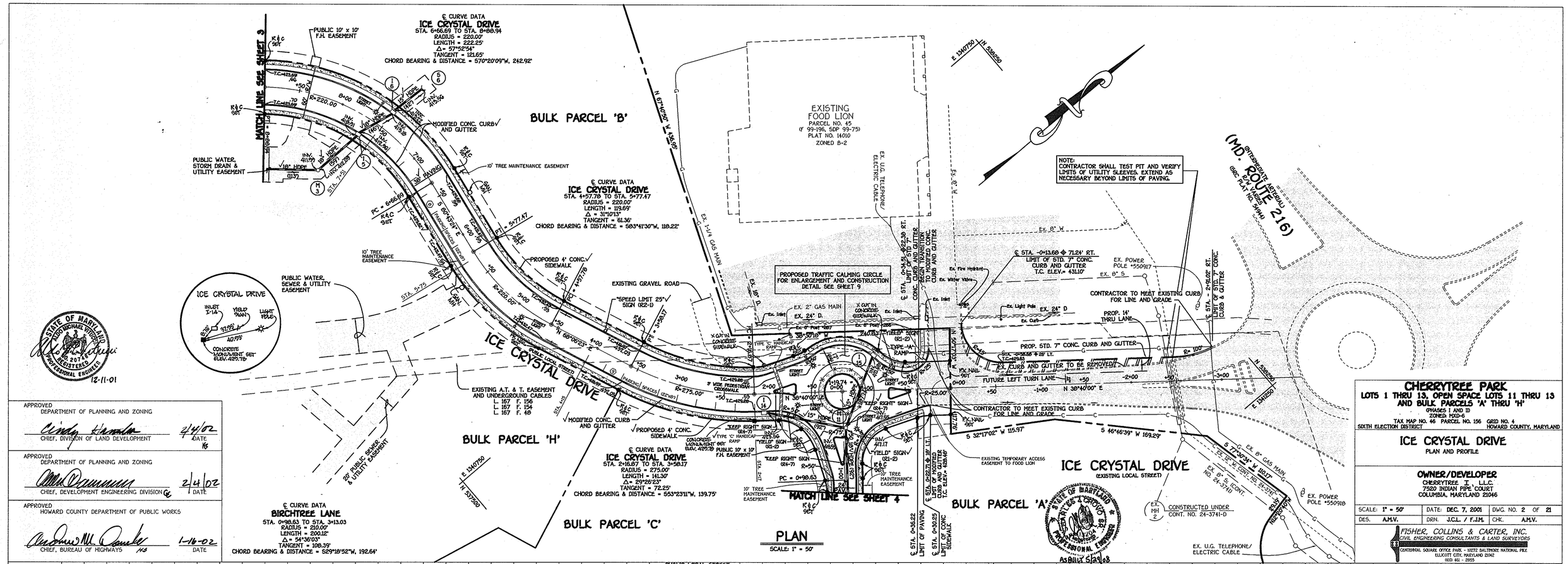


STATE OF MARYLAND
RICHARD MICHAEL VITELLI
No. 28271
REGISTERED PROFESSIONAL ENGINEER
12-11-01

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/4/02

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/4/02

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1-16-02

STATE OF MARYLAND
STEVEN C. SCHOLL
No. 23822
PROFESSIONAL ENGINEER
AS BUILT 5/29/03

CHERRYTREE PARK

LOTS 1 THRU 13, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'

(PHASES I AND II)
ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ICE CRYSTAL DRIVE

PLAN AND PROFILE

OWNER/DEVELOPER
CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

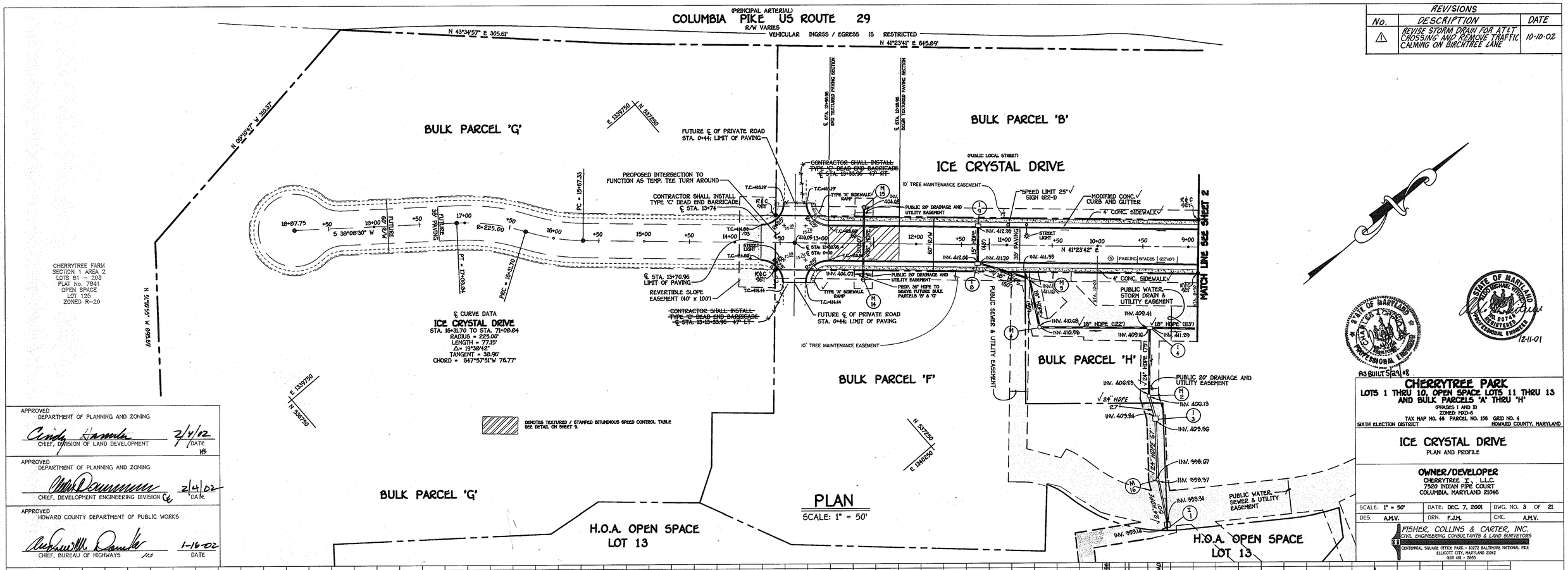
SCALE: 1" = 50'	DATE: DEC. 7, 2001	DWG. NO. 2 OF 21	
DES. A.M.V.	DRN. J.C.L. / F.J.M.	CHK. A.M.V.	

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 01-114

F-01-114 AS BUILT

REVISIONS		
No.	DESCRIPTION	DATE
1	REVISE STORM DRAIN FOR AT&T CROSSING AND REMOVE TRAFFIC CALMING ON BIRCHTREE LANE	10-10-02



APPROVED DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	2/4/02 DATE

APPROVED DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DEVELOPMENT ENGINEERING DIVISION	2/4/02 DATE

APPROVED HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	1-16-02 DATE

AS BUILT 12-11-01

CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'

(PHASES I AND II)

ZONED MXD-6

TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4

SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ICE CRYSTAL DRIVE

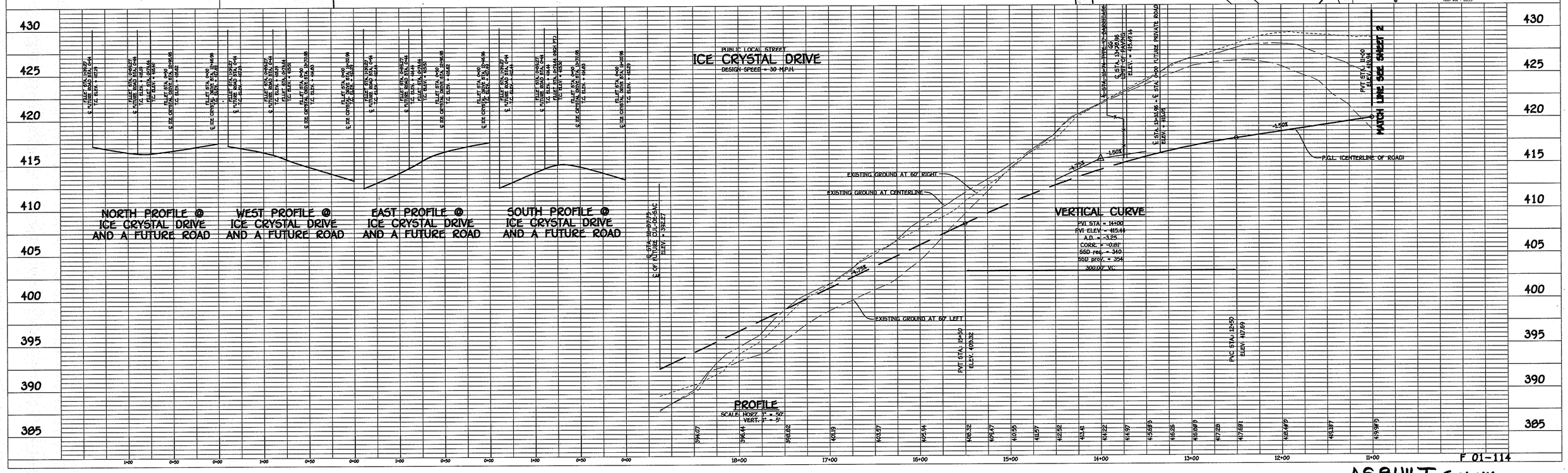
PLAN AND PROFILE

OWNER/DEVELOPER

CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

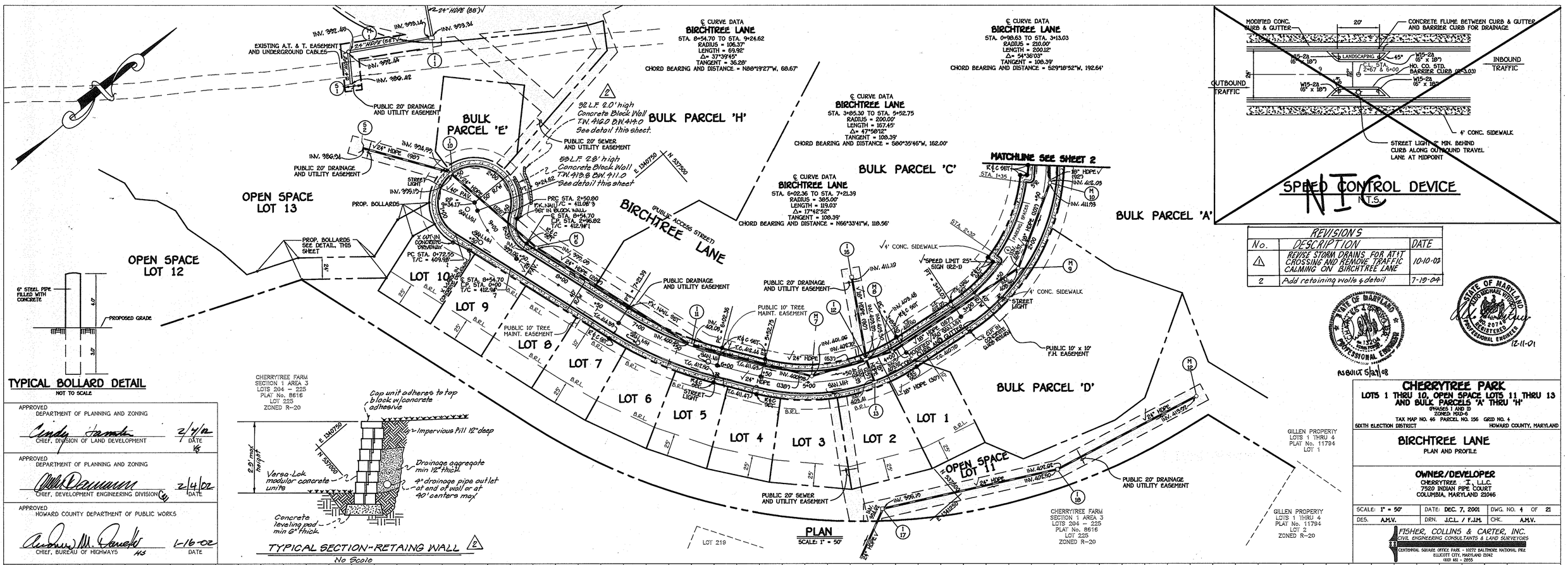
SCALE: 1" = 50'	DATE: DEC. 7, 2001	DWG. NO. 3 OF 21
DES. A.M.V.	DRN. F.J.M.	CHK. A.M.V.

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 01-114

AS BUILT F-01-114



SPEED CONTROL DEVICE

N.T.S.

REVISIONS		
No.	DESCRIPTION	DATE
1	REVISE STORM DRAINS FOR AT&T CROSSING AND REMOVE TRAFFIC CALMING ON BIRCHTREE LANE	10-10-02
2	Add retaining walls & detail	7-19-04

TYPICAL BOLLARD DETAIL

NOT TO SCALE

TYPICAL SECTION - RETAINING WALL

No Scale

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/4/02

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/4/02

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1-16-02

AS BUILT 5/21/08

12-11-01

CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'

(PHASES I AND II)
ZONED MXD-6

TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

BIRCHTREE LANE

PLAN AND PROFILE

OWNER/DEVELOPER
CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

SCALE: 1" = 50'	DATE: DEC. 7, 2001	DWG. NO. 4 OF 21
DES. A.M.V.	DRN. J.C.L. / F.J.M.	CHK. A.M.V.

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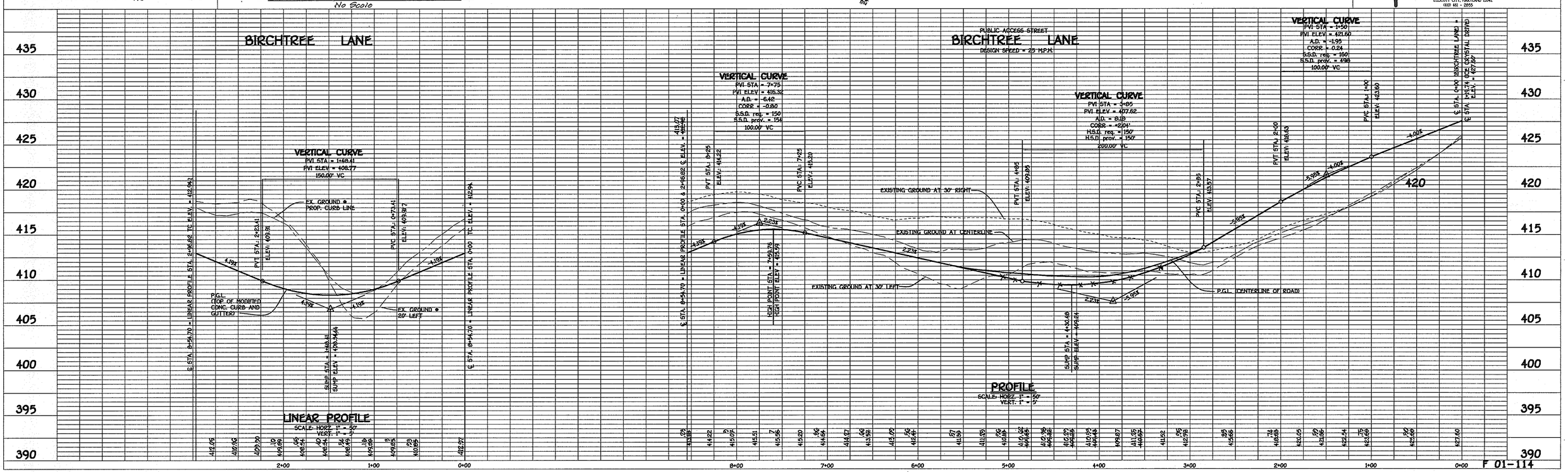


F 01-114

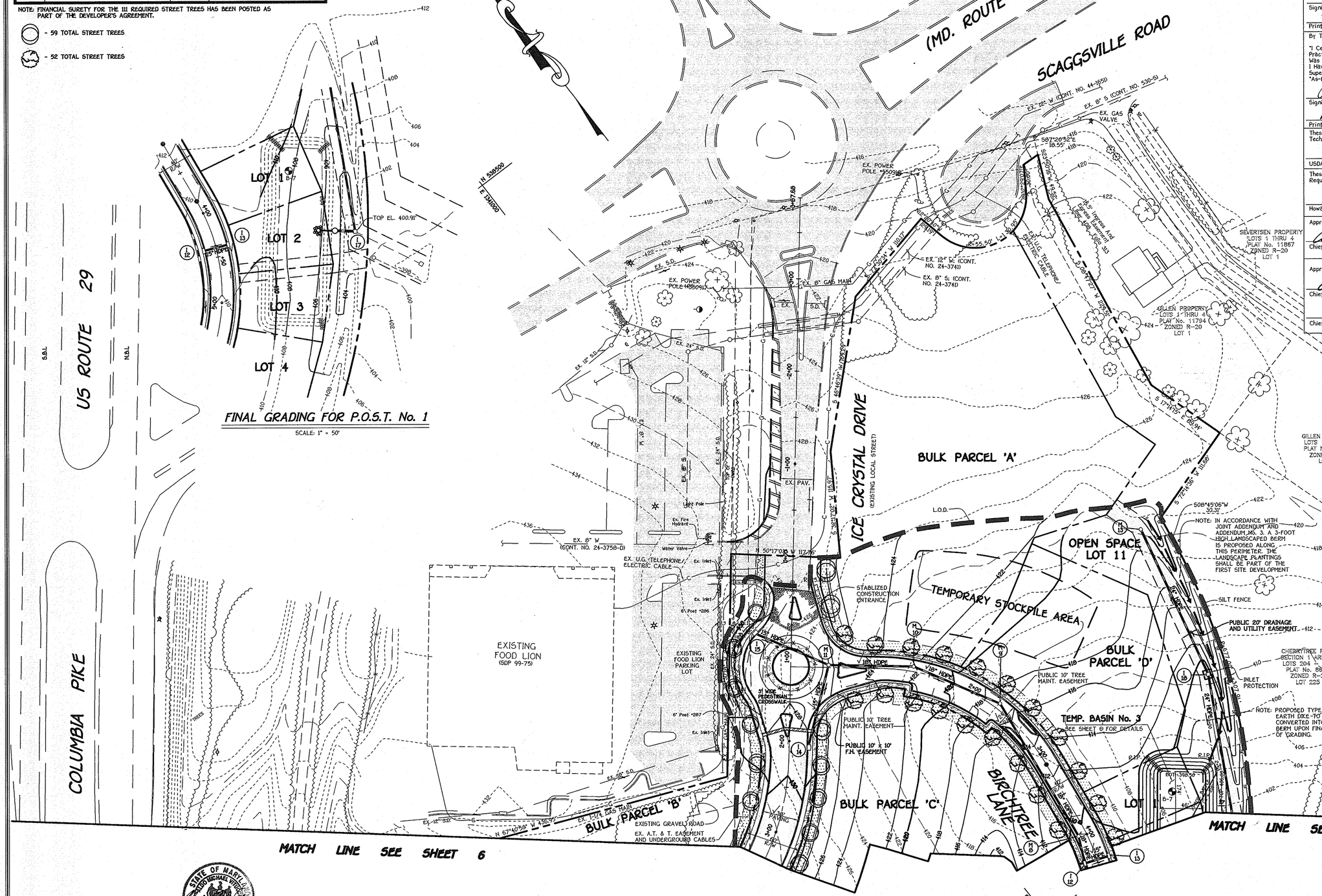
AS BUILT F-01-114

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	ACER RUBRUM 'OCTOBER GLORY' RED MAPLE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W
	PLATANUS OCCIDENTALIS 'BLOODGOOD' LONDON PLANETREE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

NOTE: FINANCIAL SURETY FOR THE 111 REQUIRED STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT.

- 59 TOTAL STREET TREES
- 52 TOTAL STREET TREES



FINAL GRADING FOR P.O.S.T. No. 1

SCALE: 1" = 50'

PLAN

SCALE: 1" = 50'

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: 12/11/01

Printed Name Of Developer: THOMAS K BOURKE V.P.

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 Conformance 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 Within 30 Days Of Completion."

Signature — Date: 12-11-01

Printed Name Of: ALDO M. [illegible]

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: 1/24/02

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: 1/24/02

Approved: Department Of Public Works

Chief, Bureau Of Highways — Date: 1-16-02

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 2/4/02

Chief, Development Engineering Division — Date: 2/4/02

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. 13204 — Date: 5/29/08

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.

AS BUILT 5/29/08

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

12-11-01

OWNER/DEVELOPER
CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

STREET TREE, GRADING AND SEDIMENT CONTROL PLAN

CHERRYTREE PARK

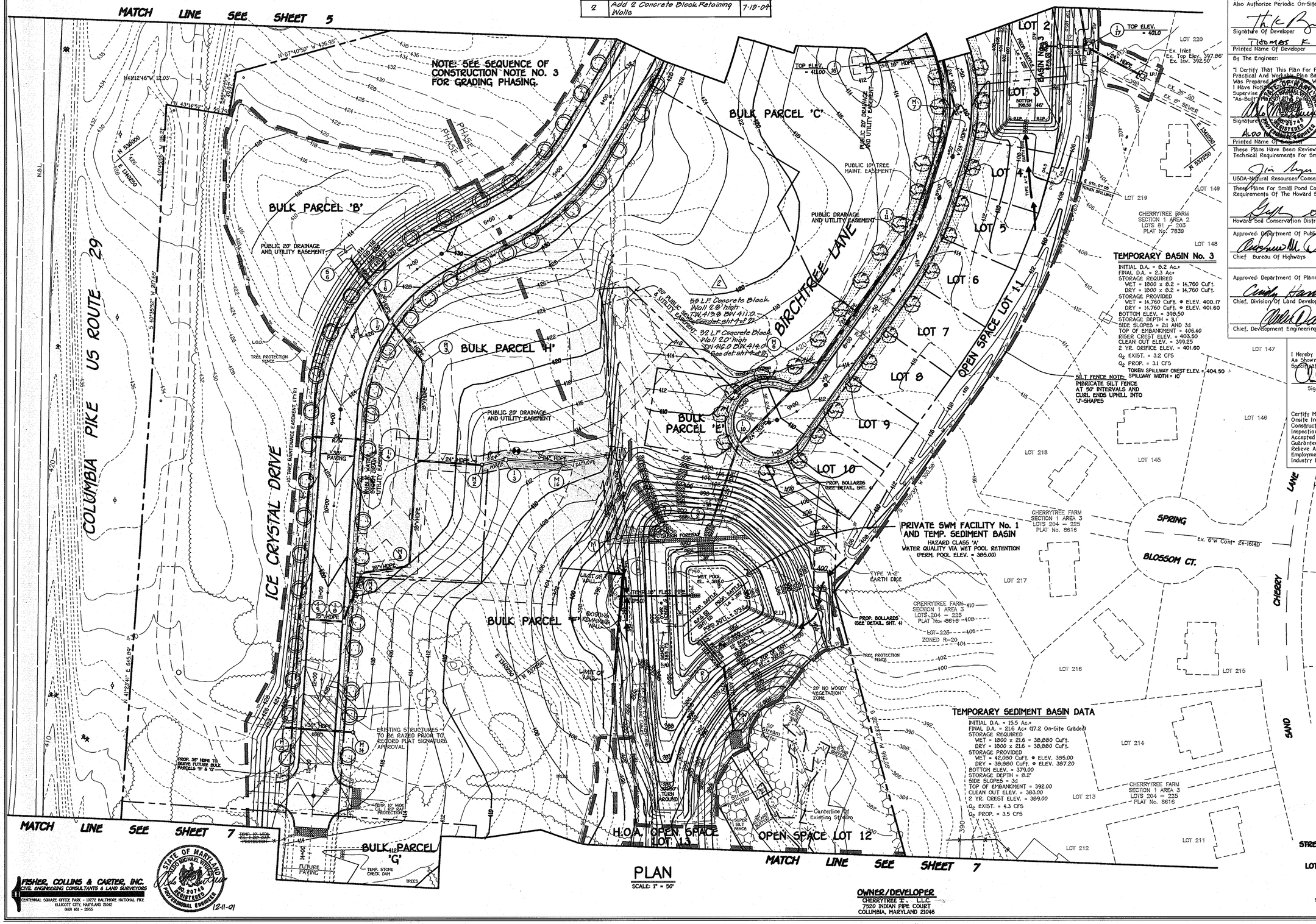
LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)

ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 5 OF 21

F 01-114

F-01-114 AS BUILT

REVISIONS		
No.	DESCRIPTION	DATE
1	REVISE STORM DRAINS FOR AT&T CROSSINGS AND REMOVE TRAFFIC CALMING ON BIRCHTREE LANE	10-10-02
2	Add 2 Concrete Block Retaining Walls	7-19-04



PLAN

SCALE: 1" = 50'

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: 12-11-01

Printed Name Of Developer: THOMAS K. BOURKE VP

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 Owner/Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Signature — Date: 12-11-01

Printed Name Of Engineer: ALDO M. SCHMITT

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: 1/28/02

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: 1/28/02

Approved: Department Of Public Works

Chief, Bureau Of Highways — Date: 1-16-02

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 2/4/02

Chief, Development Engineering Division — Date: 2/4/02

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. 13204 — Date: 5/29/08

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AS BUILT 5/29/08

LEGEND

—SSF—SSF—SSF—	SUPER-SILT FENCE
—SF—SF—SF—	SILT FENCE
—TP—TP—TP—	TREE PROTECTION FENCE
I.P.	INLET PROTECTION
S.C.E.	STABILIZED CONSTRUCTION ENTRANCE
	EARTH DIKE
	LIMIT OF DISTURBANCE
R.I.P.	RIP-RAP INFLOW PROTECTION

STREET TREE, GRADING AND SEDIMENT CONTROL PLAN

CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'

(PHASES I AND II)

ZONED: MXD-6

TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4

SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: DECEMBER 7, 2001

SHEET 6 OF 21

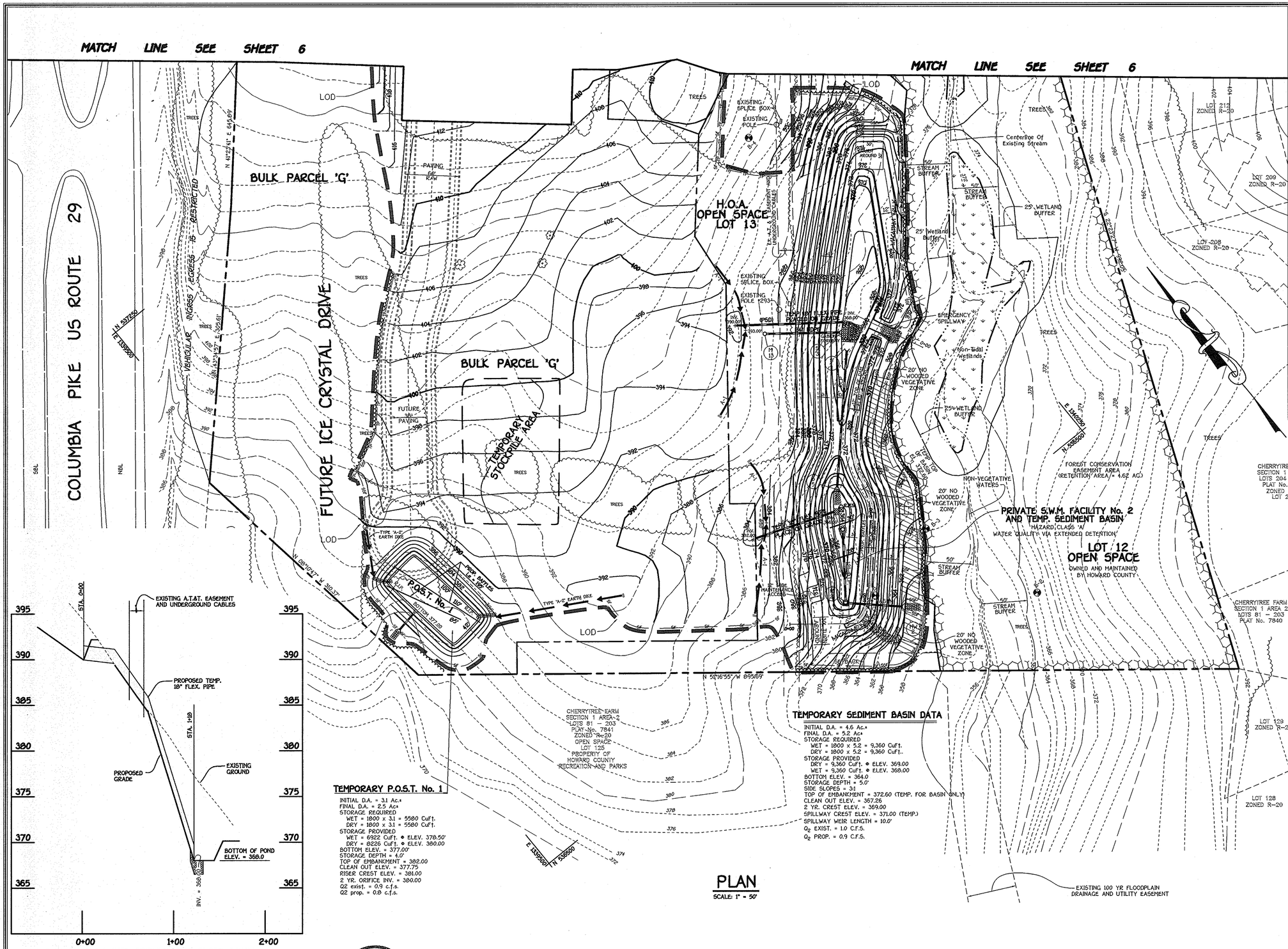
F 01-114

OWNER/DEVELOPER
CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

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

(2-11-01)

AS BUILT F-01-114



PLAN
SCALE: 1" = 50'

TEMP. 18" FLEX. PIPE PROFILE (PIPE SLOPE DRAIN) ● BASIN NO. 2 NEAR 5-4

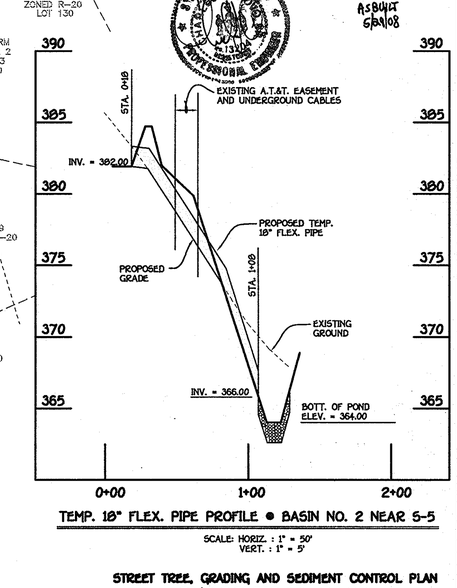
SCALE: HORIZ. : 1" = 50'
VERT. : 1" = 5'

TEMPORARY P.O.S.T. No. 1

INITIAL D.A. = 3.1 Ac.±
FINAL D.A. = 2.5 Ac±
STORAGE REQUIRED
WET = 1800 x 3.1 = 5580 Cu.Ft.
DRY = 1800 x 3.1 = 5580 Cu.Ft.
STORAGE PROVIDED
WET = 6922 Cu.Ft. @ ELEV. 378.50'
DRY = 6226 Cu.Ft. @ ELEV. 380.00
BOTTOM ELEV. = 377.00'
STORAGE DEPTH = 4.0'
TOP OF EMBANKMENT = 382.00
CLEAN OUT ELEV. = 377.75
RISER CREST ELEV. = 381.00
2 YR. ORIFICE INV. = 380.00
Q2 exist. = 0.9 c.f.s.
Q2 prop. = 0.9 c.f.s.

TEMPORARY SEDIMENT BASIN DATA

INITIAL D.A. = 4.6 Ac.±
FINAL D.A. = 5.2 Ac±
STORAGE REQUIRED
WET = 1800 x 5.2 = 9,360 Cu.Ft.
DRY = 1800 x 5.2 = 9,360 Cu.Ft..
STORAGE PROVIDED
DRY = 9,360 Cu.Ft. @ ELEV. 369.00
WET = 9,360 Cu.Ft. @ ELEV. 368.00
BOTTOM ELEV. = 364.0
STORAGE DEPTH = 5.0'
SIDE SLOPES = 3:1
TOP OF EMBANKMENT = 372.60 (TEMP. FOR BASIN ONLY)
CLEAN OUT ELEV. = 367.26
2 YR. CREST ELEV. = 369.00
SPILLWAY CREST ELEV. = 371.00 (TEMP.)
SPILLWAY WEIR LENGTH = 10.0'
Q_2 EXIST. = 1.0 C.F.S.
Q_2 PROP. = 0.9 C.F.S.



TEMP. 18" FLEX. PIPE PROFILE ● BASIN NO. 2 NEAR 5-5

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

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: 12/11/01

THOMAS E BOURKE VP
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."

STATE OF MARYLAND ALDO MICHAEL VIOLA No. 20794 REGISTERED PROFESSIONAL ENGINEER

Signature — Date: 12-11-01

ALDO M. VIOLA
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: 1/24/02

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: 1/29/02

Approved: Department Of Public Works

Chief Bureau Of Highways — Date: 1-16-02

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 2/4/02

Chief, Development Engineering Division — Date: 2/4/02

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. 13204 — Date: 5/29/08

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.

STATE OF MARYLAND ALAN E. CROUSE No. 13204 REGISTERED PROFESSIONAL ENGINEER

AS BUILT 5/29/08

STATE OF MARYLAND ALDO MICHAEL VIOLA No. 20794 REGISTERED PROFESSIONAL ENGINEER 12-11-01

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

OWNER/DEVELOPER
CHERRYTREE I, LLC
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

STREET TREE, GRADING AND SEDIMENT CONTROL PLAN

CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)
ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 7 OF 21

F 01-114

F-01-114 AS BUILT

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1-16-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING

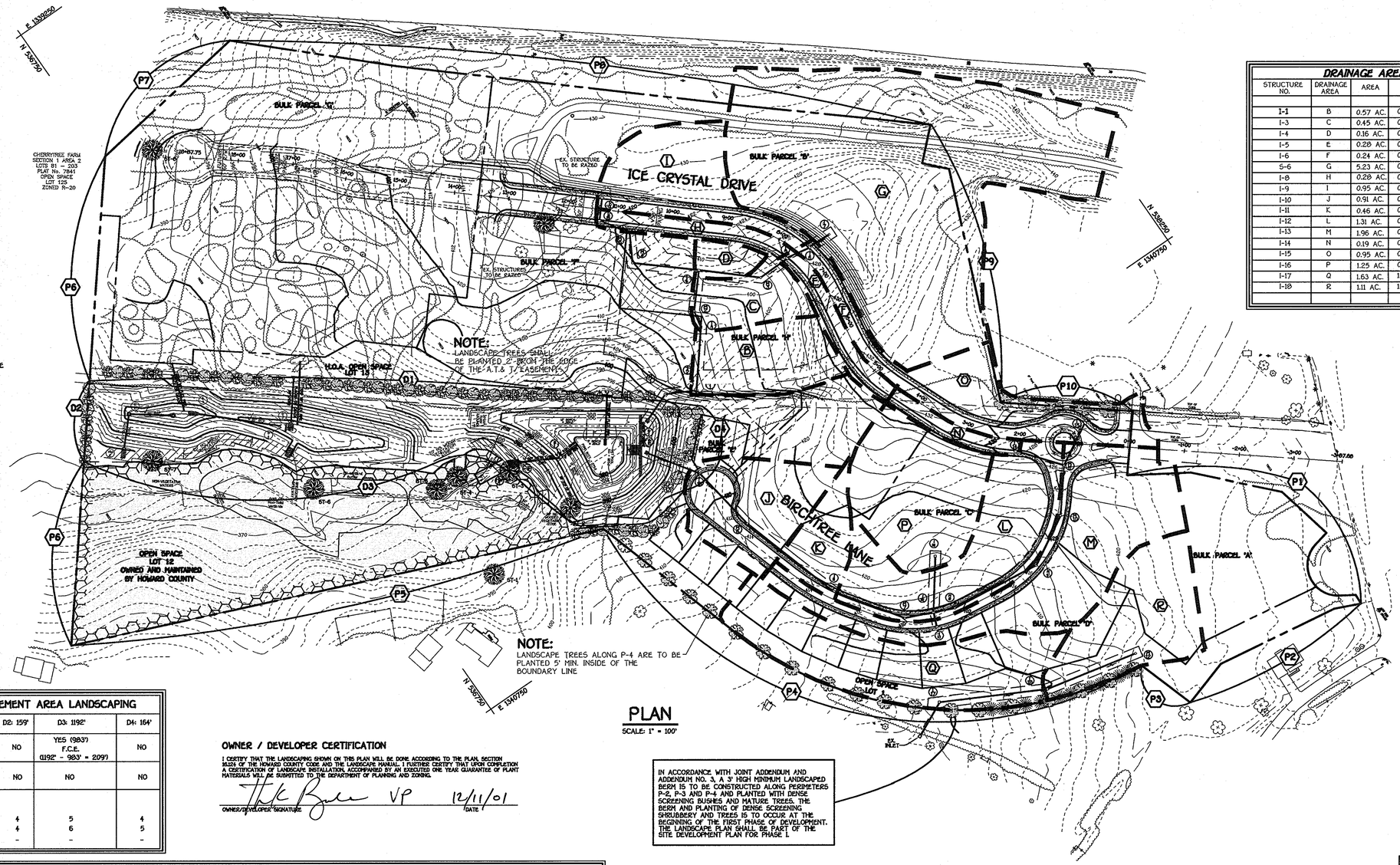
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/4/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/4/02

LANDSCAPING PLANT LIST (PHASE I)

QTY.	KEY	NAME	SIZE
24		ACER RUBRUM 'OCTOBER GLORY' (OCTOBER RED MAPLE)	3" - 3 1/2" CALIPER
36		FRAXINUS AMERICANA 'AUTUMN PURPLE' (AUTUMN PURPLE WHITE ASH)	3" - 3 1/2" CALIPER
10		CEDRUS DEODORA DEODAR CEDAR	6' - 8' HT.
43		PINUS STROBUS EASTERN WHITE PINE	6' - 8' HT.

"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 PHASE I REQUIRED LANDSCAPE TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $25,950.00 FOR 60 SHADE TREES AND 53 EVERGREEN TREES.



PLAN

SCALE: 1" = 100'

DRAINAGE AREA DATA

STRUCTURE NO.	DRAINAGE AREA	AREA	'C'	ZONED	% IMP.
I-1	B	0.57 AC.	0.38	MXD-6	65%
I-3	C	0.45 AC.	0.38	MXD-6	65%
I-4	D	0.16 AC.	0.35	MXD-6	65%
I-5	E	0.28 AC.	0.66	MXD-6	86%
I-6	F	0.24 AC.	0.72	MXD-6	90%
S-6	G	5.23 AC.	0.18	MXD-6	5%
I-8	H	0.28 AC.	0.67	MXD-6	86%
I-9	I	0.95 AC.	0.47	MXD-6	73%
I-10	J	0.91 AC.	0.48	MXD-6	74%
I-11	K	0.46 AC.	0.41	MXD-6	70%
I-12	L	1.31 AC.	0.45	MXD-6	72%
I-13	M	1.96 AC.	0.43	MXD-6	70%
I-14	N	0.19 AC.	0.71	MXD-6	89%
I-15	O	0.95 AC.	0.95	MXD-6	75%
I-16	P	1.25 AC.	0.35	MXD-6	65%
I-17	Q	1.63 AC.	1.63	MXD-6	45%
I-18	R	1.11 AC.	1.11	MXD-6	50%

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	D1: 1117'	D2: 159'	D3: 1192'	D4: 164'
CREDIT FOR EXISTING VEGETATION (NO, YES AND X)	NO	NO	YES (983') F.C.E. (1192' - 983' = 209')	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND X)	NO	NO	NO	NO
NUMBER OF TREES REQUIRED & PROVIDED: (TYPE 'B' BUFFER)				
SHADE TREES (1:50 L.F.)	23	4	5	4
EVERGREEN TREES (1:40 L.F.)	29	4	6	5
OTHER TREES (2:1 SUBSTITUTION)	-	-	-	-

OWNER / DEVELOPER CERTIFICATION

I CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

OWNER/DEVELOPER SIGNATURE — VP — DATE 12/11/01

IN ACCORDANCE WITH JOINT ADDENDUM AND ADDENDUM NO. 3, A 3' HIGH MINIMUM LANDSCAPED BERM IS TO BE CONSTRUCTED ALONG PERIMETERS P-2, P-3 AND P-4 AND PLANTED WITH DENSE SCREENING BUSHES AND MATURE TREES. THE BERM AND PLANTING OF DENSE SCREENING SHRUBBERY AND TREES IS TO OCCUR AT THE BEGINNING OF THE FIRST PHASE OF DEVELOPMENT. THE LANDSCAPE PLAN SHALL BE PART OF THE SITE DEVELOPMENT PLAN FOR PHASE I.

ST-1 - DENOTES SPECIMEN TREE

SCHEDULE A PERIMETER LANDSCAPE EDGE

PERIMETER	* P-1	*P-2	*P-3	P-4		P-5	* P-6	* P-7	* P-8	* P-9	P-10
CATEGORY	Adjacent to Roadway	Adjacent to Perimeter Property	Adjacent to Perimeter Property	Adjacent to Perimeter Property		Adjacent to Perimeter Property	Adjacent to Perimeter Property	Adjacent to Perimeter Property	Adjacent to Roadway	Adjacent to Perimeter Property	Adjacent to Perimeter Property
LANDSCAPE TYPE	E	C	C	A	C	C	C	C	C	A	A
LINEAR FEET OF PERIMETER	604'	389'	112'	861'	200'	992'	895'	311'	1285'	560'	241'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	YES (992' CREDIT) EX. WOODS (F.C.E.)	YES (500' CREDIT) (895' - 500' = 395') EX. WOODS (F.C.E.)	NO	NO	NO	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE IF NEEDED)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED & PROVIDED											
SHADE TREES	16	10	3	14	5	0	10	8	33	10	5
EVERGREEN TREES	-	20	6	0	10	0	20	16	65	-	0
SHRUBS	121	-	-	-	-	-	-	-	-	-	-

* NOTE: PERIMETERS P-6, P-7, P-8 & P-9 WILL BE SATISFIED IN PHASE III OF THIS DEVELOPMENT.
PERIMETERS P-1, P-2 & P-3 WILL BE SATISFIED UPON COMPLETION OF THE COMMERCIAL SITE (BULK PARCEL 'A') AND IT'S ASSOCIATED SITE DEVELOPMENT PLAN.

REVISIONS		
No.	DESCRIPTION	DATE
1	REVISE STORM DRAINS FOR AT&T CROSSING AND REMOVE TRAFFIC CALMING ON BIRCHTREE LANE	10-10-02

STATE OF MARYLAND — ROD MICHAEL WOOD — No. 20708 — REGISTERED PROFESSIONAL ENGINEER — 12-11-01

STATE OF MARYLAND — CHARLES L. CROTTY — No. 13328 — PROFESSIONAL ENGINEER — AS BUILT 5/29/03

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

OWNER/DEVELOPER
CHERRYTREE I L.L.C
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

STORM DRAIN DRAINAGE AREA MAP AND LANDSCAPE PLAN

CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)
ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 8 OF 21

F 01-114

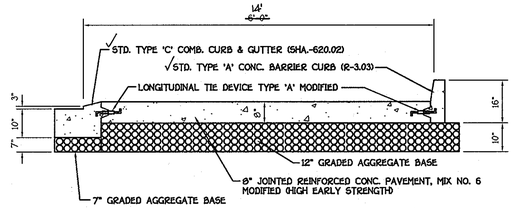
AS BUILT F-01-114.

APPROVED
DEPARTMENT OF PLANNING AND ZONING

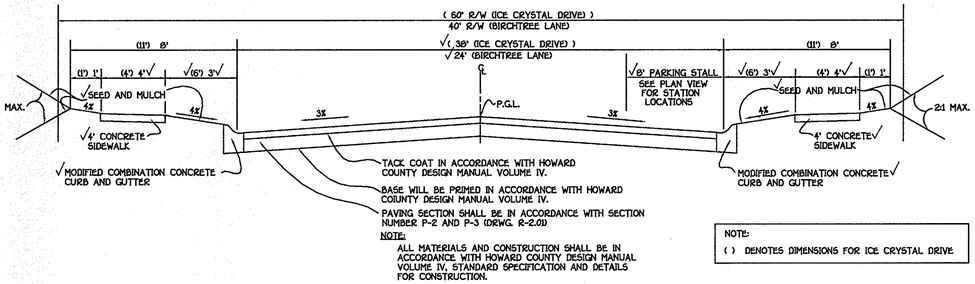
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 2/4/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 2/4/02

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	DATE 1-16-02

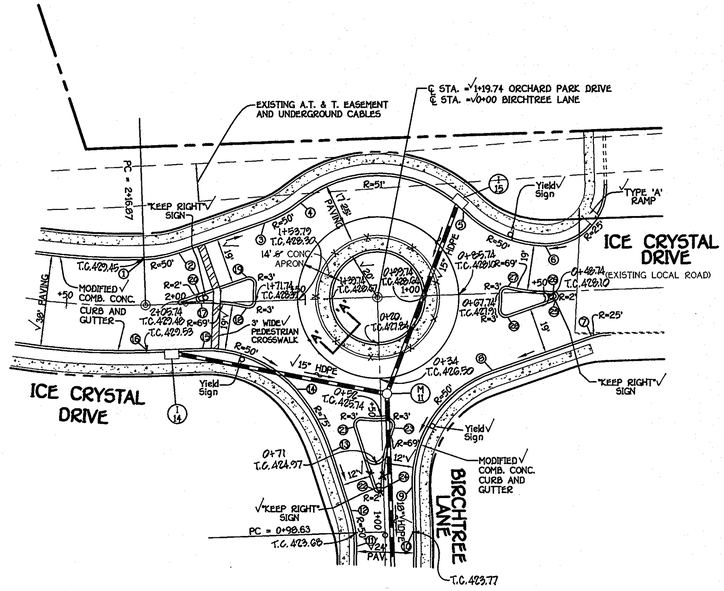


SECTION 'A-A'
NO SCALE

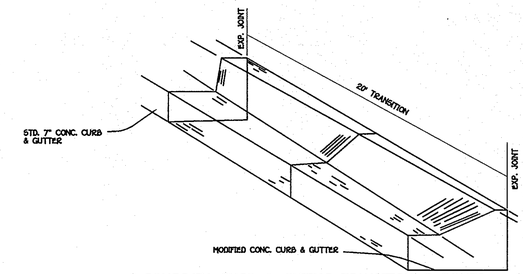


NOTE:
( ) DENOTES DIMENSIONS FOR ICE CRYSTAL DRIVE

TYPICAL ROADWAY SECTION
NO SCALE



ROUNDABOUT DETAIL
SCALE: 1" = 30'

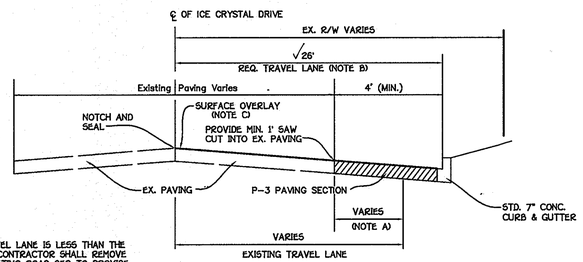


CONCRETE CURB & GUTTER TRANSITION @ INLETS
NO SCALE

No.	ROAD NAME	STATION	OFFSET	TOP OF CURB ELEVATION
1	ICE CRYSTAL DRIVE	2+17.22	19.00 R	429.27'
2	ICE CRYSTAL DRIVE	2+02.16	21.29 R	428.77'
3	ICE CRYSTAL DRIVE	1+65.93	32.66 R	427.53'
4	ICE CRYSTAL DRIVE	1+50.63	40.58 R	427.02'
5	ICE CRYSTAL DRIVE	0+82.49	34.84 R	426.84'
6	ICE CRYSTAL DRIVE	0+48.64	19.07 R	427.66'
7	ICE CRYSTAL DRIVE	0+30.75	19.23 L	427.91'
8	ICE CRYSTAL DRIVE	0+72.71	32.40 L	427.64'
9	BIRCHTREE LANE	0+80.11	12.00 L	424.36'
10	BIRCHTREE LANE	0+98.63	12.00 L	423.61'
11	BIRCHTREE LANE	1+04.61	12.00 R	423.41'
12	BIRCHTREE LANE	0+89.05	14.00 R	423.94'
13	BIRCHTREE LANE	0+64.05	21.17 R	424.72'
14	BIRCHTREE LANE	0+37.55	34.96 R	425.37'
15	ICE CRYSTAL DRIVE	1+93.56	19.00 L	428.59'
16	ICE CRYSTAL DRIVE	2+16.87	19.00 L	429.26'
17	ICE CRYSTAL DRIVE	1+93.56	0	428.84'
18	ICE CRYSTAL DRIVE	1+74.56	2.67 L	428.61'
19	ICE CRYSTAL DRIVE	1+74.56	10.19 R	428.38'
20	ICE CRYSTAL DRIVE	1+94.16	3.91 R	429.06'
21	BIRCHTREE LANE	0+54.13	11.53 R	425.40'
22	BIRCHTREE LANE	0+80.66	3.92 R	424.57'
23	BIRCHTREE LANE	0+55.15	5.25 L	425.56'
24	BIRCHTREE LANE	0+80.11	0	424.40'
25	ICE CRYSTAL DRIVE	0+45.38	3.91 L	428.16'
26	ICE CRYSTAL DRIVE	0+45.98	0	427.95'
27	ICE CRYSTAL DRIVE	0+64.91	2.55 R	427.95'
28	ICE CRYSTAL DRIVE	0+65.34	10.17 L	427.71'

ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS	PAVING SECTION
ICE CRYSTAL DRIVE	PUBLIC LOCAL STREET	30 M.P.H.	MXD-6	0+00 TO 18+64.20	P-3
BIRCHTREE LANE	PUBLIC ACCESS STREET	25 M.P.H.	MXD-6	0+00 TO 9+34.16	P-2



NOTE A - WHEN EXISTING TRAVEL LANE IS LESS THAN THE REQUIRED 12' LANE CONTRACTOR SHALL REMOVE ENOUGH OF THE EXISTING ROAD BED TO PROVIDE A MINIMUM BASE WIDENING OF 4'.

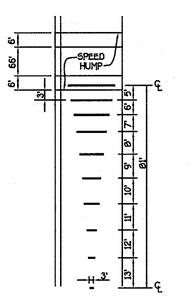
NOTE B - THE SURFACE OVERLAY SHALL BE CARRIED TO THE ℄ OF THE ROAD AND NOTCHED AND SEALED.

NOTE C - SURFACE OVERLAY COURSE TO BE EQUAL TO SURFACE COURSE OF TYPICAL PAVING SECTION.

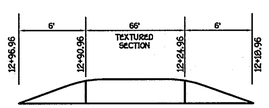
NOTE D - ℄ OF ROAD TO BE MILLED AT DEPTH OF 1 1/2" x 1' WIDE USING A MILLING MACHINE.

(STA. -0+50 TO STA. -2+50)

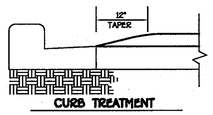
TYPICAL WIDENING SECTION (ICE CRYSTAL DRIVE)
NO SCALE



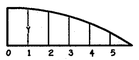
TYP. MARKING DETAIL



SPEED HUMP PROFILE



CURB TREATMENT



APPROACH ARC DETAIL
SEE VERTICAL DIMENSIONS CHART

$$r = \frac{4b - c}{8b} = 72.125$$

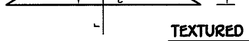
b = height = (0.25)

c = cord distance = (12')

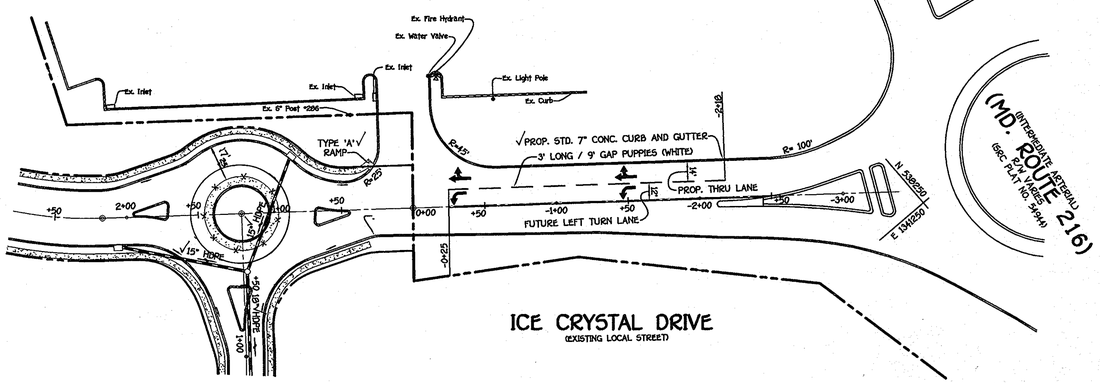
$$y = (b - r) \times \sqrt{r^2 - x^2}$$

x (ft.)	y (ft.)	=	inches
0	0.25	=	3.0
1	0.243	=	2.92
2	0.222	=	2.64
3	0.188	=	2.25
4	0.139	=	1.67
5	0.077	=	0.92
6	0.0	=	0.0

VERTICAL DIMENSIONS CHART



TEXTURED BITUMINOUS SPEED CONTROL TABLE
not to scale



STRIPING 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

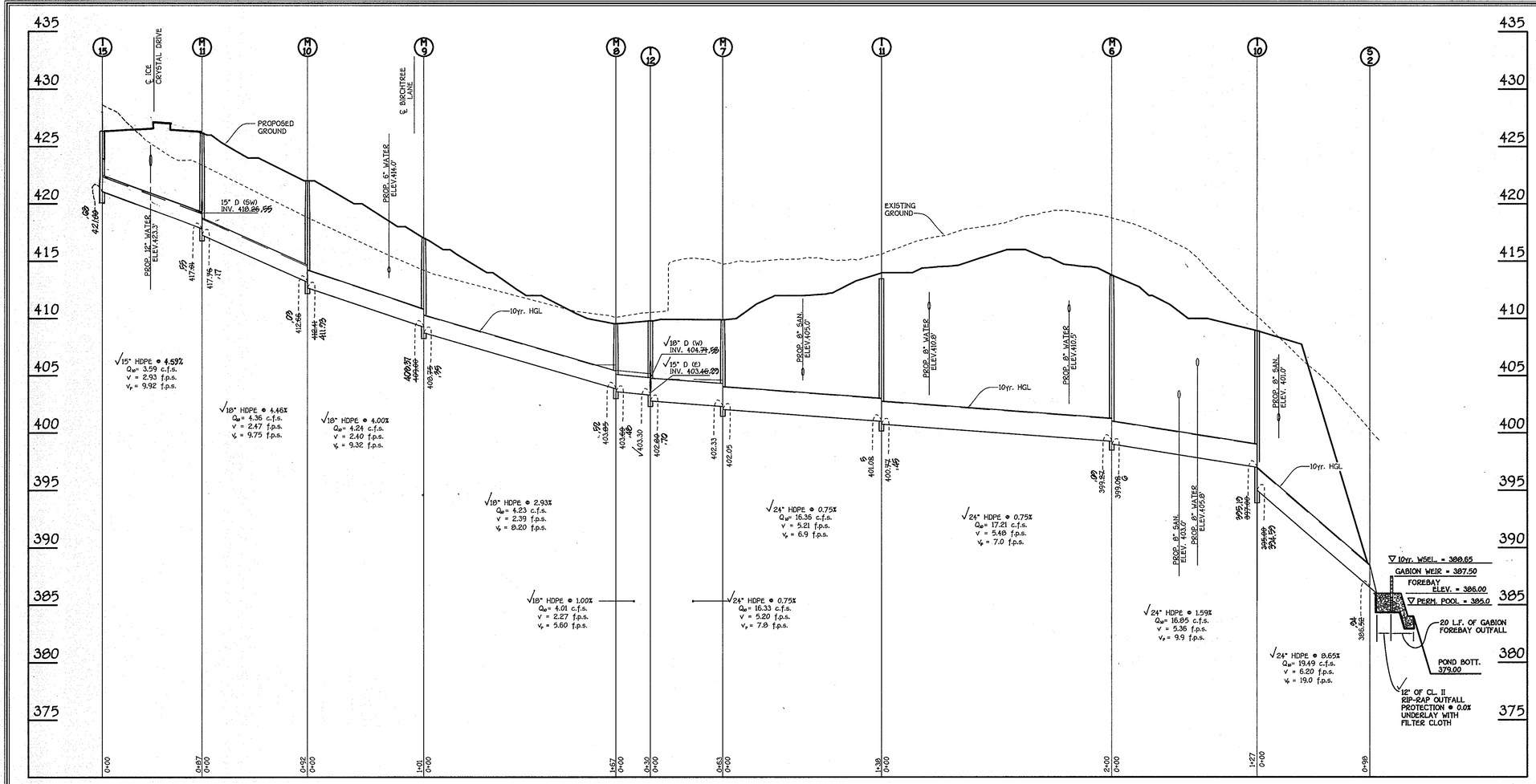
STATE OF MARYLAND
HOO MICHAEL WONG
No. 20746
REGISTERED
PROFESSIONAL ENGINEER
9-27-01

OWNER/DEVELOPER
CHERRYTREE I, LLC
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

STATE OF MARYLAND
No. 13214
PROFESSIONAL ENGINEER
AS-BUILT 5/29/08

TYPICAL ROADWAY SECTION AND DETAILS
CHERRYTREE PARK
LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)
ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 9 OF 21

AS BUILT F01-114



PROFILE

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

APPROVED
DEPARTMENT OF PLANNING AND ZONING

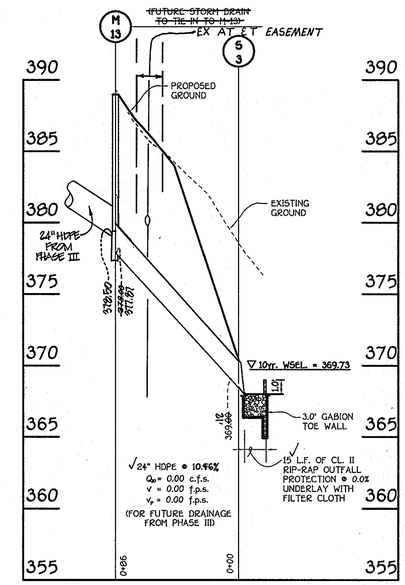
Cindy Harvatin — 2/4/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING

2/4/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

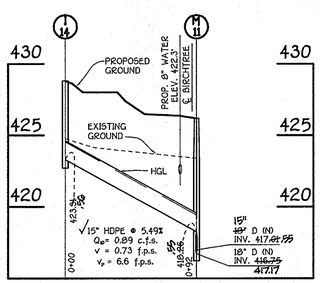
APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

1-16-02
CHIEF, BUREAU OF HIGHWAYS — DATE



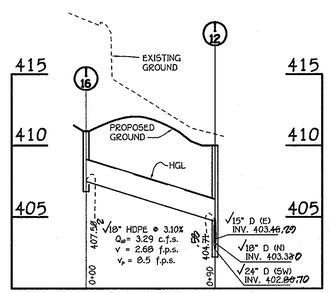
PROFILE

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



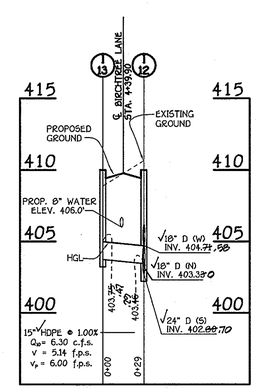
PROFILE

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



PROFILE

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



PROFILE

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

REVISIONS		
No.	DESCRIPTION	DATE
1	REVISE STORM DRAINS FOR AT&T CROSSING AND REMOVE TRAFFIC CALMAING ON BIRCHTREE LANE	10-10-02

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 — DAVID MICHAEL VIRGILIO — No. 16748 — REGISTERED PROFESSIONAL ENGINEER
9-27-01

OWNER/DEVELOPER
CHERRYTREE II, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

STATE OF MARYLAND — CHRISTOPHER J. CARROLL — No. 23984 — PROFESSIONAL ENGINEER
AS BUILT 5/23/02

STORM DRAIN PROFILES

CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13
AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)

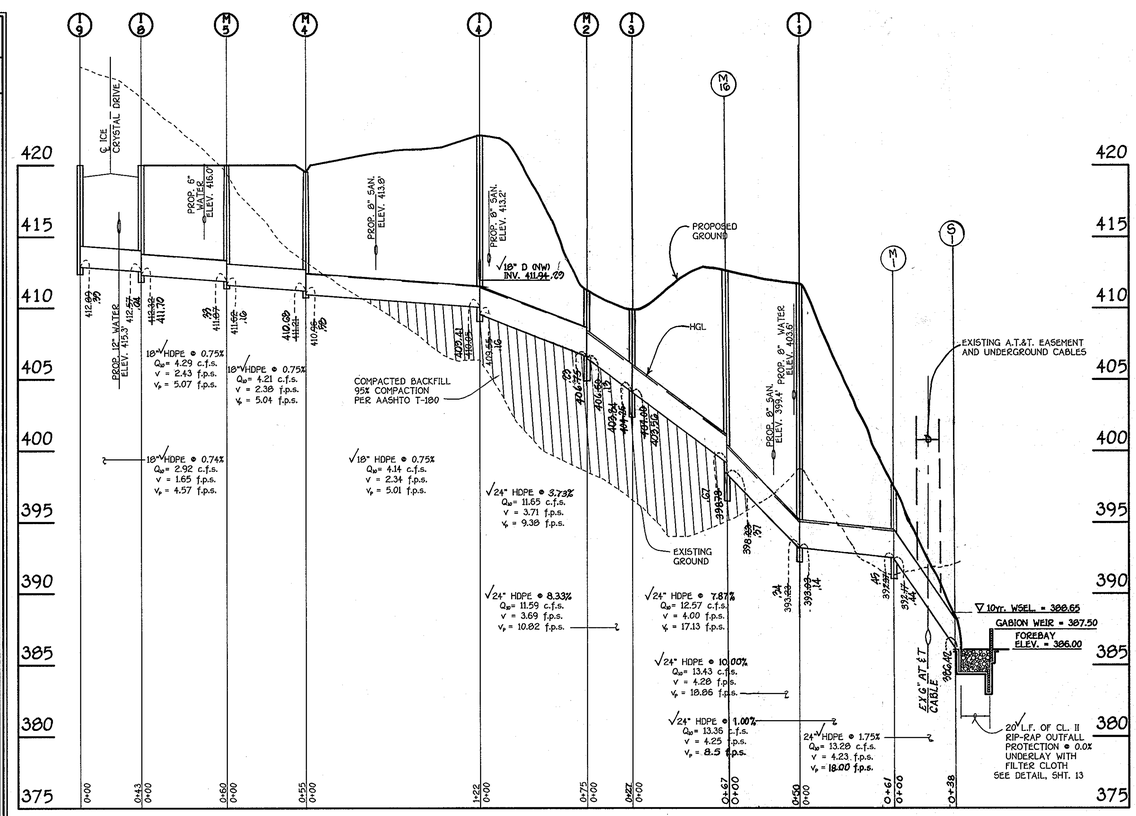
ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 10 OF 21

AS BUILT F-01-114

STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
I-1	411.77	393.23	393.23	----	N 537328.40 E 1340185.38	----	A-10 INLET✓	S.D. 4.41
				----		----		
I-3	408.77	403.50	404.25	----	N 537457.62 E 1340388.94	----	YARD INLET✓	S.D. 4.14
I-4	421.77	422.09	411.94	ICE CRYSTAL DRIVE	9+41.55✓	91.69' L✓	'S' INLET✓	S.D. 4.22
I-5	426.92	413.31	412.56	ICE CRYSTAL DRIVE	7+67.81✓	19' L✓	A-10 INLET✓	S.D. 4.41
I-6	427.56	413.79	413.54	ICE CRYSTAL DRIVE	7+50.00✓	19' R✓	A-10 INLET✓	S.D. 4.41
I-8	419.47✓	412.57	412.32	ICE CRYSTAL DRIVE	11+32.01✓	19' L✓	A-10 INLET✓	S.D. 4.41
I-9	419.47	------	412.89	ICE CRYSTAL DRIVE	11+32.01✓	19' R✓	A-10 INLET✓	S.D. 4.41
I-10	408.66	397.00	395.10	BIRCHTREE LANE	L.P. STA. 14+41.41	47.50	A-10 INLET✓	S.D. 4.41
I-11	413.47	401.02	400.77	BIRCHTREE LANE	6+37.64✓	12' R✓	A-10 INLET✓	S.D. 4.41
I-12	410.39	409.20	402.89	BIRCHTREE LANE	4+30.48✓	12' R✓	A-10 INLET✓	S.D. 4.41
I-13	410.26	409.26	403.79	BIRCHTREE LANE	4+30.48✓	12' L✓	A-10 INLET✓	S.D. 4.41
I-14	423.23	------	423.31	ICE CRYSTAL DRIVE	2+06.56✓	19' L✓	A-10 INLET✓	S.D. 4.41
I-15	426.94	------	421.00	ICE CRYSTAL DRIVE	0+83.62✓	39.26'✓R	A-10 INLET✓	S.D. 4.41
I-16	411.00	------	407.50	BIRCHTREE LANE	3+94✓	102.75✓R	YARD INLET✓	S.D. 4.14
I-17	400.77	401.00	395.69	----	N 537427.96 E 1340205.59	----	YARD INLET✓	S.D. 4.14
I-18	410.48	405.62	402.62	----	N 537428.00 E 1340238.34	----	YARD INLET✓	S.D. 4.14
M-1	397.21	392.57	392.57	----	N 537300.58 E 1340183.02	----	STD. MANHOLE	G - 5.12
M-2	415.20	411.0	406.75	----	N 537458.20 E 1340184.95	----	STD. MANHOLE✓	G - 5.12
M-3	424.54	423.11	412.76	----	N 537602.20 E 1340185.242	----	STD. MANHOLE✓	G - 5.12
M-4	420.26	419.53	411.21	----	N 537626.24 E 1340226.97	----	STD. MANHOLE✓	G - 5.12
M-5	420.00	411.67	411.62	ICE CRYSTAL DRIVE	10+74.56✓	37.18' L✓	STD. MANHOLE✓	G - 5.12
M-6	414.09	413.75	399.67	BIRCHTREE LANE	6+42.55	22.21' R✓	STD. MANHOLE✓	G - 5.12
M-7	409.89	402.33	402.06	BIRCHTREE LANE	4+96.00✓	6.76' R✓	STD. MANHOLE✓	G - 5.12
M-9	416.66	409.00	408.75	BIRCHTREE LANE	2+31.00	6.34' L✓	STD. MANHOLE✓	G - 5.12
M-10	422.40	412.66	412.41	BIRCHTREE LANE	1+31.79	5.43' L✓	STD. MANHOLE✓	G - 5.12
M-11	425.89	418.55	417.01	BIRCHTREE LANE	0+40.70✓	3.67' L✓	STD. MANHOLE✓	G - 5.12
M-8	410.18	409.17	403.95	BIRCHTREE LANE	3+98.00✓	8.87' R✓	STD. MANHOLE✓	G - 5.12
M-12	420.51✓	375.50	383.00	----	N 537777.88 E 1341338.46	----	STD. MANHOLE✓	G - 5.12
M-13	389.00	FUTURE INV.	380.00	----	N 536800.00 E 1340100.77	----	STD. MANHOLE✓	G - 5.12
M-14	417.50	404.20	FUTURE INV.	ICE CRYSTAL DRIVE	12+50.00	22.40' L	STD. MANHOLE✓	G - 5.11
M-15	410.00	FUTURE INV.	405.00	ICE CRYSTAL DRIVE	12+50.00	42.40' R	STD. MANHOLE✓	G - 5.11
M-16	413.32	412.50	398.75	----	N 537915.00 E 1340100.00	----	STD. MANHOLE✓	G - 5.12
S-1	369.40	380.11	386.11	----	N 537726.50 E 1340327.00	----	HDPE END SECTION✓	** A.D.S. FLARED END SECT.
S-2	388.58	------	386.52	----	N 537724.37 E 1340335.00	----	HDPE END SECTION✓	** A.D.S. FLARED END SECT.
S-3	371.12	371.00	369.00	----	N 537769.38 E 1340127.46	----	HDPE END SECTION✓	** A.D.S. FLARED END SECT.
S-4	367.44	------	365.94	----	N 537724.24 E 1340125.00	---CONC.	HDPE END SECTION✓	** A.D.S. FLARED END SECT.
S-5	365.94	------	361.44	----	N 537666.38 E 1340092.36	---CONC.	HDPE END SECTION✓	** A.D.S. FLARED END SECT.
S-6	415.42	411.00	413.56	----	N 537718.14 E 1340385.35	----	HDPE END SECTION✓	** A.D.S. FLARED END SECT.
HW-1	383.50	------	381.00	----	N 537705.00 E 1340300.00	----	TYPE 'A' HEADWALL✓	S.D. 5.11
HW-2	361.47	362.00	359.00	----	N 536476.67 E 1339170.36	----	TYPE 'A' HEADWALL✓	S.D. 5.11
R-1	391.50	382.00	381.75	----	N 537110.52 E 1340110.37	----	CONC. RISER✓	
R-2	371.50	362.00	361.75	----	N 536516.52 E 1339366.28	----	CONC. RISER✓	

** - A.D.S. - ADVANCED DRAINAGE SYSTEMS
LONDON, OHIO
1-800-733-9554



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

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/4/02

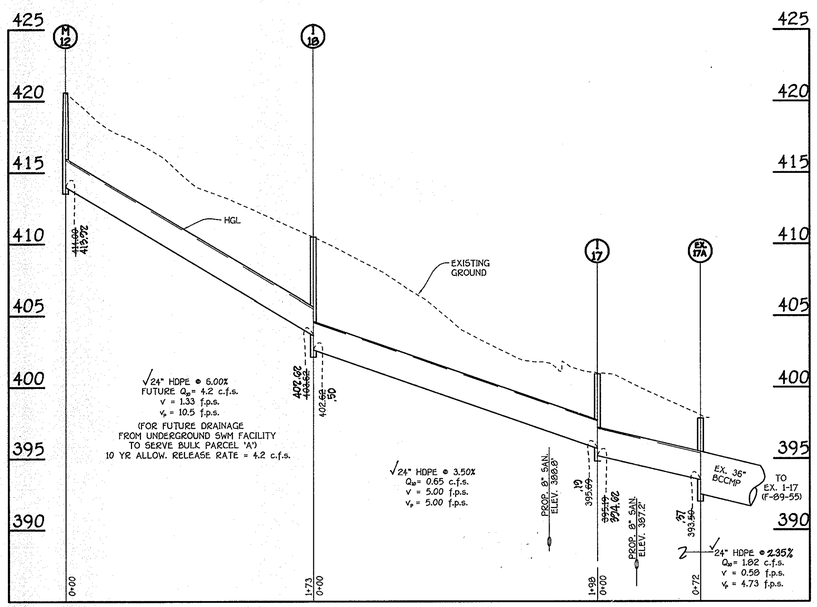
APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/4/02

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1-16-02

PIPE SCHEDULE

SIZE	MATERIAL	LENGTH
15"	HDPE	250'
18"	HDPE	978'
24"	HDPE	147'8"
36"	HDPE	80'

REVISIONS		
No.	DESCRIPTION	DATE
1	REVISE STORM DRAINS FOR AT&T CROSSINGS AND REMOVE TRAFFIC CALMING ON BIRCHTREE LANE	10-10-02



PROFILE
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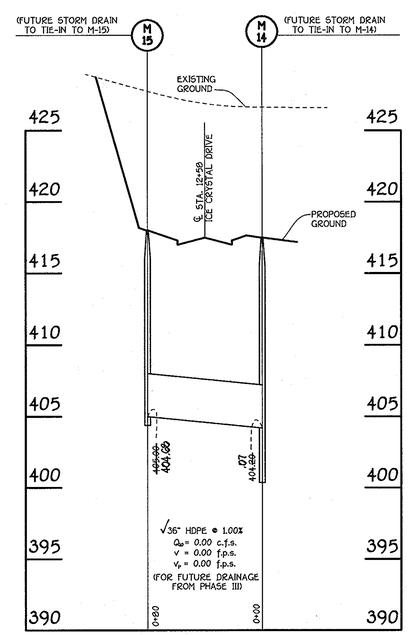
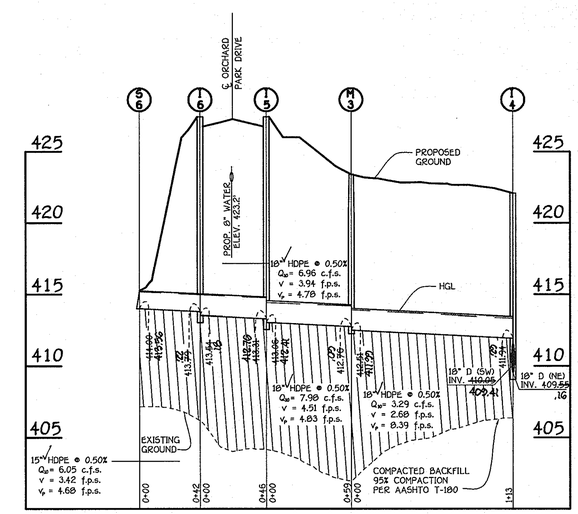
VERT. : 1" = 5'



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



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

OWNER/DEVELOPER
CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

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 — JOHN MICHAEL WILLIAMS — No. 20748 — REGISTERED PROFESSIONAL ENGINEER
9-27-01

STATE OF MARYLAND — CHARLES A. CROVER, JR. — No. 19704 — REGISTERED PROFESSIONAL ENGINEER
AS BUILT 6/29/18

STORM DRAIN PROFILES
CHERRYTREE PARK
LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13
AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)
ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 11 OF 21

AS BUILT F-01-114

STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Definition

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

Purpose

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

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:
   a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
   b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
   c. The original soil to be vegetated contains material toxic to plant growth.
   d. The soil is so acidic that treatment with limestone is not feasible.

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

Construction and Material Specifications

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

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

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 11/2" in diameter.

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

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

II. For sites having, disturbed areas under 5 acres:

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

III For sites having disturbed areas over 5 acres:

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

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

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

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

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

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

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

V. Topsoil Application

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

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

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

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

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

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

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

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

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

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

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

SEDIMENT CONTROL NOTES

1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2) ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS 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.
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), 50D (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	41.078	ACRES
AREA DISTURBED	27.50	ACRES
AREA TO BE ROOFED OR PAVED	2.70	ACRES
AREA TO BE VEGETATIVELY STABILIZED	24.80	ACRES
TOTAL CUT	81,385	CU. YDS.
TOTAL FILL	101,552	CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A	

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

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ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STATE OF MARYLAND ALDO MICHAEL VITUCCI NO. 20740 REGISTERED PROFESSIONAL ENGINEER
9-27-01

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 (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, or 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 in the 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 grading and placement of topsoil (if required) and permanent seed and mulch. any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

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

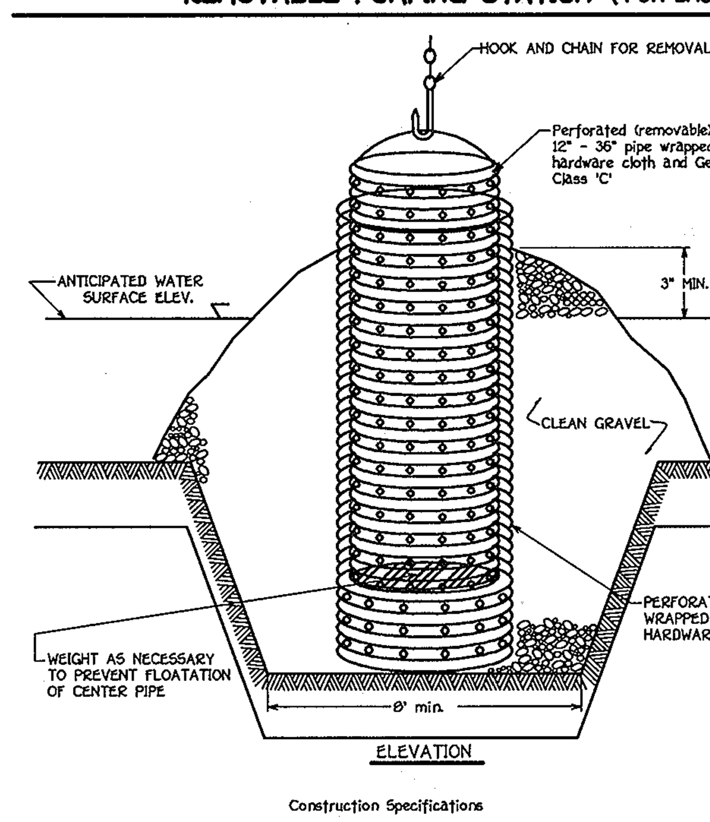
i. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this summary is not put 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"				

REMOVABLE PUMPING STATION (FOR BASINS 1,2 &3)



ELEVATION

Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.

2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.

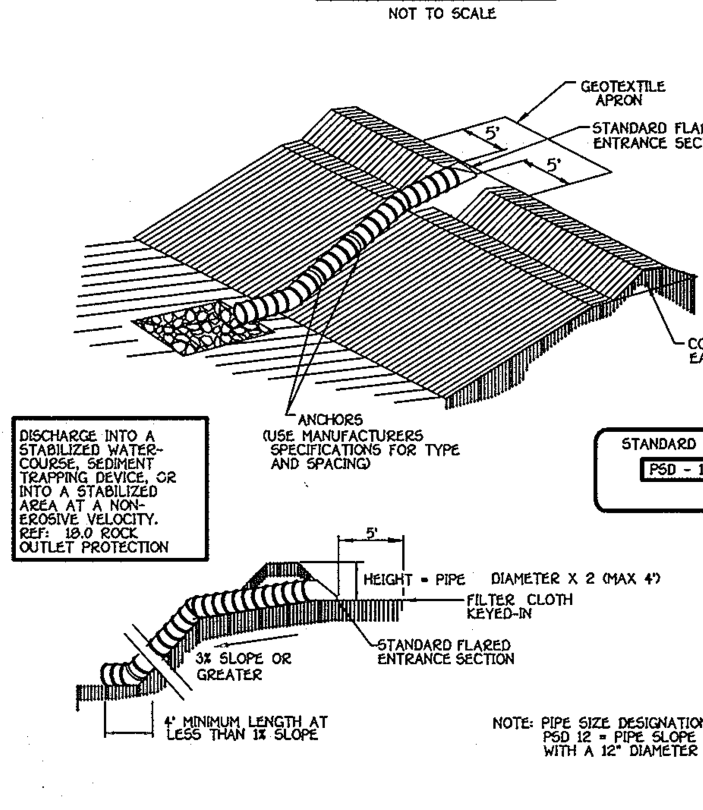
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.

4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

OWNER/DEVELOPER
CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

PIPE SLOPE DRAIN

NOT TO SCALE



STANDARD SYMBOL
PSD - 12

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.

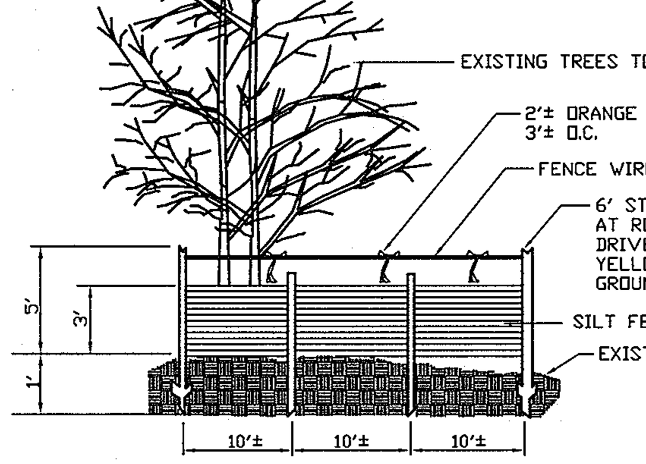
7. All pipe connections shall be watertight.

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.



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

TREE PROTECTION FENCE

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 12/11/01
THOMAS K BOURKE VP
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."

Signature Of Engineer — Date 9-27-01
ALDO M. VITUCCI
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 1/24/02

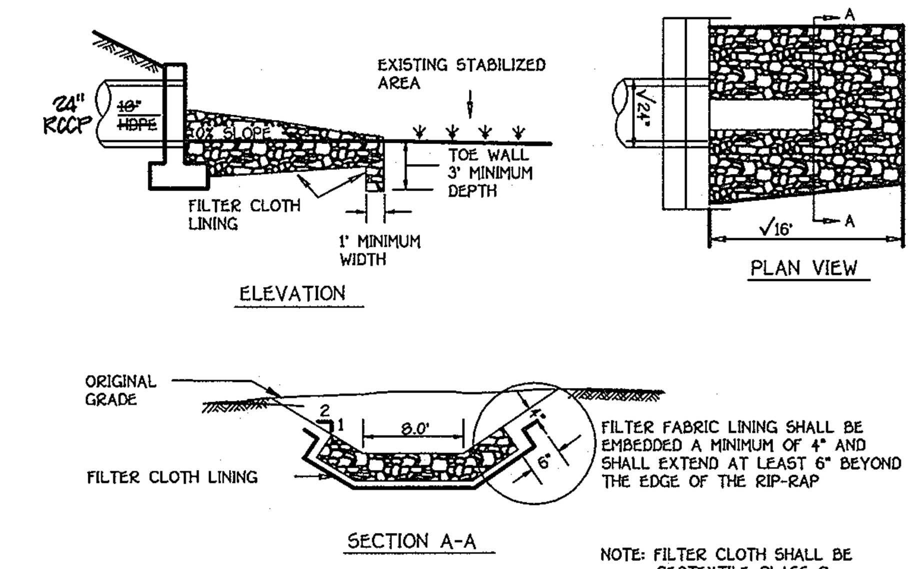
These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Howard Soil Conservation District — Date 1/24/02

Approved: Department Of Public Works
Chief Bureau Of Highways — Date 1-16-02

Approved: Department Of Planning And Zoning
Chief, Division Of Land Development — Date 2/4/02
Chief, Development Engineering Division — Date 2/4/02

S.W.M. NO. 2
ROCK OUTLET PROTECTION III • HW-2



Construction Specifications

1. The subgrade for the filter, rip-rap, 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 rip-rap or filter.

3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.

4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall 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 rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMITS. (2 weeks)
2. NOTIFY "MISS UTILITY" AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION DIVISION AT 410-313-1870 AT LEAST 24 HOURS BEFORE STARTING ANY WORK. IN ADDITION, NOTIFY AT&T PRIOR TO ANY ACTIVITY WITHIN THEIR EASEMENT.
3. GRADING OPERATIONS WILL BE PHASED FOR THIS PROJECT IN ORDER TO ALLOW HOUSING CONSTRUCTION TO BEGIN ALONG BIRCHTREE LANE SUCH THAT MASS GRADING OF PARCELS F & G WITH SWM FACILITY #2 CAN PROCEED ALONG A SEPARATE TIME SCHEDULE. PHASE I LIMITS WILL INCLUDE ICE CRYSTALL DRIVE UP TO STA. 6+00, ALL OF BIRTCHTREE LANE AND SWM FACILITY #1. PHASE II WILL CONSIST OF SWM FACILITY #2, THE REMAINDER OF ICE CRYSTALL DRIVE AND THE MASS GRADING OF THE REMAINDER OF THE SITE. GRADING OPERATIONS FOR BOTH PHASES CAN OCCUR SIMULTANIOUSLY BUT INDEPENDANTLY OF EACH OTHER AS PER EACH TIME SCHEDULE.
4. INSTALL PERIMETER SEDIMENT CONTROL MEASURES FOR PHASE I WHICH INCLUDE STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE, BASIN #3, SWM/BASIN #1 W/ TEMP. FLEX PIPE AND ASSOCIATED EARTH DIKES. PHASE II MEASURES WILL INCLUDE P.O.S.T.#1, SWM/BASIN #2 W/ TEMP. FLEX PIPE, EARTH DIKES AND SILT FENCE. (3 weeks)
5. AFTER PERMISSION IS GRANTED BY THE SEDIMENT CONTROL INSPECTOR GRADE SITE TO SUBGRADE AND STABILIZE USING TEMPORARY SEEDING NOTES. INSTALL STORM DRAINS, WATER MAINS AND SEWER MAINS WITHIN THE LIMITS OF EACH PHASE OF THE SITE GRADING. THE PHASE I STORM DRAIN SHALL INCLUDE THE RUN FROM S-2 UP TO I-15. UTILIZE DUST CONTROL SPECIFICATIONS SHOWN ON SHEET 19. (8 weeks)
6. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS. REMOVE SEDIMENTS FROM ALL TRAPS WHEN CLEANOUT ELEVATIONS ARE REACHED. ALL SEDIMENTS MUST BE PLACED UPSTREAM OF AN APPROVED TRAP DEVICE.
7. INSTALL ROADWAY BASE COURSE PAVING IN ACCORDANCE WITH EACH OF THE PHASED PAVING LIMITS. (1 week)
8. STABILIZE ALL DISTURBED AREAS PHASE I ROAD CONSTRUCTION AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED TO PHASE 2 OF THE SITE WORK. (1 week)
9. APPLY TACK COAT TO BASE COURSE PAVING AND LAY SURFACE COURSE. (1 week)
10. WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES (SILT FENCE, BASIN #3, DIKES & P.O.S.T. #1) HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE DEVICE MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE. (4 weeks) SWM/BASIN NOs. 1 AND 2 CAN REMAIN IN PLACE AS BASINS FOR A PERIOD OF 3 YEARS MAXIMUM SO THEY CAN BE UTILIZED FOR FUTURE PHASES OF THIS DEVELOPMENT.
11. NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED PROJECT OR COMPLETION OF EACH PHASE OF THE SITE GRADING.

AS BUILT 5/29/08

SEDIMENT AND EROSION CONTROL NOTES & DETAILS

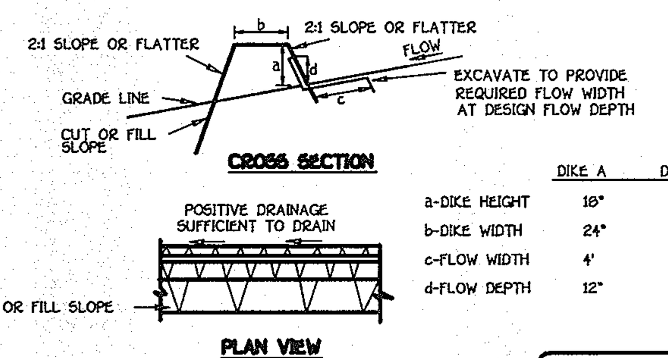
CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)
ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 12 OF 21

AS BUILT F01-114

EARTH DIKE

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"

STANDARD SYMBOL A-2 B-3

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

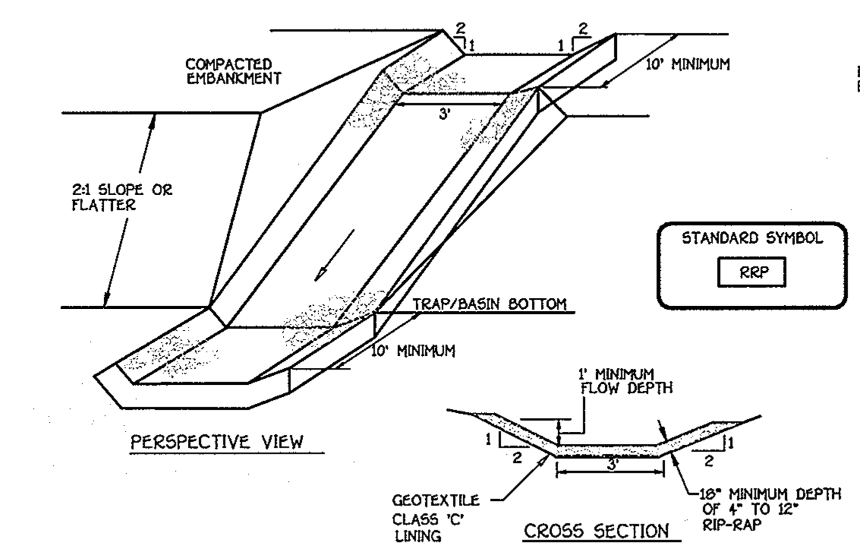
1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

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.

RIP-RAP INFLOW PROTECTION

NOT TO SCALE



STANDARD SYMBOL RRP

Construction Specifications

1. Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip- rap to a depth of 18".

2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.

3. Entrance and exit sections shall be installed as shown on the detail section.

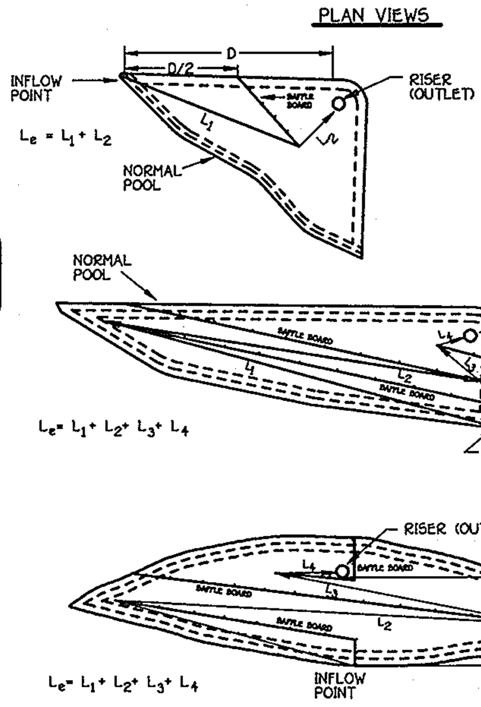
4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.

5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.

6. Rip-rap should blend into existing ground.

7. Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

SEDIMENT BASIN BAFFLES



D = DISTANCE BETWEEN INFLOW AND OUTFLOW = 90' @ BASIN NO. 1

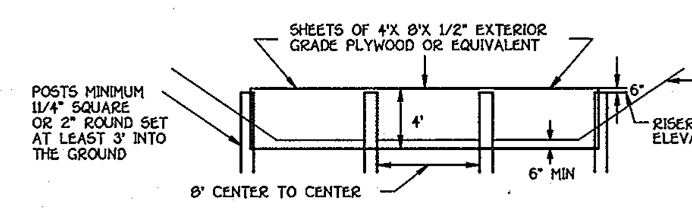
A = AREA OF NORMAL POOL = 7615 SQ.FT.

W_e = EFFECTIVE WIDTH = A/D = 135.9

L_e = TOTAL DISTANCE FROM THE INFLOW POINT AROUND THE BAFFLES TO THE RISER

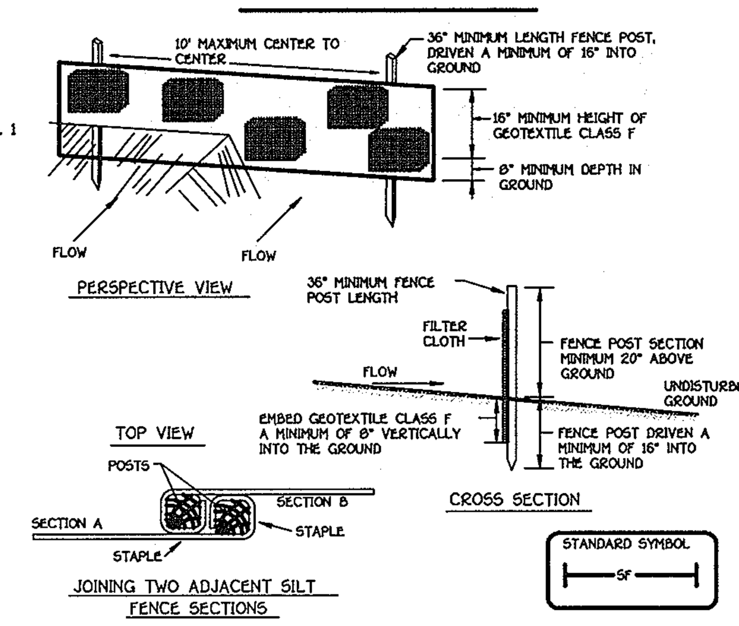
FORMULA: $\frac{L_e}{W_e} \geq 2$

$L_{e\,min}$ 2 x 84.6 = 169'



BAFFLE DETAIL

SILT FENCE



STANDARD SYMBOL SF

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.

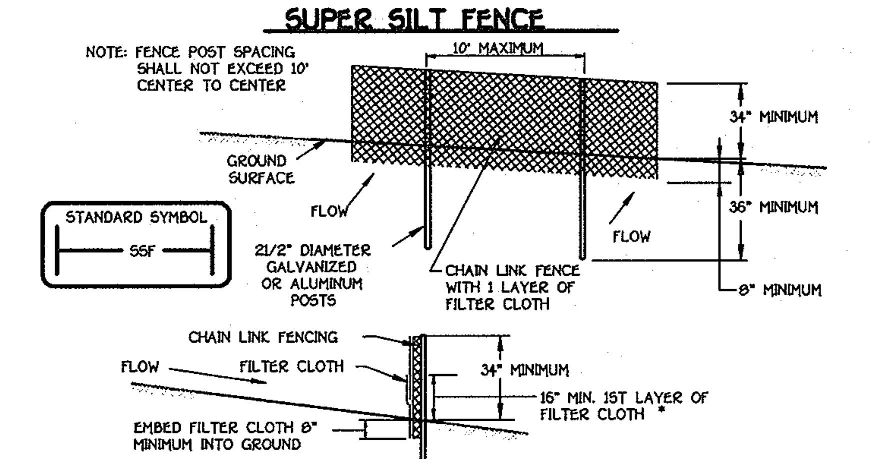
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

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.

SUPER SILT FENCE



STANDARD SYMBOL SSF

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

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] 12/11/01
Signature Of Developer — Date

THOMAS K BOURKE VP
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."

[signature] 12-11-01
Signature Of Engineer — Date

ALDO M. VITUCCI
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.

[signature] /GS. 1/29/02
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.

[signature] 1/29/02
Howard Soil Conservation District — Date

Approved: Department Of Public Works

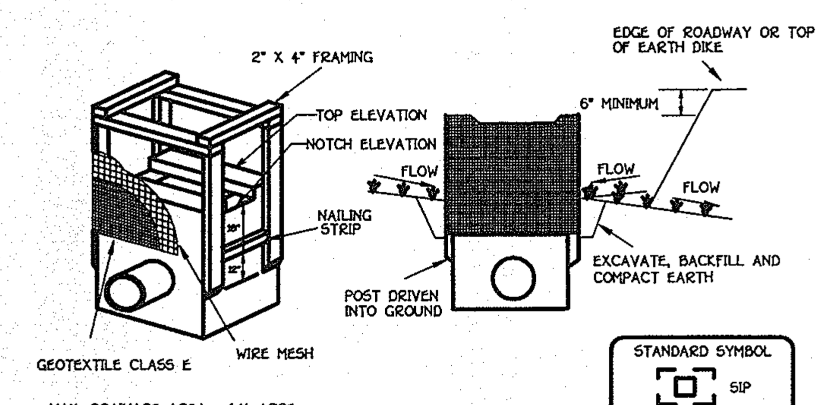
[signature] 1-16-02
Chief Bureau Of Highways — Date

Approved: Department Of Planning And Zoning

[signature] 2/4/02
Chief, Division Of Land Development — Date

[signature] 2/4/02
Chief, Development Engineering Division — Date

STANDARD INLET PROTECTION



STANDARD SYMBOL SIP

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.

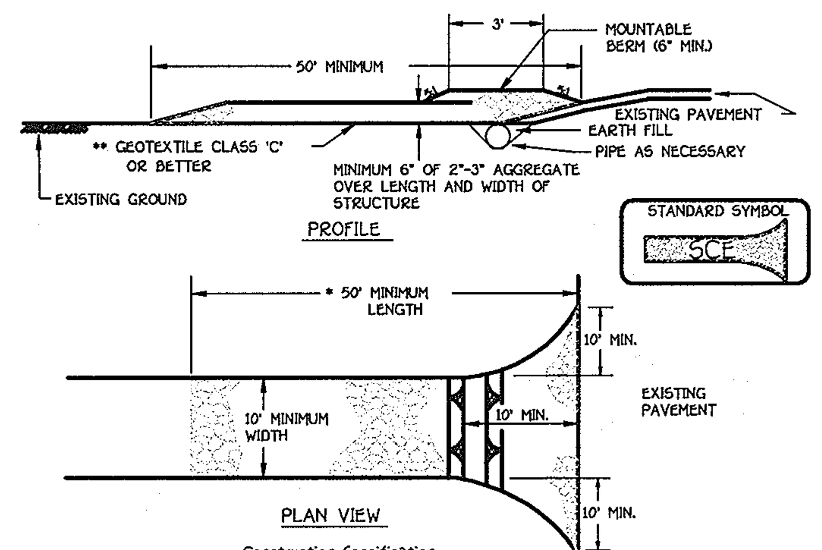
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotixtile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.

5. Backfill around the inlet in compacted 6" 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.

STABILIZED CONSTRUCTION ENTRANCE

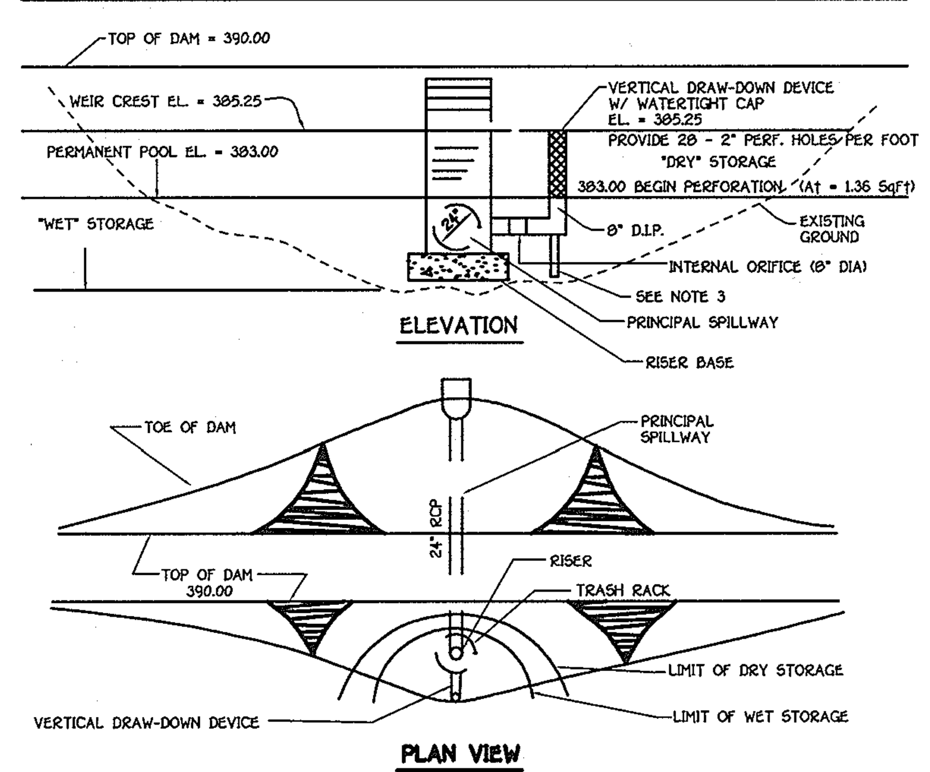


STANDARD SYMBOL SCE

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.

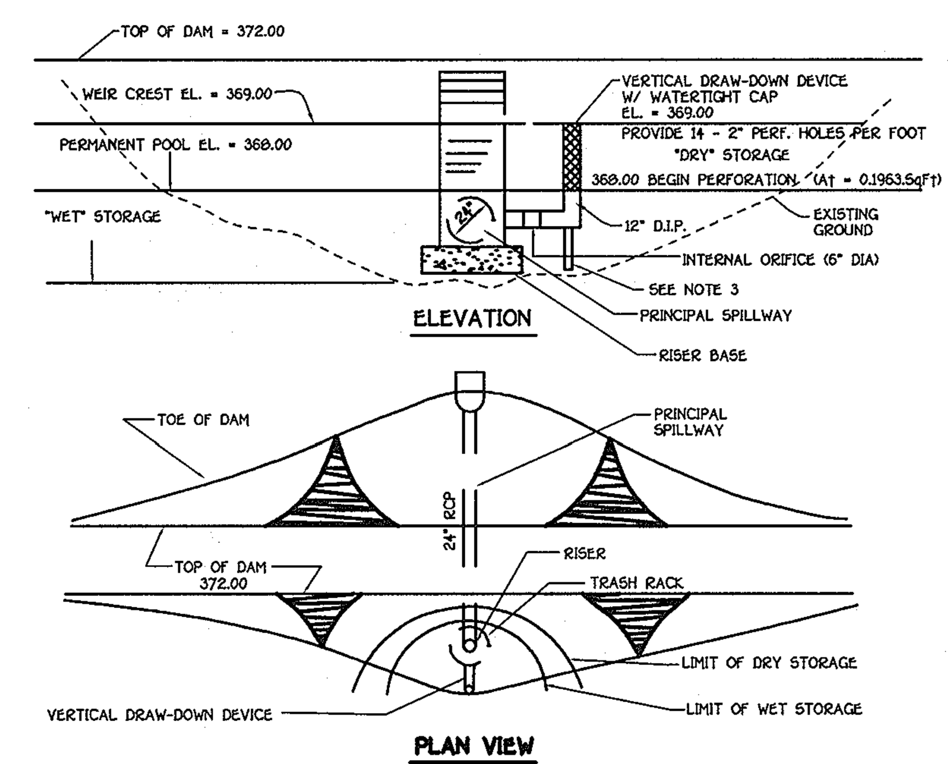
S.W.M./SEDIMENT BASIN NO. 1 VERTICAL DRAW-DOWN DEVICE



CONSTRUCTION SPECIFICATIONS

1. PERFORATIONS IN THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE.
2. THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 2 TIMES THE AREA OF THE INTERNAL ORIFICE.
3. THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.
4. PROVIDE SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLOATATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF DRAW-DOWN DEVICE WITH 1" STEEL ANGLE, OR 1' BY 4" SQUARE OR 2" ROUND WOODEN POSTS SET 3' MINIMUM INTO THE GROUND THEN JOINING THEM TO THE DEVICE BY WRAPPING WITH 12 GAUGE MINIMUM WIRE.

S.W.M./SEDIMENT BASIN NO. 2 VERTICAL DRAW-DOWN DEVICE



CONSTRUCTION SPECIFICATIONS

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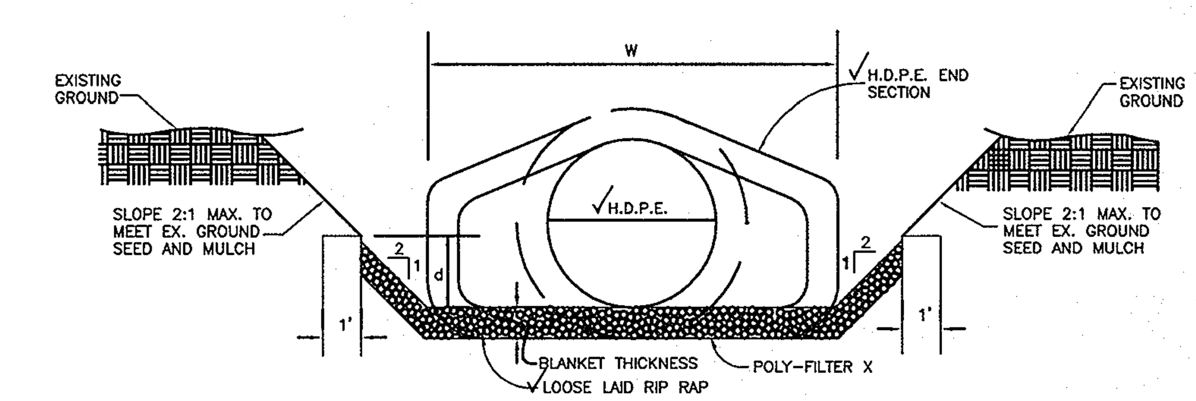
3. THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.
4. PROVIDE SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLOATATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF DRAW-DOWN DEVICE WITH 1" STEEL ANGLE, OR 1' BY 4" SQUARE OR 2" ROUND WOODEN POSTS SET 3' MINIMUM INTO THE GROUND THEN JOINING THEM TO THE DEVICE BY WRAPPING WITH 12 GAUGE MINIMUM WIRE.

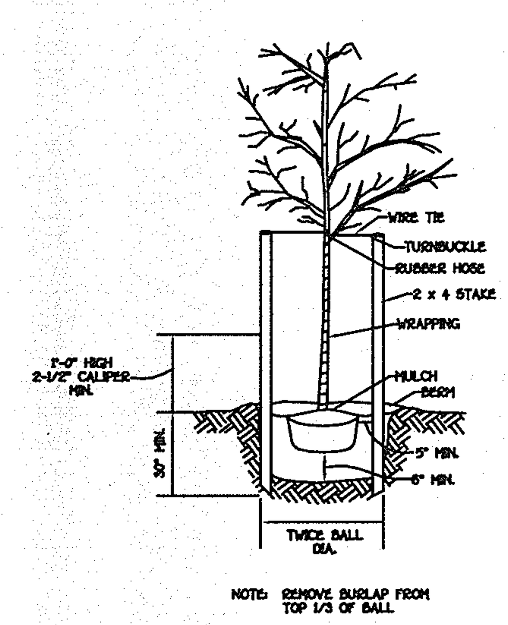


RIP-RAP OUTFALL CHANNEL DETAIL @ S-1, S-2 AND S-3

NO SCALE

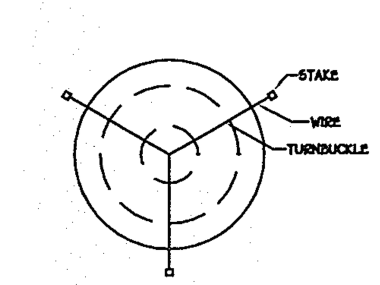
RIP-RAP CHANNEL DESIGN DATA

STRUCTURE	AREA	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	DIA.
S-1	6.12 SF	8.16'	0.7500'	0.8255	0.0050	0.0707	3.00'	1.15'	0.04	2.17	13.28	9.5"	15"	19"	24"
S-2	8.01 SF	9.20'	0.8707'	0.9118	0.0050	0.0707	3.00'	1.39'	0.04	2.39	19.18	16"	24"	32"	24"
S-3	FUTURE PHASE III OF PROJECT											9.5"	15"	19"	24"

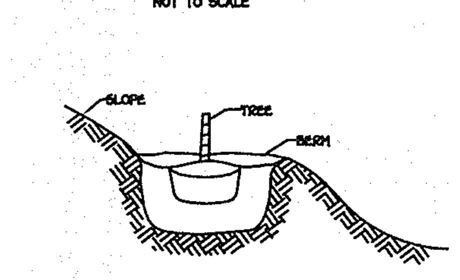


NOTE: REMOVE BURLAP FROM TOP 1/3 OF BALL

TREE PLANTING
NOT TO SCALE

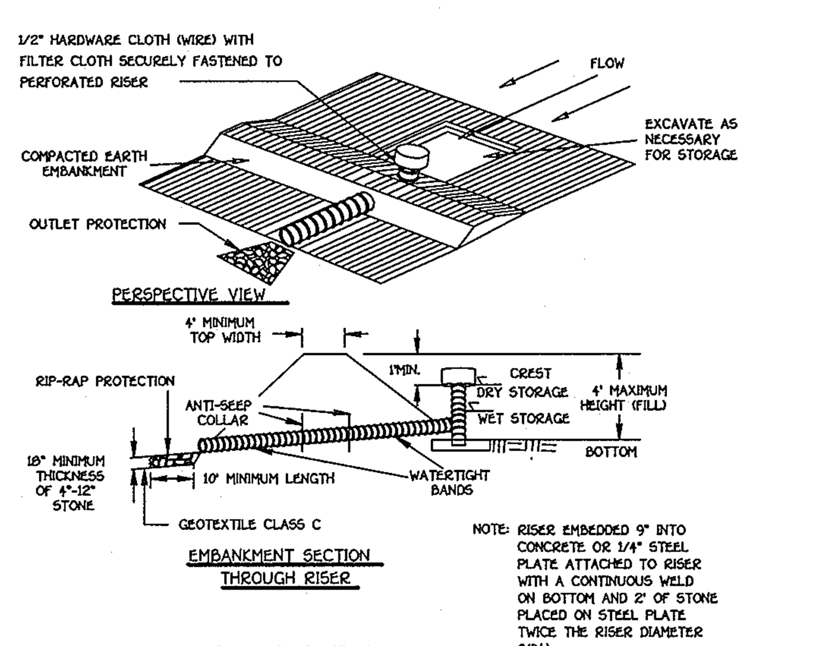


STAKING DETAIL
NOT TO SCALE



GRADING FOR PLANTING ON SLOPES
NOT TO SCALE

PIPE OUTLET SEDIMENT TRAP - ST I

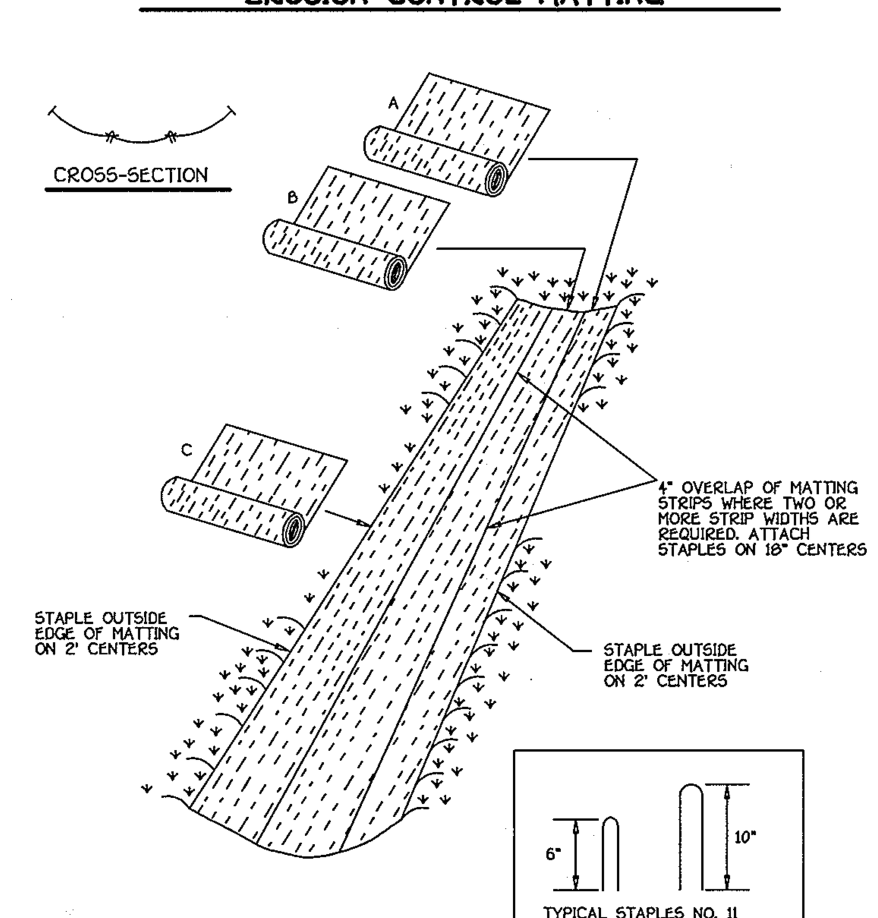


NOTE: RISER EMBEDDED 9" INTO CONCRETE OR 1/4" STEEL PLATE ATTACHED TO RISER WITH A CONTINUOUS WELD ON BOTTOM AND 2' OF STONE PLACED ON STEEL PLATE TWICE THE RISER DIAMETER (MIN.)

Construction Specifications

1. The area under the embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material, or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. The total trap volume as measured from the bottom to riser crest elevation shall be 3600 cubic feet per acre of drainage area (see Table 9). The top of embankment must be ≥1' above the riser crest elevation.
4. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap (900cf/ac). The sediment shall be deposited in a suitable area and in such a manner that it will not erode.
5. The structure shall be inspected periodically and after each rain and repairs made as necessary.
6. Construction operations shall be carried out in such a manner that erosion and water pollution are abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
7. The structure shall be removed and area stabilized when the drainage area has been properly stabilized.
8. All cut and fill slopes shall be 2:1 or flatter.
9. All pipe connections shall be watertight.
10. Above the wet storage elevation, the riser shall be perforated with 1/2" wide by 6" long slits or 1" diameter holes spaced 6" vertically and horizontally. No perforations will be allowed within 6" of the horizontal barrel.
11. The riser shall be wrapped with 1/2" hardware cloth (wire) then wrapped with Geotextile Class E. The filter cloth shall extend 6" above the highest slit and 6" below the lowest slit. Where ends of filter cloth come together, they shall be overlapped, folded and fastened to prevent bypass. Filter cloth shall be replaced as necessary to prevent clogging.
12. Straps or connecting bands shall be used to hold the filter cloth and wire fabric in place. They shall be placed at the top and bottom of the cloth.
13. Fill material around the pipe spillway shall be hand compacted in 4" layers. A minimum of 2' of hand-compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment.
14. The riser shall be anchored with either a concrete base or steel plate base to prevent flotation. Concrete bases shall be at least twice the riser diameter and 12" deep with the riser embedded 9". Steel plate bases shall be at least twice the riser diameter, 1/4" minimum thickness and attached to the bottom of the riser by a continuous weld to form a watertight connection. Then place 2' of stone, gravel or tamped earth on the plate.
15. Anti seep collars shall be constructed in accordance with plans (ref. table 16 and Details 13 and 14).
16. Concentric trash rack and anti-vortex device design details are on Detail 16.
17. Refer to Section D for dewatering requirements of sediment traps.
18. Outlet - An outlet shall be provided, which includes a means of conveying the discharge in an erosion free manner to an existing stable channel.
19. Where discharge occurs at the property line, local ordinances and drainage easement requirements shall be met.

EROSION CONTROL MATTING



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.

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STATE OF MARYLAND ALDO MICHAEL VITUCCI NO. 20746 REGISTERED PROFESSIONAL ENGINEER
12-11-01

OWNER/DEVELOPER

CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

AS BUILT 5/29/08

SEDIMENT AND EROSION CONTROL NOTES & DETAILS

CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)

ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 13 OF 21

F 01-114

AS BUILT

STORM WATER MANAGEMENT POND CONSTRUCTION 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. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the 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 and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8-inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway 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 heavy 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.

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

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be 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.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

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.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to the specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:

1. Materials - (Polymer Coated steel pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Stel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections- All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24-inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2-inch greater than the corrugation depth. Pipes 24-inches in diameter and larger shall be connected by a 24-inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12-inches on the end of each pipe. Flanged joints with 3/8-inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

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

5. Backfilling shall conform to "Structure Backfill".

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

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

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

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Stucture Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all 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 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

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

Plastic Pipe

The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirement of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirement of AASHTO M294 Type S.

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

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

4. Backfilling shall conform to "Structure Backfill".

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

Drainage Diaphragms - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, 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 311.

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or 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 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 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 Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

OPERATION AND MAINTENANCE

An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.

STATE OF MARYLAND ALDO MICHAEL VITUCCI NO. 20748 REGISTERED PROFESSIONAL ENGINEER
9-27-01

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BORING B-1

ELEVATION	DESCRIPTION OF MATERIALS	DEPTH	REMARKS
364.5	TOPSOIL	SURFACE	5" TOPSOIL
	BROWN TO RED-BROWN, MOIST, LOOSE TO MEDIUM DENSE, MICACEOUS, MEDIUM TO FINE SAND AND SILT. (SM) AASHTO: A-4	5"	BAG SAMPLE: 1.0 - 5.0 FT.; WATER NOT ENCOUNTERED WHILE DRILLING; WATER LEVEL AT COMPLETION: DRY; WATER LEVEL AFTER 24 HRS.: 9.8'; HOLE CAVED AT COMPLETION: 13.5'
349.5	BOTTOM OF HOLE AT 15-0'	15.0'	HOLE CAVED AFTER 24 HRS.: 12.9'

BORING B-2

ELEVATION	DESCRIPTION OF MATERIALS	DEPTH	REMARKS
366.0	TOPSOIL	SURFACE	12" TOPSOIL
	BROWN, MOIST, MICACEOUS, LOOSE TO MEDIUM DENSE, MEDIUM TO FINE SAND AND SILT. (SM) AASHTO: A-4	12"	WATER LEVEL AT COMPLETION: 5.1'; WATER LEVEL AFTER 24 HRS.: 6.9'; HOLE CAVED AT COMPLETION: 9.8'
351.0	BOTTOM OF HOLE AT 15.0'	15.0'	HOLE CAVED AFTER 24 HRS.: 9.3'

BORING B-3

ELEVATION	DESCRIPTION OF MATERIALS	DEPTH	REMARKS
362.2	TOPSOIL	SURFACE	4" TOPSOIL
	BROWN TO GRAY-BROWN, MOIST, VERY LOOSE, MICACEOUS SAND AND SILT. (SM) AASHTO: A-4	4"	WATER ENCOUNTERED AT 6.5'
359.7	BROWN, MOIST, VERY LOOSE, CLAYEY SILT AND FINE SAND. (SM) AASHTO: A-4	2.5'	WATER LEVEL AT COMPLETION: 6.0'
356.7	BROWN, MOIST TO WET, LOOSE TO MEDIUM DENSE, MICACEOUS, MEDIUM TO FINE SAND AND SILT. (SM) AASHTO: A-4	5.5'	WATER LEVEL AFTER 24 HRS.: 4.2'; HOLE CAVED AT COMPLETION: 10.0'
347.2	BOTTOM OF HOLE AT 15.0'	15.0'	HOLE CAVED AFTER 24 HRS.: 6.0'

BORING B-4

ELEVATION	DESCRIPTION OF MATERIALS	DEPTH	REMARKS
401.9	TOPSOIL	SURFACE	5" TOPSOIL
	BROWN, MOIST, LOOSE, MICACEOUS SILT AND FINE SAND. (SM) AASHTO: A-4	5"	BAG SAMPLE: 1.0 - 5.0 FT.; WATER NOT ENCOUNTERED WHILE DRILLING
396.9	YELLOW-BROWN TO LIGHT RED, MOIST TO DRY, LOOSE TO MEDIUM DENSE, MICACEOUS SILT AND FINE SAND. (SM) AASHTO: A-4	5.0'	WATER LEVEL AT COMPLETION: DRY; WATER LEVEL AFTER 24 HRS.: DRY; HOLE CAVED AT COMPLETION: 12.5'
386.9	BOTTOM OF HOLE AT 15.0'	15.0'	HOLE CAVED AFTER 24 HRS.: 12.0'

BORING B-5

ELEVATION	DESCRIPTION OF MATERIALS	DEPTH	REMARKS
387.3	TOPSOIL	SURFACE	3" TOPSOIL
	BROWN TO GRAY, DRY TO MOIST, LOOSE, MICACEOUS SILT AND FINE SAND. (ML) AASHTO: A-4	3"	WATER ENCOUNTERED AT 12.0'
380.3	BROWN TO GRAY, MOIST, LOOSE TO DENSE, MICACEOUS, COURSE TO FINE SAND, LITTLE SILT. (SM) AASHTO: A-4 / A-2-4	7.0'	WATER LEVEL AT COMPLETION: 9.6'; WATER LEVEL AFTER 24 HRS.: 9.9'; HOLE CAVED AT COMPLETION: 12.6'
372.3	BOTTOM OF HOLE AT 15.0'	15.0'	HOLE CAVED AFTER 24 HRS.: 12.6'

BORING B-6

ELEVATION	DESCRIPTION OF MATERIALS	DEPTH	REMARKS
395.4	TOPSOIL	SURFACE	2" TOPSOIL
	BROWN TO GRAY, DRY TO MOIST, VERY LOOSE, MICACEOUS SILT AND FINE SAND. (ML) AASHTO: A-4	2"	WATER NOT ENCOUNTERED WHILE DRILLING
388.4	BROWN TO GRAY, MOIST TO WET, MEDIUM DENSE TO VERY DENSE, MICACEOUS COARSE TO FINE SAND, SOME SILT. (SM) AASHTO: A-2-4	7.0'	WATER LEVEL AT COMPLETION: DRY; WATER LEVEL AFTER 24 HRS.: DRY; HOLE CAVED AT COMPLETION: 12.8'
380.4	BOTTOM OF HOLE AT 15.0'	15.0'	HOLE CAVED AFTER 24 HRS.: 12.5'

BORING B-7

ELEVATION	DESCRIPTION OF MATERIALS	DEPTH	REMARKS
404.9	TOPSOIL	SURFACE	4" TOPSOIL
	BROWN, MOIST, MEDIUM DENSE, MEDIUM TO FINE SAND AND CLAYEY SILT. (SM) AASHTO: A-4	4"	BAG SAMPLE: 1.0 - 5.0 FT.; WATER ENCOUNTERED AT 11.5'
402.4	BROWN TO GRAY-BROWN, MOIST TO WET, LOOSE TO MDEIUM DENSE, MICACEOUS, MEDIUM TO FINE SAND, LITTLE SILT. (SM) AASHTO: A-4	2.5'	WATER LEVEL AT COMPLETION: 8.9'; WATER LEVEL AFTER 24 HRS.: 7.0'; HOLE CAVED AT COMPLETION: 11.9'
389.9	BOTTOM OF HOLE AT 15.0'	15.0'	HOLE CAVED AFTER 24 HRS.: 9.4'

DESIGN SUMMARY (S.W.M. NO. 1)

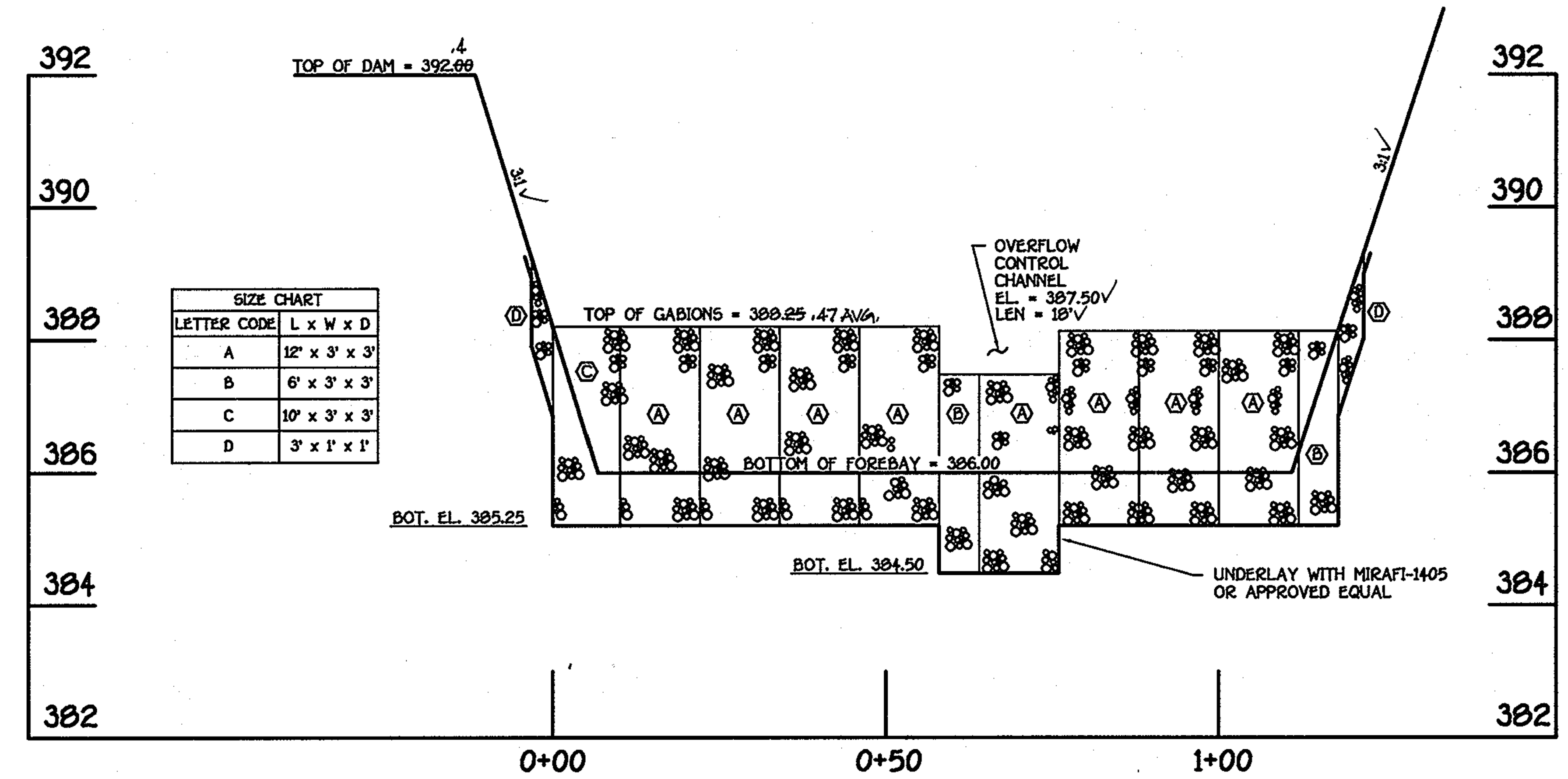
DESIGN STORM	ALLOWABLE RELEASE RATE	FACILITY INFLOW	FACILITY DISCHARGE	WATER SURFACE ELEVATION	STORAGE VOLUME (AC.FT.)
2 YEAR	1.01 cfs	29.0	1.0	387.39	0.9871
10 YEAR	10.0 cfs	63.1	8.9	388.65	1.7645
100 YEAR	N/A	103.0	47.8	389.85	2.5556

STRUCTURE CLASSIFICATION, LOW HAZARD, CLASS 'A' POND
STORAGE- HEIGHT PRODUCT 1.75 Ac. ft. x 15' = 26.3
WATERSHED AREA TO FACILITY (ACRES): ULTIMATE 15.01 ACRES
LEVEL OF MANAGEMENT PROVIDED BY FACILITY: TWO, AND TEN YEAR STORMS

DESIGN SUMMARY (S.W.M. NO. 2)

DESIGN STORM	ALLOWABLE RELEASE RATE	FACILITY INFLOW	FACILITY DISCHARGE	WATER SURFACE ELEVATION	STORAGE VOLUME (AC.FT.)
2 YEAR	1.0 cfs	10.7	0.6	368.47	0.3196
10 YEAR	7.7 cfs	26.4	7.3	369.73	0.5962
100 YEAR	N/A	51.4	26.8	370.71	1.3056

STRUCTURE CLASSIFICATION, LOW HAZARD, CLASS 'A' POND
STORAGE- HEIGHT PRODUCT 0.59 Ac. ft. x 12 = 7.1
WATERSHED AREA TO FACILITY (ACRES): ULTIMATE 6.86 ACRES
LEVEL OF MANAGEMENT PROVIDED BY FACILITY: TWO AND TEN YEAR STORMS



S.W.M. FACILITY NO. 1 (GABION FOREBAY PROFILE)

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

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: 12/11/01
Printed Name Of Developer: THOMAS K BOURKE VP

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."

Signature Of Engineer — Date: 9-27-01
Printed Name Of Engineer: ALDO M. VITUCCI

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: 1/24/02

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: 1/24/02

Approved: Department Of Public Works

Chief Bureau Of Highways — Date: 1-16-02

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 2/4/02

Chief, Development Engineering Division — Date: 2/4/02

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. 13204 — Date: 5/29/08

ASBUILT 5/29/08

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.

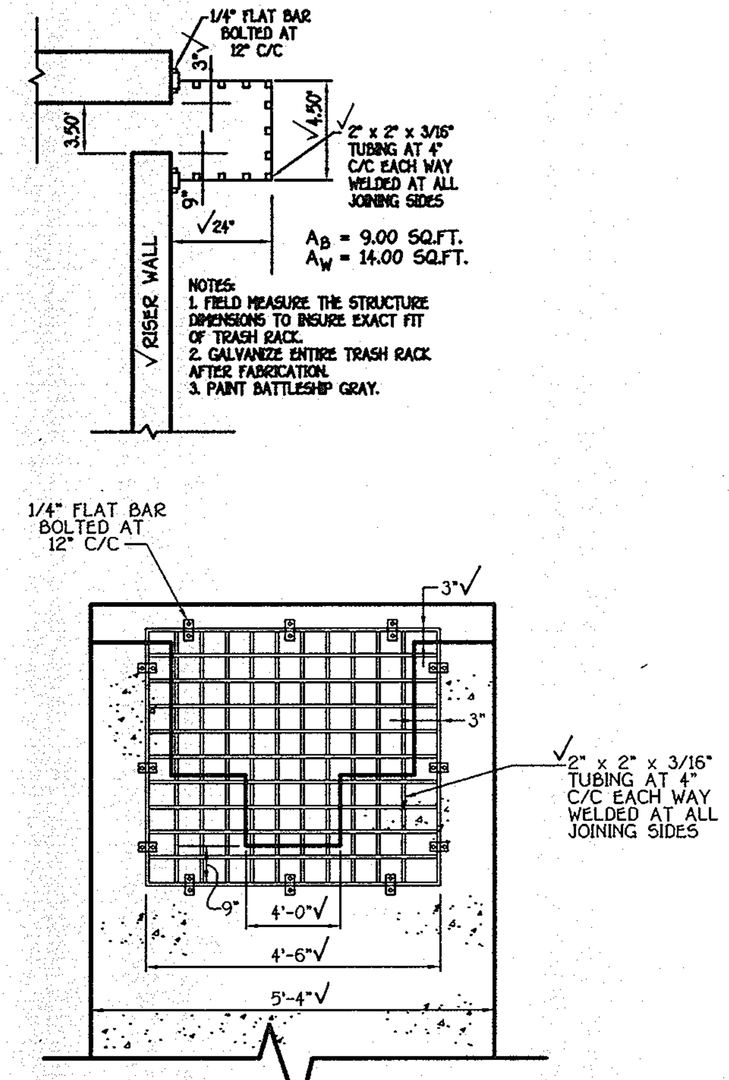
Embankment and Cut-off Trench Construction

THE AREA OF THE PROPOSED SWM POND 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 UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFOLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.
A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH. IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION 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.
IT IS OUR PROFESSIONAL OPINION THAT IN ADDITION TO THE SOIL MATERIALS DESCRIBED ABOVE A FINE GRAINED SOIL, INCLUDING SILT (ML) WITH A PLASTICITY INDEX OF 10 OR MORE CAN BE UTILIZED FOR THE CENTER OF THE EMBANKMENT AND CORE TRENCH. BASED ON OUR VISUAL CLASSIFICATIONS IT APPEARS THAT SOME OF THE ON-SITE SOILS, ESPECIALLY THE NEAR SURFACE SOILS, WILL BE SUITABLE FOR USE AS CORE TRENCH MATERIAL. IT IS RECOMMENDED THAT ADDITIONAL EXPLORATION AND LABORATORY TESTING BE PERFORMED PRIOR TO POND CONSTRUCTION TO IDENTIFY AND QUANTIFY POTENTIAL BORROW AREAS FOR CORE TRENCH MATERIAL ALL FILL MATERIALS MUST BE PLACED AND COMPACTED WITH MD SCS 378 SPECIFICATIONS.

OWNER/DEVELOPER
CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

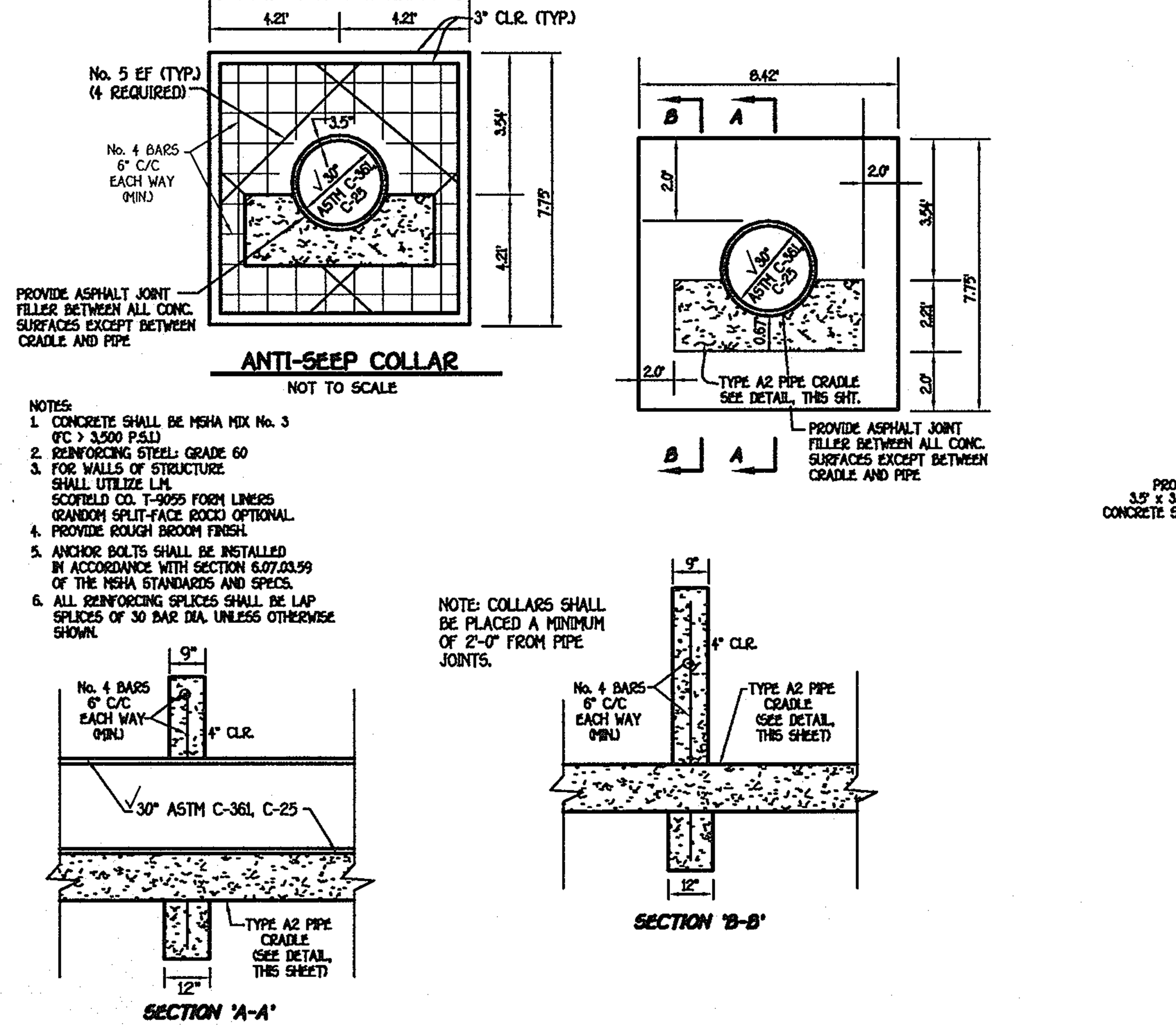
S.W.M. NOTES AND DETAILS
CHERRYTREE PARK
LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)
ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 14 OF 21

AS BUILT F 01-114



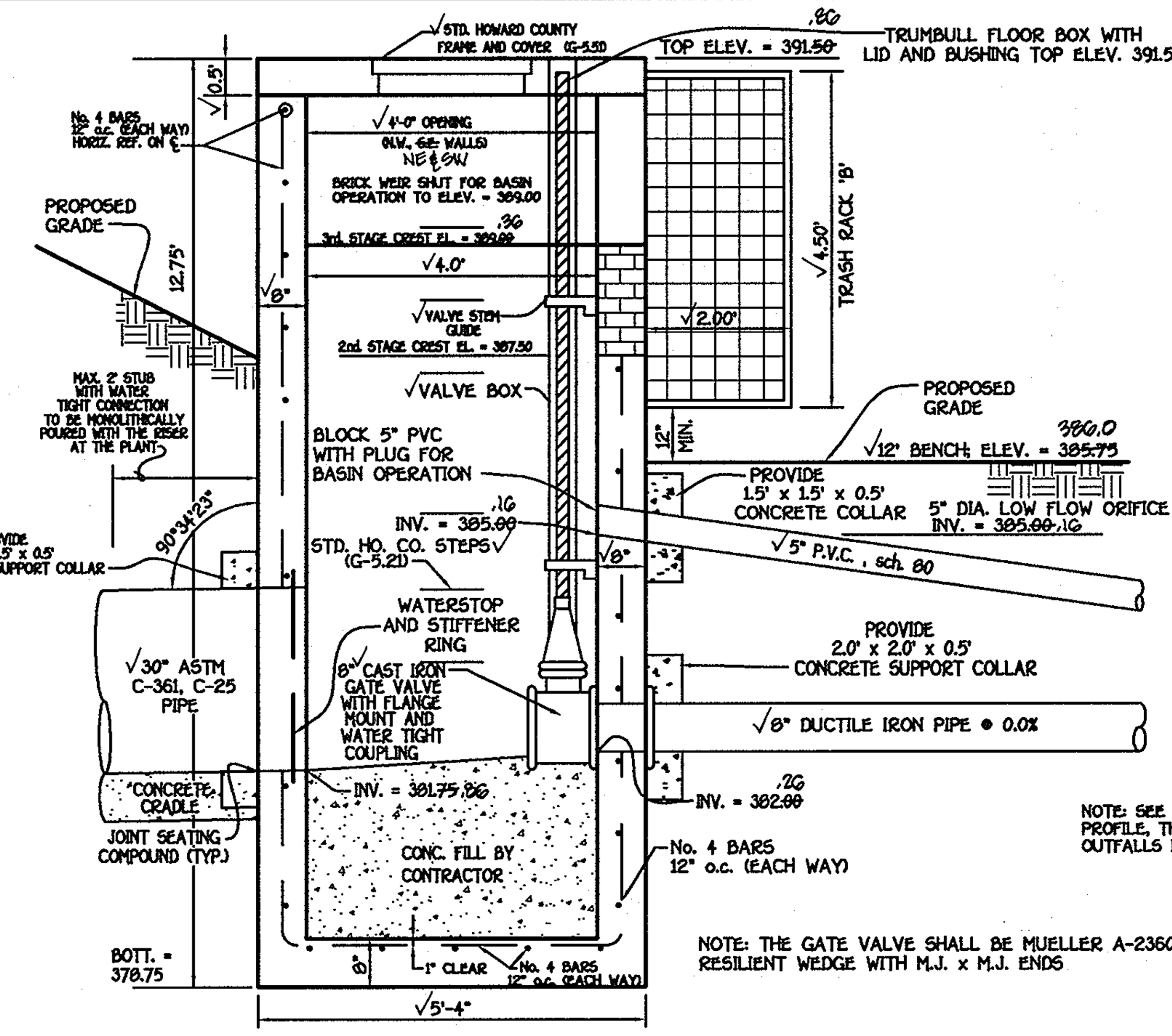
TRASH RACK 'B' DETAIL

(NO SCALE)



TYPICAL SECTION THROUGH BARREL, CRADLE AND ANTI-SEEP COLLAR

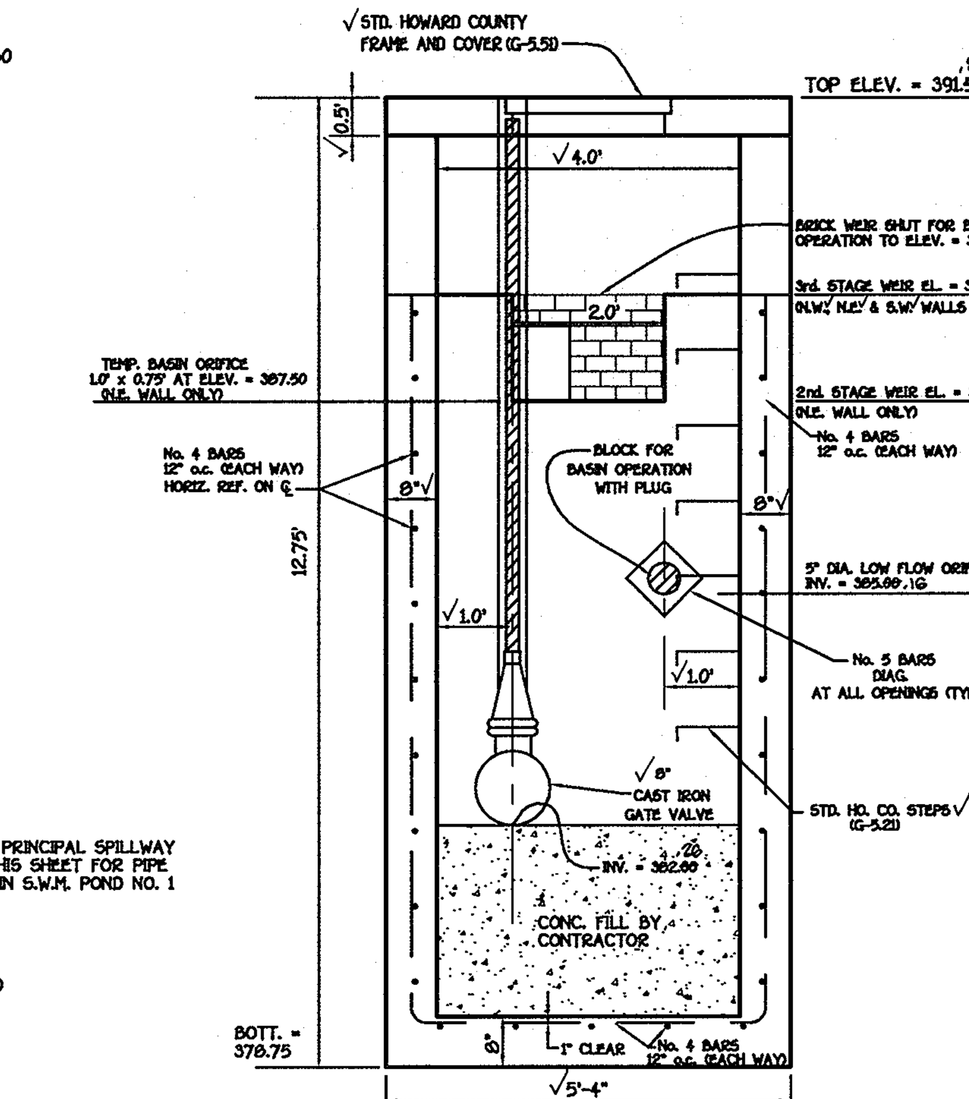
(NO SCALE)



PROFILE VIEW A

R 1 CONCRETE RISER DETAIL

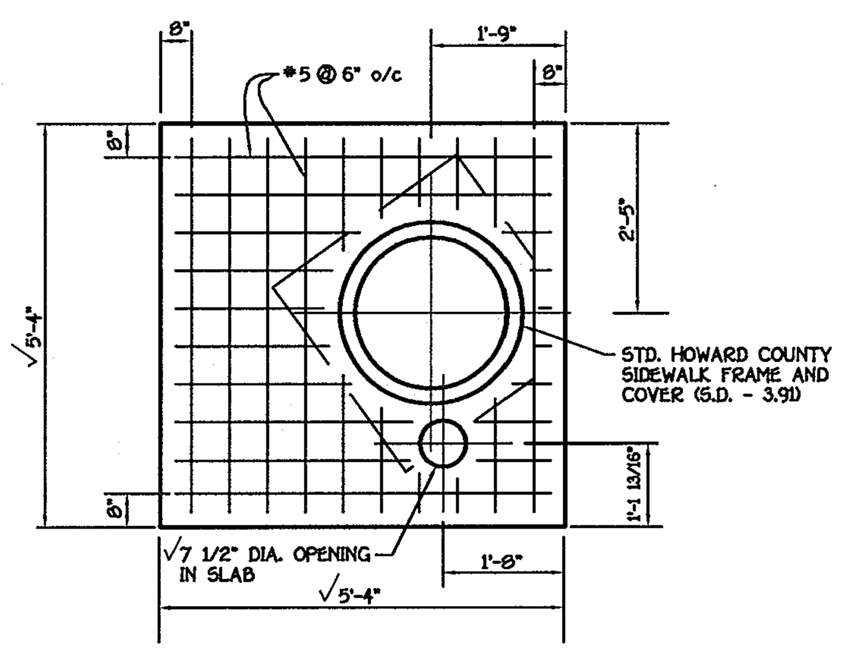
SCALE: 1" = 2'



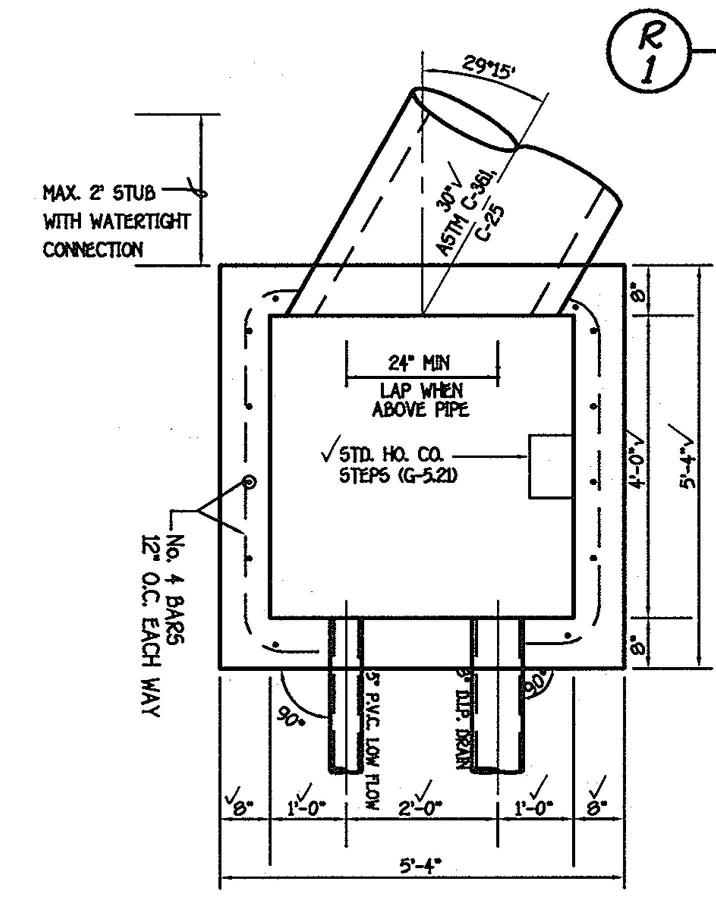
PROFILE VIEW B

R 1 CONCRETE RISER DETAIL

SCALE: 1" = 2'

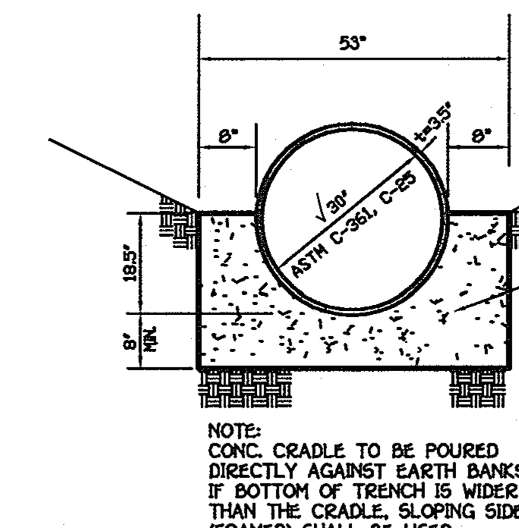


TOP SLAB DETAIL



RISER PLAN VIEW

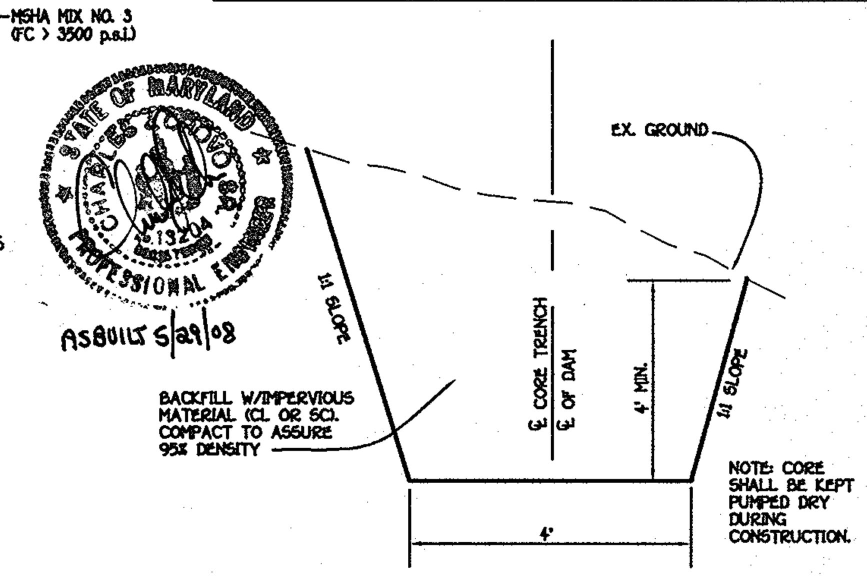
SCALE: 1" = 2'



A2 CRADLE

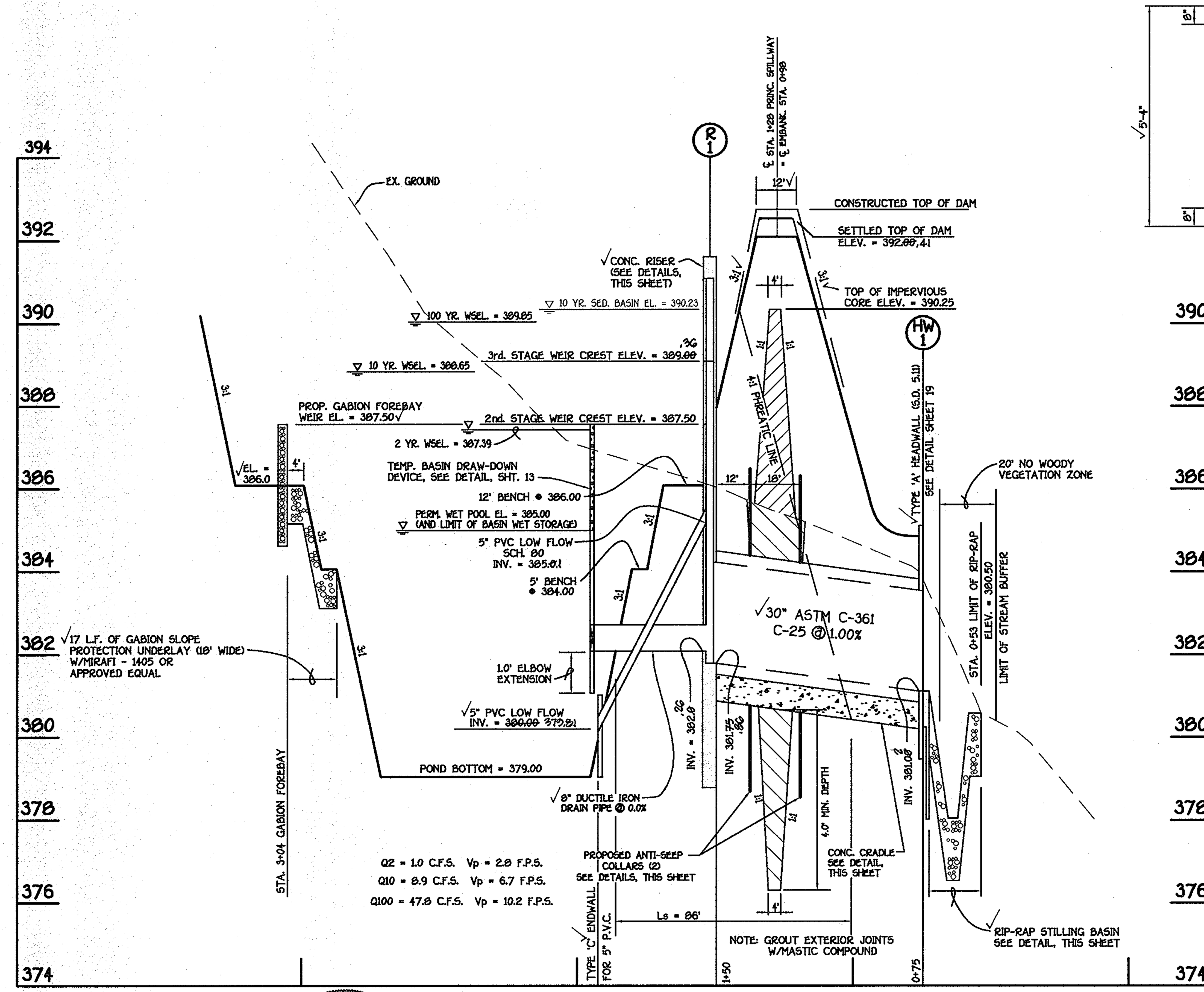
NOT TO SCALE

ASBUILT 5/29/08



CORE TRENCH DETAIL

NOT TO SCALE



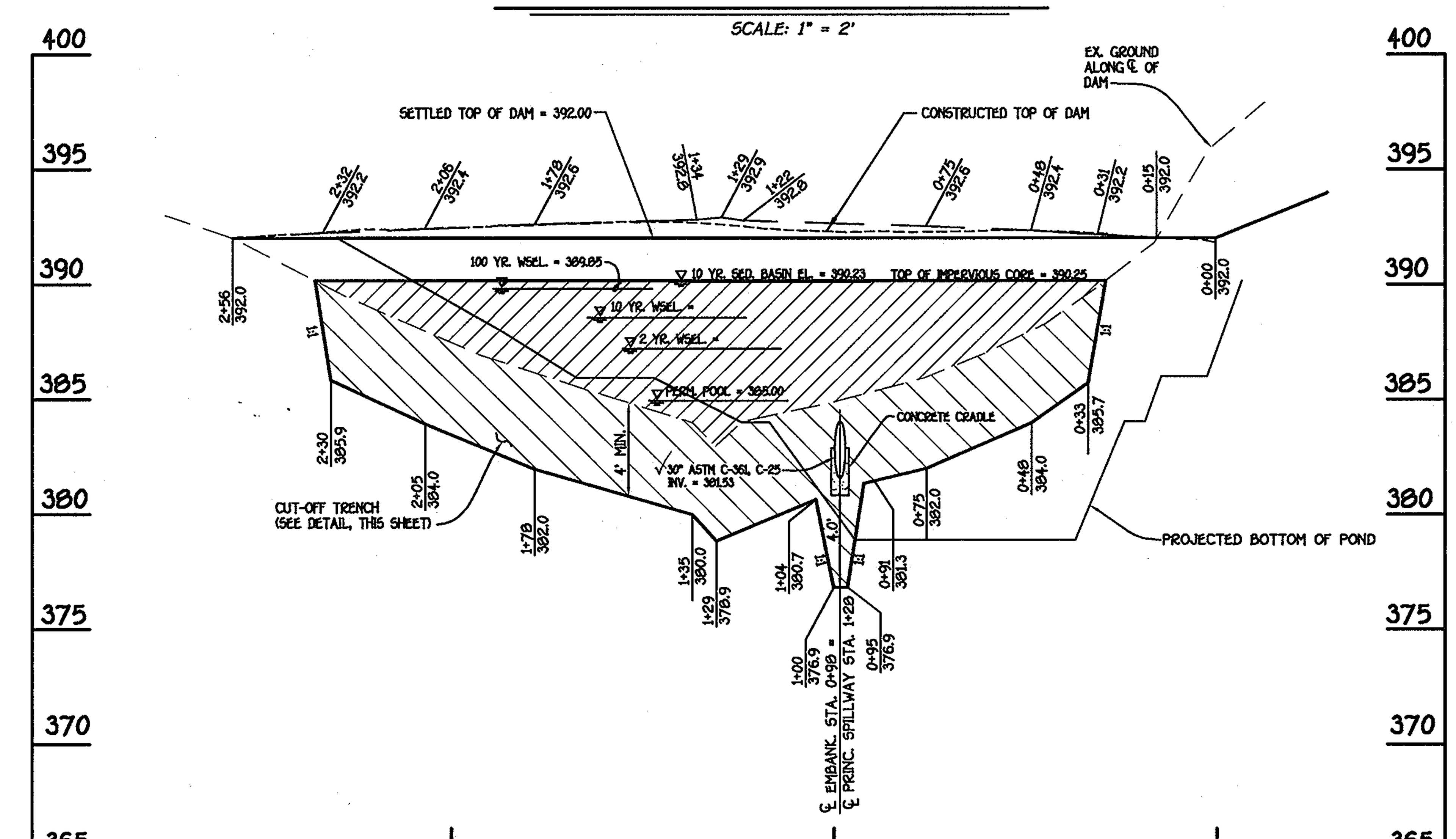
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STATE OF MARYLAND ALDO MICHAEL VITUCCI NO. 20748 REGISTERED PROFESSIONAL ENGINEER 12-11-01

S.W.M. FACILITY NO. 1
PRINCIPAL SPILLWAY PROFILE

SCALE: HOR. : 1" = 30'
VER. : 1" = 2'

OWNER/DEVELOPER
CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046



S.W.M. FACILITY NO. 1 PROFILE ALONG ℄ EMBANKMENT

SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'

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 12/18/01

THOMAS K BOURKE VP
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."

Signature Of Engineer — Date 12-11-01

ALDO M...
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 1/29/02

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 1/29/02

Approved: Department Of Public Works

Chief Bureau Of Highways — Date 1-16-02

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 2/4/02

Chief, Development Engineering Division — Date 2/4/02

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. 13204 — Date: 5/29/08

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.

STATE OF MARYLAND CHARLES ... No. 13204 PROFESSIONAL ENGINEER

STORMWATER MANAGEMENT POND MAINTENANCE SCHEDULE

A. ROUTINE MAINTENANCE

Facility Shall Be Inspected Annually And After Major Storms. Inspections Should Be Performed During Wet Weather To Determine If The Pond Is Functioning Properly.

Top And Side Slopes Of The Embankment Shall Be Mowed A Minimum Of Two (2) Times A Year, Once In June And Once In September. Other side Slopes, The Bottom Of The Pond, And Maintenance Access Should Be Mowed As Needed.

Debris And Litter Next To The Outlet Structure Shall Be Removed During Regular Mowing Operations And As needed.

Visible Signs Of Erosion In The Pond As Well As Rip-Rap Outlet Area Shall Be Repaired As Soon As It Is Noticed.

B. NON-ROUTINE MAINTENANCE

Structural Components Of The pond Such as The Dam, Riser Structure And The Pipes Shall Be Repaired Upon The Detection Of Any Damage. The Components Should Be Inspected During Routine Maintenance Operations.

Sediment Should Be Removed When Its Accumulation Significantly Reduces The Design Storage, Interfere With The Function Of The Riser, When Deemed Necessary For Aesthetic Reasons, Or When Deemed Necessary By The Howard County Department Of Public Works.

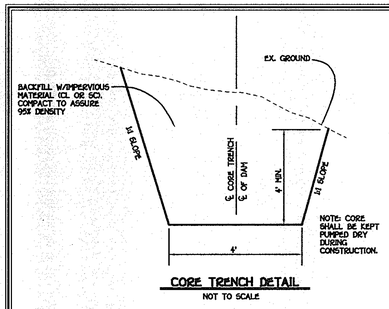
S.W.M. FACILITY NO. 1
PROFILES, NOTES AND DETAILS

CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)
ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 15 OF 21

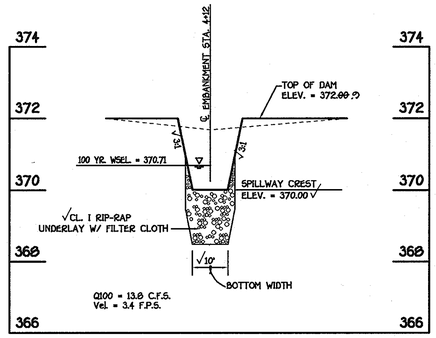
F 01-114

AS BUILT F-01-114



CORE TRENCH DETAIL

NOT TO SCALE



S.W.M. FACILITY NO. 2
EMERGENCY SPILLWAY CROSS-SECTION

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

STORMWATER MANAGEMENT POND MAINTENANCE SCHEDULE

A. ROUTINE MAINTENANCE

Facility Shall Be Inspected Annually And After Major Storms. Inspections Should Be Performed During Wet Weather To Determine If The Pond Is Functioning Properly.

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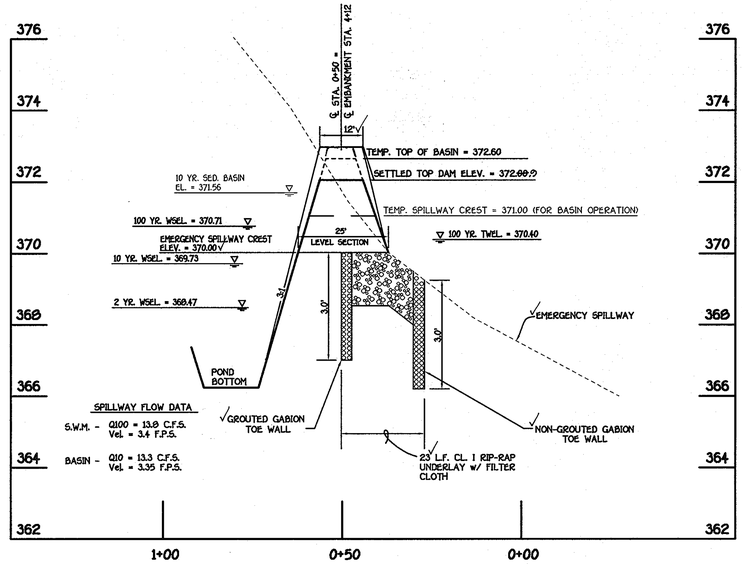


S.W.M. FACILITY NO. 2
EMERGENCY SPILLWAY PROFILE

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

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: 12/11/01

THOMAS K BOURKE VP
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 Owner/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 Within 30 Days Of Completion"

Signature — Date: 12-11-01

A.J. Ott
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: 1/29/02

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: 1/29/02

Approved: Department Of Public Works

Chief, Bureau Of Highways — Date: 1-16-02

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 2/4/02

Chief, Development Engineering Division — Date: 2/4/02

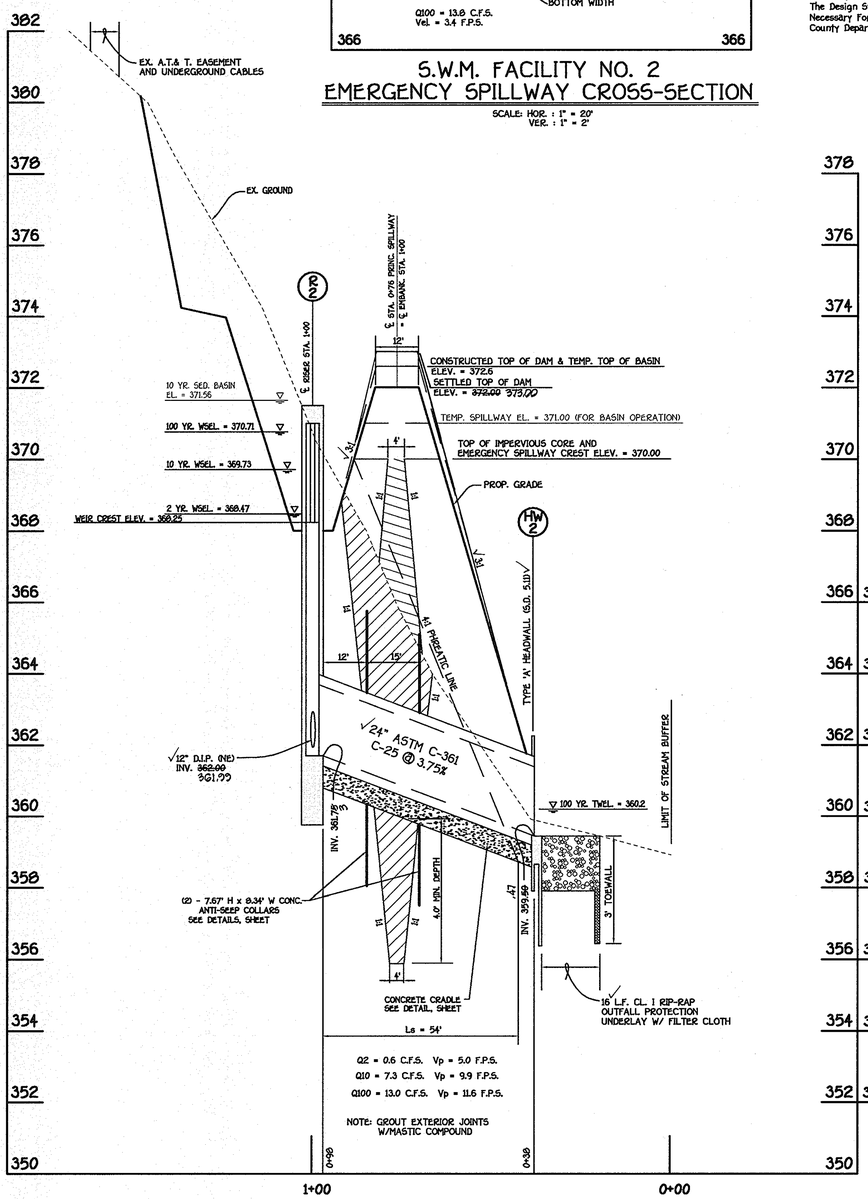
AS-BUILT CERTIFICATION

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. 13204 — Date: 5/29/08

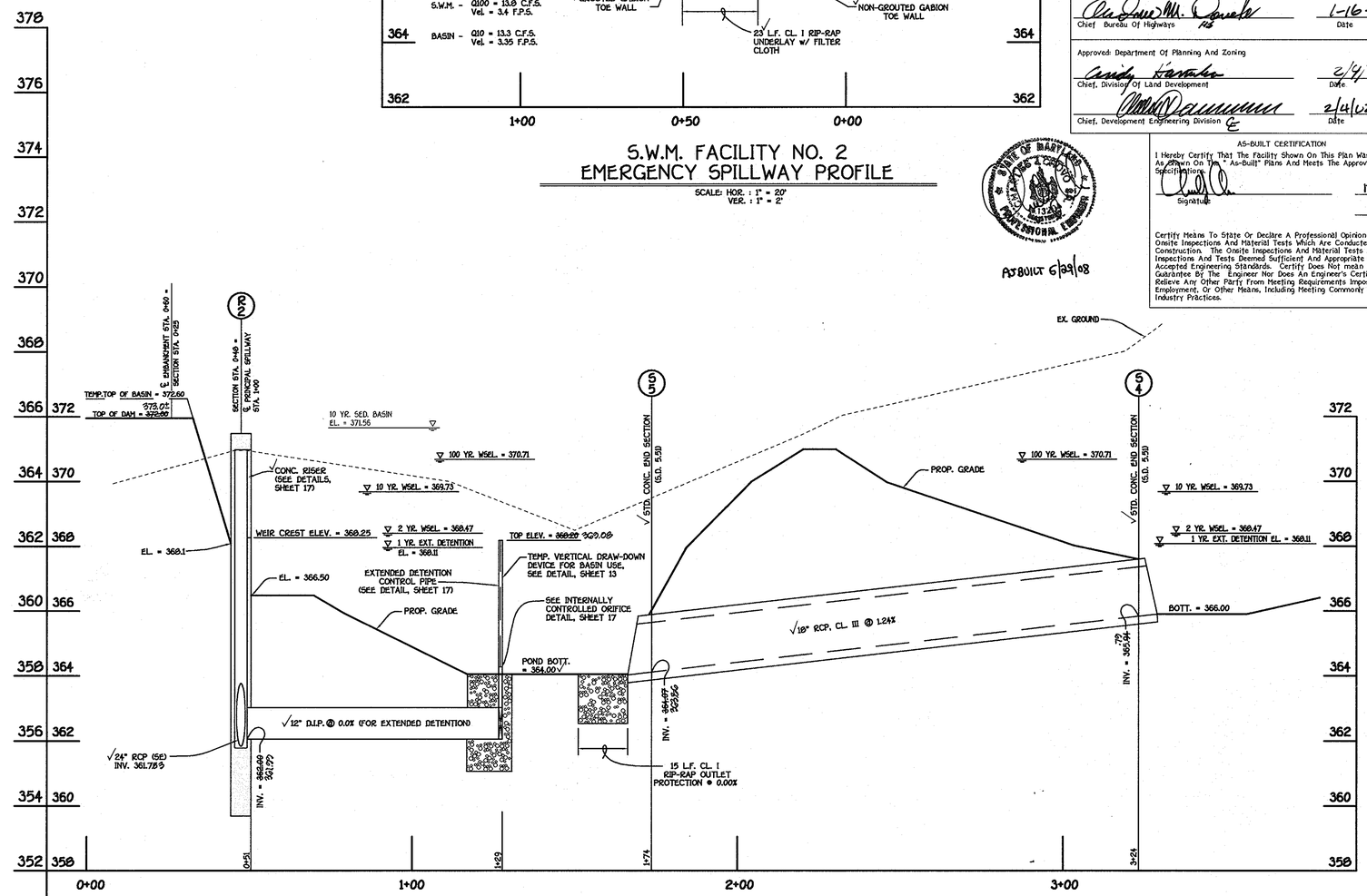
Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify 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.

AS BUILT 6/29/08



S.W.M. FACILITY NO. 2
PRINCIPAL SPILLWAY PROFILE

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



S.W.M. FACILITY NO. 2 - SECTION 'A-A'

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

STATE OF MARYLAND — A.J. MICHAEL OTT — No. 20740 — REGISTERED PROFESSIONAL ENGINEER — 12-11-01

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

OWNER/DEVELOPER
CHERRYTREE I, LLC
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

S.W.M. FACILITY NO. 2
PROFILES, NOTES AND DETAILS

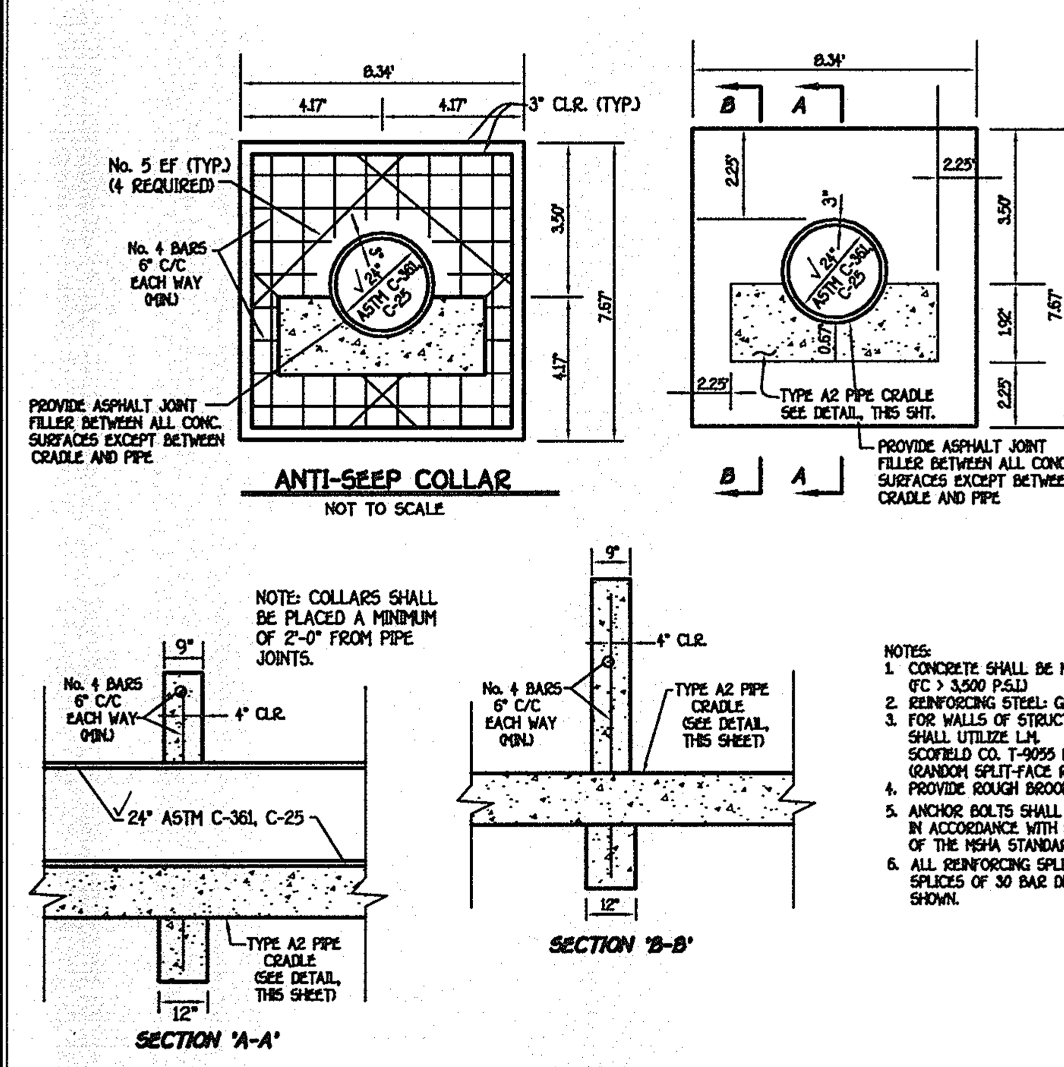
CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13
AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)

ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 16 OF 21

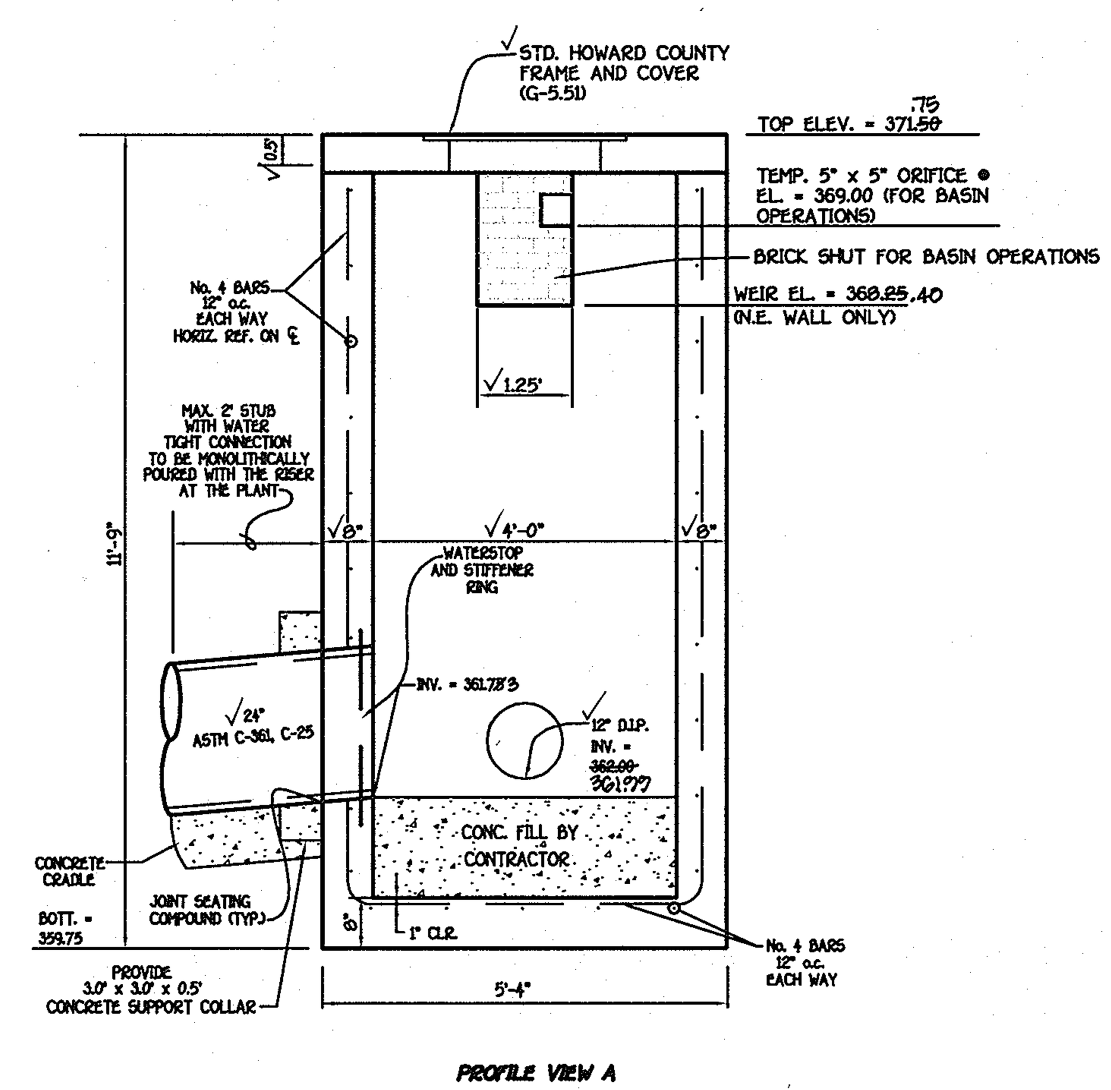
F 01-114

ASBUILT F-01-114

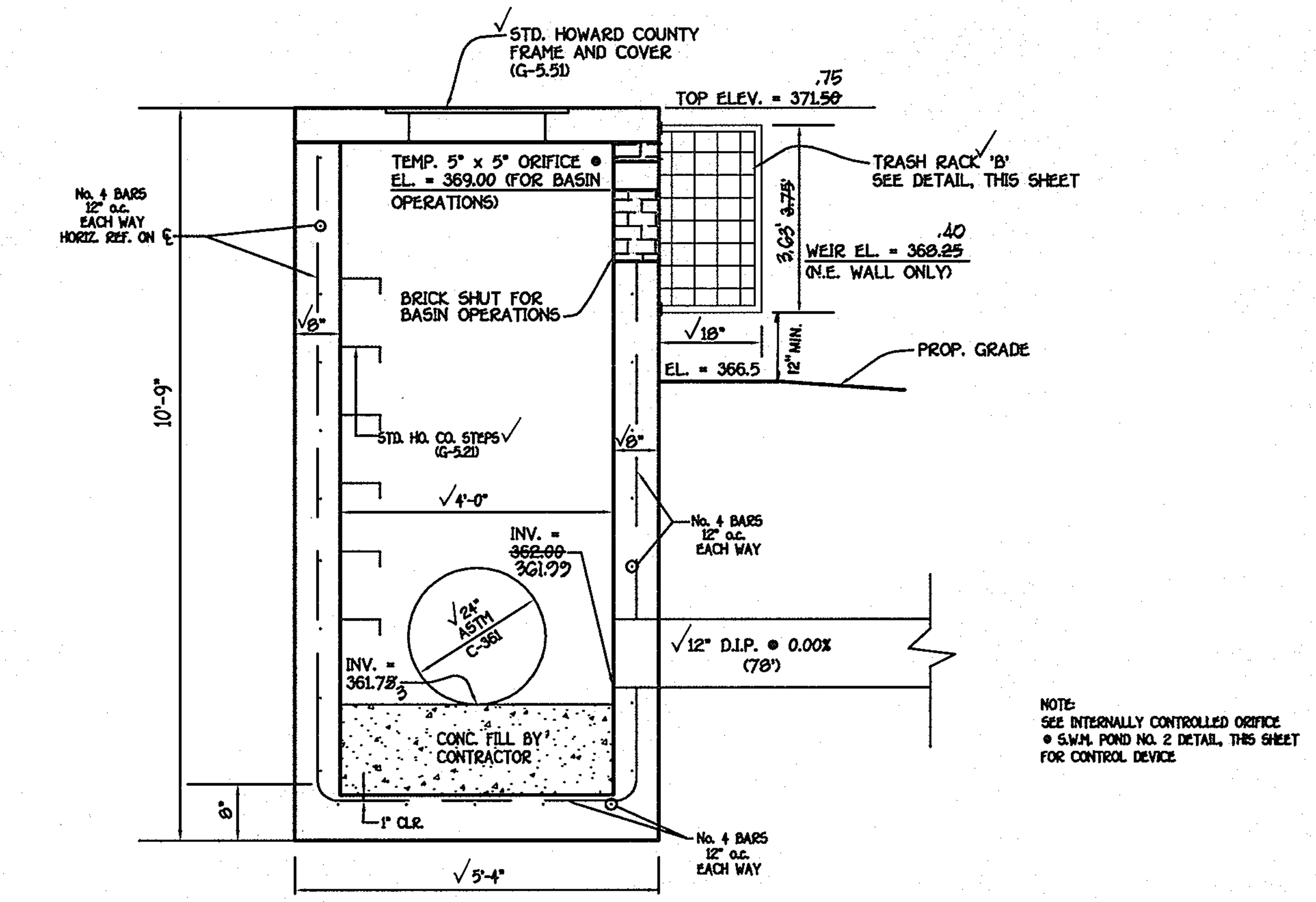


NOTES:
1. CONCRETE SHALL BE MSHA MIX No. 3 (FC > 3,500 P.S.I.)
2. REINFORCING STEEL: GRADE 60
3. FOR WALLS OF STRUCTURE SHALL UTILIZE L.M. SCOFIELD CO. T-9055 FORM LINERS (RANDOM SPLIT-FACE ROCK) OPTIONAL.
4. PROVIDE ROUGH BROOM FINISH.
5. ANCHOR BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 6.07.03.59 OF THE MSHA STANDARDS AND SPECS.
6. ALL REINFORCING SPLICES SHALL BE LAP SPLICES OF 30 BAR DIA. UNLESS OTHERWISE SHOWN.

TYPICAL SECTION THROUGH BARREL, CRADLE AND ANTI-SEEP COLLAR
(NO SCALE)

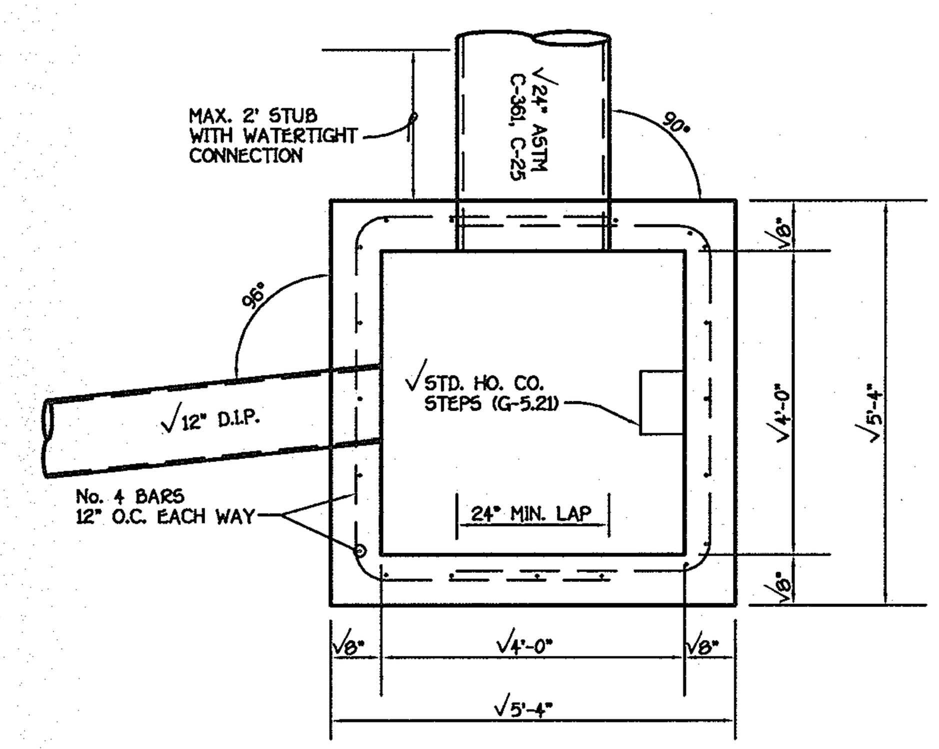


PROFILE VIEW A
R/2 *CONCRETE RISER DETAIL*
SCALE: 1" = 2'

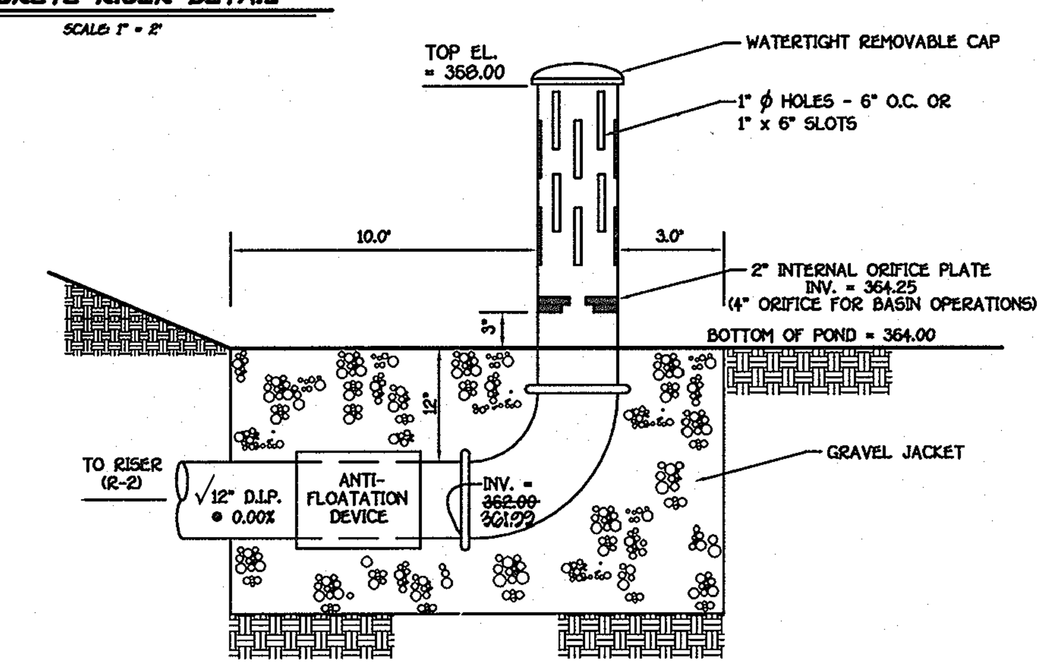


PROFILE VIEW B
R/2 *CONCRETE RISER DETAIL*
SCALE: 1" = 2'

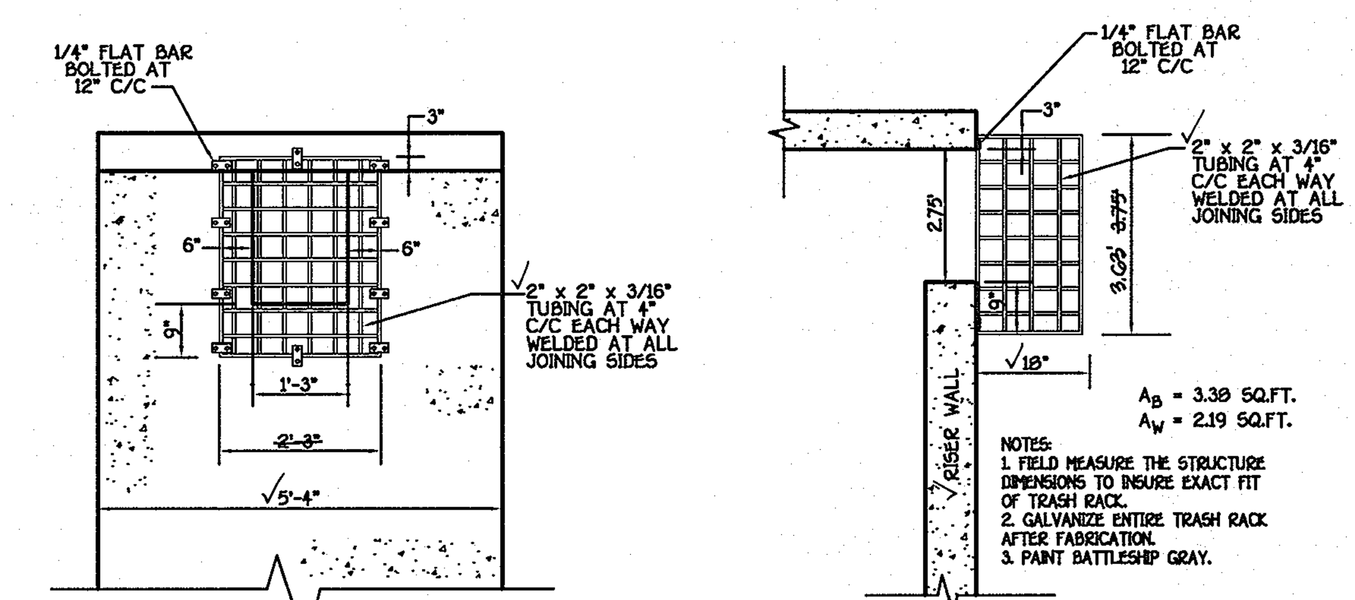
NOTE:
SEE INTERNALLY CONTROLLED ORIFICE @ S.W.M. POND NO. 2 DETAIL, THIS SHEET FOR CONTROL DEVICE



RISER PLAN VIEW
SCALE: 1" = 2'

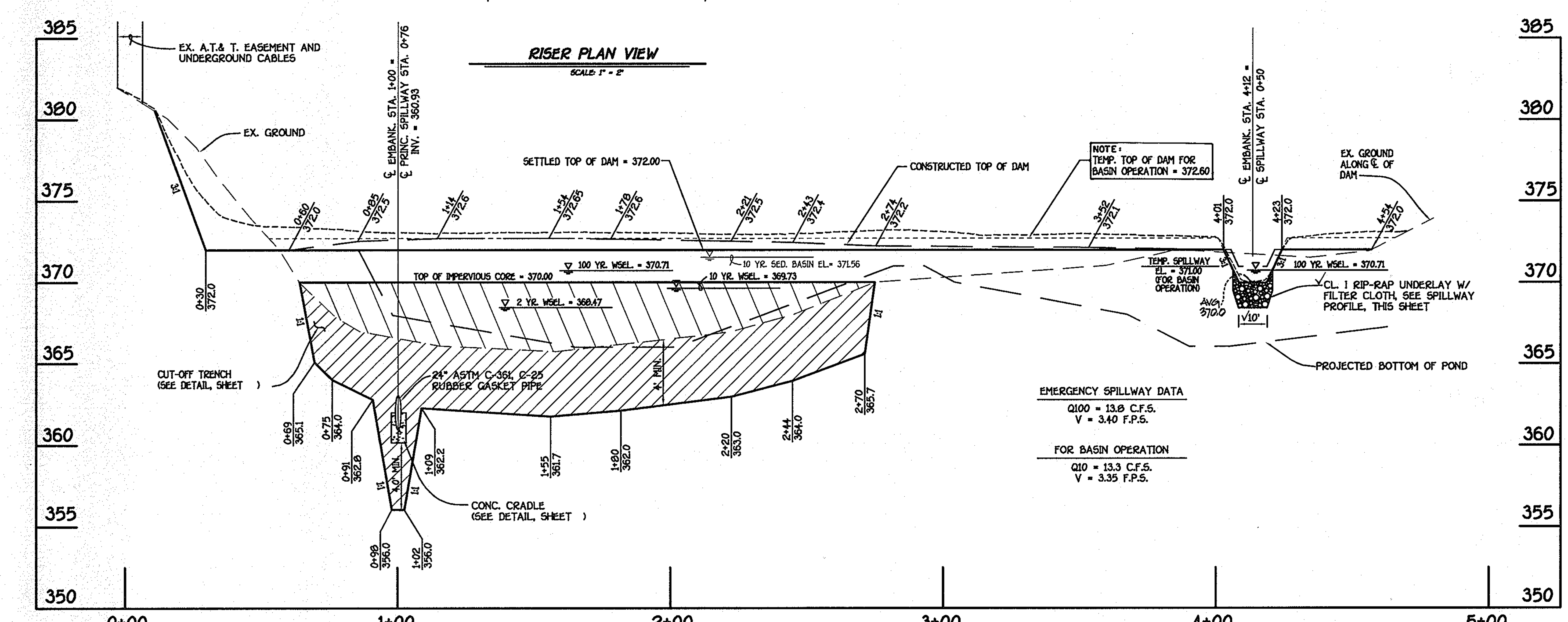


INTERNALLY CONTROLLED ORIFICE @ S.W.M. POND NO. 2
(NO SCALE)

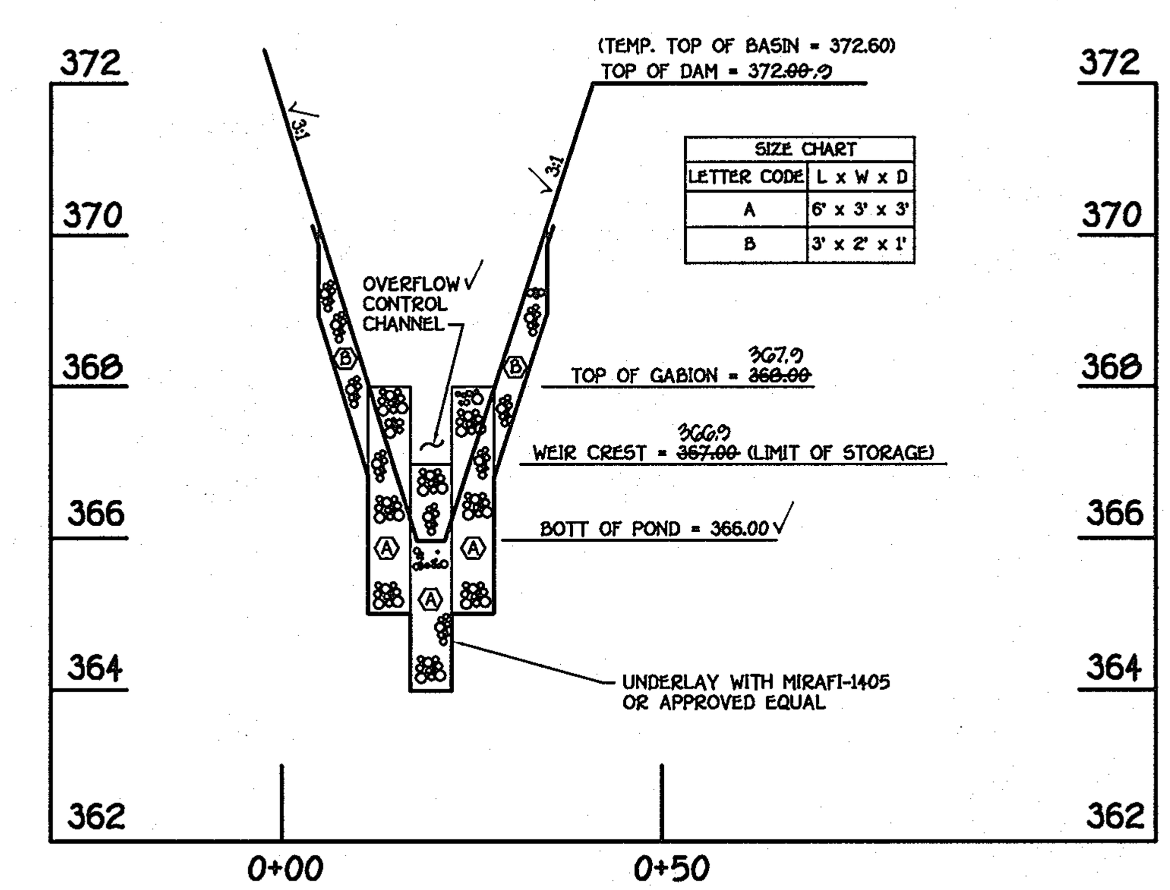


NOTES:
1. FIELD MEASURE THE STRUCTURE DIMENSIONS TO INSURE EXACT FIT OF TRASH RACK.
2. GALVANIZE ENTIRE TRASH RACK AFTER FABRICATION.
3. PAINT BATTLESHIP GRAY.

TRASH RACK 'B' DETAIL
(NO SCALE)

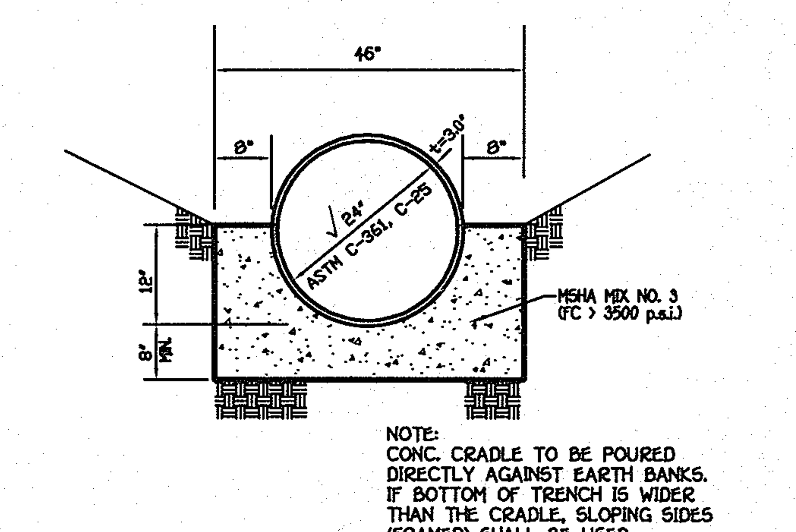


S.W.M. FACILITY NO. 2 PROFILE ALONG ℄ EMBANKMENT
SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'



SIZE CHART	
LETTER CODE	L x W x D
A	6' x 3' x 3'
B	3' x 2' x 1'

S.W.M. FACILITY NO. 2 (GABION FOREBAY PROFILE)
SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'



NOTE:
CONC. CRADLE TO BE POURED DIRECTLY AGAINST EARTH BANKS. IF BOTTOM OF TRENCH IS WIDER THAN THE CRADLE, SLOPING SIDES (FRAMED) SHALL BE USED.

A2 CRADLE
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: 12/11/01
THOMAS K BOURKE VP
Printed Name Of Developer

By The Engineer:

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

Signature Of Engineer — Date: 9-27-01
ALDO M. VITUCCI
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: 1/24/02

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: 1/24/02

Approved: Department Of Public Works
Chief Bureau Of Highways — Date: 1-16-02

Approved: Department Of Planning And Zoning
Chief, Division Of Land Development — Date: 2/4/02
Chief, Development Engineering Division — Date: 2/4/02

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 — 13204 P.E. No. — 5/29/08 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.

AS BUILT 5/29/08

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

9-27-01

OWNER/DEVELOPER
CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

S.W.M. FACILITY NO. 2
PROFILES, NOTES AND DETAILS

CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)
ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 17 OF 21

ASBUILT F 01-114

FOREST CONSERVATION NOTES:

1. FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS PROJECT HAS BEEN FULFILLED BY THE RETENTION OF EXISTING FOREST IN THE AMOUNT OF 4.62 ACRES. THE REMAINING OBLIGATION OF 5.56 ACRES OF REFORESTATION REQUIREMENT WILL BE PROVIDED BY 5.89 ACRES OF REFORESTATION IN THE ASHLIEGH KNOLLS SUBDIVISION. SEE SHEETS 20 AND 21 FOR PLAN AND DETAILS.

2. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1-16-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/4/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/4/02

FOREST CONSERVATION WORKSHEET
VERSION 1.0

NET TRACT AREA:

A. TOTAL TRACT AREA	41.10
B. AREA WITHIN 100 YEAR FLOODPLAIN	0.0
C. AREA TO REMAIN IN AGRICULTURAL PRODUCTION	0.0
D. NET TRACT AREA	41.10

LAND USE CATEGORY: (from table 3.2.1., page 40, manual)

INPUT THE NUMBER "1" UNDER THE APPROPRIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY.

ARA	MDR	IDA	ARA	MPD	CIA
0	0	0	0	1	0

E. AFFORESTATION THRESHOLD 15% x D =	6.17
F. CONSERVATION THRESHOLD 15% x D =	6.17

EXISTING FOREST COVER:

G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)	16.03
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD	9.87
~~I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD~~	----

BREAK EVEN POINT:

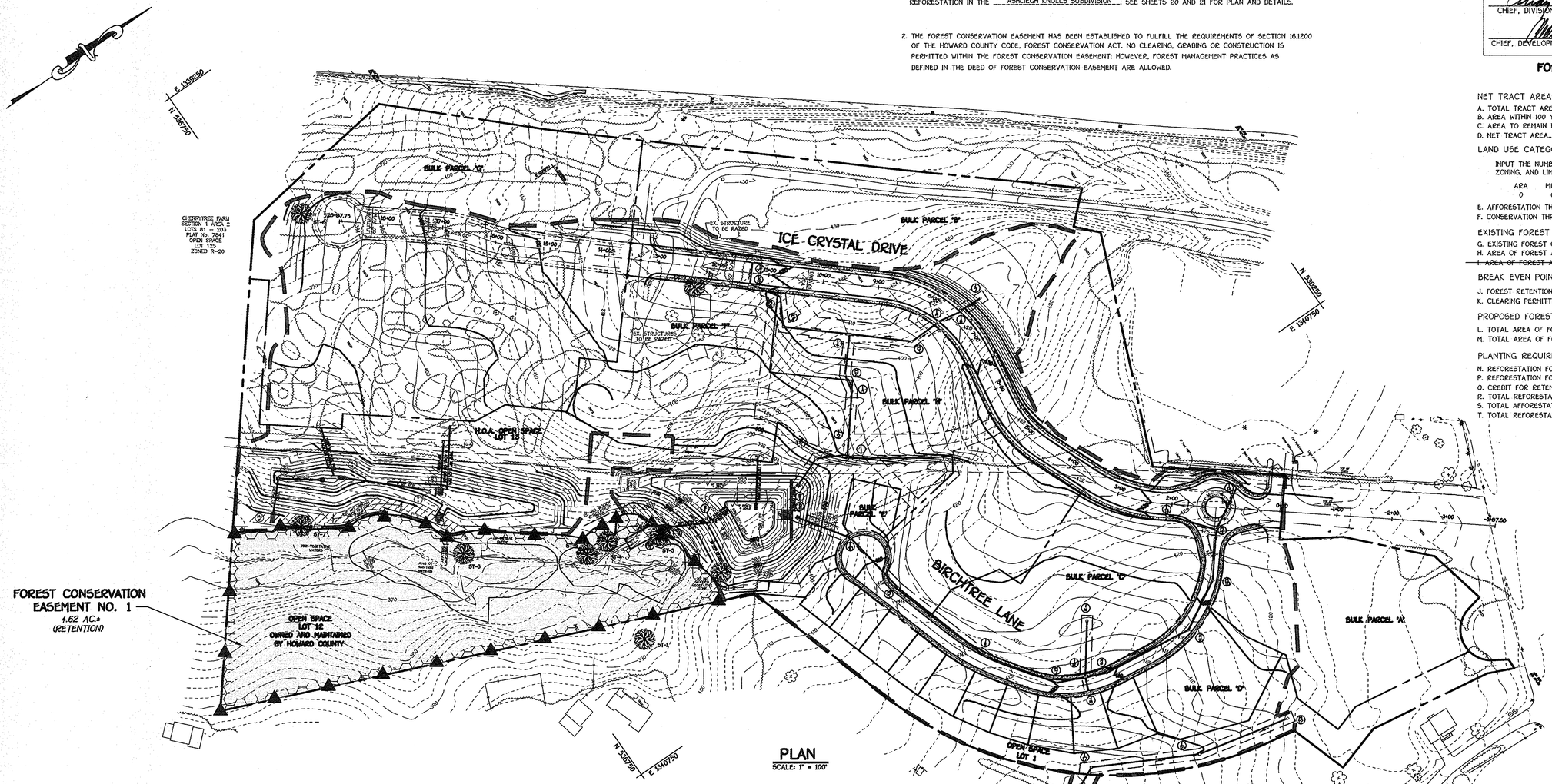
J. FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION	8.14
K. CLEARING PERMITTED WITHOUT MITIGATION	7.89

PROPOSED FOREST CLEARING:

L. TOTAL AREA OF FOREST TO BE CLEARED	11.41
M. TOTAL AREA OF FOREST TO BE RETAINED	4.62

PLANTING REQUIREMENTS:

N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD	2.47
P. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD	3.09
Q. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD	0.0
R. TOTAL REFORESTATION REQUIRED	5.56
S. TOTAL AFFORESTATION REQUIRED	0.0
T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED	5.56



PLAN
SCALE: 1" = 100'

11" MIN

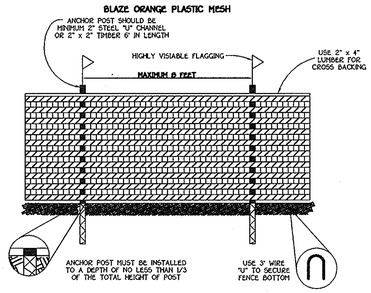
FOREST CONSERVATION AREA

DO NOT DISTURB

MACHINERY, DUMPING OR STORAGE OF AND MATERIALS **PROHIBITED**

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

15" MIN.



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

LEGEND

- DENOTES LIMIT OF DISTURBANCE
- DENOTES EXISTING TREE LINE
- DENOTES FOREST CONSERVATION SIGNAGE
- TP — — TP DENOTES TREE PROTECTION FENCE
- DENOTES FOREST CONSERVATION EASEMENT
- ST-1 DENOTES SPECIMEN TREE

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Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B
JOHN P. CANOLES

OWNER/DEVELOPER
CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

STATE OF MARYLAND — JOHN P. CANOLES — REG. No. 3000 — PROFESSIONAL ENGINEER

AS BUILT 5/29/08

FOREST CONSERVATION PLAN

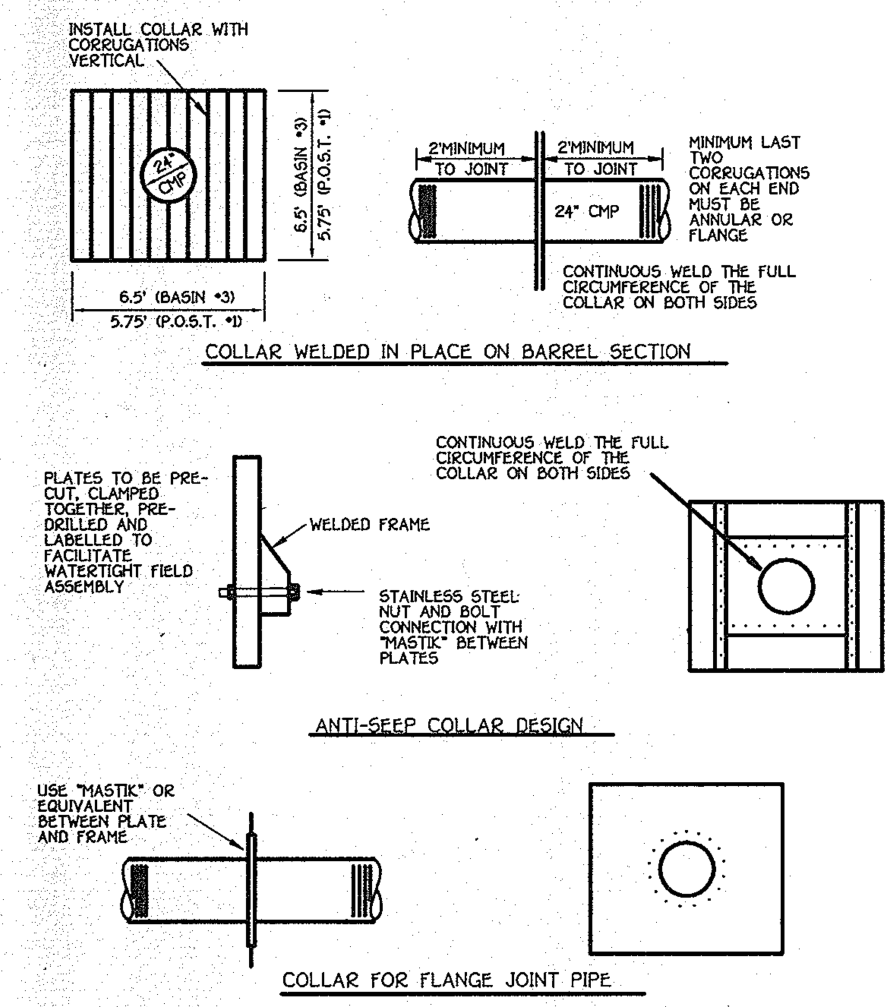
CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)
ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 18 OF 21

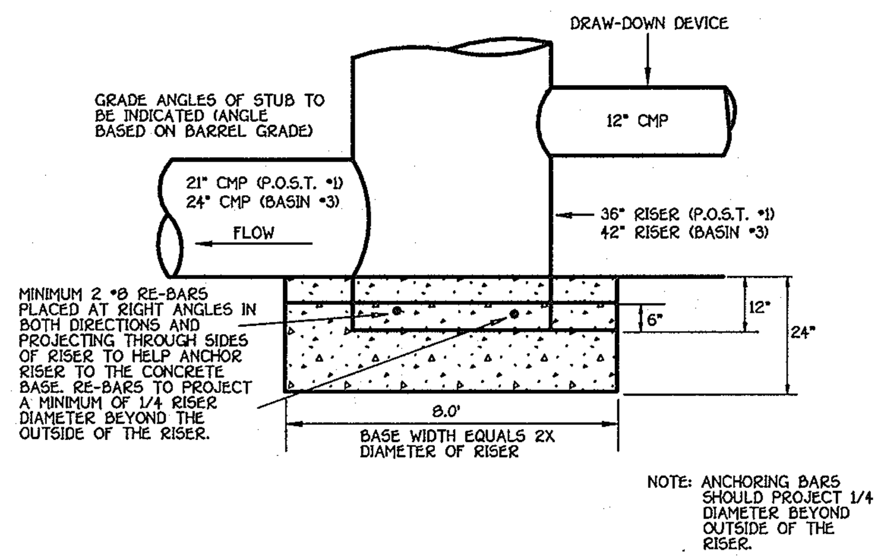
F 01-114

ASBUILT F 01-114

BASIN #3 TYPICAL ANTI-SEEP COLLARS



BASIN #3 RISER BASE DETAIL



NOTE: ANCHORING BARS SHOULD PROJECT 1/4 DIAMETER BEYOND OUTSIDE OF THE RISER.

Construction Specifications

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

1. A concrete base 18" thick with the riser embedded 9" in the base.

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

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

DUST CONTROL NOTES

DEFINITION

CONTROLLING DUST BLOWING AND MOVEMENT ON CONSTRUCTION SITES AND ROADS.

PURPOSE

TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON AND OFF-SITE DAMAGE, HEALTH HAZARDS, AND IMPROVE TRAFFIC SAFETY.

CONDITIONS WHERE PRACTICE APPLIES

THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.

SPECIFICATIONS

TEMPORARY METHODS

1. MULCHES - SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.

2. VEGETATIVE COVER - SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER.

3. TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12" APART, SPRING-TOOTHED HARROWS, AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.

4. IRRIGATION - THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED. AT NO TIME SHOULD THE SITE BE IRRIGATED TO THE POINT THAT RUNOFF BEGINS TO FLOW.

5. BARRIERS - SOLID BOARD FENCES, SILT FENCES, SNOW FENCES, BURLAP FENCES, STRAW BALE DIKES, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 10 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL BLOWING.

6. CALCIUM CHLORIDE - APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.

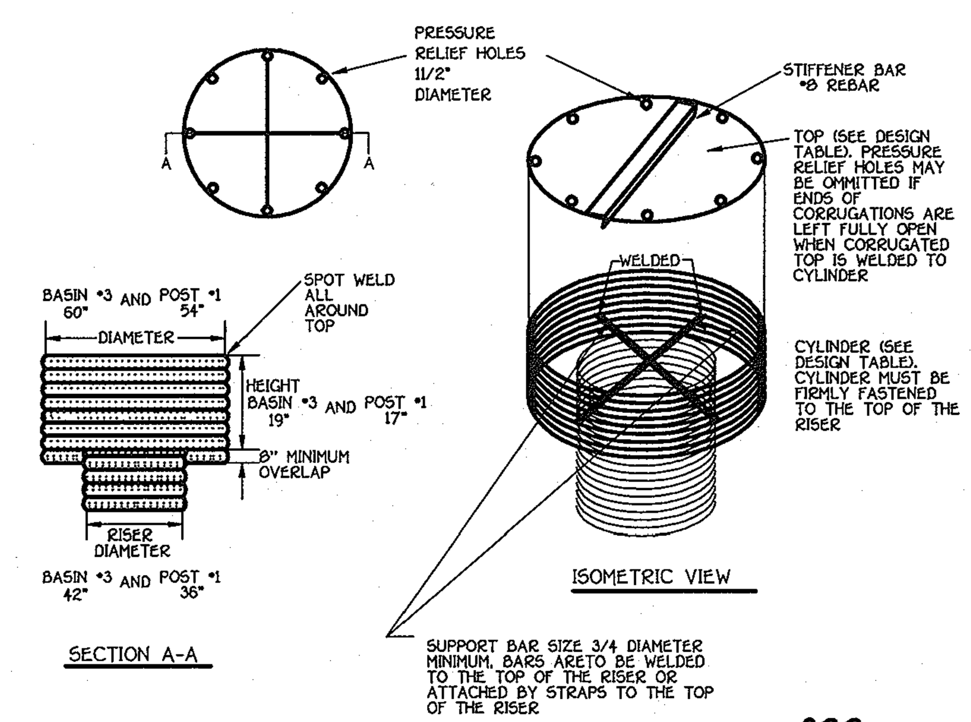
PERMANENT METHODS

1. PERMANENT VEGETATION - SEE STANDARDS FOR PERMANENT VEGETATIVE COVER, AND PERMANENT STABILIZATION WITH SOD. EXISTING TREES OR LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.

2. TOPSOILING - COVERING WITH LESS EROSIVE SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING.

3. STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE



Sediment Basin Construction Specifications

1. Site Preparation: Perimeter sediment control devices must be installed prior to clearing and grubbing. Areas where the embankment is to be placed shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots or other objectionable material. The pool area shall not be cleared until completion of the dam embankment unless the pool area is to be used for borrow. In order to facilitate clean-out and restoration, the pool area (measured at the top of the pipe spillway) shall be cleared of all brush, trees, and other objectionable materials.

2. Cut-off Trench: A cut-off trench shall be excavated along the centerline of earth fill embankments. The minimum depth shall be four feet. The cut-off trench shall extend up both abutments to the riser crest elevation. The minimum bottom width shall be two feet, but wide enough to permit operation of excavation and compaction equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for the embankment. The trench shall be dewatered during the backfilling-compaction operations. For dewatering see Section D.

3. Embankment: The fill material shall be taken from approved areas shown on the plans. It shall be clean mineral soil free of roots, woody vegetation, oversized stones, rocks, or other objectionable material. Relatively pervious materials such as sand or gravel (Unified Soil Classes GW, GP, SW & SP) or organic materials (Unified Soil Classes OL and OH) shall not be placed in the embankment. Areas on which fill is to be placed shall be scarified prior to placement of fill. The fill material shall contain sufficient moisture so that it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction. Fill material shall be placed in six-inch to eight-inch thick continuous lifts over the entire length of the fill. Compaction shall be obtained by routing and hauling the construction equipment over the fill so that the entire surface of each layer of the fill is traversed by at least one wheel or tread track of the equipment or by the use of a compactor. The embankment shall be constructed to an elevation 10 percent higher than the design height to allow for settlement.

4. Principal Spillway: Steel risers shall be securely attached to the barrel or barrel stub by welding the full circumference making a watertight structural connection. Concrete risers shall be poured with the principal spillway in place or precast with voids around the principal spillway filled with concrete or shrink proof grout for watertight connection. The barrel stub must be attached to the riser at the same percent (angle) of grade as the outlet conduit. The connection between the riser and the riser base shall be watertight. All connections between barrel sections must be achieved by approved watertight band assemblies. The barrel and riser shall be placed on a firm, smooth foundation of impervious soil as the embankment is constructed. Breaching the embankment to install the barrel is unacceptable. Pervious materials such as sand, gravel, or crushed stone shall not be used as backfill around the pipe or anti-seep collars. The fill material around the pipe spillway shall be placed in four inch lifts and hand compacted under and around the pipe to at least the same density as the adjacent embankment. A depth of 1.5 times of pipe diameter (min.) shall be backfilled over the principal spillway and hand compacted before crossing it with construction equipment.

5. Emergency Spillway: The emergency spillway shall be installed in undisturbed ground. The achievement of planned elevations, grades, design width, entrance and exit channel slopes are critical to the successful operation of the emergency spillway and must be constructed within a tolerance of + 0.2 feet.

6. Vegetative Treatment: Stabilize the embankment in accordance with the appropriate vegetative Standard and Specifications immediately following construction. In no case shall the embankment remain unstabilized for more than seven (7) days. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon basin completion and monitored and maintained erosion free during the life of the basin.

7. Safety: Local requirements concerning fencing and signs shall be met, warning the public of hazards of soft sediment and floodwater.

8. Maintenance: Repair all damage caused by soil erosion and construction equipment at or before the end of each working day. Sediment shall be removed from the basin when it reaches the specified distance below the top of the riser as shown on the riser. This sediment shall be placed in such a manner that it will not erode from the site. The sediment shall not be deposited downstream from the embankment, adjacent to a stream or floodplain. Disposal areas must be stabilized.

9. Final Disposal: When temporary structures have served their intended purpose and the contributing drainage area has been properly stabilized, the embankment and resulting sediment deposits are to be leveled or otherwise disposed of in accordance with the approved sediment control plan. The proposed use of a sediment basin site will often dictate final disposition of the basin and any sediment contained therein. If the site is scheduled for future construction, then the basin material and trapped sediments must be removed and safely disposed of and the basin shall be backfilled with a structural fill. When the basin area is to remain open space, the pond may be pumped dry (using methods in Section D - Dewatering), graded, and back filled.

10. Conversion to Stormwater Management Structure: After permanent stabilization of all disturbed contributory drainage areas, temporary sediment basins, if initially built and certified to meet permanent standards, may be converted to permanent stormwater management structures. To convert the basin from temporary to permanent use, the outlet structure must be modified in accordance with approved stormwater management design plans. Additional grading may also be necessary to provide the required storage volume in the basin. Conversion can only take place after all disturbed areas have been permanently stabilized to the satisfaction of the inspection authority and storm drains have been flushed.

ENGINEER'S CERTIFICATE

I Hereby Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District.

Signature Of Engineer — 12-11-01 Date

DEVELOPER'S CERTIFICATE

"I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved 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 Of Developer — VP — 12-11-01 Date

Reviewed For Howard County Soil Conservation District And Meets Technical Requirements.

U.S.D.A. - Natural Resources Conservation Service — 1/24/02 Date

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

District Howard Soil Conservation Dist. — 1/24/02 Date

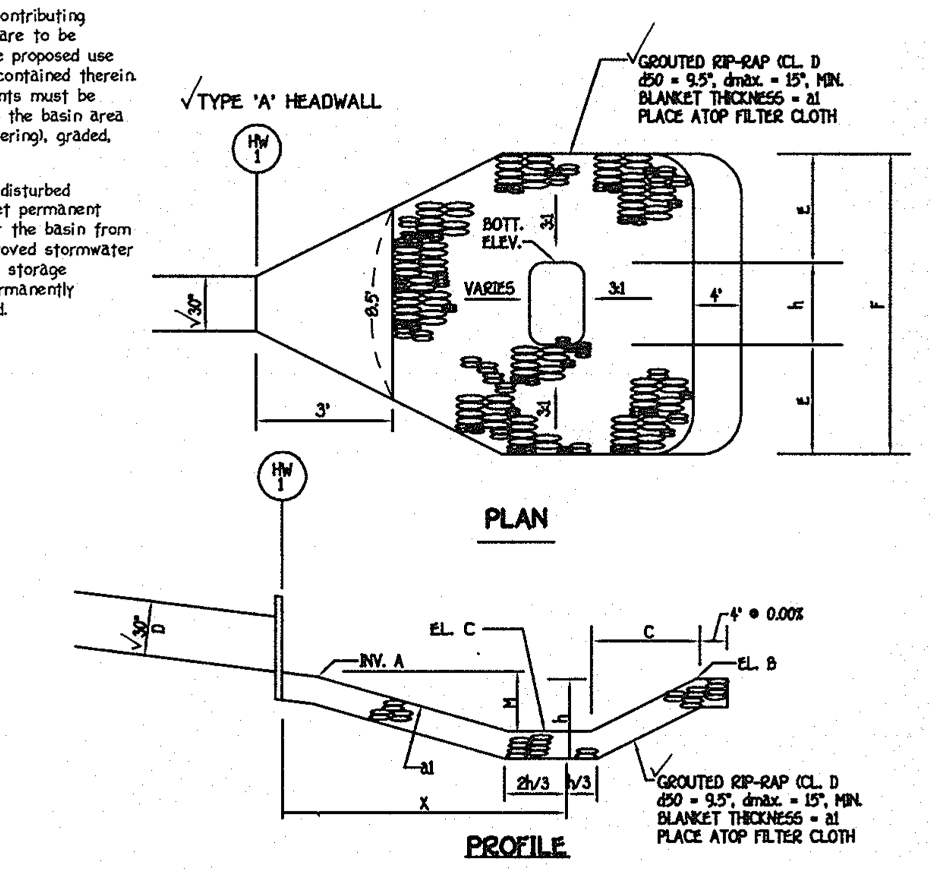
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — 2/4/02 Date

Chief, Development Engineering Division — 2/4/02 Date

Approved: Howard County Department Of Public Works

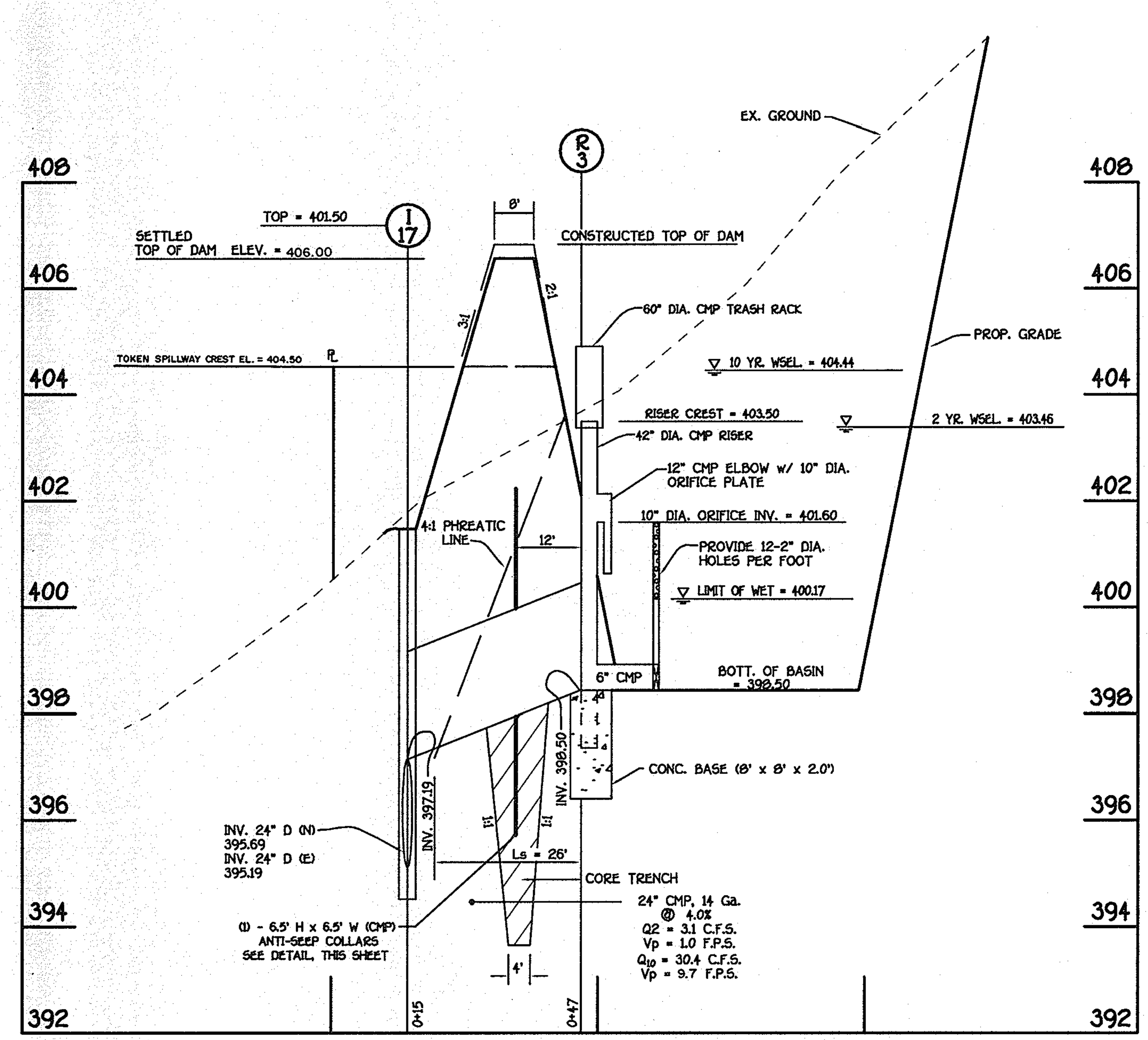
Chief, Bureau Of Highways — 1-16-02 Date



STILLING BASIN OUTFALL DETAIL @ HW-1

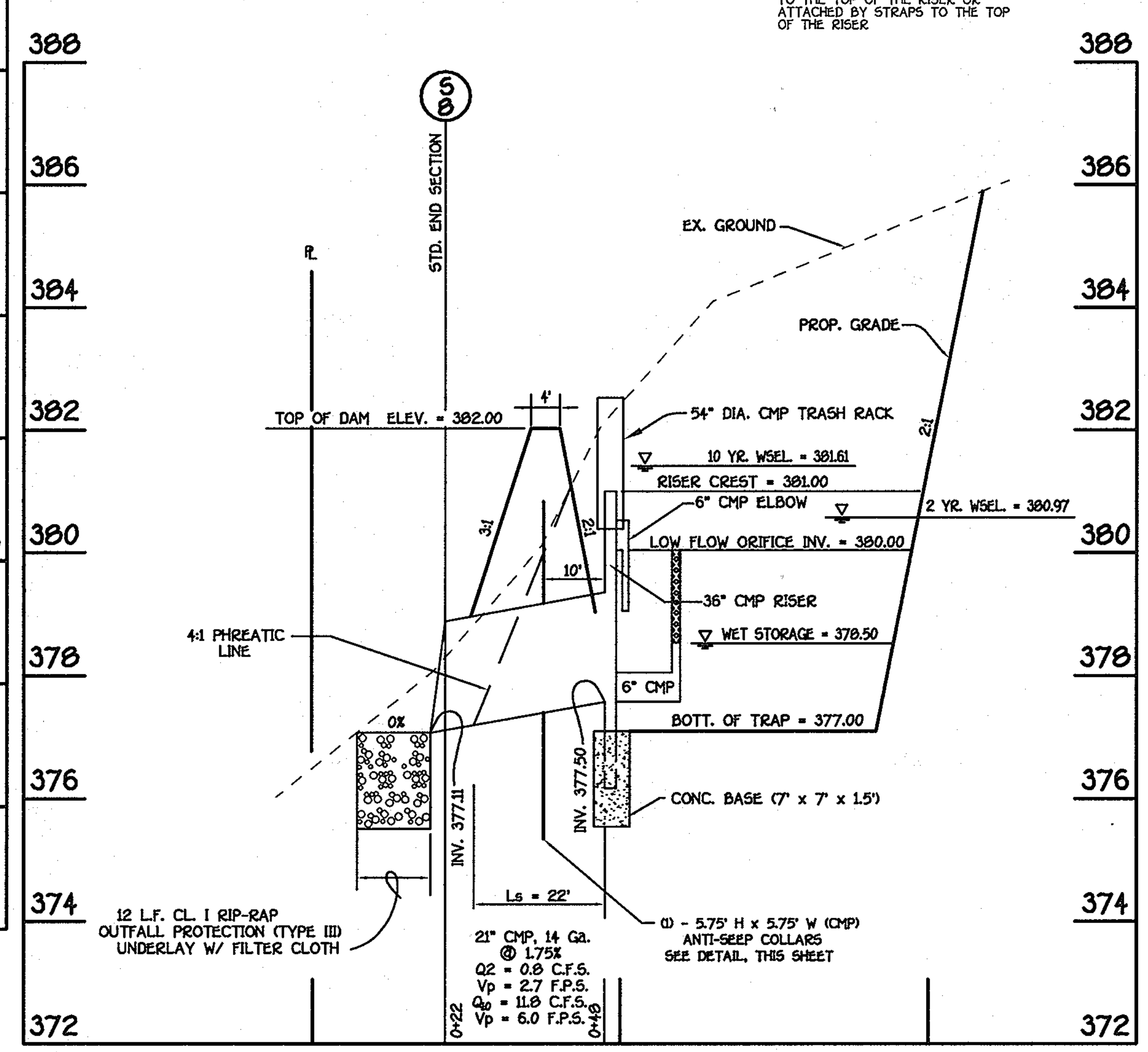
NO SCALE

STILLING BASIN DATA											
STRUCTURE NO.	INV. A	EL. B	EL. C	C	D	E	F	h	M	a1	X
HW-1	381.0	380.50	378.00	5.0'	2.5'	5.0'	12.50'	2.50'	1.42'	19"	10.0'



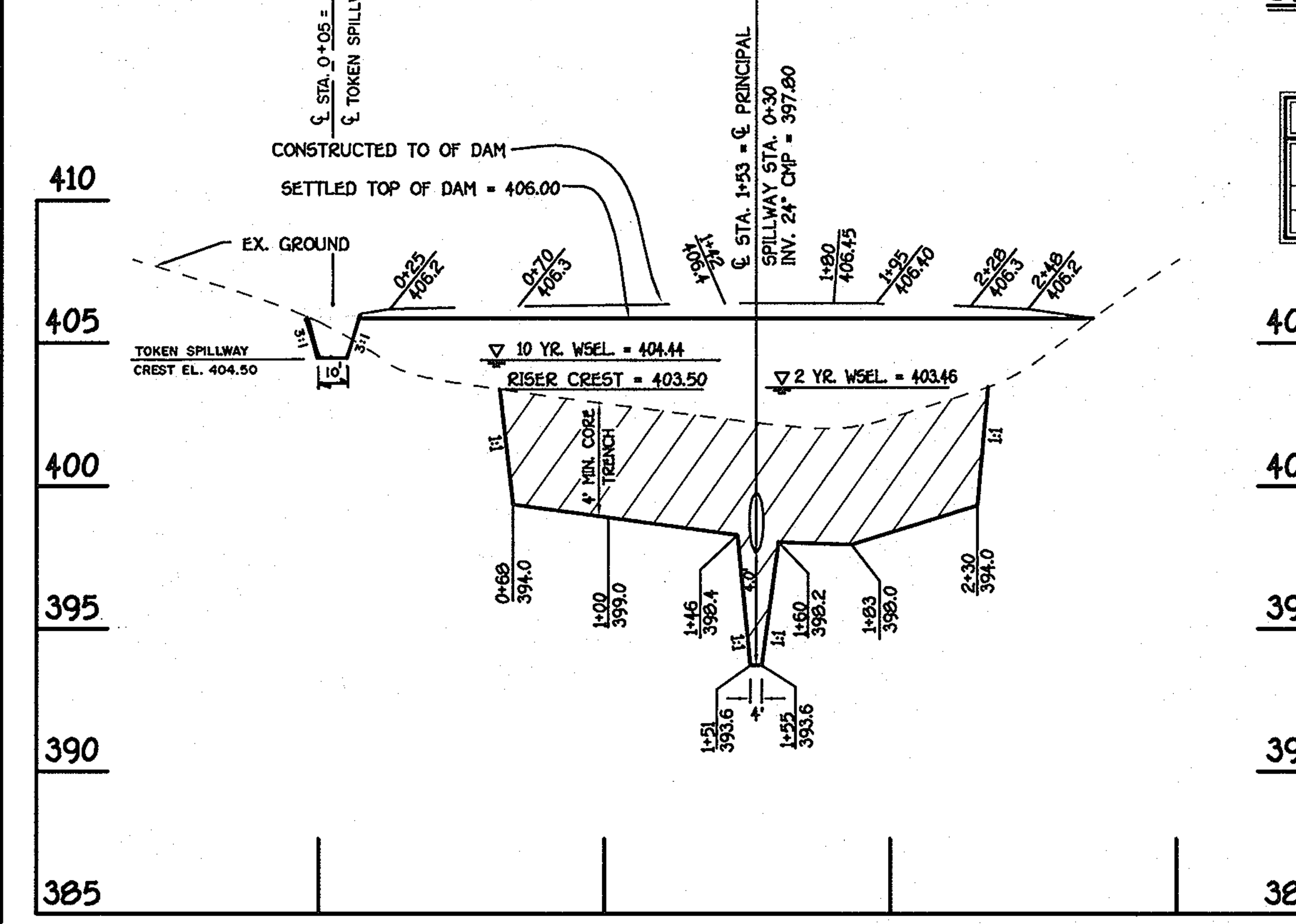
TEMP. SEDIMENT BASIN No. 3 PRINCIPAL SPILLWAY PROFILE

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



P.O.S.T. NO. 1 PRINCIPAL SPILLWAY PROFILE

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



TEMP. SEDIMENT BASIN NO. 3 PROFILE ALONG ℄ EMBANKMENT

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

ASBUILT 5/29/08

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CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
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(410) 461 - 2855

OWNER/DEVELOPER
CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

SEDIMENT AND EROSION CONTROL NOTES & DETAILS

CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)
ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 7, 2001
SHEET 19 OF 21

F 01-114

ASBUILT F-01-114

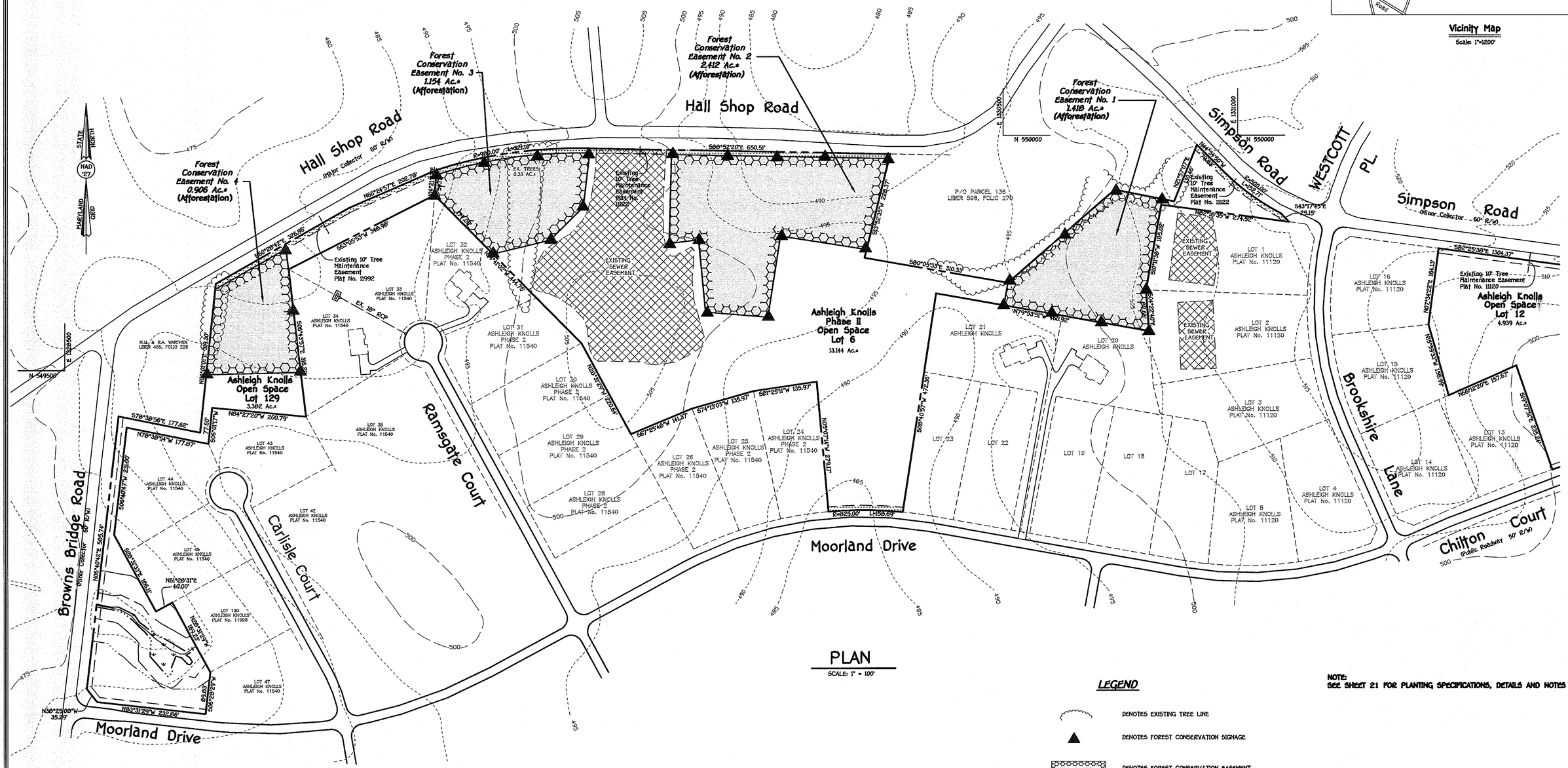
APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1-16-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/4/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/4/02



PLAN

SCALE: 1" = 100'

LEGEND

DENOTES EXISTING TREE LINE

DENOTES FOREST CONSERVATION SIGNAGE

DENOTES FOREST CONSERVATION EASEMENT

NOTE:
SEE SHEET 21 FOR PLANTING SPECIFICATIONS, DETAILS AND NOTES

OFF-SITE FOREST CONSERVATION PLAN

CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)

ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 100'
DATE: DECEMBER 7, 2001
SHEET 20 OF 21

F 01-114

ASBUILT 5/21/08

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COLUMBIA, MARYLAND 21046

ASBUILT F-01-114

FCE PLANTING AREA 1 (1.418 acres)

QTY.	SPECIES	SIZE	SPACING
20	ACER RUBRUM - RED MAPLE	1" CAL.	15' O.C.
10	CERCIS CANADENSIS - RED BUD	1" CAL.	15' O.C.
12	CORNUS FLORIDA - FLOWERING DOGWOOD	1" CAL.	15' O.C.
15	FRAXINUS AMERICANA - WHITE ASH	1" CAL.	15' O.C.
20	QUERCUS ALBA - WHITE OAK	1" CAL.	15' O.C.
60	ACER RUBRUM - RED MAPLE	2 - 3' WHIP	**
25	CERCIS CANADENSIS - RED BUD	2 - 3' WHIP	**
70	FRAXINUS AMERICANA - WHITE ASH	2 - 3' WHIP	**
70	LIRIODENDRON TULIPIFERA - POPLAR	2 - 3' WHIP	**
35	NYSSA SYLVATICA - BLACK GUM	2 - 3' WHIP	**
30	PRUNUS SEROTINA - BLACK CHERRY	2 - 3' WHIP	**
25	QUERCUS RUBRA - RED OAK	2 - 3' WHIP	**
25	VIBURNUM DENTATUM - ARROWWOOD	2 - 3' B.T.	**
25	VIBURNUM PRUNIFOLIUM - BLACKHAW	2 - 3' B.T.	**

KEY:

** - PLANTINGS TO BE SPREAD ON 11 FOOT CENTERS - PLANTINGS SHOULD BE INSTALLED IN ROWS TO FACILITATE FUTURE MAINTENANCE. WHERE POSSIBLE ROWS SHOULD BE MADE ALONG CONTOUR.

B.T. - BRANCHED TRANSPLANT

FCE PLANTING AREA 3 (1.154 acres - 0.33 acres existing hedgerow)

QTY.	SPECIES	SIZE	SPACING
10	ACER RUBRUM - RED MAPLE	1" CAL.	15' O.C.
5	CERCIS CANADENSIS - RED BUD	1" CAL.	15' O.C.
5	CORNUS FLORIDA - FLOWERING DOGWOOD	1" CAL.	15' O.C.
23	FRAXINUS AMERICANA - WHITE ASH	1" CAL.	15' O.C.
15	QUERCUS ALBA - WHITE OAK	1" CAL.	15' O.C.
40	ACER RUBRUM - RED MAPLE	2 - 3' WHIP	**
30	CERCIS CANADENSIS - RED BUD	2 - 3' WHIP	**
55	FRAXINUS AMERICANA - WHITE ASH	2 - 3' WHIP	**
50	LIRIODENDRON TULIPIFERA - POPLAR	2 - 3' WHIP	**
30	NYSSA SYLVATICA - BLACK GUM	2 - 3' WHIP	**
30	PRUNUS SEROTINA - BLACK CHERRY	2 - 3' WHIP	**
30	QUERCUS RUBRA - RED OAK	2 - 3' WHIP	**
20	VIBURNUM DENTATUM - ARROWWOOD	2 - 3' B.T.	**
20	VIBURNUM PRUNIFOLIUM - BLACKHAW	2 - 3' B.T.	**

KEY:

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B.T. - BRANCHED TRANSPLANT

FCP NOTES

1. The reforestation plans shown hereon have been prepared to meet the reforestation obligation of the proposed Cherrytree Park subdivision.
2. Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.
3. The forest Conservation Easements have been established to fulfill the requirements of Section 16.1200 of the Howard County Code, Forest Conservation Act. No clearing, grading, or construction is permitted within the Forest Conservation Easements; however, forest management practices as defines in the Deed of Forest Conservation Easement are allowed.
4. There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DPZ.
5. No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.
6. Permanent signage shall be placed 50-100' apart along the boundaries of all areas included in Forest Conservation Easements.

APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	DATE 1-16-02
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 2/4/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 2/4/02

Cherrytree Park Site Data

	Acres
Gross Area:	41.1
Net Tract Area:	41.1
Existing Forest:	16.03
Conservation Threshold:	6.17
Afforestation Threshold:	6.17
Forest To be Retained in FCE:	4.62
Reforestation Obligation:	5.56
Offsite Afforestation Proposed:	5.89

FCE PLANTING AREA 2 (2.412 acres)

QTY.	SPECIES	SIZE	SPACING
15	ACER RUBRUM - RED MAPLE	2" CAL.	20' O.C.
15	FRAXINUS AMERICANA - WHITE ASH	2" CAL.	20' O.C.
14	QUERCUS ALBA - WHITE OAK	2" CAL.	20' O.C.
30	ACER RUBRUM - RED MAPLE	1" CAL.	15' O.C.
20	CERCIS CANADENSIS - RED BUD	1" CAL.	15' O.C.
25	CORNUS FLORIDA - FLOWERING DOGWOOD	1" CAL.	15' O.C.
30	FRAXINUS AMERICANA - WHITE ASH	1" CAL.	15' O.C.
30	QUERCUS ALBA - WHITE OAK	1" CAL.	15' O.C.
70	ACER RUBRUM - RED MAPLE	2 - 3' WHIP	**
35	CERCIS CANADENSIS - RED BUD	2 - 3' WHIP	**
80	FRAXINUS AMERICANA - WHITE ASH	2 - 3' WHIP	**
80	LIRIODENDRON TULIPIFERA - POPLAR	2 - 3' WHIP	**
55	NYSSA SYLVATICA - BLACK GUM	2 - 3' WHIP	**
50	PRUNUS SEROTINA - BLACK CHERRY	2 - 3' WHIP	**
35	QUERCUS RUBRA - RED OAK	2 - 3' WHIP	**
30	VIBURNUM DENTATUM - ARROWWOOD	2 - 3' B.T.	**
35	VIBURNUM PRUNIFOLIUM - BLACKHAW	2 - 3' B.T.	**

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B.T. - BRANCHED TRANSPLANT

FCE PLANTING AREA 4 (0.906 acres)

QTY.	SPECIES	SIZE	SPACING
15	ACER RUBRUM - RED MAPLE	1" CAL.	15' O.C.
10	CERCIS CANADENSIS - RED BUD	1" CAL.	15' O.C.
10	CORNUS FLORIDA - FLOWERING DOGWOOD	1" CAL.	15' O.C.
20	FRAXINUS AMERICANA - WHITE ASH	1" CAL.	15' O.C.
15	QUERCUS ALBA - WHITE OAK	1" CAL.	15' O.C.
30	ACER RUBRUM - RED MAPLE	2 - 3' WHIP	**
15	CERCIS CANADENSIS - RED BUD	2 - 3' WHIP	**
35	FRAXINUS AMERICANA - WHITE ASH	2 - 3' WHIP	**
35	LIRIODENDRON TULIPIFERA - POPLAR	2 - 3' WHIP	**
20	PRUNUS SEROTINA - BLACK CHERRY	2 - 3' WHIP	**
25	QUERCUS RUBRA - RED OAK	2 - 3' WHIP	**
15	VIBURNUM DENTATUM - ARROWWOOD	2 - 3' B.T.	**
20	VIBURNUM PRUNIFOLIUM - BLACKHAW	2 - 3' B.T.	**

KEY:

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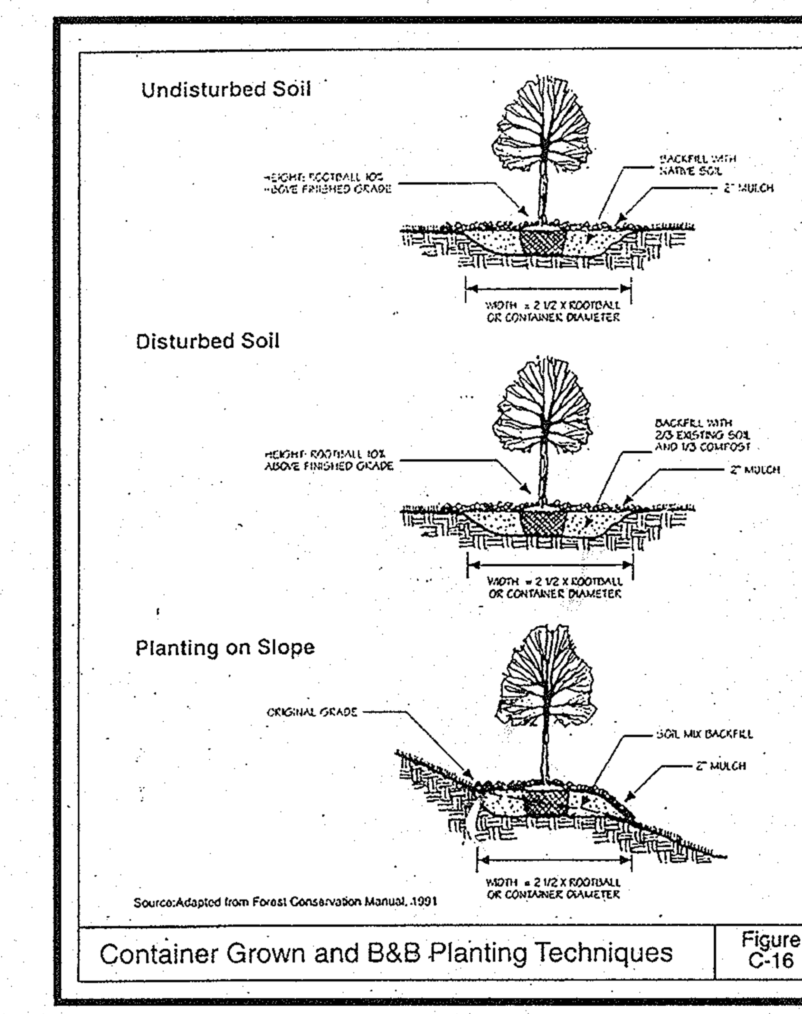
B.T. - BRANCHED TRANSPLANT



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

NOTE:

A DETAILED PLANTING PLAN WILL BE PROVIDED TO THE PLANTING CONTRACTOR.

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 agent.
5. Dead branches will be pruned from plantings.

Guarantee Requirements

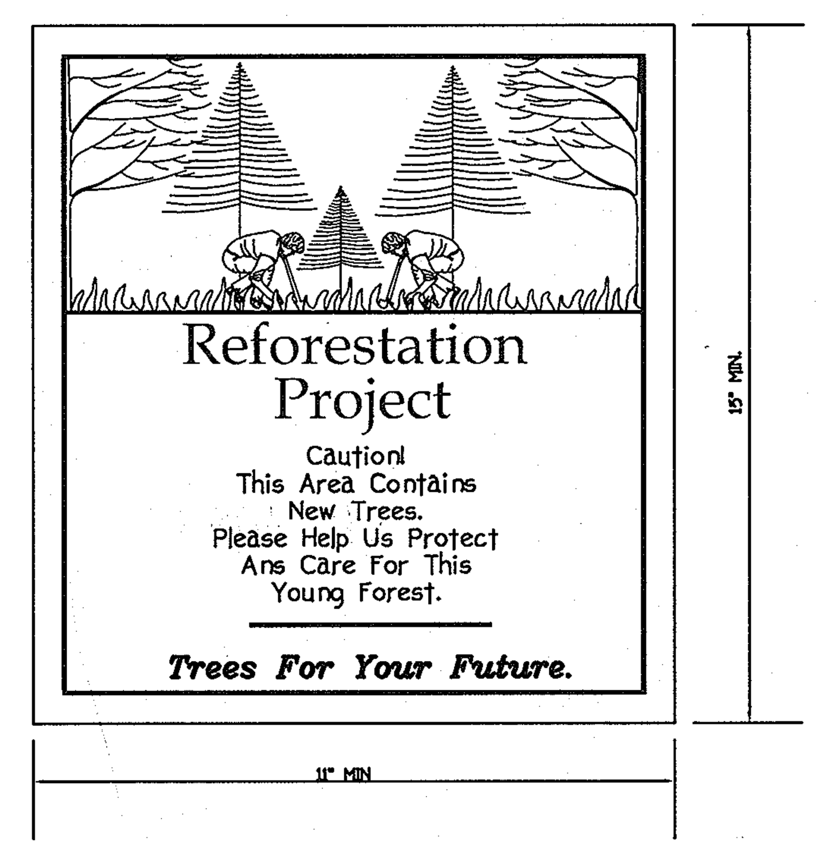
1. A 75 percent survival rate of forestation plantings will be required at the end of the 24 month maintenance period. All plant material below the 75 percent threshold will be replaced at the beginning of the next growing season.

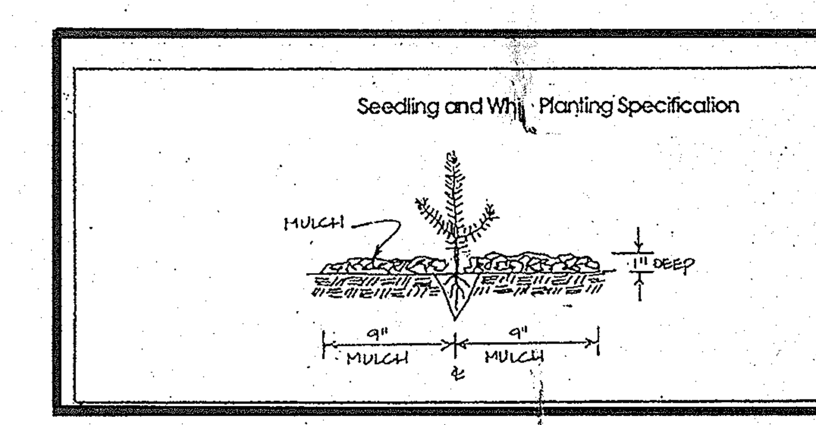
Surety for Forestation

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.

Cost of Forestation Project

1. The estimated cost of installation of the proposed planting plan is $30,000.





PLANTING NOTES:

1. CANADA THISTLE CONTROL MUST BE PERFORMED AS PART OF THIS PLANTING PLAN.

2. PLANTS SHOULD BE FLAGGED TO AID ON LOCATION DURING MAINTENANCE. PLANTINGS SHOULD ALSO BE PLANTED IN GRID PATTERN TO FACILITATE MAINTENANCE AND REMOVAL OF INVASIVE AND EXOTIC SPECIES.

CANADA THISTLE CONTROL NOTE:

CANADA THISTLE IS PREVALENT IN CERTAIN AREAS TO BE PLANTED, IT IS RECOMMENDED THAT INITIATION OF THE FOLLOWING THISTLE REMOVAL PROGRAM BEGIN AT LEAST SIX MONTHS PRIOR TO PLANTING. THIS PROGRAM SHALL BE APPLIED TO ALL AREAS EXHIBITING THISTLE COLONIZATION OR WITHIN 25 FEET OF SUCH AREAS, AS IS POSSIBLE DUE TO OTHER, OVER-RIDING, LAND USE CONSTRAINTS.

1. ELIMINATION OF THISTLE SHALL ACCOMPLISHED WITH MOWING AND HERBICIDE TREATMENTS. PHYSICAL REMOVAL OF ALL TOP GROWTH FOLLOWING BY A PERIODIC HERBICIDE TREATMENT OF RE-EMERGENT SPROUTS IS RECOMMENDED. HERBICIDES TREATMENTS SHALL OCCUR AT 3 MONTH INTERVALS DURING THE FIRST GROWING SEASON. TREATMENT SHOULD BE INITATED 2 WEEKS AFTER EMERGENCE OF NEW GROWTH. ANY THISTLE PLANTS THAT GROW IN EXCESS OF 1 FOOT BETWEEN MOWING OR HERBICIDE TREATMENT SHALL BE REMOVED. NO PLANT SHALL BE ALLOWED TO DEVELOP A SEED HEAD.

2. HERBICIDE/MOWING TREATMENT SHALL ALSO BE PROVIDED ONCE EACH IN THE SPRING FOR TWO SUBSEQUENT YEARS, AS NEEDED.

3. HERBICIDE USED SHALL BE MADE SPECIFICALLY TO ADDRESS CANADA THISTLE PLANT MATERIAL AND SHALL BE APPLIED AS PER MANUFACTURERS SPECIFICATIONS. CARE SHOULD BE TAKEN NOT TO SPRAY PLANTED TREES OR NATURALLY OCCURRUNG NATIVE TREE/SHRUB SEEDLINGS.

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

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B
JOHN P. CANOLES

OWNER/DEVELOPER

CHERRYTREE I, L.L.C.
7520 INDIAN PIPE COURT
COLUMBIA, MARYLAND 21046

AS BUILT 5/29/08

OFF-SITE FOREST CONSERVATION NOTES AND DETAILS

CHERRYTREE PARK

LOTS 1 THRU 10, OPEN SPACE LOTS 11 THRU 13 AND BULK PARCELS 'A' THRU 'H'
(PHASES I AND II)
ZONED: MXD-6
TAX MAP NO. 46 PARCEL NO. 156 GRID NO. 4
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 100'
DATE: DECEMBER 7, 2001
SHEET 21 OF 21

F 01-114

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