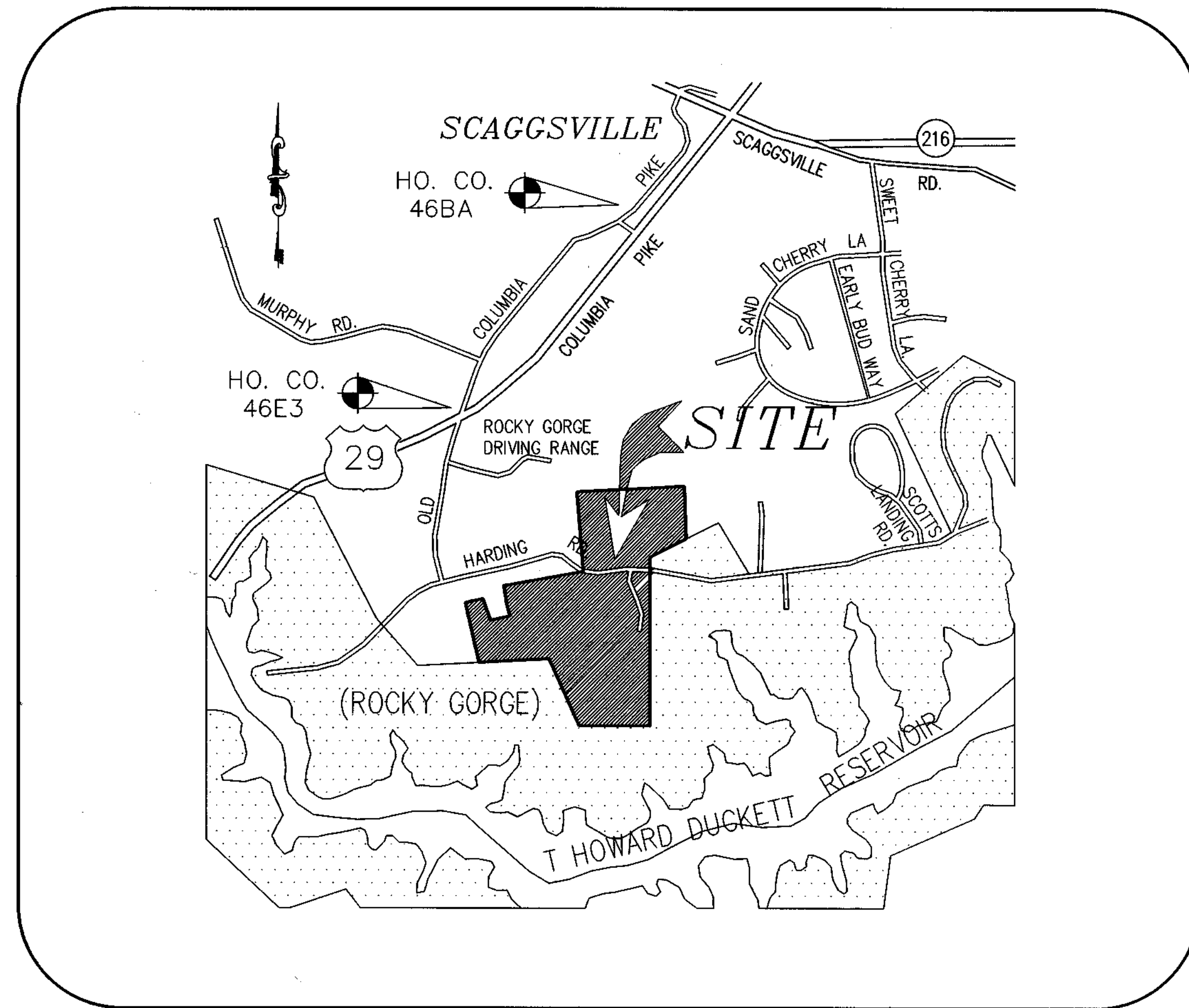


SHEET INDEX

COVER SHEET	1
ROAD PLAN AND PROFILES	2
ROAD PLAN AND PROFILES	3
ROAD PLAN AND PROFILES	4
ROAD PLAN AND PROFILES	5
ROAD PLAN AND PROFILES	6
ROAD PLAN AND PROFILES	7
GRADING AND EROSION & SEDIMENT CONTROL PLAN	8
GRADING AND EROSION & SEDIMENT CONTROL PLAN	9
GRADING AND EROSION & SEDIMENT CONTROL PLAN	10
EROSION & SEDIMENT CONTROL NOTES AND DETAILS	11
STORM DRAIN PROFILES	12
STORM DRAIN PROFILES	13
STORM DRAIN PROFILES	14
POND 2 STORMWATER MANAGEMENT PROFILES AND DETAILS	15
POND 2 STORMWATER MANAGEMENT DETAILS	16
POND 2 STORMWATER MANAGEMENT DETAILS	17
SWM NOTES & SPECIFICATIONS AND TRAFFIC CONTROL PLAN	18
POND 1 CONSTRUCTION AND PLANTING PLAN	19
POND 3 & 4 CONSTRUCTION & PLANTING PLAN	20
BIORETENTION NOTES AND DETAILS	21
POND 1 & 4 PROFILES	22
POND 3 & 4 PROFILES	23
SWM DETAILS FOR PONDS 1, 3 & 4	24
SOIL BORINGS	25
DRAINAGE AREA MAP	26
LANDSCAPE PLAN	27
LANDSCAPE PLAN	28
LANDSCAPE PLAN	29
FOREST CONSERVATION AND REFORESTATION PLAN	30
FOREST CONSERVATION AND REFORESTATION NOTES & DETAILS	31

ROAD CONSTRUCTION PLANS RESERVOIR OVERLOOK, LOTS 1 THRU 110 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND



VICINITY MAP

SCALE: 1"=1000'

DEVELOPER

RESERVOIR OVERLOOK, L.C.
6820 ELM STREET, SUITE 200
MCLEAN, VIRGINIA 22101
(703) 734-9730

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/CONSTRUCTION INSPECTIONS DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS PRIOR TO ANY EXCAVATION WORK:

MISS UTILITY	1-800-257-7777
C&P TELEPHONE COMPANY	(410) 725-9976
HOWARD COUNTY BUREAU OF UTILITIES	(410) 313-4900
AT&T CABLE LOCATION DIVISION	(410) 393-3533
BALTIMORE GAS & ELECTRIC	(410) 685-0123
STATE HIGHWAY ADMINISTRATION	(410) 531-5533
HOWARD COUNTY DEPT. OF PUBLIC WORKS/ CONSTRUCTION INSPECTION DIVISION	(410) 313-1880
- PROJECT BACKGROUND:
LOCATION: SIXTH ELECTION DISTRICT - TAX MAP 46 - PARCELS 186, 75, 187 & 78
ZONING: R-20
TOTAL TRACT AREA: 58.98 ACRES ±
NUMBER OF PROPOSED LOTS: 110 (101 BUILDABLE)
ACREAGE OF PROPOSED LOTS: 34.53 ACRES ±
OPEN SPACE REQUIRED: 17.69 ACRES ± (30%)
OPEN SPACE PROVIDED: 17.79 ACRES ±
RECREATIONAL OPEN SPACE REQUIRED (101 UNITS X 200 SQ. FT.): 20,200 SQ. FT. (0.46 ACRES)
RECREATIONAL OPEN SPACE PROVIDED: 20,200 SQ. FT. (0.46 ACRES)
PROPOSED ROAD DEDICATION: 6.66 ACRES ±
AREA OF STEEP SLOPES: 0.45 ACRES
AREA OF 100 YEAR FLOODPLAIN: 1.63 ACRES ±
DPZ REFERENCE #:
- S-97-07 APPROVED ON MARCH 19, 1997.
- WP-97-62 APPROVED ON MARCH 12, 1997.
- WP-97-138 APPROVED ON JULY 25, 1997.
- P-98-03 APPROVED ON OCTOBER 23, 1997.
- TWO FOOT CONTOUR TOPOGRAPHY AND EXISTING CONDITIONS BASED ON FIELD RUN TOPOGRAPHIC SURVEY BY R.C. KELLY, INC. IN JANUARY 1997.
- HORIZONTAL AND VERTICAL DATUMS BASED ON (NAD'83) MARYLAND STATE COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS.

STA No. 46E3	N 535,610.721 E 1,337,927.650	EL= 410.06
STA No. 46BA	N 537,545.849 E 1,339,849.084	EL= 426.51
- STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- WATER AND SEWER ARE PUBLIC, CONTRACT #24-3671-D. LOT 109 WILL BE SERVICED BY PRIVATE WATER AND SEWERAGE SYSTEMS.
- STORMWATER MANAGEMENT CONTROL WILL BE PROVIDED BY THE METHOD OF RETENTION FOR POND 2 AND BIORETENTION FOR PONDS 1, 3, AND 5. STORMWATER MANAGEMENT FACILITIES WILL BE PUBLICLY OWNED AND PRIVATELY OPERATED AND MAINTAINED.
- GEOTECHNICAL REPORT PREPARED BY GEO-TECHNOLOGY ASSOCIATES, INC. ON JUNE 16, 1997.
- TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- HOUSES NOT CONTROLLED BY THE SWM POND WILL HAVE DRY WELLS AT SDP STAGE.
- COMPACTION IN FILL AREAS TO BE 95% AS DETERMINED PER AASHTO T-180.
- CONTRACTOR TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES ON SITE PRIOR TO COMMENCING CONSTRUCTION.
- FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.200 OF HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OR CONSERVATION EASEMENT ARE ALLOWED.
- A PORTION OF THE FOREST CONSERVATION OBLIGATIONS INCURRED BY THIS SUBDIVISION (2.25 ACRES OF REFORESTATION) HAVE BEEN MET BY PAYMENT OF \$ 34,368.90 TO THE HOWARD COUNTY FOREST CONSERVATION FUND. THE REMAINING OBLIGATION OF 3.69 ACRES WAS PLANTED ON SITE.
- WETLAND DELINEATION PERFORMED BY BILL BRIDGELAND AND CONFIRMED BY HOWARD COUNTY SOIL CONSERVATION DISTRICT AND M.D.E.
- PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- OPEN SPACE LOTS WILL BE CONVEYED TO HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS.
- SLOPES IN EXCESS OF 25% EXIST AND ARE IDENTIFIED WHERE THEY EXCEED 20,000 SQ. FT.
- THE WETLAND AREAS ON OPEN SPACE LOT 4 TO BE REMOVED IN COMPLIANCE WITH THE COUNTY AND STATE APPROVALS. WETLAND REMOVAL PERMITTED UNDER NON-TIDAL WETLANDS AND WATERWAYS AUTHORIZATION NO. 97-NI-0052/199761555.
- ALL EXISTING STRUCTURES TO BE REMOVED.
- FLOODPLAIN STUDY PERFORMED BY AMERICAN ENGINEERING, INC. IN JULY 1997.
- WSSC HAS APPROVED DISCHARGE OF FLOWS IN EXCESS OF THE 2-YEAR STORM TO THE T. HOWARD DUCKETT RESERVOIR.
- ON JUNE 9, 1997 M.D.E. ISSUED THEIR INTENT TO ISSUE NON-TIDAL WETLANDS AND WATERWAYS AUTHORIZATION NO. 97-NI-0052/199761555.
- WAIVER TO CUL-DE-SAC LENGTH WAS APPROVED BY THE DEVELOPMENT ENGINEERING DIVISION ON JANUARY 17, 1997.
- WP-97-62 AND WP-97-138 WERE APPROVED FOR LOT 109 FRONTAGE ON A PUBLIC ROAD.
- WAIVER TO SECTION 16.116(c)(2), DISTURBANCE OF STREAM BUFFER FOR THE PURPOSE OF CREATING A STORMWATER MANAGEMENT BIORETENTION FACILITY, WAS GRANTED ON SEPTEMBER 8, 1997 UNDER WP-97-138.
- THE STREET LIGHT LOCATIONS AND TYPES OF LIGHTS SHOWN ON SHEETS 2 THRU 7 ARE AS FOLLOWS :
 - 150-WATT HPS VAPOR PENDANT FIXTURE (CUTOFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12" ARM ANGLED RADIAL TO THE FILLET AT BISHOPS GATE LANE, STATION 0+30, 30' RIGHT.
 - 100-WATT "TRADITIONAIRE" HPS VAPOR POST TOP FIXTURE ON A 14' BLACK FIBERGLASS POLE AT BISHOPS GATE LANE, STATION 2+81, 21' RIGHT, STATION 7+10, 17' RIGHT, STATION 9+80.30, 15' LEFT, AND STATION 14+10, 17' RIGHT, KNIGHTS LANDING COURT, STATION 2+81.43, 22' LEFT, CASTLEWOOD COURT STATION 6+23.18, 22' LEFT, CHAUCERS RIDGE COURT STATION 5+00, 15' RIGHT AND STATION 9+35.64, 43' LEFT, OXFORD CREST LANE STATION 0+50, 15' RIGHT AND STATION 3+99, 17' LEFT, AND WINDSOR WALK COURT WEST LINEAR PROFILE STATION 1+70, 3' RIGHT.
- IF MATERIAL IS WITHIN 8% OF OPTIMUM MOISTURE, WORKING THE MATERIAL UNTIL REQUIRED COMPACTION IS ACHIEVED IS CONTRACTOR'S RESPONSIBILITY.
- ALL EXISTING FENCING AND EXISTING STRUCTURES TO BE REMOVED EXCEPT AS INDICATED (LOT 1).
- MAXIMUM HOUSE WIDTH FOR LOT 6 IS 56 FEET.

AS-BUILT CERTIFICATION

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

SIGNATURE

DATE

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

BY THE DEVELOPER:

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

SIGNATURE OF DEVELOPER

DATE

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REFORESTATION AND WETLANDS PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THE INFORMATION THIS PLAN IS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DISTRICT OF MY INTENT TO CONSTRUCT AND I 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 OF ENGINEER

DATE

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

CHIEF, NATURAL RESOURCES CONSERVATION SERVICE

DATE

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

HOWARD SOIL CONSERVATION DISTRICT

DATE

APPROVED - PRIVATE WATER AND SEWER SYSTEM IN ACCORDANCE WITH THE MASTER PLAN FOR WATER AND SEWERAGE IN HOWARD COUNTY (FOR LOT 109 ONLY)

COUNTY HEALTH OFFICER

DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS

DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT

DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION

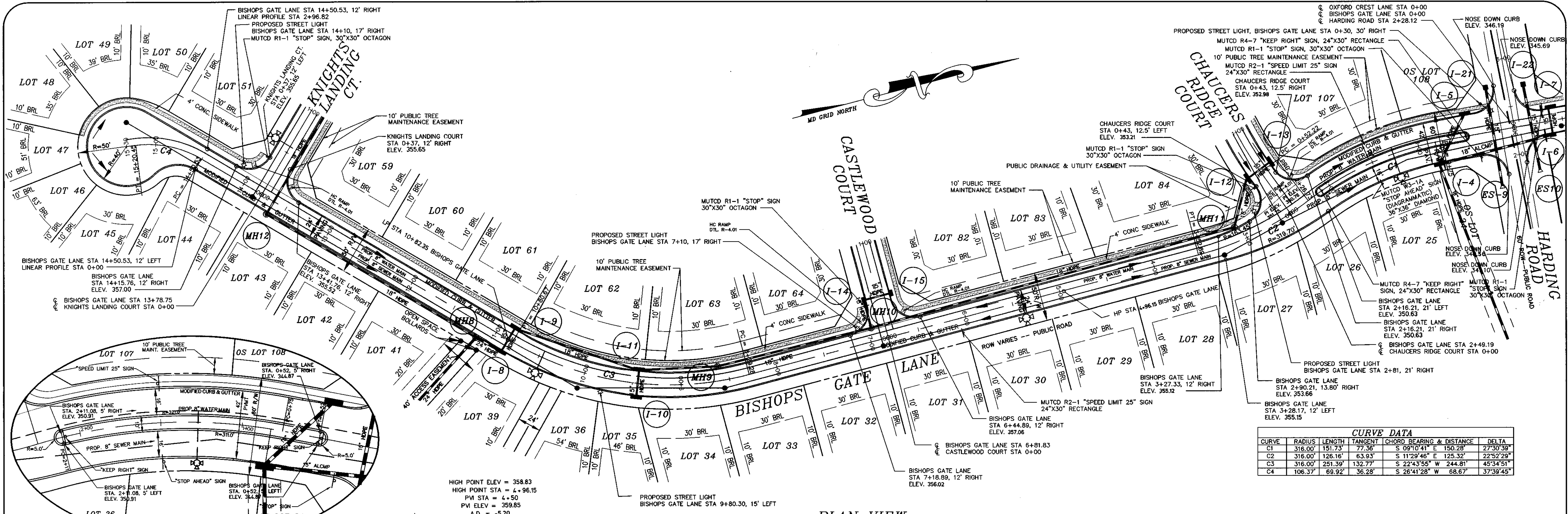
DATE

date	APR 1998
project	97027
illustration	SID
scale	SID
approval	NTS

date	10-27-98
date	9-2-98
description	RCI
revisions	RCI
no.	2
no.	1

RESERVOIR OVERLOOK
LOTS 1 THRU 110
TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
COVER SHEET

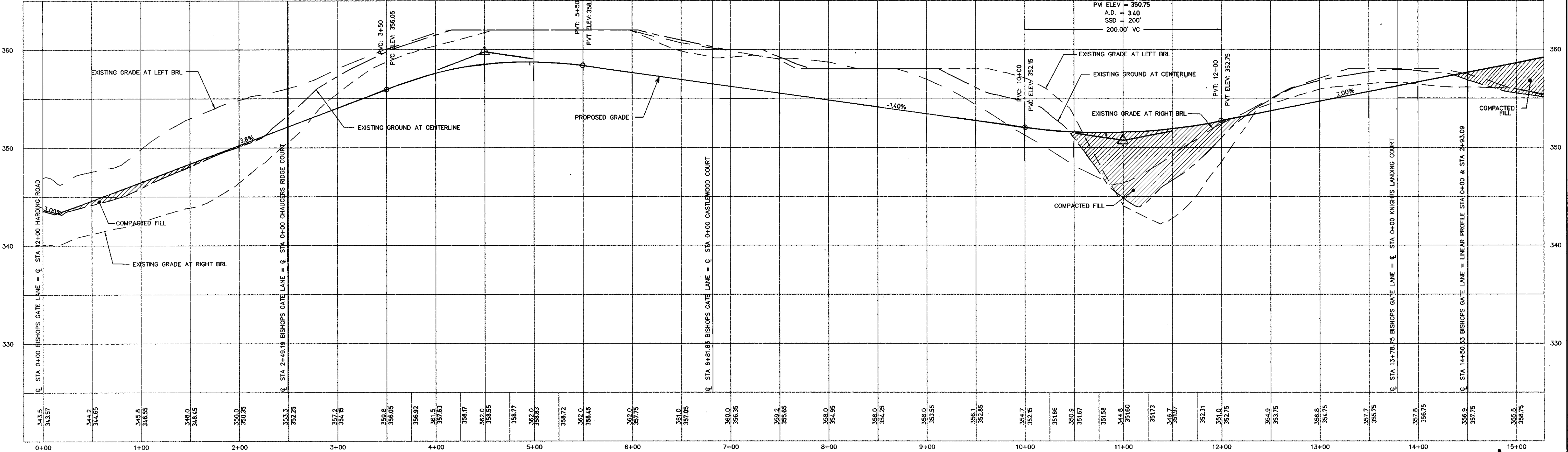
MILDENBERG,
BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Elkton City, Maryland 21042
(410) 997-0236 Fax (301) 621-5521 Wash. (410) 997-0238 Fax



CURVE DATA

CURVE	RADIUS	LENGTH	TANGENT	CHORD BEARING & DISTANCE	DELTA
C1	316.00	151.73	77.36'	S 09°10'41" E 150.28'	27°30'39"
C2	316.00	126.16	63.93'	S 11°29'46" E 125.32'	22°52'29"
C3	316.00	251.39	132.77'	S 22°43'55" W 244.81'	45°34'51"
C4	106.37	69.92'	36.28'	S 26°41'28" W 68.67'	37°39'45"

BISHOPS GATE LANE - ISLAND DETAIL
SCALE: 1"=30'



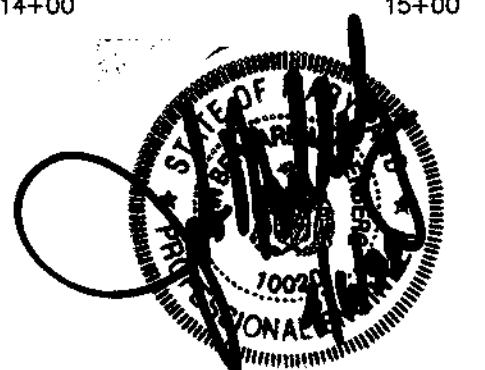
APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 4-13-98
 CHIEF BUREAU OF HIGHWAYS
 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5/7/98
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE

[Signature] 4/27/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE

BISHOPS GATE LANE PROFILE
 HORIZONTAL SCALE: 1"=50'
 VERTICAL SCALE: 1"=5'

DESIGN SPEED: 30 MPH
 CLASSIFICATION: LOCAL ROAD

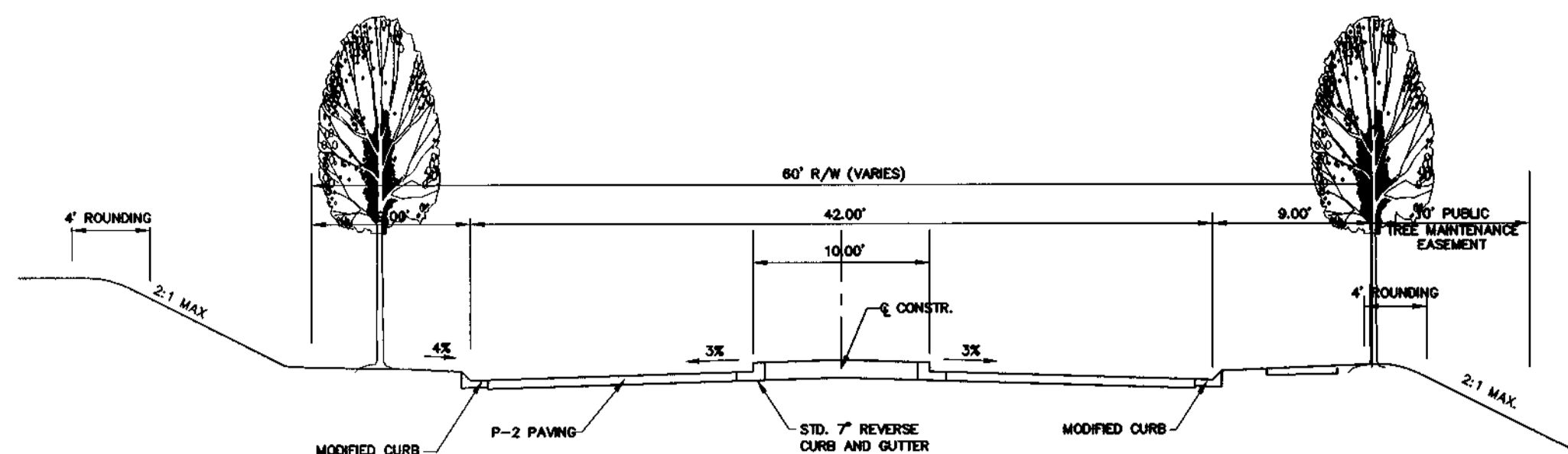


Project: 97084
 Date: FEB 1998
 Illustration: SJD
 Scale: AS SHOWN
 Approval: SJD

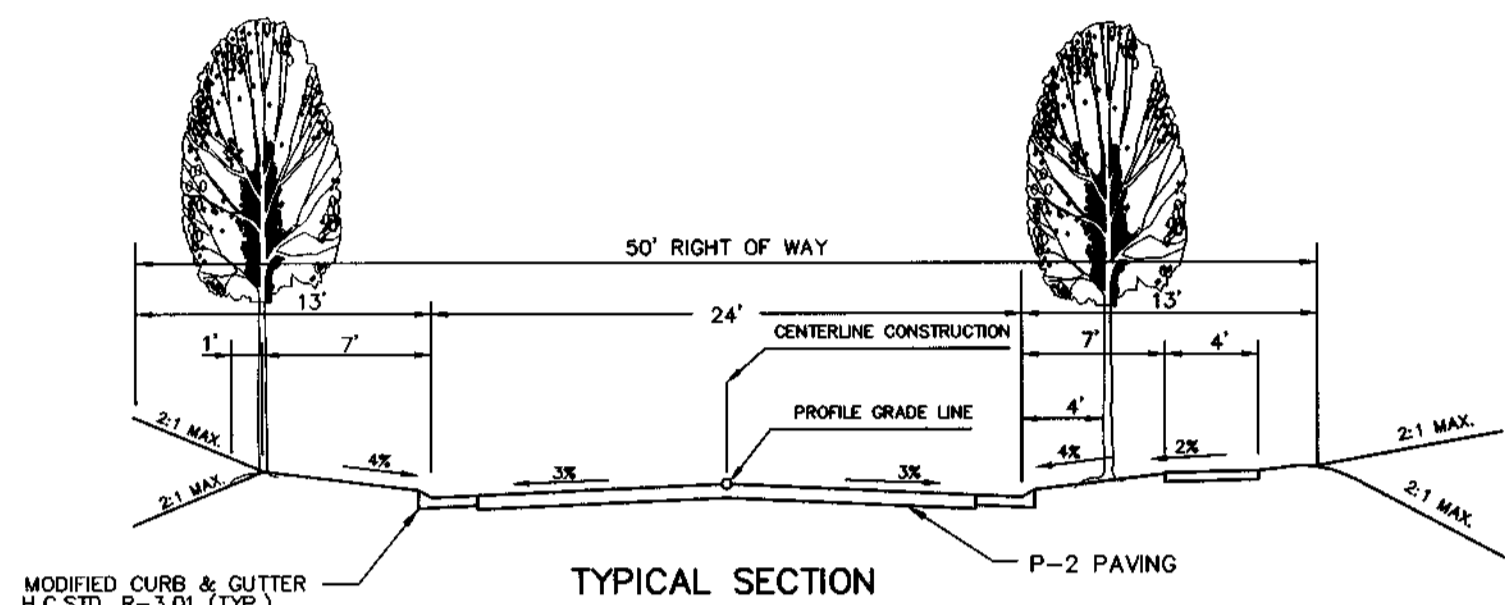
1. REVERSE ALONG TO HOPE PIPE
 REVERSE ROAD'S LINEAR PROFILES AND FLEET ELEVATIONS
 DATE: 10-27-98
 BY: 9-4-98
 REVISIONS: n.c.

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 SIXTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
ROAD PLAN AND PROFILE

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Field Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0296 Fax (301) 621-5621 Wash. (410) 997-0298 Fax



DESIGN SPEED - 30 MPH
TYPICAL SECTION - LOCAL ROAD
STA 0+50 TO STA 2+15 - BISHOPS GATE LANE

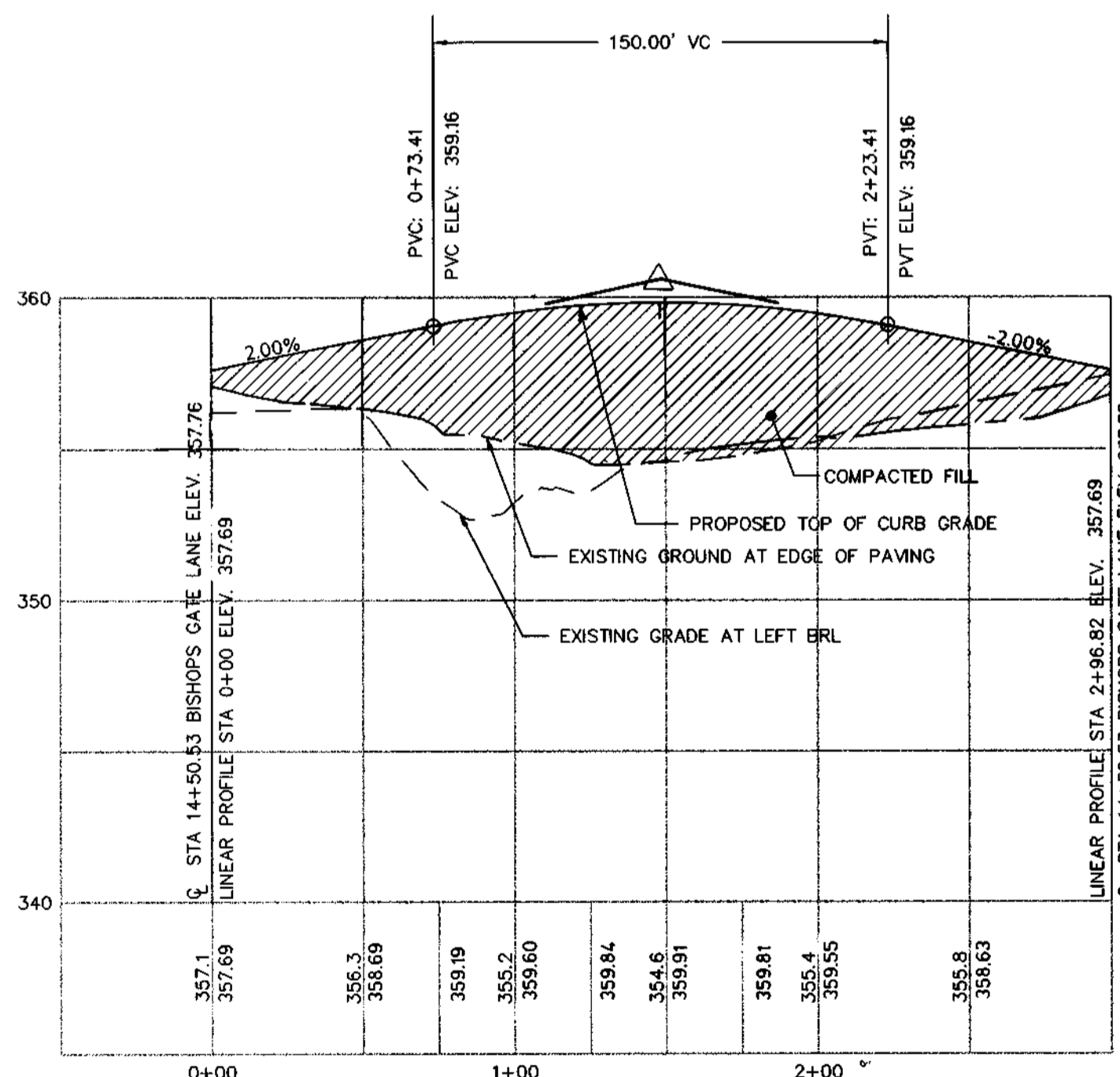


TYPICAL SECTION

N.T.S.

STA 2+15 TO 14+50.53 BISHOPS GATE LANE
 STA 0+12 TO 8+77.20 CHAUCERS RIDGE COURT
 STA 0+12 TO 5+93.92 CASTLEWOOD COURT
 STA 0+12 TO 2+52.16 KNIGHTS LANDING COURT
 STA 0+12 TO 4+15.49 OXFORD CREST LANE
 STA 0+58.45 TO 3+63.86 WINDSOR WALK COURT

HIGH POINT ELEV = 359.91
 HIGH POINT STA = 1+48.41
 PVI STA = 1+48.41
 PVI ELEV = 360.66
 A.D. = -4.00



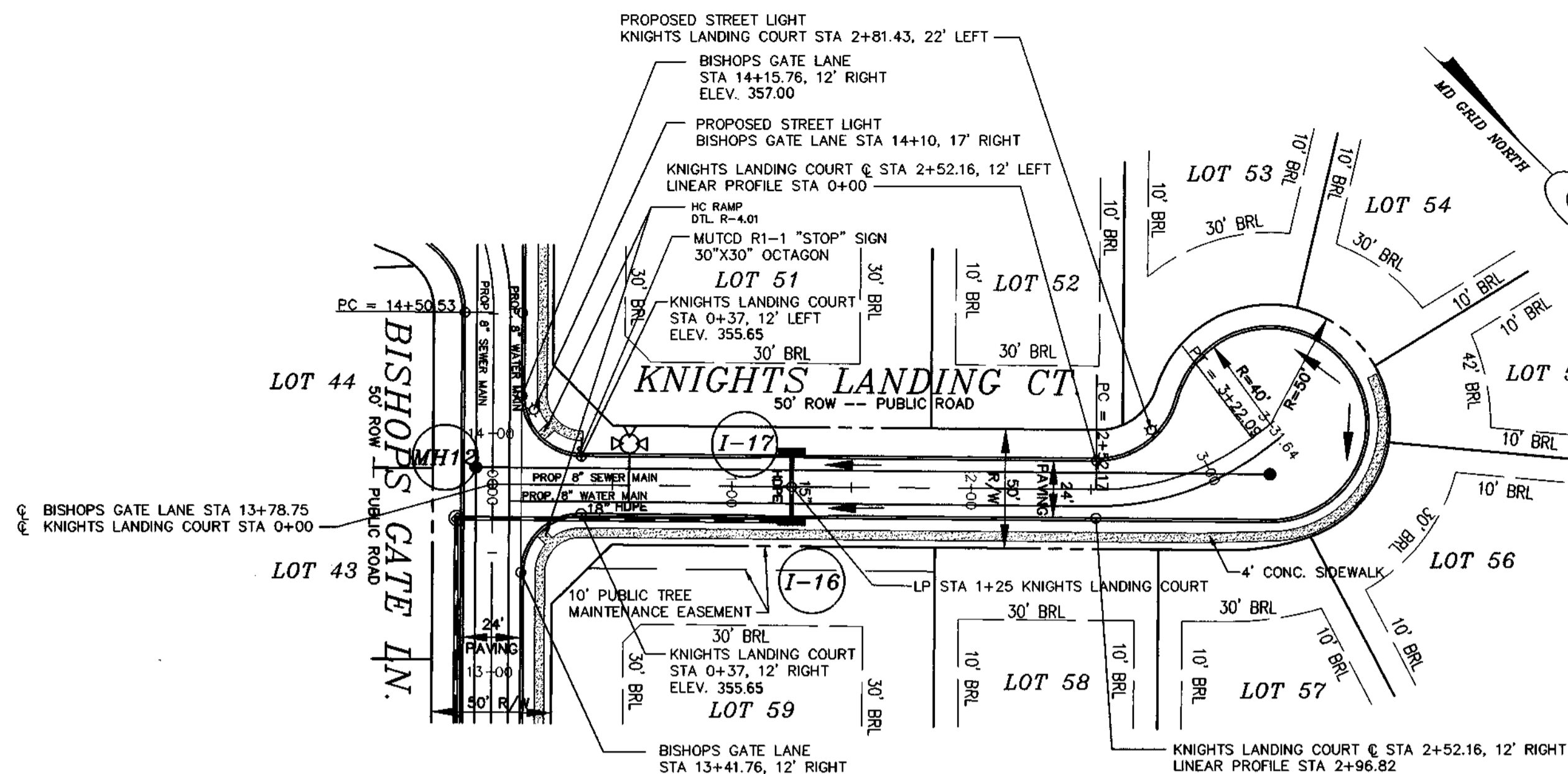
BISHOPS GATE LANE LINEAR PROFILE

HORIZONTAL SCALE : 1" = 50'

VERTICAL SCALE : 1" = 5'

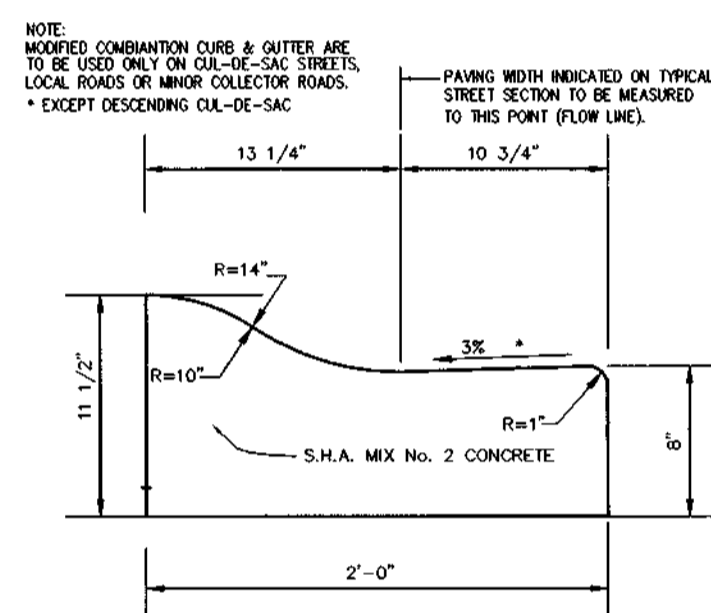
DESIGN SPEED: 30 MPH
CLASSIFICATION: LOCAL ROAD

APPROVED: DEPARTMENT OF PUBLIC WORKS
Richard M. Dwyer 4/22/98
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Gandy Hamilton 5/7/98
 CHIEF, DIVISION OF LAND DEVELOPMENT
Mike Dammann 4/27/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

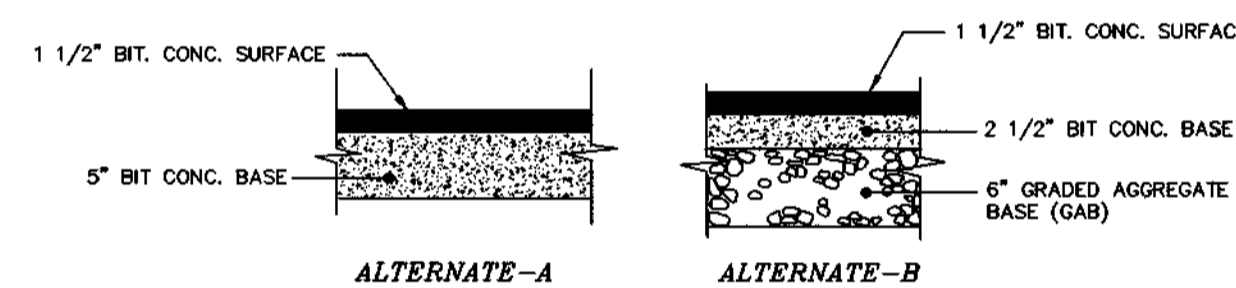


PLAN VIEW
SCALE : 1" = 50'

NOTE: FOR STREET TREES SEE LANDSCAPE PLAN



MODIFIED 7' COMBINATION CURB AND GUTTER
NOT TO SCALE

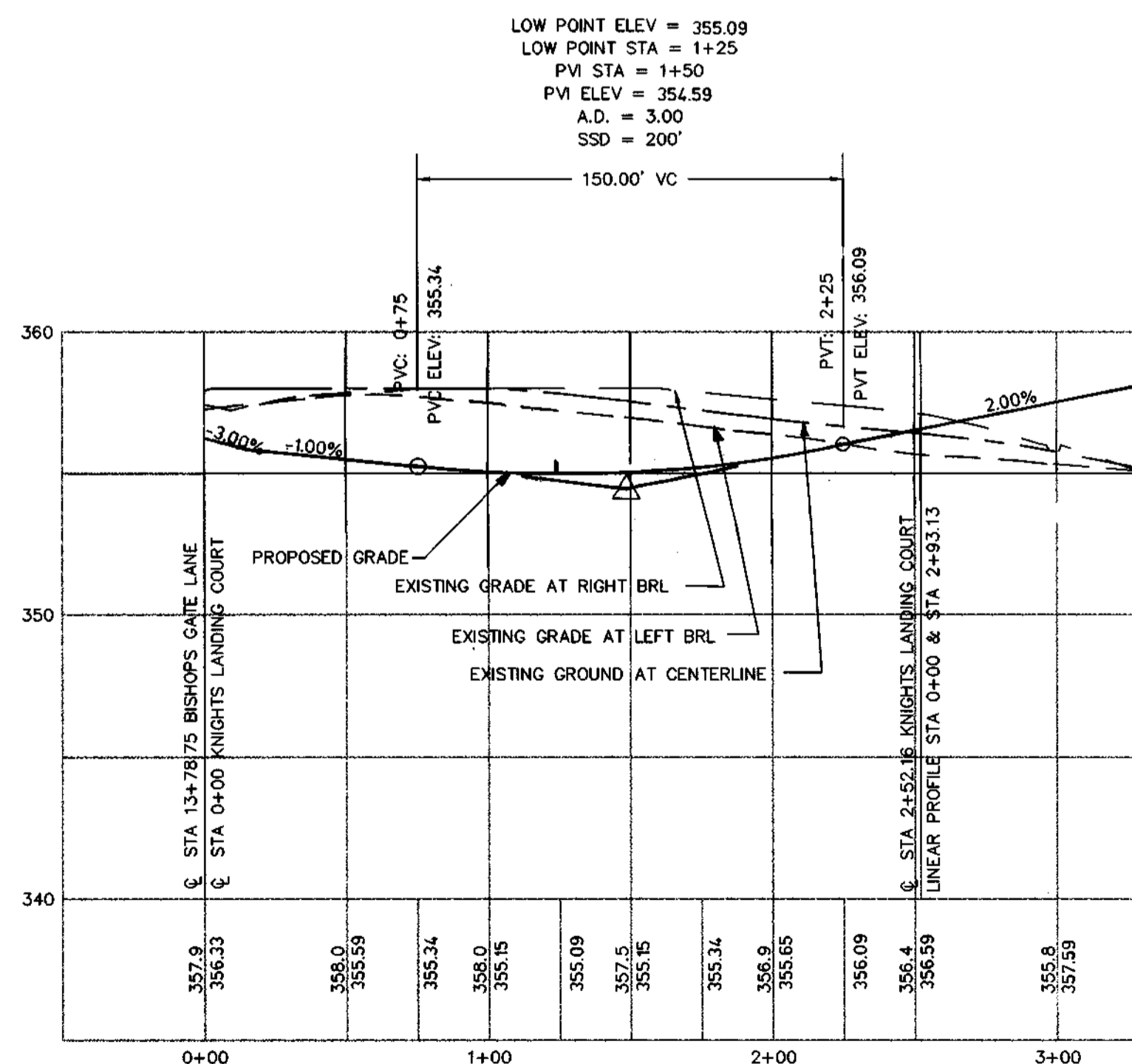


PAVING SECTIONS

P-2
N.T.S.

CURVE DATA					
CURVE	RADIUS	LENGTH	TANGENT	CHORD BEARING & DISTANCE	DELTA
CS	106.37'	69.92'	36.28'	N 63°18'33" W 68.67'	37°59'45"

HIGH POINT ELEV = 358.78
 HIGH POINT STA = 1+48.41
 PVI STA = 1+48.41
 PVI ELEV = 359.53
 A.D. = -4.00

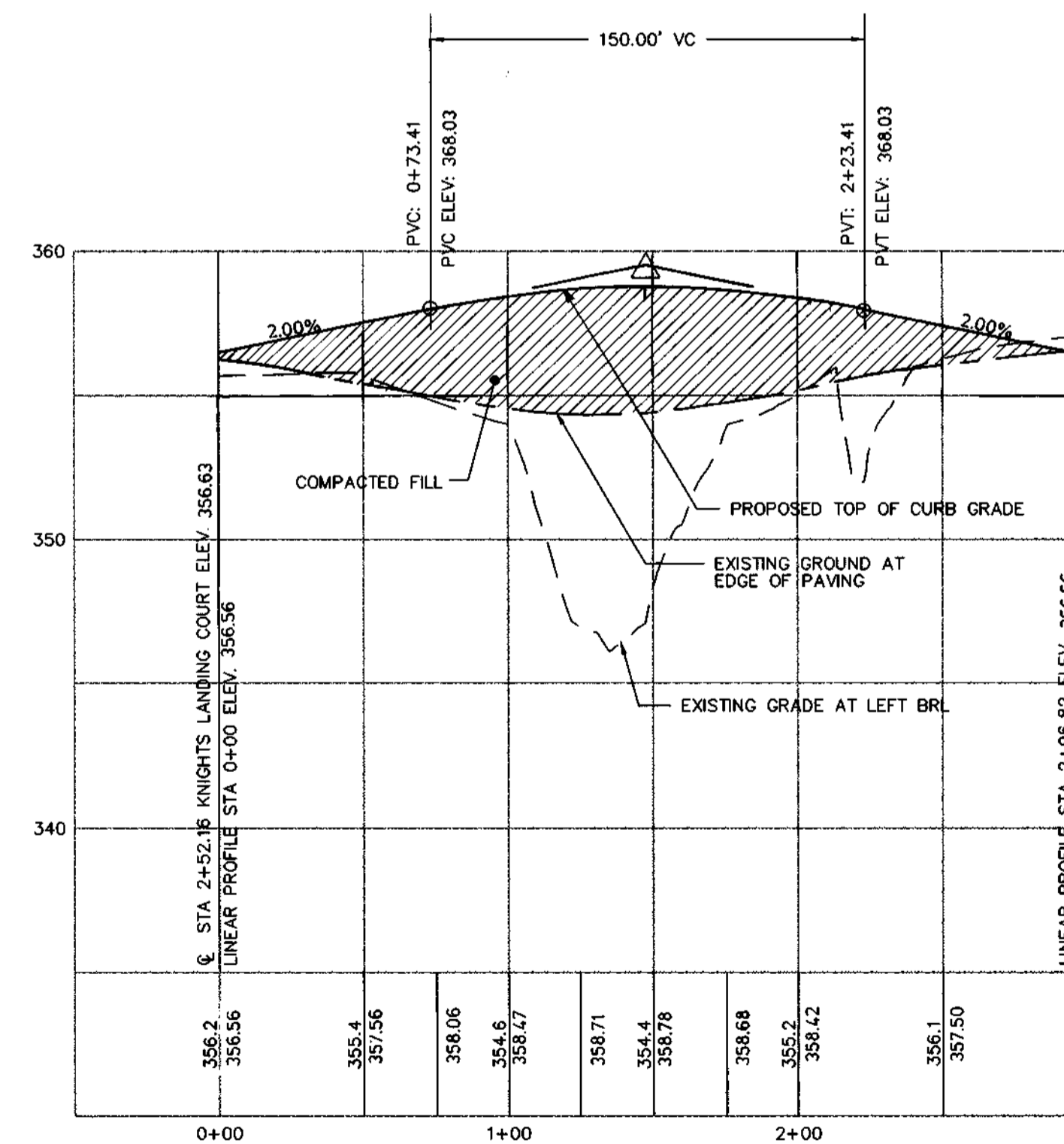


KNIGHTS LANDING COURT PROFILE

HORIZONTAL SCALE : 1" = 50'

VERTICAL SCALE : 1" = 5'

DESIGN SPEED: 30 MPH
CLASSIFICATION: LOCAL ROAD

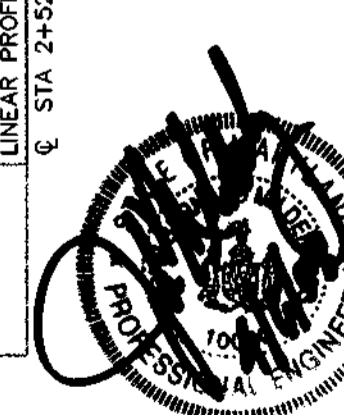


KNIGHTS LANDING COURT LINEAR PROFILE

HORIZONTAL SCALE : 1" = 50'

VERTICAL SCALE : 1" = 5'

DESIGN SPEED: 30 MPH
CLASSIFICATION: LOCAL ROAD



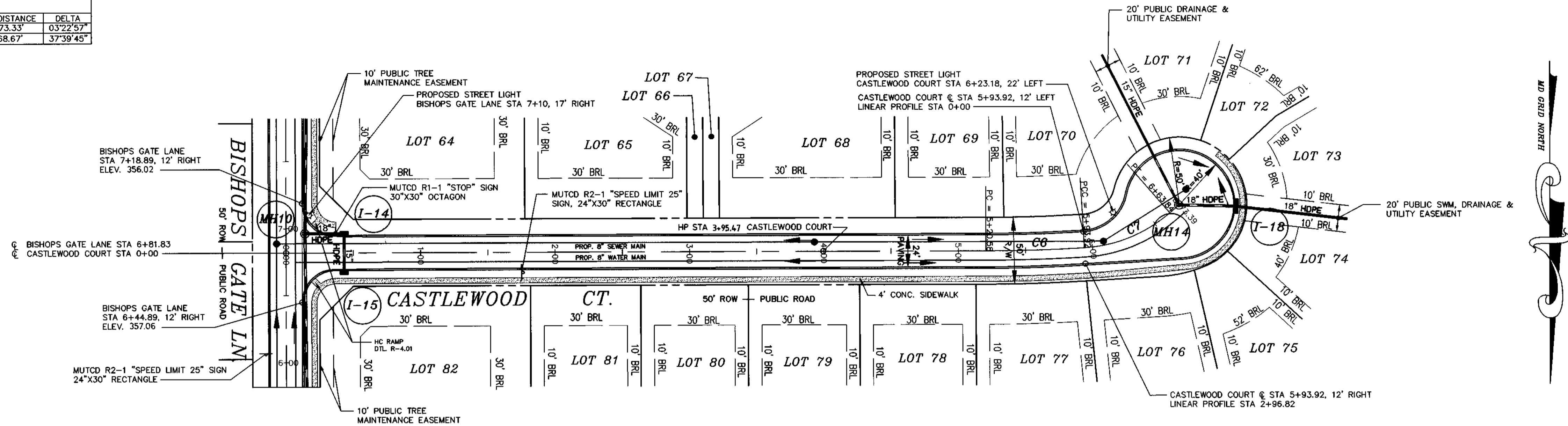
date APR 1998
 project 97084
 illustration SJD
 scale SJD
 approval AS SHOWN

DATE 10-27-98
 REVISIONS
 2 REVERSE ALIGN TO HOPE AVE AND PAVEMENT ELEVATIONS
 1 REVERSE CURB & GUTTER ELEVATIONS
 1 REVISION

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 HOWARD COUNTY, MARYLAND
 SIXTH ELECTION DISTRICT
 ROAD PLAN AND PROFILE

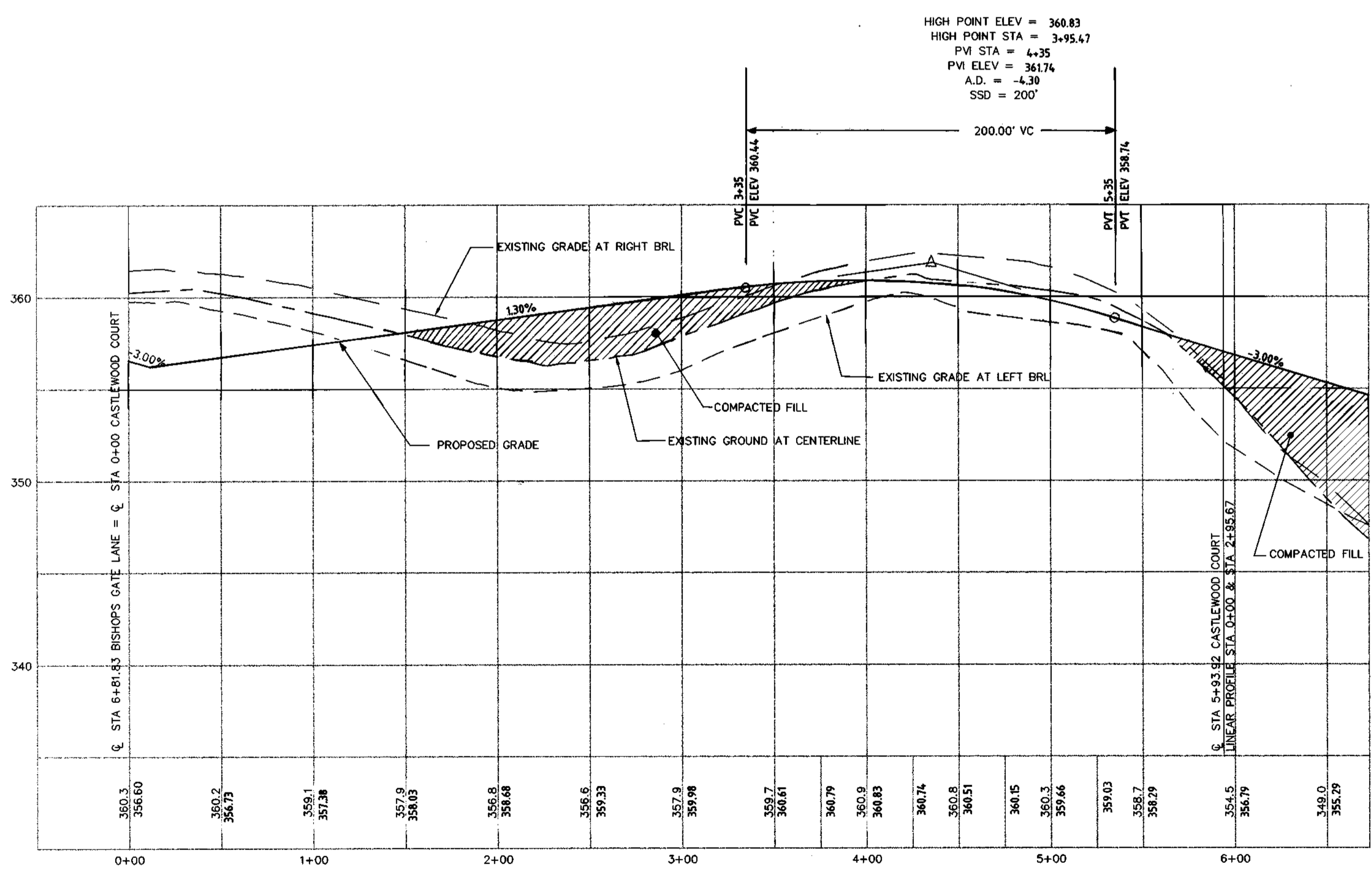
MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hall Drive, Suite 202, Pllhoitt City, Maryland, 21042
 (410) 997-0296 Bal. (301) 621-5321 Wash. (410) 997-0298 Fax

CURVE DATA					
CURVE	RADIUS	LENGTH	TANGENT	CHORD BEARING & DISTANCE	DELTA
C6	1242.30'	73.34'	36.68'	S 88°09'29" W 73.33'	03°22'57"
C7	106.37'	69.92'	36.28'	S 67°42'13" W 68.67'	37°39'45"



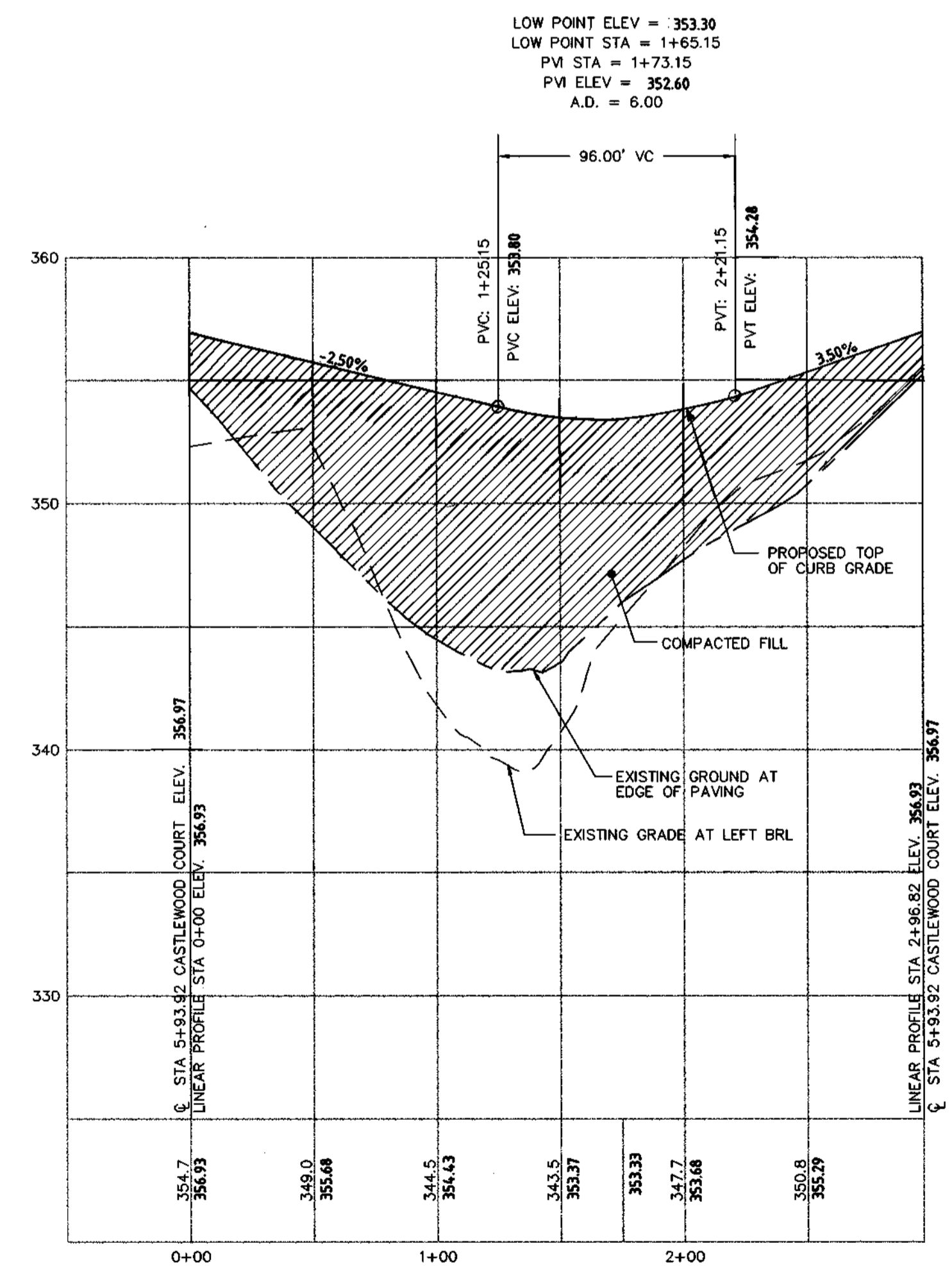
PLAN VIEW
SCALE: 1" = 50'

NOTE: FOR STREET TREES SEE LANDSCAPE PLAN



CASTLEWOOD COURT PROFILE
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

DESIGN SPEED: 30 MPH
CLASSIFICATION: LOCAL ROAD



CASTLEWOOD COURT LINEAR PROFILE
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

DESIGN SPEED: 30 MPH
CLASSIFICATION: LOCAL ROAD

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 4-23-08
CHIEF BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5/2/08
CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 4/27/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION

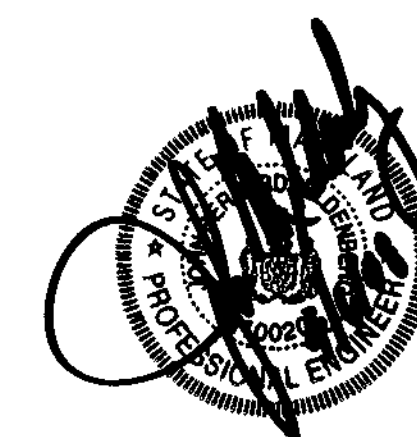
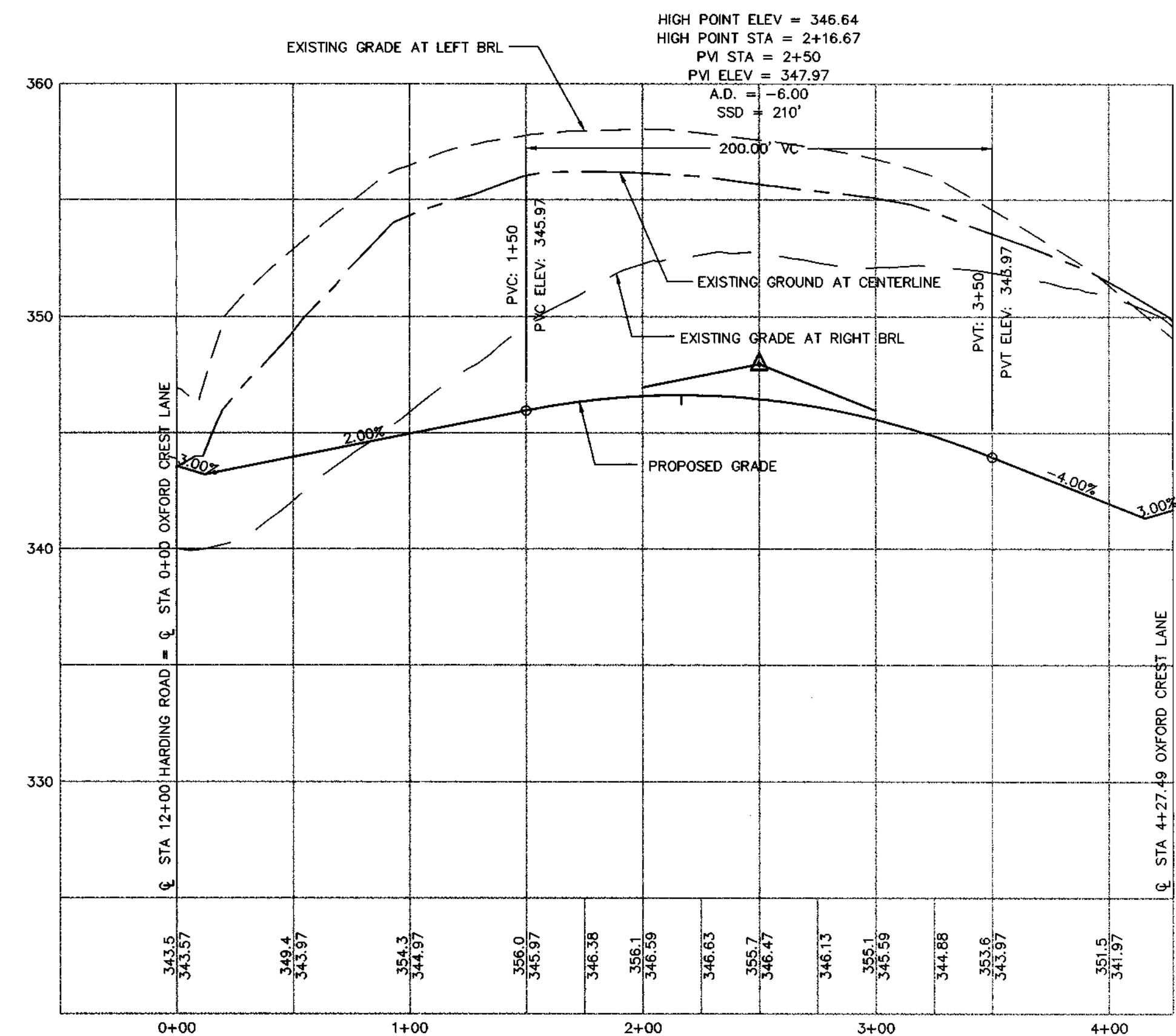
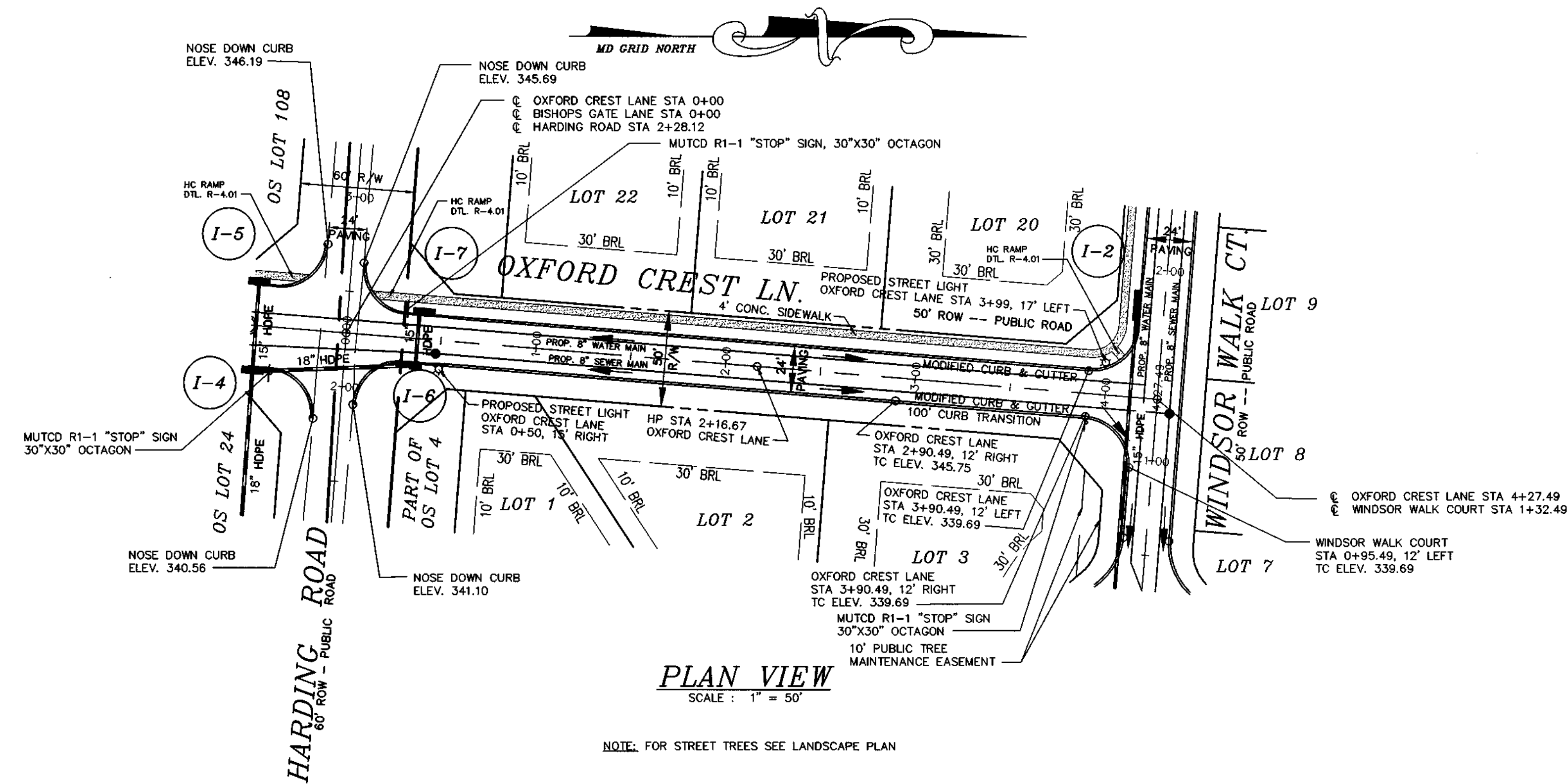


PROJECT	97084	DATE	APR 1998
ILLUSTRATION	SID	ENGINEERING	SID
SCALE	AS SHOWN	APPROVAL	SID

REVISION	NO.	DESCRIPTION	DATE
1	1	REVISED ROAD PROFILE GRADUES	5-21-99
2	2	REVISED ROAD PROFILE GRADUES	5-21-99

RESERVOIR OVERLOOK
LOTS 1 THRU 110
TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
ROAD PLAN AND PROFILE

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 987-0286 Fax (301) 821-5527 Wash. (410) 987-0288 Fax



F:\197084\DWG\FINAL\ROADS\84-RD-6.DWG

APPROVED: DEPARTMENT OF PUBLIC WORKS
Andrew M. Danck 4-23-08
 CHIEF BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Candy Hamilton 5/2/08
 CHIEF, DIVISION OF LAND DEVELOPMENT

Chris Dammann 4/27/08
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

project	97084	date	APR 18 2008
illustration	SJD	engineering	SJD
scale	AS SHOWN	approval	SJD

no.	1	revision	REVISE ALONG TO HOPE PIPE	date	11-16-08
-----	---	----------	---------------------------	------	----------

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 ROAD PLAN AND PROFILE

MILDENBERG, BOENDER & ASSOC., INC.
 Surveyors
 Engineers Planners
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0286 Fax: (301) 621-5521 Wash.

NOTE:
THIS PLAN IS FOR GRADING AND
SEDIMENT CONTROL USES ONLY.

LEGEND

- WETLAND
- 25' WETLAND BUFFER
- STREAM/INTERMITTENT
- 75' STREAM BUFFER
- 50' INTERMITTENT BUFFER
- 100 YR. FLOODPLAIN
- EXISTING CONTOUR
- EXISTING TREELINE
- 25% SLOPE OR GREATER
- EX. FENCE LINE
- W
- A-2
- SSF
- RPS
- SCE
- AGIP
- TPF

SEDIMENT TRAP #1

TYPE IV
DRAINAGE AREA: 7.10 ACRES
STORAGE REQUIRED: 25560 CF
STORAGE PROVIDED: 26369 CF
WEIR LENGTH: 12'
PIPE SIZE/INV: 6" @ 333.2
OUTFALL LENGTH: 25'
STORAGE (WET): 13473 CF
CLEANOUT EL.: 332.57
TRAP BOTTOM ELEVATION: 332.0
WET STORAGE EL.: 333.2
CREST EL.: 336.1

SEDIMENT TRAP #2

TYPE IV
DRAINAGE AREA: 8.60 ACRES
STORAGE REQUIRED: 30960 CF
STORAGE PROVIDED: 33153 CF
WEIR LENGTH: 36'
PIPE SIZE/INV: 10" @ 311.2
OUTFALL LENGTH: 25'
STORAGE (WET): 16693 CF
CLEANOUT EL.: 310.8
TRAP BOTTOM ELEVATION: 310.0
WET STORAGE EL.: 311.2
CREST EL.: 312.3

BY THE DEVELOPER:

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

[Signature] 4/6/98
DATE
PRINTED NAME OF DEVELOPER

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A FEASIBLE AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THESE DEVELOPMENTS. I 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] 4/6/98
DATE
PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

[Signature] 4/14/99
DATE
CHRYL SIMMONS
NATURAL RESOURCE CONSERVATION

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT:

[Signature] 4/14/99
DATE
ROBERT W. J. JONES
HOWARD SOIL CONSERVATION DISTRICT

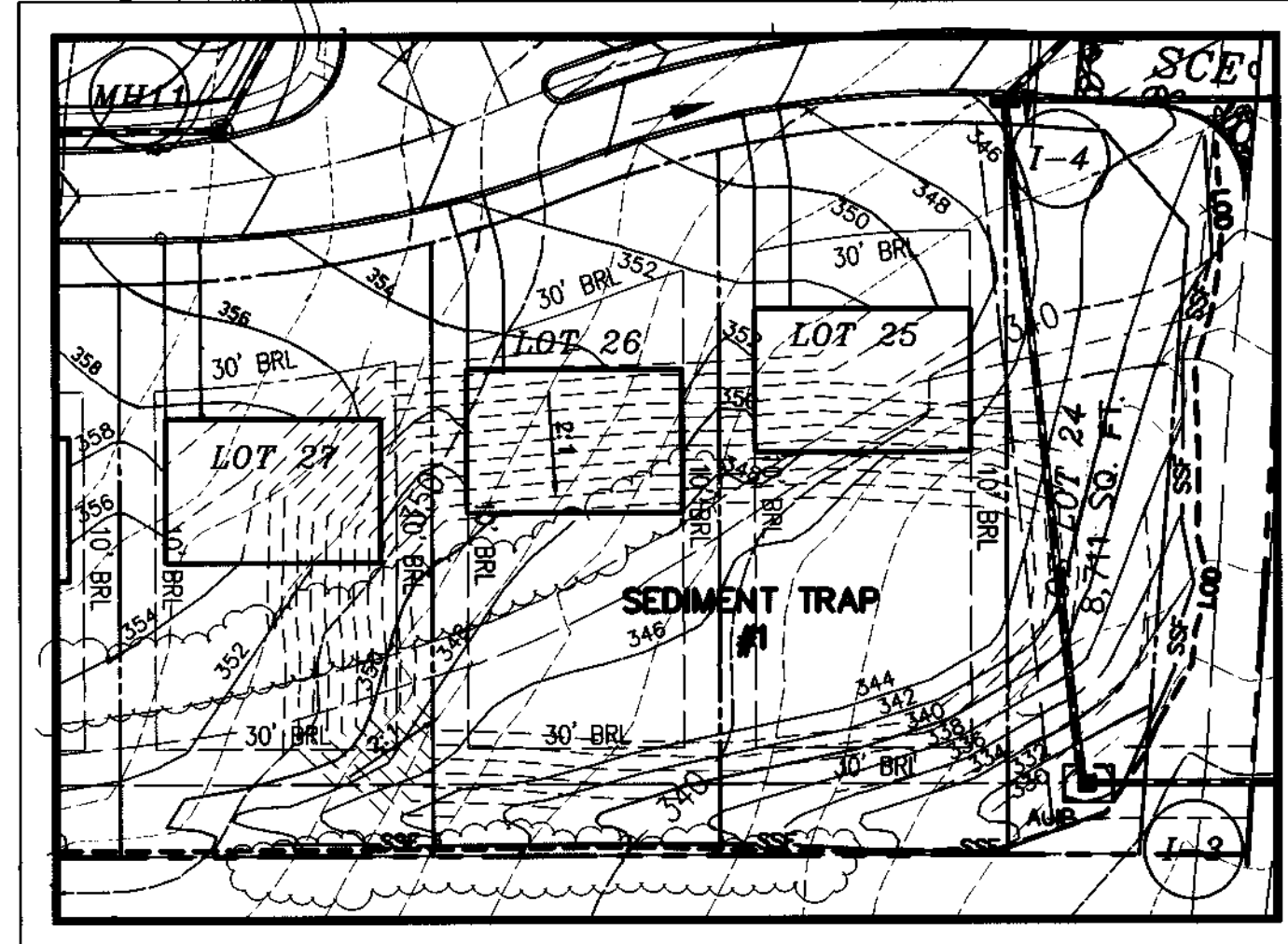
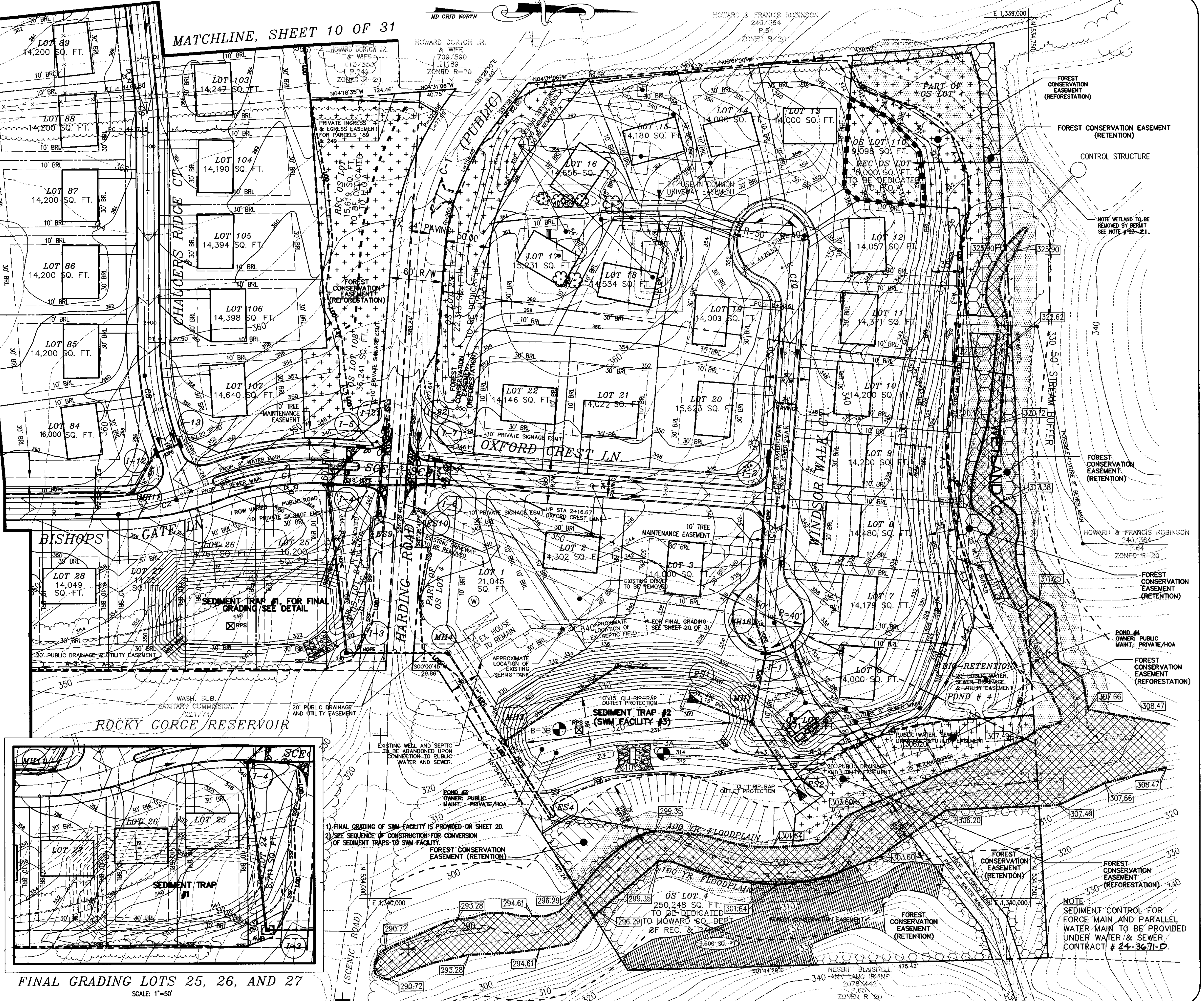
APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 4-23-98
DATE
CHIEF BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5/2/98
DATE
CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 4/27/98
DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION

MATCHLINE, SHEET 9 OF 31

MATCHLINE, SHEET 10 OF 31



FINAL GRADING LOTS 25, 26, AND 27
SCALE: 1"=50'

1. FINAL GRADING OF SWM FACILITY IS PROVIDED ON SHEET 20.
2. SEE SEQUENCE OF CONSTRUCTION FOR CONVERSION OF SEDIMENT TRAPS TO SWM FACILITY.

NOTE:
SEDIMENT CONTROL FOR
FORCE MAIN AND PARALLEL
WATER MAIN TO BE PROVIDED
UNDER WATER & SEWER
CONTRACT # 24-3671-D

date	APR 1998	approval
project	97084	SJD
illustration	SJD	approval
scale	1"=50'	

revision	1	DATE	DESCRIPTION
2	10-28-98	REVISE GRADING	REVISE GRADING
3	11-10-98	REVISE GRADING	REVISE GRADING

RESERVOIR OVERLOOK
LOTS 1 THRU 110
TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
GRADING, EROSION & SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0286 Fax: (301) 621-5821 Tech: (410) 997-0288 Fax

E 1,338,750
N 532,250

E 1,338,750
N 532,250

LEGEND

- WETLAND
- 25' WETLAND BUFFER
- STREAM/INTERMITTENT
- 75' STREAM BUFFER
- 50' INTERMITTENT BUFFER
- 100 YR. FLOODPLAIN
- EXISTING CONTOUR
- EXISTING TREELINE
- 25% SLOPE OR GREATER
- EX. FENCE LINE
- EARTH DIKE
- SUPER SILT FENCE
- REMOVABLE PUMPING STATION
- STABILIZED CONSTRUCTION ENTRANCE
- PERIMETER DIKE SWALE
- TREE PROTECTION FENCE

SEDIMENT BASIN #1
 DRAINAGE AREA: 9.40 ACRES
 STORAGE REQUIRED: 59,364 CF
 WET STORAGE: 35649 CF
 DRY STORAGE: 80181 CF
 CLEANOUT ELEV.: 324.4
 PERMANENT POOL ELEV.: 325.0
 SETTLED TOP OF DAM: 329.02
 DRY STORAGE ELEV.: 327.0
 WET STORAGE ELEV.: 325.0
 OUTLET ELEV.: 325.0

BY THE DEVELOPER:
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT 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] 4/6/98
 PRINTED NAME OF DEVELOPER: **ALAN J. DIWANS**

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

[Signature] 4/6/98
 PRINTED NAME OF ENGINEER: **Charles J. Simons**

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
[Signature] 4/14/98
 PRINTED NAME OF REVIEWER: **Robert W. Zuber**

THIS DEVELOPMENT PLAN IS APPROVED FOR THE HOWARD SOIL CONSERVATION DISTRICT.
[Signature] 4-23-98
 PRINTED NAME OF APPROVER: **Robert W. Zuber**

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 4-23-98
 PRINTED NAME OF APPROVER: **Robert W. Zuber**

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 4/27/98
 PRINTED NAME OF APPROVER: **Robert W. Zuber**

WASH. SUB. SANITARY COMMISSION, 221/74

FOREST CONSERVATION EASEMENT (REFORESTATION)

POND #1
 OWNER: PUBLIC MAINT.: PRIVATE/HOA
SEDIMENT BASIN #1 (SWM FACILITY #1)
 DRAINAGE DEVICE SEE DETAIL SHEET 20 OF 31

LOT 40
 116,037 SQ. FT. (- TOTAL)
 112,913 SQ. FT. (> 35' W/34)

NOTE
 1) FINAL GRADING OF SWM FACILITY IS PROVIDED ON SHEET 20.
 2) SEE SEQUENCE OF CONSTRUCTION FOR CONVERSION OF SEDIMENT BASIN TO SWM FACILITY. STORMDRAIN SYSTEM FROM ES-6 TO MH-7 TO BE CONSTRUCTED IN CONJUNCTION WITH SWM FACILITY.

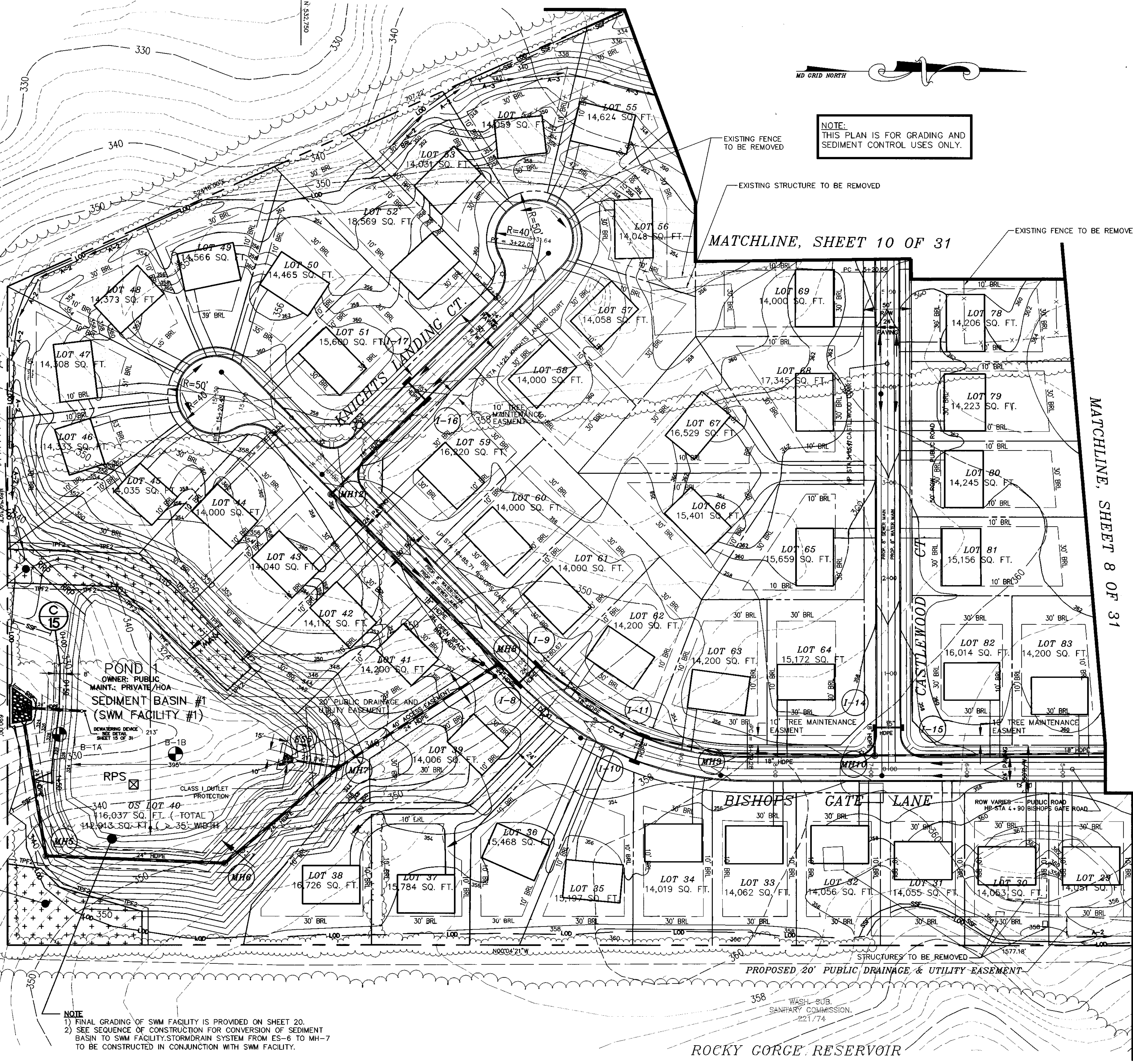


NOTE:
 THIS PLAN IS FOR GRADING AND SEDIMENT CONTROL USES ONLY.

MATCHLINE, SHEET 10 OF 31

EXISTING FENCE TO BE REMOVED

MATCHLINE, SHEET 8 OF 31



PROPOSED 20' PUBLIC DRAINAGE & UTILITY EASEMENT

ROCKY GORGE RESERVOIR

project	97084	date	APR 1998
illustration	SID	engineering	SID
scale	1"=50'	approval	SID

revision	description	date
1	REVISE GRADING	5-11-98
2	REVISE ASPHALT DRIVE PAVEMENT	5-16-98
3	REVISE CASTLEWOOD COURT ROAD GRADES	5-16-98

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 SIXTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
GRADING, EROSION & SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hill Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0256 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax

LEGEND

- WETLAND
- 25' WETLAND BUFFER
- STREAM/INTERMITTENT
- 75' STREAM BUFFER
- 50' INTERMITTENT BUFFER
- 100 YR. FLOODPLAIN
- EXISTING CONTOUR
- EXISTING TREELINE
- 25% SLOPE OR GREATER
- EX. FENCE LINE
- PERC TEST HOLE
- EARTH DIKE
- SUPER SILT FENCE
- REMOVABLE PUMPING STATION
- TREE PROTECTION FENCE

NOTE:
CLEARING FOR LOT 109 PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NOT PART OF THIS PLAN.

NOTE:
THIS DRAWING IS FOR GRADING AND SEDIMENT CONTROL PURPOSES ONLY.

POND #2 DATA

TYPE: RETENTION
HAZARD CLASSIFICATION: "A"
D.A. = 8.9 ACRES ±
R.O. = 70
T.C. = 0.28 HRS.
WET POND EL. = 334.0
PERMANENT POOL EL. = 334.0
2 YEAR POOL EL. = 335.2, Q = 0.7 CFS, V = 0.33 AC-FT.
10 YEAR POOL EL. = 336.1, Q = 12.4 CFS, V = 0.58 AC-FT.
100 YEAR POOL EL. = 336.7, Q = 33.3 CFS, V = 0.82 AC-FT.
FOREBAY VOLUME: 1500.0
OWNERSHIP PUBLIC.

SEDIMENT BASIN #2

DRAINAGE AREA: 9.40 ACRES
STORAGE REQUIRED: 33840
PROVIDED: 57993 CF
WET STORAGE: 19315 CF
DRY STORAGE: 41703 CF
CLEANOUT EL.: 332.22
PERMANENT POOL EL.: 334.0
SETTLED TOP OF DAM: 340
PRINCIPLE SPILLWAY EL.: 338.0
DRY STORAGE EL.: 338.0
WET STORAGE EL.: 334.0
OUTLET EL.: 322.0

AS-BUILT CERTIFICATION

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

SIGNATURE: _____ P.E. NO.: _____
DATE: _____

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

BY THE DEVELOPER:

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

[Signature] 4-6-98
DATE

PRINTED NAME OF DEVELOPER: **FRANK DWYER**

BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER HAS ENGAGED 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] 4/4/98
DATE

PRINTED NAME OF ENGINEER: **Robert W. Johnson**

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

[Signature] 4/14/98
DATE

PRINTED NAME OF REVIEWER: **Robert W. Johnson**

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

[Signature] 4-23-98
DATE

PRINTED NAME OF REVIEWER: **Robert W. Johnson**

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 5/2/98
DATE

PRINTED NAME OF REVIEWER: **Cathy Hamilton**

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 4/21/98
DATE

PRINTED NAME OF REVIEWER: **Robert W. Johnson**



date	APR 1998
project	97084
illustration	SJD
scale	1" = 50'
approval	SJD

date	5-21-98
description	REVISE GRADING, EROSION & REFORESTATION
revisions	3
no.	7

RESERVOIR OVERLOOK
LOTS 1 THRU 110
TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
GRADING, EROSION & SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Elkton City, Maryland 21042
(410) 397-0286, Baltimore (301) 621-5621, Wash. (410) 397-0288 Fax.

HOWARD SOIL CONSERVATION DISTRICT
PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LEAFED VEGETATIVE COVER IS NEEDED.

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

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

- 1) PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (82 LBS/1000 SQ.FT.) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ.FT.)
- 2) ACCEPTABLE - APPLY 7 TONS PER ACRE DOLOMITIC LIMESTONE (28 LBS/1000 SQ.FT.) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING - FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE 1.4 LBS/1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (0.5 LBS./1000 SQ.FT.) OF WEeping LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROJECT 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 SOIL. OPTION (3) - SEED WITH 60 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

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

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

TEMPORARY SEEDING NOTES

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

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

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS./1000 SQ.FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEeping LOVEGRASS (0.7 LBS./1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU NOVEMBER 28, PROJECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTRIBUTED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED. IN THE SPRING, OR USE SOIL.

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

REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

HOWARD SOIL CONSERVATION DISTRICT
STANDARD 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 MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THEREOF.
- 3) FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- 4) ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- 5) ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1991 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC.01), SOIL (SEC. 04), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC.52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- 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) AREA ANALYSIS:
TOTAL AREA OF SITE: 59 ACRES
AREA DISTURBED: 47.88 ACRES
AREA TO BE ROOFED OR PAVED: 14.8 ACRES
AREA TO BE VEGETATIVELY STABILIZED: 32.8 ACRES
TOTAL CUT: 76,600 CU. YDS.
TOTAL FILL: 76,600 CU. YDS.
TOTAL WASTE/BORROW AREA LOCATION: _____
- 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 CONTROL 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 CONTROL, 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 CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

BY THE DEVELOPER:
I, **ROYAL J. DICKER**, CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT I HAVE A CERTIFICATE OF ATTENDANCE AT A MEETING OF THE BOARD OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE 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 REGISTERED PROFESSIONAL ENGINEERS TO BE EMPLOYED BY THE HOWARD SOIL CONSERVATION DISTRICT.

DATE: **4/6/98**
SIGNATURE: **Royal J. Dickers**
PRINTED NAME OF DEVELOPER: **ROYAL J. DICKERS**

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

DATE: **4/14/98**
SIGNATURE: **Cheryl Simmons**
PRINTED NAME OF ENGINEER: **Cheryl Simmons**

DATE: **4/14/98**
SIGNATURE: **Robert W. Zubin**
PRINTED NAME OF ENGINEER: **Robert W. Zubin**

DATE: **4/23/98**
SIGNATURE: **Robert W. Zubin**
PRINTED NAME OF ENGINEER: **Robert W. Zubin**

DATE: **4/14/98**
SIGNATURE: **Cheryl Simmons**
PRINTED NAME OF ENGINEER: **Cheryl Simmons**

DATE: **4/21/98**
SIGNATURE: **Cheryl Simmons**
PRINTED NAME OF ENGINEER: **Cheryl Simmons**

STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE

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

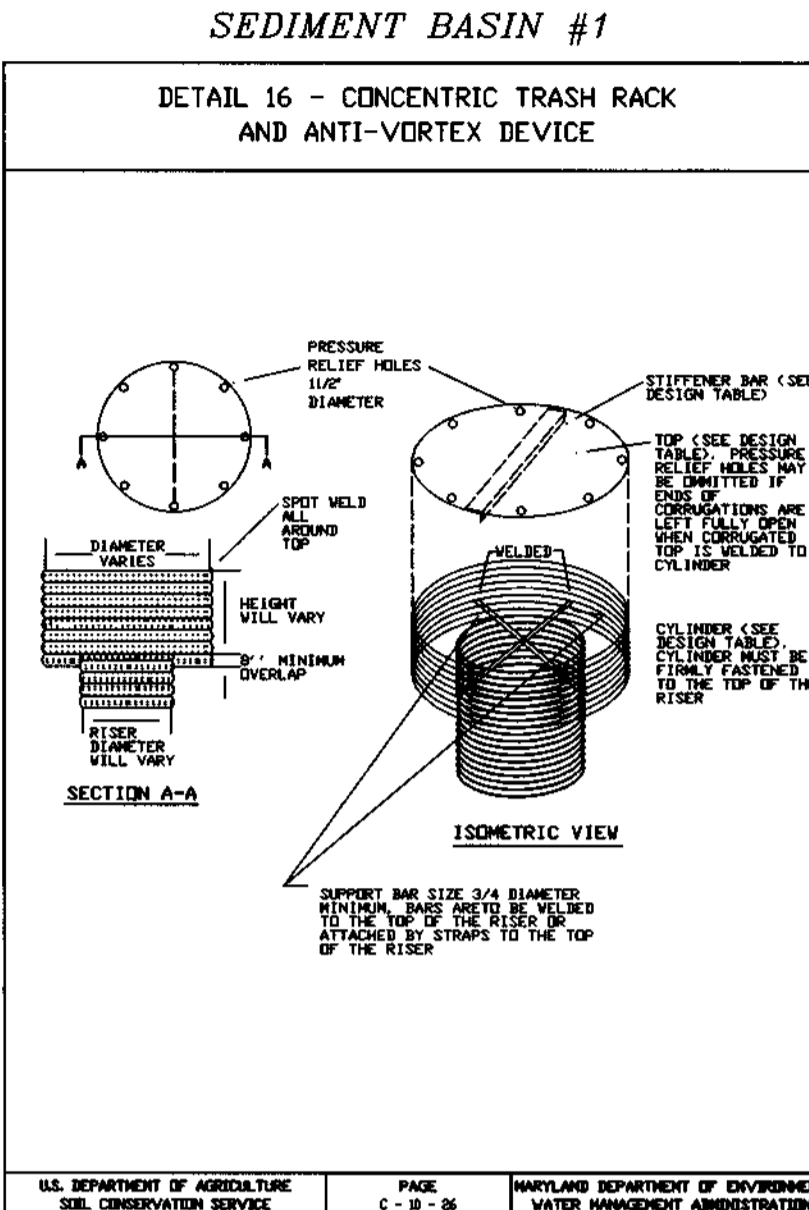
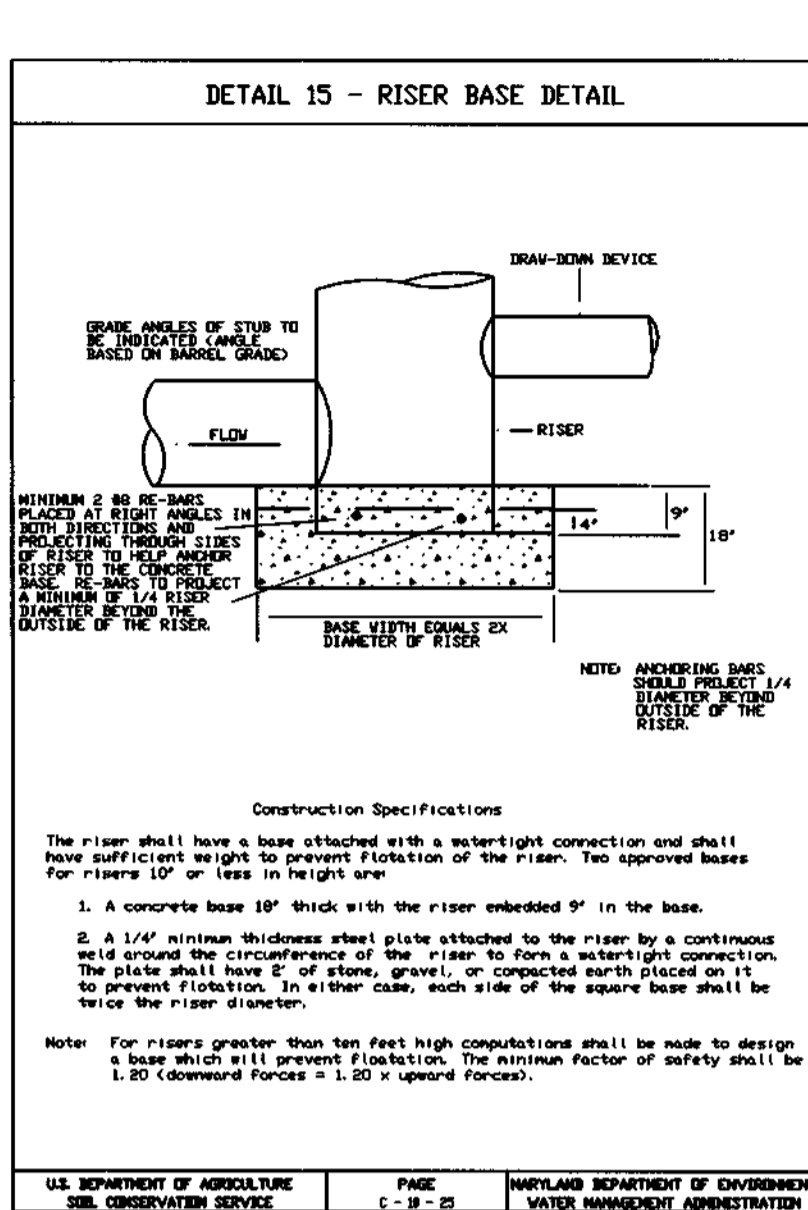
CONDITIONS WHERE PRACTICE APPLIES

- 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 ROOTING ZONE 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. ADEQUATE STABILIZATION AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

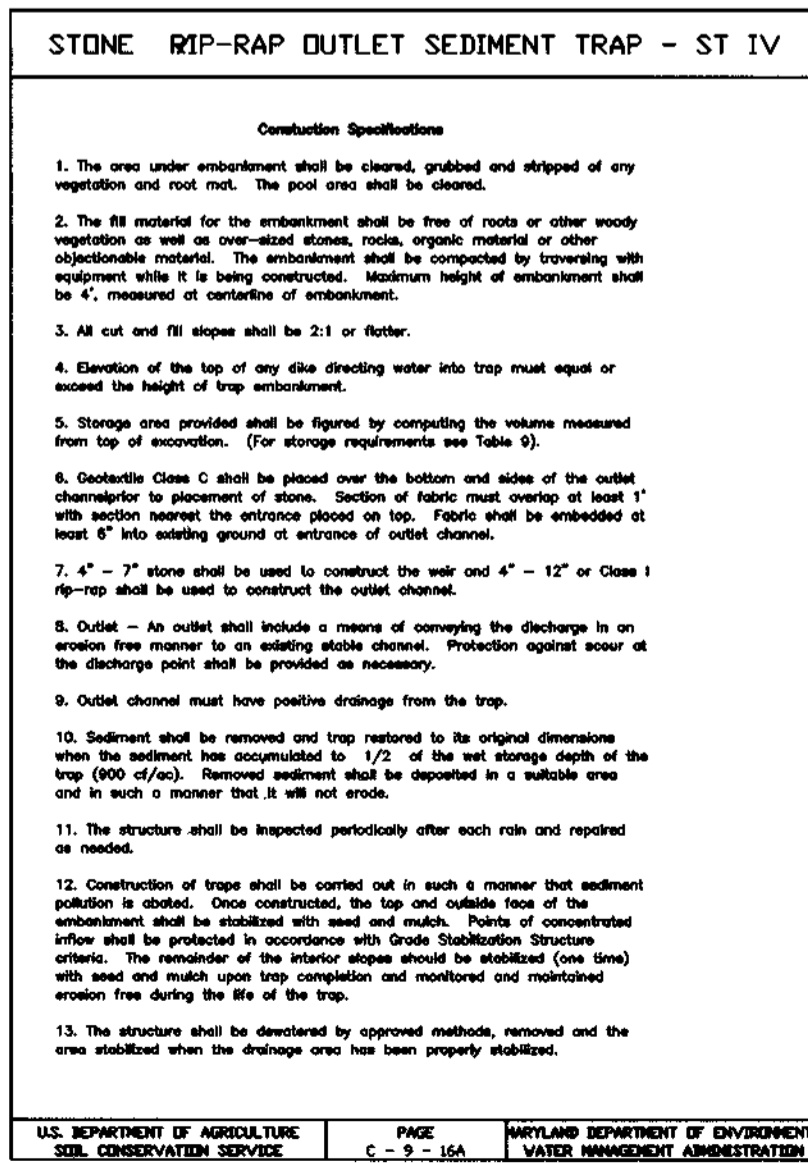
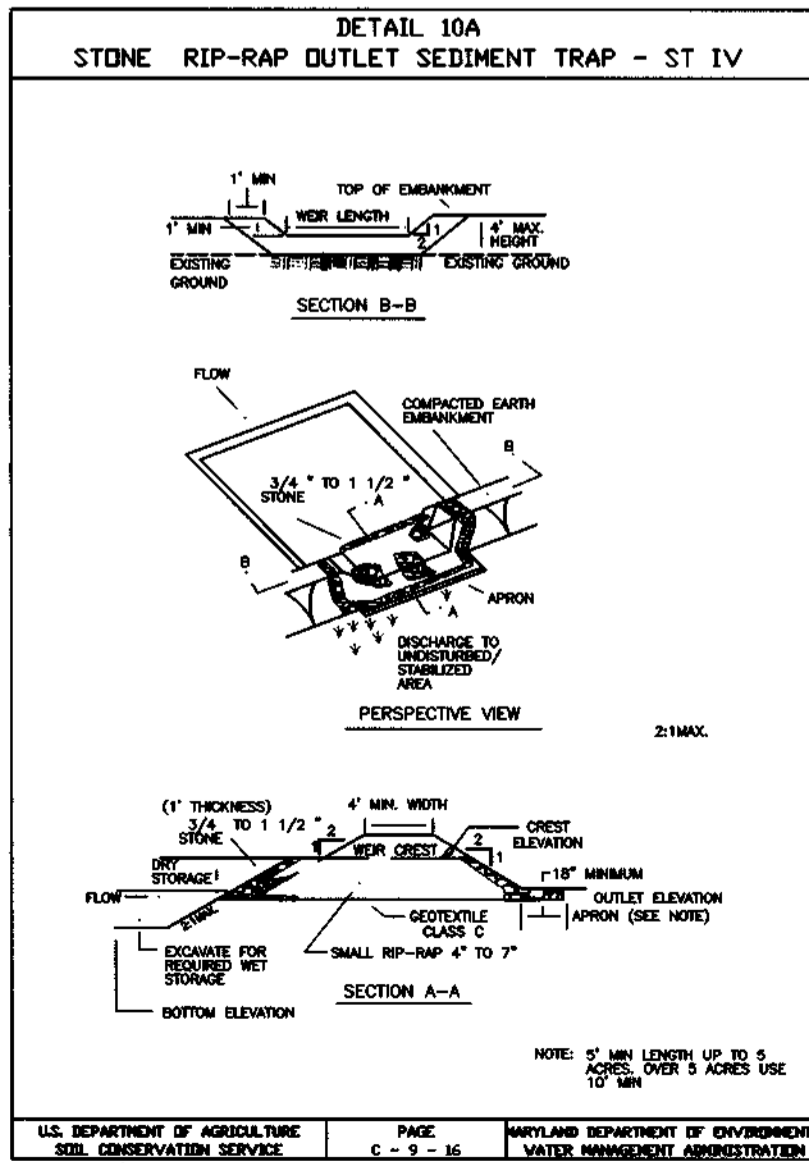
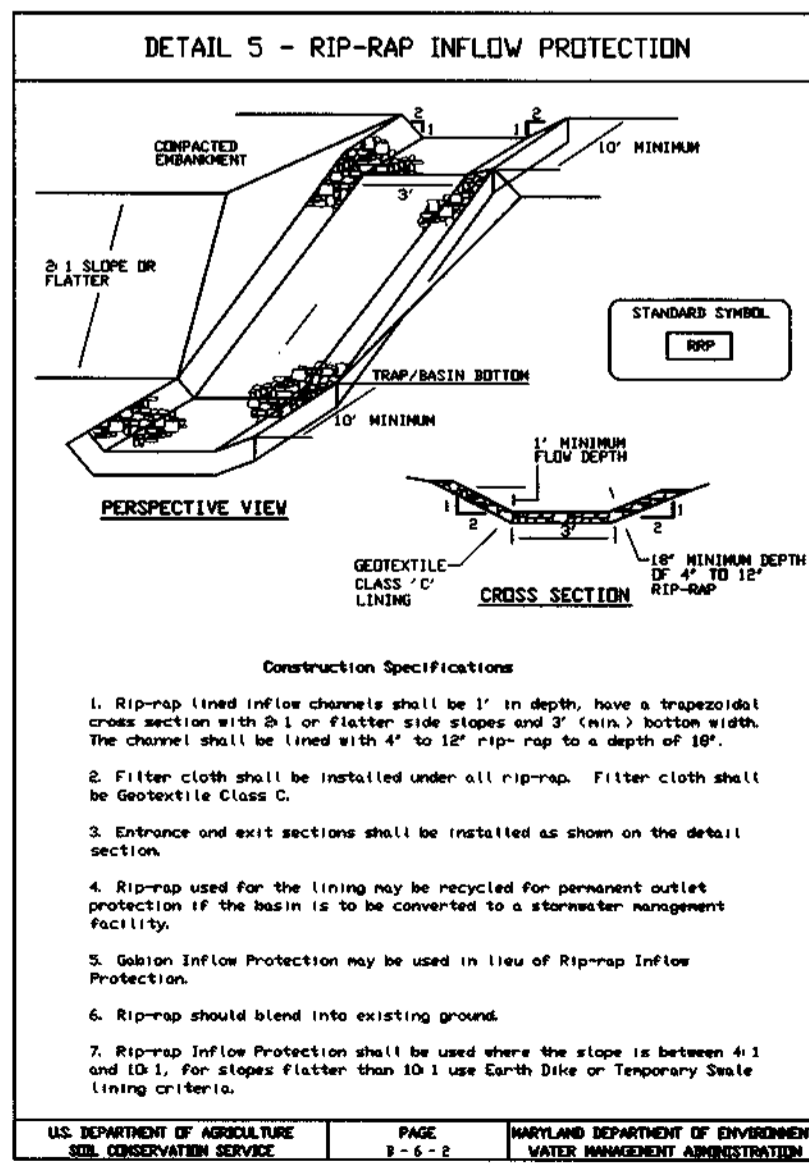
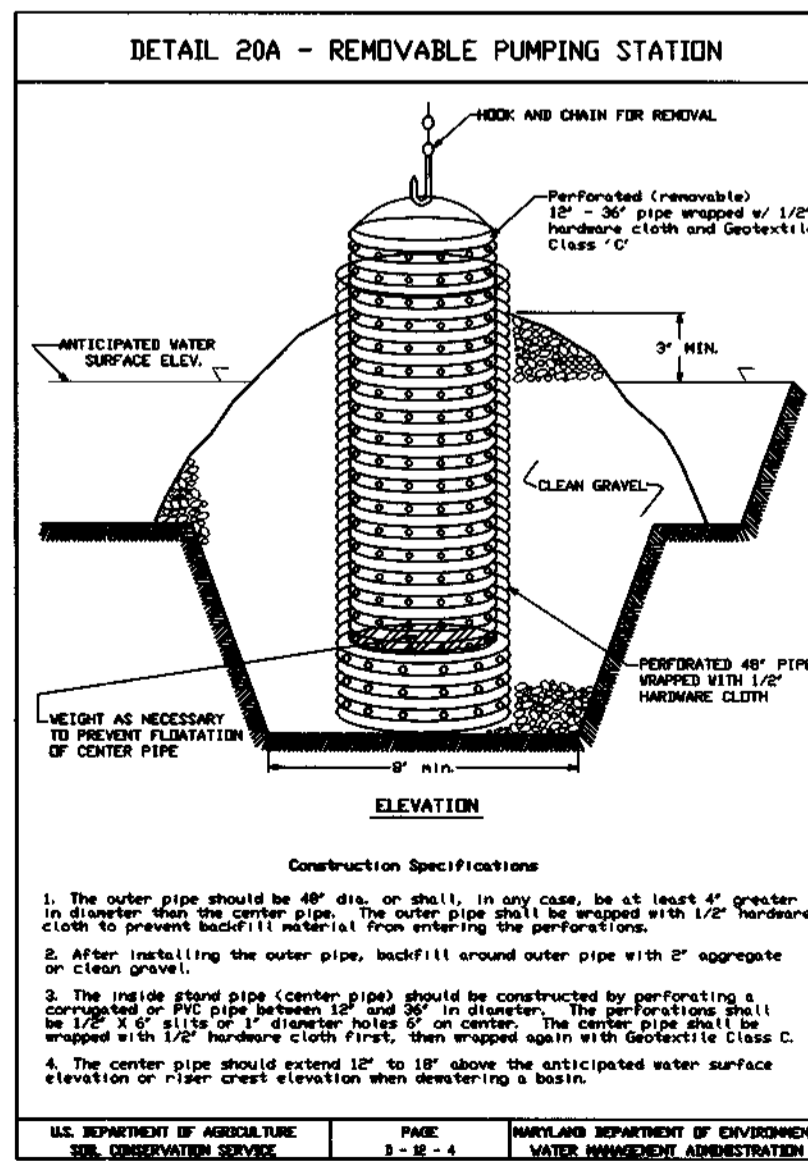
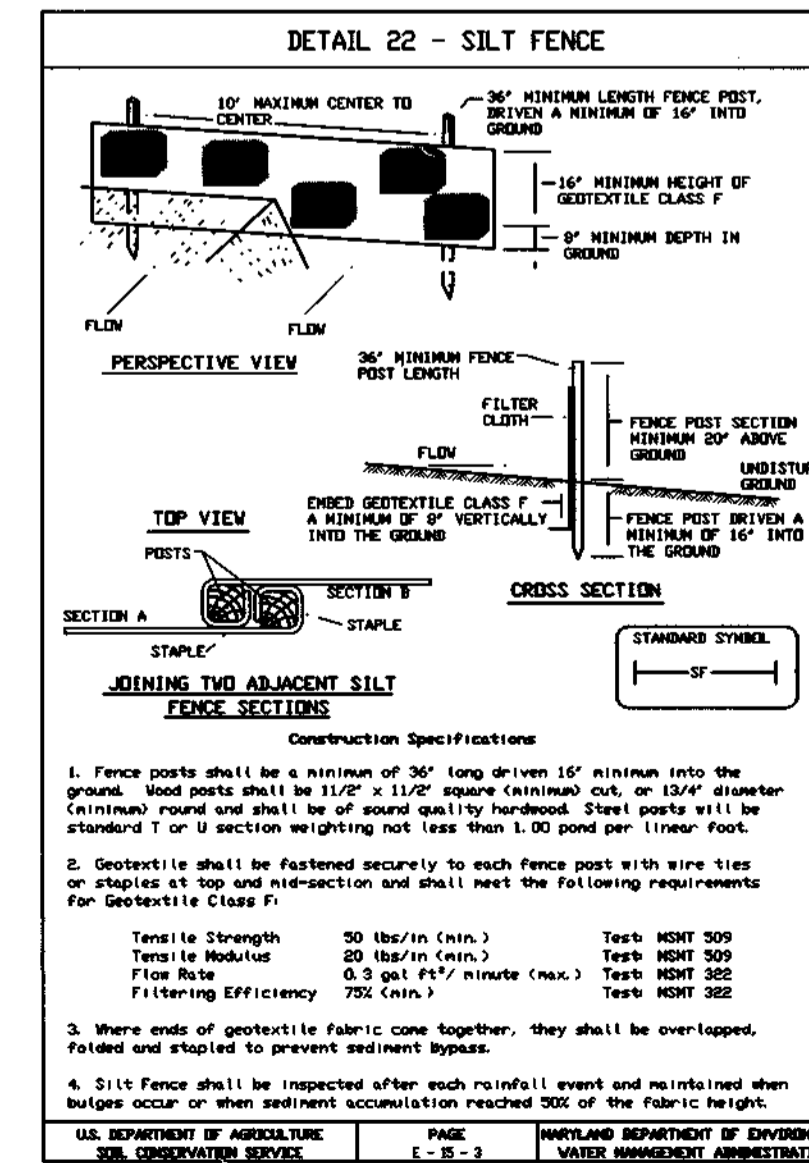
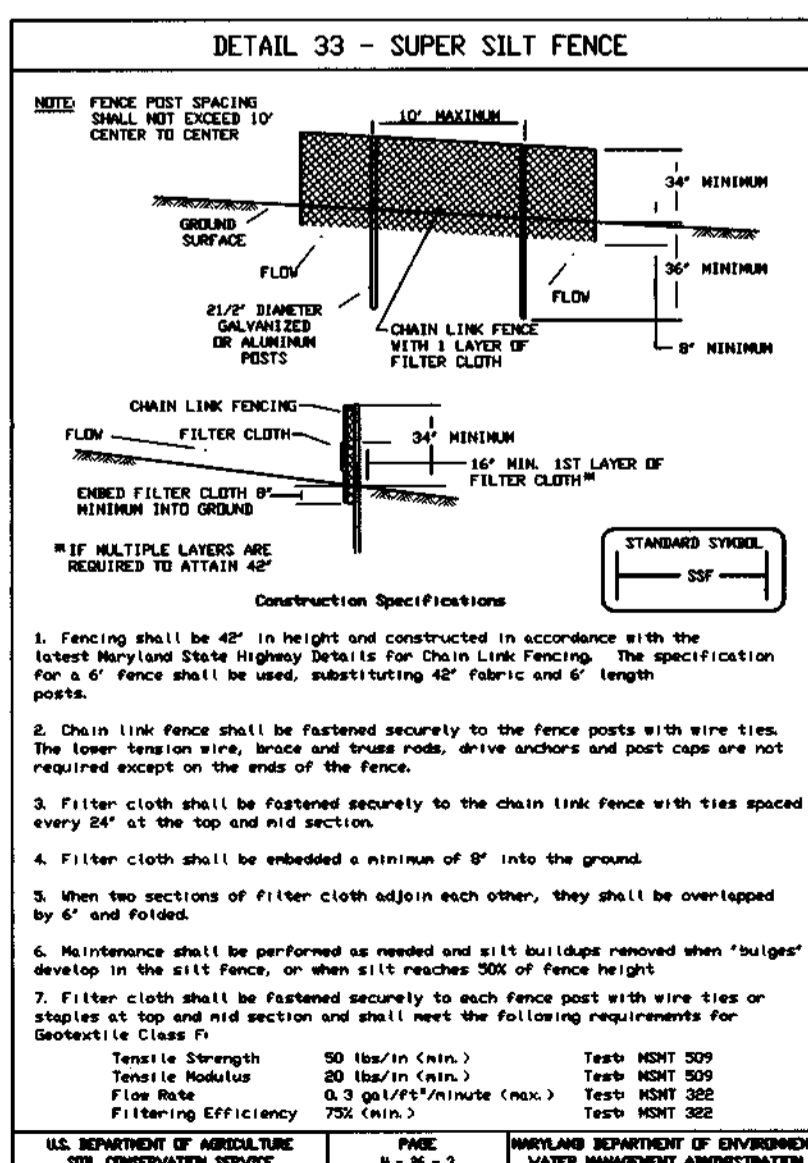
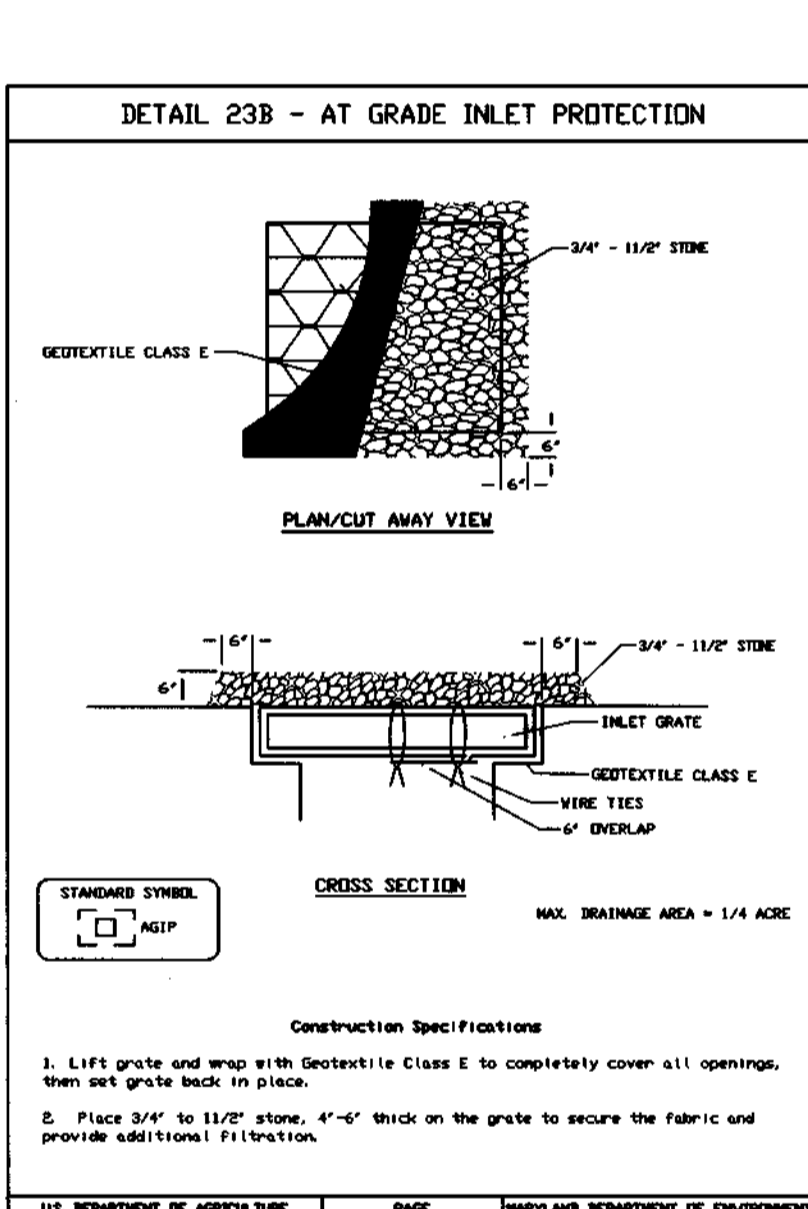
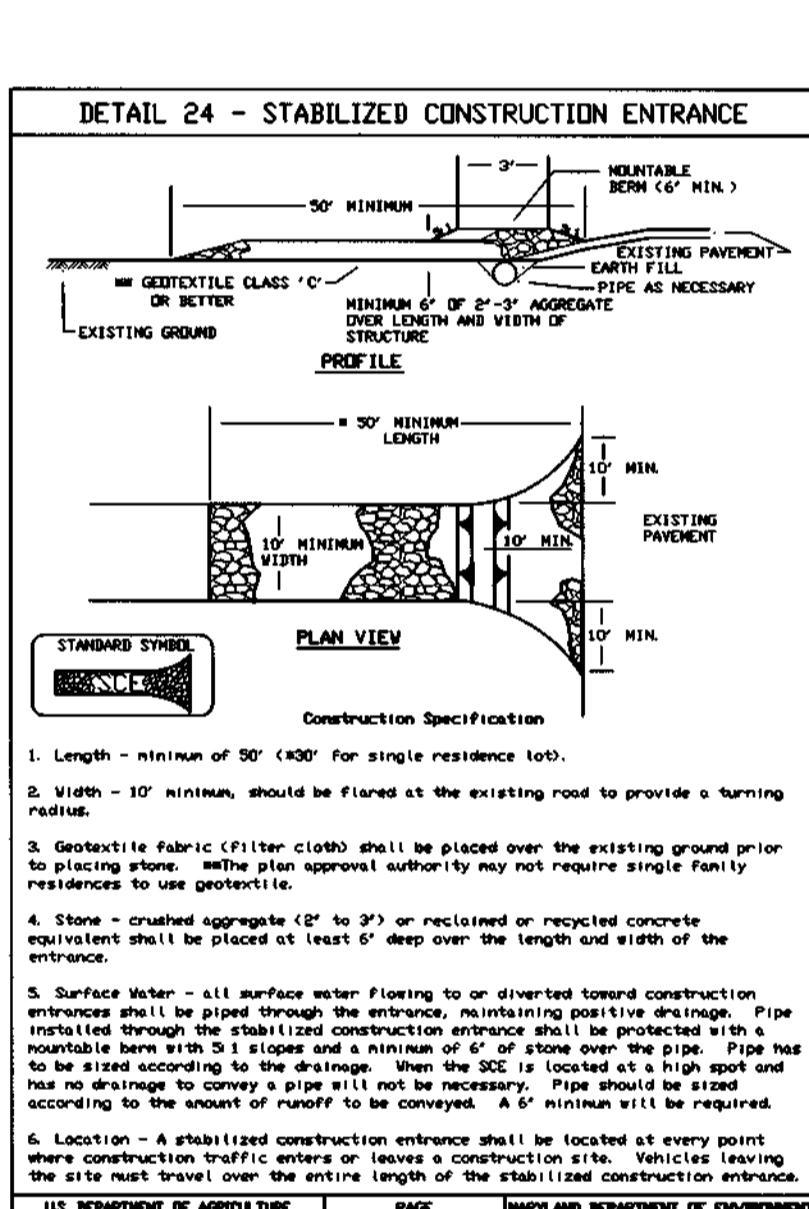
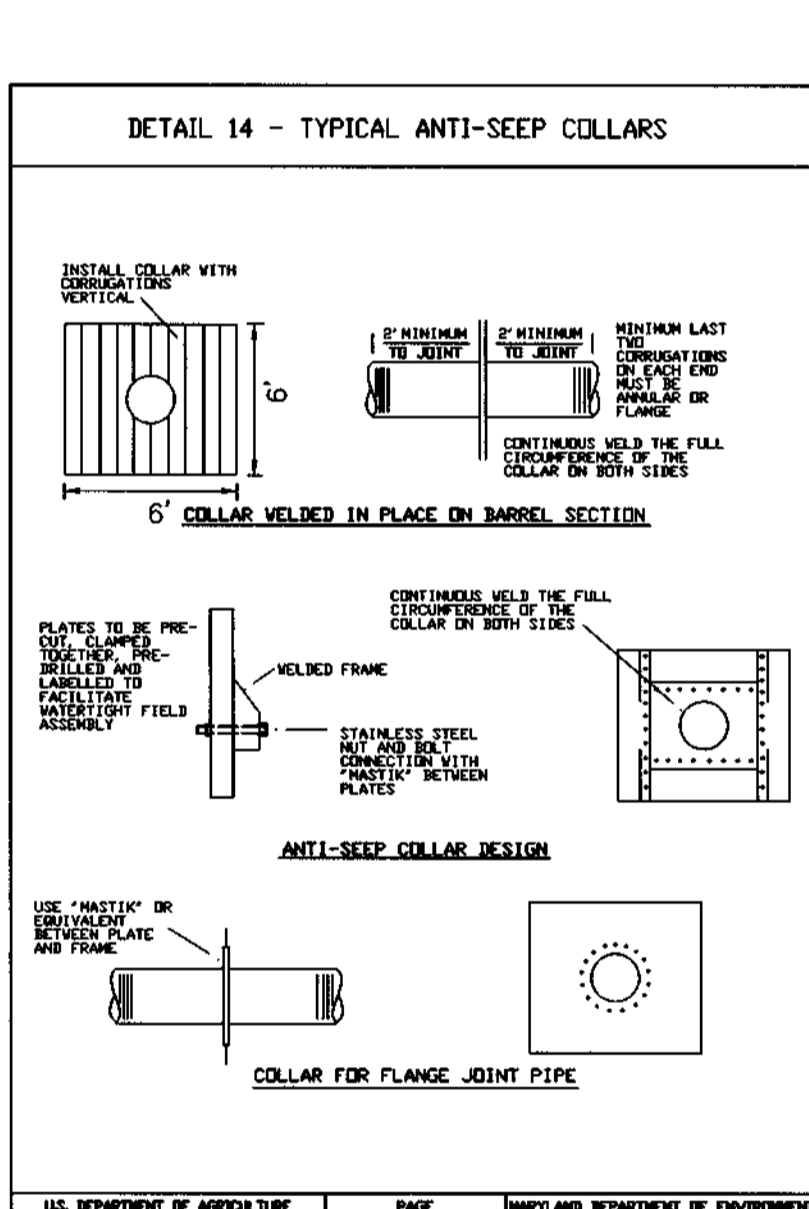
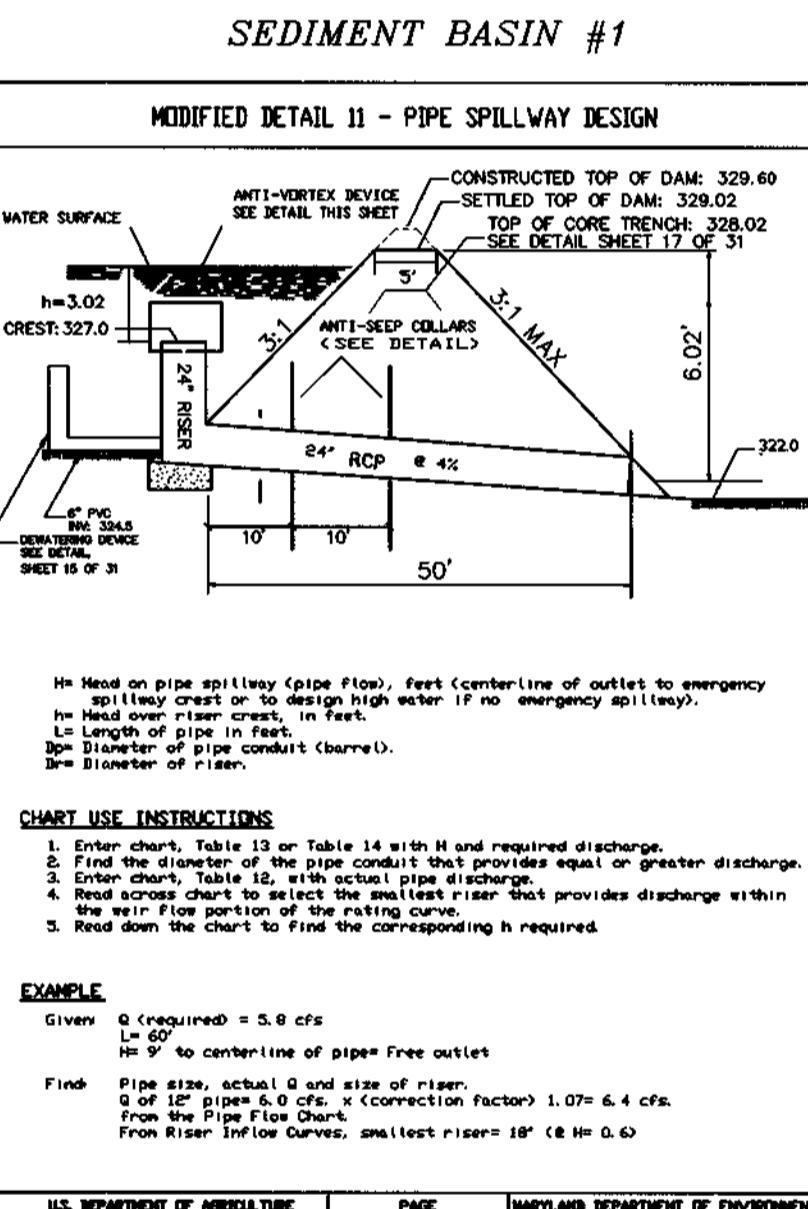
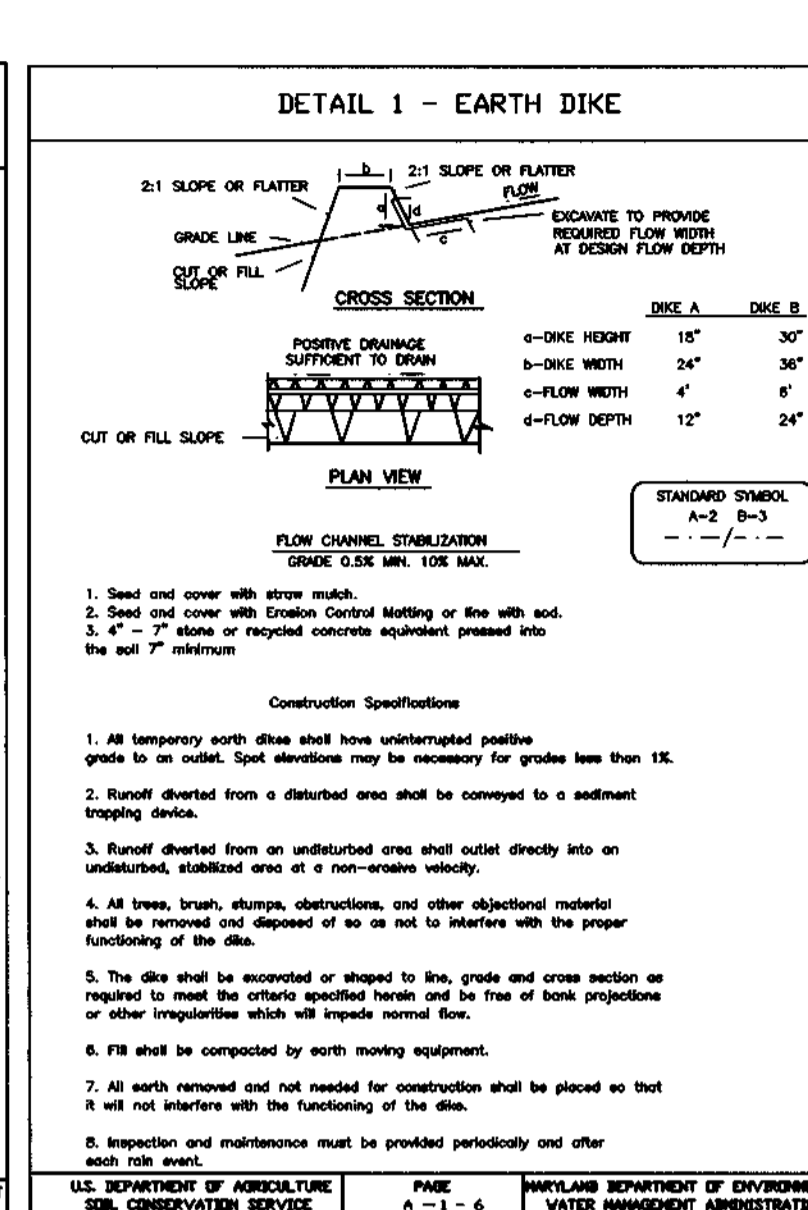
- I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
- 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 A MIXTURE OF CON-TRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CONDEES, 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, QUACKGRASS, JOHNSON-SOON GRASS, NUTSGRASS, 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.
 - IV. 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.
 - II. 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 TOPSOILS SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A pH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED 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 SOIL 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.
 - II. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
 - III. 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 TOPSOIL, 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, ALBERT 4" - 8" HIGHER IN ELEVATION.
 - III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" TO 6" 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 POCKETS.
 - 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.
 - V. 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 USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - a. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS WHO 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 PHOSPHOROUS, 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.
 - II. 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-V, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES, REVISED 1973.



DETAIL 16 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE (continued)

Riser Size, in.	Trash Rack Outer Diameter, in.	Trash Rack Inner Diameter, in.	Minimum Riser Support, in.	Minimum Top Thickness, in.	Minimum Top Stiffener, in.
18	18	16	6	6	16
18	21	16	7	7	16
18	24	16	8	8	16
21	30	16	11	11	16
24	36	16	13	13	16
27	42	16	15	15	16
36	54	14	17	17	16
42	60	14	19	19	16
48	72	12	21	21	16
54	78	12	23	23	16
60	90	12	25	25	16
66	96	10	27	27	16
72	102	10	29	29	16
78	114	10	31	31	16
84	120	10	33	33	16
90	130	10	35	35	16
96	138	10	37	37	16
102	144	10	39	39	16
108	150	10	41	41	16
114	156	10	43	43	16
120	162	10	45	45	16

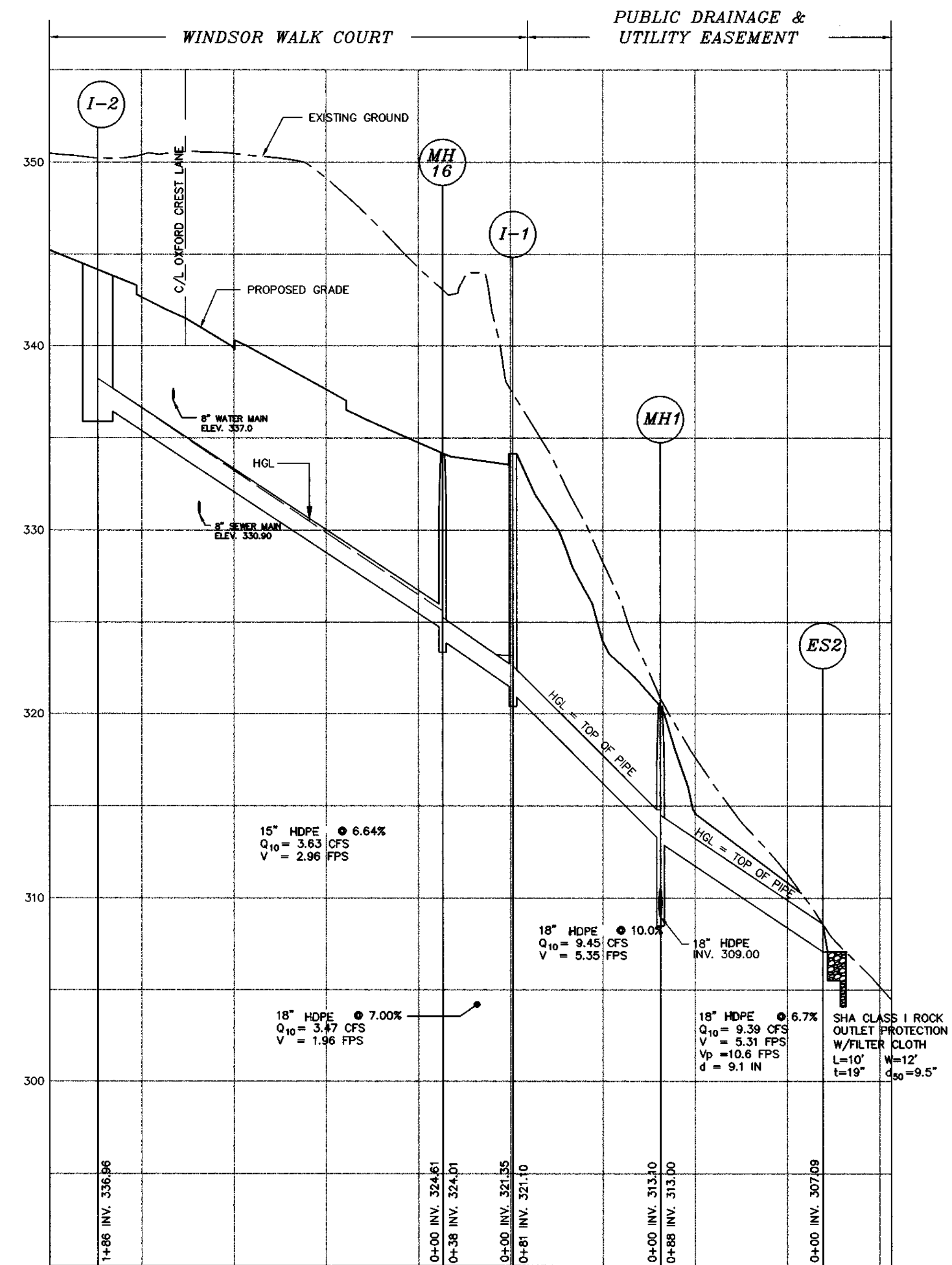
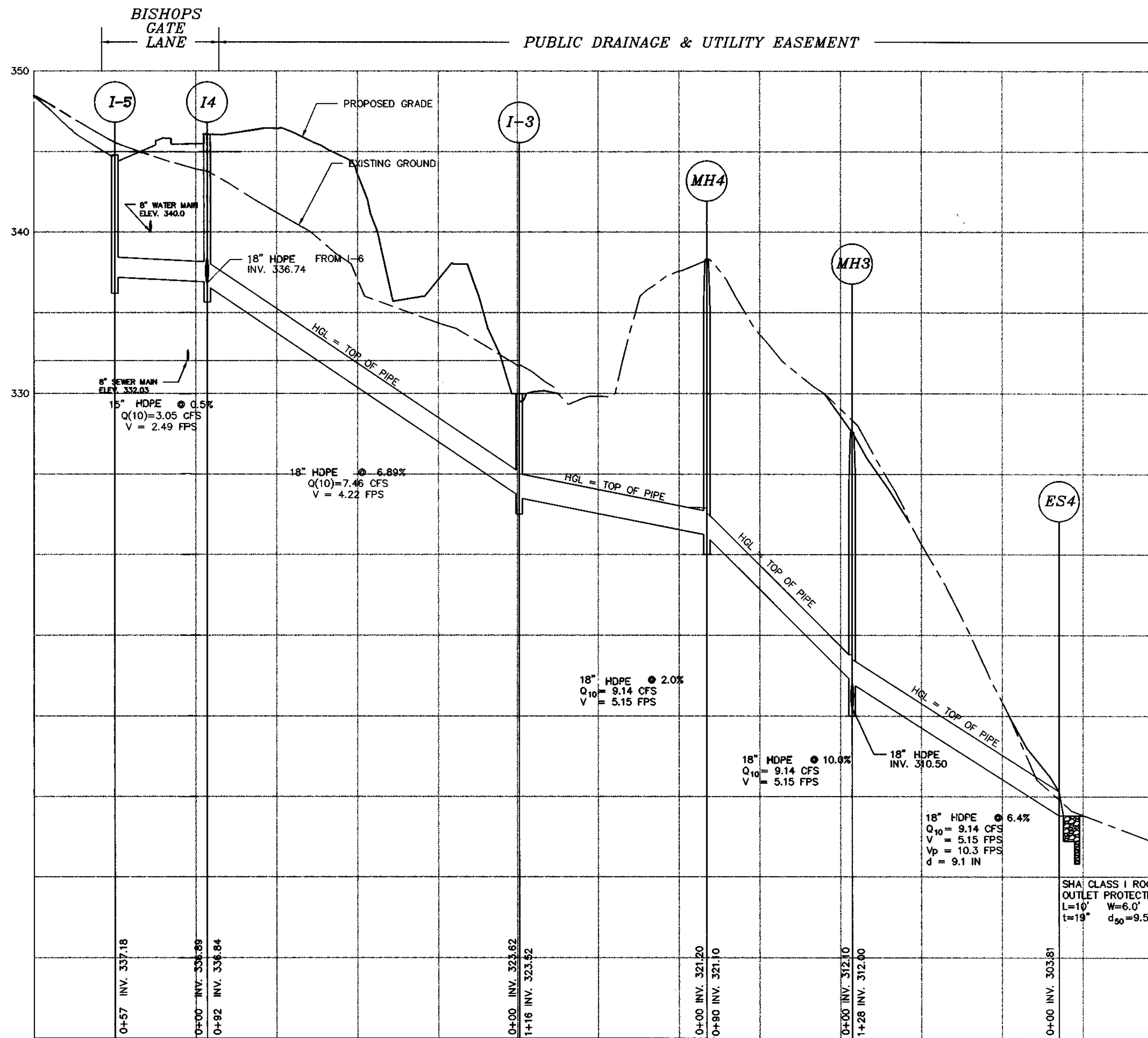
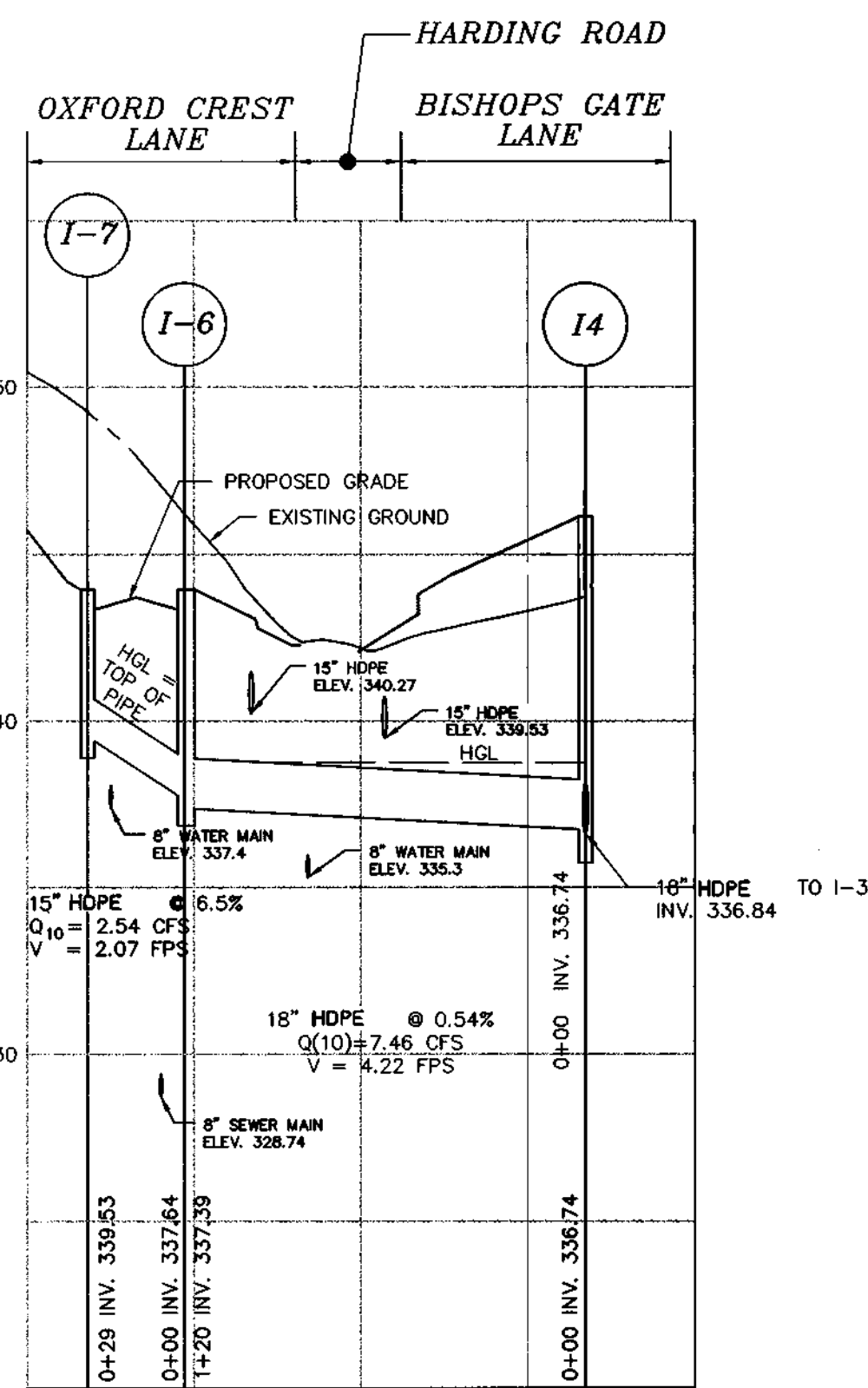


DATE	APR 1998
PROJECT	97084
DESCRIPTION	illustration
SCALE	AS NOTED
APPROVAL	AS NOTED

DATE	4-2-98
PROJECT	97084
DESCRIPTION	REVISED ALUM TO RCP PIPE
SCALE	AS NOTED
APPROVAL	AS NOTED

RESERVOIR OVERLOOK
LOTS 1 THRU 110
TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
HOWARD COUNTY, MARYLAND
SIXTH ELECTION DISTRICT
EROSION & SEDIMENT CONTROL NOTES AND DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hill Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0286 Fax: (301) 621-5521

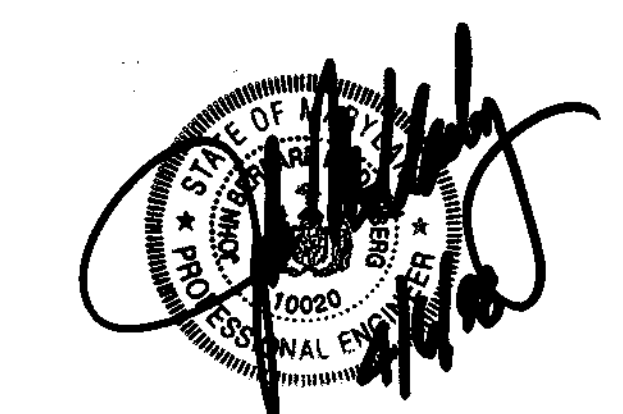


F:\97084\DMC\FINAL\ROADS\64-SD.DWG

APPROVED: DEPARTMENT OF PUBLIC WORKS
Andrew M. Dwyer 4-13-98
 CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Andy Hamilton 5/2/98
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

John Cummings 4/27/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

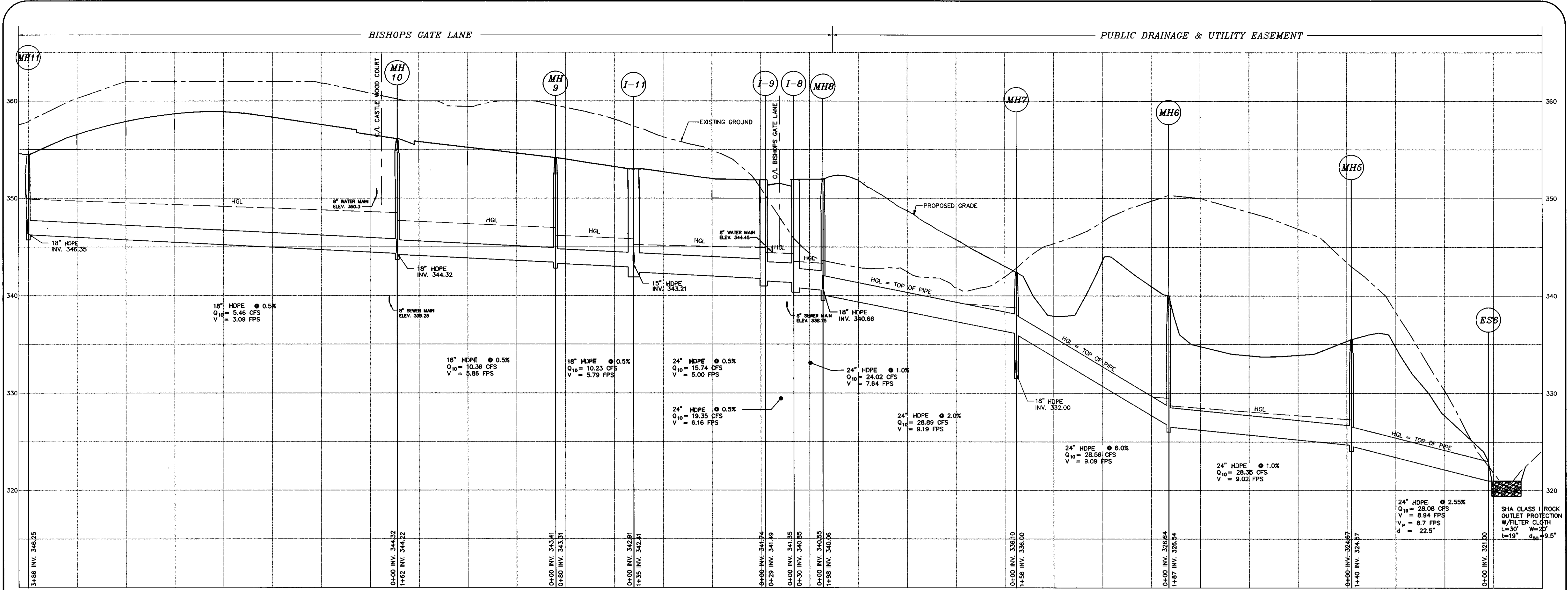


date	APR 1998
project	97084
illustration	SD
scale	1" = 50'
approval	SD

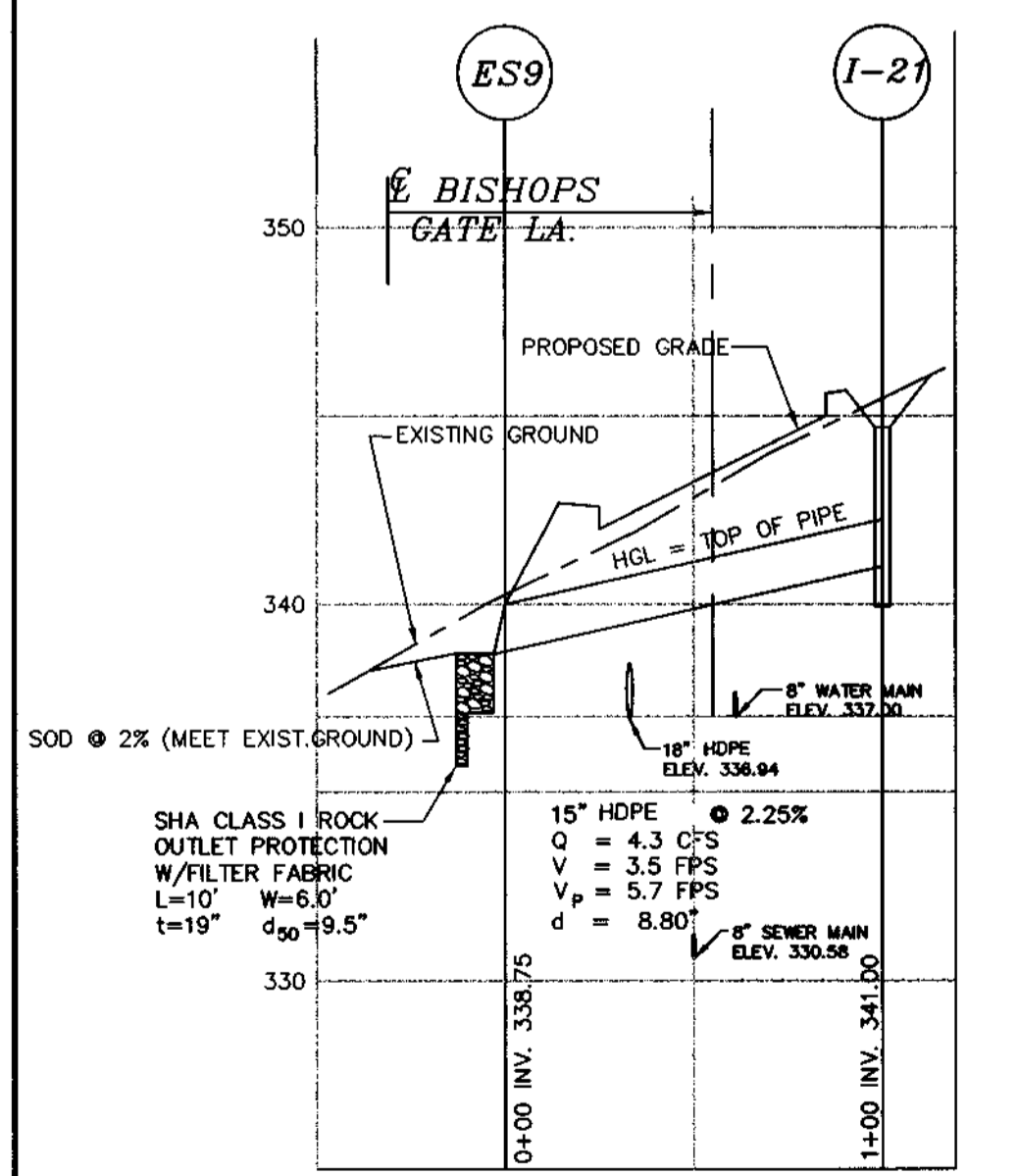
no.	1	description	initials	date
no.	2	REVISIONS		

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 HOWARD COUNTY, MARYLAND
 SIXTH ELECTION DISTRICT
STORM DRAIN PROFILES

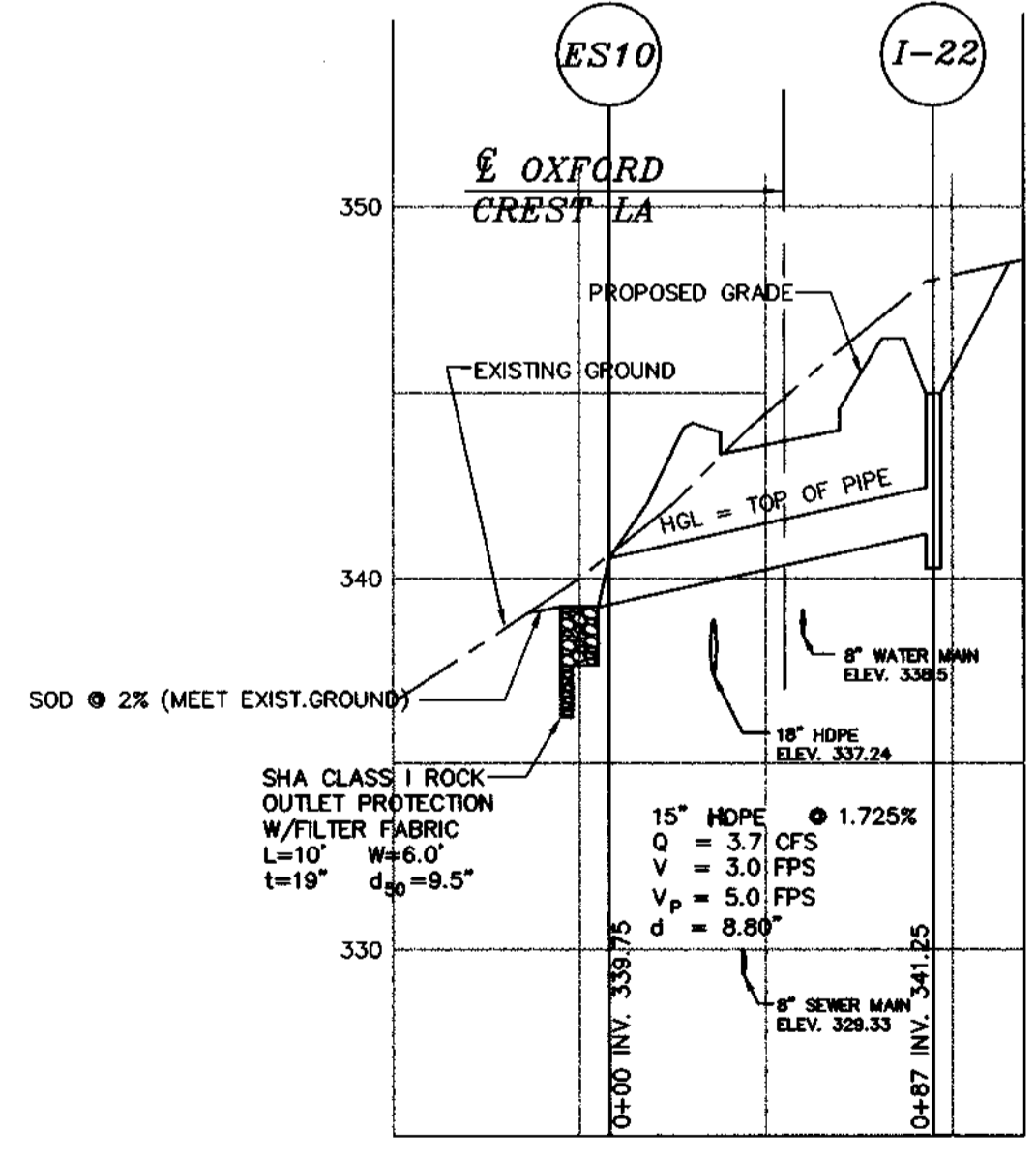
MILDENBERG, & ASSOC., INC.
 Engineers Planners Surveyors
 5872 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax



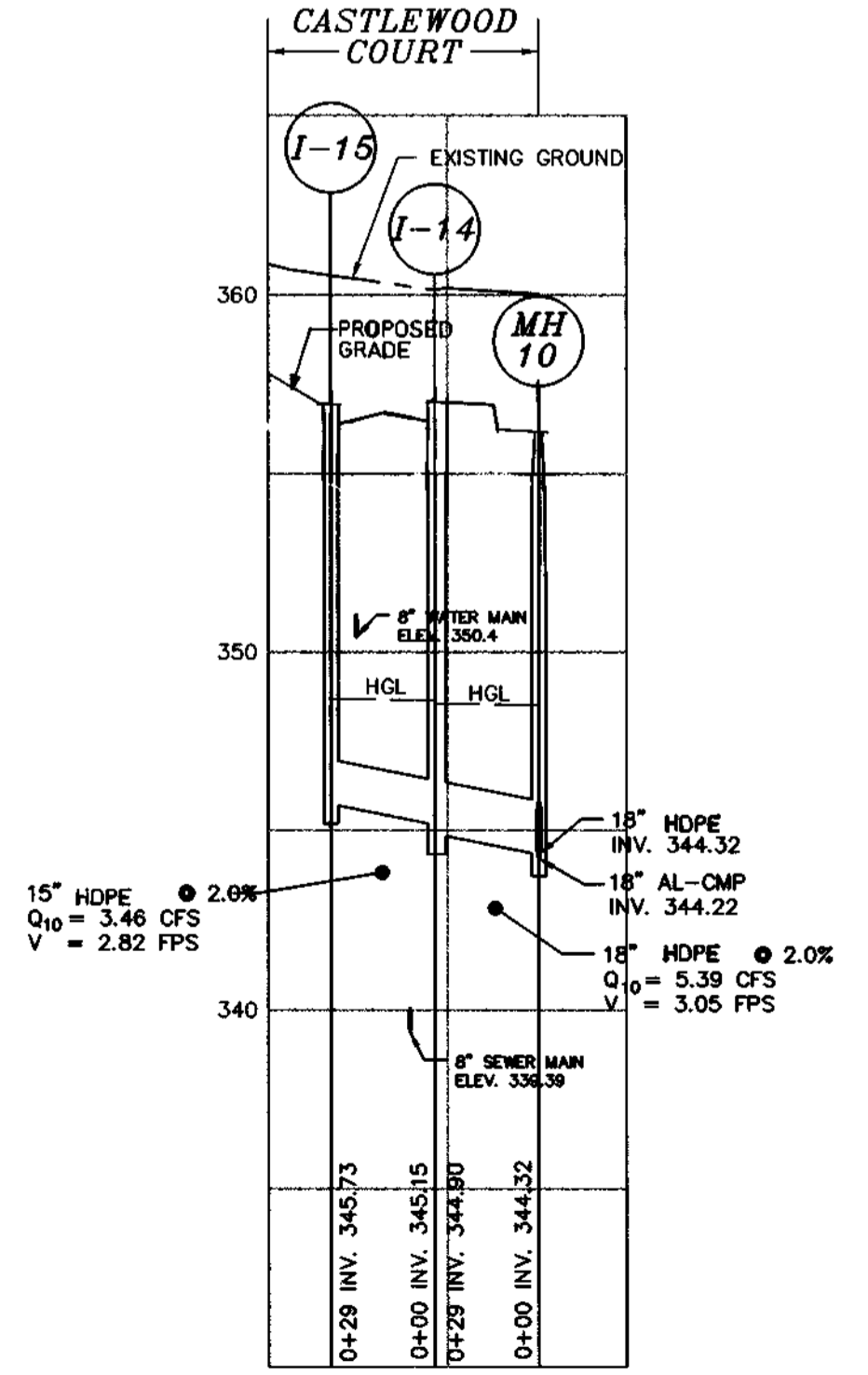
STORM DRAIN PROFILE MH11 TO ES6
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'



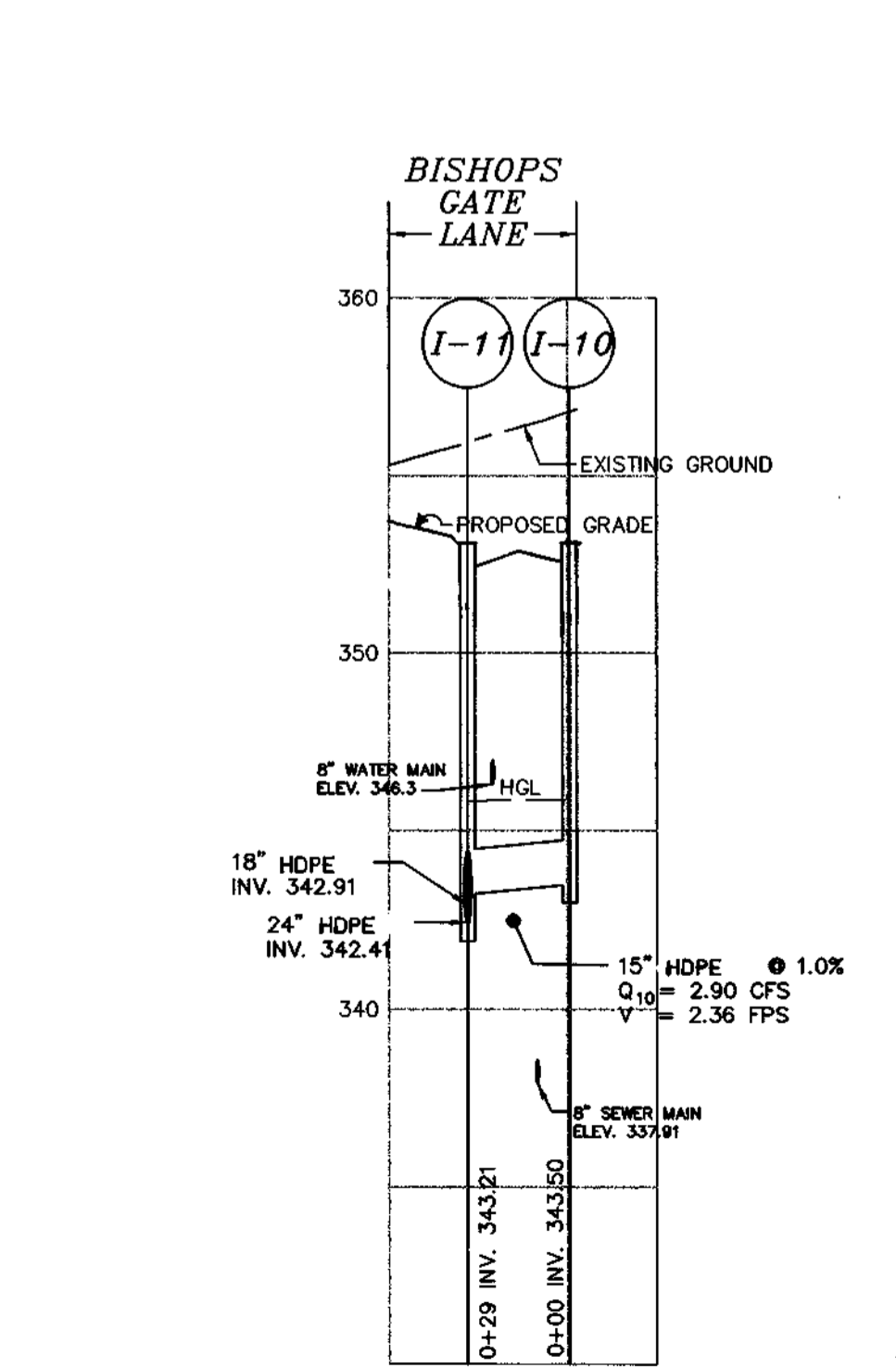
STORM DRAIN PROFILE I-21 TO ES-9
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'



STORM DRAIN PROFILE I-22 TO ES-10
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'



STORM DRAIN PROFILE I-15 TO MH10
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'



STORM DRAIN PROFILE I-10 TO I-11
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'



APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 4-23-98
 CHIEF BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 5/7/90
 CHIEF, DIVISION OF LAND DEVELOPMENT

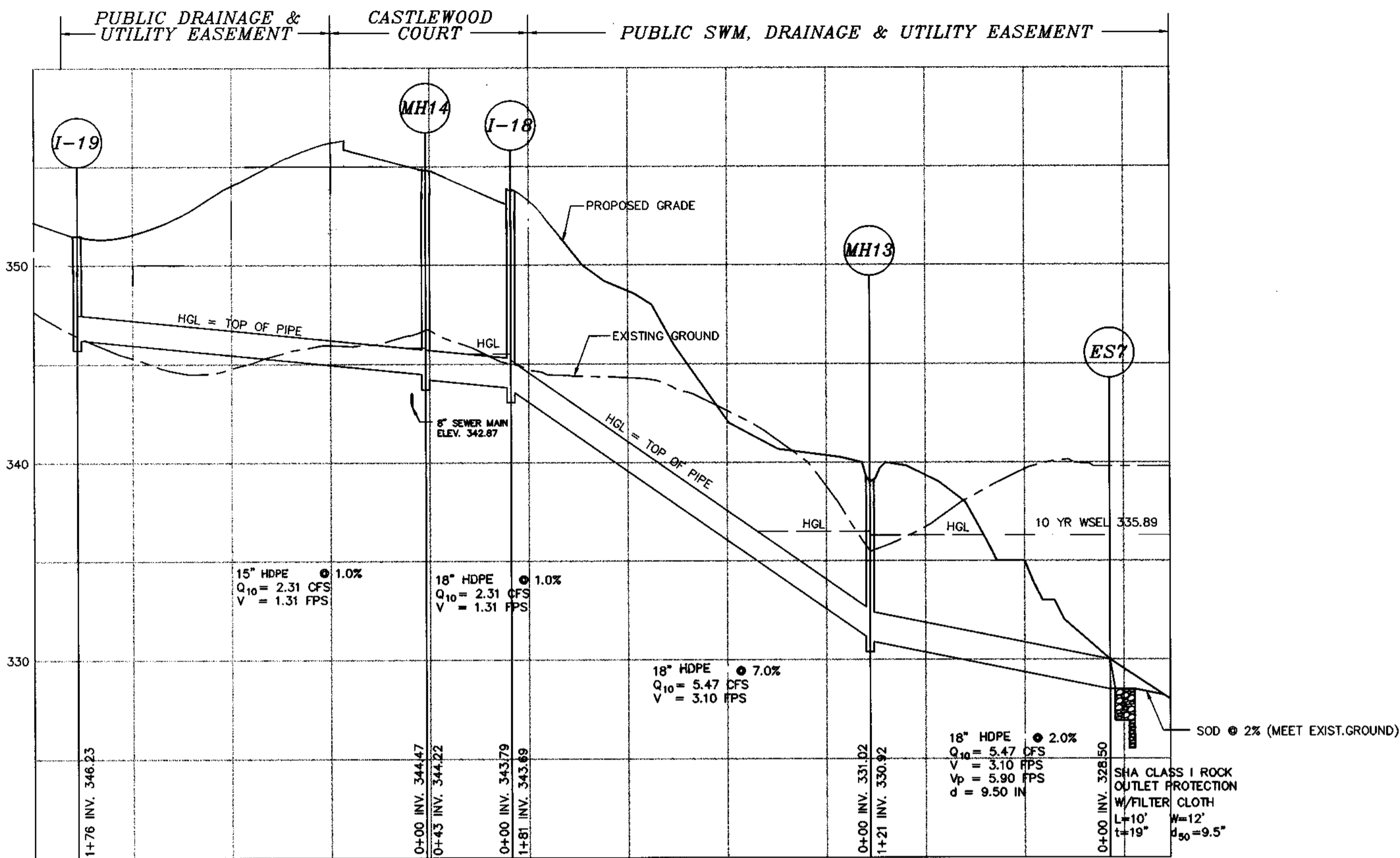
[Signature] 4/27/90
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

date	APR 1998
project	97084
illustration	SID
scale	1" = 50'
approval	SID

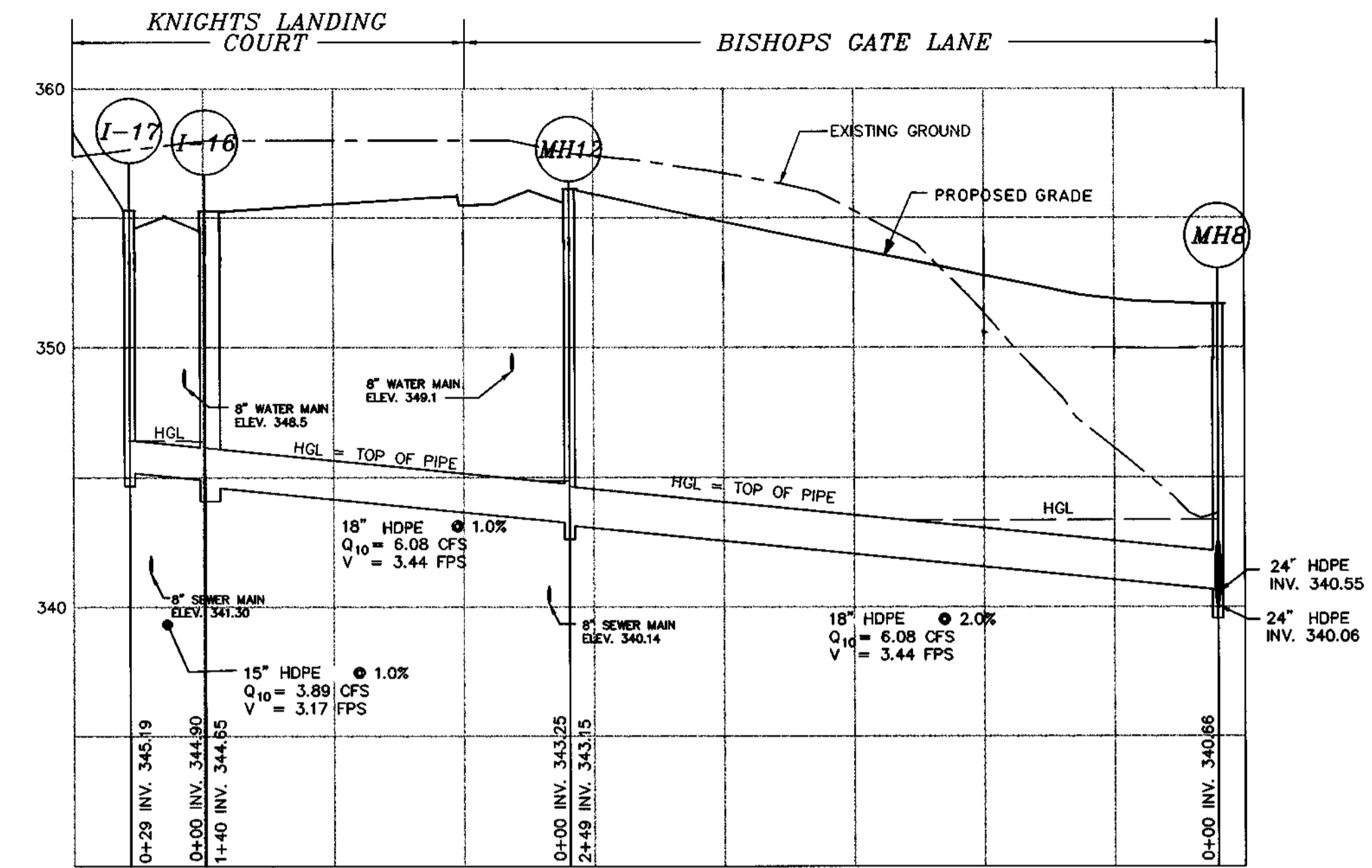
revision	description	date
1	REVISE PROPOSED GRADE FROM I-15 TO MH10	5-21-98
2	REVISE PROPOSED GRADE ON PROFILES	5-22-98
3	REVISE PROPOSED GRADE ON PROFILES	5-22-98

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
STORM DRAIN PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsy Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0296 Fax (301) 621-5527 Wash. (410) 997-0298 Fax



STORM DRAIN PROFILE I-19 TO ES7
 HORIZONTAL SCALE : 1" = 50'
 VERTICAL SCALE : 1" = 5'

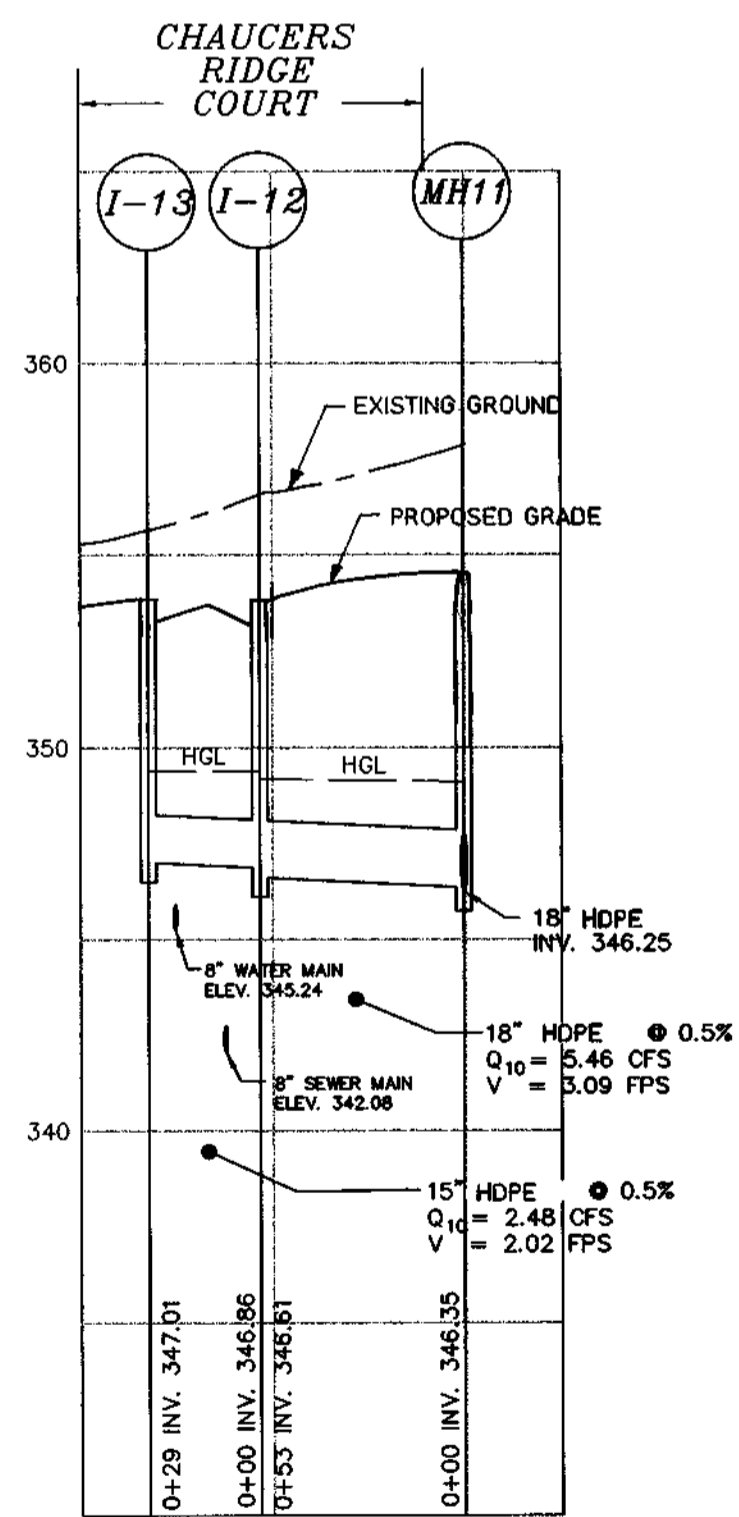


STORM DRAIN PROFILE I-17 TO MH8
 HORIZONTAL SCALE : 1" = 50'
 VERTICAL SCALE : 1" = 5'

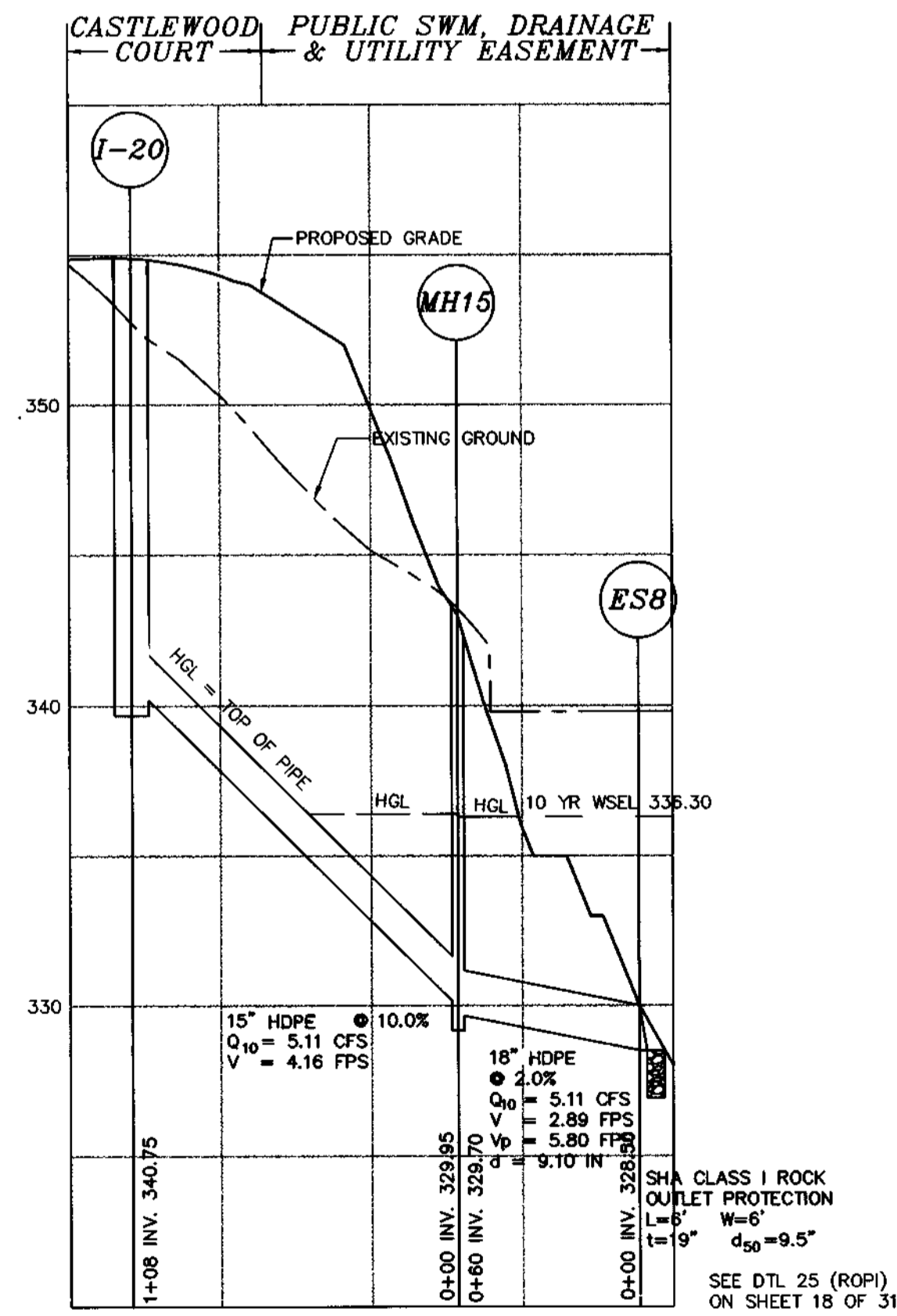
STRUCTURE SCHEDULE

NO.	LOCATION*	TOP**	INV. IN	INV. OUT	COMMENTS
I-1	WINDSOR WALK COURT EAST LP STA 1+29.85	333.57'	321.35'	321.10'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - SUMP
I-2	WINDSOR WALK COURT STA 1+80.66 - 12.44' LEFT	344.16'	---	336.96'	INLET COG 15 (HO. CO. STD SD 4.03) - 98% EFF.
I-3	BISHOPS GATE LANE STA 0+45.99 - 211.78' LEFT	329.50'	323.62'	323.52'	INLET TYPE K (HO. CO. STD SD 4.13) - SUMP
I-4	BISHOPS GATE LANE STA 0+82.33 - 21.44' LEFT	346.11'	336.69'	336.64'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - 96% EFF.
I-5	BISHOPS GATE LANE STA 0+47.56 - 21.44' RIGHT	344.79'	---	337.93'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - 92% EFF.
I-6	OXFORD CREST LANE STA 0+37.67 - 12.44' RIGHT	343.95'	337.64'	337.39'	INLET TYPE A-5 (HO. CO. STD SD 4.01) - 100% EFF.
I-7	OXFORD CREST LANE STA 0+37.67 - 12.44' LEFT	343.95'	---	339.53'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - 100% EFF.
I-8	BISHOPS GATE LANE STA 10+85.71 - 12.44' LEFT	351.81'	341.35'	340.85'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - SUMP
I-9	BISHOPS GATE LANE STA 10+85.71 - 12.44' RIGHT	351.81'	341.74'	341.49'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - SUMP
I-10	BISHOPS GATE LANE STA 9+44.61 - 12.44' LEFT	353.16'	---	343.50'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - 100% EFF.
I-11	BISHOPS GATE LANE STA 9+44.61 - 12.44' RIGHT	353.16'	343.21'	342.41'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - 96% EFF.
I-12	CHAUCERS RIDGE COURT STA 0+54.51 - 12.44' LEFT	353.79'	346.86'	346.61'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - 92% EFF.
I-13	CHAUCERS RIDGE COURT STA 0+55.13 - 12.44' RIGHT	353.82'	---	347.01'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - 97% EFF.
I-14	CASTLEWOOD COURT STA 0+43.17 - 12.44' LEFT	356.88'	345.15'	344.90'	INLET TYPE A-5 (HO. CO. STD SD 4.01) - 86% EFF.
I-15	CASTLEWOOD COURT STA 0+43.17 - 12.44' RIGHT	356.88'	---	345.73'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - 100% EFF.
I-16	KNIGHTS LANDING COURT STA 1+25 - 12.44' RIGHT	355.32'	344.90'	344.65'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - SUMP
I-17	KNIGHTS LANDING COURT STA 1+25 - 12.44' LEFT	355.32'	---	345.19'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - SUMP
I-18	CASTLEWOOD COURT LP STA 1+65.15	353.57'	343.79'	343.69'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - SUMP
I-19	CASTLEWOOD COURT LP STA 0+81.99 - 136.27' LEFT	351.53'	---	346.23'	INLET TYPE K (HO. CO. STD SD 4.13) - SUMP
I-20	CHAUCERS RIDGE COURT LP STA 1+29.85	354.87'	---	340.75'	INLET TYPE A-10 (HO. CO. STD SD 4.02) - SUMP
I-21	BISHOPS GATE LANE STA 0+23 - 46' RIGHT	344.70'	---	341.00'	INLET TYPE K (HO. CO. STD SD 4.13) - SUMP
I-22	OXFORD CREST LANE STA 0+18 - 42' LEFT	346.00'	---	341.25'	INLET TYPE K (HO. CO. STD SD 4.13) - SUMP
MH1	WINDSOR WALK COURT EAST LP STA 1+26.95 - 81.48' RIGHT	320.40'	313.10'	313.00'	MH (HO. CO. STD G 5.01)
MH3	OXFORD CREST LANE STA 1+22.97 - 274.64' RIGHT	327.60'	312.10'	312.00'	MH (HO. CO. STD G 5.01)
MH4	OXFORD CREST LANE STA 0+69.24 - 202.44' RIGHT	338.30'	321.20'	321.10'	MH (HO. CO. STD G 5.01)
MH5	BISHOPS GATE LANE STA 12+68.14 - 473.66' LEFT	336.20'	324.67'	324.57'	MH (HO. CO. STD G 5.01)
MH6	BISHOPS GATE LANE STA 11+74.62 - 385.93' LEFT	338.25'	326.64'	326.54'	MH (HO. CO. STD G 5.01)
MH7	BISHOPS GATE LANE STA 11+54.57 - 209.46' LEFT	342.40'	336.10'	336.00'	MH (HO. CO. STD G 5.01)
MH8	BISHOPS GATE LANE STA 11+15.33 - 15' LEFT	351.68'	340.66'	340.06'	MH (HO. CO. STD G 5.01)
MH9	BISHOPS GATE LANE STA 8+60.00 - 15.00' RIGHT	354.12'	343.41'	343.31'	MH (HO. CO. STD G 5.01)
MH10	BISHOPS GATE LANE STA 6+96.26 - 14.00' RIGHT	356.07'	344.32'	344.22'	MH (HO. CO. STD G 5.01)
MH11	BISHOPS GATE LANE STA 3+07.83 - 14.94' RIGHT	354.46'	346.35'	346.25'	MH (HO. CO. STD G 5.01)
MH12	BISHOPS GATE LANE STA 13+64.40 - 15' LEFT	356.05'	343.25'	343.15'	MH (HO. CO. STD G 5.01)
MH13	CASTLEWOOD COURT LP STA 1+67.78 - 182.89' LEFT	339.00'	331.02'	330.92'	MH (HO. CO. STD G 5.01)
MH14	CASTLEWOOD COURT STA 6+72.71	354.61'	344.47'	344.22'	MH (HO. CO. STD G 5.01)
MH15	CHAUCERS RIDGE COURT LP STA 0+69.15 - 60.49' LEFT	343.00'	329.95'	329.70'	MH (HO. CO. STD G 5.01)
MH16	WINDSOR WALK COURT STA -0+8.84 - 14.35' LEFT	334.17'	324.61'	324.01'	MH (HO. CO. STD G 5.01)
ES-2	WINDSOR WALK COURT EAST LP STA 1+39.23 - 155.85' RIGHT	---	---	307.09'	18" END SECTION (HO. CO. STD. SD 5.61)
ES-4	OXFORD CREST LANE STA 1+99.40 - 337.32' RIGHT	---	---	303.81'	18" END SECTION (HO. CO. STD. SD 5.61)
ES-6	BISHOPS GATE LANE STA 14+16.15 - 412.51' LEFT	---	---	321.00'	24" END SECTION (HO. CO. STD. SD 5.61)
ES-7	CHAUCERS RIDGE COURT LP STA 0+63.87 - 219.07' LEFT	---	---	328.50'	18" END SECTION (HO. CO. STD. SD 5.61)
ES-8	CHAUCERS RIDGE COURT LP STA 0+69.15 - 112.00' LEFT	---	---	328.50'	18" END SECTION (HO. CO. STD. SD 5.61)
ES-9	BISHOPS GATE LANE STA 0+23 - 57' LEFT	---	---	338.75'	15" END SECTION (HO. CO. STD. SD 5.61)
ES-10	OXFORD CREST LANE STA 0+18 - 47' RIGHT	---	---	339.75'	15" END SECTION (HO. CO. STD. SD 5.61)

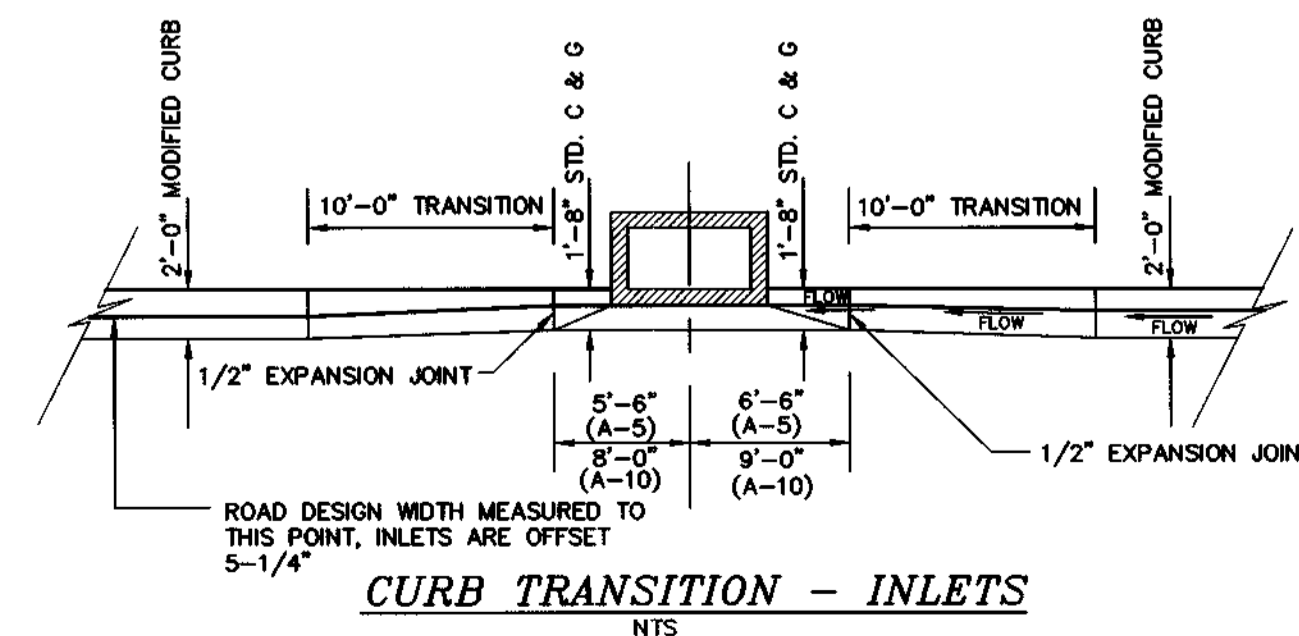
* STATIONS GIVEN TO CENTERLINE OF INLET AT TOP OF CURB FOR INLETS LOCATED WITHIN THE ROAD RIGHT-OF-WAY. STATIONS FOR "K" INLETS TO CL OF INLET. LOCATION OF MANHOLES IS TO CL OF MANHOLE COVER. END SECTION GIVEN TO THE CENTERLINE OF PIPE AT THE CONNECTION OF THE STORM DRAIN PIPE TO THE END SECTION.
 ** ELEVATIONS MEASURED TO CENTER OF ALL INLETS.



STORM DRAIN PROFILE I-13 TO MH11
 HORIZONTAL SCALE : 1" = 50'
 VERTICAL SCALE : 1" = 5'



STORM DRAIN PROFILE I-20 TO ES8
 HORIZONTAL SCALE : 1" = 50'
 VERTICAL SCALE : 1" = 5'



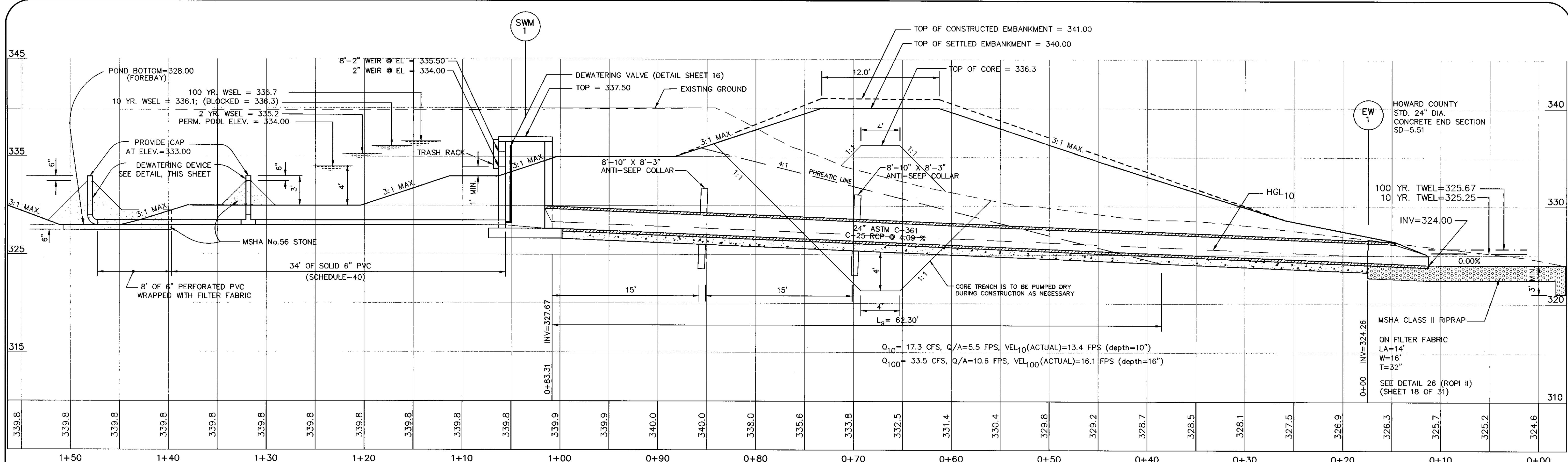
APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 4-23-98
 CHIEF BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5/1/98
 CHIEF, DIVISION OF LAND DEVELOPMENT
 APPROVED: *[Signature]* 4/27/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

date	APR 1998
project	97084
illustration	SID
scale	1" = 50'

revision	3	REVISE PROFILE GRADE FROM I-19 TO ES7 & REVERSE STRUCTURE SCHEDULE FROM I-21 TO I-1
revision	1	REVISE PROFILE GRADE ON PROFILES & STRUCTURE SCHEDULE TOP ELEV.
revision	2	REVISE PROFILE GRADE ON PROFILES & STRUCTURE SCHEDULE TOP ELEV.

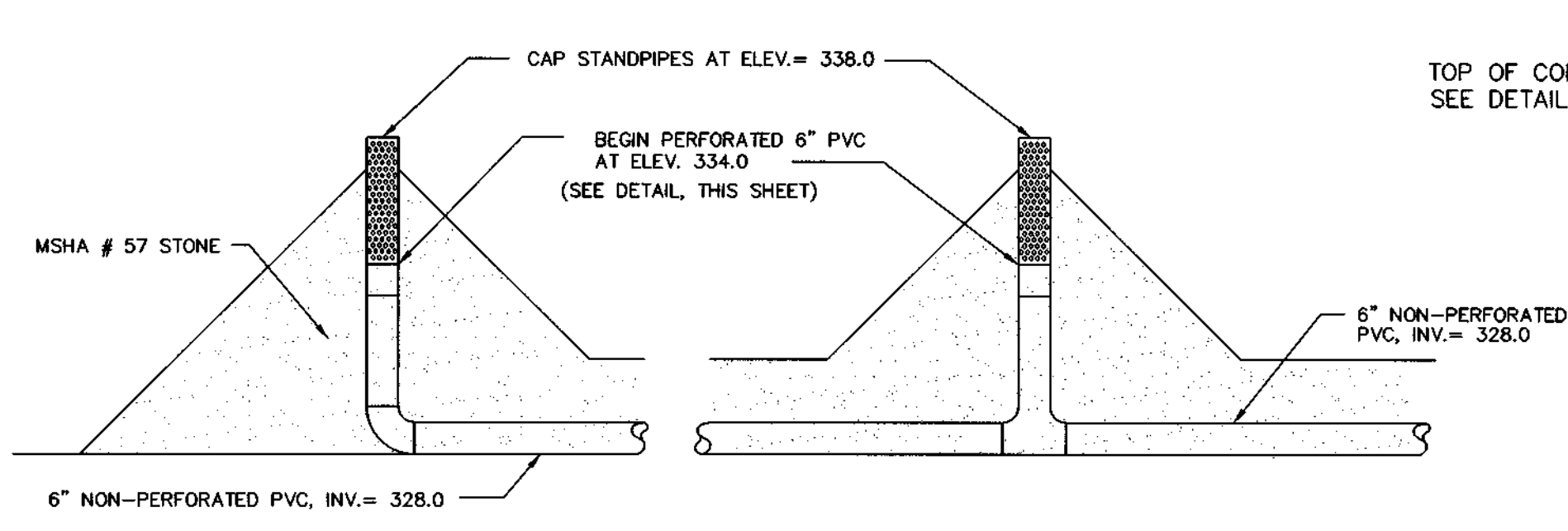
RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 SIXTH ELECTION DISTRICT - HOWARD COUNTY, MARYLAND
STORM DRAIN PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsy Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0296 Fax (301) 821-5521 Wash. (410) 997-0298 Fax

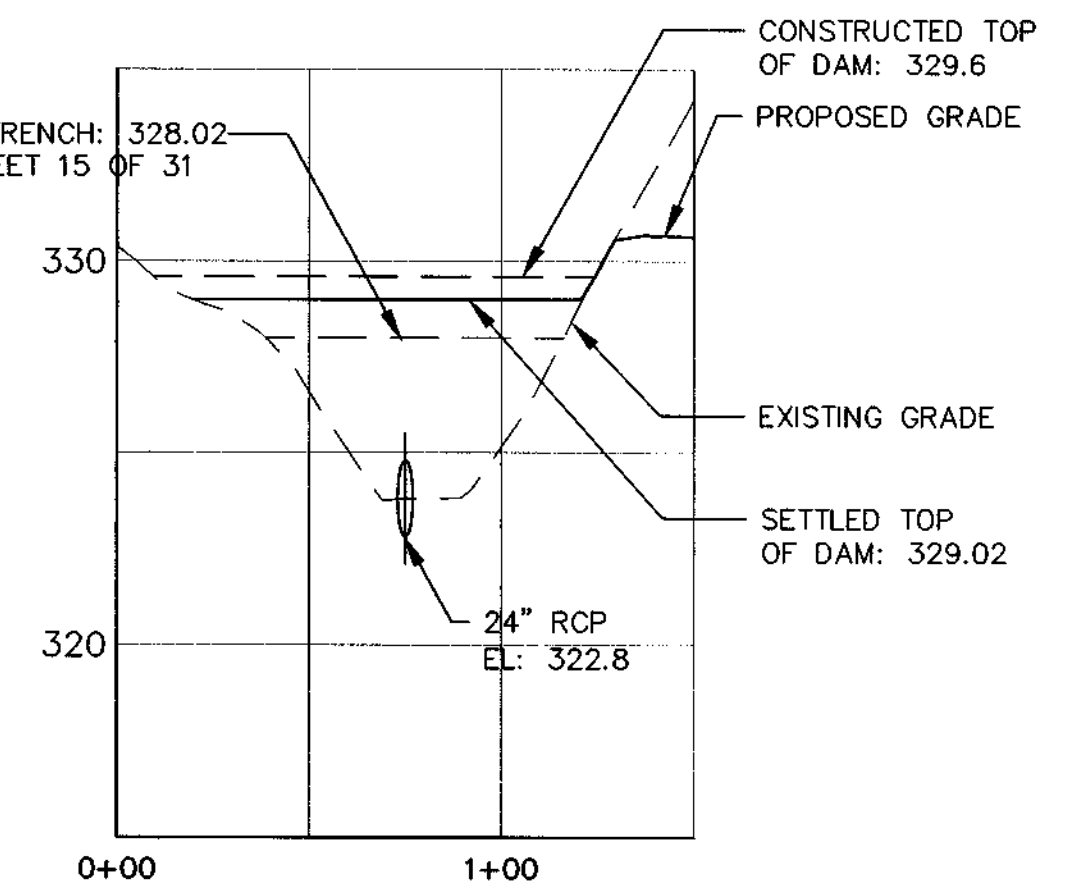


A 10 PRINCIPLE SPILLWAY PROFILE
SCALE: 1"=5'

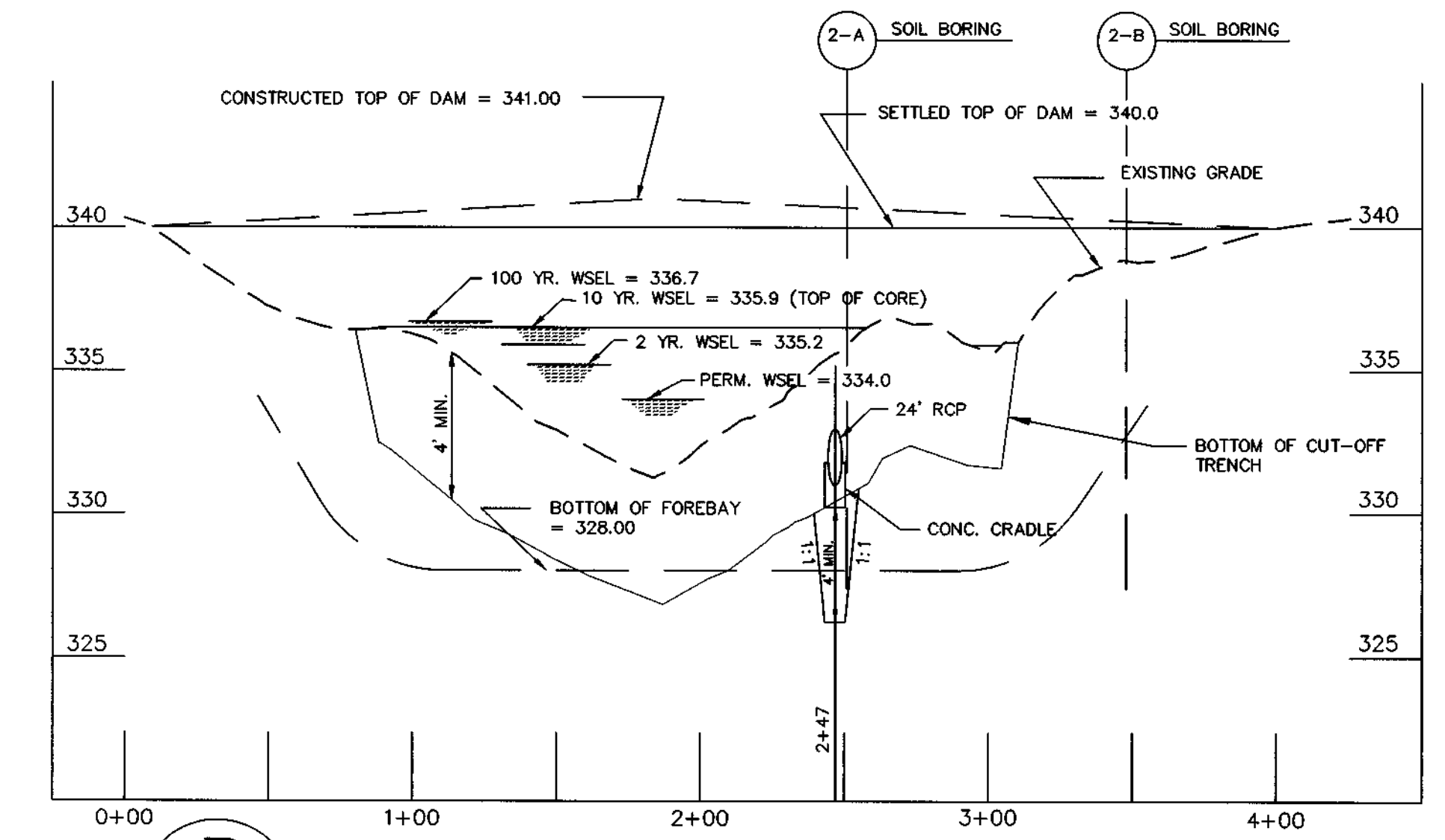
NOTE: UPON CONVERSION TO STORMWATER MANAGEMENT REMOVE BOTH STANDPIPES AND REPLACE WITH PERFORATED P.V.C. PIPES FROM ELEV. 333.0 TO BOTTOM OF POND, AS SHOWN IN PROFILE OF PRINCIPLE SPILLWAY.



DEWATERING STANDPIPES - SEDIMENT CONTROL



C 9 CENTERLINE OF EMBANKMENT PROFILE - SEDIMENT BASIN 1
SCALE: H: 1"=50', V: 1"=5'



B 10 CENTERLINE OF EMBANKMENT PROFILE - POND 2/SEDIMENT BASIN 2
SCALE: H: 1"=50', V: 1"=5'

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

SIGNATURE: _____ P.E. NO.: _____
DATE: _____

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

SIGNATURE OF DEVELOPER: _____ DATE: 4-16-98
PRINTED NAME OF DEVELOPER: RUSSELL J. DIMMICKS

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

SIGNATURE OF ENGINEER: _____ DATE: 4/16/98
PRINTED NAME OF ENGINEER: [Signature]

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

USDA - NATIONAL RESOURCES CONSERVATION SERVICE
DATE: 4/17/98

THESE PLANS FOR SMALL POND CONSTRUCTION MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT
DATE: 4/17/98

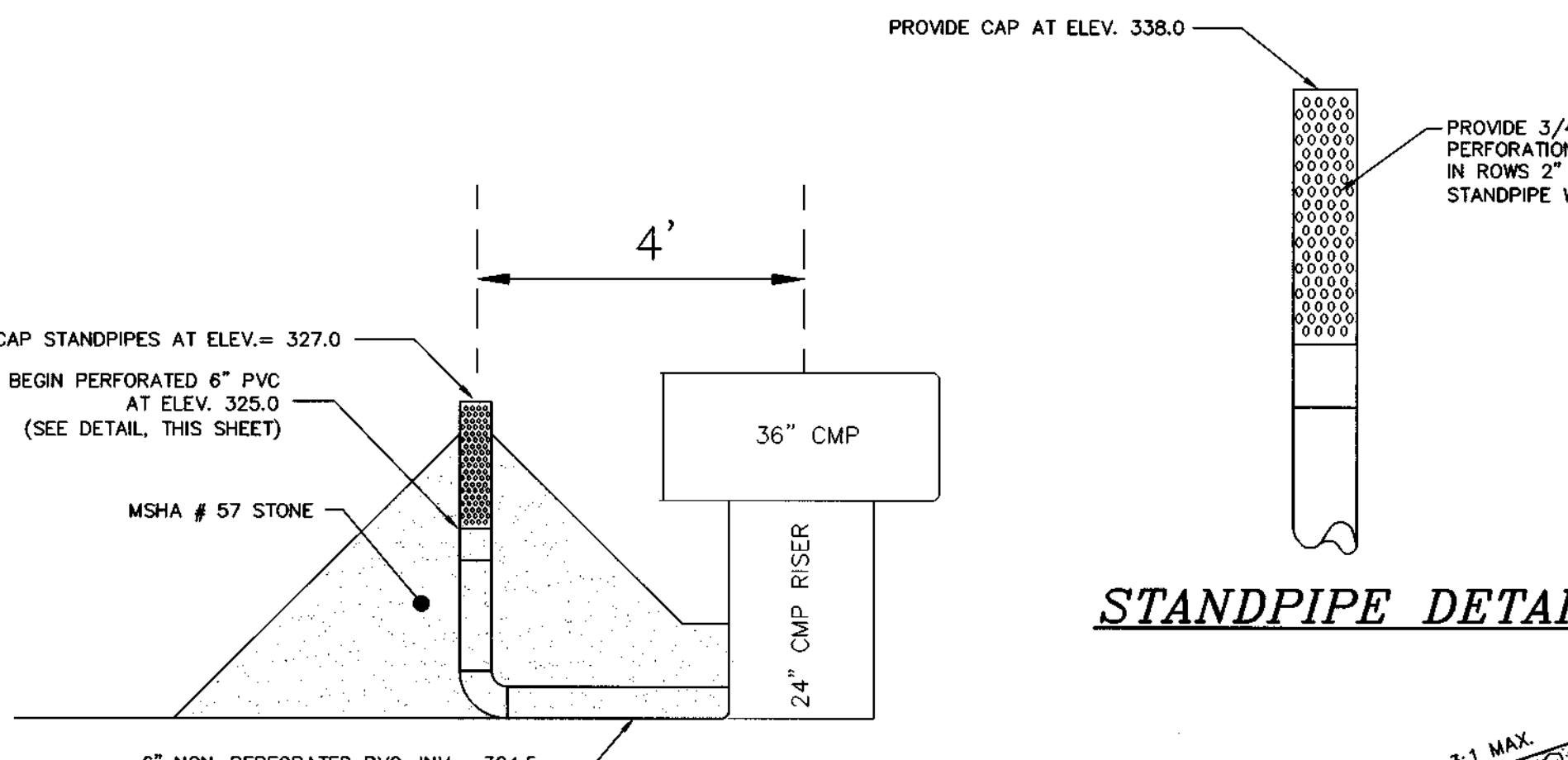
APPROVED: PRIVATE WATER AND SEWERAGE IN ACCORDANCE WITH THE MASTER PLAN FOR THE HOWARD SOIL CONSERVATION DISTRICT (LOT 10 ONLY)

COUNTY HEALTH OFFICER _____ DATE _____

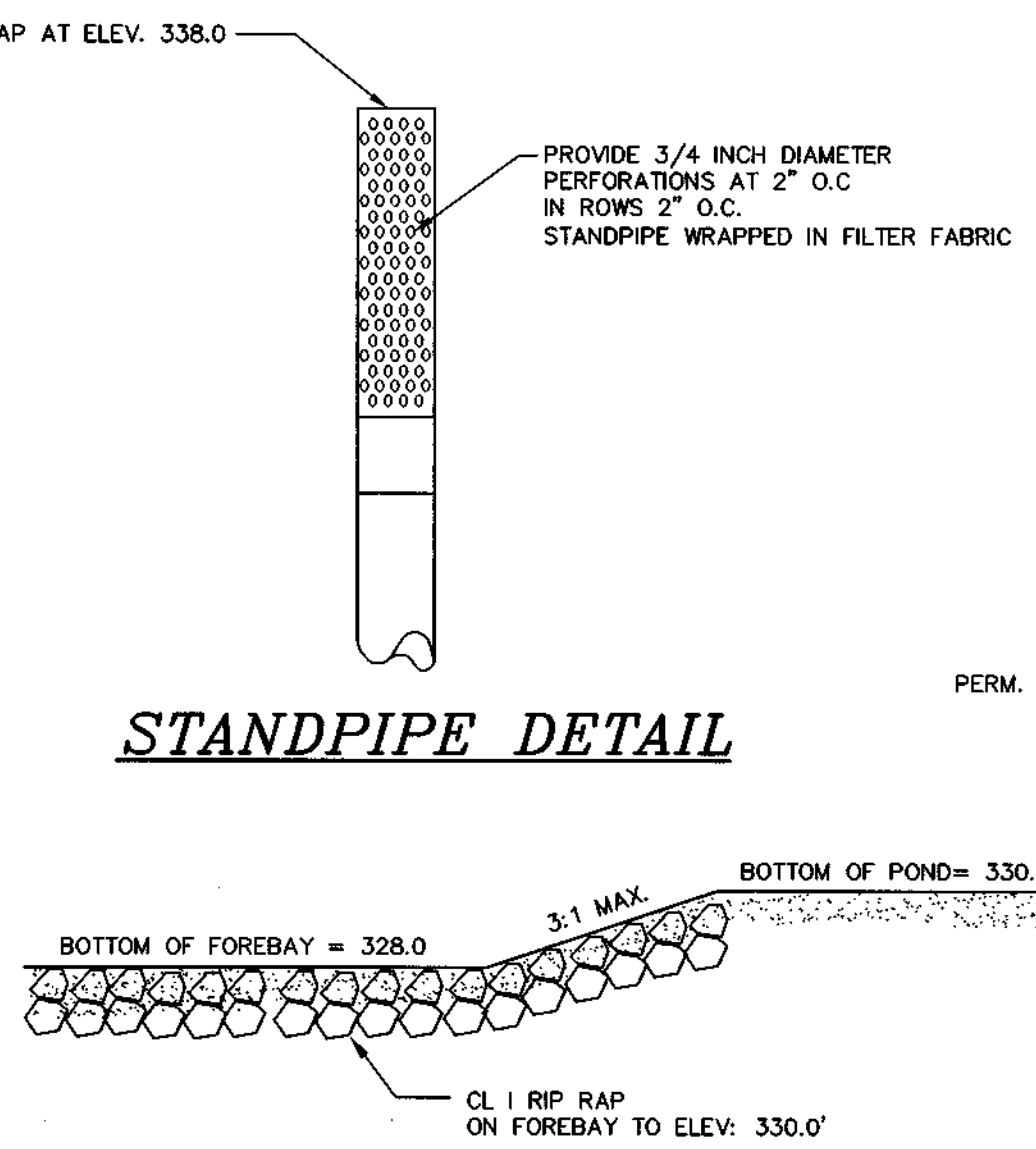
APPROVED: DEPARTMENT OF PUBLIC WORKS
DATE: 4-23-98

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 5/1/98

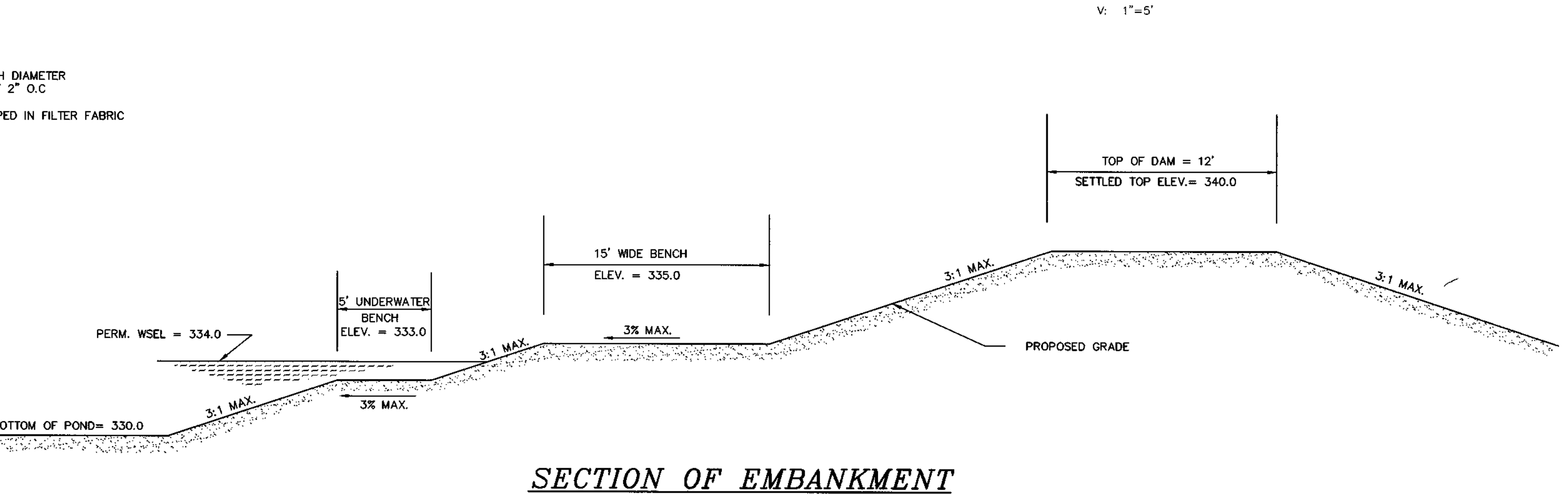
DATE: 4/27/98



DEWATERING STANDPIPES - SEDIMENT BASIN #1



STANDPIPE DETAIL



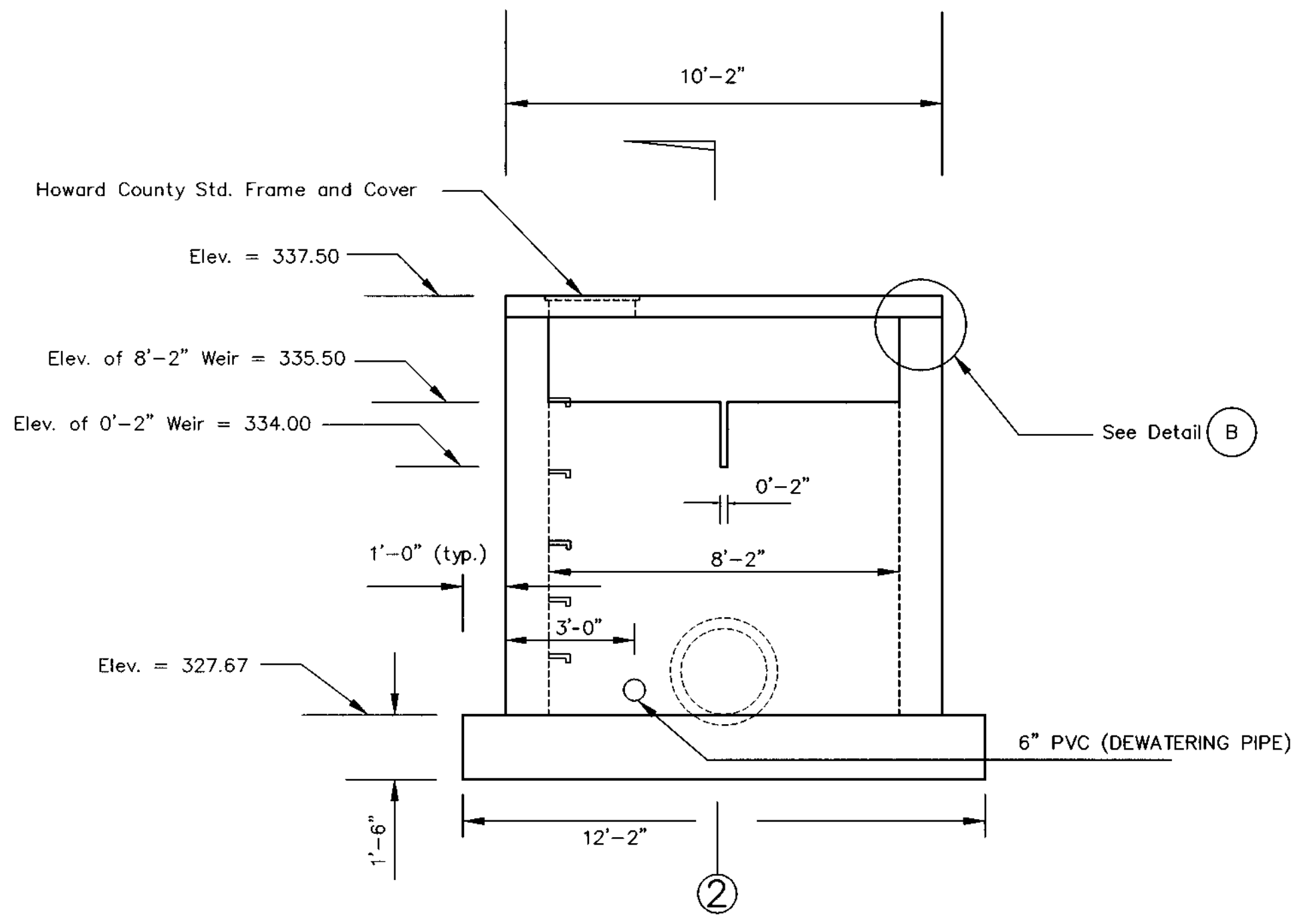
SECTION OF EMBANKMENT

project	date	approval
97084	APR 1998	JDM
illustration	engineering	JDM
JDM/SID	scale	AS SHOWN

no.	description	date

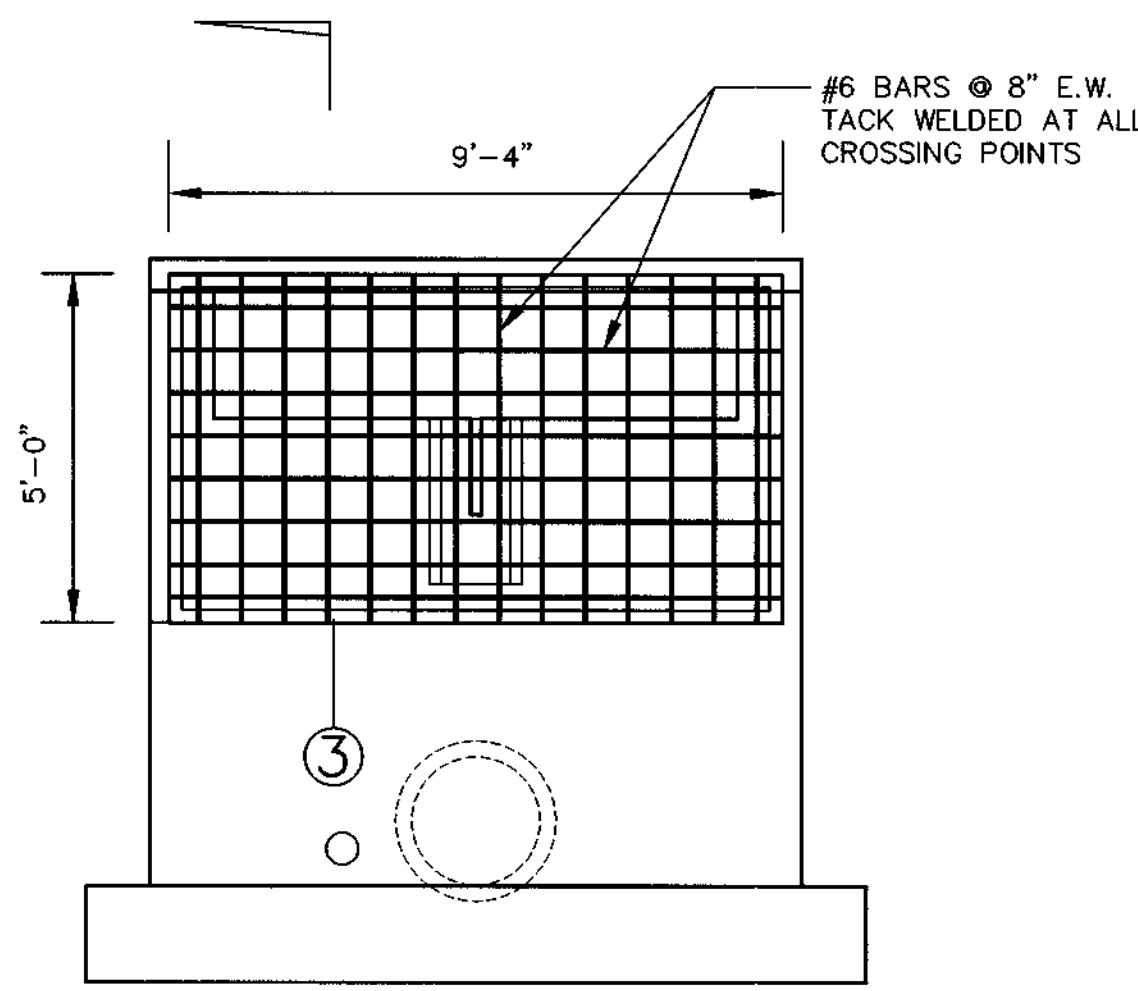
RESERVOIR OVERLOOK
LOTS 1 THRU 110
TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
POND 2 STORMWATER MANAGEMENT PROFILES AND DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Ext. (301) 621-5521 Wash. (410) 987-0298 Fax.



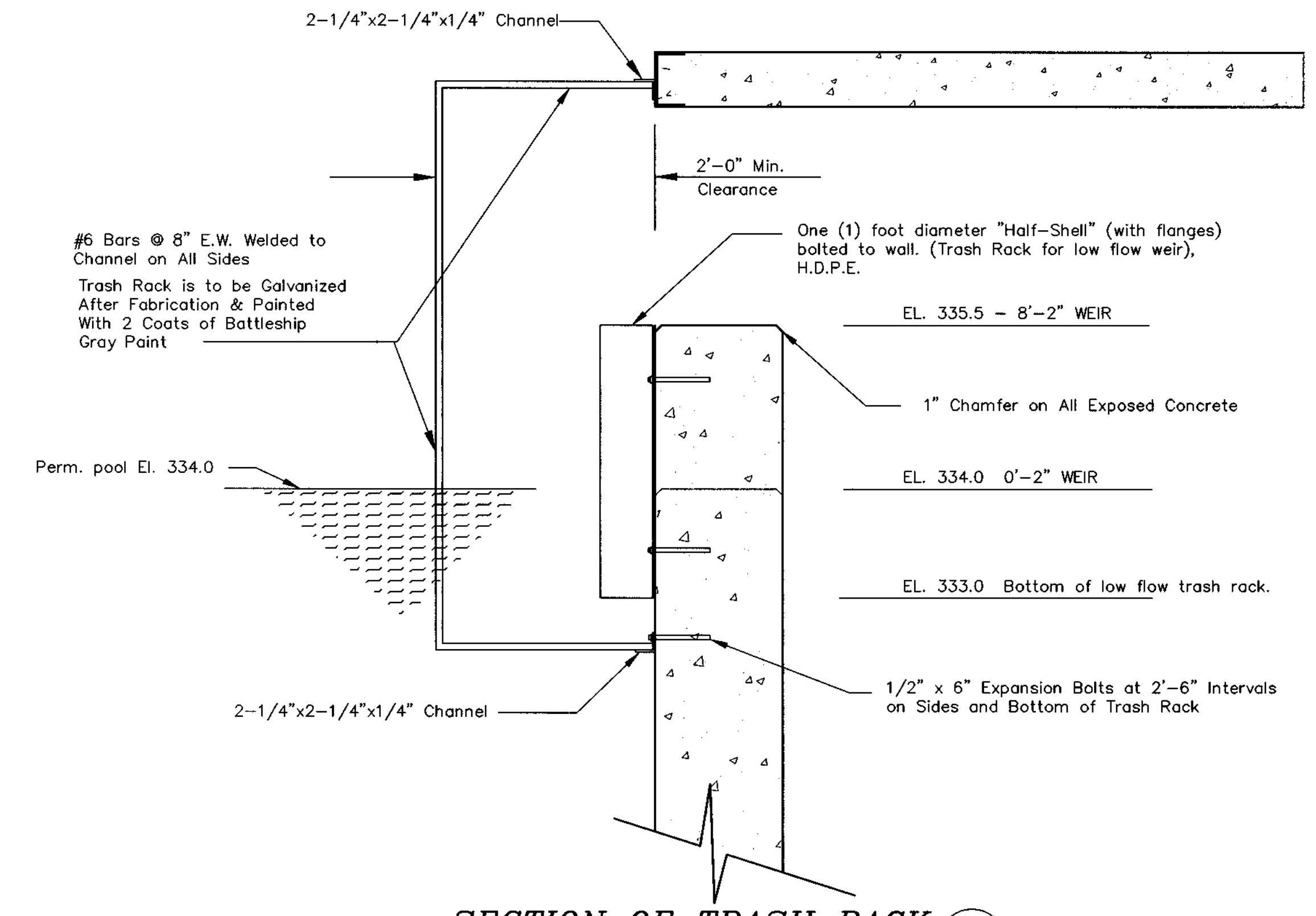
FRONT WALL ELEVATION

SCALE: 1"= 3'



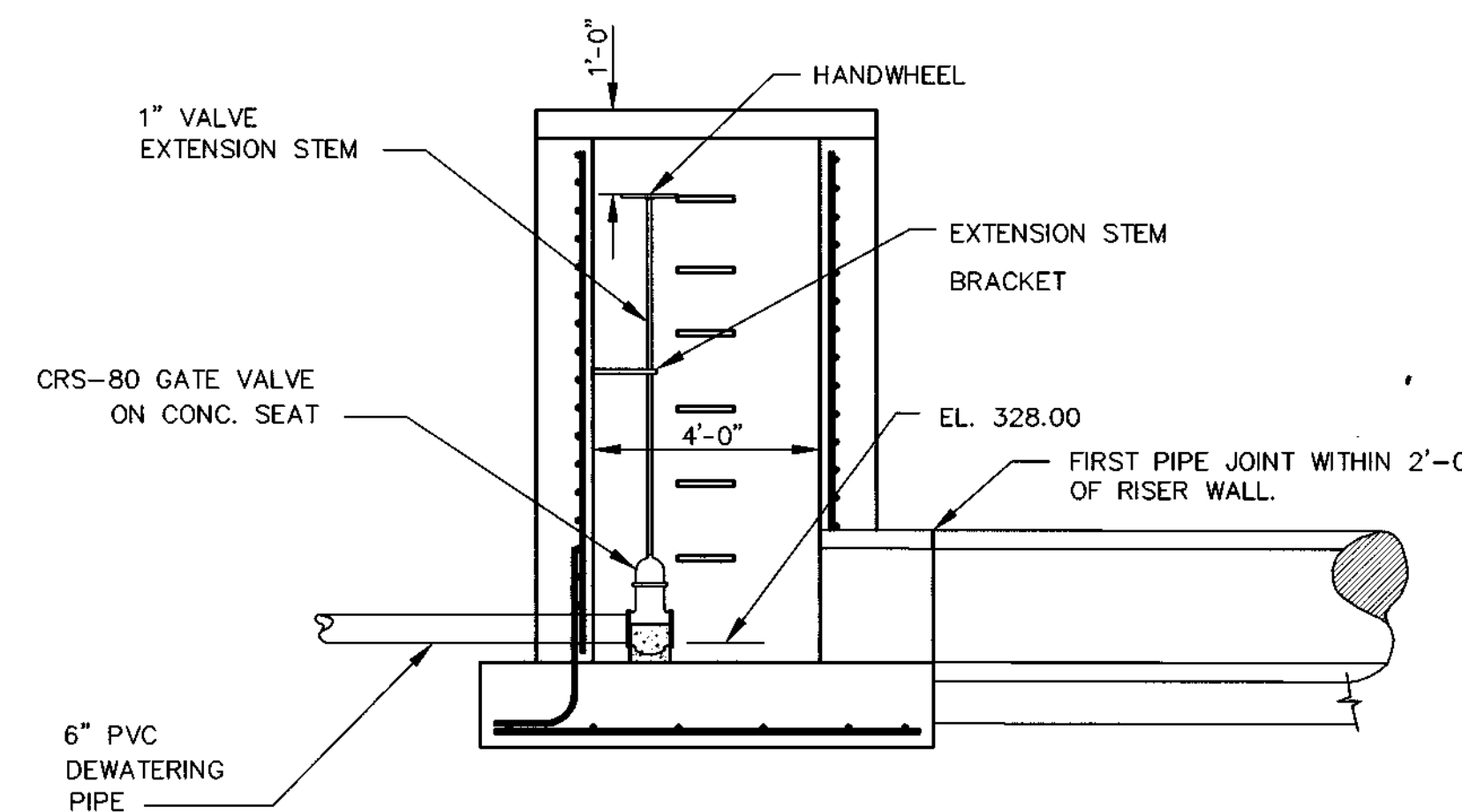
TRASH RACK DETAIL

SCALE: 1"= 3'



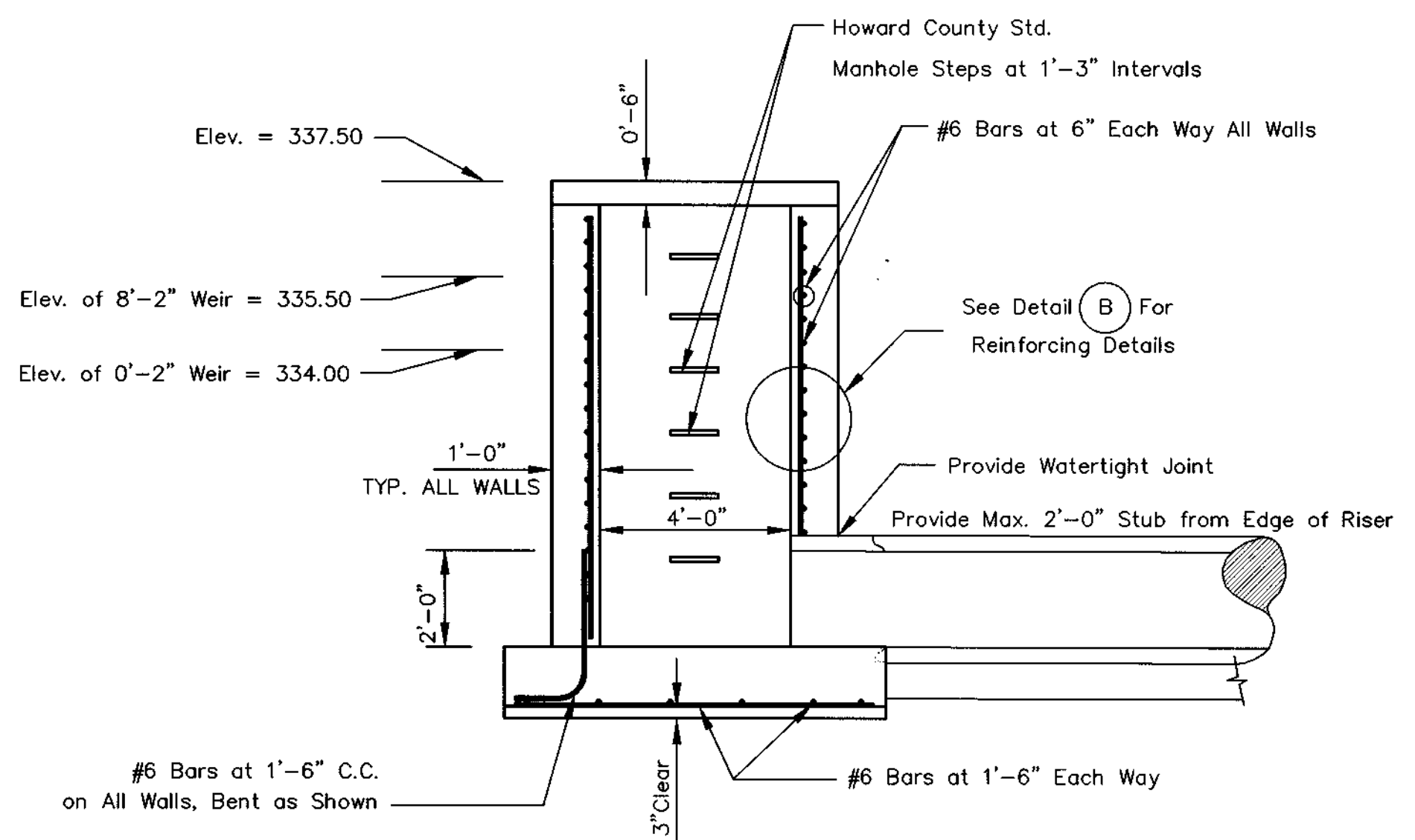
SECTION OF TRASH RACK

N.T.S.



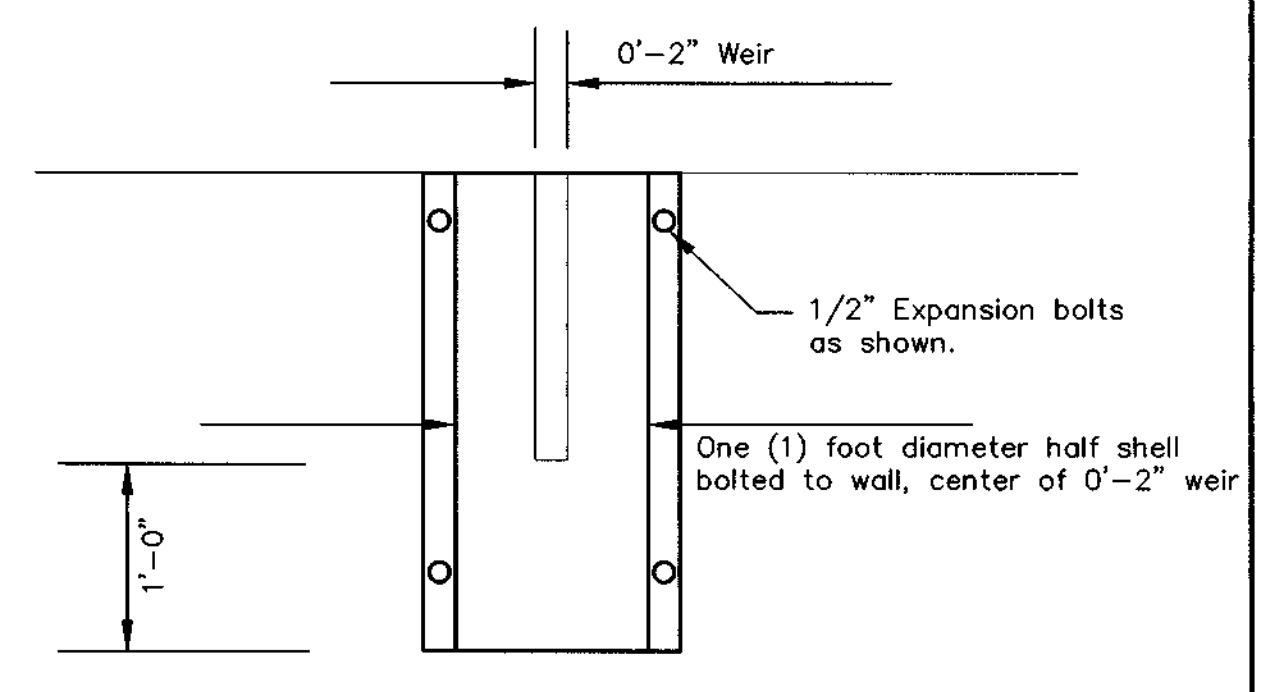
DEWATERING VALVE DETAIL

SCALE: 1"= 3'



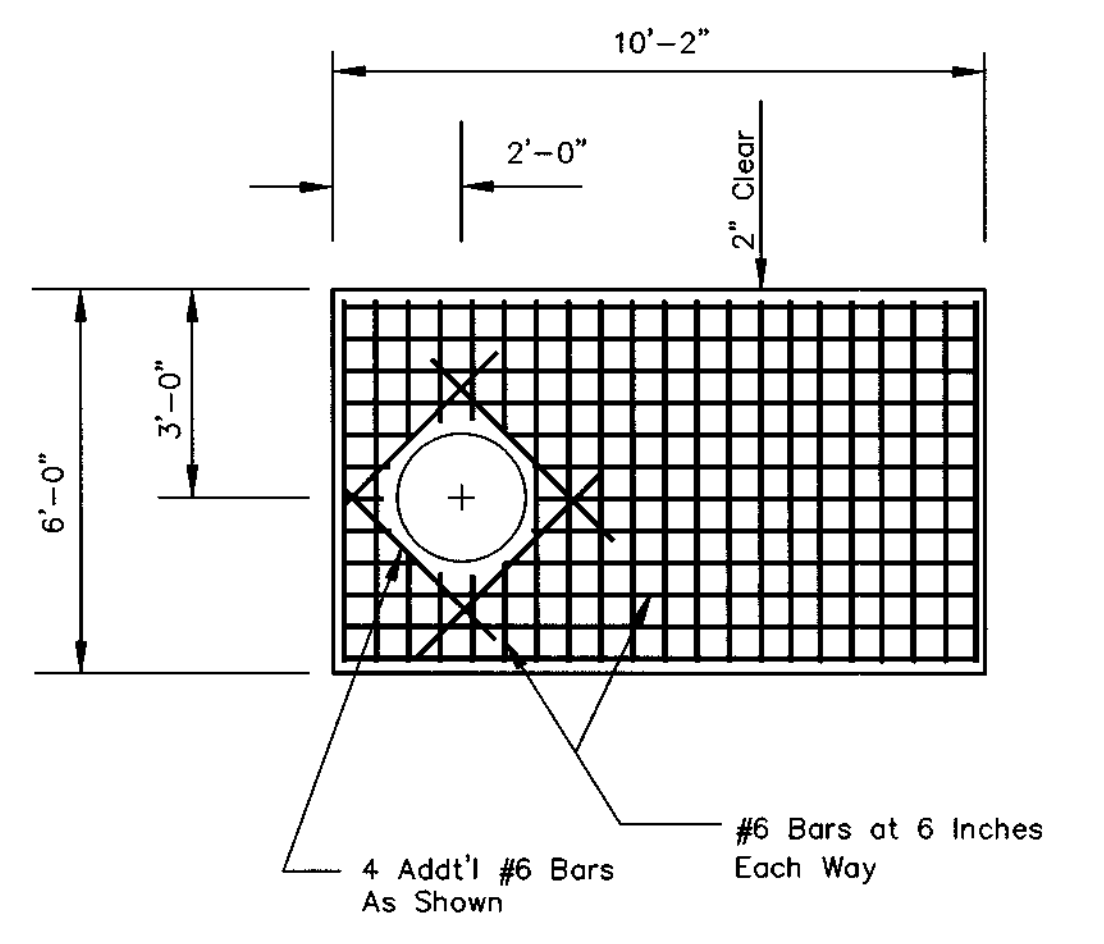
SECTION OF RISER

SCALE: 1"= 3'



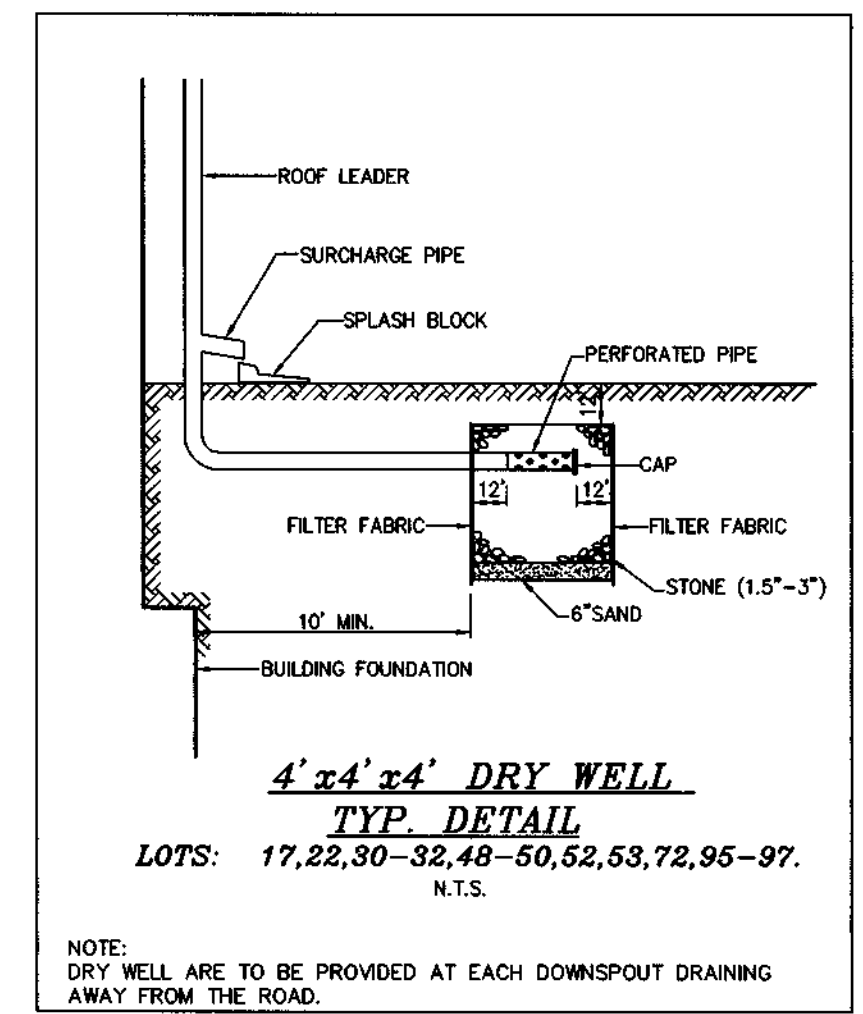
TRASH RACK DETAIL LOW FLOW WEIR

N.T.S.



TOP SLAB OF RISER DETAIL

N.T.S.



OWNER/DEVELOPER

RESERVOIR OVERLOOK, L.C.
6820 ELM STREET, SUITE 200
MCLEAN, VIRGINIA 22161
(703) 734-0322
ATTN: MR. RUSS DICKENS

AS-BUILT CERTIFICATION

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

P.E. NO. _____

SIGNATURE _____ DATE _____

CERTIFY MEANS TO START OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER'S NOB DOES AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

DEVELOPER'S CERTIFICATE

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

Russell J. Dickens 4.6.98. DATE
SOIL CONSERVATION DEVELOPER
PRINTED NAME OF DEVELOPER

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. THE 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.

Clayd Simmons 4/14/98 DATE
USDA-NATURAL RESOURCE CONSERVATION SERVICE

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

Robert W. Ziehm 4/14/98 DATE
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS
Richard M. Dwyer 4-23-98 DATE
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Andy Hammita 5/1/98 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT

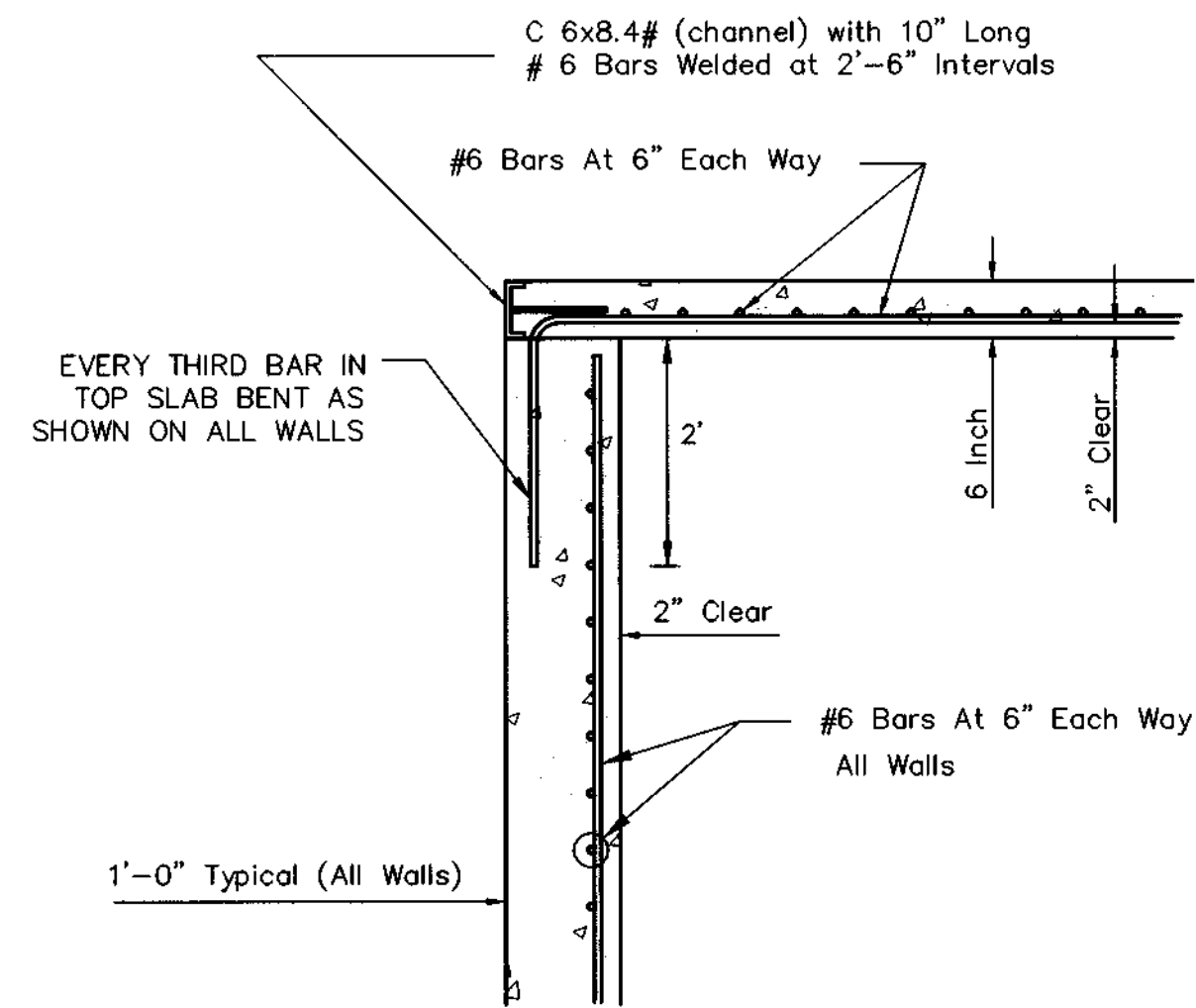
Clayd Simmons 4/17/98 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION

project	97084	date	APR 1998
illustration	JBM	engineering	JBM
scale	JBM	approval	JBM
AS SHOWN	JBM		

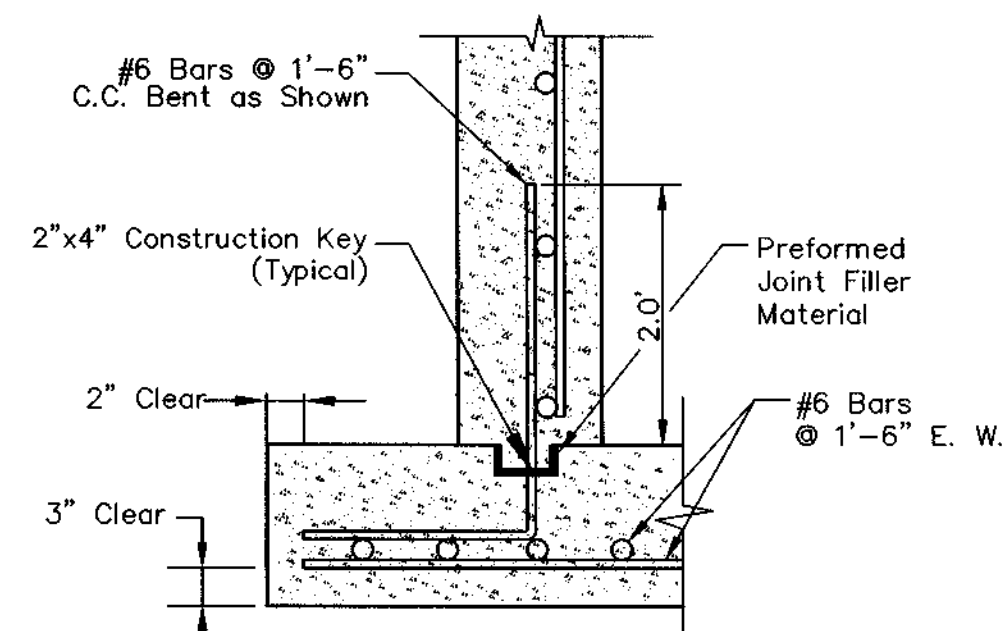
no.		description	revisions	date

RESERVOIR OVERLOOK
LOTS 1 THRU 110
TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
POND 2 STORMWATER MANAGEMENT DETAILS

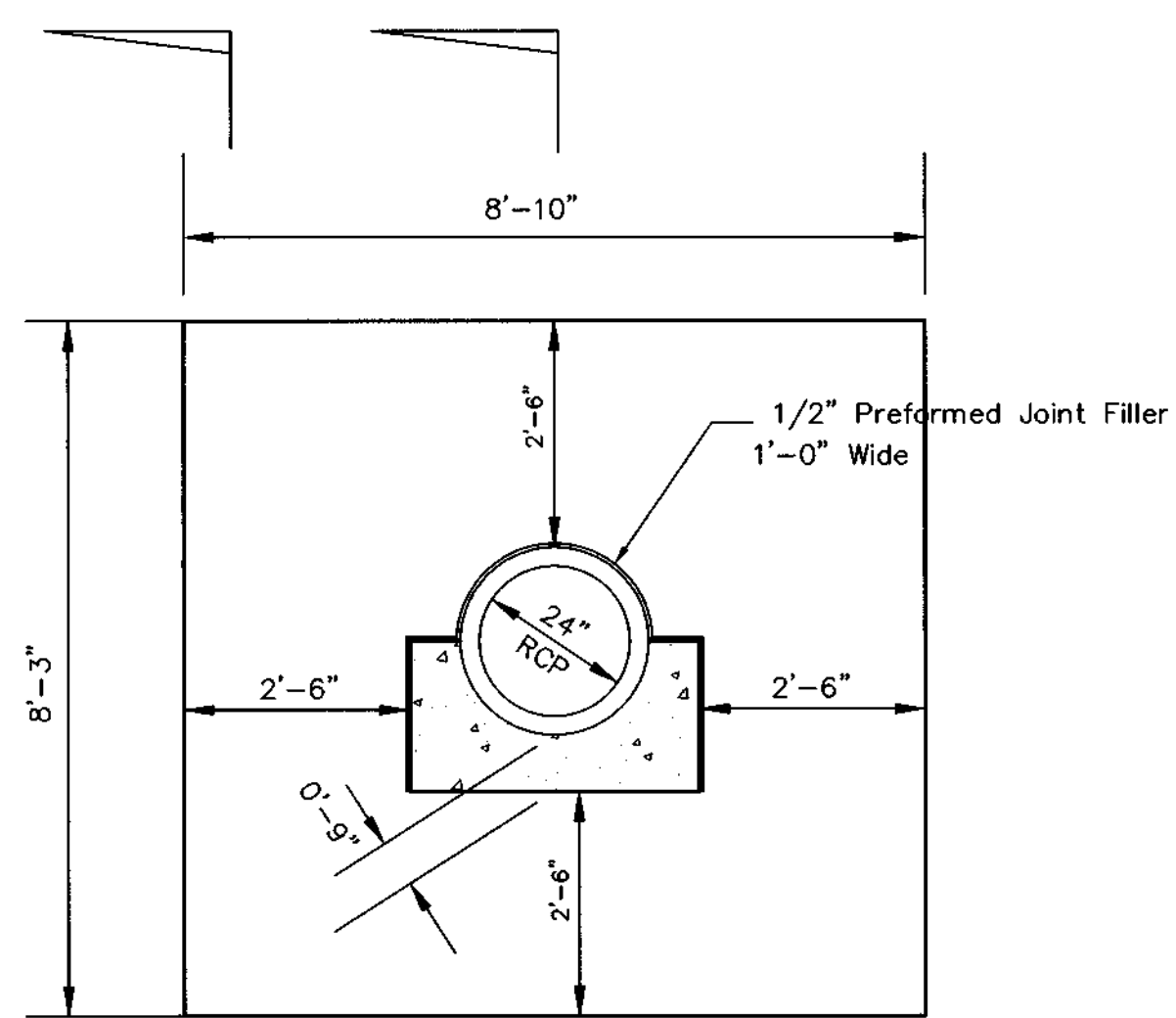
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Elliott City, Maryland 21042
(410) 997-0286 Bldg. (301) 621-5521 Wash. (410) 997-0288 Fax.



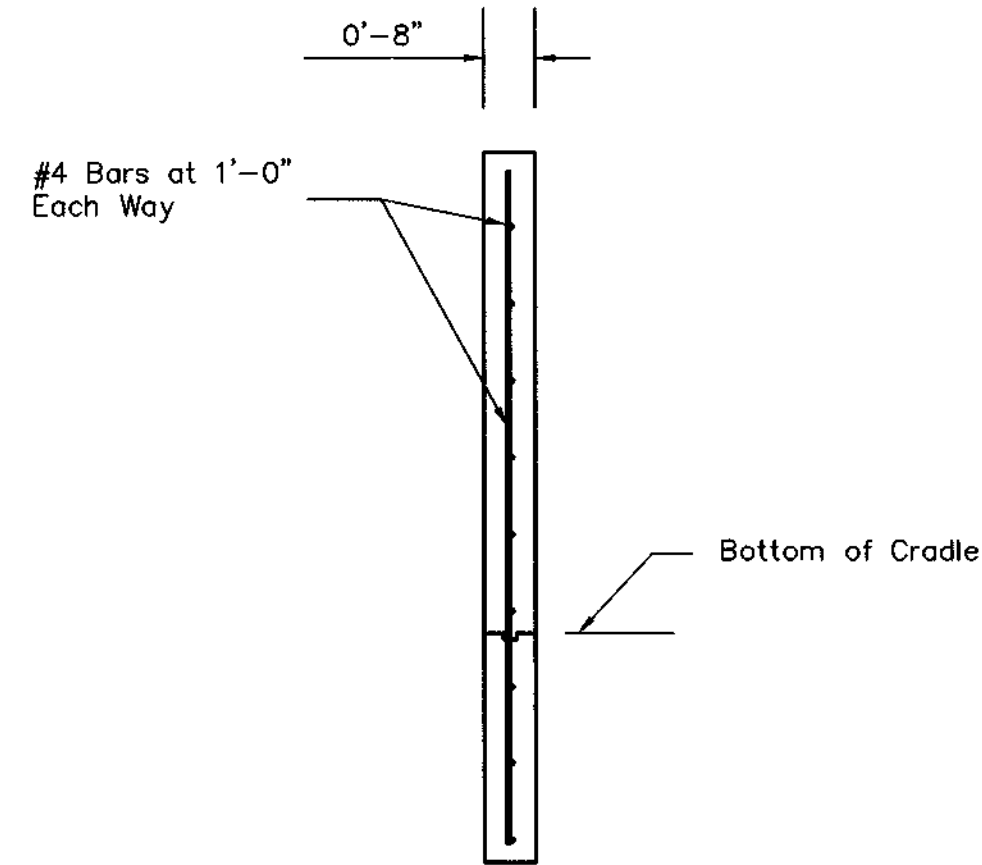
DETAIL OF RISER (B)
N.T.S.



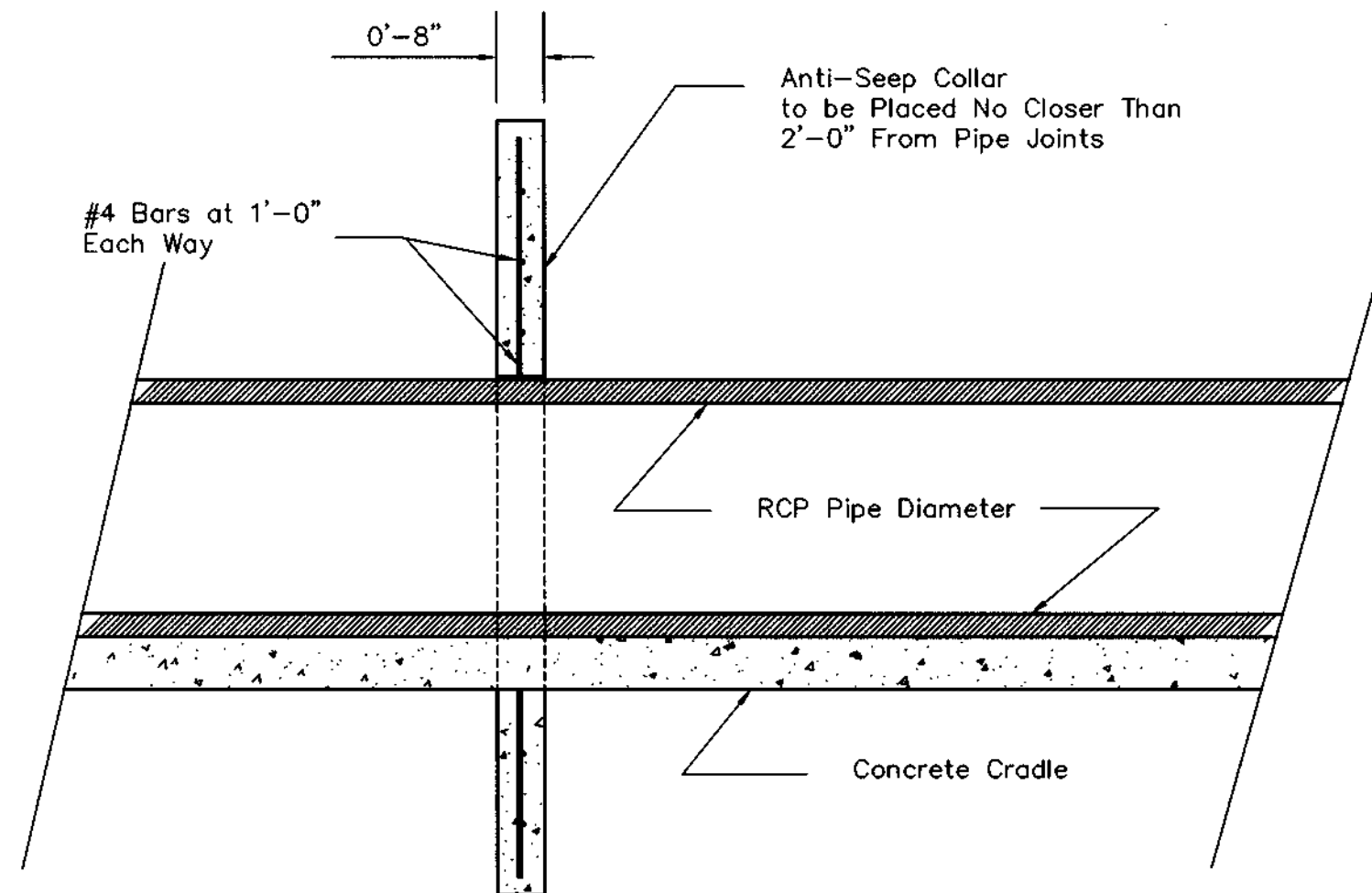
RISER WALL TO BOTTOM SLAB CONNECTION DETAIL
N.T.S.



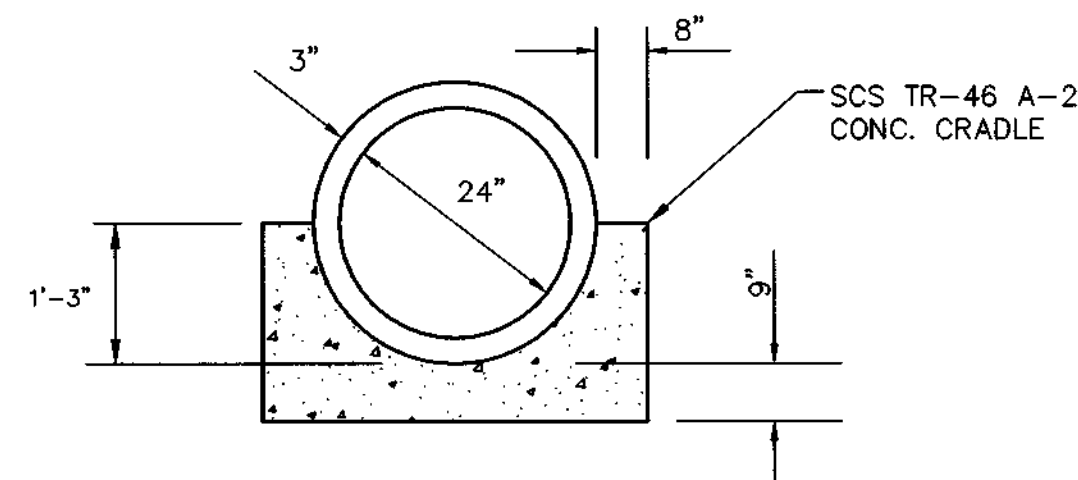
ANTI-SEEP COLLAR DETAIL (D)
N.T.S.



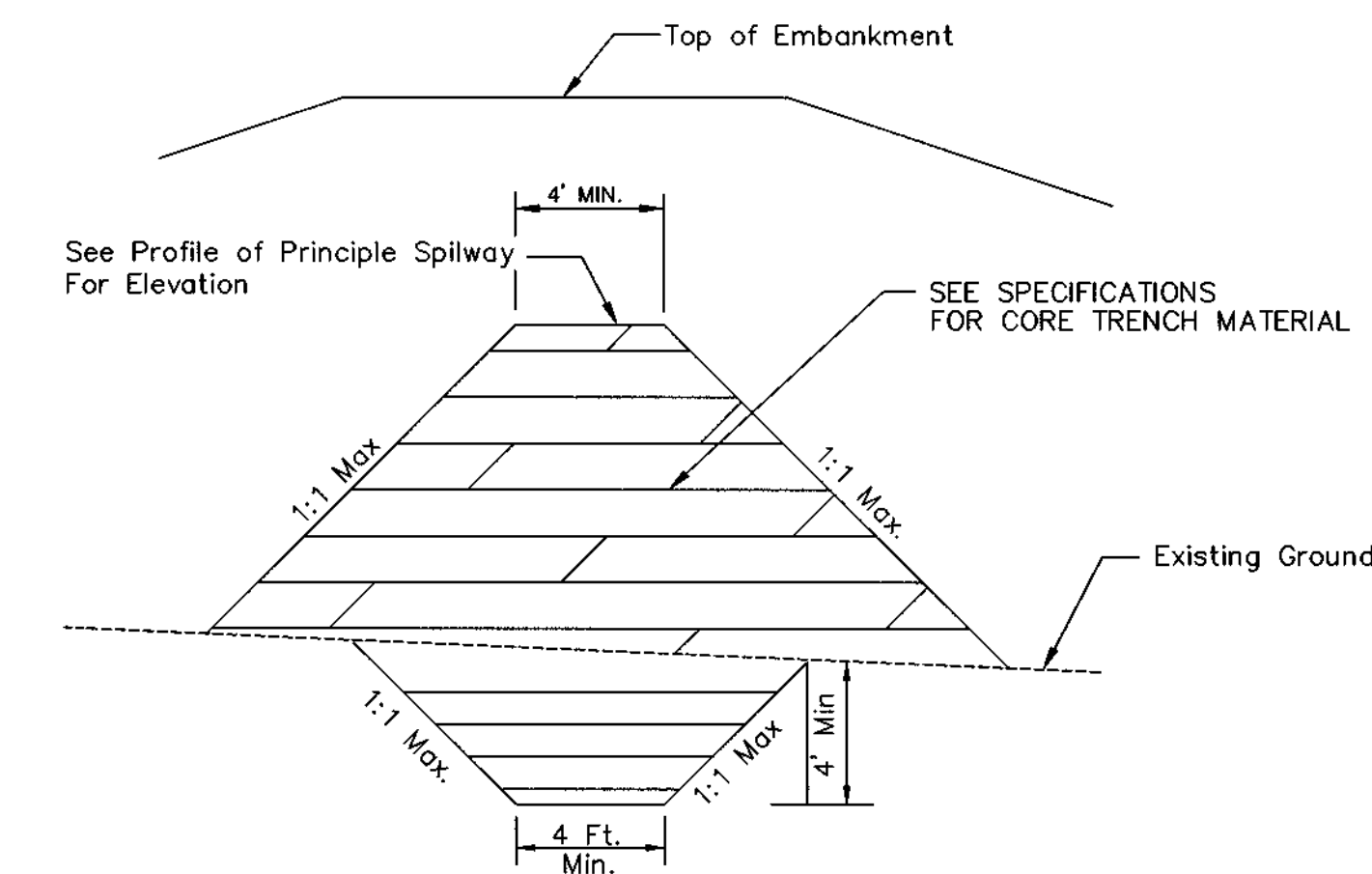
SECTION (4)
N.T.S.



SECTION (5)
N.T.S.



DETAIL OF CONCRETE CRADLE
N.T.S.



CORE TRENCH DETAIL (E)
N.T.S.

AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
SIGNATURE: _____ P.E. NO. _____
DATE: _____

DEVELOPER'S CERTIFICATE
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.
SIGNATURE OF DEVELOPER: *Russell J. Dickens* DATE: *4-6-98*
PRINTED NAME OF DEVELOPER: **RUSSELL J. DICKENS**

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. THE 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: *[Signature]* DATE: *4/6/98*
PRINTED NAME OF ENGINEER: _____

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
USDA-NATURAL RESOURCE CONSERVATION SERVICE DATE: *04/14/98*
DUPLICATE

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

APPROVED: DEPARTMENT OF PUBLIC WORKS
SIGNATURE: *[Signature]* DATE: *4-23-98*
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
SIGNATURE: *[Signature]* DATE: *4/14/98*
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING
SIGNATURE: *[Signature]* DATE: *4/21/98*
CHIEF, DEVELOPMENT ENGINEERING DIVISION

OWNER/DEVELOPER
RESERVOIR OVERLOOK, L.C.
6820 ELM STREET, SUITE 200
MCLEAN, VIRGINIA 22161
(703) 734-0322
ATTN: MR. RUSS DICKENS

date	APR 1998
project	97084
illustration	JBM
scale	N.T.S.
approval	JBM

date	
description	
revisions	

RESERVOIR OVERLOOK
LOTS 1 THRU 110
TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
POND 2 STORMWATER MANAGEMENT DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsy Hill Drive, Suite 202, Beltsville, Maryland, 21042
(410) 997-0286, Fax: (301) 621-5321, Wash. (410) 997-0288, Fax.

SEQUENCE OF CONSTRUCTION

1. Obtain grading permit. (1 Day)
2. Construct stabilized construction entrances, including culverts I-21 to ES-9 and I-22 to ES-10. Stabilize disturbed area with soil or erosion matting. (3 days)
3. Construct Silt Fence, Tree Protection Fence, and Earth Dikes, excluding SSF #1 near Sediment Basin No. 2, perimeter of site. See detail of combined TPF and SSF. (5 days)
4. Any sediment control devices disturbed by the installation of utilities are to be repaired immediately.
5. Construct Sediment Basin No. 1, and Sediment Traps 1 and 2. (10 days)
6. Construct Sediment Basin No. 2 (Stormwater Management Facility No. 2), including vertical dewatering pipes indicated, line forebay with Class I rip-rap and brick shut outlet weir as noted on plans. (10 days)
7. Construct SSF #1 near Sediment Basin No. 2. (2 days)
8. Construct slope area from SSF #1 to elevation 342, and provide Earth Dike to Sediment Basin No. 2. (3 days)
9. Bring site to design grades. Delay construction of storm drain system from MH 7 to ES6. Delay grading in vicinity of Lot 1 septic area until connection has been made to public sewer. Block pipe from MH-1 to ES-2 to divert runoff to trap. (30 days)
10. When all contributing drainage areas to Sediment Basin 2 have been stabilized and with the approval of the Sediment Control Inspector, remove accumulated sediment and reconstruct the Pond to design elevations. Remove the dewatering sump/pipes and replace as shown for Stormwater Management. Remove temporary brick weir on outlet structure, and stabilize disturbed areas. (10 days)
11. When all contributing drainage areas to proposed Boreation Facilities have been stabilized, construct diversion dikes, and silt fences as shown, and construct boreation and stormwater management facilities indicated. (20 days)
12. Upon installation of plant material in restoration areas, provide tree protection fencing (TPF) as indicated. (3 days)
13. Upon stabilization of the site and with the approval of the Sediment Control Inspector, remove sediment control devices and stabilize remaining disturbed areas. (5 days)

RECOMMENDED CONSTRUCTION SPECIFICATIONS (Site Grading)

* REFER TO GEOTECHNICAL REPORT PREPARED BY GEO-TECHNOLOGY ASSOCIATES, INC. ON DECEMBER 18, 1996.

BASED ON THE RESULTS OF THE BORINGS IT IS ANTICIPATED THAT THE MAJORITY OF CUTS CAN BE ACHIEVED USING STANDARD EXCAVATION TECHNIQUES. AS VERY DENSE MATERIALS WERE ENCOUNTERED IN LOCALIZED AREAS, SOME RIPPING AND BLASTING MAY BE NECESSARY IF DEEP EXCAVATIONS ARE PLANNED IN THESE AREAS. BASED ON THE RESULTS OF THE BORINGS, IT IS UNLIKELY THAT SIGNIFICANT BLASTING WILL BE REQUIRED TO ESTABLISH PROPOSED GRADES IF EXCAVATIONS ARE MAINTAINED LESS THAN 20 FEET IN THE CENTRAL PORTION OF THE SITE.

THE ON-SITE GRANULAR MATERIALS CLASSIFIED AS USCS ML SANDY SILT AND SM SILTY SAND ARE CONSIDERED SUITABLE FOR USE IN FILL CONSTRUCTION. MATERIALS APPEAR TO BE WET OF THE OPTIMUM MOISTURE FOR COMPACTION, AND WILL LIKELY REQUIRE MOISTURE CONDITIONING PRIOR TO APPLICATION OF COMPACTIVE EFFORT.

OFF-SITE BORROW, IF REQUIRED, SHOULD MEET UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) DESIGNATION DM, DP, SW, GP, GM, OR GW AND BE APPROVED BY THE GEOTECHNICAL ENGINEER. NEW FILLS CONSTRUCTED ON SLOPES STEEPER THAN 5H:1V (HORIZONTAL TO VERTICAL) SHOULD BE KEVED INTO EXISTING SLOPES TO PROTECT THE STABILITY OF THE EMBANKMENT. ALL FILL SLOPES STEEPER THAN 5H:1V SHOULD BE PLACED AS STRUCTURAL FILL AND BE CONTROLLED AND COMPACTED TO MINIMUM DENSITIES AND SPECIFIED BELOW.

ALL FILLS SHOULD BE CONSTRUCTED IN 8-INCH LOOSE LIFTS AND COMPACTED TO THE FOLLOWING SPECIFICATIONS:

FILLS SUPPORTING FOUNDATIONS, RETAINING WALLS, FLOOR SLABS, AND WITHIN WALLS OR SLOPES STEEPER THAN 4H:1V	92% OF ASTM D-1557
FILLS WITHIN TOP 1 FOOT OF PAVEMENT	95% OF ASTM D-1557
FILLS BELOW 1 FOOT OF PAVEMENT	92% OF ASTM D-1557

FILL CONSTRUCTION SHOULD BE MONITORED BY A FULL-TIME SOILS TECHNICIAN UNDER THE DIRECT SUPERVISION OF A REGISTERED GEOTECHNICAL ENGINEER. ALL COMPACTIVE EFFORT SHOULD BE VERIFIED BY IN-PLACE DENSITY TESTING.

POND SPECIFICATIONS

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED 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, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED TO 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.

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 SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIAL SHALL BE PLACED IN MAXIMUM 8" HIGH (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 AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSE 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 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN +2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD 1-99.

CUT OFF TRENCH - THE CUT OFF 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 COVERED 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.

STRUCTURE BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND PLACED IN 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 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 FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:
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 WATER TIGHT 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, PLASTICOTE, BLAC-KLAD, AND BETH-QU-LOY. COATED CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M-245 AND M-246.

MATERIALS - (ALUMINUM COATED STEEL PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-174 WITH WATER TIGHT COUPLING BANDS OR FLANGES. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND.

MATERIALS - (ALUMINUM PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-198 OR M-211 WITH WATER TIGHT 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 RUBBER OR PLASTIC INSULATING MATERIALS LEAST 1/4 INCH 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 ROLLED AND ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BAND WIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPE 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 RUGGER TYPE BAND WITH O-RING GASKETS HAVING 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".
6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:
1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM DESIGNATION C-361.
2. BEDDING - ALL REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING FOR THEIR ENTIRE LENGTH. THIS BEDDING SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND THE SIDES OF THE PIPE AT LEAST FOR 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".
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.

CONCRETE

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

ROCK RIP RAP

THE RIP RAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THE RIP RAP 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 REPLACED UNDER ALL RIP RAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 918.12.

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON THE PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DICES, 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 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 THE REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL AND CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER TO Sumps FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

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

EROSION AND SEDIMENT CONTROL

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

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 USQA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATORS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLUDGING OR SLUMPING.

MAINTENANCE REQUIREMENTS

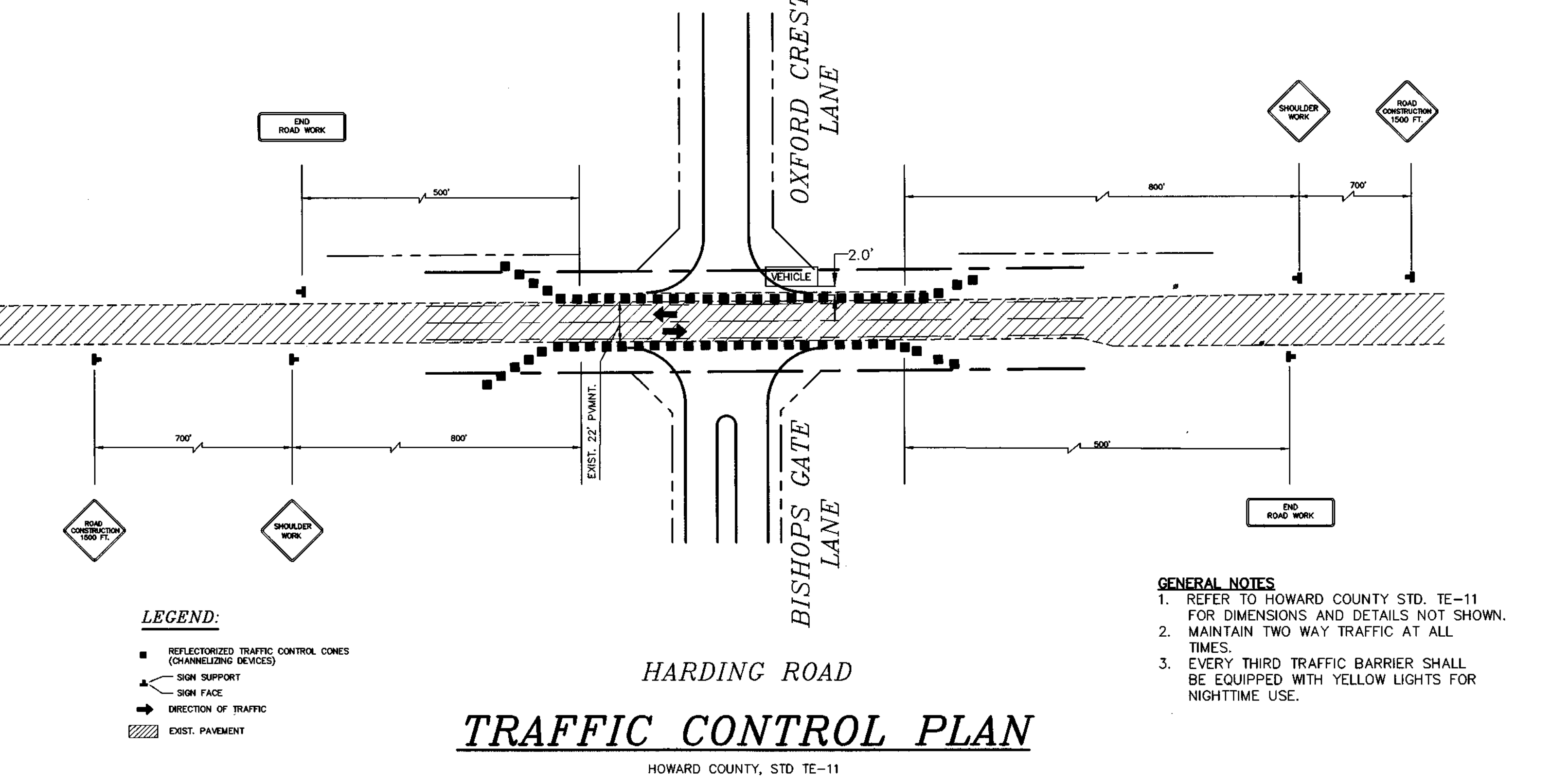
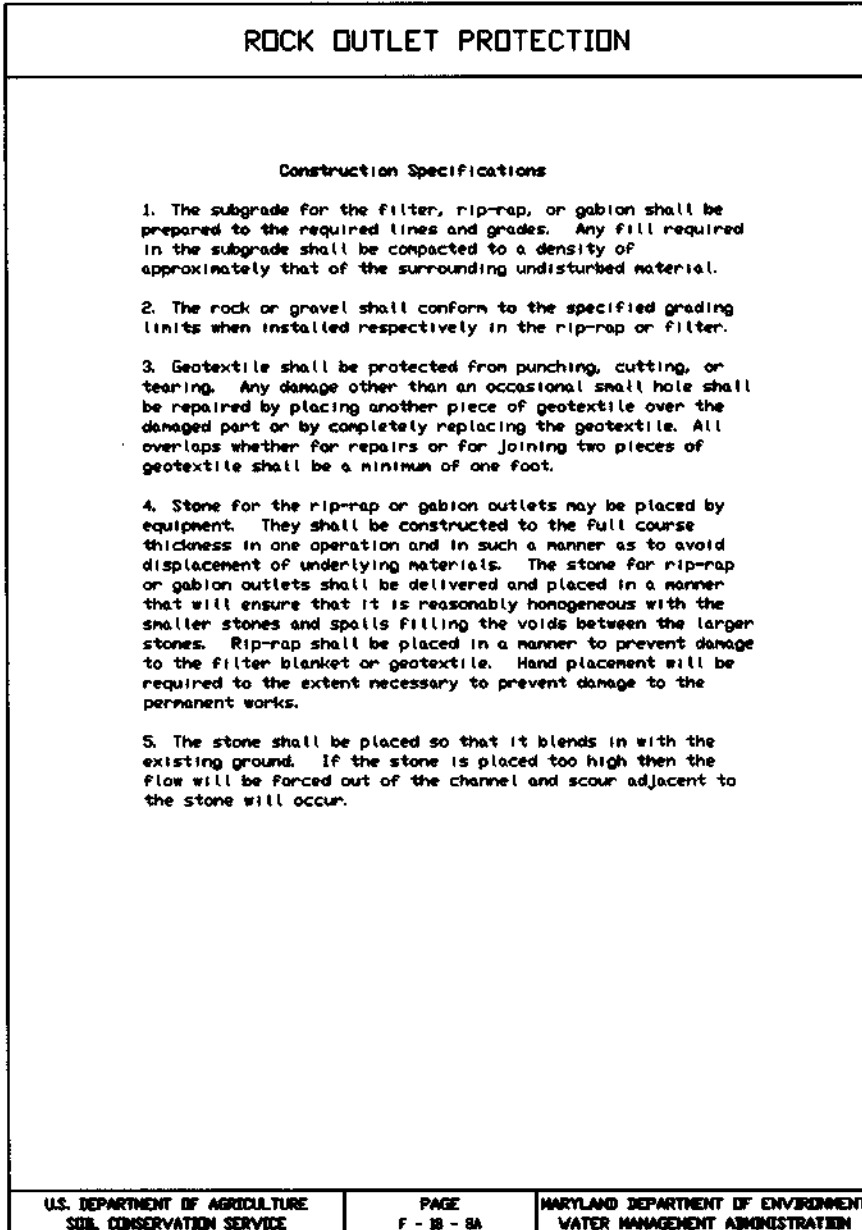
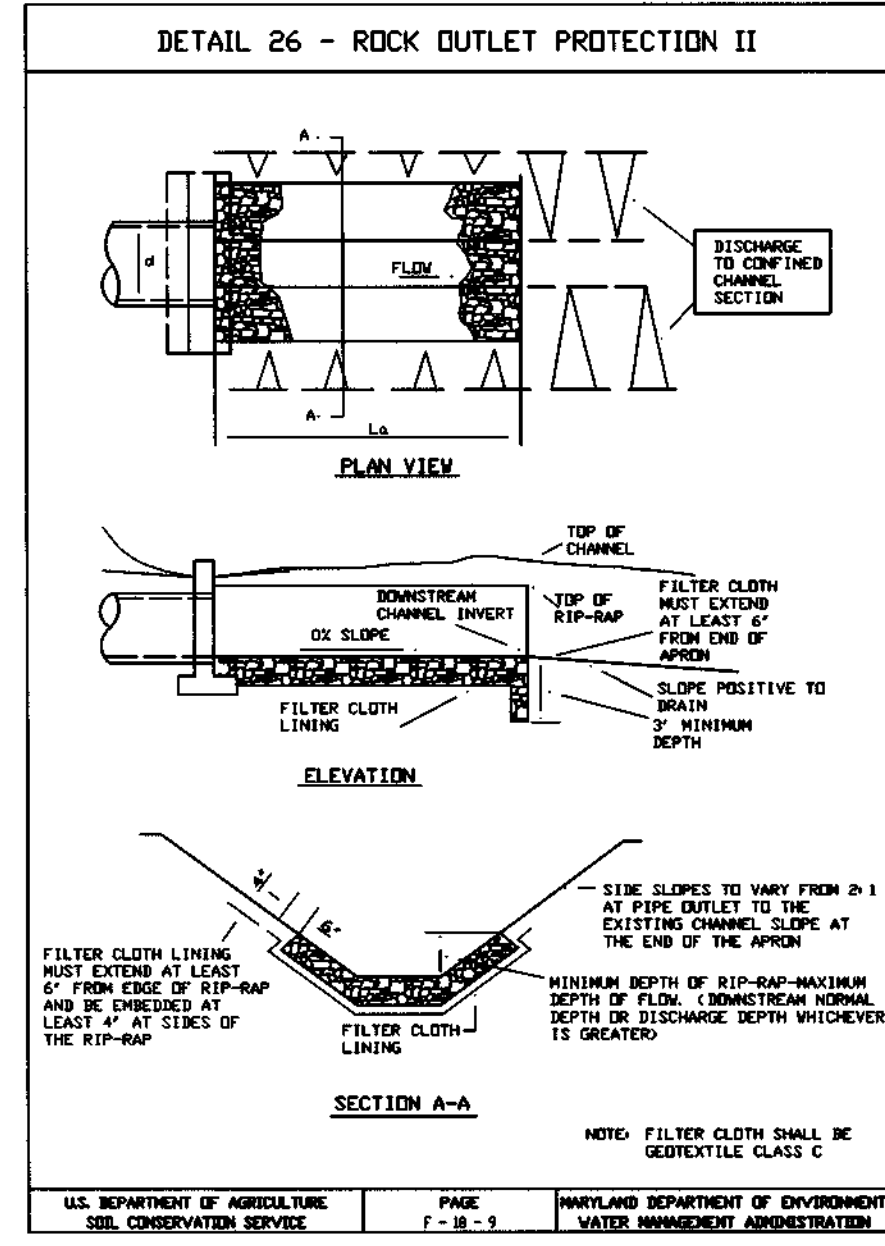
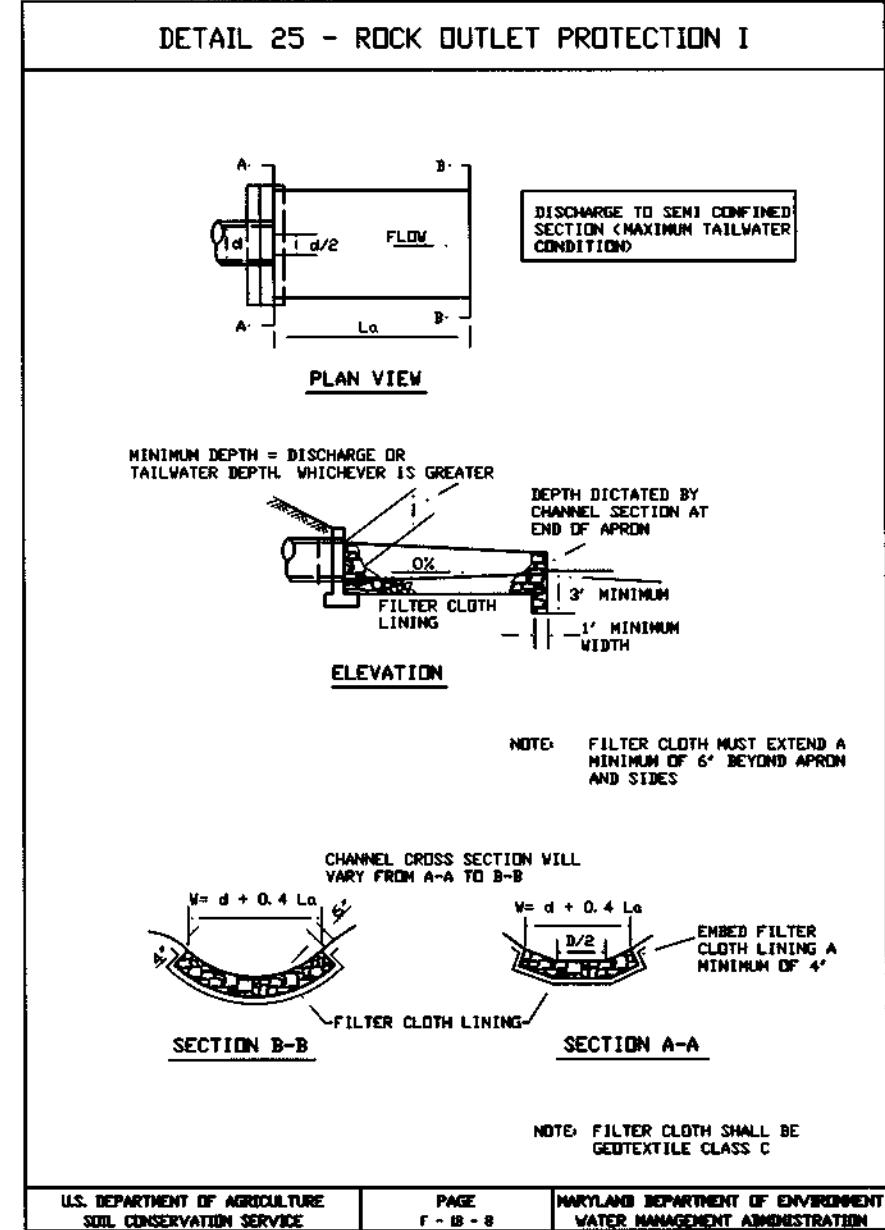
1. REMOVAL OF SILT WHEN ACCUMULATION EXCEED SIX (6) INCHES IN FOREBAY (IF APPLICABLE).
2. REMOVAL OF ACCUMULATED PAPER, TRASH AND DEBRIS AS NECESSARY.
3. VEGETATION GROWING ON THE EMBANKMENT TOP AND FACES OF THE FOREBAY OF BASIN IS NOT ALLOWED TO EXCEED 18 INCHES IN HEIGHT AT ANY TIME.
4. ANNUAL INSPECTION AND REPAIR OF THE STRUCTURE.

ROUTINE MAINTENANCE

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

NON-ROUTINE MAINTENANCE

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



LEGEND:
 ■ REFLECTORIZED TRAFFIC CONTROL CONES (CHANNELIZING DEVICES)
 ◀ SIGN SUPPORT
 ← SIGN FACE
 → DIRECTION OF TRAFFIC
 ▨ EXIST. PAVEMENT

GENERAL NOTES
 1. REFER TO HOWARD COUNTY STD. TE-11 FOR DIMENSIONS AND DETAILS NOT SHOWN.
 2. MAINTAIN TWO WAY TRAFFIC AT ALL TIMES.
 3. EVERY THIRD TRAFFIC BARRIER SHALL BE EQUIPPED WITH YELLOW LIGHTS FOR NIGHTTIME USE.

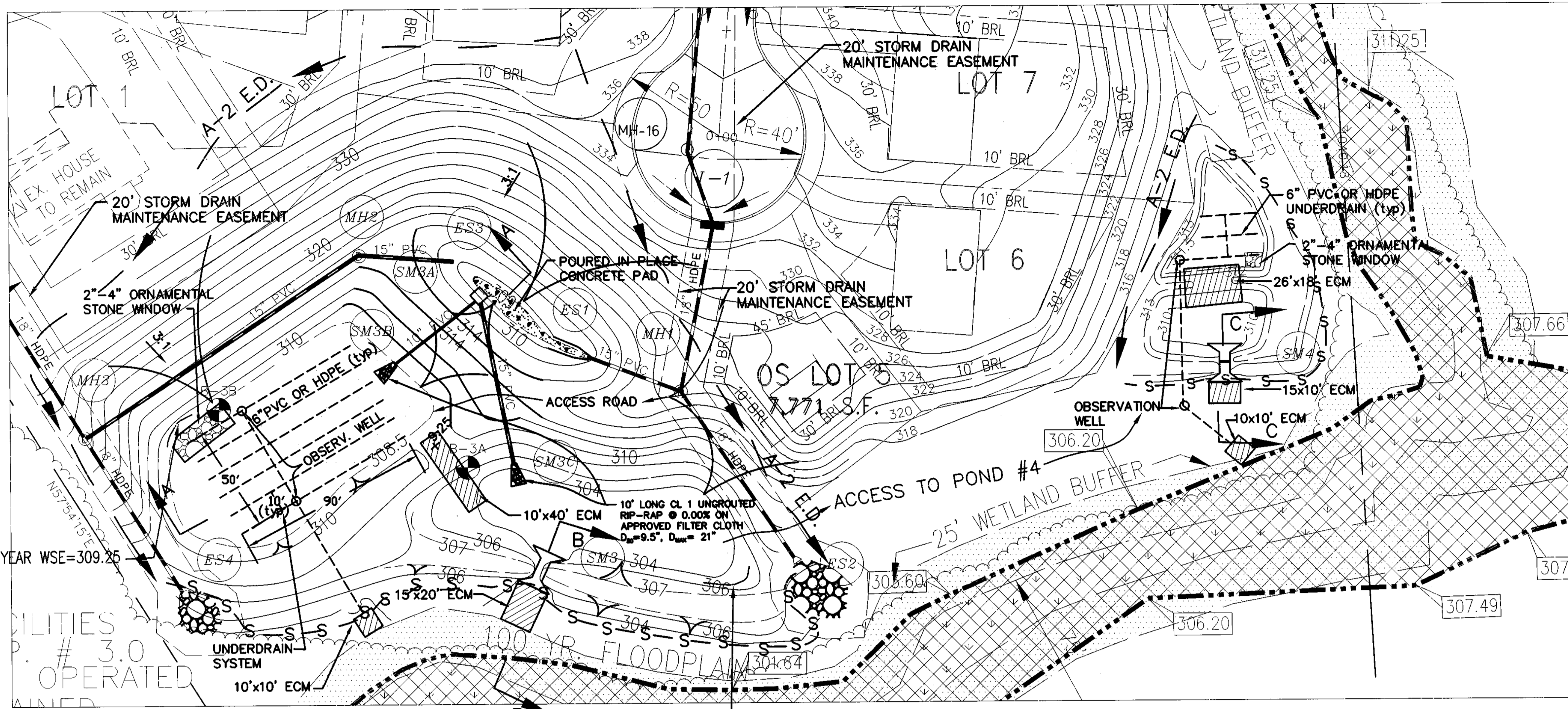
BY THE DEVELOPER:	
I, Richard J. Dumas , CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEGGINNING 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	DATE: 4-6-98
PRINTED NAME OF DEVELOPER	
BY THE ENGINEER:	
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DISTRICT 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 OF ENGINEER	DATE: 4/6/98
PRINTED NAME OF ENGINEER	
THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.	
SIGNATURE OF REVIEWER	DATE: 04/14/98
PRINTED NAME OF REVIEWER	
APPROVED: DEPARTMENT OF PUBLIC WORKS	
SIGNATURE OF APPROVER	DATE: 4-23-98
PRINTED NAME OF APPROVER	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
SIGNATURE OF APPROVER	DATE: 5/1/98
PRINTED NAME OF APPROVER	
APPROVED: DEPARTMENT OF LAND DEVELOPMENT	
SIGNATURE OF APPROVER	DATE: 4/27/98
PRINTED NAME OF APPROVER	

project	97084	date	APR 1998
illustration	SD	scale	AS NOTED
approval	SD	revision	

description	revisions	date	

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 HOWARD COUNTY, MARYLAND
 SIXTH ELECTION DISTRICT
SWM NOTES & SPECIFICATIONS AND TRAFFIC CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 987-0286 Fax (301) 821-5621 Wash. (410) 987-0286 Tel.



NOTE: RIP-RAP AT ES4, ES2 TO BE BUILT FROM S.D. PLANS

PONDS #3 & #4 CONSTRUCTION PLAN (1" = 30')

RESERVOIR OVERLOOK BIORETENTION PLANT LIST FOR POND 4

SYMBOL	COMMON NAME	SCIENTIFIC NAME	UNITS	SIZE	QUANTITY	SPACING (o.c.)
TREES						
Sb	Weeping Willow	<i>Salix babylonica</i>	each	6'-8'	0	20'
Bn	River Birch	<i>Betula nigra</i>	each	6'-8'	0	20'
Ar	American Elm	<i>Acer rubrum</i>	each	6'-8'	1	20'
Po	Sycamore	<i>Platanus occidentalis</i>	each	6'-8'	1	20'
Kp	Golden Rain Tree	<i>Koeleria paniculata</i>	each	6'-8'	2	20'
SHRUBS						
Ig	Inhberry 'Shamrock'	<i>Ilex glabra 'Shamrock'</i>	each	15'-18"	3	4'
Fg	Fothergilla	<i>Fothergilla gardenii</i>	each	15'-18"	2	4'
Ap	Bottlebrush Buckeye	<i>Asclepias parviflora</i>	each	12'-18"	0	6'
Iv	Winterberry 'Sparkberry'	<i>Ilex verticillata 'Sparkberry'</i>	each	15'-18"	2	6'
HERBACEOUS						
Hd	Hyperion Daylilies	<i>Hemerocallis sp.</i>	each	1 qt.	5	18"
Lk	Japanese Beardgrass	<i>Iris kumakura</i>	each	1 qt.	10	18"
Ls	Blazing Star	<i>Liatris spicata</i>	each	1 qt.	10	18"
Vn	New York Ironweed	<i>Vernonia noveboracensis</i>	each	1 qt.	15	18"
Lc	Cardinal Flower	<i>Lobelia cardinalis</i>	each	1 qt.	10	18"
Pg	Plume Grass	<i>Saccharum ravennae</i>	each	1 qt.	5	24"
Mh	Mount Hood Driftless	<i>Narcissus sp. 'Mount Hood'</i>	each	1 qt.	30	6"
Ns	New England Aster	<i>Aster novae-angliae</i>	each	1 qt.	0	6"
Vh	Blue Vervain	<i>Verbena hastata</i>	each	1 qt.	0	6"
Ed	Joe Pye Weed	<i>Eupatorium dubium</i>	each	1 qt.	0	6"
Be	Black-Eyed Susan	<i>Rudbeckia 'Goldsum'</i>	each	1 qt.	0	6"
Kv	Sesashore Milkweed	<i>Kosteletzkya virginica</i>	each	1 qt.	5	6"
Pa	Fountain Grass	<i>Pennisetum alopecuroides</i>	each	1 qt.	5	18"

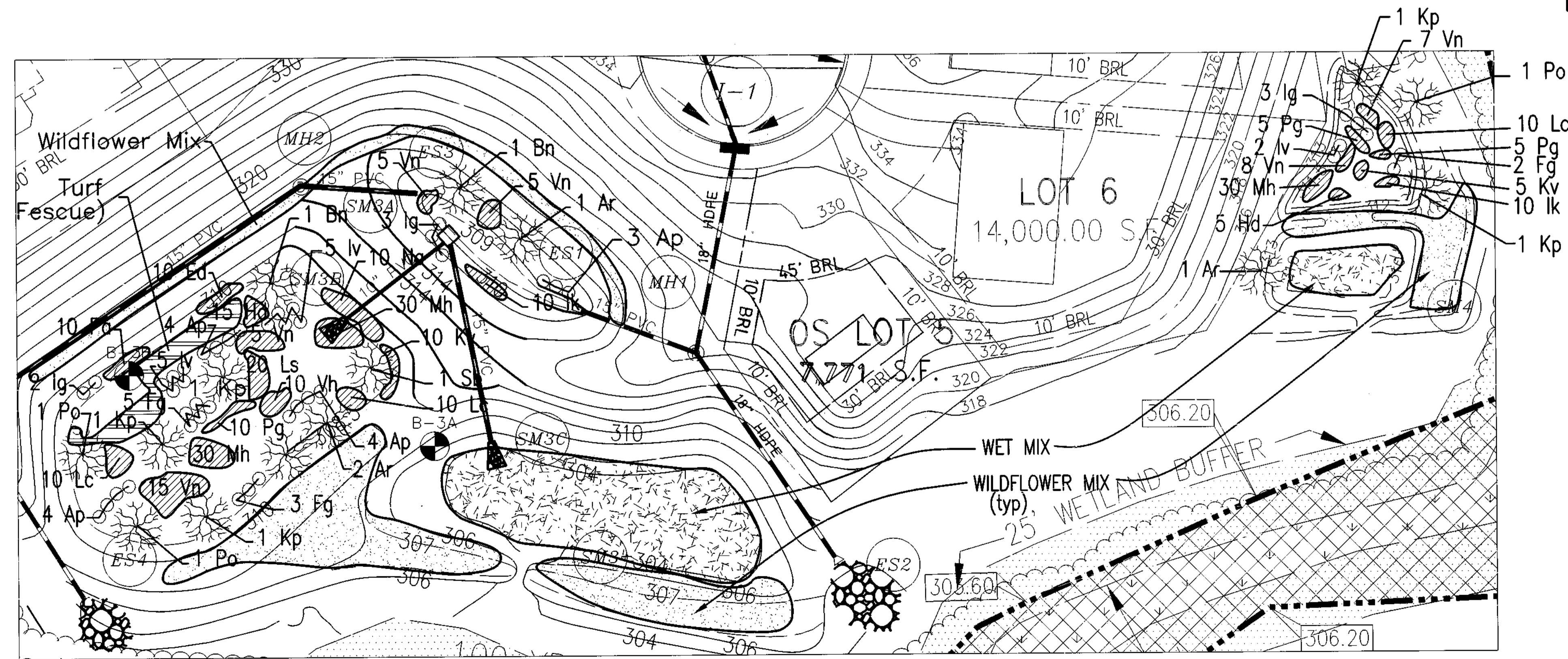
RESERVOIR OVERLOOK BIORETENTION PLANT LIST FOR POND 3

SYMBOL	COMMON NAME	SCIENTIFIC NAME	UNITS	SIZE	QUANTITY	SPACING (o.c.)
TREES						
Sb	Weeping Willow	<i>Salix babylonica</i>	each	6'-8'	1	20'
Bn	River Birch	<i>Betula nigra</i>	each	6'-8'	1	20'
Ar	American Elm	<i>Acer rubrum</i>	each	6'-8'	1	20'
Po	Sycamore	<i>Platanus occidentalis</i>	each	6'-8'	2	20'
Kp	Golden Rain Tree	<i>Koeleria paniculata</i>	each	6'-8'	3	20'
SHRUBS						
Ig	Inhberry 'Shamrock'	<i>Ilex glabra 'Shamrock'</i>	each	15'-18"	5	4'
Fg	Fothergilla	<i>Fothergilla gardenii</i>	each	15'-18"	8	4'
Ap	Bottlebrush Buckeye	<i>Asclepias parviflora</i>	each	12'-18"	15	6'
Iv	Winterberry 'Sparkberry'	<i>Ilex verticillata 'Sparkberry'</i>	each	15'-18"	10	6'
HERBACEOUS						
Hd	Hyperion Daylilies	<i>Hemerocallis sp.</i>	each	1 qt.	15	18"
Lk	Japanese Beardgrass	<i>Iris kumakura</i>	each	1 qt.	20	18"
Ls	Blazing Star	<i>Liatris spicata</i>	each	1 qt.	20	18"
Vn	New York Ironweed	<i>Vernonia noveboracensis</i>	each	1 qt.	30	18"
Lc	Cardinal Flower	<i>Lobelia cardinalis</i>	each	1 qt.	20	18"
Pg	Plume Grass	<i>Saccharum ravennae</i>	each	1 qt.	10	24"
Mh	Mount Hood Driftless	<i>Narcissus sp. 'Mount Hood'</i>	each	1 qt.	60	6"
Ns	New England Aster	<i>Aster novae-angliae</i>	each	1 qt.	10	6"
Vh	Blue Vervain	<i>Verbena hastata</i>	each	1 qt.	10	6"
Ed	Joe Pye Weed	<i>Eupatorium dubium</i>	each	1 qt.	10	6"
Be	Black-Eyed Susan	<i>Rudbeckia 'Goldsum'</i>	each	1 qt.	0	6"
Kv	Sesashore Milkweed	<i>Kosteletzkya virginica</i>	each	1 qt.	10	6"
Pa	Fountain Grass	<i>Pennisetum alopecuroides</i>	each	1 qt.	10	18"

POND	3	4
TYPE	2-YEAR MULTI CELL BIORETENTION	2-YEAR MULTI CELL BIORETENTION
OWNERSHIP	PUBLIC	PUBLIC
MAINTENANCE	PRIVATE	PRIVATE
HAZARD	LOW HAZARD NON-378	LOW HAZARD NON-378
DRAINAGE AREA	10.6 AC	4.4 AC

POND	STORM	WSE *	NOTES
3	2	305.6	
	10	307.3	NOT SHOWN
	100	308.6	NOT SHOWN
4	2	311.4	NOT SHOWN
	10	312.7	NOT SHOWN
	100	313.5	NOT SHOWN

* MAIN CELL ONLY



PONDS #3 & #4 LANDSCAPE PLAN (1" = 30')

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

Robert W. Ziegler 4-6-98
 SIGNATURE OF DEVELOPER DATE
 PRINTED NAME OF DEVELOPER

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

Cheryl Semine 4/6/98
 SIGNATURE OF ENGINEER DATE
 PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

Cheryl Semine 04/04/98
 USDA - NATURAL RESOURCE CONSERVATION SERVICE DATE

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Robert W. Ziegler 4/11/98
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: PRIVATE WATER AND SEWERAGE IN ACCORDANCE WITH THE MASTER PLAN FOR WATER AND SEWERAGE IN HOWARD COUNTY. (FOR LOT 103 ONLY)

COUNTY HEALTH OFFICER DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
Robert M. Dawick 4-23-98
 CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cathy Hamilla 5/2/98
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Cheryl Semine 4/27/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

2/16/98
 Environmental Quality Resources, Inc.
 A Natural Resources Management Company
 Consulting • Design • Construction • Maintenance
 5011 Swallow School Road
 Fairfax, VA 22031
 Tel: 301-266-0133
 Fax: 301-266-0198

2/16/98
 Environmental Quality Resources, Inc.
 A Natural Resources Management Company
 Consulting • Design • Construction • Maintenance
 5011 Swallow School Road
 Fairfax, VA 22031
 Tel: 301-266-0133
 Fax: 301-266-0198

2/16/98
 Environmental Quality Resources, Inc.
 A Natural Resources Management Company
 Consulting • Design • Construction • Maintenance
 5011 Swallow School Road
 Fairfax, VA 22031
 Tel: 301-266-0133
 Fax: 301-266-0198

date NOV 1997
 illustration engineering
 TCS
 approval TCS

project 501
 scale 30 SCALE
 date 11-16-98
 5-2-98
 description CORRECT LOT LINES & STRUCTURE ON LOT 5.
 revisions

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 166, 75, 187 & 78 - BLOCKS 15 & 16
 HOWARD COUNTY, MARYLAND
 SIXTH ELECTION DISTRICT
 PONDS 3 & 4 CONSTRUCTION & PLANTING PLANS

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland, 21042
 (410) 997-0296 Bldg. (301) 621-5521 Wash. (410) 597-0288 Fax

Wet Mix Specification (Pond Use Only)			
Common Name	Latin Name	percent of mix	lbs. per ac
Red Top	Agrostis alba	20%	6
Reed Canary Grass	Phalaris arundinacea	15%	4.5
Deer Tongue	Panicum clandestinum	15%	4.5
Creeping Red Fescue	Festuca rubra	15%	4.5
Annual Rye Grass	Loium multiflorum	15%	4.5
Switch Grass	Panicum virgatum	10%	3
Pennsylvania Smartweed	Polygonum pensylvanicum	5%	1.5
Beggar Ticks	Bidens frondosa	5%	1.5
		100%	30

Wild Flower Seeding Mix (Spring Planted)								
Common Name	Latin Name	Color	Height	Season of Bloom	Display	Return	percent of mix	lbs. per ac
PERENNIALS								
Perennial Gaillardia		red/ylw	M	June-Oct	good	excellent	16%	1.8
Lanceleaf Coreopsis		yellow	M	June-Oct (2nd yr)	excel	excellent	10%	1.2
Purple Coneflower	Echinacea purpurea	purple	T	June-Oct (2nd yr)	good	excellent	9%	1
Sweet William		red/wh	S	May-July (2nd yr)	excellent	excellent	8%	0.9
Shasta Daisy		white	M	May-June (2nd yr)	excellent	excellent	3%	0.4
Black-eyed Susan	Rudbeckia hirta	yellow	M	June-Oct	excellent	good	3%	0.3
White/Pink Yarrow		wh/pk	M	July-Sept	good	excellent	1%	0.15
ANNUALS								
Queen Anne's Lace	Daucus carota	white	T	July-Sept	fair	good	5%	0.6
Forget-Me-Not		blue	S	April-May	good	excellent	1%	0.15
TEMPORARY SEEDING								
Sheep's Fescue	Festuca ovina, L.						43%	5
							100%	11.5

BIORETENTION AREA SOIL SPECIFICATIONS

A. Planting Soil

The bioretention areas shall consist of a planting soil having a composition as follows:

- sand 35 - 60%
- silt 30 - 45%
- clay 10 - 20%

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than one inch. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

When back filling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade. Follow methods from Compaction.

The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, Mugwort, Nutsedge, Poison Ivy, Canadian Thistle, Tearthumb, or other noxious weeds.

The planting soil shall be tested and shall meet the following criteria:

- pH range 5.2 - 7.0
- organic matter 1.5 - 4%
- magnesium 35 lb./ac
- phosphorus p205 75 lb./ac
- potassium K20 85 lb./ac
- soluble salts not to exceed 500 ppm

All bioretention areas shall have a minimum of one test. Each test shall consist of both the standard soil test for pH, phosphorus, and potassium and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the top soil was excavated.

B. Mulch Layer Specifications

Mulch around individual plants only. Shredded hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

C. Sand Specifications

The sand shall be clean AASHTO M-6 / ASTM C-33 fine aggregated concrete sand (or approved equivalent) and shall be free of deleterious materials.

Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before back filling the required sand layer. Pump any ponded water before preparing (rototilling) base.

D. Compaction

It is very important to minimize compaction of both the base of the bioretention area and the required backfill. When possible, use excavation hoers to remove original soil. If bioretention areas is excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high pressure tires will cause excessive compaction resulting in reduced infiltration rates and storage volumes and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoller. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

When back filling the bioretention facility, place soil in lifts 12" or greater. Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

E. General Planting Specifications

The plant root ball should be planted so 1/8th of the ball is above final grade surface.

F. Fertilization

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch is used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

G. Grass Seeding

Seed areas according to the following schedule:

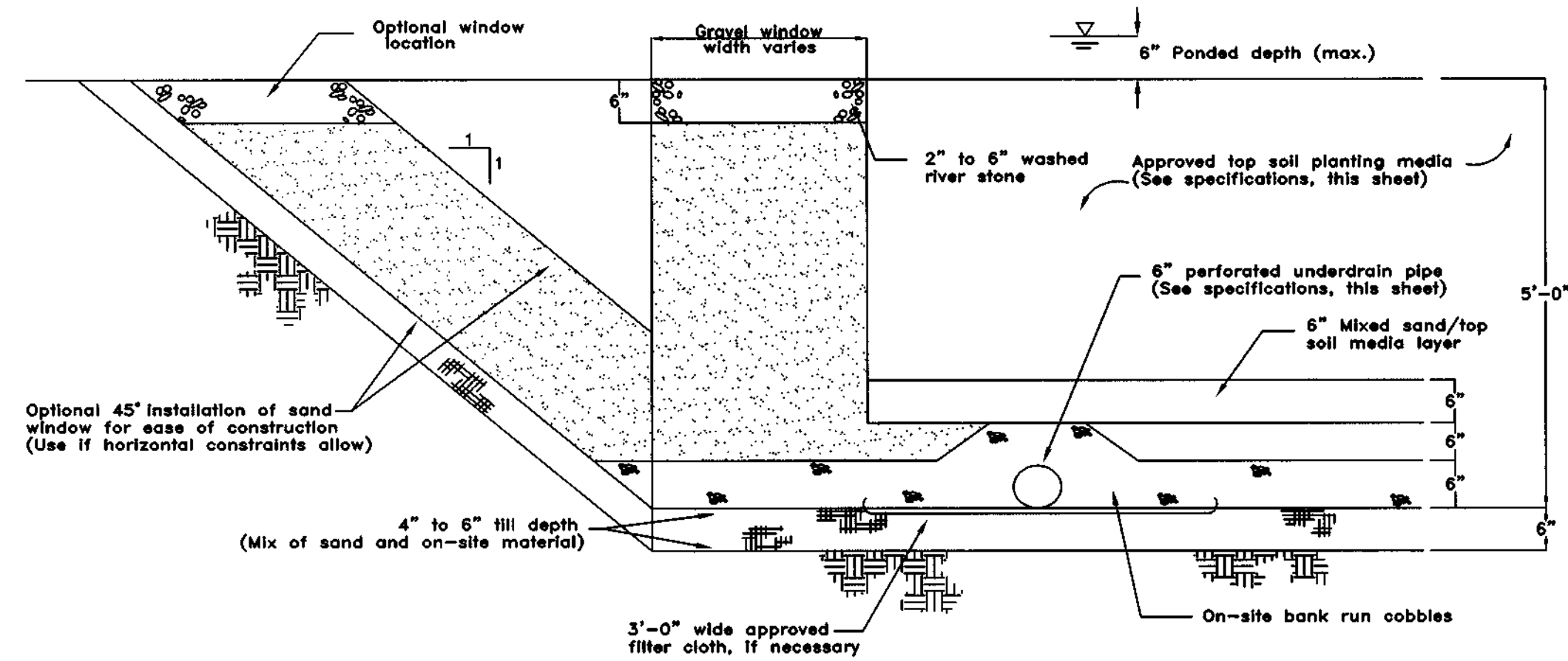
- Panicum virgatum (Switchgrass) 0.25 lb. per 1000 sq. ft.
- Poa trivialis (Rough-stalked bluegrass) 1.00 lb. per 1000 sq. ft.
- Festuca ovina var. durluscula (Hard fescue) 1.00 lb. per 1000 sq. ft.

GENERAL BIORETENTION INSTALLATION NOTES

- Contractor to strictly follow the approved design and construction specifications. Any substitutions are to be pre-approved by the inspector and design engineer in writing prior to placement of materials.
- The bioretention facility may not be constructed until all contributing drainage areas to each facility are stabilized. Construction of the facility shall not proceed without prior authorization of the inspector.
- No "rock dust" can be used for sand.
- Unless otherwise noted, all poured in place concrete shall be 3500 psi at 28 days.
- Contact "Miss Utility" at 1-800-257-7777 at least 48 hours prior to the start of construction.
- Except for observation wells, HDPE pipe may be substituted for schedule 40 PVC where the PVC serves as either an underdrain or a splitter pipe.

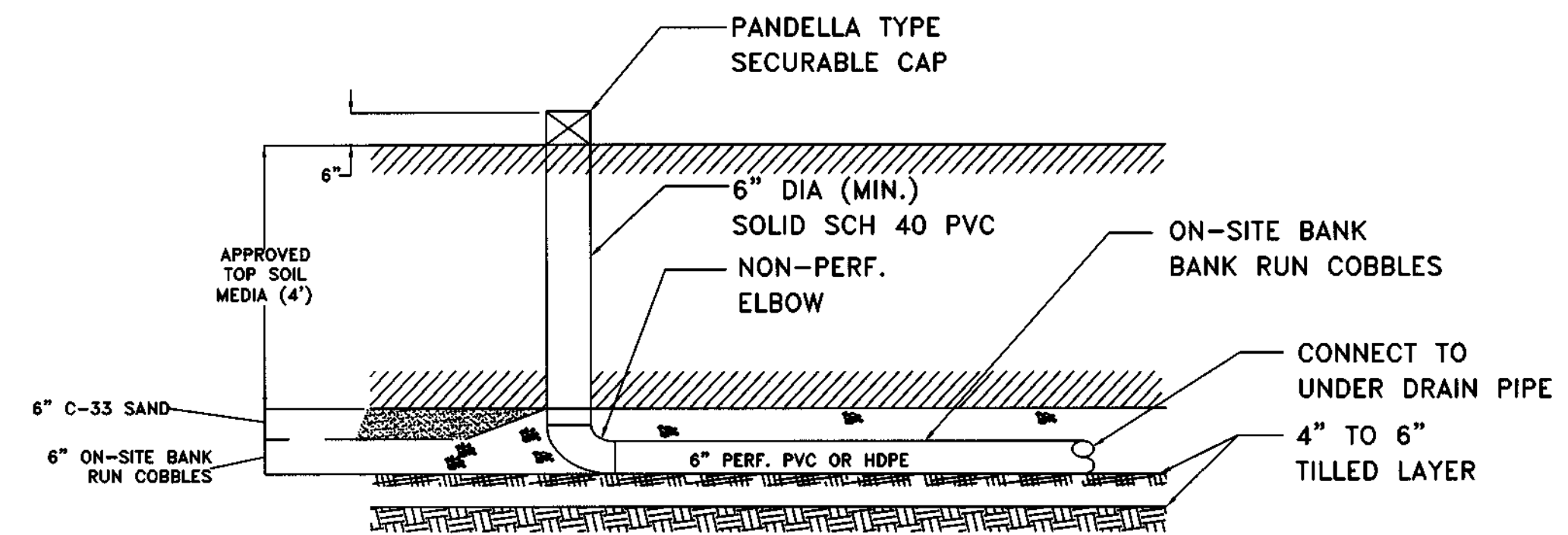
UNDER DRAIN INSTALLATION SPECIFICATIONS

- Pipe shall be 6" diameter perforated Schedule 40 PVC, Hancor "HIQ" pipe, 6" HDPE corrugated pipe with 1/16 by 9/16 inch slots, or approved equivalent. Pipe under berm must be Schedule 40 PVC.
- Perforations (where Sch 40 PVC is used) are to be 3/8-inch diameter, located at 120 degrees on center, every twelve inches (maximum) along the under drain pipe. More rows may be used, if desired.
- Pipe shall be surrounded by a bed of gravel with stone sizes ranging between the No. 4 sieve and three quarters of an inch (ASTM standard M-43 stone).
- Under drains to be placed on a 3'-0" wide section of filter cloth (Mirafit 140 N, or approved equivalent). Pipe is placed next, followed by the gravel bedding.
- The ends of under drain pipes not terminating in an observation well shall be capped.
- The "daylight" end of the under drain shall be capped with a six-inch cap. This cap shall have an orifice matching the specifications of the "Daylight Cap Orifice Table", this sheet.



TYPICAL BIORETENTION TRENCH SECTION

No Scale



OBSERVATION WELL / CLEANOUT DETAIL
N.T.S.

MAINTENANCE CERTIFICATION FOR BIORETENTION (PONDS 1, 3 AND 4)

This facility will be monitored and maintained by the party(ies) signing below or their agents for a period of two (2) years after the completion of construction of the facility. The two year maintenance requirement shall start upon completion of plant installation. The contractor is not responsible for clogging or erosion problems created by activities of adjacent home owners. The conditions of this certification are as follows:

The contractor or his agent shall monitor the facility seasonally (2 times a year over two years). They shall keep a log book which monitors the following:

- groundwater in observation wells and condition of well caps
- quantity and general quality of discharge from underdrain, if any
- condition of plantings, berm, grass cover, mulch, riprap, and ornamental stone - the developer or his agent shall replace defective or damaged material at his expense (acts of vandalism are exempt)
- record ponded water, if any is present [at least one of the eight inspections must include a rainfall event large enough to fill the facility to establish a draw down time]
- at the end of the 2-year maintenance period, a qualified landscape specialist shall ensure that at least 85% of the installed plantings have survived over the two year period - defective or dead materials below the 85% threshold shall be replaced.
- the ornamental stone overflow window shall be inspected twice (annually) by digging down to the level of the sand to check for clogging - should the sand be clogged, the top 2" of sand shall be replaced
- trash, if present, shall be removed annually

Annually, a status letter shall be sent to HOWARD COUNTY. After two years of monitoring and maintenance, the log book shall be turned over to the Reservoir Overlook HOA (The HOA) whereupon The HOA shall take over maintenance and monitoring responsibilities from the developer.

Howard County is not responsible for the maintenance of the flow splitter structures for Ponds 1 and 3 (Manholes 1, 2 and 7) OPERATION AND MAINTENANCE SCHEDULE OF PUBLICLY OWNED AND PRIVATELY MAINTAINED STORMWATER MANAGEMENT FACILITY (BIORETENTION)

ROUTINE MAINTENANCE

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

NON-ROUTINE MAINTENANCE

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

Signed N/A Title N/A Date N/A
(address)

BY THE DEVELOPER:

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

[Signature] 4-6-98
DATE

[Signature]
PRINTED NAME OF DEVELOPER

BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE 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] 4/6/98
DATE

[Signature]
PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

[Signature] 04/14/98
DATE

USA - NATURAL RESOURCE CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 4/14/98
DATE

APPROVED: PRIVATE WATER AND SEWER SYSTEMS IN ACCORDANCE WITH THE MASTER PLAN FOR WATER AND SEWERAGE OF HOWARD COUNTY. (FOR LOT 109 ONLY)

COUNTY HEALTH OFFICER DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 4-23-98
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5/7/98
DATE

APPROVED: CHIEF DEVELOPMENT ENGINEERING DIVISION
[Signature] 4/21/98
DATE

Environmental Quality Resources, Inc.
A Natural Resources Management Company
Consulting • Design • Construction • Maintenance
8711 Snuffer School Road
Catherynburg, VA 22829
Tel: 301-208-0189
Fax: 301-208-0189

Wetlands • Forestry • SWM Facilities • Stream Restoration • Water Resources Engineering

[Signature] 4/16/98

RESERVOIR OVERLOOK
LOTS 1 THRU 110
TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MD

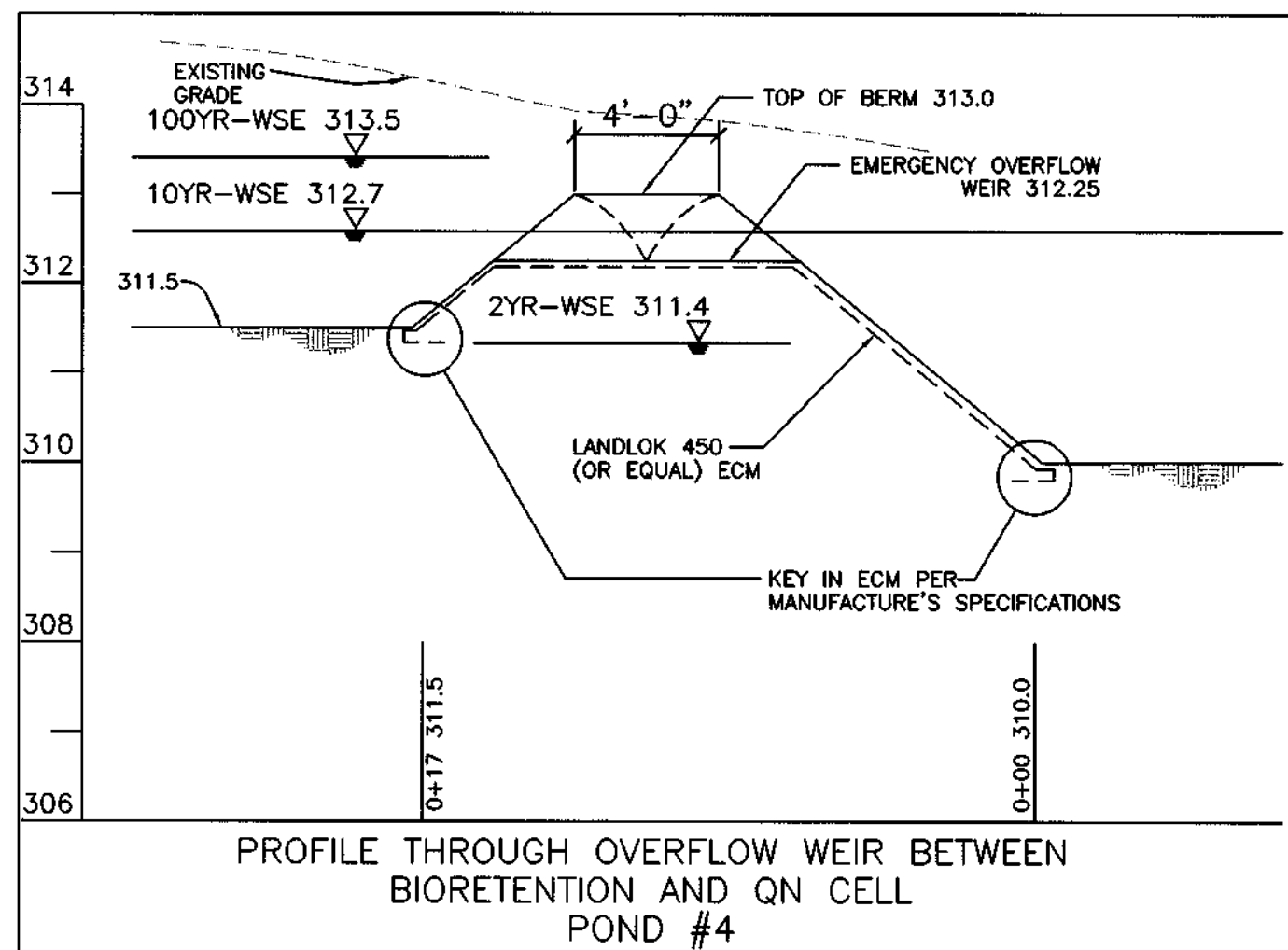
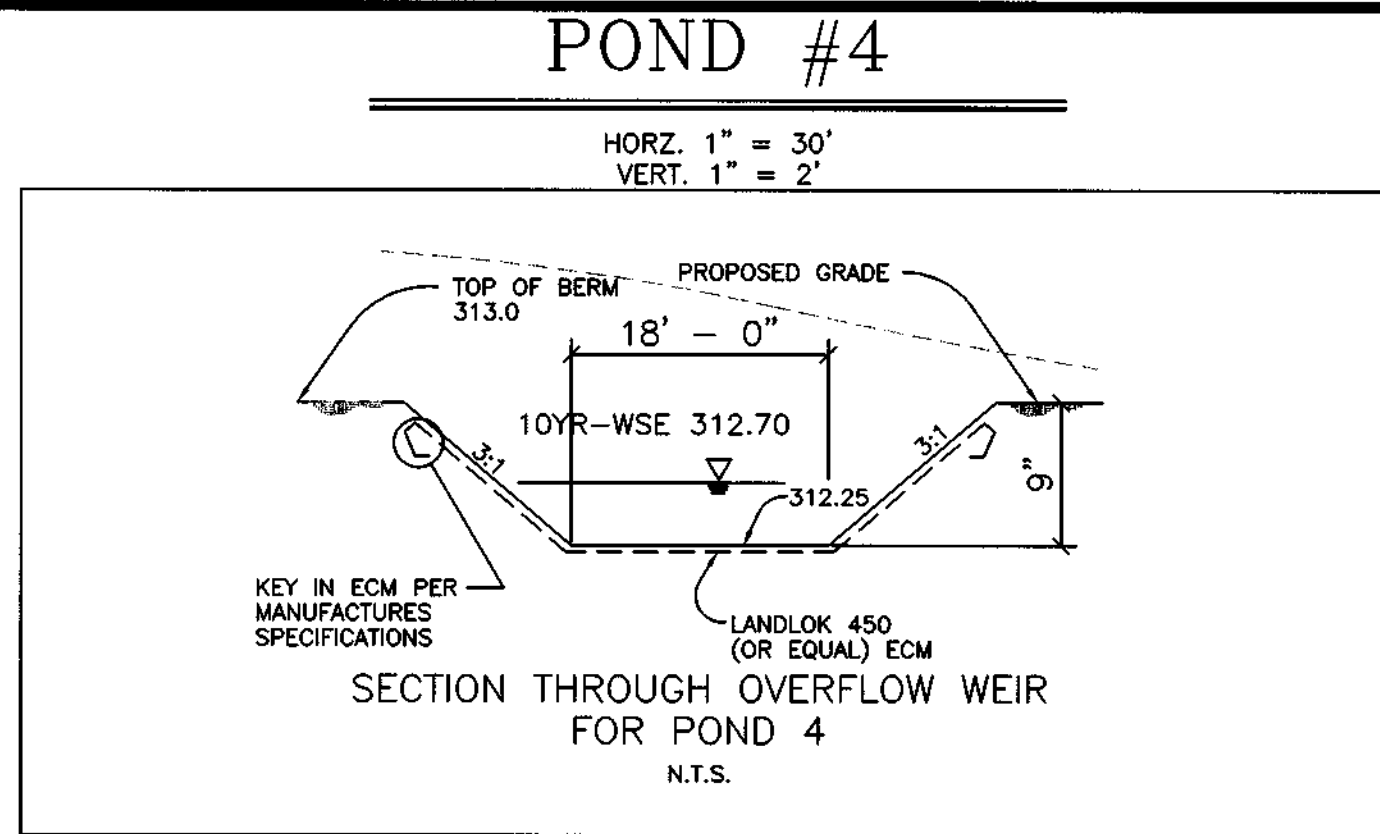
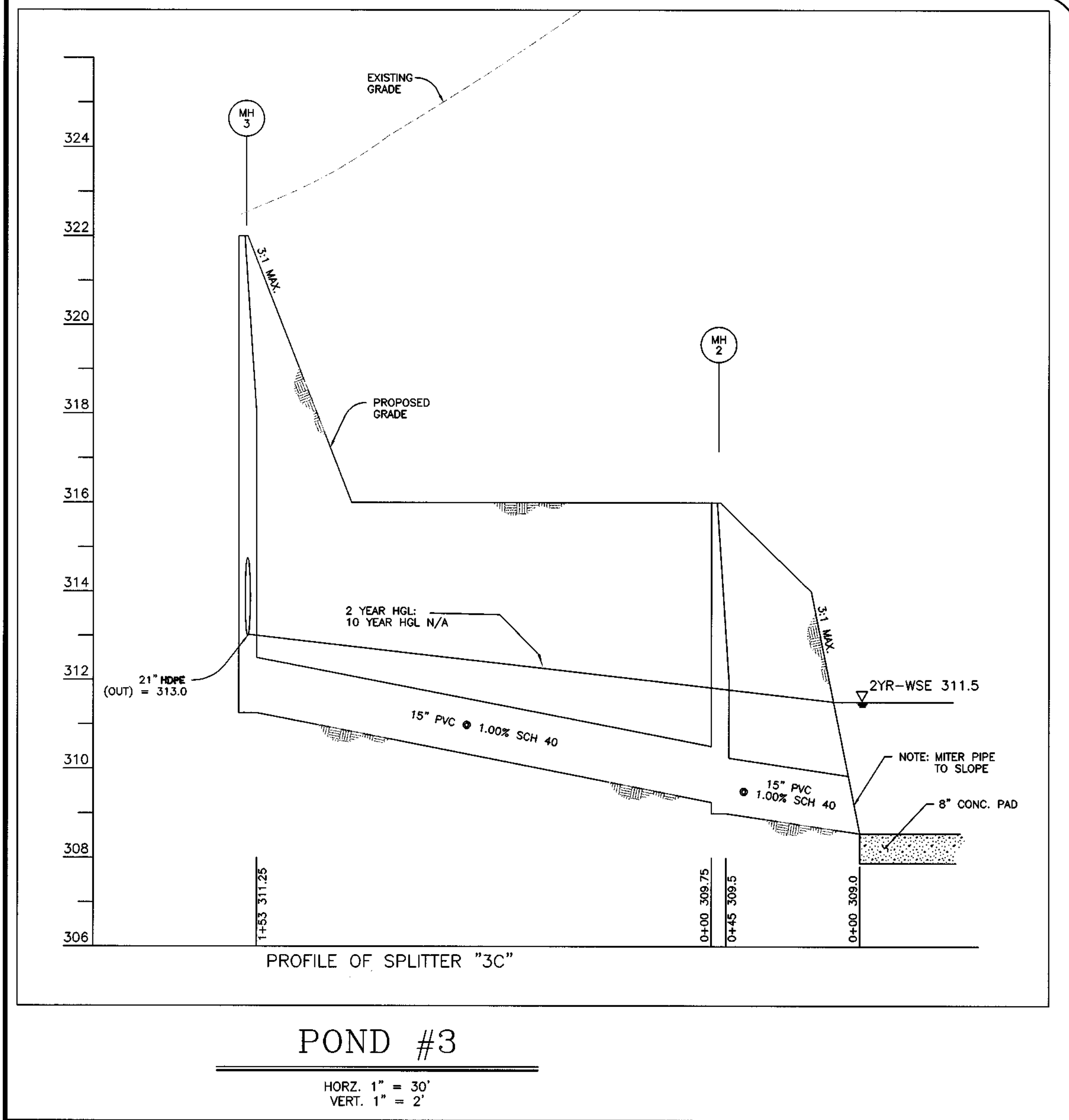
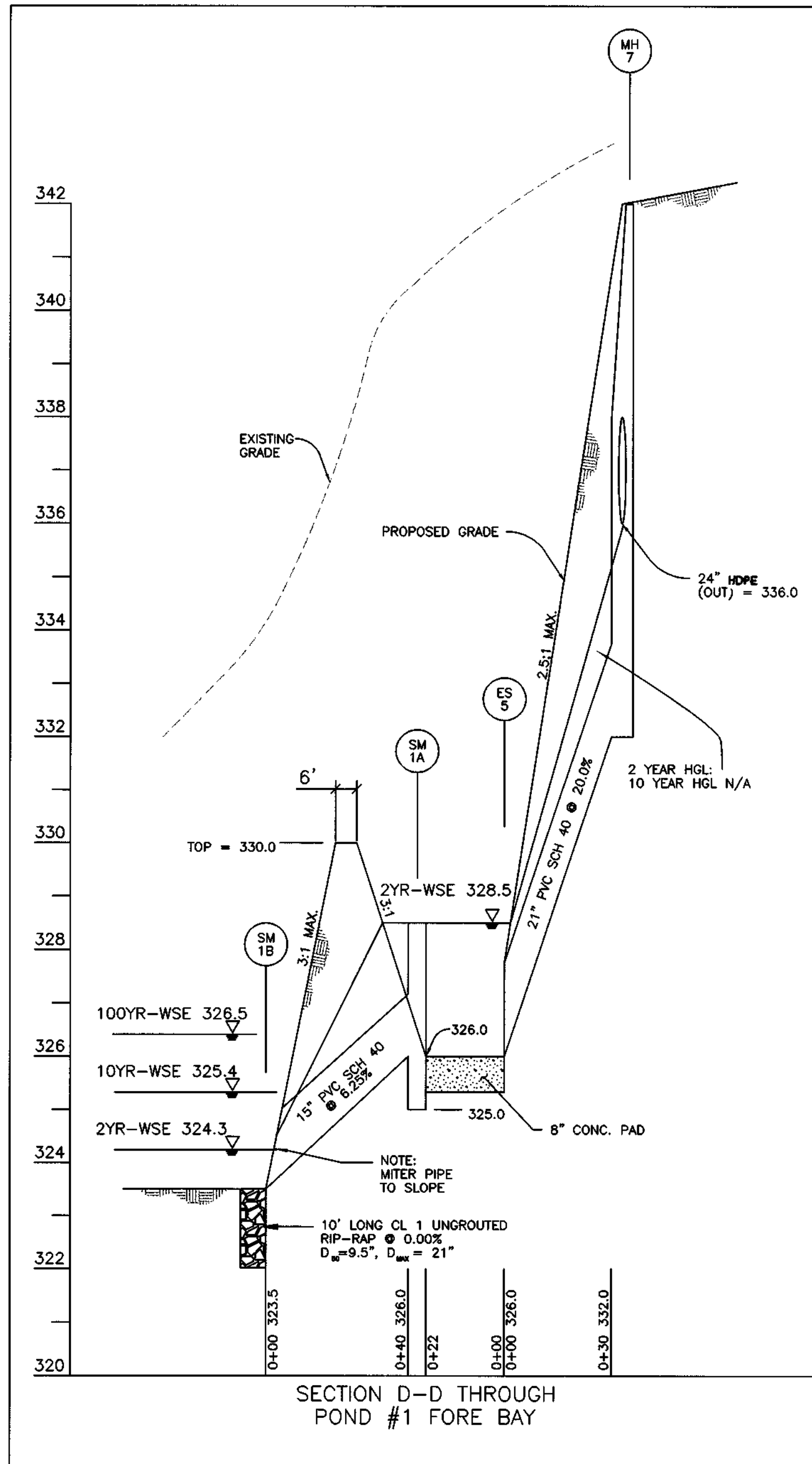
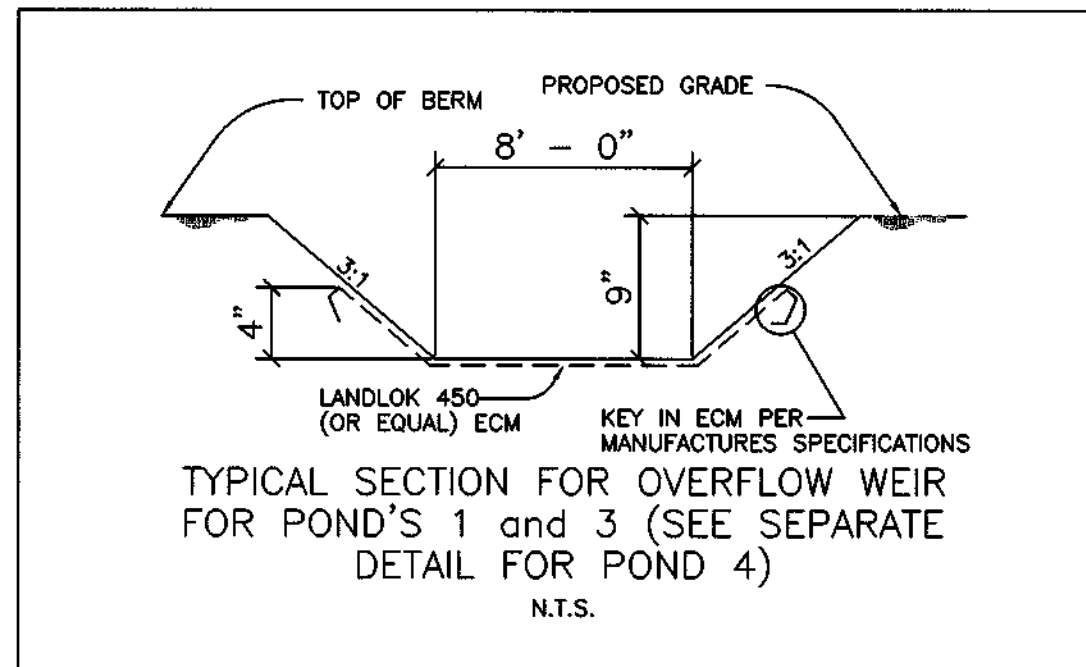
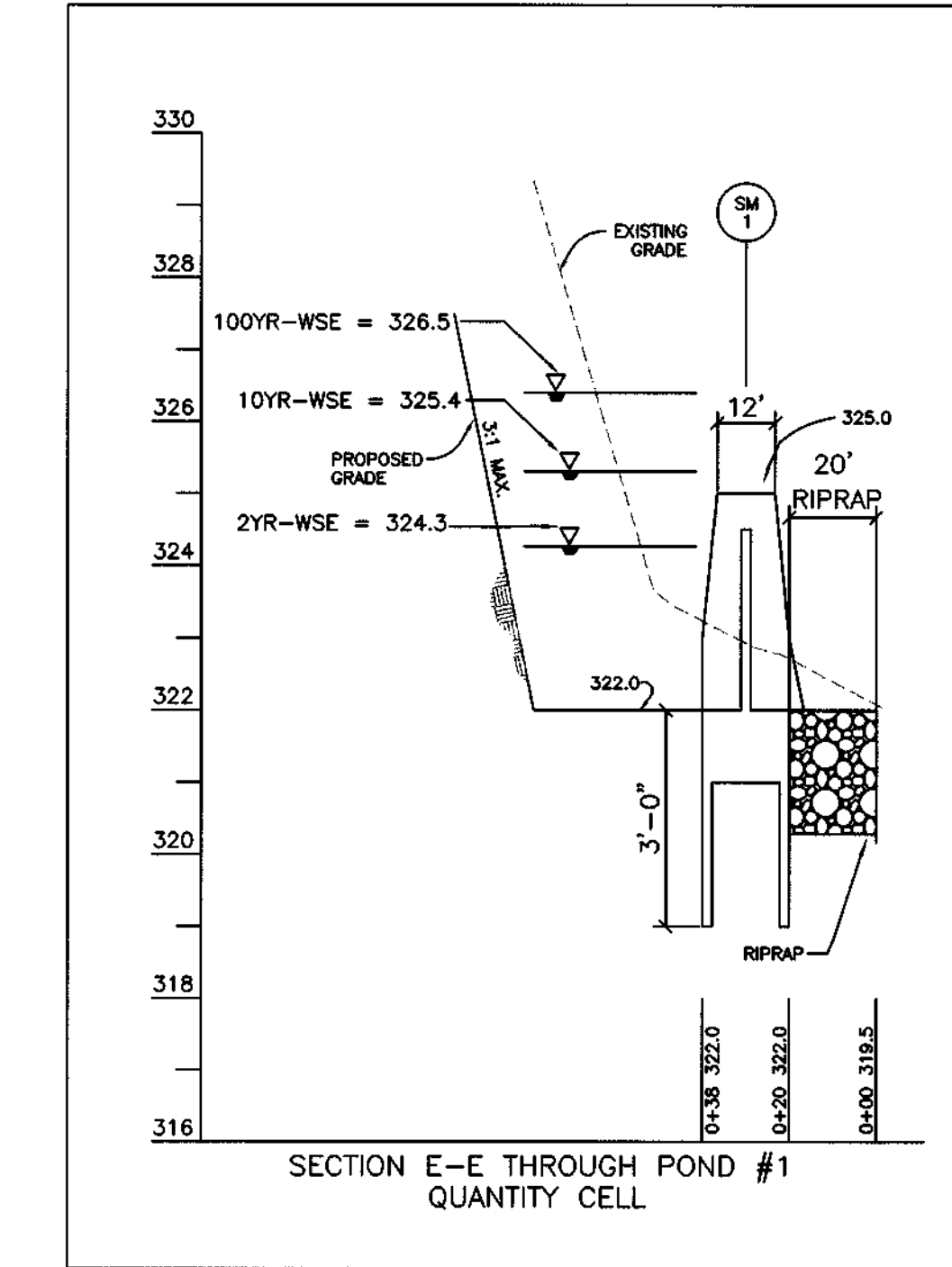
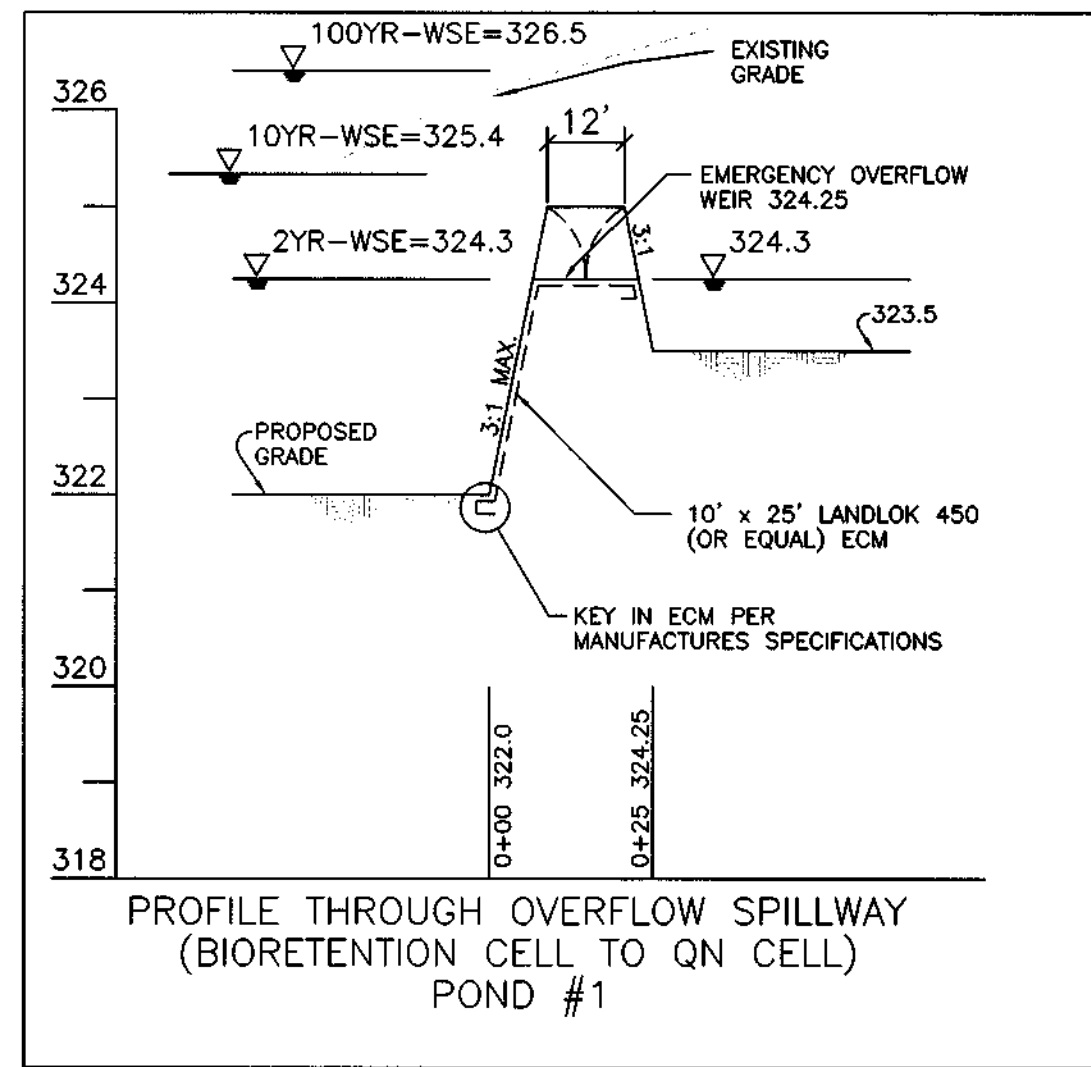
project date NOV 1997
501 illustration engineering TCS
JMR score approval
AS SHOWN TCS

1. ADDRESS COMMENTS description
no. revisions

1. FEB 1998 date

21 of 31

F-98-61



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

Robert W. Giam 4/6/98
DATE

BY THE ENGINEER:
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PHYSICAL 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 HOWARD SOIL CONSERVATION DISTRICT AND PROVIDED THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Robert W. Giam 4/6/98
DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

Robert W. Giam 4/14/98
DATE

APPROVED: PRIVATE WATER AND SEWER SYSTEMS IN ACCORDANCE WITH THE MASTER PLAN FOR WATER AND SEWERAGE IN HOWARD COUNTY. (FOR LOT 109 ONLY)

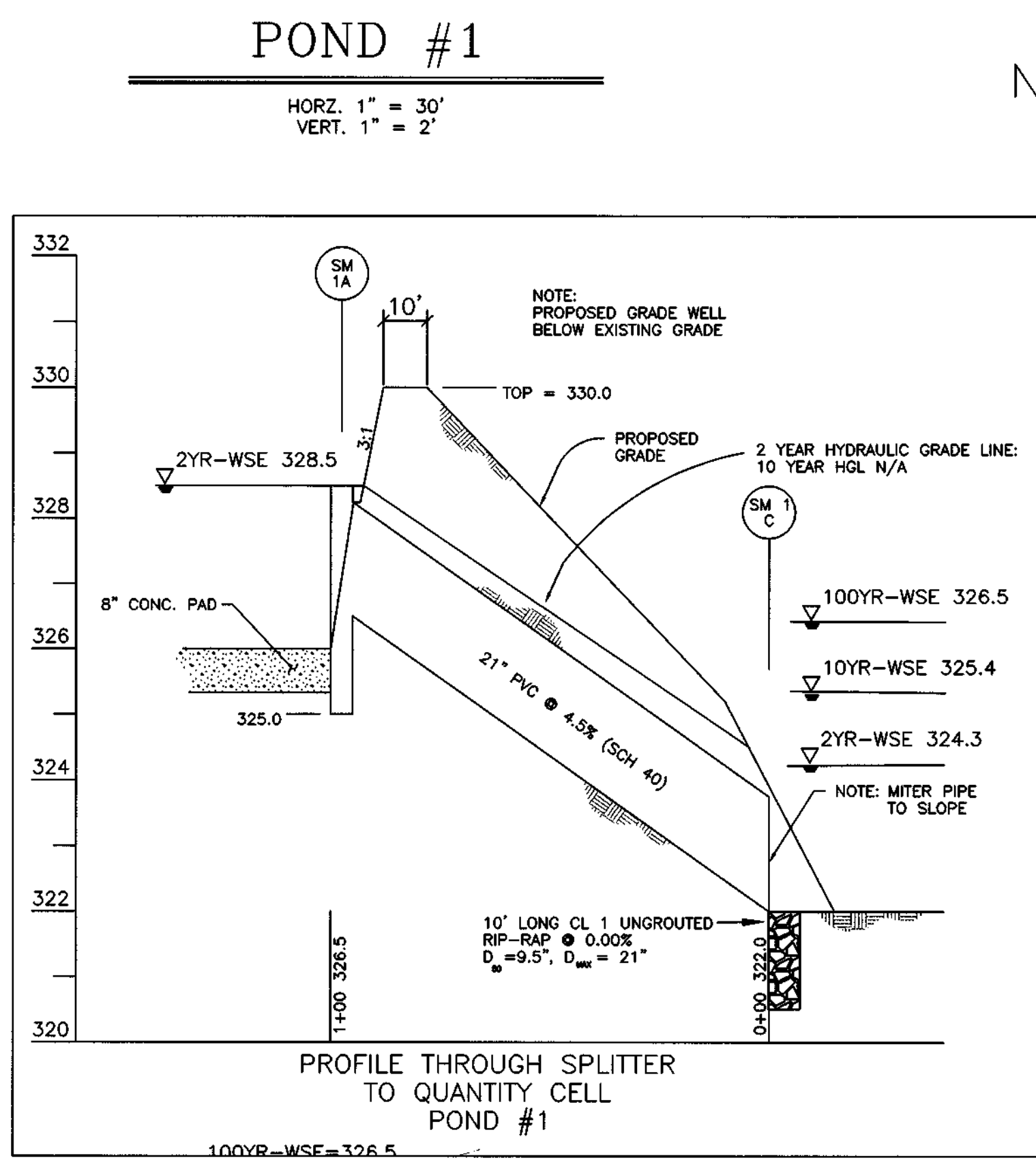
COUNTY HEALTH OFFICER

APPROVED: DEPARTMENT OF PUBLIC WORKS

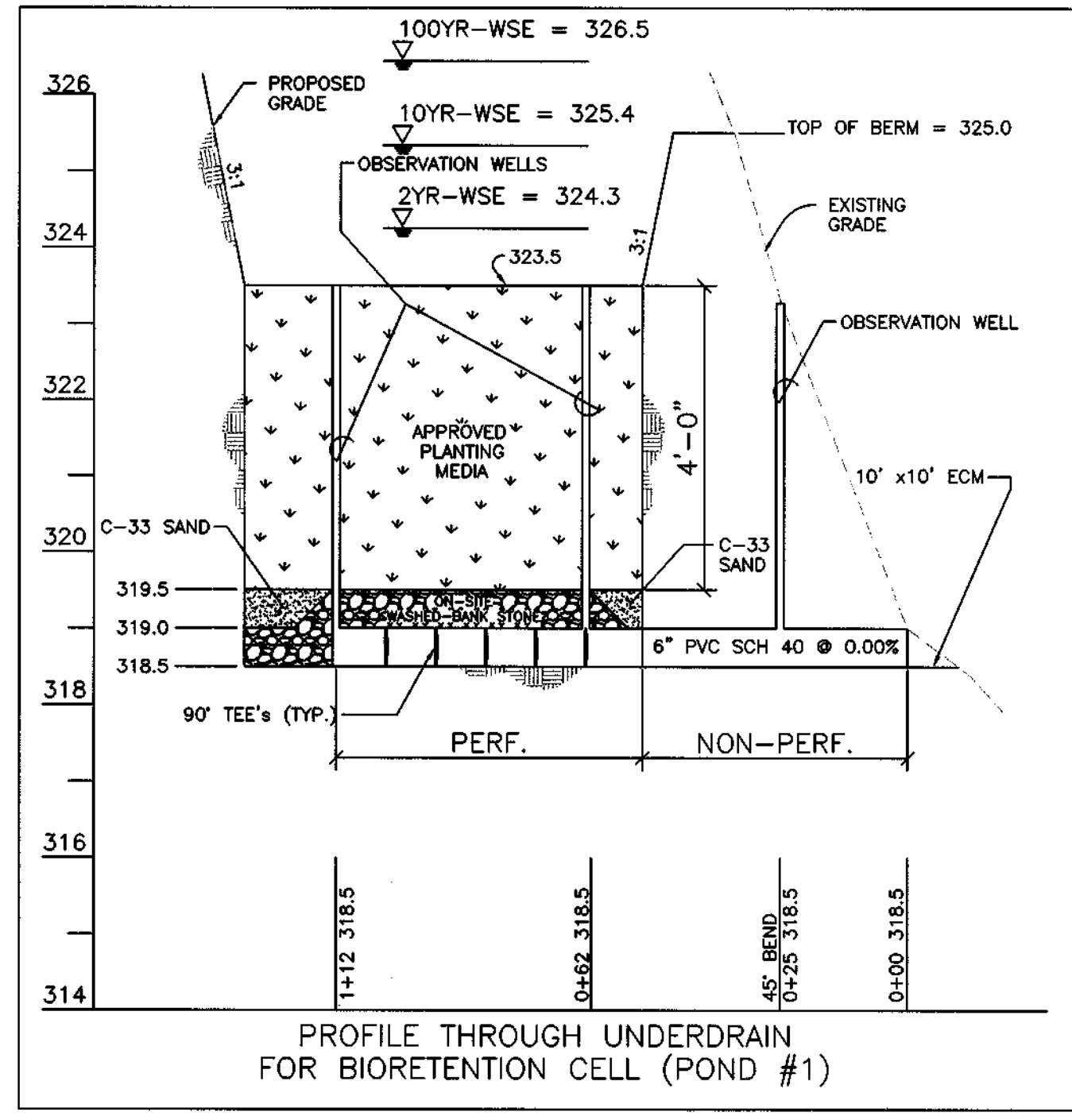
Robert W. Giam 4-23-98
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Robert W. Giam 4/27/98
DATE



NOTE: ALL PIPE SYSTEMS SHOWN HEREON
(SHEET 23) ARE TO BE PRIVATELY
MAINTAINED



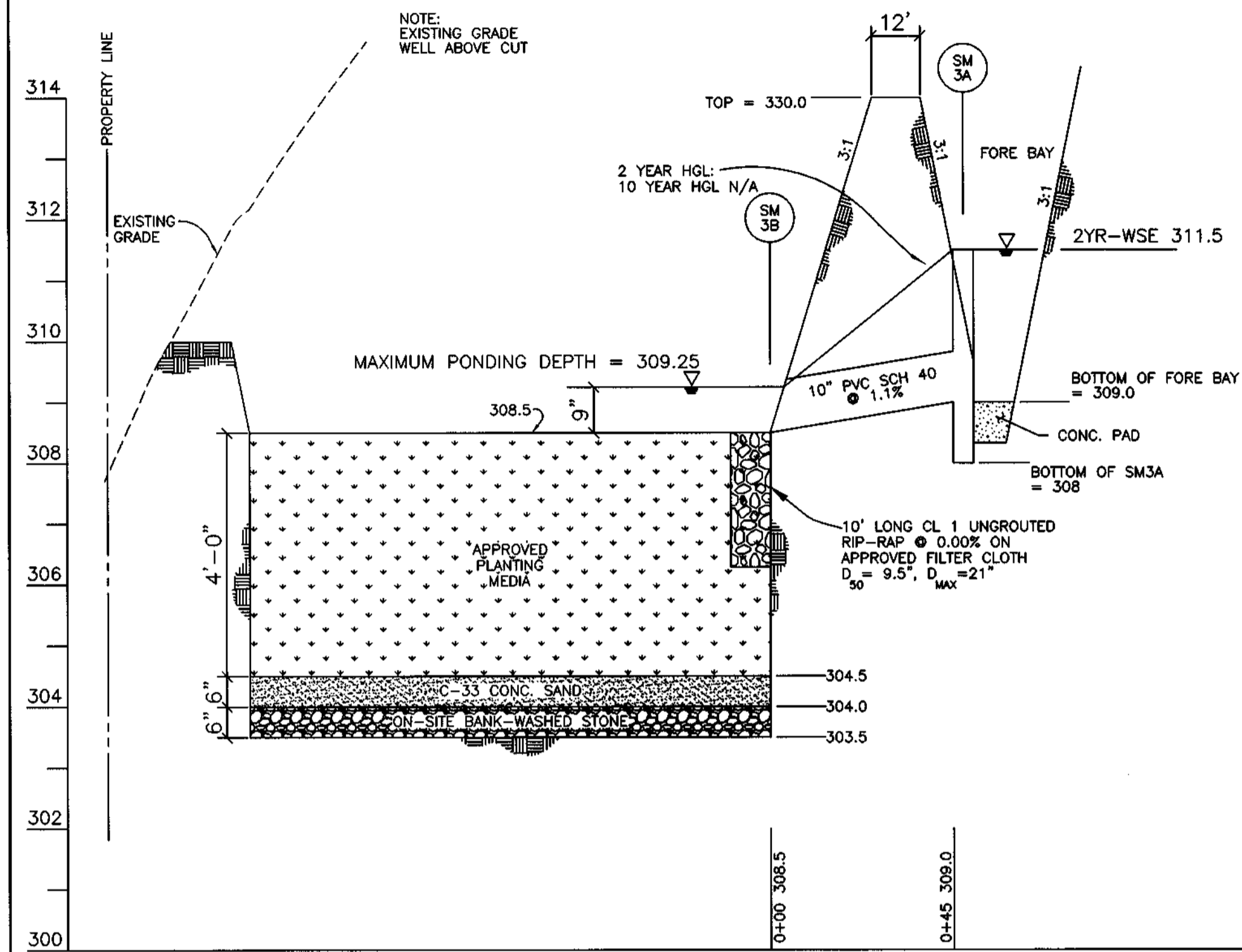
project	501	date	NOV 1997
illustration	JMR	engineering	TCS
scale	AS SHOWN	approval	TCS

no.	1	description	REVISE ALUMP TO HDPE PIPE	date	11-18-98
no.		revisions		date	

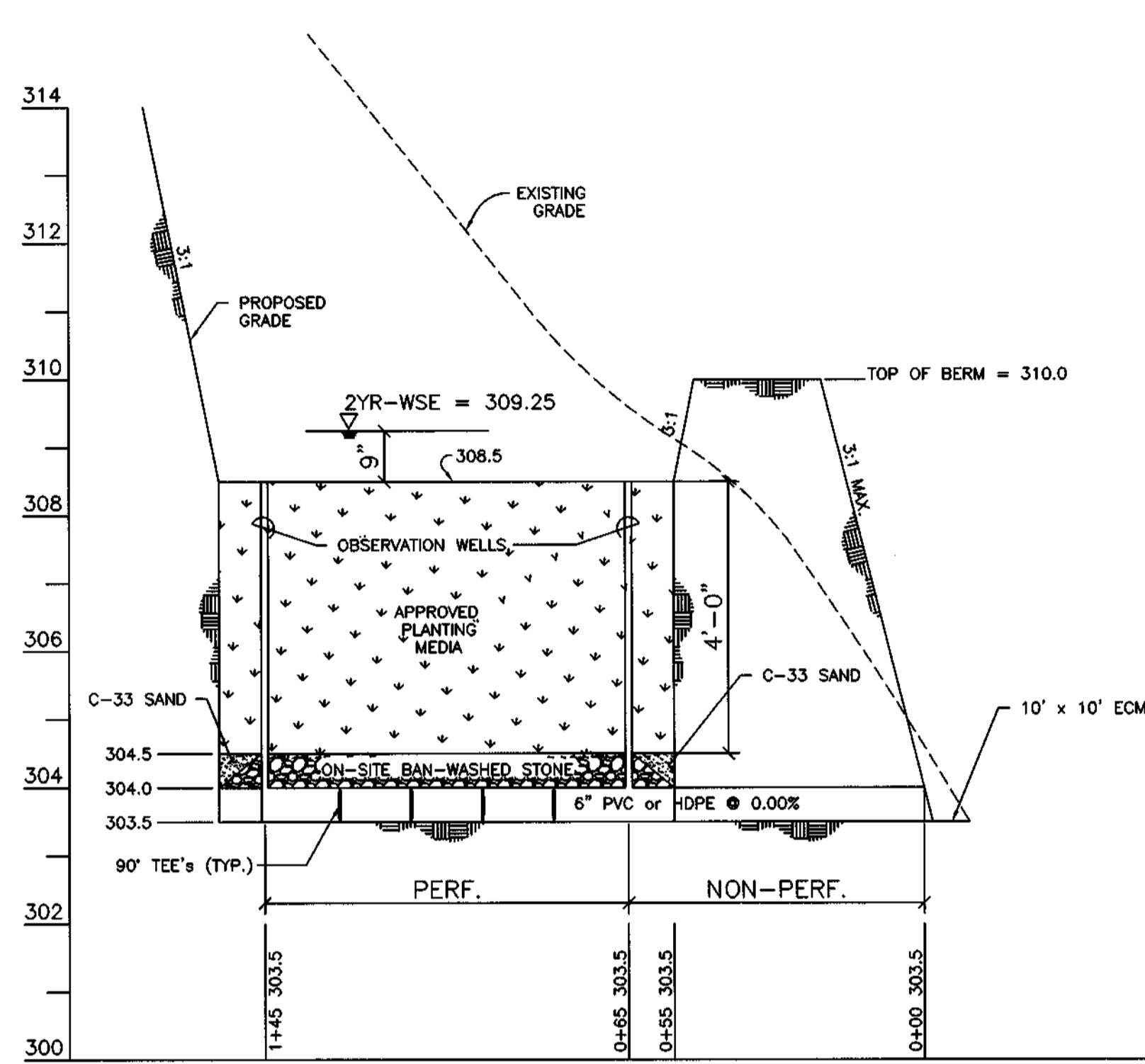
RESERVOIR OVERLOOK
LOTS 1 THRU 110
TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

MILDENBERG,
BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hill Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0286 Fax: (301) 621-5521 Wash. (410) 997-0288 Fax.

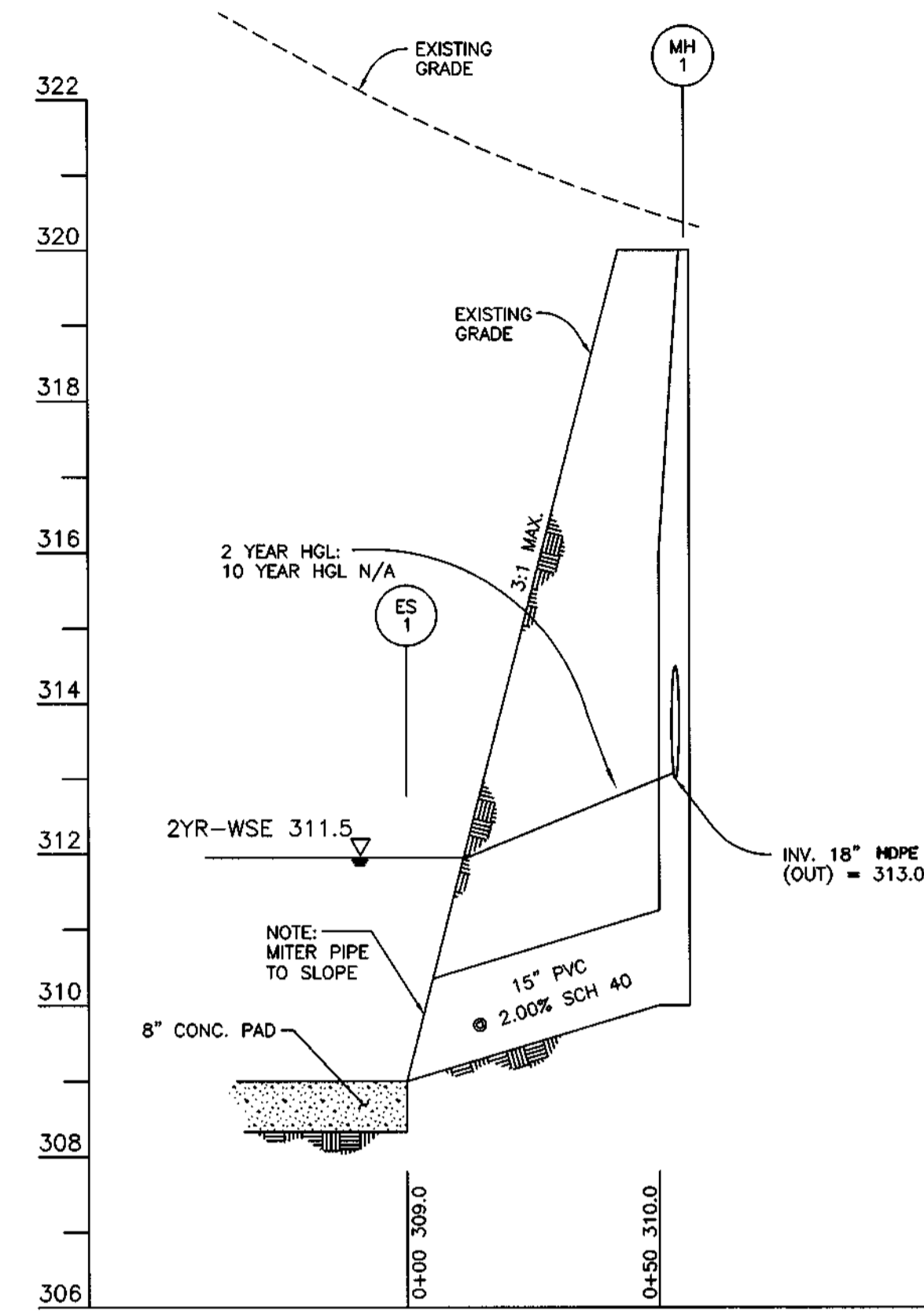
GENERAL NOTES FOR PROFILES:
 WHERE DIFFERENT WATER SURFACE ELEVATIONS OCCUR BETWEEN
 HY-8 AND TR-20 MODELING, HY-8 VALUES WERE CHOSEN
 FOR PRE-TREATMENT AND BIOTENTION CELLS; TR-20
 VALUES WERE CHOSEN FOR THE MAIN CELLS.



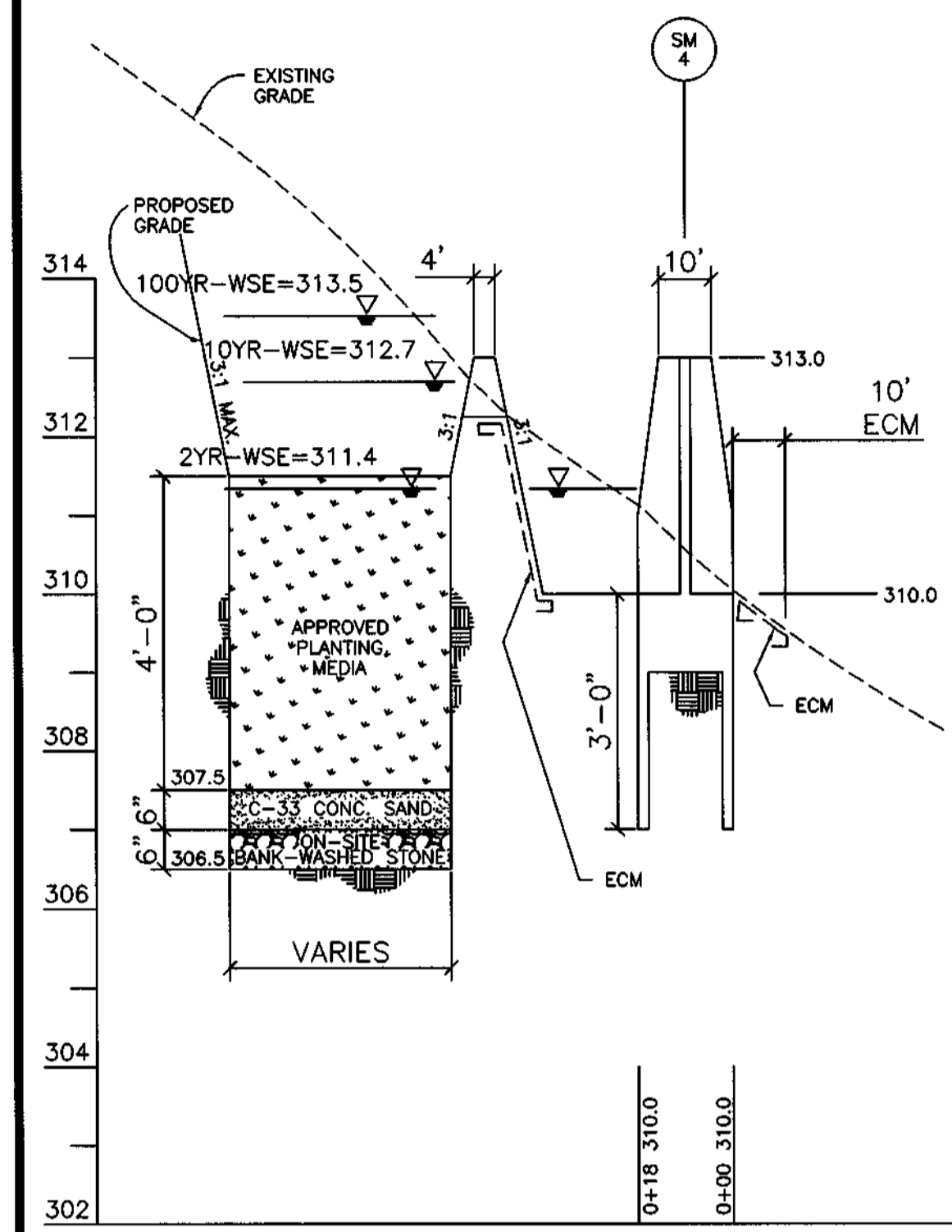
SECTION A-A THROUGH POND #3
 BIOTENTION & FORE BAY CELLS



PROFILE THROUGH UNDERDRAIN
 FOR BIOTENTION CELL (POND #3)



PROFILE OF SPLITTER "3A"
 POND #3

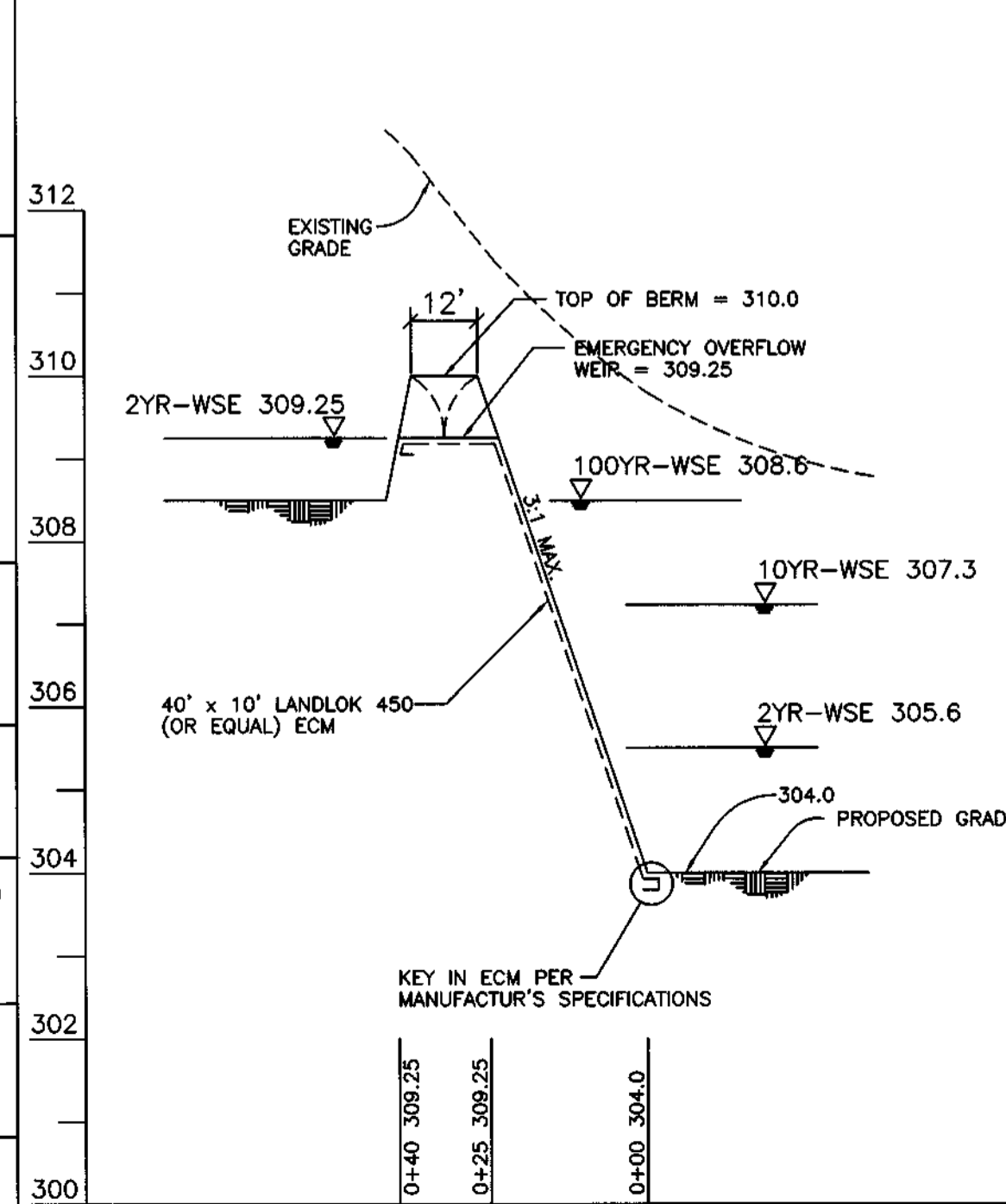


SECTION C-C THROUGH POND #4
 POND #4

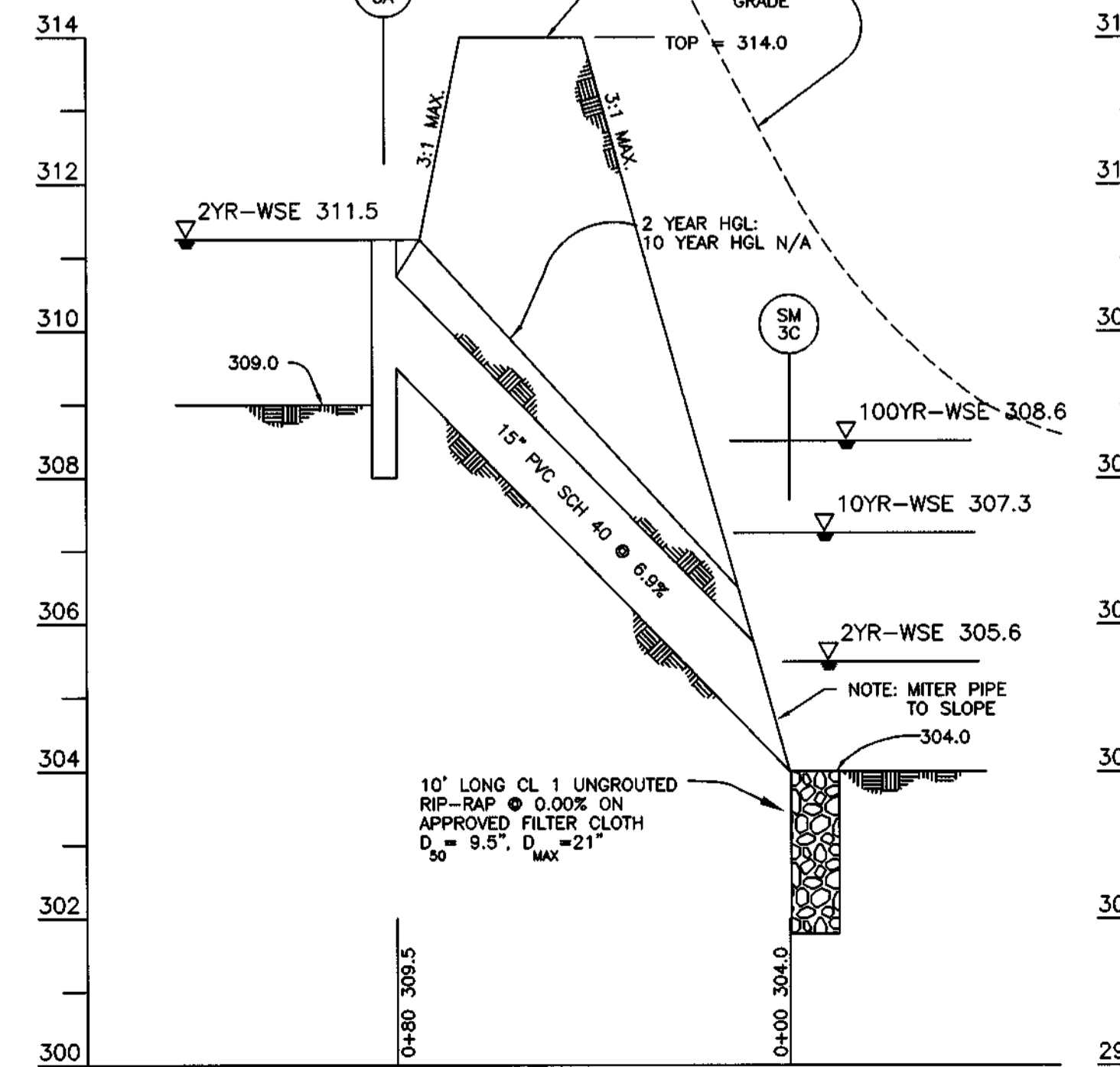
POND #3

HORIZ. 1" = 30'
 VERT. 1" = 2'

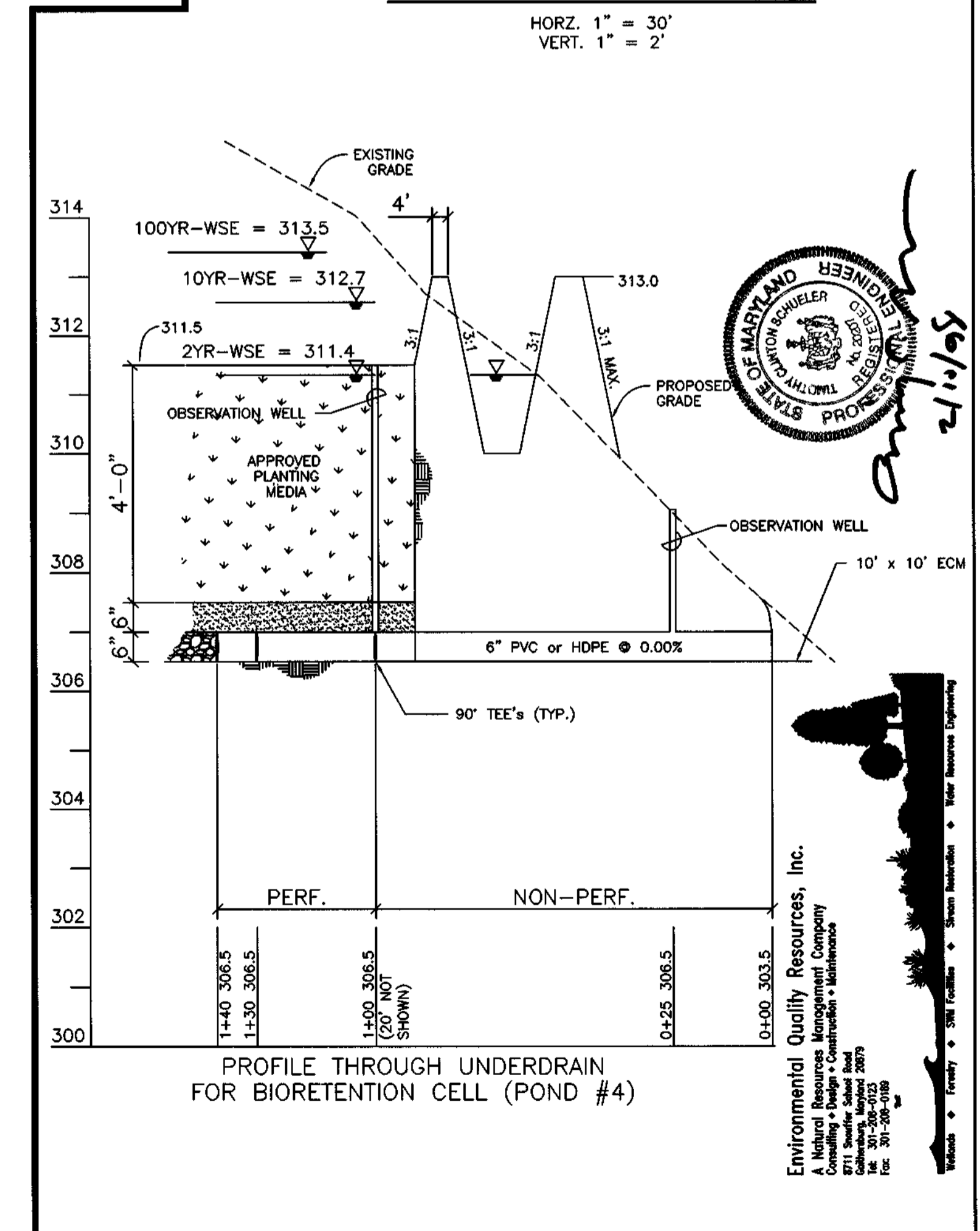
NOTE: ALL PIPE SYSTEMS SHOWN HEREON
 (SHEET 22) ARE TO BE PRIVATELY
 MAINTAINED



PROFILE THROUGH OVERFLOW SPILLWAY
 (BIOTENTION CELL TO QN CELL)
 POND 3



SECTION B-B THROUGH POND #3
 QUANTITY CELL



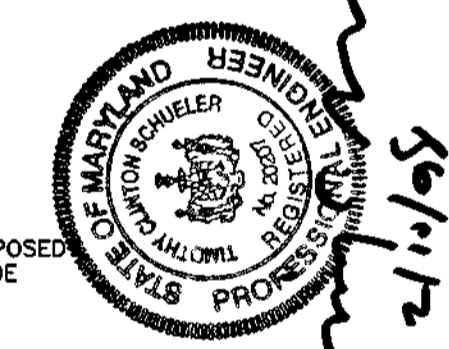
PROFILE THROUGH UNDERDRAIN
 FOR BIOTENTION CELL (POND #4)

BY THE DEVELOPER:
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE
 ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN
 THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A
 DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE
 CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I HAVE
 ENGAGED A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION
 AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT"
 PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE
 PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.
 SIGNATURE: *[Signature]* DATE: 4/6/98
 PRINTED NAME OF DEVELOPER: **Robert J. D'Amico**

BY THE ENGINEER:
 I CERTIFY THAT THESE PLANS FOR POND CONSTRUCTION, EROSION AND SEDIMENT
 CONTROL, PRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL
 KNOWLEDGE OF THE SITE AND CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE
 WITH 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: *[Signature]* DATE: 4/6/98
 PRINTED NAME OF ENGINEER: **Charles K. Spinnecore**

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT
 AND MEETS TECHNICAL REQUIREMENTS.
 USA - NATURAL RESOURCE CONSERVATION SERVICE DATE: 04-14-98
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL
 BY THE HOWARD SOIL CONSERVATION DISTRICT.
 SIGNATURE: *[Signature]* DATE: 4/14/98
 PRINTED NAME OF DISTRICT OFFICER: **Robert W. Zick**

APPROVED: PRIVATE WATER AND SEWER SYSTEMS CONFORMANCE WITH THE MASTER
 PLAN FOR WATER AND SEWERAGE IN HOWARD COUNTY. (FOR LOT 109 ONLY)
 COUNTY HEALTH OFFICER DATE:
 APPROVED: DEPARTMENT OF PUBLIC WORKS
 SIGNATURE: *[Signature]* DATE: 6-25-98
 CHIEF BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 SIGNATURE: *[Signature]* DATE: 5/2/98
 CHIEF, DIVISION OF LAND DEVELOPMENT
 SIGNATURE: *[Signature]* DATE: 4/27/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



Environmental Quality Resources, Inc.
 Engineers Planners Surveyors
 5072 Dorsey Hill Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0296 Fax: (301) 621-5521 Wash. (410) 997-0298 Fax

project	501	date	NOV 1997
illustration	JMR	engineering	TCS
scale	AS SHOWN	approval	TCS

1	REVERSE ALDHP TO HDPE PIPE	description	
11-16-98		date	
110		revisions	

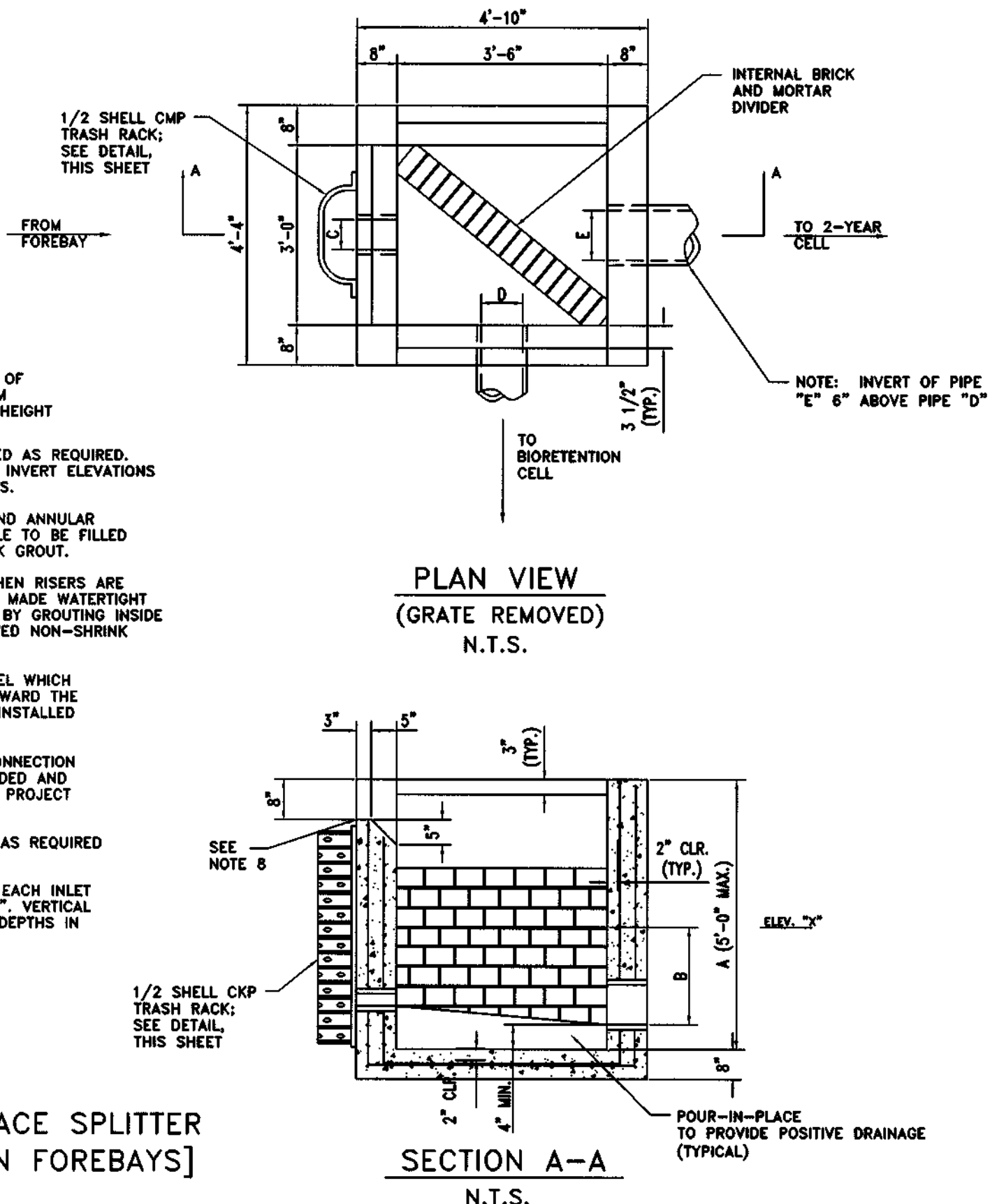
RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 76, 187 & 78 - BLOCKS 15 & 16
 HOWARD COUNTY, MARYLAND
 SIXTH ELECTION DISTRICT
 POND 3 and 4 PROFILES

MILDENBERG,
 BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hill Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0296 Fax: (301) 621-5521 Wash. (410) 997-0298 Fax

PRE-CAST SPLITTER BOX SUMMARY TABLE

POND NO.	STRUCTURE NO.	TOP OF GRATE MSL	A	B	C	INVERT OF "C"	D	INVERT OF "D"	E	INVERT OF "E"	"X"	NOTES
		feet	feet	feet	feet	MSL	Inches	MSL	Inches	MSL	MSL	
A	SM1A	328.5	3'-6"	1.1	15"	326.0	15"	326.0	21"	326.5	327.6	
A	SM3A	311.5	3'-6"	1.3	12"	309.0	10"	309.0	15"	309.5	310.8	

- GENERAL NOTES:
- CONCRETE TO BE MIX NO. 6
 - REINFORCING TO BE 2 LAYERS OF 4"x4" W4.0xW4.0 WWF - ASTM A-185 - FOR PRECAST WALL HEIGHT UP TO 10'-0"
 - PIPE OPENINGS TO BE PROVIDED AS REQUIRED. FOR SIZE, LOCATION AND INVERT ELEVATIONS REFER TO CONSTRUCTION PLANS.
 - LIFT HOLES (IF APPLICABLE) AND ANNULAR SPACE BETWEEN PIPE AND HOLE TO BE FILLED WITH AN APPROVED NON-SHRINK GROUT.
 - KEYWAY JOINT(S) PROVIDED WHEN RISERS ARE REQUIRED. ALL JOINTS TO BE MADE WATER TIGHT IN THE FIELD BY CONTRACTOR BY GROUTING INSIDE AND OUTSIDE WITH AN APPROVED NON-SHRINK GROUT.
 - A CONCRETE OR BRICK CHANNEL WHICH SLOPES AT LEAST 2 in./ft. TOWARD THE OUTLET TO BE SUPPLIED AND INSTALLED IN THE FIELD BY CONTRACTOR.
 - KNOCKOUTS OR HOLES FOR CONNECTION OF UNDERDRAINS TO BE PROVIDED AND LOCATED AS DIRECTED BY THE PROJECT ENGINEER.
 - OUTLET OPENING(S) PROVIDED AS REQUIRED TO SUIT FIELD CONDITIONS.
 - MINIMUM DEPTH PAYMENT PER EACH INLET INCLUDES DEPTHS UP TO 3'-6" VERTICAL DEPTH PER LINEAR FOOT FOR DEPTHS IN EXCESS OF 3'-6"



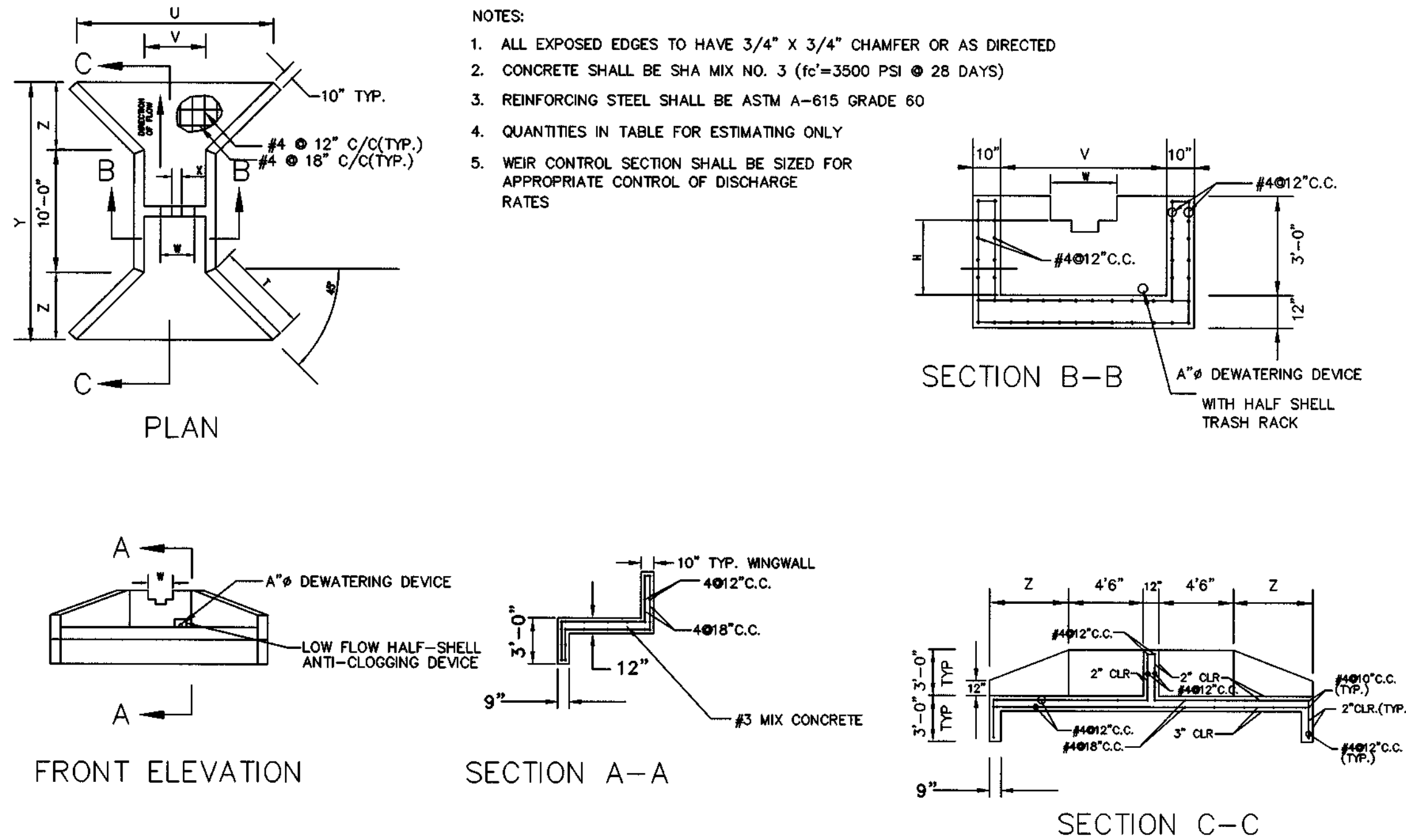
PRECAST OR CAST-IN-PLACE SPLITTER OPEN-END GRATE [WITHIN FOREBAYS]

CAST-IN-PLACE WEIR WALL STRUCTURE TABLE

POND NO.	STRUCTURE NO.	U	V	W	Y	Z	H	ELEV. OF PAD MSL	A" LOW FLOW ORIFICE	NOTES
		FEET	FEET	FEET	FEET	FEET	FEET			
1	SM1	16'-4"	5'-0"	1'-0"	18'-0"	4'-0"	2'-4"	322.0	6"	
2	SM3	16'-4"	5'-0"	8"	18'-0"	4'-0"	2'-6"	304.0	6"	
3	SM4	16'-4"	5'-0"	2'-8"	18'-0"	4'-0"	2'-4"	310.0	6"	

NOTE: X = 0.0 for all structures

- NOTES:
- ALL EXPOSED EDGES TO HAVE 3/4" X 3/4" CHAMFER OR AS DIRECTED
 - CONCRETE SHALL BE SHA MIX NO. 3 (f'c=3500 PSI @ 28 DAYS)
 - REINFORCING STEEL SHALL BE ASTM A-615 GRADE 60
 - QUANTITIES IN TABLE FOR ESTIMATING ONLY
 - WEIR CONTROL SECTION SHALL BE SIZED FOR APPROPRIATE CONTROL OF DISCHARGE RATES



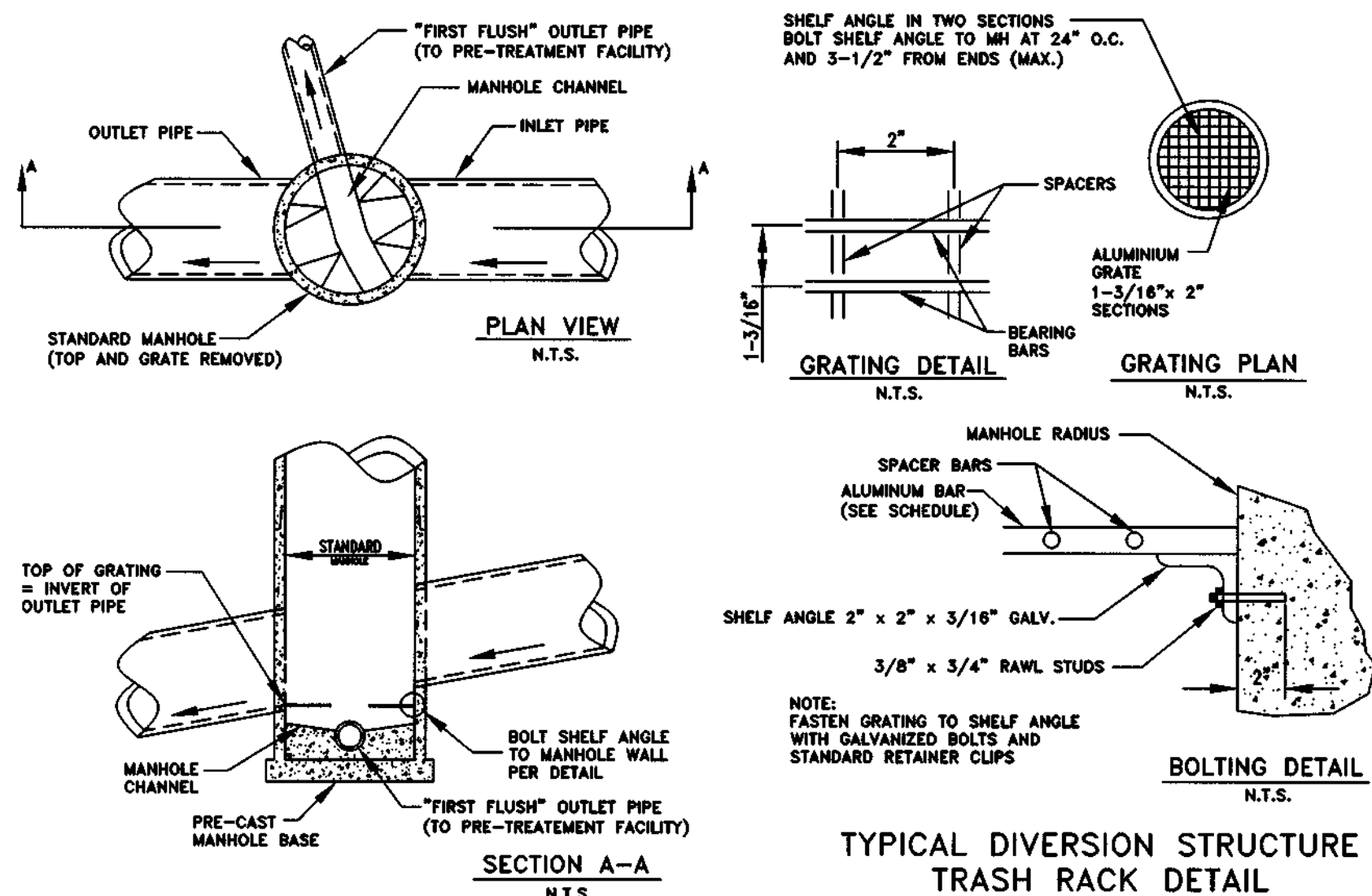
LOW RISE STORMWATER MANAGEMENT CONTROL STRUCTURE

(NOT TO SCALE)

HOWARD COUNTY STANDARD DETAIL SD-7.00

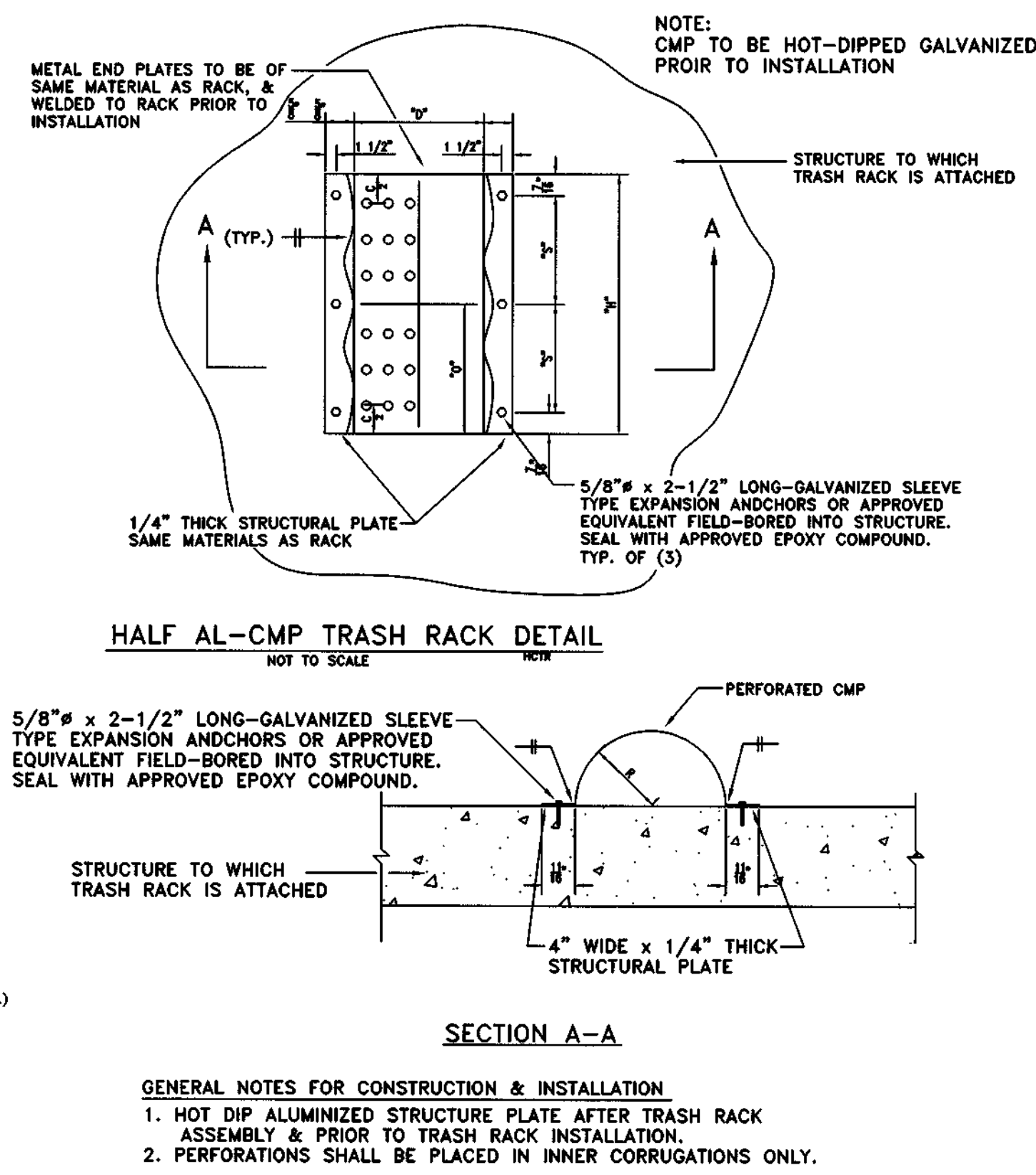
Structure	Quantity	Designation	Americast Designation	Notes
weir wall	3	Howard County SD 7.0	none	cast-in-place per detail on plans
forebay splitter boxes	3	MD 378.05 and MD 378.11 [modified]	pre-cast or cast-in-place inlet; drawing no. K-OEG	see detail on plans

GRATING SCHEDULE		
MANHOLE DIA.	BEARING BAR	NOTES
48", 54"	1-1/4" x 1/8"	(2) 48" GRATES REQUIRED
60", 66", 72"	1-1/4" x 3/16"	
78"	1-1/2" x 3/16"	
84"	1-3/4" x 3/16"	
96"	2" x 3/16"	

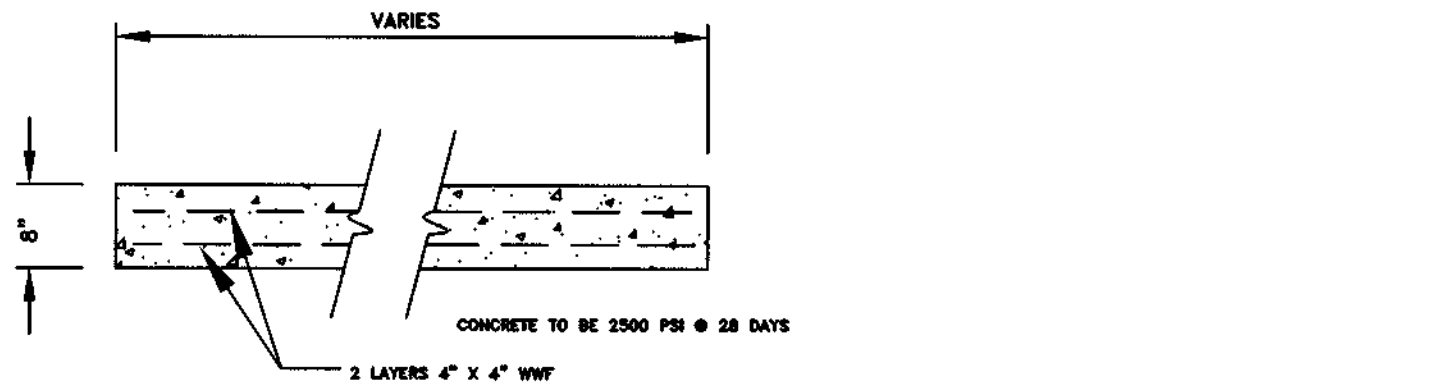


TYPICAL DIVERSION STRUCTURE TRASH RACK DETAIL

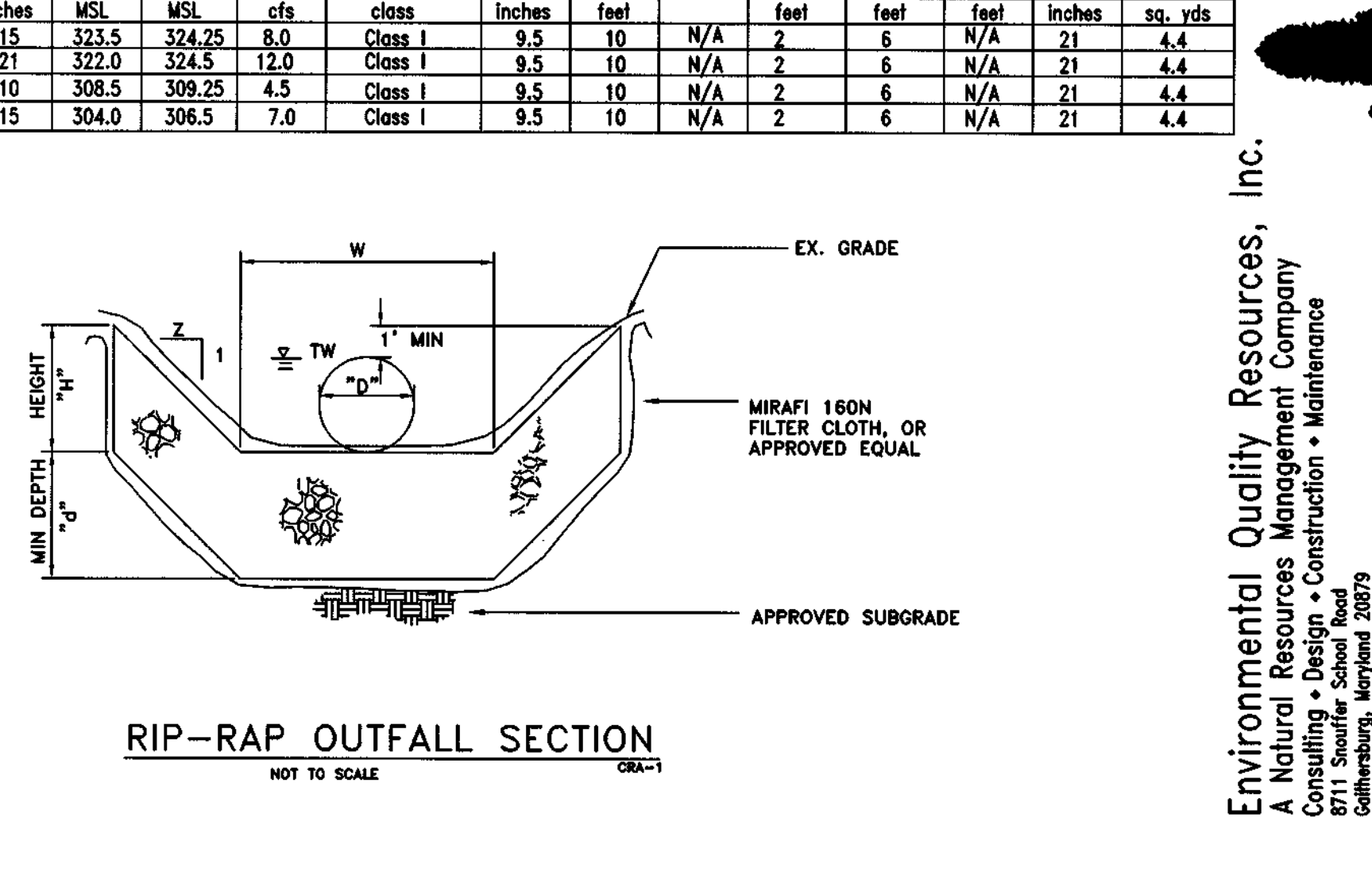
LOCATION OF RACK	QTY.	MATERIAL @ GAGE	C1	C2	D	R	H	S	O	REV. OF ORIFICE	PERFORATION SIZE & SPACING	# OF BOLTS REQ.	NOTES
SM1	1	16 ga. CMP	4"	4"	18"	9"	24"	9"	12"	322.0	1" HOLES @ 4" ON	6	1. END PLATE BOL. OFFSET CENTER BRASS 2. END PLATE BOL. OFFSET CENTER BRASS
SM3	1	16 ga. CMP	4"	4"	18"	9"	24"	9"	12"	304.0	1" HOLES @ 4" ON	6	1. END PLATE BOL. OFFSET CENTER BRASS 2. END PLATE BOL. OFFSET CENTER BRASS
SM4	1	16 ga. CMP	4"	4"	18"	9"	24"	9"	12"	310.0	1" HOLES @ 4" ON	6	1. END PLATE BOL. OFFSET CENTER BRASS 2. END PLATE BOL. OFFSET CENTER BRASS
SM1A	1	16 ga. CMP	4"	4"	24"	12"	24"	9"	12"	328.0	1" HOLES @ 4" ON	6	1. END PLATE BOL. OFFSET CENTER BRASS 2. END PLATE BOL. OFFSET CENTER BRASS
SM3A	1	16 ga. CMP	4"	4"	24"	12"	24"	9"	12"	309.0	1" HOLES @ 4" ON	6	1. END PLATE BOL. OFFSET CENTER BRASS 2. END PLATE BOL. OFFSET CENTER BRASS



HALF AL-CMP TRASH RACK DETAIL



RIPRAP OUTFALL TABLE													
Location	Pipe Diam. "D"	Invert of pipe	tailwater "TW"	flow, "Q"	Type of Riprap	D ₅₀	Length of Riprap	slope "Z"	width of end of pipe	width of end of riprap "W"	H	d	area of riprap
	inches	MSL	MSL	cfs	class	inches	feet		feet	feet	feet	inches	sq. yds.
SM1B	15	323.5	324.25	8.0	Class I	9.5	10	N/A	2	6	N/A	21	4.4
SM1C	21	322.0	324.5	12.0	Class I	9.5	10	N/A	2	6	N/A	21	4.4
SM3B	10	308.5	309.25	4.5	Class I	9.5	10	N/A	2	6	N/A	21	4.4
SM3C	15	304.0	306.5	7.0	Class I	9.5	10	N/A	2	6	N/A	21	4.4



Reservoir Overlook Pipe Schedule for Ponds 1, 3, and 4					
location	size of pipe	type of pipe	quantity	class	notes
			feet		
pond 3	10"	PVC	45	sch 40 or HIQ HDPE	
Total			45		
pond 1	21"	PVC	130	sch 40 or HIQ HDPE	
Total			130		
pond 1	15"	PVC	40	sch 40 or HIQ HDPE	
pond 3	15"	PVC	328	sch 40 or HIQ HDPE	
Total			368		
pond 1	6"	PVC or HDPE	930	sch 40 or HIQ HDPE	perforated
pond 3	6"	PVC or HDPE	590	sch 40 or HIQ HDPE	perforated
pond 4	6"	PVC or HDPE	90	sch 40 or HIQ HDPE	perforated
Total			1610		
pond 1	6"	PVC or HDPE	73	sch 40 or HIQ HDPE	non-perforated
pond 3	6"	PVC or HDPE	60	sch 40 or HIQ HDPE	non-perforated
pond 4	6"	PVC or HDPE	110	sch 40 or HIQ HDPE	non-perforated
Total			243		

BY THE DEVELOPER:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROMOTE 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] DATE: 4/9/98

PRINTED NAME OF DEVELOPER: *[Name]*

BY THE ENGINEER:

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

[Signature] DATE: 4/9/98

PRINTED NAME OF ENGINEER: *[Name]*

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

[Signature] DATE: 04-14-98

USA - NATURAL RESOURCE CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] DATE: 4/11/98

APPROVED: *[Signature]* DATE: 4/23/98

CHIEF BUREAU OF HIGHWAYS

APPROVED: *[Signature]* DATE: 5/2/98

CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 4/27/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION

date	NOV 1997	engineering	TCS	approval
project	501	illustration	JMR	scale
				AS SHOWN/TCS

date	FEB 1998	description	revisions
1		ADRESSED COMMENTS	

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 HOWARD COUNTY, MARYLAND
 SIXTH ELECTION DISTRICT
 SWM DETAILS FOR PONDS 1, 3 AND 4



Environmental Quality Resources, Inc.
 A Natural Resources Management Company
 Consulting • Design • Construction • Maintenance
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0236 (410) 997-0236 Fax
 Tel: 301-208-0123
 Fax: 301-208-0188

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0236 (410) 997-0236 Fax

PROJECT: Reservoir Overlook
 PROJECT NO: 96326.C
 PROJECT LOCATION: Howard County, Maryland

WATER LEVEL: Dry Dry
 DATE: 06/05/97 06/06/97
 CAVED (ft.): 6.0 5.2

GROUND SURFACE ELEVATION: 322.0
 DATUM: Topo
 WEATHER: Partly Sunny

DATE STARTED: June 5, 1997
 DATE COMPLETED: June 5, 1997

DRILLING CONTRACTOR: Harford Drilling & Testing
 DRILLER: HHI
 DRILLING METHOD: HSA
 SAMPLING METHOD: Split Spoon

GEOLOGIST: Scott Rowe
 CHECKED BY: Scott Rowe

BACKGROUND OVA (PPM):

SAMPLE NUMBER	SAMPLE ADVANCE (ft.)	SAMPLE RECOVERY (ft.)	SAMPLE BLOWS/6 IN.	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S-1	1.5	1.3	2-2-3	5	322.0	0	CL	Brown, moist, medium stiff, CLAY & SILT and coarse to fine SAND, (CL) AASHTO: A-6	Topsoil: 6 in.
S-2	1.5	1.3	11-26-51	77	319.0	3	SM	Brown, moist, micaceous SAND, little clayey silt, little to some rock fragments. (SM) AASHTO: A-2-4	Water Not Encountered While Drilling
S-3	1.5	0.8	17-33-46	79	308.3	10			
Bottom of Hole at 13.8 ft.									

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
 9080 JUNCTION DRIVE, SUITE 9
 ANNAPOLIS JUNCTION, MARYLAND 20701

LOG OF BORING B-1A
 Sheet 1 of 1

PROJECT: Reservoir Overlook
 PROJECT NO: 96326.C
 PROJECT LOCATION: Howard County, Maryland

WATER LEVEL: Dry Dry
 DATE: 06/05/97 06/06/97
 CAVED (ft.): 7.0 7.8

GROUND SURFACE ELEVATION: 328.0
 DATUM: Topo
 WEATHER: Partly Sunny

DATE STARTED: June 5, 1997
 DATE COMPLETED: June 5, 1997

DRILLING CONTRACTOR: Harford Drilling & Testing
 DRILLER: HHI
 DRILLING METHOD: HSA
 SAMPLING METHOD: Split Spoon

GEOLOGIST: Scott Rowe
 CHECKED BY: Scott Rowe

BACKGROUND OVA (PPM):

SAMPLE NUMBER	SAMPLE ADVANCE (ft.)	SAMPLE RECOVERY (ft.)	SAMPLE BLOWS/6 IN.	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S-1	1.5	0.8	4-5-7	12	328.0	0	SC	Gray-brown to dark gray, moist, stiff to very stiff, SAND, some CLAY and SILT, some rock fragments. (SC) AASHTO: A-4	Topsoil: 3 in.
S-2	1.5	1.0	4-9-15	24	320.5	8			Water Not Encountered While Drilling
S-3	1.5	1.0	11-15-19	24	314.5	14	SP SM	Yellow-brown, moist, dense to very dense, medium to fine SAND, trace silt. (SP/SM) AASHTO: A-2-4	
Bottom of Hole at 13.5 ft.									

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
 9080 JUNCTION DRIVE, SUITE 9
 ANNAPOLIS JUNCTION, MARYLAND 20701

LOG OF BORING B-2A
 Sheet 1 of 1

PROJECT: Reservoir Overlook
 PROJECT NO: 96326.C
 PROJECT LOCATION: Howard County, Maryland

WATER LEVEL: Dry Dry
 DATE: 06/05/97 06/06/97
 CAVED (ft.): 6.0 3.8

GROUND SURFACE ELEVATION: 312.0
 DATUM: Topo
 WEATHER: Partly Sunny

DATE STARTED: June 5, 1997
 DATE COMPLETED: June 6, 1997

DRILLING CONTRACTOR: Harford Drilling & Testing
 DRILLER: HHI
 DRILLING METHOD: HSA
 SAMPLING METHOD: Split Spoon

GEOLOGIST: Scott Rowe
 CHECKED BY: Scott Rowe

BACKGROUND OVA (PPM):

SAMPLE NUMBER	SAMPLE ADVANCE (ft.)	SAMPLE RECOVERY (ft.)	SAMPLE BLOWS/6 IN.	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S-1	1.5	1.2	2-2-3	5	312.0	0	SC	Brown, moist, stiff to medium stiff, CLAY & SILT and SAND, (SC) AASHTO: A-4	Topsoil: 3 in.
S-2	1.5	1.2	3-3-4	7		3			Water Not Encountered While Drilling
S-3	1.5	1.0	7-7-13	20		10			
Auger Refusal at 11.0 ft. Bottom of Hole at 11.0 ft.									

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
 9080 JUNCTION DRIVE, SUITE 9
 ANNAPOLIS JUNCTION, MARYLAND 20701

LOG OF BORING B-3A
 Sheet 1 of 1

AS-BUILT CERTIFICATION

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

P.E. NO.:
 SIGNATURE: _____ DATE: _____

PROJECT: Reservoir Overlook
 PROJECT NO: 96326.C
 PROJECT LOCATION: Howard County, Maryland

WATER LEVEL: Dry Dry
 DATE: 06/05/97 06/06/97
 CAVED (ft.): 7.0 5.9

GROUND SURFACE ELEVATION: 327.0
 DATUM: Topo
 WEATHER: Partly Sunny

DATE STARTED: June 5, 1997
 DATE COMPLETED: June 5, 1997

DRILLING CONTRACTOR: Harford Drilling & Testing
 DRILLER: HHI
 DRILLING METHOD: HSA
 SAMPLING METHOD: Split Spoon

GEOLOGIST: Scott Rowe
 CHECKED BY: Scott Rowe

BACKGROUND OVA (PPM):

SAMPLE NUMBER	SAMPLE ADVANCE (ft.)	SAMPLE RECOVERY (ft.)	SAMPLE BLOWS/6 IN.	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S-1	1.5	0.8	3-3-7	10	327.0	0	CL	Brown, moist, medium stiff, CLAY & SILT and coarse to fine SAND, (CL) AASHTO: A-4	Topsoil: 6 in.
S-2	1.5	1.0	11-28-81/0"	81	324.0	3	SM	Red-brown to gray-brown, moist, dense to very dense SAND, some rock fragments, little clayey silt. (SM) AASHTO: A-2-4	Water Not Encountered While Drilling
S-3	1.5	0.2	61/0"	81		10			
Bottom of Hole at 14.3 ft.									

NOTES:

Borehole Permeability Test

Hour	In./Hr.	Head Drop (in.)
1	4 3/4	4 3/4"
2	4 1/4	9
3	5 1/2	14 1/2
4	3 3/4	18 1/4
Average Drop:		4.56 in./hr.

GEO-TECHNOLOGY ASSOCIATES, INC.
 9080 JUNCTION DRIVE, SUITE 9
 ANNAPOLIS JUNCTION, MARYLAND 20701

LOG OF BORING B-1B
 Sheet 1 of 1

PROJECT: Reservoir Overlook
 PROJECT NO: 96326.C
 PROJECT LOCATION: Howard County, Maryland

WATER LEVEL: Dry Dry
 DATE: 06/05/97 06/06/97
 CAVED (ft.): 7.0 5.5

GROUND SURFACE ELEVATION: 338.0
 DATUM: Topo
 WEATHER: Partly Sunny

DATE STARTED: June 5, 1997
 DATE COMPLETED: June 5, 1997

DRILLING CONTRACTOR: Harford Drilling & Testing
 DRILLER: HHI
 DRILLING METHOD: HSA
 SAMPLING METHOD: Split Spoon

GEOLOGIST: Scott Rowe
 CHECKED BY: Scott Rowe

BACKGROUND OVA (PPM):

SAMPLE NUMBER	SAMPLE ADVANCE (ft.)	SAMPLE RECOVERY (ft.)	SAMPLE BLOWS/6 IN.	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S-1	1.5	1.0	7-8-10	18	338.0	0	SC SM	Medium brown to light brown, moist, medium dense SAND, little to some silt and clay. (SC/SM) AASHTO: A-4/A-2-4	Topsoil: 4 in.
S-2	1.5	1.1	10-10-14	24		3			Water Not Encountered While Drilling
S-3	1.5	1.3	7-9-8	17	330.0	10	SM	Brown to gray-brown, moist, medium dense to very dense, SAND, little silt. (SM) AASHTO: A-4	
Bottom of Hole at 13.9 ft.									

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
 9080 JUNCTION DRIVE, SUITE 9
 ANNAPOLIS JUNCTION, MARYLAND 20701

LOG OF BORING B-2B
 Sheet 1 of 1

PROJECT: Reservoir Overlook
 PROJECT NO: 96326.C
 PROJECT LOCATION: Howard County, Maryland

WATER LEVEL: Dry Dry
 DATE: 06/05/97 06/06/97
 CAVED (ft.): 6.0 6.2

GROUND SURFACE ELEVATION: 322.0
 DATUM: Topo
 WEATHER: Partly Sunny

DATE STARTED: June 5, 1997
 DATE COMPLETED: June 5, 1997

DRILLING CONTRACTOR: Harford Drilling & Testing
 DRILLER: HHI
 DRILLING METHOD: HSA
 SAMPLING METHOD: Split Spoon

GEOLOGIST: Scott Rowe
 CHECKED BY: Scott Rowe

BACKGROUND OVA (PPM):

SAMPLE NUMBER	SAMPLE ADVANCE (ft.)	SAMPLE RECOVERY (ft.)	SAMPLE BLOWS/6 IN.	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S-1	1.5	1.0	3-2-3	6	322.0	0	SM	Brown to red, moist, soft to medium stiff, SAND and CLAY & SILT, little gravel. (SM) AASHTO: A-4	Topsoil: 4 in.
S-2	1.5	0.8	4-4-5	9		3			Water Not Encountered While Drilling
S-3	1.5	0.7	6-8-9	17	315.0	10	SM	Brown, moist, medium dense, micaceous SAND, little silt. (SM) AASHTO: A-2-4	
Bottom of Hole at 15.0 ft.									

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
 9080 JUNCTION DRIVE, SUITE 9
 ANNAPOLIS JUNCTION, MARYLAND 20701

LOG OF BORING B-3B
 Sheet 1 of 1

BY THE DEVELOPER:

I, Scott Rowe, P.E., certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a certificate of attendance at a department of the environment approved training program for the control of sediment and erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the HOWARD SOIL CONSERVATION DISTRICT with an "AS-BUILT" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the HOWARD SOIL CONSERVATION DISTRICT.

DATE: 4-16-98

BY THE ENGINEER:

I, Scott Rowe, P.E., 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.

DATE: 4/17/98

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

APPROVED: PRIVATE WATER AND SEWER SERVICE IN ACCORDANCE WITH THE MASTER PLAN FOR WATER AND SEWER SERVICE FOR HOWARD COUNTY (FOR LOT 100 ONLY)

COUNTY HEALTH OFFICER: _____ DATE: _____

APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 4-23-98

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 5/1/98

CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION

Project: 97084
 Date: NOV 1997
 Illustration: SD
 Scale: SD
 Approval: SD

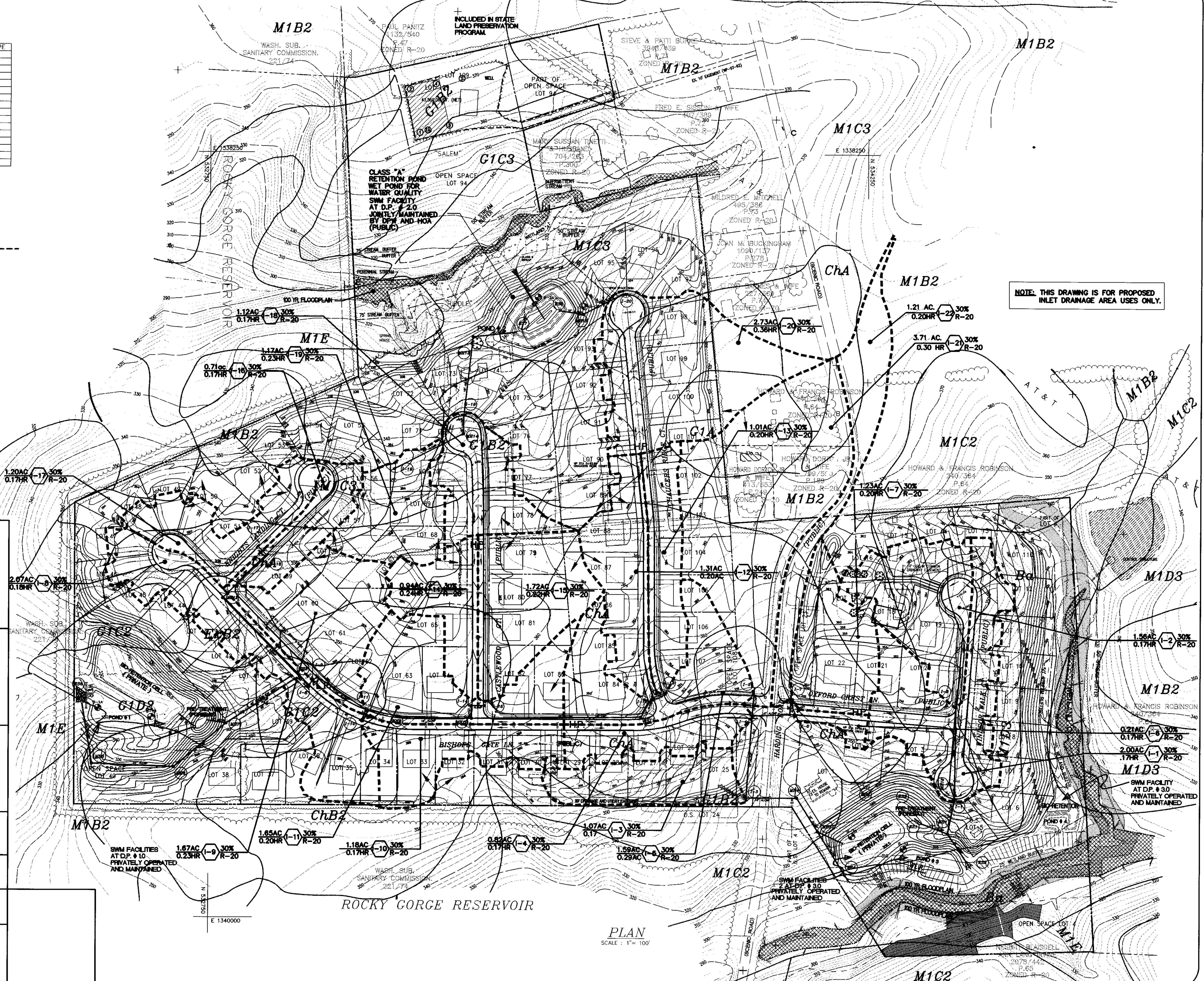
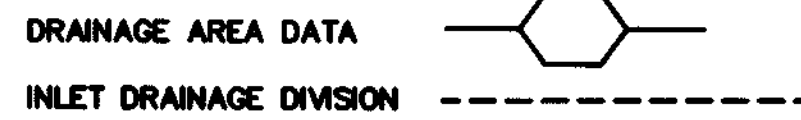
RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 HOWARD COUNTY, MARYLAND
 SIXTH ELECTION DISTRICT

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0296 Fax: (301) 621-5321 Wash. (410) 997-0296 Fax

SOILS :

SYMBOL	NAME	TYPE
Ba	BALILE SILT LOAM	D
ChA	CHESTER SILT LOAM	B
ChB2	CHESTER SILT LOAM	B
EKB2	ELIOAK SILT LOAM	B
G1A	GLENELG LOAM	B
G1B2	GLENELG LOAM	B
G1C2	GLENELG LOAM	B
G1C3	GLENELG LOAM	B
G1D2	GLENELG LOAM	B
M1B2	MANOR LOAM	B
M1C2	MANOR LOAM	B
M1C3	MANOR LOAM	B
M1D2	MANOR LOAM	B
M1D3	MANOR LOAM	B
M1E	MANOR LOAM	B

LEGEND



NOTE: THIS DRAWING IS FOR PROPOSED INLET DRAINAGE AREA USES ONLY.

AS-BUILT CERTIFICATION

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

SIGNATURE: _____ P.E. NO.: _____
 DATE: _____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER FOR DECS AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

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

Signature: *R. J. Dickson* 4/6/98
 PRINTED NAME OF DEVELOPER: **R. J. Dickson**

BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITUATION. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE HOWARD SOIL CONSERVATION DISTRICT'S REGISTERED PROFESSIONAL ENGINEER'S CERTIFICATION OF THE PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Signature: *R. J. Dickson* 4/6/98
 PRINTED NAME OF ENGINEER: **R. J. Dickson**

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

Signature: *Charles L. Aronson* 04-14-98
 USDA - NATURAL RESOURCES CONSERVATION SERVICE

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

Signature: *Robert J. Johnson* 4/14/98
 HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Signature: *Charles W. M. Dwyer* 4/23/98
 CHIEF BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Signature: *Carol Hamilton* 5/7/98
 CHIEF, DIVISION OF LAND DEVELOPMENT

Signature: *Mike Conway* 4/21/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Project	97084	Date	APR 1998
Illustration	SD	Engineering	
Scale	1" = 100'	SD	
Revision	1	Approval	

Revision	1	Date	5-14-98
Description	REVISE CASTLEWOOD COURT ROAD GRADES	Scale	1" = 100'
Revisors		Scale	1" = 100'

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DRAINAGE AREA MAP

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland, 21042
 (410) 987-0286, Fax: (301) 621-5521, Wash. (410) 987-0286 Fax

NOTE: THIS DRAWING IS TO BE USED FOR LANDSCAPE PLAN PURPOSES ONLY.

SWM PERIMETER	EDGE TYPE
SWM PERIMETER A - 152 LF CREDIT FOR BIORETENTION PLANTINGS	B
SWM PERIMETER B - 93 LF CREDIT FOR BIORETENTION PLANTINGS	B
SWM PERIMETER C - 82 LF 1 SHADE TREE / 50 LF 1 EVERGREEN / 40 LF	B
SWM PERIMETER D - 72 LF 1 SHADE TREE / 50 LF 1 EVERGREEN / 40 LF	B
SWM PERIMETER E - 175 LF CREDIT FOR EXISTING TREES	B
SWM PERIMETER F - 75 LF CREDIT FOR BIORETENTION PLANTINGS	B
SWM PERIMETER G - 89 LF CREDIT FOR BIORETENTION PLANTINGS	B
TOTAL PLANTING OBLIGATION	
SHADE TREES	3
EVERGREEN TREES	4
SHRUBS	0

PERIMETER	EDGE TYPE
PERIMETER 1 SFD TO SFD - 62.23 LF 1 SHADE TREE / 60 LF	A
PERIMETER 2 OPEN SPACE TO SFD - 165.21 LF 1 SHADE TREE / 60 LF	A
PERIMETER 3 OPEN SPACE & SFD TO SFD - 30 LF CREDIT FOR EXISTING TREES	A
PERIMETER 4 OPEN SPACE & SFD TO SFD - 499.11 LF 1 SHADE TREE / 60 LF	A
PERIMETER 5 OPEN SPACE TO SFD - 1040.18 LF CREDIT FOR EXISTING TREES	A
PERIMETER 6 OPEN SPACE TO SFD - 475.42 LF CREDIT FOR EXISTING TREES	A
PERIMETER 7 OPEN SPACE TO SFD - 200 LF CREDIT FOR EXISTING TREES	A
PERIMETER 8 OPEN SPACE TO SFD - 202.24 LF 1 SHADE TREE / 60 LF	A
PERIMETER 9 OPEN SPACE TO SFD - 29.86 LF 1 SHADE TREE / 60 LF	A
PERIMETER 10 ENTRANCE - 50 LF	B
OPEN SPACE TO ROAD - 644.69 LF 1 SHADE TREE / 50 LF 1 EVERGREEN / 40 LF	B
PERIMETER 11 ENTRANCE - 50 LF	B
OPEN SPACE TO ROAD - 624.43 LF 1 SHADE TREE / 50 LF 1 EVERGREEN / 40 LF	B
PERIMETER 12 OPEN SPACE & SFD TO WSSC - 401.54 LF 1 SHADE TREE / 60 LF	A
TOTAL PLANTING OBLIGATION	
SHADE TREES	49
EVERGREEN TREES	32
SHRUBS	0

NOTES:
 1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
 2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF \$150,000.

SCHEDULE D : STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	738 LF
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	YES, 175 LF
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	YES, 409 LF (BIORETENTION PLANTINGS)
NUMBER OF TREES REQUIRED	
SHADE TREES	3 SHADE TREES
EVERGREEN TREES	4 EVERGREEN TREES
NUMBER OF TREES PROVIDED	
SHADE TREES	3 SHADE TREES
EVERGREEN TREES	4 EVERGREEN TREES
OTHER TREES (2:1 SUBSTITUTION)	0 TREES (0 SUBSTITUTION TREES)

SCHEDULE A : PERIMETER LANDSCAPED EDGE

CATEGORY	ADJACENT TO ROADWAYS	ADJ. TO PERIMETER PROPERTIES
LANDSCAPE TYPE	B	A
LINEAR FEET OF PERIMETER	1269.12 LF	3105.79 LF
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	NO	YES, 1745.60 LF
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET)	NO	NO
NUMBER OF PLANTS REQUIRED		
SHADE TREES	26 SHADE TREES	23 SHADE TREES
EVERGREEN TREES	32 EVERGREEN TREES	0 EVERGREEN TREES
SHRUBS	0 SHRUBS	0 SHRUBS
NUMBER OF PLANTS PROVIDED		
SHADE TREES	26 SHADE TREES	23 SHADE TREES
EVERGREEN TREES	32 EVERGREEN TREES	0 EVERGREEN TREES
OTHER TREES (2:1 SUBSTITUTION)	0 SUBSTITUTION TREES	0 SUBSTITUTION TREES
SHRUBS (10:1 SUBSTITUTION)	0 SHRUBS	0 SHRUBS

STREET TREE CALCULATIONS
 WINDSOR WALK COURT - 1110 / 40 = 28
 OXFORD CREST LANE - 816 / 40 = 20
 HARDING ROAD - 1300 / 40 = 33
 BISHOPS GATE LANE - 862 / 40 = 22
 CHAUCERS RIDGE COURT - 1092 / 40 = 27
 TOTAL TREES REQUIRED = 130 TREES
 TOTAL TREES PROVIDED = 130 TREES

LANDSCAPE REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
65		ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 1/2" - 3" CAL.
36		PINUS STROBUS	EASTERN WHITE PINE	2 1/2" - 3" CAL.
62		QUERCUS RUBRA	RED OAK	2 1/2" - 3" CAL.
55		TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LITTLELEAF LINDEN	2 1/2" - 3" CAL.
TOTAL				
218 TREES (182 SHADE TREES, 36 EVERGREEN TREES) (80 LANDSCAPE, 130 STREET TREES)				

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Andrew M. Daniels 4/23/98
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Cindy Hamilton 5/1/98
 CHIEF, DIVISION OF LAND DEVELOPMENT
 APPROVED: DEPARTMENT OF ENGINEERING
 [Signature] 4/27/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



project	date	scale	revision
97084	APR 1998	1"=50'	
illustration	engineering		
SD	SD		
SD	SD		
SD	SD		
SD	SD		

no.	description	revision
1	REVISE GRADING	
2	REVISE GRADING	
3	REVISE GRADING	
4	REVISE GRADING	
5	REVISE GRADING	
6	REVISE GRADING	
7	REVISE GRADING	
8	REVISE GRADING	
9	REVISE GRADING	
10	REVISE GRADING	
11	REVISE GRADING	
12	REVISE GRADING	
13	REVISE GRADING	
14	REVISE GRADING	
15	REVISE GRADING	
16	REVISE GRADING	
17	REVISE GRADING	
18	REVISE GRADING	
19	REVISE GRADING	
20	REVISE GRADING	
21	REVISE GRADING	
22	REVISE GRADING	
23	REVISE GRADING	
24	REVISE GRADING	
25	REVISE GRADING	
26	REVISE GRADING	
27	REVISE GRADING	
28	REVISE GRADING	
29	REVISE GRADING	
30	REVISE GRADING	
31	REVISE GRADING	
32	REVISE GRADING	
33	REVISE GRADING	
34	REVISE GRADING	
35	REVISE GRADING	
36	REVISE GRADING	
37	REVISE GRADING	
38	REVISE GRADING	
39	REVISE GRADING	
40	REVISE GRADING	
41	REVISE GRADING	
42	REVISE GRADING	
43	REVISE GRADING	
44	REVISE GRADING	
45	REVISE GRADING	
46	REVISE GRADING	
47	REVISE GRADING	
48	REVISE GRADING	
49	REVISE GRADING	
50	REVISE GRADING	
51	REVISE GRADING	
52	REVISE GRADING	
53	REVISE GRADING	
54	REVISE GRADING	
55	REVISE GRADING	
56	REVISE GRADING	
57	REVISE GRADING	
58	REVISE GRADING	
59	REVISE GRADING	
60	REVISE GRADING	
61	REVISE GRADING	
62	REVISE GRADING	
63	REVISE GRADING	
64	REVISE GRADING	
65	REVISE GRADING	
66	REVISE GRADING	
67	REVISE GRADING	
68	REVISE GRADING	
69	REVISE GRADING	
70	REVISE GRADING	
71	REVISE GRADING	
72	REVISE GRADING	
73	REVISE GRADING	
74	REVISE GRADING	
75	REVISE GRADING	
76	REVISE GRADING	
77	REVISE GRADING	
78	REVISE GRADING	
79	REVISE GRADING	
80	REVISE GRADING	
81	REVISE GRADING	
82	REVISE GRADING	
83	REVISE GRADING	
84	REVISE GRADING	
85	REVISE GRADING	
86	REVISE GRADING	
87	REVISE GRADING	
88	REVISE GRADING	
89	REVISE GRADING	
90	REVISE GRADING	
91	REVISE GRADING	
92	REVISE GRADING	
93	REVISE GRADING	
94	REVISE GRADING	
95	REVISE GRADING	
96	REVISE GRADING	
97	REVISE GRADING	
98	REVISE GRADING	
99	REVISE GRADING	
100	REVISE GRADING	

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 FIRST ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 LANDSCAPE PLAN

MILDENBERG, & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hall Drive, Suite 202, Beltsville, Maryland 21042
 (410) 997-0286 Fax: (301) 621-5521 Wash. (410) 997-0288 Fax

NOTE: THIS DRAWING IS TO BE USED FOR LANDSCAPE PLAN PURPOSES ONLY.

NOTES:
 1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
 2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF \$1,220,000.

STREET TREE CALCULATIONS
 CASTLEWOOD COURT - 1045 / 40 = 26
 KNIGHTS LANDING COURT - 772 / 40 = 19
 BISHOPS GATE LANE - 2283 / 40 = 57
 TOTAL TREES REQUIRED = 102 TREES
 TOTAL TREES PROVIDED = 102 TREES

SWM PERIMETER	EDGE TYPE
SWM PERIMETER F - 274 LF CREDIT FOR BIORETENTION PLANTINGS	B
SWM PERIMETER F - 50 LF 1 SHADE TREE / 50 LF 1 EVERGREEN / 40 LF	1
SWM PERIMETER G - 63 LF 1 SHADE TREE / 50 LF 1 EVERGREEN / 40 LF	1
SWM PERIMETER H - 156 LF 1 SHADE TREE / 50 LF 1 EVERGREEN / 40 LF	3
SWM PERIMETER I - 153 LF CREDIT FOR EXISTING TREES ON WSSC	B
SWM PERIMETER J - 100 LF CREDIT FOR BIORETENTION PLANTINGS	B
SWM PERIMETER J - 115 LF CREDIT FOR EXISTING TREES ON WSSC	B

TOTAL PLANTING OBLIGATION	
SHADE TREES	9
EVERGREEN TREES	7
SHRUBS	0

PERIMETER	EDGE TYPE
PERIMETER 11 OPEN SPACE & SFD TO WSSC - 62.23 LF CREDIT FOR EXISTING TREES	A
PERIMETER 12 OPEN SPACE & SFD TO WSSC - 690 LF CREDIT FOR EXISTING TREES	A
PERIMETER 13 SFD TO WSSC - 707.22 LF CREDIT FOR EXISTING TREES	A

TOTAL PLANTING OBLIGATION	
SHADE TREES	0
EVERGREEN TREES	0
SHRUBS	0

SCHEDULE D : STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	911 LF
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	YES, 268 LF
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	YES, 374 LF (BIORETENTION PLANTINGS)
NUMBER OF TREES REQUIRED	5 SHADE TREES 7 EVERGREEN TREES
NUMBER OF TREES PROVIDED	5 SHADE TREES 7 EVERGREEN TREES 0 OTHER TREES (2:1 SUBSTITUTION)

12 THIS SHEET

SCHEDULE A : PERIMETER LANDSCAPED EDGE

CATEGORY	ADJ. TO PERIMETER PROPERTIES
LANDSCAPE TYPE	A
LINEAR FEET OF PERIMETER	1459.45 LF
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	YES, 1459.45 LF
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET)	NO
NUMBER OF PLANTS REQUIRED	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS
NUMBER OF PLANTS PROVIDED	0 SHADE TREES 0 EVERGREEN TREES 0 SUBSTITUTION TREES 0 SHRUBS

APPROVED: DEPARTMENT OF PUBLIC WORKS
Robert M. Daniels 4-23-98
 CHIEF BUREAU OF PERMITS
 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Candi Hamilla 5/7/98
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE

Mark Dammann 4/7/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE

SWM FACILITIES
 AT D.P. # 1.0
 PRIVATELY OPERATED
 AND MAINTAINED

WASH. SUB.
 SANITARY COMMISSION.
 221/74

ROCKY GORGE RESERVOIR

LANDSCAPE REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
62		ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 1/2" - 3" CAL.
7		PINUS STROBUS	EASTERN WHITE PINE	2 1/2" - 3" CAL.
26		QUERCUS RUBRA	RED OAK	2 1/2" - 3" CAL.
19		TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LITTLELEAF LINDEN	2 1/2" - 3" CAL.
TOTAL		114 TREES (107 SHADE TREES, 7 EVERGREEN TREES)		
		(12 LANDSCAPE, 102 STREET TREES)		

MATCHLINE, SHEET 29 OF 31

MATCHLINE, SHEET 27 OF 31

F:\197084\DWG\FINAL\ROADS\84-LP-2.DWG

date	project	illustration	scale	approval
APR 1998	97084	SJD	1"=50'	

no.	description	revisions
1	REVISE CASTLEWOOD COURT ROAD GRADERS TO 10% PIPE	
2	REVISE DRAWINGS	

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 FIRST ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 LANDSCAPE PLAN

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsy Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 397-0236 Fax (301) 627-6521 Wash. (410) 397-0236 Fax

NOTE: THIS DRAWING IS TO BE USED FOR LANDSCAPE PLAN PURPOSES ONLY.

- NOTES:**
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL
 - FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF \$13,200.00

PERIMETER	EDGE TYPE	SWM PERIMETER	EDGE TYPE
PERIMETER 14 OPEN SPACE & SFD TO WSSC - 683.55 LF CREDIT FOR EXISTING TREES	A	SWM PERIMETER K - 260 LF CREDIT FOR EXISTING TREES	B
PERIMETER 15 OPEN SPACE & SFD TO STD - 566.53 LF CREDIT FOR EXISTING TREES	A	SWM PERIMETER L - 140 LF 1 SHADE TREE / 50 LF 1 EVERGREEN / 40 LF	B
PERIMETER 16 OPEN SPACE TO SFD - 175.87 LF CREDIT FOR EXISTING TREES	A	SWM PERIMETER M - 180 LF 1 SHADE TREE / 50 LF 1 EVERGREEN / 40 LF	B
PERIMETER 17 OPEN SPACE TO SFD - 220.51 LF CREDIT FOR EXISTING TREES	A	SWM PERIMETER N - 140 LF 1 SHADE TREE / 50 LF 1 EVERGREEN / 40 LF	B
PERIMETER 18 OPEN SPACE TO SFD - 190.24 LF CREDIT FOR EXISTING TREES	A	TOTAL PLANTING OBLIGATION SHADE TREES 9 EVERGREEN TREES 11 SHRUBS 0	
PERIMETER 19 OPEN SPACE TO SFD - 367.27 LF CREDIT FOR EXISTING TREES	A		
PERIMETER 20 OPEN SPACE TO SFD - 25 LF CREDIT FOR EXISTING TREES	A		
OPEN SPACE TO SFD - 715.56 LF 1 SHADE TREE / 60 LF 12	A		
TOTAL PLANTING OBLIGATION		STREET TREE CALCULATIONS CHAUCERS RIDGE COURT - 890 / 40 = 22 CASTLEWOOD COURT - 417 / 40 = 11	
SHADE TREES 12		TOTAL TREES REQUIRED = 33 TREES	
EVERGREEN TREES 0		TOTAL TREES PROVIDED = 33 TREES	
SHRUBS 0			

SCHEDULE D : STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	720 LF
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	YES, 260 LF
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO
NUMBER OF TREES REQUIRED	9 SHADE TREES 11 EVERGREEN TREES
NUMBER OF TREES PROVIDED	9 SHADE TREES 11 EVERGREEN TREES 0 TREES (0 SUBSTITUTION)

SCHEDULE A : PERIMETER LANDSCAPED EDGE

CATEGORY	ADJ. TO PERIMETER PROPERTIES
LANDSCAPE TYPE	A
LINEAR FEET OF PERIMETER	2944.53 LF
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	YES, 2228.97 LF
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET)	NO
NUMBER OF PLANTS REQUIRED	12 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS
NUMBER OF PLANTS PROVIDED	12 SHADE TREES 0 EVERGREEN TREES 0 SUBSTITUTION TREES 0 SHRUBS

LANDSCAPE REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
21		ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 1/2" - 3" CAL.
11		PINUS STROBUS	EASTERN WHITE PINE	2 1/2" - 3" CAL.
11		QUERCUS RUBRA	RED OAK	2 1/2" - 3" CAL.
22		TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LITTLELEAF LINDEN	2 1/2" - 3" CAL.
TOTAL				
65 TREES (54 SHADE TREES, 11 EVERGREEN TREES)				
(32 LANDSCAPE, 33 STREET TREES)				

APPROVED: DEPARTMENT OF PUBLIC WORKS
Robert M. Dwyer 4-23-98
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Kendy Hamilton 5/1/98
 CHIEF, DIVISION OF LAND DEVELOPMENT

Alan Dunning 4/27/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



MATCHLINE SHEET 28 OF 31

MATCHLINE

SHEET 27 OF 31

Project	Date	By	For
97084	FEB 1998	Engineering	Approval
		Illustration	Scale
		SID	1"=60'

No.	Description	Date
1	REVISION	
2	REVISION	

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
LANDSCAPE PLAN

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0296 Fax. (301) 621-5521 Wash. (410) 997-0298 Fax.

LEGEND

- WETLAND
- 25' WETLAND BUFFER
- STREAM/INTERMITTENT
- 75' STREAM BUFFER
- 50' INTERMITTENT BUFFER
- 100 YR. FLOODPLAIN
- EXISTING CONTOUR
- EXISTING TREELINE
- TREELINE TO REMAIN
- TREELINE TO BE CLEARED
- 25% SLOPE OR GREATER
- EX. FENCE LINE
- FOREST STAND
- AF ABANDONED FIELD
- OF OPEN FIELD (PASTURE & HAYFIELD)
- H HEDGEROW
- L LAWN
- C CROPS
- SPECIMEN TREE (SEE TABLE)
- FOREST CONSERVATION SIGNAGE
- TPF TREE PROTECTION FENCE

NOTE: THIS PLAN IS TO BE USED FOR FOREST CONSERVATION PURPOSES ONLY.

NOTE:
 - FEE-IN-LIEU OF REFORESTATION HAS BEEN REQUESTED FOR THE REMAINING AREA REQUIRED TO BE REFORESTED BY THE HOWARD COUNTY FOREST CONSERVATION MANUAL. SEE FOREST CONSERVATION CALCULATIONS THIS SHEET. (6.42 ACRES OF REFORESTATION IS REQUIRED. 3.69 ACRES OF REFORESTATION HAS BEEN SHOWN ON-SITE. THE REMAINING 2.73 ACRES WILL BE A PART OF THE FEE-IN-LIEU REQUEST OF \$35,675.64.)
 - PLANT MATERIAL AND FENCING TO BE FIELD LOCATED TO LEAVE AN 8-10' WIDE SWATH OPEN FOR ACCESS TO RECREATIONAL OPEN SPACE.

SPECIMEN TREE	SPECIES	Dbh
1	TULIP POPLAR	44"
2	TULIP POPLAR	56"
3	WHITE OAK	38"
4	N RED OAK	35"
5	N RED OAK	34"

project	date	description
97084	FEB 1998	engineering
SJD	SJD	approval

REVISE CASTLEWOOD COURT ROAD GRADES	DATE	BY
REVISE LOT 25A, RECREATION & OPEN SPACE	5-21-99	(SJD)
REVISE LOT 25B, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25C, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25D, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25E, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25F, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25G, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25H, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25I, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25J, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25K, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25L, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25M, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25N, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25O, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25P, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25Q, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25R, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25S, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25T, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25U, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25V, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25W, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25X, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25Y, RECREATION & OPEN SPACE	5-25-99	(SJD)
REVISE LOT 25Z, RECREATION & OPEN SPACE	5-25-99	(SJD)

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 SIXTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
FOREST CONSERVATION & REFORESTATION PLAN

MILDENBERG, BOENDER & ASSOC., INC.
 Surveyors
 Engineers Planners
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0296 Fax. (301) 621-5521 Wash. (410) 997-0298 Fax.

F:\97084\LONG\FINAL\ROADS\84-FCP.DWG

APPROVED: DEPARTMENT OF PUBLIC WORKS
Andrew M. Dwyer 4-23-98
 CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cathy Hamilton 5/1/98
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Allen Dammann 4/27/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

ROCKY GORGE RESERVOIR
 PLAN
 SCALE: 1" = 100'

MD DNR QUALIFIED PROFESSIONAL
Stephanie Demchik
 STEPHANIE DEMCHIK

F-98-61

NOTE: THIS PLAN IS TO BE USED FOR FOREST CONSERVATION PURPOSES ONLY.

NOTE:
 -- FEE-IN-LIEU OF REFORESTATION HAS BEEN REQUESTED FOR THE REMAINING AREA REQUIRED TO BE REFORESTED BY THE HOWARD COUNTY FOREST CONSERVATION MANUAL. SEE FOREST CONSERVATION CALCULATIONS THIS SHEET. (6.42 ACRES OF REFORESTATION IS REQUIRED. 3.69 ACRES OF REFORESTATION HAS BEEN SHOWN ON-SITE. THE REMAINING 2.73 ACRES WILL BE A PART OF THE FEE-IN-LIEU REQUEST OF \$35,675.64.)

GENERAL NOTES

- FOREST PROTECTION**
- ALL FOREST RETENTION AREAS SHALL BE TEMPORARILY PROTECTED BY WELL ANCHORED BLAZE ORANGE PLASTIC MESH FENCING AND SIGNAGE AS INDICATED ON THE PLANS. THE DEVICES SHALL BE INSTALLED ALONG THE FOREST RETENTION BOUNDARY PRIOR TO ANY LAND CLEARING, GRUBBING, OR GRADING ACTIVITIES.
 - THE FOREST PROTECTION DEVICES SHALL BE INSTALLED SUCH THAT THE CRITICAL ROOT ZONES OF ALL TREES WITHIN THE RETENTION AREA NOT OTHERWISE PROTECTED WILL BE WITHIN FOREST PROTECTION DEVICES.
 - ALL PROTECTION DEVICES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION, INCLUDING SILT FENCE BEING USED AS PROTECTIVE FENCING. ALL DEVICES SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION HAS CEASED IN THE IMMEDIATE VICINITY.
 - ATTACHMENT OF SIGNS, OR ANY OTHER OBJECTS TO TREES IS PROHIBITED. NO EQUIPMENT, MACHINERY, VEHICLES, MATERIALS OR EXCESSIVE PEDESTRIAN TRAFFIC SHALL BE ALLOWED WITHIN THESE PROTECTED AREAS.
 - INSTALLATION AND MAINTENANCE OF PROTECTIVE FENCING AND SIGNAGE SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL TAKE THE UTMOST CARE TO PROTECT TREE ROOT SYSTEMS DURING ALL CONSTRUCTION ACTIVITIES. TREE ROOT SYSTEMS SHALL BE PROTECTED FROM SMOTHERING, FLOODING, EXCESSIVE WETTING FROM DEWATERING OPERATIONS, OFF-SITE RUN OFF, SPILLAGE AND DRAINING OF MATERIALS THAT MAY BE HARMFUL TO TREES.
 - THE GENERAL CONTRACTOR SHALL PREVENT PARKING OF CONSTRUCTION VEHICLES AND EQUIPMENT, AND THE STORING OF BUILDING SUPPLIES OR STOCKPILING OF EARTH WITHIN FOREST CONSERVATION EASEMENTS.
 - REMOVAL OF TOPSOIL OR ROOT MAT WITHIN THE TREE PRESERVATION AREA SHALL BE PROHIBITED.
 - THE GENERAL CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY TREES DAMAGED OR DESTROYED WITHIN THE FOREST CONSERVATION EASEMENTS. ROOT PRUNING SHALL BE USED AT THE LIMIT OF DISTURBANCE OR LIMIT OF GRADING WITHIN AND ADJACENT TO ALL PRESERVATION AREAS, AS NECESSARY.

PRE-CONSTRUCTION MEETING

- AFTER THE BOUNDARIES OF THE FOREST RETENTION AREAS HAVE BEEN FIELD LOCATED AND MARKED, AND AFTER THE FOREST PROTECTION DEVICES HAVE BEEN INSTALLED, BUT BEFORE ANY OTHER DISTURBANCE HAS TAKEN PLACE ON SITE, A PRE-CONSTRUCTION MEETING SHALL TAKE PLACE ON SITE. THE DEVELOPER, CONTRACTOR OR PROJECT MANAGER, AND HOWARD COUNTY INSPECTORS SHALL ATTEND. THE PURPOSE OF THIS MEETING WILL BE:
 - TO IDENTIFY THE LOCATIONS OF THE FOREST RETENTION AREAS, SPECIFIC TREES WITHIN 50 FEET OF THE LIMIT OF DISTURBANCE, LIMITS OF CONSTRUCTION, EMPLOYEE PARKING AREAS AND EQUIPMENT STAGING AREAS;
 - INSPECT ALL FLAGGED BOUNDARIES AND PROTECTION DEVICES;
 - MAKE ALL NECESSARY ADJUSTMENTS;
 - ASSIGN RESPONSIBILITIES AS APPROPRIATE AND DISCUSS PENALTIES.

CONSTRUCTION MONITORING

- THE SITE SHALL BE INSPECTED PERIODICALLY DURING THE CONSTRUCTION PHASE OF THE PROJECT. A QUALIFIED PROFESSIONAL SHALL BE RESPONSIBLE FOR IDENTIFYING DAMAGE TO PROTECTED FOREST AREAS OR INDIVIDUAL TREES WHICH MAY HAVE BEEN CAUSED BY CONSTRUCTION ACTIVITIES, SUCH AS SOIL COMPACTION, ROOT INJURY, TRUNK WOUNDS, LIMB INJURY, OR STRESS CAUSED BY FLOODING OR DROUGHT CONDITIONS. ANY SUCH DAMAGE THAT MAY OCCUR SHALL BE REMEDIATED IMMEDIATELY USING APPROPRIATE MEASURES. SEVERE PROBLEMS MAY REQUIRE CONSULTATION WITH A PROFESSIONAL ARBORIST.
- THE CONSTRUCTION SHALL NOT DAMAGE AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE AS DESIGNATED ON THE PLANS. ANY DAMAGE SHALL BE RESTORED BY THE CONTRACTOR AT HIS EXPENSE AND TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

NOTE :

THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENTS EXCEPT AS PERMITTED BY THE HOWARD COUNTY FOREST CONSERVATION PROGRAM.

THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION, SOIL COMPACTION, OR EXCAVATION, INTRODUCTION OF TOXIC CHEMICALS OR OTHER DISTURBANCES DETRIMENTAL TO THE LIVE SPECIMEN TREES OR CRITICAL ROOT ZONES FOR THESE TREES EXCEPT AS PERMITTED BY THE HOWARD COUNTY FOREST CONSERVATION PROGRAM.

PLANTING SPECIFICATIONS AND NOTES

SITE PREPARATION AND SOILS

- PROTECTIVE FENCING IS TO BE INSTALLED AS A FIRST ORDER OF BUSINESS PER PLAN LOCATIONS. PROTECTIVE FENCING WILL NOT BE INSTALLED ALONG THOSE PERIMETERS WHERE SILT FENCE HAS BEEN INSTALLED FOR SEDIMENT CONTROL.
- DISTURBANCE OF SOILS SHOULD BE LIMITED TO THE PLANTING FIELD FOR EACH PLANT.
- SOIL MIX FOR ALL PLANTS EXCEPT ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME OF COMPOSTED SLUDGE.
- SOIL MIX FOR ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME PEAT MOSS.
- ALL MIXING IN 3 AND 4 SHALL BE LIMITED TO CONTAINER GROWN OR BALL AND BURLAP STOCK ONLY AND CONFINED TO THE PLANTING FIELD AND IMMEDIATE ADJACENT SOIL SURFACE AREA AND SHALL BE DONE TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

PLANT STORAGE AND INSPECTION

- FOR CONTAINER GROWN NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN 2 WEEKS AFTER DELIVERY TO THE SITE.
- FOR BALL AND BURLAP NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN THREE DAYS AFTER DELIVERY TO THE SITE.
- PLANTING STOCK SHOULD BE INSPECTED PRIOR TO PLANTING. PLANTS NOT CONFORMING TO STANDARD NURSERYMAN SPECIFICATIONS FOR SIZE, FORM, WOOD, ROOTS, TRUNK WOUNDS, INSECTS AND DISEASE SHOULD BE REPLACED.
- UNTIL PLANTED, ALL PLANT STOCK SHALL BE KEPT IN A SHADED, COOL, AND MOISTENED ENVIRONMENT.

PLANT INSTALLATION

- THE PLANTING FIELD SHOULD BE PREPARED AS SPECIFIED (SEE DETAIL). NATIVE STOCKPILED SOILS SHOULD BE USED FOR SOIL MIX AND BACKFILL FOR PLANTING FIELDS. AFTER PLANT INSTALLATION, RAKE SOILS EVENLY OVER THE PLANTING FIELD AND COVER WITH AT LEAST 4 INCHES OF MULCH. WATER, GENEROUSLY, TO SETTLE SOIL BACKFILLED AROUND TREES.
 - PLANTING FIELD DIAMETERS SHOULD BE REDUCED OR PLANTING FIELD MOVED IF IT APPEARS THAT EXCESSIVE EXISTING ROOT DAMAGE MAY OCCUR DURING DIGGING OPERATION NEAR EXISTING FOREST.
 - CARE SHALL BE TAKEN WHEN DIGGING PLANTING FIELDS NOT TO CHOP THROUGH LARGER EXISTING ROOTS FROM EXISTING MATURE TREES. IF ROOTS GREATER THAN 1/2 INCH ARE ENCOUNTERED DIG AROUND THEM AS MUCH AS POSSIBLE TO MINIMIZE IMPACT TO EXISTING TREES.
 - CONTAINER GROWN STOCK SHOULD BE REMOVED FROM THE CONTAINER AND ROOTS GENTLY LOOSENED FROM THE SOIL. IF THE ROOTS ENIRCLE THE ROOT BALL, SUBSTITUTION IS STRONGLY RECOMMENDED. J-SHAPED OR KINKED ROOT SYSTEMS SHOULD ALSO BE NOTED. ROOTS MAY NOT BE TRIMMED ON SITE, DUE TO THE INCREASED CHANCES OF SOIL BORNE DISEASES.
 - FOR BALL AND BURLAP STOCK, PLACE TREE IN PREPARED PLANTING FIELD AND REMOVE WIRE AND/OR STRING FROM ROOT BALL. THEN PEEL BACK BURLAP TO BASE OF ROOT BALL AND COVER ENTIRE ROOT BALL WITH TOPSOIL MIXTURE INDICATED ABOVE AND WATER GENEROUSLY.
 - THE CONTRACTOR SHALL EVENLY DISPERSE SPECIES IN GROUPS OF TWO (2) TO FIVE (5) PER SPECIES, OVER THE DESIGNATED AREA TO BE PLANTED WHILE MAINTAINING AN AVERAGE RANDOM SPACING OF INDIVIDUAL TREES AT PROPER SPACING INDICATED IN THE PLANT LIST. **
 - A STRAIGHT GRID PATTERN SPACING IS TO BE AVOIDED. TREES SHALL BE PLANTED ON AN AVERAGE SPACING AS INDICATED IN THE PLANT LIST TO OBTAIN A MORE NATURAL APPEARANCE.
 - NEWLY PLANTED TREES MAY NEED WATERING AS MUCH AS ONCE A WEEK FOR THE ENTIRE GROWING SEASON, DUE TO THE VERY DEEP, WELL DRAINED NATURE OF THE NATIVE SOILS FOUND ON THIS SITE COMBINED WITH THE LOOSENESS OF THE BACKFILLED AREA WITHIN THE PLANTING FIELD. THE NEXT TWO YEARS MAY REQUIRE WATERING ONLY A FEW TIMES A YEAR DURING SUMMER AND DRY MONTHS. AFTER THAT PERIOD, TREES SHOULD ONLY NEED WATER IN SEVERE DROUGHTS. ANY WATERING PLAN SHOULD COMPENSATE FOR RECENT RAINFALL PATTERNS.
- ** IN AREAS WHERE REFORESTATION IS ADJACENT TO PROJECT BOUNDARIES, LANDSCAPE SIZE PLANT MATERIAL MUST BE INSTALLED FIRST, IN ORDER TO SATISFY PERIMETER BUFFER REQUIREMENTS.

FERTILIZING

- DO NOT FERTILIZE NEWLY PLANTED TREES WITHIN THE FIRST GROWING SEASON AFTER PLANTING. DOING SO MAY CAUSE A SPURT OF CANOPY GROWTH WHICH THE ROOTS CANNOT SUPPORT AND ADD ADDITIONAL SHOCK TO THE ALREADY DISTURBED PLANT.
- NOTHING SHOULD BE ADDED TO THE SOIL WITHOUT TESTING IT FIRST TO DETERMINE WHAT IS NEEDED.
- IF AND WHEN IT IS TIME TO FERTILIZE, ORGANIC FERTILIZERS ARE PREFERRED TO SYNTHETIC FERTILIZERS. BONE MEAL OR SEAWEED BASED PRODUCTS ARE AVAILABLE COMMERCIALY AND ARE RECOMMENDED. THEY HAVE THE ABILITY TO SUPPLY NUTRIENTS TO THE PLANT AS NEEDED WHILE MINIMIZING THE RISK OF EXCESS NUTRIENTS ENTERING THE FOREST SYSTEM AND WATER SUPPLY.

MAINTENANCE SCHEDULE

- ANNUAL MAINTENANCE DURING THE GROWING SEASON, FOR A MINIMUM OF TWO (2) YEAR PERIOD.
- INSPECT PLANTED STOCK FOR MORTALITY. REMOVE AND REPLACE ANY DEAD OR DISEASED PLANTINGS.
- EXPECT VOLUNTEER SEEDING OF NATIVE, LOCAL AND ENDEMIC VEGETATION TO OCCUR. DO NOT DISCOURAGE THIS GROWTH UNLESS IT NEGATIVELY EFFECTS THE PLANTED STOCK.
- MANUALLY REMOVE AGGRESSIVE, NOXIOUS, INVASIVE SPECIES AND ALL HERBACEOUS VEGETATION WITHIN A 3-FOOT RADIUS SURROUNDING THE PLANTED WOODY NURSERY STOCK.
- REMOVE AND DISPOSE OF ANY MAN-MADE TRASH, INCLUDING ITEMS CONTAINED WITHIN THE PLANTING AREA. DO NOT REMOVE DOWN AND DEAD MATERIAL NATURALLY OCCURRING OR ACCUMULATING, UNLESS IT IS SMOTHERING PLANTING STOCK OR INTERFERES WITH THE REFORESTATION PLANTING.
- A 75 PERCENT SURVIVAL OF PLANTED STOCK MUST BE ACHIEVED AT THE END OF THE 24 MONTH MANAGEMENT PERIOD. IF NOT, ADDITIONAL PLANTINGS WILL BE REQUIRED TO BRING THE PLANTED STOCK SURVIVAL RATE UP TO 75%.

SUPERVISION

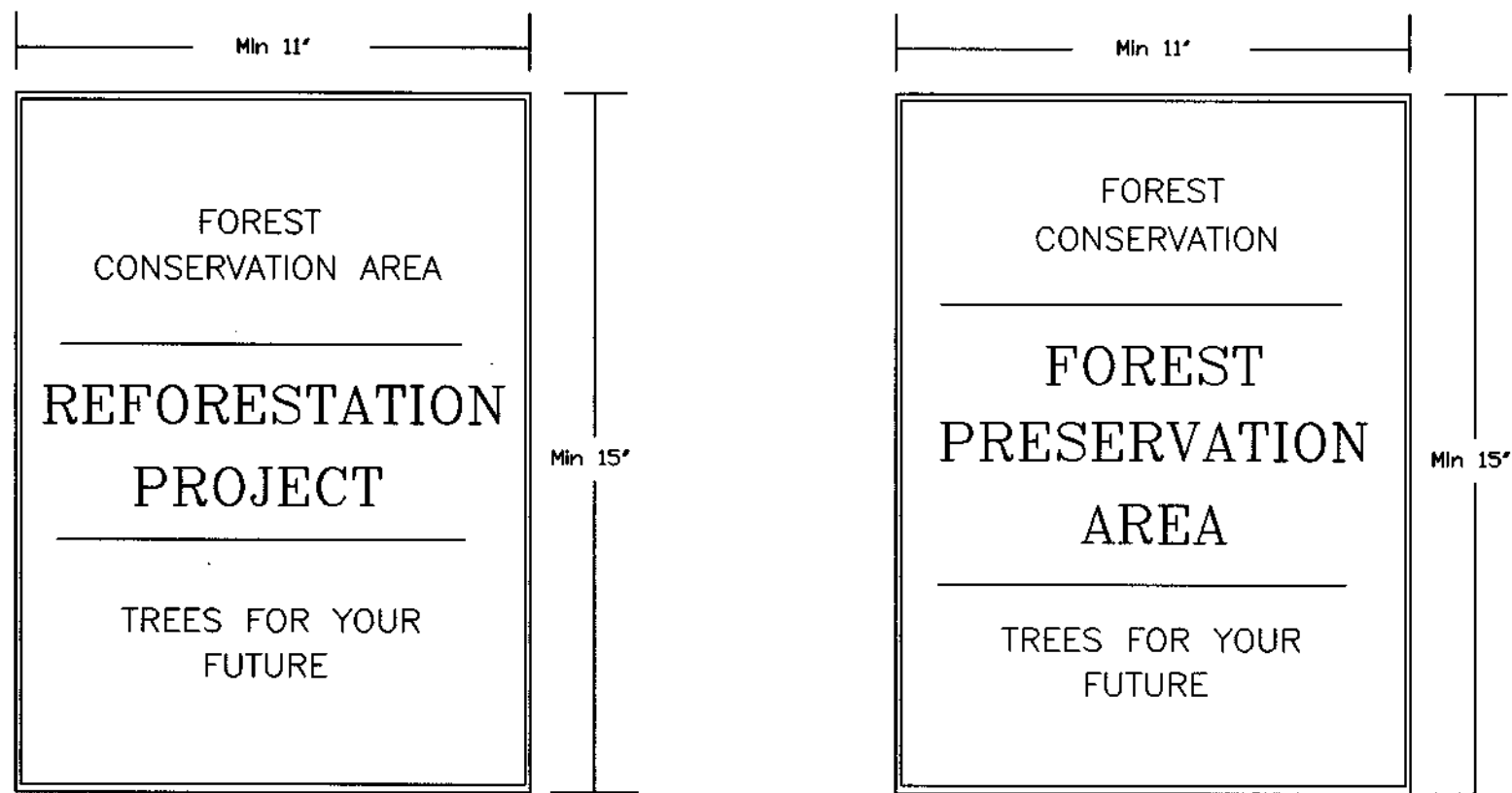
- ALL FOREST CONSERVATION ACTIVITIES SHALL BE DONE UNDER THE DIRECT SUPERVISION OF SOMEONE FROM THE DESIGN TEAM OR OTHER "QUALIFIED PROFESSIONAL" AS DETERMINED BY THE REQUIREMENTS OF COMAR 08.19.06.01 AND THE MARYLAND DEPARTMENT OF NATURAL RESOURCES, PUBLIC LANDS AND FORESTRY DIVISION.

FOREST CONSERVATION DATA

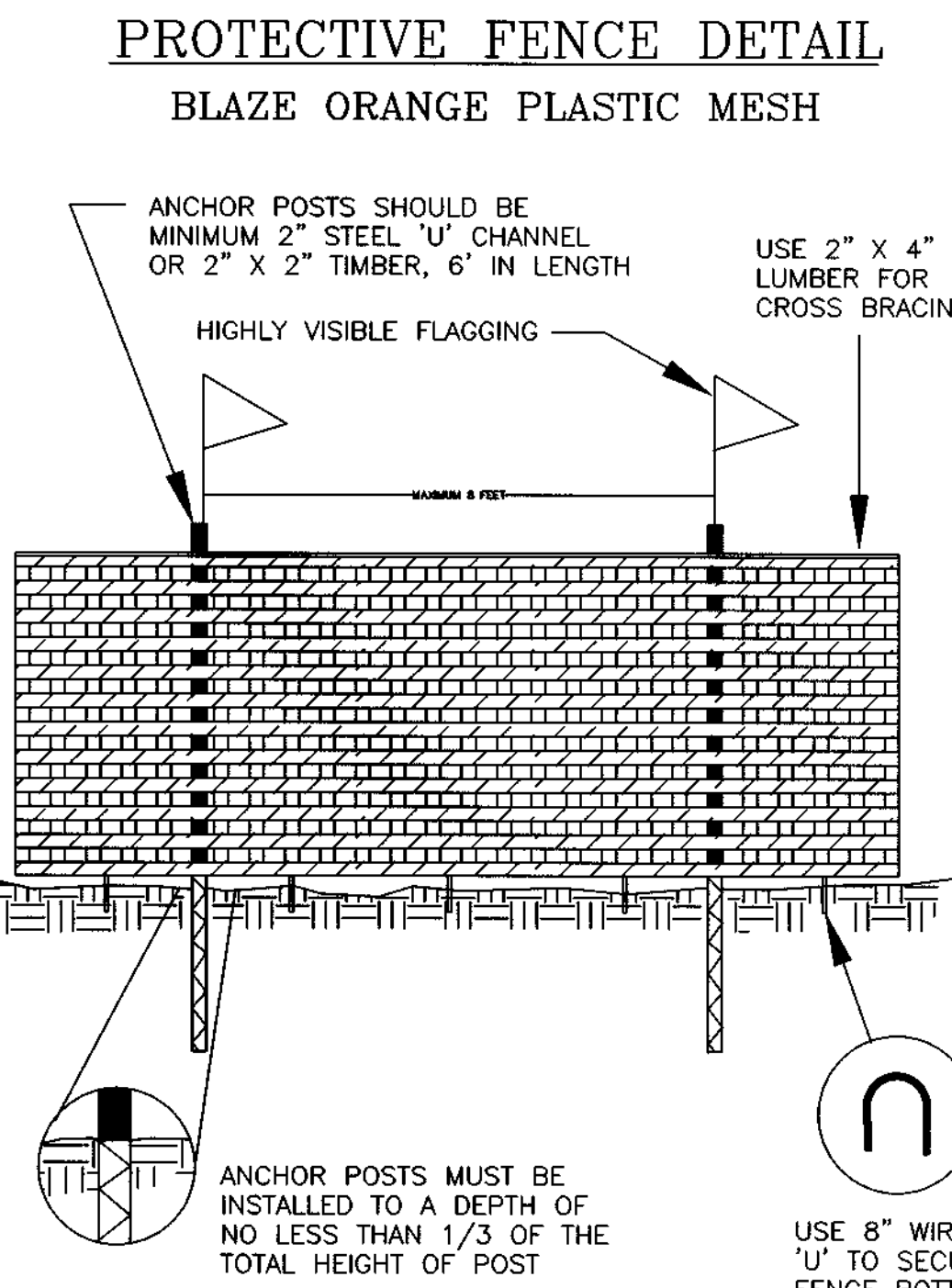
I. BASIC SITE DATA		ACRES
GROSS SITE AREA		58.98
AREA WITHIN 100 YEAR FLOODPLAIN		1.08
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL		0.00
NET TRACT AREA		57.90
LAND USE CATEGORY	RESIDENTIAL (SUBURBAN)	
II. FOREST CONSERVATION WORKSHEET DATA SUMMARY		
B. REFORESTATION THRESHOLD (20%)		11.58
C. AFFORESTATION MINIMUM (15%)		8.69
D. EXISTING FOREST ON NET TRACT AREA		10.08
E. FOREST AREAS TO BE CLEARED		3.21
F. FOREST AREAS TO BE RETAINED		6.87
IV. REFORESTATION CALCULATIONS		
G. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD		0.00
H. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD		3.21
I. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD		0.00
REFORESTATION FOR CLEARING ABOVE THRESHOLD		0.00
CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD		0.00
TOTAL REFORESTATION REQUIRED		0.00
REFORESTATION FOR CLEARING BELOW THRESHOLD		0.00
REFORESTATION FOR CLEARING BELOW THRESHOLD		6.42
TOTAL REFORESTATION PROVIDED		3.69
TOTAL FEE-IN-LIEU OF REFORESTATION		2.73

REFORESTATION PLANT LIST

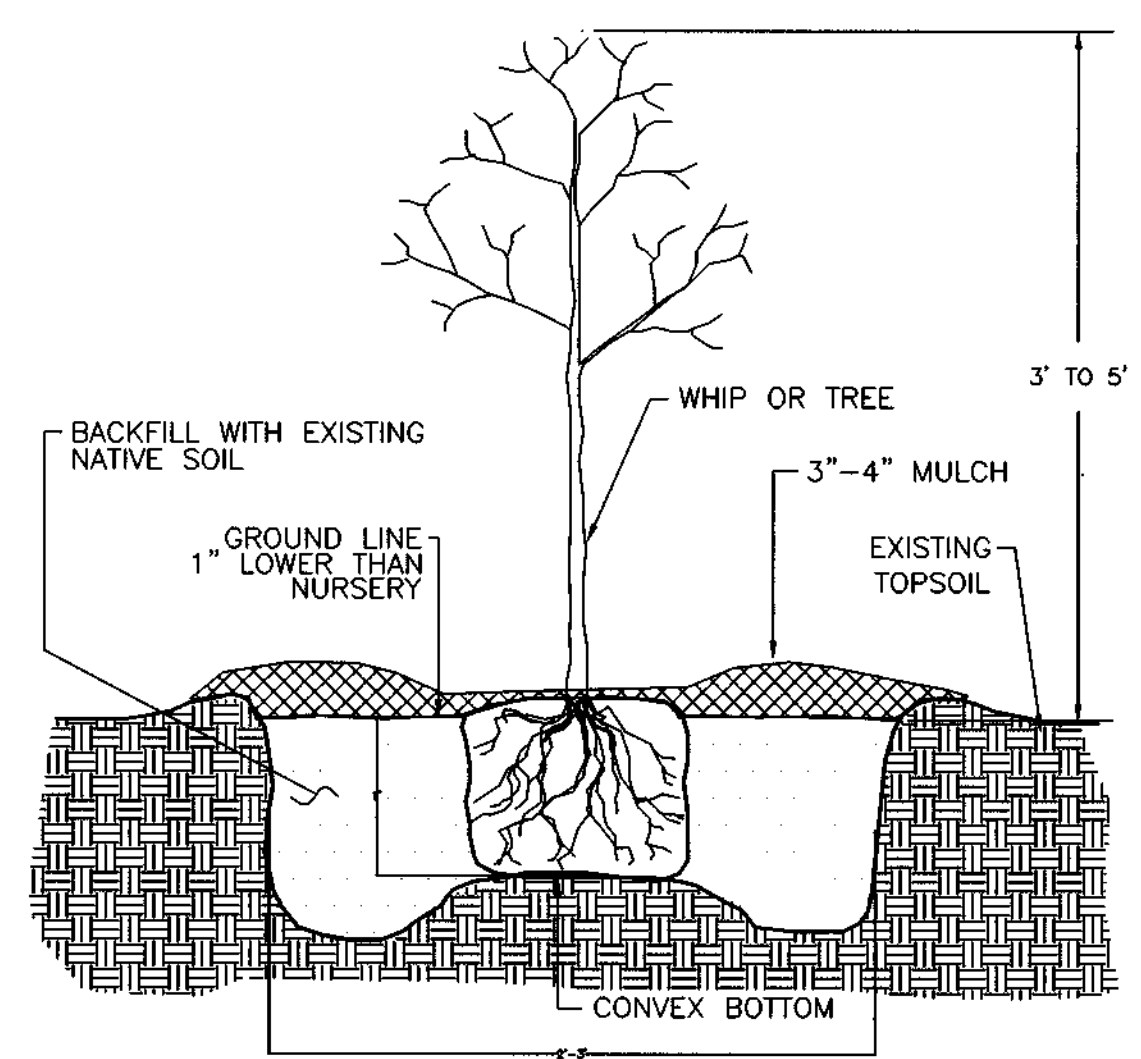
QTY.	SPECIES	SHADE TOL.	MOIST. REGIME	WET. STATUS	MIN.O.C. SPACING	SIZE & REMARKS
115	Acer rubrum Red Maple	VT	D-W	FAC	20'	CONT/B & B 1" CAL.
100	Fagus grandifolia American Beech	VT	M	FACU	20'	CONT/B & B 1" CAL.
115	Liriodendron tulipifera Tulip Poplar	MT	M-W	FAC	20'	CONT/B & B 1" CAL.
70	Nyssa sylvatica Black Gum	T	M-W	FAC	20'	CONT/B & B 1" CAL.
70	Prunus serotina Black Cherry	MT	D-W	FAC	15'	CONT/B & B 1" CAL.
100	Quercus alba White Oak	I	M-W	FAC+	20'	CONT/B & B 1" CAL.
100	Quercus rubra Red Oak	MT	D-M	UPL	20'	CONT/B & B 1" CAL.
70	Sassafras albidum Common Sassafras	MT	D-M	FACU	15'	CONT/B & B 1" CAL.
TOTAL						740 TREES



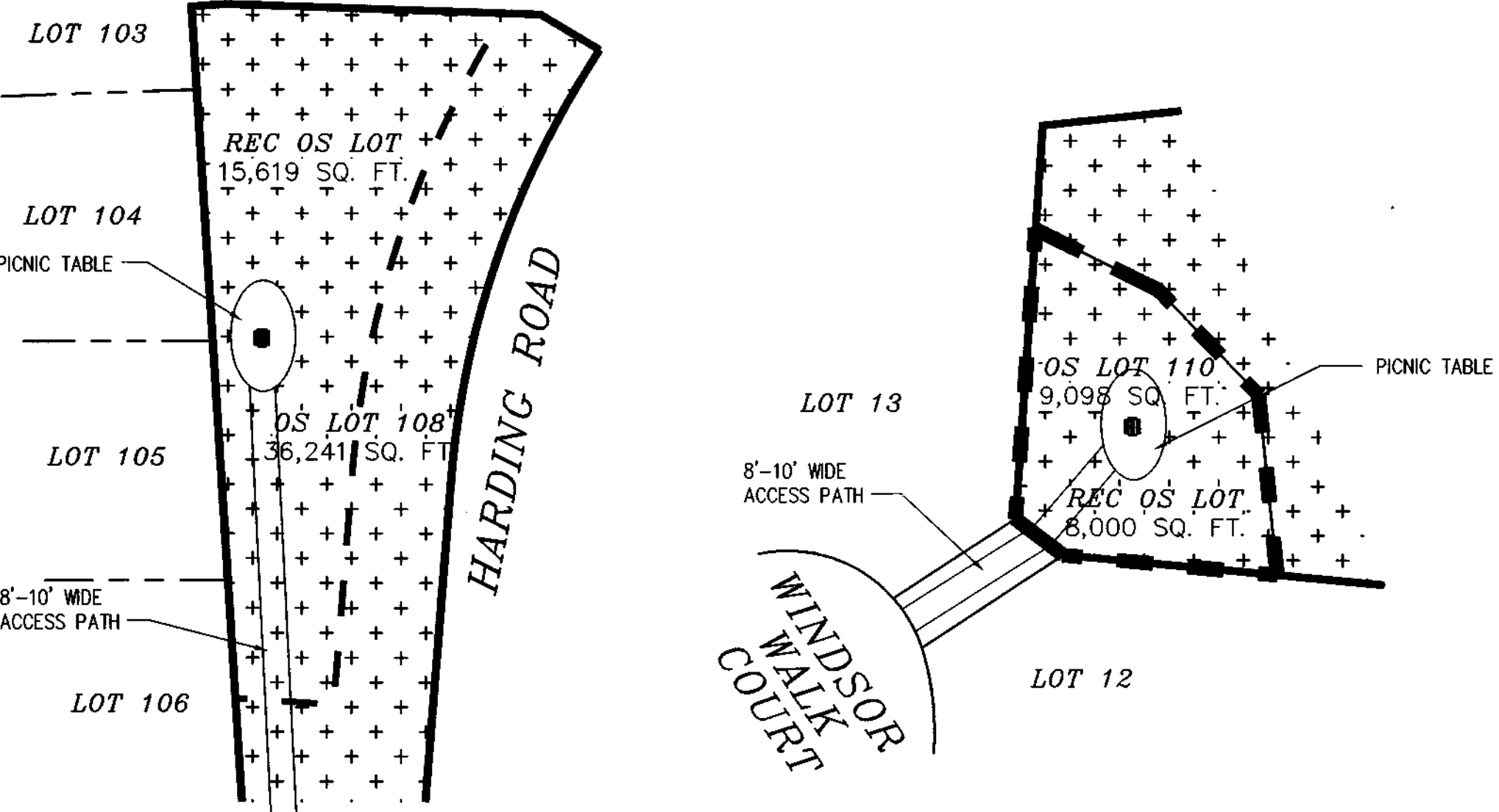
SIGNAGE DETAILS
NOT TO SCALE



- NOTES**
- FOREST PROTECTION DEVICE ONLY.
 - RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 - BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
 - ROOT DAMAGE SHOULD BE AVOIDED.
 - PROTECTIVE SIGNAGE MAY ALSO BE USED.
 - DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.



TREE PLANTING DETAIL
CONTAINER GROWN



ENLARGEMENT OF RECREATIONAL OPEN SPACE / REFORESTATION
SCALE: 1" = 50'

MD DNR QUALIFIED PROFESSIONAL

Stephanie Demchik
STEPHANIE DEMCHIK

APPROVED: DEPARTMENT OF PUBLIC WORKS
Robert M. Doughty 4-23-98
 CHIEF BUREAU OF WORKWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Candy Hamilla 5/7/98
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mike Damann 4/21/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Project	97084	date	FEB 1998
Illustration	SJD	engineering	SJD
scale	AS SHOWN	approval	SJD

no.	description	date

RESERVOIR OVERLOOK
 LOTS 1 THRU 110
 TAX MAP 46 - PARCELS 186, 75, 187 & 78 - BLOCKS 15 & 16
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
FOREST CONSERVATION & REFORESTATION NOTES & DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers - Planners - Surveyors
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0296 Fax. (301) 651-5521 Wash. (410) 997-0298 Fax.