

ROADWAYS, STORM DRAINAGE AND STORMWATER MANAGEMENT

ARBOR WOODS

1st ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

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STORMWATER MANAGEMENT FACILITY OPERATIONS AND MAINTENANCE SCHEDULE

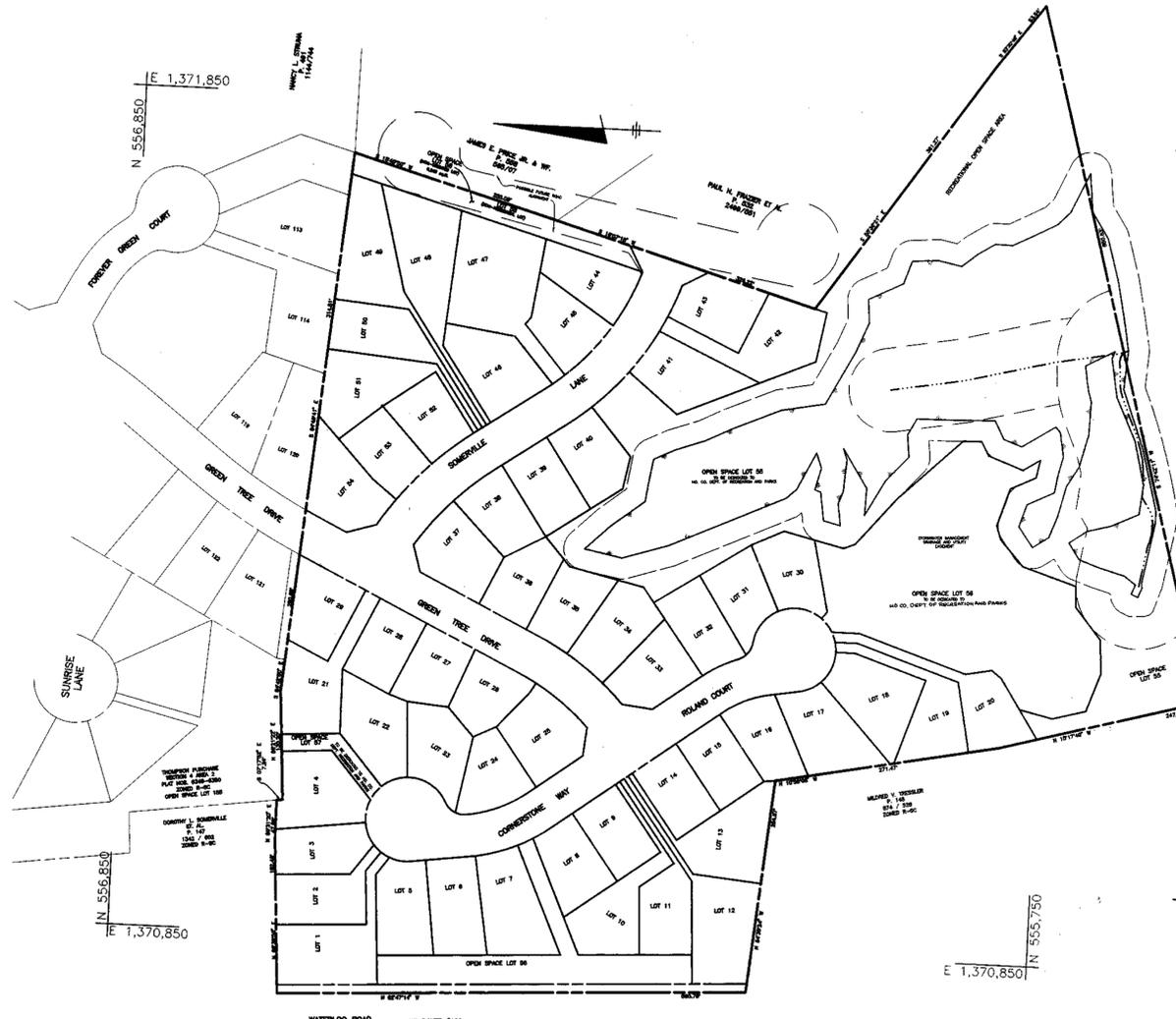
ROUTINE MAINTENANCE

- Facility shall be inspected annually and after major storms. Inspections should be performed during wet weather to determine if the pond is functioning properly.
- Top and side slopes of the embankment shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side of slopes and maintenance access should be mowed as needed.
- Debris and litter shall be removed during regular mowing operations and as needed.
- Visible signs of erosion in the pond as well as riprap outlet area shall be repaired as soon as it is noticed.

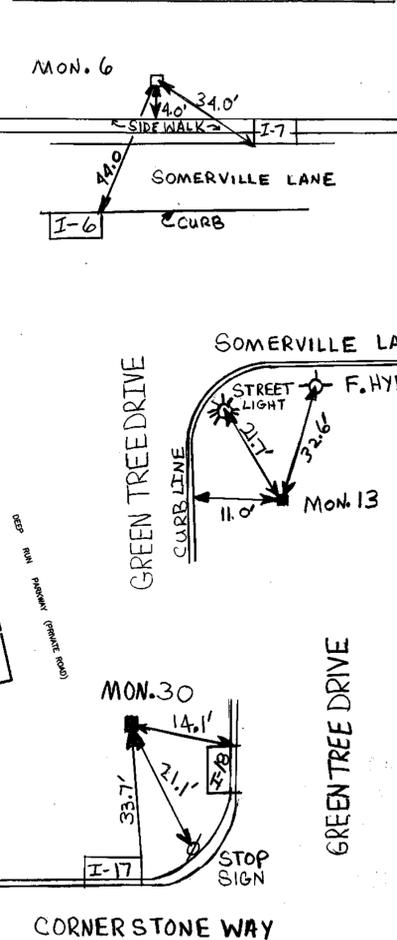
NON-ROUTINE MAINTENANCE

- Structural components of the pond such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components should be inspected during routine maintenance operations.
- Sediment should be removed from the pond no later than when the capacity of the pond is half full of sediment, when deemed necessary for aesthetic reasons, or when deemed necessary by the Howard County's Department of Public Works.

RIGHT OF WAY ELEVATION CHART (NAD 27)					
R/W P.L. NO.	DESCRIPTION	ELEV.	R/W P.L. NO.	DESCRIPTION	ELEV.
			11	REBAR & CAP	330.50
			12	REBAR & CAP	340.58
			13	CONC. MON.	339.78
			14	MARK IN CONC. DRIVEWAY	330.99
			15	REBAR & CAP	328.58
			16	REBAR & CAP	327.90
			17	REBAR & CAP	325.61
			18	REBAR & CAP	324.89
			19	"X"- MARK IN CONC.	323.93
			20	"X"- MARK IN CONC.	323.62
			21	REBAR & CAP	324.76
			22	REBAR & CAP	326.38
			23	"X"- MARK IN CONC.	334.07
			24	REBAR & CAP	340.07
			25	"X"- MARK IN CONC.	343.80
1	REBAR & CAP	342.54	26	REBAR & CAP	341.85
2	REBAR & CAP	342.84	27	REBAR & CAP	339.50
3	REBAR & CAP	342.24	28	REBAR & CAP	334.13
4	REBAR & CAP	340.63	29	REBAR & CAP	330.18
5	P-KNAIL IN DRIVEWAY	329.14	30	CONC. MON.	328.76
6	CONC. MON.	325.17	31	REBAR & CAP	331.67
7	MARK IN ASPHALT TURNAROUND	321.15	32	REBAR & CAP	343.18
7A	REBAR & CAP	329.01			
8	REBAR & CAP	319.59			
9	MARK IN ASPHALT TURNAROUND	320.61			
10	MARK IN CONC. DRIVEWAY	324.70			



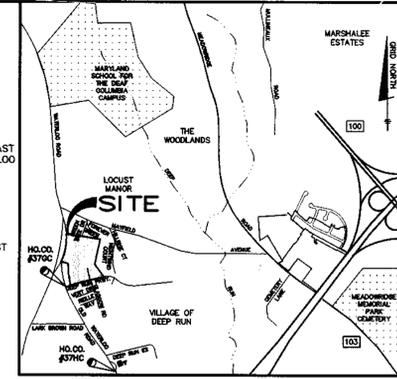
MONUMENT RECOVERY SKETCH



BENCH MARKS (NAD 83)
 H.O. CO. #3725
 3/4" REBAR AND ALUMINUM CAP 38.0' SOUTH OF THE EDGE OF PAVEMENT ON WATERLOO ROAD, 120' ± EAST OF THE GATEWAY TO WATERLOO COMMUNITY PARK.
 N 552854.2141(FT) E 1372639.499(FT)
 N 168510.3015(M) E 418381.3561(M)

H.O. CO. #3726
 3/4" REBAR AND ALUMINUM CAP 13.8' WEST OF THE EDGE OF PAVEMENT ON WATERLOO ROAD, 0.15 MILES EAST OF THE INTERSECTION BETWEEN ROUTE 108 AND WATERLOO ROAD.
 N 565250.7923(FT) E 1370946.362(FT)
 N 169240.7860(M) E 417865.2694(M)

BENCH MARKS (NAD 27)
 H.O. CO. #2444001-R ELEV. 346.728'
 CONC. MONUMENT SET FLUSH WITH SURFACE, 34.07' EAST OF THE EDGE OF PAVEMENT ALONG N.B. ROUTE 108
 N 495673.696 E 856372.166



VICINITY MAP
SCALE: 1"=2000'

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 the Department of Public Works Construction Inspection Division at (410) 313-1880 at least (five) 5 working days prior to the start of work.
- The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work.
- Project Background:
 Location: Tax Map 37 - Parcels 149, 405, 493 & 594
 Zoning: R-SC
 Total Tract Area: 18,936 Ac.
 Number of Proposed Lots: 54 SFD, 4 OPEN SPACE, 1 NON-CREDITED
 Date Preliminary Plan Approved: November 13, 1996
 DPZ Reference #: S-94-36, P-97-01, WP-97-03
- Traffic control devices, markings and signing shall be in accordance with the most current 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.
- Topography taken from field run survey performed by TSA Group Inc., dated September 1994, supplemented by 200' scale county topographic maps. Contour interval is 2 feet.
- Howard County Geodetic control station 2444001-R (NAD 27) was used for vertical datum and geodetic control station 370C and 37HC (NAD 83) was used for horizontal datum on this plan.
- Water and Sewer for this subdivision is provided by Potomac. Contract No. 14-3588-D.
- Stormwater Management (Quantity and Quality) for this subdivision is provided by a retention facility. Hazard classification for the structure shall be class "A". Vegetative buffers shall provide water quality treatment for unmanaged areas.
- No Floodplain exist on this site.
- Forest Conservation Plan prepared by ECO-SCIENCE PROFESSIONAL, INC. dated September 4, 1993. 0.4 acres of reforestation required, provided on site.
- Traffic Study compiled by Lee Cunningham & Associates, Inc. February, 1994.
- Geotechnical Report compiled by Hillis-Carnes Engineering Associates, Inc. February 10, 1995.
- Existing utilities were located by record drawings and field run survey by TSA Group, Inc.
- Unless noted as "private" all easements are public.
- The Forest Conservation Easement has been established to fulfill the requirements of Section 16.1200 of the Howard County Code: Forest Conservation Act. No clearing, grading or construction is permitted within the Forest Conservation easement; Forest management practices as defined in the deed of Forest Conservation easement are allowed.
- The stormwater facility shown on these plans will be owned and maintained by the homeowners association.
- The existing water and sewer lines reflect information obtained from as built drawings. It shall be the contractors responsibility to verify the locations and elevations of the existing lines.
- WP-97-03 on August 15, 1996 the Planning Board Director denied the request to waive section 16.116(a)(1) to allow grading or removal of vegetation within 25 feet of wetland.
- Street light placement and type of fixture and pole selected shall be in accordance with the Howard County Design manual, Volume III (1993) and as modified by the "Guidelines for Street Lights in Residential Developments (June 1993)", which determined lateral and longitudinal placement.
- All road fills shall be compacted to 95% as determined by AASHTC T-180.
- All sidewalks and sidewalk ramps shall be in conformance with current ADA criteria.
- Wetland delineation compiled by Environmental Resources Services, Inc. January, 1994
- No clearing, grading or construction is permitted within wetlands, wetland buffers, stream buffers or forest conservation areas except for work associated with utility crossings as presented on these plans.
- Noise study was performed by TSA Group, Inc. February, 1996.
- Wetland permit tracking number: 199761513
 Non-tidal wetland number: 97-NT-0038

CENTERLINE CONTROL DATA - GREEN TREE DRIVE			
STATION	NORTH	EAST	
LIMIT OF SUBMISSION STA. 5+57.58 POC	556639.0414	1371326.5643	
PT STA. 5+66.89	556630.6744	1371322.4817	
STA. 4+50.88 GREEN TREE DR=STA. 0+00 SOMERVILLE LN.	556553.1434	1371285.2668	
PC STA. 8+63.89	556553.1434	1371285.2668	
PT STA. 10+20.27	556243.6951	1371095.1839	
STA. 10+32.27 GREEN TREE DR =	556236.5810	1371085.5201	
STA. 0+00 CORNERSTONE WAY			

CENTERLINE CONTROL DATA - CORNERSTONE WAY SOUTH			
STATION	NORTH	EAST	
STA. 0+00 CORNERSTONE WAY =			
STA. 10+32.27 GREEN TREE CT.	556236.5810	1371085.5201	
PC STA. 1+18.84	556140.8805	1371155.9715	
PRC STA. 1+69.07	556096.2356	1371178.4889	
PT STA. 2+19.75	556065.5725	1371204.8254	
END CL STA. 2+32.21	556044.3496	1371213.8205	

CENTERLINE CONTROL DATA-CORNERSTONE WAY NORTH			
STATION	NORTH	EAST	
STA. 0+00 CORNERSTONE WAY			
STA. 10+32.27 GREEN TREE CT.	556236.5810	1371085.5201	
PC STA. 1+30	556341.2720	1371008.4501	
PCC STA. 2+20.08	556423.9101	1370975.0250	
PT STA. 2+51.33	556492.3143	1370987.6824	
END CL STA. 2+32.41	556498.1625	1370990.5968	

CENTERLINE CONTROL DATA-SOMERVILLE LANE			
STATION	NORTH	EAST	
PC STA. 0+00	556553.1434	1371285.2668	
PT STA. 1+96	556427.0018	1371432.3643	
PC STA. 2+96	556344.5026	1371488.8788	
STA. 5+24.58 = LIMIT OF SUBMISSION	556215.6669	1371672.2723	

PLAN
SCALE: 1"=100'



CURVE TABLE					
CURVE	RADIUS	ARC	DELTA	TANGENT	CHORD
C1	723.49'	9.31'	0°44'14"	4.66'	S25°59'24" W 9.31'
C2	320.00'	156.38'	27°59'59"	79.78'	S39°37'16" W 154.89'
C3	375.00'	196.00'	29°56'48"	100.29'	S49°24'20" E 193.78'
C4	320.00'	228.98'	40°59'54"	119.64'	S54°55'53" E 224.12'
C5	180.00'	91.00'	28°57'58"	46.49'	N21°53'51" W 90.03'
C6	111.76'	70.36'	36°04'14"	36.39'	N10°37'18" E 69.20'
C7	150.00'	50.24'	19°11'20"	25.38'	S26°45'53" E 50.00'
C8	100.00'	50.68'	29°02'12"	25.90'	S31°41'19" W 50.14'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 6-10-97

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Candy Hamilton
 DIVISION OF LAND DEVELOPMENT
 DATE: 6/12/97

APPROVED: *[Signature]*
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK
 DATE: 6/12/97

NO.	DATE	REVISION

TSA GROUP, INC. planning • architecture • engineering 6480 Baltimore National Pike • Ellicott City, Maryland 21048 • (410) 486-6106		
OWNER: ROSE MARIE SEARS 8122 FOREVER GREEN CT. ELKCRIDGE, MD 21227	ELIZABETH ROULLIER 6477 WATERLOO RD. ELKCRIDGE, MD 21227	
DEVELOPER: CORNERSTONE HOLDINGS, L.L.C. 7405 BUCKS HAVEN LANE HIGHLAND, MARYLAND 20777		PROJECT: ARBOR WOODS LOTS 1-59 LOCATION: TAX MAP 37 - PARCELS 149, 405, 493 & 594 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: TITLE SHEET		S-94-36, P-97-01, WP-97-03 DATE: January 8, 1997 MAY 23, 1997 PROJECT NO. 0675
Design: GWF	Draft: JR	SCALE: AS SHOWN DRAWING 1 OF 12

SEDIMENT CONTROL NOTES

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION.
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THEREOF.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1; B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHALL BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SOU (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:

TOTAL AREA OF SITE	18.9	ACRES
TOTAL AREA DISTURBED	13.78	ACRES
AREA TO BE ROOFED OR PAVED	1.3	ACRES
AREA TO BE VEGETATIVELY STABILIZED	12.65	ACRES
TOTAL CUT	33,259	CU YDS
TOTAL FILL	33,259	CU YDS
OFFSITE BORROW		CU YDS
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES ARE LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

TEMPORARY SEEDBED PREPARATION

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

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

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

SEEDING: FOR PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF HEIFER LOVEGRASS (0.7 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOO.

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

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

PERMANENT SEEDBED PREPARATION

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

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

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

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

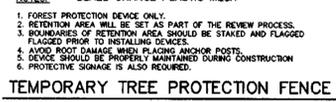
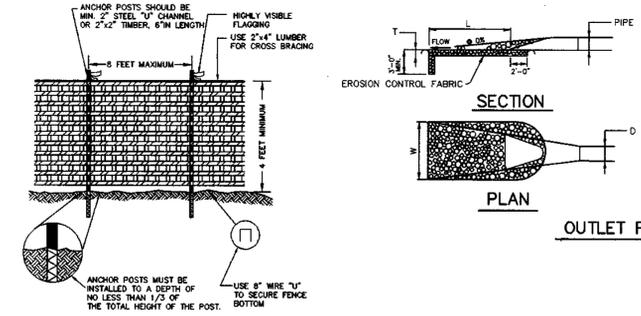
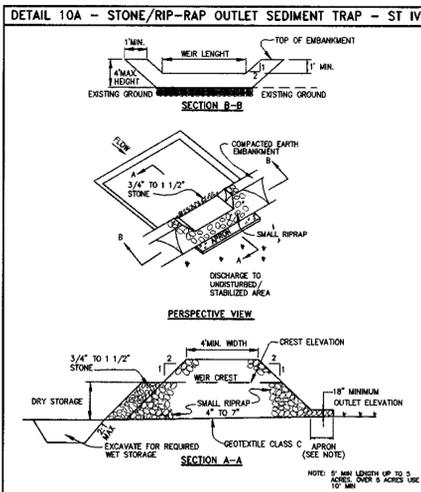
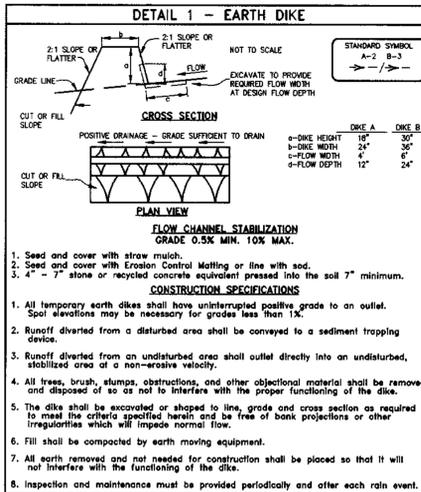
MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 8 FEET OR HIGHER,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

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

WETLAND SEED MIX

(APPLIED AT A RATE OF 28 LBS-P.L.S. PER ACRE ON ALL DISTURBED AREAS)

BOTANICAL NAME	COMMON NAME	INDICATOR STATUS	FREQUENCY(%)	QUANTITY (PER ACRE)
Agrostis alba	Red top	FCAW	10	2 lbs
Elymus virginicus	Virginia wildrye	FCAW	20	4 lbs
Lolium multiflorum	Annual ryegrass	NI	40	8 lbs
Panicum virgatum	Switchgrass	FC	20	4 lbs
Poa trivialis			20	2 lbs

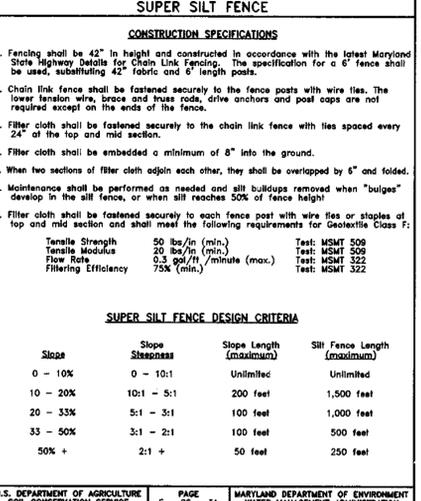
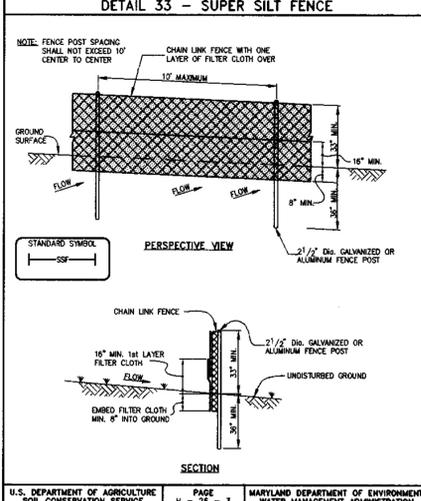
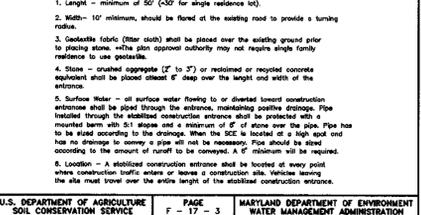
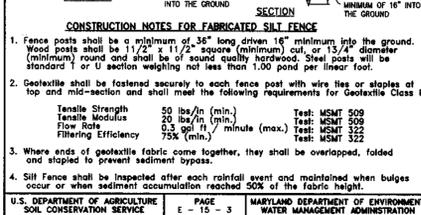
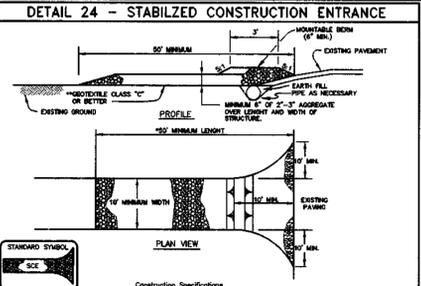
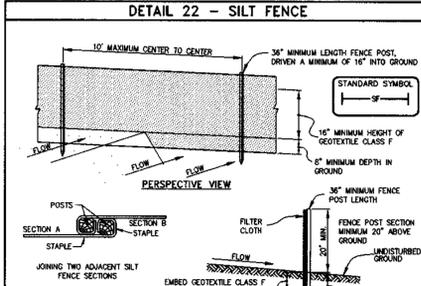


STRUCTURE	4-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
E-1	0.75'	20'	10.5	1.5	I
E-2	1.33'	SEE FORBAY SECTION	2.7	1.1	I
E-3	1.33'	SEE FORBAY SECTION	2.7	1.1	I

I hereby certify that the facility shown on this plan was constructed as shown on the "AS-BUILT" plans and meets the approved plans and specifications.

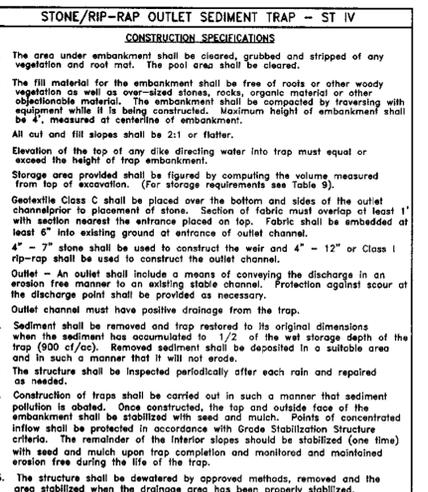
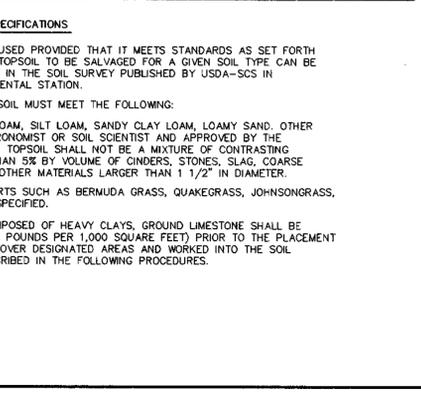
DONALD A. MASON Date

I hereby certify to state or declare a professional opinion based upon onsite inspections and materials tests which are conducted during construction. The onsite inspections and materials tests are those inspections and tests deemed sufficient and appropriate by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the Engineer nor does an Engineer's certification relieve any other party from meeting requirements imposed by contract, employment or other means, including meeting commonly accepted industry practices.



TOPSOIL STANDARDS AND SPECIFICATIONS

- TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE USED IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
- TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
 - TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CHINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.
 - TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
- WHERE THE SUBSOIL IS EITHER HIGHLY ACID OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES:



Record of Soil Exploration Boring No. B-1

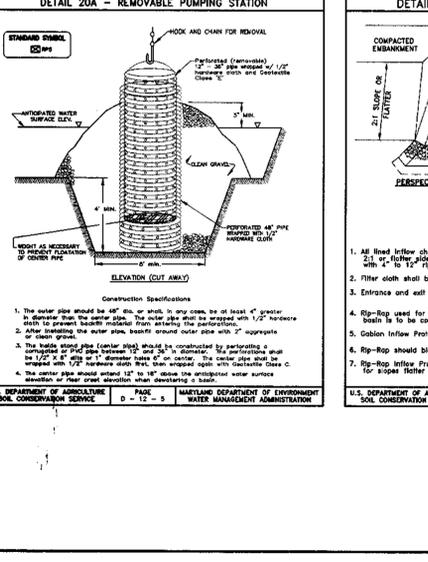
SOIL DESCRIPTION	STRA. DEPTH (FT.)	Sample	BORING & SAMPLING NOTES
Surface (elevation 255.78)	0.0	CON	12" Topsoil
Topsoil	0.0	1	1-2-1 1 6" 10" Topsoil
Tan to gray, moist, medium stiff to hard, silty clay, little sand (CL)	1.0	1	1-2-1 1 6" 10" Topsoil
White and orange moist clayey sand some gravel (SC)	5.0	1	7-11-2 2 6" 6" Sand Samples from 0.0' to 5.0' Coved at 6.0' **
White and orange moist clayey sand some gravel (SC)	5.0	1	7-13-14 3 10" Coved at 7.0' **
White and orange moist clayey sand some gravel (SC)	5.0	1	6-7-9 4 12" Coved at 14.5' *
White and orange moist clayey sand some gravel (SC)	5.0	1	6-10-12 5 14" Coved at 15.0' *
Gray and green moist silty sand (SM)	15.0	1	10-22-25 6 14" Coved at 15.0' *
Sandy Loam	15.5	1	10-22-25 6 14" Coved at 15.0' *
Bottom of Hole at 16.5'	16.5		** Groundwater at completion 10.2' ** Groundwater after 24 hours (10.8')

Record of Soil Exploration Boring No. B-2

SOIL DESCRIPTION	STRA. DEPTH (FT.)	Sample	BORING & SAMPLING NOTES
Surface (elevation 257.84)	0.0	CON	12" Topsoil
Topsoil	0.0	1	1-2-1 1 6" 10" Topsoil
Tan to gray, moist, medium stiff to hard, silty clay, little sand (CL)	1.0	1	7-11-2 2 6" 6" Sand Samples from 0.0' to 5.0' Coved at 6.0' **
White and orange moist clayey sand some gravel (SC)	5.0	1	7-13-14 3 10" Coved at 7.0' **
White and orange moist clayey sand some gravel (SC)	5.0	1	6-7-9 4 12" Coved at 14.5' *
White and orange moist clayey sand some gravel (SC)	5.0	1	6-10-12 5 14" Coved at 15.0' *
Gray and green moist silty sand (SM)	15.0	1	11-15-17 6 15" Coved at 14.5' *
Sandy Loam	15.5	1	11-15-17 6 15" Coved at 14.5' *
Bottom of Hole at 16.5'	16.5		** Groundwater at completion 11.0' ** Groundwater after 24 hours (10.8')

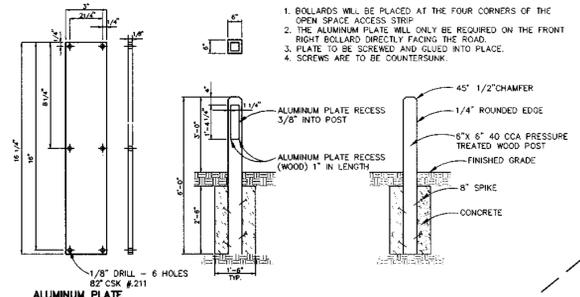
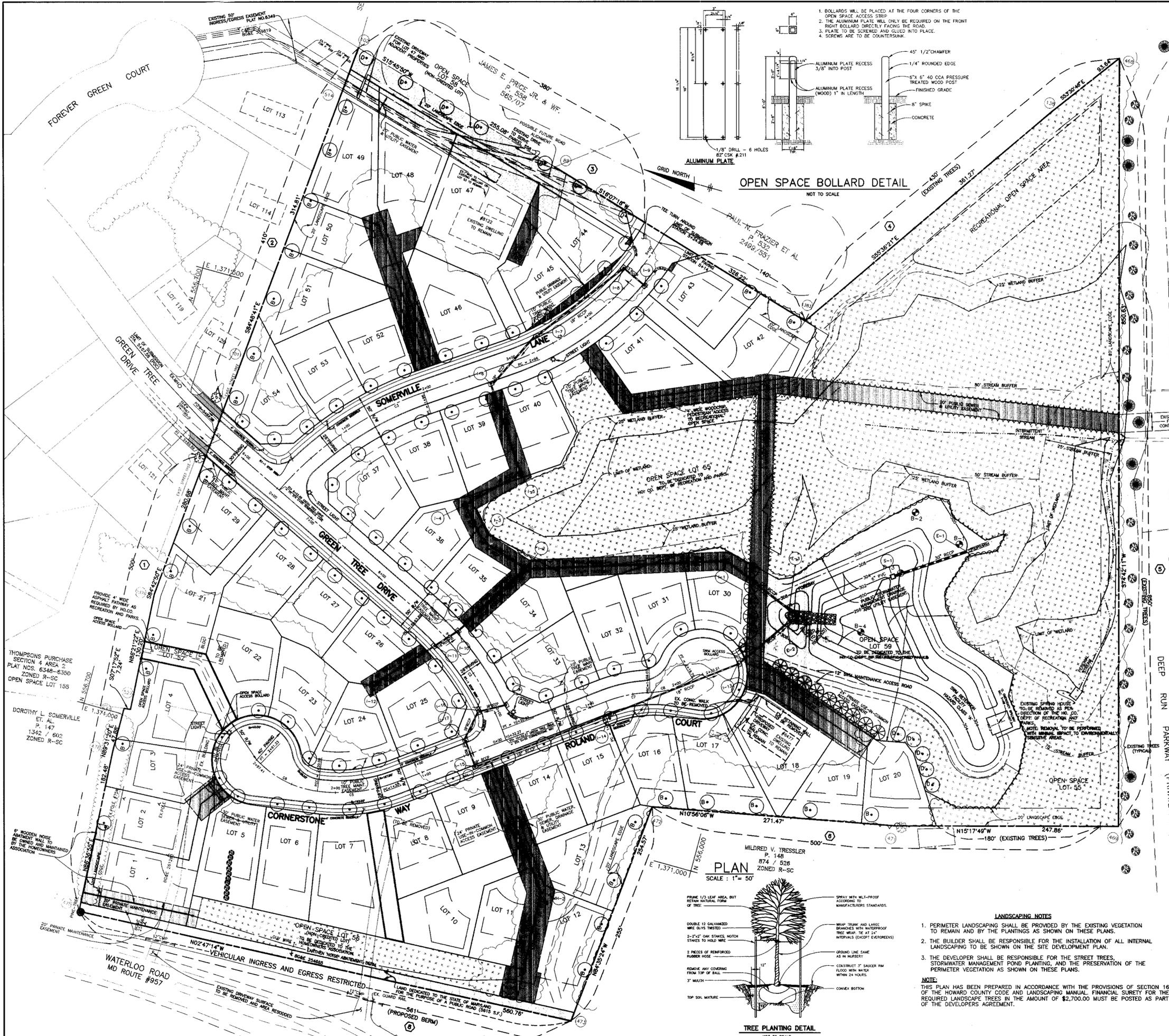
Record of Soil Exploration Boring No. B-3

SOIL DESCRIPTION	STRA. DEPTH (FT.)	Sample	BORING & SAMPLING NOTES
Surface (elevation 150.13)	0.0	CON	12" Topsoil
Tan to gray, moist, medium stiff to hard, silty clay, little sand (CL)	1.0	1	1-3-5 1 7" 10" Topsoil
White and orange moist clayey sand some gravel (SC)	5.0	1	7-8-10 2 12" 12" Groundwater encountered at 7.0' while drilling
White and orange moist clayey sand some gravel (SC)	5.0	1	6-8-9 3 14" 6" Sand Samples from 0.0' to 5.0' Coved at 7.0' **
White and orange moist clayey sand some gravel (SC)	5.0	1	6-4-6 4 10" Coved at 8.5' **
White and orange moist clayey sand some gravel (SC)	5.0	1	3-6-9 5 14" Coved at 8.5' **
Gray and green moist silty sand (SM)	15.0	1	9-11-15 6 7" Coved at 14.5' *
Sandy Loam	15.5	1	9-11-15 6 7" Coved at 14.5' *
Bottom of Hole at 16.5'	16.5		** Groundwater at completion 8.0' ** Groundwater after 24 hours (8.0')



Record of Soil Exploration Boring No. B-4

SOIL DESCRIPTION	STRA. DEPTH (FT.)	Sample	BORING & SAMPLING NOTES
Surface (elevation 151.08)	0.0	CON	12" Topsoil
Multi colored moist to very moist, loose to very dense, sand, trace to some silty clay (SM)	1.0	1	1-3-3 1 7"



OPEN SPACE BOLLARD DETAIL
NOT TO SCALE

CATEGORY	SCHEDULE A PERIMETER LANDSCAPE EDGE						
	ADJACENT TO ROADWAYS	ADJACENT TO PERMETER PROPERTIES					
LANDSCAPE TYPE	①	②	③	④	⑤	⑥	⑦
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	850	561'	500'	410'	520'	430'	500'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES 850	NO	NO	NO	NO	② YES 430'	② YES 180'
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	N/A	④ YES 561'	① YES 60'	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED							
SHADE TREES	0	0	7	7	9	0	5
EVERGREEN TREES	0	0	0	0	0	0	0
OTHER TREES (2:1 SUBSTITUTE) SHRUBS	0	0	0	0	0	0	0
NUMBER OF PLANTS PROVIDED							
SHADE TREES	0	0	7	7	9	0	5
EVERGREEN TREES	0	0	0	0	0	0	0
OTHER TREES (2:1 SUBSTITUTE) SHRUBS (10:1 SUBSTITUTE)	0	0	0	0	0	0	0
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)							

- ① - 6' WOODED NOISE ABATEMENT WALL
- ② - EXISTING TREES
- ③ - OPEN SPACE LOT 55 HAS EXISTING WOODS BUFFER, DOES NOT REQUIRE LANDSCAPING BUFFER ADJACENT TO ROADWAY
- ④ - EARTHEN BERM AND 6' WOODEN NOISE ABATEMENT WALL

LANDSCAPE LEGEND	
○	STREET TREES TO BE PROVIDED BY THE DEVELOPER TO BE INCORPORATED ON FINAL PLANS.
⊙	SHADE TREES ALONG PERIMETER AND STORMWATER MANAGEMENT TO BE PROVIDED BY THE DEVELOPER AND INCORPORATED ON FINAL PLANS.
⊗	EVERGREEN TREES ALONG STORMWATER MANAGEMENT AREA TO BE PROVIDED BY THE DEVELOPER AND INCORPORATED ON FINAL PLANS.
⊕	SHADE TREES TO MEET LANDSCAPE REQUIREMENTS TO BE PROVIDED BY THE BUILDER AND INCORPORATED ON SITE DEVELOPMENT PLAN.

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING	
LINEAR FEET OF PERIMETER	1020'
NUMBER OF TREES REQUIRED	17
SHADE TREES	26
EVERGREEN TREES	YES, 645'
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO
NUMBER OF TREES PROVIDED	5
SHADE TREES	15
EVERGREEN TREES	5
OTHER TREES (2:1 SUBSTITUTE)	0
LANDSCAPE TYPE	B

PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
○	82	ACER RUBRA (Red Maple)	2 1/2" MIN. CAL B&B FULL HEAD
⊙	37	ACER RUBRA (Red Maple)	2 1/2" MIN. CAL B&B FULL HEAD
⊗	15	PINUS THUNBERGIANA (Japanese Black Pine)	5'-6" ht. UNSHEARED

- NOTE:**
- TREES SHOULD BE PLANTED A MINIMUM OF 4 FEET FROM THE CURB OR SIDEWALK AND SHOULD BE A MINIMUM OF 5 FEET FROM ANY STORM DRAIN.
 - A MINIMUM DISTANCE OF 20 FEET SHALL BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND ANY STREET LIGHTS.
 - TREES MUST BE PLANTED A MINIMUM OF 5 FEET FROM AN OPEN SPACE ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.
 - SEE TREE PLANTING DETAIL - THIS SHEET.

LEGEND	
---	EXISTING TREE LINE
---	PROPOSED TREE LINE
---	FOREST CONSERVATION EASEMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Druke
 CHIEF, BUREAU OF HIGHWAYS 6-10-97 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Carol Hanita
 DIVISION OF LAND DEVELOPMENT 6/10/97 DATE

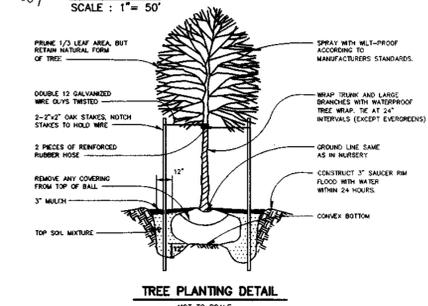
Mr. Deussen
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK 6/12/97 DATE

NO.	DATE	REVISION

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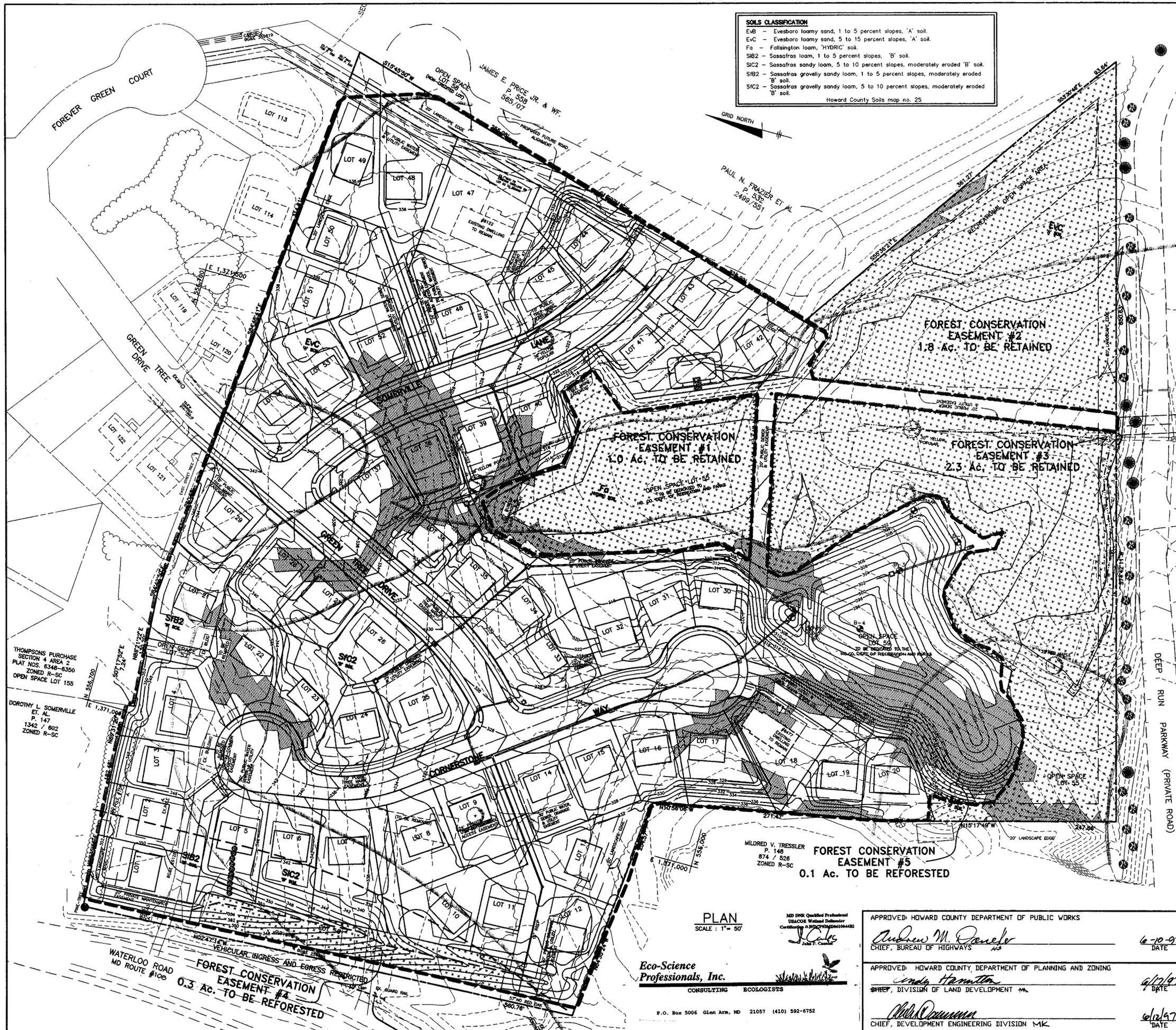


OWNER: ROSE MARIE SEARS 8122 FOREVER GREEN CT ELKRIDGE, MD 21227	ELIZABETH ROULLER 6477 WATERLOO RD. ELKRIDGE, MD 21227	PROJECT: ARBOR WOODS LOTS 1-59
DEVELOPER: CORNERSTONE HOLDINGS, L.L.C. 7405 BUCKS HAVEN LANE HIGHLAND, MARYLAND 20777	LOCATION: TAX MAP 37 - PARCELS 149,405,493 & 594 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: LANDSCAPING PLAN S-94-36, P-97-01, WP-97-03 January 8, 1997 MAY 23, 1997
Design: GWF	Draft: JR	PROJECT NO. 0675 SCALE: 1"=50' DRAWING 10 OF 12

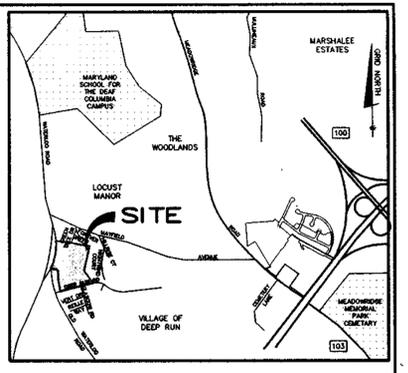


TREE PLANTING DETAIL
NOT TO SCALE

- LANDSCAPING NOTES**
- PERIMETER LANDSCAPING SHALL BE PROVIDED BY THE EXISTING VEGETATION TO REMAIN AND BY THE PLANTINGS AS SHOWN ON THESE PLANS.
 - THE BUILDER SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL INTERNAL LANDSCAPING TO BE SHOWN ON THE SITE DEVELOPMENT PLAN.
 - THE DEVELOPER SHALL BE RESPONSIBLE FOR THE STREET TREES, STORMWATER MANAGEMENT POND PLANTING, AND THE PRESERVATION OF THE PERIMETER VEGETATION AS SHOWN ON THESE PLANS.
- NOTE:**
 THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPING MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPE TREES IN THE AMOUNT OF \$2,700.00 MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT.



SOILS CLASSIFICATION
 EvB - Evesboro loamy sand, 1 to 5 percent slopes, 'A' soil.
 EvC - Evesboro loamy sand, 5 to 15 percent slopes, 'A' soil.
 Fa - Follingston loam, 'HYDRIC' soil.
 SIB2 - Sassafras loam, 1 to 5 percent slopes, 'B' soil.
 SIC2 - Sassafras sandy loam, 5 to 10 percent slopes, moderately eroded 'B' soil.
 SIB2 - Sassafras gravelly sandy loam, 1 to 5 percent slopes, moderately eroded 'B' soil.
 SIC2 - Sassafras gravelly sandy loam, 5 to 10 percent slopes, moderately eroded 'B' soil.
 Howard County Soils map no. 25



VICINITY MAP
 SCALE: 1"=2000'

SITE DATA TABULATION

- 1.) ZONED..... R-SC
- 2.) TOTAL AREA OF SITE..... 18.936 AC.
- 3.) TOTAL AREA OF FLOODPLAIN..... N/A
- 4.) TOTAL AREA OF 25% OR GREATER SLOPES..... N/A
- 5.) APPROXIMATE AREA OF DISTURBANCE..... 13.81 ± AC.
- 6.) NET AREA OF SITE..... 18.936 AC.

NOTE: SEE SHEET NO 12 FOR FCP NOTES, PLANTING SCHEDULE, SPECIFICATIONS AND DETAILS.

THIS PLAN TO BE USED FOR FOREST CONSERVATION PURPOSES ONLY

FCP LEGEND

- X — X — LIMIT OF FOREST CONSERVATION EASEMENT
- X — X — TEMPORARY PROTECTIVE FENCING/LOD (SEE FCP NOTE 6 ON SHEET 12)
- FCE** PERMANENT PROTECTIVE SIGNAGE

LEGEND

- EXISTING TREE LINE
- PROPOSED TREE LINE
- PROPOSED CONTOUR
- EXISTING GRADE
- SOILS DELINEATION
- SOILS TYPE
- SLOPES 15% TO 24.98%
- FOREST CONSERVATION AREA
- LIMIT OF DISTURBANCE

NO.	DATE	REVISION

TSA GROUP, INC.
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 8480 Baltimore National Pike • Millersville, Maryland 21105 • (410) 408-6100

OWNER:
 ROSE MARIE SEARS
 8122 FOREVER GREEN CT.
 ELKCRIDGE, MD 21227

ELIZABETH ROULLER
 6477 WATERLOO RD.
 ELKCRIDGE, MD 21227

PROJECT:
ARBOR WOODS
 LOTS 1-59

DEVELOPER:
 CORNERSTONE HOLDINGS, L.L.C.
 7405 BUCKS HAVEN LANE
 HIGHLAND, MARYLAND 20777
 Phone: (410)988-9146

LOCATION: TAX MAP 37 - PARCELS 149,405,463 & 594
 1ST ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

DATE: January 8, 1997
 MAY 23, 1997

TITLE:
FOREST CONSERVATION PLAN
 S-94-36, P-97-01, WP-97-03
 PROJECT NO. 0675
 DRAWING 11 OF 12

Design: DAM/GWF Draft: JR

SCALE: 1"=50'

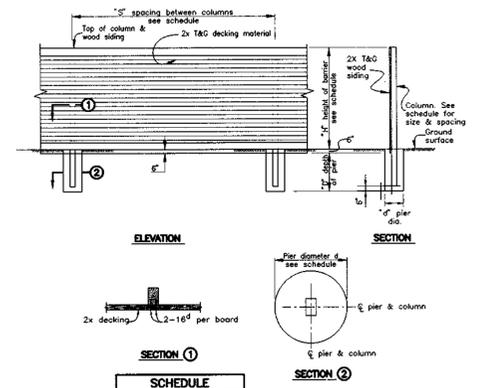
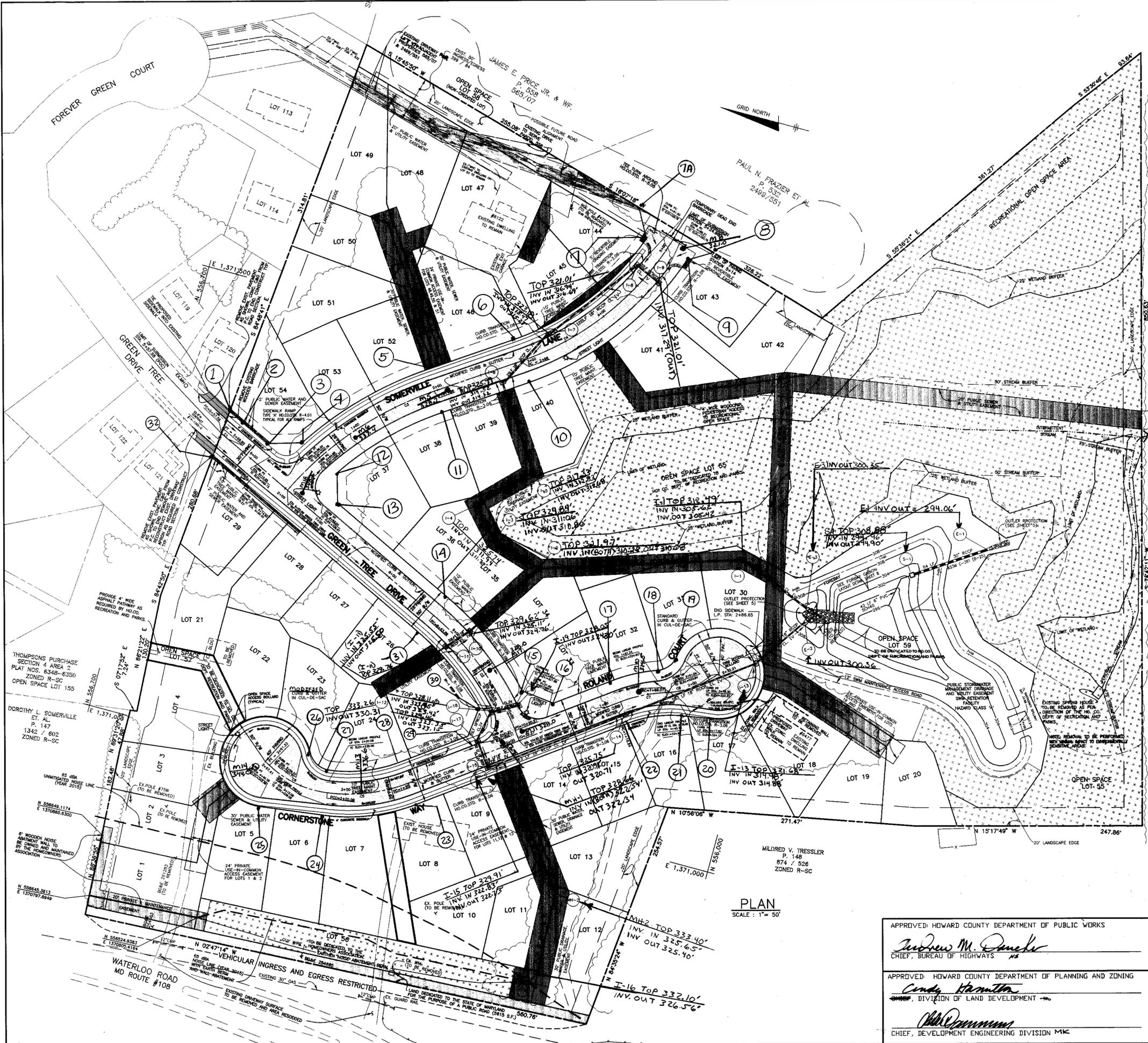
PLAN
 SCALE: 1"=50'

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels
 CHIEF, BUREAU OF HIGHWAYS
 6-10-97 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Indie Hamilton
 CHIEF, DIVISION OF LAND DEVELOPMENT
 4/10/97 DATE

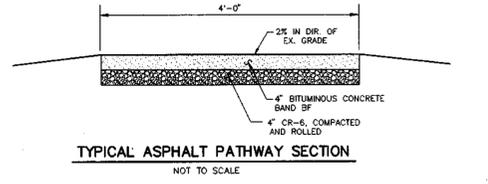
Chris Dammann
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK
 6/12/97 DATE



NOTES:

- GENERAL
 - Height of barrier shall be based on acoustic requirements.
- SIDING
 - 2x wood decking material shall be utilized to span horizontally between posts. Design criteria is based on an allowable bending stress of 1400 lbs. per sq. in. and a 33% increase in stress for wind loads as considered appropriate. Decking shall be MC15.
 - Siding in contact with the ground and for a distance of 6' above grade shall be treated with wood preservative.
- POSTS
 - Wood post shall be utilized at the spacing indicated on the schedule. Design criteria is based on an allowable bending stress of 1400 lbs. per sq. in. and a 33% increase for wind loadings.
 - Post embedded in concrete shall be treated with a wood preservative in the area of embedment and 12" above grade.
- CONCRETE
 - Concrete in the piers shall have a 28 day compressive strength of 2500 lbs. per sq. in.
 - Concrete shall be placed in drilled piers utilizing the earth as the forms.
- FOUNDATIONS
 - The drilled piers have been designed utilizing an allowable passive pressure of 300 lbs. per sq. ft. and the following formula:
 $D = \frac{1.45M}{\phi}$
 M = Moment at top of drilled pier (ft./lbs.)
 P = Allowable passive pressure (300 lbs. per sq. ft.)
 D = Diameter of pier (ft.)
 φ = Diameter of pier (ft.)
- PRESERVATIVE TREATMENT: Material used for basic wood structure shall conform to ANSI standards.

DESIGN BASED ON FEDERAL HIGHWAY ADMINISTRATION
 NOISE BARRIER DESIGN HANDBOOK (FHWA-RD-76-58)
 PAGE A-14



NOTES:

- FOR @ CURVE DATA SEE SHEET NO. 1
- EXISTING DWELLING LOCATED ON LOT 47 TO BE SERVED BY EXISTING WATER HOUSE CONNECTION, WITH PROPOSED SEWER HOUSE CONNECTION PROVIDED. EXISTING DWELLING ON LOT 18 TO BE SERVED BY PROPOSED WATER HOUSE CONNECTION AND SEWER HOUSE CONNECTION. DOCUMENTATION FOR ABANDONMENT OF EXISTING SEWERAGE SYSTEMS AND WATER HOUSE CONNECTIONS FOR EXISTING DWELLINGS TO BE REMOVED WILL BE PROVIDED PRIOR TO PLAT RECORDATION.
- REPRESENT FOREST CONSERVATION EASEMENT AREA

STREET LIGHT SCHEDULE		
SYMBOL	LOCATION	TYPE
☆	STA. 6+80, 20' LT., STA. 10+07, 19' LT., (GREEN TREE DRIVE)	100 WATT HPS VAPOR TRADITIONAL POST TOP FIXTURE MOUNTED ON 14' BLACK FIBERGLASS POLE.
☆	STA. 34+42, 16' RT., (SOMERVILLE LANE)	100 WATT HPS VAPOR TRADITIONAL POST TOP FIXTURE MOUNTED ON 14' BLACK FIBERGLASS POLE.
	LINEAR PROFILE STA. 34+52, 3' RT., (CORNERSTONE WAY)	



NO.	DATE	REVISION

TSA GROUP, INC.
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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 6-10-97

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Cindy Hamilton
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 6/17/97

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
John Dammann
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 6/12/97

OWNER:
 ROSE MARIE SEARS
 8122 FOREVER GREEN CT.
 ELKCRIDGE, MD 21227

DEVELOPER:
 CORNERSTONE HOLDINGS, L.L.C.
 7405 BUCKS HAVEN LANE
 HIGHLAND, MARYLAND 20777
 Phone: (410) 988-9146

PROJECT:
ARBOR WOODS
 LOTS 1-59

LOCATION:
 TAX MAP 37 - PARCELS 149,405,493 & 594
 1ST ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE:
ROAD PLAN

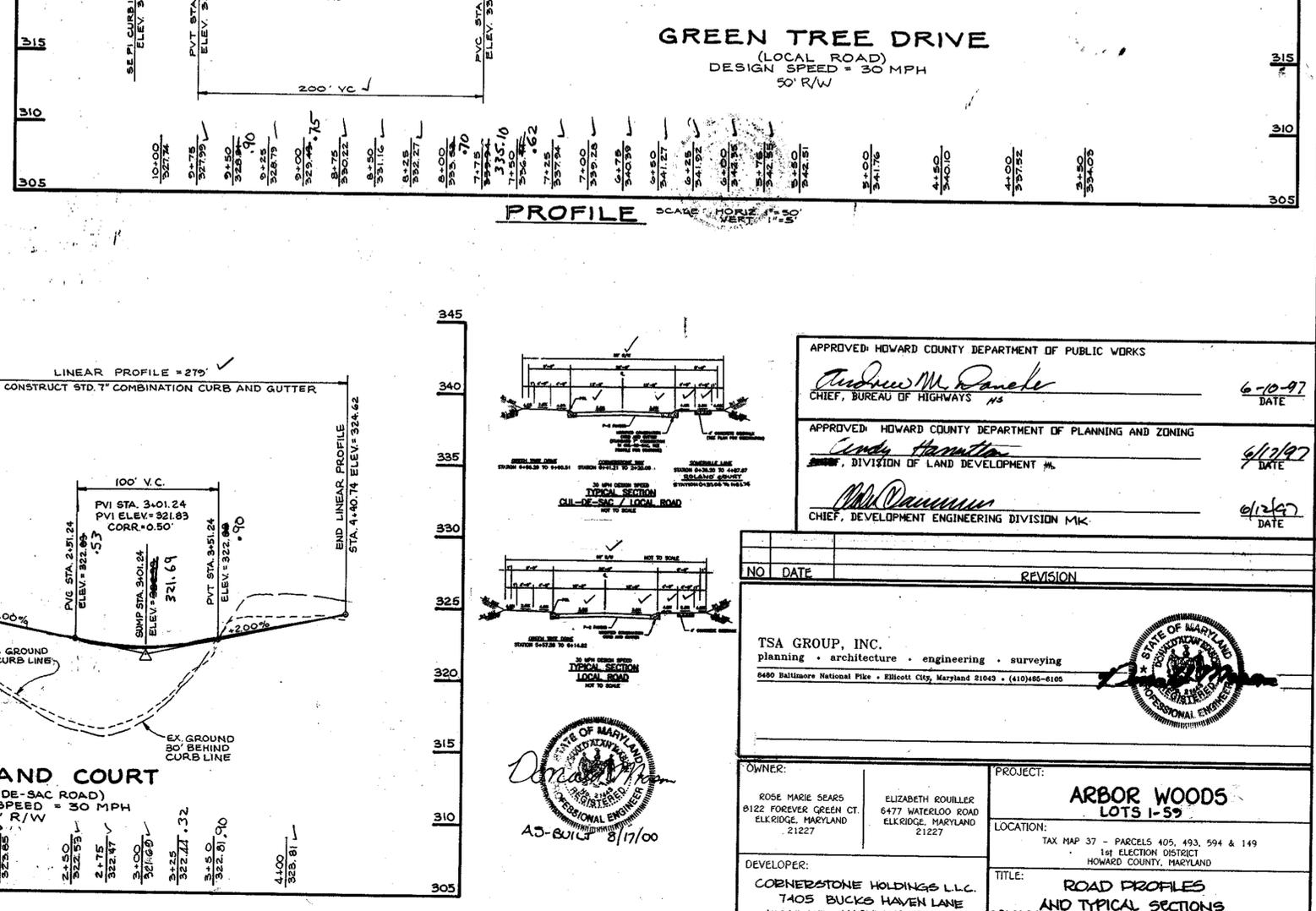
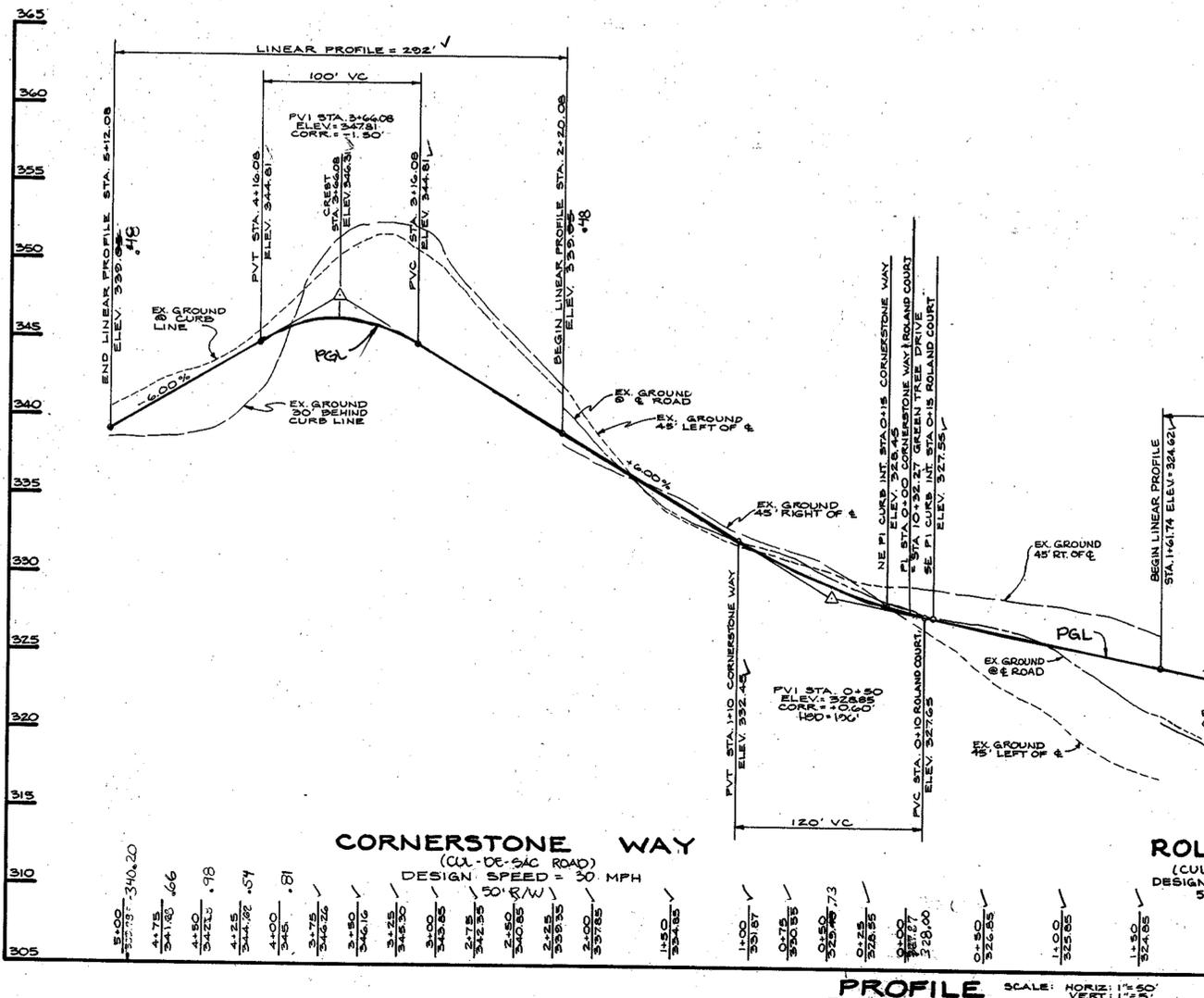
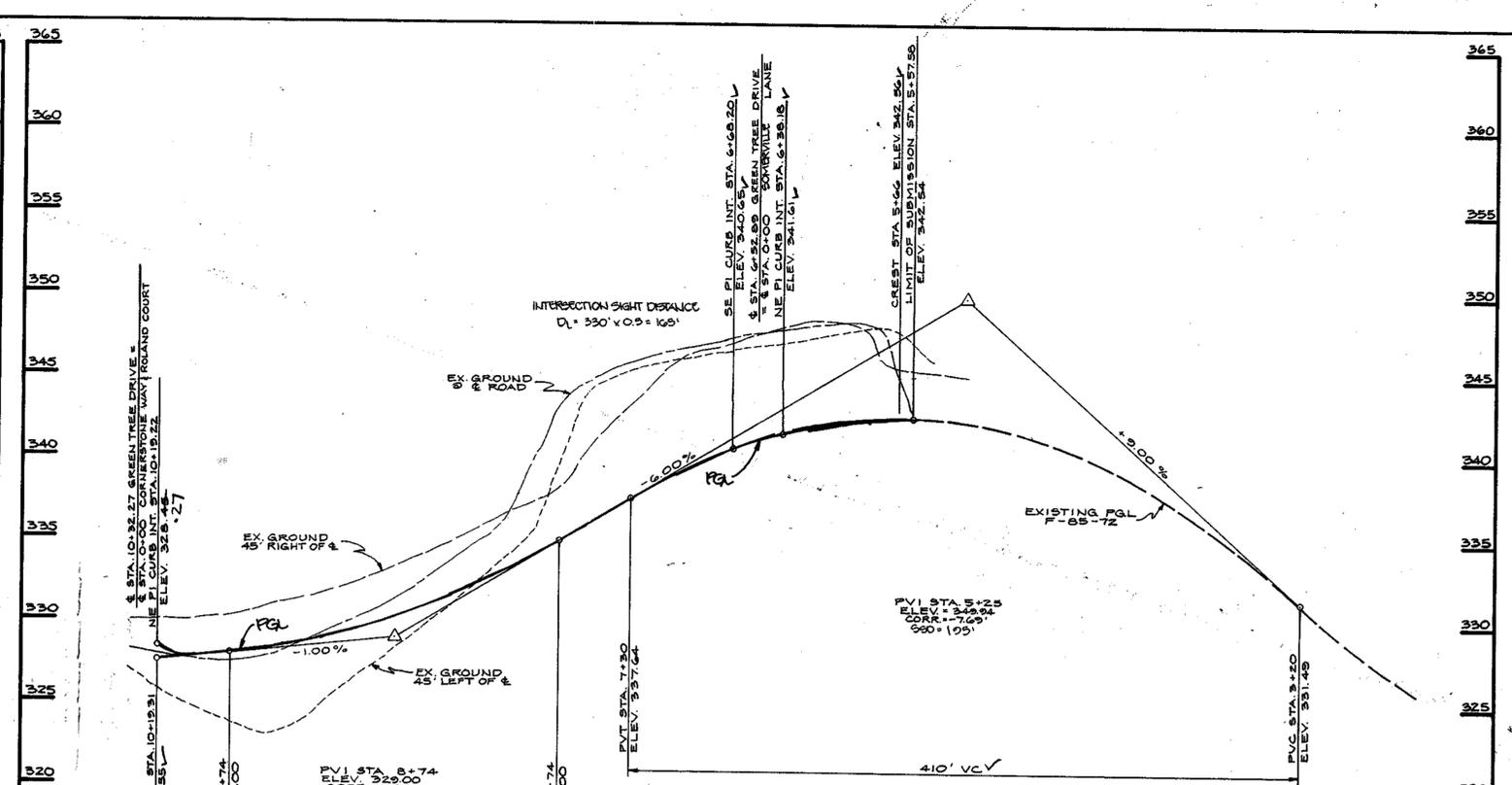
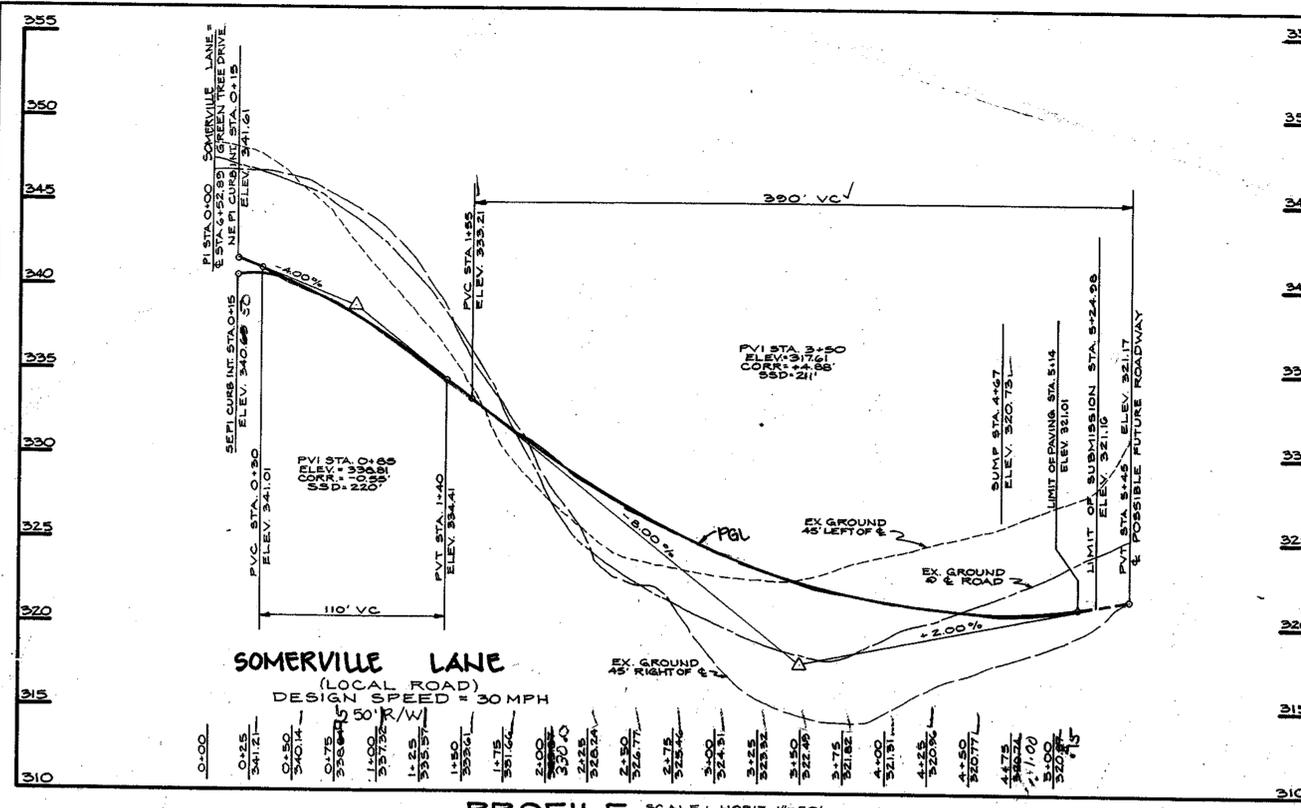
DATE:
 January 8, 1997
 MAY 23, 1997

PROJECT NO. 0675

SCALE: 1"=50'

Design: GWF Draft: JR

DRAWING 2 OF 12



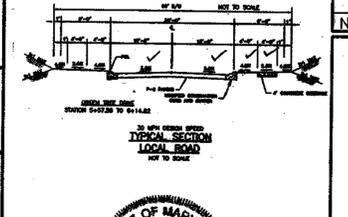
PROFILE SCALE: HORIZ. 1"=50' VERT. 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels
 CHIEF, BUREAU OF HIGHWAYS *MS* 6-10-97 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Andy Hamilton
 DIVISION OF LAND DEVELOPMENT *JM* 6/1/97 DATE

Mr. [Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION *MK* 6/1/97 DATE

NO.	DATE	REVISION



Professional Engineer Seal: *Demetrius [Signature]*
 15-8013 8/17/00

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 8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)465-6105

OWNER: ROSE MARIE SEARS, 8122 FOREVER GREEN CT, ELK RIDGE, MARYLAND 21227

ELIZABETH ROULLIER, 6477 WATERLOO ROAD, ELK RIDGE, MARYLAND 21227

PROJECT: ARBOR WOODS LOTS 1-59

LOCATION: TAX MAP 37 - PARCELS 405, 493, 594 & 149, 1st ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

DEVELOPER: CORNERSTONE HOLDINGS L.L.C., 7405 BUCKS HAVEN LANE, HIGHLAND, MARYLAND 20777

TITLE: ROAD PROFILES AND TYPICAL SECTIONS

DATE: JANUARY 6, 1997
 MAY 23, 1997

PROJECT NO. 0675
 DRAWING 3 OF 12

DES: OAH ORN: JFB SCALE: AS SHOWN



STORMWATER RUNOFF TOTAL									
STRUCTURE	D.A. (ACRES)	C	% IMP.	T.C. (MIN)	10 ³ /hr	10 ² /hr	10 ¹ /hr	10 ⁰ /hr	Q ₁₀ (cfs)
I-1	0.45	0.28	56	10.0	4.5	6.6	0.59	0.86	
I-2	0.12	0.30	65	10.0	4.5	6.6	0.18	0.26	
I-3	0.05	0.31	65	10.0	4.5	6.6	0.09	0.13	
I-4	0.32	0.30	65	10.0	4.5	6.6	0.45	0.66	
I-5	0.10	0.30	65	10.0	4.5	6.6	0.14	0.20	
I-6	0.34	0.55	90	10.0	4.5	6.6	0.86	1.25	
I-7	0.94	0.33	63	10.0	4.5	6.6	1.40	2.05	
I-8 (SUMP)	1.81	0.27	51	10.0	---	6.6	---	3.23	
I-9 (SUMP)	0.33	0.47	48	10.0	---	6.6	---	1.06	
I-10	0.29	0.53	64	10.0	4.5	6.6	0.68	0.99	
I-11	0.86	0.37	65	10.0	4.5	6.6	1.44	2.11	
I-12	0.76	0.30	65	10.0	4.5	6.6	1.03	1.52	
I-13 (SUMP)	1.53	0.39	70	10.0	---	6.6	---	3.96	
I-14	0.98	0.32	61	10.0	4.5	6.6	1.48	2.05	
I-15	1.20	0.35	62	10.0	4.5	6.6	1.89	2.77	
I-16	0.98	0.26	47	10.0	4.5	6.6	1.17	1.72	
I-17	0.75	0.37	58	10.0	4.5	6.6	1.26	1.85	
I-18	0.14	0.40	68	10.0	4.5	6.6	0.27	0.40	
I-19	0.15	0.40	68	10.0	4.5	6.6	0.28	0.40	

STRUCTURE SCHEDULE									
STRUCTURE	LOCATION	INV. (N)	INV. (OUT)	TOP ELEV	TYPE	HO.COST.			
I-1	N 556052.3138 E 1371341.7198	18' 305.62	18' 305.42	311.24	TYPE 'D'	STD SD-4.39			
I-2	N 556264.4874 E 1371274.2469	18' 310.28	18' 310.08	311.24	TYPE 'D'	STD SD-4.39			
I-3	N 556319.9759 E 1371291.114	18' 311.06	18' 310.86	311.24	TYPE 'D'	STD SD-4.39			
I-4	N 556349.4156 E 1371323.9756	18' 311.94	18' 311.74	311.24	TYPE 'D'	STD SD-4.39			
I-5	N 556299.3805 E 1371374.6717	18' 312.82	18' 312.62	311.24	TYPE 'D'	STD SD-4.39			
I-6	SOMERVILLE STA. 2+70 13.43' RT	18' 314.52	18' 314.32	325.99	TYPE 'A-10'	STD SD-4.02			
I-7	SOMERVILLE STA. 3+37 13.43' LT	18' 315.47	18' 315.27	325.99	TYPE 'A-10'	STD SD-4.02			
I-8	SOMERVILLE STA. 4+67 13.43' LT	15' 316.94	18' 316.69	321.01	TYPE 'A-5'	STD SD-4.01			
I-9	SOMERVILLE STA. 4+67 13.43' RT	---	15' 317.29	321.01	TYPE 'A-5'	STD SD-4.01			
I-10	GREEN TREE STA. 9+03 13.43' LT	18' 325.44	18' 325.24	329.62	TYPE 'A-5'	STD SD-4.01			
I-11	GREEN TREE STA. 8+98 13.43' RT	15' 325.99	18' 325.79	329.62	TYPE 'A-10'	STD SD-4.02			
I-12	N 556395.1873 E 1371105.32	---	15' 330.29	333.57	TYPE 'D'	STD SD-4.39			
I-13	CORNERSTONE (hd) LP STA 3+01.24	18' 315.50	18' 315.30	321.01	TYPE 'A-5'	STD SD-4.01			
I-14	CORNERSTONE (hd) STA 1+884 13.43' RT	18' 320.91	18' 320.71	325.75	TYPE 'A-10'	STD SD-4.02			
I-15	CORNERSTONE (hd) STA 0+43 13.43' LT	18' 322.83	18' 322.73	329.62	TYPE 'A-10'	STD SD-4.02			
I-16	N 556150.2591 E 1370842.8842	---	15' 326.56	333.57	TYPE 'D'	STD SD-4.39			
I-17	CORNERSTONE (hd) STA 0+43 13.43' RT	18' 323.35	18' 323.15	329.62	TYPE 'A-10'	STD SD-4.02			
I-18	GREEN TREE STA. 9+91 13.43' RT	15' 323.95	18' 323.75	328.11	TYPE 'A-5'	STD SD-4.01			
I-19	GREEN TREE STA. 9+97.5 13.43' LT	---	15' 324.30	328.05	TYPE 'A-5'	STD SD-4.01			
MH-1	CORNERSTONE (hd) STA 0+245 16' RT	18' 322.84	18' 322.64	328.66	STD MH	STD G-5.12			
MH-2	N 556154.6601 E 1370933.2821	15' 325.65	18' 325.40	333.40	STD MH	STD G-5.12			
E-1	N 555797.8459 E 1371422.8657	---	30' 294.06	---	30' END SECTION	STD G-5.21			
E-2	N 555989.3604 E 1371293.1245	---	18' 300.34	---	18' END SECTION	STD G-5.21			
E-3	N 555971.3307 E 1371308.3124	---	18' 300.34	---	18' END SECTION	STD G-5.21			
S-1	N 555869.7226 E 1371374.2611	6' 294.96	30' 294.90	308.27	SEE RELEASE STRUCTURE DETAIL				

NOTES:
 1. PRECAST STRUCTURES MEETING MS-25 LOADING MAY BE USED
 2. FOR A-5 & A-10 INLETS LOCATION AND ELEVATIONS GIVEN TO CENTER OF STRUCTURE
 3. FOR TYPE 'D' INLETS, MANHOLES AND SWM RELEASE STRUCTURE LOCATION AND ELEVATIONS GIVEN TO CENTER OF STRUCTURE

NOTE: GRADES SHOWN ON THIS PLAN REFLECT ULTIMATE GRADING WITH BUILDINGS PRESENT. DRAINAGE AREAS REFLECT THIS ULTIMATE GRADING CONDITION.

LEGEND

SOIL TYPE DELINEATION	PROPOSED CONTOUR	560
EXISTING TREE LINE	EXISTING GRADE	560
PROPOSED TREE LINE	PROPOSED STORM DRAIN	15" RCP
DRAINAGE DIVIDE	EARTH DIKE	SFC2
	SOIL TYPE	(1990L)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels
 CHIEF, BUREAU OF HIGHWAYS 16
 DATE: 6-10-97

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Cathy Hamilton
 DIVISION OF LAND DEVELOPMENT
 DATE: 6/12/97

Mark Drumm
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK
 DATE: 6/12/97

NO.	DATE	REVISION

TSA GROUP, INC.
 planning • architecture • engineering
 8480 Baltimore National Pike • Elliott City, Maryland 21040 • (410) 468-0106

OWNER: ROSE MARIE SEARS 8122 FOREVER GREEN CT, ELK RIDGE, MD 21227
 ELIZABETH ROULLER 6477 WATERLOO RD, ELK RIDGE, MD 21227

PROJECT: **ARBOR WOODS**
 LOTS 1-59

DEVELOPER: CORNERSTONE HOLDINGS, L.L.C.
 7405 BUCKS HAVEN LANE
 HIGHLAND, MARYLAND 20777
 Phone: (410) 988-9146

LOCATION: TAX MAP 37 - PARCELS 149,405,493 & 594
 1ST ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: DRAINAGE AREA MAP
 S-94-36, P-97-01, WP-97-03
 DATE: JANUARY 8, 1996
 MAY 23, 1997

PROJECT NO. 0675
 SCALE: 1"=50'
 DRAWING 6 OF 12

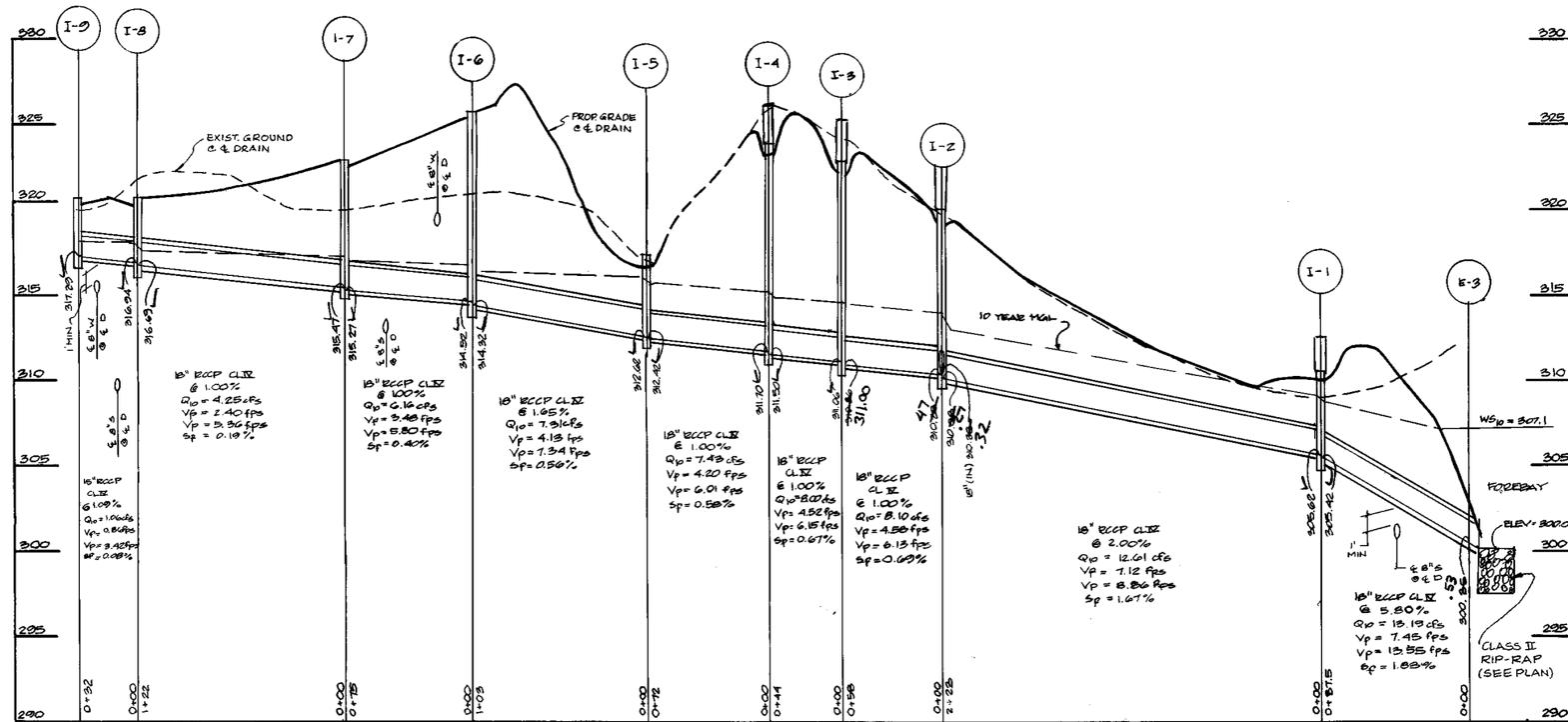
SOILS CLASSIFICATION

EVb - Evesboro loamy sand, 1 to 5 percent slopes, 'A' soil.
 EVc - Evesboro loamy sand, 5 to 15 percent slopes, 'A' soil.
 Fa - Fallsington loam, 'HYDRIC' soil.
 SIB2 - Sassafras loam, 1 to 5 percent slopes, 'B' soil.
 SIC2 - Sassafras sandy loam, 5 to 10 percent slopes, moderately eroded 'B' soil.
 SIB2 - Sassafras gravelly sandy loam, 1 to 5 percent slopes, moderately eroded 'B' soil.
 SFC2 - Sassafras gravelly sandy loam, 5 to 10 percent slopes, moderately eroded 'B' soil.

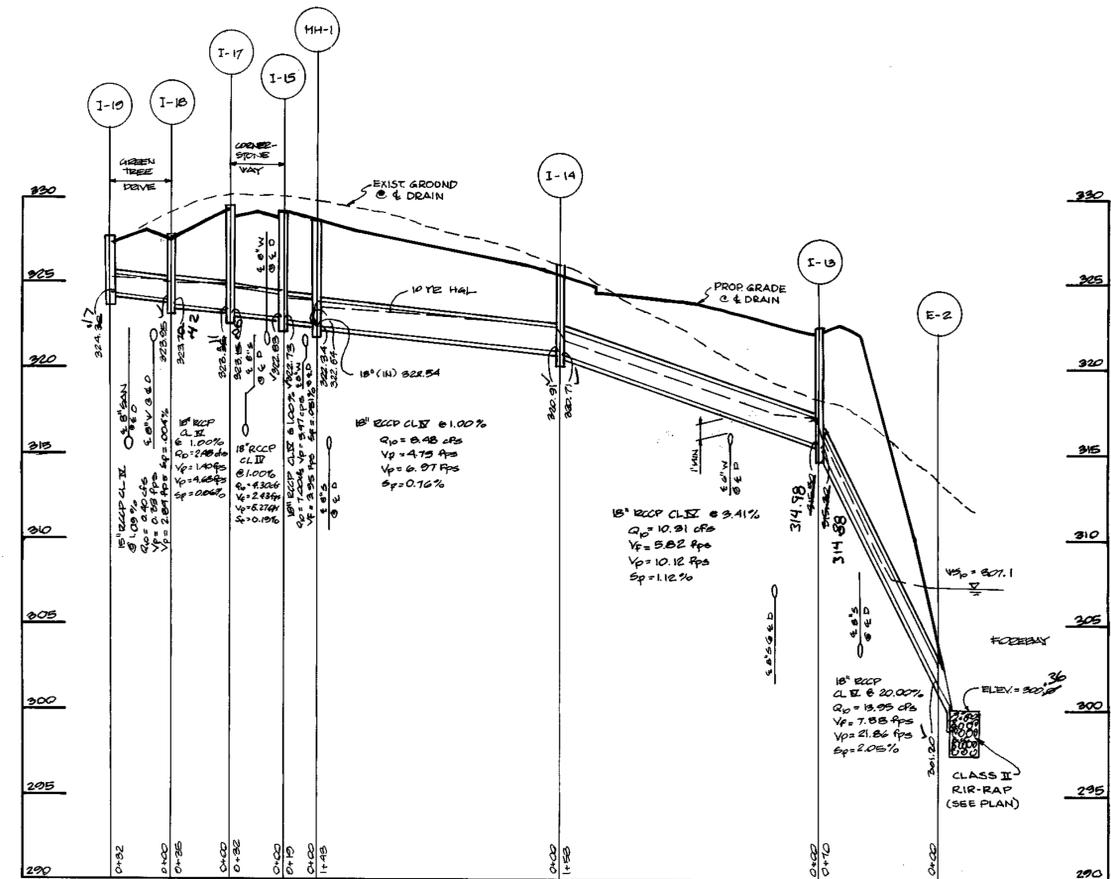
Howard County Soils map no. 25

PLAN
 SCALE: 1" = 50'

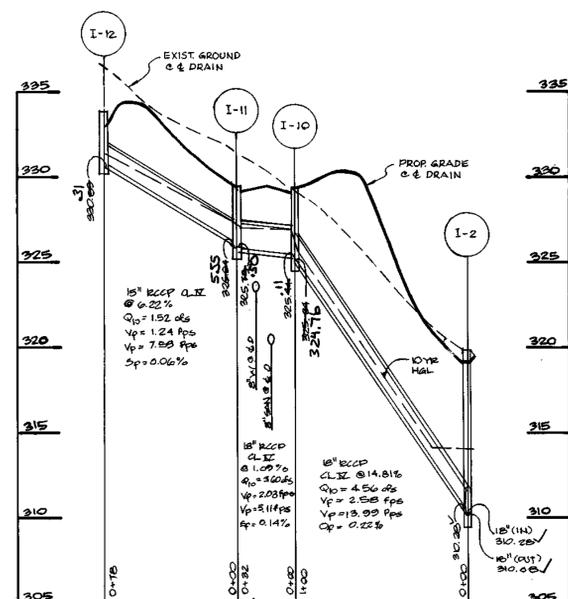
THIS PLAN NOT TO BE USED FOR CONSTRUCTION



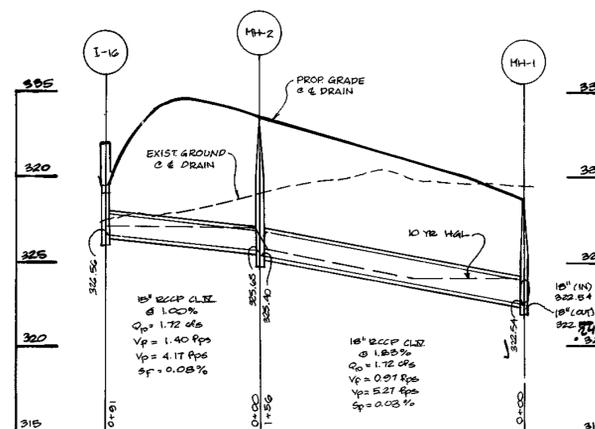
STORM DRAIN PROFILE



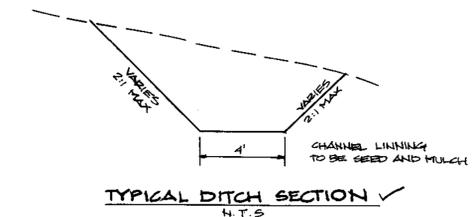
STORM DRAIN PROFILE



STORM DRAIN PROFILE



STORM DRAIN PROFILE



NO.	DATE	REVISION

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8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-6106



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS <i>Andrew M. Daniels</i> CHIEF, BUREAU OF HIGHWAYS	6-10-97 DATE	OWNER: ROSE MARIE SEARS 8122 FOREVER GREEN CT ELKRIDGE, MD 21227	ELIZABETH ROULLER 8477 WATERLOO RD. ELKRIDGE, MD 21227	PROJECT: ARBOR WOODS LOTS 1-59
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING <i>Candy Hamilton</i> CHIEF, DIVISION OF LAND DEVELOPMENT	6/17/97 DATE	DEVELOPER: CORNERSTONE HOLDINGS, L.L.C. 7405 BUCKS HAVEN LANE HIGHLAND, MARYLAND 20777		LOCATION: TAX MAP 37 - PARCELS 149,405,493 & 594 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
APPROVED: <i>Bill Dammann</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	6/12/97 DATE	Design: GWF Draft: KSW		TITLE: STORM DRAIN PROFILES S-94-36, P-97-01, WP-97-03 DATE: JANUARY 8, 1997 MAY 23, 1997 SCALE: VERT: 1"=5' PROJECT NO. 0675 DRAWING 7 OF 12

POND CONSTRUCTION SPECIFICATIONS

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 50 foot radius around the inlet structure shall be cleared. All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

After stripping operations have been completed, the exposed subgrade materials should be profiled with a loaded dump truck or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by profiling or penetrometer testing should be excavated to suitably firm soil, and then grades re-established by backfilling with suitable soil.

Earth Fill

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6" frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. These soil materials were identified in the soil borings. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer. In addition to the soil materials described above a fine grained soil, including Silt (ML) with a plasticity index of 10 or more can be utilized for the embankment and core trench. Exploration with test pits and additional laboratory testing can be conducted prior to construction to identify and quantify potential borrow areas. All fill materials must be placed and compacted in accordance with MD SCS 378 specifications.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment. A representative of the geotechnical engineer should be present to monitor placement and compaction of fill for the embankment and cut off trench.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not so wet that water can be squeezed out.

Where a minimum required density is specified, it shall not be less than 95% of maximum dry density with a moisture content within +/- 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99.

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Structure Backfill Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material tends to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:

- Materials - (Steel Pipe)** - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings or an approved equal may be used: Nexon, Plastico-Cote, Biac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.
- Materials - (Aluminum Coated Pipe)** - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-198 or M-211 with watertight coupling bands or flanges. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-198 or M-211 with watertight coupling bands or flanges. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

- Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.**
- Connections** - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 48" in diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 12" wide by 3/8" thick closed cell circular neoprene gasket; and a 12" wide huggie type band with O-ring gaskets having a minimum diameter of 1/2" greater than the corrugation depth. Pipes 48" in diameter and larger shall be connected by a 24" long annular corrugated band using rods and lugs. A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24". Helically corrugated pipe shall have either continuously welded seams or have lock seams.

- Bedding** - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
- Backfilling** shall conform to "Structure Backfill."
- Other details** (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe:

- Materials** - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361. An approved equivalent is AWWA Specification C-302.
- Bedding** - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.

- Laying pipe** - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.

- Backfilling** shall conform to "Structure Backfill."
- Other details** (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Polyvinyl Chloride (PVC) Pipe - All of the following criteria shall apply for polyvinyl chloride (PVC) pipe:

- Materials** - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.
- Joints and connections to anti-seep collars** shall be completely watertight.
- Bedding** - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
- Backfilling** shall conform to "Structure Backfill."
- Other details** (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 608, Mix No. 3.

Rock Riprap

All rock shall be dense, sound, and free from cracks, seams, and other defects conducive to accelerated weathering. The rock fragments shall be angular to subrounded in shape. The least dimension of an individual rock fragment shall be not less than one third the greatest dimension of the fragment.

The rock shall have the following properties:

- Bulk specific gravity (saturated surface-dry basis) not less than 2.5.
- Absorption not more than three percent.
- Soundness: Weight loss in five cycles not more than 20 percent when sodium sulfate is used.

Bulk specific gravity and absorption shall be determined according to ASTM C 127. The test for soundness shall be performed according to ASTM C 88.

The riprap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 919.12.

Care of Water during Construction

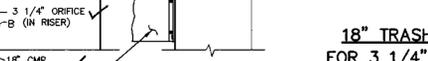
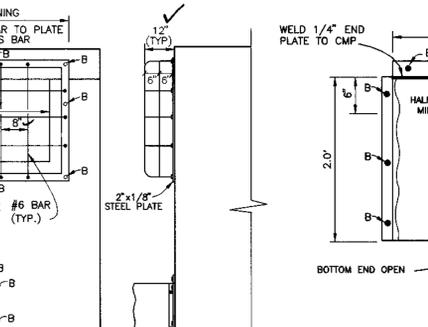
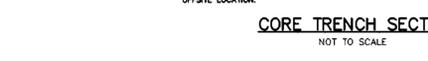
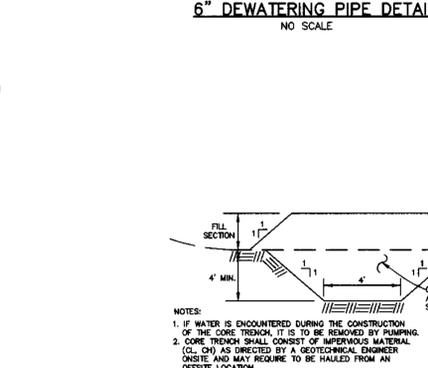
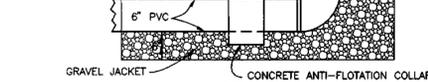
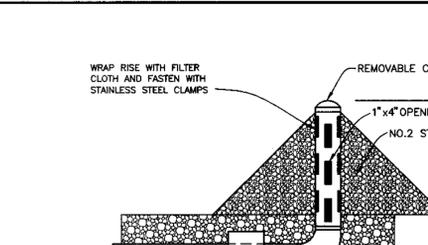
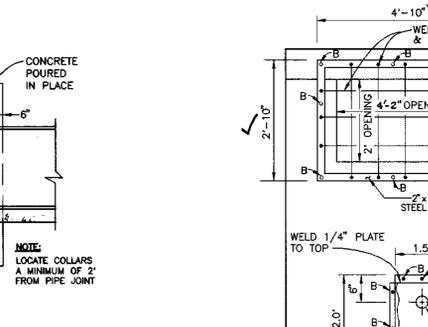
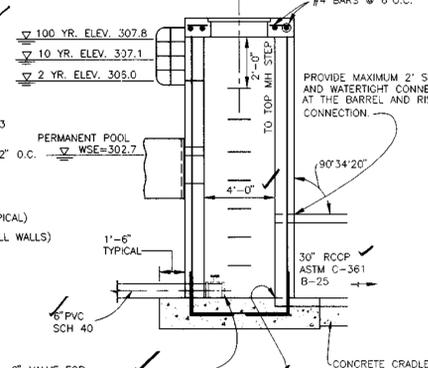
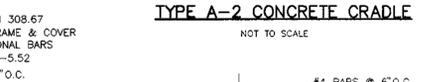
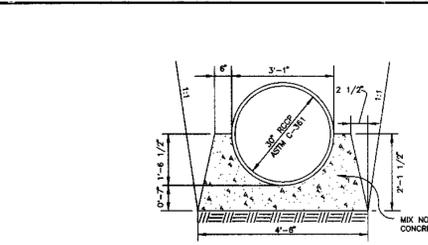
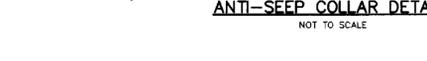
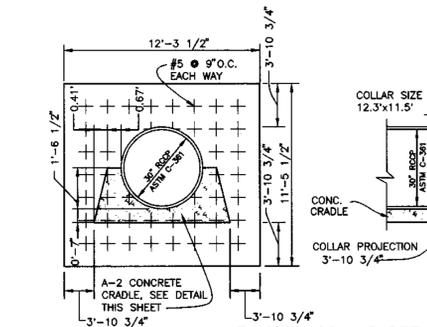
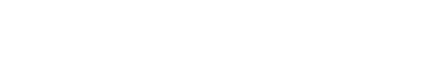
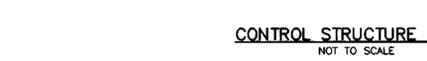
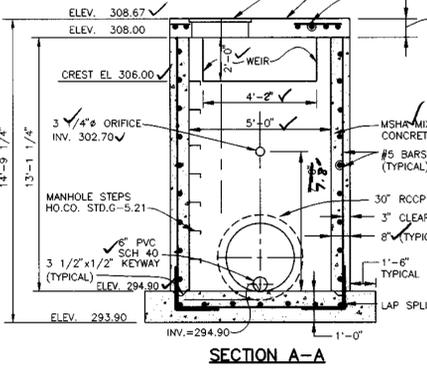
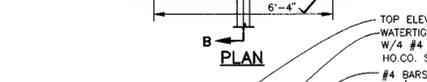
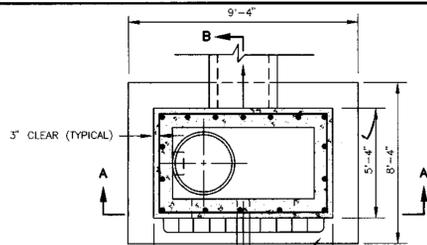
All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structures. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.



GABION SCHEDULE				
LETTER CODE	LENGTH	WIDTH	THICKNESS	NO. REQUIRED
(1)	12'	3'	1'	13
(2)	6'	3'	1'	7

* - AS PER MANUFACTURER

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

I hereby certify that the facility shown on this plan was constructed as shown on the "AS-BUILT" plans and meets the approved plans and specifications.
Donald Maan 8/17/00
DONALD A. MASON Date

Certify means to state or declare a professional opinion based on onsite inspections and materials tests which are conducted during construction. The onsite inspections and materials tests are those inspections and tests deemed sufficient and appropriate by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the Engineer nor does an Engineer's certification relieve any other party from meeting requirements imposed by contract, employment or other means including meeting commonly accepted industry practices.
By the Developer:
D. Bay 4/4/97
DEVELOPER: Date

"I/we certify that all development and/or construction will be done according to these plans, and that any responsible professional involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."
Donald Maan 8/17/00
DONALD A. MASON, P.E.#21443 Date
ENGINEER:

"I 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."
Charles K. Semmes 6-2-97
Natural Resource Conservation Service Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
Robert W. Zick 10/6/97
Howard Soil Conservation District Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels 6-10-97
CHIEF, BUREAU OF HIGHWAYS Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Carla Hamilton 6/10/97
DIVISION OF LAND DEVELOPMENT Date
Mike Damann 6/12/97
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK Date

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering
6480 Baltimore National Pike • Ellicott City, Maryland 21045 • (410) 485-8106

OWNER: ROSE MARIE SEARS 8122 FOREVER GREEN CT. ELK RIDGE, MD 21227
ELIZABETH ROULLER 8477 WATERLOO RD. ELK RIDGE, MD 21227
PROJECT: ARBOR WOODS LOTS 1-59
LOCATION: TAX MAP 37 - PARCELS 149,405,493 & 594 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: STORMWATER MANAGEMENT NOTES AND DETAILS
S-94-36, P-97-01, WP-97-03
DATE: January 8, 1997 PROJECT NO. 0675
MAY 23, 1997
SCALE: AS SHOWN DRAWING 8 OF 12

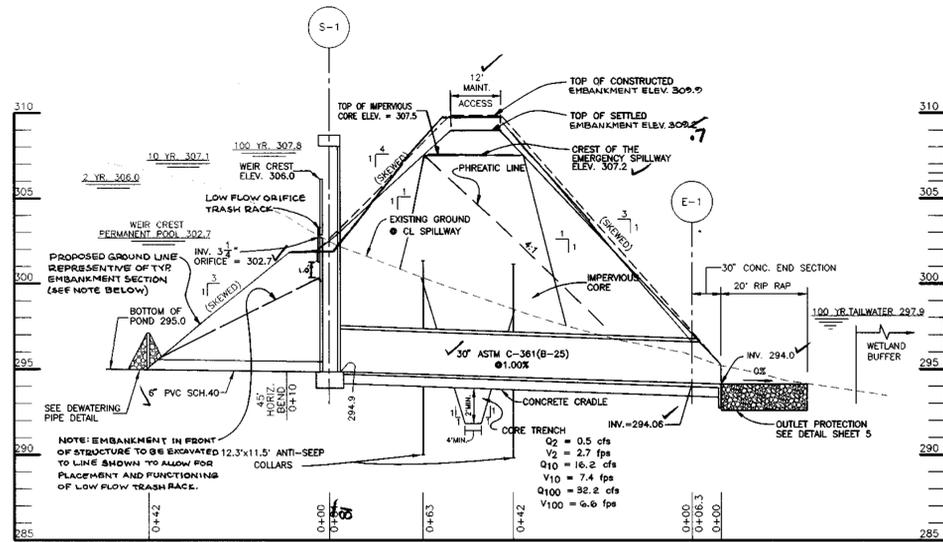
OWNER: ROSE MARIE SEARS 8122 FOREVER GREEN CT. ELK RIDGE, MD 21227
ELIZABETH ROULLER 8477 WATERLOO RD. ELK RIDGE, MD 21227
PROJECT: ARBOR WOODS LOTS 1-59
LOCATION: TAX MAP 37 - PARCELS 149,405,493 & 594 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: STORMWATER MANAGEMENT NOTES AND DETAILS
S-94-36, P-97-01, WP-97-03
DATE: January 8, 1997 PROJECT NO. 0675
MAY 23, 1997
SCALE: AS SHOWN DRAWING 8 OF 12

OWNER: ROSE MARIE SEARS 8122 FOREVER GREEN CT. ELK RIDGE, MD 21227
ELIZABETH ROULLER 8477 WATERLOO RD. ELK RIDGE, MD 21227
PROJECT: ARBOR WOODS LOTS 1-59
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S-94-36, P-97-01, WP-97-03
DATE: January 8, 1997 PROJECT NO. 0675
MAY 23, 1997
SCALE: AS SHOWN DRAWING 8 OF 12

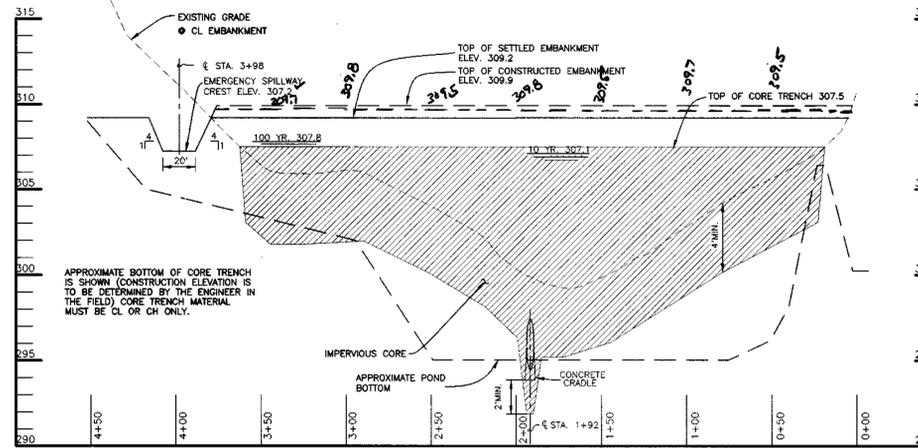
OWNER: ROSE MARIE SEARS 8122 FOREVER GREEN CT. ELK RIDGE, MD 21227
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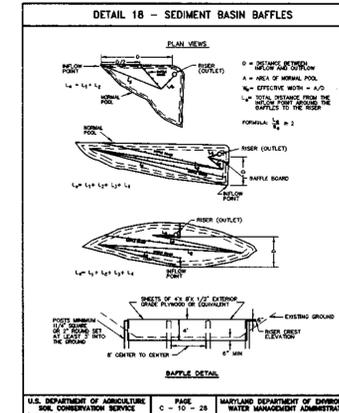
OWNER: ROSE MARIE SEARS 8122 FOREVER GREEN CT. ELK RIDGE, MD 21227
ELIZABETH ROULLER 8477 WATERLOO RD. ELK RIDGE, MD 21227
PROJECT: ARBOR WOODS LOTS 1-59
LOCATION: TAX MAP 37 - PARCELS 149,405,493 & 594 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
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S-94-36, P-97-01, WP-97-03
DATE: January 8, 1997 PROJECT NO. 0675
MAY 23, 1997
SCALE: AS SHOWN DRAWING 8 OF 12



SECTION THRU PRINCIPAL SPILLWAY
SCALE: 1"=20' HORIZ., 1"=5' VERT.



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



U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE



I hereby certify that the facility shown on this plan was constructed as shown on the "AS-BUILT" plans and meets the approved plans and specifications.

Donald A. Mason 8/17/00
DONALD A. MASON Date

Certify means to state or declare a professional opinion based upon onsite inspections and materials tests which are conducted during construction. The onsite inspections and materials tests are those inspections and tests deemed sufficient and appropriate by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the Engineer nor does an Engineer's certification relieve any other party from meeting requirements imposed by contract, employment or other means, including meeting commonly accepted industry practices.

By the Developer:

"I/We certify that all development and/or construction will be done according to these plans and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

D. Bay 4/1/97
DEVELOPER: Date

By the Engineer:

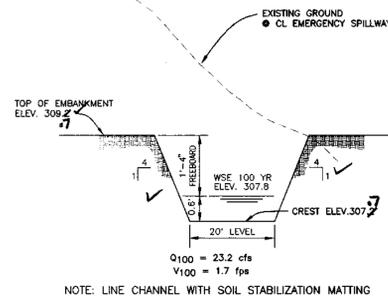
"I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer 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."

Donald A. Mason 8/17/00
DONALD A. MASON, P.E.#21443 Date
ENGINEER:

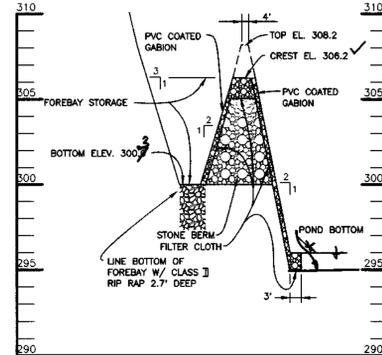
These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

Charles K. Jamin 06-02-97
Natural Resource Conservation Service Date

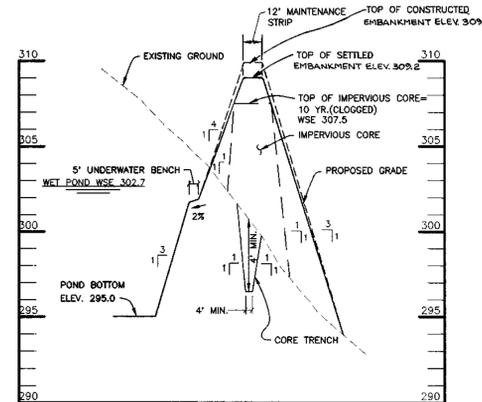
Paul W. Zahn 6/2/97
Howard Soil Conservation District Date



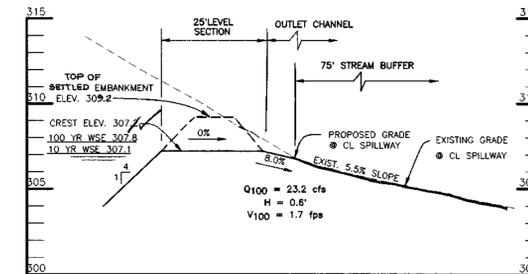
SECTION A-A
THRU EMERGENCY SPILLWAY
SCALE: 1"=20' HORIZ., 1"=2' VERT.



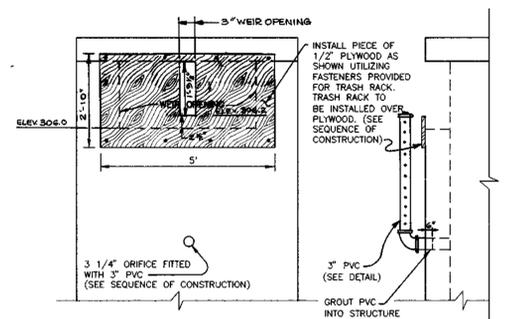
SECTION B-B THRU FOREBAY
SCALE: 1"=50' HORIZ., 1"=5' VERT.



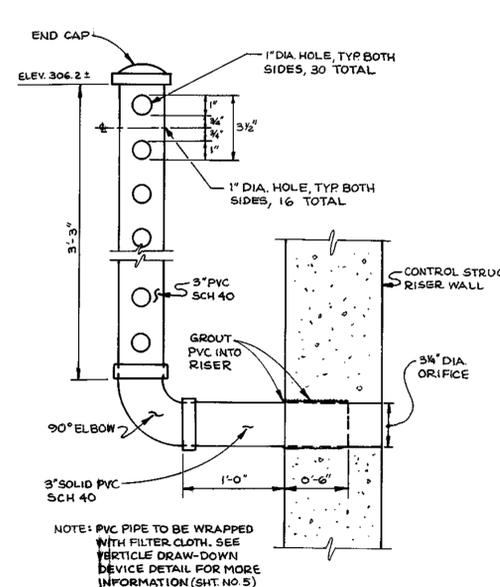
TYPICAL SECTION THRU EMBANKMENT
SCALE: 1"=50' HORIZ., 1"=5' VERT.



PROFILE ALONG CL EMERGENCY SPILLWAY
SCALE: 1"=20' HORIZ., 1"=5' VERT.



STORMWATER MANAGEMENT RELEASE STRUCTURE
MODIFICATION FOR SEDIMENT CONTROL / TEMPORARY
STORMWATER MANAGEMENT OPERATIONS
NOT TO SCALE



3" PVC DETAIL
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Daniels 6-10-97
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton 6/12/97
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Alfred Ramm 6/12/97
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering
5400 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 460-6106



OWNER: ROSE MARIE SEARS 8122 FOREVER GREEN CT. ELKRIDGE, MD 21227	ELIZABETH ROULLIER 6477 WATERLOO RD. ELKRIDGE, MD 21227	PROJECT: ARBOR WOODS LOTS 1-59
DEVELOPER: CORNERSTONE HOLDINGS, L.L.C. 7405 BUCKS HAVEN LANE HIGHLAND, MARYLAND 20777 Phone: (410) 988-7164	LOCATION: TAX MAP 37 - PARCELS 149,405,493 & 594 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: STORMWATER MANAGEMENT/SEDIMENT CONTROL NOTES AND DETAILS S-94-36, P-97-01, WP-97-03 DATE: January 8, 1997 MAY 23, 1997 PROJECT NO. 0675 SCALE: AS SHOWN DRAWING 9 OF 12
Design: GWF	Draft: JR	