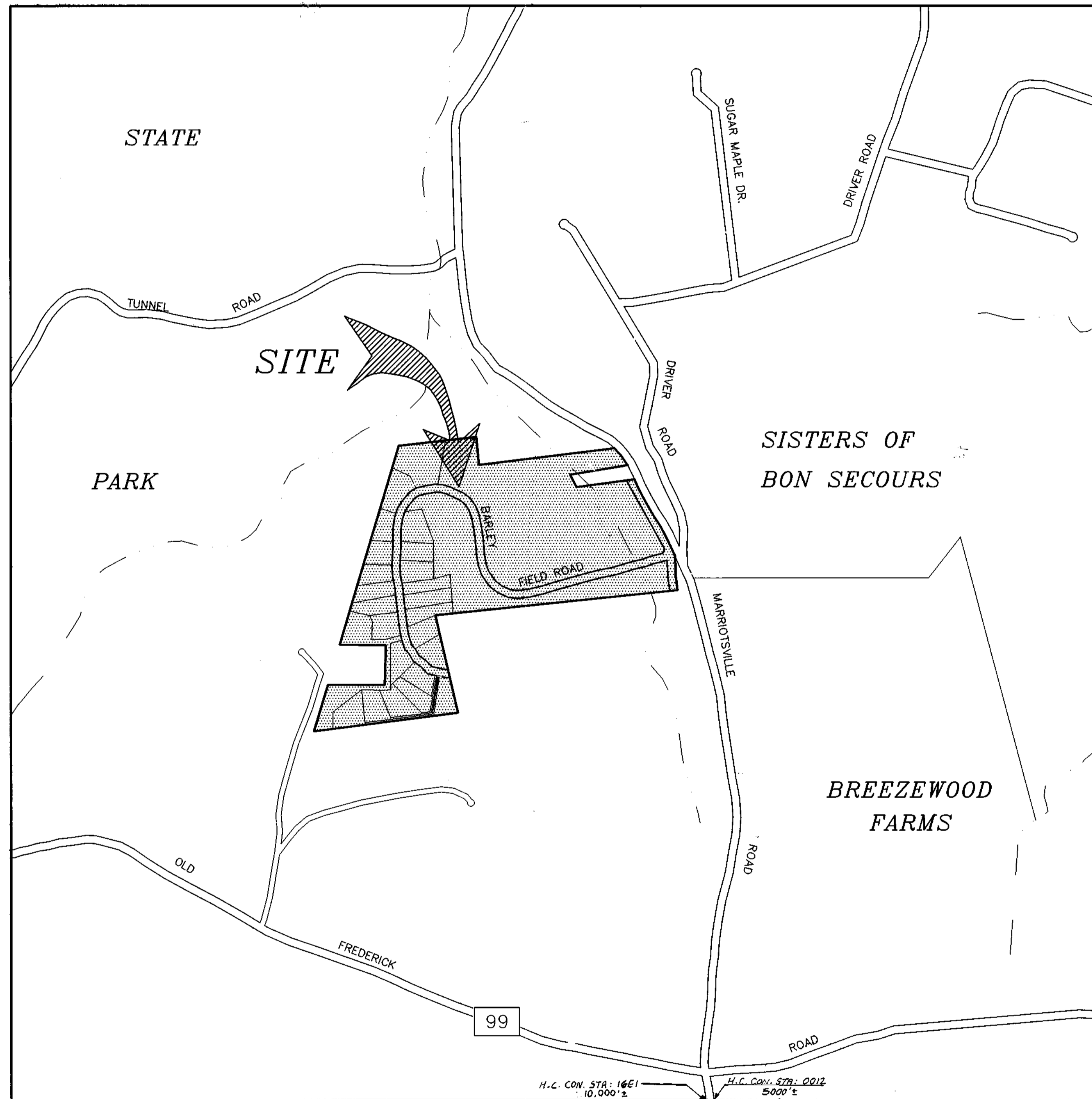


WOODFORD'S GRANT LOTS 1 THRU 30 & PARCEL "A" ROAD CONSTRUCTION DRAWING HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS

SHEET INDEX	
NO.	TITLE
1	COVER SHEET
2	ROAD PLAN AND PROFILE
3	ROAD PLAN AND PROFILE
4	ROAD PLAN AND PROFILE
5	ROAD PLAN AND PROFILE
6	GRADING PLAN
7	SWM SPECIFICATIONS AND DETAILS
8	SWM SPECIFICATIONS AND DETAILS
9	SWM SPECIFICATIONS AND DETAILS
10	SWM SPECIFICATIONS AND DETAILS
11	EROSION AND SEDIMENT CONTROL PLAN
12	EROSION AND SEDIMENT CONTROL SPECIFICATIONS
13	LANDSCAPE PLAN AND DETAILS
14	DRAINAGE AREA MAP
15	EXISTING CULVERT PROFILES AND DETAILS



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	725-9976
HOWARD COUNTY BUREAU OF UTILITIES	313-4900
AT&T CABLE LOCATION DIVISION	393-3533
BALTIMORE GAS & ELECTRIC	685-0123
STATE HIGHWAY ADMINISTRATION	531-5533
HOWARD COUNTY DEPT. OF PUBLIC WORKS/ CONSTRUCTION INSPECTION DIVISION	313-1880
- PROJECT BACKGROUND:
 - LOCATION: THIRD ELECTION DISTRICT, TAX MAP 10, PARCEL 27, 29, & 151.
 - ZONING: RR-DEO
 - TOTAL TRACT AREA: 76.98 ACRES
 - NUMBER OF PROPOSED LOTS: 25 BUILDABLE LOTS, 4 OPEN SPACE, & 1 PRESERVATION PARCEL
 - DATE PREVIOUS PLANS APPROVED AND DPZ REFERENCE #:
 - S-95-05 - SKETCH PLAN APPROVED ON DECEMBER 24, 1994.
 - P-95-24 - PRELIMINARY PLAN APPROVED ON OCTOBER 20, 1995.
 - F-96-61 - FINAL PLAN APPROVED ON 2/15/96
- TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREETS AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO PLACEMENT OF ANY ASPHALT.
- BOUNDARY AND TOPOGRAPHIC SURVEY PERFORMED BY JOHN MELLEMA, SR. INC. ON JANUARY 1995.
- HORIZONTAL AND VERTICAL DATUM ARE BASED ON MARYLAND STATE COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY CONTROL STATIONS (NAD 83) 10E1 AND 0012.
- ONE (1) EXTENDED RETENTION POND AND ONE (1) BIORETENTION FACILITY ARE PROPOSED FOR WATER QUANTITY AND WATER QUALITY.
- WETLANDS DELINEATION WAS PERFORMED BY EXPLORATION RESEARCH, INC. ON AUGUST, 1994.
- GEOTECHNICAL REPORT WAS PREPARED BY INVESTIGATIVE TESTING & ENGINEERING ON MARCH, 1995 AND HILLIS-CARNES ENGINEERING ASSOCIATES, INC. ON MARCH 1997.
- EXISTING UTILITIES ARE BASED ON HOWARD COUNTY AS BUILT PLANS AND THE TOPOGRAPHIC SURVEY BY JOHN MELLEMA, INC.
- THIS PLAN IS SUBJECT TO WP-95-28 APPROVED ON NOVEMBER 11, 1994, WHICH WAIVED THE REQUIREMENT OF 15.116(01) & 15.116(02) PROHIBITING GRADING OR DISTURBANCE WITHIN 25 FEET OF A WETLAND OR WITHIN 75 FEET OF A PERENNIAL STREAM BUFFER.
- 95% COMPACTION IN FILL AREAS SHALL BE IN ACCORDANCE WITH AASHTO T-180 REQUIREMENT.
- THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE 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 OF FOREST CONSERVATION EASEMENT, ARE ALLOWED.
- DISTURBANCE OF WETLANDS IS APPROVED UNDER PERMIT NUMBER 95-NT-0848. THIS PLAN IS SUBJECT TO WP-95-28 APPROVED ON NOV. 11, 1994 WHICH WAIVED THE REQUIREMENT OF 15.116(01) & 15.116(02) PROHIBITING GRADING OR DISTURBANCE WITHIN 25 FT. OF A PERENNIAL STREAM.
- FLOODPLAIN DELINEATION BY LORIA ENGINEERING, INC. APPROVED UNDER F-96-61 ON FEBRUARY 15, 1996.
- HOWARD COUNTY CONTROL STATIONS USED:

0012	N 356,502.216	ELV: 456.915
	E 1,340,864.306	
10E1	N 533,250.383	ELV: 464.60
	E 1,340,182.700	

THE PURPOSE OF THIS PLAN IS TO
REVISE THE ROAD CONSTRUCTION PLANS
PREPARED BY LORIA ENGINEERING, INC.
APPROVED UNDER F-96-61 ON
FEBRUARY 15, 1996.

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.

Donald Reuwer 8/11/97
SIGNATURE OF DEVELOPER DATE
DONALD REUWER, PRESIDENT
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.

R. Jacob Hikmat 8/15/97
SIGNATURE OF ENGINEER DATE
R. JACOB HIKMAT
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.

Charles K. Zimmerman 09/29/97
USDA-NATURAL RESOURCE CONSERVATION SERVICE DATE

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

Robert J. Ziehm 9/29/97
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
Andrew M. Pauker 10-9-97
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Candy Hamilton 10/23/97
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

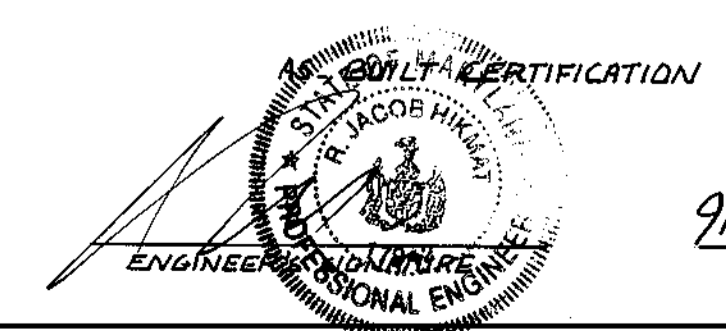
Mike Deussen 10/15/97
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



VICINITY MAP
SCALE: 1" = 600'

DEVELOPER
LAND DESIGN & DEVELOPMENT, INC.
10805 HICKORY RIDGE ROAD
COLUMBIA, MARYLAND 21045

OWNER
THOMAS POWELL
12905 FALLS ROAD
COCKEYSVILLE, MARYLAND 21030



9/28/01
DATE

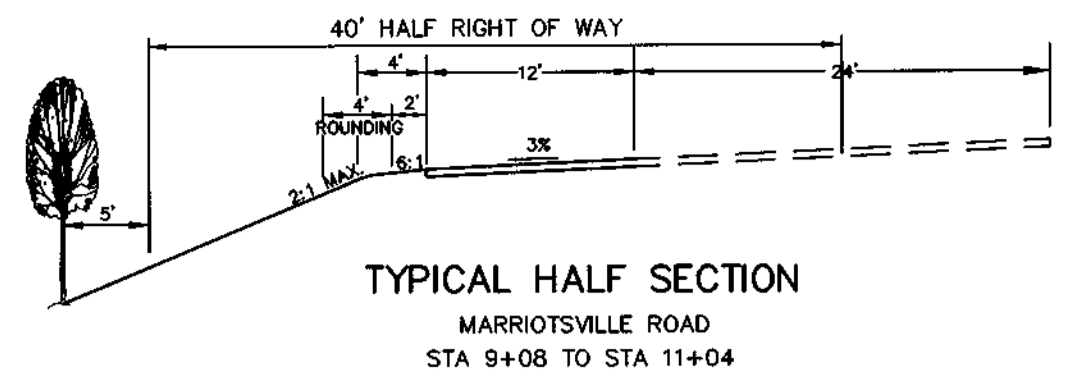
project	97003	date	MAR 1997
illustration	JS	engineering	JS
scale	1"=60'	approval	RIH

revision	2	description		date	
no.					

WOODFORD'S GRANT
LOTS 1 THRU 30 AND PARCEL "A"
TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
COVER SHEET

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

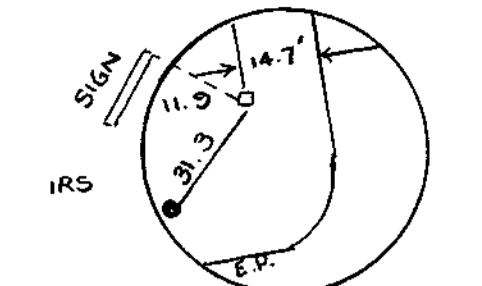
N 605,250



STREET TREE PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
56		ACER RUBRUM 'OCTOBER GLORY'	'OCTOBER GLORY' RED MAPLE	2 1/2" - 3" CAL.

STREET LIGHT LEGEND
 150 WATTS HIGH PRESSURE SODIUM VAPOR
 PENDANT MOUNTED FIXTURE WITH CUTOFF
 OPTICS MOUNTED AT 30' IN A BRONZE FIBERGLASS
 POLE USING A 12' ARM
 LOCATION: BARLEY FIELD WAY, STA 0+43.25' RIGHT
 (ANGLE ARM TO CENTER OF INTERSECTION)



CONC MON SET
 DETAIL "A"
 ELEV. 443.10
 N.T.S.

CONC MON SET (SEE DETAIL "A")
 ELEV. 443.10
 N.T.S.

EX. POLE TO BE RELOCATED
 C&P NO. 19

E OF MARIOTTVILLE ROAD STA 10+00
 E OF BARLEY FIELD WAY STA 0+00
 CONC. MON. SET (SEE DETAIL "B")
 ELEV. 446.55

PROVIDE ONE FOOT SAW-CUT TO
 EXISTING PAVEMENT

CONC MON SET
 DETAIL "B"
 ELEV. 446.55
 N.T.S.

NOTE: NO UTILITIES OR TREES MAY BE PLACED ON THE ROAD
 BETWEEN STA 10+50 AND STA 12+75
 (POND EMBANKMENT AREA)

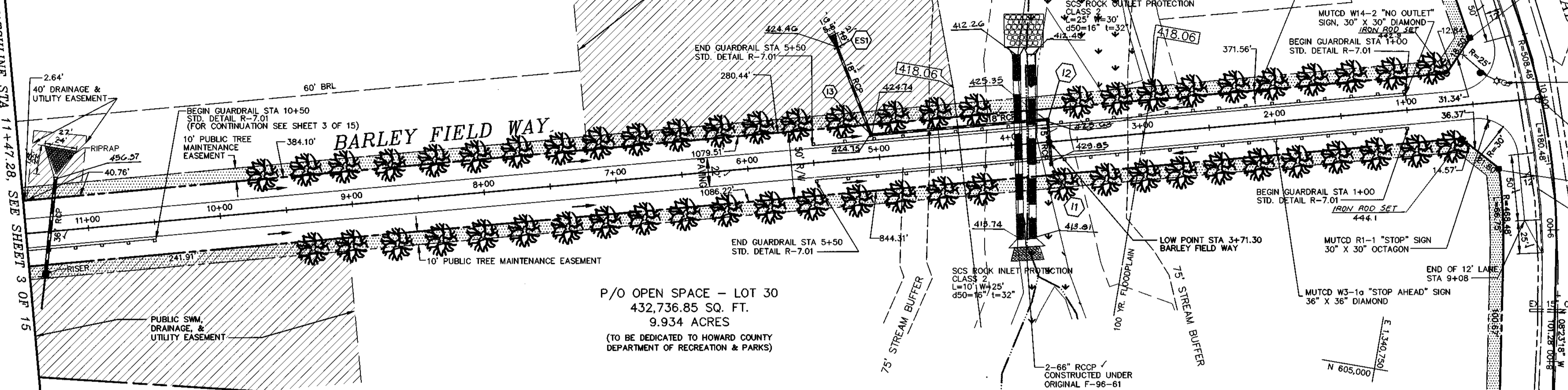
LEGEND

- DENOTES A FLOW ARROW
- DENOTES A SWM, DRAINAGE, & UTILITY EASEMENT
- DENOTES WETLANDS
- DENOTES A 10' TREE MAINTENANCE EASEMENT

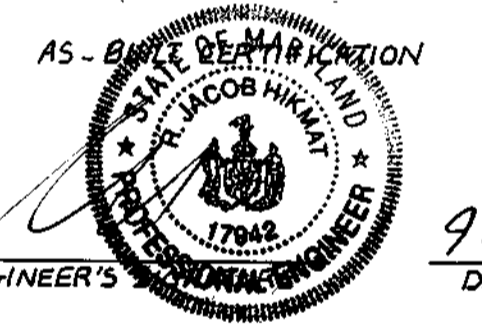
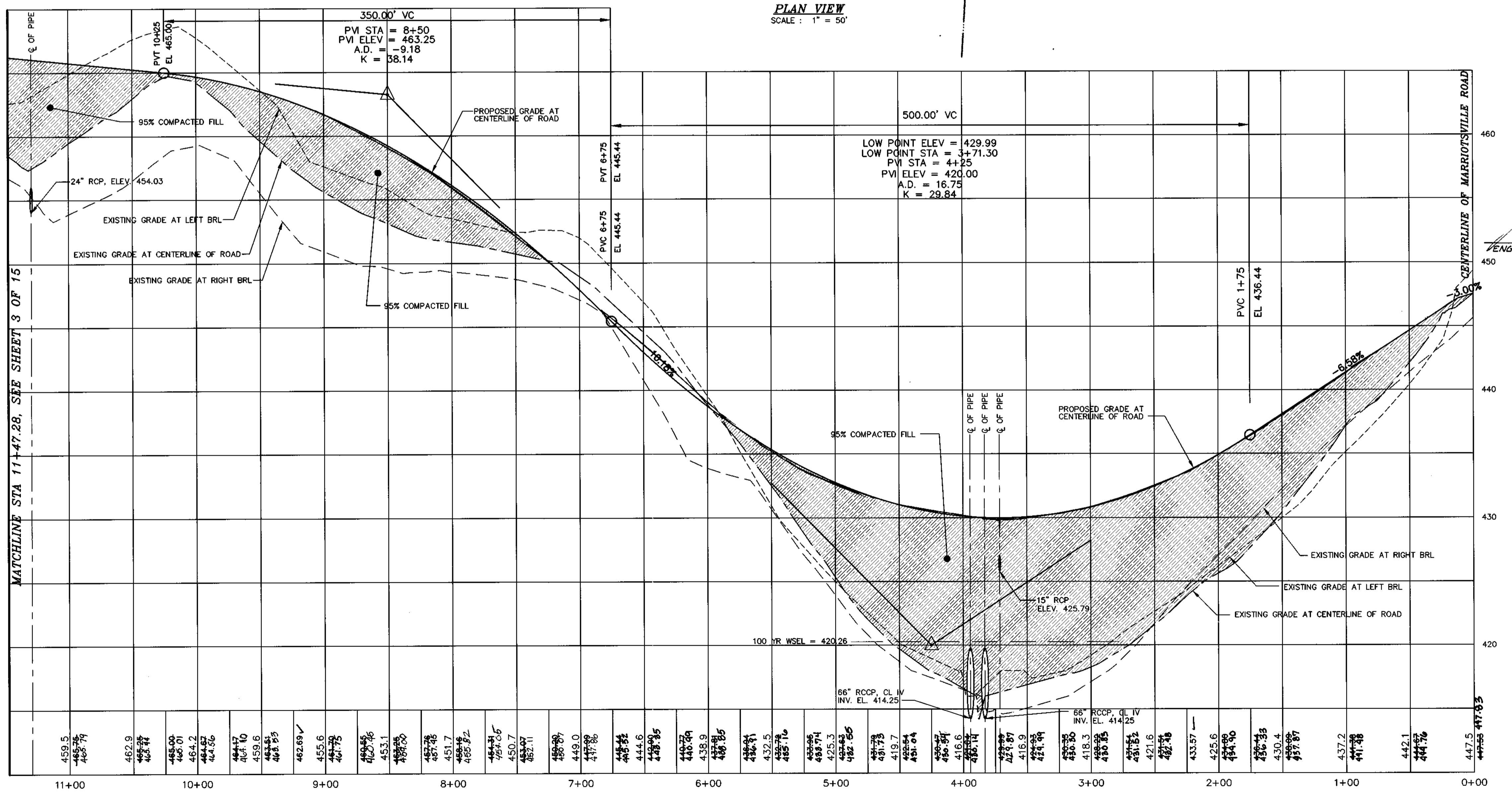
P/O PRESERVATION PARCEL A
 1,192,672.80 SQ. FT.
 27.38 ACRES

P/O OPEN SPACE - LOT 30
 432,736.85 SQ. FT.
 9.934 ACRES
 (TO BE DEDICATED TO HOWARD COUNTY
 DEPARTMENT OF RECREATION & PARKS)

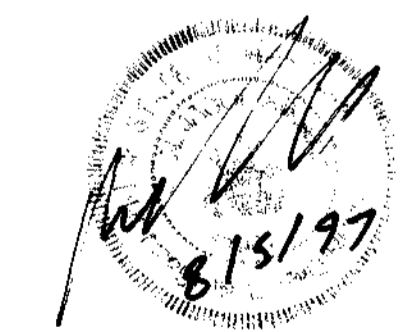
P/O PRESERVATION PARCEL A
 1,140,836.40 SQ. FT.
 26.19 ACRES



PLAN VIEW
SCALE: 1" = 50'



DATE 9/17/97



APPROVED: DEPARTMENT OF PUBLIC WORKS

Andrew M. Daniels 10/9/97
 CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Candy Hamilton 10/23/97
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mike Damann 10/15/97
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

BARLEY FIELD WAY STA 0+00 TO STA 11+47.28

DESIGN SPEED = 25 MPH
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'

DEVELOPER
 LAND DESIGN & DEVELOPMENT, INC.
 10805 HICKORY RIDGE ROAD
 COLUMBIA, MARYLAND 21045

OWNER
 THOMAS POWELL
 12905 FALLS ROAD
 COCKEYSVILLE, MARYLAND 21030

project	97003	date	AUG 1997
illustration	JS/SJD	approval	JS
scale	1"=50'	revision	RH

REV	NO.	DESCRIPTION	DATE
REV	1	SHOW #2	AUG 1997

WOODFORD'S GRANT
 LOTS 1 THRU 30 AND PARCEL "A"
 TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
 HOWARD COUNTY, MARYLAND
 THIRD ELECTION DISTRICT
 ROAD PLAN AND PROFILE

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

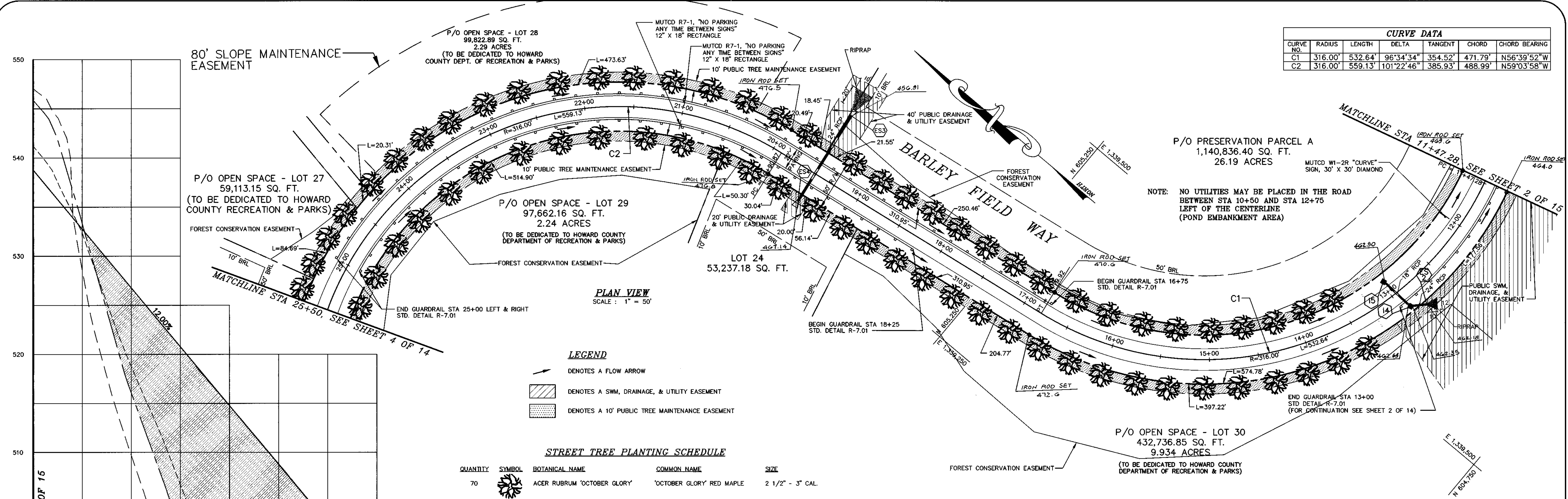
CURVE DATA						
CURVE NO.	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHORD BEARING
C1	316.00'	532.64'	96°34'34"	354.52'	471.79'	N56°39'52"W
C2	316.00'	559.13'	101°22'46"	385.93'	488.99'	N59°03'58"W

date	MAR 1997	approval	
project	97003	illustration	JS
scale	1"=60'	description	revisions

date	
revision #1	JUNE 1997

WOODFORD'S GRANT
 LOTS 1 THRU 30 AND PARCEL "A"
 TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
 THIRD 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) 997-0286 Fax (301) 621-5521 Wash. (410) 997-0286 Fax



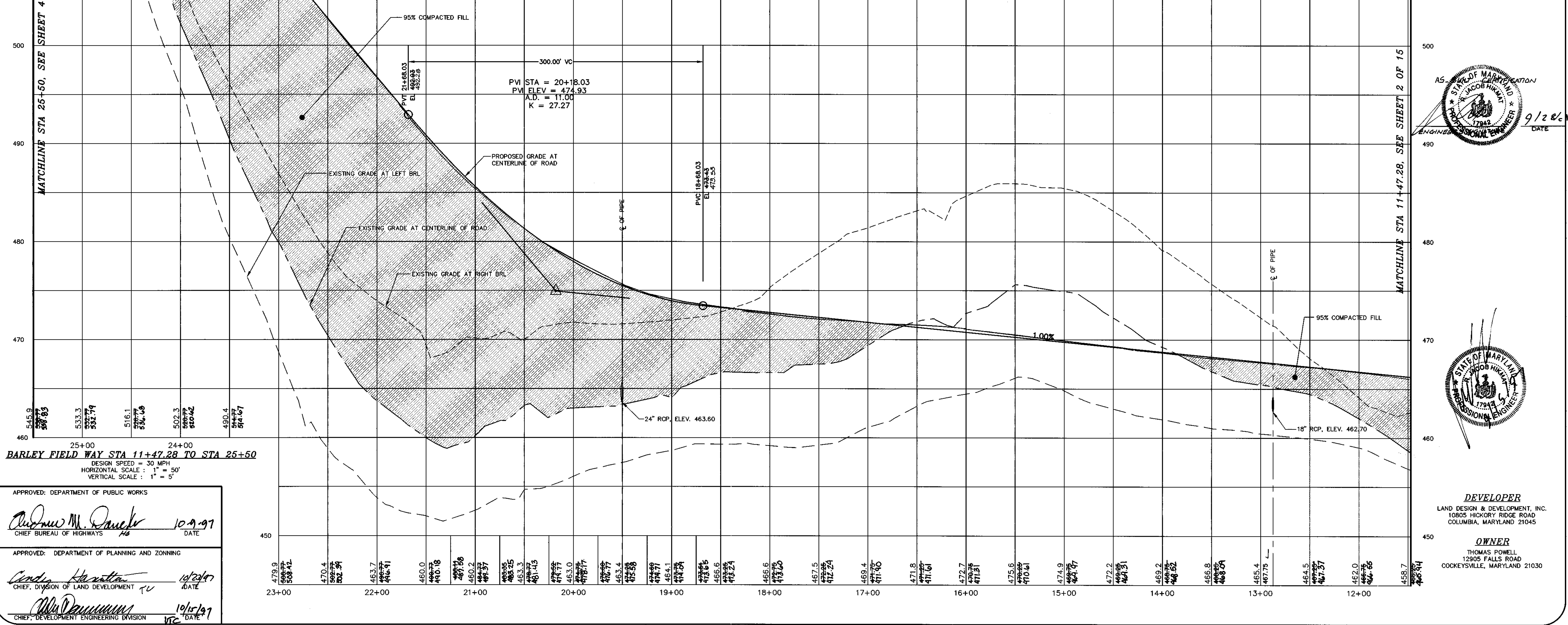
PLAN VIEW
 SCALE: 1" = 50'

LEGEND

- DENOTES A FLOW ARROW
- [Hatched Box] DENOTES A SWM, DRAINAGE, & UTILITY EASEMENT
- [Dotted Box] DENOTES A 10' PUBLIC TREE MAINTENANCE EASEMENT

STREET TREE PLANTING SCHEDULE

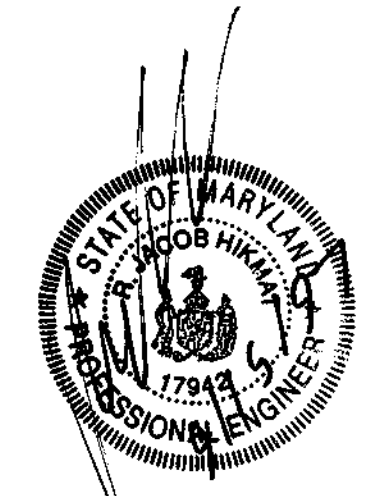
QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
70	[Tree Symbol]	ACER RUBRUM 'OCTOBER GLORY'	'OCTOBER GLORY' RED MAPLE	2 1/2" - 3" CAL.



APPROVED: DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniel 10/9/97
 CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Hamilton 10/24/97
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

W. Dan... 10/15/97
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

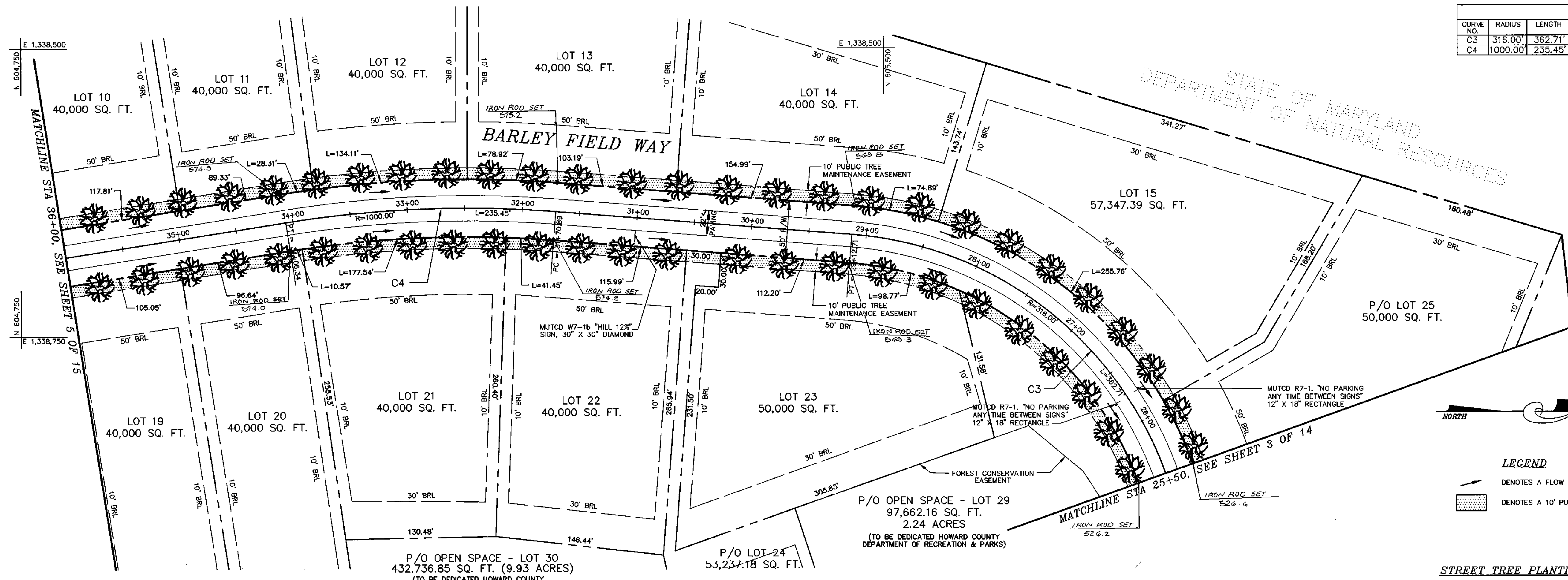


DEVELOPER
 LAND DESIGN & DEVELOPMENT, INC.
 10805 HICKORY RIDGE ROAD
 COLUMBIA, MARYLAND 21045

OWNER
 THOMAS POWELL
 12905 FALLS ROAD
 COCKEYSVILLE, MARYLAND 21030

F:\97003\DWG\1003-RD-2.DWG

CURVE DATA						
CURVE NO.	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHORD BEARING
C3	316.00'	362.71'	65°45'52"	204.29'	343.12'	S37°21'43"W
C4	1000.00'	235.45'	13°29'25"	118.27'	234.91'	S02°15'55"E

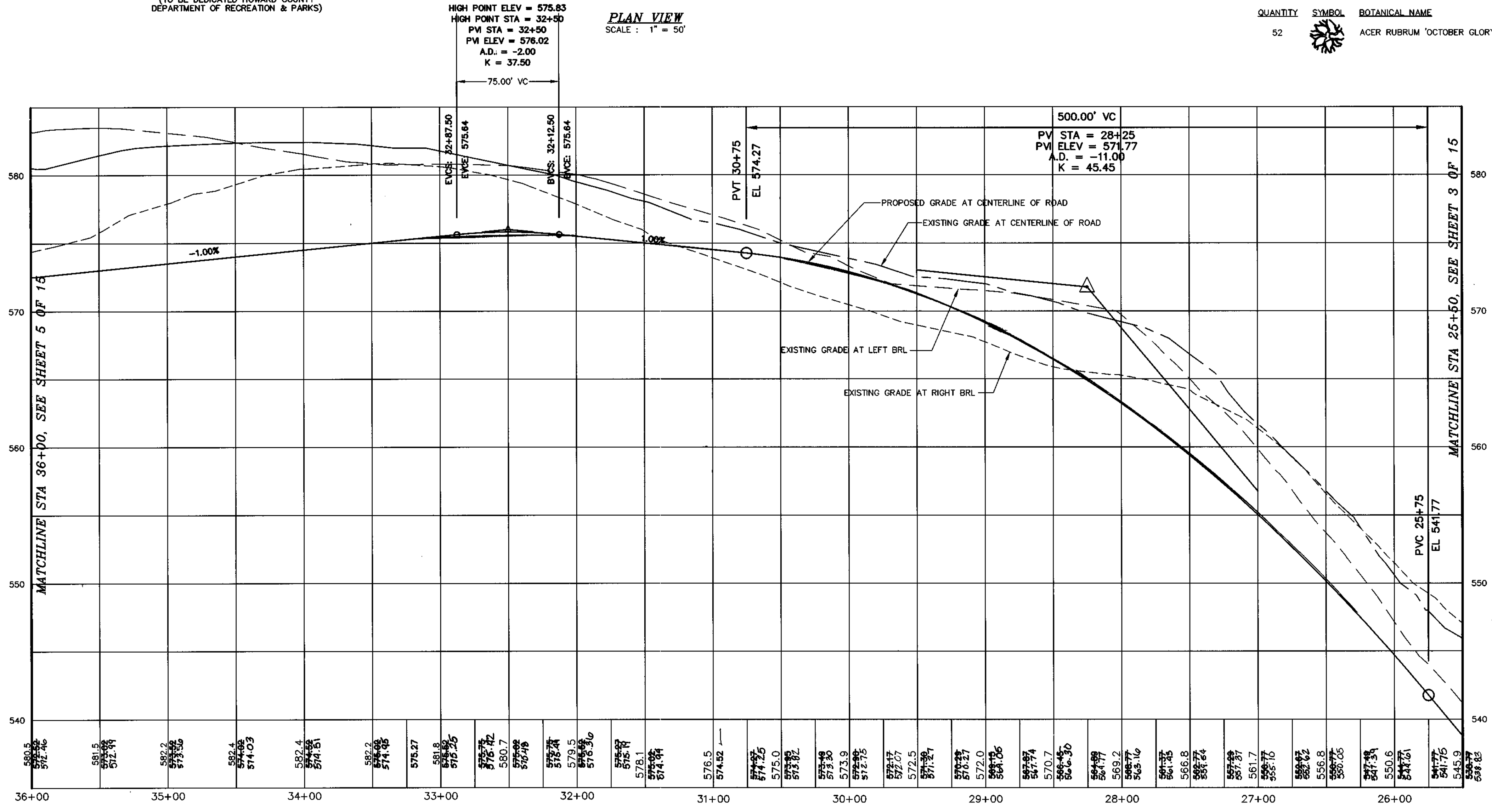


LEGEND
 → DENOTES A FLOW ARROW
 [Symbol] DENOTES A 10' PUBLIC TREE MAINTENANCE EASEMENT

STREET TREE PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
52	[Symbol]	ACER RUBRUM 'OCTOBER GLORY'	'OCTOBER GLORY' RED MAPLE	2 1/2" - 3" CAL.

PLAN VIEW
 SCALE: 1" = 50'



BARLEY FIELD WAY STA 25+00 TO STA 36+00
 DESIGN SPEED = 25 MPH
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'

AS-ENGINEERING CONSULTANTS
 DATE: 9/28/11

DEVELOPER
 LAND DESIGN & DEVELOPMENT, INC.
 10805 HICKORY RIDGE ROAD
 COLUMBIA, MARYLAND 21045

OWNER
 THOMAS POWELL
 12905 FALLS ROAD
 COCKEYSVILLE, MARYLAND 21030

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Andrew M. Daniels 10-9-97
 CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Andy Hamilton 10/28/97
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: DEVELOPMENT ENGINEERING DIVISION
 [Signature] 10/15/97
 DATE

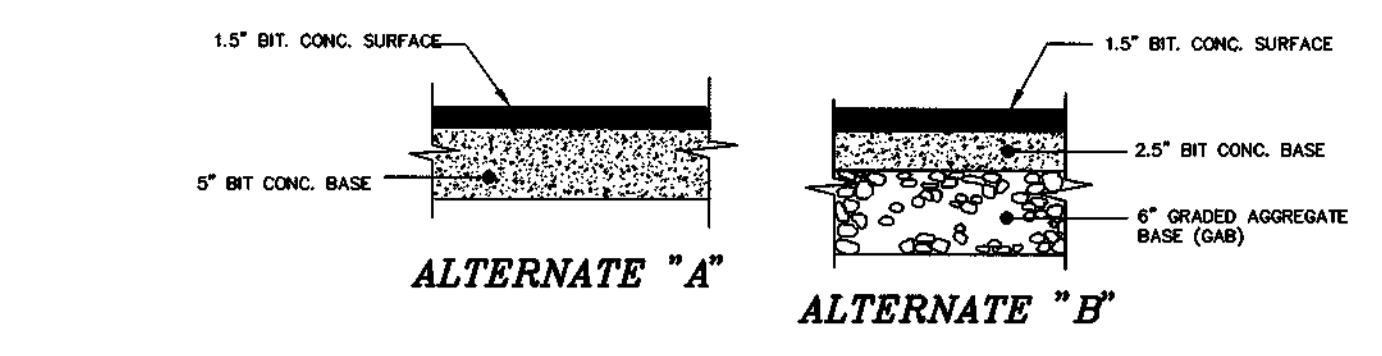
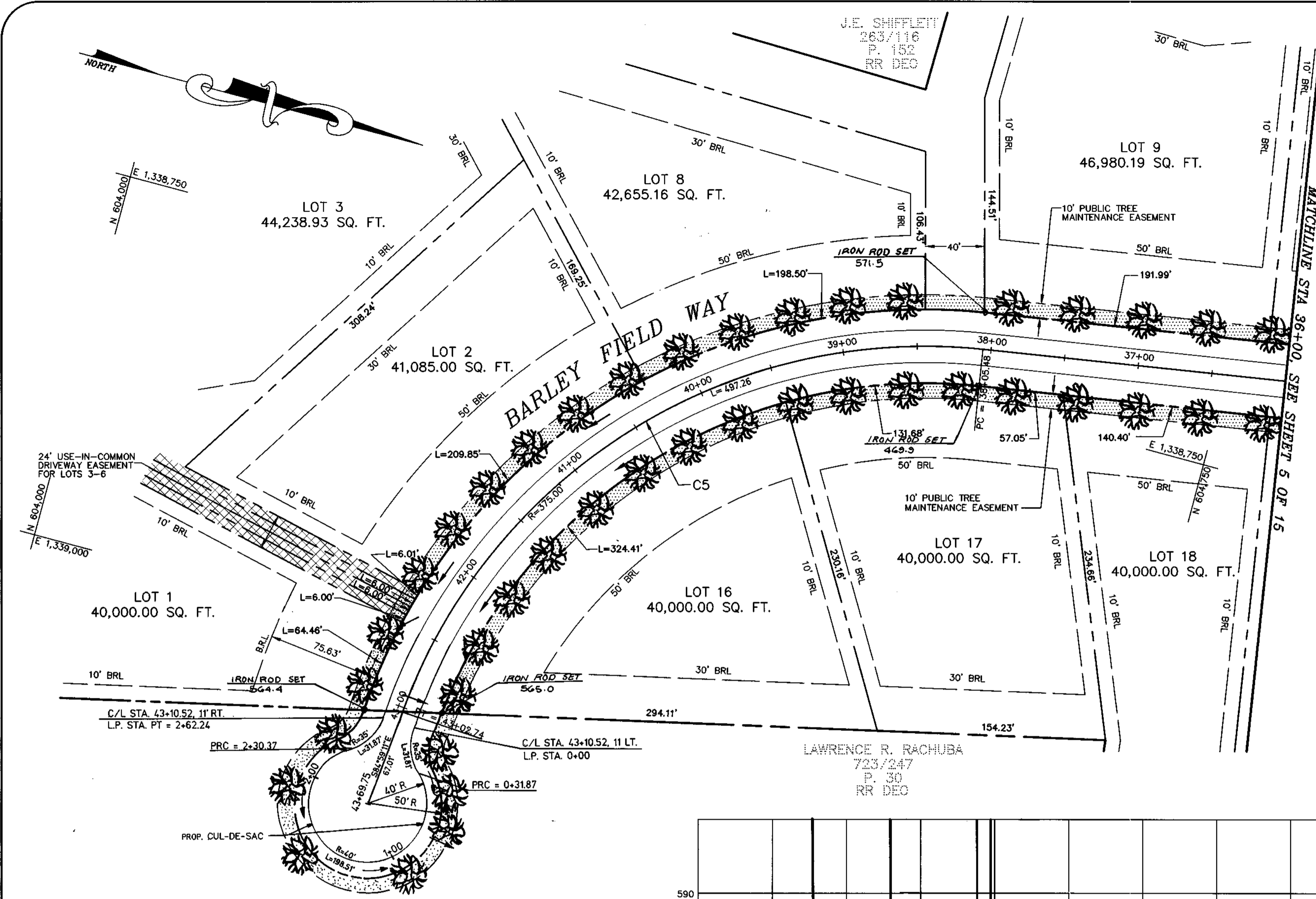
PROJECT: 97003
 DATE: MAR 1997
 ILLUSTRATION: JS/SJD
 DESCRIPTION: ENGINEERING
 SCALE: 1" = 50'
 APPROVAL: RJH

REVISION #2
 DATE: AUG 1997
 DESCRIPTION: REVISIONS

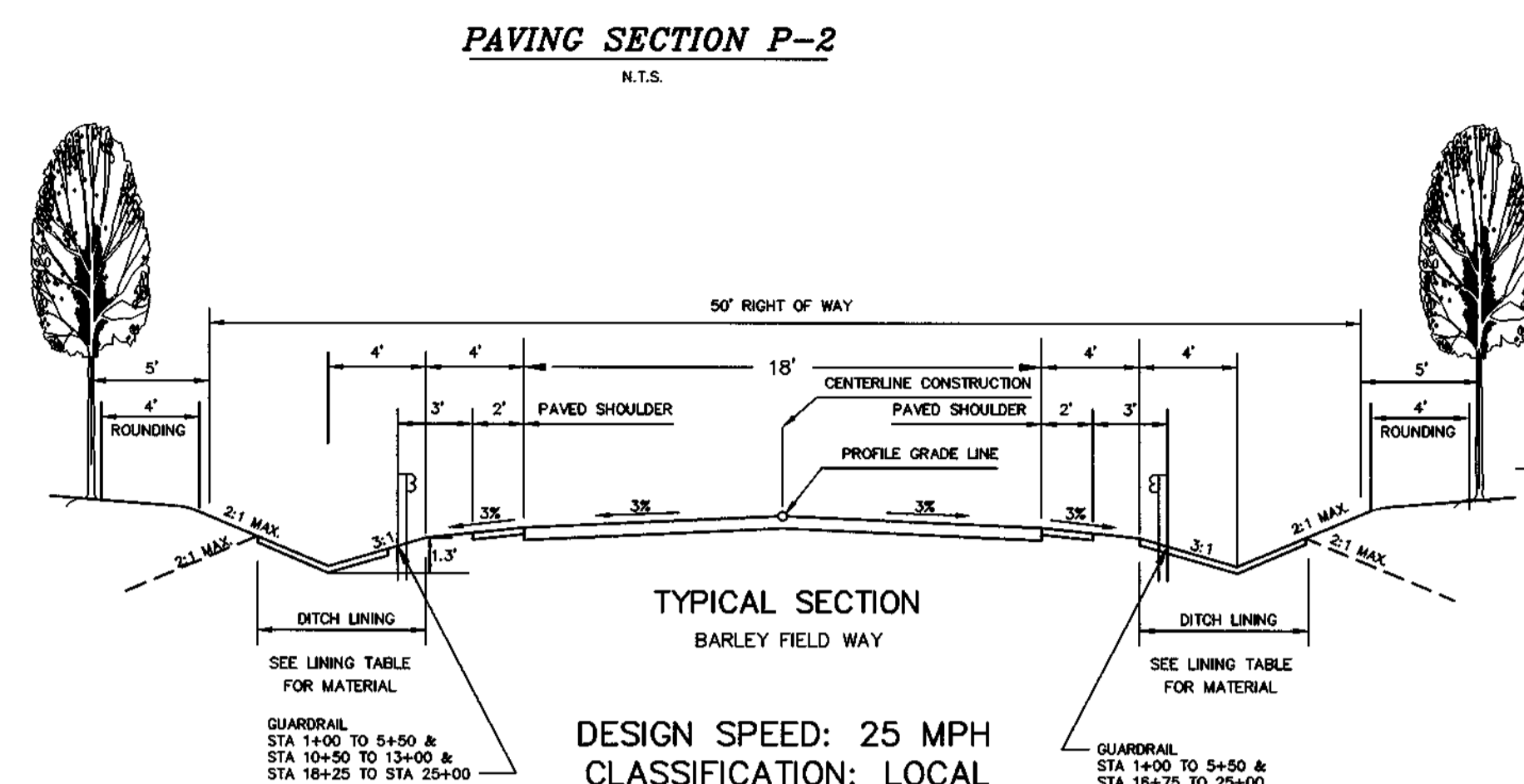
WOODFORD'S GRANT
 LOTS 1 THRU 30 AND PARCEL "A"
 TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
 HOWARD COUNTY, MARYLAND
 THIRD ELECTION DISTRICT

ROAD PLAN AND PROFILE

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hill Drive, Suite 202, Ellicott City, Maryland, 21042
 (410) 997-0206 Ext. (301) 821-5521 West. (410) 997-0298 Fax



CURVE DATA					
CURVE NO.	RADIUS	LENGTH	DELTA	TANGENT	CHORD BEARING
C5	375.00'	497.26'	75°58'33"	292.36'	S42°49'54"E



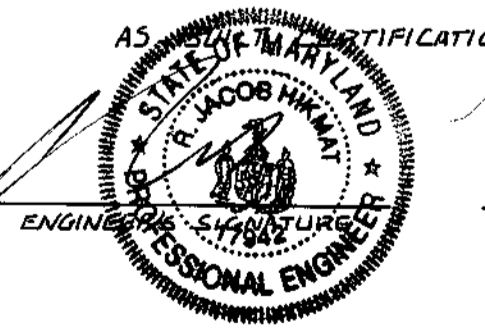
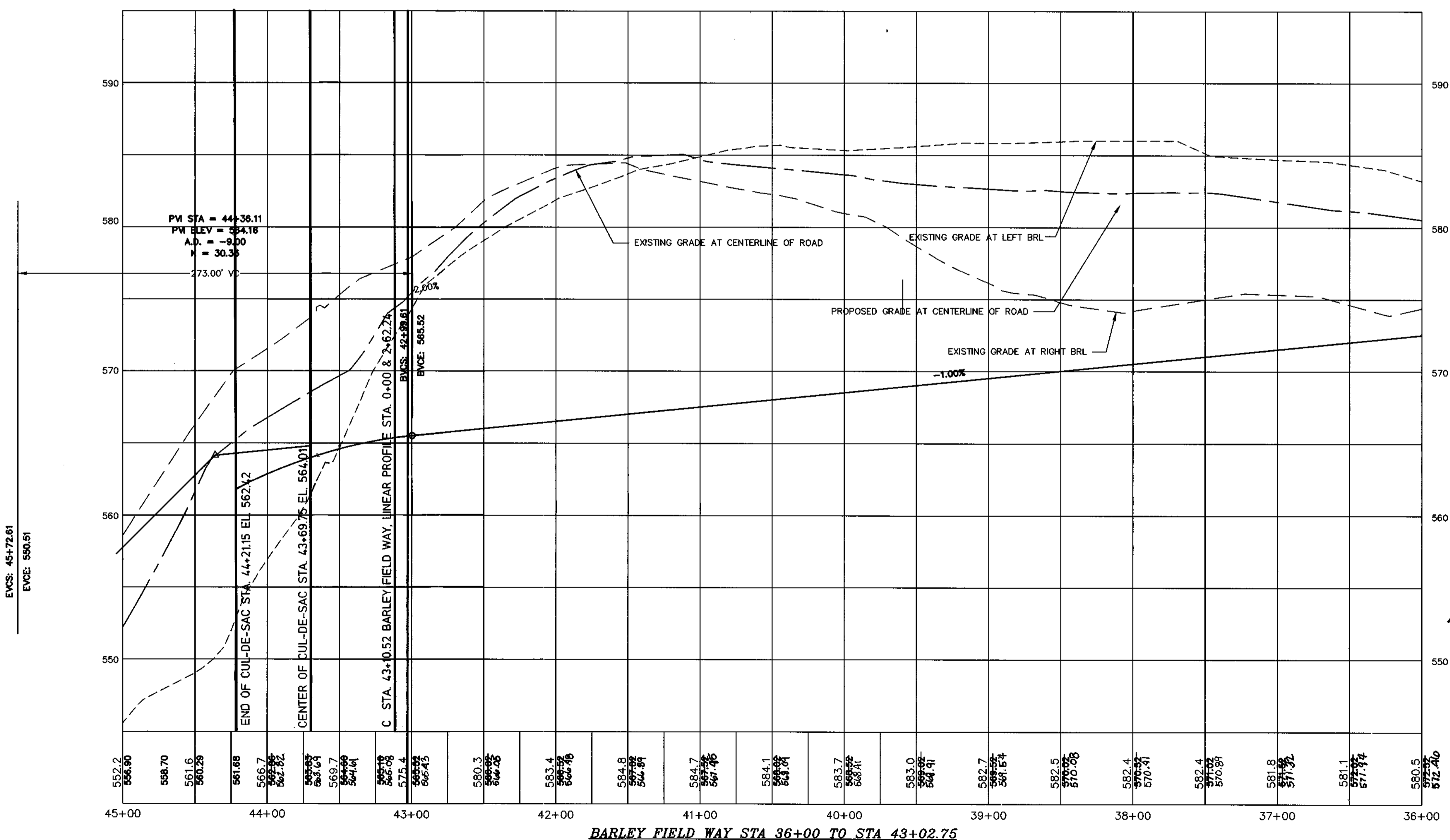
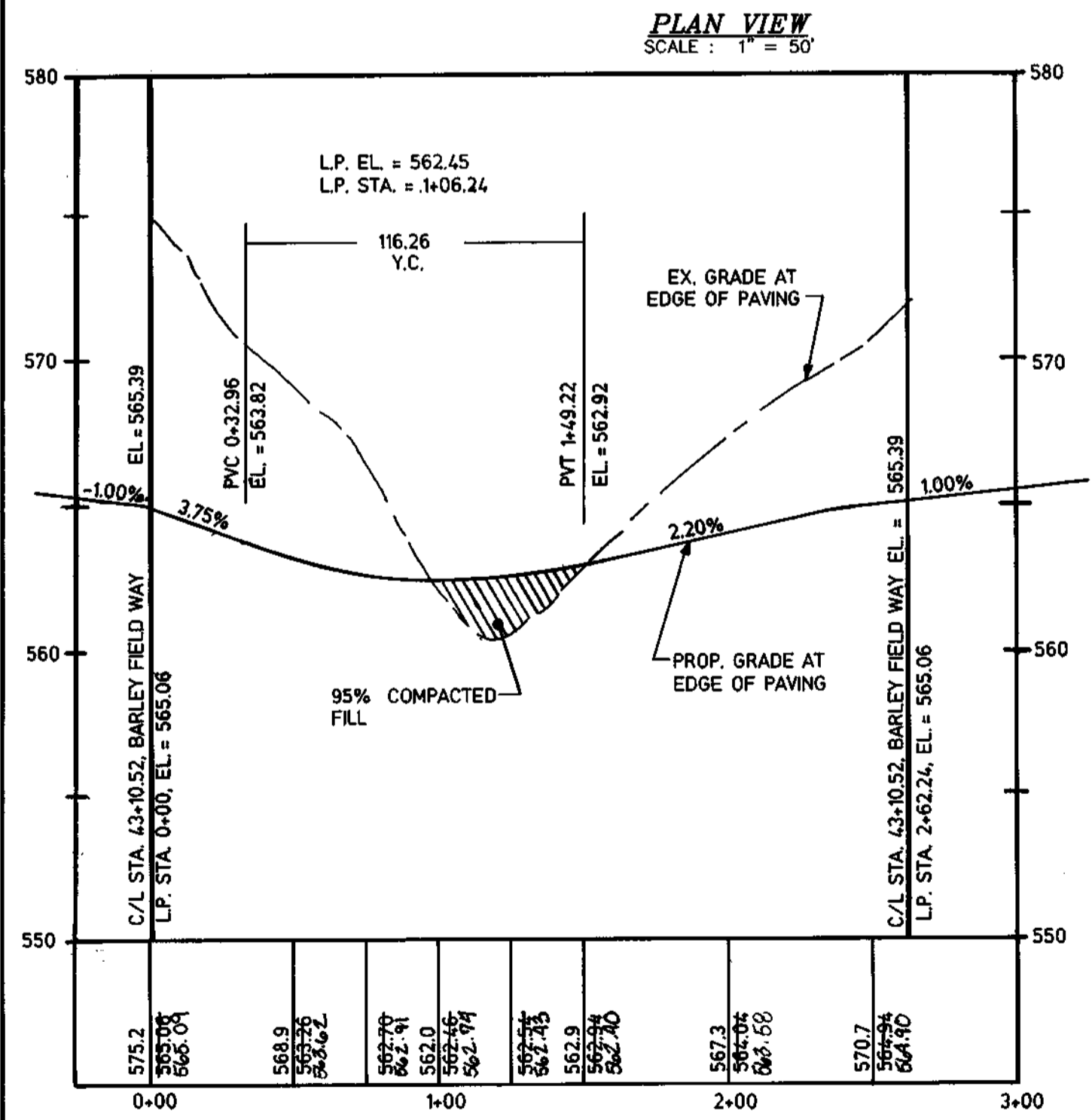
LINING TABLE		
STARTING STATION	ENDING STATION	MATERIAL
0+00	4+00	SEED & EROSION CONTROL MATTING
4+00	9+00	SCD
9+00	13+00	SEED & EROSION CONTROL MATTING
13+00	19+00	SCD
19+00	28+00	RIPRAP
28+00	43+00	SEED & EROSION CONTROL MATTING

LEGEND

- DENOTES A FLOW ARROW
- [Pattern] DENOTES A 10' PUBLIC TREE MAINTENANCE EASEMENT
- [Pattern] DENOTES A 24' PRIVATE USE-IN-COMMON DRIVEWAY EASEMENT

STREET TREE PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
35	[Tree Symbol]	ACER RUBRUM 'OCTOBER GLORY'	'OCTOBER GLORY' RED MAPLE	2 1/2" - 3" CAL.



DEVELOPER
 LAND DESIGN & DEVELOPMENT, INC.
 10805 HICKORY RIDGE ROAD
 COLUMBIA, MARYLAND 21045

OWNER
 THOMAS POWELL
 12905 FALLS ROAD
 COCKEYSVILLE, MARYLAND 21030

APPROVED: DEPARTMENT OF PUBLIC WORKS
Thomas M. Danilo 10-9-97
 CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Candy Schmitt 10/15/97
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Thomas Powell 10/15/97
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

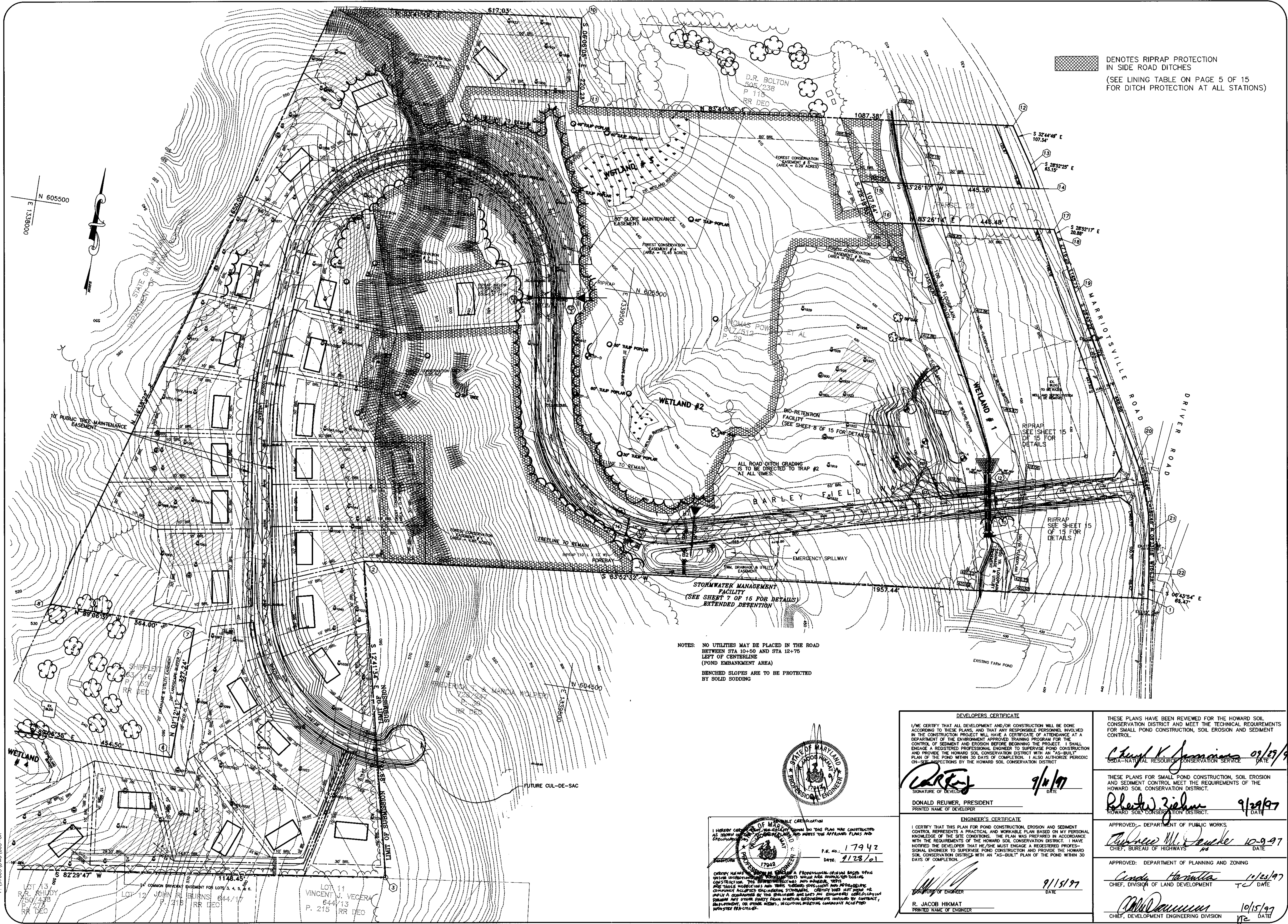
Project: 97003
 Date: MAR 1997
 Illustration: JS/SJD
 Scale: 1"=50'


2. ADD CUL-DE-SAC BULK PROFILE & RELATED CHANGES
 REVISION #1 - AUG 1997
 Description: [Blank]
 Date: 5/1/98
 By: [Blank]

WOODFORD'S GRANT
 LOTS 1 THRU 30 AND PARCEL "A"
 TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
 HOWARD COUNTY, MARYLAND
 THIRD ELECTION DISTRICT

ROAD PLAN AND PROFILE

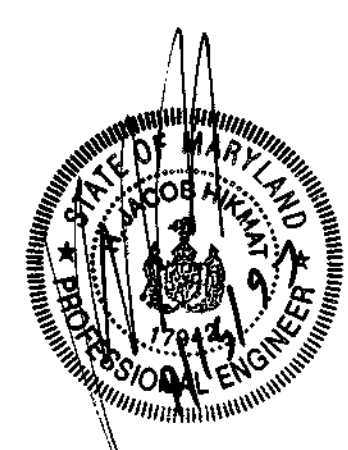
MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5092 Dorsey Hill Drive, Suite 202, Ellicott City, Maryland, 21042
 (410) 987-0288 Fax. (301) 821-5821 Wash. (410) 997-0288 Fax.




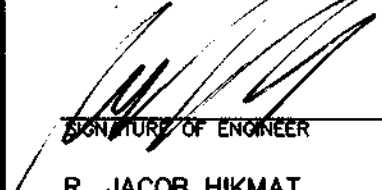
 DENOTES RIPRAP PROTECTION IN SIDE ROAD DITCHES
 (SEE LINING TABLE ON PAGE 5 OF 15 FOR DITCH PROTECTION AT ALL STATIONS)

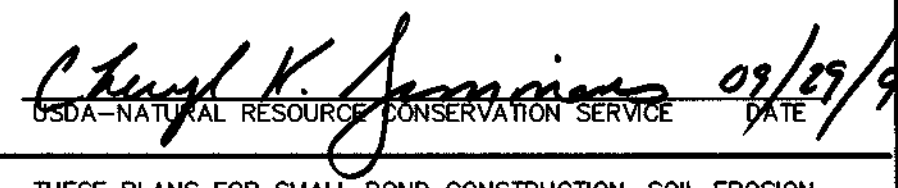
NOTES: NO UTILITIES MAY BE PLACED IN THE ROAD BETWEEN STA 10+50 AND STA 12+75 LEFT OF CENTERLINE (POND EMBANKMENT AREA)
 BENCHED SLOPES ARE TO BE PROTECTED BY SOLID SODDING

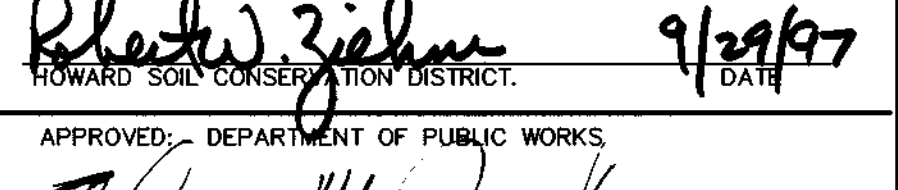
I HEREBY CERTIFY THAT THE GRADING PLAN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE ATTACHED PLANS AND MOVES THE ATTACHED PLANS AND SPECIFICATIONS TO THE GRADING PLAN.
 DATE: 9/28/97
 P.S. No.: 17942

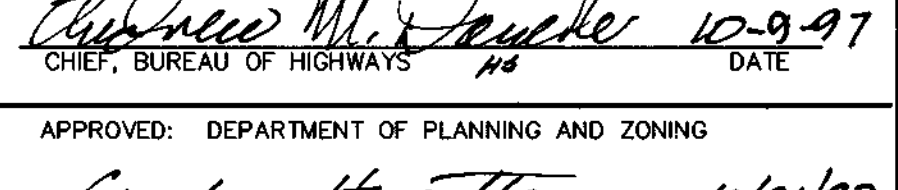


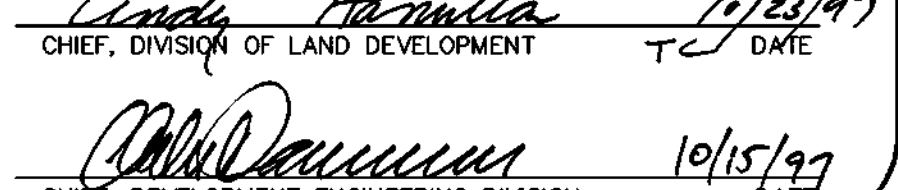
DEVELOPER'S CERTIFICATE
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL 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.
 9/10/97
 SIGNATURE OF DEVELOPER DATE
 DONALD REUWER, PRESIDENT
 PRINTED NAME OF DEVELOPER

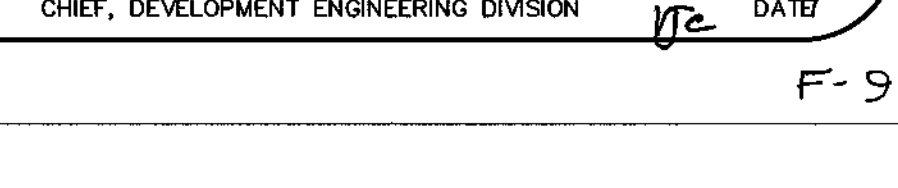
ENGINEER'S CERTIFICATE
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THE PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE 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.
 9/15/97
 SIGNATURE OF ENGINEER DATE
 R. JACOB HIKMAT
 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.
 09/29/97
 CHIEF, BUREAU OF HIGHWAYS DATE
 USDA-NATURAL RESOURCE CONSERVATION SERVICE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 9/29/97
 CHIEF, BUREAU OF HIGHWAYS DATE
 HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS
 10-9-97
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 10/25/97
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

 10/15/97
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

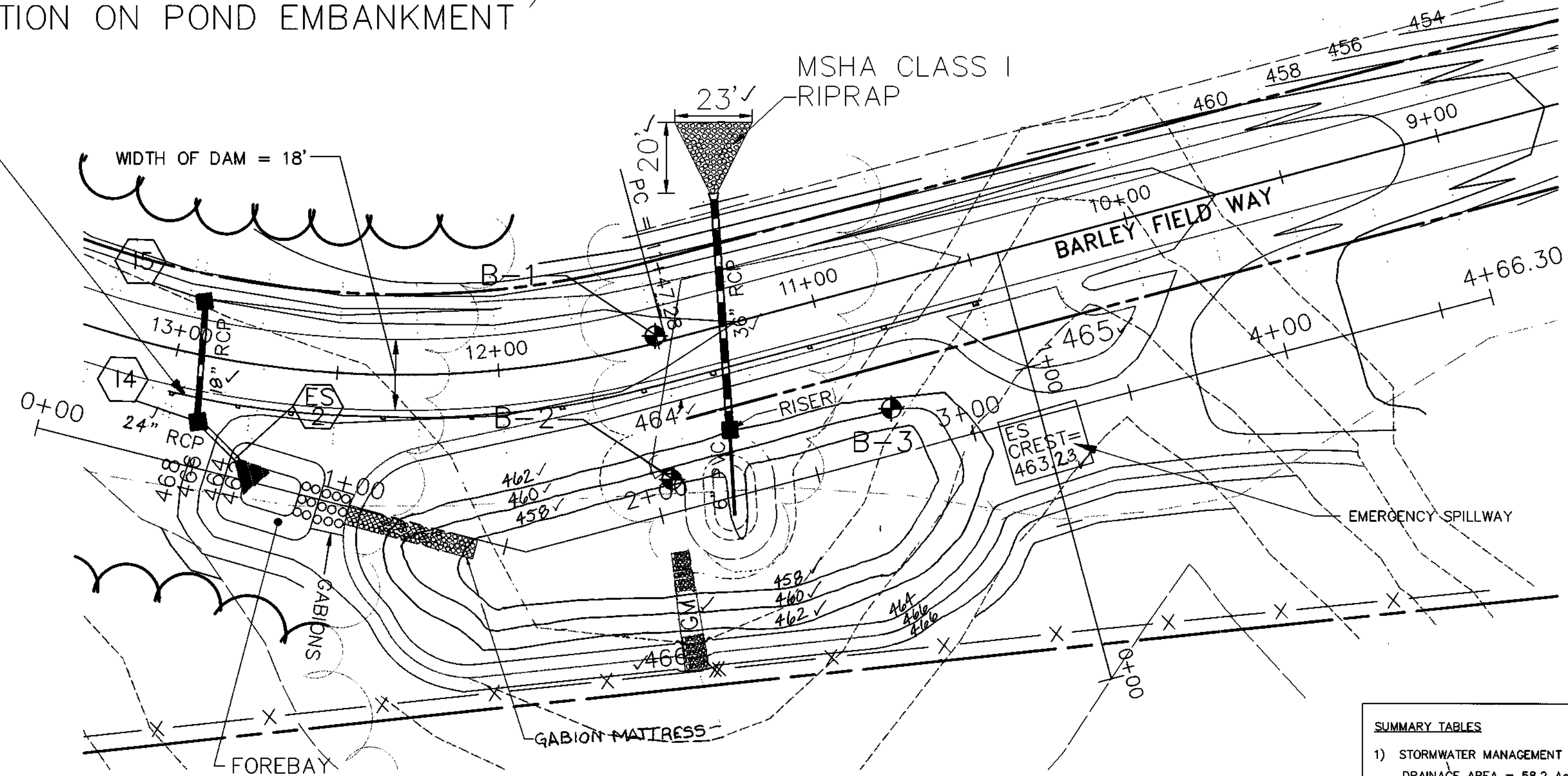
date	MAR 1997	engineering	JS	approval	RJH
project	97003	illustration	JS	scale	1"=100'

revision	3/1/2000	date	
no.		description	
1		GRADE CHANGE & SWM POND REVISION #1 - JUNE 1997	

WOODFORD'S GRANT
 LOTS 1 THRU 30 AND PARCEL "A"
 TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
 HOWARD COUNTY, MARYLAND
 THIRD ELECTION DISTRICT
GRADING PLAN

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

SEE SHEETS 2 & 3 OF 15 FOR GAURDRAIL LOCATION ON POND EMBANKMENT



NOTE: NO UTILITIES MAY BE PLACED IN THE ROAD BETWEEN STA 10+50 AND STA 12+75 LEFT OF CENTERLINE (POND EMBANKMENT AREA)

PLAN - STORMWATER MANAGEMENT FACILITY (EXTENDED DETENTION)

SCALE: 1"=30'

SUMMARY TABLES

1) STORMWATER MANAGEMENT DATA
DRAINAGE AREA = 58.2 Ac. (STUDY POINT)

STORM FREQUENCY	ALLOWABLE RELEASE, cfs	PROVIDED RELEASE, cfs
2 YR.	10	5
10 YR.	63	40.3

2) POND DATA
DRAINAGE AREA = 18.58 Ac.

STORM	ACTUAL DISCHARGE (cfs)	ELEVATION (ft.)	STORAGE (Ac.-ft.)
2 YR.	0.1	462.39'	0.5
10 YR.	25	463.34'	1.54
100 YR.	110	464.07'	1.66

NOTE: CLAY MATERIAL FOR IMPERVIOUS CORE MUST BE VERIFIED BY THE GEOTECHNICAL ENGINEER BEFORE USING. IT SHOULD IMPORTED IF NOT AVAILABLE ON-SITE.

STATE OF MARYLAND PROFESSIONAL ENGINEERING CERTIFICATION

DATE: 9/28/97
DATE: 17942

PROFESSIONAL ENGINEER

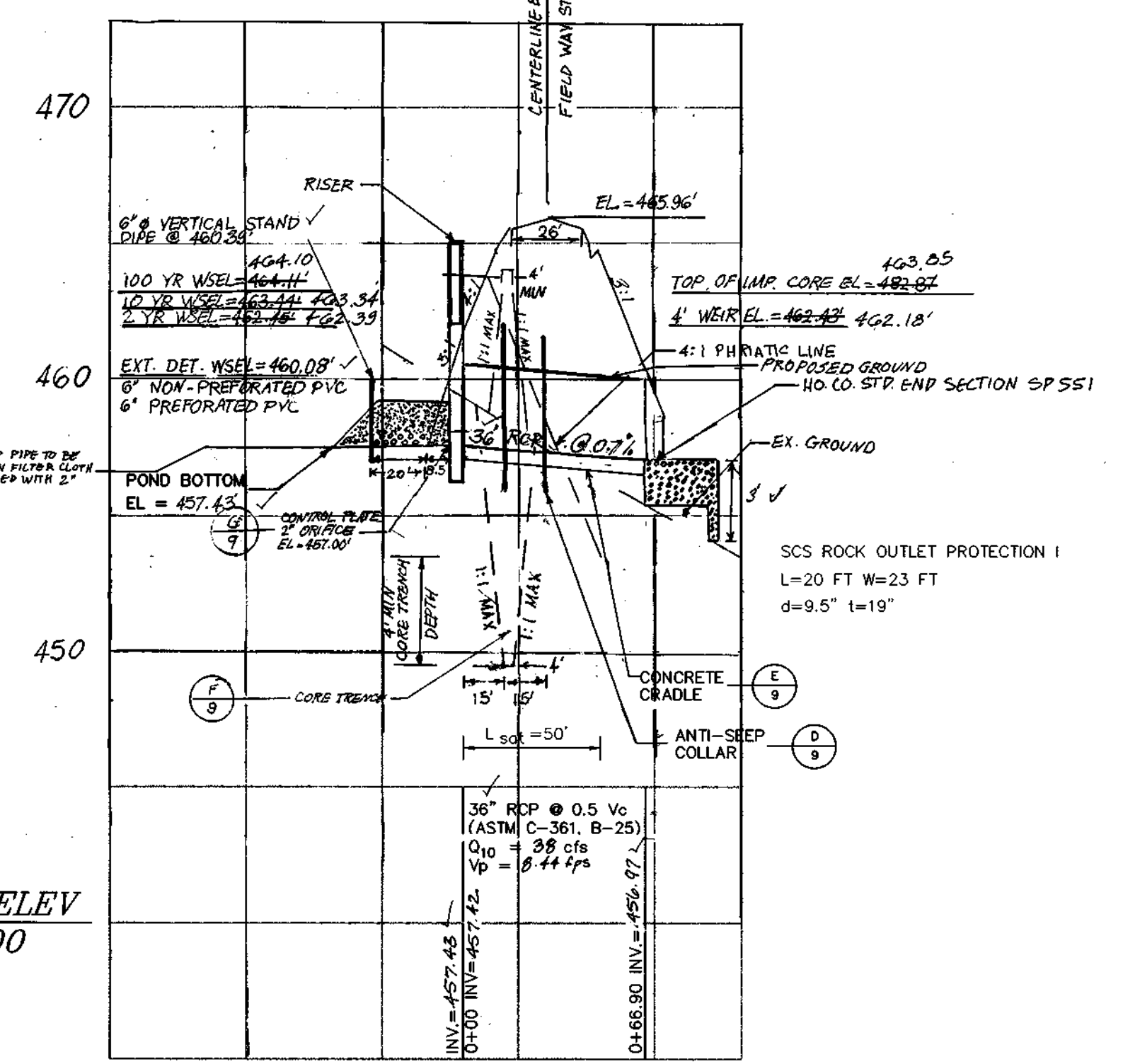
EMBANKMENT AND CUTOFF TRENCH CONSTRUCTION

THE SITE SHALL BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHALL BE PROOFROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, THE EXPOSED MATERIALS SHALL BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFROLLING OR PENETROMETER TESTING SHALL BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.

A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHALL BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH. IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SPECIFICATION 378 SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUT-OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH OR CL. A REVIEW OF THE SITE BORINGS DID NOT INDICATE SUITABLE CORE OR CUTOFF TRENCH MATERIALS IN THE CUT AREAS OF THE SITE. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH MD SCS 378 SPECIFICATIONS.

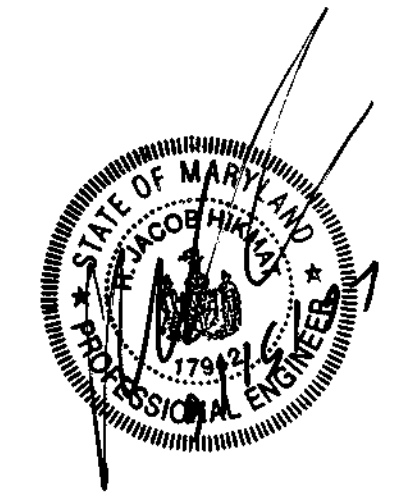
THOSE MATERIALS COMPACTED WITHIN THE EMBANKMENT AND BELOW THE PROPOSED ROADWAY SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF THE MODIFIED PROCTOR (ASTM 1557) MAXIMUM DRY DENSITY. THE SOILS WITHIN 2 FT OF ROADWAY SUBGRADE SHALL MEET THE FOLLOWING HOWARD COUNTY CRITERIA:

- LIQUID LIMIT < 40
- PLASTICITY INDEX < 10
- MAXIMUM DRY DENSITY (ASTM 1557) > 105 PCF



PROFILE - PRINCIPAL SPILLWAY

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



DEVELOPERS 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.

DATE: 9/10/97

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.

DATE: 9/15/97

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.

DATE: 09/27/97

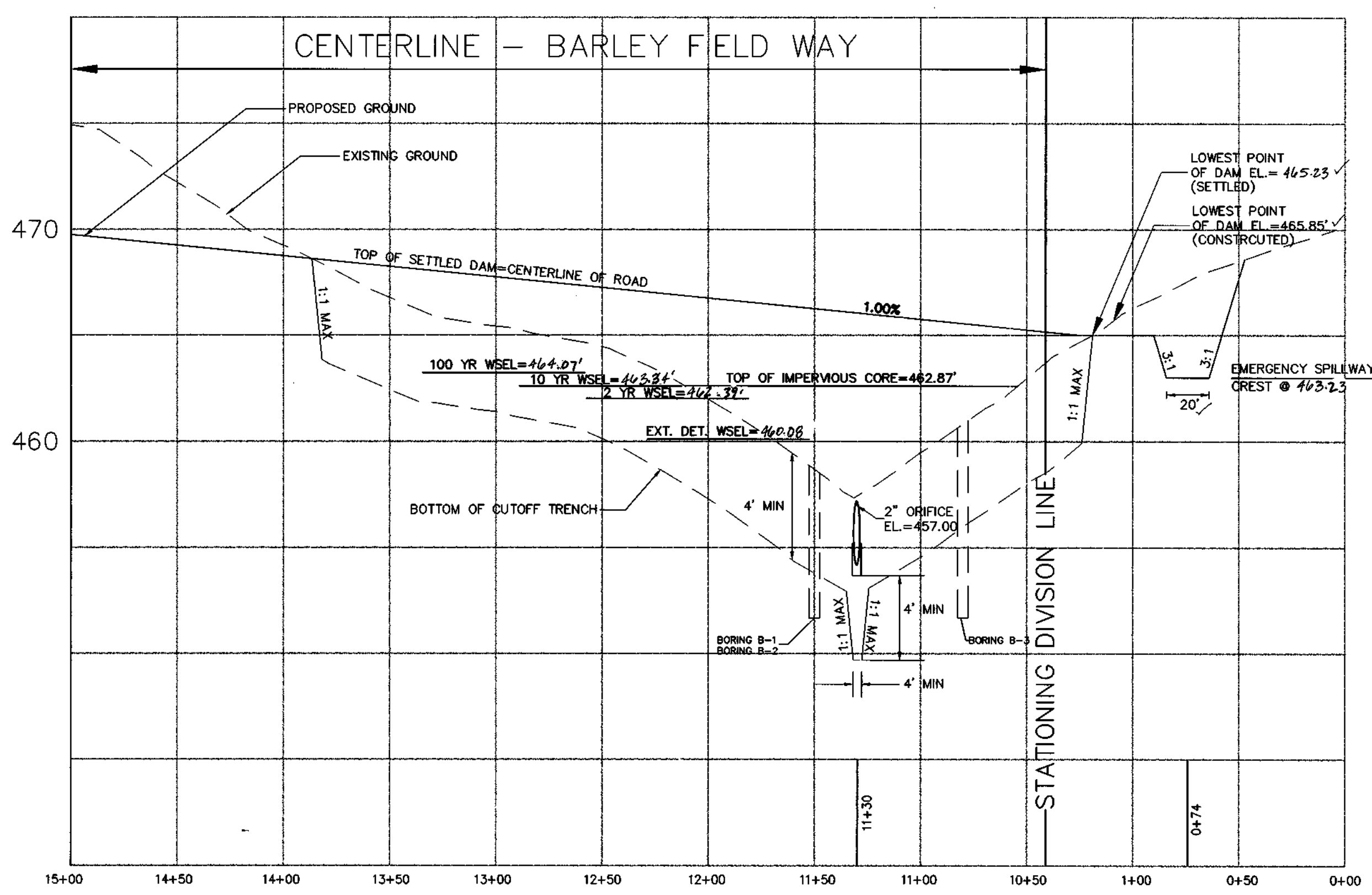
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

DATE: 9/29/97

APPROVED: DEPARTMENT OF PUBLIC WORKS
DATE: 10-9-97

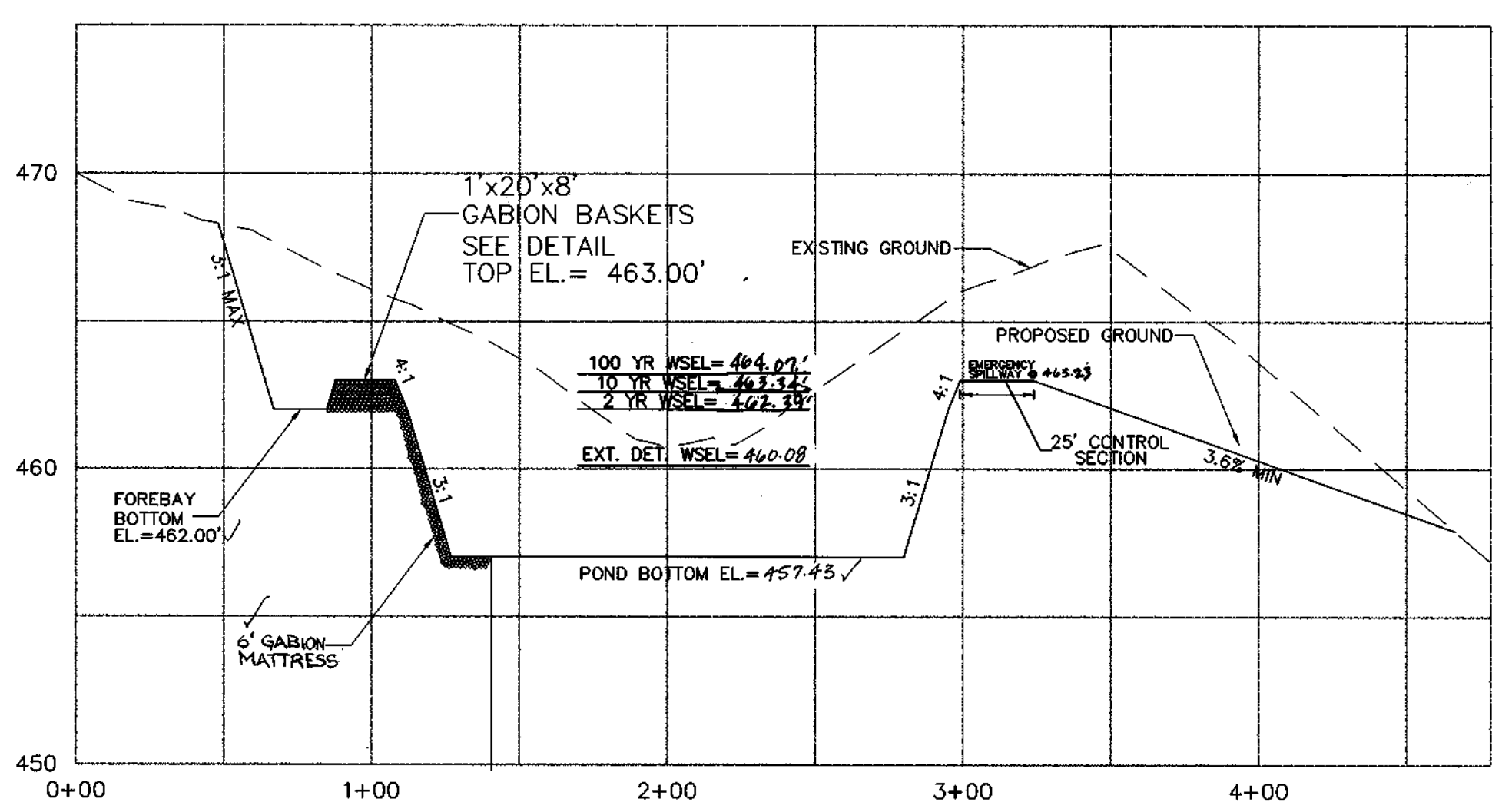
APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 10/23/97

DATE: 10/15/97



SECTION - CENTERLINE OF DAM

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



SECTION - FOREBAY AND EMERGENCY SPILLWAY

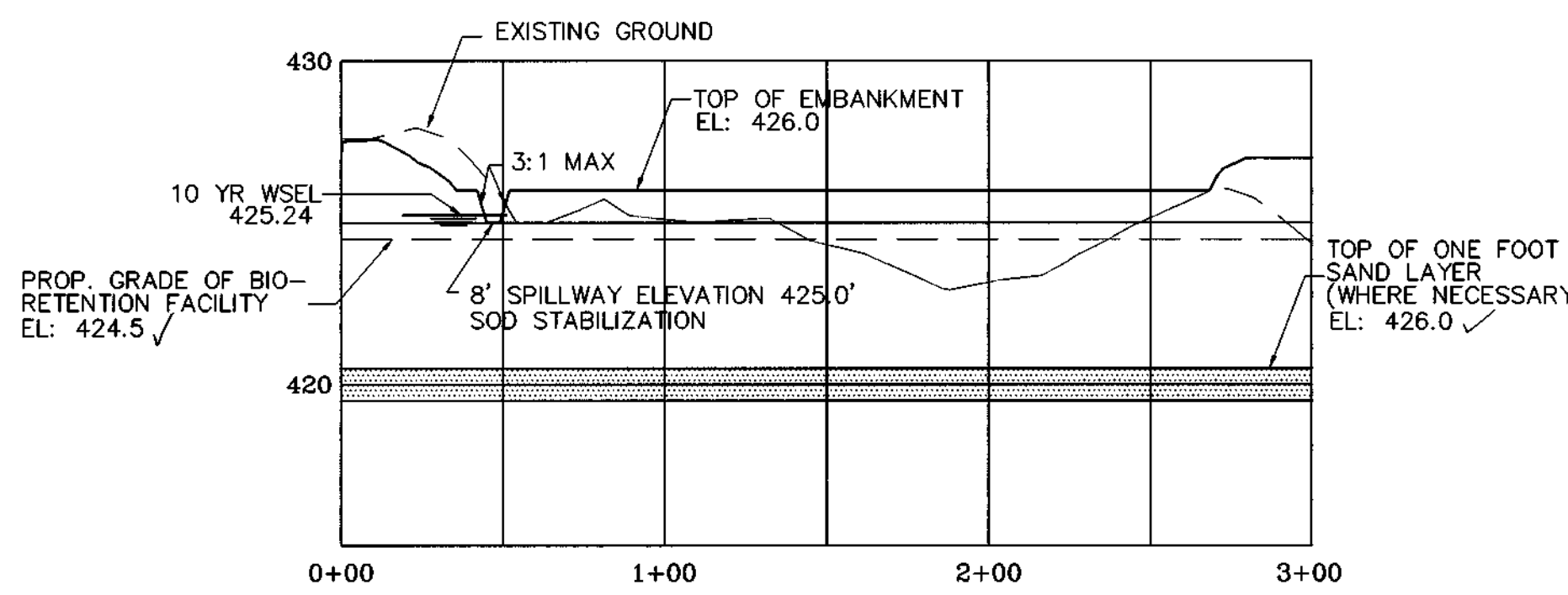
SCALE: 1"=50' HOR
1"=5' VER

project	date	approval
97003	MAR 1997	RIH
illustration	scale	
IS	1"=60'	

revision	description	date
3	SWM GRADING & RELEASE STRUCTURE REVISION	9/14/2000
2	REVISION #1 - 1997	

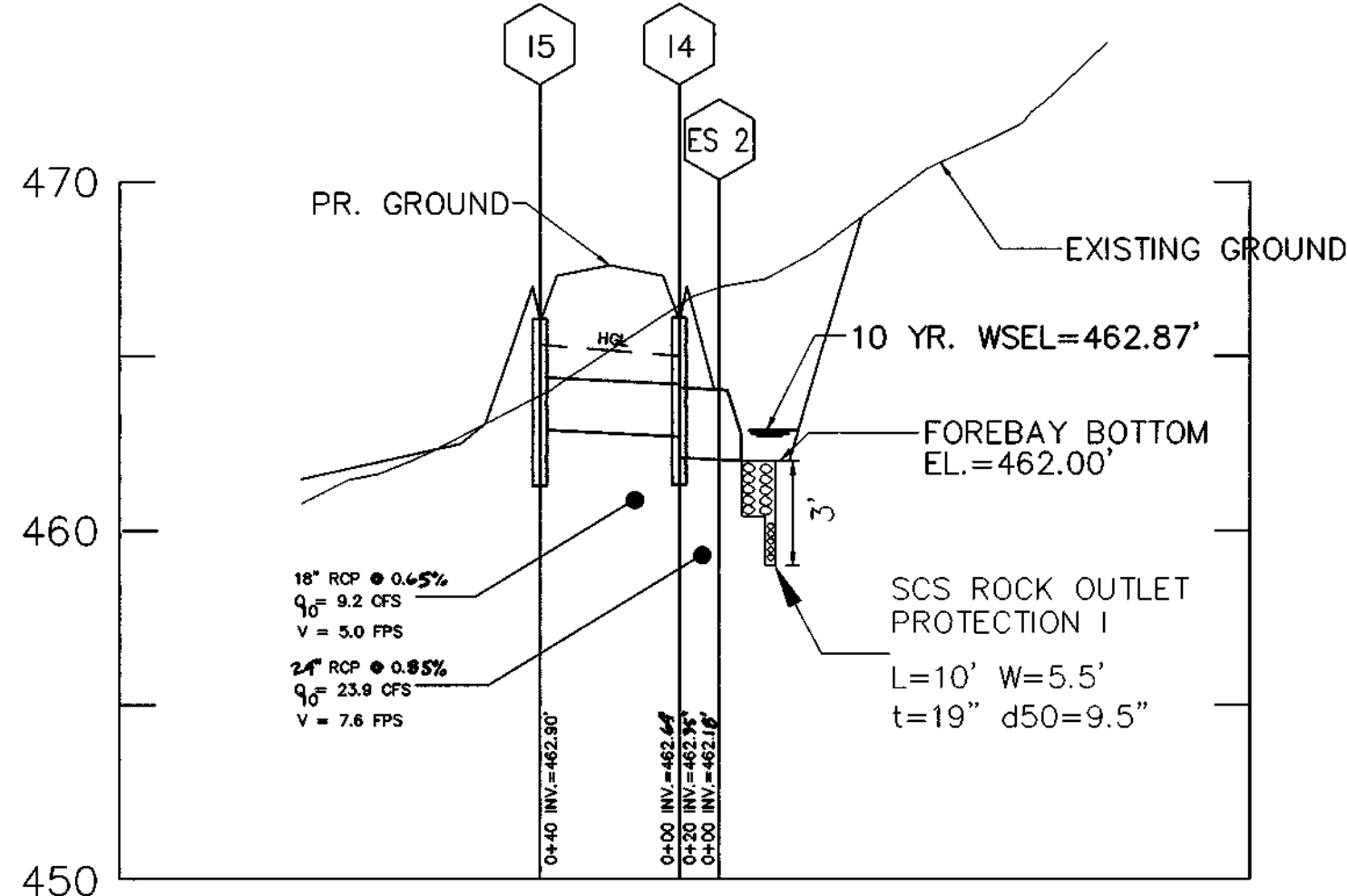
WOODFORD'S GRANT
LOTS 1 THRU 30 AND PARCEL "A"
TAX MAP 10 - PARCELS 27, 29 & 151
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SWM SPECIFICATIONS AND DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Beltsville, Maryland 21042
(410) 997-0296 Fax (410) 997-0298 Fax



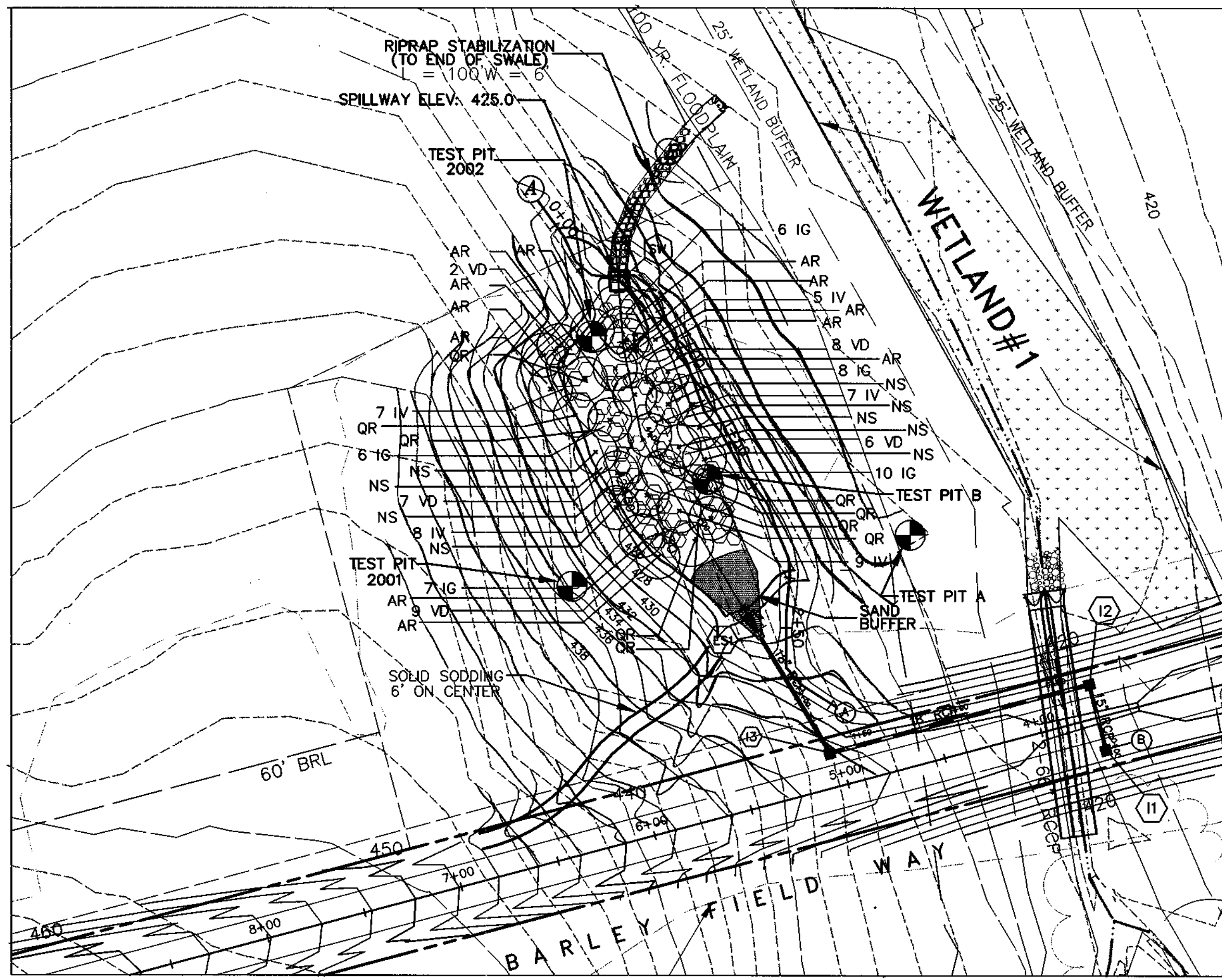
A PROFILE FOR BIORETENTION AREA SPILLWAY AND EARTH DAM

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



PROFILE FOR INFLOW PIPE TO POND

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



PLAN VIEW BIORETENTION AREA

SCALE: 1"=50'

BIORETENTION AREA PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
9	NS	NYSSA SYLVATICA	BLACK GUM	2 1/2" - 3" CAL
12	AR	RED SUNSET RED MAPLE	ACER RUBRUM 'RED SUNSET'	2 1/2" - 3" CAL
14	OR	QUERCUS RUBRA	RED OAK	2 1/2" - 3" CAL
34	VD	VIBURNUM DENTATUM	ARROWWOOD	2.5" - 3" HT.
34	IV	ILEX VERTICILLATA	WINTERBERRY	2.5" - 3" HT.
37	IG	ILEX GLABRA	INKBERRY	2.5" - 3" HT.

TOTAL: 140 TREES & SHRUBS (35 TREES, 105 SHRUBS)

PLANT MATERIAL GUIDELINES

BALLED & BURLAPPED AND CONTAINERIZED TREES AND SHRUBS SHOULD BE PLANTED BETWEEN MARCH 15 AND JUNE 30 OR SEPTEMBER 15 AND NOVEMBER 15 AS SPECIFIED ON THE ROAD PLAN DRAWINGS. GROUNDCOVERS FOLLOW TREE AND SHRUB PLANTING DATES. GRASSES AND LEGUMES SHOULD BE PLANTED IN THE SPRING.

FOR ALL PLANT INSTALLATION, THE CONTRACTOR SHALL PROVIDE A ONE (1) YEAR 80% CARE AND REPLACEMENT WARRANTY. THIS WARRANTY SHALL BEGIN AFTER INSPECTION AND APPROVAL OF THE COMPLETE INSTALLATION OF ALL PLANT MATERIAL AND CONTINUE FOR ONE (1) YEAR. REPLACEMENT OF PLANT MATERIAL SHALL CONFORM TO THE SPECIFICATIONS SET FORTH IN THE MAINTENANCE SCHEDULE.

INSTALLATION & MAINTENANCE SCHEDULE

SOILS:
TEST PIT TP-B SHOWS THAT THERE IS SUITABLE SOIL SURROUNDING IT. HOWEVER TEST PITS TP-2001 SHOW SOILS THAT ARE NOT SUITABLE FOR PLANTING. THEREFORE EXCAVATION OF 5 FEET WILL BE IN THE AREAS OF THESE UNSUITABLE BORINGS. WHEN BACKFILLING PLACE ONE (1) FOOT OF SAND AND THEN FOUR (4) FEET OF SUITABLE SOIL UP TO THE PROPOSED FACILITY ELEVATION. IN TRANSITION AREAS BETWEEN TEST PITS A GEOTECHNICAL ENGINEER SHALL DETERMINE THE AMOUNT OF EXCAVATION NEEDED AND THE TYPE OF BACKFILL NECESSARY. SMALL INTRUSIONS OF ROCKS MAY BE ALLOWED WITH THE SAND AND PLANTING SOILS TO ACCOMMODATE THE EXISTING ON-SITE ROCKS.

SUITABLE SOILS SHALL CONSIST OF THE FOLLOWING SOILS: LOAM, LOAMY SAND, AND/OR SANDY LOAM. INSPECT AND REPAIR EROSION MONTHLY.

ORGANIC LAYER:
ONCE TREES AND SHRUBS HAVE BEEN INSTALLED, THE MULCH MAY BE ADDED. ANY GROUNDCOVERS SPECIFIED AS PLUGS MAY BE INSTALLED ONCE THE MULCH HAS BEEN LAID DOWN. GROUNDCOVERS ESTABLISHED BY SEEDING AND/OR CONSISTING OF GRASSES SHOULD NOT BE COVERED WITH A MULCH LAYER.

SINCE THESE PLANT COMMUNITIES ARE WITHIN AN URBAN LOCATION, THE ORGANIC LAYER TENDS TO BECOME VERY ACIDIC DUE TO PRECIPITATION AND RUNOFF. ONCE TO TWICE A YEAR, TESTING OF PH OF THE ORGANIC LAYER SHALL BE DONE TO DETERMINE THE AMOUNT OF LIMESTONE REQUIRED TO TREAT THE PLANTING SOIL.

ANNUAL SOIL TESTING SHOULD BE CONDUCTED TO DETECT AND PREVENT THE ACCUMULATION OF TOXINS AND HEAVY METALS.

ONCE A YEAR IN THE SPRING BY HAND, REMOVE PREVIOUS MULCH LAYER AND APPLY NEW MULCH LAYER IF NEEDED.

WHENEVER NEEDED, REMULCH ANY VOID AREAS BY HAND.

PLANT MATERIAL:

ONCE PLANTING HAS BEEN COMPLETED, PLANT MATERIAL SHOULD BE WATERED BY HAND AT THE END OF EACH DAY FOR FOURTEEN CONSECUTIVE DAYS.

ANNUAL MAINTENANCE WILL BE REQUIRED FOR ALL PLANT MATERIAL. INSPECTION OF ALL VEGETATION SHALL OCCUR TWICE A YEAR. PLANT MATERIAL MAINTENANCE AND UPKEEP SHALL INCLUDE ADDRESSING PROBLEMS ASSOCIATED WITH DISEASE OR INSECT INFESTATIONS AND ANY NECESSARY PRUNING AS WELL AS REPLACEMENT OF DEAD PLANT MATERIAL.

DEAD PLANT MATERIAL SHALL BE REPLACED BETWEEN MARCH 15 AND APRIL 30 OR OCTOBER 1 AND NOVEMBER 30.

DEPENDING ON THE TYPE OF INSECT AND DISEASE INFESTATION, DISEASED TREES AND SHRUBS SHOULD BE TREATED BY HAND AT VARIOUS TIMES DURING THE YEAR.

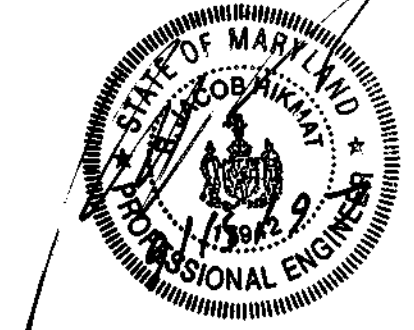
WHENEVER NEEDED, DEFICIENT STAKES OR WIRES SHOULD BE REPLACED BY HAND. ONCE A YEAR, ONLY IN THE SPRING, STAKES SHOULD BE REPLACED.

STRUCTURE SCHEDULE

NO.	LOCATION	THROAT EL.	INV. IN	INV. OUT	COMMENTS
I-1	BARLEY FIELD WAY STA 3+71.30 - 17' OFFSET LEFT	428.27	----	425.88	INLET TYPE K (HO. CO. STD SD 4.13) - SWMP
I-2	BARLEY FIELD WAY STA 3+71.30 - 17' OFFSET RIGHT	428.27	425.71	425.61	INLET TYPE K (HO. CO. STD SD 4.13) - SWMP
I-3	BARLEY FIELD WAY STA 5+04.70 - 17' OFFSET RIGHT	431.24	424.94	424.84	INLET TYPE K (HO. CO. STD SD 4.13)
I-4	BARLEY FIELD WAY STA 12+98.37 - 17' OFFSET LEFT	466.00	462.70	462.10	INLET TYPE K (HO. CO. STD SD 4.13)
I-5	BARLEY FIELD WAY STA 12+98.37 - 17' OFFSET RIGHT	466.00	-----	462.90	INLET TYPE K (HO. CO. STD SD 4.13)
ES-1	BARLEY FIELD WAY STA 5+27.68 - 97' OFFSET RIGHT	-----	-----	424.50	END SECTION (HO. CO. STD SD 5.51)
ES-2	BARLEY FIELD WAY STA 12+65.44 - 38' OFFSET LEFT	-----	-----	462.00	END SECTION (HO. CO. STD SD 5.51)
ES-3	BARLEY FIELD WAY STA 19+50.00 - 33' OFFSET LEFT	-----	-----	466.72	END SECTION (HO. CO. STD SD 5.51)
ES-4	BARLEY FIELD WAY STA 19+50.00 - 66' OFFSET RIGHT	-----	-----	462.00	END SECTION (HO. CO. STD SD 5.51)
IS UP TO 100' UPSTREAM	BARLEY FIELD WAY STA 4+00.72 - 73.17' OFFSET LEFT	-----	413.74	-----	END SECTION (HO. CO. STD SD 5.51)
IS UP TO 100' DOWNSTREAM	BARLEY FIELD WAY STA 3+88.67 - 65.36' OFFSET RIGHT	-----	-----	412.26	END SECTION (HO. CO. STD SD 5.51)
IS UP TO 100' UPSTREAM	BARLEY FIELD WAY STA 3+91.31 - 73.50' OFFSET LEFT	-----	413.81	-----	END SECTION (HO. CO. STD SD 5.51)
IS UP TO 100' DOWNSTREAM	BARLEY FIELD WAY STA 3+78.00 - 65.00' OFFSET RIGHT	-----	-----	412.40	END SECTION (HO. CO. STD SD 5.51)

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: *Donald Reuwer* DATE: 9/16/97
DONALD REUWER, PRESIDENT



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: *R. Jacob Hikmat* DATE: 9/16/97
R. JACOB HIKMAT

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: *Cheryl L. Spivey* DATE: 9/29/97
USDA-NATURAL RESOURCE CONSERVATION SERVICE

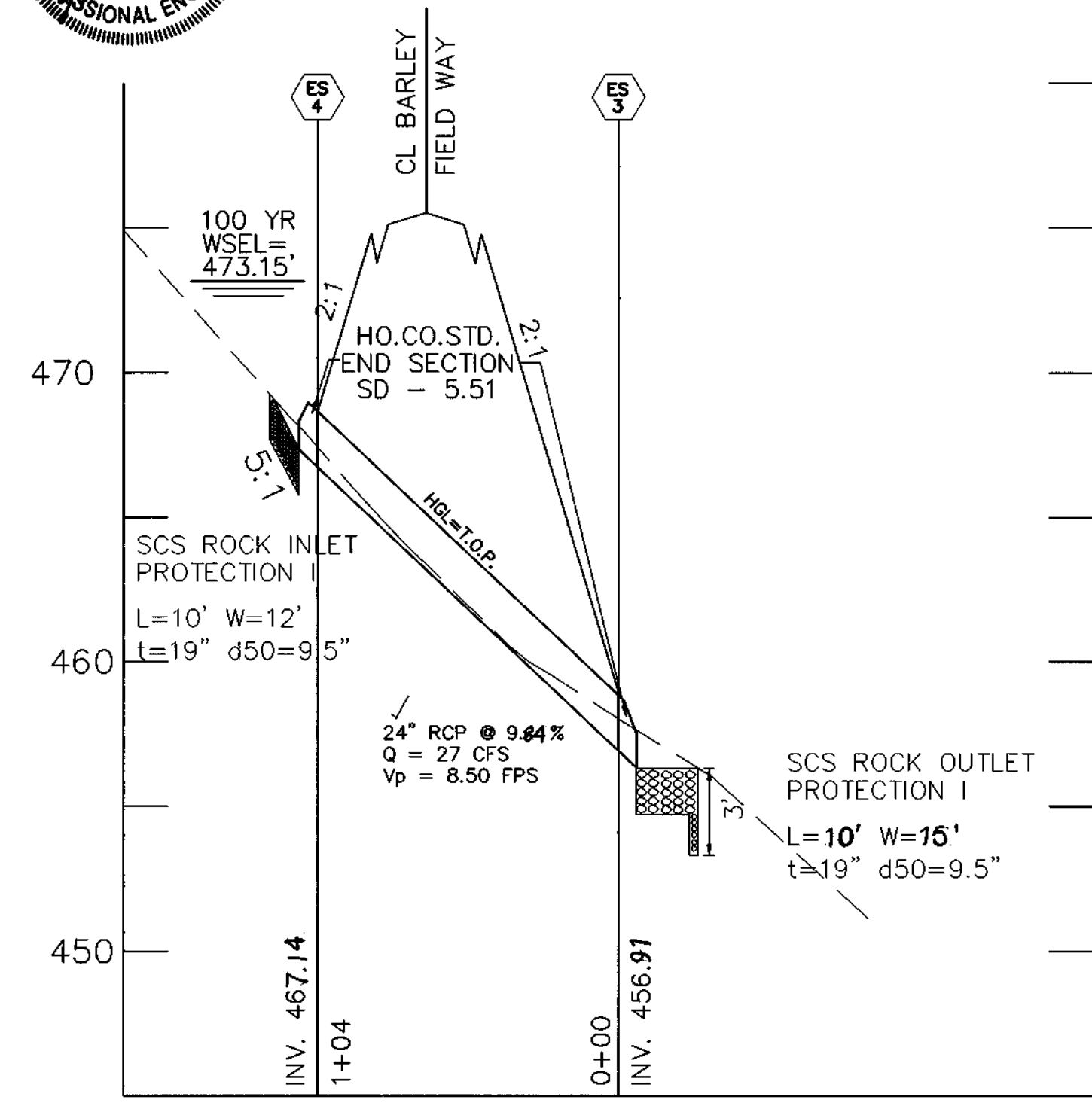
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *Robert W. Ziehm* DATE: 9/29/97
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS
Signature: *Andrew M. Penick* DATE: 10-9-97
CHIEF, BUREAU OF HIGHWAYS

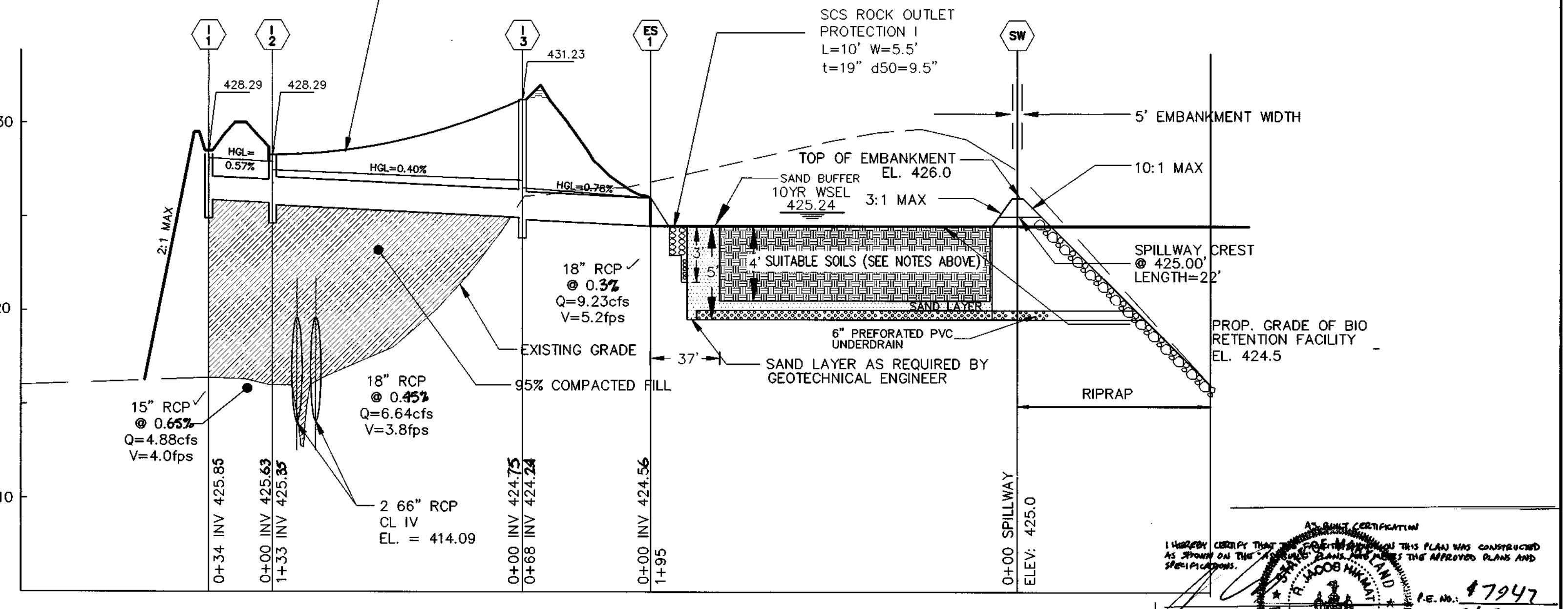
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Signature: *Cathy Hamilton* DATE: 10/23/97
CHIEF, DIVISION OF LAND DEVELOPMENT

Signature: *John P. ...* DATE: 10/15/97
CHIEF, DEVELOPMENT ENGINEERING DIVISION



PROFILE FOR CULVERT UNDER BARLEY FIELD WAY

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



PROFILE FOR STORM DRAIN AND BIORETENTION AREA

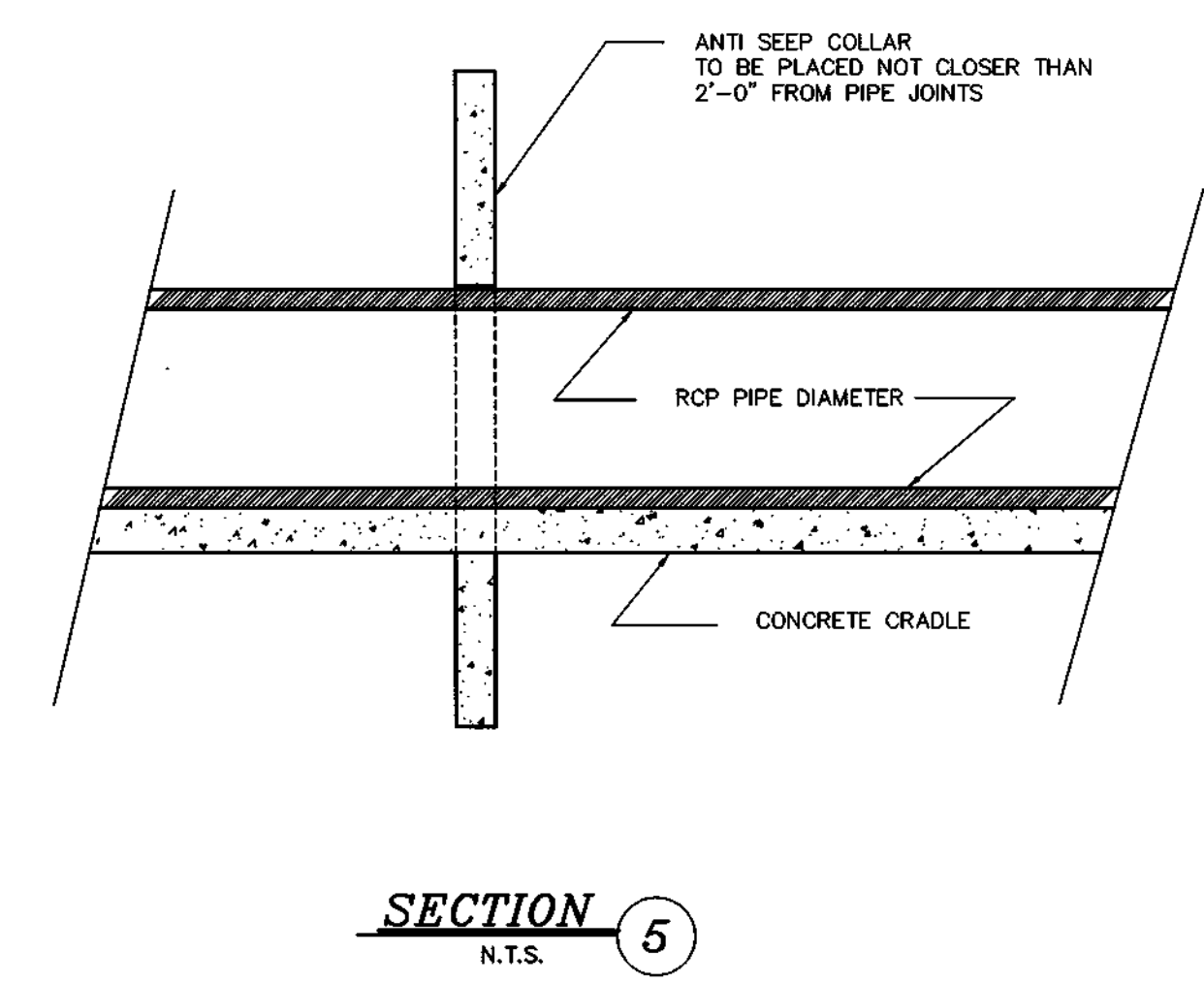
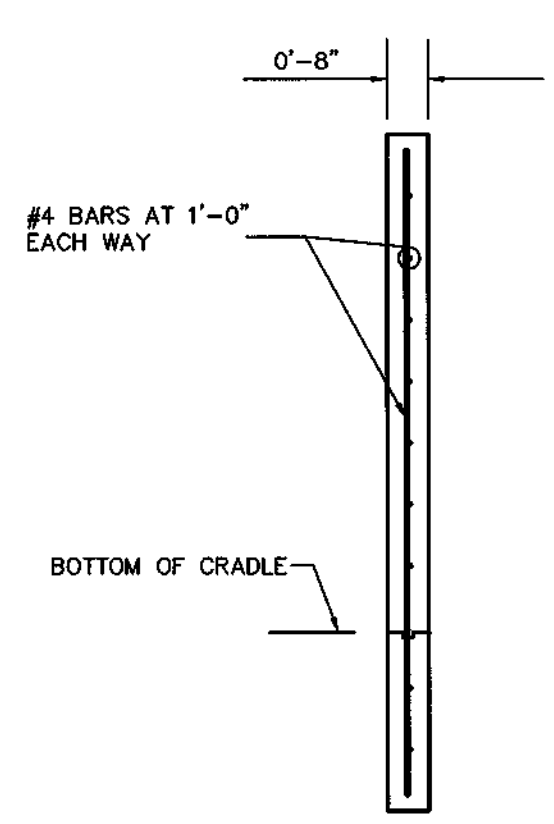
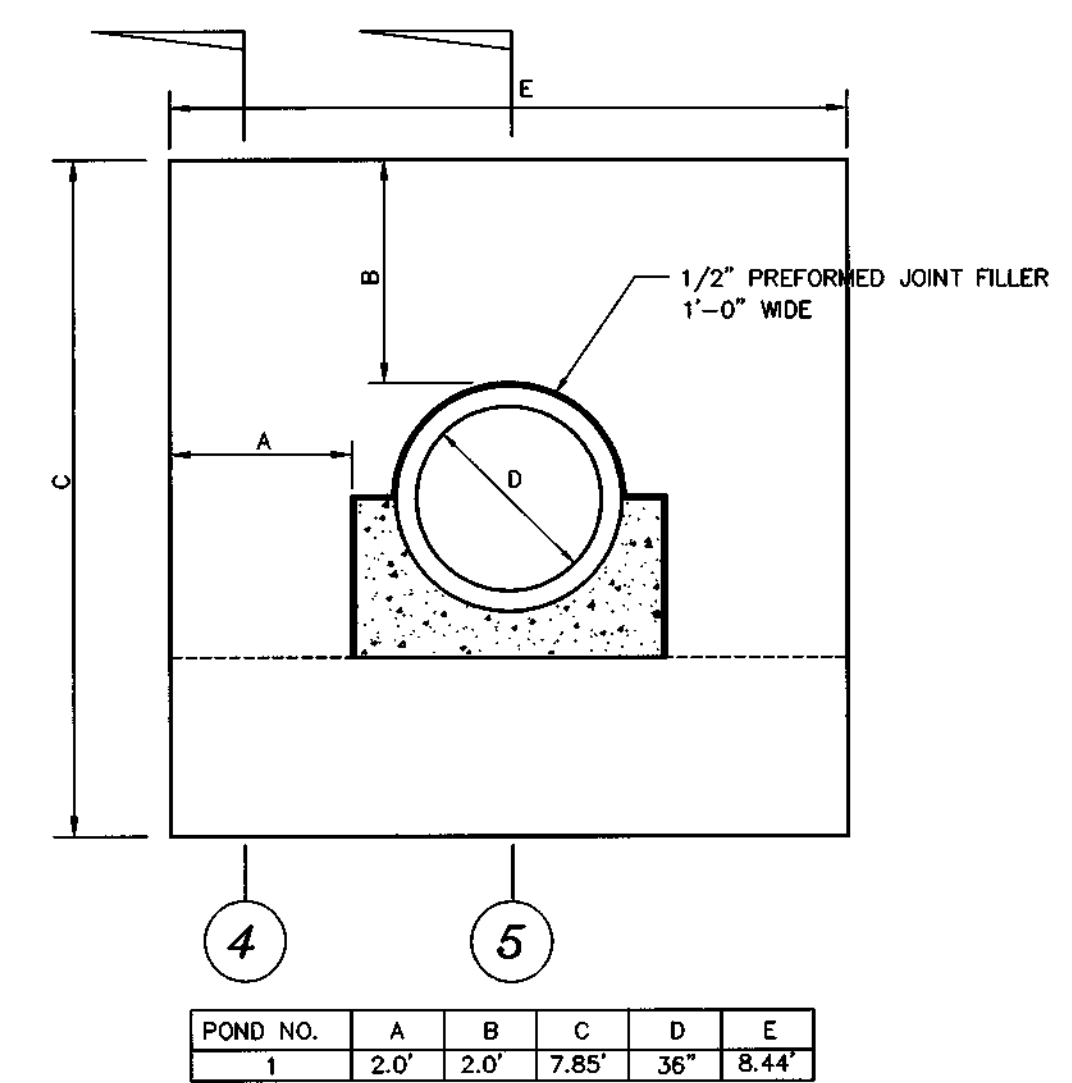
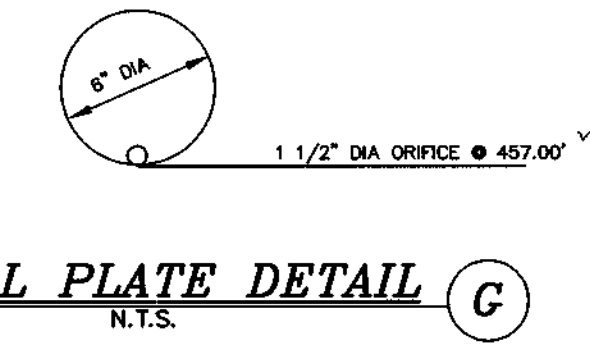
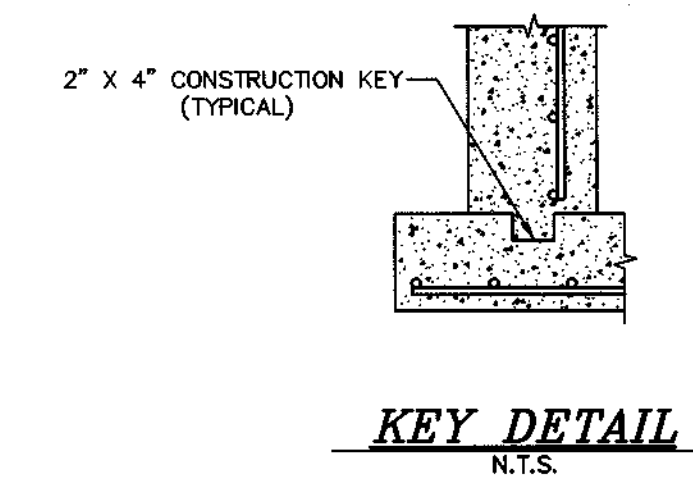
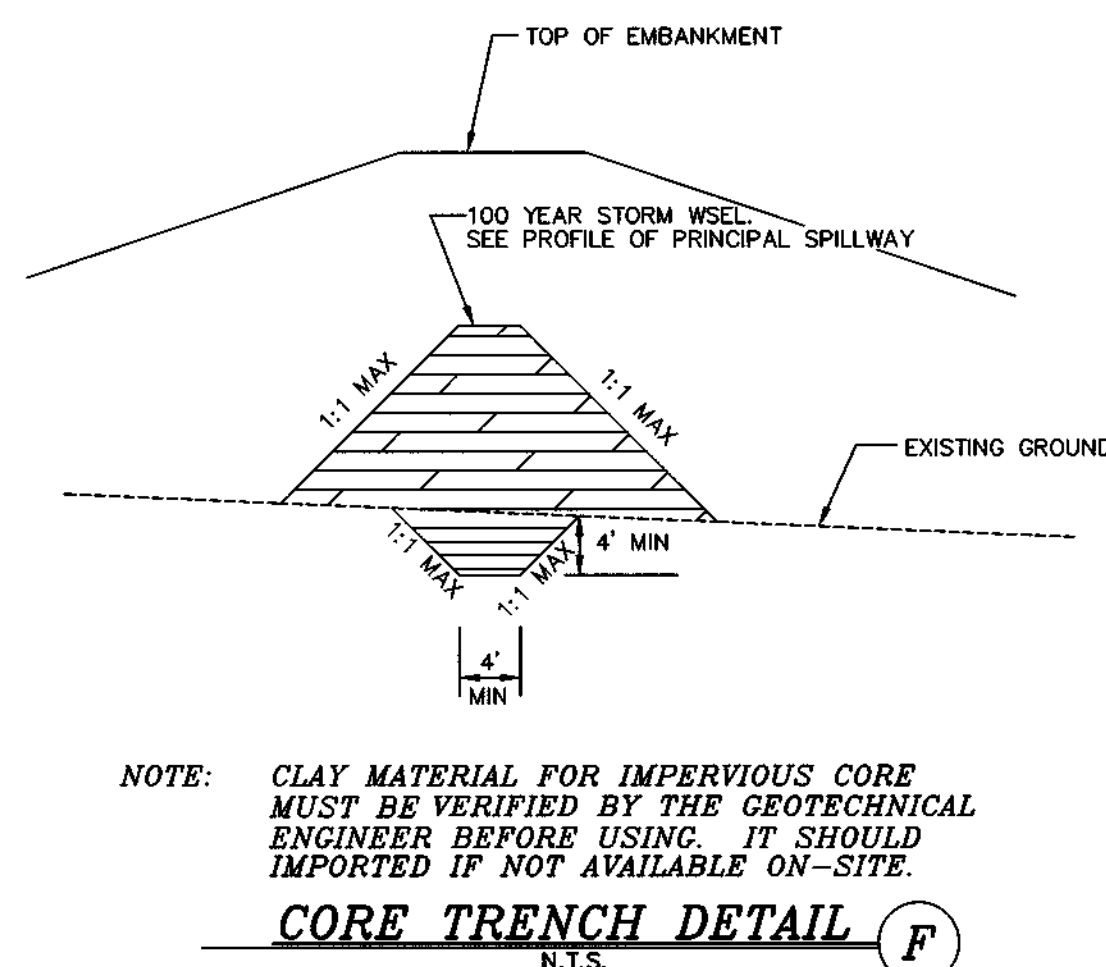
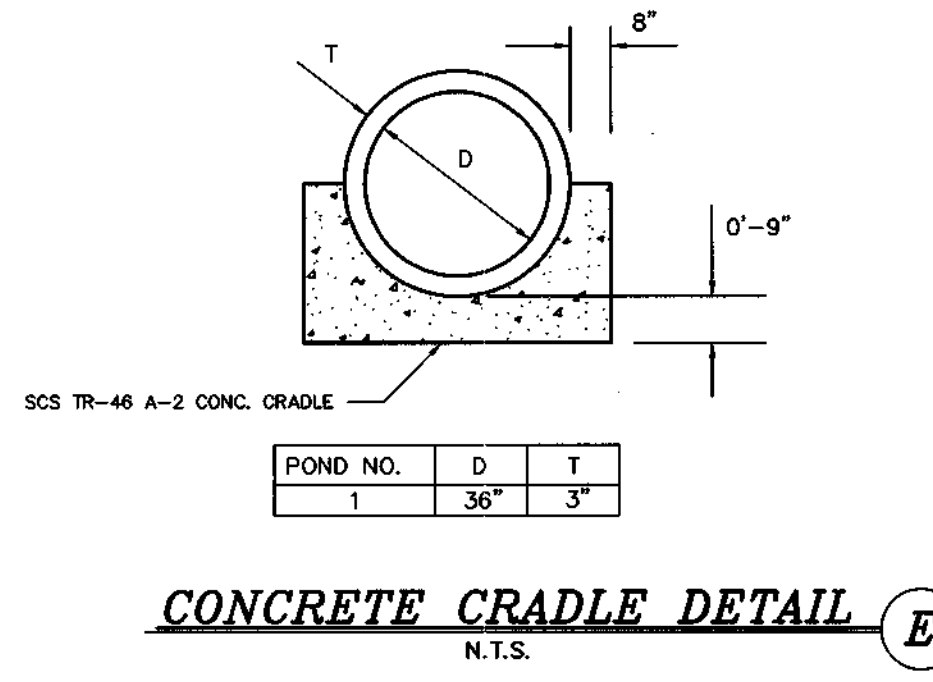
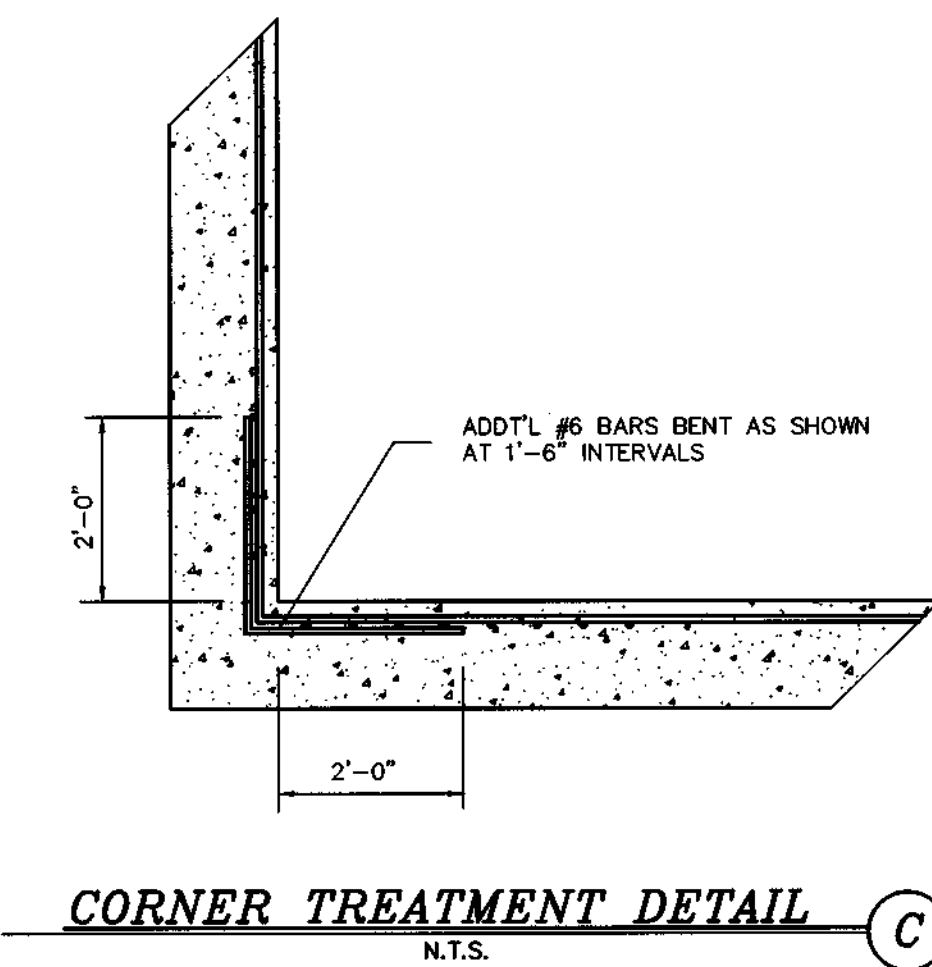
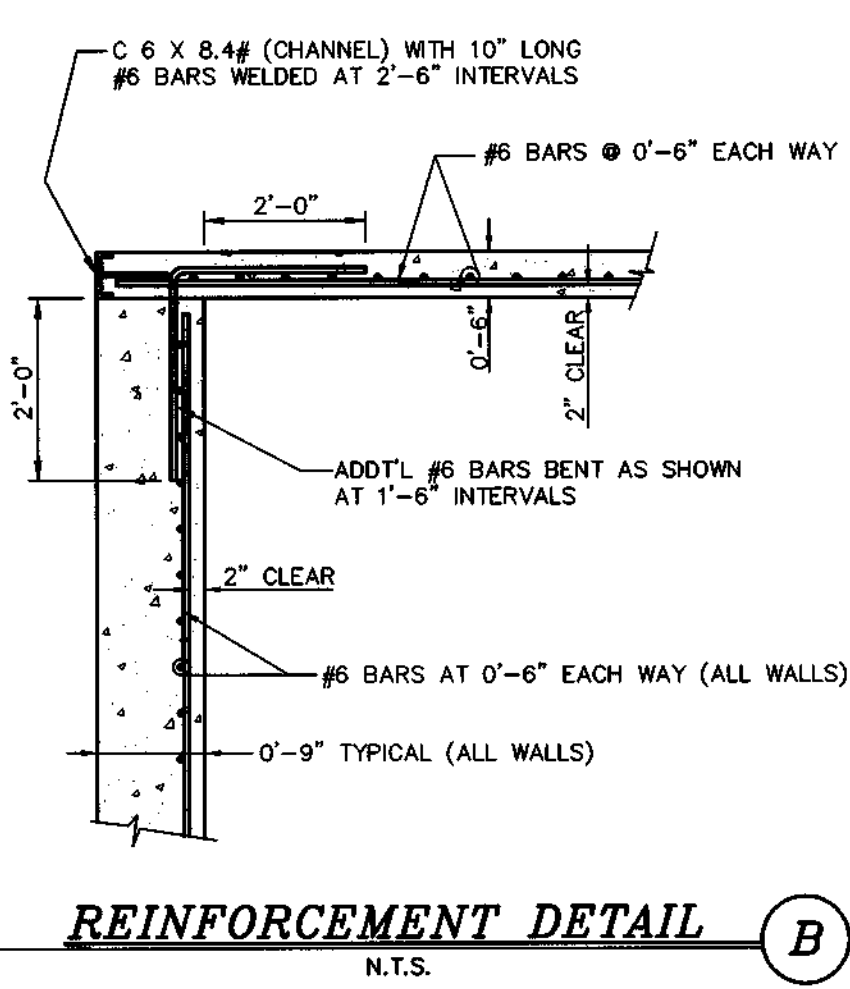
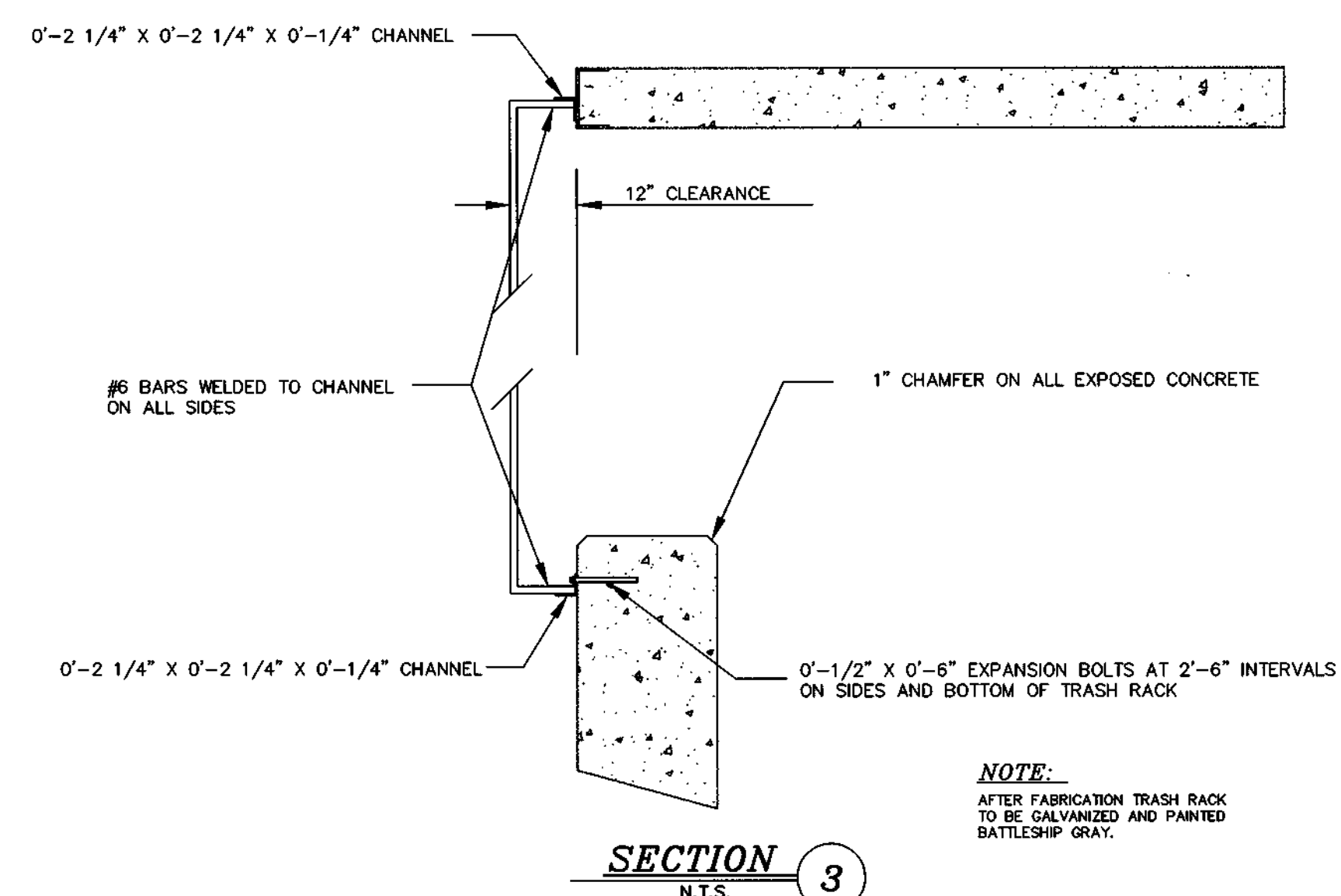
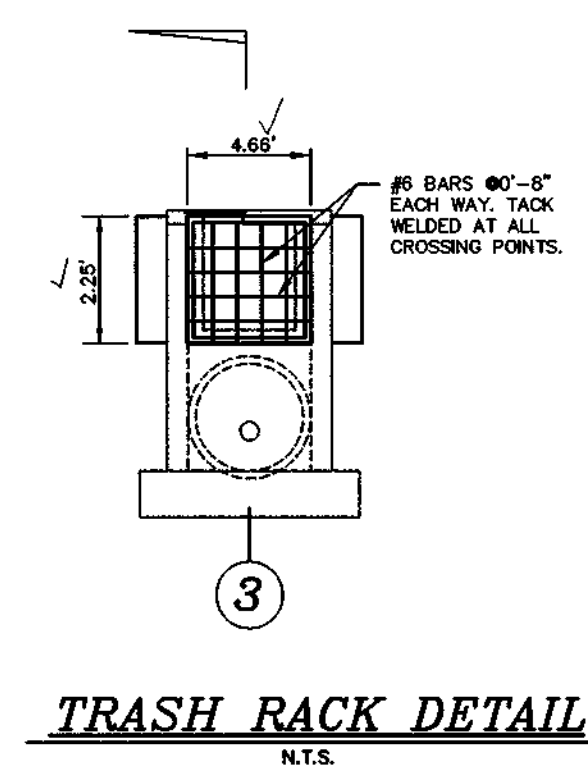
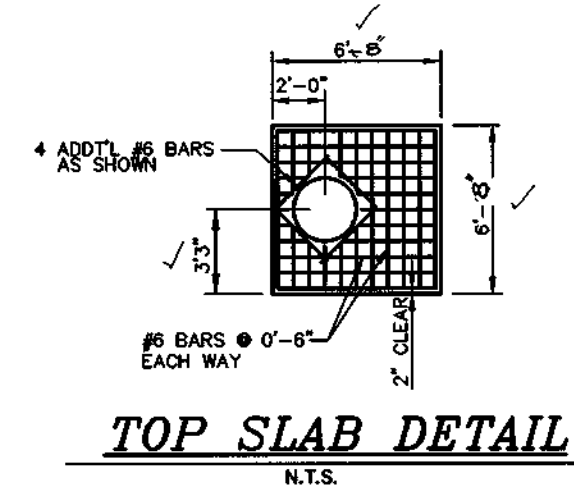
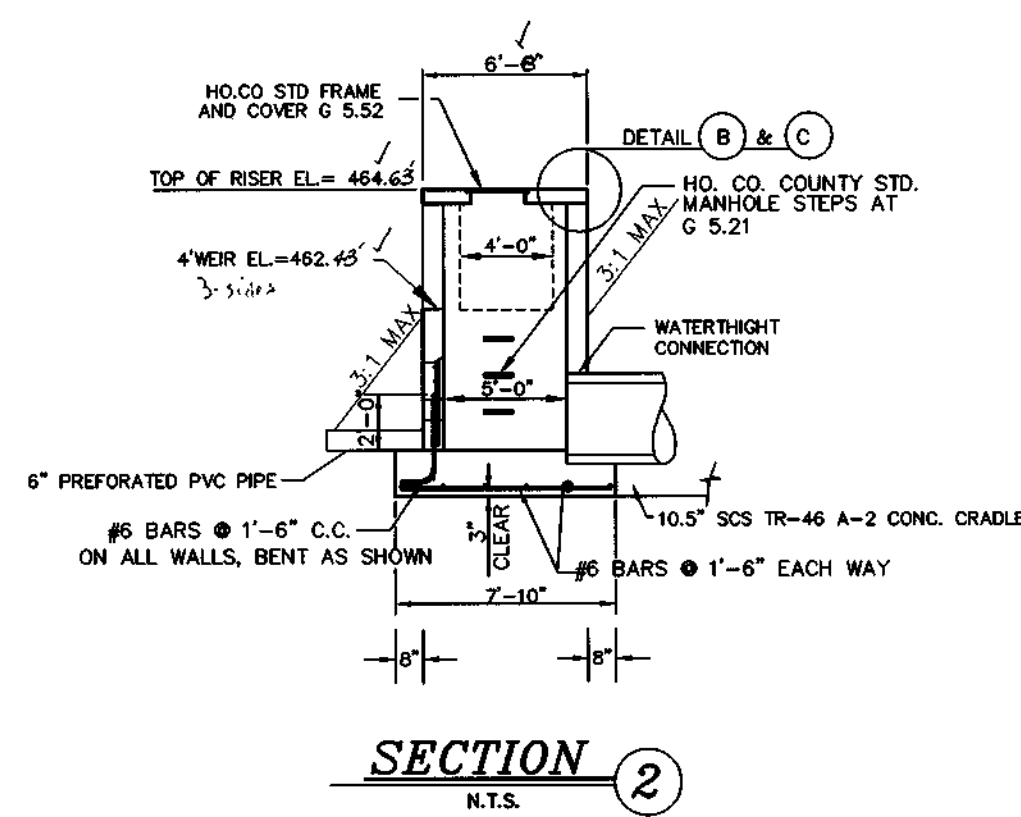
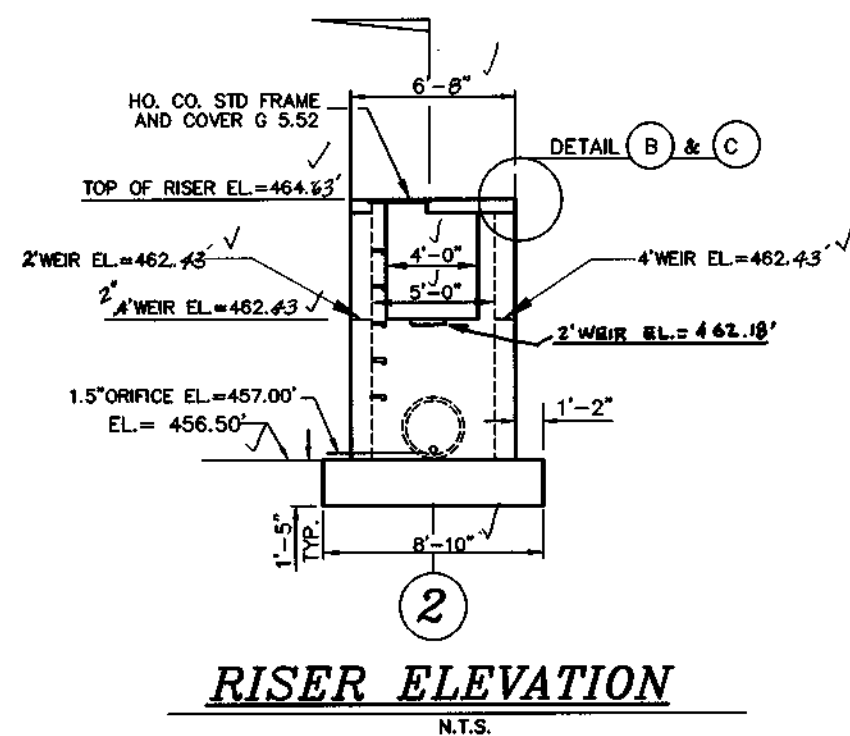
SCALE: HOR: 1"=50'
VERT: 1"=5'

Project: MAR 1997
Project No: 97003
Scale: 1"=60'

Revision #1: JUNE 1997
Description: REVISIONS

WOODFORD'S GRANT
LOTS 1 THRU 30 AND PARCEL "A"
TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SWM SPECIFICATIONS AND DETAILS

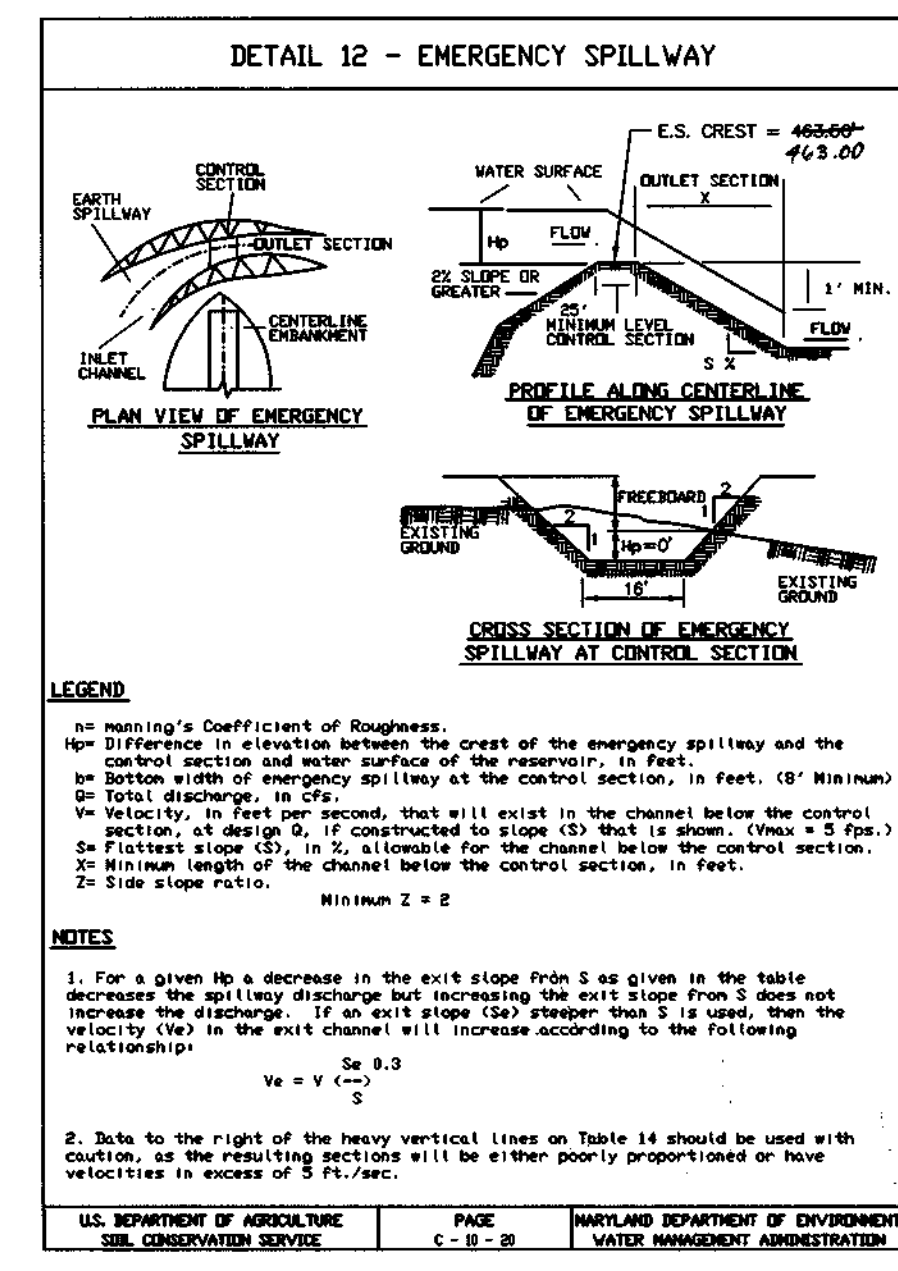
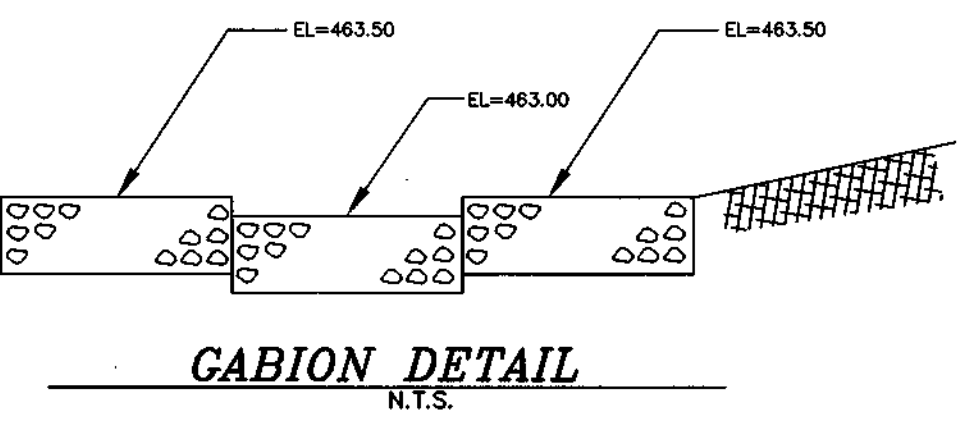
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 397-0286 Fax (301) 821-5621 Wash. (410) 397-0286 Fax



I HEREBY CERTIFY THAT THE CONSTRUCTION OF THIS PLAN WHO CONSTRUCTED AS SHOWN ON THE PLAN IS IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

DATE: 9/28/97

PROFESSIONAL ENGINEER



LEGEND

an Manning's Coefficient of Roughness.

1. For a given flow, decrease the spillway discharge but increasing the exit slope from 2 does not increase the discharge. If an exit slope (S₂) steeper than 2 used, then the velocity (V₂) in the exit channel will increase according to the following relationship:

$V_2 = V_1 \sqrt{\frac{S_2}{S_1}}$

2. Refer to the right of the heavy vertical lines on Table 14 should be used with caution, as the resulting sections will be either poorly proportioned or have velocities in excess of 5 ft./sec.

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 SMALL 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: Donald Reuwer, President
Date: 8/11/97

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: R. Jacob Hikmat
Date: 8/15/97

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: Cheryl K. Jaramana
Date: 9/29/97

APPROVED: DEPARTMENT OF PUBLIC WORKS
Signature: Andrew M. Davelos
Date: 10-9-97

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Signature: Candy Hammett
Date: 10/23/97

Signature: [Signature]
Date: 10/15/97



project: 97003
date: MAR 1997
illustration: JS
scale: 1"=50'

revision: 3 - RELEASE STRUCTURE
revision: 2 - AUG 1997
description: revisions
date: [blank]

WOODFORD'S GRANT
LOTS 1 THRU 30 AND PARCEL "A"
TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SWM SPECIFICATIONS AND DETAILS

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

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

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

- 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 MILS) ON BOTH SIDES OF THE PIPE. THE FOLLOWING COATINGS OR AN APPROVED EQUAL MAY BE USED: NEXON, PLASTI-COTE, BLAC-KLAD, AND BETH-OU-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-274 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.

- 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 AT LEAST 24 MILS IN THICKNESS.

- CONNECTIONS- ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATER TIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE CLOSED WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATER TIGHT. DUMPLE BANDS ARE NOT CONSIDERED TO BE WATER TIGHT.

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 3/8" THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12" WIDE HUGGER 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 ANNUAL CORRUGATED BAND USING RINGS 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.

- 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.

- BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

- 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:

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

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

- 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.

- BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

- 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:

- MATERIALS- PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241.
- JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATER TIGHT.
- 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.
- BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."
- 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.

THE RIPRAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THE RIPRAP IN PLACE SHALL BE REASONABLY HOMOGENEOUS WITH THE LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT ONE TO ANOTHER WITH THE SMALLER ROCKS FILLING THE Voids BETWEEN THE LARGER ROCKS. FILTER CLOTH SHALL BE REPLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 916.12.7

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

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SOIL, 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.

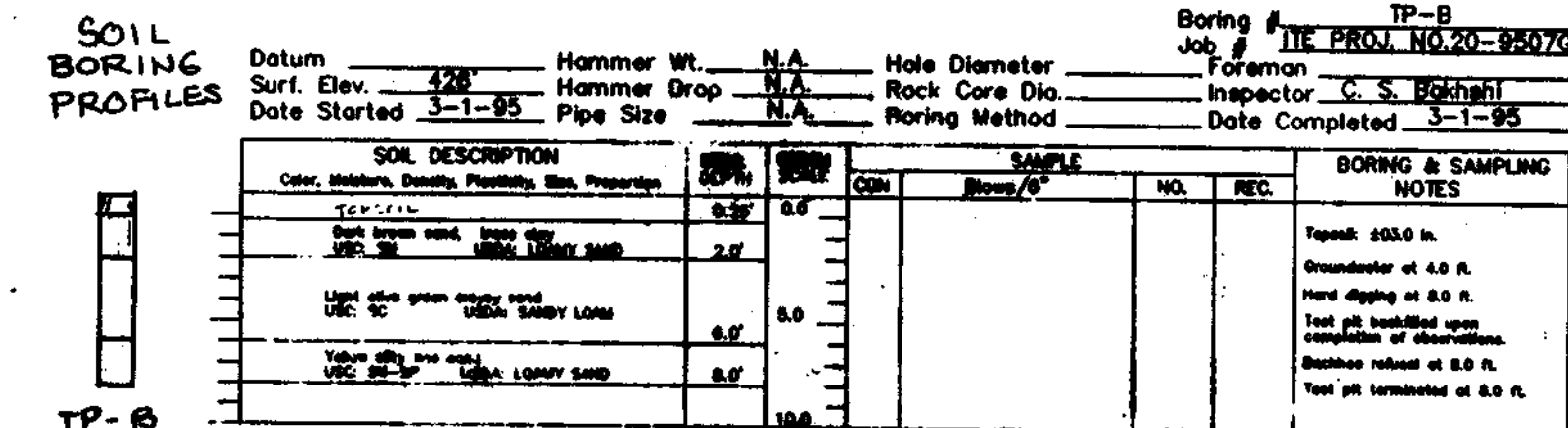
OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND HIS SUCCESSORS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

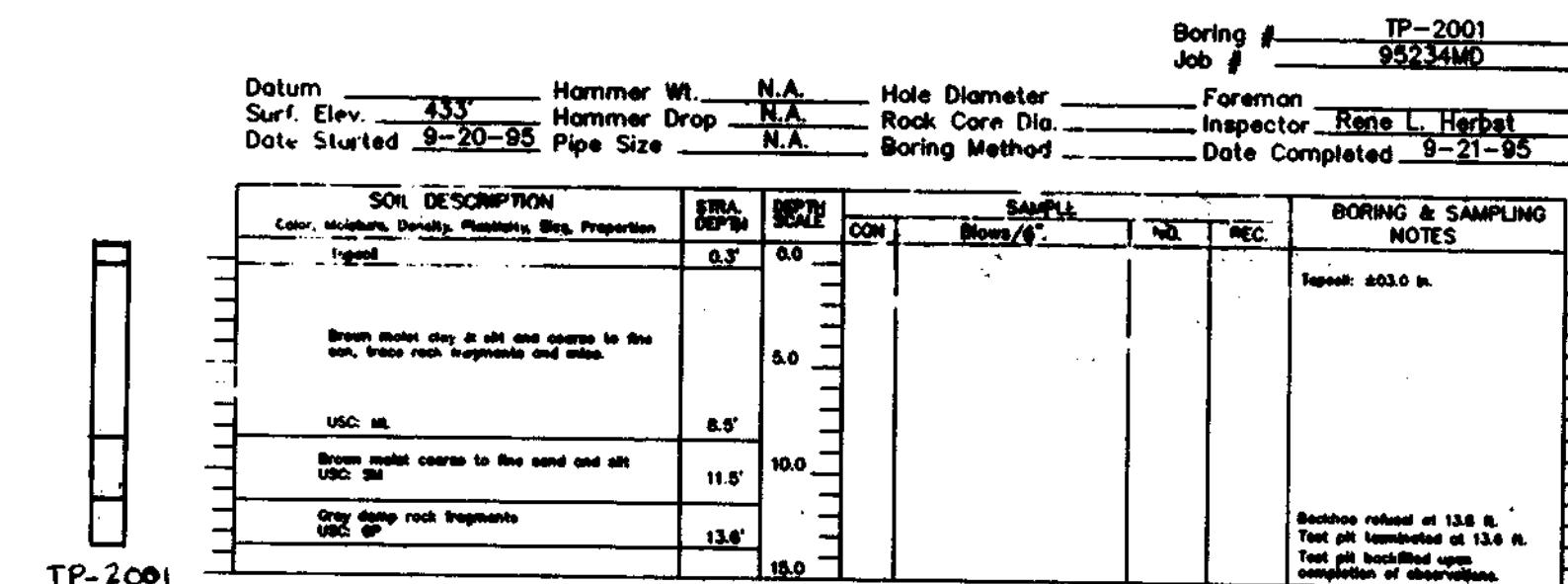
MAINTENANCE REQUIREMENTS

- REMOVAL OF SILT WHEN ACCUMULATION EXCEEDS SIX (6) INCHES IN BASINS WITHOUT FOREBAYS. IN BASINS WITH FOREBAYS, REMOVAL OF SILT SHALL OCCUR WHEN THE ACCUMULATION EXCEEDS FOUR (4) INCHES IN THE FOREBAY.
- REMOVAL OF ACCUMULATED PAPER, TRASH, AND DEBRIS AS NECESSARY.
- VEGETATION GROWING ON THE EMBANKMENT TOP AND FACES IS NOT ALLOWED TO EXCEED 18 INCHES IN HEIGHT AT ANY TIME.
- ANNUAL INSPECTION AND REPAIR OF THE STRUCTURE.
- CORRECTIVE MAINTENANCE IS REQUIRED ANY TIME AN EXTENDED DETENTION BASIN DOES NOT DRAIN THE EQUIVALENT OF THE WATER QUALITY VOLUME WITHIN 60 HOURS (I.E., NO STANDING WATER ALLOWED)
- CORRECTIVE MAINTENANCE IS REQUIRED ANY TIME THE FOREBAY DOES NOT DRAIN DOWN COMPLETELY WITHIN 60 HOURS (I.E., NO STANDING WATER ALLOWED).

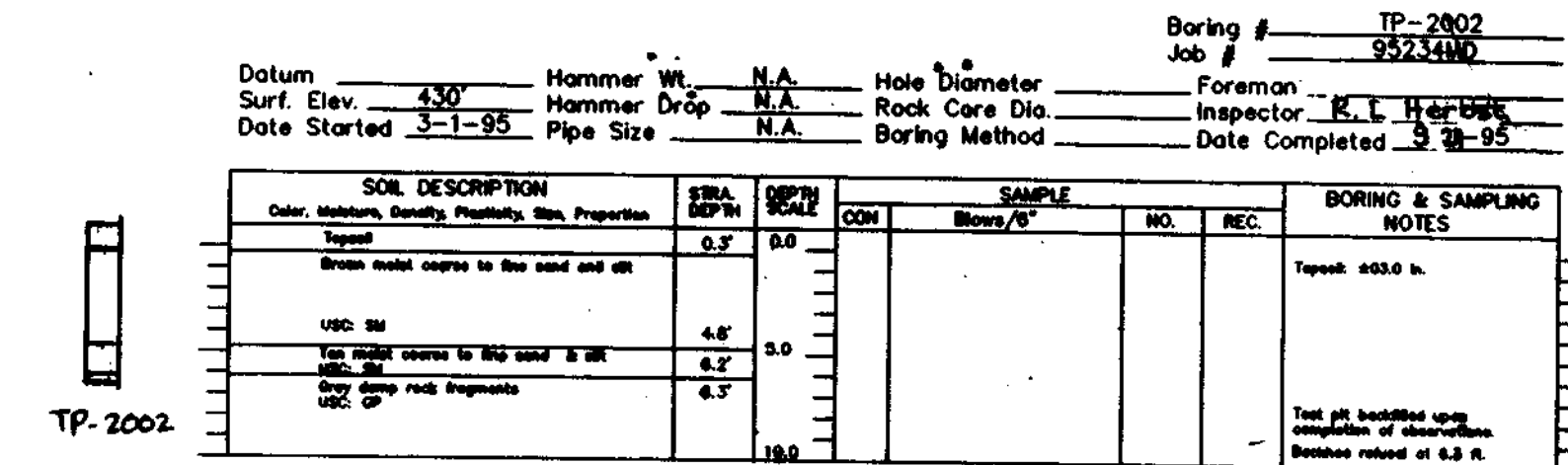
SOIL BORING PROFILES



TP-18



TP-2001



TP-2002

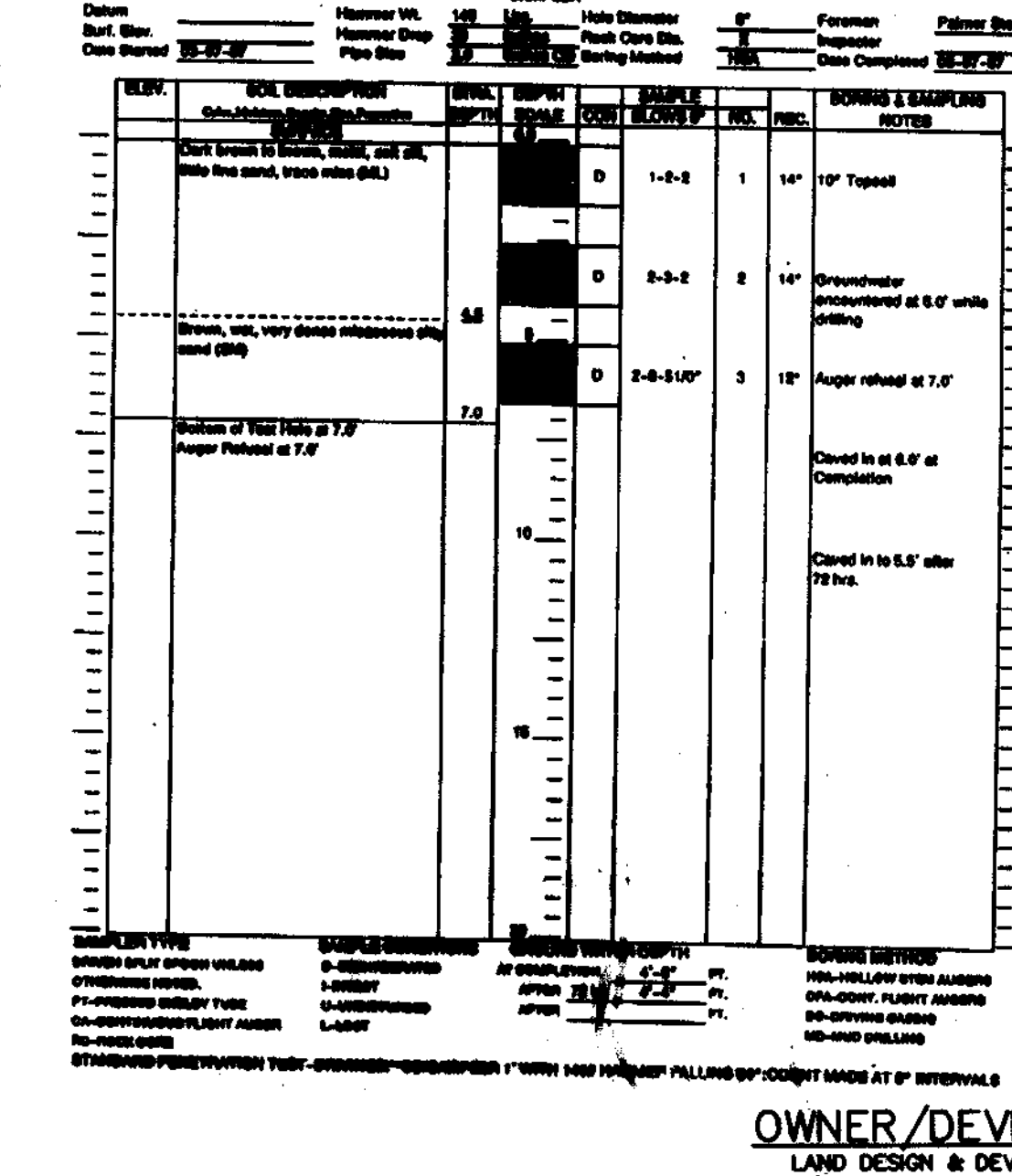
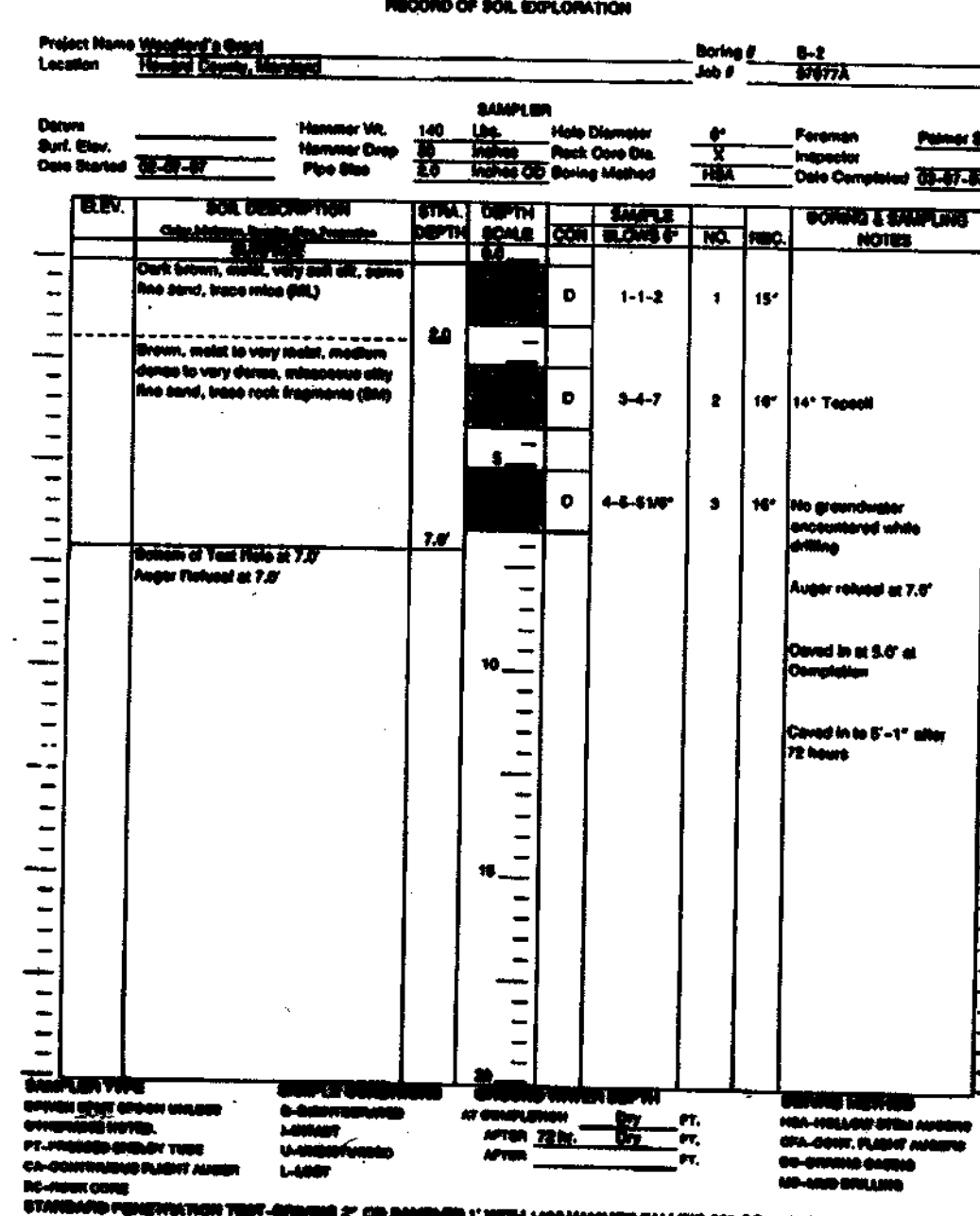
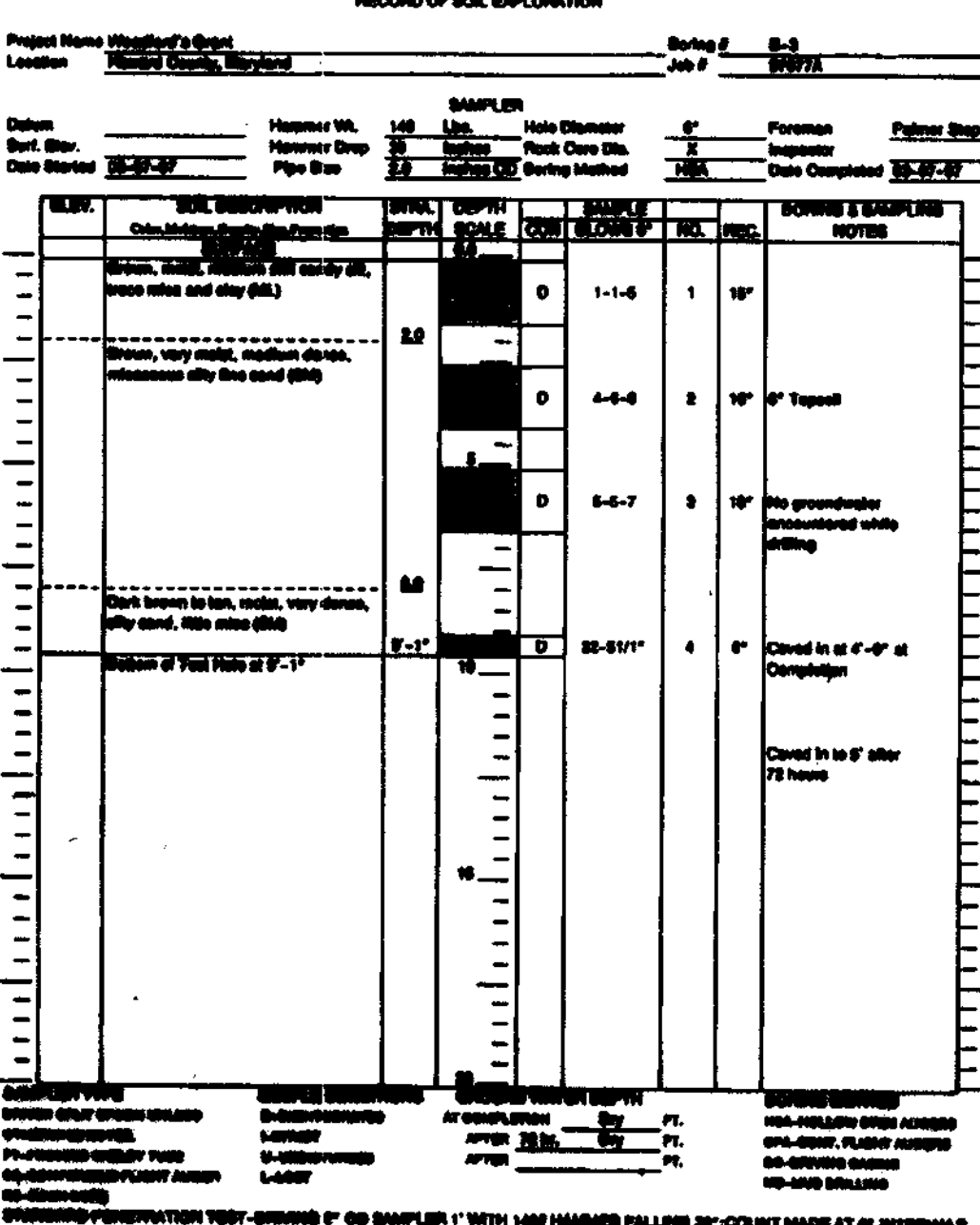


HILLIS - CARRIS ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

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

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

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



OWNER/DEVELOPER LAND DESIGN & DEVELOPMENT 10805 HICKORY RIDGE ROAD, SUITE 215 COLUMBIA, MARYLAND 21044 (410) 740-2100

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: [Signature] Date: 8/11/97
 Signature: [Signature] Date: 3/11/97

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: 09/27/97
 Signature: [Signature] Date: 10-9-97
 Signature: [Signature] Date: 10/15/97

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Signature: [Signature] Date: 10/25/97

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Signature: [Signature] Date: 10/15/97

date MAR 1997
 project 97003
 illustration JS
 scale JS
 approval RHH

description
 revisions

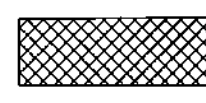
date

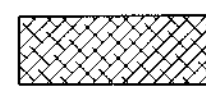
WOODFORD'S GRANT
 LOTS 1 THRU 30 AND PARCEL "A"
 TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
 HOWARD COUNTY, MARYLAND
 THIRD ELECTION DISTRICT

SWM SPECIFICATIONS AND DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 5072 Dorsey Hill Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 987-0286 Fax: (301) 821-5827

10 OF 15

 DENOTES RIPRAP PROTECTION IN SIDE ROAD DITCHES
 (SEE LINING TABLE ON PAGE 5 OF 15 FOR DITCH PROTECTION AT ALL STATIONS)

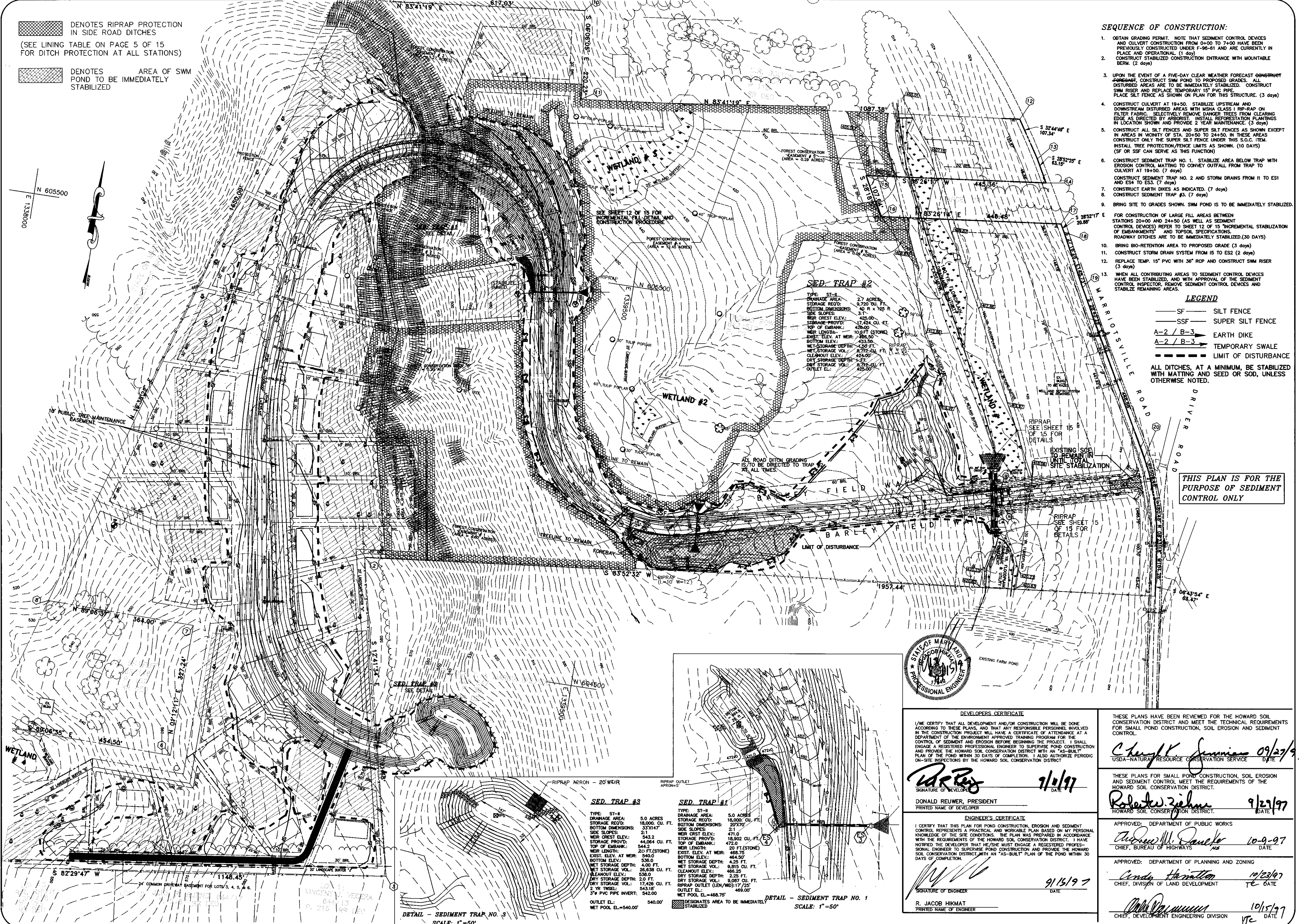
 DENOTES AREA OF SWM POND TO BE IMMEDIATELY STABILIZED

SEQUENCE OF CONSTRUCTION:

- OBTAIN GRADING PERMIT. NOTE THAT SEDIMENT CONTROL DEVICES AND CULVERT CONSTRUCTION FROM 0+00 TO 7+00 HAVE BEEN PREVIOUSLY CONSTRUCTED UNDER F-96-61 AND ARE CURRENTLY IN PLACE AND OPERATIONAL. (1 day)
- CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE WITH MOUNTABLE BERM. (2 days)
- UPON THE EVENT OF A FIVE-DAY CLEAR WEATHER FORECAST FORECAST, CONSTRUCT SWM POND TO PROPOSED GRADES. ALL DISTURBED AREAS ARE TO BE IMMEDIATELY STABILIZED. CONSTRUCT SWM RISER AND REPLACE TEMPORARY 18" PVC PIPE. PLACE SILT FENCE AS SHOWN ON PLAN FOR THIS STRUCTURE. (3 days)
- CONSTRUCT CULVERT AT 19+50. STABILIZE UPSTREAM AND DOWNSTREAM DISTURBED AREAS WITH MSHA CLASS I RIP-RAP ON FILTER FABRIC. SELECTIVELY REMOVE DANGER TREES FROM CLEARING EDGE AS DIRECTED BY ARBORIST. INSTALL REFORESTATION PLANTINGS IN AREAS SHOWN AND PROVIDE 2 YEAR MAINTENANCE. (3 days)
- CONSTRUCT ALL SILT FENCES AND SUPER SILT FENCES AS SHOWN EXCEPT IN AREAS IN VICINITY OF STA. 20+50 TO 24+50. IN THESE AREAS CONSTRUCT ONLY THE SUPER SILT FENCE UNDER THIS S.O.C. ITEM. INSTALL TREE PROTECTION/FENCE LIMITS AS SHOWN. (10 DAYS) (SF OR SSF CAN SERVE AS THIS FUNCTION)
- CONSTRUCT SEDIMENT TRAP NO. 1. STABILIZE AREA BELOW TRAP WITH EROSION CONTROL MATTING TO CONVEY OUTFALL FROM TRAP TO CULVERT AT 19+50. (7 days)
- CONSTRUCT SEDIMENT TRAP NO. 2 AND STORM DRAINS FROM II TO ES1 AND ES4 TO ES3. (7 days)
- CONSTRUCT EARTH DIKES AS INDICATED. (7 days)
- CONSTRUCT SEDIMENT TRAP #3. (7 days)
- BRING SITE TO GRADES SHOWN. SWM POND IS TO BE IMMEDIATELY STABILIZED.
- FOR CONSTRUCTION OF LARGE FILL AREAS BETWEEN STATIONS 20+00 AND 24+50 (AS WELL AS SEDIMENT CONTROL DEVICES) REFER TO SHEET 12 OF 15 "INCREMENTAL STABILIZATION OF EMBANKMENTS" AND TOPSOIL SPECIFICATIONS. ROADWAY DITCHES ARE TO BE IMMEDIATELY STABILIZED. (30 DAYS)
- BRING BIO-RETENTION AREA TO PROPOSED GRADE (3 days)
- CONSTRUCT STORM DRAIN SYSTEM FROM IS TO ES2 (2 days)
- REPLACE TEMP. 18" PVC WITH 36" RCP AND CONSTRUCT SWM RISER (3 days)
- WHEN ALL CONTRIBUTING AREAS TO SEDIMENT CONTROL DEVICES HAVE BEEN STABILIZED, AND WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE REMAINING AREAS.

LEGEND

- SF — SILT FENCE
 - SSF — SUPER SILT FENCE
 - A-2 / B-3 — EARTH DIKE
 - A-2 / B-3 — TEMPORARY SWALE
 - LIMIT OF DISTURBANCE
- ALL DITCHES, AT A MINIMUM, BE STABILIZED WITH MATTING AND SEED OR SOG, UNLESS OTHERWISE NOTED.



SED-TRAP #2

TYPE: ST-II
 DRAINAGE AREA: 2.7 ACRES
 STORAGE RESID: 9,790 CU. FT.
 BOTTOM DIMENSIONS: 40 R x 125 FT
 SIDE SLOPES: 2:1
 WEIR CRST ELEV.: 425.00
 STORAGE PROVID: 17,424 CU. FT.
 BOTTOM ELEV.: 420.00
 WEIR LENGTH: 10.8 FT (STONE)
 EXIST. ELEV. AT WEIR: 408.50
 TOP OF EMBANK.: 420.00
 WET STORAGE DEPTH: 4.50 FT
 WET STORAGE VOL.: 779.25 CU. FT.
 CLEANOUT ELEV.: 424.00
 DRY STORAGE DEPTH: 1.5 FT
 DRY STORAGE VOL.: 4,775 CU. FT.
 OUTLET EL.: 422.00

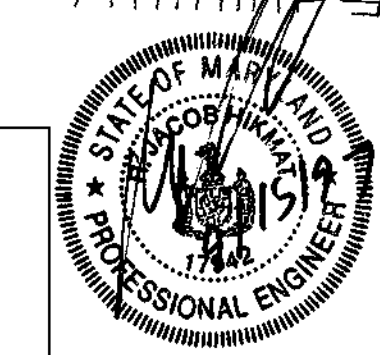
SED-TRAP #3

TYPE: ST-I
 DRAINAGE AREA: 5.0 ACRES
 STORAGE RESID: 18,000 CU. FT.
 BOTTOM DIMENSIONS: 33x147
 SIDE SLOPES: 2:1
 WEIR CRST ELEV.: 44.064 CU. FT.
 STORAGE PROVID: 544.2
 BOTTOM ELEV.: 540.0
 WEIR LENGTH: 20 FT (STONE)
 EXIST. ELEV. AT WEIR: 536.0
 TOP OF EMBANK.: 4.00 FT
 WET STORAGE DEPTH: 26.638 CU. FT.
 WET STORAGE VOL.: 536.0
 CLEANOUT ELEV.: 2.0 FT
 DRY STORAGE DEPTH: 17.426 CU. FT.
 DRY STORAGE VOL.: 543.19
 2 1/2" INCHES
 3" PVC PIPE INVERT: 542.00
 OUTLET EL.: 540.00
 WET POOL EL.=540.00

SED-TRAP #1

TYPE: ST-II
 DRAINAGE AREA: 5.0 ACRES
 STORAGE RESID: 18,000 CU. FT.
 BOTTOM DIMENSIONS: 20x70
 SIDE SLOPES: 2:1
 WEIR CRST ELEV.: 471.0
 STORAGE PROVID: 18,902 CU. FT.
 BOTTOM ELEV.: 472.0
 WEIR LENGTH: 20 FT (STONE)
 EXIST. ELEV. AT WEIR: 468.75
 TOP OF EMBANK.: 4.25 FT
 WET STORAGE DEPTH: 9.815 CU. FT.
 WET STORAGE VOL.: 4.25 FT
 CLEANOUT ELEV.: 468.25
 DRY STORAGE DEPTH: 2.25 FT
 DRY STORAGE VOL.: 0.97 CU. FT.
 RIPRAP OUTLET (LEN/MD): 17' / 22'
 OUTLET EL.: 469.00
 WET POOL EL.=468.75

DETAIL - SEDIMENT TRAP NO. 1
SCALE: 1"=50'



DEVELOPERS 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

Donald Reuer 9/10/97
SIGNATURE OF DEVELOPER DATE

DONALD REUER, PRESIDENT
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.

R. Jacob Hikmat 9/15/97
SIGNATURE OF ENGINEER DATE

R. JACOB HIKMAT
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.

Cheryl K. Jannace 09/27/97
USDA-NATURAL RESOURCE CONSERVATION SERVICE DATE

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

Robert J. Ziehm 9/27/97
HOWARD SOIL CONSERVATION DISTRICT. DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

Andrew M. Dancke 10-9-97
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton 10/23/97
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Cheryl K. Jannace 10/15/97
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

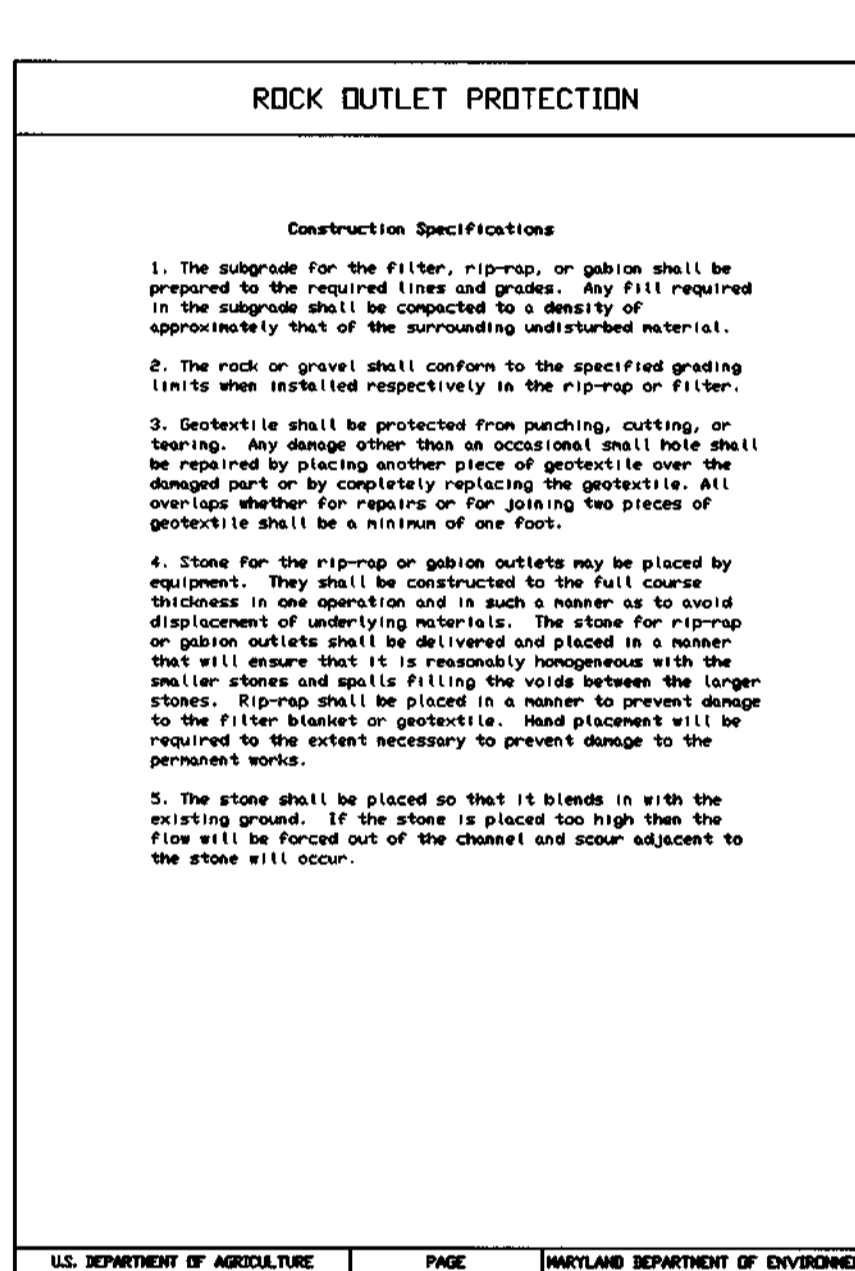
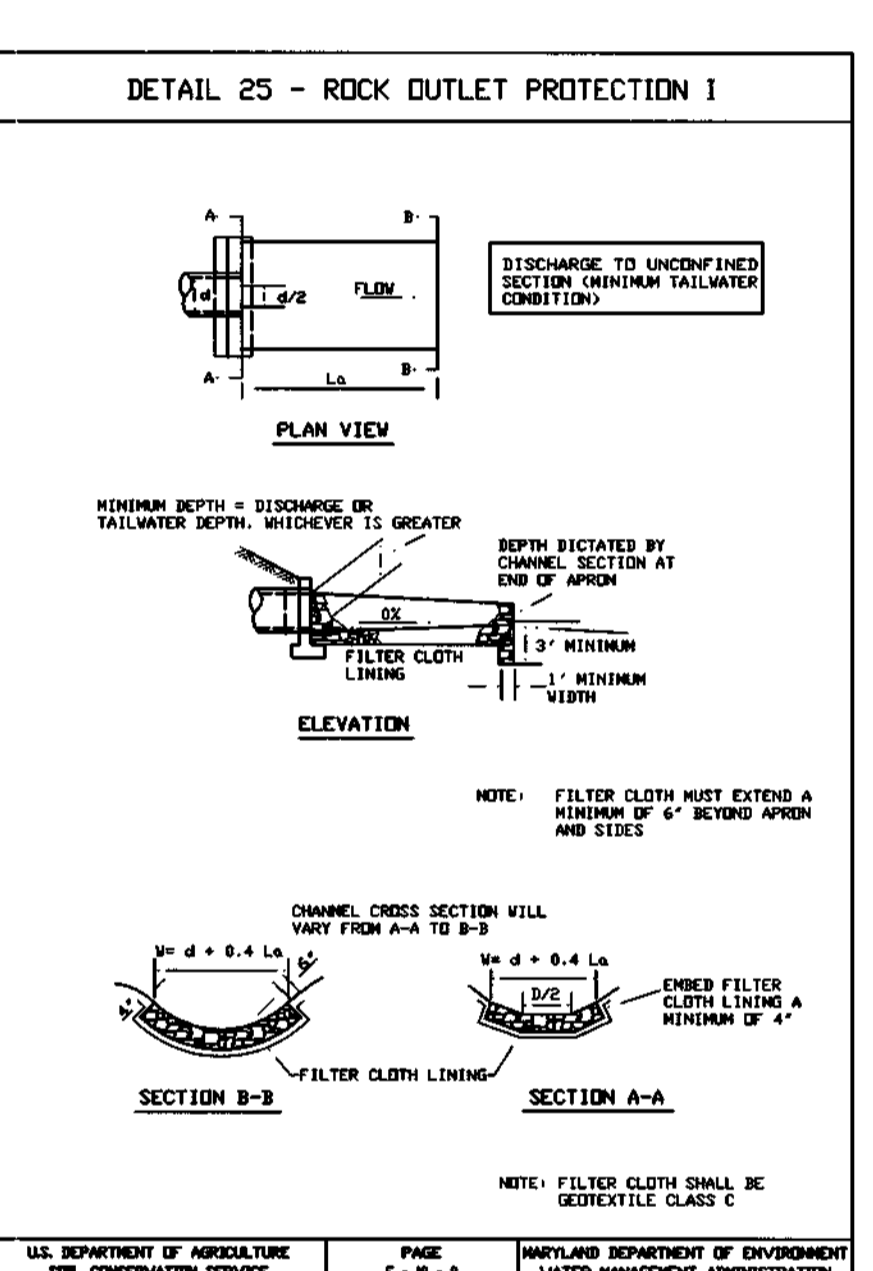
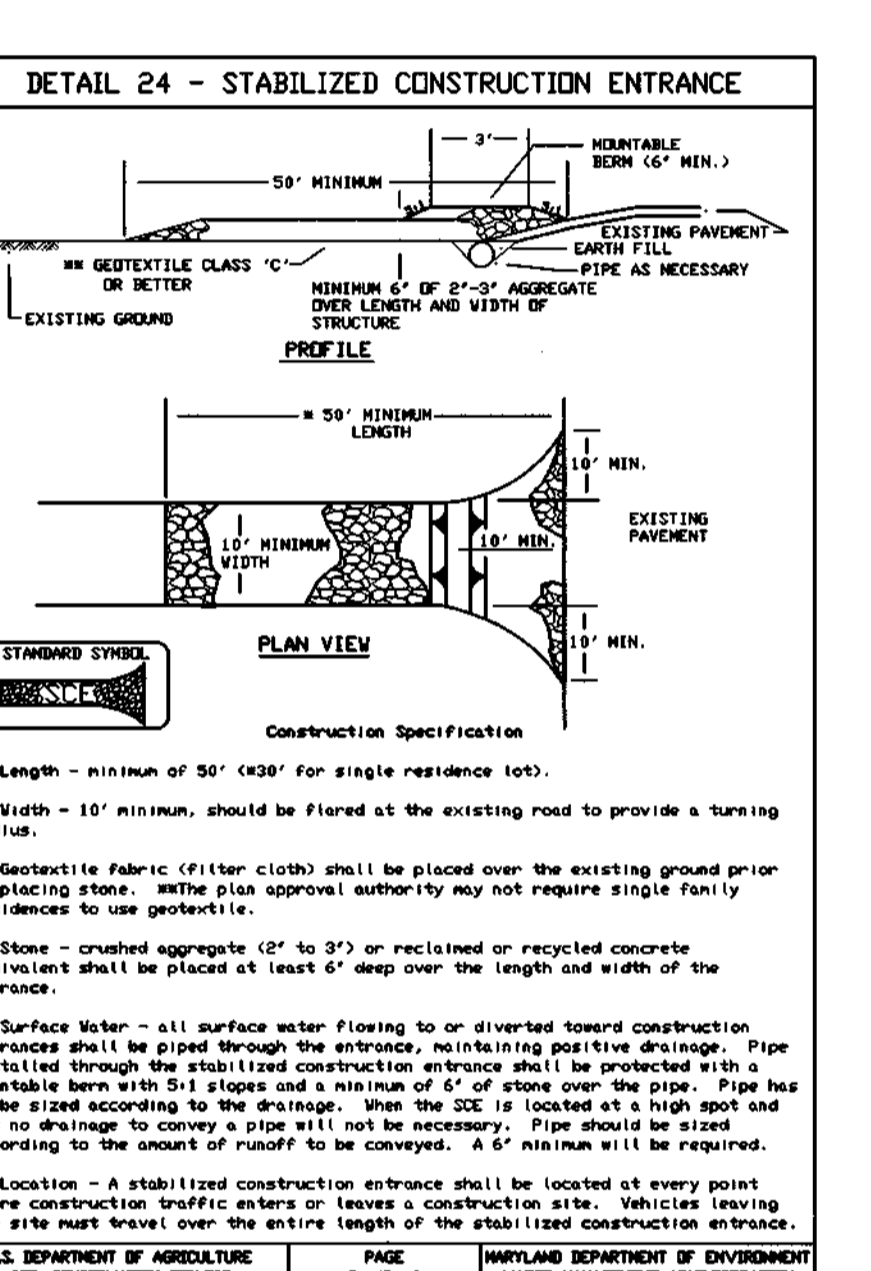
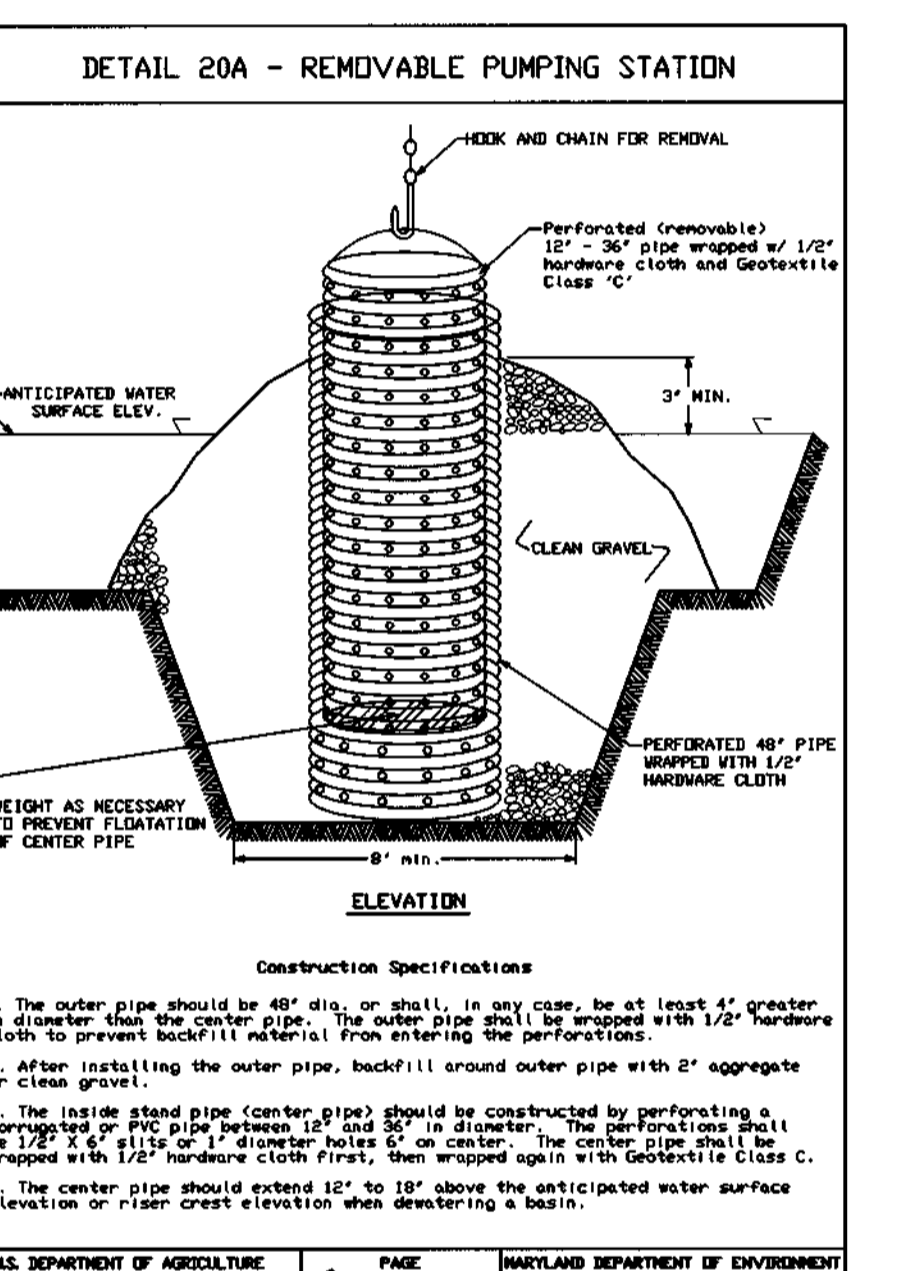
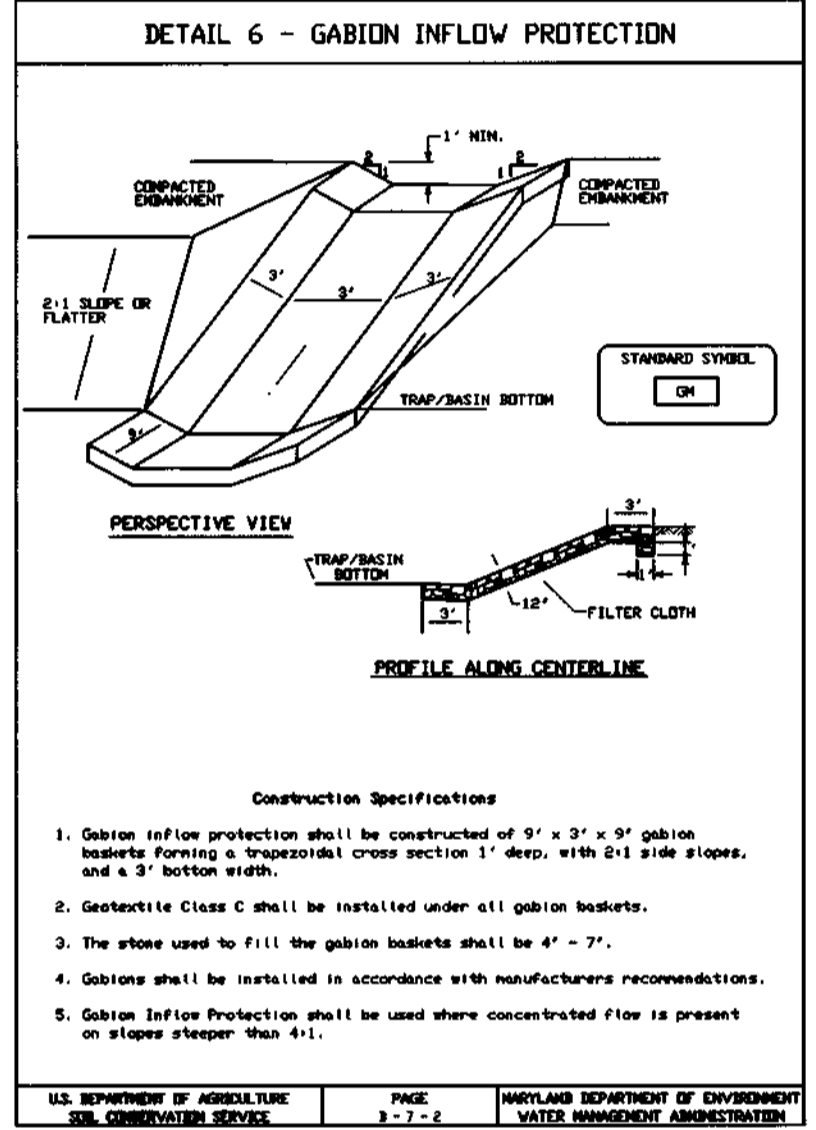
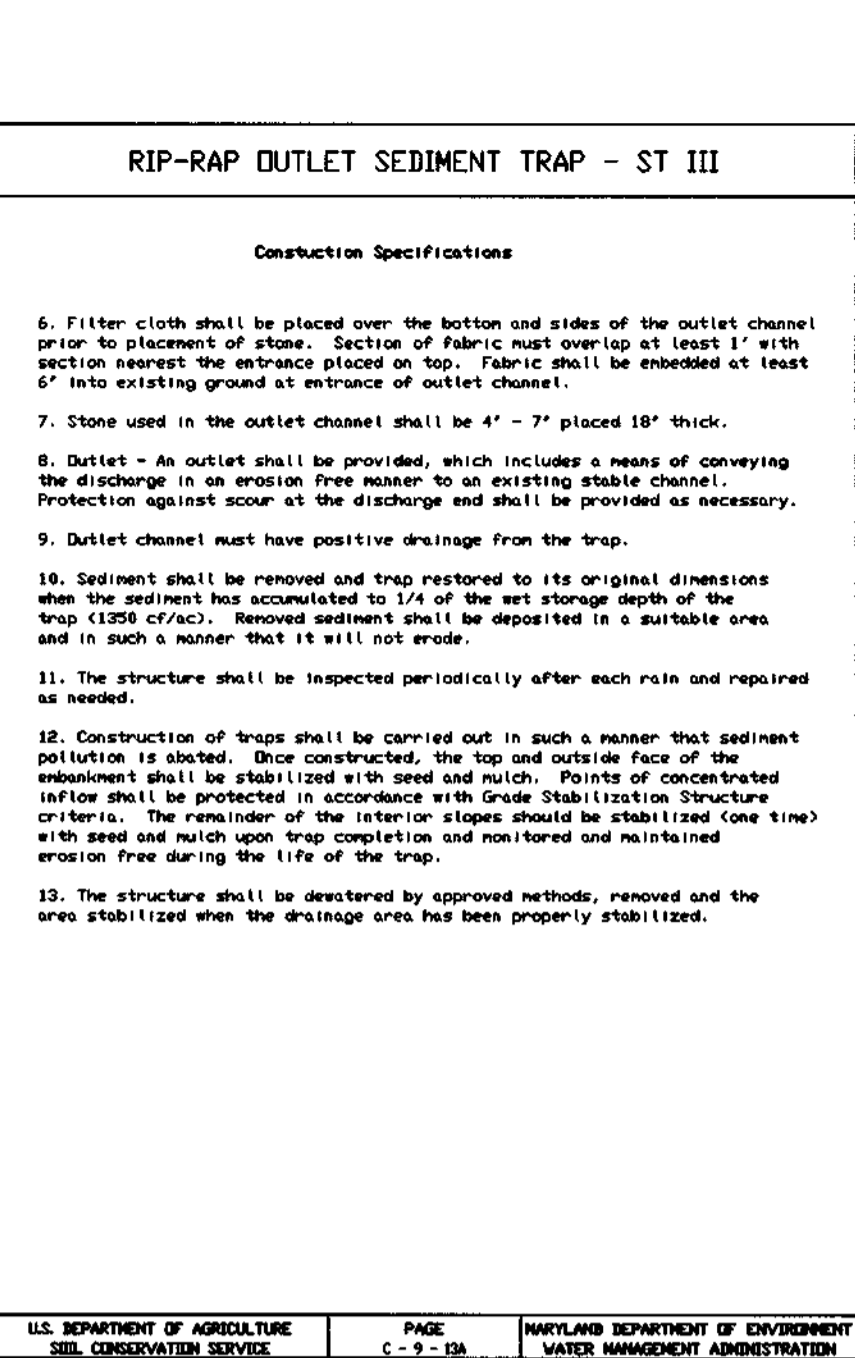
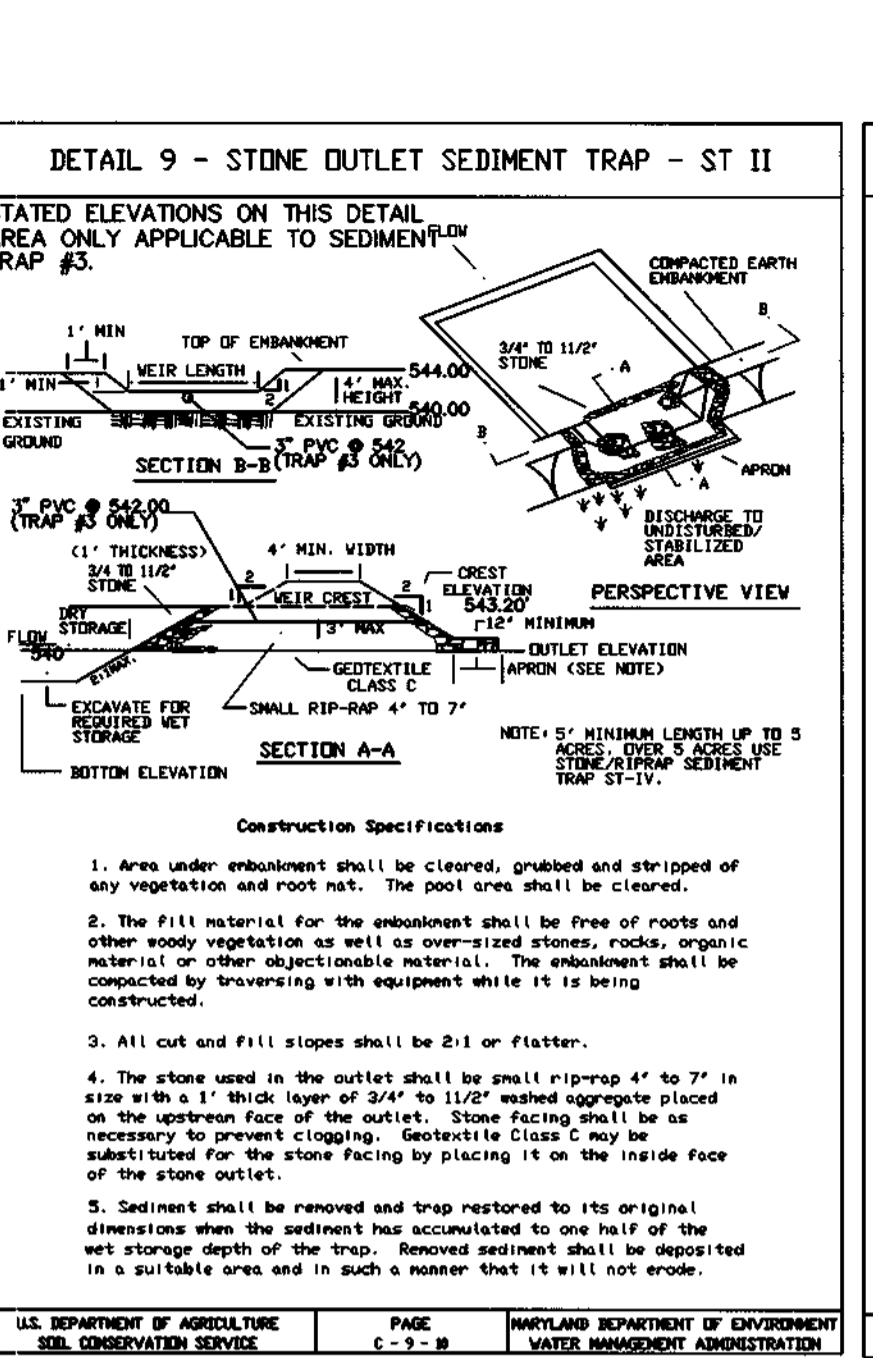
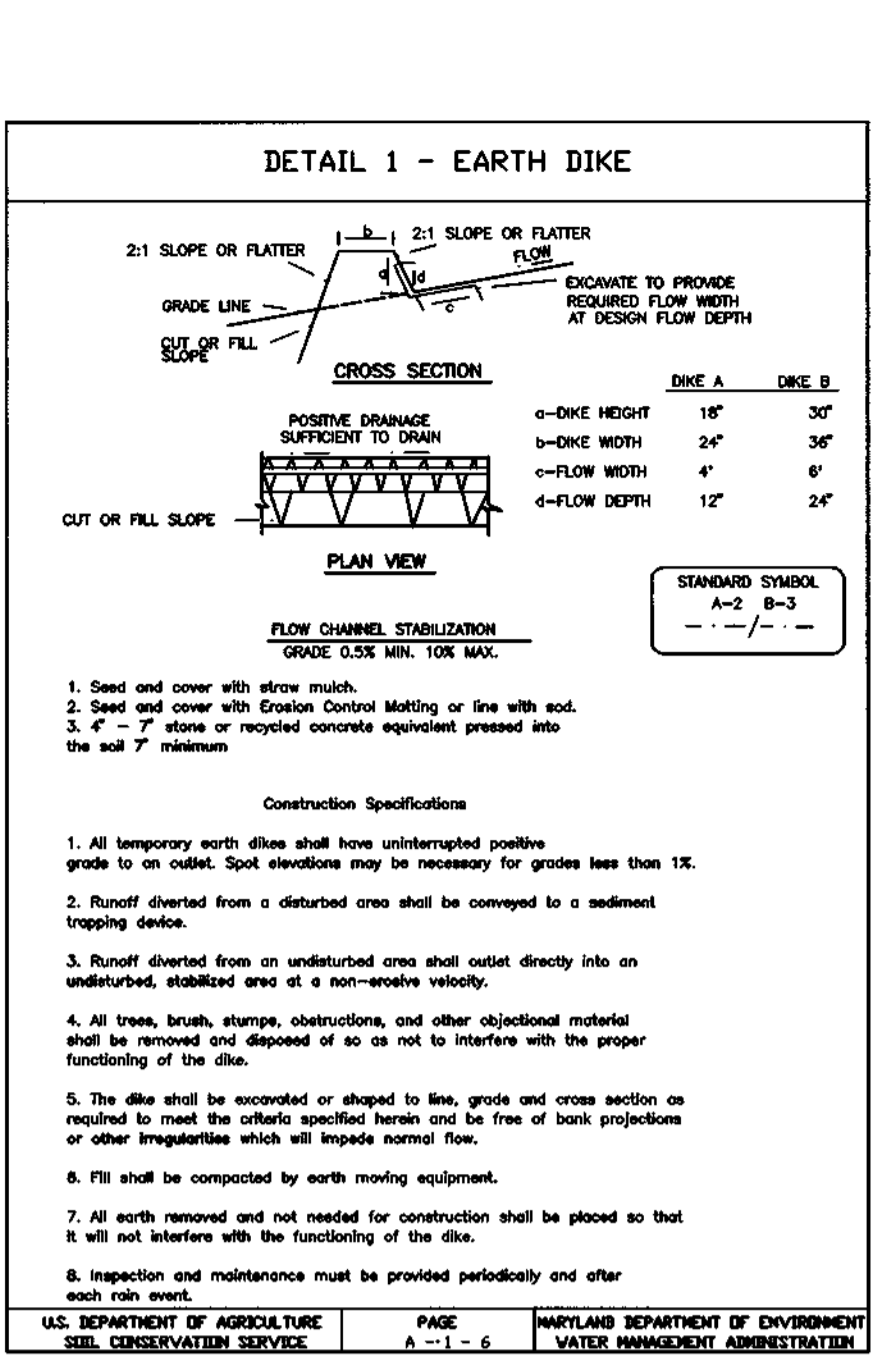
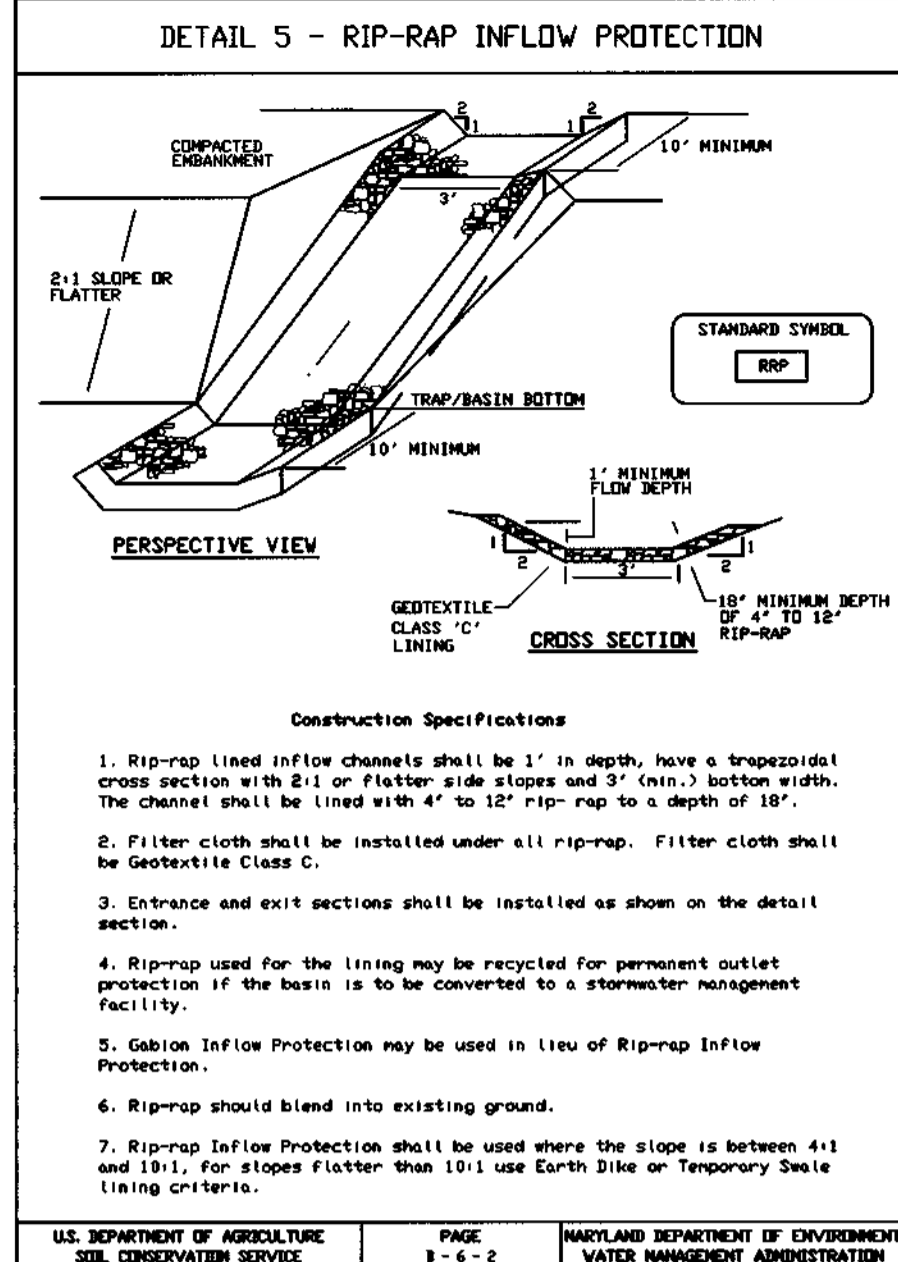
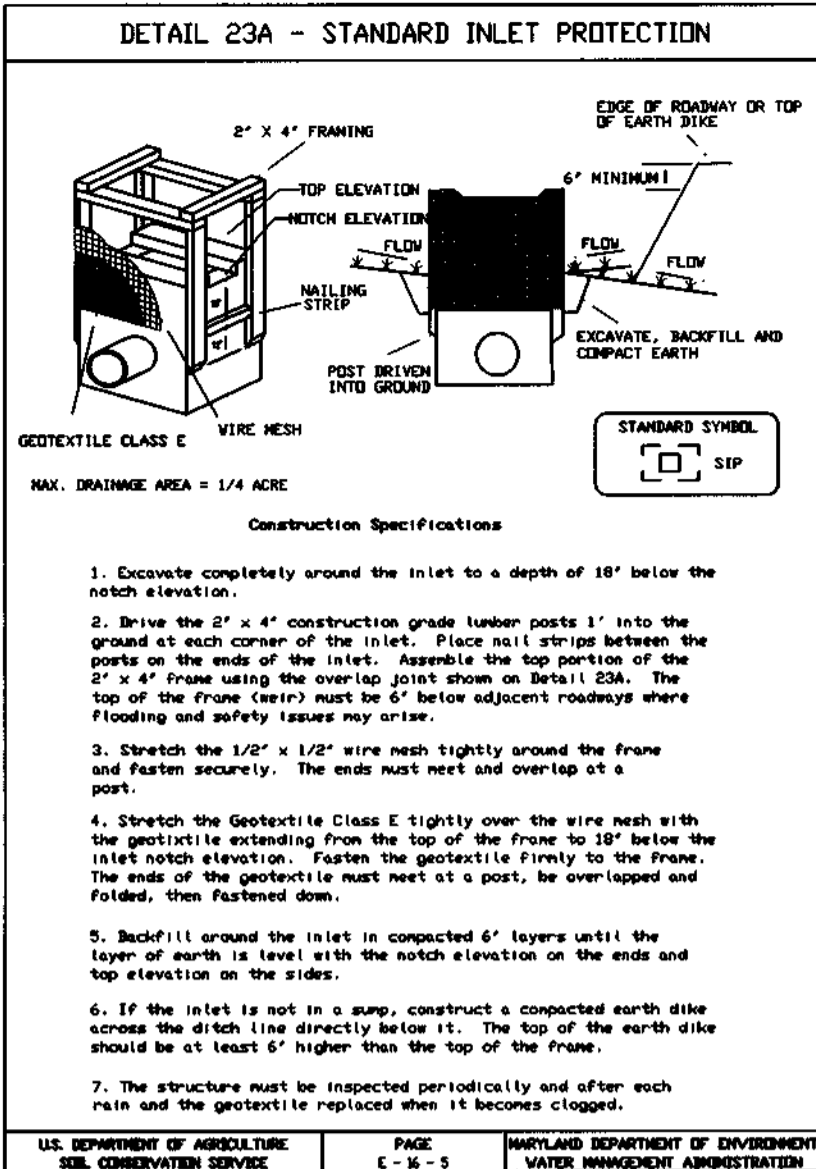
date	MAR 1997	approval	RH
project	97003	illustration	JS
scale	1"=100'		

date		description	revisions
revision #	1	AUG 1997	

WOODFORD'S GRANT
LOTS 1 THRU 30 AND PARCEL "A"
TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland, 21042
(410) 987-0286 Fax (301) 821-5521 Wash. (410) 987-0288 Fax



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 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: *Donald Reuwer* DATE: 9/1/97

DONALD REUWER, PRESIDENT
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 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: *R. Jacob Hikmat* DATE: 9/15/97

R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

NOTE: SEE SHEET 11 OF 15 FOR SEQUENCE OF CONSTRUCTION

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: *Cheryl K. Simmons* DATE: 09/27/97

USDA-NATURAL RESOURCE CONSERVATION SERVICE

Signature: *Robert J. Zelman* DATE: 9/29/97

HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS

Signature: *Andrew M. Daniels* DATE: 10-9-97

CHIEF, BUREAU OF HIGHWAYS

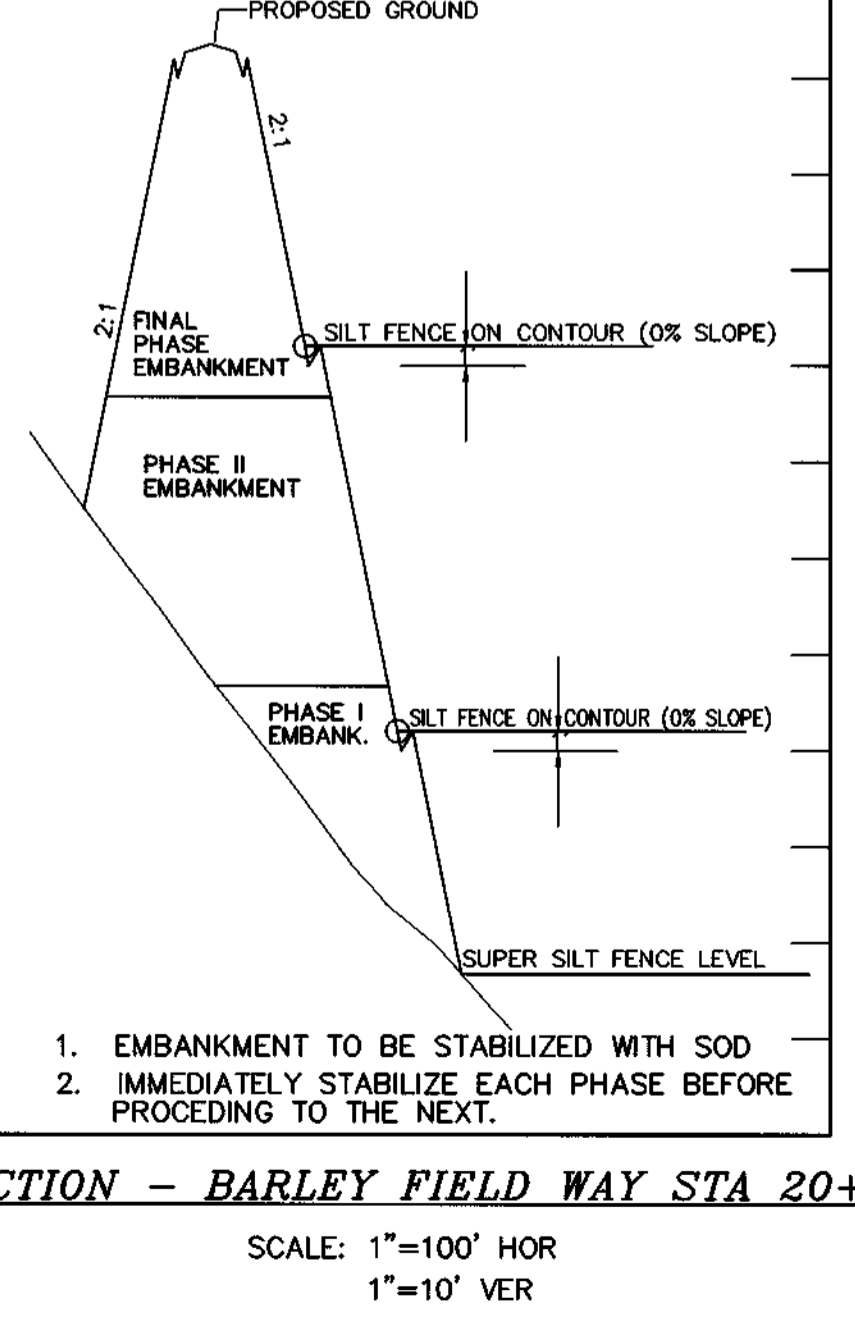
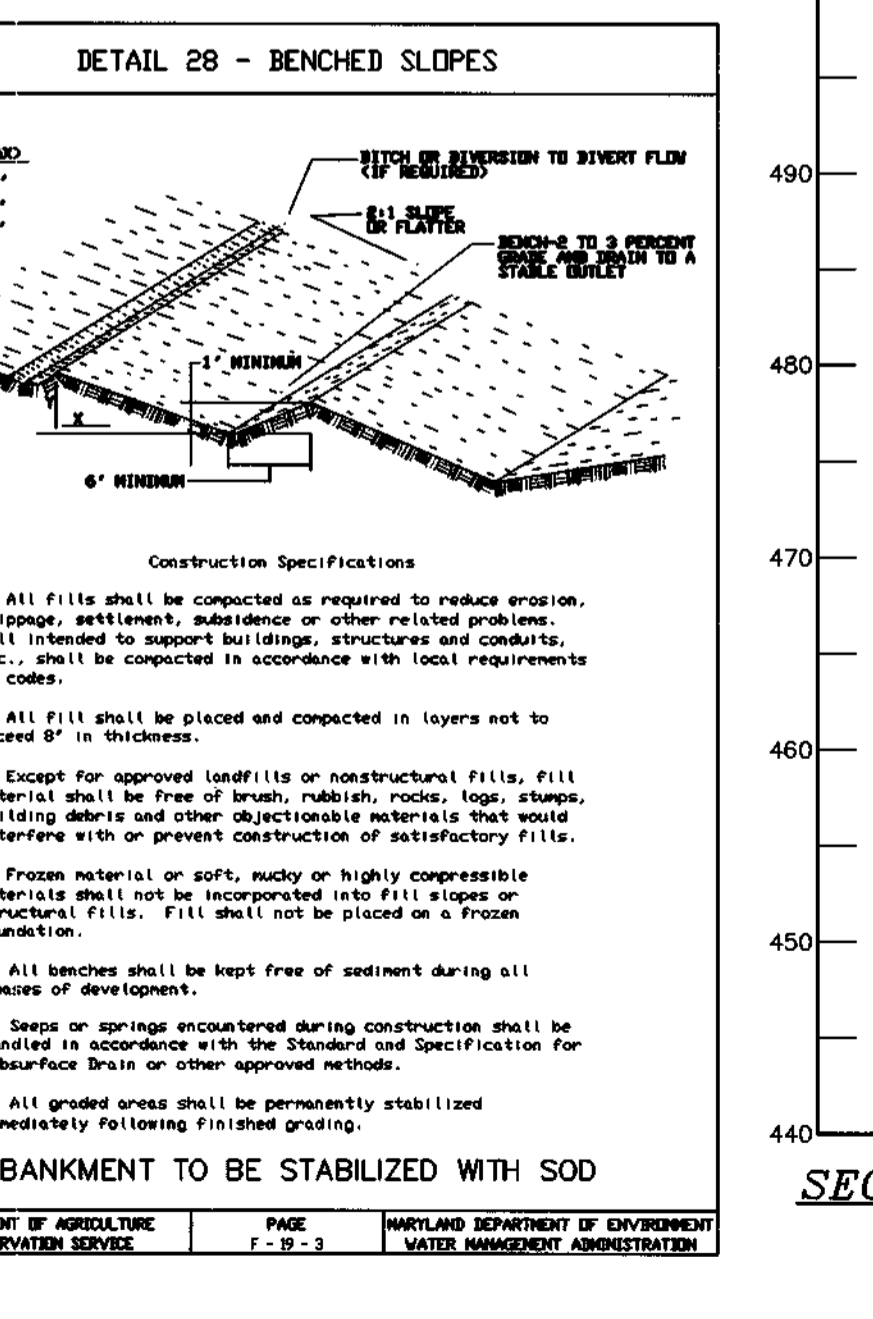
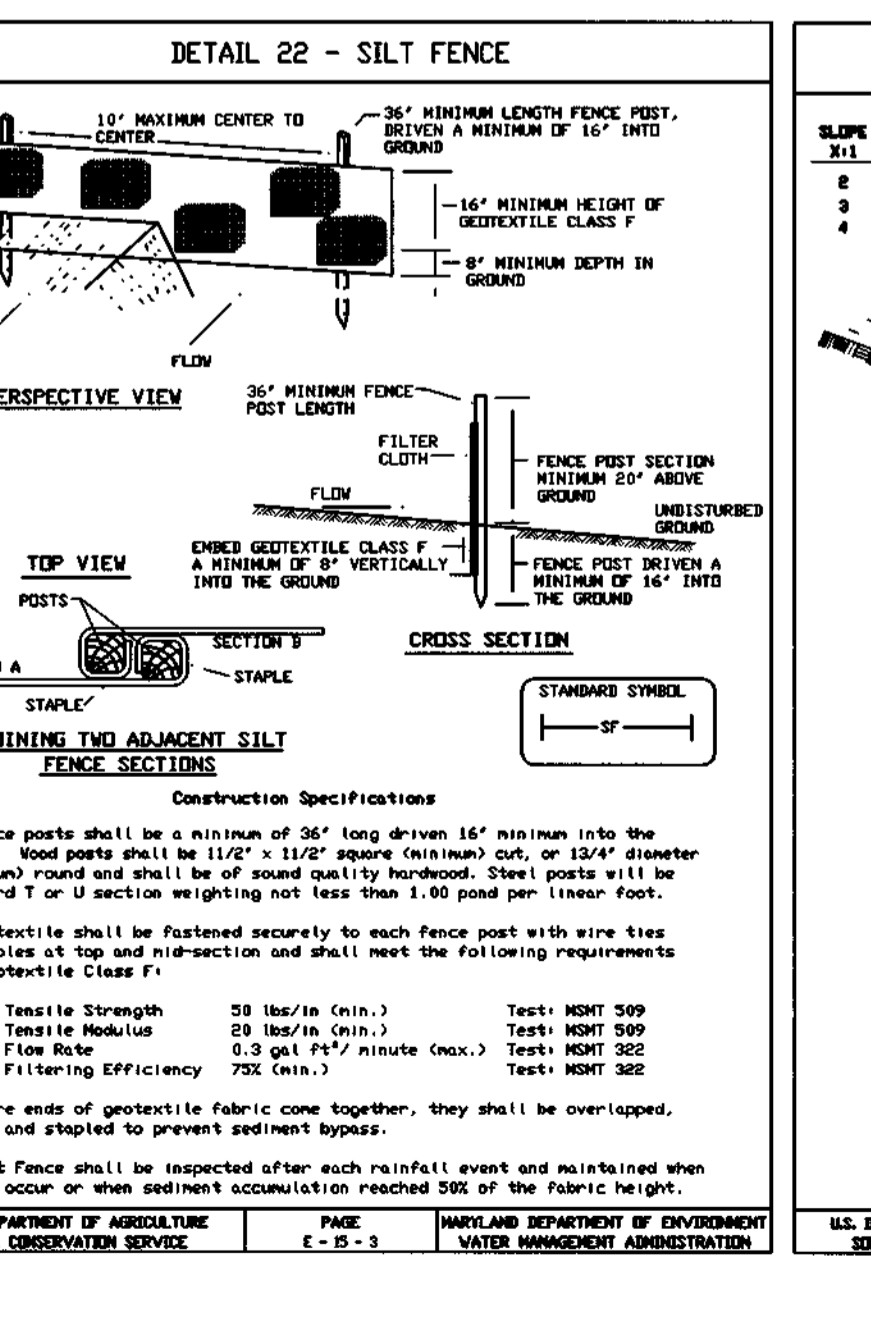
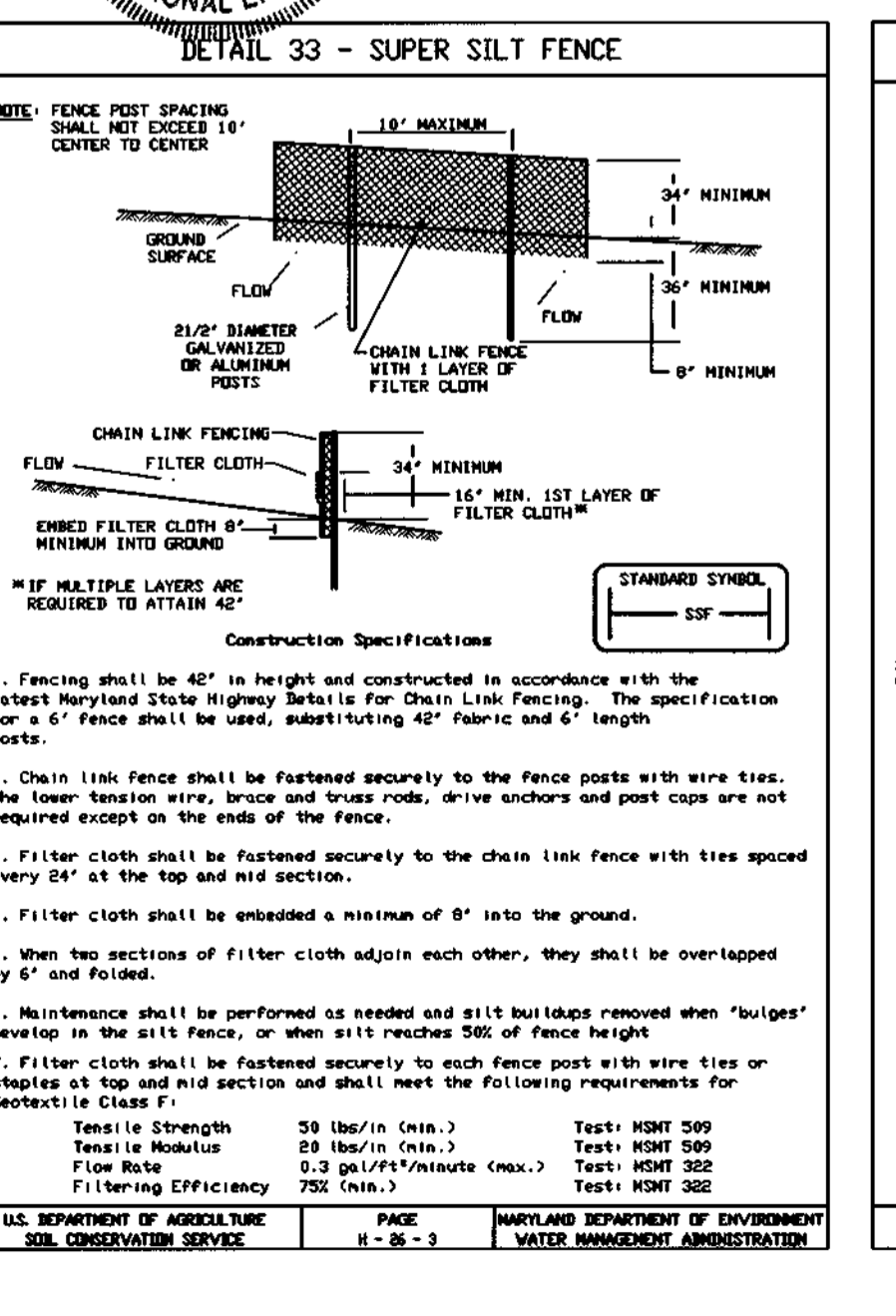
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Signature: *Cathy Hamilton* DATE: 10/28/97

CHIEF, DIVISION OF LAND DEVELOPMENT

Signature: *William D. ...* DATE: 10/15/97

CHIEF, DEVELOPMENT ENGINEERING DIVISION



HOWARD SOIL CONSERVATION DISTRICT

PERMANENT SEEDING NOTES

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

SEEDING 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:

- PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ.FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ.FT.) BEFORE SEEDING. 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.).
- ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 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 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 PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. PER ACRE OF KENTUCKY 31 TALL FESCUE PER ACRE (0.5 LBS./1000 SQ.FT.) OF WEEPING LOVEGRASS DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, FROM EITHER: OPTION (1) - 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) - USE SOD. OPTION (3) - SEED WITH 60 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING - APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 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

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDING PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, FOR 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 AUGUST 1 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS./1000 SQ.FT.). FOR PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (0.7 LBS./1000 SQ.FT.). FOR PERIOD NOVEMBER 16 THRU NOVEMBER 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

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

REFER TO THE 1994 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

- 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 NAY CONSTRUCTION, (313-1855).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENTATION CONTROL FOR PERMANENT SEEDING (SEC.51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC.52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERMETER EROSION AND SEDIMENTATION CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- 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.

INCREMENTAL STABILIZATION OF EMBANKMENTS - FILL SLOPES

- Embankments shall be constructed in lifts as prescribed on the plans
- Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation ceases as prescribed in the plans.
- At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner to a sediment trapping device.
- Construction sequence:
 - Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill.
 - Place phase I embankment, dress and stabilize
 - Place phase II embankment, dress and stabilize
 - Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary.

NOTES:

- Once the placement of fill has begun, the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.
- silt fence is to be placed ON THE CONTOUR

OWNER/DEVELOPER
LAND DESIGN & DEVELOPMENT
10805 HICKORY RIDGE ROAD, SUITE 215
COLUMBIA, MARYLAND 21044
(410) 740-2100

WOODFORD'S GRANT
LOTS 1 THRU 30 AND PARCEL "A"

TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
HOWARD COUNTY, MARYLAND

THIRD ELECTION DISTRICT

EROSION & SEDIMENT CONTROL SPECIFICATIONS & DETAILS

Project: 97003
date: AUG 1997
illustration: JS
approval: RJH

revision #2
date: AUG 1997
no.:

12 OF 15

F-37-144

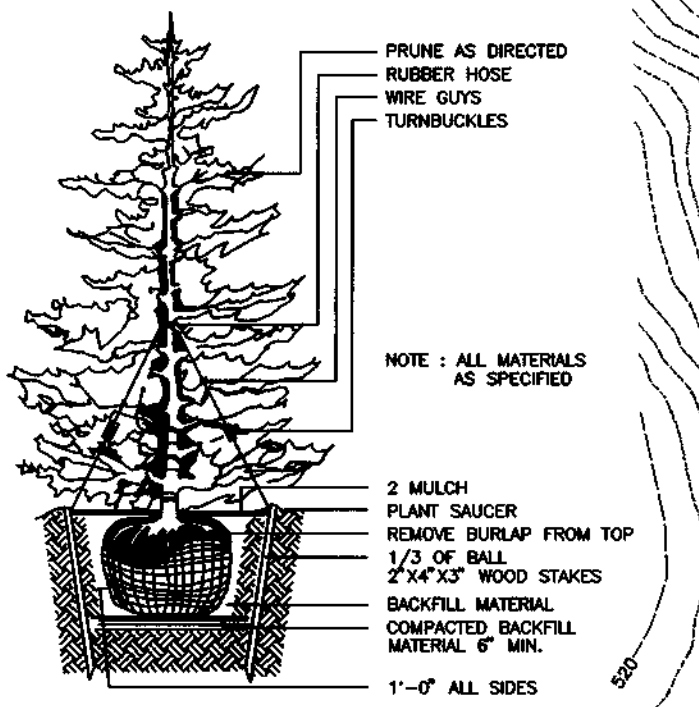
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsy Hall Drive, Suite 202, Ellicott City, Maryland, 21042
(410) 997-0296 Fax

PERIMETER EDGE REQUIREMENTS

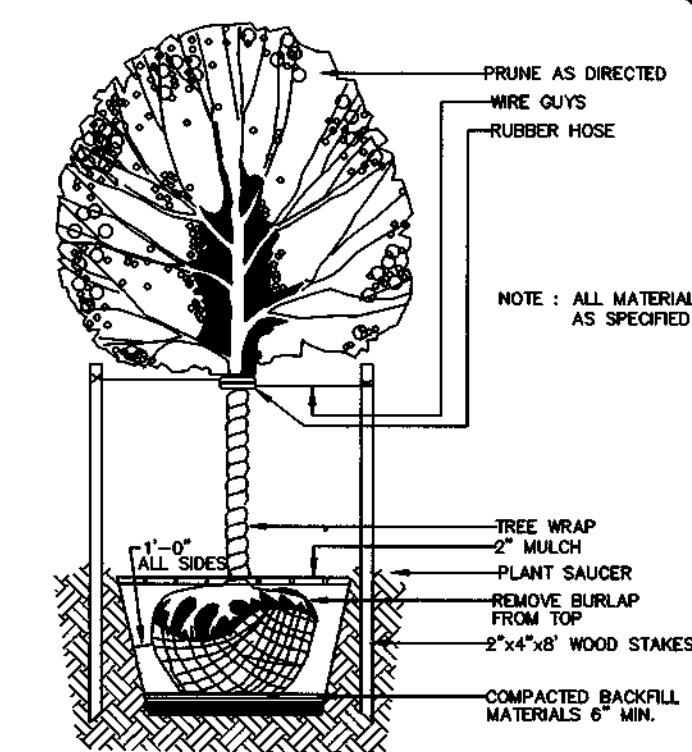
PERIMETER	EDGE TYPE
PERIMETER 1 OPEN SPACE TO SFD - 387.40 LF 1 SHADE TREE / 60 LF	A
PERIMETER 2 OPEN SPACE TO SFD - 454.50 LF 1 SHADE TREE / 60 LF	A
PERIMETER 3 OPEN SPACE TO SFD - 327.24 LF 1 SHADE TREE / 60 LF	A
PERIMETER 4 OPEN SPACE TO SFD - 120 LF TWO EXISTING TREES TO REMAIN	A
OPEN SPACE TO SFD - 244 LF 1 SHADE TREE / 60 LF	A
PERIMETER 5 OPEN SPACE & SFD TO SFD - 1500 LF EXISTING TREES TO REMAIN	A
OPEN SPACE & SFD TO SFD - 150 LF 1 SHADE TREE / 60 LF	A
PERIMETER 6 OPEN SPACE & SFD TO SFD - 617.03 LF EXISTING TREES TO REMAIN	A
PERIMETER 7 SFD TO SFD - 220.23 LF EXISTING TREES TO REMAIN	A
PERIMETER 8 SFD TO PRES. PARCEL - 279.61 LF EXISTING TREES TO REMAIN	A
PERIMETER 9 SFD TO PRES. PARCEL - 159.22 LF EXISTING TREES TO REMAIN	A
PERIMETER 10 SFD TO OPEN SPACE - 348.11 LF EXISTING TREES TO REMAIN	A
PERIMETER 11 SFD TO OPEN SPACE - 276.92 LF EXISTING TREES TO REMAIN	A
PERIMETER 12 SFD TO OPEN SPACE - 124.66 LF EXISTING TREES TO REMAIN	A
PERIMETER 13 SFD TO OPEN SPACE - 303.41 LF EXISTING TREES TO REMAIN	A
PERIMETER 14 SFD TO SFD - 152.84 LF EXISTING TREES TO REMAIN	A
PERIMETER 15 SFD TO SFD - 448.34 LF EXISTING TREES TO REMAIN	A
PERIMETER 16 SFD TO SFD - 290.84 LF 1 SHADE TREE / 60 LF	A
PERIMETER 17 SFD TO SFD - 1148.45 LF 1 SHADE TREE / 60 LF	A
TOTAL PLANTING OBLIGATION	
SHADE TREES	50
EVERGREEN TREES	0
SHRUBS	0

SWM PERIMETER REQUIREMENTS

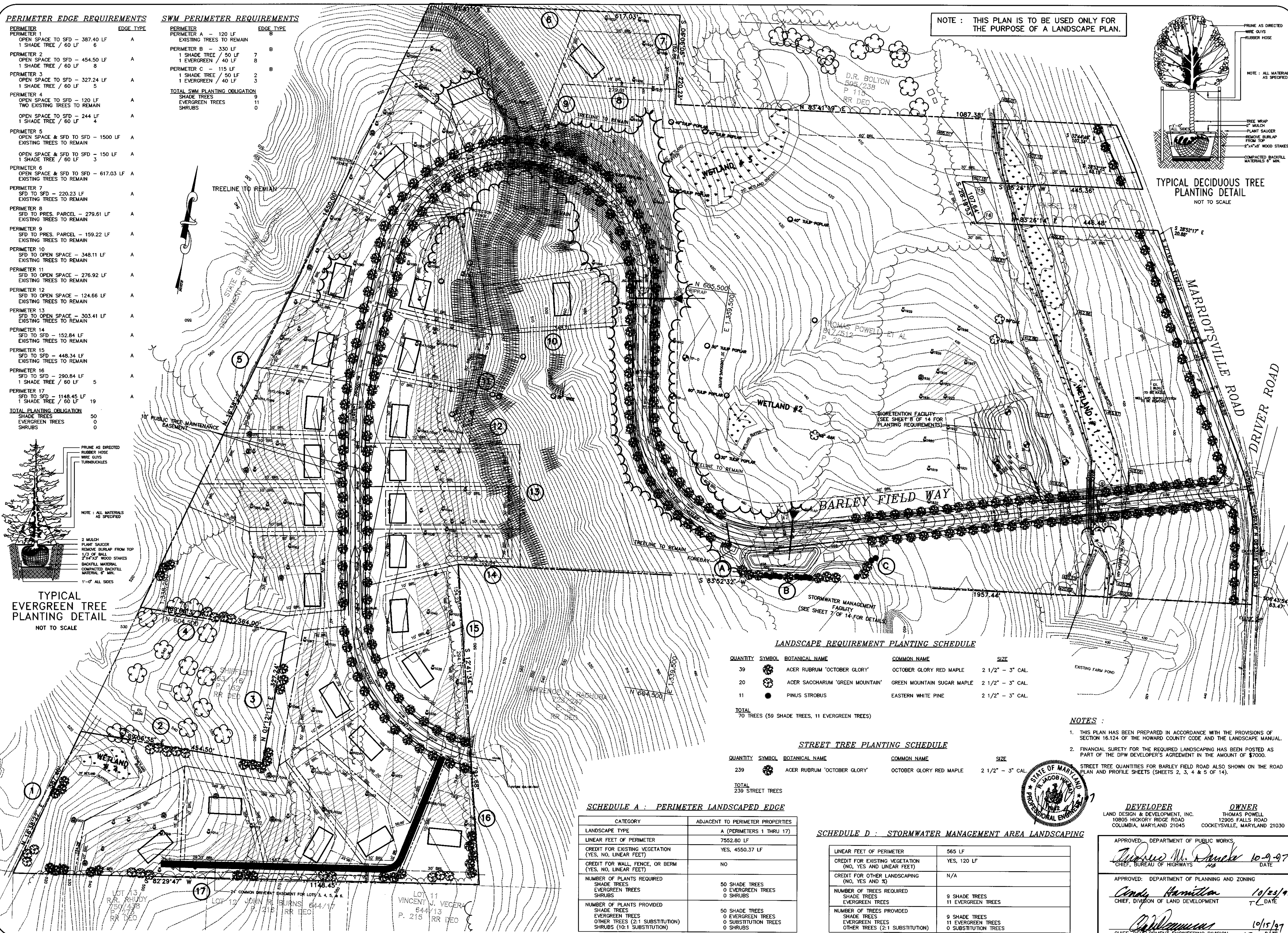
PERIMETER	EDGE TYPE
PERIMETER A - 120 LF EXISTING TREES TO REMAIN	B
PERIMETER B - 330 LF 1 SHADE TREE / 50 LF 1 EVERGREEN / 40 LF	7
PERIMETER C - 115 LF 1 SHADE TREE / 50 LF 1 EVERGREEN / 40 LF	2
TOTAL SWM PLANTING OBLIGATION	
SHADE TREES	9
EVERGREEN TREES	11
SHRUBS	0



TYPICAL EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE



TYPICAL DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE



NOTE: THIS PLAN IS TO BE USED ONLY FOR THE PURPOSE OF A LANDSCAPE PLAN.

LANDSCAPE REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
39	(Symbol)	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2 1/2" - 3" CAL.
20	(Symbol)	ACER SACCHARUM 'GREEN MOUNTAIN'	GREEN MOUNTAIN SUGAR MAPLE	2 1/2" - 3" CAL.
11	(Symbol)	PINUS STROBUS	EASTERN WHITE PINE	2 1/2" - 3" CAL.
TOTAL				
70 TREES (59 SHADE TREES, 11 EVERGREEN TREES)				

STREET TREE PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
239	(Symbol)	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2 1/2" - 3" CAL.
TOTAL				
239 STREET TREES				

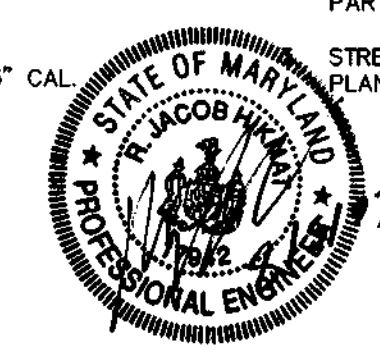
SCHEDULE A: PERIMETER LANDSCAPED EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES
LANDSCAPE TYPE	A (PERIMETERS 1 THRU 17)
LINEAR FEET OF PERIMETER	7552.80 LF
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	YES, 4550.37 LF
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET)	NO
NUMBER OF PLANTS REQUIRED	
SHADE TREES	50 SHADE TREES
EVERGREEN TREES	0 EVERGREEN TREES
SHRUBS	0 SHRUBS
NUMBER OF PLANTS PROVIDED	
SHADE TREES	50 SHADE TREES
EVERGREEN TREES	0 EVERGREEN TREES
OTHER TREES (2:1 SUBSTITUTION)	0 SUBSTITUTION TREES
SHRUBS (10:1 SUBSTITUTION)	0 SHRUBS

SCHEDULE D: STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	565 LF
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	YES, 120 LF
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	N/A
NUMBER OF TREES REQUIRED	
SHADE TREES	9 SHADE TREES
EVERGREEN TREES	11 EVERGREEN TREES
NUMBER OF TREES PROVIDED	
SHADE TREES	9 SHADE TREES
EVERGREEN TREES	11 EVERGREEN TREES
OTHER TREES (2:1 SUBSTITUTION)	0 SUBSTITUTION TREES

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 DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$7000.
 STREET TREE QUANTITIES FOR BARLEY FIELD ROAD ALSO SHOWN ON THE ROAD PLAN AND PROFILE SHEETS (SHEETS 2, 3, 4 & 5 OF 14).



DEVELOPER
LAND DESIGN & DEVELOPMENT, INC.
10805 HICKORY RIDGE ROAD
COLUMBIA, MARYLAND 21045

OWNER
THOMAS POWELL
12905 FALLS ROAD
COCKEYSVILLE, MARYLAND 21030

APPROVED: DEPARTMENT OF PUBLIC WORKS
James M. Ducker 10-9-97
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Hamilton 10/29/97
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

James M. Ducker 10/15/97
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Project	date	description	revisions
97003	AUG 1997	engineering	
97003	10/15/97	scale	
97003	10/15/97	scale	

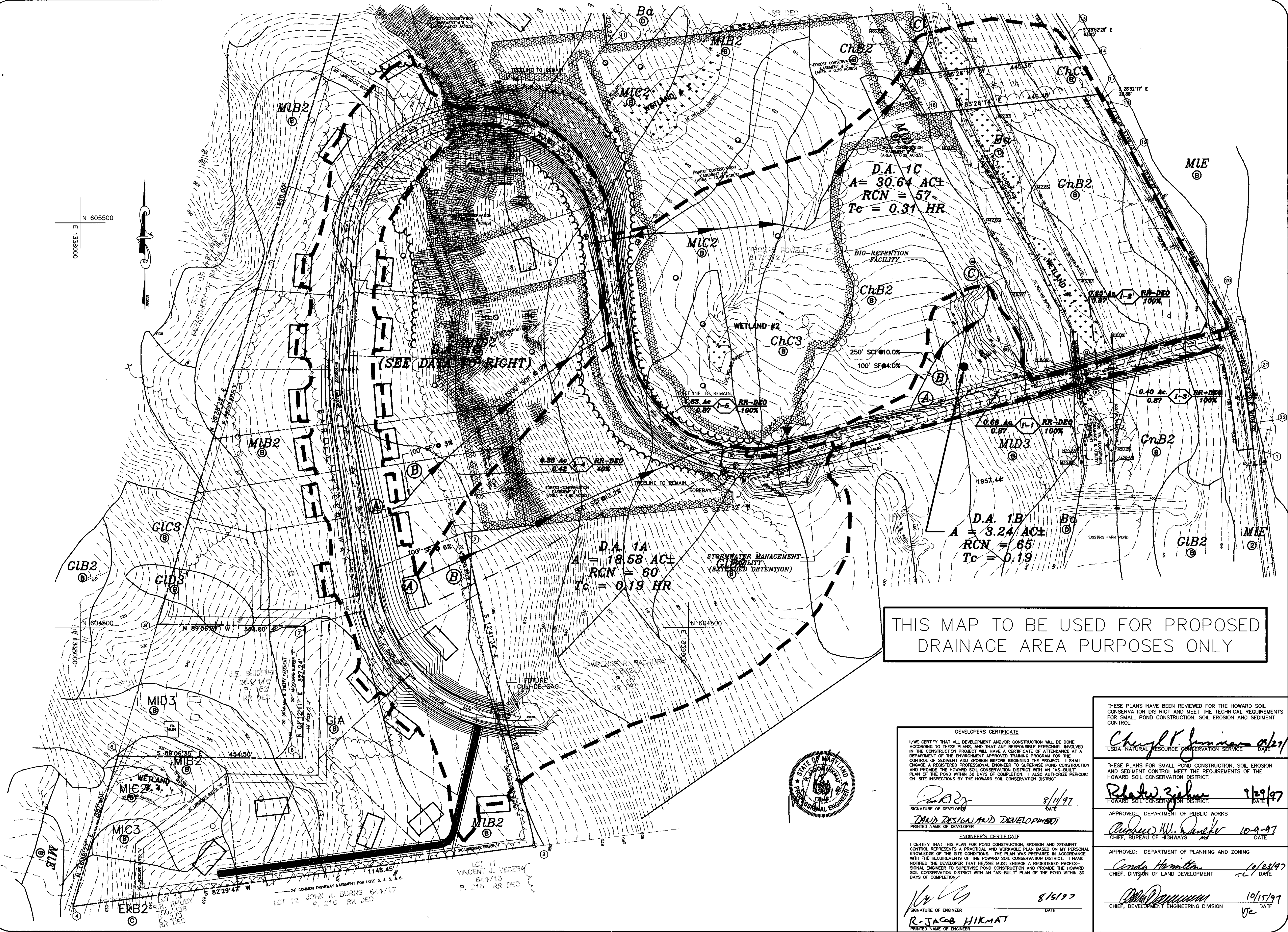
WOODFORD'S GRANT
 LOTS 1 THRU 30 AND PARCEL "A"
 TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
 THIRD ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

LANDSCAPE PLAN

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

F:\97003\DWG\003-PR-1.DWG

N 605500
E 1336000



(SEE DRAWING TO THE RIGHT)

THIS MAP TO BE USED FOR PROPOSED DRAINAGE AREA PURPOSES ONLY

DEVELOPERS CERTIFICATE

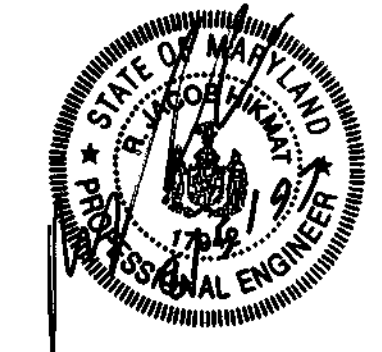
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION 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: *[Signature]* DATE: 8/11/97
 PRINTED NAME OF DEVELOPER: DAVID DESIGN AND DEVELOPMENT

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 of Engineer: *[Signature]* DATE: 8/15/97
 PRINTED NAME OF ENGINEER: R. JACOB HIKMAT



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: *[Signature]* DATE: 8/27/97
 USDA-NATURAL RESOURCE CONSERVATION SERVICE

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

Signature: *[Signature]* DATE: 9/29/97
 HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Signature: *[Signature]* DATE: 10-9-97
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Signature: *[Signature]* DATE: 10/23/97
 CHIEF, DIVISION OF LAND DEVELOPMENT

Signature: *[Signature]* DATE: 10/15/97
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Project	97003
date	MAR 1997
illustration	JS
engineering	JS
scale	1"=100'
approval	RH

REVISION	NO.	DATE
REVISION #2	4/14/1997	
DESCRIPTION		REVISIONS

WOODFORD'S GRANT
 LOTS 1 THRU 30 AND PARCEL "A"
 TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
 HOWARD COUNTY, MARYLAND
 THIRD ELECTION DISTRICT
 DRAINAGE AREA MAP

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

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 have 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 for 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 mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
 - ii. Topsoil must be of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.
 - iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Limestone shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
- III. For sites having disturbed areas under 5 acres:
 - i. Place topsoil (if required) and add 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 topsoil 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 soil shall be not less than 1.5% by weight.
 - c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
 - d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.

Note: 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.

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

V. Topsoil Application

- i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, grade stabilization structures, earth dikes, slope silt fence and sediment traps and basins.
- ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" in elevation.
- iii. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of 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 seeded 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 for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - ii. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4lb/1,000 square feet, and 1/3 the normal lime application rate.

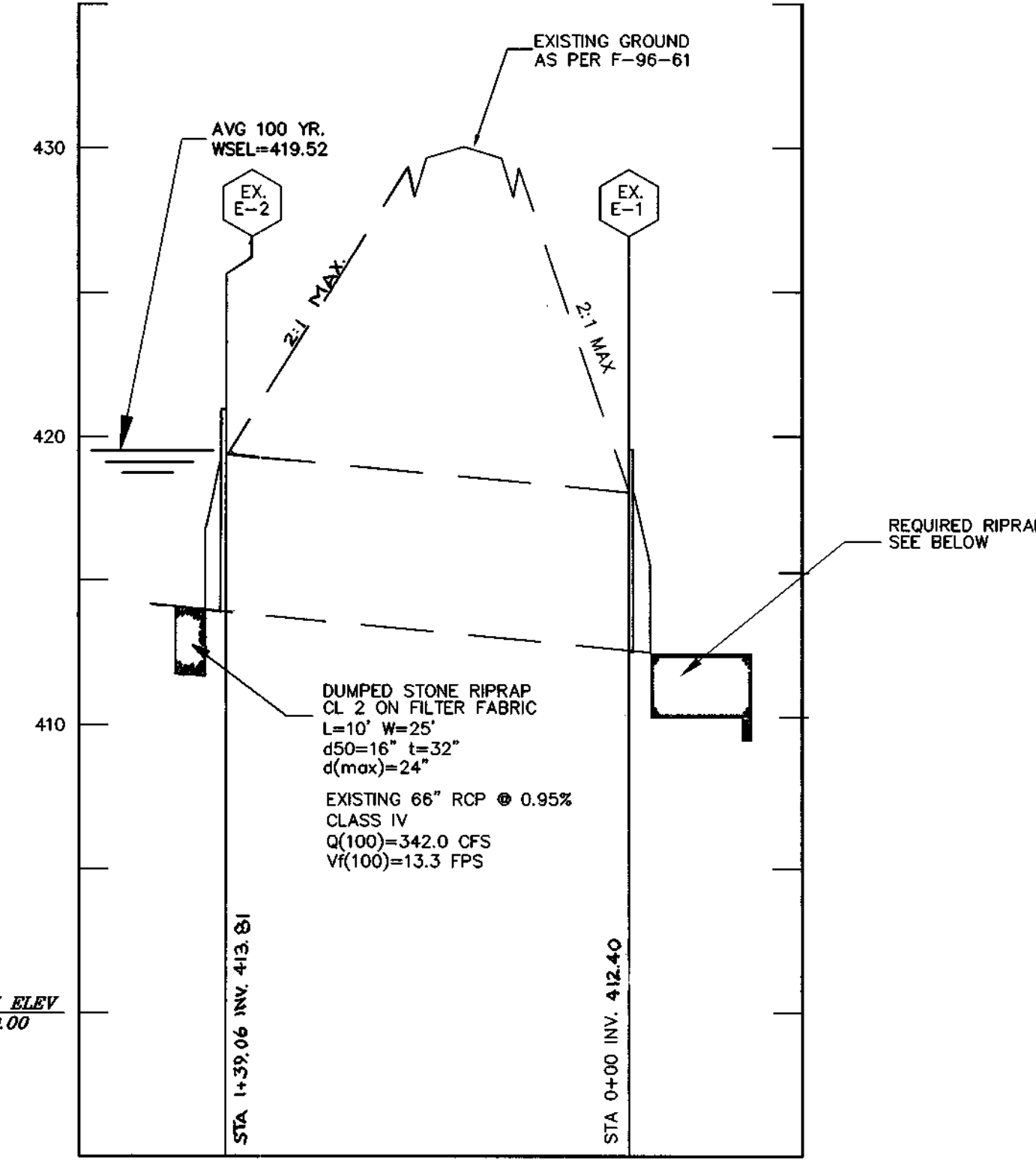
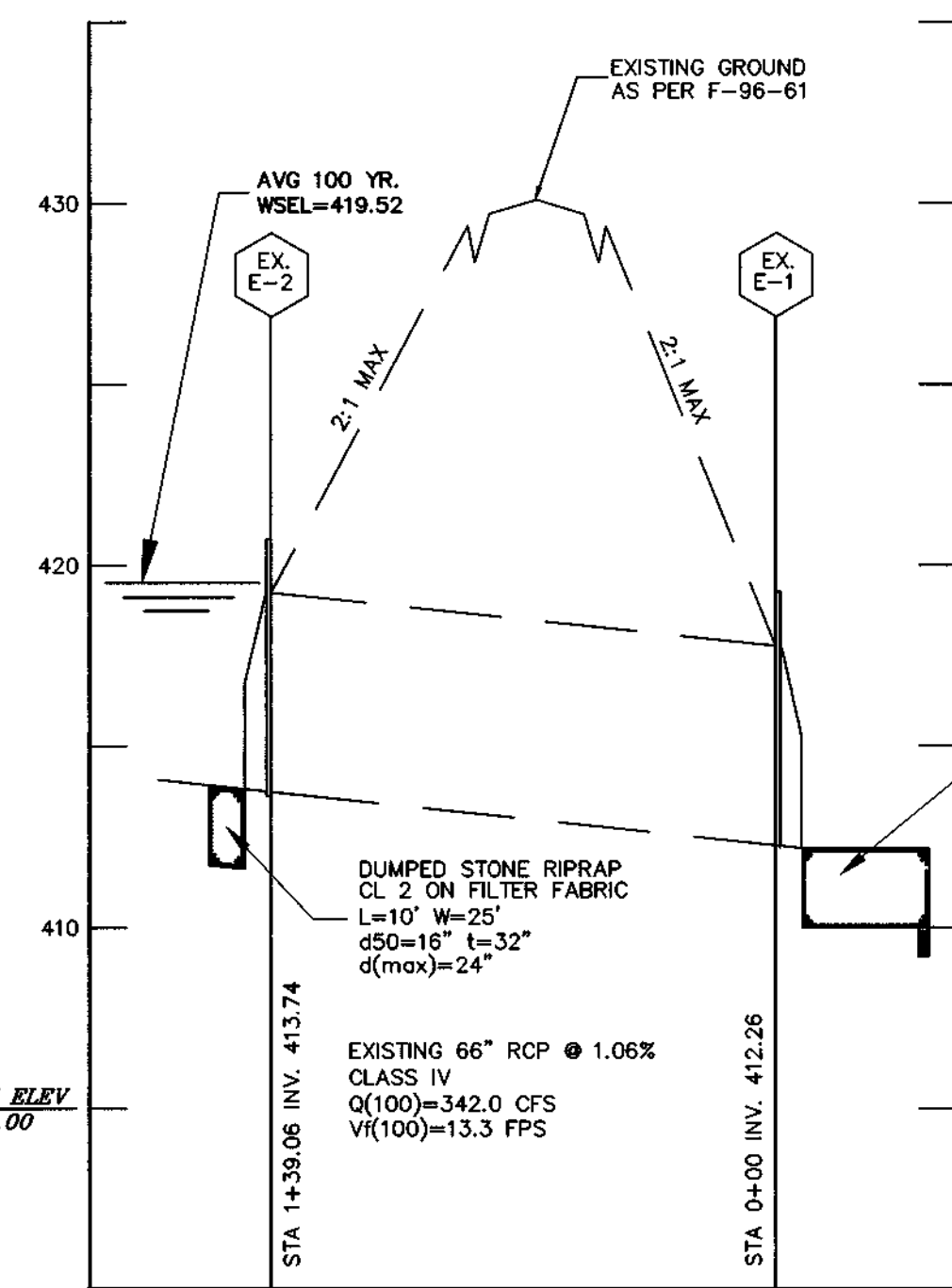
date	AUG 1997	approval	BJH
project	97003	scale	SHOWN
illustration	JS	revision	

date	AUG 1997
revision #2	
description	revisions
no.	

WOODFORD'S GRANT
 LOTS 1 THRU 30 AND PARCEL "A"
 TAX MAP 10 - PARCELS 27, 29 & 151 - BLOCK 15 & 16
 HOWARD COUNTY, MARYLAND
 THIRD ELECTION DISTRICT
 EXISTING CULVERT PROFILES AND DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
 Surveyors
 Engineers
 Planners
 6072 Dorsy Hall Drive, Suite 202, Ellicott City, Maryland, 21042
 (410) 997-0286 Fax: (301) 821-5321 Wash. (410) 997-0286 Fax.

ROCK OUTLET PROTECTION ANALYSIS
 Q(100)=342 CFS
 Q(EACH PIPE)=342 CFS/2 = 171 CFS
 REQ. R.O.P. LENGTH = 25'
 REQ. R.O.P. WIDTH (EACH PIPE) = 12'
 DIMENSIONS RESULTING FROM OVERLAPPING RIPRAP BETWEEN THE TWO CULVERTS:
 L = 25', W = 30'



PROFILE - EXISTING 66" RCP (WEST)

PROFILE - EXISTING 66" RCP (EAST)

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

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

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: Donald Reuwer, President
 Date: 8/11/97

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: R. Jacob Hikmat
 Date: 8/15/97

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: Cheryl K. Simmons
 Date: 09/27/97

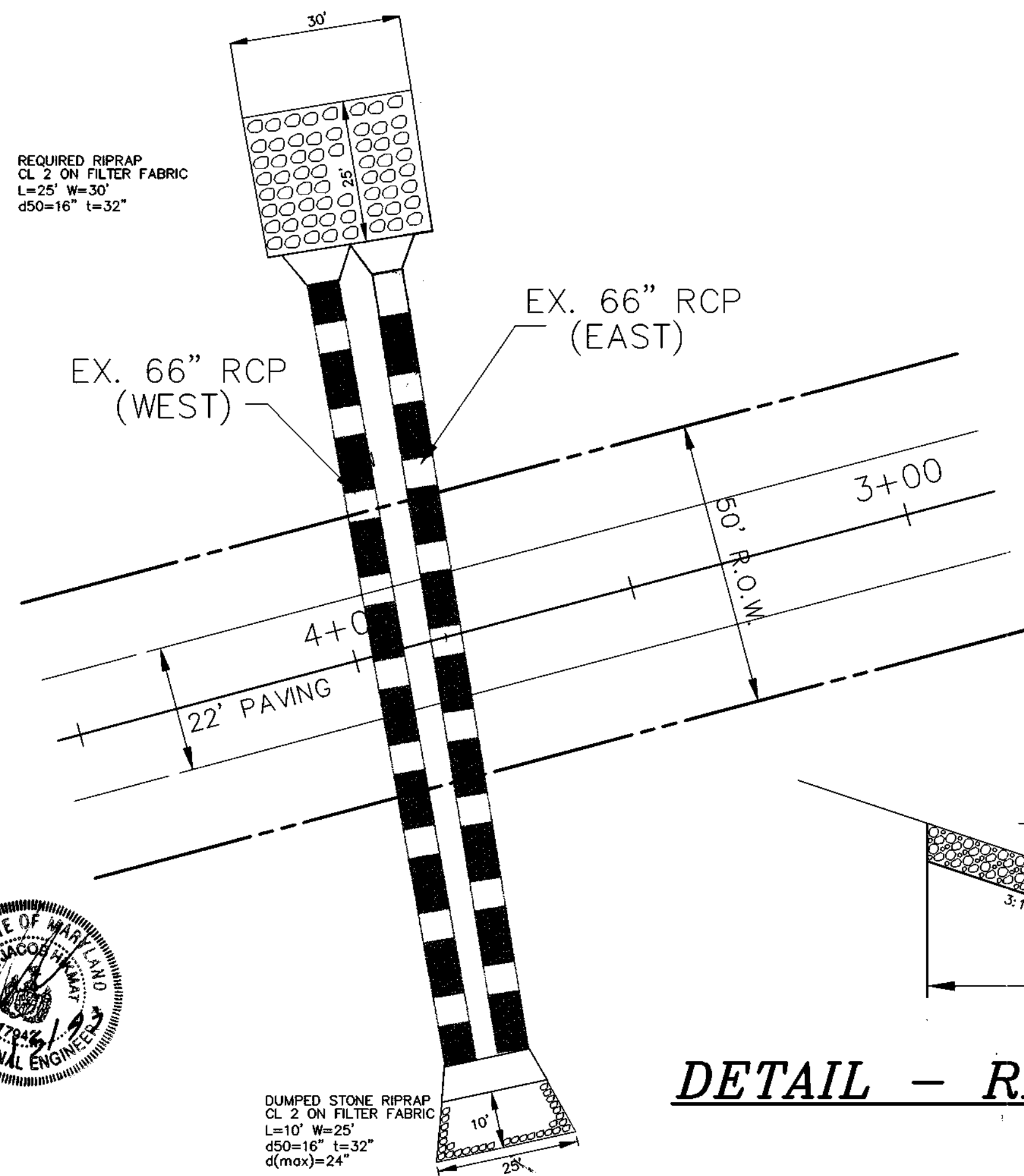
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: Robert W. Ziehm
 Date: 9/29/97

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Signature: Andrew M. Daniels
 Date: 10-9-97

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Signature: Cindy Hamilton
 Date: 10/23/97

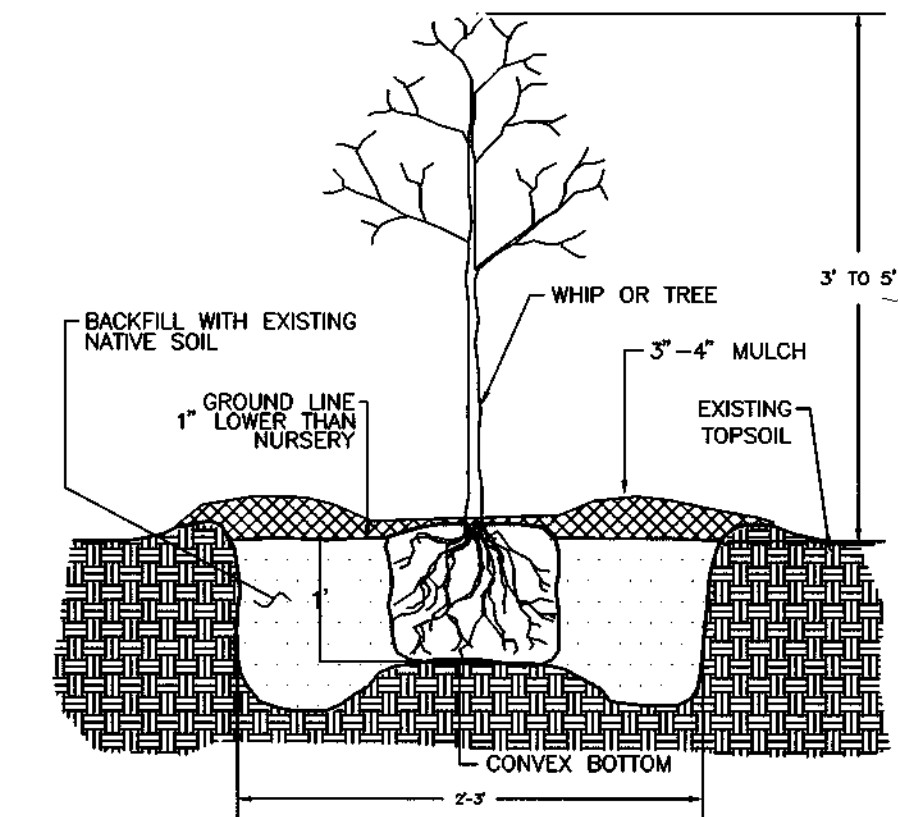
Signature: [Signature]
 Date: 10/15/97



DETAIL - RIPRAP FOR ROAD SWALE

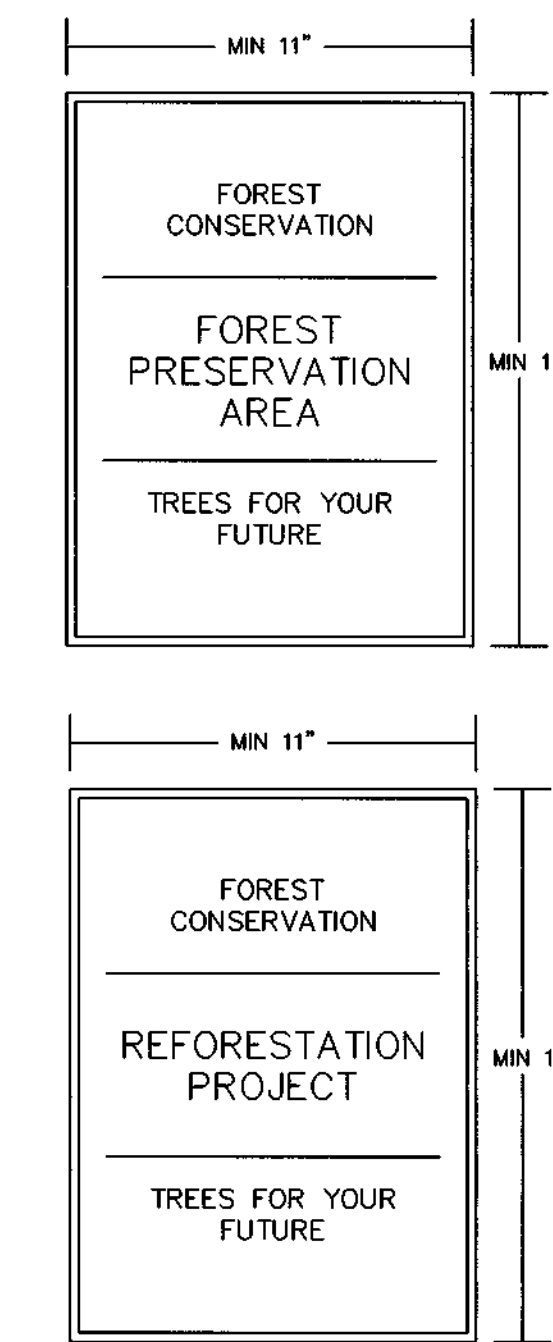
DETAIL - EXISTING TWIN 66" RCP CULVERTS

SCALE: 1"=20'

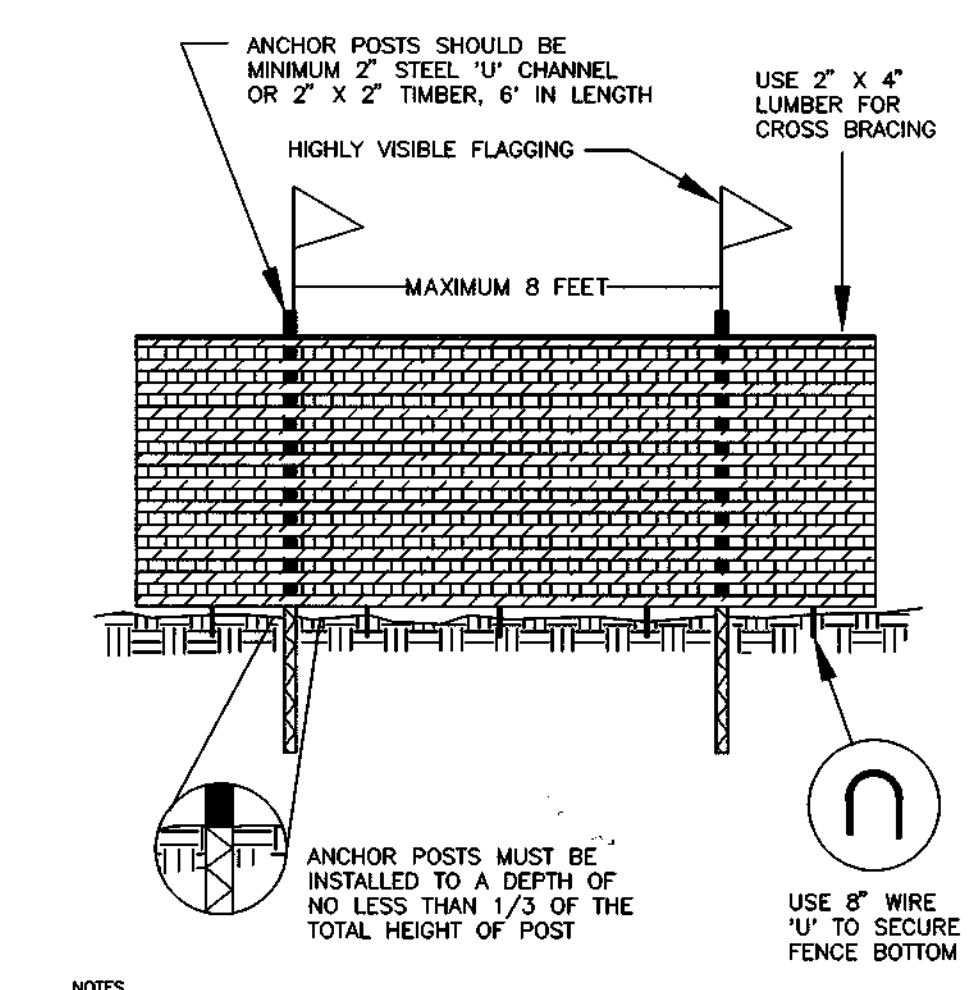


TREE PLANTING DETAIL

PROTECTIVE FENCE DETAIL
 BLAZE ORANGE PLASTIC MESH



SIGNAGE DETAILS
 NOT TO SCALE



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