

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 9/24/00
 CHIEF, BUREAU OF HIGHWAYS

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 [Signature] 1/28/01
 CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION [Signature] DATE

PLANTING TYPES

STREET TREES

SAND HILL MANOR DRIVE
 768' O.L.F. RIGHT-OF-WAY
 192 STREET TREES REQUIRED
 192 PROPOSED @ 40 FEET APART

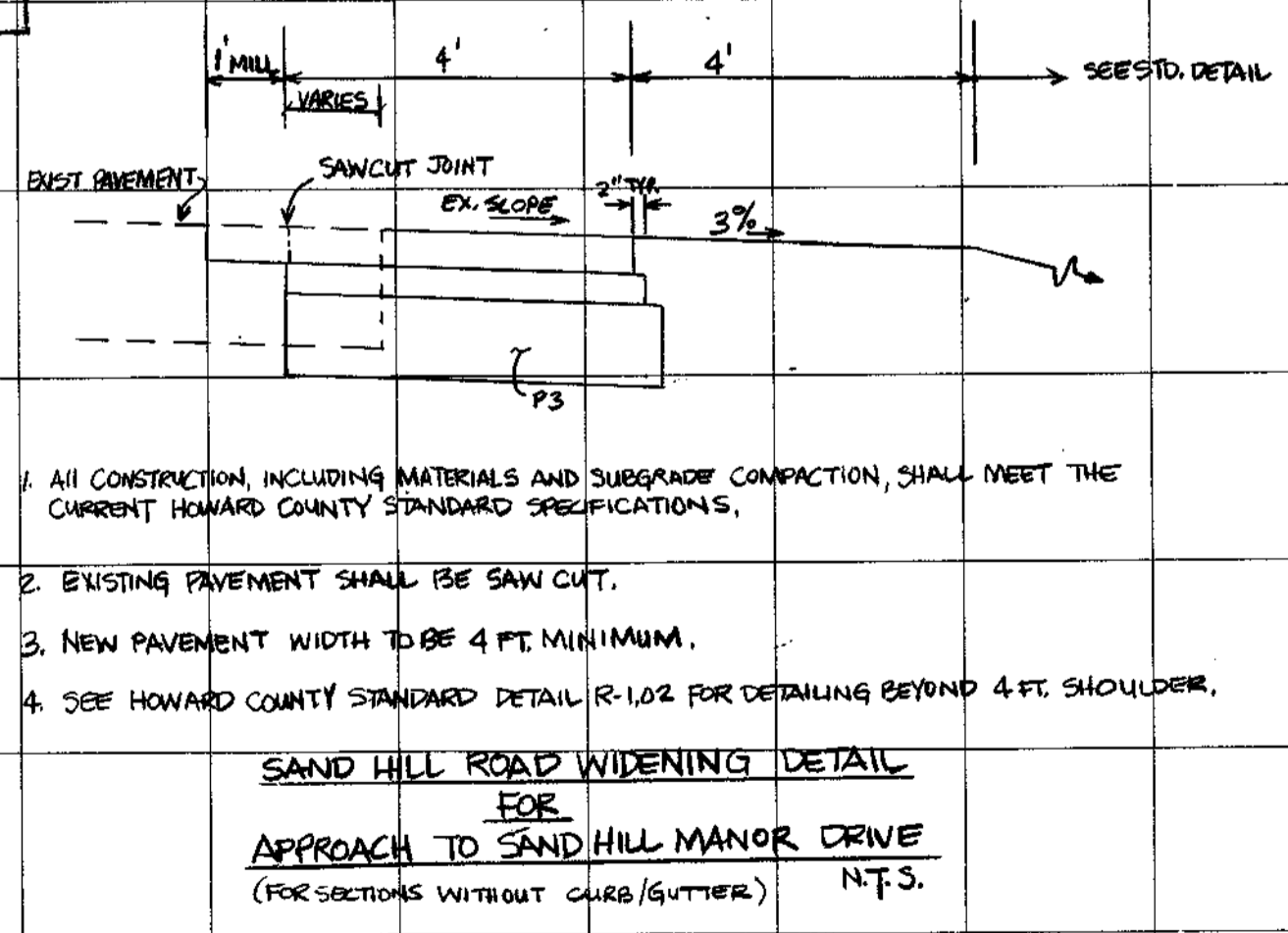
1. SAND HILL MANOR DR. STA 0+00 TO 20+07
 101 QUERCUS RUBRA - RED OAK
 2. SAND HILL MANOR DR. STA 20+07 TO END
 91 LITIA CRATAEGUS - GREENSPINE LITTLELEAF LINDEN

○ = TYPICAL STREET TREE 2 1/2" - 3" CAL.
 ○ = TYPICAL STREET TREE 2 1/2" - 3" CAL.

FOR STREET TREE PLANTING DETAIL SEE SHEET 5 OF 29.

FOR TYPICAL SECTIONS AND PAVING SECTIONS SEE SHEET 3 OF 29.

FOR CHOKER DETAIL & INTERSECTION DETAIL SEE SHEET 5 OF 29.

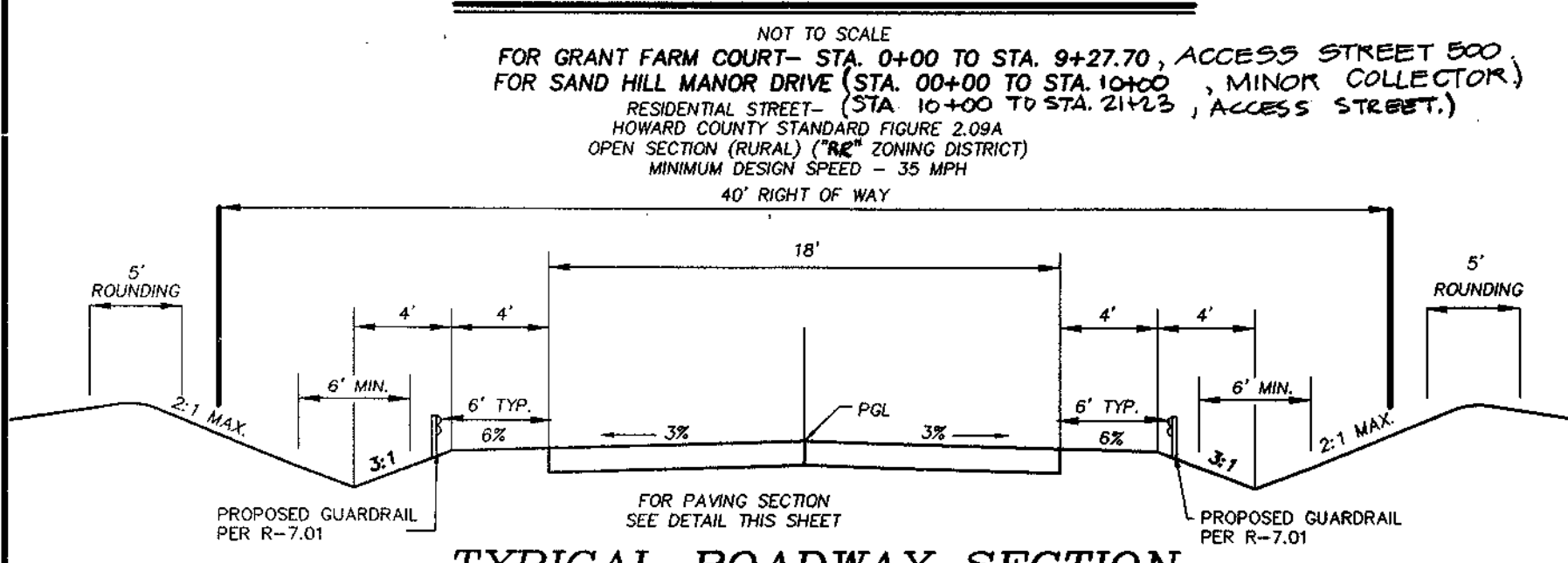
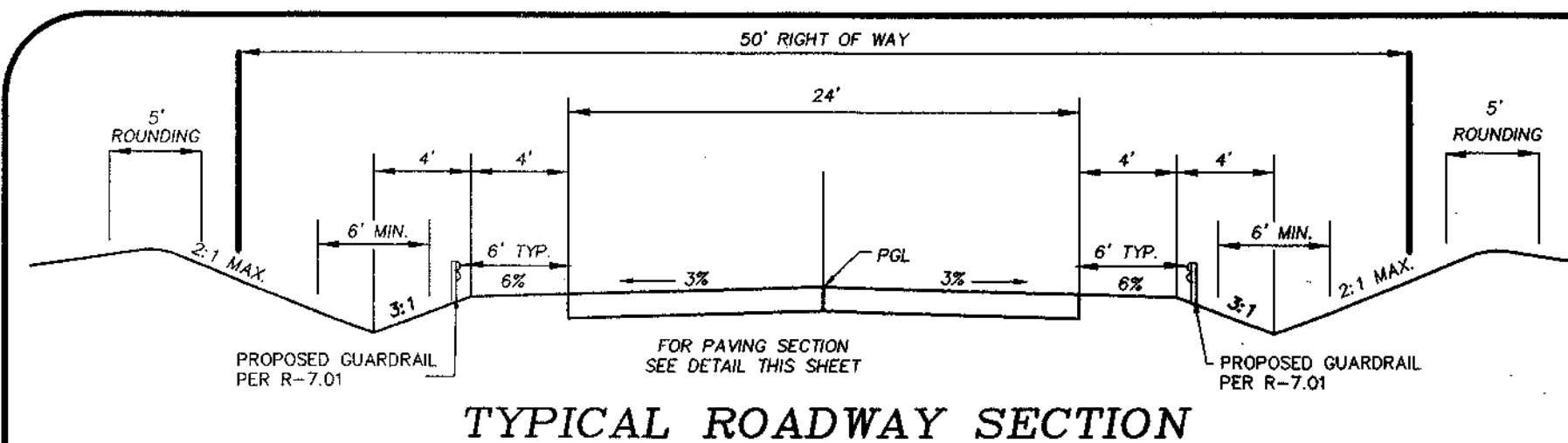


Project	99003.19
date	09-20-00
illustration	KMB
engineering	P.F.B.
scale	1"=50'
approval	
revision	R.M.M.

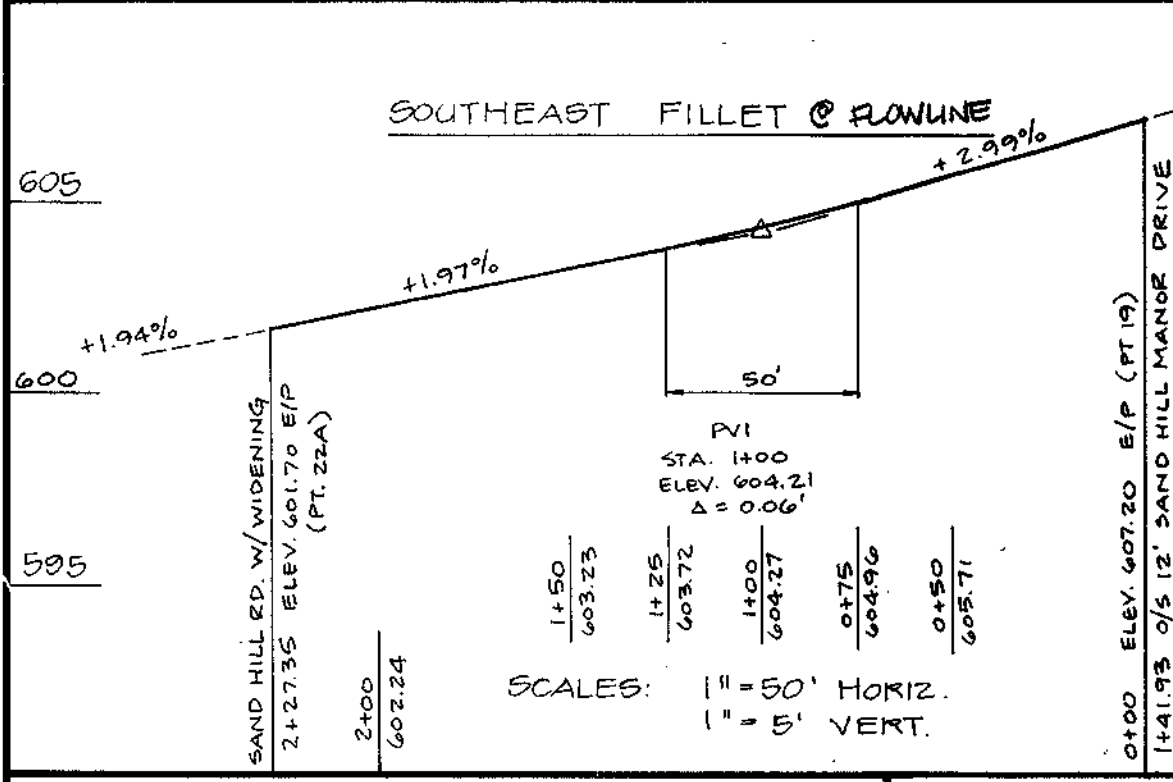
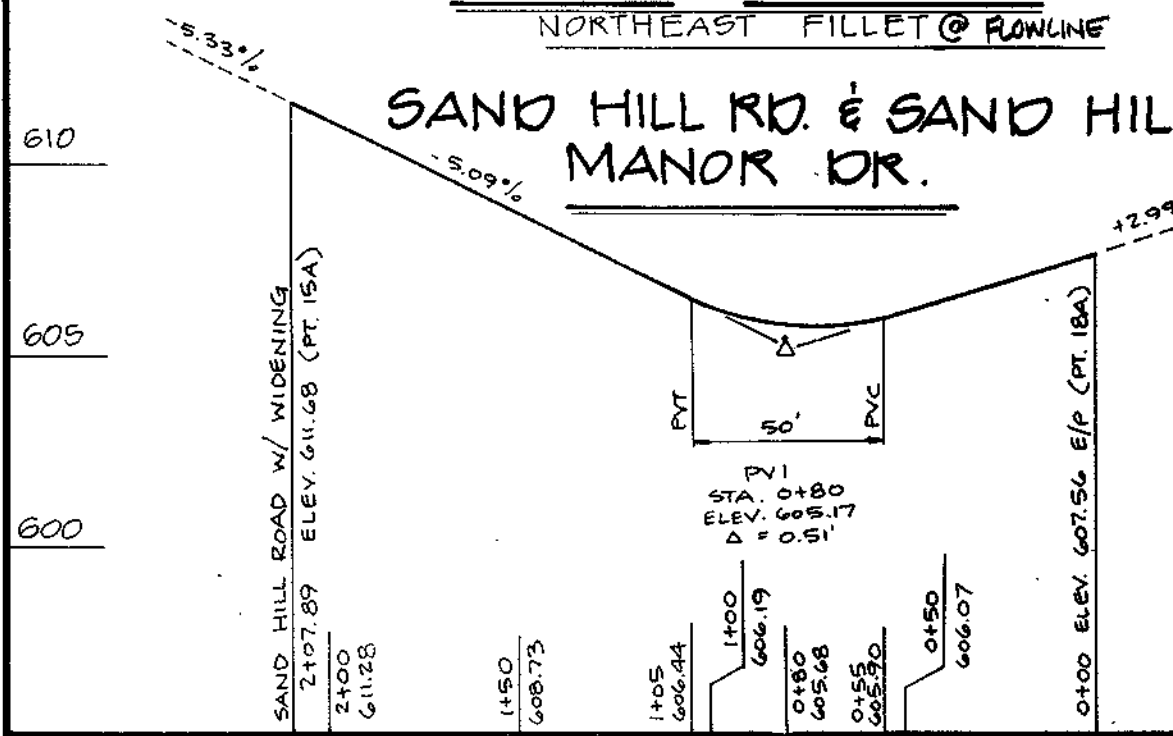
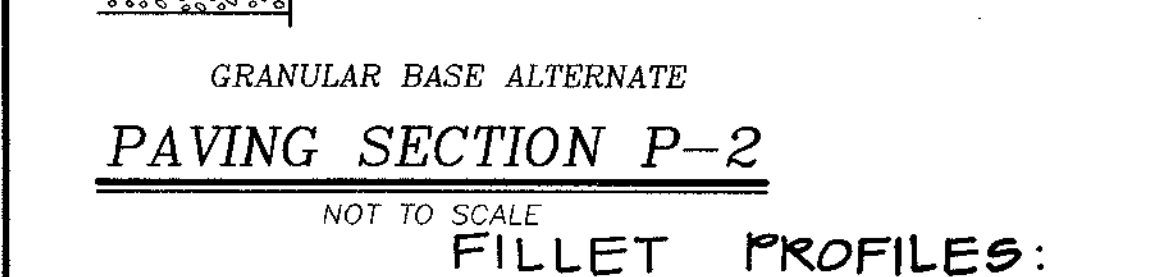
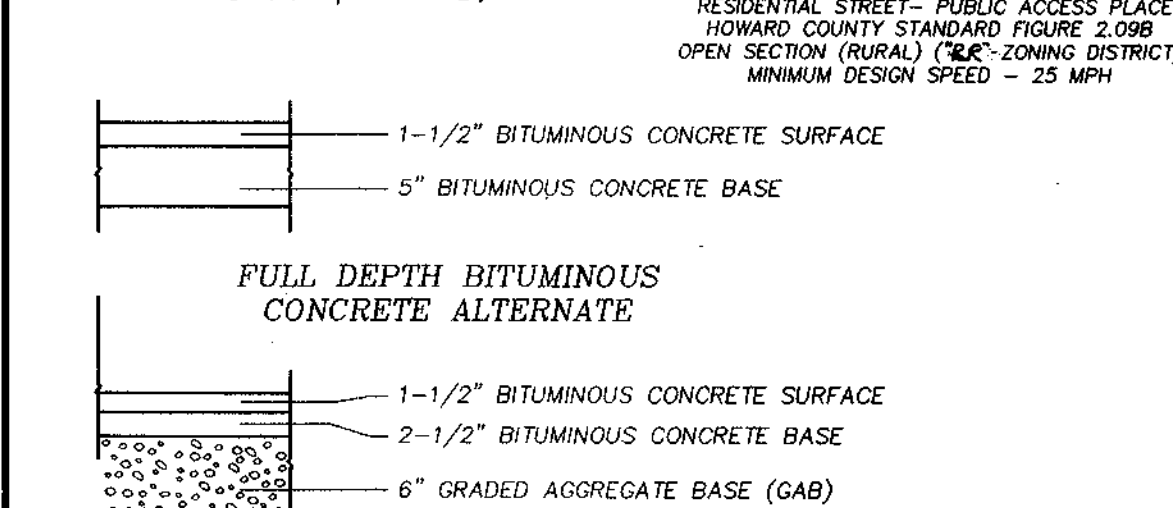
Original to DPZ	9.6.00
Checked by DPZ DEP	7-5-00
Submitted to HOWARD CO. DPZ FOR REVIEW	03-27-00
description	
revisions	

Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
 HOWARD COUNTY, MARYLAND
 ELECTION DISTRICT NO. 3
SAND HILL MANOR DRIVE PLAN AND PROFILE

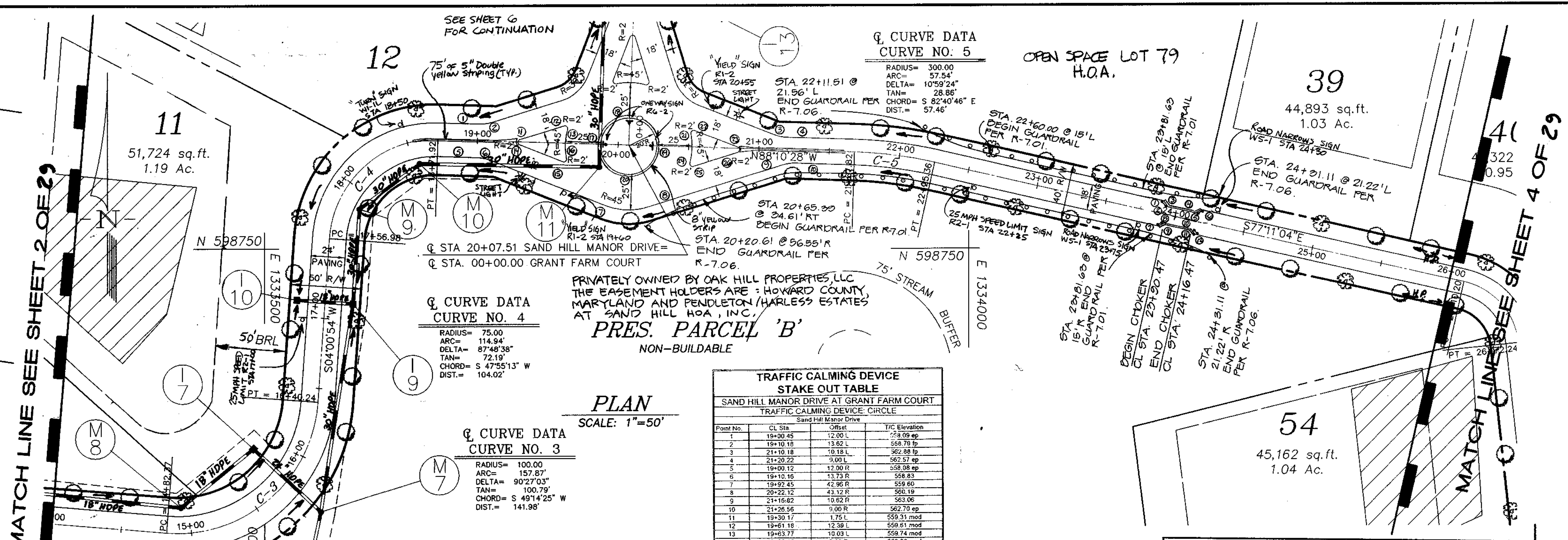
RM MOCHI GROUP, P.C.
 P.O. Box 10
 New Market, MD 21774-0010
 (301) 965-5659
 Fax: (301) 965-3101



NOTE:
 CONTRACTOR SHALL PROVIDE A 6% SLOPE FOR A MINIMUM OF 2 FEET BEHIND CURB AT ALL TRAFFIC CALMING DEVICES.



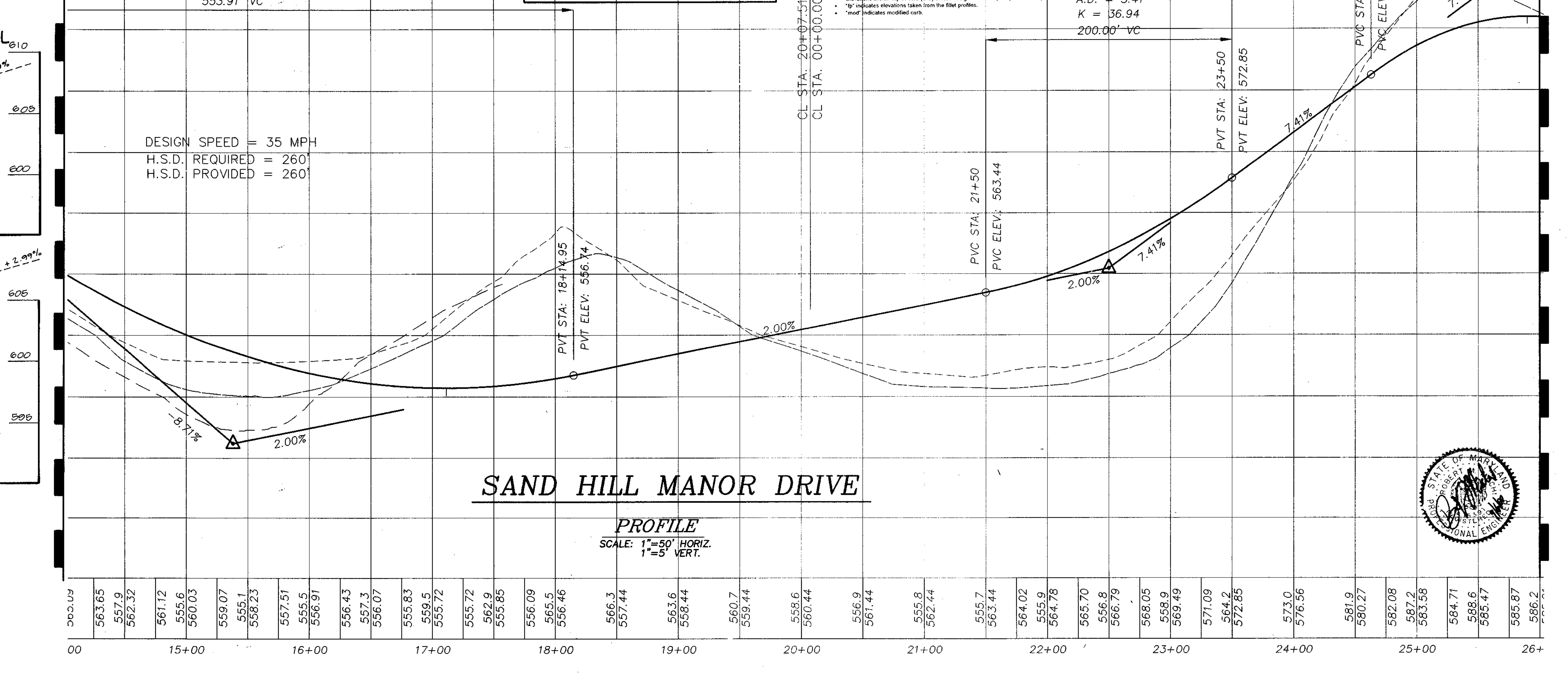
APPROVED:
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING



TRAFFIC CALMING DEVICE STAKE OUT TABLE
 SAND HILL MANOR DRIVE

Point No.	CL STA	Offset	TIC Elevation
1	19+20.45	12.00 L	558.58
2	19+10.18	13.82 L	558.78
3	21+10.18	18.83 L	562.88
4	21+20.22	3.00 L	562.51
5	19+00.12	12.90 R	558.58
6	19+10.16	13.33 R	558.63
7	19+27.45	42.96 R	559.60
8	20+22.12	43.32 R	558.16
9	21+16.82	13.82 R	563.06
10	21+26.56	3.00 R	562.70
11	19+30.17	1.76 L	559.33
12	19+41.18	12.58 L	559.51
13	19+33.77	10.03 L	559.74
14	19+30.15	2.93 R	559.78
15	19+61.04	13.02 R	559.82
16	19+43.66	10.07 R	559.71
17	19+47.52	7.19 R	560.75
18	20+26.97	18.31 L	560.60
19	20+27.50	0.58 L	561.59
20	20+08.15	20.55 R	560.58
21	20+51.36	9.56 L	561.00
22	20+59.06	11.59 L	561.88
23	20+84.82	19.21 L	562.41
24	20+51.25	1.14 R	561.84
25	20+52.84	1.35 R	561.84
26	20+44.85	2.86 R	562.37

LOW POINT ELEV = 555.71
 LOW POINT STA = 17+11.56
 PVI STA = 15+38
 PVI ELEV = 551.20
 A.D. = 10.71
 K = 51.70
 553.91' VC



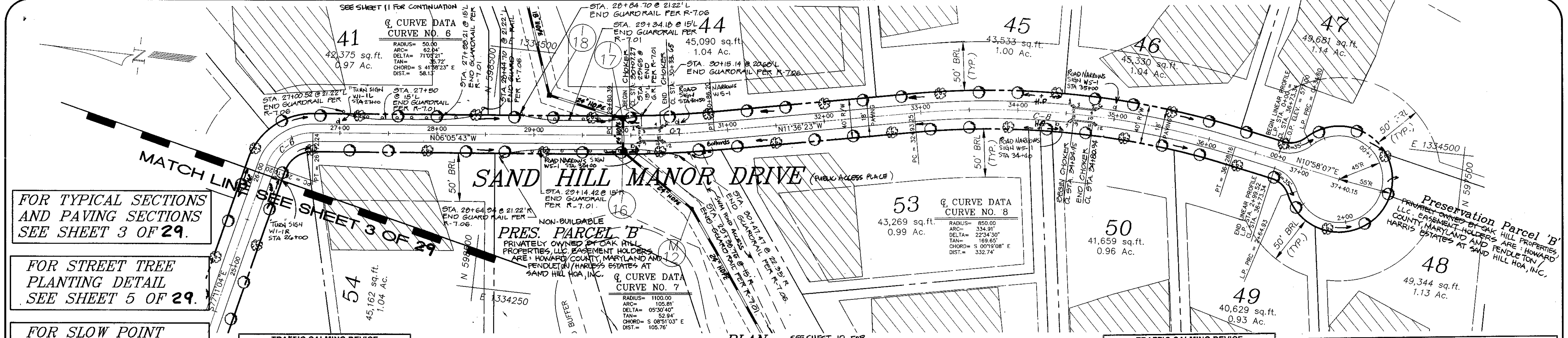
FOR SLOW POINT DETAIL SEE SHEET 5 OF 29.
 FOR STREET TREE PLANTING DETAIL SEE SHEET 5 OF 29.
 FOR SAND HILL MANOR DRIVE STREET TREE TABULATIONS, SEE SHEET 2 OF 29.

project 99003.13
 illustration RMB
 scale 1"=60'
 date 09-20-00

original in PDF
 Div'd to DRB ASD
 SUBMITTED TO HOWARD CO. DRZ FOR REVIEW
 date 9-6-00
 7-5-00
 03-29-00

Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
 HOWARD COUNTY, MARYLAND
 ELECTION DISTRICT NO. 3
SAND HILL MANOR DRIVE PLAN AND PROFILE

RM MOCHI GROUP, INC.
 P.O. Box 10
 New Market, MD 21774-0010
 (301) 865-8568
 Fax: (301) 865-5111



FOR TYPICAL SECTIONS AND PAVING SECTIONS SEE SHEET 3 OF 29.

FOR STREET TREE PLANTING DETAIL SEE SHEET 5 OF 29.

FOR SLOW POINT DETAIL, SEE SHEET 5 OF 29.

HIGH POINT ELEV = 585.94
HIGH POINT STA = 25+89.97
PVI STA = 25+88
PVI ELEV = 590.50
A.D. = -14.60
K = 17.12

250.00' VC
PVT STA: 27+13
PVT ELEV: 581.52

LOW POINT ELEV = 567.85
LOW POINT STA = 29+91.66
PVI STA = 30+00
PVI ELEV = 560.90
A.D. = 15.05
K = 24.59
370.00' VC

DESIGN SPEED = 25 MPH
H.S.D. REQUIRED = 150'
H.S.D. PROVIDED = 151'

DESIGN SPEED = 25 MPH
S.S.D. REQUIRED = 150'
S.S.D. PROVIDED = 150'

HIGH POINT ELEV = 584.83
HIGH POINT STA = 34+23.64
PVI STA = 33+65
PVI ELEV = 589.60
A.D. = -11.86
K = 30.35
360.00' VC

LOW POINT ELEV = 574.75
LOW POINT STA = 1+50
PVI STA = 1+50
PVI ELEV = 574.00
A.D. = 4.00
K = 37.50
150.00' VC

DESIGN SPEED = 25 MPH
S.S.D. REQUIRED = 150'
S.S.D. PROVIDED = 200'

TRAFFIC CALMING DEVICE STAKE OUT TABLE
SAND HILL MANOR DRIVE
TRAFFIC CALMING DEVICE: CHOKER
Sta. 30+07.27 to Sta. 30+33.85

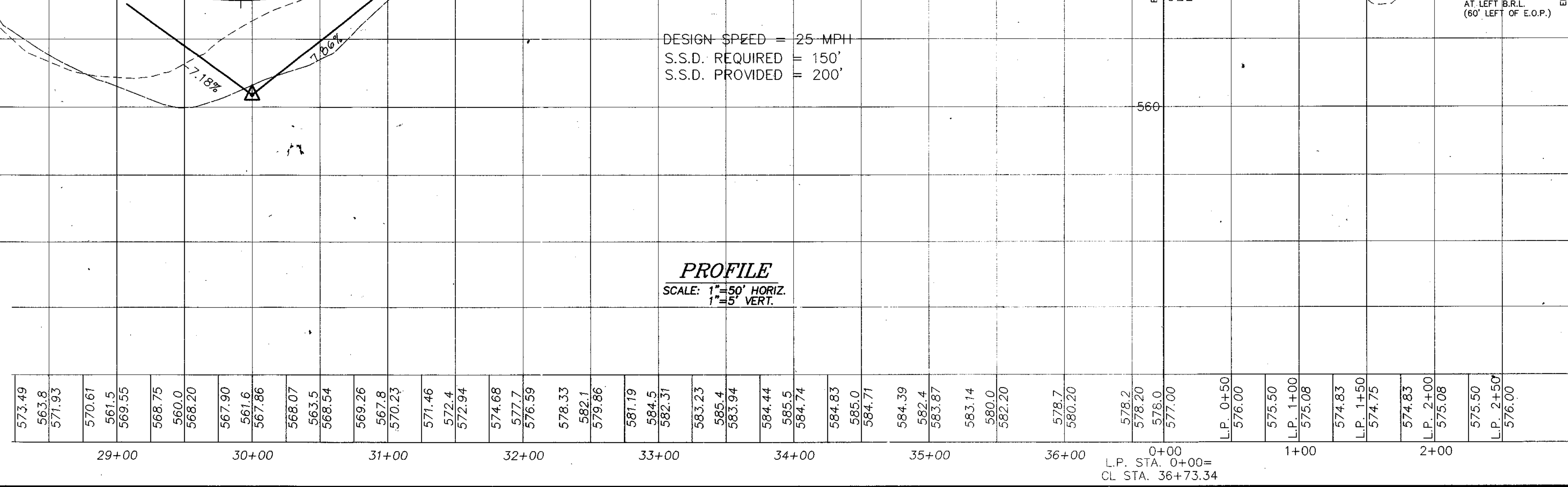
Point No.	CL STA	Offset	TIC Elevation
1	30+07.27	0.00L	567.62 ep
2	30+09.31	7.65L	568.30
3	30+12.17	5.26L	569.25
4	30+26.95	6.02L	569.55
5	30+31.80	7.18L	569.55
6	30+33.85	9.00L	567.93 ep
7	30+07.50	9.00R	567.63 ep
8	30+09.54	7.23R	568.29
9	30+12.33	6.08R	568.35
10	30+28.93	5.98R	568.55
11	30+31.74	7.16R	568.56
12	30+33.56	9.00R	567.93 ep

TRAFFIC CALMING DEVICE STAKE OUT TABLE
SAND HILL MANOR DRIVE
TRAFFIC CALMING DEVICE: CHOKER
Sta. 34+54.45 to Sta. 34+80.94

Point No.	CL STA	Offset	TIC Elevation
1	34+54.45	9.00L	584.39 ep
2	34+56.34	7.32L	585.03
3	34+59.82	6.10L	585.04
4	34+76.19	5.98L	584.79
5	34+78.99	7.16L	584.71
6	34+80.94	9.00L	584.02 ep
7	34+54.45	9.00R	584.40 ep
8	34+56.54	7.02R	585.04
9	34+59.41	5.90R	585.04
10	34+76.22	6.02R	584.79
11	34+79.07	7.18R	584.70
12	34+80.94	9.00R	584.02 ep

SAND HILL MANOR DRIVE - ROADSIDE DITCH DATA

STATION	STATION	Q ₁₀	V ₁₀	SLOPE	ROADSIDE DITCH LINING*
0+00 L	5+29 R	2.85	2.84	2.99%	SSM OVER SEED AND MULCH
0+00 R	5+29 R	1.23	2.30	2.99%	
5+29 L	10+90 L	4.82	4.83	8.71%	
5+29 R	25+90 R	1.92	3.84	8.71%	
10+90 L	20+00 L	2.04	3.90	8.71%	
20+00 L	22+75 L	0.90	4.83	2.00%	
22+75 L	25+90 L	0.44	2.60	7.41%	
25+90 L	34+24 L	1.82	3.62	7.18%	
25+90 R	34+24 R	0.67	2.74	7.18%	



APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard Hill 9/24/10
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamella 7/29/10
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

CHIEF, DEVELOPMENT-ENGINEERING DIVISION
[Signature] 9/24/10
DATE

OWNER
OAK HILL PROPERTIES
107 LOUDOUN STREET, S.E.
LEESBURG, VIRGINIA 20175-3106
(703) 443-0400
ATTN: MR. KEVIN ROGERS

ENGINEER/SURVEYOR:
R.M. MOCHI GROUP, P.C.
10120 A OLD NATIONAL PIKE
JAMSVILLE, MD, 21754-9706
(301) 865-5858
ATTN: MR. ROBERT M. MOCHI, P.E.

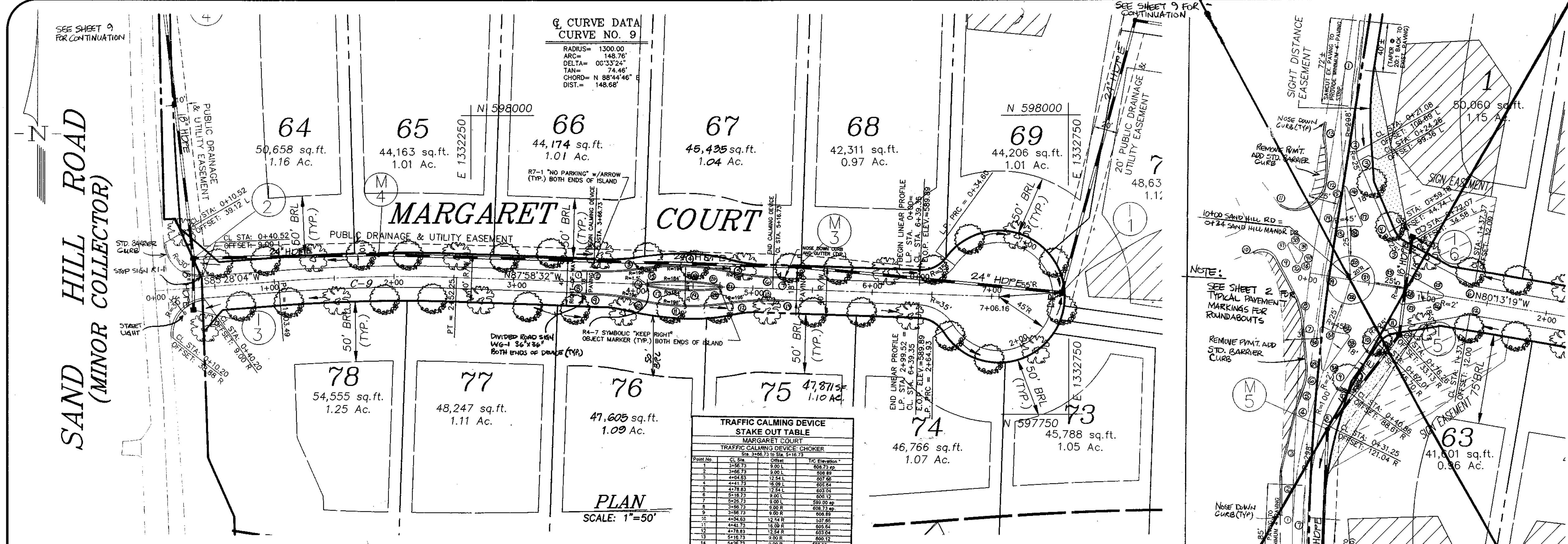
Project: 990003.13
Date: 03-20-00
Illustration: KMB
Scale: 1"=50'
Approval: R.M.L.

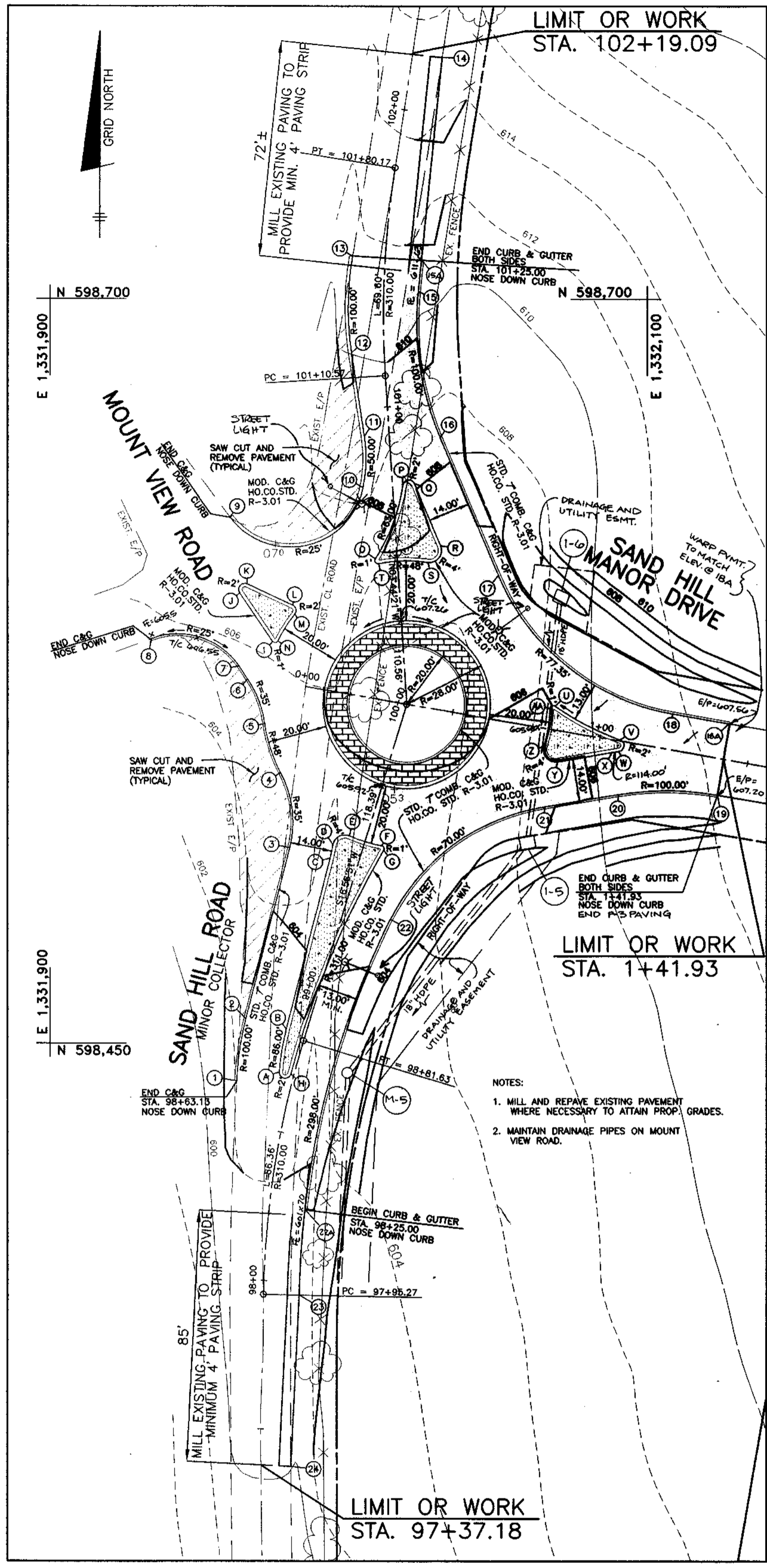
Original to DPA
Drawn by: DPA
Checked by: DPA
Submitted to: HOWARD CO. DEPT. FOR REVIEW
Description: SAND HILL MANOR DRIVE PLAN AND PROFILE
Revisions:

Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
ELECTION DISTRICT NO. 3
HOWARD COUNTY, MARYLAND
SAND HILL MANOR DRIVE PLAN AND PROFILE

R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
(301) 865-5858
Fax: (301) 865-5111

4 OF 29
F00136





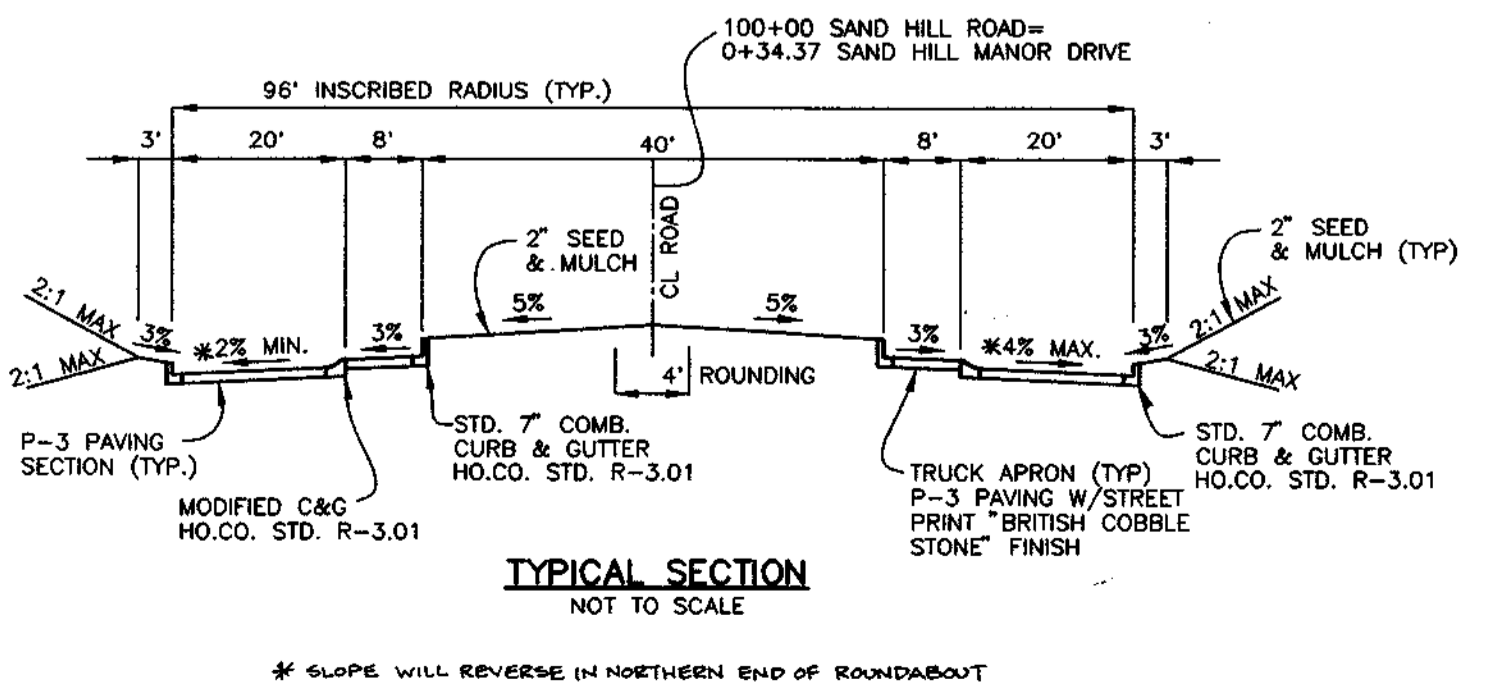
ROUNDABOUT PLAN
SCALE: 1" = 30'

CENTERLINE CONTROL DATA				
ROAD	STATION	NORTH	EAST	
SAND HILL ROAD	PC 97+95.27	598365.8403	1331971.6256	
	PT 98+81.63	598450.8660	1331985.0423	
	P.I. 100+00.00	598564.1162	1332019.5530	
	PC 101+10.57	598674.4366	1332012.3433	
	PT 101+80.17	598743.8158	1332015.6062	

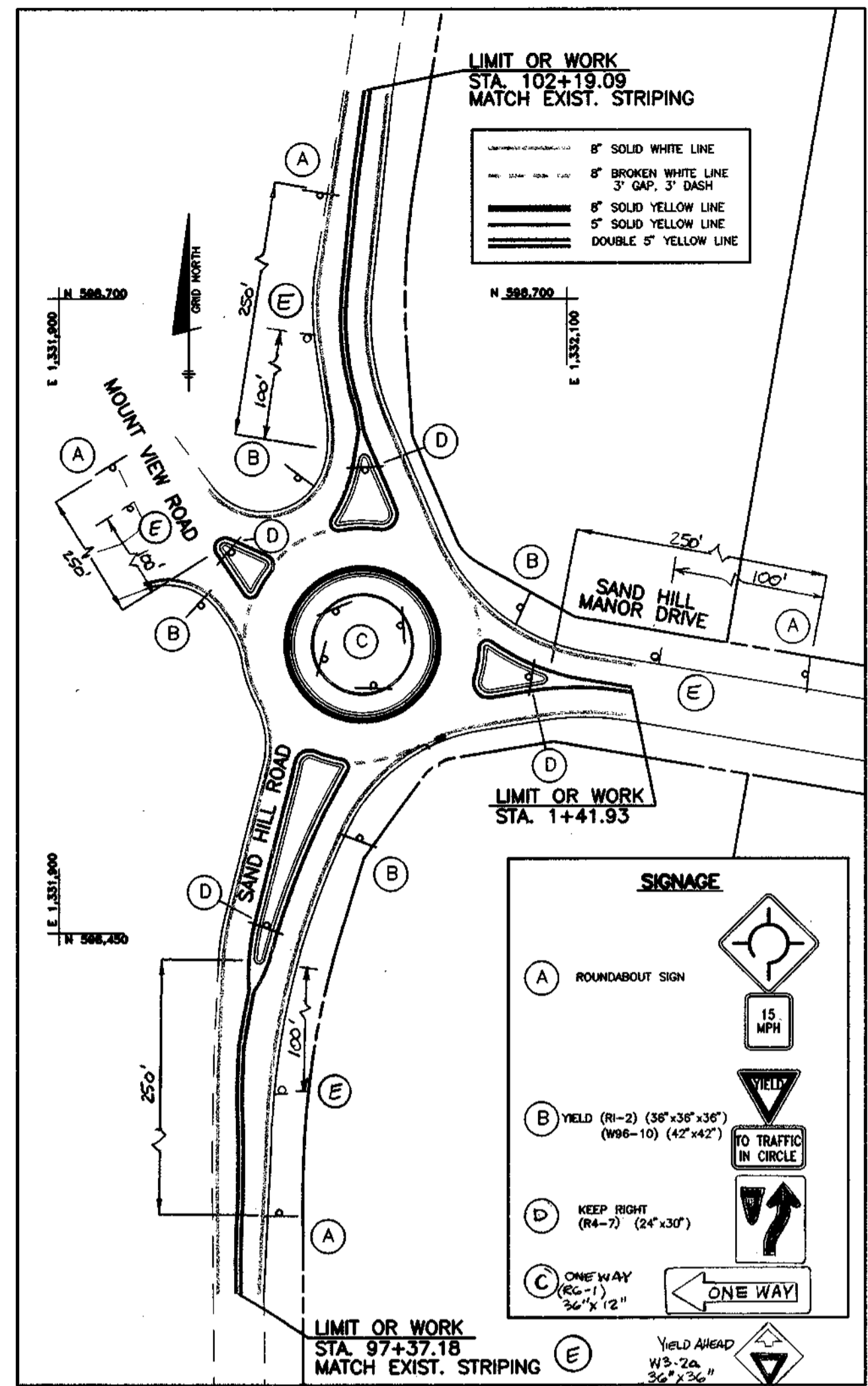
TOP OF CURB PC DATA				
PC	STATION	OFFSET	T/C ELEV.	
1	98+63.16	SAND HILL ROAD 18.00' LEFT	602.2946	
2	98+82.98	SAND HILL ROAD 20.64' LEFT	603.54	
3	99+42.74	SAND HILL ROAD 23.48' LEFT	605.02	
4	99+65.93	SAND HILL ROAD 33.80' LEFT	605.52	
5	99+79.89	SAND HILL ROAD 43.58' LEFT	605.84	
6	100+11.83	SAND HILL ROAD 57.62' LEFT	606.13	
7	100+16.14	SAND HILL ROAD 55.16' LEFT	606.22	
8	100+27.39	SAND HILL ROAD 83.97' LEFT	605.508	
9	100+66.27	SAND HILL ROAD 84.96' LEFT	607.008	
10	100+73.35	SAND HILL ROAD 9.86' LEFT	608.48	
11	100+90.75	SAND HILL ROAD 8.31' LEFT	609.22	
12	101+18.69	SAND HILL ROAD 10.87' LEFT	611.89	
13	101+49.81	SAND HILL ROAD 10.80' LEFT	611.3468	
14	102+19.09	SAND HILL ROAD 10.00' RIGHT	615.1488	
15	101+39.05	SAND HILL ROAD 11.60' RIGHT	611.74	
16	100+86.67	SAND HILL ROAD 16.96' RIGHT	609.20	
17	100+41.02	SAND HILL ROAD 33.44' RIGHT	606.65	
18	1+22.46	SAND HILL MANOR DRIVE 12.00' LEFT	607.55	
19	1+41.93	SAND HILL MANOR DRIVE 12.00' RIGHT	607.208	
20	1+09.25	SAND HILL MANOR DRIVE 17.49' RIGHT	606.80	
21	0+85.55	SAND HILL MANOR DRIVE 25.88' RIGHT	606.06	
22	99+29.35	SAND HILL ROAD 15.85' RIGHT	604.82	
23	97+95.14	SAND HILL ROAD 12.00' RIGHT	601.188	
24	97+37.18	SAND HILL ROAD 10.00' RIGHT	600.228	

ISLAND PC DATA				
PC	STATION	OFFSET	T/C ELEV.	
A	98+69.33	SAND HILL ROAD 4.97' LEFT	603.52	
B	98+83.64	SAND HILL ROAD 6.66' LEFT	603.69	
C	99+43.40	SAND HILL ROAD 9.49' LEFT	605.16	
D	99+47.81	SAND HILL ROAD 9.90' LEFT	605.29	
E	99+52.33	SAND HILL ROAD 5.48' LEFT	605.40	
F	99+52.37	SAND HILL ROAD 5.78' RIGHT	605.29	
G	99+51.15	SAND HILL ROAD 8.27' RIGHT	605.27	
H	98+69.88	SAND HILL ROAD 1.00' LEFT	603.52	
I	100+23.80	SAND HILL ROAD 43.42' LEFT	606.75	
J	100+40.66	SAND HILL ROAD 53.34' LEFT	606.75	
K	100+43.43	SAND HILL ROAD 50.66' LEFT	606.83	
L	100+35.49	SAND HILL ROAD 35.97' LEFT	606.89	
M	100+32.38	SAND HILL ROAD 35.45' LEFT	606.77	
N	100+23.81	SAND HILL ROAD 41.69' LEFT	606.49	
O	100+49.17	SAND HILL ROAD 7.32' LEFT	607.84	
P	100+73.37	SAND HILL ROAD 3.51' RIGHT	608.37	
Q	100+73.61	SAND HILL ROAD 7.35' RIGHT	608.37	
R	100+52.15	SAND HILL ROAD 14.78' RIGHT	607.80	
S	100+46.93	SAND HILL ROAD 10.15' RIGHT	607.68	
T	100+47.59	SAND HILL ROAD 6.38' LEFT	607.81	
U	0+83.30	SAND HILL MANOR DRIVE 7.93' LEFT	606.25	
V	1+06.71	SAND HILL MANOR DRIVE 0.38' LEFT	606.83	
W	1+06.98	SAND HILL MANOR DRIVE 3.49' RIGHT	606.73	
X	1+04.67	SAND HILL MANOR DRIVE 4.26' RIGHT	606.64	
Y	0+87.27	SAND HILL MANOR DRIVE 10.28' RIGHT	605.94	
Z	0+81.99	SAND HILL MANOR DRIVE 6.00' RIGHT	606.91	
AA	0+81.87	SAND HILL MANOR DRIVE 6.69' LEFT	606.23	

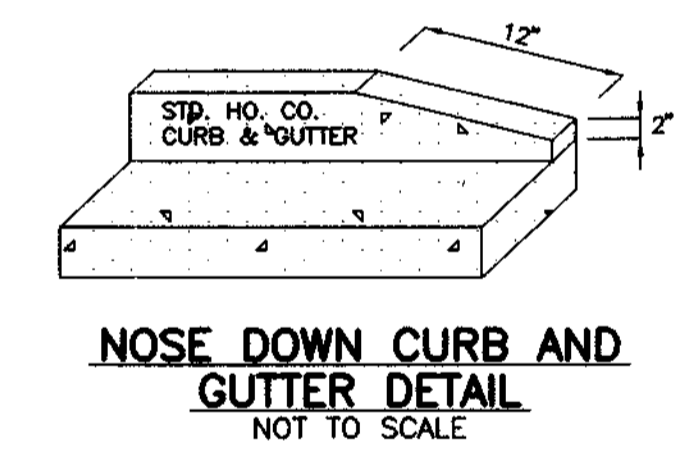
- TRAFFIC SEQUENCE OF CONSTRUCTION**
1. The Contractor shall contact and meet with the Howard County traffic control inspector (410 313-2430) to review and obtain approval of signs and placement prior to beginning work.
 2. Place and cover all traffic control signs on the east shoulder of Sand Hill Road. Place and cover all signs per Standard Detail MD 104-03-02 for Sand Hill Road and Mount View Road.
 3. Maintaining two way traffic on Sand Hill Road, place channelizing devices (barrels) per Standard Detail MD 104-04-02 (see Phase 1 schematic; this sheet). A minimum 10 R lane must be maintained when channelizing devices are placed (the Contractor shall place 5' depth hot mix asphalt (P-1) and temporary centerline striping as necessary).
 4. Mill and remove existing pavement as necessary on the east side of Sand Hill Road per plan and construct new traffic circle, truck apron, splitter islands, curb & gutter, and pavement on the east side of Sand Hill Road. Any excavation over 5" to be left overnight shall be protected as per MD 104-92.
 5. Upon completion of excavation, remove Phase 1 signs (MD 104-04-02) uncover Phase II signs (MD 104-03-02) and relocated channelizing devices as necessary (see Phase II schematic; this sheet).
 6. Saw cut and remove pavement; construct curb & gutter and splitter island on the west side of Sand Hill Road. Mount View Road work area/one-way lanes shall be adjusted as necessary, while maintaining the flagging operation in accordance with the standard detail.
 7. Maintaining flagging operations, stripe splitter islands and pavement per plan.
 8. Remove temporary pavement, stabilize at disturbed areas, and install permanent traffic control signs per plan.
 9. Open Sand Hill Road circle.
- MAINTENANCE OF TRAFFIC NOTES:**
1. Where temporary yellow centerline lines are used, the existing centerline must be covered or removed.
 2. Two way traffic shall be restored/maintained at the end of each working day (refer to Standard Detail MD 104-92 for barrel placement adjacent to work area). Non-applicable traffic control signs shall be covered when in use.
 3. All Traffic Control Devices shall meet MSHA and the MUTCD as applicable.
 4. Install and maintain sediment control devices during the construction.
 5. Flagging operations may be needed during installation of additional pavement to maintain the 10 R minimum lane width.
 6. Prior to placing additional pavement, unsuitable material shall be removed and the subbase shall be well-compacted.
 7. Contractor shall maintain positive drainage to avoid ponding of stormwater in the roadway.



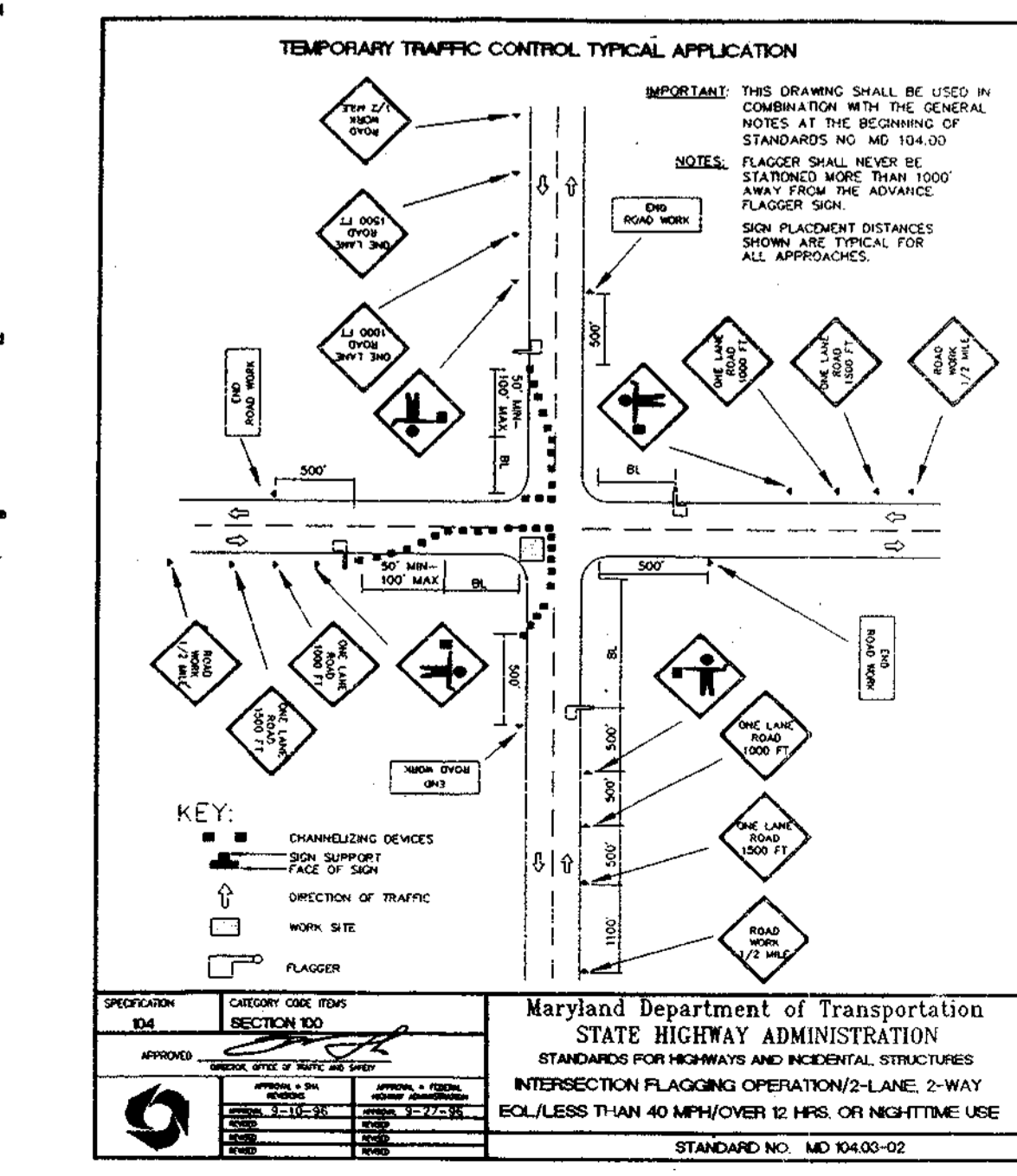
TYPICAL SECTION
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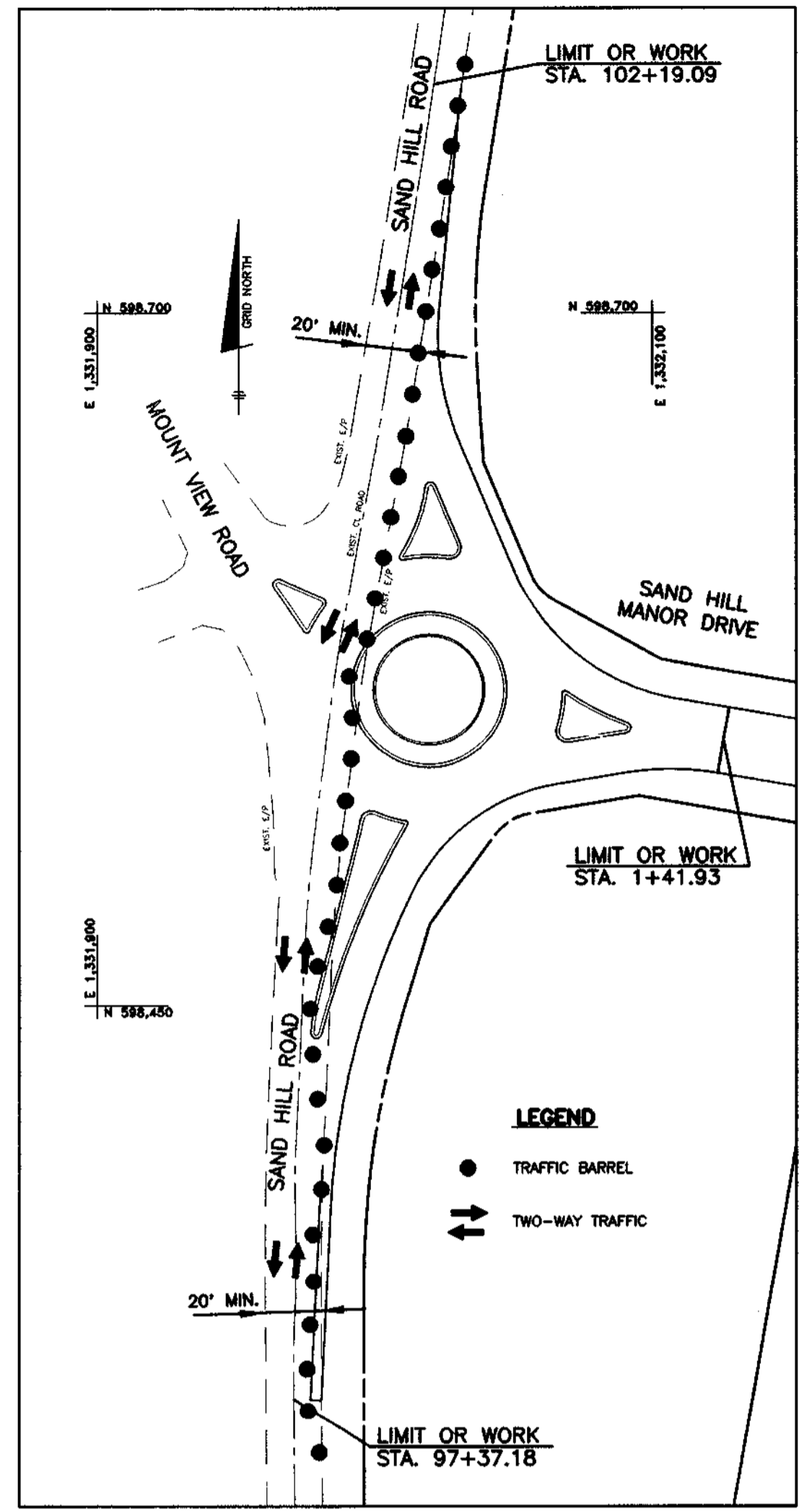
STRIPING AND SIGNAGE PLAN
SCALE: 1" = 50'



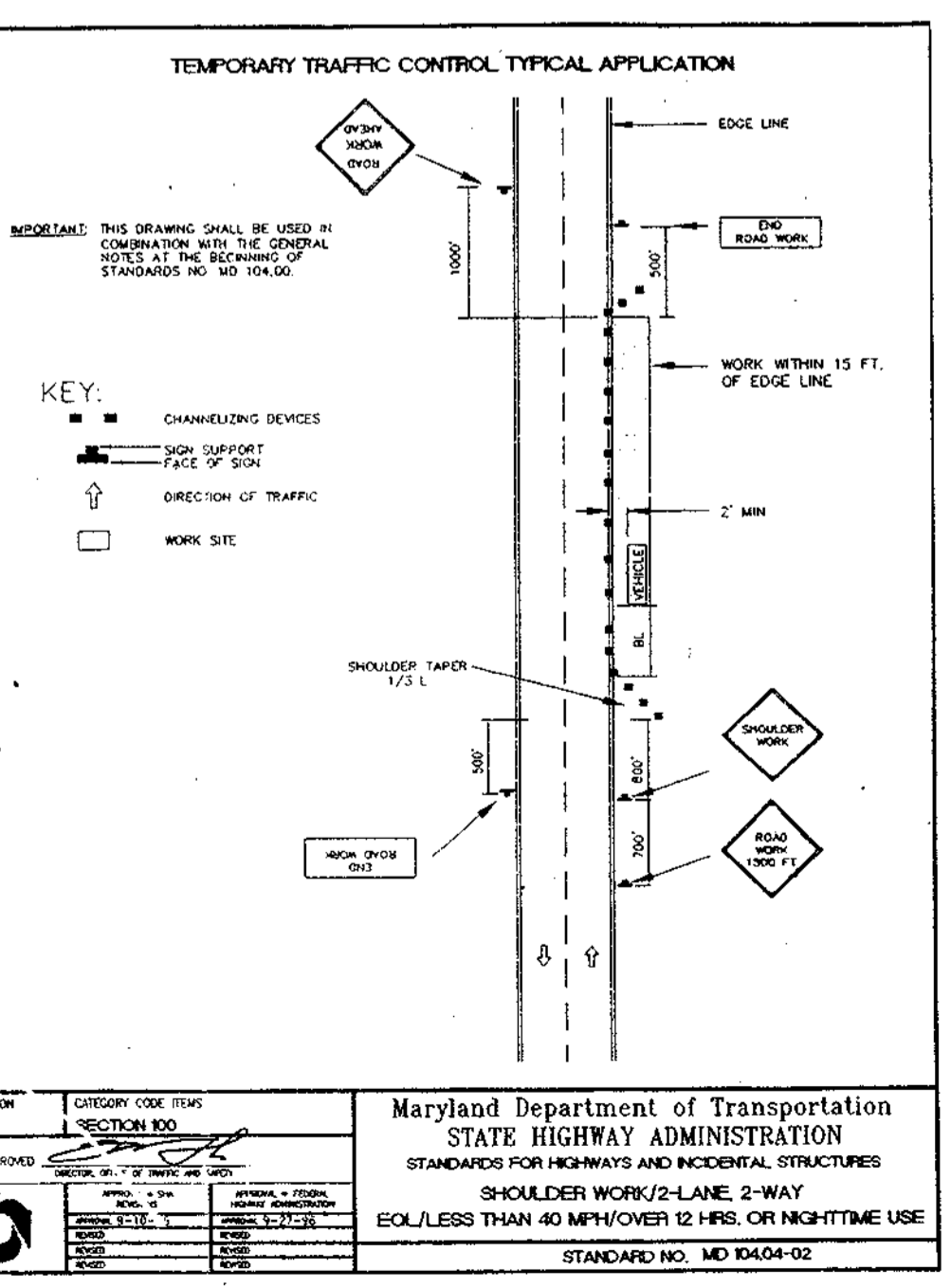
NOSE DOWN CURB AND GUTTER DETAIL
NOT TO SCALE



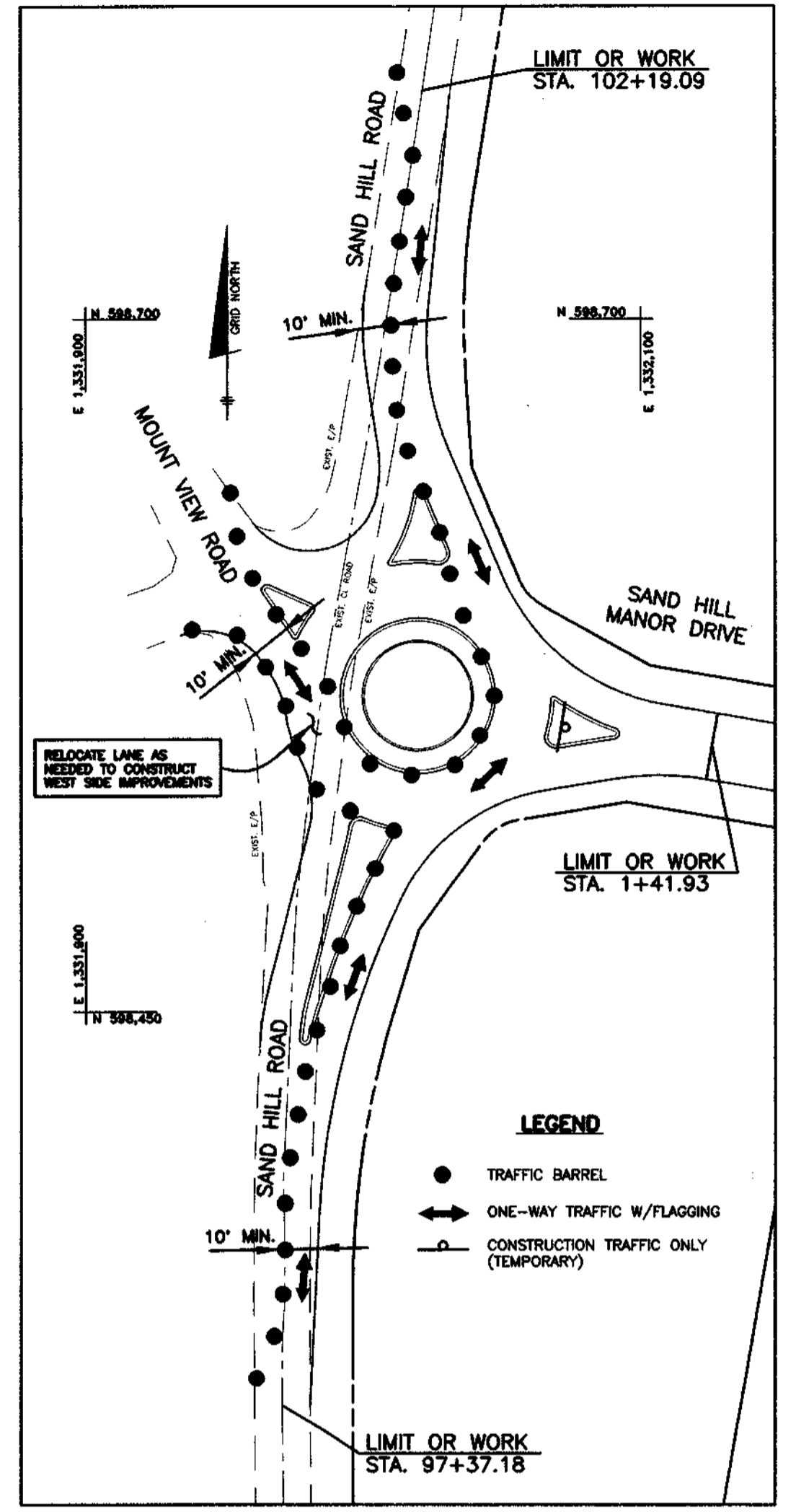
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
INTERSECTION FLAGGING OPERATION/2-LANE, 2-WAY
EQUALLY LESS THAN 40 MPH/OVER 12 HRS. OR NIGHT/TIME USE
STANDARD NO. MD 104-03-02



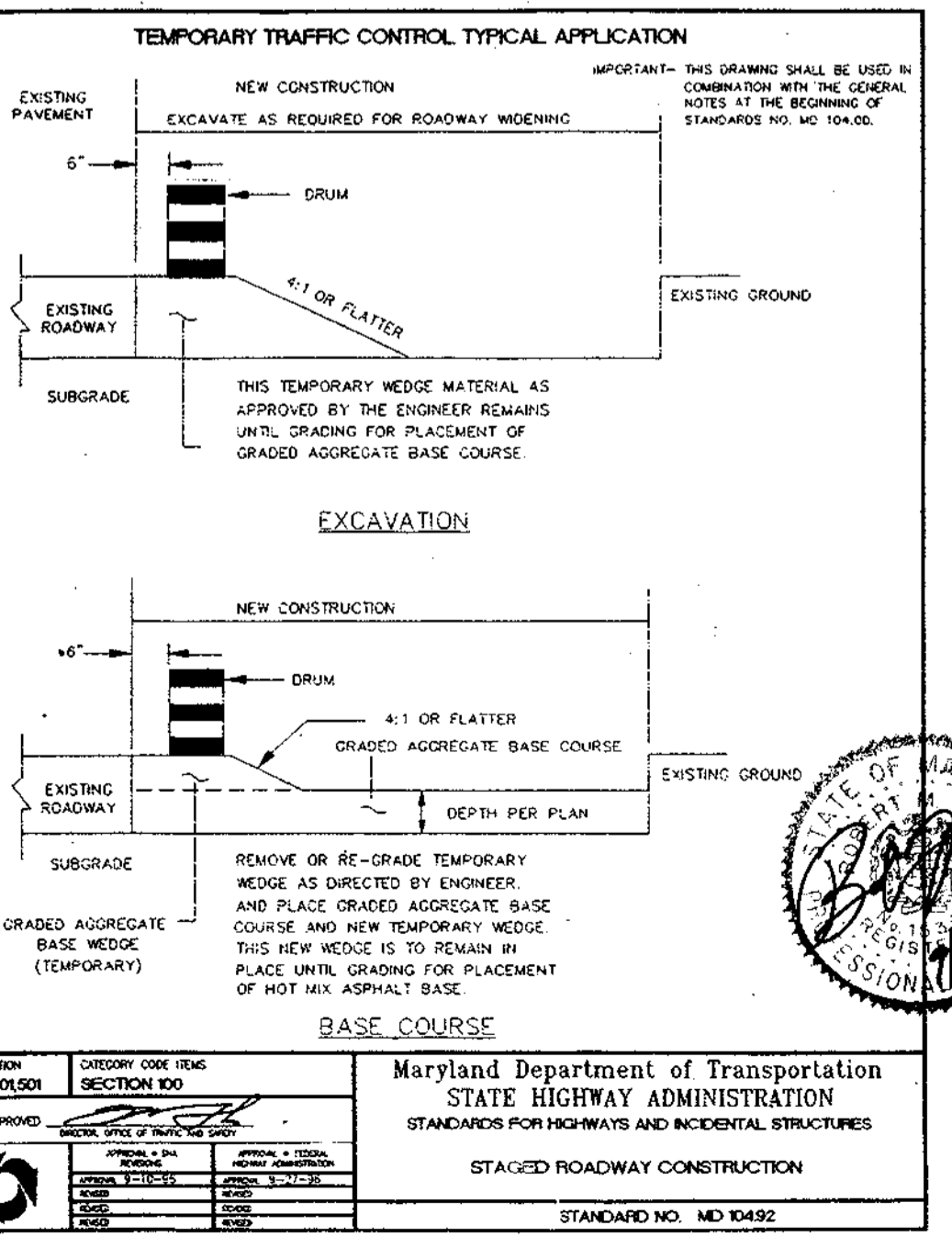
TRAFFIC CONTROL - PHASE 1
SCALE: 1" = 50'



Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK/2-LANE, 2-WAY
EQUALLY LESS THAN 40 MPH/OVER 12 HRS. OR NIGHT/TIME USE
STANDARD NO. MD 104-04-02



TRAFFIC CONTROL - PHASE 2
SCALE: 1" = 50'



Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
STAGED ROADWAY CONSTRUCTION
STANDARD NO. MD 104-92

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard Hill 9/4/00
CHIEF, BUREAU OF HIGHWAYS
DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cheryl Hamilton 7/28/00
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION
9/14/00
DATE

project 99003.13
date 08-24-00
illustration DFT
scale AS SHOWN
engineering AAP
approval RMM

9-6-00
date
description revisions
1 01/24/01 01/24/01

Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
ELECTION DISTRICT NO. 3
HOWARD COUNTY, MARYLAND
ROUNDABOUT PLAN AND DETAILS

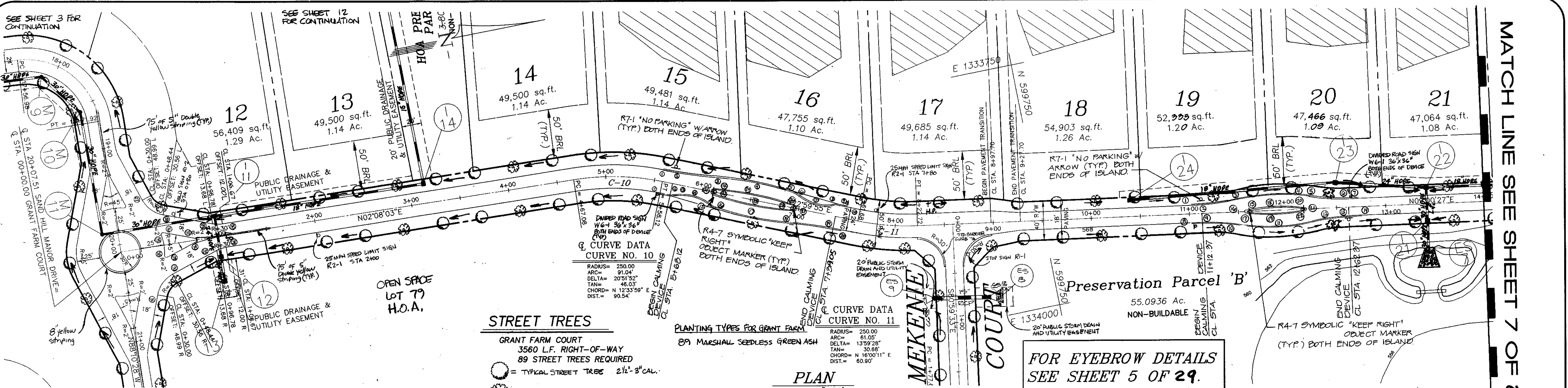
R.M. MOCHI GROUP, INC.
P.O. Box 10
New Market, MD 21774-0010
(301) 865-6889
Fax: (301) 865-5111

5A OF 29
F.00136

SEE SHEET 3 FOR CONTINUATION

SEE SHEET 12 FOR CONTINUATION

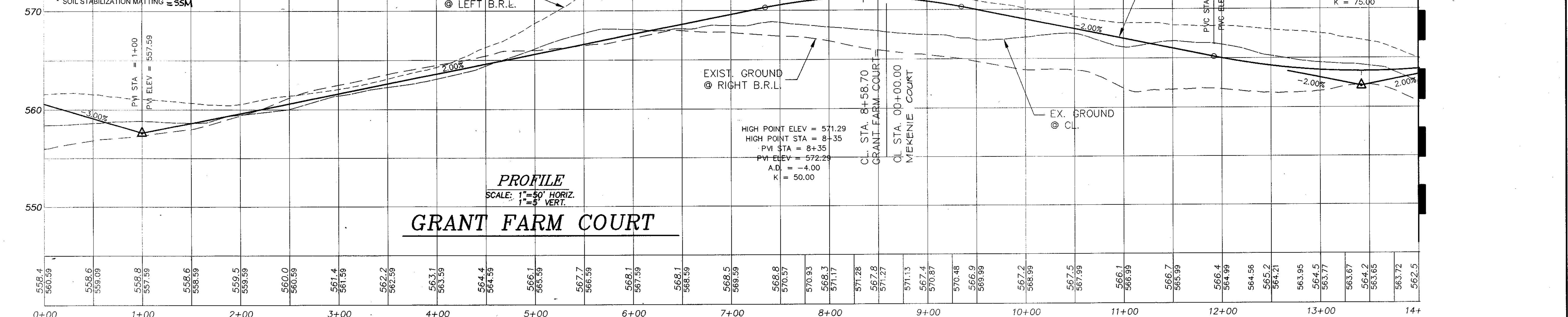
MATCH LINE SEE SHEET 7 OF 29



GRANT FARM COURT - ROADSIDE DITCH DATA

BEGIN STATION	END STATION	Q ₁₀ (CFS)	V ₁₀ (FPS)	SLOPE	ROADSIDE DITCH LINING*
0+00 L	1+00 L	0.82	1.79	2.00%	55" COVER SEED AND MULCH
0+00 R	1+00 R	0.90	1.83	2.00%	
1+00 L	3+20 L	4.82	2.78	2.00%	
1+00 R	8+35 R	3.94	2.65	2.00%	
3+20 L	8+35 L	4.70	2.77	2.00%	
8+35 L	10+40 L	4.79	2.78	2.00%	
8+35 R	12+50 R	1.86	2.19	2.00%	
10+40 L	12+50 L	4.86	2.78	2.00%	
12+50 L	13+42 L	3.49	2.57	2.00%	
13+42 L	15+00 L	3.49	2.57	2.00%	
15+00 L	17+72 L	4.45	2.73	2.00%	

* SOIL STABILIZATION MATTING = SSM



FOR EYEBROW DETAILS SEE SHEET 5 OF 29.

FOR TYPICAL SECTIONS AND PAVING SECTIONS SEE SHEET 3 OF 29.

FOR STREET TREE PLANTING DETAIL SEE SHEET 5 OF 29.

FILLET PROFILES:

SAND HILL MANOR DR. & GRANT FARM CT.

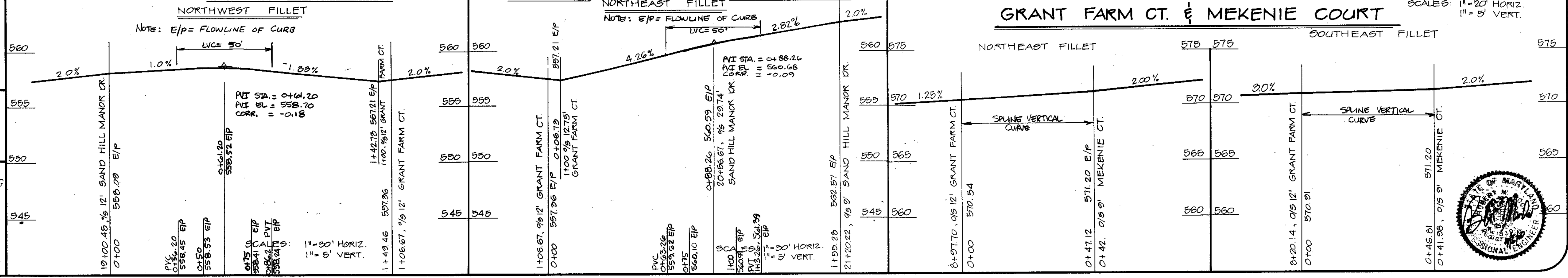
FILLET PROFILES:

GRANT FARM CT. & MEKENIE COURT

SCALE: 1" = 20' HORIZ.
 1" = 5' VERT.

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 9/2/10
 CHIEF, BUREAU OF HIGHWAYS

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 [Signature] 9/2/10
 CHIEF, DIVISION OF LAND DEVELOPMENT



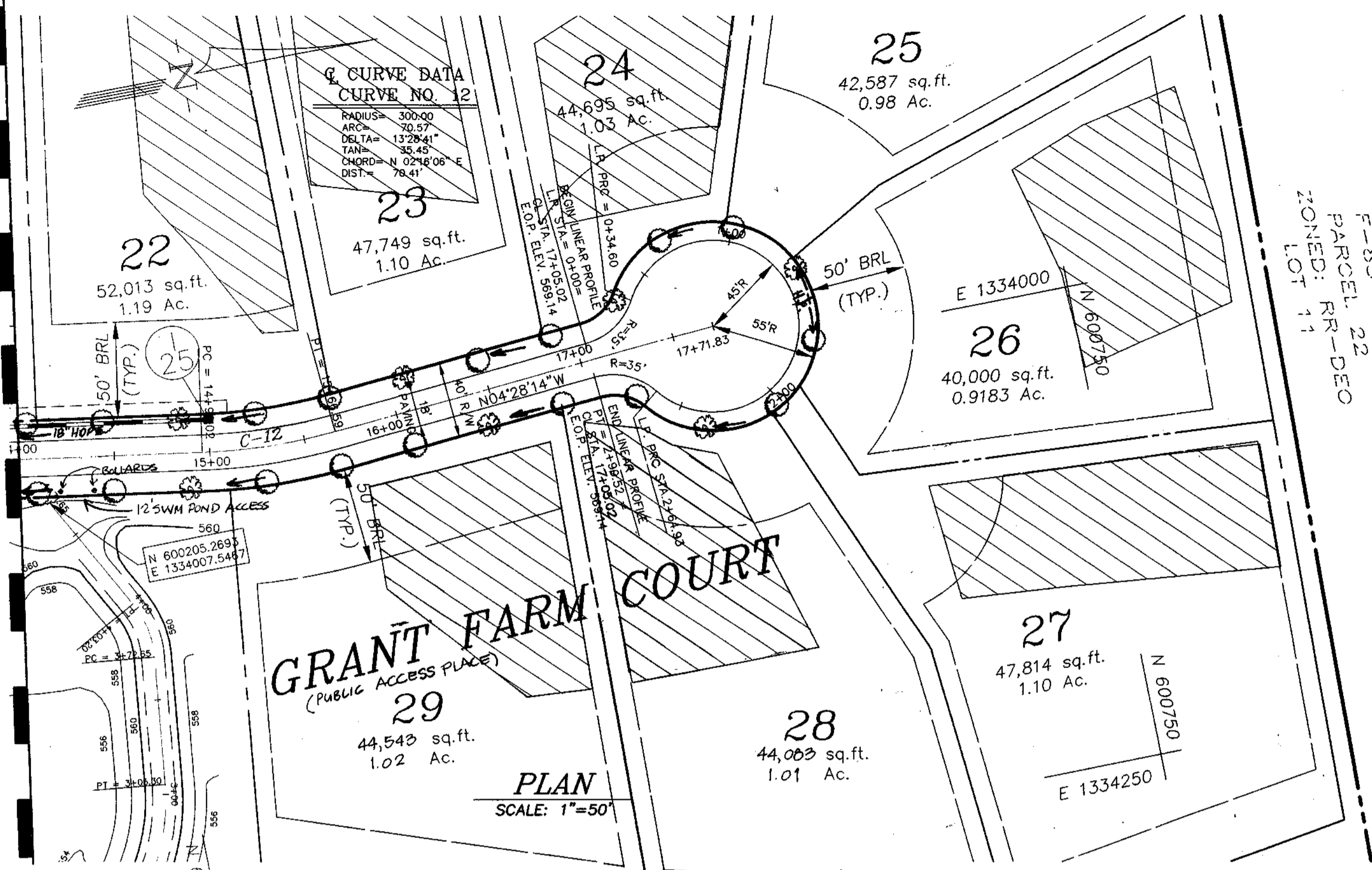
Project: 98003.13
 Illustration: KMB
 Scale: 1" = 50'
 Date: 08-20-00
 Engineering: P.F.B.
 Approval: R.M.M.

Original to DPZ: 9-6-00
 Directed to DPZ: 7-5-00
 Submitted to Howard Co. DPZ for Review: 03-27-00
 Description: REVISIONS

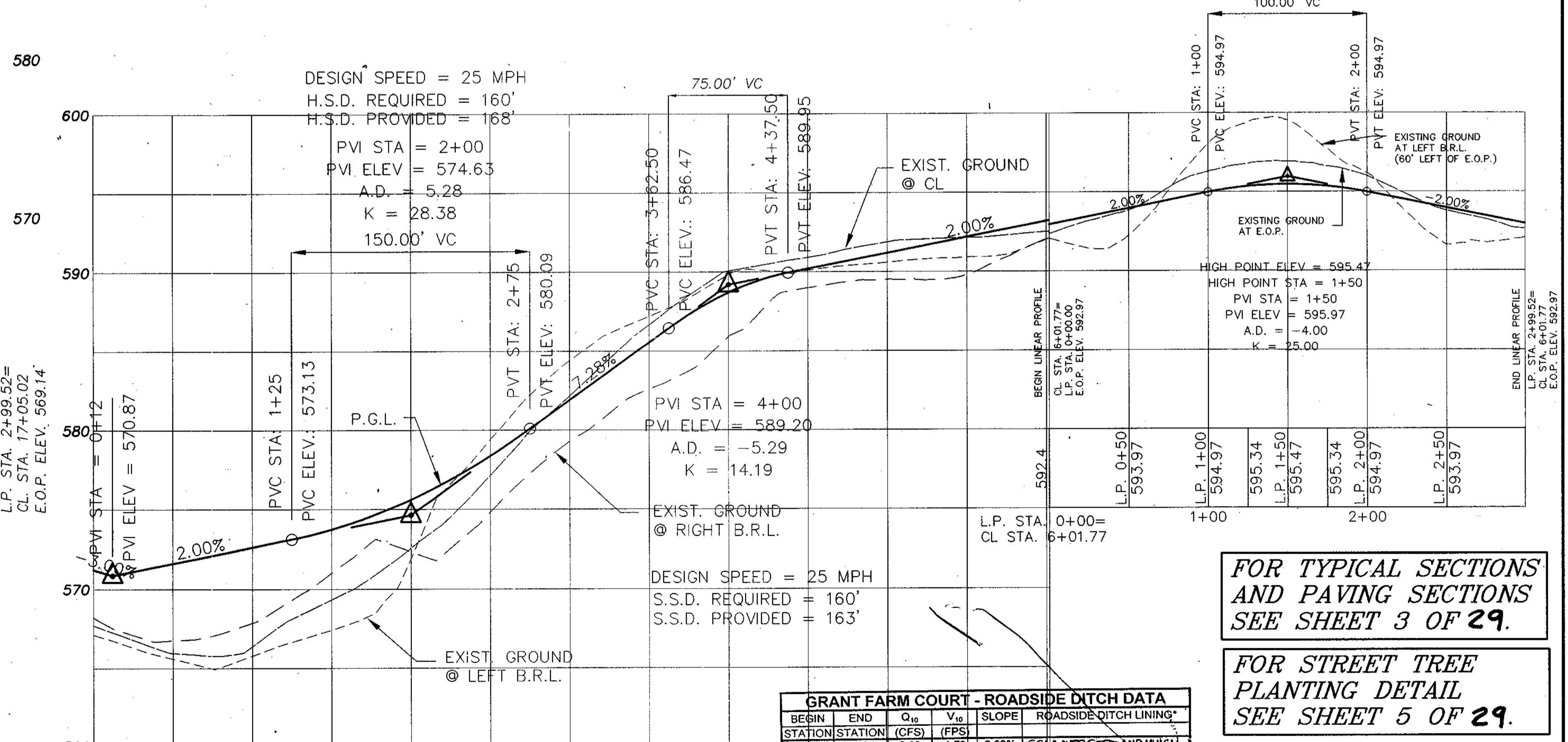
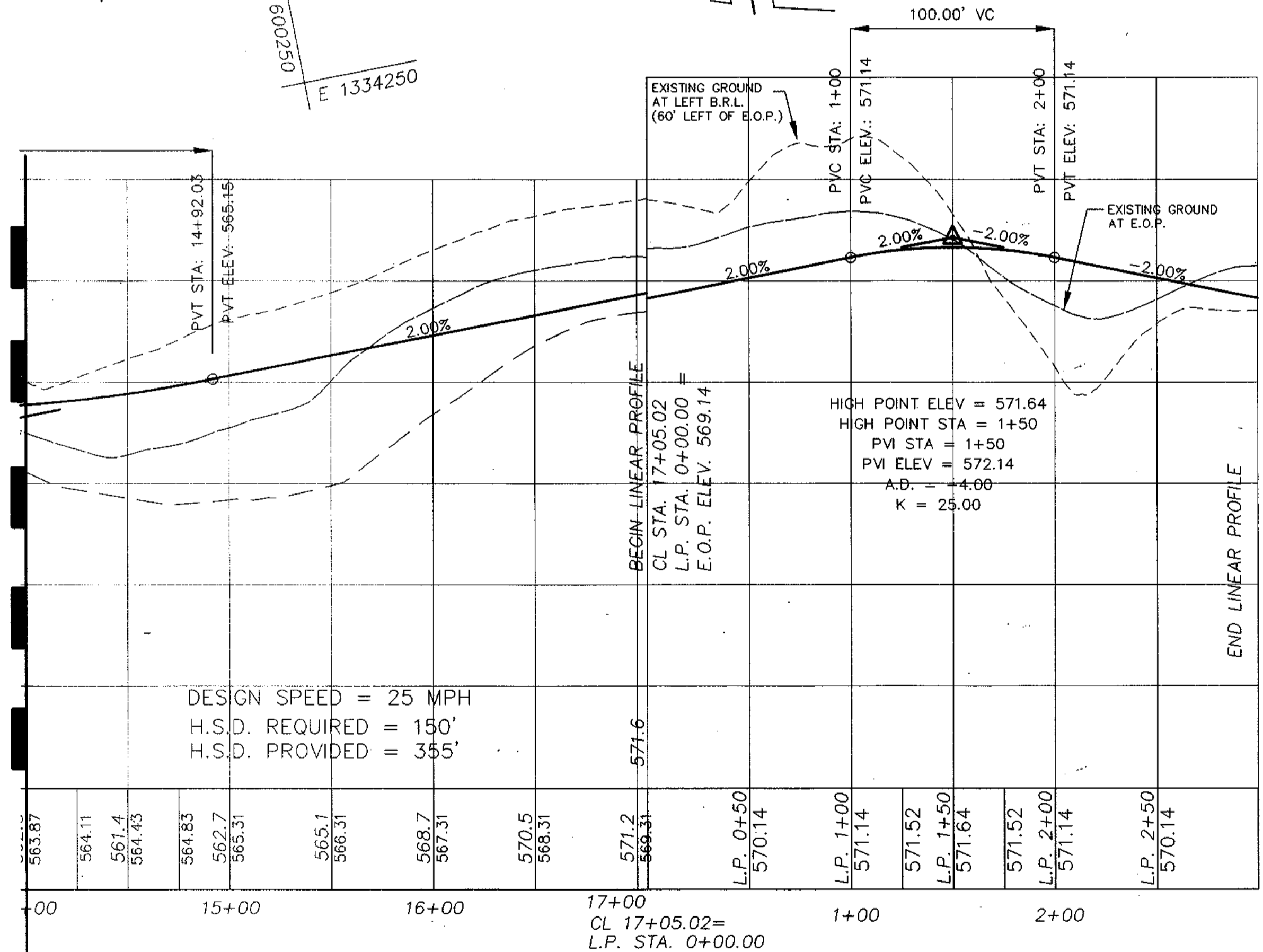
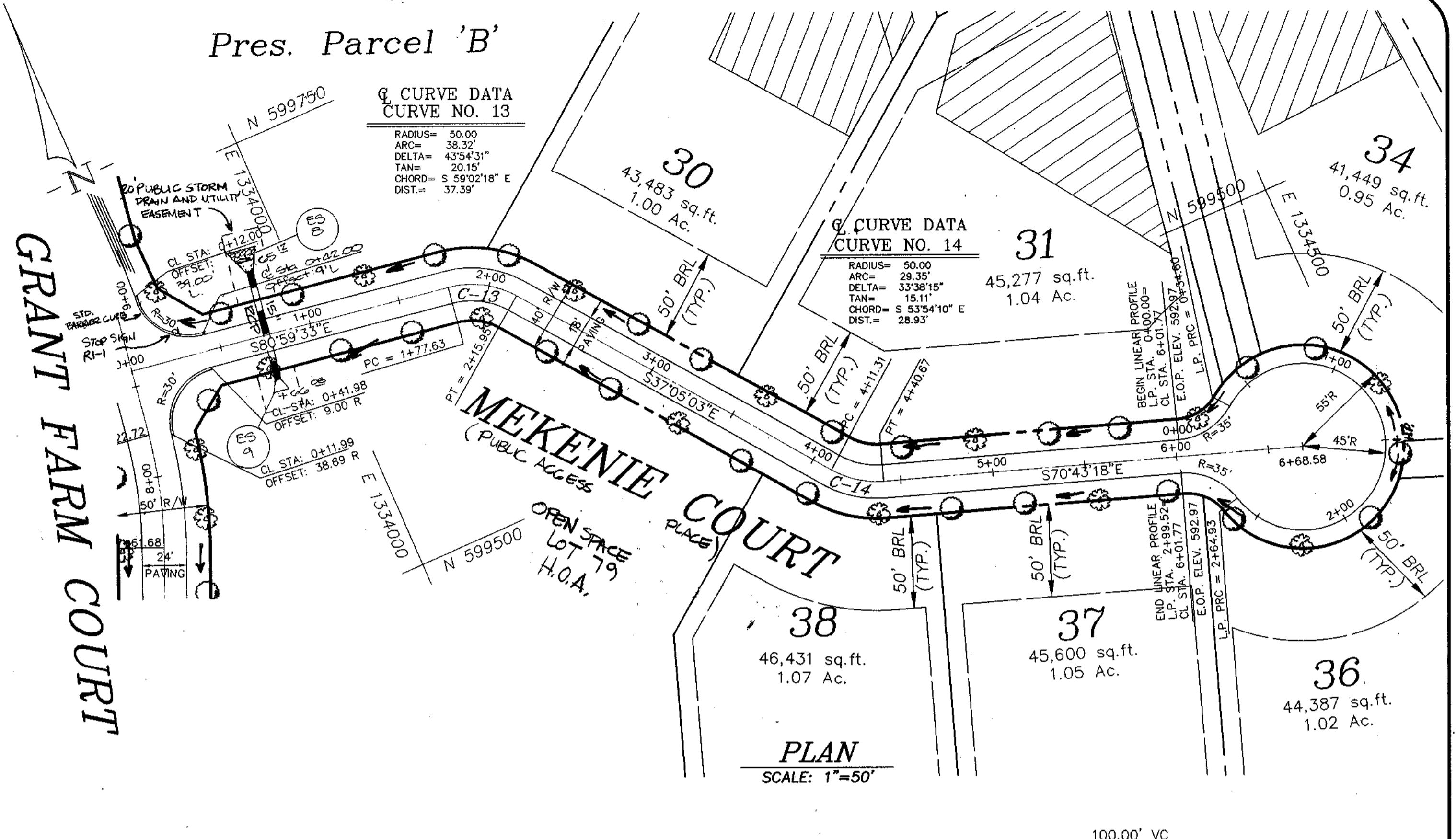
Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
 ELECTION DISTRICT NO. 3
 HOWARD COUNTY, MARYLAND
GRANT FARM COURT PLAN AND PROFILE

R.M. MOCHI GROUP, P.C.
 P.O. Box 10
 New Market, MD 21774-0010
 (301) 965-6565
 Fax: (301) 965-5171

MATCH LINE SEE SHEET 6 OF 29



BORDER PLATS
F-85-1-52
PARCEL 22
ZONED: RR-DEO
LOT 11



APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard Hill 9/4/10
CHIEF, BUREAU OF HIGHWAYS

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamilton 7/28/10
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[Signature] 9/4/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION

MEKENIE COURT - ROADSIDE DITCH DATA

BEGIN STATION	END STATION	CFS	FPS	SLOPE	ROADSIDE DITCH LINING*
0+00 L	4+25 L	1.98	3.08	7.28%	SSM OVER SEED AND MULCH
0+00 R	4+25 R	1.58	3.42	7.28%	
4+25 L	6+69 L	0.26	1.34	2.00%	
4+25 R	6+69 R	1.03	1.89	2.00%	

* SOIL STABILIZATION MATTING = SSM

GRANT FARM COURT - ROADSIDE DITCH DATA

BEGIN STATION	END STATION	CFS	FPS	SLOPE	ROADSIDE DITCH LINING*
0+00 L	1+00 L	0.62	1.79	2.00%	SSM OVER SEED AND MULCH
0+00 R	1+00 R	0.90	1.53	2.00%	
1+00 L	3+20 L	4.82	2.79	2.00%	
1+00 R	8+35 R	3.94	2.61	2.00%	
3+20 L	8+35 L	4.70	2.71	2.00%	
8+35 L	10+40 L	4.79	2.78	2.00%	
8+35 R	17+72 R	1.88	2.19	2.00%	
10+40 L	12+50 L	4.86	2.79	2.00%	
12+50 L	13+42 L	3.49	2.57	2.00%	
13+42 L	15+00 L	3.49	2.57	2.00%	
15+00 L	17+72 L	4.45	2.73	2.00%	

* SOIL STABILIZATION MATTING = SSM

FOR TYPICAL SECTIONS AND PAVING SECTIONS SEE SHEET 3 OF 29.

FOR STREET TREE PLANTING DETAIL SEE SHEET 5 OF 29.

STREET TREES
MEKENIE COURT
1497 L.F. RIGHT-OF-WAY
37 STREET TREES REQUIRED
= TYPICAL STREET TREE 2 1/2" - 3" CAL.
= TYPICAL STREET TREE 2 1/2" - 3" CAL.
37 PROPOSED @ 40 FEET APART
PLANTING TYPE FOR MEKENIE COURT
37- MARSHALL SEEDLESS GREEN ASH

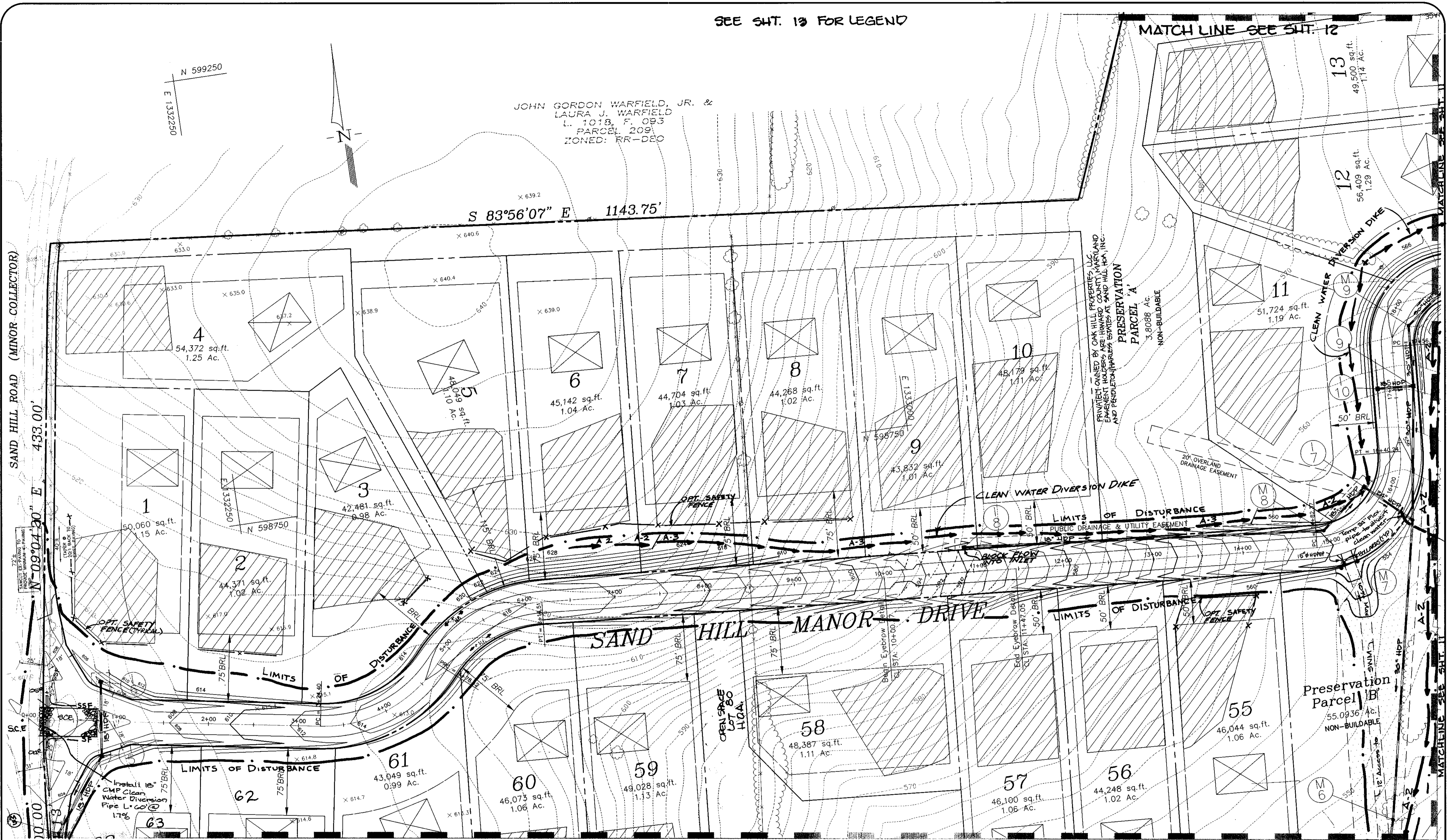
project	08-20-00
date	08-20-00
illustration	engineering
illustrator	P.P.B.
scale	1"=50'
approval	R.M.M.

no.	2	date	9-6-00
description	original to DEP	date	7-5-00
description	Direct to DEP DEP	date	03-27-00
description	SUBMITTED TO HOWARD CO. DEP FOR REVIEW	description	revisions

Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
ELECTION DISTRICT NO. 3
HOWARD COUNTY, MARYLAND
GRANT FARM COURT / MEKENIE COURT PLAN & PROFILE

R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
(301) 865-5855
Fax: (301) 865-5111

SEE SHT. 13 FOR LEGEND



JOHN GORDON WARFIELD, JR. &
LAURA J. WARFIELD
L. 1018, F. 093
PARCEL 209
ZONED: RR-DEO

MATCH LINE SEE SHT. 12

S 83°56'07" E 1143.75'

SAND HILL ROAD (MINOR COLLECTOR)

N 09°04'30" E 433.00'

SAND HILL MANOR DRIVE

MATCHLINE SEE SHT. 9

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard Spill 9/18/00
CHIEF, BUREAU OF HIGHWAYS DATE

DEVELOPER:
OAK HILL PROPERTIES
107 LOUDOUN STREET, S.E.
LEESBURG, VIRGINIA 20175-3106
(703) 443-0400
ATTN: MR. KEVIN ROGERS

ENGINEER/SURVEYOR:
R.M. MOCHI GROUP, P.C.
10120 A OLD NATIONAL PIKE
JAMMSVILLE, MD. 21754-9706
(301) 865-5858
ATTN: MR. ROBERT M. MOCHI, P.E.

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Andy Hamstra 7/18/00
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED:
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Robert M. Mochi 9/18/00
HOWARD SOIL CONSERVATION DISTRICT 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.
Cheryl Simms 9/18/00
USDA - NATIONAL RESOURCES CONSERVATION SERVICE DATE

DEVELOPER'S CERTIFICATE
I/We certify that all development and 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.
Robert M. Mochi 3/22/00
Signature of Developer DATE

ENGINEER'S CERTIFICATE
I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.
Robert M. Mochi 3/22/00
Robert M. Mochi, P.E. DATE

GARDNER ENVIRONMENTAL SERVICES, INC.
P.O. BOX 273
MONROVIA, MD. 21770
(301) 865-2111

QUALIFIED PROFESSIONAL PER THE MARYLAND FOREST CONSERVATION ACT
Timothy N. Gardner 3/22/00
TIMOTHY N. GARDNER DATE
MD. FORESTER REG. NO. 422



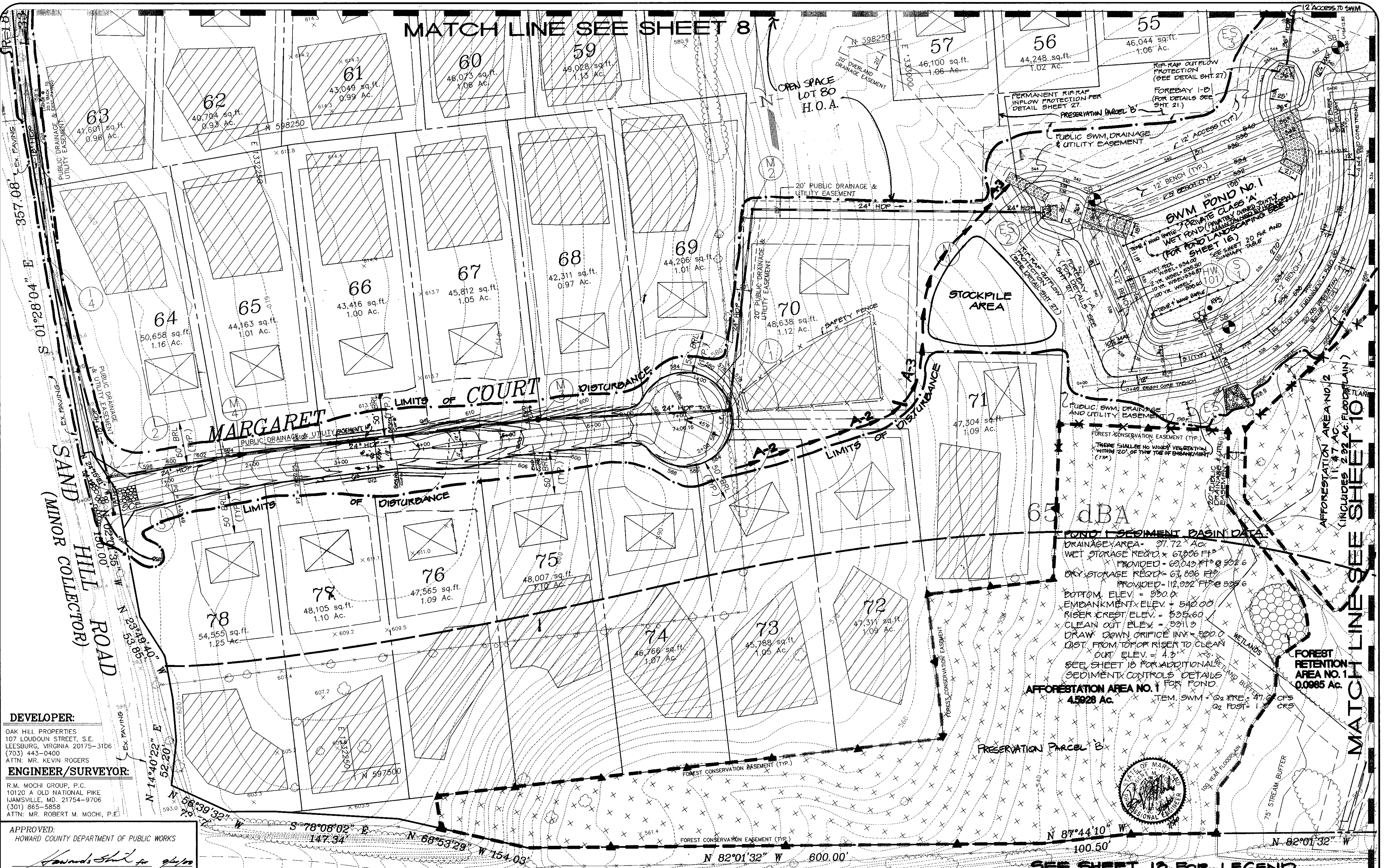
date	09-22-00
project	99008-13
illustration	KMB
scale	1"=50'
approval	P.F.B.
approval	R.M.M.

no.	1	description	Direct to DPE DEO	date	7-5-00
no.	0	description	1ST SUBMITAL TO HO. CO. DEP FOR REVIEW	date	02-27-00
no.		description	REVISIONS	date	

Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
HOWARD COUNTY, MD.
ELECTION DISTRICT NO. 3
Grading, Sediment Control and Forest Conservation Plan

R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
10120 A Old National Pike
Jammsville, MD 21754-9706
(301) 865-5858
Fax: (301) 865-5111

MATCH LINE SEE SHEET 8



DEVELOPER:
 OAK HILL PROPERTIES
 107 LOUDOUN STREET, S.E.
 LEESBURG, VIRGINIA 20175-3106
 (703) 443-0400
 ATTN: MR. KEVIN ROGERS

ENGINEER/SURVEYOR:
 R.M. MOCHI GROUP, P.C.
 10120 A OLD NATIONAL PIKE
 JAMMSVILLE, MD. 21754-9706
 (301) 865-5858
 ATTN: MR. ROBERT M. MOCHI, P.E.

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard's Seal 9/24/00
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cathy Hamilton 7/18/00
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Robert Mochi 9/24/00
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED:
 THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Robert Mochi 9/24/00
 HOWARD SOIL CONSERVATION DISTRICT 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.
Cheryl Swain 9/24/00
 USDA - NATIONAL RESOURCES CONSERVATION SERVICE DATE

DEVELOPER'S CERTIFICATE
 I/We certify that all development and 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.
Robert Mochi 5/22/00
 Signature of Developer DATE

ENGINEER'S CERTIFICATE
 I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.
Robert Mochi 3/29/00
 Robert M. Mochi, P.E. DATE

GARDNER ENVIRONMENTAL SERVICES, INC.
 P.O. BOX 273
 MONROVIA, MD. 21770
 (301) 865-2111

QUALIFIED PROFESSIONAL PER THE MARYLAND FOREST CONSERVATION ACT
Timothy N. Gardner 3/27/00
 TIMOTHY N. GARDNER DATE
 MD. FORESTER REG. NO. 422

POND 1 SEDIMENT BASIN DATA
 DRAINAGE AREA - 37.72 AC
 WET STORAGE REQ'D - 67,006 FT³
 PROVIDED - 69,043 FT³ @ 50%
 DRY STORAGE REQ'D - 67,006 FT³
 PROVIDED - 112,032 FT³ @ 50%
 BOTTOM ELEV. = 530.0'
 EMBANKMENT ELEV. = 540.00'
 RISER CREST ELEV. = 535.60'
 CLEAN OUT ELEV. = 531.13'
 DRAW DOWN ORIFICE INV. = 500.0'
 DIST. FROM TOP OF RISER TO CLEAN OUT ELEV. = 4.3'
 SEE SHEET 10 FOR ADDITIONAL SEDIMENT CONTROL DETAILS
AFFORESTATION AREA NO. 1 FOR POND
 4.5028 AC
 TEM. SWM - Q2 XRE - Q2 OPS
 Q2 POST - 1.5' CES



SEE SHEET 10 FOR LEGEND

PROJECT	99008-13
DATE	09-22-00
ILLUSTRATION	KMB
ENGINEERING	P.F.B.
SCALE	1"=60'
APPROVAL	R.M.M.

NO.	1
DESCRIPTION	Direct to DFD DED
DATE	7-5-00
REVISIONS	1ST SUBMITTAL TO A.C. CO. DRZ FOR REVIEW

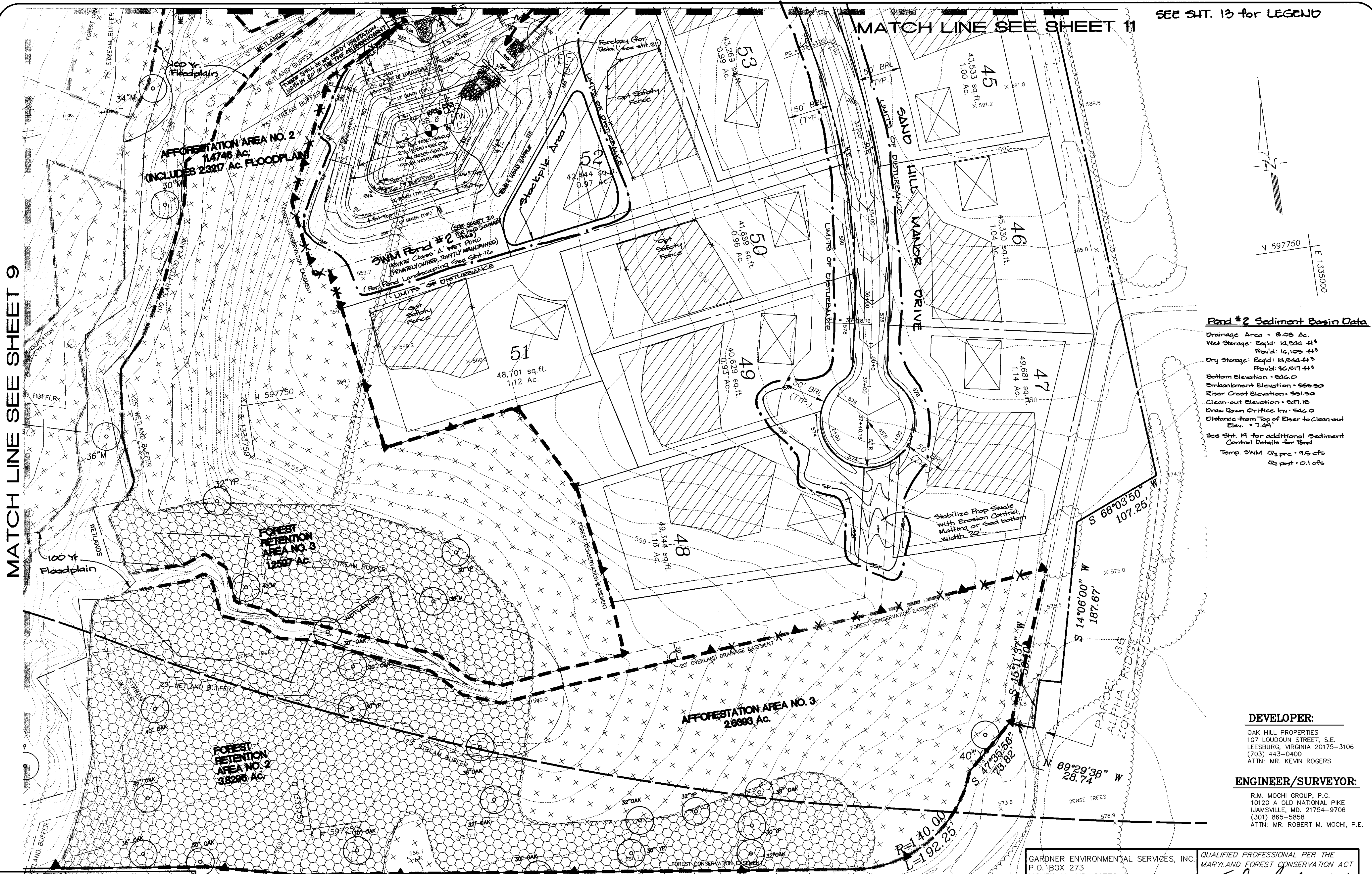
Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
 HOWARD COUNTY, MD.
 ELECTION DISTRICT NO. 3
 Grading, Sediment Control and Forest Conservation Plan

R.M. MOCHI GROUP, P.C.
 P.O. Box 10
 New Market, MD 21774-8010
 10120 A Old National Pike
 Jammsville, MD 21754-9706
 (301) 865-5858
 Fax: (301) 865-5111

SEE SHT. 13 for LEGEND

MATCH LINE SEE SHEET 11

MATCH LINE SEE SHEET 9



Pond #2 Sediment Basin Data

Drainage Area = 8.08 Ac.
 Net Storage: Req'd: 14,544 ft³
 Provided: 16,109 ft³
 Dry Storage: Req'd: 14,844 ft³
 Provided: 26,917 ft³
 Bottom Elevation = 546.0
 Embankment Elevation = 566.50
 Riser Crest Elevation = 551.50
 Clean-out Elevation = 527.16
 Draw Down Orifice Inv. = 546.0
 Distance from Top of Riser to Clean-out Elev. = 7.41'

See Sht. 14 for additional Sediment Control Details for Pond
 Temp. SWM Q₂ pre = 9.5 cfs
 Q₂ post = 0.1 cfs

DEVELOPER:

OAK HILL PROPERTIES
 107 LOUDOUN STREET, S.E.
 LEESBURG, VIRGINIA 20175-3106
 (703) 443-0400
 ATTN: MR. KEVIN ROGERS

ENGINEER/SURVEYOR:

R.M. MOCHI GROUP, P.C.
 10120 A OLD NATIONAL PIKE
 UMMSVILLE, MD. 21754-9706
 (301) 865-5858
 ATTN: MR. ROBERT M. MOCHI, P.E.

GARDNER ENVIRONMENTAL SERVICES, INC.
 P.O. BOX 273
 MONROVIA, MD. 21770
 (301) 865-2111

QUALIFIED PROFESSIONAL PER THE MARYLAND FOREST CONSERVATION ACT
Timothy N. Gardner 3/27/00
 TIMOTHY N. GARDNER
 MD. FORESTER REG. NO. 422 DATE

APPROVED: *[Signature]*
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE

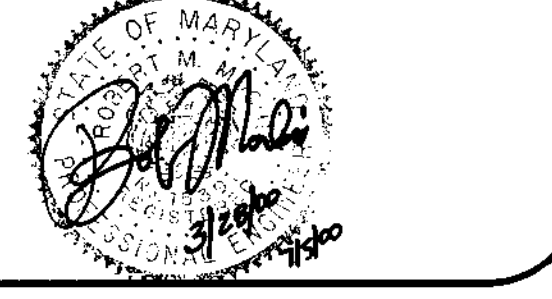
APPROVED: *[Signature]*
 HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

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

APPROVED: *[Signature]*
 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.
 USDA - NATIONAL RESOURCES CONSERVATION SERVICE DATE

DEVELOPER'S CERTIFICATE
 I certify that all development and 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]
 Signature of Developer DATE

ENGINEER'S CERTIFICATE
 I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.
[Signature]
 Robert M. Mochi, P.E. DATE



date	03-22-00	approval	R.M.M.
project	98009-13	illustration	KMB
engineering		scale	1"=50'

no.	1	description	REVISED
date	7-5-00	revision	
Direct to: <i>[Signature]</i>			
1ST SUBMITTAL TO HD. CO. DPZ FOR REVIEW			

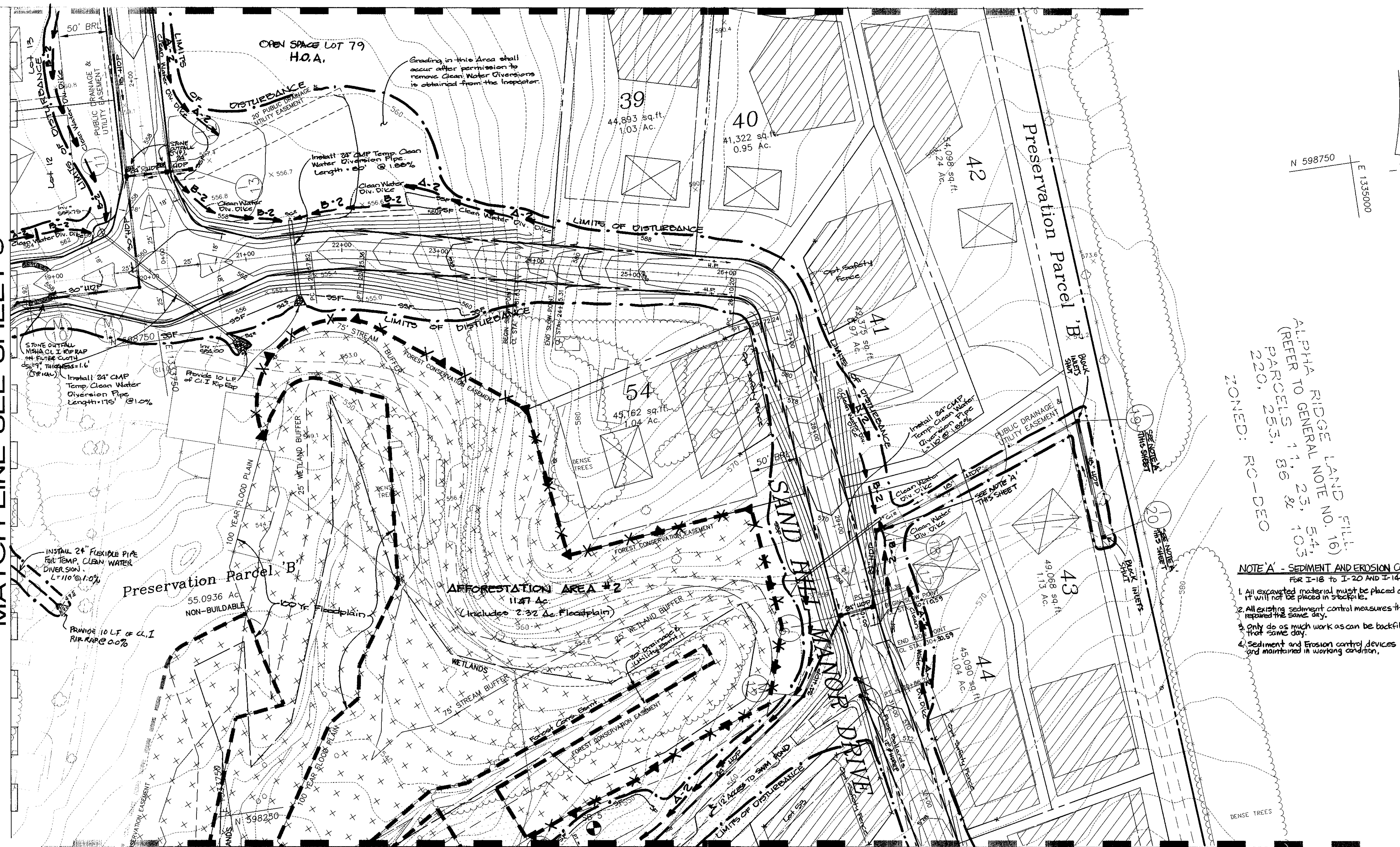
Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
 ELECTION DISTRICT NO. 3 HOWARD COUNTY, MD.
Grading, Sediment Control and Forest Conservation Plan

R.M. MOCHI GROUP, P.C.
 P.O. Box 10
 New Market, MD 21774-0010
 (301) 865-5858
 Fax: (301) 865-5111

MATCH LINE SEE SHEET 12

SEE SHEET 13 FOR LEGEND

MATCH LINE SEE SHEET 8



ALPHA RIDGE LAND FILL
 (REFER TO GENERAL NOTE NO. 16)
 PARCELS 1, 2, 3, 5, 4,
 220, 253, 336 & 103
 ZONED: RO-DEO

- NOTE 'A' - SEDIMENT AND EROSION CONTROL NOTES**
 FOR I-18 TO I-20 AND I-14 TO I-15
1. All excavated material must be placed on high side of trench if it will not be placed in stockpile.
 2. All existing sediment control measures that are disturbed must be repaired the same day.
 3. Only do as much work as can be backfilled, seeded and mulched in that same day.
 4. Sediment and Erosion control devices shall be inspected daily and maintained in working condition.

MATCH LINE SEE SHEET 10

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard Shuler 9/24/00
 CHIEF, BUREAU OF HIGHWAYS DATE

DEVELOPER:
 OAK HILL PROPERTIES
 107 LOUDOUN STREET, S.E.
 LEESBURG, VIRGINIA 20175-3106
 (703) 443-0400
 ATTN: MR. KEVIN ROGERS

ENGINEER/SURVEYOR:
 R.M. MOCHI GROUP, P.C.
 10120 A OLD NATIONAL PIKE
 JAMSVILLE, MD. 21754-9706
 (301) 865-5858
 ATTN: MR. ROBERT M. MOCHI, P.E.

GARDNER ENVIRONMENTAL SERVICES, INC.
 P.O. BOX 273
 MONROVIA, MD. 21770
 (301) 865-2111

QUALIFIED PROFESSIONAL PER THE
 MARYLAND FOREST CONSERVATION ACT
Timothy N. Gardner 3/27/00
 TIMOTHY N. GARDNER DATE
 MD. FORESTER REG. NO. 422

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamiter 7/19/00
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED:
 THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION
 AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE
 HOWARD SOIL CONSERVATION DISTRICT.
Robert M. Mochi 9/18/00
 HOWARD SOIL CONSERVATION DISTRICT 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.
John A. Simon 9/18/00
 NATIONAL RESOURCES CONSERVATION SERVICE DATE

DEVELOPER'S CERTIFICATE
 I/We certify that all development and 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.
Kevin Rogers 5/22/00
 Signature of Developer DATE

ENGINEER'S CERTIFICATE
 I certify that this plan for pond construction, erosion and sediment control represents
 a practical and workable plan based on my personal knowledge of the site conditions.
 This plan was prepared in accordance with the requirements of the Howard Soil
 Conservation District. I have notified the developer that he/she must engage a
 registered professional engineer to supervise pond construction and provide the
 Howard Soil Conservation District with an "as-built" plan of the pond within 30 days
 of completion.
Robert M. Mochi 3/28/00
 Robert M. Mochi, P.E. DATE



date	03-22-00	approval	R.M.M.
project	99008-13	illustration	P.F.B.
scale	1"=50'	scale	7.5"=00
description	Dited to DP2 DEO 1ST SUBMITTAL TO HO. CO. DPZ FOR REVIEW		
revisions			

date	03-29-00	approval	R.M.M.
project	99008-13	illustration	P.F.B.
scale	1"=50'	scale	7.5"=00
description	Dited to DP2 DEO 1ST SUBMITTAL TO HO. CO. DPZ FOR REVIEW		
revisions			

Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
 HOWARD COUNTY, MD.
 ELECTION DISTRICT NO. 3
 Grading, Sediment Control and Forest Conservation Plan

R.M. MOCHI GROUP, P.C.
 P.O. Box 10
 New Market, MD 21774-0010
 10120 A Old National Pike
 Jamsville, MD 21754-9706
 (301) 865-5858
 Fax: (301) 865-5111

TRAFFIC CALMING DEVICE STAKE OUT TABLE			
GRANT FARM COURT			
TRAFFIC CALMING DEVICE CENTRAL MEDIAN ISLAND			
Station	CL (ft)	Offset	1/2" Elevation*
1	1120.12	2.00	567.87
2	1120.12	2.00	567.87
3	1120.12	2.00	567.87
4	1120.12	2.00	567.87
5	1120.12	2.00	567.87
6	1120.12	2.00	567.87
7	1120.12	2.00	567.87
8	1120.12	2.00	567.87
9	1120.12	2.00	567.87
10	1120.12	2.00	567.87
11	1120.12	2.00	567.87
12	1120.12	2.00	567.87
13	1120.12	2.00	567.87
14	1120.12	2.00	567.87
15	1120.12	2.00	567.87
16	1120.12	2.00	567.87
17	1120.12	2.00	567.87
18	1120.12	2.00	567.87
19	1120.12	2.00	567.87
20	1120.12	2.00	567.87
21	1120.12	2.00	567.87
22	1120.12	2.00	567.87
23	1120.12	2.00	567.87
24	1120.12	2.00	567.87
25	1120.12	2.00	567.87
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95	1120.12	2.00	567.87
96	1120.12	2.00	567.87
97	1120.12	2.00	567.87
98	1120.12	2.00	567.87
99	1120.12	2.00	567.87
100	1120.12	2.00	567.87

LEGEND:

- PERC AREAS
- FOREST CONSERVATION EASEMENT (AFForestation)
(SYMBOL IS NOT IN TENDED TO INDICATE PLANTINGS)
- FOREST RETENTION AREA
- PUBLIC S.W.M., DRAINAGE AND UTILITY EASEMENT
- SB 4 SOIL BORING LOCATION
- LIMITS OF DISTURBANCE (L.O.D.)
- DENOTES FOREST CONSERVATION EASEMENT WITH TREE PROTECTION FENCE + SIGNAGE
- Denotes Fence
- Denotes Signage

TRAFFIC CALMING DEVICE STAKE OUT TABLE			
GRANT FARM COURT			
TRAFFIC CALMING DEVICE CENTRAL MEDIAN ISLAND			
Station	CL (ft)	Offset	1/2" Elevation*
1	1120.12	2.00	567.87
2	1120.12	2.00	567.87
3	1120.12	2.00	567.87
4	1120.12	2.00	567.87
5	1120.12	2.00	567.87
6	1120.12	2.00	567.87
7	1120.12	2.00	567.87
8	1120.12	2.00	567.87
9	1120.12	2.00	567.87
10	1120.12	2.00	567.87
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99	1120.12	2.00	567.87
100	1120.12	2.00	567.87

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard Smith 9/10/00
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamilton 9/10/00
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED:
[Signature] 9/10/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED:
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
[Signature] 9/10/00
HOWARD SOIL CONSERVATION DISTRICT 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.
[Signature] 9/10/00
USDA - NATIONAL RESOURCES CONSERVATION SERVICE DATE

DEVELOPER'S CERTIFICATE
I/We certify that all development and 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] 9/10/00
Signature of Developer DATE

ENGINEER'S CERTIFICATE
I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.
[Signature] 9/10/00
Robert M. Mochi, P.E. DATE

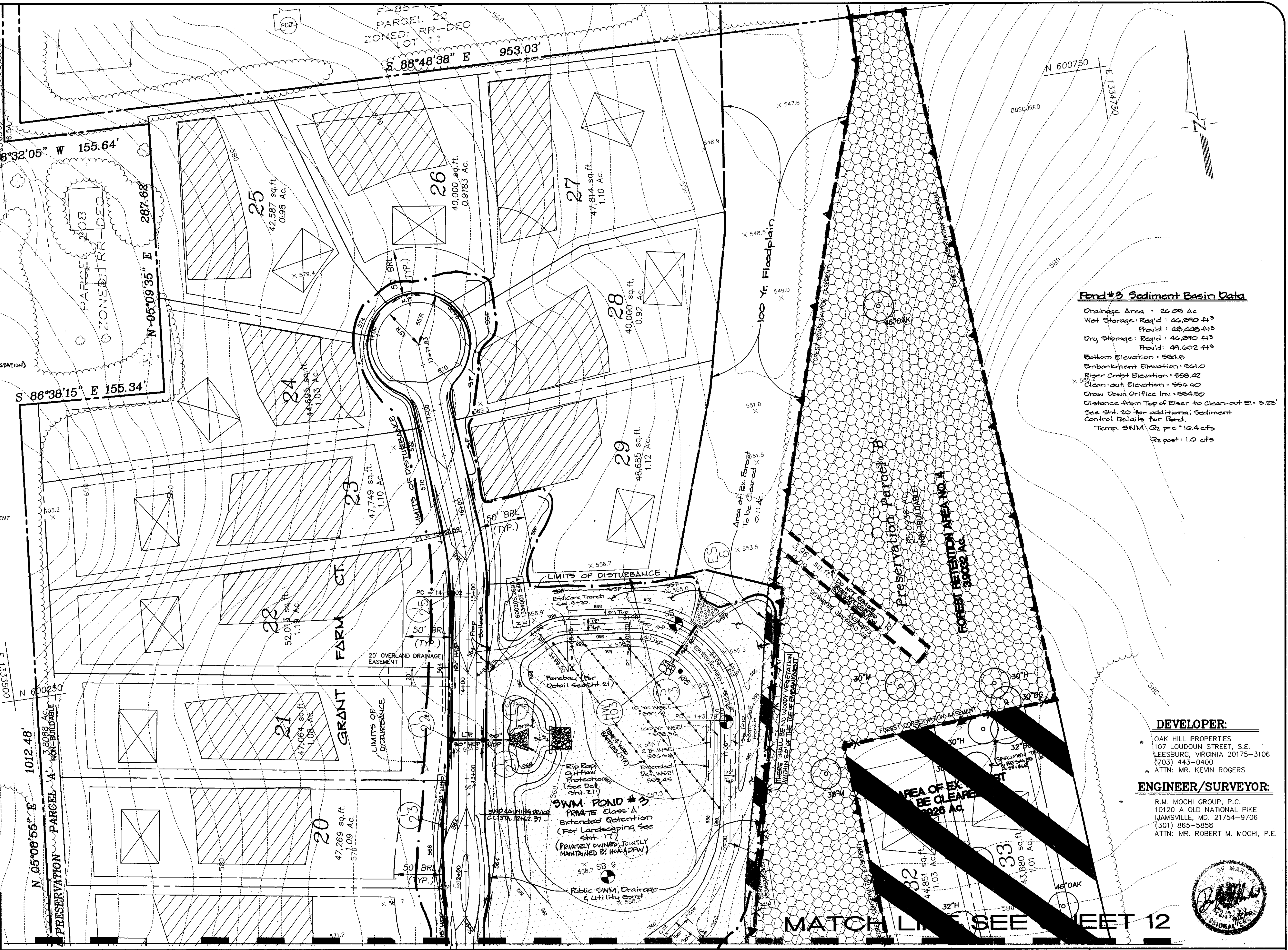
GARDNER ENVIRONMENTAL SERVICES, INC.
P.O. BOX 273
MONROVIA, MD. 21770
(301) 865-2111
QUALIFIED PROFESSIONAL PER THE MARYLAND FOREST CONSERVATION ACT
[Signature] 3/27/00
TIMOTHY N. GARDNER DATE
MD. FORESTER REG. NO. 422

PROJECT	99003-13	DATE	09-22-00
ILLUSTRATION	KMB	ENGINEERING	P.F.B.
SCALE	1"=50'	APPROVAL	R.M.M.

NO.	2	DATE	03-27-00
DESCRIPTION	Original to DPZ	DATE	7-5-00
REVISIONS	1	DESCRIPTION	1ST SUBMITTAL TO HO. CO. DPZ FOR REVIEW

Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
ELECTION DISTRICT NO. 3
HOWARD COUNTY, MD.
Grading, Sediment Control and Forest Conservation Plan

R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
(301) 865-5588
Fax: (301) 865-5111



Pond #3 Sediment Basin Data
 Drainage Area = 24.05 Ac
 Wet Storage: Req'd = 42,890 ft³
 Provided = 48,408 ft³
 Dry Storage: Req'd = 42,890 ft³
 Provided = 49,602 ft³
 Bottom Elevation = 554.6
 Embankment Elevation = 551.0
 Ripper Crest Elevation = 558.42
 Clean-out Elevation = 554.60
 Draw Down Orifice Inv. = 554.50
 Distance from Top of Riser to Clean-out El. = 3.2'
 See Sht. 20 for additional Sediment Control Details for Pond.
 Temp. SWM: Q2 prc = 10.4 cfs
 Q2 post = 1.0 cfs

DEVELOPER:
 OAK HILL PROPERTIES
 107 LOUDOUN STREET, S.E.
 LEESBURG, VIRGINIA 20175-3106
 (703) 443-0400
 ATTN: MR. KEVIN ROGERS

ENGINEER/SURVEYOR:
 R.M. MOCHI GROUP, P.C.
 10120 A OLD NATIONAL PIKE
 UMMSVILLE, MD. 21754-9706
 (301) 865-5588
 ATTN: MR. ROBERT M. MOCHI, P.E.

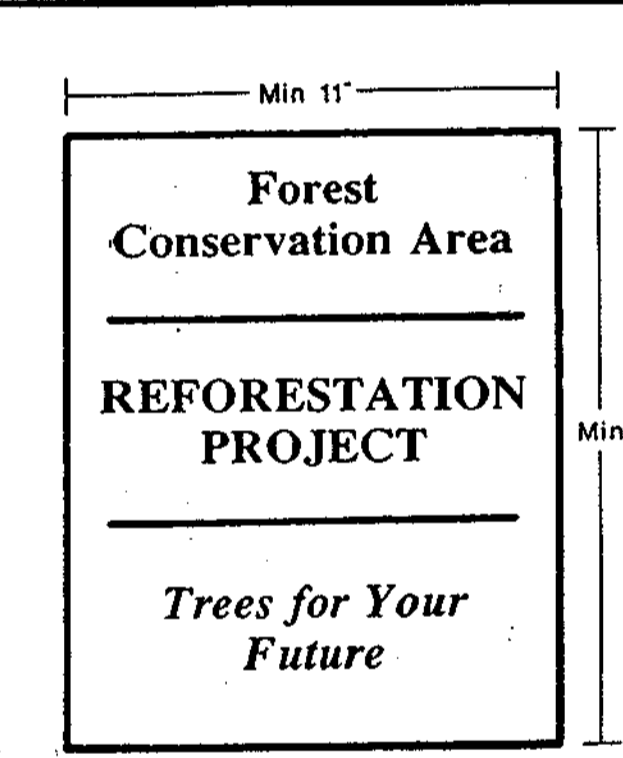
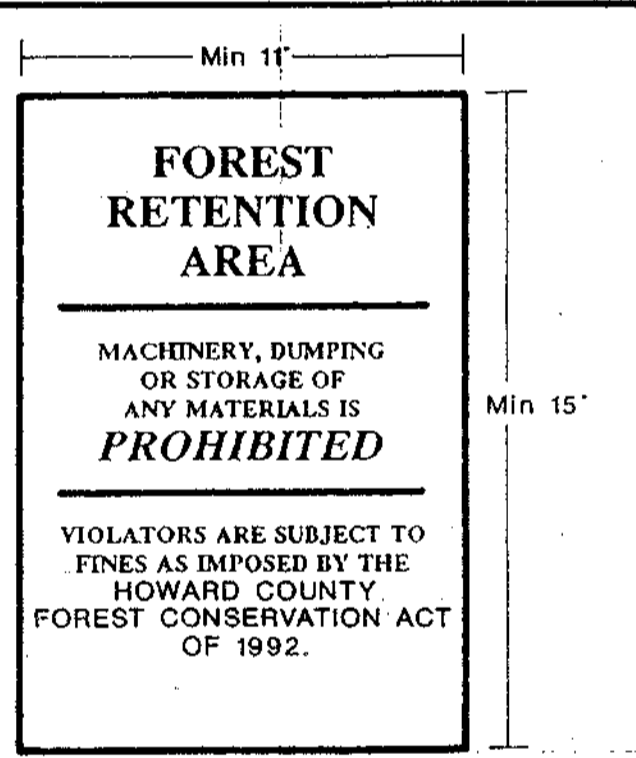
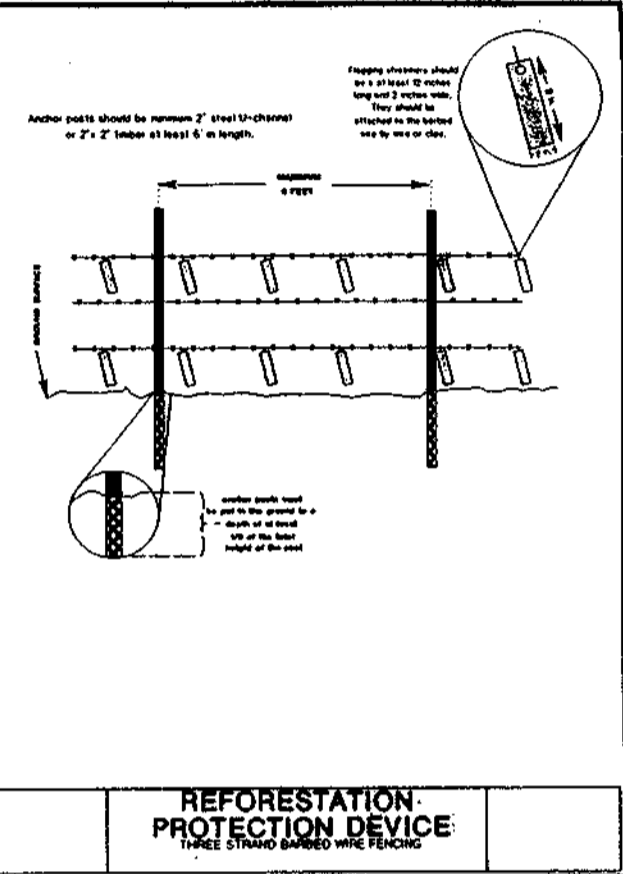
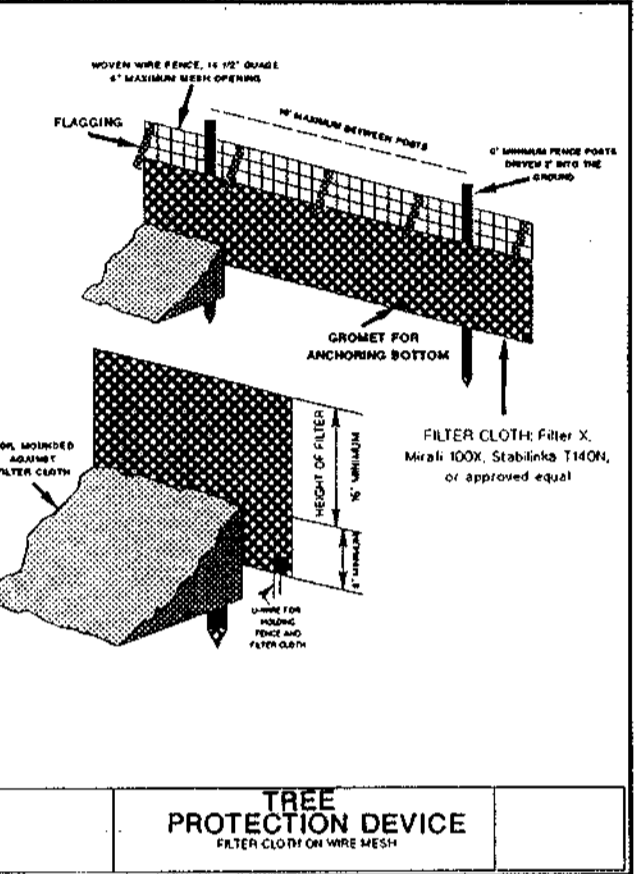


M-1 Tree Planting and Maintenance Calendar General Guidelines

	J	F	M	A	M	J	J	A	S	O	N	D
Transplant of 2" DBH or Greater	NOT RECOMMENDED											
Planting of Seedlings, Whips	NOT RECOMMENDED											
Inspection		X					X				X	
Fertilizer (if needed)	NOT RECOMMENDED											
Water	NOT RECOMMENDED											

Key:
 [Hatched Box] - greatly recommended
 [Dotted Box] - recommended with additional care
 [White Box] - dependent upon site conditions

Note: Activities during November through February are dependent upon ground conditions.



- SIGNAGE SHALL BE ORANGE AND SHALL BE LOCATED ON PROTECTIVE FENCING POSTS AS INDICATED ON PLAN.
- ▲ INDICATES LOCATION OF FOREST RETENTION/AFFORESTATION AREA SIGN ON PLAN.

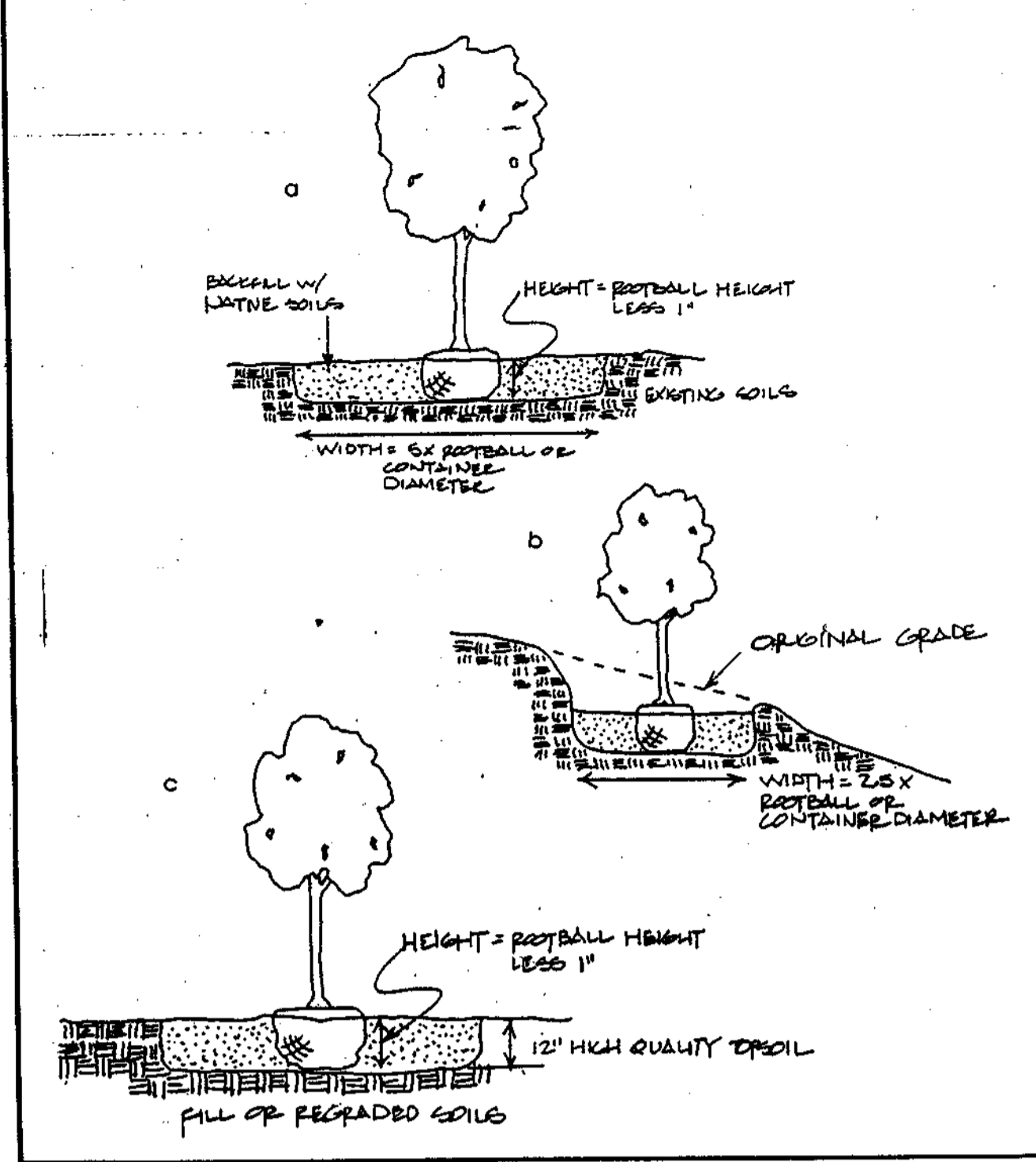
APPROVED:
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature]
 CHIEF, BUREAU OF HIGHWAYS

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

DEVELOPER:
 OAK HILL PROPERTIES
 107 LOUDOUN STREET, S.E.
 LEESBURG, VIRGINIA 20175-3106
 (301) 443-0400
 ATTN: MR. KEVIN ROGERS

ENGINEER/SURVEYOR:
 R.M. MOCHI GROUP, P.C.
 10120 A OLD NATIONAL PIKE
 JAMMSVILLE, MD. 21754-9706
 (301) 865-5858
 ATTN: MR. ROBERT M. MOCHI, P.E.

M-7 Planting Specifications: Container Grown and Balled and Burlapped Stock



NET TRACT AREA:

A. TOTAL TRACT AREA	156.1
B. AREA WITHIN 100 YEAR FLOODPLAIN	5.5
C. AREA WITHIN AGRIC. USE OR PRES. PARCEL (IF APPLIC.)	0.00
D. NET TRACT AREA	150.6

LAND USE CATEGORY: (FROM TABLE 3.2.1., PAGE 40, MANUAL)
 Input the number "1" under the appropriate land use zoning, and limit to only one.

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

E. AFFORESTATION THRESHOLD 20% x D = 30.1
 F. CONSERVATION THRESHOLD 25% x D = 37.7

EXISTING FOREST COVER

G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN) =	11.22
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD =	0.0
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD =	0.0

BREAK EVEN POINT

J. FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION =	0.0
K. CLEARING PERMITTED WITHOUT MITIGATION =	0.0

PROPOSED FOREST CLEARING:

L. TOTAL AREA OF FOREST TO BE CLEARED =	2.13
M. TOTAL AREA OF FOREST TO BE RETAINED =	9.09

PLANTING REQUIREMENTS:

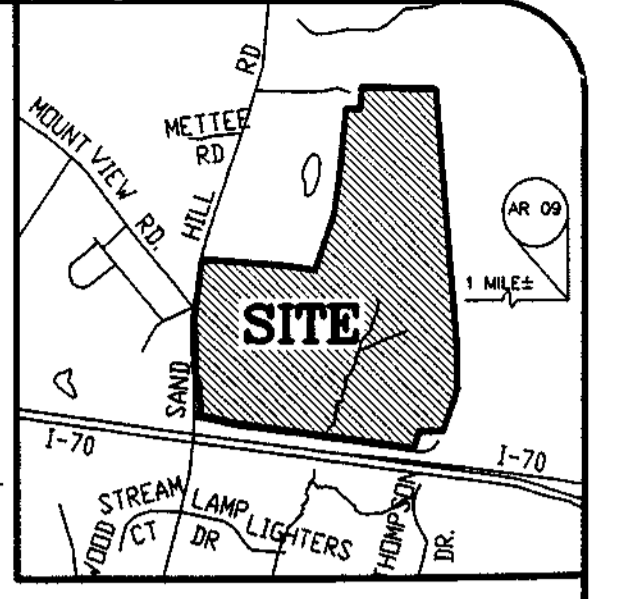
N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD =	0.00
P. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD =	4.26 1.00 1.00
Q. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD =	0.00
R. TOTAL REFORESTATION REQUIRED =	4.26 1.00 1.00
S. TOTAL AFFORESTATION REQUIRED =	18.88
T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED =	23.14

NOTE:
 SPECIMEN TREES ARE SHOWN ON SHEETS 10-13 IN THE PLAN VIEW. ALL SPECIMEN TREES ARE TO REMAIN EXCEPT THOSE SHOWN ON LOTS 32/33. AN ATTENTION TO SALES THOSE TREES WILL BE MADE BY THE OWNER/CONTRACTOR DEPENDING UPON HOUSE PLACEMENT AND GRADING.

FOREST CONSERVATION WORKSHEET

FOREST CONSERVATION SITE INFORMATION:

- A. GROSS AREA OF TRACT = 156.1 Ac.
- B. AREA OF 100 YEAR FLOODPLAIN = 5.5 Ac.
- C. NET AREA OF TRACT = 150.6 Ac.
- D. ZONING: RR-DEO
- E. FOREST RETENTION ON NET TRACT AREA = 9.09 Ac.
- F. AFFORESTATION REQUIREMENT OF 23.14 Ac.
- G. AFFORESTATION PROVIDED = 18.78 Ac. ON-SITE*
- H. UNLESS OTHERWISE NOTED, ALL SPECIMEN TREES SHALL BE PRESERVED.



The proposed afforestation areas shall be composed of trees from the following lists, using the quantities shown, planted in a random mix of species, located randomly at approximately 15 feet center to center.

WETLANDS AND WETLAND BUFFER AREAS - 5.47 Acres

200 trees/acre x 5.47 acres = 1,094 one-inch caliper trees randomly mixed for field placement approximately 15 ft. x 15 ft. spacing

Red Maple	Acer rubrum	157
Tulip Poplar	Liriodendron tulipifera	157
Green Ash	Faxinus pennsylvanica	156
Sycamore	Platanus occidentalis	157
Silver Maple	Acer saccharinum	156
Bittersweet	Ulmus rubra	156
Boxelder	Acer negundo	155

UPLAND AREAS - 13.31 Acres

200 trees/acre x 13.31 acres = 2,662 one-inch caliper trees minus credit for 35 landscape trees @ 400 sq. ft./landscape tree = 14,000/43,560 = 0.32 acres x 200 trees/acre = 64 tree credit
 2,662 - 64 = 2,598 trees to be planted randomly mixed for field placement approximately 15 ft. x 15 ft. spacing

Black Oak	Quercus velutina	433
Black Maple	Acer nigrum	433
Red Oak	Quercus rubra	433
Tulip Poplar	Liriodendron tulipifera	433
Blackgum	Nyssa sylvatica	433
White Oak	Quercus alba	433

Areas planted with seedlings or whips should be mulched after plantings as shown in Exhibit M-6.

- a. **Undisturbed Sites:** Soil disturbance should be limited to the planting field for each plant. Planting fields in a new tree that reflects a change in recommended planting specifications. Research has shown that root systems of trees planted in traditional holes with amended soils are likely to remain confined to the amended soil area. Such trees have lower survival rates. A planting field radius = 5 x diameter of the root ball is recommended.
- b. **Disturbed Areas:** Soils should be treated by incorporating natural mulch within the top 12 inches or by amendments as determined by a soil analysis. Soil amendments, by definition, include modifications of soils to improve such development sites, the common use of fill materials increase the need for such amendments. Natural amendments such as organic mulch or leaf mold compost are preferred. When fill material is used at the planting site, it should be clean fill topped with 12 inches of native soil.
- c. **Planting Fields:** Planting windows are the time during the year when installation is recommended, planting windows differ depending on the site stock being used. Planting windows are shown in Exhibit M-1.
- d. **Plant Material Storage:** Planting should occur within 24 hours of delivery to the site. Plant materials left unplanted for more than 24 hours should be protected from direct sun and weather and kept moist. Bare root stock unplanted for more than 24 hours should be planted within 2 weeks. On-site or local transplanted materials should be stored in tree banks if unplanted for more than 24 hours, following the exempt in exhibit M-3.
- e. **On-site Inspection:** Planting stock should be inspected prior to planting. Plants not conforming to standard nurseryman specifications for size, form, vigor, roots, trunk wounds, insects and disease should be replaced.

- a. **Watering:** A watering plan should only be implemented to compensate for deficient rainfall patterns. Trees can die from too much water as well as too little. Newly planted trees may need water as much as once a week for the entire first growing season. The next two years, in contrast, may require watering only a few times a year (one month during July and August). After that, trees should only need watering in severe droughts. Bare root transplants, if sufficiently watered during planting, may not need water for about 2-4 weeks after growth begins. Balled and burlapped material may require more frequent watering.

- a. **Soil and Watering:** Soil texture influences the downward flow of water. Soils with more clay tend to retain more water and can be watered less often; soils with more sand drain more quickly and need to be watered more often. If the soil is well prepared before planting, there should be few drainage problems. Restricted downward penetration indicates a low water table. Restricted downward penetration indicates a low water table. Restricted downward penetration indicates a low water table. Restricted downward penetration indicates a low water table.

- a. **Planting Installation:** Small stock, such as seedlings and whips, and balled and burlapped stock up to 2" caliper, can be planted by manual methods of planting using shovels, planting shovels, and mattocks (See Exhibit M-4). For large areas, planting machines are occasionally used but have the drawback of creating linear, plantation-type forests. Extreme care should be taken to insure retained moisture of the roots. When planting seedlings and whips, a mulch carrying container should be used to prevent desiccation (See Exhibit M-5). For greater protection, seedlings may be planted with tree shelters.

What Type of Fertilizer: Organic fertilizers are preferred to synthetic fertilizers. Some manure or seaweed based products are available commercially. Organic fertilizers have a slow-release effect that can supply nutrients to the plant as needed while minimizing the risk of excess nutrients entering the forest system and the water supply. Some synthetic fertilizers can assist this slow-release action and may be appropriate for use.

Control of Competing Vegetation: Unfortunately, good sites for reforestation and afforestation are generally good sites for unwanted vegetation as well. Unwanted vegetation growing near newly planted trees can take over the site. The need to control this problem depends on the ability of the planted material to withstand the intrusion. Smaller trees may need more care, although some seedlings survive with the overgrowth and will shade it out as the trees grow. As a preventative measure, consider the potential for growth of invasive species while choosing a reforestation or afforestation area.

Mulch is one of the best weed deterrents. Spread a 2" to 4" layer of mulch over the root area of the newly planted trees avoiding direct contact with the trunk, a prime spot for fungal growth. Mulch also helps maintain the soil moisture level and may provide a buffer for any equipment such as mowers that may be used to maintain the area. Mulching and manual control of competing vegetation is more compatible with the long term forest health than the use of herbicides.

Protection: Pests, Diseases and Mechanical Injury:

- 1) Elimination of some low vegetation before planting to help control the rodent population which thrives in brushy environments.
 - 2) Use of tree shelters to protect the trunks of seedlings or whips from animal damage. The shelters act as mini-greenhouses to speed growth. (These trees need more water than those planted without tree shelters, however.)
 - 3) Pruning around the trees to minimize trunk damage from mowers. Mowers provide an entry way for disease.
 - 4) Removing dead and diseased branches with a clean cut to prevent establishment or spreading of disease.
- Sunscald is a problem for thin barked young trees. Tree wrap was commonly used to protect from sunscald but is no longer recommended due to the increased opportunities for insect infestation and disease. An alternative to wrapping is to allow small non-competitive branches, commonly pruned during or before planting, to grow on the sunny side of the trunk to help shade the trunk.

GARDNER ENVIRONMENTAL SERVICES, INC.
 P.O. BOX 273
 MONROVIA, MD. 21770
 (301) 865-2111

QUALIFIED PROFESSIONAL PER THE MARYLAND FOREST CONSERVATION ACT
[Signature]
 TIMOTHY N. GARDNER
 MD. FORESTER REG. NO. 422

PROJECT	89003-13	DATE	09-24-00
ILLUSTRATION	KMB	ENGINEERING	P.F.B.
SCALE	1"=60'	APPROVAL	R.M.M.

DATE	9-6-00
DATE	7-5-00
DATE	03-29-00
DATE	03-29-00
DATE	03-29-00

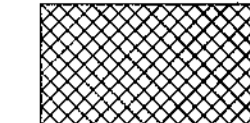
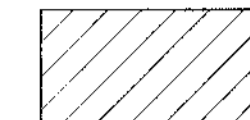
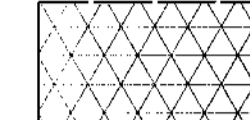
Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
 HOWARD COUNTY, MD.
 ELECTION DISTRICT NO. 3
FOREST CONSERVATION DETAILS

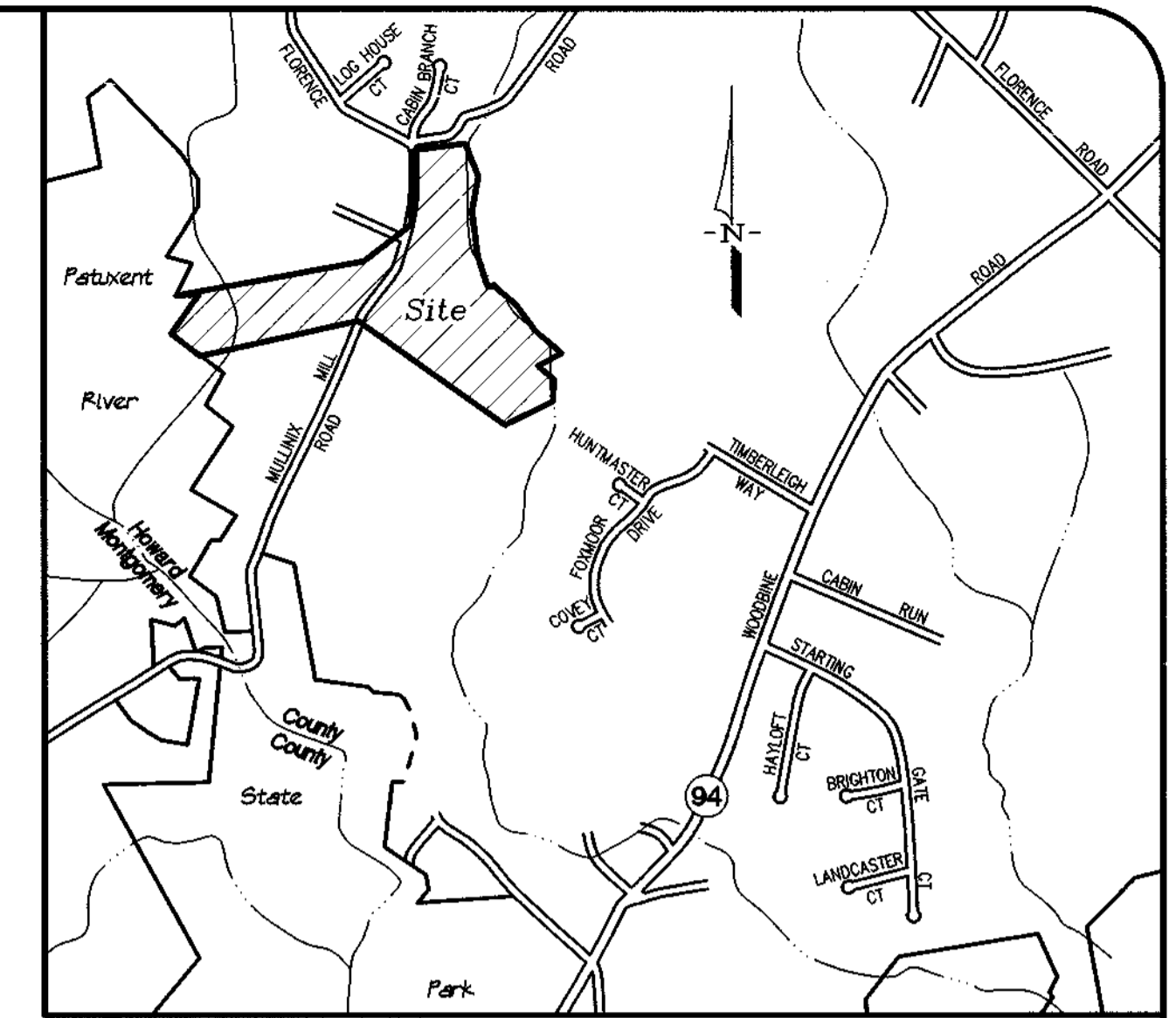
R.M. MOCHI GROUP, P.C.
 10120 A OLD NATIONAL PIKE
 JAMMSVILLE, MD. 21754-9706
 (301) 865-5858
 Fax: (301) 865-5171

14 OF 29

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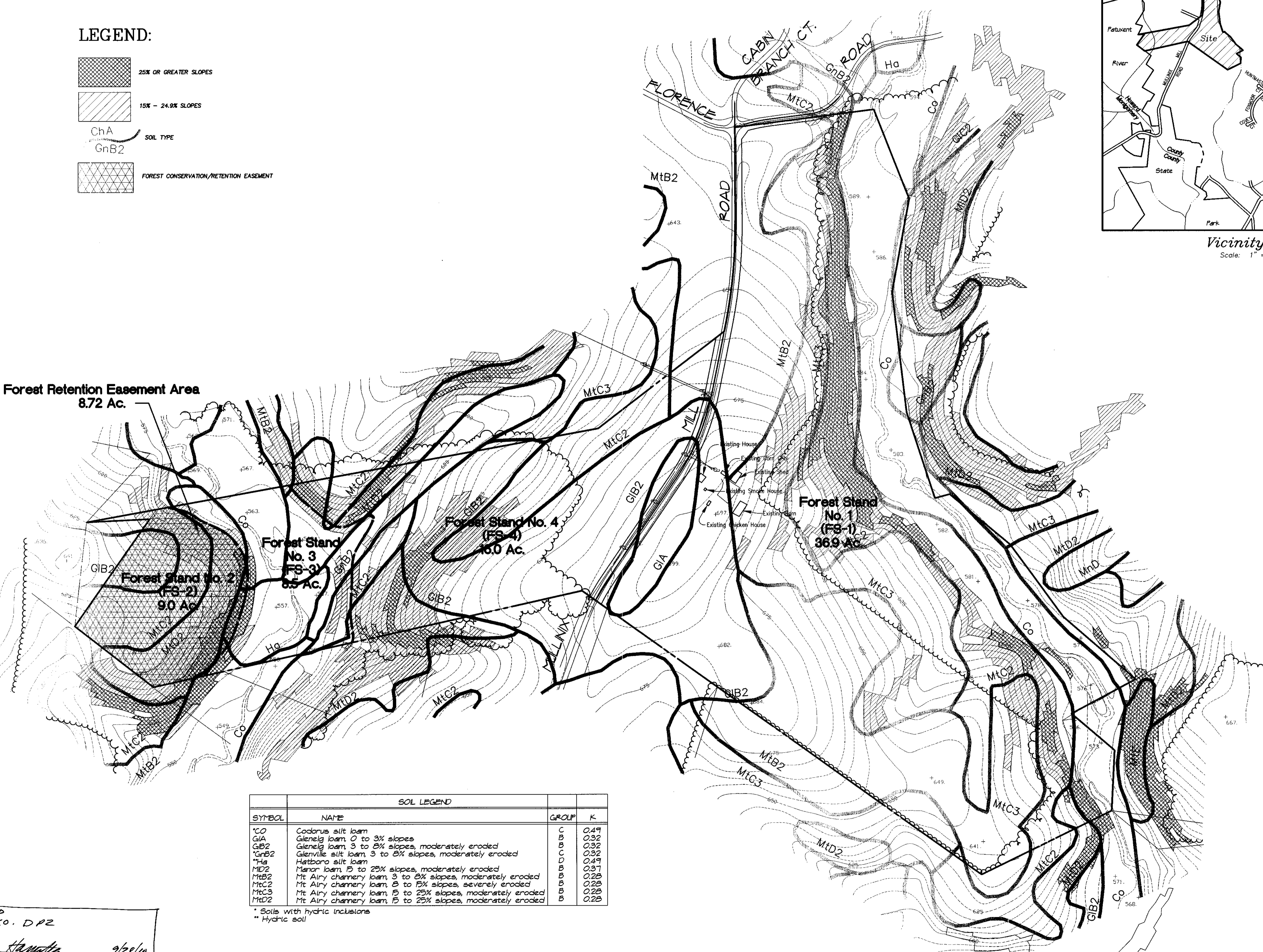
LEGEND:

-  25% OR GREATER SLOPES
-  15% - 24.9% SLOPES
- ChA SOIL TYPE
- GnB2 SOIL TYPE
-  FOREST CONSERVATION/RETENTION EASEMENT



Vicinity Map
Scale: 1" = 2000'

Forest Retention Easement Area
8.72 Ac.



SOIL LEGEND			
SYMBOL	NAME	GROUP	K
Co	Codorus silt loam	C	0.49
GIA	Glencig loam 0 to 3% slopes	B	0.32
GIB2	Glencig loam 3 to 8% slopes, moderately eroded	B	0.32
GnB2	Glenville silt loam 3 to 8% slopes, moderately eroded	C	0.32
Ha	Hatboro silt loam	D	0.49
MD2	Manor loam 15 to 25% slopes, moderately eroded	B	0.37
MtB2	Mt Airy channery loam 3 to 8% slopes, moderately eroded	B	0.28
MtC2	Mt Airy channery loam 8 to 15% slopes, severely eroded	B	0.28
MtC3	Mt Airy channery loam 15 to 25% slopes, moderately eroded	B	0.28
MTD2	Mt Airy channery loam 15 to 25% slopes, moderately eroded	B	0.28

* Soils with hydric inclusions
** Hydric soil

APPROVED
HOWARD CO. DPZ
Cindy Hammett 9/28/00
Chief, Div. of Land Development
[Signature] 9/28/00
Chief, Development Engineering Div.

GARDNER ENVIRONMENTAL SERVICES, INC.
P.O. BOX 273
MONROVIA, MD 21770
(301) 865-2111

QUALIFIED PROFESSIONAL PER THE
MARYLAND FOREST CONSERVATION ACT
Timothy N. Gardner 3/2/00
TIMOTHY N. GARDNER
MD. FORESTER REG. NO. 422



Project	99003.19	Date	09-28-00
Illustration	JLM	Engineering	JLM
Scale	1" = 200'	Approval	JLM
Revisions			RAM

Submitted to	HOWARD COUNTY DPZ FOR REVIEW	Date	7-5-00
Description		Revisions	
Revisions			

Mullinix Property Tax Map 12 Grid 11 Parcel 28
THE ESTATES AT SAND HILL
ELECTION DISTRICT NO. 3
HOWARD COUNTY, MARYLAND
Forest Conservation Plan - OFF-SITE RETENTION

R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
(301) 865-6668
Fax: (301) 865-5111

MATCH LINE ~ SHEET 17

MATCH LINE ~ SHEET 17

3-TYPE 'B'
420' TO PLANT
4 WW
5 GL
6 EWP
7 LC

2-TYPE 'B'
453' TO PLANT
5 WW
6 GL
7 EWP
8 LC

1-TYPE 'B'
453' TO PLANT
5 WW
6 GL
7 EWP
8 LC

ALPHA RIDGE LAND FILL
(REFER TO GENERAL NOTE NO. 16)
PARCELS 1, 2, 3, 5, 4,
220, 253, 1, 6, 2, 103
ZONED: RO-DEO

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard Hill 9/24/10
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hunter 9/25/10
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

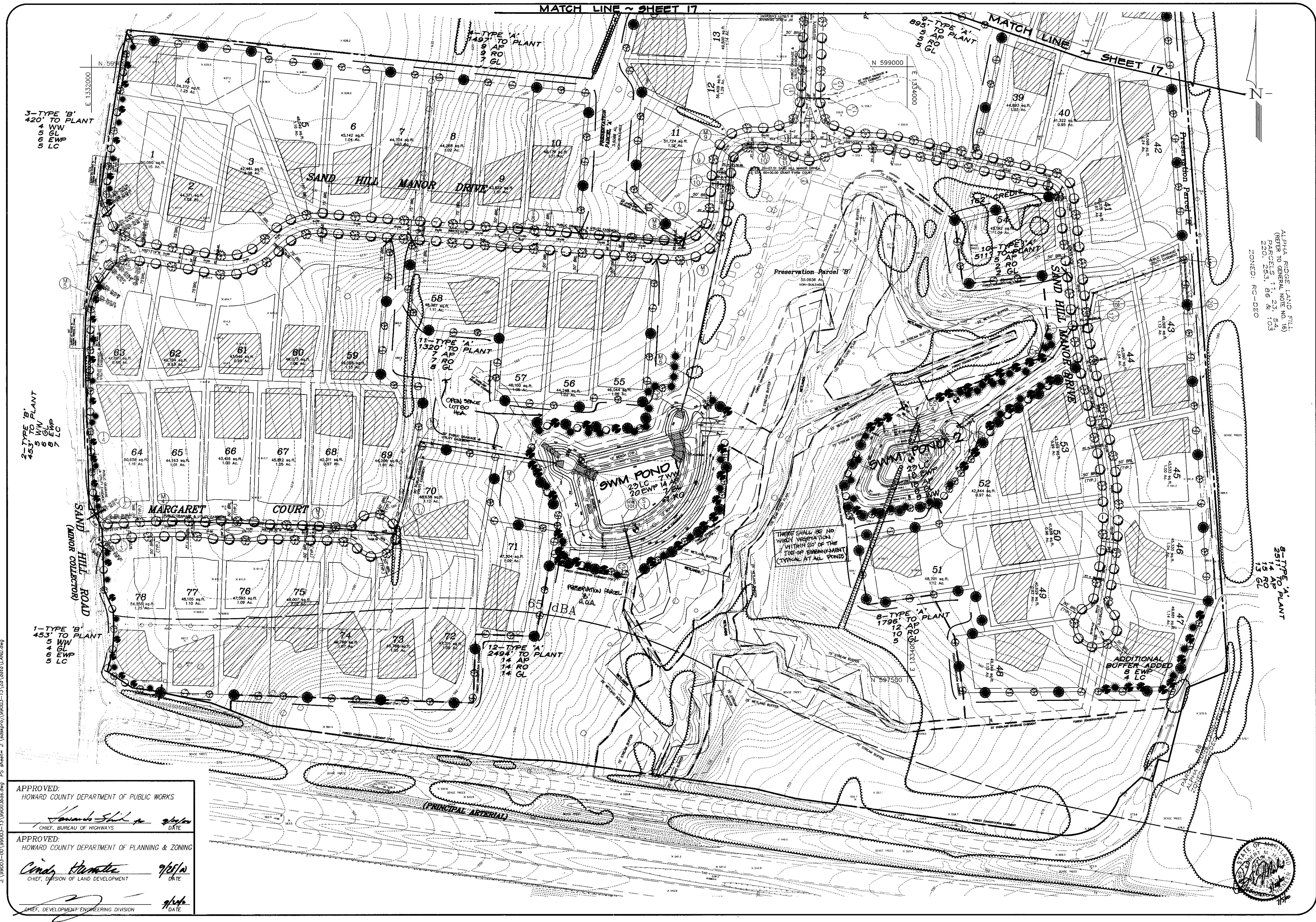
CHIEF, DEVELOPMENT ENGINEERING DIVISION 9/26/10
DATE

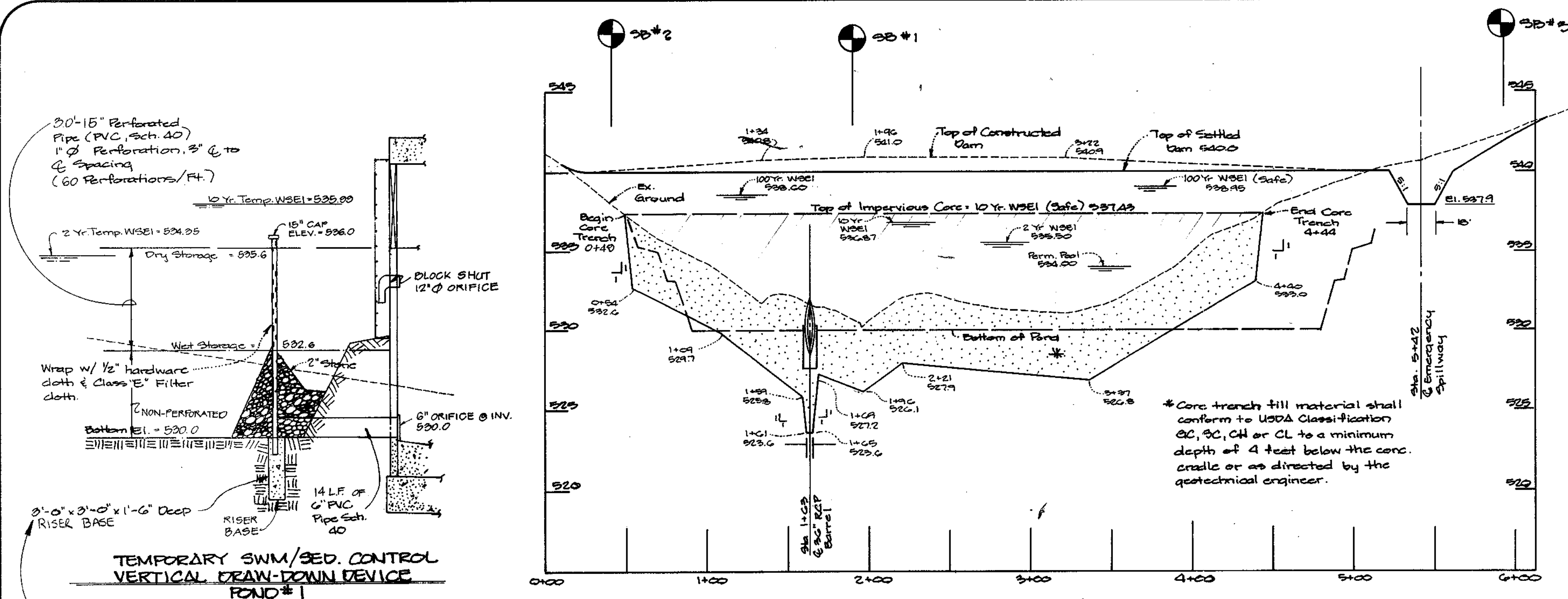
date	09-24-00
project	99003.13
illustration	KMB
scale	1"=100'
approval	RAM

no.	1	description	Direct to D22 Do	date	7-5-00
no.	0	description	SUBMITTED TO HOWARD CO. DPZ FOR REVIEW	date	03-29-00
no.		description	revisions	date	

Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
ELECTION DISTRICT NO. 3
HOWARD COUNTY, MARYLAND
LANDSCAPE PLAN

R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
(301) 865-8559
FAX (301) 583-5111





PROFILE ALONG DAM

TEMPORARY SWM/SED. CONTROL VERTICAL DRAW-DOWN DEVICE POND #1

PLACE 2 #8 REBARS AT RIGHT ANGLES IN BOTH DIRECTIONS AND PROJECTING 6" BEYOND VERTICAL PVC WALL TO ANCHOR PIPE TO BASE. LOCATE REBAR 5" BELOW SURFACE. RISER SHALL BE EMBEDDED IN BASE AT LEAST 9".

- Construction Specifications
1. Perforations in the draw-down device may not extend into the wet storage.
 2. The total area of the perforations must be greater than 1/10th the area of the internal orifice.
 3. The perforated portion of the draw-down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
 4. Provide support of draw-down device to prevent sagging and flotation. An acceptable preventative measure is to stake both sides of draw-down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3' minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.

10 Yr. Temp. WSEL = 539.25
 15" CAP ELEV. = 536.0
 Dry Storage = 535.6
 2" ORIFICE @ INV. 530.0
 14 LF OF 6" PVC PIPE SCH. 40
 RISER BASE

30"-15" Perforated Pipe (PVC, Sch. 40)
 1" Perforation, 5' @ to Spacing (60 Perforations/Ft.)
 10 Yr. Temp. WSEL = 539.25
 2 Yr. Temp. WSEL = 539.25
 15" CAP ELEV. = 536.0
 Dry Storage = 535.6
 2" ORIFICE @ INV. 530.0
 14 LF OF 6" PVC PIPE SCH. 40
 RISER BASE

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PROFILE ALONG DAM

POND #1

1" = 50' Hor.
 1" = 5' Vert.

1" = 50' Hor.
 1" = 5' Vert.

1" = 50' Hor.
 1" = 5' Vert.

1" = 50' Hor.
 1" = 5' Vert.

1" = 50' Hor.
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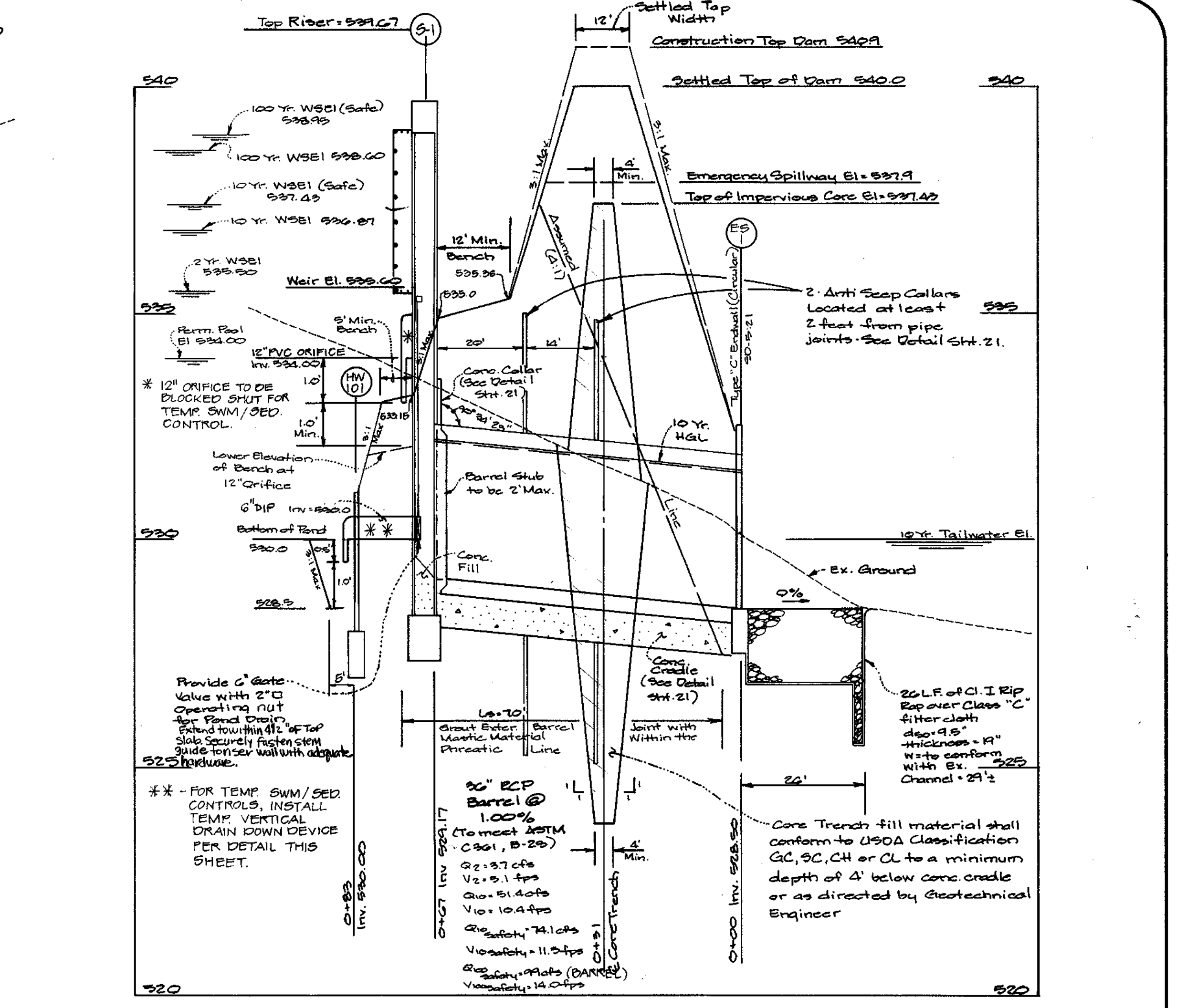
1" = 50' Hor.
 1" = 5' Vert.

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 1" = 5' Vert.

1" = 50' Hor.
 1" = 5' Vert.

1" = 50' Hor.
 1" = 5' Vert.

1" = 50' Hor.
 1" = 5' Vert.



POND #1 PRINCIPAL SPILLWAY

1" = 20' Hor.
 1" = 2' Vert.

1" = 20' Hor.
 1" = 2' Vert.

1" = 20' Hor.
 1" = 2' Vert.

1" = 20' Hor.
 1" = 2' Vert.

1" = 20' Hor.
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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 SOIL CONSERVATION DISTRICT.

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.

APPROVED:
 I/We certify that all development and construction will be done in accordance with this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction of this project will have a certificate of attendance at a Department of the Environment approved training program for the control of sediment and erosion before beginning the project. I also authorize periodic onsite inspection by the Howard County Soil Conservation District or their authorized agents, as are deemed necessary.

OWNER
 OAK HILL PROPERTIES
 107 LOUDOUN STREET, S.E.
 LEESBURG, VIRGINIA 20175-3106
 (703) 443-0400
 ATTN: MR. KEVIN ROGERS

ENGINEER/SURVEYOR:
 R.M. MOCHI GROUP, P.C.
 10120 A OLD NATIONAL PIKE
 JAMSVILLE, MD. 21754-9706
 (301) 865-5858
 ATTN: MR. ROBERT M. MOCHI, P.E.

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.

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APPROVED:
 I hereby certify that this plan for 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.

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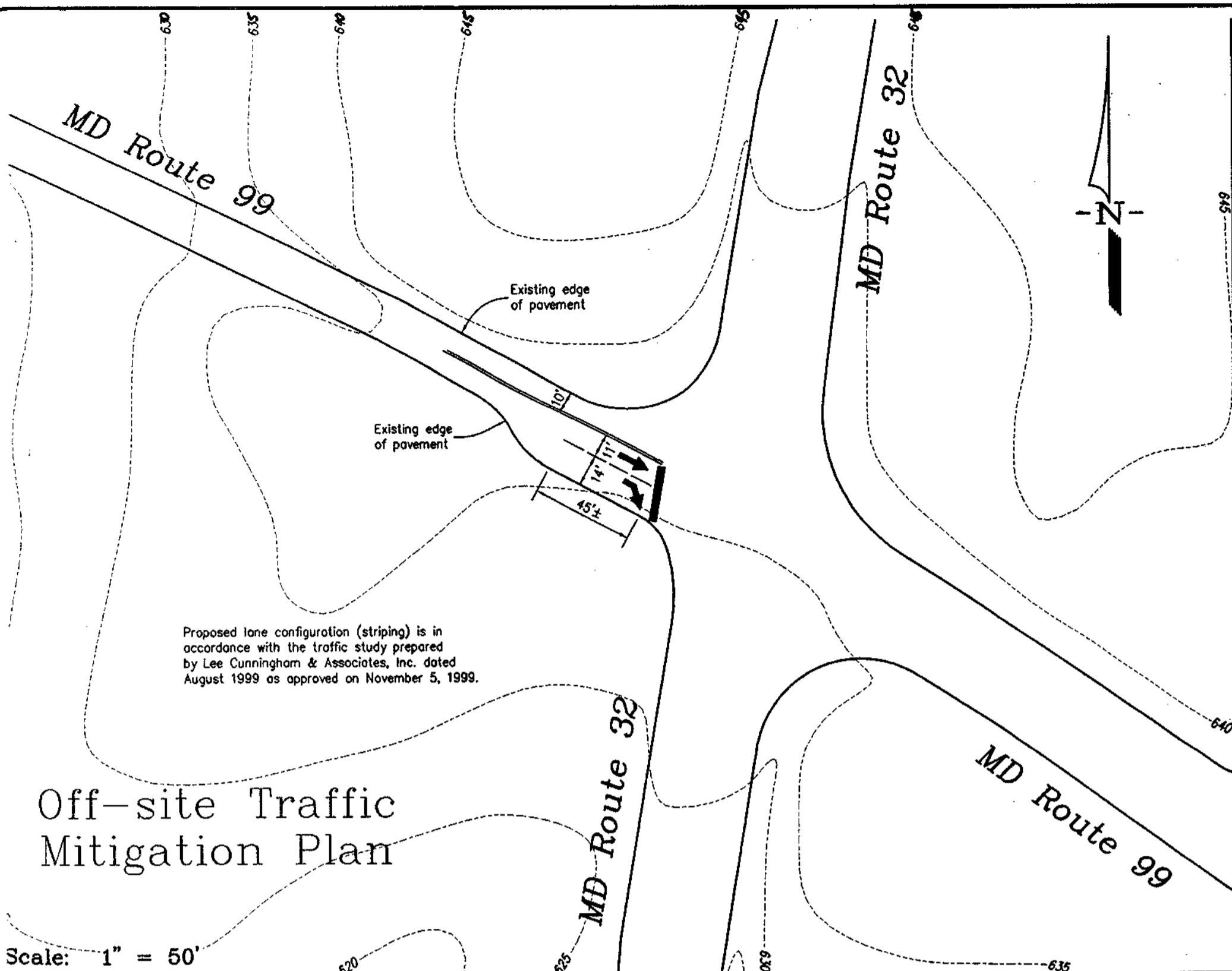
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 12" ORIFICE TO BE BLOKED SHUT FOR TEMP SWM/SED. CONTROL.

project	98003.13	date	05-18-00
illustration	KMB	engineering	PFB
scale	AS SHOWN	approval	RMM

date	9-16-00
description	Original & PFB
revision	SUBMITTED TO HOWARD COUNTY DEP. FOR REVIEW
no.	1

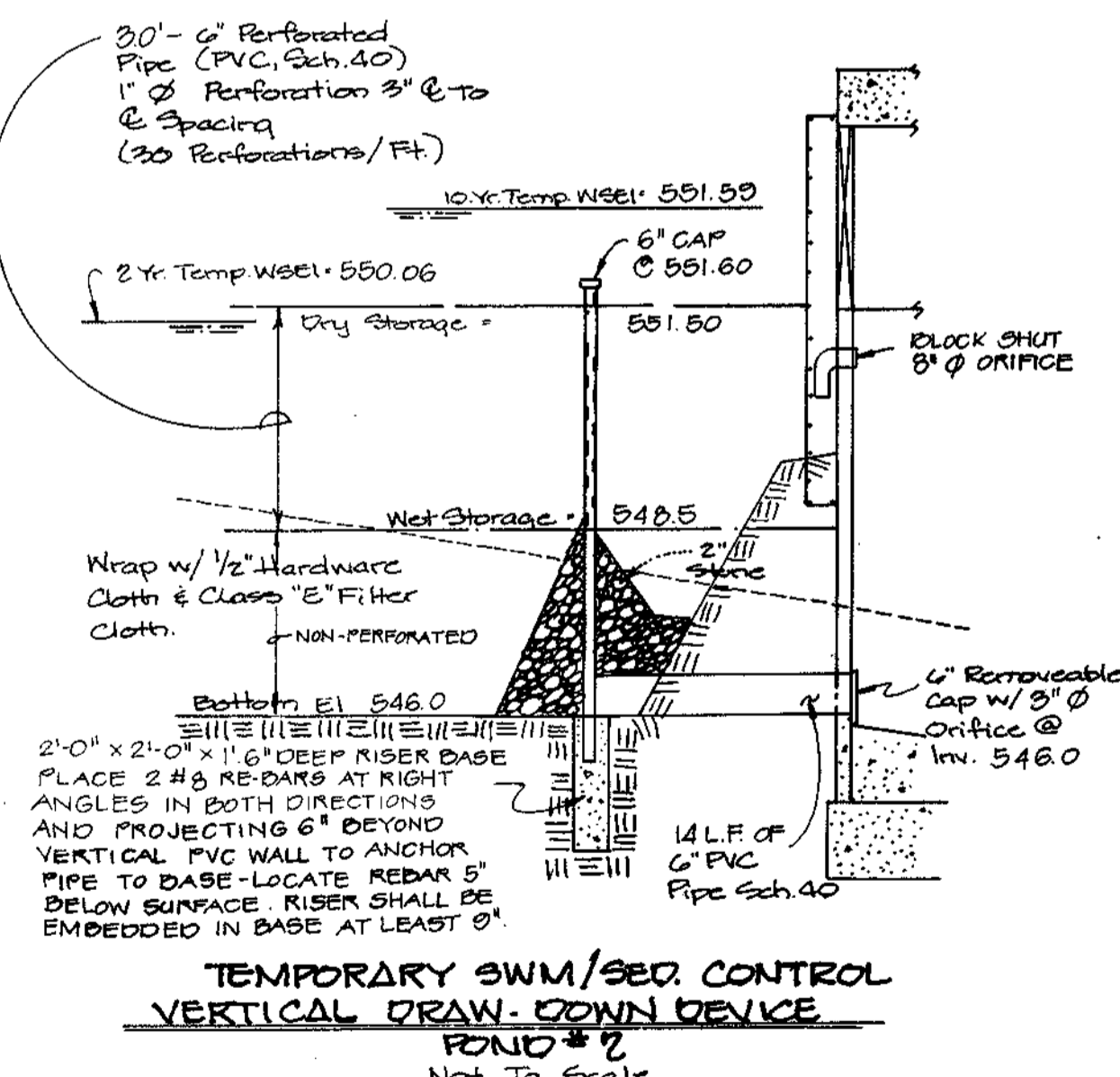
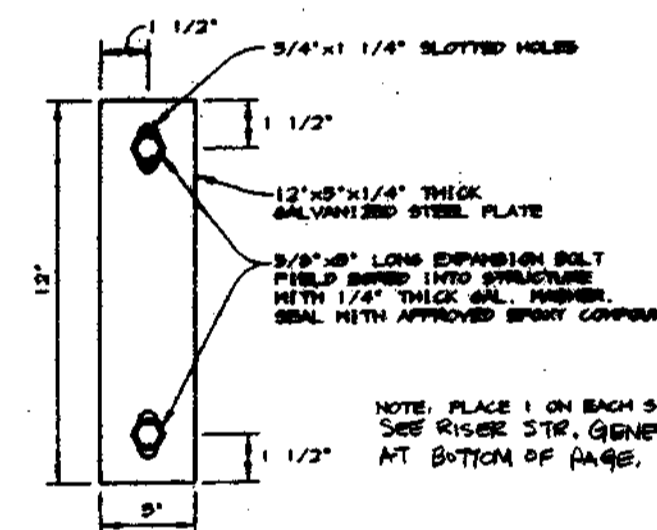
Tax Map 16, Grid 2, Parcel 3
THE ESTATES AT SAND HILL
 ELECTION DISTRICT No. 3
 HOWARD COUNTY, MARYLAND
STORMWATER MANAGEMENT DETAILS AND PROFILES

R.M. MOCHI GROUP, P.C.
 10120 A OLD NATIONAL PIKE
 JAMSVILLE, MD 21754-9706
 (301) 865-5858
 Fax: (301) 865-5111

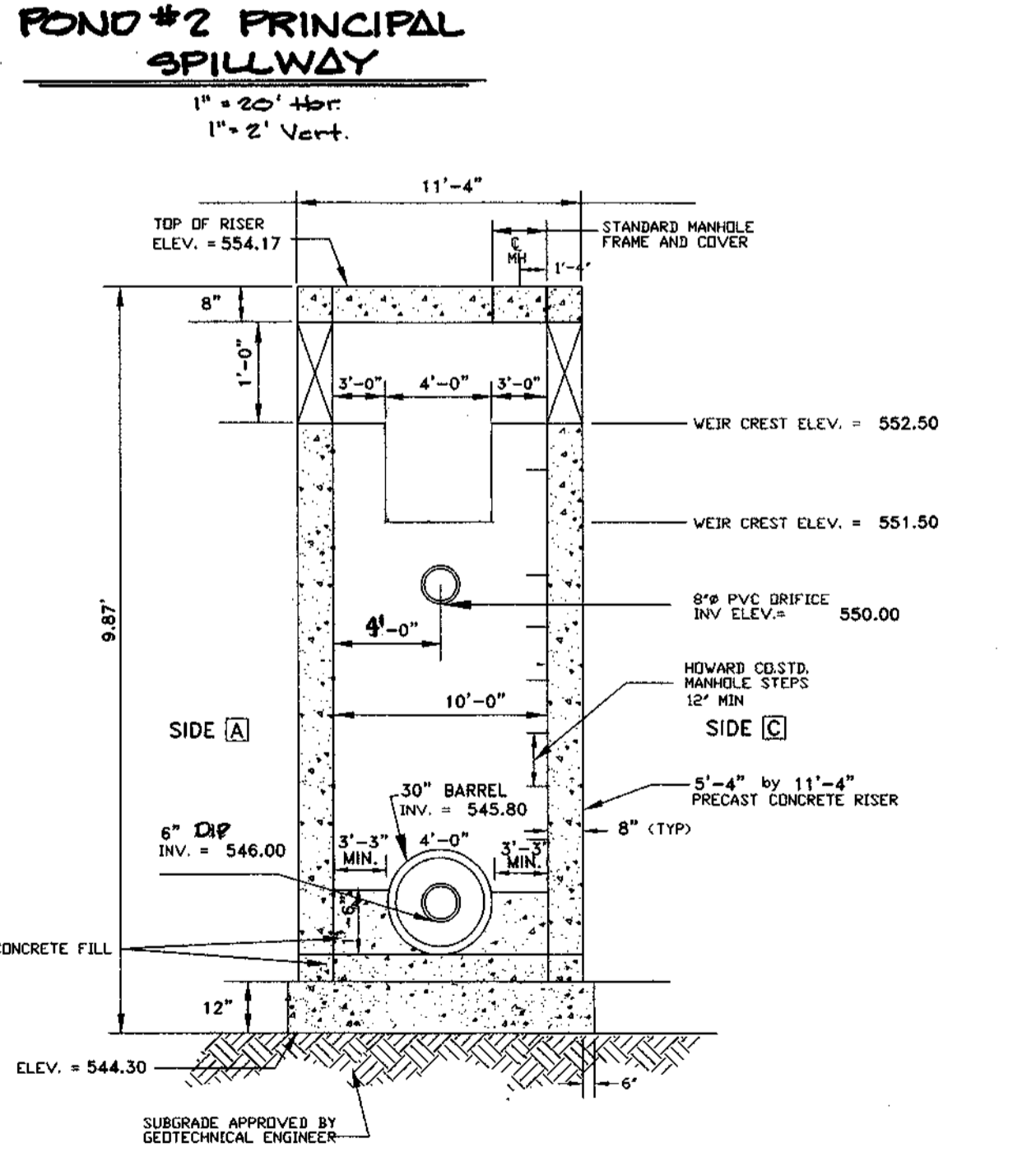
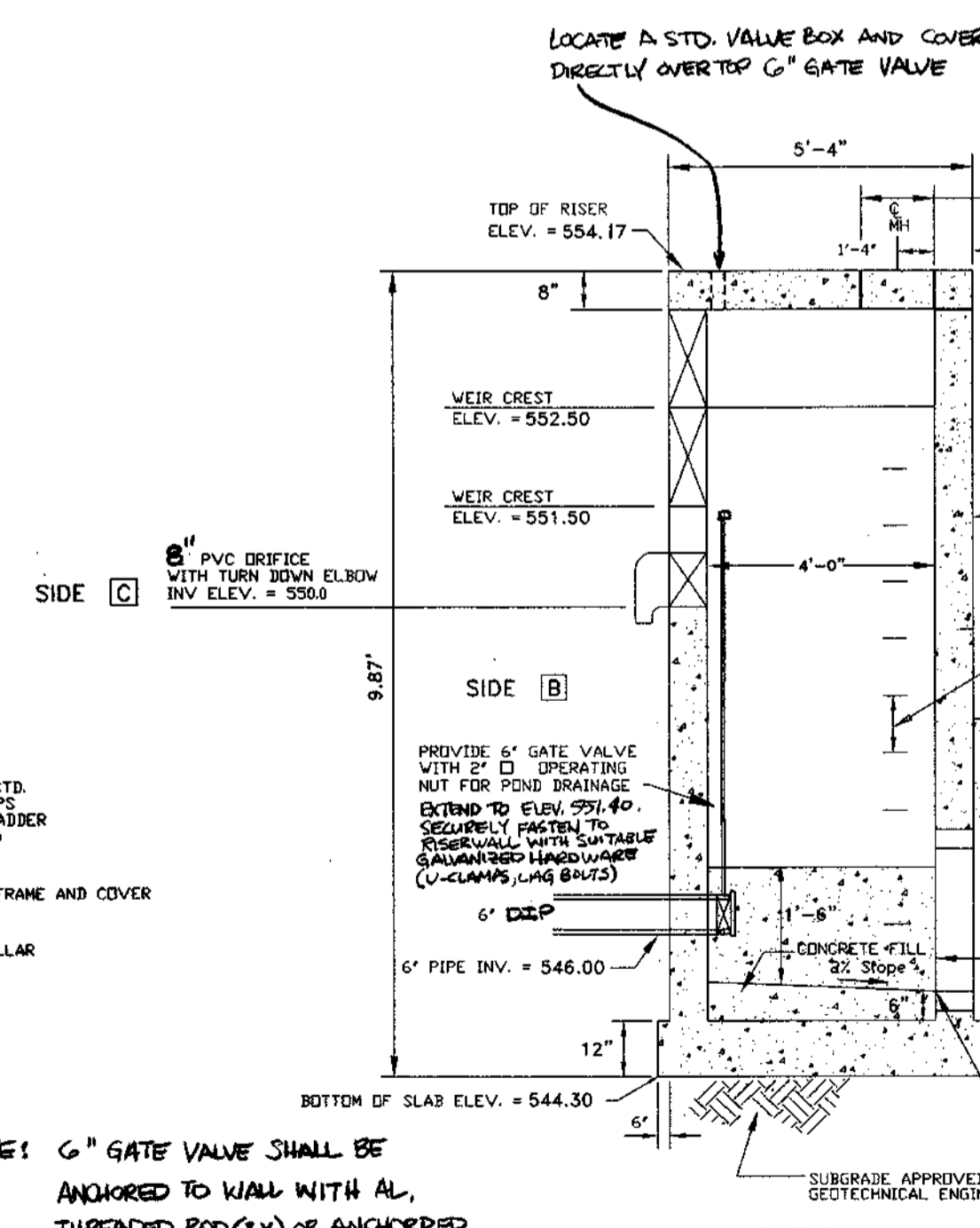
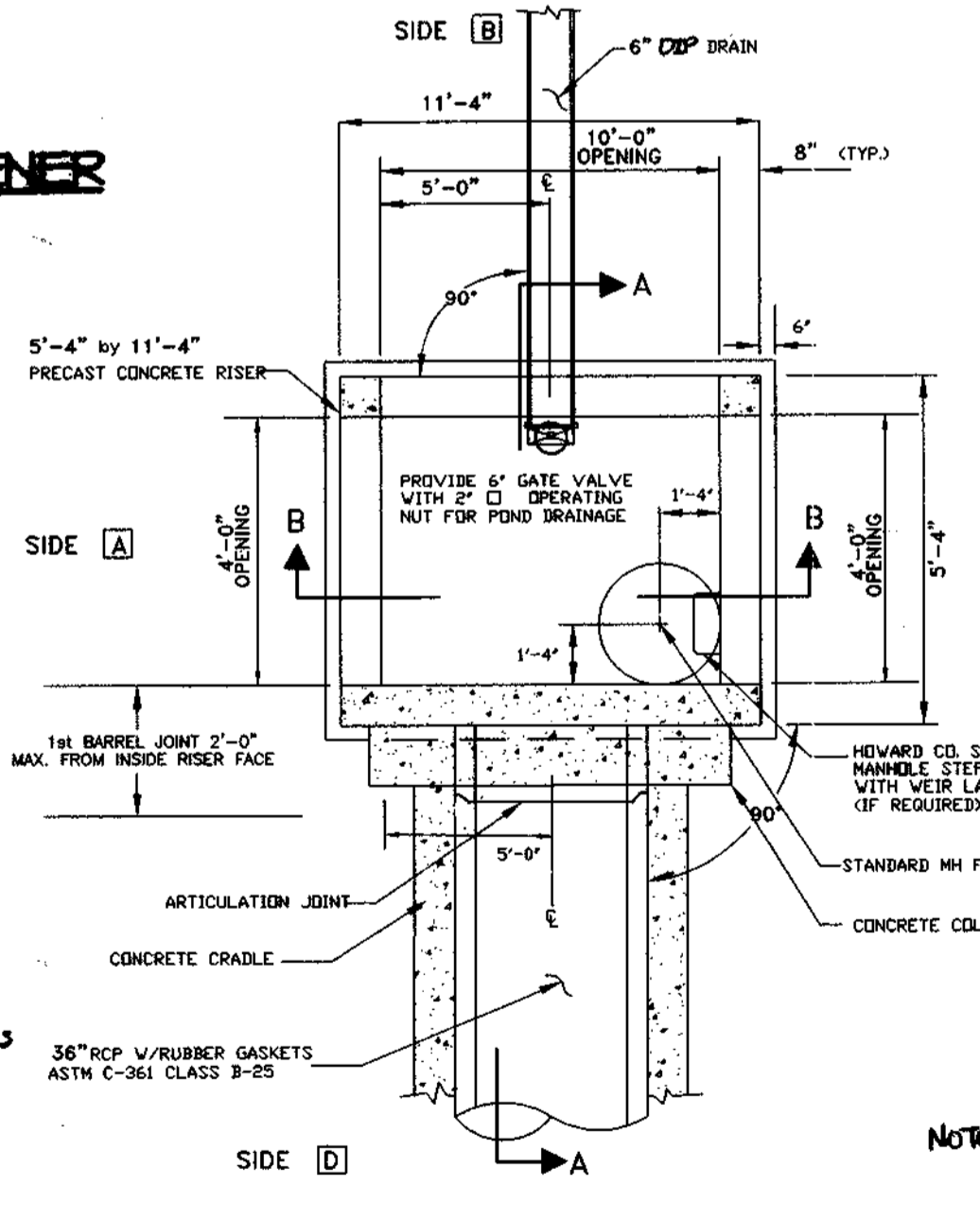
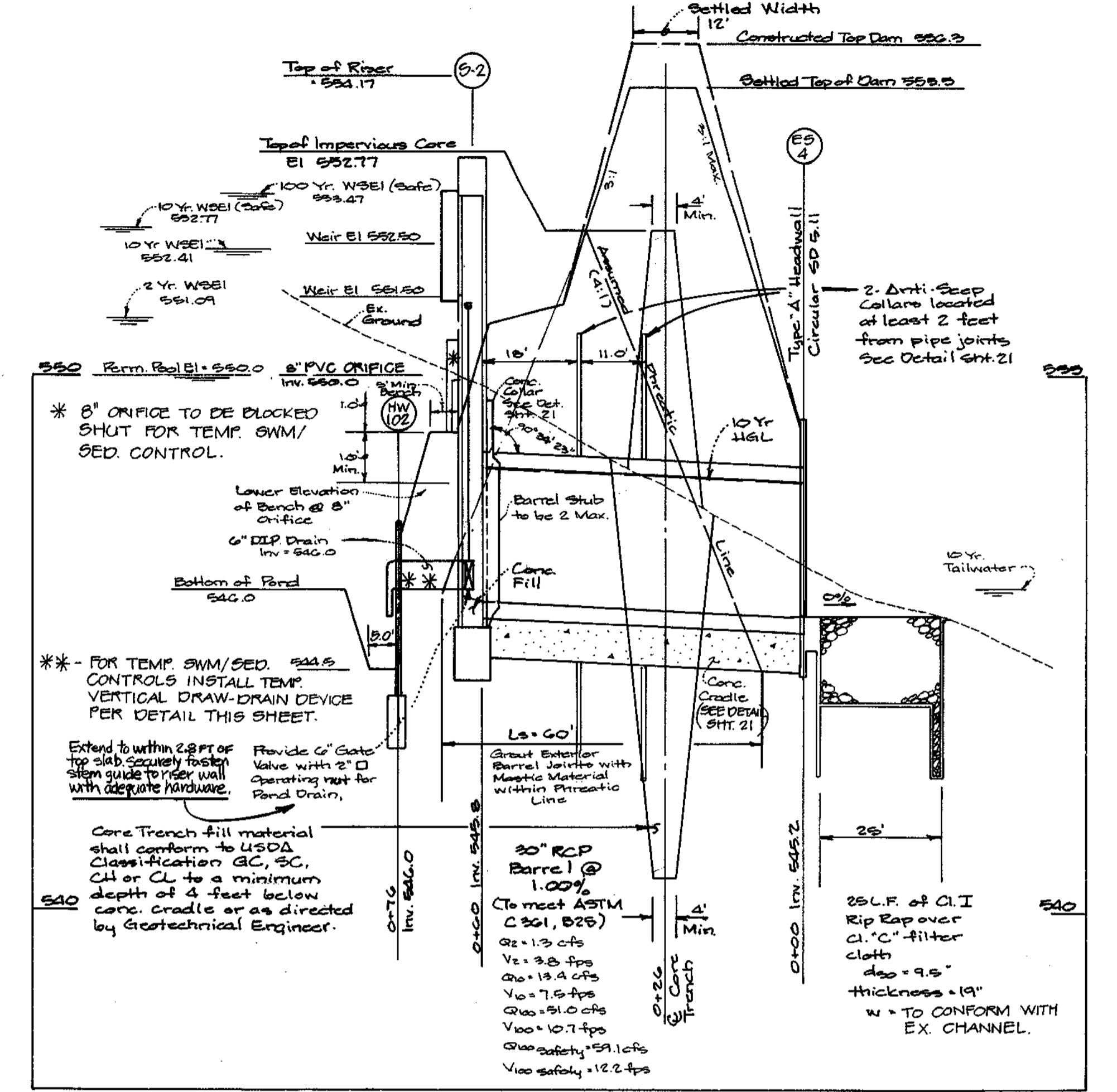
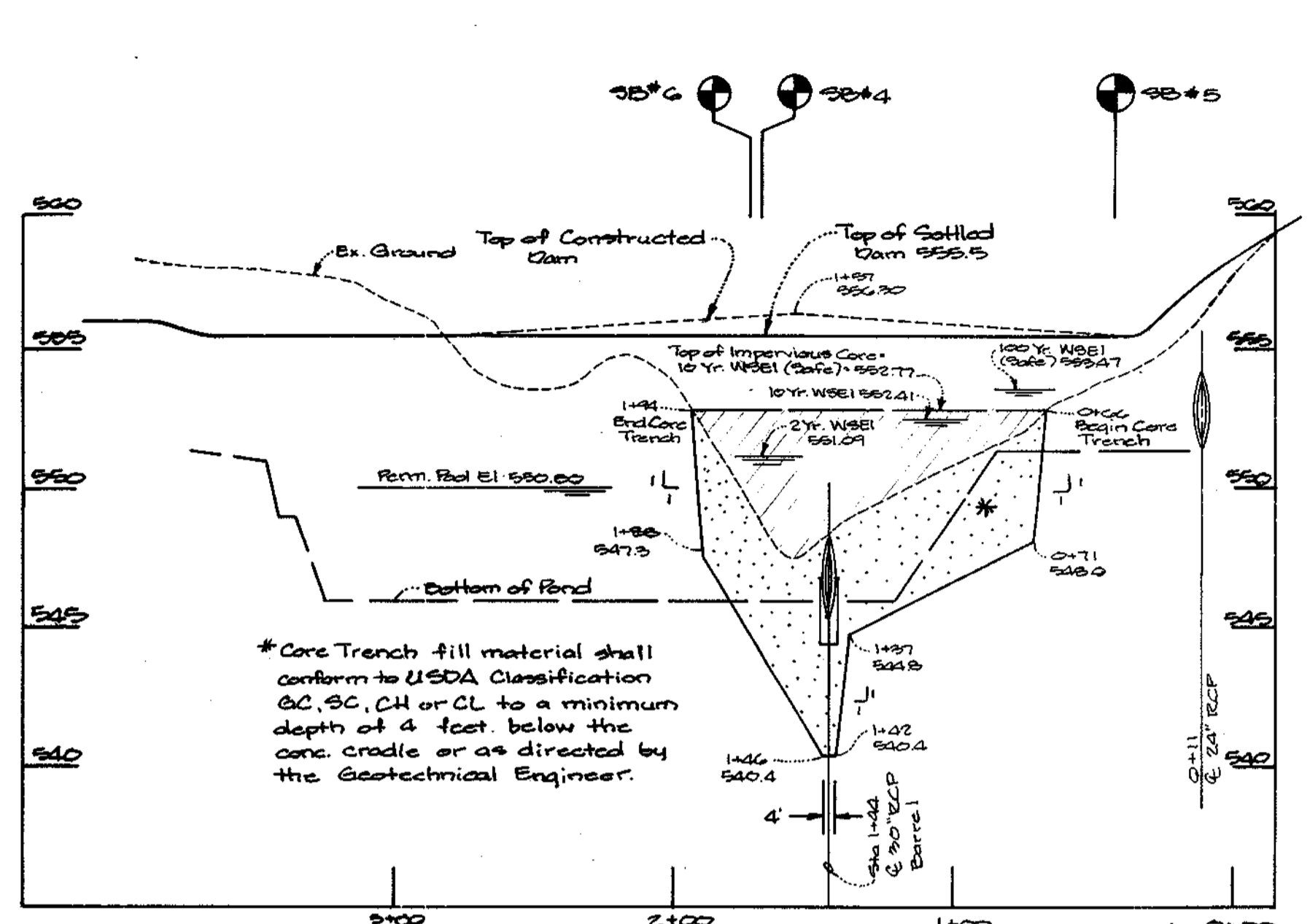


Off-site Traffic Mitigation Plan

- Construction Specifications**
- Perforations in the draw-down device may not extend into the wet storage.
 - The total area of the perforations must be greater than 2 times the area of the internal orifice.
 - The perforated portion of the draw-down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
 - Provide support of draw-down device to prevent sagging and flotation. An acceptable preventive measure is to stake both sides of draw-down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3' minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.



- RISER STRUCTURE GENERAL NOTES:**
- PRECAST RISER AND TOP SLAB TO BE MANUFACTURED AND SUPPLIED BY FREDERICK PRECAST CONCRETE, INC. OR APPROVED EQUIVALENT.
 - SHOP DRAWINGS FOR RISER AND TOP SLAB MUST BE REVIEWED AND APPROVED BY AN ENGINEER PRIOR TO FABRICATION.
 - IF ANY DIMENSIONS ARE CHANGED OR REDUCED, REVISIONS AND REASONING MUST BE SUBMITTED WITH THE SHOP DRAWINGS TO HOWARD COUNTY FOR APPROVAL.
 - TRASH BASKETS ARE NOT SHOWN IN THIS VIEW FOR CLARITY.
 - THE RISER STRUCTURE SHOWN IS NOT TO SCALE. SEE THIS SHEET FOR ACTUAL DIMENSIONS.
 - RISER PRECAST SECTIONS SHALL BE WATER TIGHT AND STAMPED TOGETHER (SEE DETAIL). CURVED RISER JOINTS SHALL BE WRAPPED IN FILTER FABRIC (CLASS 'C') FROM 1" ABOVE AND BELOW JOINT, OVERLAP 2 FT.



APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard Spill 9/14/00
CHIEF, BUREAU OF HIGHWAYS

OWNER
OAK HILL PROPERTIES
107 LOUDOUN STREET, S.E.
LEESBURG, VIRGINIA 20175-3106
(703) 443-0400
ATTN: MR. KEVIN ROGERS

ENGINEER/SURVEYOR:
R.M. MOCHI GROUP, P.C.
10120 A OLD NATIONAL PIKE
JAMMSVILLE, MD. 21754-9706
(301) 865-5858
ATTN: MR. ROBERT M. MOCHI, P.E.

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cheryl Hanotte 9/18/00
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED:
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Robert M. Mochi 9/18/00
HOWARD SOIL CONSERVATION DISTRICT

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.
Cheryl Hanotte 9/18/00
USDA NATIONAL RESOURCE CONSERVATION SERVICE

DEVELOPER'S CERTIFICATE
I/We certify that all development and construction will be done in accordance with this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction of this project will have a certificate of attendance at a Department of the Environment approved training program for the control of sediment and erosion before beginning the project. I also authorize periodic onsite inspection by the Howard County Soil Conservation District or their authorized agents, as are deemed necessary.
R.M. Mochi 5/22/00
Signature of Developer

ENGINEER'S CERTIFICATE
I hereby certify that this plan for 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.
Robert M. Mochi, P.E. 9/16/00
DATE

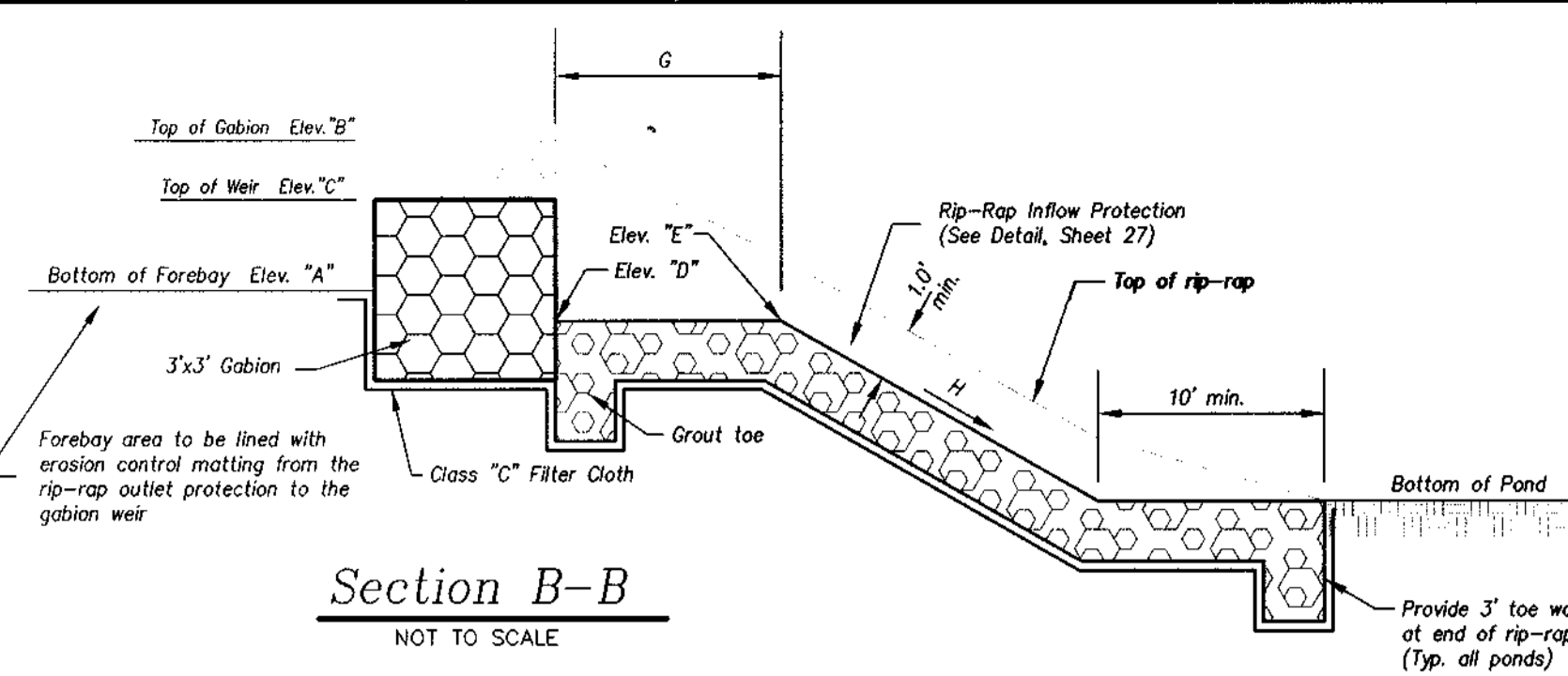


Project	99003.13
Date	09-16-00
Illustration	KUB
Scale	AS SHOWN
Engineering	PTB
Approval	RAM

Drawn by	DPZ
Checked by	DPZ
Submitted to	HOWARD COUNTY DEP FOR REVIEW
Revisions	
9-16-00	
7-5-00	
3-18-00	

Off-site Traffic Mitigation Plan
Tax Map 16, Grid 2, Parcel 3
THE ESTATES AT SAND HILL
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT No. 3
STORMWATER MANAGEMENT DETAILS AND PROFILES

R.M. MOCHI GROUP, P.C.
600 Old 11th St. #200
New Market, MD 21774-0010
(301) 865-5858
Fax: (301) 865-5911

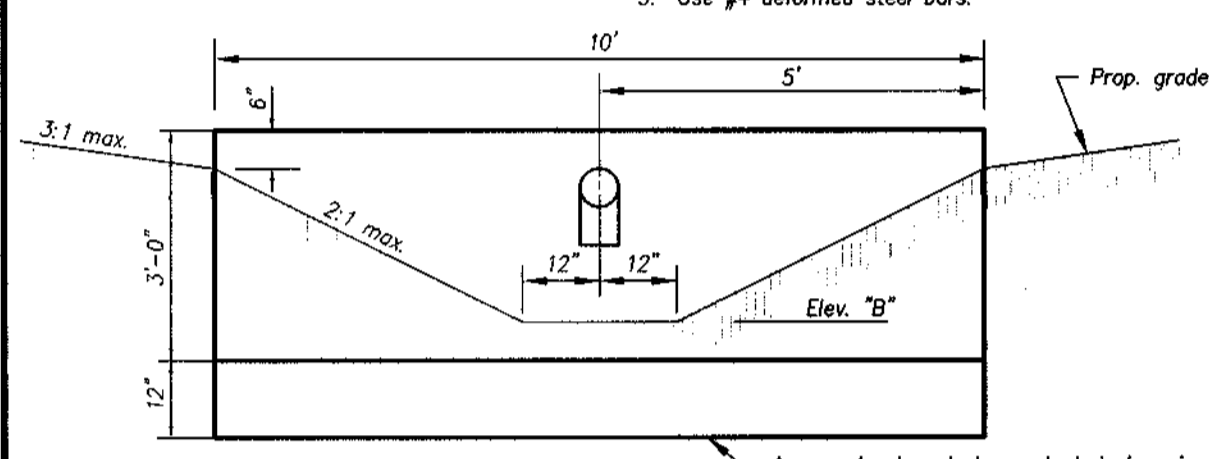


Section B-B
NOT TO SCALE

- NOTES:
- Gabions are to be PVC coated.
 - Compact subgrade to 95% per MD-378.
 - Forebay embankment to be constructed per MD-378 using soils GC, SC, CH or CL.
 - Gabions to be constructed per manufacturers specifications.
 - Forebay slopes are 3:1 max. for inside and outside slopes.

POND NO.	ELEV. "A"	ELEV. "B"
1	530.0	528.5
2	546.0	544.5
3	554.5	553.0

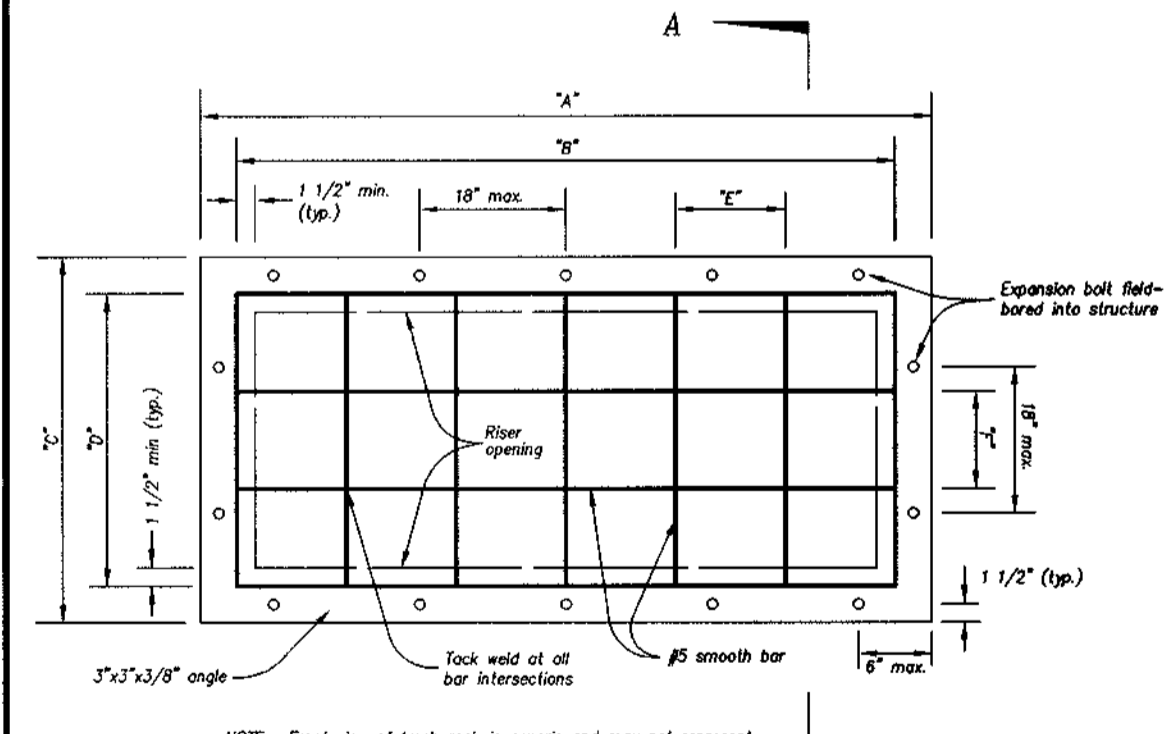
- NOTES:
- Fasten 1/4 VB to 6" DIP with retainer gland.*
 - See Howard Co. Detail SD-5.21 for reinforcement details not shown.
 - Chamfer all exposed corners (1"x1").
 - Use MSHA Max No. 2 concrete.
 - Use #4 deformed steel bars.



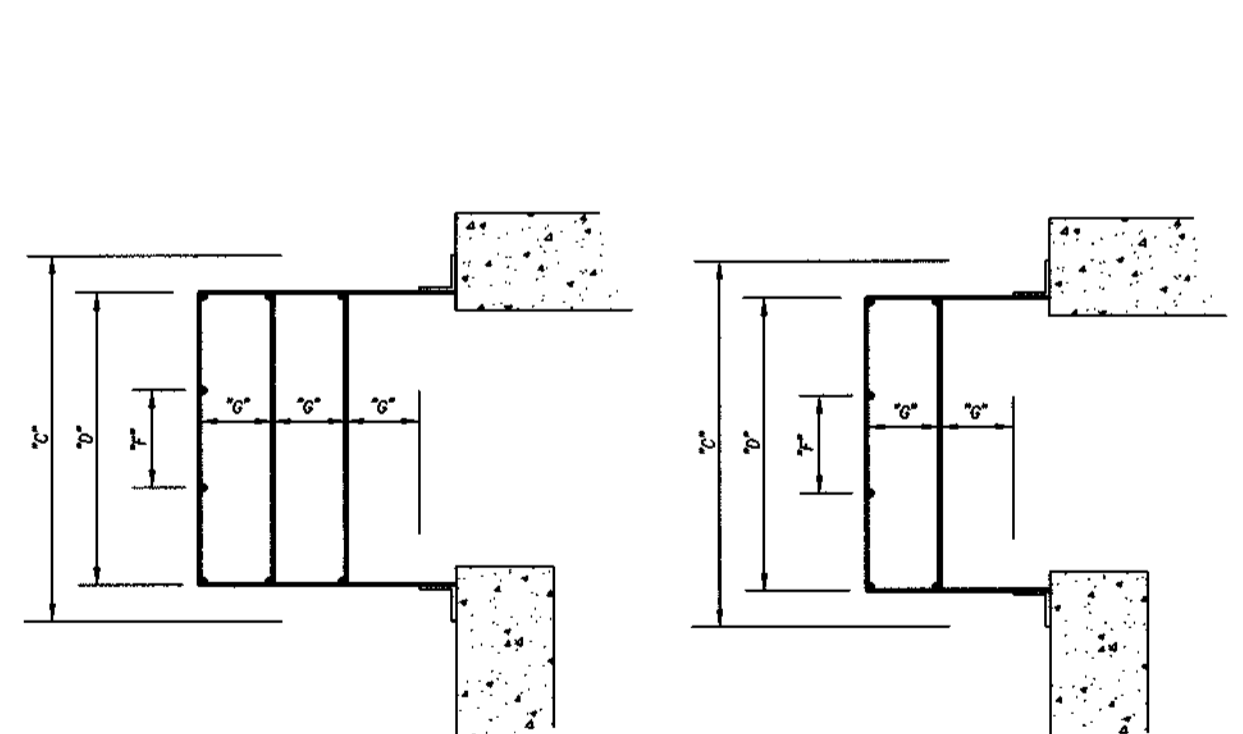
Elevation
Profile
NOT TO SCALE
HEADWALL DETAILS FOR POND DRAIN
(MODIFIED HOWARD COUNTY DETAIL SD-5.21 - 24')

Location of Trash Rack	Qty. Req'd	"A"	"B"	"B ₁ "	"C"	"D"	"D ₁ "	"E"	"F"	"G"	Notes:
POND No. 3	1	11'-0"	6'-0"	1'-11 5/8"	3'-6"	2'-0"	1'-0"	7 7/8"	6"	8"	17 Vertical Bars in front, bent top & bottom (Lengths will vary) 7 Horizontal Bars in front, bent around sides (Lengths will vary) 8 Horizontal Bars, 2 along top, 4 at "B ₁ " length, 2 at "B" length 8 Vertical Bars, 2 along each side at "D" length, 2 along each side at "D ₁ " length
POND No. 1	1	11'-0"	10'-6"	n/a	4'-3"	3'-9"	n/a	7 7/8"	7 1/2"	8"	17 Vertical Bars in front, bent top & bottom 7 Horizontal Bars in front, bent around sides 4 Horizontal Bars, 2 along top & bottom 4 Vertical Bars, 2 along each side
POND No. 2 Sides A & C	2	4'-11"	4'-5"	n/a	2'-0"	1'-6"	n/a	6 5/8"	6"	6"	9 Vertical Bars in front, bent top & bottom 4 Horizontal Bars in front, bent around sides 4 Horizontal Bars, 1 along top & bottom 2 Vertical Bars, 1 along each side
POND No. 2 Side B	1	11'-0"	10'-6"	n/a	2'-11"	2'-5"	n/a	7 7/8"	7 1/4"	6"	17 Vertical Bars in front, bent top & bottom 5 Horizontal Bars in front, bent around sides 4 Horizontal Bars, 2 along top & bottom 4 Vertical Bars, 2 along each side

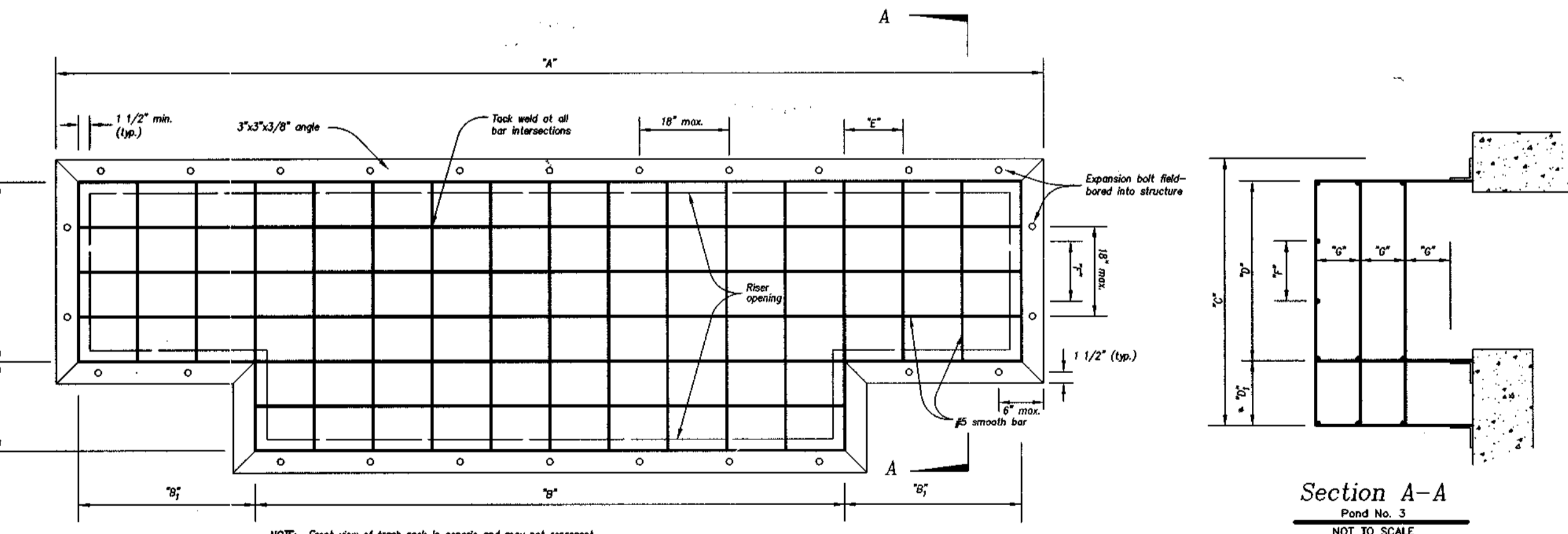
* Maximum spacing between any bars shall be 8"



Elevation (Ponds No. 1 & 2)
NOT TO SCALE



Section A-A
Section A-A
NOT TO SCALE



Elevation (Pond No. 3)
NOT TO SCALE

NOTE: ALL TRASH RACKS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION AND PAINTED WITH 2 COATS OF BATTLESHIP GRAY PAINT

TRASH RACK DETAILS

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard Shilka 9/16/10
CHIEF, BUREAU OF HIGHWAYS DATE

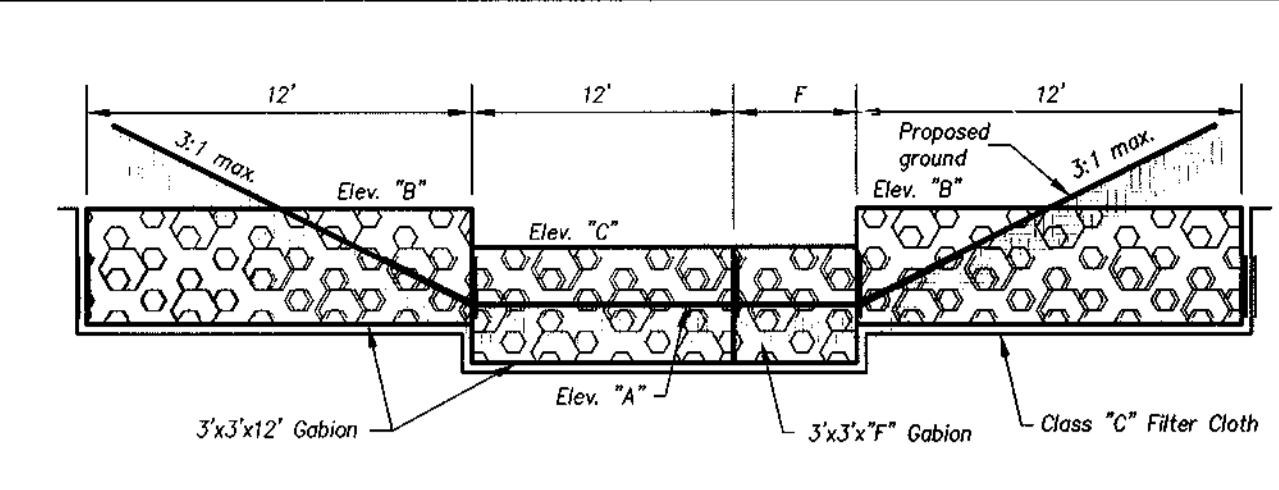
APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamilton 9/16/10
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED:
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Shirley A. ... 9/16/10
HOWARD SOIL CONSERVATION DISTRICT 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.
Cheryl Stumm 9/16/10
USDA - NATIONAL RESOURCES CONSERVATION SERVICE DATE

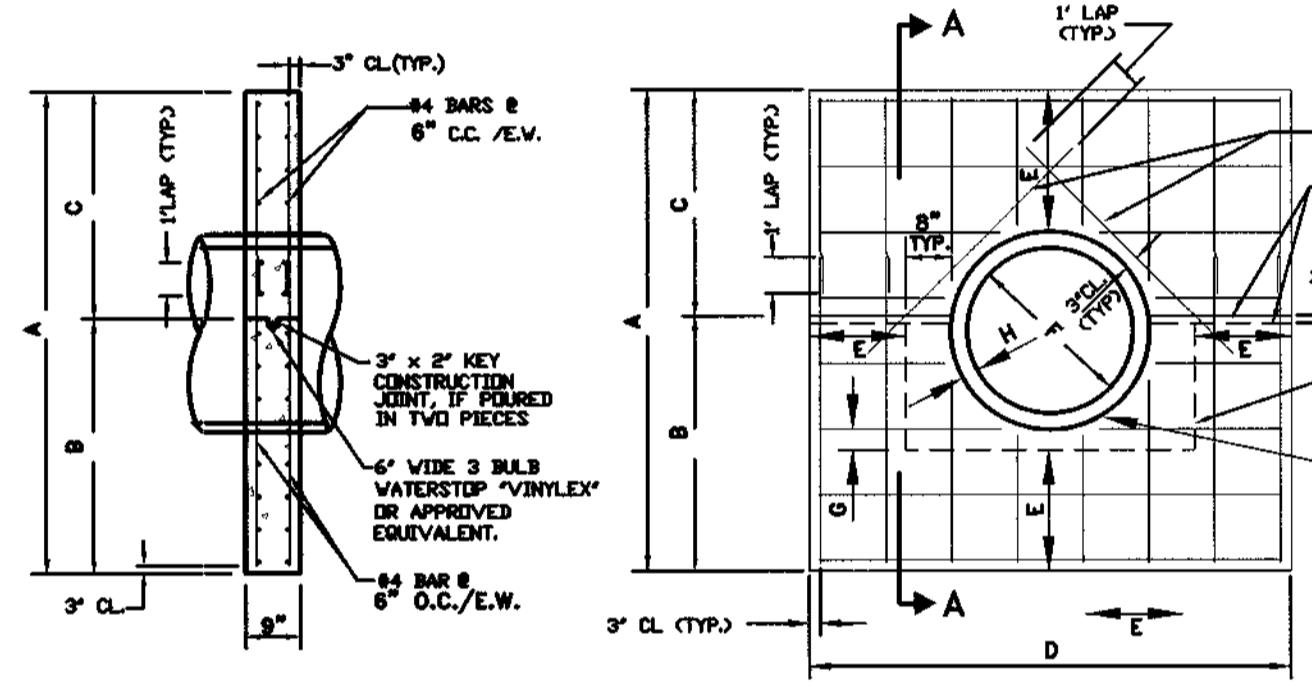
DEVELOPER'S CERTIFICATE
I/We certify that all development and construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control 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] 5/22/10
Signature of Developer DATE

ENGINEER'S CERTIFICATE
I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.
Robert M. Mochi 3-28-10
Robert M. Mochi, P.E. DATE



Section A-A
NOT TO SCALE

POND NO.	ELEV. "A"	ELEV. "B"	ELEV. "C"	ELEV. "D"	ELEV. "E"	F	G	H	COMMENTS
Forebay A	536.0	538.5	537.5	536.0	535.6	3.0'	18'	5:1	
Forebay B	536.0	538.5	537.5	536.0	534.5	9.0'	28'	5:1	
3	556.5	559.0	558.0	556.5	556.5	0	20'	N/A	Inflow protection not required

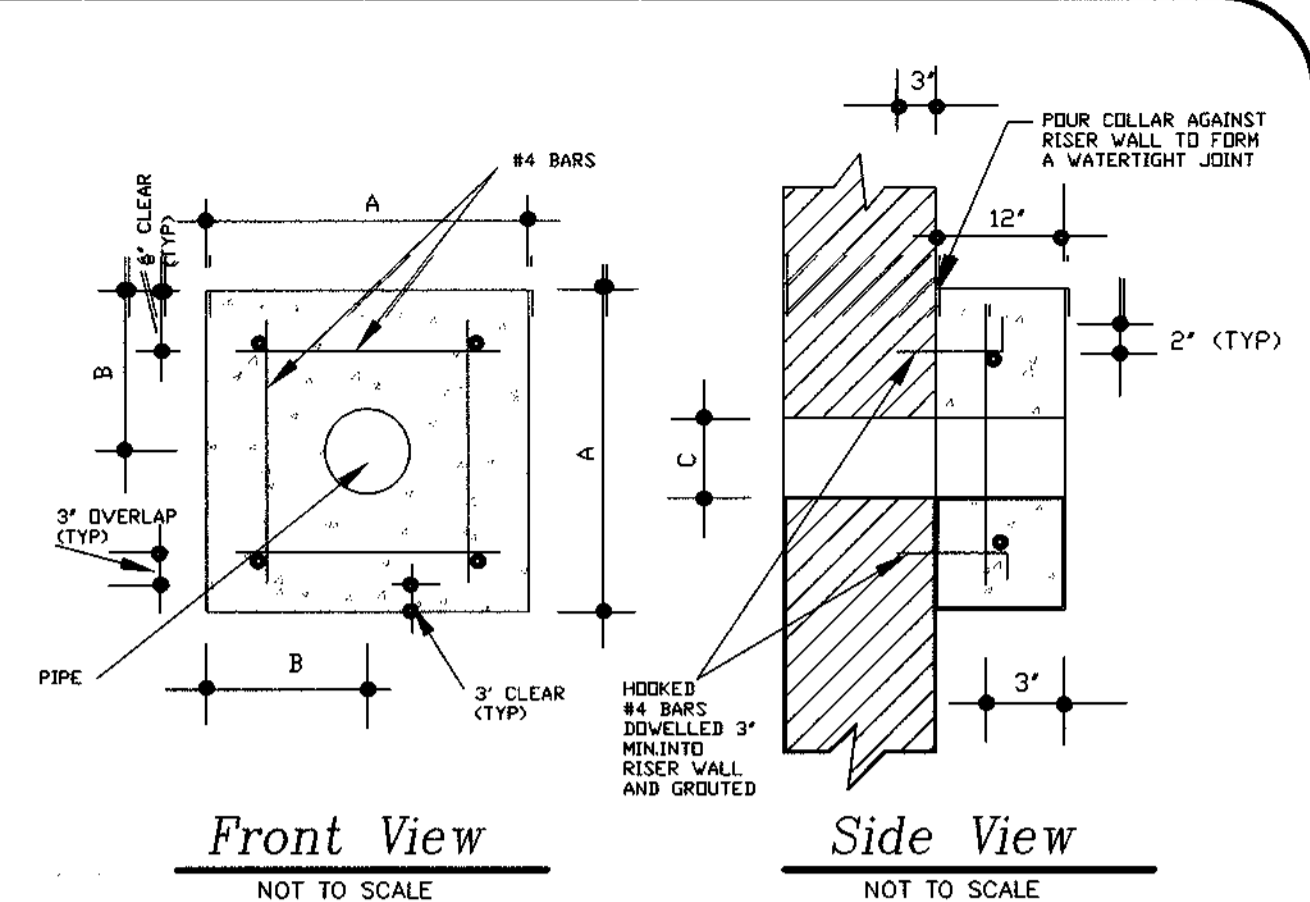


Section A-A
Front View
NOT TO SCALE

	A	B	C	D	E	F	G	H
POND NO. 1	9'-10 1/4"	5'-5 5/8"	4'-4 5/8"	10'-5 1/4"	2'-8"	36"	9"	4 5/8"
POND NO. 2	8'-4 1/2"	4'-8 3/4"	3'-7 3/4"	8'-11 1/2"	2'-3"	30"	9"	3 3/4"
POND NO. 3	8'-10 1/2"	4'-11 3/4"	3'-10 3/4"	9'-5 1/2"	2'-6"	30"	9"	3 3/4"

CONCRETE ANTI-SEEP COLLAR DETAILS

- NOTES:
- ANTI-SEEP COLLARS ARE TO BE FIELD LOCATED A MINIMUM OF 2' AWAY FROM ANY PIPE JOINT. SEE PIPE PROFILE FOR APPROX. SPACING.
 - CONCRETE SHALL BE MSHA MIX NO. 3 (F'c=3500 PSD)
 - A "ONE POUR" COLLAR DOES NOT REQUIRE A CONSTRUCTION JOINT.
 - PROVIDE A MINIMUM OF 2" CLEARANCE FROM OUTSIDE OF PIPE OR CONCRETE CRADLE TO OUTSIDE OF ANTI-SEEP COLLAR.
 - CONCRETE CRADLE IS NOT SHOWN IN SECTION A-A.

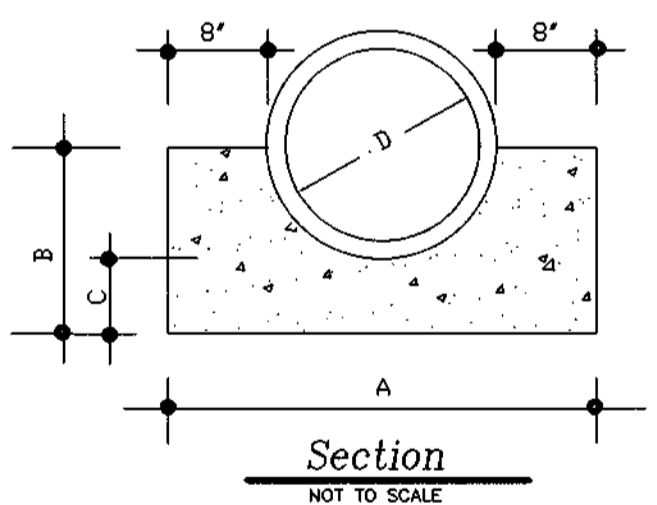


Front View
Side View
NOT TO SCALE

	A	B	C
POND NO. 1	6'-9 1/4"	2'-10 5/8"	36"
POND NO. 2	8'-1 1/2"	2'-6 3/4"	30"
POND NO. 3	4'-1 1/2"	2'-0 3/4"	30"

- NOTES:
- CONCRETE SHALL BE MSHA MIX NO.3 (F'c = 3500 PSD)
 - BARS TO BE DEFORMED.

CONCRETE COLLAR DETAILS



Section
NOT TO SCALE

- NOTES:
- POUR CONCRETE AGAINST UNDISTURBED EARTH.
 - CONCRETE SHALL BE MSHA MIX NO. 3 (F'c=3500 PSD) BARREL MAY BE PLACED ON PRECAST CONCRETE BLOCKS PRIOR TO CRADLE POUR.
 - POURING AN ADDITIONAL 4" TO 6" THICK "MUDMAT" MAY BE ACCEPTABLE IF SUBCONDITIONS ARE WET AND WITH APPROVAL OF GEOTECHNICAL ENGINEER.
 - IF ALL OF CONCRETE CRADLE CANNOT BE POURED AT ONE TIME ONE JOINT IS ALLOWED. PLACE A MINIMUM OF THREE (3) - 6" LONG #4 REBAR DOWELS TO CONNECT FORMS.
 - IF A CRADLE JOINT IS USED, DO NOT LOCATE WITHIN 2" OF PIPE JOINT.

	A	B	C	D
POND NO. 1	5'-1 1/4"	2'-7 5/8"	9"	36"
POND NO. 2	4'-5 1/2"	2'-3 3/4"	9"	30"
POND NO. 3	4'-5 1/2"	2'-3 3/4"	9"	30"

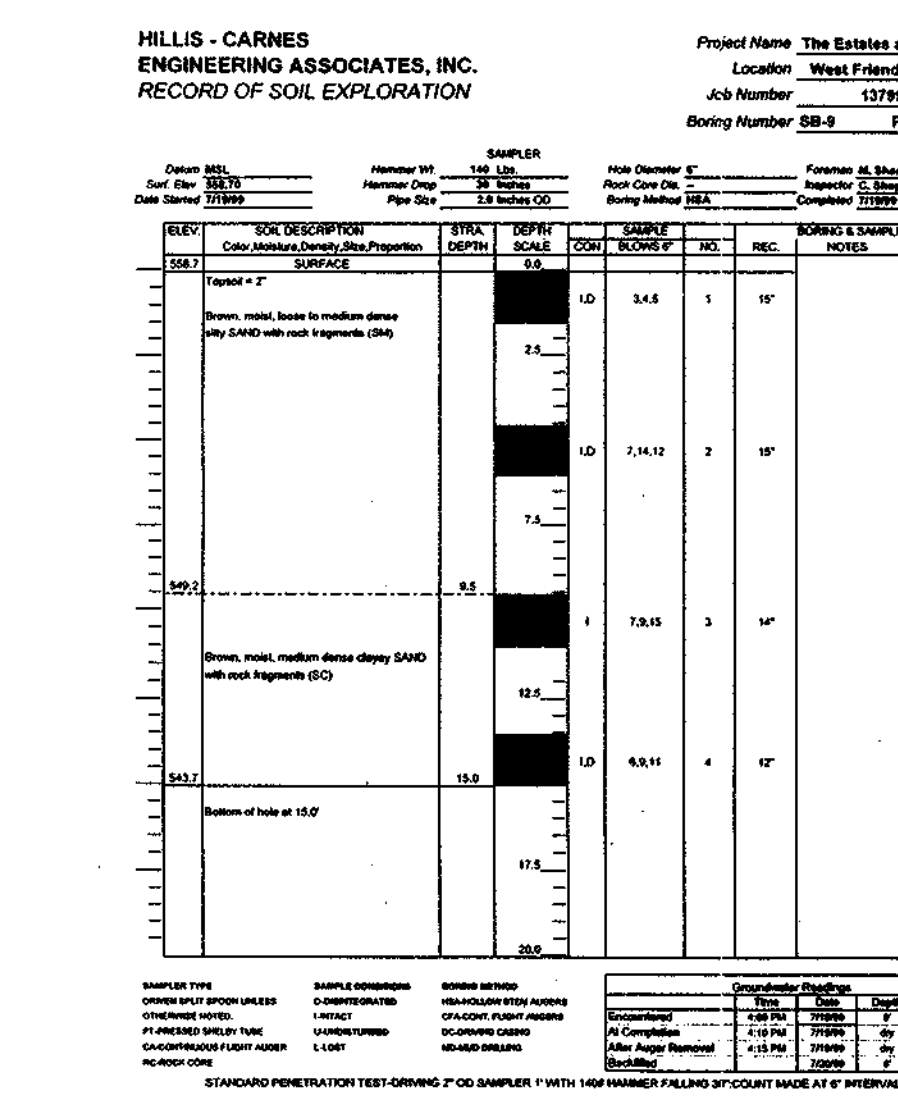
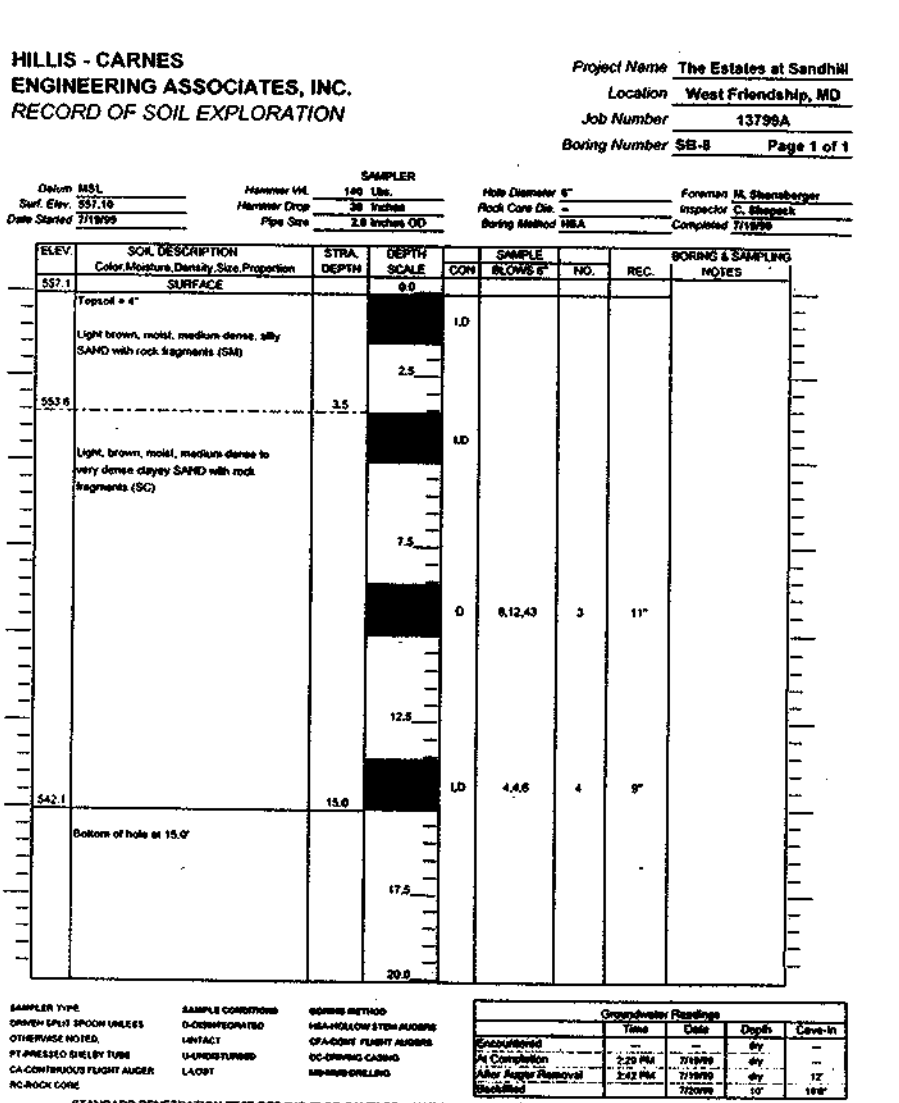
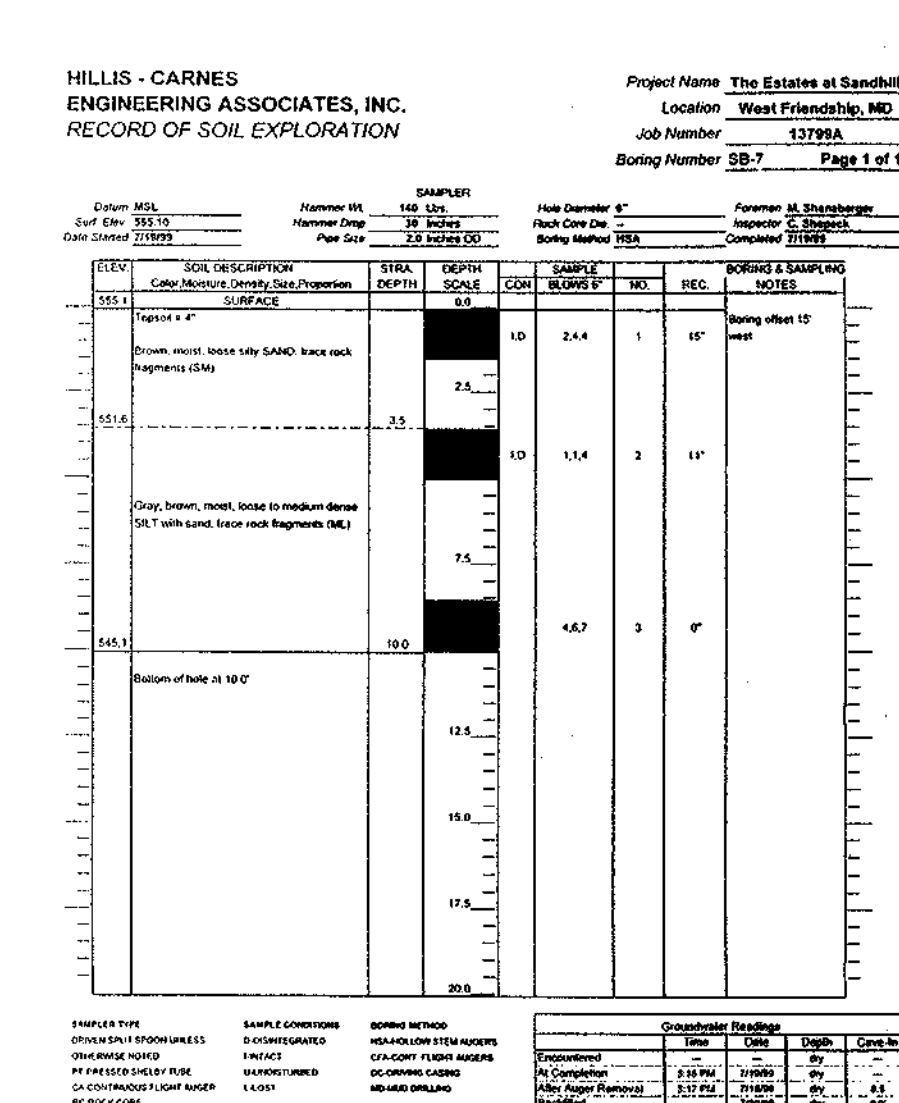
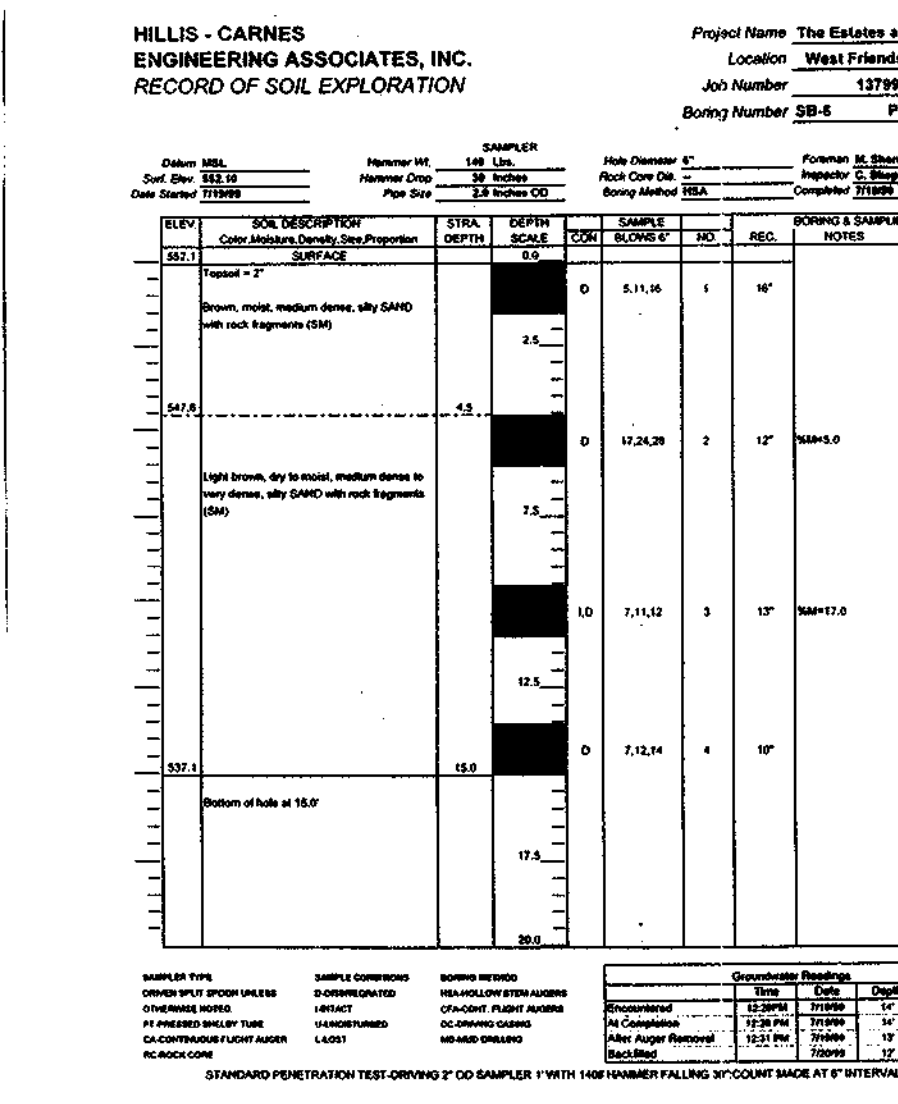
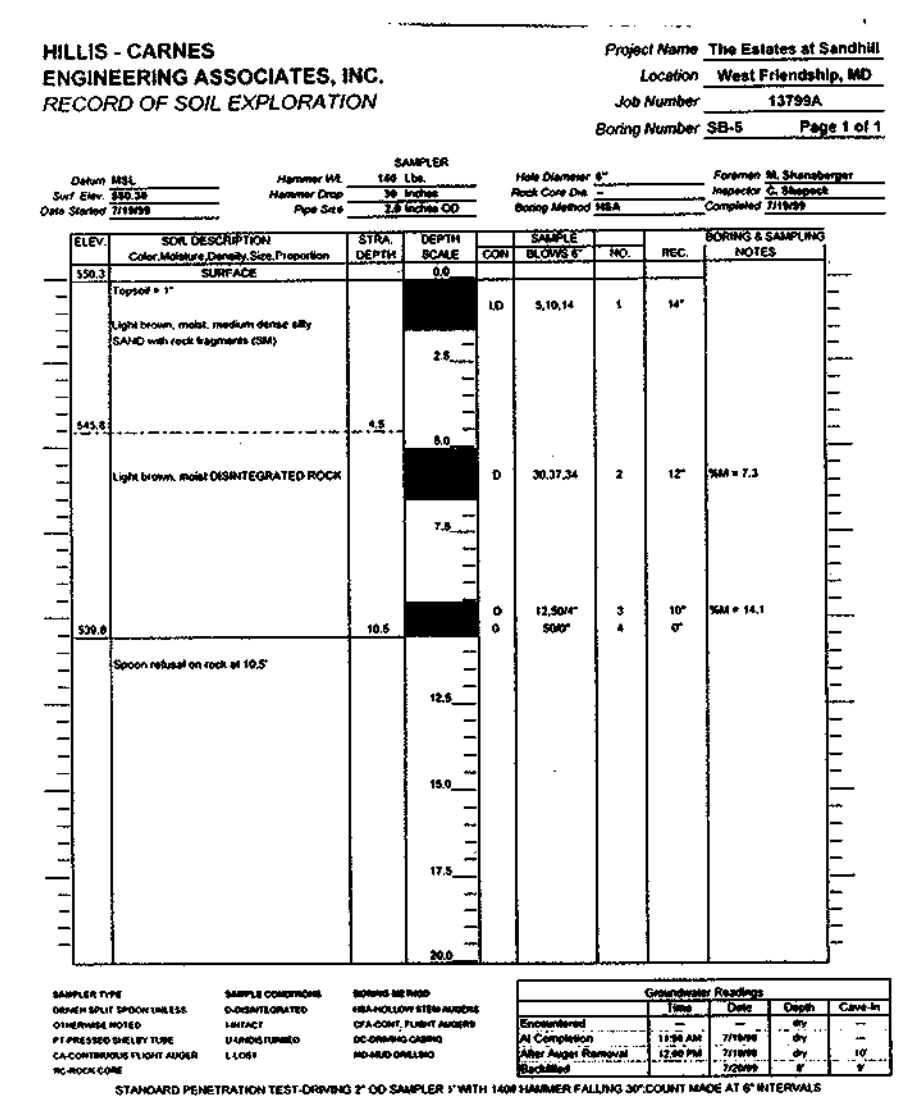
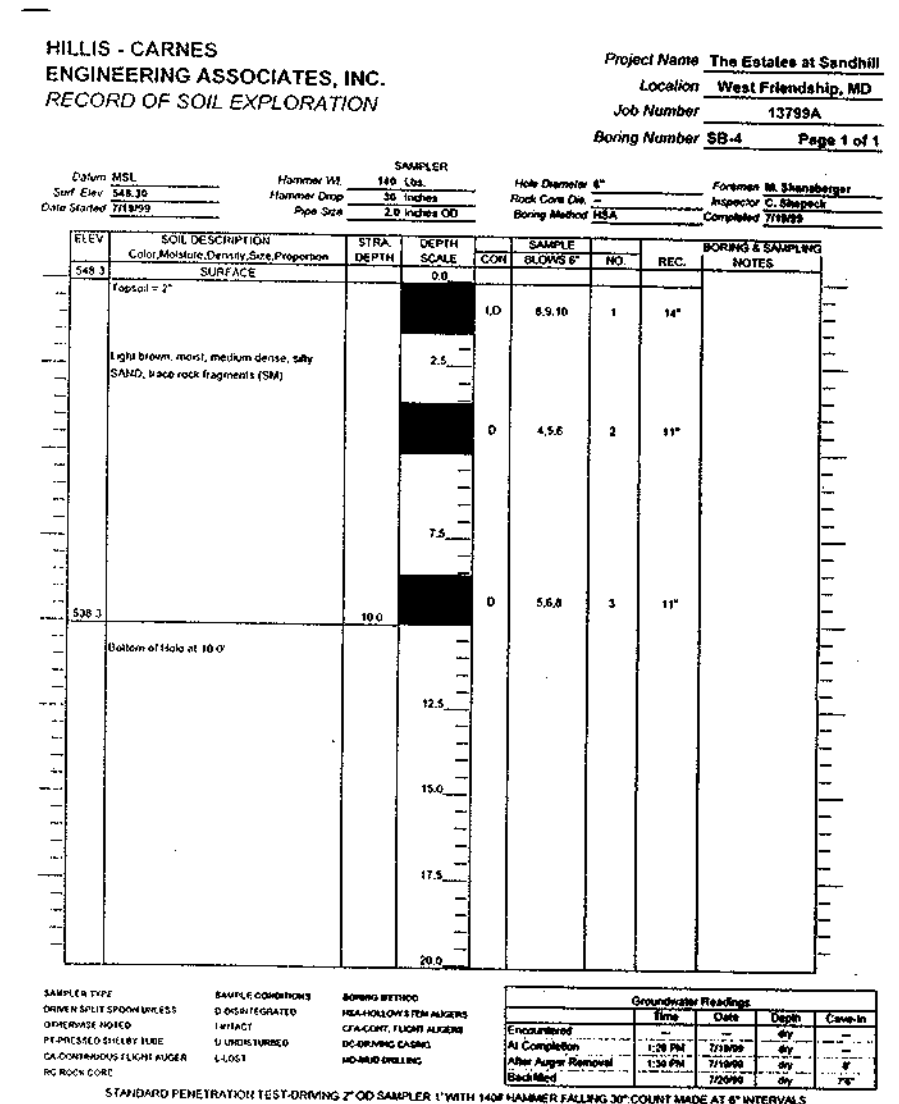
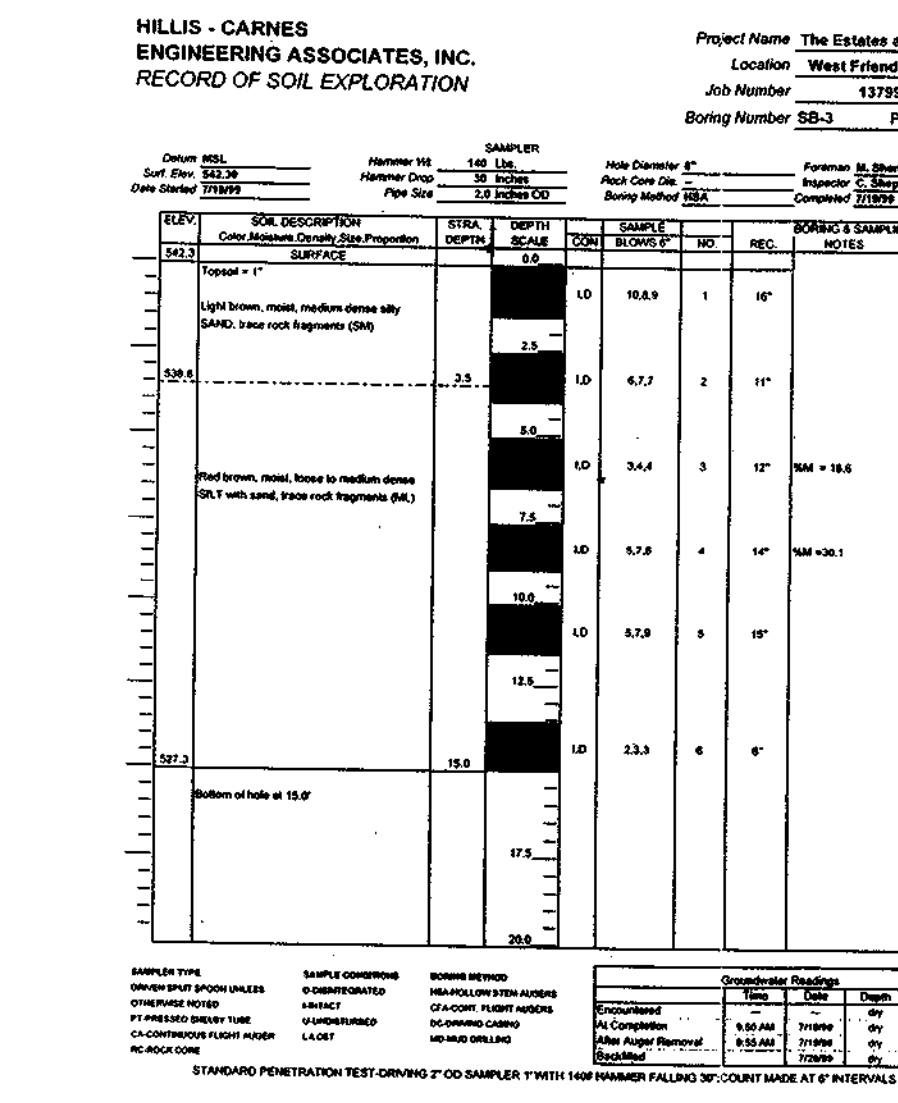
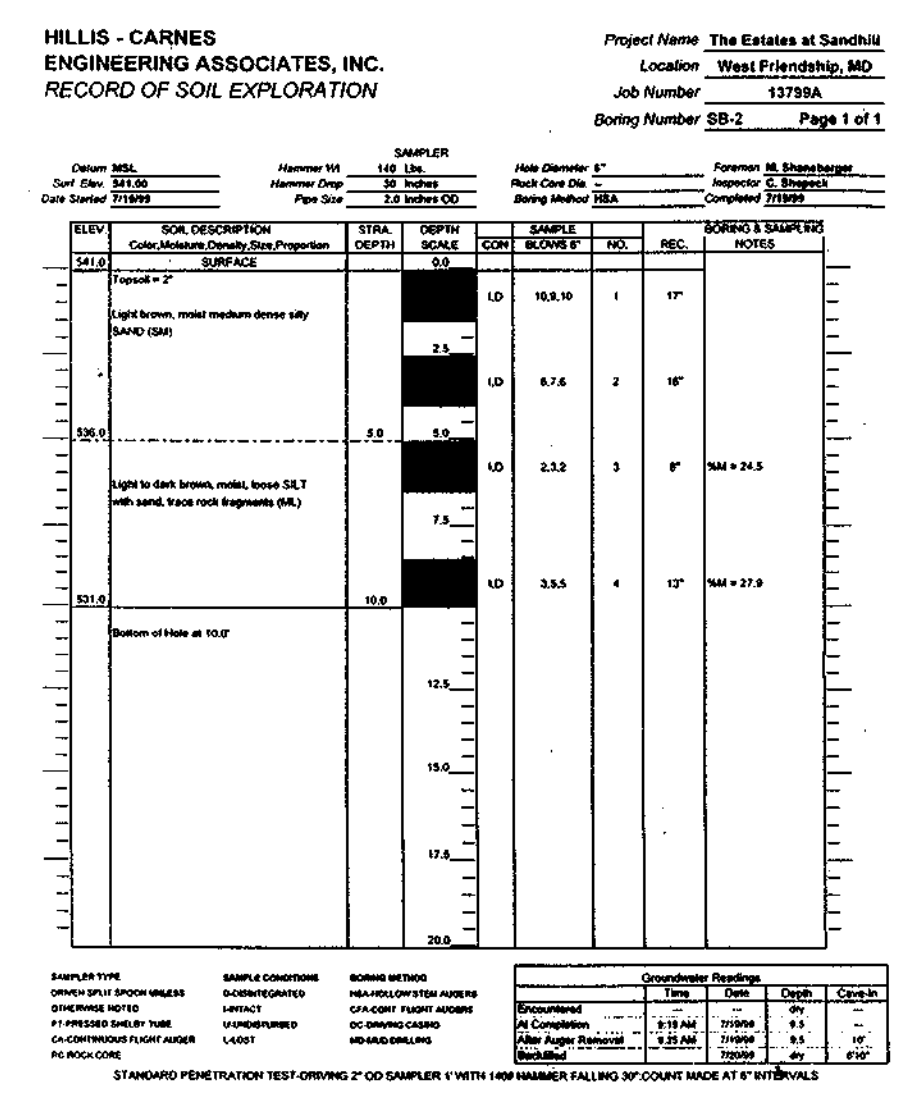
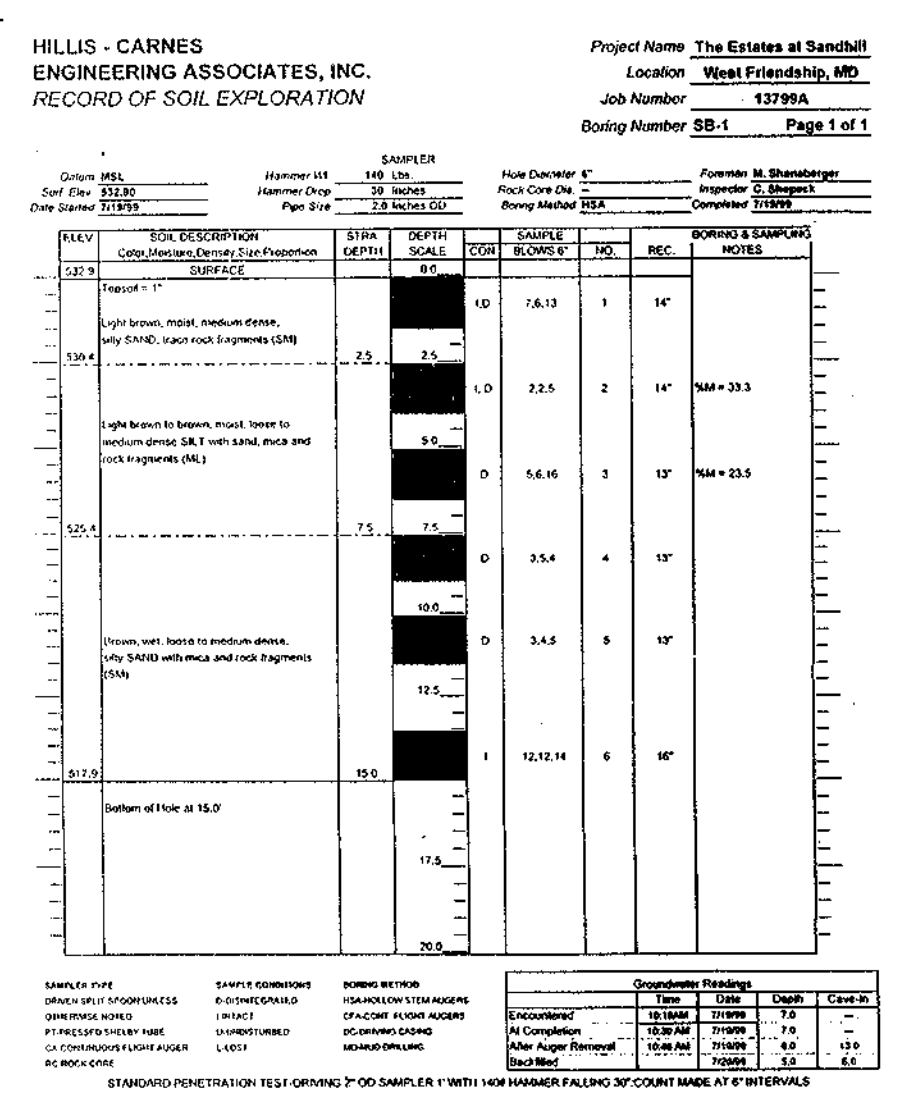
CONCRETE CRADLE DETAIL

project 99003.13
date 03-22-00
illustration K.M.B.
scale as shown
approval P.F.B.
R.M.M.

7-5-00
01-29-00
date
Direct to DPE DED
1ST SUBMITTAL TO HO. CO. DPEZ FOR REVIEW
description
revisions

Tax Map 16, Grid 2, Parcel 3
THE ESTATES AT SAND HILL
HOWARD COUNTY, MD.
ELECTION DISTRICT NO. 3
STORMWATER MANAGEMENT DETAILS

R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
10120 A Old National Pike
Jenningsville, MD 21754-9706
(301) 865-5668
Fax: (301) 865-5111
21 OF 29
F.00.136



EVALUATIONS AND RECOMMENDATIONS

We expect that the proposed ponds will require a relatively impervious core and a cutoff trench extending to a depth of 4 feet below existing site grades, as required by Maryland Soil Conservation Specification (SCS) 378. We understand that the final design of the ponds will be completed.

STORMWATER INFILTRATION

The Maryland Department of the Environment's Sediment and Stormwater Management Administration requires that infiltration must be considered for the facility. The MDE also sets restrictions on infiltration regarding the depths to lining zones, such as groundwater or bedrock. Groundwater was encountered at a depth of 4 feet (EL 525.9) below proposed bottom of pond at EL 530 in SWM #1 and at a depth of 2.3 feet (EL 520.7) below proposed bottom of pond at SWM #3 at EL 523. Whereas in SWM #2, very dense materials were encountered at an elevation of EL 545.8 which is 2.2 feet below proposed bottom of pond at EL 548. Additionally, since this area has experienced a drought condition this summer, we anticipate that these groundwater levels are lower than what would typically be encountered. Since either groundwater or bedrock was encountered within 4.0 feet below the proposed basin elevation, infiltration is not feasible for these ponds.

EMBANKMENT AND STRUCTURE SUBGRADES

Prior to the placement of compacted fill, the topsoil and any other unstable materials should be stripped from the embankment and structure subgrades. After stripping operations have been completed, the exposed subgrade materials should be profiled and smoothed to a uniform surface. The presence of a geotechnical engineer or his representative. The purpose of the profiling is to identify loose or soft soils, and to locally densify the proposed soils. Any soil or loose materials identified by the geotechnical engineer should be removed and replaced with suitable fill. The embankment and structure subgrades should be re-profiled and compacted to a suitable firm soil, and then grades should be re-established by backfilling with suitable soil as described in the Compacted Fill section. Based on the soil borings, we expect that the embankment and structure subgrades will be composed of a medium dense SILT or SAND. Groundwater is not expected to be encountered within SWM #2 and #3 proposed cutoff trench excavations, however it may be encountered along the basin excavation of SWM #1. Any water entering the embankment or structure subgrade should be controlled by sump pits and pumps. Construction of surface runoff may be controlled by sump pits and pumps. Construction of surface runoff may be controlled by the amount of disturbance of the subgrade soils. In addition, construction of surface runoff may be controlled by the amount of disturbance of the subgrade soils, as compaction of these soils could affect the infiltration characteristics of the facility.

COMPACTED FILL

A representative of the Geotechnical Engineer should be present to monitor placement and compaction of fill for the embankment and the cutoff trench, in accordance with Maryland Soil Conservation Specification 378, soils considered suitable for the center of SW, CH, or CL. Soils meeting these classifications were encountered at SB-8 and SB-9 depths of 3.5 and 3.5 feet, respectively and are considered suitable for use as compacted fill within the cutoff and embankment core.

The on-site soils classified as silty SAND or SILT with sand may be used for the exterior portions of the embankment, and as backfill or subgrade for the embankment and the cutoff trench, impermeable core, or around the outlet pipe. Soils classified as SAND or SILT with sand were encountered in each of the soil borings drilled at the site.

All compacted fill should be placed in horizontal layers, maximum 8-inch loose thickness. Sheepsfoot rollers should be used for compacting the soils within cutoff and impermeable core. Careful control of fill placement and compaction around the outlet pipe is recommended to reduce the likelihood of seepage along the pipe. Lift thickness for soil compacted with walk behind equipment should be placed in 4-inch lifts (prior to compaction effort).

Moisture contents tests were conducted on 6 soil samples retrieved from our test borings. The moisture contents ranged from 5 to 33 percent, and are listed on the Records of Subsurface Exploration. A majority of the samples were up to 5 percent above the optimum moisture content for compaction, and may require drying prior to use as compacted fill. Two of the samples had moisture contents about 10 to 15 percent above the optimum moisture content for compaction. Earthwork should be scheduled in the land department (June to October) to reduce the likelihood of delays and additional construction costs.

SPREAD FOOTING FOUNDATIONS

We understand that a concrete intake structure, outlet structure and outlet pipe are planned at the proposed facility. Based on the soil boring data and proposed site grades, the foundations for the proposed structures are expected to be supported by firm natural soils. We recommend that the concrete structure foundations be supported on spread footings designed for a maximum allowable bearing pressure of 2,000 lbs. per square foot (psf). Maximum settlements of 1/2 inch are expected for these structures.

Water should not be allowed to pond or collect within the foundation excavations, which may soften the subgrade soils. Soft or disturbed soils should be removed and replaced with compacted fill. A geotechnical engineer or his representative should observe foundation excavations to correlate the subgrade soils with the soils encountered in the test borings.

STORMWATER MANAGEMENT POND MAINTENANCE SCHEDULE (PONDS #1, 2, 3)

Routine Maintenance
Facility shall be inspected annually and after major storms. Inspections should be performed during wet weather to determine if the pond is functioning properly.

Top and side slopes of the embankment shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side slopes, the bottom of the pond, and maintenance access should be mowed as needed.

Debris and litter next to the outlet structure shall be removed during regular mowing operations and as needed.

Visible signs of erosion in the pond as well as rip-rap outlet area shall be repaired as soon as it is noticed.

Non-Routine Maintenance
Structural components of the pond such as the dam, riser structure and the pipes shall be repaired upon the detection of any damage. The components should be inspected during routine maintenance operations.

Sediment should be removed when its accumulation significantly reduces the design storage, interferes with the function of the riser, when deemed necessary for aesthetic reasons, or when deemed necessary by the Howard County Department of Public Works.

OPERATION, MAINTENANCE AND INSPECTION

Inspection of the pond(s) shown hereon shall be performed at least annually, in accordance with the checklist and requirements contained within USDA, SCS "Standards and Specifications for Ponds" (MD-378). The pond owner(s) and any heirs, successors, or assigns shall be responsible for the safety of the pond and the continued operations, 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.

STORMWATER MANAGEMENT CONSTRUCTION SPECIFICATIONS

SCS MD. - 378 JAN. 2000

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.

I. SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEG-ETATION, AND OBJECTIVE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CAPPED AND GRUBBED WITHIN 50 FT OF THE FACE OF EMBANKMENT. AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIVE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT POND(S), 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 LIMIT OF FILL DAM AND RESERVOIR AS DIRECTED BY THE OWNER. 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.

II. EARTH FILL

THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIVE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CC, SC, CH, OR CL. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER. A MD MUST HAVE AT LEAST 5% PASSING #200 SIEVE.

AREAS IN WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK LAYERS. BEFORE COMPACTING LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL, THE MOST PERMEABLE MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY SHALL BE FORMED INTO A BALL. IT SHALL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.

WHERE A MINIMUM REQUIRED DENSITY IS SPECIFIED, IT SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN +/- 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY. FILL TO BE COMPACTED TO THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION. IT IS DETERMINED BY THE FOLLOWING METHOD (M-99) (STANDARD PRACTICE).

CUT OFF TRENCH

THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH A MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GROUND SURFACE. ON THE PLANS, THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

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 to 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 the 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 sides 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

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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. REINFORCED CONCRETE PIPE

ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:
1. MATERIALS
REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM DESIGNATION C-963.

2. BEDDING
ALL REINFORCED CONCRETE PIPE SHALL BE LAID IN A CONCRETE BEDDING/ GRADE FOR THEIR ENTIRE LENGTH. THIS BEDDING SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES TO A MINIMUM OF AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE BEDDING IS NOT THROUGHT FOR, STRUCTURAL GRADES SHALL BE USED TO PROVIDE ADEQUATE SUPPORT.

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 LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL" (MD III) AS SHOWN ON THE DRAWINGS.
5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

POLYVINYL CHLORIDE (PVC) PIPE

ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR POLYVINYL CHLORIDE (PVC) PIPE:
1. MATERIALS
PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241.

2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATER-TIGHT.

3. BEDDING
THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SDT, 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.

V. 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.

VI. ROCK RIPRAP

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311.

THE RIPRAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THE RIPRAP IN PLACE SHALL BE REASONABLY HOMOGENEOUS WITH THE LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT ONE TO ANOTHER WITH THE SMALLER ROCKS FILLING THE VOIDS BETWEEN THE LARGER ROCKS. GEOTECHNICAL 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 921.09 CLASS C.

VII. 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 TEMPORARY DICES, LEVEES, CUTOFFDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM THE VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT DISTRIBUTION IN ANY BEGEE, 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 FILL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM OF REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS WHERE RETILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER TO SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

VIII. STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN SIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE MARYLAND SOIL CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

IX. EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE PREVENTED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL BE FAIL EROSION AND SEDIMENT CONTROL MEASURES TO BE EMPLOYED DURING THE CONSTRUCTION PROCESS.

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard Stiles 9/10/00
CHIEF, BUREAU OF HIGHWAYS
DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cathy Hamilton 9/28/00
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE

[Signature] 9/10/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE

OWNER
OAK HILL PROPERTIES
107 LOUDOUN STREET, S.E.
LEESBURG, VIRGINIA 20175-3106
(703) 443-0400
ATTN: MR. KEVIN ROGERS

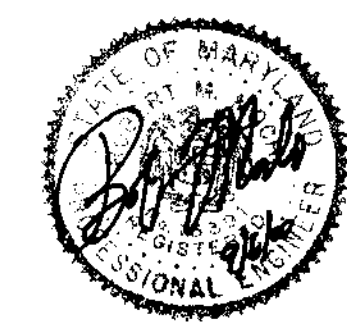
ENGINEER/SURVEYOR:
R.M. MOCHI GROUP, P.C.
10120 A OLD NATIONAL PIKE
JAMMSVILLE, MD. 21754-9706
(301) 865-5858
ATTN: MR. ROBERT M. MOCHI, P.E.

APPROVED:
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
[Signature] 9/10/00
HOWARD SOIL CONSERVATION DISTRICT
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.
[Signature] 9/10/00
USDA - NATIONAL RESOURCES CONSERVATION SERVICE
DATE

DEVELOPER'S CERTIFICATE
I/We certify that all development and construction will be done in accordance with this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction of this project will have a certificate of attendance at Department of the Environment approved training program for the control of sediment and erosion before beginning the project. I also authorize periodic onsite inspection by the Howard County Soil Conservation District or their authorized agents, as are deemed necessary.
[Signature] 9/10/00
Signature of Developer
DATE

ENGINEER'S CERTIFICATE
I hereby certify that this plan for erosion and sediment control represents a practical and workable method 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] 9/10/00
Robert M. Mochi, P.E.
DATE



9-16-00
date
98003-001-99003-13 RISER-DIST.DWG
project
illustration
scale
date
96-00
7-5-00
3-29-00
date
AS SHOWN
RMB
KMB
PFB
RMM
APPROVAL
NO. 2
DATE 9/10/00
SUBMITTED TO HOWARD COUNTY DPZ FOR REVIEW
DESCRIPTION OF REVISIONS
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1 Direct to DPE
0 SUBMITTED TO HOWARD COUNTY DPZ FOR REVIEW

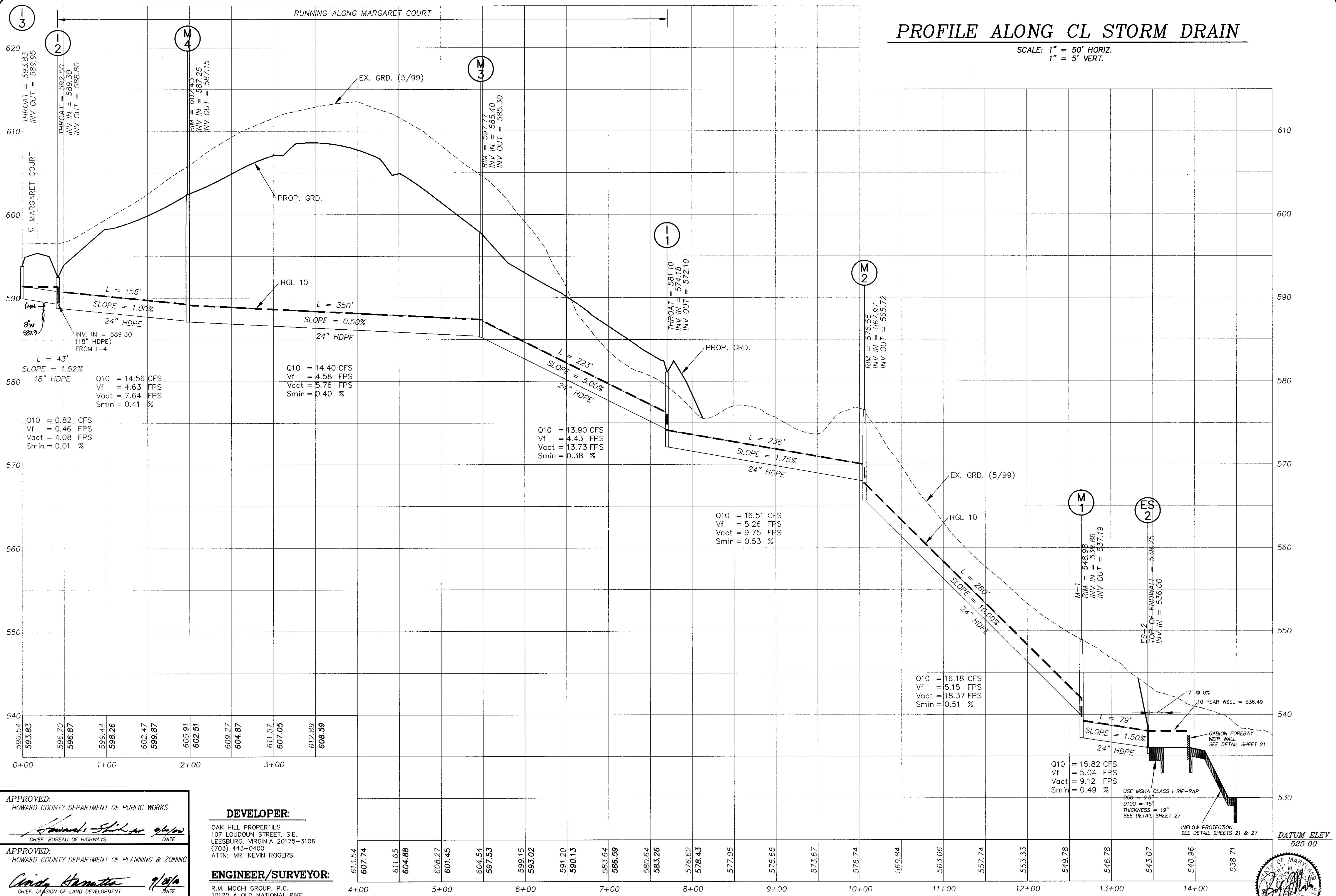
Tax Map 16, Grid 2, Parcel 3
THE ESTATES AT SAND HILL
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT NO. 3
STORMWATER MANAGEMENT DETAILS AND PROFILES

(301) 865-5858
Fax: (301) 865-5111
P.O. Box 10
New Market, MD 21774-0010

22 OF 29
F00136

PROFILE ALONG CL STORM DRAIN

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



APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard's Shickler 9/21/00
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamstra 9/21/00
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION
[Signature] DATE

DEVELOPER:
OAK HILL PROPERTIES
107 LOUDOUN STREET, S.E.
LEESBURG, VIRGINIA 20175-3106
(703) 443-0400
ATTN: MR. KEVIN ROGERS

ENGINEER/SURVEYOR:
R.M. MOCHI GROUP, P.C.
10120 A OLD NATIONAL PIKE
JAMSVILLE, MD 21754-9706
(301) 865-5858
ATTN: MR. ROBERT M. MOCHI, P.E.

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607.74	604.88	601.45	597.53	593.02	590.13	586.59	583.26	578.43												

project	99003.13	date	03-27-00
illustration	JMZ	engineering	PFB
scale	as shown	approval	RMM

no.	1	description	Direct to Ops Deo	date	7-5-00
		revisions	0	SUBMITTED TO HOWARD CO. DPZ FOR REVIEW	

Tax Map 16, Grid 2, Parcel 3
THE ESTATES AT SAND HILL
ELECTION DISTRICT NO. 3
HOWARD COUNTY, MARYLAND
STORM DRAIN PROFILES

R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
1903 A Old National Pike
Jamasville, MD 21754-9706
(301) 865-5858
Fax: (301) 865-3111

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DEVELOPER:

OAK HILL PROPERTIES
107 LOUDOUN STREET, S.E.
LEESBURG, VIRGINIA 20175-3106
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ATTN: MR. KEVIN ROGERS

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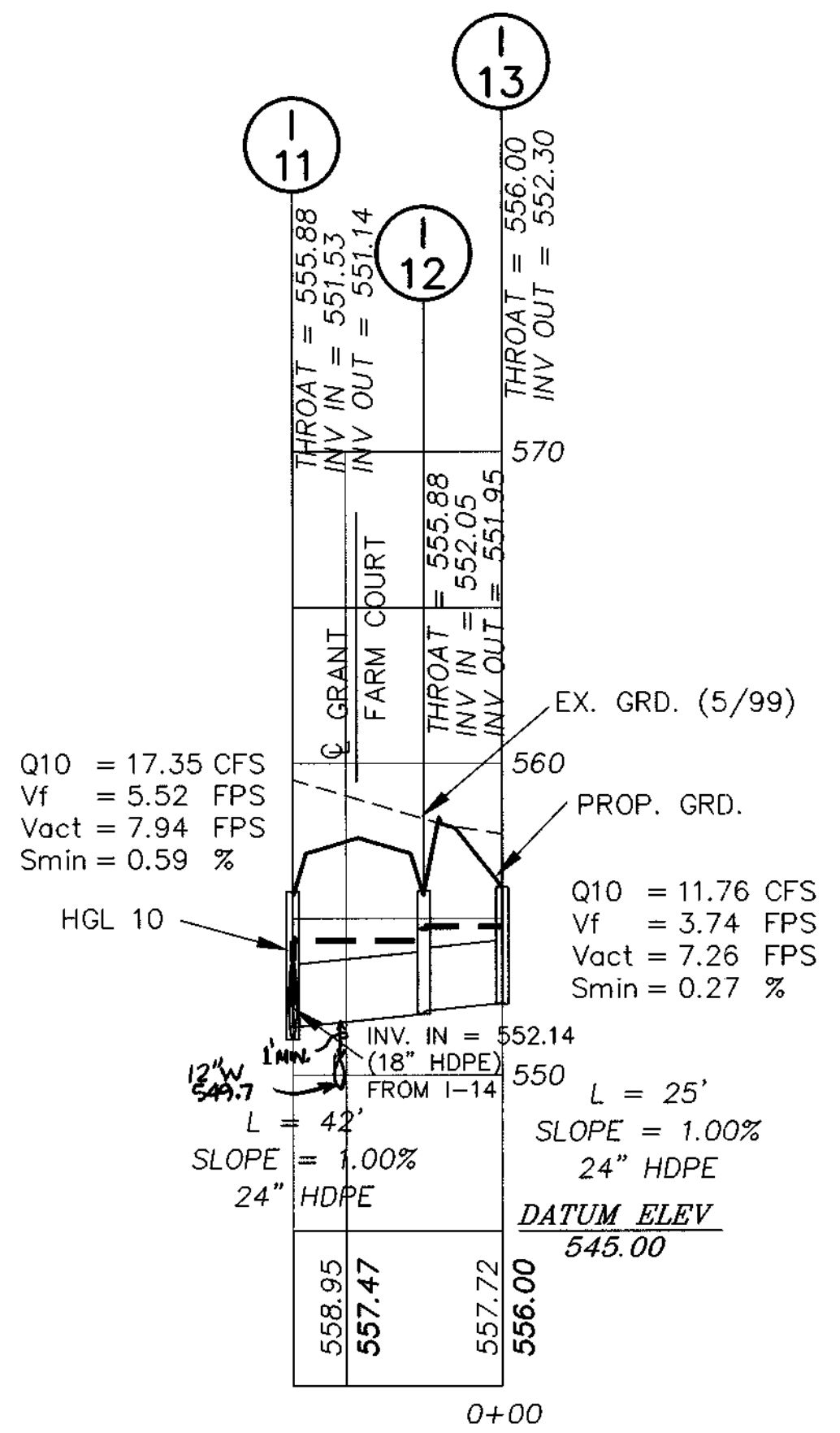
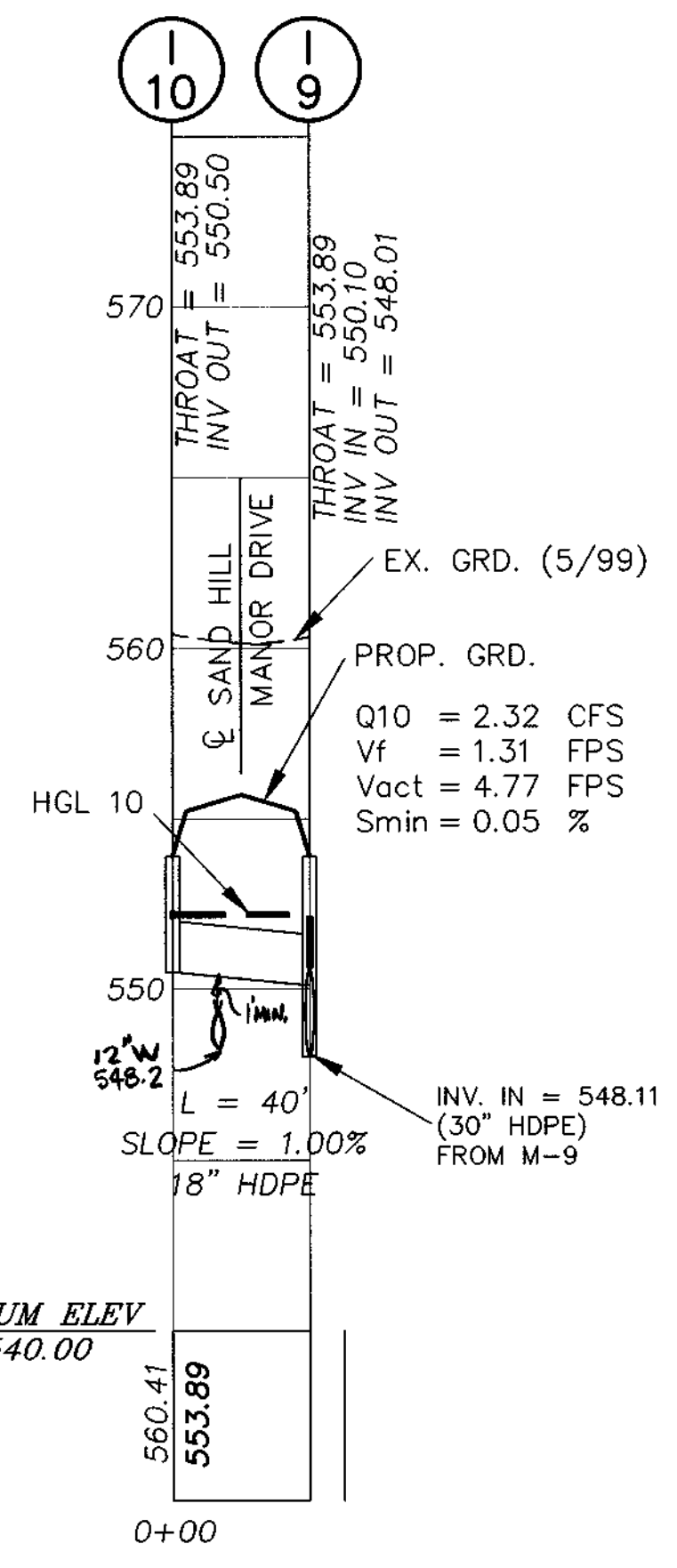
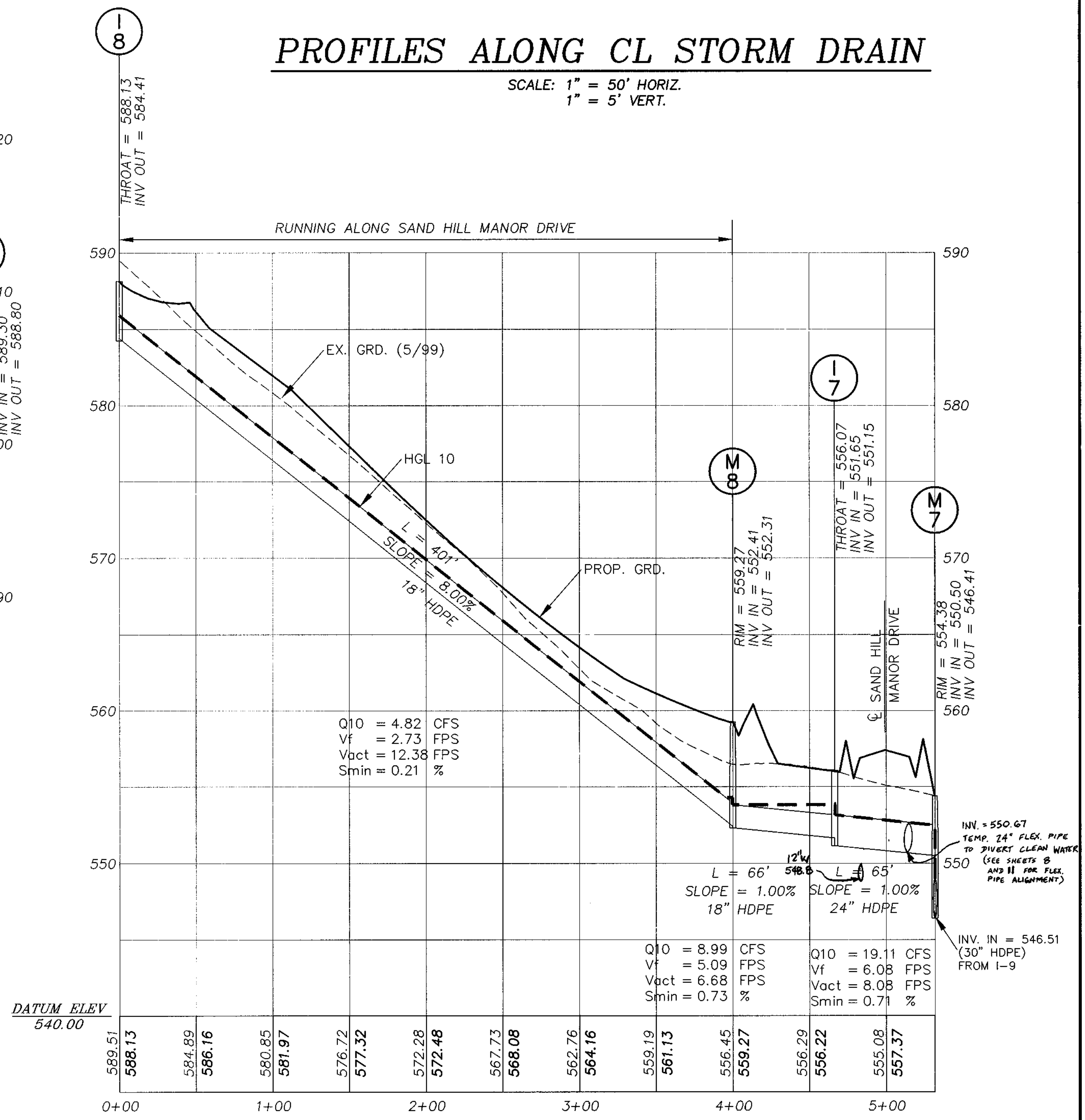
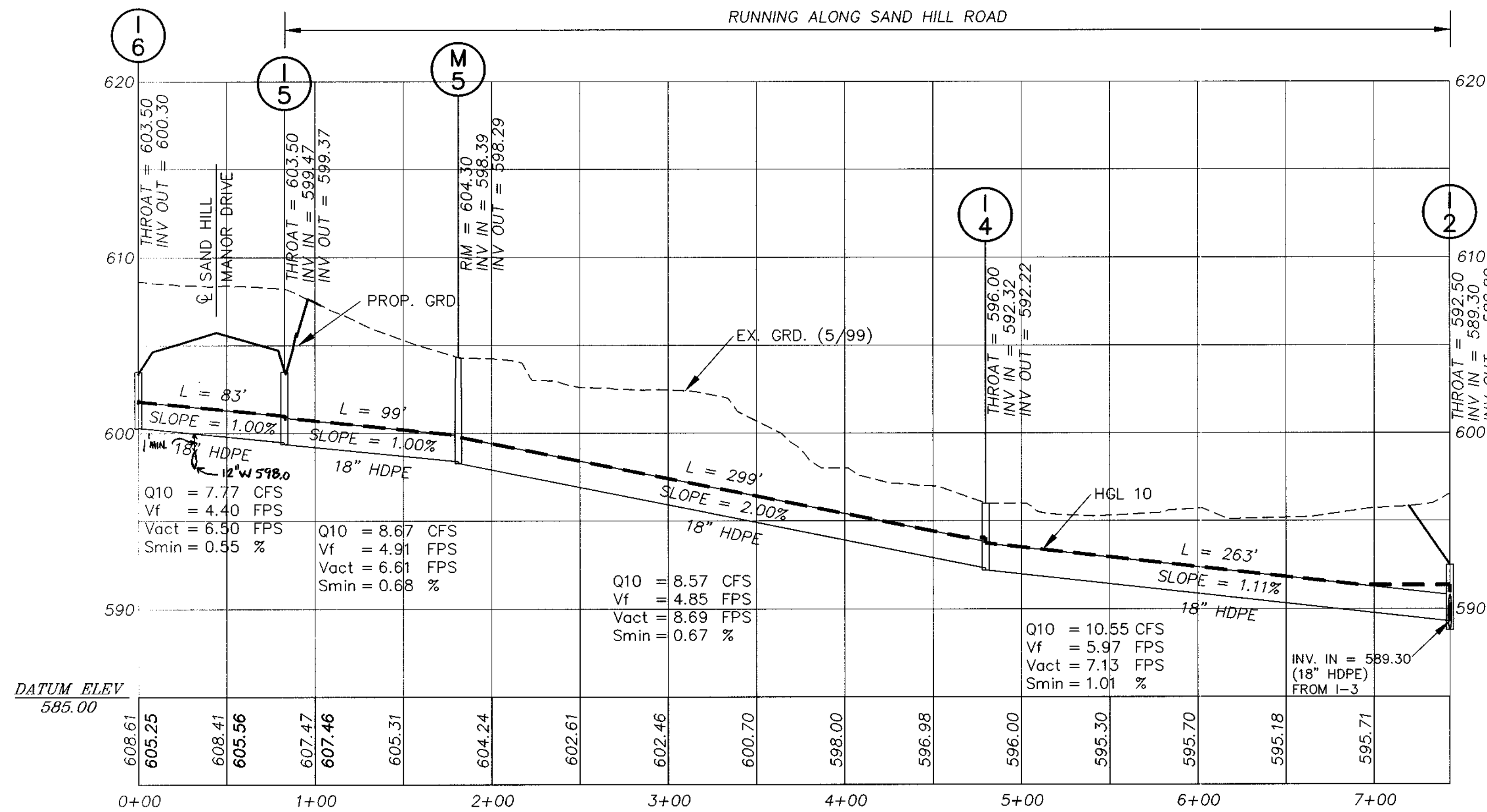
APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Howard Shick 9/2/00
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Clayton Hamilton 9/4/00
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 9/4/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

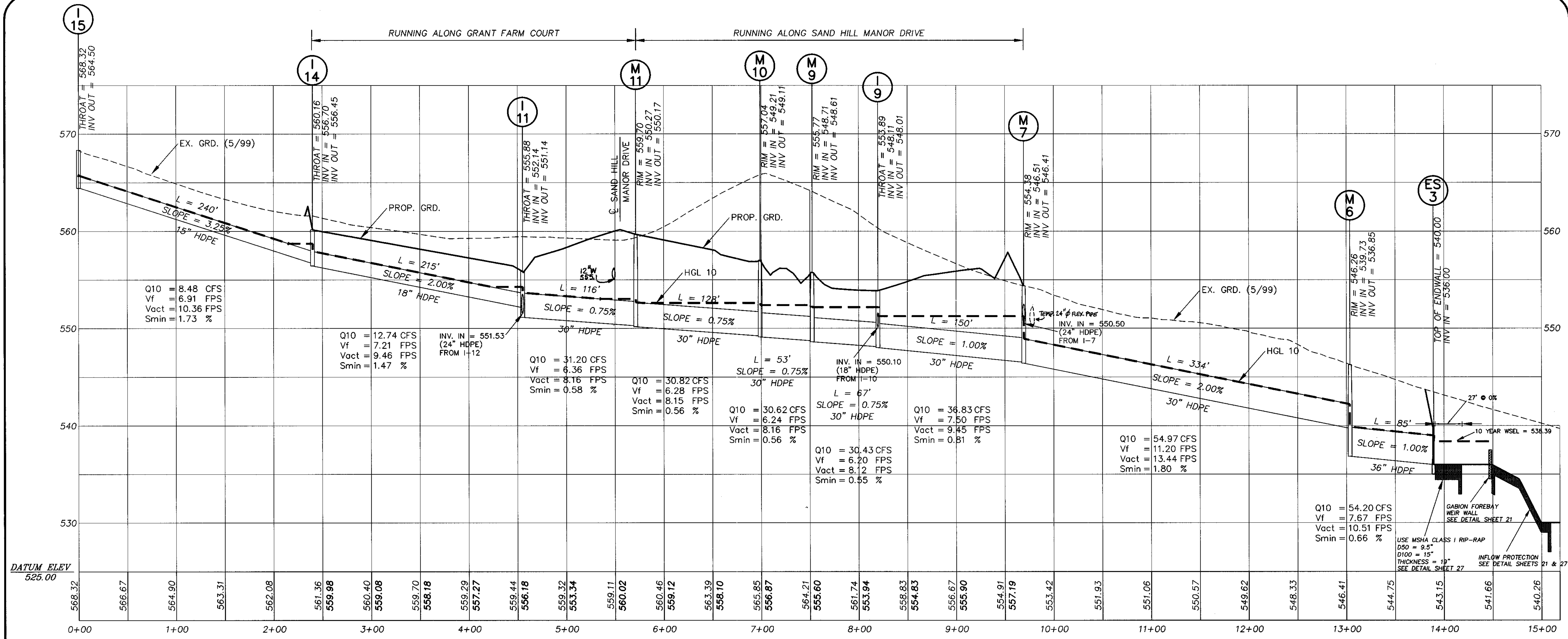


project	99003.13	date	03-27-00
illustration	JMZ	engineering	PFB
scale	as shown	approval	RMM

no.	1	description	Direct to OPZ D&D	date	7-5-00
no.	0	description	SUBMITTED TO HOWARD CO. DPZ FOR REVIEW	date	03-29-00
no.		description	revisions	date	

Tax Map 16, Grid 2, Parcel 3
THE ESTATES AT SAND HILL
ELECTION DISTRICT NO. 3
HOWARD COUNTY, MARYLAND
STORM DRAIN PROFILES

R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
19089 A Old National Pike
Jamasville, MD 21754-9706
(301) 865-5858
Fax: (301) 865-5111



PROFILE ALONG CL STORM DRAIN

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

STORM DRAIN DRAINAGE AREAS						
Subarea (B)	Zoning (Z)	Area (ac) (A)	Area (sq mi) (A)	"C" Factor (C)	% Impervious (P)	T _c (hr)
I-1	RC-DEO	2.18	0.0034	0.26	20	0.17
I-2	RC-DEO	3.04	0.0047	0.22	20	0.25
I-3	RC-DEO	0.59	0.0009	0.21	20	0.17
I-4	RC-DEO	1.93	0.0030	0.24	28	0.26
I-5	RC-DEO	0.89	0.0014	0.21	20	0.17
I-6	RC-DEO	4.94	0.0077	0.27	23	0.29
I-7	RC-DEO	7.23	0.0113	0.25	14	0.30
I-8	RC-DEO	3.52	0.0055	0.26	20	0.27
I-9	RC-DEO	1.12	0.0018	0.26	40	0.17
I-10	RC-DEO	1.19	0.0019	0.26	20	0.17
I-11	RC-DEO	3.50	0.0055	0.26	19	0.20
I-12	RC-DEO	3.71	0.0058	0.21	14	0.18
I-13	RC-DEO	6.31	0.0099	0.26	13	0.19
I-14	RC-DEO	3.90	0.0061	0.25	15	0.31
I-15	RC-DEO	7.60	0.0119	0.22	6	0.28
I-16	RC-DEO	0.39	0.0006	0.26	40	0.17
I-17	RC-DEO	1.06	0.0017	0.26	35	0.17
I-18	RC-DEO	4.77	0.0075	0.26	19	0.24
I-19	RC-DEO	7.55	0.0118	0.18	9	0.29
I-20	RC-DEO	2.11	0.0033	0.17	6	0.27
I-21	RC-DEO	1.34	0.0021	0.21	40	0.17
I-22	RC-DEO	5.15	0.0080	0.24	15	0.24
I-23	RC-DEO	3.30	0.0052	0.25	15	0.17
I-24	RC-DEO	4.04	0.0063	0.24	13	0.30
I-25	RC-DEO	3.33	0.0052	0.25	16	0.25

PIPE SCHEDULE	
Type	Total Length
15" HDPE	240'
18" HDPE	2239'
24" HDPE	2016'
30" HDPE	910'
36" HDPE	85'
15" RCP Class IV	60'

STORM DRAIN STRUCTURE SCHEDULE			
No.	Type	Location	Remarks
I-1	Precast Open End Grate (Double Opening)	N 597851.45 E 1332744.22	SD 4.36
I-2	Precast Open End Grate (Double Opening)	STA. 0+33.85 O/S 24.74 L	SD 4.36
I-3	Precast Open End Grate (Double Opening)	STA. 0+30.57 O/S 17.94 R	SD 4.36
I-4	Precast Open End Grate (Double Opening)	N 598141.67 E 1331987.43	SD 4.36
I-5	Precast Open End Grate (Double Opening)	STA. 0+82.14 O/S 38.53 R	SD 4.36
I-6	Precast Open End Grate (Double Opening)	STA. 0+79.11 O/S 44.05 L	SD 4.36
I-7	Precast Open End Grate	STA. 15+83.07 O/S 32.64 L	SD 4.36
I-8	Precast Open End Grate (Double Opening)	STA. 10+91.19 O/S 27.59 L	SD 4.36
I-9	Precast Open End Grate (Double Opening)	STA. 17+11.56 O/S 20.00 R	SD 4.36
I-10	Precast Open End Grate (Double Opening)	STA. 17+11.56 O/S 20.00 L	SD 4.36
I-11	Precast Open End Grate (Double Opening)	STA. 1+40.00 O/S 21.00 L	SD 4.36
I-12	Precast Open End Grate (Double Opening)	STA. 1+40.00 O/S 21.00 R	SD 4.36
I-13	Precast Open End Grate	STA. 1+00.00 O/S 46.00 R	SD 4.36
I-14	Precast Open End Grate (Double Opening)	STA. 3+15.26 O/S 20.16 L	SD 4.36
I-15	Precast Open End Grate	N 599139.00 E 1333510.40	SD 4.36
I-16	Precast Open End Grate (Double Opening)	STA. 29+91.66 O/S 17.00 R	SD 4.36
I-17	Precast Open End Grate (Double Opening)	STA. 29+91.66 O/S 17.00 L	SD 4.36
I-18	Precast Open End Grate	STA. 29+15.52 O/S 40.99 L	SD 4.36
I-19	Precast Open End Grate	STA. 598525.92 O/S 1334680.07	SD 4.36
I-20	Precast Open End Grate	STA. 598402.33 O/S 1334688.72	SD 4.36
I-21	Precast Open End Grate (Double Opening)	STA. 13+42.00 O/S 17.00 R	SD 4.36
I-22	Precast Open End Grate (Double Opening)	STA. 13+42.00 O/S 17.00 L	SD 4.36
I-23	Precast Open End Grate (Double Opening)	STA. 12+50.00 O/S 26.39 L	SD 4.36
I-24	Precast Open End Grate (Double Opening)	STA. 10+40.00 O/S 17.00 L	SD 4.36
I-25	Precast Open End Grate (Double Opening)	STA. 15+00.00 O/S 17.00 L	SD 4.36
M-1	40" Precast Manhole	N 598038.47 E 1333061.12	G5.12
M-2	40" Precast Manhole	N 598079.07 E 1332805.75	G5.12
M-3	40" Precast Manhole	STA. 5+36.53 O/S 19.02 L	G5.12
M-4	40" Precast Manhole	STA. 1+87.45 O/S 18.54 L	G5.12
M-5	40" Precast Manhole	N 598439.95 E 1331999.98	G5.12
M-6	50" Precast Manhole	N 598236.19 E 1333469.19	G5.13
M-7	50" Precast Manhole	STA. 15+77.62 O/S 32.59 R	G5.13
M-8	40" Precast Manhole	STA. 14+93.00 O/S 17.90 L	G5.12
M-9	50" Precast Manhole	STA. 17+85.54 O/S 15.63 R	G5.13
M-10	50" Precast Manhole	STA. 18+55.80 O/S 16.24 R	G5.13
M-11	50" Precast Manhole	STA. 19+87.05 O/S 15.94 R	G5.13
M-12	40" Precast Manhole	N 598284.64 E 1334356.09	G5.12
ES-2	Type "C" Endwall Circular Pipe	N 598026.01 E 1333139.49	SD 5.21
ES-3	Type "C" Endwall Circular Pipe	N 598154.23 E 1333445.21	SD 5.21
ES-5	Type "C" Endwall Circular Pipe	N 598119.69 E 1334127.53	SD 5.21
ES-7	Type "A" Headwall Circular Pipe	N 13+42.00 O/S 45.00 R	SD 5.11
ES-8	Concrete End Section	STA. 75+00 O/S 37.00 L	SD 5.52
ES-9	Concrete End Section	STA. 75+00 O/S 23.00 R	SD 5.52

* All precast open end grates to be used with the standard type "K" inlet grate (SD 4.13)

DEVELOPER:
OAK HILL PROPERTIES
107 LOUDOUN STREET, S.E.
LEESBURG, VIRGINIA 20175-3106
(703) 443-0400
ATTN: MR. KEVIN ROGERS

ENGINEER/SURVEYOR:
R.M. MOCHI GROUP, P.C.
10120 A OLD NATIONAL PIKE
JAMMSVILLE, MD 21754-9706
(301) 865-5858
ATTN: MR. ROBERT M. MOCHI, P.E.

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard Shindler 9/25/10
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamstra 9/25/10
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED:
[Signature] 9/25/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



date	09-27-00
project	99003.13
illustration	JMZ
scale	as shown
approval	PPB
revision	RM

7-5-00
03-29-00
DATE

7-5-00
03-29-00
DATE

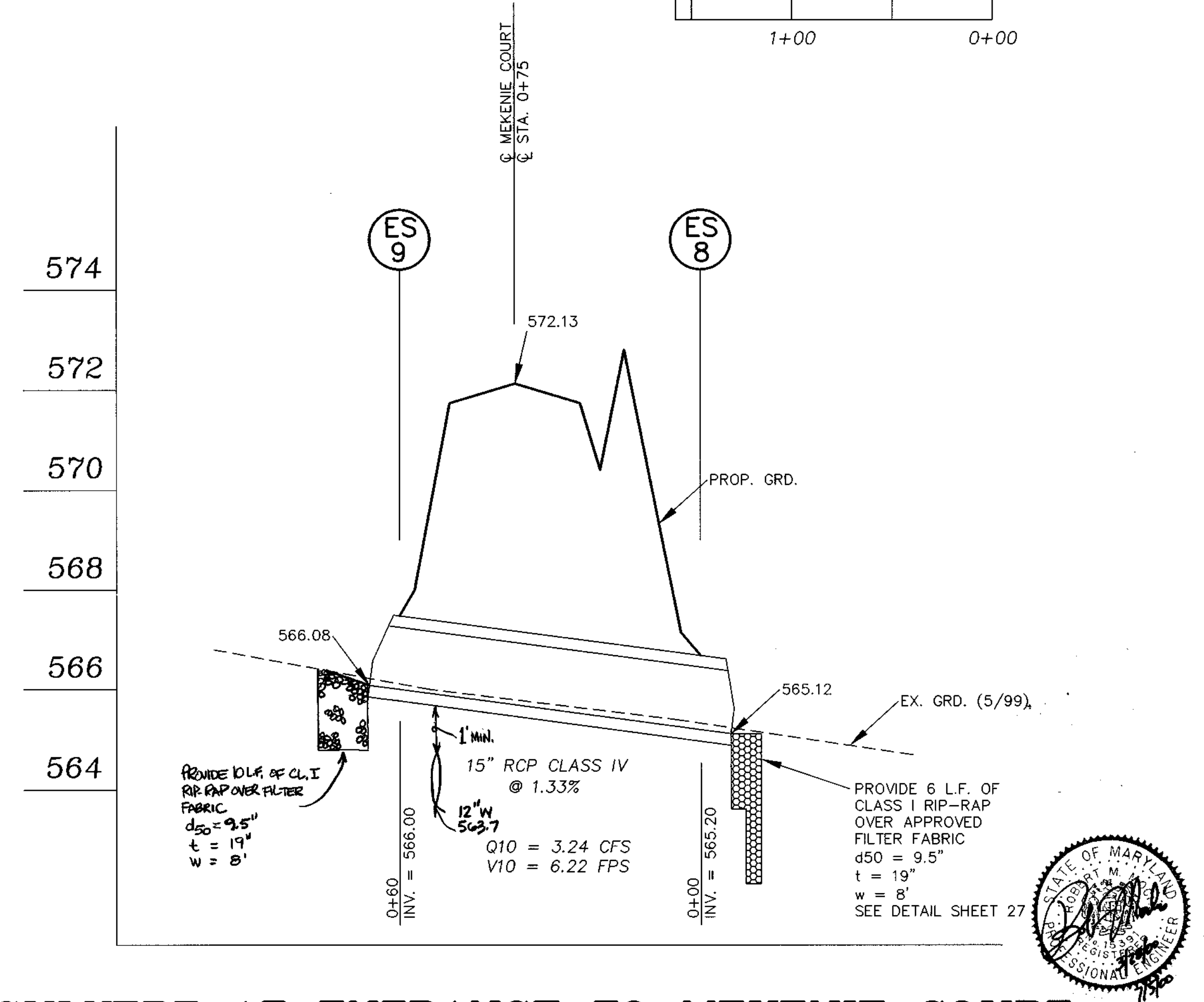
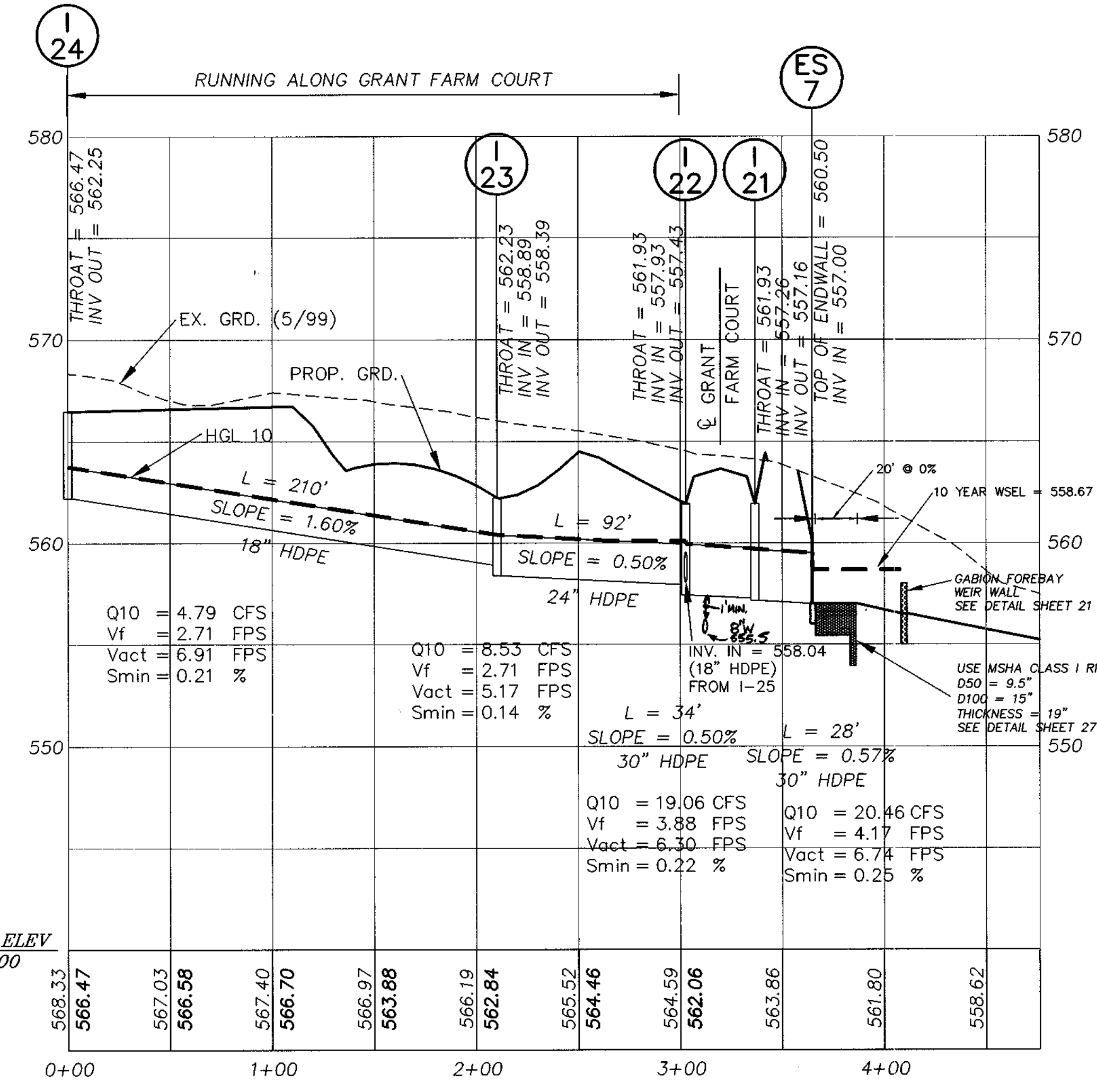
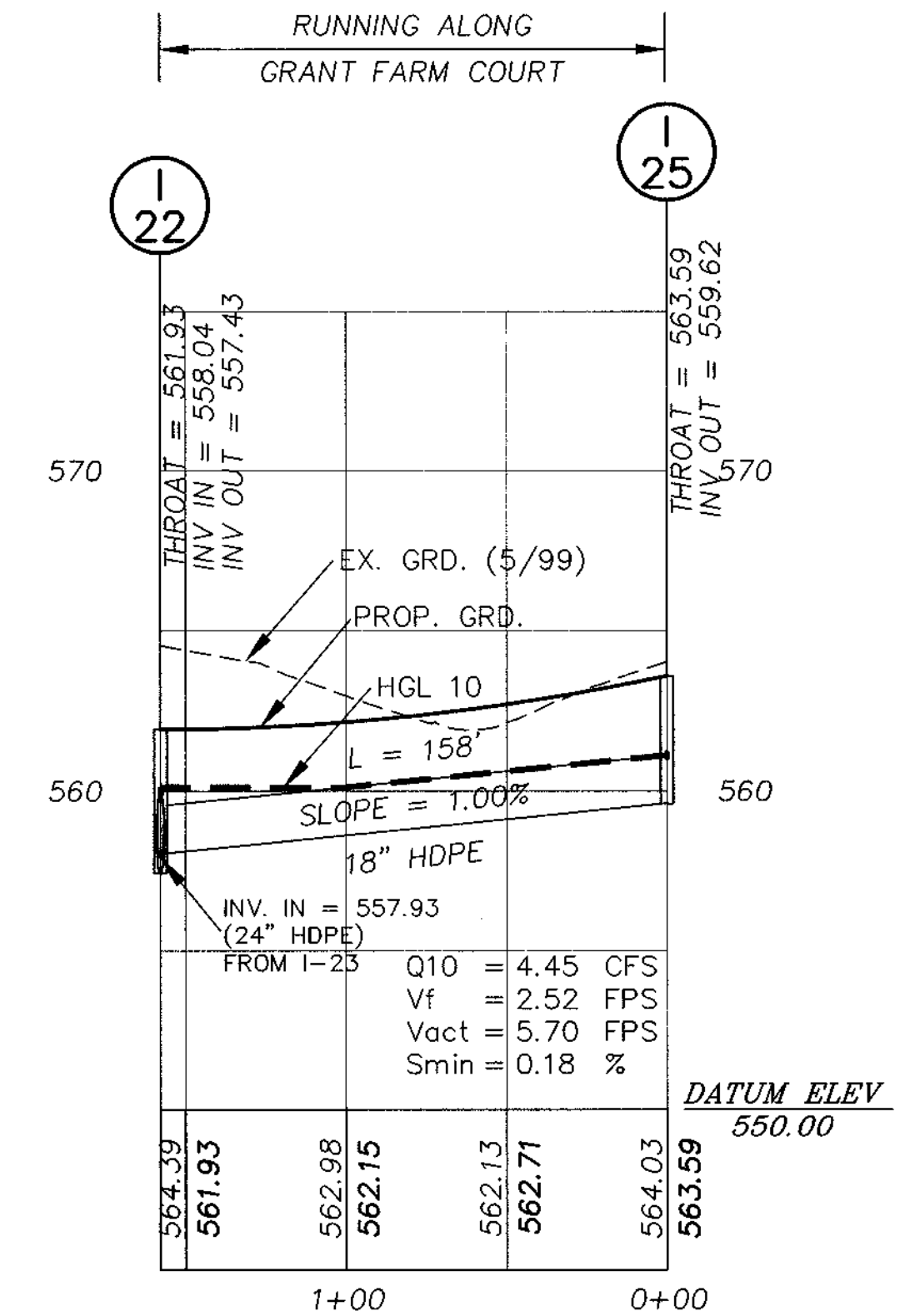
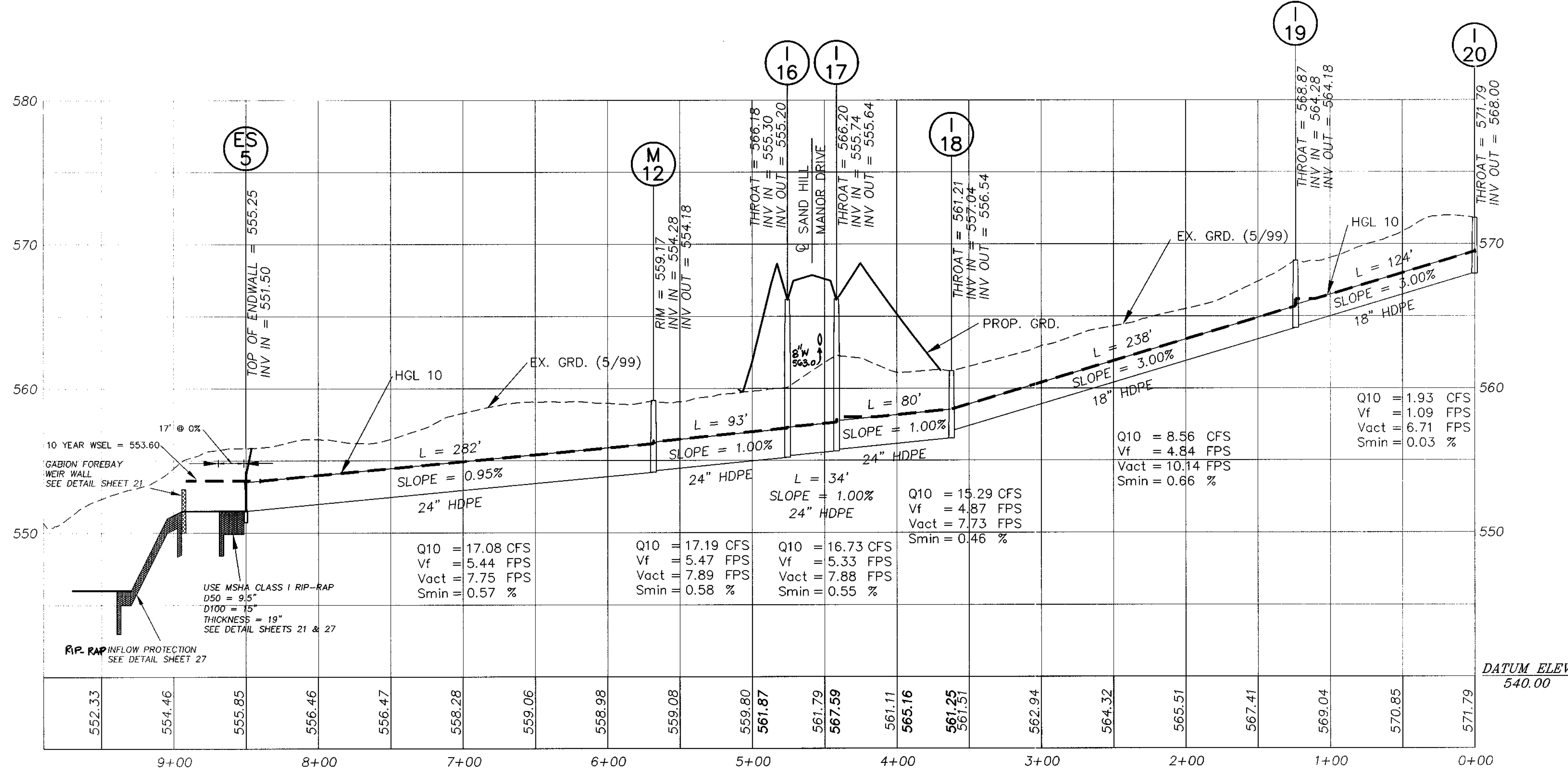
7-5-00
03-29-00
DATE

Tax Map 16, Grid 2, Parcel 3
THE ESTATES AT SAND HILL
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT NO. 3
STORM DRAIN PROFILES

R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
10120 A Old National Pike
Jammsville, MD 21754-9706
(301) 865-5858
(301) 865-5111

PROFILES ALONG CL STORM DRAIN

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



CULVERT AT ENTRANCE TO MEKENIE COURT

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

DEVELOPER:
OAK HILL PROPERTIES
107 LOUDOUN STREET, S.E.
LEESBURG, VIRGINIA 20175-3106
(703) 443-0400
ATTN: MR. KEVIN ROGERS

ENGINEER/SURVEYOR:
R.M. MOCHI GROUP, P.C.
10120 A OLD NATIONAL PIKE
JAMSVILLE, MD 21754-9706
(301) 865-5858
ATTN: MR. ROBERT M. MOCHI, P.E.

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard Shubert
CHIEF, BUREAU OF HIGHWAYS
DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hanania
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE

APPROVED:
[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE

project	99003.13	date	08-27-00
illustration	JWZ	engineering	PFB
scale	as shown	approval	RM

no.	1	date	7-5-00
description	Diment to DPZ DES		
revisions	SUBMITTED TO HOWARD CO. DPZ FOR REVIEW		

Tax Map 16, Grid 2, Parcel 3
THE ESTATES AT SAND HILL
ELECTION DISTRICT NO. 3
HOWARD COUNTY, MARYLAND
STORM DRAIN PROFILES

R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
(301) 865-5858
FAX: (301) 865-3111

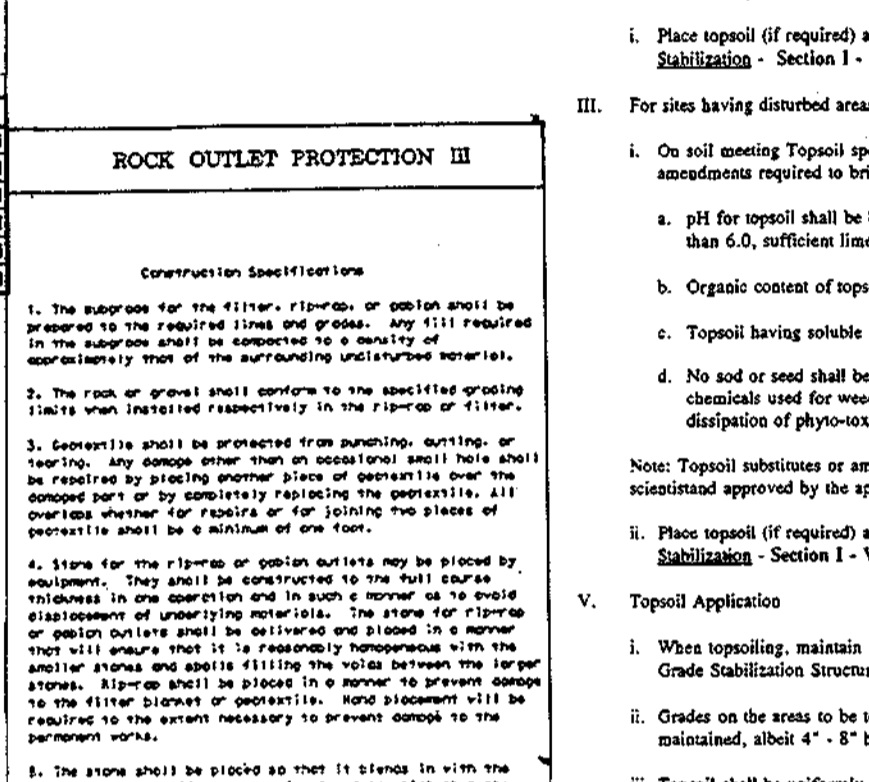
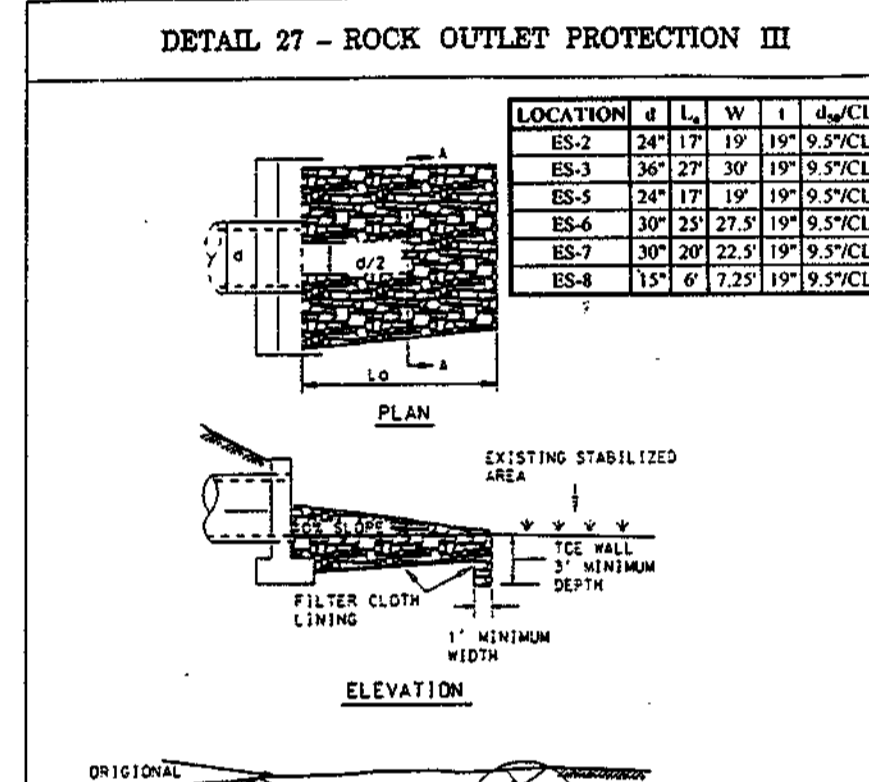
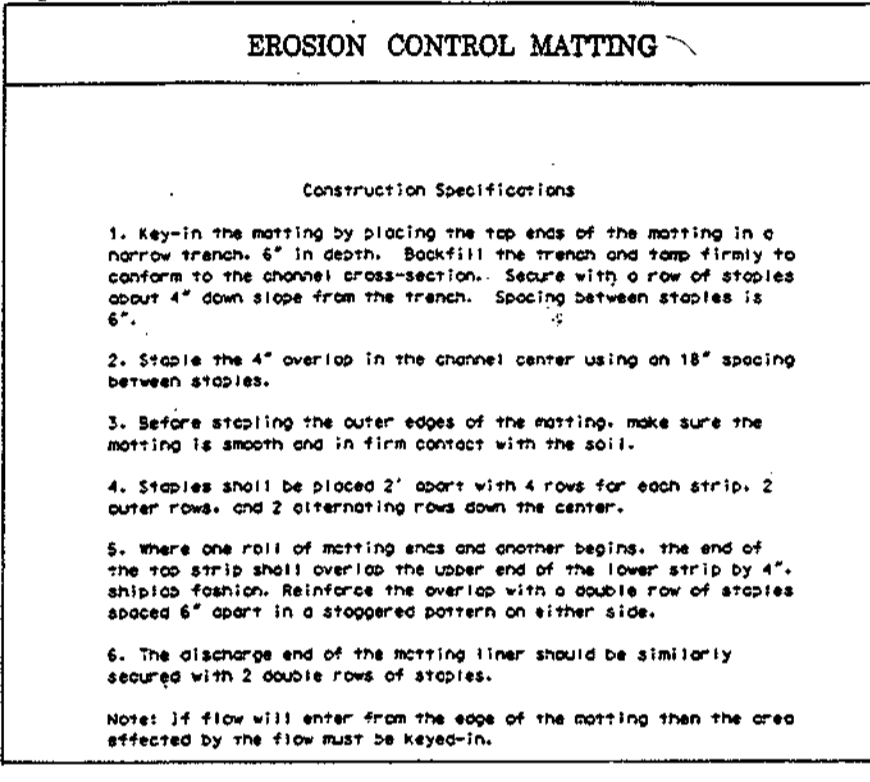
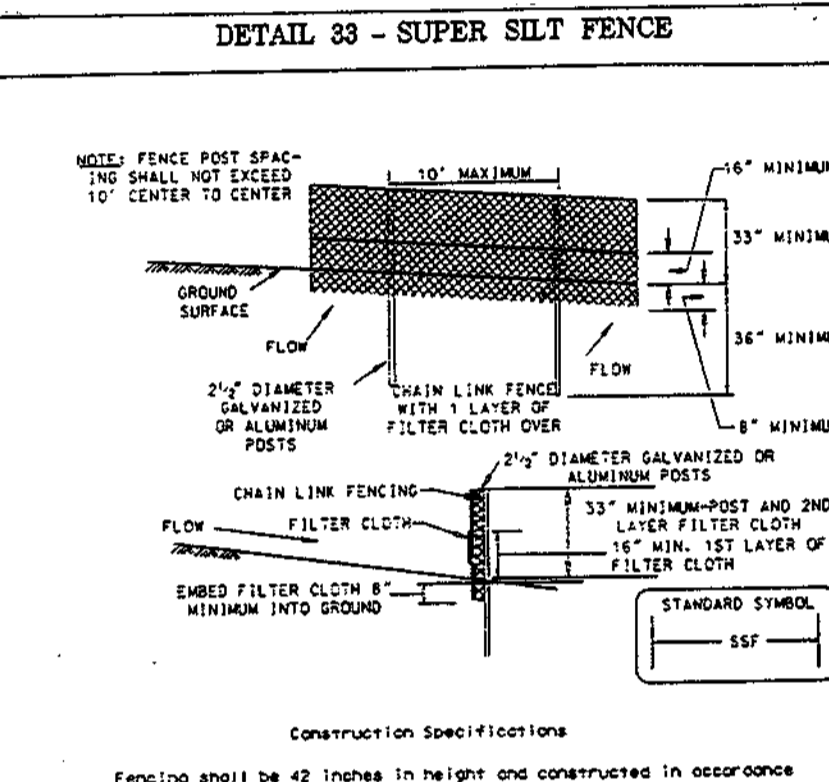
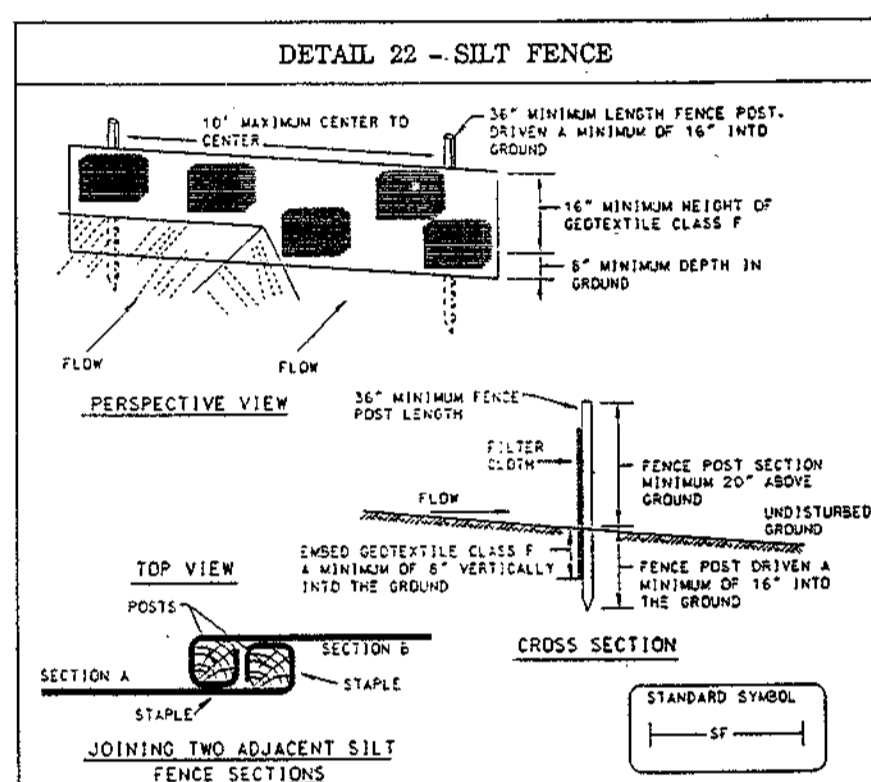
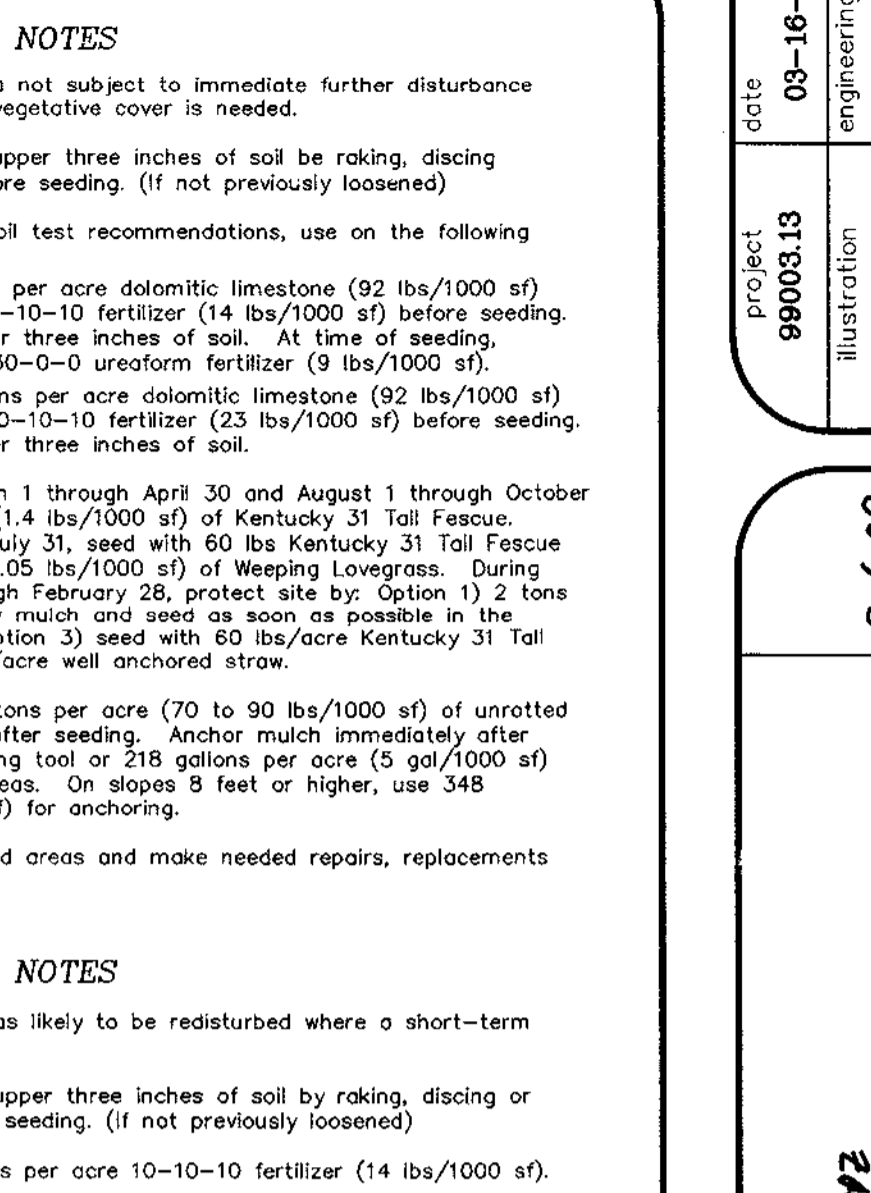
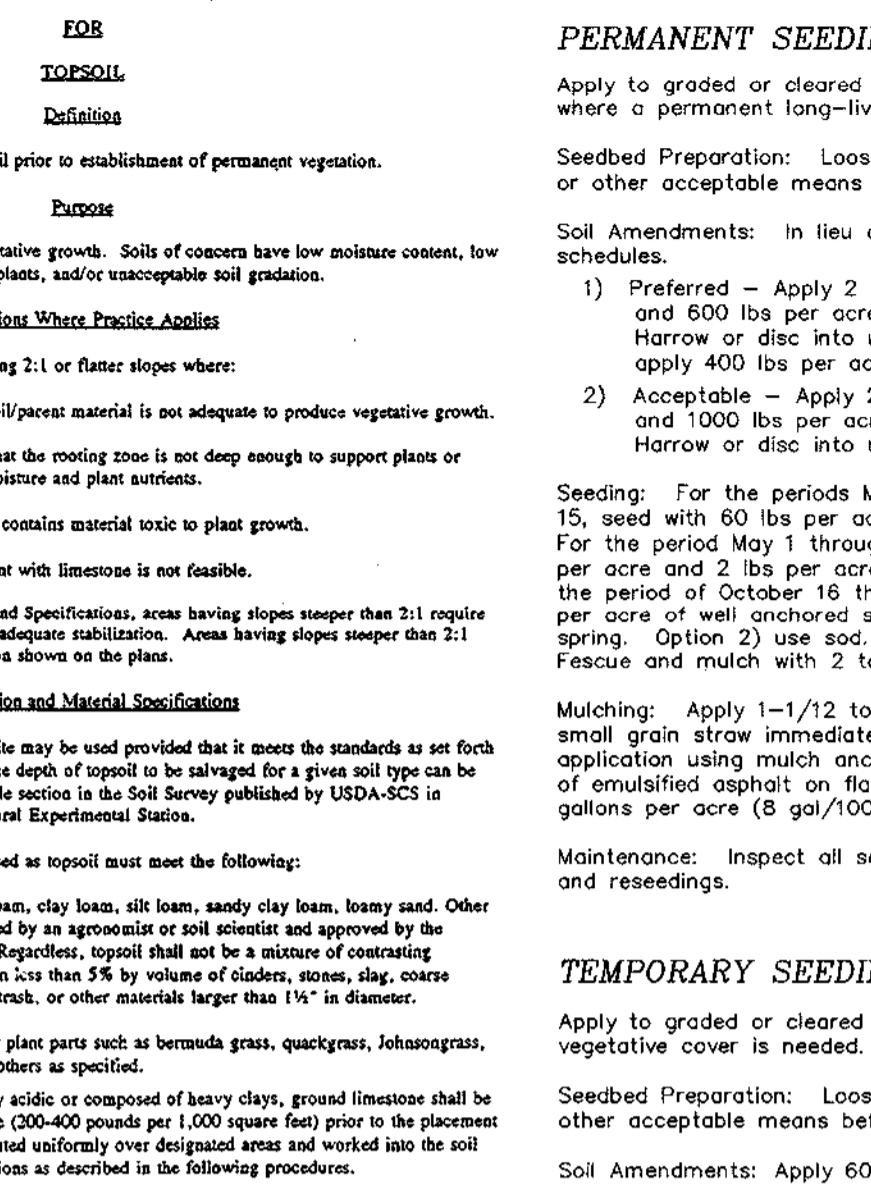
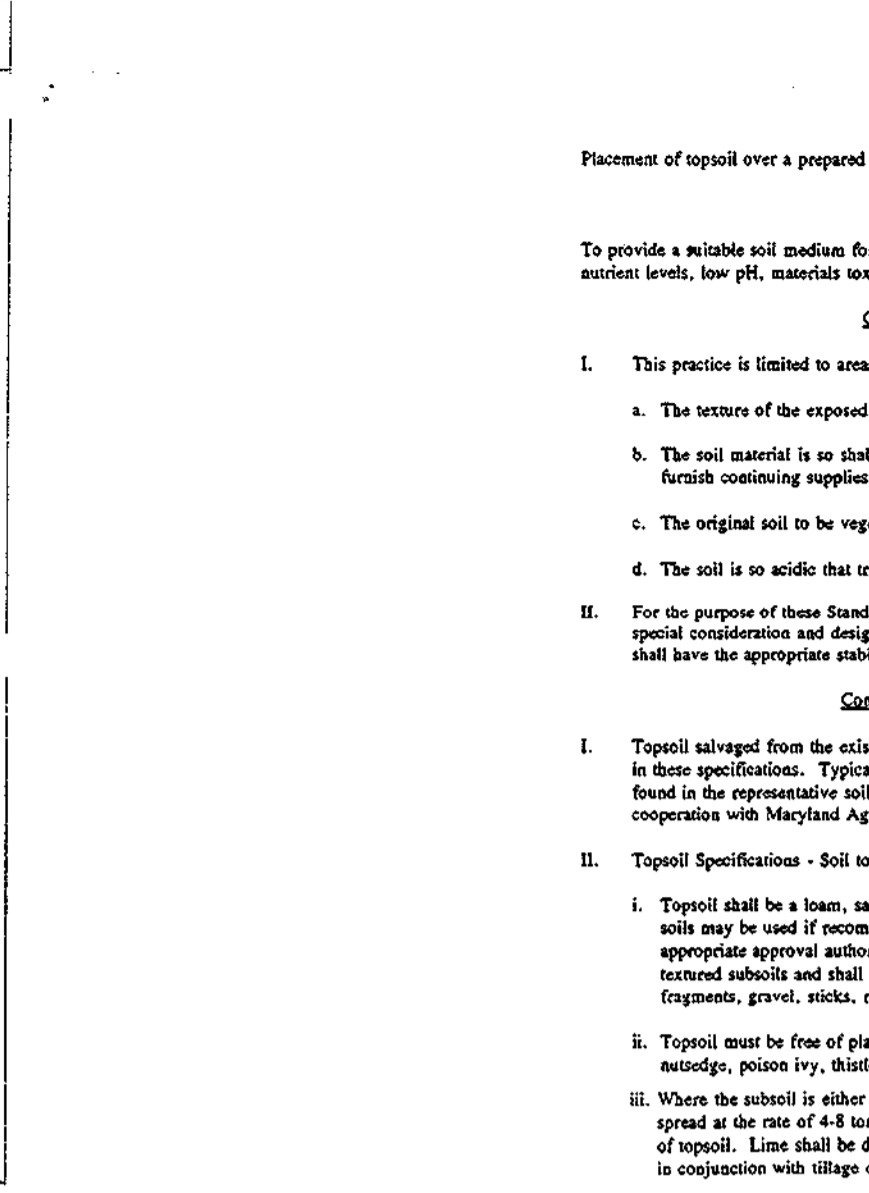
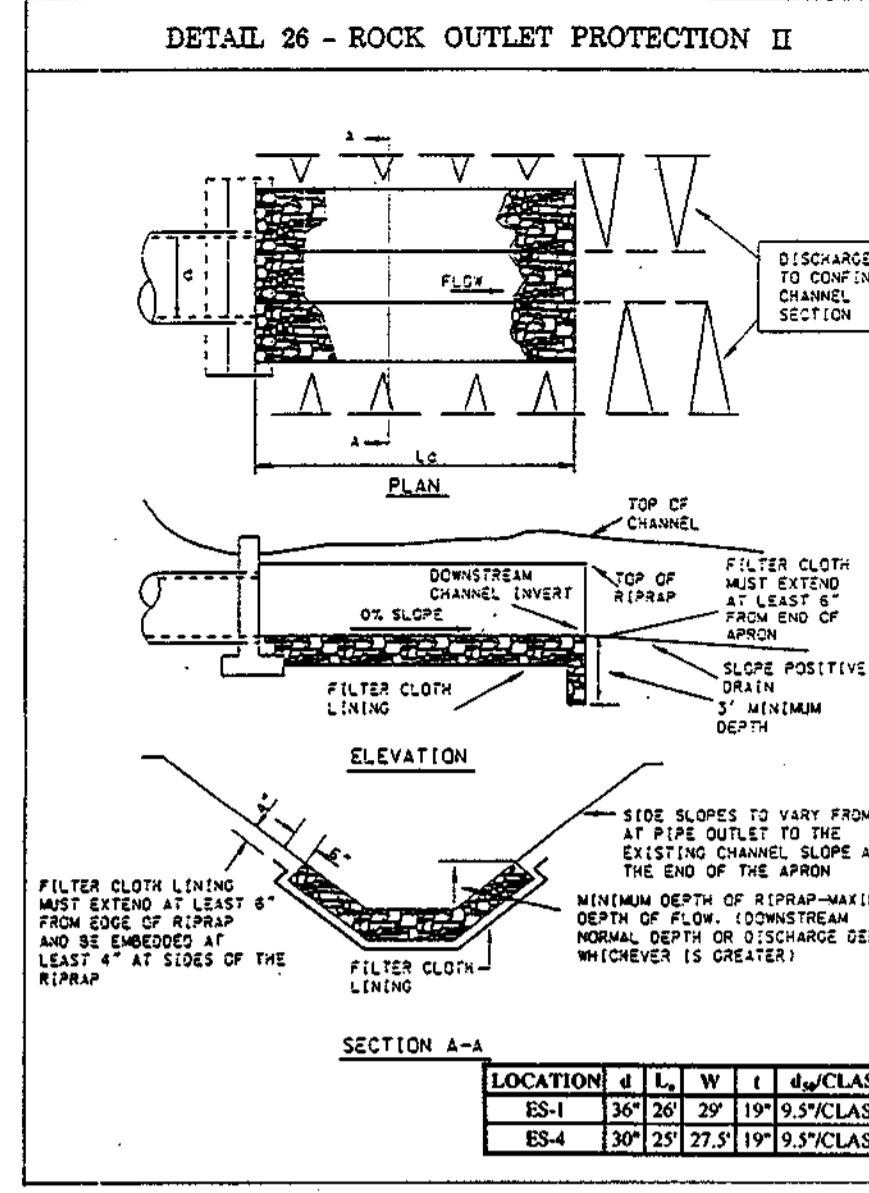
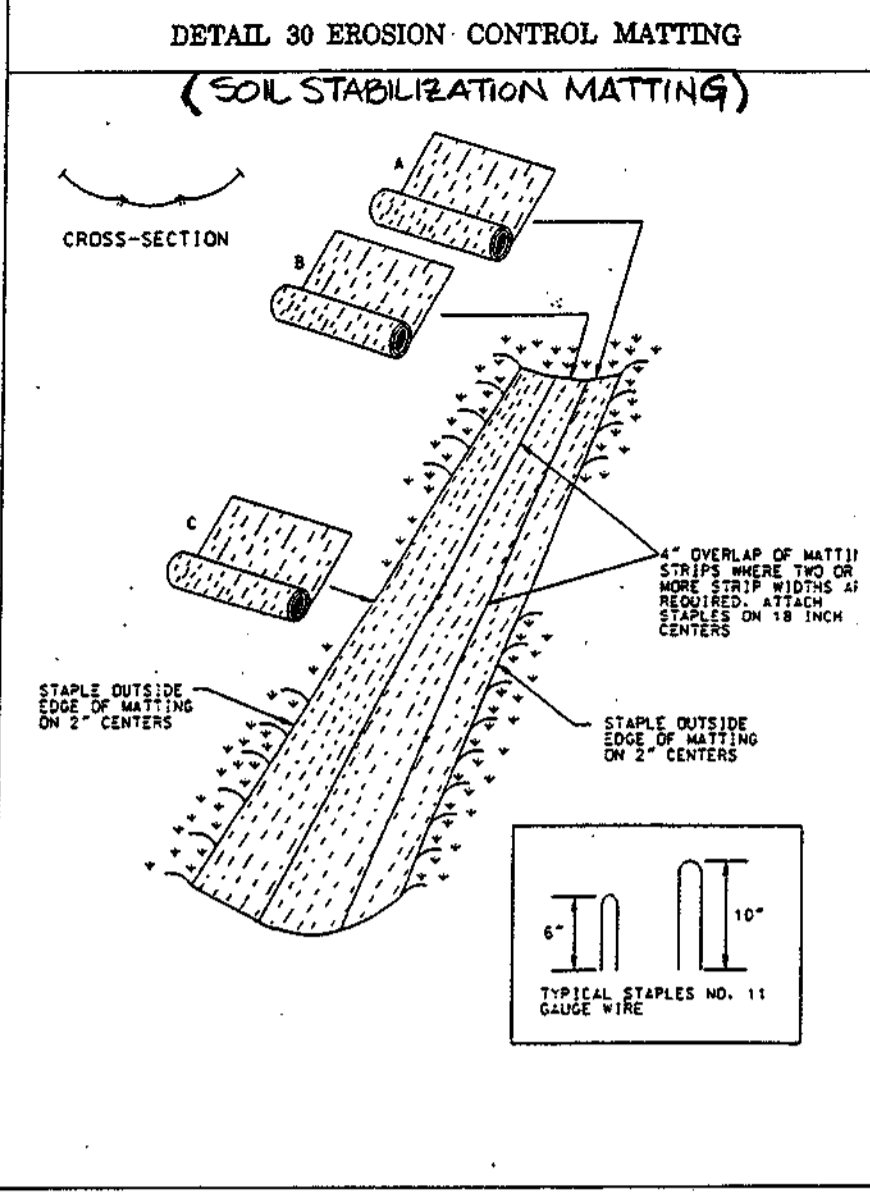
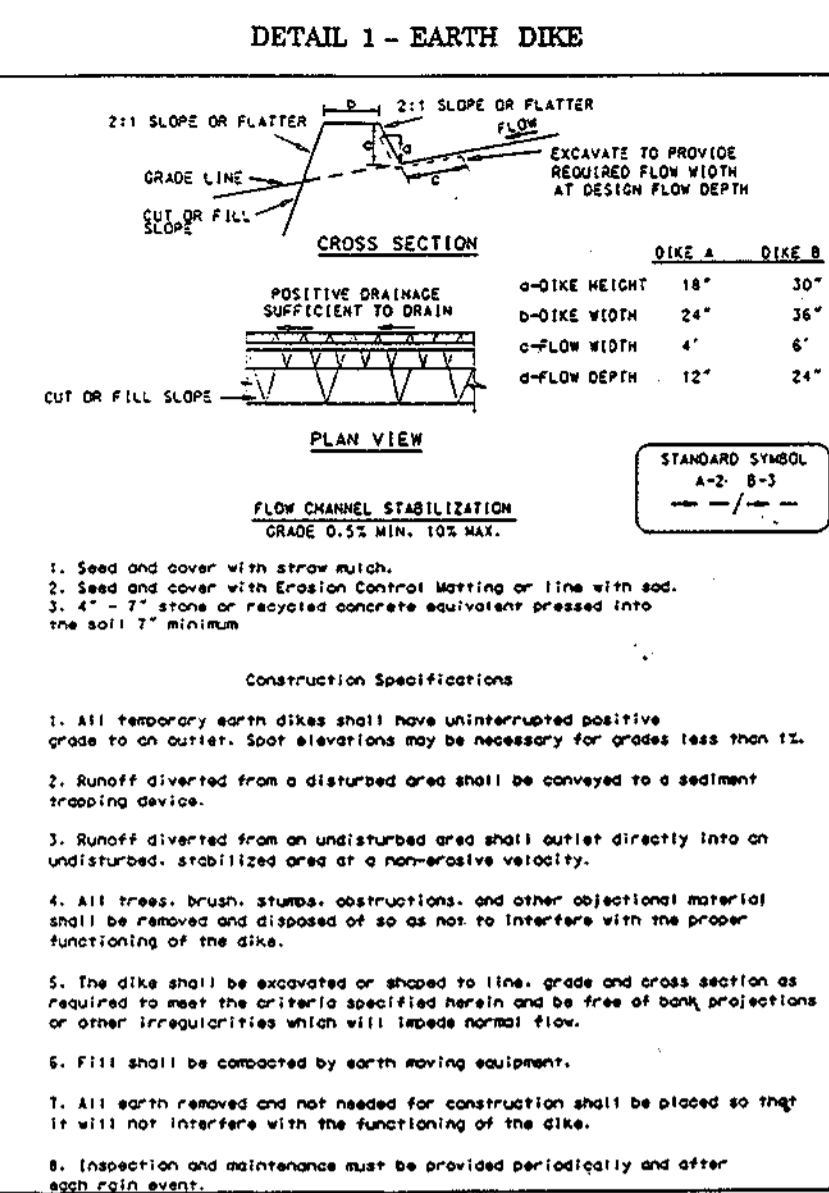
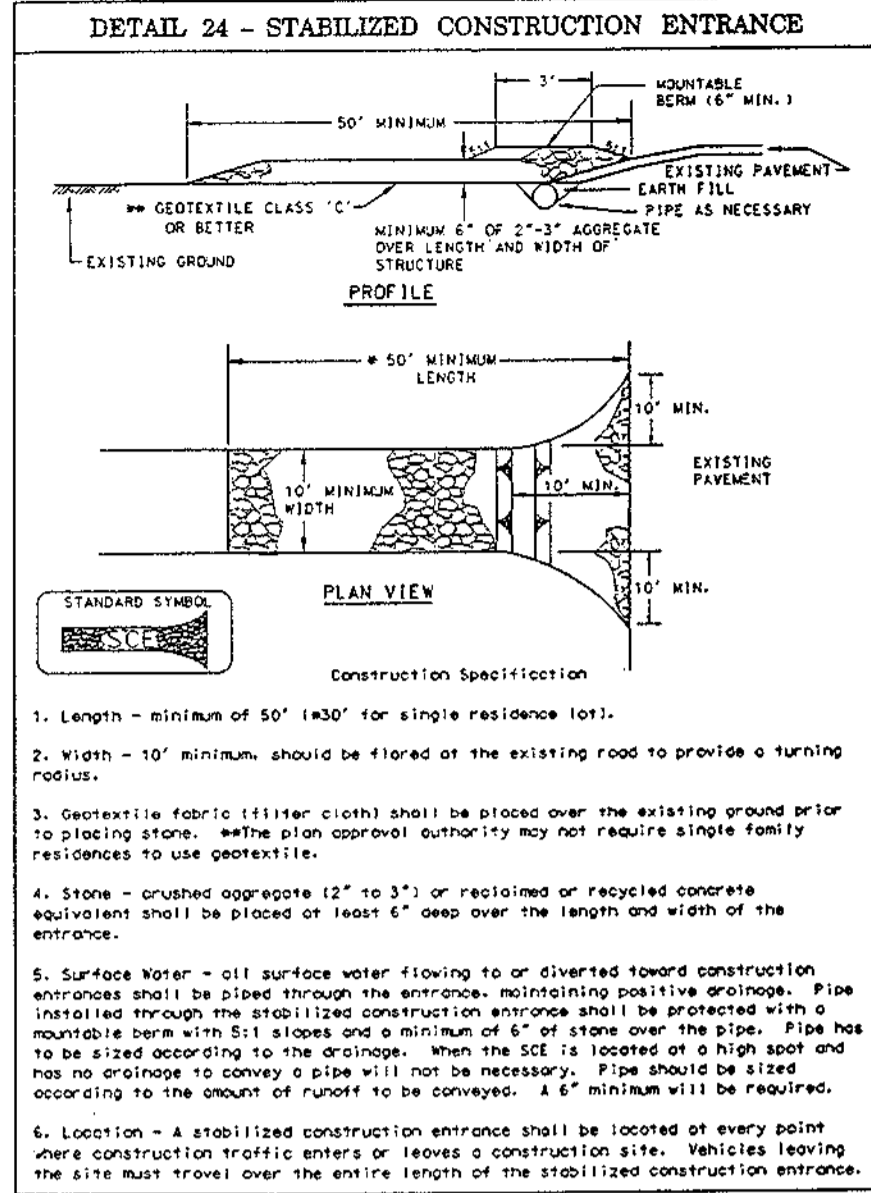


Table 20 Stone Size

NUMBER	SIZE RANGE	D ₁₀	D ₅₀	D ₈₅	AASHTO	WEIGHT
1	3/4\" - 1 1/2\"	1/2\"	1 1/2\"	M-43	N/A	
2	1\" - 2\"	3/4\"	2\"	M-43	N/A	
3	2\" - 3\"	1 1/4\"	3\"	M-43	N/A	
4	3\" - 4\"	2\"	4\"	M-43	N/A	
5	4\" - 5\"	2 3/4\"	5\"	M-43	N/A	
6	5\" - 6\"	3\"	6\"	M-43	N/A	
7	6\" - 8\"	3 3/4\"	8\"	M-43	N/A	
8	8\" - 10\"	4\"	10\"	M-43	N/A	
9	10\" - 12\"	4 1/2\"	12\"	M-43	N/A	
10	12\" - 15\"	5\"	15\"	M-43	N/A	
11	15\" - 18\"	5 1/2\"	18\"	M-43	N/A	
12	18\" - 24\"	6\"	24\"	M-43	N/A	
13	24\" - 30\"	7\"	30\"	M-43	N/A	
14	30\" - 36\"	8\"	36\"	M-43	N/A	
15	36\" - 48\"	9\"	48\"	M-43	N/A	
16	48\" - 60\"	10\"	60\"	M-43	N/A	
17	60\" - 72\"	11\"	72\"	M-43	N/A	
18	72\" - 84\"	12\"	84\"	M-43	N/A	
19	84\" - 96\"	13\"	96\"	M-43	N/A	
20	96\" - 108\"	14\"	108\"	M-43	N/A	
21	108\" - 120\"	15\"	120\"	M-43	N/A	
22	120\" - 132\"	16\"	132\"	M-43	N/A	
23	132\" - 144\"	17\"	144\"	M-43	N/A	
24	144\" - 156\"	18\"	156\"	M-43	N/A	
25	156\" - 168\"	19\"	168\"	M-43	N/A	
26	168\" - 180\"	20\"	180\"	M-43	N/A	
27	180\" - 192\"	21\"	192\"	M-43	N/A	
28	192\" - 204\"	22\"	204\"	M-43	N/A	
29	204\" - 216\"	23\"	216\"	M-43	N/A	
30	216\" - 228\"	24\"	228\"	M-43	N/A	
31	228\" - 240\"	25\"	240\"	M-43	N/A	
32	240\" - 252\"	26\"	252\"	M-43	N/A	
33	252\" - 264\"	27\"	264\"	M-43	N/A	
34	264\" - 276\"	28\"	276\"	M-43	N/A	
35	276\" - 288\"	29\"	288\"	M-43	N/A	
36	288\" - 300\"	30\"	300\"	M-43	N/A	

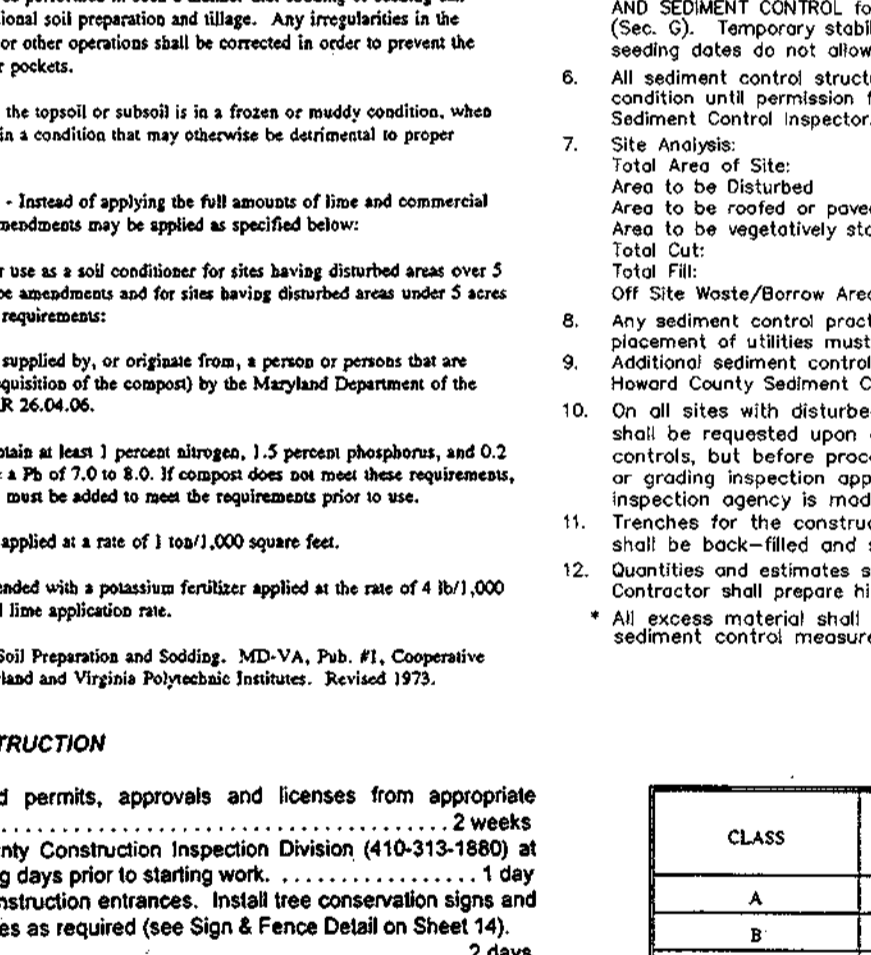
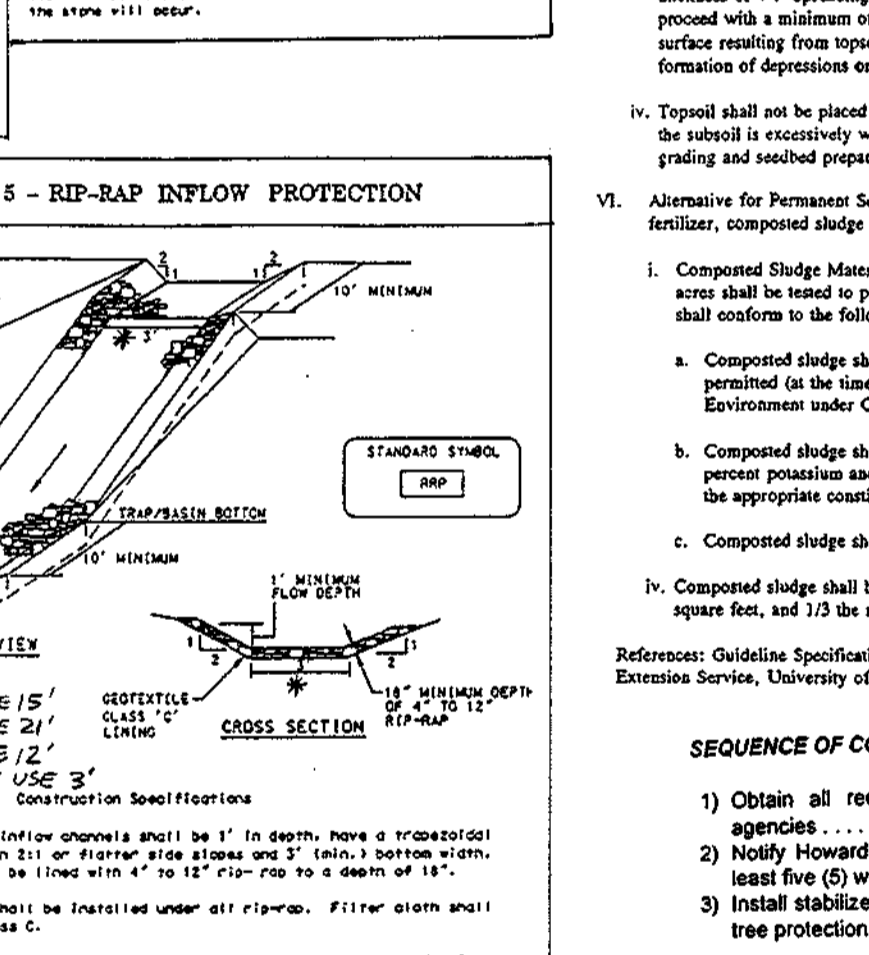
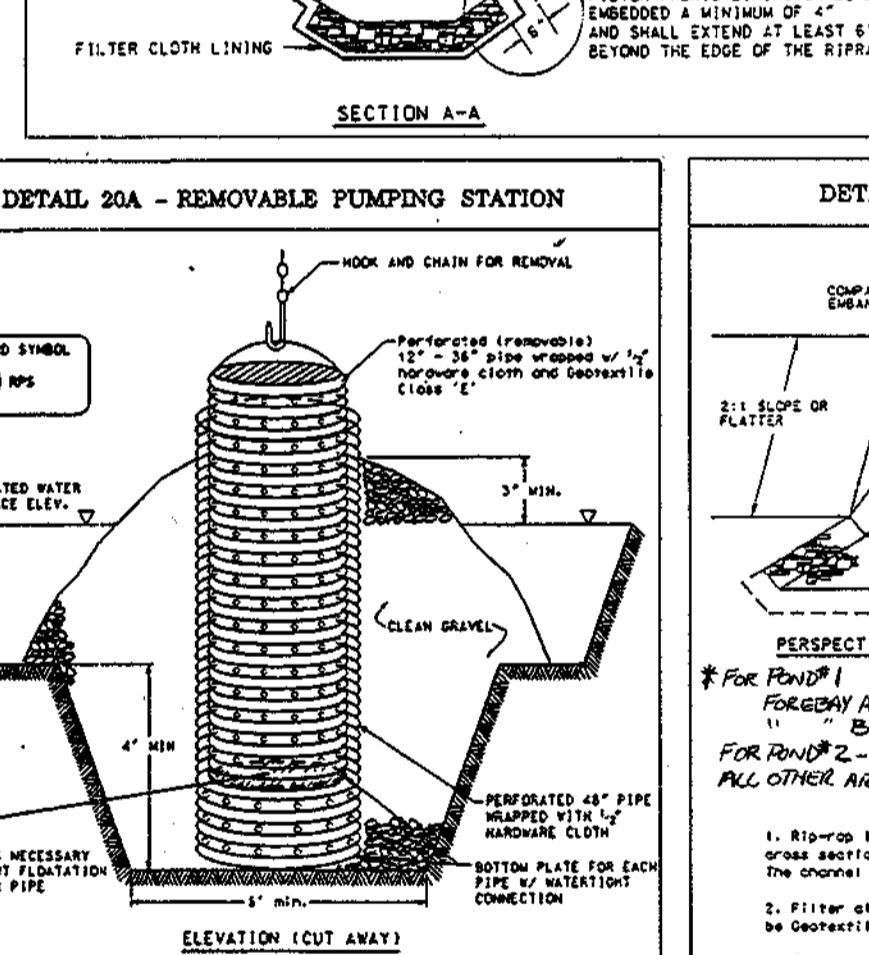
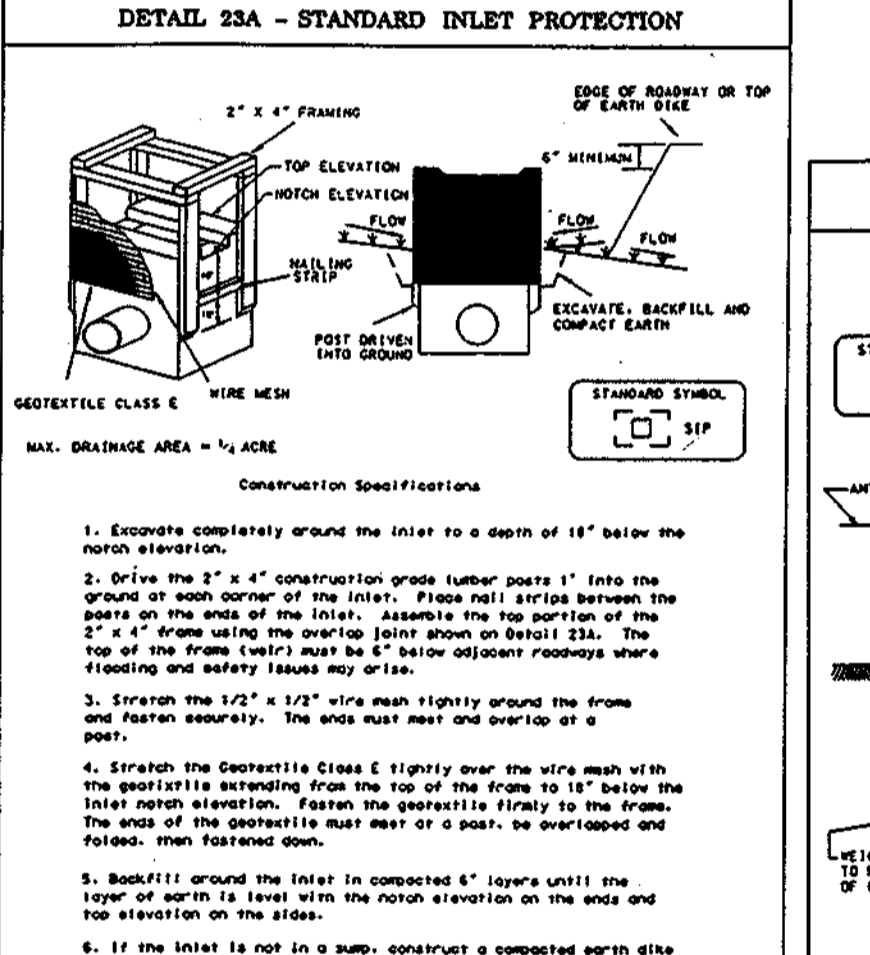
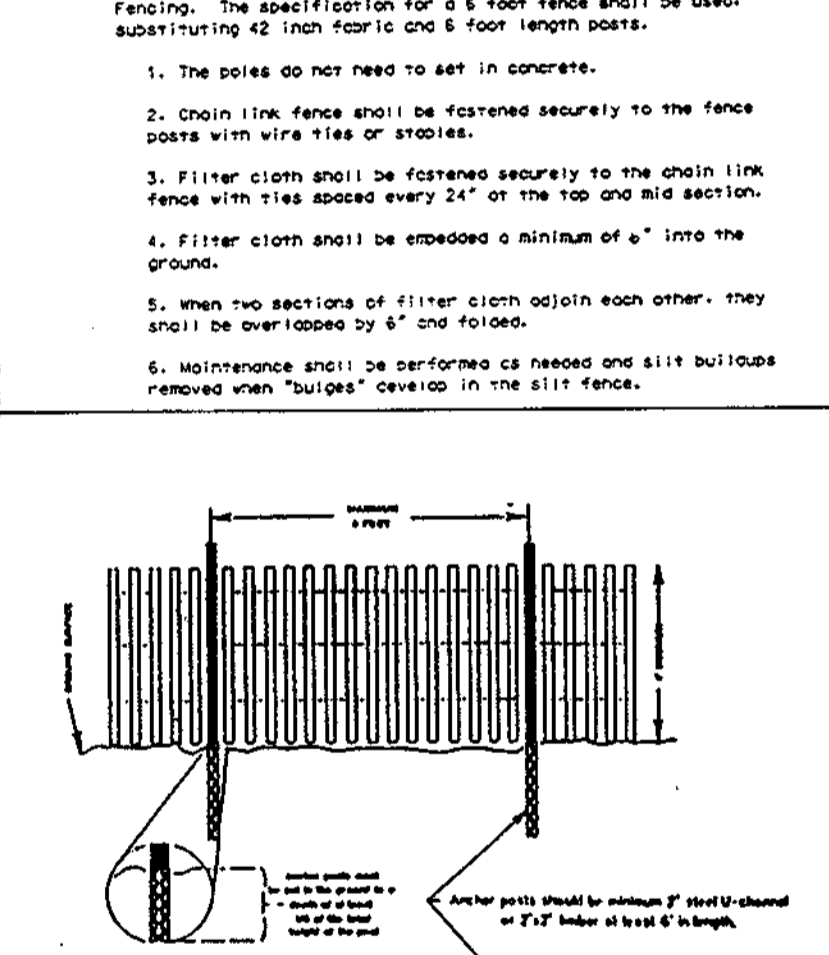


Table 21 Geotextile Fabric

CLASS	APPEARANT OPENING SIZE (IN. MAX.)	GRAB TENSILE STRENGTH (LB. MIN.)	BURST STRENGTH (PSI. MIN.)
A	0.30	250	300
B	0.40	200	320
C	0.50	200	320
D	0.60	90	145
E (SILT FENCE)	0.40-0.50*	90	150

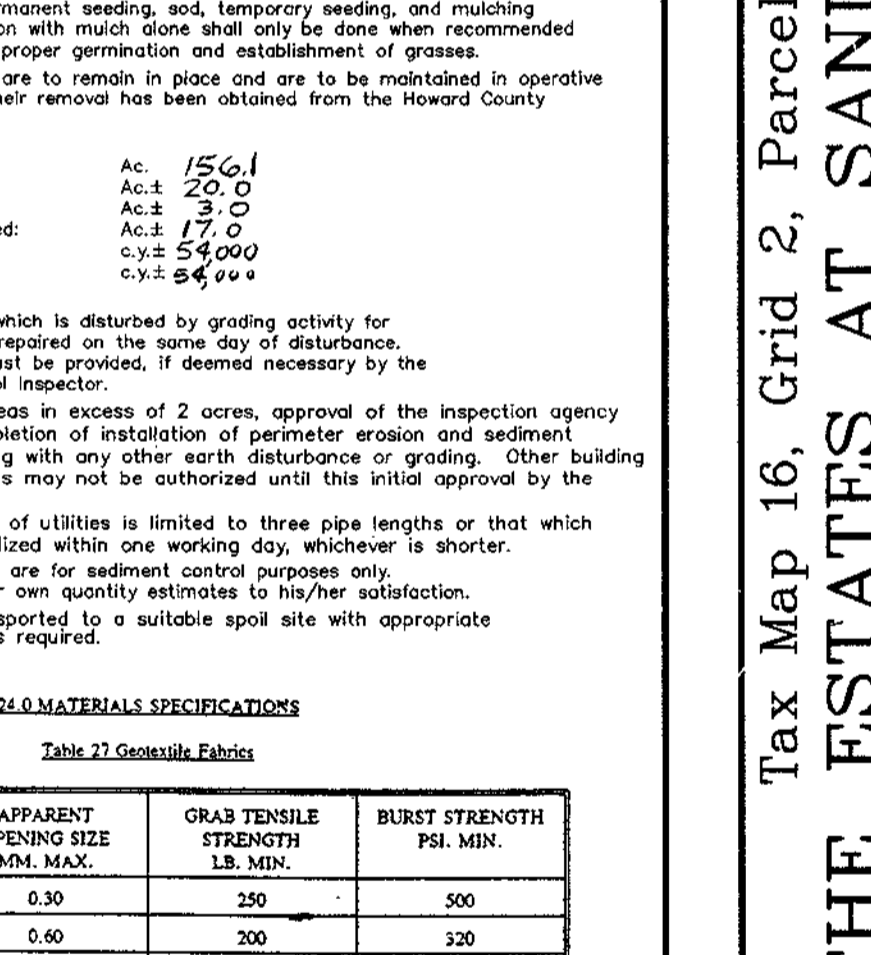
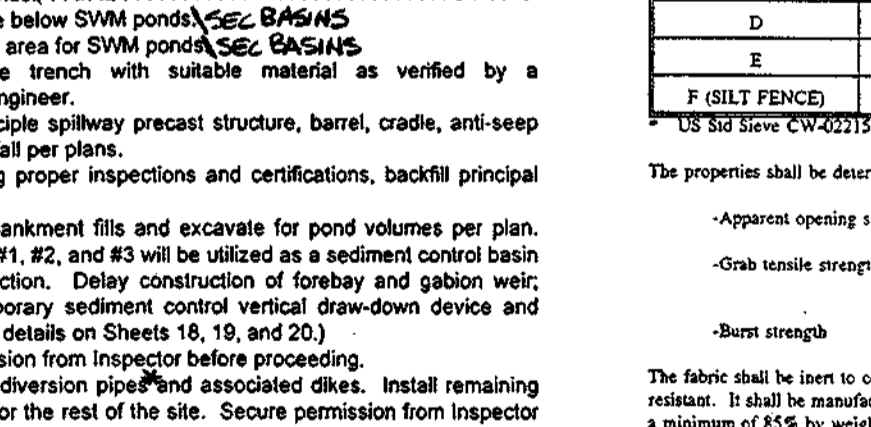
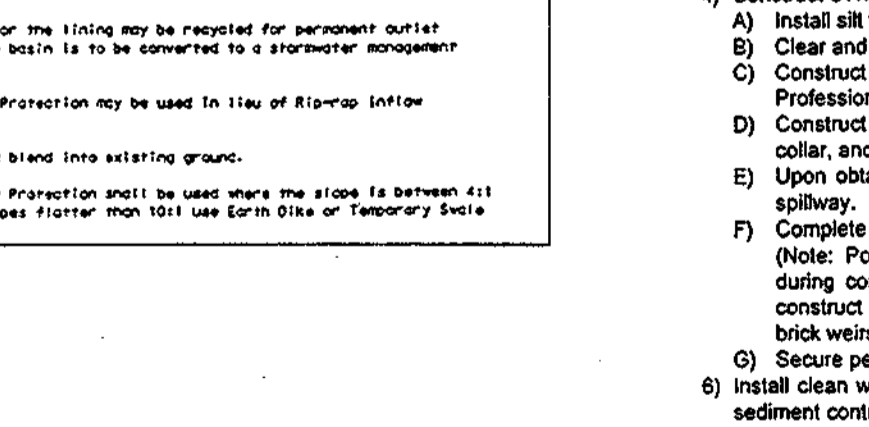
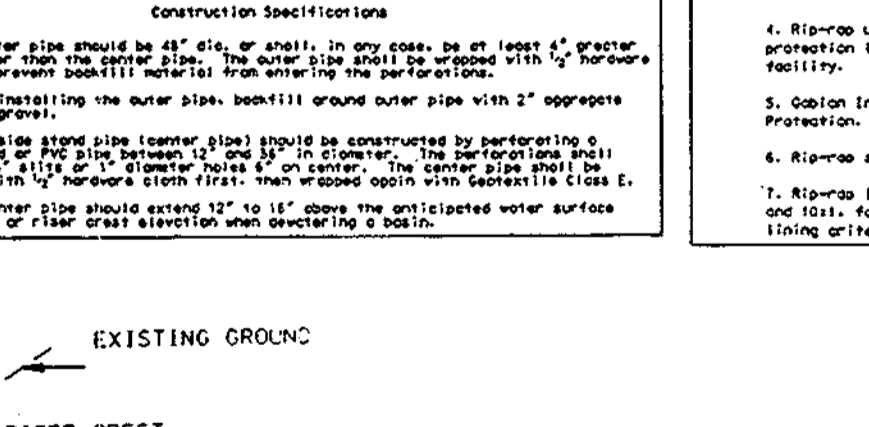
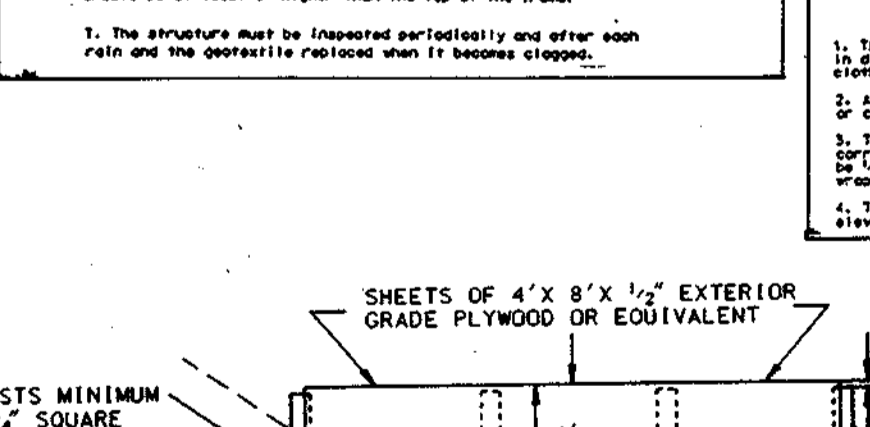
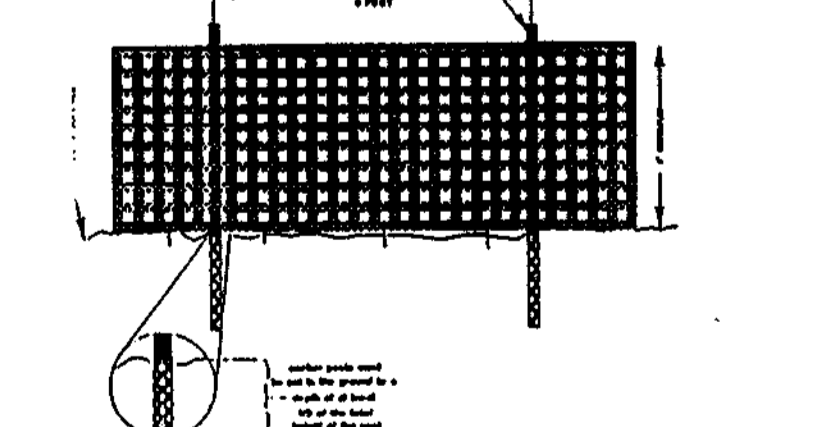
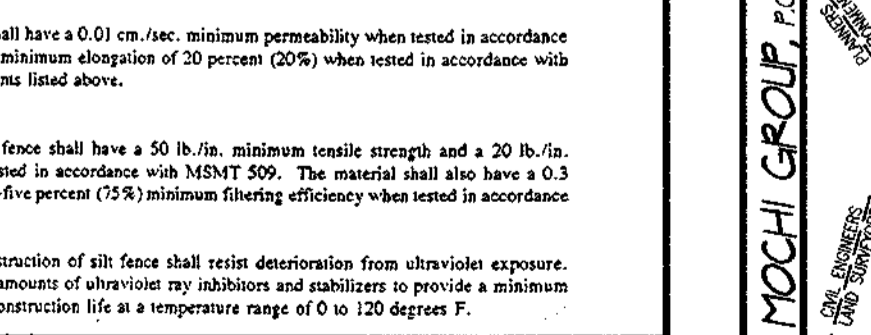
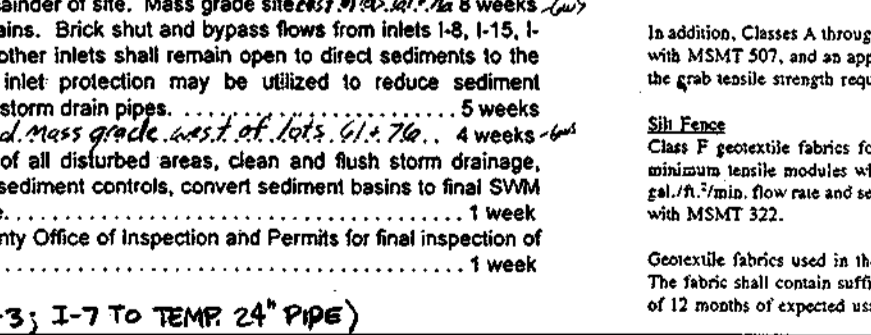
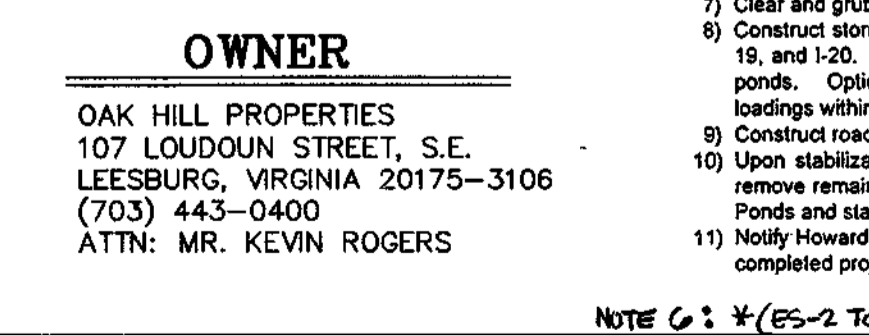
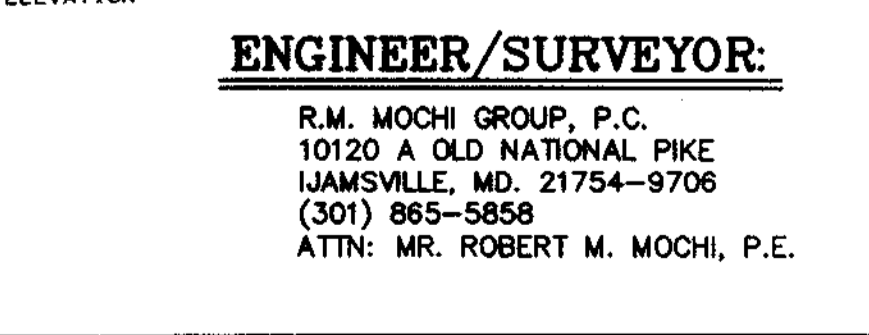
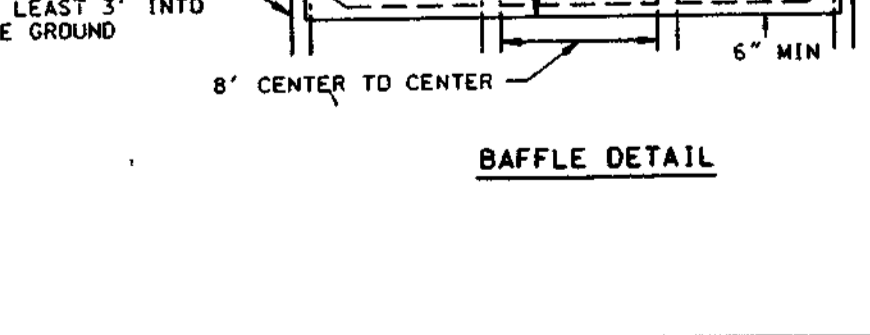
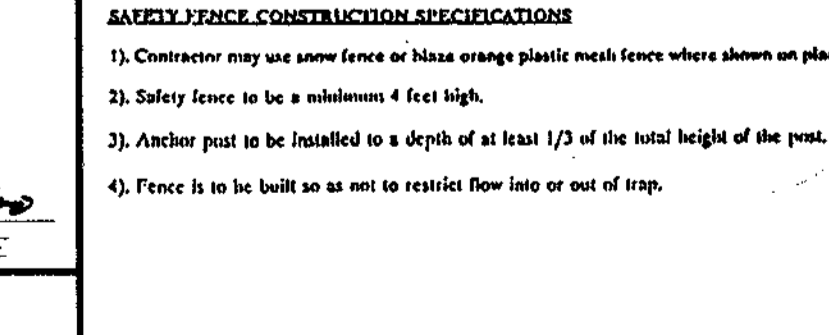


Table 22 Material Specifications

CLASS	APPEARANT OPENING SIZE (IN. MAX.)	GRAB TENSILE STRENGTH (LB. MIN.)	BURST STRENGTH (PSI. MIN.)
A	0.30	250	300
B	0.40	200	320
C	0.50	200	320
D	0.60	90	145
E (SILT FENCE)	0.40-0.50*	90	150



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

ENGINEER/SURVEYOR: R.M. MOCHI GROUP, P.C.
 OWNER: OAK HILL PROPERTIES

DEVELOPER'S CERTIFICATE: I certify that all development and construction will be done in accordance with this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction of this 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.

ENGINEER'S CERTIFICATE: I hereby certify that this plan for erosion and sediment control meets the requirements of the Howard County Department of Planning & Zoning and that it was prepared in accordance with the requirements of the Howard County Department of Planning & Zoning.

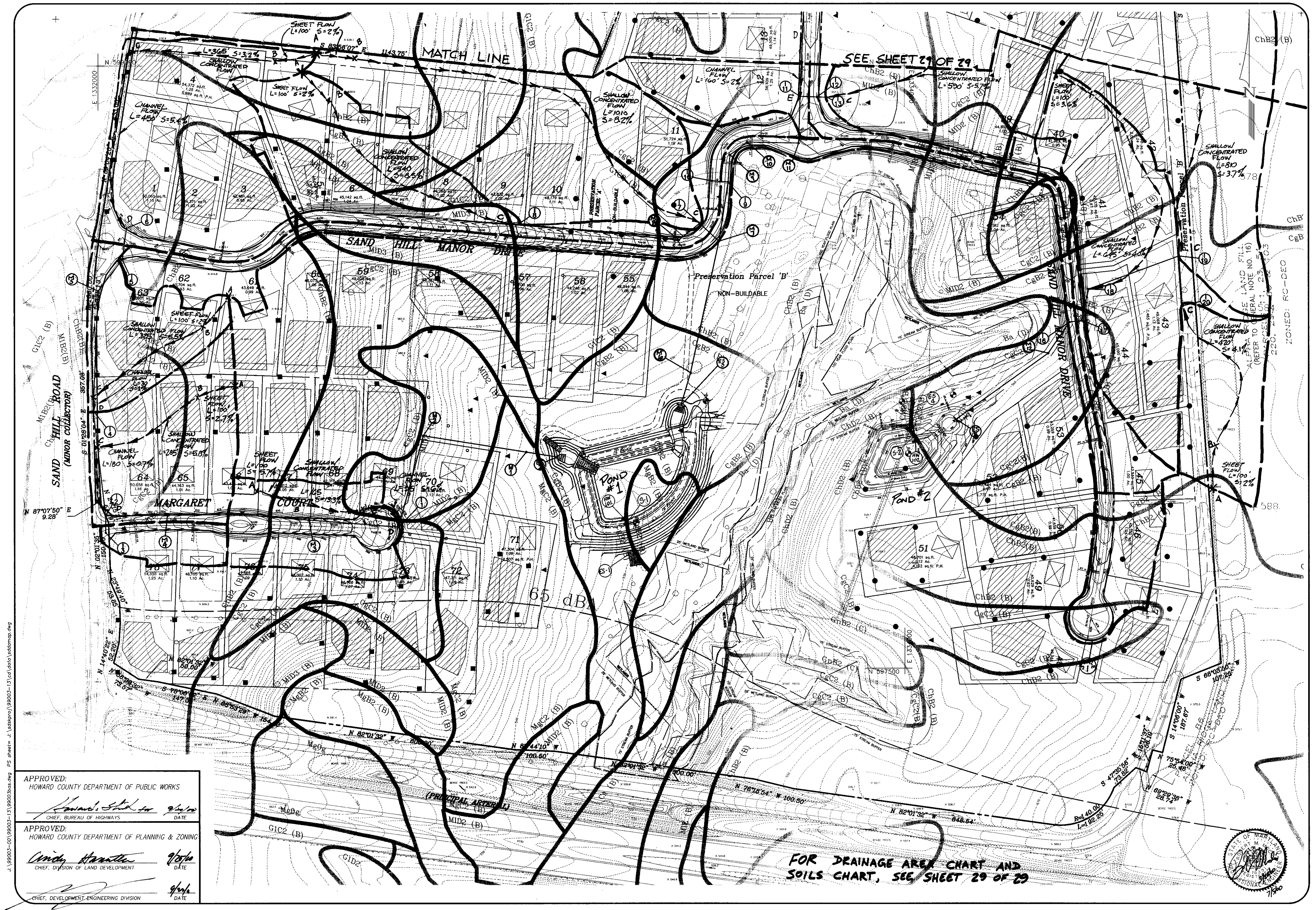
APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

PROJECT: 9800313
 DATE: 03-16-00
 ENGINEERING: R.M. MOCHI
 ILLUSTRATION: K.L.B.
 APPROVAL: R.M.M.
 SCALE: AS SHOWN

2 Original to DPZ
 1 Draw to DPZ
 1 SUBMITTAL TO HO. CO. DPZ FOR REVIEW

Tax Map 16, Grid 2, Parcel 3
 THE ESTATES AT SAND HILL
 ELECTION DISTRICT NO. 3
 HOWARD COUNTY, MD.
 SEDIMENT CONTROL NOTES AND DETAILS

27 OF 29
 F-00136



APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Howard's Sign 9/24/10
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Cindy Hamilton 9/26/10
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 9/26/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

FOR DRAINAGE AREA CHART AND
SOILS CHART, SEE SHEET 29 OF 29



project	99003.13	date	09-10-00
illustration	KMB/DEM	engineering	PPB
scale	1"=100'	approval	RAM

no.	1	description	Direct to DP2 DED	date	7-5-00
no.	0	description	SUBMITTED TO HOWARD CO. DPZ FOR REVIEW	date	3-27-00
no.		description	revisions		

Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT NO. 3
PROPOSED STORM DRAINAGE AREA MAP

ZONED: RC-DEO

R.M. MOCHI-GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
10120 A Old National Pike
Jennersville, MD 21754-9706
(301) 865-5858
Fax: (301) 865-5111

STORM DRAIN DRAINAGE AREAS						
Subarea (B)	Zoning (Z)	Area (ac)	Area (sq mi)	C Factor (C)	% Impervious (P)	T _c (hr)
L-1	RC-DEO	2.18	0.0034	0.26	20	0.17
L-2	RC-DEO	3.04	0.0047	0.22	20	0.25
L-3	RC-DEO	0.59	0.0009	0.21	20	0.17
L-4	RC-DEO	1.93	0.0030	0.24	28	0.26
L-5	RC-DEO	0.89	0.0014	0.21	20	0.17
L-6	RC-DEO	4.94	0.0077	0.27	23	0.29
L-7	RC-DEO	7.23	0.0113	0.25	14	0.30
L-8	RC-DEO	3.52	0.0055	0.26	20	0.27
L-9	RC-DEO	1.12	0.0018	0.26	40	0.17
L-10	RC-DEO	1.19	0.0019	0.26	20	0.17
L-11	RC-DEO	3.50	0.0055	0.26	19	0.30
L-12	RC-DEO	3.71	0.0058	0.21	14	0.18
L-13	RC-DEO	6.31	0.0096	0.26	13	0.19
L-14	RC-DEO	3.90	0.0061	0.25	15	0.31
L-15	RC-DEO	7.60	0.0119	0.22	6	0.28
L-16	RC-DEO	1.06	0.0017	0.26	40	0.17
L-17	RC-DEO	1.06	0.0017	0.26	35	0.17
L-18	RC-DEO	4.77	0.0075	0.26	19	0.24
L-19	RC-DEO	7.55	0.0118	0.18	9	0.29
L-20	RC-DEO	2.11	0.0033	0.17	6	0.27
L-21	RC-DEO	1.34	0.0021	0.21	40	0.17
L-22	RC-DEO	5.15	0.0080	0.24	15	0.24
L-23	RC-DEO	3.30	0.0052	0.25	15	0.17
L-24	RC-DEO	4.04	0.0063	0.24	13	0.30
L-25	RC-DEO	3.33	0.0052	0.25	16	0.25
SWALE-1	RC-DEO	1.27	0.0020	0.21	20	0.17

SOIL LEGEND		
SYMBOL	NAME	GROUP
Ba*	Baite silt loam	D
CgB2	Chester gravelly silt loam, 3 to 8% slopes, moderately eroded	B
CgC2	Chester gravelly silt loam, 8 to 15% slopes, moderately eroded	B
ChB2	Chester silt loam, 3 to 8% slopes, moderately eroded	B
ChC2	Chester silt loam, 8 to 15% slopes, moderately eroded	B
ChC3	Chester silt loam, 8 to 15% slopes, severely eroded	B
ChD2	Chester silt loam, 15 to 25% slopes, moderately eroded	B
Cs	Conus silt loam	B
GIC2	Glencliff loam, 8 to 15% slopes, moderately eroded	B
GnA**	Glenville silt loam, 0 to 3% slopes	C
GnB2**	Glenville silt loam, 3 to 8% slopes, moderately eroded	C
MgB2	Manor gravelly loam, 3 to 8% slopes, moderately eroded	B
MgC2	Manor gravelly loam, 8 to 15% slopes, moderately eroded	B
MIB2	Manor loam, 3 to 8% slopes, moderately eroded	B
MID2	Manor loam, 15 to 25% slopes, moderately eroded	B
MID3	Manor loam, 15 to 25% slopes, severely eroded	B
MIE	Manor loam, 25 to 45% slopes	B

* - Hydric soils
** - Soils with hydric inclusions



APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard Hill 9/2/00
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Andy Hamilton 9/2/00
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DATE: 9/2/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION

date: 09-18-00
project: 99003.19
illustration: JMZ
scale: 1"=100'

date: 9-6-00
description: Originals by DPZ
Direct to DPZ DEP
SUBMITTED TO HOWARD CO. DEP FOR REVIEW

Tax Map 16 Grid 2 Parcel 3
THE ESTATES AT SAND HILL
ELECTION DISTRICT NO. 3
HOWARD COUNTY, MARYLAND
PROPOSED STORM DRAIN DRAINAGE AREA MAP

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