

R/W POINT NO.	DESCRIPTION	ELEVATION
1000	CONC. MON.	401.18'
1002	PK. NAIL	401.39'
1003	PK. NAIL	403.09'
1005	REBAR & CAP	404.61'
1007	X CUT IN WALK	403.63'
1009	X CUT IN WALK	403.46'
1011	REBAR & CAP	404.66'
1013	PK. NAIL	406.09'
1014	REBAR & CAP FND	408.33'
1016	PK. NAIL	400.96'
1017	CONC. MON.	417.61'
1018	REBAR & CAP FND	417.11'
1019	PK. NAIL	400.86'
1020	PK. NAIL	408.27'
1021	PK. NAIL	406.10'
1022	CONC. MON.	403.31'
1024	REBAR & CAP	402.40'
1025	REBAR & CAP	402.36'
1027	REBAR & CAP	402.11'
1028	X CUT IN CURB	394.67'
1029	PK. NAIL	391.88'
1031	CONC. MON.	388.03'

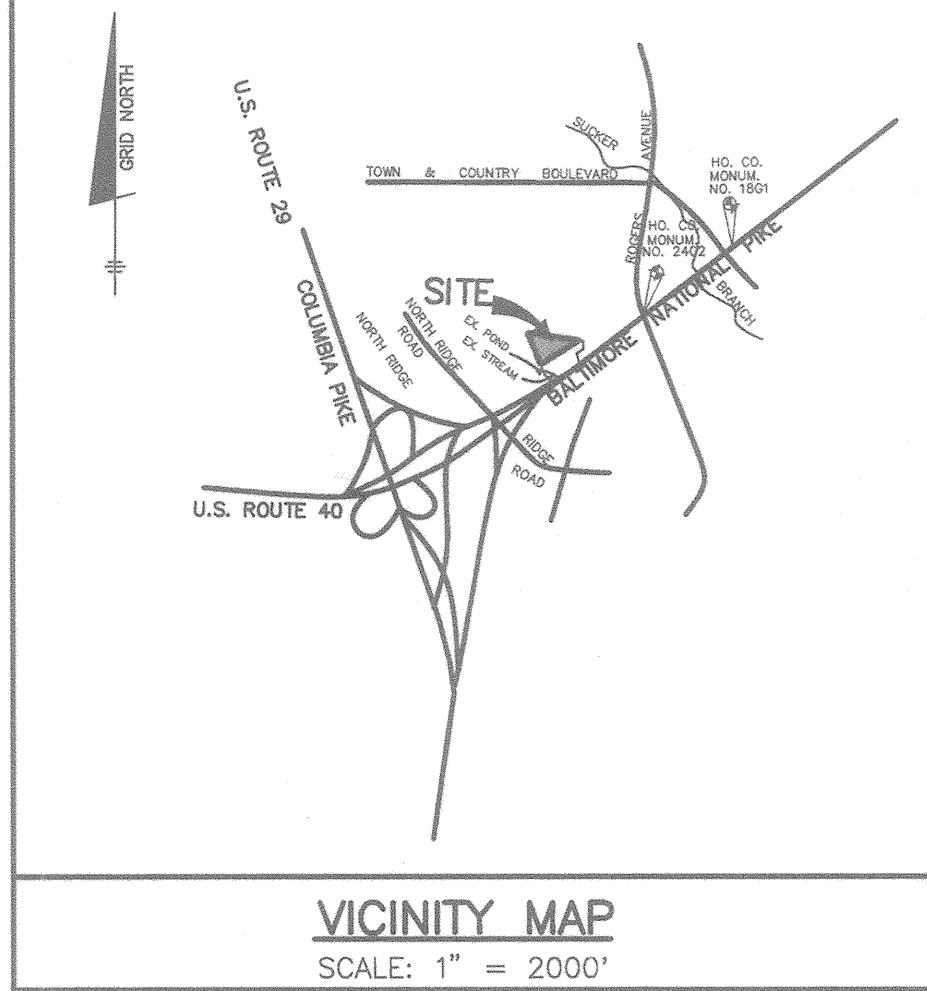
KAISER FARM

LOTS 1-82 AND PARCEL "E"

2nd ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

R/W POINT NO.	DESCRIPTION	ELEVATION
1032	PK. NAIL	384.69'
1034	X CUT IN CURB	384.77'
1037	REBAR & CAP	384.43'
1038	REBAR & CAP	384.61'
1039	X CUT IN CURB	385.01'
1040	PK. NAIL	387.52'
1041	PK. NAIL	391.01'
1042	PK. NAIL	396.11'
1043	X CUT IN CURB	401.46'
1045	X CUT IN CURB	401.82'
1046	X CUT IN CURB	403.67'
1048	PK. NAIL	404.23'
1049	PK. NAIL	403.07'
1060	PK. NAIL	401.44'
1061	REBAR & CAP	401.11'
1237	PK. NAIL	383.89'
1239	X CUT IN CURB	382.84'
1241	PK. NAIL	382.62'
1243	PK. NAIL	381.81'
1244	PK. NAIL	383.12'
1246	PK. NAIL	384.37'
1247	REBAR & CAP	386.06'



FINAL ROAD CONSTRUCTION, STORM DRAIN, AND STORMWATER MANAGEMENT PLANS

GENERAL NOTES

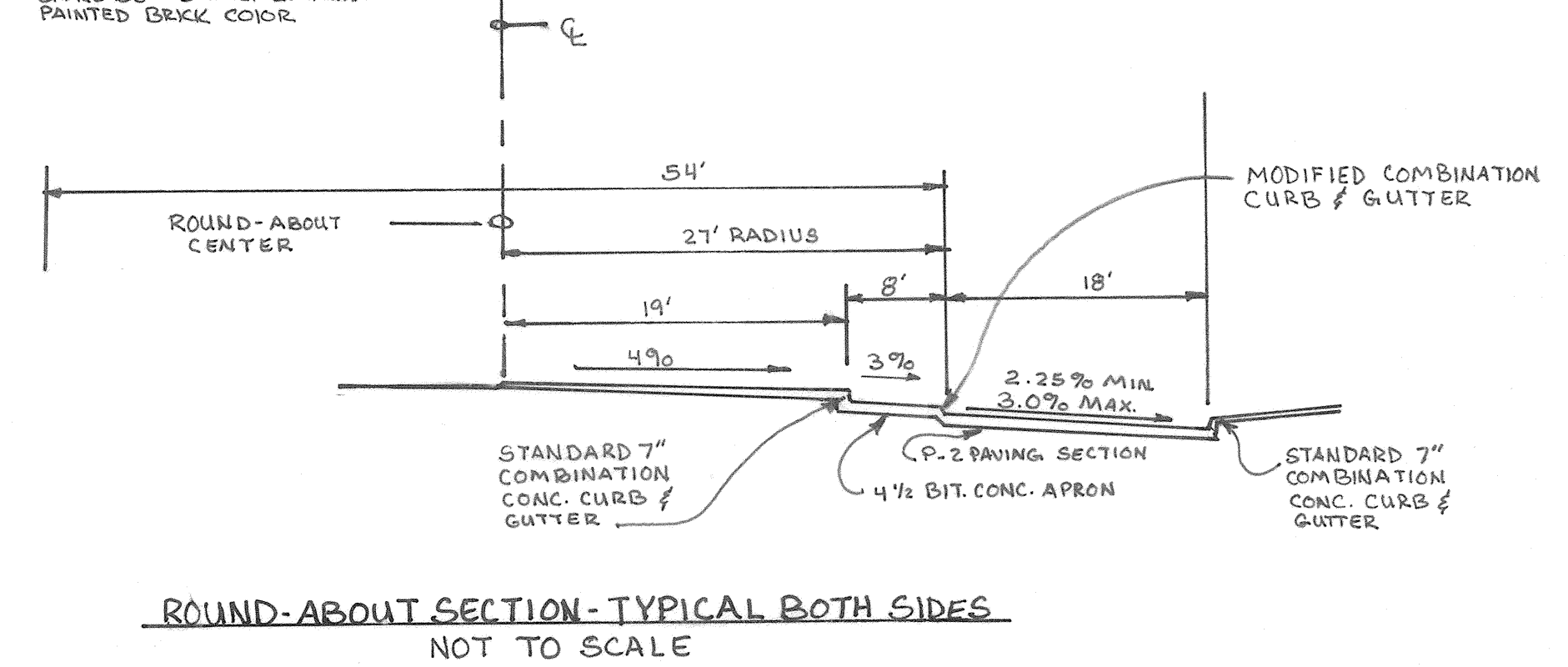
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- PROJECT BACKGROUND:
LOCATION: TAX MAP: 17, BLOCKS 23 & 24, PARCELS 681 AND P/O 848
ZONING: R-4-15
ELECTION DISTRICT: 2nd
TOTAL TRACT AREA: 17.57 AC.
NUMBER OF PROPOSED LOTS: 78 TOWNHOMES
NUMBER OF PROPOSED OPEN SPACE LOTS: 3
DPZ REFERENCE FILE: SP-00-03, WP-00-31, S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-98-160, F-96-154, P-99-17, F-00-102.
PRELIMINARY PLAN APPROVED ON JAN. 12, 2000.
- TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- TOPOGRAPHY SHOWN HEREON WAS TAKEN FROM FIELD RUN SURVEY DONE BY TSA GROUP, INC. DATED 7/97. CONTOURS SHOWN ARE AT 2 FOOT INTERVALS AND SUPPLEMENTED WITH TOPOGRAPHY AS SHOWN ON F-98-12.
- COORDINATES ARE BASED ON NAD 83, MARYLAND STATE PLAN GRID AS PROJECTED BY HOWARD CO. GEODETIC CONTROL STATIONS NO. 1861 AND 242C.
- STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- THE PROJECT IS WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER FOR THIS PROJECT SHALL BE PUBLIC AND WILL BE PROVIDED TO THE LOTS UNDER WATER & SEWER CONTRACT NO. 14-3866-D. THE DRAINAGE AREA FOR THIS PROJECT IS THE PATAPSCO.
- WATER QUALITY AND QUANTITY TREATMENT FOR THE PROPOSED ROADWAY AND THE SITE IS BEING PROVIDED BY EXTENDED DETENTION. THIS FACILITY WILL BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A.
- WETLAND LIMITS SHOWN HEREON ARE BASED ON A DELINEATION BY ECO-SCIENCE PROFESSIONAL, INC. DATED MARCH 1995 AND APPROVED UNDER S-95-01a AND WETLAND REPORT FOR PARCELS "E" AND "F". KAISER FARM (PLAT#14295) WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. DATED MAY, 1999.
- ADEQUATE PUBLIC FACILITIES ORDINANCE TRAFFIC ANALYSIS WAS PREPARED BY LEE CUNNINGHAM & ASSOCIATES, DATED AUGUST 1997 AND APPROVED UNDER S-95-01a, F-98-12 AND SDP-98-129.
- NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLES-CARNES AND ASSOCIATES, DATED FEB. 9, 1998.
- EXISTING UTILITIES SHOWN ARE TAKEN FROM RECORD INFORMATION AND FIELD LOCATIONS.
- FOREST STAND DELINEATION FOR PARCEL "I" WAS PREVIOUSLY APPROVED UNDER S-95-01a AND FOREST STAND DELINEATION PLAN FOR PARCELS "E" & "F" WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. DATED AUGUST, 1998.
- NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN WETLANDS, WETLANDS BUFFER, STREAM BUFFERS OR FOREST CONSERVATION AREAS EXCEPT FOR THE WORK APPROVED AS PART OF THESE PLANS.
- CONTRACTOR SHALL VERIFY ALL UTILITIES LOCATIONS PRIOR TO ANY CONSTRUCTION.
- THE FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN.
- ALL COMPACTION IN FILL AREA SHALL BE IN ACCORDANCE WITH AASHTO T-180 SPECIFICATIONS.
- ALL SIDEWALK/HANDICAP RAMPS SHALL BE IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.



LOCATION MAP

SCALE: 1" = 200'

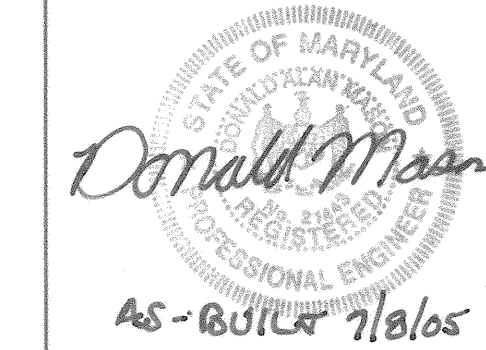
NOTE:
MATERIALS USED FOR ROUND-ABOUT MEDIAN SHALL BE ASPHALT IMPRINT PAINTED BRK/CR.



SHEET INDEX

SHEET NO.	DESCRIPTION
1.	TITLE SHEET
2.	ROAD PLAN
3.	ROAD PROFILE: KAISER DRIVE AND TYPICAL SECTIONS
4.	ROAD PROFILE: RACHEL COURT AND FILLET PROFILES
5.	GRADING, SEDIMENT AND EROSION CONTROL PLAN
6.	STORM DRAIN PROFILES
7.	STORMWATER MANAGEMENT FACILITY PROFILES AND NOTES
8-9.	STORMWATER MANAGEMENT NOTES AND DETAILS
10.	LANDSCAPE PLAN
11.	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
12.	FOREST CONSERVATION PLAN
13.	FOREST CONSERVATION NOTES AND DETAILS
14.	STORM DRAIN DRAINAGE AREA MAP

NO.	DATE	REVISION
7-9-05		REVISED PER AS-BUILT CONDITIONS
5-3-04		REVISE ROUND-ABOUT AND ADDED ROUND-ABOUT CROSS SECTION AND REMOVED ISLANDS



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

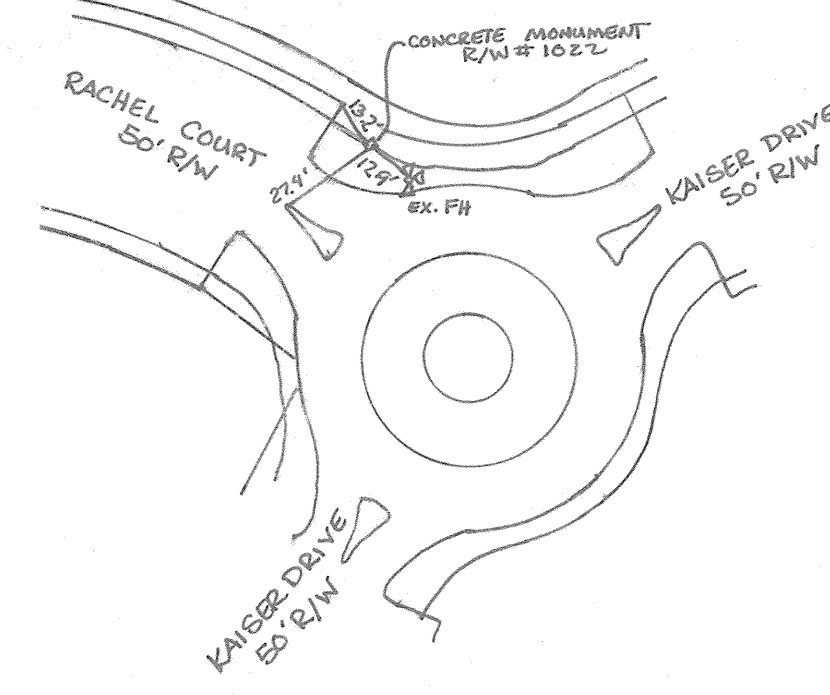
KAISER FARM
 LOTS 1-82 AND PARCEL "E"
 A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I",
 HONES PROPERTY AND PARCELS "E" AND "F", KAISER FARM
 LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 881
 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 REFERENCE FILE: S-95-01a, P-97-02, F-98-91, F-98-12, S-98-05, SDP-98-129,
 F-98-160, F-98-154, SP-00-03, P-99-17 AND F-00-102

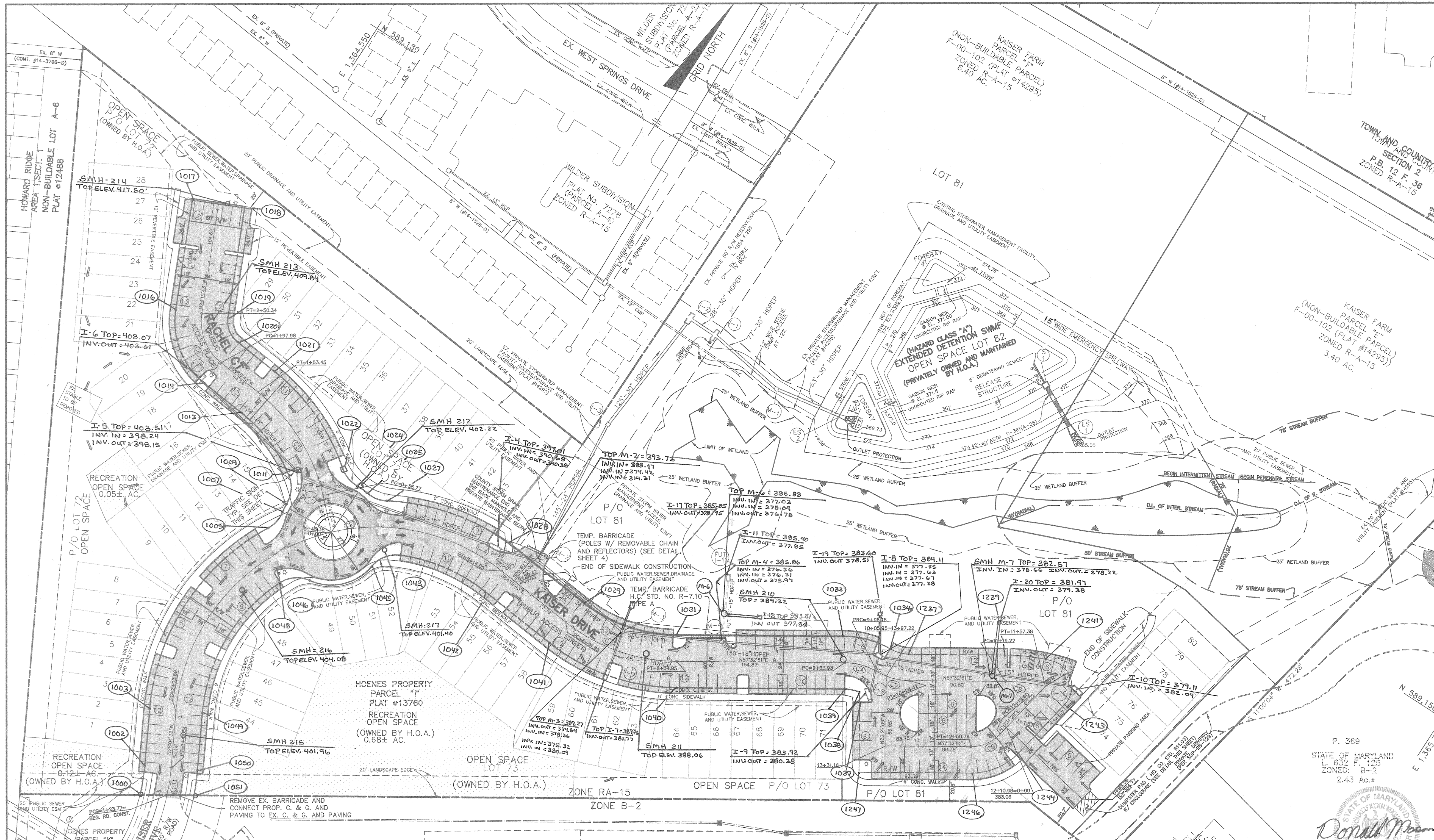
TITLE SHEET
 DATE: JULY 2000 PROJECT NO. 1268
 DES: YSL DRN: YSL CHK: DAM SCALE: AS SHOWN DRAWING 1 OF 14

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Quake 2-10-01
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamster 2/25/01
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

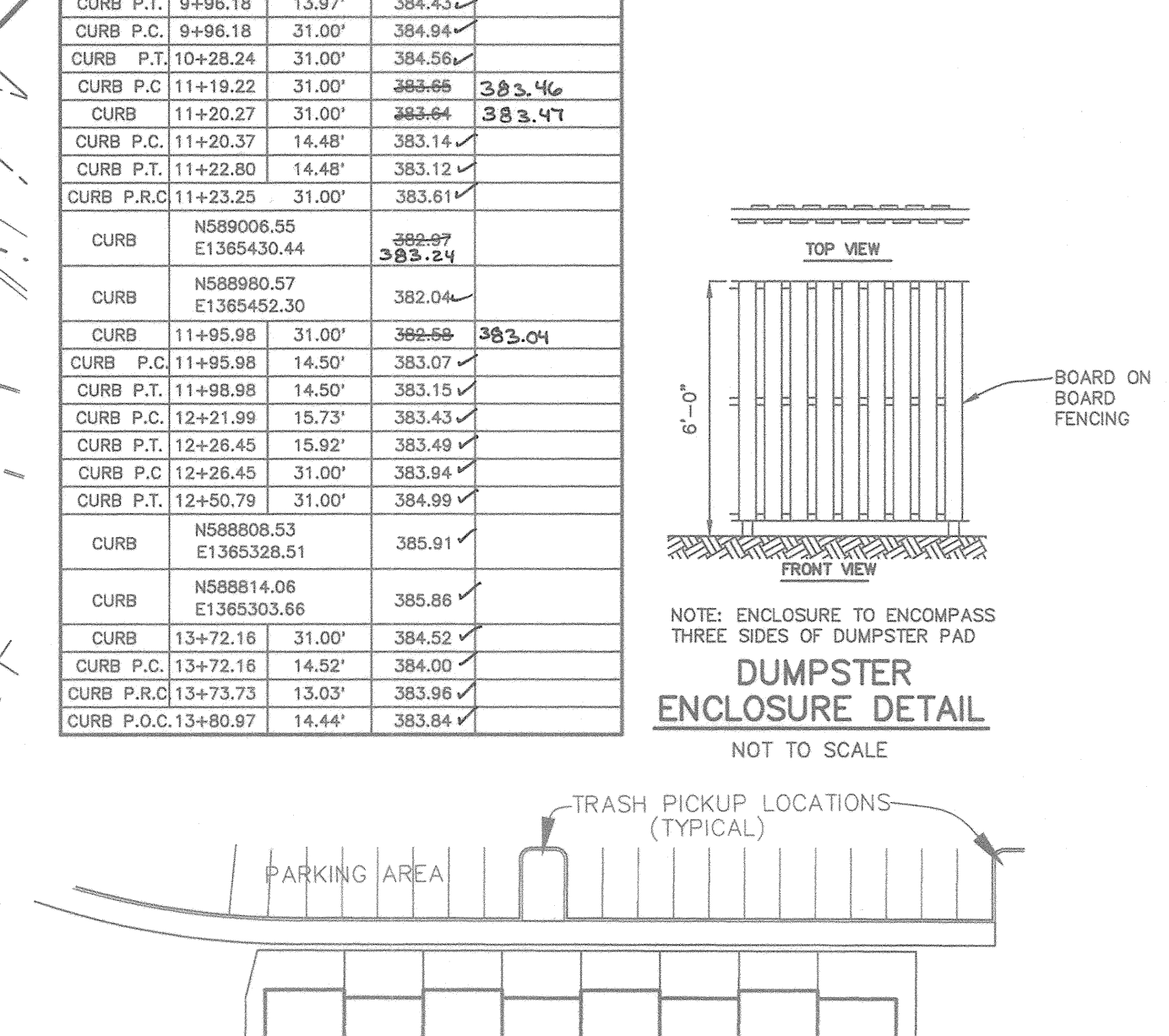
[Signature] 2/24/01
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE





KAISER DRIVE - PARKING AREA CURB DATA

DESC.	STA	OFFSET	T/C ELEV.	REMARKS	DESC.	STA	OFFSET	T/C ELEV.	REMARKS
CURB P.C.	1+23.11	12.00'	400.42	MATCH EX.	CURB P.C.	1+23.77	12.00'	400.53	MATCH EX.
CURB P.R.C.	1+40.15	12.00'	401.35		CURB P.R.C.	1+44.53	12.00'	401.35	
CURB P.T.	1+43.34	14.88'	401.38		CURB P.T.	1+47.32	14.88'	401.32	
CURB	1+43.40	30.00'	401.85	402.01	CURB	1+47.32	30.00'	401.97	
CURB P.T.	1+49.54	30.00'	402.05		CURB P.T.	1+49.54	30.00'	402.06	402.22
CURB P.C.	2+03.69	30.00'	403.66	403.84	CURB P.C.	2+03.69	30.00'	403.66	
CURB P.O.C.	2+49.43	30.00'	404.56	404.72	CURB P.O.C.	2+49.43	30.00'	404.72	
CURB P.C.	2+49.43	14.98'	404.11	404.32	CURB P.C.	2+46.84	15.03'	404.27	
CURB P.R.C.	2+52.21	12.00'	404.66	404.72	CURB P.R.C.	2+48.10	12.00'	404.26	
CURB P.T.	2+57.94	12.00'	404.43	404.27	CURB P.T.	2+47.84	12.00'	404.34	
CURB P.T.	2+60.72	14.98'	404.27	404.42	CURB P.T.	2+49.10	15.03'	404.47	
CURB	2+60.72	30.00'	404.27	404.81	CURB	2+49.10	30.00'	404.92	
CURB P.C.	3+11.51	14.98'	404.66	404.81	CURB P.C.	3+11.51	14.98'	404.66	
CURB P.R.C.	3+14.29	12.00'	404.57		CURB P.R.C.	3+14.29	12.00'	404.57	
CURB P.T.	3+20.02	12.00'	404.58		CURB P.T.	3+14.29	12.00'	404.57	
CURB P.C.	3+22.80	14.98'	404.68		CURB P.C.	3+14.29	12.00'	404.57	
CURB	3+22.80	30.00'	404.68	405.43	CURB P.O.C.	4+43.36	45.00'	406.20	402.37
CURB P.R.C.	3+82.05	14.98'	404.35		CURB P.R.C.	5+09.26	12.88'	401.16	
CURB P.T.	3+85.17	12.00'	404.22		CURB P.T.	5+13.16	15.83'	401.17	
CURB P.R.C.	4+07.47	12.00'	403.79		CURB P.R.C.	5+13.16	30.00'	401.50	
CURB P.R.C.	4+47.95	24.00'	401.85	LLP.0+36.58	CURB P.T.	6+14.05	30.00'	396.78	
CURB P.T.	5+01.55	12.00'	401.38		CURB P.T.	6+28.11	15.80'	395.80	
CURB P.R.C.	5+09.68	12.00'	401.17	RLP.0+00	CURB P.T.	6+31.11	12.00'	395.22	
CURB P.T.	5+12.46	14.98'	401.17		CURB P.C.	6+37.11	12.00'	394.87	
CURB	5+12.46	30.00'	401.62		CURB P.C.	6+40.11	15.00'	394.61	
CURB P.C.	5+86.65	14.98'	397.73		CURB P.C.	6+41.83	30.00'	391.41	
CURB P.R.C.	5+91.43	12.00'	397.48	LLP.0+00	CURB P.C.	7+44.36	14.95'	389.58	389.30
CURB P.T.	5+98.86	17.70'	395.17	LLP.0+21.13	CURB P.T.	7+47.12	12.00'	389.50	
CURB P.C.	6+17.11	31.75'	394.36	LLP.0+37.46	CURB P.C.	7+54.70	12.00'	389.20	
CURB P.C.	6+41.47	37.00'	394.18	LLP.0+39.27	CURB P.C.	7+57.46	15.00'	389.10	
CURB P.O.C.	6+48.11	18.30'	388.58	LLP.0+19.83	CURB P.C.	8+28.11	15.80'	389.85	
CURB P.R.C.	6+86.47	12.00'	393.22	RLP.0+00	CURB P.T.	8+31.11	30.00'	388.03	
CURB P.T.	6+89.73	15.00'	393.16		CURB P.T.	8+31.11	30.00'	388.59	
CURB	6+89.73	30.00'	393.61		CURB P.C.	8+61.95	15.00'	388.14	
CURB P.C.	6+91.83	30.00'	392.49		CURB P.C.	8+64.95	12.00'	385.98	
CURB	6+90.78	30.00'	388.16		CURB P.C.	8+70.95	12.00'	385.80	
CURB P.C.	6+90.45	15.08'	387.71		CURB P.T.	8+73.95	15.00'	385.91	
CURB P.R.C.	6+93.76	12.00'	387.52		CURB	9+63.97	30.00'	386.28	386.38
CURB P.T.	6+95.12	12.00'	387.48		CURB P.C.	9+63.97	14.04'	386.78	385.26
CURB P.T.	6+15.12	22.00'	387.47		CURB P.R.C.	9+67.98	12.00'	384.65	
CURB P.C.	6+48.11	23.00'	388.58	LLP.0+19.83	CURB P.C.	9+86.16	17.00'	385.24	383.76
CURB P.O.C.	6+57.34	12.75'	386.12		CURB P.O.C.	9+87.34	12.75'	386.12	
CURB P.T.	6+61.47	14.12'	386.12		CURB P.T.	10+37.44	15.13'	383.85	ISLAND
CURB	6+61.47	30.00'	386.60		CURB P.T.	10+41.44	15.00'	383.45	ISLAND
CURB P.C.	6+63.93	30.00'	386.64	383.87	CURB P.O.C.	12+11.30	14.42'	384.00	382.68
CURB	6+66.28	30.00'	386.00	383.57	CURB P.R.C.	12+38.69	13.00'	384.33	ISLAND
CURB P.C.	6+66.26	13.97'	384.53		CURB P.C.	13+00.16	15.13'	384.10	ISLAND
CURB P.R.C.	6+87.89	12.00'	384.45	384.17	CURB P.T.	13+02.41	13.14'	384.18	ISLAND
CURB P.T.	6+94.55	12.00'	384.39	384.14	CURB P.O.C.	13+62.16	13.00'	384.11	ISLAND
CURB P.T.	9+96.18	13.97'	384.43						
CURB P.T.	9+96.18	31.00'	384.94						
CURB P.T.	10+28.24	31.00'	384.56						
CURB P.C.	11+19.22	31.00'	383.66	383.34					
CURB	11+20.27	31.00'	383.64	383.37					
CURB P.C.	11+20.37	14.48'	383.14						
CURB P.T.	11+22.80	14.48'	383.12						
CURB P.R.C.	11+23.25	31.00'	383.61						
CURB	N589006.55		383.24						
CURB	E1365430.44		383.24						
CURB	N589890.57		382.04						
CURB	E1365452.30		382.04						
CURB	11+95.38	31.00'	386.88	383.04					
CURB P.C.	11+95.98	14.50'	383.07						
CURB P.T.	11+98.98	14.50'	383.15						
CURB P.C.	12+21.99	15.73'	383.43						
CURB P.T.	12+26.45	15.92'	383.49						
CURB P.C.	12+26.45	31.00'	383.84						
CURB P.T.	12+50.79	31.00'	384.99						
CURB	N588808.53		385.81						
CURB	E1365328.51		385.81						
CURB	N589814.06		385.86						
CURB	E1365303.86		385.86						
CURB	13+72.18	31.00'	384.52						
CURB P.C.	13+72.16	14.52'	384.00						
CURB P.R.C.	13+73.73	13.03'	383.96						
CURB P.O.C.	13+80.97	14.44'	383.84						



TYPICAL TRASH PICK-UP LOCATION

NOT TO SCALE

STREET CENTERLINE CURVE DATA (CONT.)

CURVE	RADIUS	LENGTH	TANGENT	CHORD	DELTA	P.C. STA.	P.T. STA.
C7	61.58'	32.24'	16.50'	31.88'	30°00'00"	9+96.17	10+28.41
C8	165.40'	38.16'	19.17'	38.08'	13°13'09"	11+19.21	11+57.37
C9	37.00'	30.37'	16.10'	29.52'	47°01'22"	12+18.81	12+49.18

7-9-05 REVISED PER AS-BUILT CONDITIONS
 5-3-04 REVISE ROUND-ABOUT AND REMOVED ISLANDS
 NO DATE REVISION

BENCHMARK

ENGINEERS & LAND SURVEYORS & PLANNERS

ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE SUITE 418
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-8105 FAX: 410-465-8644

OWNER / DEVELOPER: KAISER FARM
 KAISER FARM, L.L.C.
 P.O. BOX 417
 ELLICOTT CITY, MD 21041
 (410) 465-4244

PROJECT: KAISER FARM
 A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "A",
 HOENES PROPERTY AND PARCELS "E" AND "F", KAISER FARM
 LOCATION: HWY MAPS 77 & 24, F/O PARCEL 848, AND F/O 881
 2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 REFERENCE FILE: S-89-016, F-97-02, F-98-01, F-98-12, S-98-05, S-98-129,
 F-88-160, F-88-184, S-00-03, S-99-17, F-00-102

TITLE: ROAD PLAN
 KAISER DRIVE AND RACHEL COURT

DATE: AUG. 2000 PROJECT NO. 1268
 DRAWING 2 OF 14

DES: YSL DRN: YSL CHK: DAM SCALE: AS SHOWN

STREET CENTERLINE CURVE DATA

CURVE	RADIUS	LENGTH	TANGENT	CHORD	DELTA	P.C. STA.	P.T. STA.
C1	200.00'	25.77'	12.91'	25.77'	07°23'02"	1+23.77	1+49.54
C2	190.00'	410.36'	355.44'	335.13'	123°44'50"	2+03.69	6+14.05
C3	170.00'	113.12'	58.74'	111.04'	38°07'26"	6+91.83	8+04.95
C4	61.58'	32.24'	16.50'	31.88'	30°00'00"	9+96.17	10+28.41
C5	175.00'	117.68'	61.16'	115.47'	38°31'40"	0+35.77	1+53.45
C6	50.00'	52.36'	28.87'	50.00'	60°00'00"	1+97.98	2+50.34

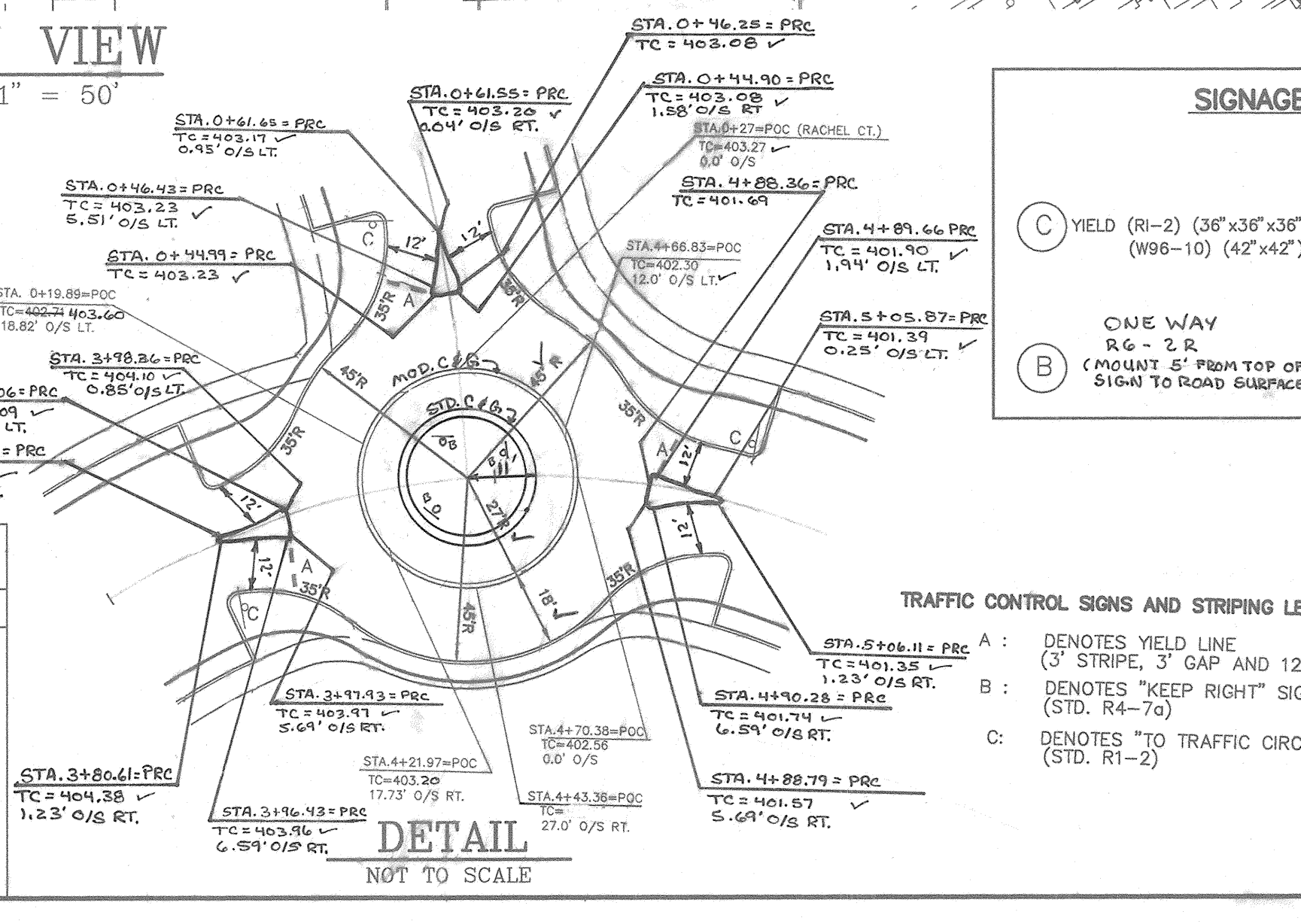
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Robert M. Daulton 2-19-01
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chris Hamer 2/21/01
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE

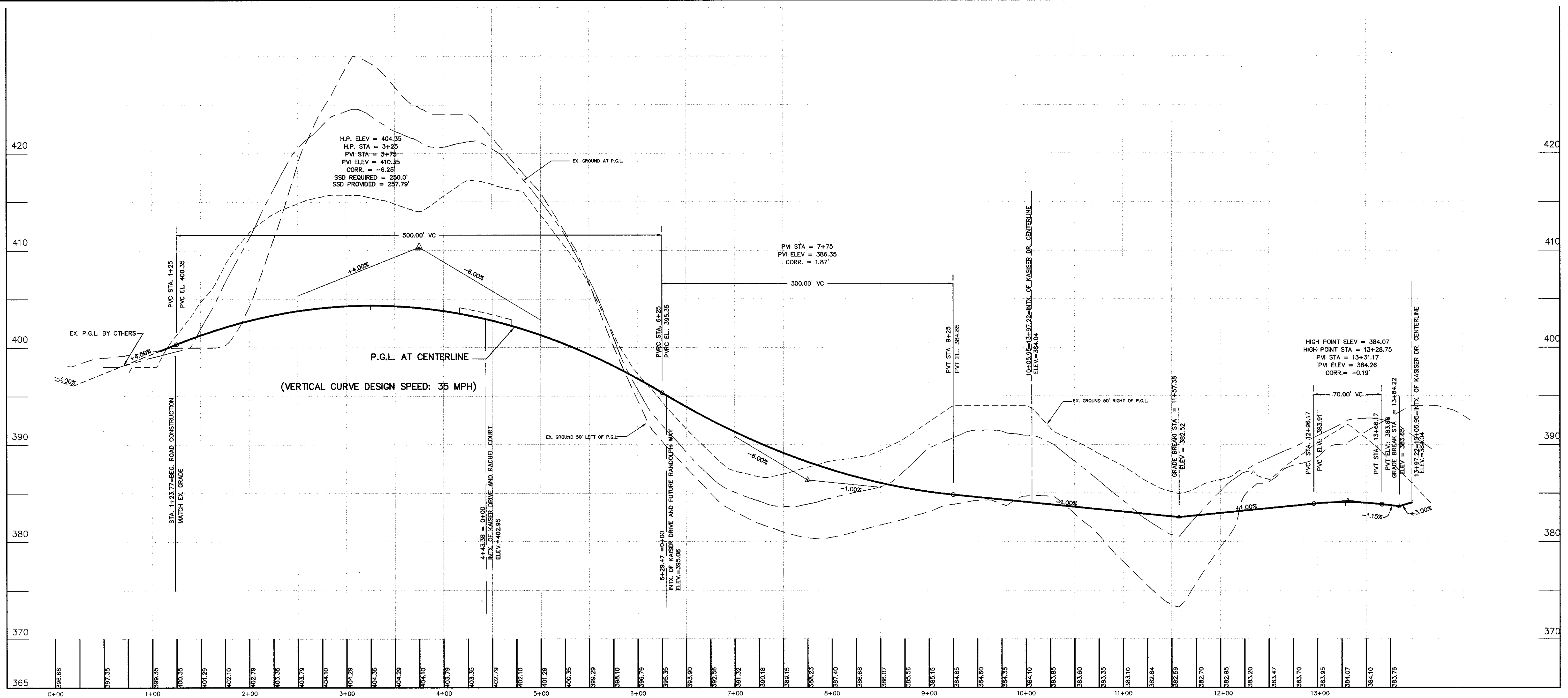
STREET LIGHT SCHEDULE

SYMBOL	DESCRIPTION	LOCATION
100 WATT HPS VAPOR COLONIAL POST FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE.	15' LT., STA. 1+40 KAISER DR. 19' RT., STA. 3+85, KAISER DR. 16' LT., STA. 4+96, KAISER DR. 17' LT., STA. 6+56, KAISER DR. 15' LT., STA. 8+58, KAISER DR. 20' LT., STA. 9+93, KAISER DR. 16' LT., STA. 11+22, KAISER DR. 16' LT., STA. 12+24, KAISER DR. 25' LT., STA. 13+31, KAISER DR. 22' LT., STA. 0+48, RACHEL CT. 15' LT., STA. 1+98, RACHEL CT. 16' RT., STA. 3+59, RACHEL CT.	



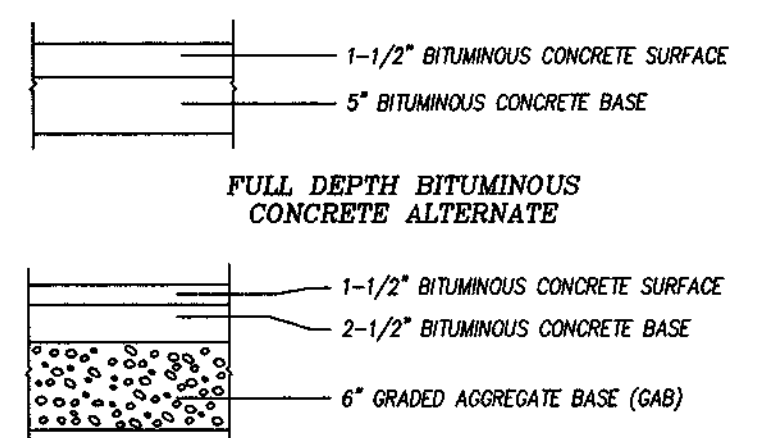
RACHEL COURT - PARKING AREA CURB DATA

DESC.	STA	OFFSET	T/C ELEV.	REMARKS	DESC.	STA	OFFSET	T/C ELEV.	REMARKS
CURB P.R.C.	0+35.20	28.03'	403.49	LLP.0+47.37	CURB P.C.	0+37.06	25.26'	402.44	RLP.0+36.46
CURB P.R.C.	0+86.45	12.38'	403.24	LLP.0+80.37	CURB P.C.	0+81.45	12.00'	403.21	RLP.0+80.49
CURB P.T.	0+70.17	15.38'	403.47		CURB P.T.	0+84.21	14.88'	403.29	
CURB	0+70.17	30.00'	404.84	403.75	CURB	0+84.21	30.00'	403.24	403.40
CURB P.T.	1+53.45	30.00'	406.85		CURB P.T.	1+53.45	30.00'	406.85	406.88
CURB	1+52.51	30.00'	408.42		CURB	1+57.10	30.00'	406.80	
CURB P.C.	1+52.51	15.00'	407.97		CURB P.C.	1+57.10	15.00'	406.35	
CURB P.T.	1+55.51	12.00'	408.02		CURB P.T.	1+60.10	12.00'	406.38	
CURB	0+70.17	30.00'	404.84	403.75	CURB	1+58.10	12.00'	406.69	
CURB P.C.	2+00.43	12.00'	408.26		CURB P.T.	1+58.10	15.00'	406.87	
CURB P.T.	2+02.74	14.83'	407.74	408.24	CURB	1+59.10	30.00'	407.32	407.51
CURB	2+03.06	30.00'	404.86	404.83	CURB P.C.	1+57.98	30.00'	406.89	408.14
CURB P.T.	2+50.34	30.00'	404.30	404.43	CURB P.C.	2+50.34	30.00'	411.39	
CURB</									

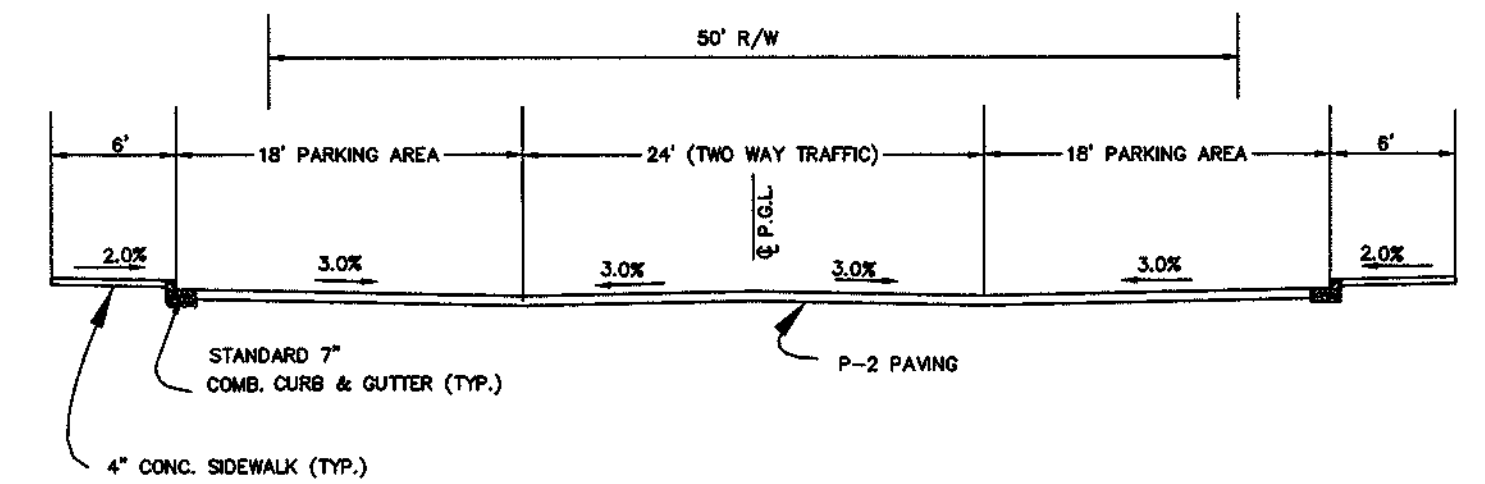


KAISER DRIVE: PUBLIC ACCESS STREET
(DESIGN SPEED: 30 MPH)

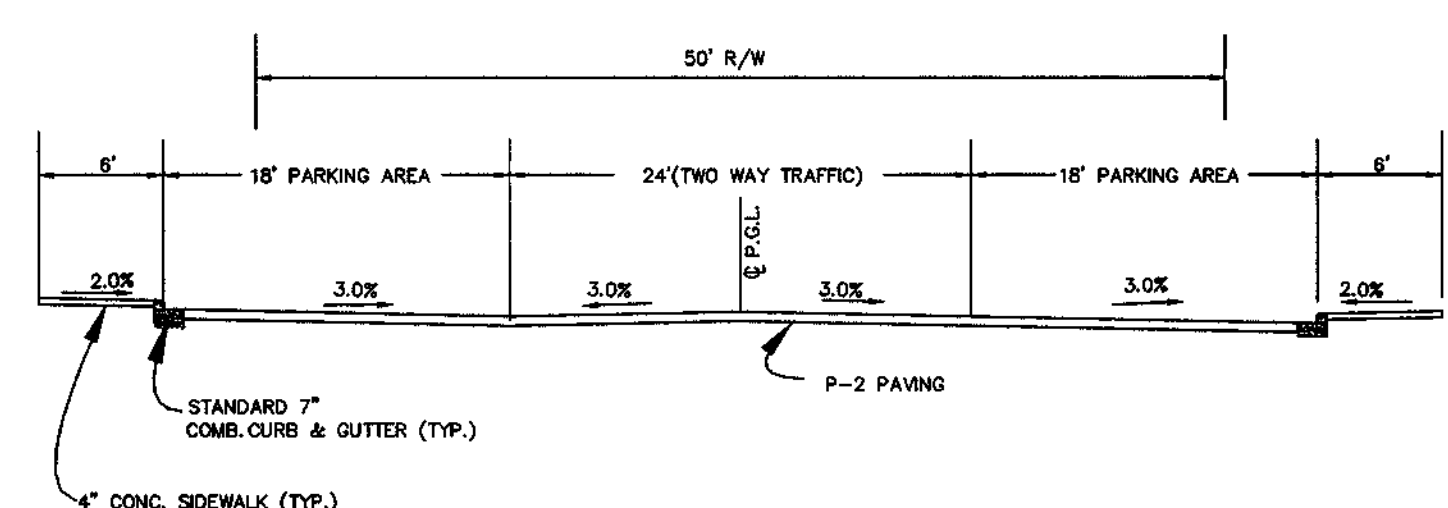
SCALE: HOR: 1" = 50'
VERT: 1" = 5'



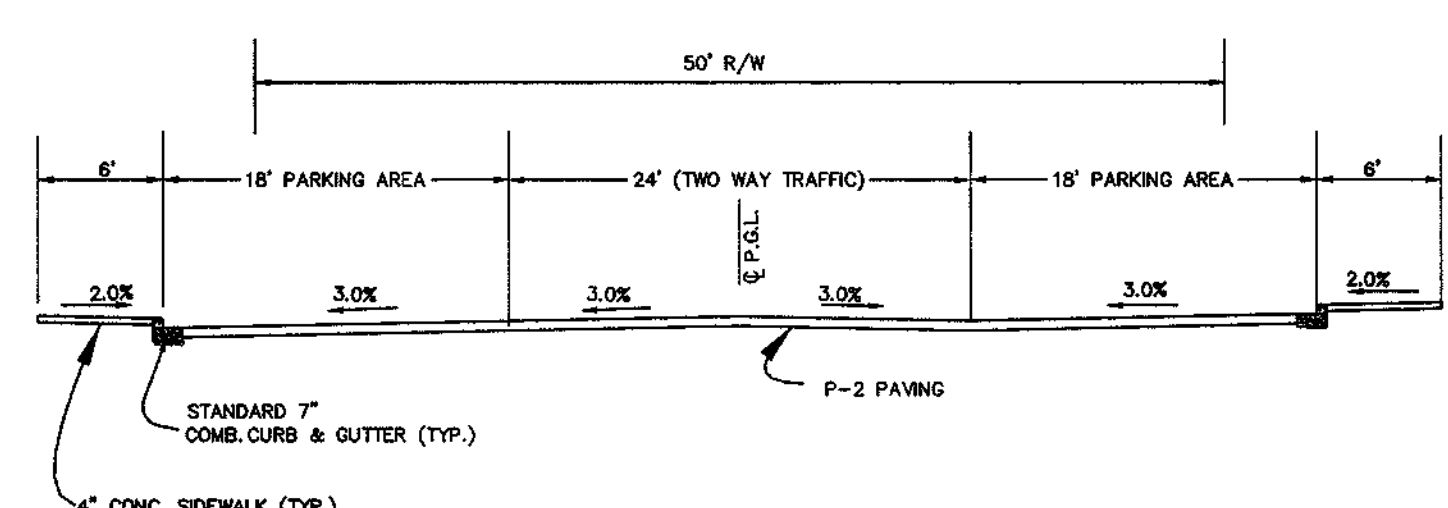
PAVING SECTION P-2
NOT TO SCALE



TYPICAL ROAD AND PARKING SECTION DETAIL
KAISER DRIVE : DESIGN SPEED=30 MPH (FROM STA. 1+43.40 TO 3+80.05, 5+12.46 TO 6+28.11 AND 7+57.34 TO 9+86.26)
(PUBLIC ACCESS STREET)
RACHEL CT. : DESIGN SPEED= 25 MPH (FROM 0+64.21 TO 1+92.51 AND 3+12.97 TO 3+36.97)
(PUBLIC ACCESS PLACE)
NOT TO SCALE



MODIFIED ROAD AND PARKING SECTION DETAIL
KAISER DRIVE : DESIGN SPEED=30 MPH (FROM STA. 6+40.11 TO 7+44.26)
(PUBLIC ACCESS STREET)
NOT TO SCALE



MODIFIED ROAD AND PARKING SECTION DETAIL
RACHEL CT. : DESIGN SPEED= 25 MPH (FROM 2+03.06 TO 3+08.97)
(PUBLIC ACCESS PLACE)
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Danks 2-19-01
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Condy Hamilton 2/25/01
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 2/26/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS

8480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLCOTT CITY, MARYLAND 211043
PHONE: 410-465-6105 FAX: 410-465-6844

[Professional Engineer Seal]

OWNER / DEVELOPER: KAISER FARM, L.L.C.
P.O. BOX 417
ELLCOTT CITY, MD 21041
(410) 465-4244

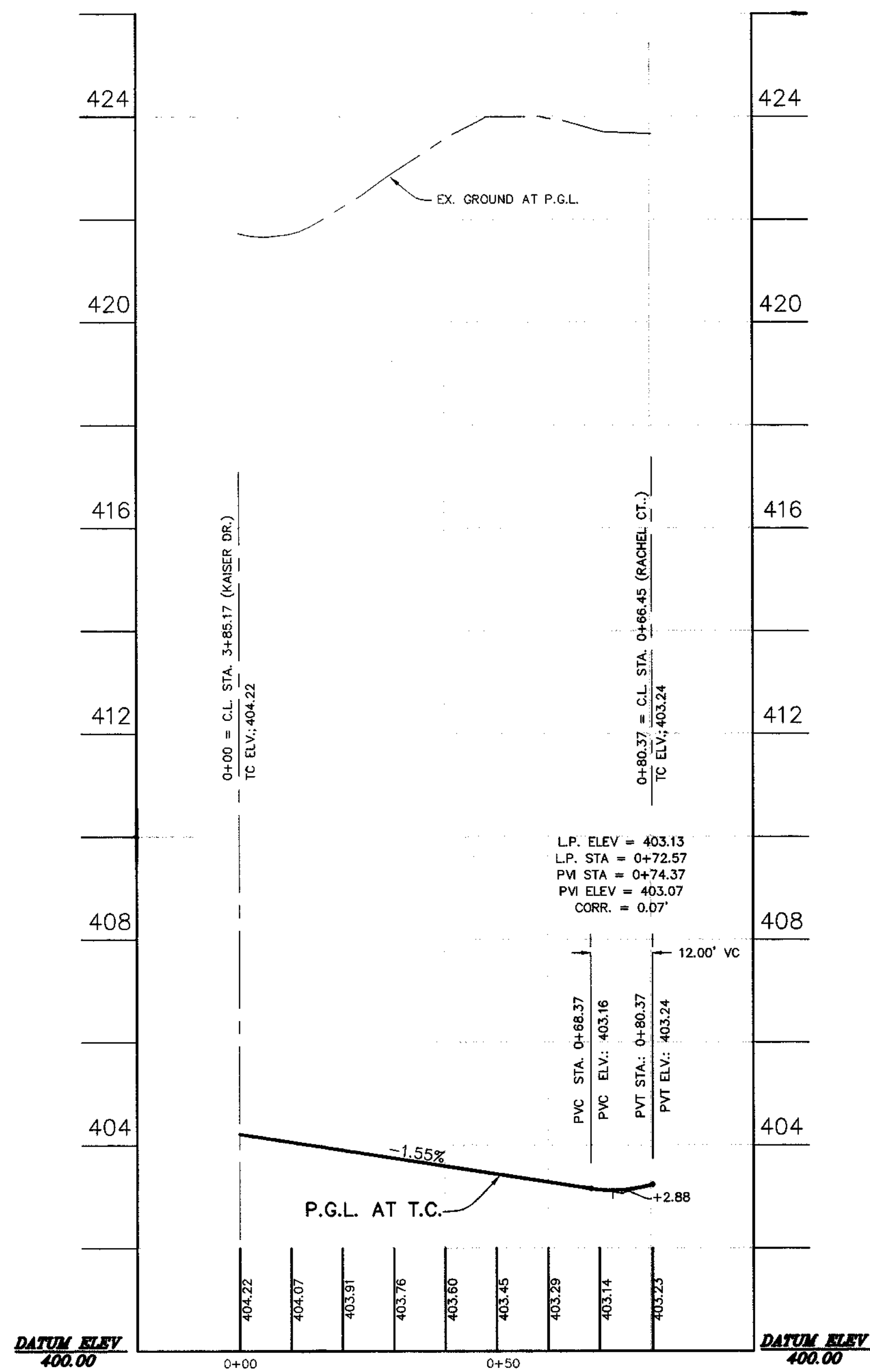
PROJECT: **KAISER FARM**
LOTS 1-62 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "Y",
HONES PROPERTY AND PARCELS "E" AND "Y", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-85-01a, P-97-02, F-98-81, F-98-12, S-98-05, S0P-98-129,
F-98-180, F-98-184, SP-00-03, P-98-17 AND F-00-102

TITLE: **ROAD PROFILE: KAISER DRIVE AND TYPICAL SECTIONS**

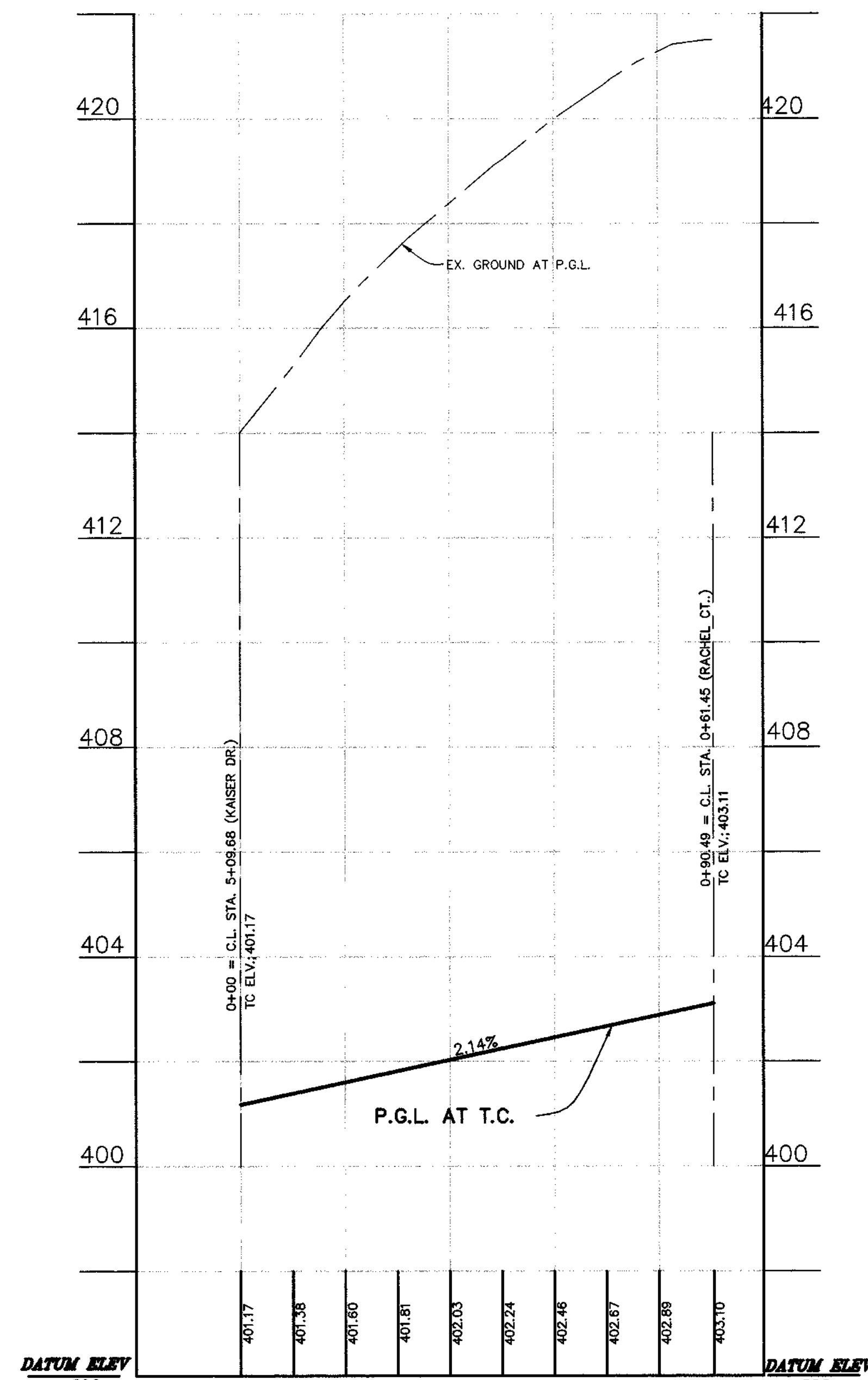
DATE: AUG. 2000 PROJECT NO. 1268

DES: YSL DRN: YSL CHK: DAM SCALE: AS SHOWN DRAWING 3 OF 14



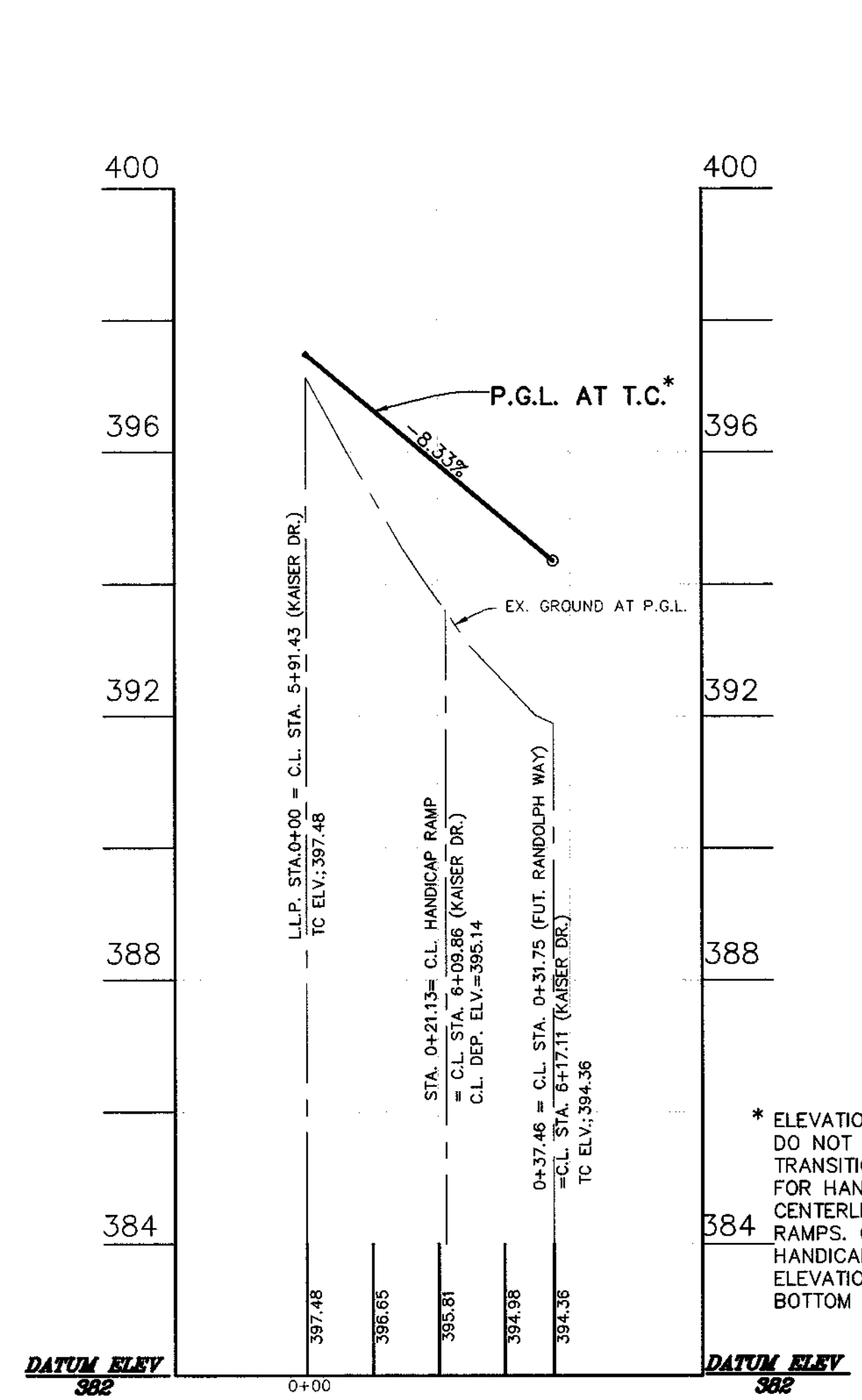
FILLET AT LEFT OF RACHEL CT.

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



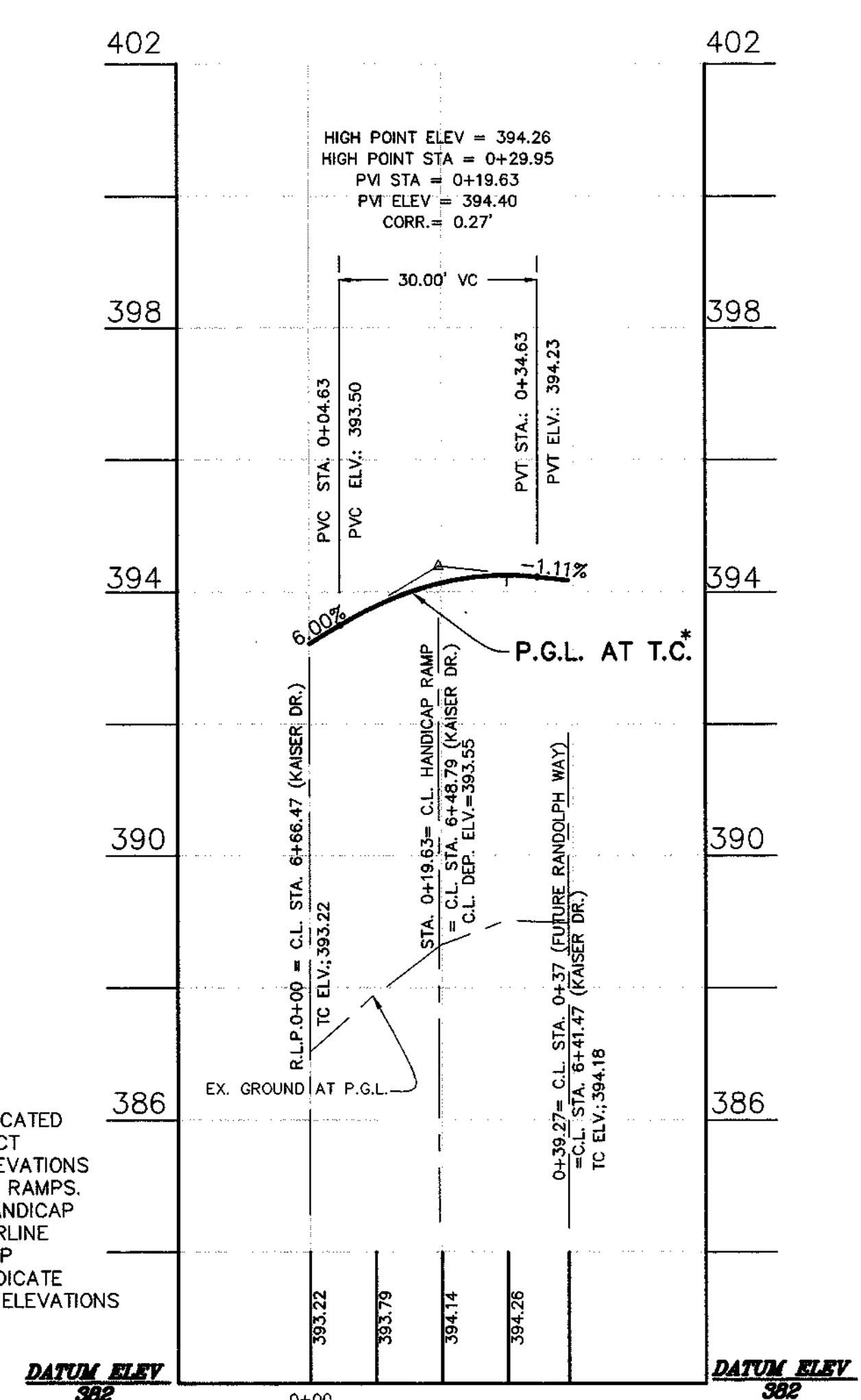
FILLET AT RIGHT OF RACHEL CT.

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



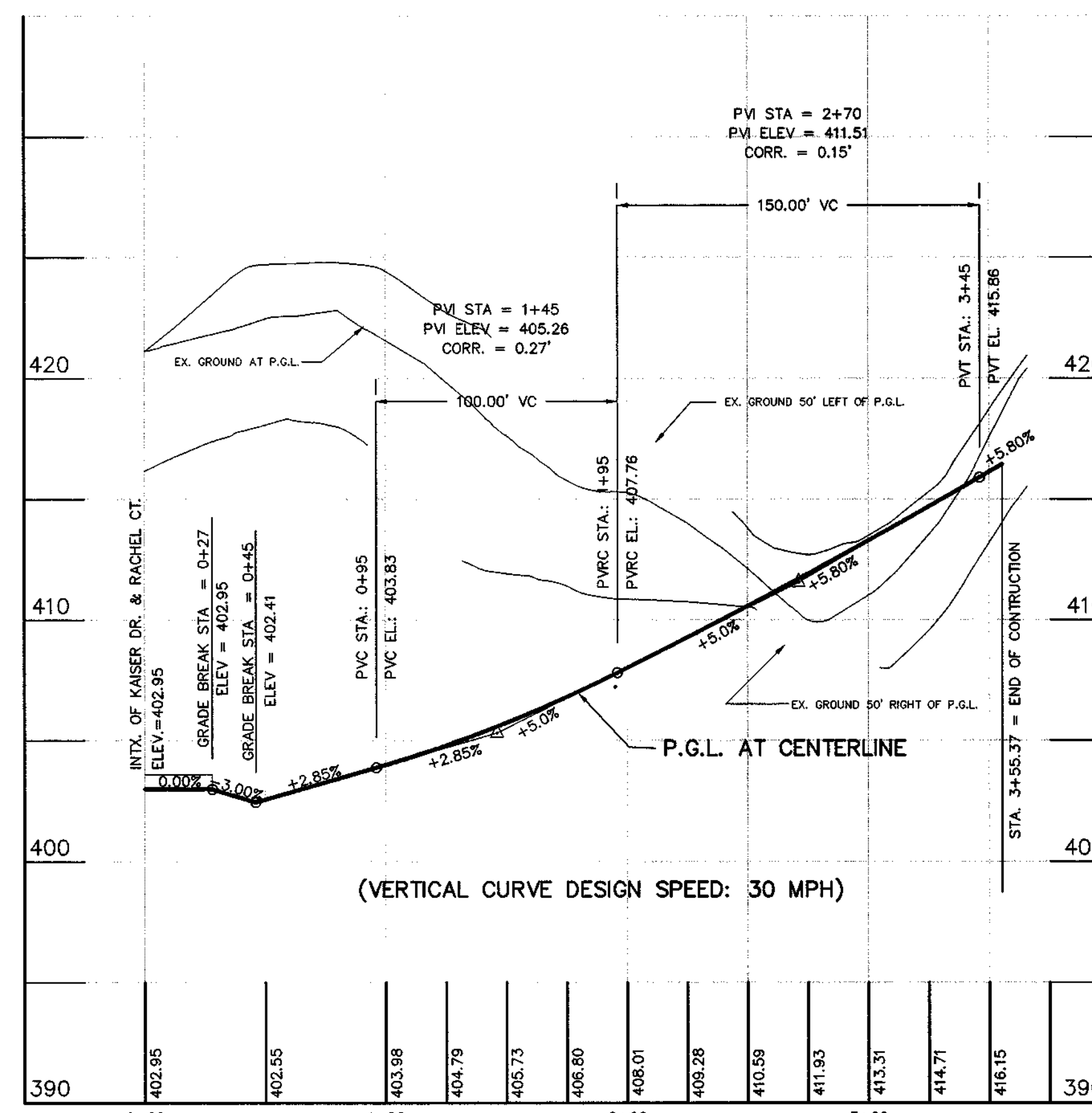
FILLET AT LEFT OF RANDOLPH WAY

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



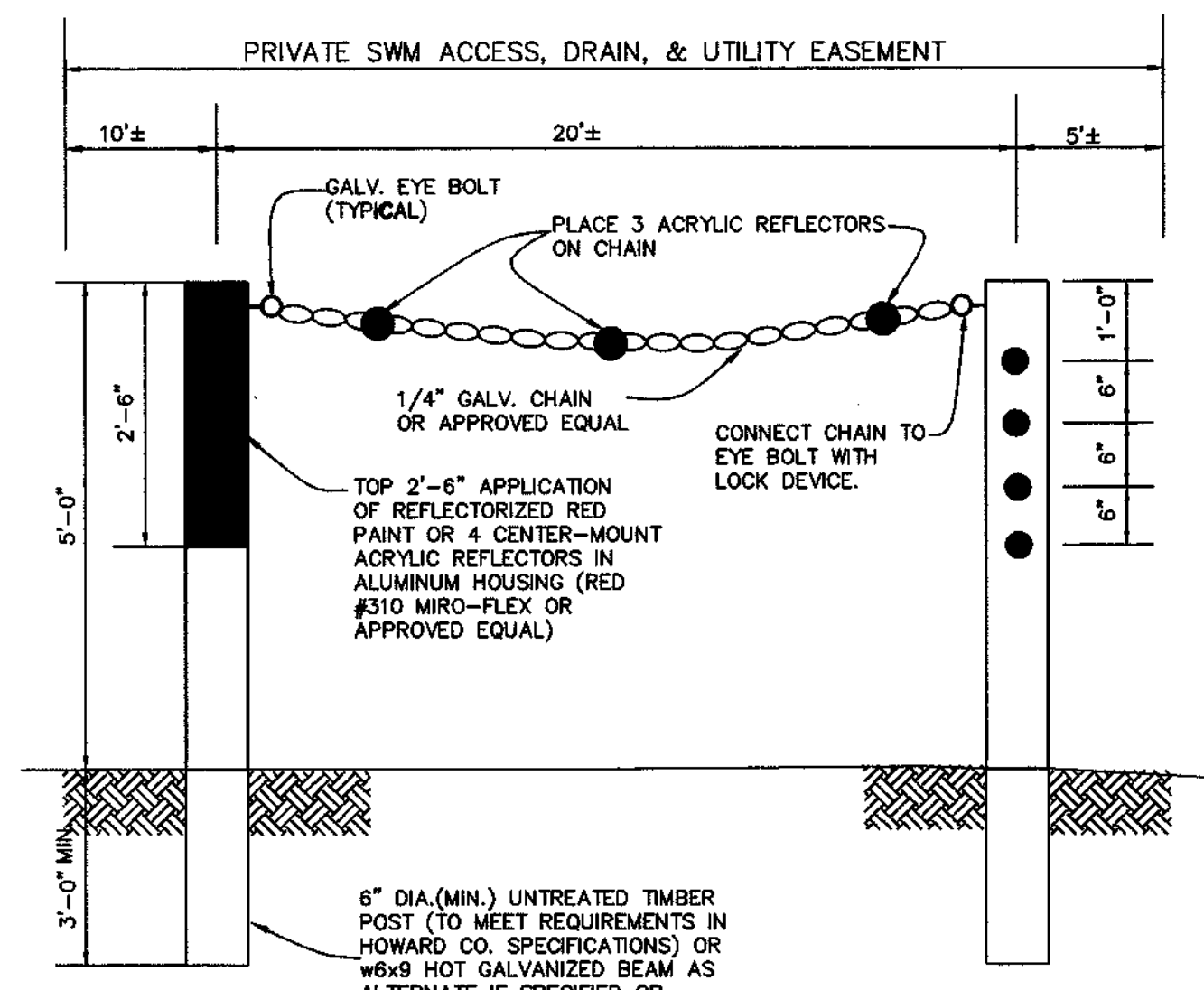
FILLET AT RIGHT OF RANDOLPH WAY

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



RACHEL COURT: PUBLIC ACCESS PLACE
(DESIGN SPEED: 25 MPH)

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



TEMP. BARRICADE DETAIL
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Richard M. Danks 2-19-01
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Carole Hamilton 2/28/01
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 2/2/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO. DATE		REVISION	
BENCHMARK ENGINEERS • LAND SURVEYORS • PLANNERS <i>Donald Mason</i> ENGINEERING, INC.			
8480 BALTIMORE NATIONAL PIKE & SUITE 418 ELLICOTT CITY, MARYLAND 211043 PHONE: 410-465-6105 FAX: 410-465-6844			
OWNER / DEVELOPER:		PROJECT:	
KAISER FARM, L.L.C. P.O. BOX 417 ELLICOTT CITY, MD 211041 (410) 465-4244		KAISER FARM LOTS 1-82 AND PARCEL "E" A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "T", HOWARD COUNTY, MARYLAND LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND REFERENCE FILE S-85-276 P-97-02, F-96-01, F-98-12, S-88-05, S-89-129, F-88-180, F-88-154SP-00-03P-99-17 AND F-00-102	
TITLE:			
ROAD PROFILE: RACHEL COURT AND FILLET PROFILES			
DATE: AUG. 2000		PROJECT NO. 1268	
DES: YSL	DRN: YSL	CHK: DAM	SCALE: AS SHOWN DRAWING 4 OF 14

STORMWATER MANAGEMENT SUMMARY DATA

STORM FREQUENCY	PRE-DEVELOPED COMBINED DISCHARGE (CFS) AT DESIGN POINT	POST-DEVELOPED COMBINED DISCHARGE (CFS) WITH SWM AT DESIGN POINT
	DESIGN POINT #1	DESIGN POINT #1
2	13.32	12.95
10	41.77	28.69
100	-	81.15

STORM FREQUENCY	POND #1		
	2	10	100
INFLOW Q (CFS)	27.6	51.5	78.1
DISCHARGE Q (CFS)	1.6	13.2	50.2
ELEVATION	370.19	371.50	372.34
STORAGE VOLUME PROVIDED (AC.-FT)	1.202	1.905	2.409



PLAN VIEW

SCALE: 1" = 50'

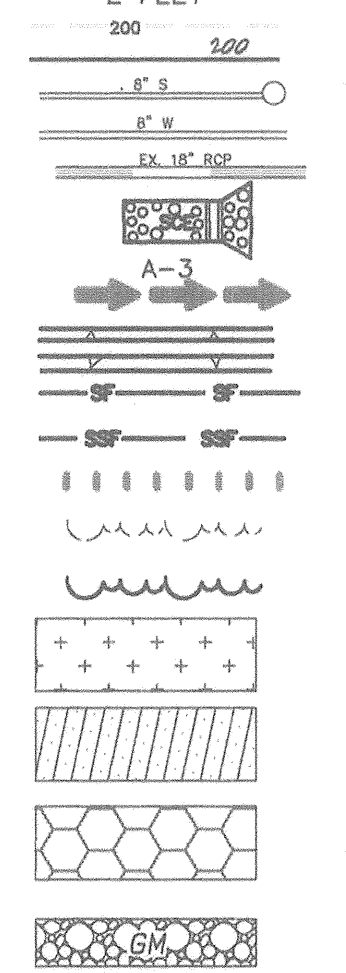
SEDIMENT BASIN NO. 1 DATA

O.A. = 7.32 AC.
 NET STORAGE REQUIRED: 13176 C.F.
 NET STORAGE PROVIDED: 13176 C.F.
 DRY STORAGE REQUIRED: 13176 C.F.
 DRY STORAGE PROVIDED: 13176 C.F.
 CLEANOUT ELEVATION: 367.5
 TOP OF V. EMBANKMENT ELEVATION: 374.0
 RISER CREST ELEVATION: 369.75
 2 YR. RELEASE RATE: 4.21 CFS (EXIST.)
 DURING CONSTRUCTION: 0.27 CFS (DEV.)

SEDIMENT TRAP NO. 1 DATA

TYPE: ST-II (S.O.S.T)
 D.A. = 1.92 AC. (DEVELOPED CONDITION)
 STORAGE REQUIRED: 6912 C.F.
 NET STORAGE: 3456 C.F.
 DRY STORAGE: 3456 C.F.
 STORAGE PROVIDED: 7822.25 C.F.
 NET STORAGE: 3704.10 C.F.
 DRY STORAGE: 3818.15 C.F.
 BOTTOM DIMENSION: 70' x 35'
 DEPTH: 2.5'
 SIDE SLOPE: 2:1
 WEIR LENGTH: 8.0'
 EMBANKMENT HEIGHT: 2.2'
 EMBANKMENT ELEVATION: 370.0
 BOTTOM ELEVATION: 366.5
 NET STORAGE LIMIT: 367.85
 WEIR CREST ELEVATION: 369.0
 OUTLET ELEVATION: 367.85
 CLEANOUT ELEVATION: 367.18
 APRON LENGTH: 10.0'

LEGEND



FOR SEQUENCE OF CONSTRUCTION SEE SHEET NO. 11

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 2/19/01
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 [Signature] 2/25/01
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: [Signature] 2/16/01
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 2/13/01
 HOWARD SOIL CONSERVATION DISTRICT
 ACTIVE DIST. M.E.B.

APPROVED: 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.
 [Signature] 2/13/01
 URBAN-NATURAL RESOURCES CONSERVATION SERVICE

ENGINEER'S CERTIFICATE
 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.
 [Signature] 1/13/01
 ENGINEER - DONALD A. MASON, P.E. # 21443

DEVELOPER'S CERTIFICATE
 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.
 [Signature] 1/19/01
 DEVELOPER - KAISER FARM, L.L.C.

7-9-05 REVISED PER AS-BUILT CONDITIONS
 5-2-04 REVISED ROUND-ABOUT & REMOVED ISLANDS

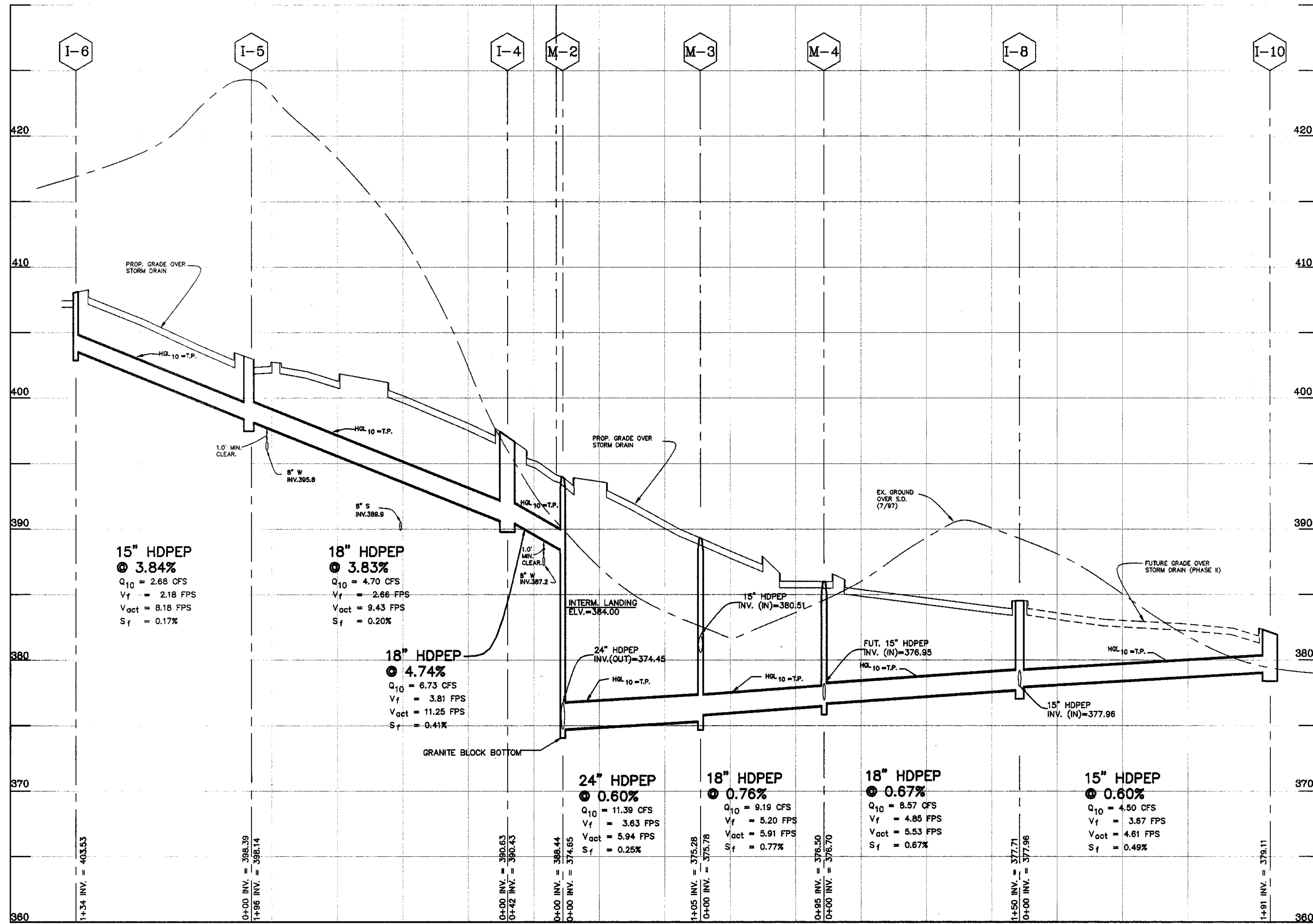
NO	DATE	REVISION

BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS, INC.
 6480 BALTIMORE NATIONAL PIKE & SUITE 418
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-6105 FAX: 410-465-6844

KAISER FARM
 LOTS 1-82 AND PARCEL "E"
 A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "Y",
 HOENES PROPERTY AND PARCELS "E" AND "F", KAISER FARM
 LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 881
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 REFERENCE FILE: S-95-016, P-97-02, F-96-01, F-98-12, S-98-05, SDP-98-123,
 F-98-180, F-98-184, SP-00-03, P-99-17 AND F-00-102

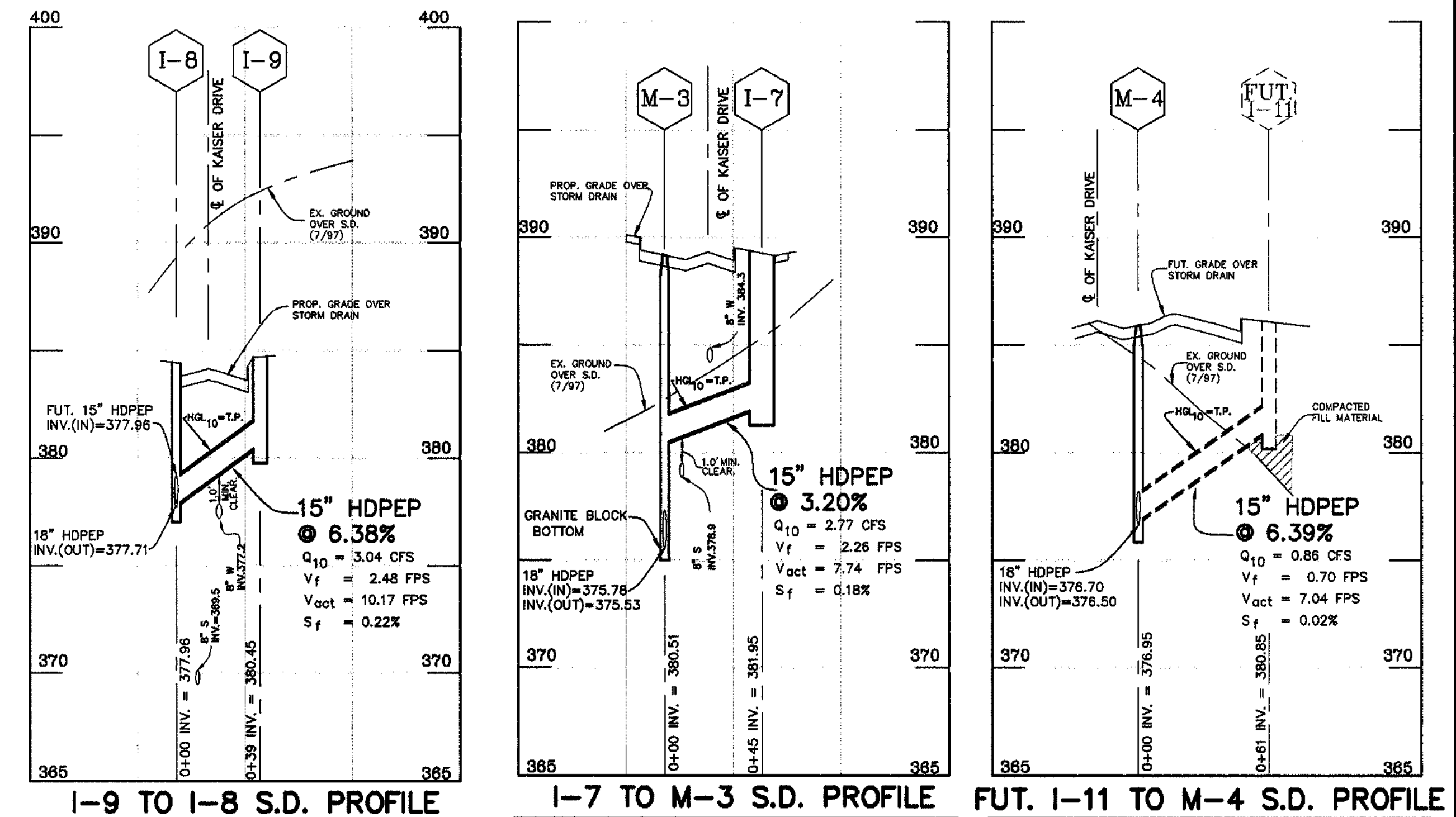
TITLE: **GRADING, SEDIMENT AND EROSION CONTROL PLAN**
 DATE: AUG. 2000 PROJECT NO. 1268

DES: YSL DRN: YSL CHK: DAM SCALE: AS SHOWN DRAWING 5 OF 14



STORM DRAIN PROFILE AT KAISER DRIVE AND RACHEL CT.

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



1-9 TO I-8 S.D. PROFILE

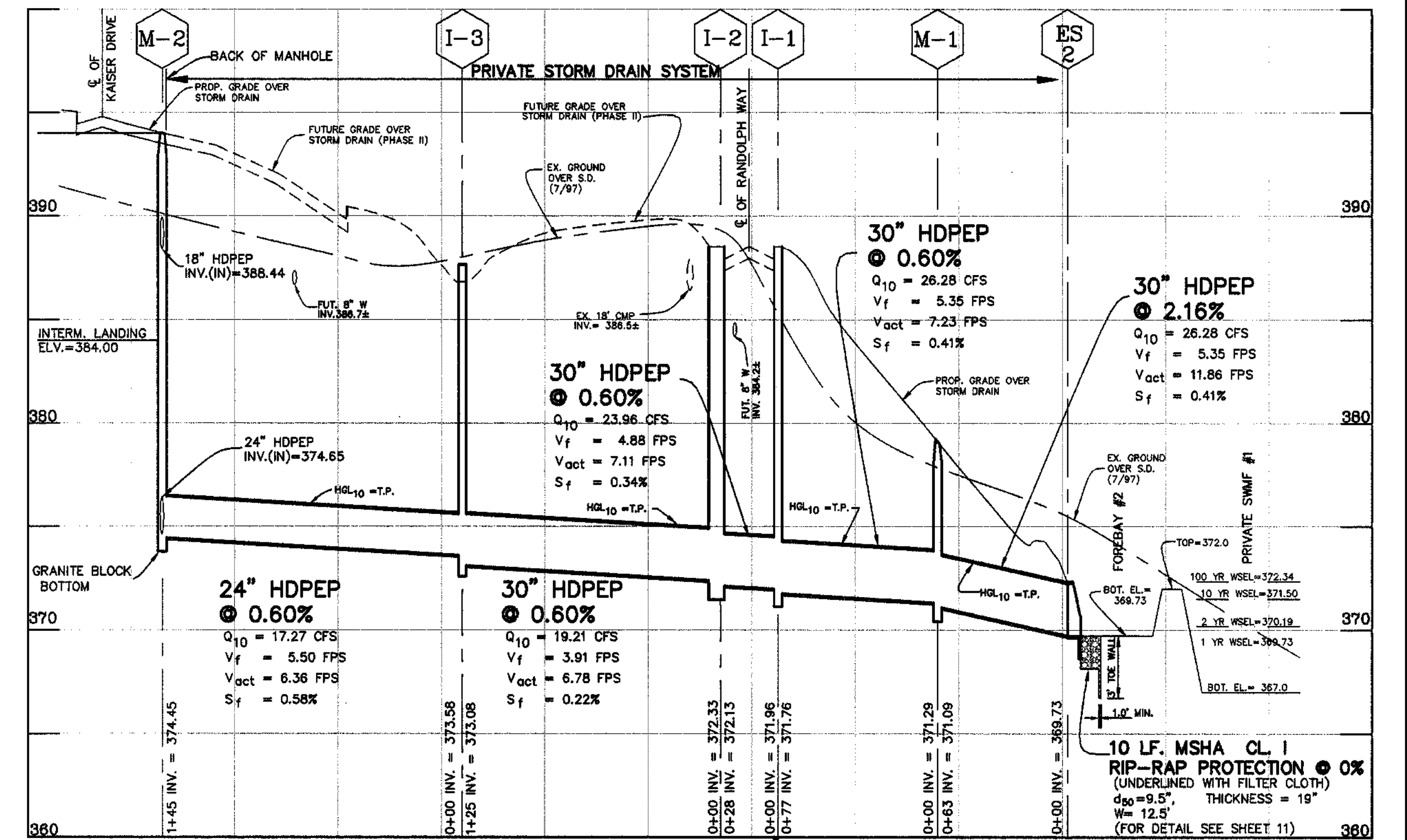
SCALE: HOR.: 1" = 50'
VER.: 1" = 5'

I-7 TO M-3 S.D. PROFILE

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

FUT. I-11 TO M-4 S.D. PROFILE

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



(PRIVATE) STORM DRAIN PROFILE AT FUTURE RANDOLPH WAY

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

STORM DRAIN STRUCTURE SCHEDULE

STRUCTURE	TYPE	INVERT (OUT)	INVERT (N)	INVERT (W)	TOP ELEVATION	LOCATION	REMARKS
I-1	"A-10" INLET (WIDTH=2.5')	371.78	371.96	---	388.55	STA. 2+98.55 12.00' O/S RT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. SD-4.41
I-2	"A-10" INLET (WIDTH=3.5')	372.13	372.33	---	388.55	STA. 2+98.55 12.00' O/S LT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. SD-4.41
I-3	TYPE "D" INLET	373.08	373.58	---	387.00	STA. 1+73.43 23.11' O/S LT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. SD-4.38 (PRECAST)
I-4	"A-10" INLET (WIDTH=2.5')	380.43	380.63	---	387.21	STA. 5+98.47 12.00' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
I-5	"A-10" INLET (WIDTH=3.0')	388.14	388.39	---	402.83	STA. 0+57.74 14.22' O/S LT. RACHEL COURT	HOWARD COUNTY STD. SD-4.41
I-6	"A-10" INLET (WIDTH=2.5')	403.53	---	---	408.01	STA. 2+02.88 24.34' O/S LT. RACHEL COURT	HOWARD COUNTY STD. SD-4.41
I-7	"A-10" INLET (WIDTH=2.5')	381.95	---	---	389.23	STA. 7+44.30 24.34' O/S RT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
I-8	"A-5" INLET (WIDTH=3.0')	377.71	377.98 (15' #)	377.98 (15' #)	384.41	STA. 9+91.22 12.00' O/S RT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.40
I-9	"A-10" INLET (WIDTH=2.5')	380.45	---	---	383.84	STA. 13+85.87 14.44' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
I-10	"A-10" INLET (WIDTH=3.0')	379.11	---	---	382.04	N 589001.7859 E 1385448.7422	HOWARD COUNTY STD. SD-4.41
ES-2	END SECTION	368.73	---	---	---	N 589001.1020 E 1385115.9907	HOWARD COUNTY STD. GS-51
MH-1	MANHOLE	371.09	371.29	---	378.00	N 589009.1589 E 1385052.5022	HOWARD COUNTY STD. GS-11
MH-2	MANHOLE	374.45	374.65 (24' #)(SE)	388.44 (18' #)(NW)	383.97	STA. 0+29.01 5.00' O/S RT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. GS-11
MH-3	MANHOLE	375.28	375.78 (18' #)(SE)	380.51 (15' #)(SW)	389.15	STA. 7+46.20 18.00' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. GS-11
MH-4	MANHOLE	378.60	378.70 (18' #)(SE)	378.25 (15' #)(SW)	385.97	STA. 8+47.59 18.91' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. GS-11

NOTES: 1.) STRUCTURE ELEVATION FOR MANHOLE IS AT THE TOP CENTER OF THE RIM.
2.) STRUCTURE ELEVATION FOR THE INLET IS THE TOP OF CURB ELEVATION LOCATED AT THE MID-POINT OF THE INLET.

PIPE SCHEDULE		
LOCATION	SIZE & TYPE	LENGTH (FT)
M-1 TO ES-2	30" HDPEP	63'
M-1 TO I-1	30" HDPEP	77'
I-1 TO I-2	30" HDPEP	28'
I-2 TO I-3	30" HDPEP	125'
I-3 TO M-2	24" HDPEP	145'
M-2 TO I-4	18" HDPEP	42'
I-4 TO I-5	18" HDPEP	196'
I-5 TO I-6	15" HDPEP	134'
M-2 TO M-3	24" HDPEP	105'
M-3 TO M-4	18" HDPEP	95'
M-4 TO I-8	18" HDPEP	150'
I-8 TO I-10	15" HDPEP	191'
I-8 TO I-9	15" HDPEP	39'
M-3 TO I-7	15" HDPEP	45'
M4 TO FUT. I11	15" HDPEP	61'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Richard M. Danelo 2-19-01
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Cindy Handley 2/8/01
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 2/1/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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: KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-47244

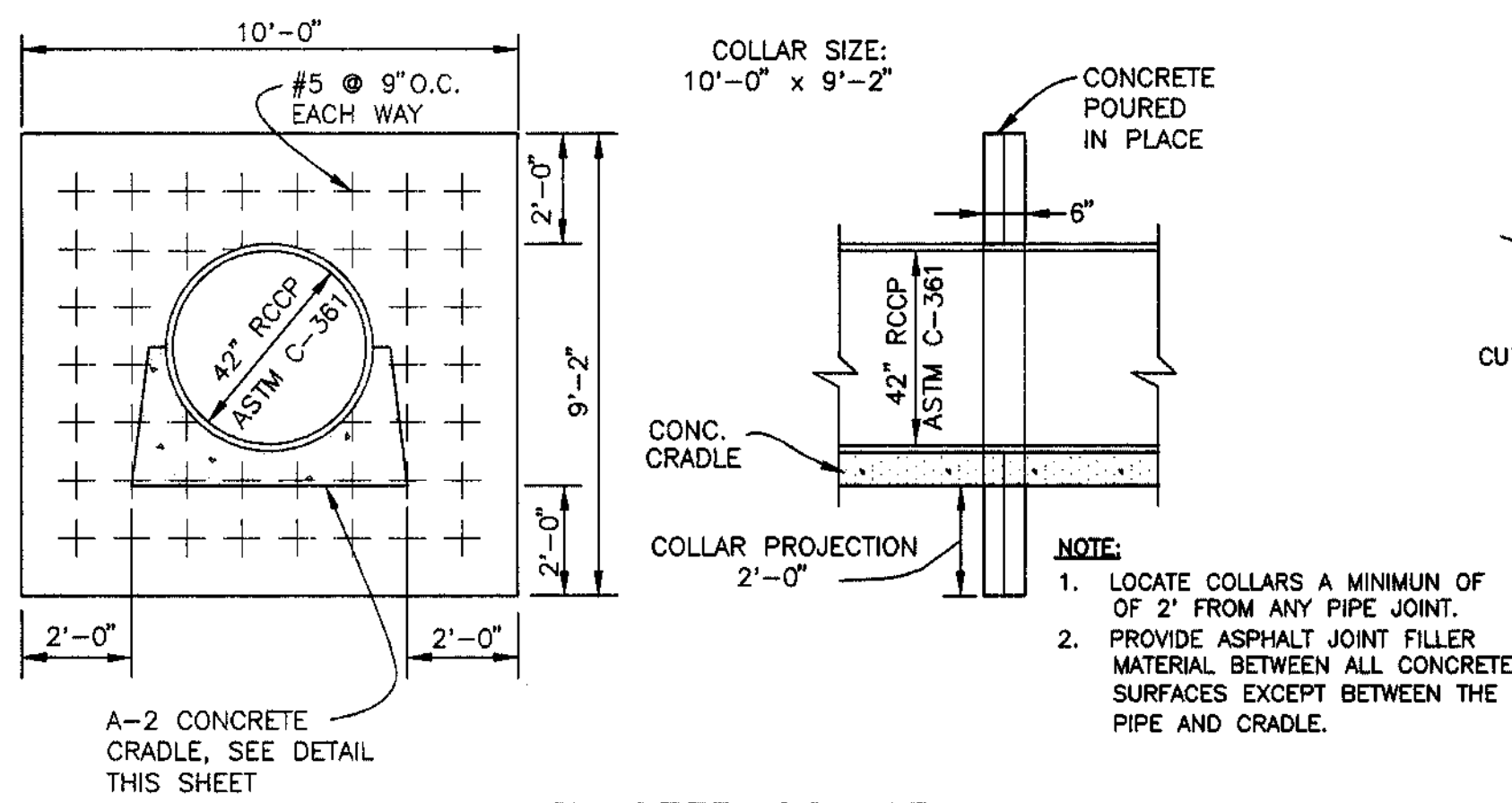
PROJECT: KAISER FARM
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "T",
HONES PROPERTY AND PARCELS "E" AND "T", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 881
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-98-016, P-97-02, F-98-01, F-98-12, S-98-05, SDP-98-129,
F-98-160, F-98-162P-02-03P-98-17 AND F-02-102

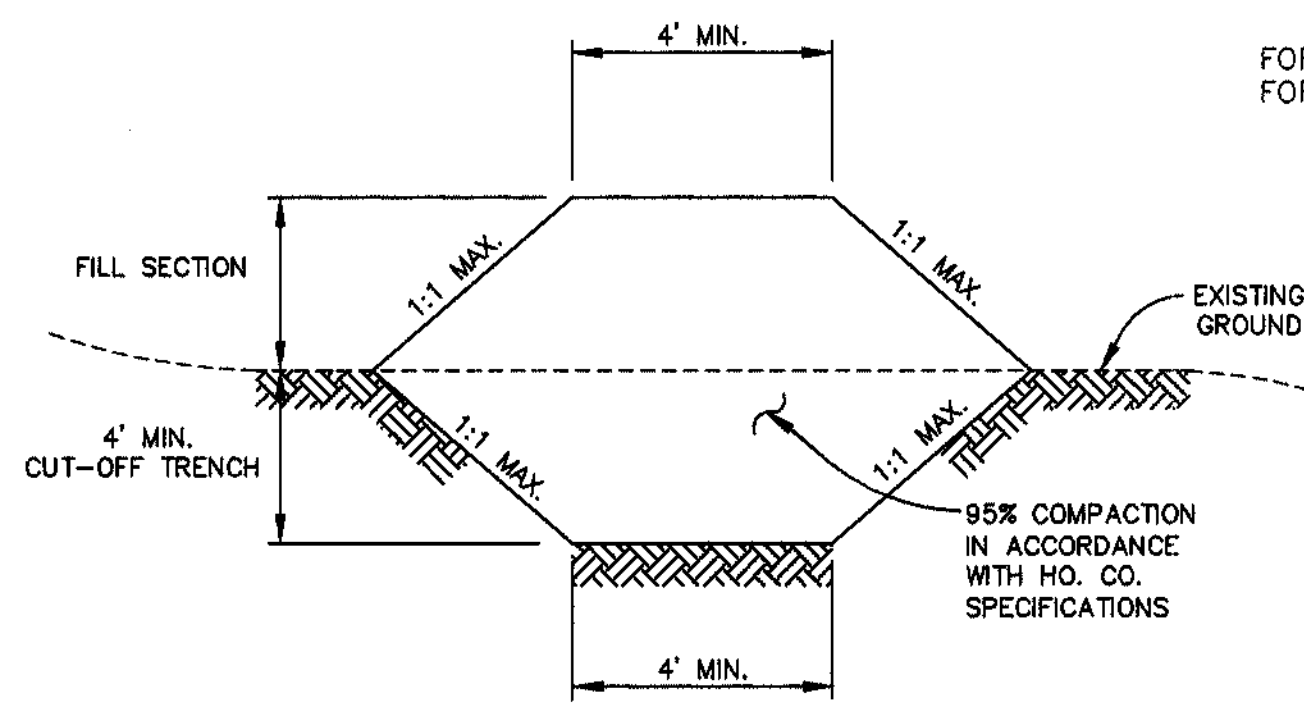
TITLE: STORM DRAIN PROFILES

DATE: JULY 2000 PROJECT NO. 1268

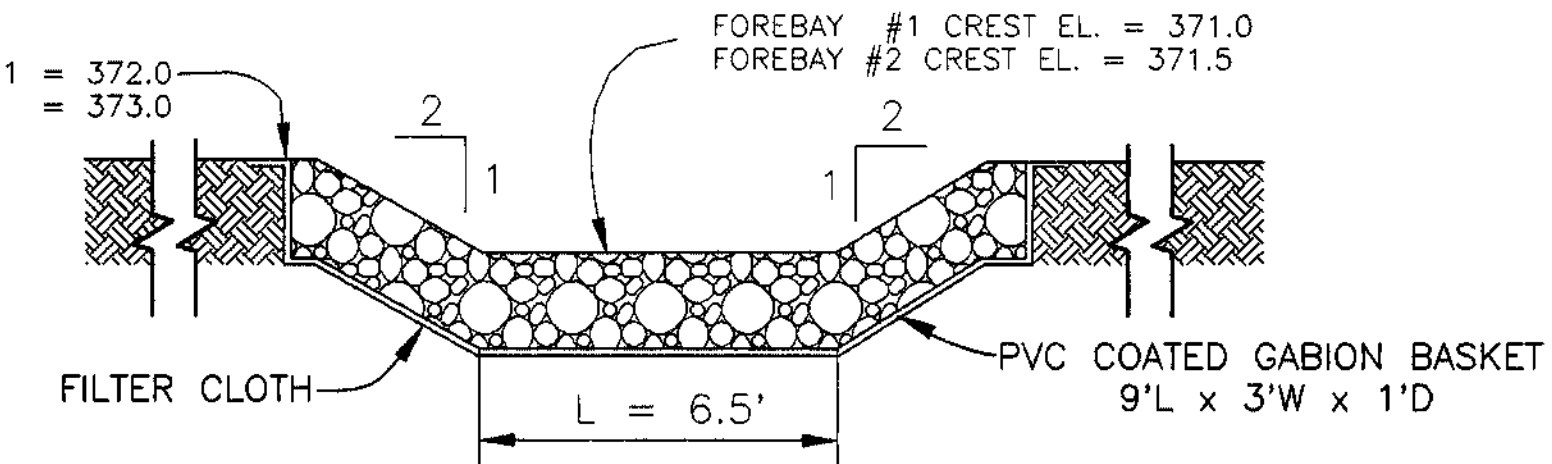
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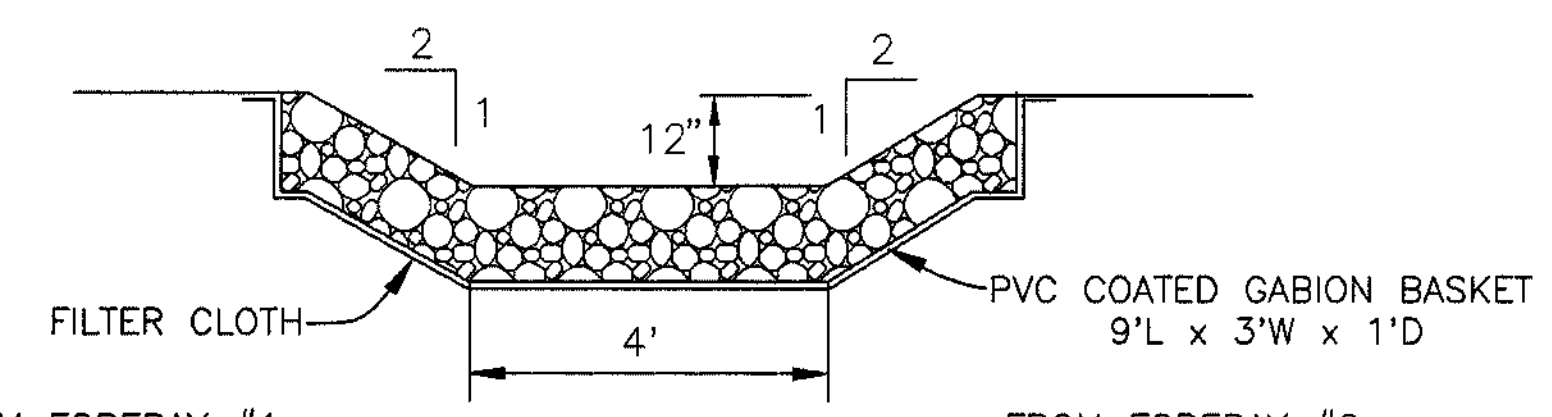
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NOT TO SCALE



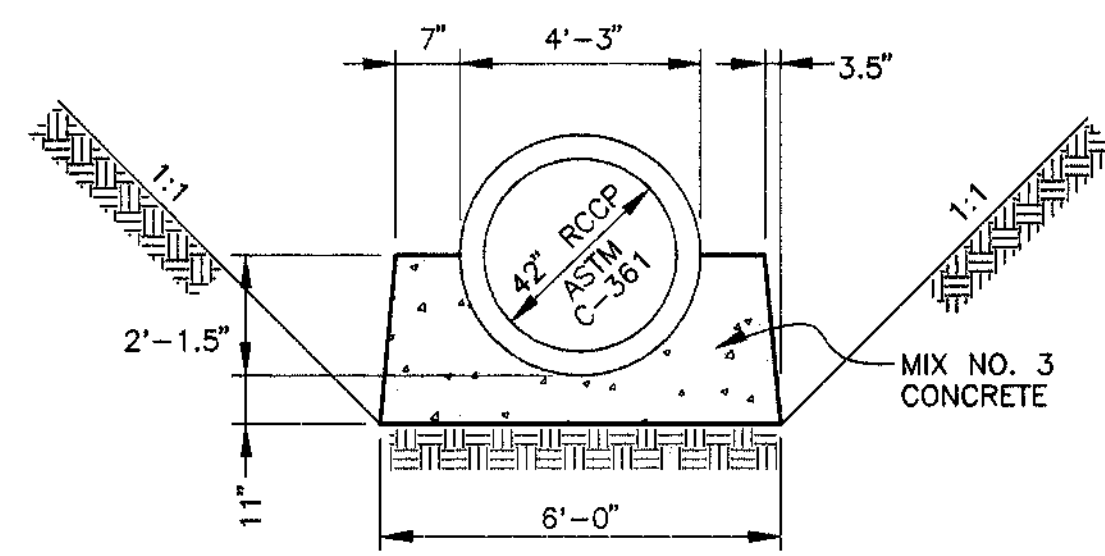
CORE TRENCH SECTION
NOT TO SCALE



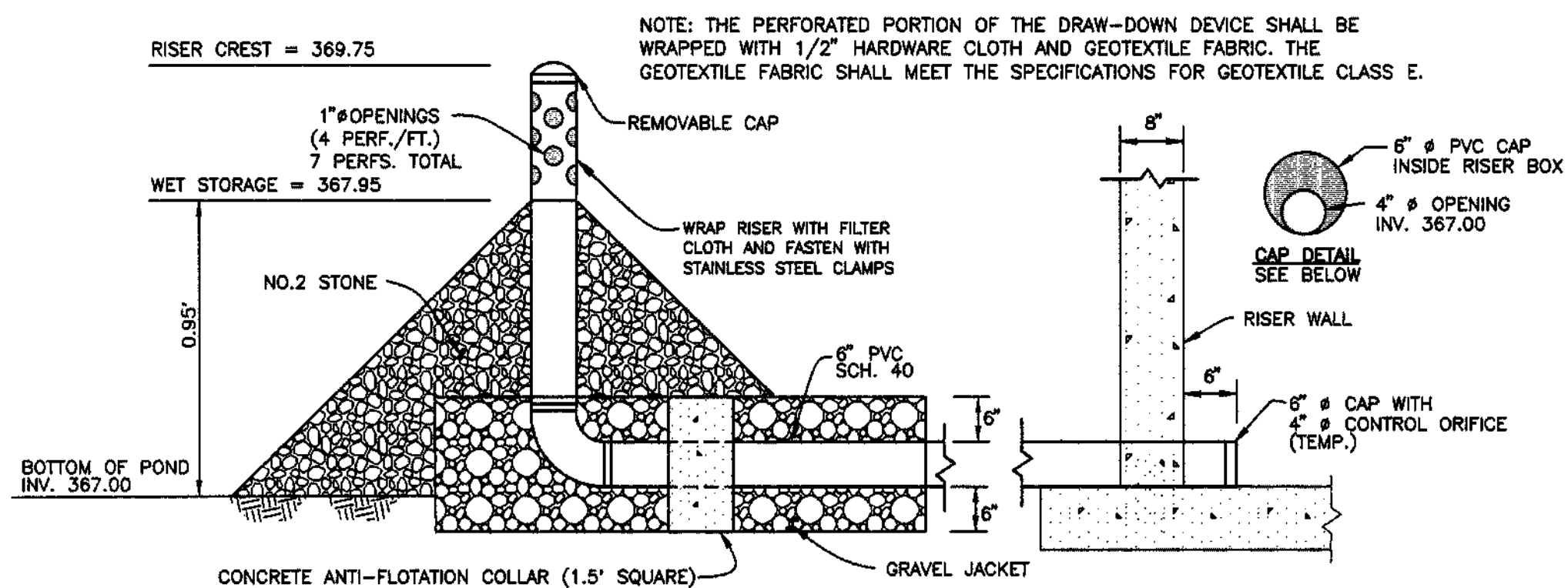
PROFILE THROUGH FOREBAY WEIR
NOT TO SCALE



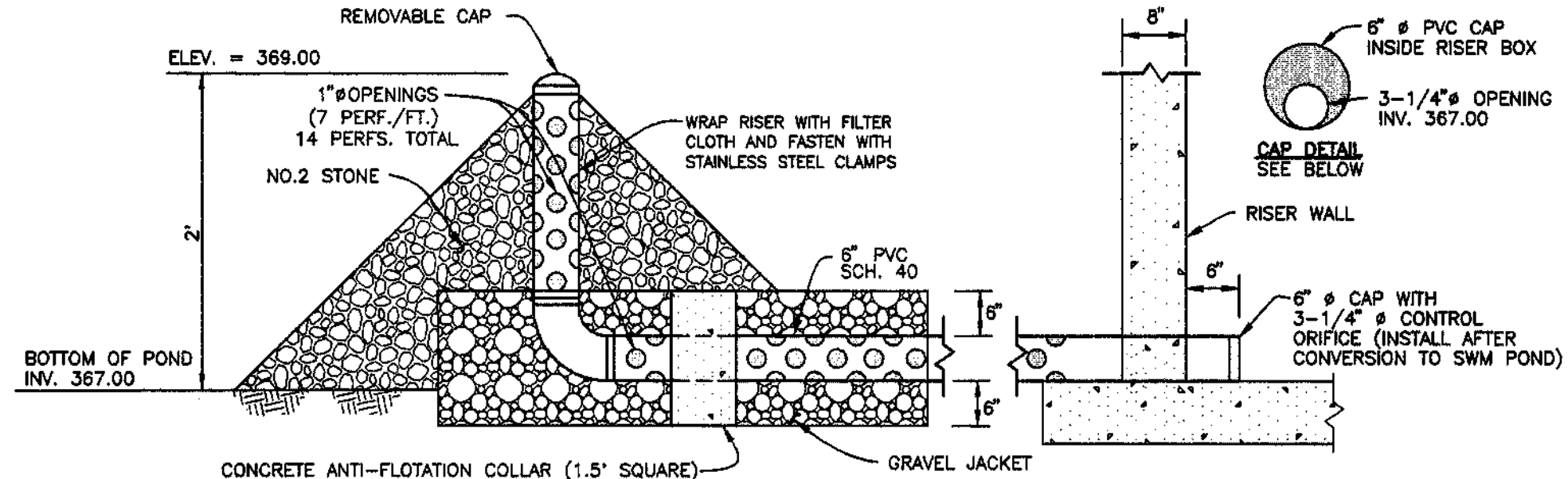
GABION INFLOW PROTECTION CHANNEL
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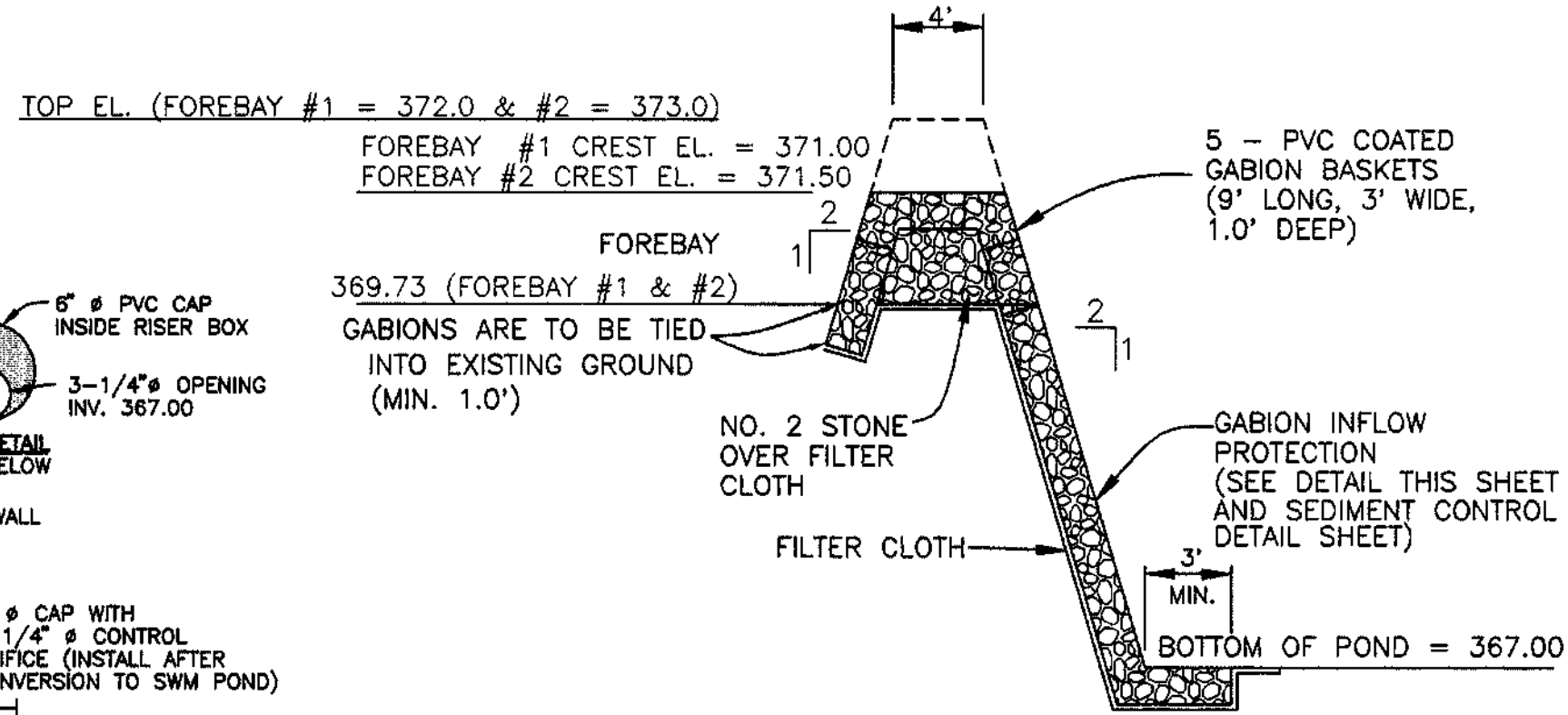
TYPE A-2 CONCRETE CRADLE
NOT TO SCALE



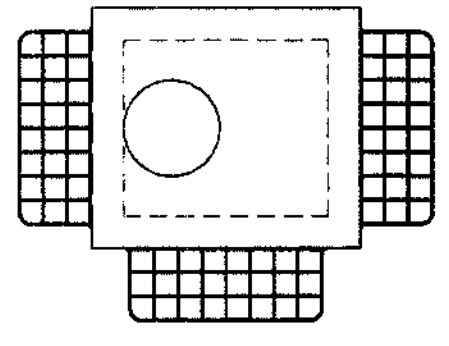
6" TEMPORARY SWM VERTICAL DRAW-DOWN DEVICE
NOT TO SCALE



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

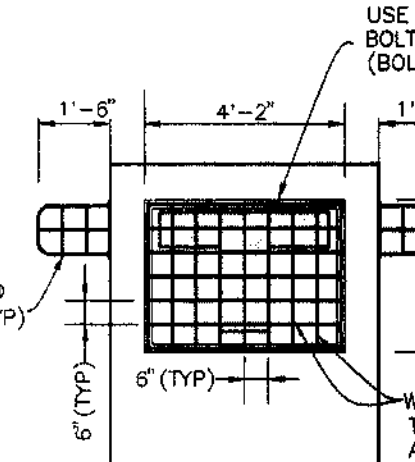


TYPICAL SECTION OF GABION WEIR AT FOREBAY
NOT TO SCALE

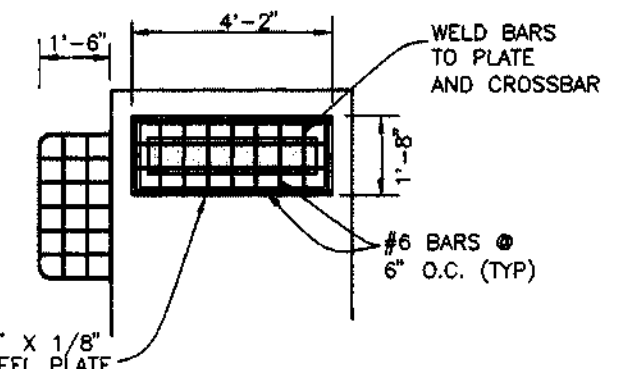


TOP VIEW

- NOTES:
1. TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION.
2. TRASH RACK SHALL BE PAINTED BATTLESHIP GRAY.

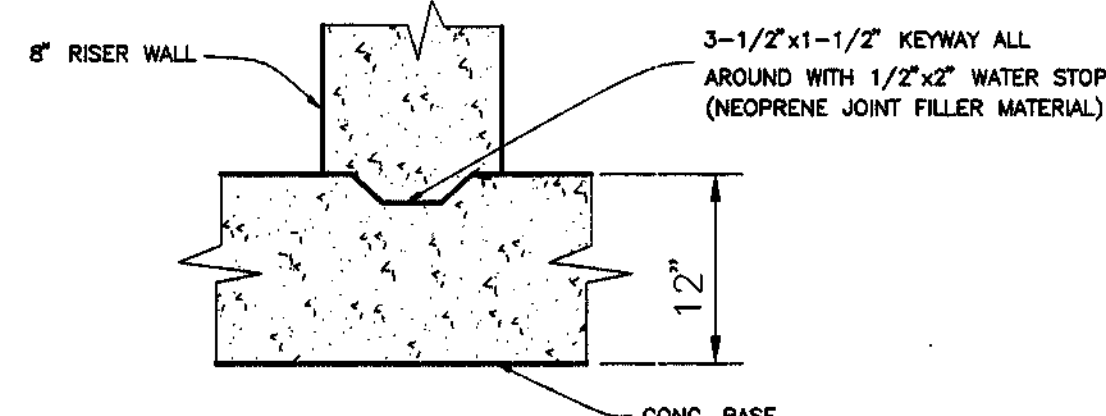


FRONT ELEVATION

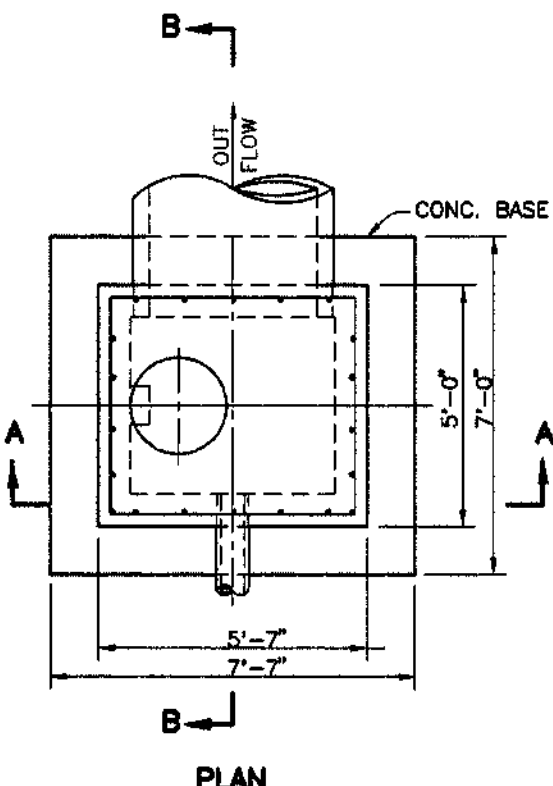


SIDE ELEVATION

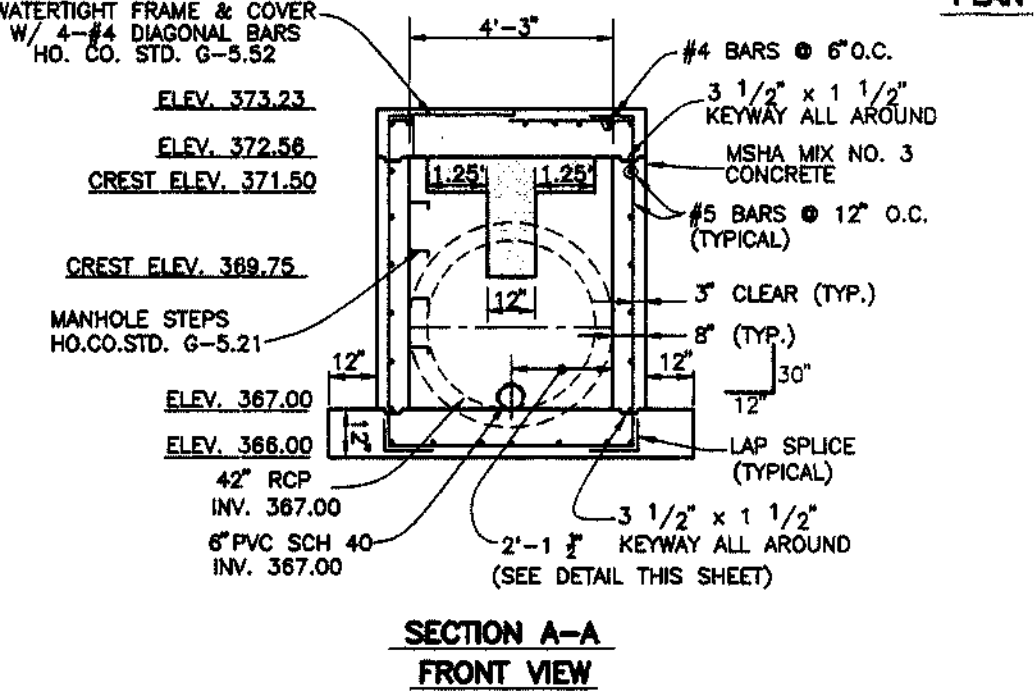
TRASH RACK
SCALE: 1" = 4"



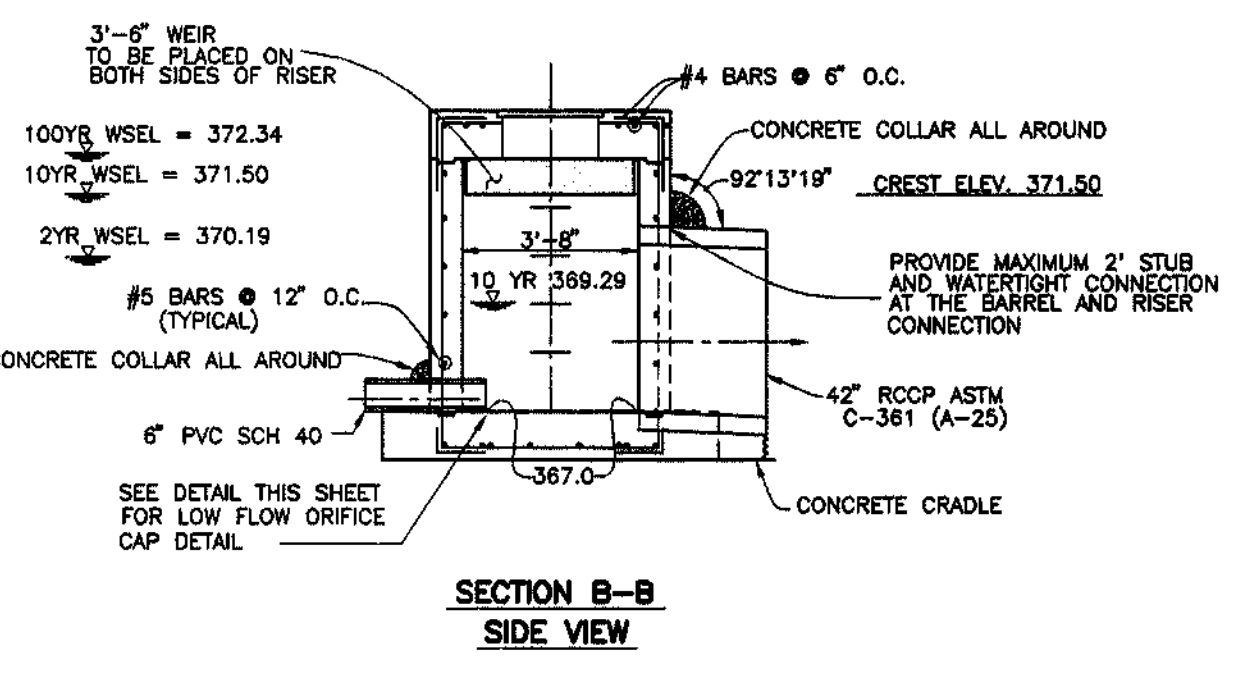
KEYWAY DETAIL
NOT TO SCALE



PLAN



SECTION A-A FRONT VIEW



SECTION B-B SIDE VIEW

CONTROL STRUCTURE DETAIL
SCALE: 1" = 4"

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 USCS STANDARDS AND SPECIFICATIONS FOR PONDS (MS-378). THE POND OWNER(S) AND ANY HERED. SUCCESSORS, OR ENGINEER 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.

PE NO. 21443
DATE 1/19/01

CEMENT 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 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.

James R. Masley III 1/19/01
DEVELOPER - KAISER FARM, L.L.C. 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 Maon 1/19/01
ENGINEER - DONALD A. MASON, P.E. # 21443 DATE

NO	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-485-8105 FAX: 410-485-8644

DATE 1/19/01

OWNER / DEVELOPER: KAISER FARM, L.L.C. P.O. BOX 417 ELLICOTT CITY, MD 21041 (410) 465-4244	PROJECT: KAISER FARM LOTS 1-B2 AND PARCEL "E" A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "E", HONES PROPERTY AND PARCELS "E" AND "F", KAISER FARM LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND REFERENCE FILE: S-88-016, P-87-02, F-88-01, F-88-12, S-88-03, S-88-05, S-88-06, S-88-07, S-88-08, S-88-09, S-88-10, S-88-11, S-88-12, S-88-13, S-88-14, S-88-15, S-88-16, S-88-17, S-88-18, S-88-19, S-88-20, S-88-21, S-88-22, S-88-23, S-88-24, S-88-25, S-88-26, S-88-27, S-88-28, S-88-29, S-88-30, S-88-31, S-88-32, S-88-33, S-88-34, S-88-35, S-88-36, S-88-37, S-88-38, S-88-39, S-88-40, S-88-41, S-88-42, S-88-43, S-88-44, S-88-45, S-88-46, S-88-47, S-88-48, S-88-49, S-88-50, S-88-51, S-88-52, S-88-53, S-88-54, S-88-55, S-88-56, S-88-57, S-88-58, S-88-59, S-88-60, S-88-61, S-88-62, S-88-63, S-88-64, S-88-65, S-88-66, S-88-67, S-88-68, S-88-69, S-88-70, S-88-71, S-88-72, S-88-73, S-88-74, S-88-75, S-88-76, S-88-77, S-88-78, S-88-79, S-88-80, S-88-81, S-88-82, S-88-83, S-88-84, S-88-85, S-88-86, S-88-87, S-88-88, S-88-89, S-88-90, S-88-91, S-88-92, S-88-93, S-88-94, S-88-95, S-88-96, S-88-97, S-88-98, S-88-99, S-88-100
TITLE: STORMWATER MANAGEMENT NOTES AND DETAILS	DATE: AUG. 2000
DES: MLV DRN: CAD CHK: DAM	PROJECT NO. 1268
SCALE: AS SHOWN	DRAWING 8 OF 14

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
2-19-01
DATE

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
2/13/01
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
2/21/01
DATE

APPROVED: 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.
2/13/01
DATE

CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped to topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, brush, and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

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 5" frozen or other objectionable material. Fill material for the center of the embankment, and cut trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

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

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

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within ± 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

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

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1:1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

Structure Backfill

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

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the side of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

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** - (Polymer Coated steel pipe) Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mils) on both sides of the pipe. The pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-248 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-190 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. **Coupling bands, anti-seep collars, and sections, etc.**, must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. **Connections** - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connection shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled on adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard top type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

4. **Bedding** - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

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 C-38.

2. **Bedding** - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 8 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. **Laying pipe** - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire length, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. **Backfilling** shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be shown on the drawings.

Plastic Pipe - The following criteria shall apply for plastic pipe:

1. **Materials** - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241, Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.

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. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. **Backfilling** shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diagrams - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 92.09, class C.

Care of Water during Construction

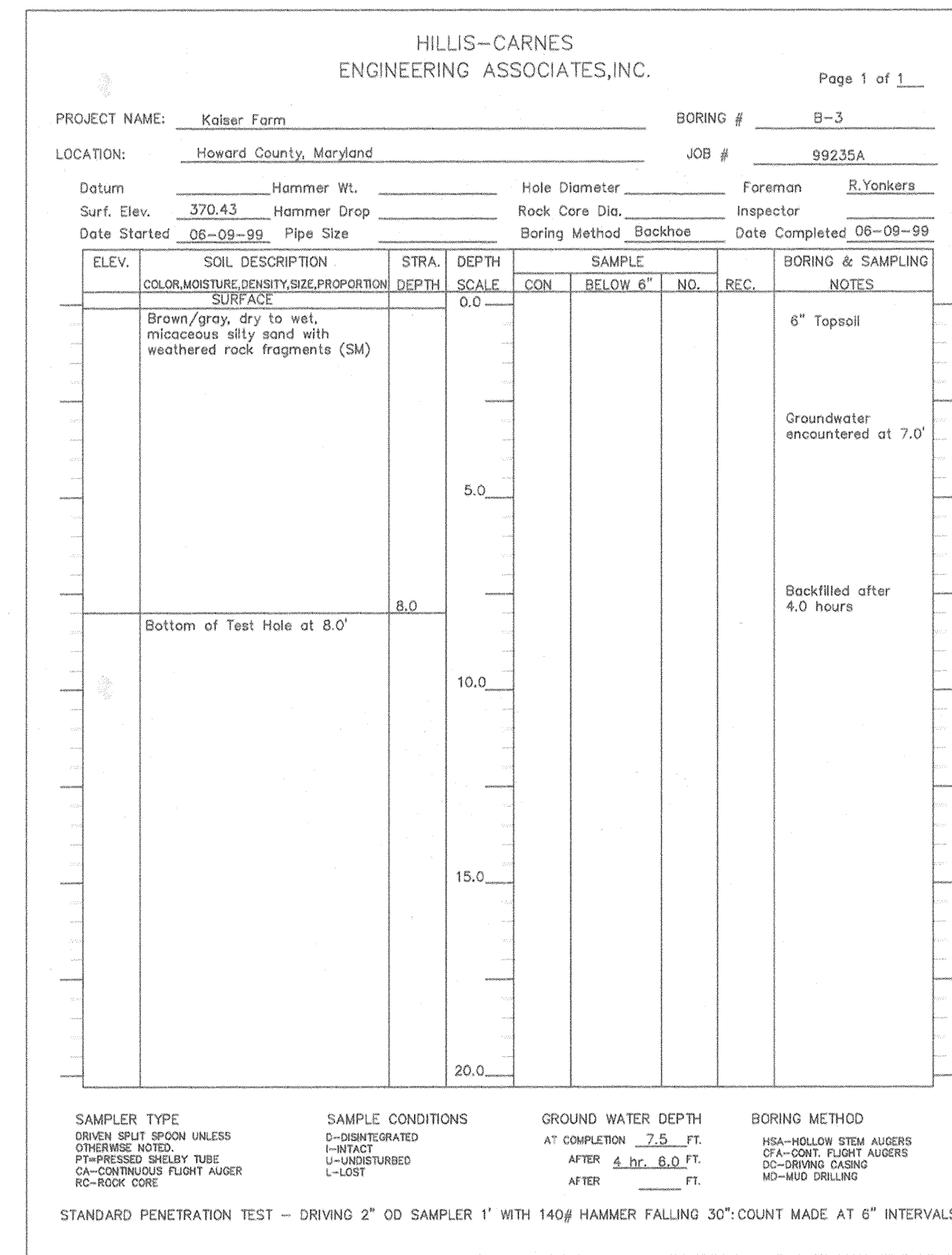
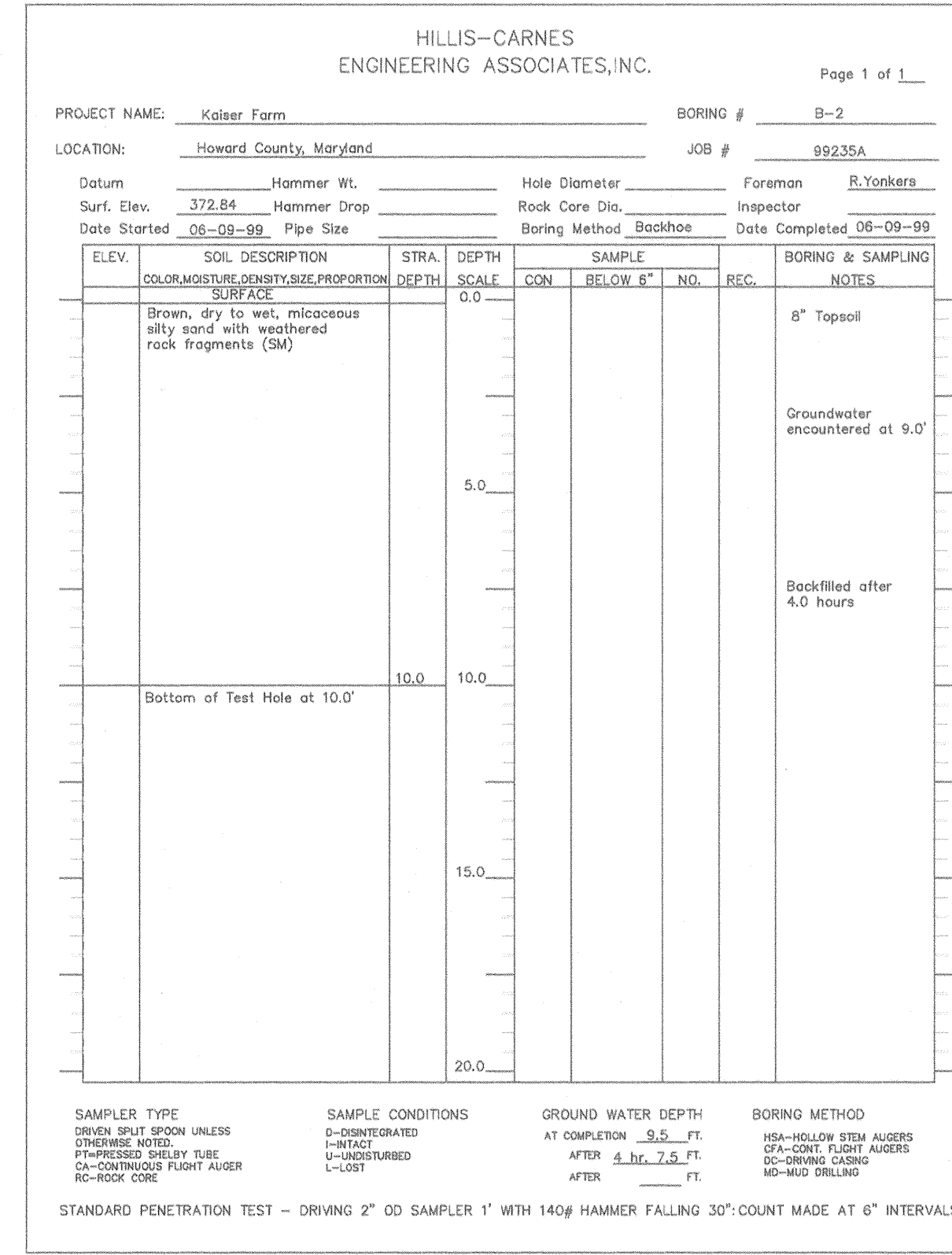
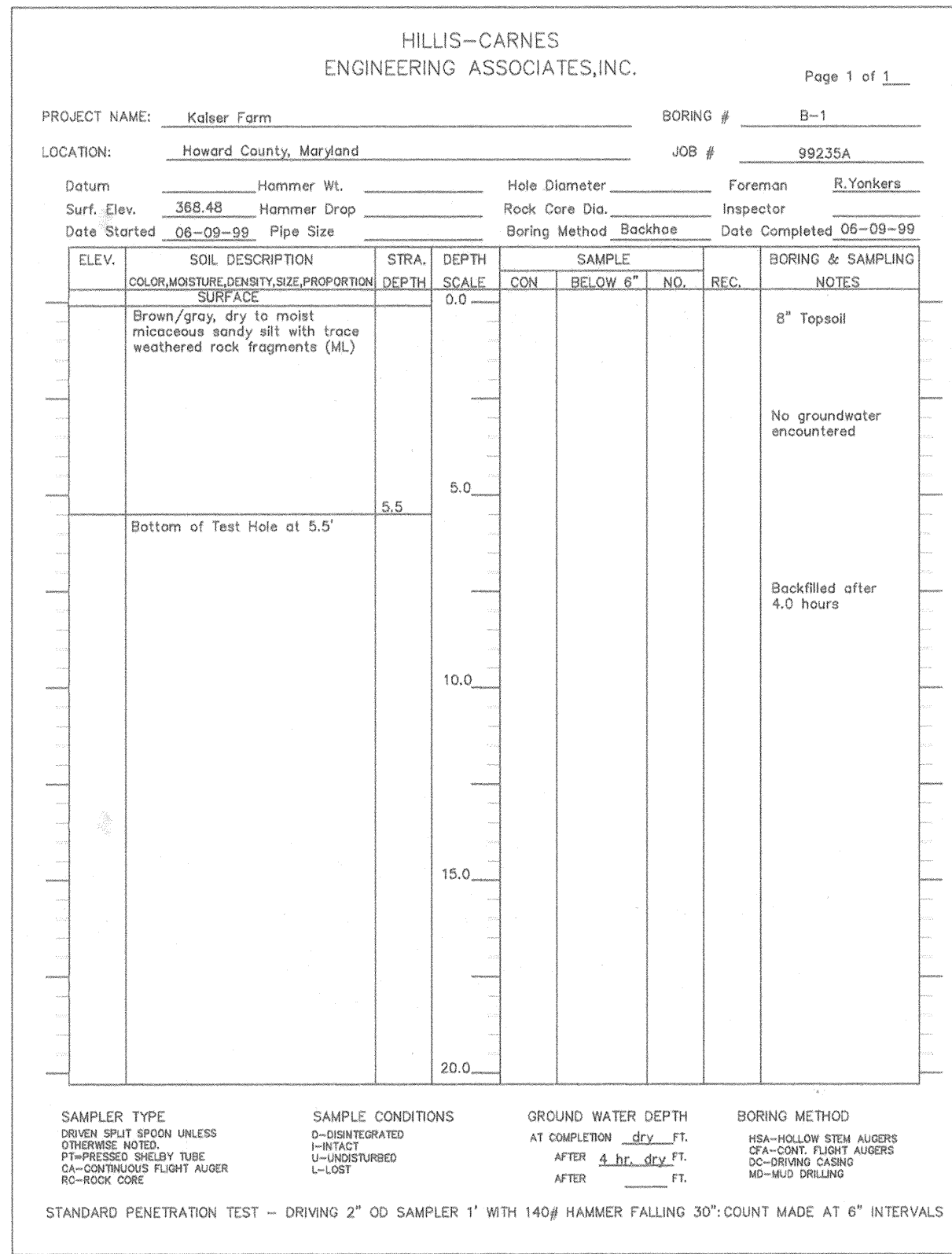
All work on permanent structures shall be carried out in areas free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the area to be occupied by the permanent works. The contractor shall also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

Stabilization

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

Erosion and Sediment Control

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



OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENTS SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREIN SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USCS STANDARDS AND SPECIFICATIONS FOR PONDS (MD-378). 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.

PE NO. 21443
DONALD A. MASON
DATE

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/VE 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 CONTINGENCY 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.

James R. Mosley III, 1/19/01
DEVELOPER - KAISER FARM, L.L.C. DATE

BY THE ENGINEER:
I/VE 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, 1/19/01
ENGINEER - DONALD A. MASON, P.E. # 21443 DATE

NO	DATE	REVISION

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-485-8105 FAX: 410-485-8644

1/19/01

OWNER /DEVELOPER: KAISER FARM, L.L.C.
P.O. BOX 417
ELLCOTT CITY, MD 21041
(410) 465-4244

PROJECT: KAISER FARM
LOTS 1-B2 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "1",
HOWES PROPERTY AND PARCELS "2" AND "3", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 881
2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-98-01a, P-97-02, F-98-91, F-98-12, S-98-05, SGP-98-123,
F-98-180, F-98-154, SP-00-03, P-99-17 AND F-00-102

TITLE: STORMWATER MANAGEMENT NOTES & DETAILS

DATE: AUG. 2000 **PROJECT NO. 1268**

DES: MLV **DRN:** CAD **CHK:** DAM **SCALE:** AS SHOWN **DRAWING** _9_ **OF** _14_

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

2/13/01
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

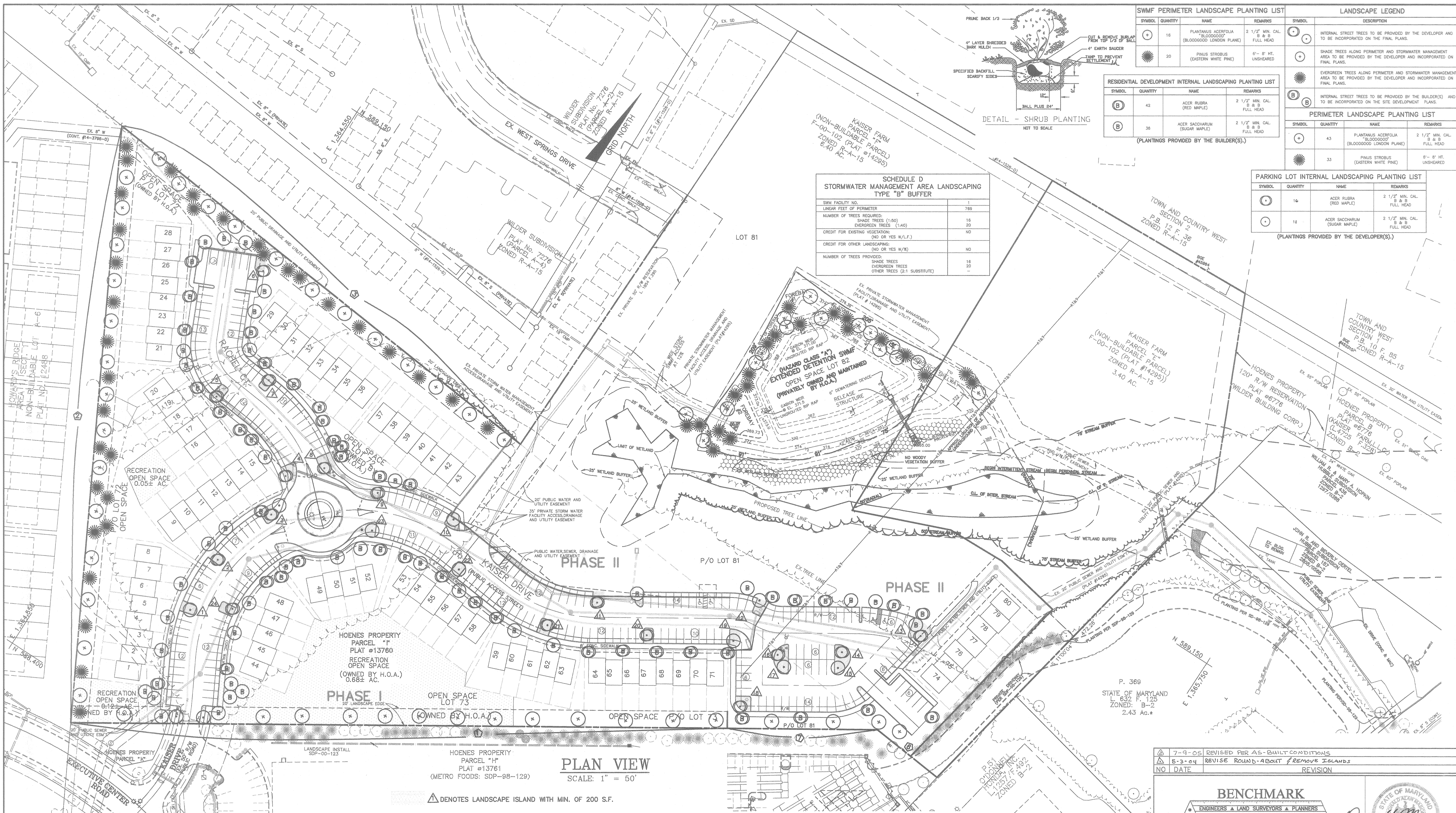
2/13/01
DATE

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

2/13/01
DATE

APPROVED: 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.

2/13/01
DATE



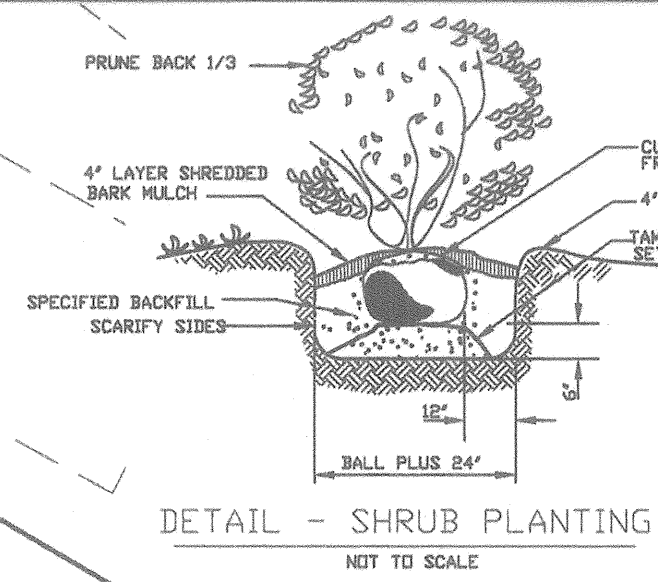
SWMF PERIMETER LANDSCAPE PLANTING LIST				LANDSCAPE LEGEND	
SYMBOL	QUANTITY	NAME	REMARKS	SYMBOL	DESCRIPTION
(*)	16	PLATANUS ACERFOLIA (BLOODGOOD LONDON PLANE)	2 1/2" MIN. CAL. B & B FULL HEAD	(*)	INTERNAL STREET TREES TO BE PROVIDED BY THE DEVELOPER AND TO BE INCORPORATED ON THE FINAL PLANS.
(*)	20	PINUS STROBUS (EASTERN WHITE PINE)	6'-8" HT. UNSHEARED	(*)	SHADE TREES ALONG PERIMETER AND STORMWATER MANAGEMENT AREA 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.
(B)				(B)	INTERNAL STREET TREES TO BE PROVIDED BY THE BUILDER(S) AND TO BE INCORPORATED ON THE SITE DEVELOPMENT PLANS.

RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
(B)	42	ACER RUBRA (RED MAPLE)	2 1/2" MIN. CAL. B & B FULL HEAD
(B)	36	ACER SACCHARUM (SUGAR MAPLE)	2 1/2" MIN. CAL. B & B FULL HEAD

(PLANTINGS PROVIDED BY THE BUILDER(S).)

PARKING LOT INTERNAL LANDSCAPING PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
(*)	43	PLATANUS ACERFOLIA (BLOODGOOD LONDON PLANE)	2 1/2" MIN. CAL. B & B FULL HEAD
(*)	33	PINUS STROBUS (EASTERN WHITE PINE)	6'-8" HT. UNSHEARED

(PLANTINGS PROVIDED BY THE DEVELOPER(S).)



SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING TYPE "B" BUFFER	
SWM FACILITY NO.	1
LINEAR FEET OF PERIMETER	769
NUMBER OF TREES REQUIRED:	
SHADE TREES (1:150)	16
EVERGREEN TREES (1:40)	20
CREDIT FOR EXISTING VEGETATION: (NO OR YES W/L.F.)	NO
CREDIT FOR OTHER LANDSCAPING: (NO OR YES W/R)	NO
NUMBER OF TREES PROVIDED:	
SHADE TREES	16
EVERGREEN TREES	20
OTHER TREES (2:1 SUBSTITUTE)	-

PLAN VIEW
SCALE: 1" = 50'

△ DENOTES LANDSCAPE ISLAND WITH MIN. OF 200 S.F.

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING	
NUMBER OF PARKING SPACES	243
NUMBER OF ISLANDS REQUIRED: (1 ISLAND / 10 SPACES)	24
NUMBER OF ISLANDS PROVIDED:	24
NUMBER OF TREES REQUIRED: (1 TREE / 10 SPACES)	24
NUMBER OF TREES PROVIDED BY THE DEVELOPER(S):	
SHADE TREES	21
OTHER TREES (2:1 SUBSTITUTE)	-

SCHEDULE C RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING	
NUMBER OF DWELLING UNITS	78
NUMBER OF TREES REQUIRED: (150Y S.F. / 1.5 DU APTS)	78
NUMBER OF TREES PROVIDED BY THE BUILDER(S):	
SHADE TREES	78
OTHER TREES (2:1 SUBSTITUTE)	-

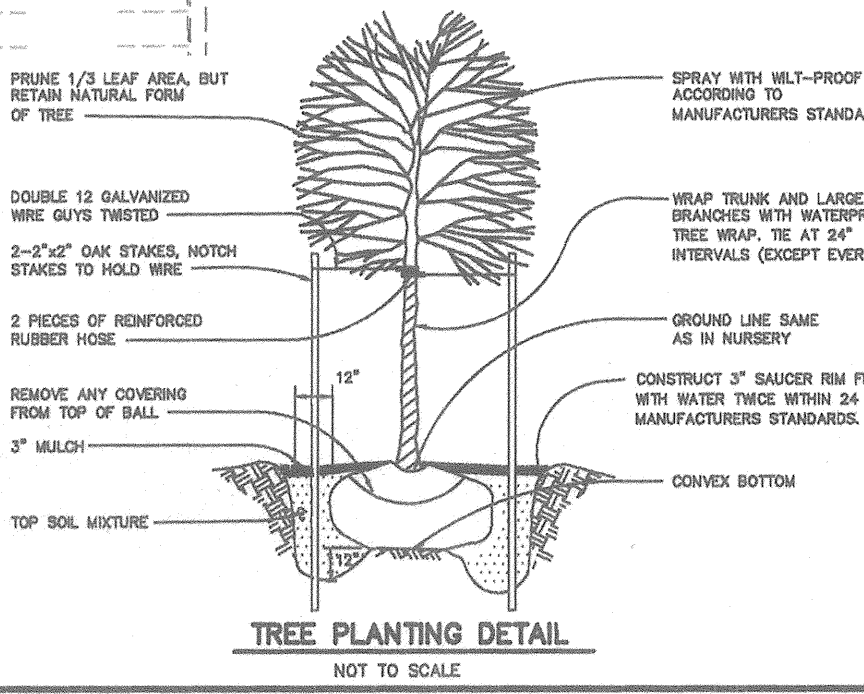
SCHEDULE A PERIMETER LANDSCAPE EDGE							
CATEGORY	ADJACENT TO ROADWAY	NO	NO	NO	NO	NO	NO
	ADJACENT TO PERIMETER PROPERTIES	YES	YES	YES	YES	YES	YES
PERIMETER NO. / LANDSCAPE TYPE		(*)	(*)	(*)	(*)	(*)	(*)
LINEAR FEET OF ROADWAY / PERIMETER FRONTAGE / PERIMETER		778'	710'	600'	50'	141'	
CREDIT FOR EXISTING VEGETATION: (NO OR YES W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	NO	NO	NO	NO
CREDIT FOR WALL, FENCE OR BERM: (NO OR YES W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED:							
SHADE TREES	13	14	12	1	3		
EVERGREEN TREES	-	18	15	-	-		
SHRUBS (10:1 SUBSTITUTE)	-	-	-	-	-		
NUMBER OF PLANTS PROVIDED BY THE DEVELOPER(S):							
SHADE TREES	13	14	12	-	3		
EVERGREEN TREES	-	18	15	-	-		
SHRUBS (10:1 SUBSTITUTE)	-	-	-	-	-		
NUMBER OF TREES PROVIDED BY THE BUILDER(S): (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)							

- LANDSCAPING NOTES**
- PERIMETER LANDSCAPING SHALL BE PROVIDED BY THE EXISTING VEGETATION TO REMAIN AND BY THE PLANTINGS AS SHOWN ON THESE PLANS AND THE PLANTINGS SHOWN ON THE FUTURE SITE DEVELOPMENT PLANS FOR LOT B1 AND PARCEL "E".
 - THE DEVELOPER SHALL BE RESPONSIBLE FOR THE INTERNAL STREET PARKING PLANTINGS, STORMWATER MANAGEMENT POND PLANTING, THE PRESERVATION OF THE PERIMETER VEGETATION AS SHOWN ON THESE PLANS AND FOR THE PLANTINGS ON PERIMETERS, BONDING FOR PLANTINGS IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPER'S AGREEMENT. THE BUILDER SHALL BE RESPONSIBLE FOR THE REQUIRED RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING.
 - A MINIMUM OF TWENTY(20) FEET SHALL BE MAINTAINED BETWEEN TREES AND STREET LIGHTS.
 - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
 - FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$25,000.00.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels 2-10-01
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamble 2/10/01
CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 2/10/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION



7-9-05 REVISED PER AS-BUILT CONDITIONS
5-3-04 REVISE ROUNDABOUT / REMOVE ISLANDS
NO DATE REVISION

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

Donald Man
PROFESSIONAL ENGINEER

OWNER / DEVELOPER: KAISER FARM, L.L.C. P.O. BOX 417, ELLICOTT CITY, MD 21041 (410) 465-4244

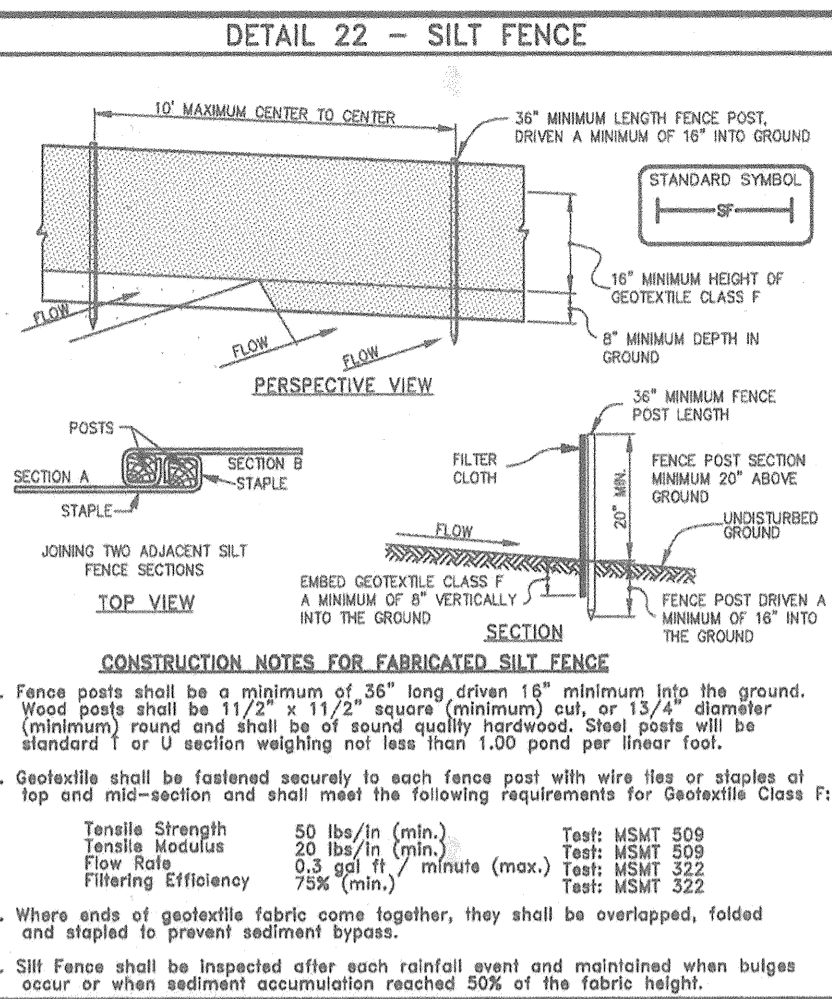
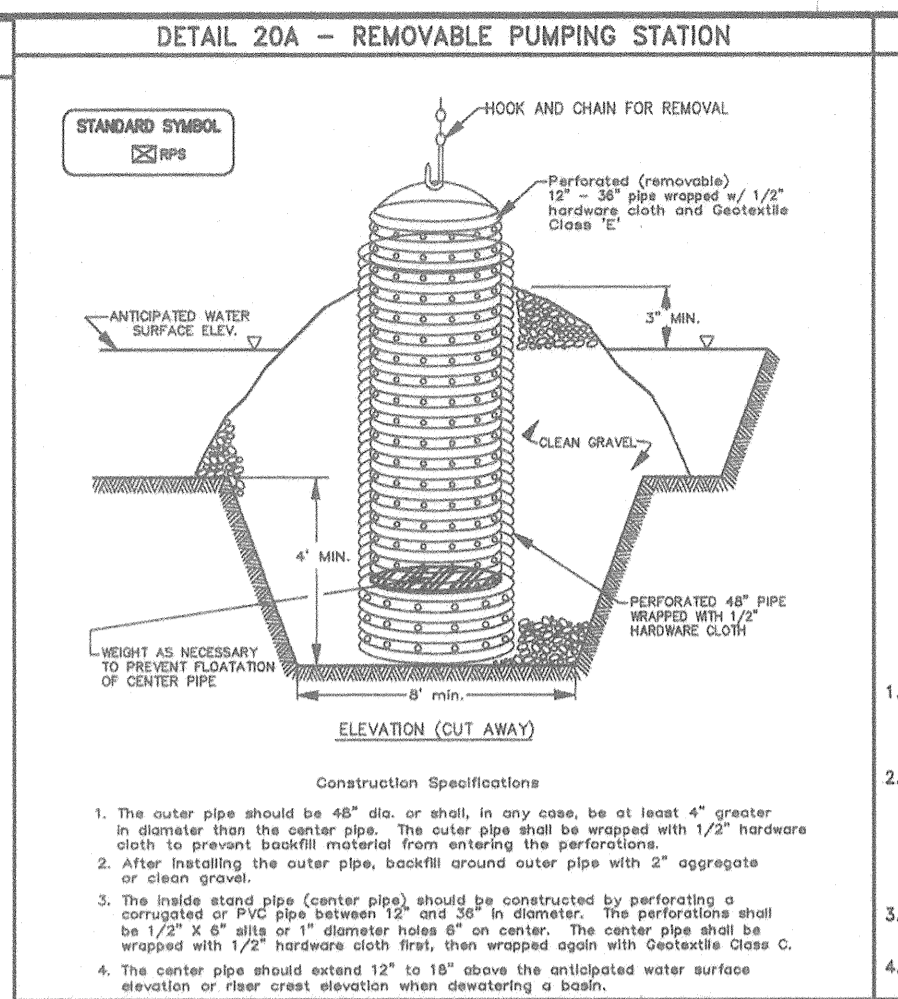
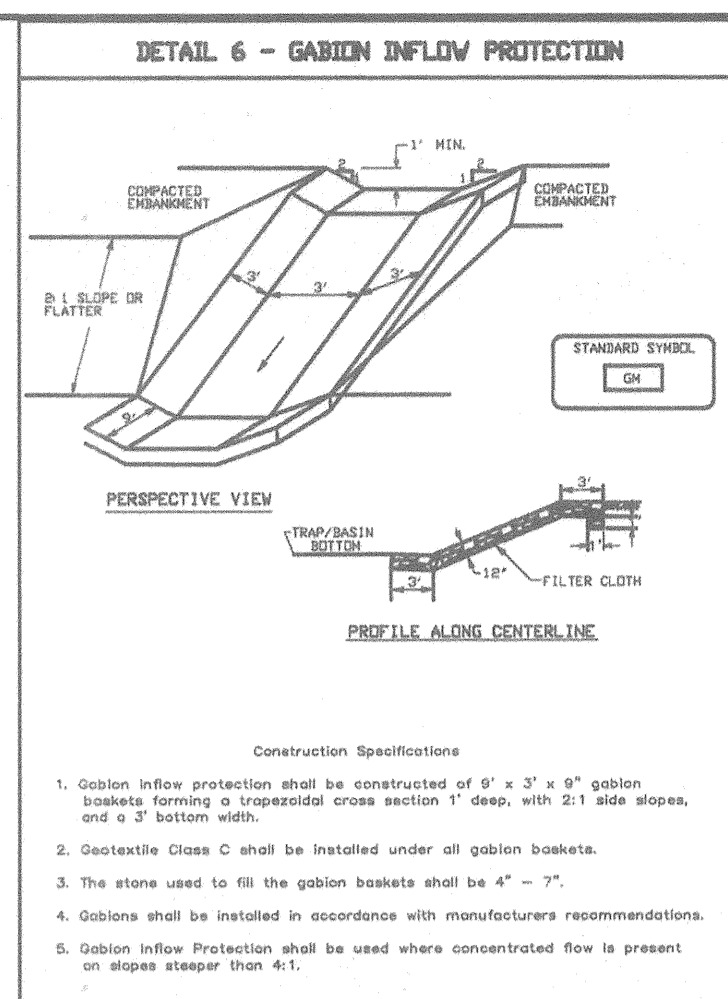
PROJECT: KAISER FARM LOTS 1-82 AND PARCEL "E" A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "Y", HOENES PROPERTY AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681 2nd ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-02, F-98-01, F-98-12, S-98-05, SDF-98-12a, F-98-180, F-98-184, SP-00-03, P-99-17 AND F-00-102

TITLE: **LANDSCAPE PLAN**

DATE: AUG. 2000 PROJECT NO. 1268

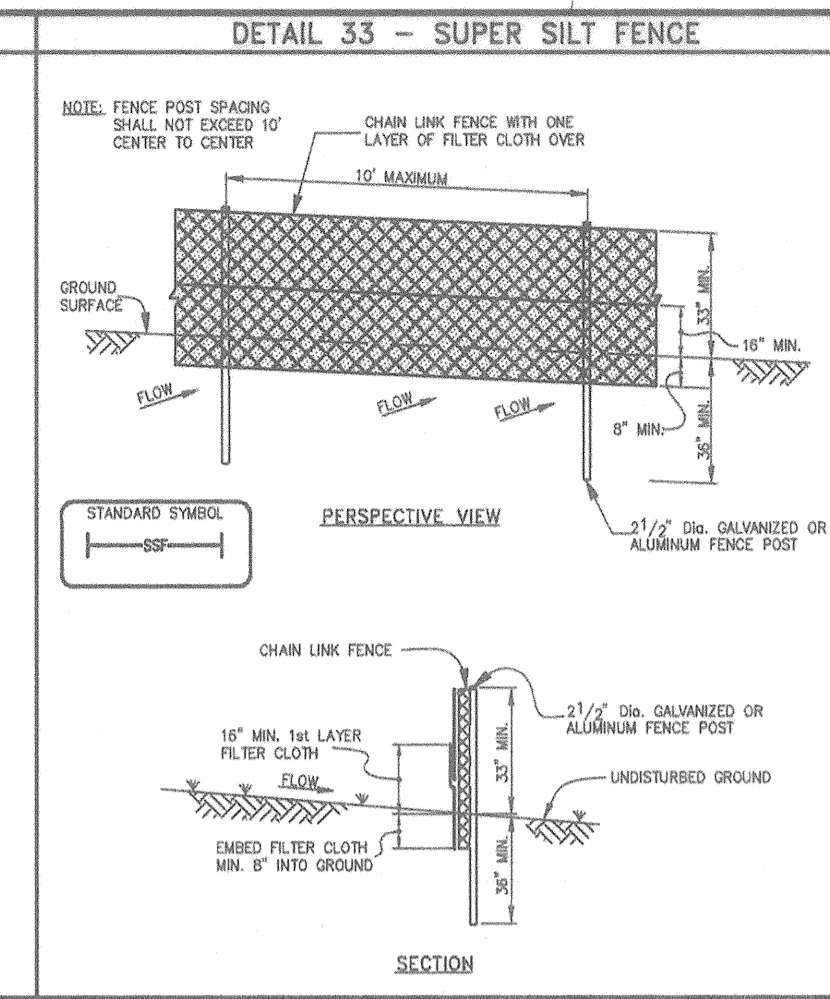
DES: YSL DRN: YSL CHK: DAM SCALE: AS SHOWN DRAWING 10 OF 14



SILT FENCE DESIGN CRITERIA

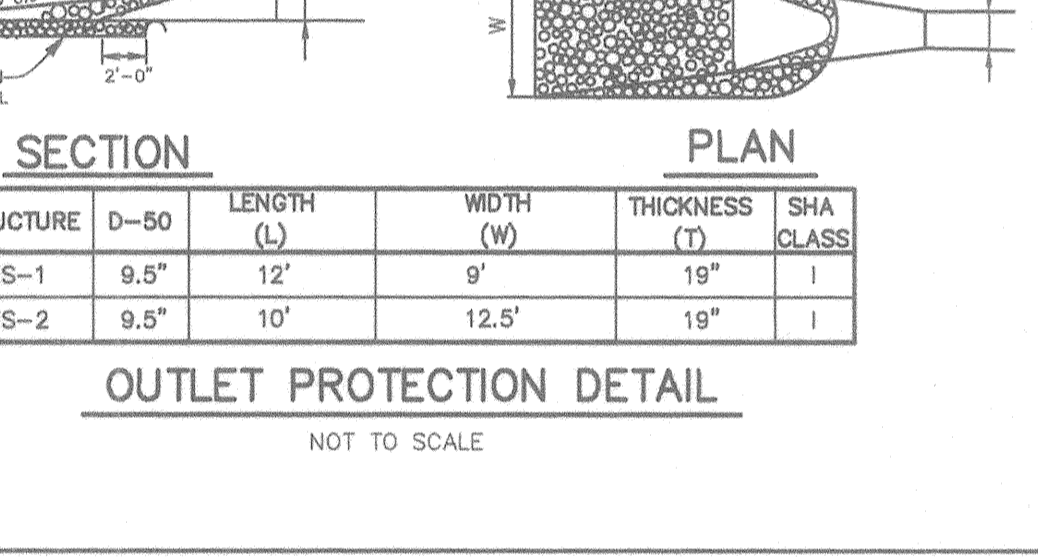
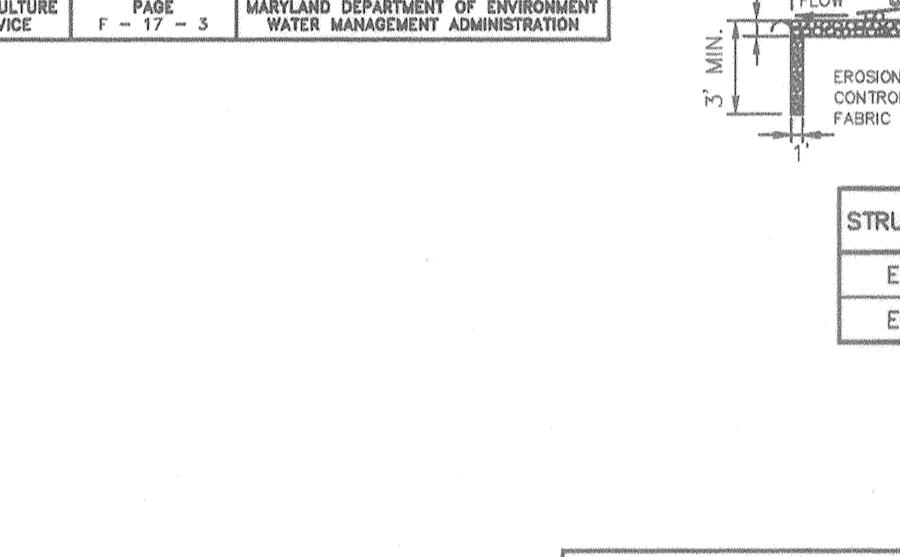
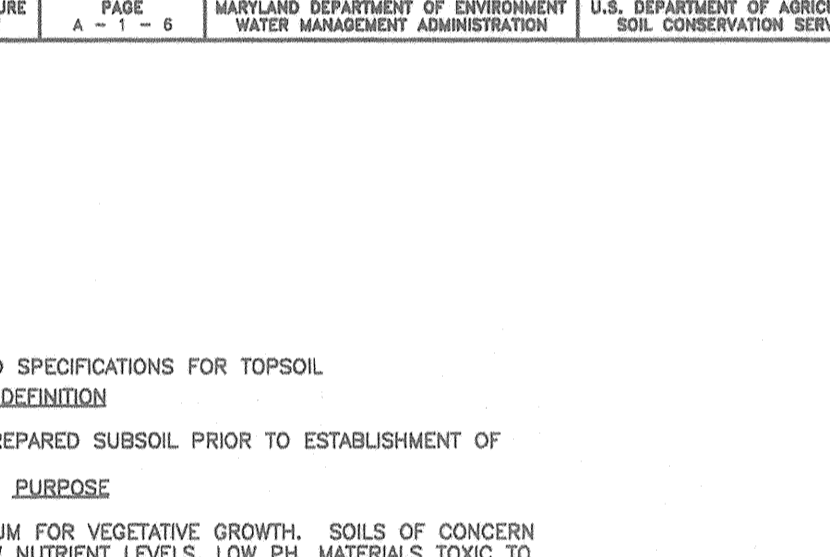
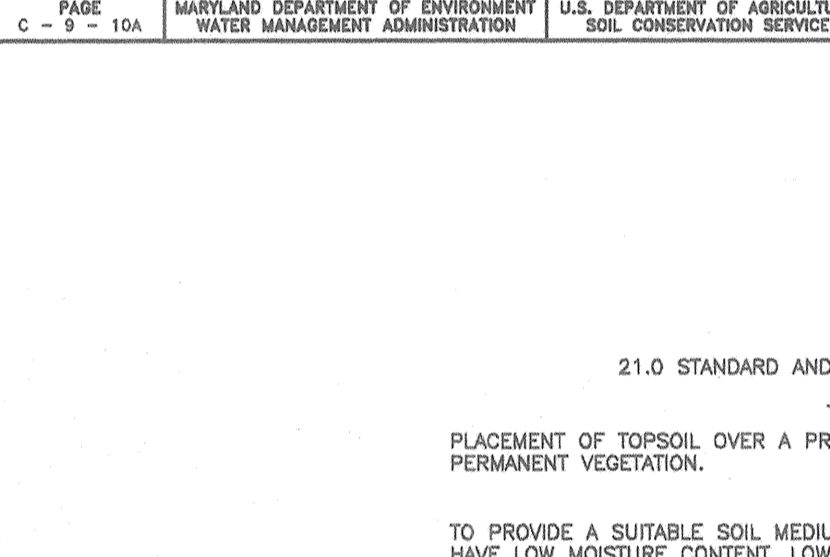
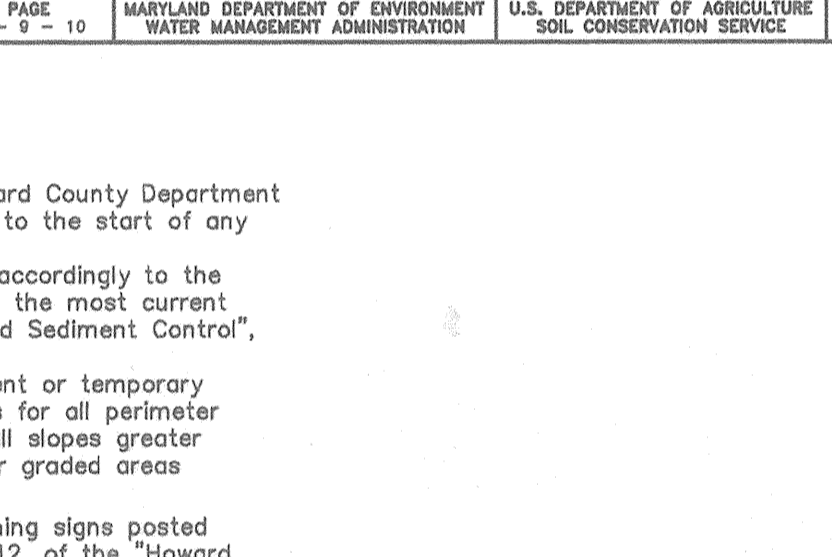
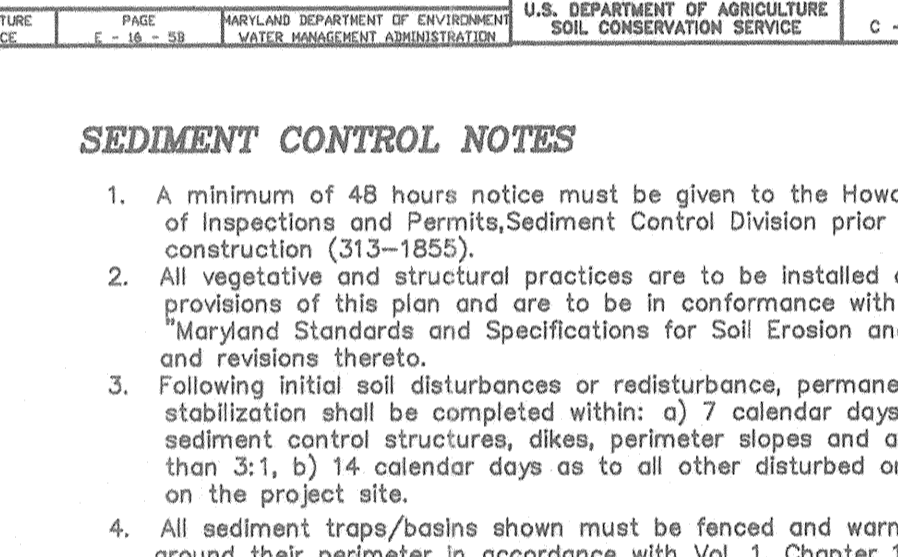
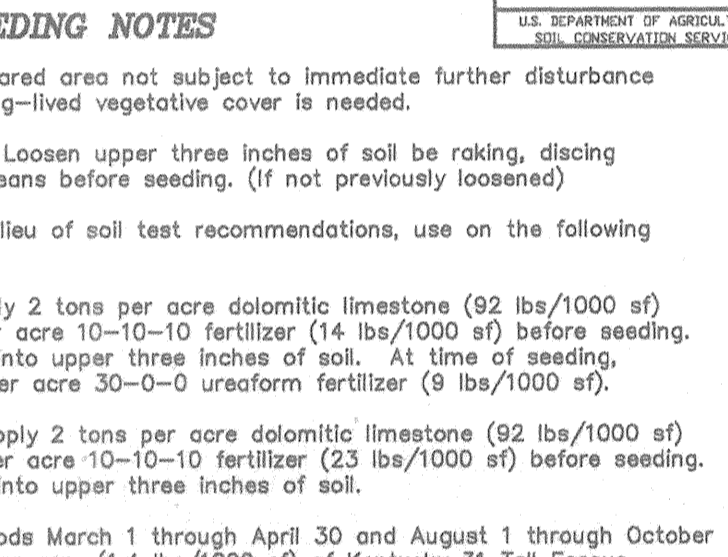
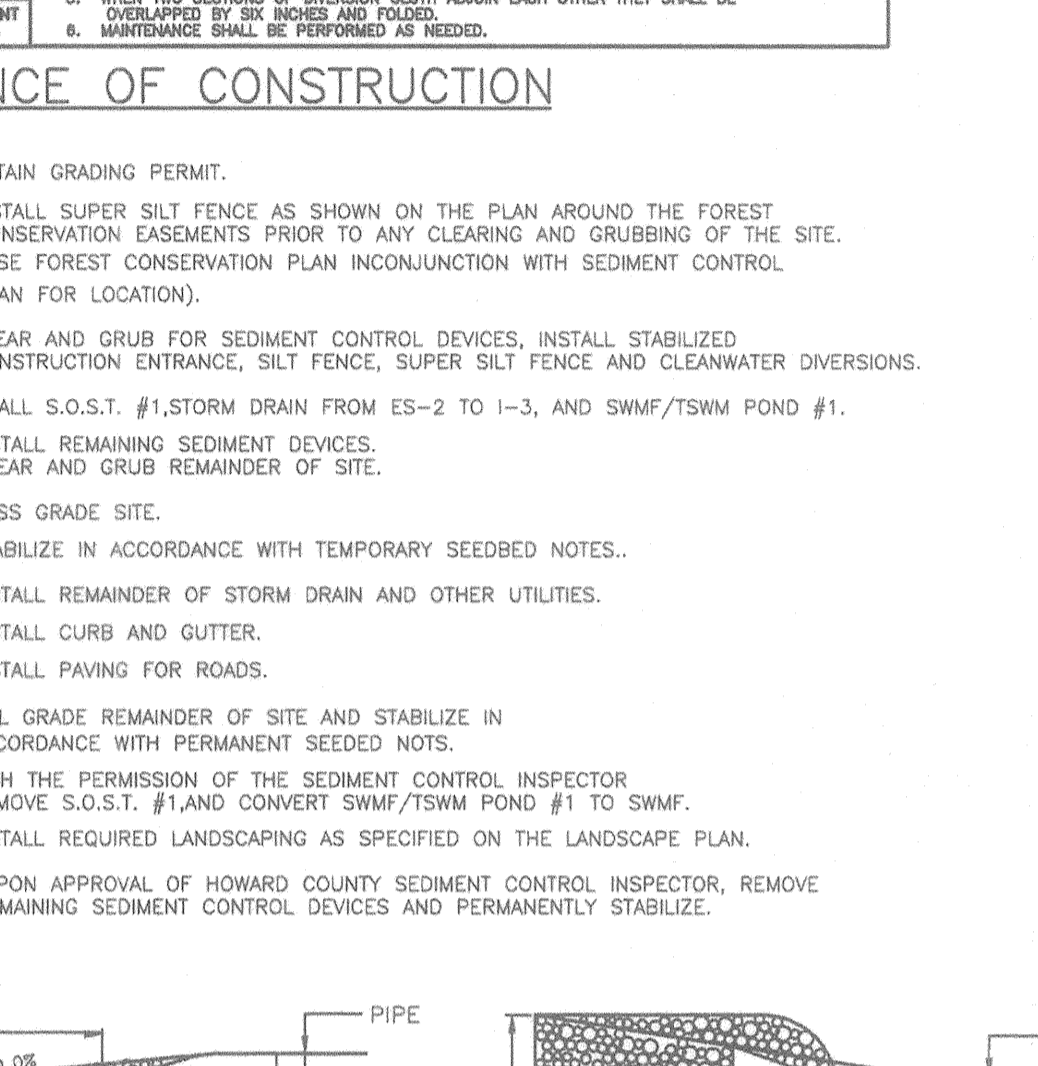
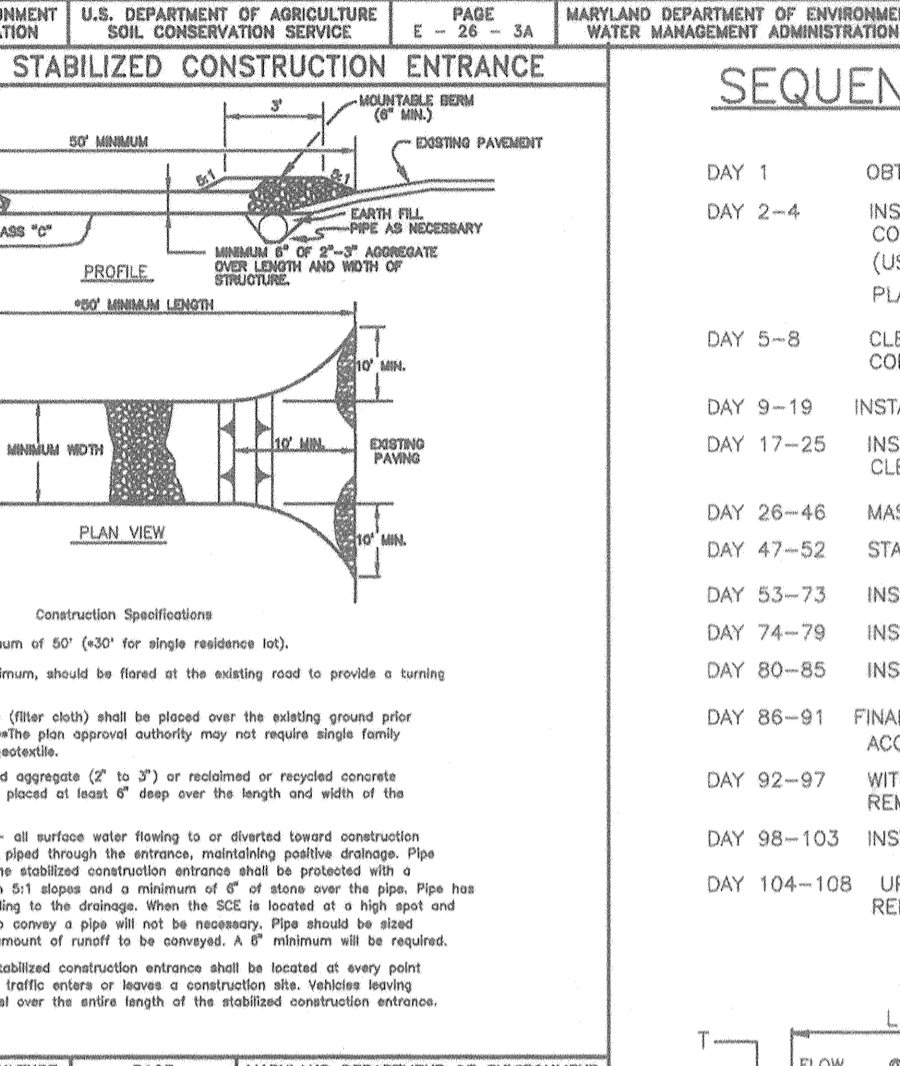
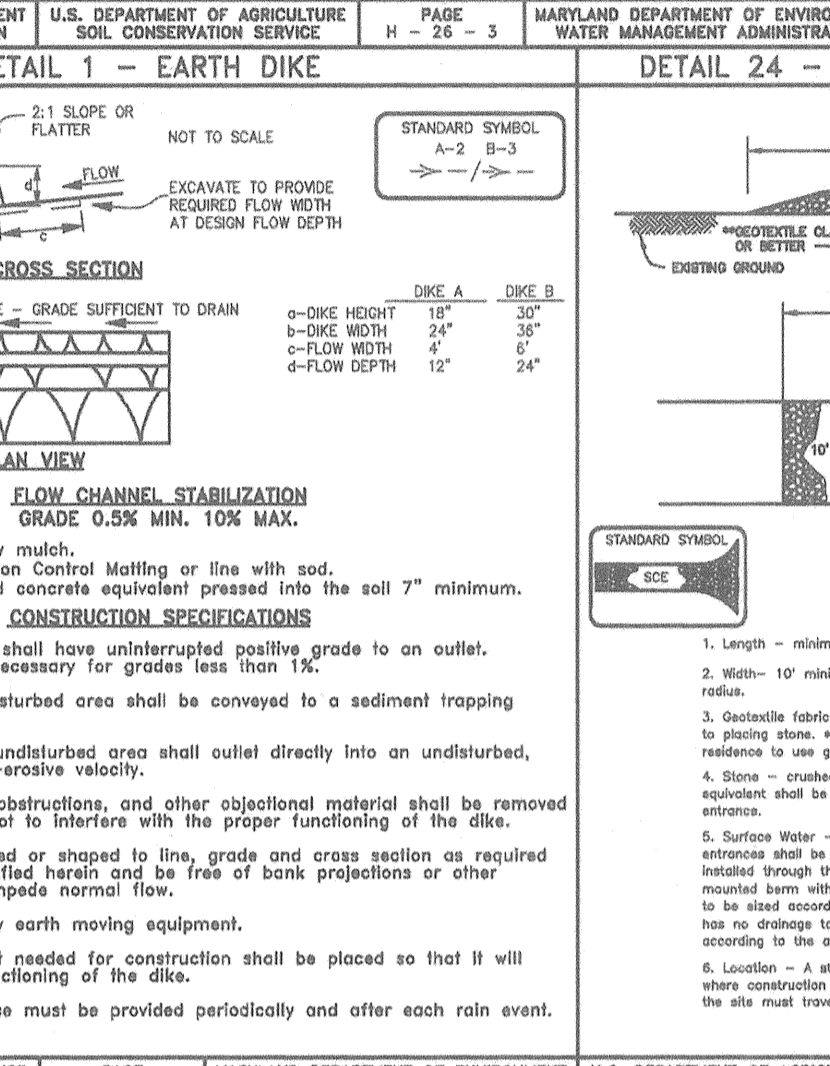
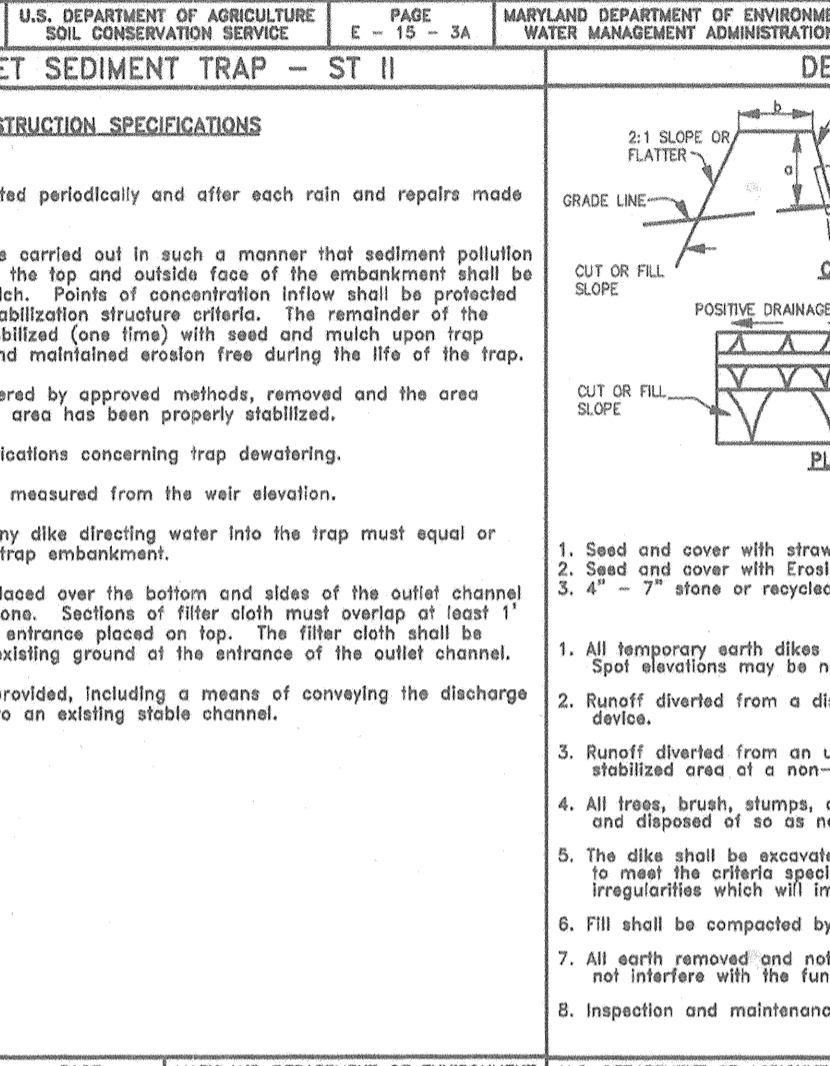
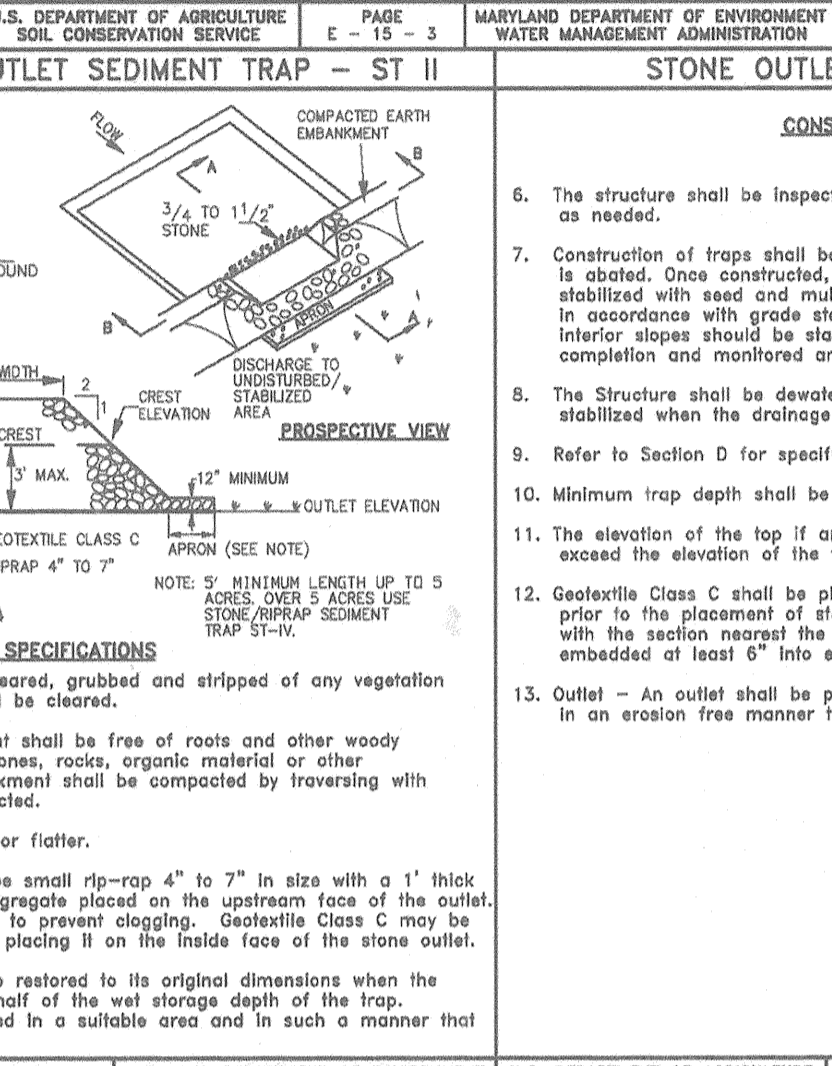
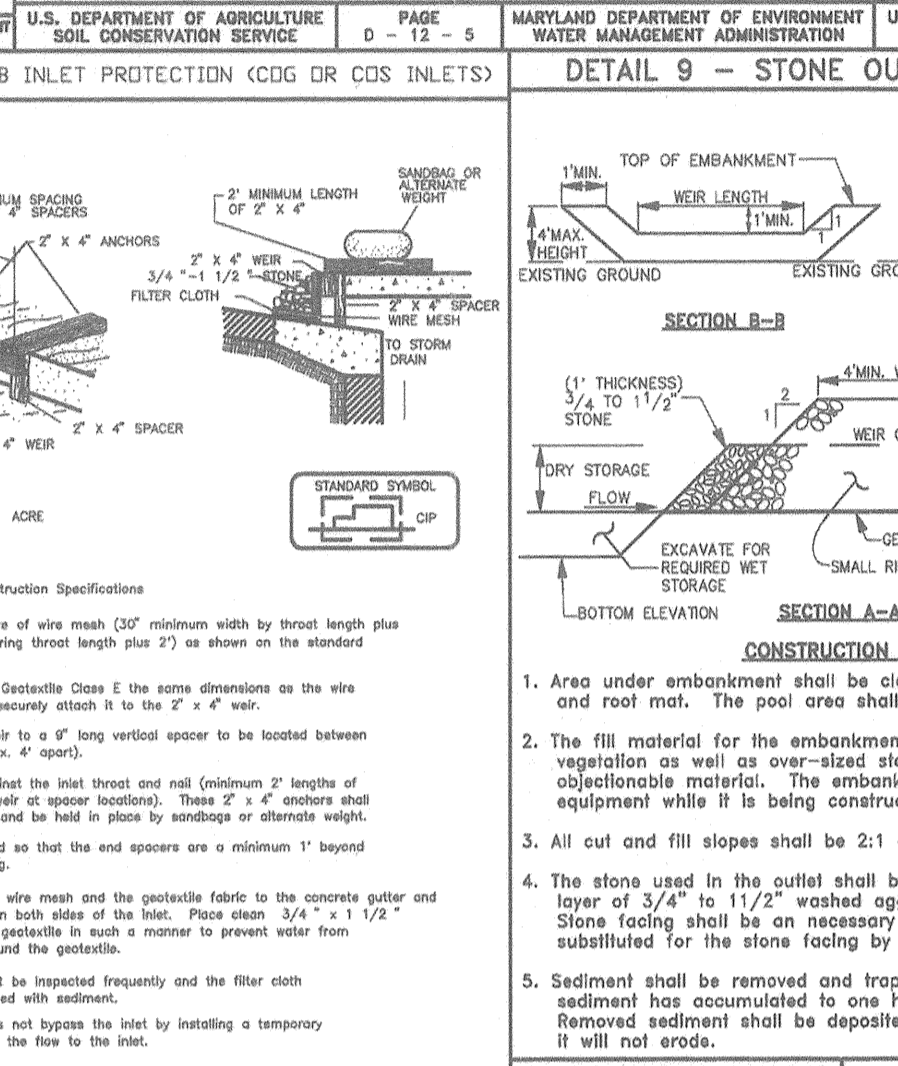
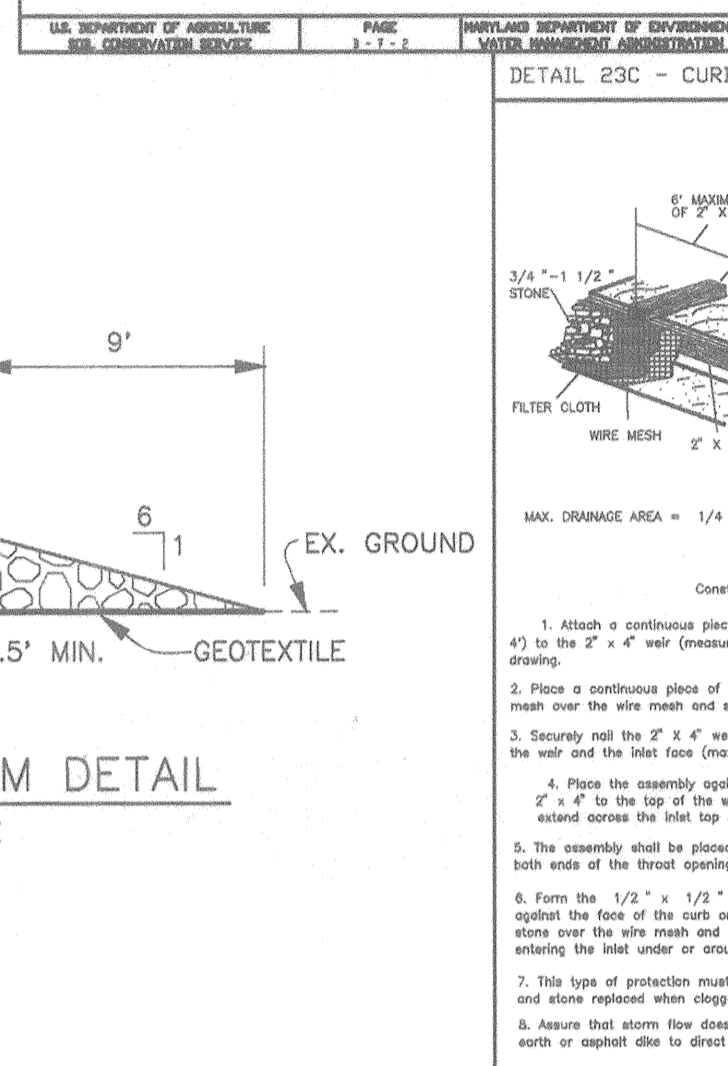
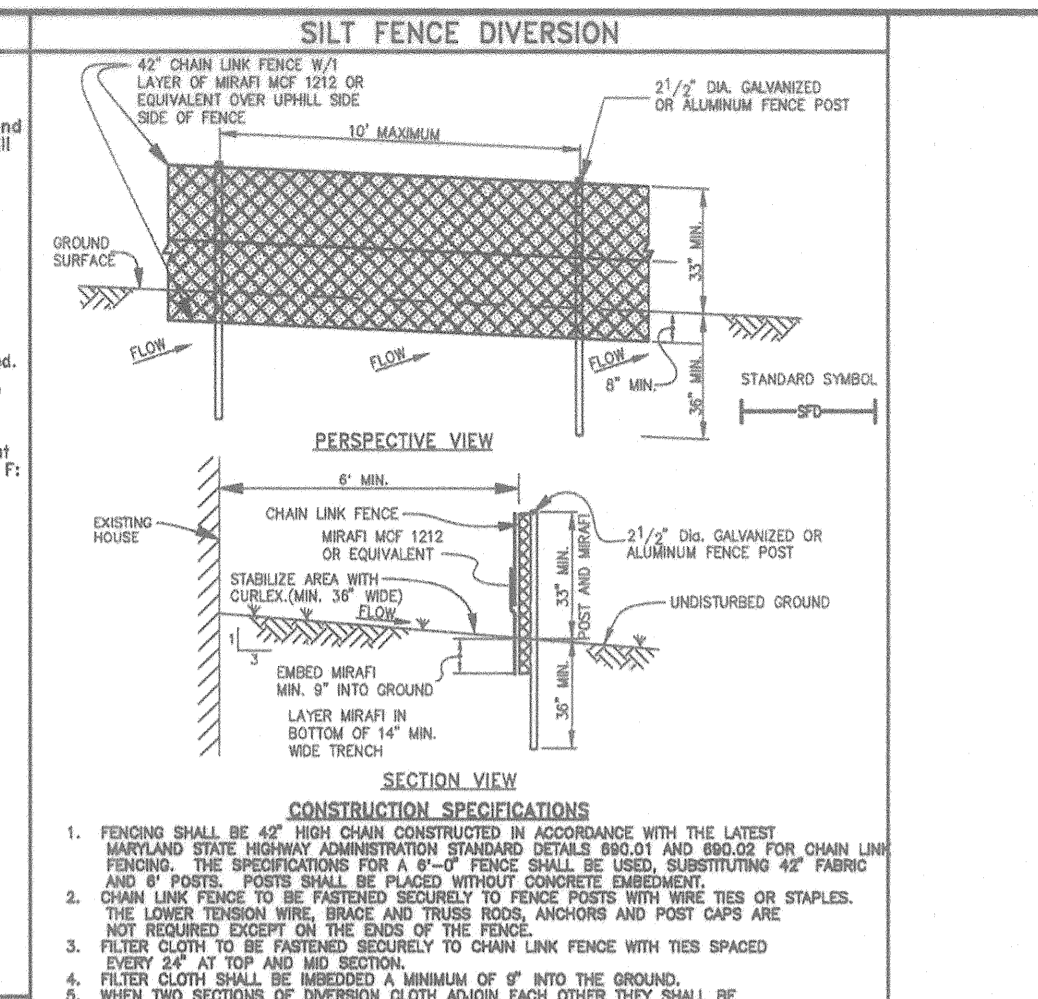
Slope Steepness	(Maximum) Slope Length	(Minimum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.



SUPER SILT FENCE DESIGN CRITERIA

Slope Steepness	(Maximum) Slope Length	(Minimum) Silt Fence Length
0 - 10%	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet
20 - 33%	5:1 - 3:1	1,000 feet
33 - 50%	3:1 - 2:1	500 feet
50% +	2:1 +	250 feet



PERMANENT SEEDING NOTES

Apply to graded or cleared area not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seeded Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding. (If not previously loosened)

Soil Amendments: In lieu of soil test recommendations, use on the following schedules:

- Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sf) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sf) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sf).
- Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sf) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sf) before seeding. Harrow or disc into upper three inches of soil.

Seeding: For the periods March 1 through April 30 and August 1 through October 15, seed with 60 lbs per acre (1.4 lbs/1000 sf) of Kentucky 31 Tall Fescue. For the period May 1 through July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (0.05 lbs/1000 sf) of Weeping Lovegrass. During the period of October 16 through February 28, protect site by: Option 1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option 2) use seed. Option 3) seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sf) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

Maintenance: Inspect all seeded areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seeded Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding. (If not previously loosened)

Soil Amendments: Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sf).

Seeding: For periods March 1 through April 30 and from August 15 through November 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sf). For the period May 1 through August 14, seed with 3 lbs per acre of Weeping Lovegrass (0.07 lbs/1000 sf). For the period November 16 through February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use seed.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sf) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

Refer to the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control for rate and methods not covered.

SEDIMENT CONTROL NOTES

- A minimum of 48 hours notice must be given to the Howard County Department of Inspections and Permits, Sediment Control Division prior to the start of any construction (313-1855).
- 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, and revisions thereto.
- Following initial soil disturbances or redisturbances, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 calendar days as to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the "Howard County Design Manual, Storm Drainage".
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control for Permanent Seeding (Sec. 51) Sod (Sec. 54), Temporary Seeding (Sec. 50) and Mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:
Total Area of Site: 17,574 acres
Area to be Disturbed: 13,311 acres
Area to be roofed or paved: 4,033 acres
Area to be vegetatively stabilized: 9,283 acres
Total Cut: 76,812 C.Y.
Total Fill: 24,577 C.Y.
Offsite Waste/Borrow Area Location: *

CONSTRUCTION AND MATERIAL SPECIFICATIONS

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

DEFINITION

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH, SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

- THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
 - THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

TOPSOIL APPLICATION

- WHEN TOP SOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
- GRADES ON THE AREAS TO BE TOP SOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBERT 4"-8" HIGHER IN ELEVATION.
- TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4"-8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOP SOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
- TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRASSING AND SEEDING PREPARATION.

ALTERNATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:

- COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO DETERMINE PHOSPHORUS AND POTASSIUM AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.
 - COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.
 - COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.
- COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS, SEDIMENT CONTROL DIVISION.
 APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.

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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS, SEDIMENT CONTROL DIVISION.
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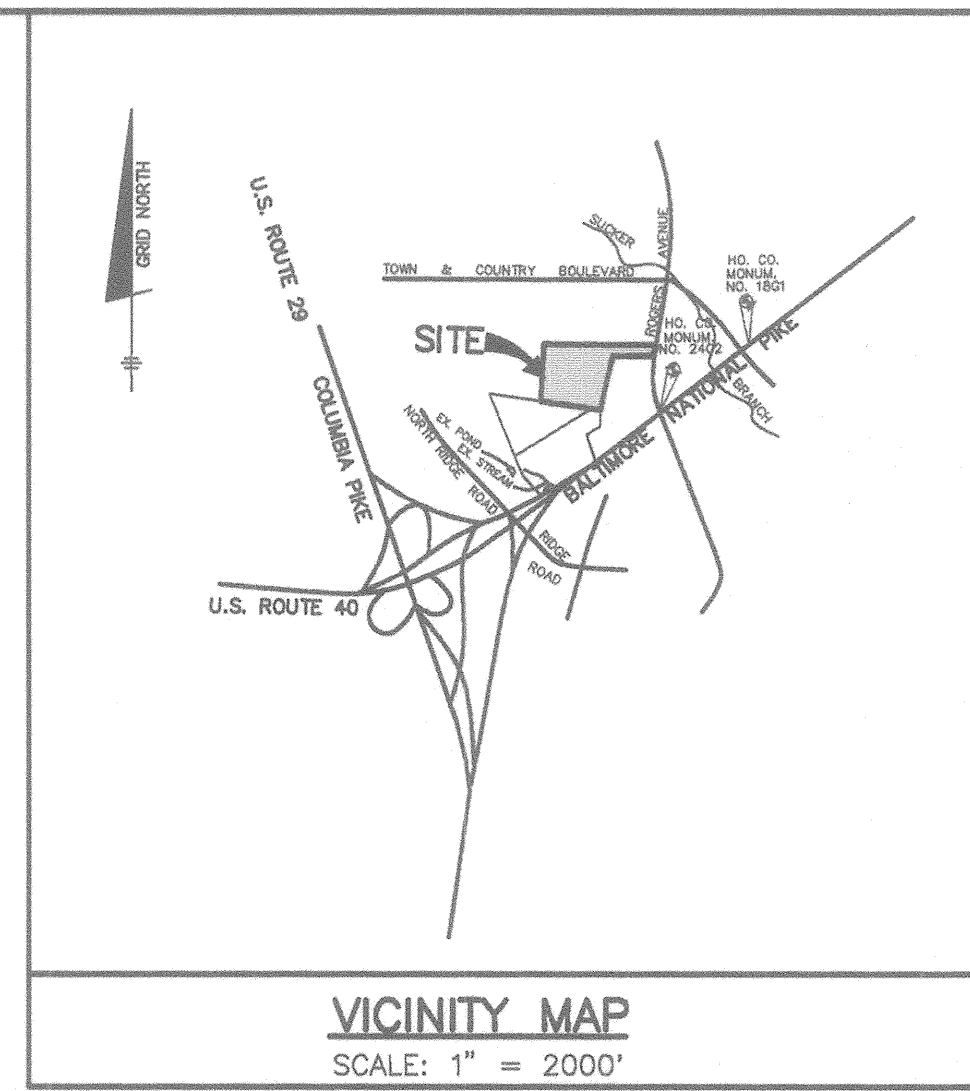
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FOREST CONSERVATION EASEMENT DATA

FCE NO.	ACREAGE	TOTAL RETENTION ACREAGE
1A	0.2 AC.	1.1 AC.
1B	0.9 AC.	
FCE NO.	ACREAGE	TOTAL REFORESTATION ACREAGE
2A	0.4 AC.	0.6 AC.
2B	0.1 AC.	
3	0.1 AC.	

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- FOREST RETENTION EASEMENT
- REFORESTATION EASEMENT
- LIMITS OF FOREST CONSERVATION EASEMENT
- FCE SIGNAGE

SOILS CLASSIFICATION

SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
CHB2	CHESTER SILT LOAM, 3-8% SLOPES, MODERATELY ERODED	B
CNC2	CHESTER SILT LOAM, 8-15% SLOPES, MODERATELY ERODED	B
G1B2	GLENELG LOAM, 3-8% SLOPES, MODERATELY ERODED	B
G1C2	GLENELG LOAM, 8-15% SLOPES, MODERATELY ERODED	B
G1C3	GLENELG LOAM, 8-15% SLOPES, SEVERELY ERODED	B
GNB2	GLENVILLE SILT LOAM, 3-8% SLOPES, MODERATELY ERODED (HYDRIC)	C
M1B2	MANOR LOAM, 3-8% SLOPES, MODERATELY ERODED	B
M1C2	MANOR LOAM, 8-15% SLOPES, MODERATELY ERODED	B
M1C3	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
M1D2	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
M1D3	MANOR LOAM, 15-25% SLOPES, SEVERELY ERODED	B

NO.	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Dando 2/10/01
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamlett 2/25/01
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 2/20/01
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

PLAN VIEW
 SCALE: 1" = 50'

Eco-Science
 Professionals, Inc.
 CONSULTING ECOLOGISTS
 P.O. BOX 5006 GLEN ARM, MD 21057 (410)982-6762

MD DNR Qualified Professional
 USACOE Wetland Delineator
 Certification #WDCP93MD081004482

[Signature]
 John P. Canoles

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

Donald Moan
 PROFESSIONAL ENGINEER

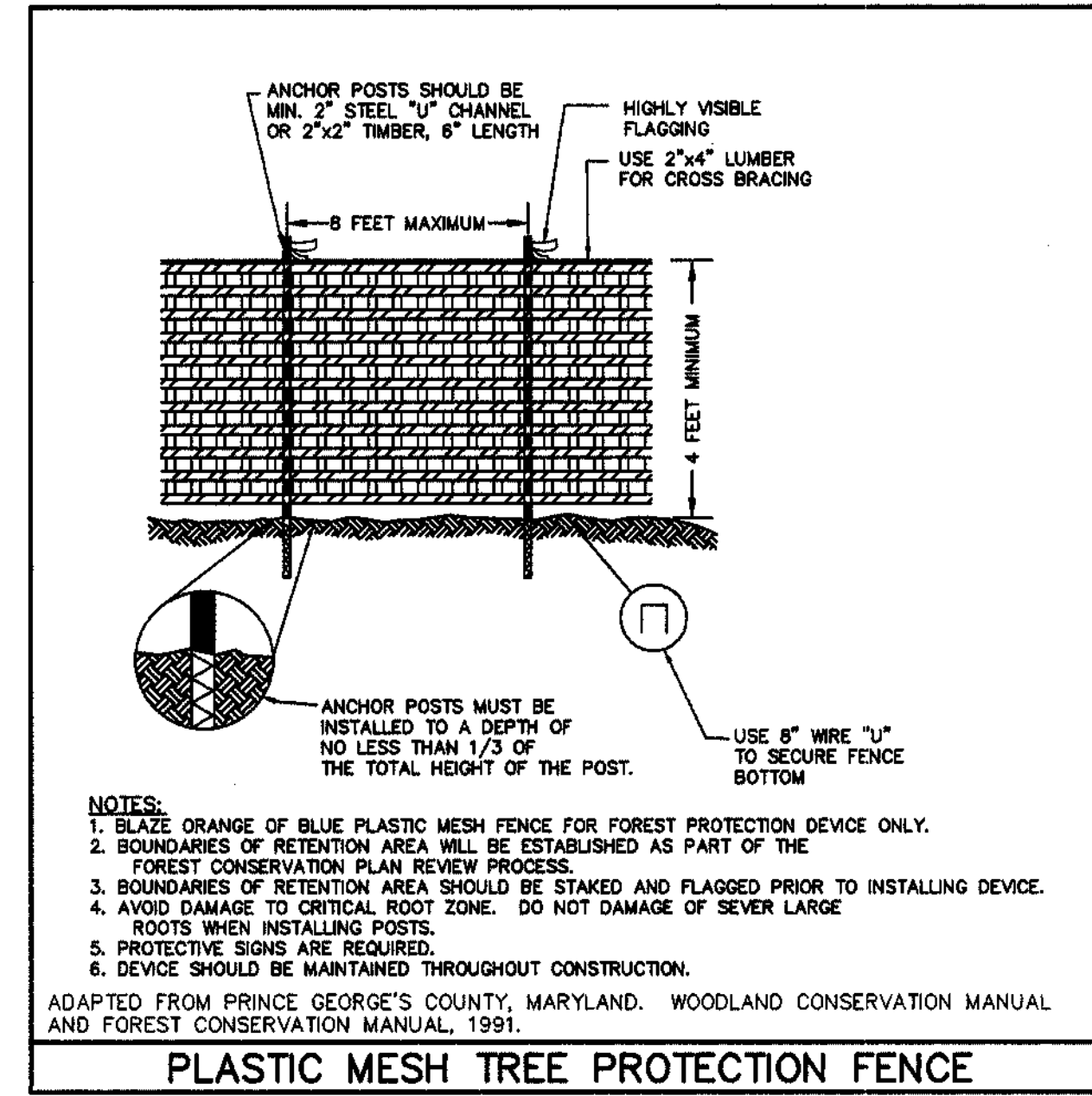
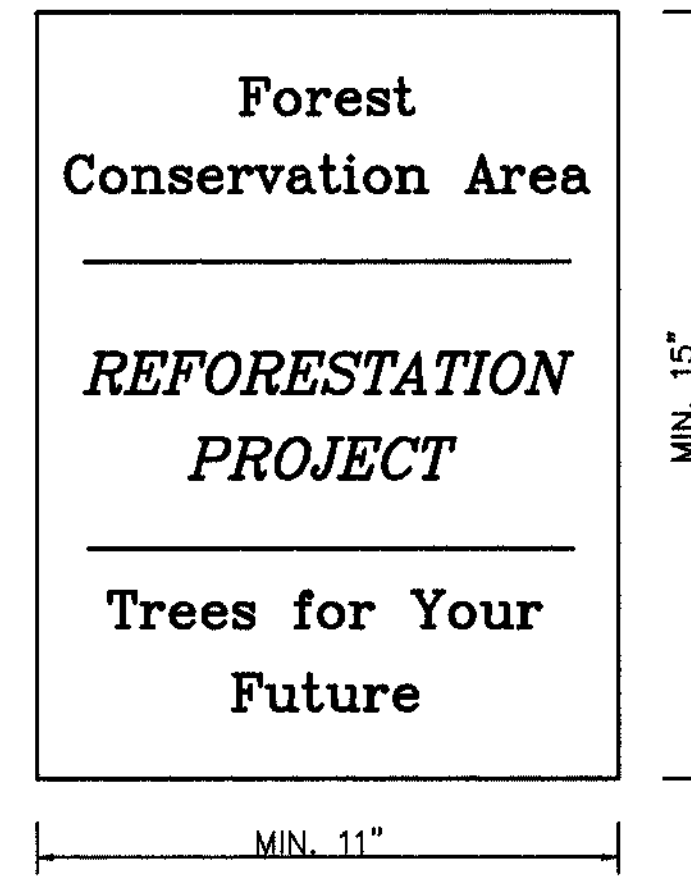
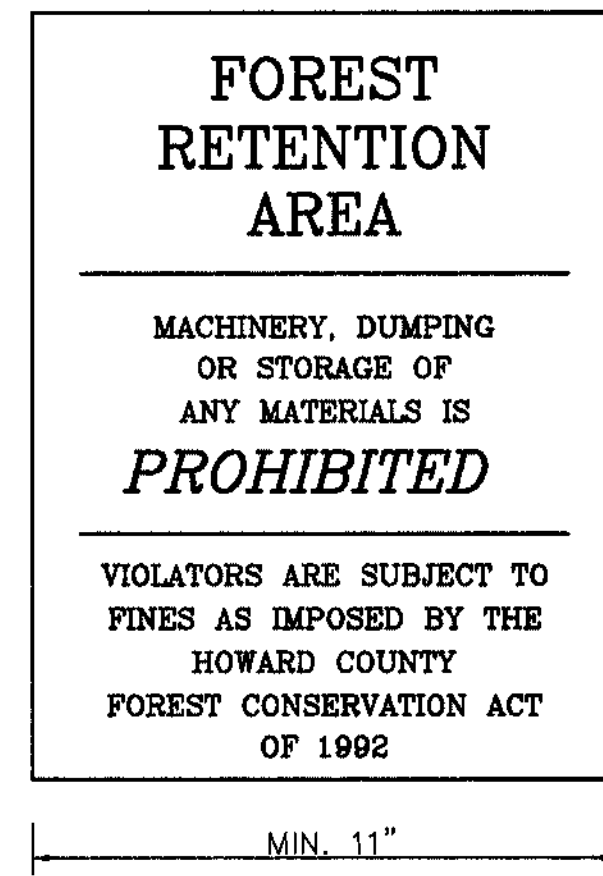
OWNER / DEVELOPER: KAISER FARM, L.L.C.
 P.O. BOX 417
 ELLICOTT CITY, MD 21041
 (410) 465-4244

PROJECT: **KAISER FARM**
 LOTS 1-82 AND PARCEL "E"
 A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "Y",
 HOENES PROPERTY AND PARCELS "E" AND "F", KAISER FARM
 LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 881
 2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 REFERENCE FILE: S-95-016, P-97-02, F-98-01, F-98-12, S-98-05, SDP-98-129,
 F-98-180, F-98-184SP-00-03, P-99-17 AND F-00-102

TITLE: **FOREST CONSERVATION PLAN**

DATE: JULY 2000 PROJECT NO. 1268

DES: DRN: CHK: SCALE: AS SHOWN DRAWING 12 OF 14



PLASTIC MESH TREE PROTECTION FENCE

FCP NOTES:

- ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE CONVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
- FORESTED AREAS OCCURRING OUTSIDE THE FCE SHALL NOT BE CONSIDERED PART OF THE FCE AND SHALL NOT BE SUBJECT TO PROTECTIVE LAND CONVENANTS.
- LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
- THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
- NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
- TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION AND THE REFORESTATION EASEMENTS DURING THE POST-CONSTRUCTION MANAGEMENT AND PROTECTION PERIOD. THE FENCING SHALL BE PLACED ALONG ALL FCE BOUNDARIES WHICH OCCUR WITHIN 15 FEET OF THE PROPOSED LIMITS OF DISTURBANCE.
- PERMANENT SIGNAGE SHALL BE PLACED 50 - 100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.
- THE REFORESTATION OBLIGATIONS FOR PARCELS "E" AND "F", KAISER FARM CONSISTS OF 1.9 ACRES. OF THE 1.9 ACRES, 0.6 ACRES WILL BE ON-SITE REFORESTATION. THE REMAINING 1.3 ACRES WILL BE PROVIDED OFF-SITE IN AN APPROVED FOREST CONSERVATION BANK KNOWN AS ENVIRONMENTAL BANK & EXCHANGE, L.L.C. (SEE SDP-99-117) THIS OFF-SITE FOREST CONSERVATION EASEMENT WILL BE RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND, PRIOR TO THE FINAL PLAT RECORDATION. FOREST CONSERVATION OBLIGATION FOR THE NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HONES PROPERTY HAS BEEN FULFILLED BY OFF-SITE PLANTING AT THE RIDGE VIEW HUNT SUBDIVISION, F-97-120 (TAX MAP 14, PARCEL 14, PRESERVATION PARCEL "B") AS PREVIOUSLY INDICATED UNDER P-97-02. THIS OFF-SITE AREA HAS BEEN BONDED AND IS PART OF THE DEVELOPER'S AGREEMENT FOR F-98-12.
- IF PARCEL "E" IS TO BE DEVELOPED WITH A USE OTHER THAN "RESIDENTIAL", THE ADDITIONAL FOREST CONSERVATION OBLIGATION MUST BE ADDRESSED WITH THE PLAN FOR THE NON-RESIDENTIAL DEVELOPMENT.
- SURETY FOR THE ON-SITE FOREST CONSERVATION EASEMENTS HAS BEEN POSTED AS A PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$12,632.40 (\$4,791.60 RETENTION AND \$7,840.80 REFORESTATION).

FOREST DATA	
GROSS AREA (PARCEL "E" & "F"):	9.8 AC.
NET TRACT AREA (NTA):	9.8 AC.
EXISTING FOREST (NTA):	2.3 AC.
AFFORESTATION THRESHOLD:	1.5 AC.
REFORESTATION THRESHOLD:	2.0 AC.
FOREST TO BE CLEARED (NTA):	1.2 AC.
REFORESTATION REQUIRED:	1.9 AC.
ONSITE FORESTATION AVAILABLE:	0.6 AC.
OUTSTANDING FORESTATION OBLIGATION:	1.3 AC.

FOREST CONSERVATION WORKSHEET

I. BASIC SITE DATA

GROSS SITE AREA (PARCELS "E" & "F")	9.8 AC.
AREA WITHIN 100 YEAR FLOODPLAIN	0
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE)	0
NET TRACT AREA	9.8 AC.
LAND USE CATEGORY (R-RLD, R-RMD, R-S, C/1/0) R-A-15	

II. INFORMATION FOR CALCULATIONS

A. NET TRACT AREA	9.8 AC.
B. REFORESTATION THRESHOLD (20 % x A)	2.0 AC.
C. AFFORESTATION MINIMUM (15 % x A)	1.5 AC.
D. EXISTING FOREST ON NET TRACT AREA	2.3 AC.
E. FOREST AREAS TO BE CLEARED	1.2 AC.
F. FOREST AREAS TO BE RETAINED	1.1 AC.

III. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION

1. REFORESTATION

IF EXISTING FOREST AREAS EQUAL OR EXCEED THE AFFORESTATION MINIMUM (IF D EQUALS OR IS MORE THAN C), AND CLEARING OF FOREST AREAS IS PROPOSED, REFORESTATION REQUIREMENT MAY APPLY.

GO TO SECTION IV

IF EXISTING FORESTS EXCEED THE AFFORESTATION MINIMUM (IF D EQUALS OR IS MORE THAN C) AND NO CLEARING OF EXISTING FOREST RESOURCES IS PROPOSED, NO REFORESTATION IS REQUIRED. NO FURTHER CALCULATIONS ARE NEEDED.

2. AFFORESTATION

IF EXISTING FOREST AREA ARE LESS THAN THE AFFORESTATION MINIMUM (IF D IS LESS THAN C), AFFORESTATION REQUIREMENTS APPLY.

GO TO SECTION V

IV. REFORESTATION CALCULATIONS

A. NET TRACT AREA	9.8 AC.
B. REFORESTATION THRESHOLD (20 % x A)	2.0 AC.
D. EXISTING FOREST ON NET TRACT AREA	2.3 AC.
E. FOREST AREAS TO BE CLEARED	1.2 AC.
F. FOREST AREAS TO BE RETAINED	1.1 AC.
G. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD (D - F, IF F EQUALS OR IS GREATER THAN B, ALTERNATE 1)	0.3 AC.
(D - B, IF F IS LESS THAN B, ALTERNATE 2)	
H. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD (B - F, IF APPLICABLE)	0.0 AC.
I. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD (F - B, RETENTION CREDIT, IF APPLICABLE)	0.0 AC.

SELECTION THE ALTERNATIVE THAT APPLIES:

1. 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:

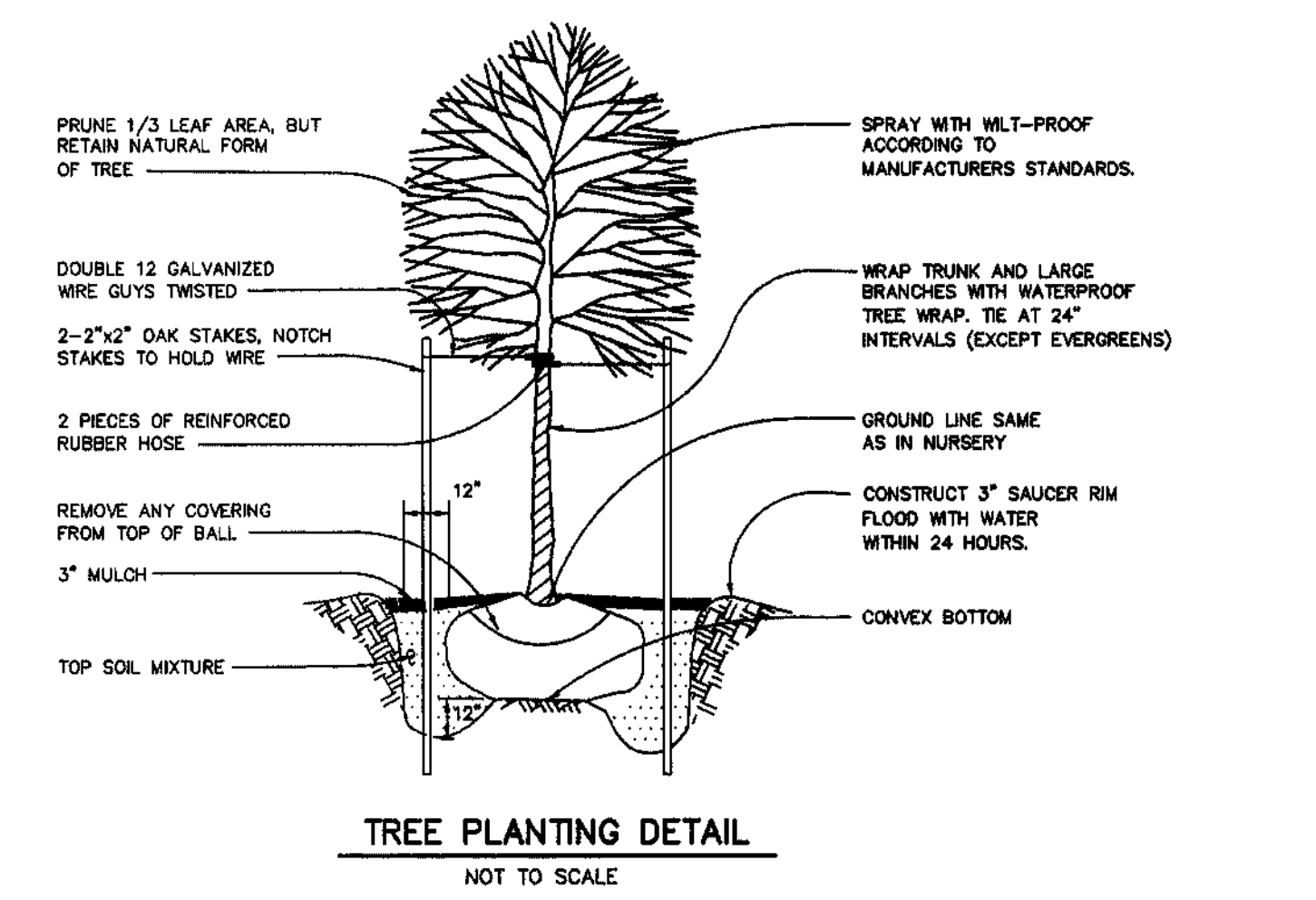
REFORESTATION FOR CLEARING ABOVE THRESHOLD (G x 1/4)	N/A
CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD (I - RETENTION CREDIT)	N/A
TOTAL REFORESTATION REQUIRED (G x 1/4 - I)	N/A

2. CLEARING BELOW THRESHOLD

IF FOREST AREAS TO BE RETAINED ARE LESS THAN THE REFORESTATION THRESHOLD (IF F IS LESS THAN B), THE FOLLOWING CALCULATION APPLY:

REFORESTATION FOR CLEARING ABOVE THRESHOLD (G x 1/4)	0.1 AC.
REFORESTATION FOR CLEARING BELOW THRESHOLD (H x 2)	1.8 AC.
TOTAL REFORESTATION REQUIRED (G x 1/4) + (H x 2)	1.9 AC.

SINCE CLEARING OCCURS BELOW THE THRESHOLD, NO FOREST RETENTION CREDIT IS POSSIBLE.



PLANTING/SOIL SPECIFICATIONS

- PLANTING OF NURSERY STOCK SHALL TAKE PLACE BETWEEN MARCH 15TH AND APRIL 30TH OR SEPTEMBER 15TH - NOVEMBER 15TH.
- A TWELVE (12) INCH LAYER OF TOPSOIL SHALL BE SPREAD OVER ALL FORESTATION AREAS IMPACTED BY SITE GRADING TO ASSURE A SUITABLE PLANTING AREA. DISTURBED AREAS SHALL BE SEEDED AND STABILIZED AS PER GENERAL CONSTRUCTION PLAN FOR PROJECT. PLANTING AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL TOPSOIL INSTALLED.
- ALL BARERoot PLANTING STOCK SHALL HAVE THEIR ROOT SYSTEMS DIPPED INTO AN ANTI-DESICCANT GEL PRIOR TO PLANTING.
- PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE.
- FERTILIZER SHALL CONSIST OF AGRIFORM 22-B-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S SPECIFICATIONS.
- A TWO (2) INCH LAYER OF HARDWOOD MULCH SHALL BE PLACED OVER THE ROOT AREA OF ALL PLANTINGS.
- PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING.
- ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

SEQUENCE OF CONSTRUCTION

- SEDIMENT CONTROL AND TREE PROTECTION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE. SITE SHALL BE GRADED IN ACCORDANCE WITH THE GENERAL CONSTRUCTION PLANS.
- PROPOSED FORESTATION AREAS IMPACTED BY SITE GRADING SHALL BE TOPSOILED AND STABILIZED AS PER #2 OF PLANTING/SOIL SPECIFICATIONS FOR PROJECT.
- PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
- UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS PER THE FOREST PROTECTION DEVICES SHOWN ON THE FOREST CONSERVATION PLAN.
- PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

MAINTENANCE OF PLANTINGS

- MAINTENANCE OF ALL PLANTINGS SHALL LAST FOR A PERIOD OF 24 MONTHS.
- ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
- INVASIVE EXOTICS AND NOXIOUS WEEDS WILL BE REMOVED FROM FORESTATION AREAS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
- PLANTS WILL BE EXAMINED A MINIMUM OF TWO TIMES DURING THE GROWING SEASON FOR SERIOUS PLANT PESTS AND DISEASES. SERIOUS PROBLEMS WILL BE TREATED WITH THE APPROPRIATE AGENT.
- DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

GUARANTEE REQUIREMENTS

- A 75 PERCENT SURVIVAL RATE OF FORESTATION PLANTINGS WILL BE REQUIRED AT THE END OF THE 24 MONTH MAINTENANCE PERIOD. ALL PLANT MATERIAL BELOW THE 75 PERCENT THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE NEXT GROWING SEASON. AFTER ONE GROWING SEASON, PLANT MATERIAL SHALL BE MAINTAINED AT 90% SURVIVAL THRESHOLD.
- THE CONTRACTOR WILL NOT BE LIABLE FOR PLANT LOSS DUE TO VANDALISM.

SURETY FOR REFORESTATION

- THE DEVELOPER SHALL POST A SURETY (BOND, LETTER OF CREDIT) TO ENSURE THAT REFORESTATION PLANTINGS ARE COMPLETED. UPON ACCEPTANCE OF THE PLANTINGS BY THE COUNTY, THE BOND SHALL BE RELEASED.

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT #2A (0.4 ACRES)			
QTY.	SPECIES	SIZE	SPACING
25	ACER RUBRUM - RED MAPLE	2-3\"/>	

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT #2B (0.1 ACRES)			
QTY.	SPECIES	SIZE	SPACING
10	ACER RUBRUM - RED MAPLE	2-3\"/>	

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT #3 (0.1 ACRES)			
QTY.	SPECIES	SIZE	SPACING
10	ACER RUBRUM - RED MAPLE	2-3\"/>	

KEY: CAL - CALIPER WHIP - MAY BE CONTAINER GROWN OR BARERoot B.T. BRANCHED TRANSPLANT
 ## - ONE INCH CALIPER TREES SHALL BE SPACED AROUND PERIMETER OF FCE EASEMENT IN RANDOM PATTERN.
 ** - WHIPS AND SHRUBS SHALL BE PLANTED, ON AVERAGE, AT A SPACING OF 11 FEET ON CENTER, NOT IN A GRID PATTERN, LIMITED CLUMPING OF SHRUBS IS PERMITTED.

- PLANTING NOTES:**
- FCEs "C" AND "D" ARE HEAVILY INFLUENCED BY A MULTIFLORA ROSE. IT IS RECOMMENDED THAT THE MULTIFLORA ROSE BE REMOVED AND CONTROLLED PRIOR TO FORESTATION. IF THE ROSE IS NOT REMOVED IT WILL BE A CHRONIC MAINTENANCE PROBLEM FOR THE SITE. EXISTING NATIVE TREES MAY BE RETAINED.
 - THE POTENTIAL FOR DEER AND RODENT DAMAGE ON THIS FORESTATION PROJECT IS HIGH. THE PLANTING CONTRACTOR MAY UTILIZE PHYSICAL AND CHEMICAL TECHNIQUES TO IMPROVE THE SUCCESS OF THE PLANTINGS. THESE TECHNIQUES MUST BE APPROVED BY THE OWNER PRIOR TO INITIATION OF WORK.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Quake 2-19-01
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Andy Hamble 2/15/01
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 2/16/01
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Eco-Science Professionals, Inc.
 CONSULTING ECOLOGISTS
 P.O. BOX 5006 GLEN ARM, MD 21057 (410)592-6752

MD DNR Qualified Professional
 USACOE Wetland Delinator
 Certification #WDCP93MD0610044B2
[Signature]
 John P. Canoles

NO DATE REVISION

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

[Signature]

PROJECT: KAISER FARM
 LOTS 1-82 AND PARCEL "E"

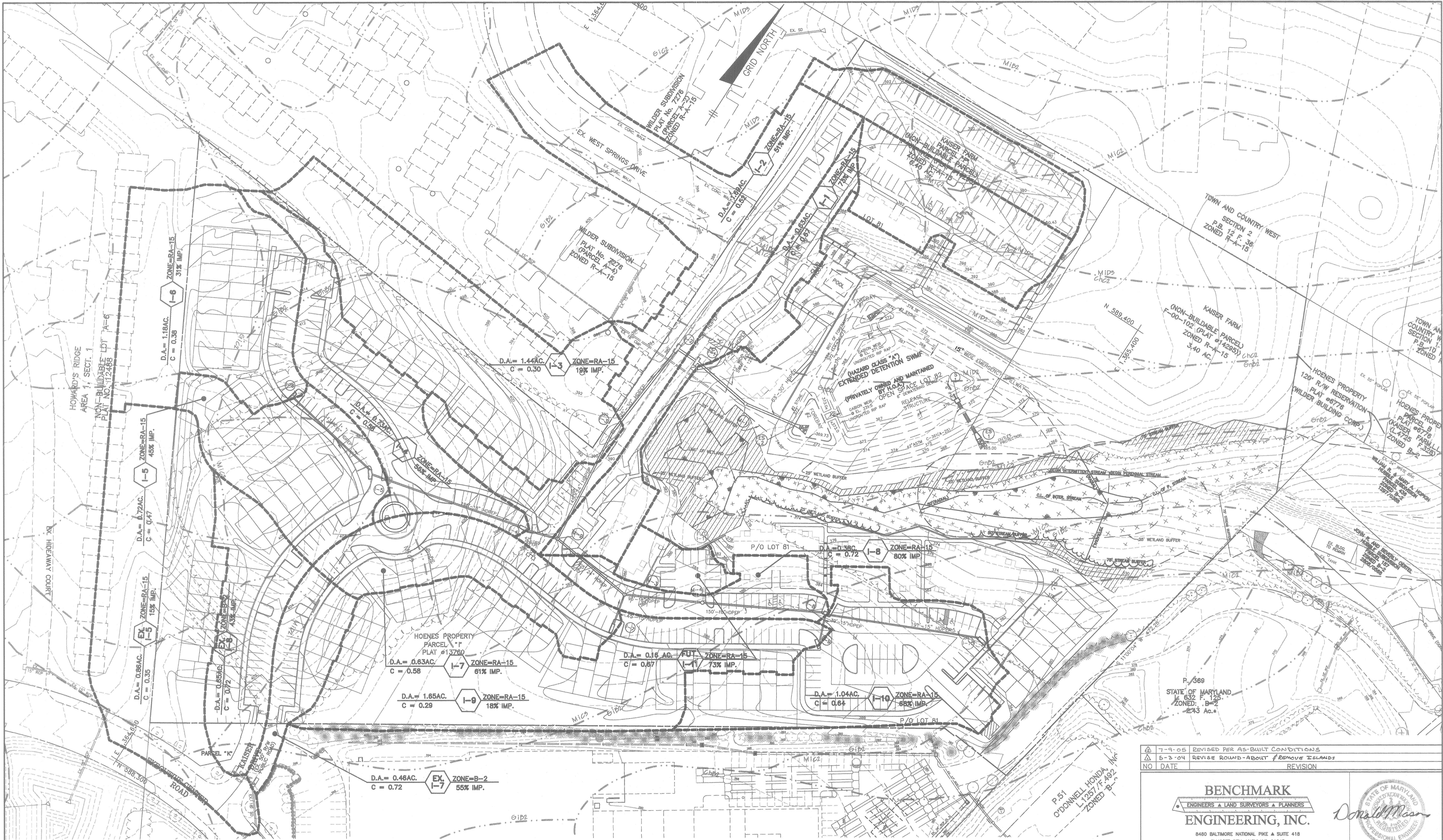
OWNER /DEVELOPER: KAISER FARM, L.L.C.
 2nd. ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 ELLICOTT CITY, MD 21041
 (410) 465-4244

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
 REFERENCE PLS: S-85-011, P-87-02, F-88-01, F-88-02, S-88-02, SDP-88-102, F-88-103, F-88-104, F-88-105, F-88-106, F-88-107, F-88-108, F-88-109, F-88-110, F-88-111, F-88-112, F-88-113, F-88-114, F-88-115, F-88-116, F-88-117, F-88-118, F-88-119, F-88-120

TITLE: FOREST CONSERVATION NOTES AND DETAILS

DATE: JULY 2000 PROJECT NO. 1268

DES: DRN: CHK: SCALE: AS SHOWN DRAWING 13 OF 14



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels 2-19-01
 CHIEF, BUREAU OF HIGHWAYS
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Andy Hamata 2/25/01
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE

[Signature] 2/16/01
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE

PLAN VIEW
 SCALE: 1" = 50'

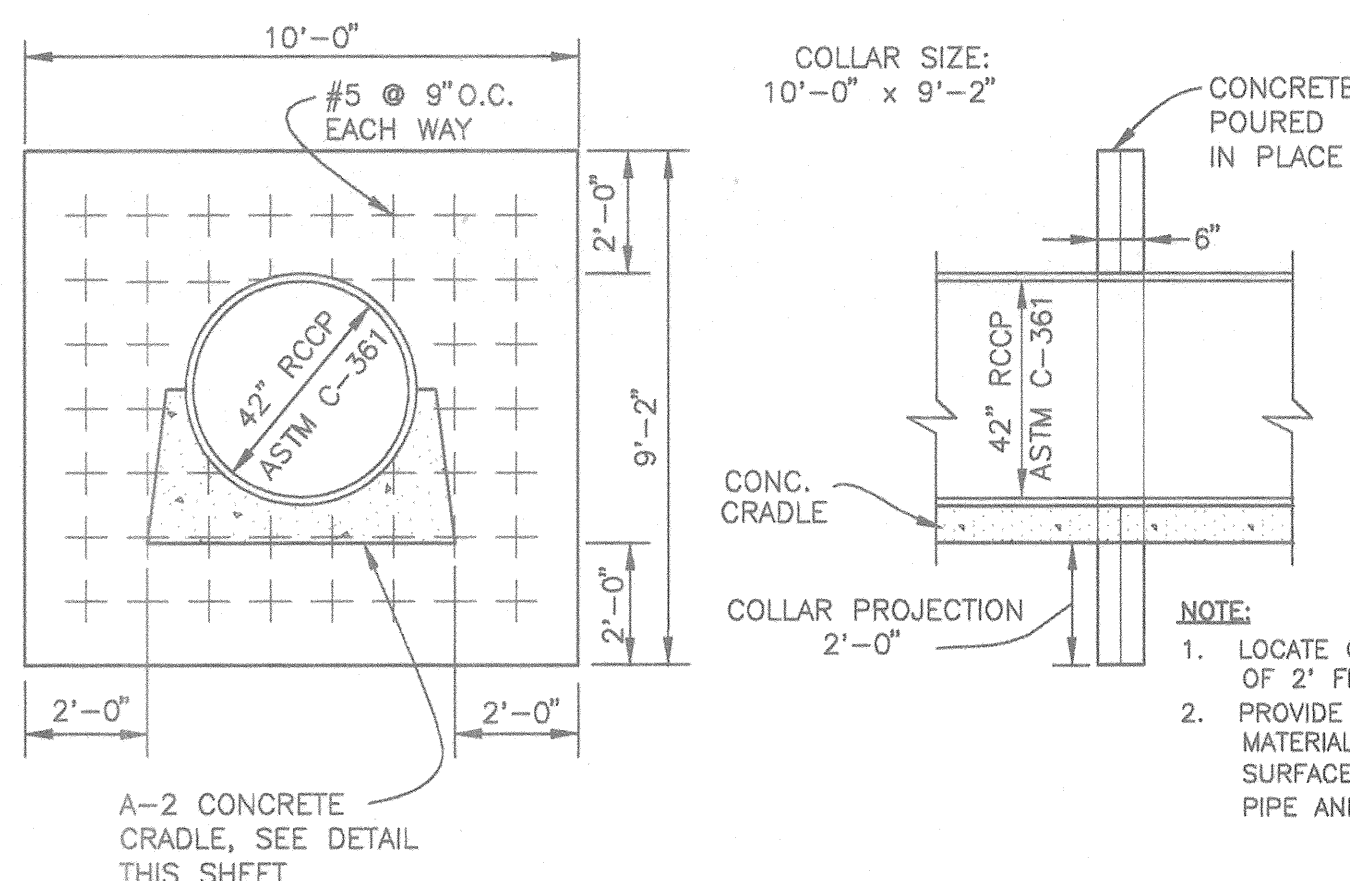
PHASE II STORM DRAIN PIPES ARE SHOWN AS DASHED LINES.

SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
ChB2	CHESTER SILT LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
ChC2	CHESTER SILT LOAM, 8-15 % SLOPES, MODERATELY ERODED	B
G1B2	GLENELG LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
G1C2	GLENELG LOAM, 8-15% SLOPES, MODERATELY ERODED	B
G1C3	GLENELG LOAM, 8-15% SLOPES, SEVERELY ERODED	B
GnB2	GLENVILLE SILT LOAM, 3-8% SLOPES, MODERATELY ERODED (HYDRIC)	C
M1B2	MANOR LOAM, 3-8% SLOPES, MODERATELY ERODED	B
M1C2	MANOR LOAM, 8-15% SLOPES, MODERATELY ERODED	B
M1C3	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
M1D2	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
M1D3	MANOR LOAM, 15-25% SLOPES, SEVERELY ERODED	B

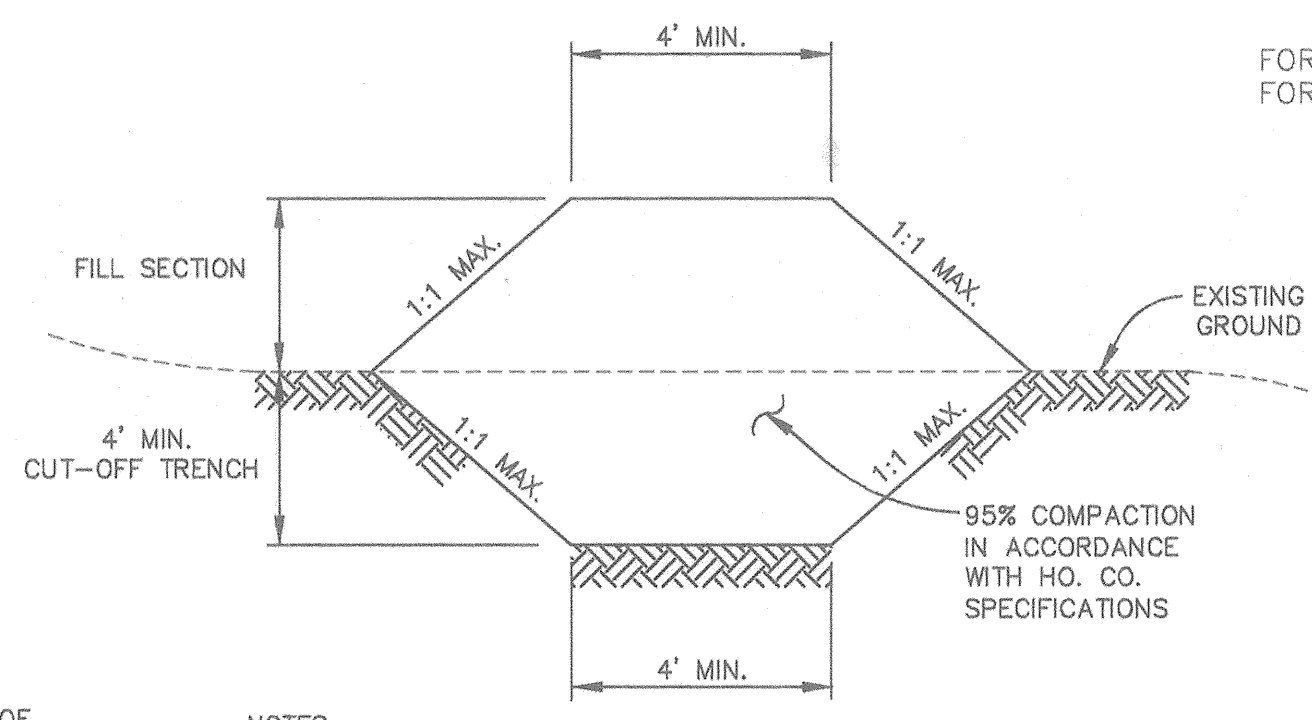
7-9-06	REVISED PER AS-BUILT CONDITIONS
5-3-04	REVISE ROUND-ABOUT #2 REMOVE ISLANDS
NO DATE	REVISION

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

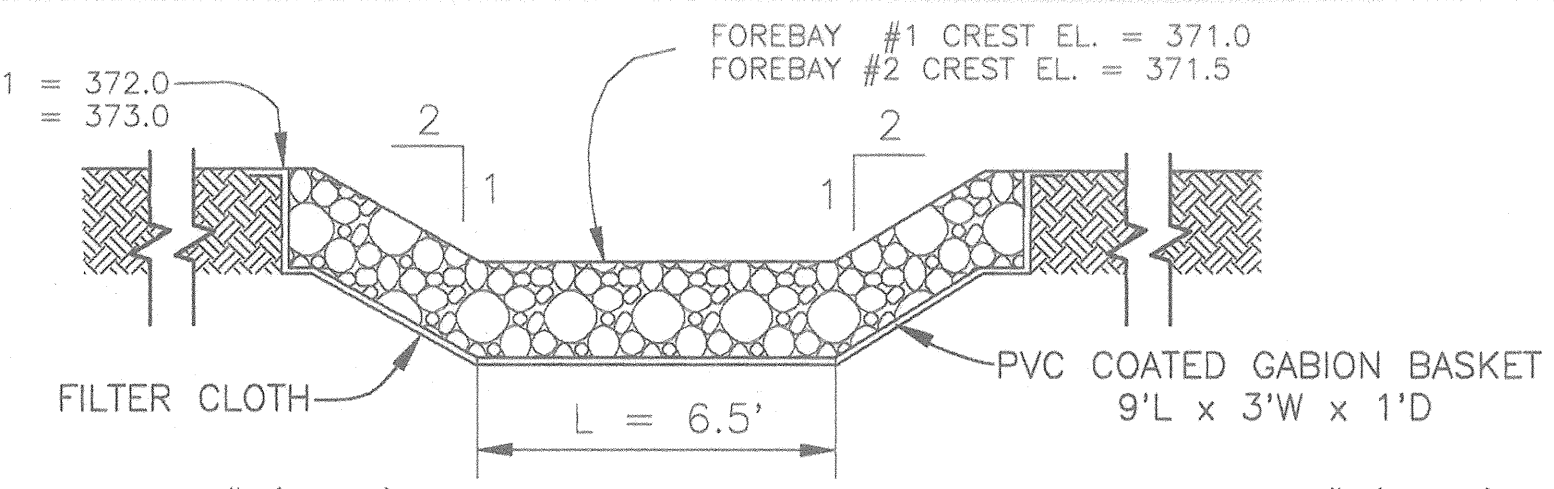
OWNER /DEVELOPER:	PROJECT:
KAISER FARM, L.L.C. P.O. BOX 417 ELLICOTT CITY, MD 21041 (410) 465-4244	KAISER FARM LOTS 1-82 AND PARCEL "E" A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "Y", HOENES PROPERTY AND PARCELS "Z" AND "T", KAISER FARM LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND REFERENCE FILE: S-95-016, P-97-02, F-98-01, F-98-12, S-98-05, S0P-98-125, F-98-180, F-98-184, SP-00-03, P-98-17 AND F-00-102
TITLE:	DATE:
STORM DRAIN DRAINAGE AREA MAP	AUG. 2000
DES: MLV	PROJECT NO. 1268
DRN: CAD	DRAWING 14 OF 14
CHK: DAM	SCALE: AS SHOWN



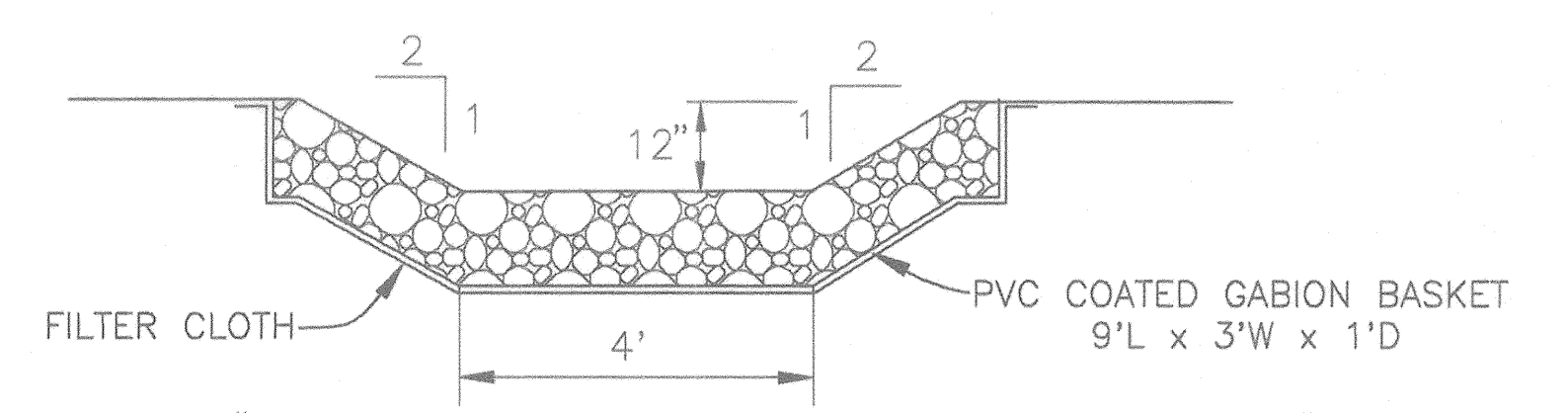
ANTI-SEEP COLLAR
NOT TO SCALE



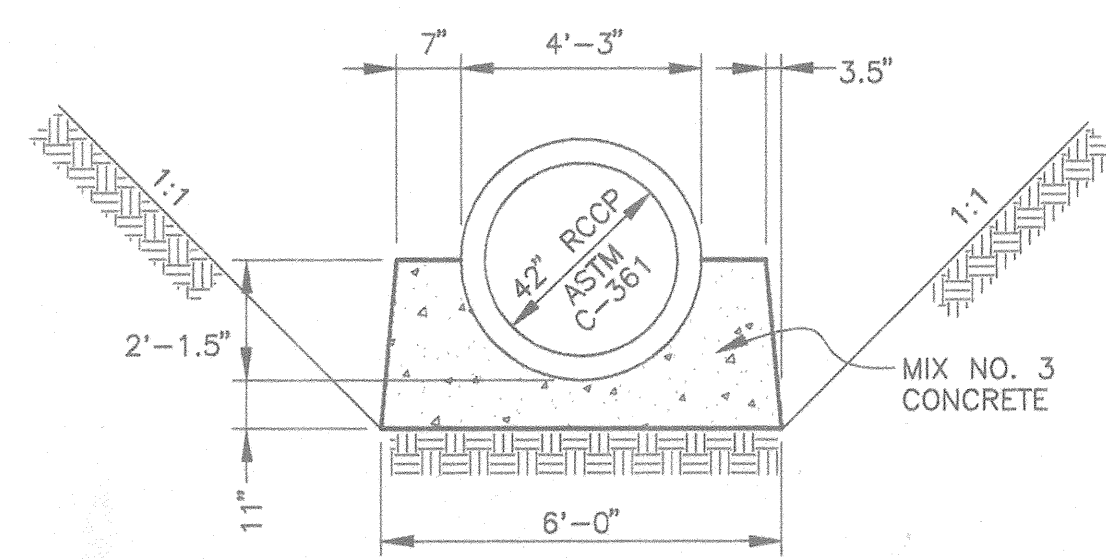
CORE TRENCH SECTION
NOT TO SCALE



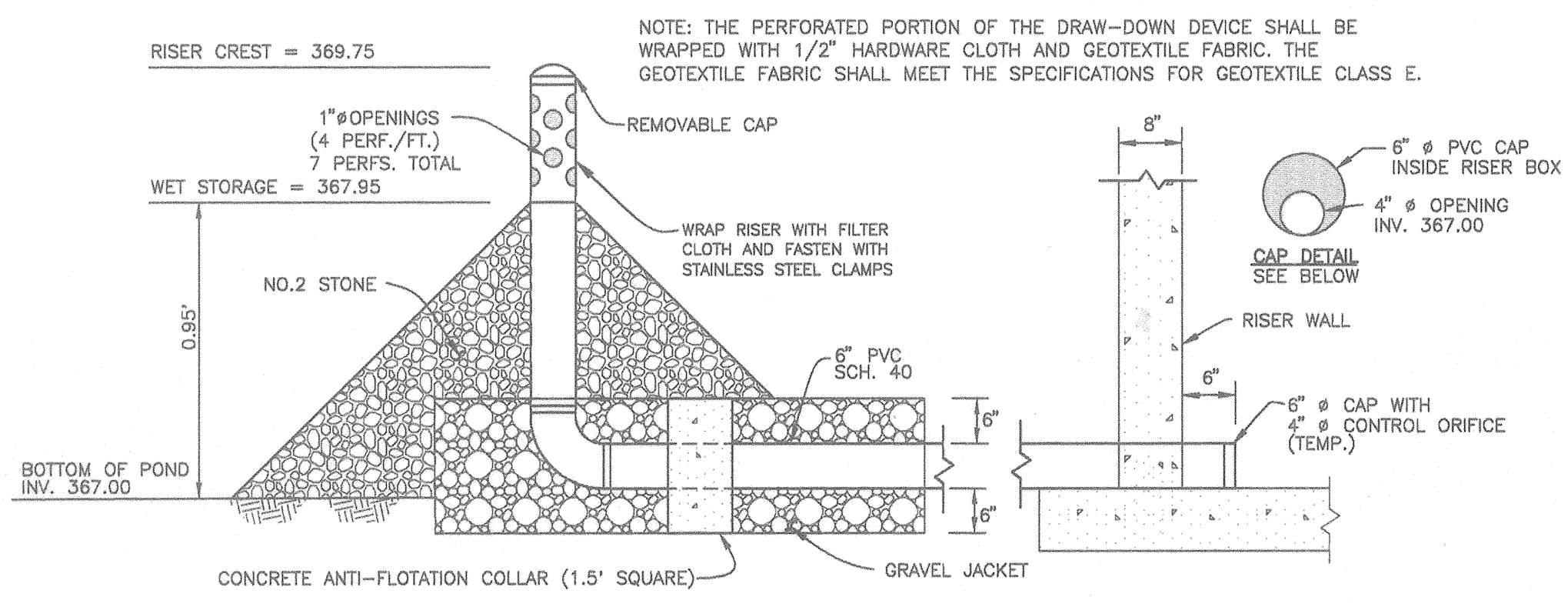
PROFILE THROUGH FOREBAY WEIR
NOT TO SCALE



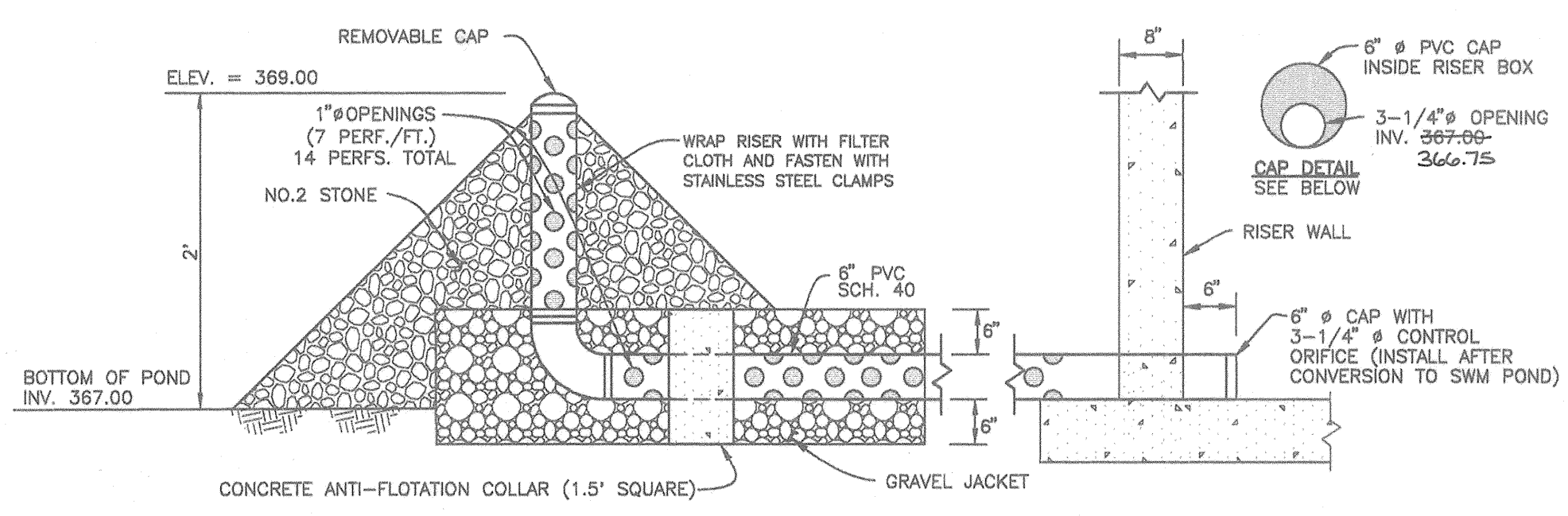
GABION INFLOW PROTECTION CHANNEL
NOT TO SCALE



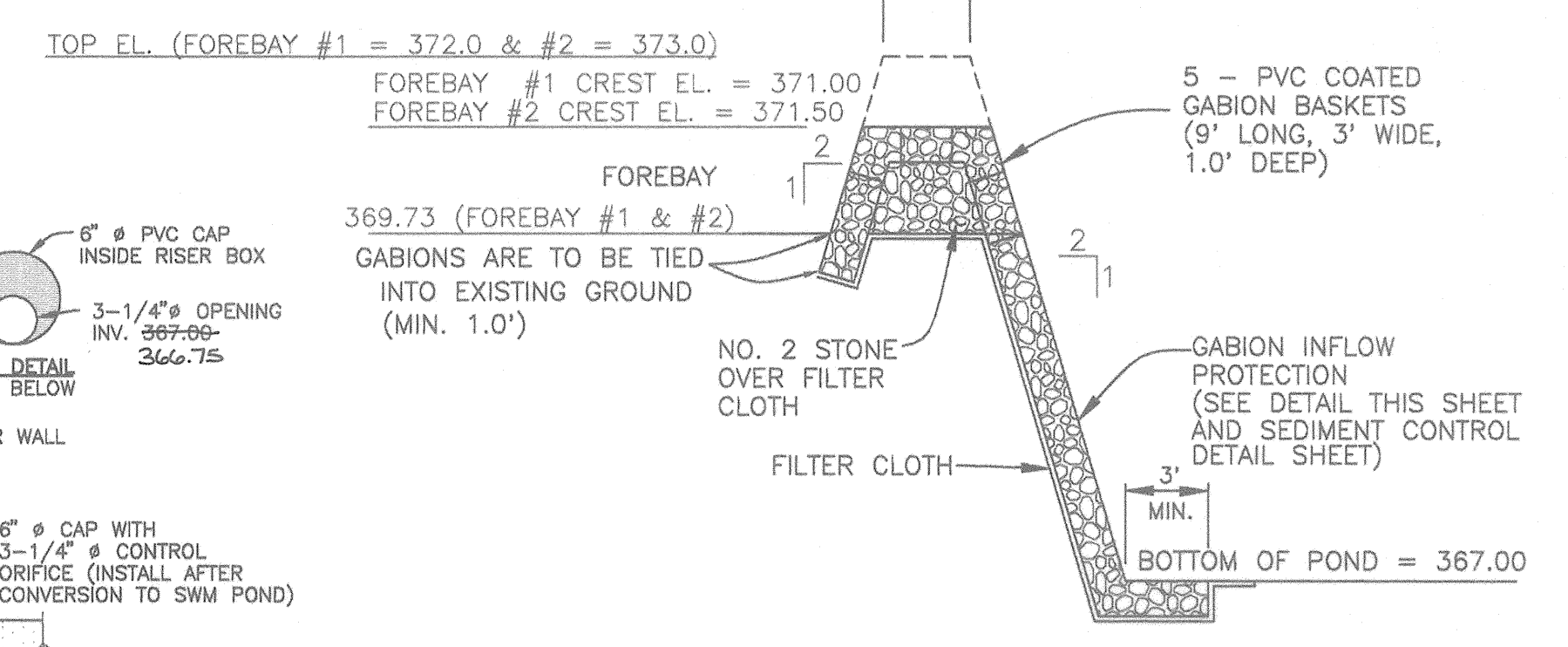
TYPE A-2 CONCRETE CRADLE
NOT TO SCALE



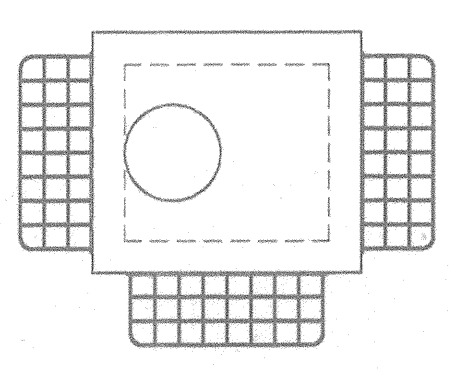
6" TEMPORARY SWM VERTICAL DRAW-DOWN DEVICE
NOT TO SCALE



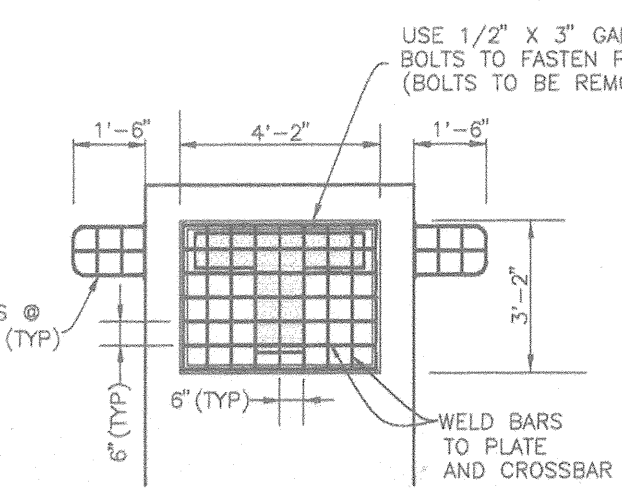
6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE
NOT TO SCALE



TYPICAL SECTION OF GABION WEIR AT FOREBAY
NOT TO SCALE

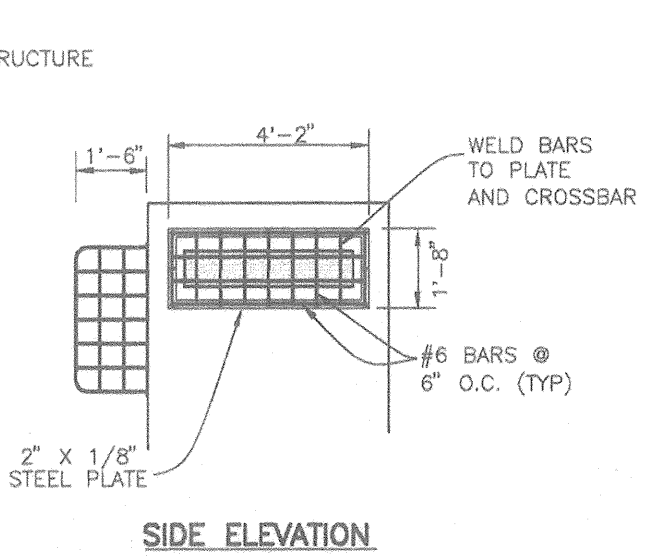


TOP VIEW

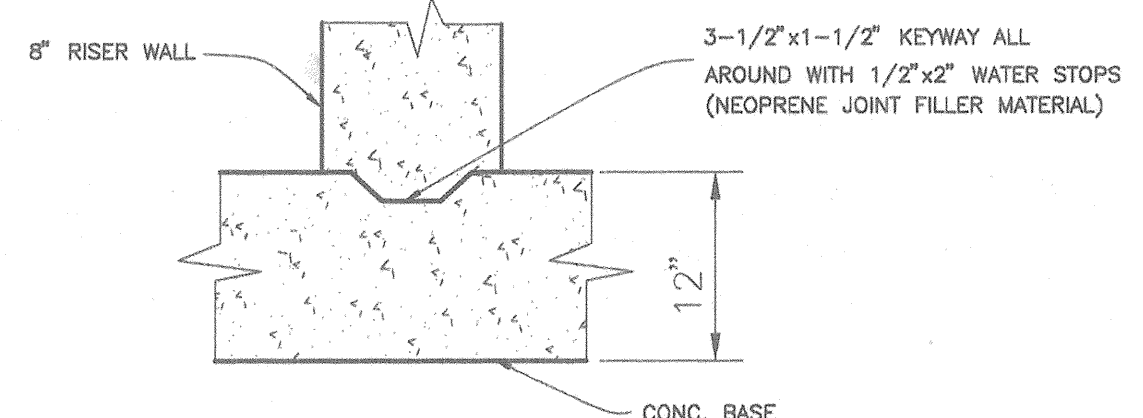


FRONT ELEVATION

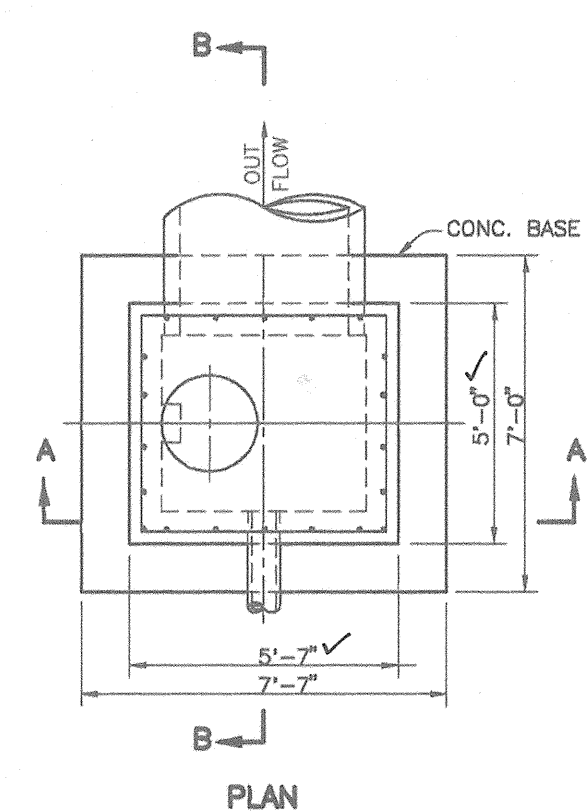
TRASH RACK
SCALE: 1" = 4"



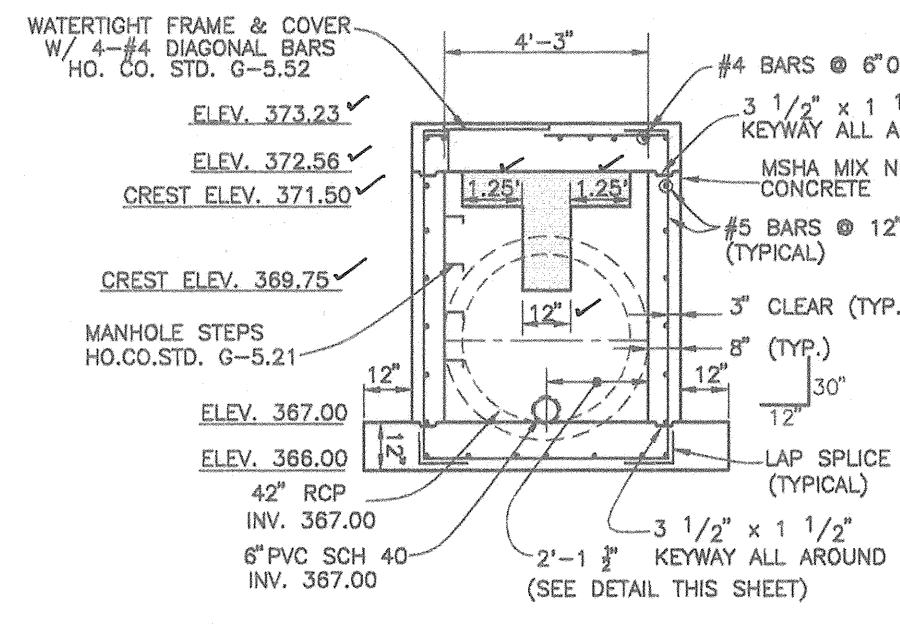
SIDE ELEVATION



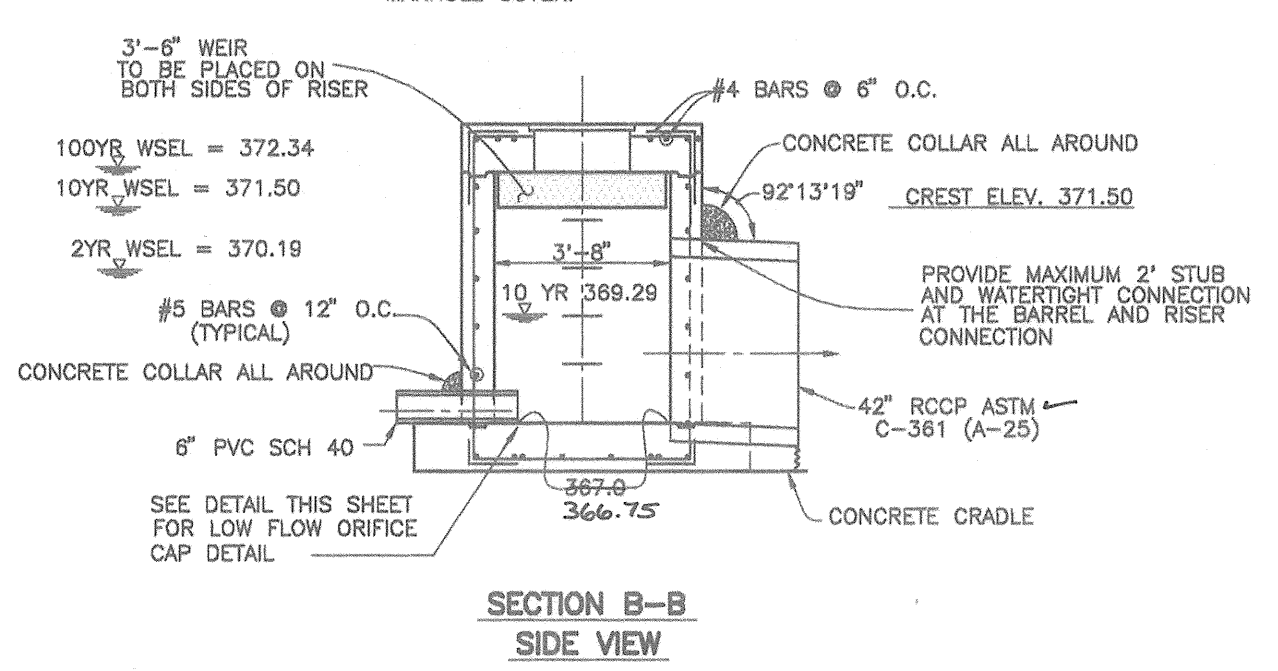
KEYWAY DETAIL
NOT TO SCALE



PLAN



SECTION A-A FRONT VIEW



SECTION B-B SIDE VIEW

CONTROL STRUCTURE DETAIL
SCALE: 1" = 4"

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 USCA STANDARDS AND SPECIFICATIONS FOR PONDS (MD-378). 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 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 PE NO. 21443
DONALD A. MASON DATE 7/16/05

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 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.

James R. Madley III 1/19/01
DEVELOPER - KAISER FARM, L.L.C. 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 1/19/01
ENGINEER - DONALD A. MASON, P.E. # 21443 DATE

7-9-05	REVISED PER AS-BUILT CONDITIONS
NO DATE	REVISION

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

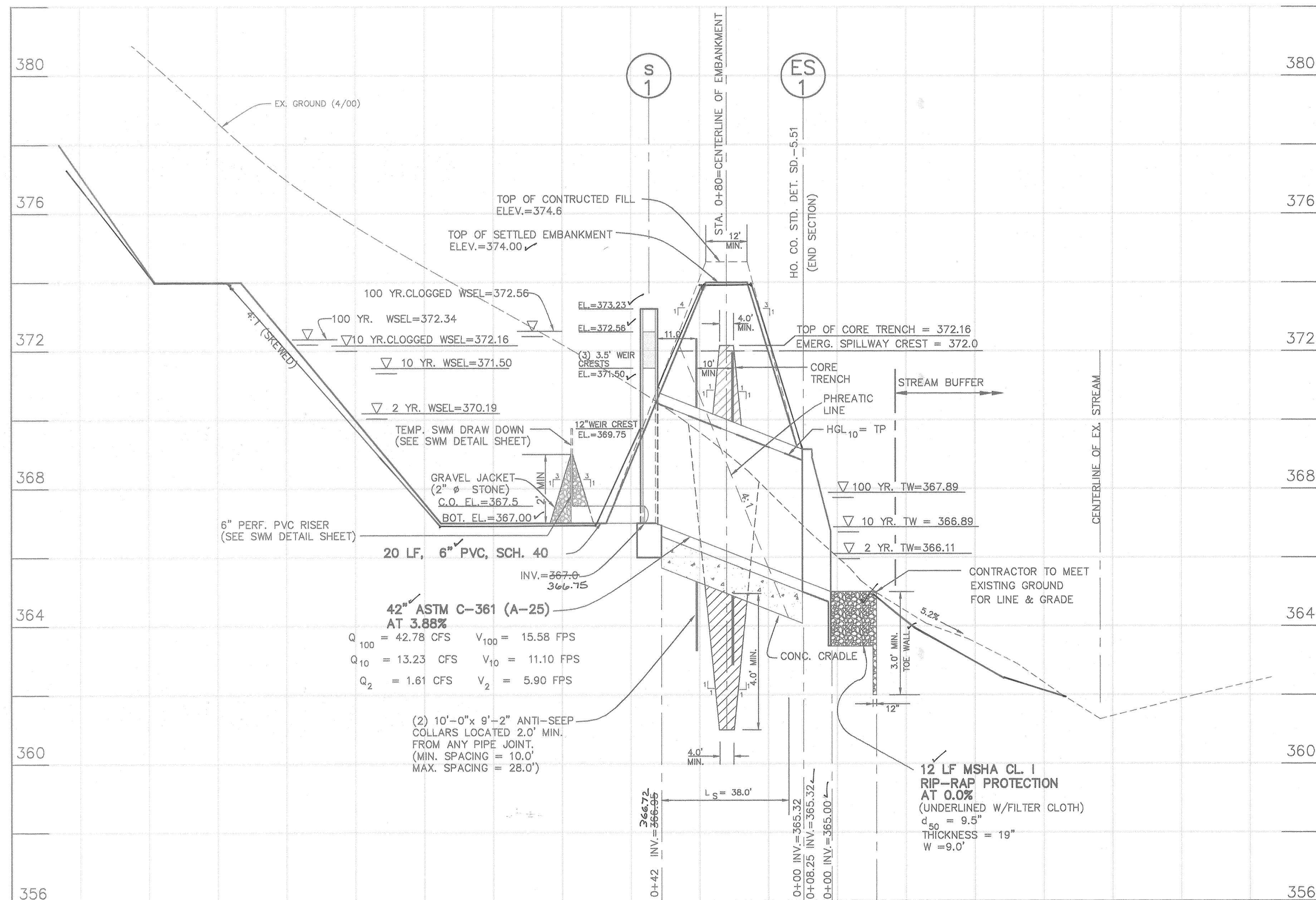
OWNER /DEVELOPER: KAISER FARM, L.L.C. P.O. BOX 417 ELLCOTT CITY, MD 21041 (410) 465-4244	PROJECT: KAISER FARM LOTS 1-82 AND PARCEL "E" A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "Y", HONES PROPERTY AND PARCELS "E" AND "T", KAISER FARM LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 881 2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND REFERENCE FILE: S-95-01a, P-97-02, F-98-91, F-98-12, S-98-05, SDP-98-129, F-98-180, F-98-184, SP-00-03, P-99-17 AND F-00-102
TITLE: STORMWATER MANAGEMENT NOTES AND DETAILS	DATE: AUG. 2000
DES: MLV DRN: CAD CHK: DAM	SCALE: AS SHOWN DRAWING NO. 1268

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Ruckel 2-10-01
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Mark Mariani 2/13/01
HOWARD SOIL CONSERVATION DISTRICT
ACTING DIST. MGR. DATE

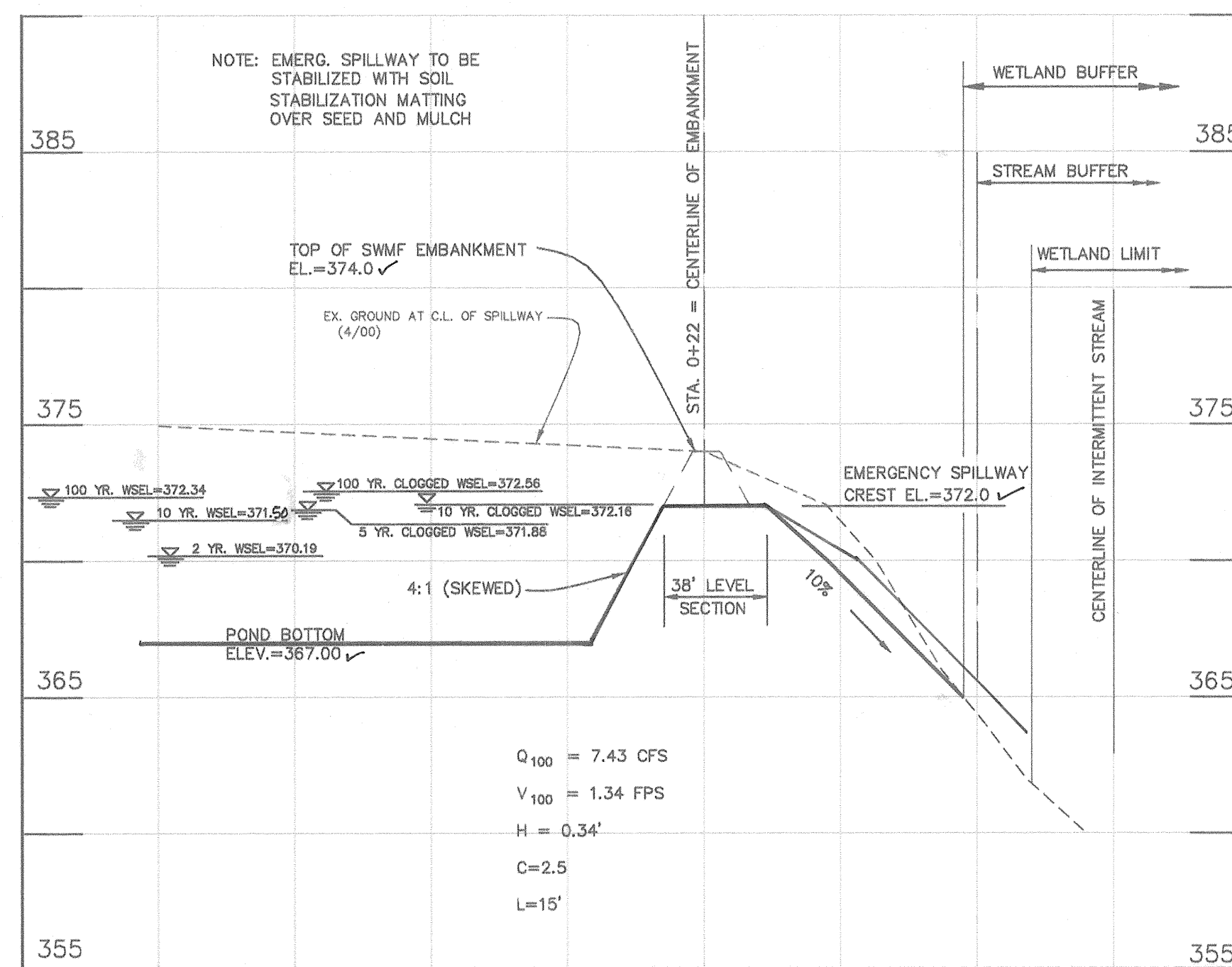
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cinda Hanover 2/21/01
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: 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.
James D. Nye 2/13/01
USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE



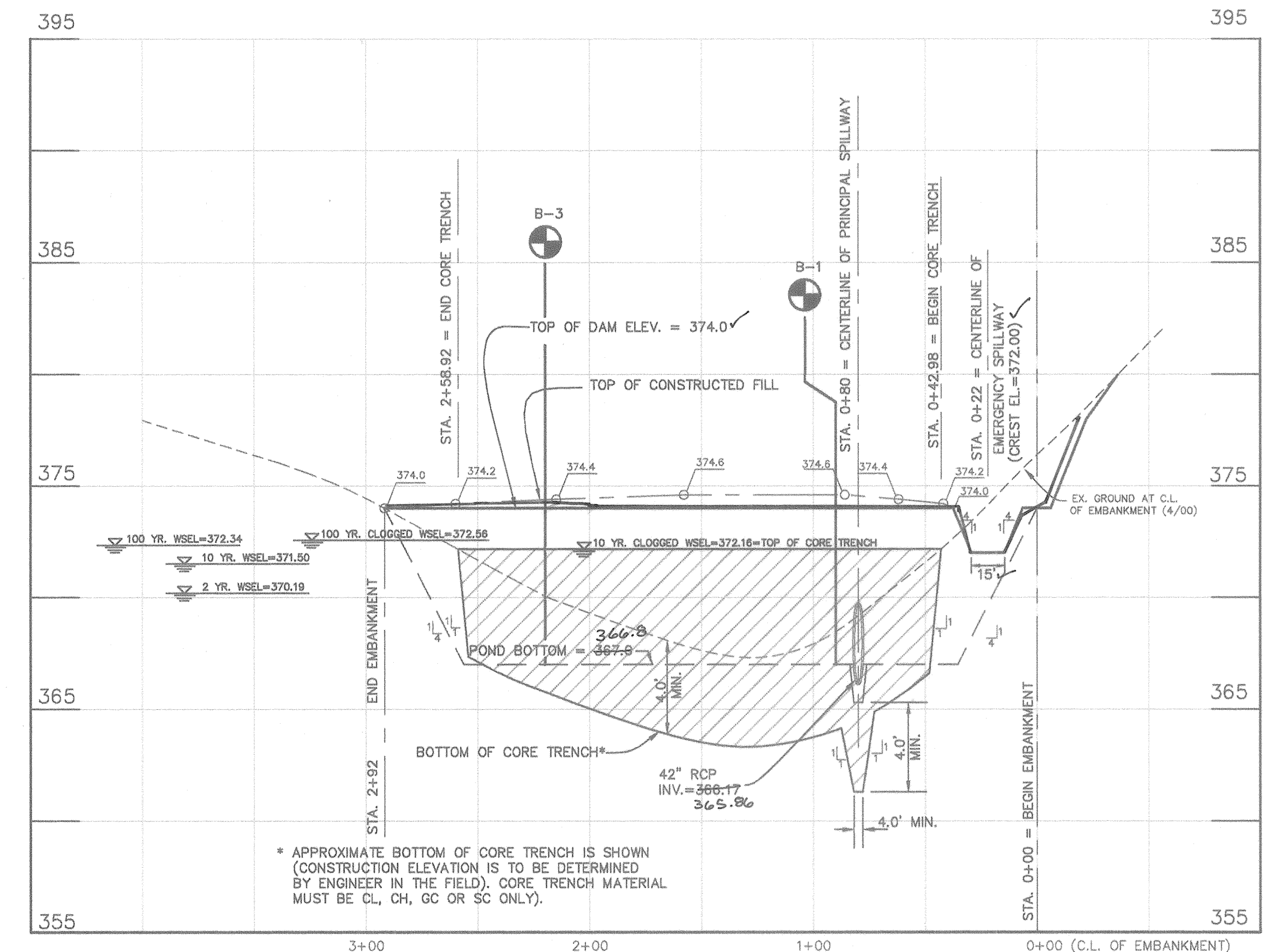
SECTION THRU PRINCIPAL SPILLWAY

SCALE: HOR.: 1" = 20'
VERT.: 1" = 2'



SECTION THRU EMERGENCY SPILLWAY

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



PROFILE ALONG CENTERLINE OF EMBANKMENT

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

HILLIS-CARNES ENGINEERING
ASSOCIATES, INC. RECOMMENDATIONS

Bankment 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 proofrolled with a loaded dumptruck or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by proofrolling or penetrometer testing should be excavated to suitable firm soil, and then grades re-established by backfilling with suitable soil.

A representative of the geotechnical Engineer should be present to monitor placement and compaction 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. Per 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. Any materials for core and cut-off trench construction should be tested prior to placement to determine its suitability. All fill materials must be placed and compacted in accordance with MD SCS 378 specifications (that is, to a minimum of 95 percent of the Standard Proctor maximum dry density).

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

- Slope construction should commence at the toes of the proposed slopes and continue upwards as additional fill is placed. The engineered fill placed for slope construction should be benched into the natural slopes in the abutment areas to provide good contact and to prevent the presence of weak zones.
- Typically during slope construction, compaction equipment has difficulty compacting soils along the shoulder. It is therefore important that the bank be overfilled during slope construction and then cut back to the required geometry.
- After construction, the slopes should be promptly vegetated to prevent erosion. Also, to prevent erosion from occurring prior to sprouting of the vegetation, the slopes should be protected with straw or an erosion control geotextile.
- The embankment construction should be done under the supervision of an experienced soil inspector or the Geotechnical Engineer. Sufficient testing during fill placement should be done to verify adequate compaction.

OPERATION, MAINTENANCE AND INSPECTION NOTE
INSPECTION OF THE POND(S) SHOWN HEREIN SHALL BE PERFORMED AT LEAST ANNUALLY IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USCS 225 STANDARDS AND SPECIFICATIONS FOR PONDS (MD-378). 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 Mason
DONALD A. MASON

PE NO. 21443
DATE 7/18/05

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."

James R. Marley III
DEVELOPER - KAISER FARM, LLC

1/19/01
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
ENGINEER - DONALD A. MASON, P.E. # 21443

1/19/01
DATE

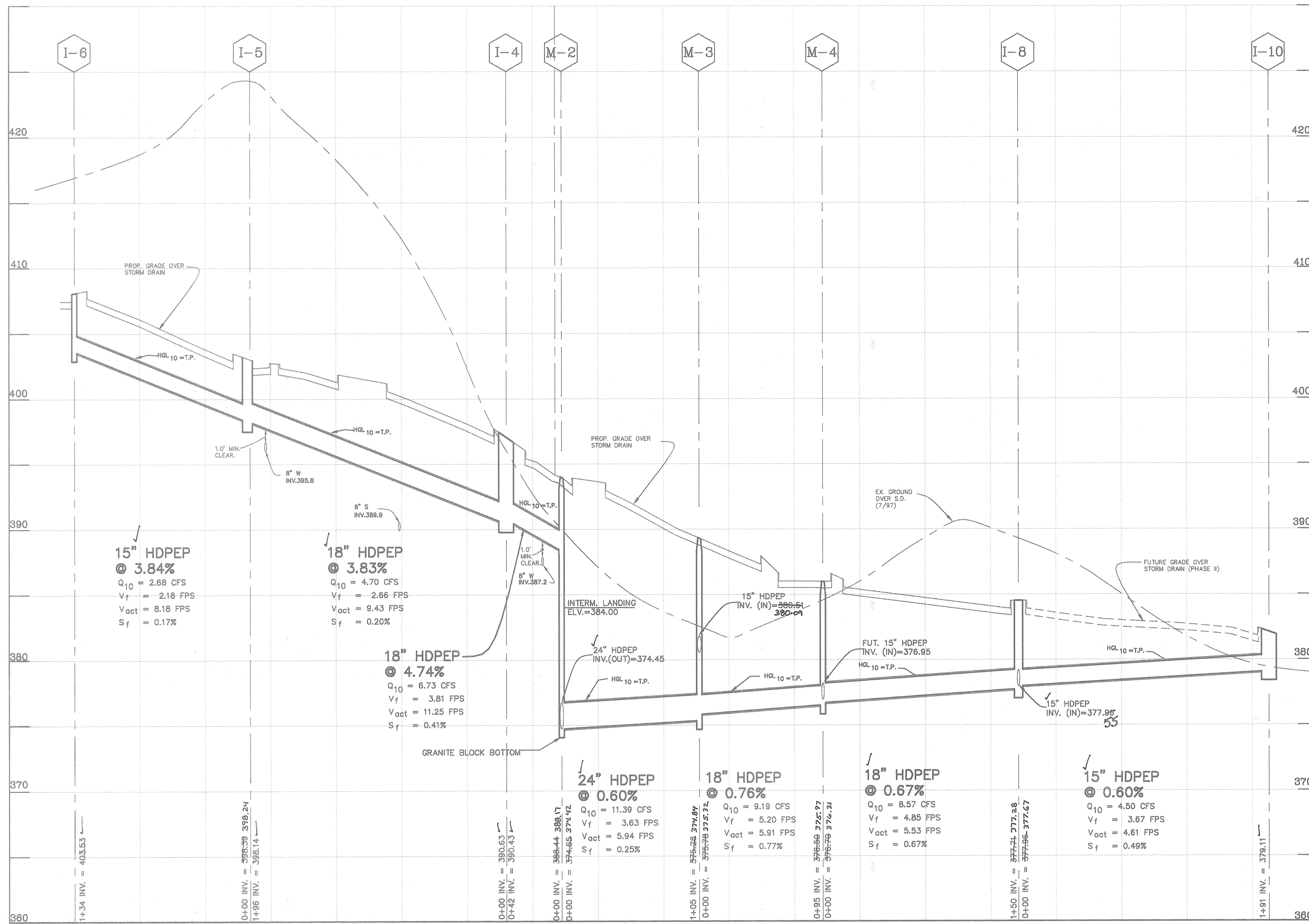
7-9-05	REVISED PER AS-BUILT CONDITIONS	
NO	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-465-8105 FAX: 410-465-8644

Donald Mason
REGISTERED PROFESSIONAL ENGINEER
1/19/01

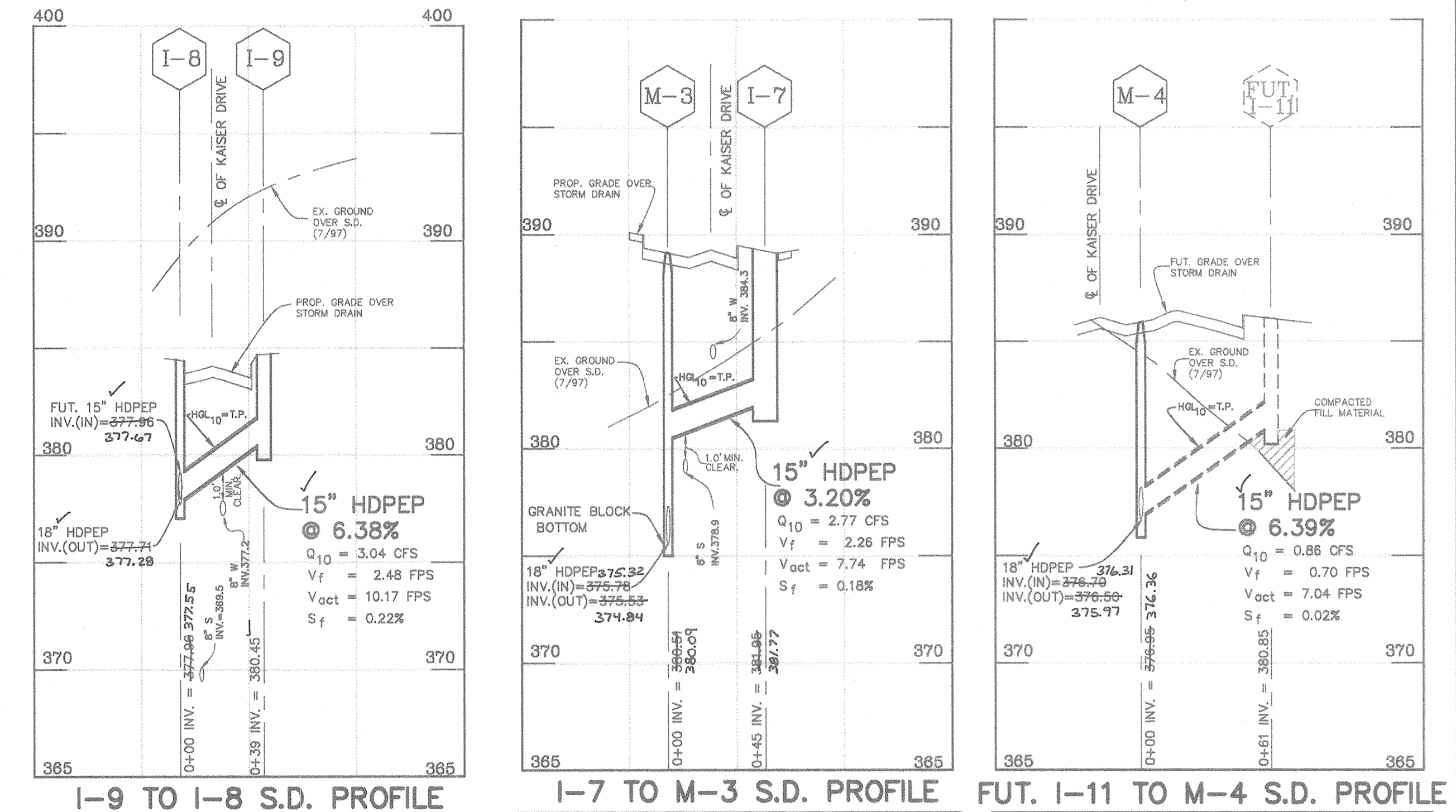
OWNER /DEVELOPER:	KAISER FARM, L.L.C. P.O. BOX 417 ELLCOTT CITY, MD 21041 (410) 465-4244	PROJECT:	KAISER FARM LOTS 1-82 AND PARCEL "E" A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "A", HONES PROPERTY AND PARCELS "E" AND "F", KAISER FARM
LOCATION:	TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 661 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND	REFERENCE FILE:	S-98-010, P-97-02, F-98-01, F-98-12, S-98-05, SDP-98-125, F-98-180, F-98-154, SD-03-P-98-17 AND F-00-102
TITLE:	STORMWATER MANAGEMENT FACILITY PROFILES AND NOTES	DATE:	AUG, 2000 PROJECT NO. 1268
DES: M.V	DRN: CAD	CHK: DAM	SCALE: AS SHOWN DRAWING 2 OF 14

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS <i>Robert M. Quake</i> CHIEF, BUREAU OF HIGHWAYS 2-19-01 DATE	APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL, MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. <i>Shawn Marice</i> HOWARD SOIL CONSERVATION DISTRICT ACTIVE DIST. MGR. 2/13/01 DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING <i>Cindy Hanlon</i> CHIEF, DIVISION OF LAND DEVELOPMENT 2/10/01 DATE	APPROVED: 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>James R. Marley III</i> USDA NATURAL RESOURCES CONSERVATION SERVICE 2/13/01 DATE



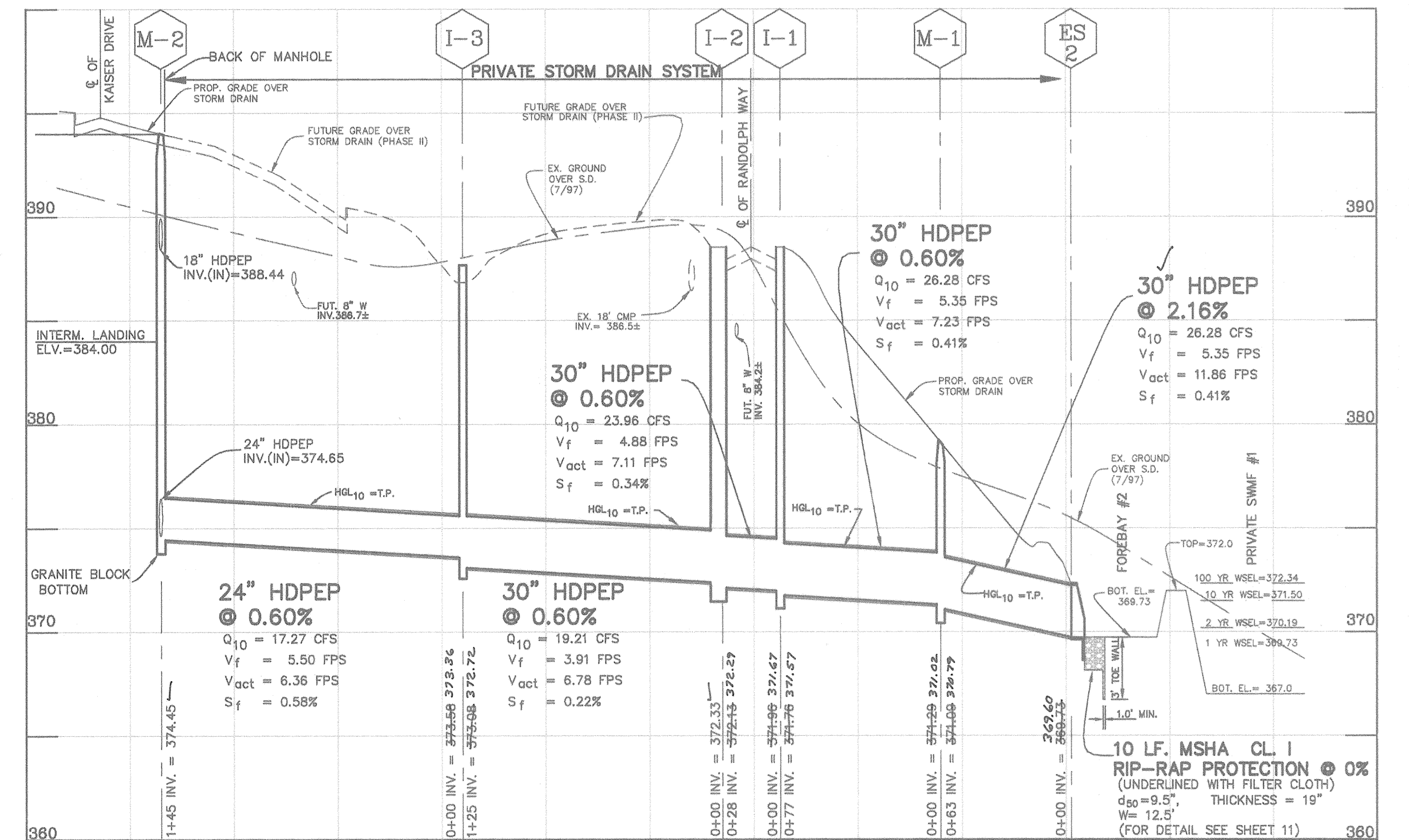
STORM DRAIN PROFILE AT KAISER DRIVE AND RACHEL CT.

SCALE: HOR: 1" = 50'
VER: 1" = 5'



1-9 TO I-8 S.D. PROFILE I-7 TO M-3 S.D. PROFILE FUT. I-11 TO M-4 S.D. PROFILE

SCALE: HOR: 1" = 50'
VER: 1" = 5'



(PRIVATE) STORM DRAIN PROFILE AT FUTURE RANDOLPH WAY

SCALE: HOR: 1" = 50'
VER: 1" = 5'

STORM DRAIN STRUCTURE SCHEDULE

STRUCTURE	TYPE	INVERT (OUT)	INVERT (N)	INVERT (M)	TOP ELEVATION	LOCATION	REMARKS
I-1	"A-10" INLET (WIDTH=2.5)	374.76	371.67	---	388.55	STA. 2+89.55 12.00' O/S RT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. SD-4.41
I-2	"A-10" INLET (WIDTH=3.0)	372.19	372.33	---	388.55	STA. 2+89.55 12.00' O/S LT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. SD-4.41
I-3	TYPE "D" INLET	372.29	372.29	---	388.55	STA. 1+73.43 23.11' O/S LT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. SD-4.39 (PRECAST)
I-4	"A-10" INLET (WIDTH=2.5)	380.43	380.83	---	388.55	STA. 5+98.47 12.00' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
I-5	"A-10" INLET (WIDTH=3.0)	388.14	378.24	---	388.55	STA. 8+57.74 14.22' O/S LT. RACHEL COURT	HOWARD COUNTY STD. SD-4.41
I-6	"A-10" INLET (WIDTH=2.5)	403.53	---	---	408.01	STA. 2+02.98 24.34' O/S LT. RACHEL COURT	HOWARD COUNTY STD. SD-4.41
I-7	"A-10" INLET (WIDTH=2.5)	381.77	---	---	389.23	STA. 7+44.30 24.34' O/S RT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
I-8	"A-5" INLET (WIDTH=3.0)	372.33	372.33	---	388.55	STA. 8+57.74 12.00' O/S RT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.40
I-9	"A-10" INLET (WIDTH=2.5)	380.45	---	---	383.84	STA. 13+80.97 14.44' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
I-10	"A-10" INLET (WIDTH=3.0)	378.11	---	---	382.04	N 588981.7859 E 1385448.7422	HOWARD COUNTY STD. SD-4.41
ES-2	END SECTION	369.78	369.78	---	---	N 588980.1020 E 1385115.9907	HOWARD COUNTY STD. SD-4.41
MH-1	MANHOLE	374.00	371.03	---	376.00	N 588981.1589 E 1385052.5022	HOWARD COUNTY STD. SD-4.41
MH-2	MANHOLE	374.45	374.45	---	378.73	STA. 0+39.01 5.00' O/S RT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. SD-4.41
MH-3	MANHOLE	374.84	374.84	---	389.15	STA. 7+46.20 19.00' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
MH-4	MANHOLE	376.60	376.60	---	385.97	STA. 8+47.59 18.91' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
ES-3	END SECTION	370.33	370.33	---	---	N 588984.48 E 1385128.8246	HOWARD COUNTY STD. SD-4.41

NOTES: 1.) STRUCTURE ELEVATION FOR MANHOLE IS AT THE TOP CENTER OF THE RIM.
2.) STRUCTURE ELEVATION FOR THE INLET IS THE TOP OF CURB ELEVATION LOCATED AT THE MID-POINT OF THE INLET.

LOCATION	SIZE & TYPE	LENGTH (ft)
M-1 TO ES-2	30" HDPEP	63'
M-1 TO I-1	30" HDPEP	77'
I-1 TO I-2	30" HDPEP	28'
I-2 TO I-3	30" HDPEP	125'
I-3 TO M-2	24" HDPEP	145'
M-2 TO I-4	18" HDPEP	42'
I-4 TO I-5	18" HDPEP	196'
I-5 TO I-6	15" HDPEP	134'
M-2 TO M-3	24" HDPEP	105'
M-3 TO M-4	18" HDPEP	95'
M-4 TO I-8	18" HDPEP	150'
I-8 TO I-10	15" HDPEP	191'
I-8 TO I-9	15" HDPEP	39'
M-3 TO I-7	15" HDPEP	45'
M4 TO FUT. I11	15" HDPEP	61'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Daulton 2-19-05
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamner 2/28/05
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[Signature] 2/24/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

7-9-05 REVISED PER AS-BUILT CONDITIONS
NO DATE REVISION

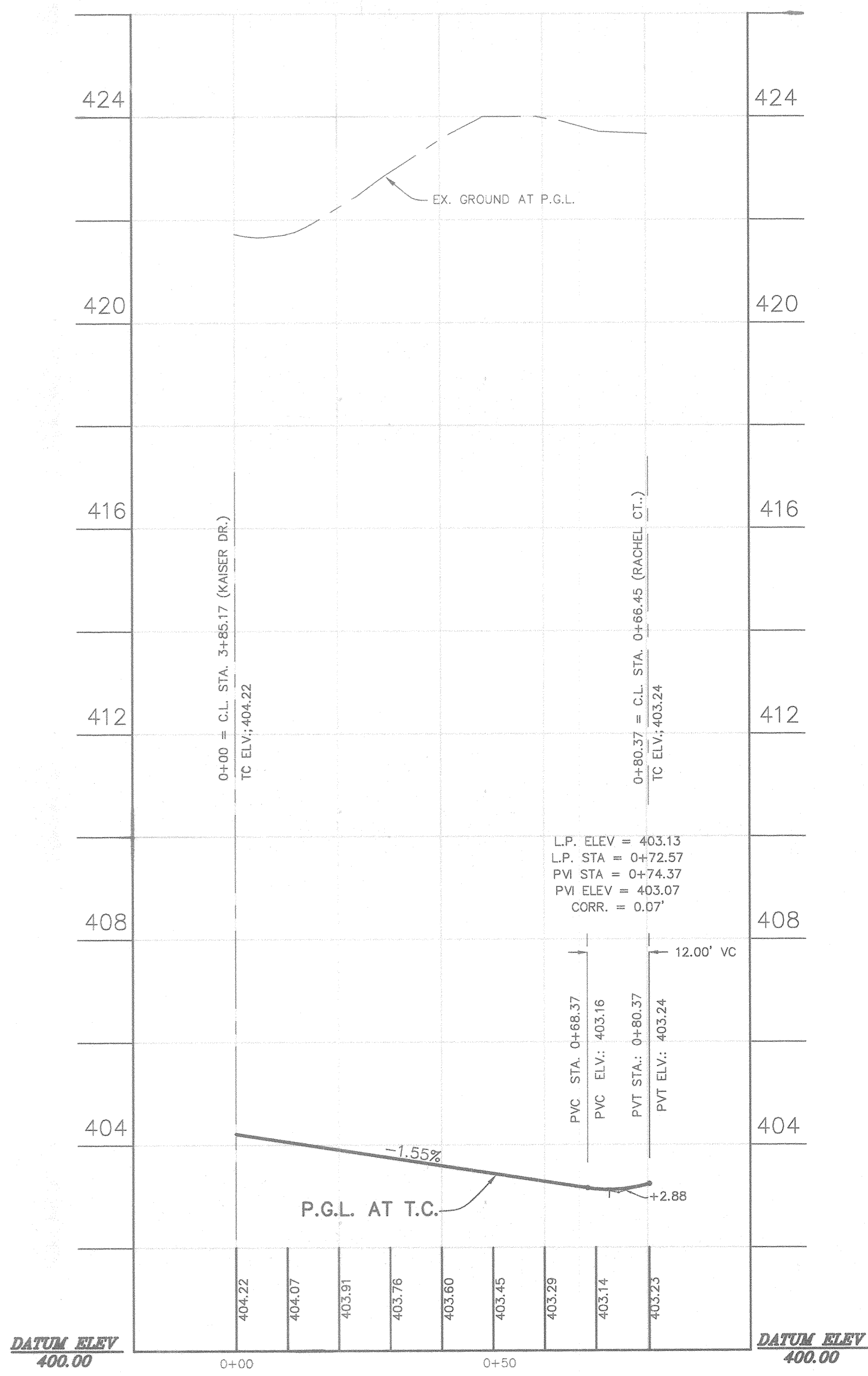
BENCHMARK ENGINEERING, INC.
ENGINEERS • LAND SURVEYORS • PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-8644

OWNER / DEVELOPER: KAISER FARM, L.L.C.
P.O. BOX 417
ELLCOTT CITY, MD 21041
(410) 465-47244

PROJECT: KAISER FARM
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I",
HOOKES PROPERTY AND PARCELS "E" AND "I", KAISER FARM
LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 881
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-85-01a, P-87-02, F-98-01, F-98-12, S-98-05, SDP-98-120,
F-98-180, F-98-184, SP-00-03, P-98-17 AND F-02-102

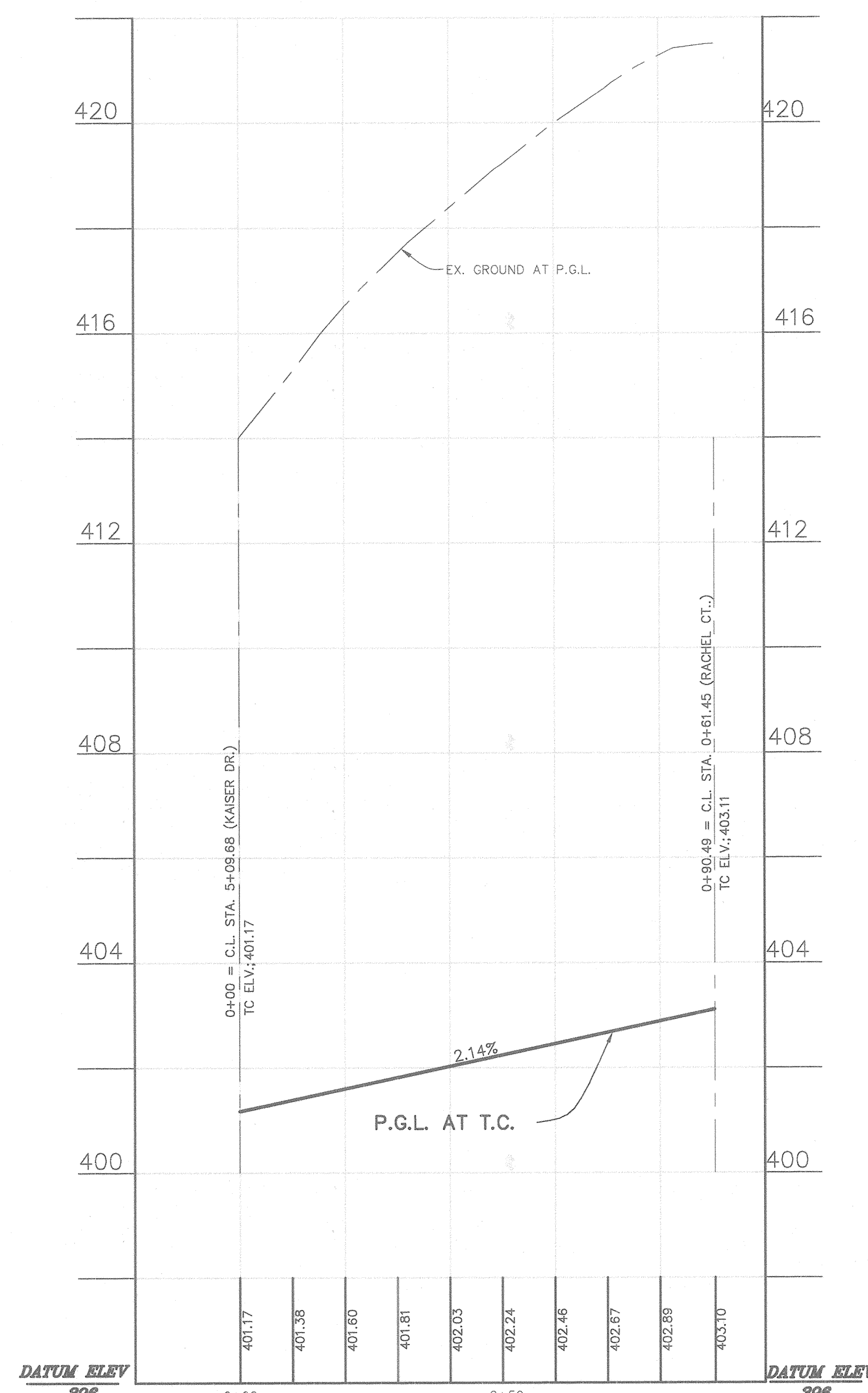
TITLE: STORM DRAIN PROFILES
DATE: JULY 2000 PROJECT NO. 1268
DES: YSL DRN: YSL CHK: DAM SCALE: AS SHOWN DRAWING: 8 OF 14

Donald M. Mean
REGISTERED PROFESSIONAL ENGINEER
AS-BUILT 7/8/05



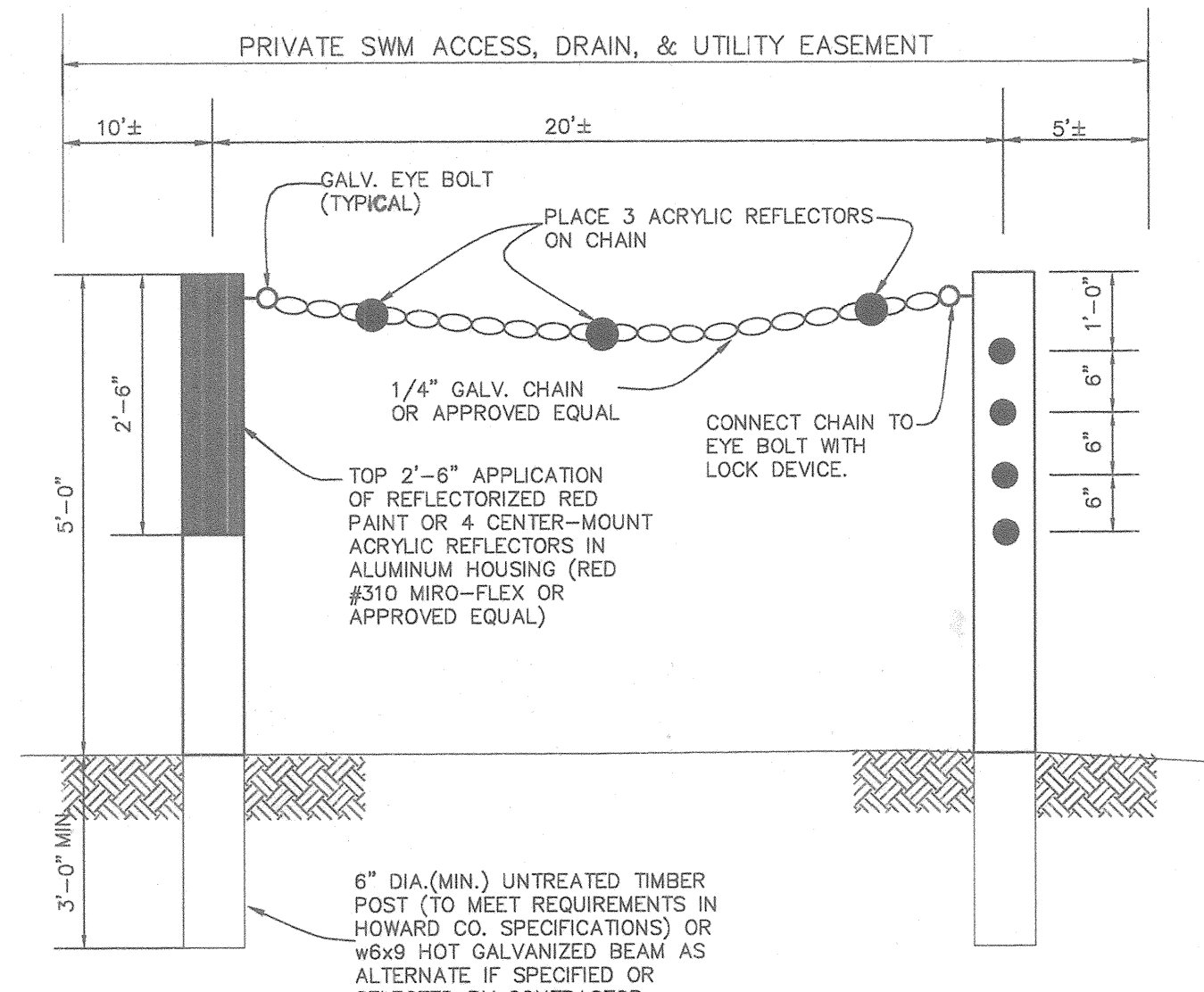
FILLET AT LEFT OF RACHEL CT.

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



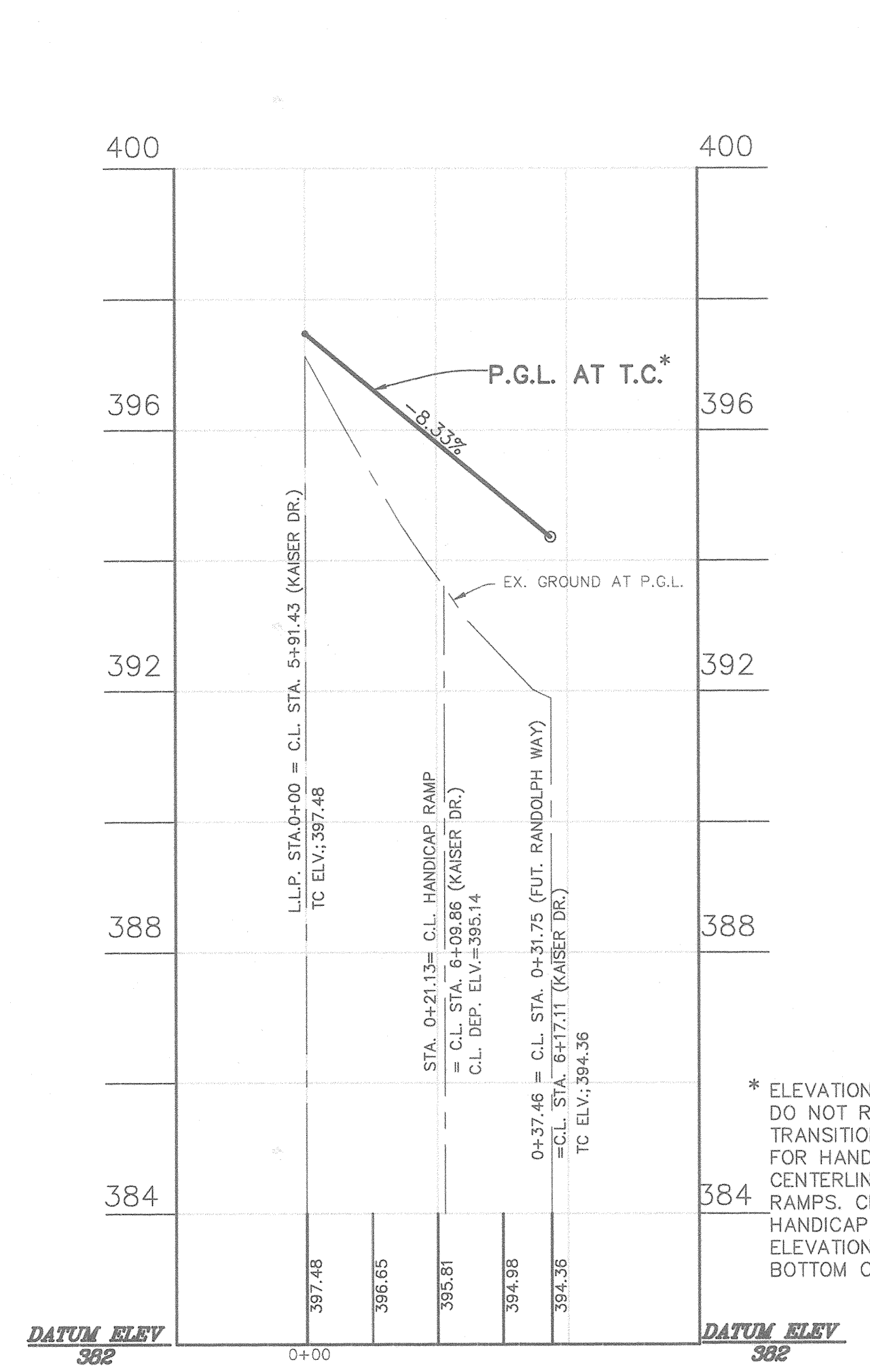
FILLET AT RIGHT OF RACHEL CT.

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



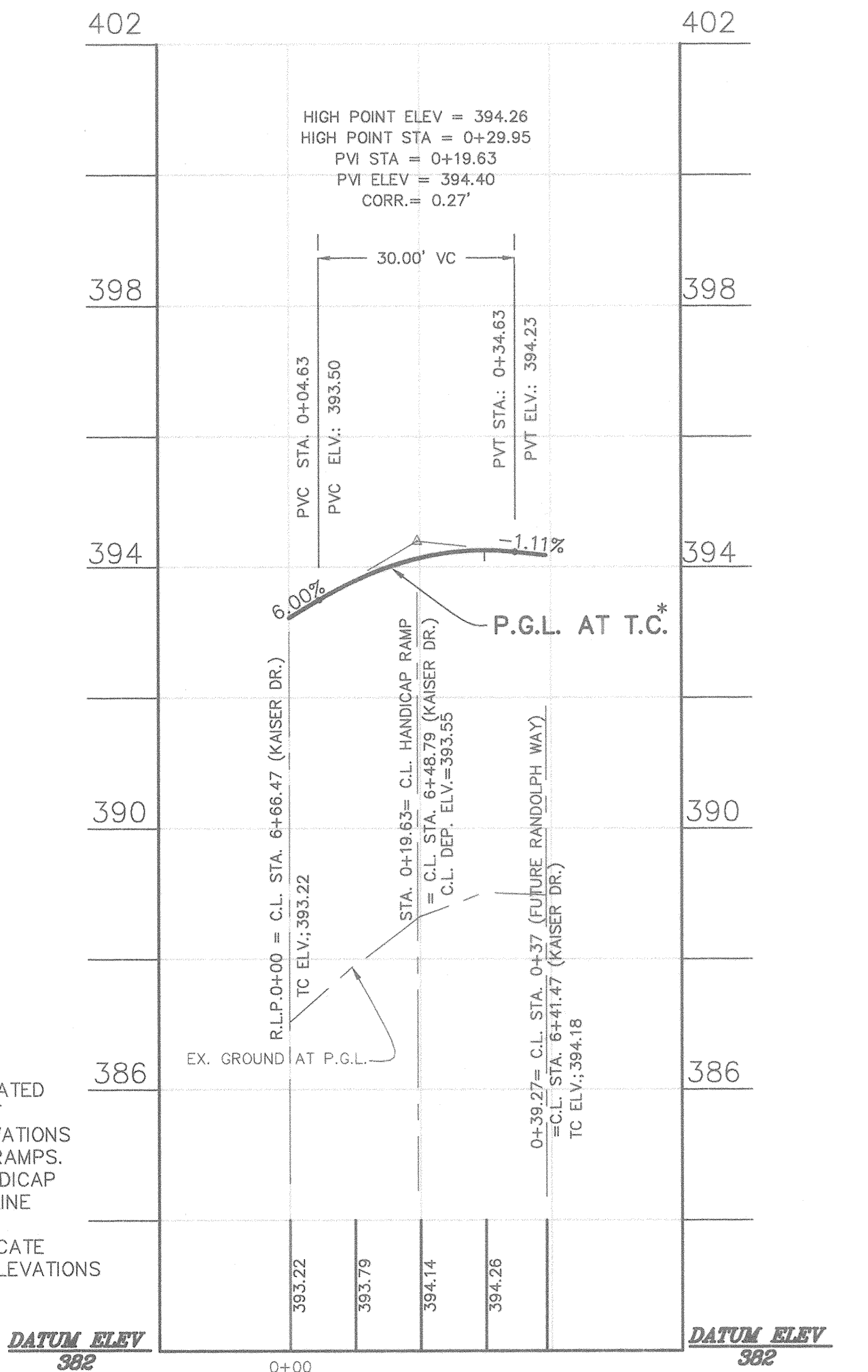
TEMP. BARRICADE DETAIL

NOT TO SCALE



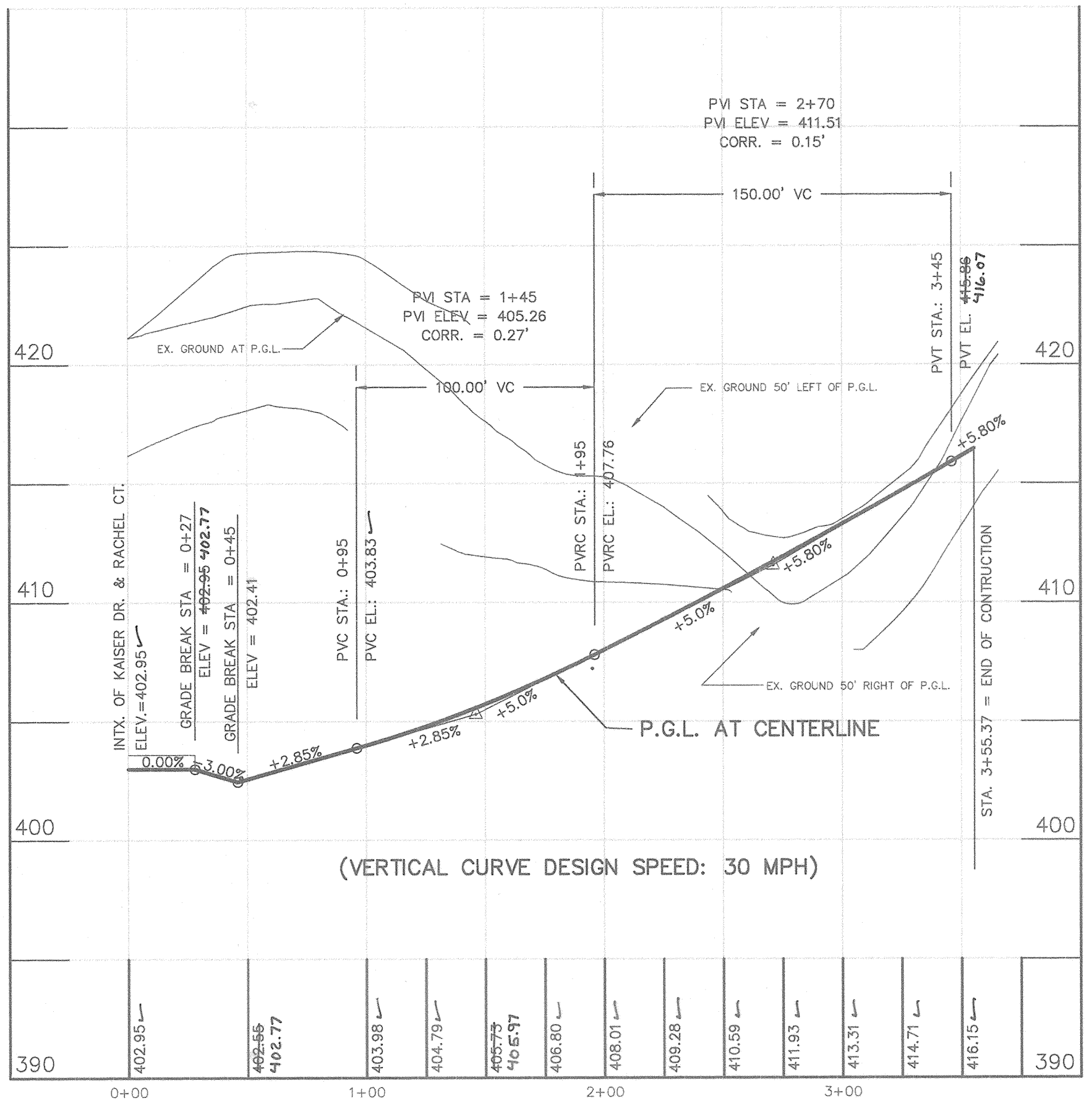
FILLET AT LEFT OF RANDOLPH WAY

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



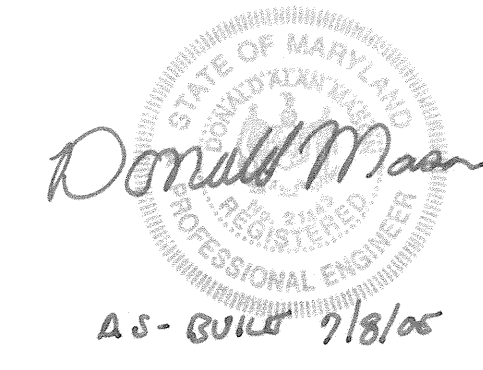
FILLET AT RIGHT OF RANDOLPH WAY

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'

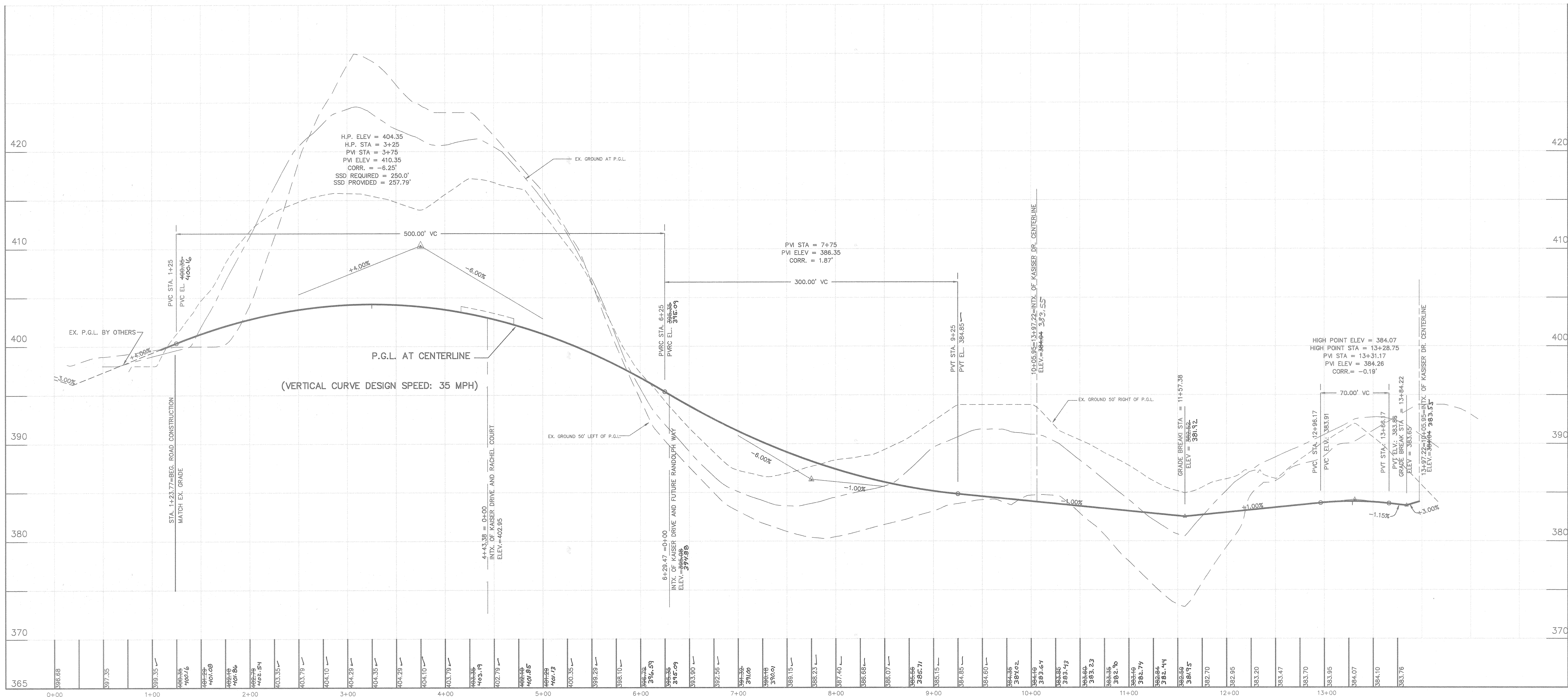


RACHEL COURT: PUBLIC ACCESS PLACE
(DESIGN SPEED: 25 MPH)

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



7-9-05 REVISED PER AS-BUILT CONDITIONS	
NO DATE	REVISION
BENCHMARK	
ENGINEERS & LAND SURVEYORS & PLANNERS	
ENGINEERING, INC.	
8480 BALTIMORE NATIONAL PIKE & SUITE 418 ELLCOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6644	
OWNER / DEVELOPER:	PROJECT:
KAISER FARM, L.L.C. P.O. BOX 417 ELLCOTT CITY, MD 21041 (410) 465-4244	KAISER FARM LOTS 1-82 AND PARCEL "E" A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "F", HENNES PROPERTY AND PARCELS "E" AND "F", KAISER FARM LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681 2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND REFERENCE FILE: S-98-010, P-97-02, F-98-01, F-98-12, S-98-05, SDP-98-120, F-98-180, F-98-154, SP-00-03, P-99-17 AND F-00-102
TITLE:	PROJECT NO. 1268
ROAD PROFILE: RACHEL COURT AND FILLET PROFILES	
DATE:	DRAWING NO. 14
AUG. 2000	
DES: YSL	DRN: YSL
CHK: DAM	SCALE: AS SHOWN



KAISER DRIVE: PUBLIC ACCESS STREET
(DESIGN SPEED: 30 MPH)

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

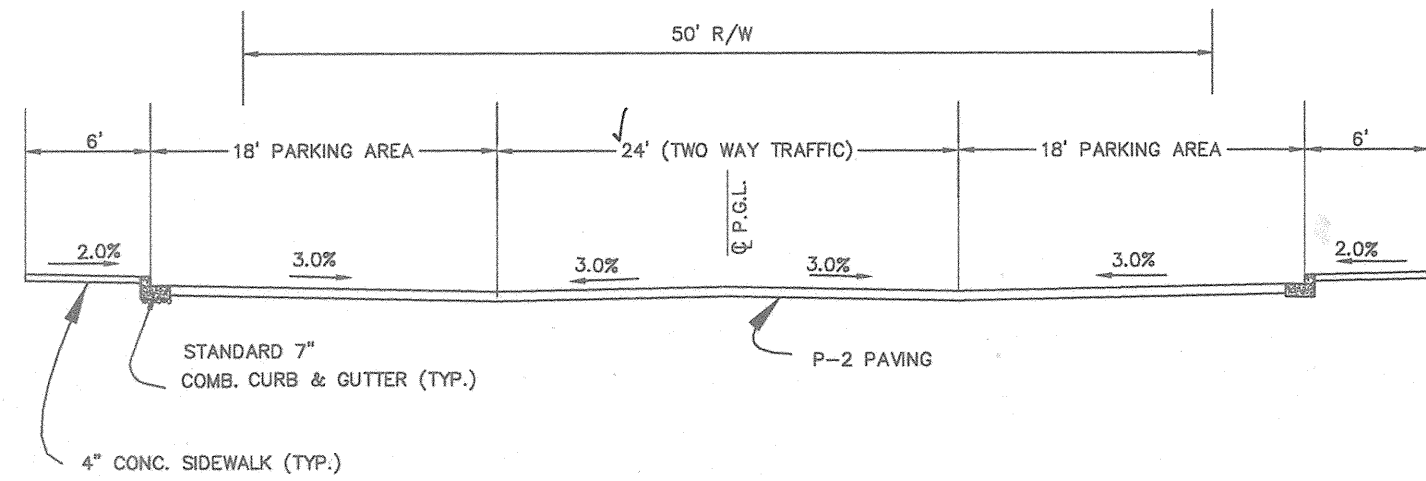
1-1/2" BITUMINOUS CONCRETE SURFACE
5" BITUMINOUS CONCRETE BASE

FULL DEPTH BITUMINOUS
CONCRETE ALTERNATE

1-1/2" BITUMINOUS CONCRETE SURFACE
2-1/2" BITUMINOUS CONCRETE BASE
6" GRADED AGGREGATE BASE (GAB)

GRANULAR BASE ALTERNATE

PAVING SECTION P-2
NOT TO SCALE

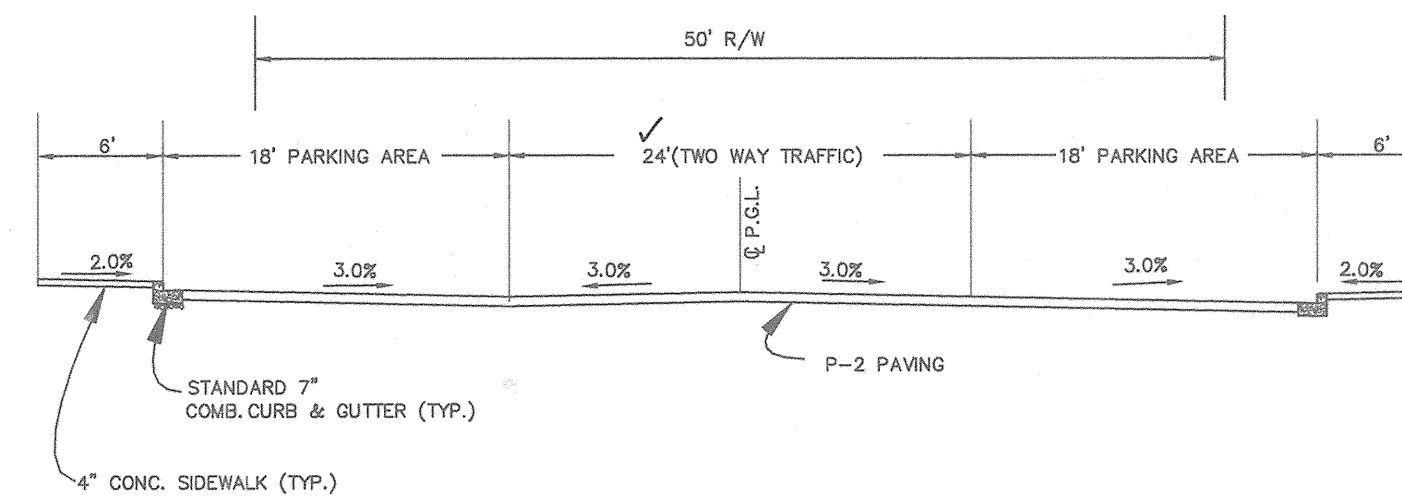


TYPICAL ROAD AND PARKING SECTION DETAIL

KAISER DRIVE : DESIGN SPEED=30 MPH (FROM STA. 1+43.40 TO 3+80.05 , 5+12.46 TO 6+28.11 AND 7+57.34 TO 9+86.26)
(PUBLIC ACCESS STREET)

RACHEL CT. : DESIGN SPEED= 25 MPH (FROM 0+64.21 TO 1+92.51 AND 3+12.97 TO 3+36.97)
(PUBLIC ACCESS PLACE)

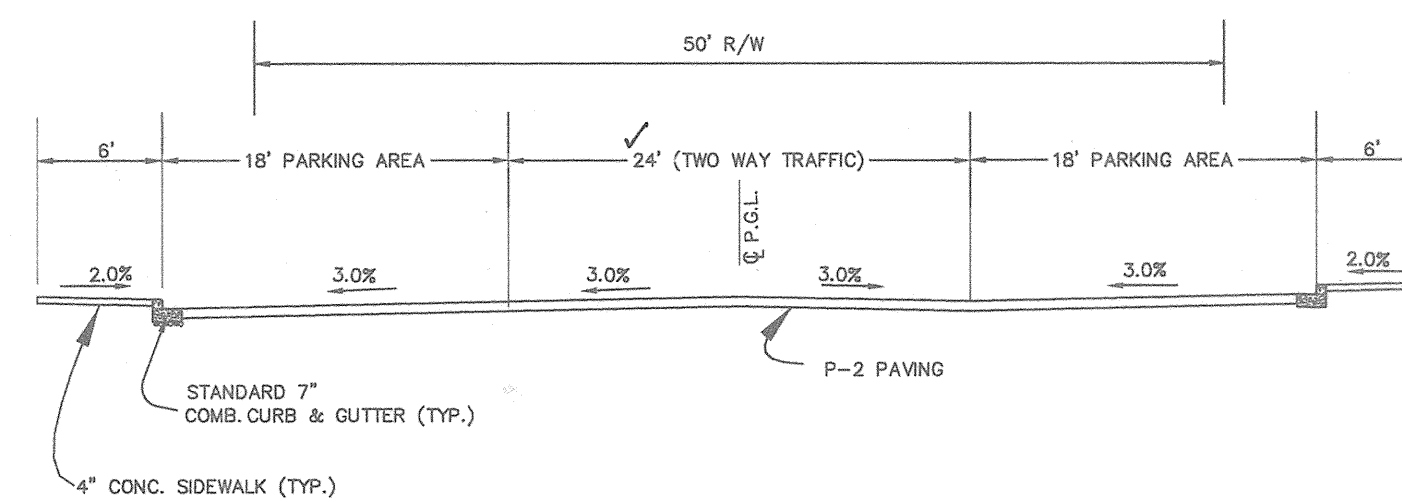
NOT TO SCALE



MODIFIED ROAD AND PARKING SECTION DETAIL

KAISER DRIVE : DESIGN SPEED=30 MPH (FROM STA. 6+40.11 TO 7+44.26)
(PUBLIC ACCESS STREET)

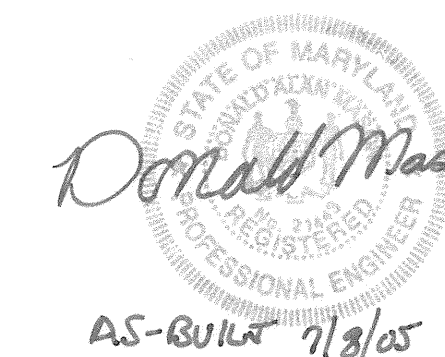
NOT TO SCALE



MODIFIED ROAD AND PARKING SECTION DETAIL

RACHEL CT. : DESIGN SPEED= 25 MPH (FROM 2+03.06 TO 3+08.97)
(PUBLIC ACCESS PLACE)

NOT TO SCALE

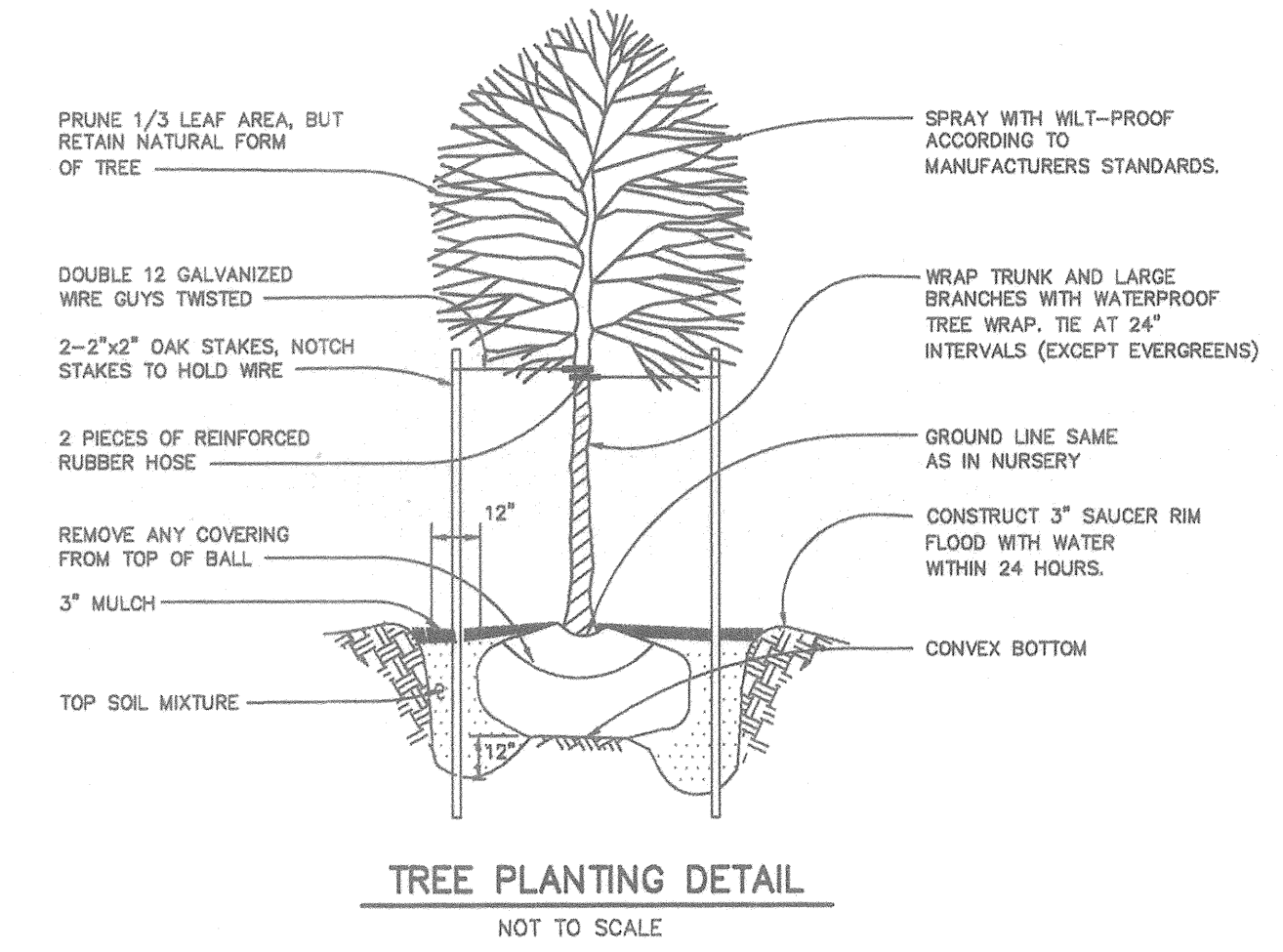
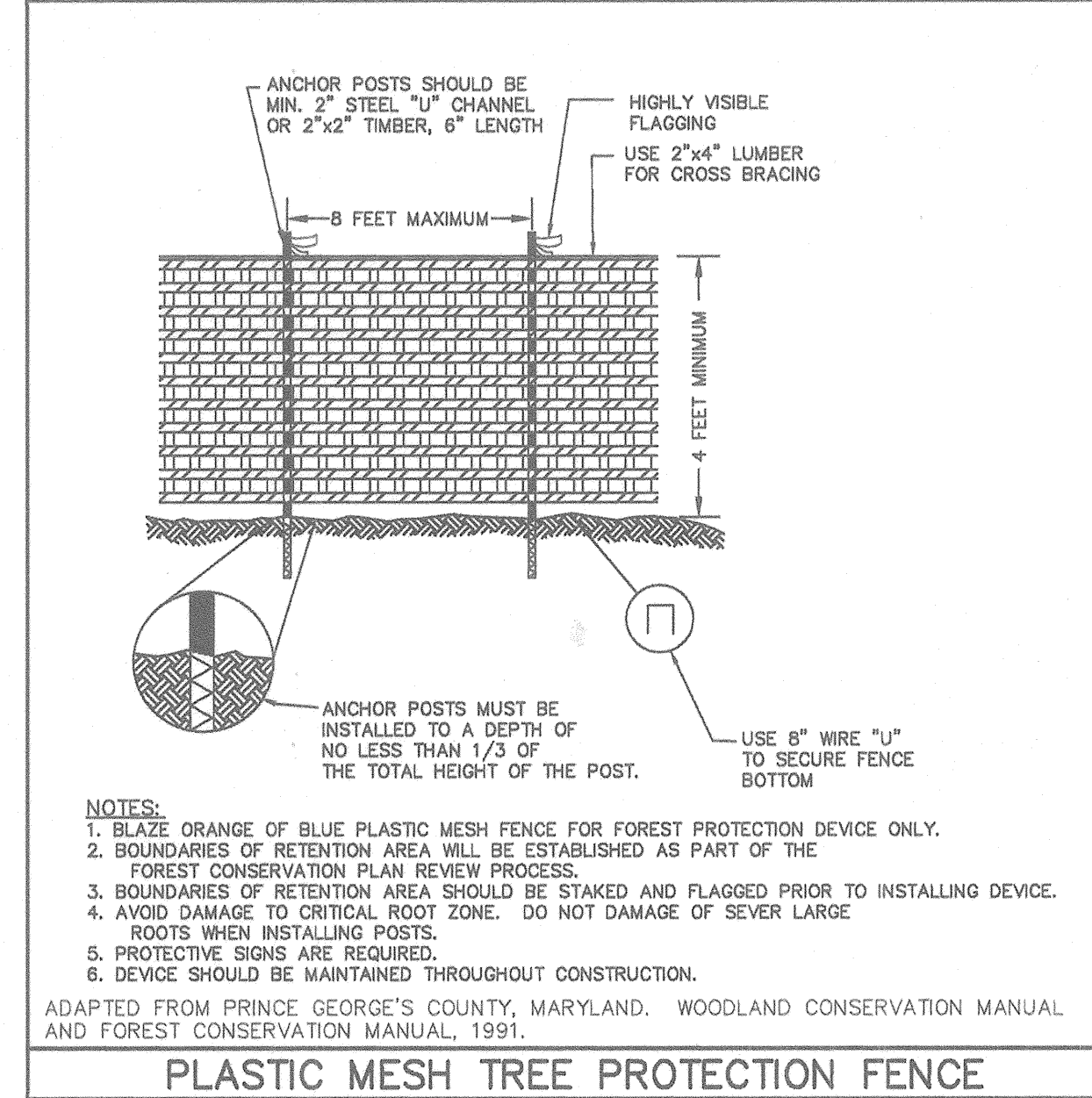
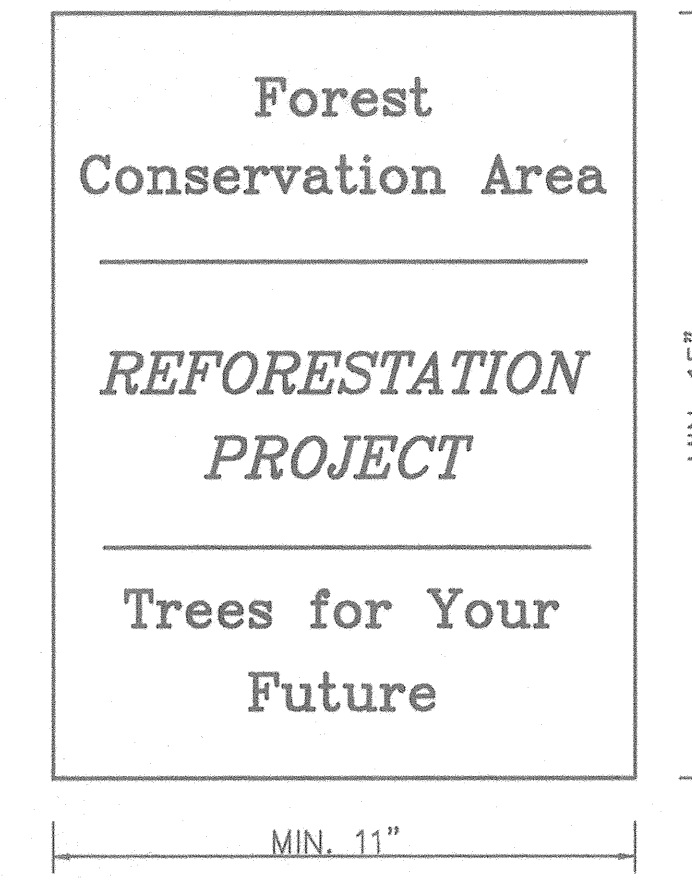
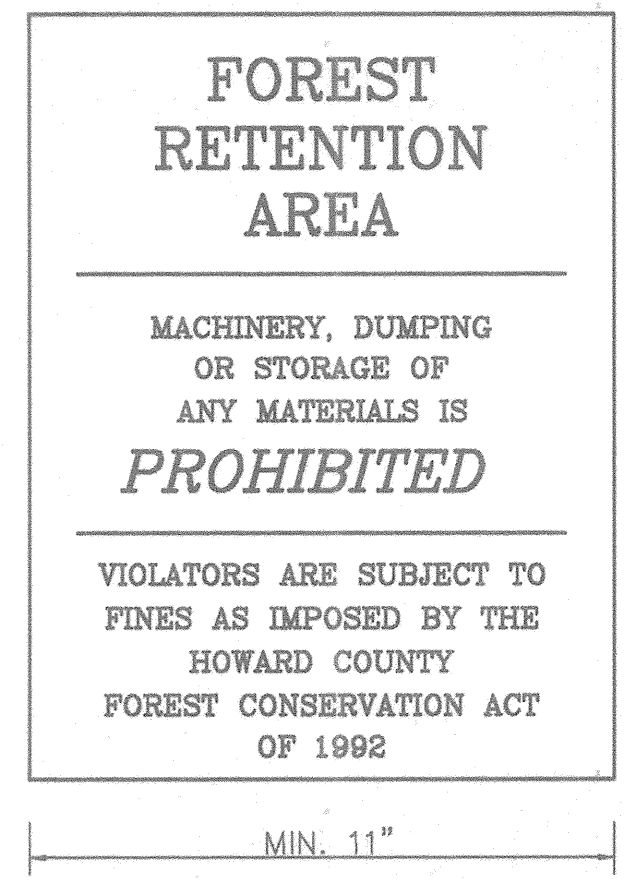


AS-BUILT 7/9/05

NO	DATE	REVISION
7-9-05		Revised PER AS-BUILT CONDITIONS

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

OWNER / DEVELOPER: KAISER FARM, L.L.C. P.O. BOX 417 ELLCOTT CITY, MD 21041 (410) 465-4244	PROJECT: KAISER FARM LOTS 1-82 AND PARCEL "E" A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "Y", HONES PROPERTY AND PARCELS "E" AND "T", KAISER FARM LOCATION: TAX MAPS 17 & 24, P/D PARCEL 848, AND P/D 681 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND REFERENCE FILE: S-95-010, P-97-02, F-98-81, F-98-12, S-98-05, SDP-98-129, F-88-180, F-88-184, SP-00-03, P-99-17 AND F-00-102			
DATE: AUG. 2000	PROJECT NO. 1268			
DES: YSL	DRN: YSL	CHK: DAM	SCALE: AS SHOWN	DRAWING NO. 3 OF 14



PLASTIC MESH TREE PROTECTION FENCE

NOTES:

- BLAZE ORANGE OF BLUE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE ONLY.
- BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
- BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
- AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OF SEVER LARGE ROOTS WHEN INSTALLING POSTS.
- PROTECTIVE SIGNS ARE REQUIRED.
- DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

ADAPTED FROM PRINCE GEORGE'S COUNTY, MARYLAND, WOODLAND CONSERVATION MANUAL AND FOREST CONSERVATION MANUAL, 1991.

PLANTING/SOIL SPECIFICATIONS

- PLANTING OF NURSERY STOCK SHALL TAKE PLACE BETWEEN MARCH 15TH AND APRIL 30TH OR SEPTEMBER 15TH - NOVEMBER 15TH.
- A TWELVE (12) INCH LAYER OF TOPSOIL SHALL BE SPREAD OVER ALL FORESTATION AREAS IMPACTED BY SITE GRADING TO ASSURE A SUITABLE PLANTING AREA. DISTURBED AREAS SHALL BE SEEDED AND STABILIZED AS PER GENERAL CONSTRUCTION PLAN FOR PROJECT. PLANTING AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL TOPSOIL INSTALLED.
- ALL BAREROOT PLANTING STOCK SHALL HAVE THEIR ROOT SYSTEMS DIPPED INTO AN ANTI-DESICANT GEL PRIOR TO PLANTING.
- PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE.
- FERTILIZER SHALL CONSIST OF AGRIFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S SPECIFICATIONS.
- A TWO (2) INCH LAYER OF HARDWOOD MULCH SHALL BE PLACED OVER THE ROOT AREA OF ALL PLANTINGS.
- PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING.
- ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

SEQUENCE OF CONSTRUCTION

- SEDIMENT CONTROL AND TREE PROTECTION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE. SITE SHALL BE GRADED IN ACCORDANCE WITH THE GENERAL CONSTRUCTION PLANS.
- PROPOSED FORESTATION AREAS IMPACTED BY SITE GRADING SHALL BE TOPSOILED AND STABILIZED AS PER #2 OF PLANTING/SOIL SPECIFICATIONS FOR PROJECT.
- PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
- UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS PER THE FOREST PROTECTION DEVICES SHOWN ON THE FOREST CONSERVATION PLAN.
- PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

MAINTENANCE OF PLANTINGS

- MAINTENANCE OF ALL PLANTINGS SHALL LAST FOR A PERIOD OF 24 MONTHS.
- ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
- INVASIVE EXOTICS AND NOXIOUS WEEDS WILL BE REMOVED FROM FORESTATION AREAS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
- PLANTS WILL BE EXAMINED A MINIMUM OF TWO TIMES DURING THE GROWING SEASON FOR SERIOUS PLANT PESTS AND DISEASES. SERIOUS PROBLEMS WILL BE TREATED WITH THE APPROPRIATE AGENT.
- DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

GUARANTEE REQUIREMENTS

- A 75 PERCENT SURVIVAL RATE OF FORESTATION PLANTINGS WILL BE REQUIRED AT THE END OF THE 24 MONTH MAINTENANCE PERIOD. ALL PLANT MATERIAL BELOW THE 75 PERCENT THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE NEXT GROWING SEASON. AFTER ONE GROWING SEASON, PLANT MATERIAL SHALL BE MAINTAINED AT 90% SURVIVAL THRESHOLD.
- THE CONTRACTOR WILL NOT BE LIABLE FOR PLANT LOSS DUE TO VANDALISM.

SURETY FOR REFORESTATION

- THE DEVELOPER SHALL POST A SURETY (BOND, LETTER OF CREDIT) TO ENSURE THAT REFORESTATION PLANTINGS ARE COMPLETED. UPON ACCEPTANCE OF THE PLANTINGS BY THE COUNTY, THE BOND SHALL BE RELEASED.

FCP NOTES:

- ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE CONVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
- FORESTED AREAS OCCURRING OUTSIDE THE FCE SHALL NOT BE CONSIDERED PART OF THE FCE AND SHALL NOT BE SUBJECT TO PROTECTIVE LAND COVENANTS.
- LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
- THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
- NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
- TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION AND THE REFORESTATION EASEMENTS DURING THE POST-CONSTRUCTION MANAGEMENT AND PROTECTION PERIOD. THE FENCING SHALL BE PLACED ALONG ALL FCE BOUNDARIES WHICH OCCUR WITHIN 15 FEET OF THE PROPOSED LIMITS OF DISTURBANCE.
- PERMANENT SIGNAGE SHALL BE PLACED 50 - 100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.
- THE REFORESTATION OBLIGATIONS FOR PARCELS "E" AND "F", KAISER FARM CONSISTS OF 1.9 ACRES. OF THE 1.9 ACRES, 0.6 ACRES WILL BE ON-SITE REFORESTATION. THE REMAINING 1.3 ACRES WILL BE PROVIDED OFF-SITE IN AN APPROVED FOREST CONSERVATION BANK KNOWN AS ENVIRONMENTAL BANK & EXCHANGE, L.L.C. (SEE SDP-99-117) THIS OFF-SITE FOREST CONSERVATION EASEMENT WILL BE RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND, PRIOR TO THE FINAL PLAT RECORDED. FOREST CONSERVATION OBLIGATION FOR THE NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HONES PROPERTY HAS BEEN FULFILLED BY OFF-SITE PLANTING AT THE RIDGE VIEW HUNT SUBDIVISION, F-97-120 (TAX MAP 14, PARCEL 14, PRESERVATION PARCEL "B") AS PREVIOUSLY INDICATED UNDER P-97-02. THIS OFF-SITE AREA HAS BEEN BONDED AND IS PART OF THE DEVELOPER'S AGREEMENT FOR F-98-12.
- IF PARCEL "E" IS TO BE DEVELOPED WITH A USE OTHER THAN "RESIDENTIAL", THE ADDITIONAL FOREST CONSERVATION OBLIGATION MUST BE ADDRESSED WITH THE PLAN FOR THE NON-RESIDENTIAL DEVELOPMENT.
- SURETY FOR THE ON-SITE FOREST CONSERVATION EASEMENTS HAS BEEN POSTED AS A PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$12,632.40 (\$4,791.60 RETENTION AND \$7,840.80 REFORESTATION).

FOREST DATA	
GROSS AREA (PARCEL "E" & "F"):	9.8 AC.
NET TRACT AREA (NTA):	9.8 AC.
EXISTING FOREST (NTA):	2.3 AC.
AFFORESTATION THRESHOLD:	1.5 AC.
REFORESTATION THRESHOLD:	2.0 AC.
FOREST TO BE CLEARED (NTA):	1.2 AC.
REFORESTATION REQUIRED:	1.9 AC.
ONSITE FORESTATION AVAILABLE:	0.6 AC.
OUTSTANDING FORESTATION OBLIGATION:	1.3 AC.

FOREST CONSERVATION WORKSHEET

I. BASIC SITE DATA	
GROSS SITE AREA (PARCELS "E" & "F")	9.8 AC.
AREA WITHIN 100 YEAR FLOODPLAIN	0
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE)	0
NET TRACT AREA	9.8 AC.
LAND USE CATEGORY (R-RLD, R-RMD, R-S, C/1/0) R-A-15	
II. INFORMATION FOR CALCULATIONS	
A. NET TRACT AREA	9.8 AC.
B. REFORESTATION THRESHOLD (20 % x A)	2.0 AC.
C. AFFORESTATION MINIMUM (15 % x A)	1.5 AC.
D. EXISTING FOREST ON NET TRACT AREA	2.3 AC.
E. FOREST AREAS TO BE CLEARED	1.2 AC.
F. FOREST AREAS TO BE RETAINED	1.1 AC.
III. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION	
1. REFORESTATION	
IF EXISTING FOREST AREAS EQUAL OR EXCEED THE AFFORESTATION MINIMUM (IF D EQUALS OR IS MORE THAN C), AND CLEARING OF FOREST AREAS IS PROPOSED, REFORESTATION REQUIREMENT MAY APPLY.	
GO TO SECTION IV	
IF EXISTING FOREST EXCEED THE AFFORESTATION MINIMUM (IF D EQUALS OR IS MORE THAN C) AND NO CLEARING OF EXISTING FOREST RESOURCES IS PROPOSED, NO REFORESTATION IS REQUIRED. NO FURTHER CALCULATIONS ARE NEEDED.	
2. AFFORESTATION	
IF EXISTING FOREST AREA ARE LESS THAN THE AFFORESTATION MINIMUM (IF D IS LESS THAN C), AFFORESTATION REQUIREMENTS APPLY.	
GO TO SECTION V	
IV. REFORESTATION CALCULATIONS	
A. NET TRACT AREA	9.8 AC.
B. REFORESTATION THRESHOLD (20 % x A)	2.0 AC.
D. EXISTING FOREST ON NET TRACT AREA	2.3 AC.
E. FOREST AREAS TO BE CLEARED	1.2 AC.
F. FOREST AREAS TO BE RETAINED	1.1 AC.
G. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD (D - F, IF F EQUALS OR IS GREATER THAN D, ALTERNATE 1) (D - B, IF F IS LESS THAN B, ALTERNATE 2)	0.3 AC.
H. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD (B - F, IF APPLICABLE)	0.9 AC.
I. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD (F - B, RETENTION CREDIT, IF APPLICABLE)	0.0 AC.
SELECTION THE ALTERNATIVE THAT APPLIES:	
1. 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 x 1/4)	N/A
CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD (H x 2)	N/A
TOTAL REFORESTATION REQUIRED (G x 1/4 - I)	N/A
2. CLEARING BELOW THRESHOLD	
IF FOREST AREAS TO BE RETAINED ARE LESS THAN THE REFORESTATION THRESHOLD (IF F IS LESS THAN B), THE FOLLOWING CALCULATION APPLY:	
REFORESTATION FOR CLEARING ABOVE THRESHOLD (G x 1/4)	0.1 AC.
REFORESTATION FOR CLEARING BELOW THRESHOLD (H x 2)	1.8 AC.
TOTAL REFORESTATION REQUIRED (G x 1/4) + (H x 2)	1.9 AC.
SINCE CLEARING OCCURS BELOW THE THRESHOLD, NO FOREST RETENTION CREDIT IS POSSIBLE.	

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT #2A (0.4 ACRES)			
QTY.	SPECIES	SIZE	SPACING
25	ACER RUBRUM - RED MAPLE	2-3" WHIP	**
35	FRAXINUS PENNSYLVANICA - GREEN ASH	2-3" WHIP	**
20	JUGLANS NIGRA - BLACK WALNUT	2-3" WHIP	**
15	LIRIODENDRUM TULIPIFERA - POPLAR	2-3" WHIP	**
20	PLATANUS OCCIDENTALIS - SYCAMORE	2-3" WHIP	**
25	VIBURNUM DENTATUM - ARROWWOOD	18-24" B.T.	**

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT #2B (0.1 ACRES)			
QTY.	SPECIES	SIZE	SPACING
10	ACER RUBRUM - RED MAPLE	2-3" WHIP	**
15	FRAXINUS PENNSYLVANICA - GREEN ASH	2-3" WHIP	**
10	VIBURNUM DENTATUM - ARROWWOOD	18-24" B.T.	**

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT #3 (0.1 ACRES)			
QTY.	SPECIES	SIZE	SPACING
10	ACER RUBRUM - RED MAPLE	2-3" WHIP	**
15	FRAXINUS PENNSYLVANICA - GREEN ASH	2-3" WHIP	**
10	VIBURNUM DENTATUM - ARROWWOOD	18-24" B.T.	**

KEY:

CAL - CALIPER WHIP - MAY BE CONTAINER GROWN OR BAREROOT B.T. BRANCHED TRANSPLANT
 ## - ONE INCH CALIPER TREES SHALL BE SPACED AROUND PERIMETER OF FCE EASEMENT IN RANDOM PATTERN.
 ** - WHIPS AND SHRUBS SHALL BE PLANTED, ON AVERAGE, AT A SPACING OF 11 FEET ON CENTER, NOT IN A GRID PATTERN, LIMITED CLUMPING OF SHRUBS IS PERMITTED.

- PLANTING NOTES:**
- FCEs "C" AND "D" ARE HEAVILY INFLUENCED BY A MULTIFLORA ROSE. IT IS RECOMMENDED THAT THE MULTIFLORA ROSE BE REMOVED AND CONTROLLED PRIOR TO FORESTATION. IF THE ROSE IS NOT REMOVED IT WILL BE A CHRONIC MAINTENANCE PROBLEM FOR THE SITE. EXISTING NATIVE TREES MAY BE RETAINED.
 - THE POTENTIAL FOR DEER AND RODENT DAMAGE ON THIS FORESTATION PROJECT IS HIGH. THE PLANTING CONTRACTOR MAY UTILIZE PHYSICAL AND CHEMICAL TECHNIQUES TO IMPROVE THE SUCCESS OF THE PLANTINGS. THESE TECHNIQUES MUST BE APPROVED BY THE OWNER PRIOR TO INITIATION OF WORK.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Robert M. Daniels 2-19-01
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Windy Hambley 2/25/01
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 2/25/01
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Eco-Science
 Professionals, Inc.
 CONSULTING ECOLOGISTS
 P.O. BOX 5006 GLEN ARM, MD 21057 (410)992-6752

MD DNR Qualified Professional
 USACOE Wetland Delineator
 Certification #WDC093MD061004482

[Signature]
 John P. Canoles

NO	DATE	REVISION

BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE & SUITE 418
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-6105 FAX: 410-465-8644

Donald M. Moore
 PROFESSIONAL ENGINEER

1/19/01

PROJECT: KAISER FARM
 LOTS 1-82 AND PARCEL "E"
 A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HONES PROPERTY, AND PARCELS "E" AND "F", KAISER FARM

OWNER / DEVELOPER:
 KAISER FARM, L.L.C.
 P.O. BOX 417
 ELLICOTT CITY, MD 21041
 (410) 465-4244

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 881
 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 REFERENCE FILE: S-89-016, F-97-02, F-96-01, F-95-12, S-95-02, SDP-95-120, F-96-180, F-96-154, SP-00-03, P-99-17 AND F-00-102

TITLE: FOREST CONSERVATION NOTES AND DETAILS

DATE: JULY 2000 PROJECT NO. 1268

DES: DRN: CHK: SCALE: AS SHOWN DRAWING 13 OF 14