SHEET INDEX

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3/30/00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT JA — DATE 4/10/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 4/5/00

FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS

PEACEFIELDS AT CATTAIL CREEK

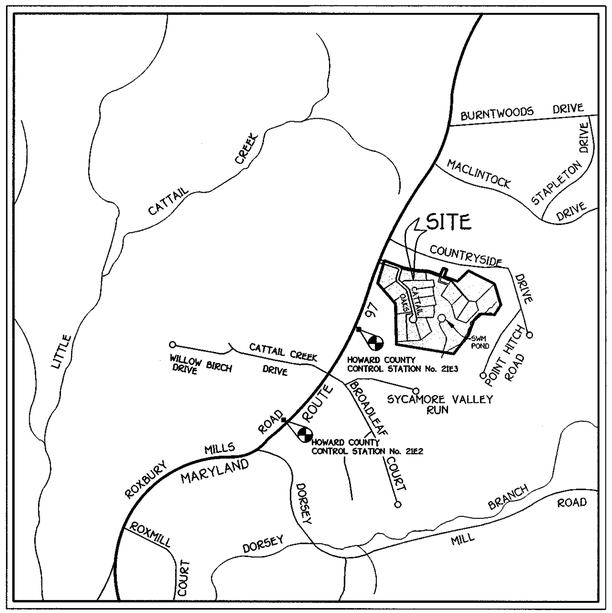
LOTS 1 THRU 15 AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)

ZONED: RR-DEO

ROAD CLASSIFICATION		
ROAD NAME	CLASSIFICATION	R/W
CATTAIL OAKS	PUBLIC ACCESS PLACE	40'

TRAFFIC CONTROL SIGNS				
STREET NAME	C.L. STATION	OFFSET	POSTED SIGN	SIGN CODE
CATTAIL OAKS	0+51	23'L	STOP	R1-1
CATTAIL OAKS	2+00	20'R	SPEED LIMIT 20 M.P.H.	R2-1
CATTAIL OAKS	6+60	20'R	ROAD NARROWS	W5-1
CATTAIL OAKS	7+40	20'L	ROAD NARROWS	W5-1



VICINITY MAP

SCALE: 1" = 1200'

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
5. 2 FOOT CONTOUR TOPOGRAPHY AND EXISTING CONDITIONS BASED ON FIELD RUN TOPOGRAPHIC SURVEY PREPARED BY FISHER, COLLINS & CARTER, INC. IN MARCH, 1998.
6. THE COORDINATES SHOWN HEREON ARE BASED UPON HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT Nos. 21E2 AND 21E3 WERE USED FOR THIS PROJECT.
   Sta. 21E2 N 177718.6600 (Meters) E 396505.4940 (Meters)
   Sta. 21E3 N 178174.0848 (Meters) E 396873.1116 (Meters)
7. WATER IS PRIVATE.
8. SEWER IS PRIVATE.
9. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, INC. AND APPROVED UNDER SP99-03.
10. BACKGROUND INFORMATION:
    A. SUBDIVISION NAME: PEACEFIELDS AT CATTAIL CREEK
    B. TAX MAP NO.: 21
    C. PARCEL NO.: 63
    D. ZONING: RR-DEO
    E. ELECTION DISTRICT: FOURTH
    F. TOTAL TRACT AREA: 31.839 AC. ±
    G. FOR DENSITY PURPOSES THE TRACT AREA AMOUNTS TO 28.50 AC.± WHICH DOES NOT INCLUDE THE LOT AREA OF LOT 14 AND THE AREA OF CEMETERY LOT 15.
    H. NO. OF BUILDABLE LOTS: 14
    I. NO. OF PRESERVATION PARCELS: 2
    J. NO. OF BUILDABLE PRESERVATION PARCELS: 1
    K. NO. OF NON-BUILDABLE PRESERVATION PARCELS: 1
    L. NO. OF OPEN SPACE LOTS: 0
    M. PRELIMINARY EQUIVALENT SKETCH PLAN APPROVAL DATE: MAY 17, 1999
    N. PREVIOUS FILE Nos. : SP 99-03, F 94-20 WP 93-111.
11. REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE TO BE PROVIDED AT THE JUNCTION OF THE PIPE / FLAG STEM AND THE ROAD R/W AND NOT ONTO THE PIPE / FLAG STEM DRIVEWAY.
12. HISTORIC HOUSE (HO-9) AND CEMETERY (21-5) EXIST ON THE PROPERTY.
13. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF ASTM T-180.
14. THE WETLAND AND FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. AND APPROVED UNDER SP 99-03.
15. NOISE STUDY WAS PREPARED BY WILDMAN ENVIRONMENTAL SERVICES AND APPROVED UNDER SP 99-03.
16. THE FOREST CONSERVATION EASEMENT(S) HAS 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.
17. STORMWATER MANAGEMENT FACILITY:
    TYPE - RETENTION FACILITY
    OWNER - HOWARD COUNTY
    MAINTENANCE - HOMEOWNER'S ASSOCIATION AND HOWARD COUNTY
18. FOREST CONSERVATION SURETY AMOUNT= $ 39,600 FOR RETENTION & $ 13,865 FOR AFFORESTATION. ($ 53,466 TOTAL)
19. LANDSCAPE SURETY AMOUNT= $ 17,100

TAX MAP No. 21 PARCEL No. 63 GRID No. 9

FOURTH ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

NO.	DESCRIPTION	DATE
1	ADD F.C.E. , PARCEL 'C' + SHEET NO. 13	12/5/00
	REVISION	

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F.C.C.+ 3063/TITLESHEET

OWNERS

THOMAS L. AND JULIE A. ANDERSON
3503 ROUTE 97
GLENWOOD, MARYLAND 21738

C.C.O. LLC
6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

DEVELOPER

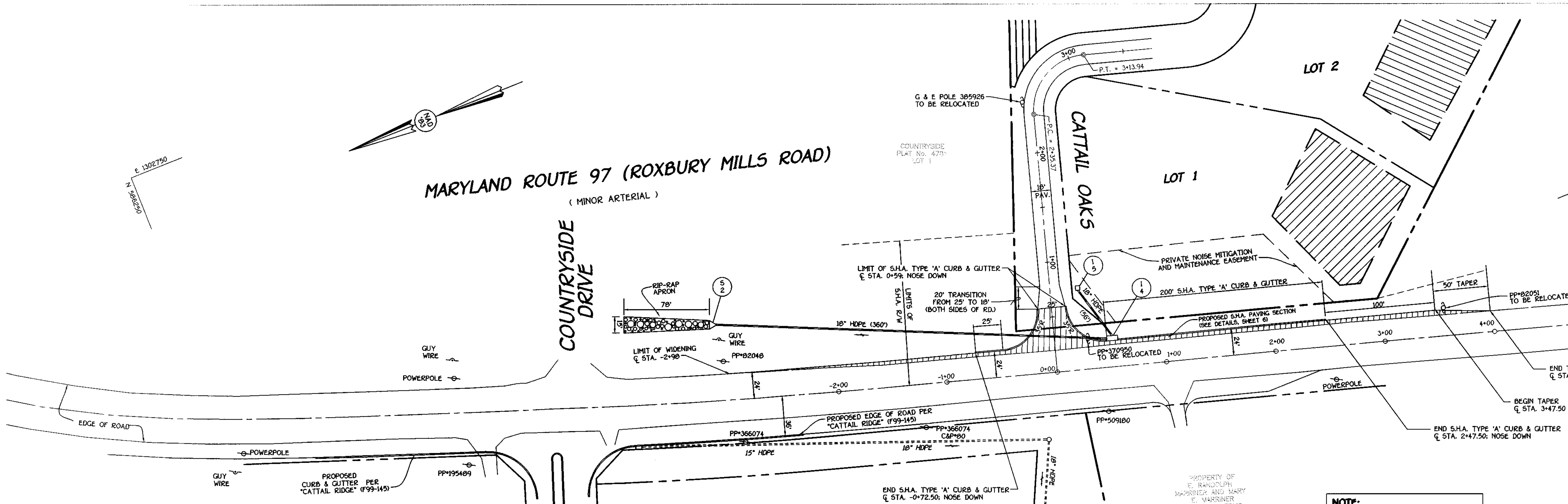
C.C.O. LLC
6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

STATE OF MARYLAND — ZACHARIA YOUSSEF FISCH — 22418 — PROFESSIONAL ENGINEER

3/8/2000

PEACEFIELDS AT CATTAIL CREEK
LOTS 1 THRU 15
AND PRESERVATION PARCELS 'A' THRU 'C'
(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)
ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 63 GRID No. 9
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 25, 2000
SHEET 1 OF 13

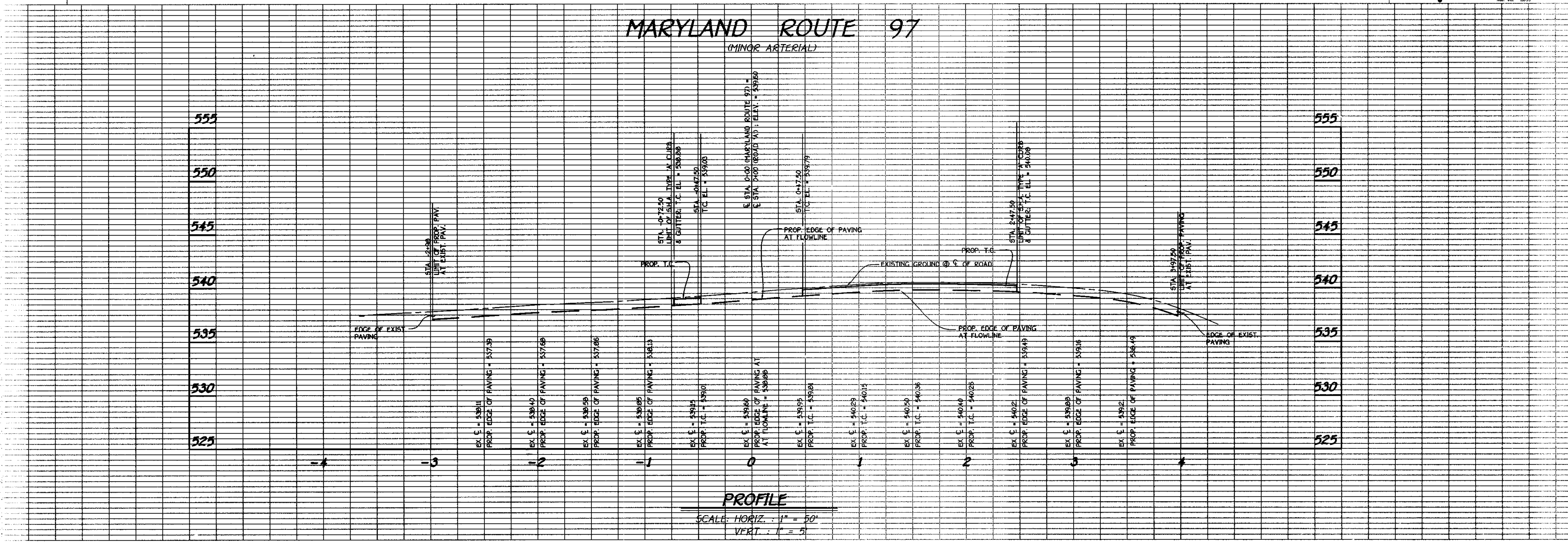
F 00-41



APPROVED ... 4/10/00 DATE

APPROVED ... 4/5/00 DATE

APPROVED ... 3/30/00 DATE



PEACEFIELDS AT CATTAIL CREEK
LOTS 1 THRU 15
AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)

ZONED: RR-DEO

FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

MARYLAND ROUTE 97
PLAN AND PROFILE

OWNERS		DEVELOPER
THOMAS L. ANDERSON AND JULIE A. ANDERSON, 3503 ROUTE 97, GLENWOOD, MD. 21738	C.C.O. LLC, 6212 DEVON DRIVE, COLUMBIA, MD. 21044	C.C.O. LLC, 6212 DEVON DRIVE, COLUMBIA, MD. 21044

SCALE: AS SHOWN	DATE: FEB. 25, 2000	DWG. NO. 2 OF 13
DES. Z.Y.F.	DRN. J.C.L.	CHK. Z.Y.F.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

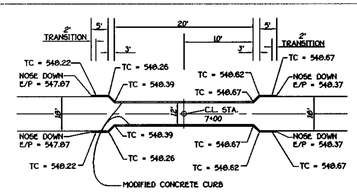
STATE OF MARYLAND — ZACHARIA YOSEF FISCH — 22418 — PROFESSIONAL ENGINEER

Zacharia Y. Fisch 3/8/2000

F00-41

℄ CURVE DATA
CATTAIL OAKS
STA. 2+35.37 TO STA. 3+13.94
RADIUS = 50.00'
LENGTH = 78.57'
Δ = 90°01'57"
TANGENT = 50.03'
CHORD. = S28°24'04"E, 70.73'

℄ CURVE DATA
CATTAIL OAKS
STA. 4+06.97 TO STA. 4+64.47
RADIUS = 50.00'
LENGTH = 57.50'
Δ = 65°53'44"
TANGENT = 32.41'
CHORD. = S16°19'56"E, 54.39'



SPEED CONTROL DEVICE
N.T.S.

℄ CURVE DATA
CATTAIL OAKS
STA. 6+12.82 TO STA. 6+59.25
RADIUS = 75.00'
LENGTH = 46.43'
Δ = 35°28'25"
TANGENT = 23.99'
CHORD. = S31°32'37"E, 45.70'

℄ CURVE DATA
CATTAIL OAKS
STA. 9+75.87 TO STA. 10+46.71
RADIUS = 101.45'
LENGTH = 70.84'
Δ = 40°00'33"
TANGENT = 36.93'
CHORD. = S06°11'52"W, 69.41'

SEE SHEET 4 FOR CONTINUATION OF STORM DRAIN

EXISTING DRIVEWAY

TOP Gate Pole 385927

LOT 10

LOT 11

LOT 7

LOT 6

LOT 8

LOT 9

CATTAIL OAKS

PRIVATE 24' WIDE USE-IN-COMMON ACCESS EASEMENT FOR THE USE AND BENEFIT OF LOTS 12, 13, 14, BUILDABLE PRESERVATION PARCEL 'B' AND CEMETERY LOT 15 (EXISTING GRAVEYARD)

EXISTING PRIVATE 20' RIGHT-OF-WAY FOR ACCESS TO LOT 1, LOT 2 (RESIDUE) AND EXISTING GRAVEYARD (PLAT No. 11105) TO BE ABANDONED

20' DRAINAGE AND UTILITY EASEMENT

"ROAD NARROWS" SIGN (W5-2)

P.T. = 6+59.25
℄ ELEV. = 547.82

18" HDPE (220')

℄ STA. 9+75.87 =
L.P. STA. 0+00
E/P ELEV. = 546.01

P.C. STA. 0+73.86
E/P ELEV. = 544.53

BUILDABLE PRESERVATION PARCEL B

PRESERVATION PARCEL EASEMENT HOLDERS ARE HOWARD COUNTY, MARYLAND AND PEACEFIELDS AT CATTAIL CREEK HOMEOWNERS ASSOCIATION, INC.

FOREST CONSERVATION EASEMENT AREA = 9.091 Ac.±

E 1303000
N 384500

RIP-RAP APRON

E 1302500
N 385750

PUBLIC R/W LINE

GUY WIRE

PP#820AB

LIMITS OF S.H.A. R/W

COUNTRYSIDE PLAT No. 4781 LOT 1

65 dBA Noise Line

Gate Pole 385928 To Be Relocated

P.C. STA. 2+35.37
℄ ELEV. = 541.85

P.T. = 3+13.94
℄ ELEV. = 542.96

P.C. = 4+06.97
℄ ELEV. = 544.27

P.T. = 4+64.47
℄ ELEV. = 545.08

18" HDPE (130')

18" HDPE (260')

18" HDPE (175')

SPEED LIMIT 25 MPH (W3-1)

20' TRANSITION FROM 25' PAVING TO 15' PAVING ON BOTH SIDES OF ROAD

S.H.A. TYPE 'A' CURB & GUTTER

STOP SIGN (R1-1)

P.C. = 6+12.82
℄ ELEV. = 547.17

"ROAD NARROWS" SIGN (W5-2)

SPEED CALMING DEVICE ℄ STA. 7+00 (SEE DETAIL, THIS SHEET)

10' TREE MAINTENANCE EASEMENT

℄ STA. 9+75.87 =
L.P. STA. 3+04.27
E/P ELEV. = 546.01

P.R.C. STA. 2+55.39
E/P ELEV. = 545.03

P.T. = 10+46.71

40' PAV.

RAD. PT. = 10+58

LOT 1

LOT 2

LOT 3

LOT 4

LOT 5

PP#365074 CAP#80

PP#365075 CAP#80

PP#365076 To Be Relocated

PRIVATE NOISE MITIGATION AND MAINTENANCE EASEMENT

200' S.H.A. TYPE 'A' CURB & GUTTER

PROPOSED S.H.A. PAVING SECTION (SEE SHEET 4 FOR DETAILS)

VEHICULAR INGRESS & EGRESS IS RESTRICTED

MARYLAND ROUTE 97 (ROXBURY MILLS ROAD)
(MINOR ARTERIAL)

STREET SIGN

CATTAIL CREEK COUNTRY CLUB PLAT No. 8975 LOT 29

65 dBA Noise Line

STATE OF MARYLAND
THOMAS VOSER FISCH
22418
PROFESSIONAL ENGINEER

Zachary V. Fisch
3/8/2000

APPROVED
DEPARTMENT OF PLANNING AND ZONING

Andy Earnshaw JA 4/5/00
DIRECTOR DATE

APPROVED
DEPARTMENT OF PUBLIC WORKS

Alan Dammann MK 4/5/00
DIRECTOR DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS

Kenneth Shilt for 3/30/00
CHIEF, BUREAU OF ENGINEERING DATE

PEACEFIELDS AT CATTAIL CREEK
LOTS 1 THRU 13 AND PRESERVATION PARCELS 'A' THRU 'C'
(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)

ZONED: RR-DEO
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

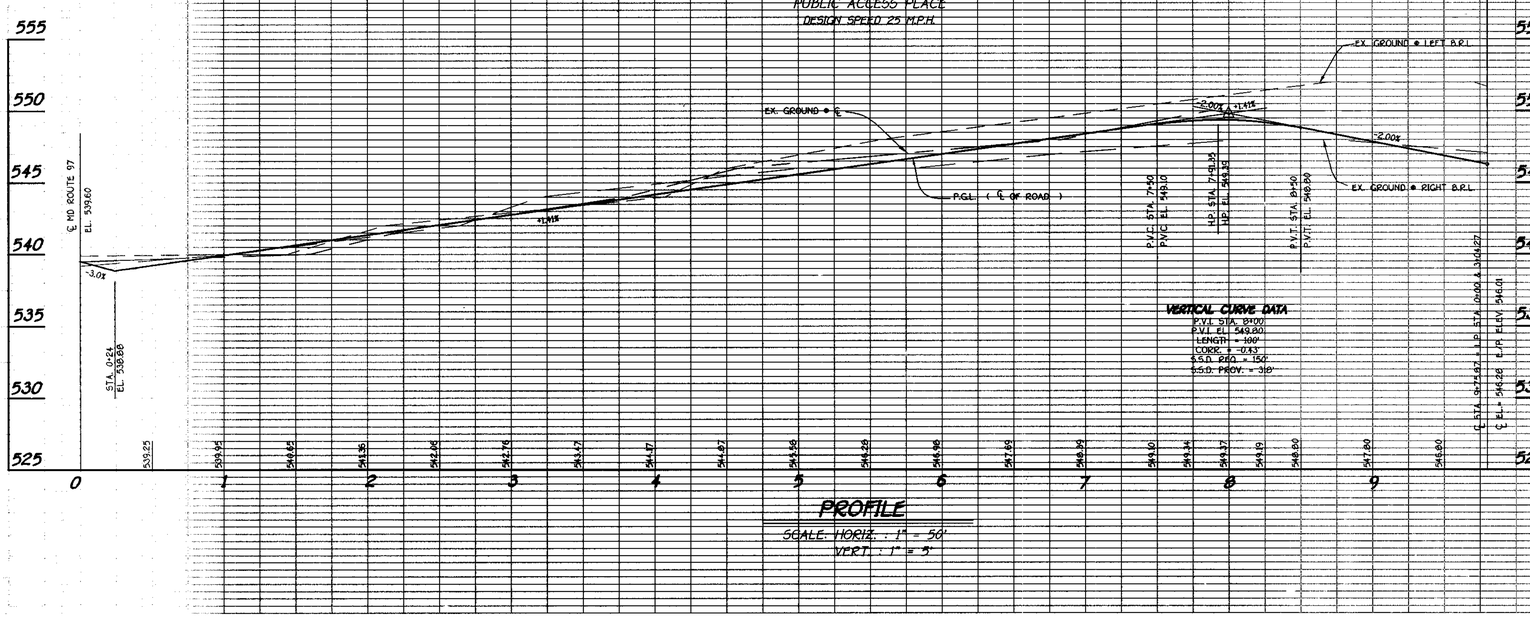
CATTAIL OAKS
PLAN AND PROFILE

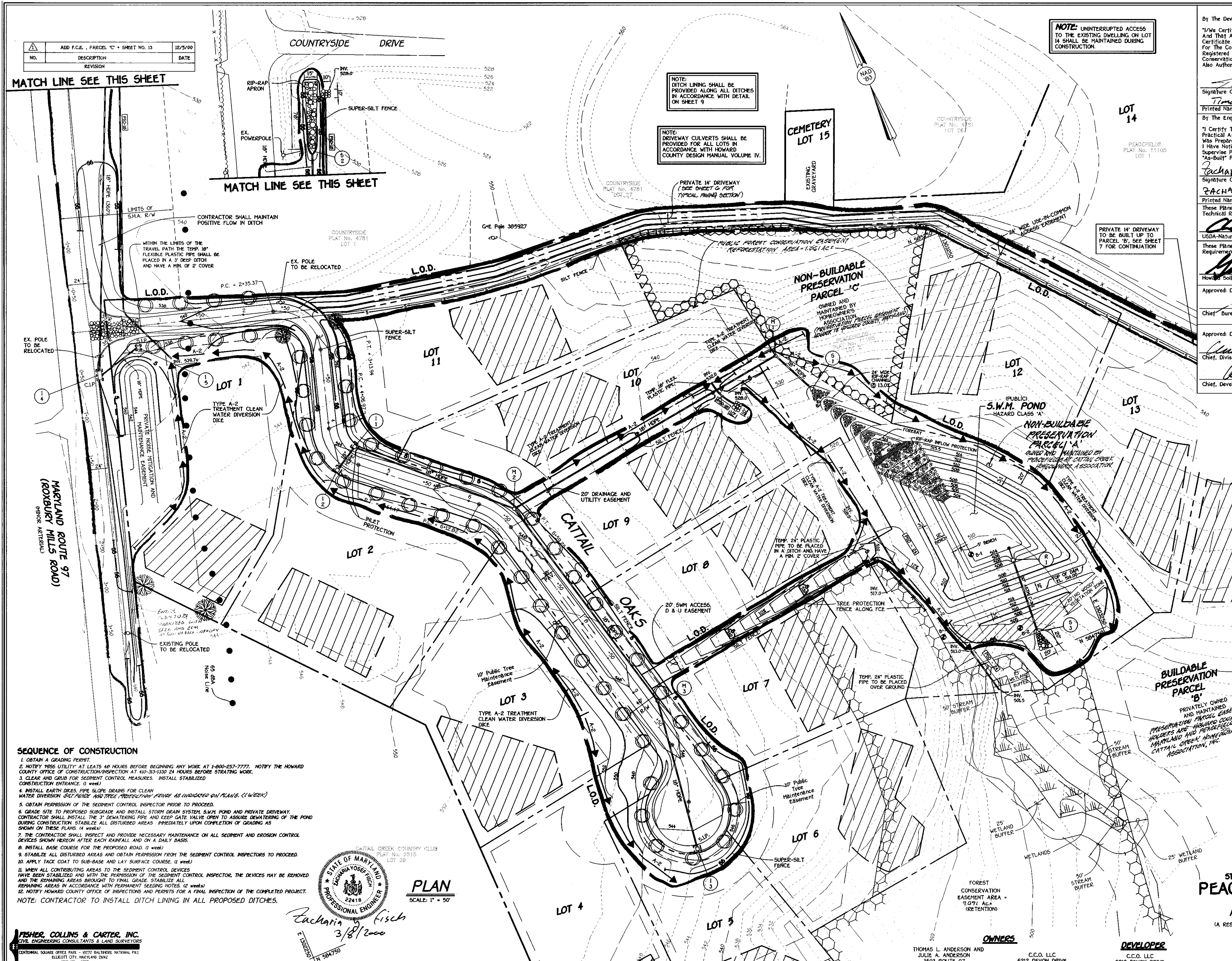
OWNERS		DEVELOPER
THOMAS L. ANDERSON AND JULIE A. ANDERSON 3503 ROUTE 97 GLENWOOD, MD. 21738	C.C.O. LLC 6212 DEVON DRIVE COLUMBIA, MD. 21044	C.C.O. LLC 6212 DEVON DRIVE COLUMBIA, MD. 21044

SCALE: AS SHOWN	DATE: FEB. 25, 2000	SHT. NO. 3 OF 13	
DES. Z.Y.F.	DRN. J.C.L.	CHK. Z.Y.F.	

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F.C.C.# 30627 REVISIONS





SEQUENCE OF CONSTRUCTION

1. OBTAIN A GRADING PERMIT.
2. NOTIFY 'MISS UTILITY' AT LEATS 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION AT 410-313-1330 24 HOURS BEFORE STRATING WORK.
3. CLEAR AND GRUB FOR SEDIMENT CONTROL MEASURES. INSTALL STABILIZED CONSTRUCTION ENTRANCE. (1 week)
4. INSTALL EARTH DIKES, PIPE SLOPE DRAINS FOR CLEAN WATER DIVERSION SILT FENCE AND TREE PROTECTION FENCE AS INDICATED ON PLANS. (1 WEEK)
5. OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEED.
6. GRADE SITE TO PROPOSED SUBGRADE AND INSTALL STORM DRAIN SYSTEM, S.W.M. POND AND PRIVATE DRIVEWAY. CONTRACTOR SHALL INSTALL THE 3" DEWATERING PIPE AND KEEP GATE VALVE OPEN TO ASSURE DEWATERING OF THE POND DURING CONSTRUCTION. STABILZE ALL DISTURBED AREAS IMMEDIATELY UPON COMPLETION OF GRADING AS SHOWN ON THESE PLANS. (4 weeks)
7. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL DEVICES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS.
8. INSTALL BASE COURSE FOR THE PROPOSED ROAD. (1 week)
9. STABILZE ALL DISTURBED AREAS AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTORS TO PROCEED.
10. APPLY TACK COAT TO SUB-BASE AND LAY SURFACE COURSE. (1 week)
11. WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE DEVICES MAY BE REMOVED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE. STABILIZE ALL REMAINING AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (2 weeks)
12. NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED PROJECT.

NOTE: CONTRACTOR TO INSTALL DITCH LINING IN ALL PROPOSED DITCHES.

STATE OF MARYLAND ZACHARIA YOSEF FISCH 22418 PROFESSIONAL ENGINEER

Zacharia Y. Fisch 3/8/2000

PLAN
SCALE: 1" = 50'

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F.C.C.#30637 GRADING PLAN.DWG

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Timothy W. Feaga — 3/8/00
Signature Of Developer — Date

Timothy W. Feaga
Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Zacharia Y. Fisch — 3/8/2000
Signature Of Engineer — Date

ZACHARIA Y. FISCH
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.

/ GS. — 3/21/00
USDA-Natural Resources Conservation Service — Date

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

3/21/00
Howard Soil Conservation District — Date

Approved: Department Of Public Works

3/30/00
Chief Bureau Of Highways — Date

Approved: Department Of Planning And Zoning

Aundy Hamutta — 4/10/00
Chief, Division Of Land Development JA — Date

4/5/00
Chief, Development Engineering Division MK — Date

AS-BUILT CERTIFICATION

I Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On The " As-Built" Plans And Meets The Approved Plans And Specifications.

Signature — P.E. No.

Date:

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

LEGEND

Symbol	Description
—SS—SS—SS—	SUPER-SILT FENCE
—S—S—S—	SILT FENCE
C.I.P.	CURB INLET PROTECTION
S.I.P.	STANDARD INLET PROTECTION
S.C.E.	STABILIZED CONSTRUCTION ENTRANCE
A-2 → A-2 →	EARTH DIKE
PSD-24	PIPE SLOPE DRAIN
(heavy line)	LIMIT OF DISTURBANCE

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
(circle)	ACER RUBRUM 'OCTOBER GLORY' RED MAPLE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

NOTE: STREET TREE TYPE IS ONLY A RECOMMENDATION AND MAY BE SUBSTITUTED WITH AN EQUIVALENT FROM AN APPROVED LIST IN THE HOWARD COUNTY LANDSCAPE MANUAL.

- 49 STREET TREES — DENOTES EXISTING TREES TO REMAIN

OWNERS

THOMAS L. ANDERSON AND
JULIE A. ANDERSON
3503 ROUTE 97
GLENWOOD, MARYLAND 21738

C.C.O. LLC
6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

DEVELOPER

C.C.O. LLC
6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

STREET TREE, GRADING AND SEDIMENT CONTROL PLAN

PEACEFIELDS AT CATTAIL CREEK

LOTS 1 THRU 15
AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)

ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 63 GRID No. 9
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 25, 2000

F00-41

APPROVED: DEPARTMENT OF PUBLIC WORKS

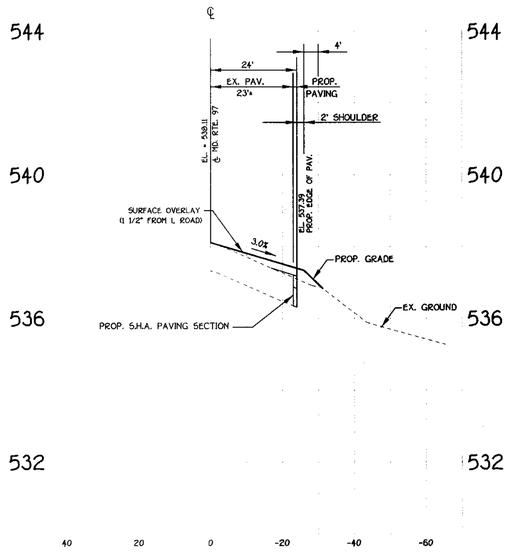
CHIEF, BUREAU OF HIGHWAYS — DATE 3/30/00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

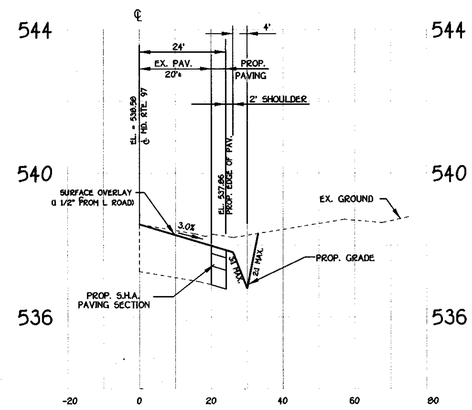
CHIEF, DIVISION OF LAND DEVELOPMENT JK — DATE 4/10/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 4/5/00

-2+50



-1+50



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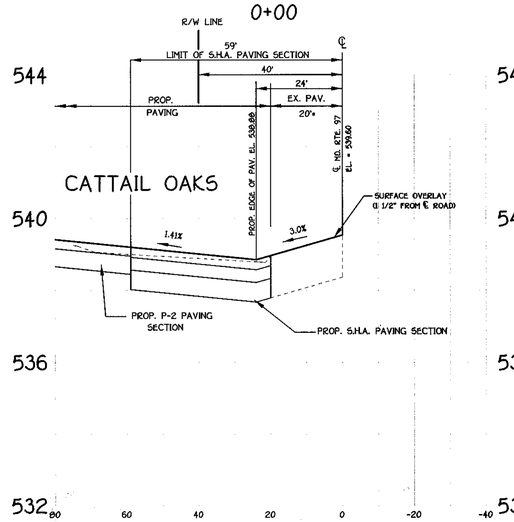

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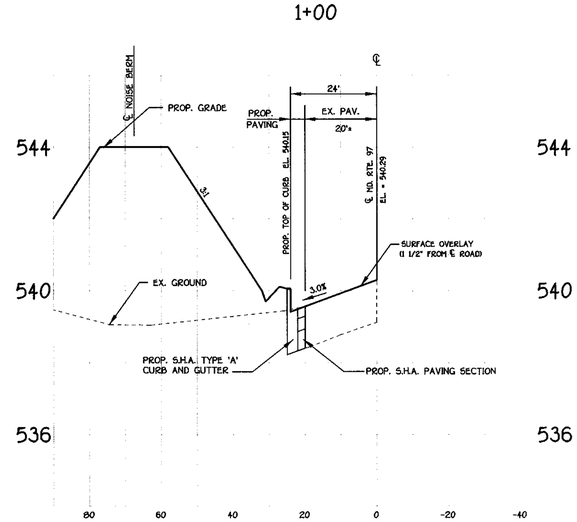

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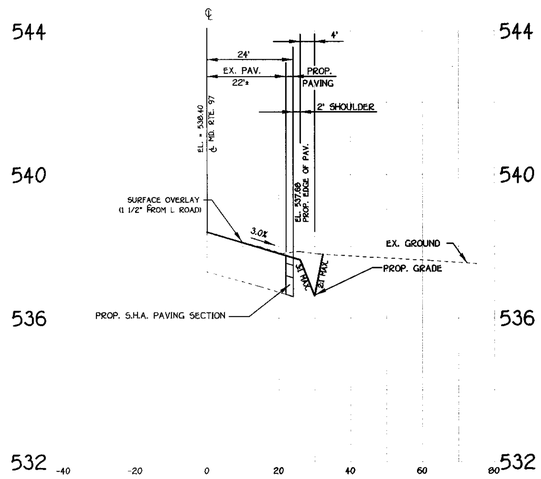

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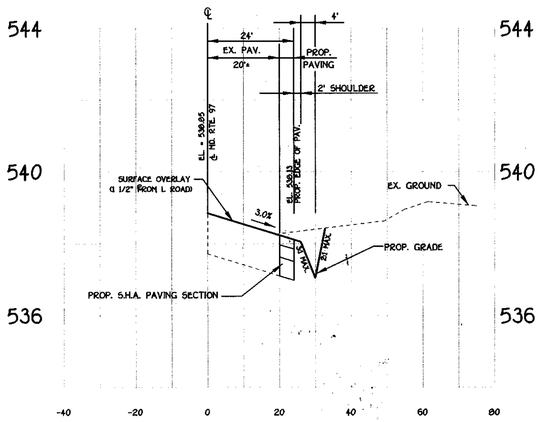
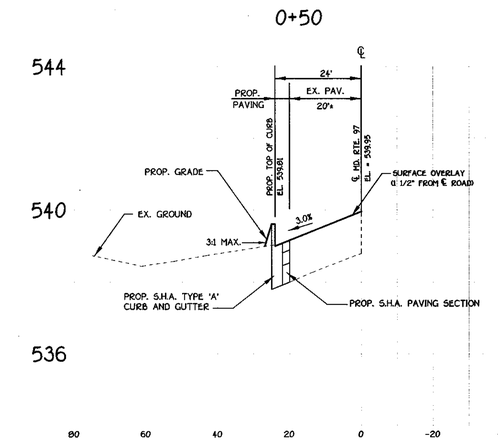


0+50



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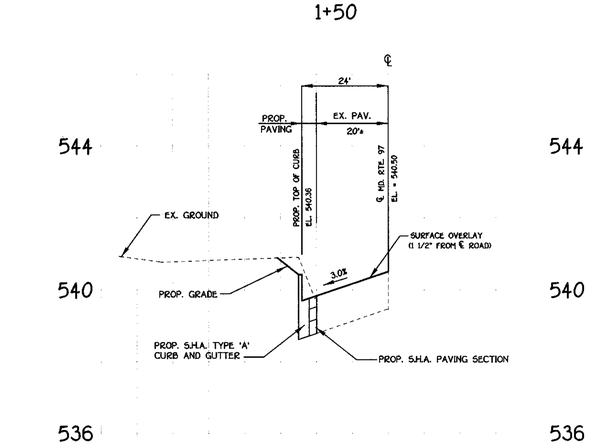

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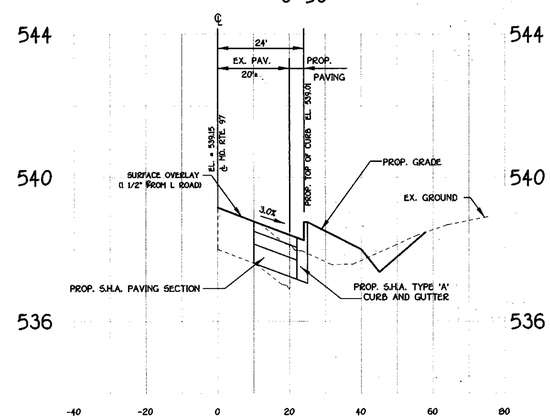


NOTE:
IT IS THE CONTRACTOR'S RESPONSIBILITY TO REFINE THE LIMITS OF THE EXISTING SHOULDER ALONG MD. RT. 97 AND EVALUATE THE EXISTING PAVING SECTION WITHIN THE LIMITS OF THE SHOULDER.

CROSS-SECTIONS

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

STATE OF MARYLAND — ZACHARIA JOSEPH FISCH — 22418 — PROFESSIONAL ENGINEER

Zacharia J. Fisch 3/8/2000

CROSS-SECTIONS (MARYLAND ROUTE 97)
STA. -2+50 TO STA. 1+50

PEACEFIELDS AT CATTAIL CREEK

LOTS 1 THRU 15
AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)
ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 63 GRID No. 9
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 25, 2000
SHEET 5 OF 13

OWNERS

THOMAS L. ANDERSON AND
JULIE A. ANDERSON
3503 ROUTE 97
GLENWOOD, MARYLAND 21738

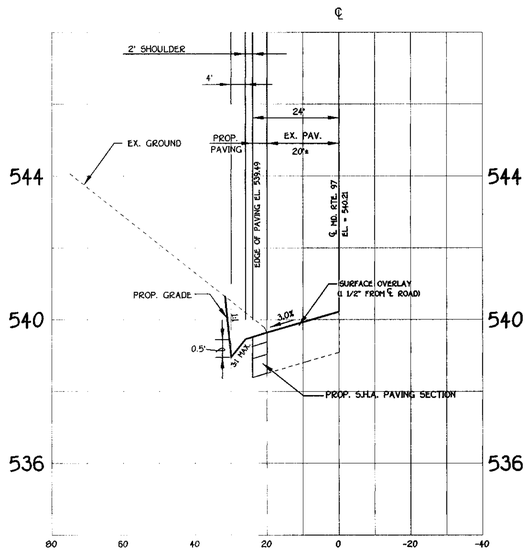
C.C.O. LLC
6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

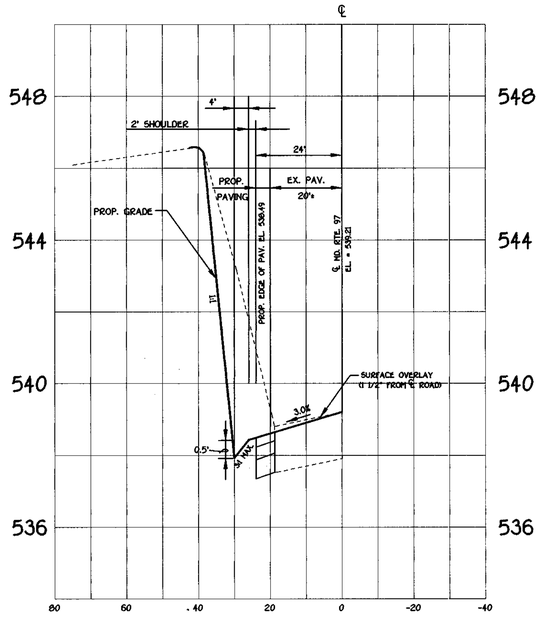
DEVELOPER

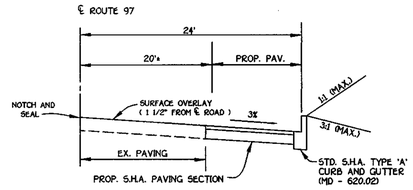
C.C.O. LLC
6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855
F.C.C.*

F 00-41



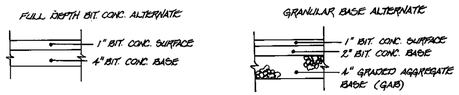




S.H.A. SECTION SHALL BE 3" (NOMINAL) BITUMINOUS CONCRETE SURFACE (TWO 1 1/2" COURSES), 4" (NOMINAL) BITUMINOUS CONCRETE BASE AND EITHER ONE OF THE FOLLOWING:
6" BASE COURSE USING GRADED AGGREGATE BASE, GA BASE
OR A 7" BASE COURSE USING BANK-RUN GRAVEL BASE, BRG BASE

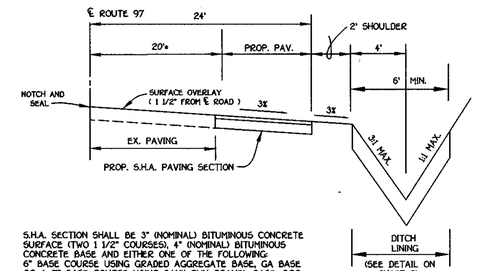
TYPICAL ROADWAY SECTION FOR MD. ROUTE 97 w/ CURB

NO SCALE



TYPICAL P-1 PAVING SECTION FOR PRIVATE USE-IN-COMMON DRIVEWAY

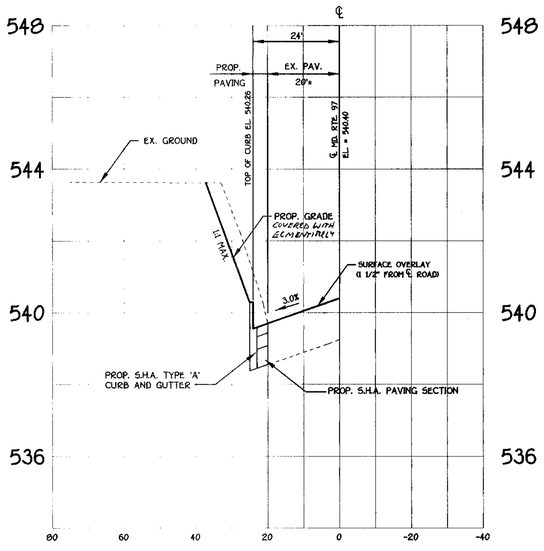
NOT TO SCALE

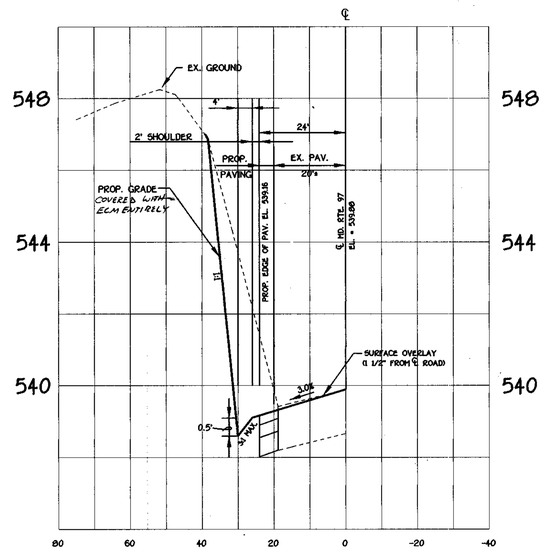


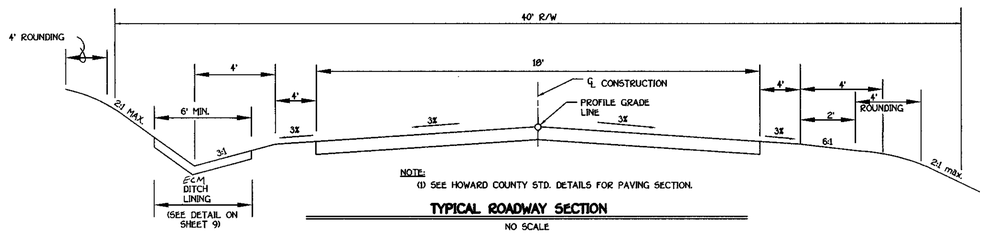
S.H.A. SECTION SHALL BE 3" (NOMINAL) BITUMINOUS CONCRETE SURFACE (TWO 1 1/2" COURSES), 4" (NOMINAL) BITUMINOUS CONCRETE BASE AND EITHER ONE OF THE FOLLOWING
6" BASE COURSE USING GRADED AGGREGATE BASE, GA BASE
OR A 7" BASE COURSE USING BANK-RUN GRAVEL BASE, BRG BASE

TYPICAL ROADWAY SECTION FOR MD. ROUTE 97 w/ DITCH

NO SCALE







NOTE:
(1) SEE HOWARD COUNTY STD. DETAILS FOR PAVING SECTION.

TYPICAL ROADWAY SECTION

NO SCALE

ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS	PAVING SECTION
CATTAIL OAKS	PUBLIC ACCESS PLACE	25 M.P.H.	RR-DEO	STA. 0+00 TO STA. 10+58	P-2

NOTE:
IT IS THE CONTRACTORS RESPONSIBILITY TO DEFINE THE LIMITS OF THE EXISTING SHOULDER ALONG MD. RT. 97 AND EVALUATE THE EXISTING PAVING SECTION WITHIN THE LIMITS OF THE SHOULDER.

CROSS-SECTIONS

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

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3/20/00

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/10/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/5/00

OWNERS

THOMAS L. ANDERSON AND
JULIE A. ANDERSON
3503 ROUTE 97
GLENWOOD, MARYLAND 21738

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DEVELOPER

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COLUMBIA, MARYLAND 21044

STATE OF MARYLAND — JOSHUA YORKE FISCH — 22418 — PROFESSIONAL ENGINEER
3/8/2000

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F.C.C.*

CROSS-SECTIONS (MARYLAND ROUTE 97)
STA. 2+00 TO STA. 3+50

PEACEFIELDS AT CATTAIL CREEK

LOTS 1 THRU 15
AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)

ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 63 GRID No. 9
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 25, 2000
SHEET 6 OF 13

F00-41

PROPOSED SIGNAGE

FOREST RETENTION AREA

MACHINERY, DUMPING OR STORAGE OF ANY MATERIAL IS

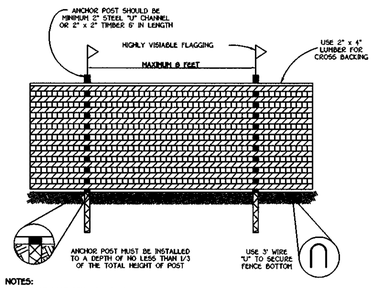
PROHIBITED

VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991

15" MINIMUM

11" MINIMUM

BLAZE ORANGE PLASTIC MESH



NOTES:
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION 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.

FOREST TREE PROTECTION AND MANAGEMENT NOTES

1. TREE PROTECTION DEVICES SHALL BE INSTALLED PRIOR TO ANY GRADING OR LAND CLEARING.
2. AFTER THE BOUNDARIES OF THE RETENTION AREAS HAVE BEEN STAKED AND FLAGGED AND BEFORE ANY DISTURBANCE HAS TAKEN PLACE A PRE-CONSTRUCTION MEETING WITH THE HOWARD COUNTY INSPECTOR IS REQUIRED.
3. NO GRADING, STORAGE OF EQUIPMENT, VEHICULES, EQUIPMENT STAGING OR DUMPING IS PERMITTED WITHIN FOREST CONSERVATION EASEMENT AREAS.
4. PROVIDE MAINTENANCE TO TREE PROTECTION DEVICES AND SIGNAGE TO MAINTAIN THEIR INTEGRITY THROUGHOUT THE DURATION OF THE PROJECT.
5. ATTACHMENT OF SIGNS OR ANY OTHER OBJECTS TO TREES IS PROHIBITED.
6. ROOT PRUNING WILL BE PERFORMED WITH ROTARY DITCHING EQUIPMENT OR VIBRATORY KNIFE AS CONDITIONS WARRANT.
7. ANY SIGNIFICANT CHANGES MADE TO THE FOREST CONSERVATION PLAN SHALL BE MADE WITH THE PRIOR CONSENT OF THE HOWARD COUNTY INSPECTOR.
8. NO BURIAL OF DISCARDED MATERIAL IS PERMITTED WITHIN FOREST CONSERVATION AND PLANTING AREAS.
9. NO OPEN BURNING WITHIN 100 FEET OF WOODED AREAS IS PERMITTED.
10. POST CONSTRUCTION PHASE
    a. INSPECT EXISTING TREES AROUND PERIMETER OF SITE FOR SIGNS OF ROOT OR TRUNK DAMAGE AND EXCESSIVE SOIL COMPACTION. *
    b. REMOVE DEAD OR DYING TREES AND EVALUATE FOR HAZARD TREE REMOVAL. *
    c. ALL TEMPORARY FOREST PROTECTION DEVICES WILL BE REMOVED AFTER CONSTRUCTION.
    d. FOLLOWING COMPLETION OF CONSTRUCTION, PRIOR TO USE, THE COUNTY INSPECTOR SHALL INSPECT THE ENTIRE SITE FOR COMPLIANCE WITH THIS FOREST CONSERVATION PLAN.

* A LICENSED ARBORIST OR FORESTER SHOULD BE RETAINED FOR THIS SERVICE AS NEEDED.

PRESERVATION AREA NOTES

1. ALL PROPOSED ACTIVITIES SHALL CONFORM TO THE TERMS, CONDITIONS AND SCHEDULES OF AN APPROVED SOIL EROSION AND SEDIMENT CONTROL PLAN.
2. TREE PROTECTION FENCING, (TYPICAL SECTION SHOWN ON THIS SHEET) SHALL BE INSTALLED ALONG ALL TREE SAVE AREAS THAT ARE WITHIN 50 FEET OF PROPOSED CONSTRUCTION ACTIVITIES. THE TREE PROTECTIVE DEVICES SHALL BE IN PLACE AT THE TIME CONSTRUCTION ACTIVITIES COMMENCE. NO PROTECTIVE DEVICES SHALL BE INSTALLED ALONG TREE SAVE AREAS THAT ARE GREATER THAN 50 FEET FROM CONSTRUCTION ACTIVITY. THE LOCATION OF ALL TREE PROTECTION DEVICES ARE SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN DRAWINGS WHICH WILL BE INCORPORATED INTO THIS TREE CONSERVATION PLAN BY REFERENCE.

Approved: Department Of Public Works

Chief, Bureau Of Highways — Date 3/20/00

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development JA — Date 4/6/00

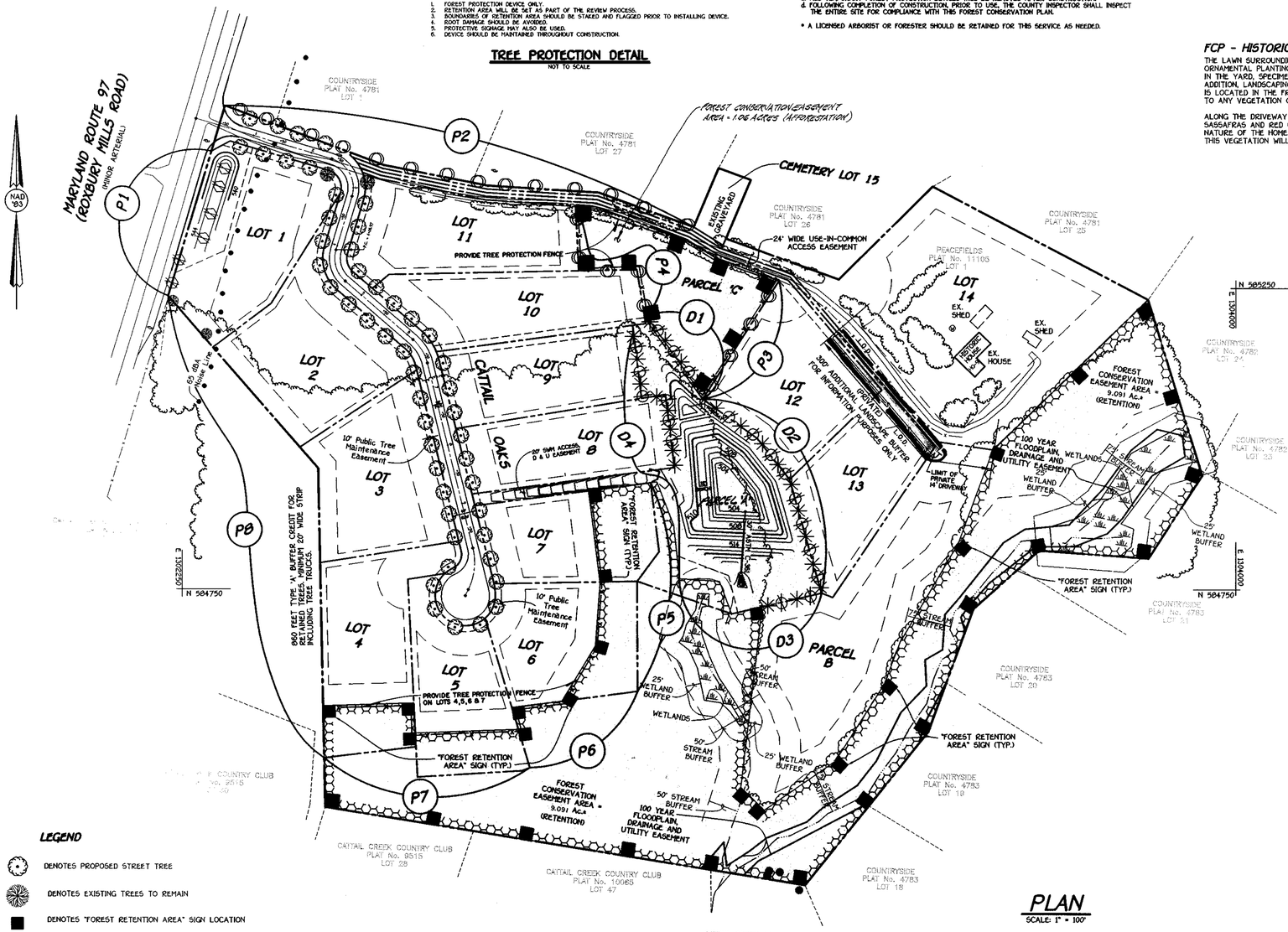
Chief, Development Engineering Division MK — Date 4/5/00

SITE DATA

	ACRES
GROSS AREA:	28.9
AREA OF FORESTED FLOODPLAIN:	0.9
NET TRACT AREA:	28.0
EXISTING FOREST:	17.0
AFFORESTATION THRESHOLD:	5.6
REFORESTATION THRESHOLD:	7.2
BREAK-EVEN POINT:	9.2
FOREST TO BE CLEARED:	7.8
FOREST TO BE RETAINED IN FCE:	9.2
REFORESTATION REQUIRED:	0

TREE PROTECTION DETAIL

NOT TO SCALE



LEGEND

- DENOTES PROPOSED STREET TREE
- DENOTES EXISTING TREES TO REMAIN
- DENOTES "FOREST RETENTION AREA" SIGN LOCATION

PLAN

SCALE: 1" = 100'

FCP - HISTORIC STRUCTURE NOTE:

THE LAWN SURROUNDING THE HISTORIC HOME, PEACEFIELDS, CONTAINS NUMEROUS LANDSCAPE AND ORNAMENTAL PLANTINGS. INCLUDED ARE SEVERAL LARGE NORWAY SPRUCE WHICH ARE SCATTERED IN THE YARD, SPECIMEN RED MAPLE, A KENTUCKY COFFEE TREE AND A LARGE WHITE PINE. IN ADDITION, LANDSCAPING SHRUBS ARE PRESENT SURROUNDING THE HOME. A VERY NICE MAGNOLIA IS LOCATED IN THE FRONT OF THE HOME. THE PROPOSED DEVELOPMENT WILL CAUSE NO DISTURBANCE TO ANY VEGETATION OCCURING ON THE HISTORIC HOME LOT.

ALONG THE DRIVEWAY TO THE HISTORIC HOME IS A HEDGEROW WHICH IS DOMINATED BY BLACK CHERRY, SASSAFRAS AND RED CEDAR. THESE TREES ARE GENERALLY YOUNG AND ARE NOT PART OF THE "HISTORIC" NATURE OF THE HOME. THE HEDGEROW CONTAINS AN ABUNDANCE OF MULTIFLORA ROSE AND GRAPE VINE. THIS VEGETATION WILL BE REMOVED AS PART OF THE PROPOSED SUBDIVISION.

* PRIVATE LANDSCAPE BUFFER SCHEDULE

QUANTITY	COMMON NAME	SIZE
6	RED SUNSET RED MAPLE	2 " - 2 1/2"
15	LEYLAND CYPRESS	4' - 5'
17	FORSYTHIA	3 GAL.

* FOR INFORMATION PURPOSES ONLY

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	D1: 165'	D2: 400'	D3: 278'	D4: 478'
NUMBER OF TREES REQUIRED: SHADE TREES 9.091 Ac.± / EVERGREEN TREES	3 / 4	8 / 10	5 / 7	9 / 12
CREDIT FOR EXISTING VEGETATION (NO, YES AND ID)	NO	NO	YES, 177'	YES, 166'
CREDIT FOR OTHER LANDSCAPING (NO, YES AND ID)	NO	NO	NO	NO
NUMBER OF TREES PROVIDED: SHADE TREES / EVERGREEN TREES / OTHER TREES (2:1 SUBSTITUTION)	3 / 4 / -	8 / 10 / -	2 / 2 / -	6 / 8 / -

LANDSCAPE SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
23		ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 1/2"-3"
19		FRAXINUS AMERICANA 'AUTUMN PURPLE'	AUTUMN PURPLE WHITE ASH	2 1/2"-3"
24		CUPRESSOCYPARIS LEYLANDI	LEYLAND CYPRESS	5'-6' HT.
6		PINUS STROBUS	WHITE PINE	6'-8' HT.

NOTE: THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 72 LANDSCAPING TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $ 17,100.00. PLANT SPECIES SHOWN IN THIS SCHEDULE MAY BE SUBSTITUTED WITH SPECIES OUTLINED IN APPENDIX 'C' IN THE HOWARD COUNTY LANDSCAPE MANUAL.

SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	Adjacent to Roadways	Adjacent to Perimeter Properties						
LANDSCAPE TYPE	B	A	A	A	A	A	A	A
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	P1 251'	P2 810'	P3 230'	P4 286'	P5 360'	P6 314'	P7 391'	P8 860'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	YES (360')	YES (314')	YES (391')	YES (860')
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE IF NEEDED)	YES NOISE BERM	NO	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED: SHADE TREES / EVERGREEN TREES / SHRUBS	0 / 6 / -	14 / - / -	4 / - / -	5 / - / -	0 / - / -	0 / - / -	0 / - / -	0 / - / -

NOTE: IN ADDITION TO THE LANDSCAPE OBLIGATIONS OUTLINED IN SCHEDULE A, THE DEVELOPER INTENDS TO PROVIDE A 300' LONG PRIVATE LANDSCAPE BUFFER (ON LOT 14, OPPOSITE LOTS 12 AND 13) CONSISTING OF A SHRUB LAYER, EVERGREEN TREES AND HARDWOODS TO BUFFER THE HISTORIC SITE FROM THE NEW DEVELOPMENT. SEE PRIVATE LANDSCAPE BUFFER SCHEDULE, THIS SHEET.

NO.	DESCRIPTION	DATE
1	ADD F.C.E. , PARCEL 'C' + SHEET NO. 13	12/5/00
	REVISION	

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855
F.C.C.-30837 LANDSCAPE PLANNING

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # MDCPSWD06100448
JOHN P. CANOLES

OWNERS

THOMAS L. ANDERSON AND JULIE A. ANDERSON
3503 ROUTE 97
GLENWOOD, MARYLAND 21738

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COLUMBIA, MARYLAND 21044

DEVELOPER

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6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

STATE OF MARYLAND — VICTORIA YOSEF FISCH — 22419 — PROFESSIONAL ENGINEER

Zachariah D. Fisch
3/8/2000

LANDSCAPE & FOREST CONSERVATION PLAN

PEACEFIELDS AT CATTAIL CREEK

LOTS 1 THRU 15
AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)

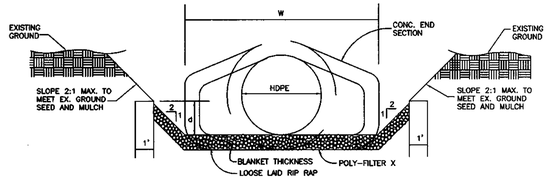
ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 63 GRID No. 9
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 25, 2000
SHEET 7 OF 13

F 00-41

STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
I-1	* 543.15	538.56	538.31	CATTAIL OAKS	C.L. STA. 4+50	17'L	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-2	* 543.15	-----	538.90	CATTAIL OAKS	C.L. STA. 4+50	17'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-3	* 543.46	-----	537.50	CATTAIL OAKS	L.P. STA. 1+52.14	5'	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-4	539.83	533.53	533.28	MD. RTE. 97	C.L. STA. 0+53	24'L	C.O.G. INLET	MD. - 374.51
I-5	* 537.50	-----	534.09	CATTAIL OAKS	C.L. STA. 0+74	25'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
M-1	536.00	526.25	526.00	-----	N 583,190.6 E 1,303,020.0	---	STD. MANHOLE	G - 5.01
M-2	545.93	536.31, 532.66	532.41	CATTAIL OAKS	C.L. STA. 6+47	17'L	STD. MANHOLE	G - 5.01
M-3	545.60	535.71	535.46	CATTAIL OAKS	C.L. STA. 9+24	17'L	STD. MANHOLE	G - 5.01
S-1	526.90	525.40	525.40	-----	N 583,141.6 E 1,303,052.8	---	CONC. END SECTION	S.D. 5.51
S-2	531.50	530.00	530.00	-----	N 583,804.4 E 1,302,628.0	---	CONC. END SECTION	MD. - 368.02
S-3	504.50	502.00	502.00	-----	N 584,710.8 E 1,303,177.9	---	CONC. END SECTION	S.D. 5.51
R-1	512.50	503.90	503.90	-----	N 584,895.1 E 1,303,183.7	---	CONC. RISER	

* DENOTES THROAT ELEVATION



RIP RAP CHANNEL DETAIL
NO SCALE

RIP-RAP CHANNEL DESIGN DATA

STRUCTURE	AREA (SQ. FT.)	WETTED PERIMETER	R	R 2/3	S	S 1/2	W	d	N	V (F.P.S.)	Q (C.F.S.)	RIP-RAP SIZE d_{50}	RIP-RAP SIZE d_{MAX}	BLANKET THICKNESS
S-1	1.92	5.79	0.33	0.48	0.005	0.0707	4	0.4	0.04	3.98	7.07	4"	6"	9.5"

CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

1. The subgrade for the filter, riprap or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional shall hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
4. Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 4/10/00

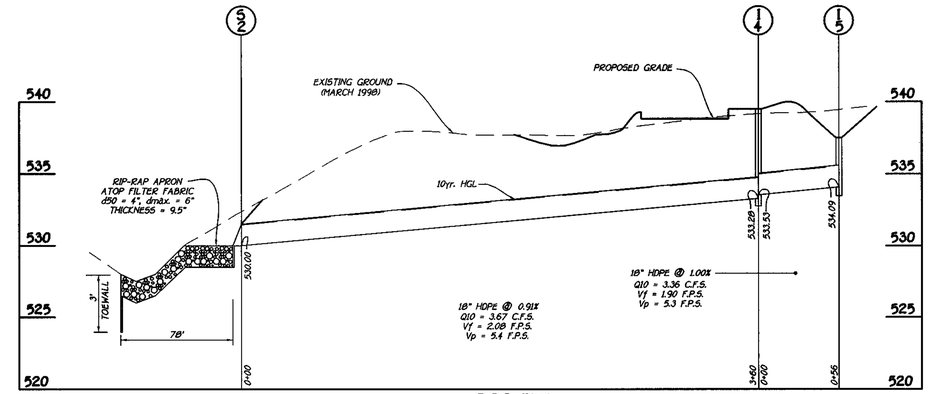
Chief, Development Engineering Division — Date 4/5/00

Approved: Howard County Department Of Public Works

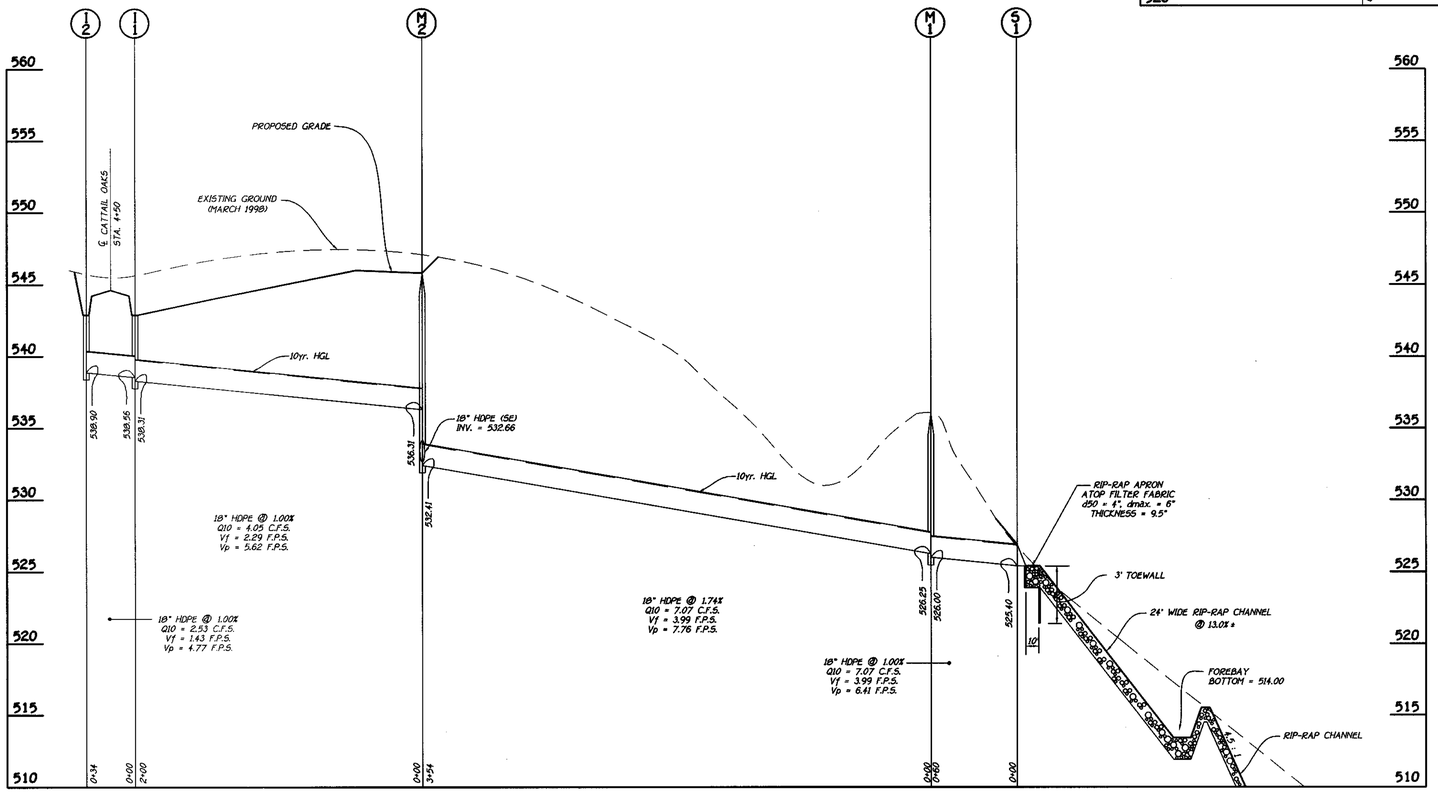
Chief, Bureau Of Highways — Date 3/30/00

PIPE SCHEDULE

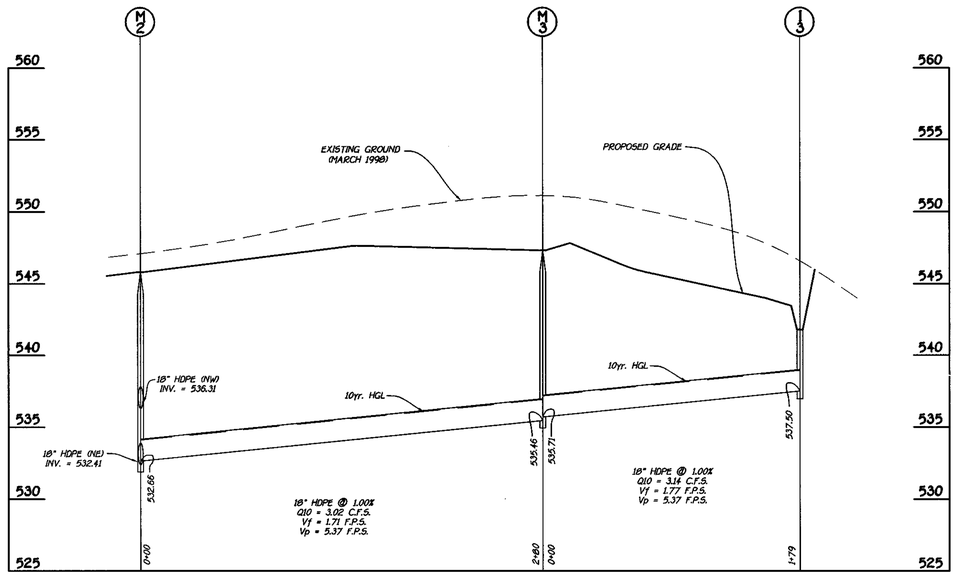
SIZE	MATERIAL	LENGTH
18"	HDPE	1523'



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



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



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

STORM DRAIN PROFILES

PEACEFIELDS AT CATTAIL CREEK

LOTS 1 THRU 15
AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)

ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 63 GRID No. 9
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 25, 2000
SHEET 8 OF 13

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F.C.C.- 3937/FINALS/STORM DRAIN PROFILES.DWG

OWNERS

THOMAS L. ANDERSON AND
JULIE A. ANDERSON
3503 ROUTE 97
GLENWOOD, MARYLAND 21738

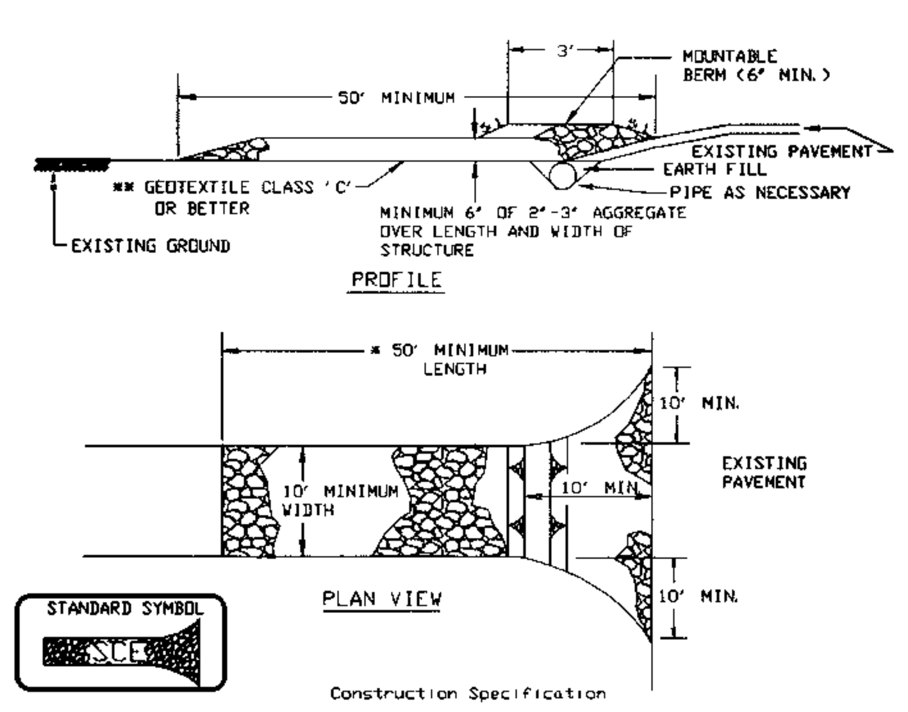
C.C.O. LLC
6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

DEVELOPER

C.C.O. LLC
6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

STATE OF MARYLAND
ZACHARIA YOSEF LISCH
22418
PROFESSIONAL ENGINEER
3/8/2000

F-00-41



Construction Specification

1. Length - minimum of 50' (*30' for single residence lot).

2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

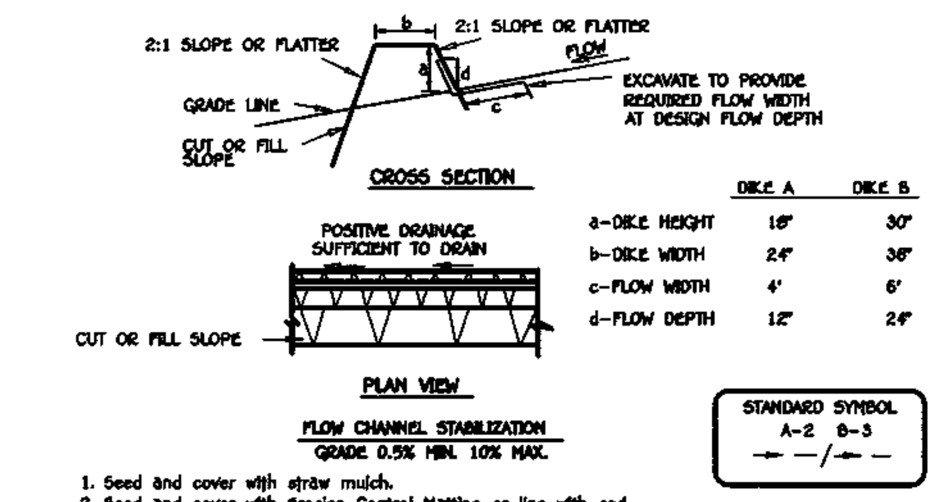
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

STABILIZED CONSTRUCTION ENTRANCE - 2

NOT TO SCALE



	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

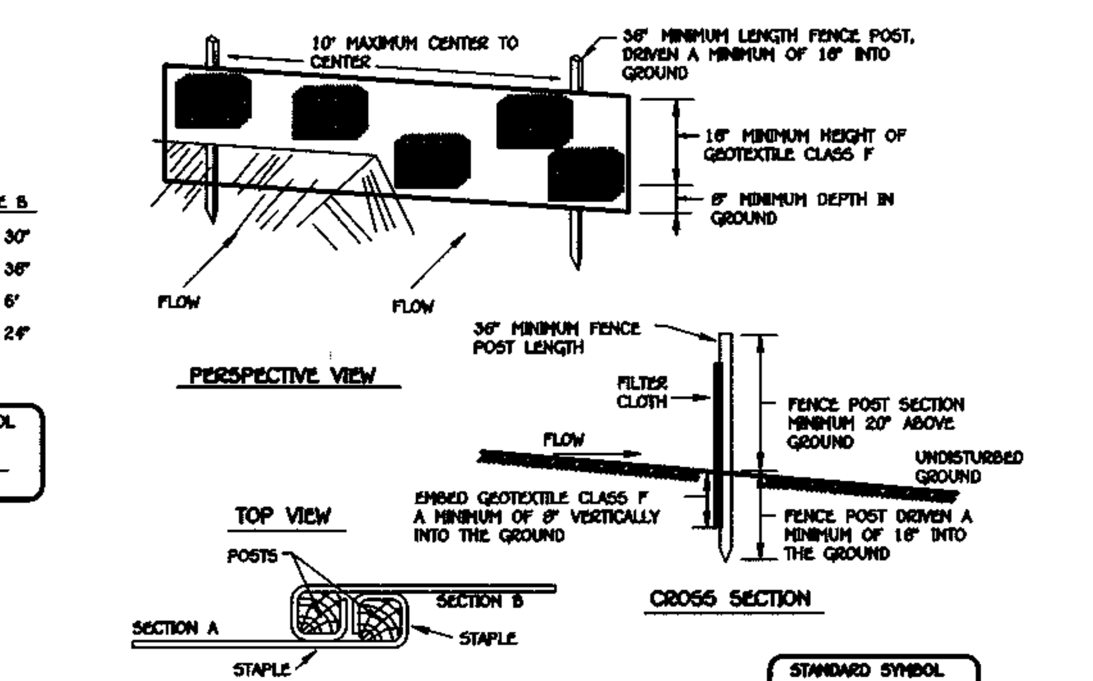
1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than%1
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each rain event.

EARTH DIKE

NOT TO SCALE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

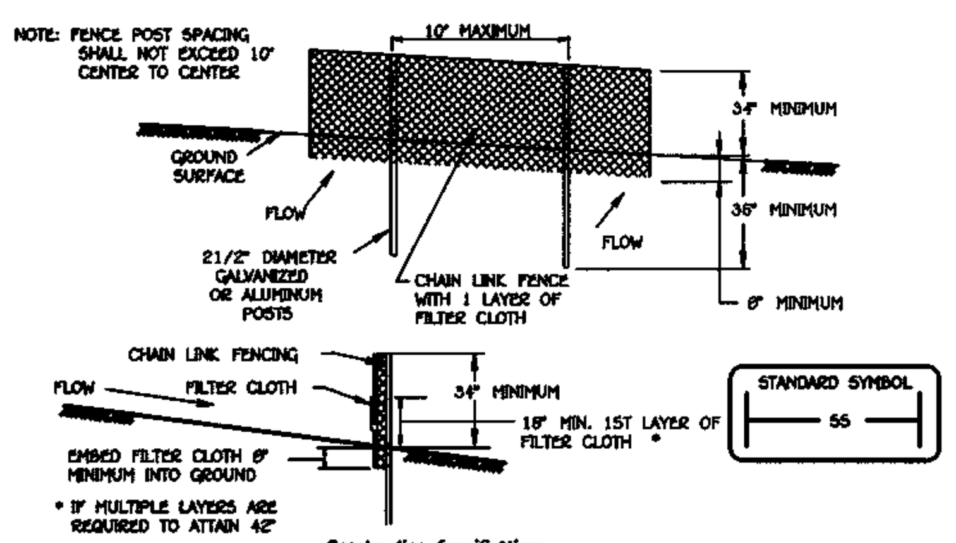
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

DETAIL 22 - SILT FENCE

NOT TO SCALE



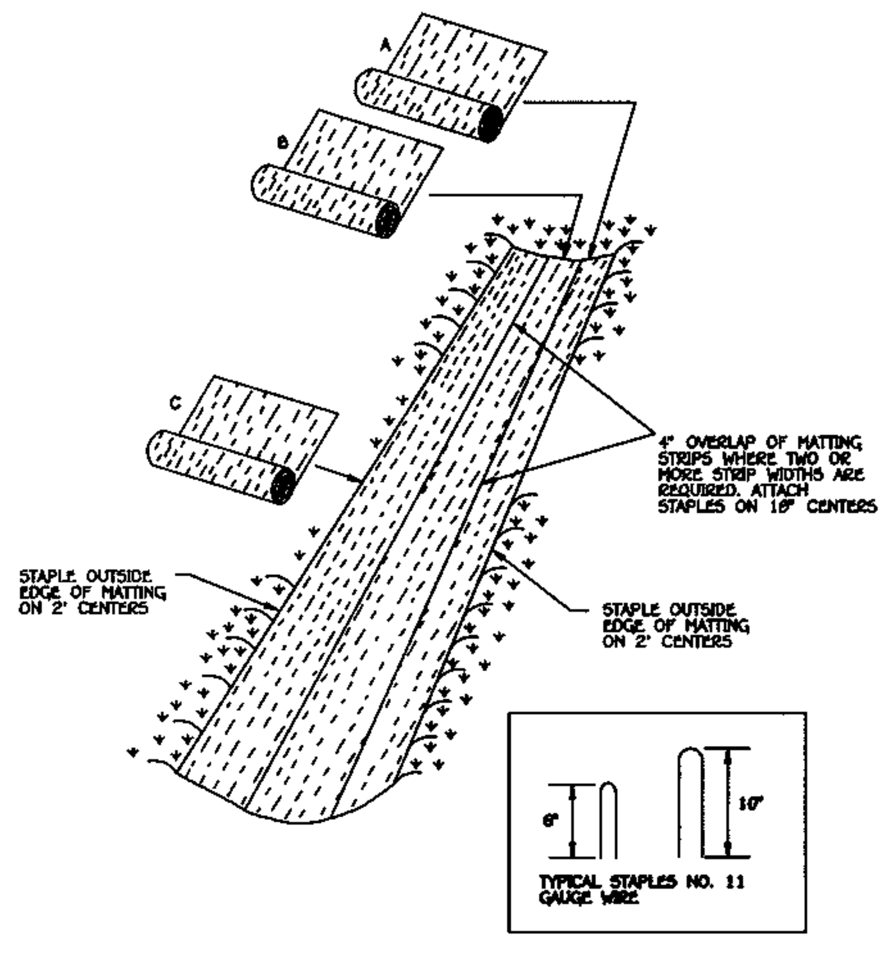
Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

SUPER SILT FENCE

NOT TO SCALE



Construction Specifications

1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
2. Staple the 4" overlap in the channel center using an 18" spacing between staples.
3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

CROSS-SECTION

EROSION CONTROL MATTING

NOT TO SCALE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY".

[signature] 3/8/00
SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Zacharia Y. Fisch 3/8/2000
SIGNATURE OF ENGINEER DATE

REVIEW FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

[signature] 3/24/00
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

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

[signature] 3/24/00
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton JA 4/10/00
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] MK 4/5/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 3/30/00
CHIEF, BUREAU OF HIGHWAYS DATE

20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION

Using vegetation as cover for barren soil to protect it from forces that cause erosion.

PURPOSE

Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving wildlife habitat and visual resources.

CONDITIONS WHERE PRACTICE APPLIES

This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration O(up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

EFFECTS ON WATER QUALITY AND QUANTITY

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.
Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.
Sediment control devices must remain in place during grading, seedbed preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. Site Preparation
   i. Install erosion and sediment control structures (either temporary of permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
   ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
   iii. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.
B. Soil Amendments (Fertilizer and Lime Specifications)
   i. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
   ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the producer.
   iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 98-100% will pass through a #20 mesh sieve.
   iv. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
C. Seedbed Preparation
   i. Temporary Seeding
      a. Seedbed preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth, but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
      b. Apply fertilizer and lime as prescribed on the plans.
      c. In corporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
   ii. Permanent Seeding
      a. Minimum soil conditions required for permanent vegetative establishment:
         1. Soil pH shall be between 6.0 and 7.0.
         2. Soluble salts shall be less than 500 parts per million (ppm).
         3. The soil shall contain less than 40% clay, but enough fine grained material (>30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or serecia lespedezas is to be planted, then a sandy soil (<30% silt plus clay) would be acceptable.
         4. Soil shall contain 1.5% minimum organic matter by weight.
         5. Soil must contain sufficient pore space to permit adequate root penetration.
         6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
      b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
      c. Apply soil amendments as per soil test or as included on the plans.
      d. Mix soil amendments into the top 3-5" of topsoil by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed and application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1-3" of soil should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.
D. Seed Specifications
   i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.
   Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
   ii. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75°-80° F. can weaken bacteria and make the inoculant less effective.
E. Methods of Seeding
   i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeded, of a cultipacker seeder.
      a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen; maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorous); 200 lbs/ac; K20 (potassium): 200 lbs/ac.
      b. Lime - use only ground agricultural limestone, (Up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
      c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
   ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 265 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.
      b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
   iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
      b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
F. Mulch Specifications (In order of preference)
   i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
   ii. Wood Cellulose Fiber Mulch (WCFM)
      a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
      b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      c. WCFM, including dye, shall contain no germination or growth inhibiting factors.
      d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
      e. WCFM material shall contain no elements or compounds at concentration levels that will be phytol-toxic.
      f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm. , diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.

Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.
   i. If grading is completed outside of the seeding season, mulch along shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
   ii. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
   iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.
H. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
   i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
   ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
   iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crest of banks. The remainder of area should be appear uniform after binder application. Synthetic binders - such as Acrylic DLR (Agro-Tack), DCA-70 Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
   iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.
I. Incremental Stabilization - Cut Slopes
   i. All cuts slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
   ii. Construction sequence (Refer to Figure 3 below):
      a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
      b. Perform Phase 1 excavation, dress, and stabilize.
      c. Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.
      d. Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation 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 int he operation of completing the operation out of the seeding season will necessitate the application of temporary stabilization.

J. Incremental Stabilization of Embankments - Fill Slopes
   i. Embankments shall be constructed in lifts as prescribed on the plans.
   ii. 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.
   iii. 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.
   iv. Construction sequence: Refer to Figure 4 (below).
      a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill. Construct slope silt fence on low side of fill as shown in Figure 5, unless other methods shown on the plans address this area.
      b. Place Phase 1 embankment, dress and stabilize.
      c. Place Phase 2 embankment, dress and stabilize.
      d. Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of and placement of topsoil (if required) grading 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.

SECTION 2 - TEMPORARY SEEDING

Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed mixtures - Temporary Seeding

i. Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Temporary seeding summary below, along with application rates, seeding dates and seeding depths. If this summary is not put on the plans and completed, then Table 26 must be put on the plans.

ii. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

Seed Mixture (Hardiness Zone 6b) From Table 26					Fertilizer Rate (10-10-10)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
1	BARLEY OATS RYE	122 96 140	3/1 - 5/15, 8/15 - 10/15	1" - 2" 1" - 2" 1" - 2"	600 lb/ac (15 lb/1000sf)	2 tons/ac (100 lb/1000sf)

SECTION 3 - PERMANENT SEEDING

Seeding grass and legumes to establish groung cover for a minimum of one year on disturbed areas generally receiving low maintenance.

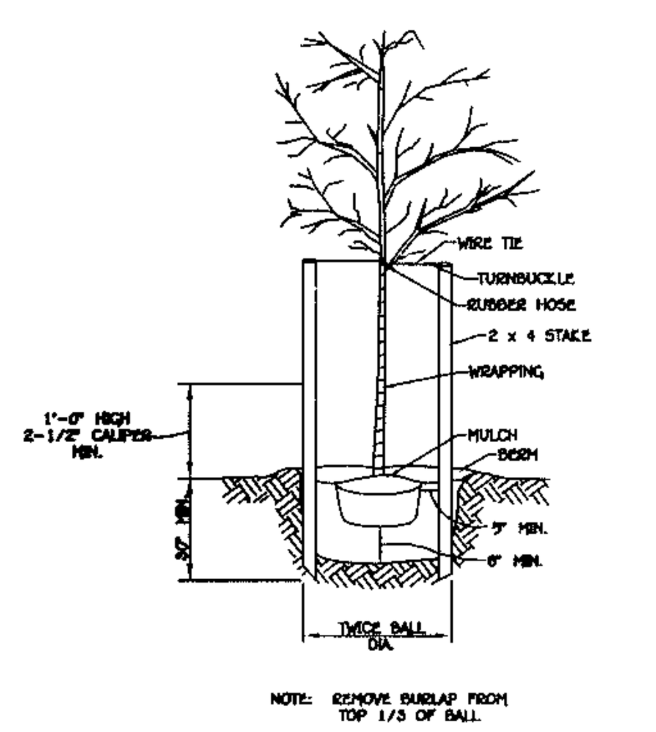
A. Seed mixtures - Permanent Seeding

i. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Techinical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.

ii. For sites having disturbed area over 5 areas, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.

iii. For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3 1/2 lbs/1000 sq. ft. (150 lbs/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

Seed Mixture (Hardiness Zone 6b) From Table 25					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P205	K20	
3	TALL FESCUE (85%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (5%)	125 15 10	3/1 - 5/15, 8/15 - 10/15	1" - 2"	90 lb/ac (2.0 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	2 tons/ac (100 lb/ 1000sf)
10	TALL FESCUE (80%) HARD FESCUE (20%)	120 30	3/1 - 5/15, 8/15 - 10/15	1" - 2"				



NOTE: REMOVE BURLAP FROM TOP 1/3 OF BALL.

TREE PLANTING

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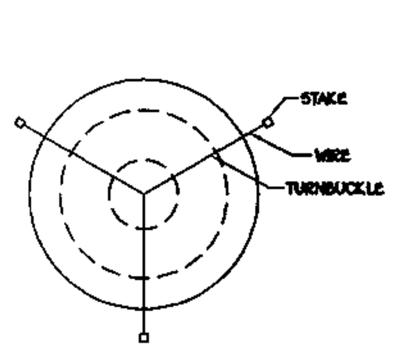
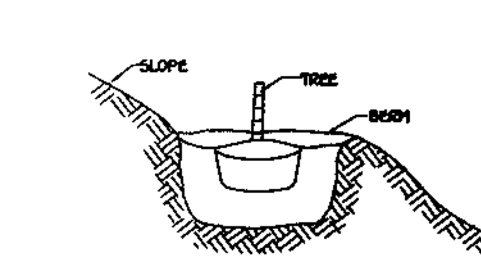


STAKING DETAIL

NOT TO SCALE



GRADING FOR PLANTING ON SLOPES

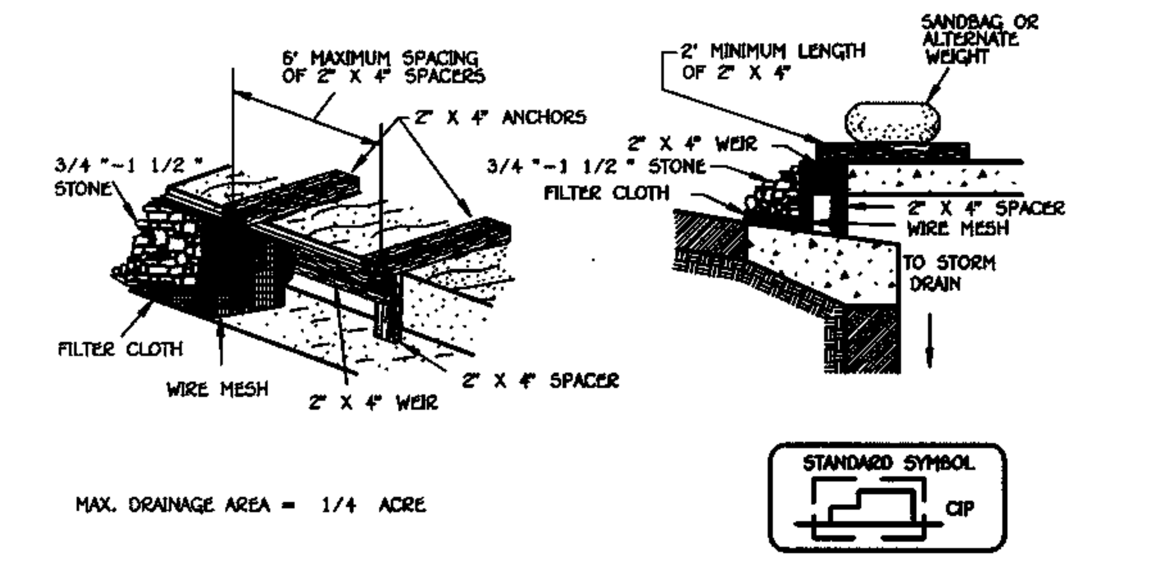
NOT TO SCALE

SEDIMENT CONTROL NOTES

1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LISCENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2) ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3) FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. GRADING NECESSARY TO INSTALL STORM DRAINS, SEDIMENT TRAP AND EARTH DIKES TO BE PERFORMED FIRST. REMAINDER OF THE GRADING TO BE PERFORMED AFTER STORM DRAINS, SEDIMENT TRAP AND EARTH DIKES ARE INSTALLED.
4) ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5) ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT 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.
6) ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7) SITE ANALYSIS:

TOTAL AREA OF SITE	31.837	ACRES
AREA DISTURBED	5.393	ACRES
AREA TO BE ROOFED OR PAVED	0.841	ACRES
AREA TO BE VEGETATIVELY STABILIZED	4.552	ACRES
TOTAL CUT	3,500	CU.YDS.
TOTAL FILL	3,500	CU.YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A	CU.YDS.

8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9) ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGHTS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.



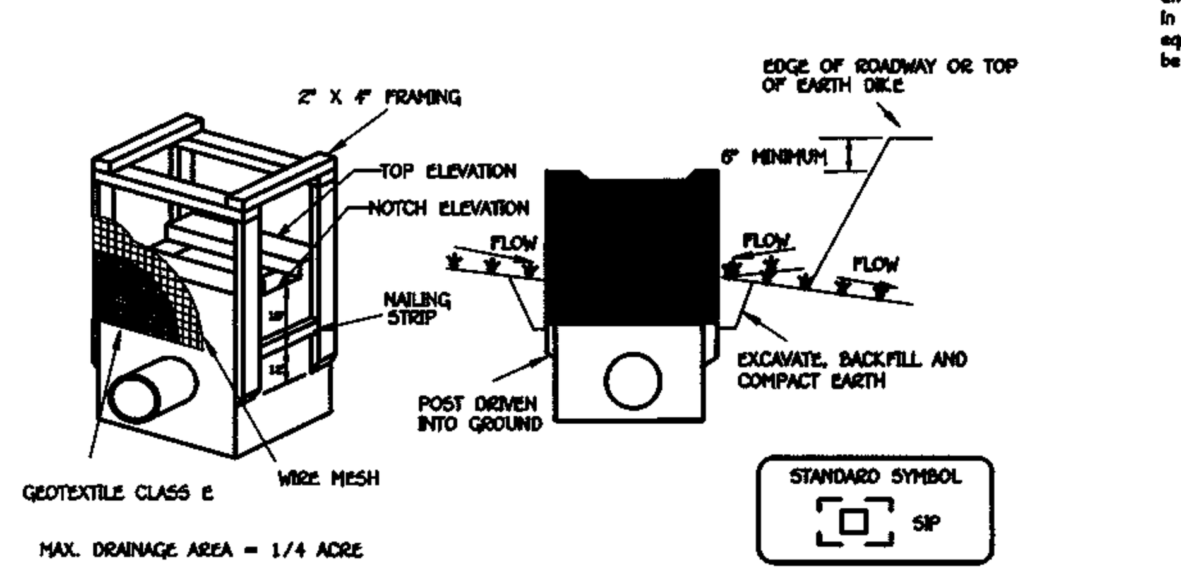
MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.
2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.
3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).
4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
6. Form the 1/2 " x 1/2 " wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4 " x 1 1/2 " stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

CURB INLET PROTECTION

NOT TO SCALE



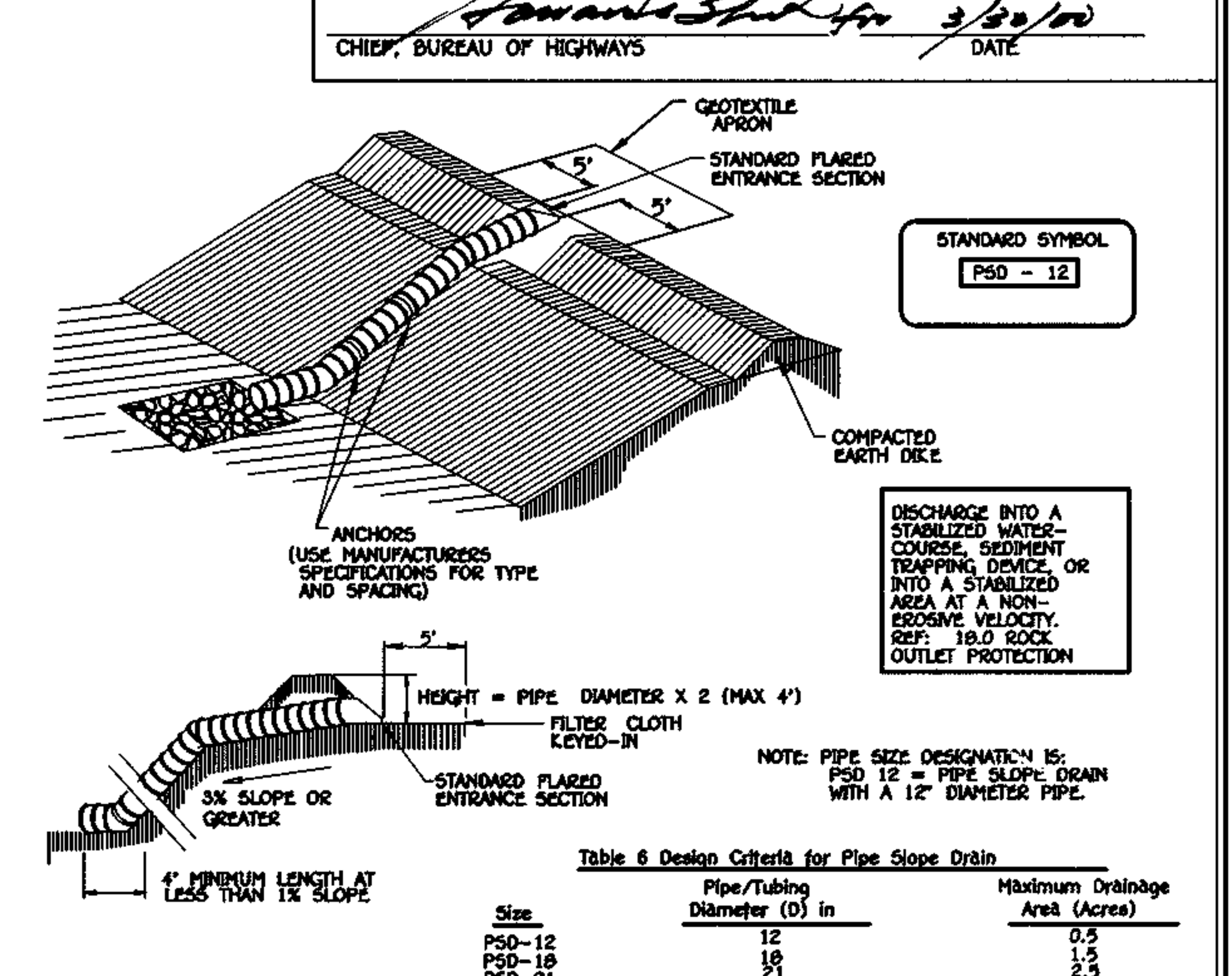
MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotixtile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
5. Backfill around the inlet in compacted 8" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

STANDARD INLET PROTECTION

NOT TO SCALE



NOTE: PIPE SIZE DESIGNATION IS: PSD 12 = PIPE SLOPE DRAIN WITH A 12" DIAMETER PIPE.

Table 6 Design Criteria for Pipe Slope Drain

Size	Pipe/Tubing Diameter (D) in	Maximum Drainage Area (Acres)
PSD-12	12	0.5
PSD-18	18	1.5
PSD-21	21	2.5
PSD-24	24	3.5
PSD-24 (2)	24	5.0

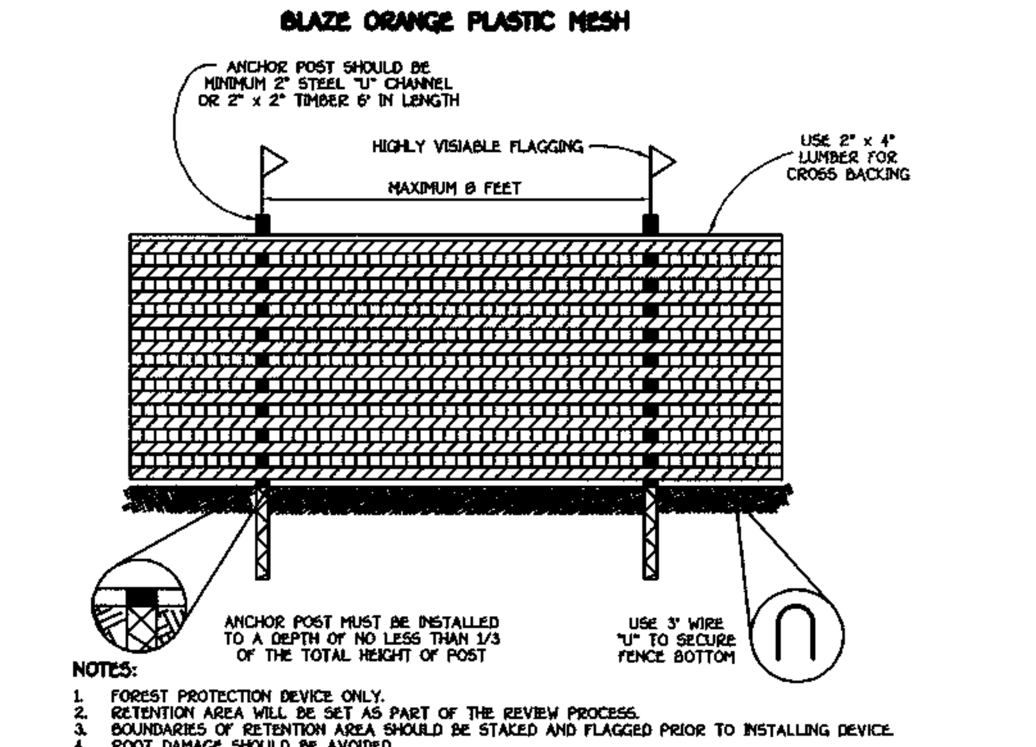
Construction Specifications - Pipe Slope Drain

1. The Pipe Slope Drain (PSD) shall have a slope of 3 percent or steeper.
2. The top of the earth dike over the inlet pipe shall be at least 2 times the pipe diameter measured at the invert of the pipe.
3. Flexible tubing is preferred. However, corrugated metal pipe or equivalent PVC pipe can be used. All connections shall be watertight.
4. A flared end section shall be attached to the inlet end of pipe with a watertight connection. Filter cloth shall be placed under the inlet of the pipe slope drain and shall extend out 5' from the inlet. The filter cloth shall be "keyed in" on all sides.
5. The Pipe Slope Drain shall be securely anchored to the slope by staking at the grommets provided. Spacing for anchors shall be as provided by manufacturer's specification. In no case shall less than two (2) anchors be provided, equally spaced along the length of pipe. These details should be provided by pipe suppliers.
6. The soil around and under the pipe and end section shall be hand tamped in 4 inch lifts to the top of the earth dike.
7. All pipe connections shall be watertight.
8. Whenever possible where a PSD drains an unstabilized area, it shall outlet into a sediment trap or basin. If this is not possible then the slope drain will discharge into a stable conveyence that leads to a sediment trap or basin. When discharging into a trap or basin the PSD shall discharge at the same elevation as the wet pool elevation. The discharge from the PSD must be as far away from the sediment control outlet as possible.
9. When the drainage area is stabilized, the PSD shall discharge onto a stabilized area at a non-erosive velocity.
10. Inspection and any required maintenance shall be performed periodically and after each rain event.
11. The inlet must be kept open at all times.

PIPE SLOPE DRAIN

NOT TO SCALE

BLAZE ORANGE PLASTIC MESH



NOTES:
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION 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.

TREE PROTECTION DETAIL

NOT TO SCALE

STATE OF MARYLAND
ZACHARIA YOSEF FISCH
22418
PROFESSIONAL ENGINEER
Zacharia Y. Fisch
3/8/2000

OWNERS

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JULIE A. ANDERSON
3503 ROUTE 97
GLENWOOD, MARYLAND 21738

C.C.O. LLC
6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

DEVELOPER

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COLUMBIA, MARYLAND 21044

FISHER, COLLINS & CARTER, INC.
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ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F.C.C.# 30637/FINALS/SED CON DETAILS.DWG

SEDIMENT CONTROL NOTES AND DETAILS

PEACEFIELDS AT CATTAIL CREEK

LOTS 1 THRU 15
AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)
ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 63 GRID No. 9
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 25, 2000
SHEET 9 OF 13

F00-41

Approved: Department Of Public Works

Chief, Bureau Of Highways — Date 3/30/00

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 4/10/00

Chief, Development Engineering Division MK — Date 4/5/00

DRAINAGE AREA DATA					
STRUCTURE NO.	DRAINAGE AREA	AREA	'C'	ZONED	% IMP.
1-1	A	0.22 AC.	0.74	RC-DEO	70%
1-2	B	1.00 AC.	0.46	RC-DEO	30%
1-3	C	0.98 AC.	0.50	RC-DEO	35%
1-4	D	0.26 AC.	0.39	RC-DEO	20%
1-5	E	1.46 AC.	0.39	RC-DEO	20%

MATCH LINE SEE THIS SHEET

MATCH LINE SEE THIS SHEET

COUNTRYSIDE DRIVE

MARYLAND ROUTE 97 (ROXBURY MILLS ROAD)
(MINOR ARTERIAL)

RIP-RAP APRON

EX. POWERPOLE

EX. POLE TO BE RELOCATED

EX. POLE TO BE RELOCATED

CEMETERY LOT 15

EXISTING GRAVEYARD

COUNTRYSIDE PLAT No. 4781 LOT 27

COUNTRYSIDE PLAT No. 4781 LOT 1

COUNTRYSIDE PLAT No. 4781 LOT 26

PEACEFIELDS PLAT No. 11105 LOT 1

LOT 14

EXISTING PRIVATE 20' RIGHT-OF-WAY FOR ACCESS TO LOT 1, LOT 2 (RESIDUE) AND EXISTING GRAVEYARD (PLAT No. 11105) TO BE ABANDONED AT TIME OF RECORDATION OF THIS PLAT

24' WIDE USE-IN-COMMON ACCESS EASEMENT

GrE Pole 385927

FOREST CONSERVATION EASEMENT AREA = 1.00 Ac.± (AFFORESTATION)

NON-BUILDABLE PRESERVATION PARCEL 'C'

OWNED AND MAINTAINED BY HOMEOWNER'S ASSOCIATION

PRESERVATION PARCEL/EASEMENT HOLDER IS HOWARD COUNTY, MARYLAND

PEACEFIELDS PLAT No. 11105 LOT 'C'

24' WIDE RIP-RAP CHANNEL @ 13.0%

(PUBLIC) S.W.M. POND HAZARD CLASS 'A'

NON-BUILDABLE PRESERVATION PARCEL 'A'

PRESERVATION PARCEL 'A' TO BE OWNED AND MAINTAINED BY PEACEFIELDS AT CATTAIL CREEK HOMEOWNERS ASSOCIATION

FOREBAY

RIP-RAP INFLOW PROTECTION

5' BENCH

TOP OF DAM EL. 514.00

LOT 1

LOT 2

LOT 3

LOT 4

LOT 5

LOT 6

LOT 7

LOT 8

LOT 9

LOT 10

LOT 11

LOT 12

LOT 13

CATTAIL OAKS

20' DRAINAGE AND UTILITY EASEMENT

20' SWM ACCESS, D & U EASEMENT

10' Public Maintenance Easement

10' Public Tree Maintenance Easement

BUILDABLE PRESERVATION PARCEL 'B'

PRIVATELY OWNED AND MAINTAINED

PRESERVATION PARCEL/EASEMENT HOLDERS ARE HOWARD COUNTY, MARYLAND AND PEACEFIELDS AT CATTAIL CREEK HOMEOWNER'S ASSOCIATION, INC.

WETLAND BUFFER

50' STREAM BUFFER

25' WETLAND BUFFER

WETLANDS

FOREST CONSERVATION EASEMENT AREA = 9.731 Ac.± (RETENTION)

CATTAIL CREEK COUNTRY CLUB PLAT No. 9515 LOT 29

65 dBA Noise Line

E 1403250
N 504750

NO.	DESCRIPTION	DATE
1	ADD F.C.E. , PARCEL 'C' + SHEET NO. 13	12/5/00
	REVISION	

PLAN
SCALE: 1" = 50'

STATE OF MARYLAND
ZACHARIA YOSEF FISCH
22418
PROFESSIONAL ENGINEER
Zacharia Y. Fisch
3/8/2000

DRAINAGE AREA MAP

PEACEFIELDS AT CATTAIL CREEK

LOTS 1 THRU 15
AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)

ZONED: RR-DEO

TAX MAP No. 21 PARCEL No. 63 GRID No. 9

FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: FEBRUARY 25, 2000

SHEET 10 OF 13

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F.C.C.-130637 D.A. MAPPING

BORING B-1

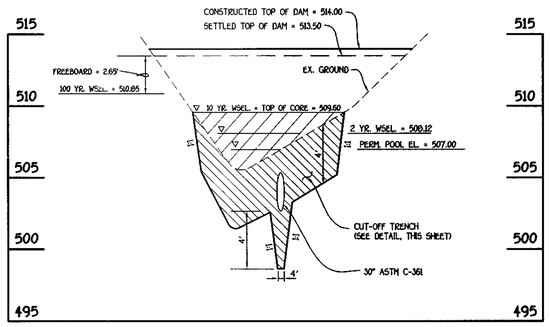
DESCRIPTION OF MATERIALS	DEPTH	REMARKS
	SURFACE	
BROWN, MOIST, SILT & CLAY AND cf SAND, TRACE ROCK FRAGS (ML) (LOAM)		AT COMPLETION, HOLE DRY AND CAVED AT 6.5'
	3.0	
BROWN TO REDDISH BROWN, MOIST cf SAND, AND SILT (DECOMPOSED ROCK) (SM) (LOAMY SAND / SANDY LOAM)		13 DAYS AFTER COMPLETION, HOLE DRY AND CAVED AT 6.5'
	10.0	
BOTTOM OF HOLE AT 10.0'		

BORING B-2

DESCRIPTION OF MATERIALS	DEPTH	REMARKS
	SURFACE	
BROWN, MOIST, SILT & CLAY AND cf SAND, TRACE ROCK FRAGS (ML) (LOAM)		AT COMPLETION, HOLE DRY AND CAVED AT 6.5'
	5.0	
BROWN, MOIST, cf SAND, AND SILT (DECOMPOSED ROCK) (SM) (LOAMY SAND / SANDY LOAM)		13 DAYS AFTER COMPLETION, WATER AT 2.4', HOLE CAVED AT 5.2'
	10.0	
BOTTOM OF HOLE AT 10.0'		

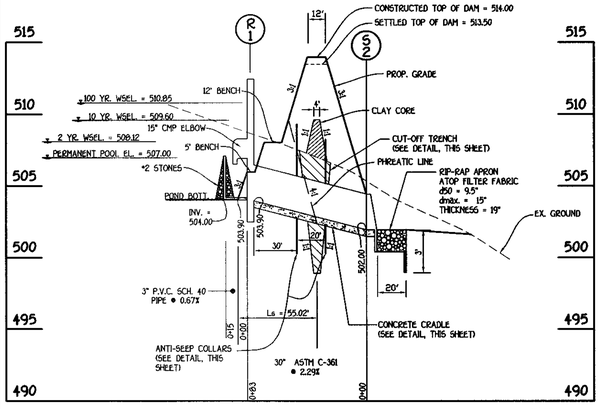
BORING B-3

DESCRIPTION OF MATERIALS	DEPTH	REMARKS
	SURFACE	
BROWN, cf SAND, AND SILT, LITTLE ROCK FRAGS, TRACE ROOTS (SM) (LOAMY SAND / SANDY LOAM)	3.0	AT COMPLETION, HOLE DRY AND CAVED AT 6.4'
BROWN, MOIST, cf SAND, AND ROCK FRAGS, SOME SILT (SM) (LOAMY SAND / SANDY LOAM)	7.0	13 DAYS AFTER COMPLETION, HOLE DRY AND CAVED AT 6.5'
ORANGISH BROWN, MOIST, cf SAND, AND SILT, TRACE ROCK FRAGS (DECOMPOSED ROCK) (SM) (LOAMY SAND / SANDY LOAM)	10.0	
BOTTOM OF HOLE AT 10.0'		



PROFILE ALONG ℄ OF DAM

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



SECTION THRU PRINCIPAL SPILLWAY

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

STATE OF MARYLAND
ZACHARIA YOSEF FISCH
2418
PROFESSIONAL ENGINEER
Zacharia Y. Fisch
12/28/99

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F.C.C.-9637 SWM DETAILS.DWG

378 - 12 Pond

SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 50 foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Earth Fill

Material-The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

Where a minimum required density is specified, it shall not be less than 95% of maximum dry density with a moisture content within +2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99.

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers or hand tampers to assure maximum density and minimum permeability.

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Pipe Conduits

All pipes shall be circular in cross section

Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe:

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361.

2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Polyvinyl Chloride (PVC) Pipe - All of the following criteria shall apply for polyvinyl chloride (PVC) pipe:

1. Materials-PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill".

5. Otherdetails (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 6081 Mix 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 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 reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 915.12.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish , install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

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 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.

STORMWATER MANAGEMENT POND MAINTENANCE SCHEDULE

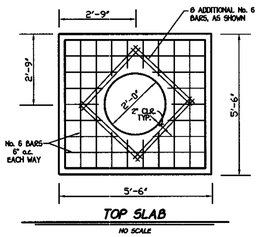
(PUBLIC FACILITY)

A. ROUTINE MAINTENANCE

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

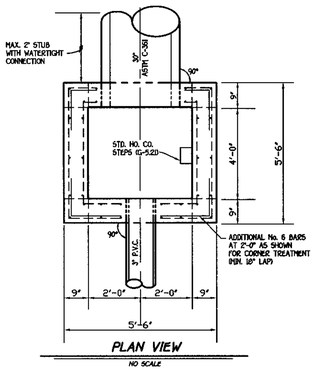
B. NON-ROUTINE MAINTENANCE

1. Structural components of the pond such as the dam, riser structure and the pipes shall be repaired upon the detection of any damage. The components should be inspected during maintenance operations.
2. Sediment should be removed when its accumulation significantly reduces the design storage, interferes with the function of the riser, when deemed necessary for aesthetic reasons, or when deemed necessary by the Howard County's Department of Public Works.



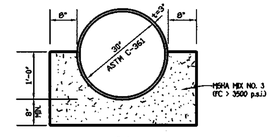
TOP SLAB

NO SCALE



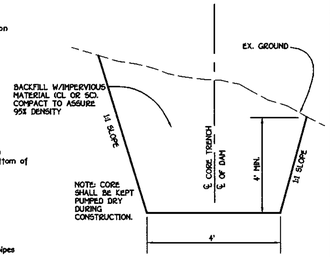
PLAN VIEW

NO SCALE



A2 CRADLE

NOT TO SCALE



CORE TRENCH DETAIL

NOT TO SCALE

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature Of Developer — Date: 5/8/00

Timothy W. Feaga

Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Zacharia Y. Fisch — Signature Of Engineer — 12/28/99 Date

ZACHARIA Y. FISCH

Printed Name Of Engineer

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

USDA-Natural Resources Conservation Service — Date: 3/29/00

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Howard Soil Conservation District — Date: 3/29/00

Approved: Department Of Public Works

Chief, Bureau Of Highways — Date: 3/30/00

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development JA — Date: 4/11/00

Chief, Development Engineering Division MK — Date: 4/5/00

AS-BUILT CERTIFICATION

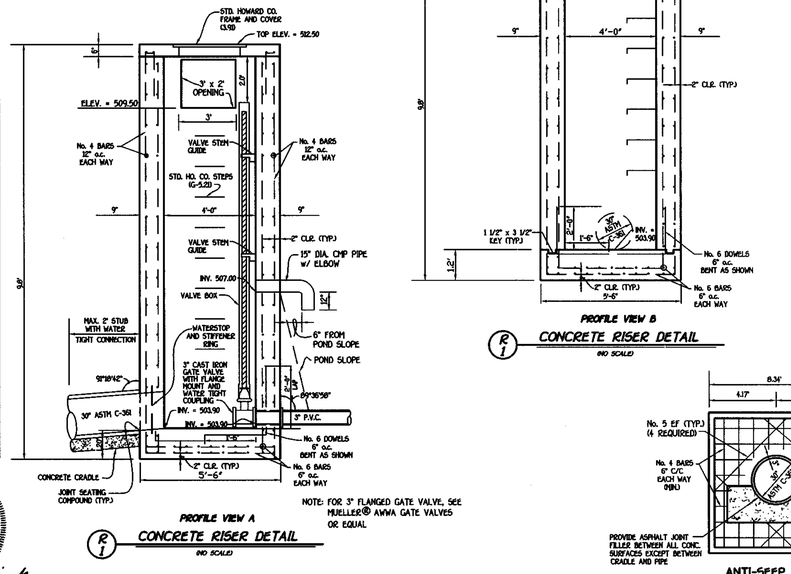
I Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On The " As-Built" Plans And Meets The Approved Plans And Specifications.

Signature — P.E. No. — Date:

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

OPERATION, MAINTENANCE AND INSPECTION

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



PROFILE VIEW A

PROFILE VIEW B

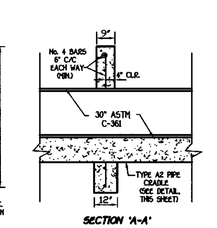
R1 CONCRETE RISER DETAIL

(NO SCALE)

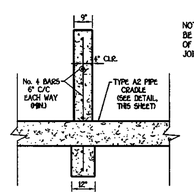
NOTE: FOR 3" FLANGED GATE VALVE, SEE MUELLER® AWWA GATE VALVES OR EQUAL

ANTI-SEEP COLLAR

NOT TO SCALE



SECTION 'A-A'



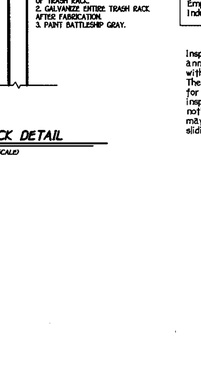
SECTION 'B-B'

NOTE: COLLARS SHALL BE PLACED A MINIMUM OF 2'-0" FROM PIPE JOINTS.

NOTES:
1. CONCRETE SHALL BE MSHA MIX No. 3 (f'c > 3,500 P.S.I)
2. REINFORCING STEEL: GRADE 60
3. FOR WALLS OF STRUCTURE SHALL UTILIZE L.M. SCOFIELD CO. T-9055 FORM LINERS (RANDOM SPLIT-FACE ROCK) OPTIONAL.
4. PROVIDE ROUGH BROOM FINISH.
5. ANCHOR BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 6.07.03.59 OF THE MSHA STANDARDS AND SPECS.
6. ALL EXPOSED METAL SURFACES SHALL BE PAINTED IN ACCORDANCE WITH SECTION 6.07.03.60 OF THE MSHA STANDARDS AND SPECS.

TYPICAL SECTION THROUGH BARREL, CRADLE AND ANTI-SEEP COLLAR

(NO SCALE)



NOTES:
1. FIELD MEASURE THE STRUCTURE DIMENSIONS TO INSURE EXACT FIT OF TRASH RACK.
2. GALVANIZE ENTIRE TRASH RACK AFTER FABRICATION.
3. PAINT BATTLESHIP GRAY.

TRASH RACK DETAIL

(NO SCALE)

GEOTECHNICAL RECOMMENDATIONS FOR EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

THE SITE 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 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 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 PROOFROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADED 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 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. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH MD SCS 378 SPECIFICATIONS.

DESIGN SUMMARY

DESIGN STORM	ALLOWABLE RELEASE RATE	FACILITY INFLOW	FACILITY DISCHARGE	WATER SURFACE ELEVATION	STORAGE VOLUME (AC/FT)
2 YEAR	8.06 CFS	11.86 CFS	6.00 CFS	508.12	0.2325
10 YEAR	24.90 CFS	31.49 CFS	9.00 CFS	509.60	0.7624
100 YEAR	N/A	56.84 CFS	25.00 CFS	510.85	1.2940

STORAGE = HEIGHT PRODUCT = 6.85 x 1.2940 = 8.86 AC.FT.[2]
WATERSHED AREA TO FACILITY (ACRES) 13.10 AC.

STORMWATER MANAGEMENT NOTES AND DETAILS

PEACEFIELDS AT CATTAIL CREEK

LOTS 1 THRU 15 AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)

ZONED: RR-DEO

TAX MAP No. 21 PARCEL No. 63 GRID No. 9

FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: FEBRUARY 25, 2000

SHEET 11 OF 13

OWNERS

THOMAS L. ANDERSON AND JULIE A. ANDERSON
3503 ROUTE 97
GLENWOOD, MARYLAND 21738

C.C.O. LLC
6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

DEVELOPER

C.C.O. LLC
6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

F 00 - 41

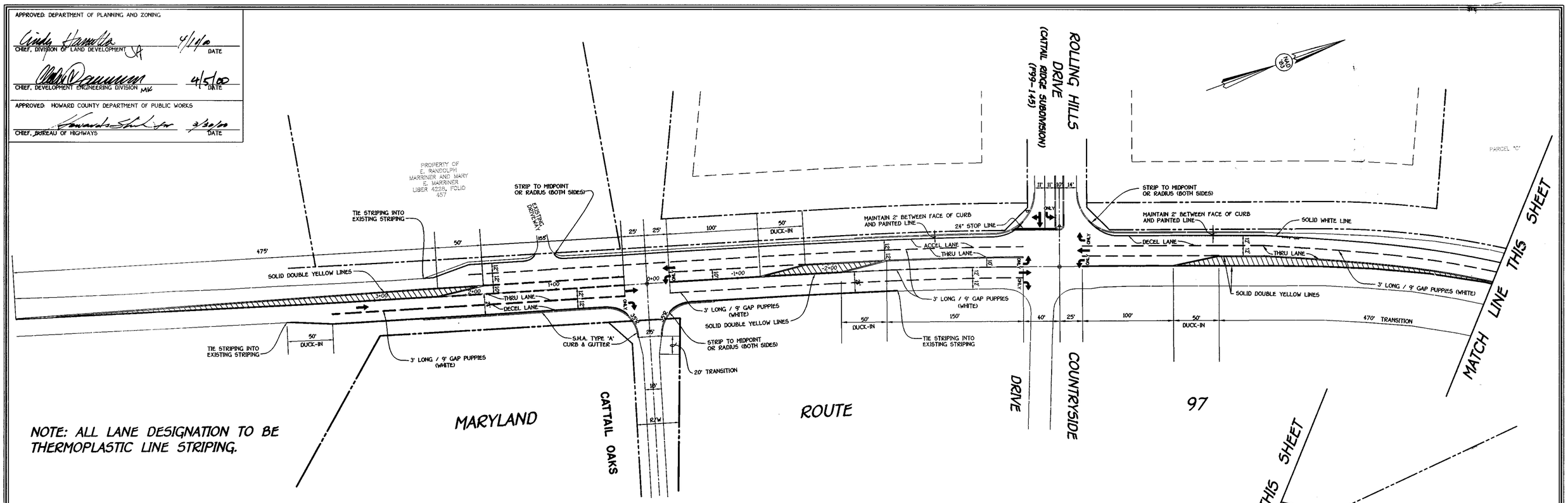
APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/14/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/5/00

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3/30/00



NOTE: ALL LANE DESIGNATION TO BE THERMOPLASTIC LINE STRIPING.

STRIPING PLAN

SCALE: 1" = 50'

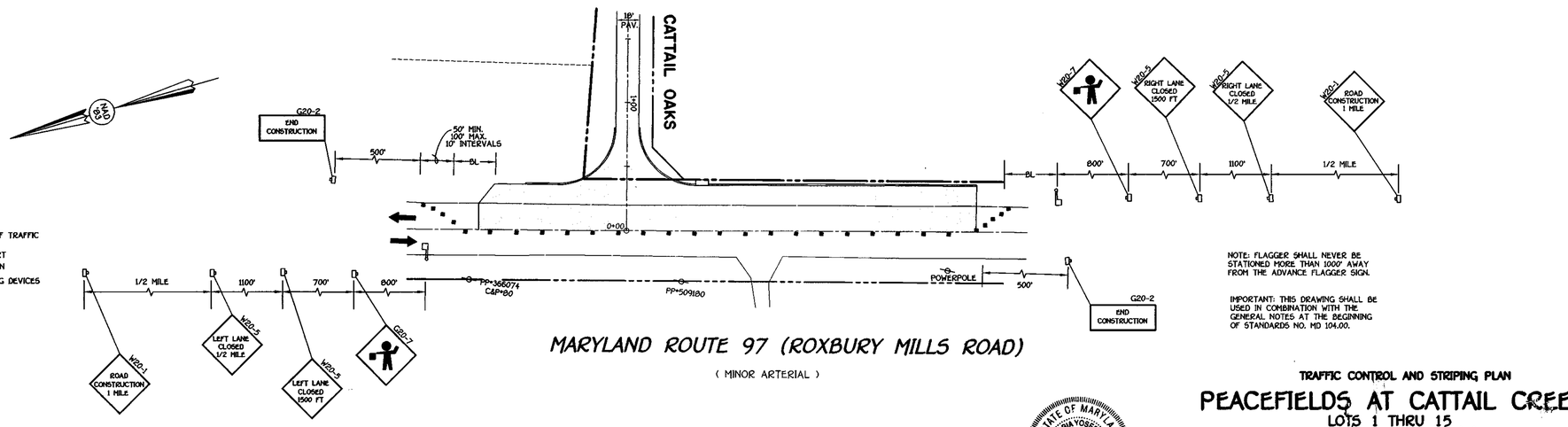
NOTE:

THIS STRIPING PLAN IS SHOWING STRIPING THAT IS ASSOCIATED WITH THE "PEACEFIELDS AT CATTAIL CREEK" PROJECT AND THE "CATTAIL RIDGE" SUBDIVISION (F99-145). THE DEVELOPER IS RESPONSIBLE FOR STRIPING ASSOCIATED WITH THE "PEACEFIELDS AT CATTAIL CREEK" PROJECT ONLY. THE CONTRACTOR SHALL OBTAIN THE STRIPING PLANS FOR THE "CATTAIL RIDGE" SUBDIVISION TO DETERMINE THE LIMITS OF WORK THAT ARE ASSOCIATED WITH THE "PEACEFIELDS AT CATTAIL CREEK" PROJECT.

MAINTENANCE OF TRAFFIC SPECIAL PROVISIONS

GENERAL

1. THE PURPOSE OF THIS PORTION OF THE SPECIAL PROVISION IS TO SET FOR THE TRAFFIC CONTROL REQUIREMENTS NECESSARY FOR THE SAFE AND EFFICIENT MAINTENANCE TO TRAFFIC WITHIN WORK AREAS, AND TO MINIMIZE ANY INCONVENIENCES TO THE TRAVELING PUBLIC AND THE CONTRACTOR AND/OR PERMITTEE.
2. PROPERTY TRAFFIC CONTROL THROUGH WORK AREAS IS ESSENTIAL FOR INSURING THE SAFETY AND THAT OF HIGHWAY WORKERS HAS THE HIGHEST PRIORITY OF ALL TASKS WITHIN THIS PROJECT. THE PROPERTY APPLICATION OF THE APPROVED TRAFFIC CONTROL PLAN (TCP) WILL PROVIDE THE DESIRED LEVEL OF SAFETY.
3. THROUGHOUT THESE SPECIAL PROVISIONS, ANY MENTION OF THE TCP SHALL BE IMPLIED TO INCLUDE ANY COMBINATION OF TYPICAL TRAFFIC CONTROL STANDARDS WHICH FORM THE OVERALL TCP FOR THIS PROJECT WHICH HAS BEEN APPROVED BY THE APPROPRIATE SHA TRAFFIC ENGINEER.
4. THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE PROVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) 1988 EDITION ESPECIALLY PART VI, AND TO SECTION 104 OF THE MARYLAND DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS (JANUARY, 1982) INCLUDING ALL REVISIONS AND SUPPLEMENTS TO EACH.
5. THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE REQUIREMENTS SET FOR IN THE TCP AND THESE SPECIAL PROVISIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ANY REQUESTS TO MAKE MINOR CHANGES TO THE TCP OR THE SPECIAL PROVISIONS WITH REGARD TO THE TRAFFIC CONTROL ITEMS SHALL BE MADE IN WRITING TO THE ENGINEER A MINIMUM OF THREE(3) WORKING DAYS PRIOR TO THE PROPOSED SCHEDULING CHANGE. THE CONTRACTOR AND/OR PERMITTEE SHALL HAVE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO THE IMPLEMENTATION OF ANY CHANGE.
6. NO WORK SHALL BEGIN ON ANY WORK ACTIVITY OR WORK PHASE UNTIL ALL REQUIRED TRAFFIC CONTROL PATTERNS AND DEVICES INDICATED ON THE TCP FOR THAT ACTIVITY OR PHASE ARE COMPLETELY AND CORRECTLY IN PLACE TO HAVE BEEN CHECKED FOR APPROVED USAGE.
7. GENERAL AND SPECIFIC WARNING SIGNS SHALL ONLY BE IN PLACE WHEN SPECIFIC WORK TASKS AND ACTIVITIES ARE ACTUALLY UNDERWAY OR CONDITIONS EXIST THAT POSE A POTENTIAL HAZARD TO THE PUBLIC, AND ANY ADDITIONAL SIGNING HAS BEEN APPROVED BY THE APPROPRIATE SHA TRAFFIC ENGINEER. NOTE: THE PRACTICE OF PLACING SIGNING AND OTHER TRAFFIC CONTROL DEVICES IN ADDITION TO THOSE INDICATED ON THE APPROVED TCP IS NOT PERMITTED.
8. THE CONTRACTOR AND/OR PERMITTEE SHALL PROVIDE, MAINTAIN IN NEW CONDITION, AND MOVE WHEN NECESSARY, OR AS DIRECTED BY THE ENGINEER, ALL TRAFFIC CONTROL DEVICES USED FOR THE GUIDANCE AND PROTECTION OF MOTORISTS, PEDESTRIANS, AND WORKERS.
9. ALL TRAFFIC CONTROL DEVICES REQUIRED BY THE TCP SHALL BE KEPT IN GOOD CONDITION, FULLY PERFORMING AS SET FORTH IN THE TCP, THE MUTCD, AND/OR SECTION 104 OF THE SPECIFICATIONS. FOR REFLECTIVE DEVICES, A PARTICULAR DEVICE IS ASSUMED TO HAVE FAILED TO MEET MINIMUM OPERATIONAL STANDARDS WHEN THE DEVICE NO LONGER HAS RETRO-REFLECTANCE CAPABILITY OF AT LEAST 60% OF THE SPECIFIED MINIMUM VALUE OVER AT LEAST 90% OF THE VISIBLE REFLECTIVE SURFACE.
10. ALL TRAFFIC CONTROL DEVICES NOT REQUIRED FOR THE SAFE CONDUCT OF TRAFFIC SHALL BE PROMPTLY REMOVED, COMPLETELY COVERED, TURNED AWAY FROM TRAFFIC, OR OTHERWISE TAKEN OUT OF SERVICE. IT IS INTENDED THAT NO TRAFFIC CONTROL DEVICE IS TO BE IN SERVICE WHEN THERE IS NO CLEAR CUT REASON FOR THE DEVICE.
11. THROUGHOUT THE PERIODS OF WORK ACTIVITIES, TRAFFIC SHALL BE MAINTAINED BY IMPLEMENTING THE APPROVED TCP. IN LIEU OF THE TCP PREPARED FOR THIS PROJECT, AND/OR INDIVIDUAL TYPICAL TRAFFIC CONTROL STANDARDS, THE CONTRACTOR AND/OR PERMITTEE HAS THE OPTION OF PREPARING AND SUBMITTING A TCP, WHOLLY OR IN PART, OF HIS OWN DESIGN, FOLLOWING GUIDELINES SET FORTH IN THE MUTCD AND PRESCRIBED BY THE ADMINISTRATION. A TCP DEVELOPED BY THE CONTRACTOR AND/OR PERMITTEE SHALL NOT BE IMPLEMENTED UNTIL ADVANCE WRITTEN APPROVAL IS OBTAINED FROM THE ENGINEER. TCP'S MAY BE IMPLEMENTED WITHIN A SINGLE PROJECT OR JOINTLY BETWEEN TWO OR MORE PROJECTS. IN SITUATIONS WHERE TCP'S JOINTLY IMPLEMENTED, CARE SHALL BE EXERCISED TO PRESENT CORRECT AND NON-CONFLICTING GUIDANCE TO THE TRAVELING PUBLIC.
12. THROUGHOUT THESE SPECIAL PROVISIONS, WHERE SPEED OF TRAFFIC IS NOTED, THIS MEANS THE POSTED SPEED OR PREVAILING TRAVEL SPEED, WHICHEVER IS HIGHER, UNLESS OTHERWISE NOTED.
13. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE ENTIRE LENGTH OF THE PROJECT, UNLESS OTHERWISE NOTED. NO TRAVEL LANE(S) OTHER THAN THOSE DESIGNATED FOR POSSIBLE CLOSURE IN THE TCP SHALL BE CLOSED WITHOUT OBTAINING PRIOR APPROVAL FORM THE ENGINEER. ALL INGRESS AND EGRESS TO THE WORK AREA BY THE CONTRACTOR AND/OR PERMITTEE SHALL BE PERFORMED WITH THE FLOW OF TRAFFIC.



KEY

- DIRECTION OF TRAFFIC
- SIGN SUPPORT
- FACE OF SIGN
- CHANNELIZING DEVICES
- FLAGGER
- WORK SITE

NOTE: FLAGGER SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.

IMPORTANT: THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES AT THE BEGINNING OF STANDARDS NO. MD 104.00.

MARYLAND ROUTE 97 (ROXBURY MILLS ROAD)

(MINOR ARTERIAL)

(STANDARD NO. MD 104.02-01)

TEMPORARY TRAFFIC CONTROL PLAN

NO SCALE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F.C.C.-10069 STRIPING PLAN.DWG

OWNERS

THOMAS L. ANDERSON AND JULIE A. ANDERSON
3503 ROUTE 97
GLENWOOD, MARYLAND 21738

6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

DEVELOPER

C.C.O. LLC
6212 DEVON DRIVE
COLUMBIA, MARYLAND 21044

STATE OF MARYLAND
ZACHARY YOSEF FISCH
22418
PROFESSIONAL ENGINEER
Zachary Y. Fisch
12/28/99

TRAFFIC CONTROL AND STRIPING PLAN

PEACEFIELDS AT CATTAIL CREEK

LOTS 1 THRU 15
AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)

ZONED: RR-DEO

TAX MAP No. 21 PARCEL No. 63 GRID No. 9
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 25, 2000
SHEET 12 OF 13

F00-41

Planting Schedule

Forest Conservation Easement (1.06 AC)

Qty.	Species	Size	Spacing
30	Acer rubrum - Red maple	1" cal.	**
15	Cornus florida - Flowering dogwood	5-6'	**
40	Fraxinus pennsylvanica - Green ash	1" cal.	**
15	Juniperus virginiana - Red cedar	4-5'	**
20	Liriodendron tulipifera - Poplar	1" cal.	**
30	Prunus serotina - Black cherry	1" cal.	**
20	Quercus rubra - Red Oak	1" cal.	**
30	Viburnum prunifolium - Blackhaw	18-24"b.t.	**

KEY:

cal. - caliper b.t. branched transplant

** -planting units shall be planted, on average, at a spacing of 15 feet on center. Grid pattern or row planting may be used to facilitate maintenance. Limited clumping of shrubs is permitted.

Planting Notes:

1. It is recommended that any multiflora rose colonization be removed and controlled prior to forestation. If the rose is not removed it will be a chronic maintenance problem for the site. Existing native trees may be retained.

2. Existing tree units greater than 1" caliper may be counted toward planting obligation if they are in good condition and are a native species. Plant unit substitution using larger plant stock or transplanted stock may be performed with approval of Eco-Science Professionals, Inc. The final planting schedule may be adjusted to address these changes.

3. The potential for deer and rodent damage on this forestation project is high. The planting contractor may utilize physical and chemical techniques to improve the success of the plantings. These techniques must be approved by the owner prior to initiation of work.

Planting/Soil Specifications

1. Planting of nursery stock shall take place between March 15th and April 30th or September 15th - November 15th .
2. A twelve (12) inch layer of topsoil shall be spread over all forestation areas impacted by site grading to assure a suitable planting area. Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed.
3. All bareroot planting stock shall have their root systems dipped into an anti-desiccant gel prior to planting.
4. Plants shall be installed so that the top of root mass is level with the top of existing grade. Backfill in the planting pits shall consist of 3 parts existing soil to 1 part pine fines or equivalent.
5. Fertilizer shall consist of Agriform 22-8-2, or equivalent, applied as per manufacturer's specifications.
6. A two (2) inch layer of hardwood mulch shall be placed over the root area of all plantings.
7. Plant material shall be transported to the site in a tarped or covered truck. Plants shall be kept moist prior to planting.
8. All non-organic debris associated with the planting operation shall be removed from the site by the contractor.

Sequence of Construction

1. Sediment control and tree protection devices shall be installed in accordance with general construction plan for site. Site shall be graded in accordance with general construction plans.
2. Proposed forestation areas impacted by site grading shall be topsoiled and stabilized as per #2 of Planting/Soil Specifications for project.
3. Plants shall be installed as per Plant Schedule and the Planting/Soil Specifications for the project.
4. Upon completion of the planting, signage shall be installed as per the Forest Protection Devices shown on the Forest Conservation Plan.
5. Plantings shall be maintained and guaranteed in accordance with the Maintenance and Guarantee requirements for project.

Maintenance of Plantings

1. Maintenance of plantings shall last for a period of 24 months.
2. All plant material shall be watered twice a month during the 1st growing season. Watering may be more or less frequent depending on weather conditions. During second growing season, once a month during May-September, if needed.
3. Invasive exotics and noxious weeds will be removed from forestation areas. Old field successional species will be retained.
4. Plants will be examined a minimum two times during the growing season for serious plant pests and diseases. Serious problems will be treated with the appropriate agents.
5. Dead branches will be pruned from plantings.

Guarantee Requirements

1. A 75 percent survival rate of forestation plantings will be required at the end of the 24 month maintenance period. All plant material below the 75 percent threshold will be replaced at the beginning of the next growing season.

Surety for Forestation

1. The developer shall post a surety (bond, letter of credit) to ensure that forestation plantings are completed. Upon acceptance of the plantings by the County, the bond shall be released.

Eco-Science Professionals, Inc.

CONSULTING ECOLOGISTS

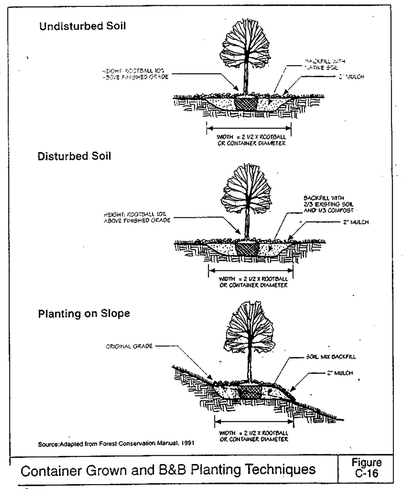
P.O. Box 5006 Glen Arm, MD 21057 (410) 592-6752

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044132
Joan F. Cassidy

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date

Chief, Development Engineering Division — Date



Source: Adapted from Forest Conservation Manual, 1991

Container Grown and B&B Planting Techniques — Figure C-16

Forest Conservation Worksheet

PROJECT NAME: PeaceFields DATE: 6/12/00

BASIC SITE DATA	ACRES
Gross Site Area:	28.9
Area within 100 year floodplain:	0.9
Area within agricultural use or preservation parcel:	—
Area within overhead transmission lines:	—
Net Tract Area (NTA):	28.0
Land Use Category: R-20	

INFORMATION FOR CALCULATIONS	
Net Tract Area (NTA):	28.0
Forest conservation threshold (25 % x NTA):	7.2
Afforestation threshold (20 % x NTA):	5.8
Existing forest on NTA:	16.1
Existing forest above conservation threshold:	8.9
Break even point (if applicable):	4.0
Forest to be cleared:	7.9
Forest to be retained:	8.2

AFFORESTATION CALCULATIONS

No forest clearing: Afforestation Threshold - Existing Forest

Forest clearing: (Aff. thresh. - ex. forst) + (forest to be cleared x 2)

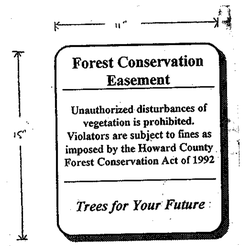
REFORESTATION CALCULATIONS

Clearing above threshold

a. Forest cleared above threshold x 1/4: 2.0 acres
b. Forest retained above conservation threshold: 1.0 acres

Reforestation Required (a-b): 1

Protective Signage



Forest Conservation Plan -Reforestation Plan

PEACEFIELDS AT CATTAIL CREEK

June 12, 2000 **Scale: as shown**

PEACEFIELDS AT CATTAIL CREEK

LOTS 1 THRU 15
AND PRESERVATION PARCELS 'A' THRU 'C'
(A RESUBDIVISION OF LOTS 1 AND 2, "PEACEFIELDS", LOTS 1 AND 2, PLAT NO. 11105)
ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 63 GRID No. 9
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 25, 2000
SHEET 18 OF 18