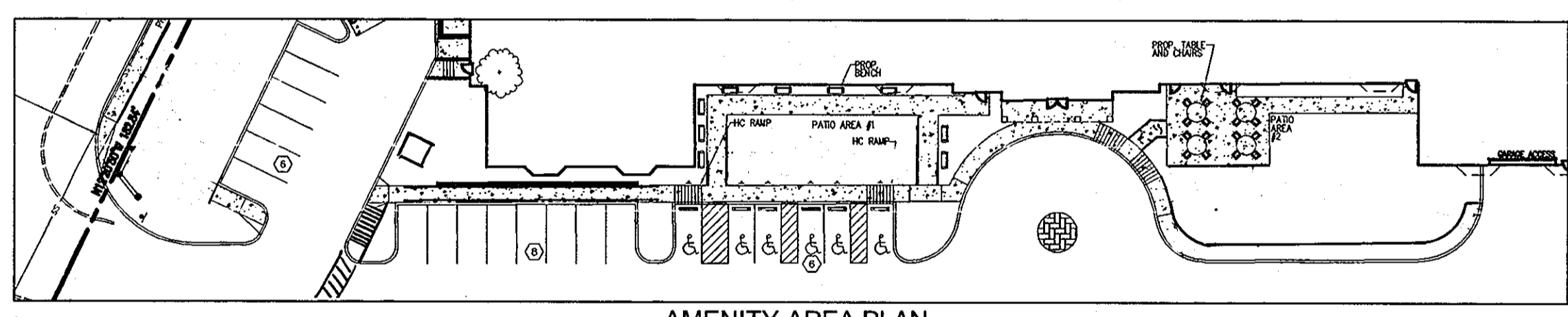
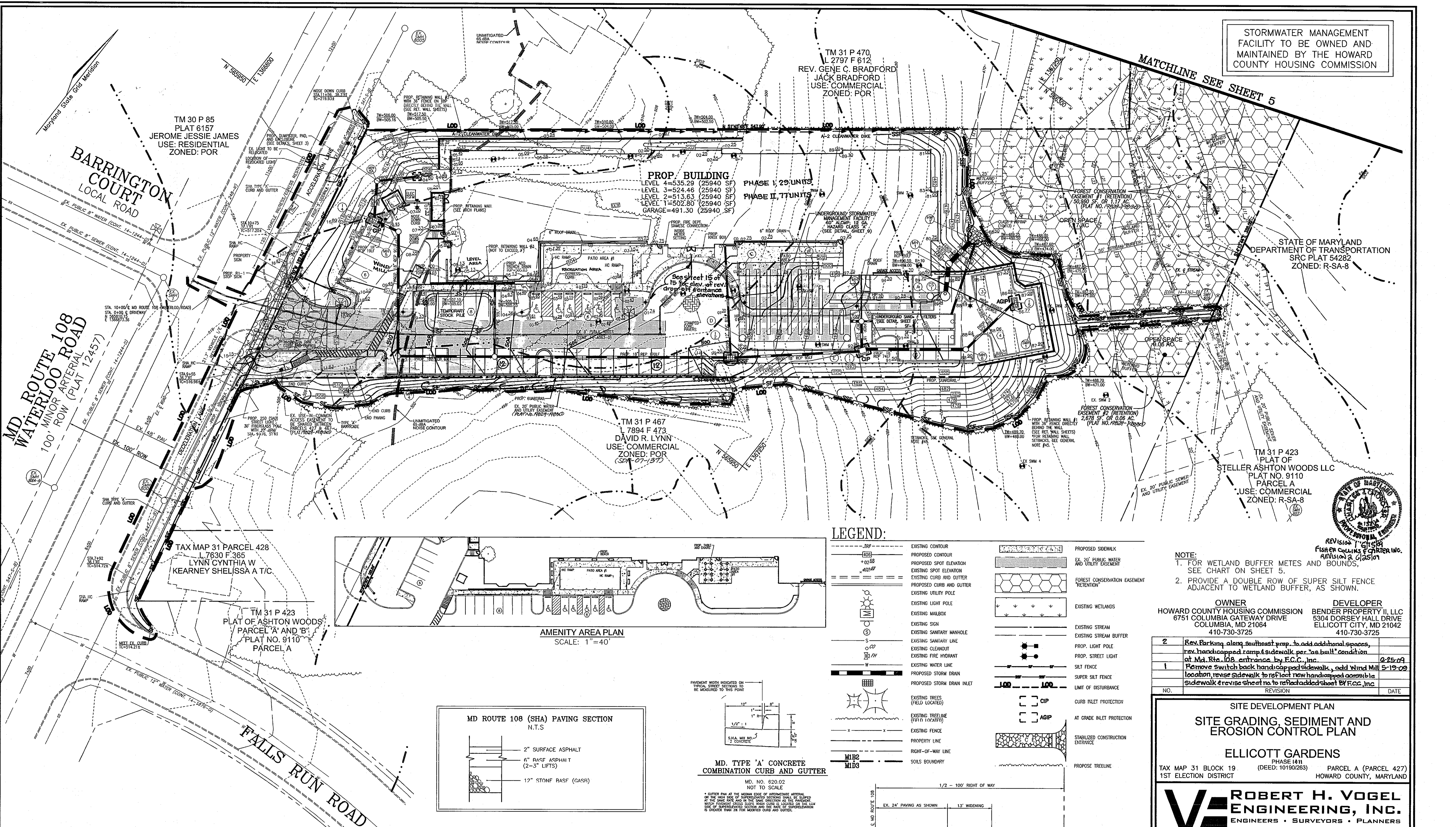
**ELLICOTT GARDENS**  
 PHASE I & II  
 TAX MAP 31 BLOCK 19 (DEED: 10190/263) PARCEL A (PARCEL 427)  
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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

PROFESSIONAL CERTIFICATE  
 DESIGN BY: OZ  
 DRAWN BY: OZ  
 CHECKED BY: RHV  
 DATE: FEBRUARY 2008  
 SCALE: 1"=30'  
 W.O. NO.: 06-39

3 SHEET OF 15

STORMWATER MANAGEMENT FACILITY TO BE OWNED AND MAINTAINED BY THE HOWARD COUNTY HOUSING COMMISSION



**LEGEND:**

EXISTING CONTOUR	PROPOSED CONTOUR	PROPOSED SIDEWALK
PROPOSED SPOT ELEVATION	EXISTING SPOT ELEVATION	EX. 20" PUBLIC WATER AND UTILITY EASEMENT
EXISTING CURB AND GUTTER	PROPOSED CURB AND GUTTER	FOREST CONSERVATION EASEMENT RETENTION
EXISTING UTILITY POLE	EXISTING LIGHT POLE	EXISTING WETLANDS
EXISTING MAILBOX	EXISTING SANITARY MANHOLE	EXISTING STREAM BUFFER
EXISTING SIGN	EXISTING SANITARY LINE	PROP. LIGHT POLE
EXISTING FIRE HYDRANT	EXISTING WATER LINE	PROP. STREET LIGHT
EXISTING FIRE HYDRANT	PROPOSED STORM DRAIN	SILT FENCE
PROPOSED STORM DRAIN	PROPOSED STORM DRAIN INLET	SUPER SILT FENCE
EXISTING TREES (FIELD LOCATED)	EXISTING TREELINE (FIELD LOCATED)	LIMIT OF DISTURBANCE
EXISTING FENCE	PROPERTY LINE	CURB INLET PROTECTION
RIGHT-OF-WAY LINE	SOILS BOUNDARY	AT GRADE INLET PROTECTION
		STABILIZED CONSTRUCTION ENTRANCE
		PROPOSED TREELINE

**NOTE:**

- FOR WETLAND BUFFER METES AND BOUNDS, SEE CHART ON SHEET 5.
- PROVIDE A DOUBLE ROW OF SUPER SILT FENCE ADJACENT TO WETLAND BUFFER, AS SHOWN.

**OWNER:** HOWARD COUNTY HOUSING COMMISSION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21084  
410-730-3725

**DEVELOPER:** BENDER PROPERTY II, LLC  
5304 DORSEY HALL DRIVE  
ELLICOTT CITY, MD 21042  
410-730-3725

NO.	REVISION	DATE
2	Rev. Parking along southeast prop. to add additional spaces, rev. handicapped ramp & sidewalk per "as built" condition at Md. Rte. 108 entrance by E.C.C., Inc.	2-25-09
1	Remove switch back handicapped sidewalk, add Wind Mill location, revise sidewalk to reflect new handicapped accessible sidewalk & revise sheet no. to reflect added sheet by E.C.C., Inc.	2-19-09

**SITE DEVELOPMENT PLAN**  
**SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN**

**ELLICOTT GARDENS**  
PHASE I(11)  
TAX MAP 31 BLOCK 19 (DEED: 10190263) PARCEL A (PARCEL 427)  
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8951

**PROFESSIONAL CERTIFICATE**

DESIGN BY: DZ  
DRAWN BY: DZ  
CHECKED BY: RHV  
DATE: FEBRUARY 2008  
SCALE: 1"=30'  
W.O. NO.: 06-39

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE CARE OF THE STATE OF MARYLAND. EXPIRATION DATE: 02-27-2011

4 SHEET OF 15

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 2/4/08  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
[Signature] 4/24/08  
CHIEF, DIVISION OF LAND DEVELOPMENT  
[Signature] 4/24/08  
DIRECTOR

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE  
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 2/20/08  
HOWARD S.C.D.

BY THE DEVELOPER:

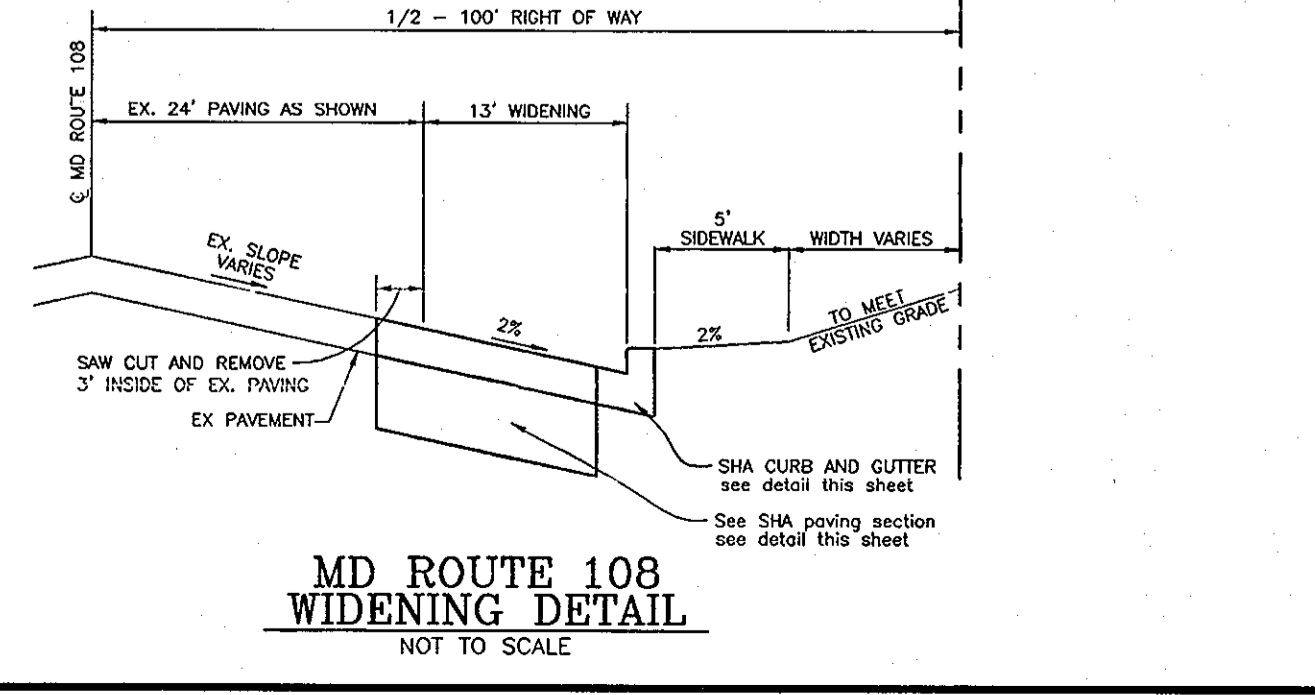
"I, WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE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

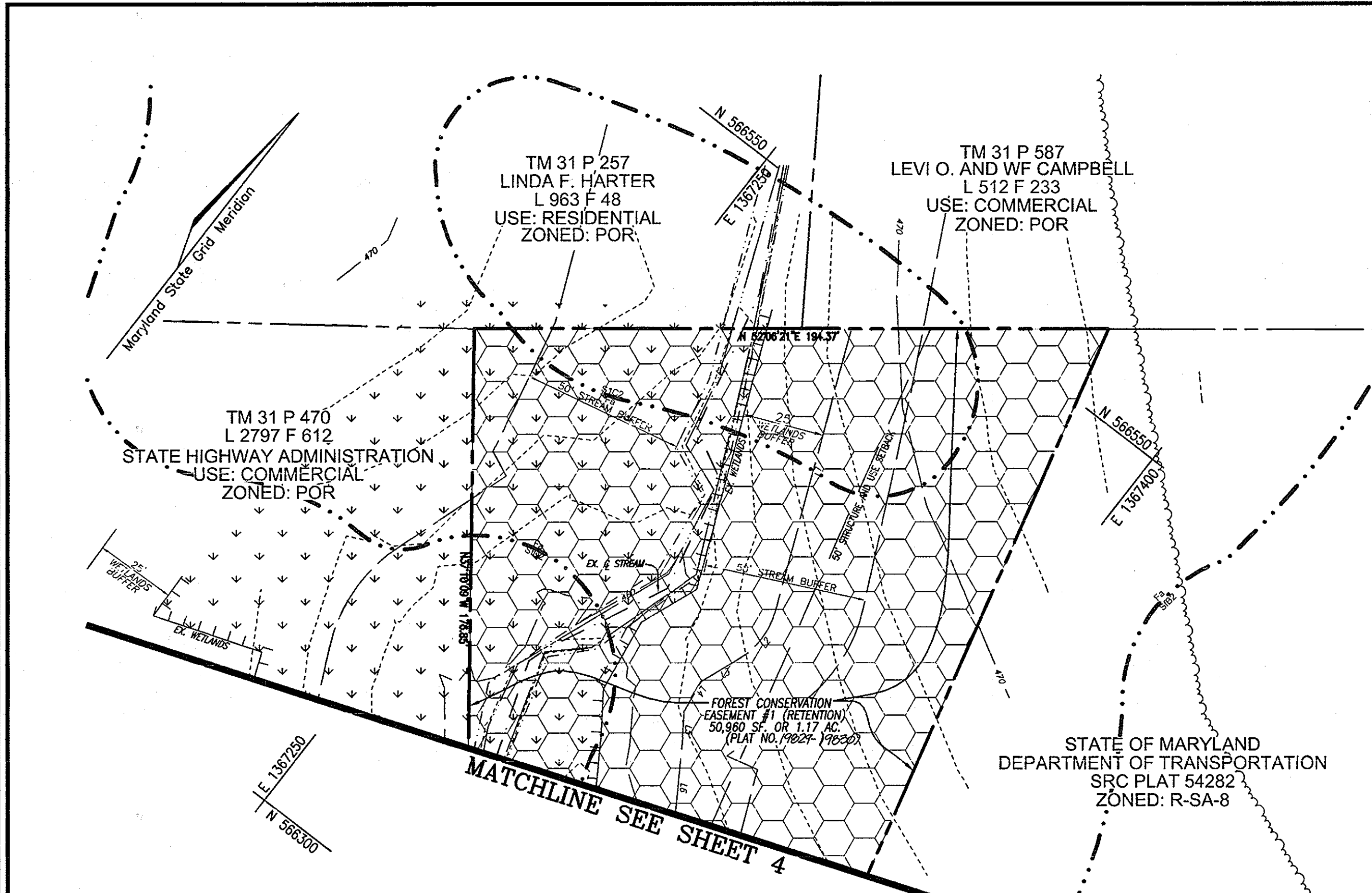
[Signature] 2/20/08  
SIGNATURE OF DEVELOPER DATE

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] 2/18/08  
SIGNATURE OF ENGINEER DATE





**CONSTRUCTION SPECIFICATIONS**

5.0 EVALUATIONS AND RECOMMENDATIONS

Our findings indicate that the site can be developed for the proposed construction utilizing conventional spread footings and ground-supported slab construction... (text continues describing soil conditions and recommendations)

**5.1 Initial Site Preparation**

The initial step in the development of this site should be the controlled removal of surficial topsoil, wet or soft soils, and deleterious materials from the areas to be developed... (text continues describing site prep steps)

**5.2 Fill Selection, Placement and Compaction**

All material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer... (text continues describing fill requirements)

**5.3 Foundation Design and Construction**

As stated previously, a very soft clay layer was encountered in boring B-10 at a depth of 13.6 feet below the existing site grade... (text continues describing foundation design)

**5.4 Ground-Supported Slabs**

Floor slabs should be supported on approved, firm natural soils or on new constructed fill... (text continues describing slab support requirements)

**5.5 Foundation and Drainage**

The shallowest groundwater condition encountered was at a depth of 5.5 feet below the existing site grade... (text continues describing foundation and drainage details)

**5.6 Below-Grade and Retaining Walls**

Water infiltration resulting from precipitation, surface run-off, or perched water should be able to be controlled by means of sump pits and pumps... (text continues describing wall and drainage requirements)

**5.7 Stormwater Management by Infiltration**

We have evaluated the site subsurface conditions at the test boring locations... (text continues describing stormwater management plan)

ELICOTT GARDENS Geotechnical Engineering Study Page 5

5.0 EVALUATIONS AND RECOMMENDATIONS

Our findings indicate that the site can be developed for the proposed construction utilizing conventional spread footings and ground-supported slab construction... (text continues describing soil conditions and recommendations)

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Water infiltration resulting from precipitation, surface run-off, or perched water should be able to be controlled by means of sump pits and pumps... (text continues describing wall and drainage requirements)

**WELL AND BUFFER CHART**

Course	Buffer	Distance
L1	S 27°58'42" E	89.887'
L2	S 10°10'11" E	14.322'
L3	S 10°18'51" E	44.205'
L4	Chd: S 00°48'14" E	18.872'
L5	S 21°22'15" E	13.096'
L6	S 0°02'24" N	10.640'
L7	S 34°48'22" E	26.749'
L8	S 32°33'41" E	28.280'
L9	S 60°52'26" E	18.100'
L10	S 50°50'53" E	30.072'
L11	Chd: S 25.000° W	Ar: 9.308'
L12	Chd: S 46.103° W	Ar: 2.933'
L13	S 40°05'33" E	8.624'
L14	N 74°54'02" E	7.701'
L15	Chd: S 25.000° W	Ar: 8.965'
L16	Chd: S 45.311° W	Ar: 20.322'
L17	N 38°45'55" W	18.917'
L18	N 28°30'32" W	18.188'
L19	Chd: S 25.000° W	Ar: 15.224'
L20	Chd: S 11.034° W	Ar: 14.990'
L21	N 06°22'36" E	15.474'
L22	N 5°27'41" W	23.338'
L23	N 66°12'44" W	23.957'
L24	Chd: S 25.000° W	Ar: 7.164'
L25	Chd: S 14.033° W	Ar: 16.029° W
L26	Chd: S 49.211° E	Ar: 7.140'
L27	N 44°17'35" W	19.024'
L28	N 51°43'04" W	17.124'
L29	S 24°56'35" E	7.811'
L30	Chd: S 49.211° E	Ar: 20.805'
L31	N 11°03'48" W	Ar: 14.990'
L32	N 06°22'36" E	15.474'
L33	N 5°27'41" W	23.338'
L34	N 66°12'44" W	23.957'
L35	Chd: S 25.000° W	Ar: 7.164'
L36	Chd: S 14.033° W	Ar: 16.029° W
L37	Chd: S 49.211° E	Ar: 7.140'
L38	N 44°17'35" W	19.024'
L39	N 51°43'04" W	17.124'
L40	S 24°56'35" E	7.811'
L41	Chd: S 49.211° E	Ar: 20.805'
L42	N 11°03'48" W	Ar: 14.990'
L43	N 06°22'36" E	15.474'
L44	N 5°27'41" W	23.338'
L45	N 66°12'44" W	23.957'
L46	Chd: S 25.000° W	Ar: 7.164'
L47	Chd: S 14.033° W	Ar: 16.029° W
L48	Chd: S 49.211° E	Ar: 7.140'
L49	N 44°17'35" W	19.024'
L50	N 51°43'04" W	17.124'
L51	S 24°56'35" E	7.811'
L52	Chd: S 49.211° E	Ar: 20.805'
L53	N 11°03'48" W	Ar: 14.990'
L54	N 06°22'36" E	15.474'
L55	N 5°27'41" W	23.338'
L56	N 66°12'44" W	23.957'
L57	Chd: S 25.000° W	Ar: 7.164'
L58	Chd: S 14.033° W	Ar: 16.029° W
L59	Chd: S 49.211° E	Ar: 7.140'
L60	N 44°17'35" W	19.024'

**HILLIS - GARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION**

Project Name: HOWARD COUNTY HOUSING COMMISSION

Location: HOWARD COUNTY, MARYLAND

Date: 02/15/08

Scale: 1" = 20'

Boring No. B-10

Job No. C-021816

**DESCRIPTION**

Depth	Description	Soils	Moist	Stiffness	SPT Blows/ft
0' - 2'	Topsoil 1/2"	SM	6-10	15	10
2' - 4'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15
4' - 6'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15
6' - 8'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15
8' - 10'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15
10' - 12'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15
12' - 14'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15
14' - 16'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15
16' - 18'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15
18' - 20'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15
20' - 22'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15
22' - 24'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15
24' - 26'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15
26' - 28'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15
28' - 30'	Light brown, moist, medium dense, silty sand (SM)	SM	7-10	17	15

**LEGEND:**

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- EXISTING CURB AND CUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- EXISTING TREES (FIELD LOCATED)
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PROPOSED SIDEWALK
- EX. 20" PUBLIC WATER AND UTILITY EASEMENT
- FOREST CONSERVATION EASEMENT RETENTION
- EXISTING WETLANDS
- EXISTING STREAM
- EXISTING STREAM BUFFER
- PROP. LIGHT POLE
- PROP. STREET LIGHT
- SILT FENCE
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- CURB INLET PROTECTION
- AT GRADE INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- PROPOSE TREELINE

**OWNER**  
HOWARD COUNTY HOUSING COMMISSION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21064  
410-730-3725

**DEVELOPER**  
BENDER PROPERTY II, LLC  
5304 DORSEY HALL DRIVE  
ELLICOTT CITY, MD 21042  
410-730-3725

**ELICOTT GARDENS**  
PHASE III  
TAX MAP 31 BLOCK 19  
1ST ELECTION DISTRICT

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

**STATE OF MARYLAND PROFESSIONAL ENGINEER**  
ROBERT H. VOGEL, PE No. 16193

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
**DATE:** 4/21/08

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

**BY THE DEVELOPER:** (Signature)  
**DATE:** 2/24/08

**BY THE ENGINEER:** (Signature)  
**DATE:** 2/24/08

**PROFESSIONAL CERTIFICATE:**  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR REVIEWED BY ME OR THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
**EXPIRATION DATE:** 09-27-2008

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
**DATE:** 4/21/08

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

**BY THE DEVELOPER:** (Signature)  
**DATE:** 2/24/08

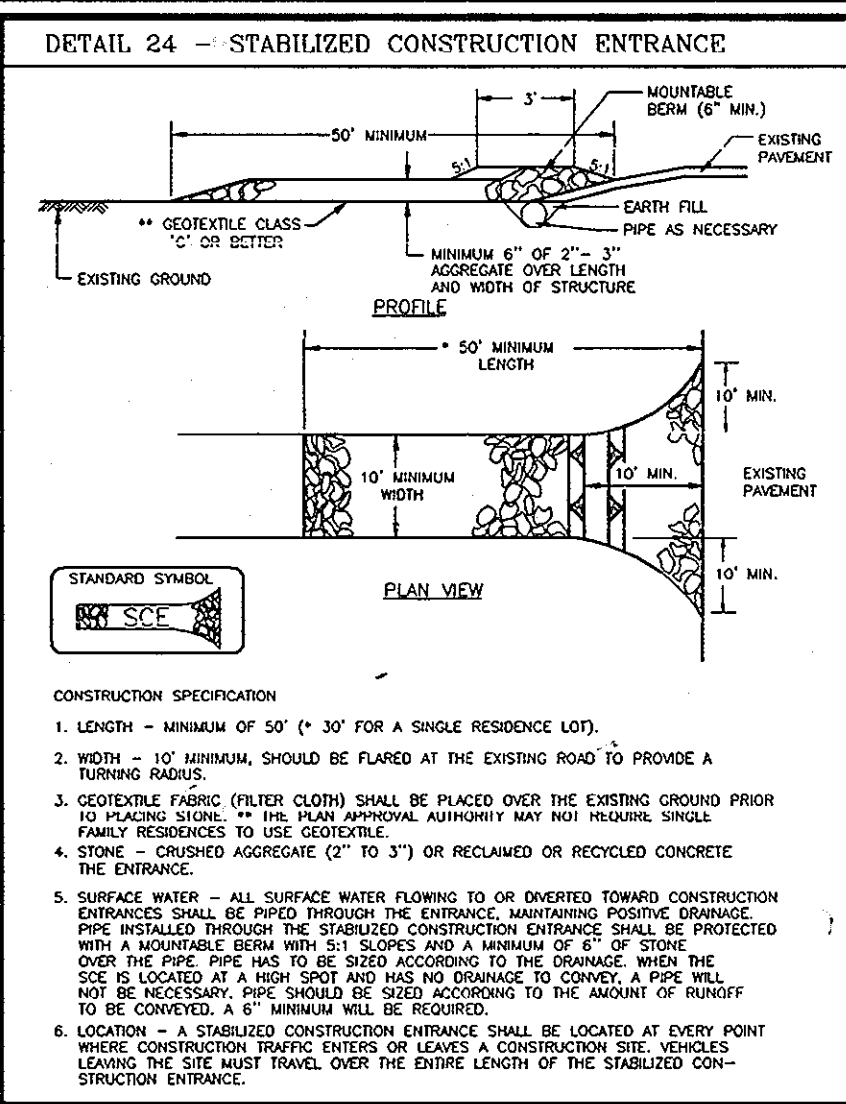
**BY THE ENGINEER:** (Signature)  
**DATE:** 2/24/08

**PROFESSIONAL CERTIFICATE:**  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR REVIEWED BY ME OR THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
**EXPIRATION DATE:** 09-27-2008

**DESIGN BY:** DZ  
**DRAWN BY:** DZ  
**CHECKED BY:** RIV  
**DATE:** FEBRUARY 2008  
**SCALE:** 1"=30'  
**W.O. NO.:** 06-39

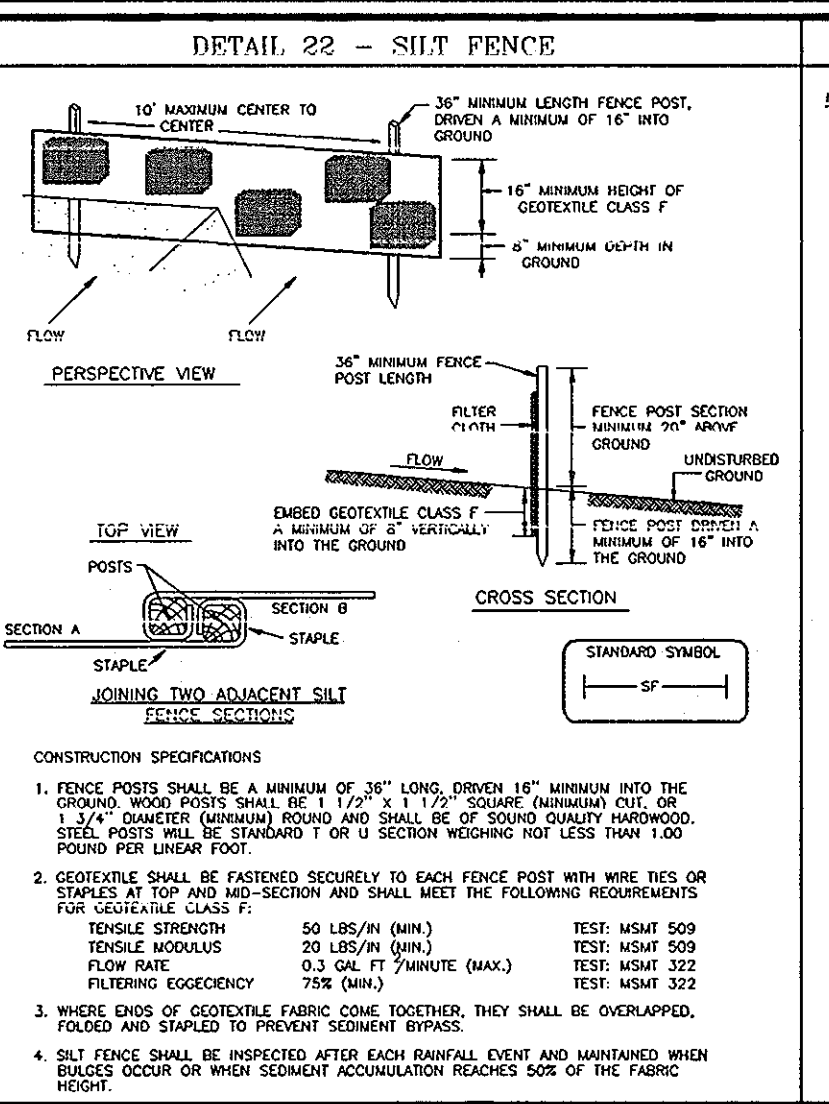
**5 SHEET OF 15**

**STATE OF MARYLAND PROFESSIONAL ENGINEER**  
ROBERT H. VOGEL, PE No. 16193



**CONSTRUCTION SPECIFICATIONS**

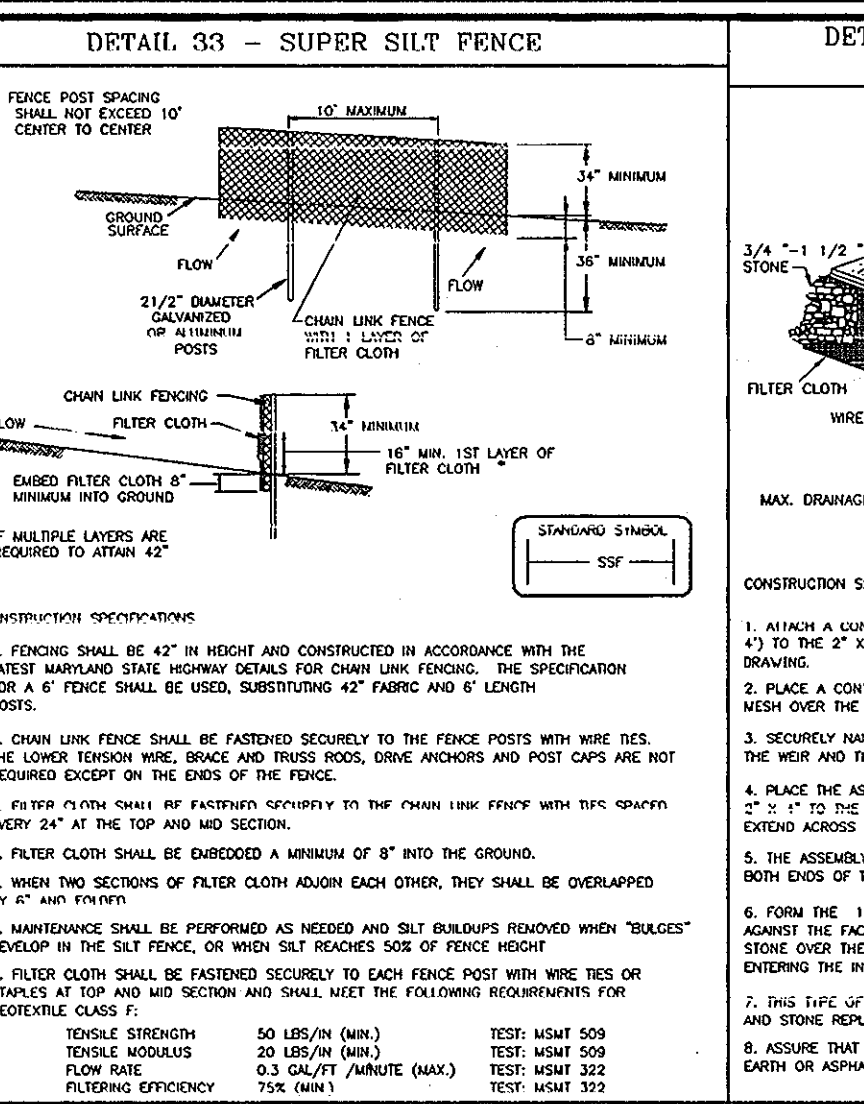
- LENGTH - MINIMUM OF 50' (30' FOR A SINGLE RESIDENCE LOT).
- WIDTH - 12" MINIMUM. SHALL BE FLOORED AT THE EXISTING ROAD TO PROVIDE A TRAFFIC SURFACE.
- GEOTEXTILE FABRIC FILTER CLOTH SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. THE PLAN APPROVAL AUTHORITY MAY NOT HINDER. SHALL BE FLOORED WITH 2" GEOTEXTILE.
- STONE - CRUSHED AGGREGATE (2" TO 3") OR RECLAIMED OR RECYCLED CONCRETE.
- SURFACE WATER - ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCE MUST BE DIVERTED THROUGH THE EXISTING MAINTENANCE DRAINAGE PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A HOUSING BARRIER OR SCREEN AND 8" OF STONE. FILTER FABRIC SHALL BE OVER THE PAVE PIPE AND TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN NOT LOCATED AT EXISTING SPOT AND NO DRAINAGE TO CONDUIT, A PIPE SHALL NOT BE NECESSARY. PIPE SHALL BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED.
- LOCATION - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT LEAVING THE SITE THAT TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.



**CONSTRUCTION SPECIFICATIONS**

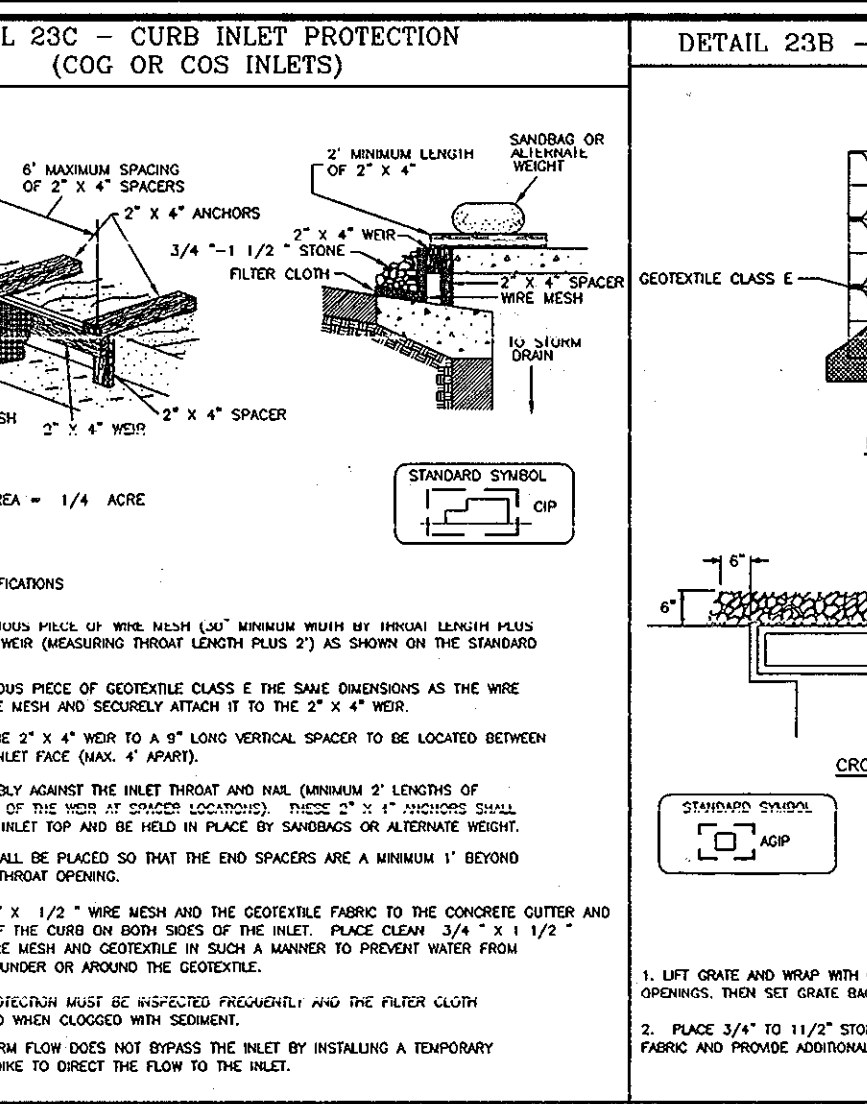
- FENCE POSTS SHALL BE A MINIMUM OF 3" LONG, 1.5" DIAMETER (MINIMUM 2" DIA. FOR 2" DIA. SPACERS). 1/2" DIA. CHAINS (MINIMUM 1/4" DIA. FOR 1/4" DIA. SPACERS). 1/2" DIA. CHAINS (MINIMUM 1/4" DIA. FOR 1/4" DIA. SPACERS) WITH 3" DIA. CAPS AT TOP AND BOTTOM AND 1/4" DIA. SPACERS AT 2' DIA. MINIMUM SPACING.
- GEOTEXTILE FABRIC SHALL BE FASTENED TO EACH FENCE POST WITH WIRE RIES OR STRAPLES AT TOP AND MID-SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR VEGETATIVE CLASS:
 

VEGETATIVE CLASS	TEST: W-059
TENSILE STRENGTH	50 LB/SQ. IN. (MIN.)
TORQUE MODULUS	20 LB. IN. (MIN.)
FILTRATION EFFICIENCY	0.3 GAL. (MIN.) (MAX.)
PLUGGING EFFICIENCY	TEST: W-022
- WHOLE DIAM. OF GEOTEXTILE FABRIC COMBINATION THEY SHALL BE OVERLAPPED, BUILT UP AND STAPLED TO PREVENT SLOTTING.
- SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATES SOBER OF THE FABRIC HEIGHT.



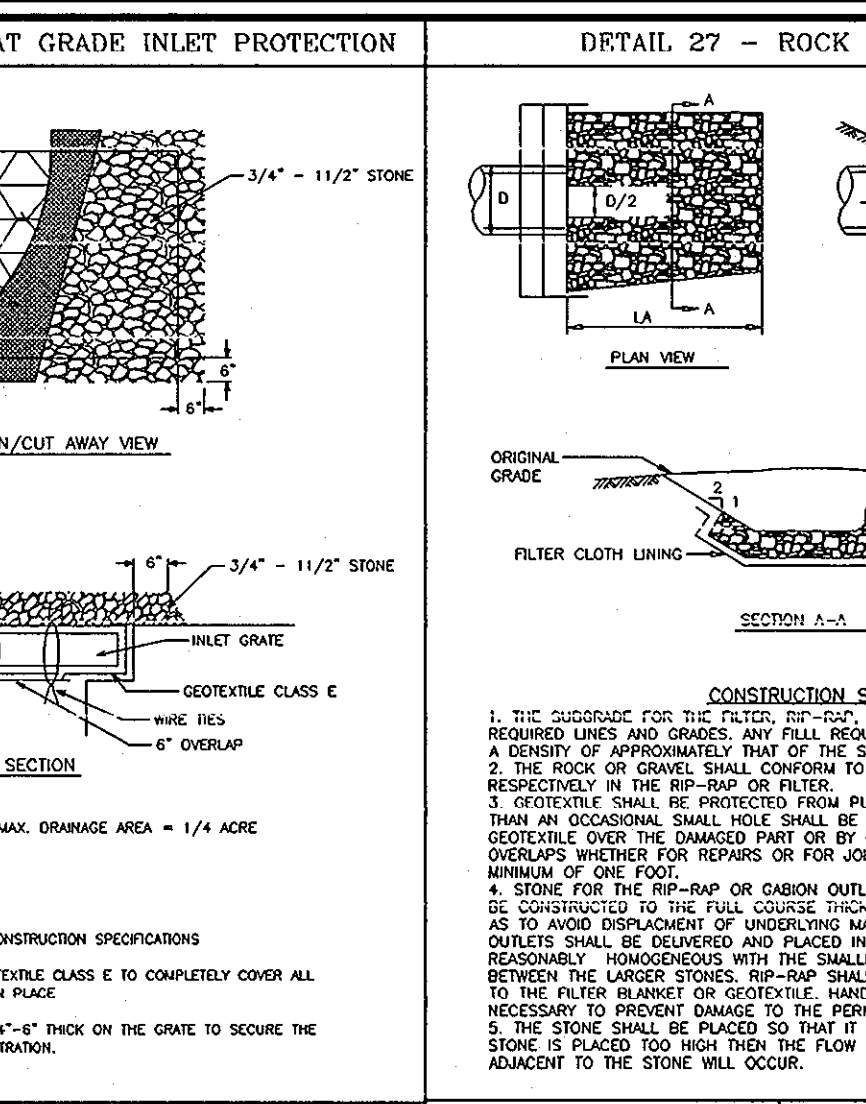
**CONSTRUCTION SPECIFICATIONS**

- FENCING SHALL BE 42" IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST HUNTERDON STATE HIGHWAY MANUAL FOR CHAIN LINK FENCING. THE SPECIFICATION FOR A 2" X 4" WIRE SHALL BE USED, SUBSTITUTING 42" FENCING FOR 48".
- CHAIN LINK FENCE SHALL BE FASTENED TO EACH POST WITH WIRE RIES. THE WIRE RIES SHALL BE PLACED AT THE TOP AND MIDDLE OF EACH POST. THE WIRE RIES SHALL BE PLACED AT THE TOP AND MIDDLE OF EACH POST.
- CHAIN LINK FENCE SHALL BE FASTENED TO EACH POST WITH WIRE RIES. THE WIRE RIES SHALL BE PLACED AT THE TOP AND MIDDLE OF EACH POST.



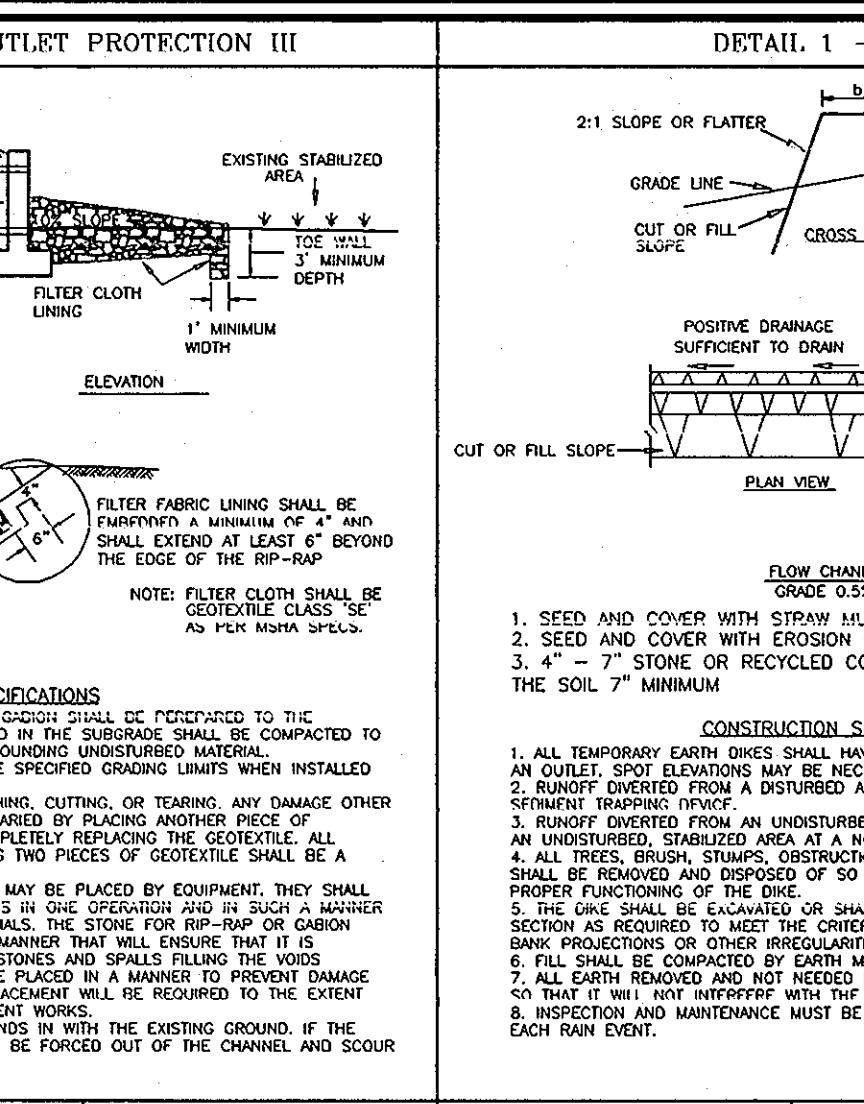
**CONSTRUCTION SPECIFICATIONS**

- MINIMUM CURB HEIGHT SHALL BE 4" AND SHALL BE MINIMUM HEIGHT FROM THE 2" X 4" WIRE (MEASURED THROUGH LENGTHS 2") AS SHOWN ON THE STANDARD DRAWING.
- PLACE A CONTINUOUS PIECE OF GEOTEXTILE CLASS E THE SAME DIMENSIONS AS THE WIRE MESH OVER THE WIRE MESH AND SECURELY ATTACH IT TO THE 2" X 4" WIRE.
- SECURELY HOLD THE 2" X 4" WIRE TO THE 4" HIGH CURB. VERTICAL SPACING BETWEEN THE WIRE MESH AND THE 2" X 4" WIRE SHALL BE 4" (MAX. 4" MAX.).
- PLACE THE ASSEMBLY AGAINST THE INLET FRONT AND HOLD (MINIMUM 1" LENSURE OF 2" X 4" TO THE TOP OF THE CURB ON BOTH SIDES). MEET 2" X 4" WIRE TO 1/2" X 1/2" X 1/2" STONE TO THE CURB AND HOLD IN PLACE BY SANDWICHING AN INTERMEDIATE WIDTH.
- THE ASSEMBLY SHALL BE PLACED SO THAT THE END SPACERS ARE AT LEAST 1" BEYOND BOTH SIDES OF THE INLET FRONT.
- FORM THE 1/2" X 1/2" X 1/2" WIRE MESH AND THE GEOTEXTILE FABRIC TO THE CONCRETE CURB AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN 3/4" X 1/2" X 1/2" STONE OVER THE WIRE MESH WITH 1/4" SPACING BETWEEN THE STONES. PLACE FILTER FABRIC OVER THE INLET FRONT AND AROUND THE GEOTEXTILE.
- THIS TYPE OF PROTECTION MUST BE INSPECTED PERIODICALLY AND THE FILTER CLOTH AND STONE SHOULD BE REPLACED WHEN NECESSARY.
- ASSURE THAT STORM FLOW DOES NOT BRASS THE INLET BY INSTALLING A TEMPORARY BARRICADE OR ASPHALT TO DIRECT THE FLOW TO THE INLET.



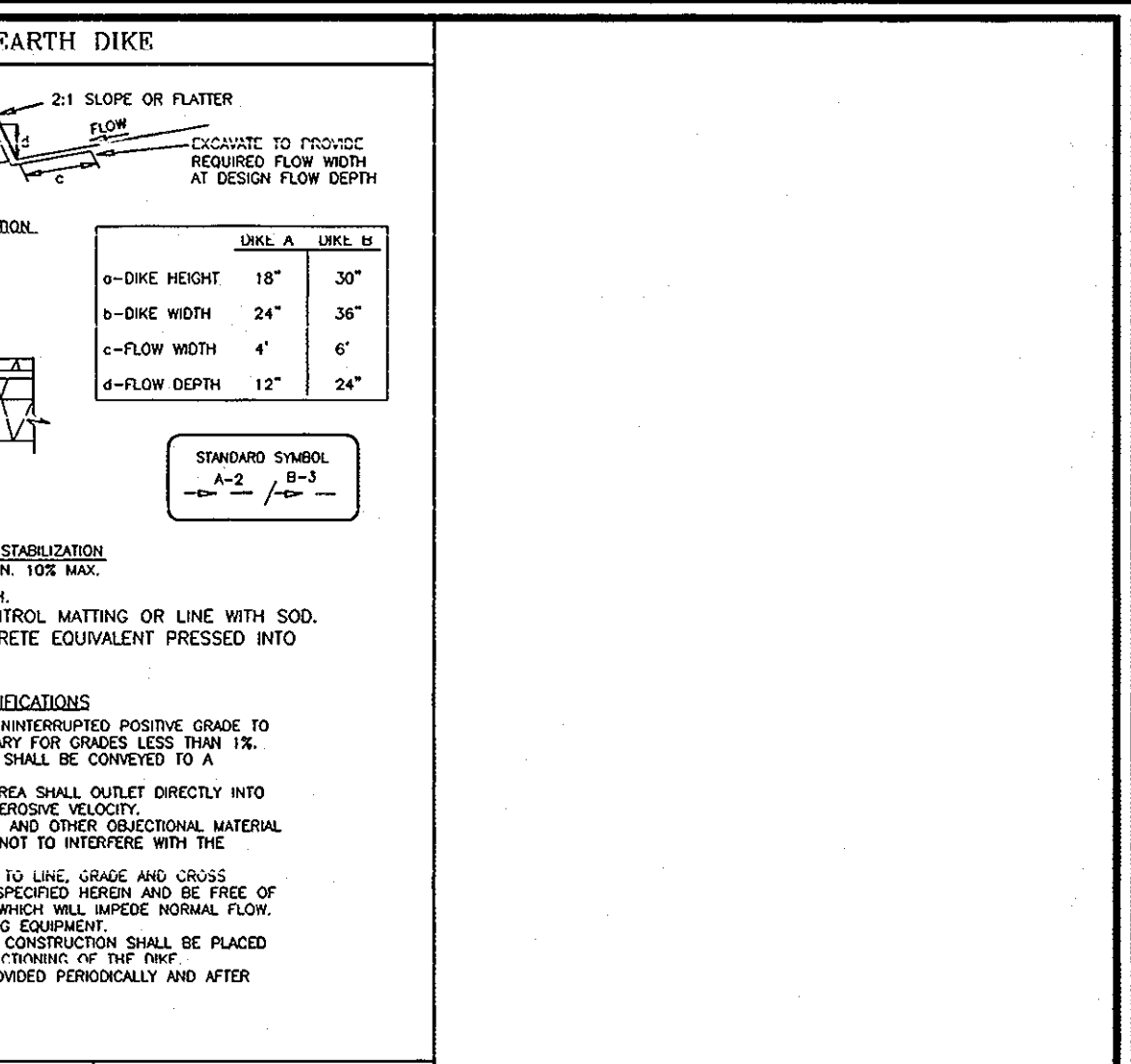
**CONSTRUCTION SPECIFICATIONS**

- LIFT CURB AND WIRE WITH GEOTEXTILE CLASS E TO COMPLETELY COVER ALL GEOTEXTILE AND WIRE THAT IS PLACED IN PLACE.
- PLACE 3/4" X 1/2" STONE, 4" X 4" THICK ON THE CURB TO SECURE THE FABRIC AND PREVENT ADDITIONAL FLOoding.



**CONSTRUCTION SPECIFICATIONS**

- THE SUBGRADE FOR THE FILTER FABRIC SHALL BE PREPARED TO THE FINISH SURFACE OF THE FULL COURSE CONSTRUCTION AND SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
- THE ROCK OR GRAVEL SHALL BE PLACED TO THE SPECIFIED DEPTH WITH 1/2" MAXIMUM SPACING BETWEEN THE STONES. THE STONES SHALL BE PLACED IN A MANNER THAT WILL ENSURE THAT IT IS COMPLETELY COVERED BY THE FILTER FABRIC.
- OVERLAP WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE SHALL BE A MINIMUM OF ONE FOOT.
- A STONE FOR THE RIP-RAP OR GRAVEL OUTLET MAY BE PLACED BY EQUIPMENT. IT SHALL BE PLACED TO THE FULL COURSE CONSTRUCTION AND SHALL BE COMPACTED AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GRAVEL SHALL BE PLACED TO THE FULL COURSE CONSTRUCTION AND SHALL BE COMPACTED AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS.
- REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS. THE WORDS 'REASONABLY HOMOGENEOUS' SHALL BE INTERPRETED AS MEANING THAT THE STONES SHALL BE PLACED TO THE FULL COURSE CONSTRUCTION AND SHALL BE COMPACTED AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS.
- IF IT IS NECESSARY TO REPAIR OR REPLACE THE STONE THAT HAS BEEN PLACED ON THE FILTER FABRIC, IT SHALL BE PLACED TO THE FULL COURSE CONSTRUCTION AND SHALL BE COMPACTED AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS.

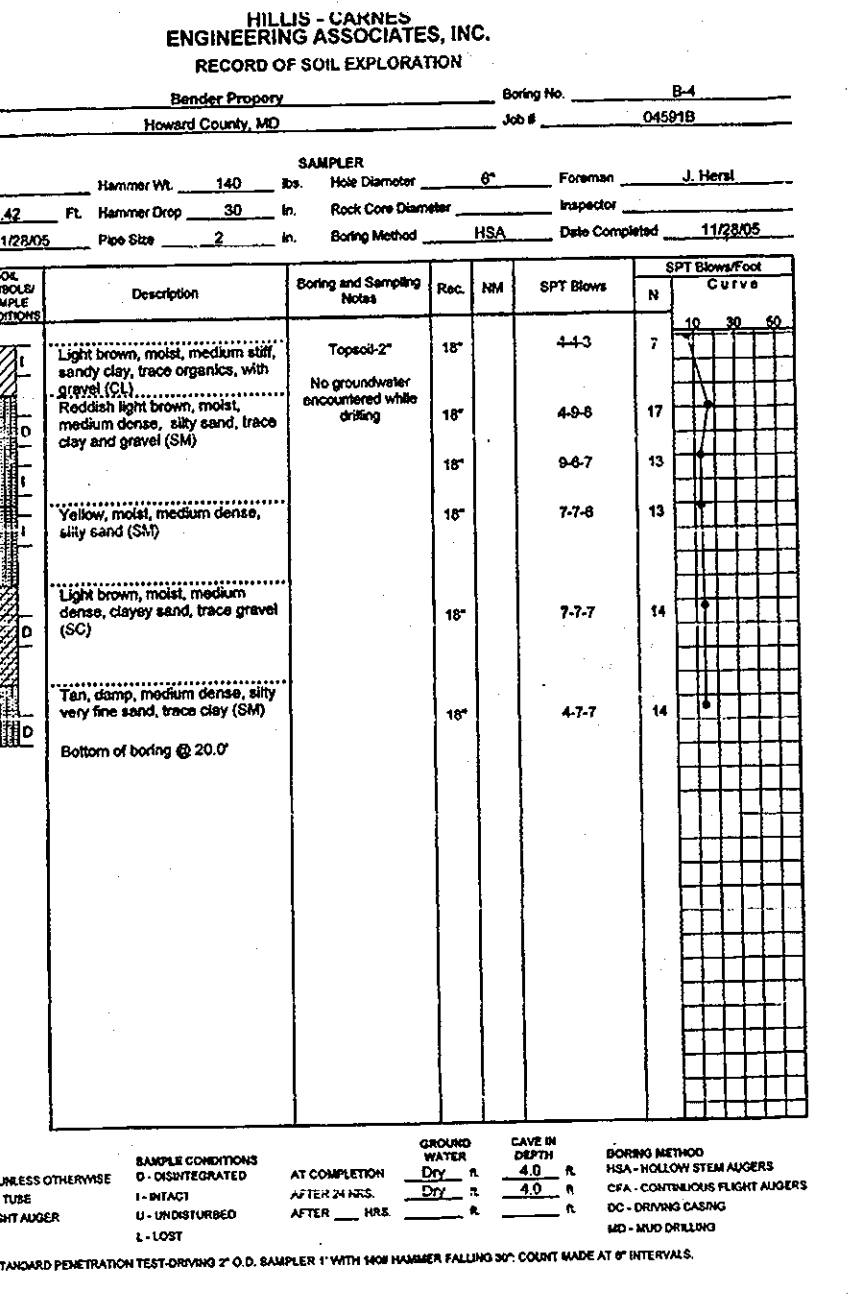
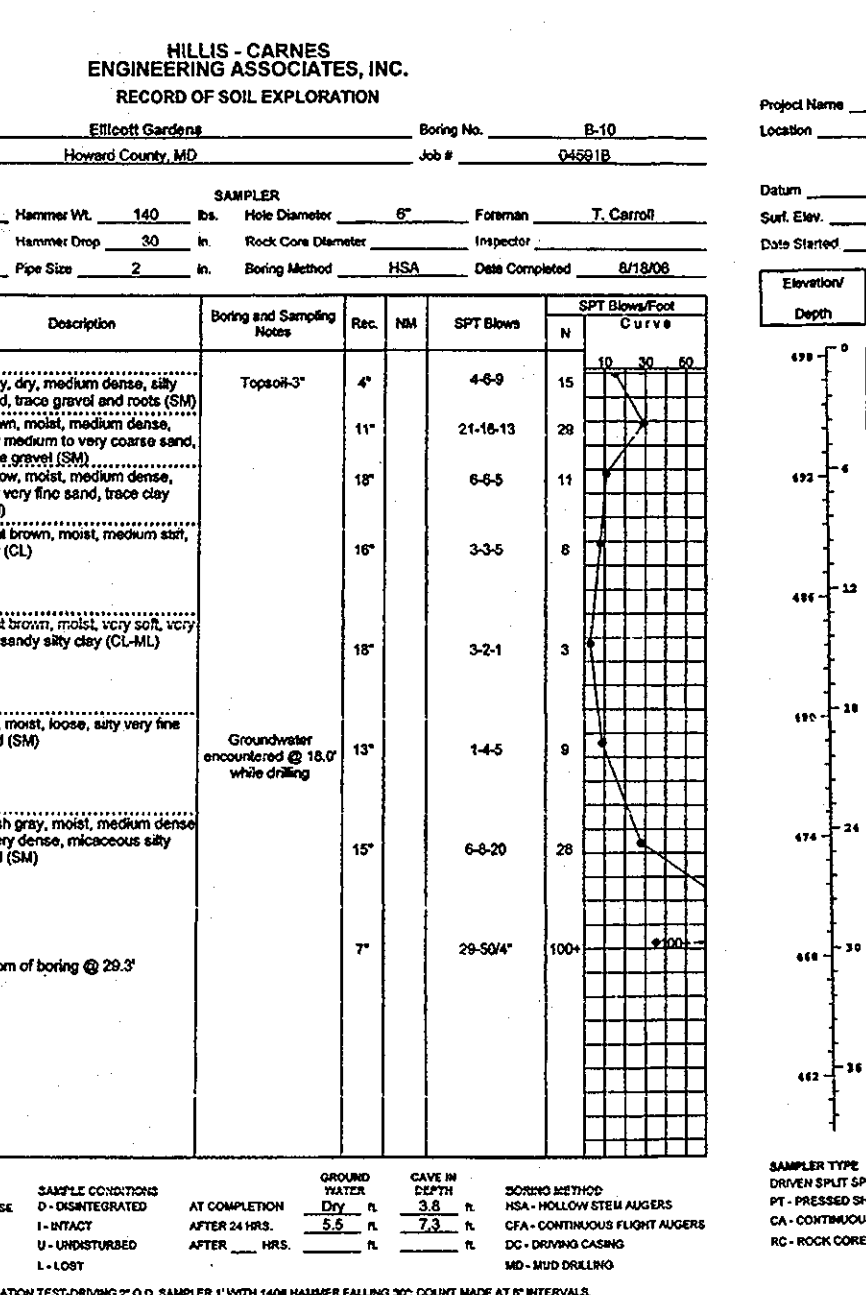
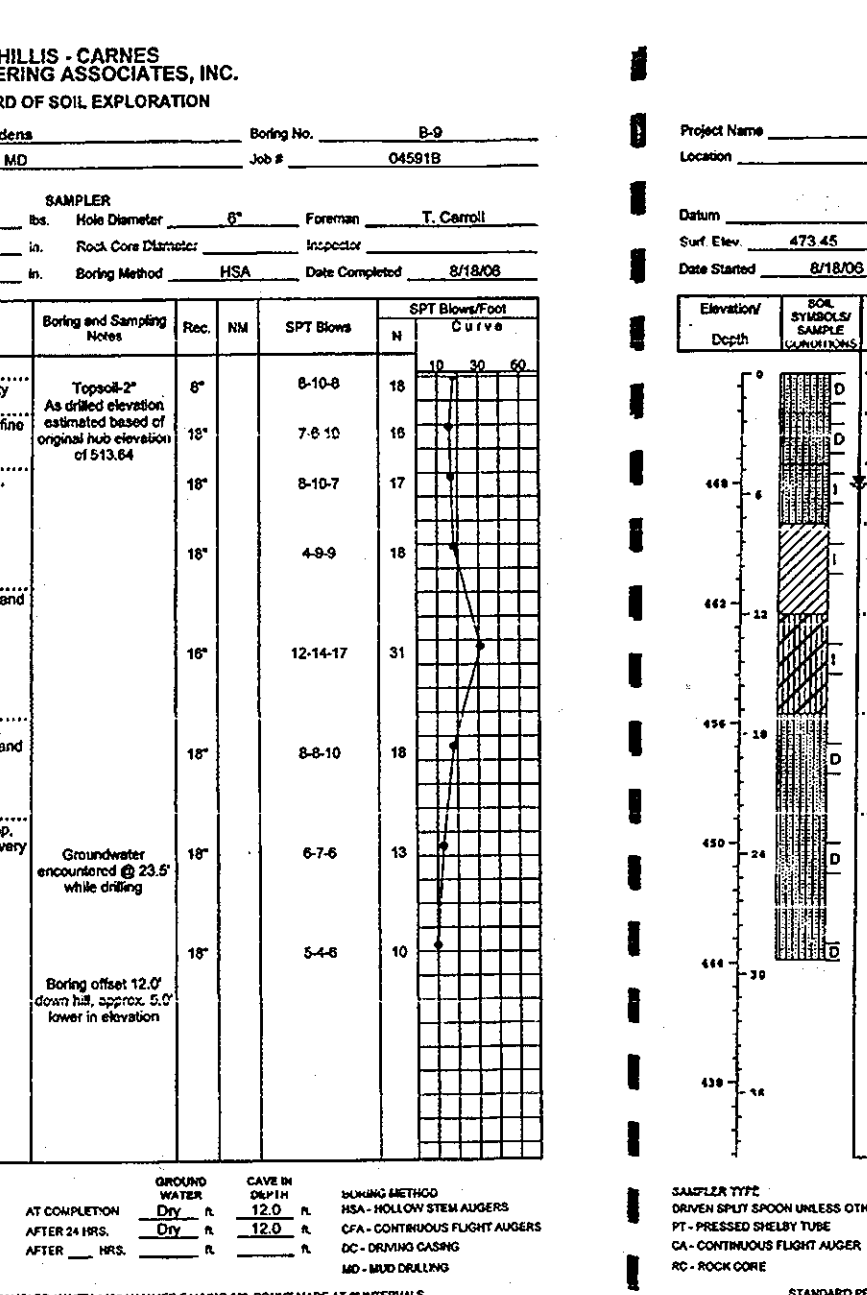
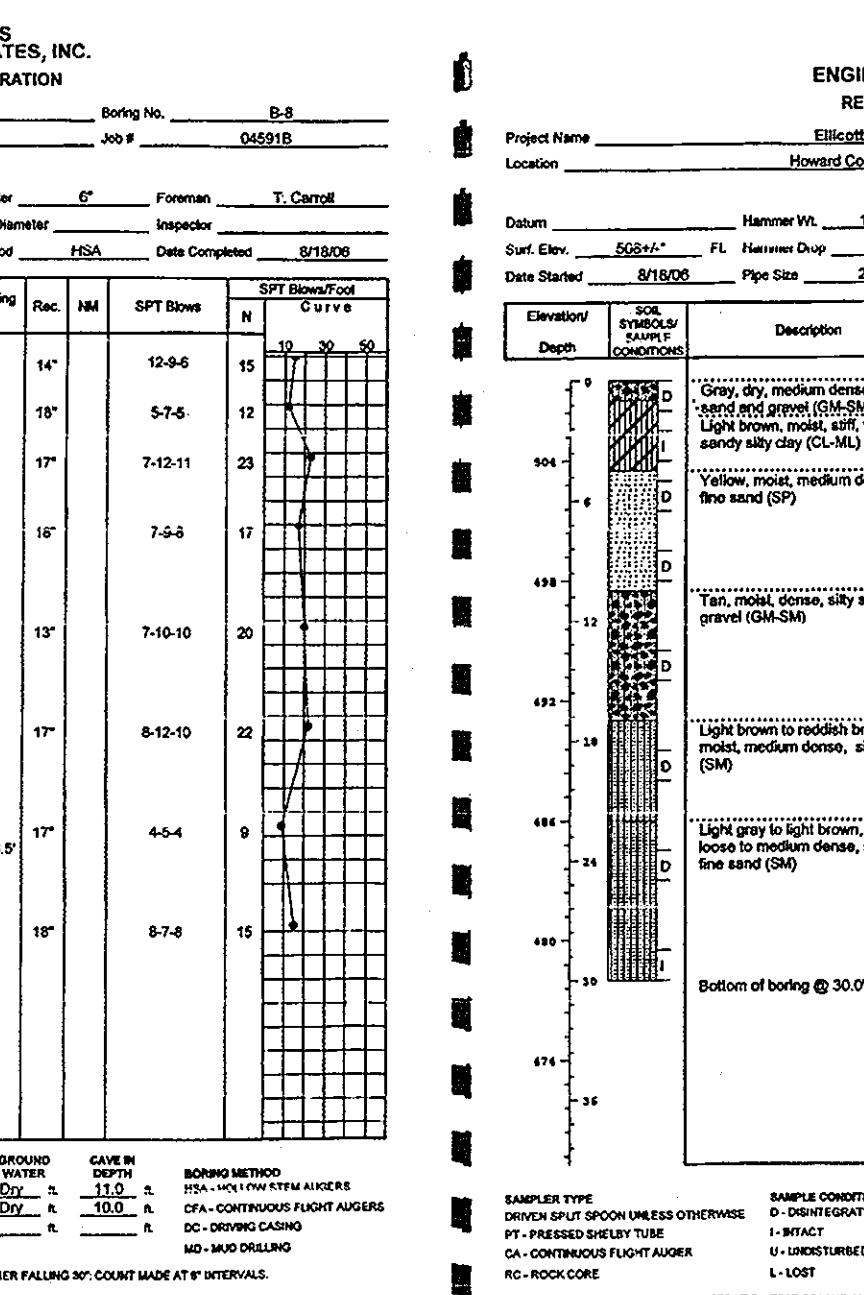
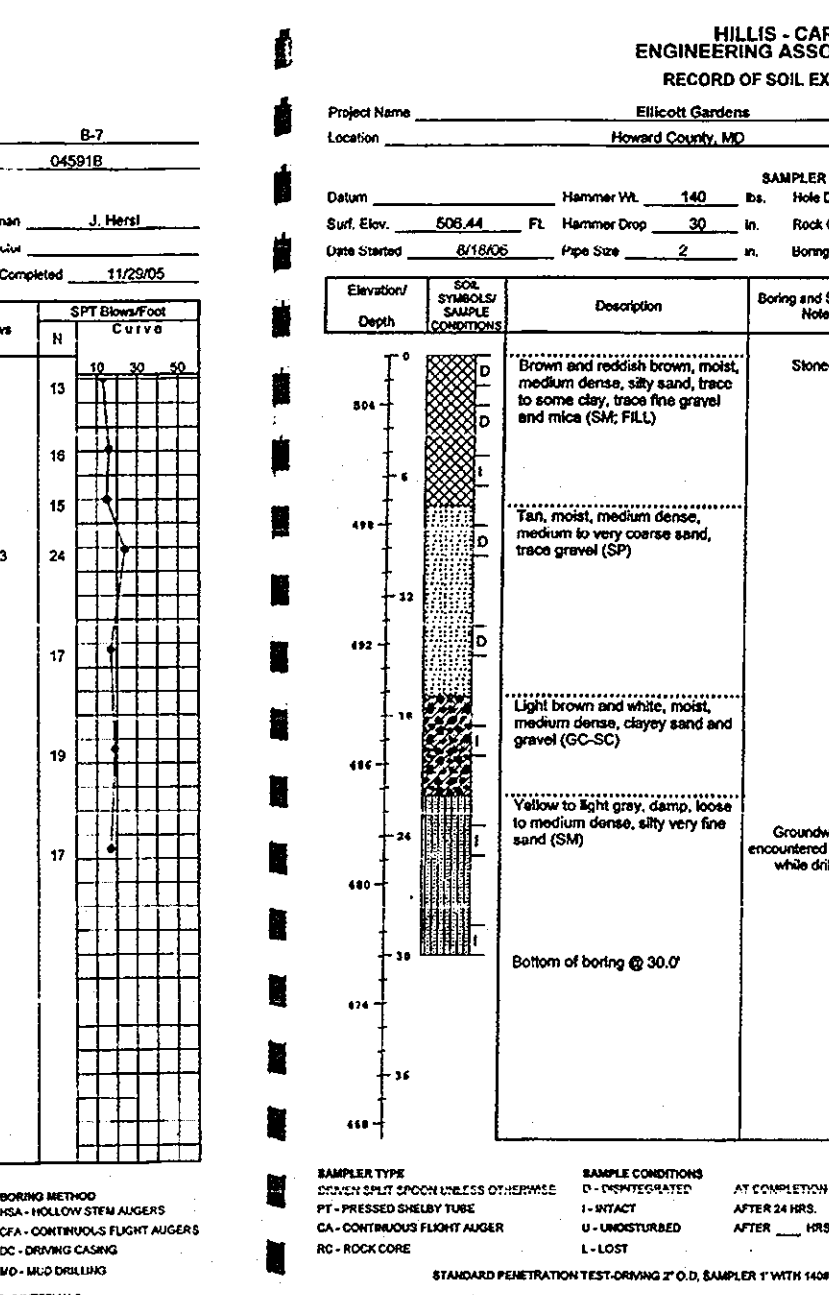
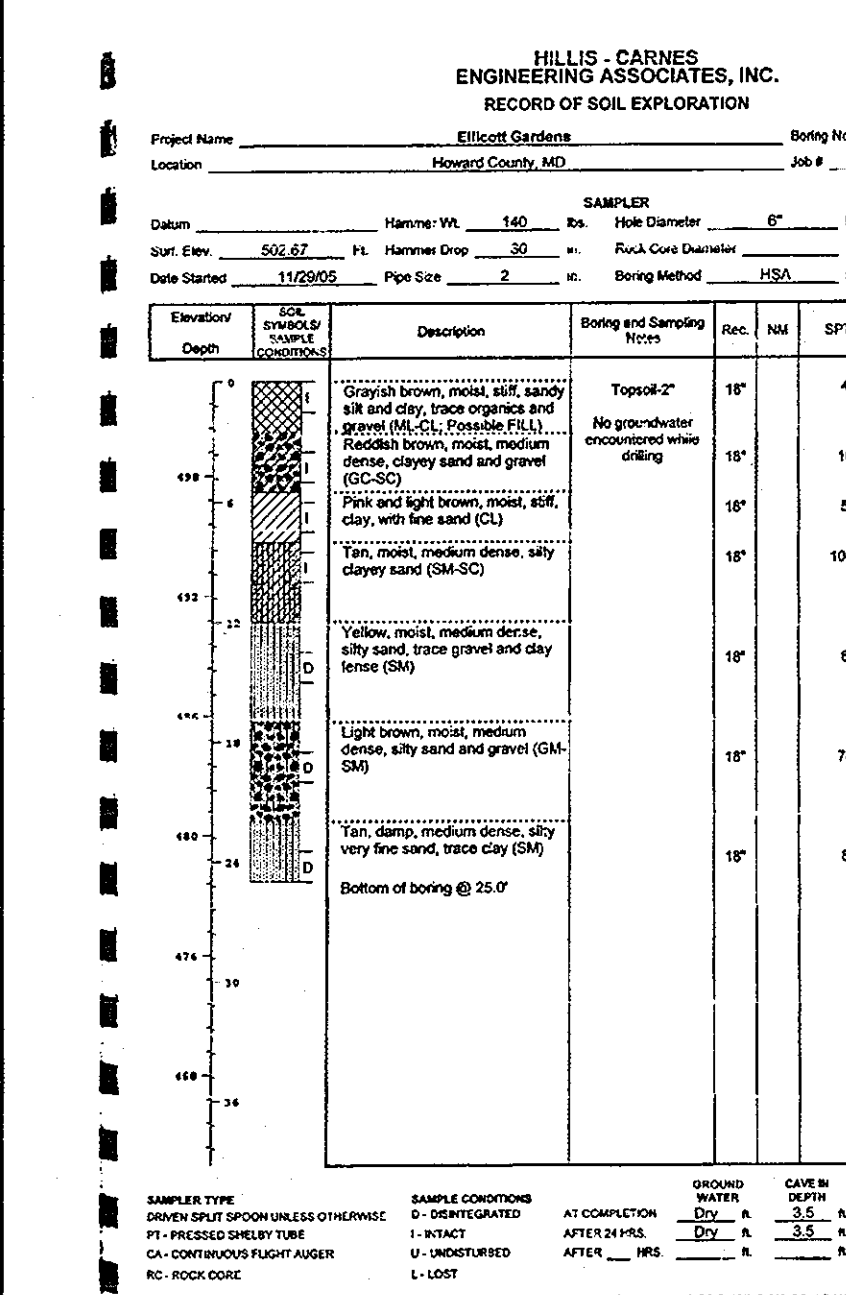


**CONSTRUCTION SPECIFICATIONS**

- SEED AND COVER WITH STRAW MULCH.
- SEED AND COVER WITH EROSION CONTROL MATTING OR LINE WITH SOG.
- 4" - 8" STONE OR RECYCLED CONCRETE EQUIVALENT PRESSED INTO THE SOIL 2" MINIMUM.

**CONSTRUCTION SPECIFICATIONS**

1. ALL DISTURBED EARTH DIKES SHALL BE UNDISTURBED POSITIVE GRADE TO AN OUTLET SPOT ELEVATION MAY BE NECESSARY FOR GRADES LESS THAN 14".
2. RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A STABILIZED CONSTRUCTION ENTRANCE OR TO AN UNDISTURBED AREA.
3. RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED AREA OR TO A STABILIZED CONSTRUCTION ENTRANCE.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS AND OTHER OBSTRUCTIVE MATERIAL SHALL BE REMOVED FROM THE DIKE AND SHALL BE PLACED TO THE FULL COURSE CONSTRUCTION OF THE DIKE.
5. THE DIKE SHALL BE CALIBRATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROBLEMS SUCH AS BANK EROSION, BURROWS, MOUNDING, OR OTHER OBSTRUCTIONS.
6. FILL SHALL BE COMPACTED BY CATER MOWER EQUIPMENT.
7. ALL EARTH REPAIRS AND NOT NECESSARY FOR CONSTRUCTION SHALL BE PLACED ON THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE DIKE.
8. INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.



Project Name	Location	Soil Exploration Log
Project Name: Hillis Carnes Engineering Associates, Inc.	Location: Howard County, MD	Soil Exploration Log
Project Name: Hillis Carnes Engineering Associates, Inc.	Location: Howard County, MD	Soil Exploration Log
Project Name: Hillis Carnes Engineering Associates, Inc.	Location: Howard County, MD	Soil Exploration Log
Project Name: Hillis Carnes Engineering Associates, Inc.	Location: Howard County, MD	Soil Exploration Log

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

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

BY THE DEVELOPER:

BY THE ENGINEER:

USDA NATIONAL RESOURCES CONSERVATION SERVICE

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

ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

HILLIS CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

OWNER: HOWARD COUNTY HOUSING COMMISSION

DEVELOPER: BENDER PROPERTY II, LLC

SEDIMENT AND EROSION CONTROL NOTES AND DETAILS

ELLIOTT GARDENS

PHASE 1 (H) (DEED: 10190/263)

TAX MAP 31 BLOCK 19 1ST ELECTION DISTRICT

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: OZ

DRAWN BY: RIV

CHECKED BY: DHV

DATE: FEBRUARY 2008

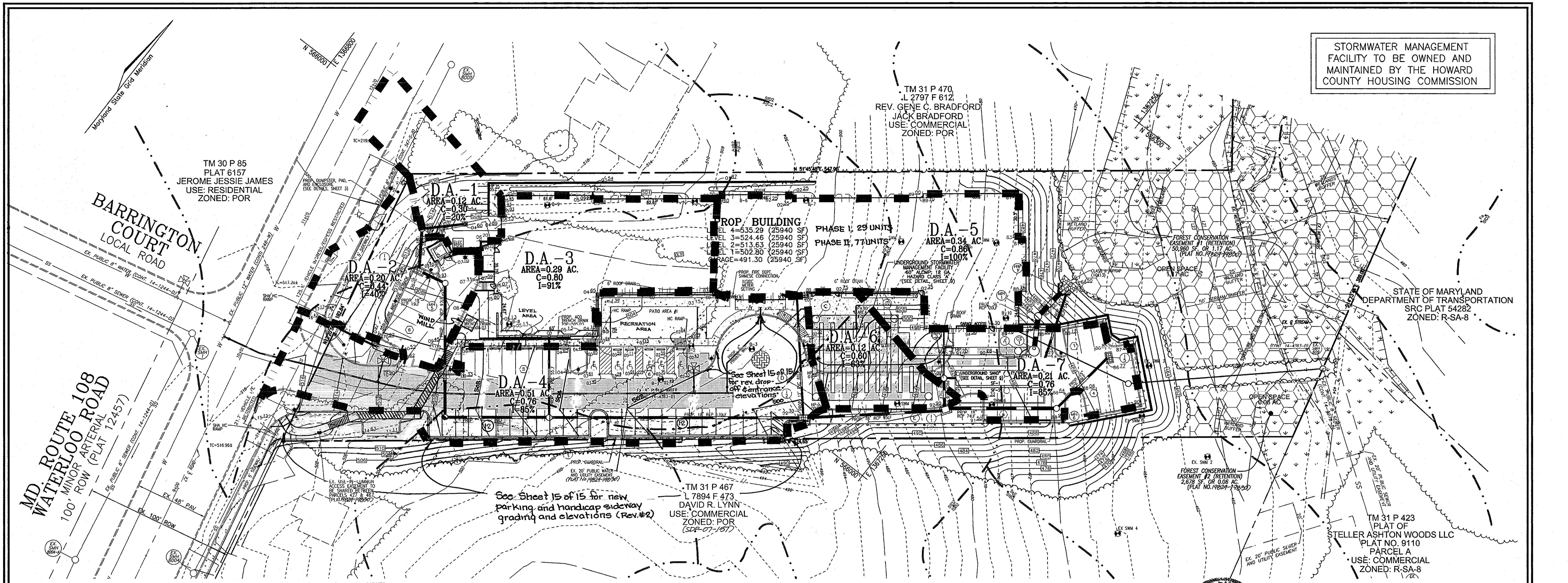
SCALE: AS SHOWN

W.O. NO.: 06-39

6 SHEET OF 15

SDP-07-038

STORMWATER MANAGEMENT FACILITY TO BE OWNED AND MAINTAINED BY THE HOWARD COUNTY HOUSING COMMISSION



STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION SRC PLAT 54282 ZONED: R-SA-8

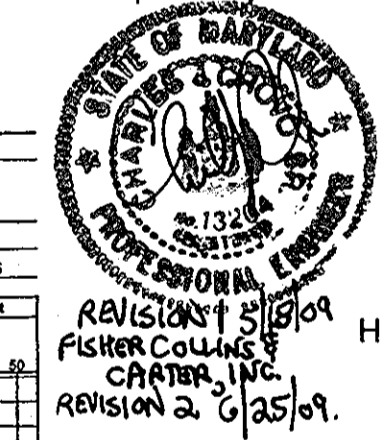
TM 31 P 423 PLAT OF STELLER ASHTON WOODS LLC PLAT NO. 9110 PARCEL A USE: COMMERCIAL ZONED: R-SA-8

TM 30 P 85 PLAT 6157 JEROME JESSIE JAMES USE: RESIDENTIAL ZONED: POR

TM 31 P 470 L 2797 F 612 REV. GENE C. BRADFORD JACK BRADFORD USE: COMMERCIAL ZONED: POR

TM 31 P 467 L 7894 F 473 DAVID R. LYNN USE: COMMERCIAL ZONED: POR

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION		HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION		HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION		HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION		HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION		HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION	
Project Name	Location	Project Name	Location	Project Name	Location	Project Name	Location	Project Name	Location	Project Name	Location
Storm Drain Drainage Area Map	Howard County, MD	Storm Drain Drainage Area Map	Howard County, MD	Storm Drain Drainage Area Map	Howard County, MD	Storm Drain Drainage Area Map	Howard County, MD	Storm Drain Drainage Area Map	Howard County, MD	Storm Drain Drainage Area Map	Howard County, MD
Hammer No. 140	Hammer No. 140	Hammer No. 140	Hammer No. 140	Hammer No. 140	Hammer No. 140	Hammer No. 140	Hammer No. 140	Hammer No. 140	Hammer No. 140	Hammer No. 140	Hammer No. 140
Surf Elev. 503.01	Surf Elev. 503.01	Surf Elev. 499.67	Surf Elev. 499.67	Surf Elev. 499.67	Surf Elev. 499.67	Surf Elev. 499.67	Surf Elev. 499.67	Surf Elev. 499.67	Surf Elev. 499.67	Surf Elev. 499.67	Surf Elev. 499.67
Date Started 11/29/05	Date Started 11/29/05	Date Started 11/29/05	Date Started 11/29/05	Date Started 11/29/05	Date Started 11/29/05	Date Started 11/29/05	Date Started 11/29/05	Date Started 11/29/05	Date Started 11/29/05	Date Started 11/29/05	Date Started 11/29/05
Inspector J. Hest	Inspector J. Hest	Inspector J. Hest	Inspector J. Hest	Inspector J. Hest	Inspector J. Hest	Inspector J. Hest	Inspector J. Hest	Inspector J. Hest	Inspector J. Hest	Inspector J. Hest	Inspector J. Hest
Soil Description	Soil Description	Soil Description	Soil Description	Soil Description	Soil Description	Soil Description	Soil Description	Soil Description	Soil Description	Soil Description	Soil Description
Reddish brown, moist, medium dense, silty clay sand, trace iron stone fragments and mica (SM-SC)	Reddish brown, moist, medium dense, silty clay sand, trace iron stone fragments and mica (SM-SC)	Grayish brown, moist, loose, silty sand, trace rock fragments and organics (SM)	Light brown, moist, medium dense, silty sand, trace mica (SM)	Light brown, moist, medium dense, silty sand, trace mica (SM)	Light brown, moist, medium dense, silty sand, trace mica (SM)	Light brown, moist, medium dense, silty sand, trace mica (SM)	Light brown, moist, medium dense, silty sand, trace mica (SM)	Light brown, moist, medium dense, silty sand, trace mica (SM)	Light brown, moist, medium dense, silty sand, trace mica (SM)	Light brown, moist, medium dense, silty sand, trace mica (SM)	Light brown, moist, medium dense, silty sand, trace mica (SM)
15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'
17-10-13	17-10-13	7-0-6	7-0-6	9-0-0	9-0-0	10-0-7	10-0-7	7-0-6	7-0-6	7-0-6	7-0-6
8-0-8	8-0-8	8-11-10	8-11-10	8-11-10	8-11-10	8-11-10	8-11-10	8-11-10	8-11-10	8-11-10	8-11-10
6-0-10	6-0-10	6-0-12	6-0-12	6-0-12	6-0-12	6-0-12	6-0-12	6-0-12	6-0-12	6-0-12	6-0-12
7-10-11	7-10-11										
7-10-11	7-10-11										
Bottom of boring @ 25.0'	Bottom of boring @ 25.0'	Bottom of boring @ 25.0'	Bottom of boring @ 25.0'	Bottom of boring @ 25.0'	Bottom of boring @ 25.0'	Bottom of boring @ 25.0'	Bottom of boring @ 25.0'	Bottom of boring @ 25.0'	Bottom of boring @ 25.0'	Bottom of boring @ 25.0'	Bottom of boring @ 25.0'



NOTE: FOR WETLAND BUFFER METES AND BOUNDS, SEE CHART ON SHEET 5.

OWNER: HOWARD COUNTY HOUSING COMMISSION  
 DEVELOPER: BENDER PROPERTY II, LLC

NO.	REVISION	DATE
2	Rev. Parking along SW property line to add additional spaces, rev handicap ramp per as-built conditions at the Md. Rte 108 entrance by F.C.C. Inc.	6-25-09
1	Remove sidewalk handicapped sidewalk 4 add Wind Mill loc. remove sidewalk to reflect new handicapped accessible sidewalk & revise sheet no. to reflect added sheet by F.C.C. Inc.	5-10-09

**SITE DEVELOPMENT PLAN**  
**STORM DRAIN DRAINAGE AREA MAP**  
**ELLICOTT GARDENS**  
 PHASE 1B  
 TAX MAP 31 BLOCK 19 (DEED: 10190263) PARCEL A (PARCEL 427)  
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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

**PROFESSIONAL CERTIFICATE**

DESIGN BY: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 CHECKED BY: RHV  
 DATE: FEBRUARY 2008  
 SCALE: 1"=30'  
 W.O. NO.: 06-39

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. MY LICENSE NO. IS 1618193. EXPIRATION DATE: 08-27-2008

7 SHEET OF 15

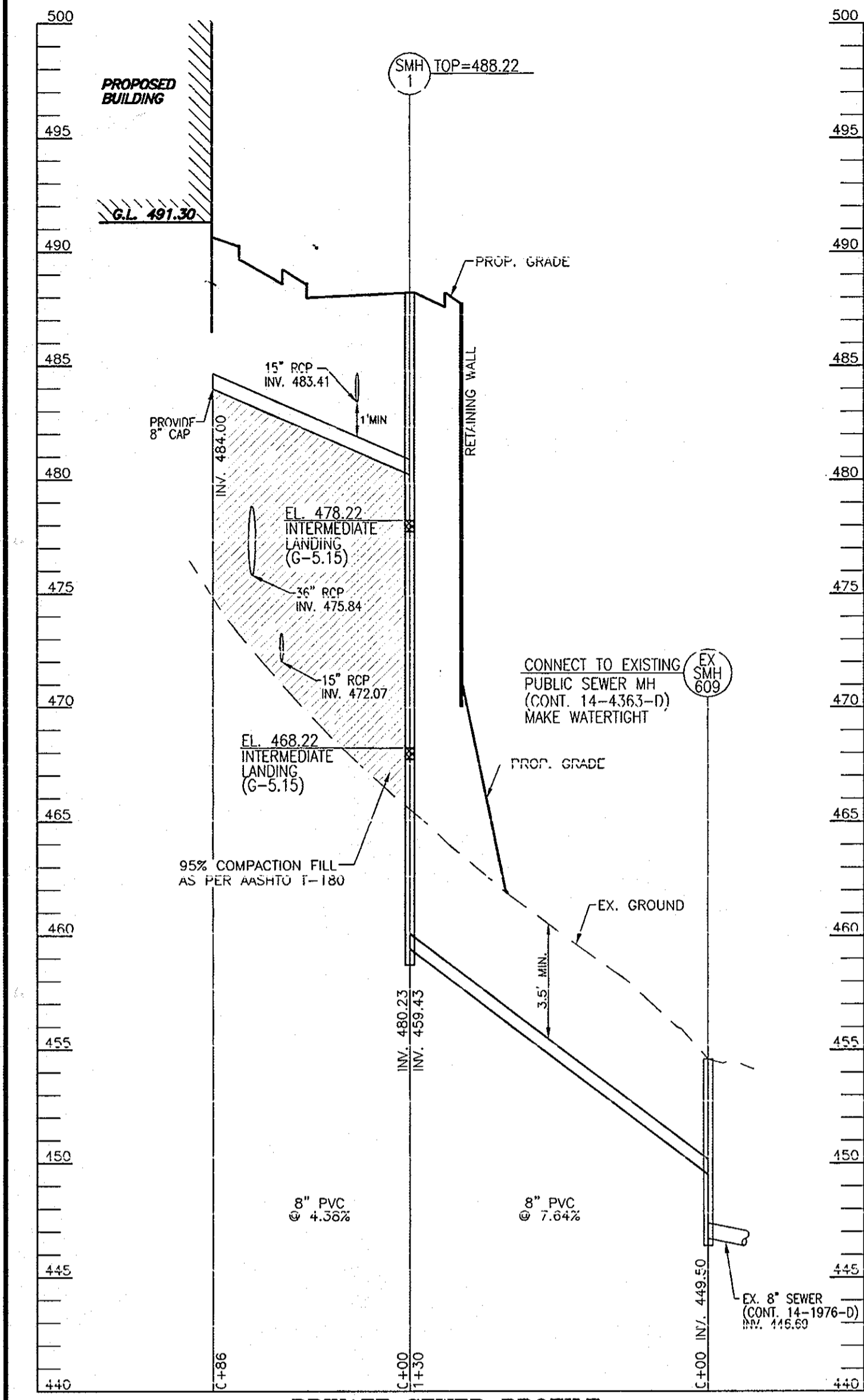
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* 3/4/08  
 CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* 4/24/08  
 DIRECTOR: *[Signature]* 4/24/08

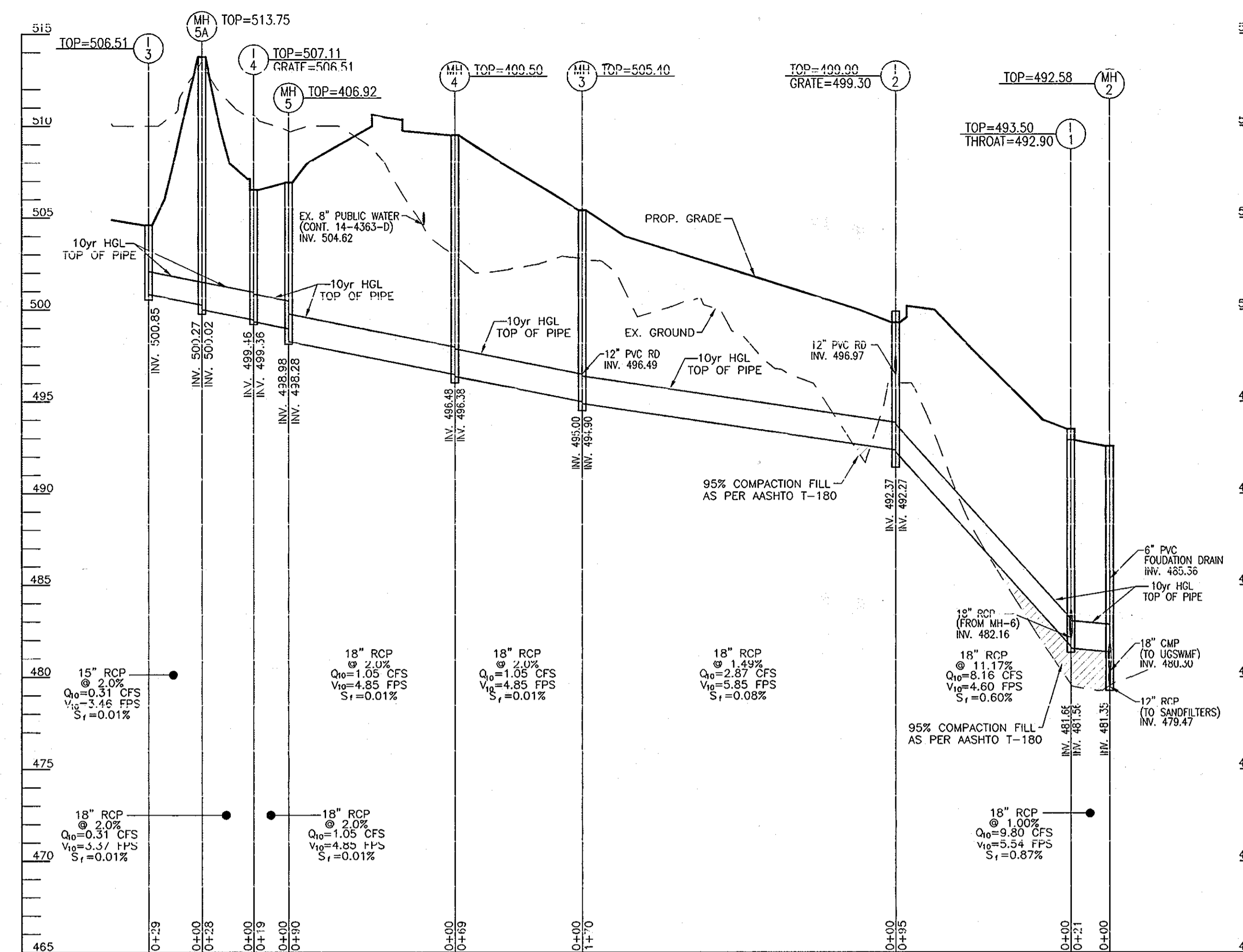
**SOILS LEGEND**

SYMBOL	NAME / DESCRIPTION	GROUP
AgB2	AURA GRAVELLY LOAM 1 TO 5 % SLOPES, MODERATELY ERODED	B
AgC2	AURA GRAVELLY LOAM 5 TO 10 % SLOPES, MODERATELY ERODED	B
BeC2	BELTSVILLE SILT LOAM, 5 TO 10 % SLOPES, MODERATELY ERODED	C
Fo	FALLSINGTON LOAM	B
S1C2	SASSAFRAS LOAM, 5 TO 10 % SLOPES, MODERATELY ERODED	B
S1D2	SASSAFRAS GRAVELLY SANDY LOAM, 10 TO 15 % SLOPES, MODERATELY ERODED	B
SsE	SASSAFRAS SOILS, 15 TO 40 % SLOPES	B

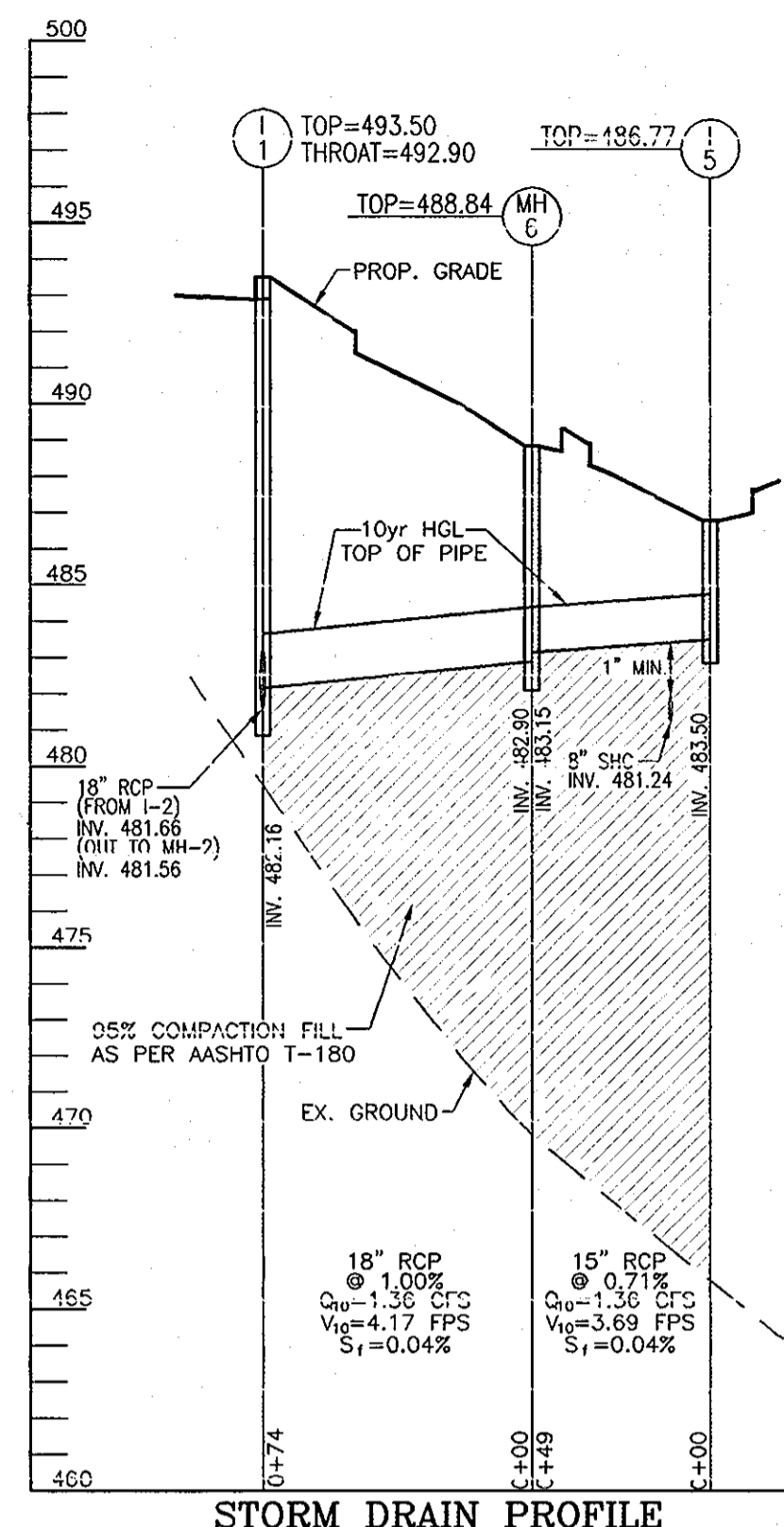
NOTE: BASED ON HOWARD SOIL SURVEY



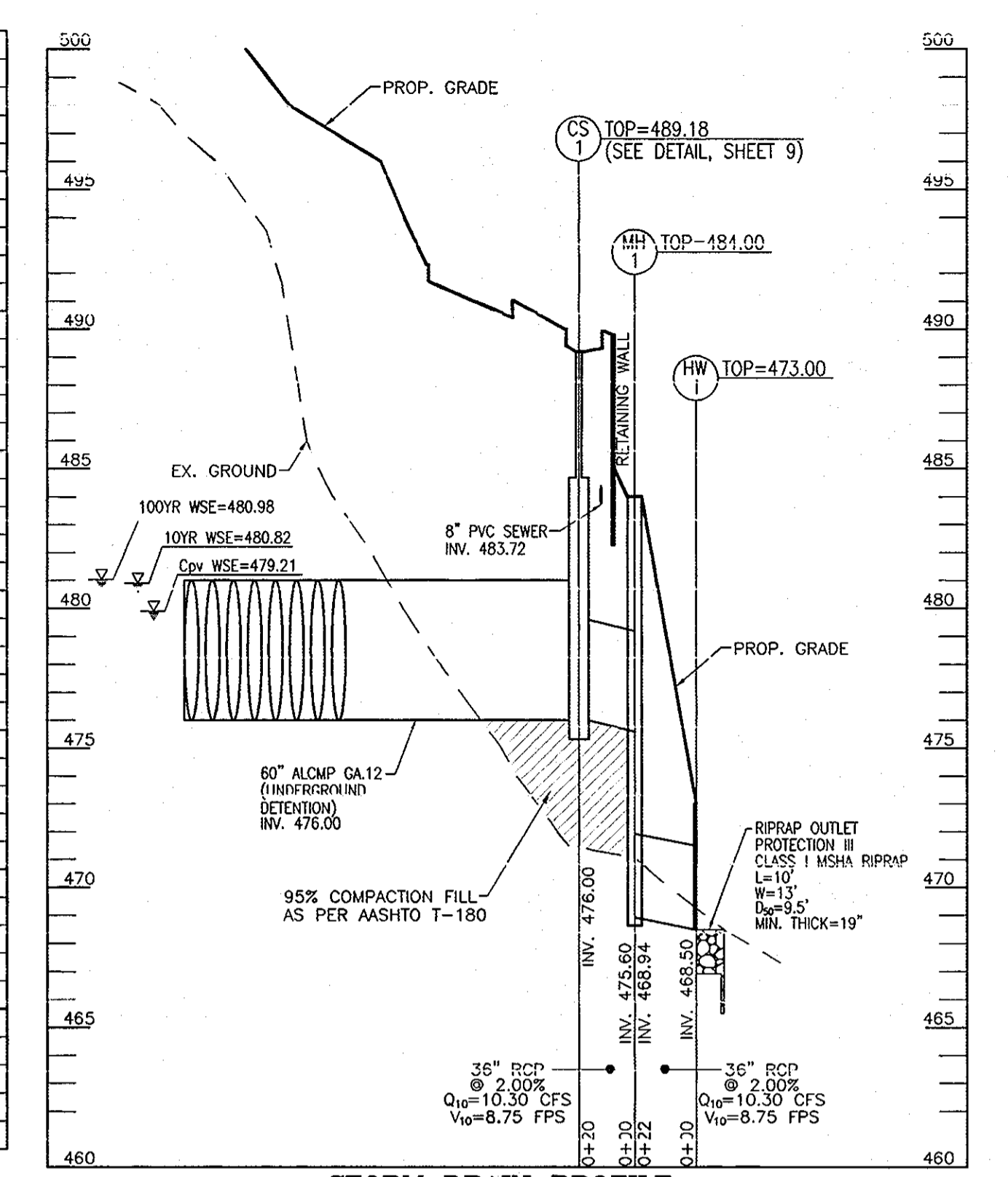
**PRIVATE SEWER PROFILE**  
SCALE: HORIZONTAL - 1"=50'  
VERTICAL - 1"=5'



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



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



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

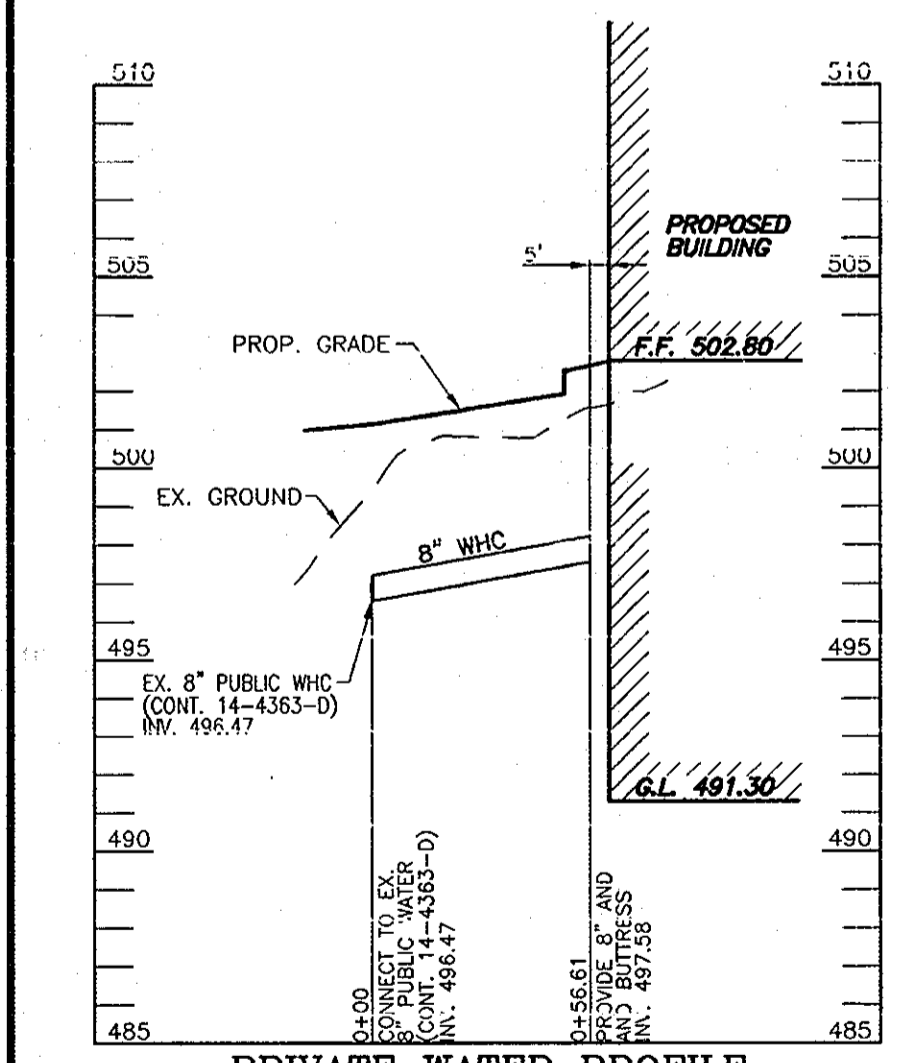
**PIPE SCHEDULE**

SIZE	TYPE	LENGTH
6"	WHC	57 LF
6"	PVC SEWER	215 LF
8"	PVC SEWER	216 LF
6"	PVC	33 LF
12"	PVC	136 LF
18"	CMP	8 LF
12"	RCP	6 LF
15"	RCP	127 LF
18"	RCP	476 LF
36"	RCP	42 LF
60"	ALCMP	660 LF

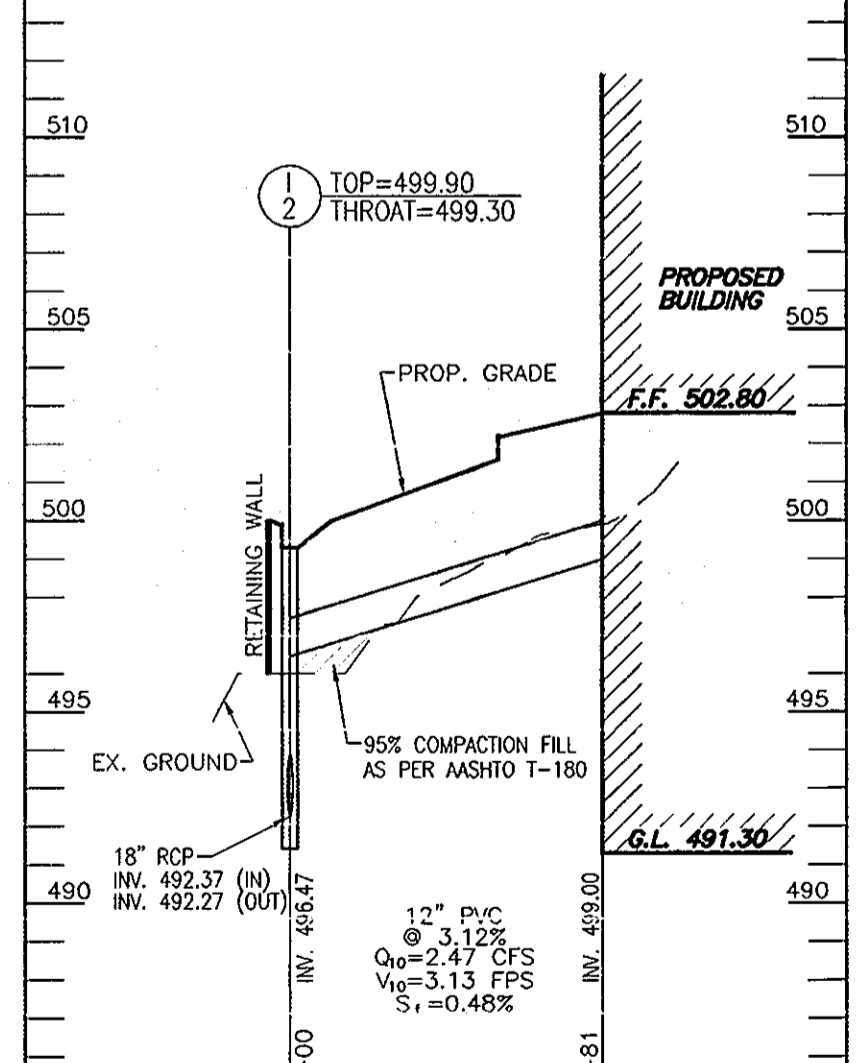
**STRUCTURE SCHEDULE**

NO.	TYPE	LOCATION	TOP ELEV.	GRATE/THROAT ELEV.	INV. IN	INV. OUT	COMMENTS
1-1	TYPE 'A-5' INLET	N 566089 E 1367266	493.50	492.90	481.18	481.56	HO. CO. STD SD-4.01
1-2	DDL TYPE 'S' COMB. INLET	N 566000 E 1367195	499.90	499.30	481.69	482.27	110. CO. STD SD-4.34
1-3	YARD INLET	N 565970 E 1366937	506.51	-	500.85	-	HO. CO. STD SD-4.14
1-4	DDL TYPE 'S' COMB. INLET	N 565926 E 1366932	507.11	506.51	499.46	499.36	HO. CO. STD SD-4.34
1-5	DDL TYPE 'S' INLET	N 566164 E 1367331	486.77	-	483.50	-	HO. CO. STD SD-4.23
MH-1	STD 5'-0" MANHOLE	N 566156 E 1367331	486.77	-	475.60	468.94	HO. CO. STD. G-5.13
MH-2	STD 4'-0" MANHOLE	N 566085 E 1367253	492.58	-	481.38	479.37	HO. CO. STD. G-5.12
MH-3	STD 4'-0" MANHOLE	N 565902 E 1367061	505.40	-	485.00	494.90	HO. CO. STD. G-5.12
MH-4	STD 4'-0" MANHOLE	N 565959 E 1367006	409.50	-	496.48	496.38	HO. CO. STD. G-5.12
MH-5	STD 4'-0" MANHOLE	N 566030 E 1366651	406.97	-	498.98	498.78	HO. CO. STD. G-5.12
MH-5A	STD 4'-0" MANHOLE	N 565950 E 1366916	513.75	-	500.27	500.02	HO. CO. STD SD-5.12
MH-6	STD 4'-0" MANHOLE	N 566115 E 1367324	488.84	-	483.15	482.90	HO. CO. STD SD-5.12
HW-1	TYPE 'A' HEADWALL	N 566178 E 1367279	473.00	-	468.50	-	HO. CO. STD SD-5.11
CS-1	84" DIAM PRECAST MANHOLE	N 566136 E 1367289	489.18	-	476.00	476.00	MD 384.07(DETAIL SHT 9)
SMH-1	STD 4'-0" MANHOLE	N 566158 E 1367352	488.22	-	480.23	459.43	HO. CO. STD. G-5.12

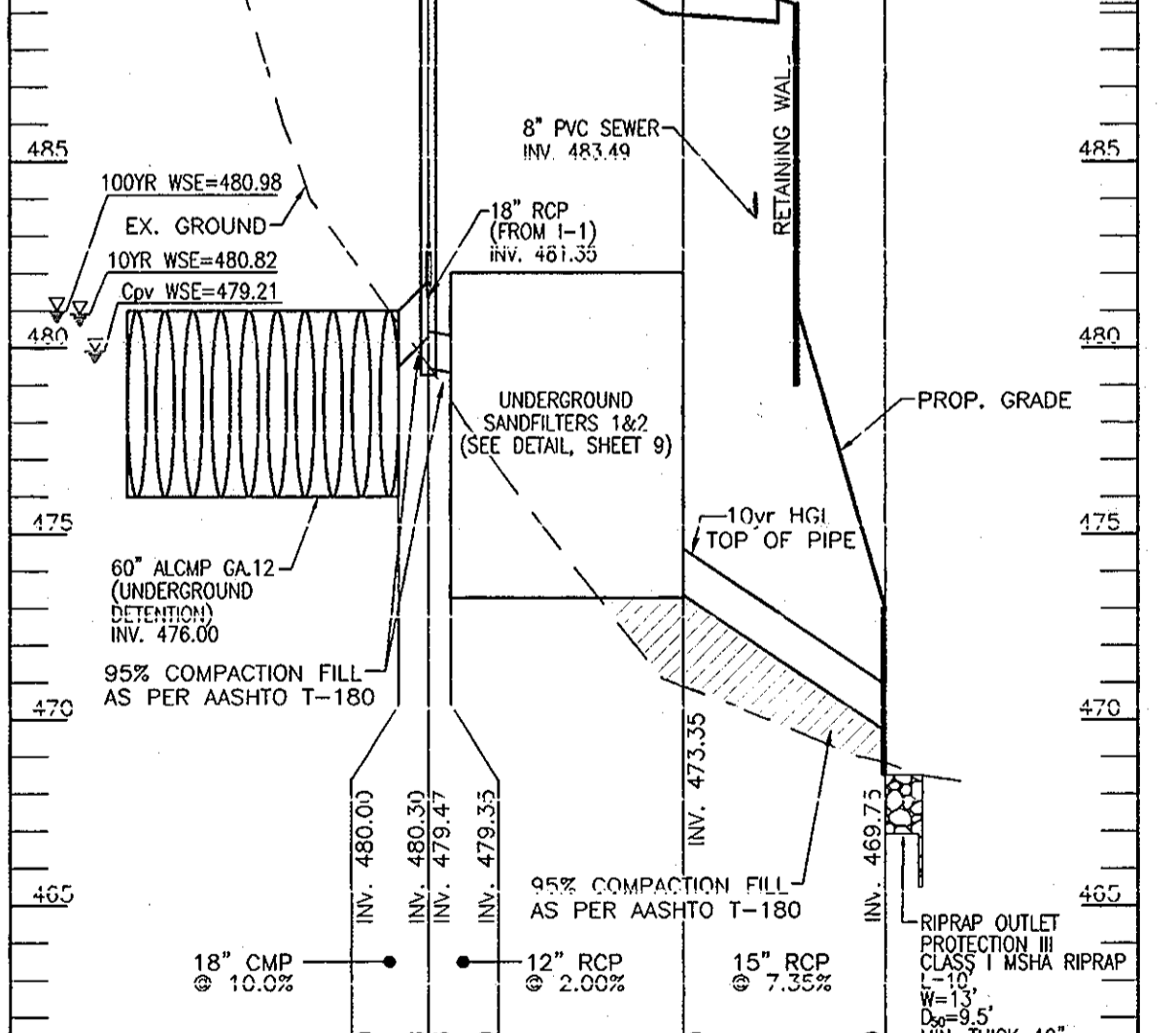
NOTE: 1. TOP ELEVATIONS ARE AT CENTER TOP OF HEADPIPE FOR TYPE 'A-5', 'A-10', AND DOUBLE TYPE 'S' COMB. INLETS; TOP ELEVATIONS ARE AT CENTER TOP OF MANHOLE COVER.  
2. FOR TOP CLAD GLOUCESTER GRADING PLAN.  
3. SEE ARCHITECTURAL PLANS FOR ROOF DRAIN DETAILS.  
4. ALL CUSTOM AND NON-STANDARD STRUCTURES TO BE DESIGNED BY A QUALIFIED STRUCTURAL ENGINEER.  
5. DETAIL FOR DOUBLE TYPE 'S' COMB. INLET (1-2) IS ON SHEET 9.



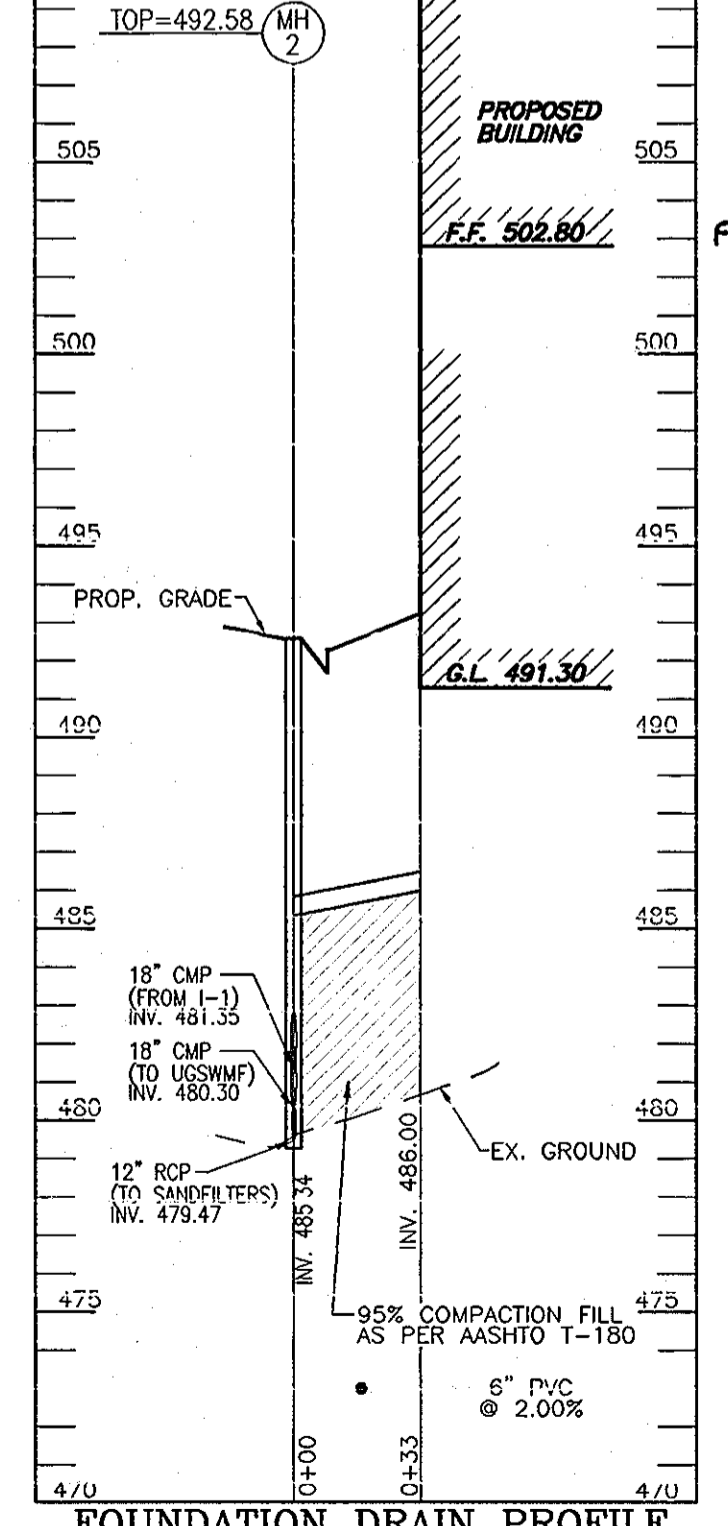
**PRIVATE WATER PROFILE**  
SCALE: HORIZONTAL - 1"=50'  
VERTICAL - 1"=5'



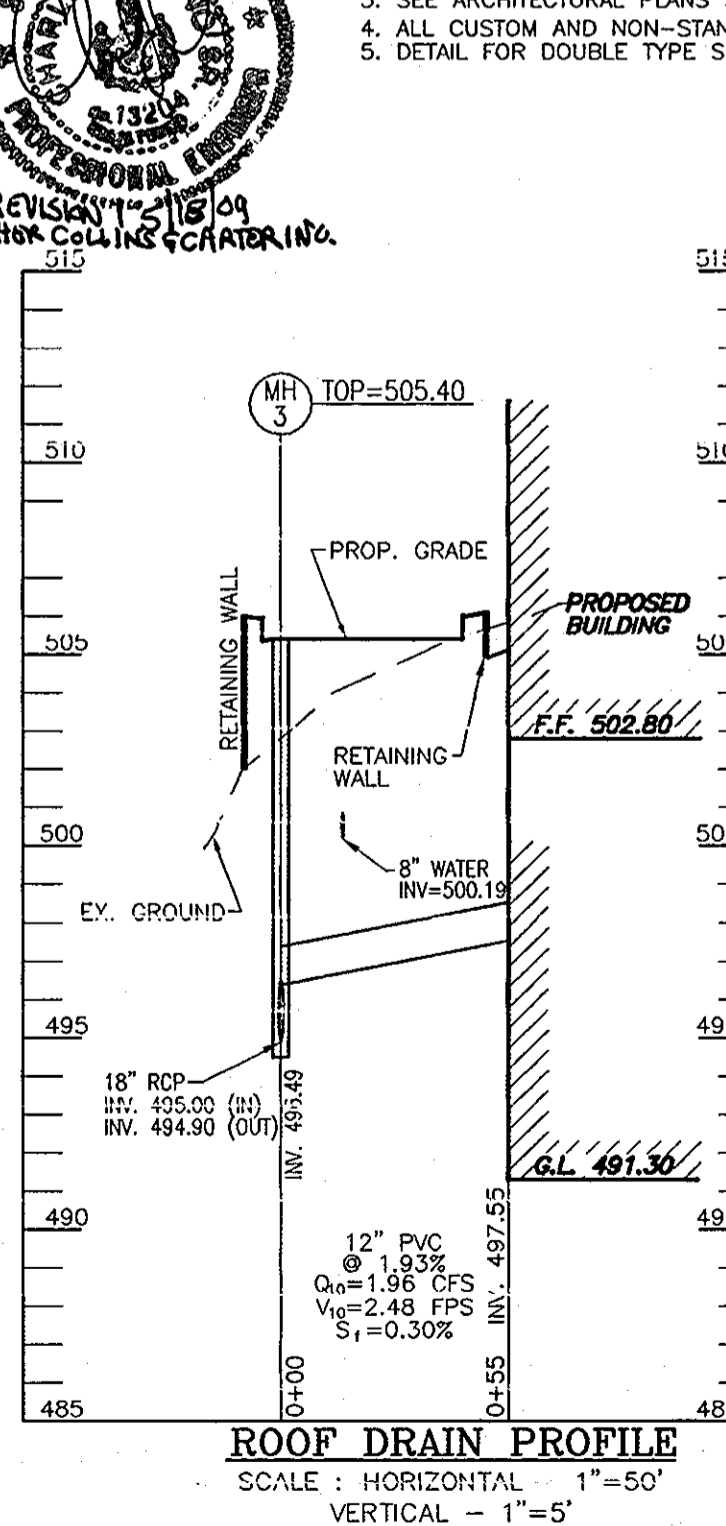
**ROOF DRAIN PROFILE**  
SCALE: HORIZONTAL - 1"=50'  
VERTICAL - 1"=5'



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



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



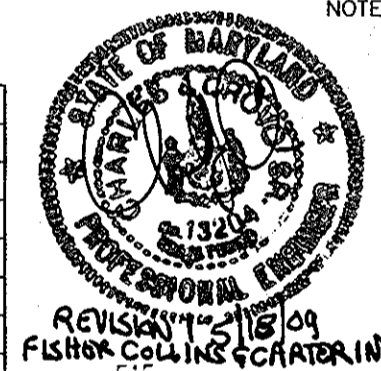
**ROOF DRAIN PROFILE**  
SCALE: HORIZONTAL - 1"=50'  
VERTICAL - 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division  
 Chief, Division of Land Development  
 Director

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.  
 BY THE DEVELOPER:  
 USDA-NATURAL RESOURCES CONSERVATION SERVICE  
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

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.

HOWARD S.C.D. DATE  
 SIGNATURE OF DEVELOPER DATE  
 SIGNATURE OF ENGINEER DATE



OWNER: HOWARD COUNTY HOUSING COMMISSION  
 DEVELOPER: BENDER PROPERTY II, LLC  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21064  
 410-730-3725

Revise sheet no. to reflect added sheet by FCC, Inc. B-18-09

**SITE DEVELOPMENT PLAN**  
**UTILITY PROFILES**  
**ELLICOTT GARDENS**  
 PHASE 4B  
 TAX MAP 31 BLOCK 19 (DEED: 10190263) PARCEL A (PARCEL 427)  
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

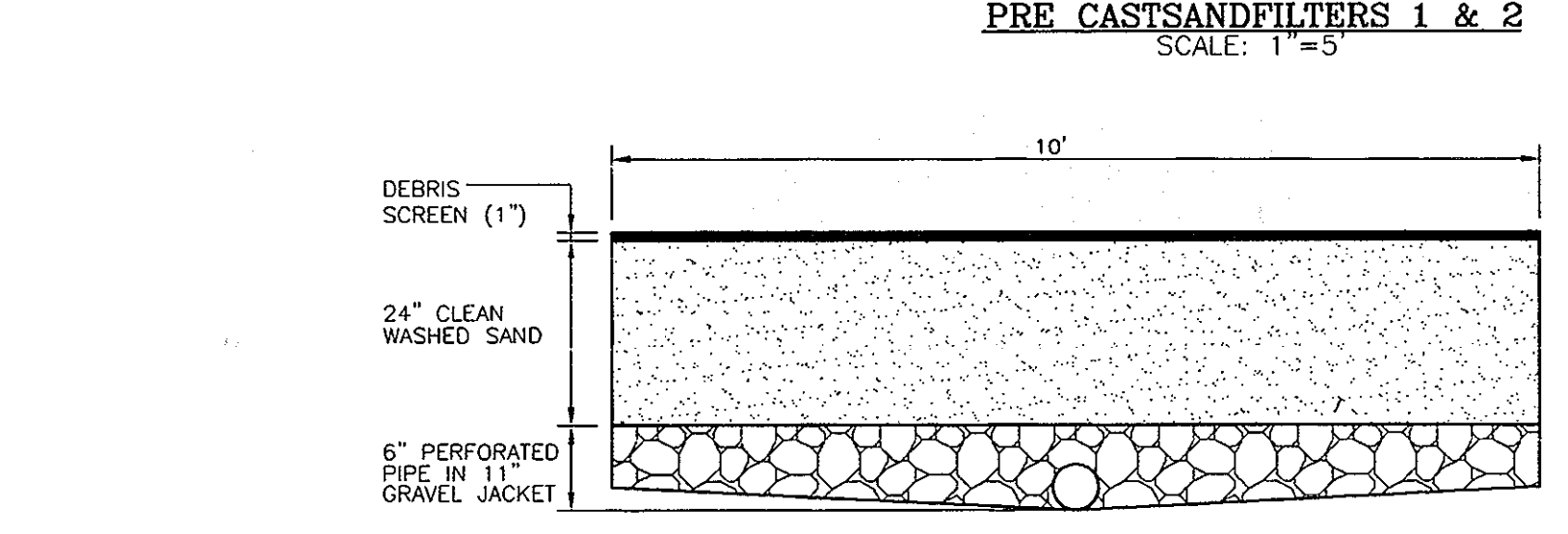
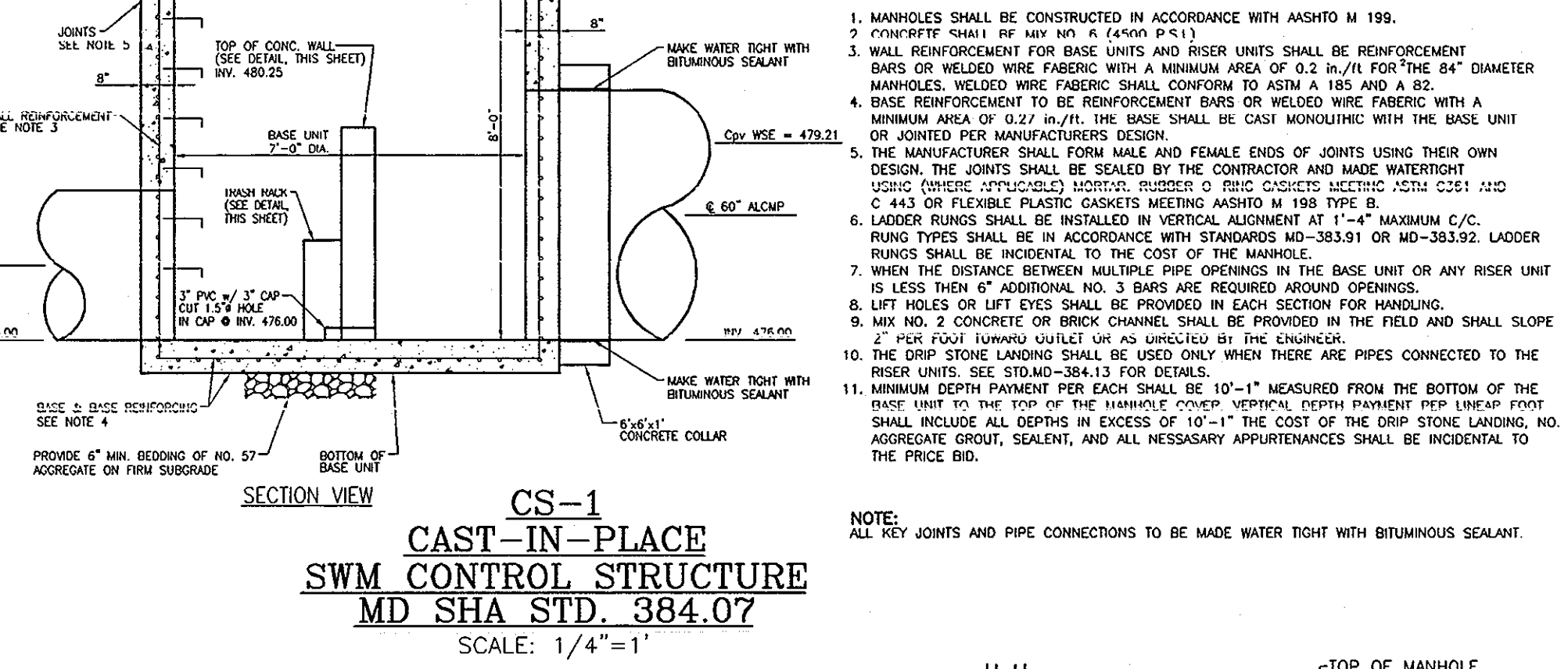
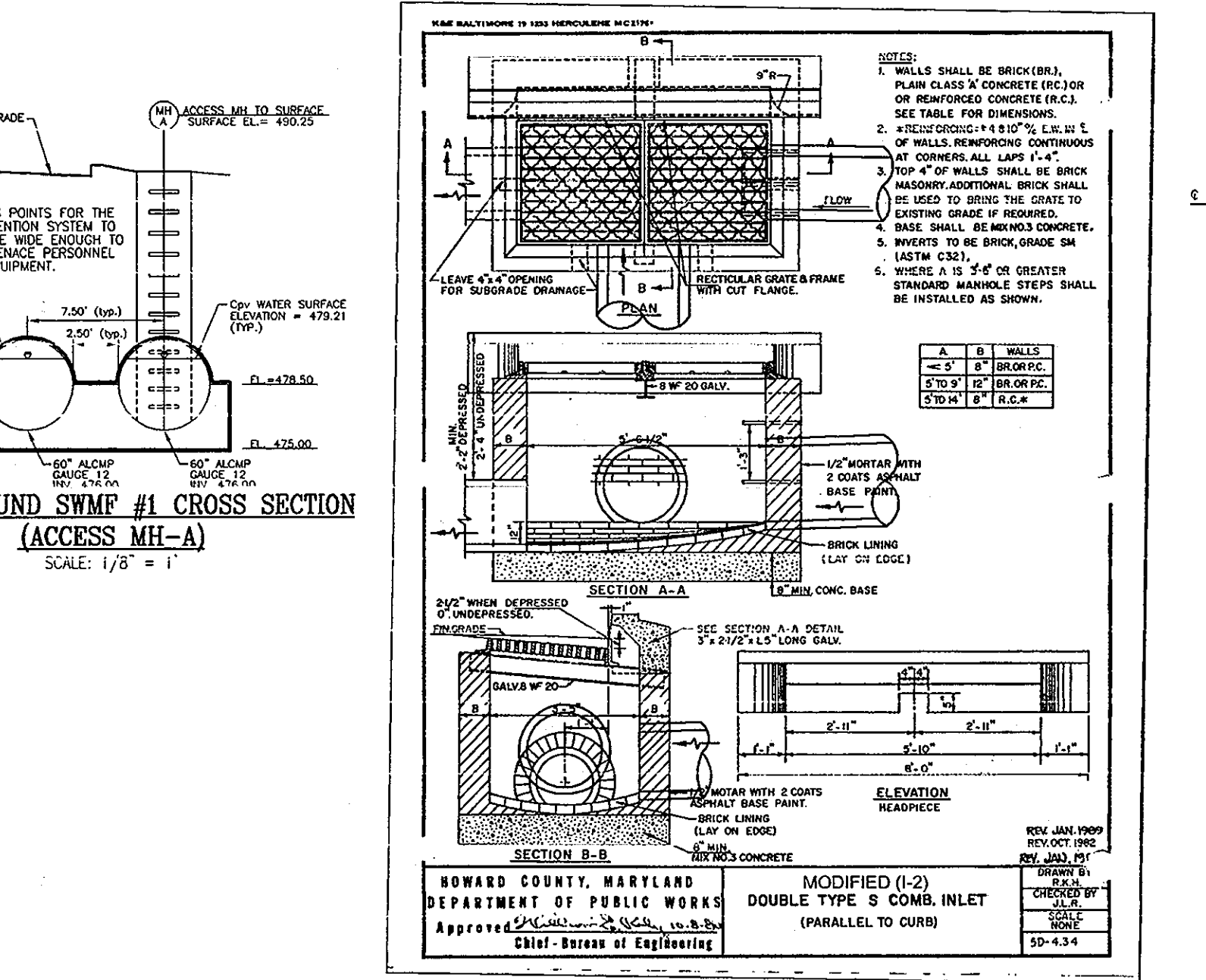
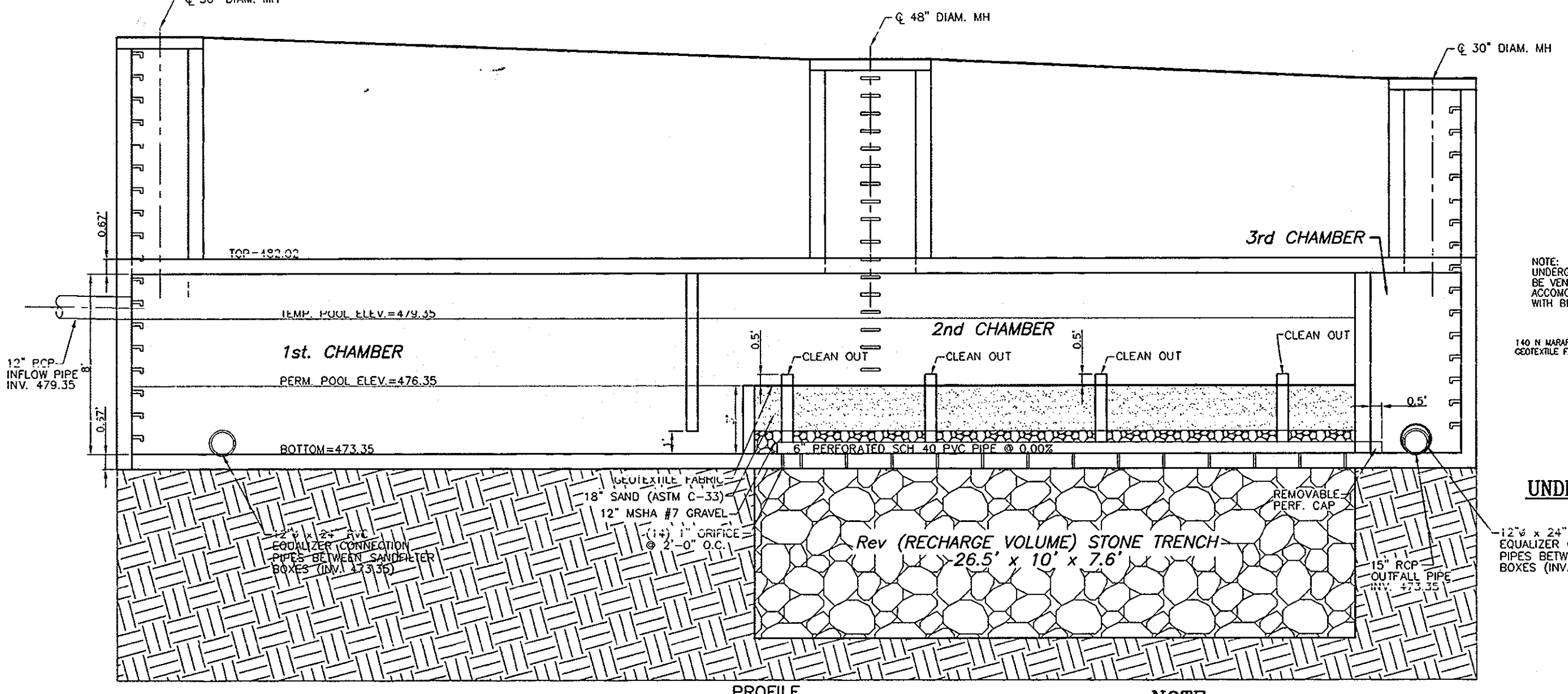
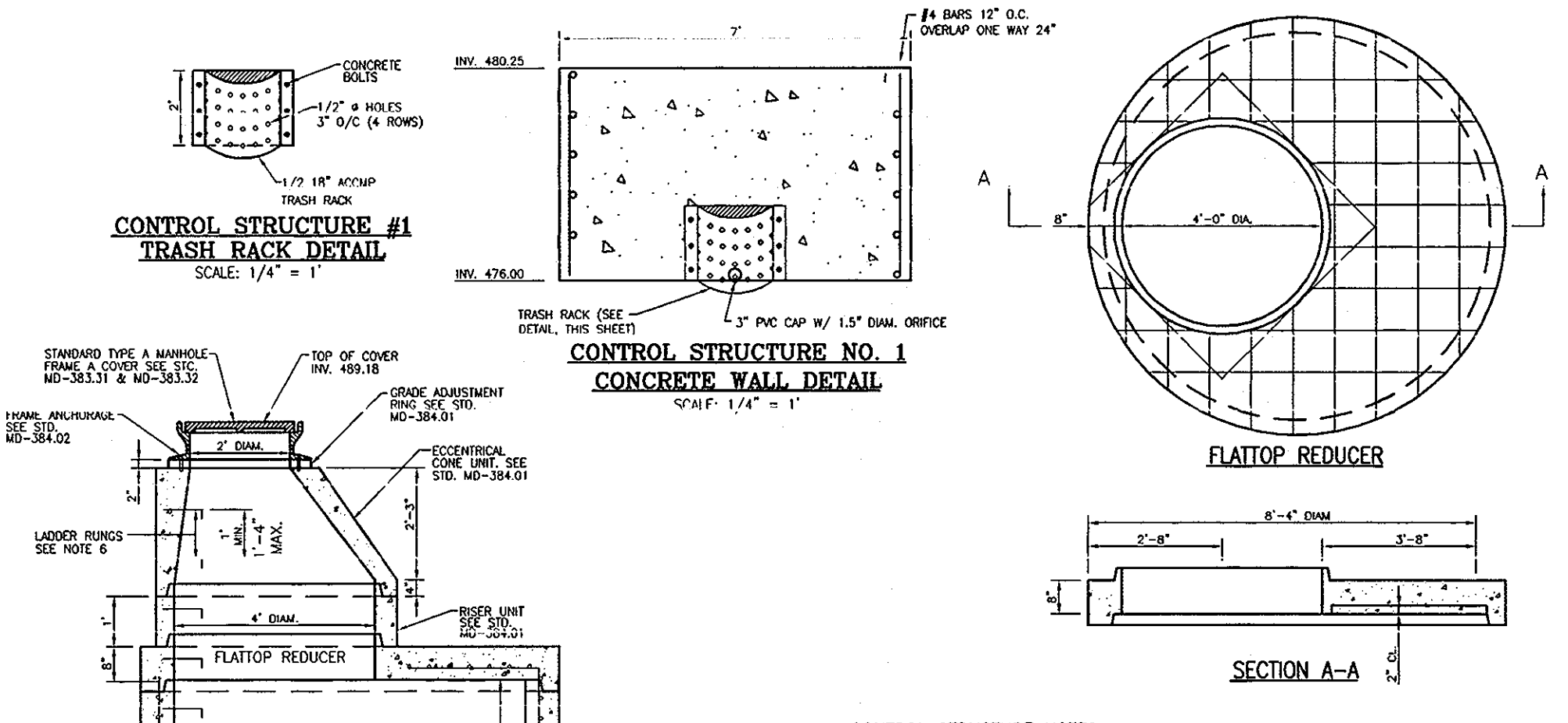
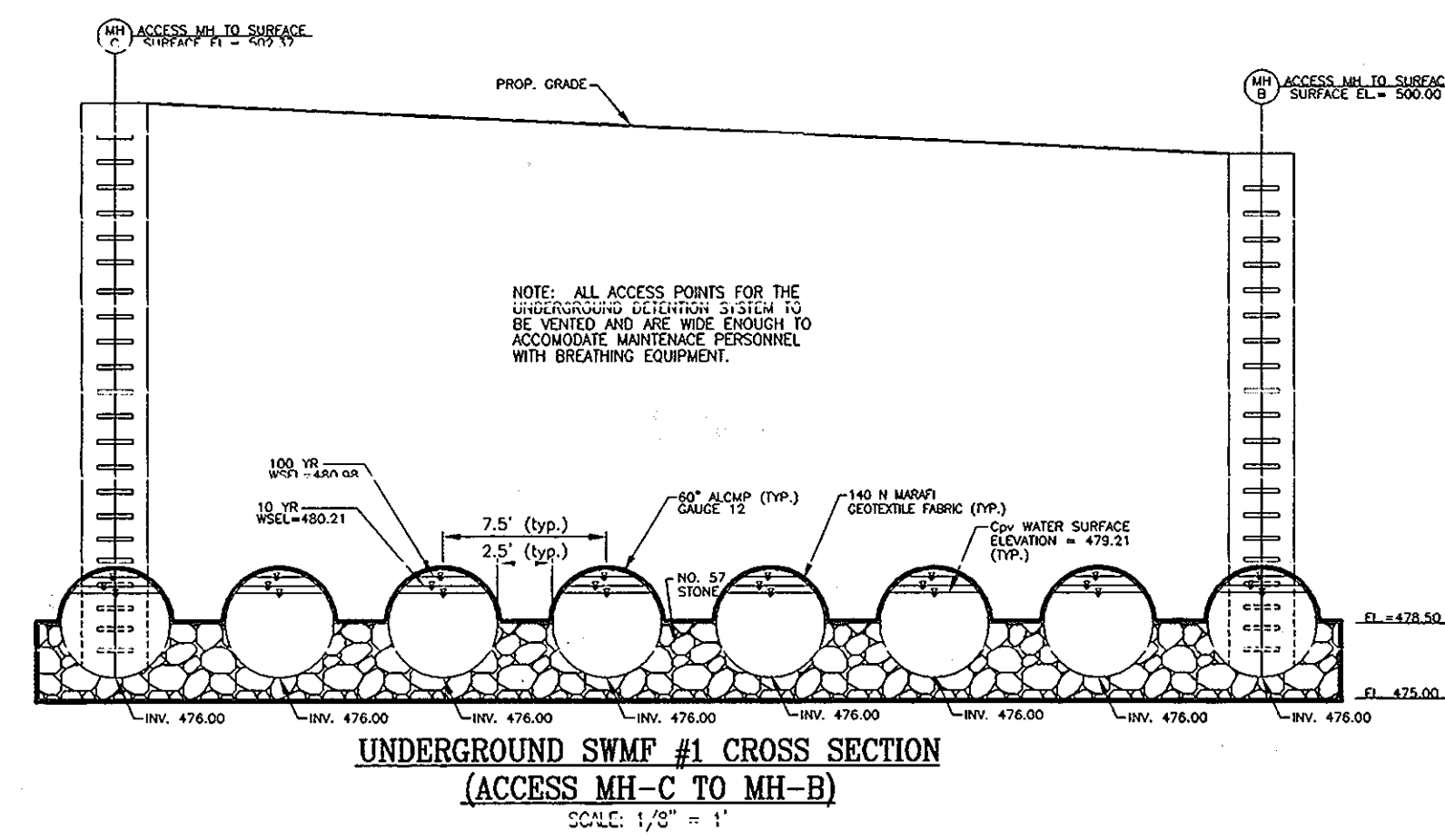
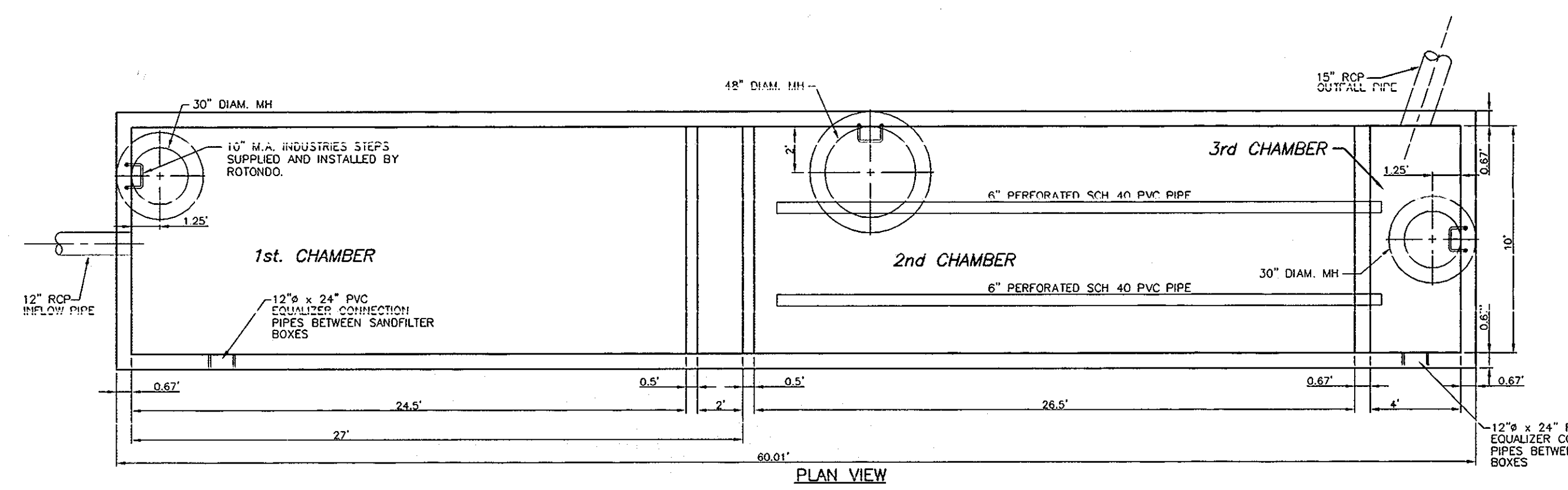
**ROBERT H. VOGEL ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 8407 MAIN STREET TEL: 410.461.7666  
 ELICOTT CITY, MD 21043 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE  
 DESIGN BY: DZ  
 DRAWN BY: DZ  
 CHECKED BY: RHV  
 DATE: FEBRUARY 2008  
 SCALE: 1"=50'  
 W.O. NO.: 06-39

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRATION DATE: 09-27-2008

8 SHEET OF 15





NOTE: PRE-CAST SANDFILTERS MUST BE ENGINEERED AND CERTIFIED PRIOR TO CONSTRUCTION

**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND FACILITIES**

A. THE UNDERGROUND STORMWATER MANAGEMENT FACILITY IS PRIVATELY OWNED AND IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO PERSONALLY INSPECT AND CLEAN THE FACILITY TO MAINTAIN ITS OPERATION AND FUNCTION.

B. THE UNDERGROUND STORMWATER MANAGEMENT FACILITY SHALL BE INSPECTED YEARLY AT A MINIMUM AND AFTER ESPECIALLY SEVERE STORM EVENTS.

C. WHEN SEDIMENT ACCUMULATION OF MORE THAN 2" IS OBSERVED OR ANY DEBRIS THAT MIGHT OBSTRUCT THE OUTFALL IS OBSERVED, THE FACILITY SHALL BE CLEANED.

D. THE FACILITY SHALL BE CLEANED IMMEDIATELY AFTER PETROLEUM SPILLS. THE OWNER SHALL CONTACT THE APPROPRIATE REGULATORY AGENCIES NOTIFYING THEM OF THE SPILL AND CLEANUP OPERATION.

E. THE SEDIMENT AND DEBRIS SHALL BE REMOVED FROM THE UNDERGROUND STORMWATER MANAGEMENT FACILITY BY VACUUM TRUCK OR OTHER MEANS. THE OWNER SHALL FOLLOW PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIAL AND LIQUID.

F. THE INLET AND OUTLET PIPES SHALL BE CHECKED FOR ANY OBSTRUCTIONS AT LEAST ONCE EVERY SIX (6) MONTHS. IF OBSTRUCTIONS ARE FOUND, THE OWNER SHALL HAVE THEM REMOVED AND PROPERLY DISPOSED OF.

AREA	REQUIREMENT	VOLUME REQUIREMENT W/O CREDITS	CREDITS	VOLUME REQUIREMENT AFTER CREDITS	NOTES
1	WATER QUALITY VOLUME WQV	0.14 AC.FT.	N/A	0.14 AC.FT.	PROVIDED IN 2 UNDERGROUND SANDFILTERS
2	RECHARGE VOLUME REV	0.037 AC.FT. OR 0.48 AC.	N/A	0.037 AC.FT. OR 0.48 AC.	PROVIDED IN STONE TRENCH UNDER SANDFILTERS
3	CHANNEL PROTECTION VOLUME CPV	0.20	N/A	0.20	PROVIDED IN UNDERGROUND PIPE STORAGE
4	OVERHEAD FLOOD PROTECTION, QTOP	N/A	N/A	N/A	
5	EXTREME FLOOD VOLUME, QTOP	N/A	N/A	N/A	

SWM PROVIDED BY: SANDFILTERS FOR WQV, STONE TRENCH FOR REV AND UNDERGROUND PIPE STORAGE FOR CPV

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

1. THE SEDIMENT CHAMBER OUTLET DEVICES SHALL BE CLEANED AND/OR REPAIRED WHEN DRAIN-DOWN TIMES WITHIN THE CHAMBER EXCEED 36 HOURS.

2. DEBRIS AND LITTER SHALL BE REMOVED AS NECESSARY TO ENSURE PROPER OPERATION OF THE SYSTEM.

3. 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.

4. WHEN WATER PONDOS 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.

5. A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.

6. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO ENSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.

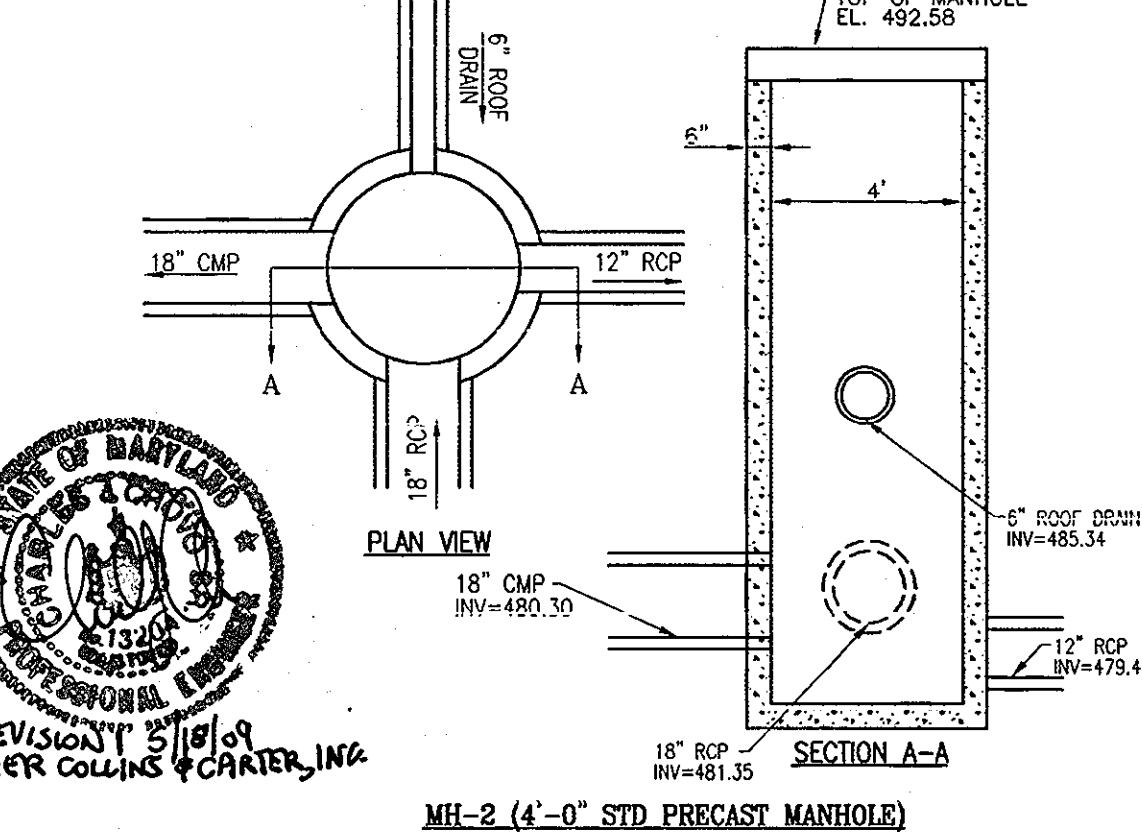
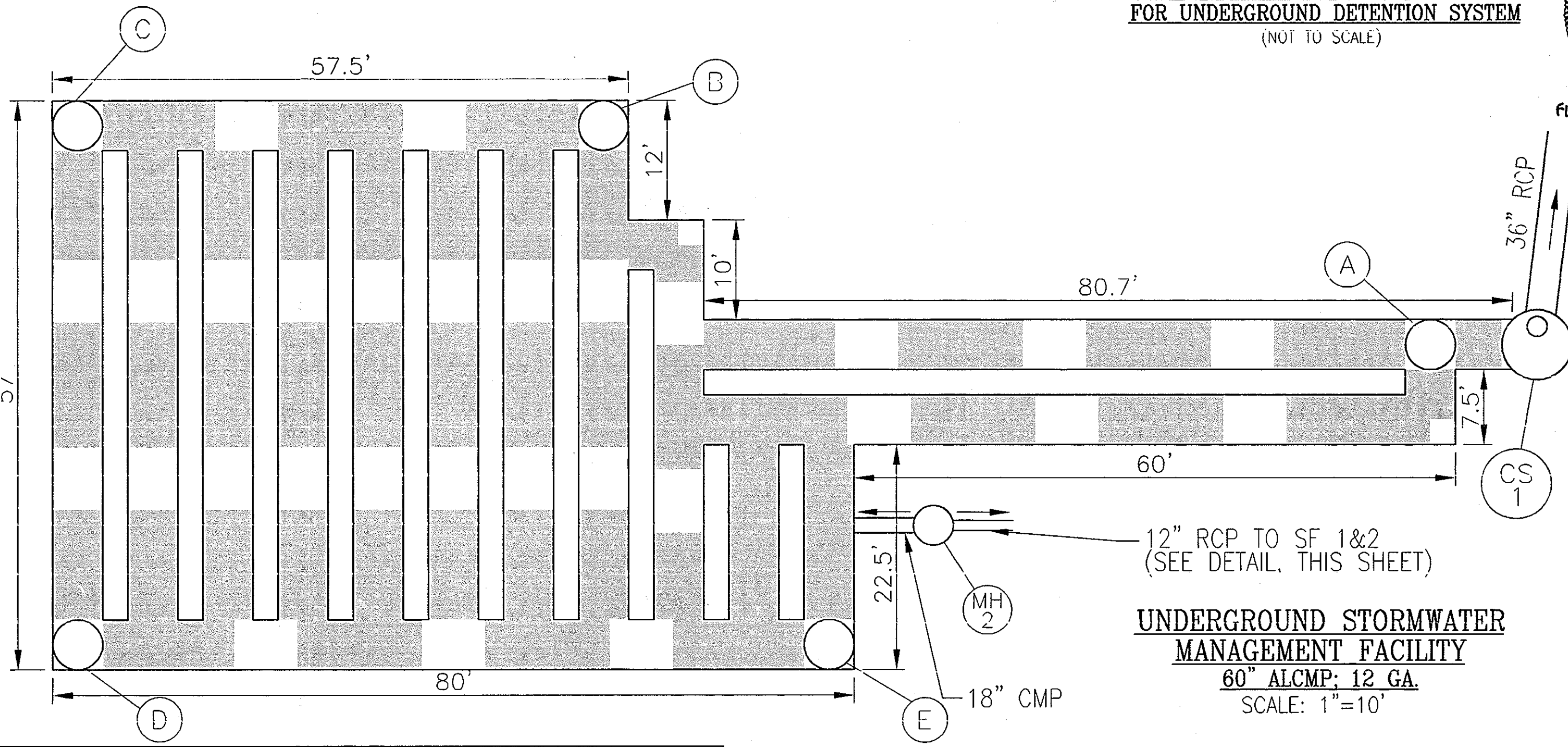
7. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

**UNDERGROUND SAND FILTER CONSTRUCTION SPECIFICATIONS**

1. 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" O.C.) SHALL BE CAST IN PLACE OR DRILLED AND MORTARED INTO THE WALL BELOW EACH MANHOLE. A 6" 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. LET RINGS ARE TO BE SUPPLIED TO REMOVE/REPLACE TOP SLABS ON PRE-FABRICATED STRUCTURES. MANHOLE COVERS SHOULD ALLOW FOR PROPER VENTILATION.

2. 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.

3. 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.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 8/14/08

*[Signature]*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 8/14/08

*[Signature]*  
DIRECTOR  
DATE: 8/14/08

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE  
DATE: 8/14/08  
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

BY THE DEVELOPER:  
*[Signature]*  
DATE: 8/11/08  
SIGNATURE OF DEVELOPER

BY THE ENGINEER:  
*[Signature]*  
DATE: 8/11/08  
SIGNATURE OF ENGINEER

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

OWNER: HOWARD COUNTY HOUSING COMMISSION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21064  
410-730-3725

DEVELOPER: BENDER PROPERTY II, LLC  
5304 DORSEY HALL DRIVE  
ELLCOTT CITY, MD 21042  
410-730-3725

NO.	REVISION	DATE
1	Revised sheet no. to reflect added sheet BY F.C.C. Inc	5-10-09

**SITE DEVELOPMENT PLAN**  
**STORMWATER MANAGEMENT NOTES AND DETAILS**

**ELLCOTT GARDENS**  
PHASE 1A  
TAX MAP 31 BLOCK 19 (DEED: 01090/263) PARCEL A (PARCEL 427)  
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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

PROFESSIONAL CERTIFICATE

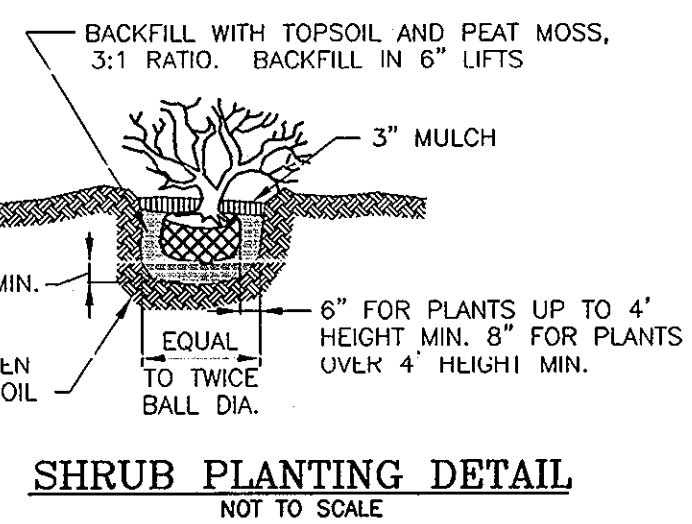
DESIGN BY: DZ  
DRAWN BY: DZ  
CHECKED BY: RHV  
DATE: FEBRUARY 2008  
SCALE: 1"=30'  
W.O. NO.: 06-39

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE JURISDICTION OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 08-27-2008

9 SHEET OF 15

LANDSCAPE SCHEDULE				
KEY	QUAN.	BOTANICAL NAME	SIZE	CAT
AR	20	ACER RUBRUM (HYBRID CLIVY REF. MADI F)	2 1/2"-3" CAL.	B & B
QR	3	QUERCUS PHELLOS WILLOW OAK	2 1/2"-3" CAL.	B & B
PS	3	PINUS STROBUS EASTERN WHITE PINE	6'-8' HT.	B & B
TD	31	TAXUS MEDIA 'DENSIFORMIS' DENSIFORMIS YEW	2 1/2" -3" HT.	B & B

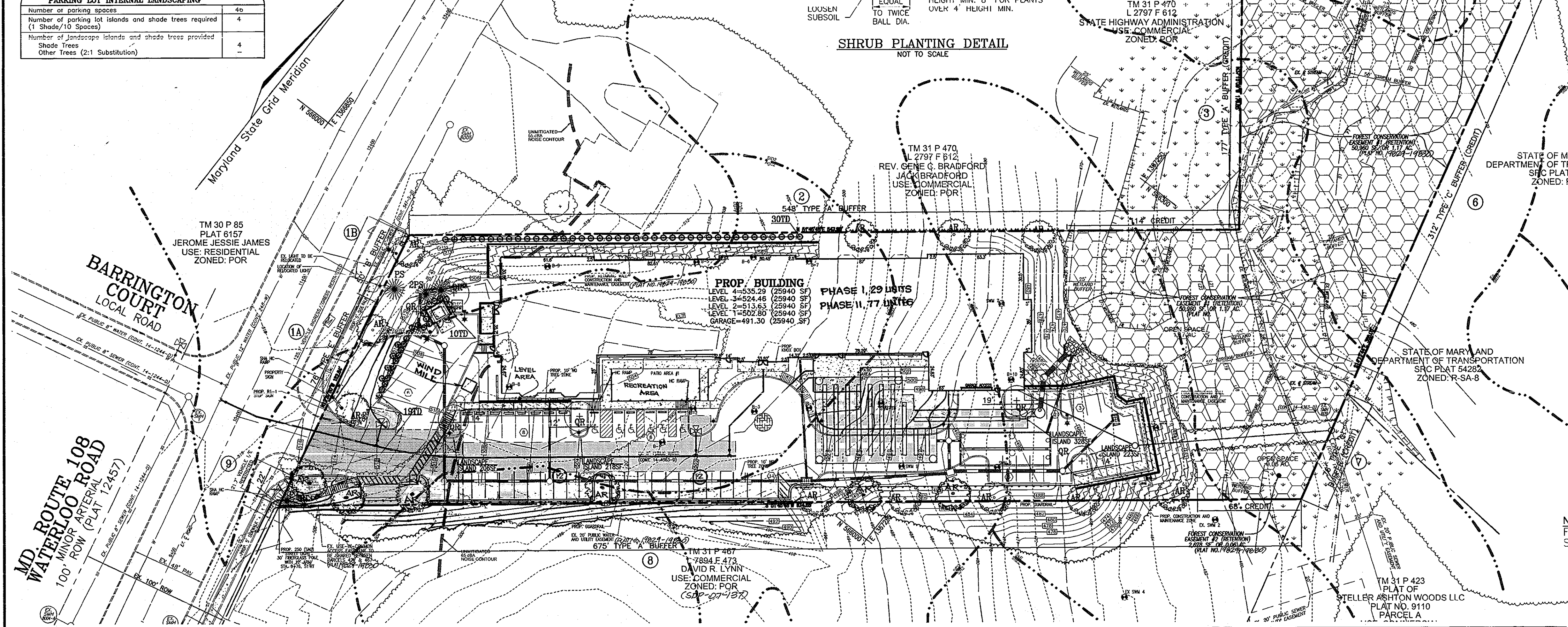
SCHEDULE B PARKING LOT INTERNAL LANDSCAPING	
Number of parking spaces	40
Number of parking lot islands and shade trees required (1 Shade/10 Spaces)	4
Number of landscape islands and shade trees provided	4
Shade Trees	4
Other Trees (2:1 Substitution)	8



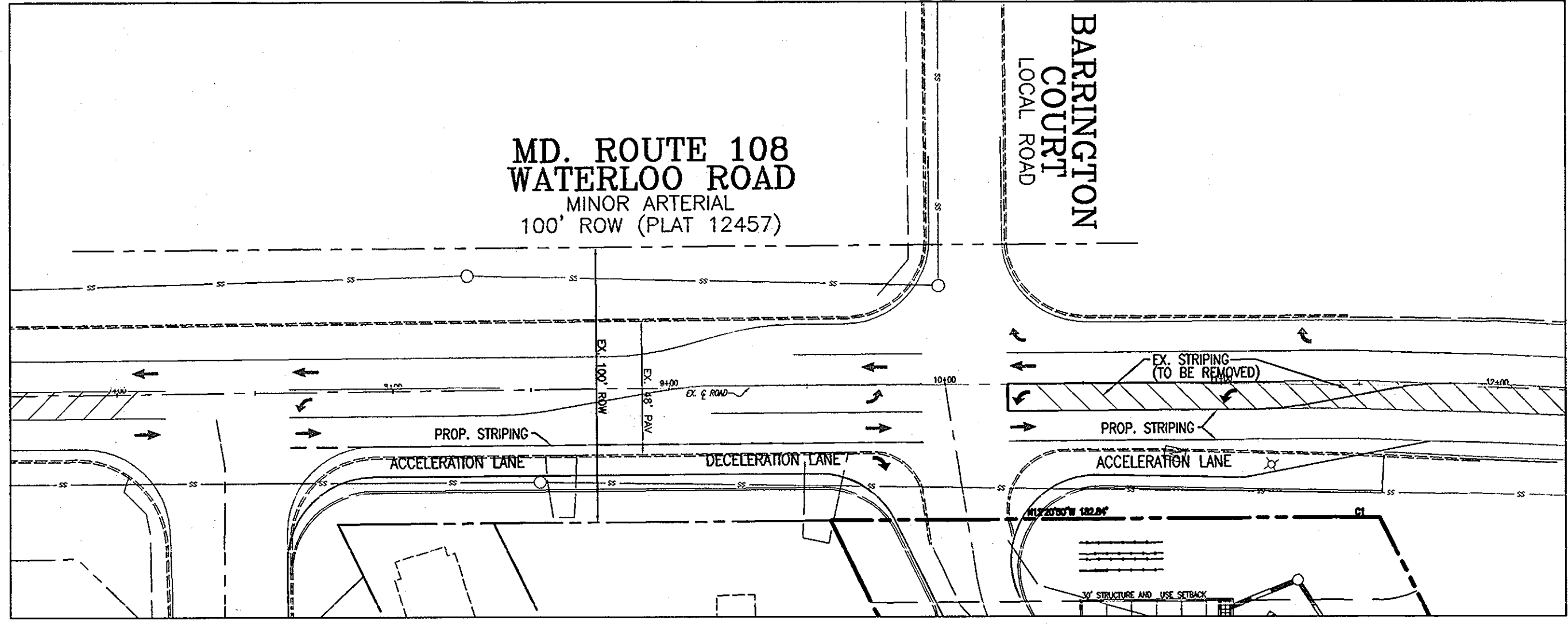
SHRUB PLANTING DETAIL  
NOT TO SCALE

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 MANHOLE
○	EXISTING SIGN
○	EXISTING SANITARY MANHOLE
○	EXISTING SANITARY LINE
○	EXISTING CLEANOUT
○	EXISTING FIRE HYDRANT
○	EXISTING WATER LINE
---	PROPOSED STORM DRAIN
---	PROPOSED STORM DRAIN INLET
○	EXISTING TREES (FIELD LOCATED)
○	EXISTING TREELINE (FIELD LOCATED)
○	EXISTING VEGETATION (APPROXIMATE LOCATION)
---	EXISTING FENCE
---	PROPERTY LINE
---	RIGHT-OF-WAY LINE
---	SOILS BOUNDARY
---	PROPOSED SIDEWALK
---	EX. 20' PUBLIC WATER AND UTILITY EASEMENT
---	FOREST CONSERVATION EASEMENT 'RETENTION'
---	EXISTING WETLANDS
---	EXISTING STREAM
---	EXISTING STREAM BUFFER
○	PROP. LIGHT POLE
○	PROP. STREET LIGHT
○	PROPOSED SHADE TREE
○	PROPOSED EVERGREEN TREE
○	PROPOSED SHRUBS
○	LANDSCAPE PERIMETER
---	PROPOSED TREELINE
---	10' NO TREE ZONE
---	RETAINING WALL CONSTRUCTION AND MAINTENANCE EASEMENT

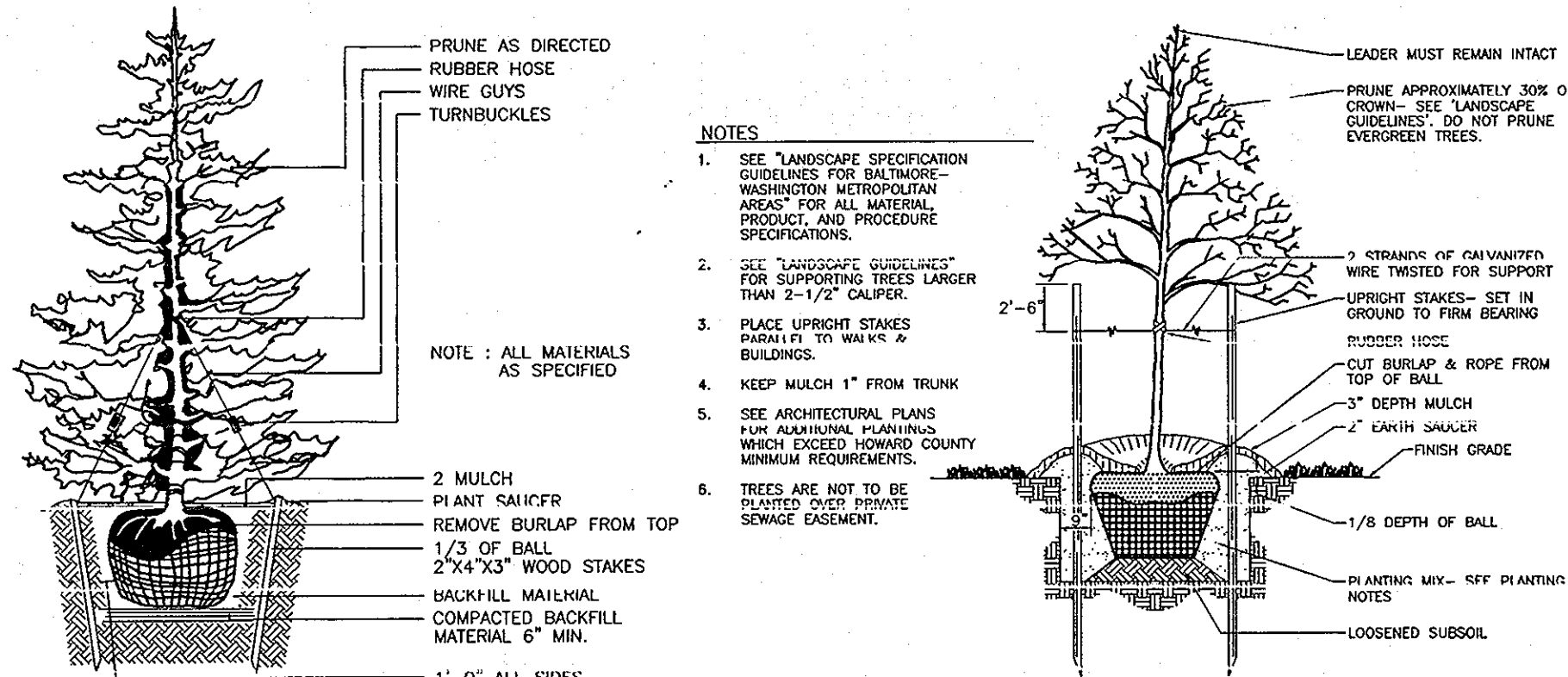
NOTE:  
FOR WETLAND BUFFER METES AND BOUNDS,  
SEE CHART ON SHEET 5.



PLAN VIEW  
SCALE: 1"=40'



STRIPING PLAN  
SCALE: 1"=40'



TREE PLANTING AND STAKING  
DECIDUOUS TREES UP TO 2-1/2" CALIPER  
NOT TO SCALE



TYPICAL EVERGREEN TREE PLANTING DETAIL  
NOT TO SCALE

- NOTES:
- SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR OUTDOOR LANDSCAPE" FOR ALL MATERIALS, PRODUCTS, AND PROCEDURE SPECIFICATIONS.
  - SEE "LANDSCAPE SPECIFICATIONS" FOR SUPPORTING TREES LARGER THAN 2-1/2" CALIPER.
  - PLACE UPRIGHT STAKES PARALLEL TO WALKER'S BUILDINGS.
  - KEEP MULCH 1" FROM TRUNK.
  - SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS.
  - TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWAGE EASEMENT.

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.

SJS  
SIGNATURE OF DEVELOPER  
DATE: Feb 19, 2008

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DIRECTOR

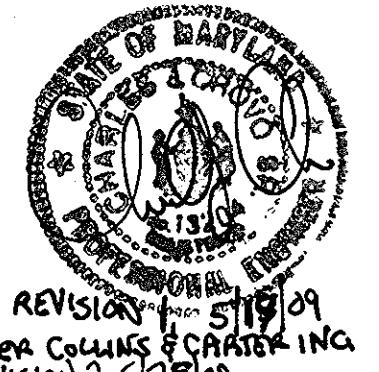
- GENERAL NOTES:
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THE REQUIRED PARKING AND PERIMETER LANDSCAPING WILL BE BONDED PER THIS SUBMISSION.
  - FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$9,120.00 FOR THE REQUIRED 26 SHADE TREES, 5 EVERGREEN TREES, AND 19 SHRUBS.

LANDSCAPE SCHEDULE NOTE:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRO PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- 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.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.

CATEGORY	SCHEDULE A PERIMETER LANDSCAPE EDGE										
	ADJACENT TO ROADWAYS AND PERIMETER PROPERTIES										
PERIMETER/FRONTAGE DESIGNATION	1A	1B	2	3	4	5	6	7	8	9	10
LANDSCAPE TYPE	C	B	A	A	C	C	C	C	C	C	C
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	76	50	548	177	100	94	312	76	675	22	35
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	No	No	YES	YES	YES	YES	YES	YES	No	No	No
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	No	No	No	No	No	No	No	No	No	No	No
NUMBER OF PLANTS REQUIRED	140	2	150	1	160	6	160	1	160	10	140
SHADE TREES	1:4	1:1	1:4	1:1	1:4	1:1	1:4	1:1	1:4	1:1	1:4
EVERGREEN TREES	1:4	1:1	1:4	1:1	1:4	1:1	1:4	1:1	1:4	1:1	1:4
SHRUBS	1:4	1:1	1:4	1:1	1:4	1:1	1:4	1:1	1:4	1:1	1:4
NUMBER OF PLANTS PROVIDED	2	1	3*	1	1	1	1	1	10	1	2**
EVERGREEN TREES	1	1	1	1	1	1	1	1	1	1	1
OTHER TREES (2:1 SUBSTITUTION)	19	1	30*	1	1	1	1	1	10	1	10**
SHRUBS (1:1 SUBSTITUTION)	19	1	30*	1	1	1	1	1	10	1	10**
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED											

\* SUBSTITUTE 30 SHRUBS FOR 3 SHADE TREES IN PERIMETER 2.  
\*\* SUBSTITUTE 10 SHRUBS FOR 1 EVERGREEN AT DUMPSTER AREA.



OWNER: HOWARD COUNTY HOUSING COMMISSION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21064  
410-730-3725

DEVELOPER: BENDER PROPERTY II, LLC  
5304 DORSEY HALL DRIVE  
ELLICOTT CITY, MD 21042  
410-730-3725

NO.	REVISION	DATE
2	Rev Parking along SE prop to add spaces, rev handicap walk at entrance with Md.Rt.108, revise perimeter L.S. shade trees to accommodate by F.C.C., Inc.	5-26-09
1	Remove switchback handicap sidewalk, add Wind Mill Inc. revise sidewalk to reflect new handicap accessible sidewalk and revise sheet no to reflect added sheet by FCC, Inc.	5-19-09

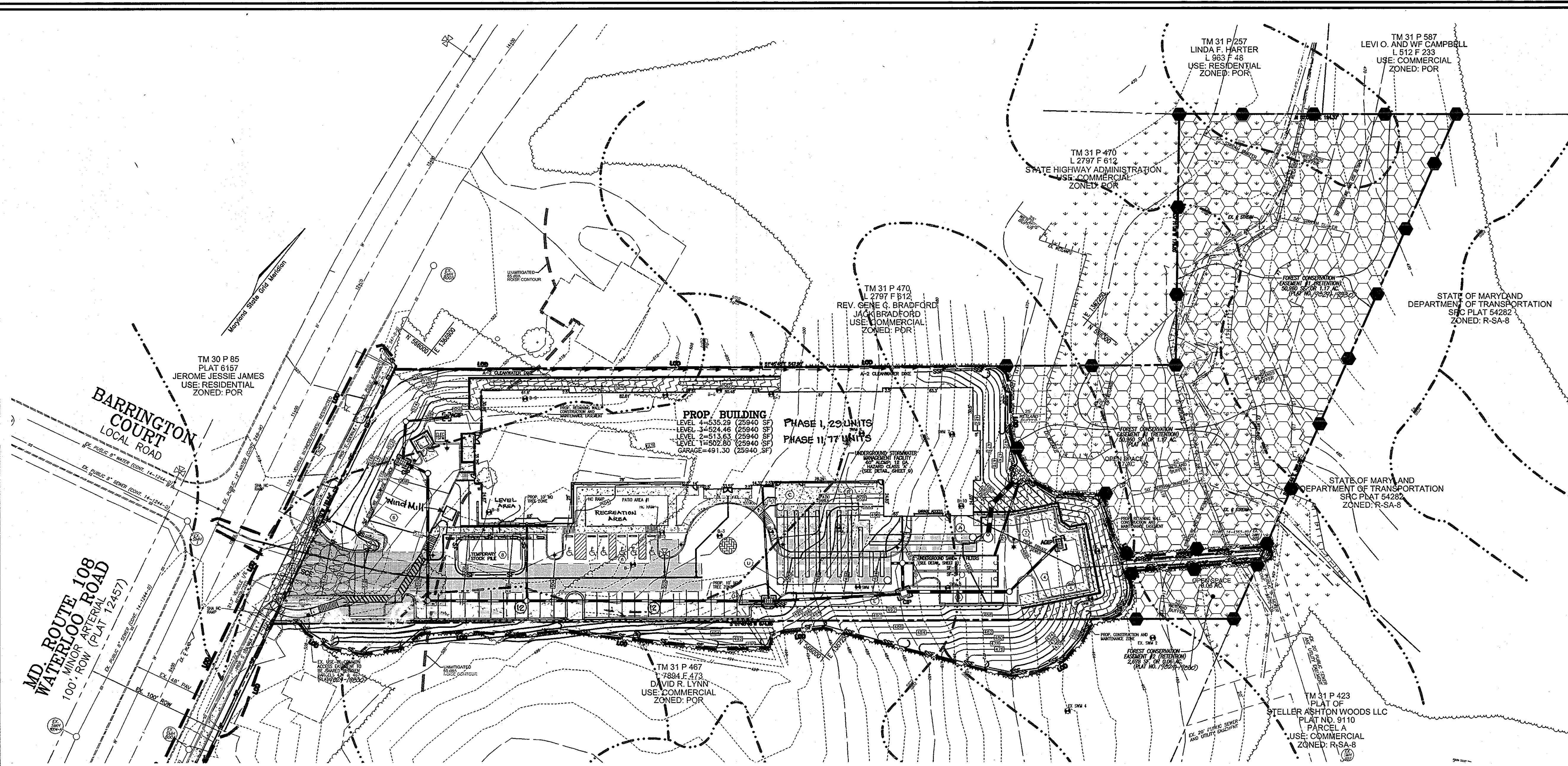
SITE DEVELOPMENT PLAN  
SITE LANDSCAPE PLAN

ELLICOTT GARDENS  
PHASE I (11)  
TAX MAP 31 BLOCK 19 (DEED: 10190263) PARCEL A (PARCEL 427)  
1ST ELECTION DISTRICT 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

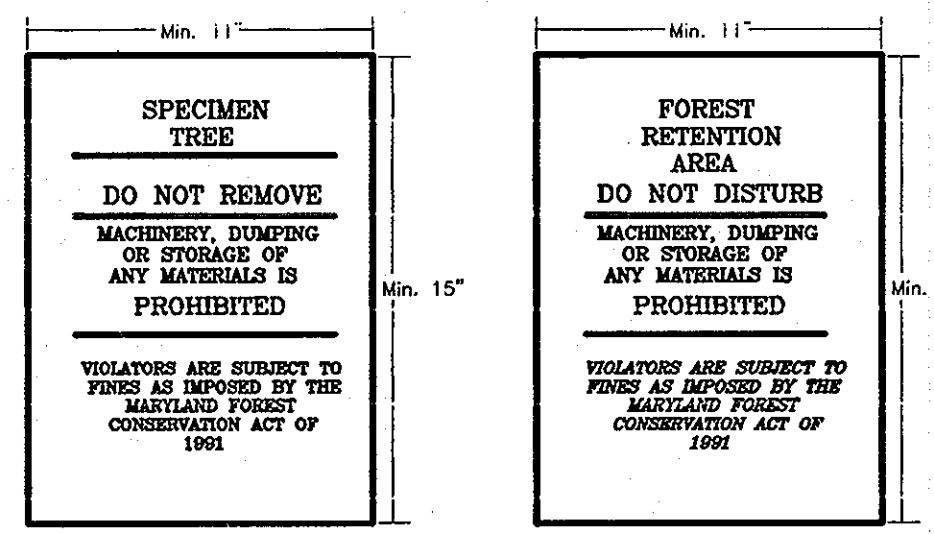
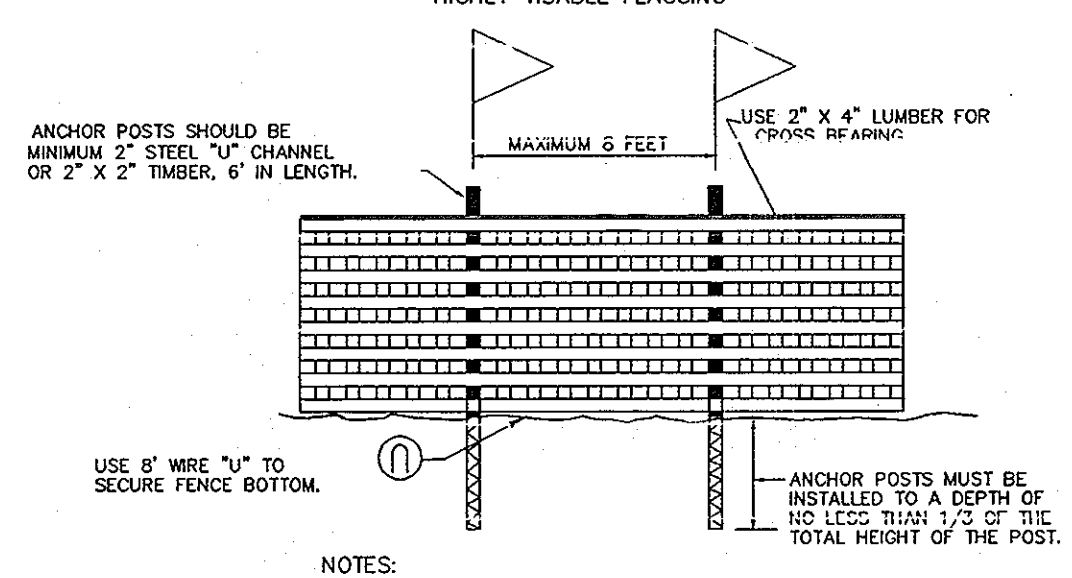
DESIGN BY: DZ  
DRAWN BY: DZ  
CHECKED BY: RHY  
DATE: FEBRUARY 2008  
SCALE: AS SHOWN  
W.O. NO.: 06-39

PROFESSIONAL CERTIFICATE  
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. 16193, EXPIRATION DATE: 08-27-2008.



**LEGEND:**

- EXISTING CONTOUR
- PROPOSED CONTOUR
- + 402.88 PROPOSED SPOT ELEVATION
- + 402.88 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
- EXISTING TREES
- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE
- HIGH-OR-WAY LINE
- M1B2 SOILS BOUNDARY
- M1B3 PROPOSED SIDEWALK
- EX. 20' PUBLIC WATER AND UTILITY EASEMENT
- EXISTING WETLANDS
- EXISTING STREAM
- EXISTING STREAM BUFFER
- PROP. LIGHT POLE
- PROP. STREET LIGHT
- PROPOSED TREELINE
- FOREST CONSERVATION SIGNS
- STABILIZED CONSTRUCTION ENTRANCE
- FOREST CONSERVATION EASEMENT "RETENTION"
- SILT FENCE
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- CURB INLET PROTECTION
- AT GRADE INLET PROTECTION
- 10' NO TREE ZONE
- RETAINING WALL CONSTRUCTION AND MAINTENANCE EASEMENT



**NOTE:**  
1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.  
2. SIGNS TO BE PLACED APPROXIMATELY 50-100 FEET APART. CONDITIONS ON SITE AFFECTING VISIBILITY BY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.  
3. ATTACHMENT OF SIGNS TO TRAFFIC IS PROHIBITED.

**FOREST RETENTION AREA SIGNS (FOR A RETENTION EASEMENT)**

FOREST CONSERVATION EASEMENT TABLE	
EASEMENT	RETENTION
FCE#1	1.17 AC
FCE#2	0.05 AC
TOTAL	1.23 AC

**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 DIRECTION 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.

**NOTE:**  
FOR WETLAND BUFFER METES AND BOUNDS, SEE CHART ON SHEET 5.

**FOREST CONSERVATION WORKSHEET**

NET TRACT AREA:  
A. TOTAL TRACT AREA = 3.40 AC  
B. AREA WITHIN 100 YEAR FLOODPLAIN = 0.00 AC  
C. AREA TO REMAIN IN AGRICULTURAL PRODUCTION = 0.00 AC  
D. NET TRACT AREA = 3.40 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.

ARA	MDR	IDA	HDR	MPD	CIA
0	0	0	1	0	0

E. AFFOREST THRESHOLD = 15% X D = 0.51 AC  
F. CONSERVATION THRESHOLD = 15% X D = 0.68 AC

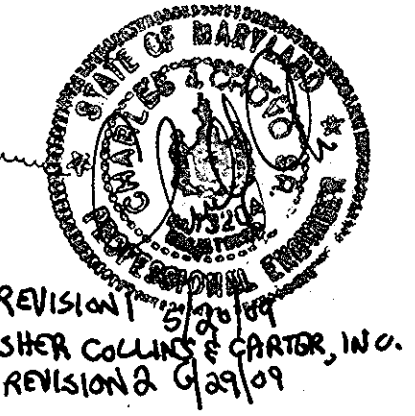
EXISTING FOREST COVER:  
G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN) = 2.66 AC  
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD = 1.98 AC  
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 1.98 AC

BREAK EVEN POINT:  
J. BREAK EVEN POINT = 1.08 AC  
K. CLEARING PERMITTED WITHOUT MITIGATION = 1.08 AC

PROPOSED FOREST CLEARING:  
L. TOTAL AREA OF FOREST TO BE CLEARED = 1.43 AC  
M. TOTAL AREA OF FOREST TO BE RETAINED = 1.23 AC

PLANTING REQUIREMENTS:  
N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD = 0.00 AC  
O. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD = 0.00 AC  
P. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD = 0.00 AC  
Q. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD = 0.00 AC  
R. TOTAL REFORESTATION REQUIRED = 0.00 AC  
S. TOTAL AFFORESTATION REQUIRED = 0.00 AC  
T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED = 0.00 AC

FOREST CONSERVATION OBLIGATIONS HAS BEEN FULFILLED BY THE RETENTION OF 1.23 ACRES OF FOREST. FINANCIAL SURETY FOR THE ONSITE FOREST RETENTION IN THE AMOUNT OF \$10,715.76 (53578.8 SF x \$0.20) HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT.



**OWNER**  
HOWARD COUNTY HOUSING COMMISSION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21064  
410-730-3725

**DEVELOPER**  
BENDER PROPERTY II, LLC  
5304 DORSEY HALL DRIVE  
ELLICOTT CITY, MD 21042  
410-730-3725

NO.	REVISION	DATE
2	Rev. Parking along SE prop. to add spaces, rev. handicap sidewalk & ramp per 'as built' conditions at Md. Rte. 108 entrance, by F.C.C., Inc.	6-29-09
1	Remove switchback handicap sidewalk, add Wind Mill loc. revise sidewalk to reflect new handicap accessible sidewalk and revise sheet to reflect added sheet BY F.C.C., Inc.	5-20-09

**SITE DEVELOPMENT PLAN**  
**FOREST CONSERVATION PLAN**

**ELLICOTT GARDENS**  
PHASE I & II  
TAX MAP 31 BLOCK 19 (DEED: 10190/263) PARCEL A (PARCEL 427)  
1ST ELECTION DISTRICT 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

**PROFESSIONAL CERTIFICATE**  
DESIGN BY: DZ  
DRAWN BY: DZ  
CHECKED BY: RHY  
DATE: FEBRUARY 2008  
SCALE: 1"=40'  
W.O. NO.: 06-39

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 16193 EXPIRATION DATE 09-27-2008

11 SHEET OF 15

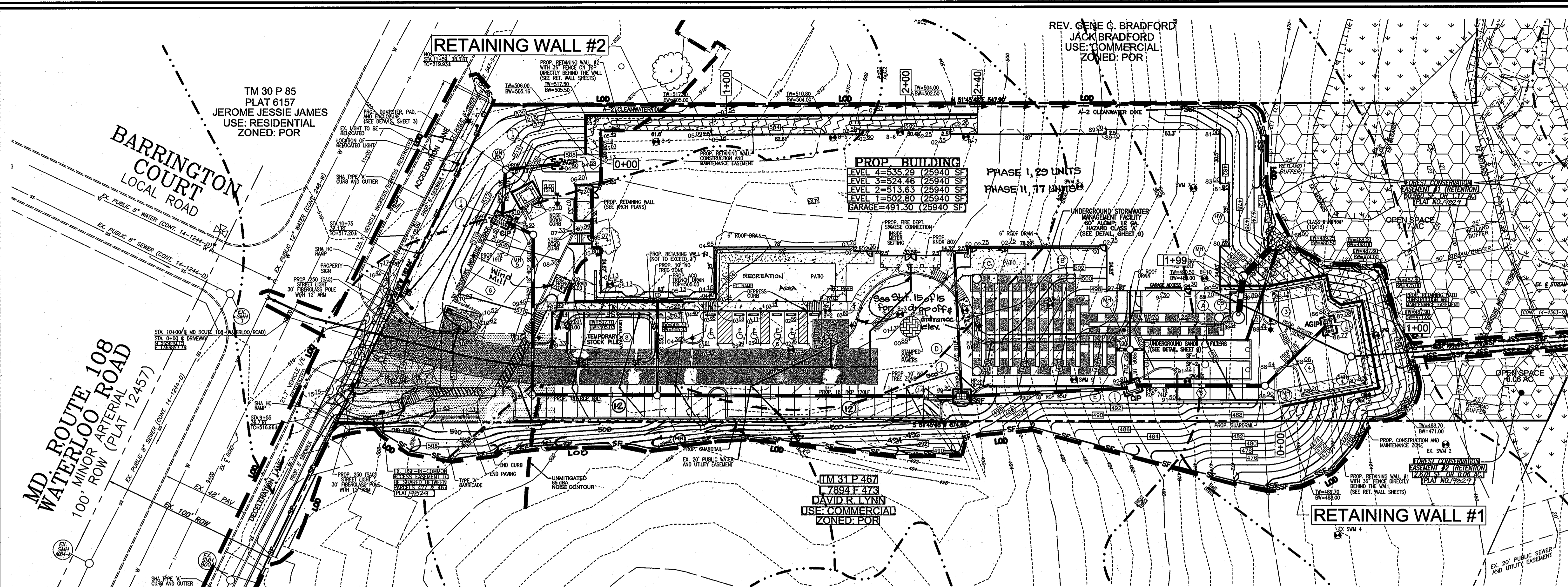
**DEVELOPER'S/BUILDER'S CERTIFICATE**

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.

SIS  
SIGNATURE OF DEVELOPER  
Feb. 19, 2008  
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
Chief, Development Engineering Division  
Chief, Division of Land Development  
Director

3/4/08  
4/24/08  
4/24/08  
DATE



**WALL LOCATION PLAN**  
SCALE: 1" = 30'

- NOTES:**
- 1.) No trees shall be planted within 10 feet of the top of the retaining wall.
  - 2.) Retaining walls shall only be constructed under the observation of a registered professional engineer and a (NICET, WACEL, or equiv.) certified soils technician.
  - 3.) The required bearing pressure beneath the wall system shall be verified in the field by a certified soils technician. Testing documentation must be provided to the Howard County Inspector prior to start of construction. The required bearing test shall be the Dynamic Cone Penetrometer test ASTM STP-399.
  - 4.) The suitability of fill material shall be confirmed by the on-site soils technician. Each 8" lift must be compacted to a minimum 95% standard proctor density and the testing report shall be made available to the Howard County Inspector upon completion of construction.

**SPECIFICATIONS**  
**KEYSTONE MODULAR CONCRETE BLOCK RETAINING WALL**

**PART 1: GENERAL**

**1.01 Description**  
A. Work shall consist of furnishing and construction of a KEYSTONE Retaining Wall System in accordance with these specifications and in reasonably close conformity with the lines, grades, design, and dimensions shown on the plans.  
B. Work includes preparing foundation soil, furnishing and installing leveling pad, unit drainage fill and backfill to the lines and grades shown on the construction drawings.  
C. Work includes furnishing and installing geogrid soil reinforcement of the type, size, location, and lengths designated on the construction drawings.

**1.02 Delivery, Storage and Handling**  
A. Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification has been received.  
B. Contractor shall protect all materials from damage due to job site conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

**PART 2: PRODUCTS**

**2.01 Modular Concrete Retaining Wall Units**  
A. Modular concrete units shall conform to the following architectural requirements:  
face color - concrete gray - standard manufacturer's color may be specified by the Owner.  
face finish - sculptured rock face in angular tri-planer configuration. Other face finishes will not be allowed without written approval of Owner.  
bond configuration - running with bonds nominally located at midpoint vertically adjacent units, in both straight and curved alignments.  
exposed surfaces of units shall be free of chips, cracks or other imperfections when viewed from a distance of 10 feet under diffused lighting.  
B. Modular concrete materials shall conform to the requirements of ASTM C1372 - Standard Specifications for Segmental Retaining Wall Units.  
C. Modular concrete units shall conform to the following structural and geotechnical requirements measured in accordance with appropriate references:  
compressive strength = 3000 psi minimum;  
absorption = 8 % maximum (6% in northern states) for standard weight aggregates;  
dimensional tolerances = ± 1/8" from nominal unit dimensions not including rough split face, ± 1/16" unit height - top and bottom planes;  
unit size - 8" (H) x 16" (W) x 12" (D) minimum;  
unit weight - 75 lbs/unit minimum for standard weight aggregates;

**2.02 Shear Connectors**  
A. Shear connectors shall be 1/2 inch diameter thermoset isophthalic polyester resin-protuded fiberglass reinforcement rods or equivalent to provide connection between vertically and horizontally adjacent units.  
Strength of shear connectors between vertical adjacent units shall be applicable over a design temperature of 10 degrees F to + 100 degrees F.  
B. Shear connectors shall be capable of holding the geogrid in the proper design position during grid pre-tensioning and backfilling.

**2.03 Base Leveling Pad Material**  
A. Material shall consist of a compacted #57 crushed stone base as shown on the construction drawings.

**2.04 Unit Drainage Fill**  
A. Unit drainage fill shall consist of #57 crushed stone

**2.05 Reinforced Backfill**  
A. Reinforced backfill shall type SM, be free of debris and meet the following gradation tested in accordance with ASTM D-422 and meet other properties shown on the plan:

Sieve Size	Percent Passing
2 inch	100-75
3/4 inch	100-75
No. 40	0-60
No. 200	0-40

Plasticity Index (PI) <10 and Liquid Limit <40 per ASTM D-4318.  
B. Material can be site excavated soils where the above requirements can be met. Unsuitable soils for backfill (high plastic clays or organic soils) shall not be used in the reinforced soil mass.

**2.06 Geogrid Soil Reinforcement**

aggregates;  
inter-unit shear strength - 1000 pif minimum at 2 psi normal pressure;  
geogrid/unit peak connection strength - 1000 pif minimum at 2 psi normal force.  
D. Modular concrete units shall conform to the following constructability requirements:  
vertical setback = 1/8" per course (near vertical) or 1/4" per course per the design;  
alignment and grid positioning mechanism - fiberglass pins, two per unit minimum;  
maximum horizontal gap between erected units shall be 1/2 inch.

**2.07 Drainage Pipe**  
A. The drainage pipe shall be perforated corrugated HDPE pipe manufactured in accordance with ASTM D-1248.

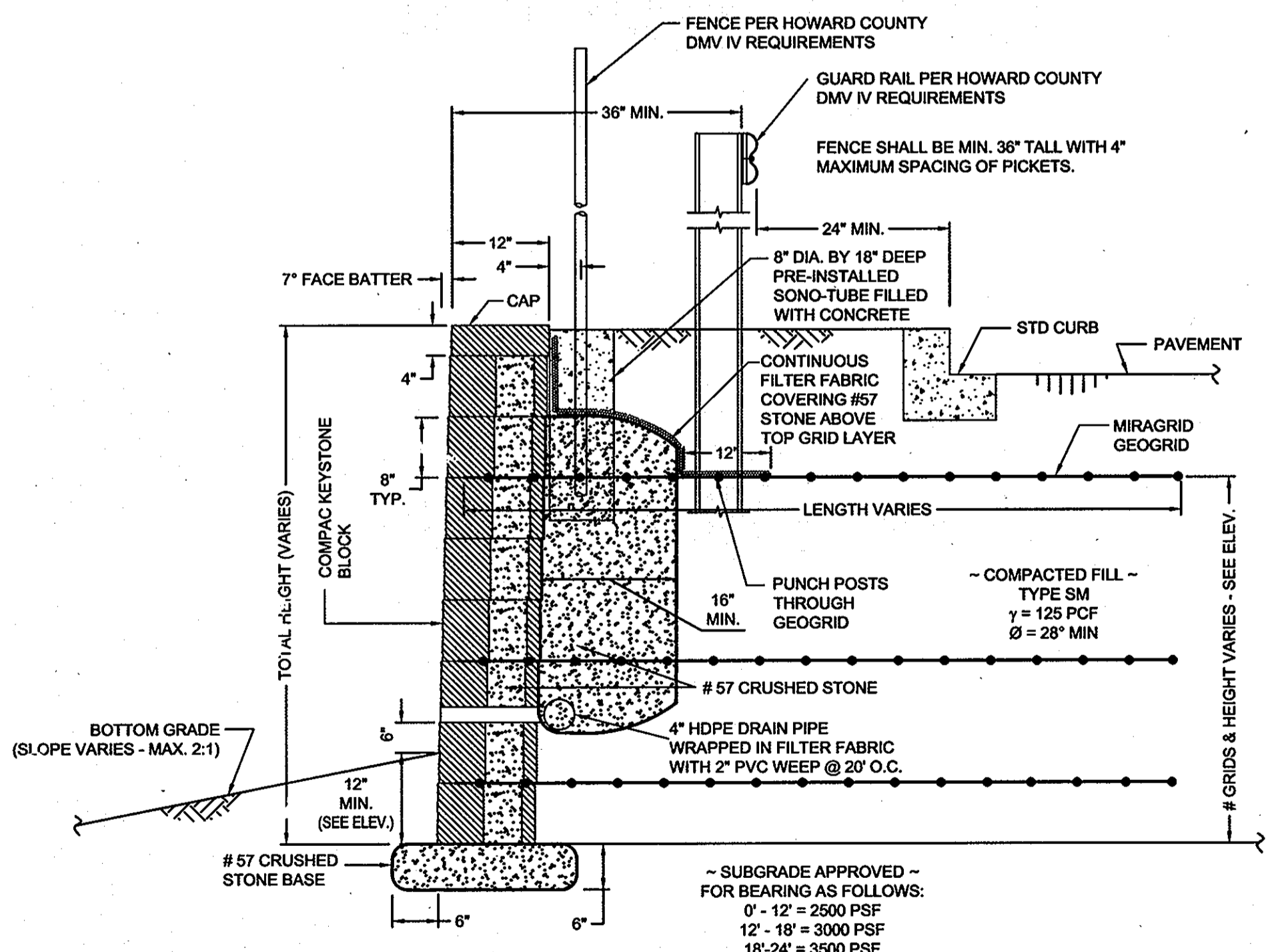
**PART 3 EXECUTION**

**3.01 Excavation**  
A. Contractor shall excavate to the lines and grades shown on the construction drawings. Owner's representative shall be responsible for inspecting and approving the excavation prior to placement of leveling material or fill soils.

**3.02 Base Leveling Pad**  
A. Leveling pad material shall be placed to the lines and grades shown on the construction drawings, to a minimum thickness of 6 inches and extend laterally a minimum of 6" in front and behind the modular wall unit.  
B. Leveling pad shall be prepared to insure full contact to the base surface of the concrete units.

**3.03 Modular Unit Installation**  
A. First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in full contact with the base and properly seated.  
B. Place the front of units side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.  
C. Install shear/connecting devices per manufacturer's recommendations.  
D. Place and compact drainage fill within and behind wall units. Place and compact backfill soil behind drainage fill. Follow wall erection and drainage fill closely with structure backfill.  
E. Maximum stacked vertical height of wall units, prior to unit drainage fill and backfill placement and compaction, shall not exceed three courses.

**3.04 Structural Geogrid Installation**  
A. Geogrid shall be oriented with the highest strength axis perpendicular to the wall alignment.  
B. Geogrid reinforcement shall be placed at the strengths, lengths, and elevations shown on the construction design drawings as directed by the Engineer.  
C. The geogrid shall be laid horizontally on compacted backfill and attached to the modular wall units. Place the next course of modular concrete units over the geogrid. The geogrid shall be pulled taut, and anchored prior to



**TYPICAL WALL #1 SECTION**  
N.T.S.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 5/1/08  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 4/24/08  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 4/24/08  
DIRECTOR DATE

**OWNER**  
HOWARD COUNTY HOUSING COMMISSION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21064  
410-730-3725

**DEVELOPER**  
BENDER PROPERTY II, LLC  
3304 DORSEY HALL DRIVE  
ELLICOTT CITY, MD 21042  
410-730-3725

REVISIONS  
2 Rev. Parking along S.E. prop. to add spaces, Rev. handicap sidewalk & ramp Md. Rte. 108 and entrance per "as built" conditions, by FCC, Inc. 5-29-09  
1 Remove switchback handicap sidewalk, add Wind Mill loc., revise sidewalk to reflect new handicap accessible sidewalk and revise sheet no. to reflect added sheet by FCC, Inc. 5-19-09

NO.	REVISION	DATE
2	Rev. Parking along S.E. prop. to add spaces, Rev. handicap sidewalk & ramp Md. Rte. 108 and entrance per "as built" conditions, by FCC, Inc.	5-29-09
1	Remove switchback handicap sidewalk, add Wind Mill loc., revise sidewalk to reflect new handicap accessible sidewalk and revise sheet no. to reflect added sheet by FCC, Inc.	5-19-09

**RETAINING WALL PLAN & WALL #1**  
**CONSTRUCTION DETAILS**

**ELLICOTT GARDENS**  
PHASE 1.611  
TAX MAP 31 BLOCK 19 (DEED: 10137263) PARCEL A (PARCEL 427)  
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
(410) 890-4788 Fax: (410) 890-4988

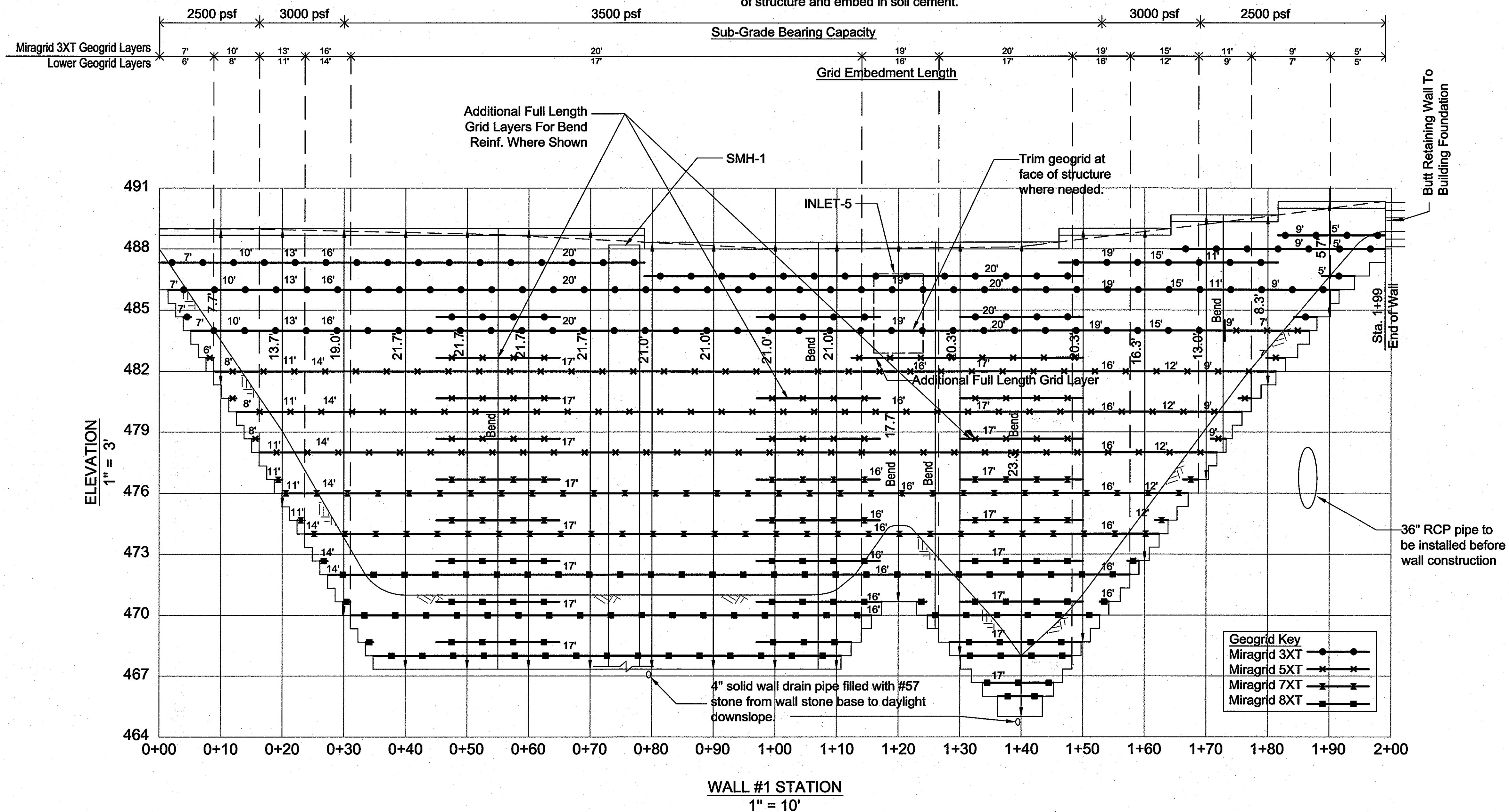
**PROFESSIONAL CERTIFICATE**

DESIGN BY: \_\_\_\_\_ HM  
DRAWN BY: \_\_\_\_\_ HM  
CHECKED BY: \_\_\_\_\_ RWS  
DATE: FEBRUARY 2008  
SCALE: AS SHOWN  
JOB NO.: 05534-B

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 14434 EXPIRATION DATE: 06/30/09

12 SHEET OF 15

Note: Install SMH-1 and Inlet #5 during wall construction. Backfill completely around perimeter of SMH-1 structure with 2' thick soil-cement consisting of a ratio of 180 lbs. Portland cement thoroughly mixed with 1 cu. yd. of type SM soil at 4% over optimum moisture. Trim geogrids at face of structure and embed in soil cement.



OWNER: HOWARD COUNTY HOUSING COMMISSION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21064  
 410-730-3725

DEVELOPER: BENDER PROPERTY II, LLC  
 5304 DORSEY HALL DRIVE  
 ELLICOTT CITY, MD 21042  
 410-730-3725

1	Revised sheet no. to reflect added sheet BY F.C.C., Inc.	5-18-09
NO.	REVISION	DATE

RETAINING WALL #1 ELEVATION

ELLICOTT GARDENS  
 PHASE 1411  
 TAX MAP 31 BLOCK 19 (DEED: 10180/283) PARCEL A (PARCEL 427)  
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
 ENGINEERING ASSOCIATES

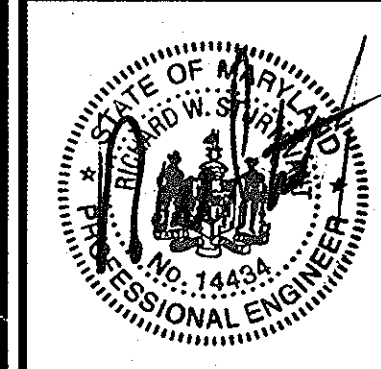
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
 (410) 880-4788 Fax: (410) 880-4098

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 2/4/08  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION, DATE

*[Signature]* 4/24/08  
 CHIEF, DIVISION OF LAND DEVELOPMENT, DATE

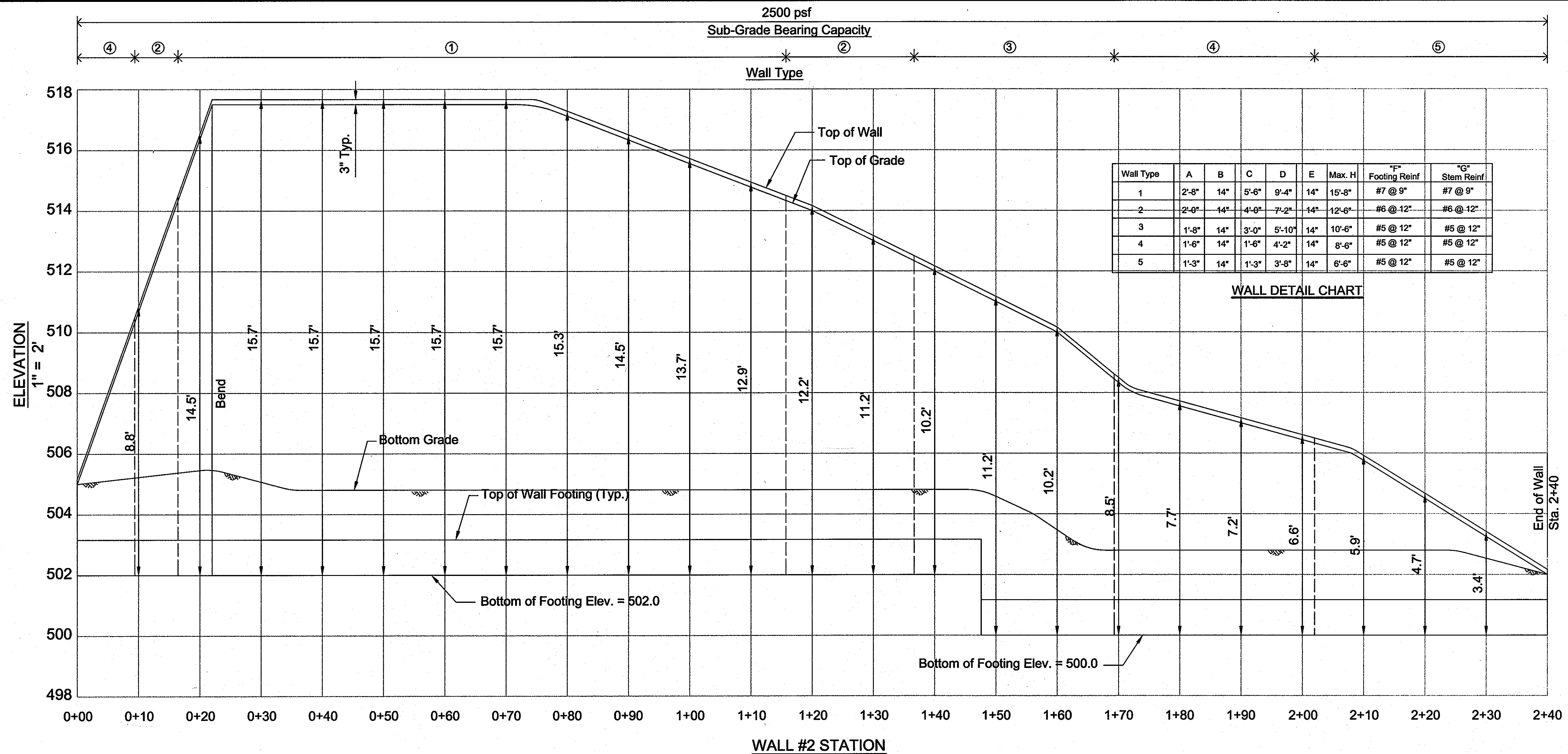
*[Signature]* 4/24/08  
 DIRECTOR, DATE



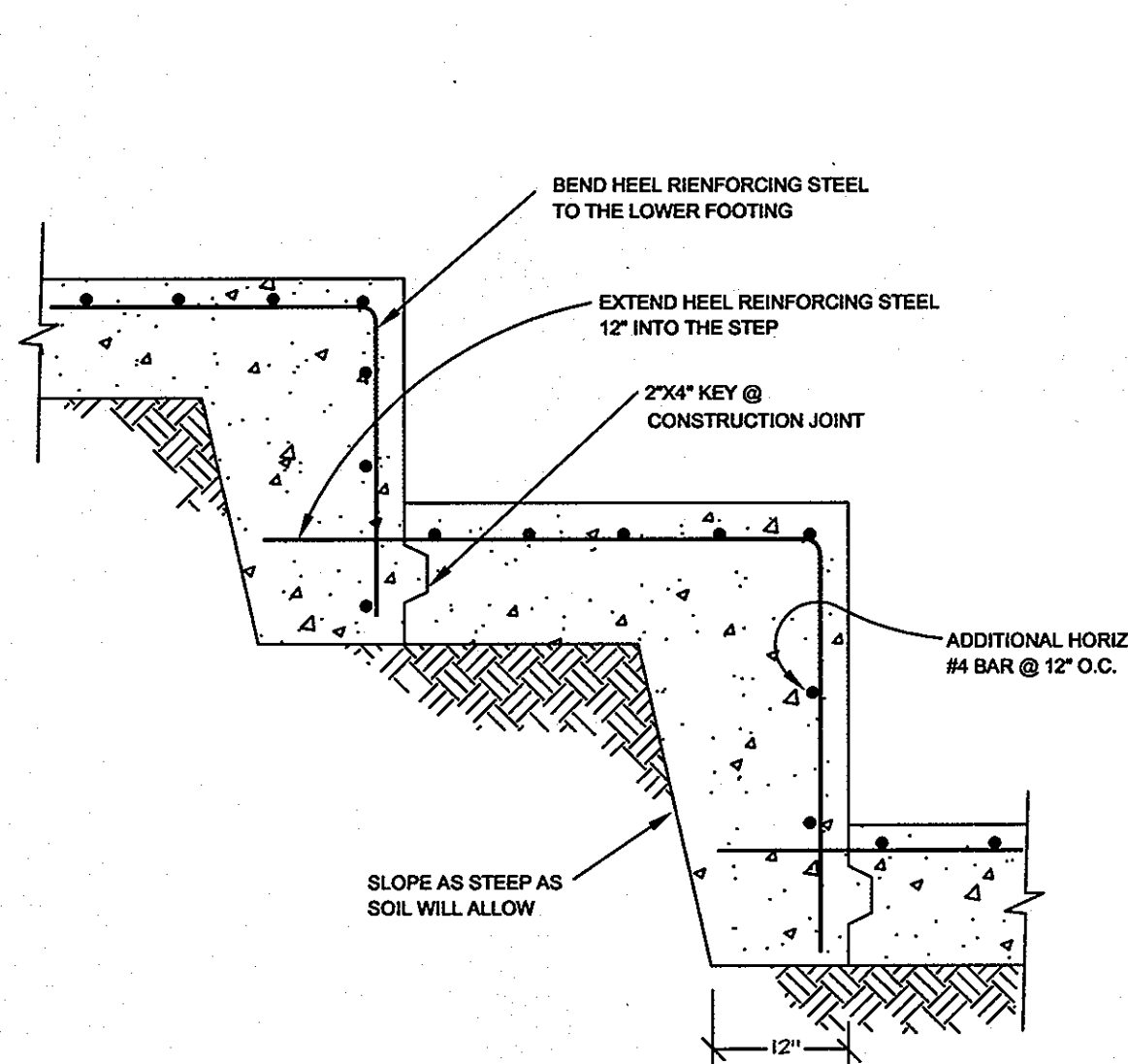
DESIGN BY: HM  
 DRAWN BY: HM  
 CHECKED BY: RWS  
 DATE: FEBRUARY 2008  
 SCALE: AS SHOWN  
 JOB NO.: 05534-B

PROFESSIONAL CERTIFICATE  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14424, EXPIRATION DATE: 05/13/09

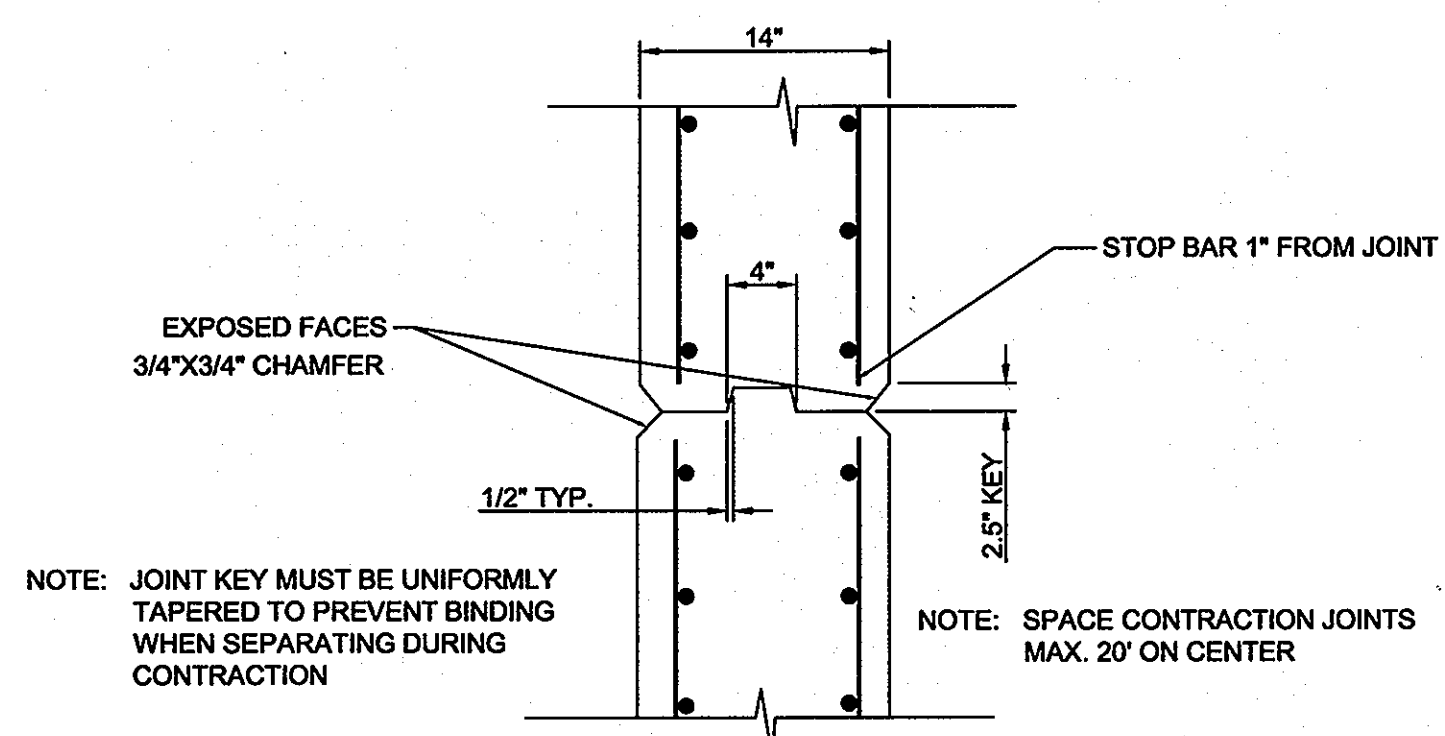
13 SHEET OF 15



WALL #2 STATION



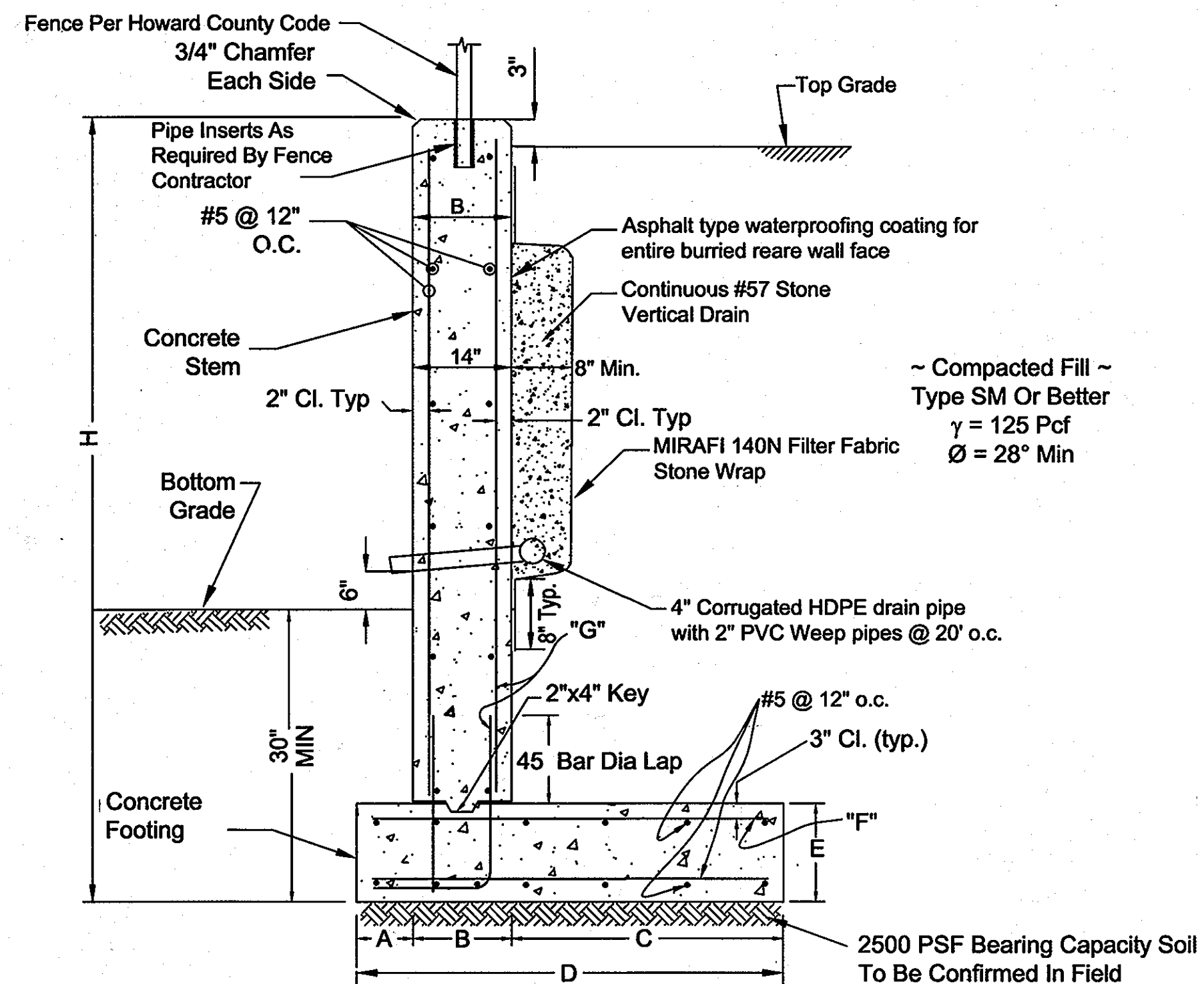
WALL STEP DETAIL  
NOT TO SCALE



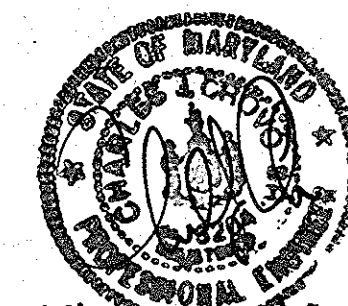
WALL STEM VERTICAL  
CONTRACTION JOINT C.J. DETAIL  
NOT TO SCALE

- NOTE:
- All retaining wall concrete shall be 4000 psi at 28 days with air entrainment.
  - Reinforcing steel shall conform to ASTM-615 Grade 60
  - Wall backfill shall be compacted to 95% of T-99
  - Concrete work shall comply with the latest ACI 318 Building code for concrete structures
  - All rebar splices not shown shall be a minimum 30 bar diam.
  - All wall exposed surfaces shall be mortar patched and sack-rubbed finished with grout and burlap.

FENCE SHALL BE MIN. 36" TALL WITH 4" MAXIMUM SPACING OF PICKETS.



WALL #2 SECTION  
NOT TO SCALE



OWNER: HOWARD COUNTY HOUSING COMMISSION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21064  
410-730-3725

DEVELOPER: BENDER PROPERTY II, LLC  
5304 DORSEY HALL DRIVE  
ELLICOTT CITY, MD 21042  
410-730-3725

1. Revise sheet no. to reflect added sheet BY F.C.C., Inc. 5-18-09  
NO. REVISION DATE

RETAINING WALL #2 ELEVATION & CONSTRUCTION DETAILS

ELLICOTT GARDENS  
PHASE 1 & 11  
TAX MAP 31 BLOCK 19 (DEED: 10190/263) PARCEL A (PARCEL 427)  
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
ENGINEERING ASSOCIATES

10975 Guilford Road, Suite A Annapolis Junction, Maryland  
(410) 880-4788 Fax: (410) 880-4098

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* 3/4/08  
CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* 4/24/08  
DIRECTOR: *[Signature]* 4/24/08

DESIGN BY: HM  
DRAWN BY: HM  
CHECKED BY: RWS  
DATE: FEBRUARY 2008  
SCALE: AS SHOWN  
JOB NO.: 05534-B

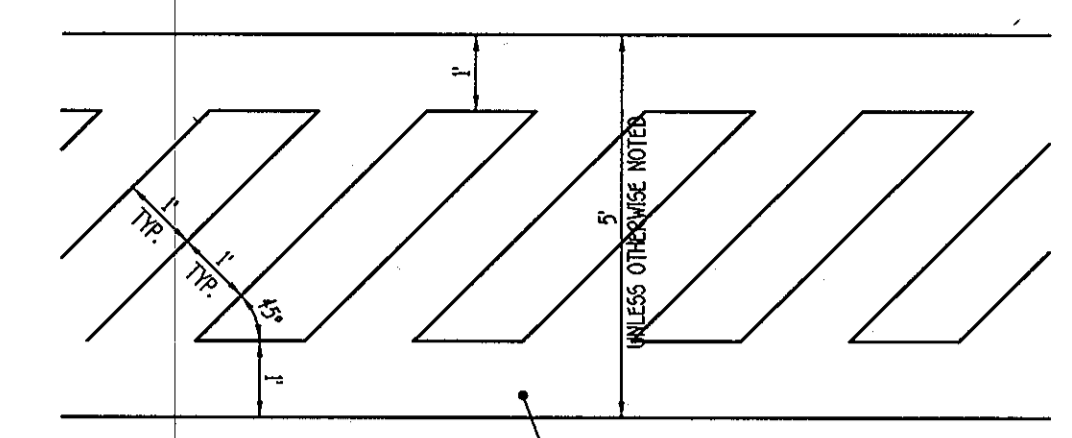
PROFESSIONAL CERTIFICATE  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 14434 EXPIRATION DATE 05/15/09

WATERLOO ROAD  
MARYLAND ROUTE 108  
(MINOR ARTERIAL)  
PLAT NO. 12457

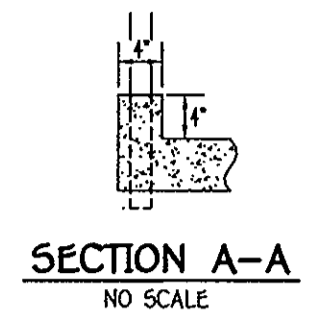
BARRINGTON COURT  
(LOCAL ROAD)

REV. GENE C. BRADFORD  
JACK BRADFORD  
TR31 P.473  
L2787 F.612  
ZONED: POR

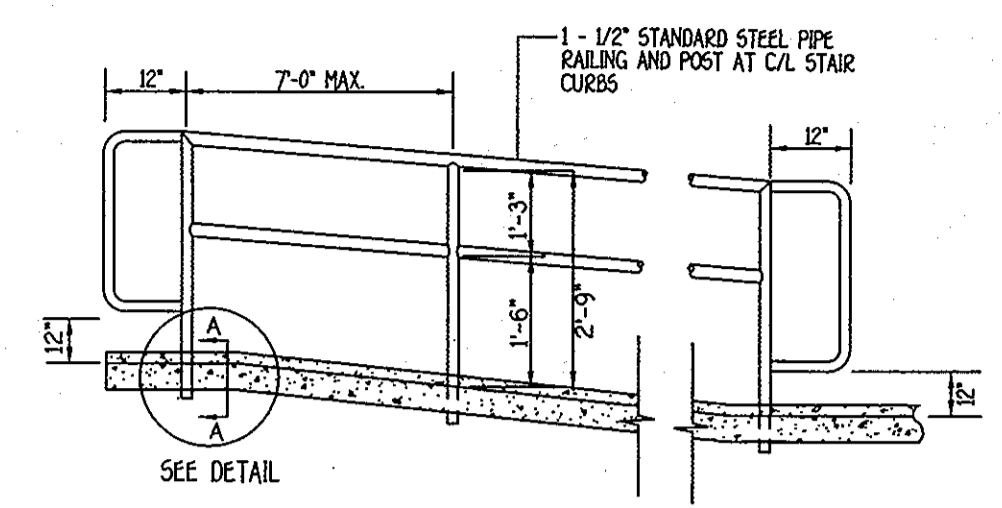
PROPOSED BUILDING  
LEVEL 1 = 502.80  
GARAGE = 491.30  
PHASE 1 (29 UNITS)  
PHASE 2 (77 UNITS)



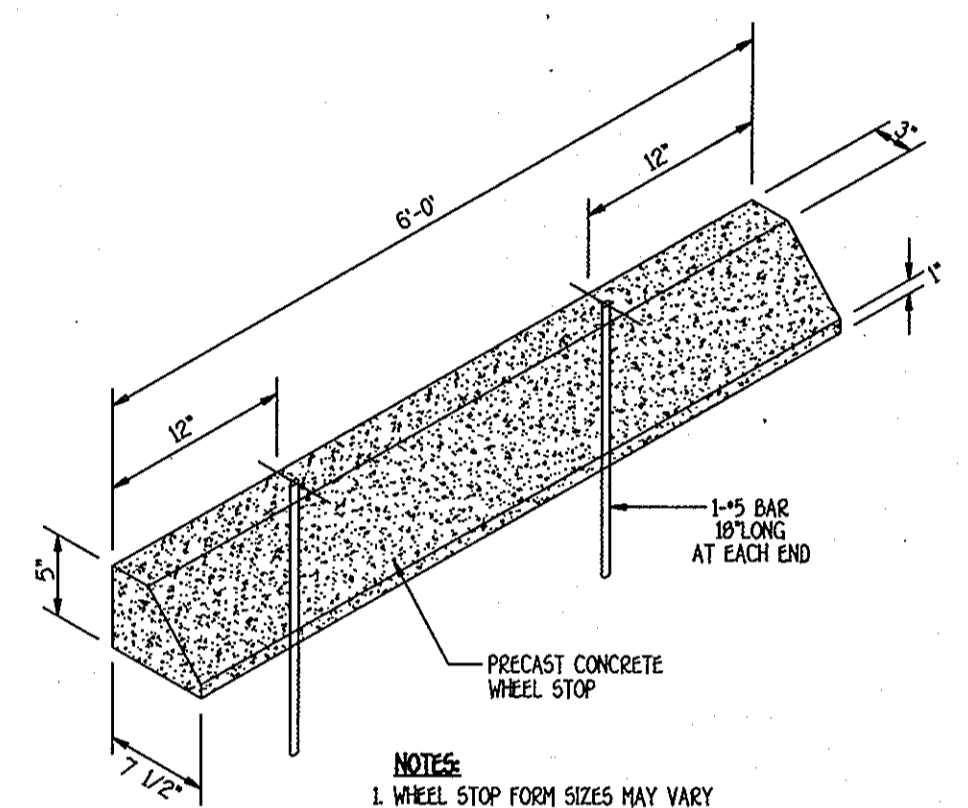
CROSSWALK DETAIL  
NO SCALE



SECTION A-A  
NO SCALE

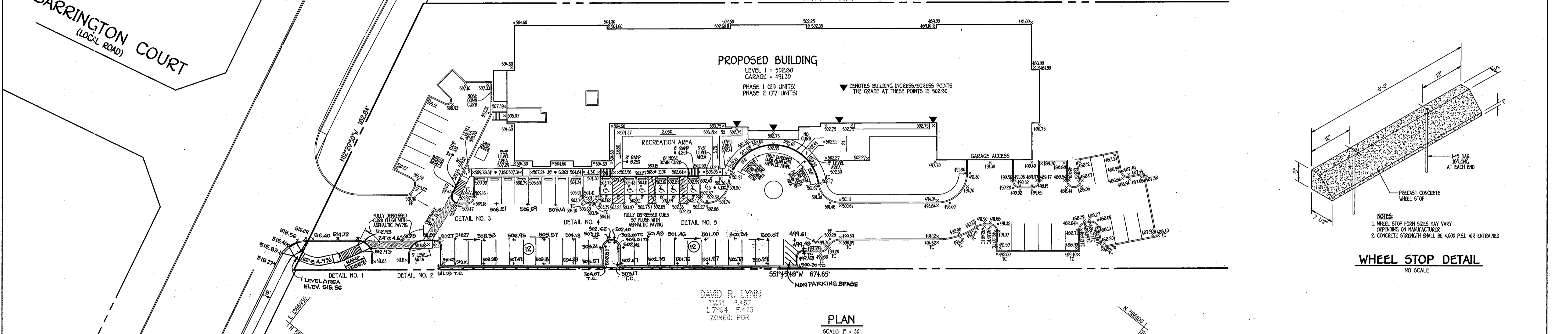


HAND RAIL DETAIL  
NO SCALE



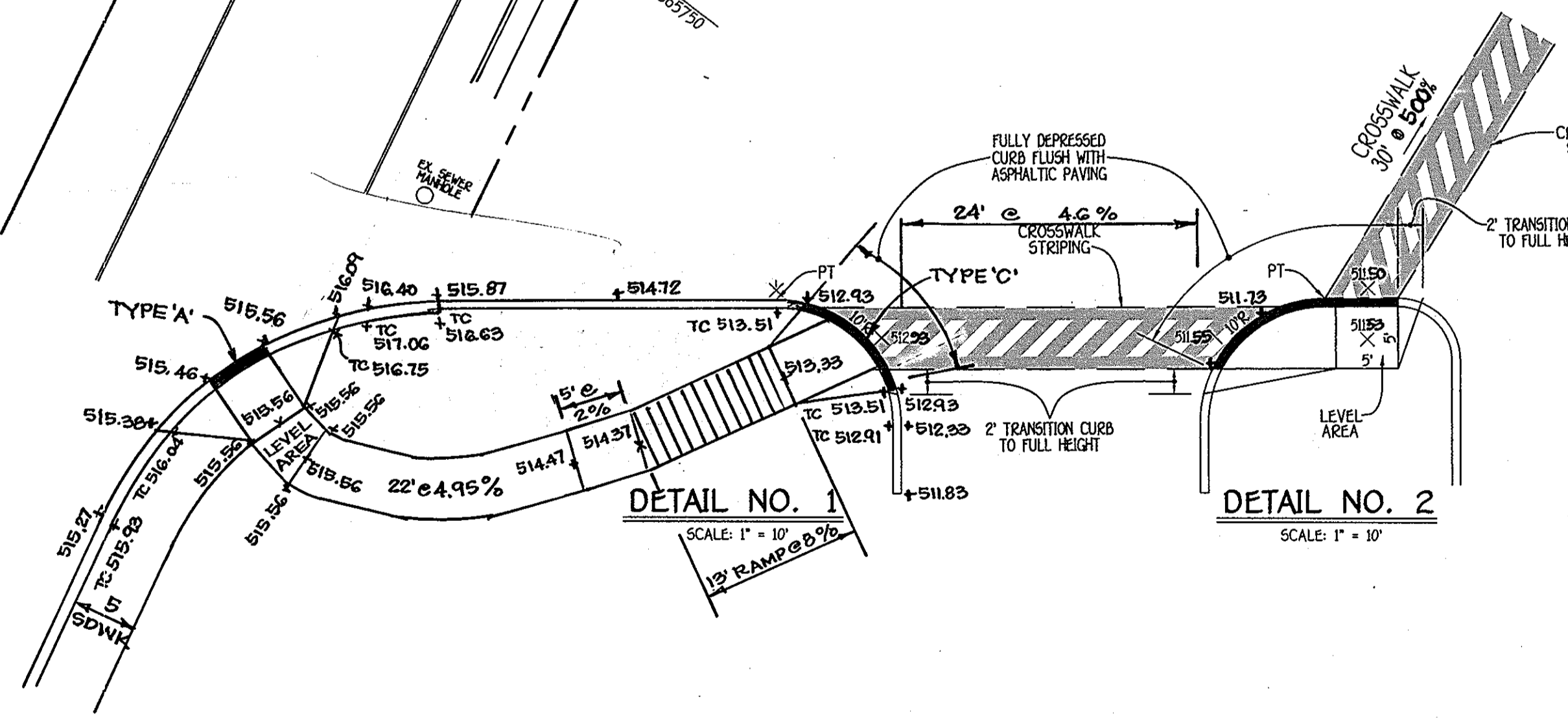
WHEEL STOP DETAIL  
NO SCALE

NOTES:  
1. WHEEL STOP FORM SIZES MAY VARY DEPENDING ON MANUFACTURER.  
2. CONCRETE STRENGTH SHALL BE 4000 P.S.I. AIR ENTRAINED.



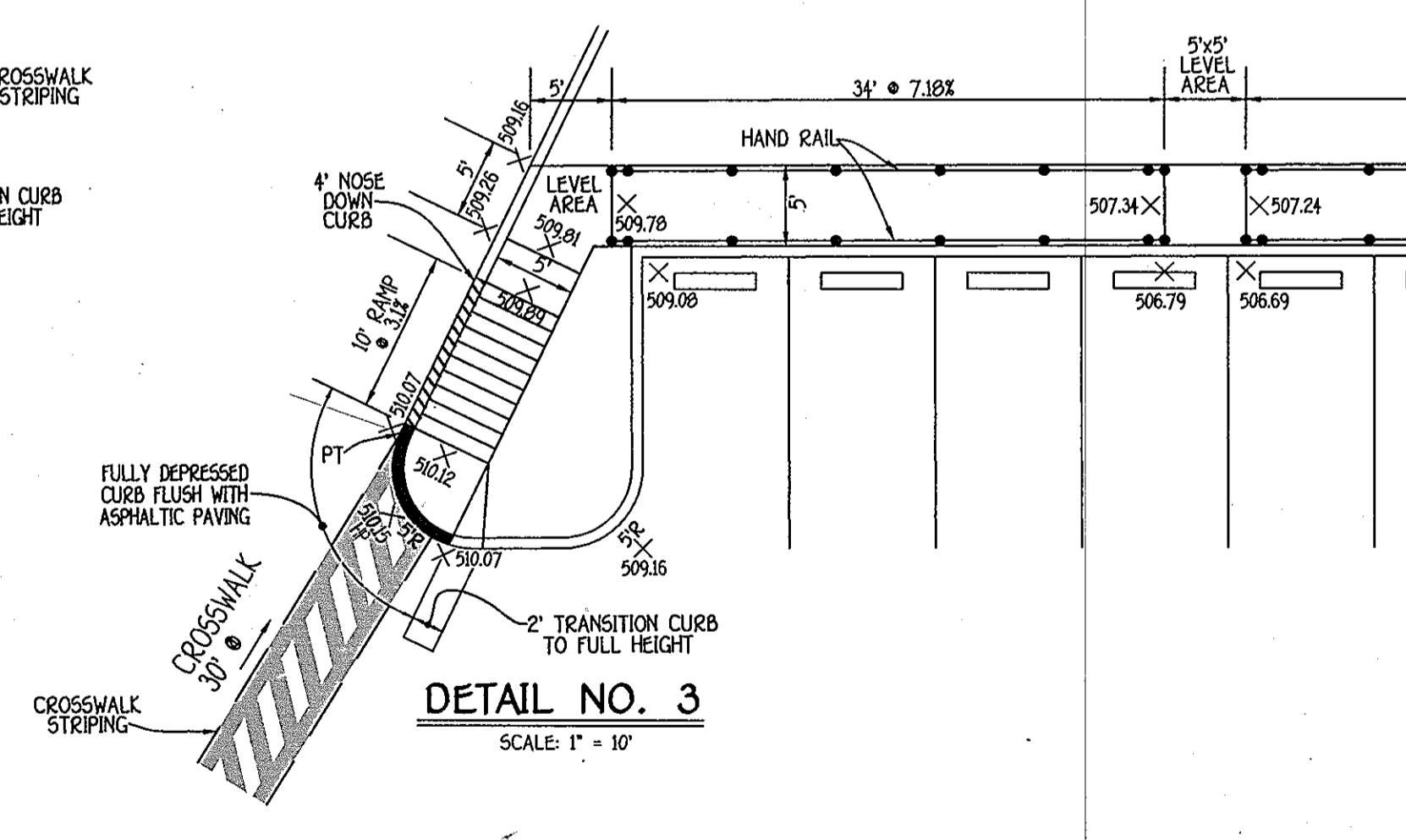
PLAN  
SCALE: 1" = 30'

DAVID R. LYNN  
TR31 P.407  
L7894 F.473  
ZONED: POR

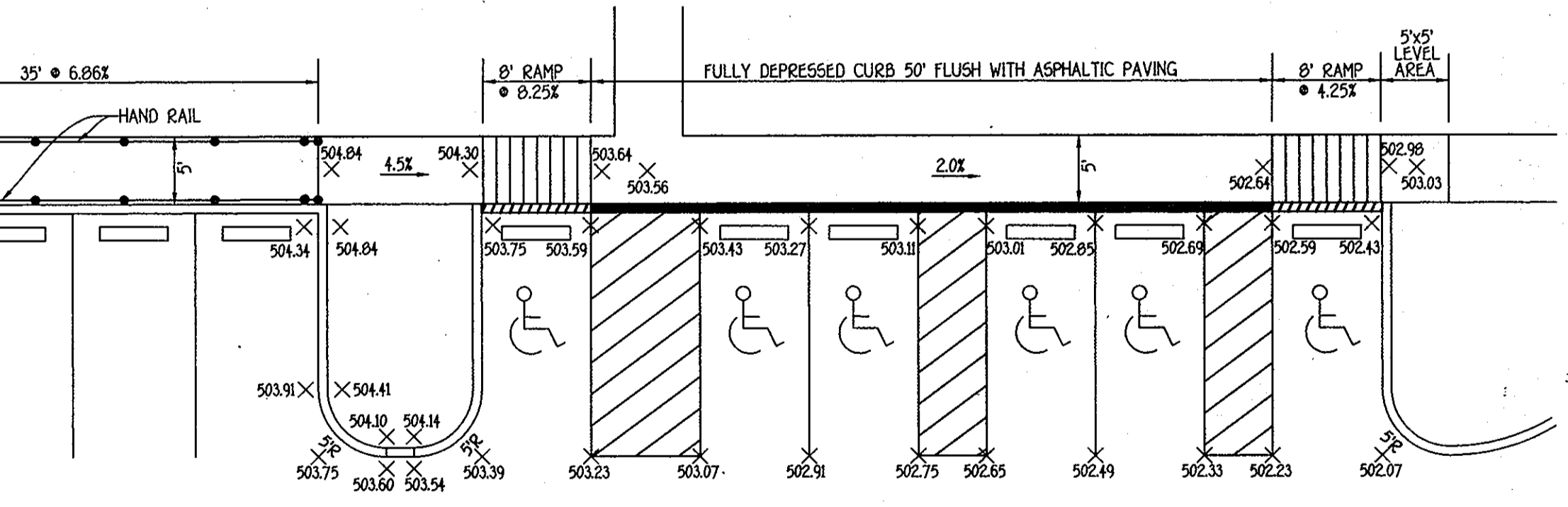


DETAIL NO. 1  
SCALE: 1" = 10'

DETAIL NO. 2  
SCALE: 1" = 10'



DETAIL NO. 3  
SCALE: 1" = 10'



DETAIL NO. 4  
SCALE: 1" = 10'

DETAIL NO. 5  
SCALE: 1" = 10'

NOTE: THE PURPOSE OF THIS PLAN IS TO RELOCATE THE HANDICAP ACCESS FROM MARYLAND ROUTE 108 TO THE PROPOSED BUILDING.

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10775 BALTIMORE NATIONAL Pk.  
ELLICOTT CITY, MARYLAND 21042  
410 461-2955

NO.	REVISION	DATE
1	Rev. Parking along SE prop. to add spaces, 6-30-09	
	Rev handicap sidewalk and ramp per "as built" conditions at Md. Rt. 108 ent. by F.C.C., Inc.	

OWNER  
HOWARD COUNTY HOUSING COMMISSION  
675 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MARYLAND 21064  
410-730-3725

BUILDER/DEVELOPER  
BENDER PROPERTY II, LLC  
5304 DORSEY HALL DRIVE  
ELLICOTT CITY, MARYLAND 21042  
410-730-3725

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Cindy Hambo* 6/14/09  
Chief, Division of Land Development Date

*Chad Deussen* 6/13/09  
Chief, Development Engineering Division Date

*Mona S. Stottle* 6/14/09  
Director - Department of Planning and Zoning Date

PROJECT	ELLICOTT GARDENS	SECTION	PARCEL NO. 'A' PARCEL 427
PLAT NO.	19829 & 19830	BLOCK NO.	19
DEED REF.	1090/253	ZONE	PEC-MXD-3
WATER CODE	G07	TAX/ZONE	31
		ELEC. DIST.	1
		CENSUS TR.	6011.02
		SEWER CODE	2700000

HANDICAP ACCESS PLAN & DETAILS

"REVISED SITE DEVELOPMENT PLAN"  
ELLICOTT GARDENS  
PHASE 1 & 2

TAX MAP NO: 31 PARCEL NO: 427 GRID NO: 19  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: APRIL, 2009  
SHEET 15 OF 15