

# ROADWAYS, STORM DRAINAGE AND STORMWATER MANAGEMENT GROVEMONT 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SHEET INDEX		
NO.	DESCRIPTION	
1	TITLE SHEET	
2	ROAD PLAN	
3	ROAD PLAN	
4	ROAD PLAN	
5	ROAD PROFILES	
6	ROAD PROFILES	
7	ROAD PROFILES	
8	ROAD PROFILES	
9	DRAINAGE AREA MAP AND DETAILS	
10	DRAINAGE AREA MAP	
11	STORM DRAIN PROFILES	
12	STORM DRAIN PROFILES	
13	STORM DRAIN PROFILES	
14	STORM DRAIN PROFILES	
15	STORM DRAIN PROFILES	
16	GRADING AND SEDIMENT AND EROSION CONTROL PLAN	
17	GRADING AND SEDIMENT AND EROSION CONTROL PLAN	
18	GRADING AND SEDIMENT AND EROSION CONTROL PLAN	
19	GRADING AND SEDIMENT AND EROSION CONTROL PLAN	
20	GRADING AND SEDIMENT AND EROSION CONTROL PLAN	
21	SEWAGE TREATMENT NOTES AND DETAILS	
22	STORMWATER MANAGEMENT DETAILS - POND #1	
23	STORMWATER MANAGEMENT DETAILS - POND #2	
24	STORMWATER MANAGEMENT DETAILS - POND #3	
25	STORMWATER MANAGEMENT DETAILS - POND #4	
26	SWM NOTES AND BORING DETAILS	
27	LANDSCAPE PLAN	
28	LANDSCAPE PLAN	
29	FOREST CONSERVATION PLAN	
30	FOREST CONSERVATION PLAN AND DETAILS	
31	FOREST CONSERVATION NOTES AND DETAILS	
32	OFFSITE REFORESTATION PLAN	

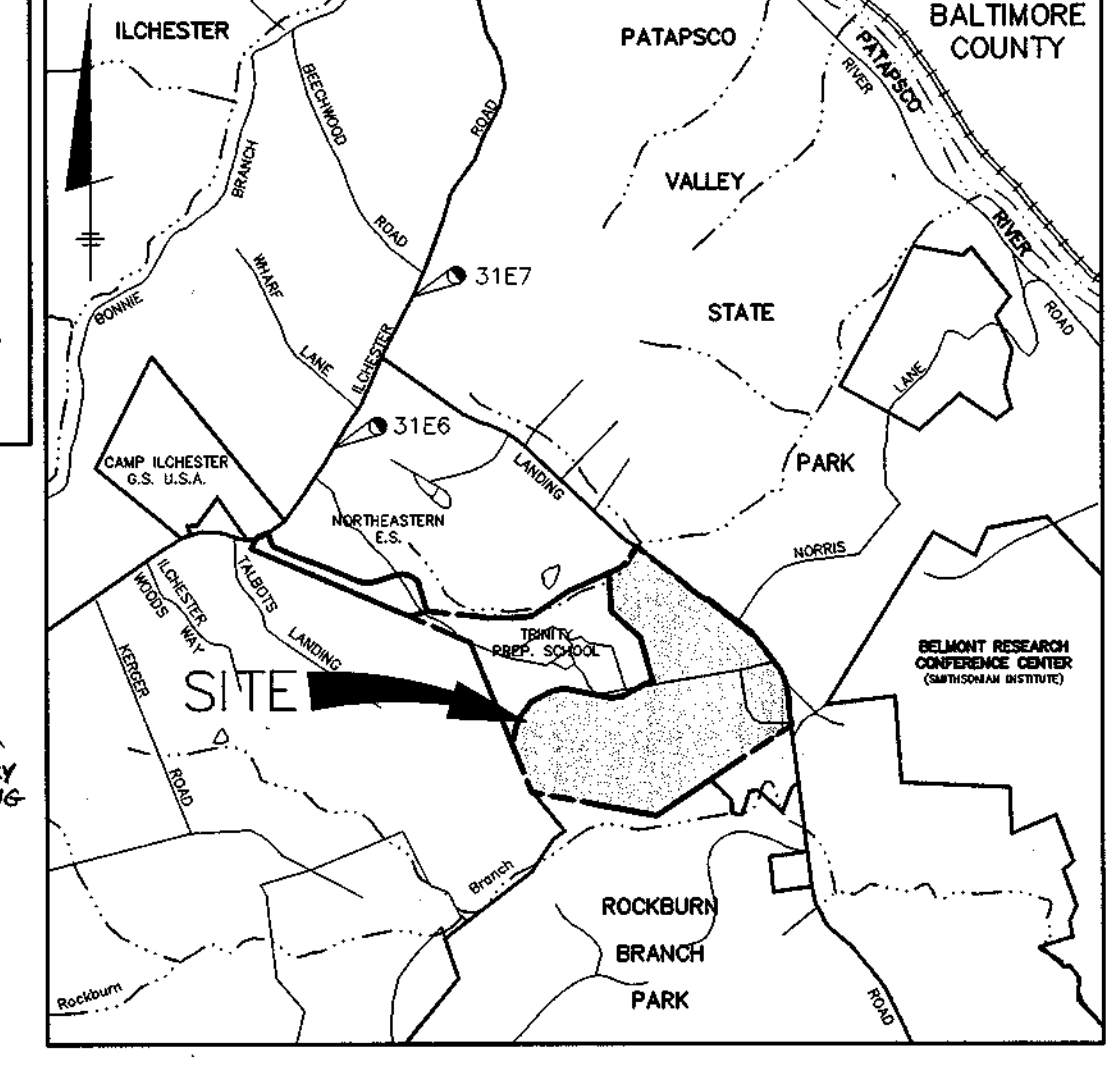
RIGHT OF WAY ELEVATION CHART NAD83		
R/W PT. NO.	DESCRIPTION	ELEVATION
300	REBAR & CAP	334.81
301	REBAR & CAP	340.26
302	REBAR & CAP	341.56
303	REBAR & CAP	347.86
304	REBAR & CAP	343.03
305	REBAR & CAP	364.07
306	REBAR & CAP	353.70
307	REBAR & CAP	374.64
308	REBAR & CAP	338.51
309	REBAR & CAP	321.87
310	REBAR & CAP	315.02
311	REBAR & CAP	291.09
312	CONC. MON. SET	340.93
313	X-CUT IN DRIVEWAY	343.66
314	REBAR & CAP	345.49
315	REBAR & CAP	349.12
316	REBAR & CAP	363.07
317	CONC. MON. SET	363.24
318	REBAR & CAP	362.29
319	REBAR & CAP	357.57
320	REBAR & CAP	343.31
321	REBAR & CAP	340.17
322	CONC. MON. SET	328.27
323	REBAR & CAP	327.75
324	X-CUT IN DRIVEWAY	325.82
325	REBAR & CAP	341.11
326	CONC. MON. SET	340.64
327	REBAR & CAP	328.53
328	REBAR & CAP	327.21
329	REBAR & CAP	325.54
330	REBAR & CAP	331.51
331	REBAR & CAP	319.21
332	REBAR & CAP	310.57
333	REBAR & CAP	311.87
334	REBAR & CAP	315.47
335	REBAR & CAP	318.63
336	REBAR & CAP	331.20
337	REBAR & CAP	340.26
338	REBAR & CAP	346.33
339	REBAR & CAP	357.21
340	REBAR & CAP	361.51
341	REBAR & CAP	360.82
342	REBAR & CAP	335.53
343	CONC. MON. SET	333.48
344	PK NAIL	327.26
345	REBAR & CAP	328.49
346	REBAR & CAP	327.34
347	REBAR & CAP	331.63
348	REBAR & CAP	333.77
349	CONC. MON. SET	346.02
350	REBAR & CAP	345.39
351	REBAR & CAP	343.68
352	PK NAIL IN DRIVEWAY	339.09
353	REBAR & CAP	313.69
354	PK NAIL	310.85
355	REBAR & CAP	306.03
356	REBAR & CAP	303.96
357	REBAR & CAP	303.07
358	REBAR & CAP	303.20
359	X-CUT IN DRIVEWAY	303.77
360	REBAR & CAP	306.59

RIGHT OF WAY ELEVATION CHART NAD83		
R/W PT. NO.	DESCRIPTION	ELEVATION
361	REBAR & CAP	340.73
362	X-CUT IN DRIVEWAY	313.19
363	REBAR & CAP	339.04
364	REBAR & CAP	345.42
365	REBAR & CAP	346.34
366	PK NAIL IN DRIVEWAY	340.94
367	REBAR & CAP	338.54
368	CONC. MON. SET	349.71
369	REBAR & CAP	346.87
370	REBAR & CAP	345.18
371	REBAR & CAP	344.59
372	REBAR & CAP	344.79
373	REBAR & CAP	345.31
374	REBAR & CAP	346.48
375	REBAR & CAP	346.27
376	REBAR & CAP	342.41
377	REBAR & CAP	343.88
378	REBAR & CAP	344.68
379	REBAR & CAP	342.68
380	REBAR & CAP	347.83
381	REBAR & CAP	348.54
382	REBAR & CAP	340.18
383	REBAR & CAP	346.28
384	REBAR & CAP	368.70
385	REBAR & CAP	368.44
386	CONC. MON. SET	364.92
387	REBAR & CAP	361.21
388	REBAR & CAP	358.54
389	REBAR & CAP	352.02
390	REBAR & CAP	357.50
391	REBAR & CAP	357.51
392	REBAR & CAP	356.97
393	REBAR & CAP	358.82
394	REBAR & CAP	346.57
395	REBAR & CAP	346.72
396	X-CUT IN DRIVEWAY	345.57
397	REBAR & CAP	341.62

CENTERLINE CONTROL DATA			
STREET NAME	STATION	NORTH	EAST
GROVEMONT DRIVE	0+00	569510.8176	1380113.8944
	PC=1+40.60	569400.9465	1380026.1712
	PT=5+76.71	568989.5404	1379972.9574
	PC=8+40.91	568747.9333	1380079.8435
	PT=21+09.49	567944.8316	1379434.2530
	PC=24+48.35	568012.1229	1379102.1423
	PT=27+31.10	567945.1504	1378837.0638
	PC=29+96.42	567775.2720	1378633.2583
	PT=31+06.37	567719.1825	1378539.2144
	31+52.57	567702.0174	1378498.3265
HATTERBY COURT	0+00	569190.3880	1379940.6672
	PC=2+36.47	569213.4546	1379705.3238
	PT=4+21.25	569183.2253	1379525.1987
	0+00	568766.3808	1380071.6824
COLLINGWOOD COURT	PC=1+10.87	568811.2358	1380173.0734
	PCC=4+73.30	568815.5672	1380526.5974
	PT=9+02.14	568550.3693	1380856.1739
	PC=12+24.23	568285.8765	1381039.9810
	PT=15+69.58	567958.0648	1381059.9627
WOOLTON COURT	0+00	568440.3518	1380932.6297
	PC=1+43.37	568522.1668	1381050.3590
	PT=2+66.86	568595.7277	1381149.5318
ALTFORD COURT	0+00	568157.5557	1380007.5350
	2+46.02	568006.6689	1380201.8480
MILLBURY COURT	0+00	567938.4439	1379472.2105
	PC=3+46.66	567594.8681	1379426.0567
	PT=8+25.81	567242.3665	1379680.1746
LAYTON COURT	PC=9+25.81	567223.6738	1379778.4120
	PT=11+25.00	567242.6125	1379974.0098
	12+69.26	567296.2642	1380107.9161
0+00	567772.9054	1378630.3882	
1+75.03	567637.2736	1378741.0199	

CENTER LINE CURVE DATA								
STREET NAME	STATION	RADIUS	ARC	DELTA	TANGENT	CHORD		
GROVEMONT DRIVE	PC=1+40.60	PT=5+76.71	400.00'	436.12'	62°28'08"	242.58'	507°22'12"W	414.83'
	PC=8+40.91	PT=21+09.49	580.00'	1268.59'	125°19'06"	1121.77'	S38°47'41"W	1030.42'
	PC=24+48.35	PT=27+31.10	316.00'	282.75'	51°15'59"	151.63'	S75°49'15"W	273.41'
	PC=29+96.42	PT=31+06.37	350.00'	109.95'	17°59'58"	55.43'	N59°11'15"E	109.50'
HATTERBY COURT	PC=2+36.47	PT=4+21.25	350.00'	184.78'	30°14'58"	94.60'	S80°28'23"W	182.64'
	PC=1+10.87	PCC=4+73.30	471.01'	362.43'	44°05'13"	190.72'	S89°17'53"W	353.55'
COLLINGWOOD COURT	PCC=4+73.30	PT=9+02.14	750.00'	428.84'	32°45'40"	220.46'	S51°10'40"E	423.03'
	PC=12+24.23	PT=15+69.58	316.00'	345.35'	62°37'04"	192.20'	S03°29'17"E	328.42'
WOOLTON COURT	PC=1+43.37	PT=2+66.86	2000.00'	123.50'	03°32'16"	81.77'	S53°26'02"W	123.48'
	PC=3+46.66	PT=8+25.81	316.00'	479.15'	86°52'39"	299.25'	S35°47'18"E	434.55'
MILLBURY COURT	PC=9+25.81	PT=11+25.00	350.00'	199.19'	32°36'28"	102.37'	S84°28'11"W	196.51'

BENCH MARKS NAD'83	
HO. CO. #3166	3/4" REBAR 0.5' BELOW SURFACE E' SOUTHWEST OF ILCHESTER ROAD PAVING 500' WEST OF WHARF LANE. N 570852.3717' E 1376700.6467'
HO. CO. #3167	3/4" REBAR 0.5' BELOW SURFACE 9' SOUTHWEST OF ILCHESTER ROAD PAVING 250' WEST OF GREENWOOD ROAD N 572335.3503' E 1377504.0332'
HO. CO. BM#2745004	ELEV. 364.78' USED FOR VERTICAL CONTROL.



**GENERAL NOTES**  
SCALE: 1" = 200'

- 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 24 HOURS 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 31 - P/O PARCEL 232  
ZONING: R-20  
TOTAL TRACT AREA: 95.99 AC±  
NUMBER OF PROPOSED LOTS: 174 BUILDABLE, 11 OPEN SPACE.  
DATE PRELIMINARY PLAN APPROVED: DECEMBER 10, 1997  
DPZ REFERENCE #1: S-96-08, P-97-003, F-98-166, WP-98-78
- 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 BY TSA GROUP, INC., 3/96. CONTOUR INTERVAL IS 2 FEET.
- HOWARD COUNTY MONUMENTS 3166 AND 3167 USED FOR HORIZONTAL DATUM. HO. CO. BENCH MARK 2745004 WAS USED FOR VERTICAL DATUM.
- STREET LIGHT PLACEMENT, TYPE OF FIXTURE AND POLE SELECTION SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III.
- ALL ROAD FILLS SHALL BE COMPACTED TO 95% AS DETERMINED BY ASHTO T-180.
- ALL SIDEWALKS AND SIDEWALK RAMPS SHALL BE IN CONFORMANCE WITH CURRENT ADA CRITERIA.
- WATER AND SEWER FOR THIS SUBDIVISION IS PUBLIC. DRAINAGE AREA IS PATAPSCO, CONTRACT NUMBERS 14-3689-D AND 14-3700-D.
- WETLANDS DELINEATION COMPILED BY M.A. DIRKS AND ASSOC. DATED AUGUST, 1995.
- GEOTECHNICAL REPORT COMPILED BY HILLIS-CARPENAS ASSOC., INC., DATED JUNE 21, 1996.
- EXISTING UTILITIES WERE LOCATED BY RECORD DRAWINGS AND/OR FIELD RUN SURVEY BY TSA GROUP, INC. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION.
- UNLESS NOTED AS "PRIVATE" ALL EASEMENTS ARE PUBLIC.
- STORMWATER MANAGEMENT AND WATER QUALITY SHALL BE PROVIDED BY EXTENDED DETENTION STORMWATER MANAGEMENT FACILITIES. VEGETATED BUFFERS SHALL PROVIDE WATER QUALITY TREATMENT FOR ANY UNMANAGED AREAS. THE STORMWATER MANAGEMENT FACILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED.
- NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN WETLANDS, WETLANDS BUFFERS, STREAM BUFFERS OR FOREST CONSERVATION AREAS EXCEPT FOR THE WORK APPROVED AS PART OF THESE PLANS.
- THE FLOODPLAIN STUDY WAS PERFORMED BY THE TSA GROUP, INC. DATED 4/97.
- A WAIVER REQUEST FOR THE LENGTH OF A CUL-DE-SAC ROAD (SECTION 1.5), HOWARD COUNTY DESIGN MANUAL VOLUME 3, ROADS AND BRIDGES) HAS BEEN APPROVED BY DEVELOPMENT ENGINEERING DIVISION.
- RECREATIONAL OPEN SPACE SHALL BE PROVIDED BY THE AREAS DESIGNATED ON THESE PLANS.

CERTIFICATES OF USE AND OCCUPANCY WILL NOT BE ISSUED FOR THE RESIDENCES CONSTRUCTED WITHIN THE GROVEMONT DEVELOPMENT UNTIL THE SEWAGE PUMPING STATION AND FORCE MAIN TO BE CONSTRUCTED UNDER CAPITAL PROJECT S-0200, BOWEN PUMP STATION FORCE MAIN AND SEWER HAS BEEN RELEASED FOR SERVICE BY THE HOWARD COUNTY BUREAU OF UTILITIES.

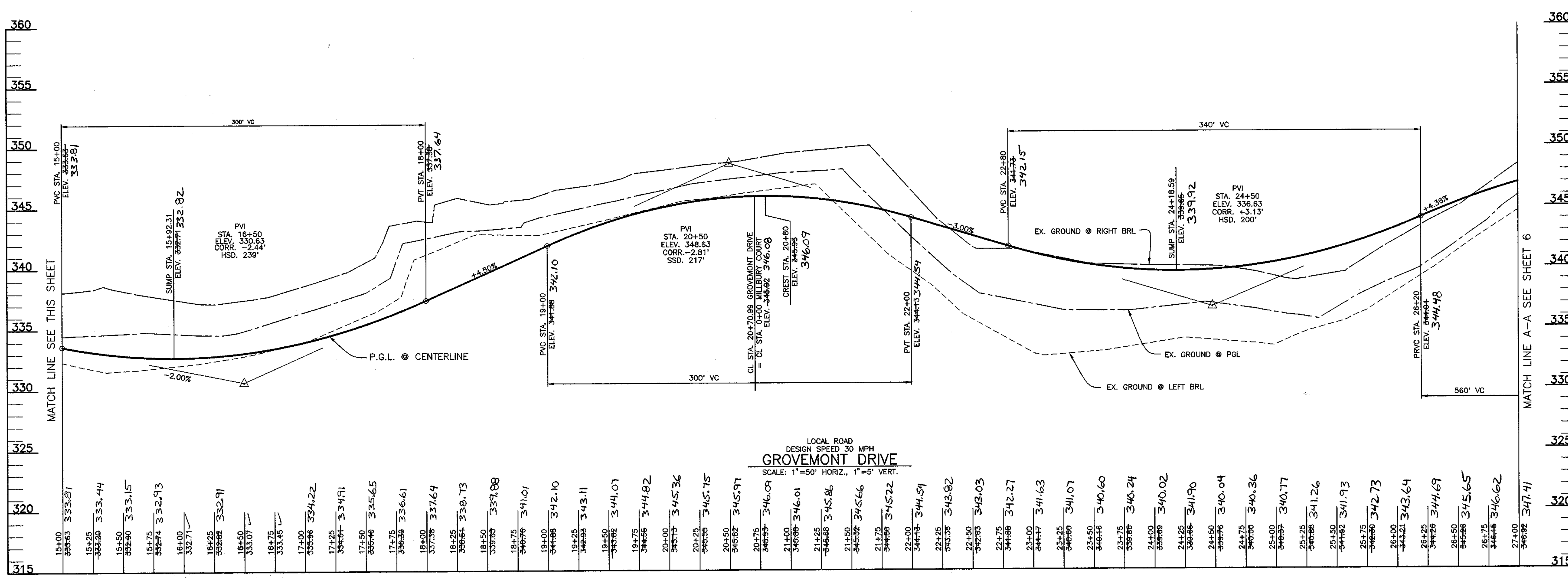
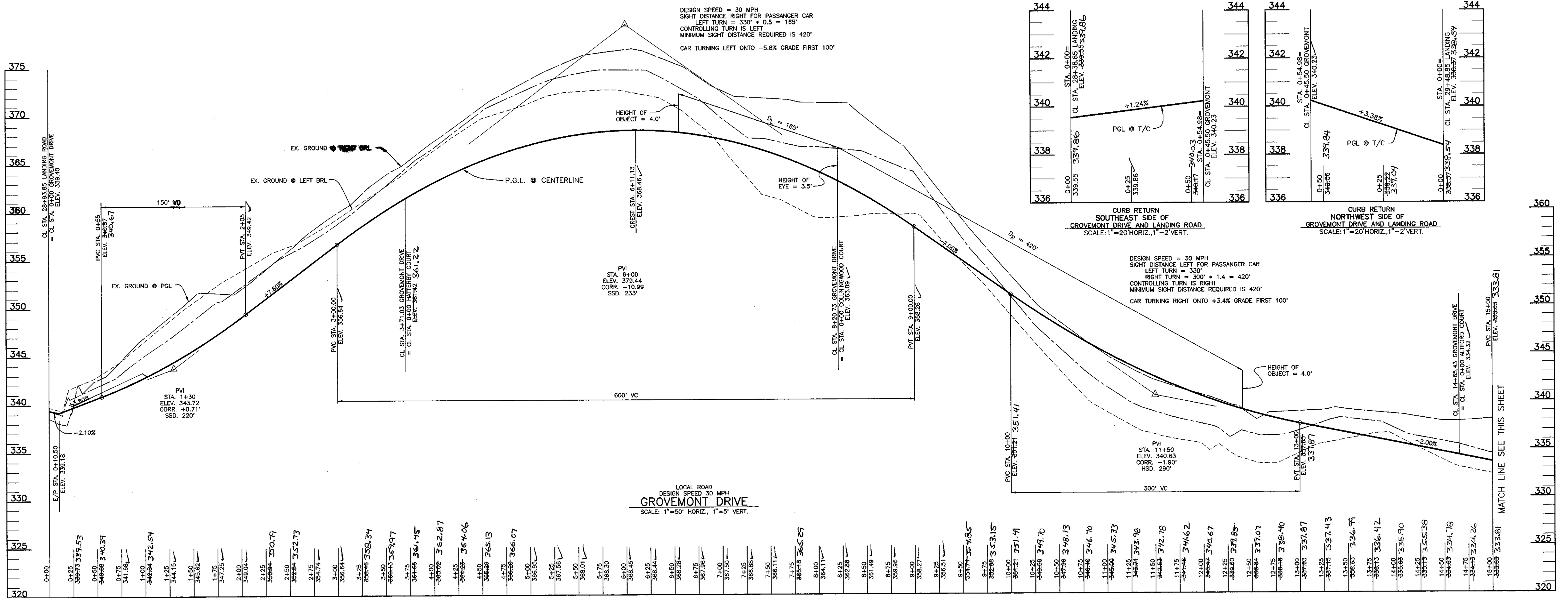
2-8-03 REVISED PER AS-BUILT CONDITIONS	
NO.	DATE
<b>BENCHMARK ENGINEERING, INC.</b> ENGINEERS • LAND SURVEYORS • PLANNERS 8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6644	
<i>Donald Mason</i> PROFESSIONAL ENGINEER	

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	PROJECT: <b>GROVEMONT</b> A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT No. 13493-13495
TITLE: <b>TITLE SHEET</b>	DATE: JULY 1998 FEBRUARY, 1999
DESIGN: DAM	DRAFT: DBT
CHECK: DAM	SCALE: AS SHOWN
PROJECT NO. 0793	SHEET 1 OF 32

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Amick*  
CHIEF, BUREAU OF HIGHWAYS  
DATE: 3-8-99

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Andy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 3/9/99

*Chris Hamilton*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 3/16/99



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 3-8-99  
 CHIEF, BUREAU OF HIGHWAYS  
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*William A. [Signature]* 3/19/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*William A. [Signature]* 2/15/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE

NO.	DATE	REVISION
1	2-8-03	REVISED PER AS-BUILT CONDITIONS
REVISION		

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644

**PROFESSIONAL ENGINEER**  
*[Signature]*  
 STATE OF MARYLAND

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC.  
 c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770  
 1-301-489-1202

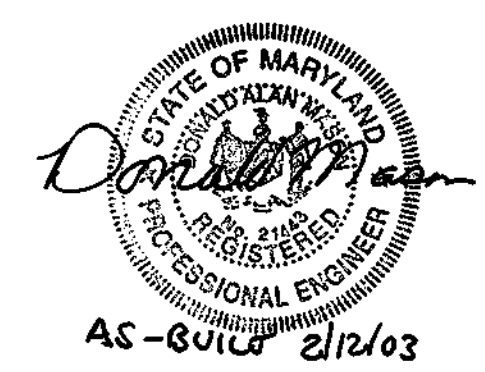
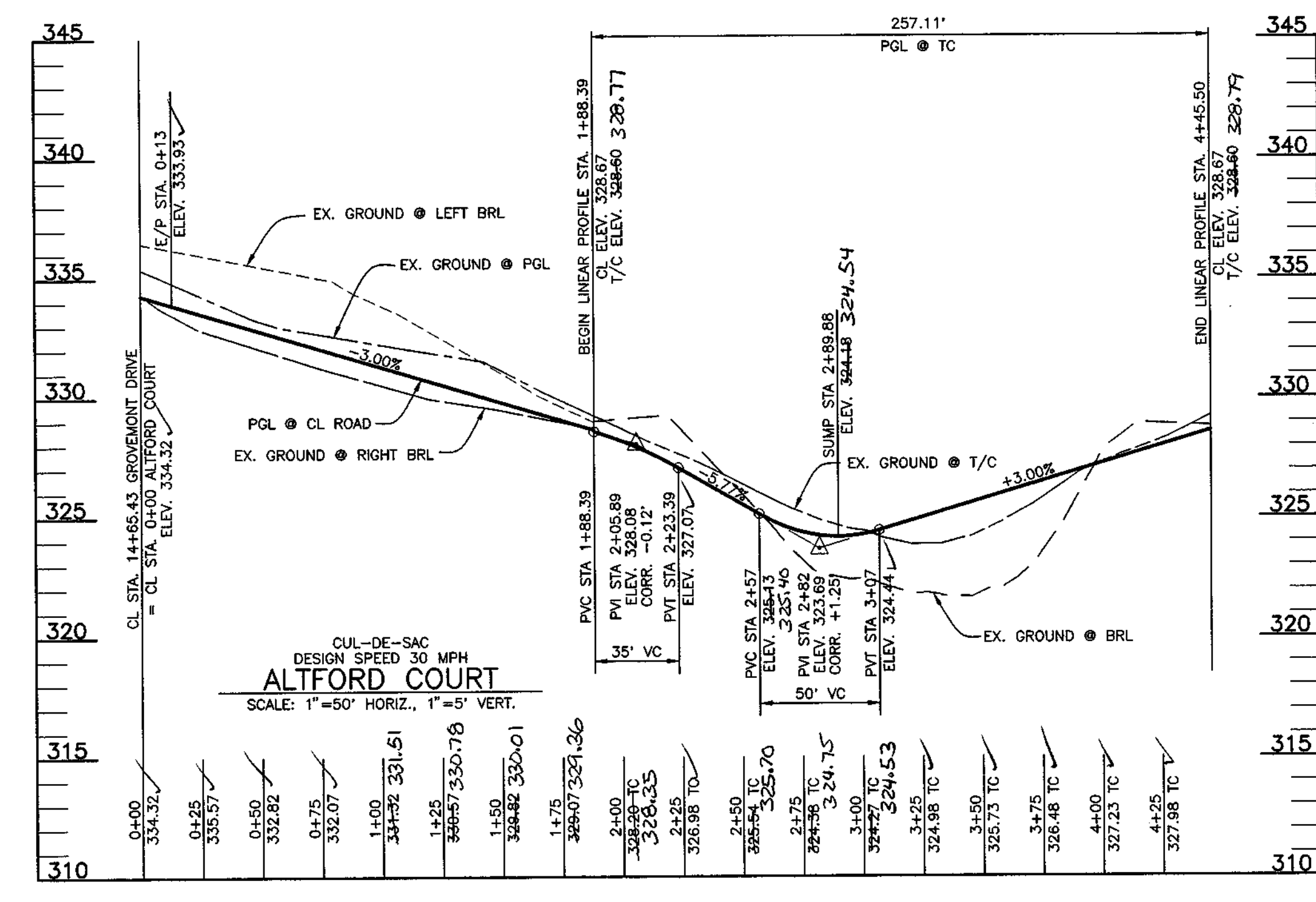
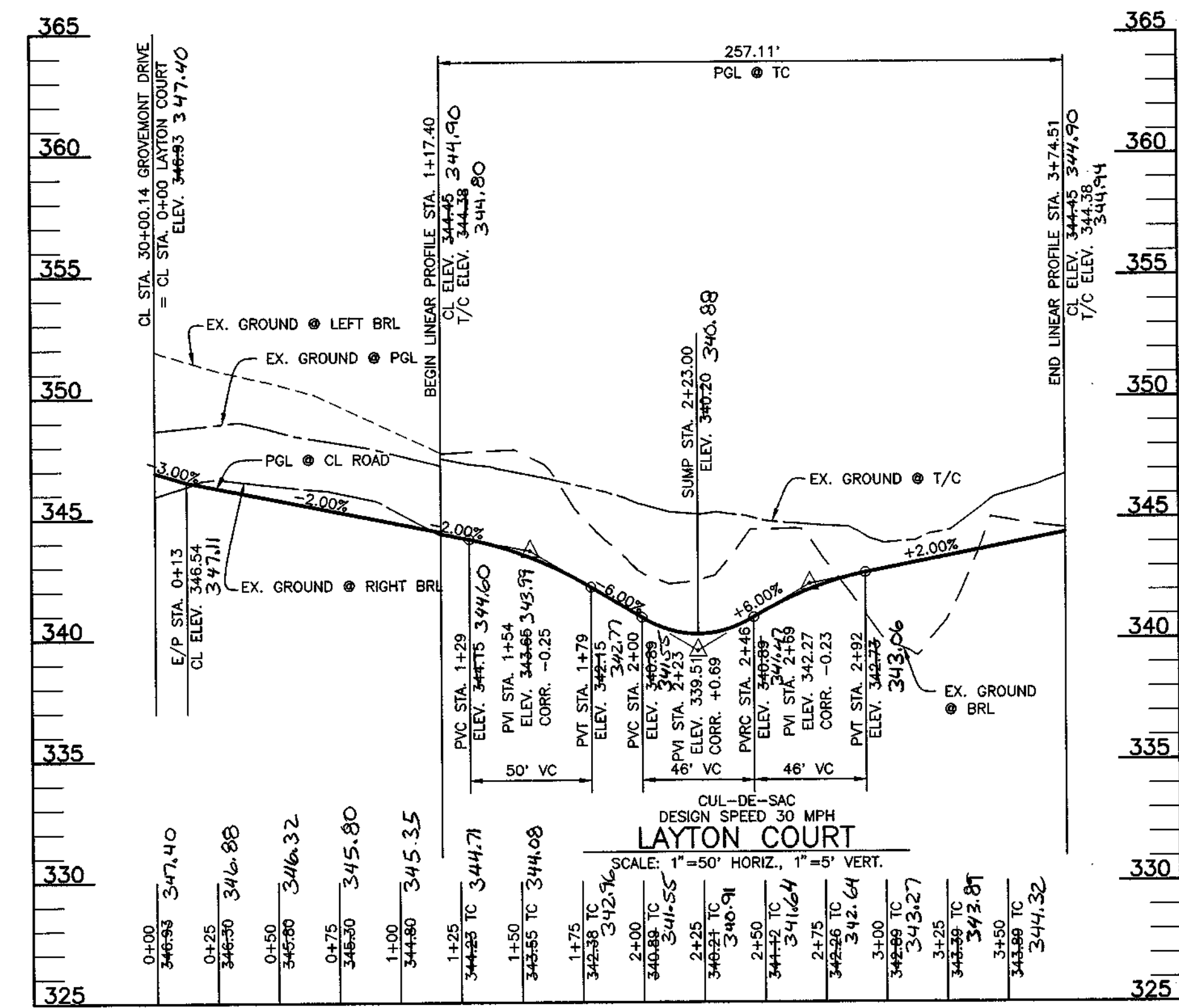
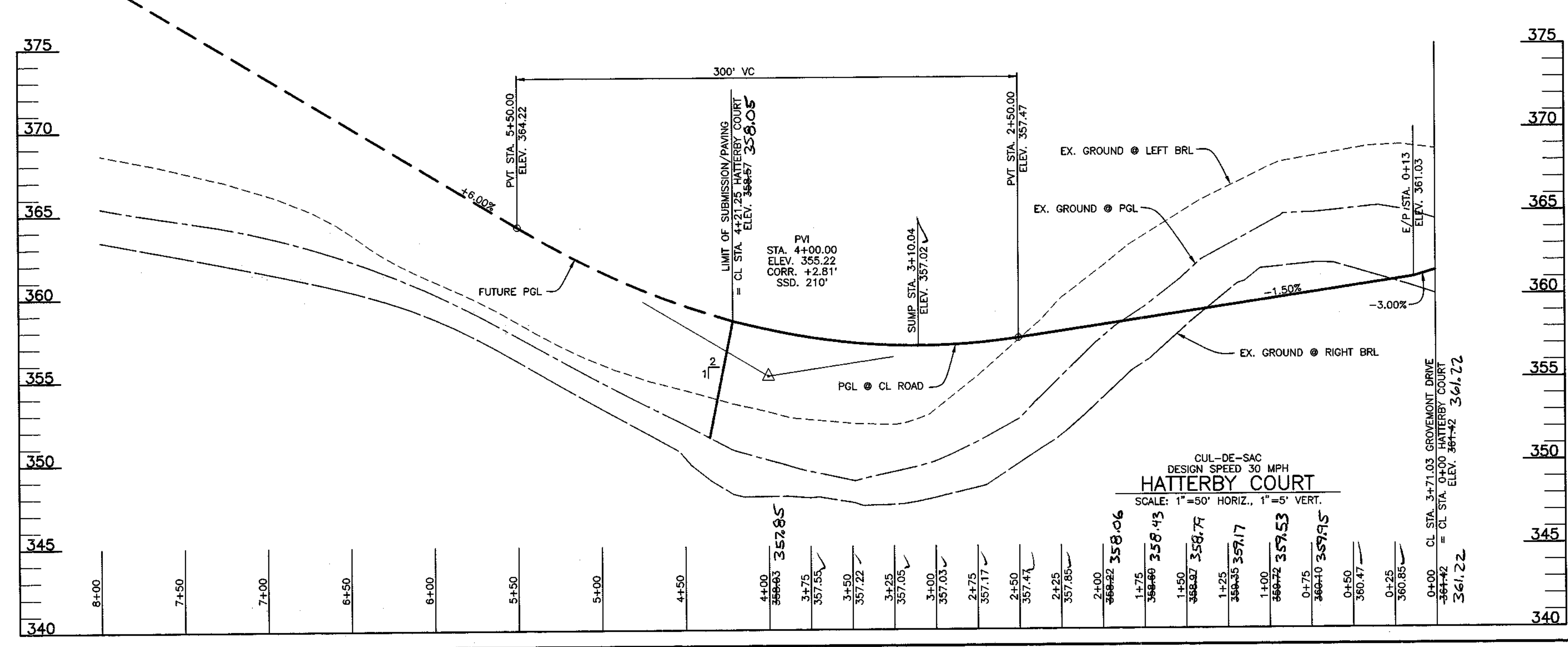
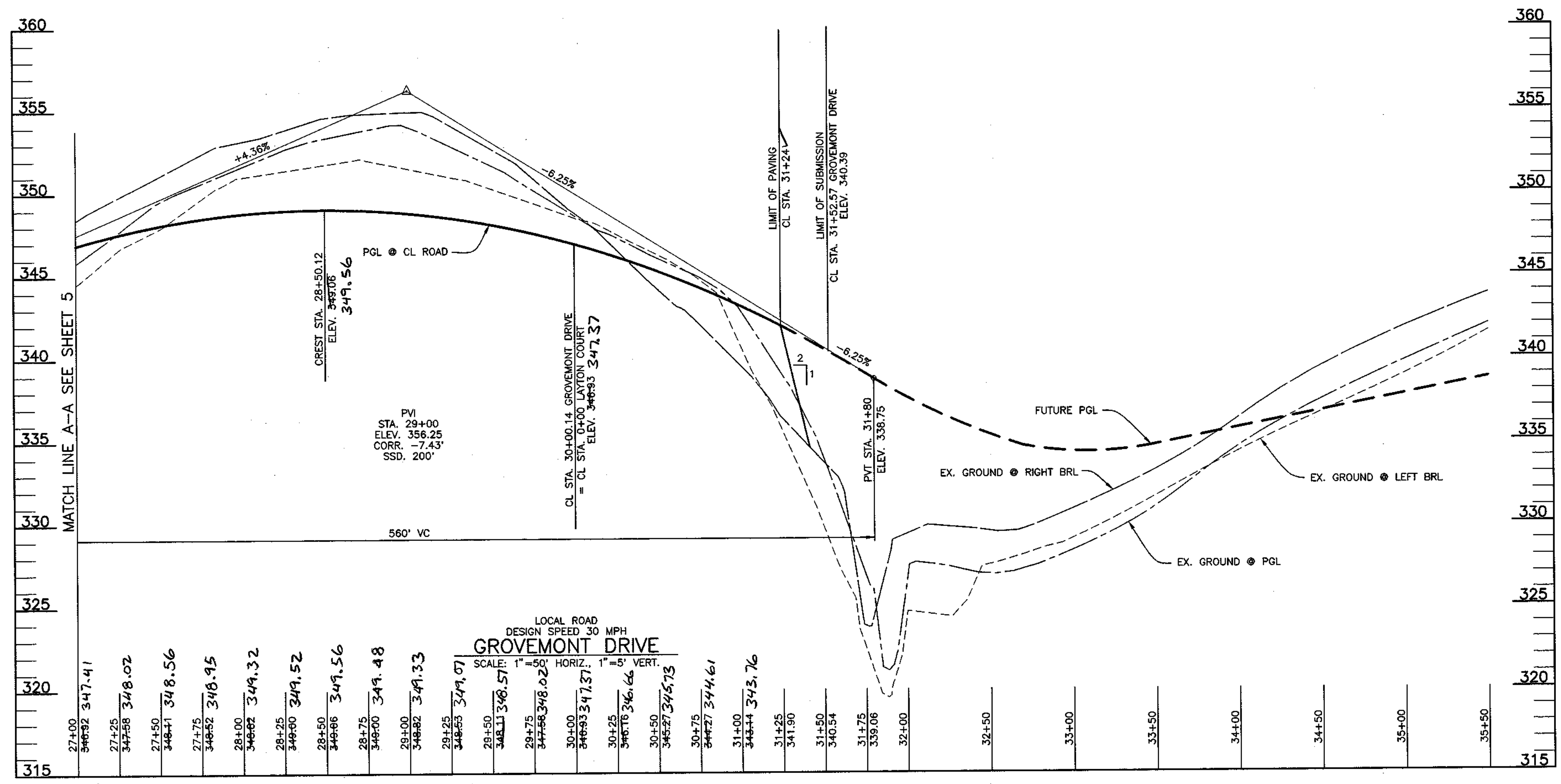
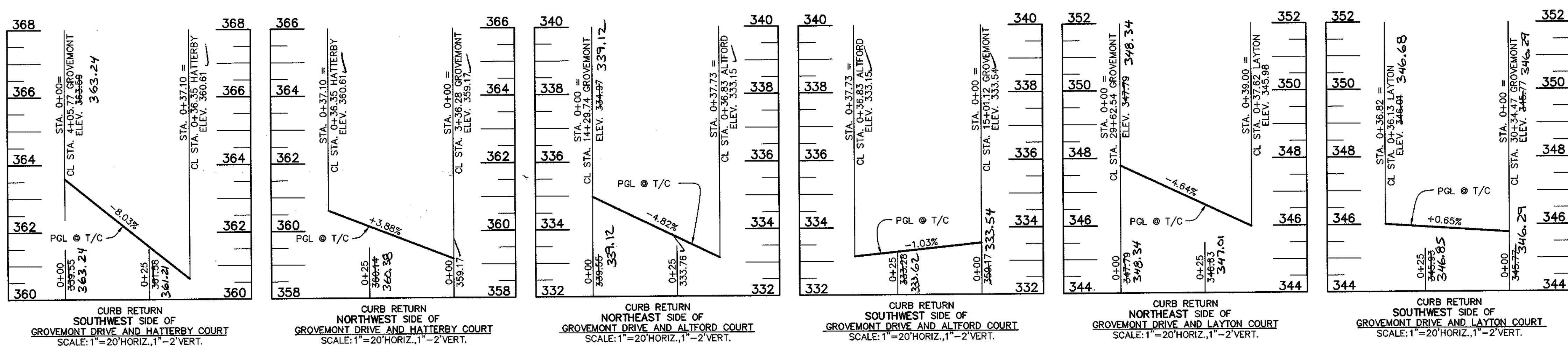
PROJECT: **GROVEMONT**  
 A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NO. 13493-13495

LOCATION: TAX MAP 31 - P/O PARCEL 232  
 183 ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE: **ROAD PROFILES**  
 WP-98-78 S-96-08 P-97-003 F-98-166  
 DATE: JULY, 1998  
 FEBRUARY, 1999 PROJECT NO. 0793  
 SCALE: AS SHOWN SHEET 5 OF 32

DESIGN: DAM DRAFT: DBT CHECK: DAM

Acad. Dwg. 7017505 Plotted: Feb. 16, 1999

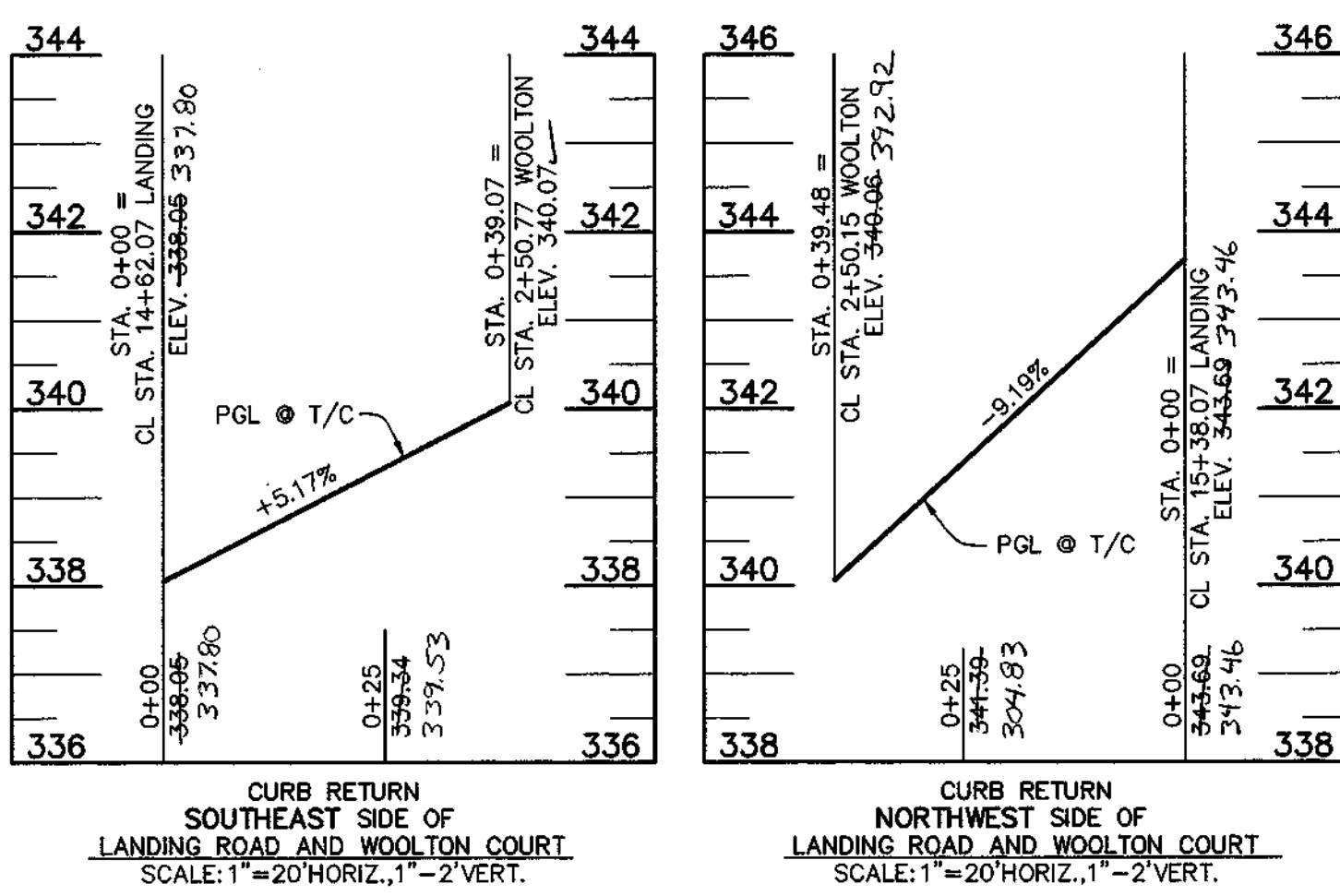
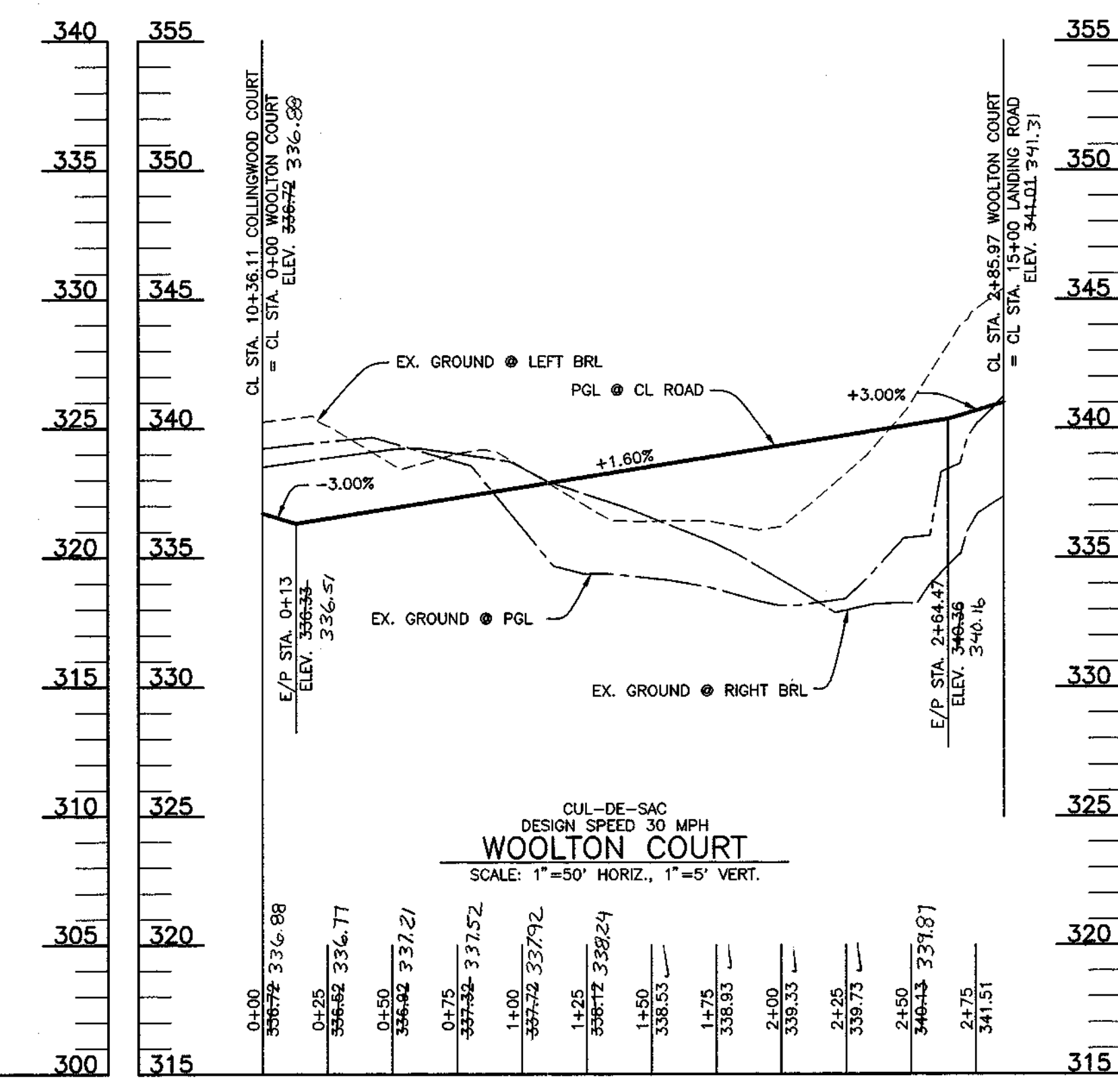
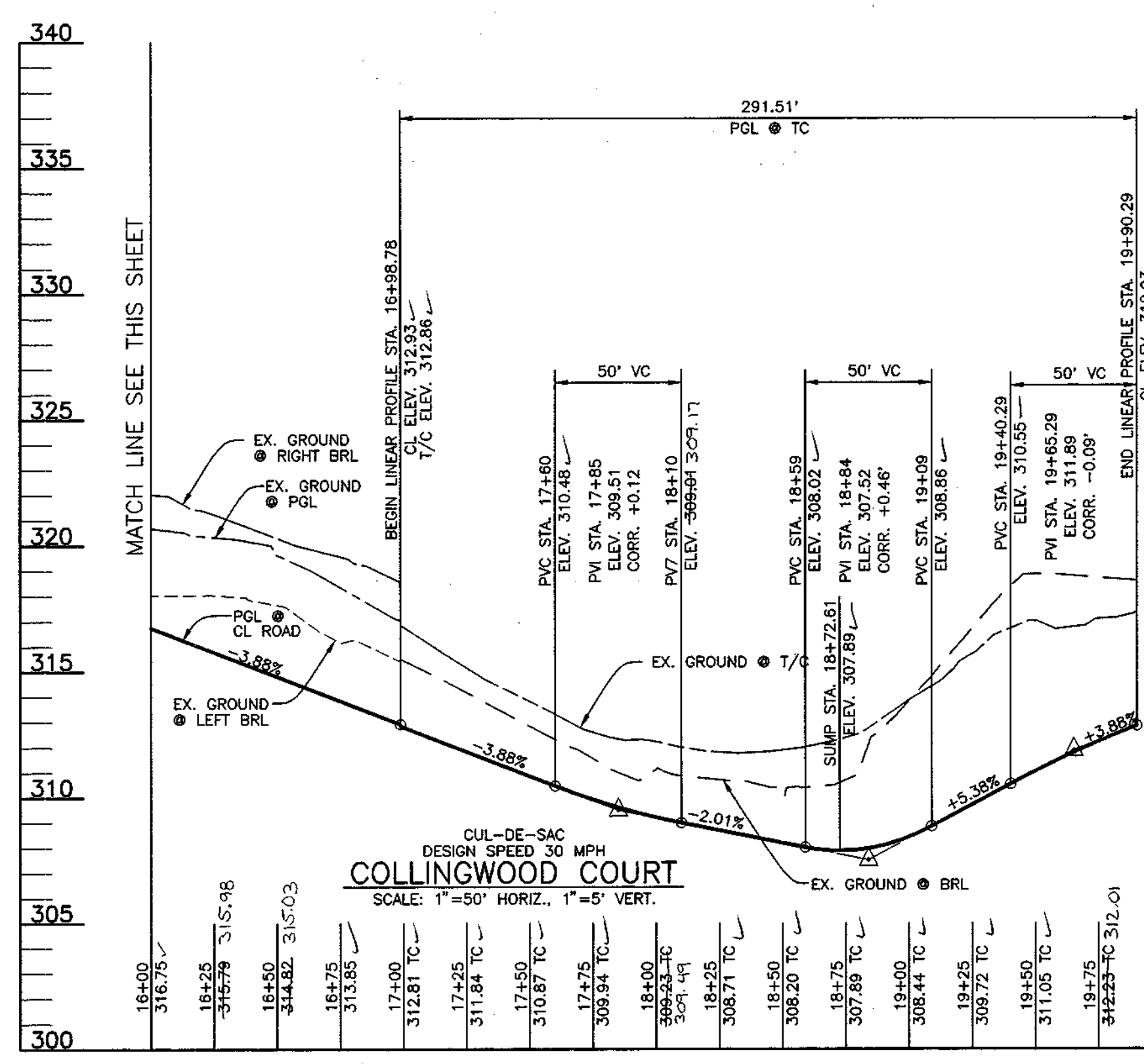
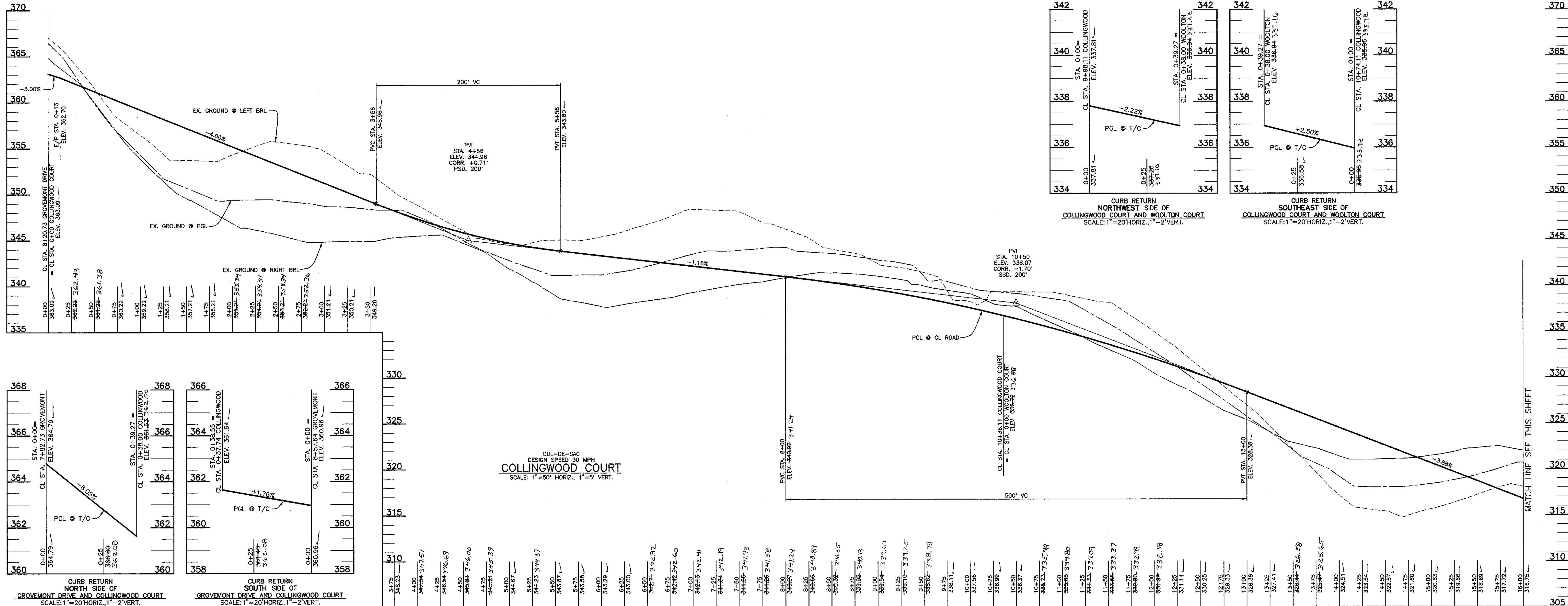


APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 3-8-99  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hamilton* 3/1/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Mike Damann* 2/15/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO. 2-8-03		REVISION	
DATE		REVISION	
<b>BENCHMARK ENGINEERING, INC.</b>			
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6644			
OWNER/DEVELOPER:		PROJECT:	
WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 HYLANE SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202		GROVEMONT A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT Nos. 13493-13495	
LOCATION:		TITLE:	
TAX MAP 31 - P/O PARCEL 232 183 ELECTION DISTRICT HOWARD COUNTY, MARYLAND		ROAD PROFILES	
DATE: JULY 1998		SCALE: AS SHOWN	
FEBRUARY 1999		SHEET 6 OF 32	
DESIGN: DAM		DRAFT: DBT	
CHECK: DAM		DATE: 2/15/99	



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Danale* 3-8-99  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hamstra* 2/19/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT

*William Danale* 2/15/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

AS-BUILT 2/10/03

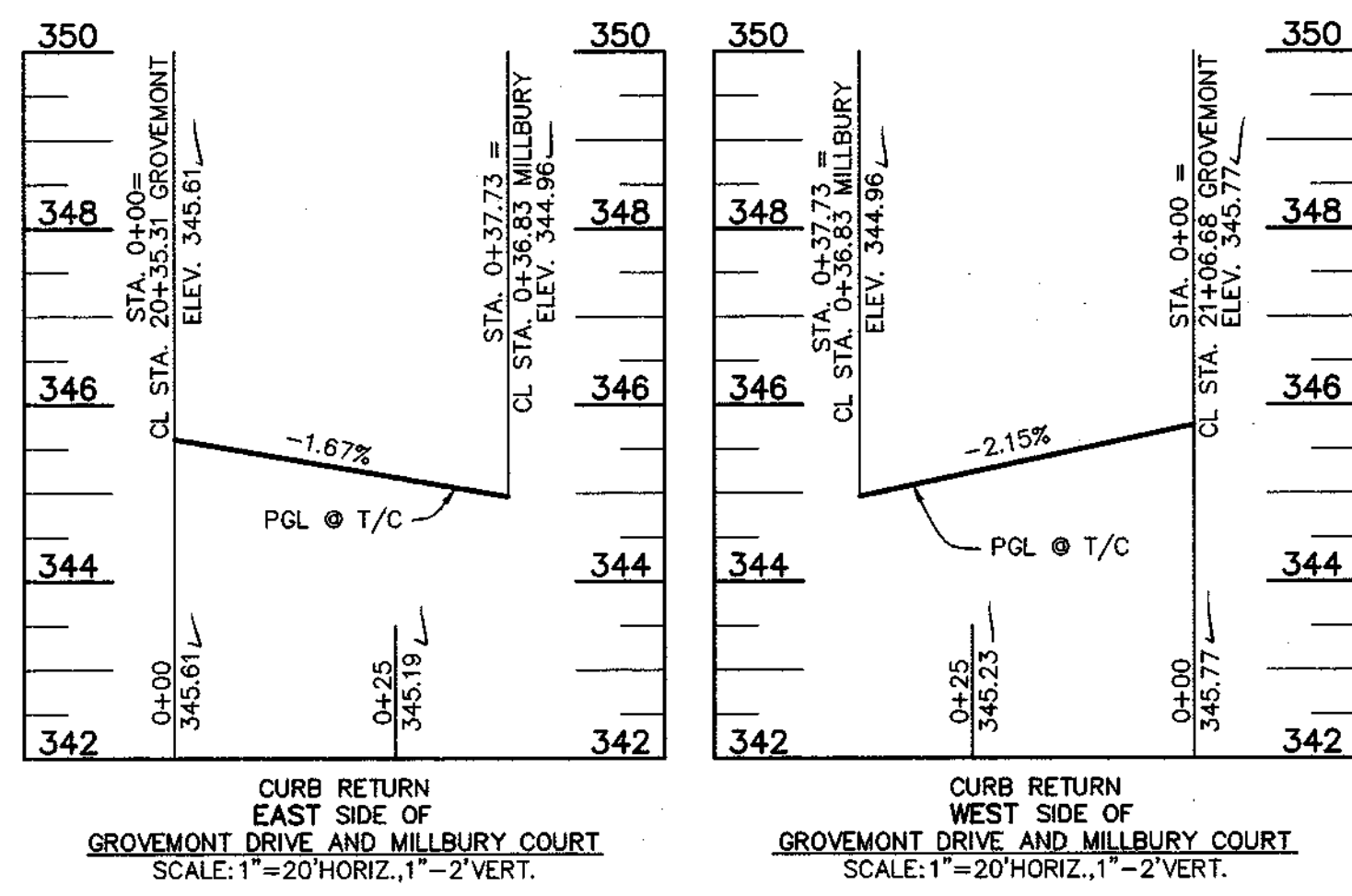
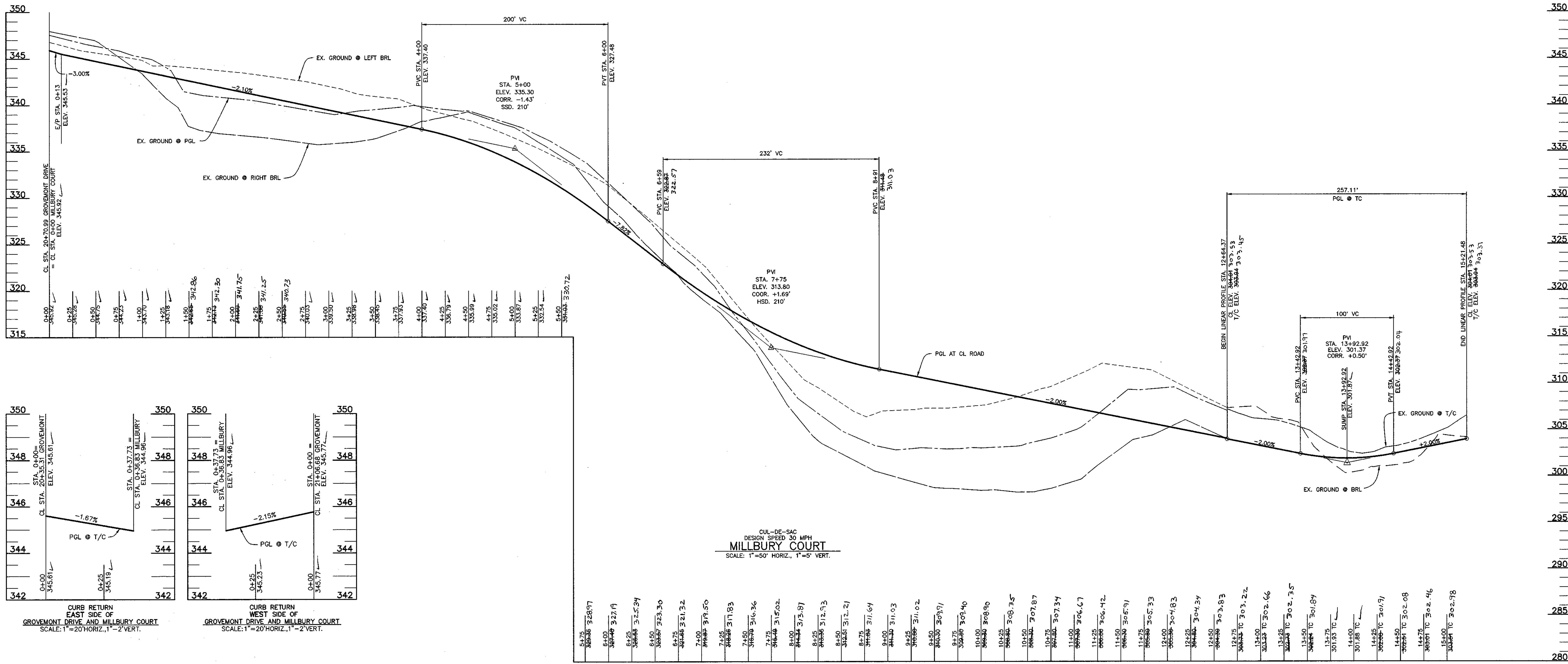
2-8-03 REVISED PER AS-BUILT CONDITIONS.		REVISION	
NO.	DATE		

**BENCHMARK ENGINEERING, INC.**

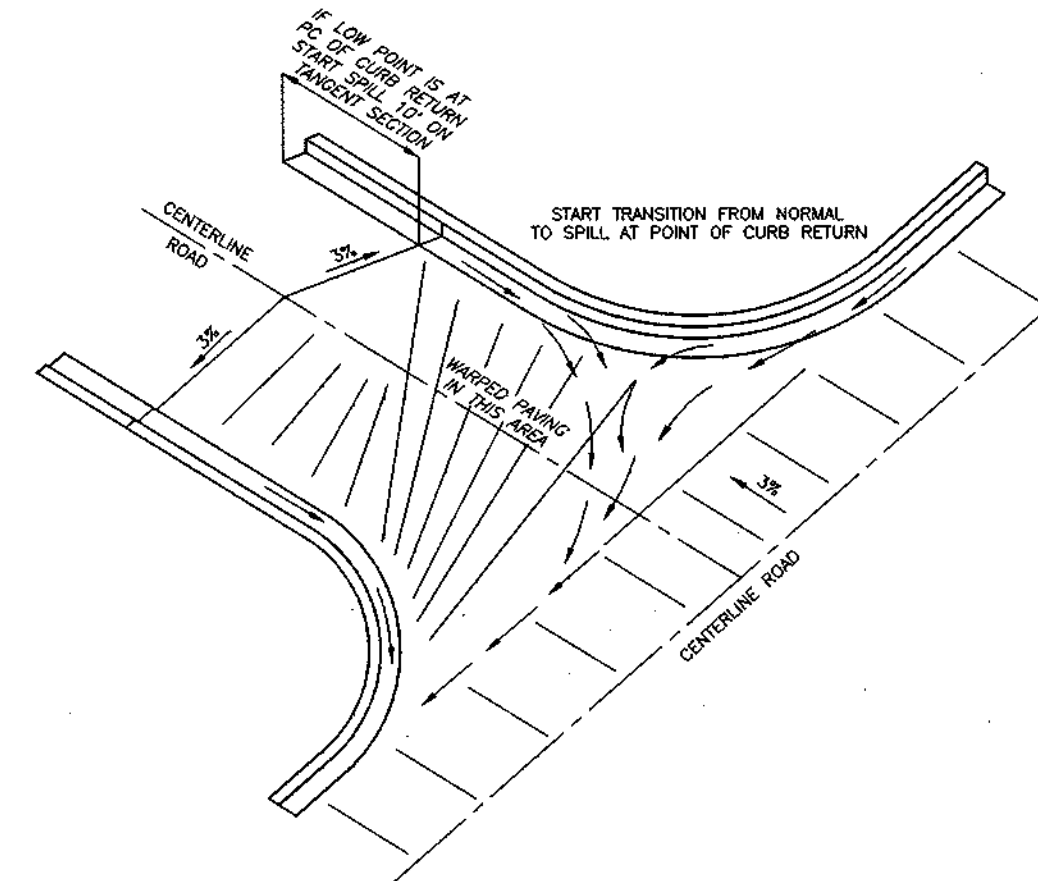
ENGINEERS • LAND SURVEYORS • PLANNERS

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6844

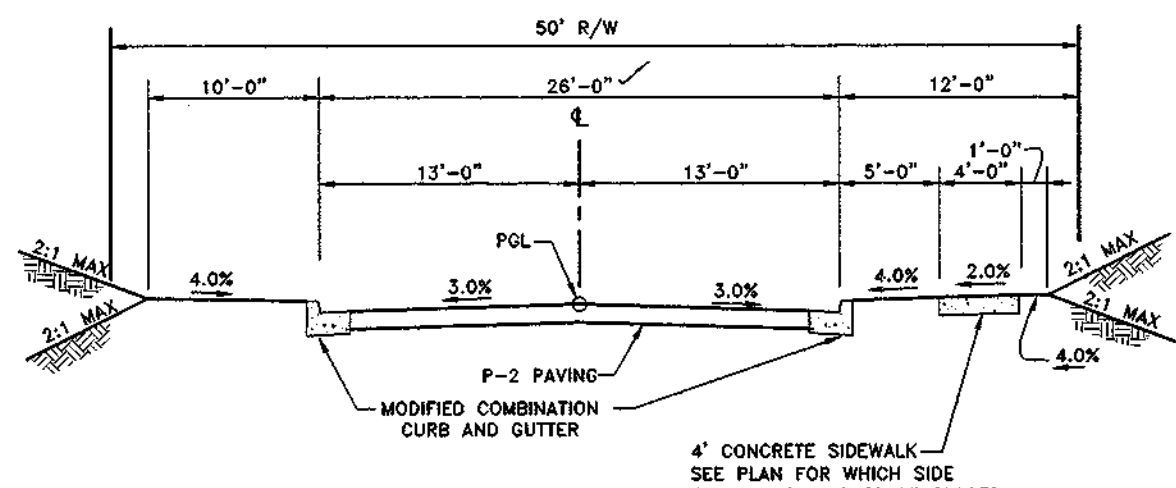
OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	PROJECT: <b>GROVEMONT</b> LOTS 1 THRU 185 A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT Nos. 13493-13495			
LOCATION: TAX MAP 31 - P/O PARCEL 232 18 ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: <b>ROAD PROFILES</b>			
DATE: JULY, 1998 FEBRUARY, 1999	PROJECT NO.: 0793			
DESIGN: DAM	DRAFT: DBT	CHECK: DAM	SCALE: AS SHOWN	SHEET 7 OF 32



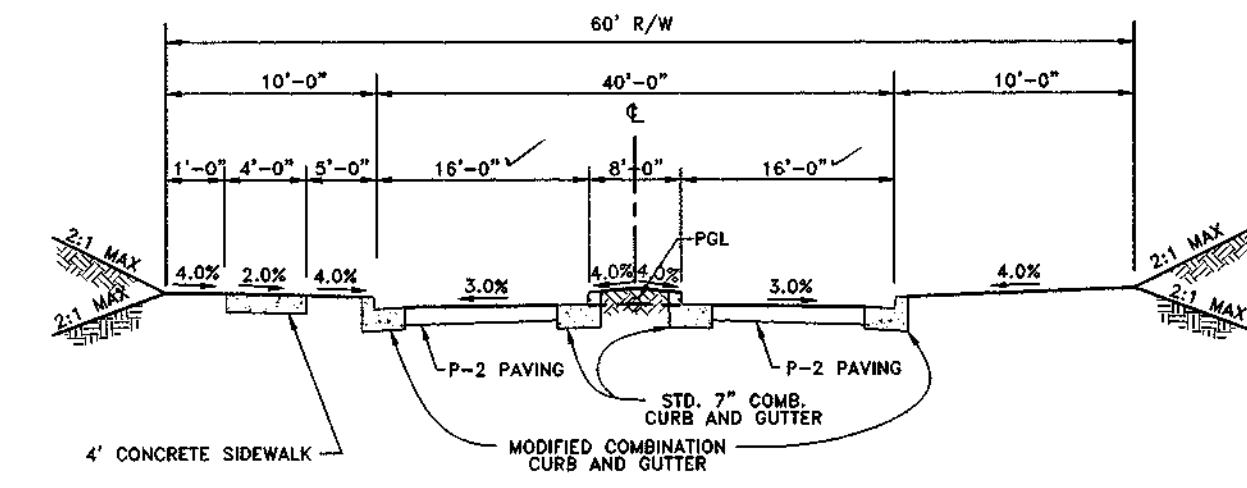
CUL-DE-SAC  
DESIGN SPEED 30 MPH  
MILLBURY COURT  
SCALE: 1"=50' HORIZ., 1"=5' VERT.



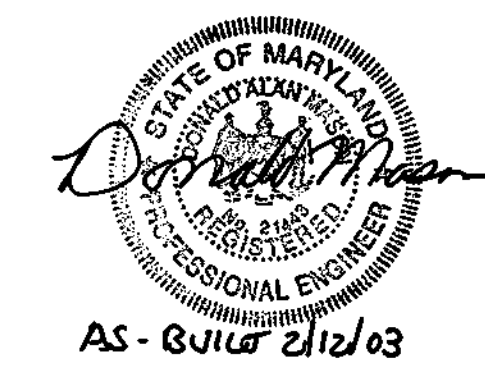
INTERSECTION DRAINAGE DETAIL  
SCALE: NOT TO SCALE



TYPICAL ROAD SECTION  
CLASSIFICATION: LOCAL ROAD  
DESIGN SPEED 30 MPH  
SCALE: NOT TO SCALE



TYPICAL ROAD SECTION  
CLASSIFICATION: LOCAL ROAD  
DESIGN SPEED 30 MPH  
SCALE: NOT TO SCALE



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Danek* 3-8-99  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hamilton* 2/19/99  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Chris Dammann* 2/15/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

2-8-03 REVISED PER AS-BUILT CONDITIONS	
NO.	REVISION

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC.  
c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202

PROJECT: GROVEMONT LOTS 1 THRU 185  
A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT No. 13493-13495

LOCATION: TAX MAP 31 - P/O PARCEL 232 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

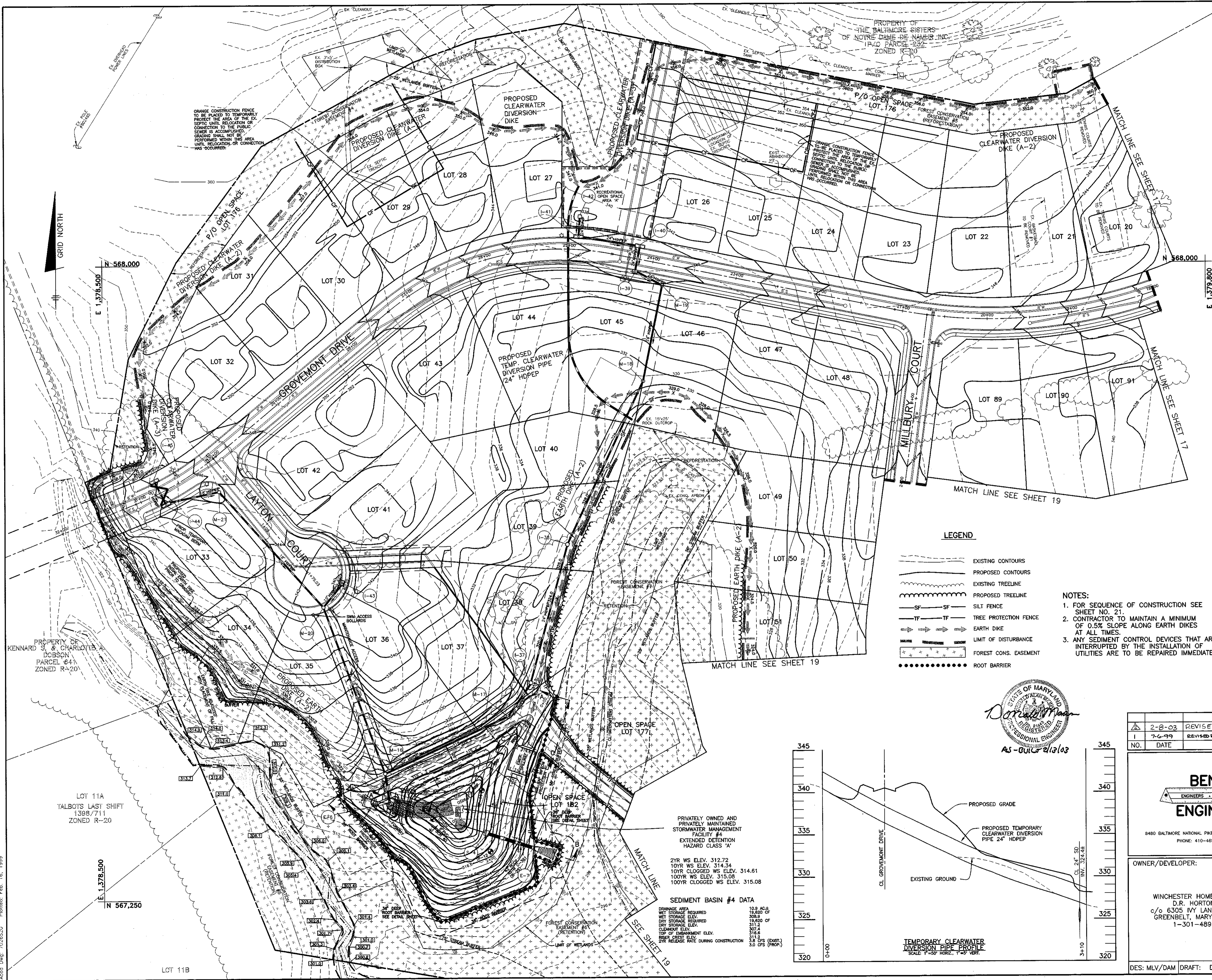
TITLE: ROAD PROFILES

WP-98-78 S-96-08 P-97-003 F-98-166

DATE: JULY 1998 PROJECT NO. 0793  
FEBRUARY 1999

DESIGN: DAM DRAFT: DBT CHECK: DAM SCALE: AS SHOWN SHEET 8 OF 32

AS-BUILTS



**OPERATION, MAINTENANCE AND INSPECTION NOTE**  
 INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS STANDARDS AND SPECIFICATIONS FOR PONDS (40-718), THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATORS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

**AS-BUILT CERTIFICATION**  
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.  
*Donald Mason* PE NO. 21443  
 DONALD A. MASON DATE 2/12/03

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION, THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

**BY THE DEVELOPER:**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL EMPLOY 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.

*Paul Katz* DATE 2-22-99  
 DEVELOPER VICE PRESIDENT

**BY THE ENGINEER:**  
 I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST EMPLOY 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 Mason* 2/12/99  
 ENGINEER - DONALD A. MASON, P.E. # 21443 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.  
*Paul Simmons* 3/1/99  
 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.  
*Robert W. Zick* 5/1/99  
 HOWARD SOIL CONSERVATION DISTRICT DATE

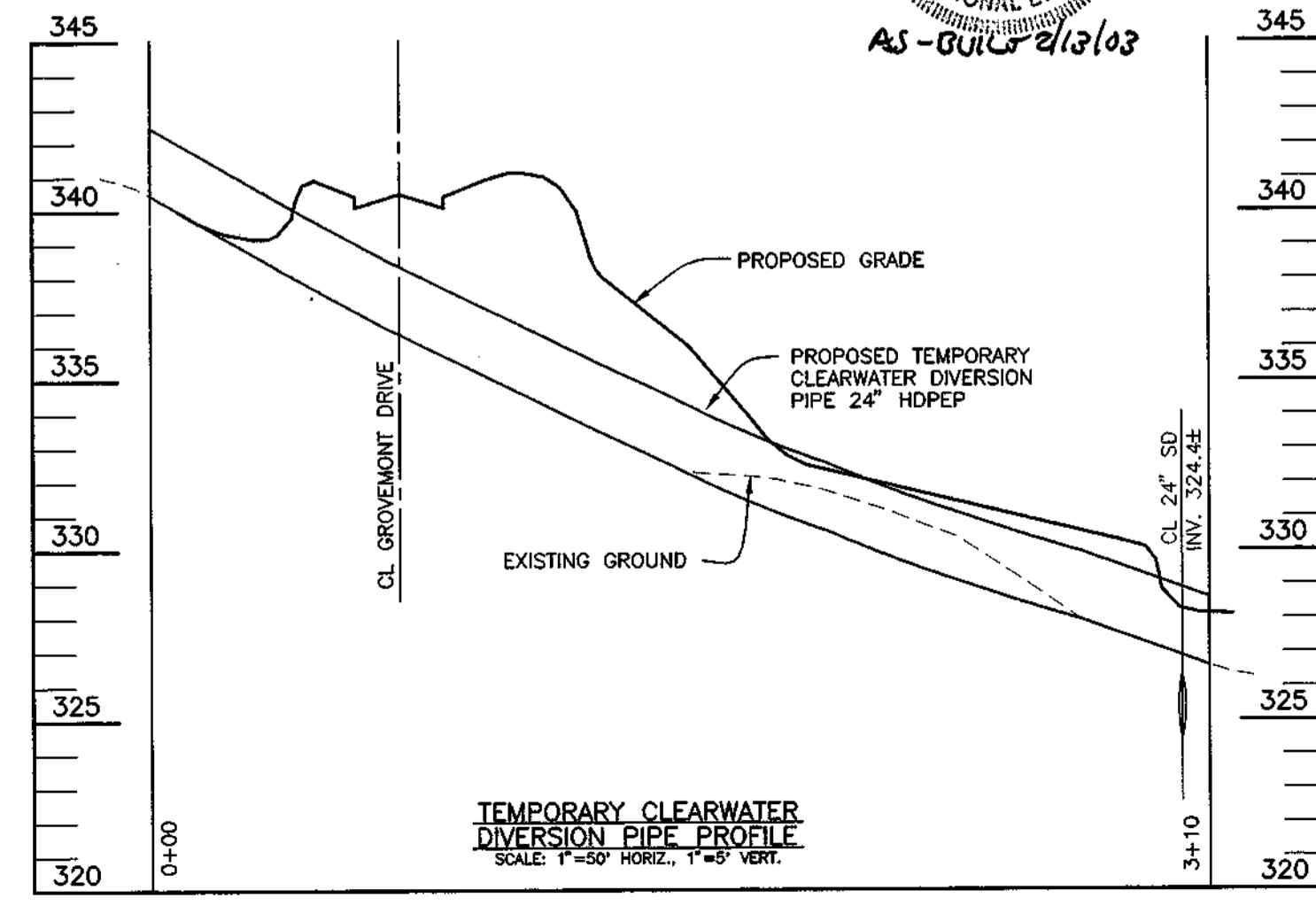
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Christopher M. Jankov* 3-8-99  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Sandra Klemm* 3/19/99  
 CHIEF, DIVISION #4 LAND DEVELOPMENT DATE

*William Deumer* 3/15/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

- LEGEND**
- EXISTING CONTOURS
  - PROPOSED CONTOURS
  - EXISTING TREELINE
  - PROPOSED TREELINE
  - SF-SF- SILT FENCE
  - TF-TF- TREE PROTECTION FENCE
  - EARTH DIKE
  - LIMIT OF DISTURBANCE
  - FOREST CONS. EASEMENT
  - ROOT BARRIER

- NOTES:**
- FOR SEQUENCE OF CONSTRUCTION SEE SHEET NO. 21.
  - CONTRACTOR TO MAINTAIN A MINIMUM OF 0.5% SLOPE ALONG EARTH DIKES AT ALL TIMES.
  - ANY SEDIMENT CONTROL DEVICES THAT ARE INTERRUPTED BY THE INSTALLATION OF UTILITIES ARE TO BE REPAIRED IMMEDIATELY.



PRIVATELY OWNED AND PRIVATELY MAINTAINED STORMWATER MANAGEMENT FACILITY #4 EXTENDED DETENTION HAZARD CLASS 'A'  
 2YR WS ELEV. 312.72  
 10YR WS ELEV. 314.34  
 100YR CLOGGED WS ELEV. 314.61  
 100YR WS ELEV. 315.08  
 100YR CLOGGED WS ELEV. 315.08

**SEDIMENT BASIN #4 DATA**  
 DRAINAGE AREA 10.9 AC±  
 WET STORAGE REQUIRED 19,420 CF  
 WET STORAGE ELEV. 308.9  
 DRY STORAGE REQUIRED 19,420 CF  
 DRY STORAGE ELEV. 311.2  
 CLEANOUT ELEV. 307.4  
 TOP OF OBSTRUCTION ELEV. 314.6  
 ROOF CRIST ELEV. 311.2  
 10YR RELEASE RATE DURING CONSTRUCTION 3.0 CFS (EXIST.)  
 3.0 CFS (PROP.)

2-B-03	REVISED PER AS-BUILT CONDITIONS
1	7-6-99 REVISED R&P TO HDPEP
NO.	DATE
	REVISION

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	PROJECT: <b>GROVEMONT</b> A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT Nos. 13493-13495
TITLE: <b>GRADING, SEDIMENT AND EROSION CONTROL PLAN</b>	LOCATION: TAX MAP 31 - P/O PARCEL 232 181 ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JULY 1998 FEBRUARY 1999	PROJECT NO. 0793
DES: MLV/DAM DRAFT: DBT CHECK: DAM	SCALE: 1" = 50' SHEET 20 OF 32

SEDIMENT CONTROL NOTES

- 1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION...
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT 'MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL', REVISIONS THERE TO.

Table with 2 columns: Description and Value. Includes: TOTAL AREA OF SITE (98.15 ACRES), AREA TO BE ROOFED OR PAVED (5.80 ACRES), AREA TO BE VEGETATIVELY STABILIZED (75.49 ACRES), TOTAL CUT (179000 CY), TOTAL FILL (179000 CY).

TEMPORARY SEEDBED PREPARATIONS

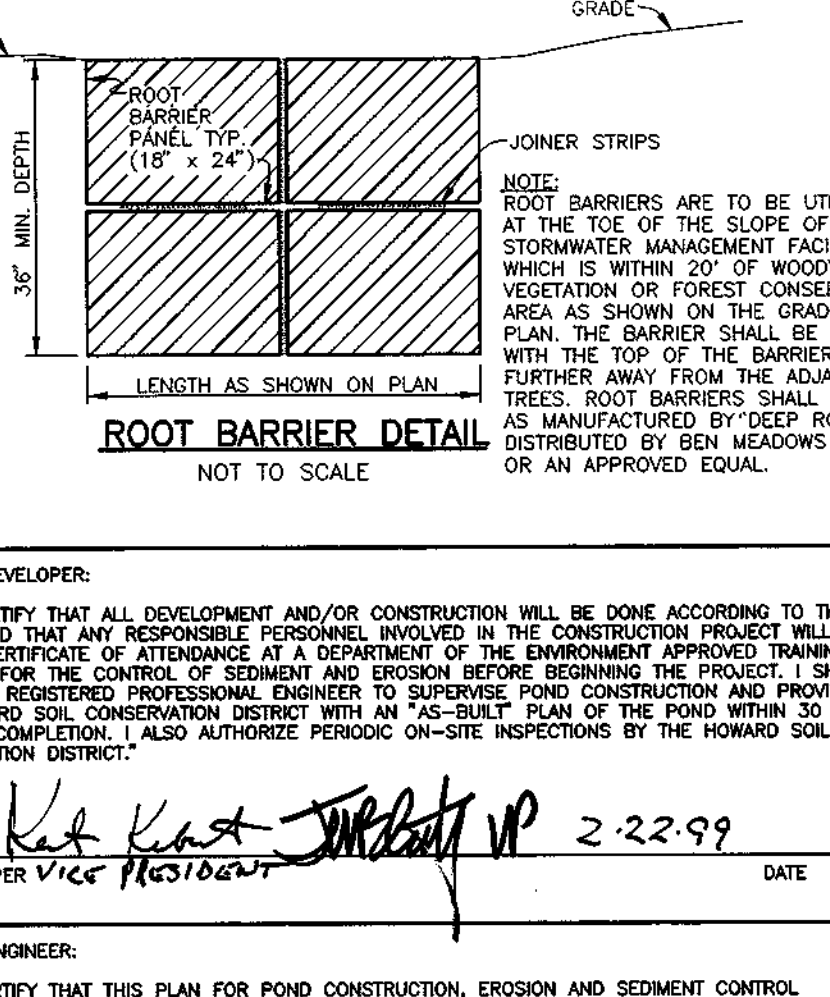
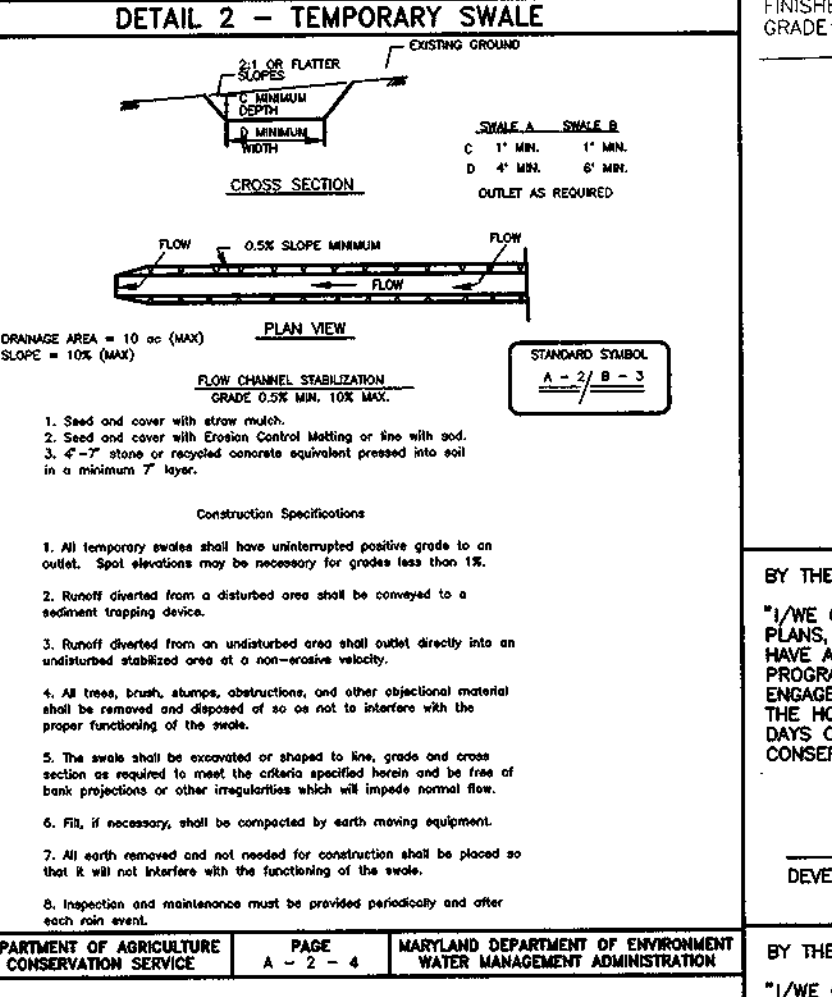
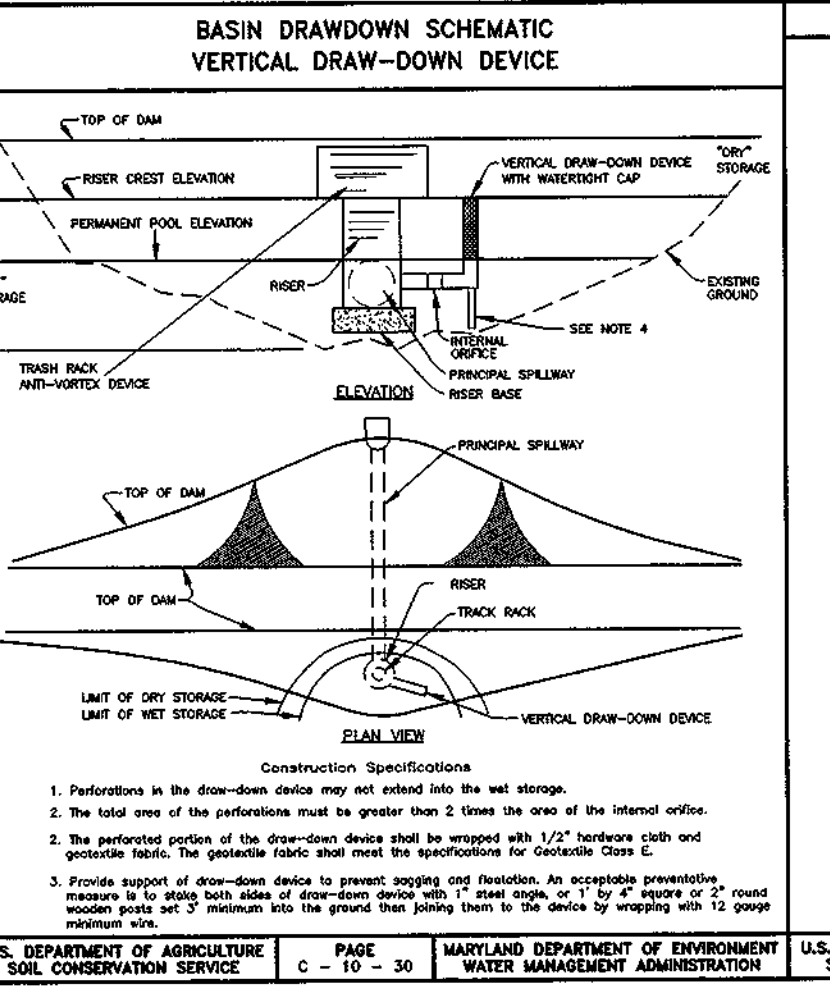
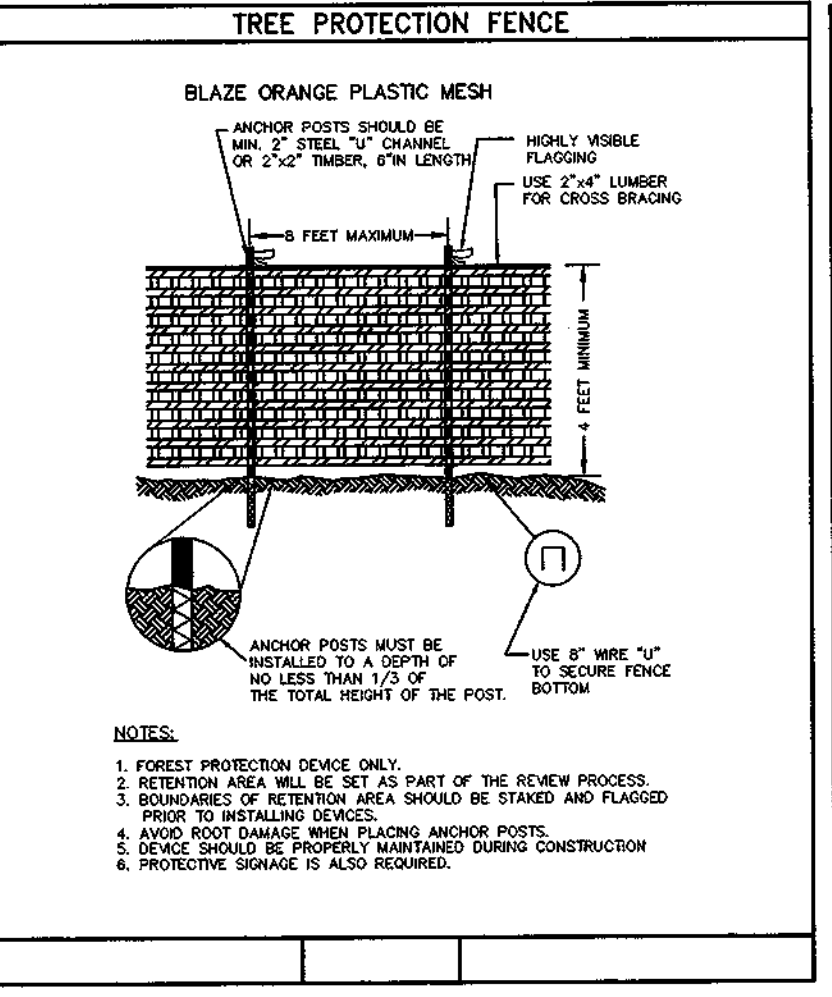
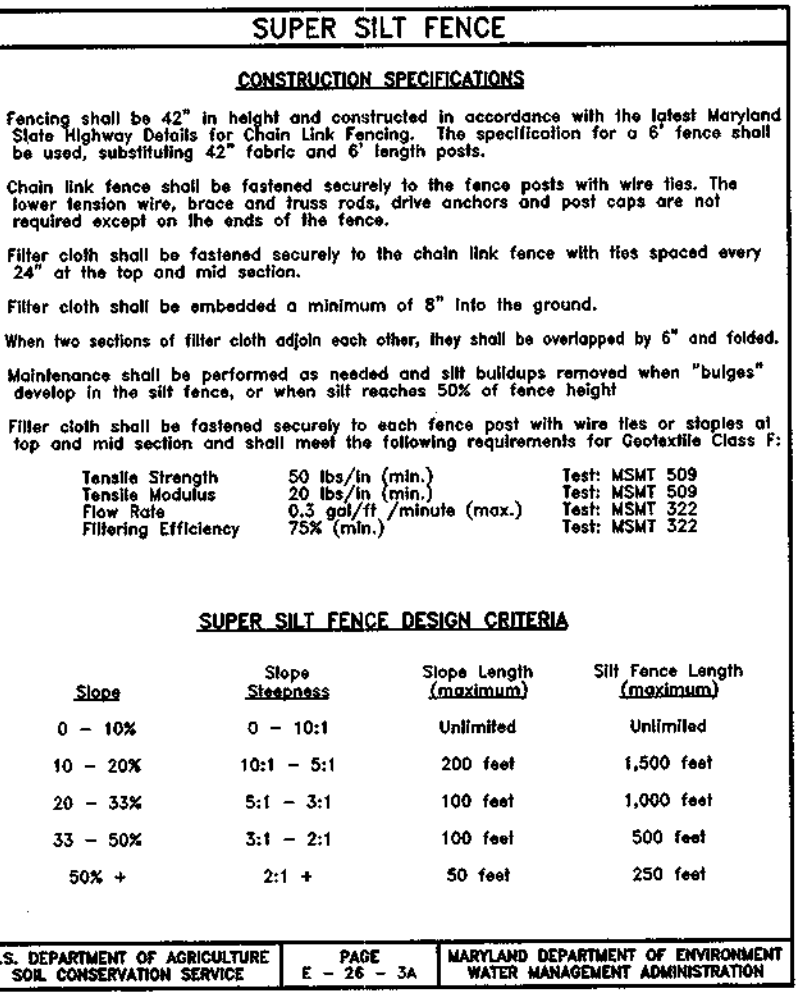
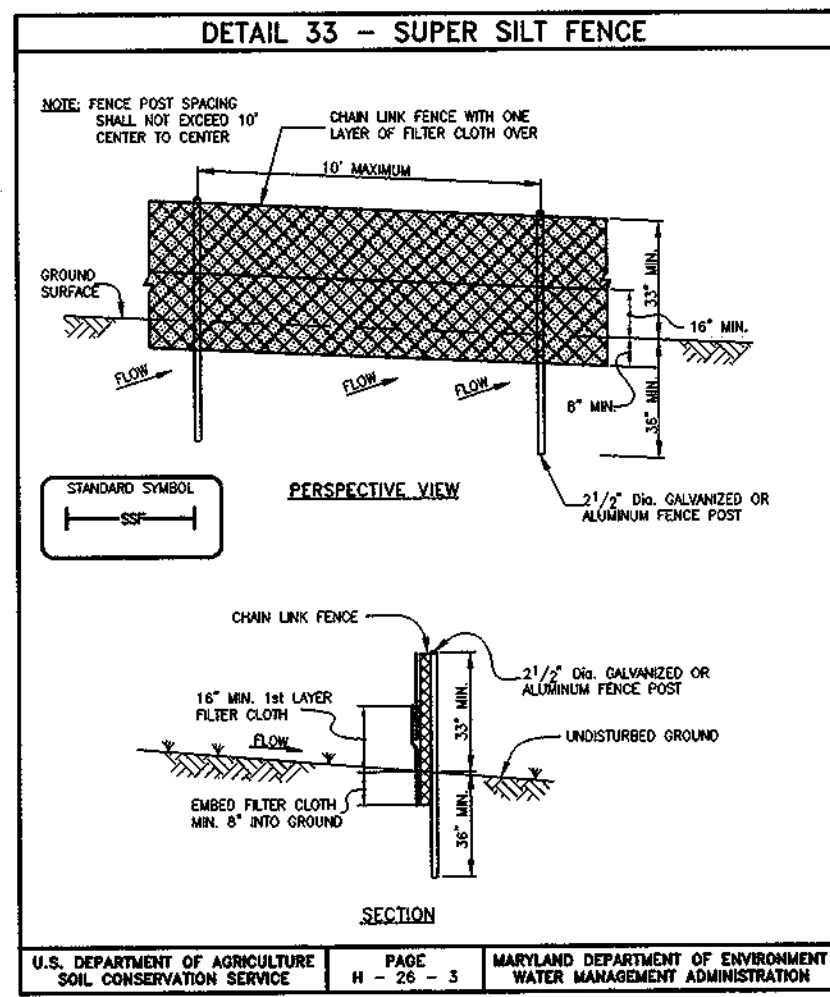
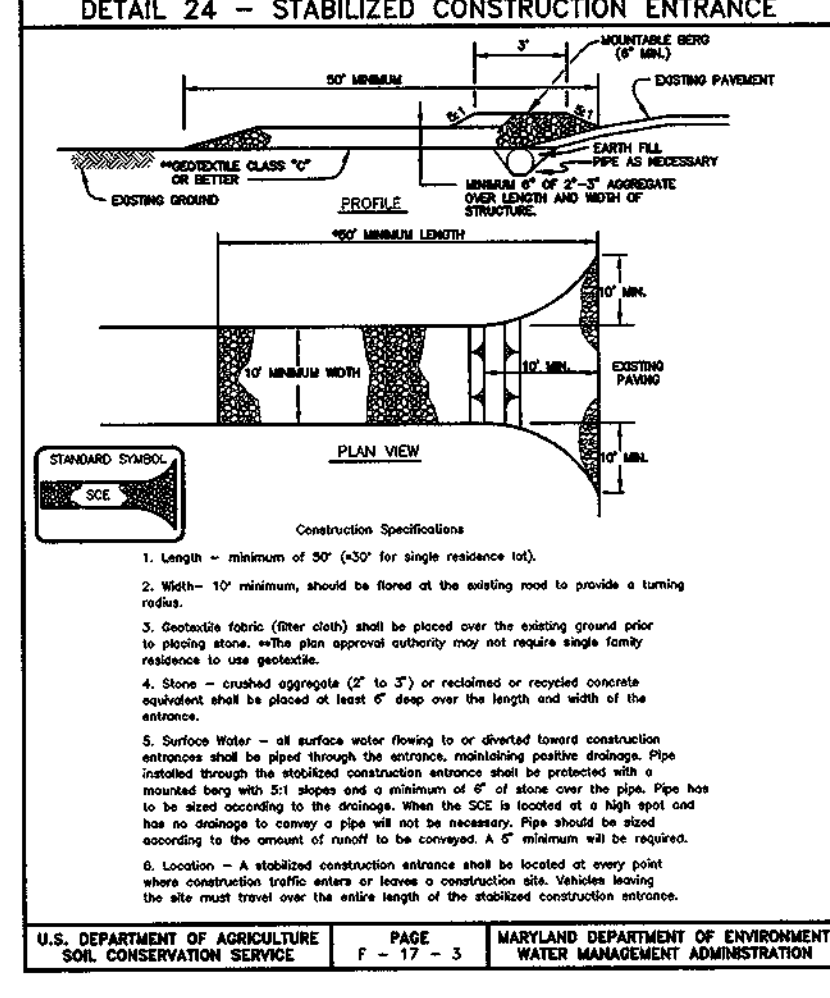
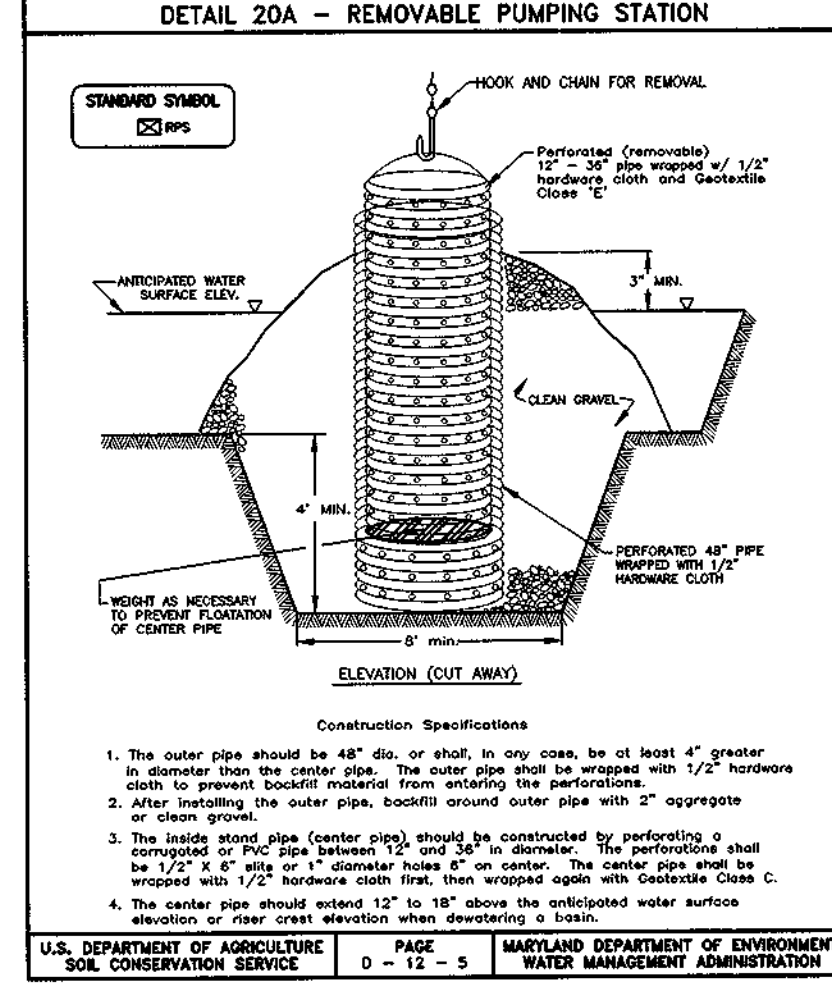
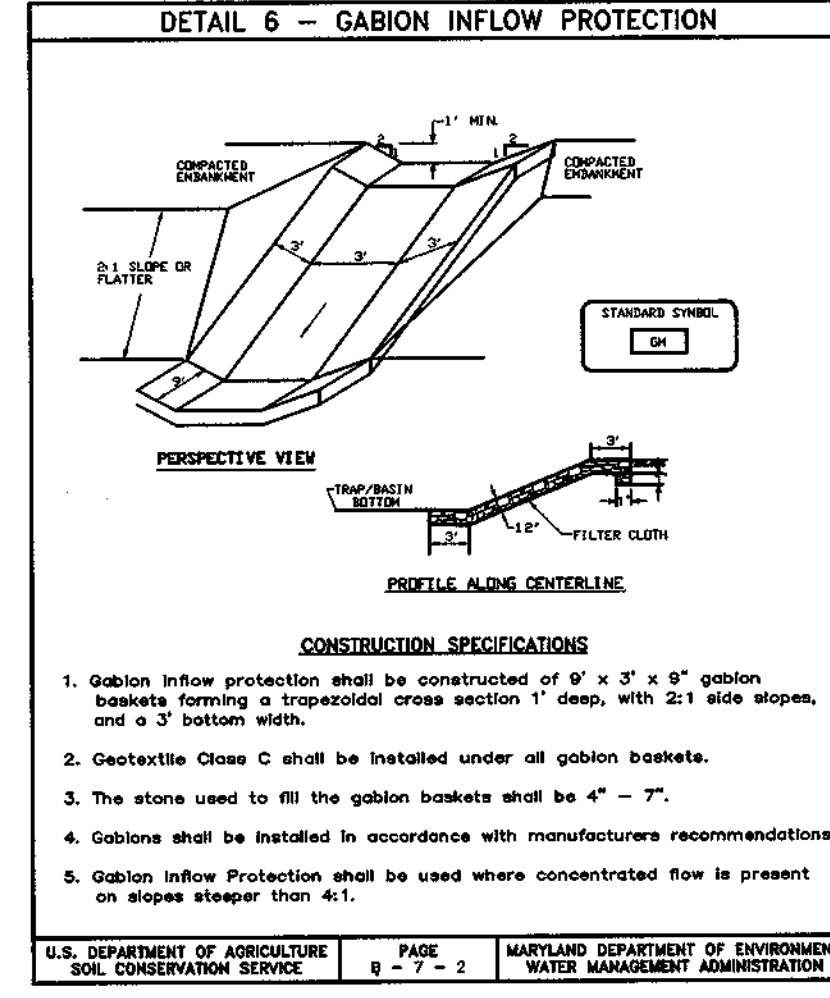
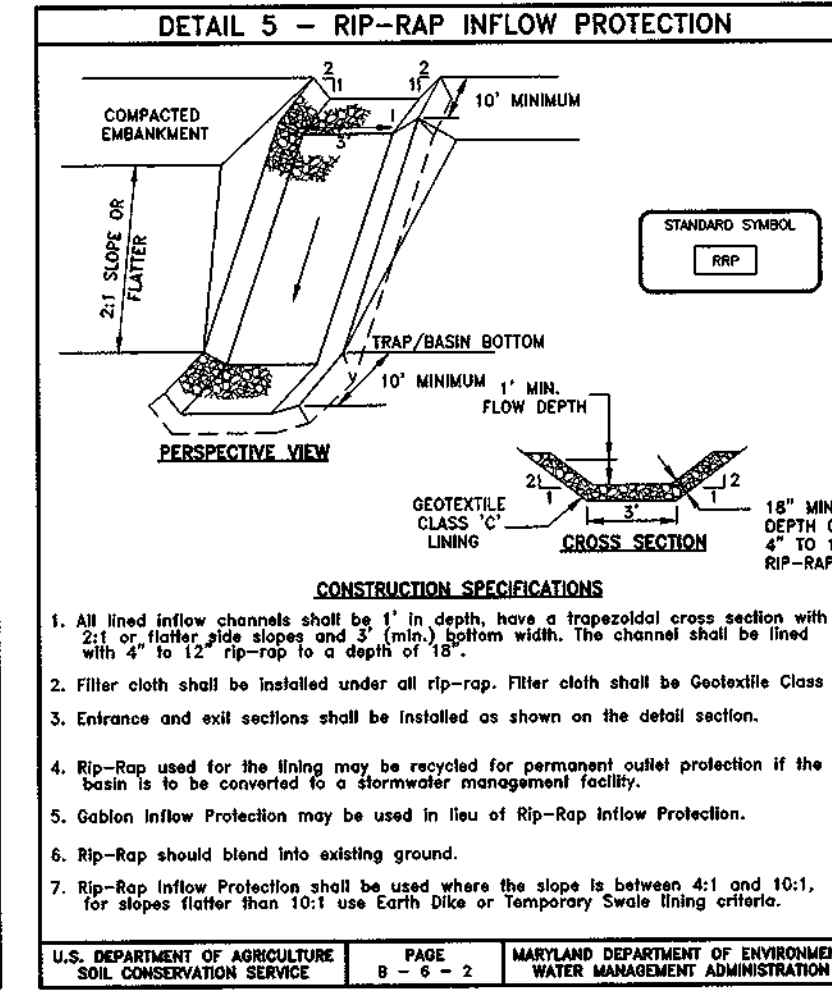
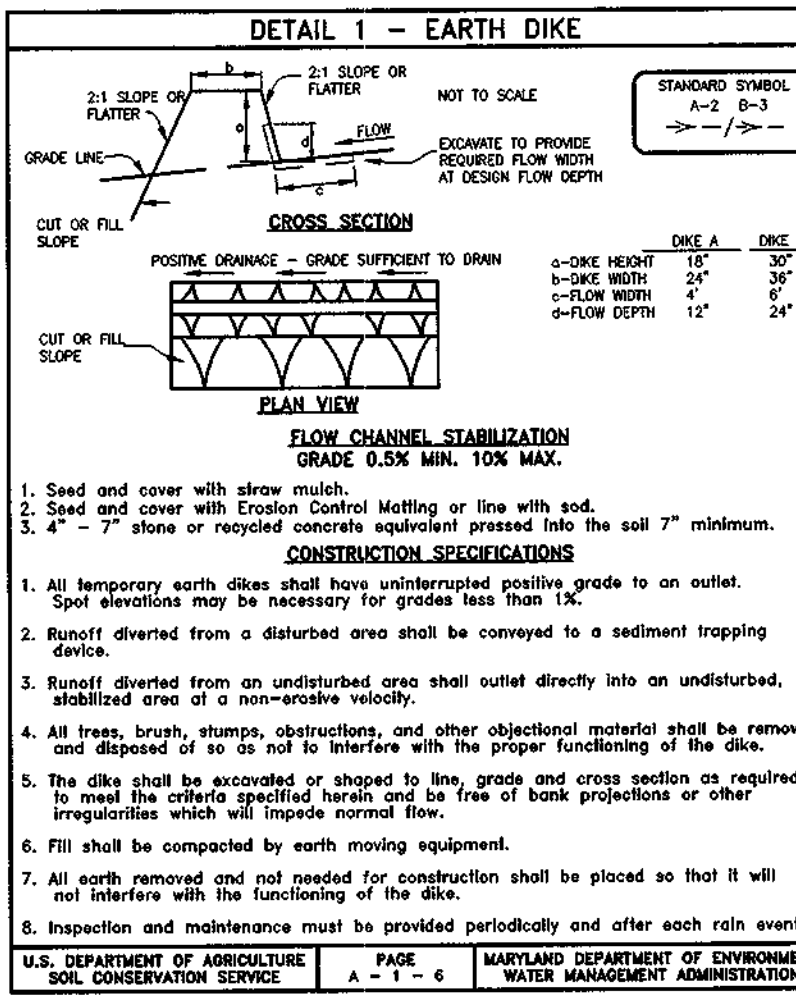
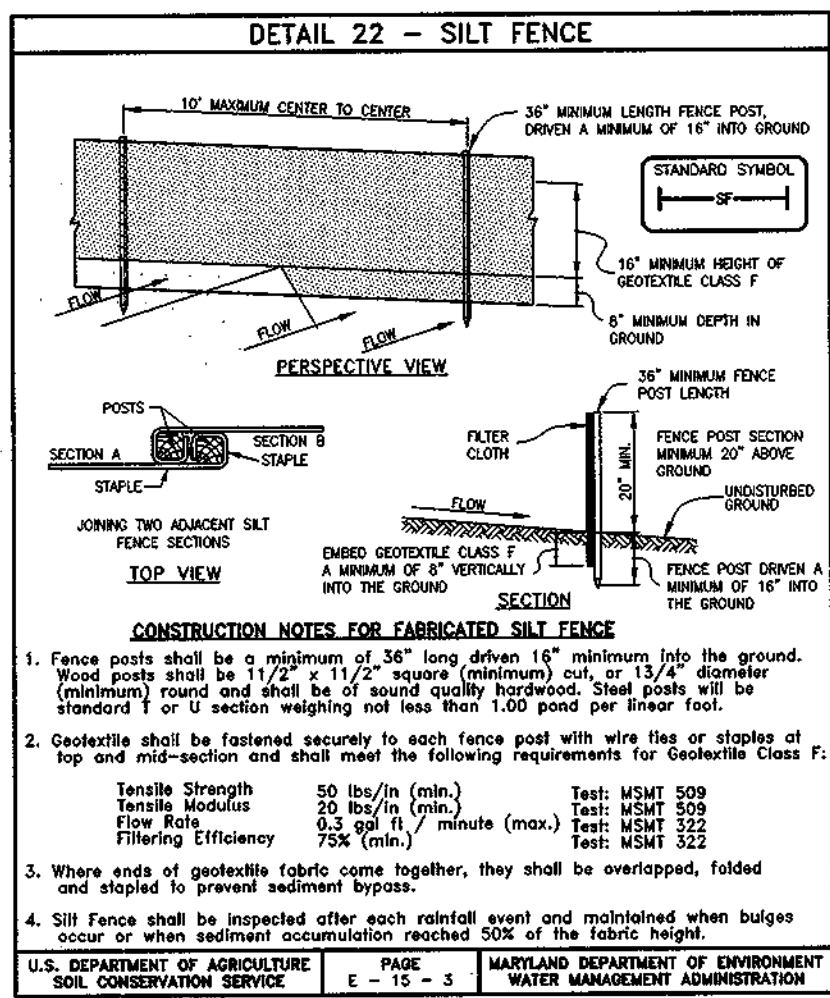
- APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.
SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

PERMANENT SEEDBED PREPARATIONS

- SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.
SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:
1. PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT) BEFORE SEEDING.

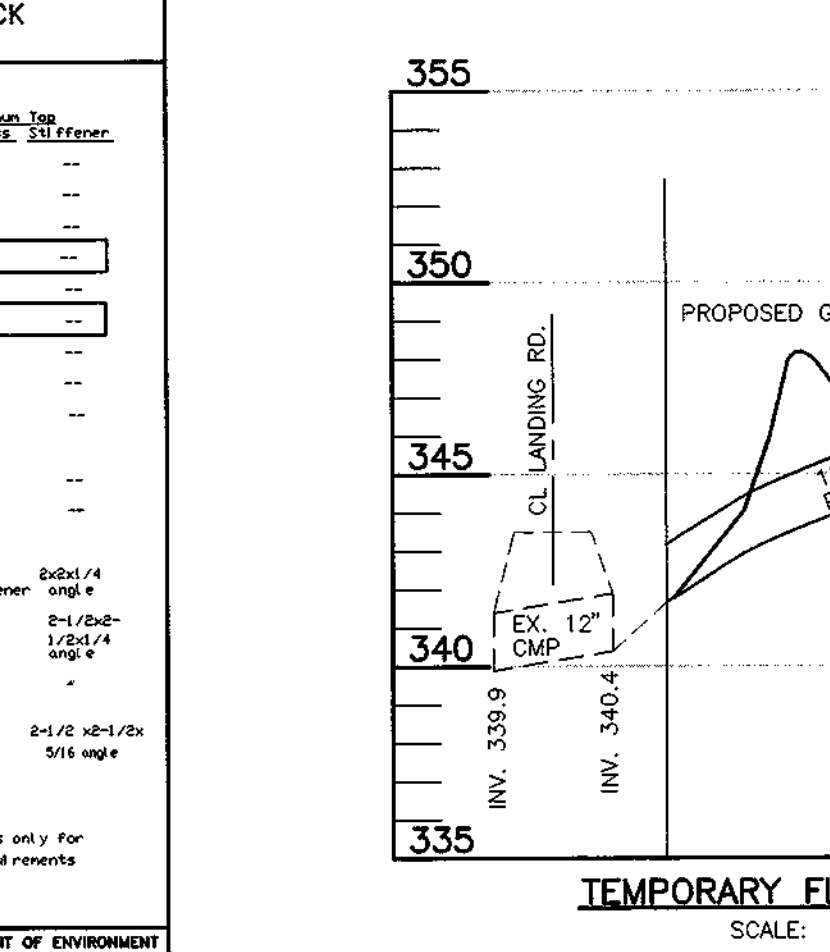
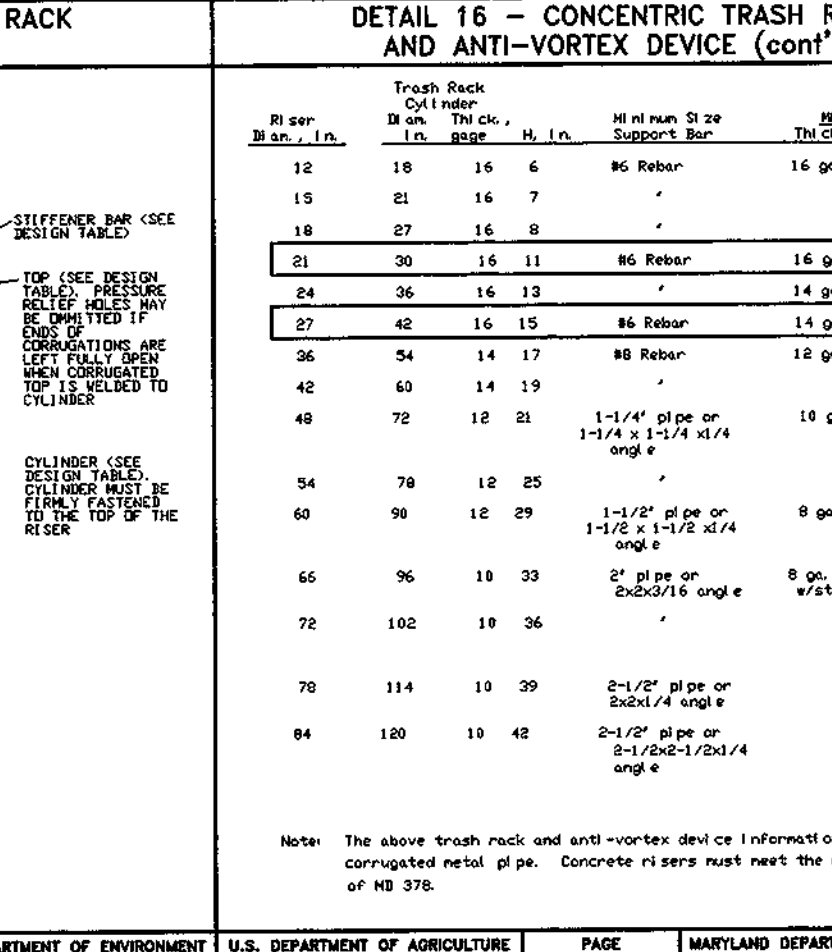
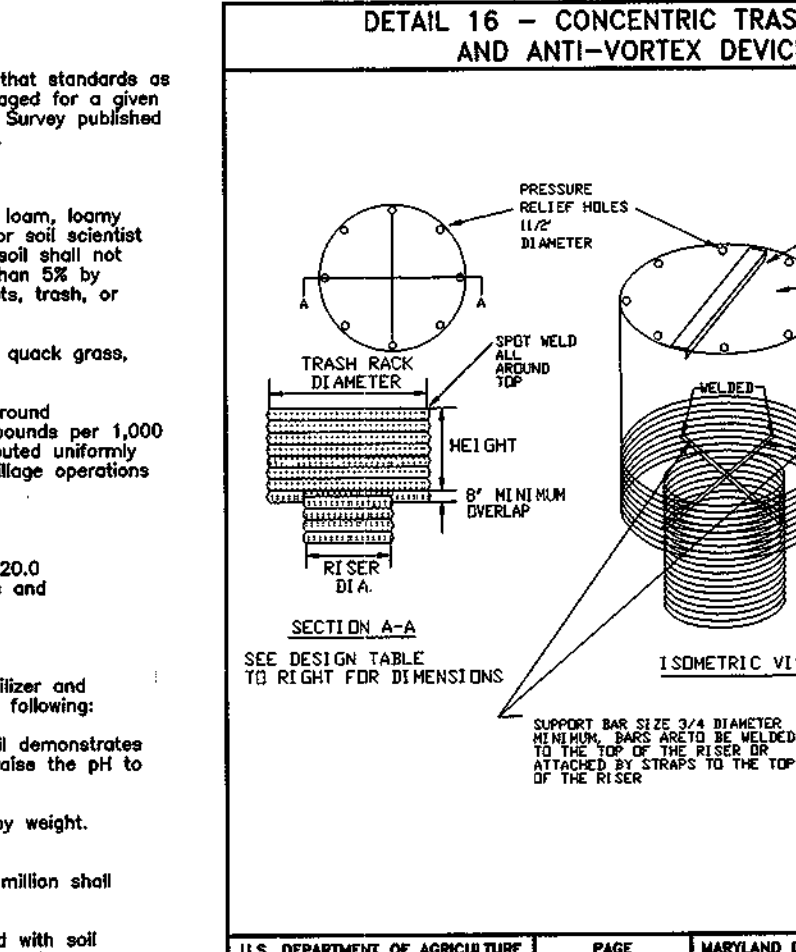
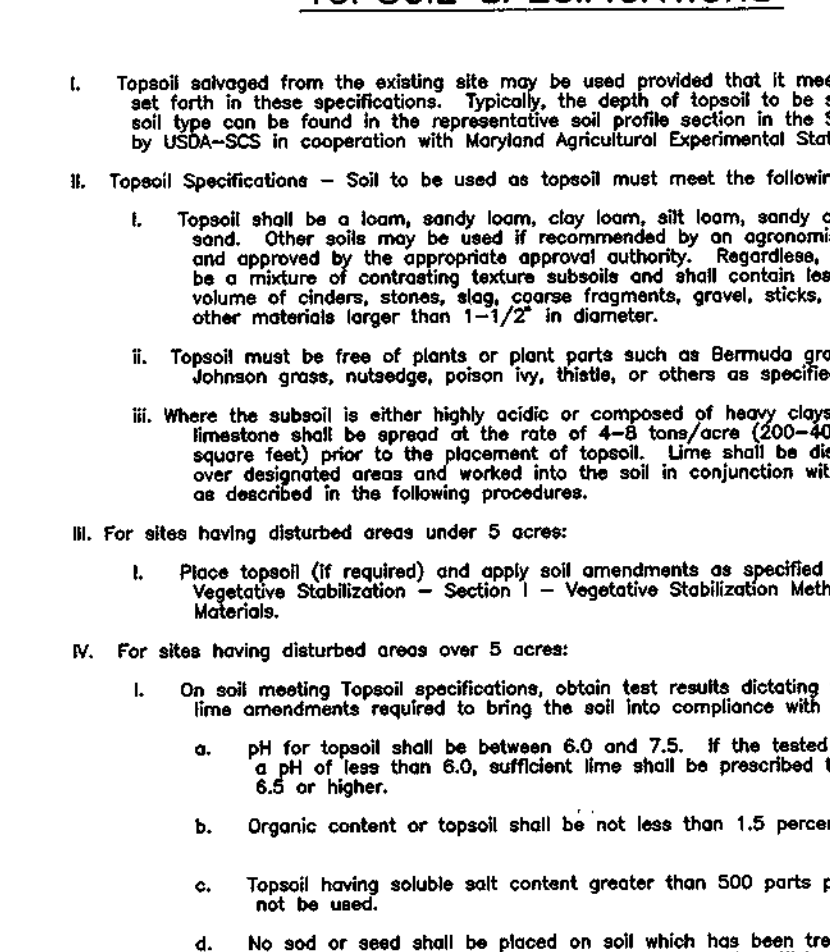
SEQUENCE OF CONSTRUCTION

- NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF CONSTRUCTION
DAY 1 OBTAIN GRADING PERMIT.
DAY 2-7 INSTALL STABILIZED CONSTRUCTION ENTRANCES, TREE PROTECTION FENCES, SILT FENCES, SUPER SILT FENCES, TEMPORARY DIVERSION PIPES AND TEMPORARY CLEARWATER DIVERSION DIKES.
DAY 8-38 INSTALL SEDIMENT TRAPS AND BASINS.



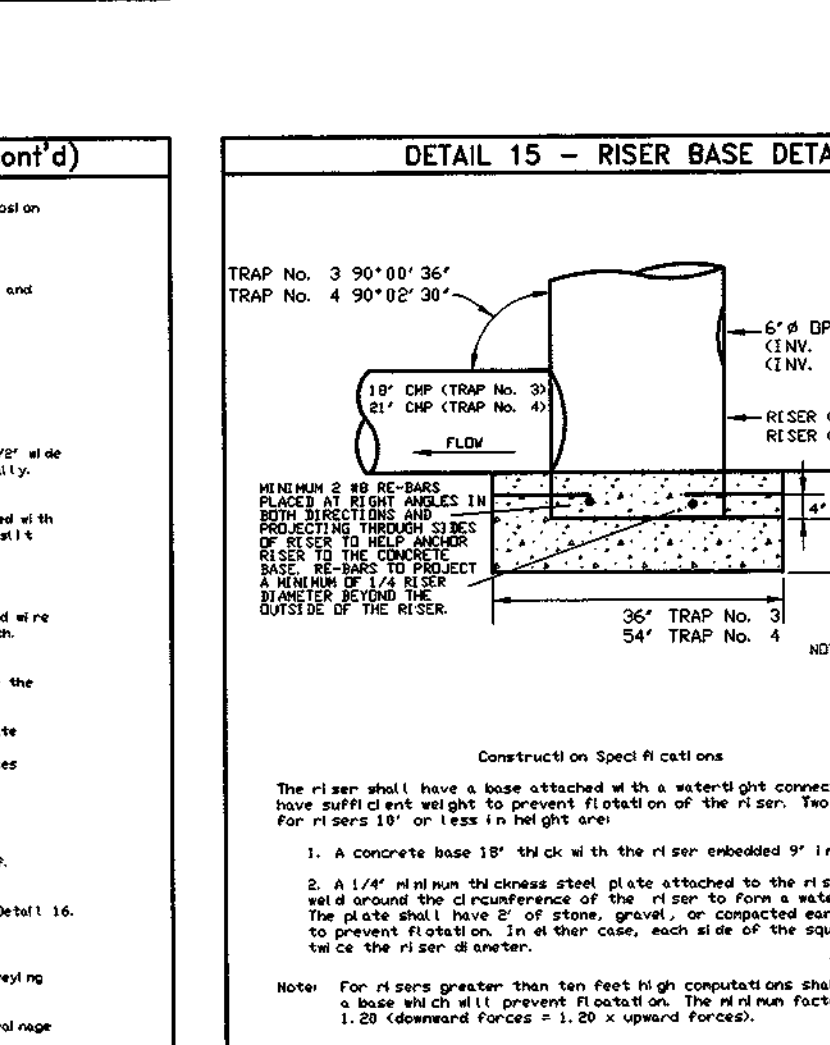
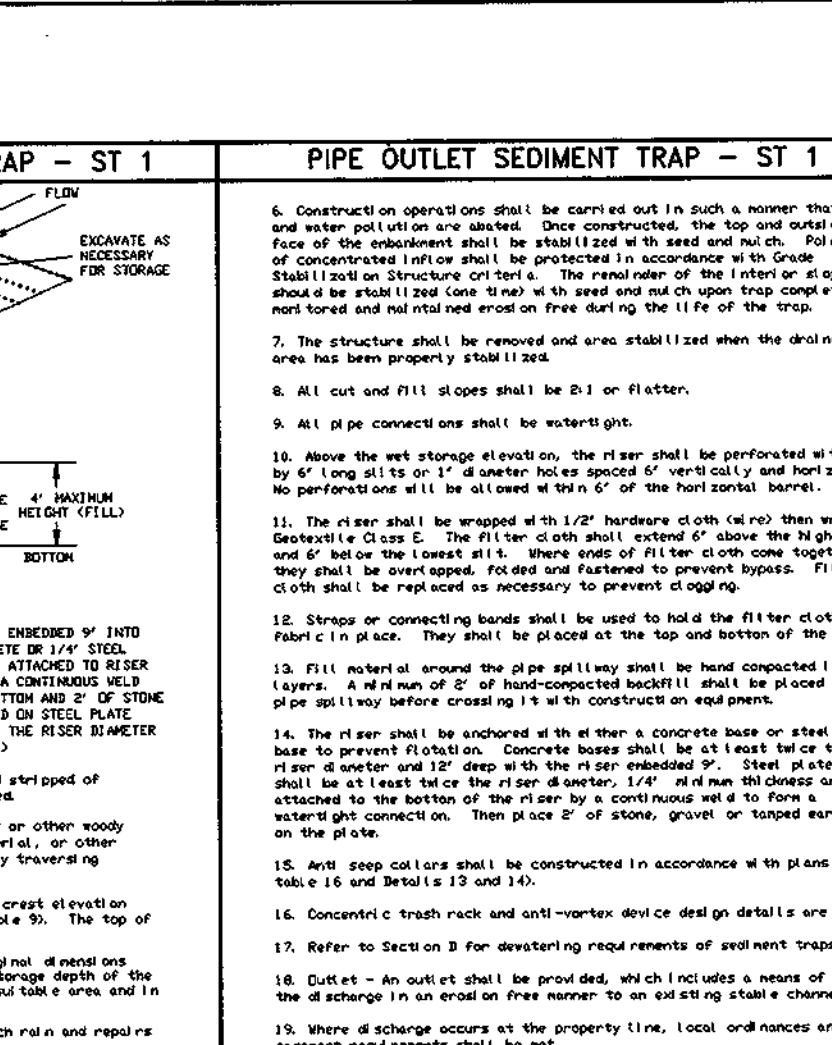
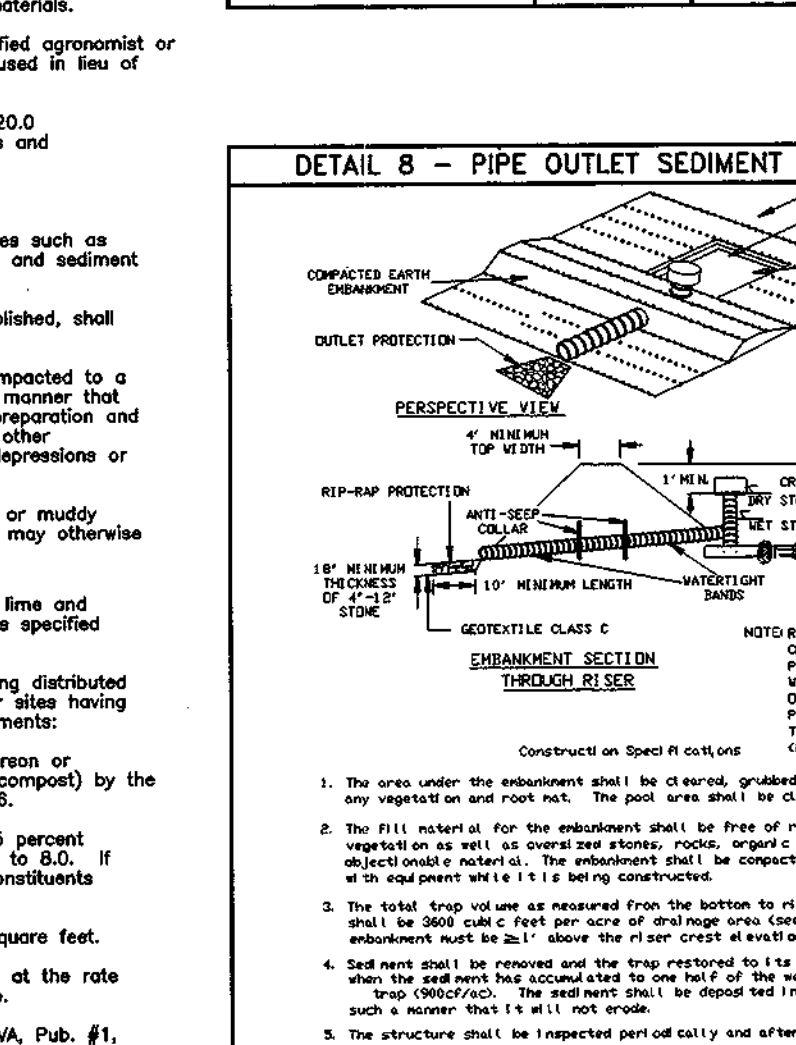
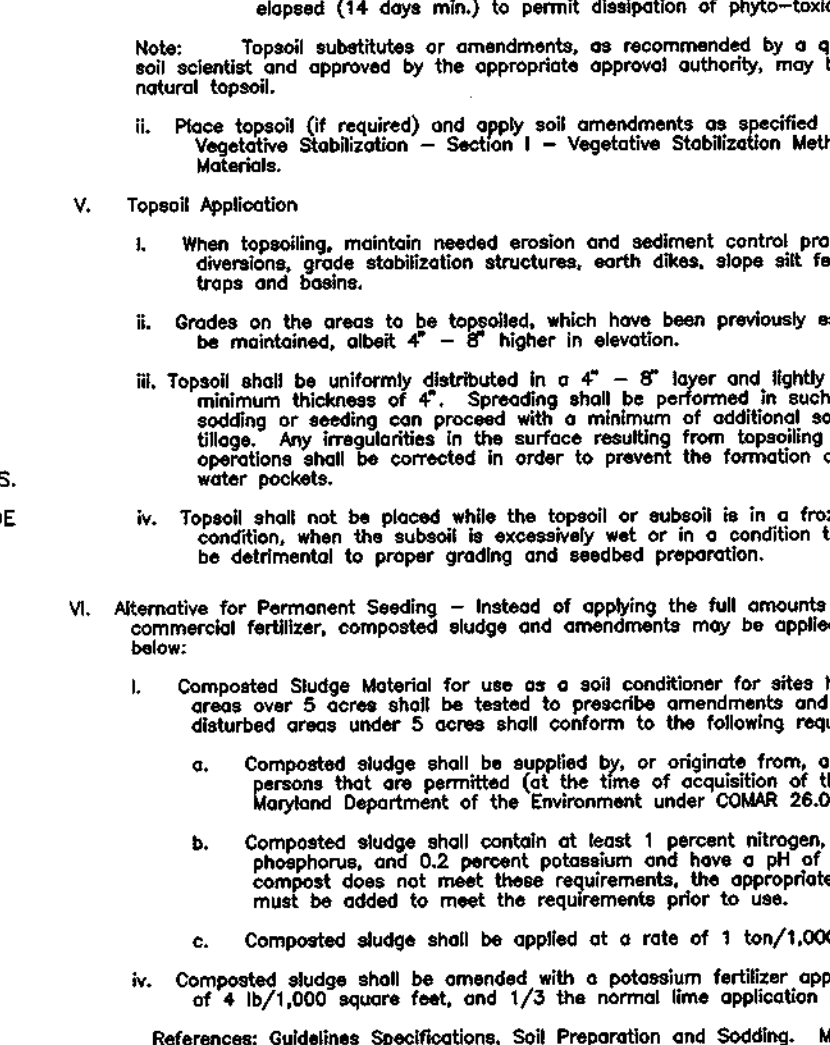
BY THE DEVELOPER: I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM...

BY THE ENGINEER: I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY DEPARTMENT OF ENVIRONMENT...



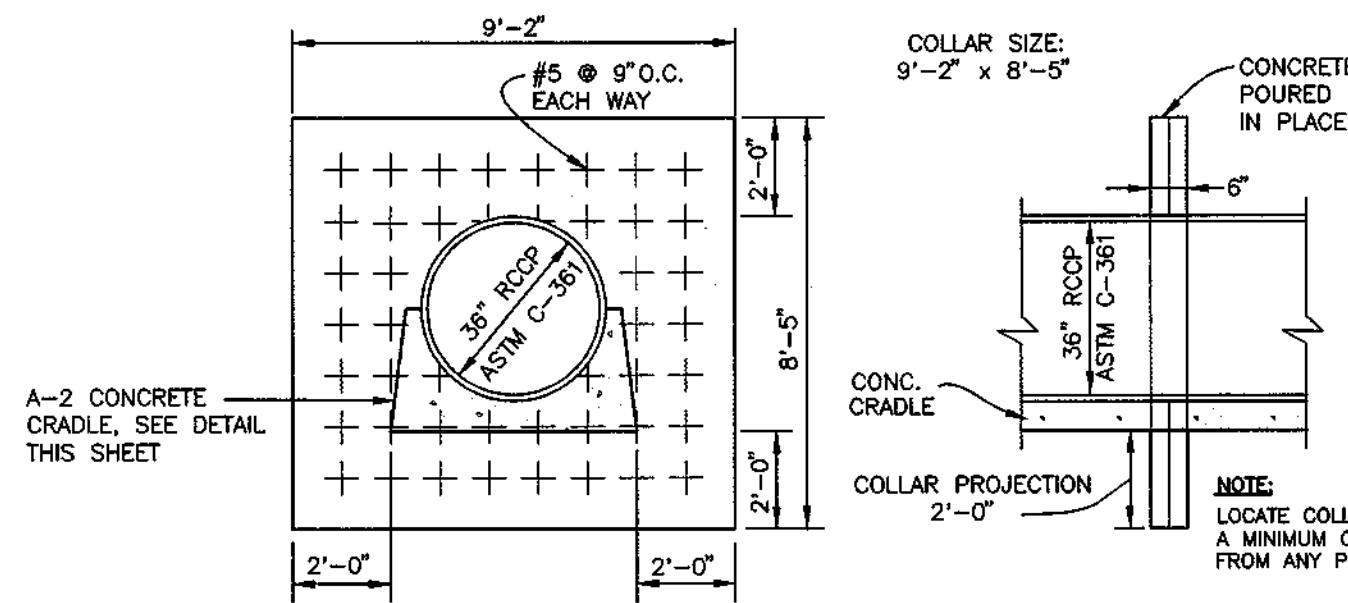
NO. DATE REVISION
8480 BALTIMORE NATIONAL PIKE - SUITE 418 - ELICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC.
PROJECT: A RESUBMISSION OF LOTS 1 THRU 165 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY...

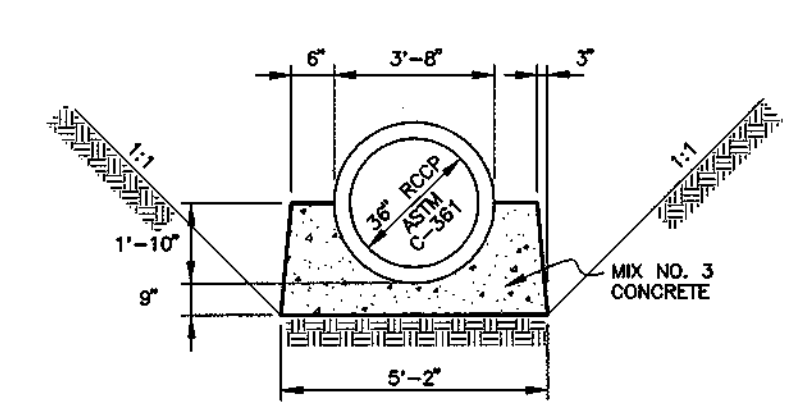


NO. DATE REVISION
8480 BALTIMORE NATIONAL PIKE - SUITE 418 - ELICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

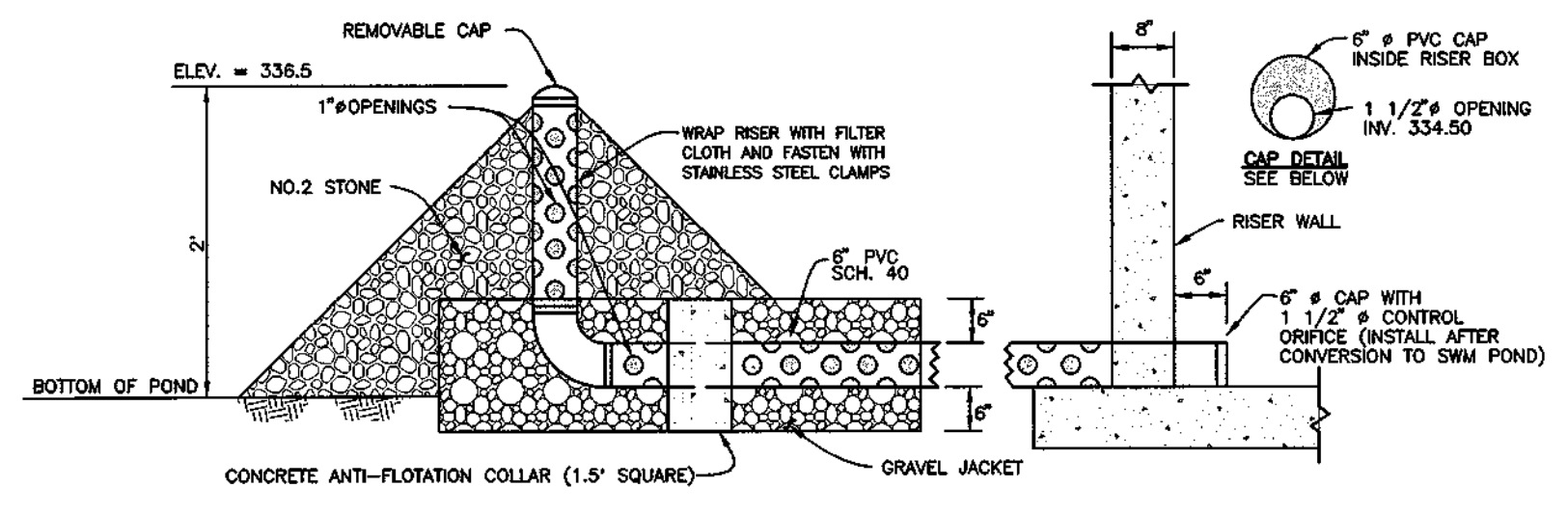
OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC.
PROJECT: A RESUBMISSION OF LOTS 1 THRU 165 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY...



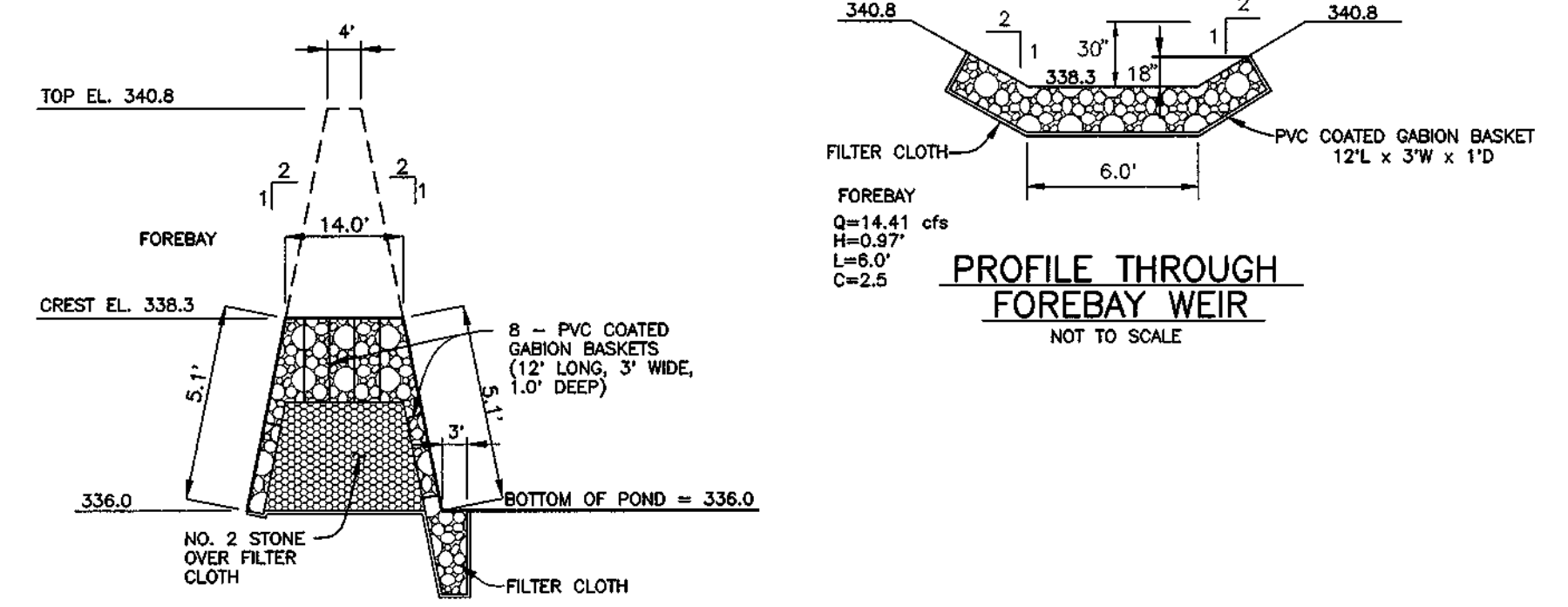
ANTI-SEEP COLLAR - POND #1  
NOT TO SCALE



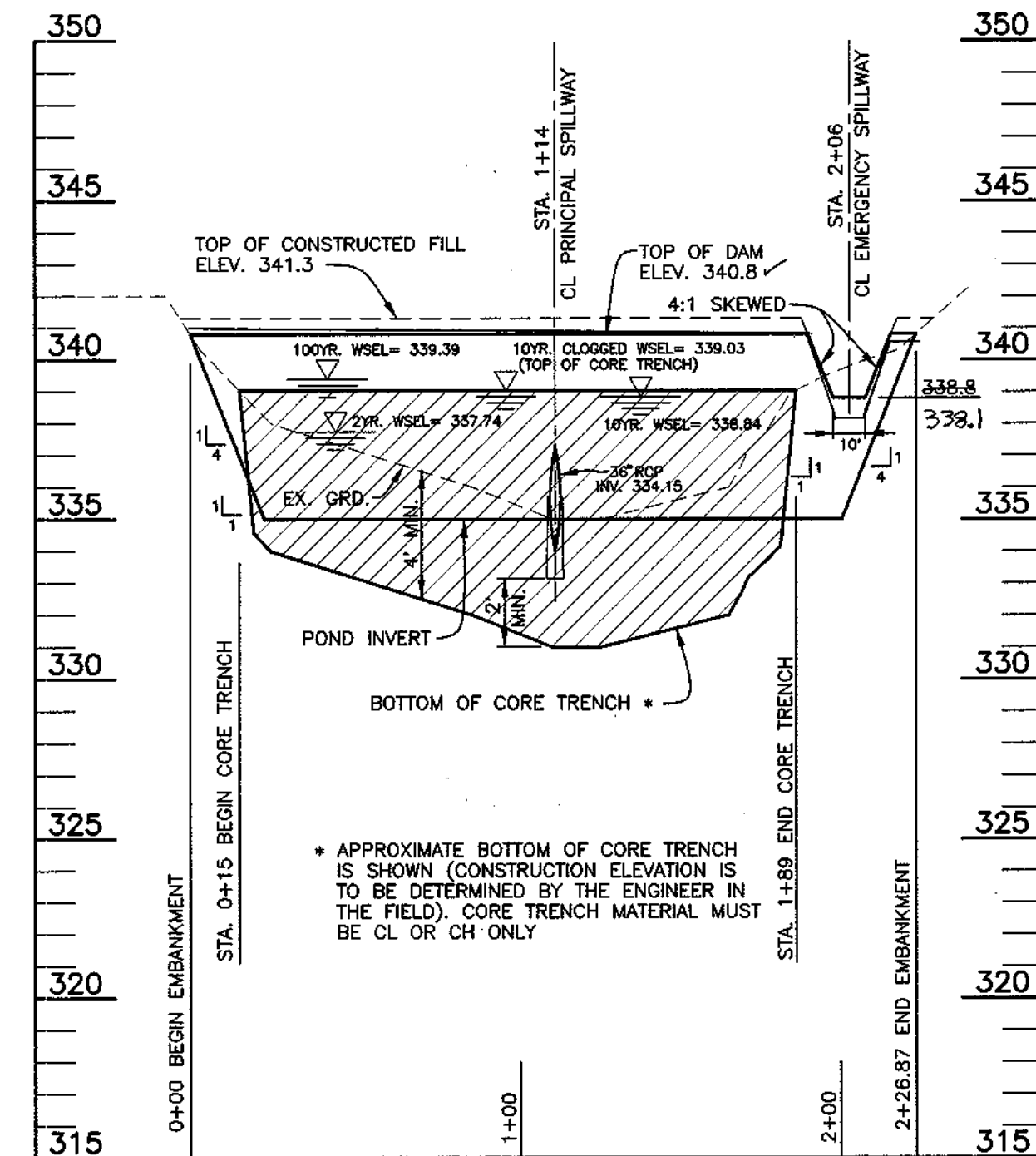
POND #1 TYPE A-2  
CONCRETE CRADLE  
NOT TO SCALE



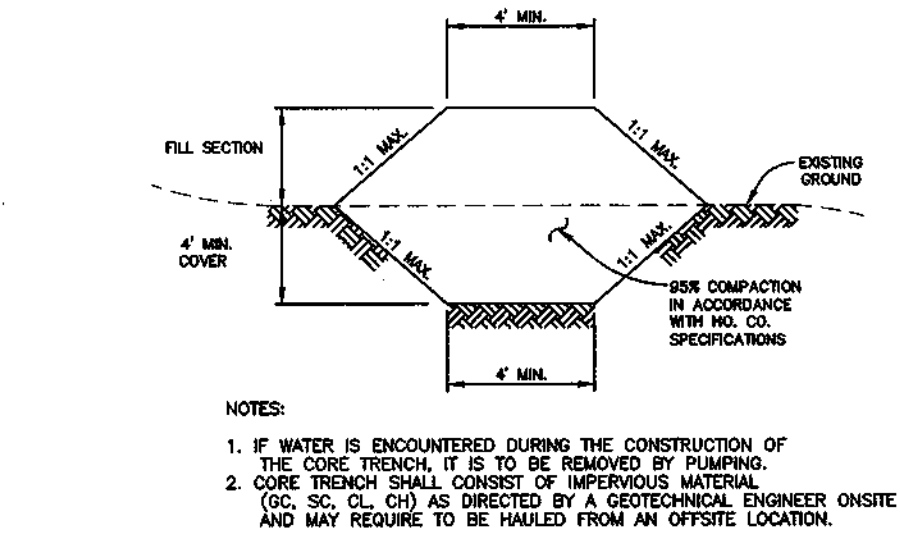
POND #1 6" DEWATERING PIPE DETAIL AND  
PERMANENT EXTENDED DETENTION CONTROL ORIFICE  
NOT TO SCALE



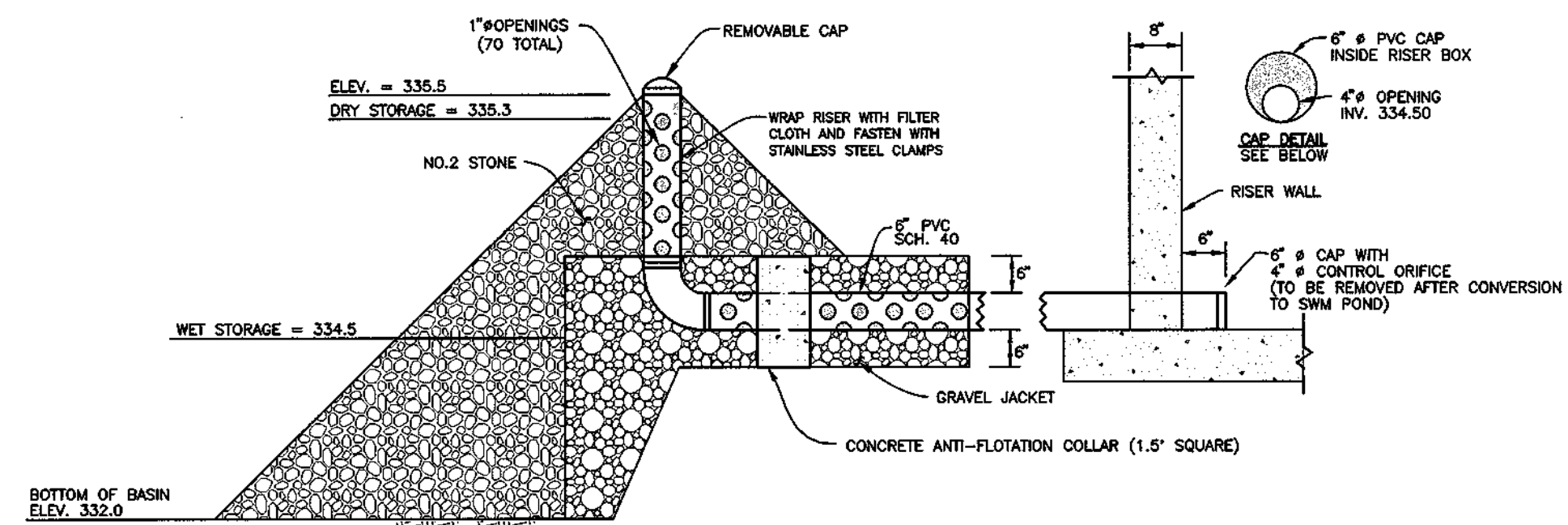
TYPICAL SECTION OF  
GABION WEIR AT FOREBAY  
SCALE: 1"=20' HORIZ., 1"=2' VERT.



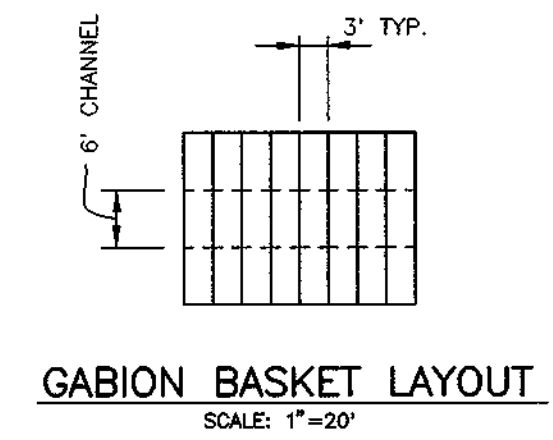
PROFILE ALONG CL OF EMBANKMENT  
SECTION A-A POND #1  
SCALE: 1"=50' HORIZ., 1"=5' VERT.



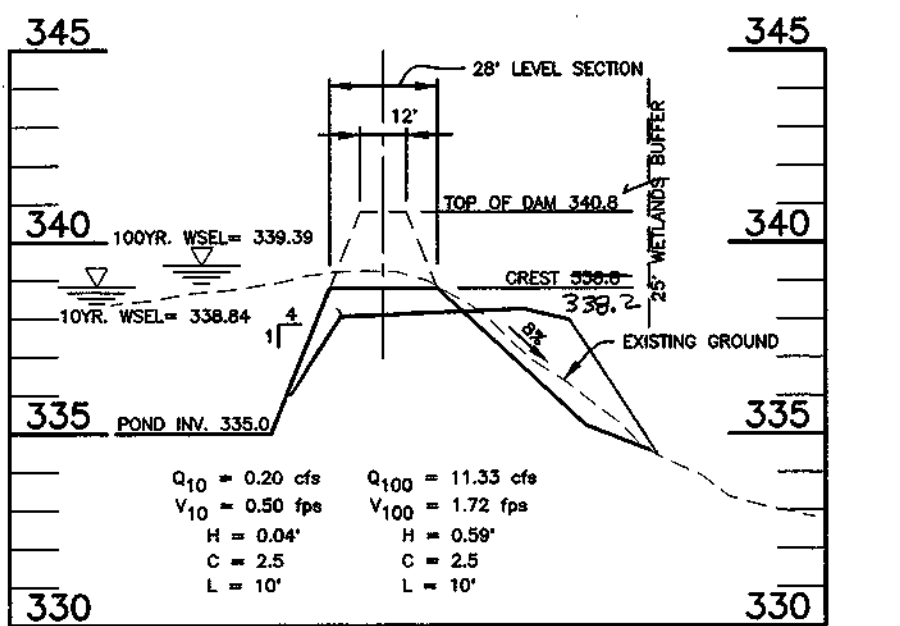
CORE TRENCH SECTION  
NOT TO SCALE



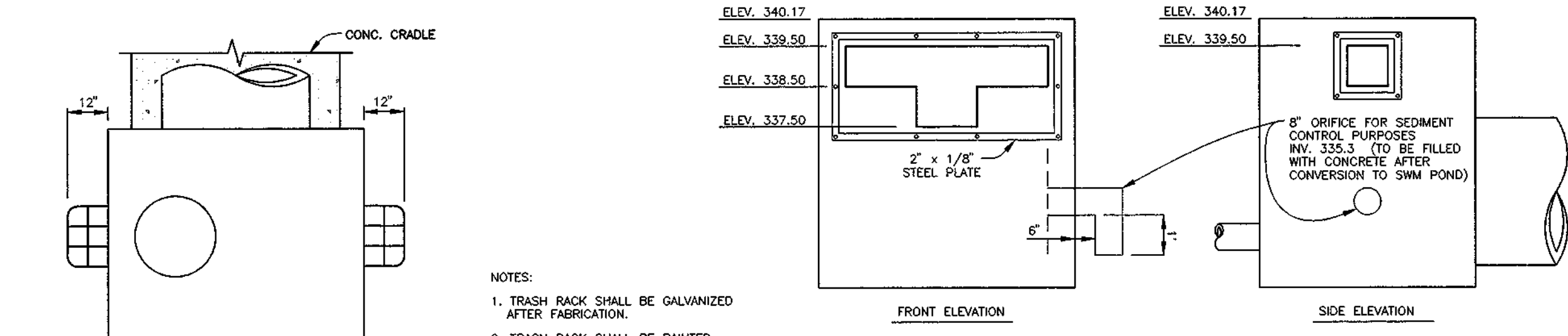
POND #1 6" TEMPORARY SWM  
VERTICAL DRAW-DOWN DEVICE  
NOT TO SCALE



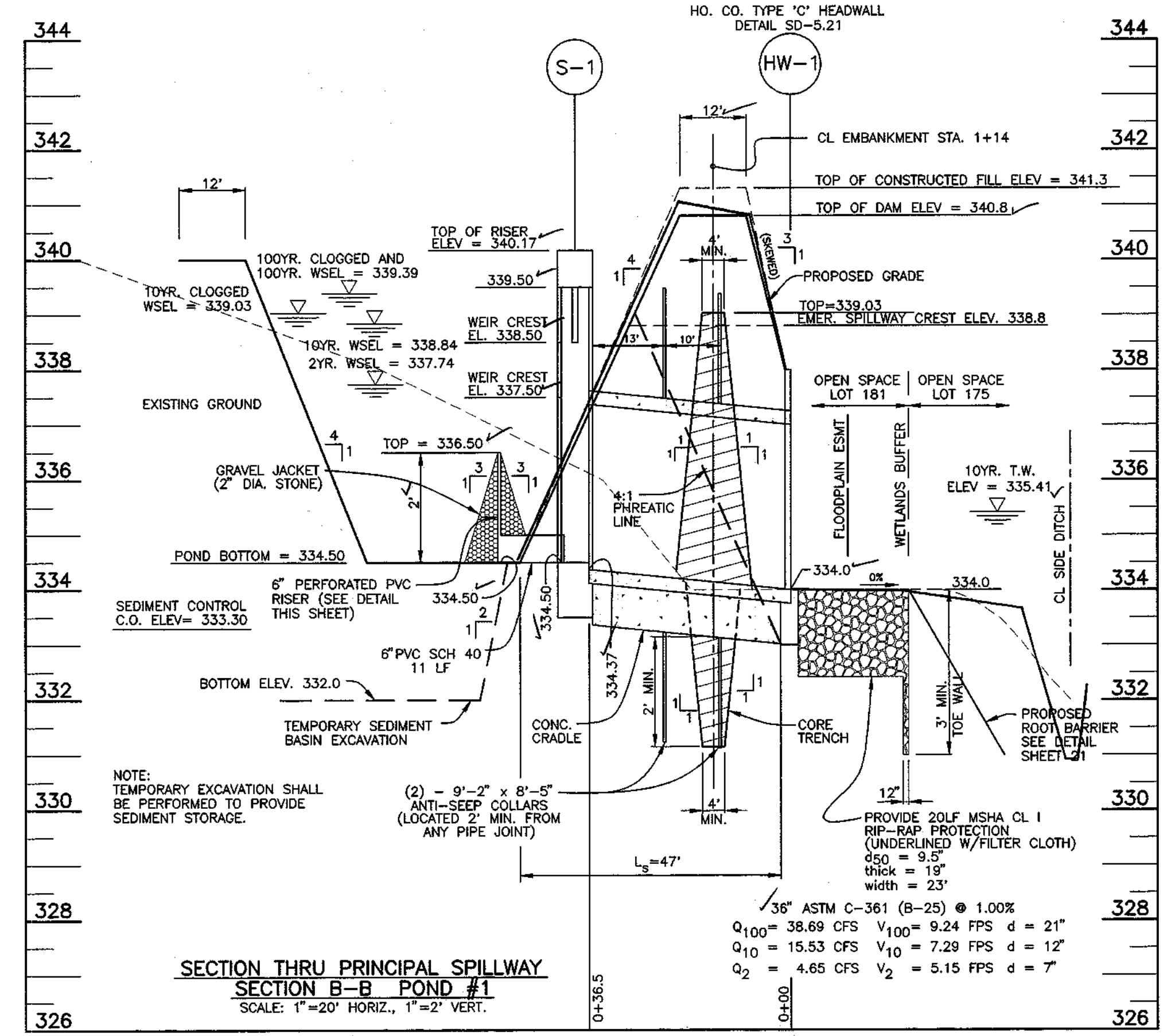
GABION BASKET LAYOUT  
SCALE: 1"=20'



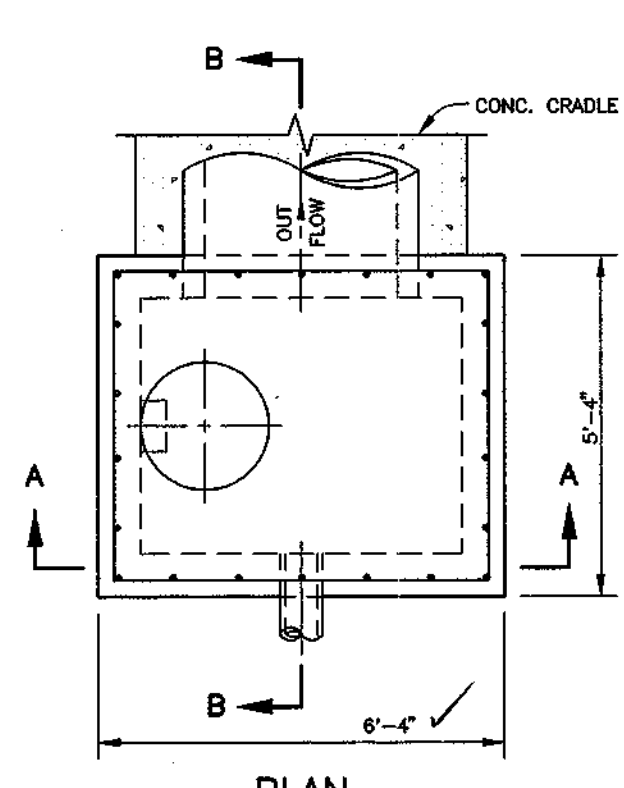
EMERGENCY SPILLWAY PROFILE  
SECTION C-C POND #1  
SCALE: 1"=50' HORIZ., 1"=5' VERT.



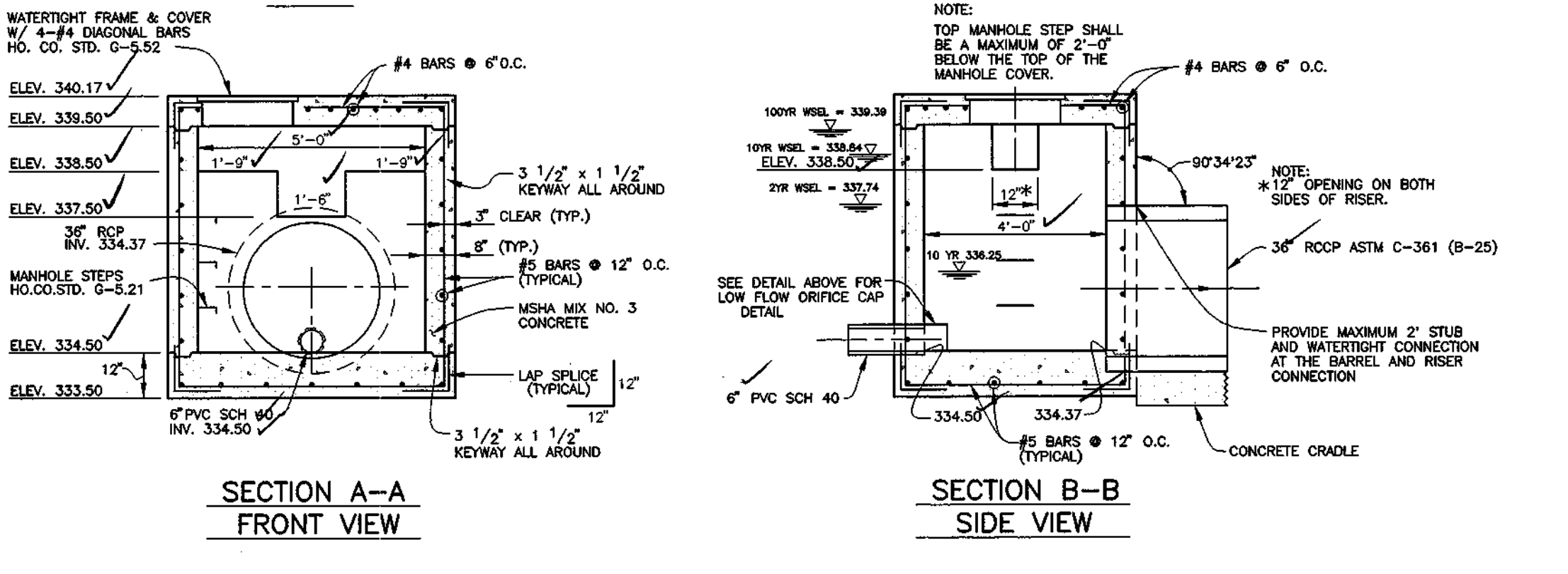
TEMP. RISER DETAIL FOR  
POND #1 TEMPORARY SWM  
DURING CONSTRUCTION  
SCALE: 1"=3'



SECTION THRU PRINCIPAL SPILLWAY  
SECTION B-B POND #1  
SCALE: 1"=20' HORIZ., 1"=2' VERT.



TRASH RACK - POND #1  
SCALE: 1"=3'



CONTROL STRUCTURE - POND #1  
SCALE: 1"=3'

AS-BUILT CERTIFICATION	
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.	
<i>Donald Mason</i> DONALD A. MASON	PE NO. 21443 DATE 2/13/03
CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.	
BY THE DEVELOPER:	
*I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.	
<i>Keith Hunt</i> DEVELOPER VICE PRESIDENT	DATE 3-22-99
BY THE ENGINEER:	
*I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.	
<i>Donald Mason</i> ENGINEER - DONALD A. MASON, P.E. # 21443	DATE 2/17/99
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.	
<i>Cheyl Simmons</i> NATURAL RESOURCES CONSERVATION SERVICE	DATE 3/1/99
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.	
<i>Robert W. Jahn</i> HOWARD SOIL CONSERVATION DISTRICT	DATE 3/1/99
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
<i>Richard M. Donaker</i> CHIEF, BUREAU OF HIGHWAYS	DATE 3-8-99
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
<i>Cindy Hamilton</i> CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 3/1/99
<i>Chris Danner</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 3/15/99

NO.	DATE	REVISION
2-8-03		REVISED FOR AS-BUILT CONDITIONS

**BENCHMARK ENGINEERING, INC.**

ENGINEERS • LAND SURVEYORS • PLANNERS

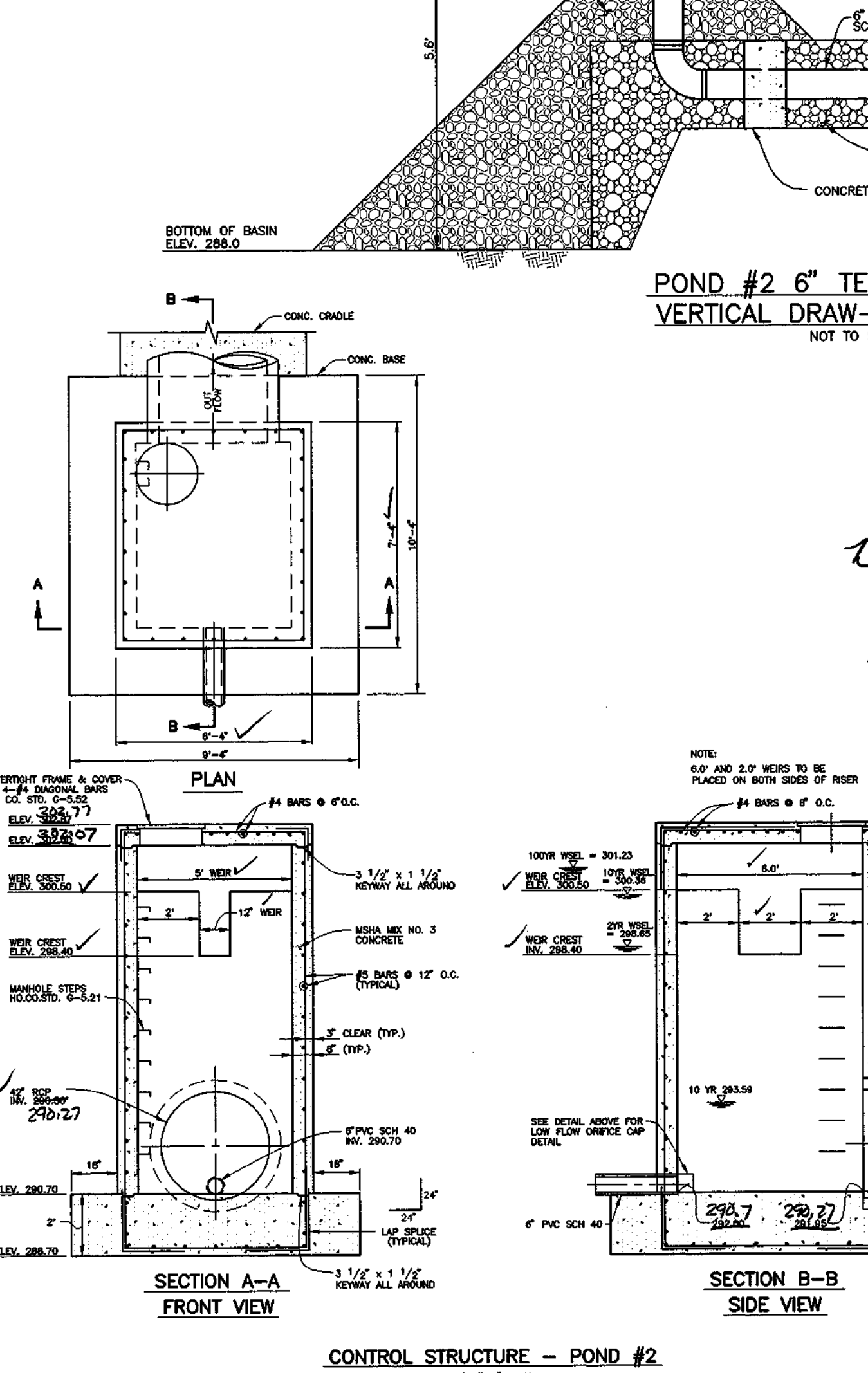
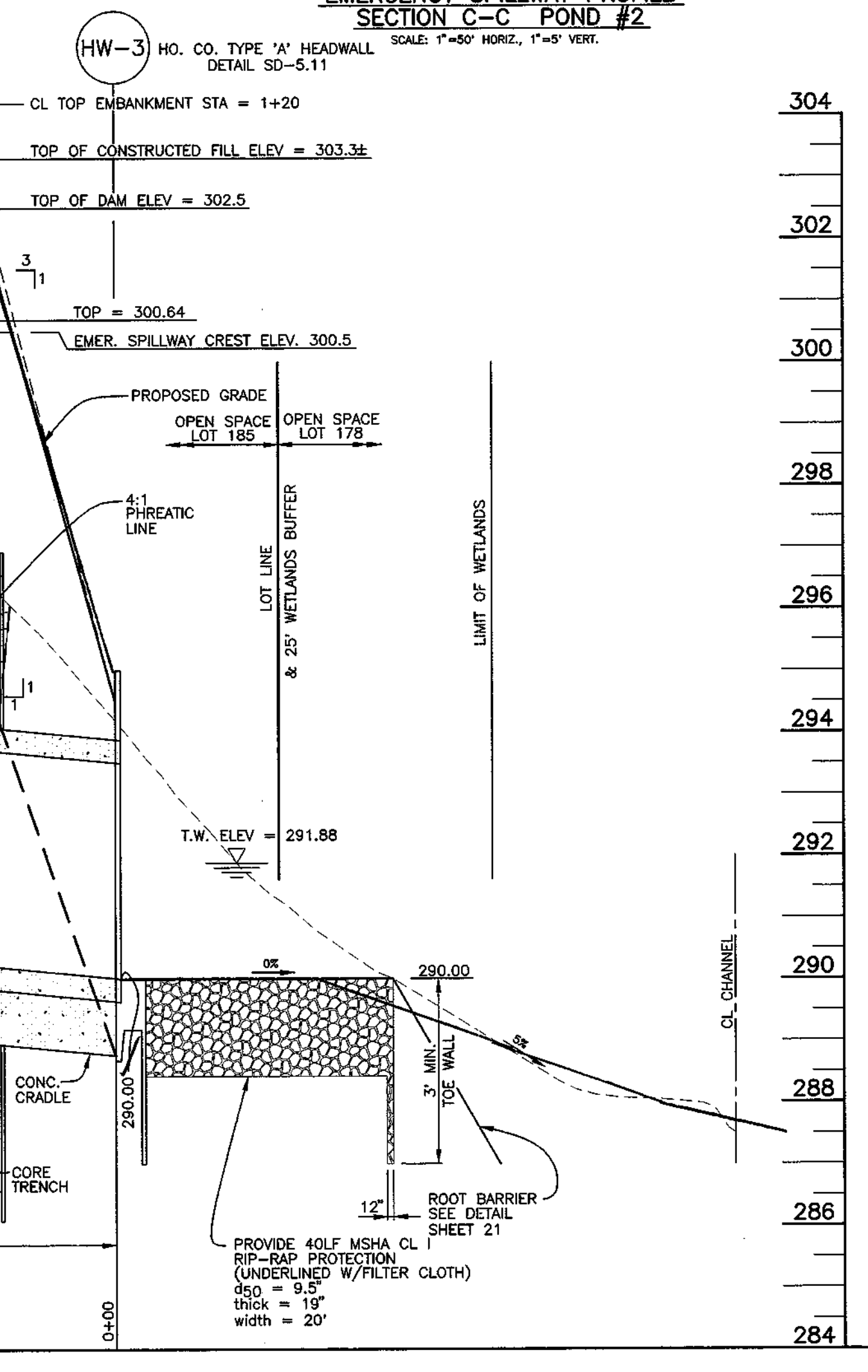
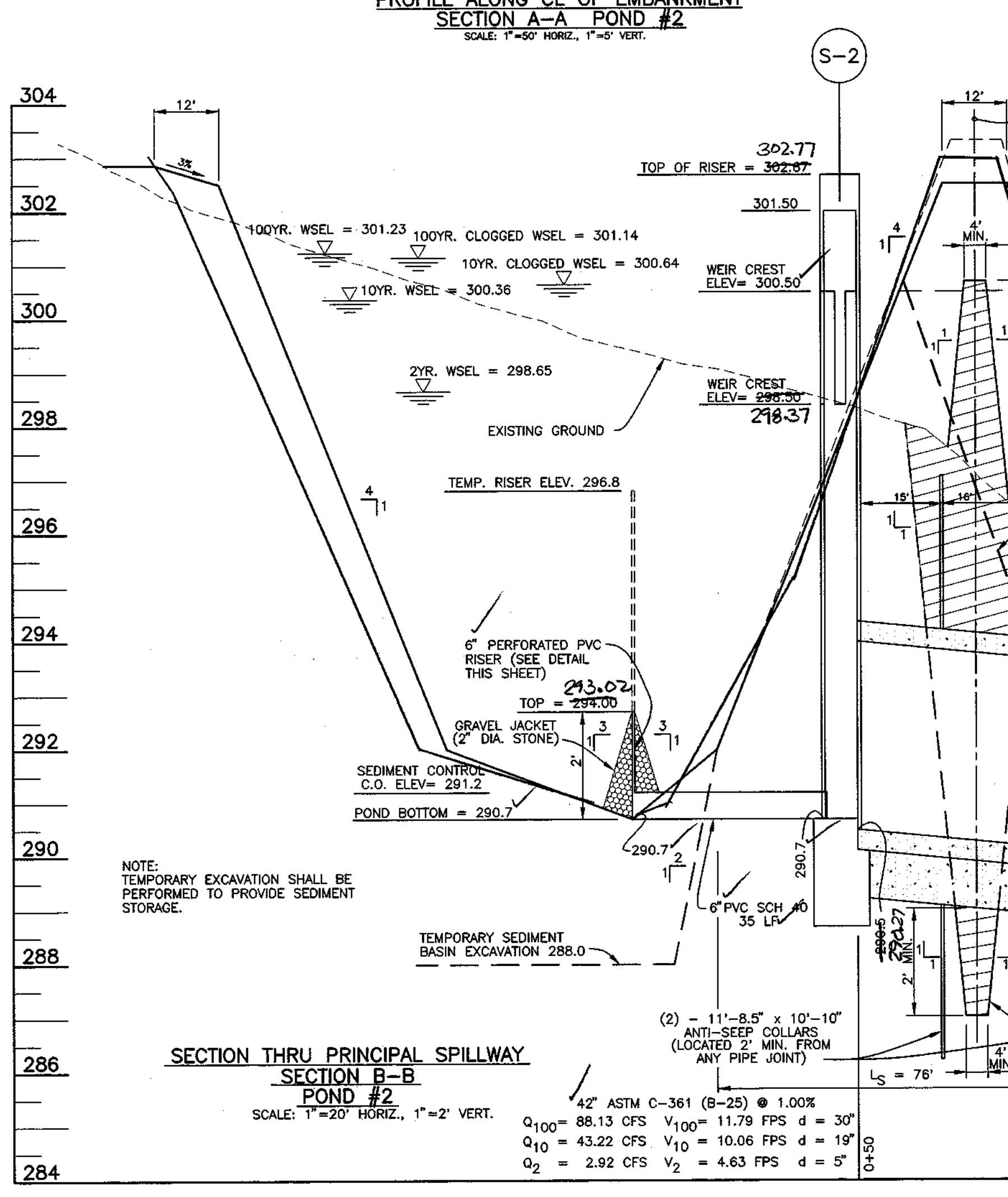
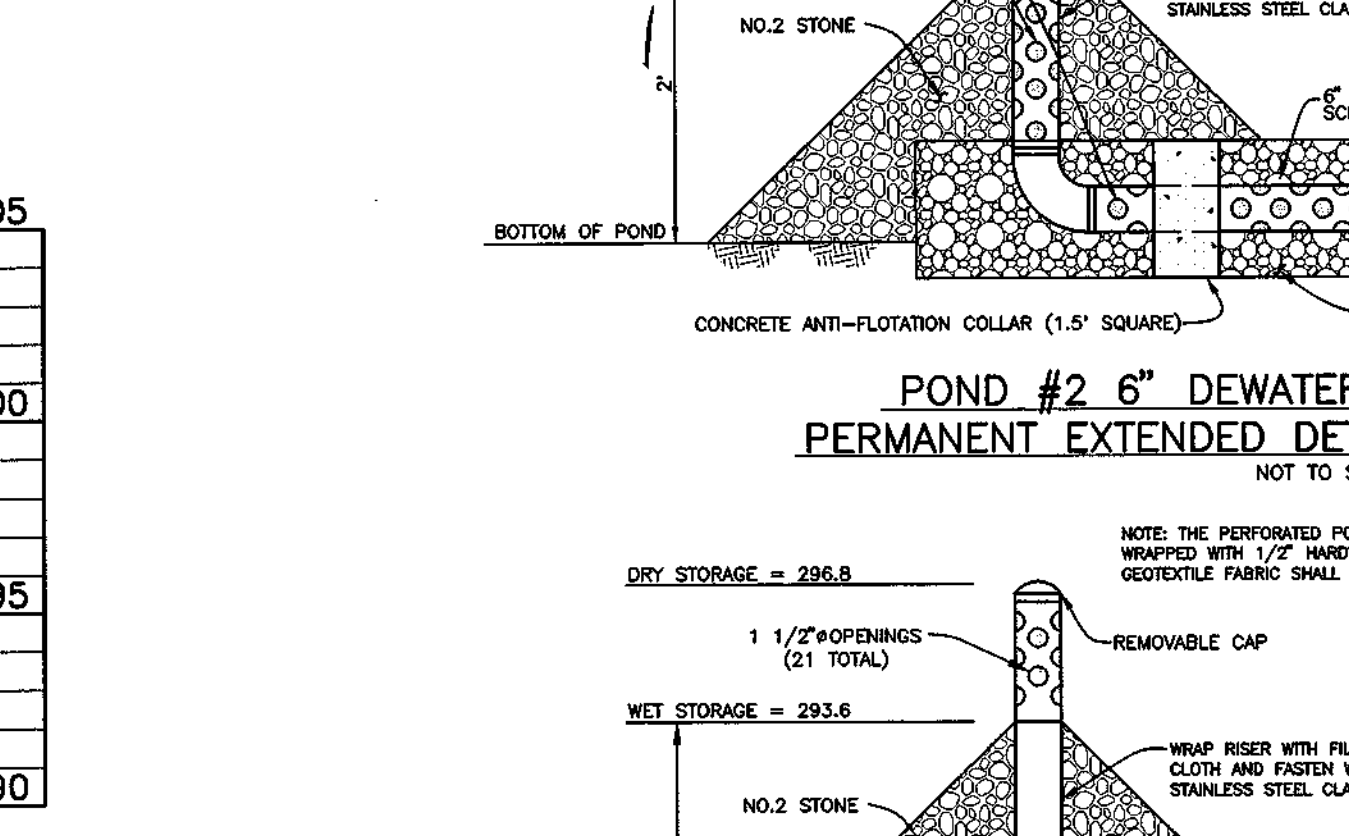
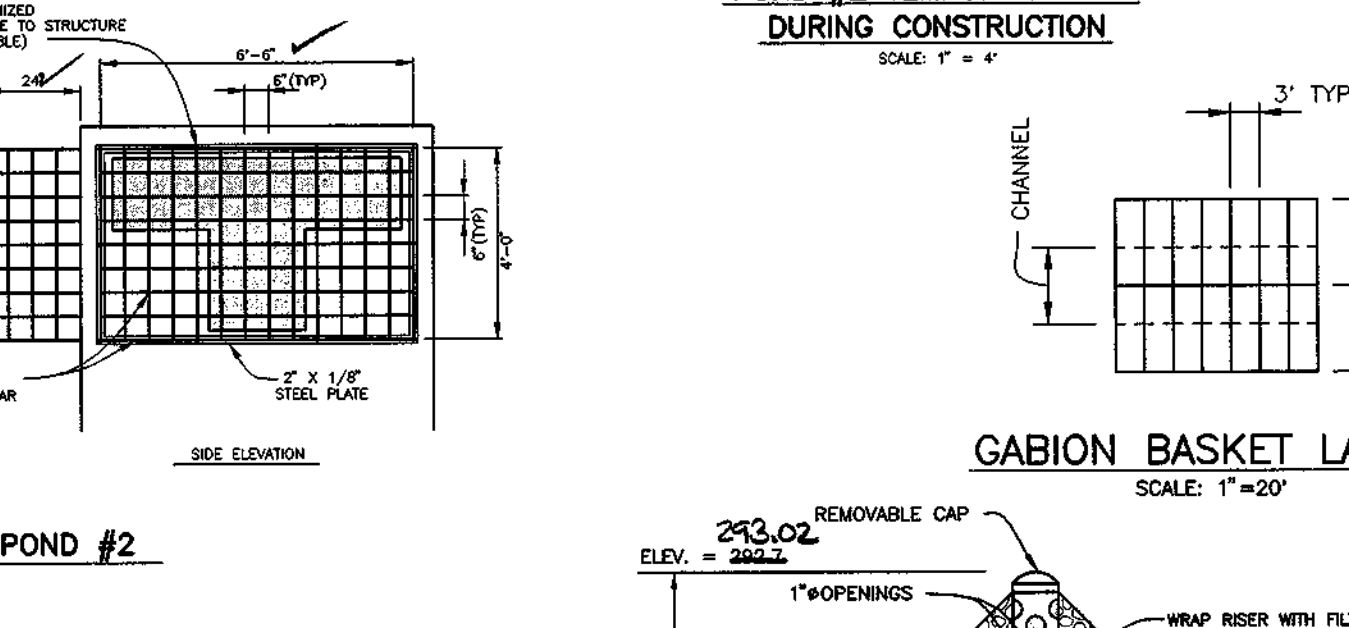
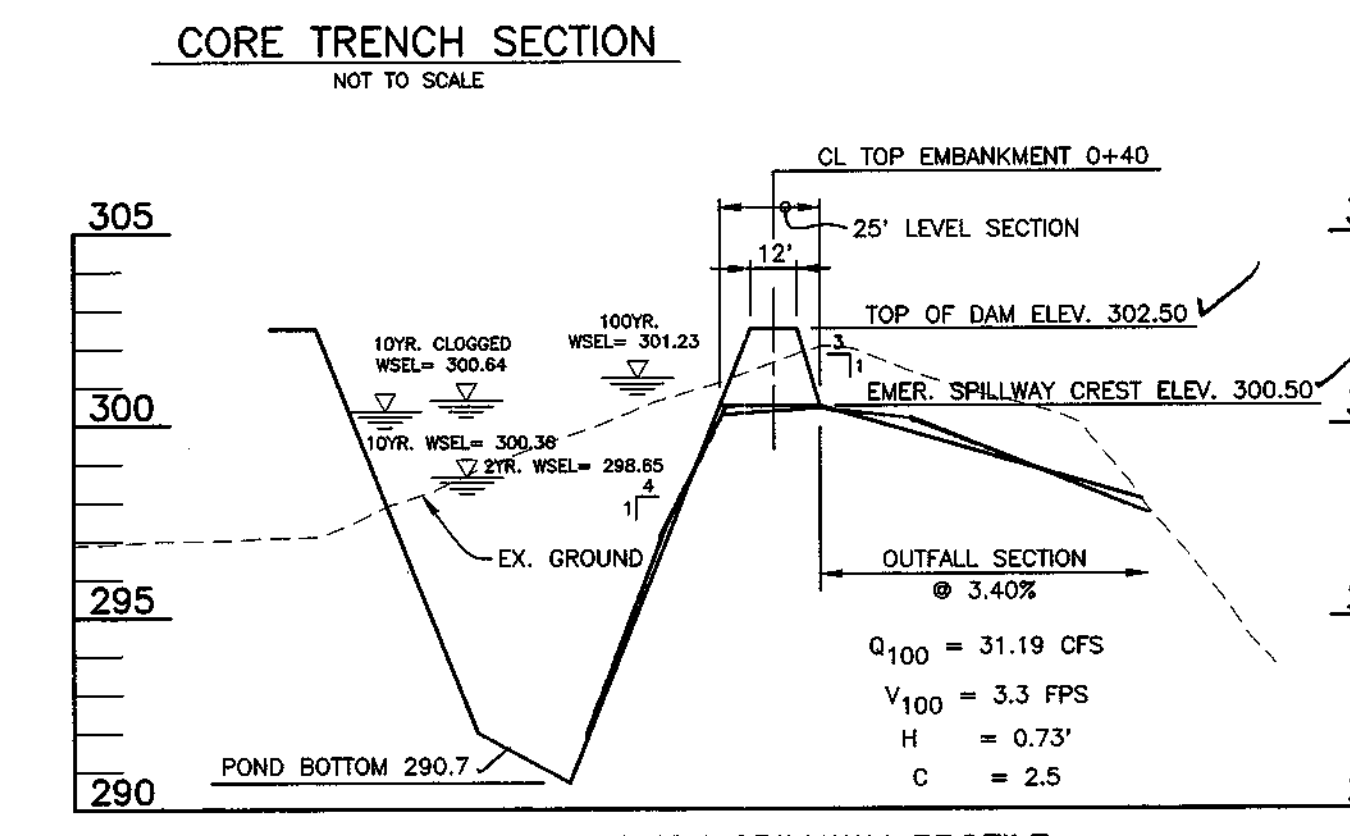
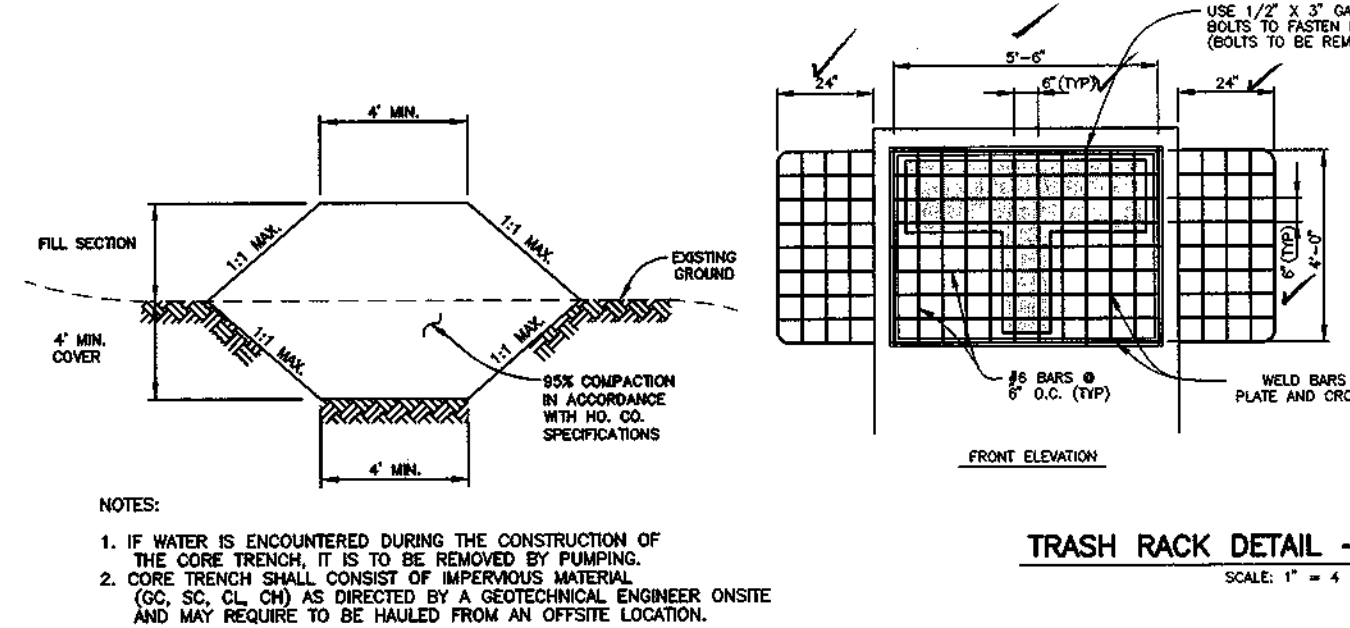
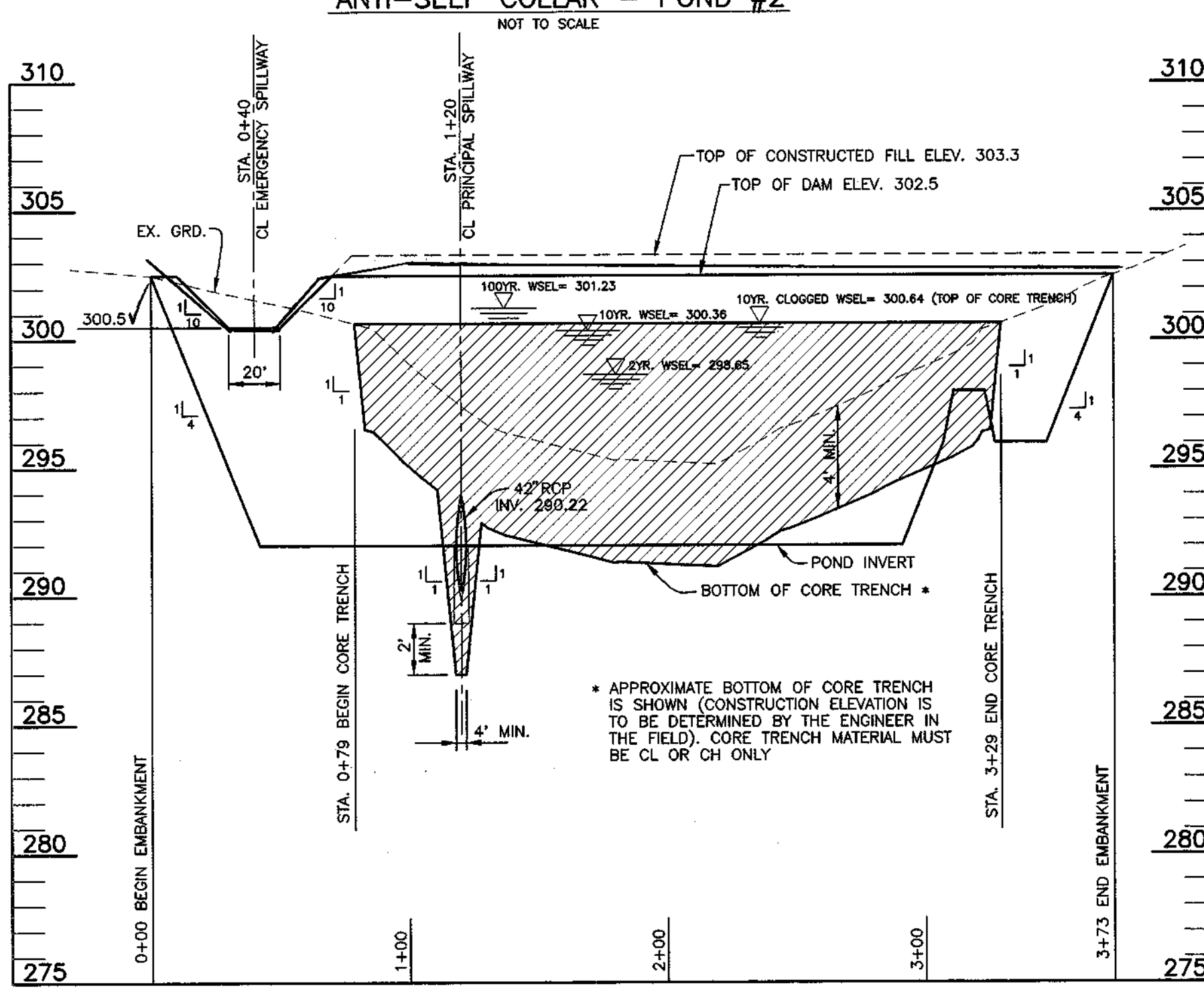
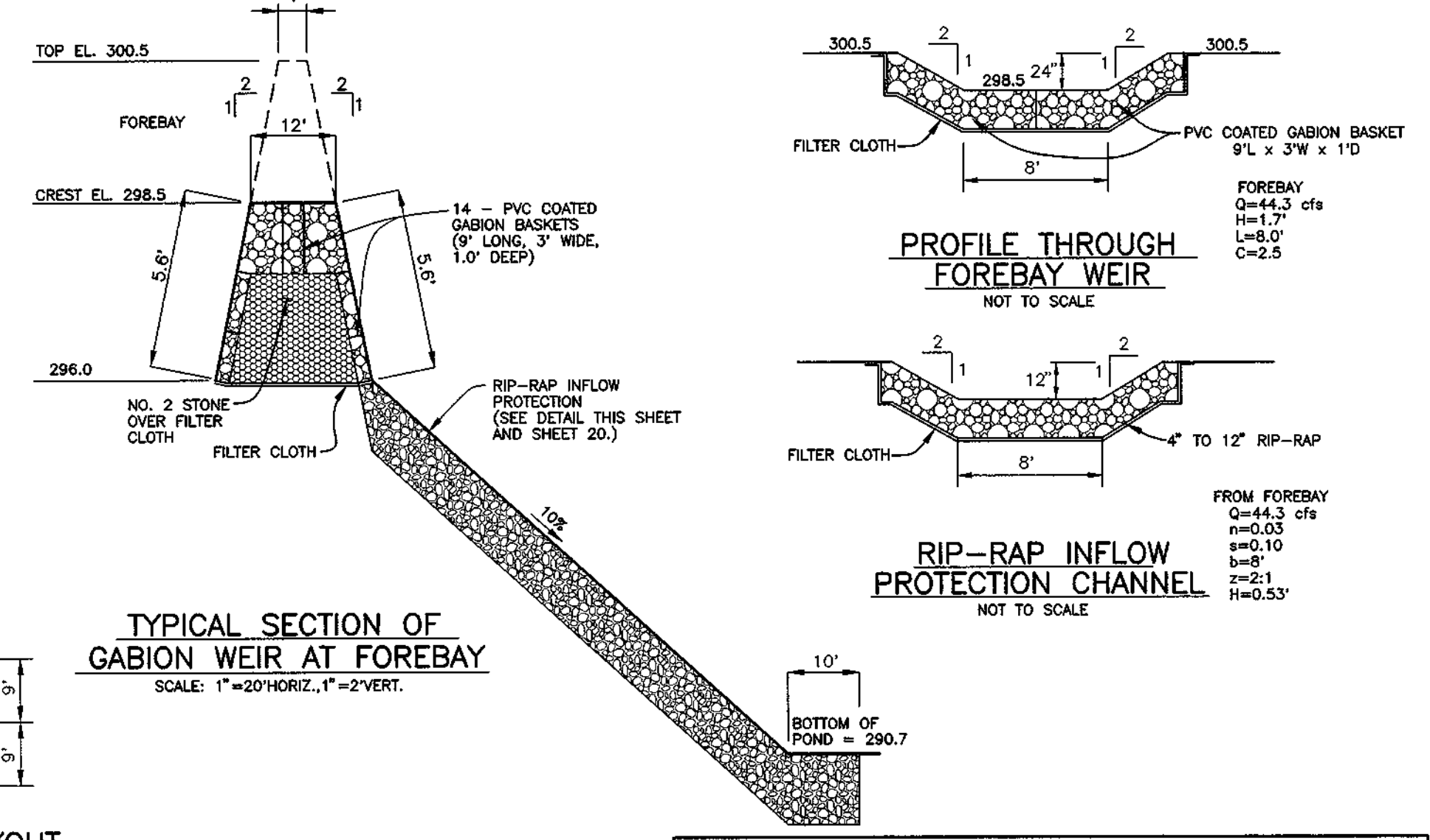
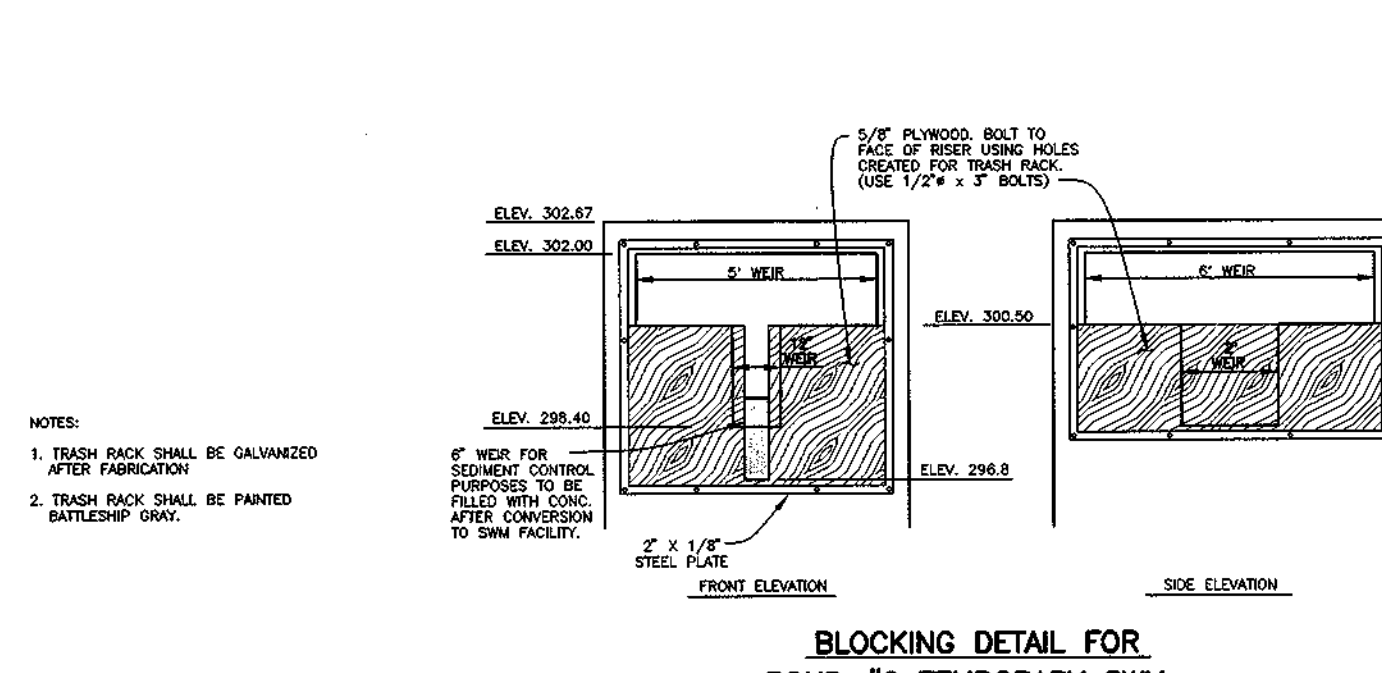
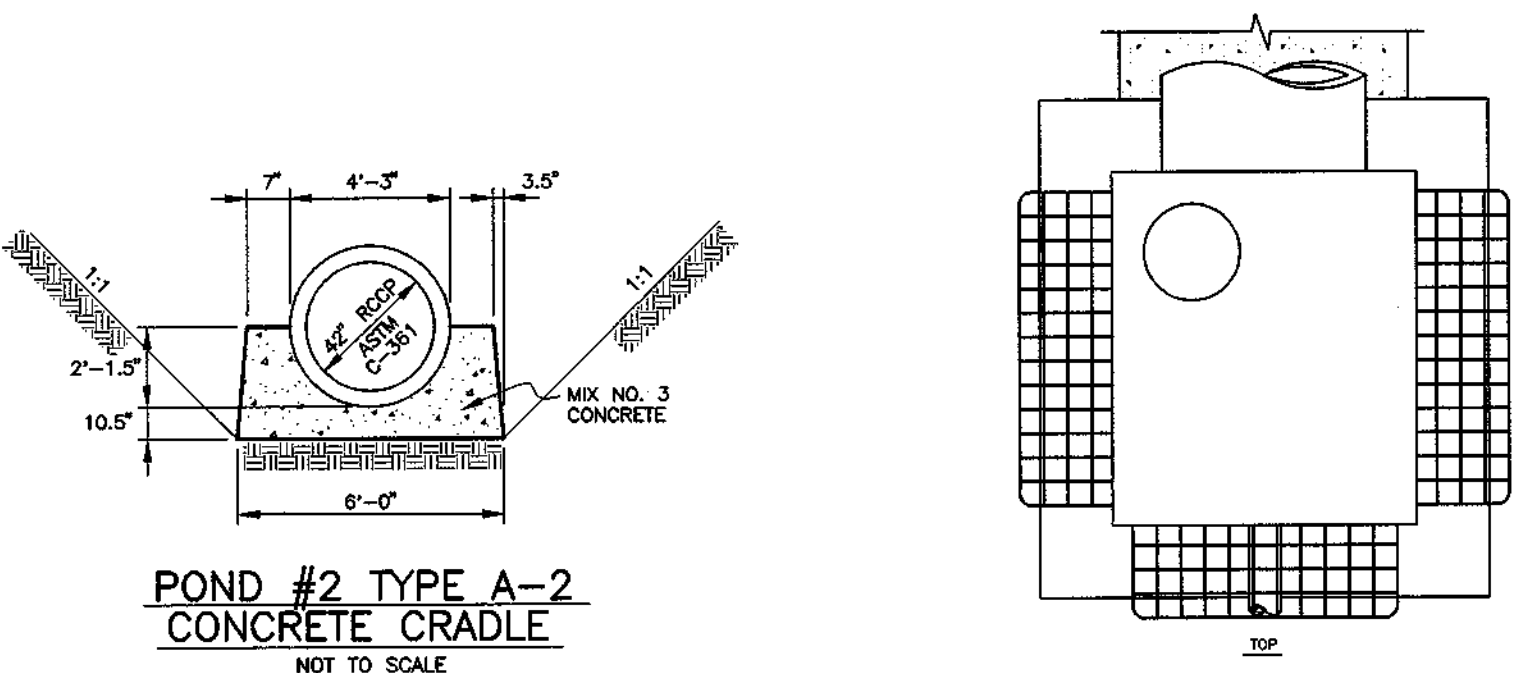
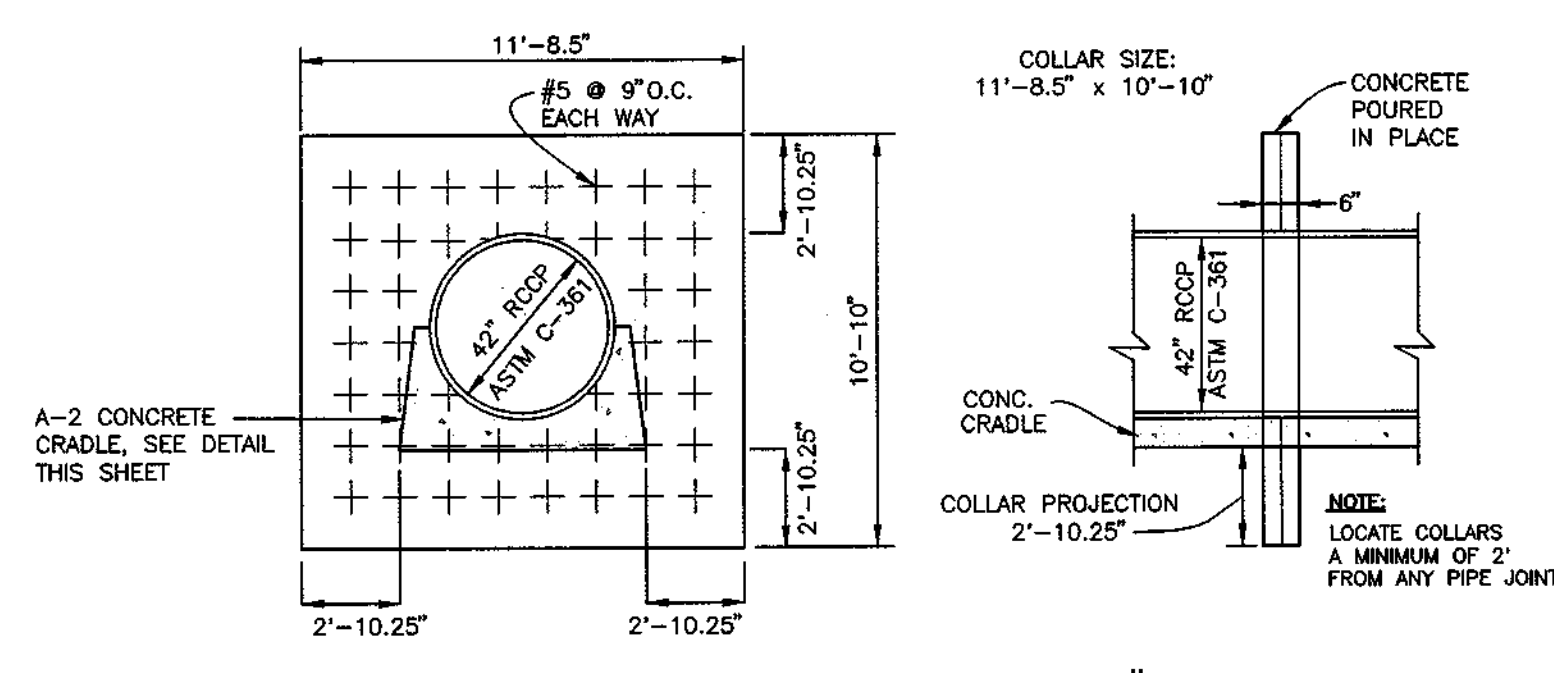
8490 BALTIMORE NATIONAL PIKE • SUITE 418 • ELICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

OWNER/DEVELOPER:	PROJECT:
WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	<b>GROVEMONT</b> LOTS 1 THRU 185 A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTER OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NOS. 13493-13495
LOCATION:	TITLE:
TAX MAP 31 - P/O PARCEL 232 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND	<b>STORMWATER MANAGEMENT DETAILS POND #1</b>
DATE:	SCALE:
JULY, 1998 FEBRUARY, 1999	AS SHOWN
PROJECT NO. 0793	SHEET 22 OF 32



AS-BUILTS 2-8-03





**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

*Donald A. Mason* PE No. 21443 DATE 2/18/03

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

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

*Kat Keast* DEVELOPER/RESIDENT DATE 2-22-99

BY THE ENGINEER:

\*I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE 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.

*Donald A. Mason* ENGINEER - DONALD A. MASON, P.E. # 21443 DATE 2/17/99

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.

*Paul Simmons* NATURAL RESOURCES CONSERVATION SERVICE DATE 3/1/99

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

*Robert W. Zimm* HOWARD SOIL CONSERVATION DISTRICT DATE 3/1/99

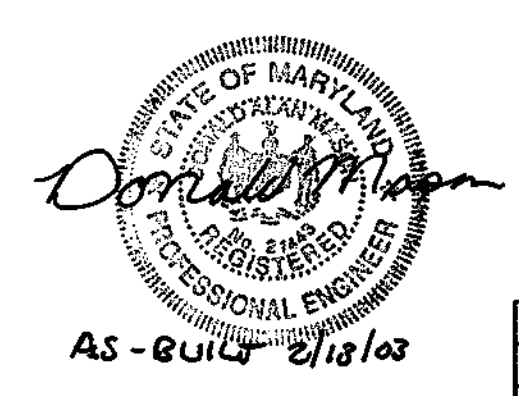
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*Andrew M. Donahoe* CHIEF, BUREAU OF HIGHWAYS DATE 3-8-99

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Charles Hentz* CHIEF, DIVISION OF LAND DEVELOPMENT DATE 3/19/99

*Chris Dammer* CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 3/15/99



2-8-03 REVISED PER AS-BUILT CONDITIONS

**BENCHMARK ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202

PROJECT: GROVEMONT A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NO. 13493-13495

LOCATION: TAX MAP 31 - P/O PARCEL 232 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

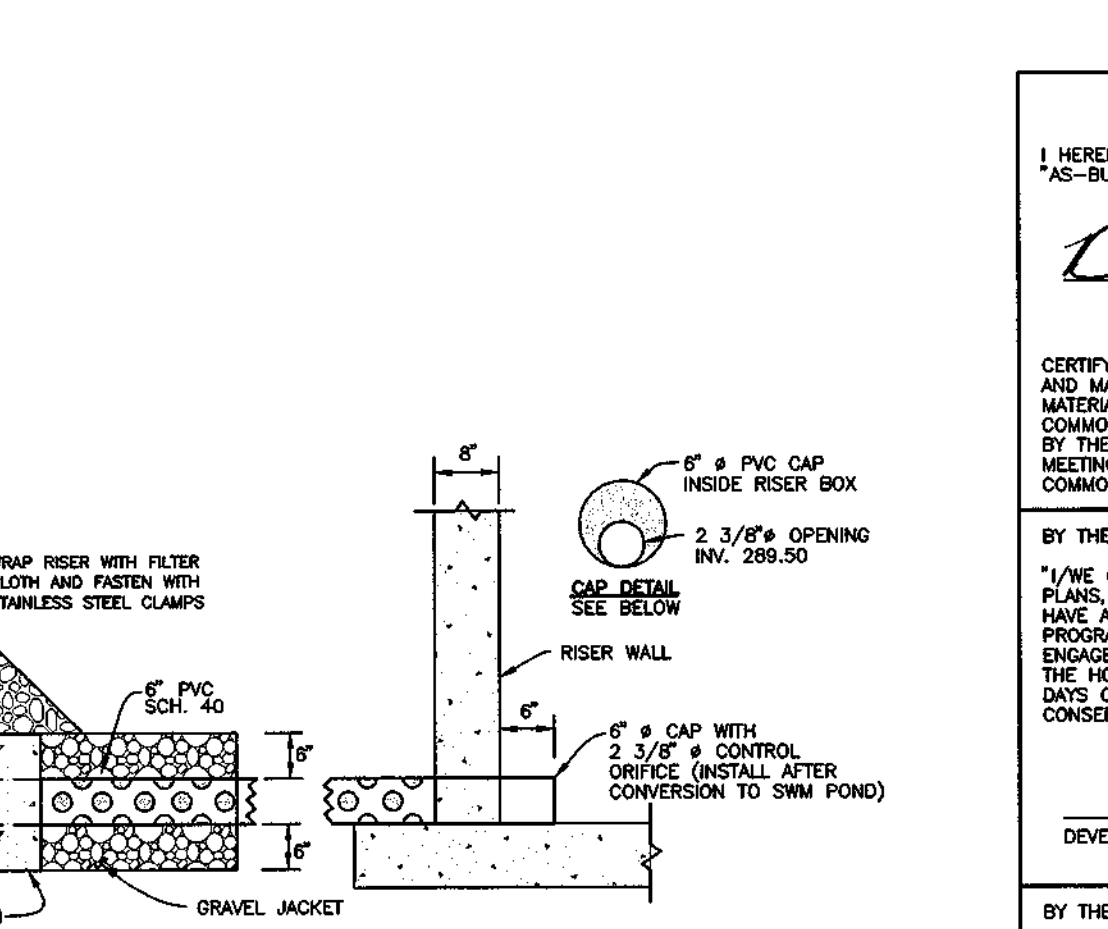
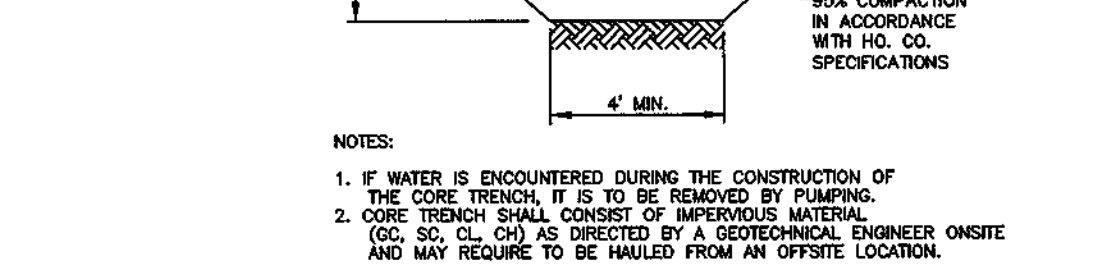
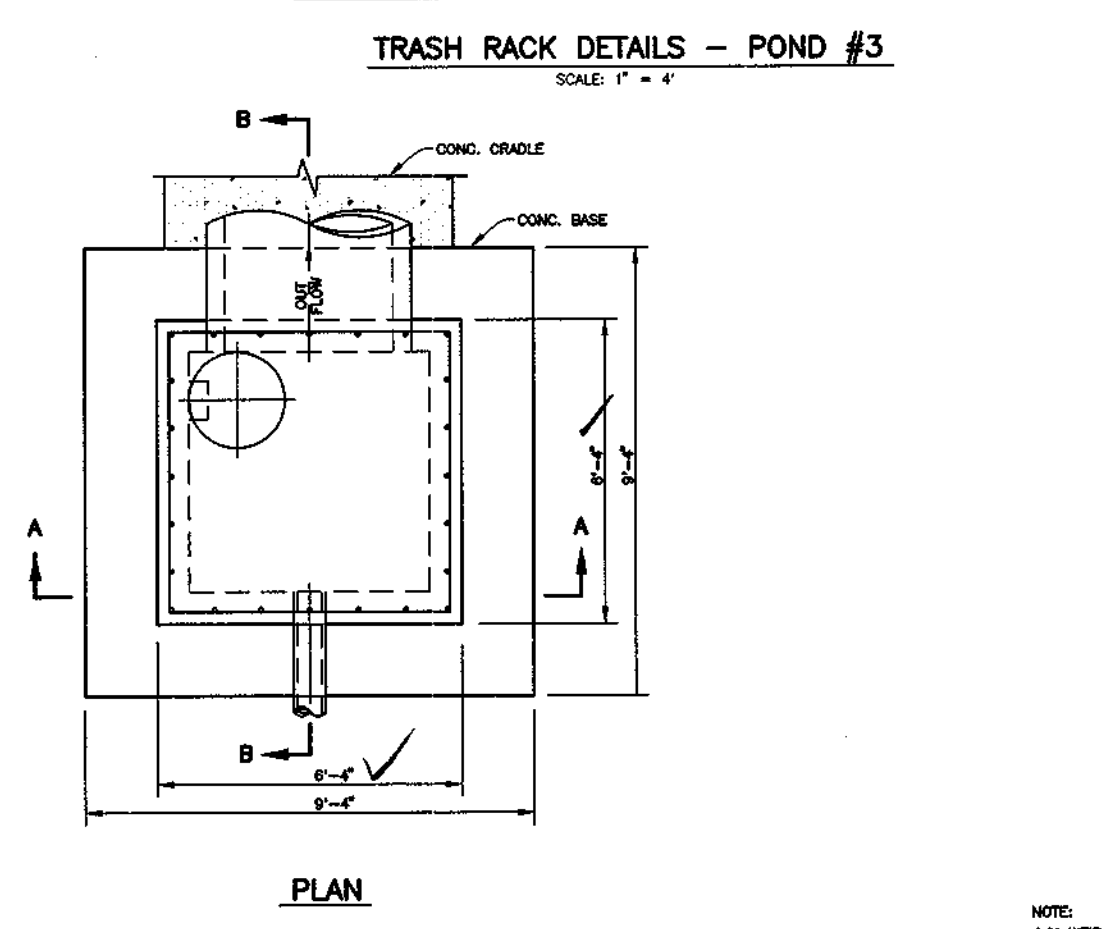
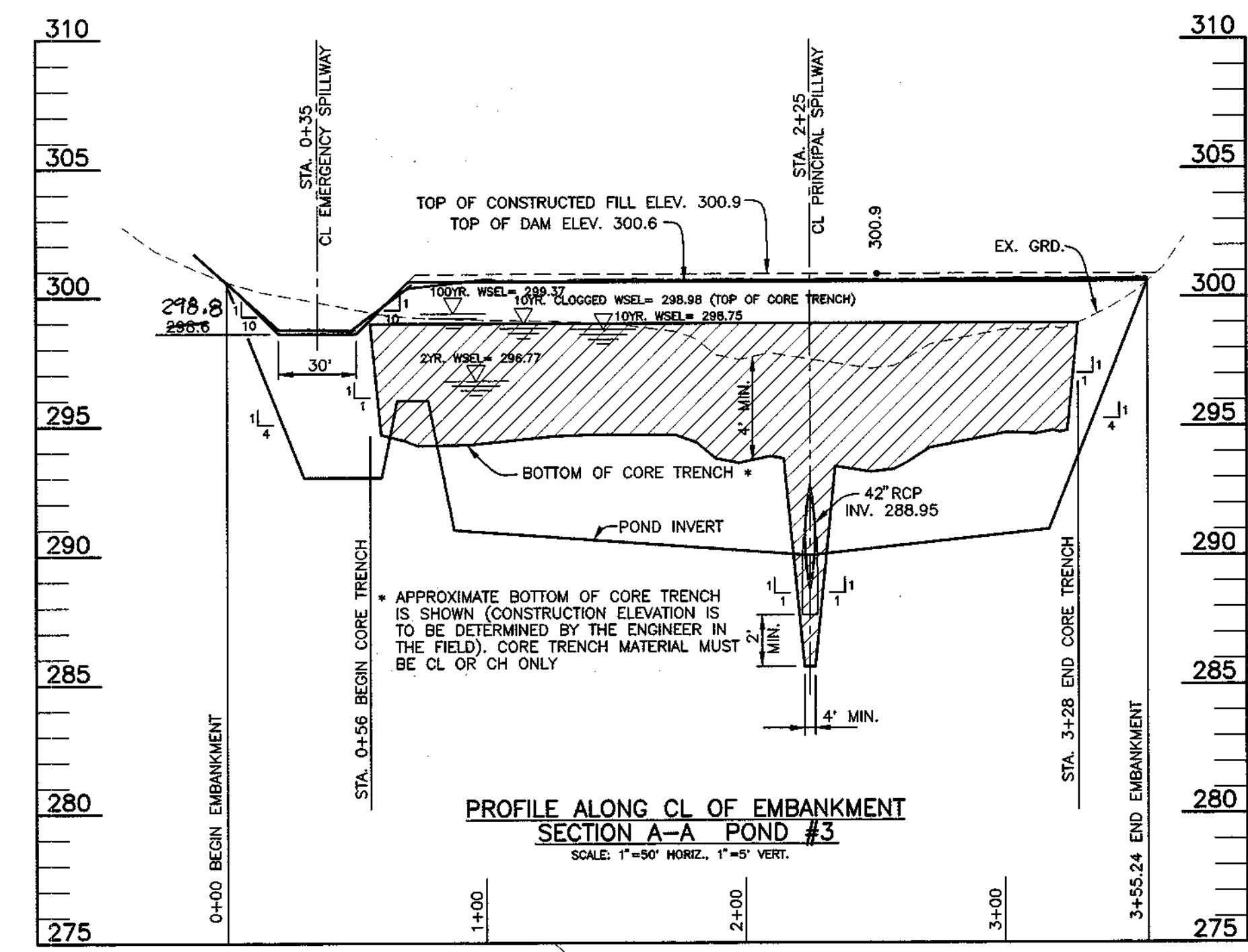
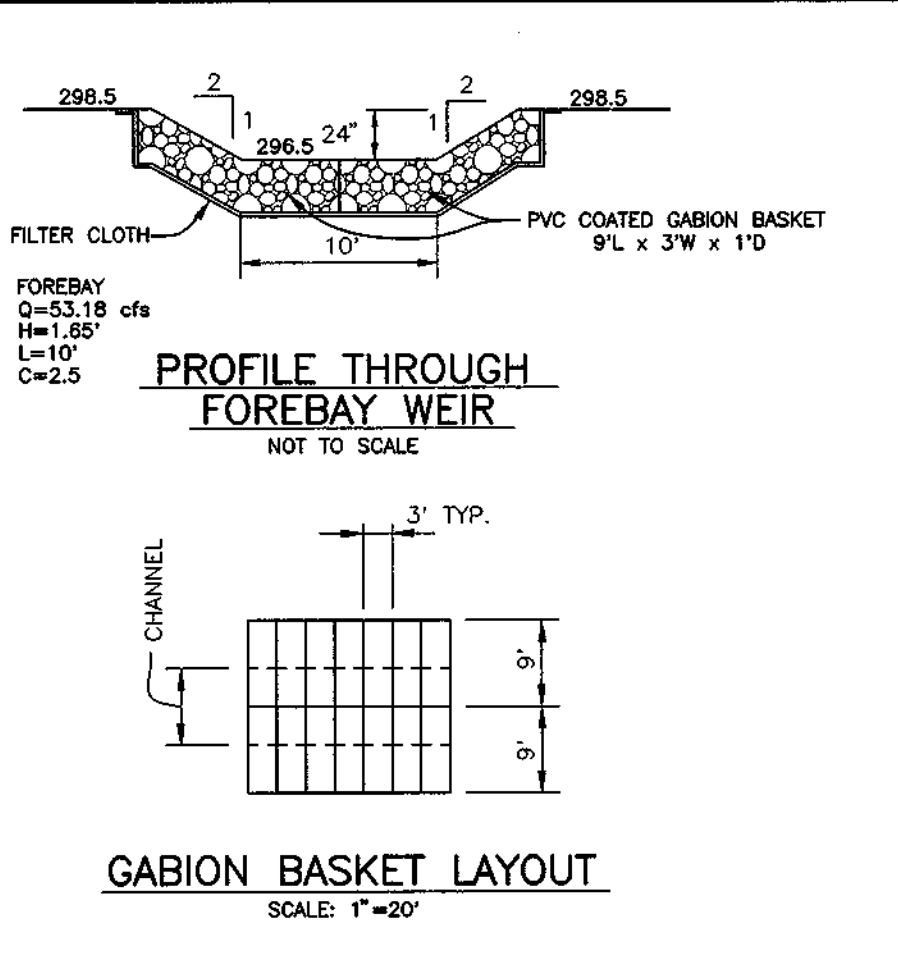
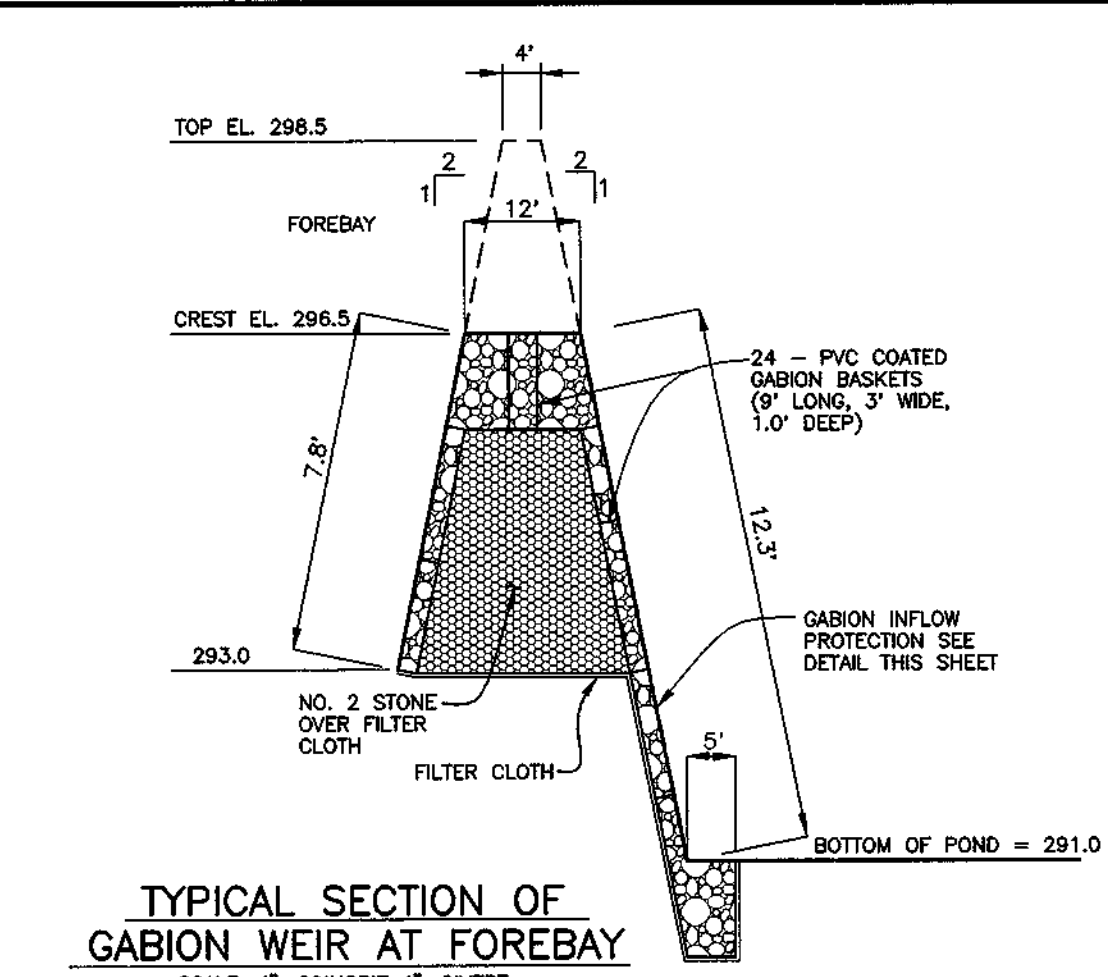
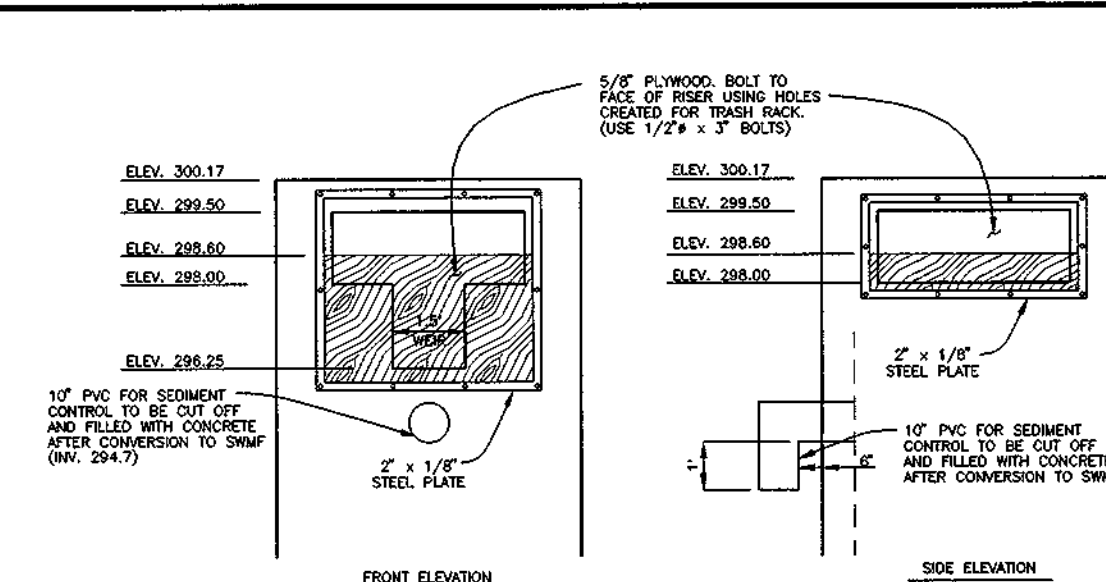
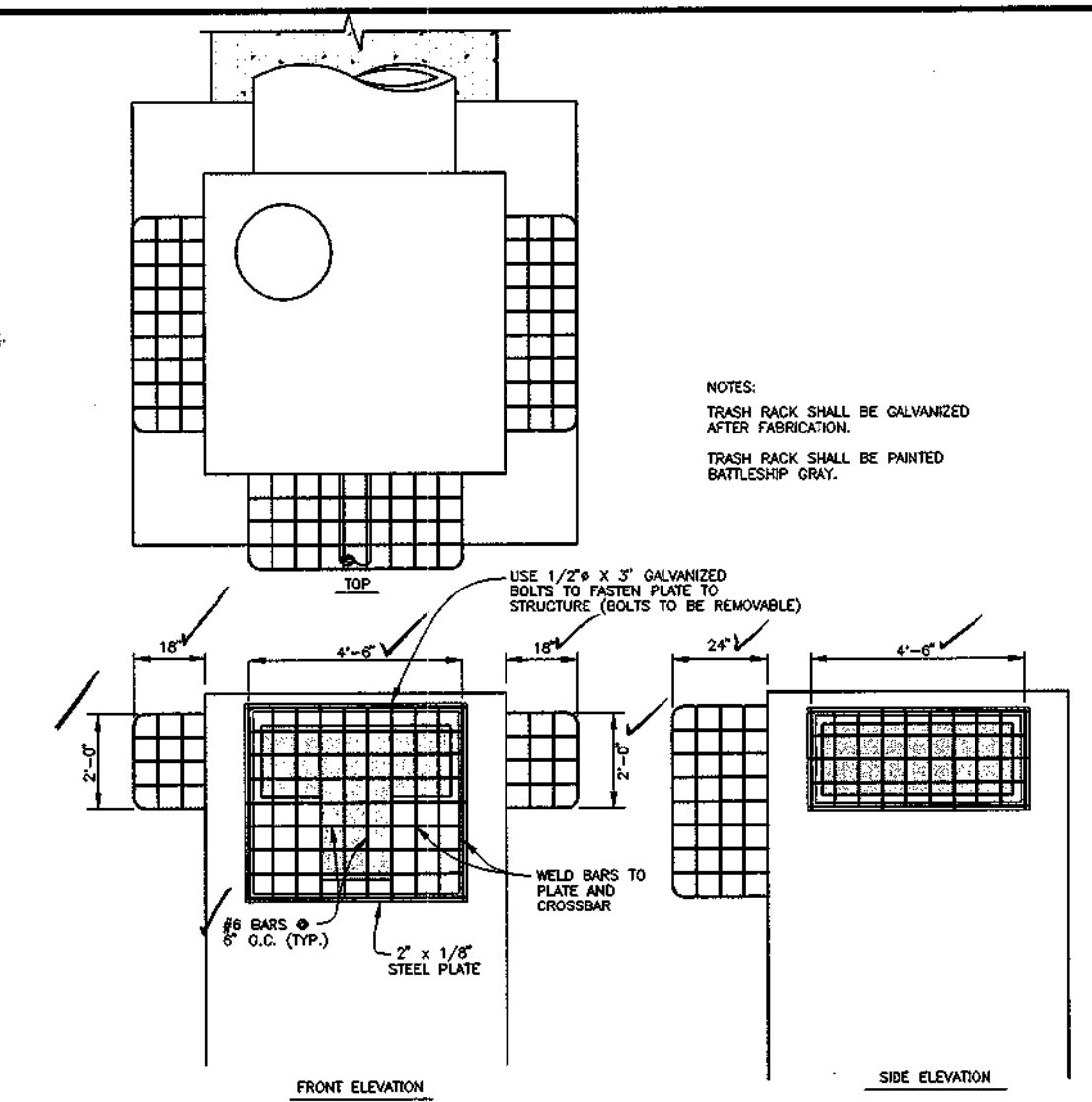
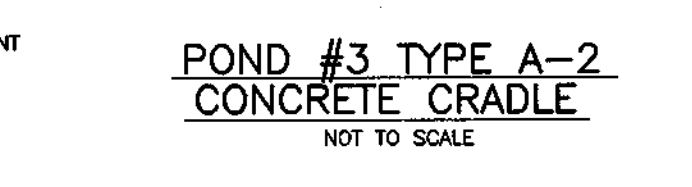
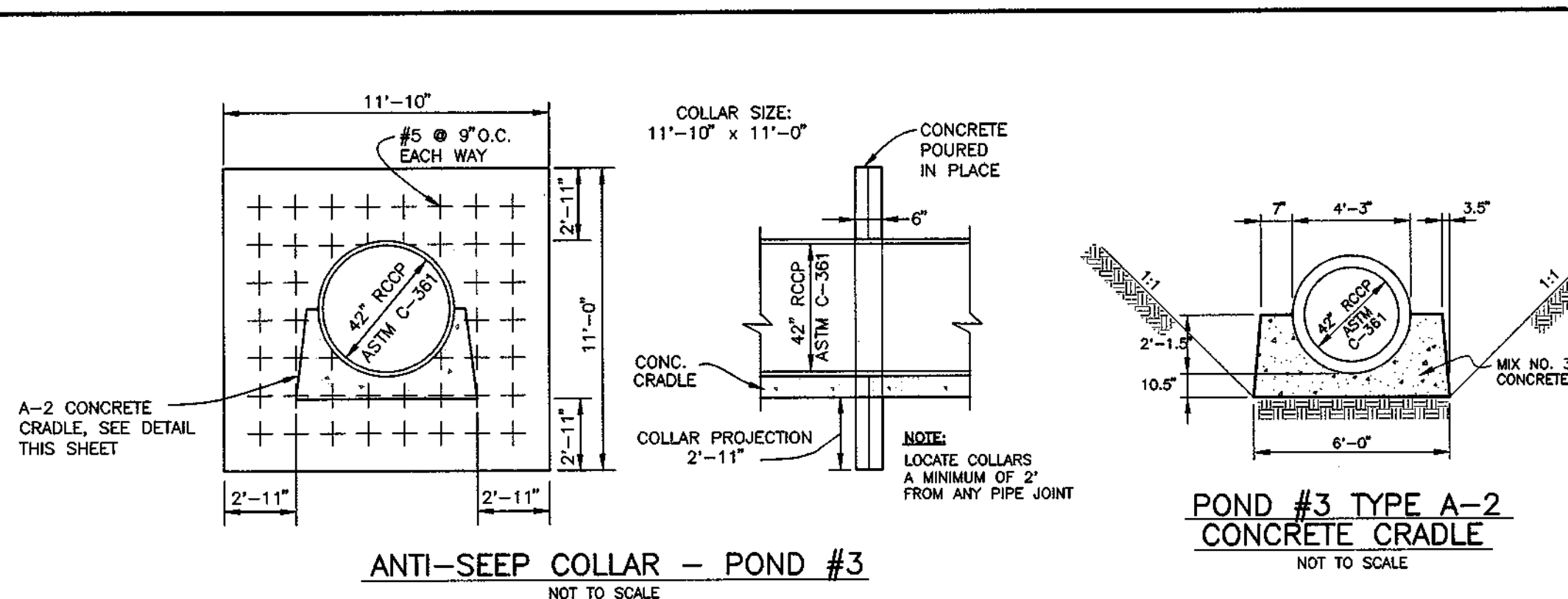
TITLE: STORMWATER MANAGEMENT DETAILS POND #2

WP-98-78 S-96-08 P-97-003 F-98-166

DATE: JULY, 1998 PROJECT NO. 0793

DATE: FEBRUARY, 1999 SCALE: AS SHOWN SHEET 23 OF 32

DES: MLV/DAM DRAFT: DBT CHECK: DAM



**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

*Donald Mason* PE NO. 21443 DATE *2/18/03*

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

\*I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT 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.

*Robert W. Zich* DATE *2-27-99*

DEVELOPER: *Robert W. Zich* DATE

BY THE ENGINEER:

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

*Donald Mason* DATE *2/17/99*

ENGINEER - DONALD A. MASON, P.E. # 21443 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.

*Deugh Simmons* DATE *3/1/99*

NATURAL RESOURCES CONSERVATION SERVICE

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

*Robert W. Zich* DATE *3/1/99*

HOWARD SOIL CONSERVATION DISTRICT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*Andrew M. Donaker* DATE *3-8-99*

CHIEF, BUREAU OF HIGHWAYS

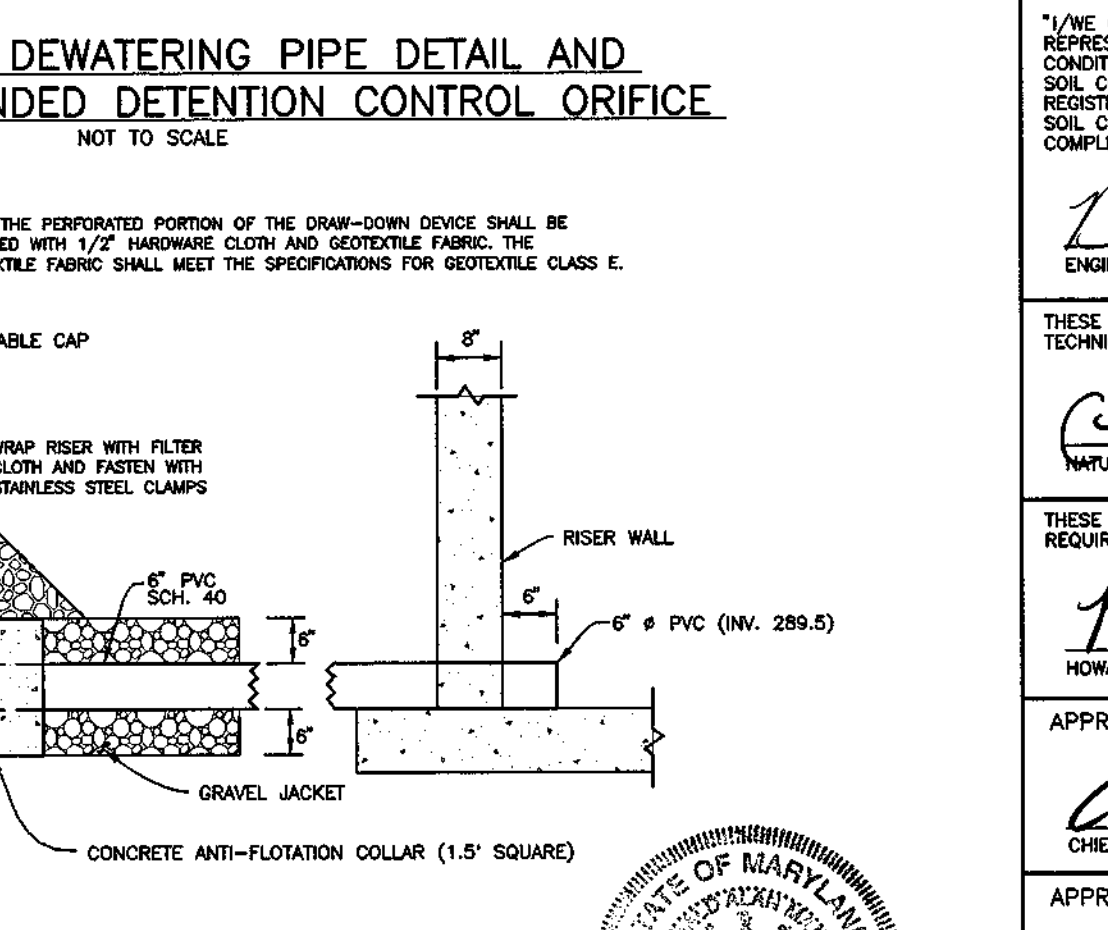
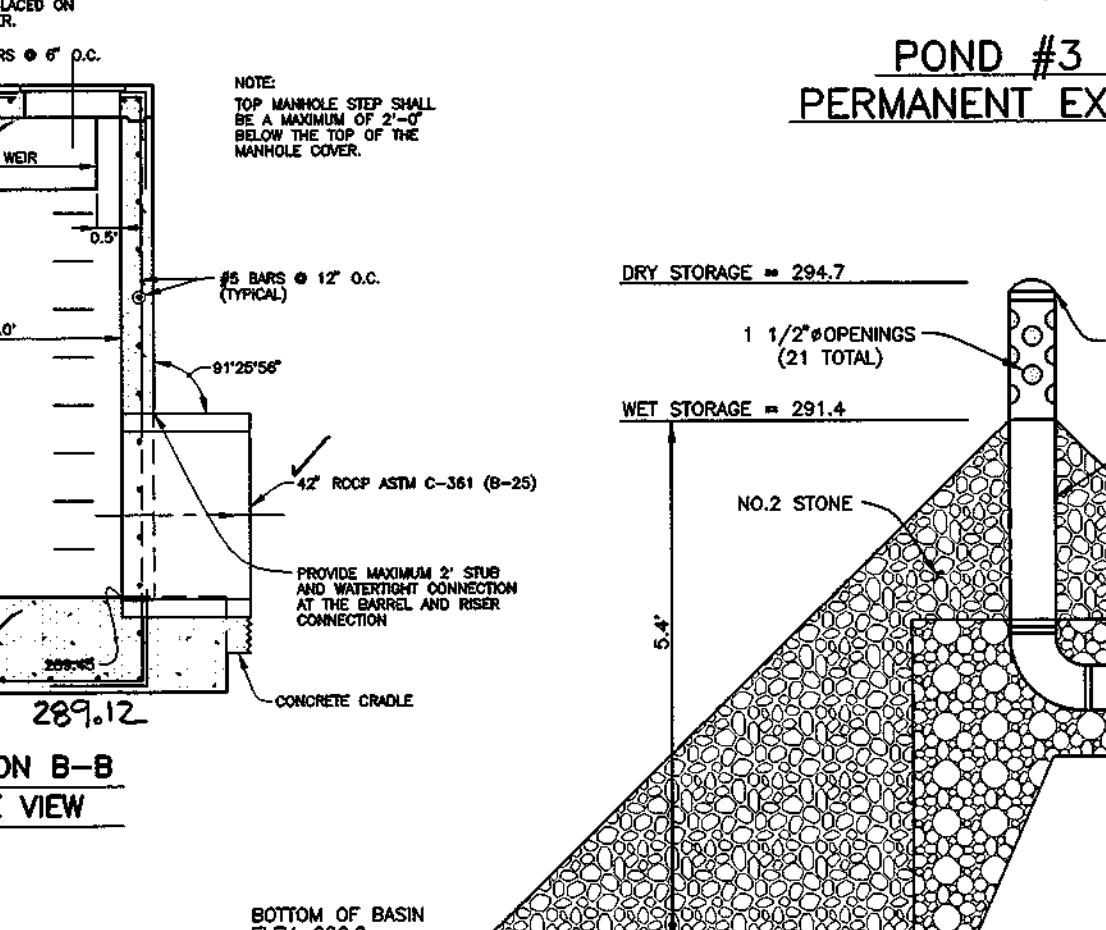
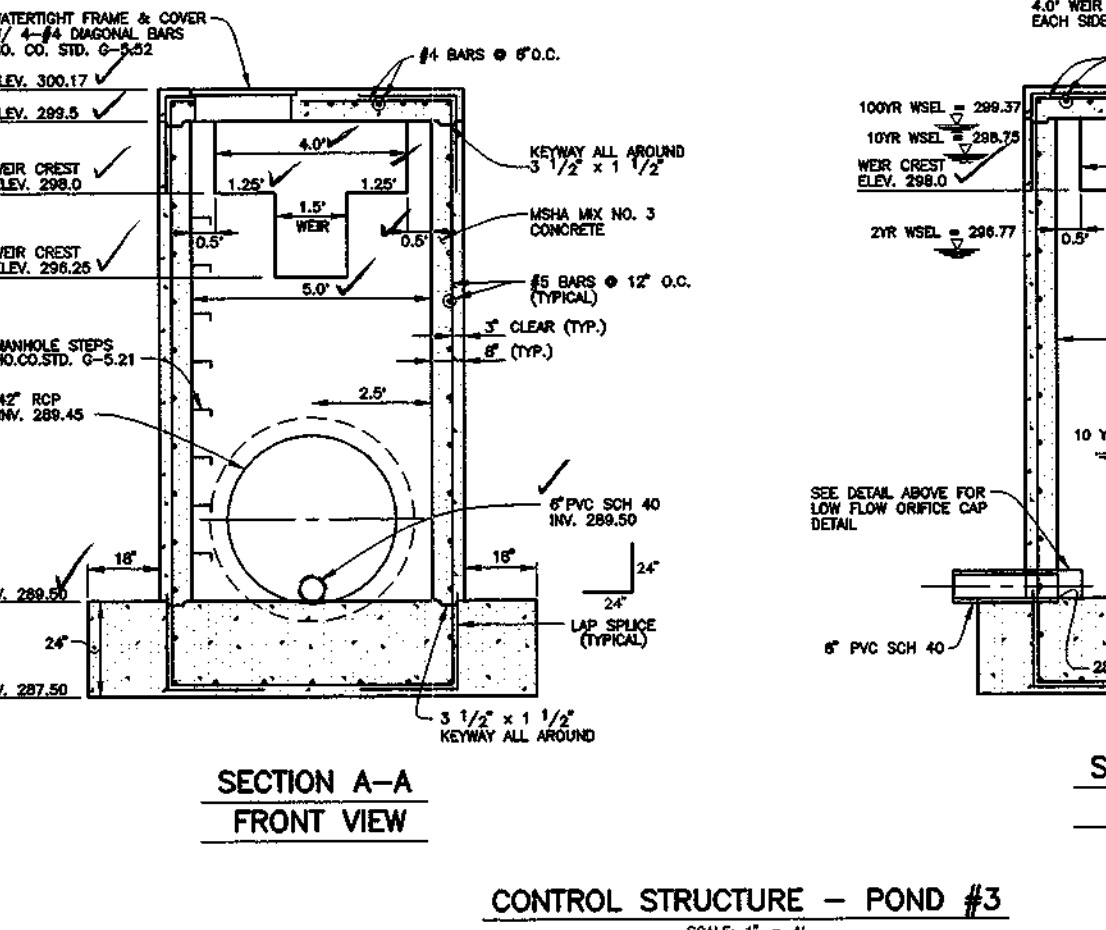
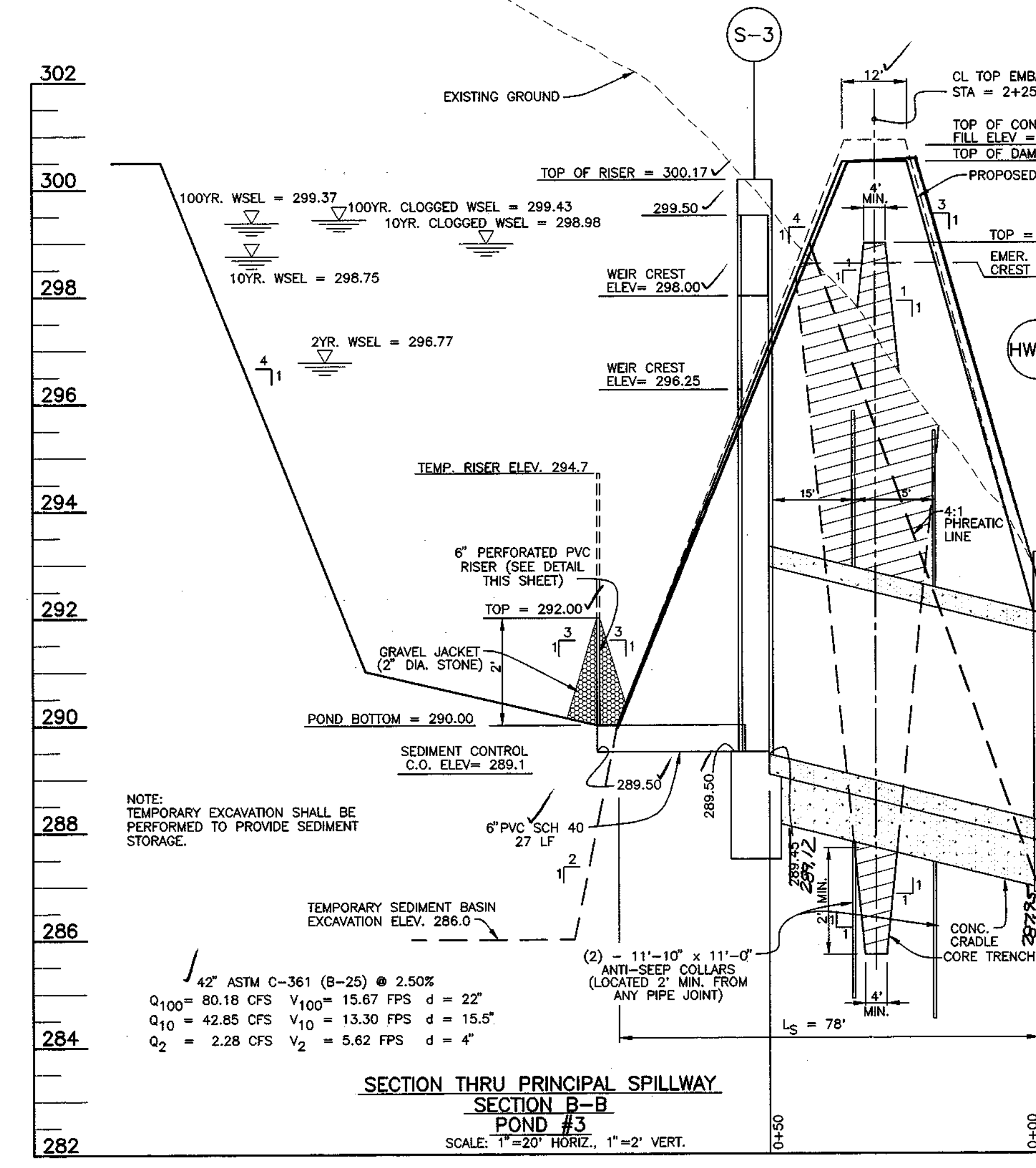
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Andy Hamilton* DATE *2/19/99*

CHIEF, DIVISION OF LAND DEVELOPMENT

*Deugh Simmons* DATE *3/1/99*

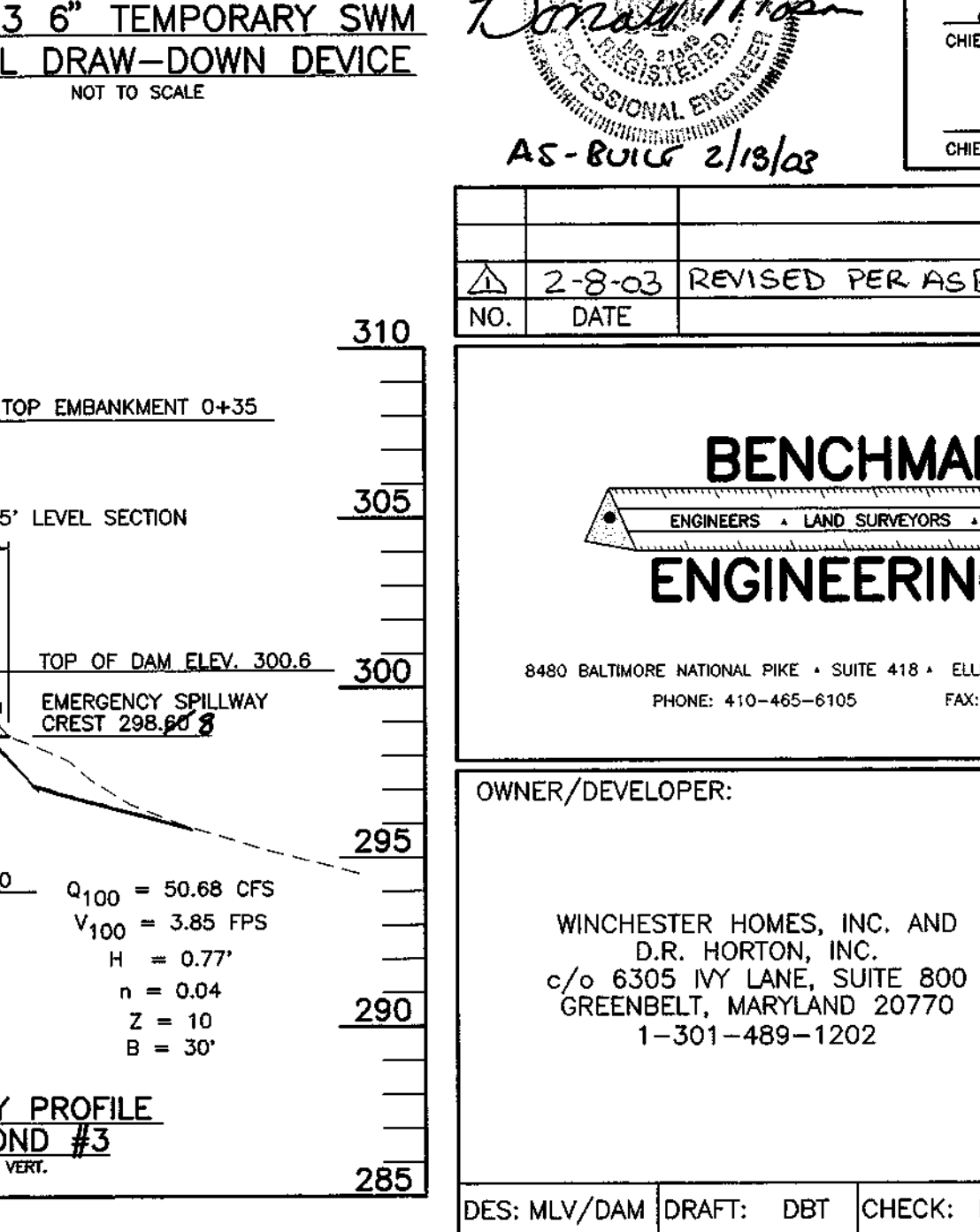
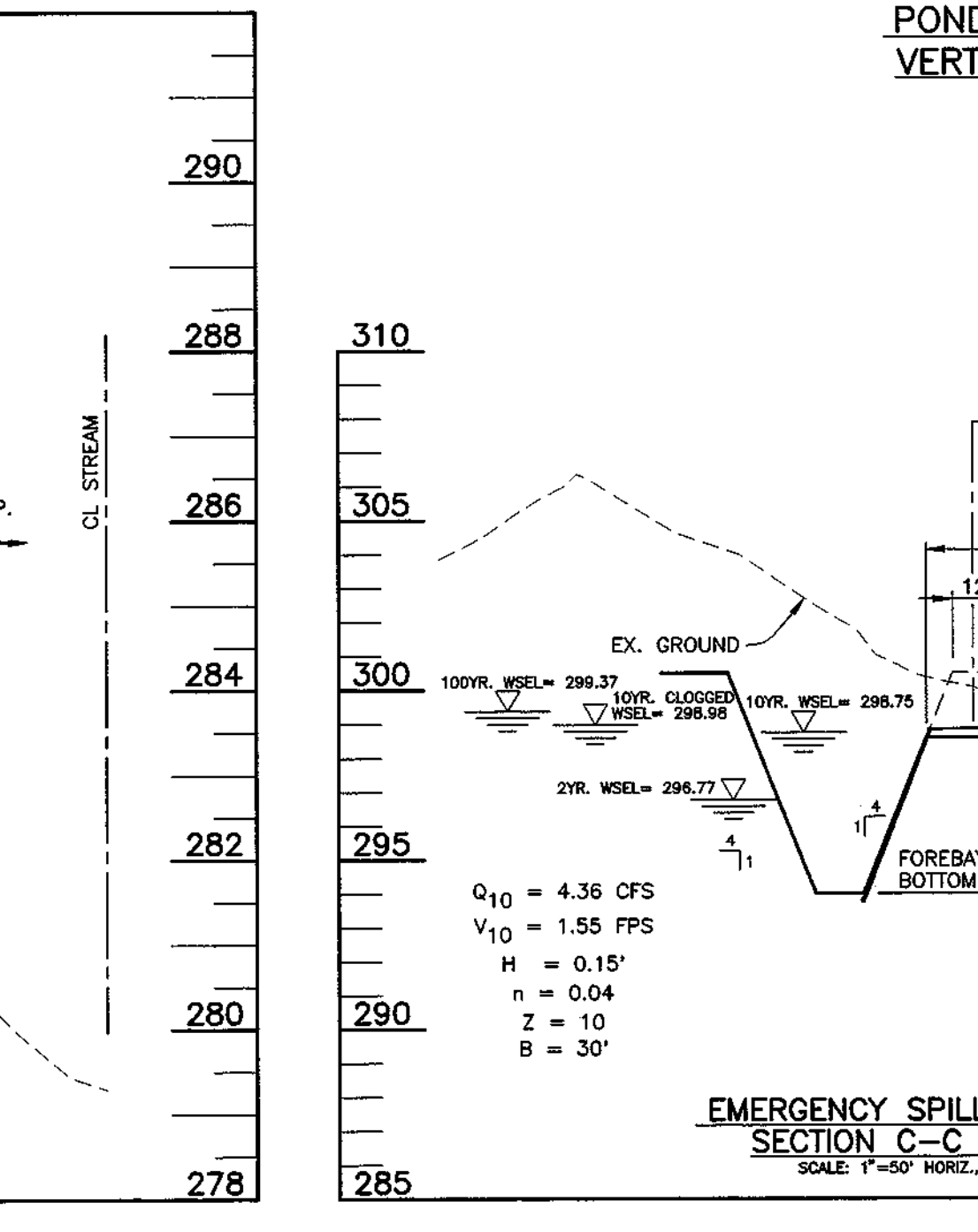
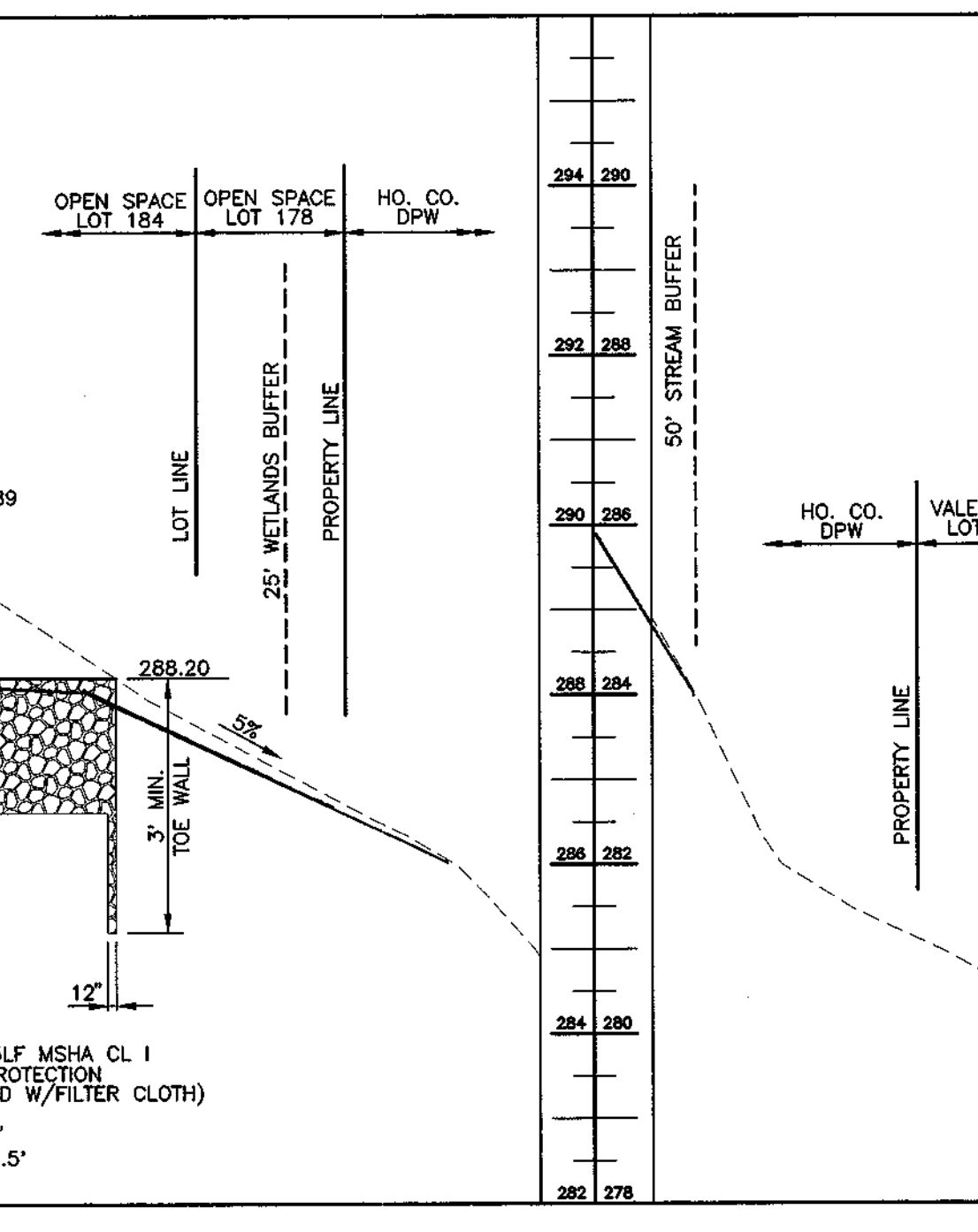
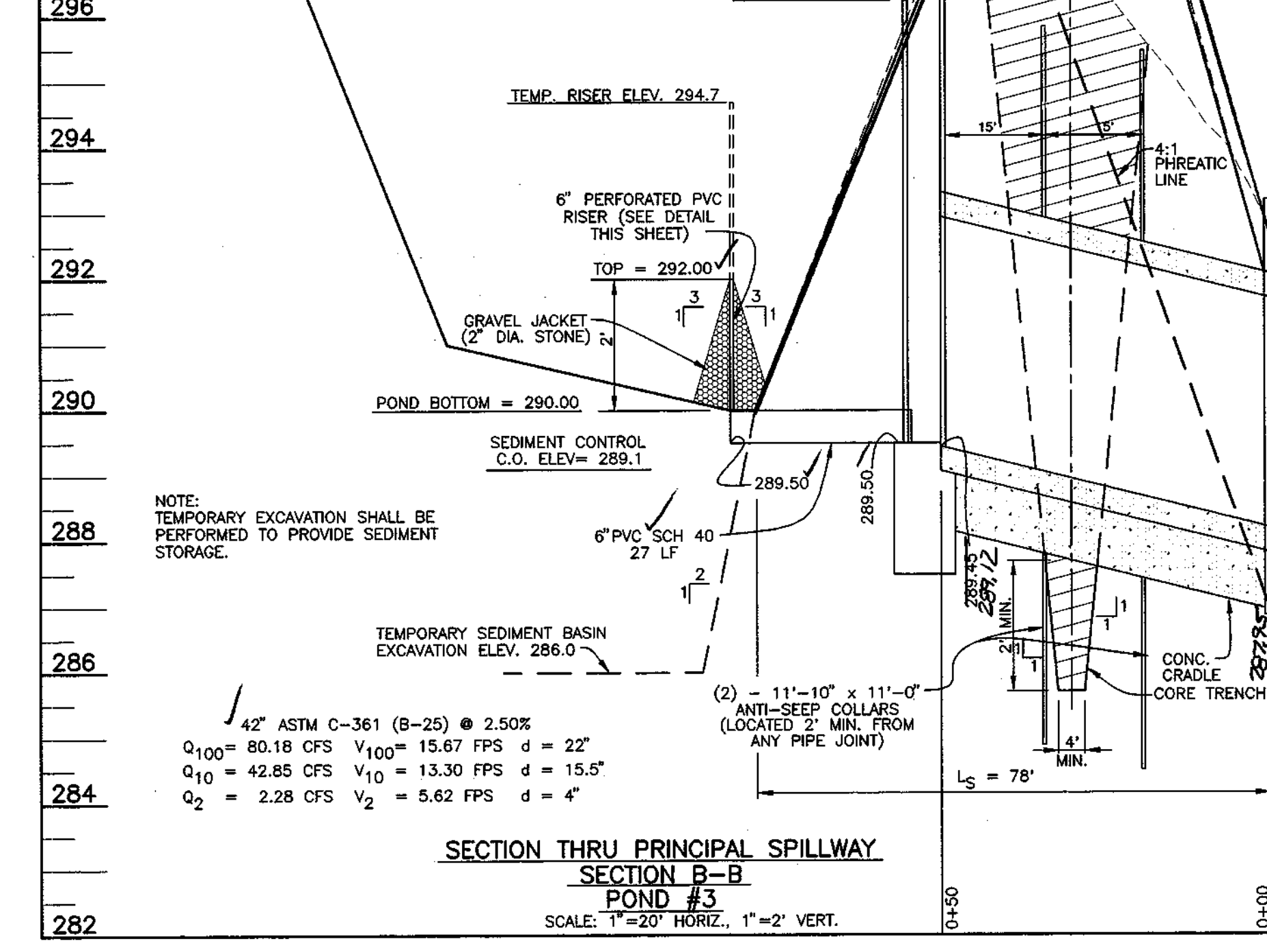
CHIEF, DEVELOPMENT ENGINEERING DIVISION



**AS-BUILT 2/18/03**

NO. DATE REVISION

2-8-03 REVISED PER AS-BUILT CONDITIONS



**BENCHMARK ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6844

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202

PROJECT: GROVEMONT A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NO. 13483-13485

LOCATION: TAX MAP 31 - P/O PARCEL 232 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

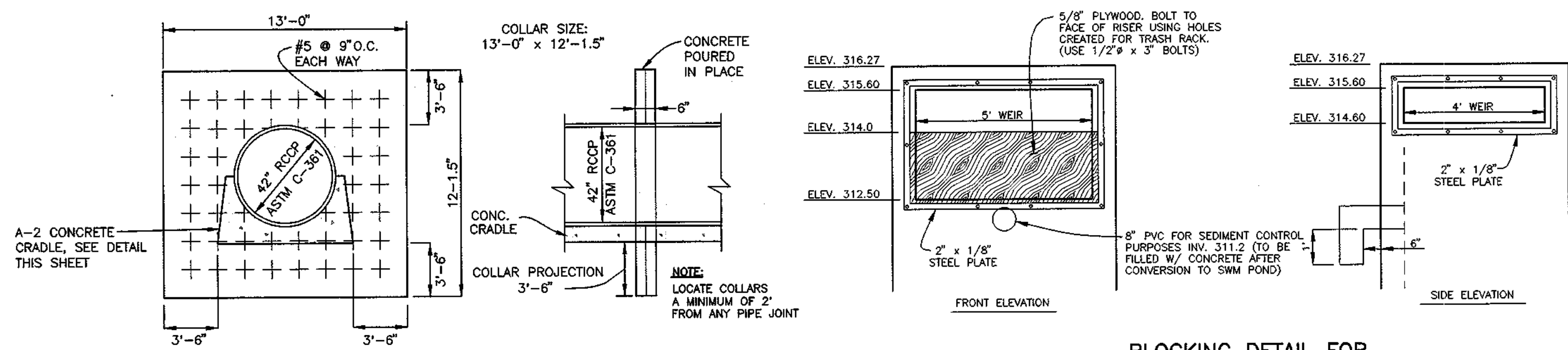
TITLE: STORMWATER MANAGEMENT DETAILS POND #3

WP-98-78 S-96-08 P-97-003 F-98-186

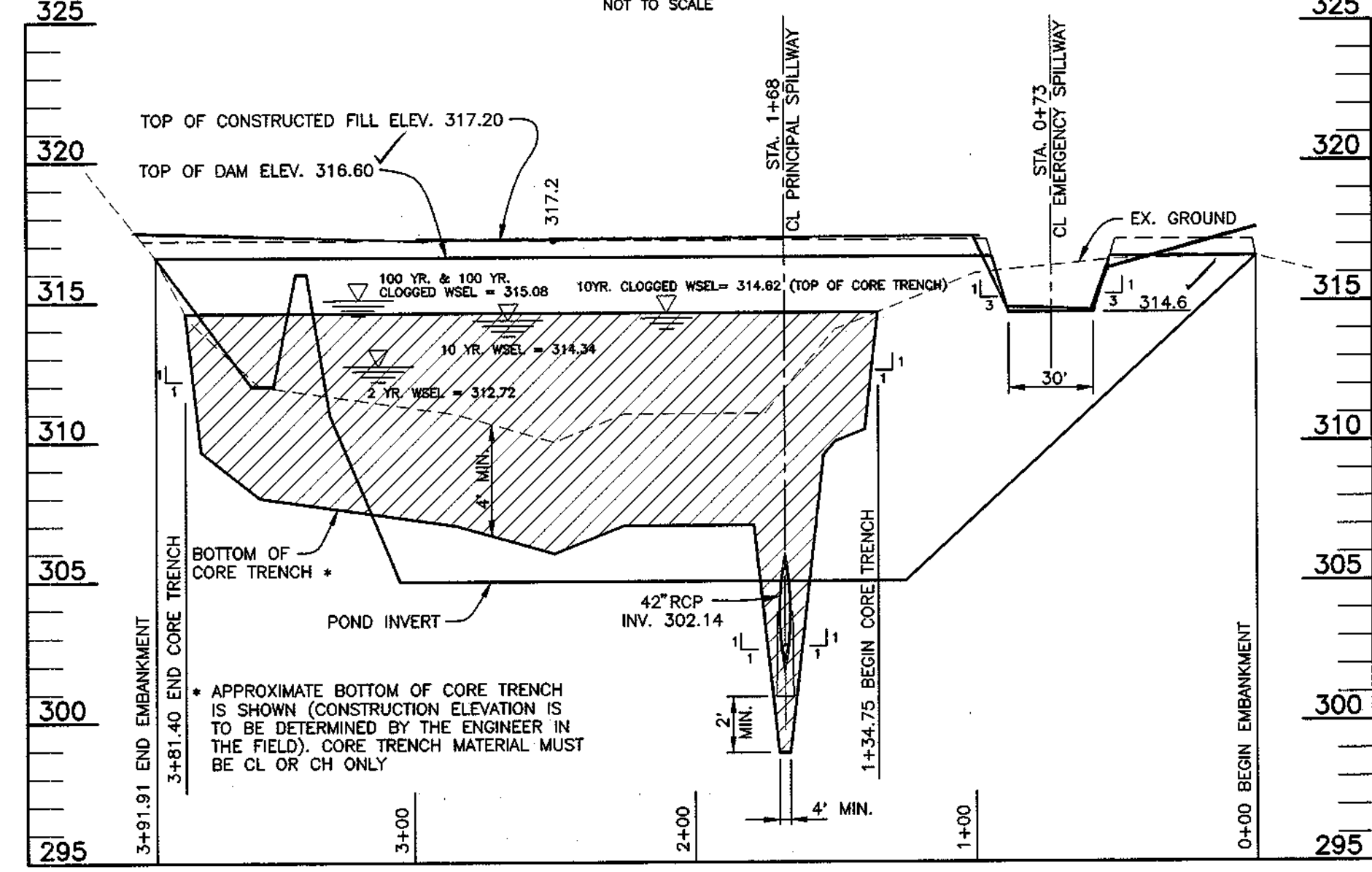
DATE: JULY 1998 PROJECT NO. 0793

FEBRUARY, 1999 SHEET 24 OF 32

DES: MLV/DAM DRAFT: DBT CHECK: DAM



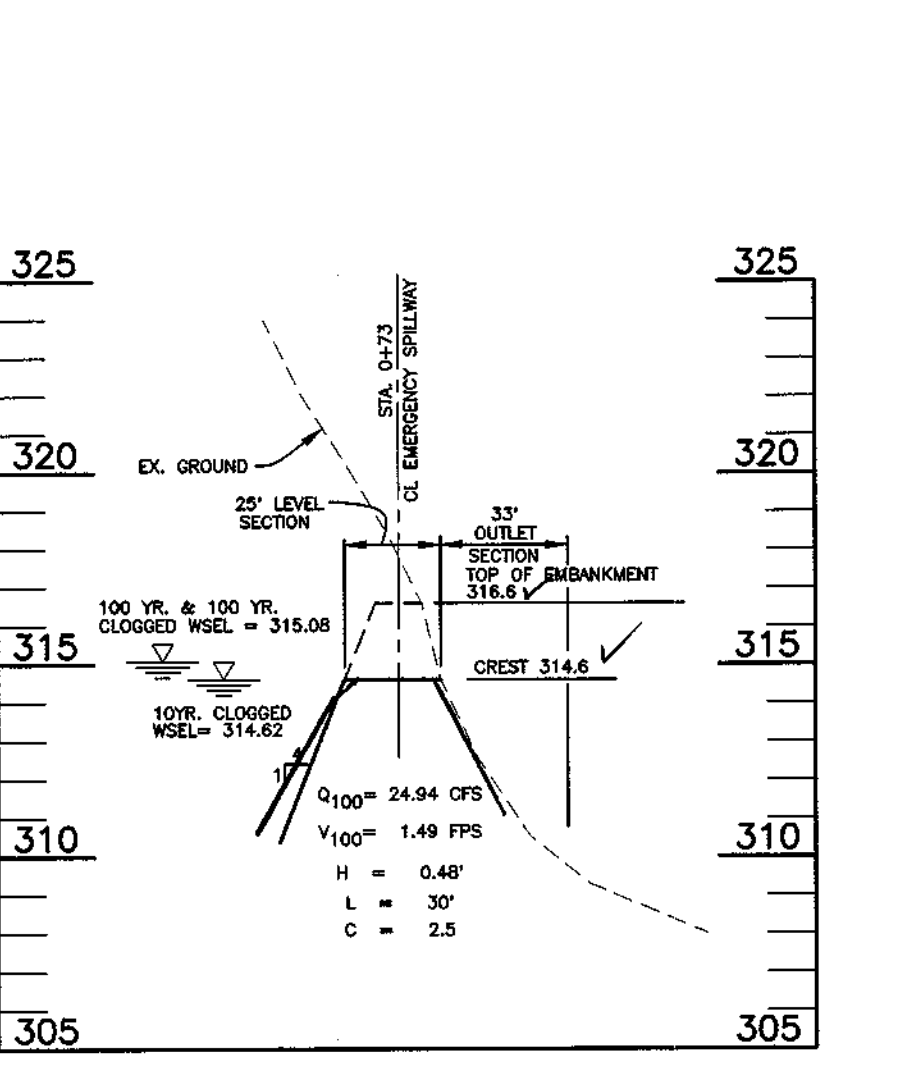
ANTI-SEEP COLLAR - POND #4  
NOT TO SCALE



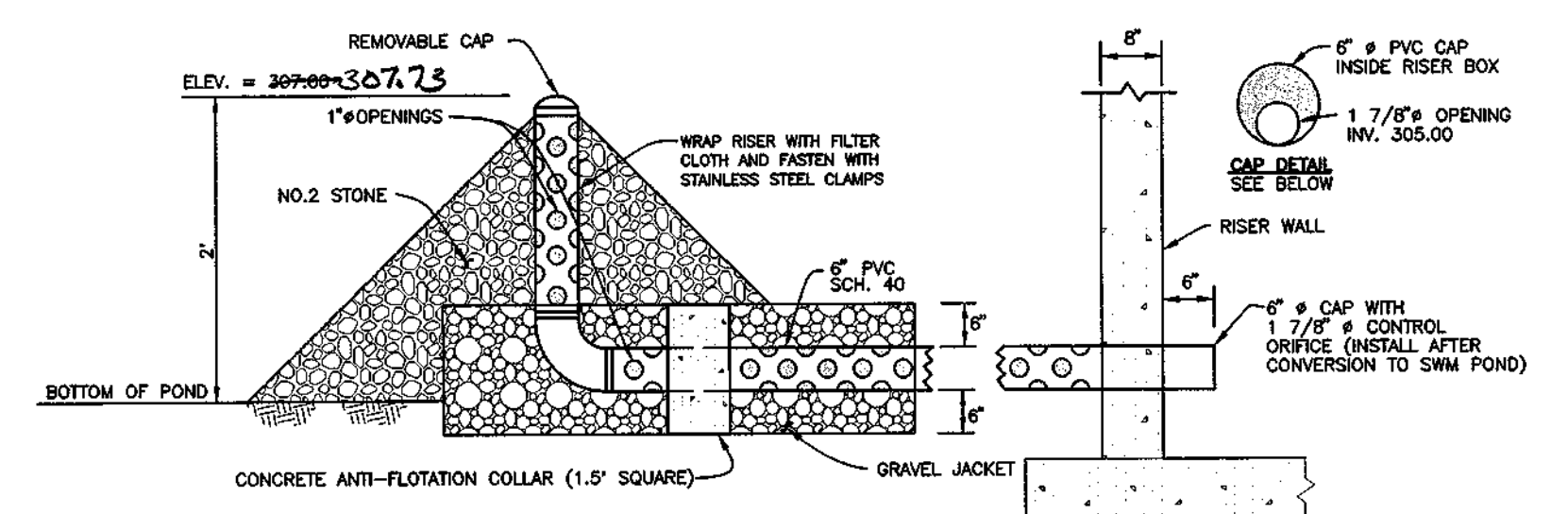
PROFILE ALONG CL OF EMBANKMENT SECTION A-A POND #4  
SCALE: 1"=20' HORIZ., 1"=2' VERT.



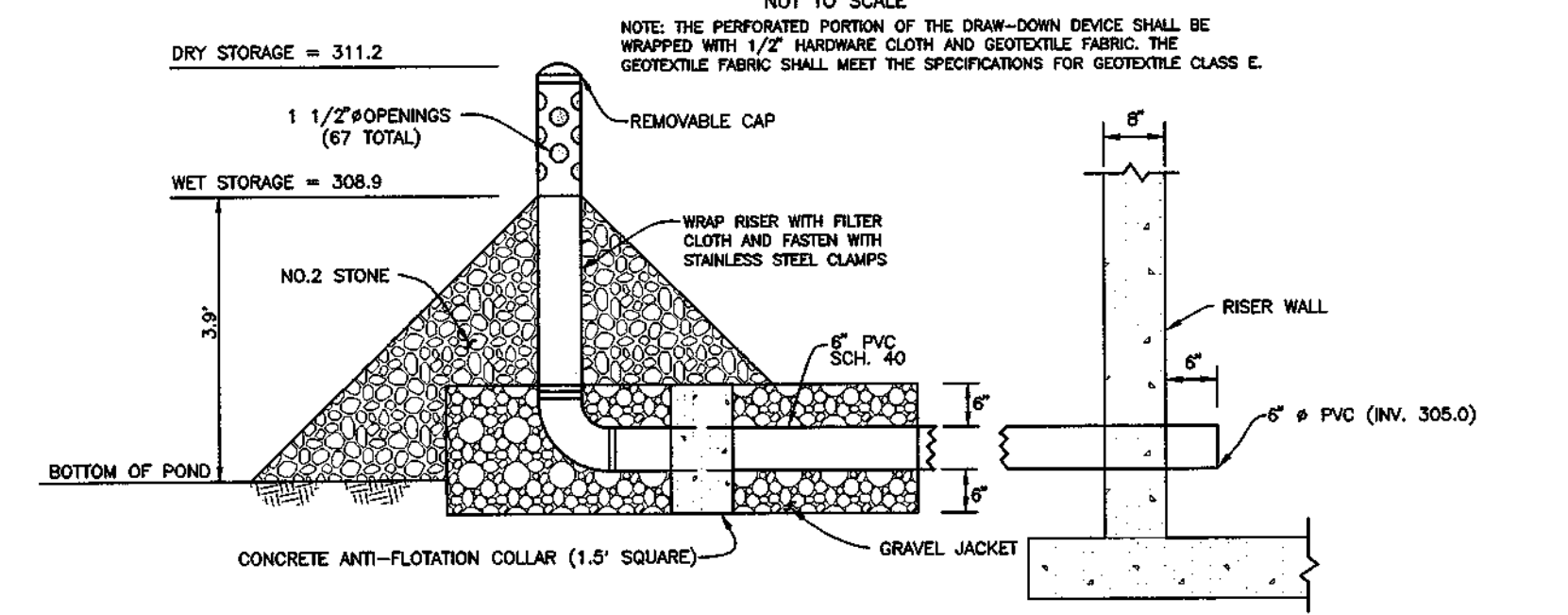
BLOCKING DETAIL FOR POND #4 TEMPORARY SWM DURING CONSTRUCTION  
SCALE: 1" = 3"



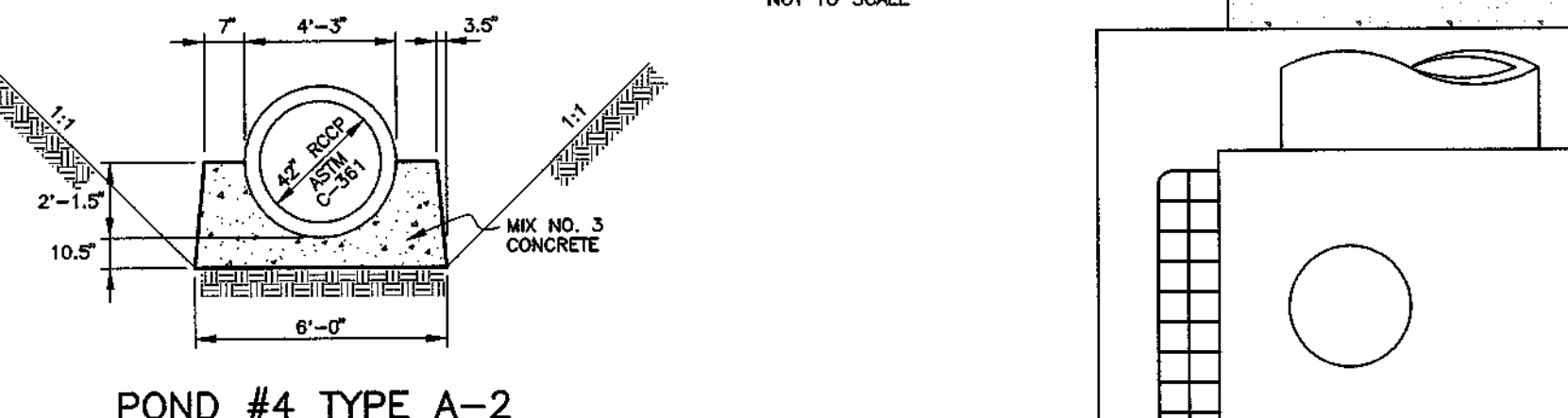
EMERGENCY SPILLWAY PROFILE SECTION C-C POND #4  
SCALE: 1"=30' HORIZ., 1"=5' VERT.



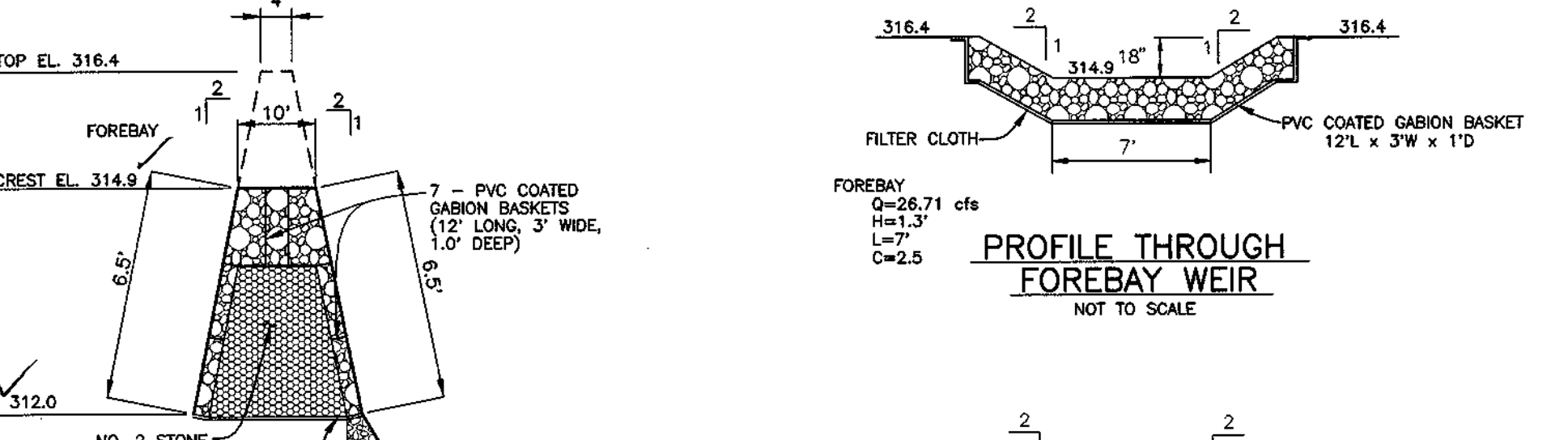
POND #4 6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE  
NOT TO SCALE



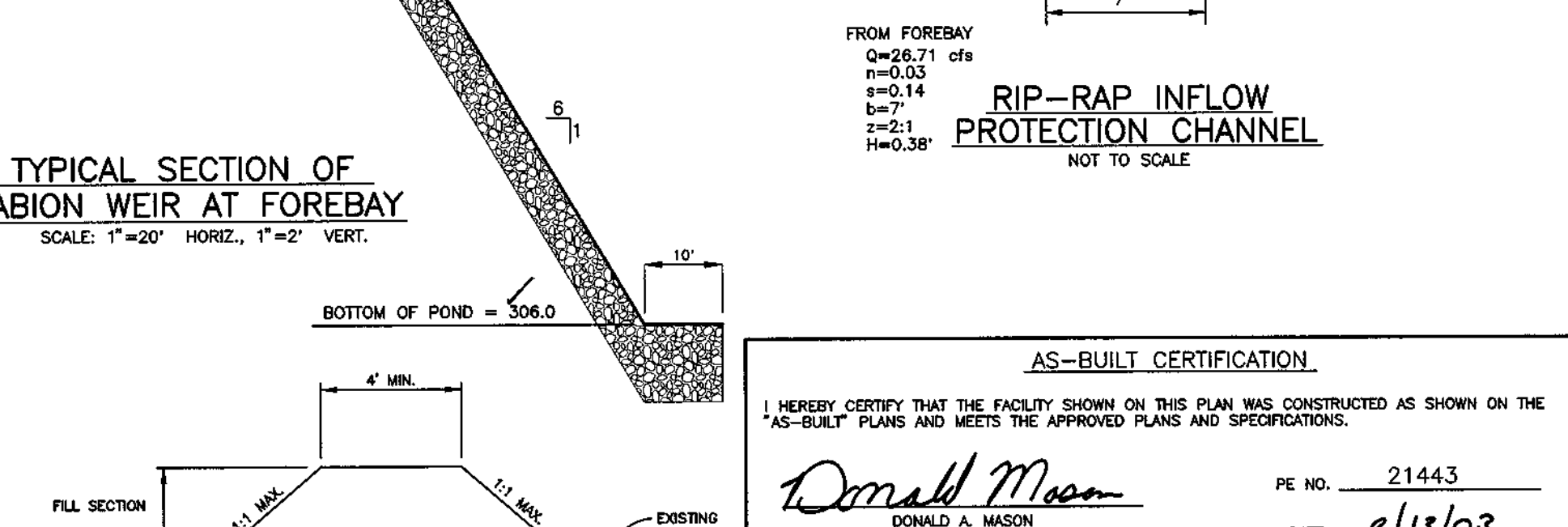
POND #4 6" TEMPORARY SWM VERTICAL DRAW-DOWN DEVICE  
NOT TO SCALE



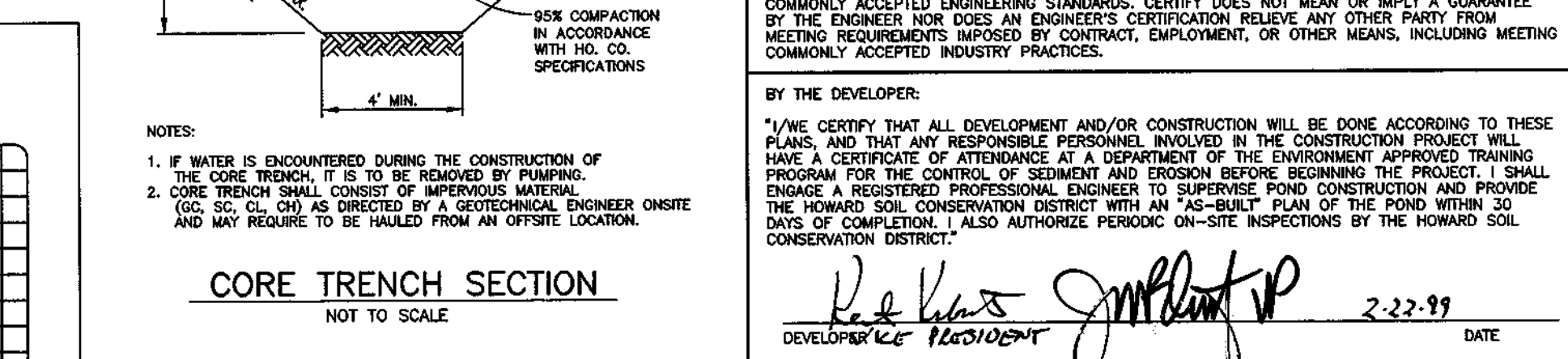
POND #4 TYPE A-2 CONCRETE CRADLE  
NOT TO SCALE



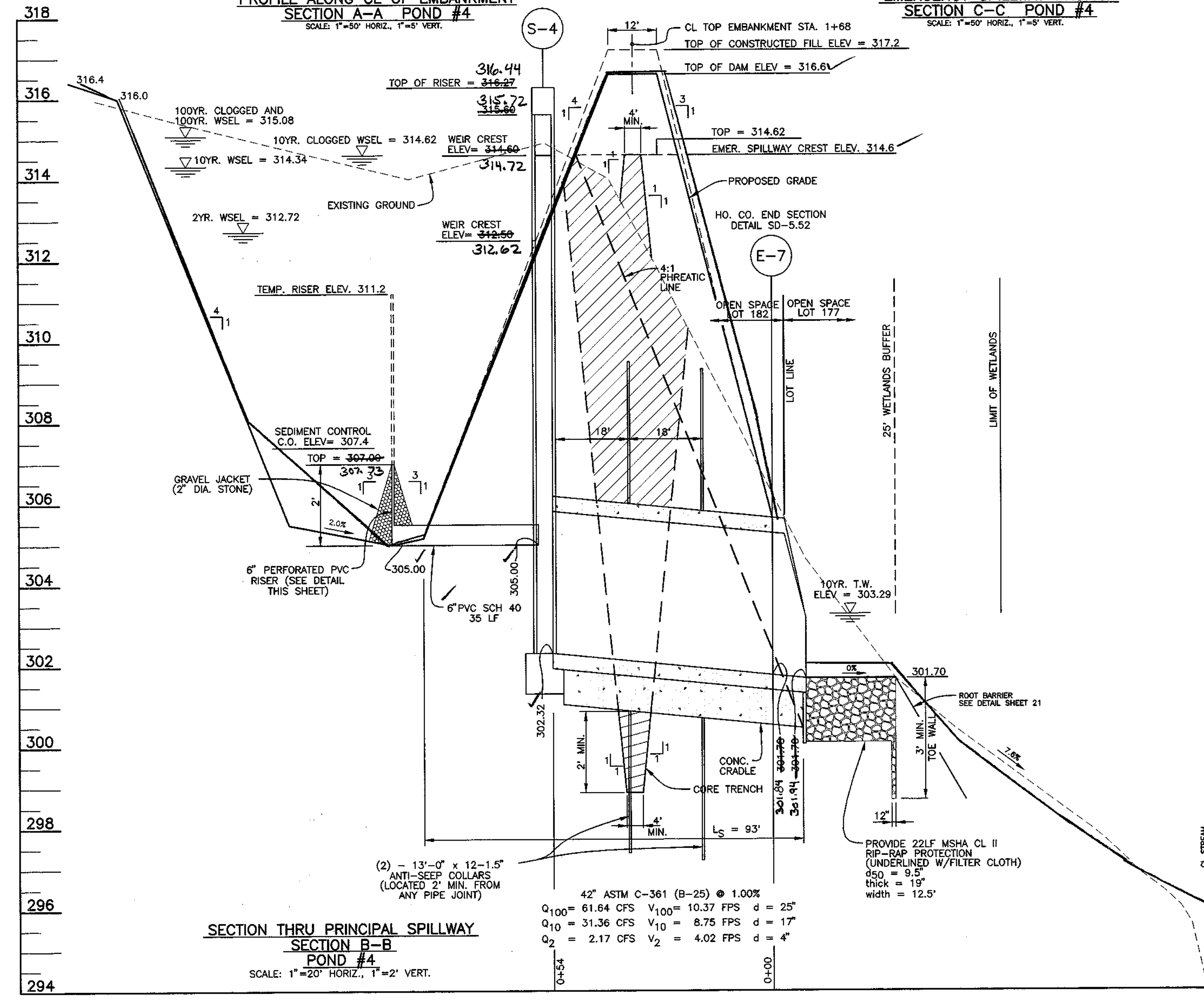
PROFILE THROUGH FOREBAY WEIR  
NOT TO SCALE



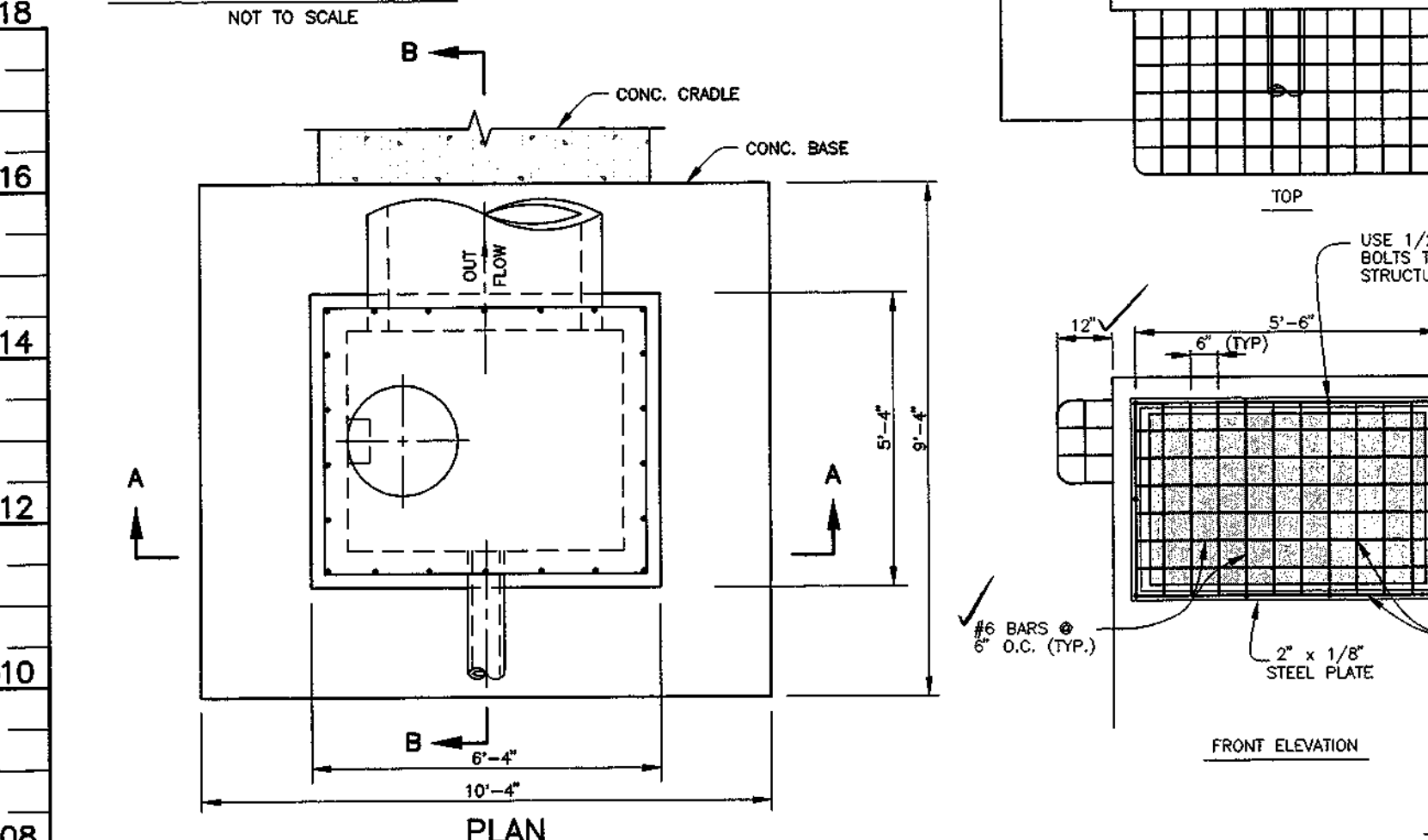
TYPICAL SECTION OF GABION WEIR AT FOREBAY  
SCALE: 1"=20' HORIZ., 1"=2' VERT.



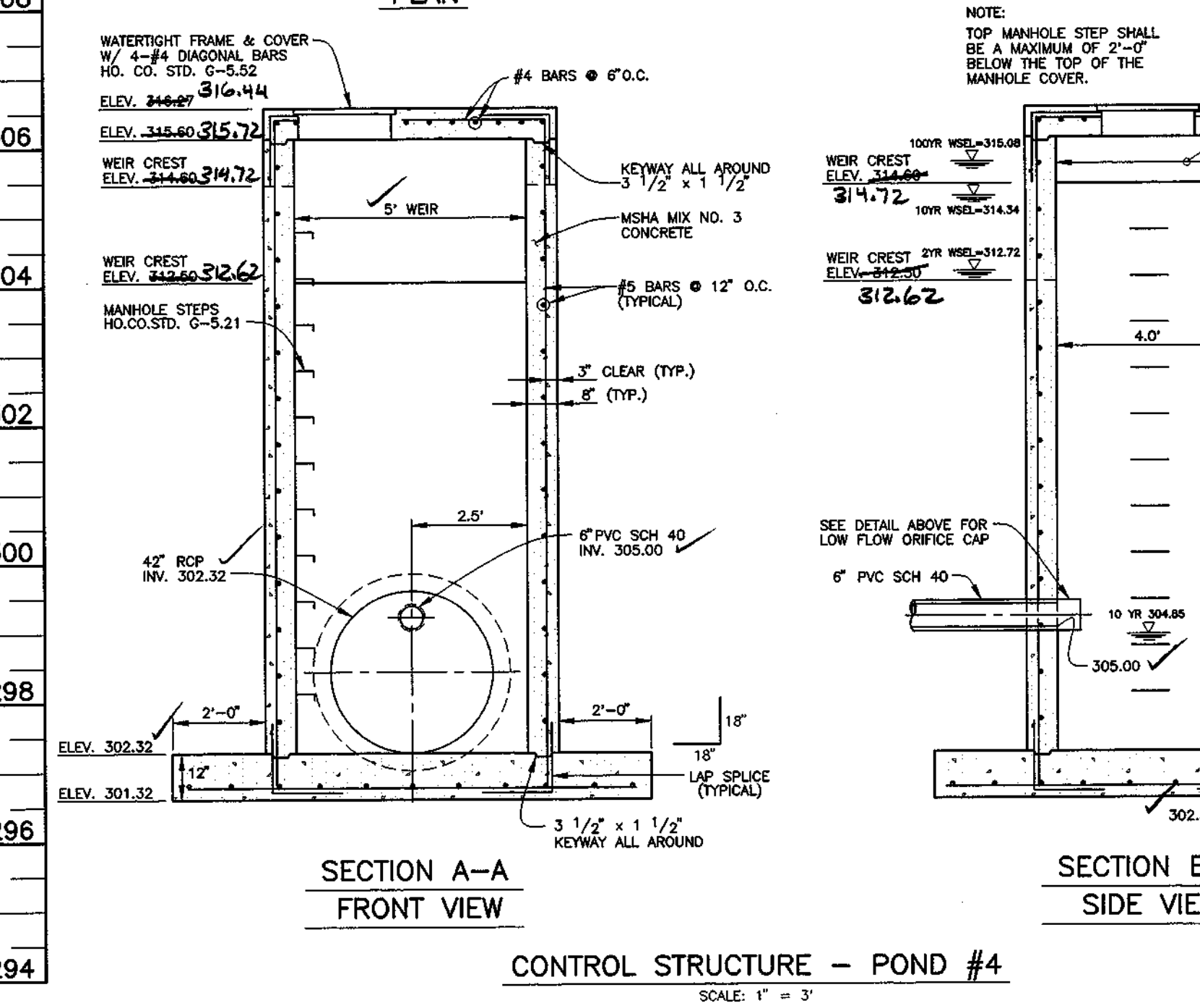
CORE TRENCH SECTION  
NOT TO SCALE



SECTION THRU PRINCIPAL SPILLWAY SECTION B-B POND #4  
SCALE: 1"=20' HORIZ., 1"=2' VERT.



TRASH RACK - POND #4  
SCALE: 1" = 3"



CONTROL STRUCTURE - POND #4  
SCALE: 1" = 3"

AS-BUILT CERTIFICATION	
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.	
<i>Donald Mason</i> DONALD A. MASON	PE NO. 21443 DATE: 2/13/03
CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS. THIS CERTIFICATION IS NOT A GUARANTEE OF THE QUALITY OF THE WORK OR A GUARANTEE BY THE ENGINEER FOR THE DESIGN OR CONSTRUCTION OF THE PROJECT. THE ENGINEER DOES NOT WARRANT OR GUARANTEE 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.	
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.	
<i>Robert W. Zahn</i> ROBERT W. ZAHN	DATE: 2-22-99
BY THE ENGINEER: I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRINCIPAL 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.	
<i>Donald Mason</i> ENGINEER - DONALD A. MASON, P.E. # 21443	DATE: 2/19/98
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.	
<i>Robert W. Zahn</i> ROBERT W. ZAHN	DATE: 3/1/99
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.	
<i>Robert W. Zahn</i> HOWARD SOIL CONSERVATION DISTRICT	DATE: 3/1/99
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
<i>Stephen M. Donaker</i> STEPHEN M. DONAKER	DATE: 3-8-99
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
<i>David Hamilton</i> DAVID HAMILTON	DATE: 3/19/98
<i>Allen Danvers</i> ALLEN DANVERS	DATE: 3/15/99

2-8-03 REVISED PER AS-BUILT CONDITIONS	
NO.	REVISION
<p align="center"><b>BENCHMARK ENGINEERING, INC.</b></p> <p align="center">ENGINEERS • LAND SURVEYORS • PLANNERS</p> <p align="center">8450 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6644</p>	
OWNER/DEVELOPER:	PROJECT:
WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 MY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	GROVEMONT A RESUBDIVISION OF LOTS 1 THROUGH 185 THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NO. 13493-13495
LOCATION:	TITLE:
TAX MAP 31 - P/O PARCEL 232 18 <sup>th</sup> ELECTION DISTRICT HOWARD COUNTY, MARYLAND	STORMWATER MANAGEMENT DETAILS POND #4
DATE:	SCALE:
JULY 1998 FEBRUARY, 1999	AS SHOWN
DES: MLV/DAM DRAFT: DBT CHECK: DAM	PROJECT NO. 0793 SHEET 25 OF 32

POND CONSTRUCTION SPECIFICATIONS

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir.

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.

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.

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 track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepfoot, rubber tired or vibratory roller.

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.

Out Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment.

Structure Backfill - Backfill adjacent to pipes or structures shall be of the type and quality conforming to that conforming to the original fill material.

Backfill - The fill material shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment.

Pipe Conduits

All pipes shall be circular in cross section.

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

- 1. Materials - (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.

Materials - (Aluminum Coated Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges.

- 2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material as the pipe.
- 3. Connections - All connections with pipes must be completely watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be rolled on an adequate number of corrugations to accommodate the band width.

- 4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length.
- 5. Backfilling shall conform to "Structure Backfill."
- 6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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

- 1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361.
- 2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length.
- 3. Laying pipe - Bell and spigot pipe shall be placed with the bell and upstream.
- 4. Backfilling shall conform to "Structure Backfill."
- 5. 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:

- 1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.
- 2. Joints and connections to anti-seep collars shall be completely watertight.
- 3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length.
- 4. Backfilling shall conform to "Structure Backfill."
- 5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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 subangular in shape.

The rock shall have the following properties:

- 1. Bulk specific gravity (saturated surface-dry basis) not less than 2.5.
- 2. Absorption not more than three percent.
- 3. 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.

Core 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 permanent works.

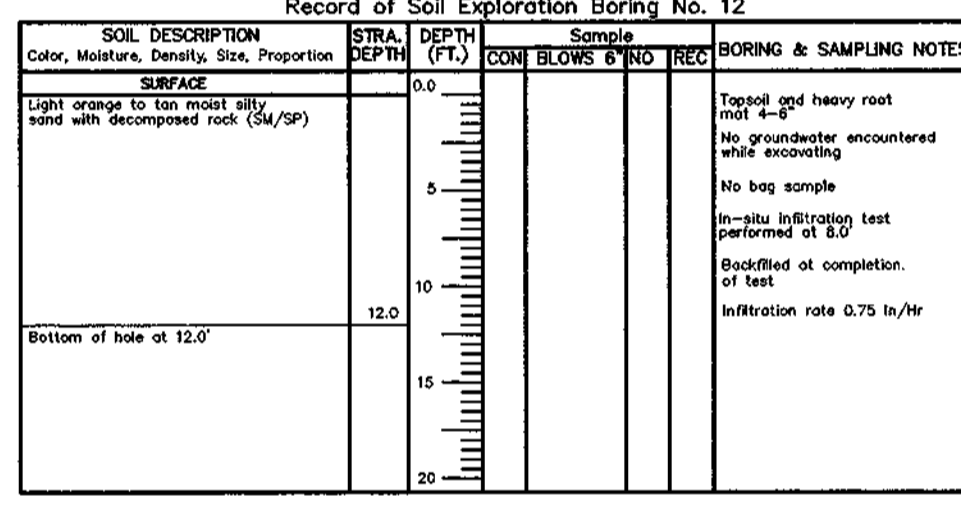
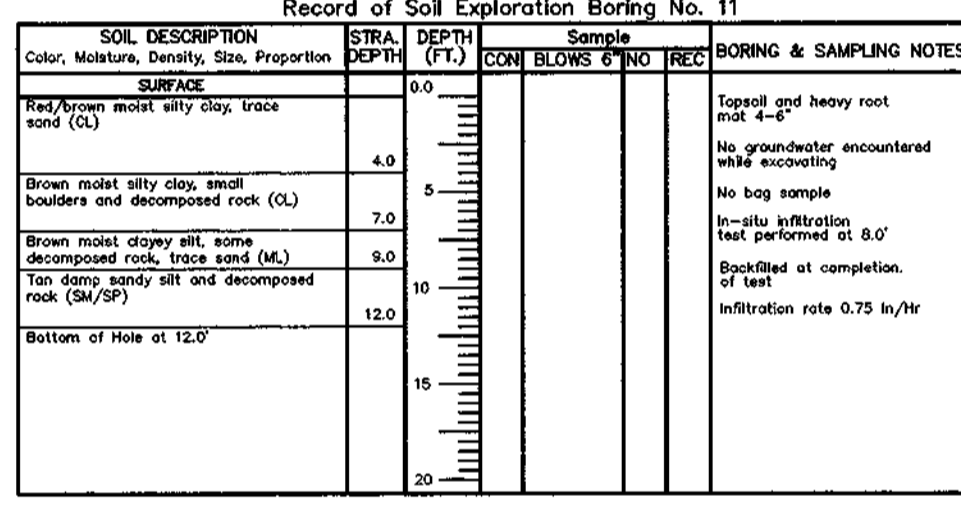
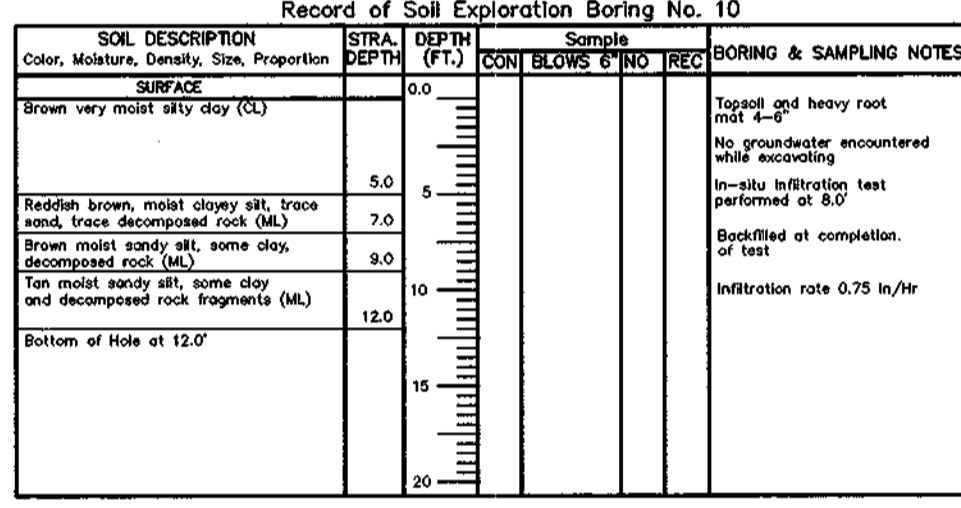
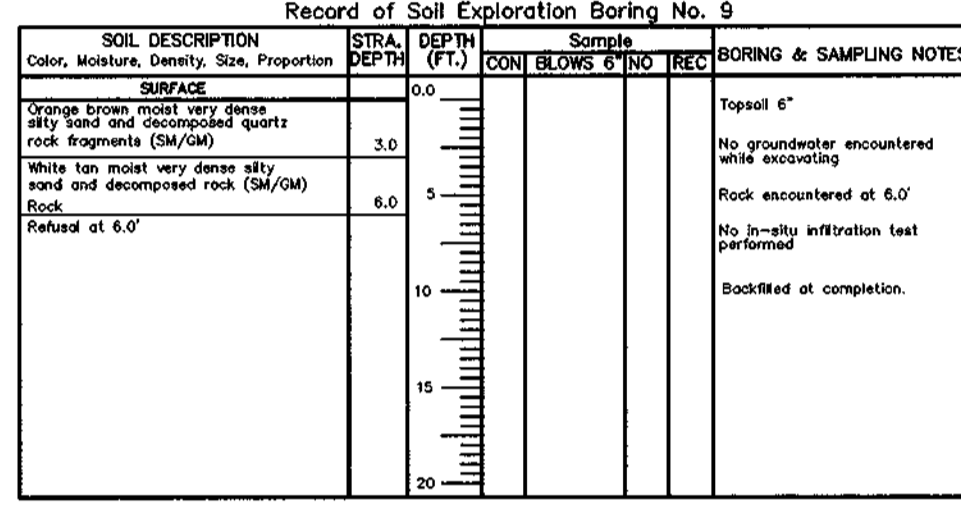
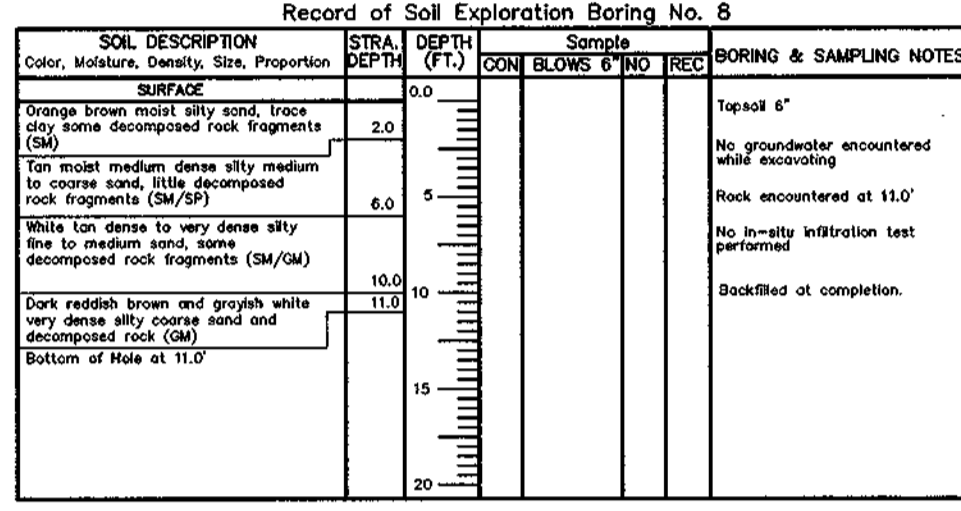
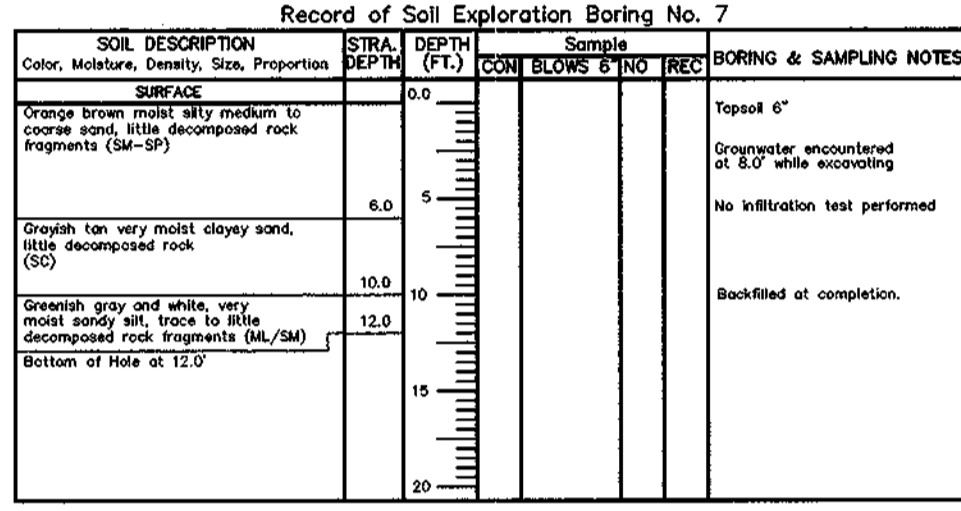
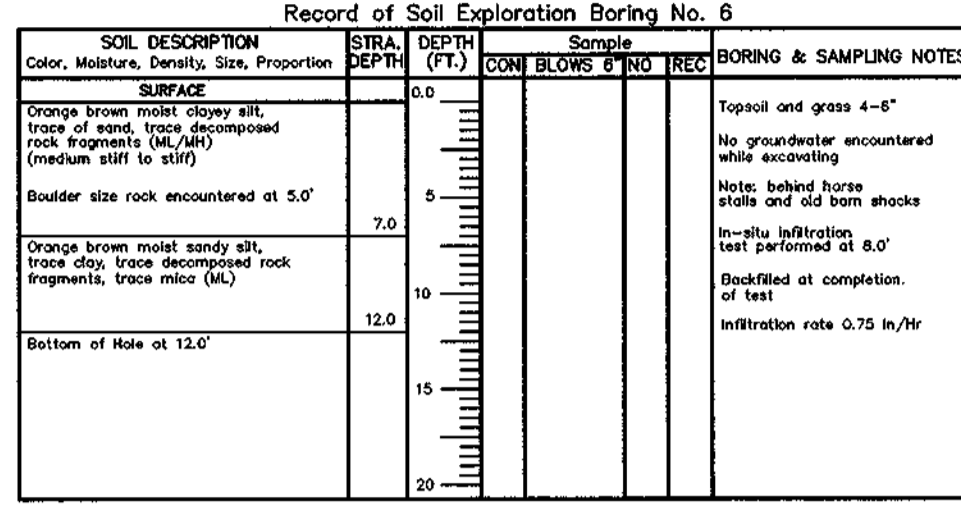
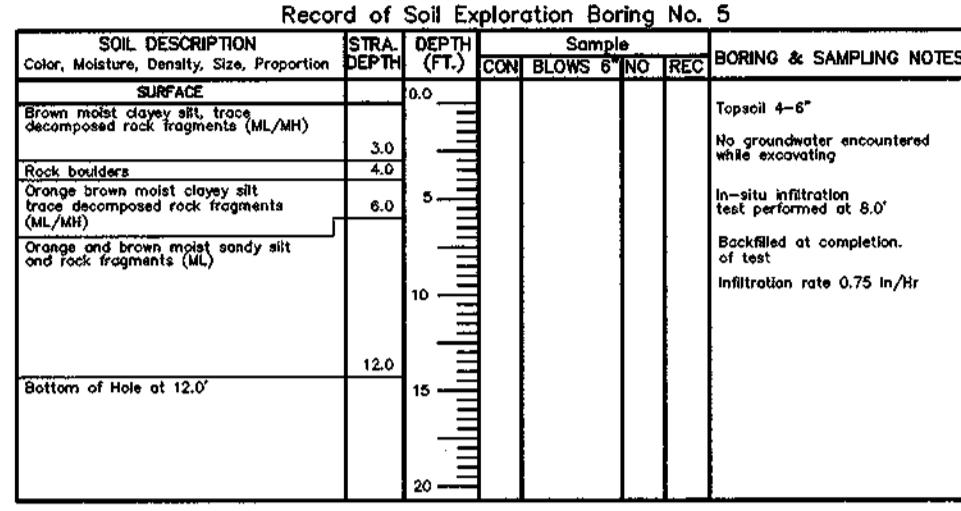
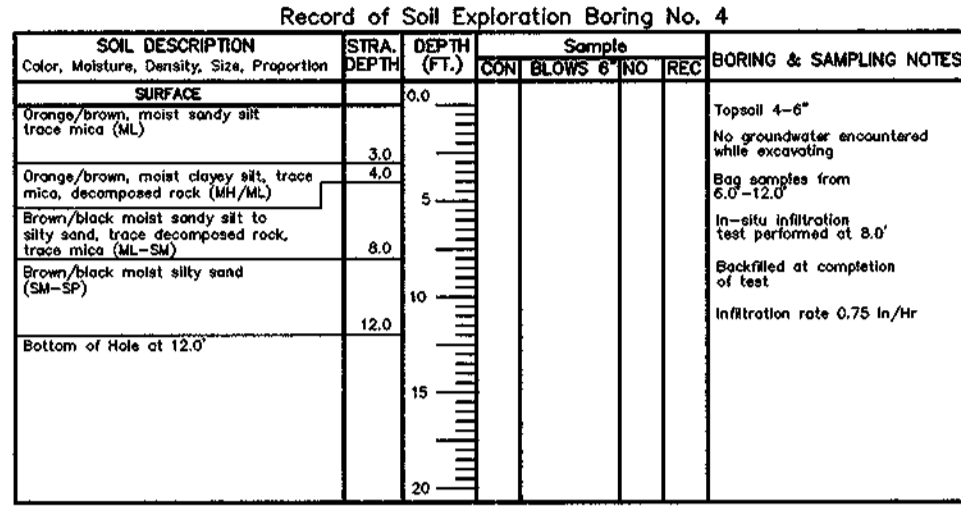
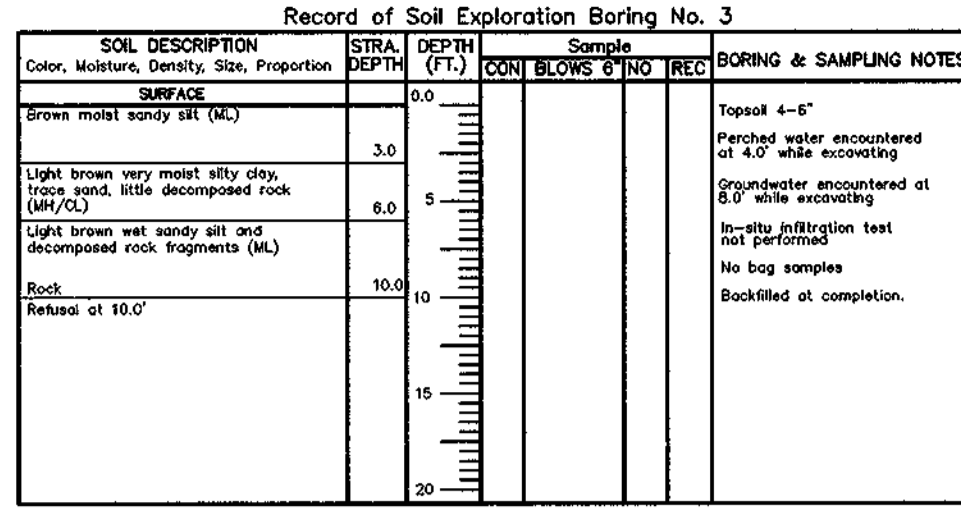
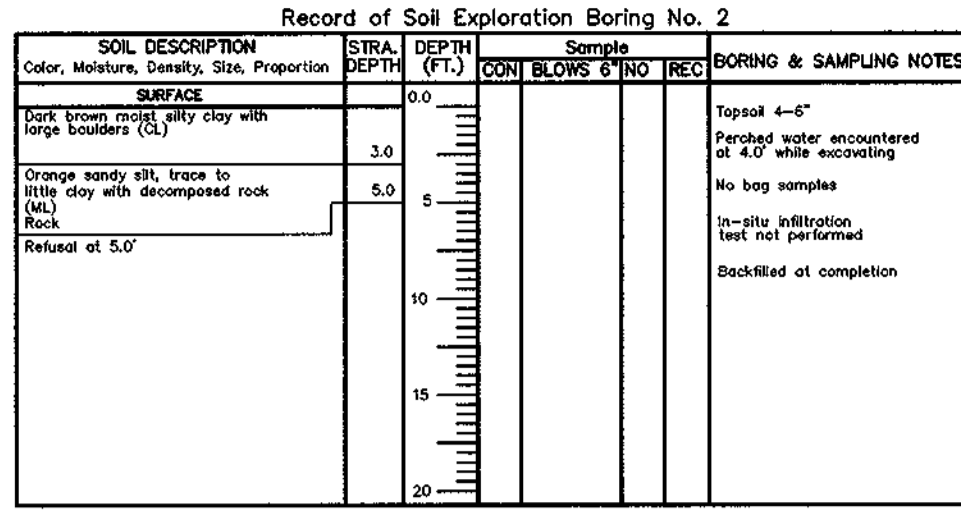
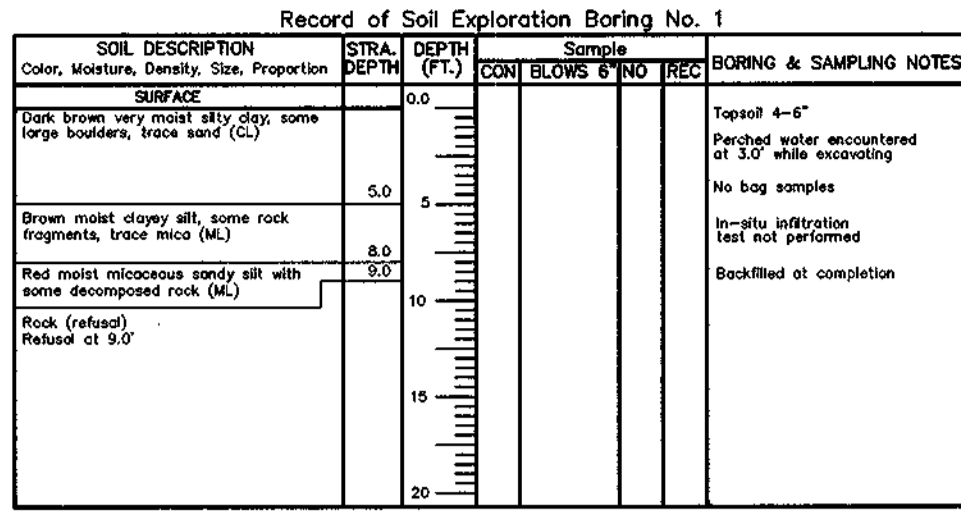
Stabilization

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.

- 1. Slope construction should commence at the toes of the proposed slopes and continue upwards as additional fill is placed.
- 2. Typically during slope construction, compaction equipment has difficulty compacting soils along the shoulder.
- 3. After construction, the slopes should be promptly vegetated to prevent erosion.
- 4. The embankment construction should be done under the supervision of an experienced soil inspector or the Geotechnical Engineer.



HILLS-CARNES ENGINEERING ASSOCIATES, INC. RECOMMENDATIONS

Embankment and Cut-off trench Construction

The site should be stripped of topsoil and any other unsuitable materials from the embankment or structure area in accordance with Soil Conservation Guidelines. After stripping operations have been completed, the exposed subgrade materials should be profiled with a loaded dumptruck or similar equipment in the presence of a geotechnical engineer or his representative.

A representative of the geotechnical engineer should be present to monitor placement and correction of fill for each embankment and cut-off trench. In accordance with Maryland Soil Conservation Specification 378, soils considered suitable for the center of embankment and cut-off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Par SCS 378 consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

It is my professional opinion that in addition to the soil materials described above a fine grained soil, including SILT (ML) with a plasticity index of 10 or more can be utilized for the center of the embankment and core trench. Based on the results of the test pits, it appears that surficial materials in the areas of test pits TP-1 through TP-6, TP-10 and TP-11 include silty clay and clayey silt. These materials should be suitable for core and cut-off trench material.

Additionally, the following procedures should be utilized to construct the proposed embankments:

- 1. Slope construction should commence at the toes of the proposed slopes and continue upwards as additional fill is placed.
- 2. Typically during slope construction, compaction equipment has difficulty compacting soils along the shoulder.
- 3. After construction, the slopes should be promptly vegetated to prevent erosion.
- 4. The embankment construction should be done under the supervision of an experienced soil inspector or the Geotechnical Engineer.

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.

Keenan Plesch DATE 2-22-99 DEVELOPER

BY THE ENGINEER: I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Donald Mason 2/27/99 ENGINEER - DONALD A. MASON, P.E. # 21443 DATE

Robert W. Ziehm 3/1/99 NATURAL RESOURCES CONSERVATION SERVICE DATE

Robert W. Ziehm 3/1/99 HOWARD SOIL CONSERVATION DISTRICT DATE

Randall M. Daniels 3-8-99 CHIEF, BUREAU OF HIGHWAYS DATE

Cindy Hamilton 2/19/99 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

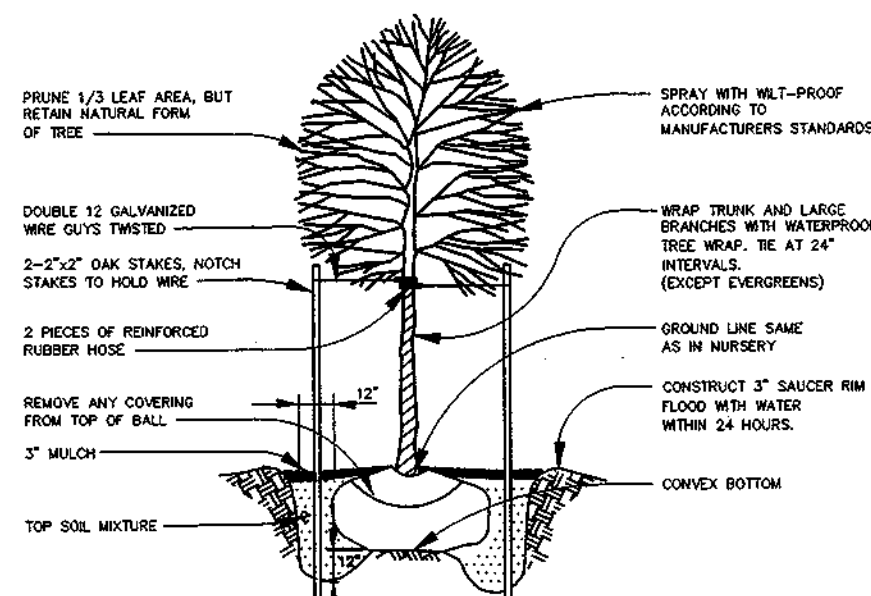
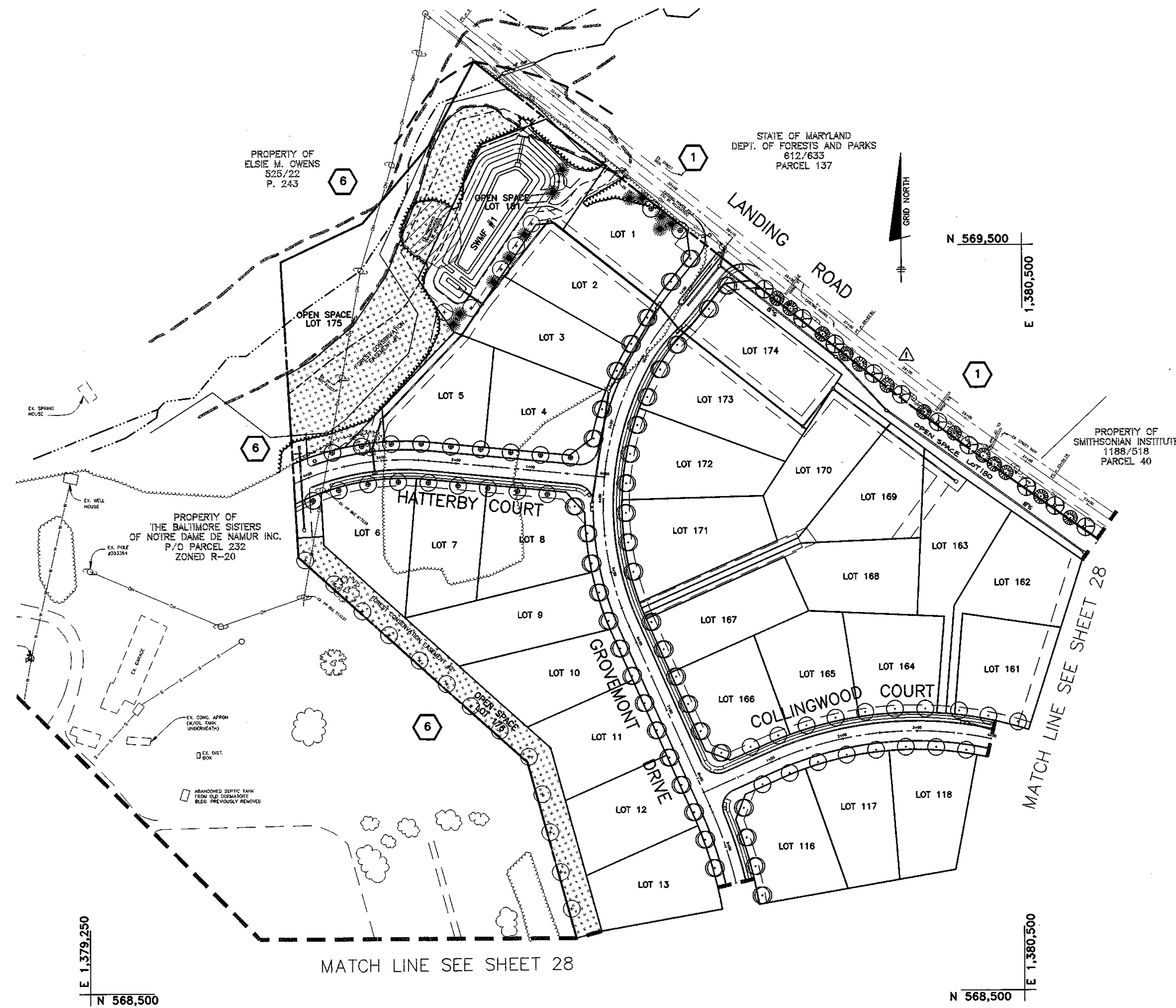
Donald Mason 2/15/99 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Table with columns NO., DATE, and REVISION.

BENCHMARK ENGINEERS + LAND SURVEYORS + PLANNERS logo and address: 8480 BALTIMORE NATIONAL PIKE - SUITE 418 - ELLICOTT CITY, MARYLAND 21043

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC. PROJECT: GROVEMONT. LOCATION: TAX MAP 31 - P/D PARCEL 232. TITLE: STORMWATER MANAGEMENT NOTES AND DETAILS.

DESIGN: MLV DRAFT: DBT CHECK: DAM SCALE: NONE SHEET 26 OF 32 DATE: FEBRUARY, 1999 PROJECT NO. 0793



TREE PLANTING DETAIL  
NOT TO SCALE

NOTE:

- TREES SHOULD BE PLANTED A MINIMUM OF 6 FEET FROM THE EDGE OF PAVING AND MUST BE A MINIMUM OF 5 FEET FROM ANY STORM DRAIN.
- 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.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Stephen M. Stankovic* 3-8-99  
 CHIEF, BUREAU OF HIGHWAYS  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*David Hamilton* 3/14/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
*William J. ...* 3/15/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

LANDSCAPE TYPE	ADJ. TO ROADS		ADJACENT TO PERIMETER PROP.			
	①	②	③	④	⑤	⑥
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	2,570'	1,280'	1,328'	996'	1,735'	1,663'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES, 250'	YES, 510'	YES, 790'	YES, 500'	YES, 80'	YES, 620'
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS PROVIDED	2,230 L.F.	770 L.F.	538 L.F.	96 L.F.	1,655 L.F.	1,043 L.F.
SHADE TREES	45	13	9	2	28	17
EVERGREEN TREES	56	-	-	-	-	-
OTHER TREES (2:1 SUBSTITUTE)	-	-	-	-	-	-
SHRUBS	-	-	-	-	-	-
NUMBER OF PLANTS PROVIDED	46	13	9	2	28	17
SHADE TREES	46	13	9	2	28	17
EVERGREEN TREES	56	-	-	-	-	-
OTHER TREES (2:1 SUBSTITUTE)	-	-	-	-	-	-
SHRUBS (10:1 SUBSTITUTE)	-	-	-	-	-	-
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)						

② EXISTING WOODS WITH WIDTH 20' OR GREATER.

LANDSCAPE TYPE	ADJACENT TO PERIMETER PROP.			
	①	②	③	④
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	2,570'	1,280'	1,328'	996'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES, 250'	YES, 510'	YES, 790'	YES, 500'
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO
NUMBER OF PLANTS PROVIDED	2,230 L.F.	770 L.F.	538 L.F.	96 L.F.
SHADE TREES	45	13	9	2
EVERGREEN TREES	56	-	-	-
OTHER TREES (2:1 SUBSTITUTE)	-	-	-	-
SHRUBS	-	-	-	-
NUMBER OF PLANTS PROVIDED	46	13	9	2
SHADE TREES	46	13	9	2
EVERGREEN TREES	56	-	-	-
OTHER TREES (2:1 SUBSTITUTE)	-	-	-	-
SHRUBS (10:1 SUBSTITUTE)	-	-	-	-
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)				

STREET TREE PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
⊙	64	TILIA CORDATA 'GREENSPRUE' (Greenspire Littleleaf Linden)	2 1/2" MIN. CAL. B&B FULL HEAD
⊙	144	ACER RUBRA (Red Maple)	2 1/2" MIN. CAL. B&B FULL HEAD
⊙	150	ACER SACCHARUM (Sugar Maple)	2 1/2" MIN. CAL. B&B FULL HEAD
⊙	10	ACER GRACILEM (Paperbark Maple)	1 1/2" TO 2" CAL.
LANDSCAPE PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
⊙	144	PLANTANUS ACERIFOLIA 'BLOODGOOD' (Bloodgood Linden Plant)	2 1/2" MIN. CAL. B&B FULL HEAD
⊙	81	PINUS STROBUS (Eastern White Pine)	5'-8" HL. UNSH-EARED
⊙	13	ILEX OPACA (American Holly)	2 1/2" - 3" HT.

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 \$57,300.00 MUST BE POSTED AS PART OF THE DEVELOPERS AGREEMENT.

LANDSCAPE LEGEND	
SYMBOL	DESCRIPTION
⊙	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 PERIMETER AND STORMWATER MANAGEMENT AREA TO BE PROVIDED BY THE DEVELOPER AND INCORPORATED ON FINAL PLANS.

- LANDSCAPING NOTES
- PERIMETER LANDSCAPING SHALL BE PROVIDED BY THE EXISTING VEGETATION TO REMAIN AND BY THE PLANTINGS AS SHOWN ON THESE PLANS.
  - THE DEVELOPER SHALL BE RESPONSIBLE FOR THE STREET TREES, STORMWATER MANAGEMENT POND PLANTING, THE PRESERVATION OF THE PERIMETER VEGETATION AS SHOWN ON THESE PLANS, AND FOR PERIMETER PLANTING ON PERIMETERS 1 THROUGH 6. BONDING FOR PERIMETER PLANTING IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPERS AGREEMENT.
  - A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN TREES AND STREET LIGHTS.

NO.	DATE	REVISION
1	9-15-99	REVISE PLANTING ALONG SEWER LINE BY LANDING ROAD.
		REVISION

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644

*Donald Mason*  
 PROFESSIONAL ENGINEER

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC.  
 c/o 6305 IY LANE, SUITE 800 GREENBELT, MARYLAND 20770  
 1-301-489-1202

PROJECT: GROVEMONT  
 A RESUBDIVISION OF LOTS 1 THRU 168 OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT No. 13483-13495

LOCATION: TAX MAP 31 - P/O PARCEL 232  
 18<sup>TH</sup> ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE: LANDSCAPE PLAN  
 WP-98-78 S-96-08 P-97-003 F-98-166  
 DATE: JULY, 1998 PROJECT NO. 0793  
 FEBRUARY, 1999

DES: DBT/DAM DRAFT: DBT CHECK: DAM SCALE: 1" = 100' SHEET 27 OF 32

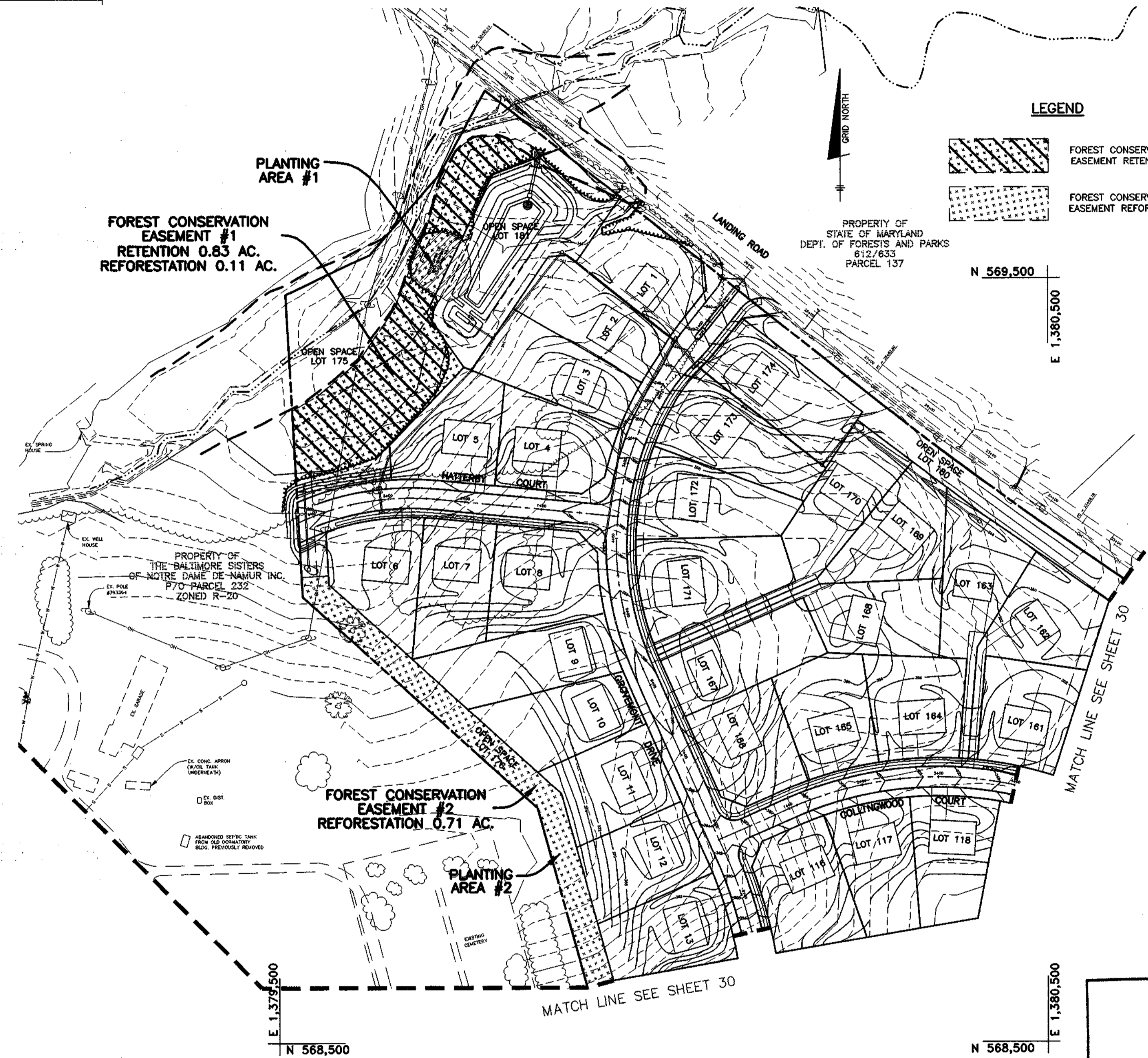
<b>FOREST RETENTION AREA</b> MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS <b>PROHIBITED</b> VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1982	Forest Conservation Area <b>AFFORESTATION PROJECT</b> <i>Trees for Your Future</i>	<b>SPECIMEN TREE</b> <b>DO NOT REMOVE</b> MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS <b>PROHIBITED</b> VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1982
---	--	---

SIGNAGE  
NOT TO SCALE

APPENDIX C  
FOREST CONSERVATION WORKSHEET

	ACRES (1/10 acre)
<b>I. BASIC SITE DATA</b>	
GROSS SITE AREA	96.0
AREA WITHIN 100 YEAR FLOODPLAIN	0.9
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE)	N/A
NET TRACT AREA	95.1
LAND USE CATEGORY (R-RD, R-RMD, R-S, C/I/O, I)	R-20
<b>II. INFORMATION FOR CALCULATIONS</b>	
A. NET TRACT AREA	95.1
B. REFORESTATION THRESHOLD (20% x A)	19.0
C. AFFORESTATION MINIMUM (15% x A)	14.3
D. EXISTING FOREST ON NET TRACT AREA	16.8
E. FOREST AREAS TO BE CLEARED	9.7
F. FOREST AREAS TO BE RETAINED	7.1

- PLANTING NOTES:**
- Planting stock should be 3" to 4" whips and 1 1/2 to 2 gallon container stock at a minimum, with 5" - 6" trees for the oaks, maple and white pine.
  - Only composted mulch may be used.
  - Whips should be planted on average of 11ft. on center with 5 ft. trees on average of 15 ft. (see random planting detail). Pines should be concentrated on the outside perimeter of Planting Area #2 (adjacent to the lots).
  - White oak, white pine and flowering dogwood should be planted outside of wetland limits and wetland buffer in Planting Area #1. Larger trees should be planted along the outside perimeter with a random planting scheme inside. Pines should be concentrated on the outside perimeter.

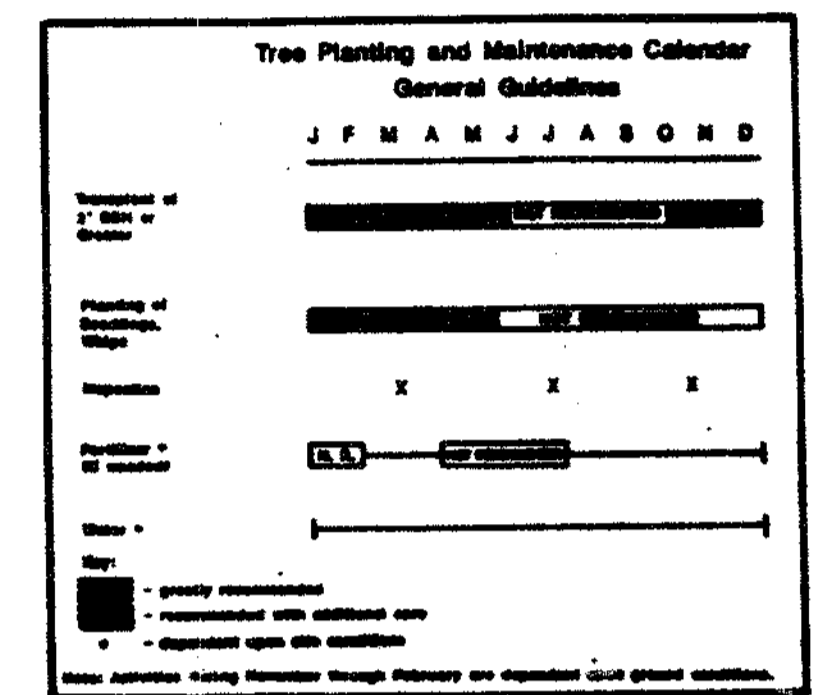


- III. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION**
- Reforestation**  
If existing forest areas equal or exceed the afforestation minimum (if D equals or is more than C), and clearing of forest area is proposed, reforestation requirements may apply.  
GO TO SECTION IV
  - Afforestation**  
If existing forest areas are less than the afforestation minimum (if D is less than C), afforestation requirements apply.  
GO TO SECTION V

**IV. REFORESTATION CALCULATIONS**

	ACRES (1/10 acre)
A. NET TRACT AREA	95.1
B. REFORESTATION THRESHOLD (20% x A)	19.0
D. EXISTING FOREST ON NET TRACT AREA	16.8
E. FOREST AREAS TO BE CLEARED	9.7
F. FOREST AREAS TO BE RETAINED	7.1
G. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD (D-F, if F equals or is greater than B, Alternate 1) (D-B, if F is less than B, Alternate 2)	2.2
H. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD (B-F, if applicable)	11.9
I. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD (F-B, Retention Credit, if applicable)	N/A

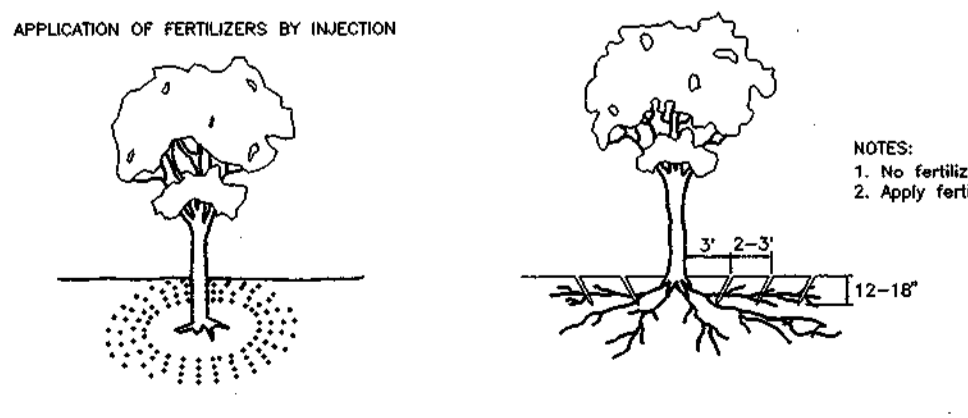
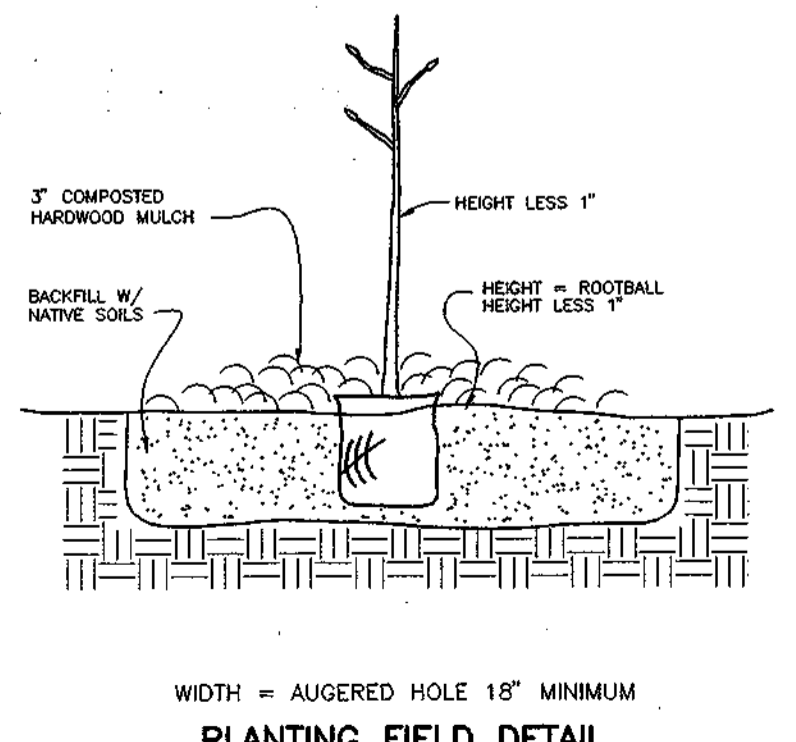
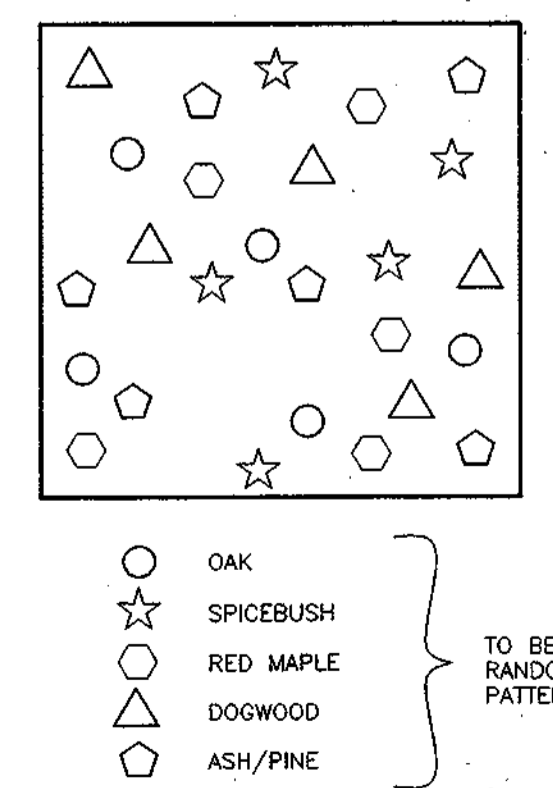
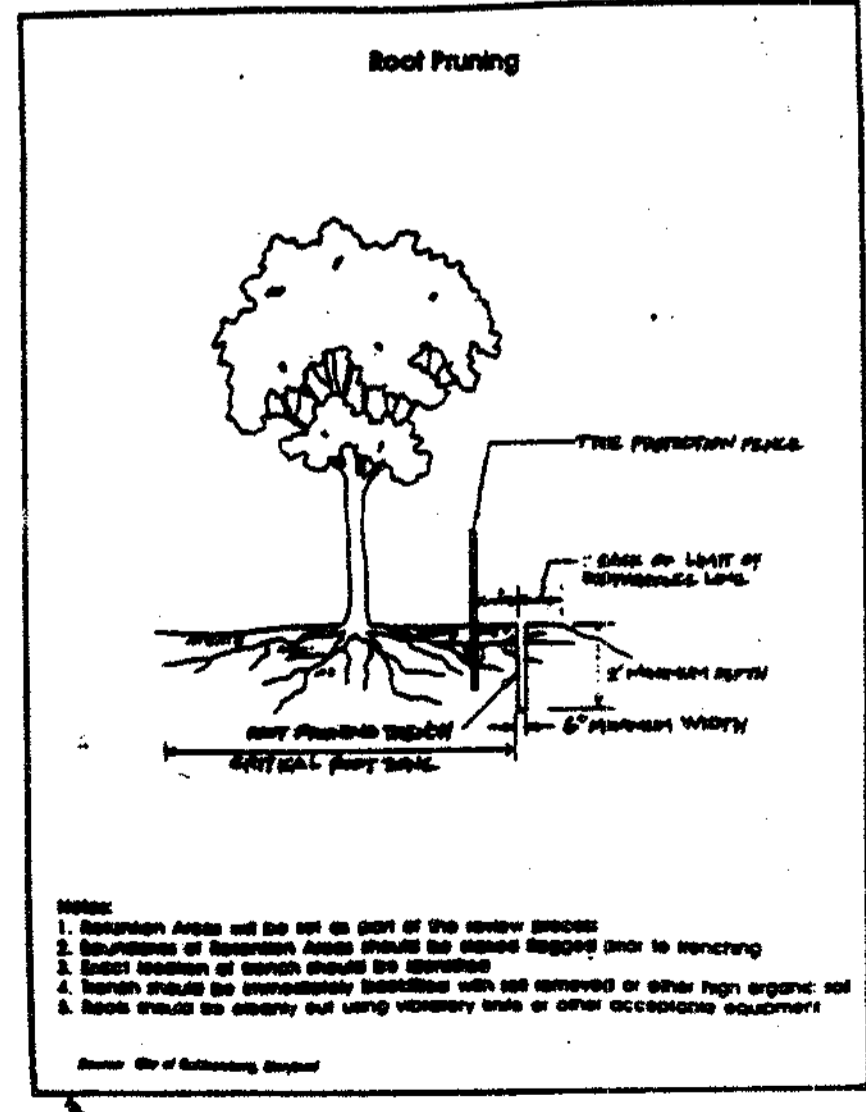
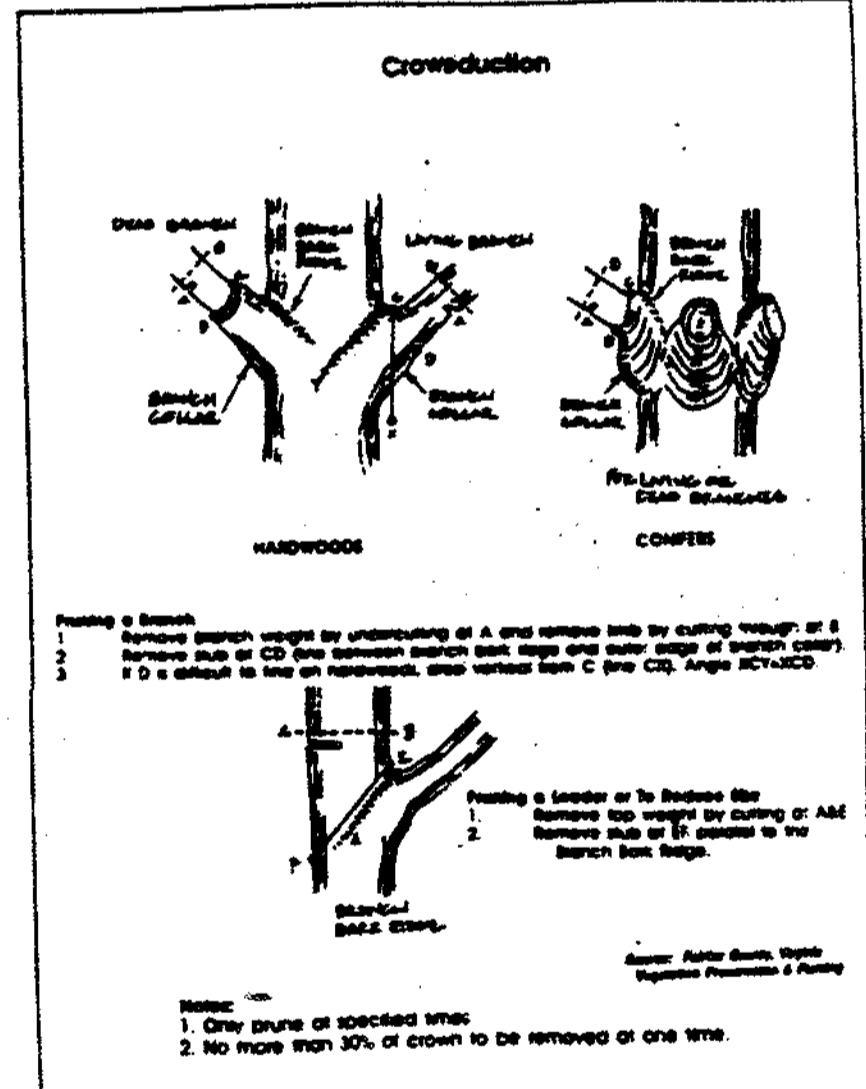
- SELECT THE ALTERNATE THAT APPLIES:**
- Clearing above the threshold only**  
If forest areas to be retained equal or are greater than the reforestation threshold (if F equals or is greater than B), the following calculations apply:  
 REFORESTATION FOR CLEARING ABOVE THRESHOLD  $G \times 1/4$   
 CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD  $I = \text{Retention Credit}$   
 TOTAL REFORESTATION REQUIRED  $(G \times 1/4) - I$   
 If the total reforestation requirement is equal to or less than 0, no reforestation is required.
  - Clearing below the threshold**  
If forest areas to be retained are less than the reforestation threshold (if F is less than B), the following calculations apply:  
 REFORESTATION FOR CLEARING ABOVE THRESHOLD  $G \times 1/4$   
 REFORESTATION FOR CLEARING BELOW THRESHOLD  $H \times 2$   
 TOTAL REFORESTATION REQUIRED  $(G \times 1/4) + (H \times 2)$   
 Since clearing occurs below the threshold, no forest retention credit is possible.



**SITE DATA**

	ACRES
GROSS AREA	96.0
EX. FOREST/UNREFORESTED PRESERVATION	16.8
PARCEL/AG. FLOODPLAIN	0.9
NET TRACT AREA (NTA)	95.1
EXISTING FOREST ON NTA	16.8
REFORESTATION THRESHOLD	19.0
FOREST TO BE CLEARED	9.7
FOREST TO BE RETAINED (NTA)	7.1
REFORESTATION REQUIRED	24.4
REFORESTATION PROPOSED	6.4

\* REMAINING 18.0 AC. OF REFORESTATION TO BE OFFSITE SEE SHEET 32.



*Mary A. Dircks*  
M.A. DIRCKS & CO., INC.  
Environmental Consulting Services  
15228 Old Hanover Road  
Upperco, Maryland 21155  
Phone/Fax: 410-526-7388

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Stephen M. Decker* 3-8-99  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Andy Hamilton* 3/1/99  
CHIEF, DIVISION OF LAND DEVELOPMENT

*John Williams* 3/15/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

**BENCHMARK ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

**OWNER/DEVELOPER:** WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202

**PROJECT:** GROVEMONT A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT Nos. 13493-13495

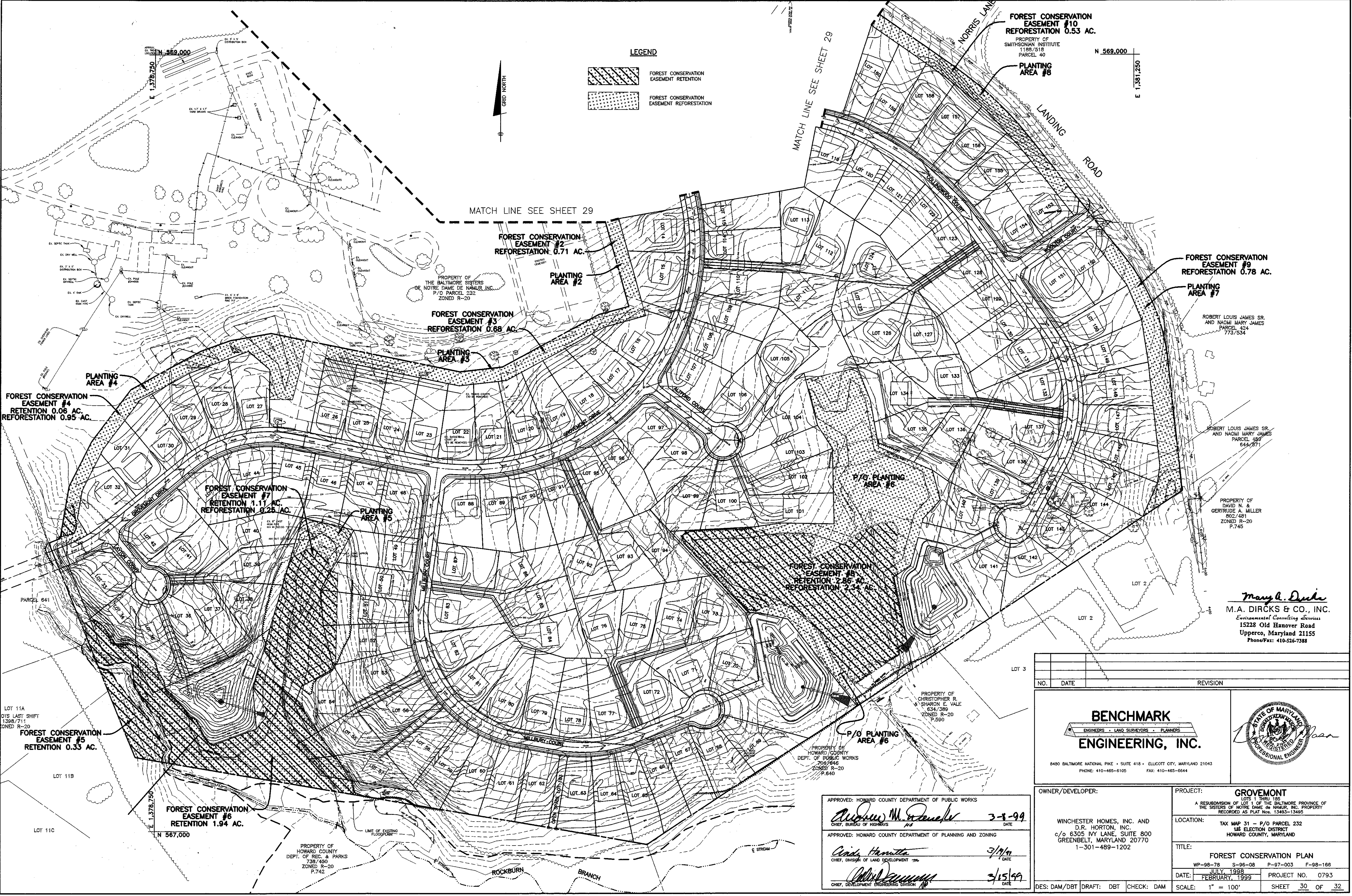
**LOCATION:** TAX MAP 31 - P/O PARCEL 232 181 ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**TITLE:** FOREST CONSERVATION PLAN

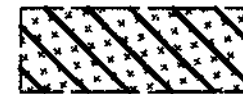

WP-98-78 S-96-08 P-97-003 F-98-166  
DATE: JULY 1998 PROJECT NO. 0793  
DATE: FEBRUARY, 1999 PROJECT NO. 0793

DES: DAM/DBT DRAFT: DBT CHECK: DAM SCALE: 1" = 100' SHEET 29 OF 32

NOTE: SEE SHEET 21 FOR PROTECTIVE FENCING DETAIL.



**LEGEND**

 FOREST CONSERVATION EASEMENT RETENTION  
 FOREST CONSERVATION EASEMENT REFORESTATION

**FOREST CONSERVATION EASEMENT #10**  
 REFORESTATION 0.53 AC.  
 PROPERTY OF SMITHSONIAN INSTITUTE  
 1188/218 PARCEL 40  
**PLANTING AREA #8**

**FOREST CONSERVATION EASEMENT #2**  
 REFORESTATION 0.71 AC.  
**PLANTING AREA #2**

**FOREST CONSERVATION EASEMENT #3**  
 REFORESTATION 0.68 AC.  
**PLANTING AREA #3**

**FOREST CONSERVATION EASEMENT #9**  
 REFORESTATION 0.78 AC.  
**PLANTING AREA #7**

**FOREST CONSERVATION EASEMENT #4**  
 RETENTION 0.06 AC.  
 REFORESTATION 0.95 AC.  
**PLANTING AREA #4**

**FOREST CONSERVATION EASEMENT #7**  
 RETENTION 1.11 AC.  
 REFORESTATION 0.26 AC.  
**PLANTING AREA #5**

**FOREST CONSERVATION EASEMENT #6**  
 RETENTION 2.54 AC.  
 REFORESTATION 2.34 AC.  
**P/O PLANTING AREA #6**

**FOREST CONSERVATION EASEMENT #5**  
 RETENTION 0.33 AC.  
**PLANTING AREA #5**

**FOREST CONSERVATION EASEMENT #6**  
 RETENTION 1.94 AC.  
**PLANTING AREA #6**


*Mary A. Dircks*  
**M.A. DIRCKS & CO., INC.**  
 Environmental Consulting Services  
 15228 Old Hanover Road  
 Upperco, Maryland 21155  
 Phone/Fax: 410-526-7388

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 3-8-99  
 CHIEF, BUREAU OF HIGHWAYS  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Andy Hamilton* 3/11/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
*Chris DeLuca* 3/15/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO.	DATE	REVISION

**BENCHMARK**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**

8490 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644



<p>OWNER/DEVELOPER:          WINCHESTER HOMES, INC. AND D.R. HORTON, INC.          c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770          1-301-489-1202</p>	<p>PROJECT: <b>GROVEMONT</b>          A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAHUR, INC. PROPERTY RECORDED AS PLAT NO. 13493-13495</p> <p>LOCATION: TAX MAP 31 - P/O PARCEL 232          18<sup>th</sup> ELECTION DISTRICT          HOWARD COUNTY, MARYLAND</p> <p>TITLE: <b>FOREST CONSERVATION PLAN</b>          WP-98-78 S-96-08 P-97-003 F-98-166</p> <p>DATE: JULY, 1998 PROJECT NO. 0793          FEBRUARY, 1999</p>
<p>DES: DAM/DBT DRAFT: DBT CHECK: DAM</p>	
<p>SCALE: 1" = 100' SHEET 30 OF 32</p>	

Acad. Draw: 7014530 Printed: Feb. 15, 1999

**FOREST PROTECTION PROCEDURES - Preconstruction Phase**

- 1) Edge of the woods to be protected will be marked (staked or flagged) in the field per the limits of forest conservation easement shown in the approved site development plan prior to the start of construction activity. All areas within protective easement are to be considered "off limits" to any construction activities. The optional protective fencing shall be installed at the outside edge of forested areas and should be combined with sediment control devices when possible. The limit of the critical root zone and therefore the location of the protective devices is to be determined as follows:  
  
Edge of Forested Area - 1 foot of protective radius/inch of DBH or an eight foot protective radius, whichever is greater.  
  
Critical Root Zone for the forest on this site is an average of 12 feet from the trunk of the tree. Critical root zones for Specimen Tree #1 and #2 are 34' and 30'.
- 2) Construction activities expressly prohibited within the preservation areas are:  
  
Placing or stockpiling backfill or top soil in protected areas  
Felling trees into protected areas  
Driving construction equipment into or through protected areas  
Burning in or in close proximity to protected areas  
Stacking or storing supplies of any kind  
Concrete wash-off areas  
Conducting trenching operations  
Grading beyond the limits of disturbance  
Parking vehicles or construction equipment  
Removal of root mat or topsoil  
Siting and construction of: Utility lines  
Access roads  
Impervious surfaces  
Stormwater management devices  
Staging areas
- 3) Protective fencing (see Figure "Protective Fencing") shall be the responsibility of the general contractor. The general contractor shall affix signs to the fencing at 25' minimum intervals indicating that these areas are "Forest Retention Area" (see Figure "Signage"). The general contractor shall take great care to assure the restricted areas are not violated and that root systems are protected from smothering, flooding, excessive wetting from dewatering operations, off-site runoff, spillage, and drainage or solutions containing materials hazardous to tree roots.
- 4) The general contractor shall be responsible for any tree damaged or destroyed within the preservation areas whether caused by the contractor, his agents, employees, subcontractors, or licensees.
- 5) Foot traffic shall be kept to a minimum in the protective areas.
- 6) All trees which are not to be preserved within fifty feet of any tree preservation areas are to be removed in a manner that will not damage those trees that are designated for preservation. It is highly recommended that tree stumps within this fifty foot area be ground out with a stump grinding machine to minimize damage.
- 7) The general contractor shall designate a "wash out" area onsite for concrete trucks which will not drain toward a protected area.
- 8) A pre-construction meeting shall be held with local authorities before any disturbance has taken place on site.

**FOREST PROTECTION PROCEDURES - Construction Phase**

- Forest and tree conditions should be monitored during construction and corrective measures taken when appropriate.
- The following shall be monitored:
- a) Soil compaction
  - b) Root injury - prune and monitor; consider crown reduction
  - c) Limb injury - prune and monitor
  - d) Flooded conditions - drain and monitor; correct problem
  - e) Drought conditions - water and monitor; correct problem
  - f) Other stress signs - determine reason, correct, and monitor

**FOREST PROTECTION PROCEDURES - Post Construction Phase**

- The following measures shall be taken:
- 1) Corrective measures if damages were incurred due to negligence:
    - a) Stress reduction
    - b) Removal of dead or dying trees. This may be done only if trees pose an immediate safety hazard.
  - 2) Removal of temporary structures:
    - a) No burial of discarded materials will occur onsite within the conservation area.
    - b) No open burning within 100 feet of a wooded area.
    - c) All temporary forest protection structures will be removed after construction.
    - d) Remove temporary roads by removing stone or broadcasting mulch; pre-construction elevation should be maintained.
    - e) Aerate compacted soil.
    - f) Replant disturbed sites with trees, shrubs and/or herbaceous plants.
    - g) Retain signs for retention areas or specimen trees.
    - h) A County official shall inspect the entire site.

- 3) Future protection measures:
  - a) Howard County and the developer shall arrange for the dedication of an appropriate forest conservation easement at a later date.

**FOREST PROTECTION PROCEDURES - Preconstruction Phase**

**Stress Reduction and Protection of Specimen Trees Isolated from Forest Retention Areas and General Forest Retention Areas (as they may apply)**

Isolated specimen trees that are to be preserved will be examined to determine if stress reduction techniques are needed. Protective measures and their evaluation criteria are provided on this plan only if they are employed herein.

Root Pruning

Evaluation Criteria

Will the critical root zone be affected by construction activities such as grade changes, digging for foundations and roads or utility installation?

Design Considerations

- a) Prune prior to construction as shown on the plan (see Figure "Root Pruning Detail.")
- b) Prune root with a clean cut using proper pruning equipment such as a vibratory knife.
- c) Exact location of pruning trench should be identified, and immediately backfilled to cover exposed roots after pruning with soil removed other topsoil, peat moss, or other suitable material or with other high organic soil.
- d) For trees over 15" in diameter, root pruning may be done up to one year in advance of construction.
- e) Tree(s) will be monitored for signs of stress.

Crown Reduction or Pruning

Evaluation Criteria

Has the root system been significantly reduced (>30%) or are there dead, damaged, or diseased limbs?

Design Considerations

- a) Reduce only at specified times of the year:  
Flowering trees - only after flowering and before bud set  
Non-Flowering trees - in late winter, early spring or mid summer
- b) No more than 1/3 of the crown should be removed at one time using acceptable pruning methods (see Figure "Crown Reduction Detail")
- c) Monitor for signs of stress

Watering

Evaluation Criteria

Will construction activities alter the hydrology of the site? Has or will root pruning occur?

Design Considerations

- a) Water only as necessary
- b) Monitor for signs of stress (see Figure "Tree Planting and Maintenance Calendar")

Fertilizing

Evaluation Criteria

Is or will be tree(s) be under stressful conditions? Has or will root pruning occur?

Design Considerations

- a) Use low nitrogen and slow release fertilizers.
- b) Apply in late fall or early spring (see Figure "Tree Planting and Maintenance Calendar")
- c) For small trees (<3" in diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")
- d) For larger trees (>3" diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")
- e) Do not apply fertilizer any closer than 3' from tree trunk for pressurized injection method.
- f) Monitor for signs of stress.

**PLANT SPECIFICATIONS AND NOTES**

I. Site Preparation and Soils

- 1) Disturbance of soils should be limited to the Planting Field for each plant. Planting hole will be a minimum 18" auger hole, dug to the depth of the root ball. As shown on the detail view, a Planting Field of 18" diameter for whips or 2.5 times the width of the root ball is recommended.
- 2) In areas of steep slopes or erodible soils, soil disturbance will be limited to the Planting Field which is equal to the 18" diameter auger hole.
- 3) Soil mix for all plants shall be native soil with no soil amendment, unless a soils analysis determines that soil amendments are required (disturbed sites). Natural amendments, such as organic mulch or leaf mold compost, are preferred.

II. Plant Storage and Inspection

- 1) For container grown nursery stock, planting should occur within two weeks after delivery to site.
- 2) Planting stock should be inspected prior to planting. Plants not conforming to standard nurseryman specifications for size, form, and vigor, roots, trunk wounds, insects and disease should be replaced.

III. Soil Amendments

- 1) Amendments are not recommended in the planting field as studies have shown that roots will be encouraged to stay within the amended soils.

IV. Plant Installation

- 1) Container grown stock should be removed from the container and roots gently loosened from the soil. If the roots encircle the root ball, substitution is required. J-shaped or knicked root systems should also be rejected. **ROOTS MAY NOT BE TRIMMED ON SITE.**
- 2) The Planting Field should be prepared as specified (see detail). Stock must be planted in random pattern (see detail). Native dug soils should be used to backfill Planting Field. Set plant material no more than 1" above existing ground and no lower than existing ground. Gently pack native soil around plant to eliminate all air pockets. After whip and container installation, rake soils evenly over the Planting Field and cover hole with three inches of composted hardwood mulch. Water to settle soil and provide moisture, as needed.
- 3) Prune whips to encourage branching. Container stock will be pruned to eliminate broken and dead branches.
- 4) Newly planted trees may need watering depending on weather conditions. During the next two years watering may be required during summer and dry months. Any watering should consider for recent rainfall patterns.
- 5) Staking of stock is not required, if preferred stock type used.
- 6) Side dressing fertilization 1 year after planting may be warranted. Fertilizer may be added to each tree or shrub at the end of the first growing season and will contain the following by weight:  
5% nitrogen, 10% phosphoric acid, and 5% potash. Nitrogen shall be derived from natural organic sources or ureaform; 40-50% of nitrogen shall be water soluble. Organic fertilizers are preferred to synthetic fertilizers. See Tree Planting and Maintenance Calendar for planting and maintenance dates.
- 7) Integrated Pest Management (IPM) is one of the most effective and safest approaches for maintaining a healthy forest. A full IPM program can include:
  - a) Elimination of low vegetation before planting to help control rodents.
  - b) Use of tree shelters to protect the trunks of seedlings or whips from animal damage. (These trees need more water than those without tree shelters.)
  - c) Mulching around the trees to minimize trunk damage from mowers.
  - d) Pruning dead or diseased branches with a clean cut.
  - e) To prevent sunscald, allow small non-competitive branches, commonly pruned during or before planting, to grow on the sunny side of the trunk.

V. Maintenance Schedule

- 1) Landscaper should conduct an inspection at the following intervals: 6 months after planting, 1 year after planting and 2 years after planting. The purpose of inspection is to evaluate survival rate with reference to the survival required at the end of the two year period (75% minimum).  
  
Regular visits during the first growing season (year 1) are to assess the success of the plantings and determine if supplemental watering or other actions are necessary. Early spring visits will determine winter kill and autumn visits will determine summer kill.
- 2) Assess tree mortality of planting stock, remove and replace any dead or diseased plantings for the first 2 growing seasons.
- 3) Volunteer seeding of native, local and endemic vegetation is to be expected. Do not discourage this effort unless it is negatively affecting the planted stock.
- 4) Landscaper shall remove or control aggressive, noxious, invasive species (i.e. Multiflora Rose, Japanese Honeysuckle, and all herbaceous vegetation) within a 3-foot radius surrounding the planted woody nursery stock for 2 years after planting.
- 5) The landscaper shall be responsible to remove down and dead material that is smothering planting stock. Naturally occurring material that is not affecting planted stock shall not be removed.
- 6) Mowing is one of the most effective means to control exotic and/or invasive species. No mowing shall occur during the wildlife nesting period of early April through mid-July. The landscaper is responsible for mowing and/or weed wacking and/or applying herbicide around planting stock, if needed for 2 growing seasons after planting.

**PLANTING AREA # 1 = 0.11 AC.**

QUANTITY	SPECIES	SIZE
5	Acer Rubrum Red Maple	5'-6" 1" caliper
5	Pinus Strobus White Pine	5'-6"
5	Quercus Alba White Oak or Pin Oak	5'-6"
8	Cornus florida Flowering Dogwood	3'-4' whip
8	Lindera benzoin Spicebush	3'-4' whip

**PLANTING AREA # 2 = 0.71 AC.**

QUANTITY	SPECIES	SIZE
28	Acer Rubrum Red Maple	5'-6" 1" caliper
28	Pinus Strobus White Pine	5'-6"
28	Quercus Alba White Oak or Pin Oak	5'-6"
50	Cornus florida Flowering Dogwood	3'-4' whip
50	Lindera benzoin Spicebush	3'-4' whip

**PLANTING AREA # 3 = 0.68 AC.**

QUANTITY	SPECIES	SIZE
28	Acer Rubrum Red Maple	5'-6" 1" caliper
28	Pinus Strobus White Pine	5'-6"
28	Quercus Alba White Oak or Pin Oak	5'-6"
48	Cornus florida Flowering Dogwood	3'-4' whip
48	Lindera benzoin Spicebush	3'-4' whip

**PLANTING AREA # 4 = 0.95 AC.**

QUANTITY	SPECIES	SIZE
38	Acer Rubrum Red Maple	5'-6" 1" caliper
26	Pinus Strobus White Pine	5'-6"
38	Quercus Alba White Oak or Pin Oak	5'-6"
46	Cornus florida Flowering Dogwood	3'-4' whip
67	Lindera benzoin Spicebush	3'-4' whip
12	Fraxinus pennsylvanica Green Ash	5'-6"
21	Cornus amomum Silky Dogwood	3'-4' whip

**PLANTING AREA # 5 = 0.25 AC.**

QUANTITY	SPECIES	SIZE
10	Acer Rubrum Red Maple	5'-6" 1" caliper
10	Fraxinus pennsylvanica Green Ash	5'-6"
10	Quercus Palustris Pin Oak	5'-6"
18	Cornus amomum Silky Dogwood	3'-4' whip
18	Lindera benzoin Spicebush	3'-4' whip

**PLANTING AREA # 6 = 2.34 AC.**

QUANTITY	SPECIES	SIZE
94	Acer rubrum Red Maple	5'-6" 1" caliper
94	Fraxinus pennsylvanica Green Ash	5'-6"
94	Quercus palustris Pin Oak	5'-6"
164	Cornus amomum Silky Dogwood	3'-4' whip
164	Lindera benzoin Spicebush	3'-4' whip

**PLANTING AREA # 7 = 0.78 AC.**

QUANTITY	SPECIES	SIZE
30	Acer Rubrum Red Maple	5'-6" 1" caliper
31	Pinus Strobus White Pine	5'-6"
30	Quercus Alba White Oak or Pin Oak	5'-6"
50	Cornus florida Flowering Dogwood	3'-4' whip
55	Lindera benzoin Spicebush	3'-4' whip
2	Fraxinus pennsylvanica Green Ash	5'-6"
4	Cornus amomum Silky Dogwood	3'-4' whip

**PLANTING AREA # 8 = 0.53 AC.**

QUANTITY	SPECIES	SIZE
22	Acer Rubrum Red Maple	5'-6" 1" caliper
22	Pinus Strobus White Pine	5'-6"
22	Quercus Alba White Oak or Pin Oak	5'-6"
39	Cornus florida Flowering Dogwood	3'-4' whip
39	Lindera benzoin Spicebush	3'-4' whip

*Mary A. Dircks*  
**M.A. DIRCKS & CO., INC.**  
Environmental Consulting Services  
15228 Old Hanover Road  
Upperco, Maryland 21155  
Phone/Fax: 410-526-7388

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Anaker* 3-8-99  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Quincy Hendrix* 3/19/99  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Bill Dammann* 3/15/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

<p><b>BENCHMARK ENGINEERING, INC.</b> ENGINEERS • LAND SURVEYORS • PLANNERS 8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6644</p>		<p>STATE OF MARYLAND PROFESSIONAL ENGINEER <i>John A. Mason</i></p>
<p>OWNER/DEVELOPER:  WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202</p>	<p>PROJECT: <b>GROVEMONT</b> A SUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NO. 13493-13495</p> <p>LOCATION: TAX MAP 31 - P/O PARCEL 232 18 ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p> <p>TITLE: <b>FOREST CONSERVATION NOTES AND DETAILS</b> WP-98-78 S-98-08 P-97-003 F-98-166</p> <p>DATE: JULY 1998 PROJECT NO. 0793 FEBRUARY 1999</p> <p>SCALE: NONE DRAWING 31 OF 32</p>	

NOTE: PRIORITY FOREST HAS BEEN PLACED IN FOREST CONSERVATION EASEMENT. SPECIMEN TREES WILL BE PRESERVED AS FEASIBLE. ADDITIONAL PLANTINGS WILL BE DONE OFF-SITE AS SHOWN.



PLANTING AREA AA = 0.85 AC.

QUANTITY	SPECIES	SIZE
60	Viburnum Dentatum Arrowwood	whip/container
60	Acer Rubrum Red Maple	whip
10	Quercus Palustris Pin Oak	whip
10	Fraxinus Pennsylvanica Green Ash	whip
10	Cornus Amomum Swamp Dogwood	whip/container
104	Mixed Oaks Quercus Alba Palustris Rubra Prinus	whip
44	Cornus Florida Flowering Dogwood	whip/container

PLANTING AREA DD = 0.18 AC.

QUANTITY	SPECIES	SIZE
13	Viburnum Dentatum Arrowwood	whip/container
13	Acer Rubrum Red Maple	whip
37	Mixed Oaks Quercus Alba Palustris Rubra Prinus	whip

PLANTING AREA BB = 1.68 AC.

QUANTITY	SPECIES	SIZE
118	Viburnum Dentatum Arrowwood	whip/container
118	Acer Rubrum Red Maple	whip
20	Quercus Palustris Pin Oak	whip
20	Fraxinus Pennsylvanica Green Ash	whip
20	Cornus Amomum Swamp Dogwood	whip/container
206	Mixed Oaks Quercus Alba Palustris Rubra Prinus	whip
88	Cornus Florida Flowering Dogwood	whip/container

PLANTING AREA EE = 11.13 AC.

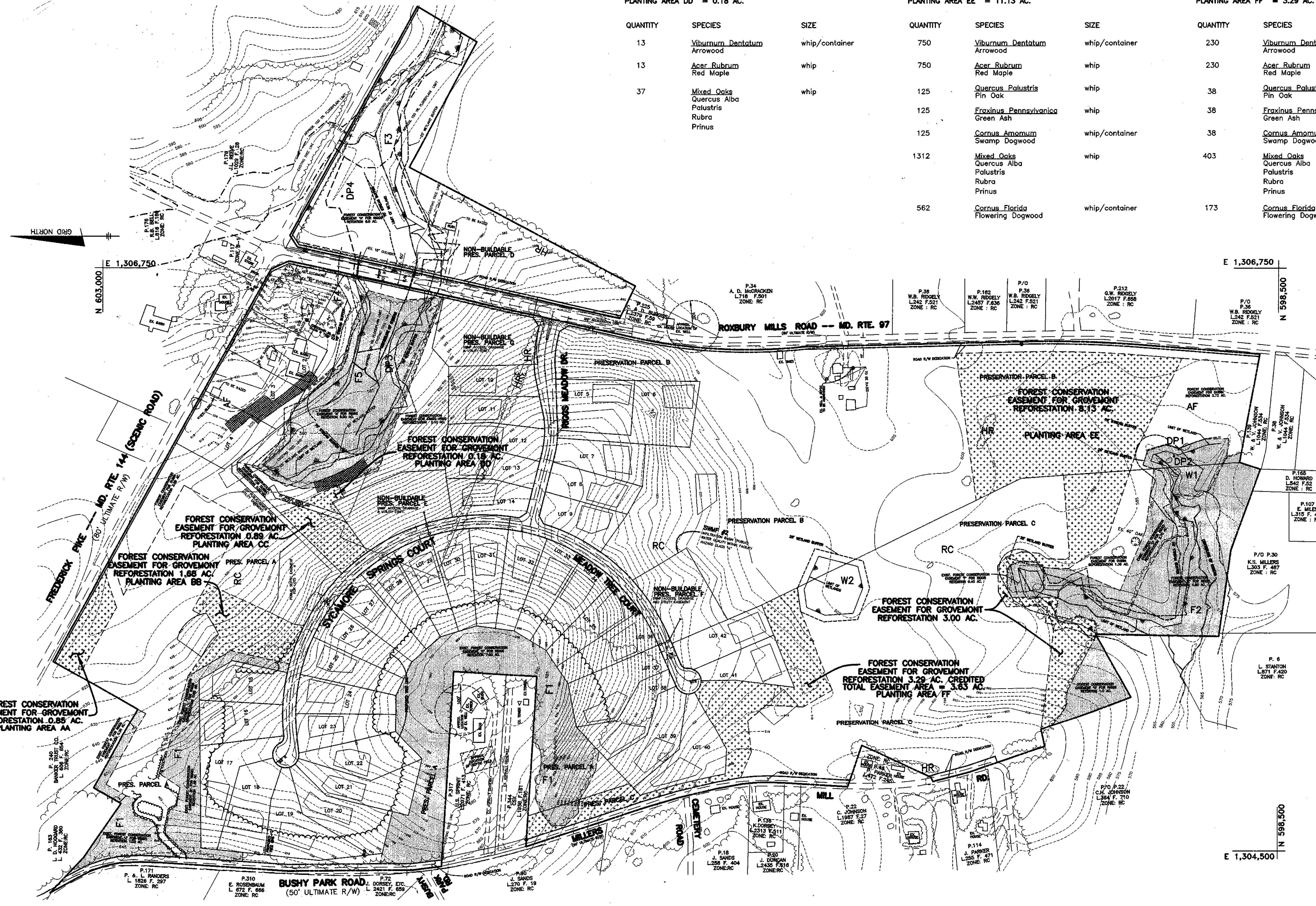
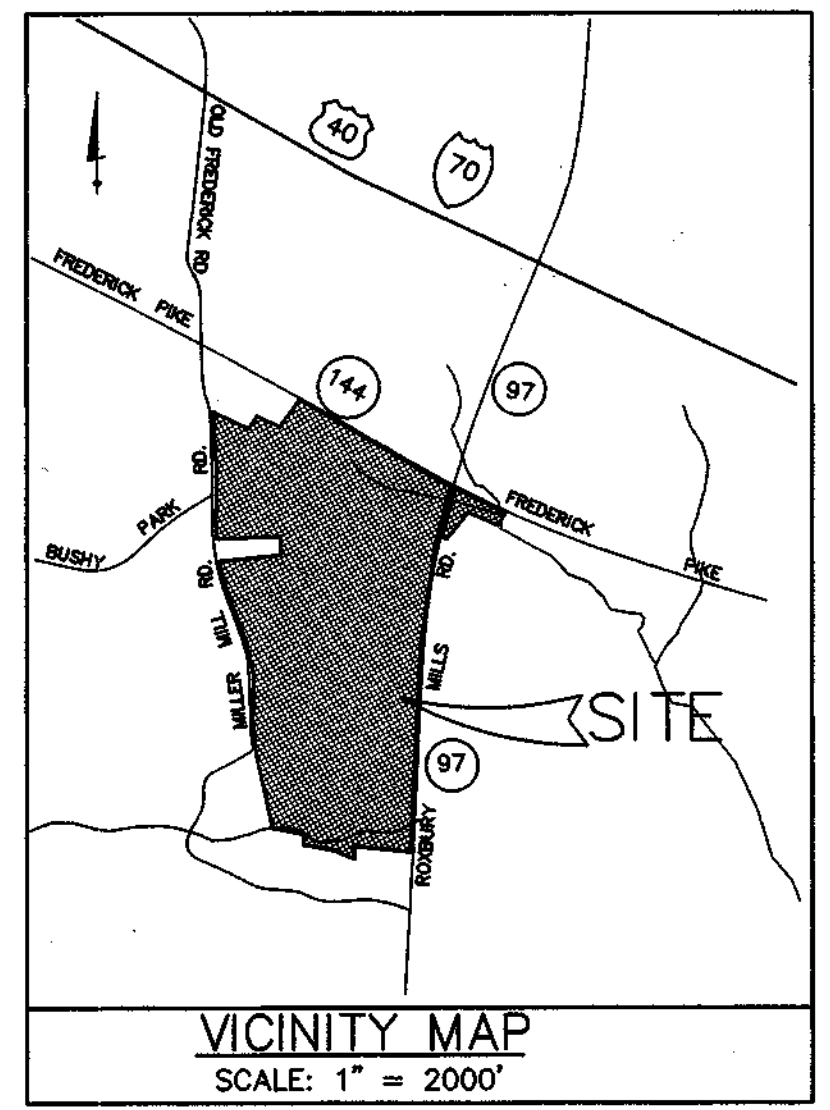
QUANTITY	SPECIES	SIZE
750	Viburnum Dentatum Arrowwood	whip/container
750	Acer Rubrum Red Maple	whip
125	Quercus Palustris Pin Oak	whip
125	Fraxinus Pennsylvanica Green Ash	whip
125	Cornus Amomum Swamp Dogwood	whip/container
1312	Mixed Oaks Quercus Alba Palustris Rubra Prinus	whip
562	Cornus Florida Flowering Dogwood	whip/container

PLANTING AREA CC = 0.89 AC.

QUANTITY	SPECIES	SIZE
62	Viburnum Dentatum Arrowwood	whip/container
62	Acer Rubrum Red Maple	whip
10	Quercus Palustris Pin Oak	whip
10	Fraxinus Pennsylvanica Green Ash	whip
10	Cornus Amomum Swamp Dogwood	whip/container
109	Mixed Oaks Quercus Alba Palustris Rubra Prinus	whip
48	Cornus Florida Flowering Dogwood	whip/container

PLANTING AREA FF = 3.29 AC.

QUANTITY	SPECIES	SIZE
230	Viburnum Dentatum Arrowwood	whip/container
230	Acer Rubrum Red Maple	whip
38	Quercus Palustris Pin Oak	whip
38	Fraxinus Pennsylvanica Green Ash	whip
38	Cornus Amomum Swamp Dogwood	whip/container
403	Mixed Oaks Quercus Alba Palustris Rubra Prinus	whip
173	Cornus Florida Flowering Dogwood	whip/container



Mary G. Dircks  
**M.A. DIRCKS & CO., INC.**  
 Environmental Consulting Services  
 15228 Old Hanover Road  
 Upperco, Maryland 21155  
 Phone/Fax: 410-524-7388

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 3-8-99  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Chris Hamata* 7/19/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Chris Hamata* 5/15/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	DATE	REVISION

**BENCHMARK**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**

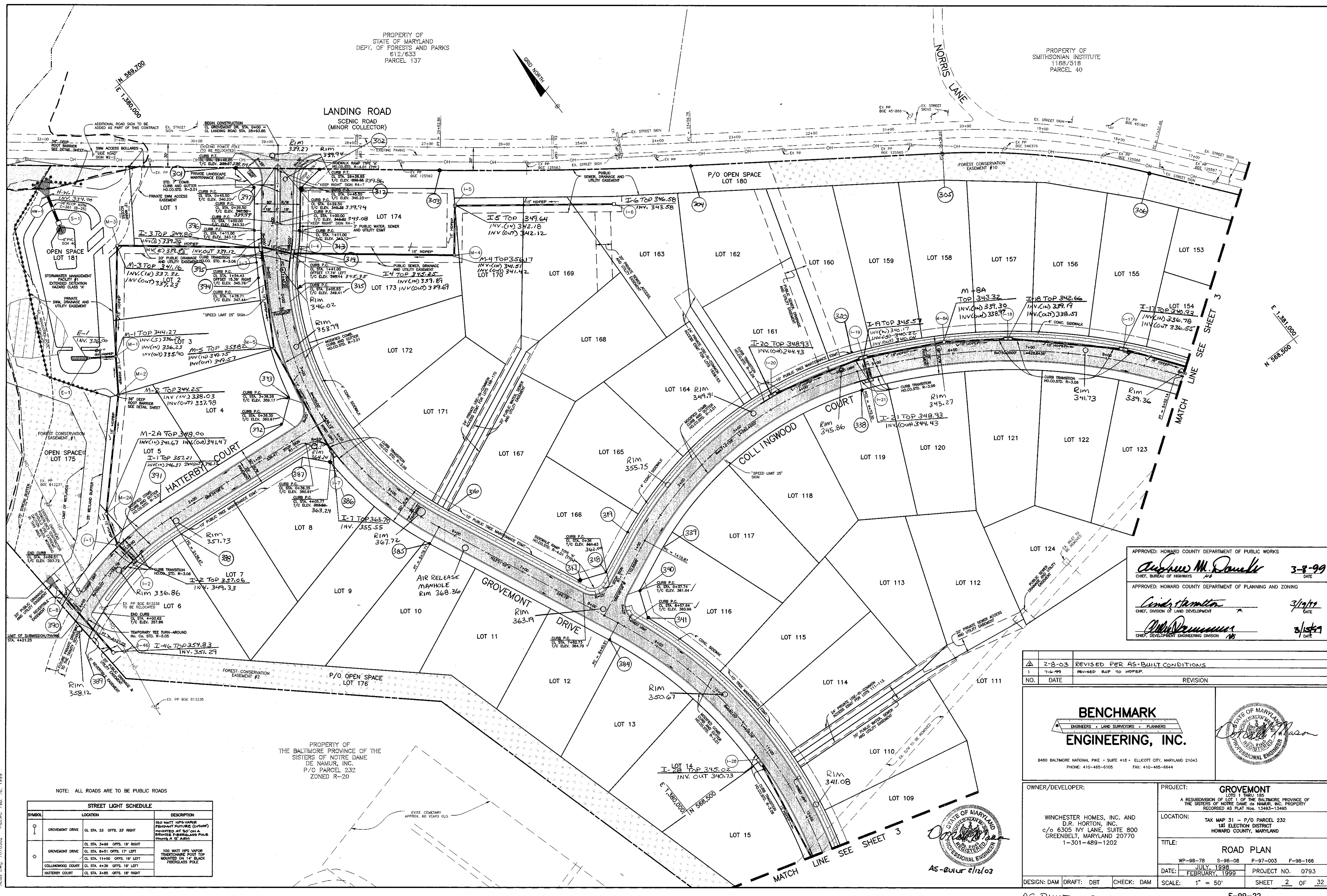
8490 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644

DEVELOPER: SDC GROUP, INC. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244	PROJECT: <b>GROVEMONT</b> LOTS 1 THRU 185 A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NO. 13493-13495
LOCATION: TAX MAP 31 - P/O PARCEL 232 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: <b>FOREST CONSERVATION PLAN</b> OFFSITE REFORESTATION AT RIGGS MEADOW
DATE: JULY, 1998 FEBRUARY, 1999	PROJECT NO. 0793
DES: DAM/DBT DRAFT: DBT CHECK: DAM	SCALE: 1" = 200' SHEET 32 OF 32

Asad Dmg: 7014532 Plotted: Feb. 16, 1999

PROPERTY OF  
STATE OF MARYLAND  
DEPT. OF FORESTS AND PARKS  
612/633  
PARCEL 137

PROPERTY OF  
SMITHSONIAN INSTITUTE  
1188/518  
PARCEL 40



LANDING ROAD  
SCENIC ROAD  
(MINOR COLLECTOR)

P/O OPEN SPACE  
LOT 180

OPEN SPACE  
LOT 181

STORMWATER MANAGEMENT  
FACILITY #1  
EXTENDED DETENTION  
WARDEN CLASS IV

PRIVATE SEWER DRAINAGE  
AND UTILITY EASEMENT

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

30' DEEP  
ROOT BARRIER  
SEE DETAIL SHEET

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

20' PUBLIC DRAINAGE  
CURB TRANSITION  
AND UTILITY EASEMENT  
H.O.C.D. STD. R-3.06

PROPERTY OF  
THE BALTIMORE PROVINCE OF THE  
SISTERS OF NOTRE DAME  
DE NAMUR, INC.  
P/O PARCEL 232  
ZONED R-20

NOTE: ALL ROADS ARE TO BE PUBLIC ROADS

STREET LIGHT SCHEDULE		
SYMBOL	LOCATION	DESCRIPTION
⊙	GROVEMONT DRIVE CL STA. 23 OPTS. 33' RIGHT	150 WATT HPS VAPOR PENDANT FIXTURE (OUTDOOR) MOUNTED AT 9'2" ON 4" BRONZE FIBERGLASS POLE USING A 2" ARM
⊙	GROVEMONT DRIVE CL STA. 3496 OPTS. 19' RIGHT	100 WATT HPS VAPOR TRADITIONAL POST TOP MOUNTED ON 1 1/2" BLACK FIBERGLASS POLE
⊙	GROVEMONT DRIVE CL STA. 8451 OPTS. 17' LEFT	100 WATT HPS VAPOR TRADITIONAL POST TOP MOUNTED ON 1 1/2" BLACK FIBERGLASS POLE
⊙	GROVEMONT DRIVE CL STA. 11450 OPTS. 11' LEFT	100 WATT HPS VAPOR TRADITIONAL POST TOP MOUNTED ON 1 1/2" BLACK FIBERGLASS POLE
⊙	GROVEMONT DRIVE CL STA. 4430 OPTS. 16' LEFT	100 WATT HPS VAPOR TRADITIONAL POST TOP MOUNTED ON 1 1/2" BLACK FIBERGLASS POLE
⊙	GROVEMONT DRIVE CL STA. 3485 OPTS. 16' RIGHT	100 WATT HPS VAPOR TRADITIONAL POST TOP MOUNTED ON 1 1/2" BLACK FIBERGLASS POLE

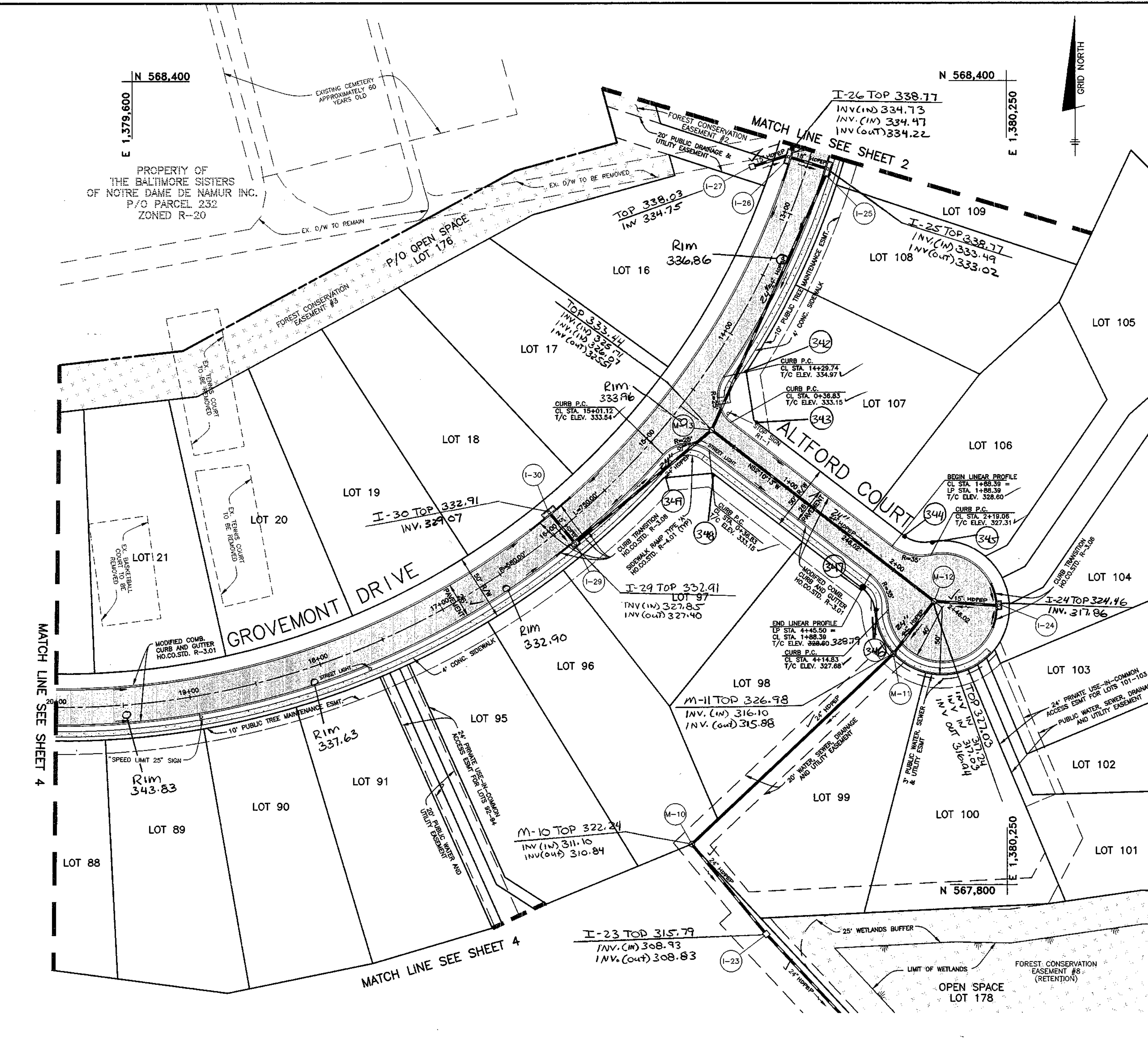
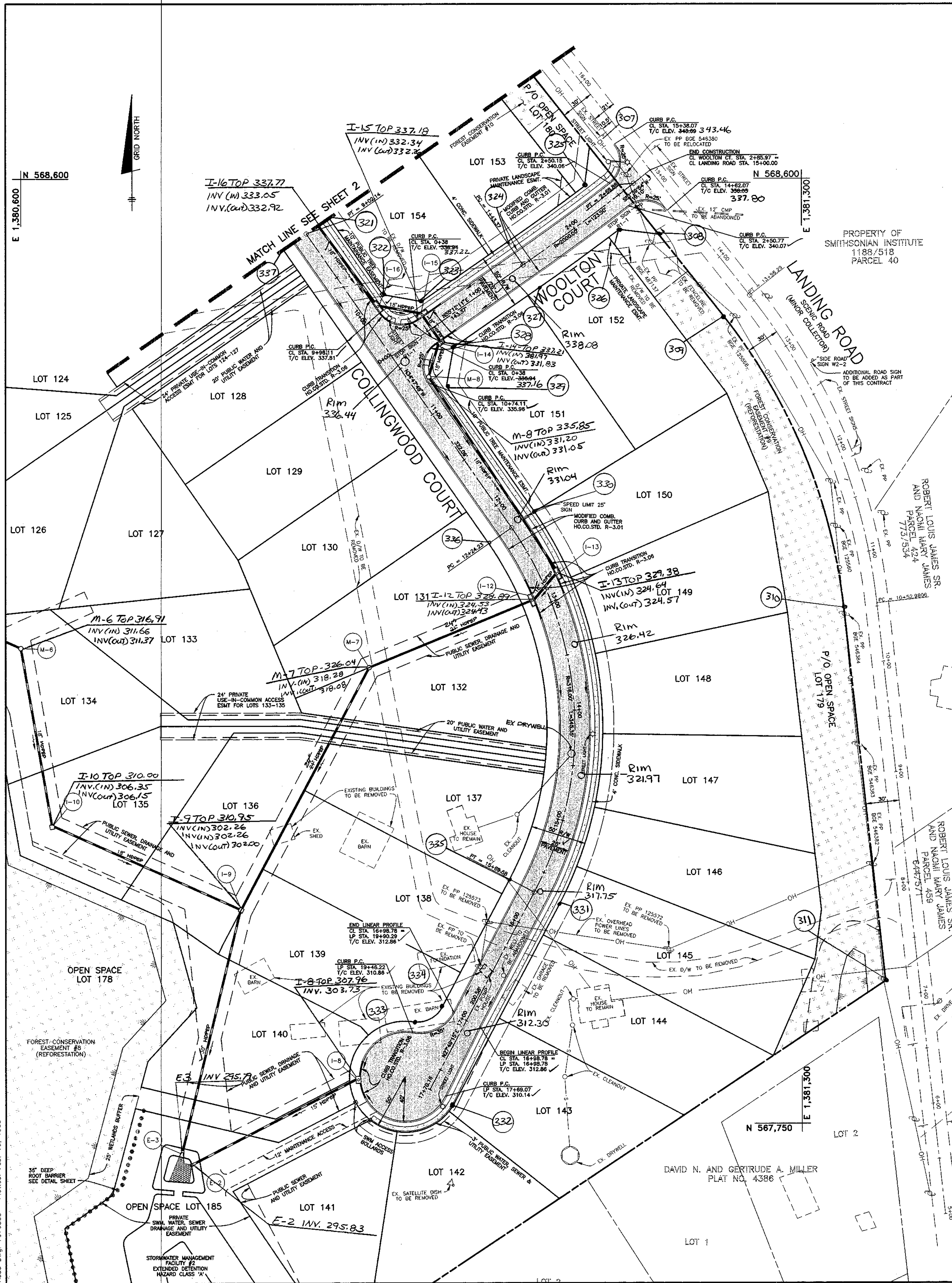
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 3-8-99  
CHIEF, BUREAU OF HIGHWAYS  
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Chris Hamilton* 3/1/99  
CHIEF, DIVISION OF LAND DEVELOPMENT  
*Chris Hamilton* 3/15/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO.	DATE	REVISION
2-8-03		REVISED PER AS-BUILT CONDITIONS
1	7-6-99	REVISED RCP TO HOPPER

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-485-6105 FAX: 410-485-6644

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	PROJECT: <b>GROVEMONT</b> A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NO. 13493-13495
LOCATION: TAX MAP 31 - P/O PARCEL 232 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: <b>ROAD PLAN</b>
DATE: JULY, 1998 FEBRUARY, 1999	PROJECT NO. 0793
DESIGN: DAM DRAFT: DBT CHECK: DAM	SCALE: 1" = 50'
	SHEET 2 OF 32

Acad Dwg: 7070502 Plotted: Feb. 16, 1999



NO.	DATE	REVISION
2-8-03		REVISED PER AS-BUILT CONDITIONS
1	7-6-99	REVISED RCP TO HDPEP

NOTE: ALL ROADS ARE TO BE PUBLIC ROADS

SYMBOL	LOCATION	DESCRIPTION
⊕	WOOLTON COURT	CL STA. 2+61 OFFS. 23' LEFT 150 WATT HPS VAPOR PENDANT FIXTURE (OUTER) POINTED AT 90 DEGREE BRONZE FIBERGLASS POLE WITH A 12' ARM.
⊕	GROVEMONT COURT	CL STA. 1+490 OFFS. 19' RIGHT CL STA. 17+47 OFFS. 17' LEFT CL STA. 10+09 OFFS. 18' LEFT CL STA. 14+21 OFFS. 18' LEFT LP STA. 17+78 OFFS. 3' LEFT 100 WATT HPS VAPOR TRADITIONAL POST TOP MOUNTED ON 14' BLACK FIBERGLASS POLE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 3-8-99  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hamlett* 7/19/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT

*William J. ...* 3/15/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC.  
 c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770  
 1-301-489-1202

PROJECT: GROVEMONT LOTS 1 THRU 185  
 A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NO. 13493-13495

LOCATION: TAX MAP 31 - P/O PARCEL 232  
 1st ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

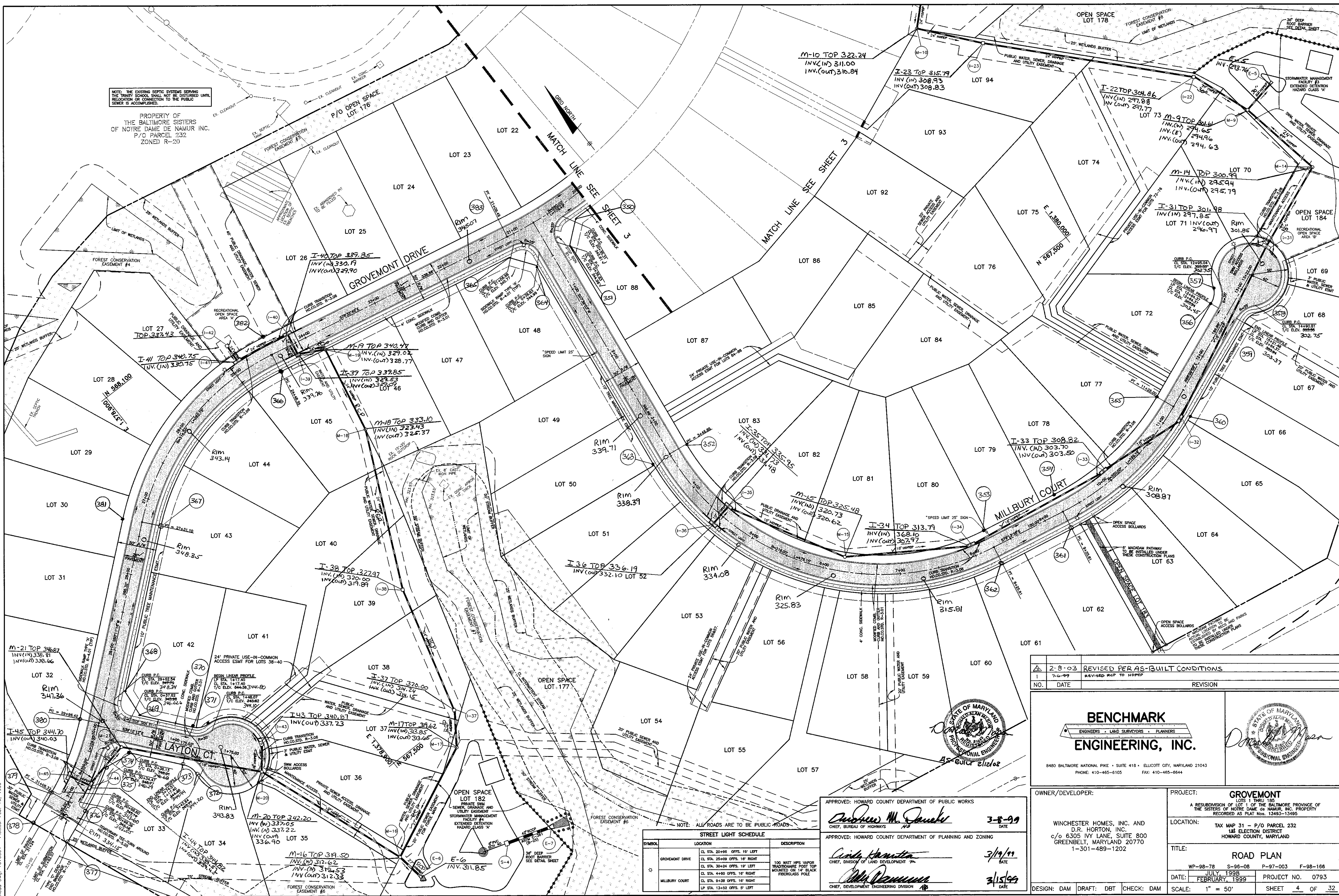
TITLE: ROAD PLAN  
 WP-98-78 S-96-08 P-97-003 F-98-166

DATE: JULY, 1998  
 FEBRUARY, 1999 PROJECT NO. 0793

SCALE: 1" = 50' SHEET 3 OF 32

NOTE: THE EXISTING SEPTIC SYSTEMS SERVING THE TRINITY SCHOOL SHALL NOT BE DISTURBED UNTIL RELOCATION OR CONNECTION TO THE PUBLIC SEWER IS ACCOMPLISHED.

PROPERTY OF THE BALTIMORE SISTERS OF NOTRE DAME DE NAMUR INC. P/O PARCEL 332 ZONED R-20



2-8-03	REVISED PER AS-BUILT CONDITIONS	
1	7-6-99 REVISED RCP TO HOPPE	
NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6444

OWNER/DEVELOPER:	PROJECT:
WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	<b>GROVEMONT</b> LOTS 1 THRU 185 A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NO. 13493-13495
LOCATION:	TITLE:
TAX MAP 31 - P/O PARCEL 232 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND	<b>ROAD PLAN</b>
DATE:	SCALE:
JULY, 1998 FEBRUARY, 1999	1" = 50'
DESIGN: DAM	DRAFT: DBT
CHECK: DAM	PROJECT NO. 0793
SCALE: 1" = 50'	SHEET 4 OF 32

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 3-8-99  
CHIEF, BUREAU OF HIGHWAYS

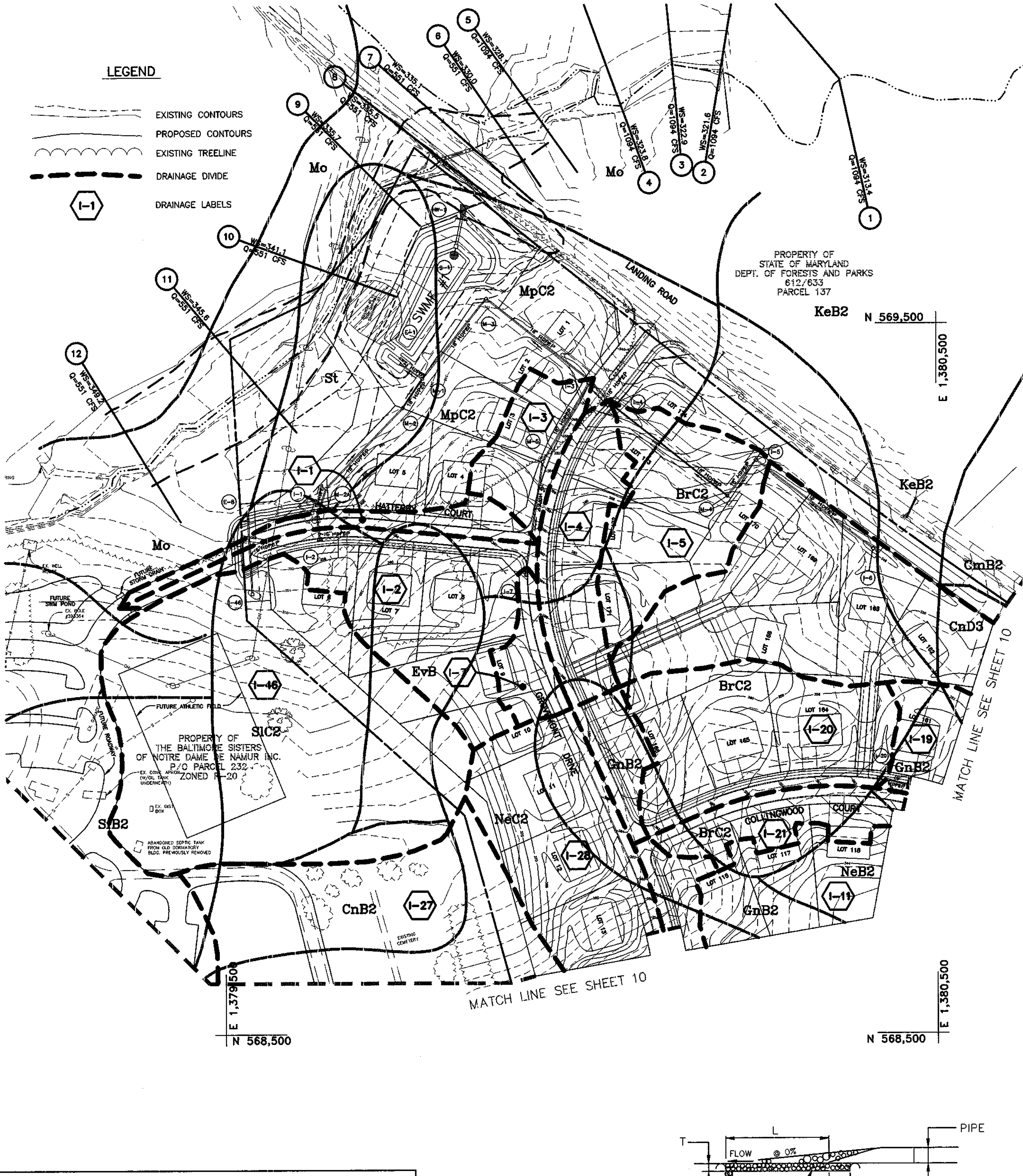
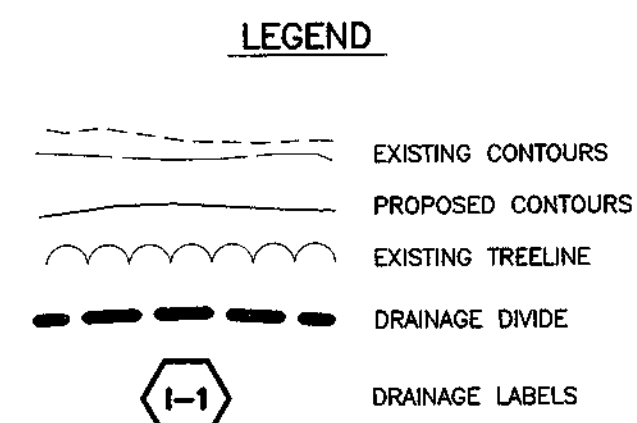
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hamilton* 3/19/99  
CHIEF, DIVISION OF LAND DEVELOPMENT

*John DeMunn* 3/15/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

NOTE: ALL ROADS ARE TO BE PUBLIC ROADS.

SYMBOL	LOCATION	DESCRIPTION
○	GROVEMONT DRIVE	CL STA. 20+96 OFFS. 15' LEFT CL STA. 25+09 OFFS. 15' RIGHT CL STA. 30+24 OFFS. 15' LEFT CL STA. 44+80 OFFS. 15' RIGHT CL STA. 9+38 OFFS. 15' RIGHT LP STA. 13+52 OFFS. 5' LEFT
○	MILLBURY COURT	100 WLT UPS VARIOUS TRAPEZOIDAL POST TOP MOUNTED ON 14" BLACK FIREGLASS POLE

AS-BUILTS 2-8-03

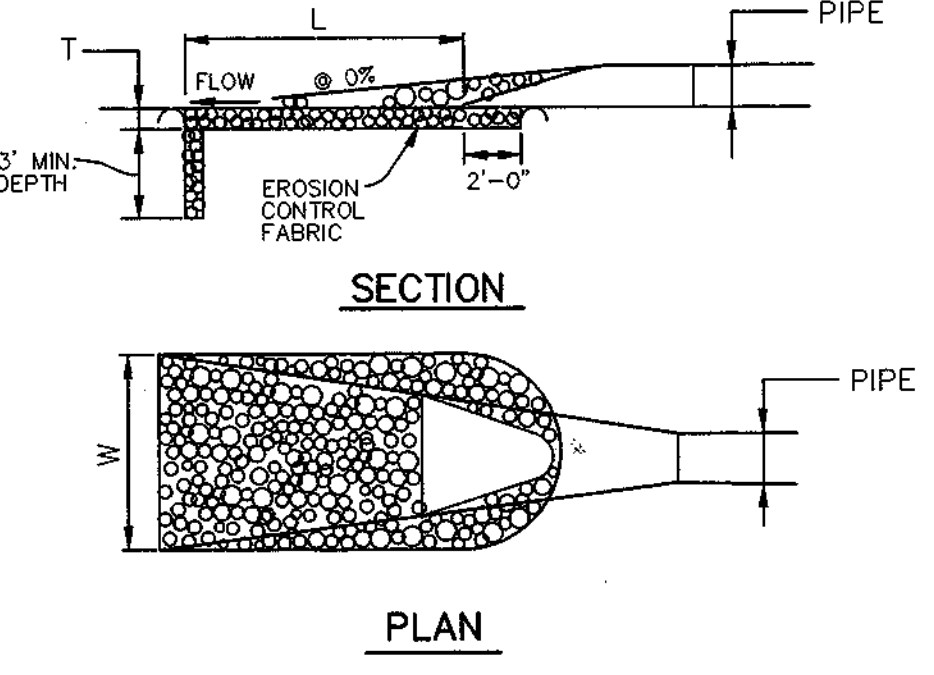


SOILS LEGEND table listing soil groups (e.g., BeD2, BrC2, CmB2) and their corresponding soil types and descriptions.

STRUCTURE SCHEDULE table listing various structures (No., Type, Location, Inv. In, Inv. Out, Top Elev., H.O. Co., Std.) and manholes (No., Run, Size, Length, Type & Class).

STORM DRAIN DATA table with columns: Inlet No., Drainage Area (A.C.), % Impervious, Soil Class, Zoning, C Factor, and C Factor.

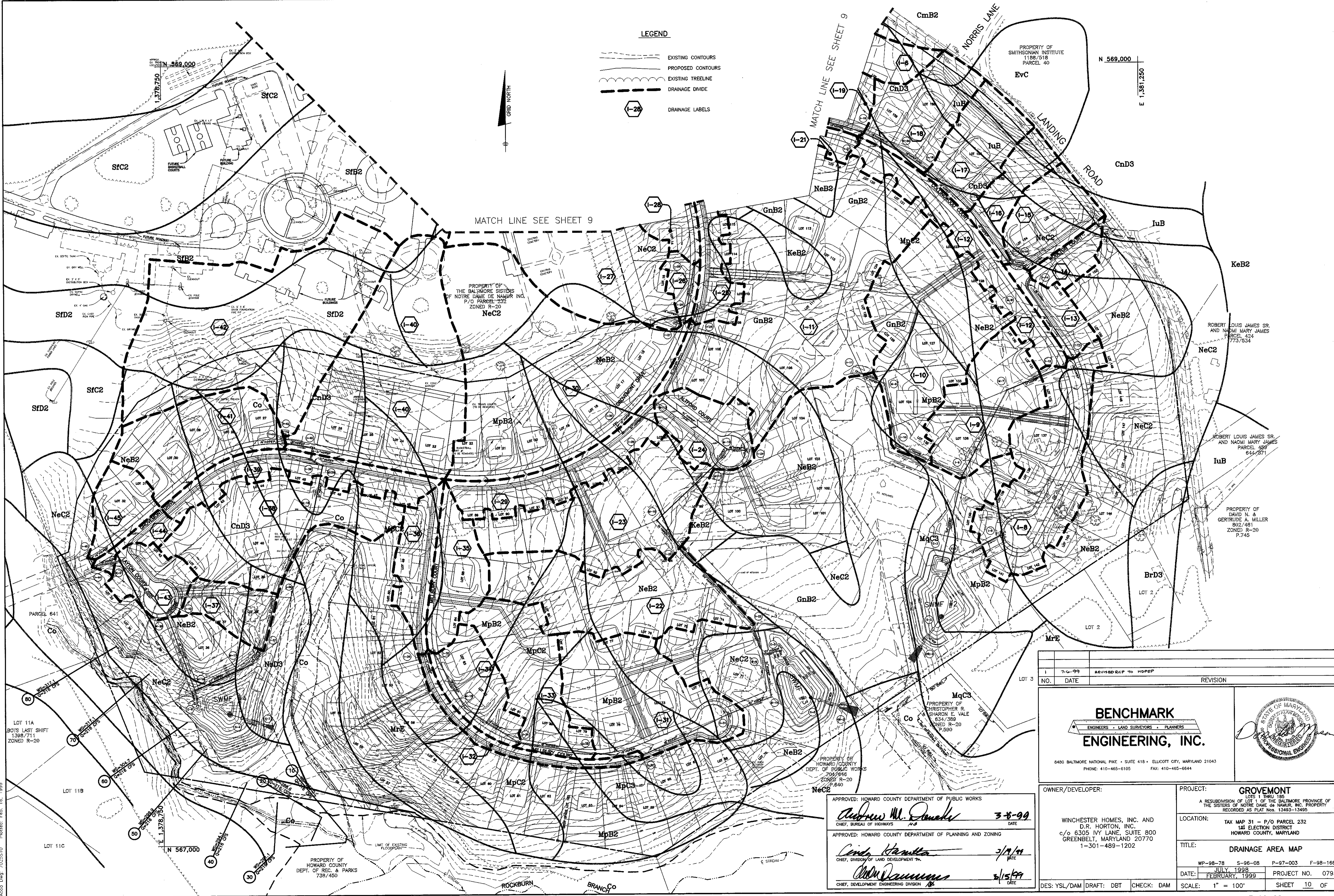
PIPE SCHEDULE table listing pipes (Run, Size, Length, Type & Class) and manholes (No., Run, Size, Length, Type & Class).



OUTLET PROTECTION DETAIL table with columns: Structure, D=0, Length (L), Width (W), Thickness (T), and SHA Class.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS and DEPARTMENT OF PLANNING AND ZONING. Includes signatures and dates for Howard M. Daniker and Cindy Hamilton.

BENCHMARK ENGINEERING, INC. logo and project information including owner/developer (Winchester Homes, Inc. and D.R. Horton, Inc.), location (Tax Map 31 - P/O Parcel 232), title (Drainage Area Map and Details), scale (1" = 100'), and date (February 1999).



**LEGEND**

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING TREELINE
- DRAINAGE DIVIDE
- DRAINAGE LABELS



N 569,000  
E 1,361,250

MATCH LINE SEE SHEET 9

MATCH LINE SEE SHEET 9

NO.	DATE	REVISION
1	7-4-99	REVISED RCP TO HOPEP

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**

6480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644



OWNER/DEVELOPER:  
WINCHESTER HOMES, INC. AND  
D.R. HORTON, INC.  
c/o 6305 IVY LANE, SUITE 800  
GREENBELT, MARYLAND 20770  
1-301-489-1202

PROJECT: **GROVEMONT**  
LOTS 1 THRU 185  
A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF  
THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY  
RECORDED AS PLAT Nos. 13493-13495

LOCATION: TAX MAP 31 - P/O PARCEL 232  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: **DRAINAGE AREA MAP**

WP-98-78 S-96-08 P-97-003 F-98-166  
DATE: JULY, 1998 PROJECT NO. 0793  
FEBRUARY, 1999

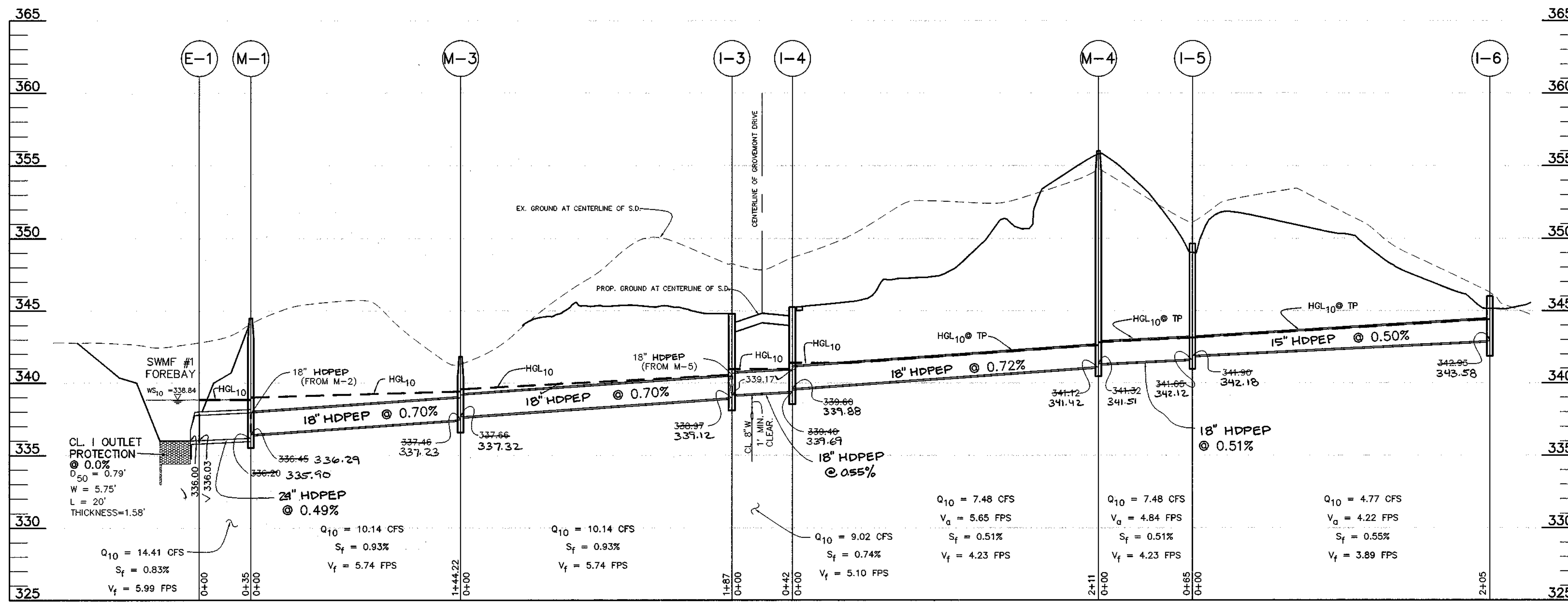
DES: YSL/DAM DRAFT: DBT CHECK: DAM SCALE: 1" = 100' SHEET 10 OF 32

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 3-8-99  
CHIEF, BUREAU OF HIGHWAYS DATE

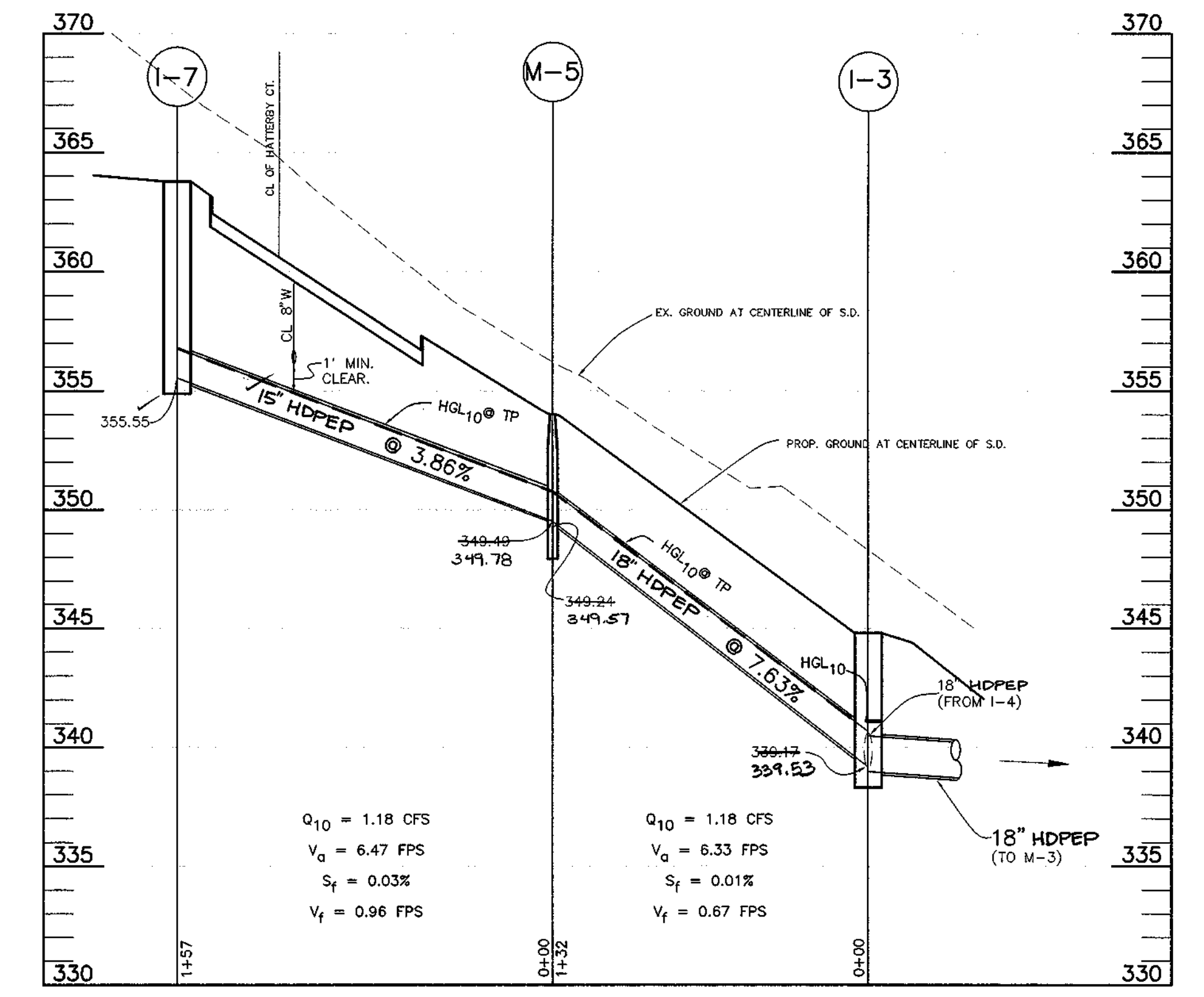
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Conrad Hamilton* 3/9/99  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*John Dammann* 3/15/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

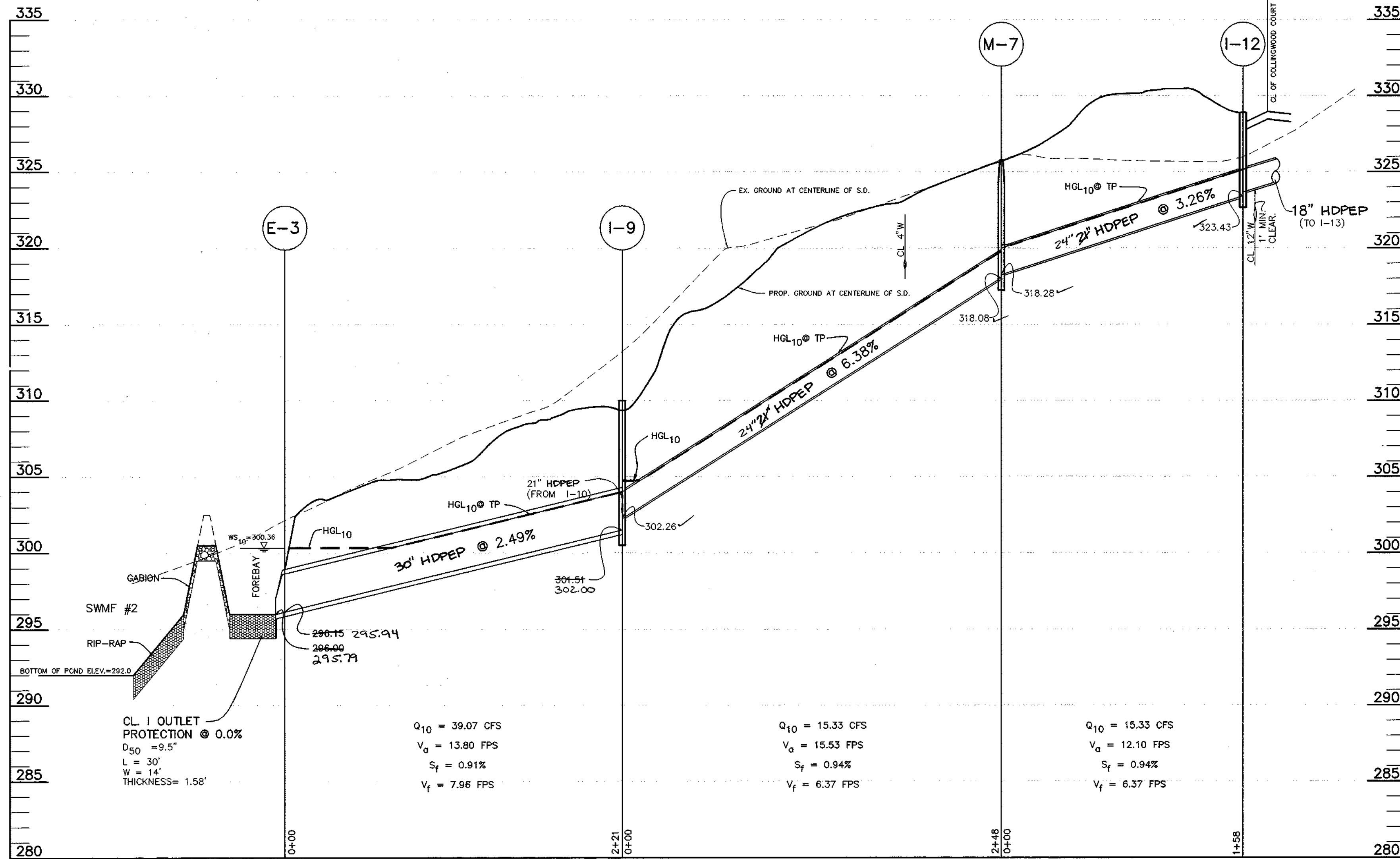
Acad. Draw: 70255310 Plotted: Feb. 16, 1999



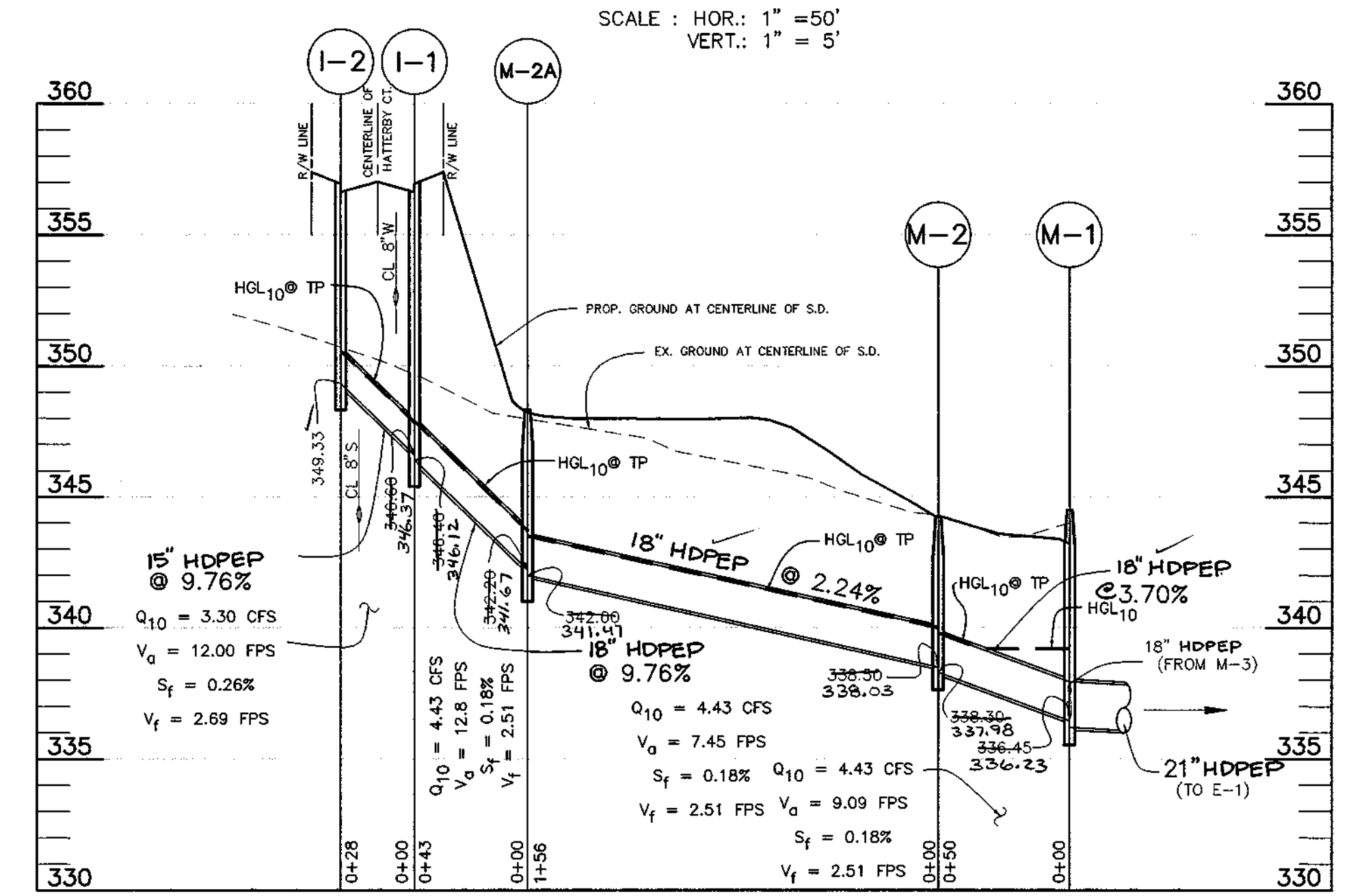
SCALE : HOR.: 1" = 50'  
VERT.: 1" = 5'



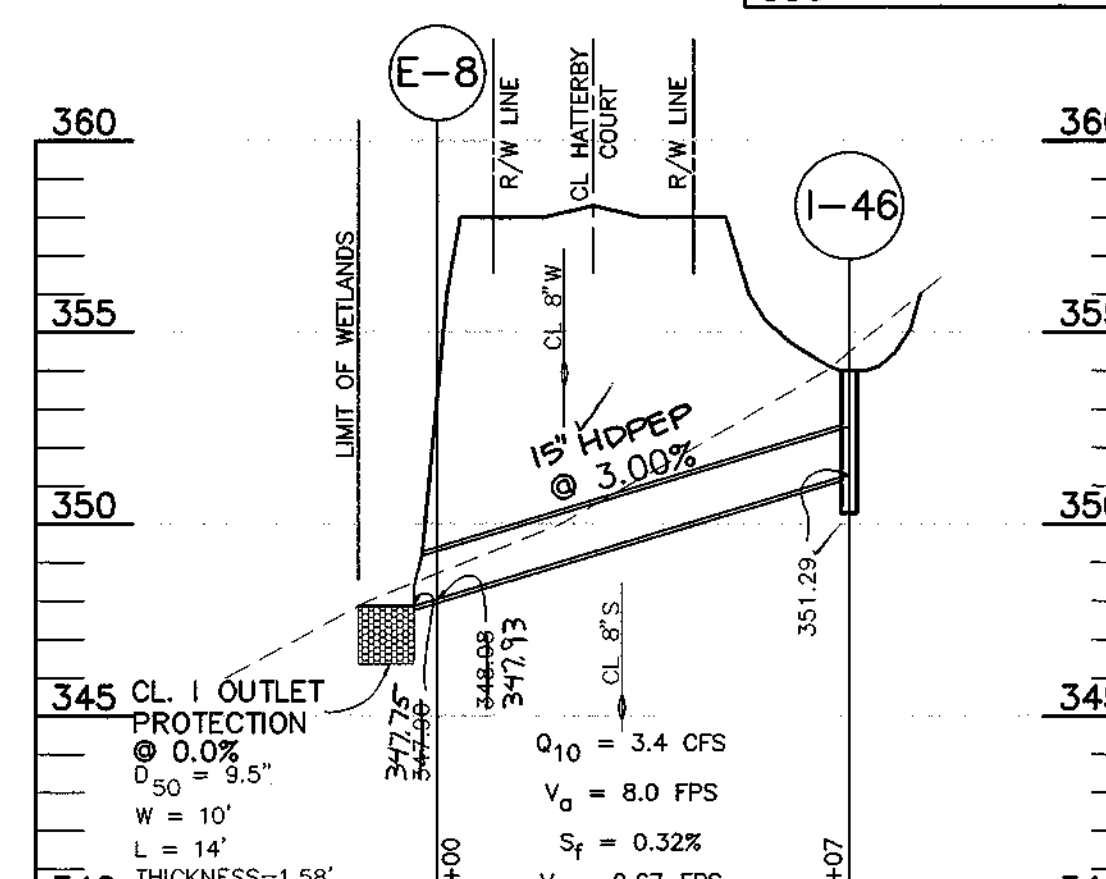
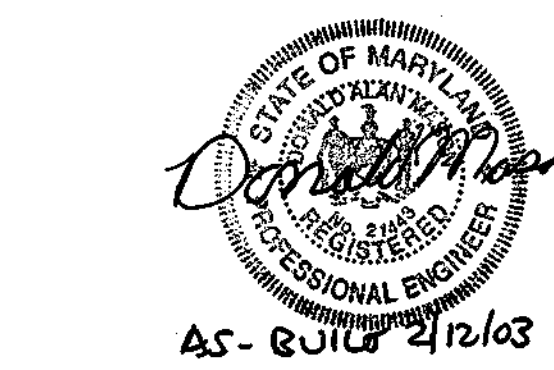
SCALE : HOR.: 1" = 50'  
VERT.: 1" = 5'



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



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



2-8-03	REVISED PER AS-BUILT CONDITIONS	
7-6-99	REVISED RCP TO HDPEP	
NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS

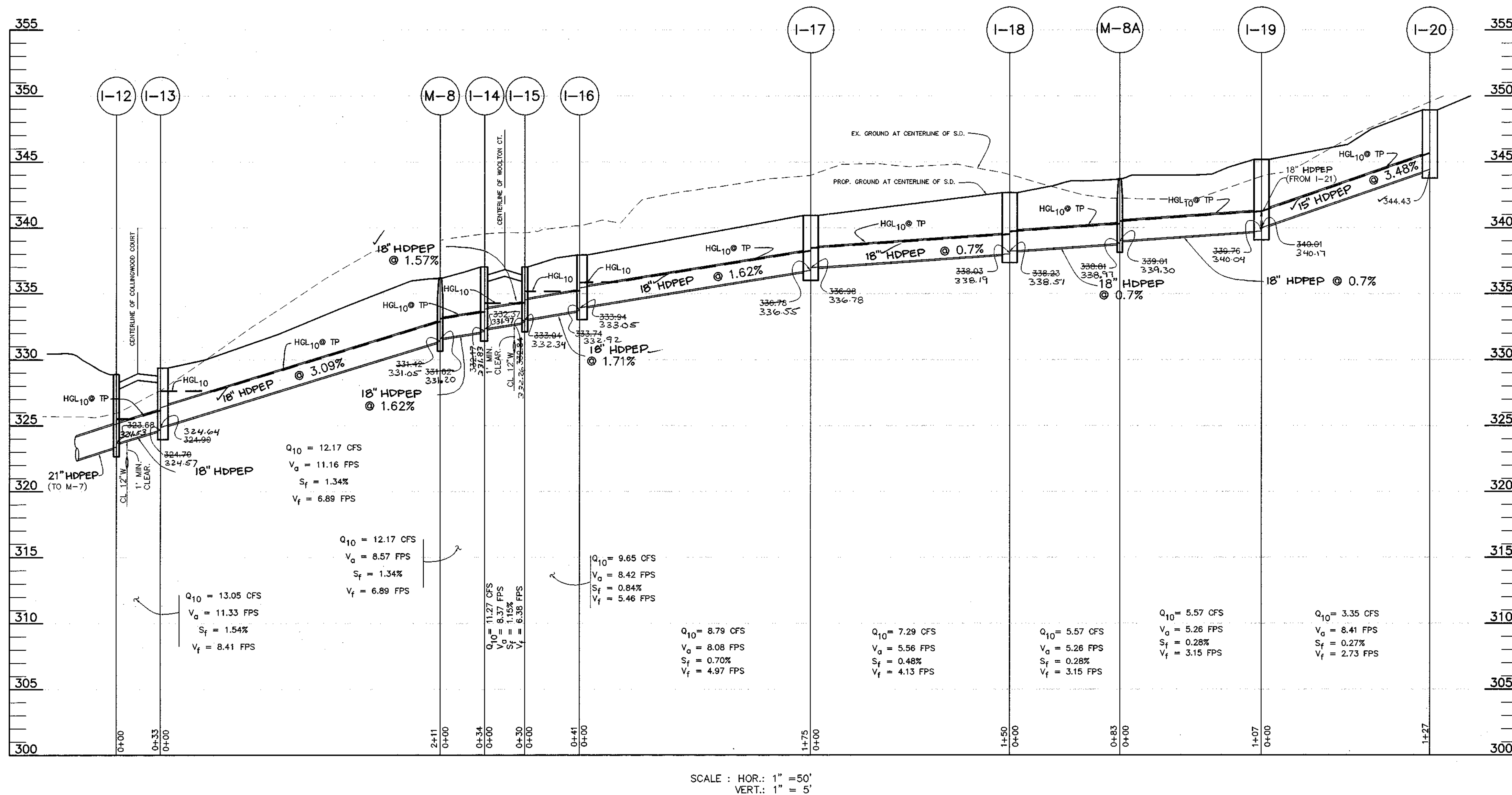
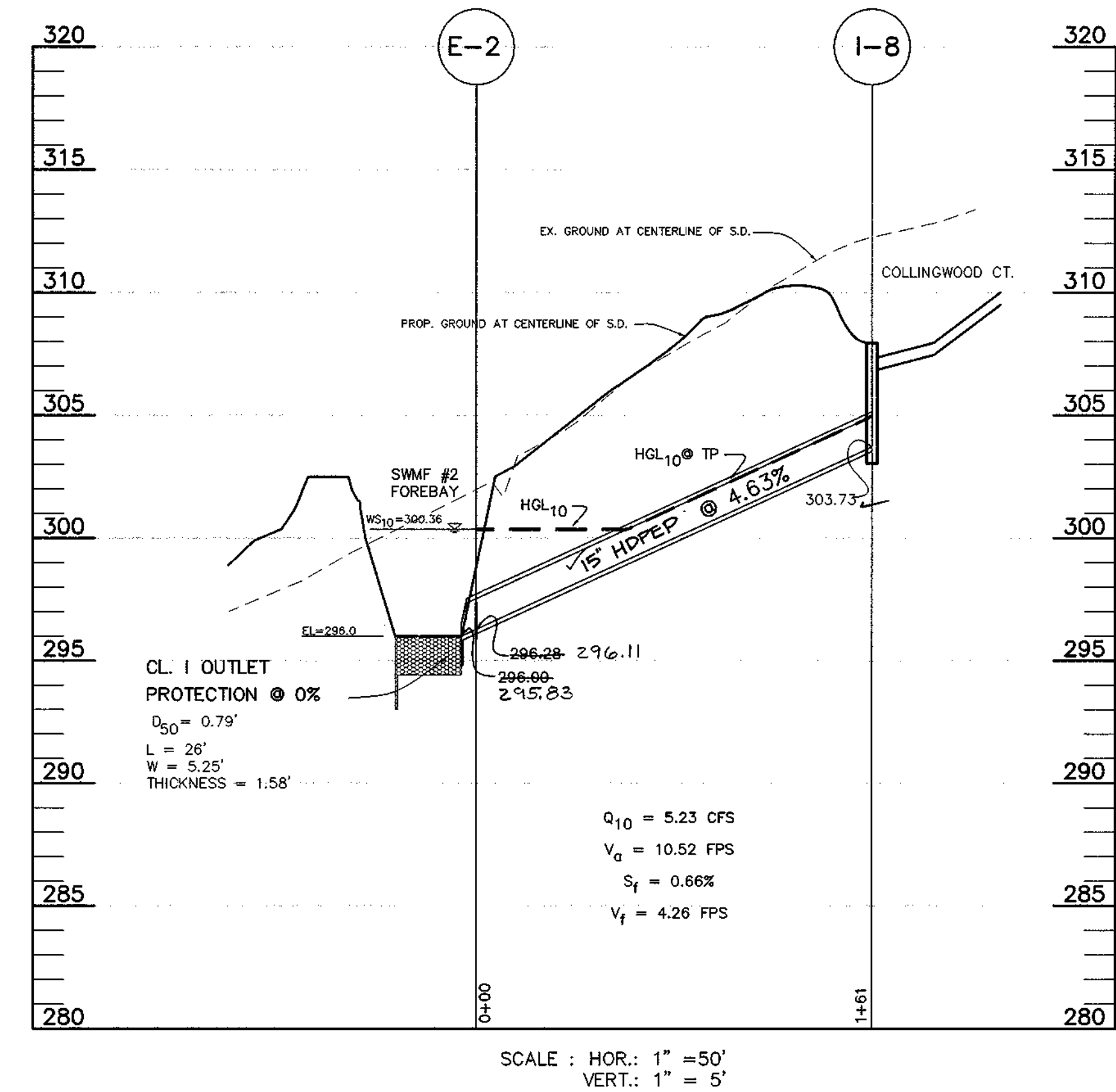
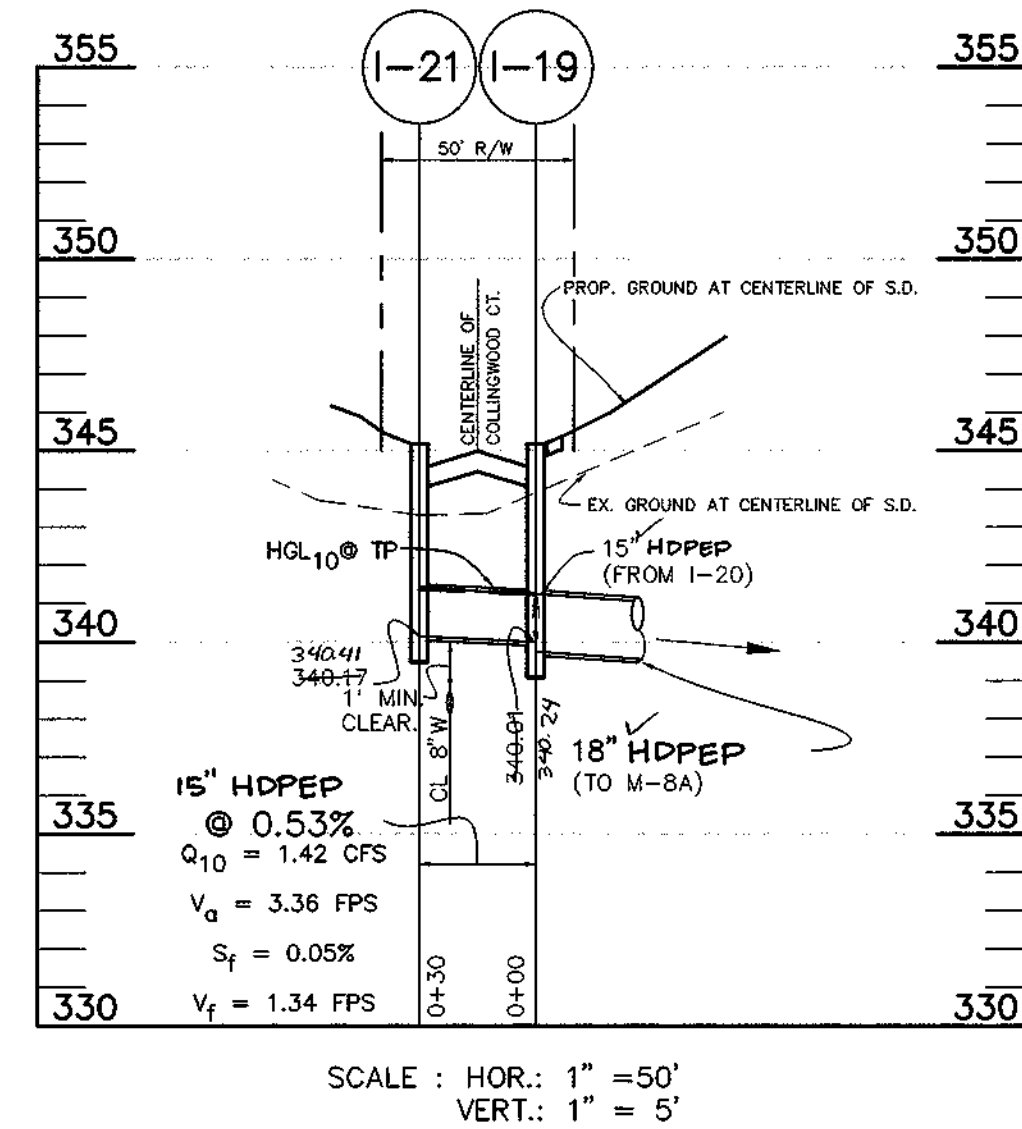
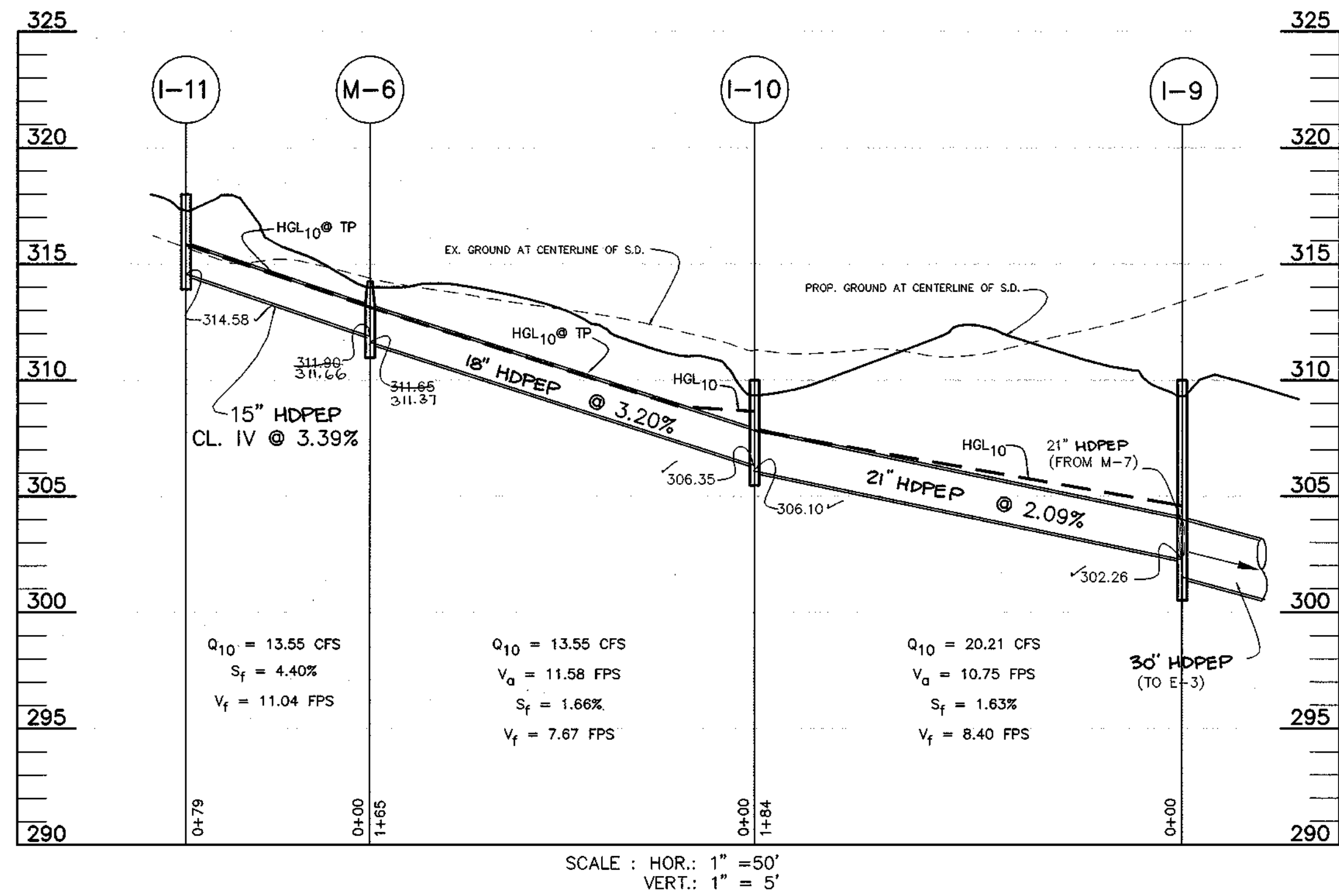
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	PROJECT: <b>GROVEMONT</b> LOTS 1 THRU 185 A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NOS. 13493-13495
TITLE: <b>STORM DRAIN PROFILES</b>	LOCATION: TAX MAP 31 - P/O PARCEL 232 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JULY 1998 FEBRUARY 1999	PROJECT NO. 0793
SCALE: AS SHOWN	SHEET 11 OF 32

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Richard M. Senacke* 3-8-09  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hammit* 3/19/99  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Chris Damman* 3/15/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrews M. Danako* 3-8-09  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Linda Hammit* 2/19/09  
 CHIEF, DIVISION OF LAND DEVELOPMENT

*Chris Danavara* 5/15/09  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

D. M. Mason  
 PROFESSIONAL ENGINEER  
 AS-BUILT 2/12/03

NO.	DATE	REVISION
2-8-03		REVISED PER AS-BUILT CONDITIONS
1	7-6-99	REVISED REP TO HDPEP

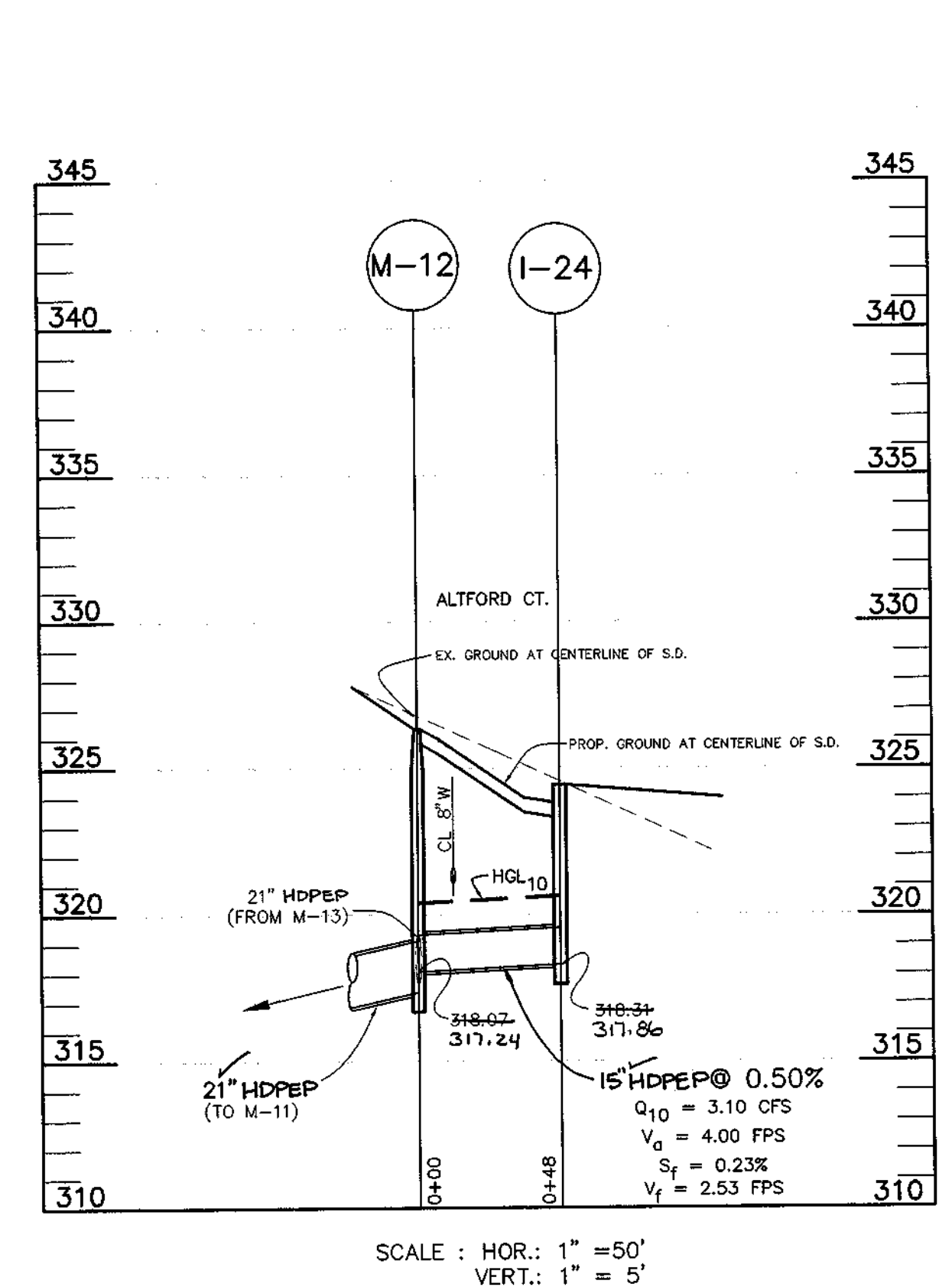
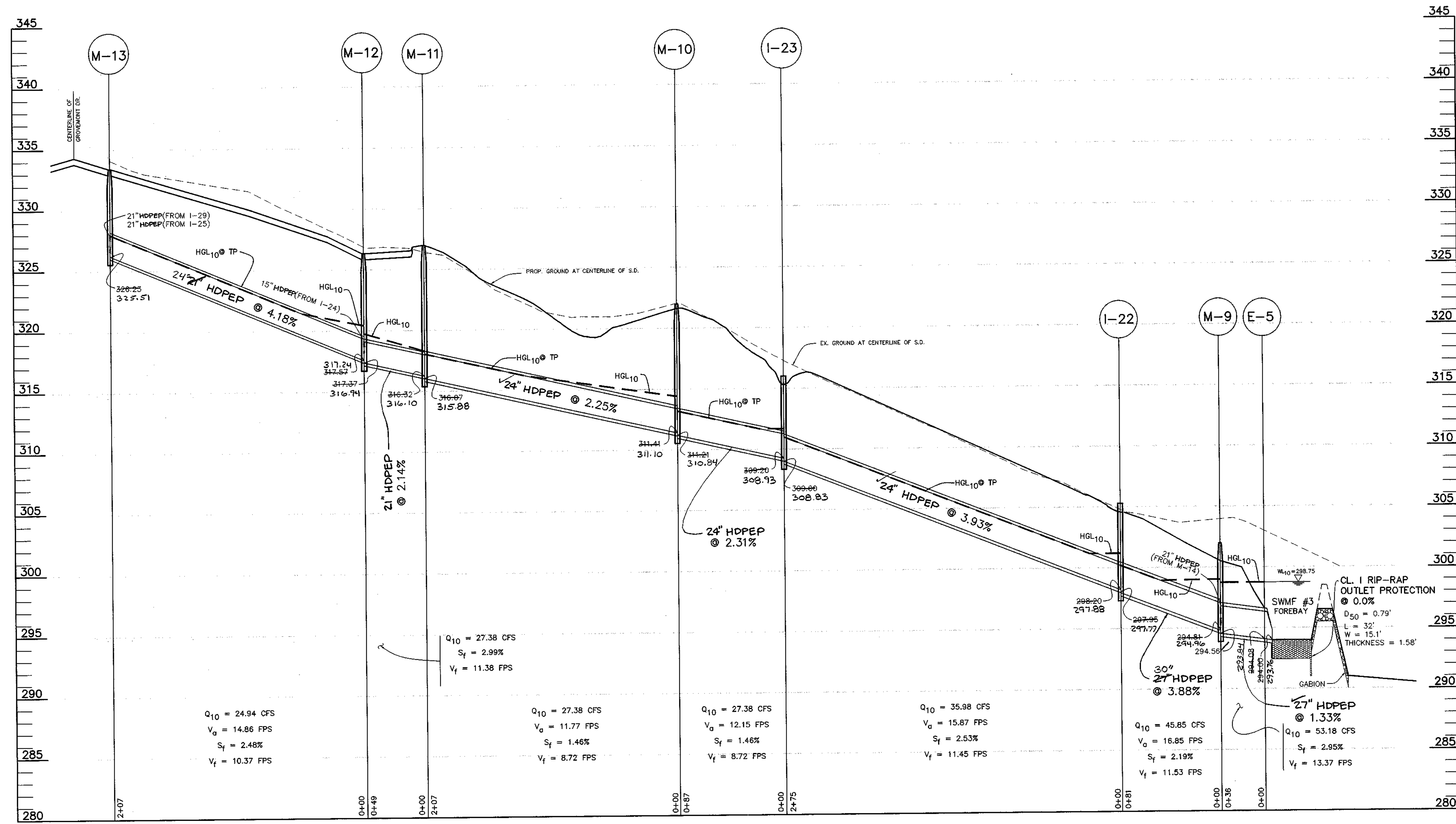
**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6844

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	PROJECT: <b>GROVEMONT</b> A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NO. 13493-13495
LOCATION: TAX MAP 31 - P/O PARCEL 232 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: <b>STORM DRAIN PROFILES</b>
DATE: JULY 1998 FEBRUARY 1999	PROJECT NO. 0793
DES: YSL/DAM DRAFT: YSL/DBT CHECK: DAM	SCALE: AS SHOWN SHEET 12 OF 32

AS-BUILTS 2-8-03





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

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Richard M. Dauter* 3-8-99  
 CHIEF, BUREAU OF HIGHWAYS AS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Andy Hamstra* 3/4/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT TM DATE

*Chris Rasmussen* 3/15/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION /B DATE

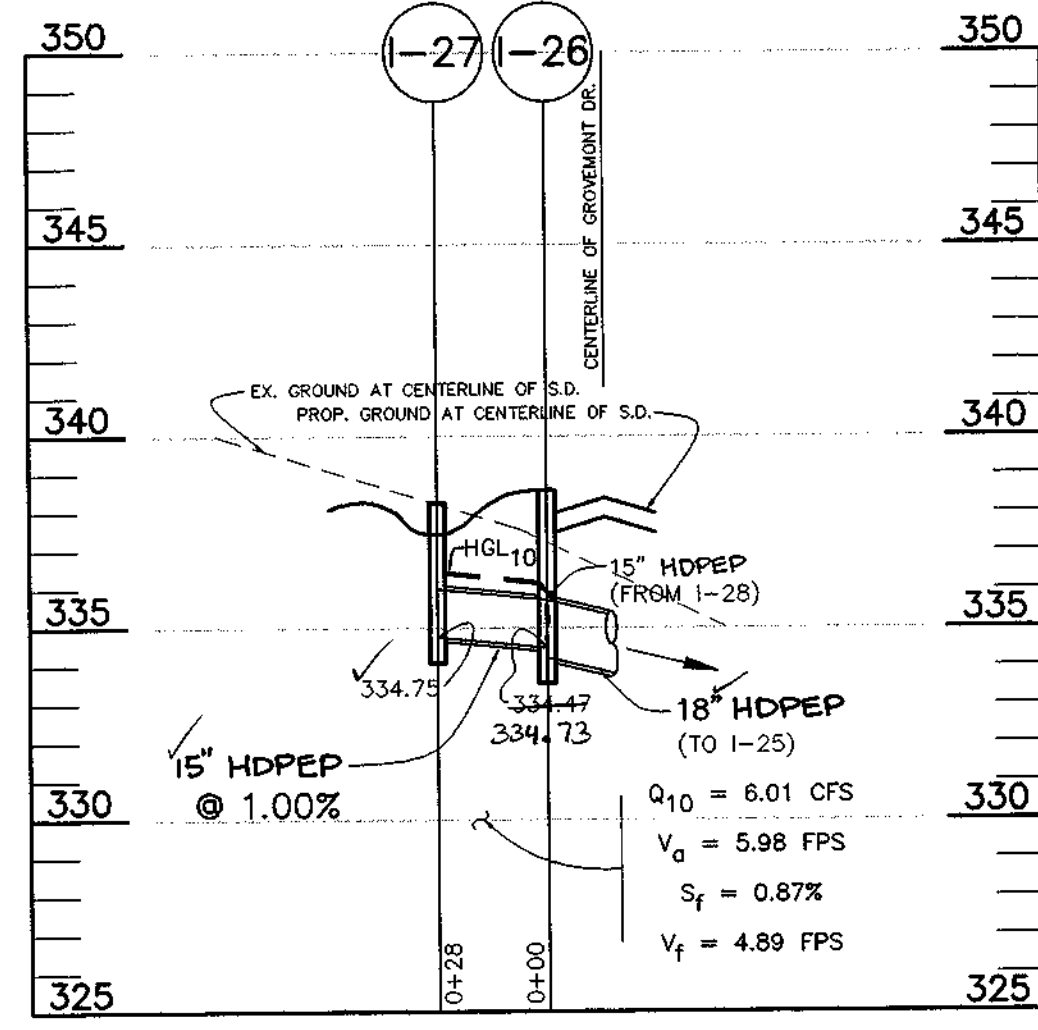
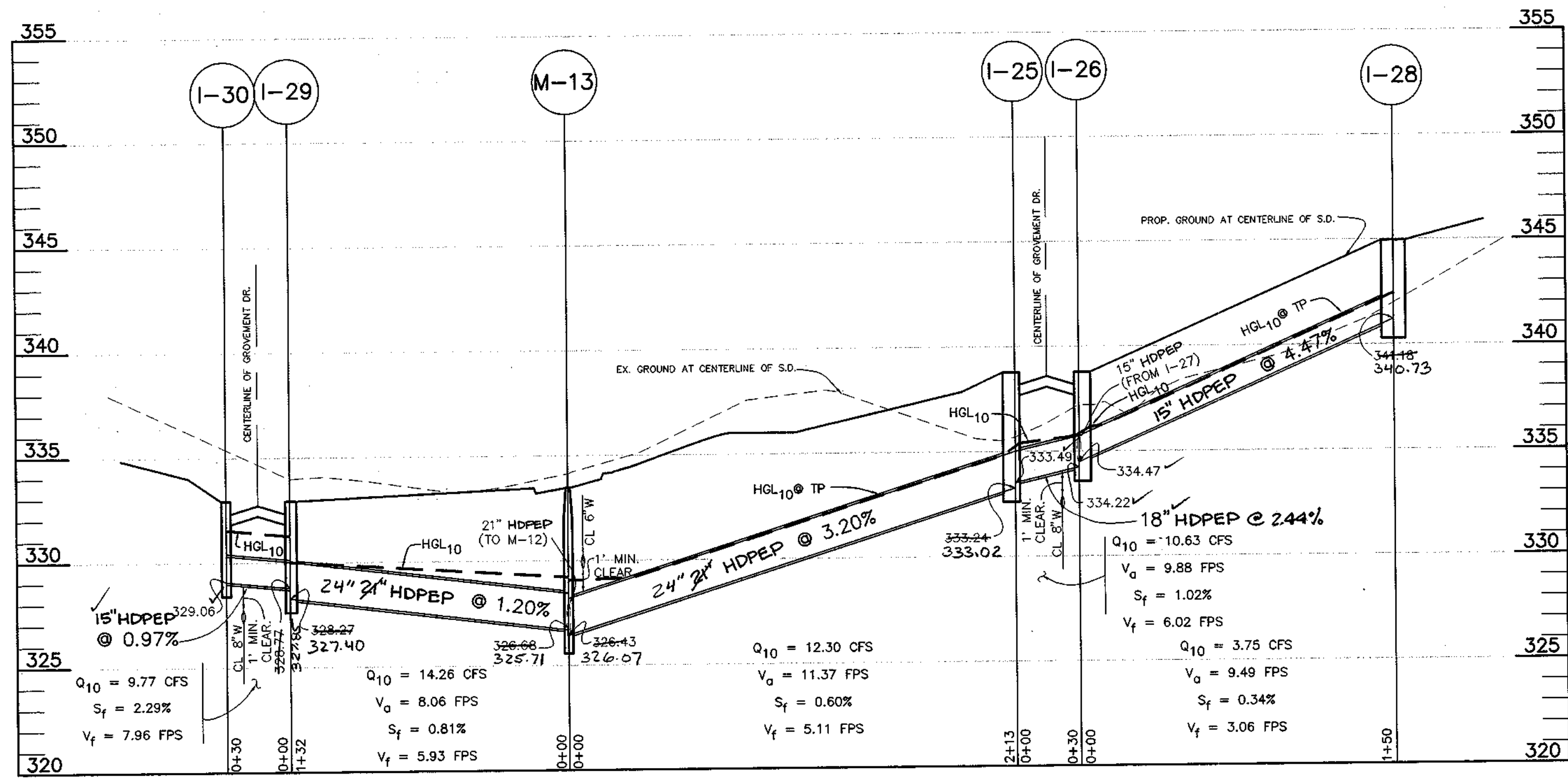
2-8-03	REVISED PER AS-BUILT CONDITIONS	
1	7-6-99 REVISED RCP TO HDPEP	
NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6844

*David M. Mason*  
 AS-QUIC 21020

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	PROJECT: <b>GROVEMONT</b> LOTS 1 THRU 185 A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT No. 13493-13495
LOCATION: TAX MAP 31 - P/O PARCEL 232 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: <b>STORM DRAIN PROFILES</b>
DATE: JULY 1998 FEBRUARY, 1999	PROJECT NO. 0793
DES: YSL/DAM DRAFT: YSL/DBT CHECK: DAM	SCALE: AS SHOWN SHEET 13 OF 32

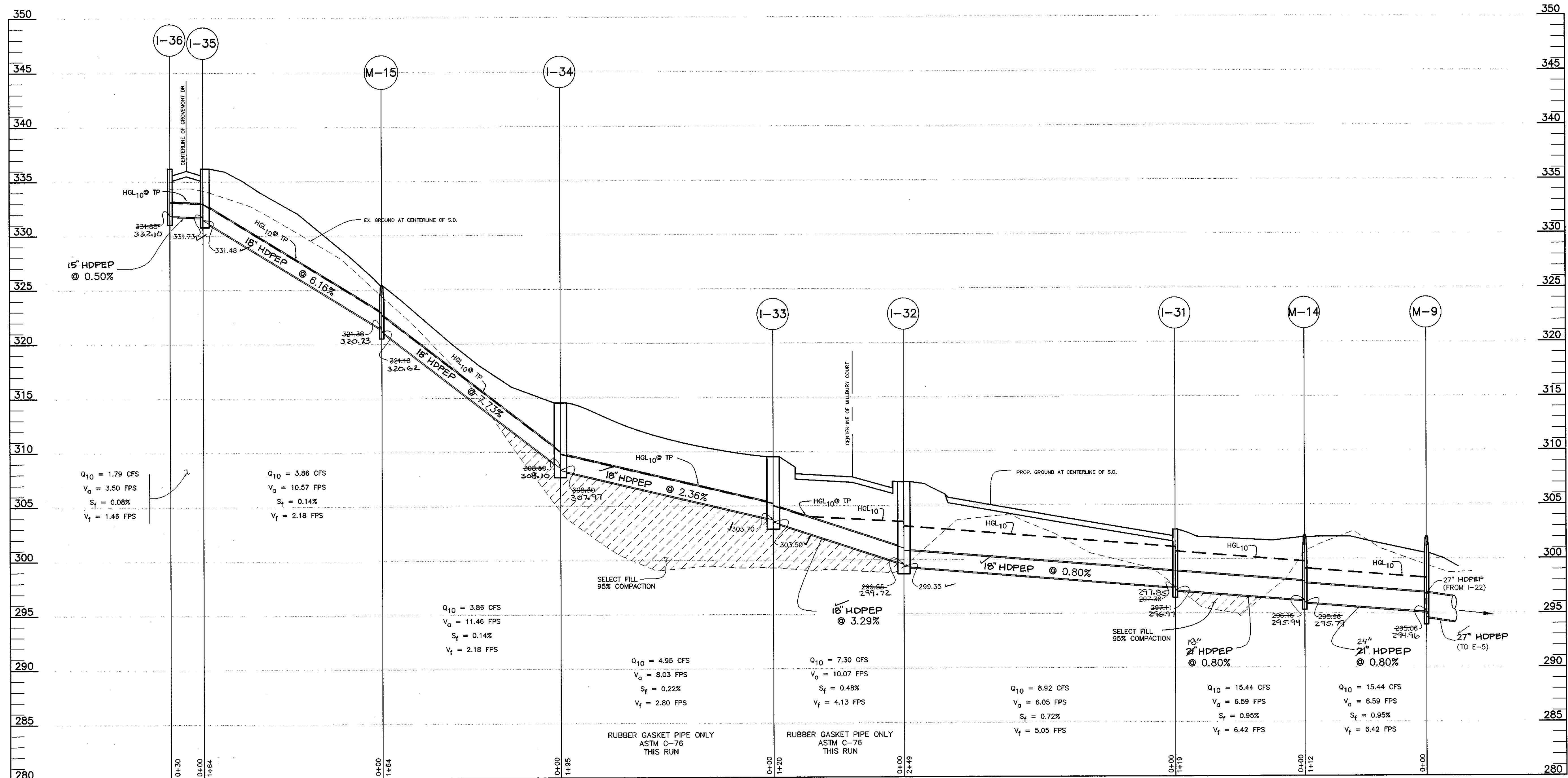


SCALE : HOR.: 1" = 50'  
VERT.: 1" = 5'

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

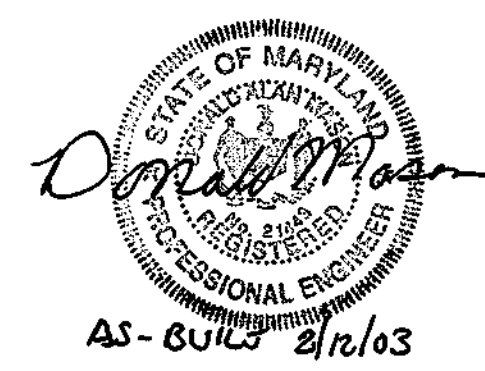
AS-BUILT 2-8-03

F-99-22



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

NO.	DATE	REVISION
1	7-6-99	REVISED PER AS-BUILT CONDITIONS
		REVISED RCP TO HDPEP



**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daneker* 3-8-99  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hamilton* 3/10/99  
CHIEF, DIVISION OF LAND DEVELOPMENT

*William D. ...* 3/15/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC.  
c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202

PROJECT: GROVEMONT  
LOTS 1 THRU 185  
A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME de NAMUR, INC. PROPERTY RECORDED AS PLAT Nos. 13493-13495

LOCATION: TAX MAP 31 - P/O PARCEL 232  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

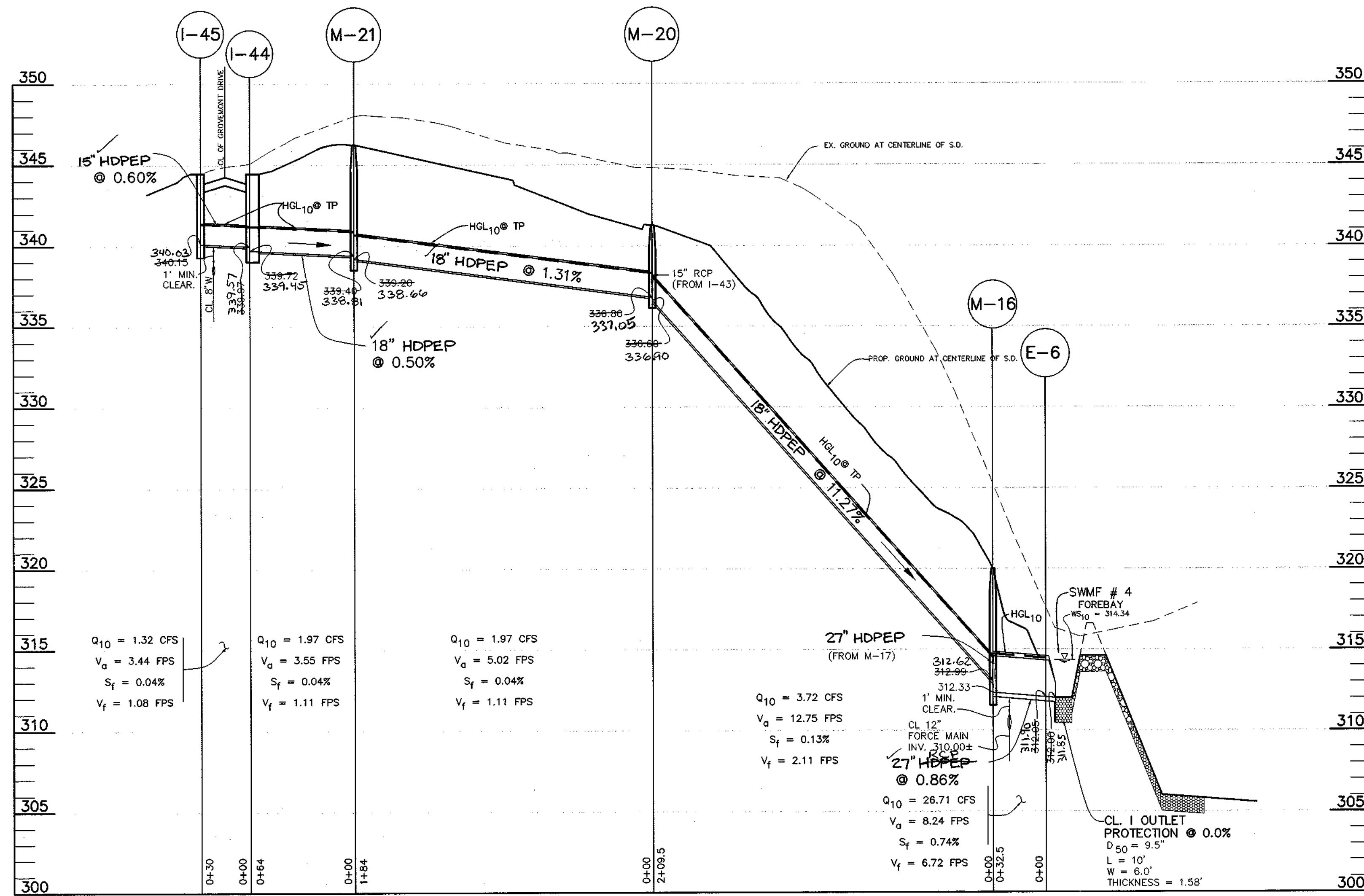
TITLE: STORM DRAIN PROFILES

DATE: JULY 1998  
FEBRUARY 1999

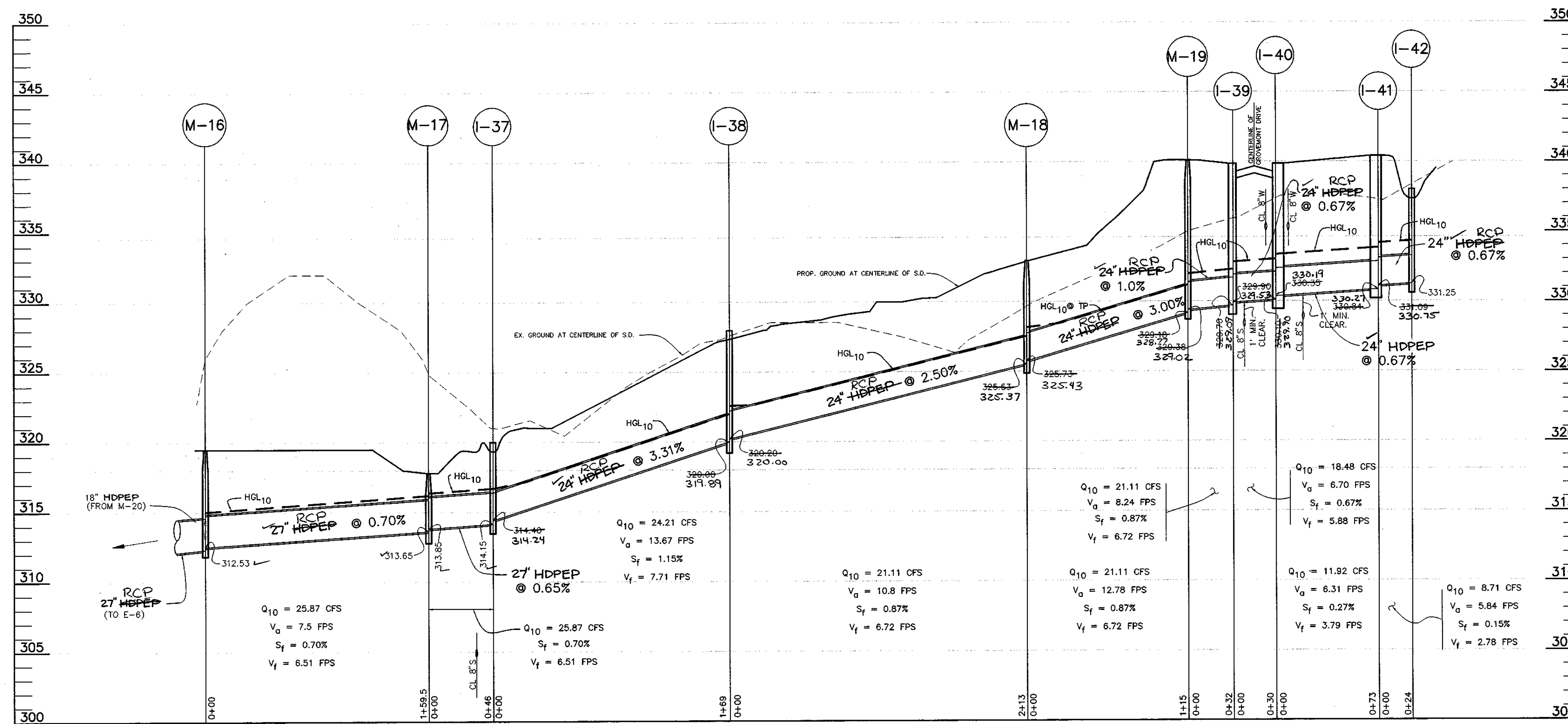
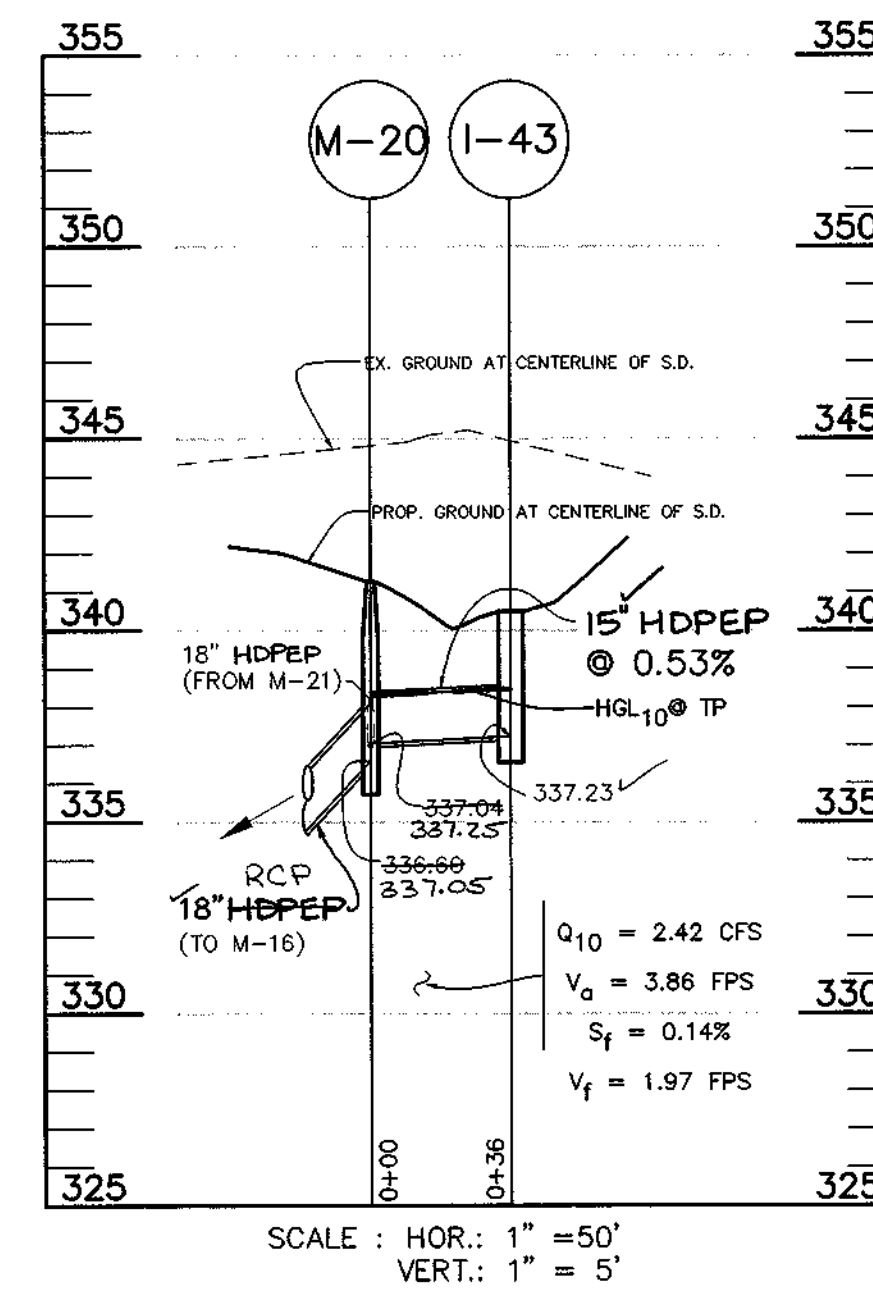
SCALE: AS SHOWN SHEET 14 OF 32

AS-BUILTS 2-8-03

F-99-22



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



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



AS-BUILT 2/12/03

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
<i>Richard M. Daneker</i>	3-8-99
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
<i>Kimberly Hamilton</i>	4/9/99
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>William Dammann</i>	2/15/99
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE

2-8-03	REVISED PER AS-BUILT CONDITIONS
1	REVISED RCP TO HDPEP
NO.	DATE
	REVISION

**BENCHMARK ENGINEERING, INC.**

ENGINEERS • LAND SURVEYORS • PLANNERS

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

OWNER/DEVELOPER:	PROJECT:
WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	GROVEMONT LOTS 1 THRU 185 A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME de NAMUR, INC. PROPERTY RECORDED AS PLAT Nos. 13493-13495
TITLE:	STORM DRAIN PROFILES
DATE:	WP-98-78 S-96-08 P-97-003 F-98-166 JULY, 1998 FEBRUARY, 1999
DES: YSL/DAM	DRAFT: YSL/DBT
CHECK: DAM	SCALE: AS SHOWN
	SHEET 15 OF 32

AS-BUILT 2-8-03

F-99-22

STORMWATER MANAGEMENT SUMMARY TABLE

STORM FREQUENCY	PRE-DEVELOPED COMBINED DISCHARGE (cfs) AT DESIGN POINT		POST-DEVELOPED CONDITION DISCHARGE (cfs) WITH SWM AT DESIGN POINT	
	DESIGN POINT #1	DESIGN POINT #2	DESIGN POINT #1	DESIGN POINT #2
2	49.37	4.75	32.53	4.65
10	177.21	18.03	176.94	15.73
100	-	-	461.67	50.02

YEARS	POND #1		POND #2		POND #3		POND #4	
	2	10	2	10	2	10	2	10
INFLOW Q (cfs)	9.61	23.62	41.12	29.26	70.89	121.69	29.70	77.90
DISCHARGE Q (cfs)	4.65	15.73	50.02	2.92	43.22	119.32	2.28	47.21
ELEVATION	337.74	338.84	339.39	298.65	300.36	301.23	296.77	298.75
STORAGE VOLUME PROVIDED (AC FT)	0.404	0.652	0.788	1.026	1.552	1.891	1.047	1.741

PIPE OUTLET SEDIMENT TRAP #3 DATA

DRAINAGE AREA	3.0 AC±
VOLUME REQUIRED	10,800 CF
VOLUME PROVIDED	35,989 CF
TOP ELEVATION	350.0
CREST ELEVATION	348.5 (7" RISER)
CLEANSY ELEVATION	346.5 (6" ORIFICE)
BOTTOM ELEVATION	346.0
2% RELEASE RATE DURING CONSTRUCTION	2.5 CFS (EXIST.)
	0.9 CFS (PROP.)

PROPERTY OF SMITHSONIAN INSTITUTE  
1188/518  
PARCEL 40

OPERATION AND MAINTENANCE SCHEDULE OF PRIVATELY OWNED AND MAINTAINED STORMWATER MANAGEMENT FACILITY

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 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 HOWARD COUNTY'S DEPARTMENT OF PUBLIC WORKS.

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 USGA, SCS STANDARDS AND SPECIFICATIONS FOR PONDS (MID-378), THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE 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.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

*Donald Mason* PE NO. 21443  
DONALD A. MASON DATE 2/12/03

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS THAT ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY AN ACCEPTED ENGINEERING STANDARD. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE. 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.

BY THE DEVELOPER:

I HEREBY 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.

*V. E. Henden* DEVELOPER DATE 2-22-99

BY THE ENGINEER:

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.

*Donald Mason* 2/19/99  
ENGINEER - DONALD A. MASON, P.E. # 21443 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.

*Clay Simons* 3/1/99  
NATURAL RESOURCES CONSERVATION SERVICE DATE

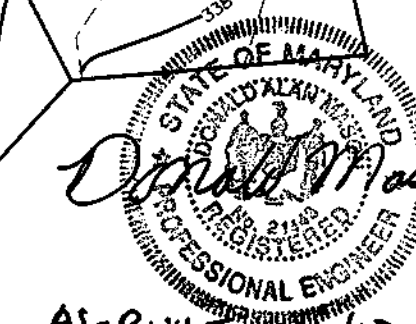
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Robert W. Zibon* 3/1/99  
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Danaher* 3-8-99  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hamilton* 2/19/99  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mike Danaher* 3/15/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

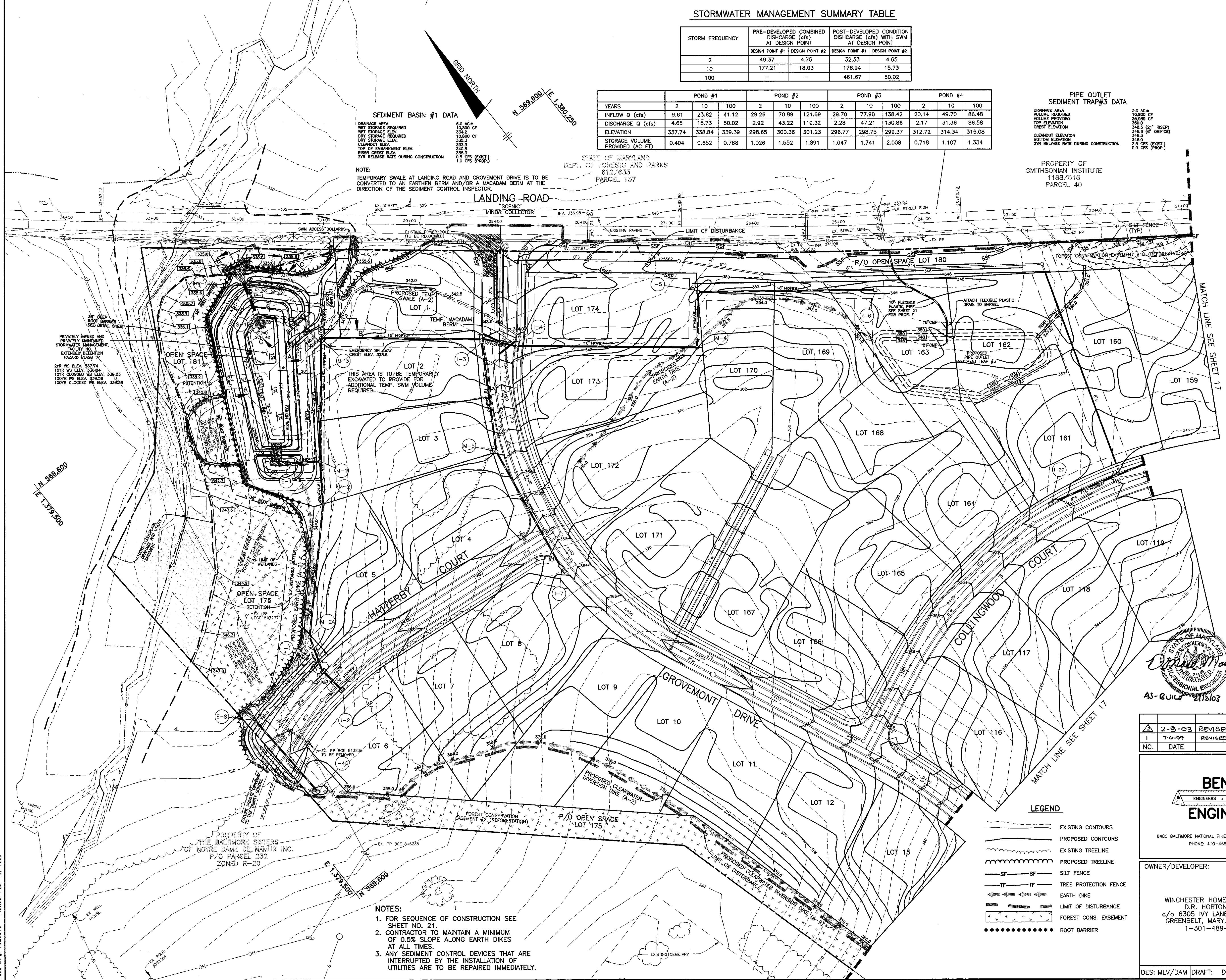


AS-BUILT 2/12/03

NO.	DATE	REVISION
2-8-03		REVISED PER AS-BUILT CONDITIONS
1	7-6-99	REVISED RCP TO HOPP

**BENCHMARK ENGINEERS, LAND SURVEYORS, PLANNERS, INC.**  
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 MY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	PROJECT: <b>GROVEMONT</b> LOTS 1 THRU 185 A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NO. 13493-13495
LOCATION: TAX MAP 31 - P/O PARCEL 232 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: <b>GRADING, SEDIMENT AND EROSION CONTROL PLAN</b> WP-98-78 S-98-08 P-97-003 F-98-166
DATE: JULY, 1998 FEBRUARY, 1999	PROJECT NO. 0793
DES: MLV/DAM DRAFT: DBT CHECK: DAM	SCALE: 1" = 50' SHEET 16 OF 32



Acad Dwg: 7026516 Plotted: Feb. 16, 1999

- LEGEND**
- EXISTING CONTOURS
  - PROPOSED CONTOURS
  - EXISTING TREELINE
  - PROPOSED TREELINE
  - SF - SF - SILT FENCE
  - TF - TF - TREE PROTECTION FENCE
  - EARTH DIKE
  - LIMIT OF DISTURBANCE
  - FOREST CONS. EASEMENT
  - ROOT BARRIER

- NOTES:**
- FOR SEQUENCE OF CONSTRUCTION SEE SHEET NO. 21.
  - CONTRACTOR TO MAINTAIN A MINIMUM OF 0.5% SLOPE ALONG EARTH DIKES AT ALL TIMES.
  - ANY SEDIMENT CONTROL DEVICES THAT ARE INTERRUPTED BY INSTALLATION OF UTILITIES ARE TO BE REPAIRED IMMEDIATELY.

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.

*Lee Kuntz* 2-23-99  
 DEVELOPER V.C.E. #2510247 DATE

BY THE ENGINEER:  
 I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE 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.

*Donald A. Mason* 2/19/99  
 ENGINEER - DONALD A. MASON, P.E. # 21443 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.

*Paul Simms* 3/1/99  
 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.

*Robert W. Zehm* 3/1/99  
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Arthur M. Daniels* 3-8-99  
 CHIEF, BUREAU OF HIGHWAYS #8 DATE

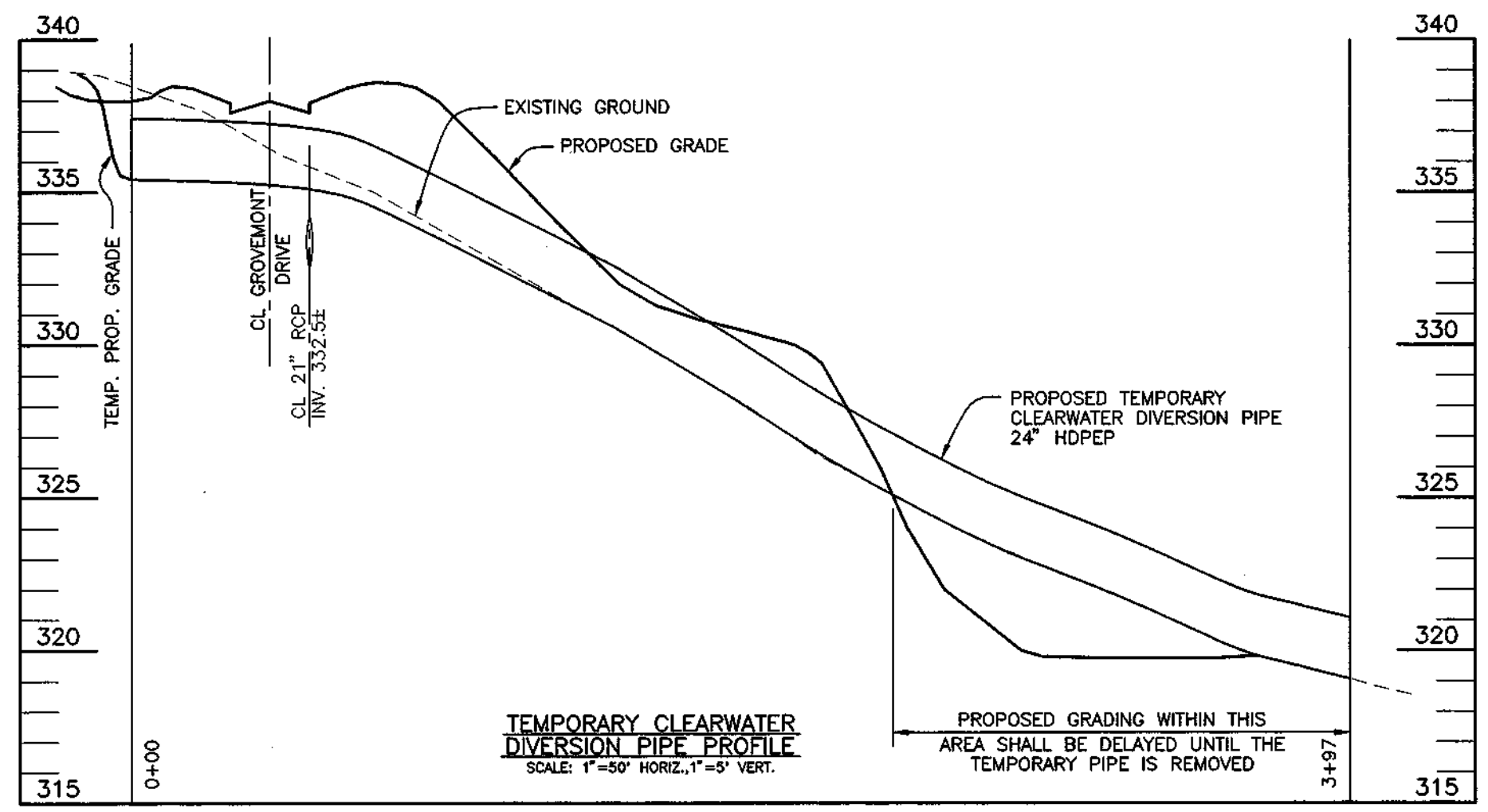
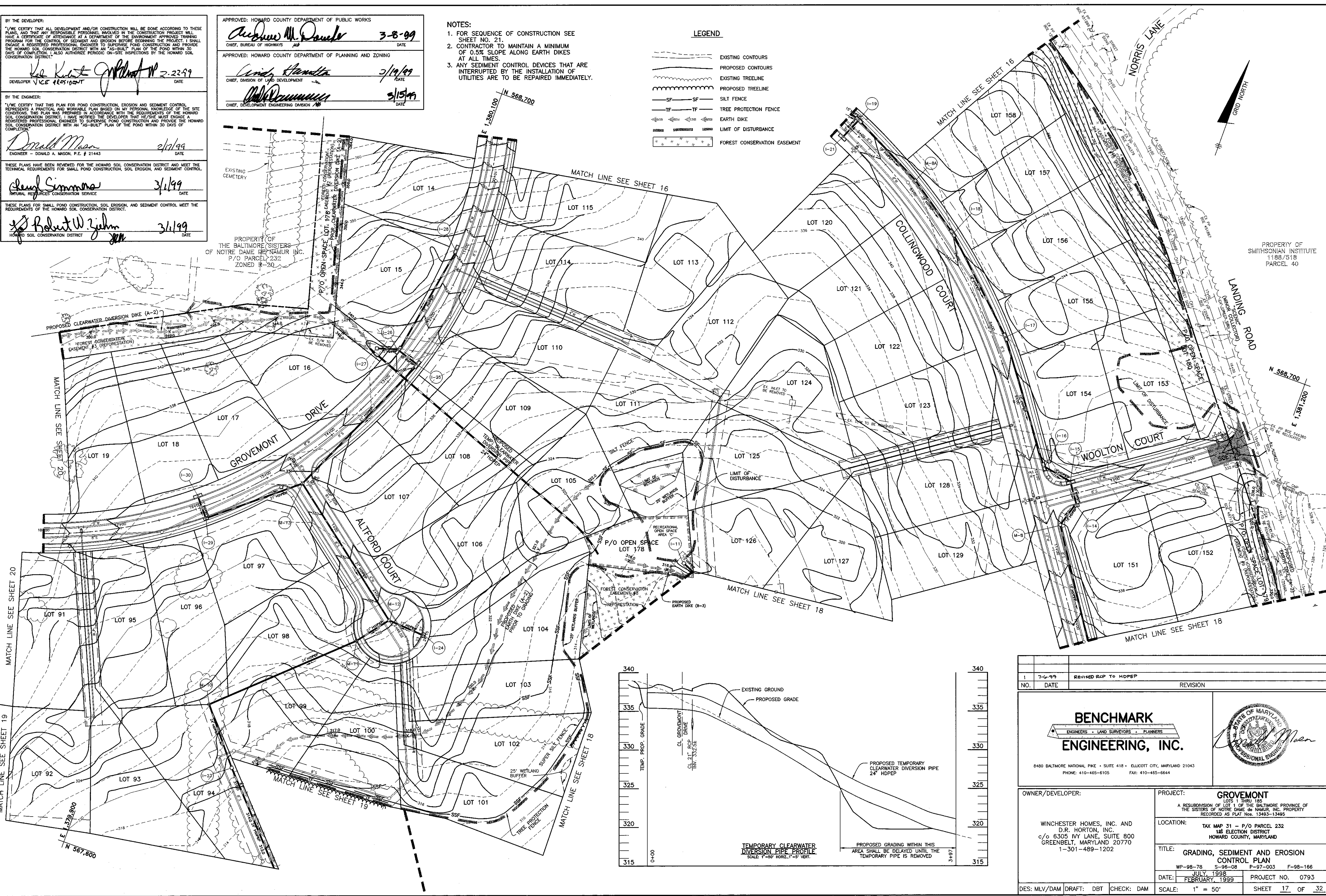
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*David Standa* 3/19/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT #4 DATE

*John D. ...* 3/15/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION #6 DATE

NOTES:  
 1. FOR SEQUENCE OF CONSTRUCTION SEE SHEET NO. 21.  
 2. CONTRACTOR TO MAINTAIN A MINIMUM OF 0.5% SLOPE ALONG EARTH DIKES AT ALL TIMES.  
 3. ANY SEDIMENT CONTROL DEVICES THAT ARE INTERRUPTED BY THE INSTALLATION OF UTILITIES ARE TO BE REPAIRED IMMEDIATELY.

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- SF - SF SILT FENCE
- TF - TF TREE PROTECTION FENCE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- FOREST CONSERVATION EASEMENT



NO.	DATE	REVISION
1	7-6-99	REVISED RCP TO HDPEP

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644

OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202

PROJECT: GROVEMONT LOTS 1 THRU 185  
 A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT Nos. 13463-13495

LOCATION: TAX MAP 31 - P/O PARCEL 232 18E ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT AND EROSION CONTROL PLAN  
 WP-98-78 S-96-08 P-97-003 F-98-166

DATE: JULY, 1998  
 FEBRUARY, 1999

PROJECT NO. 0793

DES: MLV/DAM DRAFT: DBT CHECK: DAM SCALE: 1" = 50' SHEET 17 OF 32

**OPERATION, MAINTENANCE, AND INSPECTION NOTE**

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS STANDARDS AND SPECIFICATIONS FOR PONDS (MD-578). THE POND OWNERS AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNERS SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

*Donald Mason*  
DONALD A. MASON PE NO. 21443 DATE 2/12/03

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS ARE MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:  
"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL 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."

*Karl Kost*  
DEVELOPER VICE PRESIDENT DATE 2-22-99

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

*Donald Mason*  
ENGINEER - DONALD A. MASON, P.E. # 21443 DATE 2/17/99

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.

*Reynold Simmons*  
NATURAL RESOURCES CONSERVATION SERVICE DATE 3/1/99

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

*Robert W. Zehm*  
HOWARD SOIL CONSERVATION DISTRICT DATE 3/1/99

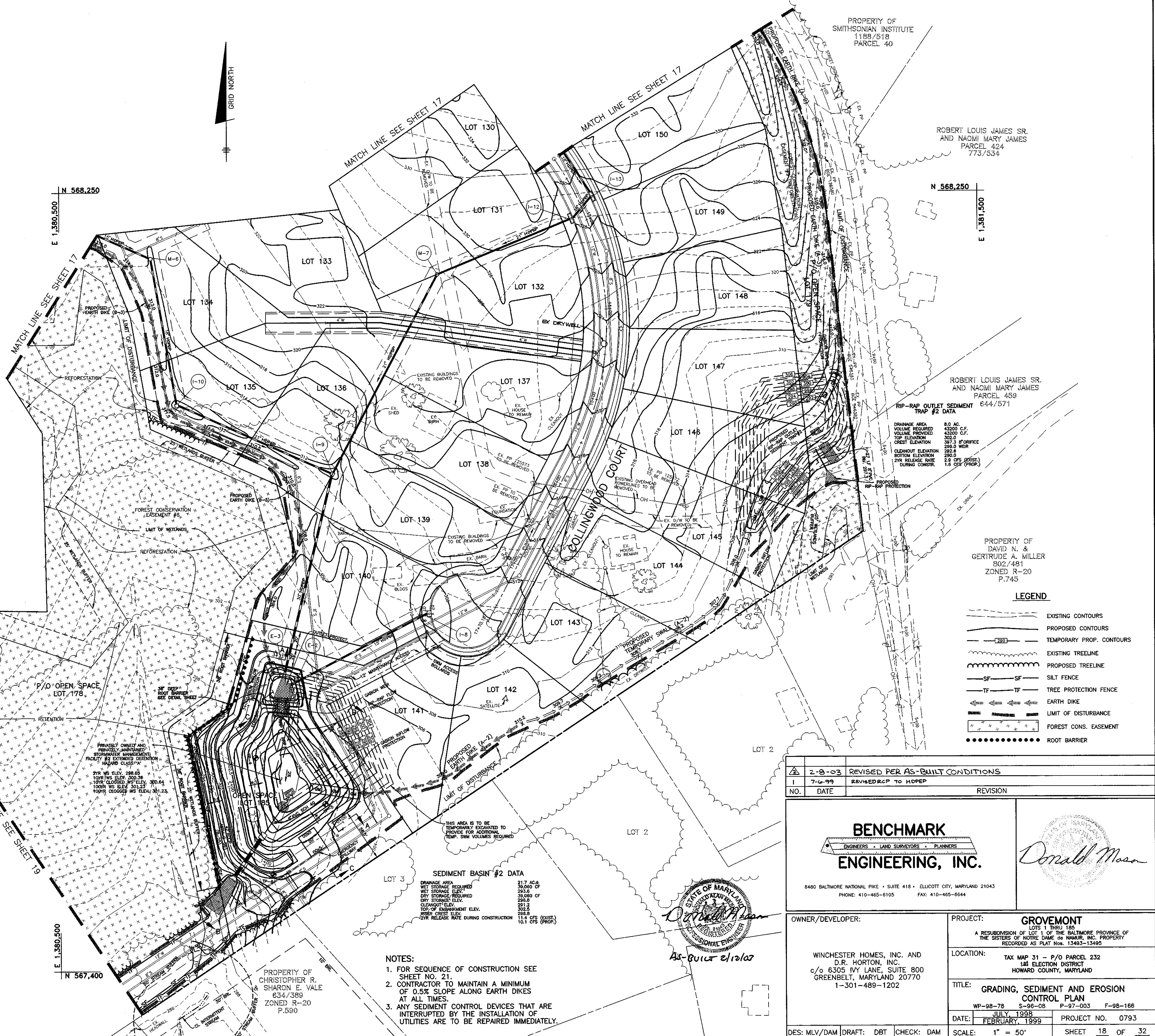
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*Andrew M. Daneker*  
CHIEF, BUREAU OF HIGHWAYS DATE 3-8-91

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Cindy Hamilton*  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE 3/19/91

*John Dammann*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 2/15/91



PROPERTY OF SMITHSONIAN INSTITUTE  
1188/518  
PARCEL 40

ROBERT LOUIS JAMES SR.  
AND NAOMI MARY JAMES  
PARCEL 424  
773/534

ROBERT LOUIS JAMES SR.  
AND NAOMI MARY JAMES  
PARCEL 458  
844/571

PROPERTY OF DAVID N. & GERTRUDE A. MILLER  
802/481  
ZONED R-20  
P.745

DRAINAGE AREA 8.0 AC.  
VOLUME REQUIRED 43000 C.F.  
VOLUME PROVIDED 43000 C.F.  
TOP ELEVATION 302.0  
CREST ELEVATION 299.0  
BOTTOM ELEVATION 292.0  
2YR RELEASE RATE 2.8 CFS (5000)  
1.0 CFS (PROV.)

**LEGEND**

- EXISTING CONTOURS
- PROPOSED CONTOURS
- TEMPORARY PROP. CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- SF --- SILT FENCE
- TF --- TREE PROTECTION FENCE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- FOREST CONS. EASEMENT
- ROOT BARRIER

2-8-03 REVISED PER AS-BUILT CONDITIONS	
NO.	REVISION
1	7-6-99 REVISED RCP TO HDPEP

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

*Donald Mason*  
REGISTERED PROFESSIONAL ENGINEER

OWNER/DEVELOPER:	PROJECT:
WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	GROVEMONT A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME de NAMUR, INC. PROPERTY RECORDED AS PLAT NO. 13493-13495
LOCATION:	TITLE:
TAX MAP 31 - P/O PARCEL 232 18 <sup>TH</sup> ELECTION DISTRICT HOWARD COUNTY, MARYLAND	GRADING, SEDIMENT AND EROSION CONTROL PLAN
DATE:	SCALE:
WP-98-78 S-96-08 P-97-003 F-98-166 JULY, 1998 FEBRUARY, 1999	1" = 50'
PROJECT NO. 0793	SHEET 18 OF 32

**DETAIL 10 - RIP-RAP OUTLET SEDIMENT TRAP - ST III**

**CONSTRUCTION SPECIFICATIONS**

- The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The post area shall be cleared.
- The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be 4', measured at entrance of outlet channel.
- All cut and fill slopes shall be 2:1 or flatter.
- Elevation of the top of any dike directing water into trap must equal or exceed the height of trap embankment.
- Storage area provided shall be figured by computing the volume measured from top of excavation. (For storage requirements see Table 10).
- Filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Section of fabric must overlap at least 1' with section nearest the entrance placed on top. Fabric shall be embedded at least 8" into existing ground at entrance of outlet channel.
- Stone used in the outlet channel shall be 4" - 12" placed 18" thick.
- Outlet - An outlet shall be provided, which includes a means of conveying the discharge in an erosion free manner to an existing stable channel. Protection against scour of the discharge and shall be provided as necessary. Outlet channel must have positive drainage from the trap.
- Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 of the net storage depth of the trap (1350 of net). Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
- The structure shall be inspected periodically after each rain and repaired as needed.
- Construction of traps shall be carried out in such a manner that sediment solution is obtained. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grading Stabilization Structure criteria. The remainder of the interior slopes shall be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
- The structure shall be developed by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

NOTE: MAXIMUM DRAINAGE AREA = 10 AC.

U.S. DEPARTMENT OF AGRICULTURE PAGE 9-13 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

- NOTES:**
- FOR SEQUENCE OF CONSTRUCTION SEE SHEET NO. 21.
  - CONTRACTOR TO MAINTAIN A MINIMUM OF 0.5% SLOPE ALONG EARTH DIKES AT ALL TIMES.
  - ANY SEDIMENT CONTROL DEVICES THAT ARE INTERRUPTED BY THE INSTALLATION OF UTILITIES ARE TO BE REPAIRED IMMEDIATELY.

**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 USIA SCS STANDARDS AND SPECIFICATIONS FOR PONDS (40-370). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATORS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

*Donald A. Mason* P.E. NO. 21443 DATE 2/13/03  
DONALD A. MASON

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION, THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED PROFESSIONAL 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 HAVE CERTIFIED 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.

*Karl Kautz* DATE 2-22-99  
DEVELOPER

BY THE ENGINEER:

I HAVE CERTIFIED 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* DATE 2/17/99  
ENGINEER - DONALD A. MASON, P.E. # 21443

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.

*Sheep Simmons* DATE 3/11/99  
NATURAL RESOURCES CONSERVATION SERVICE

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

*Robert W. Ziehm* DATE 3/1/99  
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Gregory M. Dangle* DATE 3-8-99  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hamstra* DATE 3/9/99  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Mr. Quinlan* DATE 3/15/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

**3.0.0 Dust Control**

**Definition**  
Controlling dust blowing and movement on construction sites and roads.

**Purposes**  
To prevent blowing and movement of dust from exposed soil surfaces, reduce on and off-site damage, health hazards, and improve traffic safety.

**Conditions Where Practice Applies**  
This practice is applicable to areas subject to dust blowing and movement where on and off-site damage is likely without treatment.

**Specifications**

**Temporary Methods**

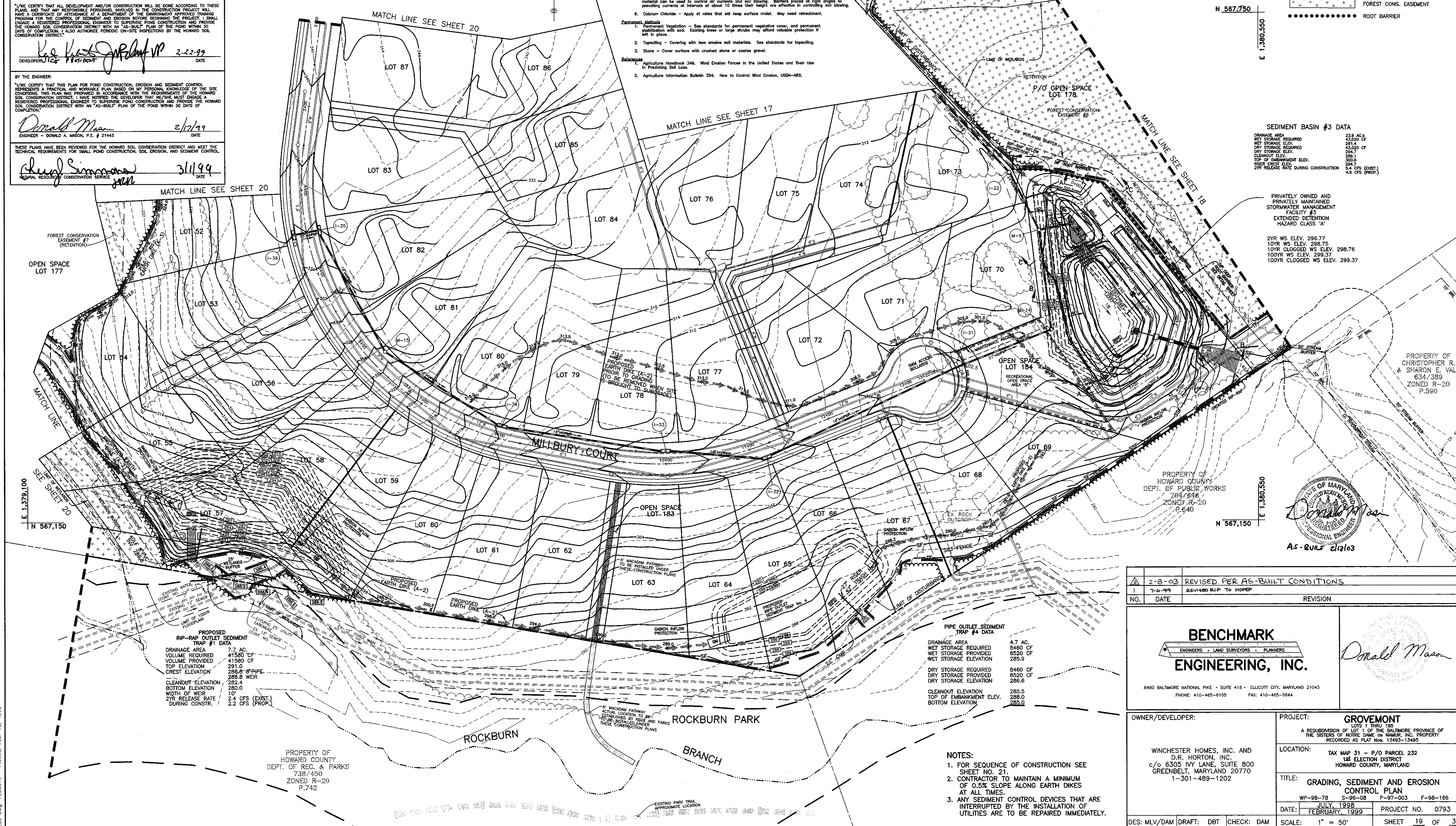
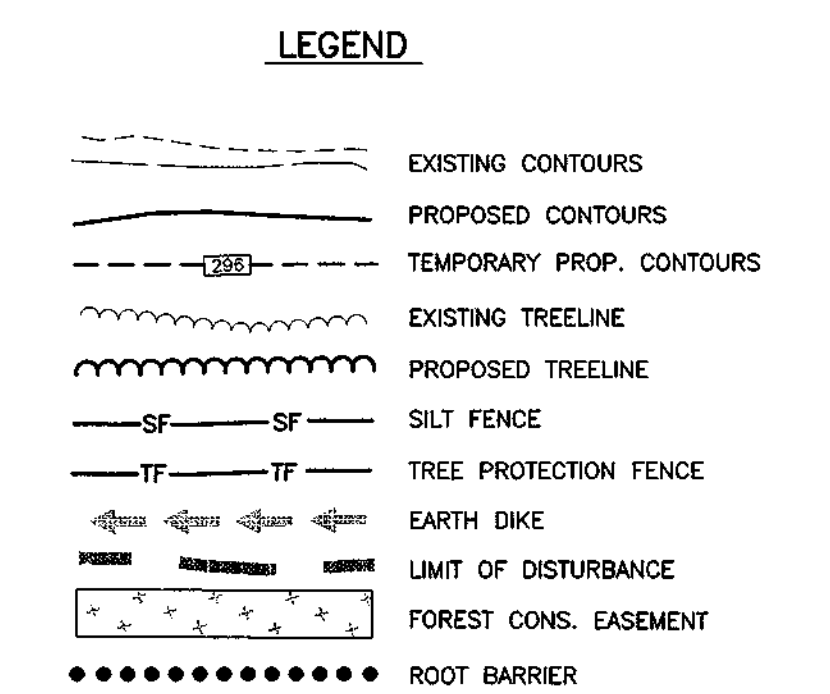
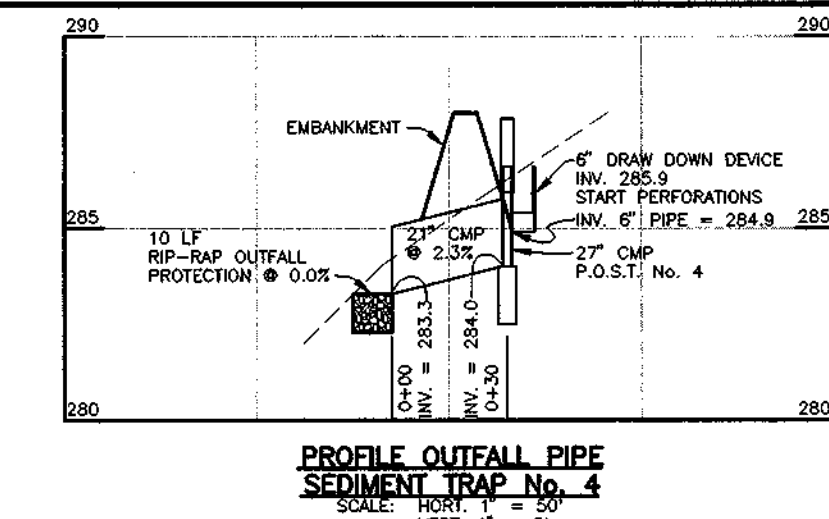
1. Mulches - See standards for vegetative stabilization with mulches only. Mulch should be crimped or trolled to prevent blowing.
2. Vegetative Cover - See standards for temporary vegetative cover.
3. Tillage - To roughen surface and bring clods to the surface. This is an emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12' apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect.
4. Irrigation - This is generally done as an emergency treatment. Site is sprinkled with water until the surface is moist. Repeat as needed. At no time should the site be irrigated to the point that runoff begins to flow.
5. Barriers - Solid board fences, wire fences, snow fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents of intervals of about 10 times their height are effective in controlling soil blowing.
6. Calcium Chloride - Apply at rates that will keep surface moist. May need retreatment.

**Permanent Methods**

1. Permanent Vegetation - See standards for permanent vegetative cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection if left in place.
2. Topsoiling - Covering with less erosive soil materials. See standards for topsoiling.
3. Stone - Cover surface with crushed stone or coarse gravel.

**References**

1. Agriculture Handbook 346. Wind Erosion Forces in the United States and Their Use in Predicting Soil Loss.
2. Agriculture Information Bulletin 354. How to Control Wind Erosion, USDA-NRS.



**SEDIMENT BASIN #3 DATA**

DRAINAGE AREA	23.9 AC.
WET STORAGE REQUIRED	43,020 CF
WET STORAGE PROVIDED	291.4
DRY STORAGE REQUIRED	43,020 CF
DRY STORAGE PROVIDED	294.7
CLEANOUT ELEV.	286.1
TOP OF EMBANKMENT ELEV.	300.6
RISER CREST ELEV.	301.6
2YR RELEASE RATE DURING CONSTRUCTION	5.4 CFS (EXIST.)
	4.9 CFS (PROP.)

2-8-03 REVISED PER AS-BUILT CONDITIONS	
NO.	DATE
1	7-6-99
REVISED RCP TO H0PEP	
REVISION	

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**

8490 BALTIMORE PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

*Donald A. Mason*  
REGISTERED PROFESSIONAL ENGINEER  
AS-BUILT 2/13/03

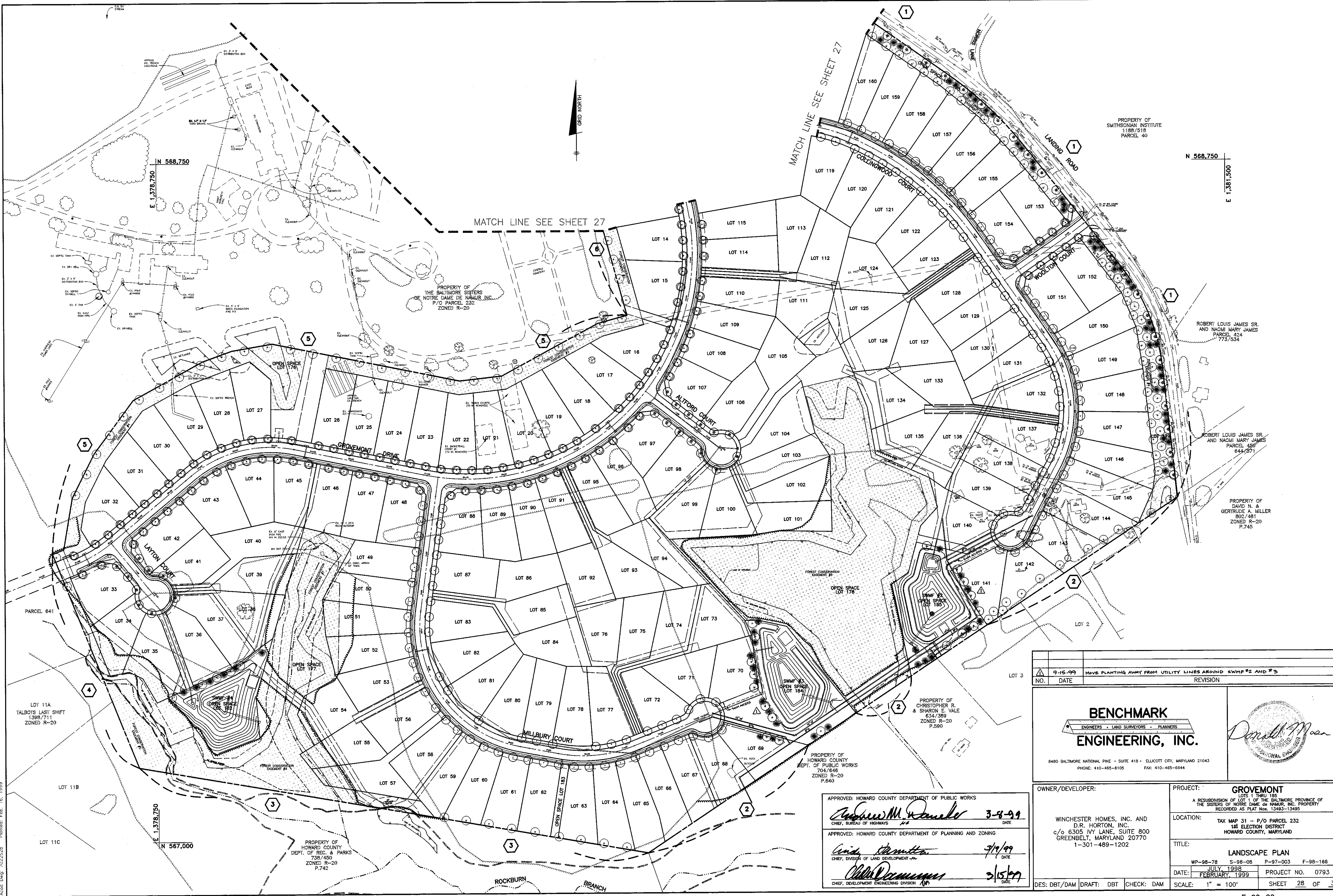
OWNER/DEVELOPER: WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	PROJECT: <b>GROVEMONT</b> A RESUBDIVISION OF LOTS 1 THRU 185 THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT NO. 13493-13495
LOCATION: TAX MAP 31 - P/O PARCEL 232 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: GRADING, SEDIMENT AND EROSION CONTROL PLAN WP-98-78 S-96-08 P-97-003 F-98-166
DATE: JULY, 1998 FEBRUARY, 1999	PROJECT NO. 0793
DES: MLV/DAM DRAFT: DBT CHECK: DAM	SCALE: 1" = 50'

**PIPE OUTLET SEDIMENT TRAP #4 DATA**

DRAINAGE AREA	4.7 AC.
WET STORAGE REQUIRED	8460 CF
WET STORAGE PROVIDED	8520 CF
WET STORAGE ELEVATION	285.9
DRY STORAGE REQUIRED	8460 CF
DRY STORAGE PROVIDED	8520 CF
DRY STORAGE ELEVATION	286.6
CLEANOUT ELEVATION	285.5
TOP OF EMBANKMENT ELEV.	288.0
BOTTOM ELEVATION	285.0

- NOTES:**
1. FOR SEQUENCE OF CONSTRUCTION SEE SHEET NO. 21.
  2. CONTRACTOR TO MAINTAIN A MINIMUM OF 0.5% SLOPE ALONG EARTH DIKES AT ALL TIMES.
  3. ANY SEDIMENT CONTROL DEVICES THAT ARE INTERRUPTED BY THE INSTALLATION OF UTILITIES ARE TO BE REPAIRED IMMEDIATELY.

AS-BUILTS 2-8-03



PROPERTY OF  
SMITHSONIAN INSTITUTION  
1188/518  
PARCEL 40

PROPERTY OF  
THE BALTIMORE SISTERS  
OF NOTRE DAME DE NAMUR, INC.  
P/O PARCEL 232  
ZONED R-20

ROBERT LOUIS JAMES SR.  
AND NAOMI MARY JAMES  
PARCEL 424  
778/534

ROBERT LOUIS JAMES SR.  
AND NAOMI MARY JAMES  
PARCEL 458  
644/571

PROPERTY OF  
DAVID N. &  
GERTRUDE A. MILLER  
802/481  
ZONED R-20  
P.745

PROPERTY OF  
CHRISTOPHER R.  
& SHARON E. VALE  
634/389  
ZONED R-20  
P.590

PROPERTY OF  
HOWARD COUNTY  
DEPT. OF PUBLIC WORKS  
704/646  
ZONED R-20  
P.840

PROPERTY OF  
HOWARD COUNTY  
DEPT. OF REG. & PARKS  
738/450  
ZONED R-20  
P.742

NO.	DATE	REVISION
1	9-15-99	MOVE PLANTING AWAY FROM UTILITY LINES AROUND SWAMP #2 AND #3

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELlicOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6844

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 3-8-99  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Chris Hamilton* 7/19/99  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Chad Demme* 2/15/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

OWNER/DEVELOPER:	PROJECT:
WINCHESTER HOMES, INC. AND D.R. HORTON, INC. c/o 6305 IVY LANE, SUITE 800 GREENBELT, MARYLAND 20770 1-301-489-1202	<b>GROVEMONT</b> LOTS 1 THRU 185 A RESUBDIVISION OF LOT 1 OF THE BALTIMORE PROVINCE OF THE SISTERS OF NOTRE DAME DE NAMUR, INC. PROPERTY RECORDED AS PLAT Nos. 13493-13495
LOCATION:	TAX MAP 31 - P/O PARCEL 232 181 ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE:	LANDSCAPE PLAN
DATE:	WP-98-78 S-98-08 P-97-003 F-98-168 JULY 1998 FEBRUARY 1999 PROJECT NO. 0793
DES: DBT/DAM DRAFT: DBT CHECK: DAM	SCALE: 1" = 100' SHEET 28 OF 32

Acad. Draw: 7022528 Plotter: Feb. 16, 1999