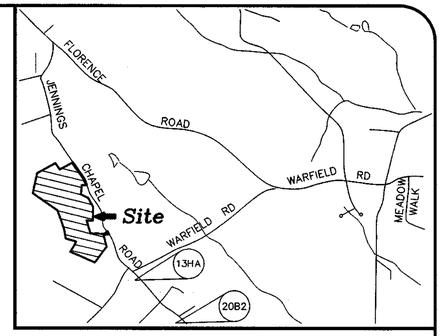
ROADS, STORM DRAINS & GRADING

THE WESTWOODS OF CHERRY GROVE

HOWARD COUNTY, MARYLAND



Vicinity Map
Scale: 1" = 2000'

SHEET INDEX:

1. Title Sheet
2. Colton Court – Plan & Profile
3. Old Sawmill Road – Plan & Profile
4. Grading, Sediment Control & Forest Conservation Plan
5. Grading, Sediment Control & Forest Conservation Plan
6. Grading, Sediment Control & Forest Conservation Plan
7. Grading, Sediment Control & Forest Conservation Plan
8. Forest Conservation Notes and Details
9. FOREST CONSERVATION PLAN - OFFSITE RETENTION ON Holtzinger Property
10. Landscape Plan
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12. Stormwater Management Details
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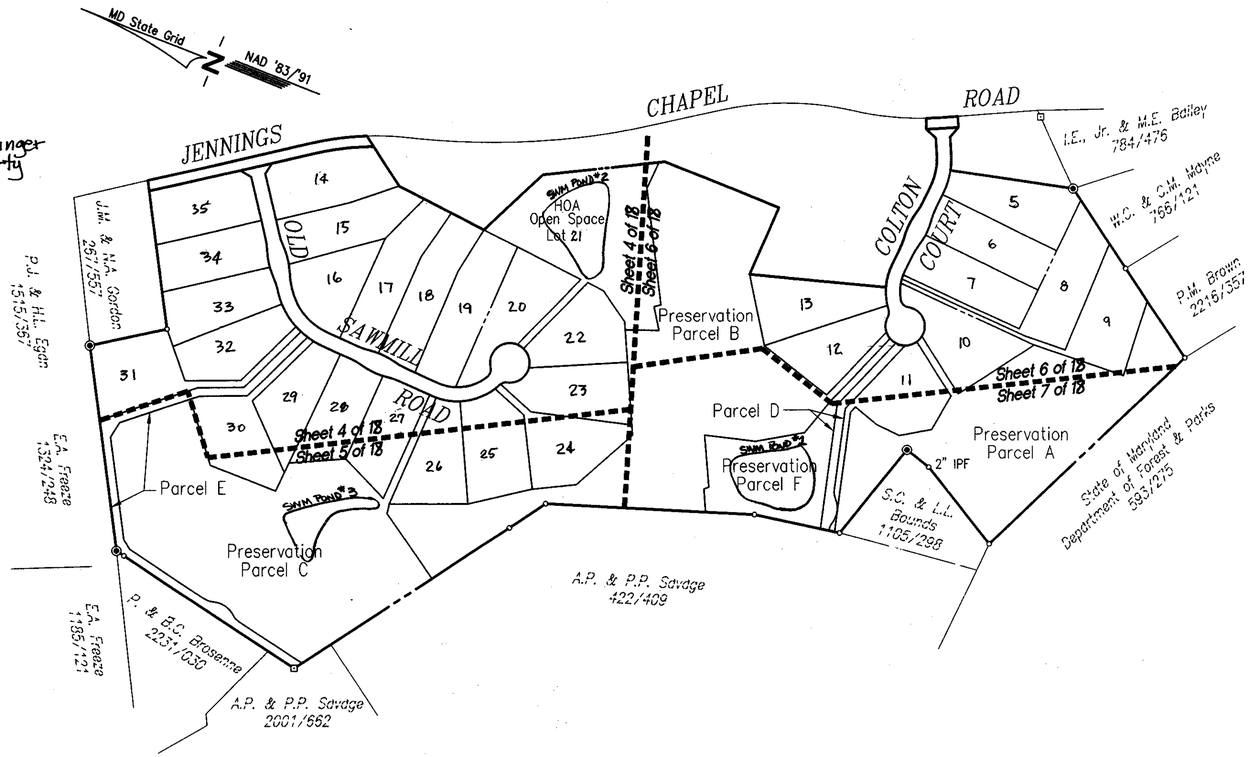
15. Stormwater Management Details
16. Storm Drain Profiles
17. Sediment Control Notes and Details
18. Proposed SWM/Storm Drain Drainage Area Map



GENERAL NOTES:

1. All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable.
2. The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at (410) 313-1880 at least five (5) working days prior to the start of work.
3. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
4. Traffic control devices, marking and signing shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
5. The existing topography is taken from aerial survey with two foot contour intervals prepared by Wings Aerial Mapping Co., dated 3/28/98.
6. The coordinates shown hereon are based on NAD '83/'91 Maryland Coordinate System as projected by Howard County Geodetic Control Stations Nos. 13HA & 20B2.

   (Meters x 3.2808333333 = Feet; Feet x 0.3048006096 = Meters)

No. 13HA	N 589965.189	No. 20B2	N 588346.299
	E 1285964.906		E 1287505.584
	Elev. 566.35		Elev. 577.924

7. Water is private.
8. Sewer is private.
9. Stormwater management pond numbers 1 and 2 are extended detention facilities that will be owned by " The Westwoods of Cherry Grove Homeowners Association" [HOA], and jointly maintained by the HOA and Howard County, Maryland. Stormwater management pond number 3 is a detention facility that will be privately owned and jointly maintained by the HOA and Howard County, Maryland.
10. The floodplain study for this project was prepared by R.M. Mochi Group, P.C., dated February 1999, and was approved on July 16, 1999.
11. The wetlands delineation study for this project was prepared by M.A. Dircks & Co., Inc., dated February 1999 and was approved on July 16, 1999.
12. The traffic study for this project was prepared by Lee Cunningham and Associates, Inc., dated December 1998 and was approved on July 16, 1999.
13. Unless otherwise noted all BRLs shown are standard for RC zoning district.
14. The Contractor shall contact the Construction Inspection Division 24 hours prior to commencement of any work at 410-313-1880.
15. The existing gravel driveway to the Bounds property will be maintained in place and open for use until Colton Court is completed and the Bounds property is connected. Particular attention will be paid to assuring minimal disturbance to Bounds' traffic at the point where Colton Court and the gravel driveway intersect.
16. Project background information:

a.	Zoning:	RC-DEO
b.	Gross Area of Tract:	63.27 Ac.
c.	Net Area of Tract:	62.02 Ac. (63.27 Ac. - 1.25 Ac. (Parcels D&E))
d.	Area of Proposed Lots/Parcels:	60.74 Ac.
e.	Area of Proposed R/W:	2.53 Ac.
f.	Number of Proposed Lots:	30 Buildable Lots, 1 Build. Pres. Parcel 1 Open Space Lot, 3 Non-Build. Pres. Parcels, & 2 Parcels
g.	Open Space Required:	3.10 Ac.
	Open Space Provided:	3.10 Ac.

17. The existing utilities are based on Howard County contract drawings.
18. 19.4 AC OF FOREST RETENTION AREA IS PROVIDED ON-SITE. FINANCIAL SURETY FOR THE ON-SITE FOREST RETENTION AREA WILL BE IN THE AMOUNT OF $ 84,507
19. 10.2 AC. OF FOREST RETENTION AREA IS PROVIDED OFF-SITE ON THE *HARRISON PROPERTY SEE SHEET 9 FOR LOCATION OF SITE. FINANCIAL SURETY FOR THE OFF-SITE FOREST RETENTION AREA WILL BE IN THE AMOUNT OF $ 44,432. *AKA HOLTZINGER
20. FINANCIAL SURETY FOR THE REQUIRED 122 LANDSCAPE TREES, IN THE AMOUNT OF $ 23,400 IS PART OF THE DEVELOPER'S AGREEMENT.
21. PARCEL D & E ARE FOR FRONTAGE & ACCESS TO PARCEL 109 (SAVAGE PROPERTY). THESE PARCELS WILL BE CONVEYED TO PARCEL 109 AT THE TIME THE "WESTWOODS OF CHERRY GROVE" RECORD PLATS ARE RECORDED.
22. CONTACT THE HOWARD COUNTY TRAFFIC ENGINEERING DIVISION (410) 313-2430 FOR SPECIFIC DIRECTIONS ON STAGING FOR ROAD CONNECTIONS AT JENNINGS CHAPEL ROAD.

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11-3-00

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/3/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/6/00

OWNER / DEVELOPER
MARSHALL W. NICHOLS
c/o R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD 21774
(301)865-5858

ENGINEER / SURVEYOR
R.M. MOCHI GROUP, P.C.
P.O. Box 10
NEW MARKET MD, 21774
(301)865-5858
Attn: Mr. Robert Mochi, P.E.

The Westwoods of Cherry Grove

Lots 5 through 35
Non-Buildable Preservation Parcels A & C AND F
Buildable Preservation Parcel B
Parcels D & E

Election District No. 4 — Howard County, Maryland
Tax Map 13 — Grid 15 — Part of Parcel 46
Scale: 1" = 200' — January 2000

Previous Files: F-92-142 & SP-99-09

project	date	
98008.13	12-16-99	
illustration	engineering	
KBM	PFB	
scale		approval
1"=200'		RMM

no.	description	date
revisions		
3	REVISED PER DPZ COMMENTS/MYLAR SUBMITTAL	10/06/00
2	Revised Submittal to Howard County DPZ for review	7/28/00
1	Revised Submittal to Howard County DPZ for review	4-26-00
0	Submitted to Howard County DPZ for review	1-4-00

THE WESTWOODS OF CHERRY GROVE
ELECTION DISTRICT No. 4 — HOWARD COUNTY, MARYLAND
TITLE SHEET

R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
(301) 865-5858
Fax: (301) 865-5911

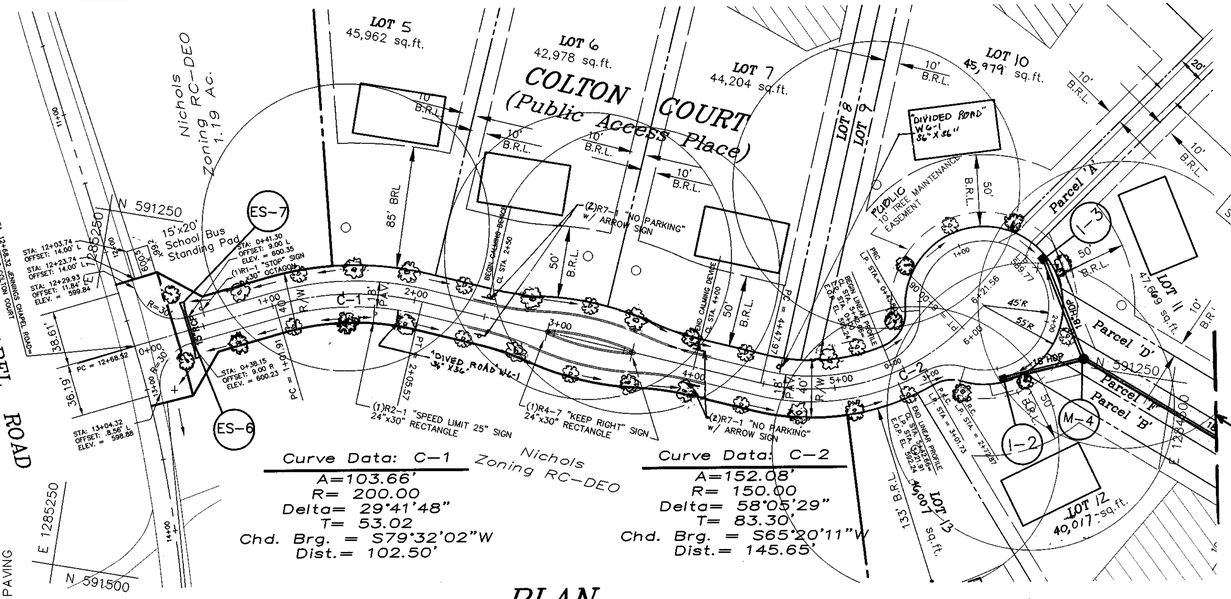
1 OF 18

F-00-105

J:\98008-001\98008-13\TITLE.DWG

THE PAD IS TO BE MAINTAINED BY THE H.O.A. IT SHALL NOT BE COVERED OR ANY WALLS ERECTED SO THAT SIGHT DISTANCE IS NOT AFFECTED.

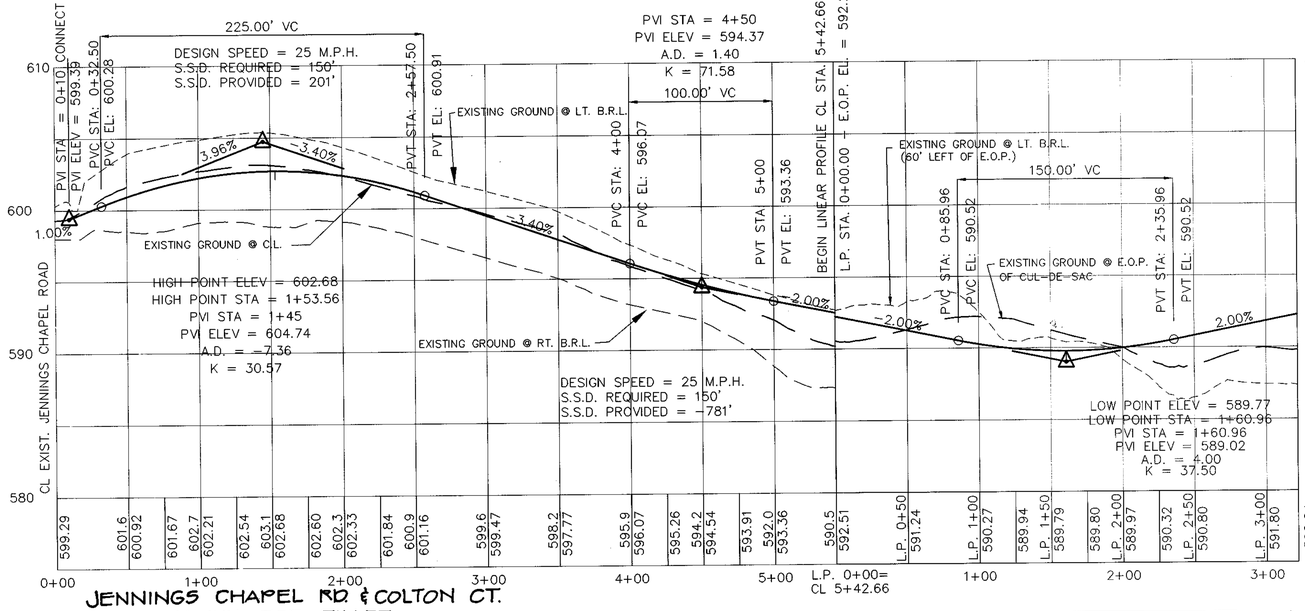
TEMPORARY TRAFFIC CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION IN ACCORDANCE WITH MSHA STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES STANDARDS: STD. No. MD 104.04-02 MD 104.31-02



Curve Data: C-1
A=103.66'
R= 200.00
Delta= 29°41'48"
T= 53.02
Chd. Brg. = S79°32'02"W
Dist.= 102.50'

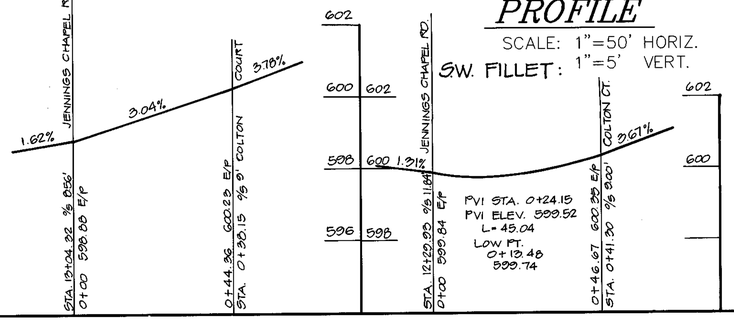
Curve Data: C-2
A=152.08'
R= 150.00
Delta= 58°05'29"
T= 83.30'
Chd. Brg. = S65°20'11"W
Dist.= 145.65'

PLAN
SCALE: 1"=50'



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

JENNINGS CHAPEL RD & COLTON CT. NORTHWEST FILLET:



COLTON COURT - ROADSIDE DITCH DATA					
BEGIN STATION	END STATION	Q10 (CFS)	V10 (FPS)	SLOPE	ROADSIDE DITCH LINING
0+00 L	1+45 L	0.68	2.20	3.96%	ECM *
0+00 R	1+45 R	0.13	1.46	3.96%	ECM *
1+45 L	5+00 L	1.33	2.46	3.40%	ECM *
1+45 R	5+00 R	0.86	2.21	3.40%	ECM *
5+00 L	6+21 L	2.71	2.41	2.00%	ECM *
5+00 R	6+21 R	1.20	1.97	2.00%	ECM *

*ECM TO BE PLACED OVER SEED AND MULCH

COLTON COURT - DRIVEWAY CULVERTS			
Lot	Slope(%)	Q10(cfs)	DW Pipe Size
5	TOVC	0.0	NO PIPE
6	3.20	1.0	STANDARD
7	3.00	1.5	STANDARD
8	3.00	2.1	U-I-C STANDARD
9	3.00	2.1	U-I-C STANDARD
10	1.75	3.0	STANDARD
11	1.00	0.2	STANDARD
12	2.00	1.2	STANDARD
13	2.00	1.1	STANDARD

ALL C's HAVE BEEN EXTRAPOLATED FROM THE 10 YR. STORM DRAIN COMPUTATIONS STANDARD 12" CIRCULAR OR 14"x9" ARCH PIPE
TOVC = LOCATED NEAR THE TOP OF A VERTICAL CURVE.

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11-3-00

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/15/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/6/00

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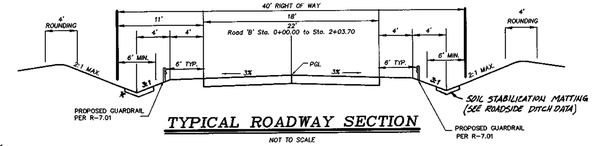
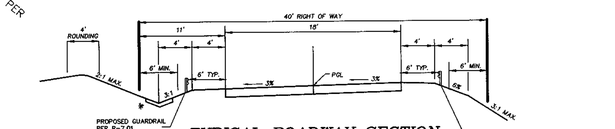
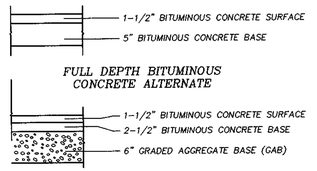


TYPICAL ROADWAY SECTION
NOT TO SCALE

STA. 00+00.00 TO STA. 06+21.56 (COLTON COURT)
STA. 3+56 TO STA. 11+47.52 (OLD SAWMILL ROAD)
RESIDENTIAL STREET- ACCESS PLACE
HOWARD COUNTY STANDARD FIGURE 2.09B
OPEN SECTION (RURAL) (RC" ZONING DISTRICT)
MINIMUM DESIGN SPEED - 25 MPH



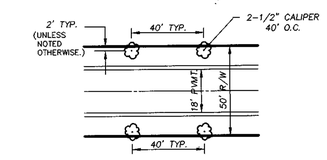
TYPICAL ROADWAY SECTION
NOT TO SCALE
FOR OLD SAWMILL ROAD
OLD SAWMILL ROAD TO BE SUPER ELEVATED FROM STA. 00+00.00 TO STA. 2+56 (RIGHT)
TRANSITION BACK TO CROWN SECTION FROM STA. 2+56 TO STA. 3+56
RESIDENTIAL STREET- ACCESS PLACE
HOWARD COUNTY STANDARD FIGURE 2.09B
OPEN SECTION (RURAL) ("RC" ZONING DISTRICT)
MINIMUM DESIGN SPEED - 25 MPH



FULL DEPTH BITUMINOUS CONCRETE ALTERNATE

GRANULAR BASE ALTERNATE

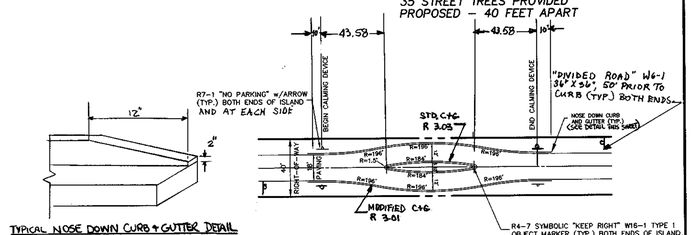
PAVING SECTION P-2
NOT TO SCALE



TREE PLANTING LOCATION DETAIL
MEDIUM TREES - 2-1/2" CALIPER OR LARGER
NOT TO SCALE

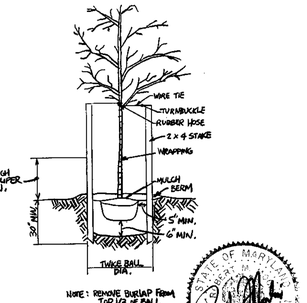
STREET TREES
COLTON COURT
1,373 L.F. RIGHT-OF-WAY
35 STREET TREES REQUIRED
35 Quercus rubra / Red Oak 2½"- 3" Cal.

35 STREET TREES PROVIDED
PROPOSED - 40 FEET APART



TYPICAL NOSE DOWN CURB & GUTTER DETAIL (NTS.)

Typical Central Median Island (Public Access Place)
Scale: 1"=50'



NOTE: REMOVE BURLAP FROM TOP 1/3 of BALL

TREE PLANTING (NTS.)

OWNER
MARSHALL W. NICHOLS
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ENGINEER/SURVEYOR
R.M. MOCHI GROUP PC.
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NEW MARKET, MD. 21774
(301) 865-5858

no.	description	date
3	REVISED PER DPZ COMMENTS / MYLAR SUBMITTAL	10/24/00
2	REVISED SUBMITTAL TO HOWARD CO DPZ FOR REVIEW	7/24/00
1	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	4-28-00
0	SUBMITTED TO HOWARD COUNTY DPZ FOR REVIEW	01-12-2000

project 98008.13 | date 01-12-00
illustration KMB | engineering PFB
scale 1"=60' | approval RMM

Tax Map 13, Grid 15, Parcel 46 (p/o)
THE WESTWOODS OF CHERRY GROVE
ELECTION DISTRICT No. 4 — HOWARD COUNTY, MARYLAND
COLTON COURT PLAN AND PROFILE

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F.00.105

OWNER

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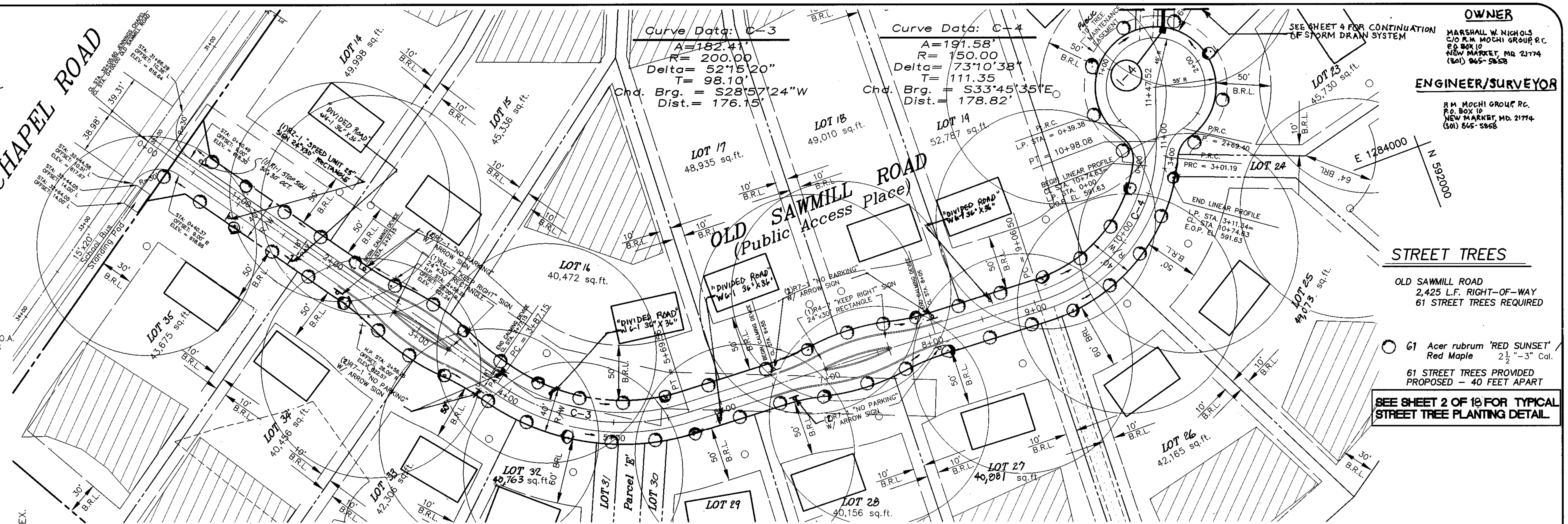
TEMPORARY TRAFFIC CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION IN ACCORDANCE WITH MSHA STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES STANDARDS: STD. No. MD 104.04-02 MD 104.31-02



PLAN
SCALE: 1"=50'

SEE SHEET 2 OF 18 FOR TYPICAL ROADWAY AND PAVING SECTIONS.

STREET TREES

OLD SAWMILL ROAD
2,425 L.F. RIGHT-OF-WAY
61 STREET TREES REQUIRED

G1 Acer rubrum 'RED SUNSET' / Red Maple $2\frac{1}{2}$"-3" Cal.

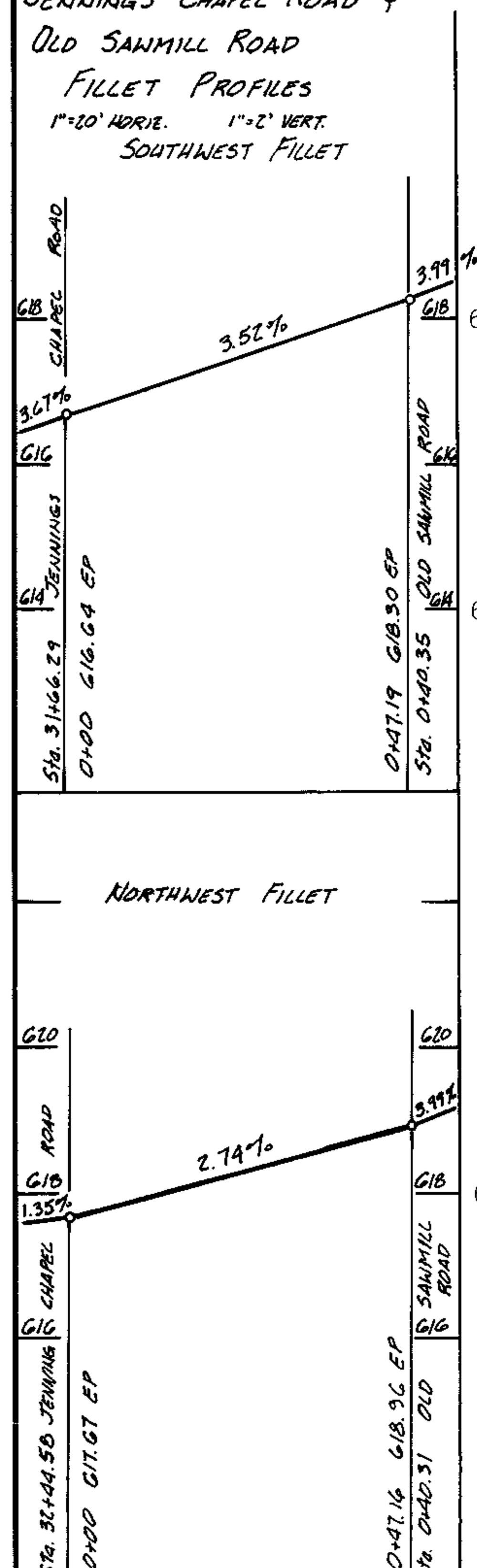
61 STREET TREES PROVIDED
PROPOSED – 40 FEET APART

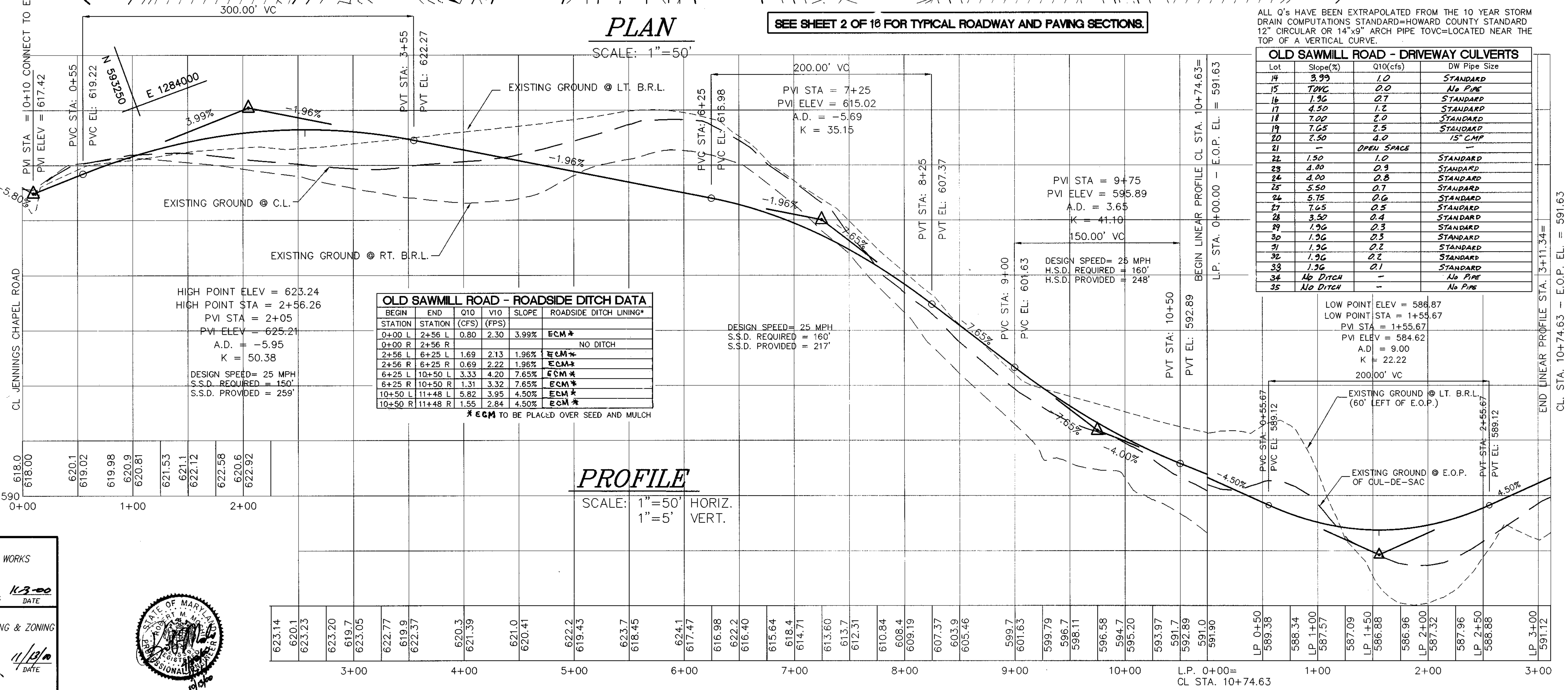
SEE SHEET 2 OF 18 FOR TYPICAL STREET TREE PLANTING DETAIL.

ALL Q's HAVE BEEN EXTRAPOLATED FROM THE 10 YEAR STORM DRAIN COMPUTATIONS STANDARD=HOWARD COUNTY STANDARD 12" CIRCULAR OR 14"x9" ARCH PIPE TOVC=LOCATED NEAR THE TOP OF A VERTICAL CURVE.

OLD SAWMILL ROAD - DRIVEWAY CULVERTS

Lot	Slope(%)	Q10(cfs)	DW Pipe Size
14	3.99	1.0	STANDARD
15	TOVC	0.0	NO PIPE
16	1.96	0.7	STANDARD
17	4.50	1.2	STANDARD
18	7.00	2.0	STANDARD
19	7.65	2.5	STANDARD
20	2.50	4.0	15" CMP
21	–	OPEN SPACE	–
22	1.50	1.0	STANDARD
23	4.00	0.9	STANDARD
24	4.00	0.8	STANDARD
25	5.50	0.7	STANDARD
26	5.75	0.6	STANDARD
27	7.65	0.5	STANDARD
28	3.50	0.4	STANDARD
29	1.96	0.3	STANDARD
30	1.96	0.3	STANDARD
31	1.96	0.2	STANDARD
32	1.96	0.2	STANDARD
33	1.96	0.1	STANDARD
34	NO DITCH	–	NO PIPE
35	NO DITCH	–	NO PIPE





OLD SAWMILL ROAD - ROADSIDE DITCH DATA

BEGIN STATION	END STATION	Q10 (CFS)	V10 (FPS)	SLOPE	ROADSIDE DITCH LINING*
0+00 L	2+56 L	0.80	2.30	3.99%	ECM*
0+00 R	2+56 R				NO DITCH
2+56 L	6+25 L	1.69	2.13	1.96%	ECM*
2+56 R	6+25 R	0.69	2.22	1.96%	ECM*
6+25 L	10+50 L	3.33	4.20	7.65%	ECM*
6+25 R	10+50 R	1.31	3.32	7.65%	ECM*
10+50 L	11+48 L	5.82	3.95	4.50%	ECM*
10+50 R	11+48 R	1.55	2.84	4.50%	ECM*

* ECM TO BE PLACED OVER SEED AND MULCH

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

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 11-3-00
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 11/13/00
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 11/6/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

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project	date
98008.13	01-12-00
illustration	engineering
KMB	PFB
scale	approval
1"=50'	RMM

no.	description	date
3	REVISED PER DPZ COMMENTS / MYLAR SUBMITTAL	10/26/00
2	REVISED SUBMITTAL TO HOWARD CO. DPZ FOR REVIEW	7/24/00
1	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	4-28-00
0	SUBMITTED TO HOWARD COUNTY DPZ FOR REVIEW	01-14-2000

revisions

Tax Map 13, Grid 15, Parcel 46 (p/o)

THE WESTWOODS OF CHERRY GROVE

ELECTION DISTRICT No. 4 HOWARD COUNTY, MARYLAND

OLD SAWMILL ROAD PLAN AND PROFILE

R.M. MOCHI GROUP, P.C.
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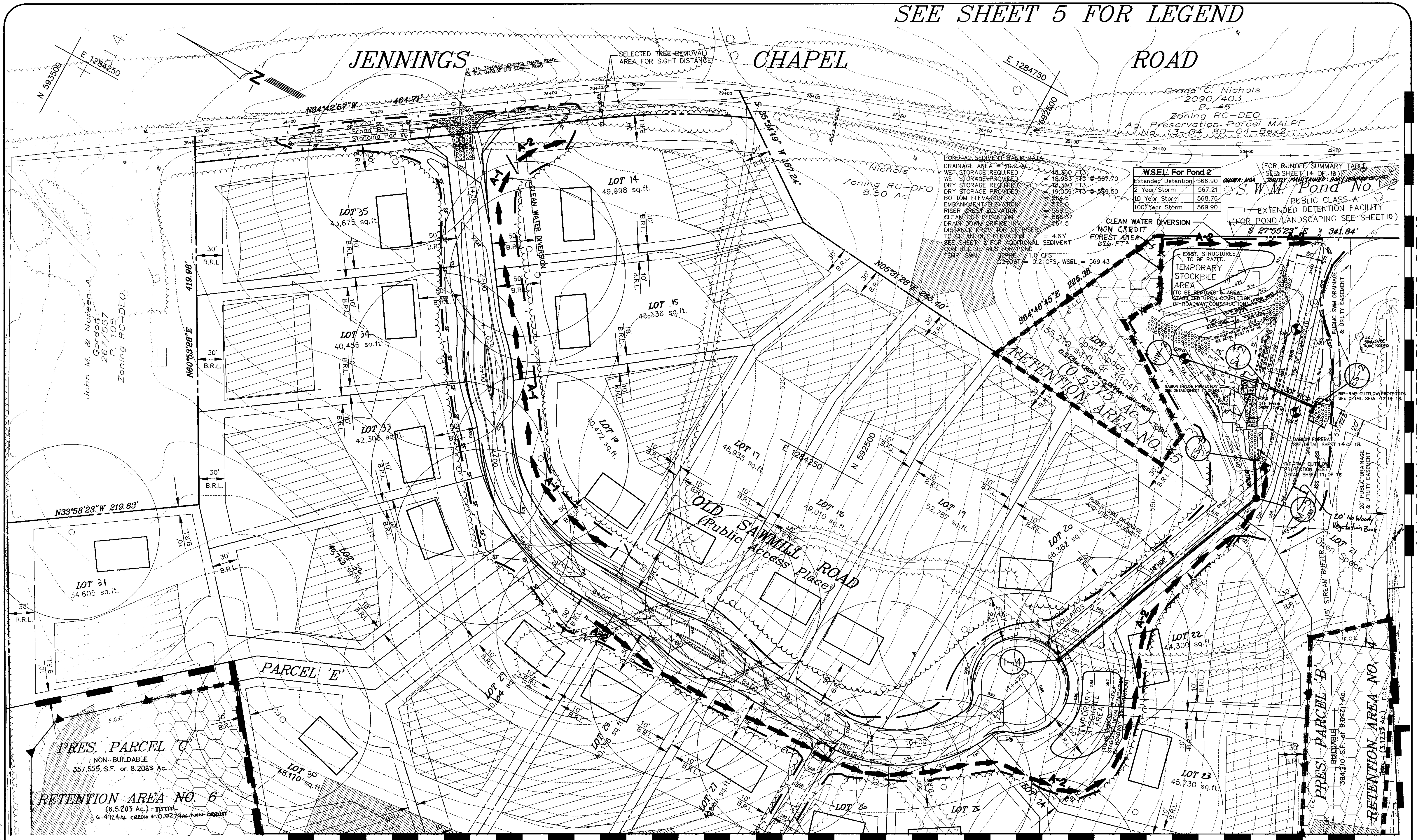
(301) 865-5858
Fax (301) 865-5111
[redacted]

F-00-105

SEE SHEET 5 FOR LEGEND



JENNINGS CHAPEL ROAD
SELECTED TREE REMOVAL AREA FOR SIGHT DISTANCE
N 593500
E 1284250
E 1284750
N 592500
N34°42'57"W 464.71'
S 35°34'19" W 167.24'
Grace C. Nichols
2090/403
P. 46
Zoning RC–DEO
Ag. Preservation Parcel MALPF
No. 13–04–80–04–Bex2
Nichols
Zoning RC–DEO
8.50 Ac.
John M. & Noreen A. Gordon
267/557
P. 105
Zoning RC–DEO
N60°53'28"E 419.98'
N33°58'23"W 219.63'
POND #2 SEDIMENT BASIN DATA
DRAINAGE AREA = 10.2 AC.
WET STORAGE REQUIRED = 18,360 FT3
WET STORAGE PROVIDED = 18,983 FT3 @ 567.70
DRY STORAGE REQUIRED = 18,360 FT3
DRY STORAGE PROVIDED = 19,059 FT3 @ 569.50
BOTTOM ELEVATION = 564.5
EMBANKMENT ELEVATION = 572.0
RISER CREST ELEVATION = 569.5
CLEAN OUT ELEVATION = 566.37
DRAIN DOWN ORIFICE INV. = 564.5
DISTANCE FROM TOP OF RISER TO CLEAN OUT ELEVATION = 4.63'
SEE SHEET 12 FOR ADDITIONAL SEDIMENT CONTROL DETAILS FOR POND
TEMP. SWM. Q2PRE = 1.0 CFS
Q2POST = 0.2 CFS, WSEL = 569.43
W.S.E.L. For Pond 2
Extended Detention 566.90
2 Year Storm 567.21
10 Year Storm 568.76
100 Year Storm 569.90
(FOR RUNOFF SUMMARY TABLE SEE SHEET 14 OF 18)
OWNER: HOA JOINTLY MAINTAINED: HOA/HOWARD CO. MD
S.W.M. Pond No. 2
PUBLIC CLASS A
EXTENDED DETENTION FACILITY
(FOR POND LANDSCAPING SEE SHEET 10)
CLEAN WATER DIVERSION
NON CREDIT FOREST AREA 676 FT²
S 27°55'23" E 341.84'
EXIST. STRUCTURES TO BE RAZED.
TEMPORARY STOCKPILE AREA
(TO BE REMOVED & AREA STABILIZED UPON COMPLETION OF ROADWAY CONSTRUCTION)
S64°46'45"E 225.38'
N05°31'28"E 265.40'
RETENTION AREA NO. 5
LOT 14 49,998 sq.ft.
LOT 15 45,336 sq.ft.
LOT 16 40,472 sq.ft.
LOT 17 48,935 sq.ft.
LOT 18 49,010 sq.ft.
LOT 19 52,787 sq.ft.
LOT 20 48,382 sq.ft.
LOT 21 Open Space
LOT 22 44,300 sq.ft.
LOT 23 45,730 sq.ft.
LOT 31 34,605 sq.ft.
LOT 33 42,308 sq.ft.
LOT 34 40,456 sq.ft.
LOT 35 43,675 sq.ft.
LOT 30 48,110 sq.ft.
OLD SAWMILL ROAD (Public Access Place)
CLEAN WATER DIVERSION
TEMPORARY STOCKPILE AREA
PARCEL 'E'
PRES. PARCEL 'C'
NON-BUILDABLE
357,555 S.F. or 8.2083 Ac.
RETENTION AREA NO. 6
(6.5203 Ac.) - TOTAL
6.4924Ac CREDIT + 0.0279Ac NON-CREDIT
PRES. PARCEL 'B'
BUILDABLE
RETENTION AREA NO. 4
20' No Woody Vegetation Zone
75' STREAM BUFFER
PUBLIC SWM DRAINAGE & UTILITY EASEMENT
20' PUBLIC DRAINAGE & UTILITY EASEMENT

MATCH LINE SEE SHEET 6 OF 18

MATCH LINE SEE SHEET 5 OF 18

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS 11-3-00 DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT 11/13/00 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION 11/6/00 DATE

PARKTON WOODLAND SERVICES
17409 EVNA ROAD
PARKTON, MD. 21120
(410) 357-5835

QUALIFIED PROFESSIONAL PER THE MARYLAND FOREST CONSERVATION ACT
Stephen Paul Maslen, Reg. No. 247 4/27/00 DATE

APPROVED:
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT 10/20/00 DATE

APPROVED:
THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROISION AND SEDIMENT CONTROL.
USDA NATIONAL RESOURCES CONSERVATION SERVICE 10/20/00 DATE

DEVELOPER'S CERTIFICATE
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Signature of Developer 4/22/00 DATE

ENGINEER'S CERTIFICATE
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Robert M. Mochi, P.E. 4/28/00 DATE

OWNER
MARSHALL W. NICHOLS
C/O R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

ENGINEER/SURVEYOR:
R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858
[redacted]

project	date
98008.13	01-11-00
illustration	engineering
KMB	P.F.B.
scale	approval
1" = 50'	R.M.M.

no.	description	date
3	REVISED PER DPZ COMMENT / MYLAR SUBMITTAL	10/06/00
2	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	7/26/00
1	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	4-28-00
0	1ST SUBMITTAL TO HO. CO. DPZ FOR REVIEW	01-14-2000
	revisions	

Tax Map 13, Grid 15, Parcels 46 (P/O)

THE WESTWOODS OF CHERRY GROVE

ELECTION DISTRICT NO. 4 HOWARD COUNTY, MD.

GRADING, SEDIMENT CONTROL AND FOREST CONSERVATION

R.M. MOCHI GROUP, P.C.
CIVIL ENGINEERS LAND SURVEYORS
PLANNERS SCIENTISTS ENVIRONMENTAL
P.O. Box 10
New Market, MD 21774-0010
[redacted]
(301) 865-5858
Fax: (301) 865-5111

F.00.105

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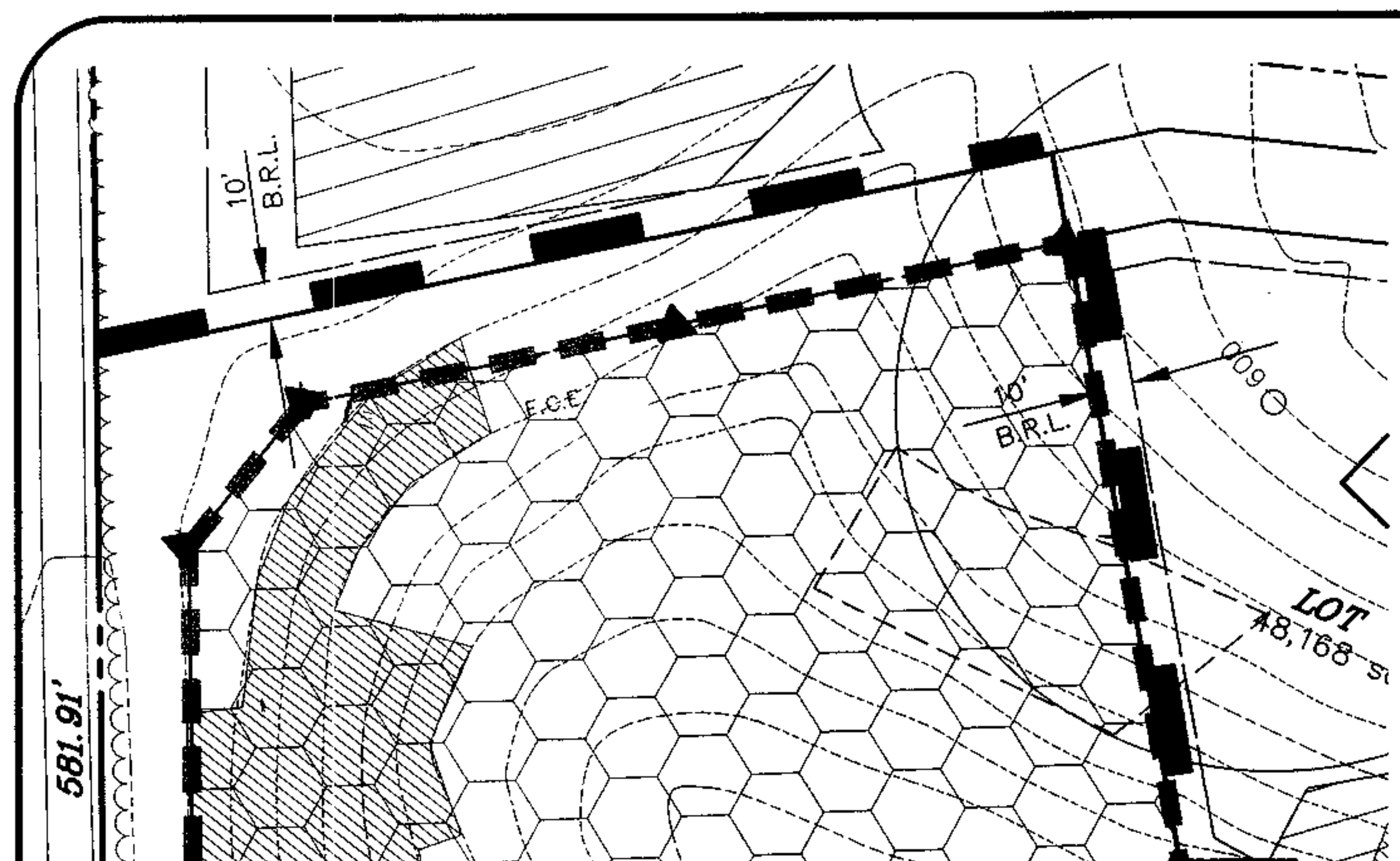
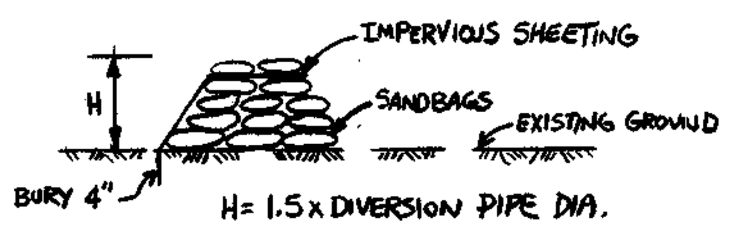




DESCRIPTION
1. The work shall consist of installing a flow diversion structure when construction activities take place within the stream channel, such as culvert or storm drain construction.

MATERIAL SPECIFICATIONS
1. Sandbags: Sandbags shall consist of materials which are resistant to ultraviolet radiation, tearing and puncture, and woven tightly enough to prevent leakage of fill material (e.g., sand, fine gravel)
2. Sheeting: sheeting shall consist of polyethylene or other material which is impervious and resistant to puncture and tearing.

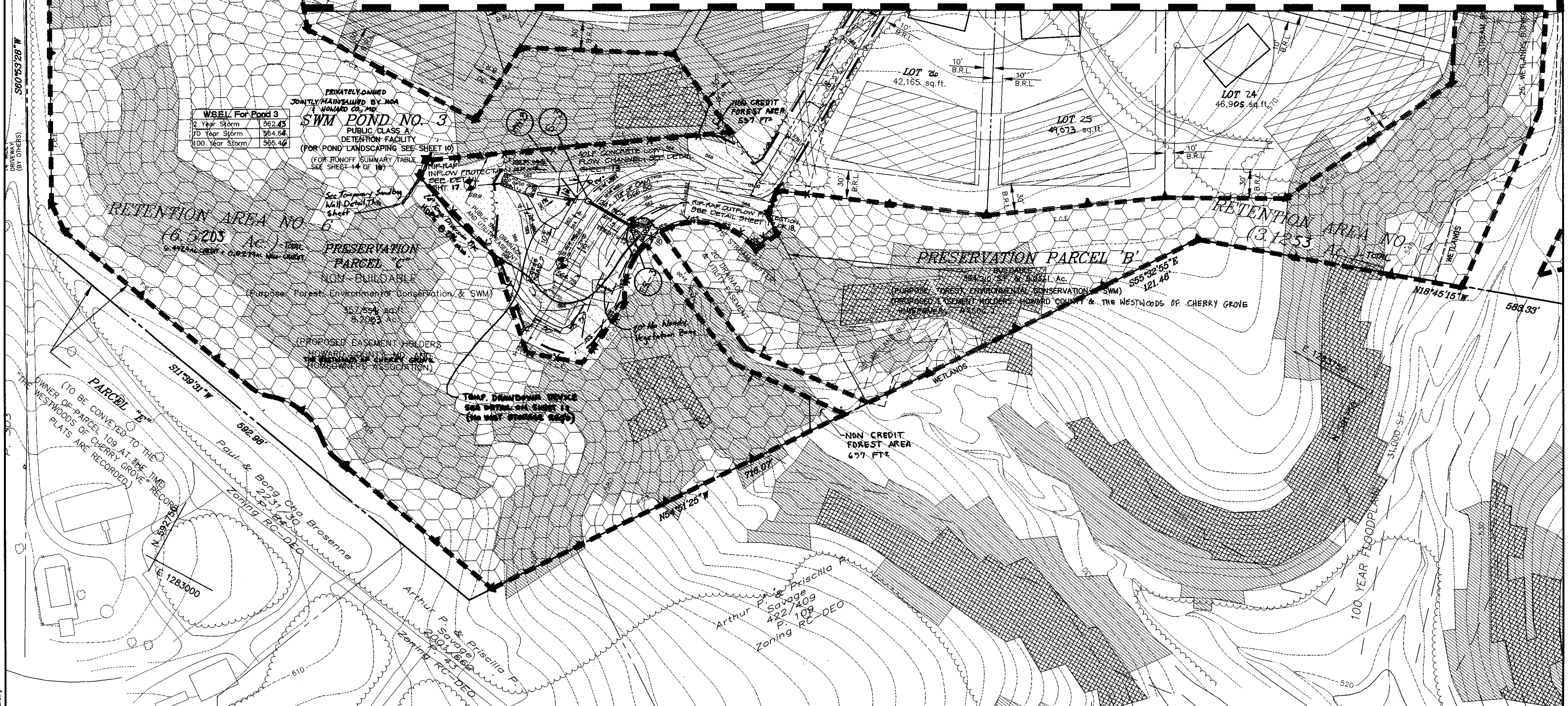
CONSTRUCTION SPECIFICATIONS
1. All sediment and erosion control devices shall be installed as the first order of work.
2. The top width of the sandbag wall shall be from 2 to 4 feet.
3. The height of the diversion structure shall be 1.5 times the diversion pipe diameter.
4. All excavated materials shall be disposed of in an SCD-approved disposal area outside the 100-year floodplain.
5. All de-watering of the construction area shall be pumped from an RPS prior to re-entering the stream.
6. Sheeting shall be overlapped such that the upstream portion covers the downstream portion with an 18" minimum overlap.
7. Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved Sediment and Erosion Control Plan and the inspecting authority approves the removal.

TEMPORARY SANDBAG WALL
nts

LEGEND:

- PERC AREAS
- 25% OR GREATER SLOPES
- 15% – 24.9% SLOPES
- PUBLIC STORMWATER MANAGEMENT DRAINAGE AND UTILITY EASEMENT
- FOREST CONSERVATION/RETENTION EASEMENT (F.C.E.)
- DENOTES LOCATION OF FOREST RETENTION EASEMENT WITH TREE PROTECTION AND SIGNAGE.
- DENOTES TREE SIGNAGE
- DENOTES FENCE
- DENOTES SILT FENCE
- DENOTES SUPER SILT FENCE
- DENOTES SILT FENCE/TREE PROTECTION FENCE COMBINATION
- EARTH DIKE
- LIMITS OF DISTURBANCE (L.O.D.)

MATCH LINE SEE SHEET 4 OF 18



APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 11-3-00 DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/13/00 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/6/00 DATE

PARKTON WOODLAND SERVICES
17409 EVNA ROAD
PARKTON, MD. 21120
(410) 357-5835

QUALIFIED PROFESSIONAL PER THE MARYLAND FOREST CONSERVATION ACT

Stephen Paul Maslen, Reg. No. 2?7 — 10/11/00 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 10/20/00 DATE

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

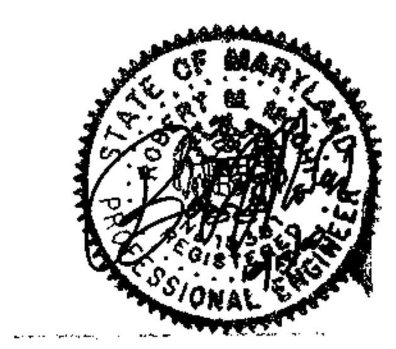
USDA - NATIONAL RESOURCES CONSERVATION SERVICE — 10/20/00 DATE

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 of Developer — 10/11/00 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, P.E. — 10/13/00 DATE



OWNER
MARSHALL W. NICHOLS
C/O R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

ENGINEER/SURVEYOR:
R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 835-5858

project	date
98008.13	01-11-00
illustration	engineering
KMB	P.F.B.
1" = 50'	approval: R.M.M.

no.	description	date
3	REVISED PER DPZ COMMENTS/MYLAR SUBMITTAL	10/06/00
2	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	7/26/00
1	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	4-28-00
0	1ST SUBMITTAL TO HO. CO. DPZ FOR REVIEW	01-14-2000

revisions

Tax Map 13, Grid 15, Parcel 46 (p/o)

THE WESTWOODS OF CHERRY GROVE

ELECTION DISTRICT NO. 4 — HOWARD COUNTY, MD.

GRADING, SEDIMENT CONTROL AND FOREST CONSERVATION

R.M. MOCHI GROUP, P.C.
CIVIL ENGINEERS LAND SURVEYORS
PLANNERS ENVIRONMENTAL
P.O. Box 10
New Market, MD 21774-0010
[redacted]
(301) 865-5858
Fax: (301) 865-5111

F.00.105

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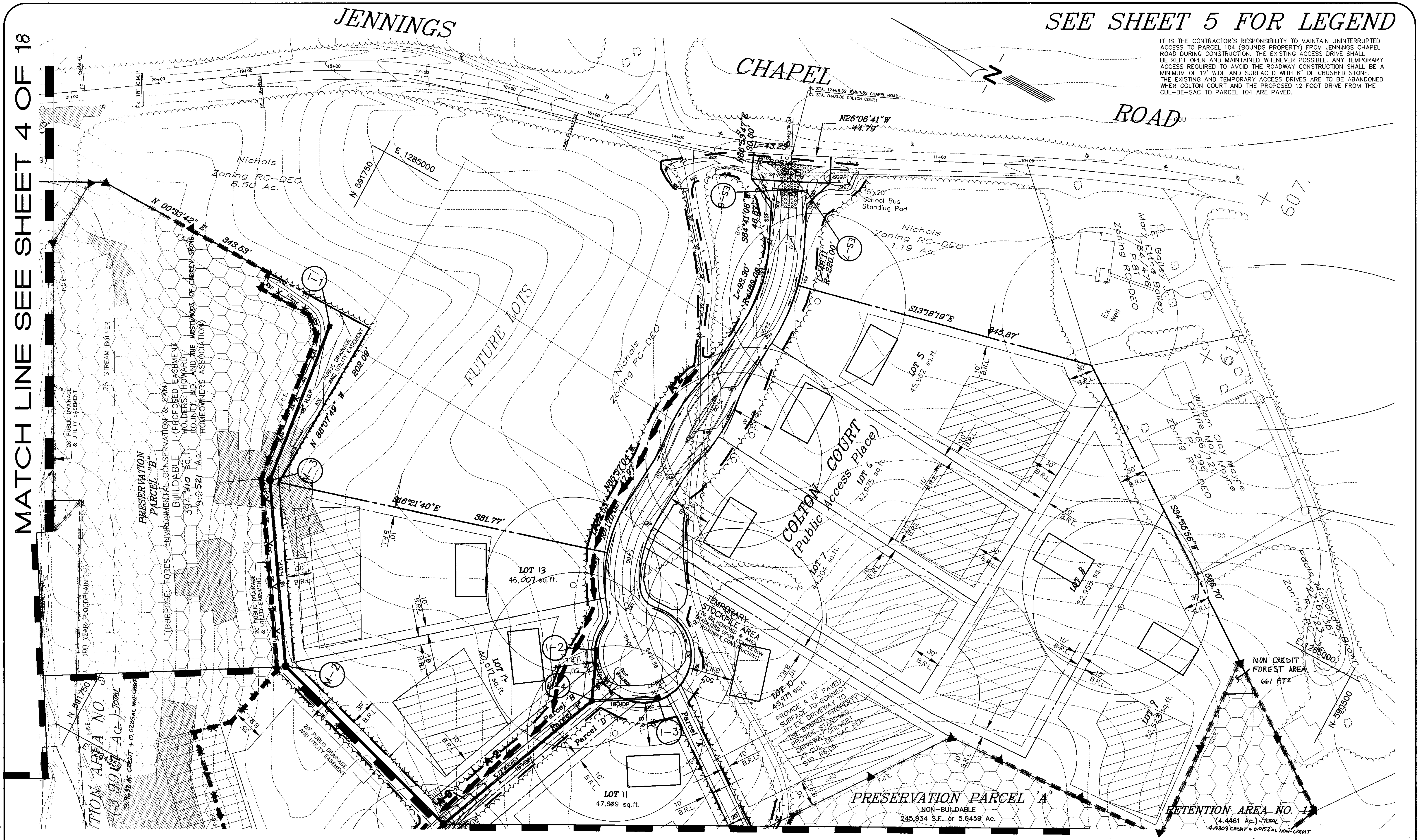
SEE SHEET 5 FOR LEGEND

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN UNINTERRUPTED ACCESS TO PARCEL 104 (BOUNDS PROPERTY) FROM JENNINGS CHAPEL ROAD DURING CONSTRUCTION. THE EXISTING ACCESS DRIVE SHALL BE KEPT OPEN AND MAINTAINED WHENEVER POSSIBLE. ANY TEMPORARY ACCESS REQUIRED TO AVOID THE ROADWAY CONSTRUCTION SHALL BE A MINIMUM OF 12' WIDE AND SURFACED WITH 6" OF CRUSHED STONE. THE EXISTING AND TEMPORARY ACCESS DRIVES ARE TO BE ABANDONED WHEN COLTON COURT AND THE PROPOSED 12 FOOT DRIVE FROM THE CUL-DE-SAC TO PARCEL 104 ARE PAVED.

MATCH LINE SEE SHEET 4 OF 18



MATCH LINE SEE SHEET 7 OF 18

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APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 11-3-00
CHIEF, BUREAU OF HIGHWAYS — DATE

PARKTON WOODLAND SERVICES
17409 EVNA ROAD
PARKTON, MD. 21120
(410) 357-5835

QUALIFIED PROFESSIONAL PER THE MARYLAND FOREST CONSERVATION ACT
[signature] 4/27/00
Stephen Paul Maslen, Reg. No. 247 — DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[signature] 11/13/00
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] 11/6/00
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] 10/20/00
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED:
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J.G. Warfield /cs 10/20/00
USDA - NATIONAL RESOURCES CONSERVATION SERVICE — DATE

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MARSHALL W. NICHOLS
C/O R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

ENGINEER/SURVEYOR:
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NEW MARKET, MD. 21774
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[signature] 4/27/00
Signature of Developer — DATE

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[signature] 4/28/00
Robert M. Mochi, P.E. — DATE

STATE OF MARYLAND — ROBERT M. MOCHI — PROFESSIONAL ENGINEER

project	date
98008.13	01-11-00
illustration: KMB	engineering: P.F.B.
scale: 1" = 50'	approval: R.M.M.

no.	description	date
3	REVISED PER DPZ COMMENTS/MYLAR SUBMITTAL	10/06/00
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0	1ST SUBMITTAL TO HO. CO. DPZ FOR REVIEW	01-14-2000

revisions

Tax Map 13, Grid 15, Parcel 46 (p/o)
THE WESTWOODS OF CHERRY GROVE
ELECTION DISTRICT NO. 4 — HOWARD COUNTY, MD.
GRADING, SEDIMENT CONTROL AND FOREST CONSERVATION

R.M. MOCHI GROUP, P.C.
CIVIL ENGINEERS LAND SURVEYORS — PLANNERS ENVIRONMENTAL
P.O. Box 10
New Market, MD 21774-0010
[redacted]
(301) 865-5858
Fax: (301) 865-5111

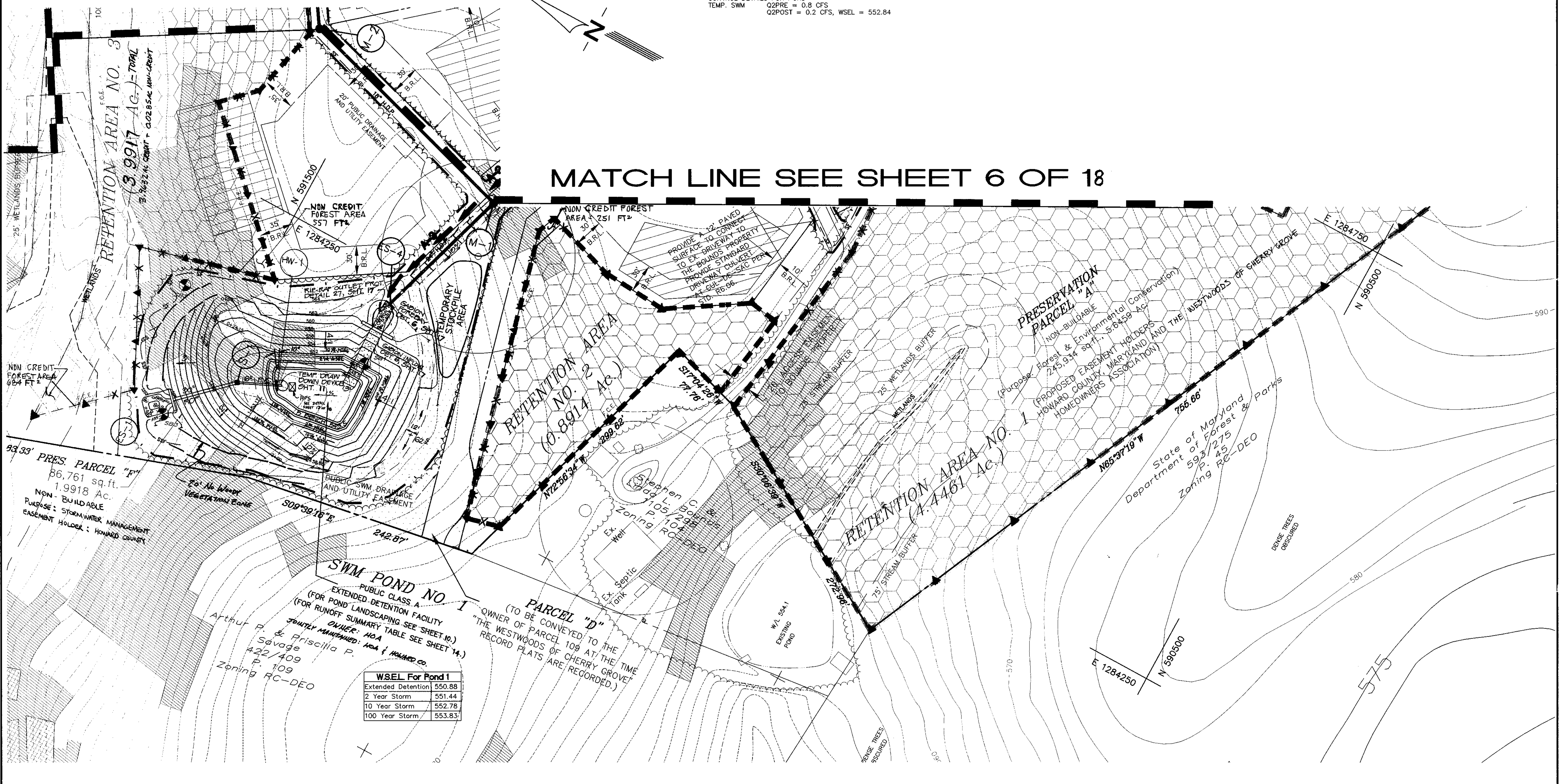
F-00-105

SEE SHEET 5 FOR LEGEND.

POND #1 SEDIMENT BASIN DATA

DRAINAGE AREA = 8.76 AC.
WET STORAGE REQUIRED = 15,768 FT3
WET STORAGE PROVIDED = 16,427 FT3 @ 551.50
DRY STORAGE REQUIRED = 15,760 FT3
DRY STORAGE PROVIDED = 16,546.5 FT3 @ 553.00
BOTTOM ELEVATION = 547.9
EMBANKMENT ELEVATION = 556.0
RISER CREST ELEVATION = 553.0
CLEAN OUT ELEVATION = 550.29
DRAIN DOWN ORIFICE INV. = 547.90
DISTANCE FROM TOP OF RISER TO CLEAN OUT ELEVATION = 4.38'
SEE SHEET 11 FOR ADDITIONAL SEDIMENT CONTROL DETAILS FOR POND
TEMP. SWM Q2PRE = 0.8 CFS
Q2POST = 0.2 CFS, WSEL = 552.84

MATCH LINE SEE SHEET 6 OF 18



W.S.E.L. For Pond 1	
Extended Detention	550.88
2 Year Storm	551.44
10 Year Storm	552.78
100 Year Storm	553.83

OWNER

MARSHALL W. NICHOLS
C/O R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

ENGINEER/SURVEYOR:

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P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS 11-3-00 DATE

PARKTON WOODLAND SERVICES
17409 EVNA ROAD
PARKTON, MD. 21120
(410) 357-5835

QUALIFIED PROFESSIONAL PER THE MARYLAND FOREST CONSERVATION ACT
Stephen Paul Maslen, Reg. No. 247 4/27/00 DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT 11/13/00 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION 11/6/00 DATE

APPROVED:
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HOWARD SOIL CONSERVATION DISTRICT 10/20/00 DATE

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Robert M. Mochi, P.E. 4/28/00 DATE

project	date
98008.13	01-11-00
illustration	engineering
KMB	P.F.B.
scale	approval
1" = 50'	R.M.M.

no.	description	date
3	REVISED PER DPZ COMMENTS/MYLAR SUBMITTAL	10/06/00
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0	1ST SUBMITTAL TO HO. CO. DPZ FOR REVIEW	01-14-2000
	revisions	

Tax Map 13, Grid 15, Parcel 46 (p/o)

THE WESTWOODS OF CHERRY GROVE

ELECTION DISTRICT NO. 4 HOWARD COUNTY, MD.

GRADING, SEDIMENT CONTROL AND FOREST CONSERVATION

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(301) 865-5858
Fax (301) 865-5111
[redacted]

F-00-105

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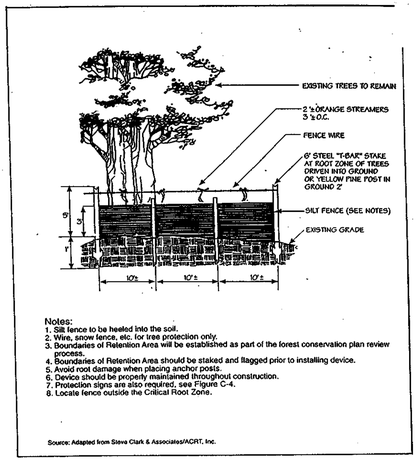
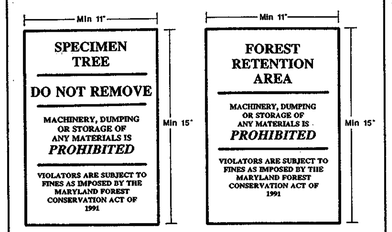
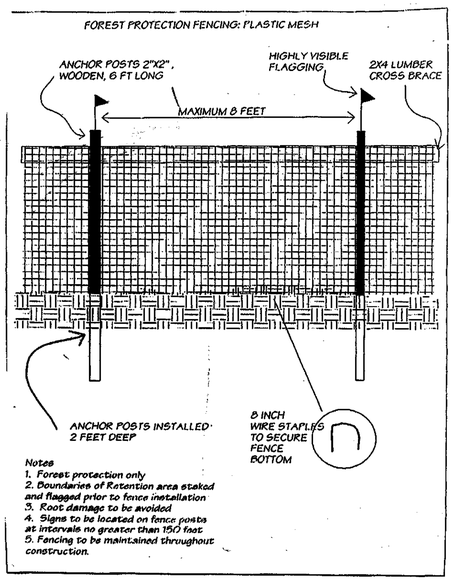


Notes:
1. Silt fence to be heated into the soil.
2. Wire, snow fence, etc. for tree protection only.
3. Boundaries of Retention Area will be established as part of the forest conservation plan review process.
4. Boundaries of Retention Area should be staked and flagged prior to installing device.
5. Avoid root damage when placing anchor posts.
6. Device should be properly maintained throughout construction.
7. Protection signs are also required, see Figure C-4.
8. Locate fence outside the Critical Root Zone.

Source: Adapted from Steve Clark & Associates/ACRT, Inc.

Signage





Notes
1. Forest protection only
2. Boundaries of Retention area staked and flagged prior to fence installation
3. Root damage to be avoided
4. Signs to be located on fence posts at intervals no greater than 150 feet
5. Fencing to be maintained throughout construction.

Forest Conservation Plan– Additional Documentation

Owner: Marshall Nichols
Project: Westwoods of Cherry Grove

This site contains no particularly high priority areas. While the chestnut oak stand contains more diverse vegetation, the tulip-tree stand is largely stream buffer. Therefore the submission is in general conformity with retention priorities.

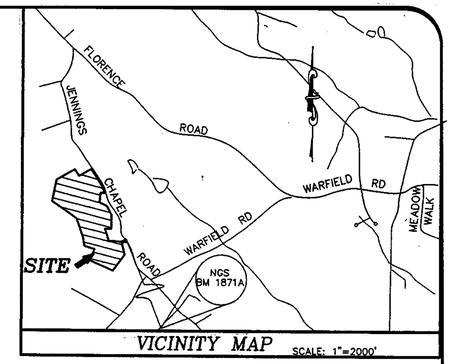
Construction Period Practices

Traffic is to be excluded from the retention areas which will be fenced and posted prior to construction. Every effort will be made to avoid disturbance of the primary root zone of trees in the retention area. This means, generally, that the root zone will not be disturbed within the drip line of trees in the retention area. For trees which are to be retained outside the retention area the same care applies. Additionally, these trees will be protected from compaction by construction equipment, from storage of construction materials, and from filling over their root zones within the drip line. Parking of equipment and storage of materials will be directed away from retention areas, streams, and other trees which are to be retained.

Post-Construction Practices

Retention area fencing is to be retained for the required period. Trees on the margins of the retention areas will be checked for signs of decline caused by construction disturbance, and treated appropriately. Any erosion problems will be corrected, particularly those that impact the retention areas. The new homeowners will receive brief instruction about the importance of the retention areas and their own rights and responsibilities with respect to those areas on their property. In general the construction period prohibitions will apply; the new owners will be instructed to minimize use of herbicides and insecticides adjacent to retention areas and they will be encouraged to feature native species in any planting done on the new lots.

Stephen Paul Maslen
MD. Registered Forester #247



FCP GENERAL SITE INFORMATION:
A. ZONING: RC-DEO
B. GROSS AREA OF TRACT: 62.02 Ac.*
C. AREA WITHIN 100 YEAR FLOOD PLAIN: 0.79 Ac.
D. NET AREA OF TRACT: 61.23 Ac.
E. TOTAL FORESTED AREA OF NET TRACT: 55.98 Ac.
F. FOREST AREA TO BE DISTURBED: 36.58 Ac.
G. FOREST AREA TO BE PRESERVED: 19.4 Ac.
H. REFORESTATION REQUIREMENT OF 5.06 AC. WILL BE PROVIDED BY OFF-SITE RETENTION AT 2:1. (10.2 AC. OF OFF-SITE RETENTION WILL BE PROVIDED ON THE HARRISON PROPERTY. (TAX MAP 1, GRID 23, PARCEL 7) (SEE SHT. 9) HOLTEINGER
I. RECONNAISSANCE FOR FSD REVEALED TWO FOREST STAND/TYPES. NO SPECIMEN TREES, AND NO UNIQUE PLANT COMMUNITIES. THEREFORE, THIS PLAN CONSISTS OF THE FOREST CONSERVATION WORKSHEET AND PLANS SHOWING THE ONSITE & OFFSITE RETENTION AREAS, ALONG WITH SIGNAGE & FENCING LOCATION & DETAILS.
J. FOREST RETENTION AREA FENCING WILL BE OF PLASTIC MESH ATTACHED TO 6 FOOT WOODEN STAKES (2X2) DRIVEN 2 FEET IN THE GROUND ON A SPACING 6 FEET IN MANNER SHOWN IN THE FOREST CONSERVATION MANUAL.
THE WOODEN STAKES WILL BE CROSS-BRACED WITH 12 FT. 2X4'S THE PLASTIC MESH FENCING WILL BE SECURED TO THE GROUND WITH 8" WIRE LANDSCAPING STAPLES.
NOTE: FENCING WILL BE INSTALLED IF DISTURBANCE IS WITHIN 100' OF THE FOREST RETENTION EASEMENT LINE.

* THE GROSS SITE AREA EXCLUDES THE AREA OF PARCELS D & E (1.85 ac). THE FOREST CONSERVATION OBLIGATIONS FOR THESE PARCELS WILL BE ADDRESSED WITH THE FUTURE SUBDIVISION OF PARCEL 109 (SAVAGE PROPERTY)

FOREST CONSERVATION DATA:

BASIC SITE DATA	ACRES
GROSS SITE AREA	62.02 Ac. *
AREA WITHIN 100YR FLOODPLAIN	0.79 Ac.
NET TRACT AREA	61.23 Ac.
LAND USE CATEGORY	RC-DEO

REFORESTATION CALCULATIONS	ACRES
NET TRACT AREA	61.23 Ac.
REFORESTATION THRESHOLD 25%(61.23 Ac.)	15.31 Ac.
EXISTING FOREST ON NET TRACT	55.98 Ac.
FOREST AREAS TO BE CLEARED	36.58 Ac.
FOREST AREAS TO BE RETAINED	19.4 Ac.
FOREST AREA CLEARED ABOVE THRESHOLD	36.58 Ac.
FOREST AREA RETAINED ABOVE THRESHOLD	4.09 Ac.
REFORESTATION FOR CLEARING ABOVE THRESHOLD (36.58 Ac. x 1/4)	9.15 Ac.
CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD	4.09 Ac.
REFORESTATION REQUIRED	5.06 Ac.

REFORESTATION REQUIREMENT WILL BE PROVIDED BY OFF-SITE RETENTION AT 2:1

10.2 AC. OF OFF-SITE RETENTION WILL BE PROVIDED ON THE HARRISON PROPERTY (Tax Map 1, Grid 23, Parcel 7)
SEE SHEET 9 FOR OFF-SITE RETENTION PLAN

On - Site Forest Conservation Easement Area Tabulation

	Total Area	Credit Area	Non-Credit Area	Type
Forest Conservation Easement Area # 1	4.4461 ac	4.4309 ac	0.0152 ac	Retention
Forest Conservation Easement Area # 2	0.8914 ac	0.8857 ac	0.0057 ac	Retention
Forest Conservation Easement Area # 3	3.9917 ac	3.9632 ac	0.0265 ac	Retention
Forest Conservation Easement Area # 4	3.1253 ac	3.1253 ac	0 ac	Retention
Forest Conservation Easement Area # 5	0.5375 ac	0.5231 ac	0.0144 ac	Retention
Forest Conservation Easement Area # 6	6.5203 ac	6.4924 ac	0.0279 ac	Retention
Total	19.5123 ac	19.4206	0.0917 ac	

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11-3-00

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/3/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/6/00

OWNER
MARSHALL W. NICHOLS
C/O R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

ENGINEER/SURVEYOR:
R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

PARKTON WOODLAND SERVICES
17409 EVNA ROAD
PARKTON, MD. 21120
(410) 357-5835

QUALIFIED PROFESSIONAL PER THE MARYLAND FOREST CONSERVATION ACT
Stephen Paul Maslen, Reg. No. 247 — DATE 10/11/00

no.	description	date
3	REVISED PER DPZ COMMENTS / WP AT SUBMITTAL	10/06/00
2	REVISED SUBMITTAL TO HOWARD CO. DPZ FOR REVIEW	4-28-00
1	SUBMITTED TO HOWARD CO. DPZ FOR REVIEW	01-14-2000
0	revisions	date

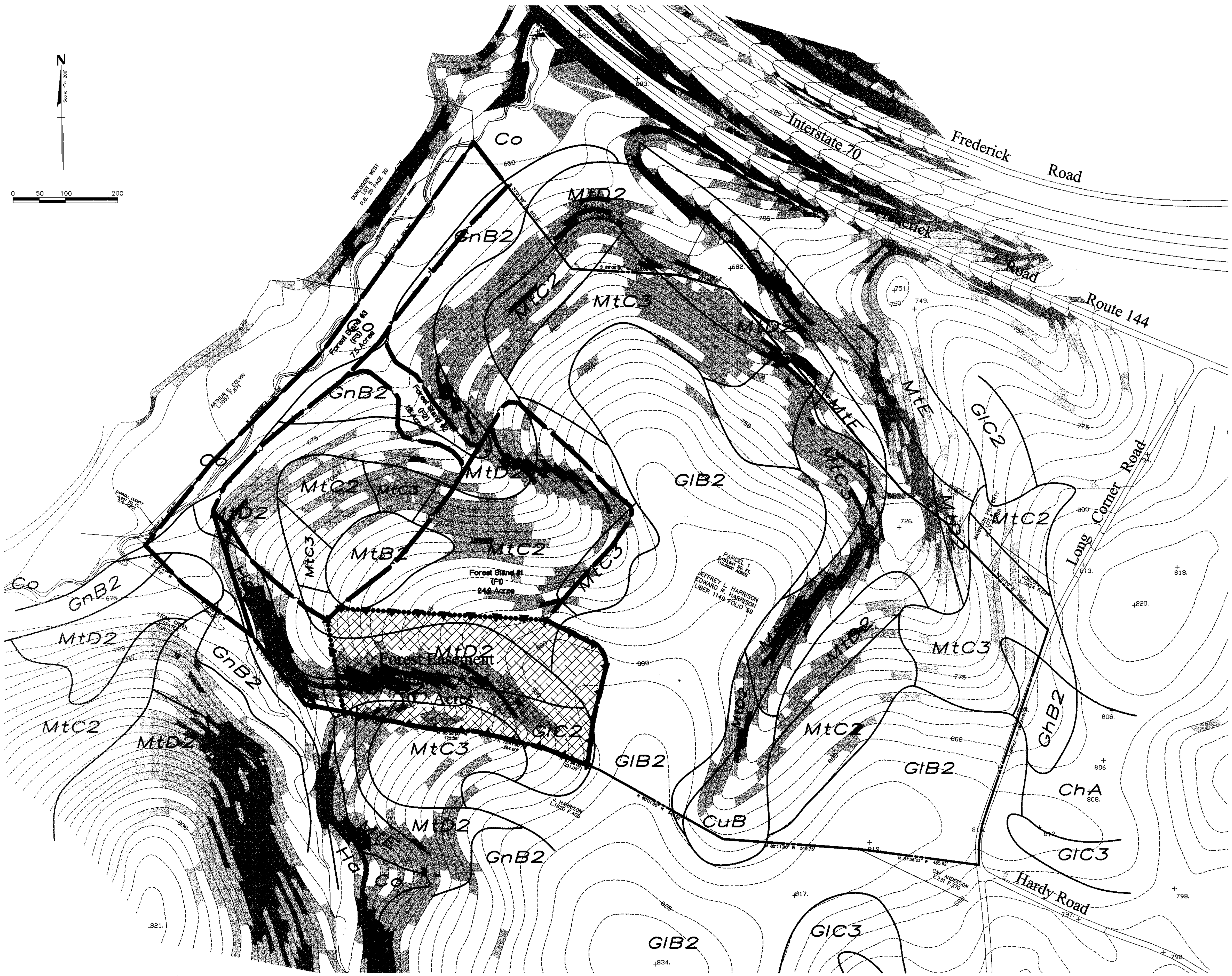
project 98008-13 | date 01-12-00
Illustration | engineering PFB | approval RMM
scale As Shown

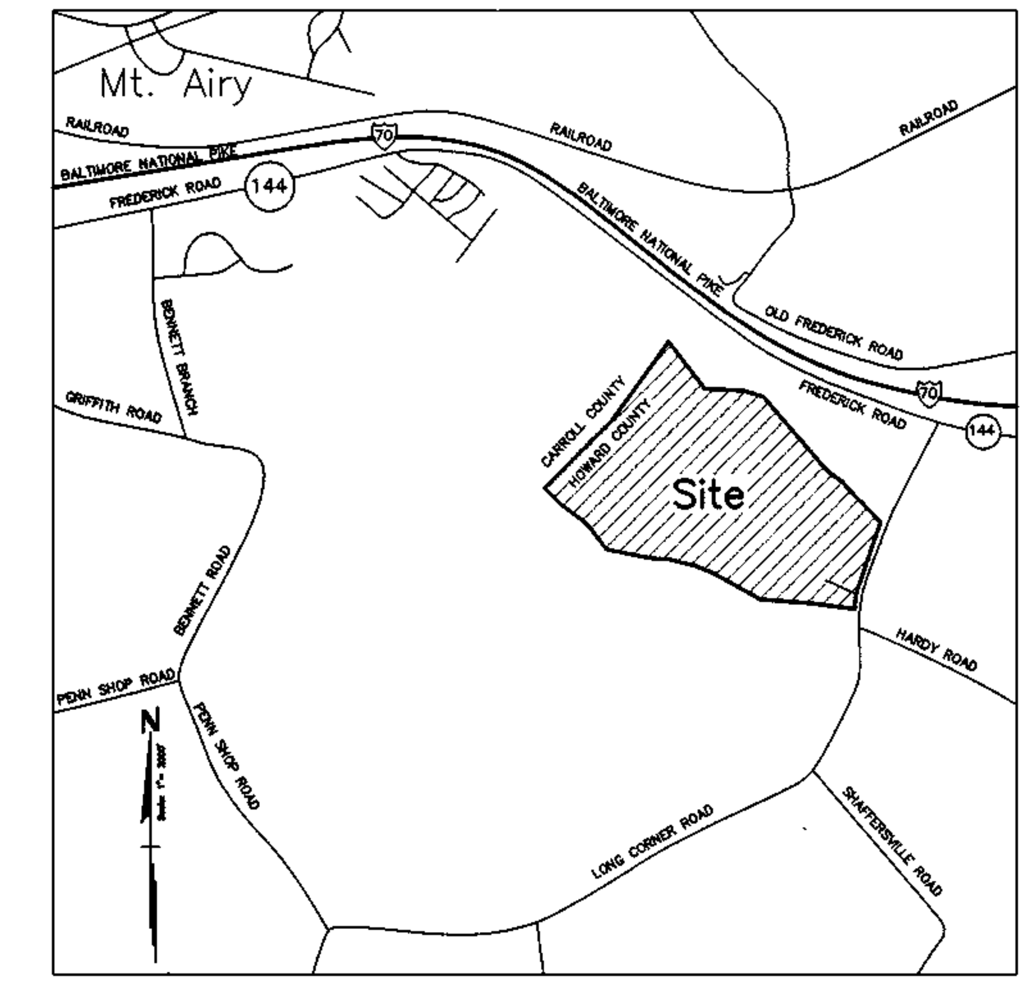
Tax Map 13, Grid 15, Parcel 46 (p/o)
THE WESTWOODS OF CHERRY GROVE
ELECTION DISTRICT NO. 4 — HOWARD COUNTY, MD.
FOREST CONSERVATION PLAN

R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
(301) 865-5858
Fax: (301) 865-5911

8 OF 18

F-00-105





Vicinity Map
Scale: 1" = 2000'

Stand Narrative:

Project: Westwoods of Cherry Grove
Offsite Retention Area (Harrison property) (NOW KNOWN AS HOLTZINGER PROPERTY)

The site consists of about 10 acres of a 35 acre woodland on a farm off Long Corner Road. Contiguous portions of the woodland lie along the headwaters of the Patapsco River. The proposed retention area is rectangular in shape, about 1,000 feet long and 400 feet wide and sloping gently to the north.

Stand F1 (24.2 ac)
This stand includes most of the woodland on the site. It has been actively managed; a selective timber harvest appears to have been done 15–20 years ago. Species composition is unusually diverse. Black oak is the most common tree but there are significant components of Scarlet oak, White oak, Northern red oak, Rock oak, Tulip–tree, Hickory species, Black–gum, White pine, and Virginia pine. The size class is medium to large sawtimber, averaging about 16.5" dbh; stocking is in the optimum range for tree growth (74% relative density). The understory is sparse, except near the crop fields, and is composed mainly of tree regeneration, Smilax species, spicebush, and Virginia creeper. There are no unusual species or specimen trees. Soils are mostly of the Glenelg and Mt. Airy series, with a little bit of Glenville in the lower areas.

The area proposed for retention lies in this stand along the southern boundary of the property. This is a natural woodland which has never been cleared. While it is not undisturbed and the trees are not remarkably large, there is an unusual diversity of species and the location is near the headwaters of the Patapsco River. The proposed retention area is large and broad enough to stand by itself if the woodlands adjoining it were cleared in the future. There is no question that the species composition, size, and stocking meet the FCA definition of a forest and, beyond that, make this woodland a desirable candidate for retention.
The easement conditions should not include prohibitions or unreasonable restrictions on timber harvesting. Timber harvesting should be permitted so long as it conforms with best management practices and with a forest stewardship plan (by a registered professional forester) written prior to harvesting.

Stand F2 (1.5 ac)
This is a hedgerow between fields. It was not inspected in detail.

Stand F3 (7.6 ac)
This is a floodplain forest located along the Patapsco River. It appears to be dominated by Tulip–tree. Again, it was not inspected in detail because it was unsuitable for offsite retention.

Stephen Paul Maslen
MD. Registered Forester #247

HARRISON PROPERTY
Tax Maps #1 & #6, Parcel 7

Soil Legend

ChA	Chester silt loam, 0 to 3% slopes
Co	Codorus silt loam
CuB	Comus silt loam, local alluvium, 3 to 8 % slopes
GlB2	Glenelg loam, 3 to 8 % slopes, moderately eroded
GlC2	Glenelg loam, 8 to 15 % slopes, moderately eroded
GlC3	Glenelg loam, 8 to 15% slopes, severely eroded
GnB2	Glenville silt loam, 3 to 8% slopes, moderately eroded
Ha	Hatboro silt loam
MtC2	Mt. Airy channery loam, 8 to 15% slopes, moderately eroded
MtC3	Mt. Airy channery loam, 8 to 15% slopes, severely eroded
MtD2	Mt. Airy channery loam, 15 to 25% slopes, moderately eroded
MtE	Mt. Airy channery loam, 25 to 45% slopes

Plan Legend

MtB2	Soil Type & Limit
	Steep Slopes 15% – 25%
	Steep Slopes 25% & greater
	Existing Tree Line
Forest Stand #1 (F1) 24.2 Acres	Forest Stand Limit & Description
	Forest Retention Easement
	Forest Retention Signage

TOPOGRAPHY SOURCE
Howard County Maryland Site Planning GIS Data
CD Date: October 14, 1999
Data Date: 1998 Contour Lines (east) with 5' contour intervals

SPATIAL REFERENCE INFORMATION
Coordinate System Name: Maryland State Plane Coordinate System 1927
Horizontal Datum Name: North American Datum of 1927 (NAD 27)

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 11-3-00
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[signature] 11/13/00
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] 11/6/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

PARKTON WOODLAND SERVICES
17409 EVNA ROAD
PARKTON, MD. 21120
(410) 357-5835

QUALIFIED PROFESSIONAL PER THE MARYLAND FOREST CONSERVATION ACT
[signature] 9/26/00
DATE

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project	date
98008.13	7–14–00
illustration	engineering
	PFB
scale	approval
1"=200'	RMM

no.	description	date
1	REVISED PER DPZ COMMENTS / MYLAR SUBMITTAL	9/25/00
0	SUBMITTED TO HOWARD COUNTY DPZ FOR REVIEW	7/26/00
	revisions	

The Westwoods of Cherry Grove

ELECTION DISTRICT No. 4 — HOWARD COUNTY, MARYLAND

Forest Conservation Plan - Offsite Retention

R.M. MOCHI GROUP, P.C.
CIVIL ENGINEERS LAND SURVEYORS
PLANNERS ENVIRONMENTAL
P.O. Box 10
New Market, MD 21774–0010
(301) 865–5858
Fax: (301) 865–5111

F-00-105

SCHEDULE D – STORMWATER MANAGEMENT AREA LANDSCAPING

	SWM Pond 1 (Type B)	SWM Pond 2 (Type B)	SWM Pond 3 (Type B)	TOTAL
Linear Feet of Perimeter	1170	1006	1026	3127
Number of Trees Required/Provided				
Shade Trees	12	13	0	25
Evergreen Trees Provided (1:40')	29	17	26	72
Credit for Existing Veg. (NO, YES and L.F.)	Yes–578 L.F.	Yes–350 L.F.	Yes–1026 L.F.	
Credit for Other Landscaping (NO, YES and L.F.)	NO	NO	NO	

CREDIT IS GIVEN FOR SHADE TREES AND EVERGREEN TREES ARE PROVIDED FOR THE TYPE 'B' BUFFER.

SCHEDULE A – PERIMETER LANDSCAPE EDGE

Perimeter	1	2	3	4	5	6	7	8	9	Total
Category*	*	*	*	*	Adj. to Roadways	Adj. to Roadways	*	*	*	
Landscape Type	A	A	A	A	B	B	A	A	A	
Linear Feet of Perimeter	1461	392	828	397	323	295	819	784	1033	6332
Credit for Existing Vegetation (Yes, Linear Feet)	Yes 1411	Yes 392	Yes 828	Yes 340	No 323	Yes 295	Yes 819	Yes 784	Yes 1033	6225
Net Linear Feet to be Planted	50	0	0	57	323	0	0	0	0	430
Number of Plants Required										
Shade Trees	1	0	0	1	7	0	0	0	0	9
Evergreen Trees (1:40')	0	0	0	0	8	8	0	0	0	16
Shrubs	0	0	0	0	0	0	0	0	0	

* = ADJACENT TO PROPERTIES/PRESERVATION PARCELS UNLESS NOTED OTHERWISE.

PERIMETER 1: LOTS 5, 8, AND 9, MUST RETAIN A MINIMUM 20-FOOT WIDE LANDSCAPE EDGE ADJACENT TO THE BAILEY, MAYNE AND BROWN PROPERTIES.

PERIMETER 7: LOTS 31–35 MUST RETAIN A MINIMUM 20-FOOT WIDE LANDSCAPE EDGE ADJACENT TO THE GORDON PROPERTY.

THE DEVELOPER WILL BE RESPONSIBLE FOR STREET TREE INSTALLATION. FINANCIAL SURETY FOR THE 96 PROPOSED STREET TREES, IN THE AMOUNT OF $ 28,800 IS PART OF THE DEVELOPER'S AGREEMENT.

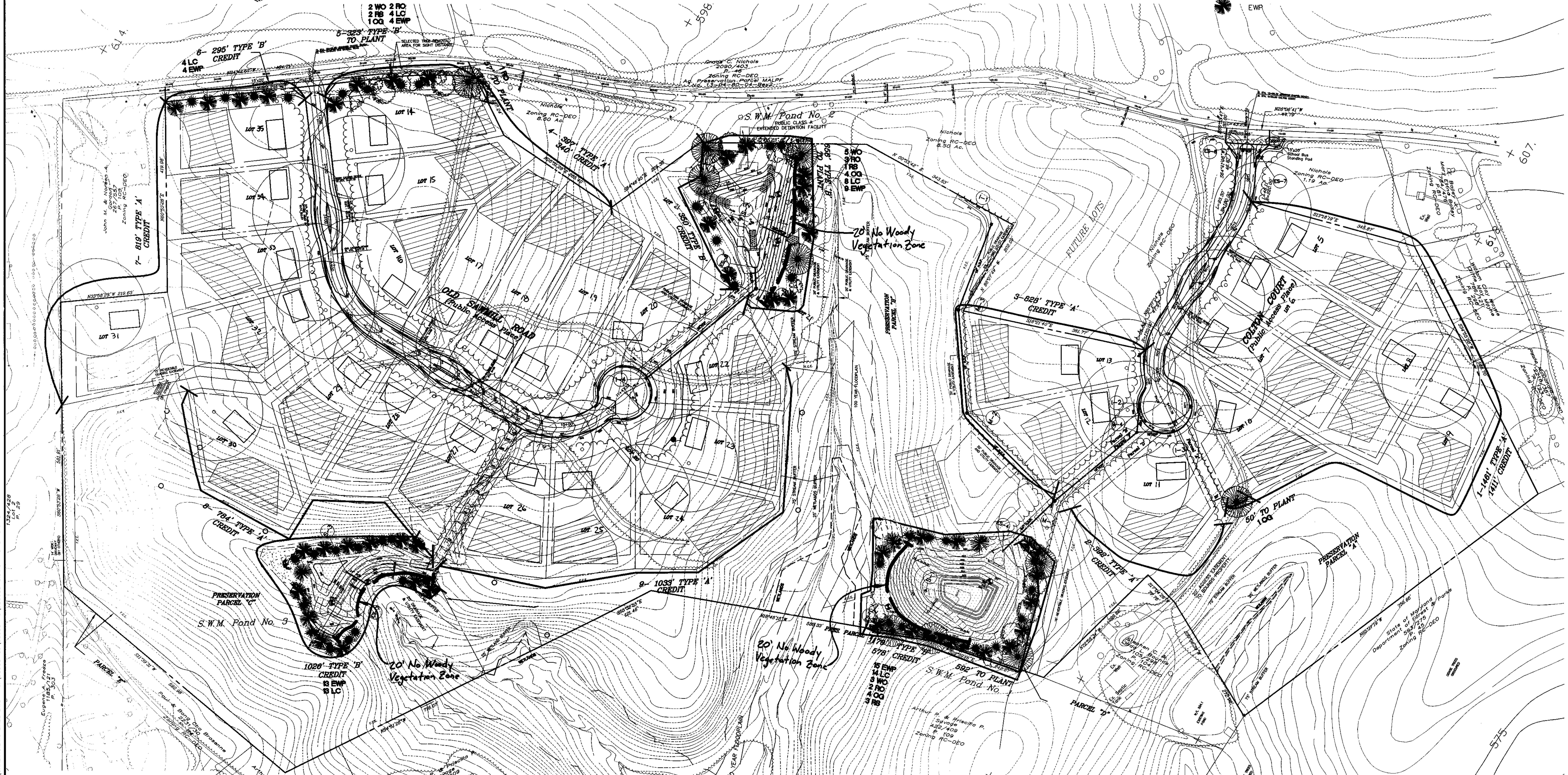
THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL, FINANCIAL SURETY FOR THE REQUIRED 122 LANDSCAPE TREES, IN THE AMOUNT OF $ 23,400 IS PART OF THE DEVELOPER'S AGREEMENT.

LEGEND

RS
OG
WO
RO
LC
EWP

LANDSCAPE SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QT.	COMMENTS
RS	Acer rubrum	RED SUNSET	2 1/2–3" CAL	6	B & B
OG	Acer rubrum	OCTOBER GLORY	2 1/2–3" CAL	10	B & B
WO	Quercus phellos	WILLOW OAK	2 1/2–3" CAL	10	B & B
RO	Quercus rubra	RED OAK	2 1/2–3" CAL	8	B & B
LC	Cuppressocyparis leyland	LEYLAND CYPRESS	5'–6' HT.	43	B & B
EWP	Pinus strobus	EASTERN WHITE PINE	6'–8' HT.	45	B & B
TOTALS				122	



NOTE: ALL LANDSCAPE TREES SHALL BE PLANTED AT LEAST 20' FROM TOE OF POND.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

11-3-00

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

11/13/00

CHIEF, DIVISION OF LAND DEVELOPMENT [redacted] DATE

11/6/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

OWNER

MARSHALL W. NICHOLS
C/O R.M. MOCHI GROUP, P.C.
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NEW MARKET, MD. 21774
(301) 865-5858

ENGINEER/SURVEYOR

R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

NOTE: ALL EFFORTS SHALL BE TAKEN TO MINIMIZE THE REMOVAL OF EX. TREES AROUND THE SWM FACILITIES. IT IS NOT THE INTENT OF THIS PLAN THAT EX. TREES ARE TO BE REMOVED IN ORDER TO PLANT THE LANDSCAPING TREES SPECIFIED. PROP. LANDSCAPING AROUND THE PONDS SHALL BE PLACED ALONG THE LIMITS OF DISTURBANCE THAT IS REQUIRED TO GRADE & CONSTRUCTION THE SWM FACILITIES. THE 20' NO WOODY VEGETATION ZONE AT THE TOE OF THE FACILITIES AS SHOWN SHALL NOT CONTAIN ANY EX. TREES OR PROPOSED LANDSCAPING.

J:\SDSKPROJ\98008-04\CD\DATA\GRADING.DWG BASE DWG = J:\98008-00\98008-13\98008BAS.DWG PS=LAND.DWG

no.	description	date
3	REVISED PER DPZ COMMENTS / MYLAR SUBMITTAL	10/26/00
2	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	7/26/00
1	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	4-28-00
0	SUBMITTED TO HOWARD COUNTY DPZ FOR REVIEW	01-14-2000

revisions

project 98008.04 | date 01-12-00 | illustration KMB | engineering PFB | scale 1"=100' | approval RMM

Tax Map 13, Grid 15, Parcel 46 (p/o)

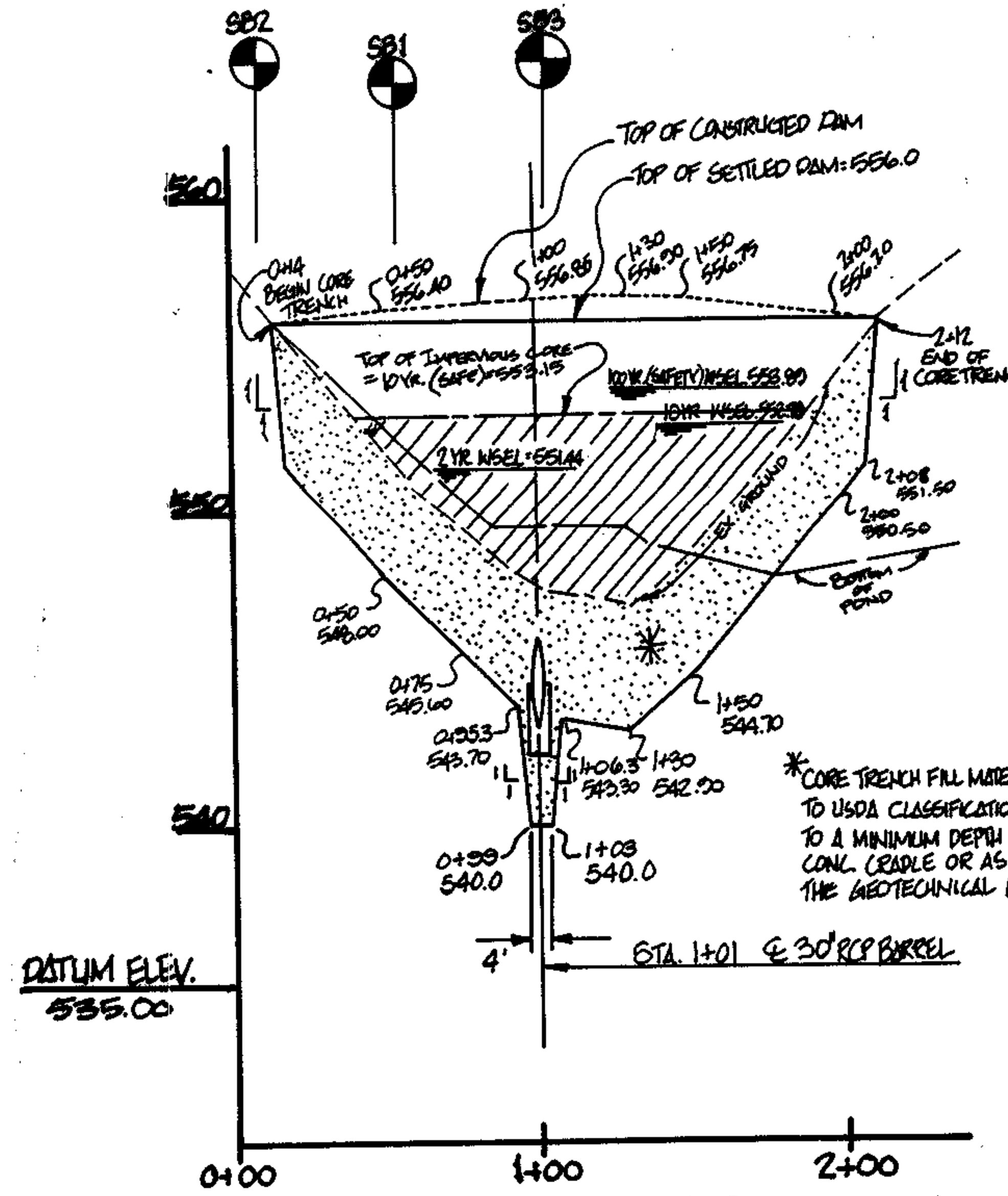
THE WESTWOODS OF CHERRY GROVE

ELECTION DISTRICT No. 4 — HOWARD COUNTY, MARYLAND

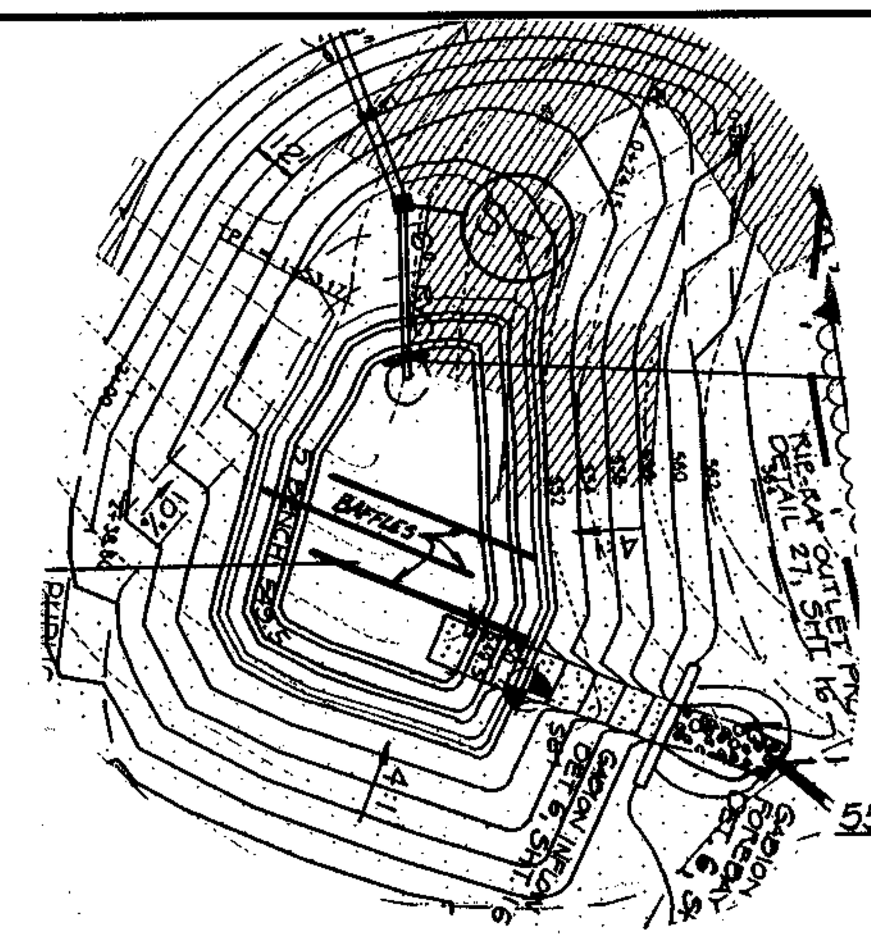
LANDSCAPE PLAN

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

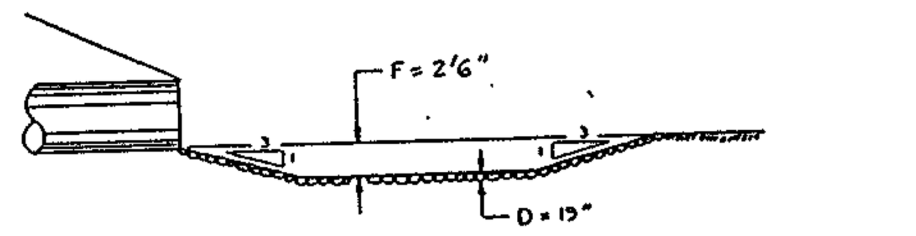
F-00-105



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



SEDIMENT BASIN BAFFLE LAYOUT - POND No. 1

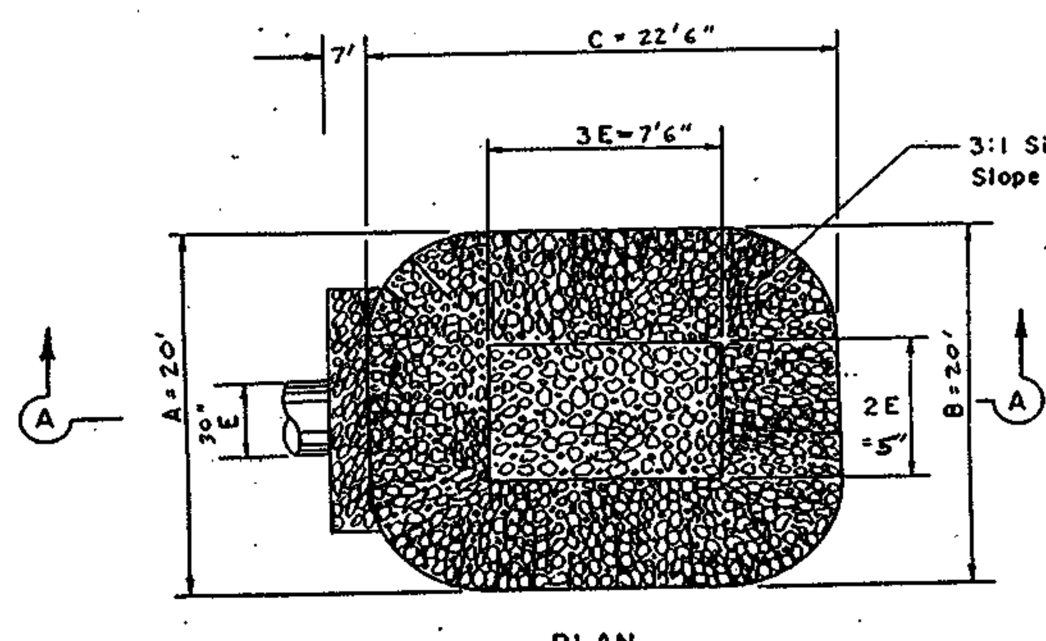


SECTION A-A

NOTES:
1) USE MSHA CLASS I RIP-RAP, d_{50} = 9.5" on CLASS "C" GEOTEXTILE FABRIC
2) CONSTRUCT TO MSHA SPECIFICATIONS

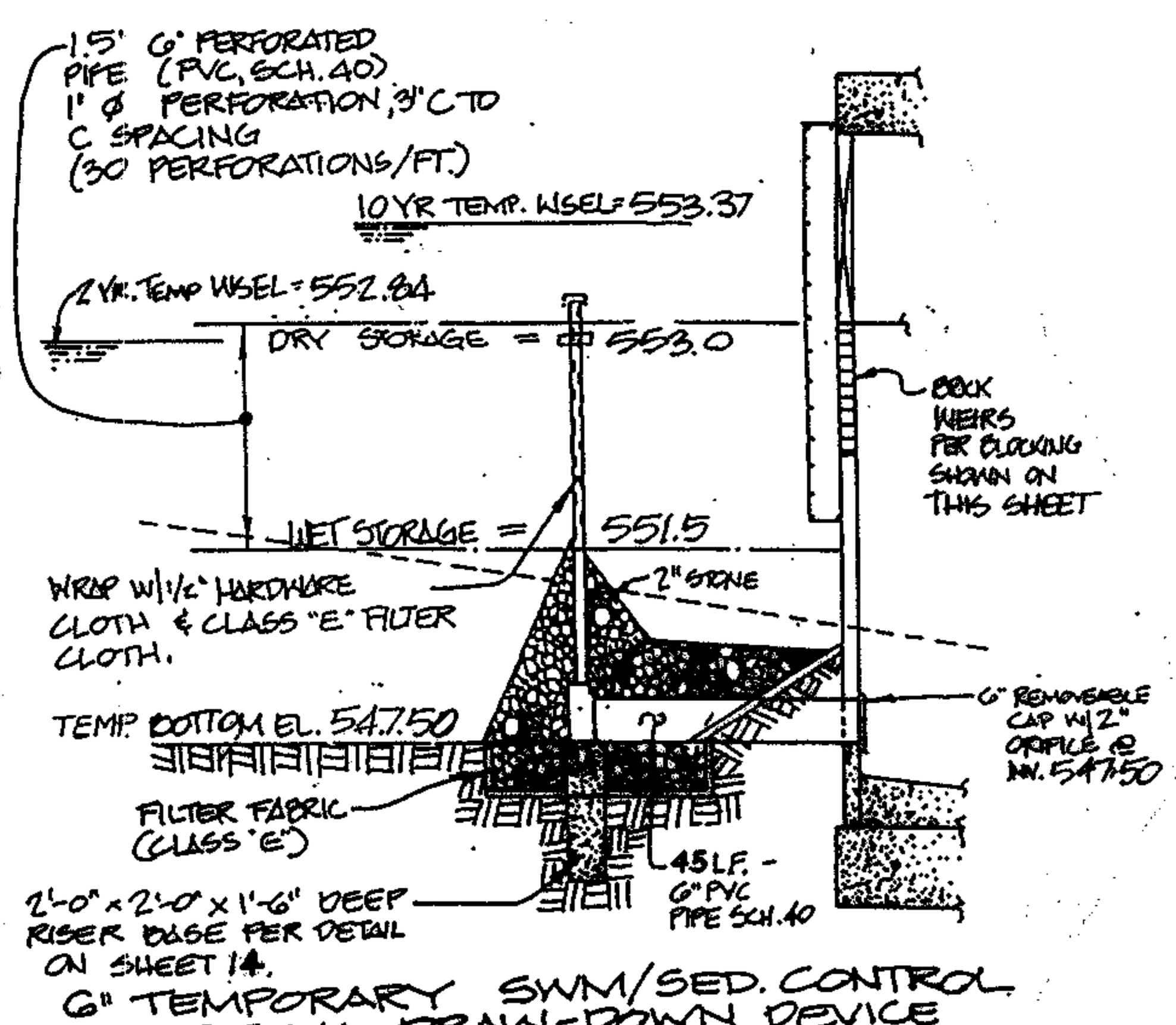
Figure 7- Preformed Scour Hole

MARYLAND STATE HIGHWAY ADMINISTRATION



PLAN

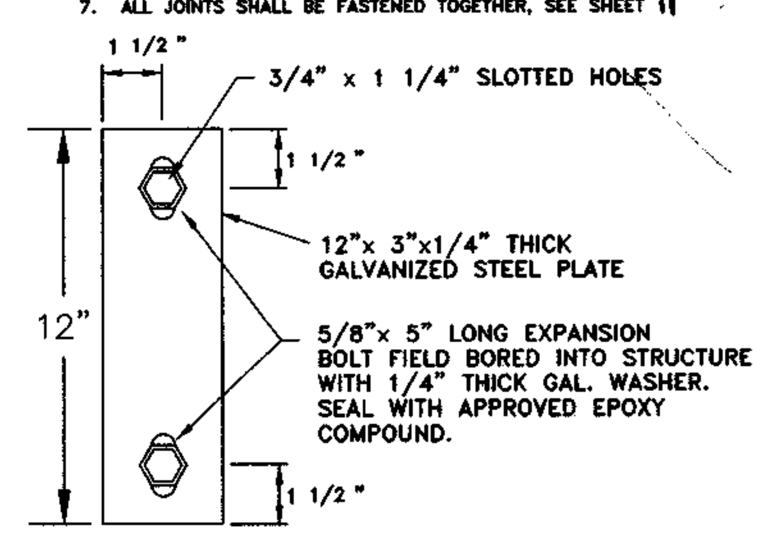
PLUNGE POOL DETAIL
Not To Scale



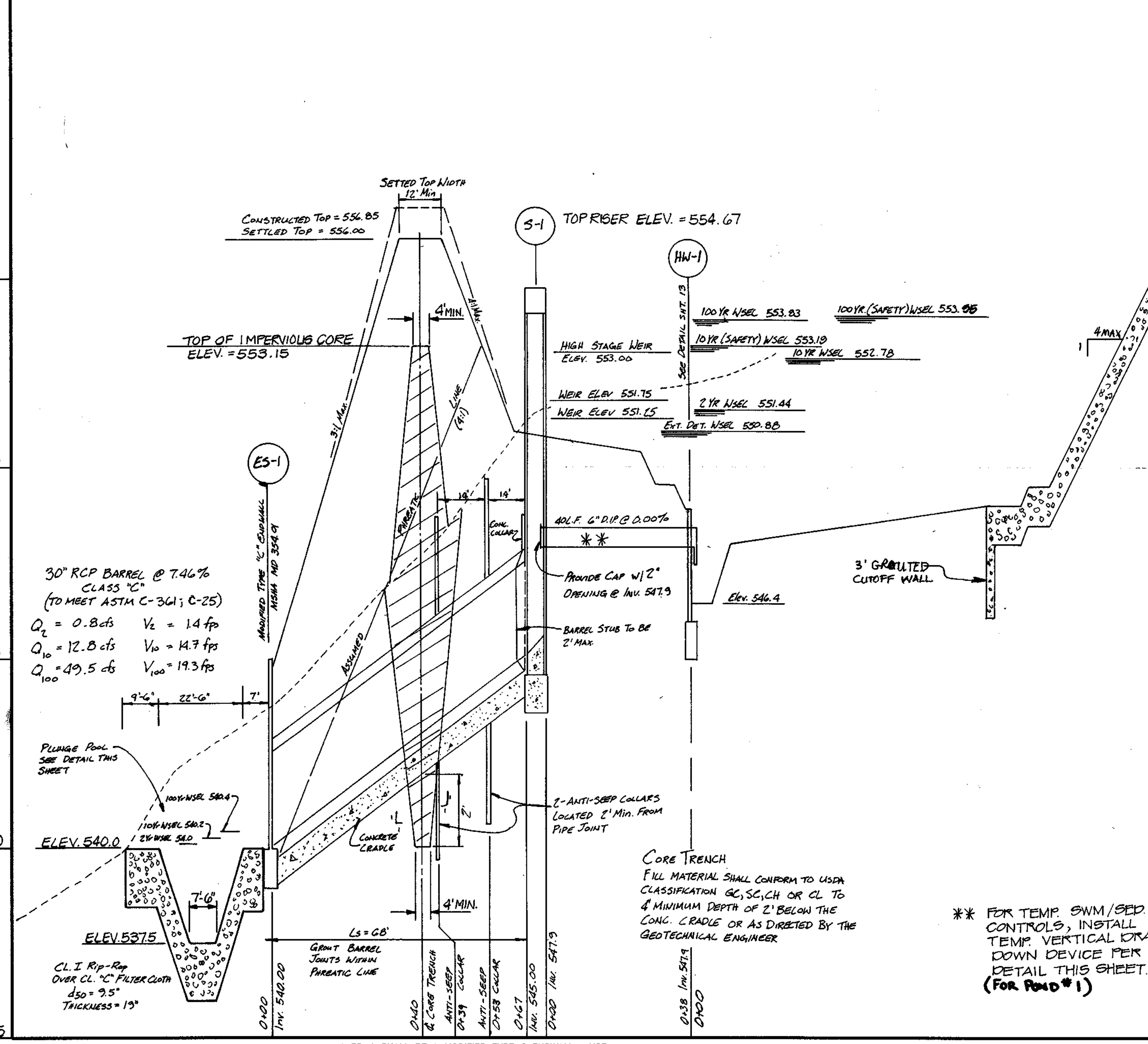
6" TEMPORARY SWM/SED. CONTROL VERTICAL DRAW-DOWN DEVICE
POND # 1
NOT TO SCALE

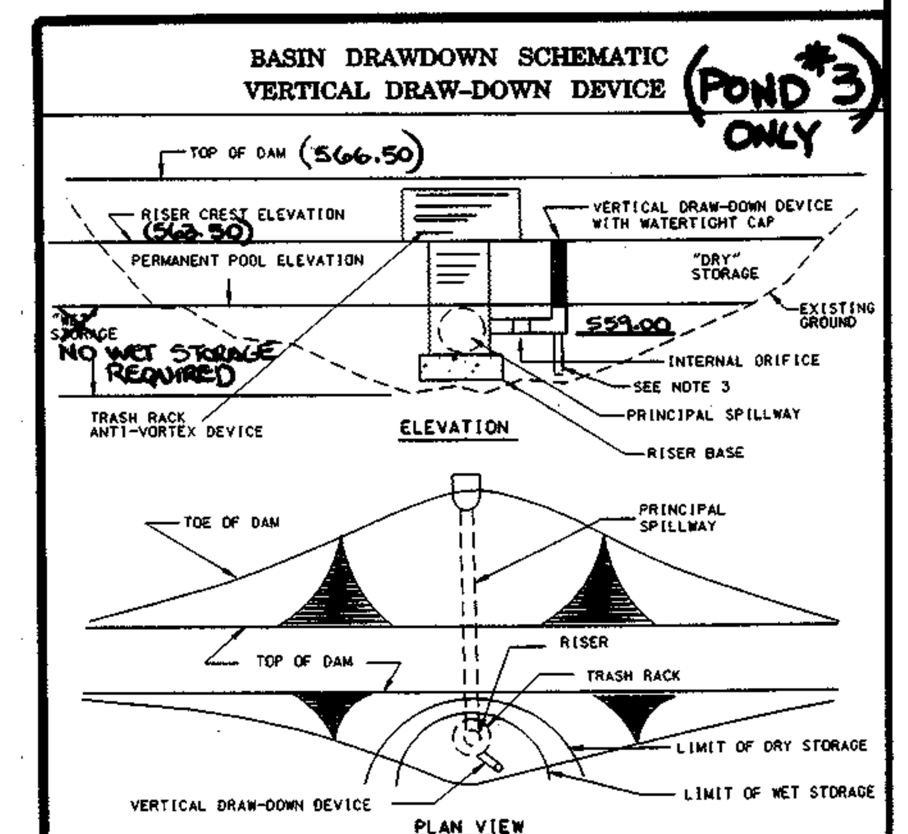
RISER STRUCTURE GENERAL NOTES:

1. PRECAST RISER AND TOP SLAB TO BE MANUFACTURED AND SUPPLIED BY FREDERICK PRECAST CONCRETE, INC. OR APPROVED EQUIVALENT.
2. SHOP DRAWINGS FOR RISER AND TOP SLAB MUST BE REVIEWED BY THE ENGINEER OF RECORD.
3. IF ANY DIMENSIONS ARE CHANGED OR REDUCED, REVISED ANTI-FLOTATION COMPUTATION MUST BE SUBMITTED WITH THE SHOP DRAWINGS TO HOWARD COUNTY FOR APPROVAL.
4. TRASH RACKS ARE NOT SHOWN IN THIS VIEW FOR CLARITY.
5. THE RISER STRUCTURE SHOWN IS NOT TO SCALE SEE THIS SHEET FOR ACTUAL DIMENSIONS.
6. PRECASTER SHALL ENSURE THAT RISER STRUCTURE JOINTS ARE WATERTIGHT (JOINTS SHALL INCLUDE RUBBER GASKET). RISER JOINTS THAT WILL BE BURIED SHALL BE WRAPPED IN CLASS C FILTER FABRIC 1' ON EACH SIDE OF JOINT, OVERLAP 1' MIN.
7. ALL JOINTS SHALL BE FASTENED TOGETHER, SEE SHEET 11



RISER JOINT FASTENER
(NOT TO SCALE)





Construction Specifications

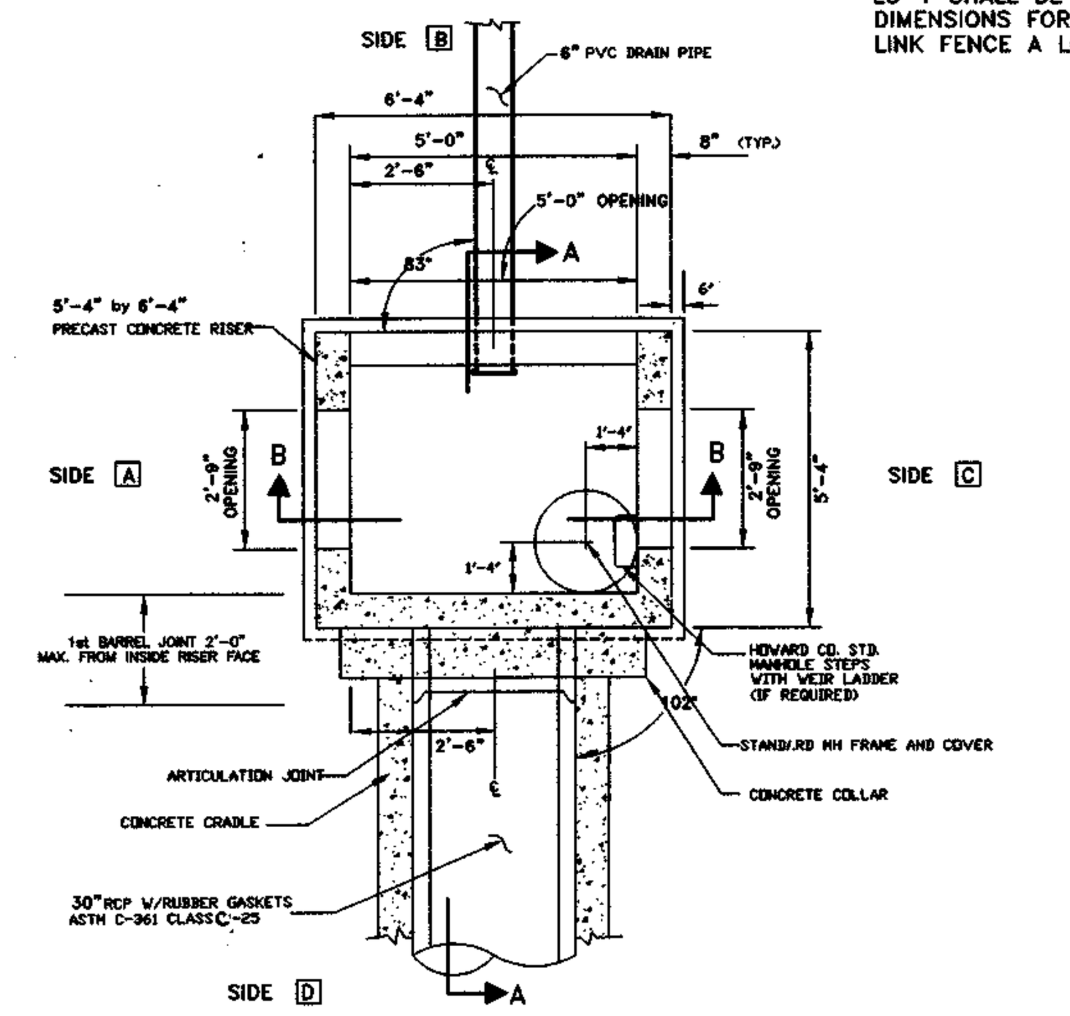
1. Perforations in the draw-down device may not extend into the wet storage.
2. The total area of the perforations must be greater than 2 times the area of the internal orifice.
3. The perforated portion of the draw-down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
4. Provide support of draw-down device to prevent sagging and floatation. 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 guage minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 10 - 30	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

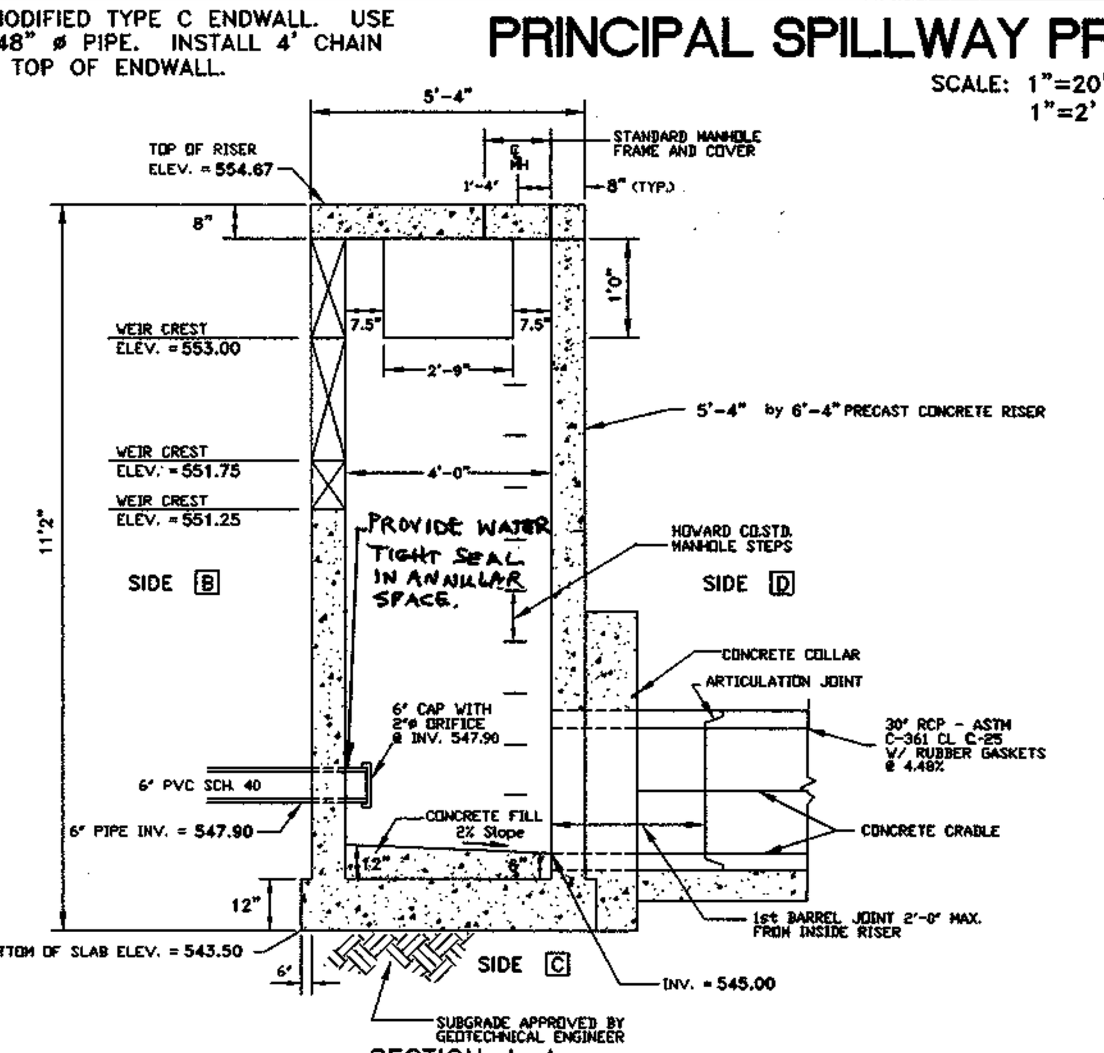
* ES-1 SHALL BE A MODIFIED TYPE C ENDWALL. USE DIMENSIONS FOR A 48" Ø PIPE. INSTALL 4' CHAIN LINK FENCE A LONG TOP OF ENDWALL.

PRINCIPAL SPILLWAY PROFILE FOR S.W.M. POND NO.1

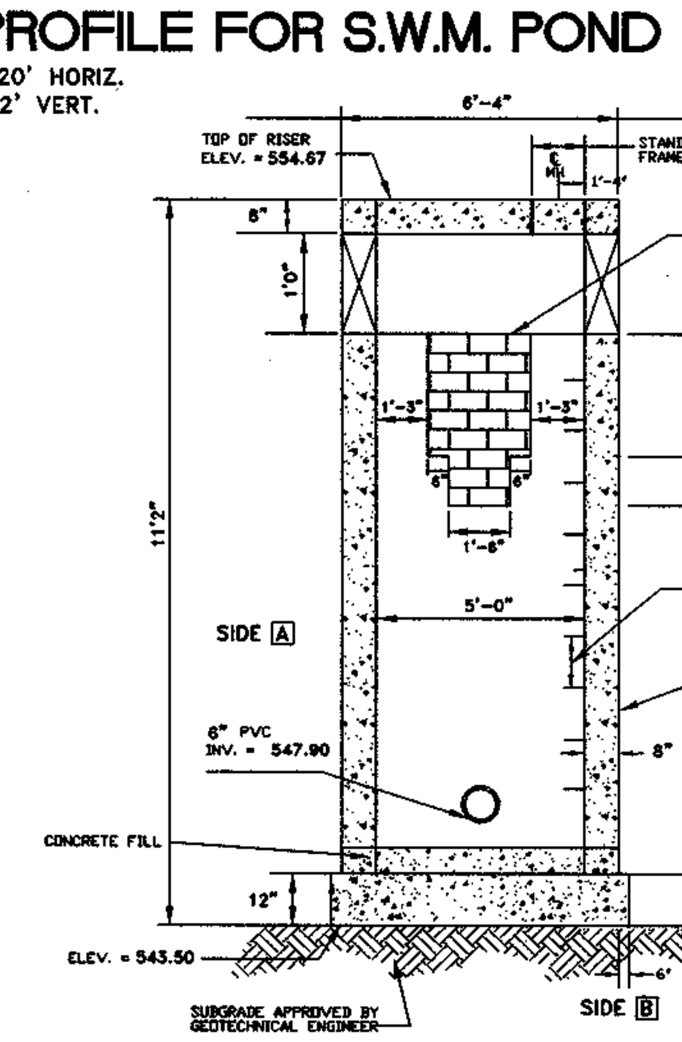
SCALE: 1"=20' HORIZ.
1"=2' VERT.



PLAN VIEW
(NOT TO SCALE)
POND 1



SECTION A-A
(NOT TO SCALE)
POND 1



SECTION B-B
(NOT TO SCALE)
POND 1

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11-3-00

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/13/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/6/00

OWNER
MARSHALL W. NICHOLS
C/O R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

ENGINEER/SURVEYOR:
R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

APPROVED:
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 10/20/00

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.
USDA NATIONAL RESOURCES CONSERVATION SERVICE — DATE 10/20/00

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.
Signature of Developer — DATE 10/11/00

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. — DATE 10/13/00

project	date
98008.13	1-10-00
illustration	engineering
JMZ	PFB
scale	approved
AS SHOWN	RMM

no.	description	date
3	REVISED PER DPZ COMMENTS/MYLAR SUBMITTAL	11/06/00
2	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	7-26-00
1	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	4-28-00
0	SUBMITTED TO HOWARD COUNTY DPZ FOR REVIEW	1-14-00

revisions

THE WESTWOODS OF CHERRY GROVE

ELECTION DISTRICT No. 4 — HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT DETAILS

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

F-00-105

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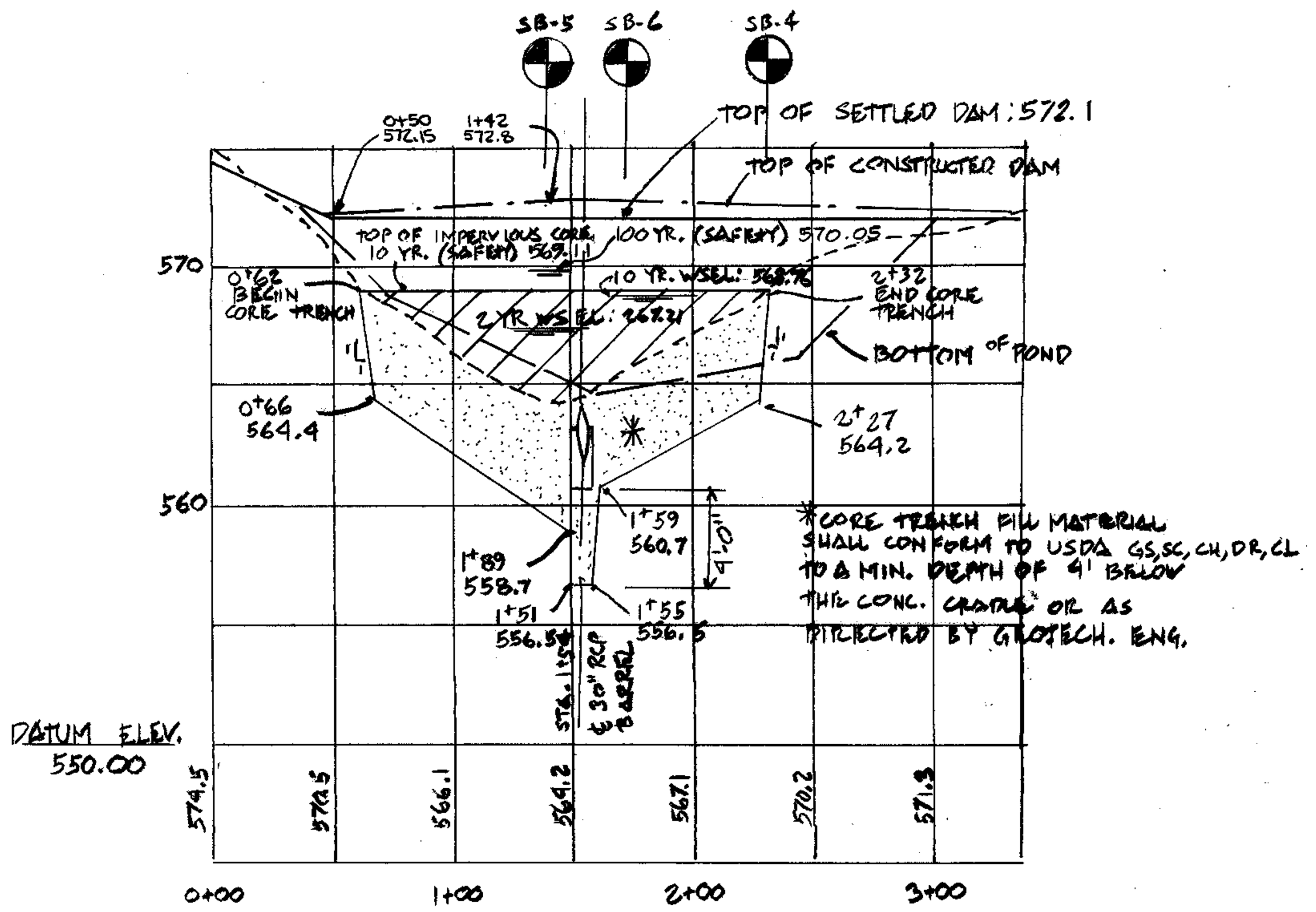
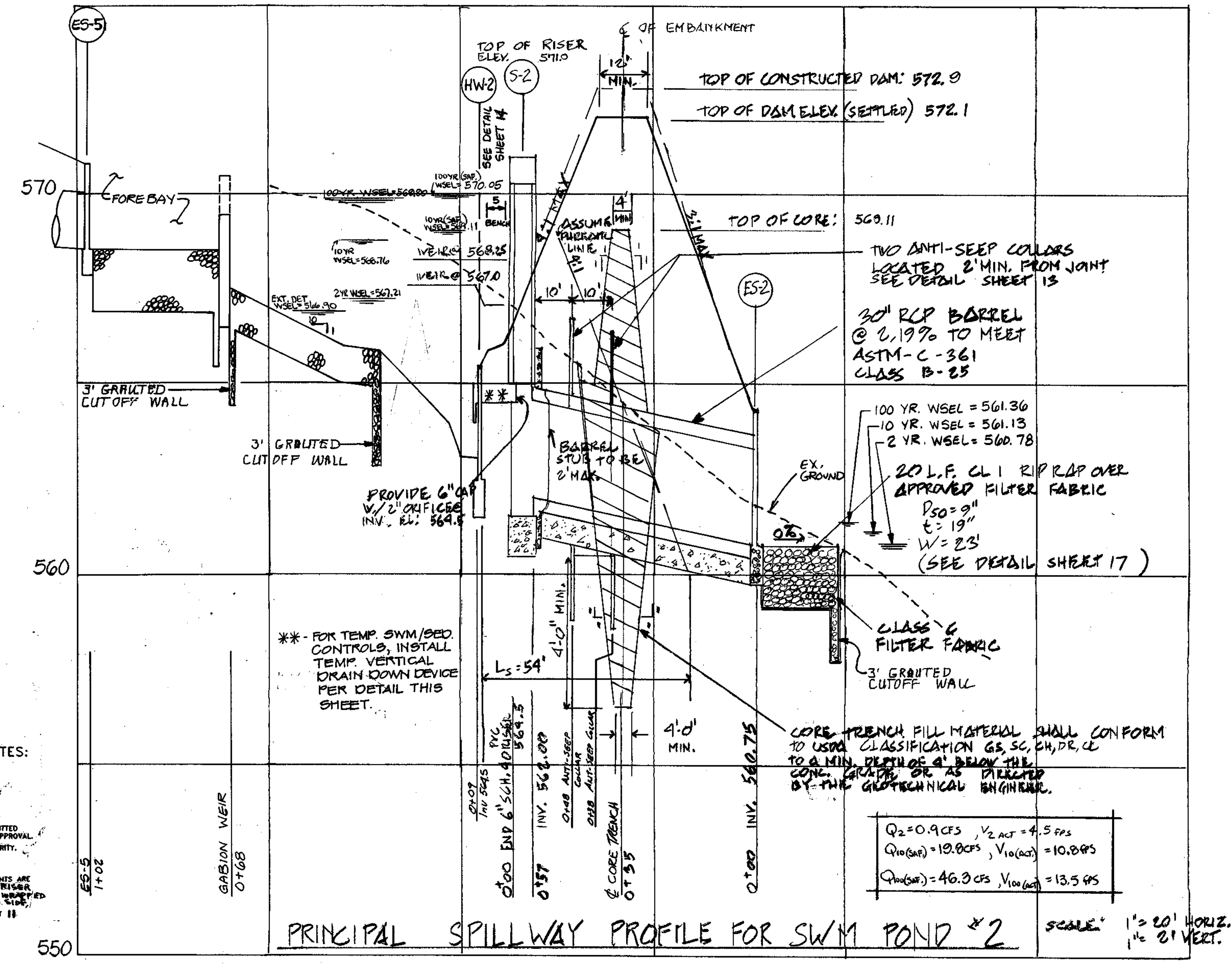


POND 2

PROFILE ALONG CL TOP OF DAM

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



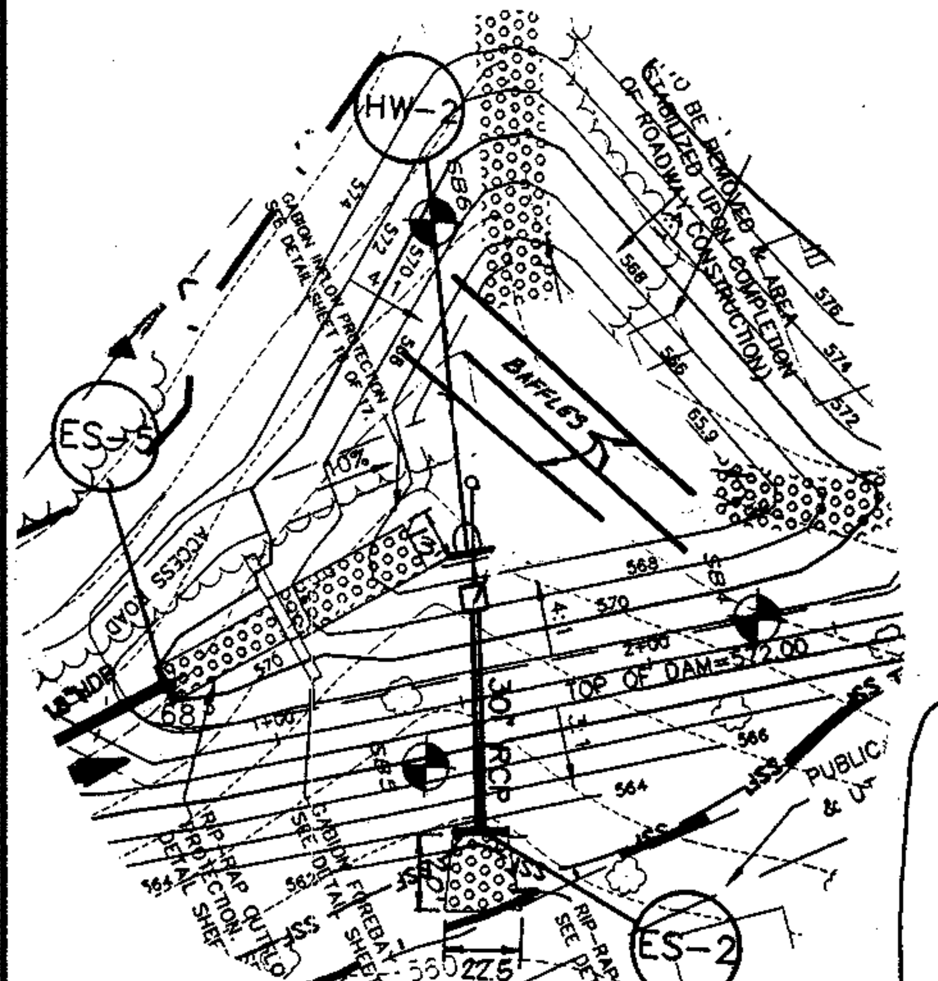
$Q_2 = 0.9$ CFS, $V_{2\,ACT} = 4.5$ FPS
$Q_{10(SAF)} = 19.8$ CFS, $V_{10(ACT)} = 10.8$ FPS
$Q_{100(SAF)} = 46.3$ CFS, $V_{100(ACT)} = 13.5$ FPS

PRINCIPAL SPILLWAY PROFILE FOR SWM POND #2

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

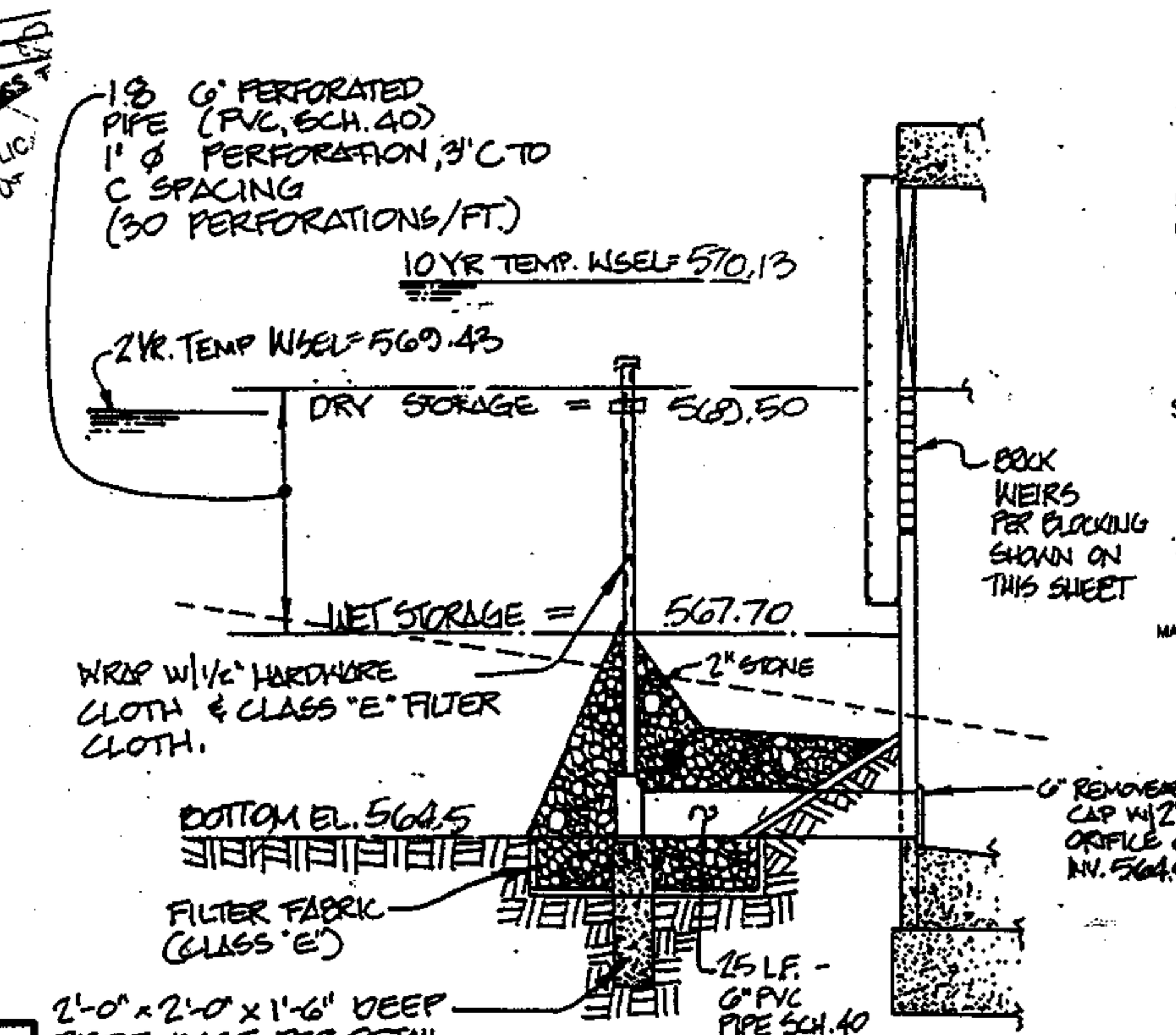
RISER STRUCTURE GENERAL NOTES:

1. PRECAST RISER AND TOP SLAB TO BE MANUFACTURED AND SUPPLIED BY FREDERICK PRECAST CONCRETE, INC. OR APPROVED EQUIVALENT.
2. SHOP DRAWINGS FOR RISER AND TOP SLAB MUST BE REVIEWED BY THE ENGINEER OF RECORD.
3. IF ANY DIMENSIONS ARE CHANGED OR REDUCED, REVISED ANTI-FLOTATION COMPUTATION MUST BE SUBMITTED WITH THE SHOP DRAWINGS TO HOWARD COUNTY FOR APPROVAL.
4. TRASH RACKS ARE NOT SHOWN IN THIS VIEW FOR CLARITY.
5. THE RISER STRUCTURE SHOWN IS NOT TO SCALE. SEE THIS SHEET FOR ACTUAL DIMENSIONS.
6. PRECASTER SHALL ENSURE THAT RISER STRUCTURE JOINTS ARE WATERTIGHT (JOINTS SHALL INCLUDE RUBBER GASKET). RISER JOINTS THAT [illegible] SHALL BE WRAPPED WITH CLASS [illegible] FILTER FABRIC, 1' ON EACH SIDE, JOINT OVERLAP 1' MIN.
7. ALL JOINTS SHALL BE [illegible] TOGETHER. SEE SHEET 11.

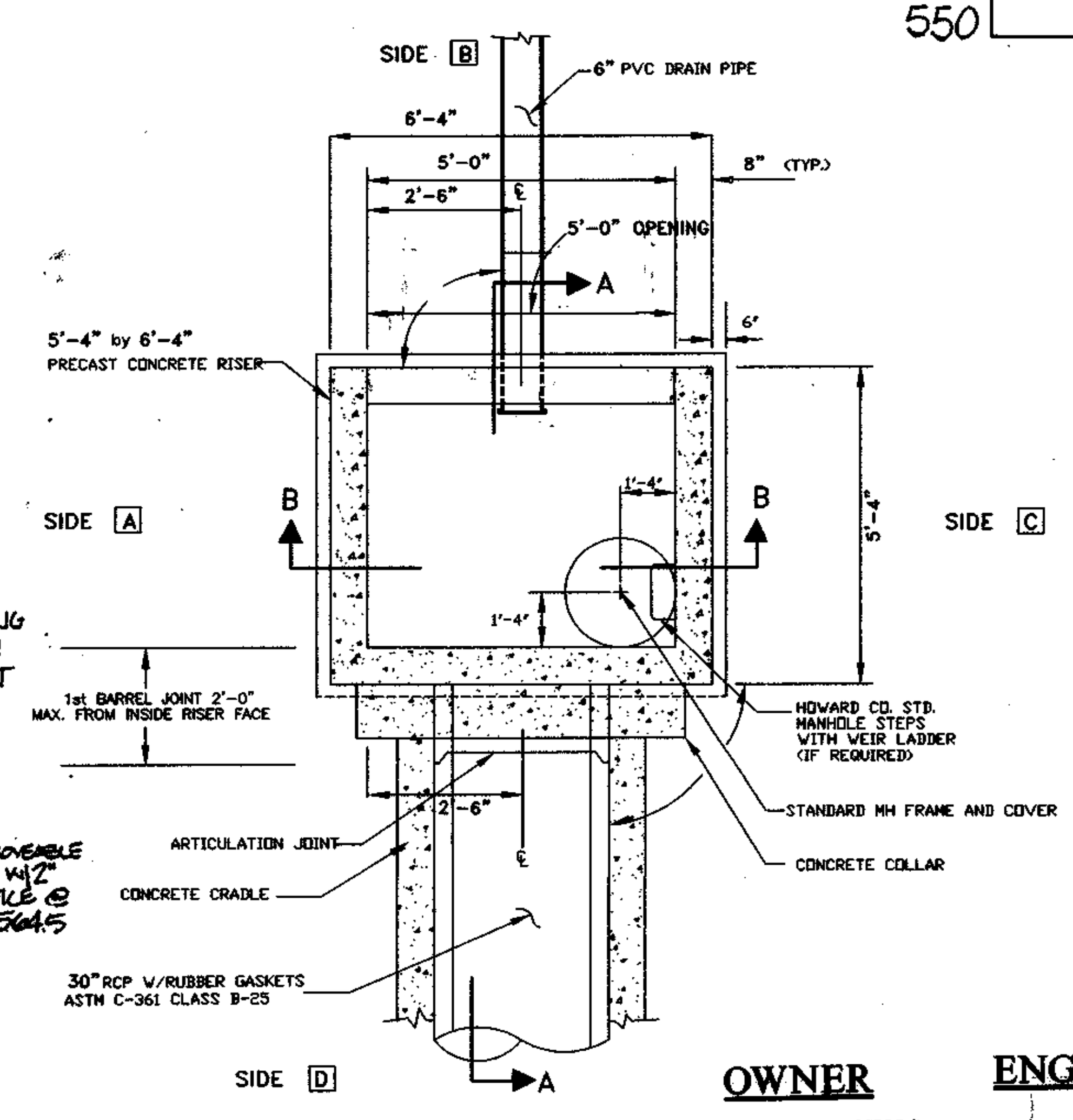


NORMAL POOL ELEV. 566.9
A = NORMAL POOL AREA 7434 #
D = 74'
We = A/D = 7434/74 = 100'
Le/We ≥ 2 Le/100 ≥ 2 Le ≥ 200'
Le = 88' + 70' + 55' + 35' = 248' ✓
SEE SEDIMENT BASIN BAFFLE DETAIL SHEET 14 of 18

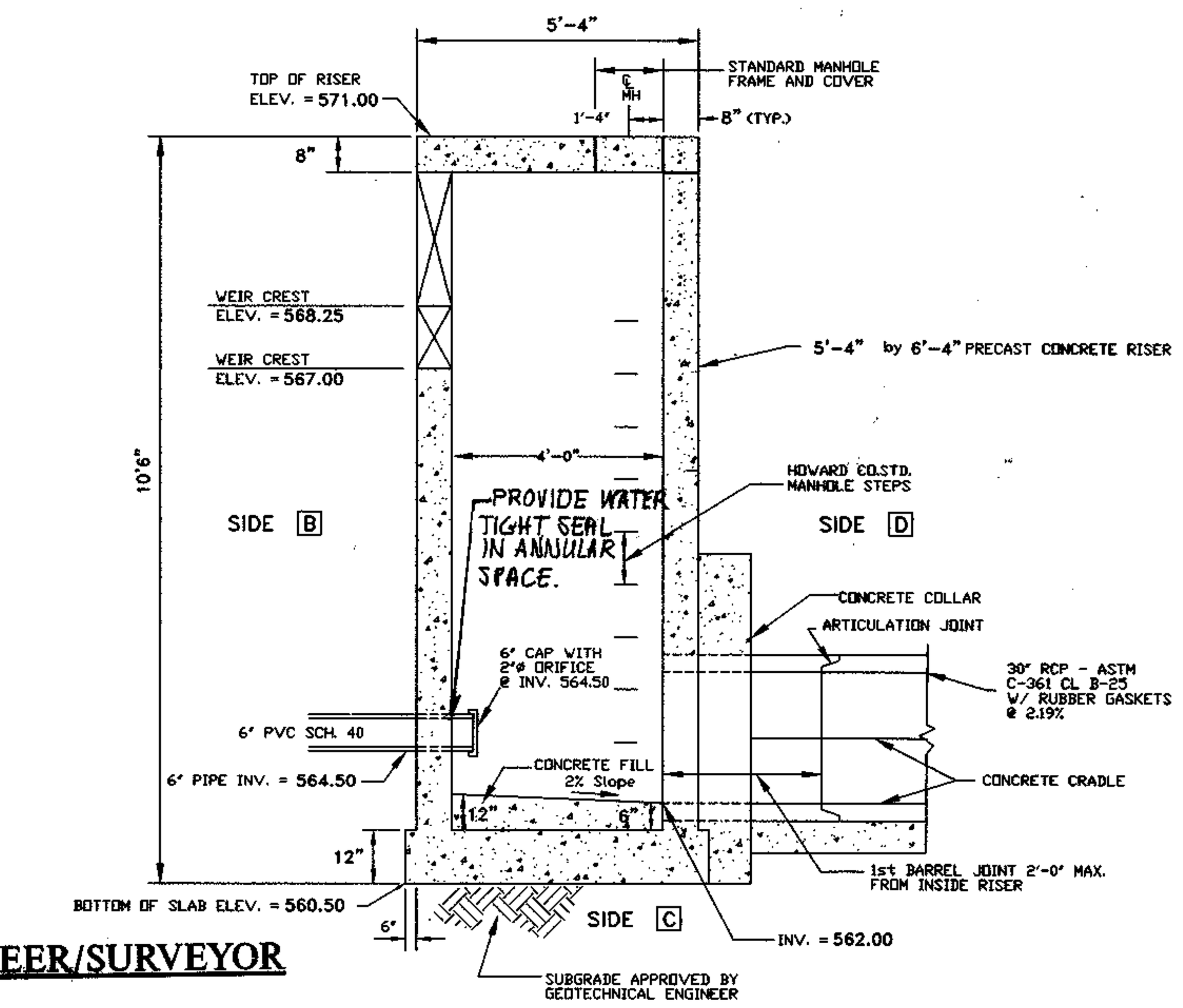
SEDIMENT BASIN BAFFLE LAYOUT - POND No. 2



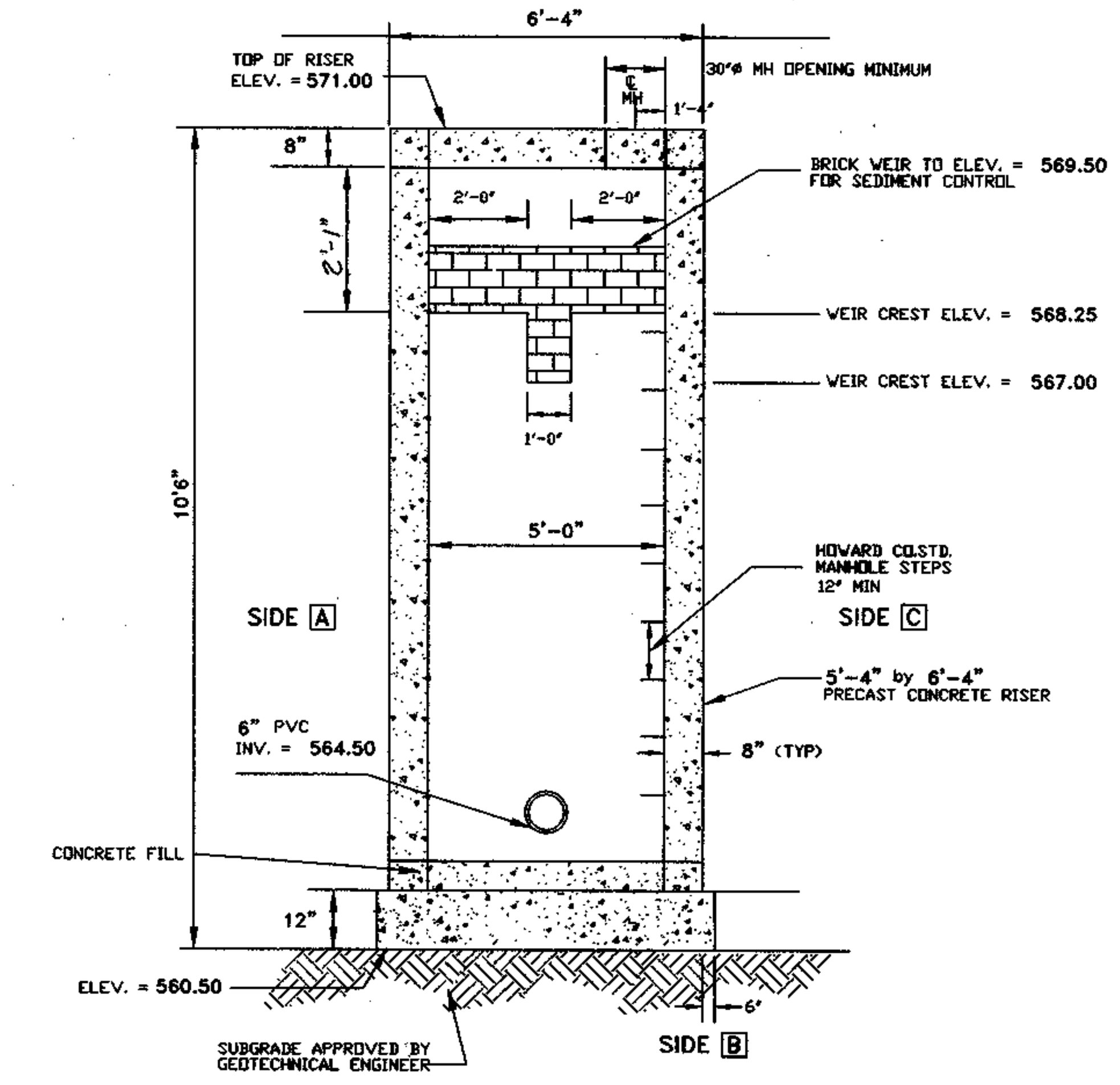
6" TEMPORARY SWM/SED. CONTROL VERTICAL DRAW-DOWN DEVICE
POND #2
NOT TO SCALE



PLAN VIEW
(NOT TO SCALE)
POND 2



SECTION A-A
(NOT TO SCALE)
POND 2



SECTION B-B
(NOT TO SCALE)
POND 2

OWNER

MARSHALL W. NICHOLS
C/O R.M. MOCHI GROUP, P.C.
P.O.BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

ENGINEER/SURVEYOR

R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
11-3-00
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
11/14/00
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
11/6/00
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.
10/20/00
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 EROISION AND SEDIMENT CONTROL.
J.G. Warfield /acs. 10/20/00
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 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.
10/16/00
Signature of Developer — DATE

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.
10/13/00
Robert M. Mochi, P.E. — DATE

project	date
98008.13	1-10-00
illustration	engineering
JMZ	PFB
scale	approval
AS SHOWN	RMM

no.	description	date
3	REVISED PER DPZ COMMENTS / MYLAR SUBMITTAL	10/06/00
2	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	7-24-00
1	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	4-28-00
0	SUBMITTED TO HOWARD COUNTY DPZ FOR REVIEW	1-14-00

revisions

THE WESTWOODS OF CHERRY GROVE

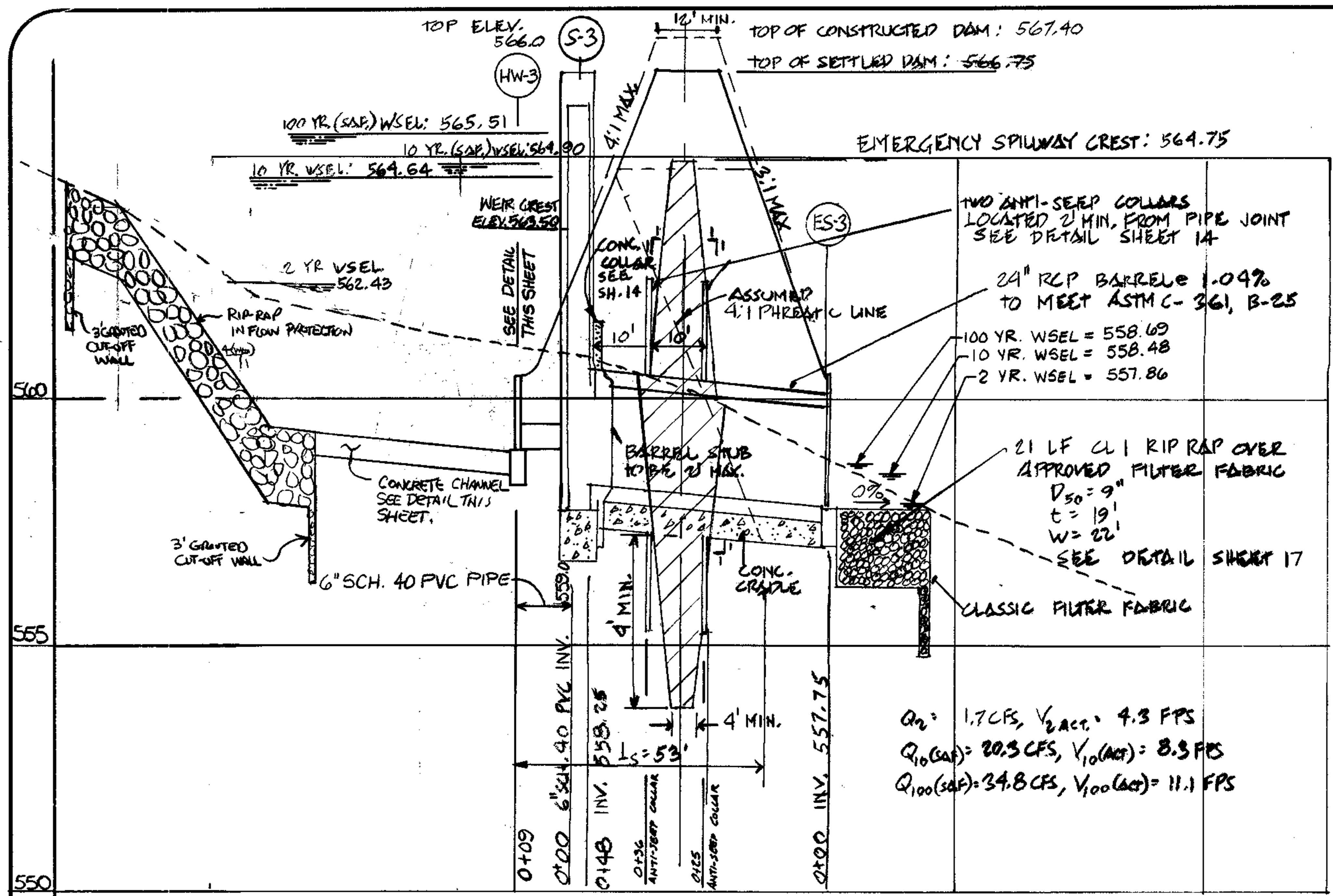
ELECTION DISTRICT No. 4 — HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT DETAILS

R.M. MOCHI GROUP, P.C.
CIVIL ENGINEERS, LAND SURVEYORS, PLANNERS, ENVIRONMENTAL
P.O. Box 10
New Market, MD 21774-0010
[redacted]
(301) 865-5858
Fax: (301) 865-5111

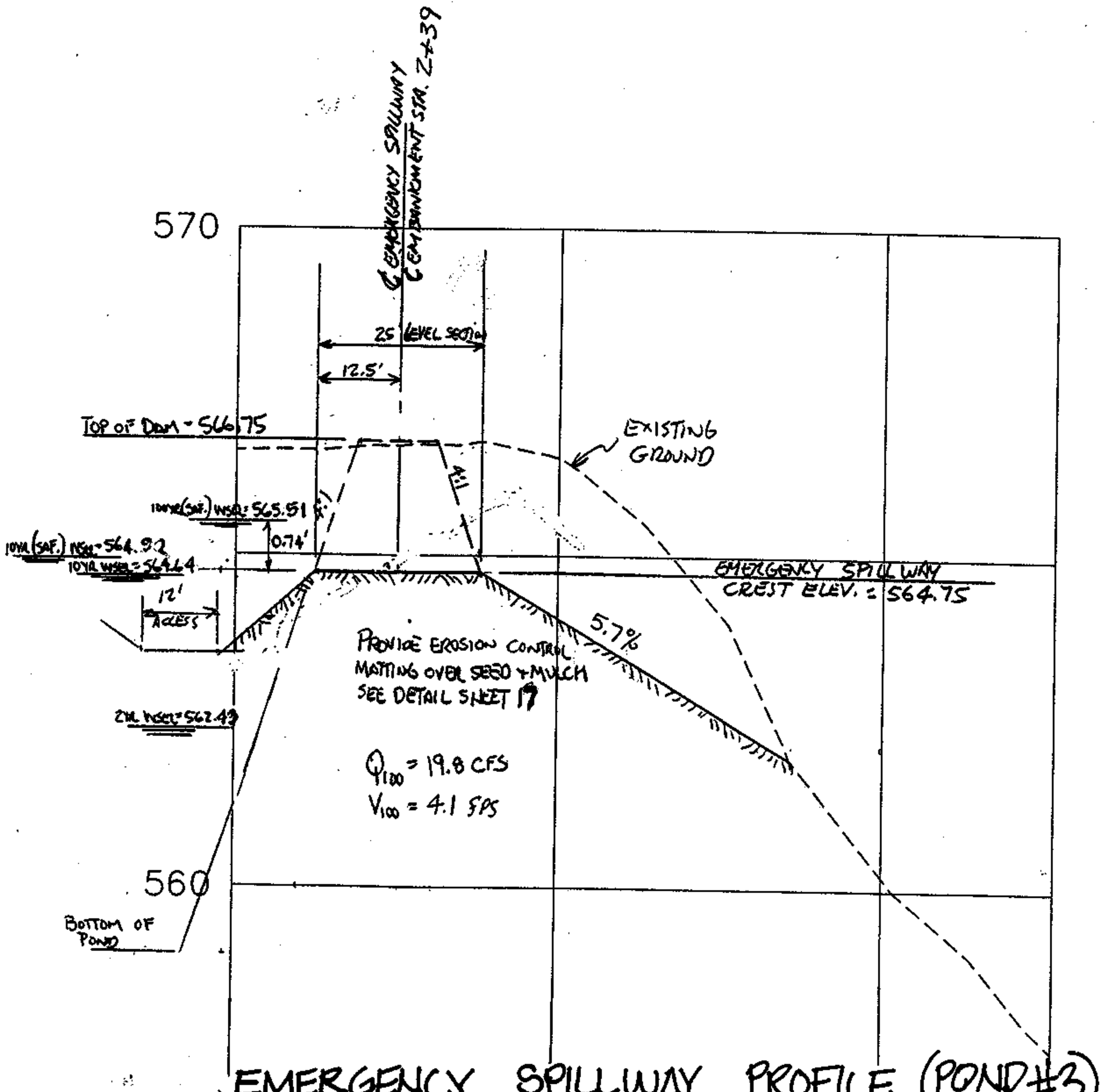
F-00-105

J:\98008-00\98008-13\RISER-DET2.DWG



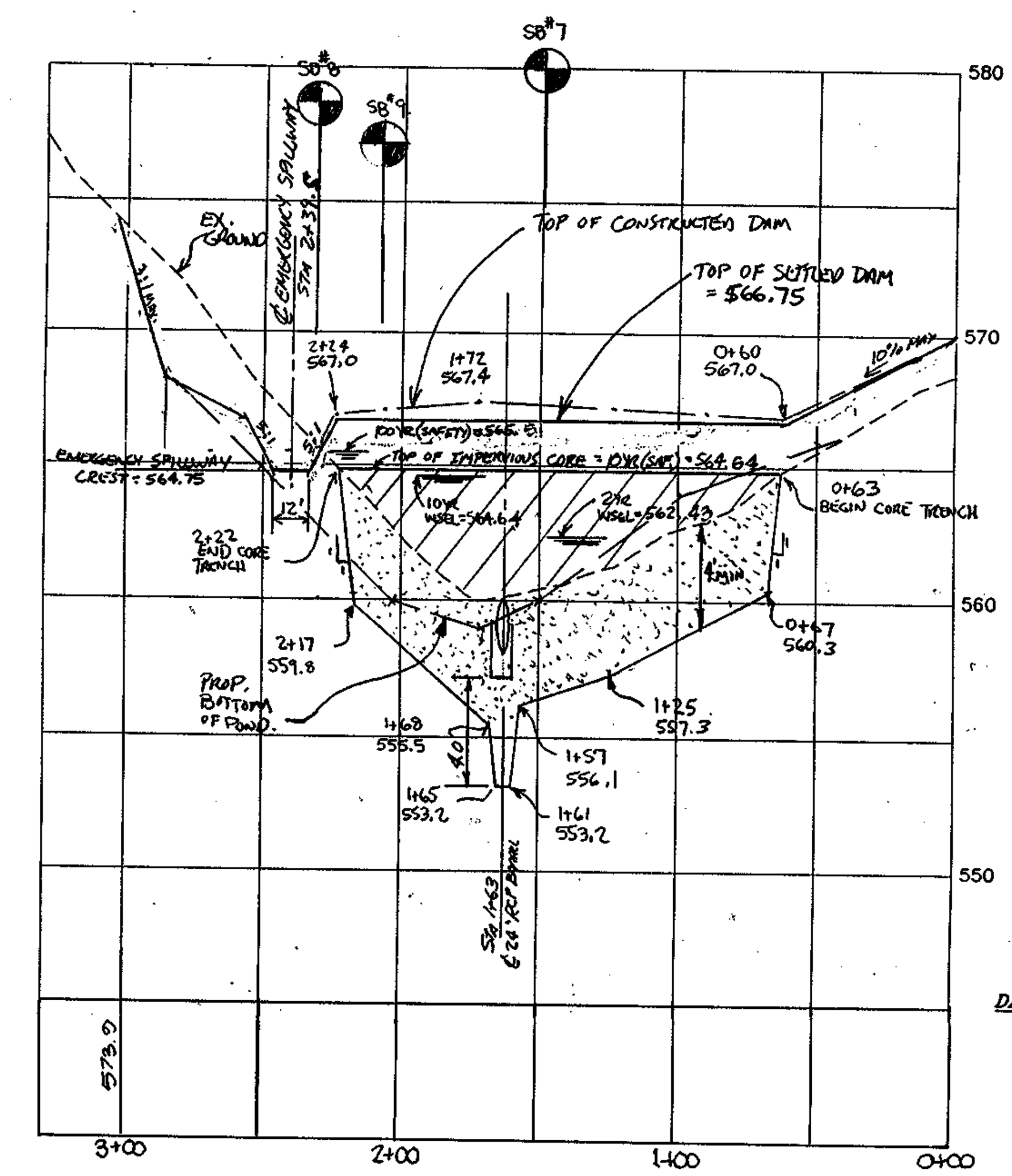
PRINCIPAL SPILLWAY PROFILE FOR POND #3

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



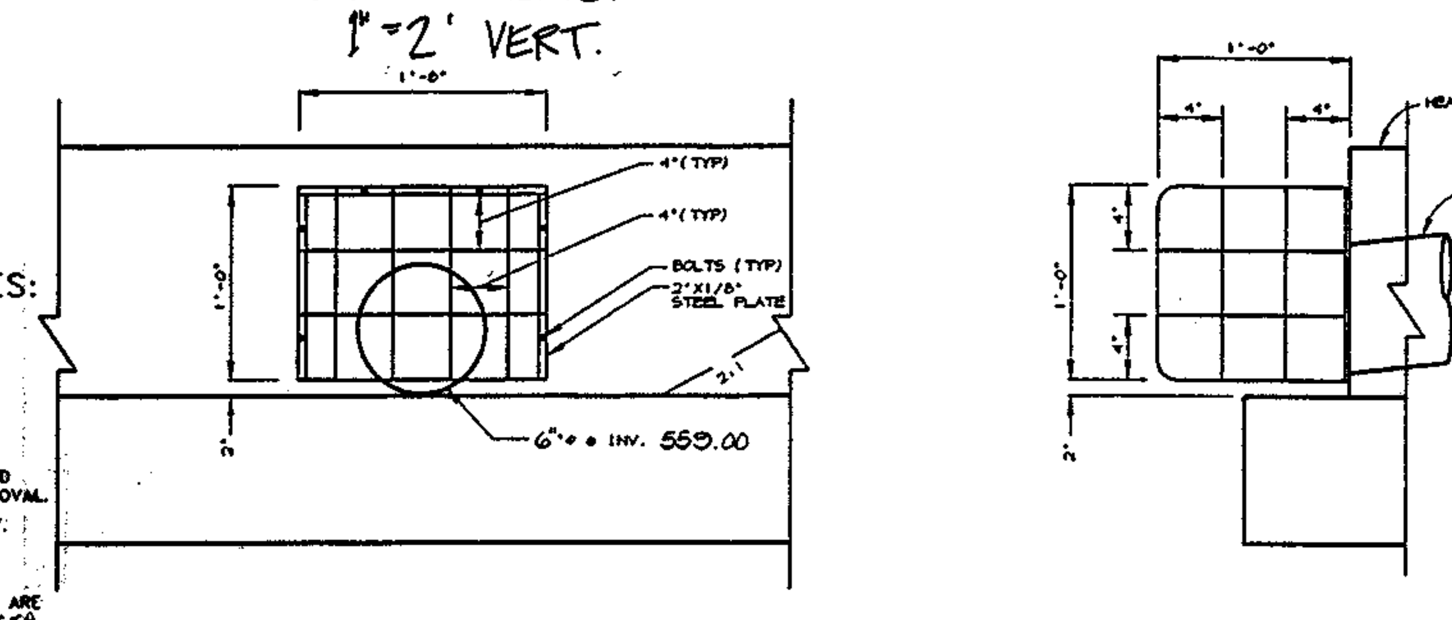
EMERGENCY SPILLWAY PROFILE (POND #3)

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



PROFILE ALONG ℄ OF EMBANKMENT POND #3

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

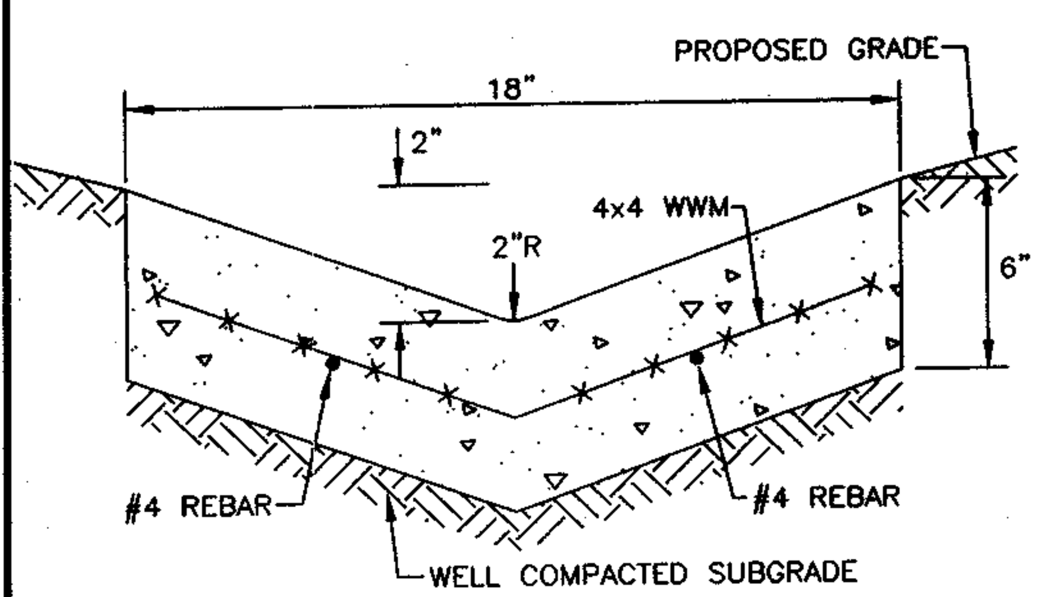


FRONT VIEW

PROFILE

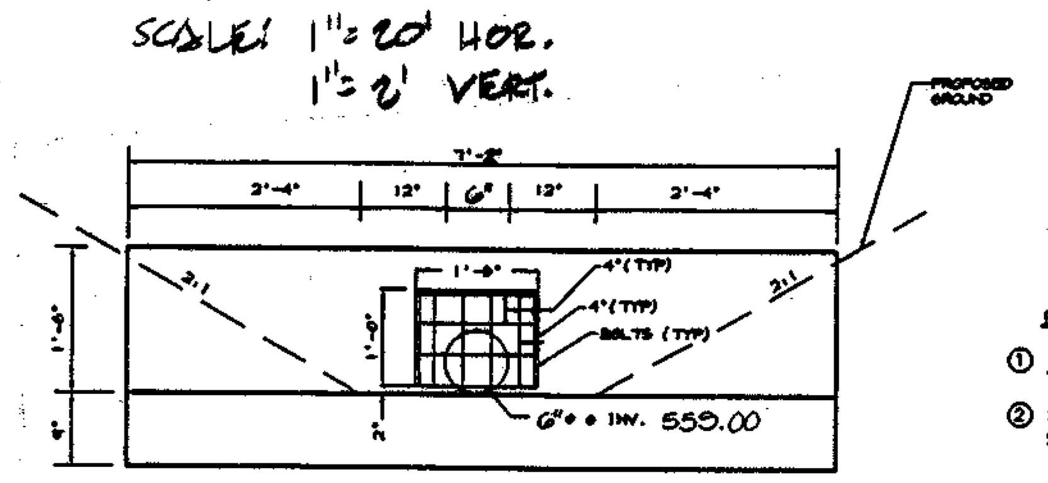
NOTES

1. USE MIX No. 2 CONCRETE.
2. PROVIDE JOINTS AT 12 FT. INTERVALS. INSTALL JOINTS WITH 1/2" ASPHALT EXPANSION MATERIAL AND TWO (2) 2' LONG SMOOTH #4 REBAR. EMBED REBAR 1' INTO EACH SEGMENT AND COAT 1 SIDE WITH GREASE.
3. SURFACE TO HAVE SMOOTH FINISH.
4. CONCRETE SHALL BE CURED (MAINTAIN MOISTURE) FOR 2 DAYS MINIMUM AFTER POUR.
5. PLACE 4x4 WELDED WIRE MESH WITH 2" COVER.
6. SUBGRADE SHALL BE DRY AND COMPACTED PRIOR TO POUR.
7. CHANNEL SLOPE SHALL BE 1% MINIMUM AT ALL LOCATIONS.



CONCRETE LOW FLOW CHANNEL

NOT TO SCALE



ENDWALL NOTES

① MODIFIED LENGTH & HEIGHT TYPE "C" HEADWALL

② SEE HOWARD COUNTY STANDARD SD5.21 FOR DETAILS NOT SHOWN.

HW-3 HEADWALL DETAIL W/ REMOVABLE TRASH RACK

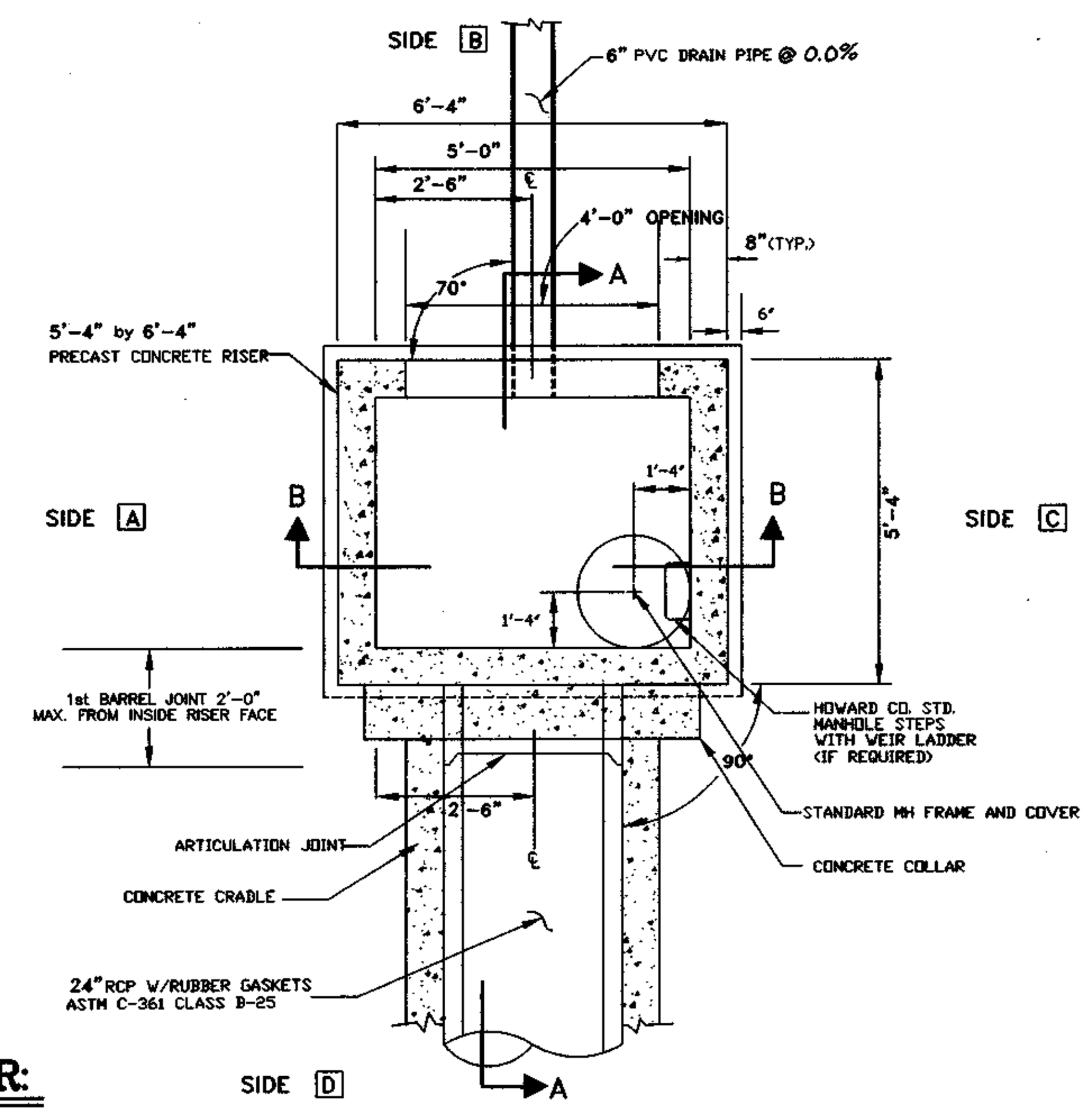
NOT TO SCALE

REMOVABLE TRASH RACK NOTES

1. TRASH RACK SHALL BE ENTIRELY COVERED BY 1/2" GALVANIZED HARDWARE CLOTH. SECURELY FASTEN HARDWARE CLOTH TO ALL TRASH RACK SURFACES. (TOP AND SIDE)
2. STEEL TO CONFORM TO ASTM A-36. #5 BARS TO BE SMOOTH. SEE DETAILS FOR SPACING.
3. ALL BENDS TO BE 2" RADIUS. 2" X 1/8" STEEL PLATE AND 1/2" DIAMETER ANCHOR BOLTS TO BE USED FOR TRASH RACK FRAME.
4. GALVANIZE TRASH RACK AFTER FABRICATION AND AND PAINT BATTLESHIP GRAY (2 Coats)
5. TRASH RACK SHALL PROTRUDE 1'.

RISER STRUCTURE GENERAL NOTES:

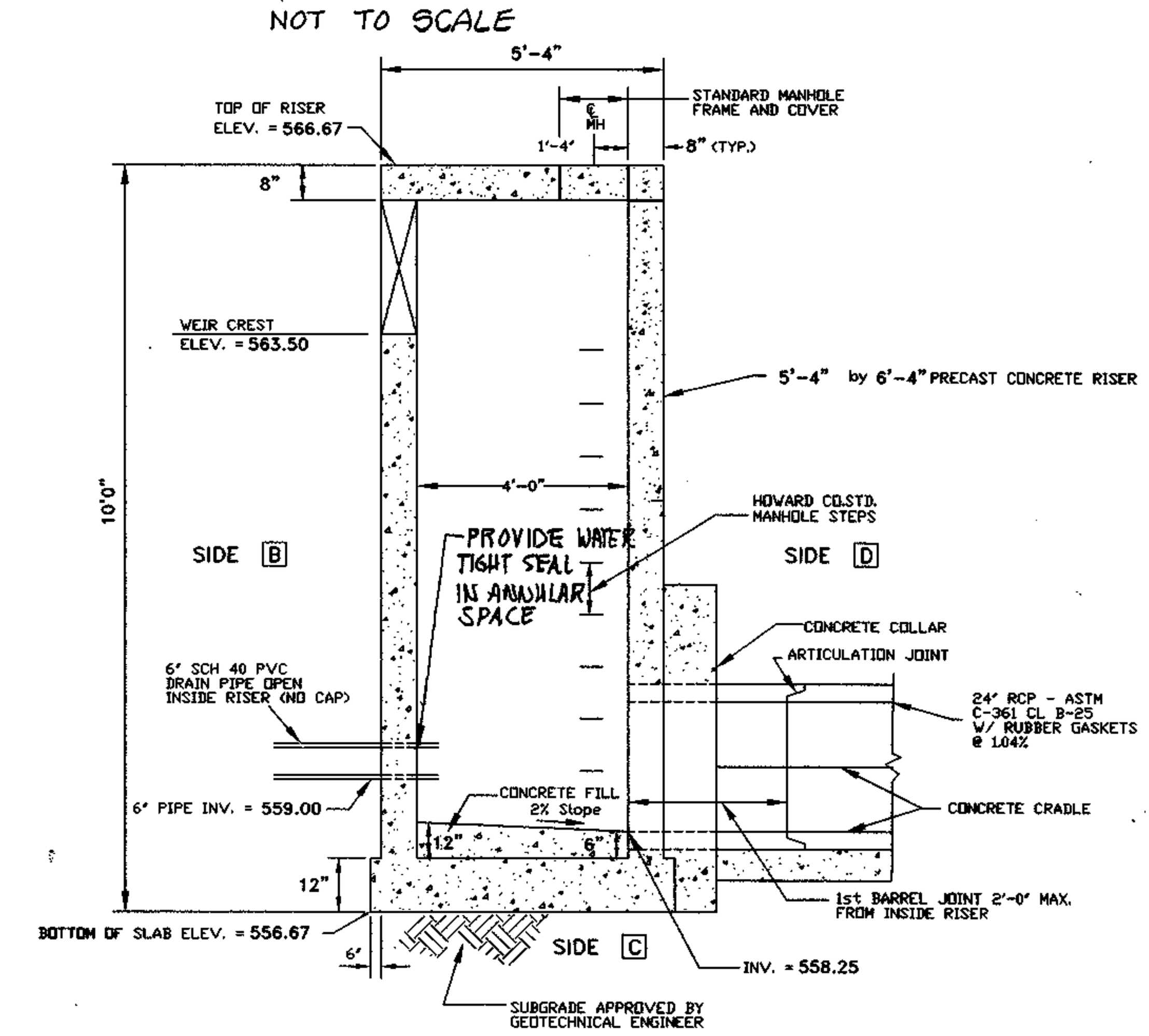
1. PRECAST RISER AND TOP SLAB TO BE MANUFACTURED AND SUPPLIED BY FREDERICK PRECAST CONCRETE, INC. OR APPROVED EQUIVALENT.
2. SHOP DRAWINGS FOR RISER AND TOP SLAB MUST BE REVIEWED BY THE ENGINEER OF RECORD.
3. IF ANY DIMENSIONS ARE CHANGED OR REDUCED, REVISED ANTI-FLOTATION COMPUTATION MUST BE SUBMITTED WITH THE SHOP DRAWINGS TO HOWARD COUNTY FOR APPROVAL.
4. TRASH RACKS ARE NOT SHOWN IN THIS VIEW FOR CLARITY.
5. THE RISER STRUCTURE SHOWN IS NOT TO SCALE SEE THIS SHEET FOR ACTUAL DIMENSIONS.
6. PRECASTER SHALL ENSURE THAT RISER STRUCTURE JOINTS ARE WATERTIGHT (JOINTS SHALL INCLUDE RUBBER GASKET). RISER JOINTS THAT WILL BE BURIED SHALL BE WRAPPED IN CLASS 'C' FILTER FABRIC 1' ON EACH SIDE OF JOINT. OVERLAP 1' MIN.
7. ALL JOINTS SHALL BE FASTENED TOGETHER, SEE SHEET [illegible]



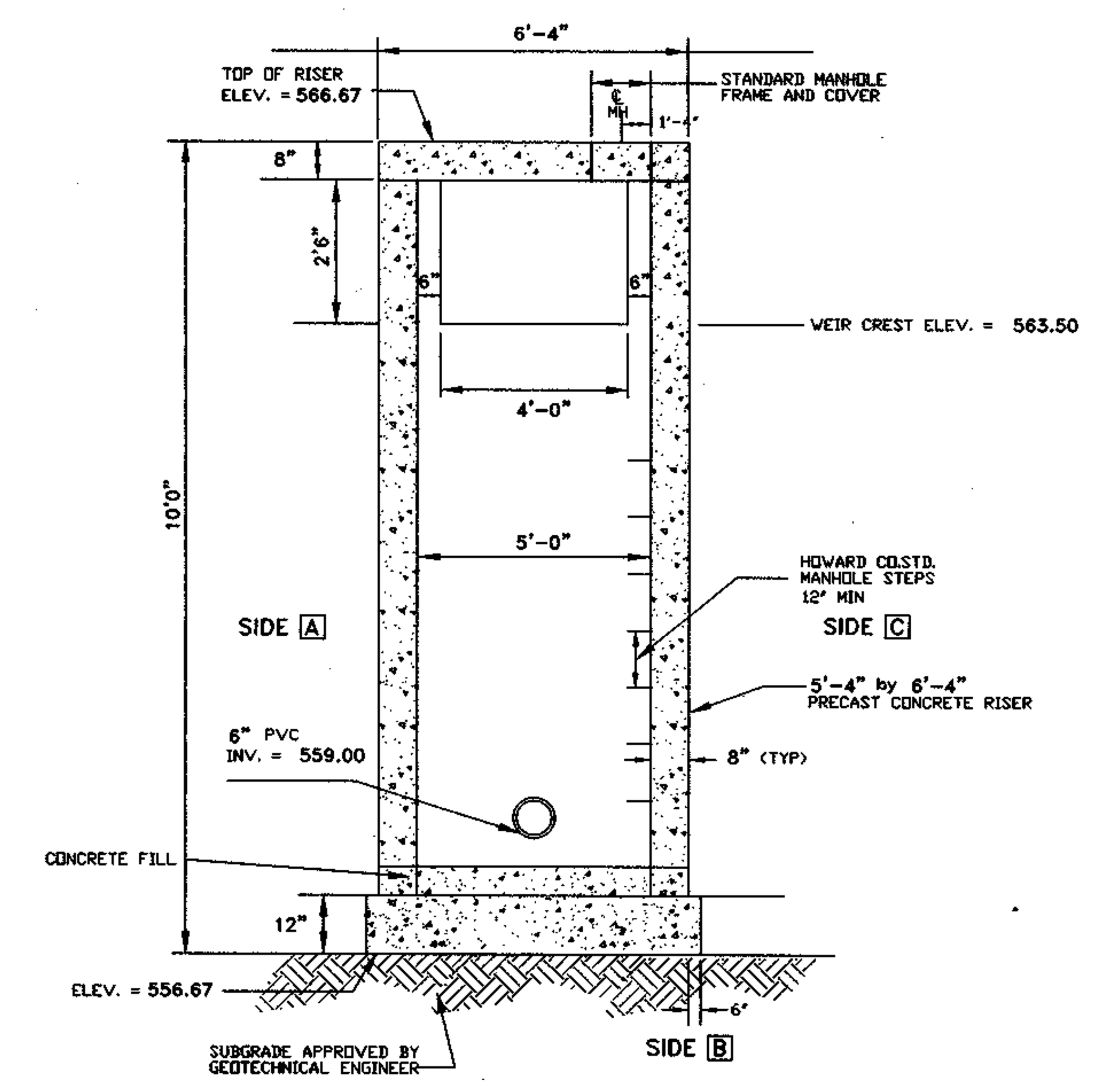
PLAN VIEW
(NOT TO SCALE)
POND 3

TRASH RACK DETAIL

NOT TO SCALE



SECTION A-A
(NOT TO SCALE)
POND 3



SECTION B-B
(NOT TO SCALE)
POND 3

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — 11-3-00 — DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — 11/13/00 — DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/6/00 — DATE

OWNER
MARSHALL W. NICHOLS
C/O R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

ENGINEER/SURVEYOR:
R.M. MOCHI GROUP, P.C.
P.O BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

APPROVED:
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT — 12/20/00 — 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.
J. G. Crawfield / CS. — 12/20/00
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 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.
Signature of Developer — 10/11/00 — DATE

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. — 10/13/00 — DATE

THE WESTWOODS OF CHERRY GROVE

ELECTION DISTRICT No. 4 — HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT DETAILS

no.	description	date
3	REVISED PER DPZ COMMENTS / MYLAR SUBMITTAL	10/16/00
2	REVISED SUBMITTAL TO HOWARD CO. DPZ FOR REVIEW	7-21-00
1	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	4-28-00
	SUBMITTED TO HOWARD COUNTY DPZ FOR REVIEW	1-14-00
	revisions	

project	date
98008.13	1-10-00
illustration	engineering
JMZ	PFB
scale	approval
AS SHOWN	RMM

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

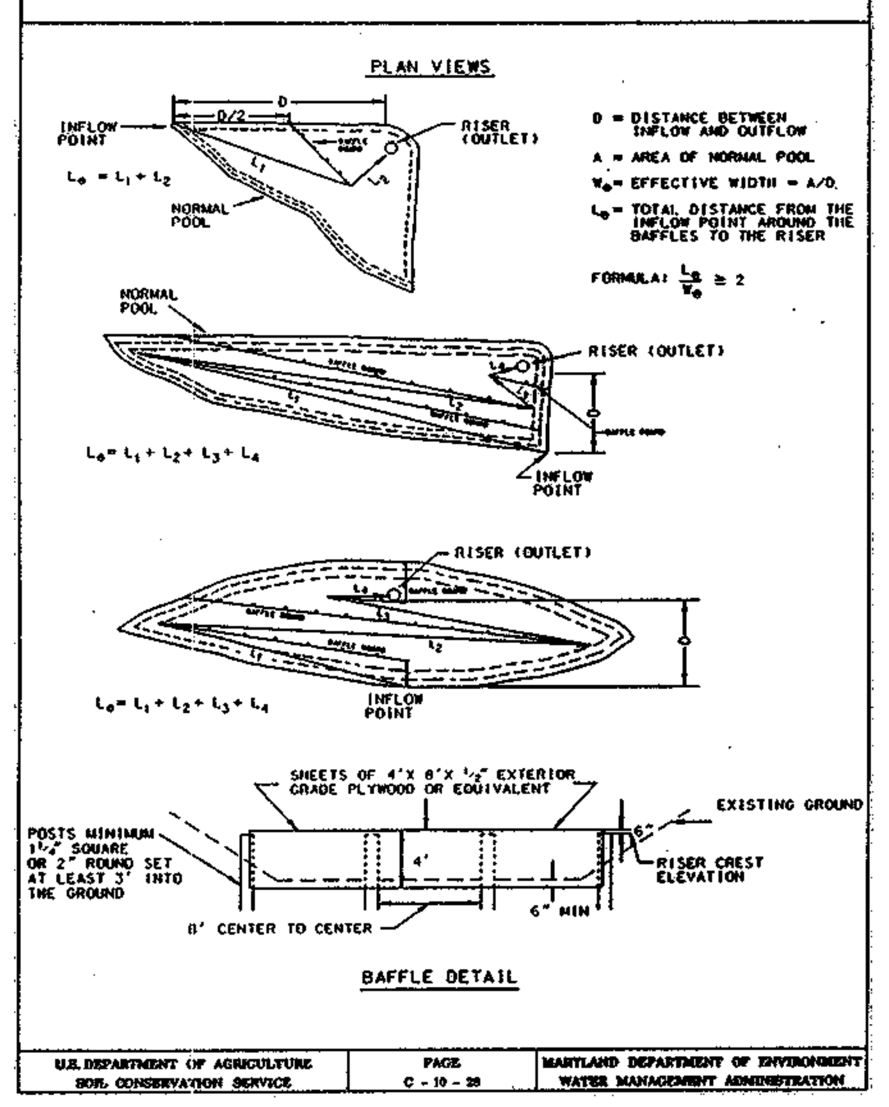
J:\98008-00\98008-13\RISER-DET3.DWG

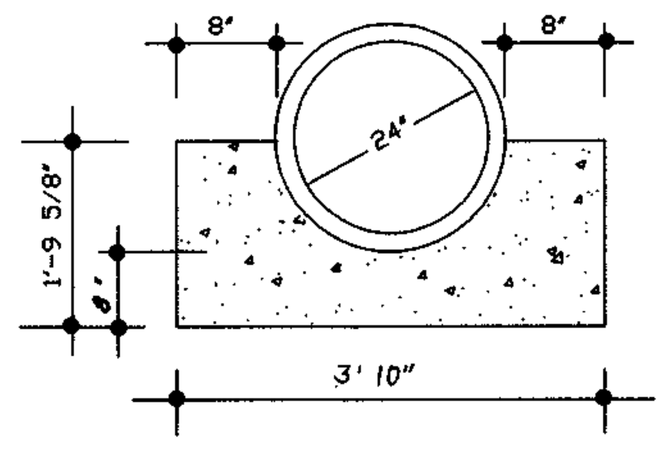
F.00.105

STORMWATER MANAGEMENT STRUCTURE SCHEDULE

Pond No.	Structure	Type	Location	In	Out	Elevation	Remarks
1	S-1	Concrete Riser	N 591469.65 E 1284071.85	547.90	545	Top 554.67	See Details Sheet 11 of 18
	ES-1	Type "C" Endwall	N 591520.18 E 1284023.88	---	542.00	---	30" Circular Pipe Std. SD 5.21
	HW-1	Modified Type "C" Endwall	N 591432.29 E 1284087.91	547.90	---	---	See Details Sheet 14 of 18
2	S-2	Concrete Riser	N 592122.34 E 1284567.19	564.50	562.00	Top 571.00	See Details Sheet 12 of 18
	ES-2	Type "C" Endwall	N 592062.31 E 1284572.54	---	560.75	---	30" Circular Pipe Std. SD 5.21
	HW-2	Modified Type "C" Endwall	N 592133.96 E 1284566.16	567.50	---	---	See Details Sheet 14 of 18
3	S-3	Concrete Riser	N 592534.84 E 1283538.48	559.00	558.25	Top 566.67	See Details Sheet 13 of 18
	ES-3	Type "C" Endwall	N 592484.36 E 1283536.72	---	557.75	---	24" Circular Pipe Std. SD 5.21
	HW-3	Modified Type "C" Endwall	N 592546.51 E 1283538.89	559.00	---	---	See Details Sheet 13 of 18

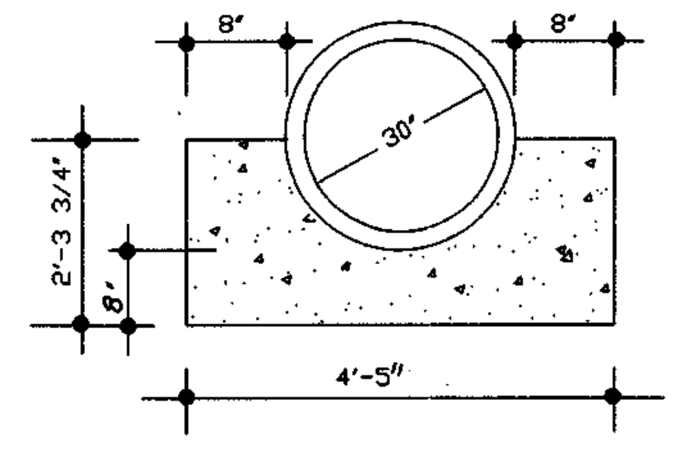
DETAIL 18 – SEDIMENT BASIN BAFFLES





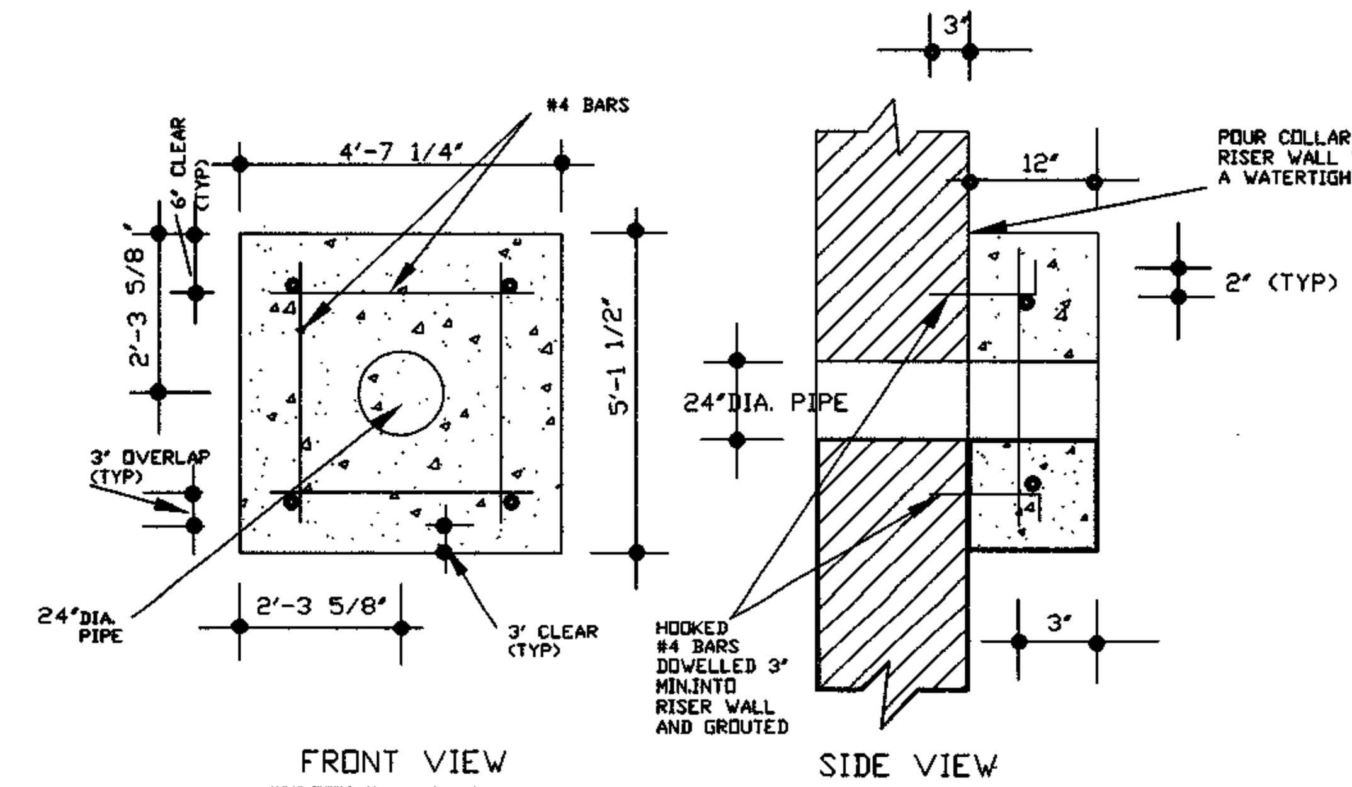
NOTES
1. POUR CONCRETE AGAINST UNDISTURBED EARTH.
2. CONCRETE SHALL BE MSHA MIX NO. 3 (F'C=3,500 PSI)
3. BARREL MAY BE PLACED ON PRECAST CONCRETE BLOCKS PRIOR TO CRADLE POUR.
4. POURING AN ADDITIONAL 4" TO 6" THICK "MUDMAT" MAY BE ACCEPTABLE IF SUBCONDITIONS ARE WET AND WITH APPROVAL OF GEOTECHNICAL ENGINEER.
5. IF ALL OF CONCRETE CRADLE CANNOT BE POURED AT ONE TIME, ONE HORIZONTAL JOINT IS ALLOWED. PLACE A MINIMUM OF THREE (3) - 6' LONG #4 REBAR DOWELS TO CONNECT POURS.
6. IF A CRADLE HORIZONTAL JOINT IS USED, DO NOT LOCATE WITHIN 2' OF PIPE JOINT.

POND NO. 3
CONCRETE CRADLE
NOT TO SCALE
(SCS TR-46 ; A-2)



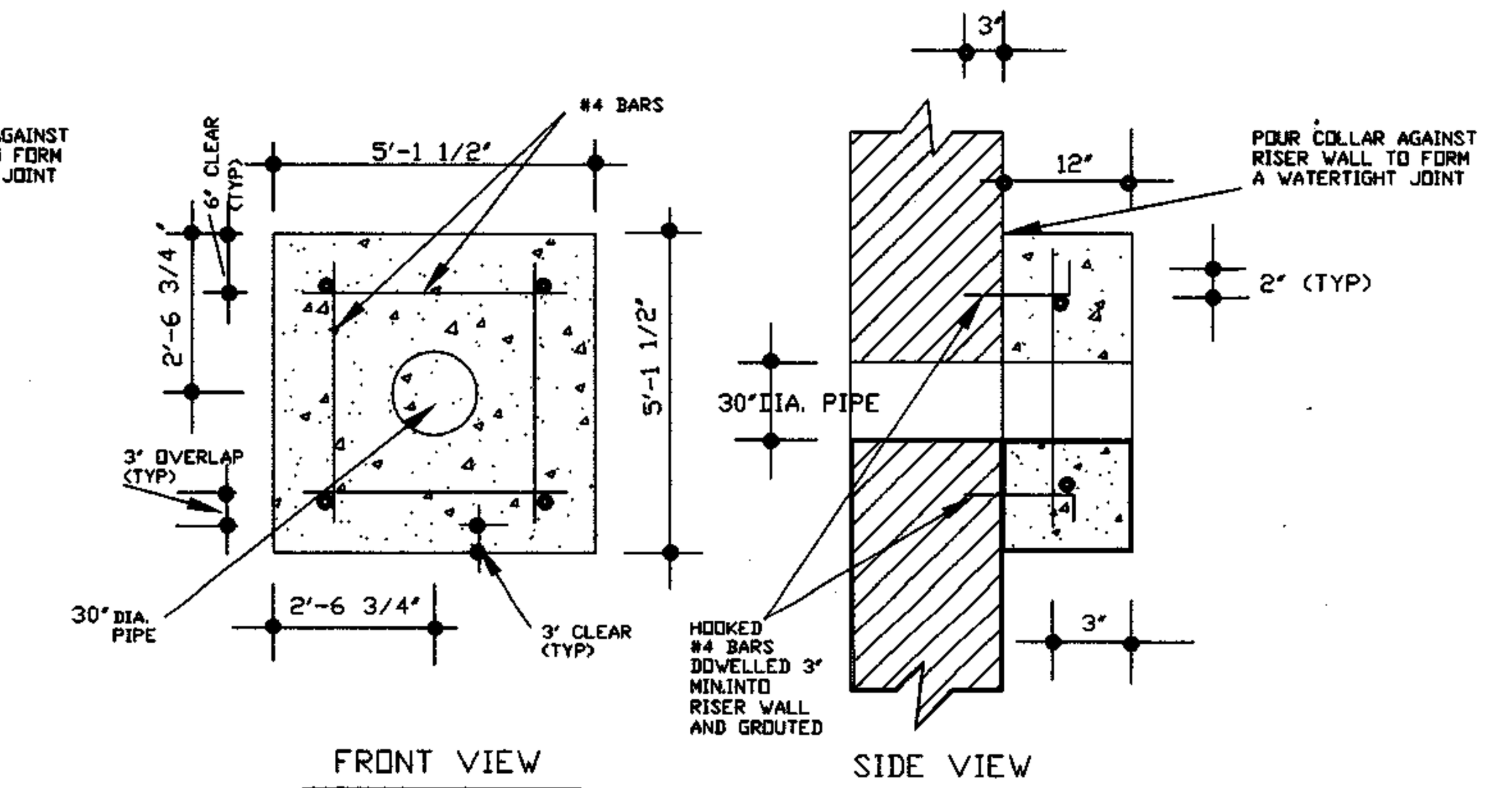
NOTES
1. POUR CONCRETE AGAINST UNDISTURBED EARTH.
2. CONCRETE SHALL BE MSHA MIX NO. 3 (F'C=3,500 PSI)
3. BARREL MAY BE PLACED ON PRECAST CONCRETE BLOCKS PRIOR TO CRADLE POUR.
4. POURING AN ADDITIONAL 4" TO 6" THICK "MUDMAT" MAY BE ACCEPTABLE IF SUBCONDITIONS ARE WET AND WITH APPROVAL OF GEOTECHNICAL ENGINEER.
5. IF ALL OF CONCRETE CRADLE CANNOT BE POURED AT ONE TIME, ONE HORIZONTAL JOINT IS ALLOWED. PLACE A MINIMUM OF THREE (3) - 6' LONG #4 REBAR DOWELS TO CONNECT POURS.
6. IF A CRADLE HORIZONTAL JOINT IS USED, DO NOT LOCATE WITHIN 2' OF PIPE JOINT.

POND NO. 1 & 2
CONCRETE CRADLE
NOT TO SCALE
(SCS TR-4G; A-2)



NOTE:
1. CONCRETE SHALL BE MSHA MIX NO.3 (F'c = 3,500 PSI)

POND NO. 3
CONCRETE COLLAR
NOT TO SCALE

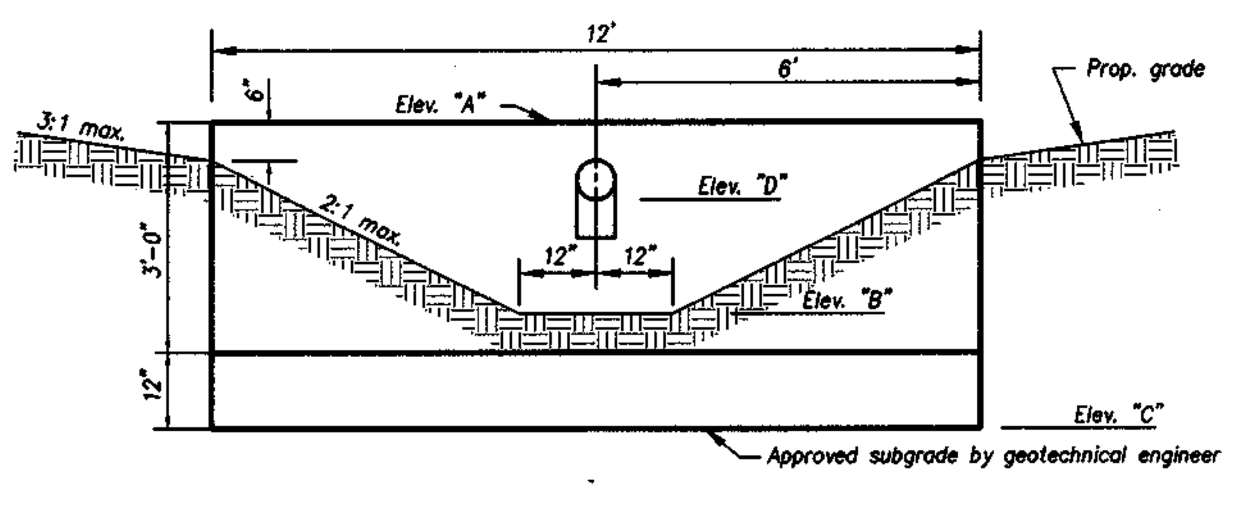


NOTE:
1. CONCRETE SHALL BE MSHA MIX NO.3 (F'c = 3,500 PSI)

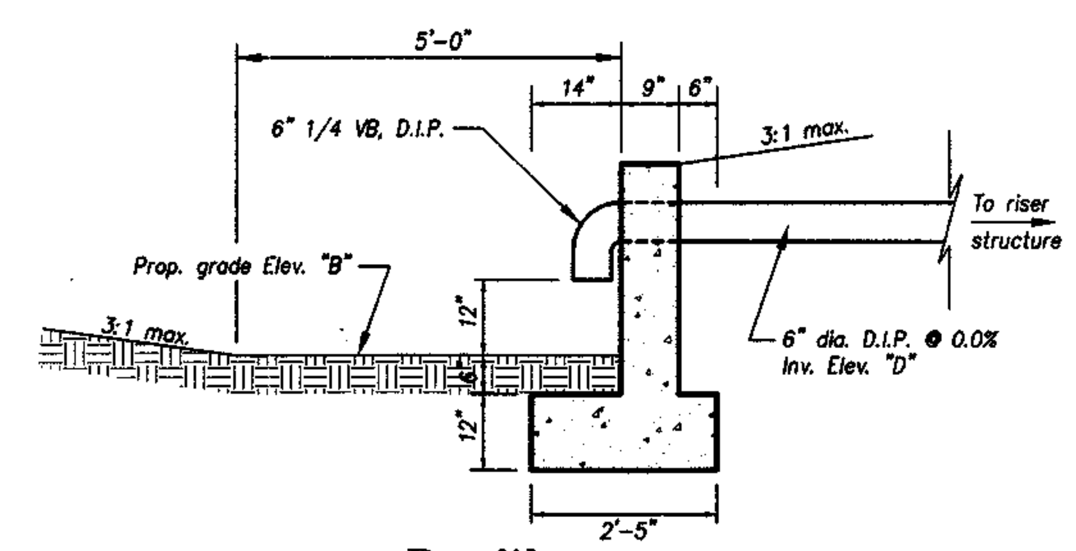
POND NO. 1 & 2
CONCRETE COLLAR
NOT TO SCALE

POND NO.	ELEV. "A"	ELEV. "B"	ELEV. "C"	ELEV. "D"
1	548.90	546.40	544.90	547.90
2	565.50	563.00	561.50	564.50

NOTES:
1. *Fasten 1/4 VB to 6" DIP with retainer gland.*
2. *See Howard Co. Detail SD–5.21 for reinforcement details not shown.*
3. *Chamfer all exposed corners (1"x1").*
4. *Use MSHA Mix No. 2 concrete.*
5. *Use #4 deformed steel bars. Footing rebar shall extend into vertical wall. Lap bars 1'–6" minimum.*
6. *See plan view for wall skew angle.*



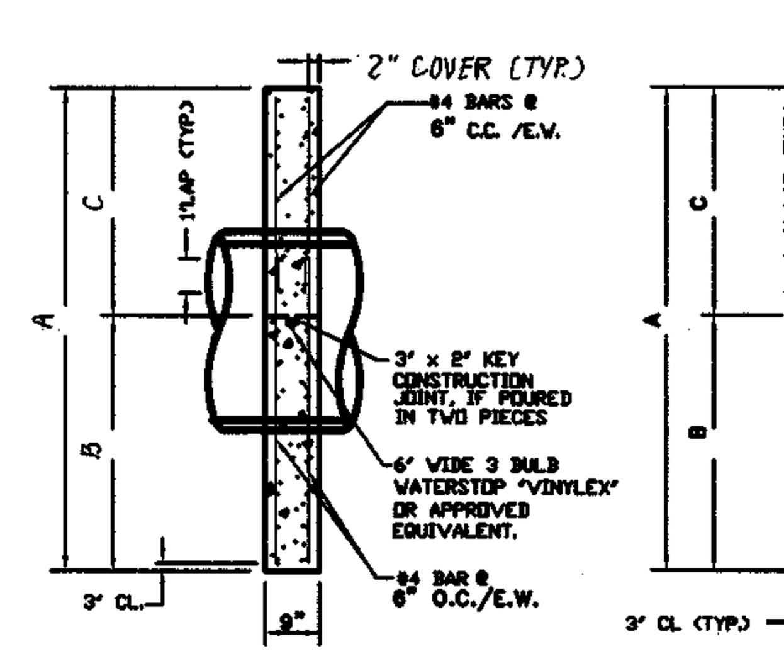
Elevation
NOT TO SCALE



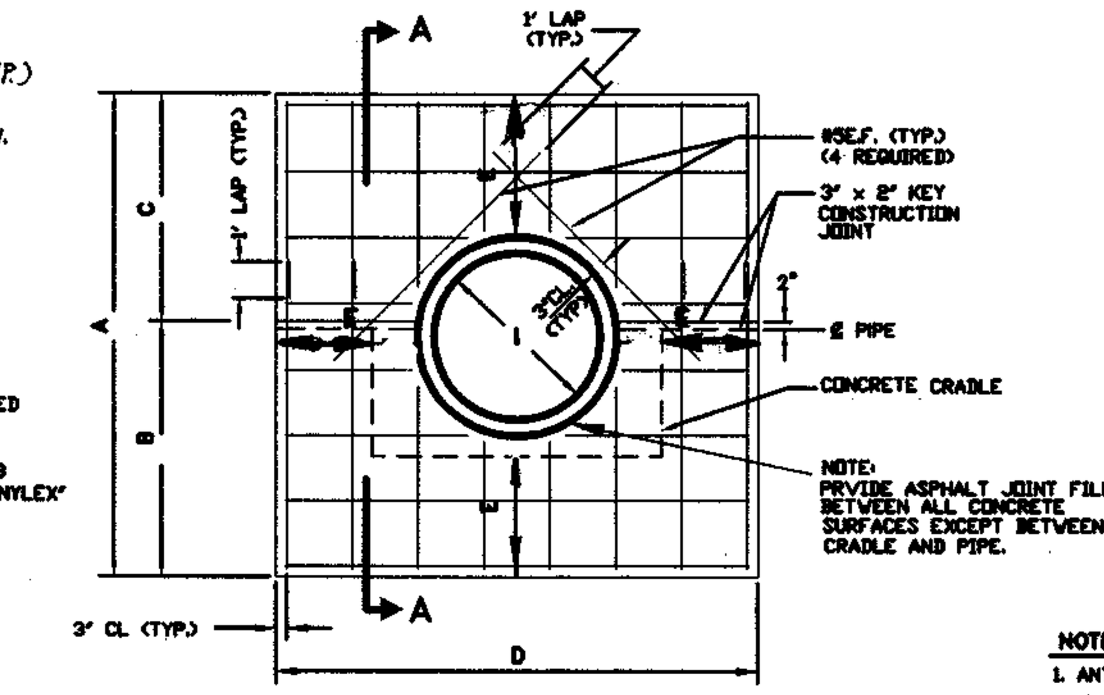
Profile
NOT TO SCALE

HW–1 & HW–2 DETAIL

(MODIFIED HOWARD COUNTY DETAIL SD–5.21 – 24")



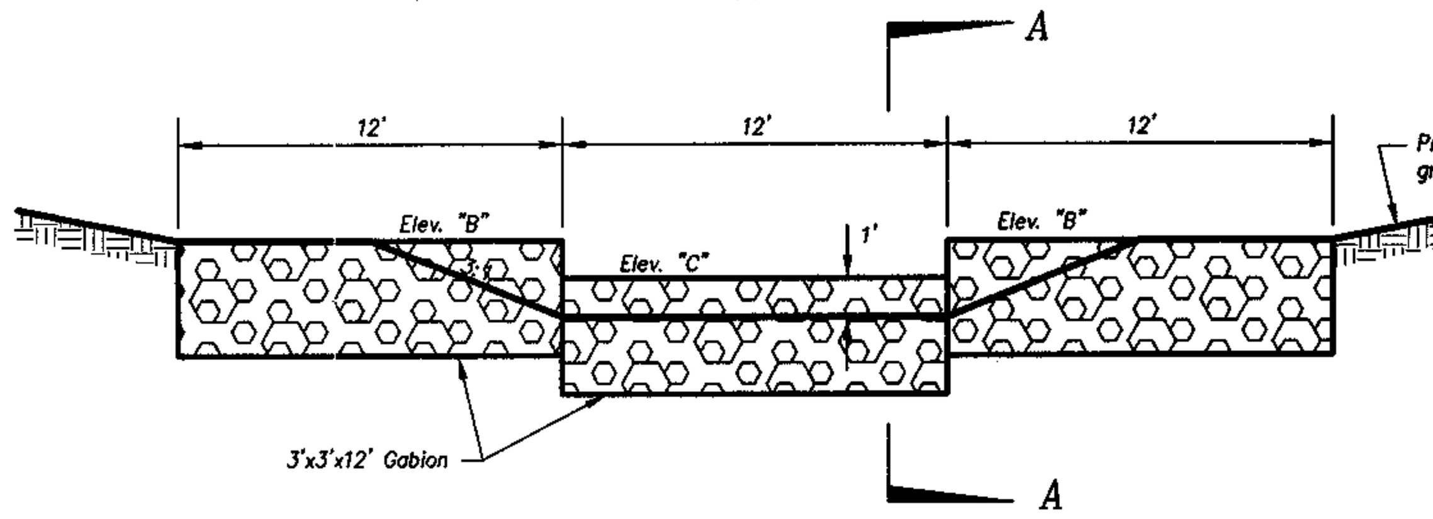
SECTION A–A



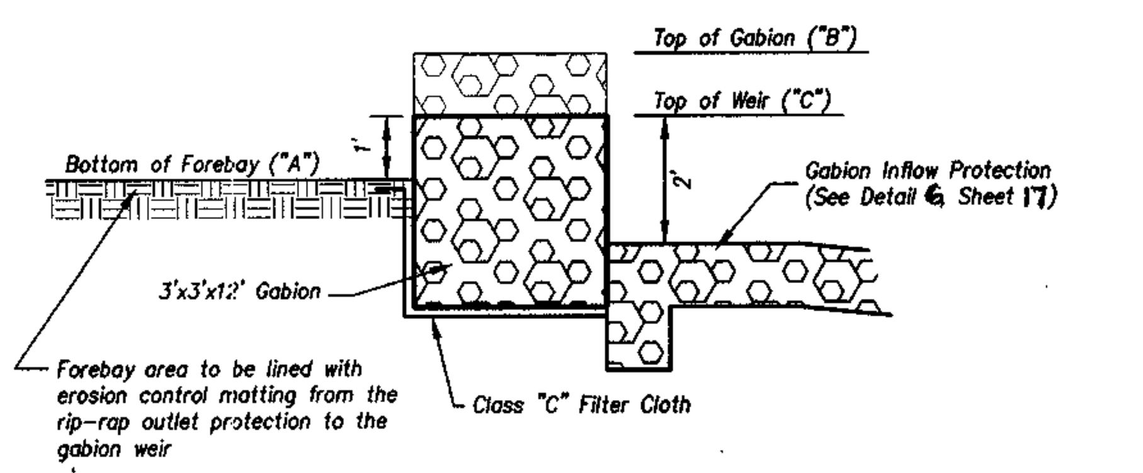
	A	B	C	D	E	J
POND NO. 1	8'-11"	4'-11 1/2"	3-11½'	9'-7"	2'-7"	30"
POND NO. 2	7'-4"	4'-2 1/2"	3'-6 1/2"	8'-5"	2'-0"	30"
POND NO. 3	7'-2"	3'-11"	3'-3"	7'-10"	2'-0"	24"

NOTES:
1. ANTI-SEEP COLLARS ARE TO BE FIELD LOCATED A MINIMUM OF 2' AWAY FROM ANY PIPE JOINT. SEE PIPE PROFILE FOR APPROX. SPACING.
2. CONCRETE SHALL BE M.S.H.A. MIX NO. 3 (F'c=3,500 PSI)
3. A 'ONE POUR' COLLAR DOES NOT REQUIRE A CONSTRUCTION JOINT.
4. PROVIDE A MINIMUM OF 2' CLEARANCE FROM OUTSIDE OF PIPE OR CONCRETE CRADLE TO OUTSIDE OF ANTI-SEEP COLLAR.
5. CONCRETE CRADLE IS NOT SHOWN IN SECTION A-A.

CONCRETE ANTI–SEEP COLLAR
NOT TO SCALE



Elevation
From inside of forebay
NOT TO SCALE



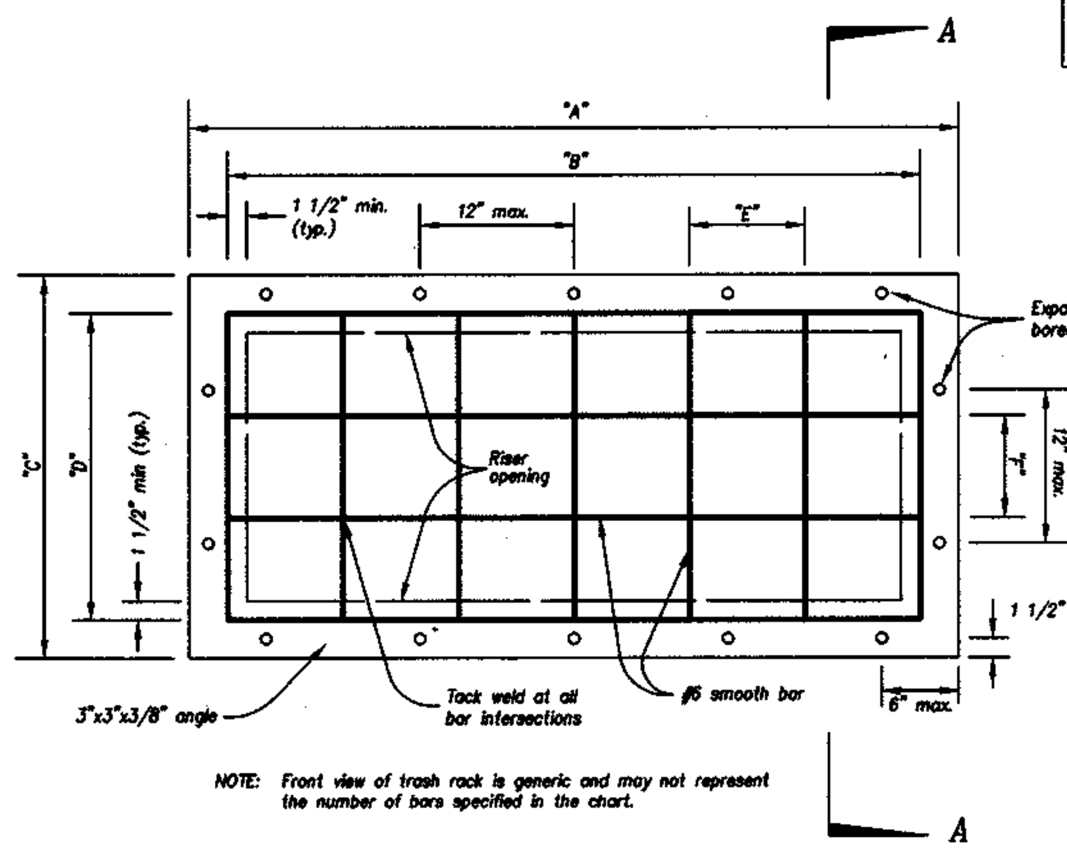
Section A–A
NOT TO SCALE

POND NO.	ELEV. "A"	ELEV. "B"	ELEV. "C"
1	560.0	562.0	561.0
2	568.5	570.5	569.5

GABION FOREBAY DETAIL
NOT TO SCALE

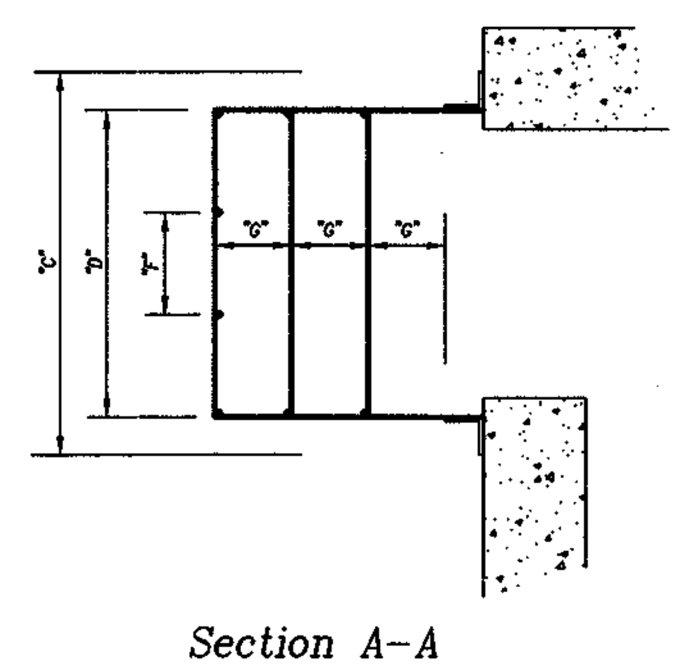
Location of Trash Rack	Qty. Req'd	"A"	"B"	"C"	"D"	"E"	"F"	"G"	Notes:
POND No. 3	1	5'–6"	5'–0"	3'–3"	2'–9"	7 1/2"	6 5/8"	7"	9 Vertical Bars in front, bent top & bottom 6 Horizontal Bars in front, bent around sides 4 Horizontal Bars, 2 along top & bottom 4 Vertical Bars, 2 along each side
POND No. 2	1	5'–9"	5'–3"	4'–1"	3'–7"	7 7/8"	7 1/8"	8"	9 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. 1 Sides A & C	2	3'–6"	3'–0"	2'–0"	1'–6"	6"	6"	6"	7 Vertical Bars in front, bent top & bottom 4 Horizontal Bars in front, bent around sides 2 Horizontal Bars, 2 along top & bottom 2 Vertical Bars, 2 along each side
POND No. 1 Side B	1	5'–9"	5'–3"	3'–6"	3'–0"	7 7/8"	6"	7"	9 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

TRASH RACKS ARE TO BE GALVANIZED AFTER FABRICATION, AND PAINTED WITH 2 COATS OF BATTLESHIP GREY PAINT.

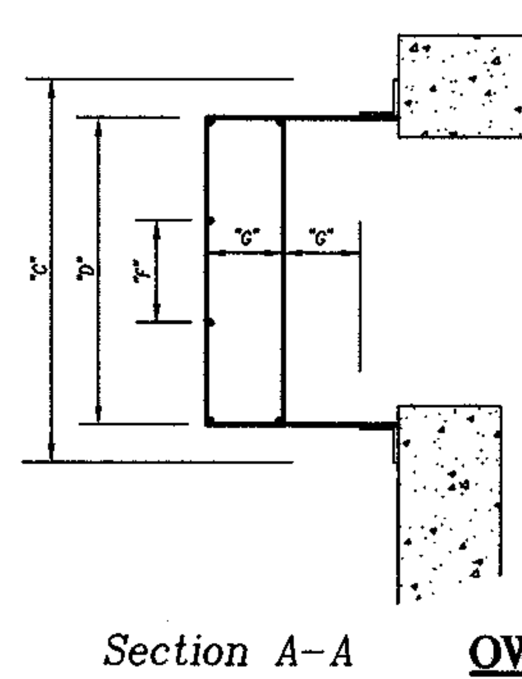


NOTE: Front view of trash rack is generic and may not represent the number of bars specified in the chart.

Elevation
NOT TO SCALE



Section A–A
Pond No. 3
Pond No. 2
Pond No. 1 – Side B
NOT TO SCALE

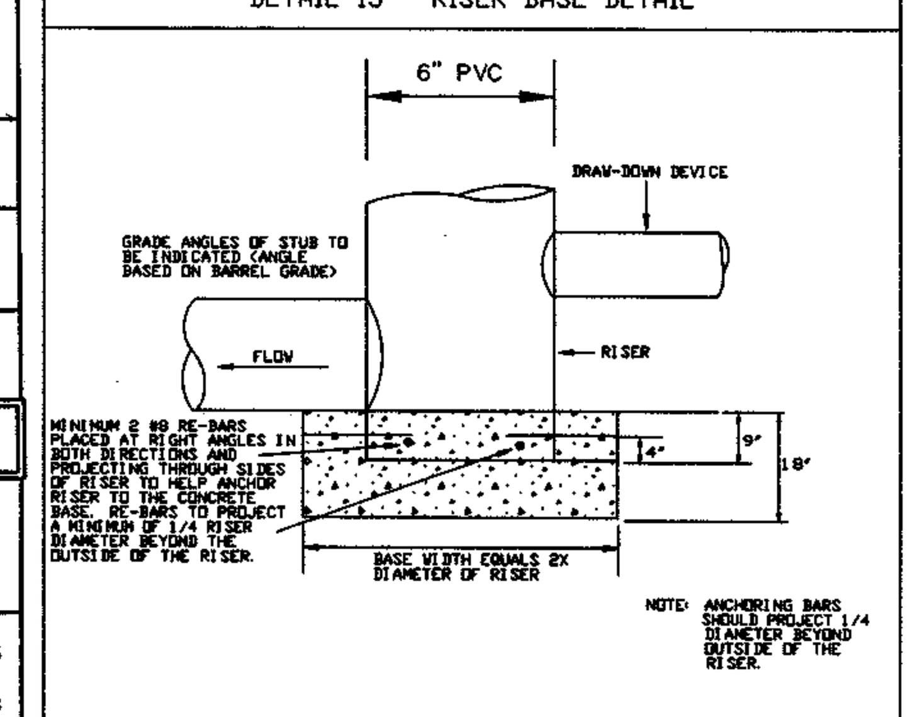


Section A–A
Pond No. 1 – Sides A & C
NOT TO SCALE

TRASH RACK DETAILS
NOT TO SCALE

RUNOFF SUMMARY TABLE - WESTWOODS OF CHERRY GROVE						
STUDY POINT #1 (POND #3)						
	DRAINAGE AREA (ACRES) Existing Conditions	Proposed Conditions	EXISTING DISCHARGE (CFS) (ALLOWABLE)	PROPOSED DISCHARGE (CFS) (INFLOW)	PROPOSED DISCHARGE (CFS) (OUTFLOW)	POND ELEV./ STORAGE (FT^3)
Q_2	25.47	18.60 (D.A. 1A) 4.47 (D.A. 1B) 23.07 Total	3.6	7.7 (D.A.1A)	1.7 (D.A. 1A-POND #3) 1.7 (D.A. 1B-BY-PASS) 2.8 ADD HYD	562.43 / 8,854
Q_{10}	↓	↓	23.5	29.6 (D.A.1A)	17.4 (D.A. 1A-POND #3) 7.4 (D.A. 1B-BY-PASS) 20.4 ADD HYD	564.64 / 25,282
Q_{100}	↓	↓	N/A	60.8 (D.A.1A)	53.7 (D.A. 1A-POND #3) 15.3 (D.A. 1B-BY-PASS) 65.3 ADD HYD	565.46 / 34,910
STUDY POINT #2 (PONDS #1 and #2)						
	DRAINAGE AREA (ACRES) Existing Conditions	Proposed Conditions	EXIST. DISCHARGE (CFS) (ALLOWABLE)	PROPOSED DISCHARGE (CFS) (INFLOW)	PROPOSED DISCHARGE (CFS) (OUTFLOW)	POND ELEV/ STORAGE (FT^3)
Q_2	50.45	15.90 (D.A. 2B) Pond #1 +13.50(D.A. 2A) Pond #2 +23.95 (D.A. 2C) Bypass 53.35 Total	10.7	9.2 (D.A. 2B) Pond #1 9.2 (D.A. 2A) Pond #2	0.8 (D.A. 2B) Pond #1 +0.9 (D.A. 2A) Pond #2 +8.1 (D.A. 2C) Bypass 8.4 ADD HYD	Pond #1 551.44/15,945 Pond #2 567.21/13,573
Q_{10}	↓	↓	61.8	31.3 (D.A. 2B) Pond #1 29.4 (D.A. 2A) Pond #2	12.8 (D.A. 2B) Pond #1 +13.0 (D.A. 2A) Pond #2 +35.8 (D.A. 2C) Bypass 52.5 ADD HYD	Pond #1 552.78/31,222 Pond #2 568.76/28,203
Q_{100}	↓	↓	N/A	60.9 (D.A. 2B) Pond #1 56.1 (D.A. 2A) Pond #2	49.5 (D.A. 2B) Pond #1 +42.4 (D.A. 2A) Pond #2 +75.9 (D.A. 2C) Bypass 161.9 ADD HYD	Pond #1 553.83/44,520 Pond #2 569.90/41,124
Extended Detention	↓	↓	N/A	2.82 (D.A. 2B) Pond #1 3.27 (D.A. 2A) Pond #2	0.18 (D.A. 2B) Pd #1 0.16 (D.A. 2A) Pd #2	Pond #1 550.88/11,641 Pond #2 566.90/11,213

DETAIL 15 – RISER BASE DETAIL



Construction Specifications

The riser shall have a base attached with a watertight connection and shall have sufficient weight to prevent flotation of the riser. Two approved bases for risers 10' or less in height are:

1. A concrete base 18" thick with the riser embedded 9" in the base.
2. A 1/4" minimum thickness steel plate attached to the riser by a continuous weld around the circumference of the riser to form a watertight connection. The plate shall have 2' of stone, gravel, or compacted earth placed on it to prevent flotation. In either case, each side of the square base shall be twice the riser diameter.

Note: For risers greater than ten feet high computations shall be made to design a base which will prevent floatation. The minimum factor of safety shall be 1.20 (downward forces = 1.20 x upward forces).

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE C - 18 - 25 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

OWNER
MARSHALL W. NICHOLS
C/O R.M. MOCHI GROUP, P.C.
P.O.BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

ENGINEER/SURVEYOR
R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 11-3-00
CHIEF, BUREAU OF HIGHWAYS DATE

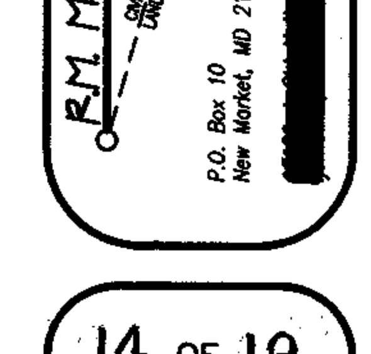
APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[signature] 11/13/00
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
[signature] 11/6/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED:
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
[signature] 10/20/00
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.
J.G. Warfield / GS 10/20/00
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 inspection by the Howard Soil Conservation District.
[signature] 10/11/00
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] 10/13/00
Robert M. Mochi, P.E. DATE



J:\98008-00\98008-13\DETAILS

Tax Map 13, Grid 15, Parcel 46 (p/o)
THE WESTWOODS OF CHERRY GROVE
ELECTION DISTRICT NO. 4 HOWARD COUNTY, MD.
STORMWATER MANAGEMENT DETAILS

no.	description	date
3	REVISED PER DPZ COMMENTS / MYLAR SUBMITTAL	10/26/00
2	REVISED SUBMITTAL TO HOWARD CO. DPZ FOR REVIEW	7-26-00
1	REVISED SUBMITTAL TO HOWARD CO. DPZ FOR REVIEW	4-28-00
0	1ST SUBMITTAL TO HO. CO. DPZ FOR REVIEW	01-14-2000

revisions

project 98008.13	date 01-13-00
illustration K.M.B.	engineering P.F.B.
scale as shown	approval R.M.M.

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

F.00.105

Construction Considerations

Construction monitoring should be performed during construction of the SWM facilities. If requested, HCEA can perform the required construction monitoring.

Based on the laboratory test results and previous experience at similar sites, the slopes of the embankments should be designed at 2.7 horizontal to 1.0 vertical (2.7H:1.0V) or flatter. If steeper slopes are desired, HCEA can perform direct shear strength tests to verify the soil strength properties for embankment design.

Rock Excavation

We expect that Rock will be encountered during the excavation of the basin and cutoff trench at SWM Basin No. 1 and SWM Basin No. 3. Rock excavation depths of up to 5.5 feet will be required in these areas to excavate the proposed basins. Rock surface elevations are listed above in the Subsurface Conditions section.

The depth to the rock surface encountered in the test pits may not reflect the rock surface between the pits, or at other portions of the site. Variations in the depth to rock should be expected between the test pits.

The rock encountered at the site is partially weathered, and we expect that much of the rock may be removed by ripping. Localized zones of hard rock may be encountered which require the use of large track hoes with hydraulic hoe rams, or possibly blasting.

The project specifications should include a definition of rock to reduce construction disputes and for budgeting purposes. Rock is defined as any material which cannot be dislodged by a D-8 Caterpillar tractor equipped with a hydraulic ripper, or by a CAT 235 hydraulic excavator. Removal of boulders larger than 1 cubic yard should be considered rock excavation.

We expect that an unclassified rock specification would be appropriate for this project. The unclassified excavation specification pays for any and all excavation in a lump sum contract price, with little record keeping of quantities required. As such, some risk is transferred to the contractor with this specification, and may increase the contingency of the contractor's bids. However, the cost of the project is known up-front and reduces the likelihood of unanticipated costs during construction. However, unclassified rock excavation specifications generally have a higher likelihood for disputes and claims for variations in subsurface conditions.

Considerations to change the site grading plans to reduce the amount of rock excavation should also be discussed.

Embankment and Cut-Off Trench Subgrades

Prior to the placement of compacted fill, the topsoil and any other unsuitable materials should be stripped from the pond embankment area or areas to receive fill. After stripping operations have been completed, the exposed subgrade materials should be proofrolled with a loaded dump truck, or similar equipment, in the presence of a geotechnical engineer or his representative. The purpose of the proofrolling is to identify loose or soft soils, and to locally densify the proofrolled soils. Any soft or loose materials identified by proofrolling should be excavated to suitably firm soil, and then grades should be re-established by backfilling with suitable soil as described in the Compacted Fill section.

Based on the test pits, we expect that the embankment subgrade soils in each of the SWM facility areas will consist of firm natural soils or rock. Groundwater is not expected to be encountered within the proposed excavations, however, water may enter the excavation from precipitation or surface runoff, and may be controlled by sump pits and pumps. Construction traffic should be minimized to reduce the amount of disturbance of the subgrade soils.

We have assumed that a cutoff trench and impermeable core will be required for each of the facilities. The Soil Conservation Service of Maryland, Specification 378 (SCS 378) governs design and construction of the storm water management facilities. The SCS-378 document specifies that soils for use in cutoff trenches and embankment cores meet USCS Classification CL (low plasticity clay), CH (high plasticity clay), SC (clayey sand), or GC (clayey gravel). Furthermore, HCEA recommends that similar materials be used for backfill adjacent to the outfall pipe across the entire width of the embankment in order to decrease the potential of seepage and piping along the pipe.

Based on our visual observations and laboratory testing, soils meeting the referenced classifications for cut-off trench construction are not readily available on site, and will require to be imported. The on-site soils classified as sandy SILT are considered suitable for use in the exterior portions of the embankments.

Rock fragments resulting from the rock excavation are expected, and may be mixed with on-site soils for use as fill in the exterior portions of the embankments. Rock fragments to be used within the embankment soils should be less than 6 inches in diameter. The rocks and soil must be well mixed prior to placement as compacted fill, with a maximum rock percentage of 50 percent.

All compacted fill should be place in horizontal layers, maximum 8-inch loose thickness, and compacted to at least 95 percent of the maximum dry density per ASTM D-698. Sheepsfoot rollers should be used for compacting the soils within cutoff and impermeable core. Careful control of fill placement and compaction around the outfall pipe is recommended to reduce the likelihood of seepage along the pipe. Lift thicknesses for soil compacted with walk behind equipment should be placed in 4-inch lifts (prior to compaction effort).

Moisture contents tests were conducted on 10 soil samples retrieved from our test pits. The moisture contents ranged from 15 to 33 percent, and are listed on the Records of Subsurface Exploration. We expect that the soils excavated from the basins will have moisture contents up to 10 percent above the optimum content required for compaction, and may require drying prior to use as compacted fill. We expect that the soils near the streams may be wet and soil excavated from higher elevations may have lower moisture contents. Similary, soils excavated below a depth of 2 to 3 feet will likely have lower moisture contents than the near surface soils. Earthwork should be scheduled in the drier months (June to October) to reduce the likelihood of delays and additional construction costs.

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 repairs 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.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Westwood at Cherry Grove — Location: Howard County, MD — Job Number: 00499A — Test Pit No.: TP-1
Datum: MSL — Surf. Elev.: 557.0 — Date Started: 1/20/99 — Equipment: CAT 416B Backhoe — Inspector: J. Cooper — Date Completed: 1/20/99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	DEPTH SCALE	BORING & SAMPLING NOTES
557.0	SURFACE	0.0	
	Topsoil = 10"		Operator indicated soil is firm
		2.5	%M = 22.0
			Operator indicated soil is very firm below 4.0 ft
	Light brown, moist, sandy SILT, trace rock fragments (ML)	5.0	
548.0		7.5	Operator indicated soil is very difficult to excavate below 9.0 ft
	Light brown, moist, sandy SILT with rock fragments (ML)	10.0	
545.5	Backhoe refusal on rock @ 11.5 ft	12.5	
		15.0	No water encountered Backfilled upon completion
		17.5	
		20.0	

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Westwood at Cherry Grove — Location: Howard County, MD — Job Number: 00499A — Test Pit No.: TP-4
Datum: MSL — Surf. Elev.: 569.5 — Date Started: 1/20/99 — Equipment: CAT 416B Backhoe — Inspector: J. Cooper — Date Completed: 1/20/99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	DEPTH SCALE	BORING & SAMPLING NOTES
569.5	SURFACE	0.0	
	Topsoil = 8"		Operator indicated soil is firm
	Reddish brown, moist, sandy SILT, trace rock fragments (ML)	2.5	%M = 24.7
566.5		5.0	
	Reddish brown, moist, sandy SILT with rock fragments (ML)	7.5	Operator indicated soil is very firm below 9.0 ft
559.5		10.0	
	Gray to black, moist, silty ROCK FRAGMENTS with sand (GM)	12.5	
555.5	Bottom @ 14.0 ft	15.0	No water encountered Backfilled after 4 hours
		17.5	
		20.0	

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Westwood at Cherry Grove — Location: Howard County, MD — Job Number: 00499A — Test Pit No.: TP-7
Datum: MSL — Surf. Elev.: 559.0 — Date Started: 1/20/99 — Equipment: CAT 416B Backhoe — Inspector: J. Cooper — Date Completed: 1/20/99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	DEPTH SCALE	BORING & SAMPLING NOTES
559.0	SURFACE	0.0	
	Topsoil = 6"		Operator indicated soils is soft
	Brown, moist, sandy SILT, trace rock fragments (ML)	2.5	%M = 33.0
554.0		5.0	Operator indicated soil is firm below 5.0 ft
	Light gray, moist, sandy SILT, trace rock fragments (ML)		Difficult to excavate below 7.0 ft
551.0	Bottom @ 8.0 ft	7.5	
		10.0	
		12.5	
		15.0	No water encountered Backfilled after 1 hour
		17.5	
		20.0	

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Westwood at Cherry Grove — Location: Howard County, MD — Job Number: 00499A — Test Pit No.: TP-2
Datum: MSL — Surf. Elev.: 543.0 — Date Started: 1/20/99 — Equipment: CAT 416B Backhoe — Inspector: J. Cooper — Date Completed: 1/20/99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	DEPTH SCALE	BORING & SAMPLING NOTES
543.0	SURFACE	0.0	
	Topsoil = 8"		Operator indicated soil is firm
	Light brown, moist, sandy SILT, trace rock fragments (ML)	2.5	%M = 26.5
		5.0	
536.0			Operator indicated soil is very firm below 7.0 feet
	Light brown, moist, ROCK FRAGMENTS with silt, trace sand (GM)	7.5	
535.0	Backhoe refusal on rock at 8 feet.		
		10.0	
		12.5	
		15.0	Dry at completion Backfilled upon completion
		17.5	
		20.0	

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Westwood at Cherry Grove — Location: Howard County, MD — Job Number: 00499A — Test Pit No.: TP-5
Datum: MSL — Surf. Elev.: 563.0 — Date Started: 1/20/99 — Equipment: CAT 416B Backhoe — Inspector: J. Cooper — Date Completed: 1/20/99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	DEPTH SCALE	BORING & SAMPLING NOTES
563.0	SURFACE	0.0	
	Topsoil = 10"		Operator indicated soils is firm
		2.5	
	Light brown, moist, sandy SILT, trace rock fragments (ML)	5.0	
		7.5	
553.0	Bottom @ 10.0 ft	10.0	
		12.5	
		15.0	No water encountered Backfilled after 4 hours
		17.5	
		20.0	

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Westwood at Cherry Grove — Location: Howard County, MD — Job Number: 00499A — Test Pit No.: TP-8
Datum: MSL — Surf. Elev.: 566.0 — Date Started: 1/21/99 — Equipment: CAT 416B Backhoe — Inspector: J. Cooper — Date Completed: 1/21/99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	DEPTH SCALE	BORING & SAMPLING NOTES
566.0	SURFACE	0.0	
	Topsoil = 8"		Operator indicated soil is firm
	Brown, moist, sandy SILT, trace rock fragments (ML)	2.5	%M = 16.6
561.0	Backhoe refusal on rock @ 5.0 ft	5.0	
		7.5	
		10.0	
		12.5	
		15.0	No water encountered Backfilled upon completion
		17.5	
		20.0	

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Westwood at Cherry Grove — Location: Howard County, MD — Job Number: 00499A — Test Pit No.: TP-3
Datum: MSL — Surf. Elev.: 543.0 — Date Started: 1/21/99 — Equipment: CAT 416B Backhoe — Inspector: J. Cooper — Date Completed: 1/21/99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	DEPTH SCALE	BORING & SAMPLING NOTES
543.0	SURFACE	0.0	
	Topsoil = 6"		Operator indicated soil is firm
		2.5	%M = 20.8
	Light brown, moist, sandy SILT with rock fragments (ML)	5.0	%M = 24.9
		7.5	Water entering from sandy seam at 7.0 feet
533.0	Bottom @ 10.0 ft	10.0	
		12.5	
		15.0	Backfilled after 1 hour
		17.5	
		20.0	

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Westwood at Cherry Grove — Location: Howard County, MD — Job Number: 00499A — Test Pit No.: TP-6
Datum: MSL — Surf. Elev.: 572.5 — Date Started: 1/20/99 — Equipment: CAT 416B Backhoe — Inspector: J. Cooper — Date Completed: 1/20/99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	DEPTH SCALE	BORING & SAMPLING NOTES
572.5	SURFACE	0.0	
	Topsoil = 12"		Operator indicated soil is firm
	Light brown, moist, sandy SILT, trace rock fragments (ML)	2.5	Operator indicated soil is very firm below 4.0 ft
568.5			%M = 15.4
	Light brown, moist, sandy SILT with rock fragments (ML)	5.0	
		7.5	%M = 16.6
		10.0	
		12.5	
	Bottom @ 14 feet.	15.0	No water encountered Backfilled upon completion
		17.5	
		20.0	

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Westwood at Cherry Grove — Location: Howard County, MD — Job Number: 00499A — Test Pit No.: TP-9
Datum: MSL — Surf. Elev.: 565.5 — Date Started: 1/21/99 — Equipment: CAT 416B Backhoe — Inspector: J. Cooper — Date Completed: 1/21/99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	DEPTH SCALE	BORING & SAMPLING NOTES
565.5	SURFACE	0.0	
	Topsoil = 8"		Operator indicated soil is soft
	Light brown, moist, sandy SILT, trace rock fragments (ML)	2.5	%M = 23.9
			Operator indicated soil is firm below 3.0 ft
560.5		5.0	Operator indicates soil is very firm below 5.0 ft
	Brown, moist, SILT with sand and rock fragments (ML)		Encountered trace boulders up to 18 inches below 5.0 ft
558.5	Brown, moist, ROCK FRAGMENTS with SILT, trace sand (ML)	7.5	Difficult to excavate below 7.0 ft
557.5	Backhoe refusal on rock @ 8.0 ft		Water encountered at bottom of pit at 8.0 ft
		10.0	
		12.5	
		15.0	
		17.5	
		20.0	

STORMWATER MANAGEMENT CONSTRUCTION SPECIFICATIONS SCS MD. – 378 NOV. 1992

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, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 50 FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

II. EARTH FILL

MATERIAL

THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

PLACEMENT

AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION

THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF THE EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE YET NOT 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, AND IS TO BE CERTIFIED BY THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T–99.

CUT OFF TRENCH

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

III. STRUCTURE BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET. MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

IV. PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE

ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE :

1. MATERIALS (STEEL PIPE)
   THIS PIPE AND ITS APPURTENANCES SHALL BE GALVANIZED AND FULLY BITUMINOUS COATED AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M–190 TYPE "A" WITH WATERTIGHT COUPLING BANDS. ANY BITUMINOUS COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THE FOLLOWING COATINGS OR AN APPROVED EQUAL MAY BE USED: NEXON, PLASTI–COTE BLAC–KLAD, AND BETH–CU–LOY PC, COATED CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M–245 AND M–246.

   MATERIALS (ALUMINUM COATED STEEL PIPE) (ACCMP)
   THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M–274 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND.

   MATERIALS (ALUMINUM PIPE)
   THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M–196 OR M–211 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE pH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI–SEEP COLLARS, END SECTIONS, ETC., MUST BE COMPOSED OF THE SAME MATERIAL AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS
   ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI–SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT.

   ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE–ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMODATE THE BAND WIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24" IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE, A 12" WIDE STANDARD LAP TYPE BAND WITH 12" WIDE BY 3/8" THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12" WIDE HUGGER TYPE BAND WITH O–RING GASKETS HAVING A MINIMUM DIAMETER OF 1/2" GREATER THAN THE CORRUGATION DEPTH. PIPES 24" IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24" LONG ANNULAR CORRUGATED BAND USING RODS AND LUGS. A 12" WIDE BY 3/8" THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED ON THE END OF EACH PIPE FOR A TOTAL OF 24".

   HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING
   THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL" (NO. III ABOVE)

6. OTHER DETAILS (ANTI–SEEP COLLARS, VALVES, ETC.) SHALL BE SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE

ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS
   REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM DESIGNATION C–361.

2. BEDDING
   ALL REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING FOR THEIR ENTIRE LENGTH. THIS BEDDING SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 10% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 3 INCHES, OR AS SHOWN ON THE DRAWINGS.

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 2 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL" (NO. III ABOVE)

5. OTHER DETAILS (ANTI–SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

POLYVINYL CHLORIDE (PVC) PIPE

ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR POLYVINYL CHLORIDE (PVC) PIPE:

1. MATERIALS
   PVC PIPE SHALL BE PVC–1120 OR PVC–1220 CONFORMING TO ASTM D–1785 OR ASTM D–2241.

2. JOINTS AND CONNECTIONS TO ANTI–SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.

3. BEDDING
   THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

5. OTHER DETAILS (ANTI–SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

V. CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 608, MIX No. 3.

VI. ROCK RIPRAP

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 905.

THE RIPRAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THE RIPRAP IN PLACE SHALL BE REASONABLY HOMOGENEOUS WITH THE LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT ONE TO ANOTHER WITH THE SMALLER ROCKS FILLING THE VOIDS BETWEEN THE LARGER ROCKS. FILTER CLOTH SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 919.12.

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 ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM THE VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM OF REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER TO SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

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 CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES TO BE EMPLOYED DURING THE CONSTRUCTION PROCESS.

STATE OF MARYLAND — ROBERT M. MOCHI — REGISTERED PROFESSIONAL ENGINEER

OWNER

MARSHALL W. NICHOLS
C/O R.M. MOCHI GROUP, P.C.
PO BOX 10
NEW MARKET, MD. 21774
(301) 865-5858

ENGINEER/SURVEYOR:

R.M. MOCHI GROUP, P.C.
P.O. BOX 10
NEW MARKET MD. 21774
(301) 865-5858

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/13/00 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 11/6/00 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 11-3-00 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 10/23/00 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.

USDA – NATURAL RESOURCES CONSERVATION SERVICE — 10/20/00 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 of Developer — 10/10/00 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, P.E. — 10/13/00 Date

---

project	date
98008.13	01–00
illustration	engineering
KMB	PFB
scale	approval
AS SHOWN	RMM

no.	description	date
3	REVISED PER DPZ COMMENTS/MYLAR SUBMITTAL	10/06/00
2	REVISED SUBMITTAL TO HOWARD CO. DPZ FOR REVIEW	7/26/00
1	REVISED SUBMITTAL TO HOWARD CO. DPZ FOR REVIEW	4-28-00
0	SUBMITTED TO HOWARD COUNTY DPZ	01–14–2000
	revisions	

THE WESTWOODS OF CHERRY GROVE

ELECTION DISTRICT 4 — HOWARD COUNTY, MD

SWM DETAILS

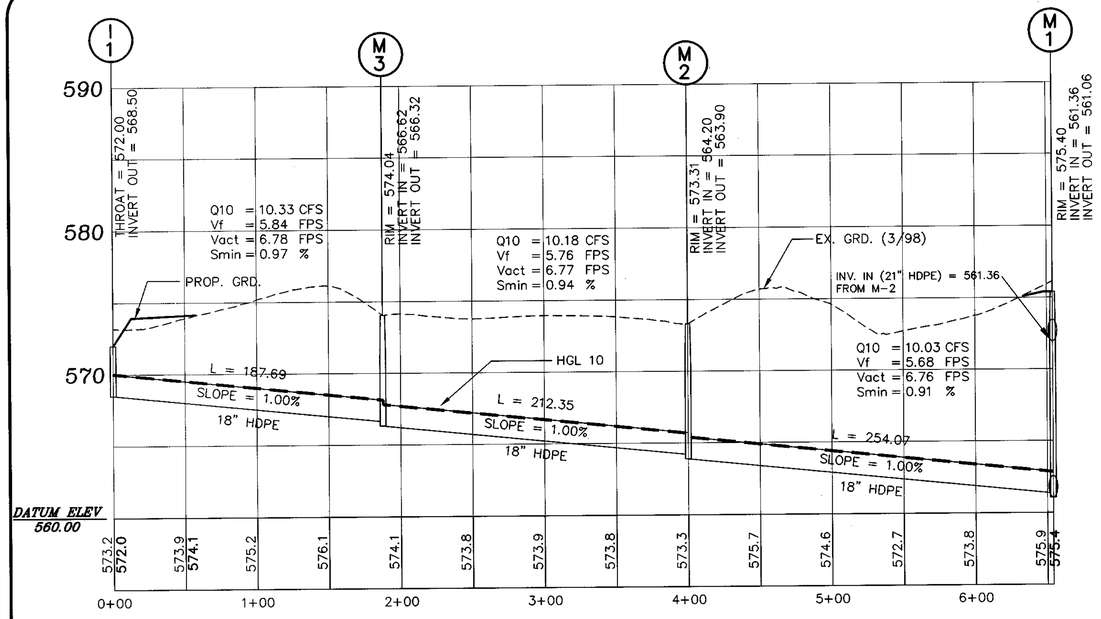
R.M. MOCHI GROUP, P.C. — CIVIL ENGINEERS, LAND SURVEYORS, PLANNERS, ENVIRONMENTAL
P.O. Box 10
New Market, MD 21774-0010
[redacted]
(301) 865-5858
Fax: (301) 865-5111

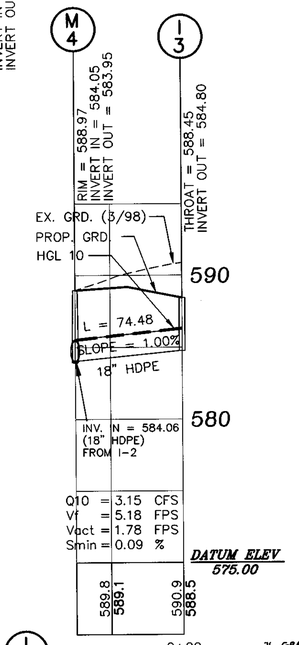
F.00.105

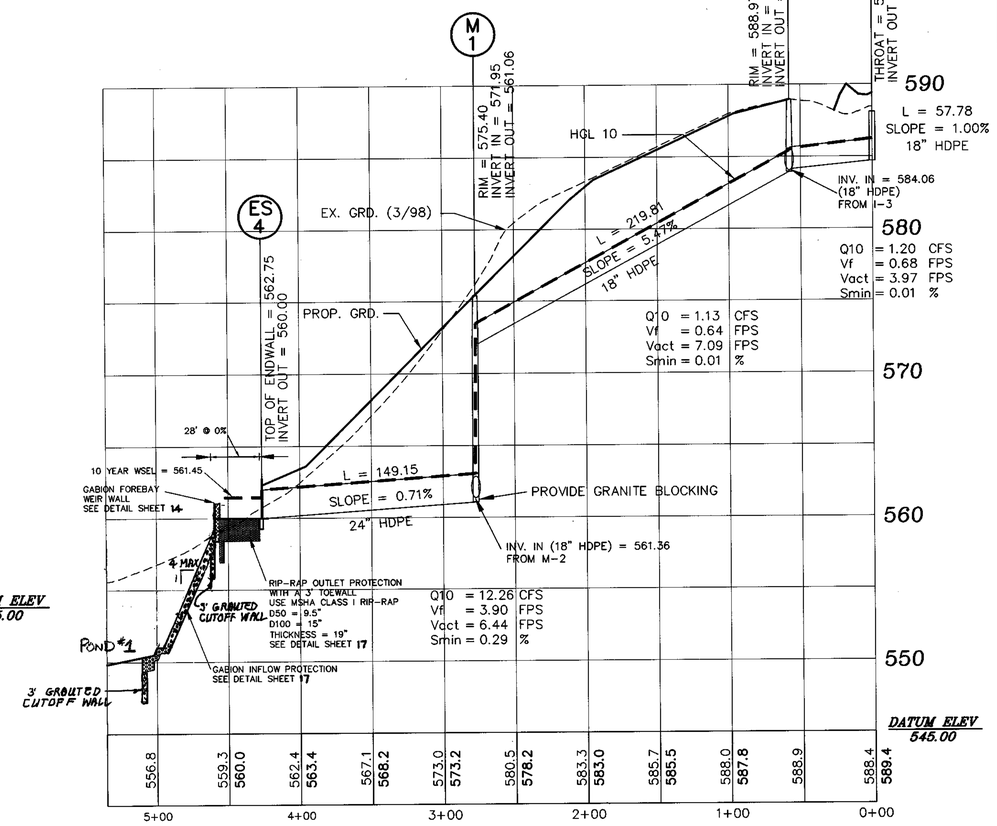
J:\99011-00\99001-13\RISER.DWG

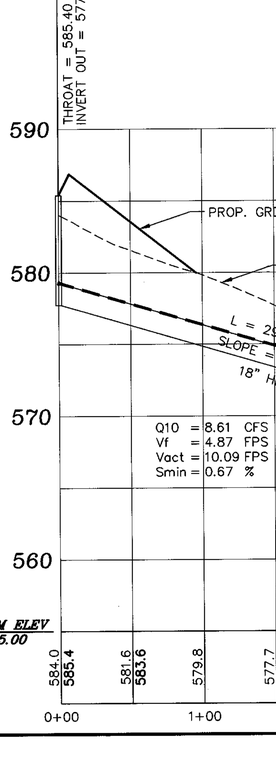
PROFILES ALONG CL STORM DRAIN

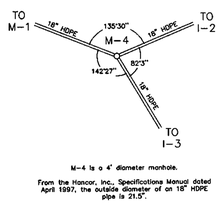
SCALE: 1" = 50' HORIZ.
1" = 5' VERT.







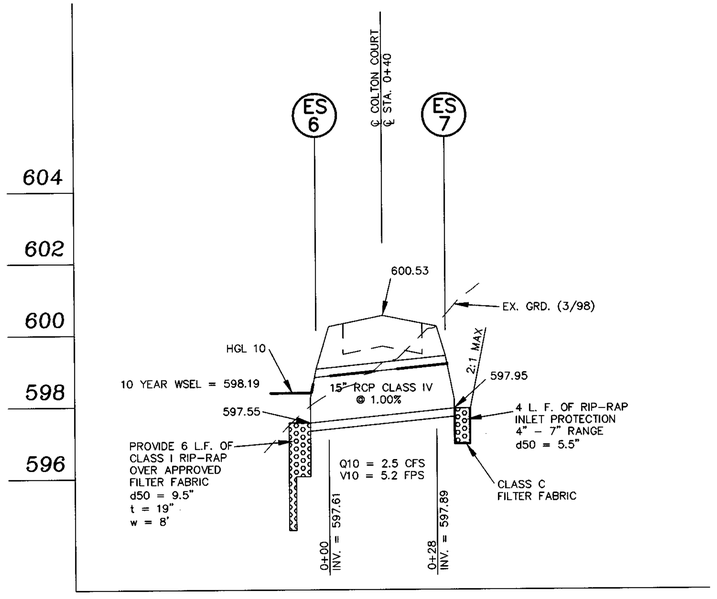




M-4 is a 4' diameter manhole.

From the Hancor, Inc., Specifications Manual dated April 1997, the outside diameter of an 18" HDPE pipe is 21.5".

DETAIL AT M-4
SCALE 1" = 50'



OWNER

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ENGINEER/SURVEYOR:

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CULVERT AT ENTRANCE TO COLTON COURT

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

PIPE SCHEDULE

Type	Total Length
18" HDPE	1341'
24" HDPE	149'
15" RCP CLASS IV	28'

STORM DRAIN DRAINAGE AREAS

Subarea	Zoning	Area (ac)	Area (sq mi)	"C" Factor	% Impervious	T_C (hr)
(B)	(Z)	(A)	(A)	(C)	(P)	
A	RC-DEO	4.22	0.0066	0.31	27	0.20
B	RC-DEO	7.14	0.0110	0.27	17	0.33
C	RC-DEO	0.35	0.0005	0.52	49	0.17
D	RC-DEO	1.55	0.0024	0.32	26	0.25

STORM DRAIN STRUCTURE SCHEDULE

No.	Type	Location				Remarks
I-1	Precast Open End Grate	N	591709.76	E	1284795.88	SD 4.36
I-2	Precast Open End Grate (Double Opening)	STA	2+24.08	O/S	7.50 (Lin. Prof.)	SD 4.36
I-3	Precast Open End Grate (Double Opening)	STA	1+58.40	O/S	7.50 (Lin. Prof.)	SD 4.36
I-4	Precast Open End Grate (Double Opening)	STA	1+59.84	O/S	7.50 (Lin. Prof.)	SD 4.36
M-1	4'0" Precast Manhole	N	591325.78	E	1284359.92	G5.12
M-2	4'0" Precast Manhole	N	591569.32	E	1284432.23	G5.12
M-3	4'0" Precast Manhole	N	591685.84	E	1284609.74	G5.12
M-4	4'0" Precast Manhole	N	591244.63	E	1284563.85	G5.12
M-5	4'0" Precast Manhole	N	592071.15	E	1284449.80	G5.12
ES-4	Type "C" Endwall Circular Pipe	N	591364.97	E	1284233.72	SD 5.21
ES-5	Type "C" Endwall Circular Pipe	N	592093.58	E	1284487.20	SD 5.21
ES-6	Concrete End Section	STA	0+40	O/S	14.00 R	SD 5.52
ES-7	Concrete End Section	STA	0+40	O/S	14.00 L	SD 5.52

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

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11-3-00

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/3/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/6/00

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project 98008-13 | date 04-17-00
illustration JMZ | engineering PFB
scale As Shown | approval RMM

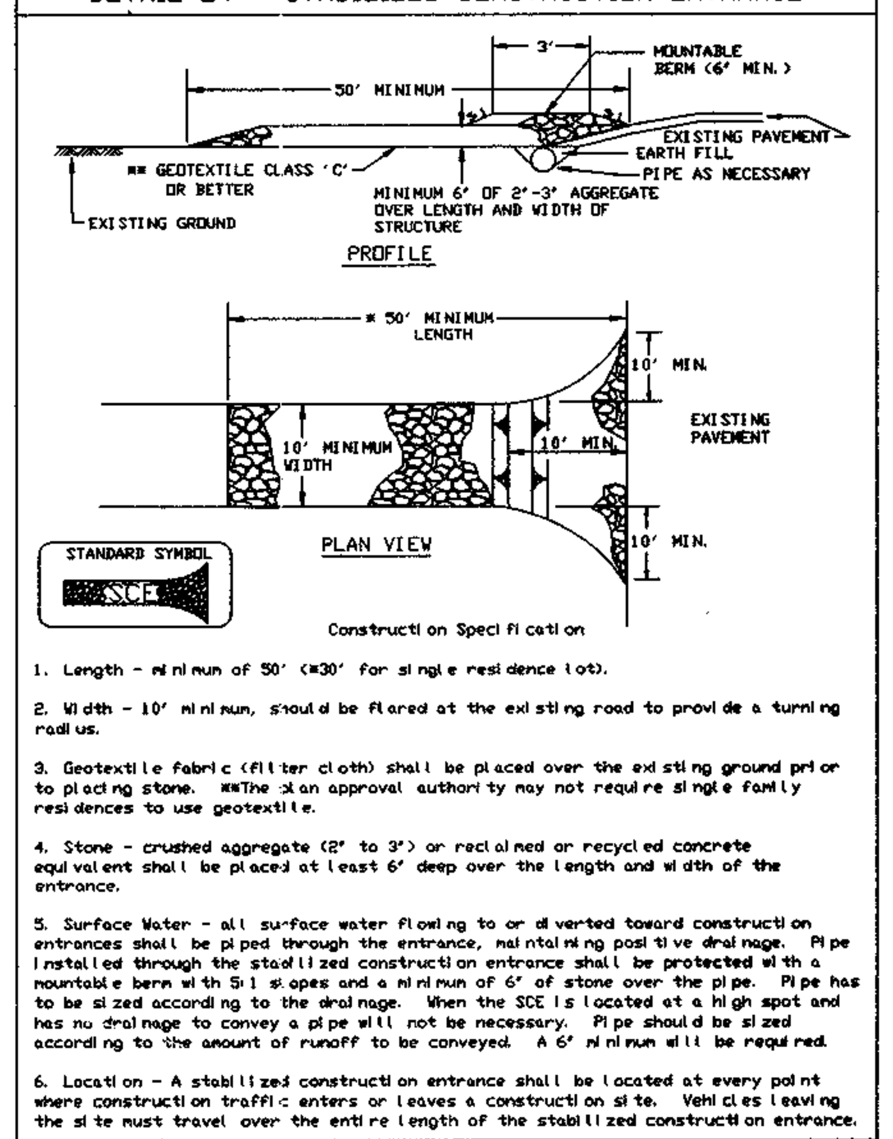
no.	revisions	date
3	REVISED PER DPZ COMMENTS / MYLAR SUBMITTAL	10/16/00
2	REVISED SUBMITTAL TO HOWARD COUNTY DPZ FOR REVIEW	07-24-2000
1	RESUBMITTAL TO HOWARD CO. DPZ FOR REVIEW	01-14-2000

Tax Map 13, Grid 15, Parcel 46 (p/o)
THE WESTWOODS OF CHERRY GROVE
ELECTION DISTRICT NO. 4 — HOWARD COUNTY, MD
STORM DRAIN PROFILES

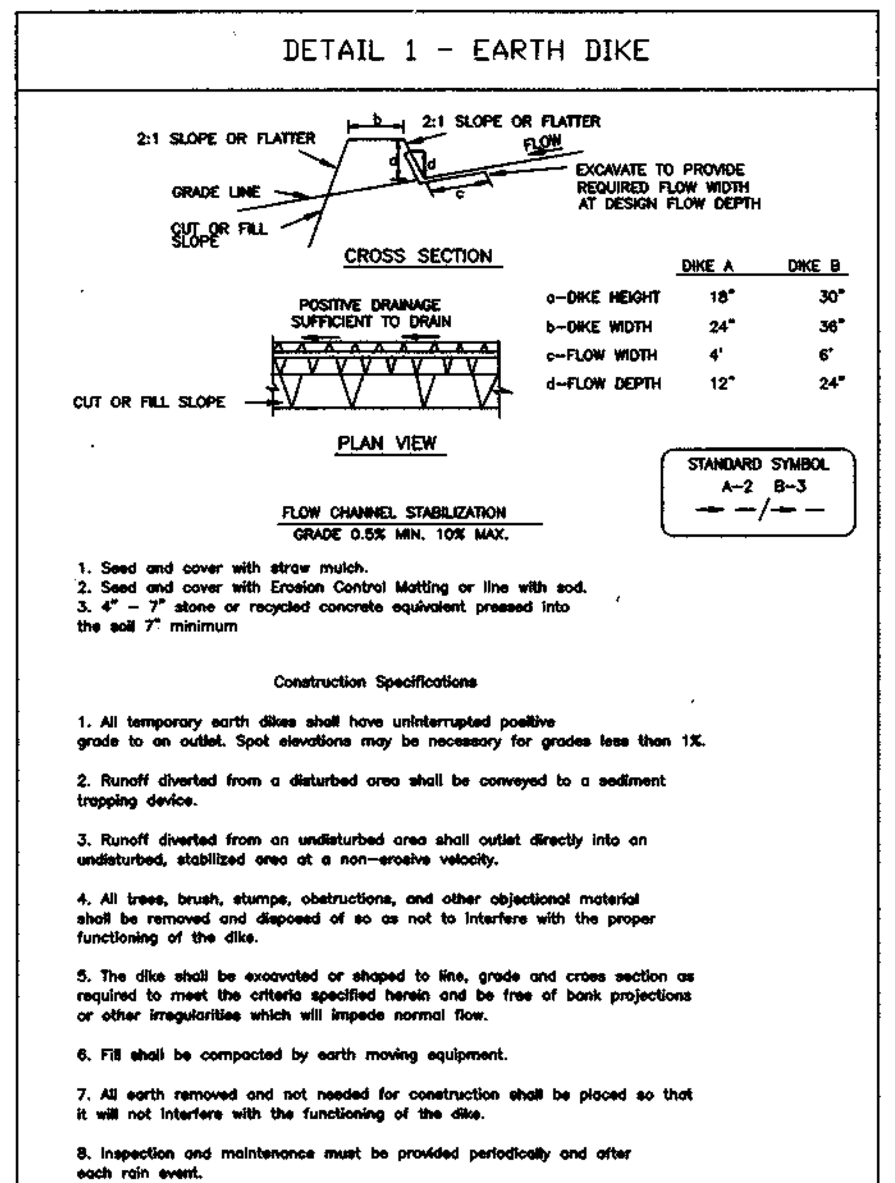
R.M. MOCHI GROUP, P.C.
P.O. Box 10
New Market, MD 21774-0010
(301) 865-5858
Fax: (301) 865-3111

F-00-105

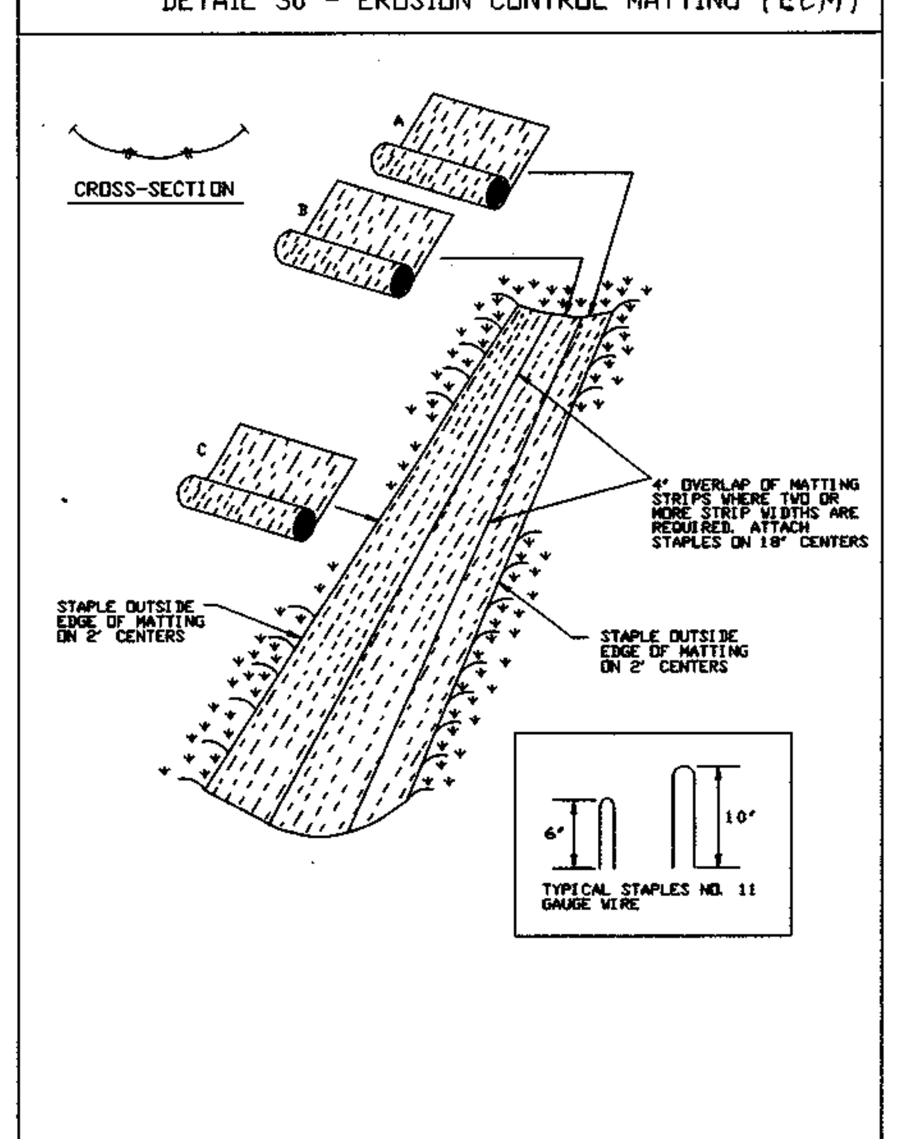
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



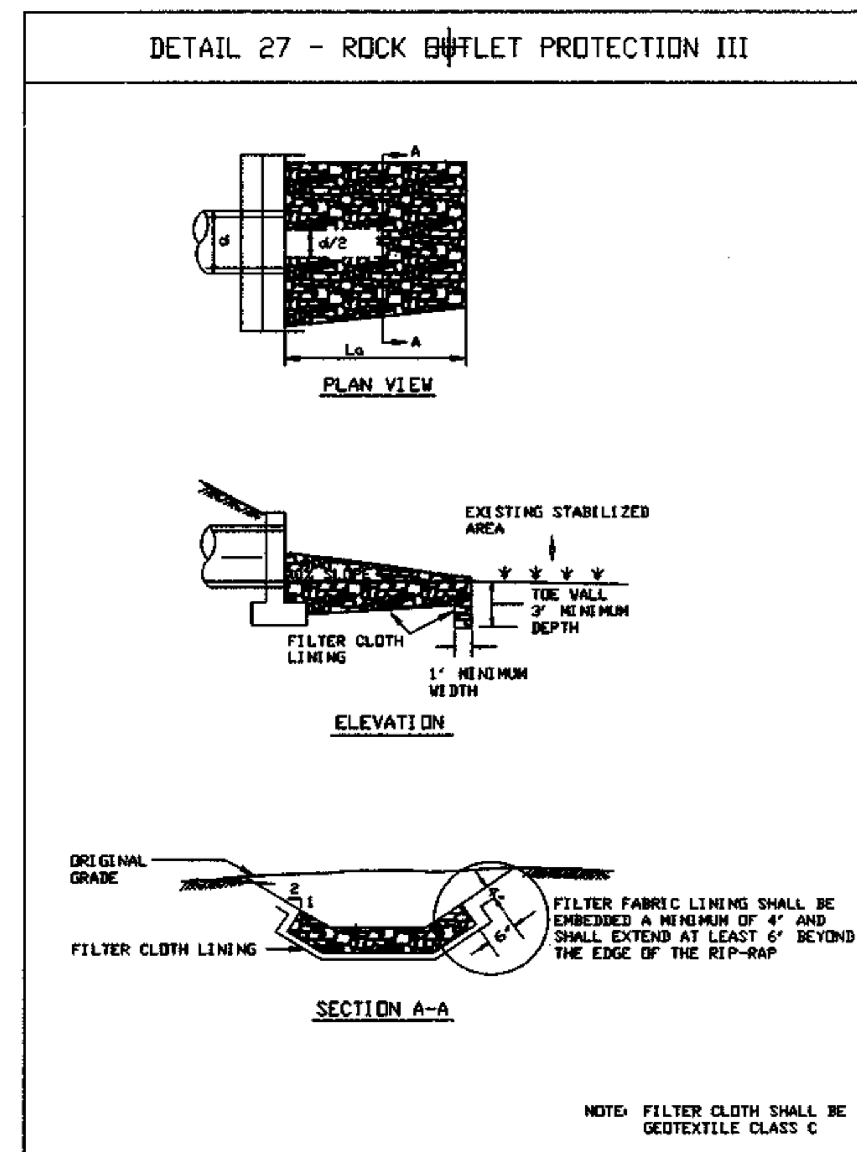
DETAIL 1 - EARTH DIKE



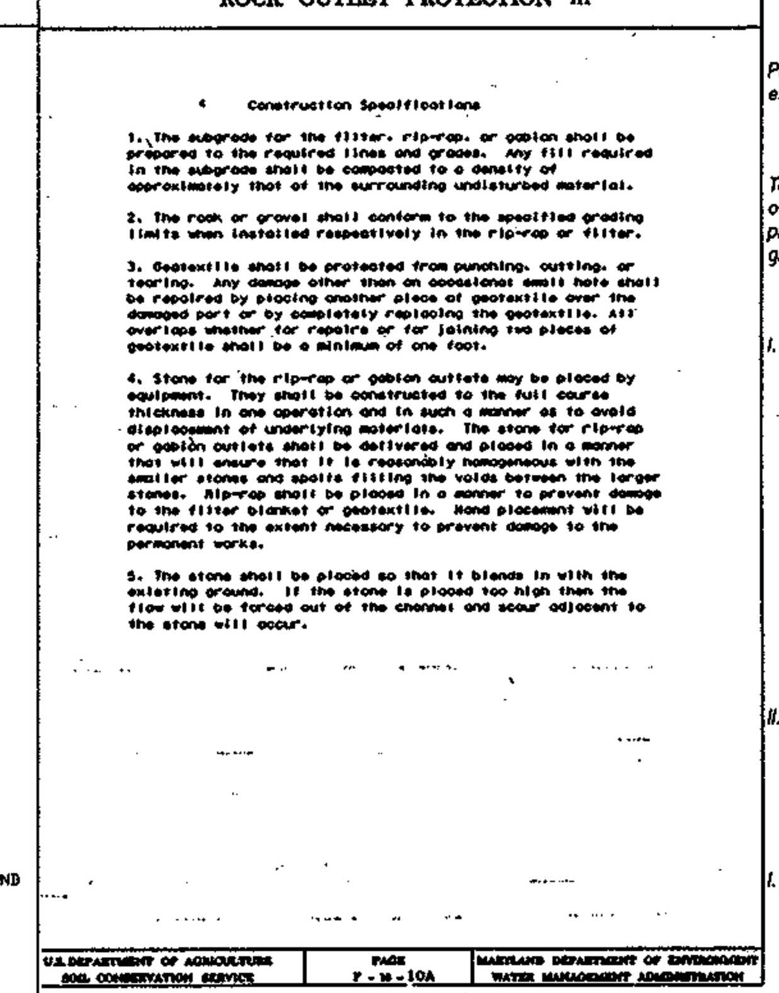
DETAIL 30 - EROSION CONTROL MATTING (ECM)



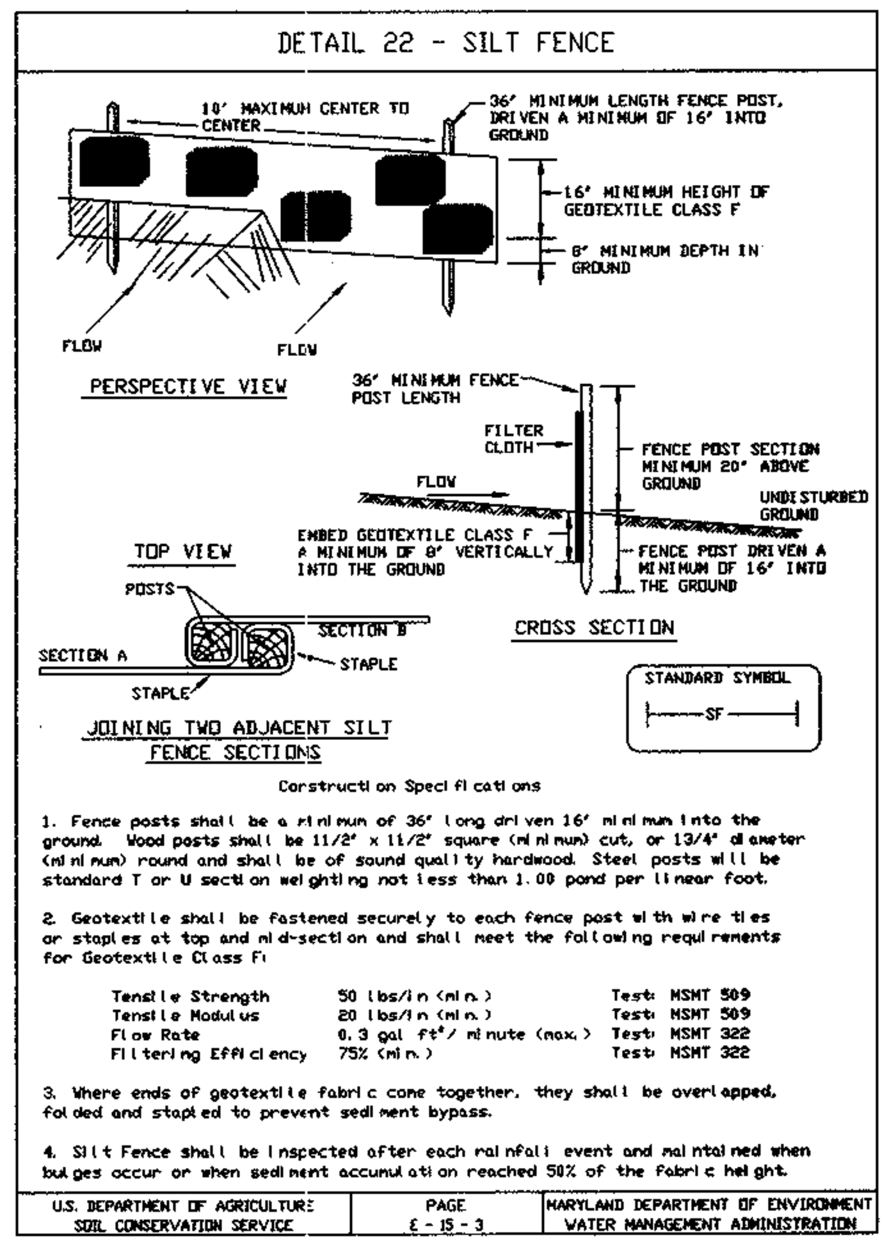
DETAIL 27 - ROCK OUTLET PROTECTION III



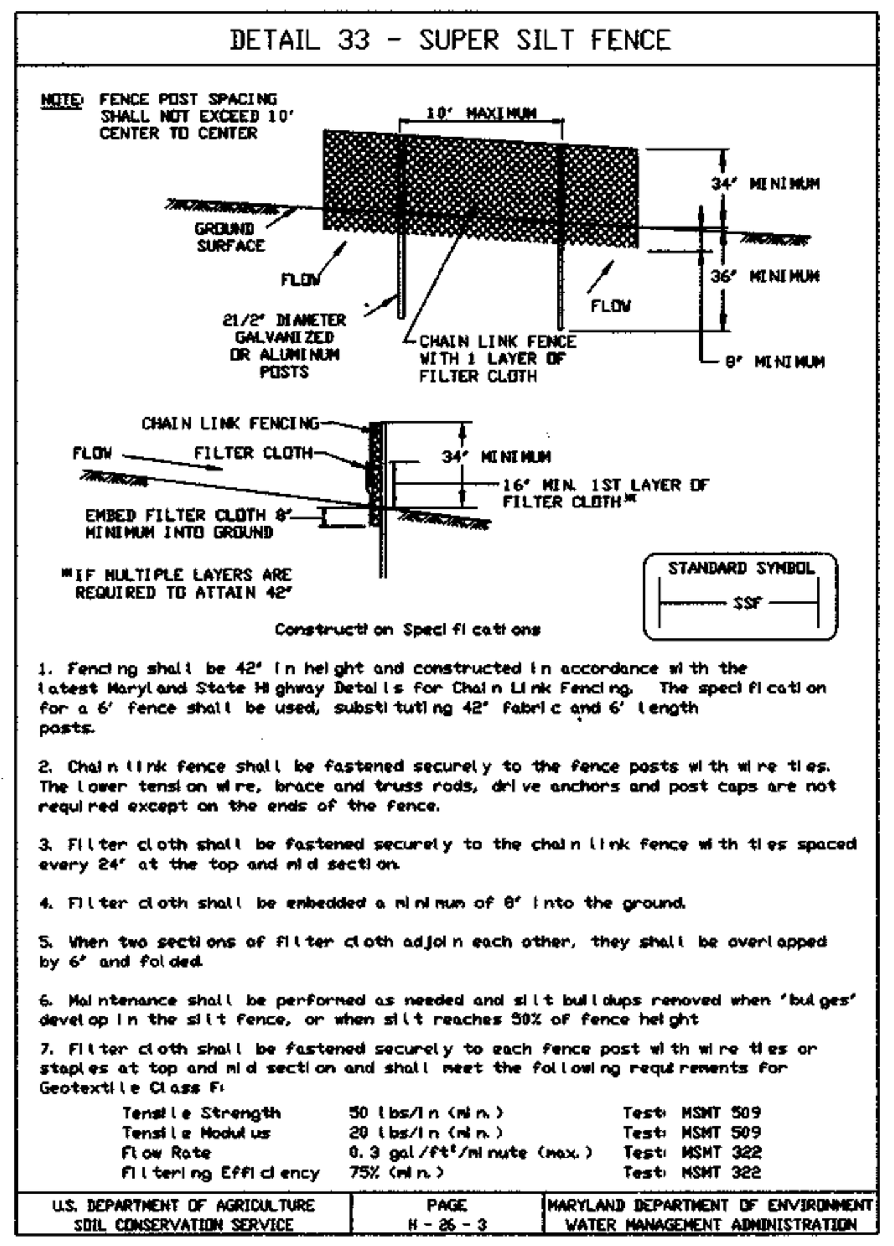
ROCK OUTLET PROTECTION III



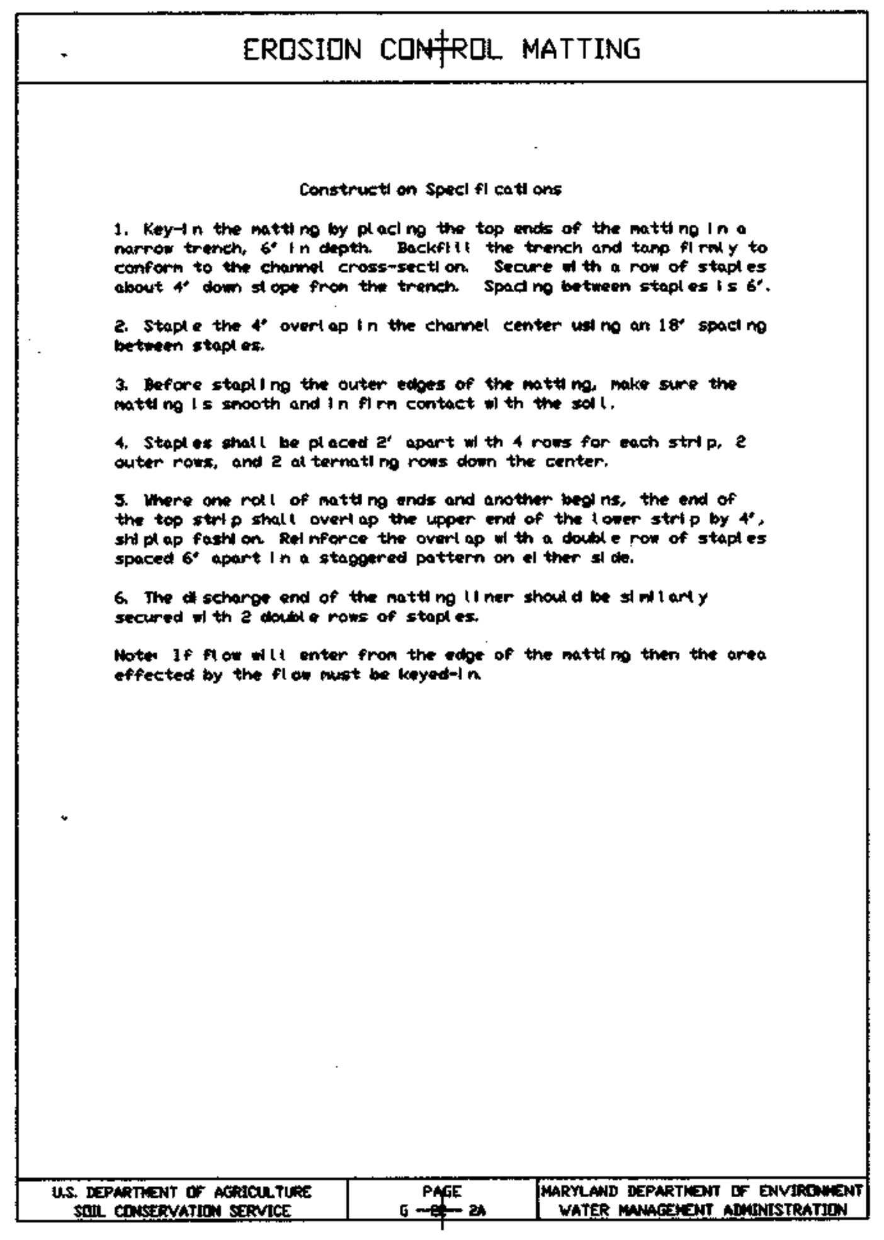
DETAIL 22 - SILT FENCE



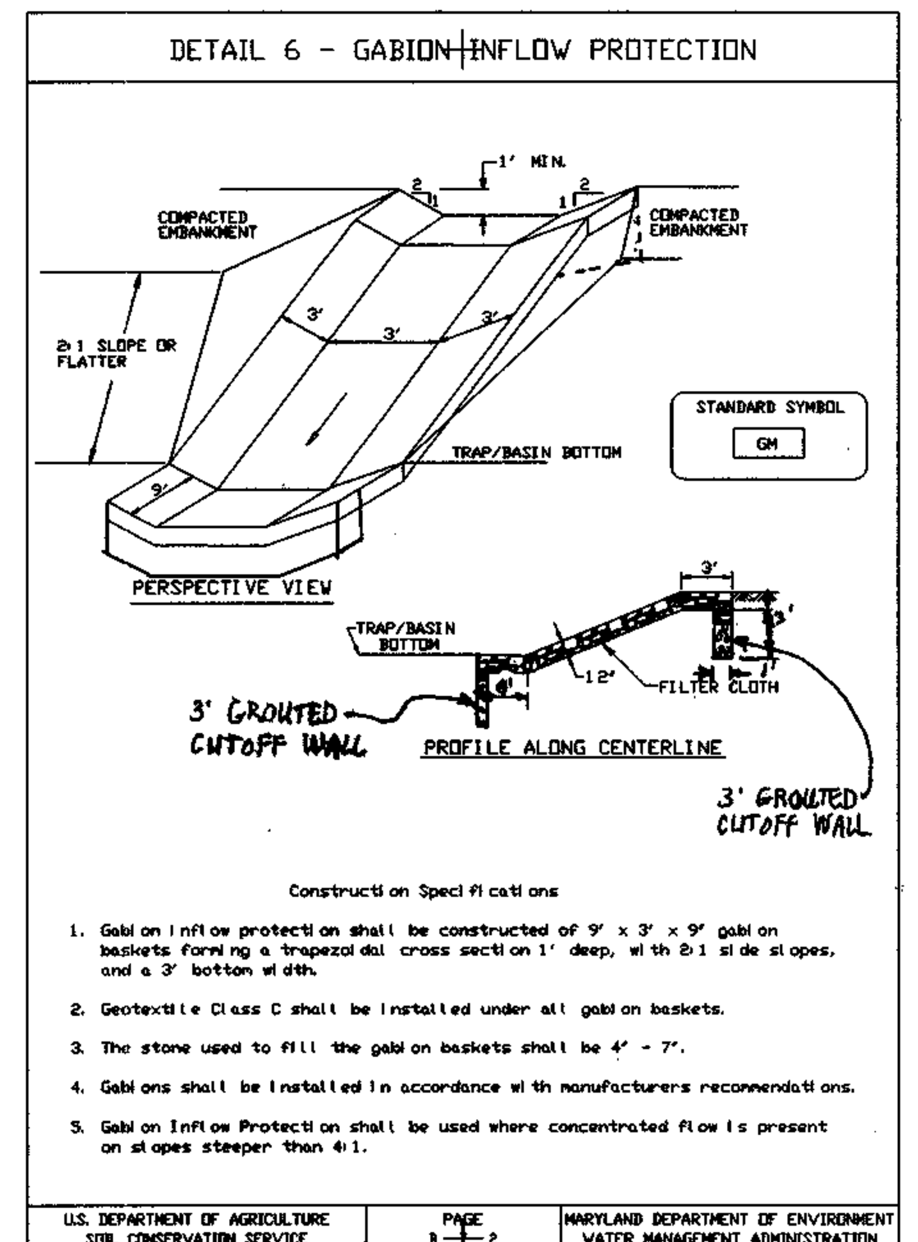
DETAIL 33 - SUPER SILT FENCE



EROSION CONTROL MATTING



DETAIL 6 - GABION INFLOW PROTECTION



24.0 MATERIALS SPECIFICATIONS

Table 27 Geotextile Fabrics

CLASS	APPARENT OPENING SIZE MM. MAX.	GRAB TENSILE STRENGTH LB. MIN.	BURST STRENGTH PSI. MIN.
"A"	0.30	250	500
B	0.60	200	320
C	0.30	200	320
D	0.60	90	145
E	0.30	90	145
F (SILT FENCE)	0.40-0.80*	90	190

* US Std Sieve CW-02215

The properties shall be determined in accordance with the following procedures:

- Apparent opening size MSMT 323
- Grab tensile strength ASTM D 1682: 4x8" specimen, 1x2" clamps, 12"/min. strain rate in both principal directions of geotextile fabric.
- Burst strength ASTM D 3786

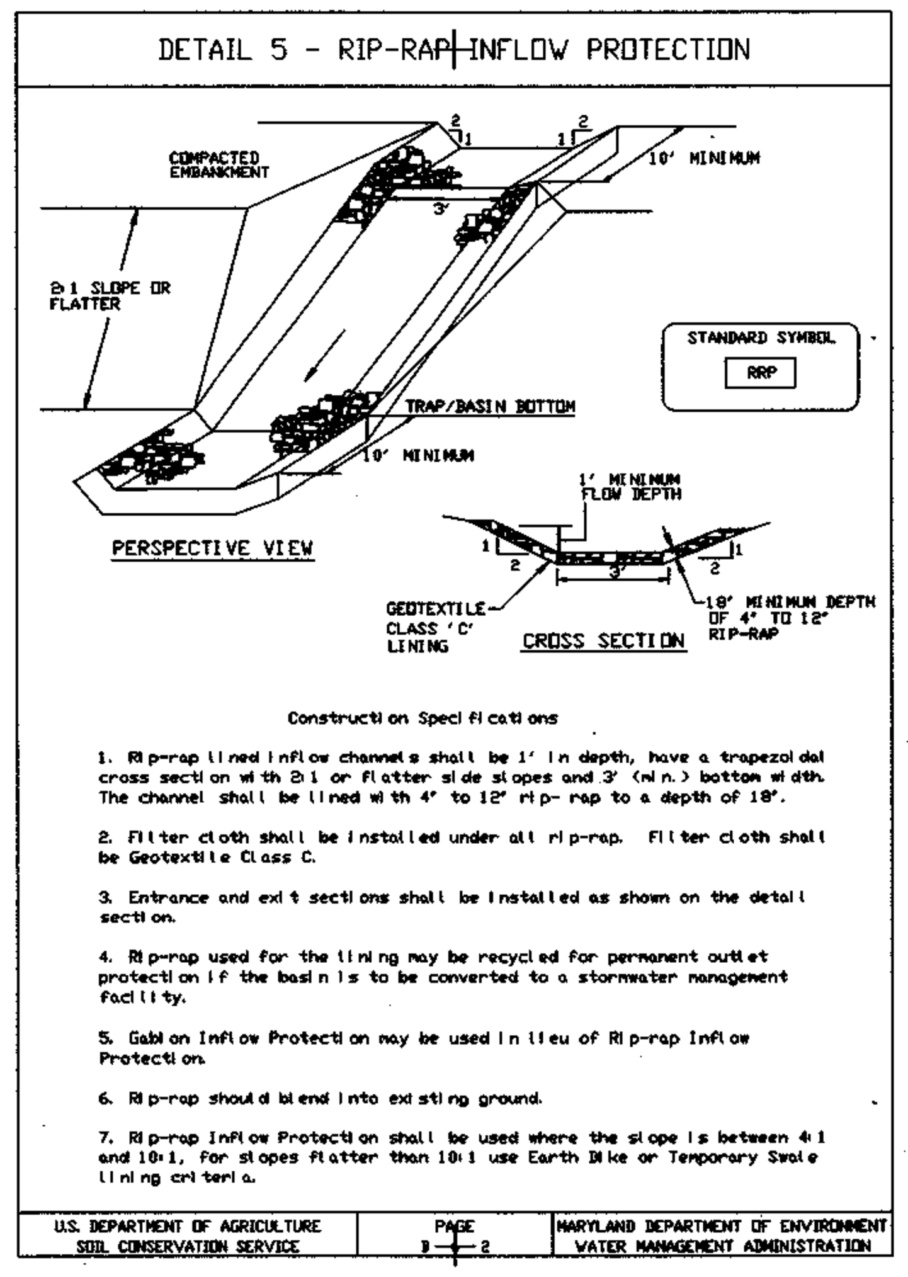
The fabric shall be inert to commonly encountered chemicals and hydrocarbons, and will be rot and mildew resistant. It shall be manufactured from fibers consisting of long chain synthetic polymers, and composed of a minimum of 85% by weight of polyolephins, polyesters, or polyamides. The geotextile fabric shall resist deterioration from ultraviolet exposure.

In addition, Classes A through E shall have a 0.01 cm./sec. minimum permeability when tested in accordance with MSMT 507, and an apparent minimum elongation of 20 percent (20%) when tested in accordance with the grab tensile strength requirements listed above.

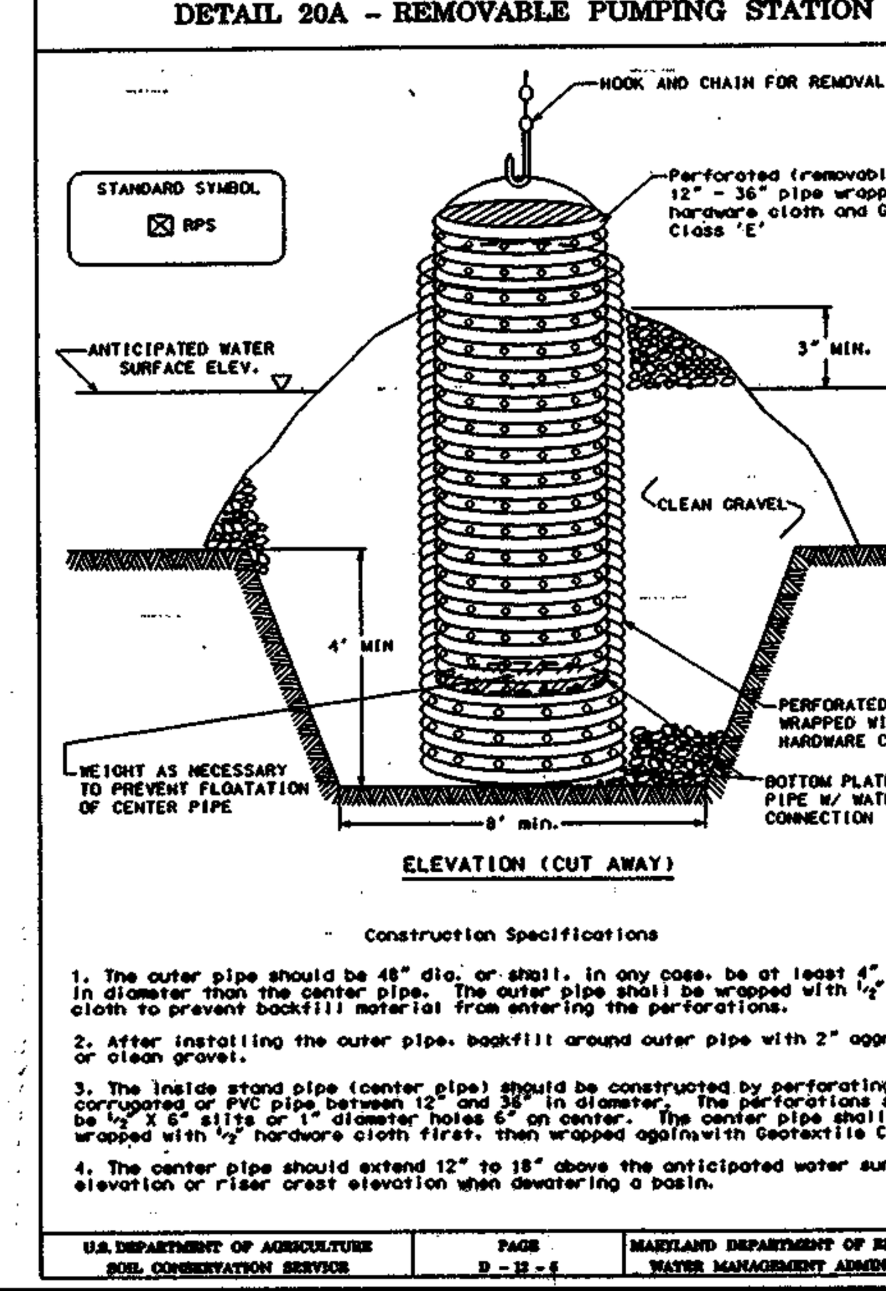
Silt Fence
Class F geotextile fabrics for silt fence shall have a 50 lb./in. minimum tensile strength and a 20 lb./in. minimum tensile modulus when tested in accordance with MSMT 509. The material shall also have a 0.3 gal./ft.²/min. flow rate and seventy-five percent (75%) minimum filtering efficiency when tested in accordance with MSMT 322.

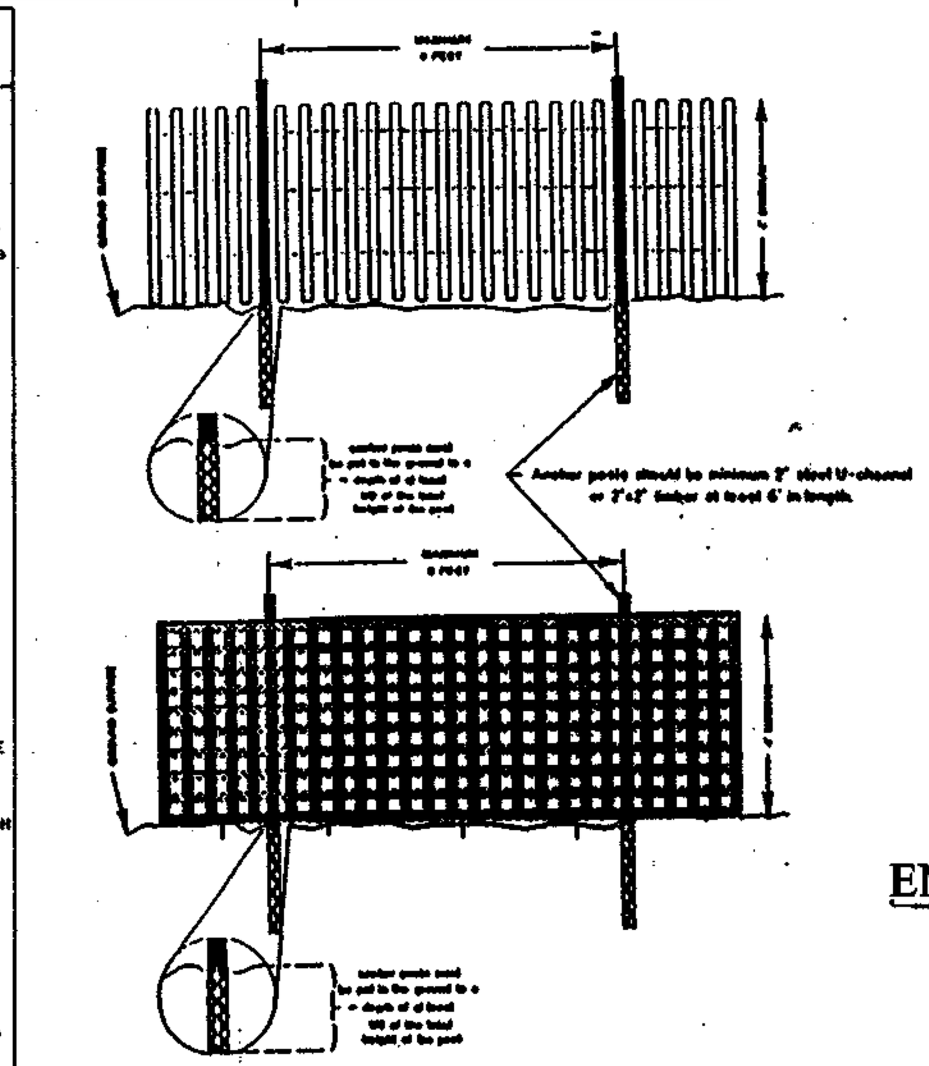
Geotextile fabrics used in the construction of silt fence shall resist deterioration from ultraviolet exposure. The fabric shall contain sufficient amounts of ultraviolet ray inhibitors and stabilizers to provide a minimum of 12 months of expected usable construction life at a temperature range of 0 to 120 degrees F.

DETAIL 5 - RIP-RAP INFLOW PROTECTION



DETAIL 20A - REMOVABLE PUMPING STATION





SAFETY FENCE CONSTRUCTION SPECIFICATIONS

1). Contractor may use snow fence or blaze orange plastic mesh fence where shown on plan.

2). Safety fence to be a minimum 4 foot high.

3). Anchor post to be installed to a depth of at least 1/3 of the total height of the post.

4). Fence is to be built so as not to restrict flow into or out of trap.

SEQUENCE OF CONSTRUCTION

1) Obtain all required permits, approvals and licenses from appropriate agencies . . . . . 2 weeks
2) Notify Howard County Construction Inspection Division (410-313-1880) at least five (5) working days prior to starting work. . . . . 1 day.
3) Install temporary traffic control measures. . . . . 2 days
3) Install stabilized construction entrances. Install tree conservation signs and tree protection fences as required (see Sign & Fence Detail on Sheet 8). . . . . 2 days
4) Construct SWM Ponds. . . . . 8 weeks
   A) Install silt fence below SWM ponds. Install clean water diversion dikes for Pond #2 to divert clean water away from pond construction area.
   B) Clear and grub area for SWM ponds.
   C) Install temporary sandbag wall and diversion pipe for Pond #3.
   D) Construct core trench with suitable material as verified by a Professional Engineer.
   E) Construct principle spillway precast structure, barrel, cradle, anti-seep collar, and outfall per plans.
   F) Upon obtaining proper inspections and certifications, backfill principal spillway.
   G) Complete embankment fills and excavate for pond volumes per plan. (Note: Ponds #1 and #2 will be utilized as a sediment control basin during construction. Delay construction of forebay, construct 6" temporary sediment control vertical draw-down device and brick weirs per details on Sheets 11 and 12.)
   H) Secure permission from Inspector before proceeding.
6) Install remaining sediment controls for the rest of the site. Secure permission from Inspector before proceeding. . . . . 1 week
7) Clear and grub remainder of site. Mass grade site. (Note: The existing gravel driveway to the Bounds property will be maintained in place and open for use until Colton Court is completed and the Bounds property is connected. Particular attention will be paid to assuring minimum disturbance to Bounds' traffic at the point where Colton Court and the gravel driveway intersect. . . . . 4 weeks
8) Construct storm drains. Upon installation of I-1, brick shut and bypass flows from inlets. . . . . 3 weeks
9) Construct roads. . . . . 2 weeks
10) Remove temporary stockpiles and stabilize disturbed areas.
11) Upon stabilization of all disturbed areas, clean and flush storm drainage, remove remaining sediment controls, convert sediment basins to final SWM Ponds and stabilize. . . . . 1 week
12) Notify Howard County Office of Inspection and Permits for final inspection of completed project. . . . . 1 week

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21.0 Standard and specification for Topsoil

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable soil medium for vegetation growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the zone material is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these standards and specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on plans.

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in theses specifications. Typically, the depth of the topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.

ii. Topsoil must be free of plants or plant parts such as bermuda grass, quack grass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.

iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

II. For sites having disturbed areas under 5 acres:

i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

III. For sites having disturbed areas over 5 acres:

i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following

a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrated a pH of less than 6.0, sufficient lime shall be perscribed to raise the pH to 6.5 or higher.

b. Organic content of topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientistand approved by the appropriate approval authority, may be used in lieu of natural topsoil.

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

V. Topsoil Application

i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.

iii. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water packets.

iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribed amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

c. Composted sludge shall be applied at a rate of 1 ton / 1,000 square feet.

iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb. / 1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub. #1, Cooperative Extension Services, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

PERMANENT SEEDING NOTES

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

Seedbed Preparation: Loosen upper three inches of soil be raking, discing or other acceptable means before seeding. (If not previously loosened)

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

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

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

Mulching: Apply 1-1/12 to 2 tons per acre (70 to 90 lbs/1000 sf) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

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

TEMPORARY SEEDING NOTES

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

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

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

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

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

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

SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
3. Following initial soil disturbances or re-disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 calendar days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter is accordance with Vol. 1, Chapter 7 of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding, sod, temporary seeding, and mulching (Sec. G). Temporary stabilization with mulch alone shall only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis:

Total Area of Site:	63.28 Ac.
Area to be Disturbed	7.7 Ac.±
Area to be roofed or paved:	1.6 Ac.±
Area to be vegetatively stabilized:	6.1 Ac.±
Total Cut:	10400 c.y.±
Total Fill:	7800 c.y.±
Off Site Waste/Borrow Area:	N/A

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment controls must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.
12. Quantities and estimates shown are for sediment control purposes only. Contractor shall prepare his/her own quantity estimates to his/her satisfaction.

* All excess material shall transported to a suitable spoil site with appropriate sediment control measures as required.

Table 28 Stone Size

	SIZE RANGE	D_{50}	D_{100}	AASHTO	WEIGHT
NUMBER 57*	3/8" - 1 1/2"	1/2"	1 1/2"	M-43	N/A
NUMBER 1	2" - 3"	2 1/2"	3"	M-43	N/A
RIP-RAP**	4" - 7"	5 1/2"	7"	N/A	N/A
CLASS I	N/A	9.5"	15"	N/A	150lb max
CLASS II	N/A	16"	24"	N/A	700lb max
CLASS III	N/A	23"	34"	N/A	2000lb max

* This classification is to be used on the inside face of stone outlets and check dams.

** This classification is to be used when ever small rip-rap is required. The State Highway Administration designation for this stone is Stone For Gabions (§905.01.04).

Stone For Gabion Baskets

BASKET THICKNESS		SIZE OF INDIVIDUAL STONES	
INCHES	MM	INCHES	MM
6	150	3 - 5	75 - 125
9	225	4 - 7	100 - 175
12	300	4 - 7	100 - 175
18	460	4 - 7	100 - 175
36	910	4 - 12	100 - 300

NOTE: Recycled concrete equivalent may be substituted for all stone classifications. Recycled concrete equivalent shall be concrete broken into the sizes meeting the appropriate classification, shall contain no steel reinforcement, and shall have a density of 150 pounds per cubic foot.

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 11-3-00
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 11/15/00
CHIEF, DIVISION OF LAND DEVELOPMENT [redacted] DATE

[signature] 11/10/00
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] 10/20/00
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 EROISION AND SEDIMENT CONTROL.

J G. Warfield/CS. 10/20/00
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 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.

[signature] 10/10/00
Signature of Developer DATE

ENGINEER'S CERTIFICATE
I hereby certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

[signature] 10/13/00
Robert M. Mochi, P.E. DATE

project	date	illustration	engineering	scale	approval
98008.13	01-12-00	K.M.B.	P.F.B.	as shown	R.M.M.

no.	description	date
3	REVISED PER DPZ COMMENTS/MYLAR SUBMITTAL	10/06/00
2	REV'D SUBMITTAL TO HOWARD CO. DPZ FOR REVIEW	7-26-00
1	REV'D SUBMITTAL TO HO. CO. DPZ. FOR REVIEW	04-28-2000
0	1ST SUBMITTAL TO HO. CO. DPZ FOR REVIEW	01-14-2000

revisions

Tax Map 13, Grid 15, Parcel 46 (p/o)
THE WESTWOODS OF CHERRY GROVE
ELECTION DISTRICT NO. 4 HOWARD COUNTY, MD.
SEDIMENT CONTROL NOTES AND DETAILS

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SOIL LEGEND		
SYMBOL	NAME	HYDRO GROUP
ChA	Chester silt loam, 0 to 3% slopes	B
ChB2	Chester silt loam, 3 to 8% slopes, moderately eroded	B
ChC2	Chester silt loam, 8 to 15% slopes, moderately eroded	B
ChD2	Chester silt loam, 15 to 25% slopes, moderately eroded	B
G1B2	Glenelg loam, 3 to 8% slopes, moderately eroded	B
G1C3	Glenelg loam, 8 to 15% slopes, severely eroded	B
GnB2	Glenville silt loam, 3 to 8% slopes, moderately eroded	C
MID2	Manor loam, 15 to 25% slopes, moderately eroded	B
MtC2	Mt. Airy channery loam, 8 to 15% slopes, moderately eroded	B
GnB2 *	Glenville silt loam, 3 to 8% slopes, moderately eroded	C

* Soils with hydric inclusions

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NOTE: THIS SHEET TO BE USED FOR DRAINAGE AREAS ONLY.

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11-3-00

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/13/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/16/00

LEGEND:

PROPOSED S.W.M. DRAINAGE AREAS

PROPOSED STORM DRAIN DRAINAGE AREAS

Tc PATHS

(1B) S.W.M. SUBAREAS

(A) STORM DRAIN SUBAREAS

X FLOODPLAIN STUDY PT. FOR DETAILS SEE APPROVED STUDY 5/7/99

STORMWATER MANAGEMENT DRAINAGE AREAS						
Subarea (B)	Zoning (Z)	Area (ac) (A)	Area (sq mi) (A)	CN (C)	% Impervious (P)	T_C (hr)
1A	RC-DEO	18.60	0.0291	63	12	0.32
1B	RC-DEO	4.47	0.0070	61	5	0.24
2A	RC-DEO	13.50	0.0211	66	16	0.23
2B	RC-DEO	15.90	0.0248	65	12	0.26
2C	RC-DEO	23.95	0.0374	61	5	0.29
3A	RC-DEO	15.20	0.0238	62	9	0.45

STORM DRAIN DRAINAGE AREAS						
Subarea (B)	Zoning (Z)	Area (ac) (A)	Area (sq mi) (A)	"C" Factor (C)	% Impervious (P)	T_C (hr)
A	RC-DEO	4.22	0.0066	0.31	27	0.24
B	RC-DEO	7.14	0.0110	0.27	17	0.33
C	RC-DEO	0.35	0.0005	0.52	49	0.17
D	RC-DEO	1.55	0.0024	0.32	26	0.25

no.	description	date
3	REVISED PER DPZ COMMENTS / MYLAR SUBMITTAL	10/26/00
2	REVISED SUBMITTAL TO HOWARD CO. DPZ FOR REVIEW	7/26/00
1	REVISED SUBMITTAL TO HOWARD CO. DPZ FOR REVIEW	5-25-00
0	SUBMITTED TO HOWARD COUNTY DPZ FOR REVIEW	01-14-2000

project	date	engineering
98008.13	01-13-00	PFB
illustration	scale	approval
KMB	1"=100'	RMM

Tax Map 13, Grid 15, Parcel 46 (p/o)

THE WESTWOODS OF CHERRY GROVE

ELECTION DISTRICT NO. 4 — HOWARD COUNTY, MD

PROPOSED SWM/STORM DRAIN DRAINAGE AREA MAP

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