

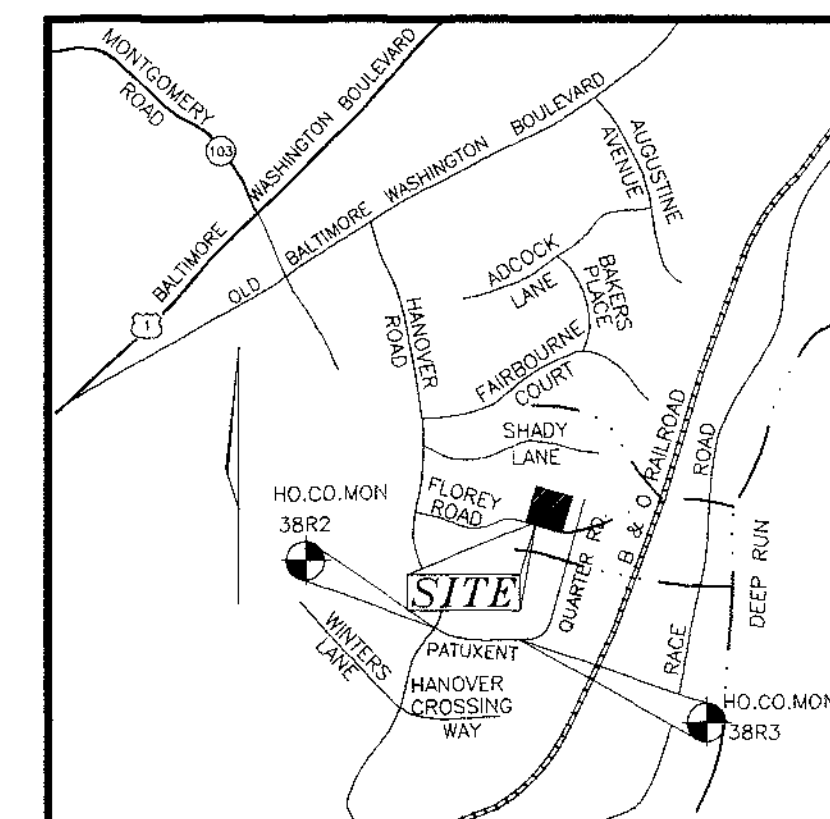
SHEET INDEX	
1	COVER SHEET
2	ROAD CONSTRUCTION PLAN
3	ROAD PROFILES
4	GRADING AND SEDIMENT CONTROL PLAN
5	STORM DRAIN DRAINAGE AREA MAP
6	LANDSCAPE PLAN
7	SEDIMENT CONTROL AND STORMWATER MANAGEMENT NOTES AND DETAILS
8	STORM DRAIN AND STORMWATER MANAGEMENT PROFILES
9	FOREST CONSERVATION PLAN

# WHITETAIL WOODS

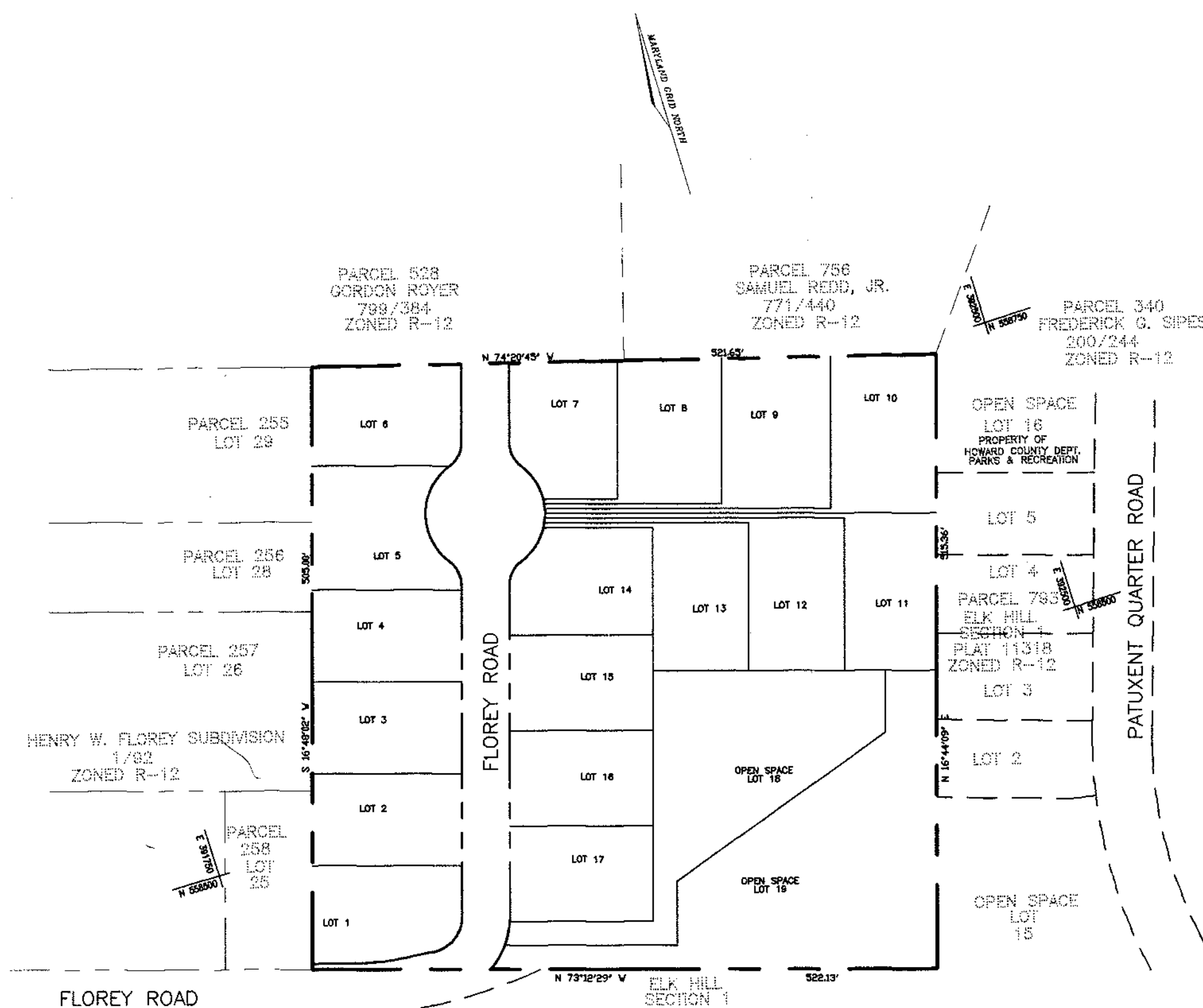
## LOTS 1 THRU 17 & OPEN SPACE LOTS 18 & 19

### FINAL ROAD CONSTRUCTION PLANS

#### HOWARD COUNTY, MARYLAND



VICINITY MAP  
SCALE: 1"=2000'



PLAN  
SCALE: 1"=100'

**GENERAL NOTES**

- ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- PROJECT BACKGROUND:  
LOCATION: TAX MAP 38 BLOCK 15 PARCEL 262  
1ST ELECTION DISTRICT  
ZONING: R-12  
TOTAL TRACT AREA: 6.112 AC.  
NUMBER OF PROPOSED LOTS: 17 SFD, 2 OPEN SPACE  
DATE SKETCH PLAN APPROVED: JUNE 24, 1998  
APPLICABLE DPZ FILE NUMBERS: S-98-11, P-98-08
- TRACT BOUNDARY ESTABLISHED BY A BOUNDARY SURVEY BY VOGEL & ASSOCIATES, INC. DATED DECEMBER, 1997.
- TOPOGRAPHY BASED ON A FIELD RUN SURVEY PREPARED BY VOGEL & ASSOCIATES, INC. DATED AUGUST, 1998. CONTOUR INTERVAL IS 2 FEET.
- COORDINATES BASED ON NAD 83, MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS.  
38R2 N 557,500.683 E 391,227.052  
38R2 N 557,417.823 E 391,983.177
- WATER AND SEWER FOR THIS PROJECT WILL BE PUBLIC:  
WATER & SEWER CONTRACT NO. 14-3281-D
- EXISTING UTILITIES WERE LOCATED PER COUNTY DRAWINGS AND FIELD RUN SURVEY.
- STORMWATER MANAGEMENT METHOD: EXTENDED DETENTION OF 1 YR. (WATER QUALITY), 2 YR. AND 10 YR. STORMS. THE FACILITY IS TO BE PRIVATELY OWNED AND JOINTLY MAINTAINED BY HOWARD COUNTY AND THE HOMEOWNERS ASSOCIATION.
- FOREST CONSERVATION PLAN PREPARED BY EXPLORATION RESEARCH, INC. DATED OCTOBER, 1998.
- A TRAFFIC STUDY WAS APPROVED(S-98-11) FOR THIS PROJECT.
- THERE IS NO FLOODPLAIN ON SITE.
- GEOTECHNICAL REPORT PROVIDED BY HERBST/BENSON & ASSOC. DATE SEPTEMBER, 1998.
- ALL LANDSCAPING REQUIREMENTS AS SET FORTH IN THE LANDSCAPE MANUAL SHALL BE COMPLIED WITH(SEE SHEET 6). FINANCIAL SURETY FOR THE REQUIRED PERIMETER LANDSCAPING WILL BE POSTED AS PART OF THE D.P.W. DEVELOPER'S AGREEMENT.
- THE EXISTING STRUCTURE ON LOTS 16 & 17 IS TO BE RAZED.
- OPEN SPACE LOT 19 TO BE DEDICATED TO HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS. OPEN SPACE LOT 18 TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
- BASED ON A FIELD INVESTIGATION BY EXPLORATION RESEARCH, INC. ON APRIL, 1998, WATERS OF THE U.S. ARE LOCATED ONSITE. THERE ARE NO WETLANDS ONSITE. THERE WILL BE NO GRADING OR DISTURBANCE WITHIN THE 50' STREAM BUFFER, 25' WETLAND BUFFER AND FOREST CONSERVATION EASEMENT.
- THERE ARE STEEP SLOPES LOCATED ONSITE.
- FLOY ROAD IS A PUBLIC ROAD BY MEANS OF A 30' PRESCRIPTIVE RIGHT-OF-WAY.
- ★ DENOTES STREET LIGHTS. ALL STREET LIGHTS ARE TO BE 100-WATT TRADITIONARE HPS VAPOR POST TOP FIXTURES ON A 14' BLACK FIBERGLASS POLE.

**OWNER/DEVELOPER**  
T.B.I. HOMES, INC.  
7320 GRACE DRIVE  
COLUMBIA, MD. 21044

NO.	REVISION	DATE

NO. REVISION DATE

**WHITETAIL WOODS**  
LOTS 1-17 AND OPEN SPACE LOTS 18 & 19  
COVER SHEET

TAX MAP# 38 PARCEL# 262 BLOCK# 15  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**VOGEL & ASSOCIATES**  
ENGINEERS/SURVEYORS/PLANNERS  
3691 Park Avenue, Suite 101 • Ellicott City, Maryland 21043  
Tel 410.461.5828 Fax 410.465.3666

	DESIGN BY: J.C.O.
	DRAWN BY: J.C.O.
	CHECKED BY: R.H.V.
	DATE: FEBRUARY 7, 2000
SCALE: AS SHOWN	
W.O. NO.: 97-77	
1 SHEET OF 9	

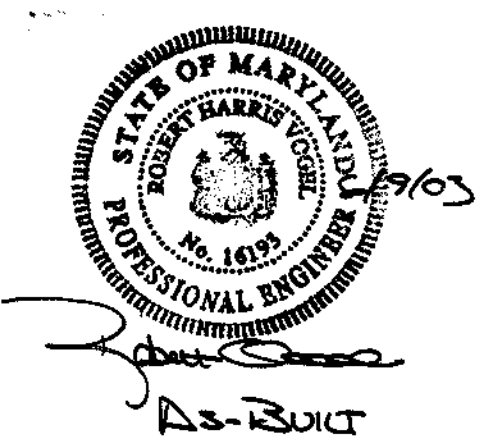
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*Richard M. Daniels* 3/1/00  
CHIEF, BUREAU OF HIGHWAYS DATE

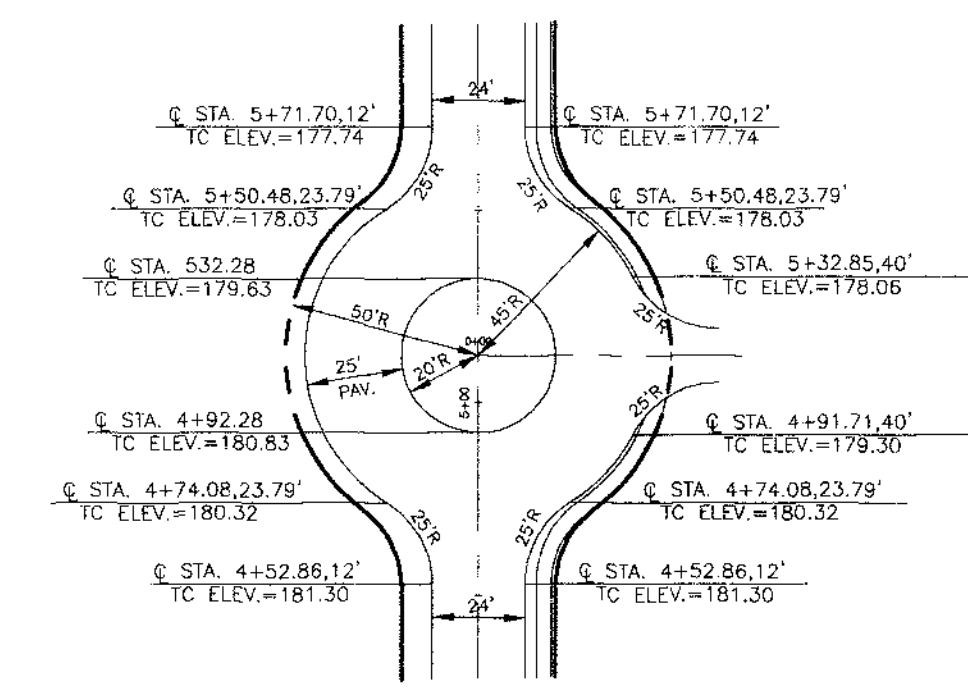
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*Cindy Brundage* 3/22/00  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

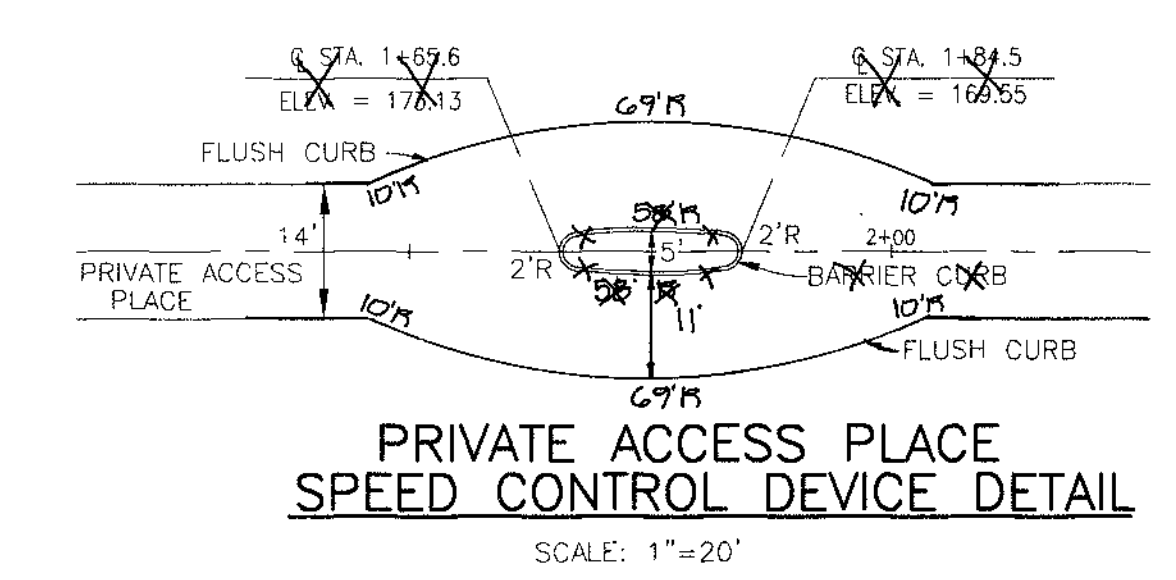
*Chris Dammann* 3/9/00  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



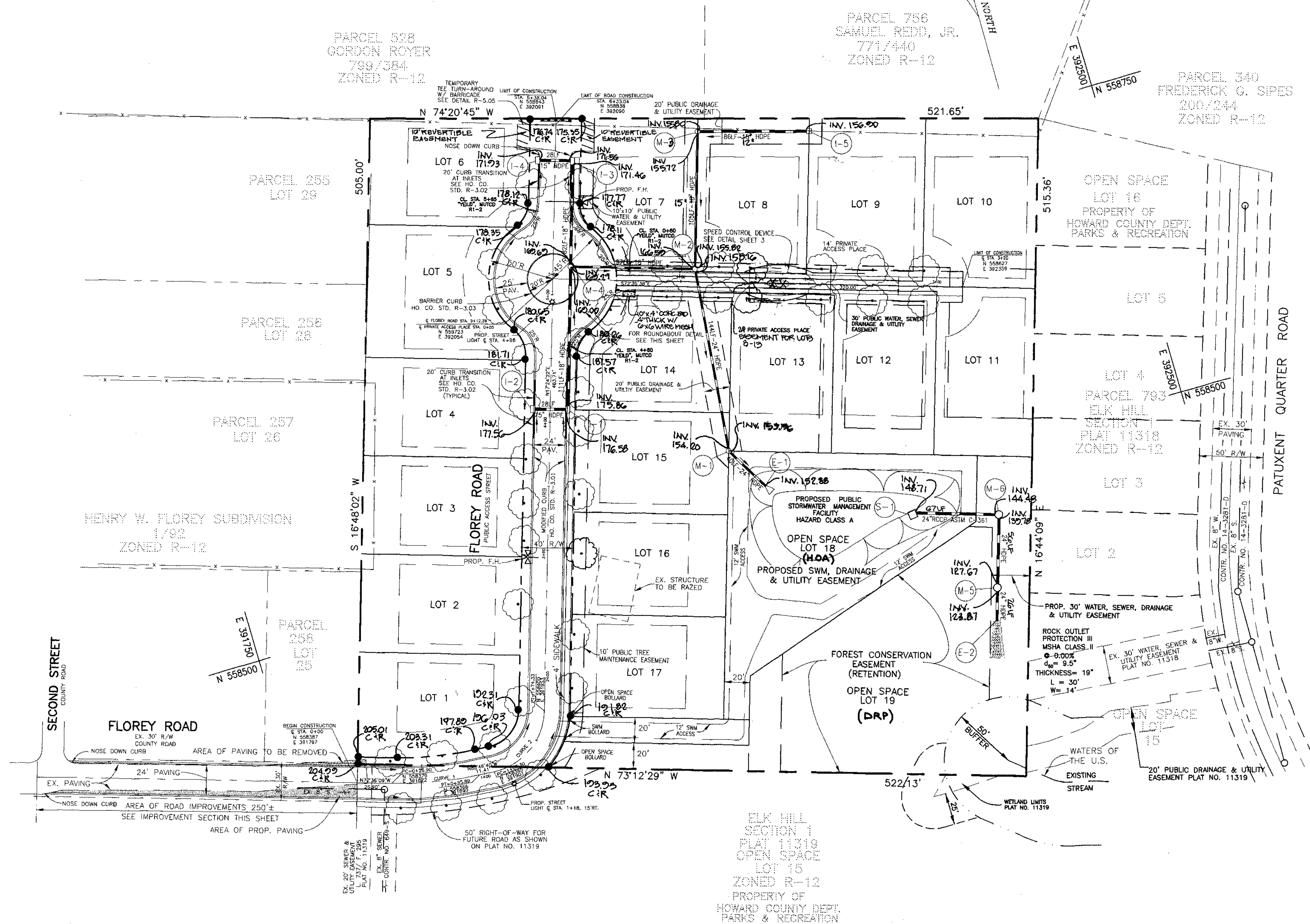
C CURVE DATA CHART					
CURVE	RADIUS	LENGTH	TANGENT	CHORD	DELTA
CURVE 1	300.00'	68.98'	34.65'	68.83'	S 79°47'45" E 13°10'31"
CURVE 2	50.00'	67.03'	39.64'	62.13'	S 55°12'31" W 76°48'58"



**ROUNDABOUT DETAIL**  
SCALE: 1"=50'



**PRIVATE ACCESS PLACE SPEED CONTROL DEVICE DETAIL**  
SCALE: 1"=20'



**PLAN**  
SCALE: 1"=50'

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**WHITETAIL WOODS**  
LOTS 1-17 AND OPEN SPACE LOTS 18 & 19  
**ROAD CONSTRUCTION PLAN**

TAX MAP# 38 PARCEL# 262 BLOCK# 15  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**VOGEL & ASSOCIATES**  
ENGINEERS-SURVEYORS-PLANNERS

3691 Park Avenue, Suite 101 • Ellicott City, Maryland 21043  
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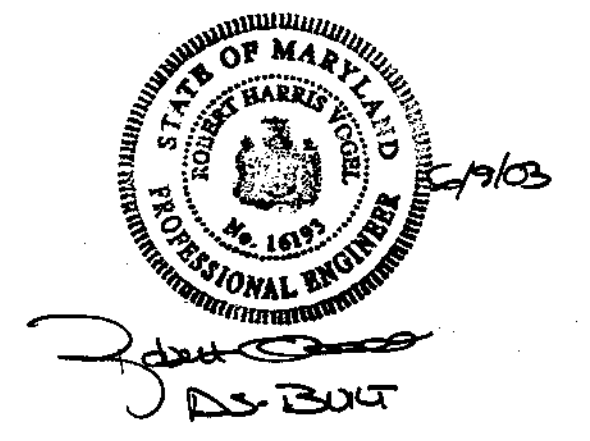
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2 SHEET 9  
OF

**STREET LIGHT LOCATION CHART**

STREET NAME	CENTERLINE STATION	CENTERLINE OFFSET
SECOND STREET	111.8	15' EX.
FLOREY ROAD	44.70	0'

SEE GENERAL NOTE 19 FOR TYPE OF LIGHT.



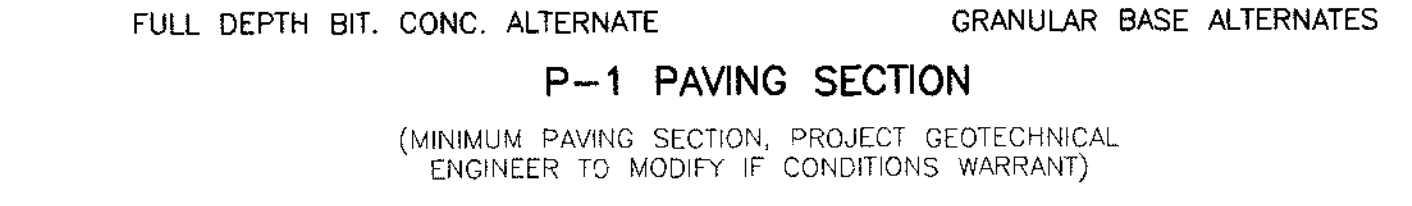
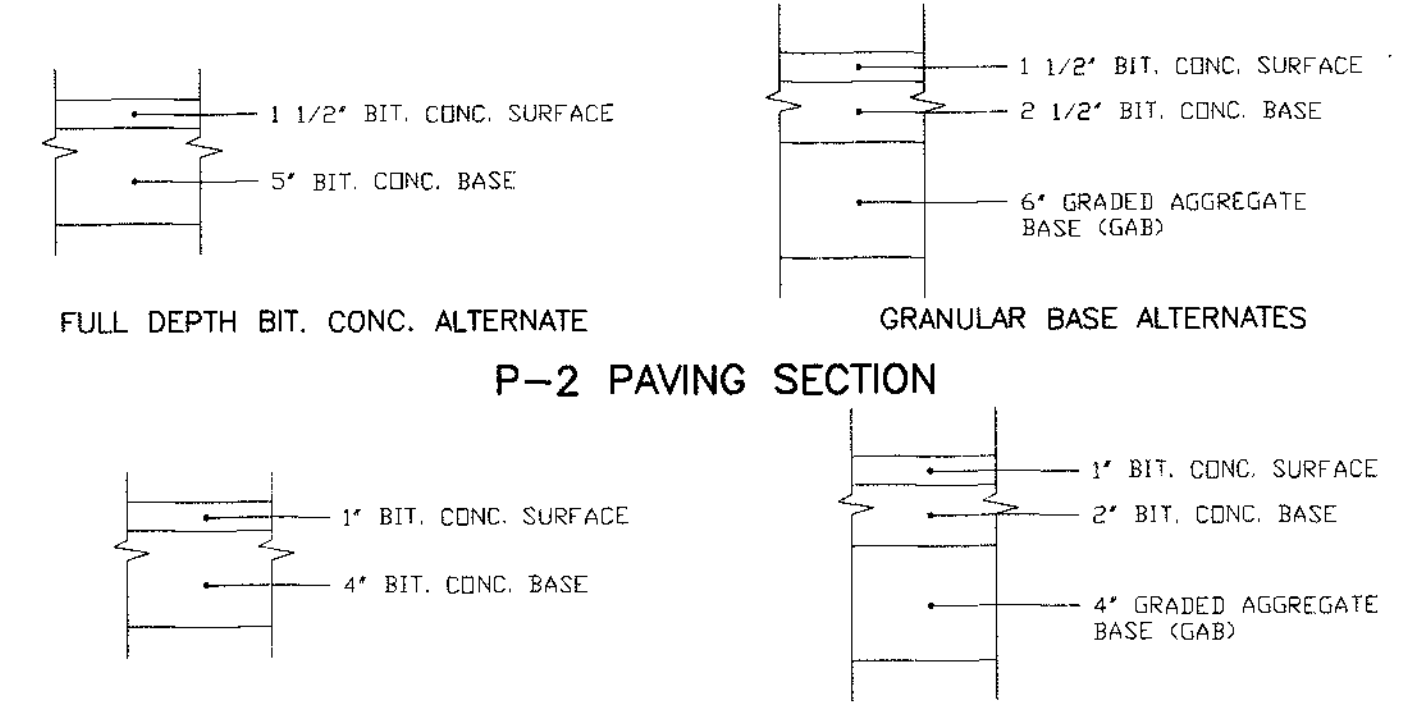
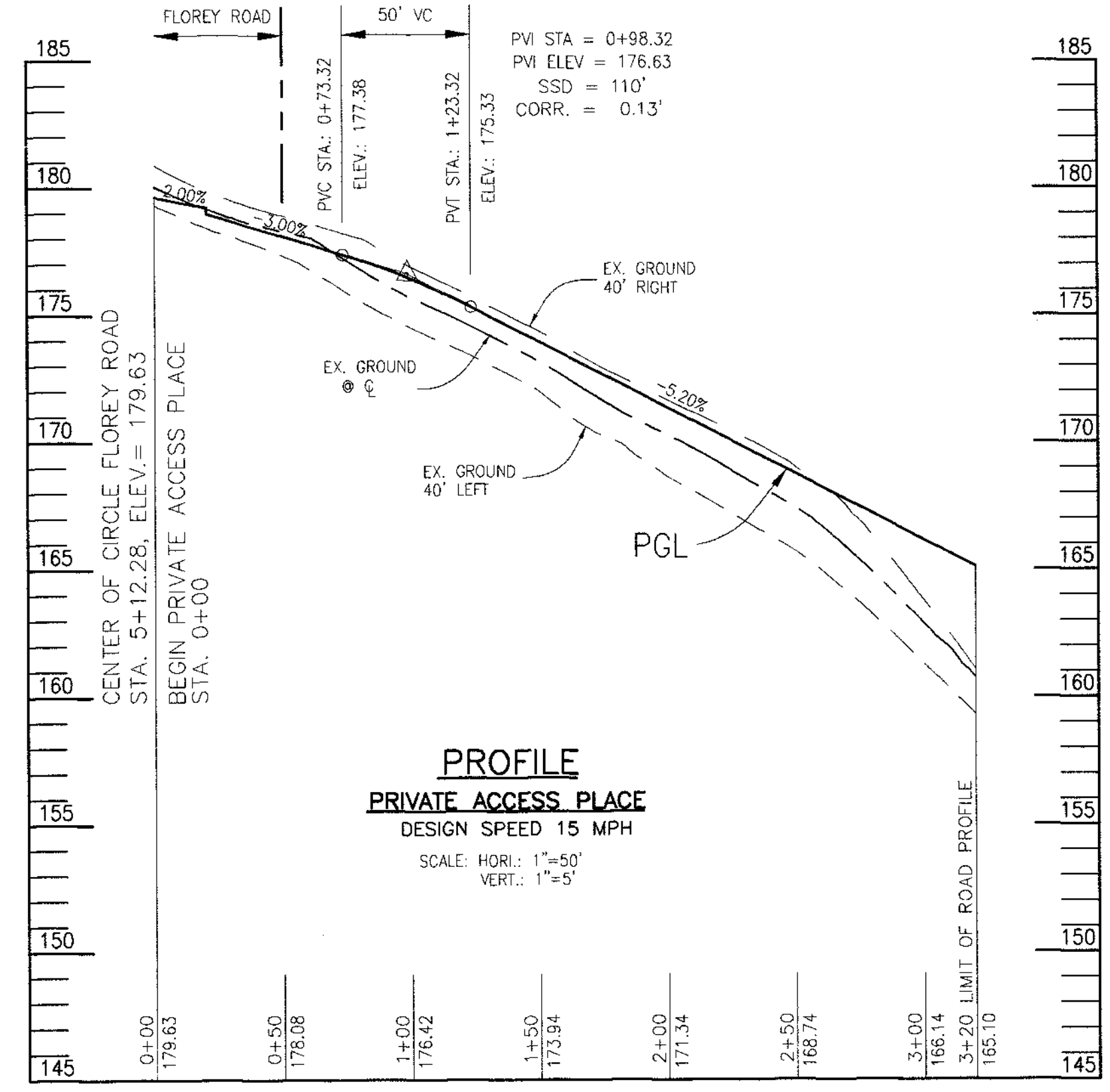
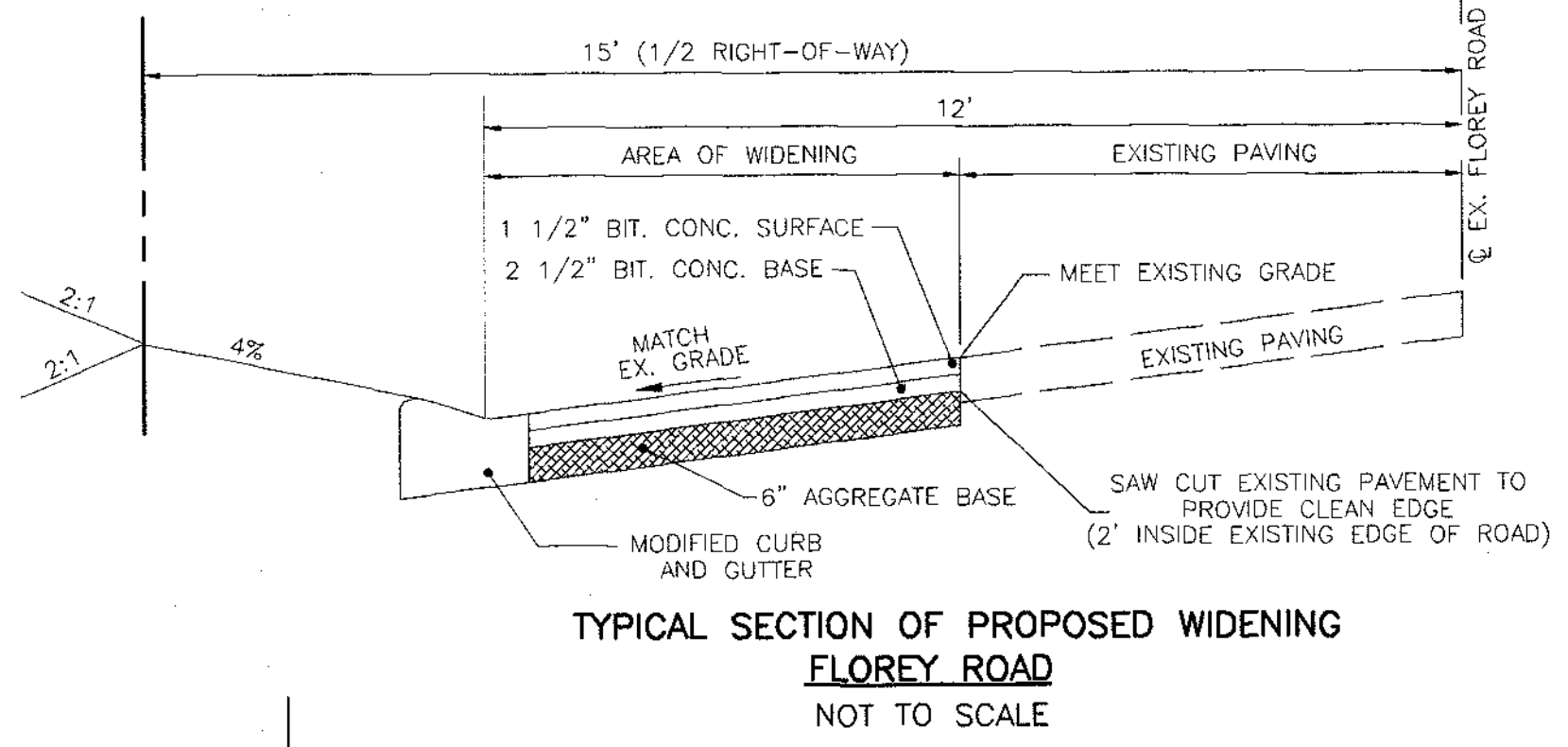
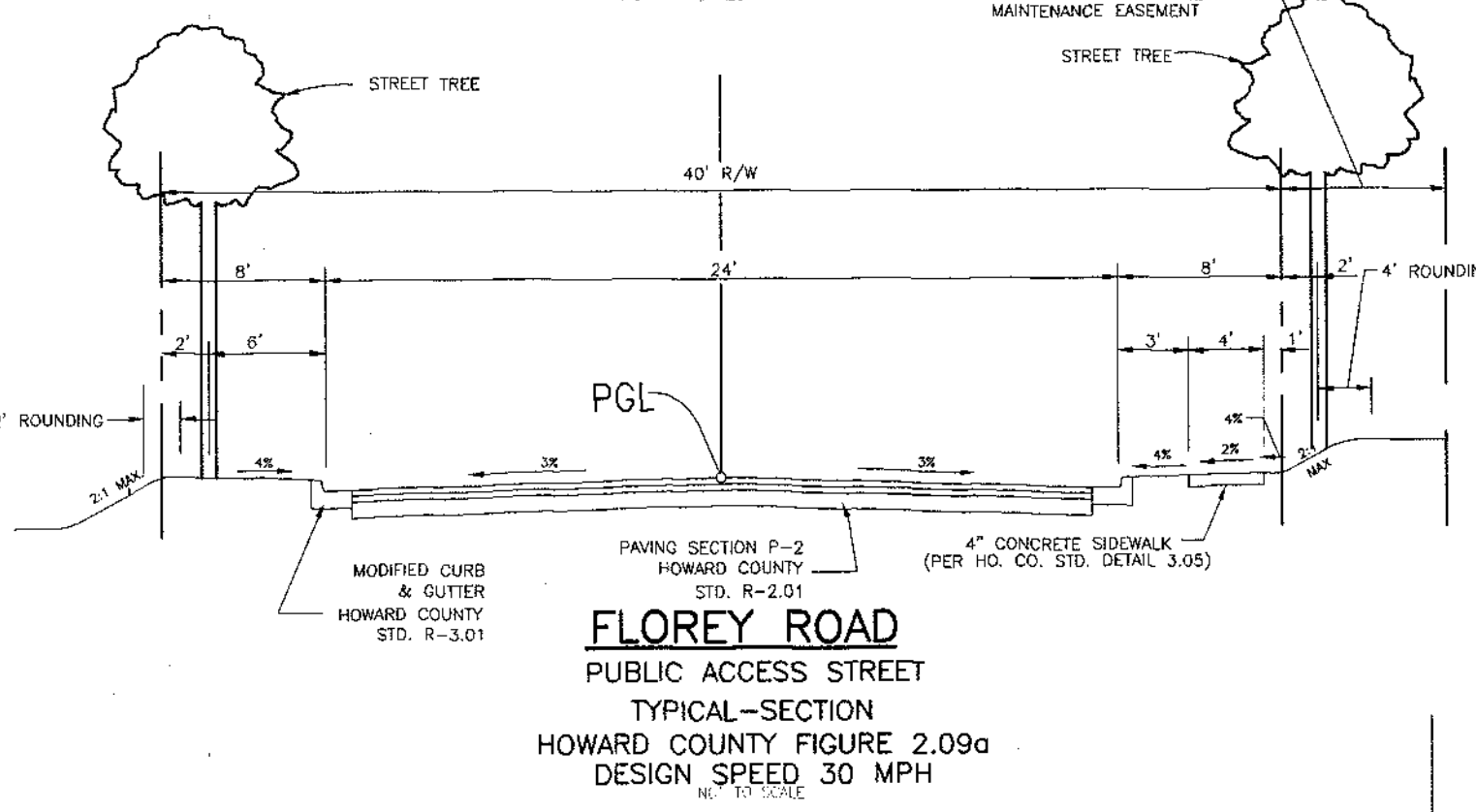
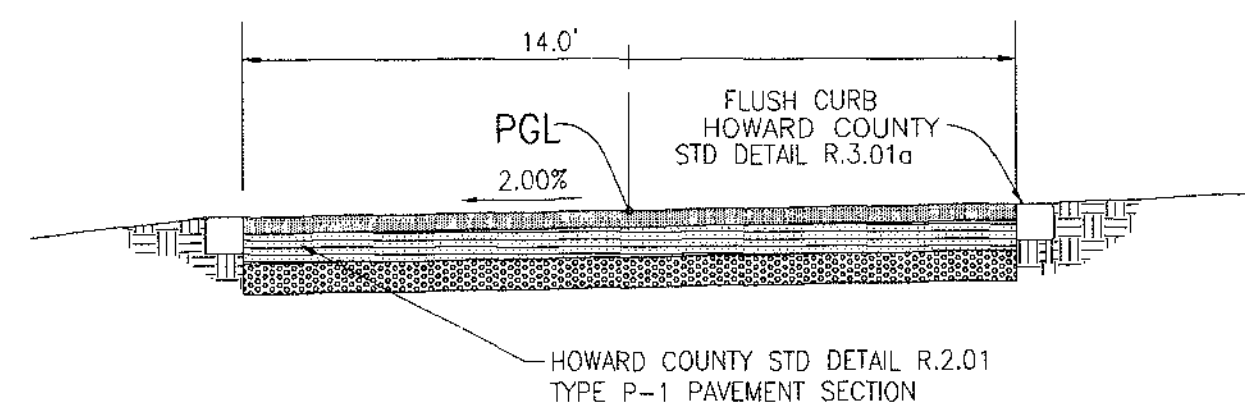
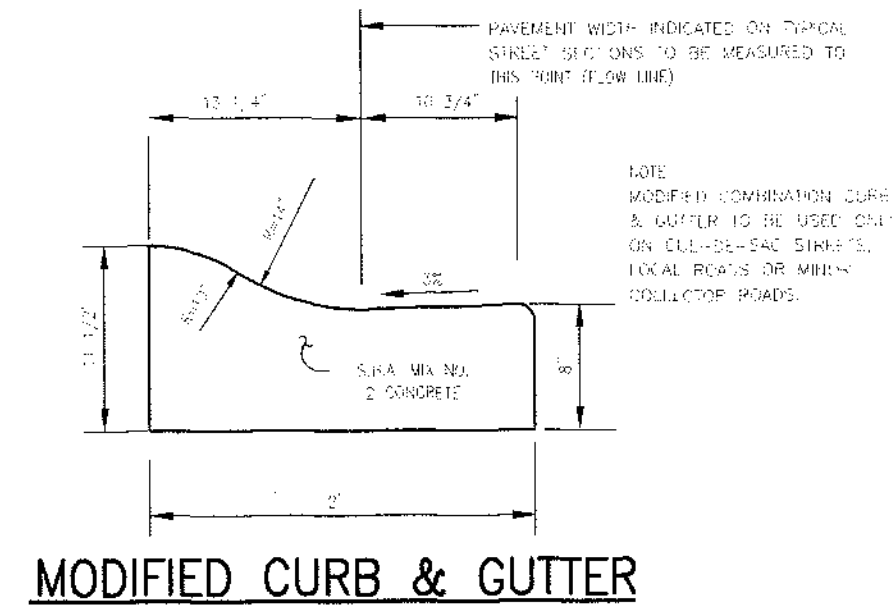
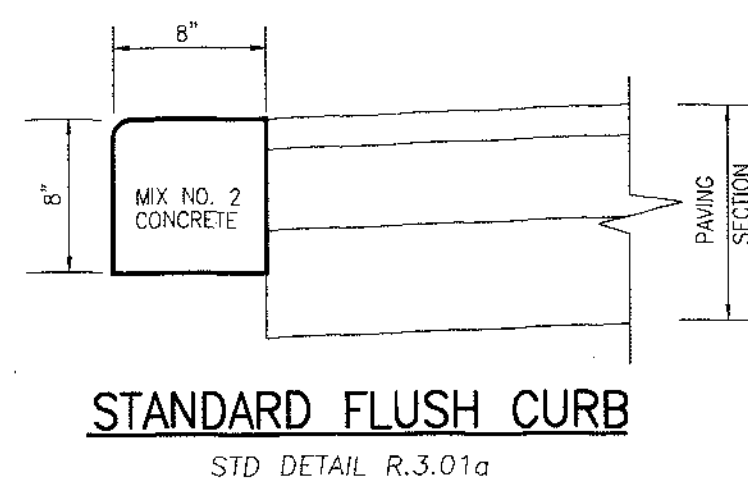
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*Robert M. ...* 3/1/00  
CHIEF, BUREAU OF HIGHWAYS DATE

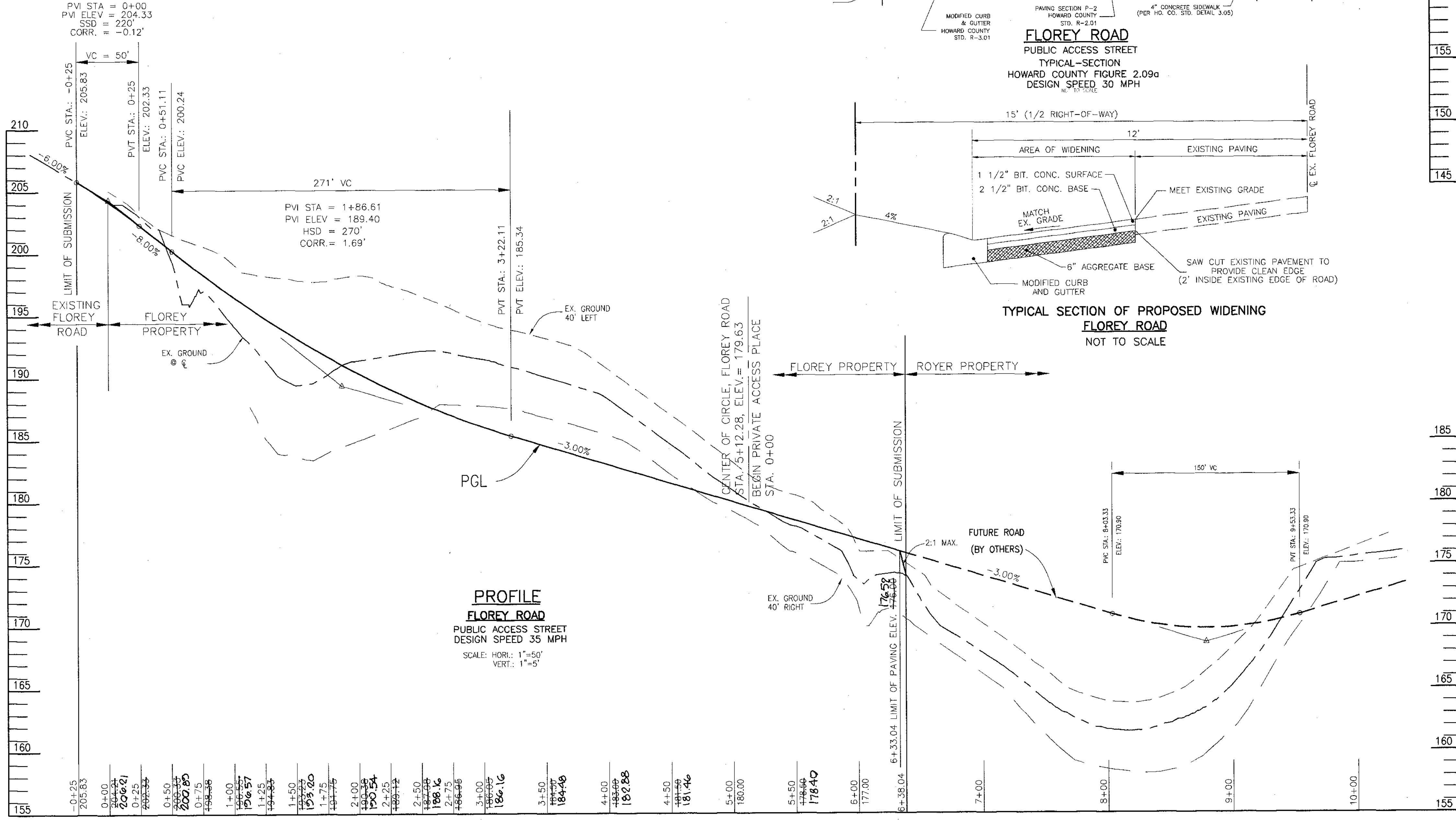
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Carida ...* 3/2/00  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Robert H. Vogel* 3/9/00  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



**OWNER/DEVELOPER**  
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7320 GRACE DRIVE  
COLUMBIA, MD. 21044



NO.	REVISION	DATE

**WHITETAIL WOODS**  
LOTS 1-17 AND OPEN SPACE LOTS 18 & 19  
**ROAD CONSTRUCTION PLAN, PROFILE AND DETAILS**  
TAX MAP # 38 PARCEL # 262 BLOCK # 15  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**VOGEL & ASSOCIATES**  
ENGINEERS SURVEYORS PLANNERS  
3681 Park Avenue, Suite 101 • Ellicott City, Maryland 21043  
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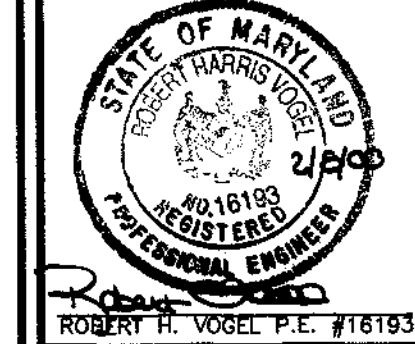
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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Robert M. Frank* 3-1-00  
CHIEF, BUREAU OF HIGHWAYS DATE

*Cindy Hamada* 3/2/00  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

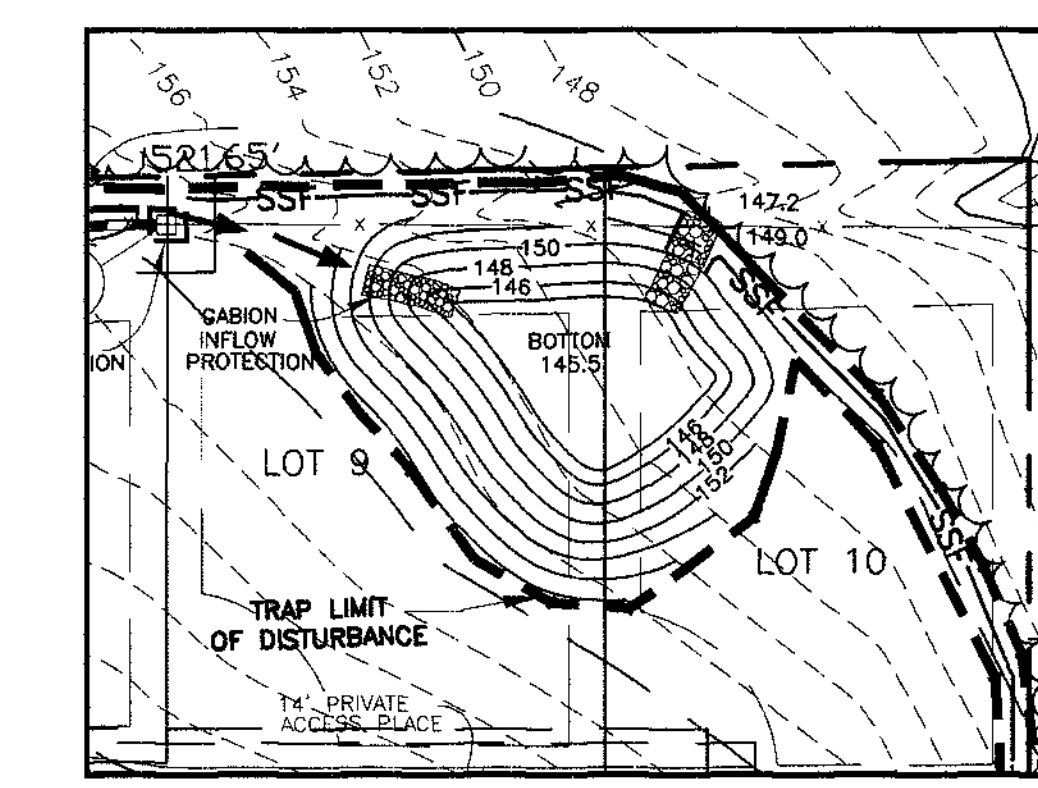




SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	TYPE
C1C3	CHILLUM GRAVELLY LOAM, 5 TO 10 PERCENT SLOPES, SEVERELY ERODED	C
C1C2	CHILLUM GRAVELLY LOAM, 10 TO 15 PERCENT SLOPES, MODERATELY ERODED	C
ScB	SANDY AND CLAYEY LOAM, GENTLY SLOPING	C
ScE	SANDY CLAYEY LOAM, MODERATELY STEEP	C
SsE	SASSAFRAS LOAM, 15 TO 40 PERCENT SLOPES	B

NOTE:  
- HOWARD SOIL SURVEY, MAP NUMBER 26

4. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPOONY OR OTHER UNSUITABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.
5. BACKFILLING SHALL CONFORM TO STRUCTURAL BACKFILL AS SHOWN ABOVE.
6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.
7. REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:
1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT ENDS WITH RUBBER GASKETS AND SHALL CONFORM TO DESIGNATION C-361.
  2. BEDDING - ALL REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN CONCRETE BEDDING FOR THEIR ENTIRE LENGTH. THIS BEDDING SHALL CONSIST OF 4" MINIMUM THICKNESS OF 15% TO 24.9% SLOPES WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE CONCRETE BEDDING IS PLACED, THE PIPE AT LEAST 10% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 1/2" SHALL BE COVERED WITH A MINIMUM OF 6" OF 15% TO 24.9% SLOPES.
  3. LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UP AND THE SPIGOT END DOWN. THE PIPE SHALL BE PLACED WITH THE BELL END UP AND THE SPIGOT END DOWN. THE PIPE SHALL BE PLACED WITH THE BELL END UP AND THE SPIGOT END DOWN. THE PIPE SHALL BE PLACED WITH THE BELL END UP AND THE SPIGOT END DOWN.
  4. BACKFILLING SHALL CONFORM TO STRUCTURAL BACKFILL AS SHOWN ABOVE.
  5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.
8. CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 608, MIX NO. 3.
9. CARE OF WATER DURING CONSTRUCTION
10. ALL WORK ON THE PERMANENT STRUCTURES SHALL BE CARRIED OUT IN SUCH A MANNER THAT THE CONSTRUCTION SHALL NOT BE A BURDEN ON THE ADJACENT PROPERTY. THE CONTRACTOR SHALL MAINTAIN ALL TEMPORARY DRAINS, LEVELS, COFFERDAMS, DRAINAGE CHANNELS, ETC. THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL MAINTAIN ALL TEMPORARY DRAINS, LEVELS, COFFERDAMS, DRAINAGE CHANNELS, ETC. THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL MAINTAIN ALL TEMPORARY DRAINS, LEVELS, COFFERDAMS, DRAINAGE CHANNELS, ETC. THROUGHOUT THE CONSTRUCTION PERIOD.



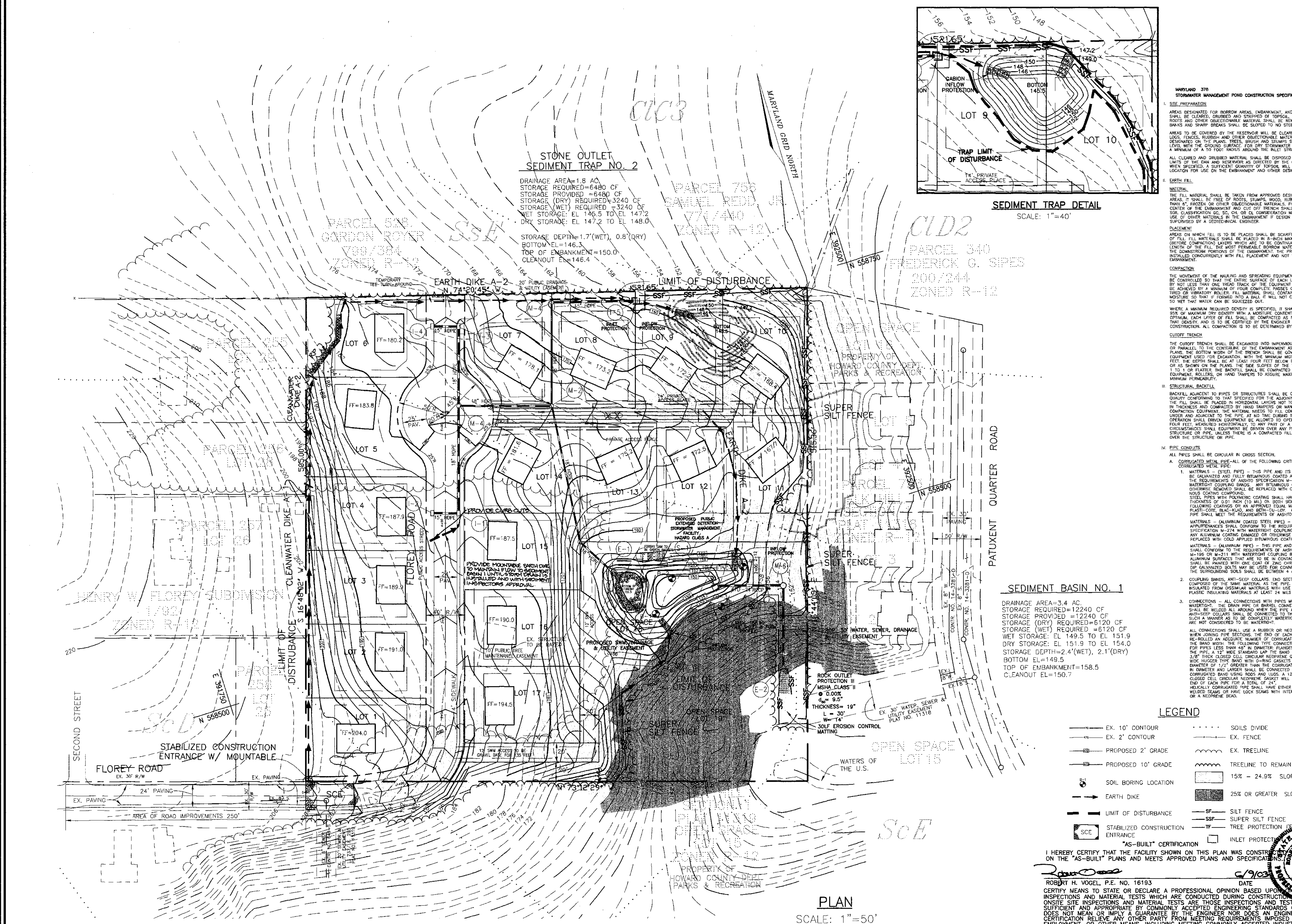
SEDIMENT TRAP DETAIL  
SCALE: 1"=40"

**SEDIMENT BASIN NO. 1**  
DRAINAGE AREA=3.4 AC.  
STORAGE REQUIRED=12240 CF  
STORAGE PROVIDED=12240 CF  
STORAGE (WET) REQUIRED=6120 CF  
WET STORAGE: EL 149.5 TO EL 151.9  
DRY STORAGE: EL 151.9 TO EL 154.0  
STORAGE DEPTH=2.4'(WET), 2.1'(DRY)  
BOTTOM EL=149.5  
TOP OF EMBANKMENT=158.5  
CLEANOUT EL=150.7

- LEGEND**
- EX. 10' CONTOUR
  - EX. 2' CONTOUR
  - PROPOSED 2' GRADE
  - PROPOSED 10' GRADE
  - SOIL BORING LOCATION
  - EARTH DIKE
  - LIMIT OF DISTURBANCE
  - STABILIZED CONSTRUCTION ENTRANCE
  - EX. FENCE
  - EX. TREELINE
  - TREELINE TO REMAIN
  - 15% - 24.9% SLOPES
  - 25% OR GREATER SLOPES
  - SILT FENCE
  - SUPER SILT FENCE
  - TREE PROTECTION
  - INLET PROTECTION

"AS-BUILT" CERTIFICATION  
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED IN ACCORDANCE WITH THE "AS-BUILT" PLANS AND MEETS APPROVED STANDARDS AND SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.  
DATE: 2/9/00  
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.  
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DATE: 3/22/00  
DATE: 2/9/00



THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.  
USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE: 2/23/00

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
HOWARD SOIL CONSERVATION DISTRICT DATE: 2/23/00

**ENGINEERS CERTIFICATE**  
I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.  
SIGNATURE OF ENGINEER: ROBERT H. VOGEL DATE: 2/23/00

**DEVELOPER'S CERTIFICATE**  
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SOIL EROSION AND SEDIMENTATION. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.  
SIGNATURE OF DEVELOPER: Michael P. Pina DATE: 2/23/00

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.  
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DATE: 3/22/00  
DATE: 2/9/00

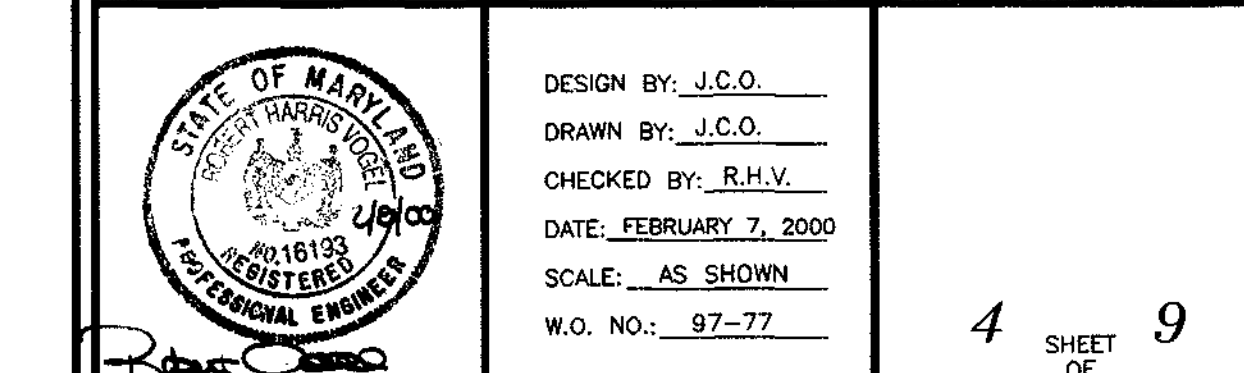
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**WHITETAIL WOODS**  
LOTS 1-17 AND OPEN SPACE LOTS 18 & 19  
GRADING AND SEDIMENT CONTROL PLAN  
TAX MAP# 38 PARCEL# 262 BLOCK# 15  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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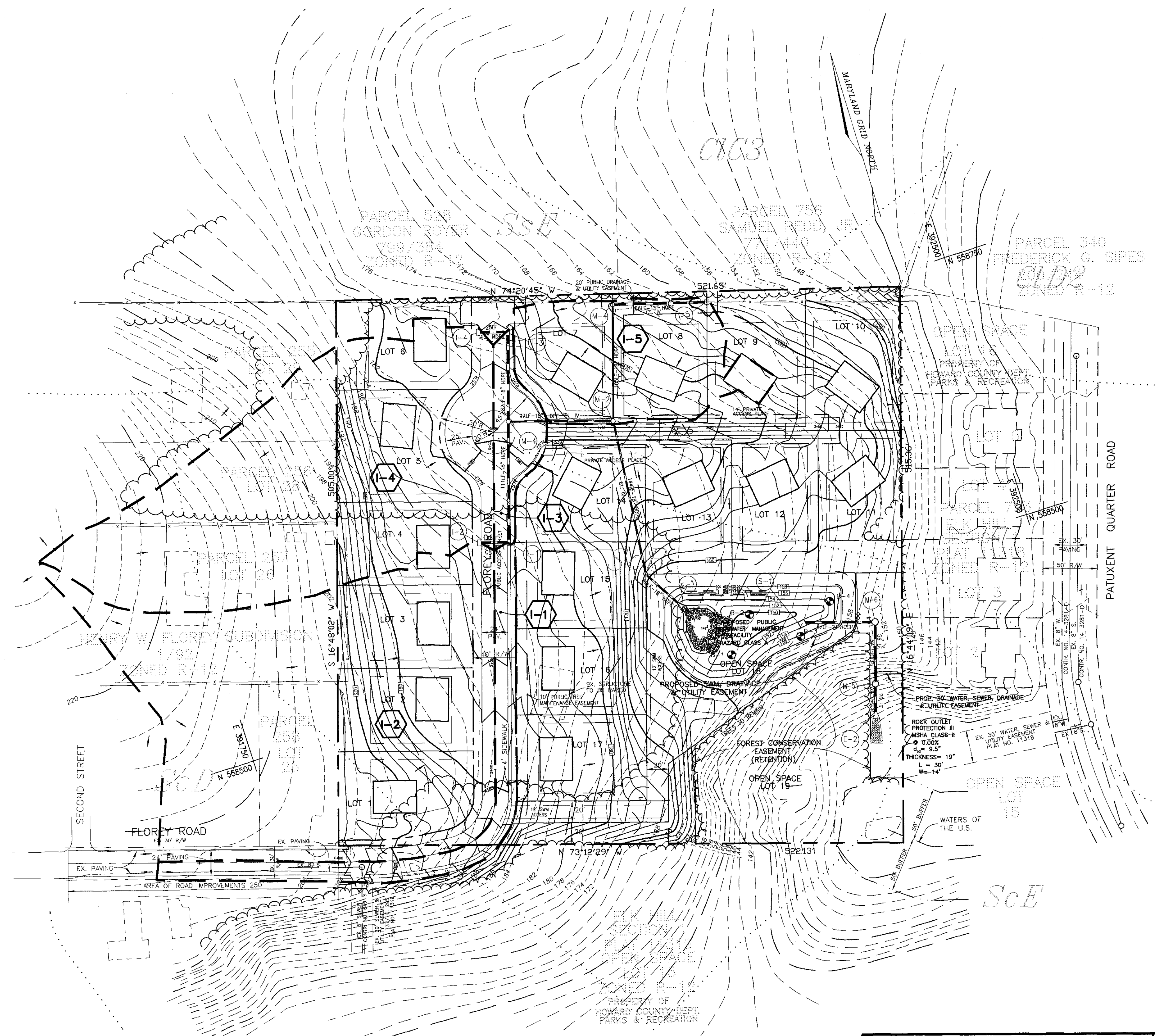




SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	TYPE
ClC3	CHILLUM GRAVELLY LOAM, 5 TO 10 PERCENT SLOPES, SEVERELY ERODED	C
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ScE	SANDY CLAYEY LOAM, MODERATELY STEEP	C
SsE	SASSAFRAS LOAM, 15 TO 40 PERCENT SLOPES	B

NOTE:  
- HOWARD SOIL SURVEY, MAP NUMBER 26

DRAINAGE AREA TABULATIONS					
NO.	AREA	'C'	% IMP.	SOIL TYPE	ZONE
I-1	0.20 AC.	0.71	80%	B	R-12
I-2	1.70 AC.	0.32	28%	B	R-12
I-3	0.13 AC.	0.72	81%	B	R-12
I-4	1.70 AC.	0.31	27%	B	R-12
I-5	0.49 AC.	0.31	21%	B	R-12



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**WHITETAIL WOODS**  
LOTS 1-17 AND OPEN SPACE LOTS 18 & 19  
**STORM DRAIN DRAINAGE AREA MAP**

TAX MAP# 38      PARCEL# 262      BLOCK# 15  
FIRST ELECTION DISTRICT      HOWARD COUNTY, MARYLAND

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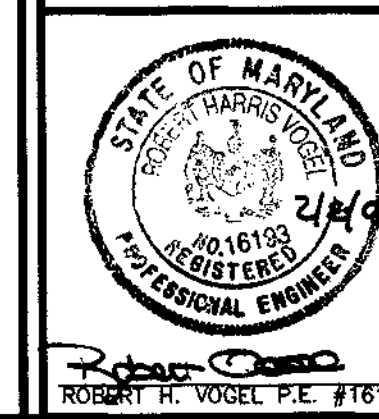
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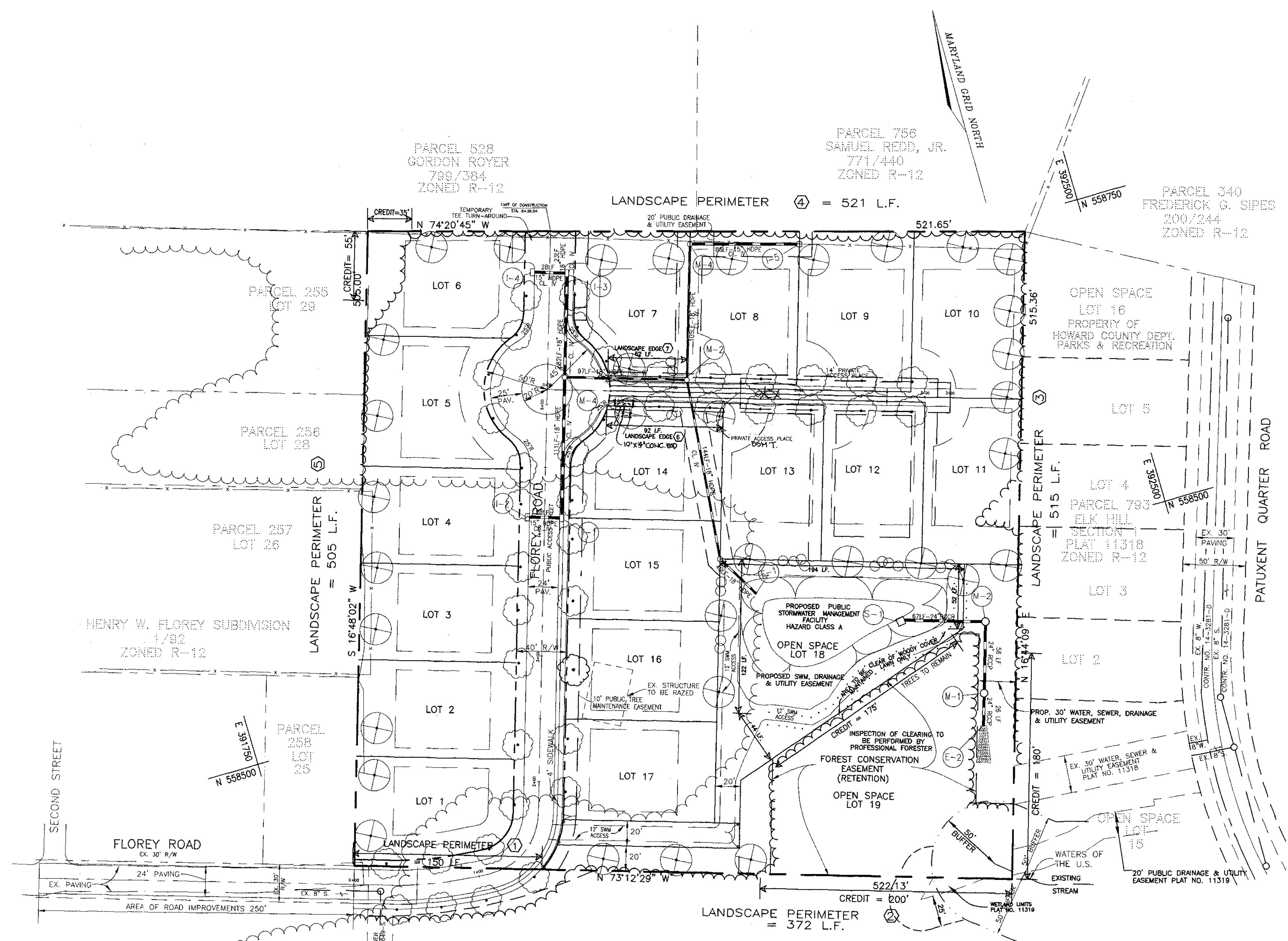
*Richard M. Packer* 3-1-00  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Carole H. Hovatta* 2/22/00  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Robert H. Vogel* 3/9/00  
CHIEF, DEVELOPMENT ENGINEERING DIVISION





**SCHEDULE A PERIMETER LANDSCAPE EDGE**

LANDSCAPE EDGE	1	2	3	4	5	6	7
LANDSCAPE TYPE	B	A	A	A	A	B	B
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	150	372	515	521	505	92	62
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	YES 372 -200 172	YES 515 -180 335	YES 521 -36 486	YES 505 -55 450	NO	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED	NONE	TYPE A TYPE B	TYPE A TYPE B	TYPE A TYPE B	TYPE A TYPE B	TYPE A TYPE B	TYPE A TYPE B
SHADE TREES (1:60)		3	6	8	8	2	1
EVERGREEN TREES (1:40)		0	0	0	0	2	2
SHRUBS		0	0	0	0	0	0
NUMBER OF PLANTS TO BE PROVIDED	NONE	TYPE A TYPE B	TYPE A TYPE B	TYPE A TYPE B	TYPE A TYPE B	TYPE A TYPE B	TYPE A TYPE B
SHADE TREES (1:60)		3	6	8	8	2	1
EVERGREEN TREES (1:40)		0	0	0	0	2	2
OTHER TREES (2:1 SUBSTITUTION)		0	0	0	0	0	0
SHRUBS (10:1 SUBSTITUTION)		0	0	0	0	0	0

**SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING**

LANDSCAPE TYPE	B
TOTAL LINEAR FEET OF PERIMETER	587
CREDIT FOR EXISTING VEGETATION LINEAR FEET	587 -175 412
NUMBER OF TREES REQUIRED SHADE TREES(1:50) EVERGREEN TREES(1:40)	6 14
CREDIT FOR OTHER LANDSCAPING	NO
NUMBER OF PLANTS PROVIDED AT FINAL PLAN STAGE SHADE TREES(1:50) EVERGREEN TREES(1:40) SHRUBS(10:1 TREE SUBSTITUTION)	6 14 0

NOTE: SUBSTITUTE 4 EVERGREEN TREES FOR 2 SHADE TREE

NOTES:  
THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPE TREES HAS BEEN POSTED AS PART OF THE LANDSCAPE SURETY IN THE AMOUNT OF \$10,500.00 (with the Developer's Agreement).  
THE SURETY FOR THE 29 STREET TREES ALONG THE PUBLIC RIGHT-OF-WAY OF FLOREY ROAD ARE TO BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT.  
TREES MAY BE ADJUSTED FOR DRIVEWAY AND STREET LIGHT LOCATION.

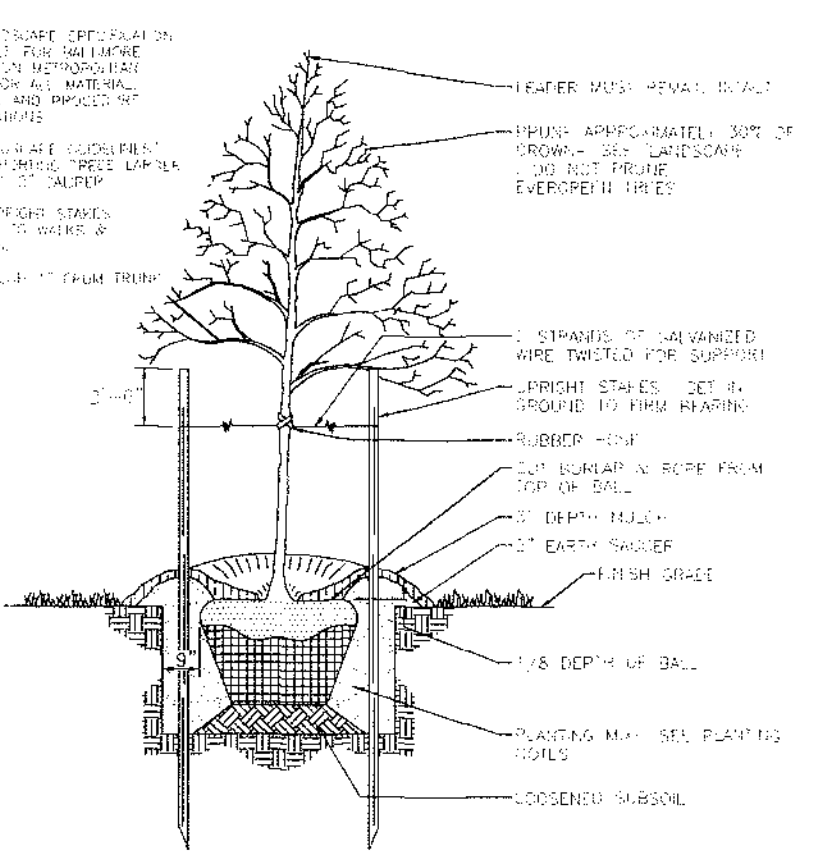
THE PLANTINGS FOR PERIMETER 1 WILL BE DETERMINED AT SITE DEVELOPMENT PLAN STAGE.

**LANDSCAPING PLANT SCHEDULE**

QUANTITY	SYMBOL	NAME	REMARKS
18	○	PINUS STROBUS(WHITE PINE)	6' - 8'HT.
34	⊗	ACER RUBRUM(RED MAPLE)	2 1/2" - 3"CAL. (40' O.C.)
44	⊙	PLANTANUS X ACERIFOLIA (LONDON PLANE)	2 1/2" - 3"CAL. (40' O.C.)

**STREET TREE CALCULATIONS**

STREET NAME	LINEAR FEET/SPACING	REQUIRED	PROVIDED
FLOREY ROAD	1150 LF / 40'	29	29
PRIVATE ACCESS PLACE	500 LF / 40'	12	12



**TREE PLANTING AND STAKING**

**OWNER/DEVELOPER**  
T.B.I. HOMES, INC.  
7320 GRACE DRIVE  
COLUMBIA, MD. 21044



6/9/03  
As Built

NO.	REVISION	DATE

**WHITETAIL WOODS**  
LOTS 1-17 AND OPEN SPACE LOTS 18 & 19  
LANDSCAPING PLAN

TAX MAP# 38 PARCEL# 262 BLOCK# 15  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**VOGEL & ASSOCIATES**  
ENGINEERS/SURVEYORS/PLANNERS  
3691 Park Avenue, Suite 101 • Ellicott City, Maryland 21043  
Tel 410.461.5828 Fax 410.465.3966

DESIGN BY: J.C.O.  
DRAWN BY: J.C.O.  
CHECKED BY: R.H.V.  
DATE: FEBRUARY 7, 2000  
SCALE: AS SHOWN  
W.O. NO.: 97-77

6 SHEET OF 9

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

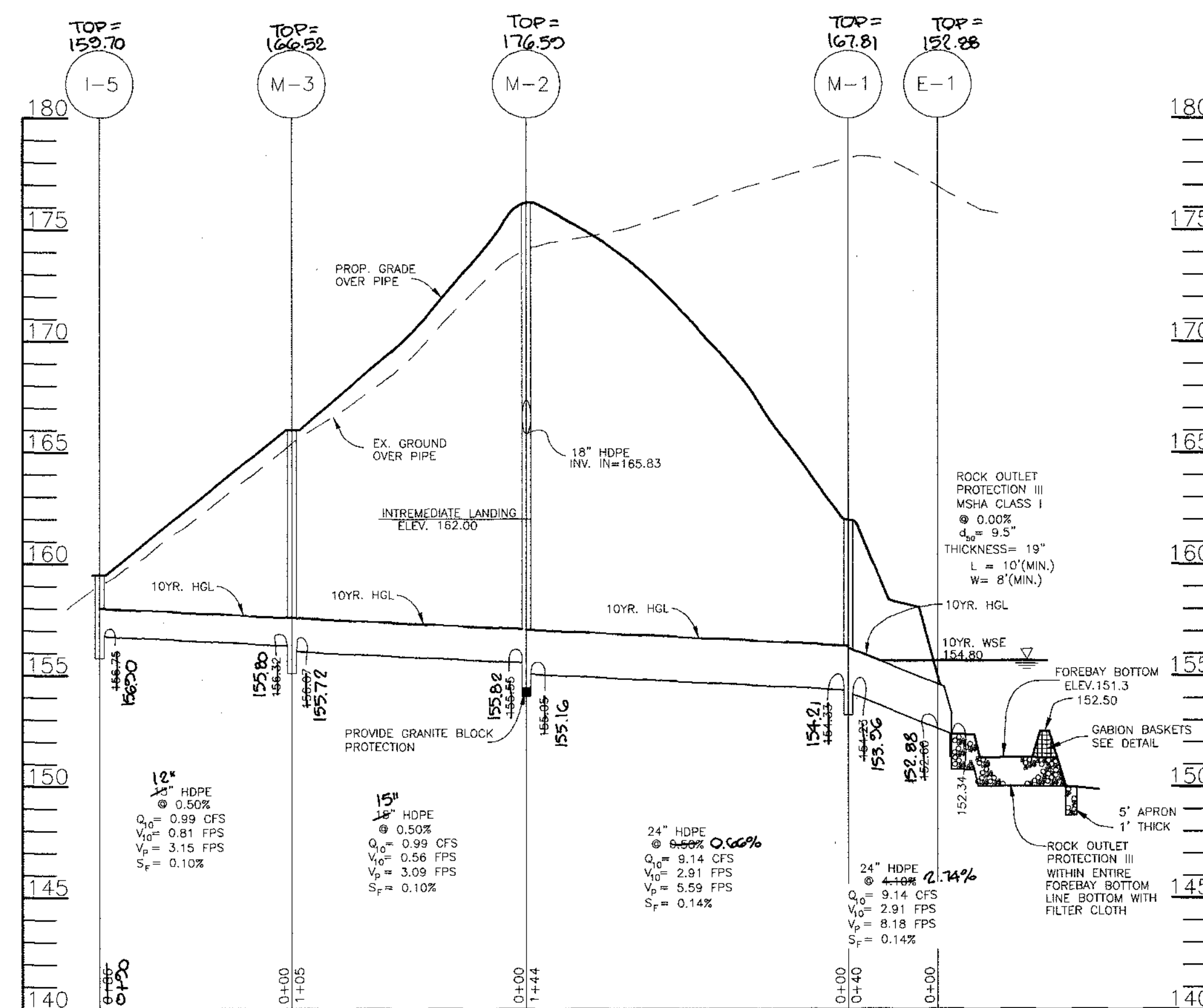
*Robert M. ...* 3/1/00  
CHIEF, BUREAU OF HIGHWAYS DATE

*Robert H. Vogel* 3/1/00  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

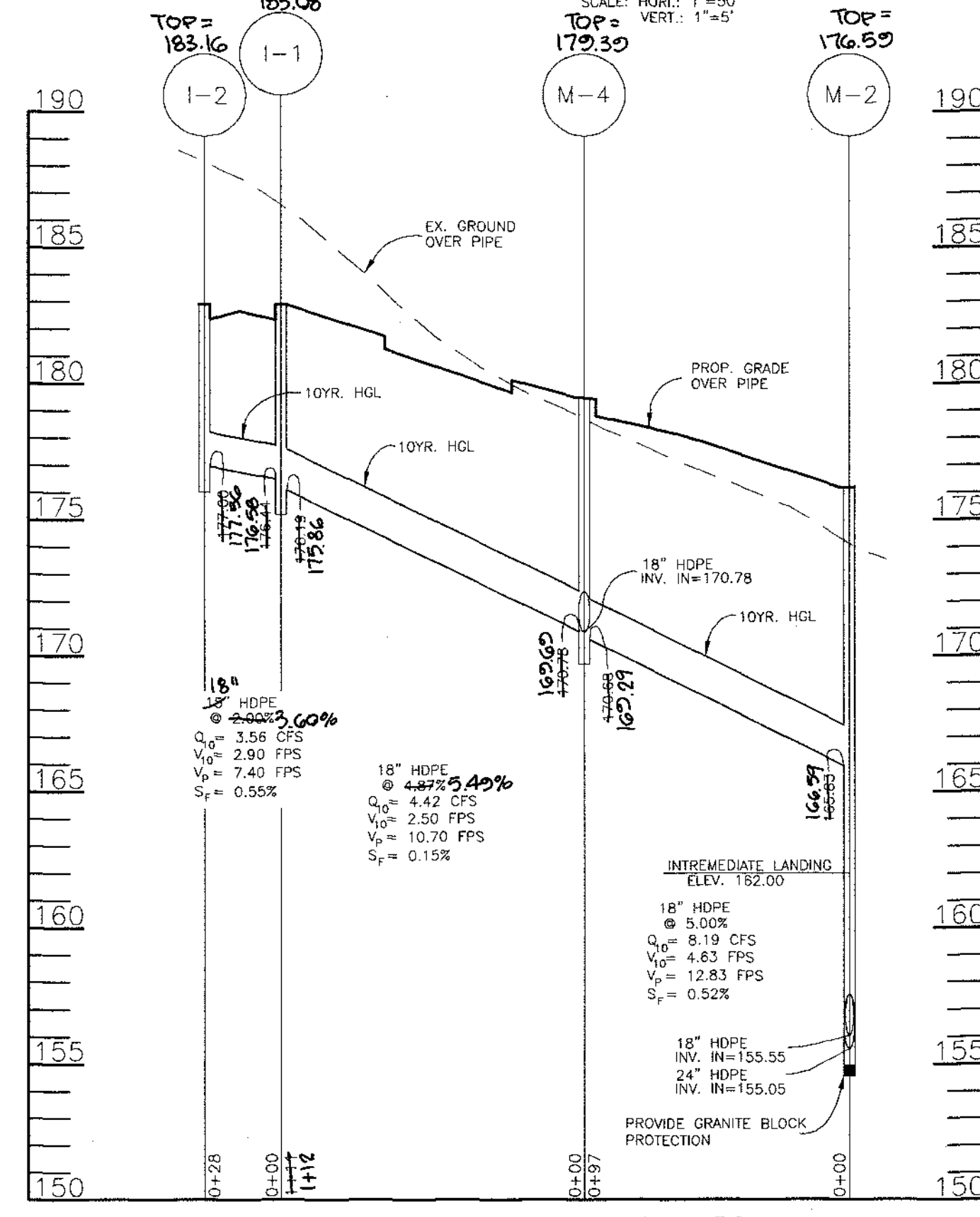




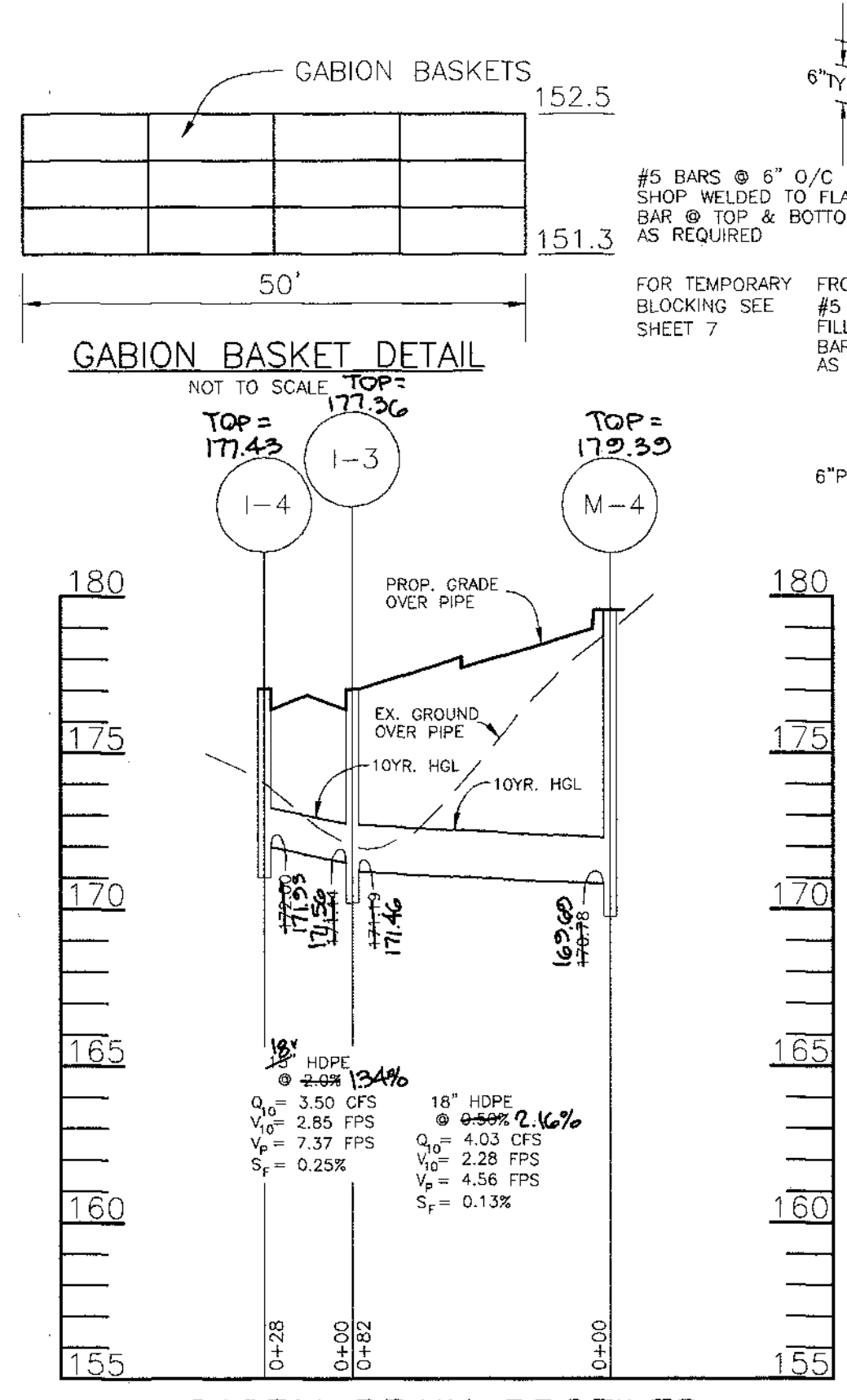




STORM DRAIN PROFILES

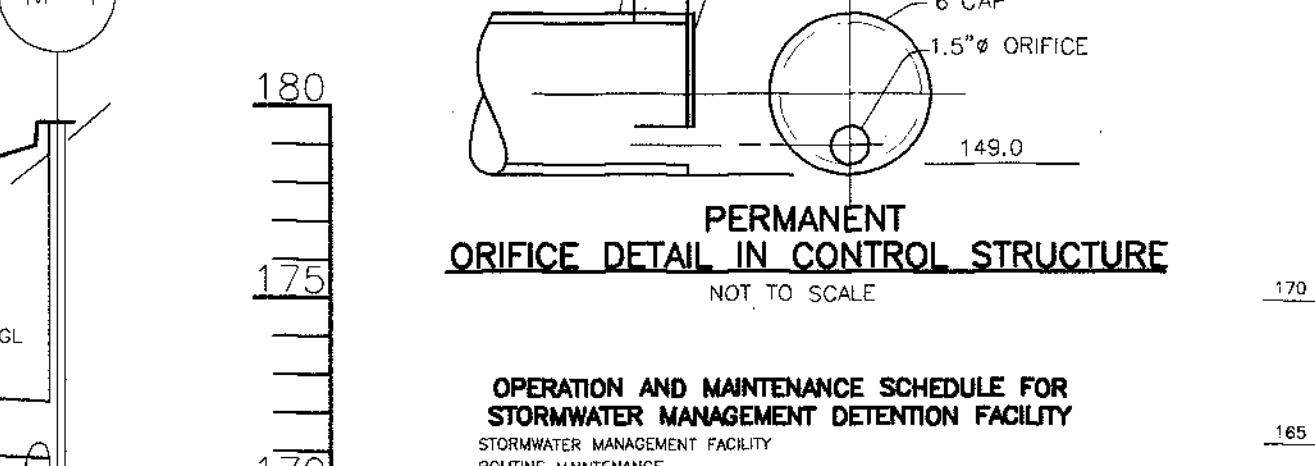
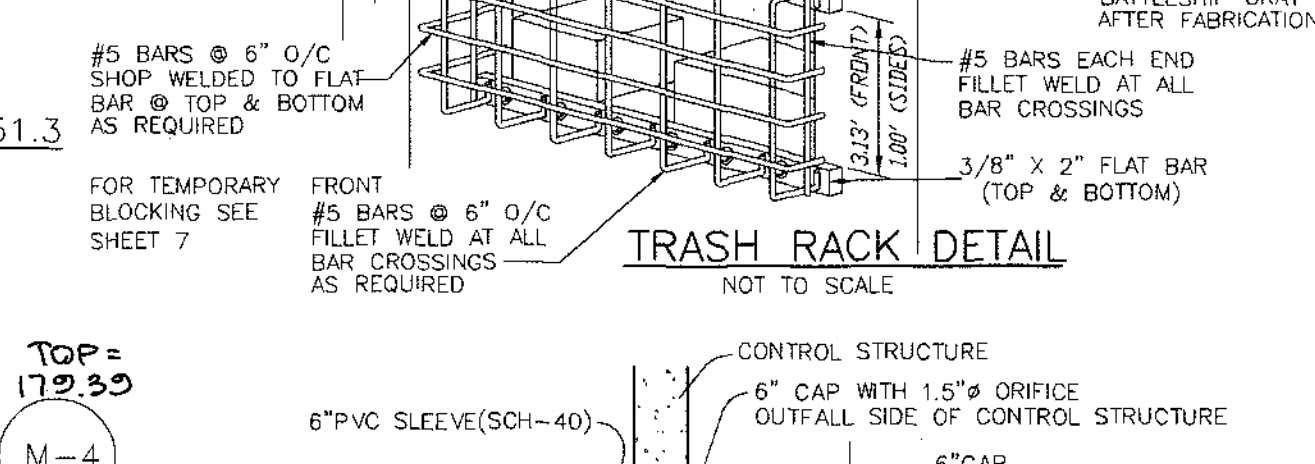
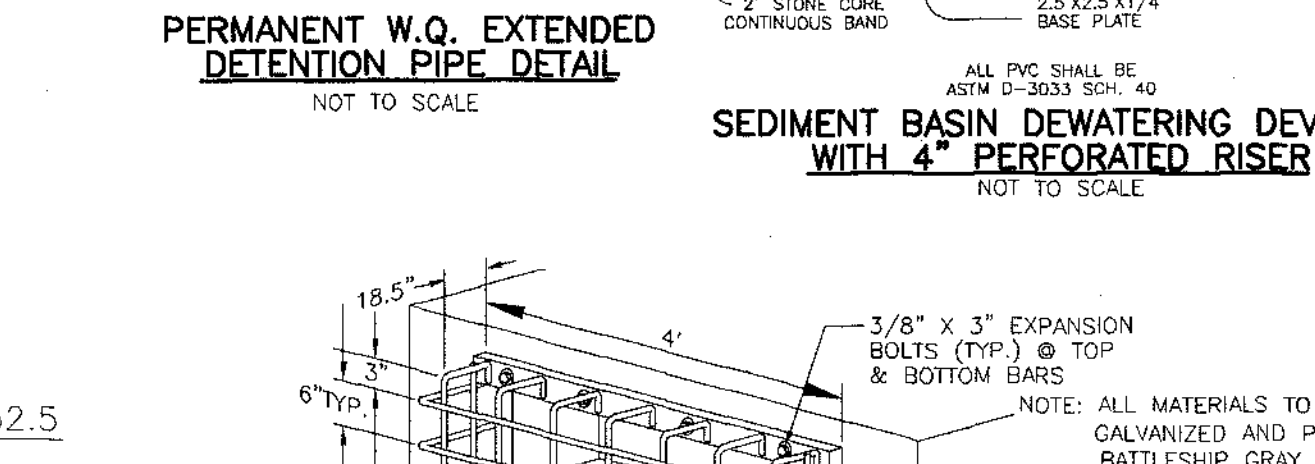
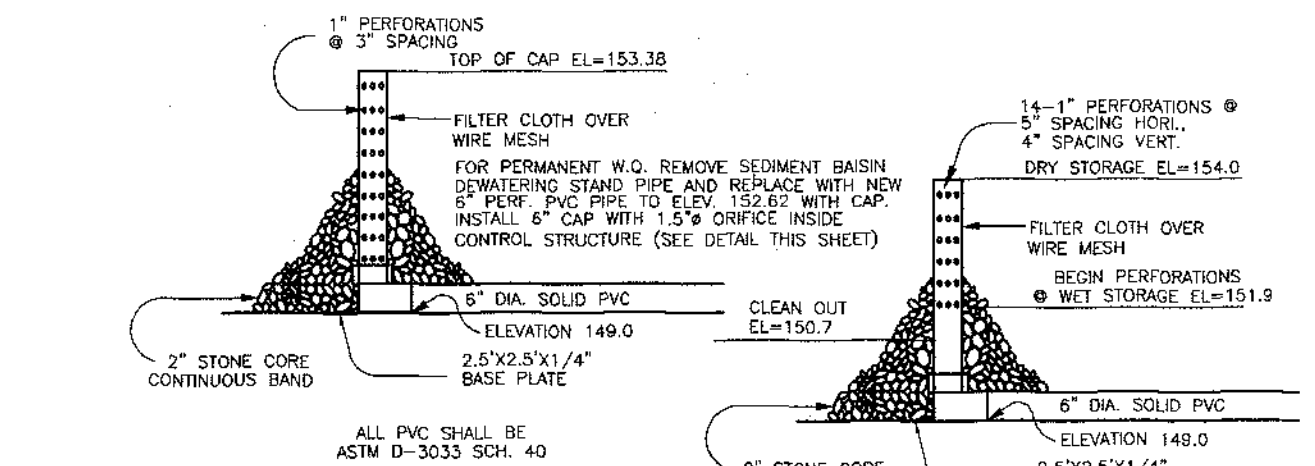
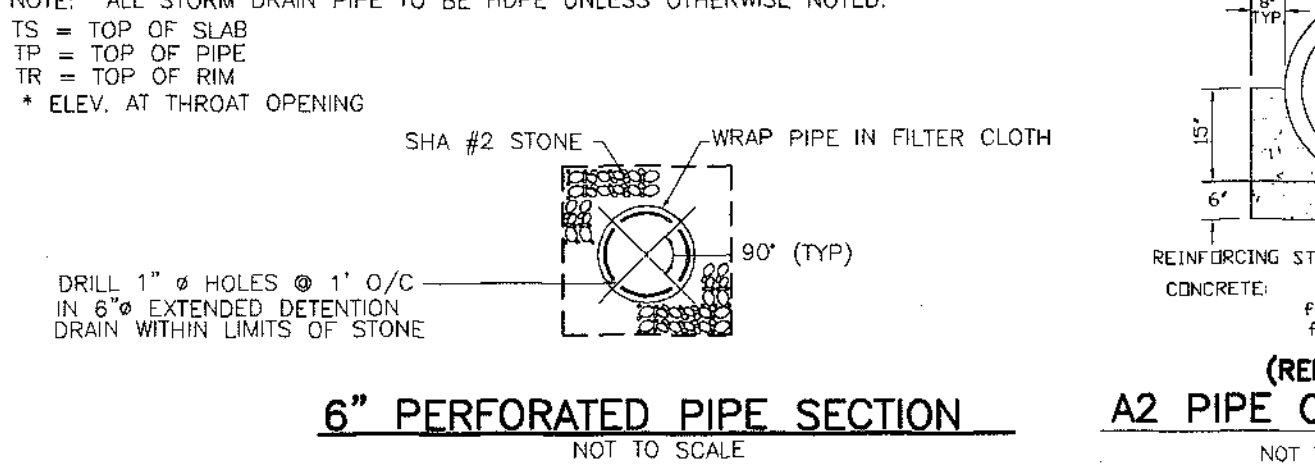


STORM DRAIN PROFILES



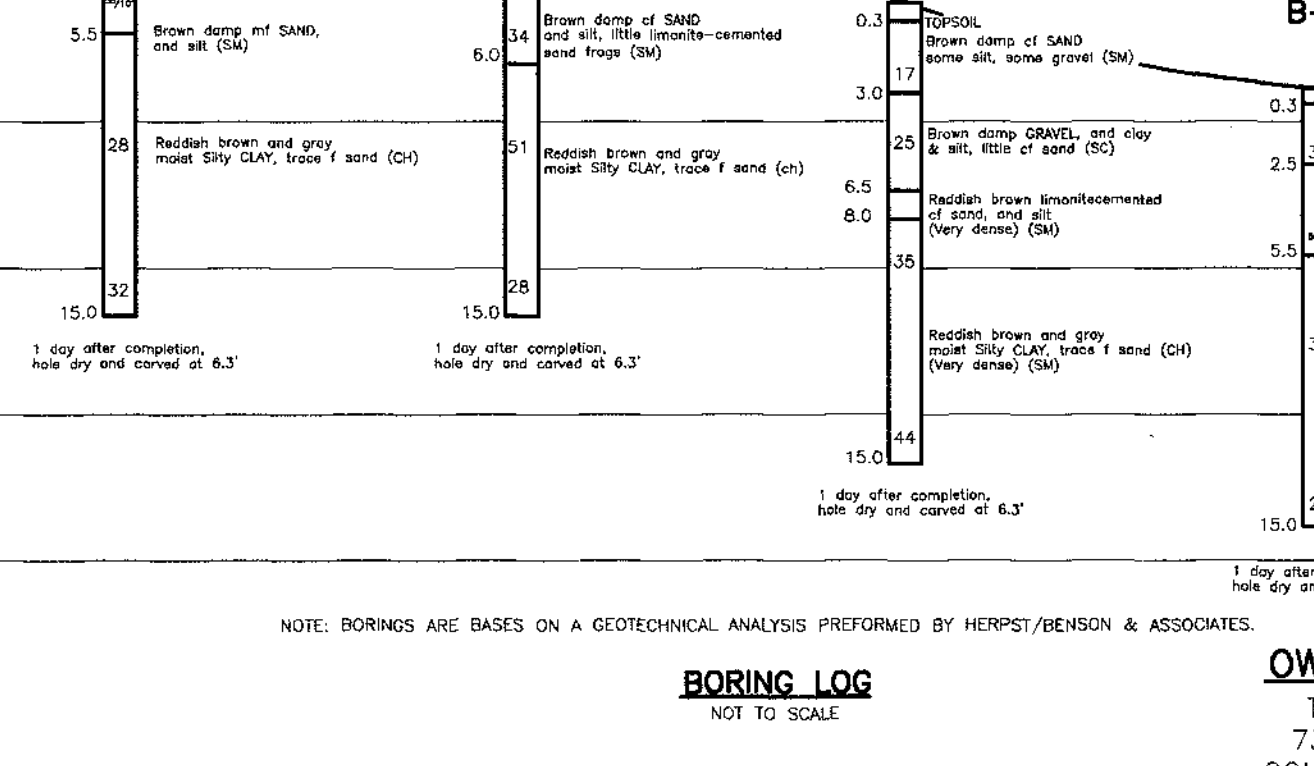
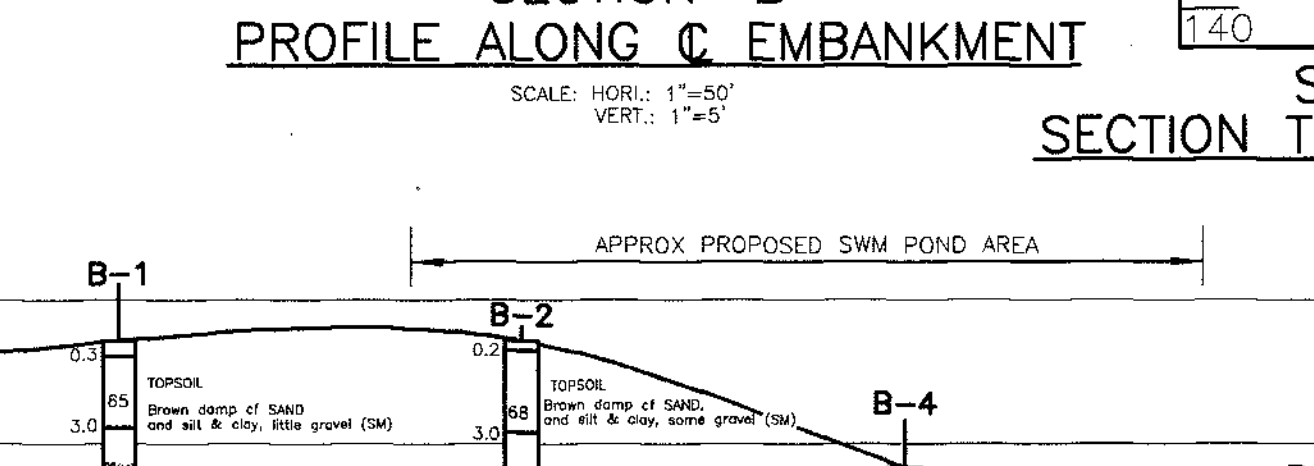
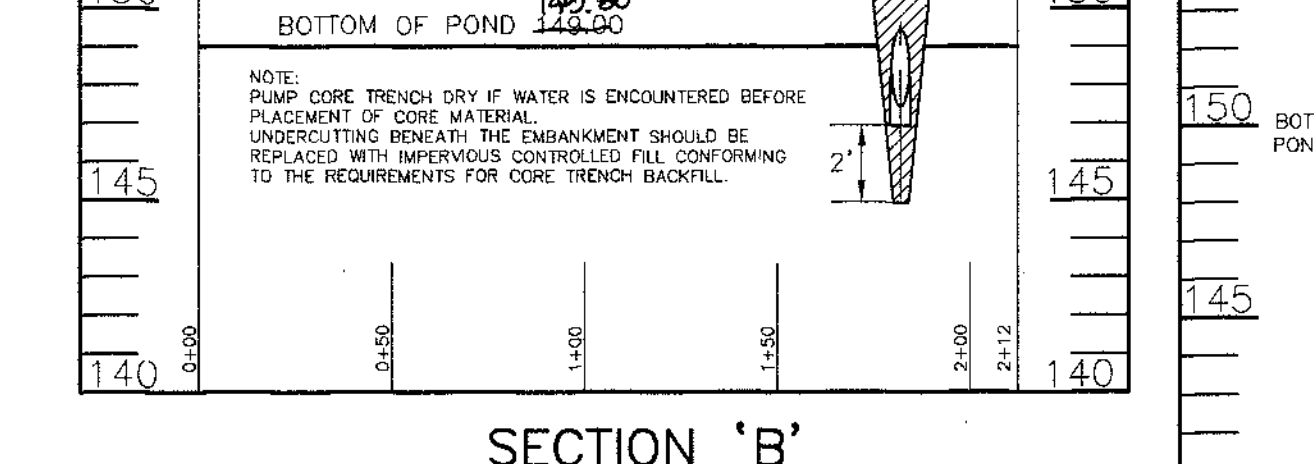
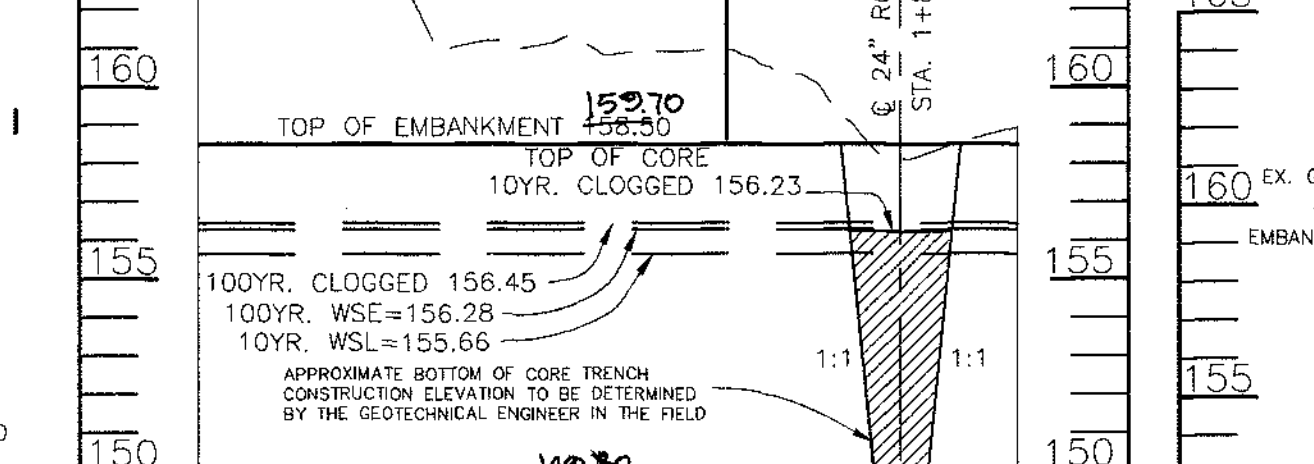
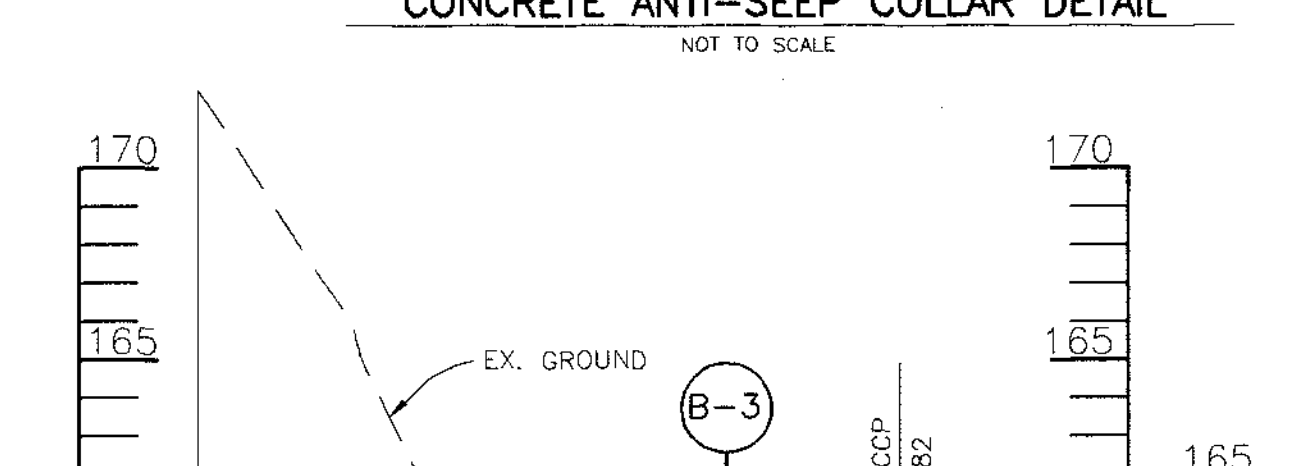
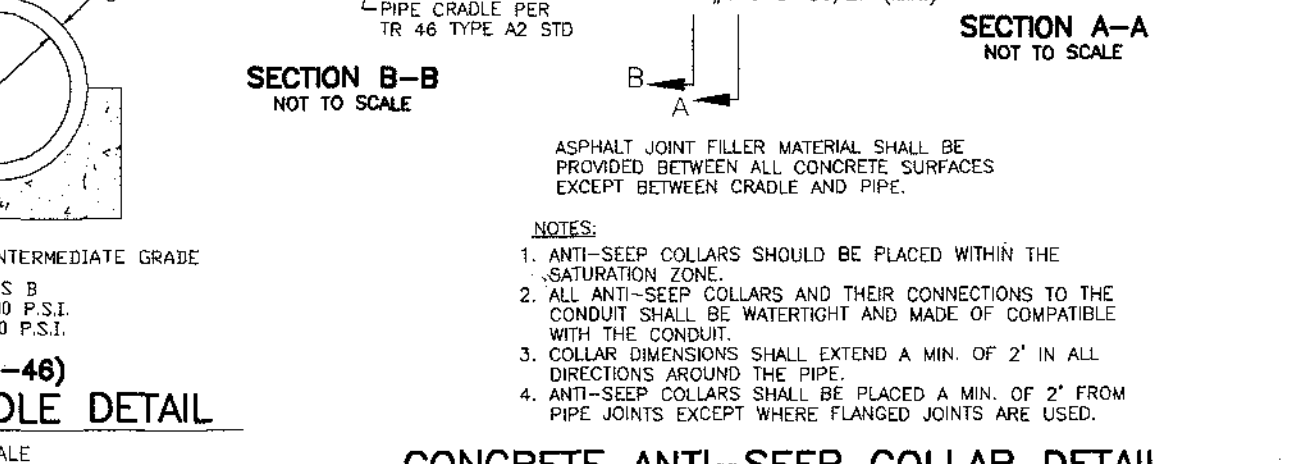
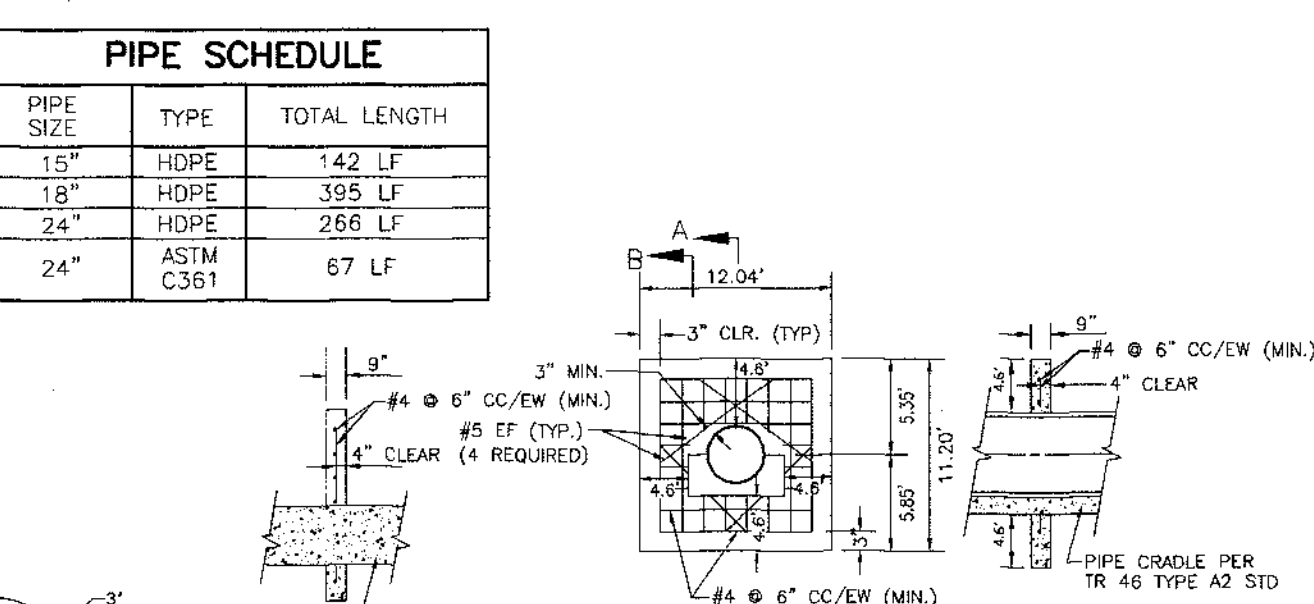
STORM DRAIN PROFILES

STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	TOP ELEV.	INV.	INVERT	REMARKS
1-1	A-5 INLET	CL STA 4+10.28, 12' RT.	182.9375	157.7644	187.7119	SD-4.40
1-2	A-5 INLET	CL STA 4+10.28, 12' LT.	182.9375	157.7644	187.7119	SD-4.40
1-3	A-5 INLET	CL STA 6+05.20, 12' RT.	177.8875	157.7144	187.7119	SD-4.40
1-4	A-5 INLET	CL STA 6+05.20, 12' LT.	177.8875	157.7144	187.7119	SD-4.40
1-5	TYPE 'D' INLET	N.589283.9 E.1345539.6	159.5	157.5875	157.5875	SD-4.39
M-1	MANHOLE	N.558554.7 E.392147.9	162.5718	247.5839	247.5839	G-5.12
M-2	MANHOLE	N.558589.0 E.392162.5	176.3718	247.5839	247.5839	G-5.12
M-3	MANHOLE	N.558901.9 E.393104.8	166.5718	247.5839	247.5839	G-5.12
M-4	MANHOLE	CL STA. 5+22.28, 13.66' RT.	179.5718	247.5839	247.5839	G-5.12
M-5	MANHOLE	N.558393.2 E.392319.5	137.0718	247.5839	247.5839	G-5.12
M-6	MANHOLE	N.558447.7 E.392336.5	153.0718	247.5839	247.5839	G-5.12
M-7	MODIFIED TYPE 'D' INLET	N.558466.7 E.392271.8	157.0718	247.5839	247.5839	SD-4.39
E-1	18" HDPE END SECTION	N.558520.0 E.392168.0	157.6019	247.5839	247.5839	SD-5.12
E-2	24" CONCRETE END SECTION	N.558368.7 E.392311.7	223.0718	247.5839	247.5839	SD-5.12

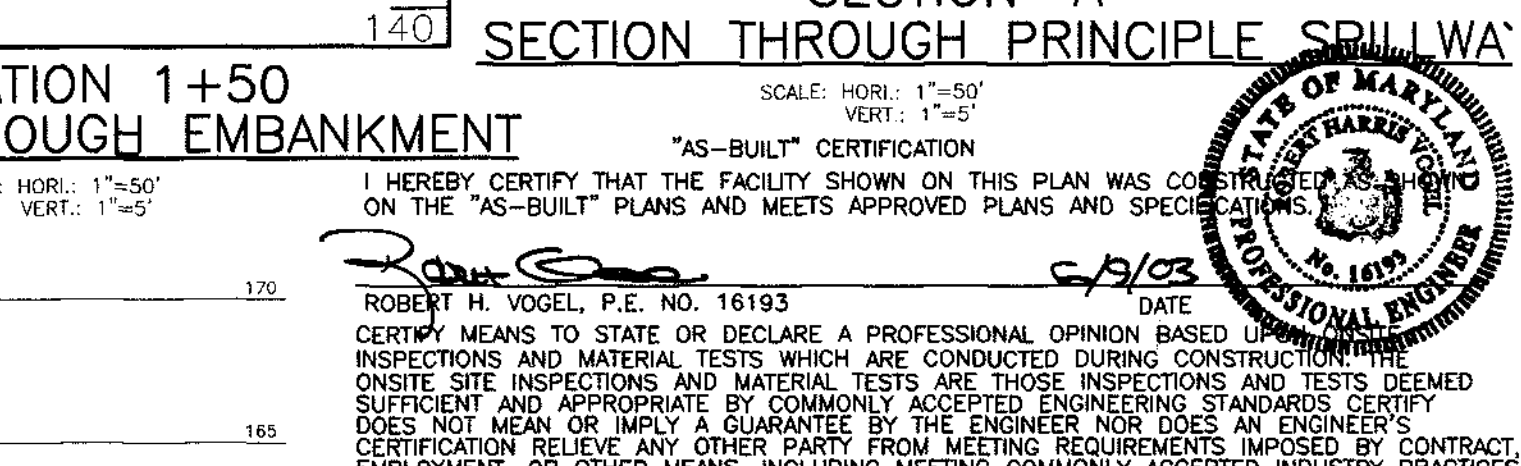
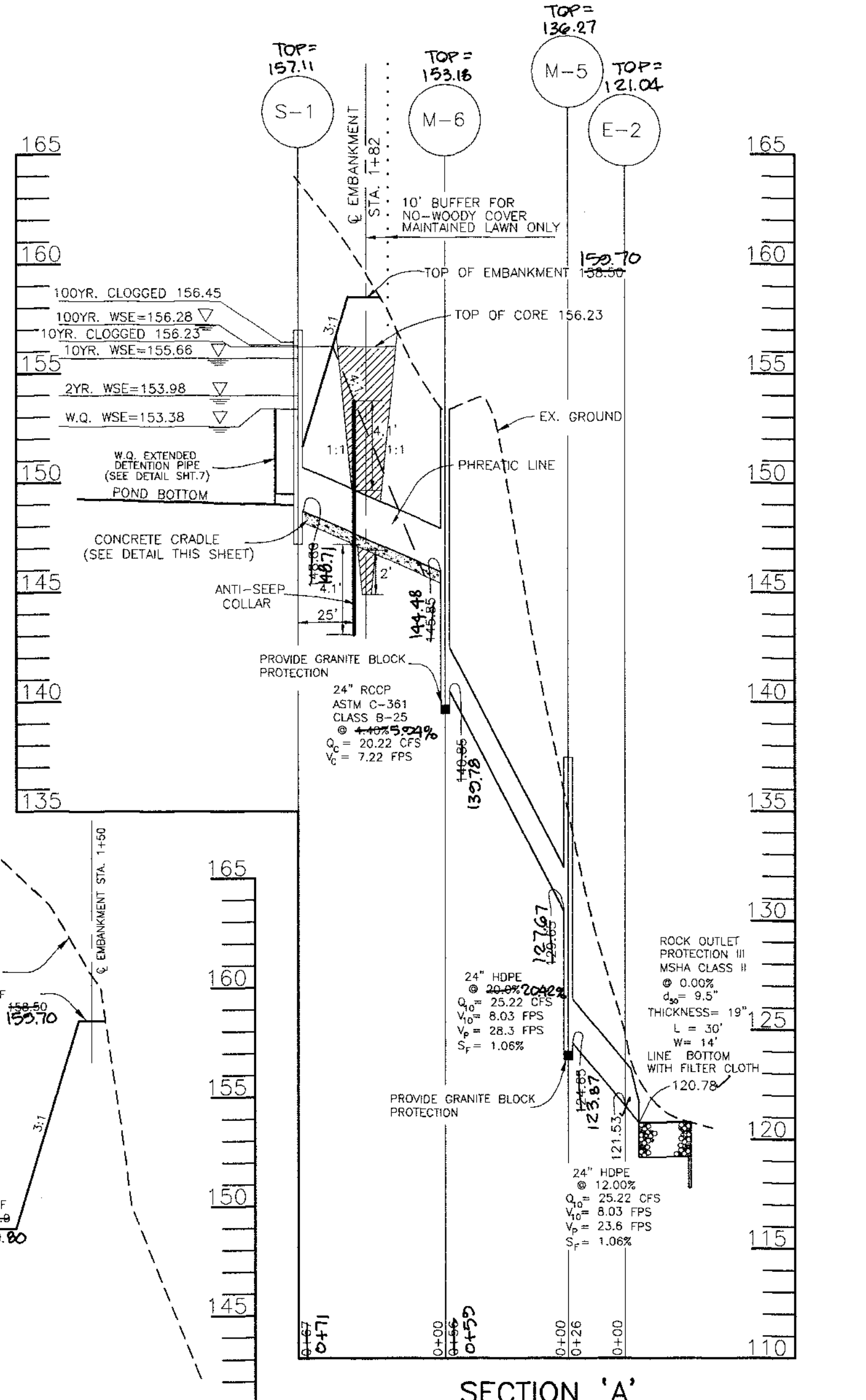


OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT FACILITY			
ROUTINE MAINTENANCE			
1.	FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS.		
2.	TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MAINTAINED TO A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD BE MAINTAINED AS NEEDED.		
3.	DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MAINTENANCE OPERATIONS AND AS NEEDED.		
4.	VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.		
NON-ROUTINE MAINTENANCE			
1.	STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PILES SHALL BE INSPECTED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE REPAIRED DURING ROUTINE MAINTENANCE OPERATIONS.		
2.	SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERES WITH THE FUNCTION OF THE RISER, WHEN DETERMINED NECESSARY FOR AESTHETIC REASONS, OR WHEN DETERMINED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.		

POND SUMMARY			
	2 YEAR	10 YEAR	100 YEAR
FLOW INTO POND	12.23 c.f.s.	25.22 c.f.s.	40.10 c.f.s.
FLOW OUT OF POND	0.86 c.f.s.	8.15 c.f.s.	33.14
W.S. ELEVATION	153.98	155.66	156.28
STORAGE VOLUME	0.41 AC FT	0.71 AC FT	0.79 AC FT



BORING LOG			
B-1	B-2	B-3	B-4
0.0	0.0	0.0	0.0
0.5	0.5	0.5	0.5
1.0	1.0	1.0	1.0
1.5	1.5	1.5	1.5
2.0	2.0	2.0	2.0
2.5	2.5	2.5	2.5
3.0	3.0	3.0	3.0
3.5	3.5	3.5	3.5
4.0	4.0	4.0	4.0
4.5	4.5	4.5	4.5
5.0	5.0	5.0	5.0
5.5	5.5	5.5	5.5
6.0	6.0	6.0	6.0
6.5	6.5	6.5	6.5
7.0	7.0	7.0	7.0
7.5	7.5	7.5	7.5
8.0	8.0	8.0	8.0
8.5	8.5	8.5	8.5
9.0	9.0	9.0	9.0
9.5	9.5	9.5	9.5
10.0	10.0	10.0	10.0



OWNER/DEVELOPER			
T.B.HOMES, INC.			
7320 GRACE DRIVE			
COLUMBIA, MD. 21044			

WHITETAIL WOODS			
LOTS 1-17 AND OPEN SPACE LOTS 18 & 19			
STORM DRAIN PROFILES AND STORMWATER MANAGEMENT DETAILS			
TAX MAP# 38	PARCEL# 262	BLOCK# 15	
FIRST ELECTION DISTRICT	HOWARD COUNTY, MARYLAND		

VOGEL & ASSOCIATES			
ENGINEERS/SURVEYORS/PLANNERS			
3661 Park Avenue, Suite 101 • Ellicott City, Maryland 21043			
Tel 410.461.3822 Fax 410.465.3966			
DESIGN BY: J.C.O.			
DRAWN BY: J.C.O.			
CHECKED BY: R.H.V.			
DATE: FEBRUARY 7, 2000			
SCALE: AS SHOWN			
W.O. NO.: 97-77			

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

*Carol Simon/CS* 2/2/00  
USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE

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

*John A. [Signature]* 2/2/00  
HOWARD SOIL CONSERVATION DISTRICT DATE

**ENGINEERS CERTIFICATE**

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

*Robert H. Vogel* 2/2/00  
SIGNATURE OF ENGINEER DATE  
ROBERT H. VOGEL

**DEVELOPER'S CERTIFICATE**

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

*William [Signature]* 2/2/00  
SIGNATURE OF DEVELOPER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

*Richard [Signature]* 3-1-00  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Cinda Hamilton* 3/2/00  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 2/2/00  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

STATE OF MARYLAND  
REGISTERED PROFESSIONAL ENGINEER  
ROBERT H. VOGEL, P.E. #18193

DESIGN BY: J.C.O.  
DRAWN BY: J.C.O.  
CHECKED BY: R.H.V.  
DATE: FEBRUARY 7, 2000  
SCALE: AS SHOWN  
W.O. NO.: 97-77

8 SHEET OF 9



SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	TYPE
C1C3	CHILLUM GRAVELLY LOAM, 5 TO 10 PERCENT SLOPES, SEVERELY ERODED	C
C1D2	CHILLUM GRAVELLY LOAM, 10 TO 15 PERCENT SLOPES, MODERATELY ERODED	C
ScB	SANDY AND CLAYEY LOAM, GENTLY SLOPING	B
ScE	SANDY CLAYEY LOAM, MODERATELY STEEP	B
ScF	SASSAFRAS LOAM, 15 TO 40 PERCENT SLOPES	B

NOTE:  
- HOWARD SOIL SURVEY, MAP NUMBER 26






**NARRATIVE**

This forest conservation plan was prepared in accordance with the Howard County Forest Conservation Manual whereby priority forest areas were preserved to the greatest extent practical. Disturbance to steep slopes and stream buffers is minimized. A fee-in-lieu for the required reforestation area of 2.05 acres is proposed since no on-site or off-site reforestation is practical. Existing woodland is being retained on all areas suitable for forest conservation easements on this site. Therefore, onsite reforestation is not feasible. The developer has no land available for offsite reforestation. As neither on-site or offsite reforestation is feasible, a fee-in-lieu is proposed.

**SPECIMEN TREE LIST**

- T1 Acer Rubrum/Red Maple/32" dbh/to be retained
- T2 Liriodendron tulipifera/Tulip Poplar/30" dbh/Fair Condition/to be retained
- T3 Quercus Palustris/Pin Oak/36" dbh/Poor Condition/ to be removed

**LEGEND**

- SPECIMEN TREE 
- EXISTING TREES TO REMAIN 
- EXISTING TREES TO REMAIN 
- TREE PROTECTION FENCE 
- REFORESTATION AREA SIGNAGE 

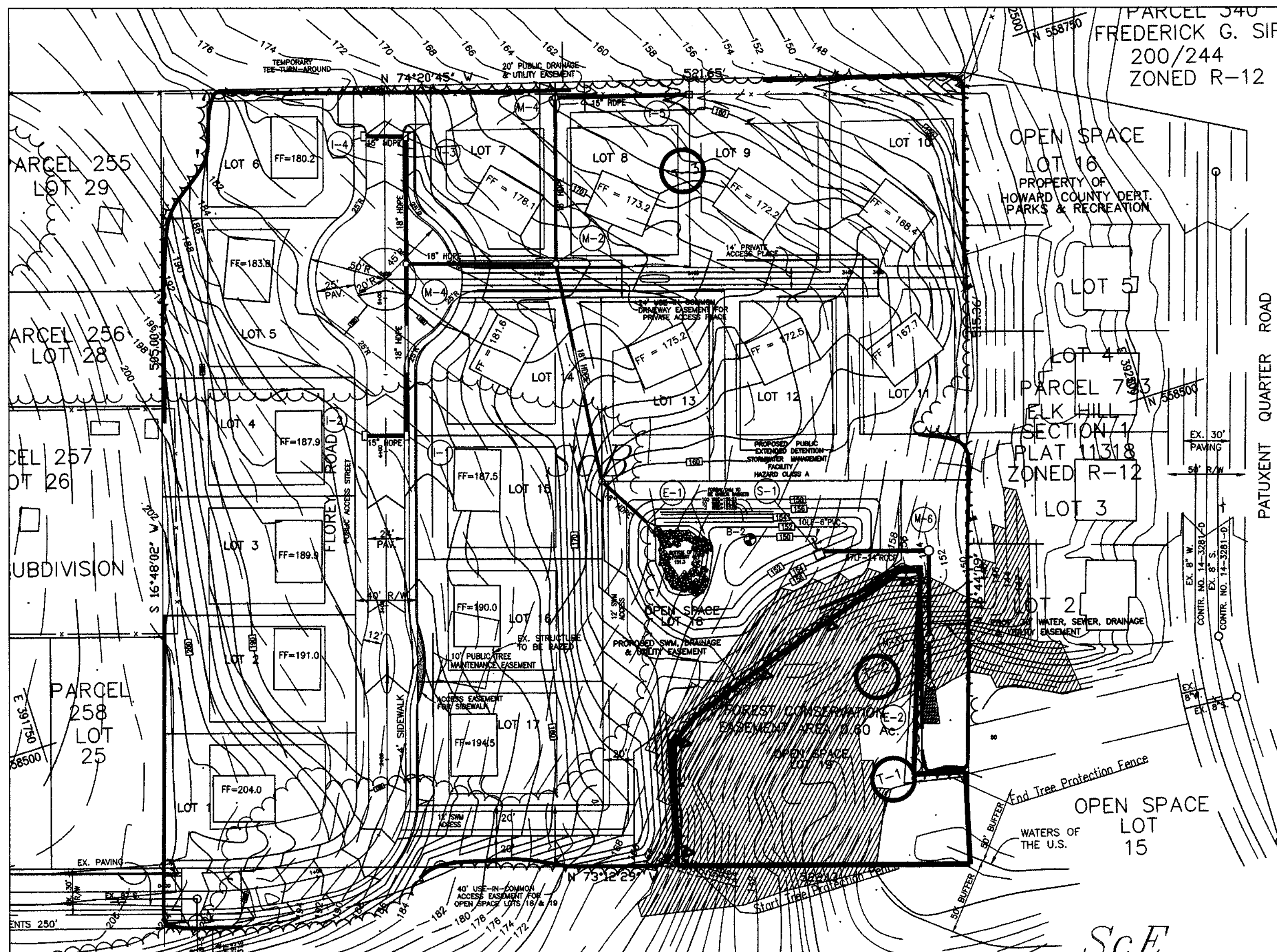
**FOREST CONSERVATION WORKSHEET**

	Acres (1/100 ac.)
<b>1. Basic Site Data</b>	
A. Total Tract Area	6.12
B. Area Within 100 Year Floodplain	0
C. Area Within Ag. Use or Preservation Parcel	0
D. Net Tract Area	6.12
Zoning Use Category: R-12	
<b>2. Information for Calculations</b>	
E. Afforestation Minimum (15% x D)	0.92
F. Conservation Threshold (20% x D)	1.22
G. Existing Forest on Net Tract Area	4.46
H. Forest Area Above Conservation Threshold (H=G-F)	3.24
I. Breakeven Point (= 2 x H+H)	1.87
K. Forest Areas to be Cleared	3.86
L. Forest Areas to be Retained	0.60
<b>3. Planting Requirements</b>	
M. Reforestation for Clearing Above Threshold	0.81
(1) If L is greater than or equal to F, then $M=L \times .25$	
(2) If L is less than F, then $M=L \times .25$	
N. Reforestation for Clearing Below the Threshold	1.24
(1) If G is greater than F, & L is less than F, then $N=(G-F) \times (F-L)$	
(2) If G is less than or equal to F, then $N=2 \times K$	
P. Credit for retention above the Conservation threshold	2.05
Q. Total Reforestation Required $Q=M+N-P$	
R. Total Afforestation Required	
(1) If G is less than E, then $R=E-G$	
(2) If G is less than E, and you are clearing forest then, $R=E-G+(20K)$	
S. Total Planting Requirement $(S=Q+R)$	

**FOREST TREE PROTECTION AND MANAGEMENT NOTES**

1. Tree Protection devices shall be installed prior to any grading and land clearing.
2. After the boundaries of the retention areas have been staked and flagged and before any disturbance has taken place a preconstruction meeting with the Howard County Inspector is required.
3. No grading, storage of equipment, vehicles, equipment staging or dumping is permitted within Forest Conservation Easement Areas.
4. Attachment of signs or any other objects to trees is prohibited.
5. Root pruning will be performed with rotary ditching equipment or vibratory knife as conditions warrant.
6. Any significant changes made to the Forest Conservation Plan shall be made with the prior consent of the Howard County Inspector.
7. No burial of discarded material is permitted within the Forest Conservation and Planting areas.
8. No open burning within 100 feet of wooded areas is permitted.
9. POST CONSTRUCTION PHASE:
  - a) Inspect existing trees around perimeter of site for signs of root or trunk damage or excessive soil compaction. \*
  - b) Remove dead or dying trees and evaluate for hazard tree removal. \*
  - c) All temporary forest protection devices shall be removed after construction.
  - d) Following completion of construction, prior to use, the County Inspector shall inspect the entire site for compliance with the Forest Conservation Plan.

\* A licensed arborist or forester should be retained for this service as needed.



**PLAN**

Scale: 1"=50'

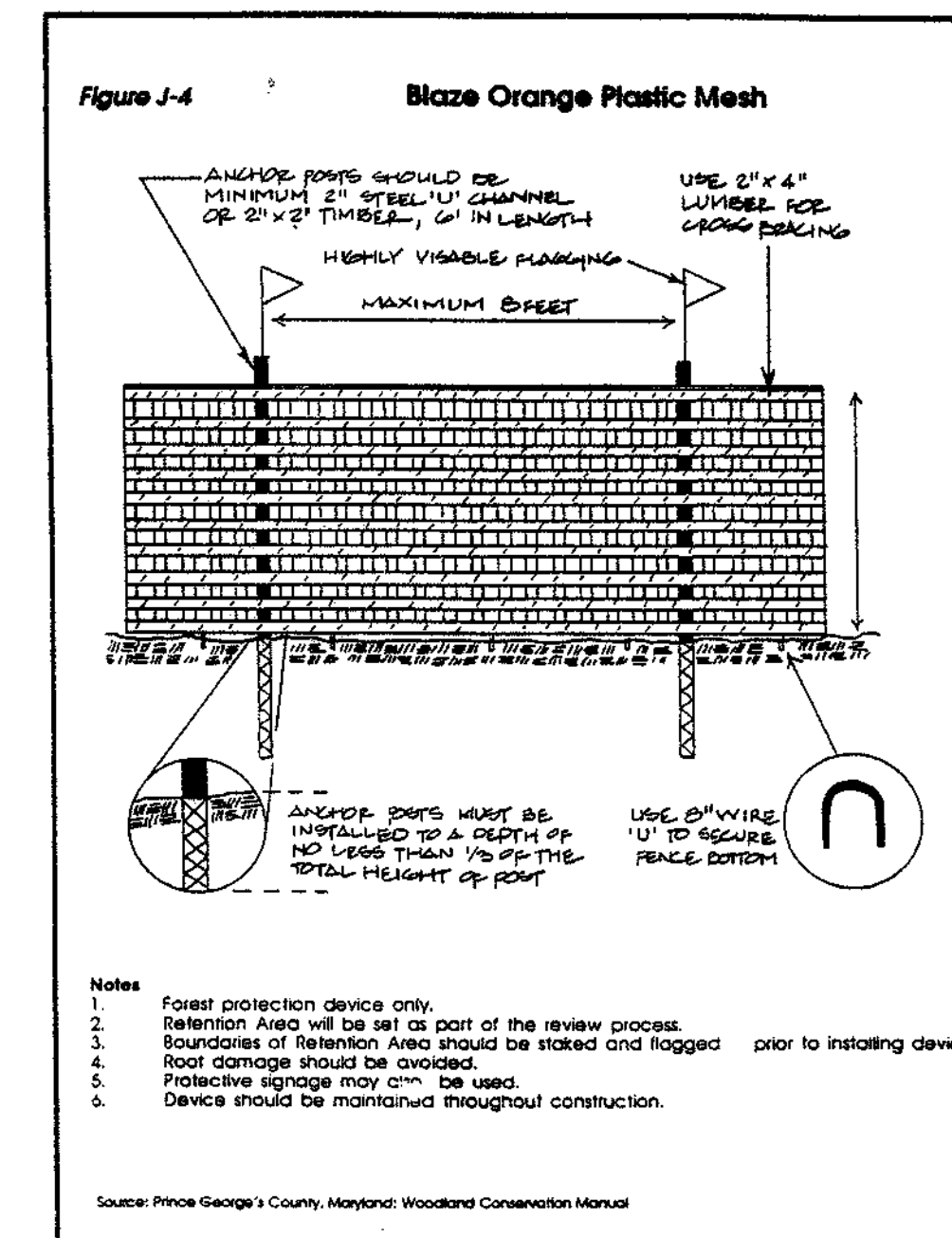
**FEE-IN-LIEU NOTE:** THE OBLIGATION FOR 2.05 ACRES OF REFORESTATION WILL BE ADDRESSED BY PAYMENT OF A FEE-IN-LIEU AT THE RATE OF THIRTY (30) CENTS PER SQUARE FOOT. THE TOTAL AMOUNT OF THE FEE-IN-LIEU TO BE PAID IS \$26,789.40.

**PRESERVATION AREA NOTES**

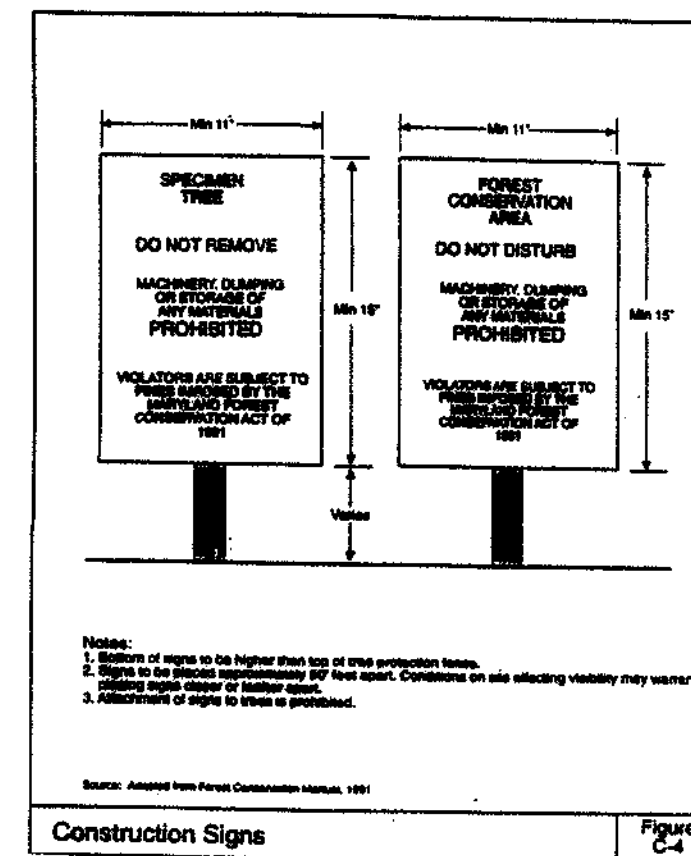
1. All proposed activities shall conform to the terms, conditions and schedules of an approved Soil Erosion and Sediment Control Plan.
2. Blaze orange plastic fence or silt fence (where applicable) shall be installed along all tree save areas that are within 50 feet of proposed construction activities. The Tree Protective Devices shall be in place at the time of construction activities commence. No protective device shall be installed along tree save areas that are greater than 50 feet from construction activity. The location of all Tree Protective Devices shall be shown on the Soil Erosion and Sediment Control Plan which will be incorporated into this Forest Conservation Plan by reference.

Approved: Department of Planning and Zoning

*Cinda Hamilton* 3/24/00  
Chief, Division of Land Development Date  
*Chris P... ..* 3/2/00  
Chief, Development Engineering Division Date  
Approved: Howard County Department of Public Works  
*Richard W. ...* 3-1-00  
Chief, Bureau of Highways Date



- Notes:
1. Forest protection device only.
  2. Retention Area will be set as part of the review process.
  3. Boundaries of Retention Area should be staked and flagged prior to installing device.
  4. Root damage should be avoided.
  5. Protective signage may be used.
  6. Device should be maintained throughout construction.



**OWNER/DEVELOPER**

TERRA MASS L.L.C.  
P.O. BOX 2695  
ELlicott CITY, MARYLAND 21041

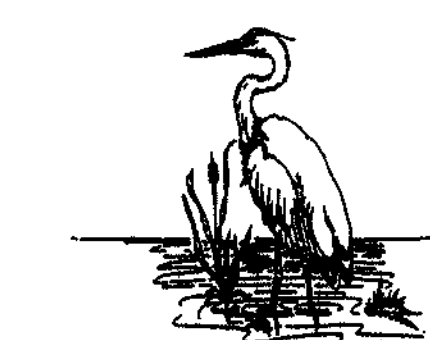
**WHITETAIL WOODS**

**FOREST CONSERVATION PLAN**

TAX MAP #38 PARCEL #262 BLOCK # 15  
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

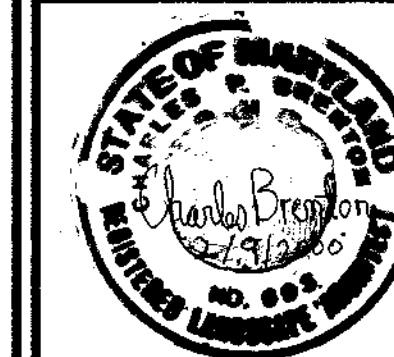
**VOGEL & ASSOCIATES**  
ENGINEERS/SURVEYORS/PLANNERS

3891 Park Avenue, Suite 101 • Ellicott City, Maryland 21043  
Tel: 410.461.5628 Fax: 410.465.3966



**EXPLORATION RESEARCH, INC.**  
ENVIRONMENTAL CONSULTANTS

8318 FORREST STREET  
HISTORIC ELlicott CITY, MARYLAND 21043  
PHONE: (410) 750-1150 FAX: (410) 750-7350



DESIGN BY: J.C.O.  
DRAWN BY: J.C.O.  
CHECKED BY: R.H.V.  
DATE: 11/23/99  
SCALE: 1"=50'  
W.O. NO.: 88005

9 SHEET 9  
OF