

project	02-046	date	MAY 2004
illustration	MMP	engineering	MMP
scale	NTS	approval	MPP

no.	description	revisions	date

JASMYN WOODS
 LOTS 1-7 AND OPEN SPACE LOT 8
 TAX MAP 31, PARCEL 366
 HOWARD COUNTY, MARYLAND
 SECOND ELECTION DISTRICT
COVER SHEET

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

ROAD CONSTRUCTION PLANS

JASMYN WOODS

LOTS 1 THRU 7 & OPEN SPACE LOT 8

SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

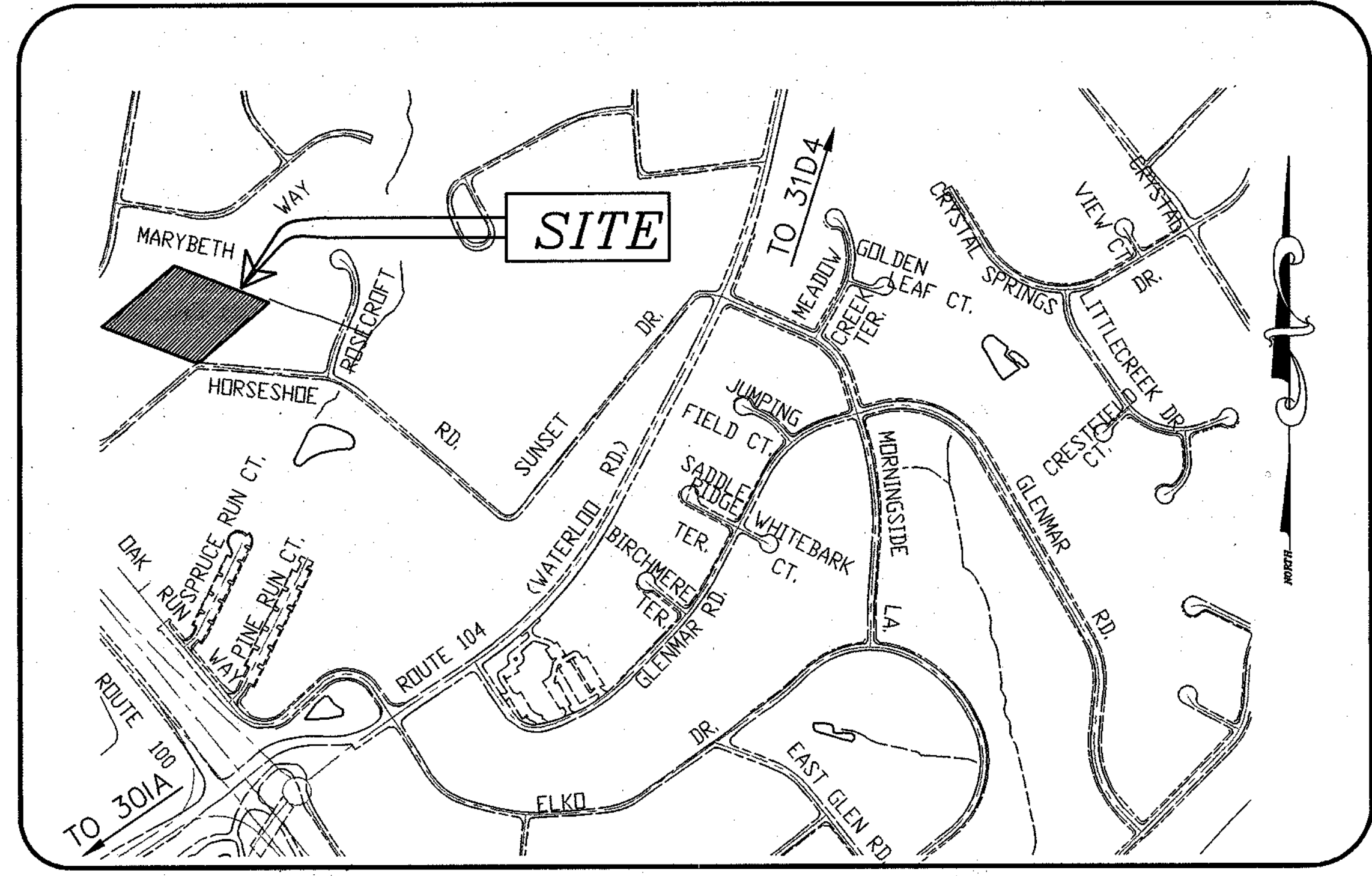
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GENERAL NOTES

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

MISS UTILITY	1-800-257-7777
C&P TELEPHONE COMPANY	(410) 725-9976
HOWARD COUNTY BUREAU OF UTILITIES	(410) 313-4900
AT&T CABLE LOCATION DIVISION	(410) 393-3533
BALTIMORE GAS & ELECTRIC	(410) 685-0123
STATE HIGHWAY ADMINISTRATION	(410) 531-5533
HOWARD COUNTY DEPT. OF PUBLIC WORKS/CONSTRUCTION INSPECTIONS DIVISION	(410) 313-1880
- PROJECT BACKGROUND:
 LOCATION: TAX MAP 31, PARCEL 358, GRID 13.
 ZONING: R-20
 ELECTION DISTRICT: 2ND
 TOTAL AREA: 3.64 AC ±
 DPZ FILES: SP-03-08 APPROVED 7/11/03
 WP-03-100 APPROVED 04/22/03
- TOPOGRAPHIC AND BOUNDARY INFORMATION IS BASED ON MONUMENTED FIELD RUN SURVEY BY MILDENBERG, BOENDER AND ASSOC. INC. PERFORMED IN OR ABOUT SEPTEMBER, 2002. VERTICAL DATUM IS NAD 83.
- COORDINATES BASED ON NAD'83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 301A AND 31D4.
 STA. 301A N567750.955, E1364842.701 EL.499.821
 STA. 31D4 N571700.681, E1369606.396 EL.495.181
- STORMWATER MANAGEMENT CONTROL WILL BE PROVIDED IN ACCORDANCE WITH THE 2000 MARYLAND SWM DESIGN MANUAL.
- STORMWATER MANAGEMENT FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED BY H.O.A.
- NO WETLANDS EXISTS ON SITE PER STUDY BY MILDENBERG, BOENDER AND ASSOC., INC. DATED NOVEMBER, 2002.
- GEOTECHNICAL REPORT PREPARED BY HILLIS-CARNES ENGINEERING ASSOC. INC. IN NOVEMBER 2002.
- DEED REFERENCE: L 7338, F 041.
- NO CEMETERIES OR HISTORIC STRUCTURES EXIST ON SITE.
- ALL EXISTING STRUCTURES AND DRIVEWAYS ARE TO BE REMOVED UNLESS OTHERWISE NOTED.
- TRAFFIC STUDY BY MARS TRAFFIC GROUP, DATED SEPTEMBER 2002.
- PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER ARE PUBLIC WATER CONTRACT NO. 64-W. SEWER CONTRACT NO. 302-S.
- PROPOSED WATER AND SEWER ARE PUBLIC, CONTRACT # 24-4185-D
- ALL LOTS WILL HAVE A MINIMUM OF 2 ON-SITE PARKING SPACES. NO STREET PARKING SPACES ARE REQUIRED.
- COMPACTION IN FILL AREAS TO BE 95% AS DETERMINED PER AASHTO T-180.
- CONTRACTOR TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES ON SITE PRIOR TO COMMENCING CONSTRUCTION.
- ALL STORM DRAIN PIPES TO BE HDPE PIPES UNLESS OTHERWISE NOTED.
- ALL DRIVEWAYS ENTRANCES TO BE H.C.STD. R-6.03 UNLESS OTHERWISE NOTED.
- STREET LIGHTS WILL BE REQUIRED IN THE DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME II(1993) AND AS MODIFIED BY GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 2993) THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE. PROVIDE A 100-WATT HPS VAPOR "COLONIAL" POST FIXTURE MOUNTED ON 14' BLACK FIBERGLASS POLE AT STA. 0+28, OFFSET 12' LEFT.
- AREA TABULATION:

TOTAL TRACT AREA:	3.64 AC ±
MINIMUM LOT AREA:	14,000 S.F.
AREA OF PROPOSED BUILDABLE LOTS:	2.34 AC ±
AREA OF PROPOSED ROADS (R/W):	0.01 AC ±
REQUIRED OPEN SPACE (30%):	1.09 AC ±
PROVIDED OPEN SPACE:	1.29 AC ±
NUMBER OF PROPOSED BUILDABLE LOTS:	7
NUMBER OF PROPOSED OPEN SPACE LOTS:	1
TOTAL NUMBER OF PROPOSED LOTS:	8
- THIS PROJECT IS SUBJECT TO W.P.-03-100 APPROVED ON APRIL 22, 2003. SUBJECT TO FOLLOWING:
 - PROVIDE AN EASEMENT ACROSS THE 24' WIDE PRIVATE ACCESS PLACE FOR PEDESTRIAN AND VEHICULAR ACCESS TO OPEN SPACE LOT 8.
 - PROVIDE A 40' WIDE PIPESTEM ADJACENT TO LOT 7.
- FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT FOR THIS SUBDIVISION WILL BE FULFILLED BY RETENTION OF 0.58 ACRES (25,264.8 SQ. FT.) AND PAYMENT OF A FEE-IN-LIEU OF REFORESTATION OF 0.65 ACRES (28,314 SQ. FT.) IN THE AMOUNT OF \$14,157.00. FINANCIAL SURETY FOR THE RETENTION OF 0.58 AC (25264.8 SQ.FT.) OF FOREST HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF \$5,052.96.
- THIS PROJECT IS SUBJECT TO THE FIFTH EDITION SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. AND TO THE AMENDED ZONING REGULATIONS (COUNTY BILL 50-2001).
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING (17 SHADE TREES, 8 EVERGREENS, 11 PRIVATE STREET TREES) HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF \$9,600.00.
- DRIVEWAY CULVERTS WILL BE DESIGNED UNDER SDP STAGE.



VICINITY MAP
SCALE 1"=500'

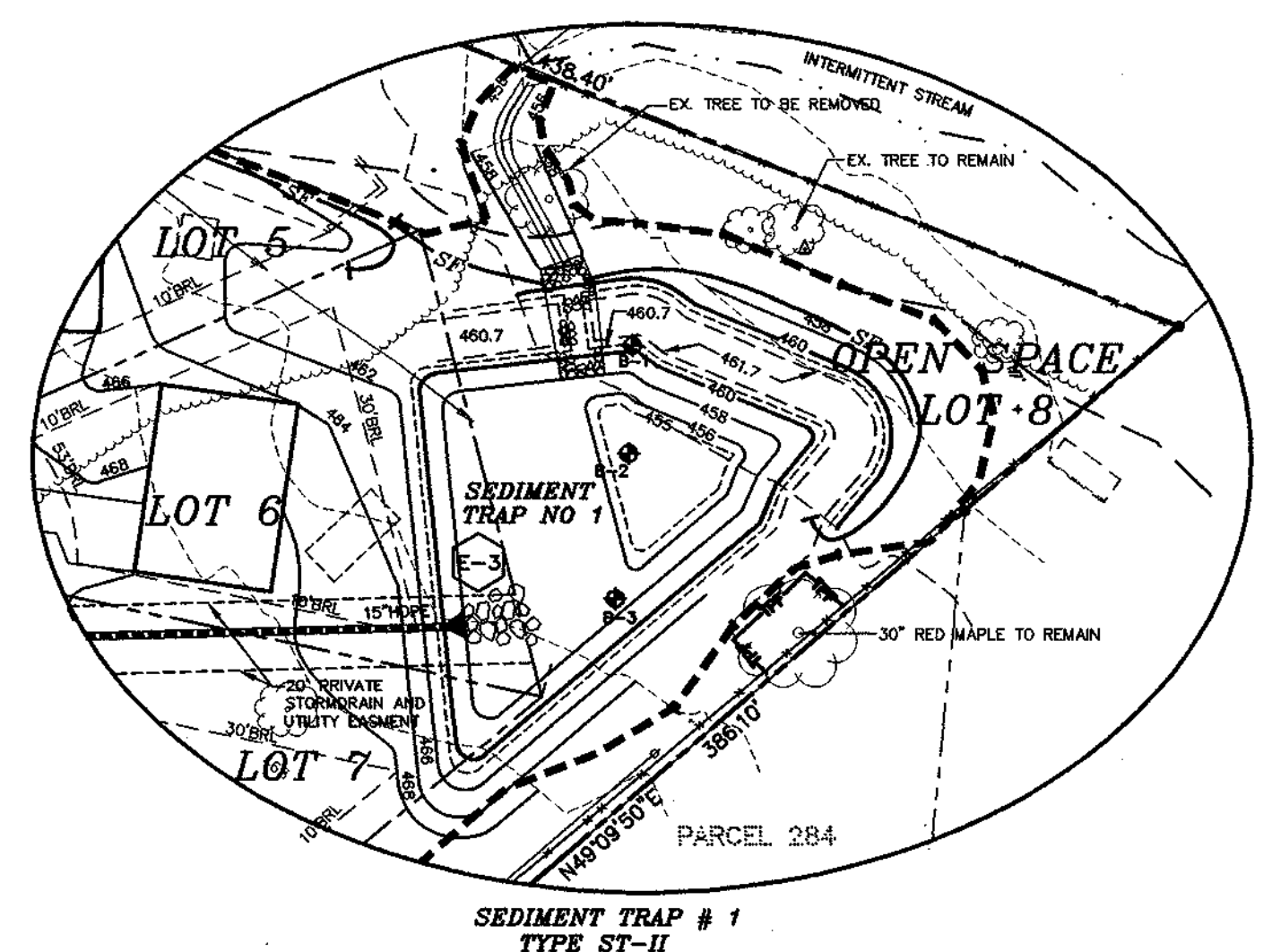
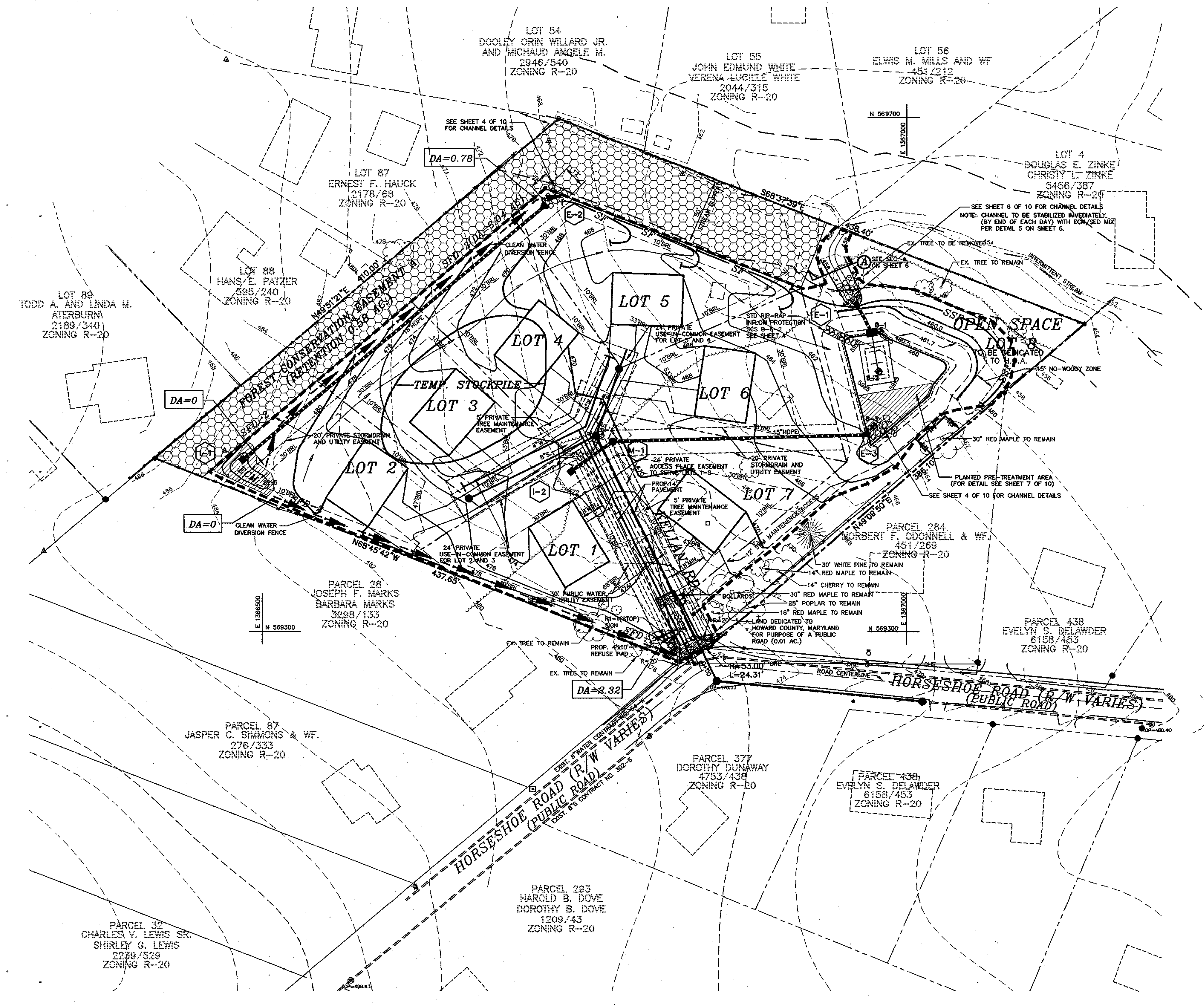
OWNER/DEVELOPER
 JASMYN WOODS, LLC
 C/O MILDENBERG, BOENDER AND ASSOC. INC.
 5072 DORSEY HALL DRIVE, SUITE 202
 ELLICOTT CITY, MARYLAND 21042
 (410) 997-0296

DEVELOPER'S CERTIFICATE	
I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE NATURAL RESOURCE CONSERVATION SERVICE.	
<i>[Signature]</i>	DATE 6/1/04
ENGINEER'S CERTIFICATE	
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATURAL RESOURCE CONSERVATION SERVICE.	
<i>[Signature]</i>	DATE 6/1/04
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT.	
Approved: <i>[Signature]</i> Howard C.C.D.	
REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS	DATE 6/1/04
USDA-NATURAL RESOURCES CONSERVATION SERVICE	DATE 6/1/04
APPROVED: DEPARTMENT OF PUBLIC WORKS	DATE
CHIEF-BUREAU OF HIGHWAYS	DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	DATE 7/8/04
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7/16/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE



LEGEND

- SUPER FENCE DIVERSION
- SUPER SILT FENCE
- SILT FENCE
- LIMIT OF DISTURBANCE



**SEDIMENT TRAP # 1
TYPE ST-II**

DRAINAGE AREA:	2.5 AC
TOTAL STORAGE REQ'D:	10,800 CU.FT.
TOTAL STORAGE PROV.:	26,455 CU.FT.
WET STORAGE REQ'D:	5,400 CU.FT.
WET STORAGE PROV.:	6,652 CU.FT.
WET STORAGE EL.:	548.0
DRY STORAGE REQ'D:	5,400 CU.FT.
DRY STORAGE PROV.:	19,803 CU.FT.
WEIR LENGTH:	10.0'
STORAGE DEPTH:	3.7'
EMBANKMENT EL.:	461.7
TRAP BOTTOM:	455.0
EX. GRADE @ WEIR:	458.0 (EXCAVATED)
TYP. DETAIL USED:	C-9-10A

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[Signature] *[Signature]*
 DATE

ENGINEER'S CERTIFICATE
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATURAL RESOURCE CONSERVATION SERVICE.

[Signature] *[Signature]*
 DATE

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

APPROVED: *[Signature]* 6/1/04
 HOWARD S.C.D.

REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS
[Signature] 4/1/04
 DATE

USDA/NATURAL RESOURCES CONSERVATION SERVICE

APPROVED: DEPARTMENT OF PUBLIC WORKS

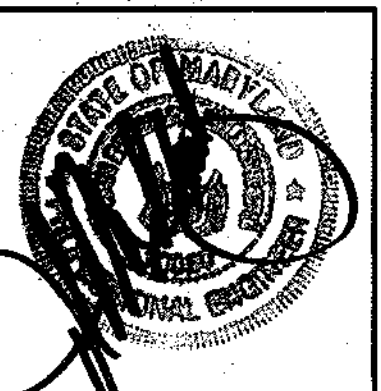
CHIEF: BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 7/7/04
 DATE

CHIEF: DIVISION OF LAND DEVELOPMENT

[Signature] 7/6/04
 DATE

CHIEF: DEVELOPMENT ENGINEERING DIVISION

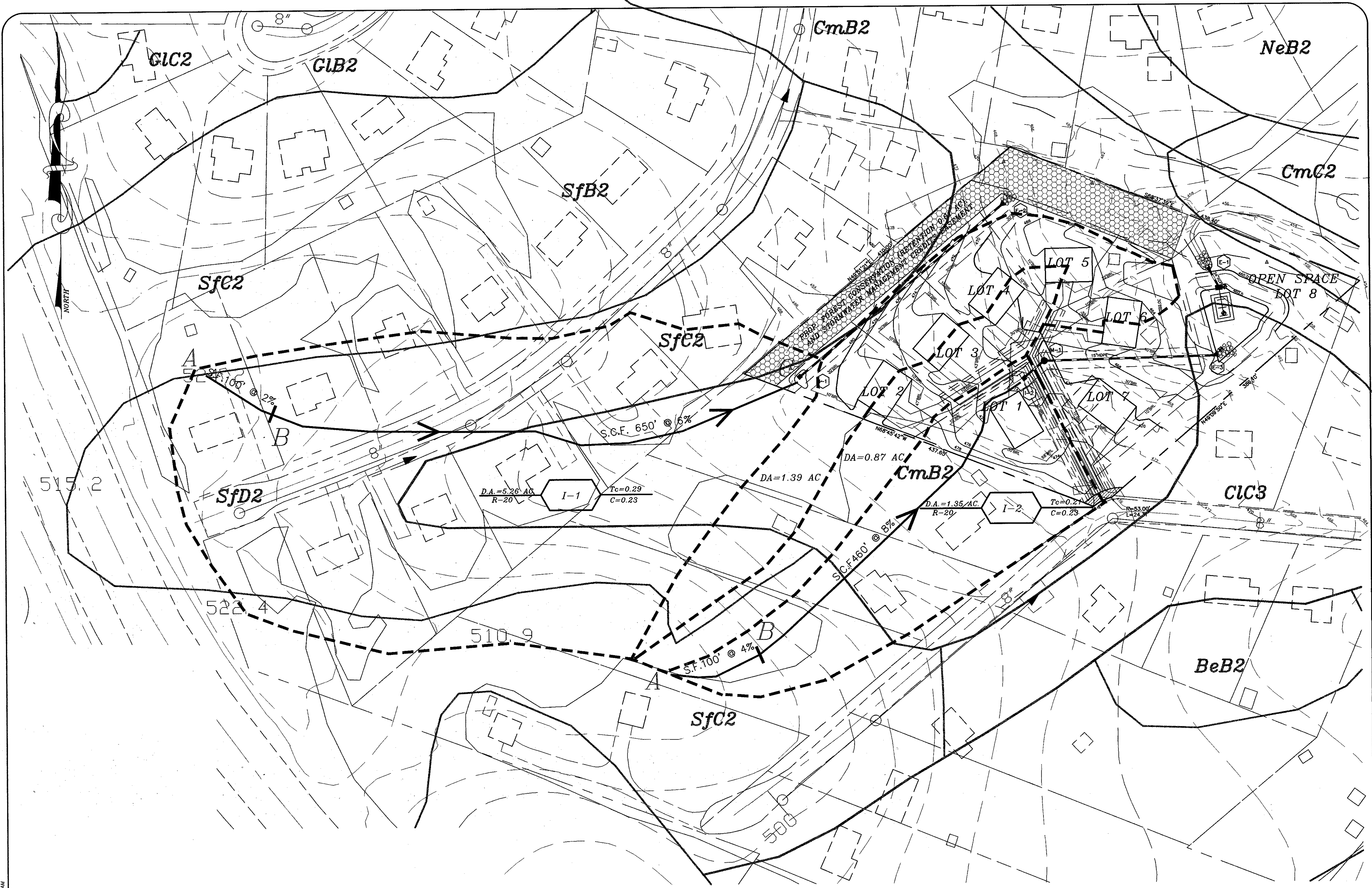


Project	02-046	date	MAY 2004
Illustration	MMP	engineering	MMP
scale	1"=50'	approval	MMP

no.	description	date

JASMYN WOODS
 LOTS: 1-7 AND OPEN SPACE LOT 8
 TAX MAP 31, PARCEL 356
 HOWARD COUNTY, MARYLAND
 SECOND ELECTION DISTRICT
GRADING AND SEDIMENT CONTROL PLAN

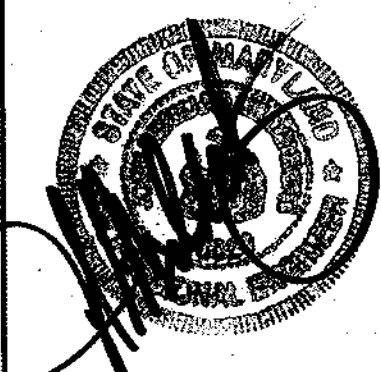
MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Surveyors Planners
 5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
 (410) 997-0296 Fax (301) 621-5521 Wash.



APPROVED - DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE 7/8/04

APPROVED: [Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE 7/6/04



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SOILS CLASSIFICATIONS:

CIC3 (B)	CHILLUM GRAVELLY LOAM, 5 TO 10 PERCENT SLOPES, SEVERELY ERODED.
CmB2 (B)	CHILLUM SILT LOAM, 1 TO 5 PERCENT SLOPES, MODERATELY ERODED.
CmC2 (B)	CHILLUM SILT LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED.
SfC2 (B)	SASSAFRAS GRAVELLY SANDY LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED.
SfD2 (B)	SASSAFRAS GRAVELLY SANDY LOAM, 10 TO 15 PERCENT SLOPES, MODERATELY ERODED.

project	02-046	date	MAY 2004
illustration	MMP	engineering	MMP
scale	1" = 50'	approval	

no.	description	date

JASMYN WOODS
 LOTS: 1-7 AND OPEN SPACE LOT 8
 TAX MAP 31, PARCEL 356
 SECOND ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
STORM DRAIN DRAINAGE AREA MAP

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
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 (410) 997-0296 Fax (410) 997-0288 Fax

STRUCTURE SCHEDULE

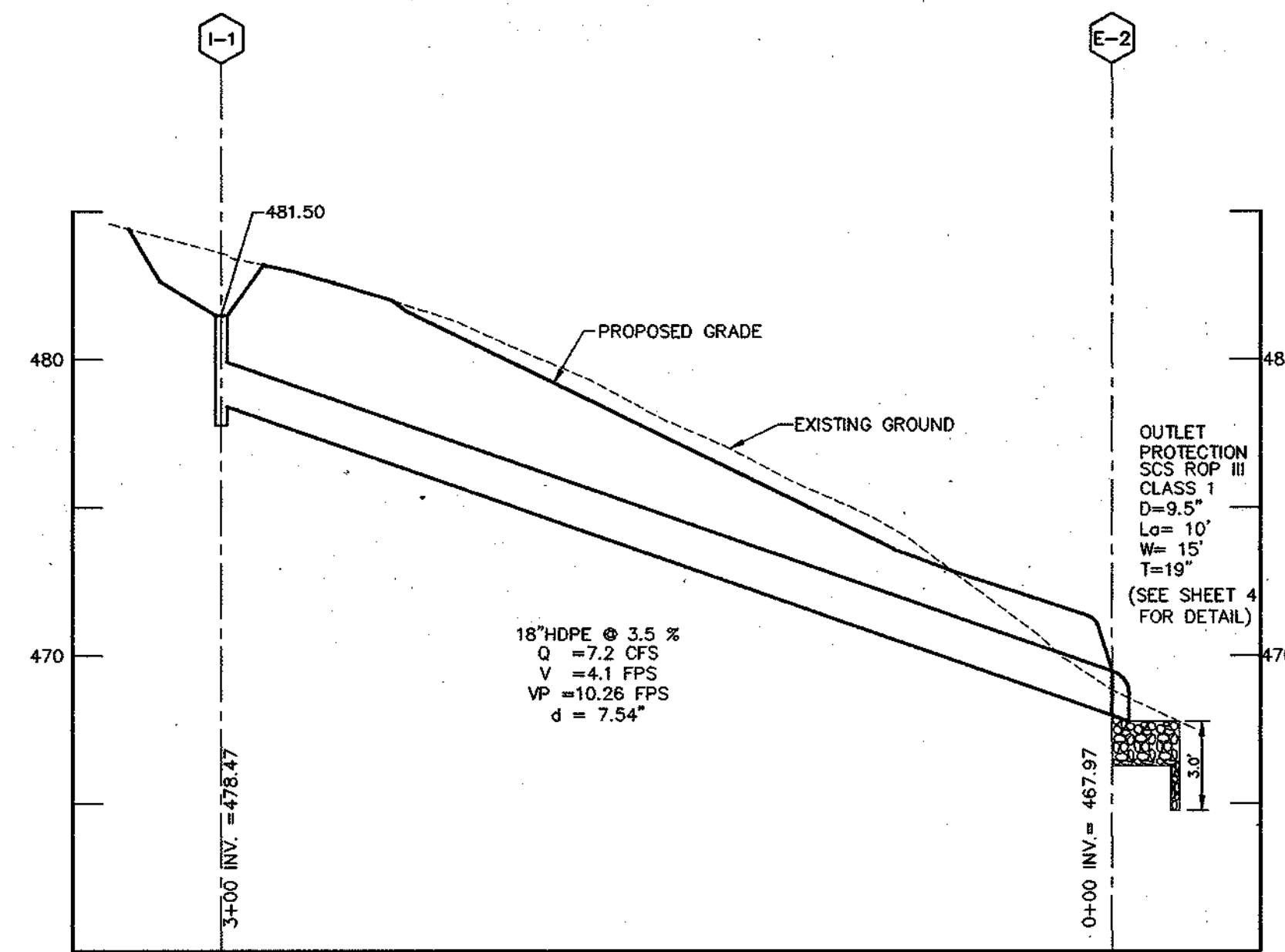
NO.	LOCATION	TOP EL.	INV. IN	INV. OUT	COMMENTS
I-1	N 569,434 E 1,366,485	481.50	-	478.47	TYPE K, H.C.STD. SD-4.12
I-2	KELLAN DR. STA. 1+850, O/S 21.5' RT.	471.35	-	468.47	TYPE K, H.C.STD. SD-4.12
M-1	KELLAN DR. STA. 1+90.5, O/S 16.5'	471.35	466.45	466.35	H.C.STD. G-5.12
E-2	N 569,630 E 1,366,718	-	467.97	-	H.C.STD. SD-5.61*
E-3	N 569,453 E 1,366,968	-	460.43	-	H.C.STD. SD-5.61*

NOTE: USE H.C.STANDARD CONNECTION SD-5.62

PIPE SCHEDULE

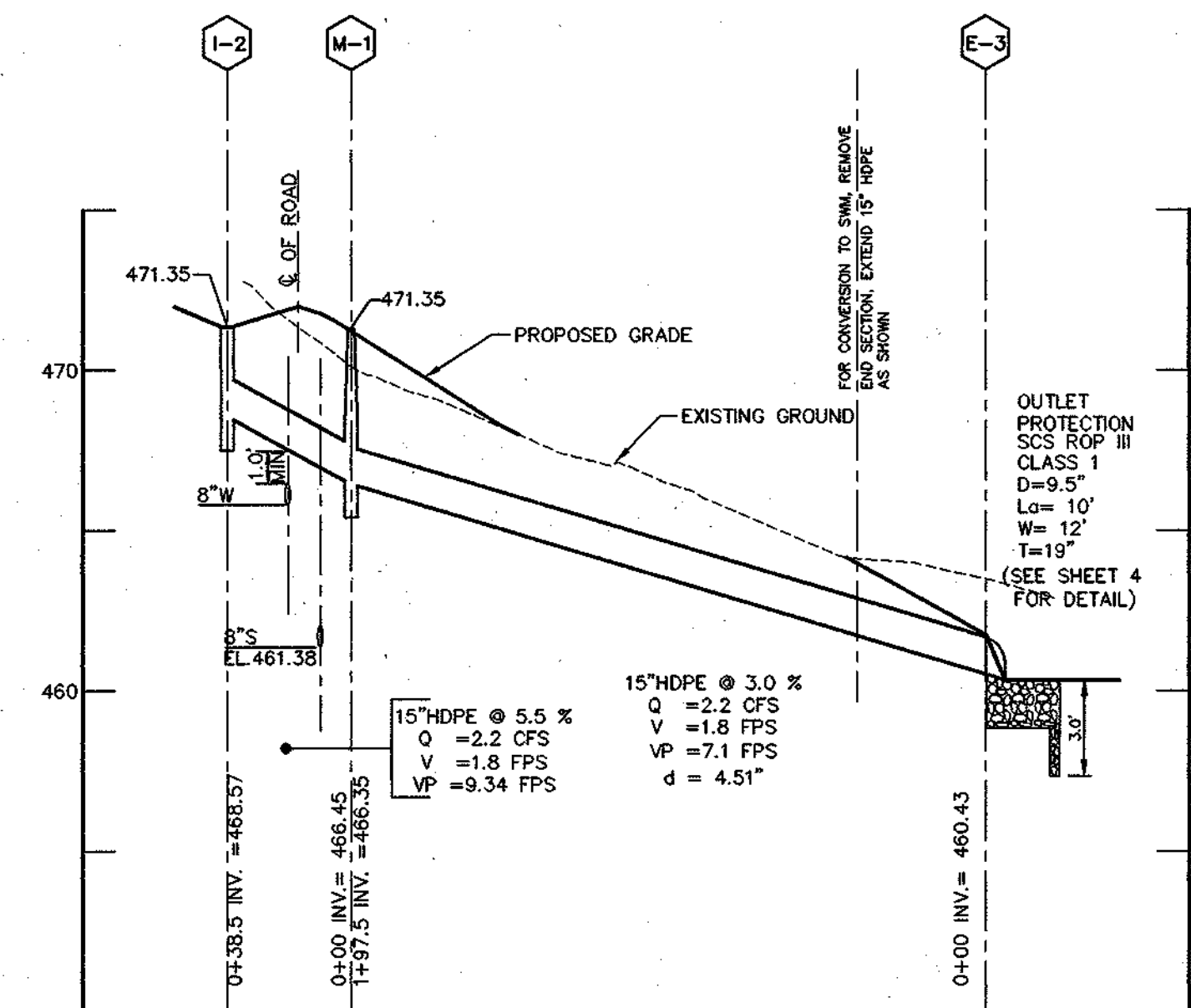
QUANTITY	PIPE SIZE
236'	15" HDPE
300'	18" HDPE

NOTE: HGL= TOP OF THE PIPE UNLESS OTHERWISE NOTED.



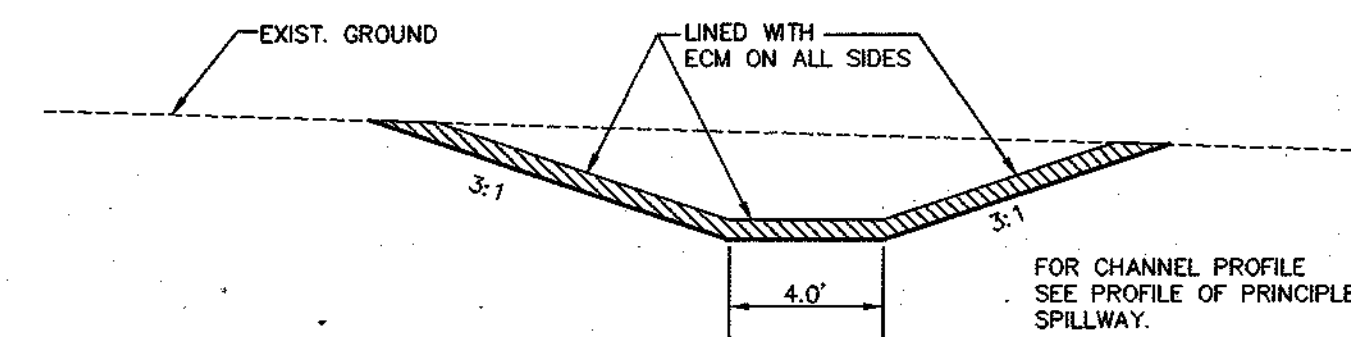
STORM DRAIN PROFILE

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



STORM DRAIN PROFILE

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



OUTLET CHANNEL

SCALE: 1"=10'

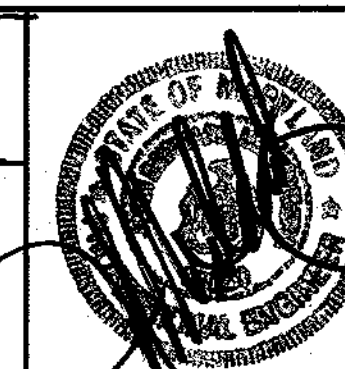
NOTE: CHANNEL TO BE STABILIZED IMMEDIATELY
(BY END OF EACH DAY) WITH ECM/SED MIX

OWNER/DEVELOPER

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C/O MILDENBERG, BOENDER AND ASSOC. INC.
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ELLCOTT CITY, MARYLAND 21042
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02-046 VMC/FINAL/SD-PROF

APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>Cinda Hamilton</i>	7/8/04
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>Michael...</i>	7/6/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE

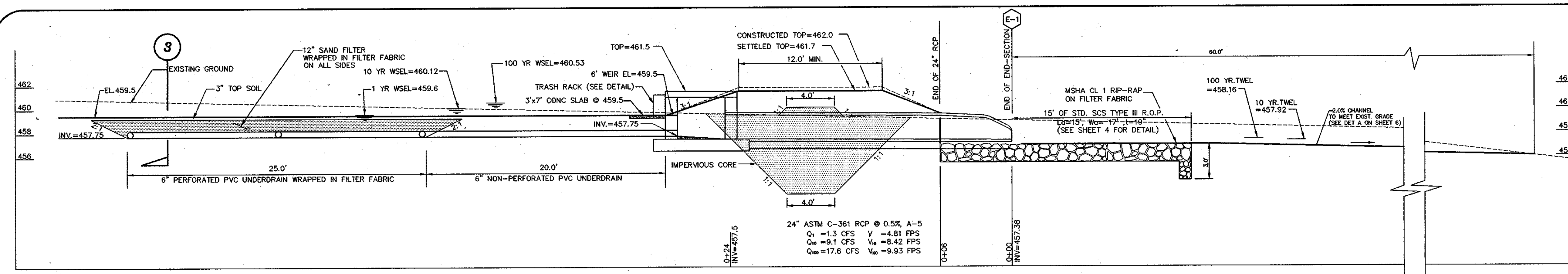


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02-046	MAY 2004	MMP	NIS	MMP

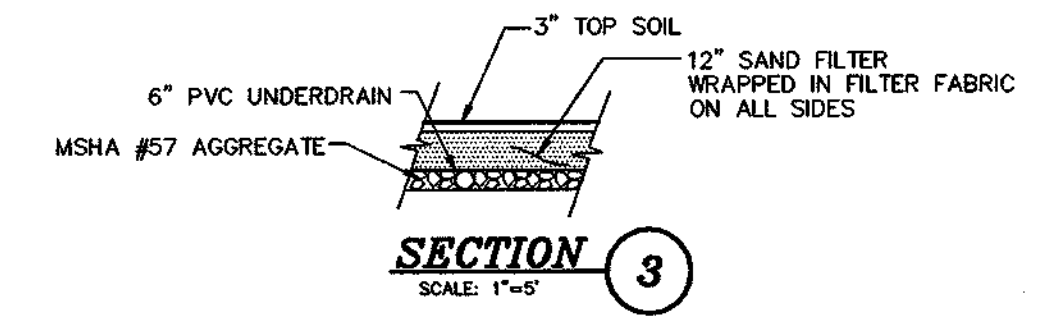
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JASMYN WOODS
LOTS: 1-7 AND OPEN SPACE LOT 8
TAX MAP 31, PARCEL 356
HOWARD COUNTY, MARYLAND
SECOND ELECTION DISTRICT
STORM DRAIN PROFILES

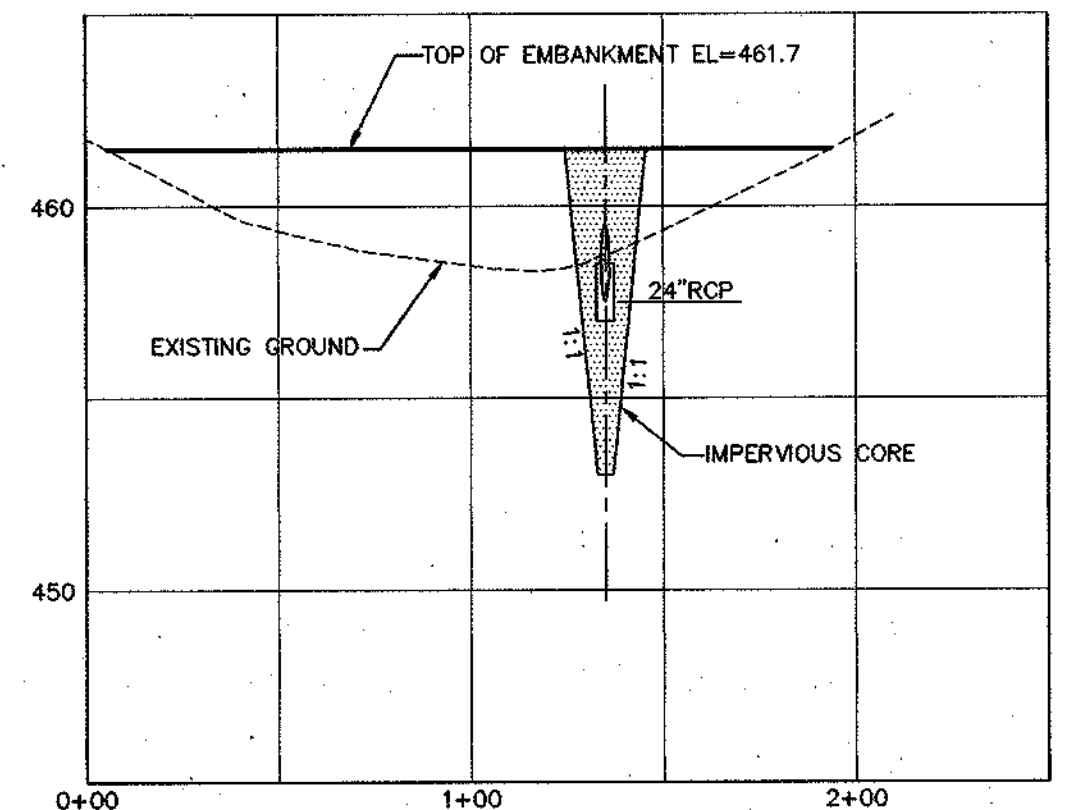
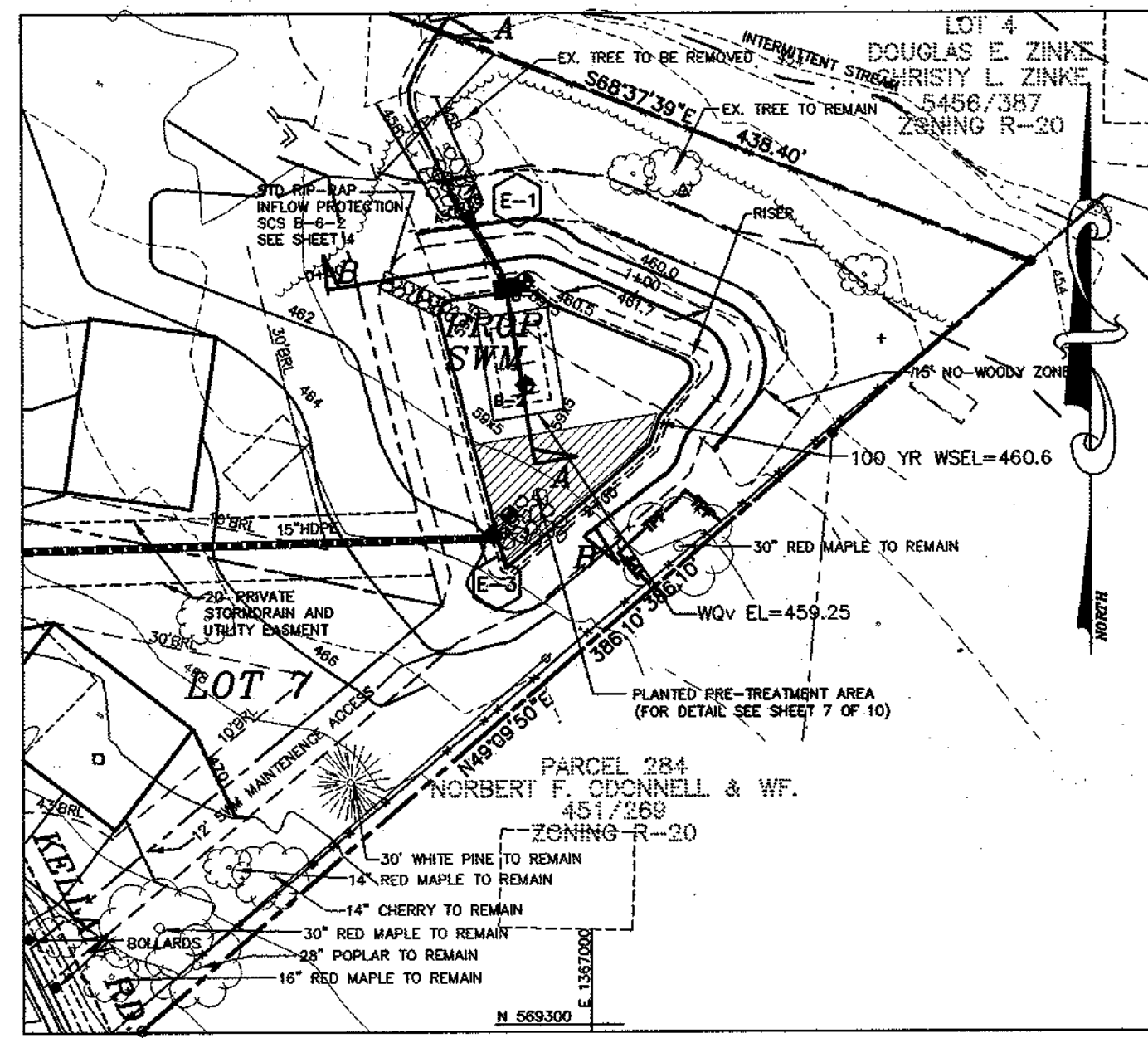
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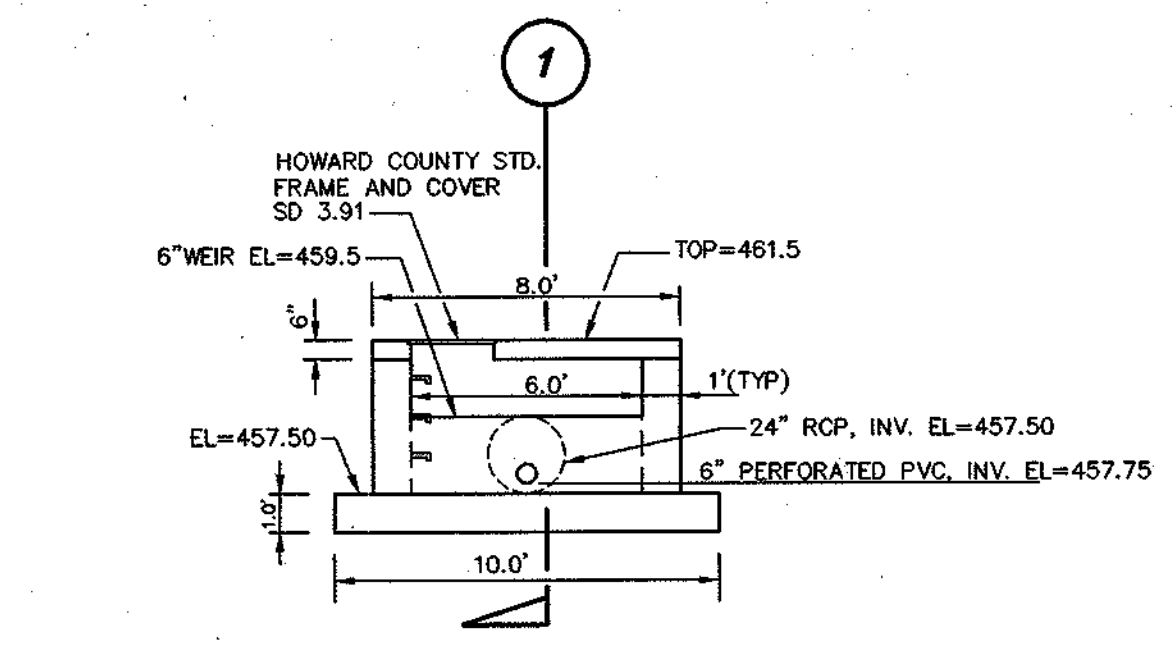
PRINCIPLE SPILLWAY PROFILE
SCALE: 1"=5'



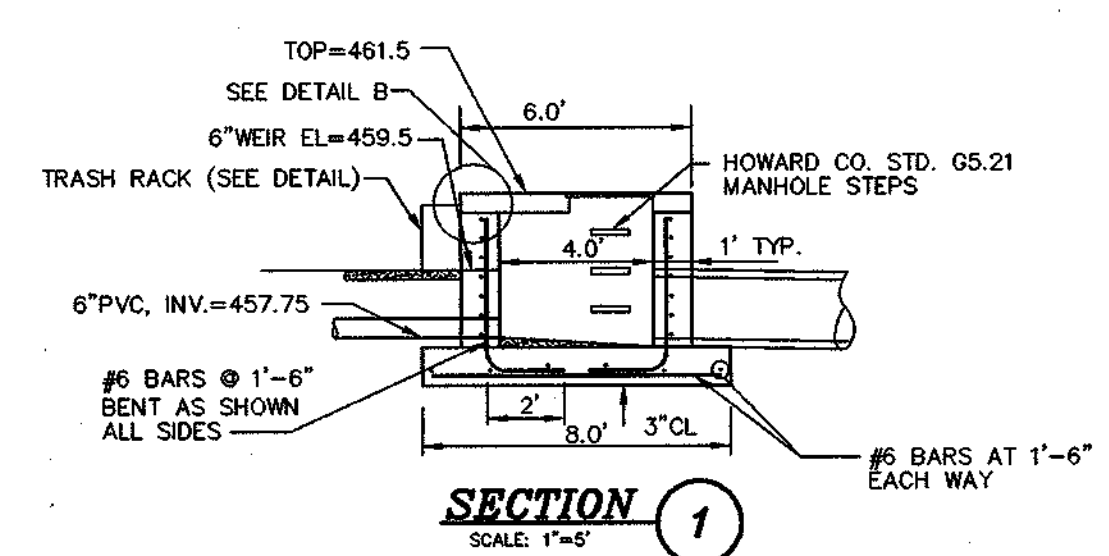
SECTION 3
SCALE: 1"=5'



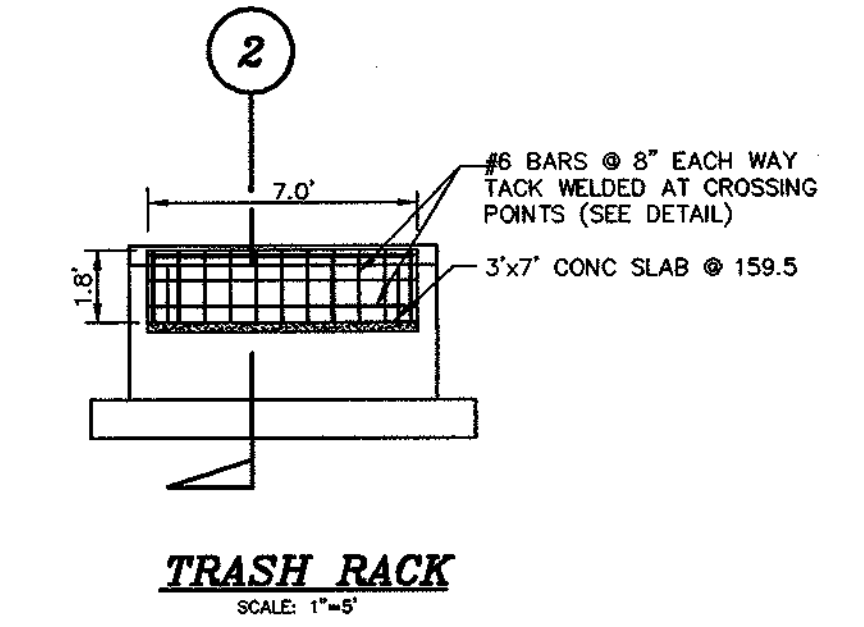
EMBANKMENT PROFILE
SCALE: 1"=5'



FRONT WALL ELEVATION OF SWM RISER
SCALE: 1"=5'



SECTION 1
SCALE: 1"=5'



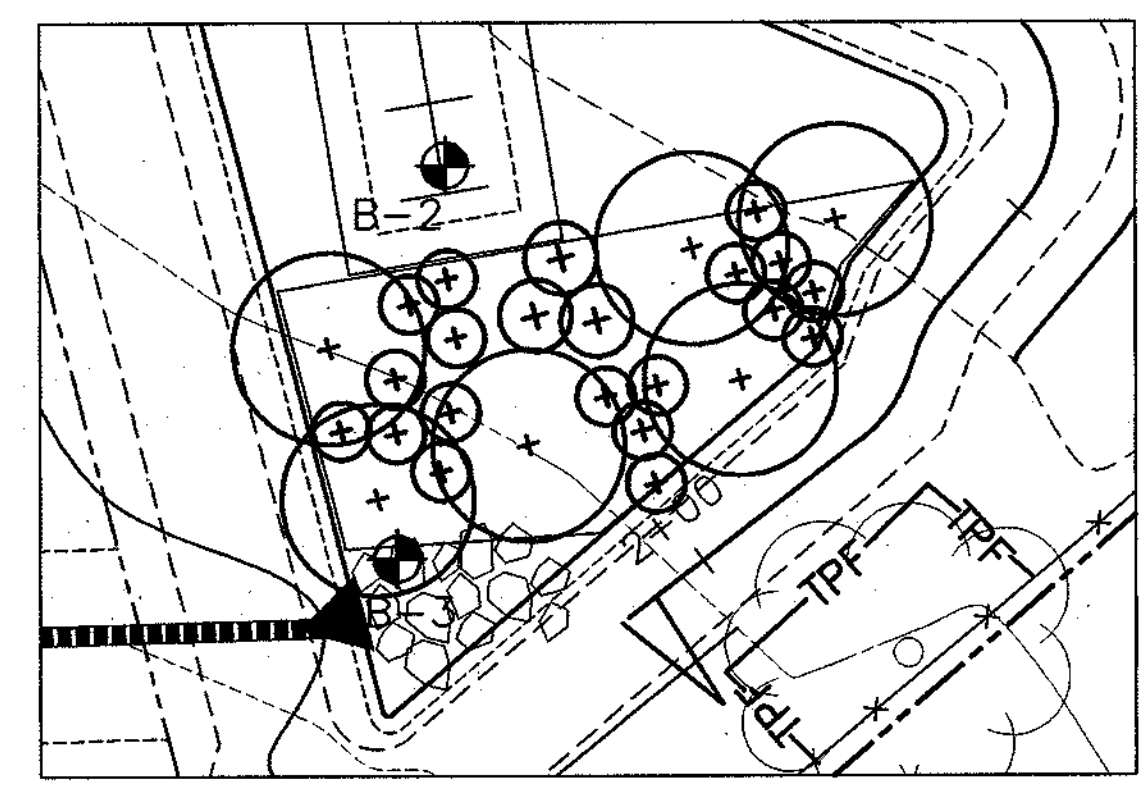
TRASH RACK
SCALE: 1"=5'

NOTE PROVIDE 6" PRE FORMED WATER STOP AT ALL CONCRETE JOINTS.

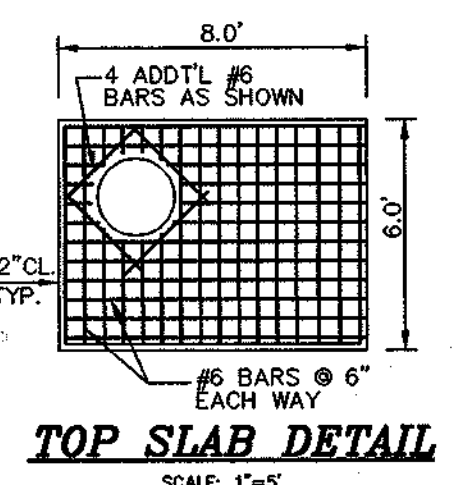
PRE-TREATMENT AREA PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
5	CS	CORNUS STOLONIFERA	RED OSER DOGWOOD	2.5 - 3' HT.
5	IV	ILEX VERTICILLATA	WINTERBERRY	2.5 - 3' HT.
6	VD	VEURNUM DENTATUM	ARROWWOOD	2.5 - 3' HT.
6	VL	VEURNUM LENTAGO	NANNYBERRY	2.5 - 3' HT.
TOTAL: 22 SHRUBS				

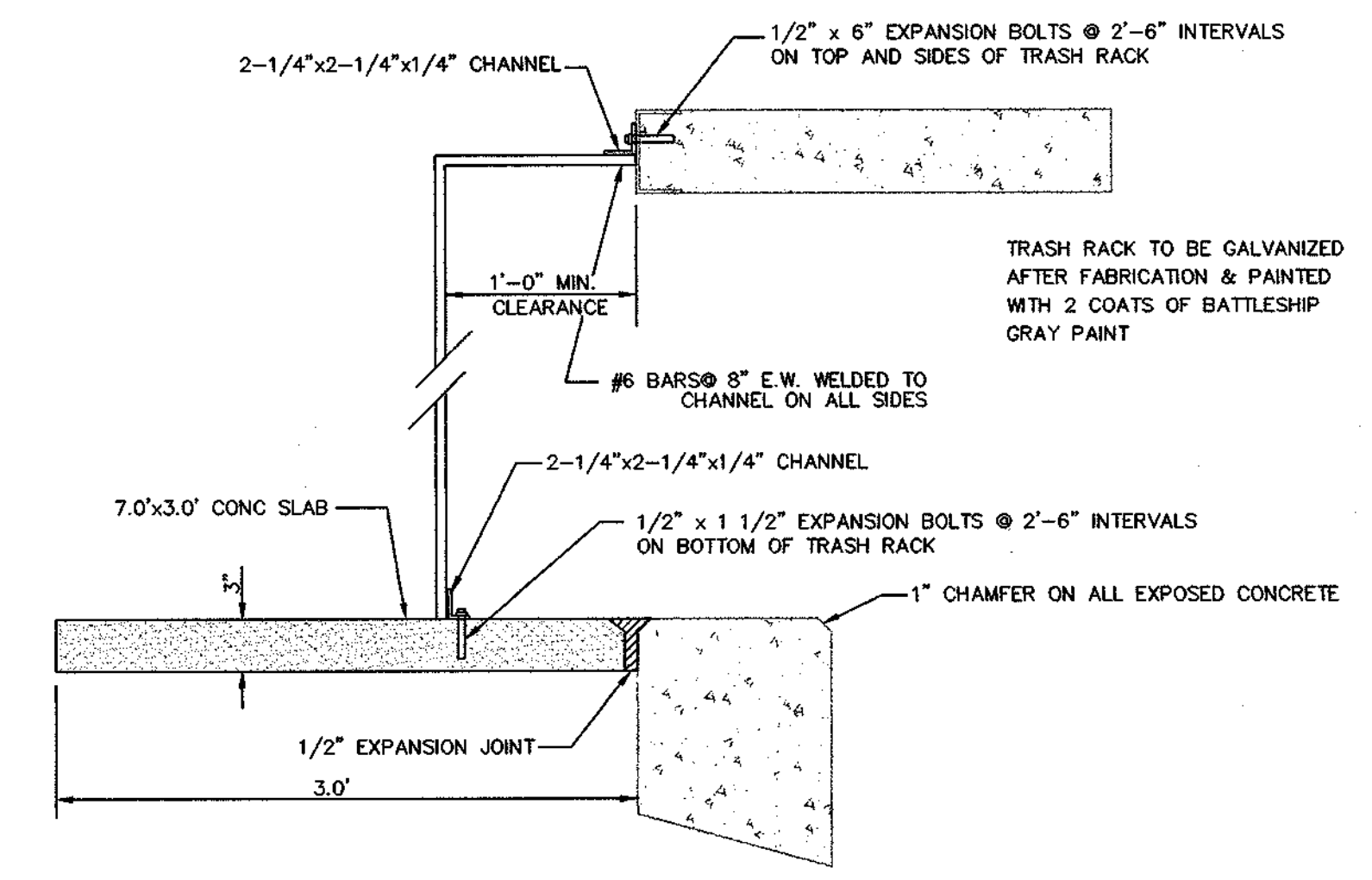
QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
3	AR	ACER RUBRUM	RED SUNSET RED MAPLE	2-1/2" - 3" CAL.
3	NS	NYSSA SYLVATICA	BLACK GUM	2-1/2" - 3" CAL.
TOTAL: 6 TREES				



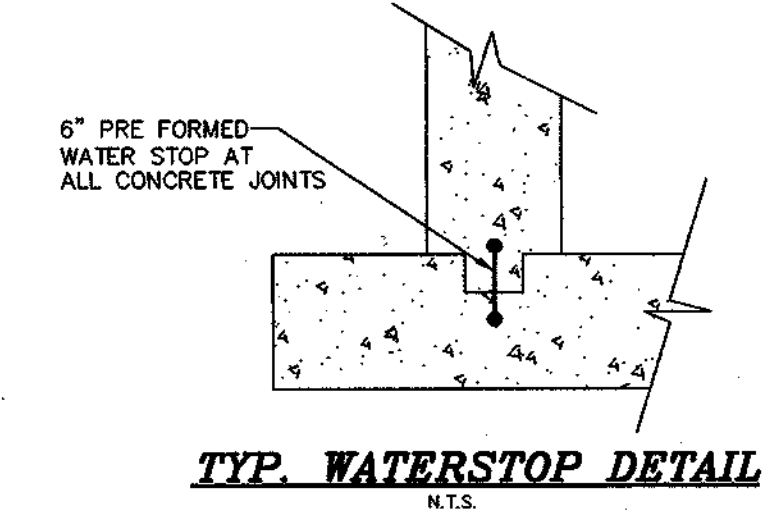
PRE-TREATMENT PLANTING PLAN VIEW
SCALE: 1"=20'



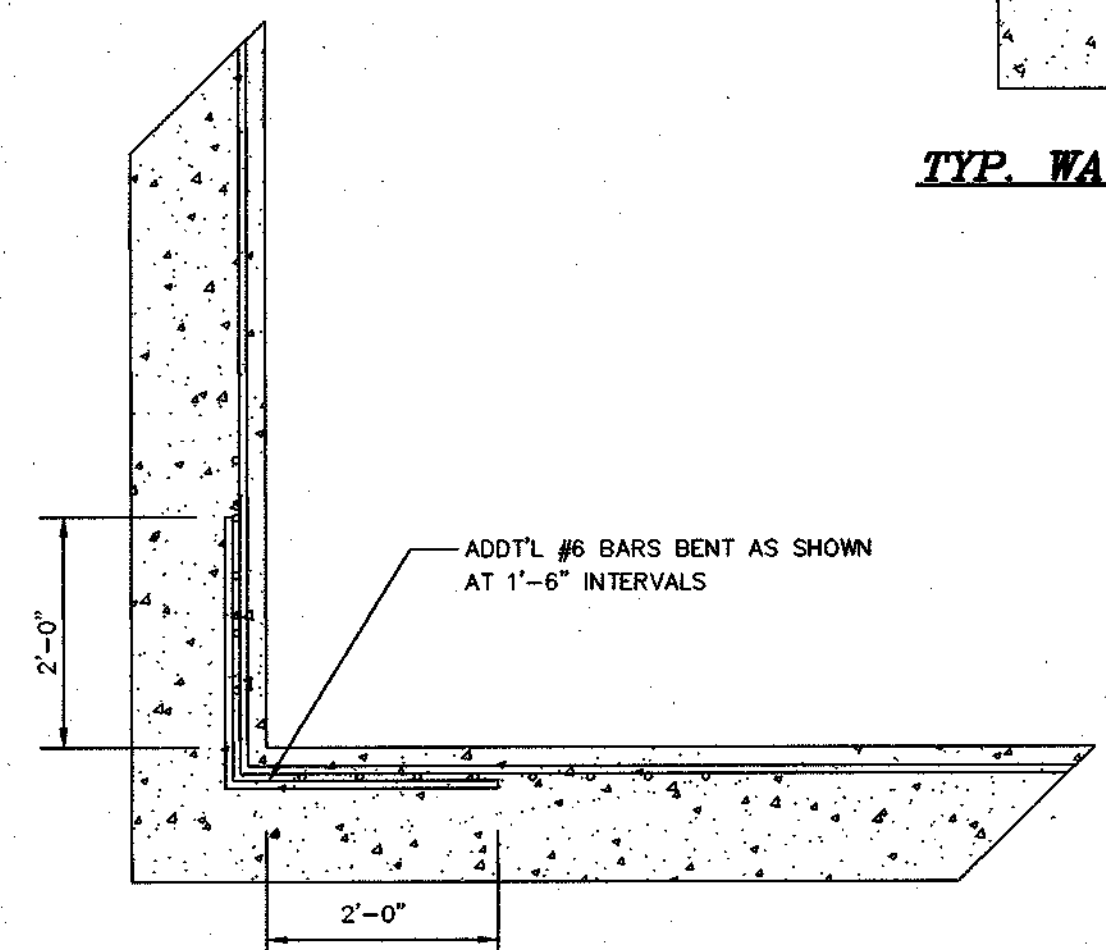
TOP SLAB DETAIL
SCALE: 1"=5'



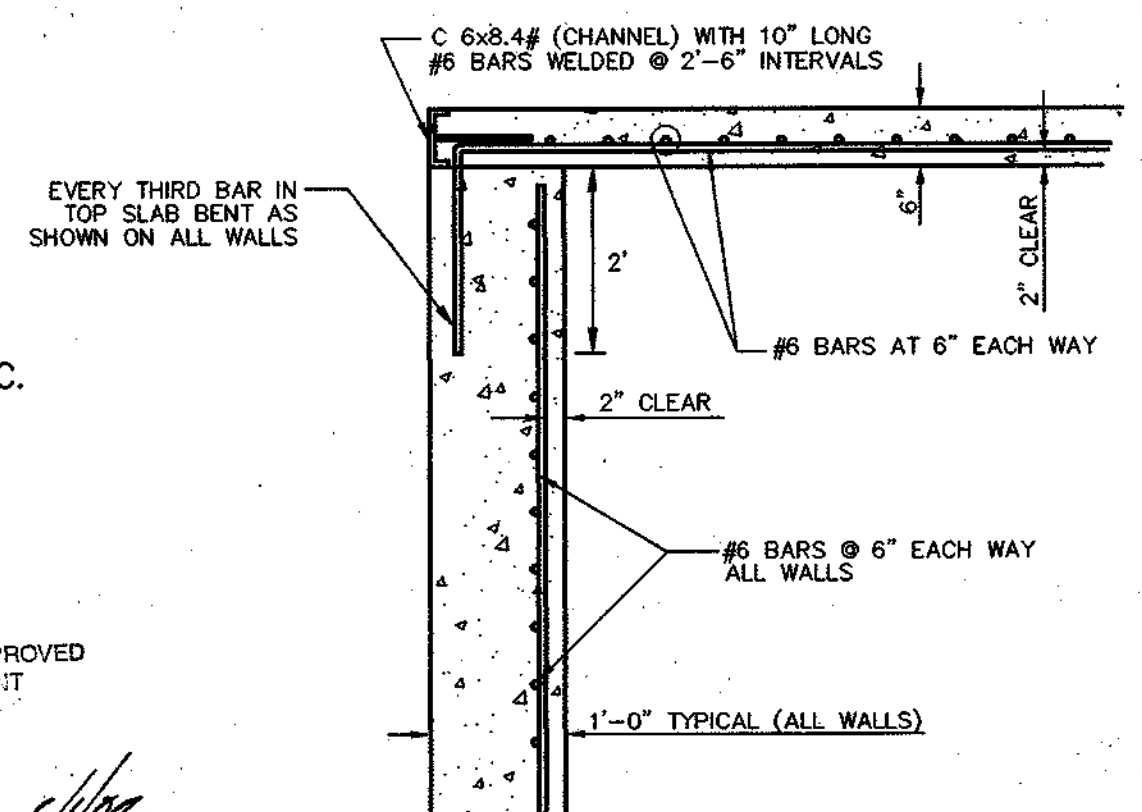
SECTION 2
N.T.S.



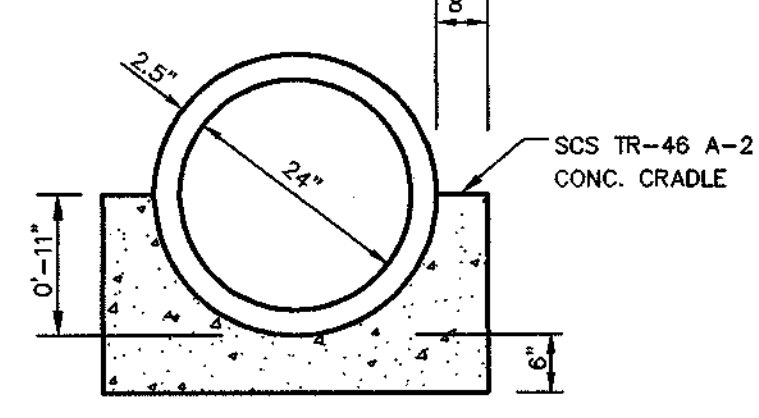
TYP. WATERSTOP DETAIL
N.T.S.



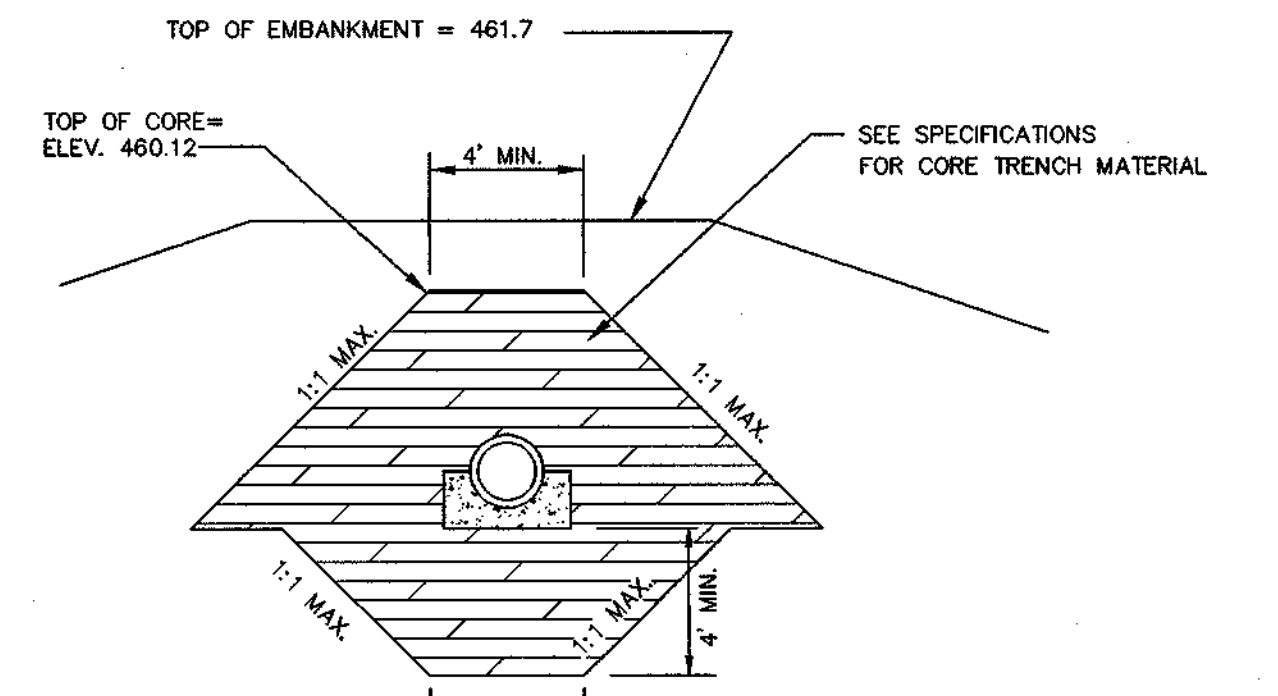
TYP. CORNER TREATMENT DETAIL
N.T.S.



TYP. REINFORCEMENT DETAIL
N.T.S.



CONCRETE CRADLE
N.T.S.



CORE TRENCH DETAIL
N.T.S.

POND DATA

ZONING	R-20
SITE AREA	3.64 AC.
TYPE	SURFACE SAND FILTER F-1
HAZARD CLASSIFICATION	A
NATURAL AREA CONSERVATION	0.61 AC.
DRAINAGE AREA	5.95 AC.
WQV REQUIRED	3,135 CU.FT.
WQV PROVIDED	4,384 CU. FT. (IN SURFACE SAND FILTER)
WQV ELEVATION	459.25
Rev. REQUIRED	815 CU.FT.
Rev. PROVIDED	815 CU.FT.
OPV REQUIRED	N/A (1 YR RUNOFF IS LESS THAN 2.0 CFS)
100 YR WSEL	460.6
OWNERSHIP	PRIVATE
MAINTENANCE	PRIVATE

DEVELOPER'S CERTIFICATE

I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE NATURAL RESOURCE CONSERVATION SERVICE.

ENGINEER'S CERTIFICATE

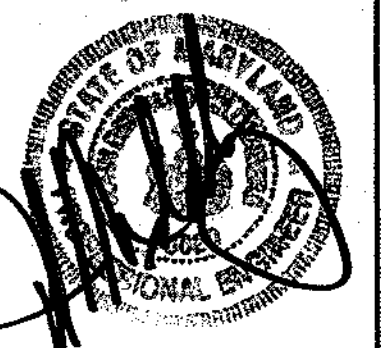
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATURAL RESOURCE CONSERVATION SERVICE.

REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS
 APPROVED: DEPARTMENT OF PUBLIC WORKS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING

OWNER/DEVELOPER

JASMYN WOODS, LLC
 C/O MILDENBERG, BOENDER AND ASSOC. INC.
 5072 DORSEY HALL DRIVE, SUITE 202
 ELLICOTT CITY, MARYLAND 21042
 (410) 997-0296

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



date	project	illustration	scale	approval
MAY 2004	02-046	MMP	MMP	AS SHOWN

date	description	revisions	no.

JASMYN WOODS
 LOTS: 1-7 AND OPEN SPACE LOT 8
 TAX MAP 31, PARCEL 356
 HOWARD COUNTY, MARYLAND
 SECOND ELECTION DISTRICT
SWM PLAN AND DETAILS

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

MD-376 POND SPECIFICATIONS (JANUARY 2000)

CONSTRUCTION SPECIFICATIONS

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-376. 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 AND SHARP BENCHES SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORM WATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DRAIN 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 CC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSTRUCTION MATERIALS MAY BE OBTAINED FROM OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. SPECIAL DESIGNS IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

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

COMPACTION - THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF EQUIPMENT OR CONTACT SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER Tired OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE TO BE COMPACTED TO THE REQUIRED DENSITY. WHEN REQUIRED 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. WHEN REQUIRED BY THE DESIGN AGENCY, THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

CUT OFF TRENCH - THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE 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.

EMBANKMENT CORE - THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

STRUCTURAL BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 4 INCHES THICK. THE BACKFILLING OPERATION SHALL BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET MEASURED HORIZONTALLY TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE STRUCTURE. BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI, 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLOMP OF THE FILL SHALL BE 7% TO ASSURE THE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.), TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPER OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL Voids ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE, UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

PIPE CONDUIT

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

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

1. MATERIALS - (POLYMER COATED STEEL PIPE) - STEEL PIPES WITH POLYMER COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-245 & M-246 WITH WATER TIGHT COUPLING BANDS OR FLANGES.

MATERIALS - (ALUMINUM COATED STEEL PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-274 WITH WATER TIGHT COUPLING BANDS OR FLANGES. ALUMINUM COATED STEEL PIPE SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COAT APPLIED BITUMINOUS COATING COMPOUND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT.

MATERIALS - (ALUMINUM PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-21 L WITH WATER TIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

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

3. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATER TIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE SEWER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY 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 RE-FLANGED AN ADEQUATE NUMBER OF CONNECTIONS TO ACCOMMODATE THE BANDWIDTH. THE FOLLOWING PIPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PRE-PUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12-INCH WIDE STANDARD LAP TYPE BAND WITH 12-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12-INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF 1/2 INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCH IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE END. A 24-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.

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

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

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

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

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

1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-301.

2. BEDDING - REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 8 INCHES. WHERE A CONCRETE BEDDING IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SEAMS UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

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

PLASTIC PIPE - THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIALS - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D1785 OR ASTM D-2241 CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4" - 12" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.

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

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

4. BACKFILL SHALL CONFORM TO "STRUCTURE BACKFILL."

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

DRAINAGE DIAPHRAGMS - WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MDX NO. 3.

ROCK RIPRAP

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

GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE 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 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 WELDED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE LAYING AND COMPACTION 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 SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

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

EROSION AND SEDIMENT CONTROL

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

OPERATION, 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-376). THE POND OWNERS AND THE HERES SUCCESSORS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION AND MAINTENANCE THEREOF. THE POND OWNERS 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.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED SURFACE SAND FILTER

1. THE STORMWATER WETLAND FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
2. THE TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF ONCE PER YEAR, WHEN VEGETATION REACHES 18" IN HEIGHT OR AS NEEDED.
3. FILTERS THAT HAVE A GRASS COVER SHALL BE MOWED A MINIMUM OF THREE (3) TIMES PER GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12 INCHES.
4. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATION AND AS NEEDED.
5. VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
6. REMOVE SILT WHEN IT EXCEEDS FOUR (4) INCHES DEEP IN THE FOREBAY.
7. WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIAL AND LIQUID MUST BE FOLLOWED BY THE OWNER.
8. A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
9. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
10. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

GEOTECHNICAL RECOMMENDATIONS:

THE AREA OF THE PROPOSED SWM FACILITY SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROTECTED 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 SHOULD BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROFFLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.

A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH, IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SPECIFICATIONS 378 SOILS CONSIDERED SUITABLE FOR CENTER OF EMBANKMENT AND CUT-OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH OR CL.

IT IS OUR PROFESSIONAL OPINION THAT IN ADDITION TO THE SOIL MATERIALS DESCRIBED ABOVE A FINE-GRAINED SOIL, INCLUDING SILT (ML) WITH A PLASTICITY INDEX OF 10 OR MORE CAN BE UTILIZED FOR THE CENTER OF THE EMBANKMENT AND CUT-OFF TRENCH. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH MD SCS 178 SPECIFICATIONS.

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

PROJECT NAME: JASMYN WOODS BORING # B-2 LOCATION: HOWARD COUNTY, MARYLAND JOB # 02818A

DATUM: HAMMER WT. 140 LBS. HOLE DIAMETER 7" FOREMAN H. HINES SURF. ELEV. HAMMER DROP 30 INCHES ROCK CORE DIA. INSPECTOR DATE STARTED 11/20/02 PIPE SIZE 2 INCHES OD BORING METHOD ISA DATE COMPLETE 11/20/02

ELEV.	SOIL DESCRIPTION	STRA. DEPTH	DEPTH	SAMPLE NO.	REC.	BORING & SAMPLING NOTES
0.0	SURFACE					4" TOPSOIL
0.0	BROWN AND GRAY MOTTLED SILTY SAND (SL)		0-1	4-6-5	1	14" UNIFORMITY ENCLOSED AT 0.5' WHILE DRILLING (STANDARD BATH)
2.5	BROWN MOTTLED SILTY SAND (SL)		1-4	4-7-6	2	14" UNIFORMITY ENCLOSED AT 0.5' WHILE DRILLING (STANDARD BATH)
5.0	BROWN MOTTLED SILTY SAND (SL)		1-3	4-5	3	16" UNIFORMITY ENCLOSED AT 0.5' WHILE DRILLING (STANDARD BATH)
10.0	BROWN MOTTLED SILTY SAND (SL)		3-5	5-7	4	14" UNIFORMITY ENCLOSED AT 0.5' WHILE DRILLING (STANDARD BATH)
15.0						
20.0						

SAMPLER TYPE: OPEN SPIGOT UNLESS OTHERWISE NOTED. SAMPLER CONDITIONS: D-DISINTEGRATED, L-UNLUBRICATED, L-LOST. GROUND WATER DEPTH: AT COMPLETION 2.0 FT, AFTER 24 HOURS 2.0 FT. BORING METHOD: ISA-HOLLOW STEM AUGER, ISA-COIL POINT AUGER, ISA-NO DRILLING.

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

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

PROJECT NAME: JASMYN WOODS BORING # B-2 LOCATION: HOWARD COUNTY, MARYLAND JOB # 02818A

DATUM: HAMMER WT. 140 LBS. HOLE DIAMETER 7" FOREMAN H. HINES SURF. ELEV. HAMMER DROP 30 INCHES ROCK CORE DIA. INSPECTOR DATE STARTED 11/20/02 PIPE SIZE 2 INCHES OD BORING METHOD ISA DATE COMPLETE 11/20/02

ELEV.	SOIL DESCRIPTION	STRA. DEPTH	DEPTH	SAMPLE NO.	REC.	BORING & SAMPLING NOTES
0.0	SURFACE					4" TOPSOIL
0.0	BROWN AND GRAY MOTTLED SILTY SAND (SL)		0-1	WH/6-3-5	1	14" UNIFORMITY ENCLOSED AT 0.5' WHILE DRILLING (STANDARD BATH)
2.5	BROWN MOTTLED SILTY SAND (SL)		1-4	4-3	2	14" UNIFORMITY ENCLOSED AT 0.5' WHILE DRILLING (STANDARD BATH)
5.0	BROWN MOTTLED SILTY SAND (SL)		1-3	5-4	3	13" UNIFORMITY ENCLOSED AT 0.5' WHILE DRILLING (STANDARD BATH)
10.0	BROWN MOTTLED SILTY SAND (SL)		4-7	4-17	4	10" UNIFORMITY ENCLOSED AT 0.5' WHILE DRILLING (STANDARD BATH)
15.0						
20.0						

SAMPLER TYPE: OPEN SPIGOT UNLESS OTHERWISE NOTED. SAMPLER CONDITIONS: D-DISINTEGRATED, L-UNLUBRICATED, L-LOST. GROUND WATER DEPTH: AT COMPLETION 3.0 FT, AFTER 24 HOURS 3.0 FT. BORING METHOD: ISA-HOLLOW STEM AUGER, ISA-COIL POINT AUGER, ISA-NO DRILLING.

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

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0.0	SURFACE					4" TOPSOIL
0.0	BROWN MOTTLED SILTY SAND (SL)		1-1	1-2	1	14" UNIFORMITY ENCLOSED AT 0.5' WHILE DRILLING (STANDARD BATH)
2.5	BROWN MOTTLED SILTY SAND (SL)		4-7	9	2	6" UNIFORMITY ENCLOSED AT 0.5' WHILE DRILLING (STANDARD BATH)
5.0	BROWN MOTTLED SILTY SAND (SL)		3-5	10	3	16" UNIFORMITY ENCLOSED AT 0.5' WHILE DRILLING (STANDARD BATH)
10.0						
15.0						
20.0						

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STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

OWNER/DEVELOPER

JASMYN WOODS, LLC
C/O MILDENBERG, BOENDER AND ASSOC. INC.
5072 DORSEY HALL DRIVE, SUITE 202
ELLCOTT CITY, MARYLAND 21042
(410) 997-0296

DEVELOPERS CERTIFICATE

I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN CONSTRUCTION SHALL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEEPAGE FROM EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE NATURAL RESOURCE CONSERVATION SERVICE.

Signature of Developer: *[Signature]* DATE: 5/2/04
PRINTED NAME OF DEVELOPER: John Mildeberg (member)

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATURAL RESOURCE CONSERVATION SERVICE.

Signature of Engineer: *[Signature]* DATE: 5/2/04
PRINTED NAME OF ENGINEER: JOHN B. MILDENBERG

REMOVED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

USA-NATURAL RESOURCES CONSERVATION SERVICE DATE: 5/2/04

APPROVED - DEPARTMENT OF PUBLIC WORKS DATE: 5/2/04

CHEF BUREAU OF HIGHWAYS DATE: 5/2/04

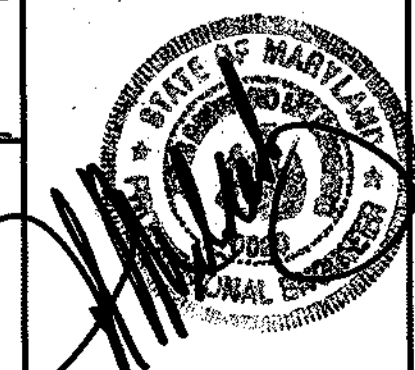
APPROVED: DEPARTMENT OF PLANNING AND ZONING DATE: 5/2/04

CHEF DIVISION OF LAND DEVELOPMENT DATE: 5/2/04

CHEF DEVELOPMENT ENGINEERING DIVISION DATE: 5/2/04

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

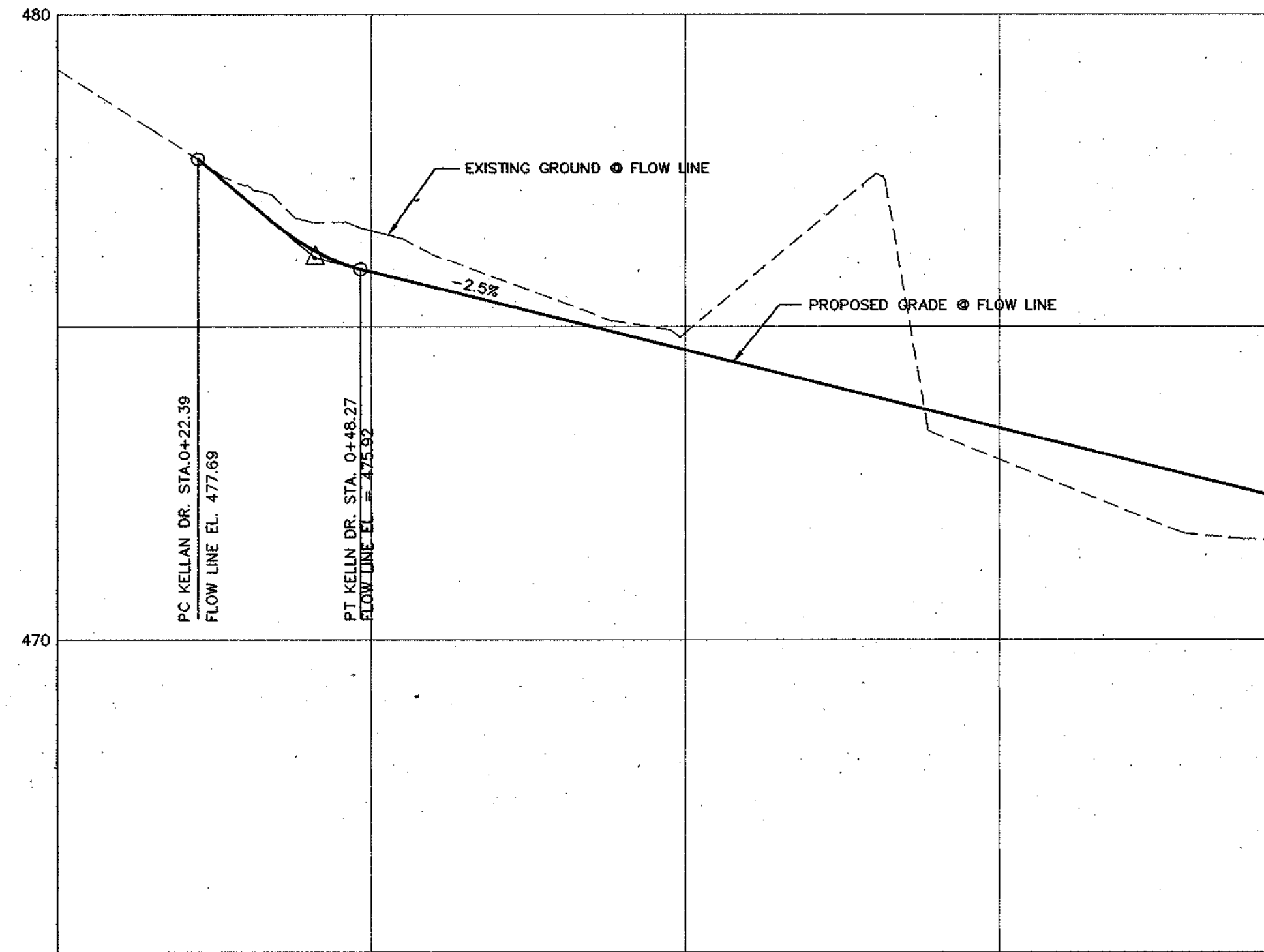
Approved: *[Signature]* DATE: 5/2/04
Howard S.C.D.



Project	date	scale	description	revisions
02-046	MAY 2004	MMP	engineering	
		MMP	MMP	

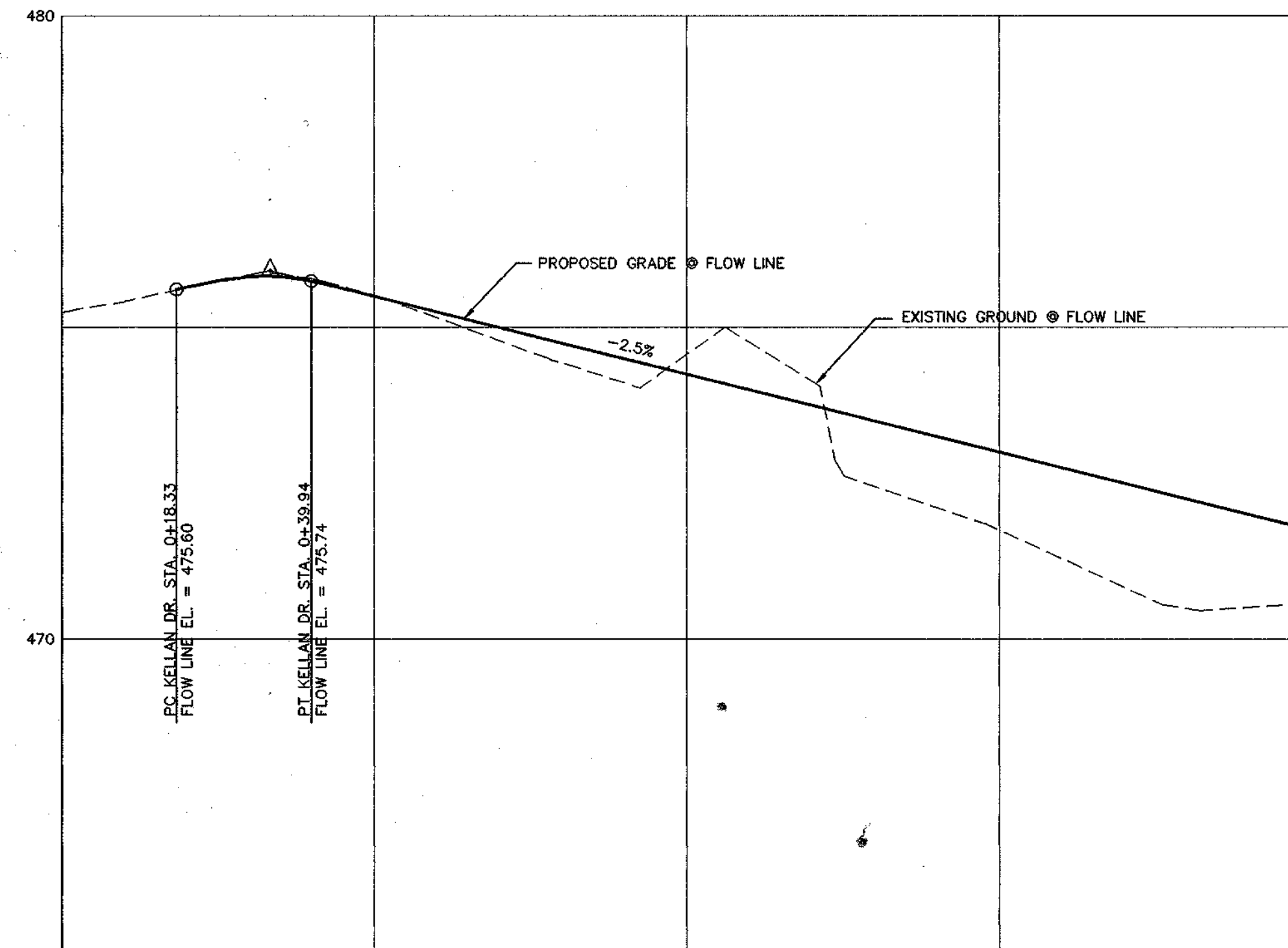
JASMYN WOODS
LOTS: 1-7 AND OPEN SPACE LOT 8
TAX MAP 31, PARCEL 856
HOWARD COUNTY, MARYLAND
SECOND ELECTION DISTRICT

MILDENBERG, BOENDER & ASSOC., INC



WEST FILLET PROFILE

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

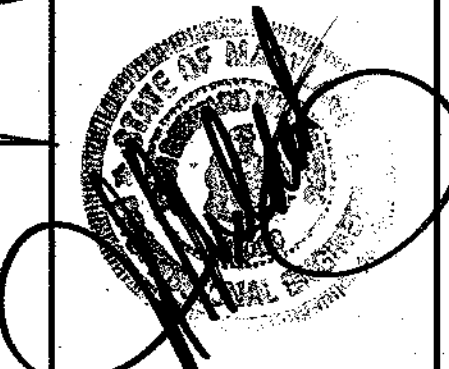


EAST FILLET PROFILE

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

02-046 UNINCORPORATED FILET-PROF

APPROVED: DEPARTMENT OF PUBLIC WORKS	DATE
CHIEF BUREAU OF HIGHWAYS	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	DATE
<i>Andy Krametz</i>	7/19/94
CHIEF, DIVISION OF LAND DEVELOPMENT	
<i>Chris Williams</i>	7/19/94
CHIEF, DEVELOPMENT ENGINEERING DIVISION	



OWNER/DEVELOPER
 JASMYN WOODS, LLC
 C/O MILDENBERG, BOENDER AND ASSOC. INC.
 5072 DORSEY HALL DRIVE, SUITE 202
 ELLICOTT CITY, MARYLAND 21042
 (410) 997-0296

date	MAY 2004
project	02-046
illustration	MMP
scale	AS SHOWN
approval	MMP
AS SHOWN	

no.		description	revisions

JASMYN WOODS
 LOTS: 1-7 AND OPEN SPACE LOT 8
 TAX MAP 31, PARCEL 366
 SECOND ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
FILET PROFILES

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

