

SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	OLD FREDERICK ROAD WIDENING - PLAN AND PROFILE
3	OLD FREDERICK ROAD WIDENING - CROSS-SECTIONS
4	DOVE CREEK COURT - PLAN AND PROFILE
5-6	STREET TREE, GRADING AND SEDIMENT CONTROL PLAN
7	LANDSCAPE PLAN
8	STORM DRAIN PROFILES
9	STORM DRAIN DRAINAGE AREA MAP
10	STORMWATER MANAGEMENT NOTES AND DETAILS
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14	FOREST CONSERVATION PLAN
15	TRAFFIC CONTROL PLAN
16-17	SOIL BORINGS

FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLAN

PHEASANT RUN WEST

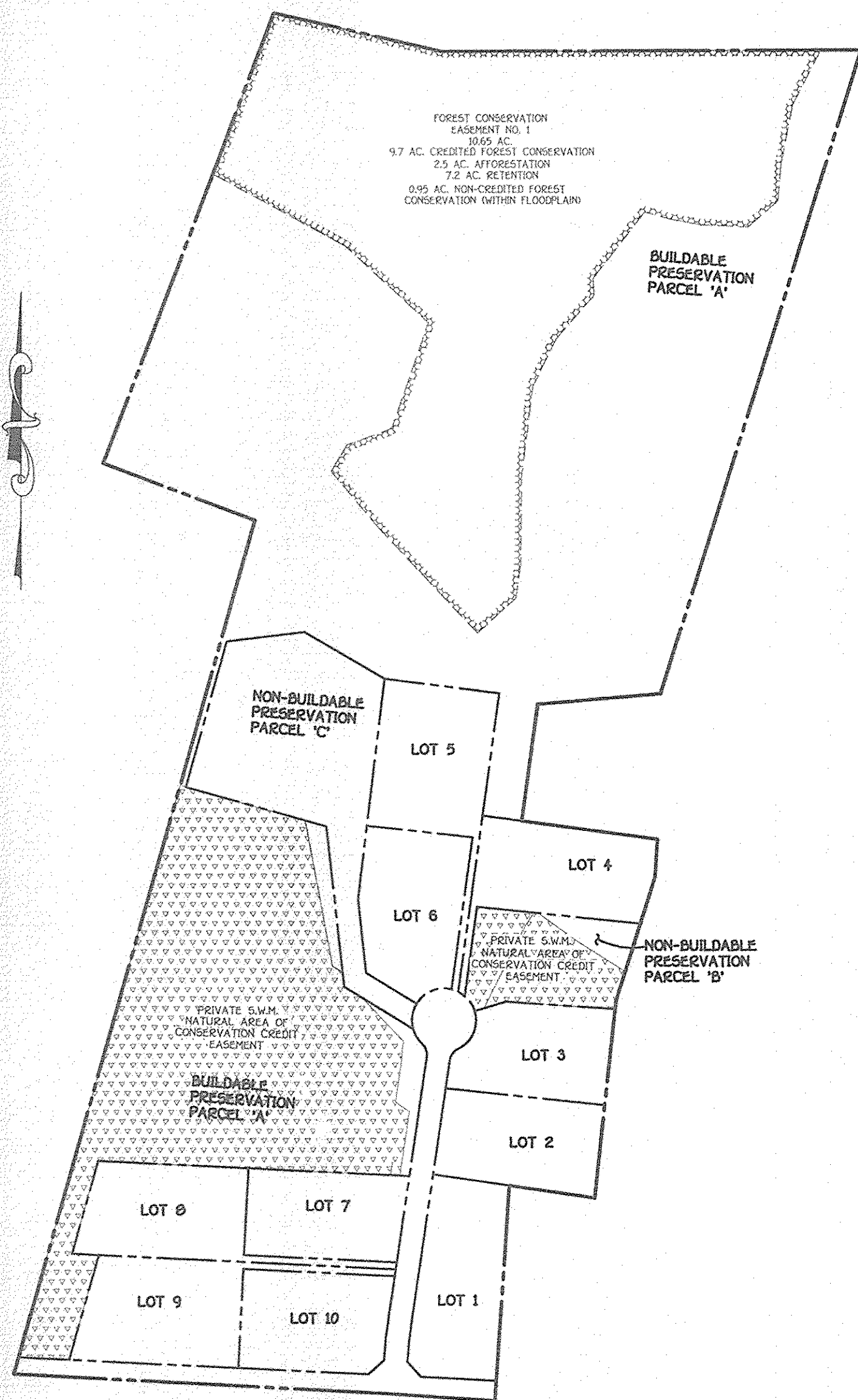
LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A' & NON-BUILDABLE PRESERVATION PARCELS 'B' AND 'C'

ZONING: RC-DEO

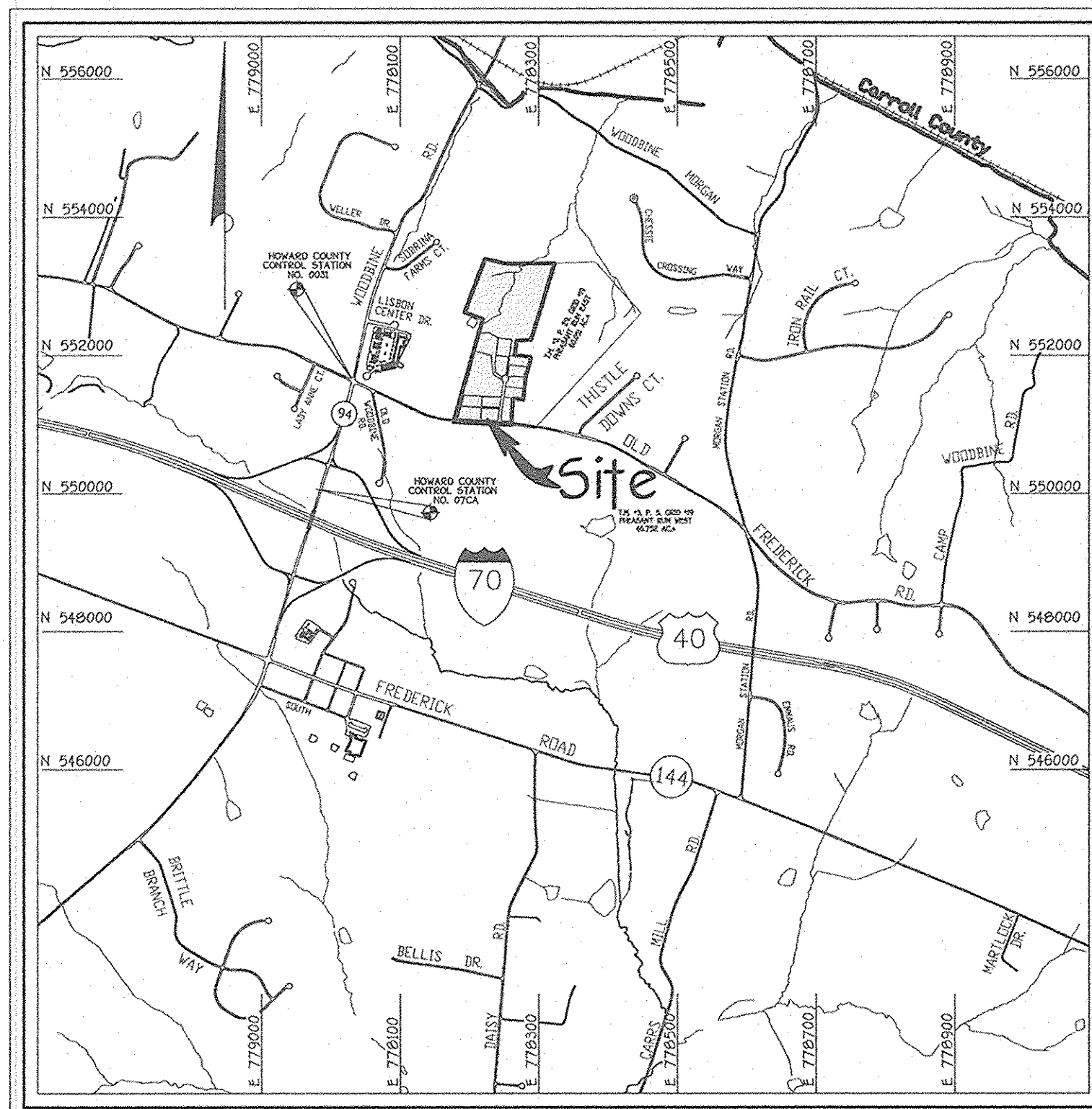
TAX MAP Nos. 3 & 8 GRID Nos. 19 & 1 PARCEL No. 376

TRAFFIC CONTROL SIGNS				
ROAD NAME	C.L. STA.	OFFSET	POSTED SIGN	SIGN CODE
DOVE CREEK COURT	0+40	12'L	STOP	R1-1
DOVE CREEK COURT	1+50	10'R	SPEED LIMIT 25	R2-1
OLD FREDERICK ROAD	6+50	14'R	SEE SHEET 2	W2-1

ROADWAY INFORMATION CHART			
ROAD NAME	CLASSIFICATION	DESIGN SPEED	R/W WIDTH
DOVE CREEK COURT	PUBLIC ACCESS PLACE	25 MPH	40'



PLAN VIEW
SCALE: 1" = 200'



VICINITY MAP
SCALE: 1" = 2000'

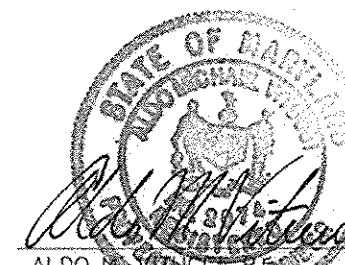
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

APPROVED: DEPARTMENT OF PUBLIC WORKS
William Z. Hall 5-28-08
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Henth 6/8/08
 CHIEF, DIVISION OF LAND DEVELOPMENT
William Danner 6/2/08
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT 4100 33-1800 AT LEAST 10 WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- COORDINATES BASED ON NAD83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 0201 AND NO. 0724. STATION NO. 0201: NORTH 622408.14 FEET EAST 1292805.70 FEET. STATION NO. 0724: NORTH 607313.30 FEET EAST 1292224.32 FEET.
- THE TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP DATED MAY, 2000 AND WAS APPROVED ON 10/26/00 UNDER 5-01-35.
- BACKGROUND INFORMATION:
 - SUBDIVISION NAME: PHEASANT RUN WEST.
 - TAX MAP Nos. 3 & 8.
 - PARCEL No. 376.
 - ZONING: RC-DEO.
 - ELECTION DISTRICT: FOURTH.
 - TOTAL TRACT AREA: 46.792 AC.
 - NO. OF BUILDABLE LOTS: 10. 10 PROPOSED LOTS & 1 BUILDABLE PRES. PARCEL.
 - NO. OF OPEN SPACE LOTS: 0.
 - NO. OF NON-BUILDABLE PRESERVATION PARCELS: 2.
 - NO. OF BUILDABLE PRESERVATION PARCELS: 1.
 - AREA OF BUILDABLE LOTS: 10.996 AC.
 - AREA OF OPEN SPACE LOTS: 0.00 AC.
 - AREA OF NON-BUILDABLE PRESERVATION PARCELS: 1.327 AC.
 - AREA OF BUILDABLE PRESERVATION PARCEL 'A': 31.494 AC.
 - TOTAL AREA OF ROADWAY TO BE DEDICATED: 1.335 AC. (DOVE CREEK CT. = 0.752 AC.; OLD FREDERICK ROAD = 0.583 AC.)
 - AREA OF FLOODPLAIN: 1.999 AC.
 - AREA OF 2% OR GREATER SLOPES: 0.906 AC.
 - PREVIOUS FILE NOS: 5-01-035. APPROVAL DATE: 03-19-02, P-06-009. APPROVAL DATE: 11-06-06.
 - DEED REFERENCE: 4439 / 585.
- NO CEMETERIES EXIST ON THE PROPERTY.
- ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHO T-190.
- THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.12.02 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY PROVIDING 7.2 AC. OF ON-SITE FOREST RETENTION (662,760.40) AND 2.5 AC. OF ON-SITE AFFORESTATION (454,450.00). THE TOTAL FOREST CONSERVATION AREA IS 10.69 ACRES (9.7 AC. CREDITED AND 0.99 AC. NON-CREDITED). THE FOREST CONSERVATION SURVEY AMOUNT TO FULFILL THE FOREST CONSERVATION OBLIGATION IS 817,210.40.
- STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH HOWARD COUNTY AND MARYLAND 2708 SPECIFICATIONS. WATER QUALITY WILL BE PROVIDED BY A MICRO-POOL EXTENDED DETENTION FACILITY (P-D), 3-LEVEL SPREADERS, A DRIVEWAY DISCONNECTION (PARCEL 'A'), C/P IS BEING PROVIDED BY H.O.A. AND JOINTLY MAINTAINED BY H.O.A. AND HOWARD COUNTY.
 - B.M.P. NO. 1 MICRO-POOL EXTENDED DETENTION FOND - TYPE P-1 FOND, PRIVATELY OWNED BY H.O.A. AND JOINTLY MAINTAINED BY H.O.A. AND HOWARD COUNTY.
 - B.M.P. NO. 2 3 LEVEL SPREADERS AT THE REAR OF LOT 6.) PRIVATELY OWNED AND MAINTAINED BY H.O.A.
 - B.M.P. NO. 3 3 LEVEL SPREADERS AT THE REAR OF LOT 5.) PRIVATELY OWNED AND MAINTAINED BY H.O.A.
 - B.M.P. NO. 4 3 LEVEL SPREADER BY THE HOUSE FOR BUILDABLE PRESERVATION PARCEL 'A') PRIVATELY OWNED AND MAINTAINED BY H.O.A.
- THE NON-CRITICAL FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY FISHER, COLLINS & CARTER, INC. AND APPROVED ON NOVEMBER 6, 2006.
- THE PROPOSED WATER AND SEWER SYSTEMS SHALL BE PRIVATE. THE SEWER WASTE APPROPRIATION PERMIT NUMBERS FOR THIS PROJECT IS: Pheasant Run West - *4020066003 (0).
- THE SUBJECT PROPERTY IS LOCATED OUTSIDE OF THE METROPOLITAN DISTRICT.
- TOPOGRAPHIC INFORMATION ESTABLISHED AT TWO FOOT INTERVALS AND IS BASED ON FLOW AERIAL SURVEY BY HARFORD AERIAL SURVEYS ON 2/18/06.
- FOR FLAG OR PREPARED LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE IS TO BE PROVIDED AT THE JUNCTION OF THE FLAG OR PREPARED AND THE ROAD RIGHT-OF-WAY AND NOT ONTO THE FLAG OR PREPARED DRIVEWAY.
- THE WETLANDS DELINEATION STUDY AND FOREST STAND DELINEATION STUDY WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED MAY, 2007 AND WAS APPROVED ON 11/02/07 UNDER 5-01-35 AND UPDATED BY ECO-SCIENCE PROFESSIONALS, INC. DATED MAY 23, 2007.
- SOILS INFORMATION TAKEN FROM SOIL MAP NO. 2, SOIL SURVEY, HOWARD COUNTY, MARYLAND, JULY, 1968 ISSUE.
- THIS SUBDIVISION PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL NO. 45-2000 AND THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL NO. 79-2000. DEVELOPMENT OR CONSTRUCTION OF THESE LOTS OR PARCELS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF A BUILDING OR GRADING PERMIT APPLICATION.
- SUBJECT PROPERTY ZONED RC-DEO Per 02/02/04 COMPREHENSIVE ZONING PLAN AND THE COMP LITE ZONING AMENDMENTS EFFECTIVE 07/28/06.
- THESE ARE STEEP SLOPES (2% OR GREATER) LOCATED ON THIS PROPERTY AS DEFINED BY THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.10.01. TOTAL AREA = 0.906 AC.
- AS PER SECTION 16.6.A.3 OF THE ZONING REGULATIONS, ONLY ONE EASEMENT HOLDER IS REQUIRED FOR PRESERVATION PARCELS DESIGNED SOLELY FOR S/M FACILITIES OR COMMUNITY SEWERAGE DISPOSAL SYSTEMS.

A. BUILDABLE PRESERVATION PARCEL 'A'	OWNED PRIVATELY:	C. NON-BUILDABLE PRESERVATION PARCEL 'C'
EASEMENT HOLDERS: H.O.A. AND HOWARD COUNTY, MARYLAND	OWNED H.O.A.	EASEMENT HOLDERS: HOWARD COUNTY, MARYLAND
USE: ENVIRONMENTAL PROTECTION	USE: ENVIRONMENTAL PROTECTION	USE: S/M.
- NON-BUILDABLE PRESERVATION PARCEL 'B'



5-12-08
DATE

PHEASANT RUN WEST
 LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A' & NON-BUILDABLE PRESERVATION PARCELS 'B' AND 'C'
 ZONED "RC-DEO"
 TAX MAP Nos. 3 & 8, GRID Nos. 19 & 1, PARCEL No. 376
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: MAY, 2008
 SHEET 1 OF 17

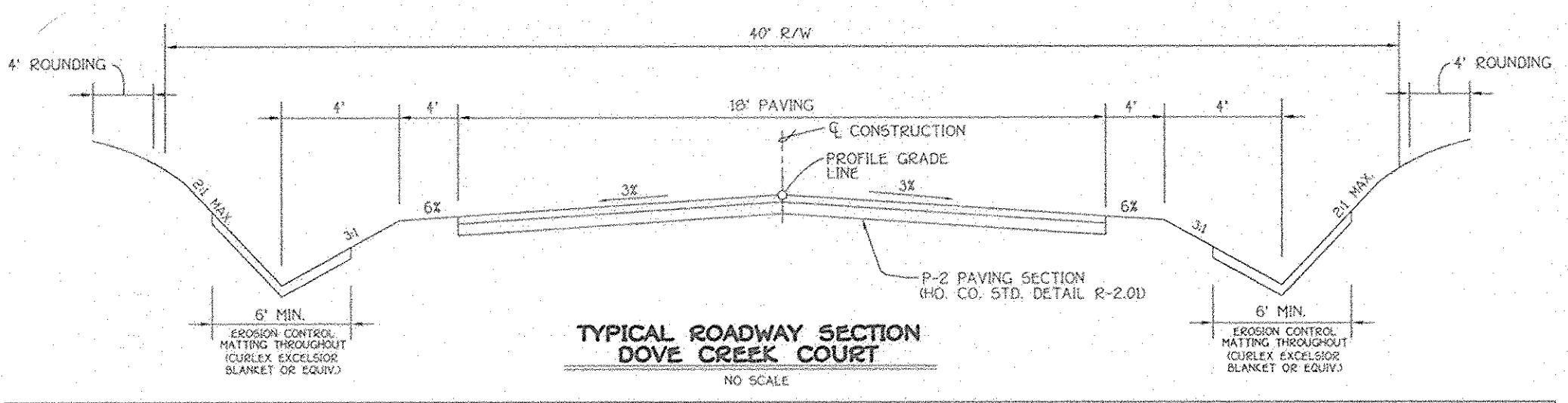
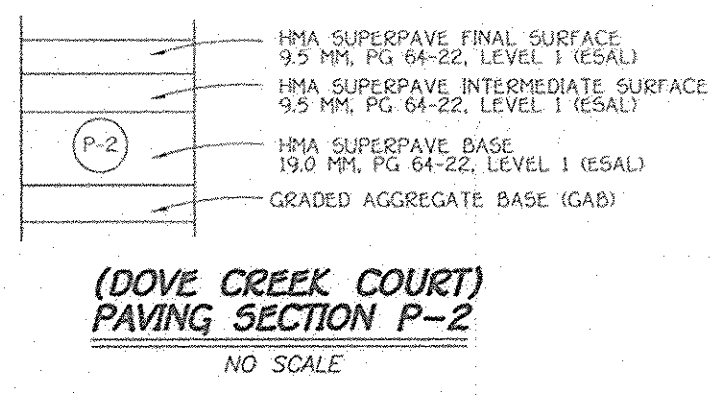
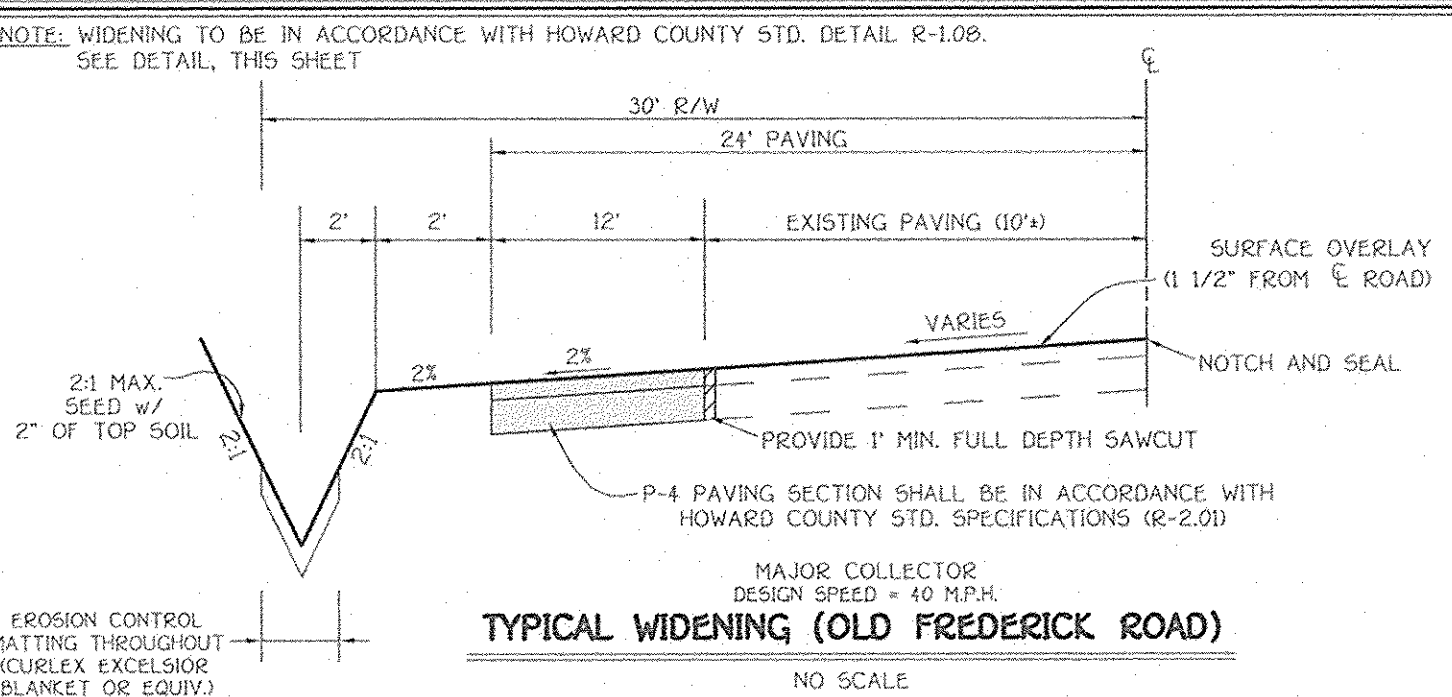
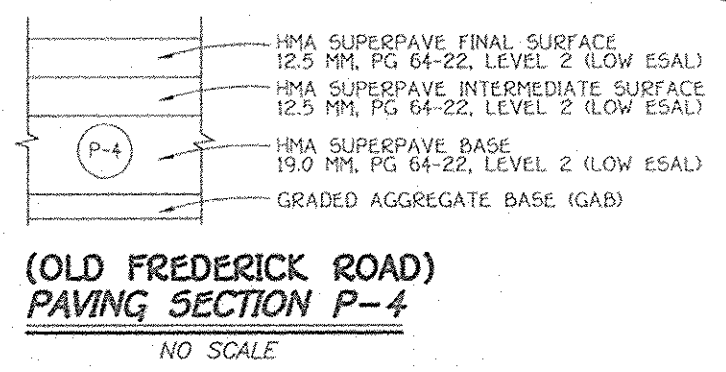
FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CONTONAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PkE
 ELLICOTT CITY, MARYLAND 21042
 (410) 461-2855

OWNERS
 MARIO MANNARELLI, SR. & SERAFINA MANNARELLI
 15940 NORTH AVENUE
 2929 SUMMIT CIRCLE
 ELLICOTT CITY, MARYLAND 21043
 (410) 461-2278

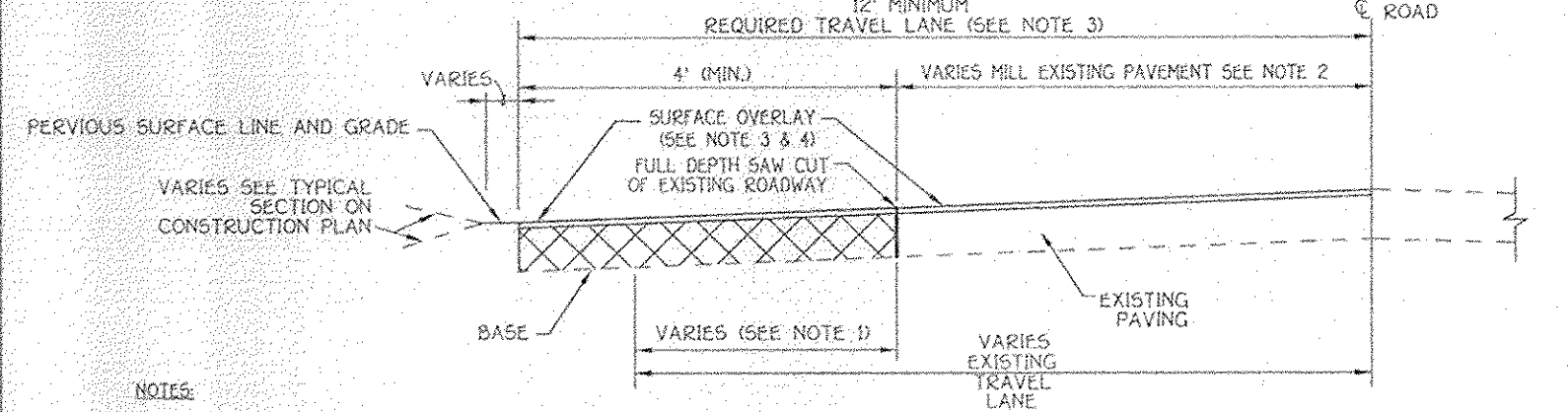
DEVELOPER
 HERITAGE LAND DEVELOPMENT, INC.
 15940 NORTH AVENUE
 P.O. BOX 482
 LISBON, MARYLAND 21765
 (410) 489-7900

I, the undersigned, hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-09.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 W. J. MULLA 5-28-08 DATE
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Cindy Harman 6/4/08 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT
 APPROVED: DEPARTMENT OF ENGINEERING
 M. J. ... 10/2/08 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

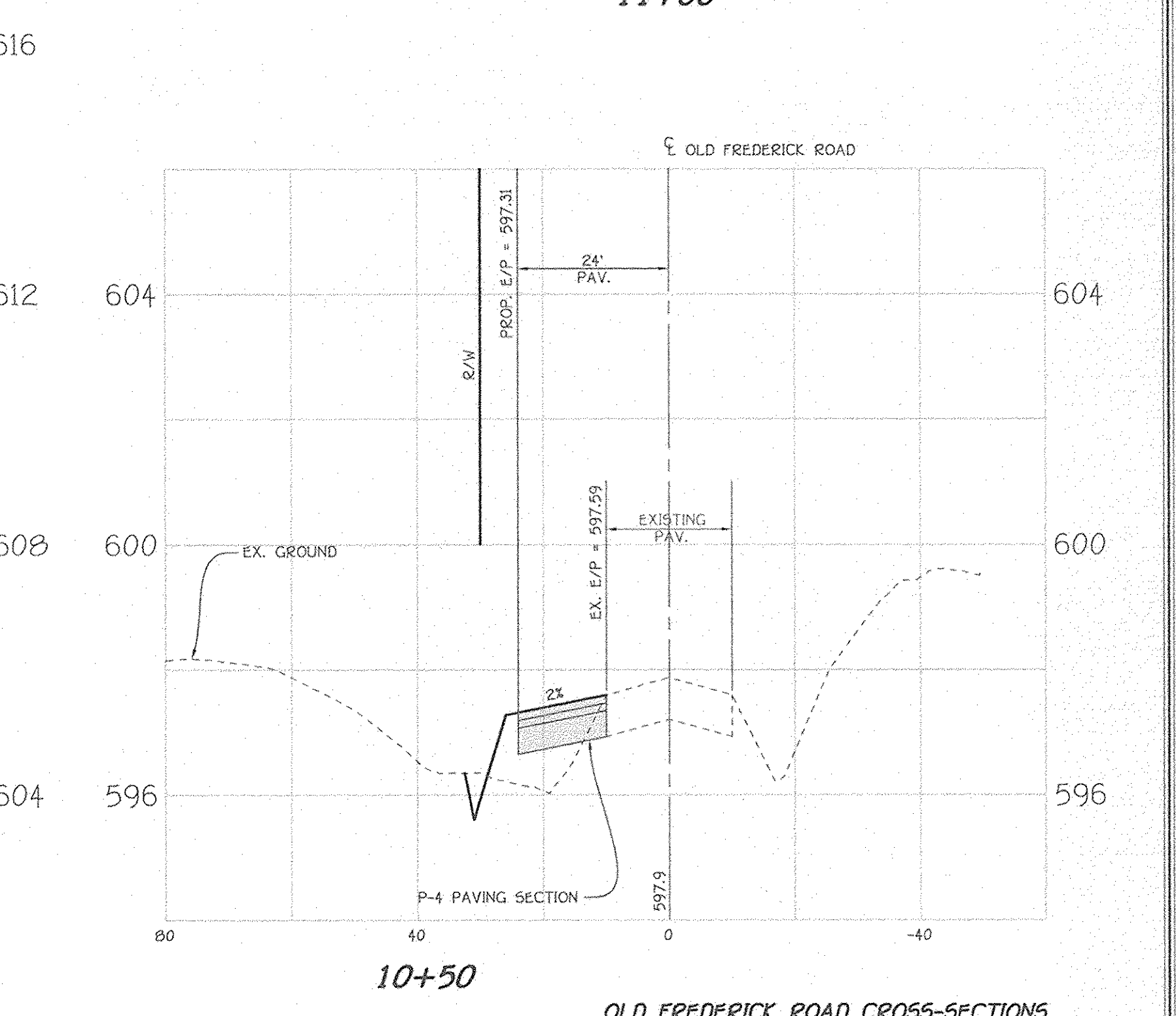
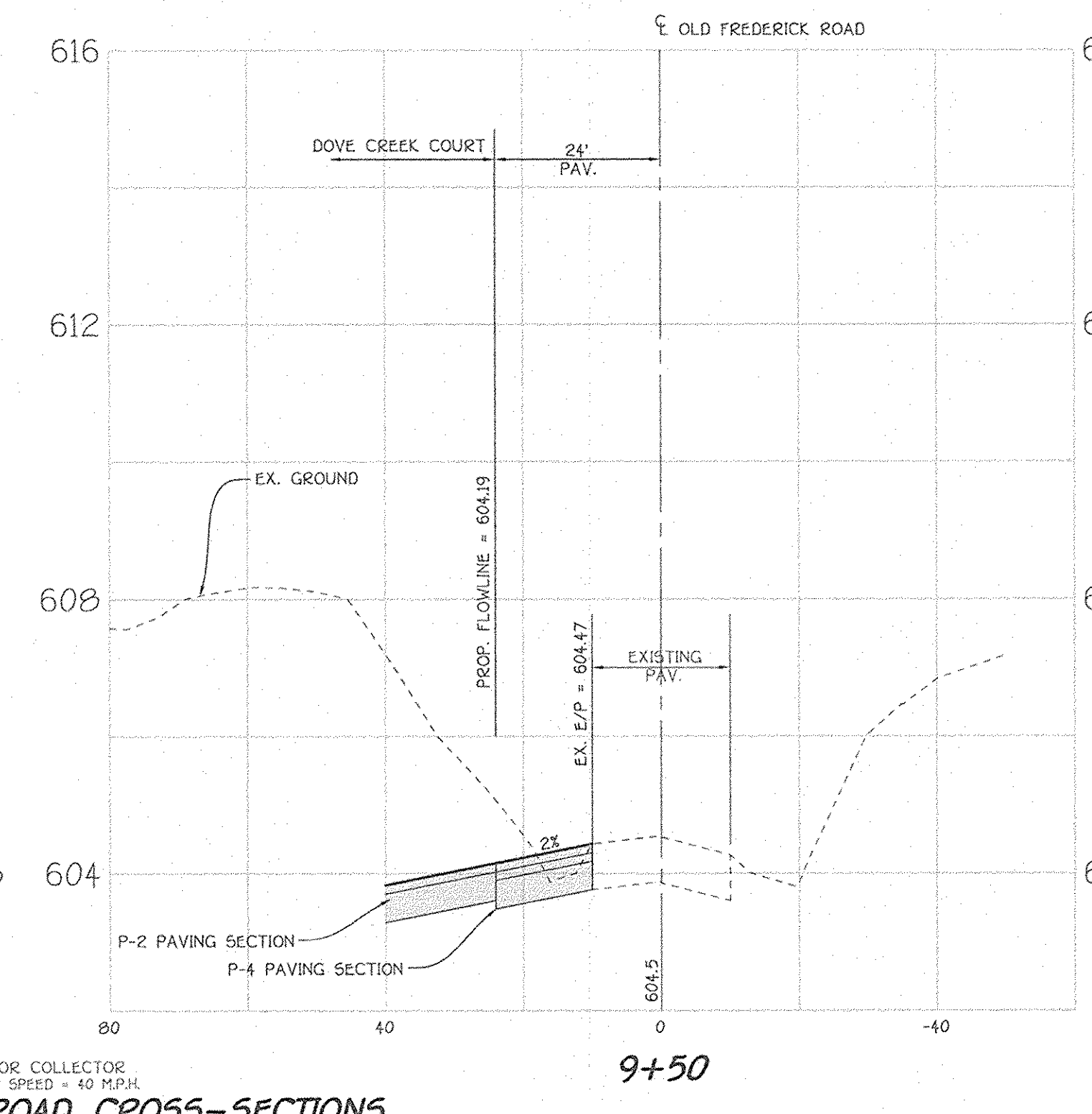
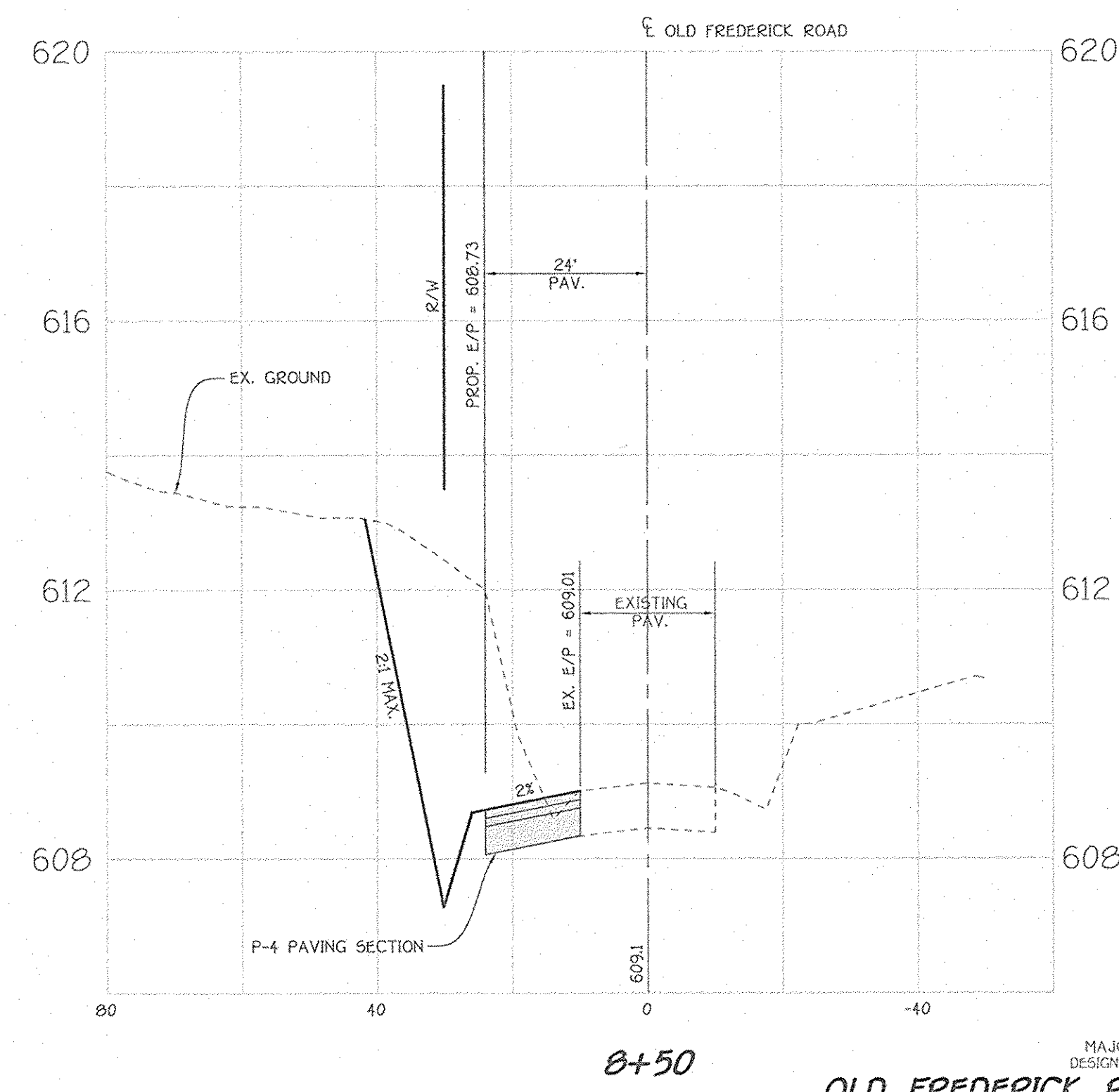
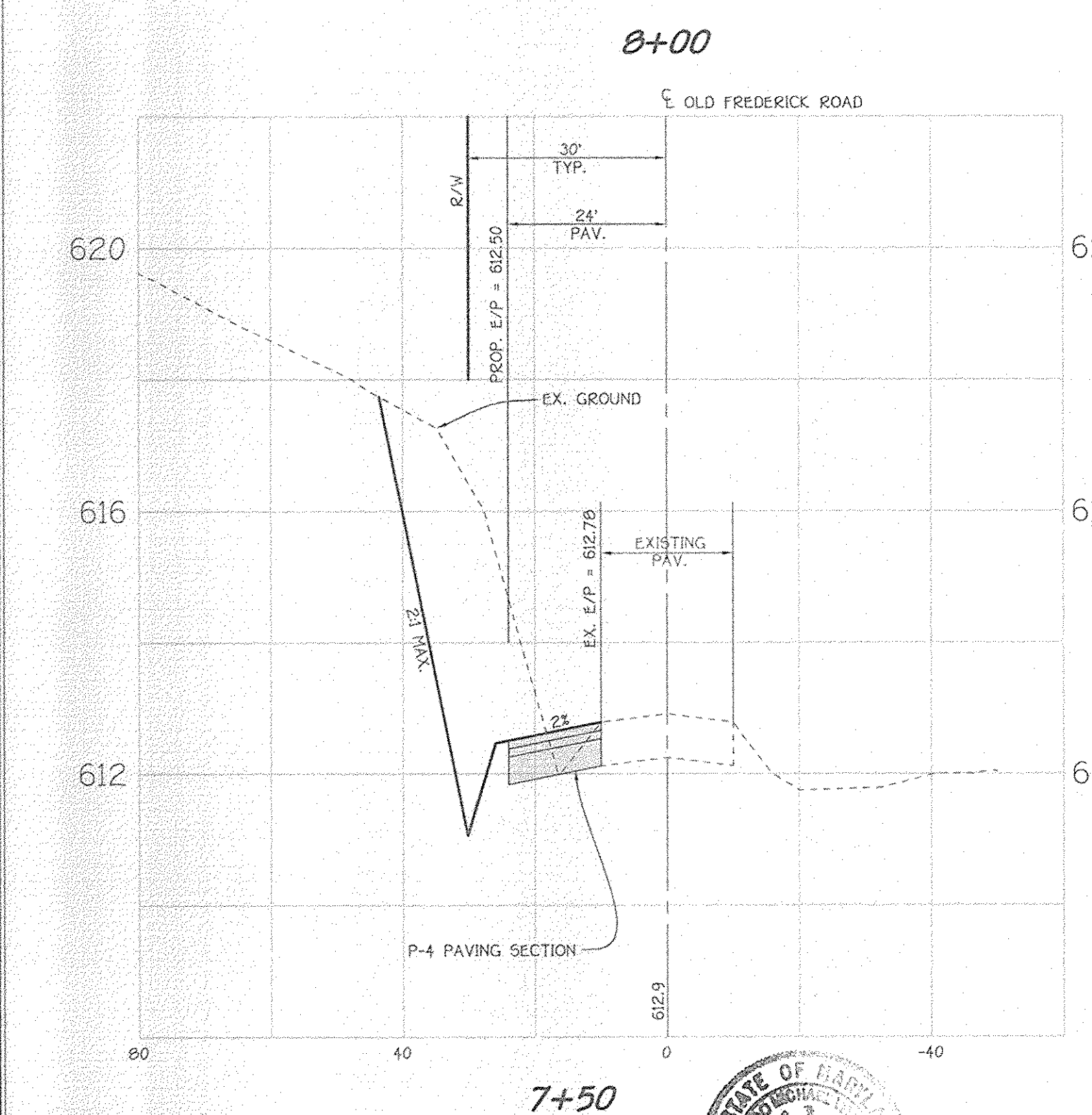
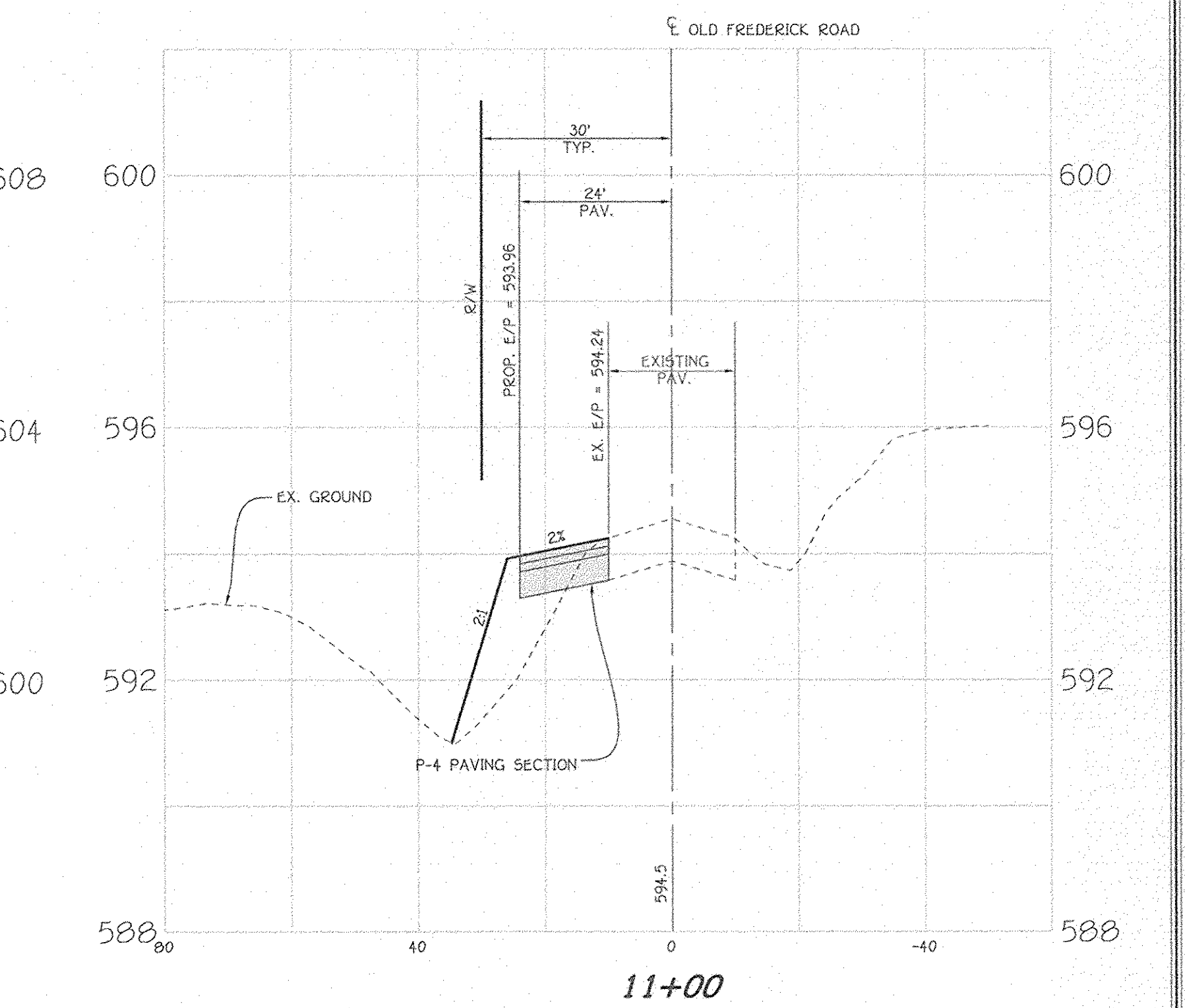
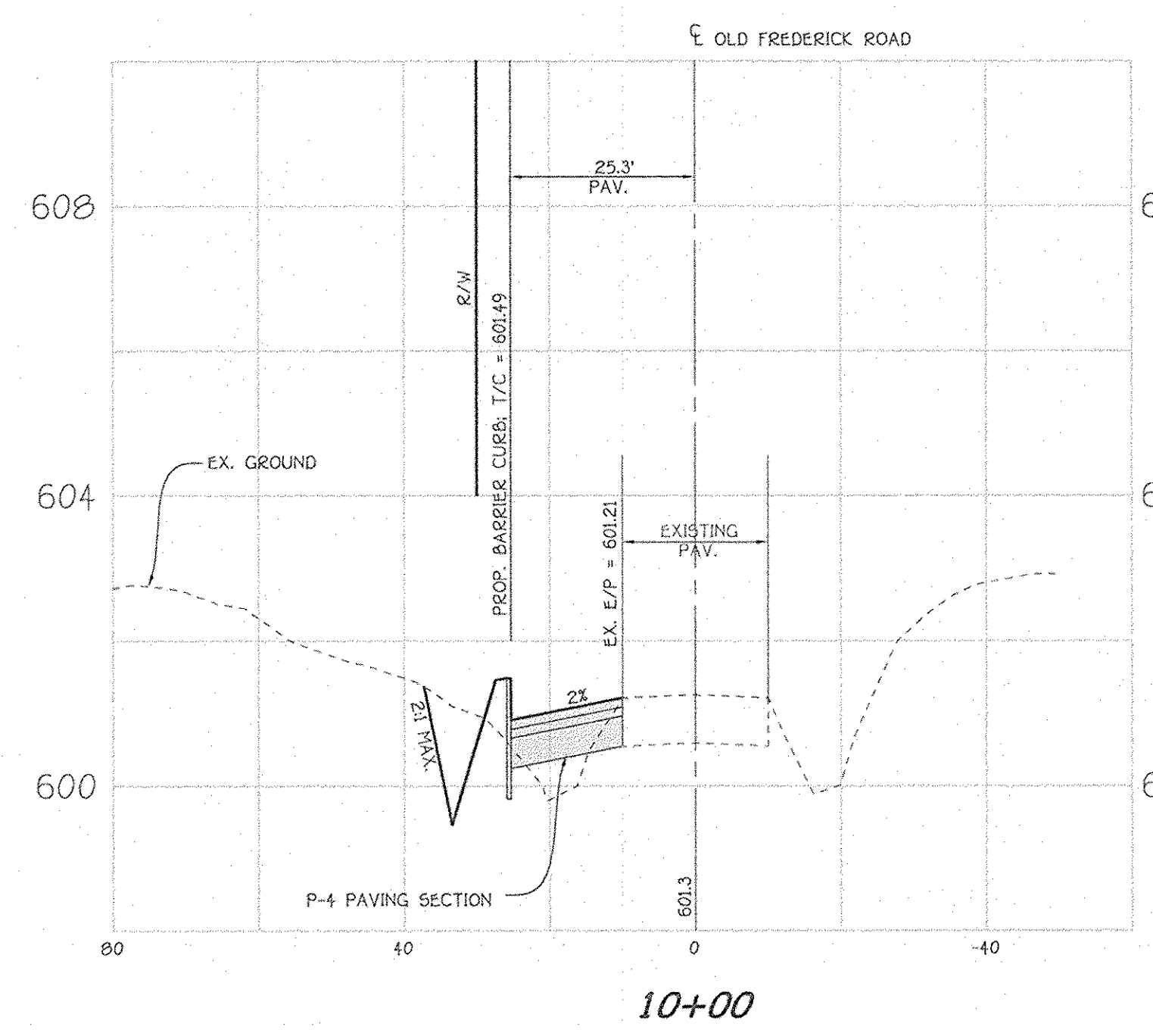
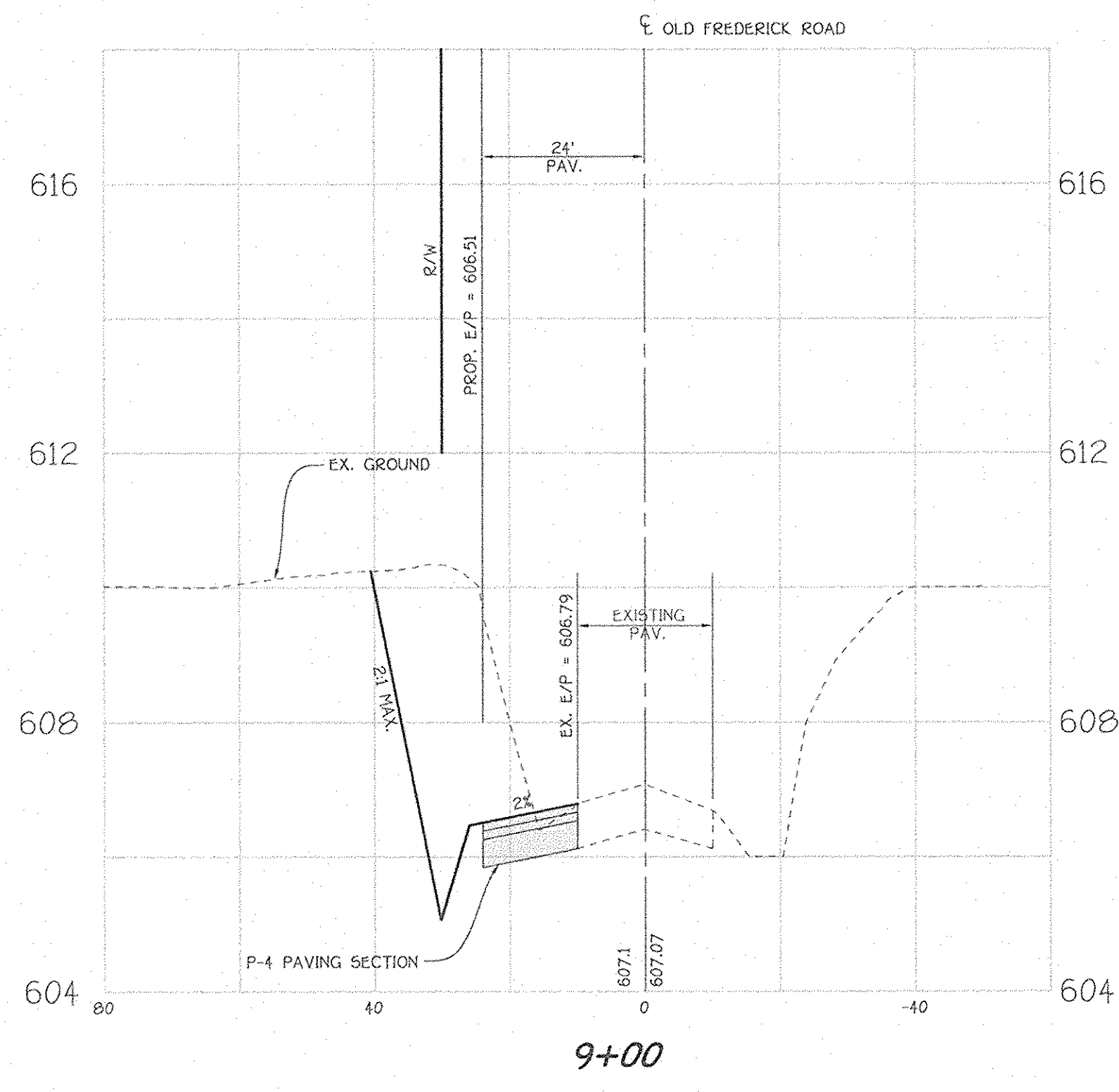
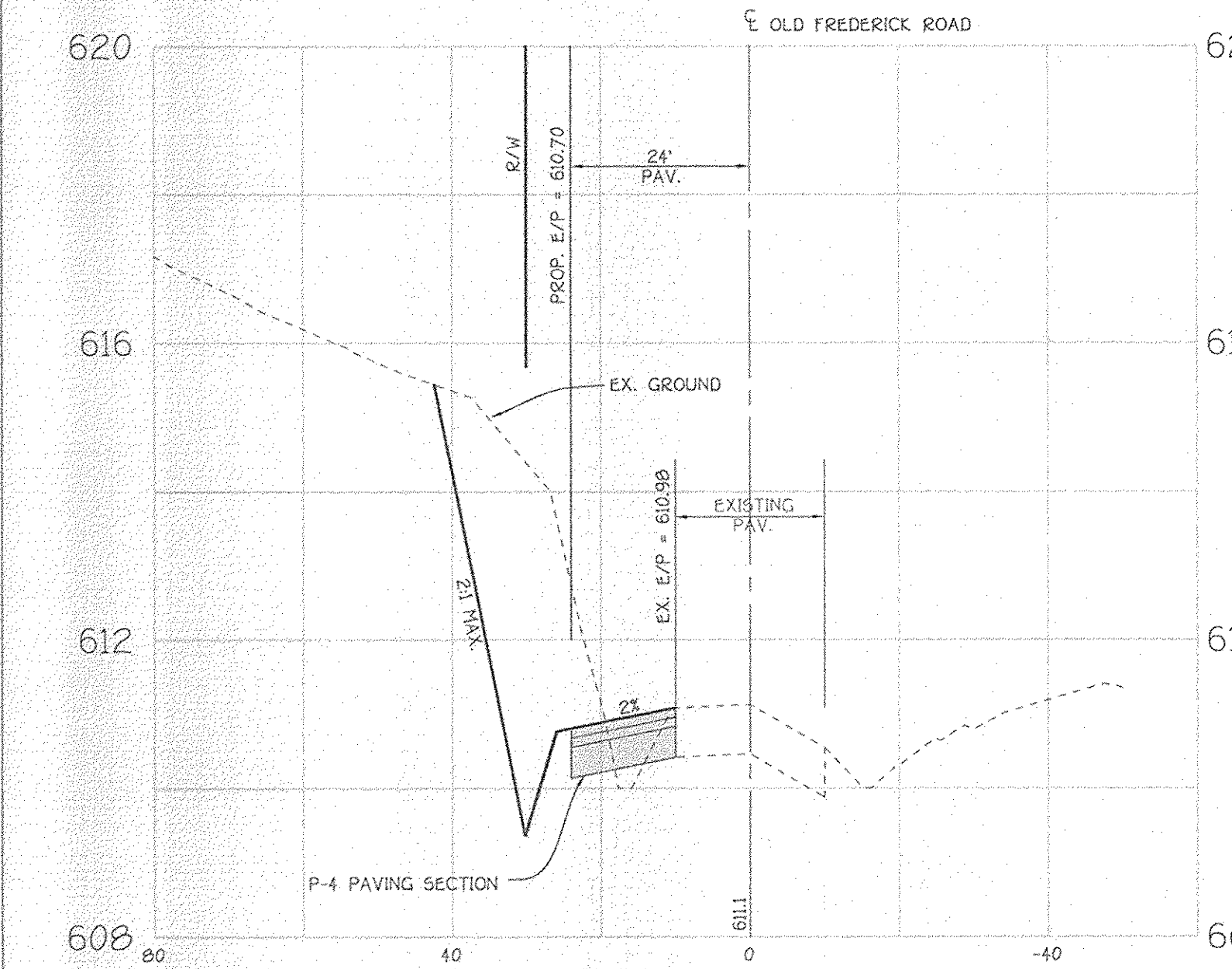


ROADWAY INFORMATION CHART					
ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	STATION LIMITS	PAVING SECTION
DOVE CREEK COURT	PUBLIC ACCESS PLACE	30 MPH	RC-DEO	0+00 TO 6+48.40	P-2



NOTES:
 1. WHEN EXISTING TRAVEL LANE IS LESS THAN THE REQUIRED 12' LANE, CONTRACTOR SHALL REMOVE A MINIMUM OF 1' FULL DEPTH OF THE EXISTING ROADWAY. IF CURB AND GUTTER IS INSTALLED, PROVIDE A MINIMUM OF 4" OF WIDENING FROM FACE OF GUTTER PAV.
 2. THE EXISTING PAVEMENT TO BE RESURFACED SHALL BE MILLED AT DEPTH OF 1 1/2" MINIMUM.
 3. THE RESURFACING SHALL BE PLACED TO THE CENTERLINE OF THE ROADWAY.
 4. RESURFACING COURSE TO BE EQUAL TO THE SURFACE COURSE OF THE TYPICAL PAVEMENT SECTION.

EXISTING ROADWAY WIDENING STRIP (R-1.08)
 NO SCALE



OLD FREDERICK ROAD CROSS-SECTIONS
 SCALE: 1" = 20' HOR.
 1" = 2' VERT.

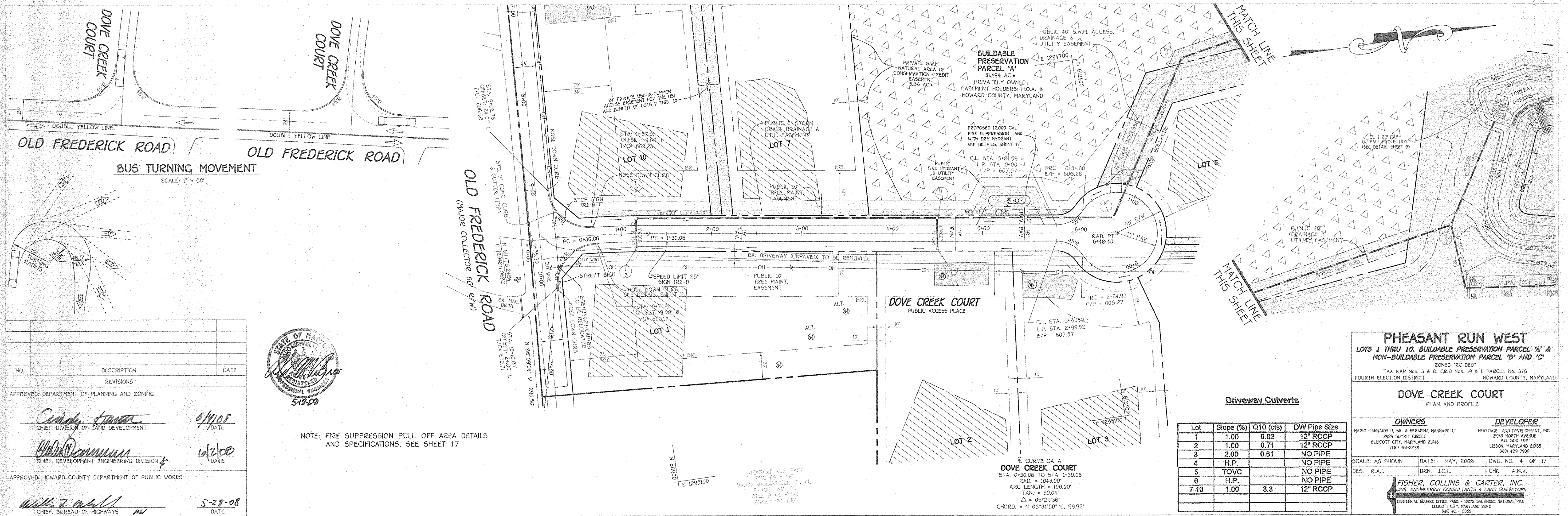
**OLD FREDERICK ROAD CROSS-SECTIONS
 AND ROADWAY DETAILS
 PHEASANT RUN WEST
 LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A' &
 NON-BUILDABLE PRESERVATION PARCELS 'B' AND 'C'**
 ZONED "RC-DEO"
 TAX MAP Nos. 3 & 8, GRID Nos. 19 & 1, PARCEL No. 376
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: MAY, 2008
 SHEET 3 OF 17

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL OFFICE: OFFICE PARK - 10776 BALTIMORE NATIONAL PARK
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2279



OWNERS
 MARIO MANNARELLI, SR. & SERAFINA MANNARELLI
 2929 SUMMIT CIRCLE
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DEVELOPER
 HERITAGE LAND DEVELOPMENT, INC.
 15940 NORTH AVENUE
 P.O. BOX 482
 LISBON, MARYLAND 21765
 (410) 489-7900



NO.	DESCRIPTION	DATE
	REVISIONS	

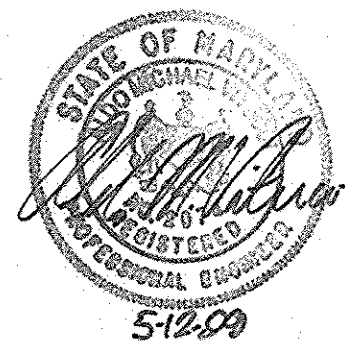
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hunter 6/1/08 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT

John DeMunnica 6/2/08 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION

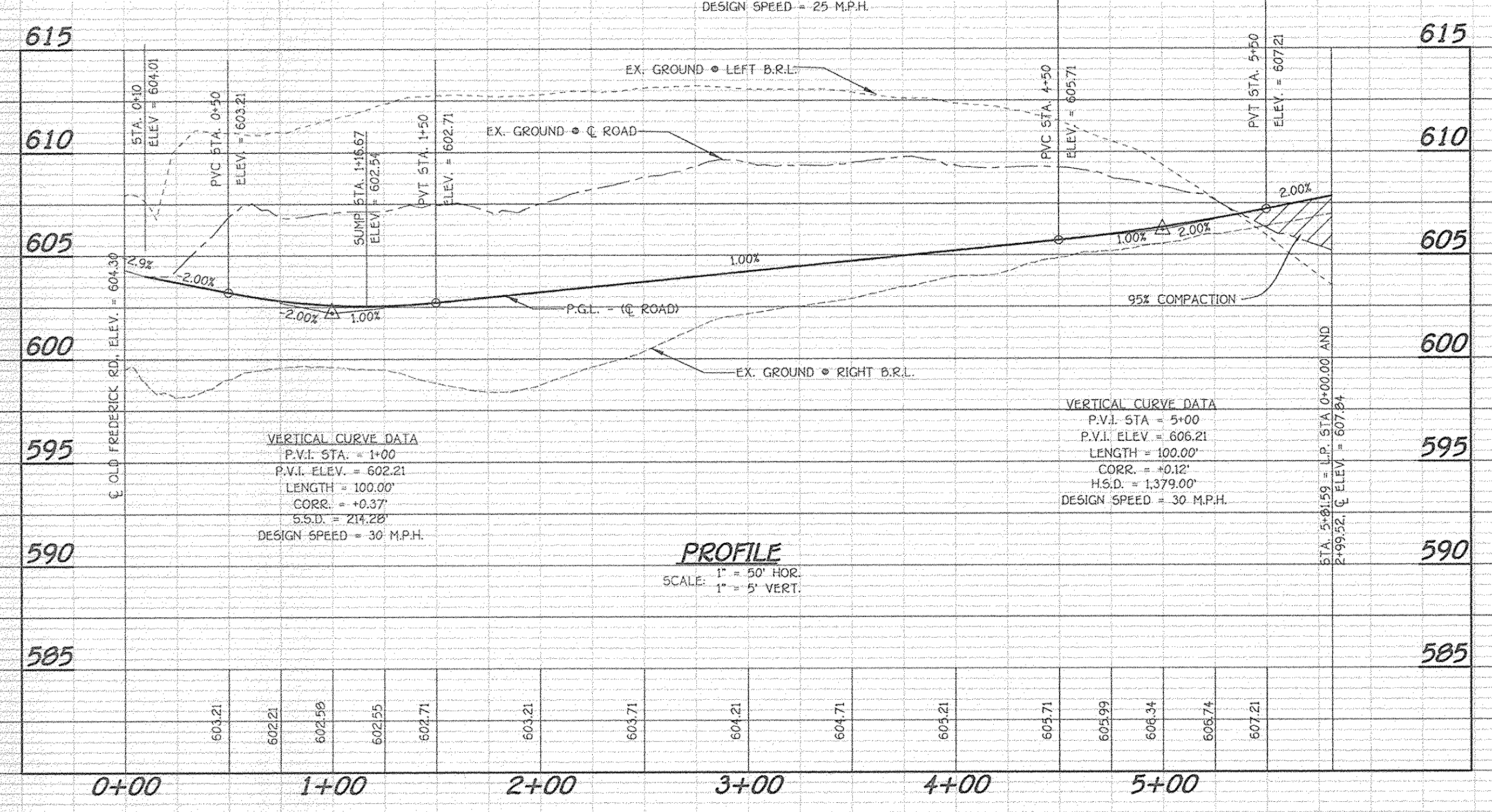
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Wills A. Mulla 5-28-08 DATE
CHIEF, BUREAU OF HIGHWAYS

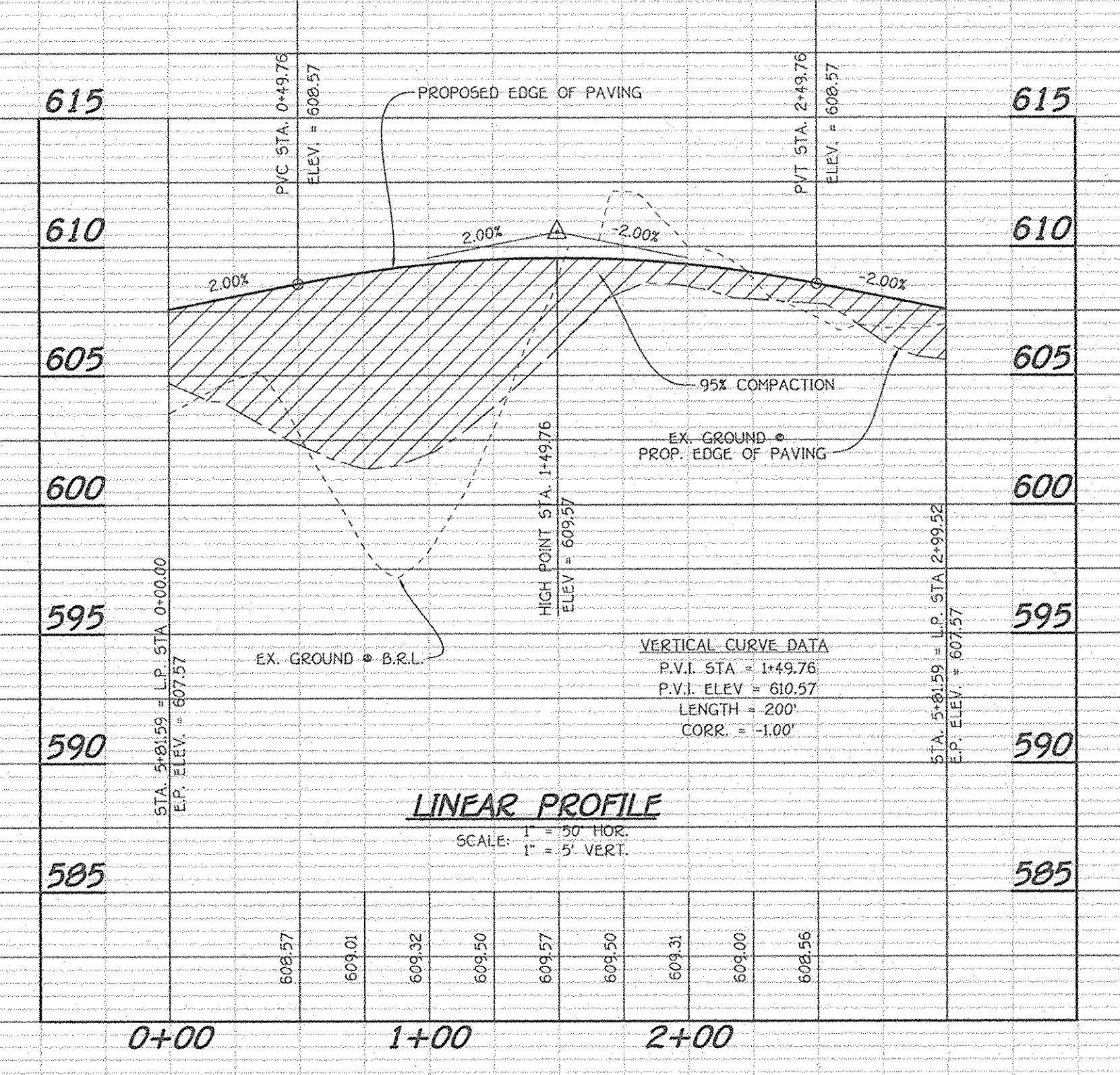


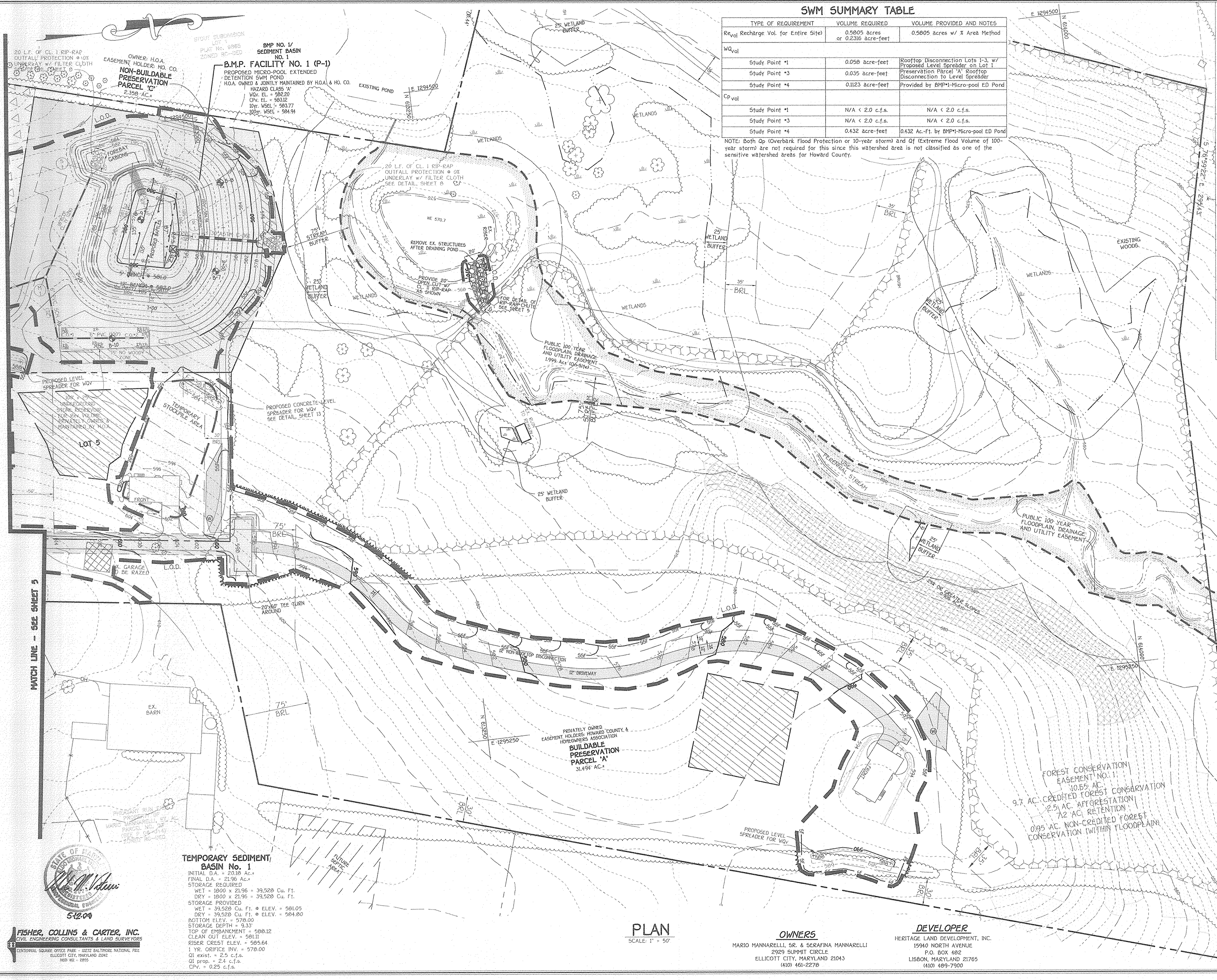
NOTE: FIRE SUPPRESSION PULL-OFF AREA DETAILS AND SPECIFICATIONS, SEE SHEET 17

DOVE CREEK COURT
PUBLIC ACCESS PLACE
DESIGN SPEED = 25 M.P.H.



DOVE CREEK COURT





SWM SUMMARY TABLE

TYPE OF REQUIREMENT	VOLUME REQUIRED	VOLUME PROVIDED AND NOTES
Revol Recharge Vol. for Entire Site	0.5805 acres or 0.2316 acre-feet	0.5805 acres w/ % Area Method
WQ vol		
Study Point #1	0.058 acre-feet	Rooftop Disconnection Lots 1-3, w/ Proposed Level Spreader on Lot 1
Study Point #3	0.035 acre-feet	Preservation Parcel 'A' Rooftop Disconnection to Level Spreader
Study Point #4	0.1123 acre-feet	Provided by BMP#1-Micro-pool ED Pond
CP vol		
Study Point #1	N/A < 2.0 c.f.s.	N/A < 2.0 c.f.s.
Study Point #3	N/A < 2.0 c.f.s.	N/A < 2.0 c.f.s.
Study Point #4	0.432 acre-feet	0.432 Ac.-Ft. by BMP#1-Micro-pool ED Pond

NOTE: Both Qp (Overbank Flood Protection or 10-year storm) and Qf (Extreme Flood Volume of 100-year storm) are not required for this since this watershed area is not classified as one of the sensitive watershed areas for Howard County.

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: *Mario Mannarelli* 5-12-08
 Date
 Printed Name of Developer: **MARIO MANNARELLI**

By The Engineer:
 "I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical Applicable 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 Guaranteed To 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: *Gregory Selig* 5/21/08
 Date
 Printed Name of Engineer: **Gregory Selig**

Approved: Department of Public Works
 Signature: *William J. Walsh* 5-28-08
 Date
 Chief, Bureau of Highways

Approved: Department of Planning And Zoning
 Signature: *Cindy Hunt* 6/1/08
 Date
 Chief, Division of Land Development

Signature: *William J. Walsh* 6/2/08
 Date
 Chief, Development Engineering Division

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

Signature: _____ P.E. No. _____
 Date: _____

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

- LEGEND**
- SF—SF—SF— SUPER-SILT FENCE
 - SF—SF—SF— SILT FENCE
 - TP—TP—TP— TREE PROTECTION FENCE
 - [S.C.E.] STABILIZED CONSTRUCTION ENTRANCE
 - EARTH DIKE
 - DENOTES L.O.D. LIMITS OF DISTURBANCE
 - [E.C.M.] DENOTES EROSION CONTROL MATTING
 - [A.A.A.] DENOTES PRIVATE STORMWATER MANAGEMENT FACILITY
 - ~~~~~ DENOTES EXISTING TREELINE
 - ~~~~~ DENOTES PROPOSED TREELINE
 - [] DENOTES 15% TO 24.9% SLOPES
 - [] DENOTES 25% OR GREATER SLOPES

NOTE:
 CONTRACTOR SHALL REMOVE ANY AND ALL JUNK, DEBRIS AND TRASH FROM WITHIN THE FLOODPLAIN, BUFFERS AND PRESERVATION PARCELS.

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
PHEASANT RUN WEST
 LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A' & NON-BUILDABLE PRESERVATION PARCELS 'B' AND 'C'
 ZONED "RC-DEO"
 TAX MAP Nos. 3 & 8, GRID Nos. 19 & 1, PARCEL No. 376
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: MAY, 2008
 SHEET 6 OF 17

TEMPORARY SEDIMENT BASIN No. 1
 INITIAL D.A. = 2018 AC.
 FINAL D.A. = 2136 AC.
 STORAGE REQUIRED:
 WET = 1800 x 21.96 = 39,528 Cu. Ft.
 DRY = 1800 x 21.96 = 39,528 Cu. Ft.
 STORAGE PROVIDED:
 WET = 39,528 Cu. Ft. @ ELEV. = 581.05
 DRY = 39,528 Cu. Ft. @ ELEV. = 584.80
 BOTTOM ELEV. = 578.00
 STORAGE DEPTH = 0.33'
 TOP OF EMBANKMENT = 580.12
 CLEAN OUT ELEV. = 581.11
 RISER CREST ELEV. = 585.64
 1 YR. ORIFICE INV. = 578.00
 Q1 exist. = 2.0 c.f.s.
 Q1 prop. = 2.4 c.f.s.
 C.V. = 0.25 c.f.s.

PLAN
 SCALE: 1" = 50'

OWNERS
 MARIO MANNARELLI, SR. & SERAFINA MANNARELLI
 2929 SUMMIT CIRCLE
 ELLICOTT CITY, MARYLAND 21043
 (410) 461-2278

DEVELOPER
 HERITAGE LAND DEVELOPMENT, INC.
 15940 NORTH AVENUE
 P.O. BOX 482
 LISBON, MARYLAND 21765
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FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK • 10272 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21042
 410-461-8895

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	D-1 - 762'
NUMBER OF TREES REQUIRED & PROVIDED:	
SHADE TREES	15
EVERGREEN TREES	19
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO

LANDSCAPE DEVELOPER'S CERTIFICATE

I/We 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 Howard County Landscape Manual. I/We 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.

Name: *Wesley Danner* Date: 5-12-08

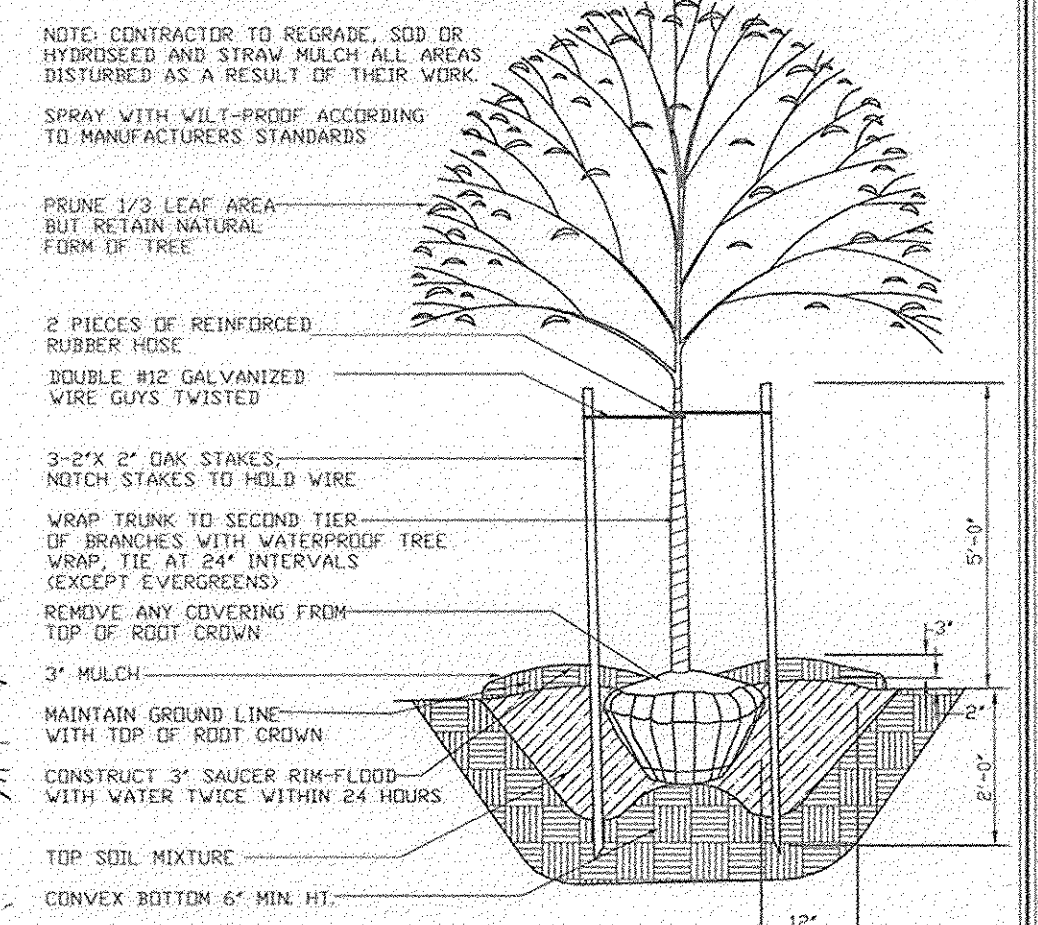
APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter Z. ... 5-28-08
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cathy ... 6/1/08
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

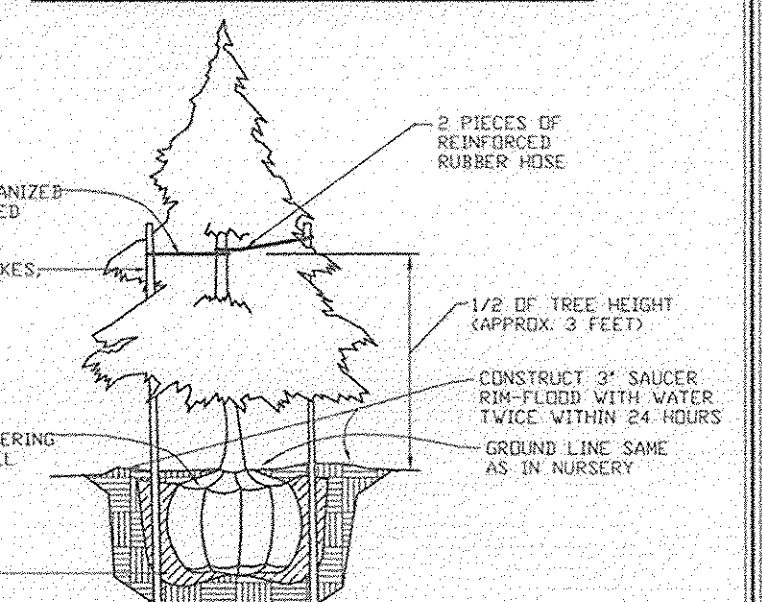
W.D. ... 6/2/08
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

PLANT LIST

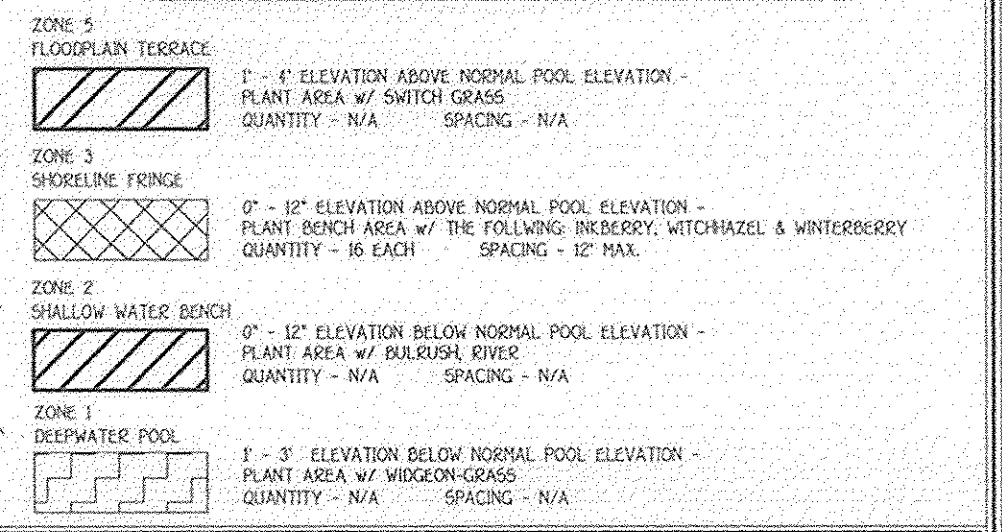
SYMBOL	QTY.	BOTANICAL AND COMMON NAME	SIZE
	30	GLEDITSIA TRIACANTHOS 'IMPERIAL' IMPERIAL THORNLESS HONEYLOCUST	2 1/2"-3" CAL.
	31	CARPINUS CAROLINIANA AMERICAN HORNBEAM	2 1/2"-3" CAL.
	25	QUERCUS ACUTISSIMA SAWTOOTH OAK	2 1/2"-3" CAL.
	16	ILEX OPACA AMERICAN HOLLY	5' - 6' HT.
	19	PRUNUS STROBUS EASTERN WHITE PINE	6' - 8' HT.



TREE PLANTING DETAIL



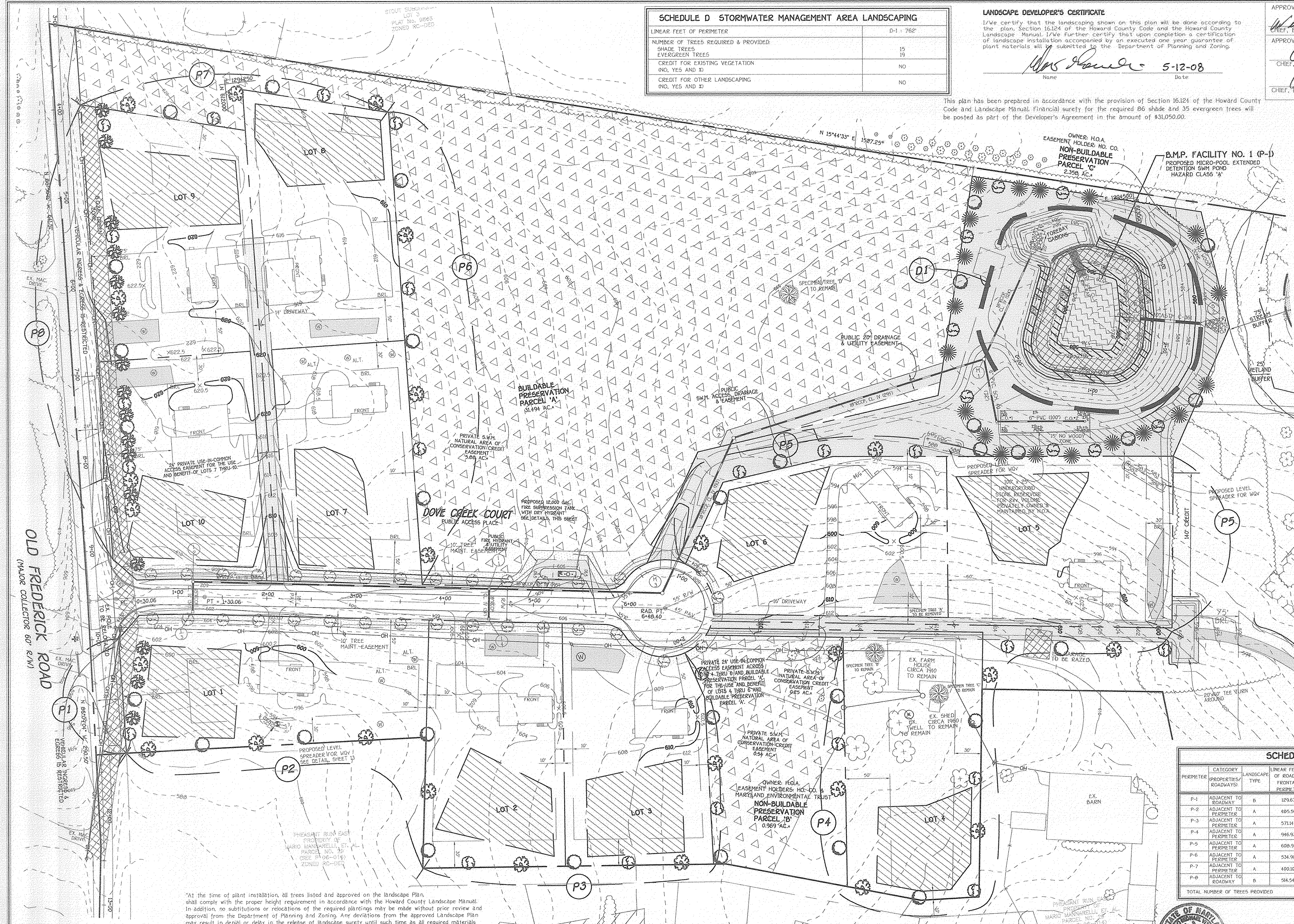
EVERGREEN PLANTING DETAIL



SCHEDULE A - PERIMETER LANDSCAPING

PERIMETER	CATEGORY	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED AND PROVIDED	SHADE TREES	EVERGREEN TREES	SHRUBS
P-1	ADJACENT TO ROADWAY	B	129.67'	NO	NO	3	3	-	-
P-2	ADJACENT TO PERIMETER	A	485.56'	NO	NO	8	-	-	-
P-3	ADJACENT TO PERIMETER	A	571.14'	NO	NO	10	-	-	-
P-4	ADJACENT TO PERIMETER	A	946.93'	NO	NO	16	-	-	-
P-5	ADJACENT TO PERIMETER	A	608.90'	YES 1107'	NO	8	-	-	-
P-6	ADJACENT TO PERIMETER	A	534.90'	NO	NO	9	-	-	-
P-7	ADJACENT TO PERIMETER	A	400.10'	NO	NO	7	-	-	-
P-8	ADJACENT TO ROADWAY	B	514.54'	NO	NO	10	13	-	-
TOTAL NUMBER OF TREES PROVIDED						71	16	-	-

LANDSCAPE PLAN
PHEASANT RUN WEST
 LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A' & NON-BUILDABLE PRESERVATION PARCELS 'B' AND 'C'
 ZONED 'RC-DEO'
 TAX MAP Nos. 3 & 8, GRID Nos. 19 & 1, PARCEL No. 376
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: MAY, 2008
 SHEET 7 OF 17



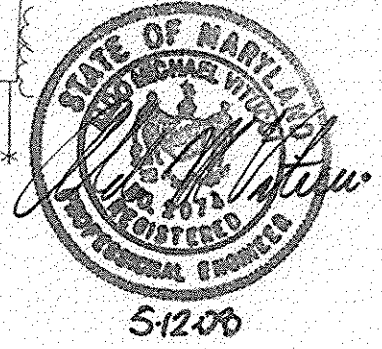
"At the time of plant installation, all trees listed and approved on the landscape Plan shall comply with the proper height requirement in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocations of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviations from the approved Landscape Plan may result in denial or delay in the release of landscape surety until such time as all required materials are planted and/or revisions are made to the road drawing plans."

"The Owner, tenants and/or their agents shall be responsible for maintenance of the required perimeter landscaping. All plant materials shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All the other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced."

PLAN
 SCALE: 1" = 50'

OWNERS
 MARIO MANNARELLI, SR. & SERAFINA MANNARELLI
 2929 SUMMIT CIRCLE
 ELLICOTT CITY, MARYLAND 21043
 (410) 461-2278

DEVELOPER
 HERITAGE LAND DEVELOPMENT, INC.
 15940 NORTH AVENUE
 P.O. BOX 482
 LISBON, MARYLAND 21765
 (410) 489-7900



FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2000

STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV. IN	INV. OUT	ROAD NAME/NORTH EAST	ROAD STA.	OFFSET	TYPE	REMARKS
I-1	* 603.87	600.42, 594.79	594.54	DOVE CREEK COURT	STA: 4+50	17' L	'D' INLET	S.D. - 4.39
I-2	* 600.70	597.73	597.48	DOVE CREEK COURT	STA: 1+16.67	17' L	'D' INLET	S.D. - 4.39
I-3	* 600.70	---	597.90	DOVE CREEK COURT	STA: 1+16.67	17' R	'D' INLET	S.D. - 4.39
I-4	* 603.87	---	601.10	DOVE CREEK COURT	STA: 4+50	17' R	'D' INLET	S.D. - 4.39
M-1	589.50	584.45	584.20, 583.70 (67)	N 612810.93	E 1294660.7	---	STD. MANHOLE	G - 5.12
M-2	592.00	587.55	587.30	N 612520.3	E 1294715.36	---	STD. MANHOLE	G - 5.12
M-3	608.90	592.55	592.30	N 612419.60	E 1294879.90	---	STD. MANHOLE	G - 5.12
S-1	583.65	582.15	---	N 612876.97	E 1294551.54	---	CONC. END SECTION	S.D. 5.52
S-2	577.52	574.52	---	N 613050.80	E 1294650.11	---	CONC. END SECTION	S.D. 5.52
R-1	586.94	6' 578.00	30' 577.00	N 612994.59	E 1294637.01	---	CONC. RISER	---

* DENOTES THREAT ELEVATION
** PRIVATELY OWNED AND MAINTAINED BY H.O.A.

PIPE SCHEDULE

SIZE	CLASS	LENGTH
15"	RCCP, CL. IV.	68 L.F.
18"	RCCP, CL. IV.	1139 L.F.
* 6"	SCH. 40, PVC	172 L.F.
6"	D.I.P. (POND DRAINS)	18 L.F.
30"	A57M, C-361 B-25	69 L.F.

* PRIVATELY OWNED AND MAINTAINED BY H.O.A.

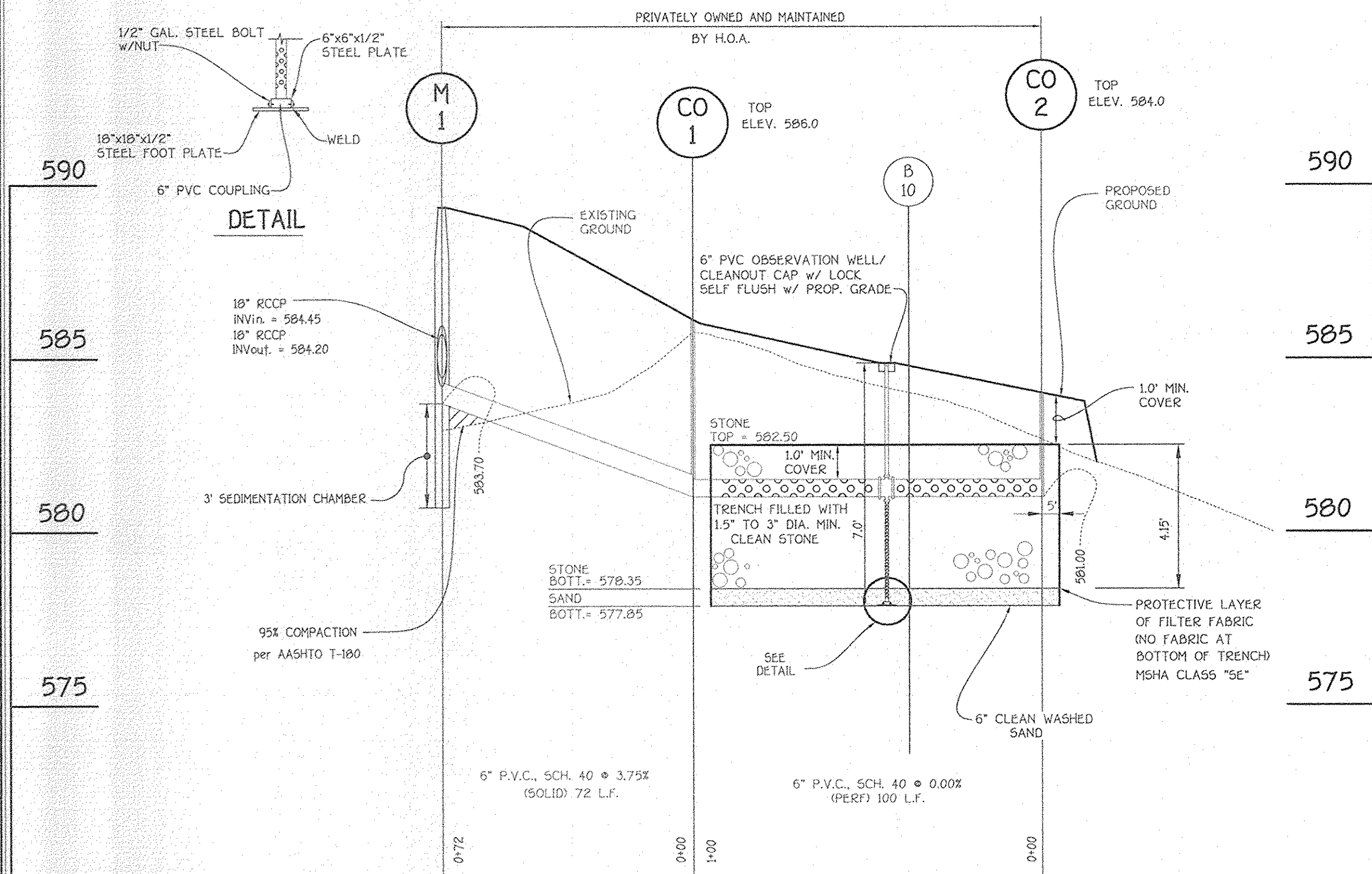
RIP-RAP CHANNEL DESIGN DATA

STRUCTURE	AREA (SQ. FT.)	WETTED PERIMETER	R	R ^{2/3}	S	S ^{1/2}	W	d	N	V (f.p.s.)	Q (c.f.s.)	Q _{max}	BLANKET THICKNESS	PIPE SIZE
S-1	5.36	9.22	0.5813	0.6953	.005	.0707	6'	0.72'	.04	1.83	9.84	9.5'	15"	24"
S-2	20.19	18.30	1.1033	1.0681	.005	.0707	12'	1.37'	.04	2.82	57.0	9.5'	15"	30"

* DENOTES 100-YEAR Q.

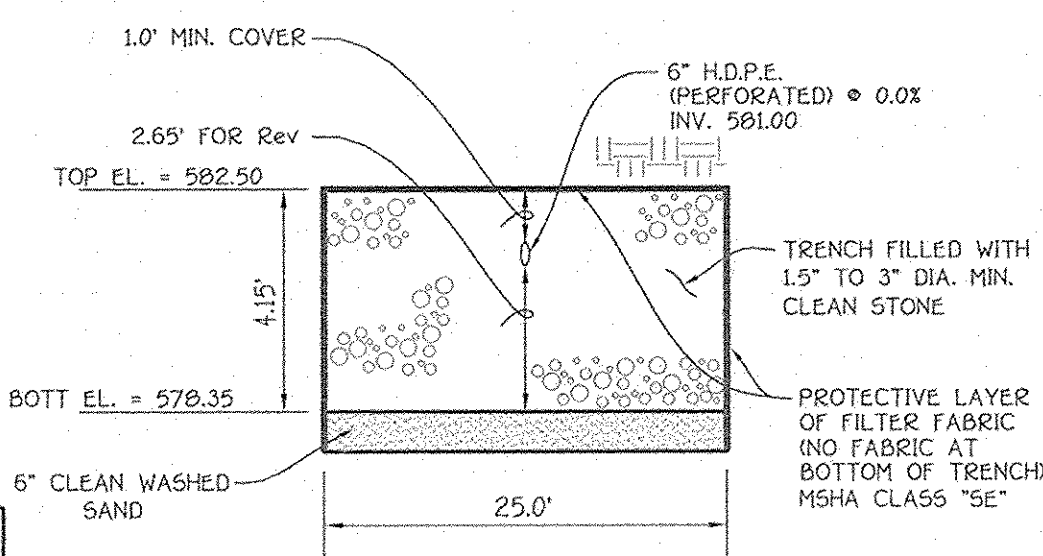
CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

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



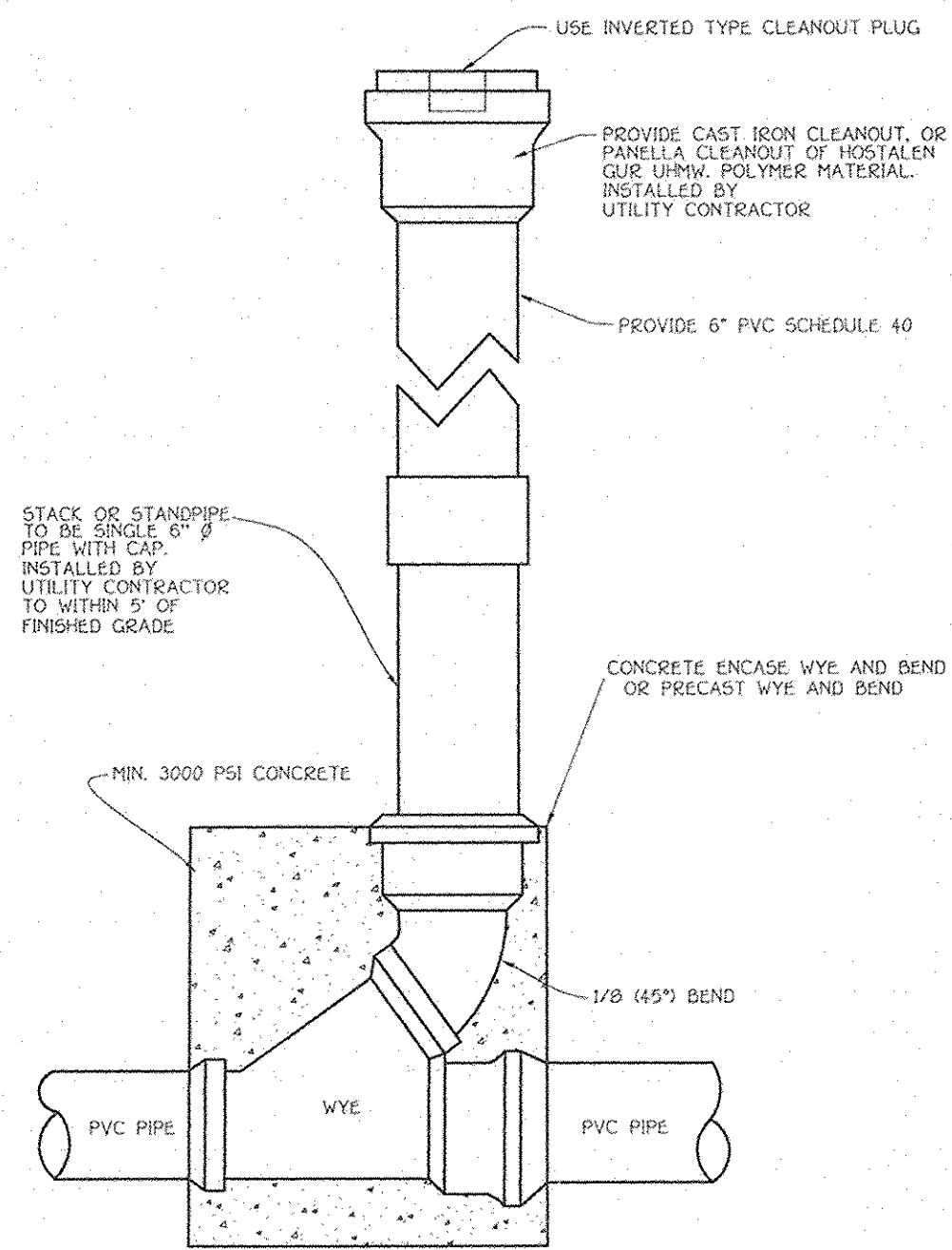
OFF-LINE STONE RESERVOIR FOR Rev REQUIREMENT

SCALE: HOR. : 1" = 30'
VER. : 1" = 3'



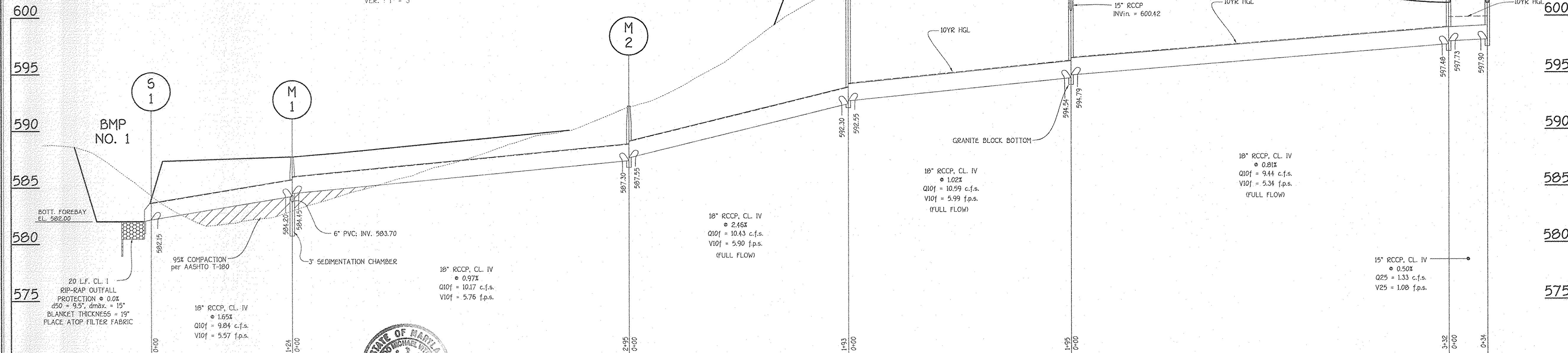
OFF-LINE STONE RESERVOIR SECTION FOR Rev

NOTE: STONE RESERVOIR TO MEET PART OF GROUND WATER RECHARGE REQUIREMENT



CLEAN-OUT DETAIL

NO SCALE



PROFILE

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

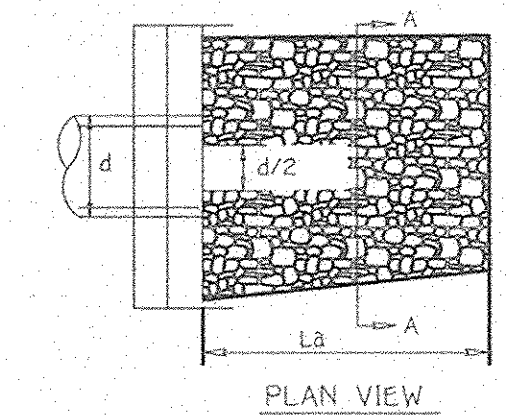
APPROVED: DEPARTMENT OF PUBLIC WORKS

Wife: 2. 4. 11. 11. 5-28-08
CHIEF, BUREAU OF HIGHWAYS DATE

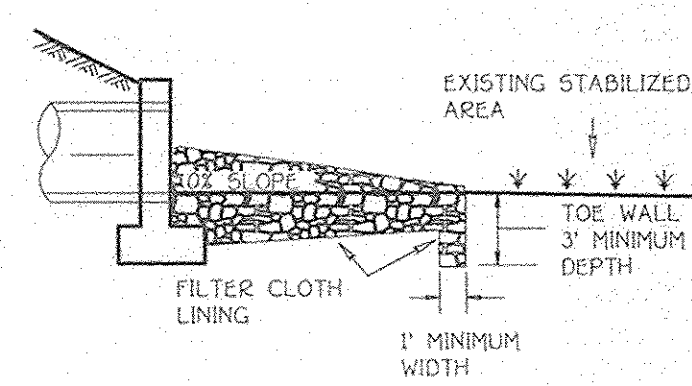
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamer 6/2/08
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

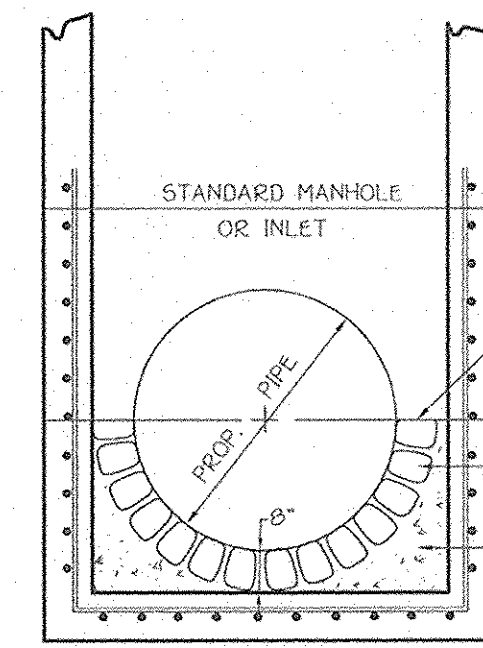
6/2/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



PLAN VIEW

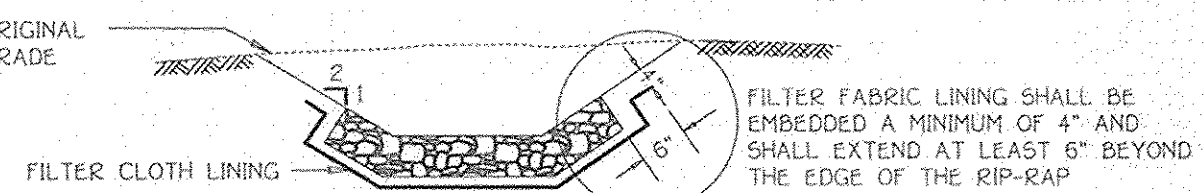


ELEVATION



GRANITE BLOCK DETAIL

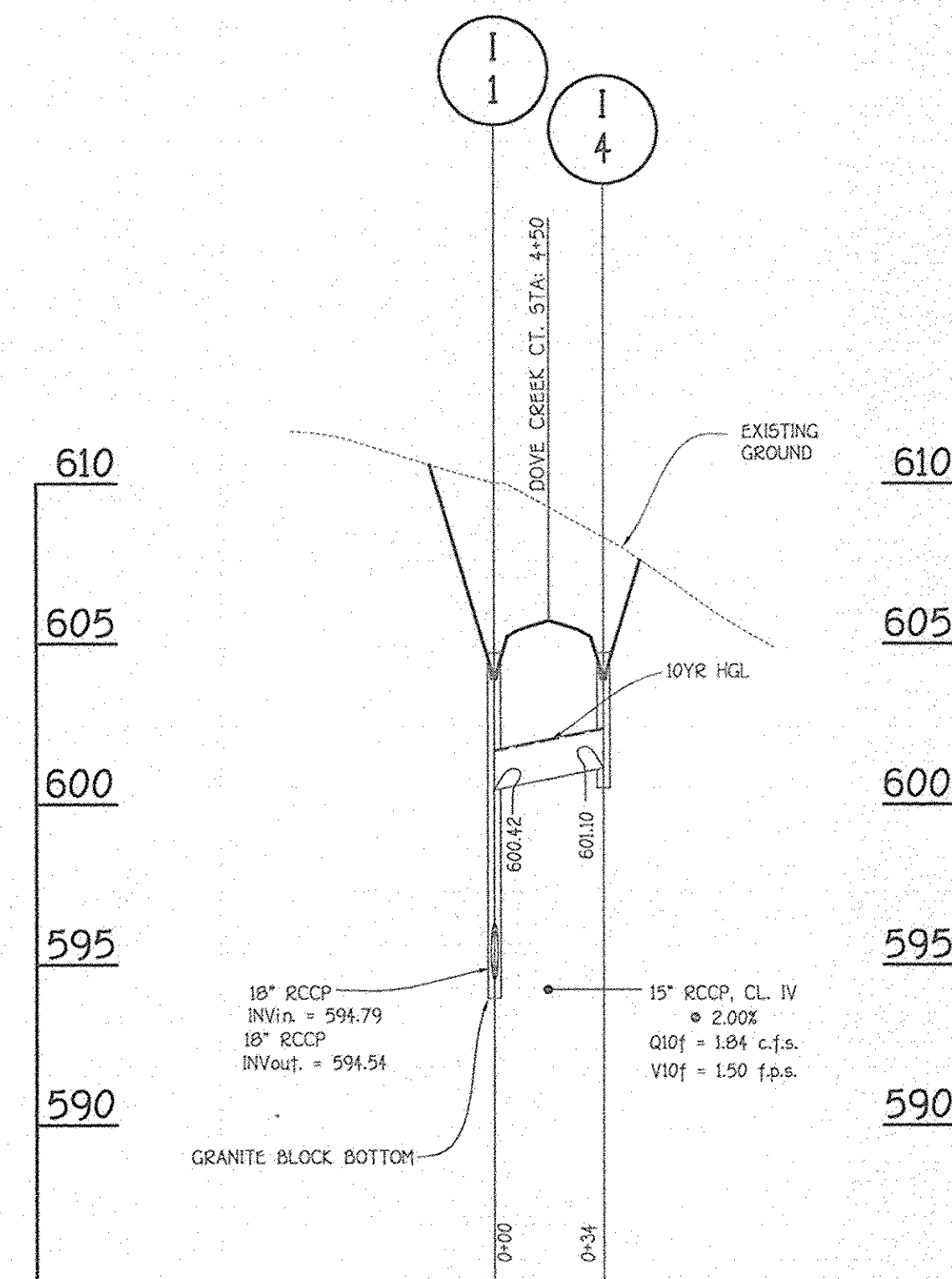
NOT TO SCALE



SECTION A-A

RIP-RAP CHANNEL DETAIL

NO SCALE

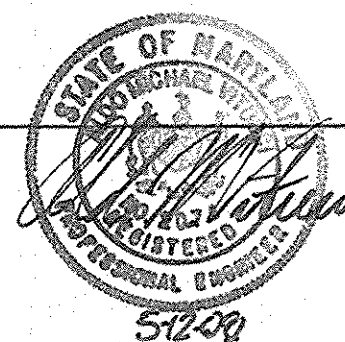


PROFILE

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

STORM DRAIN PROFILES
PHEASANT RUN WEST
LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A' & NON-BUILDABLE PRESERVATION PARCELS 'B' AND 'C'
ZONED "RC-DEO"
TAX MAP Nos. 3 & 8, GRID Nos. 19 & 1, PARCEL No. 376
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
DATE : MAY, 2008
SHEET 8 OF 17

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10722 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21114
(410) 461-2278



OWNERS
MARIO MANNARELLI, SR. & SERAFINA MANNARELLI
2929 SUMMIT CIRCLE
ELLICOTT CITY, MARYLAND 21043
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DEVELOPER
HERITAGE LAND DEVELOPMENT, INC.
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LISBON, MARYLAND 21765
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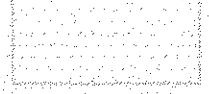

APPROVED: DEPARTMENT OF PUBLIC WORKS
W. R. M... 5-28-08
 CHIEF, BUREAU OF HIGHWAYS DATE

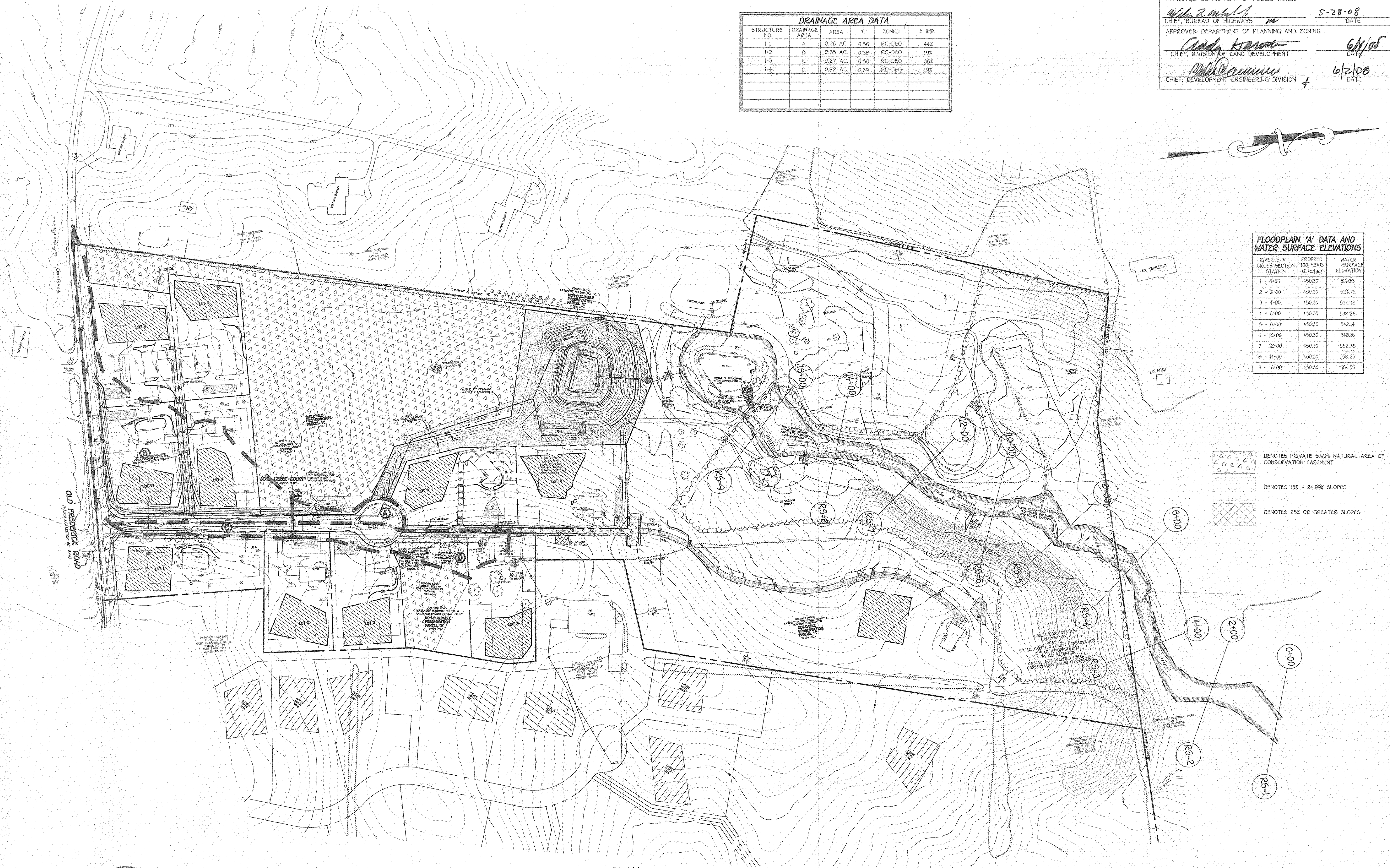
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Karan 6/1/08
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

M. D. ... 6/2/08
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

DRAINAGE AREA DATA					
STRUCTURE NO.	DRAINAGE AREA	AREA	'C'	ZONED	% IMP.
I-1	A	0.26 AC.	0.56	RC-DEO	44%
I-2	B	2.65 AC.	0.39	RC-DEO	19%
I-3	C	0.27 AC.	0.50	RC-DEO	36%
I-4	D	0.72 AC.	0.39	RC-DEO	19%

FLOODPLAIN 'A' DATA AND WATER SURFACE ELEVATIONS		
RIVER STA. - CROSS SECTION STATION	PROPOSED 100-YEAR Q (cfs)	WATER SURFACE ELEVATION
1 - 0+00	450.30	519.38
2 - 2+00	450.30	524.71
3 - 4+00	450.30	532.92
4 - 6+00	450.30	538.26
5 - 8+00	450.30	542.14
6 - 10+00	450.30	548.16
7 - 12+00	450.30	552.75
8 - 14+00	450.30	558.27
9 - 16+00	450.30	564.56

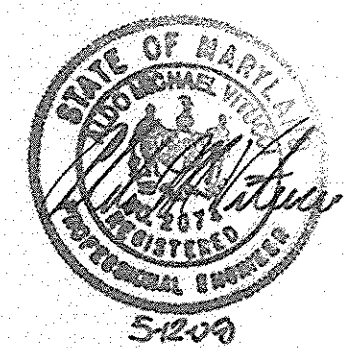
 DENOTES PRIVATE S.W.M. NATURAL AREA OF CONSERVATION EASEMENT
 DENOTES 15% - 24.99% SLOPES
 DENOTES 25% OR GREATER SLOPES



PLAN
 SCALE: 1" = 100'

STORM DRAIN DRAINAGE AREA MAP
PHEASANT RUN WEST
 LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A' & NON-BUILDABLE PRESERVATION PARCELS 'B' AND 'C'
 ZONED "RC-DEO"
 TAX MAP Nos. 3 & 8, GRID Nos. 19 & 1, PARCEL No. 376
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: MAY, 2008
 SHEET 9 OF 17

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 100 CENTENNIAL SQUARE, OFFICE PARK - 10072 BALTIMORE NATIONAL PKWY
 ELLICOTT CITY, MARYLAND 21042
 (410) 461-2276



OWNERS
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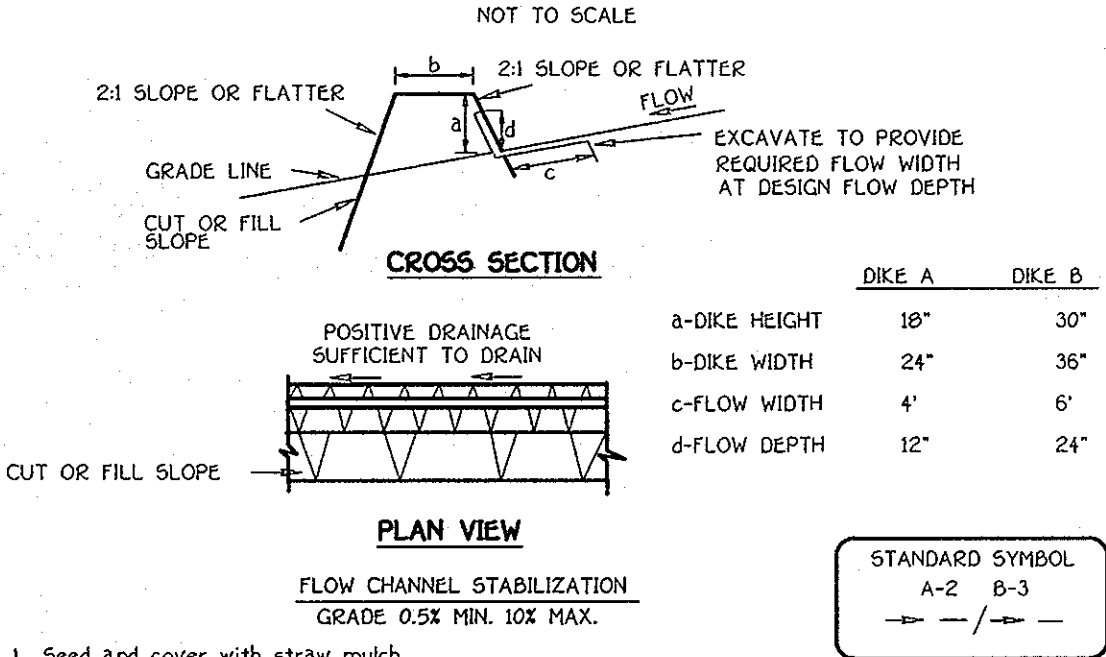
DEVELOPER
 HERITAGE LAND DEVELOPMENT, INC.
 15940 NORTH AVENUE
 P.O. BOX 482
 LISBON, MARYLAND 21765
 (410) 489-7900

ENGINEER'S CERTIFICATE
 I hereby certify that this Plan For Erosion And Sediment Control Represents A Feasible And Workable Plan Based On My Personal Knowledge Of The Site Conditions And That It Was Prepared In Accordance With The Standards Of The Howard Soil Conservation District.
 Signature: *[Signature]* Date: 5-12-08

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 Deemed Necessary.
 Signature: *[Signature]* Date: 5-12-08

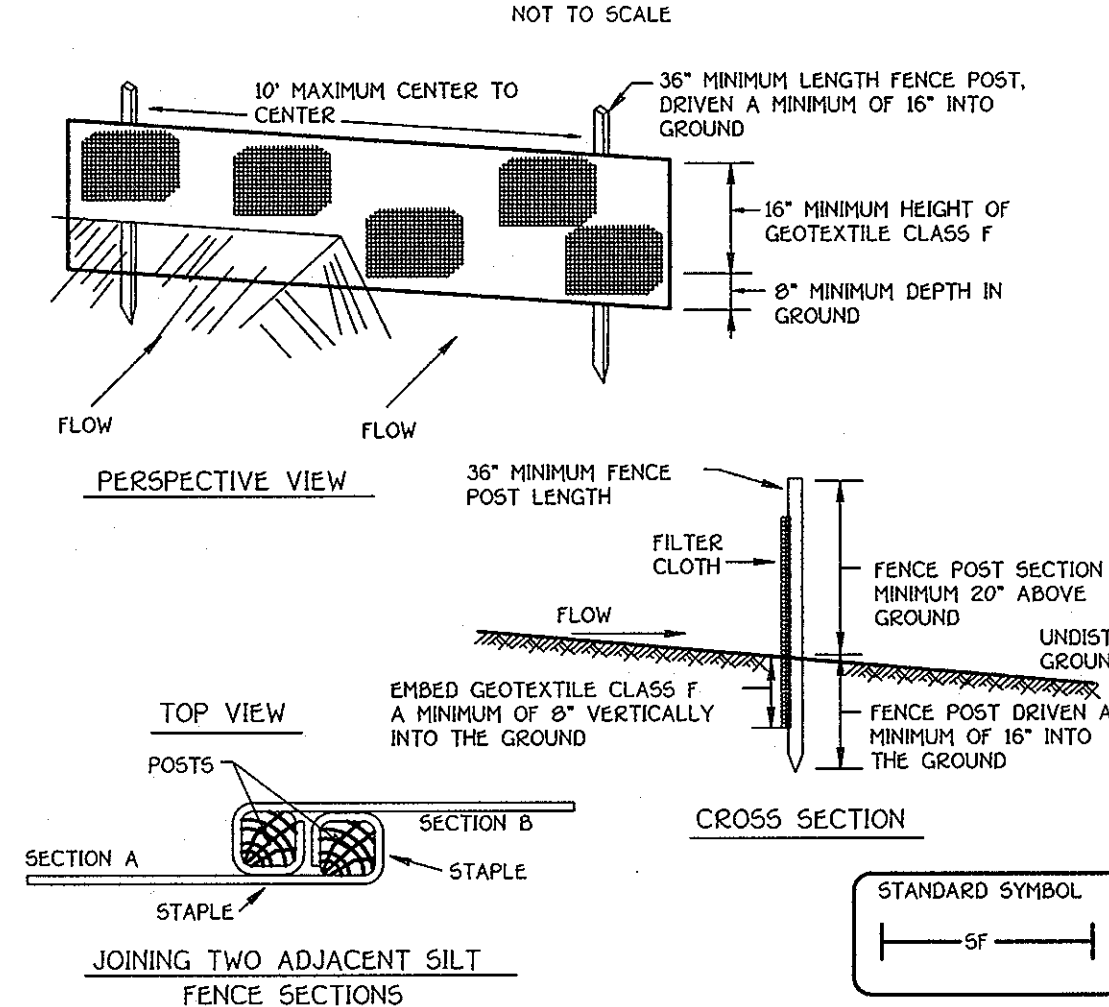
Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.
 District: *[Signature]* Date: 5/12/08
 Approved: Department Of Planning And Zoning
 Chief, Division Of Land Development
[Signature] Date: 5/14/08
 Chief, Development Engineering Division
[Signature] Date: 6/2/08
 Approved: Howard County Department Of Public Works
 Chief, Bureau Of Highways
[Signature] Date: 5-28-08

EARTH DIKE



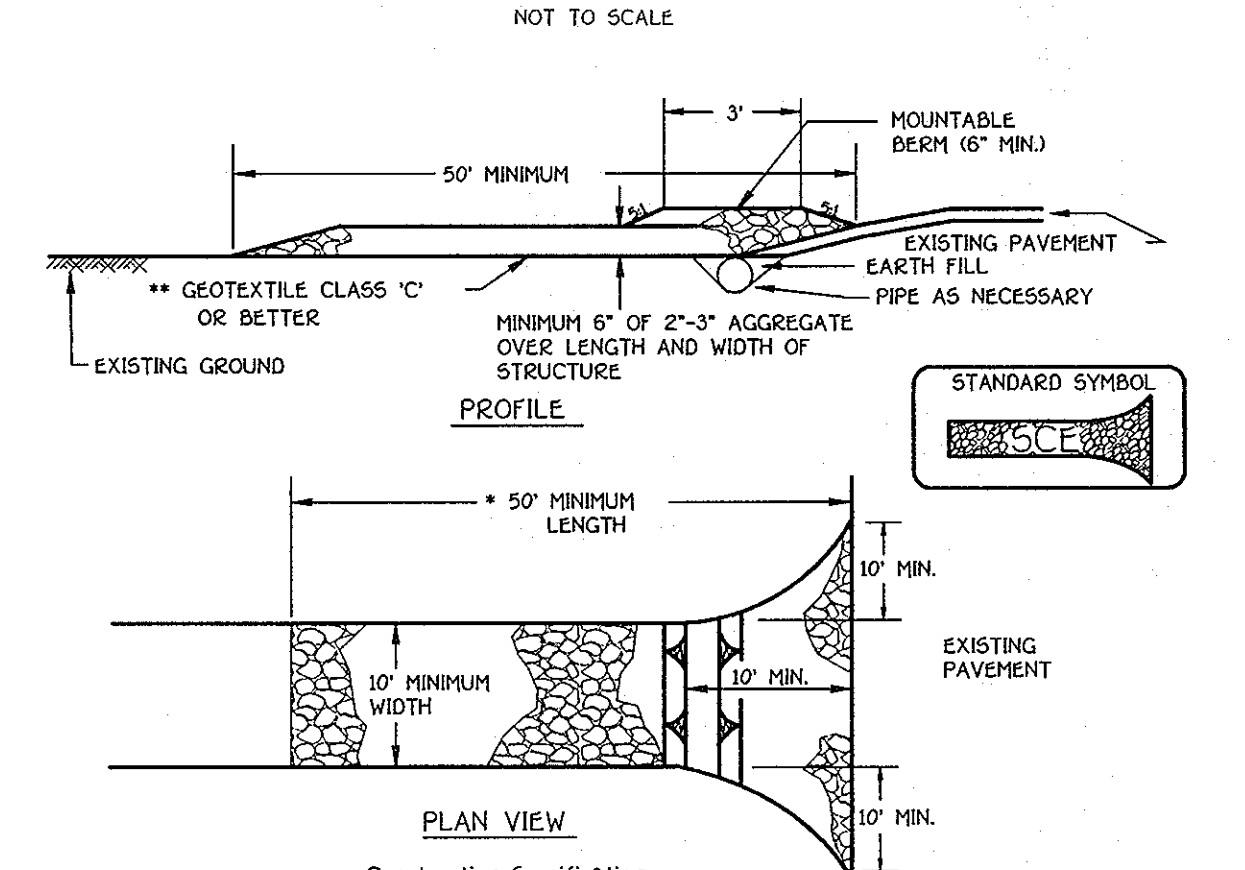
- Construction Specifications
- Seed and cover with straw mulch.
 - Seed and cover with Erosion Control Matting or line with sod.
 - 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.
1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
- Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
 - Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
 - 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.
 - 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.
 - Fill shall be compacted by earth moving equipment.
 - All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
 - Inspection and maintenance must be provided periodically and after each rain event.

SILT FENCE



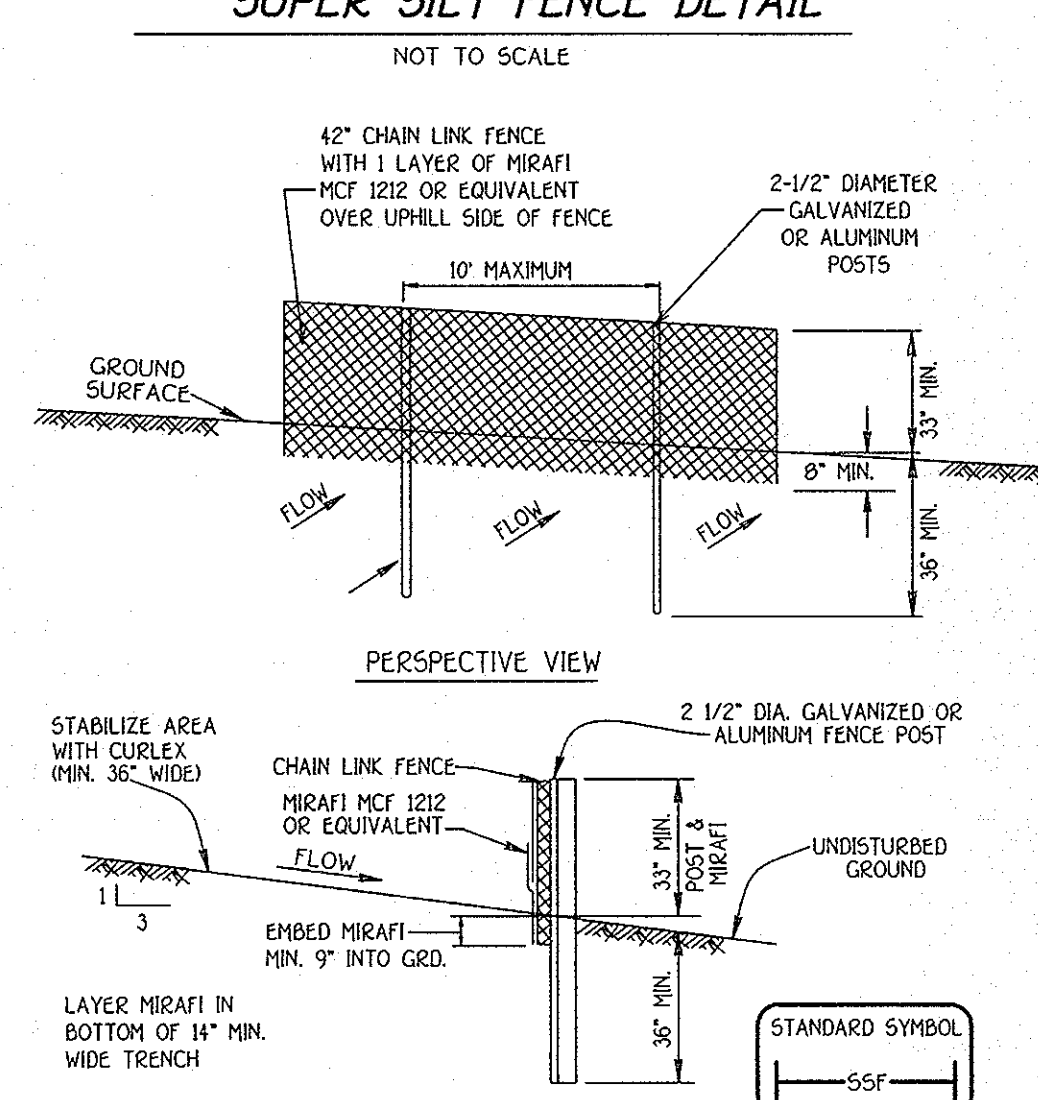
- Construction Specifications
- Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard U or section weighting not less than 1.00 pound per linear foot.
 - 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 |
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
 - Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

STABILIZED CONSTRUCTION ENTRANCE



- Construction Specification
- Length - minimum of 50' (*30' for single residence lot).
 - Width - 10' minimum, should be flared at the existing road to provide a turning radius.
 - 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.
 - 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.
 - 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.
 - 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.

SUPER SILT FENCE DETAIL



- CONSTRUCTION SPECIFICATIONS
- FENCING SHALL BE 42" HIGH CHAIN CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD DETAILS 690.01 AND 690.02 FOR CHAIN U FENCING. THE SPECIFICATIONS FOR 6" FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 8" POSTS. POSTS SHALL BE PLACED WITHOUT CONCRETE EMBEDMENT.
 - CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
 - FILTER CLOTH TO BE FASTENED SECURELY TO CHAIN LINK FENCE WITH TIES-SPACE EVERY 24" AT TOP AND MID SECTION.
 - FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 9" INTO THE GROUND.
 - WHEN TWO SECTIONS OF DIVERSION CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND BLENDED.
 - MAINTENANCE SHALL BE PERFORMED AS NEEDED.

Fabric Properties	Value	Test Method
Grab Tensile Strength (lbs)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682
Mullen Burst Strength (PSI)	190	ASTM D3786
Puncture Strength (lbs)	40	ASTM D751
Sturry Flow Rate (gal/min/ft)	0.3	Virginia DOT VTM-51
Equivalent Opening Size	40-80	US Std Sieve CW-02215
Ultraviolet Radiation Stability (%)	90	ASTM G-26

Design Criteria			
Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 101	Unlimited	Unlimited
10 - 20%	101 - 51	400 feet	1,500 feet
20 - 33%	51 - 31	300 feet	1,000 feet
33 - 50%	31 - 21	200 feet	500 feet
50% +	21 +	100 feet	250 feet

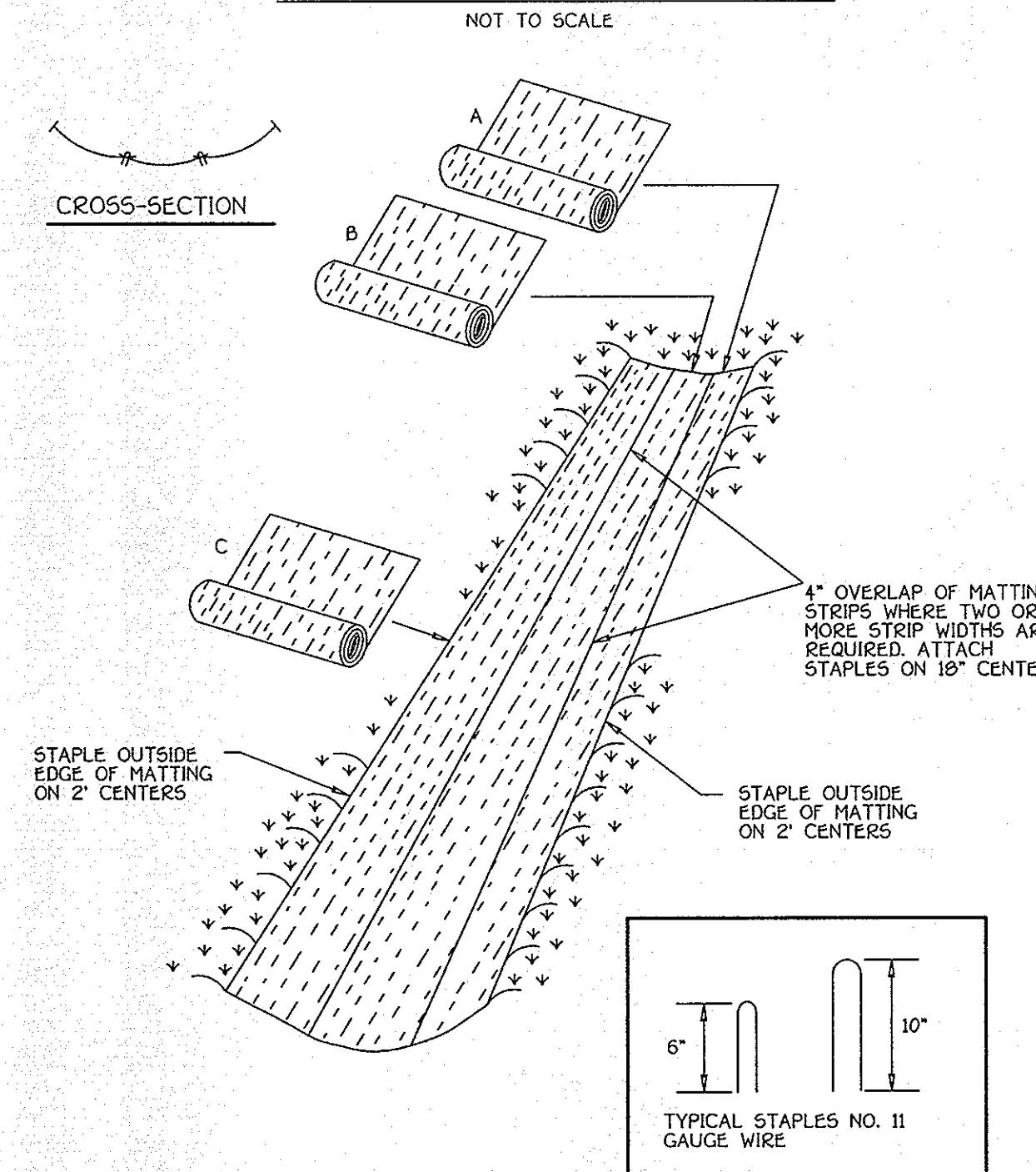
SEDIMENT CONTROL NOTES

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (513-895).
- 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 THERE TO.
- 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, DICES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 50), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSES:

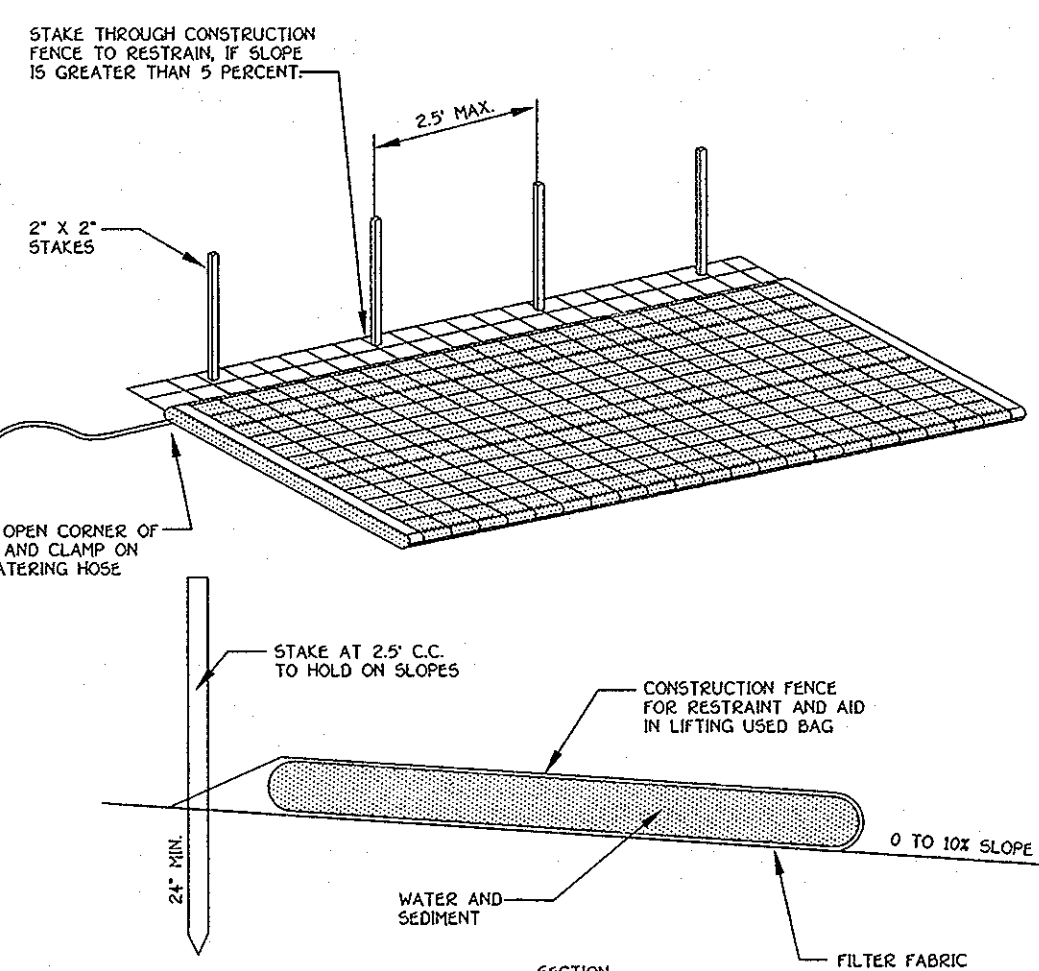
TOTAL AREA OF SITE	46.75 ACRES
AREA DISTURBED	12.50 ACRES
AREA TO BE ROOFED OR PAVED	0.57 ACRES
AREA TO BE VEGETATIVELY STABILIZED	12.01 ACRES
TOTAL CUT	5,000 CU.YDS.
TOTAL FILL	5,000 CU.YDS.
TOTAL FILL/WASTE/BORROW AREA LOCATION	N/A
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROL, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- 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.

SEDIMENT AND EROSION CONTROL DETAILS
PHEASANT RUN WEST
 LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A' & NON-BUILDABLE PRESERVATION PARCELS 'B' AND 'C'
 ZONED 'RC-DE0'
 TAX MAP Nos. 3 & 8, GRID Nos. 19 & 1, PARCEL No. 376
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: MAY, 2008
 SHEET 13 OF 17

EROSION CONTROL MATTING



- Construction Specifications
- 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".
 - Staple the 4" overlap in the channel center using an 18" spacing between staples.
 - Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
 - Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
 - 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.
 - 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.

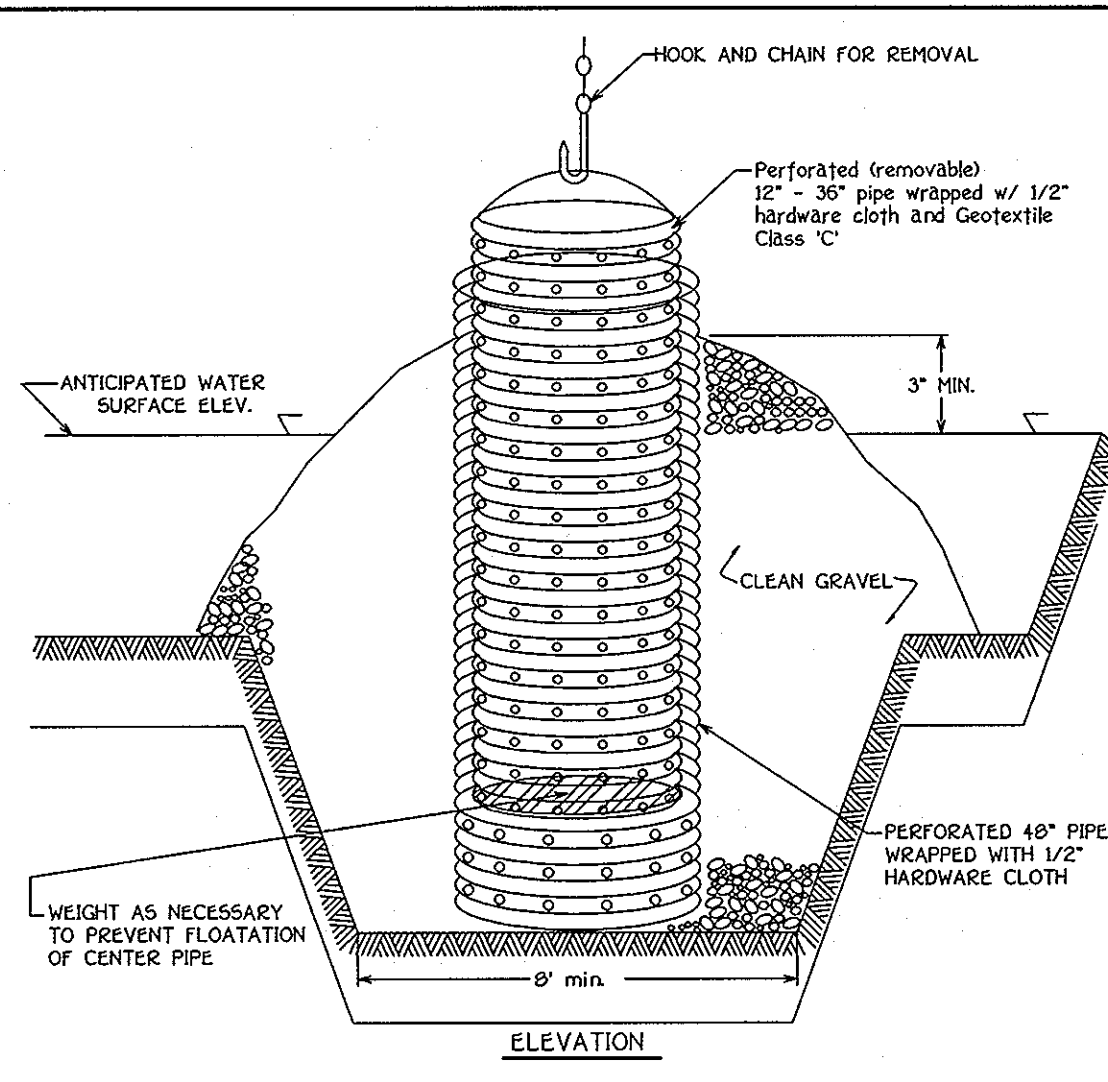


- NOTES
- FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL, WELL GRADED VEGATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.
 - WIDTH AND LENGTH SHALL BE AS SHOWN IN THE TABLE.
 - THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISCHARGE LINE.
 - FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 300 GPM.
 - DEVICE SHALL BE REMOVED AND DISPOSED OF AFTER BAG IS FILLED WITH SEDIMENT.
 - SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA.

AVAILABLE FROM:
 INDIAN VALLEY INDUSTRIES, INC. P.O. BOX 800 JOHNSON CITY, NEW YORK 13790 (800) 599-0811
 ACF, ENVIRONMENTAL BROWN HILLS ROAD RICHMOND, VIRGINIA 23237 TOLL FREE 1-800-448-3636
 PRICE AND COMPANY, INC. 423 36TH STREET WYOMING, WY. 83948 (601) 330-8620

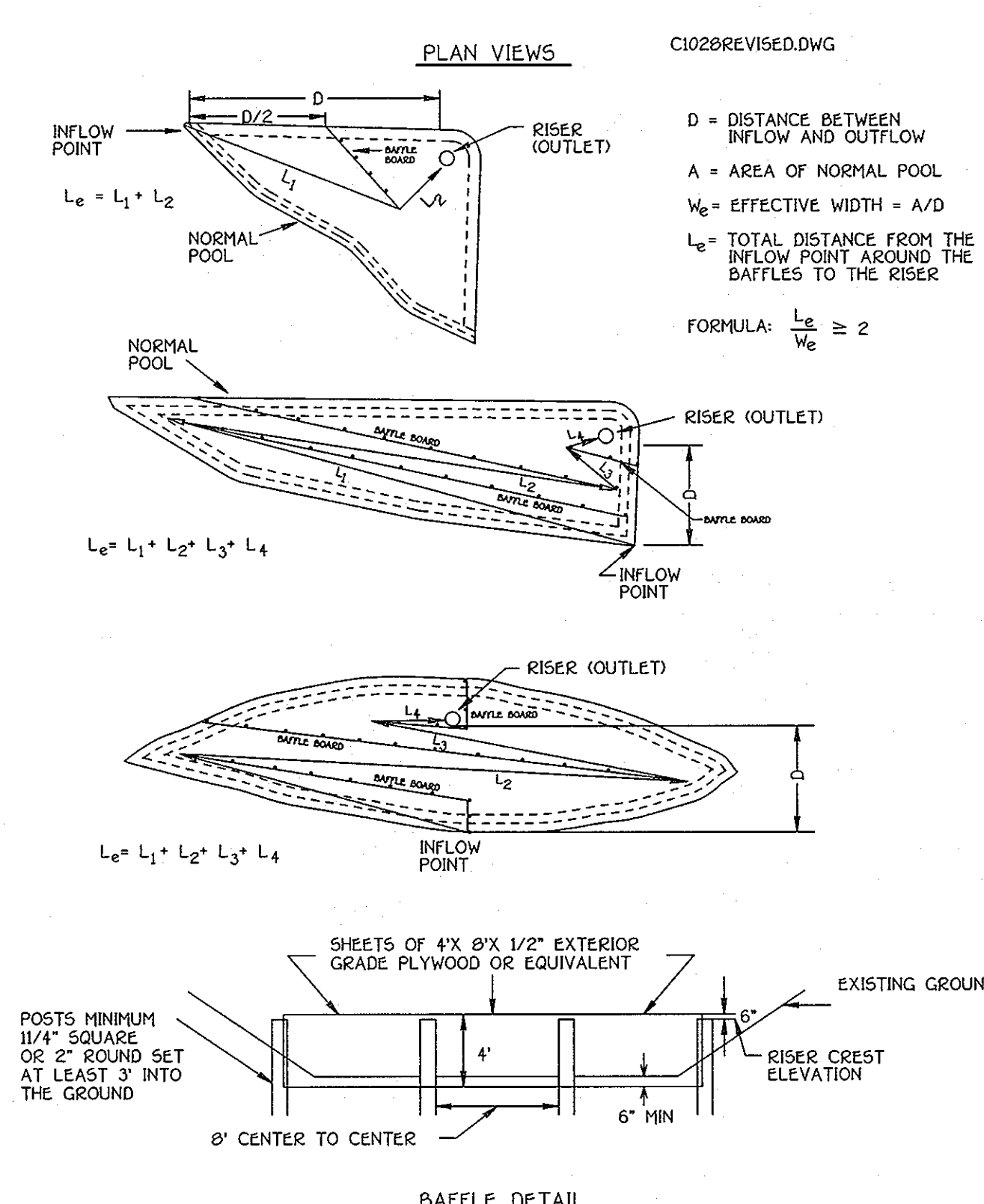
FILTER BAG DETAIL

REMOVABLE PUMPING STATION



- Construction Specifications
- 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.
 - After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
 - 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" slots 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.
 - The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

SEDIMENT BASIN BAFFLES



BASIN NO.	D	A SQ.FT.	We	Le	Le/We
1	120'	15,557	130'	355'	2.73

BAFFLE DETAIL

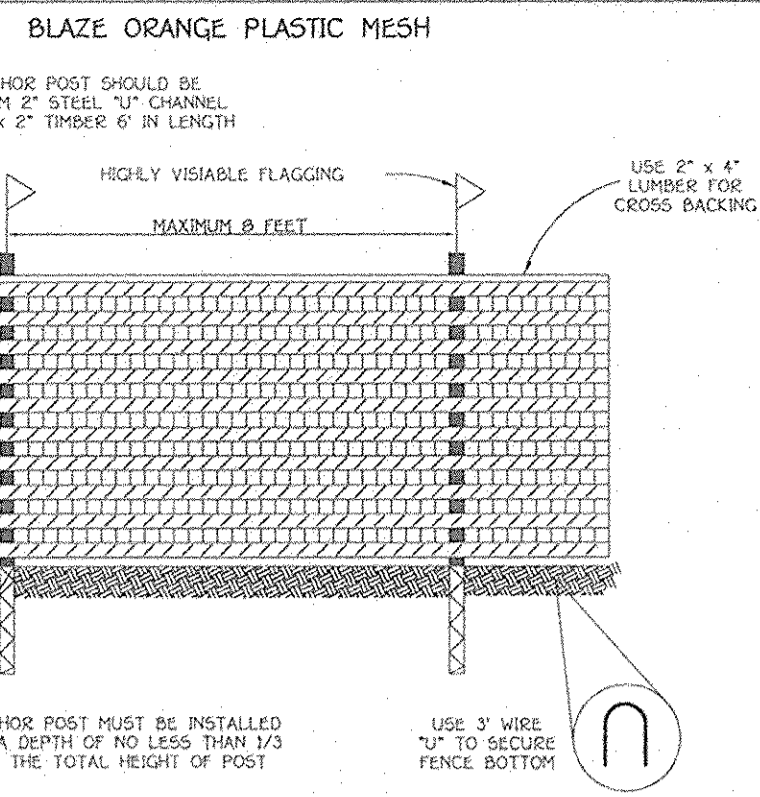
FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 18272 BALTHAZAR NATIONAL PARK ELLICOTT CITY, MARYLAND 21114 (410) 461-2395

STATE OF MARYLAND
[Signature]
 5-12-08

OWNERS
 MARIO MANNARELLI SR. & SERAFINA MANNARELLI
 2929 SUMMIT CIRCLE
 ELLICOTT CITY, MARYLAND 21043
 (410) 461-2278

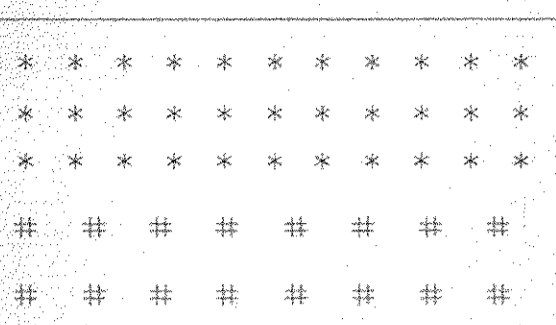
DEVELOPER
 HERITAGE LAND DEVELOPMENT, INC.
 15940 NORTH AVENUE
 P.O. BOX 482
 LISBON, MARYLAND 21765
 (410) 489-7900

APPROVED: DEPARTMENT OF PUBLIC WORKS
 With: J. M. Hall, 5-28-08
 CHIEF, BUREAU OF HIGHWAYS DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Cindy Hunter, 6/1/08
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 W. D. ... 6/2/08
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



- FCP NOTES:**
- 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.
 - Forested areas occurring outside of the FCE shall not be considered part of the FCE and shall not be subject to protective land covenants.
 - Limits of disturbance shall be restricted to areas outside the limit of temporary fencing or the FCE boundary, whichever is greater.
 - There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DPZ.
 - No stockpiles, parking areas, equipment clearing areas, etc. shall occur within areas designated as Forest Conservation Easements.
 - Temporary fencing shall be used to protect forest resources during construction. The fencing shall be placed along all FCE boundaries which occur within 15 feet of the proposed limits of disturbance.
 - Permanent signage shall be placed 50-100' apart along the boundaries of all areas included in Forest Conservation Easements.
 - The Forest Conservation Act requirements for this project include 7.2 acres of forest retention and afforestation of 2.5 acres. The forestation obligation will be met by providing a total planting/retention area of 9.7 CREDITED acres.

PATTERN SPACING DIAGRAM



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

TREE PROTECTION DETAIL

NOT TO SCALE

- GUARANTEE REQUIREMENTS**
- 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**
- 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.
 - SURETY FOR THE AFFORESTATION OF 2.5 ACRES (43,500 SF/ACRE x 40.75/SF = \$1,675,000). SURETY FOR THE RETENTION OF 7.2 ACRES (43,500 SF/ACRE x 40.20/SF = \$1,675,000). THE TOTAL SURETY AMOUNT OF \$1,675,000 WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT.

- PLANTING/SOIL SPECIFICATIONS**
- PLANTING OF NURSERY STOCK SHALL TAKE PLACE BETWEEN MARCH 15th AND APRIL 30th, OR SEPTEMBER 15th AND NOVEMBER 15th.
 - 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.
 - ALL BARE-ROOT PLANTING STOCK SHALL HAVE THEIR ROOT SYSTEMS DIPPED INTO AN ANTI-DESICCANT GEL PRIOR TO PLANTING.
 - 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 FINE FINES OR EQUIVALENT.
 - FERTILIZER SHALL CONSIST OF AGRIFORM 22-0-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S SPECIFICATIONS.
 - A TWO (2) INCH LAYER OF HARDWOOD MULCH SHALL BE PLACED OVER THE ROOT AREA OF ALL PLANTINGS.
 - PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING IN A TARPED OR COVERED TRUCK.
 - ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

- SEQUENCE OF CONSTRUCTION**
- 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.
 - PROPOSED FORESTATION AREAS IMPACTED BY SITE GRADING SHALL BE TOPSOILED AND STABILIZED AS PER NOTE NO. 2 OF PLANTING/SOIL SPECIFICATIONS FOR PROJECT.
 - PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND THE PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
 - UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS PER THE FOREST PROTECTION DEVICES SHOWN ON THE FOREST CONSERVATION PLAN.
 - PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

- MAINTENANCE OF PLANTINGS**
- MAINTENANCE OF PLANTINGS SHALL LAST FOR A PERIOD OF 26 MONTHS.
 - 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 2nd GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
 - INVASIVE EXOTICS AND NOXIOUS WEEDS WILL BE REMOVED FROM FORESTATION AREAS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
 - 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.
 - DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

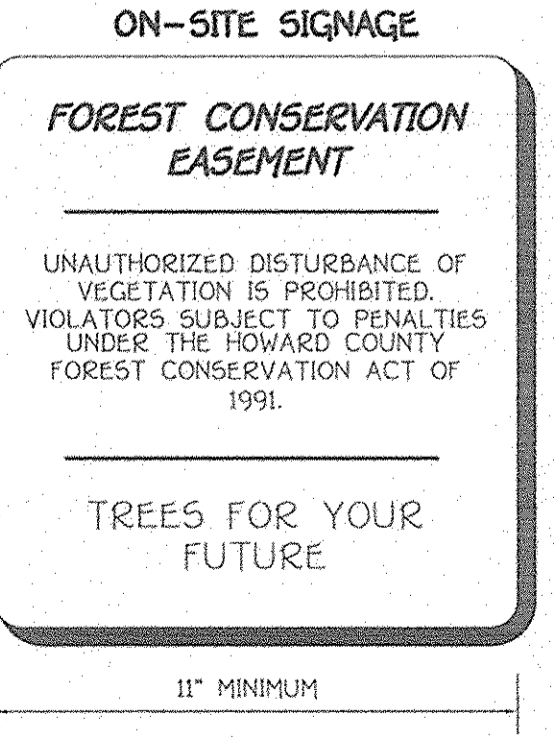
FOREST CONSERVATION WORKSHEET

NET TRACT AREA	ACRES
A. TOTAL TRACT AREA	46.75
B. DEDUCTIONS (GRITCAL AREA, AREA RESTRICTED BY LOCAL OR PROGRAM)	1.99
C. NET TRACT AREA (NET TRACT AREA - TOTAL TRACT (A) - DEDUCTIONS (B))	44.8
LAND USE CATEGORY: MEDIUM DENSITY RESIDENTIAL	
D. AFFORESTATION THRESHOLD (NET TRACT AREA (C) x 20%)	9.0
E. CONSERVATION THRESHOLD (NET TRACT AREA (C) x 25%)	11.2
EXISTING FOREST COVER	
F. EXISTING FOREST COVER WITHIN THE NET TRACT AREA	7.9
G. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	0
IF THE EXISTING FOREST COVER (F) IS GREATER THAN THE CONSERVATION THRESHOLD (E), THEN	
G + F - E OTHERWISE G = 0	
BREAK-EVEN POINT	
H. BREAK-EVEN POINT (AMOUNT OF FOREST THAT MUST BE RETAINED SO THAT NO MITIGATION IS REQUIRED)	7.9
IF THE AREA OF FOREST ABOVE CONSERVATION THRESHOLD (G) IS GREATER THAN 0, THEN	
H + (G x 2) x THE AREA OF FOREST ABOVE CONSERVATION THRESHOLD (G) - THE CONSERVATION THRESHOLD (E)	
IF THE AREA OF FOREST ABOVE CONSERVATION THRESHOLD (G) IS EQUAL TO 0, THEN	
H + EXISTING FOREST COVER (F)	
I. FOREST CLEARING PERMITTED WITHOUT MITIGATION	0
J. EXISTING FOREST COVER (F) - BREAK-EVEN POINT (H)	0
PROPOSED FOREST CLEARING	
J. TOTAL AREA OF FOREST TO BE CLEARED	0.7
K. TOTAL AREA OF FOREST TO BE RETAINED	7.2
L. EXISTING FOREST COVER (F) - FOREST TO BE CLEARED (J)	
PLANTING REQUIREMENTS	
IF THE TOTAL AREA OF FOREST TO BE RETAINED (K) IS AT OR ABOVE THE BREAK-EVEN POINT (H), NO PLANTING IS REQUIRED, AND NO FURTHER CALCULATIONS ARE NECESSARY (L=0, M=0, N=0, P=0, Q=0, R=0)	
OTHERWISE, CALCULATE THE PLANTING REQUIREMENTS AS FOLLOWS:	
L. REFORESTATION FOR CLEARING ABOVE THE CONSERVATION THRESHOLD	0
(I) IF THE TOTAL AREA OF FOREST TO BE RETAINED (K) IS GREATER THAN THE CONSERVATION THRESHOLD (E), THEN L = THE AREA OF FOREST TO BE CLEARED (J) x 0.25.	
(II) IF THE FOREST TO BE RETAINED (K) IS LESS THAN OR EQUAL TO THE CONSERVATION THRESHOLD (E), THEN L = AREA OF FOREST ABOVE CONSERVATION THRESHOLD (G) x 0.25	
M. REFORESTATION FOR CLEARING BELOW THE CONSERVATION THRESHOLD	1.4
(I) IF EXISTING FOREST COVER (F) IS GREATER THAN THE CONSERVATION THRESHOLD (E) AND THE FOREST TO BE RETAINED (K) IS LESS THAN OR EQUAL TO THE CONSERVATION THRESHOLD (E), THEN M = 2.0 x (CONSERVATION THRESHOLD (E) - FOREST TO BE RETAINED (K))	
(II) IF EXISTING FOREST COVER (F) IS LESS THAN OR EQUAL TO THE CONSERVATION THRESHOLD (E), THEN M = 2.0 x FOREST TO BE CLEARED (J)	
N. CREDIT FOR RETENTION ABOVE THE CONSERVATION THRESHOLD	0
IF THE AREA OF FOREST TO BE RETAINED (K) IS GREATER THAN THE CONSERVATION THRESHOLD (E), THEN N = K - E OTHERWISE N = 0	
P. TOTAL REFORESTATION REQUIRED P = L + M - N	1.4
Q. TOTAL AFFORESTATION REQUIRED	
IF EXISTING FOREST COVER (F) IS LESS THAN THE AFFORESTATION THRESHOLD (E), THEN	
Q = AFFORESTATION THRESHOLD (E) - EXISTING FOREST COVER (F)	1.1
R. TOTAL PLANTING REQUIREMENT R = P + Q	2.5

Wejland Daja

WETLAND SYSTEM	COWardin CLASSIFICATION	DOMINANT VEGETATION	ACREAGE
A	PFIC / PFOIA	JUNCUS EFFUSUS, TYPHA LATIFOLIA, SCIRPUS CYPERINUS, ROSA MULTIFLORA, IMPATIENS CAPSICATA, SALIX NIGRA, ACER RUBRUM, FRAXINUS PENNSYLVANICA	5.6

- NOTES:**
- NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THE PROPERTY.
 - SURROUNDING LAND USE IS LOW DENSITY RESIDENTIAL AND AGRICULTURE.
 - APPROXIMATELY 0.0 OF EARLY SUCCESSIONAL FOREST IS PRESENT ON THE SITE. NO FOREST IMPACTS ARE EXPECTED BY THE PROPOSED DEVELOPMENT.
 - WATERSHED: BRIGHTON DAM - 2131000
 - LENGTH OF STREAM BUFFER = 1,394'
 - WIDTH OF STREAM BUFFER = 150'

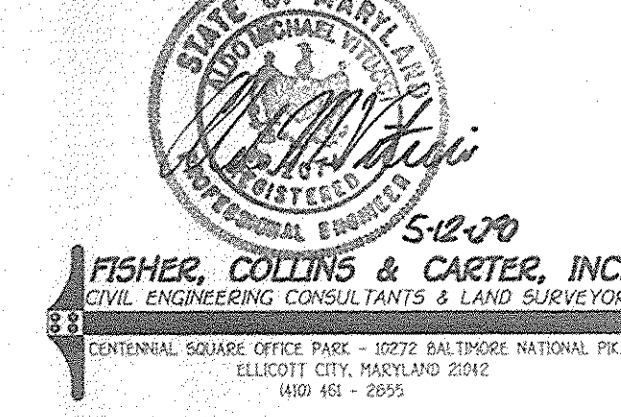


FCE Planting Area - 2.5 acres

Planting units required: 1750 (875 whips)
 Planting units provided: 1610 (833 whips and 24 trees)

Qty	Species	Size	Spacing	Total FCA Units
12	Acer rubrum - Red maple	1" cal.	15' o.c.	
12	Quercus alba - White oak	1" cal.	15' o.c.	
24 Total 1" caliper trees (24 planting units per tree) = 84 Total FCA unit credit				
120	Acer rubrum - Red maple	2-3" whip	11' o.c.	
120	Cercis canadensis - Red bud	2-3" whip	11' o.c.	
95	Cornus florida - Flowering dogwood	2-3" whip	11' o.c.	
120	Liriodendron tulipifera - Tulip poplar	2-3" whip	11' o.c.	
90	Prunus serotina - Black cherry	2-3" whip	11' o.c.	
110	Robinia pseudo-acacia - Black locust	2-3" whip	11' o.c.	
110	Quercus alba - White oak	2-3" whip	11' o.c.	
68	Viburnum prunifolium - Blackhaw	2-3" whip	11' o.c.	
833 Total whip plantings (2 planting units per tree) = 1666 Total FCA unit credit				
Total Unit Credit				(84 + 1666) 1750

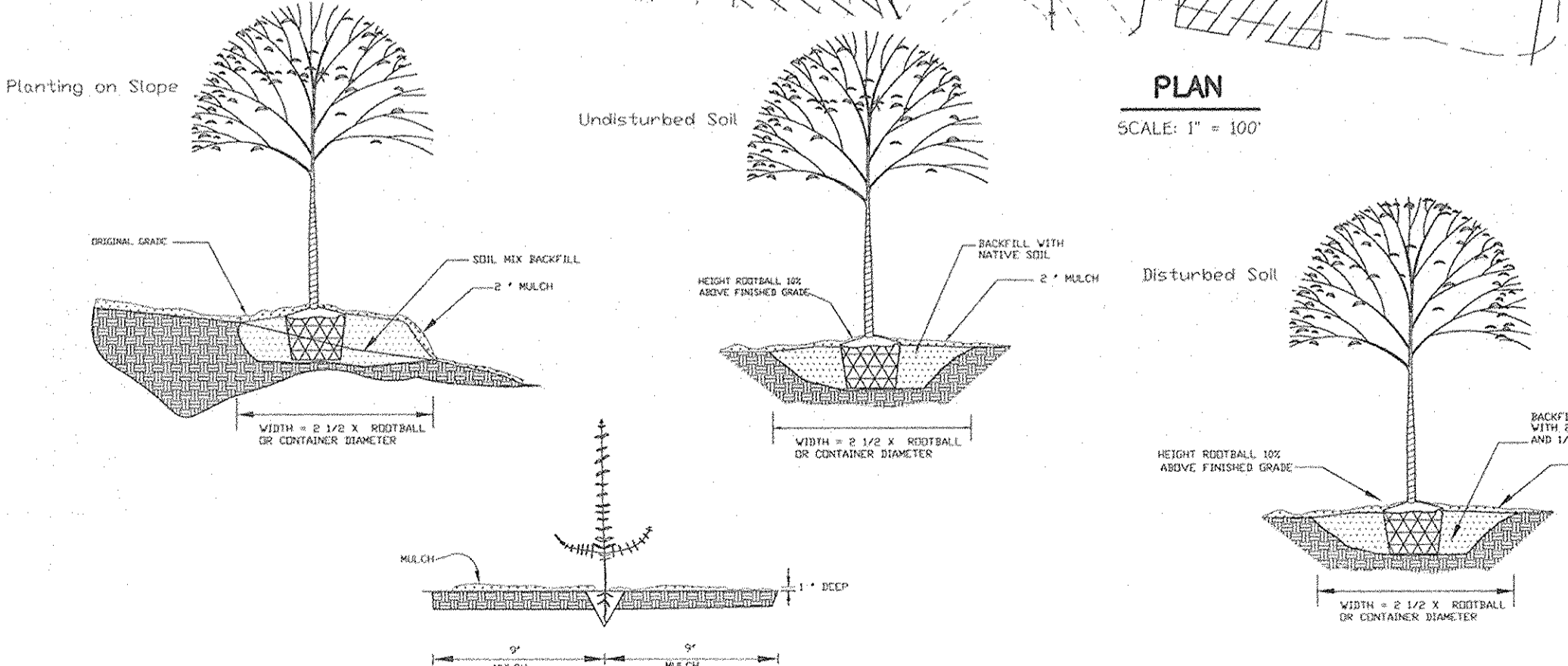
1" CAL. TREES = 200/ACRE (24 TREES/200 = 0.12 AC.) 3.5 Planting units = 1 - 1" Cal. Tree
 WHIPS w/shelter = 350 x 2.36 AC. = 833 WHIPS 2 Planting units = 1 Whip



Eco-Science Professionals, Inc.
 CONSULTING ECOLOGISTS

MD DNR Qualified Professional
 USACE Wetland Delimitator
 Certification # WDCP931006100418
 J. Canales 5/1/08
 JOHN P. CANALES

Seeding and Whip Planting Specification



FOREST CONSERVATION EASEMENT NO. 1
 10.65 AC.
 (2.5 AC. TO BE PLANTED)
 (7.2 AC. TO BE RETAINED)
 (0.95 AC. NON-CREDIT FLOODPLAIN)

- LEGEND**
- Denotes 15% - 24.99% Slopes
 - Denotes 25% or Greater Slopes (Area = 0.906 AC.)
 - Denotes Planting Area
 - Denotes Private Stormwater Management Credit Easement
 - Denotes Tree Protection Fence
 - Denotes Limit of Disturbance

SPECIMEN TREE CHART

KEY	SPECIES AND SIZE	CONDITION	REMARKS
A	SILVER MAPLE, 38 INCH DBH	GOOD	TO BE RETAINED
B	NORWAY MAPLE, 30 INCH DBH	GOOD	TO REMAIN
C	SILVER MAPLE, 64 INCH DBH	GOOD	TO REMAIN
D	TULIP POPLAR, 42 INCH DBH	GOOD	TO REMAIN

OWNERS
 MARIO MANNARELLI, SR. & SERAFINA MANNARELLI
 2929 SUMMIT CIRCLE
 ELLICOTT CITY, MARYLAND 21043
 (410) 461-2278

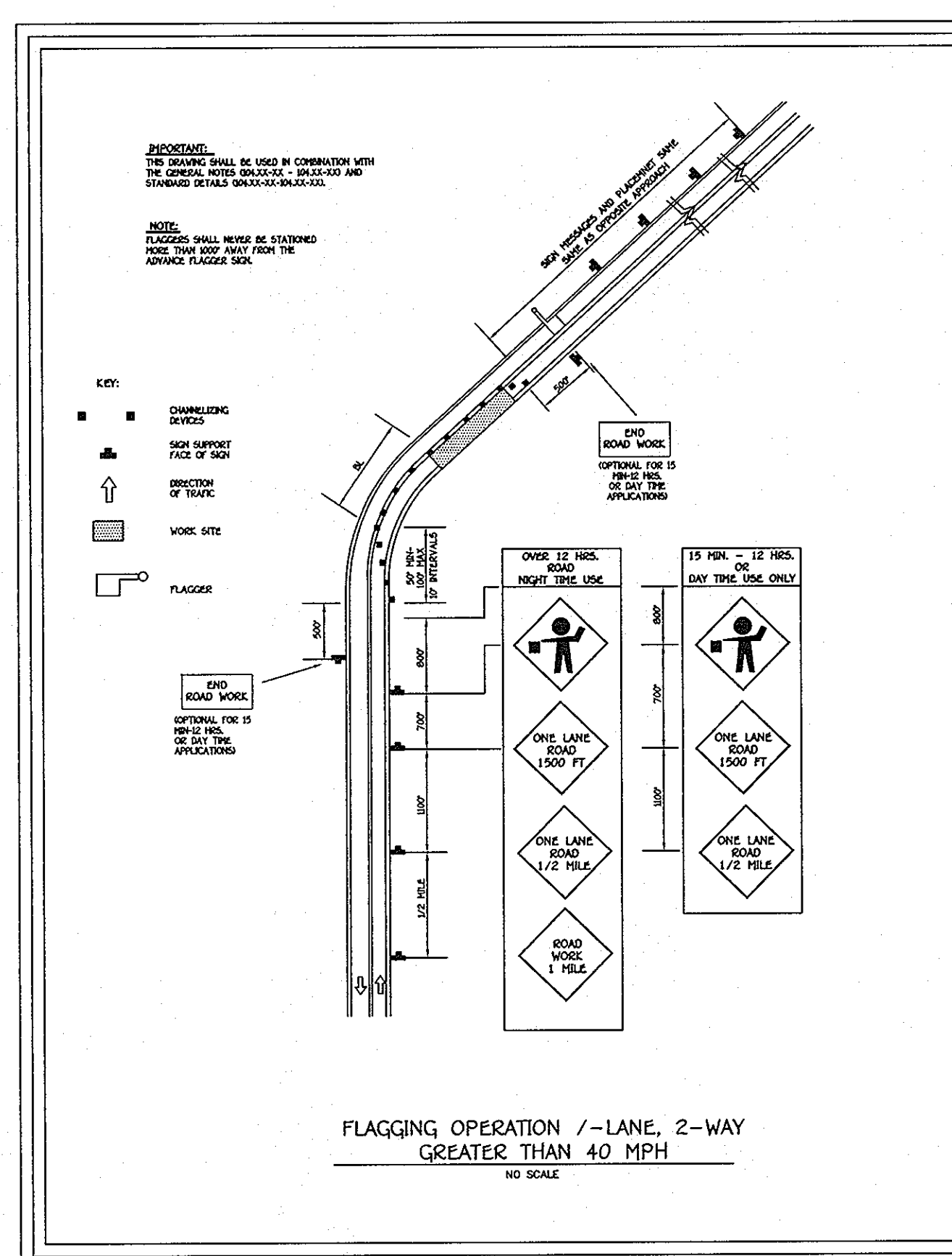
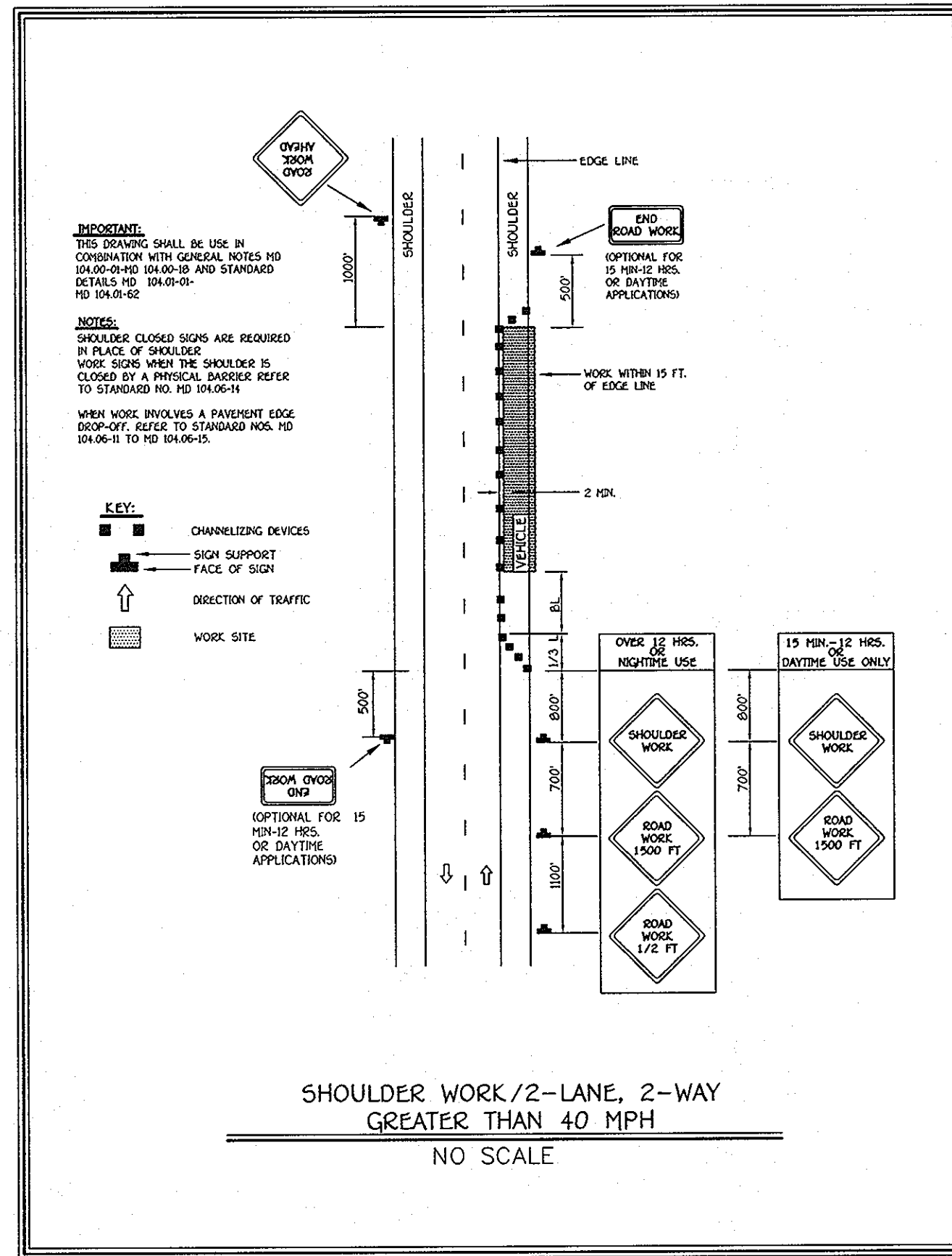
DEVELOPER
 HERITAGE LAND DEVELOPMENT, INC.
 15940 NORTH AVENUE
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 LISBON, MARYLAND 21765
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FOREST CONSERVATION PLAN
PHEASANT RUN WEST
 LOTS 1 THRU 10, BULDABLE PRESERVATION PARCEL 'A' & NON-BULDABLE PRESERVATION PARCELS 'B' AND 'C'
 ZONED "RC-DEO"
 TAX MAP Nos. 3 & 8, GRID Nos. 19 & 1, PARCEL No. 376
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: MAY, 2008
 SHEET 14 OF 17

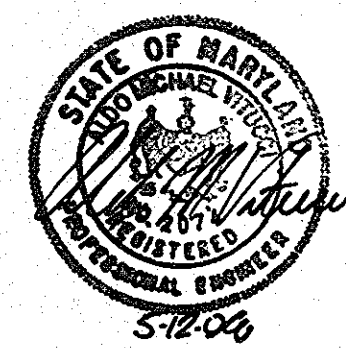
APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter J. Whitt 5-28-08
 CHIEF, BUREAU OF HIGHWAYS HS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Carolee Grant 6/14/08
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mark Danner 6/2/08
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



- MAINTENANCE OF TRAFFIC SPECIAL PROVISIONS**
- GENERAL**
- THE PURPOSE OF THIS PORTION OF THE SPECIAL PROVISION IS TO SET FOR THE TRAFFIC CONTROL REQUIREMENTS NECESSARY FOR THE SAFE AND EFFICIENT MAINTENANCE TO TRAFFIC WITHIN WORK AREAS, AND TO MINIMIZE ANY INCONVENIENCES TO THE TRAVELING PUBLIC AND THE CONTRACTOR AND/OR PERMITTEE.
 - PROPERLY TRAFFIC CONTROL THROUGH WORK AREAS IS ESSENTIAL FOR INSURING THE SAFETY AND THAT OF HIGHWAY WORKERS HAS THE HIGHEST PRIORITY OF ALL TASKS WITHIN THIS PROJECT. THE PROPER APPLICATION OF THE APPROVED TRAFFIC CONTROL PLAN (TCP) WILL PROVIDE THE DESIRED LEVEL OF SAFETY.
 - THROUGHOUT THESE SPECIAL PROVISIONS, ANY MENTION OF THE TCP SHALL BE IMPLIED TO INCLUDE ANY COMBINATION OF TYPICAL TRAFFIC CONTROL STANDARDS WHICH FORM THE OVERALL TCP FOR THIS PROJECT WHICH HAS BEEN APPROVED BY THE APPROPRIATE SHA TRAFFIC ENGINEER.
 - THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE PROVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 1998 EDITION, ESPECIALLY PART VI, AND TO SECTION 814 OF THE MARYLAND DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS (JANUARY, 1992), INCLUDING ALL REVISIONS AND SUPPLEMENTS TO EACH.
 - THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE REQUIREMENTS SET FORTH IN THE TCP AND THESE SPECIAL PROVISIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ANY REQUESTS TO MAKE MINOR CHANGES TO THE TCP OR THE SPECIAL PROVISIONS WITH REGARD TO THE TRAFFIC CONTROL ITEMS SHALL BE MADE IN WRITING TO THE ENGINEER A MINIMUM OF THREE(3) WORKING DAYS PRIOR TO THE PROPOSED SCHEDULING CHANGE. THE CONTRACTOR AND/OR PERMITTEE SHALL HAVE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO THE IMPLEMENTATION OF ANY CHANGE.
 - NO WORK SHALL BEGIN ON ANY WORK ACTIVITY OR WORK PHASE UNTIL ALL REQUIRED TRAFFIC CONTROL PATTERNS AND DEVICES INDICATED ON THE TCP FOR THAT ACTIVITY OR PHASE ARE COMPLETELY AND CORRECTLY IN PLACE TO HAVE BEEN CHECKED FOR APPROVED USAGE.
 - GENERAL AND SPECIFIC WARNING SIGNS SHALL ONLY BE IN PLACE WHEN SPECIFIC WORK TASKS AND ACTIVITIES ARE ACTUALLY UNDERWAY OR CONDITIONS EXIST THAT POSE A POTENTIAL HAZARD TO THE PUBLIC, AND ANY ADDITIONAL SIGNING HAS BEEN APPROVED BY THE APPROPRIATE SHA TRAFFIC ENGINEER. NOTE: THE PRACTICE OF PLACING SIGNING AND OTHER TRAFFIC CONTROL DEVICES IN ADDITION TO THOSE INDICATED ON THE APPROVED TCP IS NOT PERMITTED.
 - THE CONTRACTOR AND/OR PERMITTEE SHALL PROVIDE, MAINTAIN IN NEW CONDITION, AND MOVE WHEN NECESSARY, OR AS DIRECTED BY THE ENGINEER, ALL TRAFFIC CONTROL DEVICES USED FOR THE GUIDANCE AND PROTECTION OF MOTORISTS, PEDESTRIANS, AND WORKERS.
 - ALL TRAFFIC CONTROL DEVICES REQUIRED BY THE TCP SHALL BE KEPT IN GOOD CONDITION, FULLY PERFORMING AS SET FORTH IN THE TCP, THE MUTCD, AND/OR SECTION 814 OF THE SPECIFICATIONS. FOR REFLECTIVE DEVICES, A PARTICULAR DEVICE IS ASSUMED TO HAVE FAILED TO MEET MINIMUM OPERATIONAL STANDARDS WHEN THE DEVICE NO LONGER HAS RETRO-REFLECTANCE CAPABILITY OF AT LEAST 50% OF THE SPECIFIED MINIMUM VALUE OVER AT LEAST 50% OF THE VISIBLE REFLECTIVE SURFACE.
 - ALL TRAFFIC CONTROL DEVICES NOT REQUIRED FOR THE SAFE CONDUCT OF TRAFFIC SHALL BE PROMPTLY REMOVED, COMPLETELY COVERED, TURNED AWAY FROM TRAFFIC, OR OTHERWISE TAKEN OUT OF SERVICE. IT IS INTENDED THAT NO TRAFFIC CONTROL DEVICE IS TO BE IN SERVICE WHEN THERE IS NO CLEAR CUT SEASON FOR THE DEVICE.
 - THROUGHOUT THE PERIODS OF WORK ACTIVITIES, TRAFFIC SHALL BE MAINTAINED BY IMPLEMENTING THE APPROVED TCP. IN LIEU OF THE TCP PREPARED FOR THIS PROJECT, AND/OR INDIVIDUAL TYPICAL TRAFFIC CONTROL STANDARDS, THE CONTRACTOR AND/OR PERMITTEE HAS THE OPTION OF PREPARING AND SUBMITTING A TCP, WHOLLY OR IN PART, OF HIS OWN DESIGN, FOLLOWING GUIDELINES SET FORTH IN THE MUTCD AND PRESCRIBED BY THE ADMINISTRATION. A TCP DEVELOPED BY THE CONTRACTOR AND/OR PERMITTEE SHALL NOT BE IMPLEMENTED UNTIL ADVANCE WRITTEN APPROVAL IS OBTAINED FROM THE ENGINEER. TCP'S MAY BE IMPLEMENTED WITHIN A SINGLE PROJECT OR JOINTLY BETWEEN TWO OR MORE PROJECTS. IN SITUATIONS WHERE TCP'S JOINTLY IMPLEMENTED, CARE SHALL BE EXERCISED TO PRESENT CORRECT AND NON-CONFLICTING GUIDANCE TO THE TRAVELING PUBLIC.
 - THROUGHOUT THESE SPECIAL PROVISIONS, WHERE SPEED OF TRAFFIC IS NOTED, THIS MEANS THE POSTED SPEED OR PREVAILING TRAVEL SPEED, WHICHEVER IS HIGHER, UNLESS OTHERWISE NOTED.
 - TRAFFIC SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE ENTIRE LENGTH OF THE PROJECT, UNLESS OTHERWISE NOTED. NO TRAVEL LANES OTHER THAN THOSE DESIGNATED FOR POSSIBLE CLOSURE IN THE TCP SHALL BE CLOSED WITHOUT OBTAINING PRIOR APPROVAL FROM THE ENGINEER. ALL INGRESS AND EGRESS TO THE WORK AREA BY THE CONTRACTOR AND/OR PERMITTEE SHALL BE PERFORMED WITH THE FLOW OF TRAFFIC.



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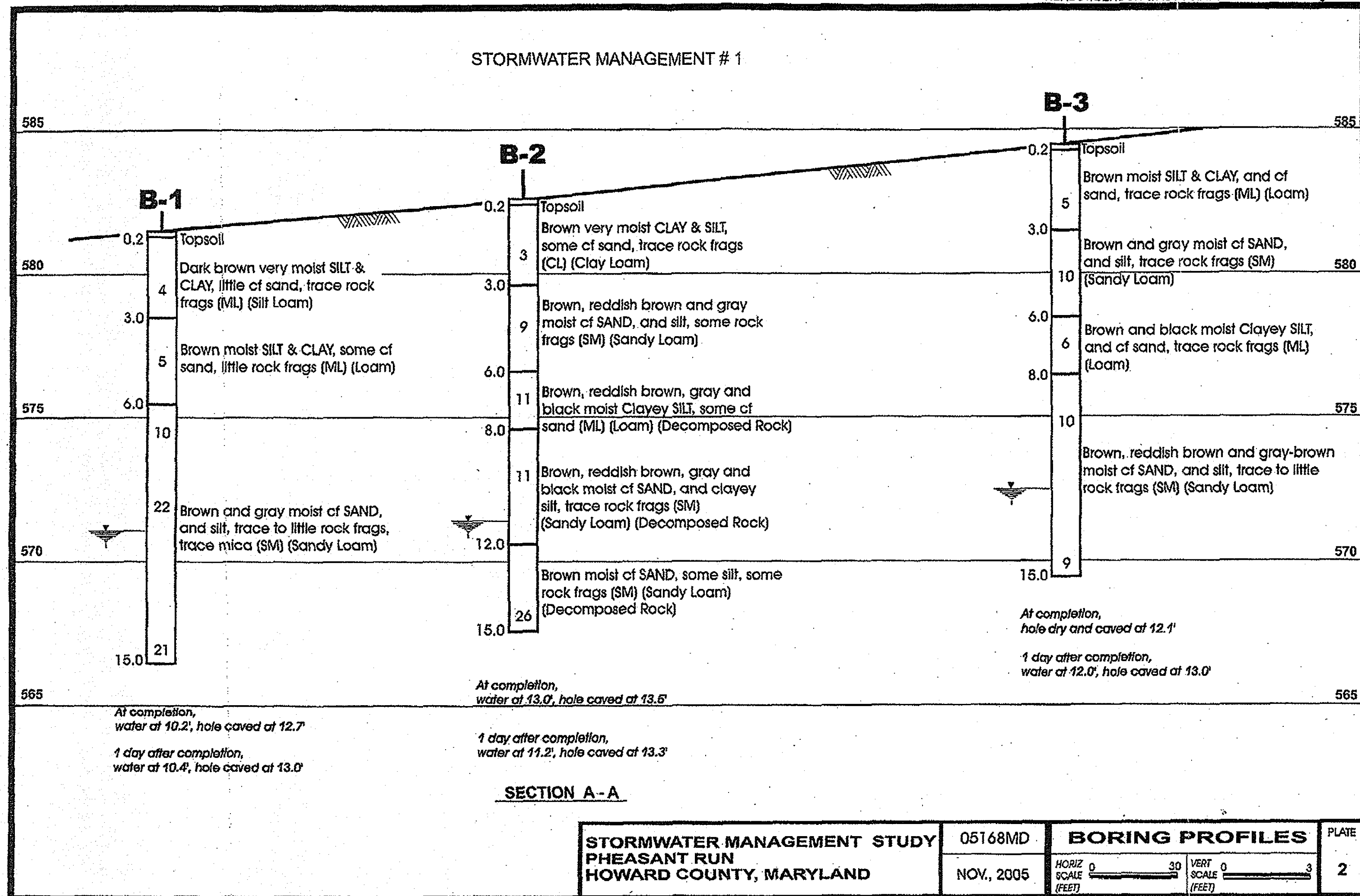
TRAFFIC CONTROL PLAN
PHEASANT RUN WEST
 LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A' &
 NON-BUILDABLE PRESERVATION PARCELS 'B' AND 'C'
 ZONED "RC-DEO"
 TAX MAP Nos. 3 & 8, GRID Nos. 19 & 1, PARCEL No. 376
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: MAY, 2008
 SHEET 15 OF 17

APPROVED: DEPARTMENT OF PUBLIC WORKS
Michael J. ... 5-28-08
 CHIEF, BUREAU OF HIGHWAYS DATE

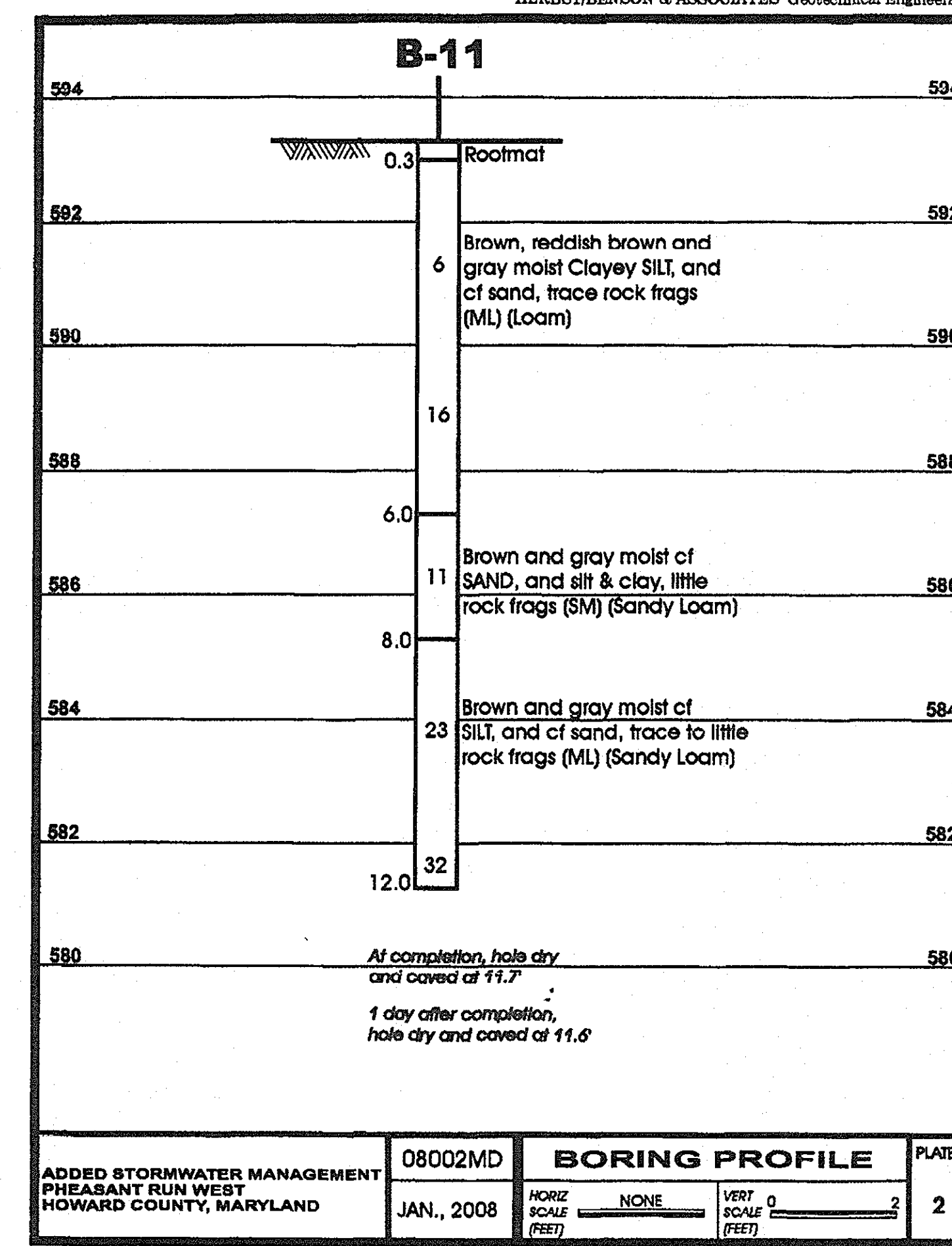
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy ... 6/14/08
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Chris ... 6/2/08
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

HERBST/BENSON & ASSOCIATES Geotechnical Engineers



HERBST/BENSON & ASSOCIATES Geotechnical Engineers

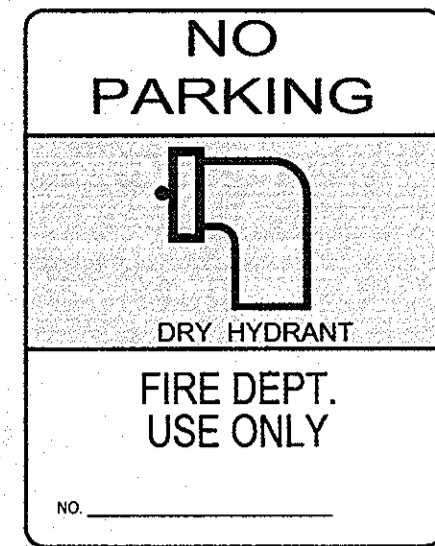


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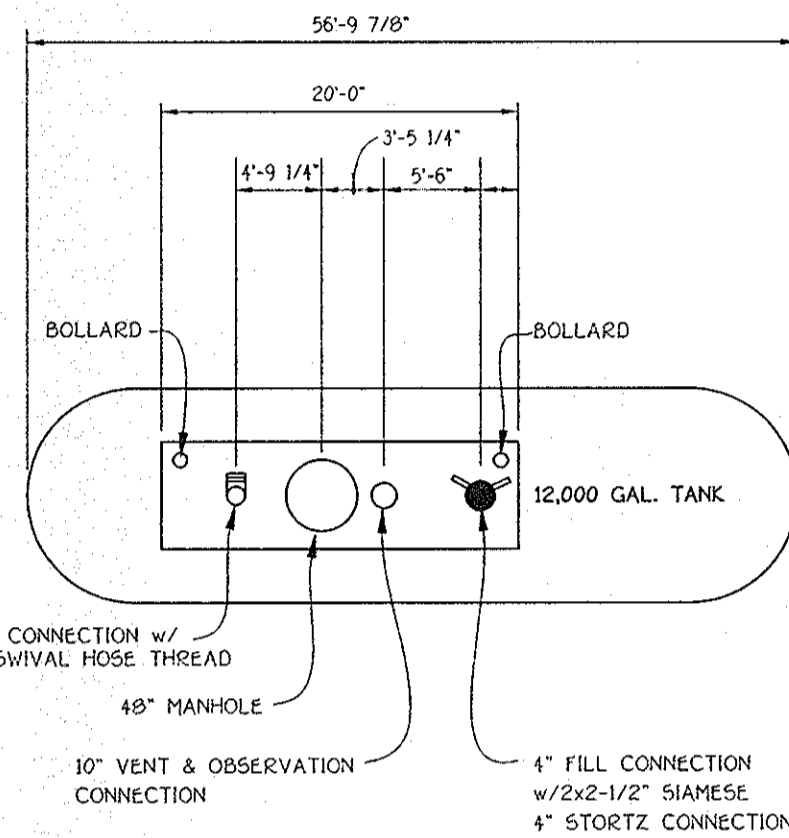
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SOIL BORING PROFILES
PHEASANT RUN WEST
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 SHEET 16 OF 17



NO SCALE



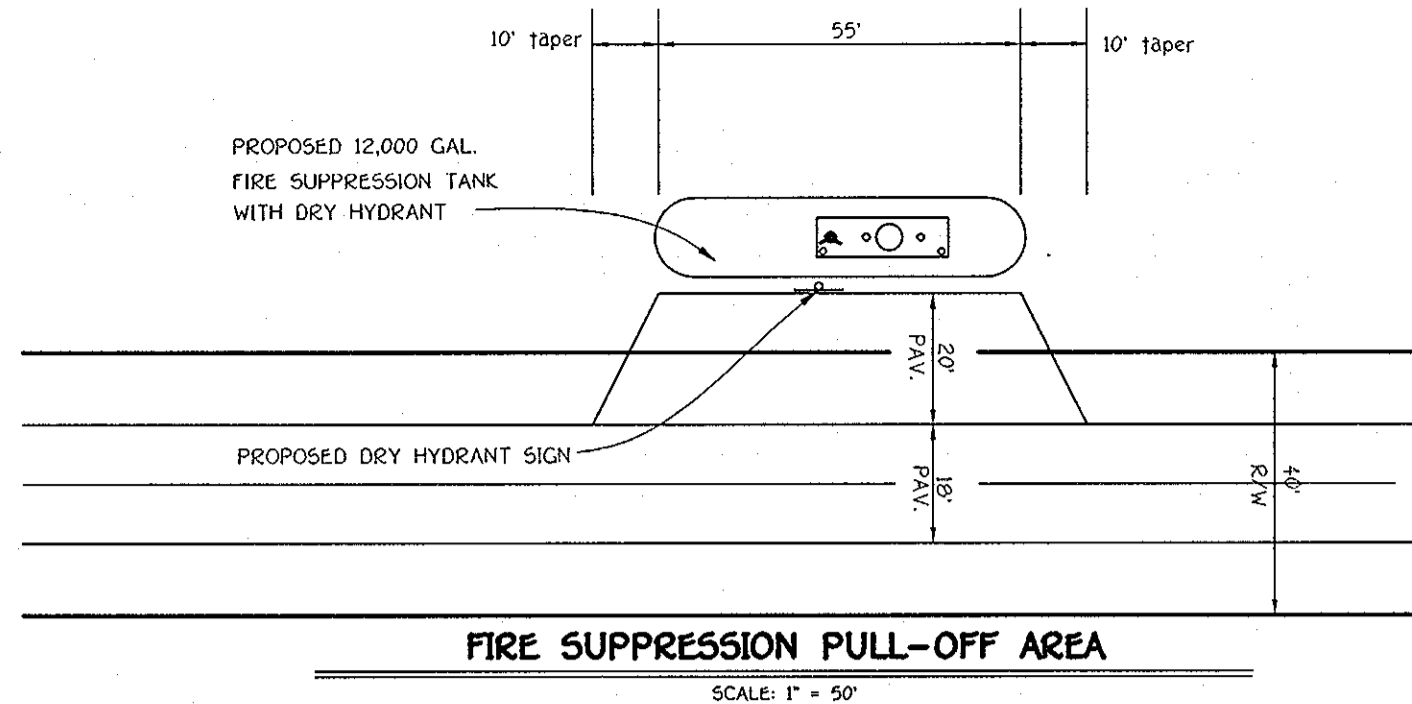
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SPECIFICATIONS FOR UNDERGROUND WATER STORAGE TANKS FOR FIRE PROTECTION

- Introduction
 - Scope

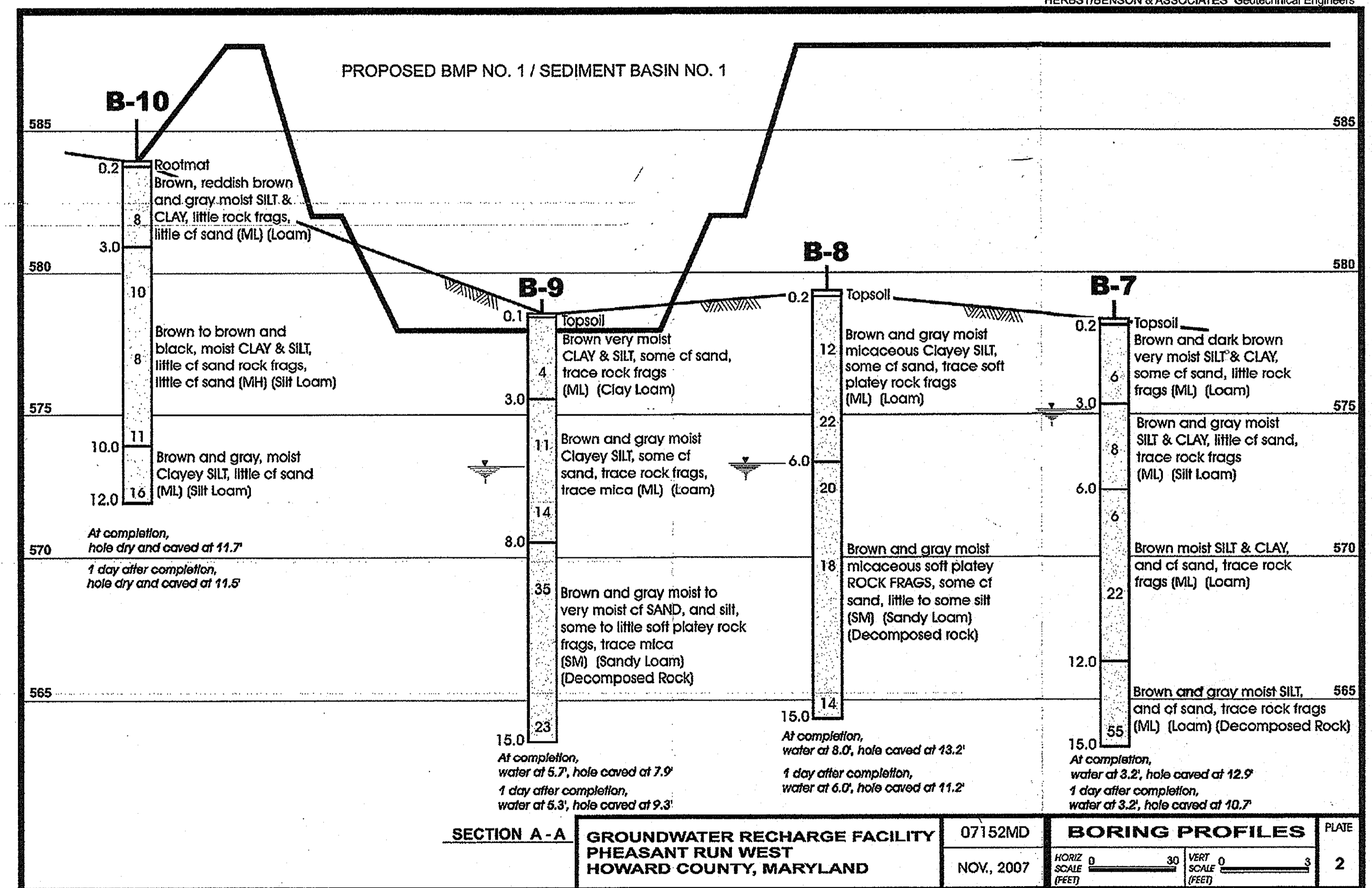
The construction of underground tanks for fire protection in accordance with Howard County Code, Title 17 and this specification is part of a program designed to improve the level of protection from fires in residential and commercial properties. These specifications, along with associated documents, provides the information necessary for the construction and placement of fire protection tanks used for this purpose.
 - Purpose

The purpose of this specification is to provide the technical information required for the construction of underground water storage tanks in accordance with Howard County Maryland, Title 17 and all data therein referenced.
- Underground tanks
 - Materials for a static water supply tank
 - Tanks shall be constructed of single-wall fiberglass per approved manufacturer's specifications.
 - The manufacturer shall provide a 30-year warranty, against defects in material for the tank system, to the purchaser of the tank and their heirs, successors, and assigns.
 - Features
 - The tank system shall include a device for holding the tank in position against flotation (deadman). This configuration shall be supplied by the tank manufacturer as part of the tank package. Installation shall be in accordance with the manufacturer's recommendations.
 - The tank shall include a removable access cover at grade (manhole), at least 48" in diameter, to allow entry for maintenance and inspection of the inside of the tank. An internal ladder shall be securely mounted to the tank. The cover shall be properly secured and locked.
 - A pad consisting of 4 inch thick concrete shall be placed over the tank, and shall encompass all fittings. Refer to tank drawings for concrete specifications.
 - Fittings
 - One draft connection shall consist of a 6 inch diameter galvanized or ductile iron pipe. The draft connection shall terminate in a GRI (National Hydrant) female swivel connector with plug or cap. A PVC draft pipe with an anti-vortex plate shall be installed inside the tank by the manufacturer. The draft connection allows a fire department pumper to connect and remove water from the tank at the specified rate of flow (fire flow). Draft connection shall be painted "Fire Engine Red."
 - One combination vent/fill indicator shall consist of an 8 inch diameter PVC pipe which allows visual inspection of the tank water level, as well as providing the required amount of venting to the tank.
 - One fill connection shall consist of a 4 inch diameter galvanized or ductile iron pipe, with a S-tance connection with two, two and one half inch (2-1/2") connection and one 4" Stortz connection. The fitting shall be angled downward at 30 degrees to reduce hose and fitting strain during filling operations.
 - All pipe joints above the slab shall be flanged.
 - Any features not included in this specification, as well as any special circumstances such as multiple-tank designs shall be evaluated and approved during design phase and before any construction is started.
 - The standard tank drawing "Fire Suppression Water Storage, 30,000 Gallon" defines the requirements for a typical 30,000 gallon, 10-foot diameter tank installation. Tank sizes other than 30,000 gallons may require additional drawings to be provided to fit the requirements for a particular site. Drawing "Fire Suppression Water Storage, 12,000 Gallon" defines the general requirements for construction of 8-foot diameter tanks, and shall be used accordingly. Supplemental drawings shall be reviewed and approved by the Fire Official prior to construction on an as needed basis.
- Installation
 - All tanks shall be installed per the manufacturer's requirements.
 - Location and orientation of the tank shall be determined during site plan or preliminary subdivision plan layout, as approved by the Fire Official.
 - The installing contractor shall be responsible for obtaining all necessary permits for work and for scheduling required inspections.
 - The fittings shall be placed as follows:
 - The draft connection shall be located 6 feet or less from the edge of the parking surface or curb line. This allows for one 10 foot section of suction hose to be used for drafting. The draft connection opening shall be turned facing directly toward the road surface.
 - Total elevation from the bottom of the suction pipe to the centerline of the draft connection shall not exceed 15 feet zero inches. This dimension shall be minimized as much as possible to reduce head loss, while maintaining correct depth of cover over tank, per manufacturer's specifications.
 - The draft connection shall be fixed at a height of 18 inches above finished grade of the pull off pad, to the centerline of the fitting.
 - The fill connection shall be fixed at a height of 18 inches above finished grade of the pull off pad, to the centerline of the fitting.
 - Excavation shall be performed per all applicable regulations. The excavation shall be backfilled with a material per manufacturer's specifications. In designs in which the draft pipe is placed on the tank end, the tank shall have a 2 percent slope toward the draft connection end.
- Testing and acceptance
 - The tank shall be operable with a rate of flow (fire flow) of 1000 gallons per minute (GPM) minimum using a fire department pumper operating under normal conditions.
 - A pressure test shall be performed prior to installation of the tank, per manufacturer's specifications.
 - A pressure test shall be performed after the tank is installed and covered at a minimum pressure of 5 psi (pounds per square inch) and held for a time period as determined by the Fire Official or per manufacturer's specifications.
 - An operational test shall be performed when construction is completed, in accordance with the approved procedures. The test shall be conducted by the fire department and the installer, when testing has been completed, the installer shall refill the tank to full capacity as required. Once accepted, further use of the tank shall be limited to firefighting operations and routine testing. The fire department shall be responsible for subsequent refilling to full capacity within 12 hours after using water from the tank.
 - Final approval will be made per notification in writing by the Fire Official.
- Accessibility and surrounding features
 - A pull-off shall be constructed per Appendix 5.1, Drawing 00499, Tank Access/less otherwise specified. The requirements for such site will be evaluated and approved by the Fire Official prior to start of work. Details shall be indicated on the site or subdivision plan as applicable.
 - No obstructions shall impede access to tank fittings. The facility shall remain accessible on a year-round basis.
 - Landscaping, brush, and trees shall be trimmed away from fittings. Overhanging branches shall be trimmed away at a minimum of 12 feet overhead. Grass and weeds shall be cut as needed.
 - Protective devices shall be used as applicable to prevent damage to the fittings and to provide safety to operators. These include, but are not limited to the following:
 - Bollards
 - Guard rails
 - Fencing
 - Walkways
 - Curtis
 - Any other barriers/devices as determined by the Fire Official
 - A reflective sign shall be posted which clearly indicates tank full capacity and identification ID number. An identification number shall be assigned by the county and posted at the site. Signs shall be placed on all major roads indicating the distance and direction to tank with in a 2,500 foot radius.
 - An approved NO PARKING sign shall be provided and attached to a metal post.
 - All fittings above grade shall be painted with exterior-grade enamel. Color shall be yellow unless otherwise specified.
- References
 - Published standards
 - NFPA 1963 - Standard for Fire Hose Screw Threads
 - NFPA 1142 - Standard for Water Supplies for Suburban and Rural Fire Protection
 - NFPA 1141 - Standard for Fire Protection in Planned Building Groups
 - Other referenced documents
 - The Code of Public Local Laws and Ordinances of Howard County Maryland, Chapter 112.
 - Underground Tanks & Dry Fire Hydrants Maintenance and Inspection, Chief Greg Dods Regional Fire Protection Committee, 2003.
- Appendix
 - Drawing, Pull-off Tank Access.



SCALE: 1" = 5'

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Mike R. ... 5-28-07
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Cindy ... 6/4/08
 CHIEF, DIVISION OF LAND DEVELOPMENT
 ... 6/2/08
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



SECTION A-A	GROUNDWATER RECHARGE FACILITY	07152MD	BORING PROFILES	PLATE
	PHASANT RUN WEST	NOV, 2007	SCALE: HORIZ 0=30 FEET, VERT 0=5 FEET	2
	HOWARD COUNTY, MARYLAND			

SOIL BORING PROFILES
PHASANT RUN WEST
 LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A' & NON-BUILDABLE PRESERVATION PARCELS 'B' AND 'C'
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 FOURTH ELECTION DISTRICT
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