H	EE	T	I	٧D	E	K

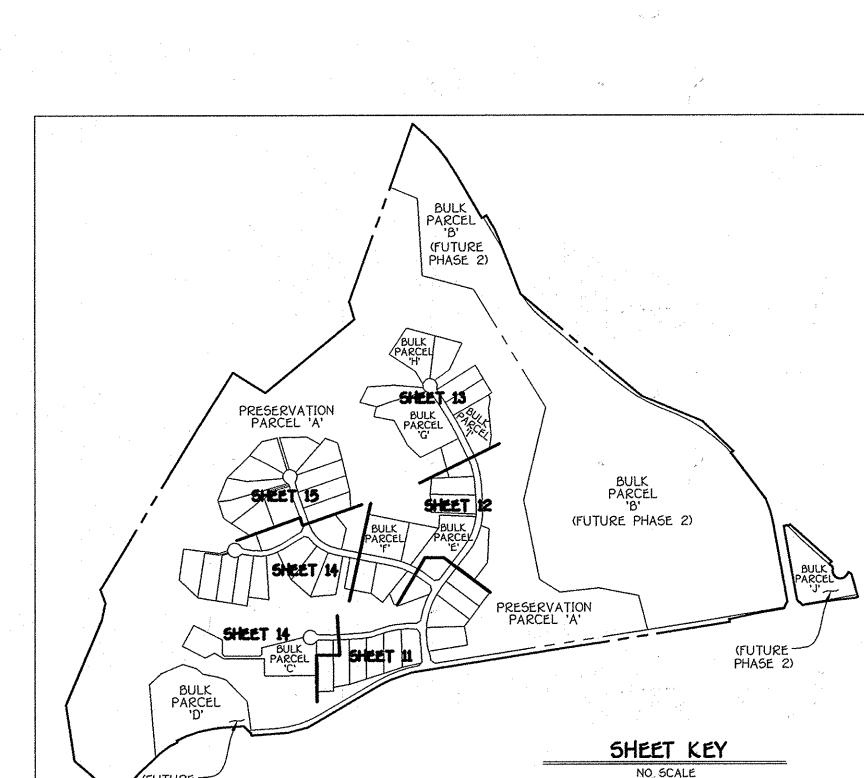
	SHEET INDEX
IEET No.	SHEET
1	TITLE SHEET
2	CLARKSVILLE PIKE (MARYLAND ROUTE 108) - ROAD WIDENING PLAN AND PROFILE
3	VALLEY VIEW OVERLOOK PLAN AND PROFILE
4	VALLEY VIEW OVERLOOK PLAN AND PROFILE & FOX RIVER DRIVE PLAN
5	FOX RIVER DRIVE PLAN AND PROFILE & FOX CHASE COURT PLAN
6	FOX RIVER DRIVE PLAN AND PROFILE & VALLEY VIEW OVERLOOK PLAN
7	VALLEY VIEW OVERLOOK PLAN & FOX CHASE COURT PROFILE
8	HUNT CROSSING COURT PLAN AND PROFILE & VALLEY VIEW OVERLOOK PLAN
9-10	CLARKSVILLE PIKE (MARYLAND ROUTE 108) - CROSS SECTIONS
11-15	STREET TREE, GRADING, AND SEDIMENT CONTROL PLAN
16-17	LANDSCAPE PLAN AND STORM DRAIN DRAINAGE AREA MAP
18-21	STORM DRAIN PROFILES
22-23	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
24	STORMWATER MANAGEMENT NOTES AND SPECIFICATIONS
25-30	STORMWATER MANAGEMENT PROFILES AND DETAILS
31-34	FOREST CONSERVATION PLAN
35	CLARKSVILLE PIKE (MD ROUTE 108) - TRAFFIC CONTROL PLAN AND STRIPING PLAN
36-37	SOIL BORING PROFILES

Ŗ	OADWAY INFORMAT	ION CHART	
ROAD NAME	CLASSIFICATION	DESIGN SPEED	R/W WIDTH
ALLEY VIEW OVERLOOK	PUBLIC ACCESS STREET	30 M.P.H.	50'
FOX RIVER DRIVE	PUBLIC ACCESS STREET	30 M.P.H.	50'
FOX CHASE COURT	PUBLIC ACCESS PLACE	25 M.P.H.	40'
HUNT CROSSING COURT	PUBLIC ACCESS PLACE	25 M.P.H.	40'

TRAFFIC	C CONT	rol s	5IGN5	
ROAD NAME	C.L. STA.	OFFSET	POSTED SIGN	SIGN CODE
VALLEY VIEW OVERLOOK	0+60	34'L	5TOP	R1-1
VALLEY VIEW OVERLOOK	0+40		KEEP RIGHT	R4-7
VALLEY VIEW OVERLOOK	0+90		KEEP RIGHT	R4-7
VALLEY VIEW OVERLOOK	2+00	14 R	SPEED LIMIT 25	R2-1
VALLEY VIEW OVERLOOK	2+25	14 L	STOP AHEAD	R3-1
VALLEY VIEW OVERLOOK	7+35	14'R	SPEED LIMIT 25	R2-1
HUNT CROSSING COURT	0+45	11'L	STOP	R1-1
HUNT CROSSING COURT	1+50	11'R	SPEED LIMIT 25	R2-1
FOX CHASE COURT	0+45	11'L	STOP	R1-1
FOX RIVER DRIVE	0+45	14'L	STOP	R1-1
FOX RIVER DRIVE	2+00	14 R	SPEED LIMIT 25	R2-1

STREET NAMESTATIONOFFSETFIXTURE/POLE TYPEVALLEY VIEW OVERLOOK* C.L. STA. 0+3750'R150-WATT H.P.S. VAPOR PENDANT (CUT-OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM	· · · · · · · · · · · · · · · · · · ·	STREE	t light	CHART
OVER OOK * C.L. STA. 0+37 50'R MOUNTED AT 30' ON A BRONZE FIBERGLASS	STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE
		* C.L. 5TA. 0+37	50'R	MOUNTED AT 30' ON A BRONZE FIBERGLASS

\* - ANGLE ARM AS SHOWN ON PLAN



PHASE 3 FISHER, COLLINS & CARTER, INC. UNG CONSULTANTS & LAND SURVEYORS QUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIK ELLICOTT CITY, MARYLAND 21042 (410) 461 - 2855

K:\SD6KPROJ\30754\DWG\PHASE I - FINALS\30754 SHEET I TITLE SHEET.dwg

**NON-BUILDABLE PRESERVATION PARCEL 'A' AND** NON-BUILDABLE BULK PARCELS 'B' THRU 'J' **ZONING: RC-DEO** 

Owner

MARY CARTER CARROLL ZIEGLER, ET.AL.

C/O NATALIE ZIEGLER

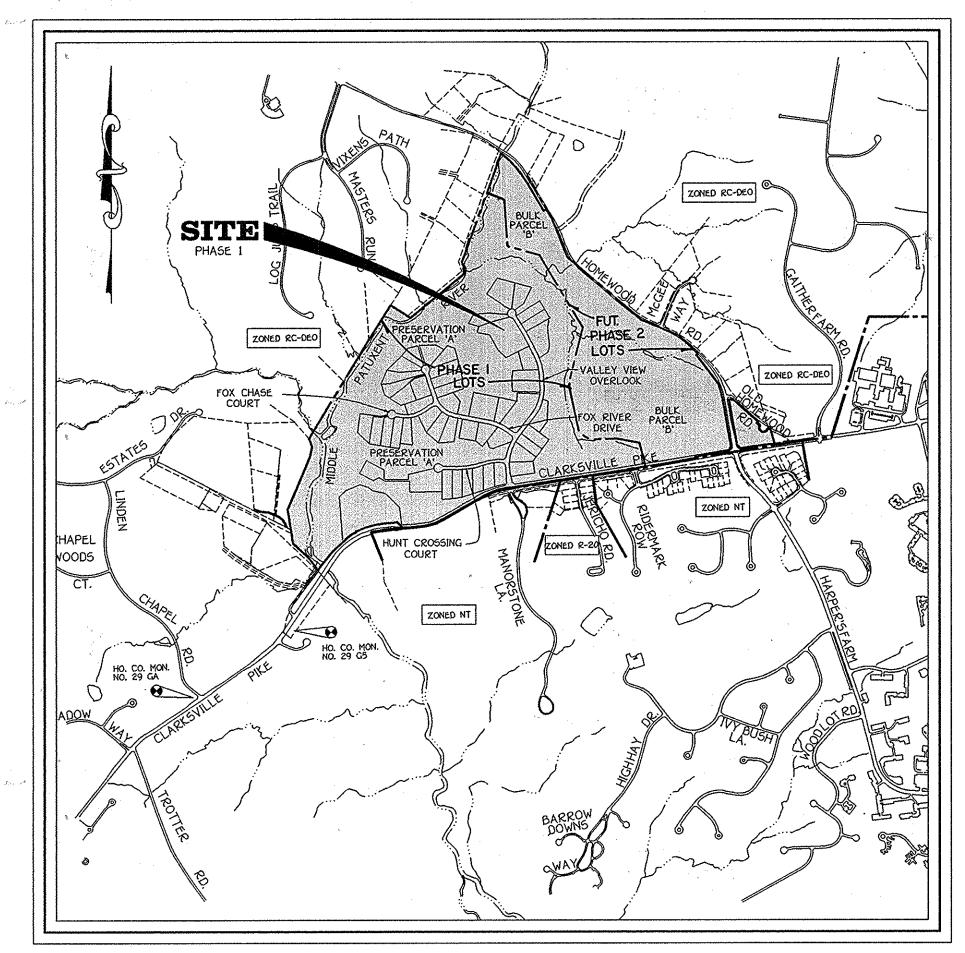
11352 HOMEWOOD ROAD

ELLICOTT CITY, MARYLAND 21042

# FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLAN BENEDICT FARM PHASE 1

**BUILDABLE LOTS 1 - 43,** 

TAX MAP NO. 29 GRID No. 9 PARCEL No. 28



VICINITY MAP SCALE: 1" = 1200'

# THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

Developer

TOLL BROTHERS, INC.

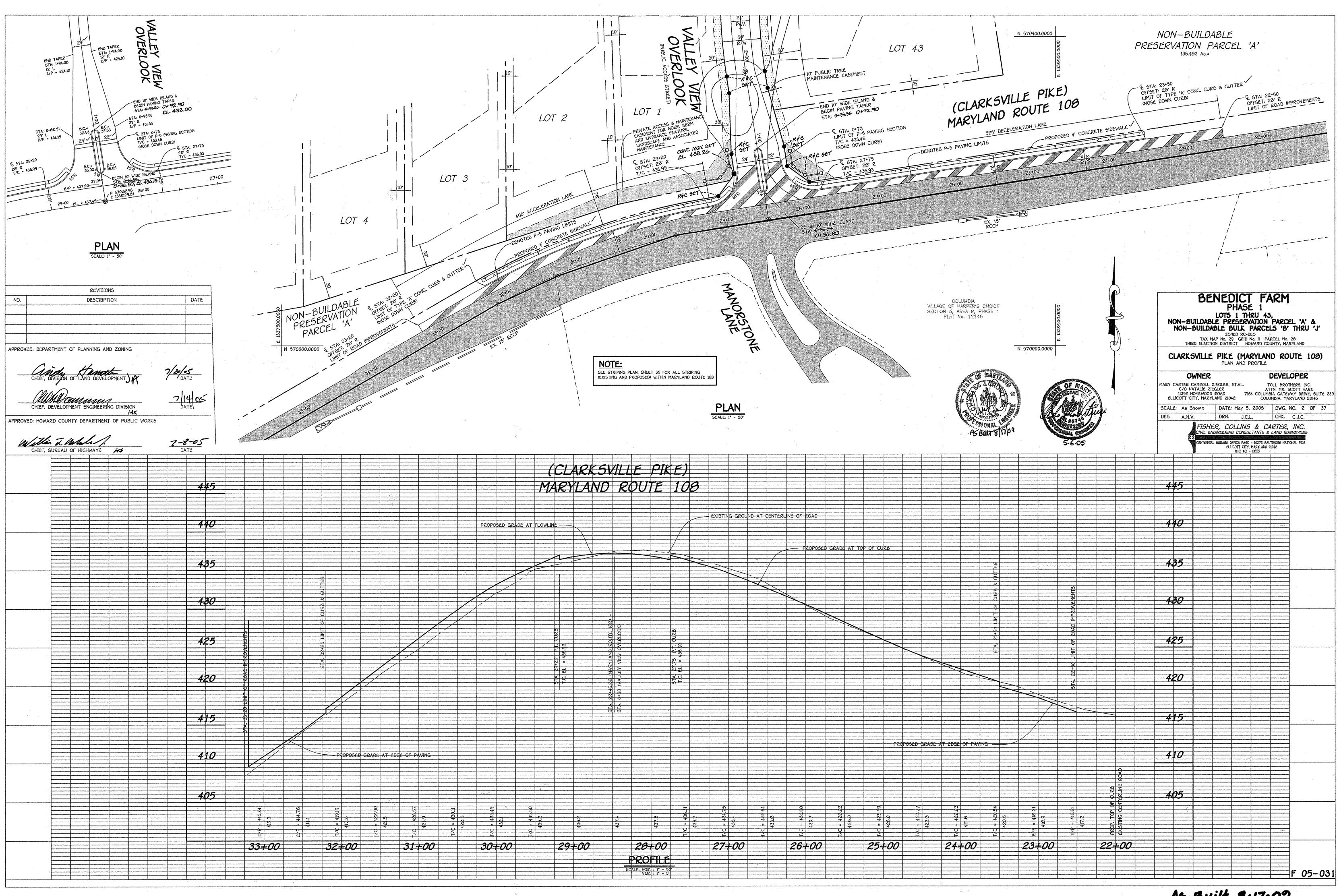
7164 COLUMBIA GATEWAY DRIVE, SUITE 230

COLUMBIA, MARYLAND 21046

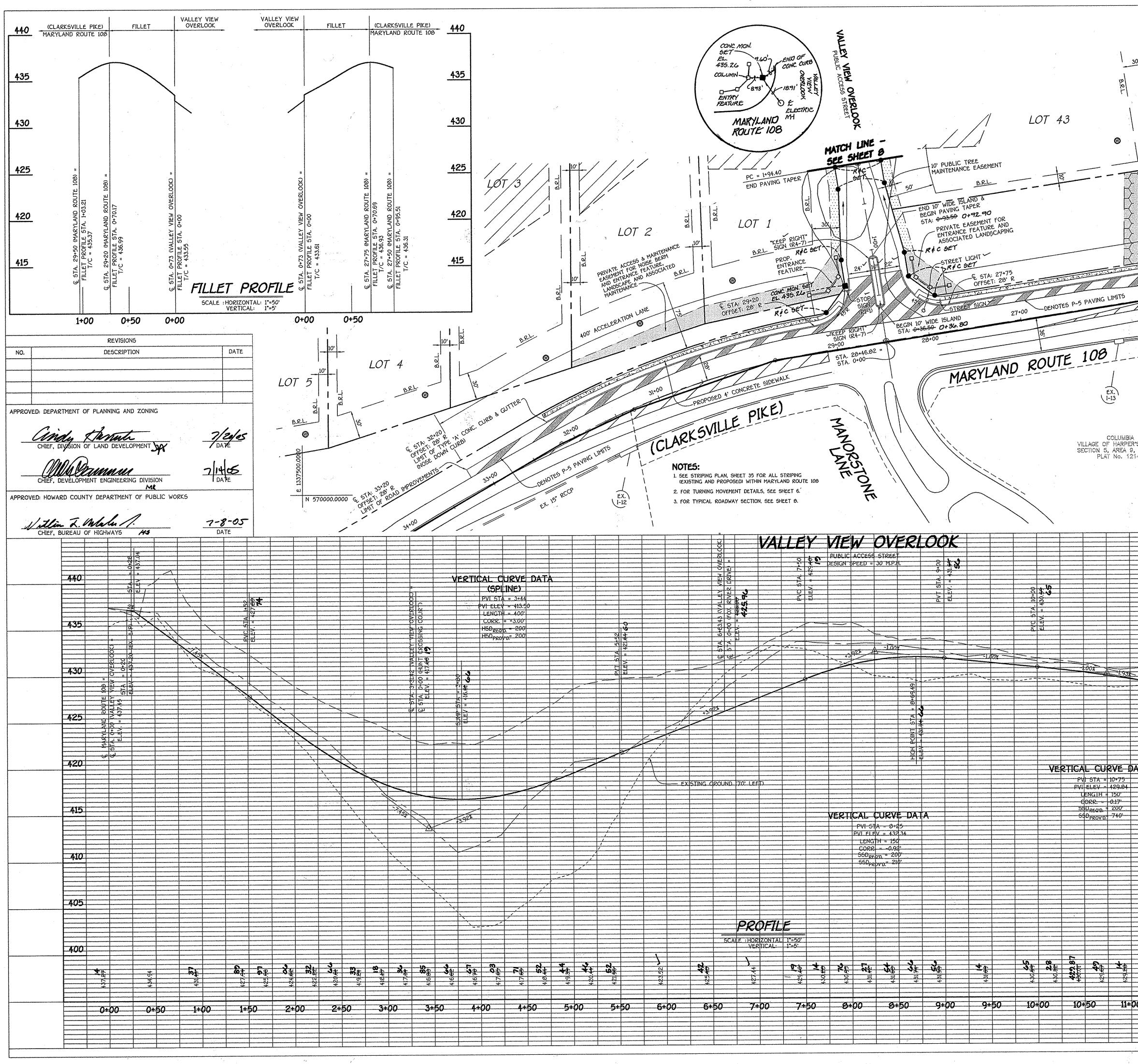
ATTN: MR. SCOTT HARE

APPROVED: DEPARTMENT OF PUBLIC WORKS Willin L. 7-8-05 DATE CHIEF, BUREAU OF HIGHWAYS 📒 🚜 APPROVED: DEPARTMENT OF PLANNING AND ZONING Hanution CHIEF, DIVISION OF LAND DEVELOPMEN AILIEUM ENGINEERING DIVISION GENERAL NOTES 1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE. 2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / WREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL NOTIFY "MISS LITH ITY" AT 1-800-257-7777 AT LEAST HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE CCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT. 5. COORDINATES BASED ON NAD'83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 29 GA AND E 1,333,325.60 1 568,341,223 HOWARD COUNTY: MONUMENT NO. 29 G5 1.335.392.46 6. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY STREET TRAFFIC STUDIES. LT DATED MARCH 4, 2002 AND WAS APPROVED ON JULY 31, 2002. 7. BACKGROUND INFORMATION: A. SUBDIVISION NAME: BENEDICT FAR B. TAX MAP NO.: 29 C. PARCEL NO.: 20 D. ZONING: RC-DEO E. ELECTION DISTRICT: THIRD F. TOTAL TRACT AREA: 306.762 AC.± G. NO. OF BUILDABLE LOTS: 43 H NO. OF OPEN SPACE LOTS: 0 I. NO. OF NON-BUILDABLE PRESERVATION PARCELS: 1 I. NO. OF NON-BUILDABLE BULK PARCELS: 9 C. AREA OF BUILDABLE LOTS: 46.267 AC+ . AREA OF OPEN SPACE LOTS: 0.00 AC. M. AREA OF NON-BUILDABLE PRESERVATION PARCELS: 136.483 AC.+ N. AREA OF NON-BUILDABLE BULK PARCELS: 111.776 AC.+ TOTAL AREA OF ROADWAY TO BE DEDICATED: PREVIOUS FILE NOS: SP 02-13 APPROVAL DATE: 1/28/0 NO CEMETERIES EXIST ON THE PROPERTY. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-180. 10. THE FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16,1200 OF THE HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT. EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED O FOREST CONSERVATION EASEMENT ARE ALLOWED. 11. STORMWATER MANAGEMENT FACILITIES: B.M.P. No. 1: TYPE - MICRO-POOL DESIGN. (EXTENDED DETENTION OWNER - H.O.A. CREDITS AREAS FOR S.W.M. COMPUTATIONS: NATURAL AREA B.M.P. No. 2: TYPE - MICRO-POOL DESIGN. (EXTENDED DETENTION OWNER - H.O.A. CREDITS AREAS FOR S.W.M. COMPUTATIONS: NATURAL AREA B.M.P. No. 3: TYPE - MICRO-POOL DESIGN. (EXTENDED DETENTION) OWNER - H.O.A. CREDITS AREAS FOR S.W.M. COMPUTATIONS: NATURAL AREA B.M.P. No. 4: TYPE - BIO-RETENTION DESIGN. (WQV MANAGEMENT) OWNER - HOA CREDITS AREAS FOR S.W.M. COMPUTATIONS; NATURAL AREA B.M.P. No. 5; TYPE - SURFACE SAND FILTER DESIGN. (WQV MANAGEMENT) OWNER - H.O.A. CREDITS AREAS FOR S.W.M. COMPUTATIONS: NATURAL AREA B.M.P. No. 6; TYPE - MICRO-POOL DESIGN. (EXTENDED DETENTION) OWNER - H.O.A. CREDITS AREAS FOR S.W.M. COMPUTATIONS: NATURAL ARE B.M.P. No. 7; TYPE - LEVEL SPREADER OWNER - HOMEOWNERS ASSOCIATION STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH HOWARD COUNTY AND MARYLAND 376 SPECIFICATIONS. RECHARGE VOLUME WILL BE PROVIDED THROUGH THE USE OF GRASS CHANNELS ALONG THE PROPOSED ROADWAYS. WATER QUALITY AND CHANNEL PROTECTION VOLUME WILL BE PROPOSED ROADWAYS. WATER QUALITY AND CHANNEL PROTECTION VOLUME WILL BE PROVIDED BY FOUR MICRO-POOL (EXTENDED DETENTION) PONDS, ONE BIO-RETENTION FACILITY, ONE SURFACE SAND FILTER FACILITY AND ONE LEVEL SPREADER. OVERBANK FLOOD PROTECTION VOLUME AND EXTREME FLOOD VOLUME ARE NOT REQUIRED FOR THIS SITE. THE STORMWATER MANAGEMENT FACILITIES WILL OWNED BY HOWARD COUNTY AND JOINTLY MAINTAINED BY HOWARD COUNTY AND THE H.O.A.. 12. THE PROPOSED WATER AND SEWER SYSTEMS SHALL BE PRIVATE. 13. THE SUBJECT PROPERTY IS LOCATED OUTSIDE OF THE METROPOLITAN DISTRICT. 14. TOPOGRAPHIC INFORMATION ESTABLISHED AT TWO FOOT INTERVALS BASED ON AERIAL TOPOGRAPHY PREPARED BY 3DI, L.L.C. DATED APRIL 14, 2001 AND SUPPLEMENTED BY FIELD RUN TOPOGRAPHY PREPARED BY FISHER, COLLINS & CARTER, INC. DATED 15. FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE IS TO BE PROVIDED AT THE JUNCTION OF THE FLAG OR PIPESTEM AND THE ROAD RIGHT-OF-WAY AND NOT ONTO THE FLAG OR PIPESTEM DRIVEWAY 16. WETLAND AND FOREST STAND DELINEATION INFORMATION SHOWN WAS TAKEN FROM REPORTS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED JUNE, 2002 AND APPROVED ON JULY 31, 2002 UNDER SP 02-13. 17. SOILS INFORMATION TAKEN FROM SOIL MAP NO. 8, SOIL SURVEY, HOWARD COUNTY, MARYLAND, JULY 1968 ISSUE. 18. THIS PLAN IS SUBJECT TO THE 5th EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS BECAUSE SP-02-13 WAS SUBMITTED ON 6-28-02. THIS PLAN IS ALSO SUBJECT TO THE OCTOBER 1993 ZONING REGULATIONS AS AMENDED BY CB 50-2001 BECAUSE SP 02-13 WAS TECHNICALLY COMPLETE ON 11-05-02. 19. SUBJECT PROPERTY ZONED RC-DEO PER 4/13/04 COMPREHENSIVE ZONING PLAN. 20. THERE ARE STEEP SLOPES LOCATED ON THIS PROPERTY AS DEFINED BY "SLOPES THAT AVERAGE 25% OR GREATER OVER 10 VERTICAL FEET". PER SECTION 16.108(6)(55) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. TOTAL AREA OF 25% OR GREATER SLOPES = 5.455 AC.+ 21. AS PER SECTION 104.F.4.6 OF THE ZONING REGULATIONS, ONLY ONE EASEMENT HOLDER IS REQUIRED FOR PRESERVATION PARCELS DESIGNED SOLELY FOR SWM FACILITIES OR COMMUNITY SEWERAGE DISPOSAL SYSTEMS. A. NON-BUILDABLE PRESERVATION PARCEL 'A OWNED: HOMEOWNER'S ASSOCIATION EASEMENT HOLDER: HOWARD COUNTY, MARYLAND AND HOWARD COUNTY CONSERVANCY 22. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAM OR THEIR REQUIRED BUFFERS 23. THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY PROVIDING 80.707 ACRES + OF ONSITE FOREST RETENTION . \$0.20/5F FOR 3,515,597 SF. = \$703,119.00. (80.327 ACRES CREDITED FOREST CONSERVATION EASEMENT AND 0.38 ACRES OF NON-CREDITED FOREST CONSERVATION EASEMENTD TOTAL FOREST CONSERVATION EASEMENT AREA . 60.707 ACRES FOR A TOTAL FOREST SURETY OF \$703,119.00. 24. THE LANDSCAPE SURETY IN THE AMOUNT OF \$73,050.00 FOR PERIMETER LANDSCAPE REQUIREMENTS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL IS POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SUBDIVISION. 25. THE NOISE STUDY FOR THIS PROJECT WAS PREPARED BY WILSON T. BALLARD CO., DATED JUNE, 2002 AND WAS APPROVED ON JULY 31, 2002 25. THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY FIGHER, COLLING & CARTER, INC., DATED JUNE 6, 2002 AND WAS APPROVED ON JULY 31, 2002. 27. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS-CARNES ENGINEERING ASSOC., INC., DATED JUNE 20, 2002 AND WAS APPROVED ON JULY 31, 2002. 28. THE EXISTING FLOODPLAIN FOR MIDDLE PATUXENT RIVER WAS TAKEN FROM HOWARD COUNTY CAPITAL PROJECT NO. D-1020. 29. NON-BUILDABLE BULK PARCELS 'B' - 'J' RETAIN THE RIGHT TO BE FURTHER SUBDIVIDED IN ACCORDANCE WITH THE DEO CLUSTER REGULATIONS IN SECTION 106 OF THE HOWARD COUNTY ZONING REGULATIONS. THE RESUBDIVISION OF THESE BULK PARCELS INTO RESIDENTIAL LOTS WILL REQUIRE DENSITY FROM AN OFF-SITE LOCATION WITHIN THE RC-DEO DISTRICT. TITLE SHEET BENEDICT FARM PHASE I Lots 1 Thru 43, Non-Buildable Preservation Parcel 'A' And Non–Buildable Bulk Parcels 'B' Thru 'J' Zoned: RC-DEO Tax Map: 29 Grid: 9 Parcel: 28 Third Election District Howard County, Maryland 5-6-05 Date: May 5, 2005 F 05-031 Sheet 1 of 37

AS-Built 8-17.09



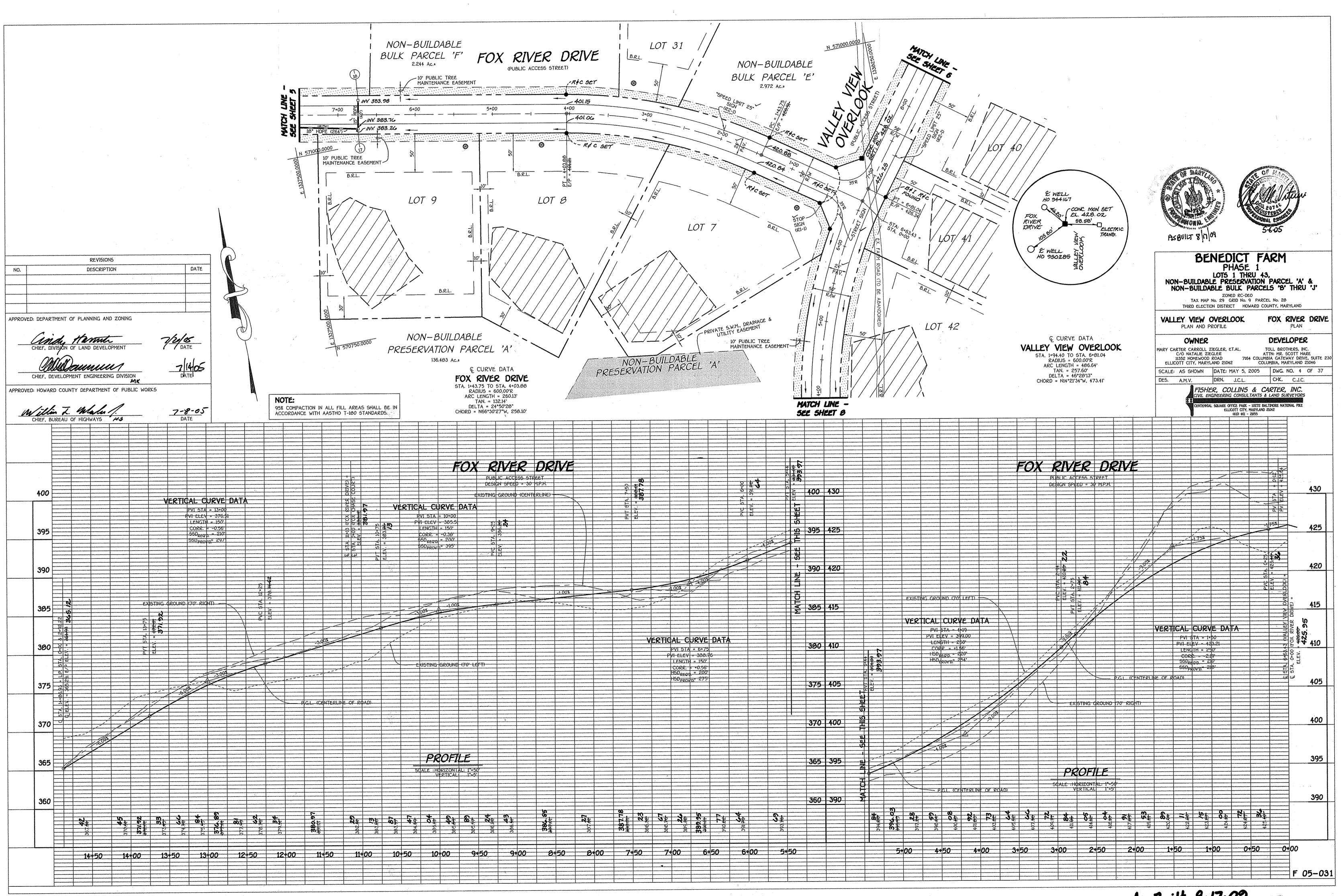
As.Built 8.17.09



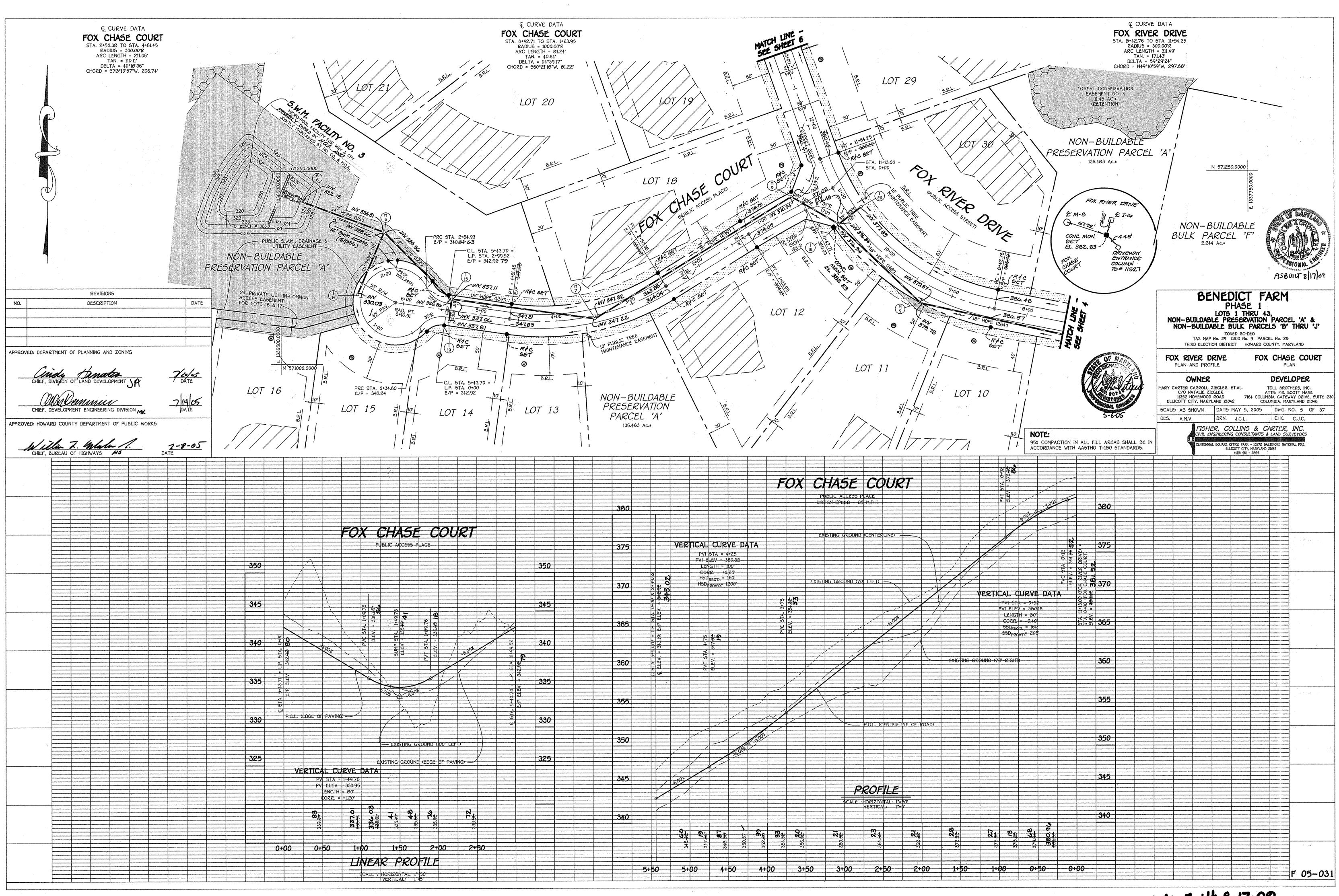
30'		<u>N 570</u>	<u>5500.000</u>	E 1336500,0000			NON	- <i>BU</i>	ILDAI	3LE									
			5( (RE	MENT NO D.Ø AC.+ TENTION	VATION D. 1			136.483	Ac.*	2004 (000) 2004 (000) 2004 (2002) 2005 (2005)	sconc. ( » 		GUTTER	Q STA OFFSE LIMIT		D IMPR	OVEMENTS		
	( 15°	2:	5+00			24	+00			· · ·	N	DN-BU	BE	NEC PI LOTS E PRI	DICT HASE 1 TH	F	ARM	8 17 09 THRU	
IBIA PER'S CH 12145	ioice Se 1		5-6 0000.000	E 1338500.0000	TE: COMPAC ORDANCE	TION IN WITH A	ALL FILI	L AREAE T-180 ST	5 SHALL TANDARD	BE IN 05.	MARY C ELL	THIR ON ARTER C. C/O NA	TAX MAP D ELECTIK VAL VAL MNER ARROLL 2 TALIE ZIE DMEWOOD TY, MARYL HOWN	ZON No. 29 ( DN DISTRI LEY V PLAN CIEGLER, 10 GLER ROAD AND 2104 DATE: DRN.	ED RC-DE GRID No. CT HOI I AND PI ET.AL. 2 MAY 5, J.C.L.	EO 9 PARC WARD CO DVER ROFILE 4 COLUM COL	LOOK DEVEL TOLL BROT TOLL BROT TOLL BROT UMBIA, MAI DWG. N CHK.	DPER HERS, INC. COTT HARE AY DRIVE, S 2YLAND 2104 NO. 3 OF C.J.C.	WITE 230
			EXISTIN	I GROUI	ID (CEN	ERLINE)	5-6	-05					B Constanting	L SQUARE O	NG YEARS ST	- 10272 B/ MARYLAND	ARTER, 8 LAND SUK ALTIMORE NATIK 21042 440	Mado Malan Mag	
					1.93%				/		<u>т</u> А.	11		STA		- 565 SHEET 7	435		
DATA 4											93% 4	ERLINE	OF ROAI	»	+2.00%	MATCH LINE	425		
		CX1GTING		) - <del>(70' ƙ</del>	3GI IT)					/ERTI	PVI ST. PVI ELE LENGT CORR.	A = 14+0 V = 423 H = 150 - +0.75	56	A			410		
833 833 645 833 833 833	428.3 <del>3</del>		427.42		426. <b>46</b>		<b>0</b> <b>0</b> <b>0</b> <b>0</b> <b>0</b> <b>0</b> <b>0</b> <b>0</b> <b>0</b> <b>0</b>	425, <del>01</del>	424. <del>61</del>	424.37	HSD <sub>2EC</sub> HSD <sub>2KC</sub>	x <sub>D</sub> = 200 <u>x_D</u> = 222 <b>86</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b> <b>87</b>	2 <sup>1</sup>	424.98	#25.56		400		

As-Built 8.17.09

.

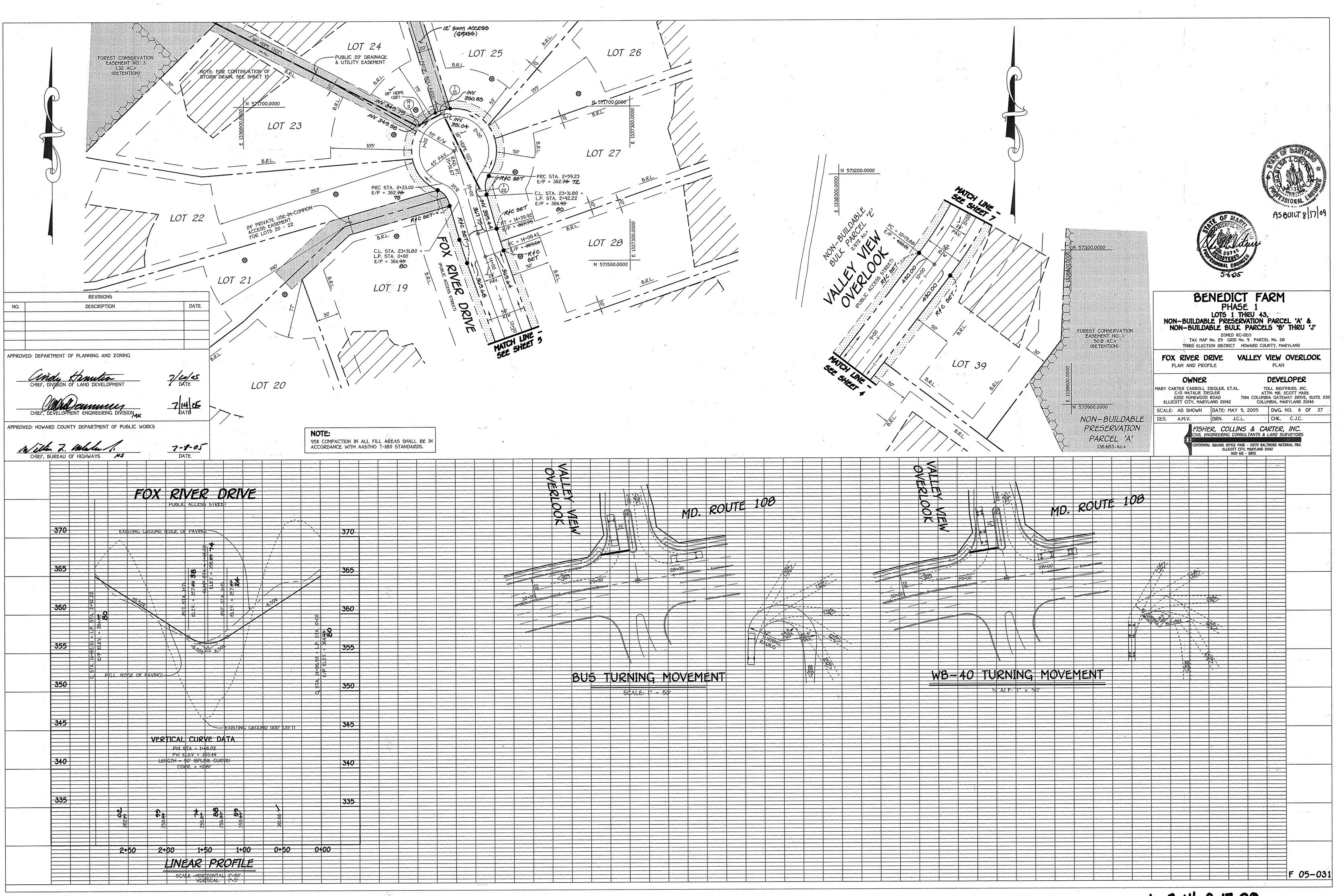


As-Built 8-17.09

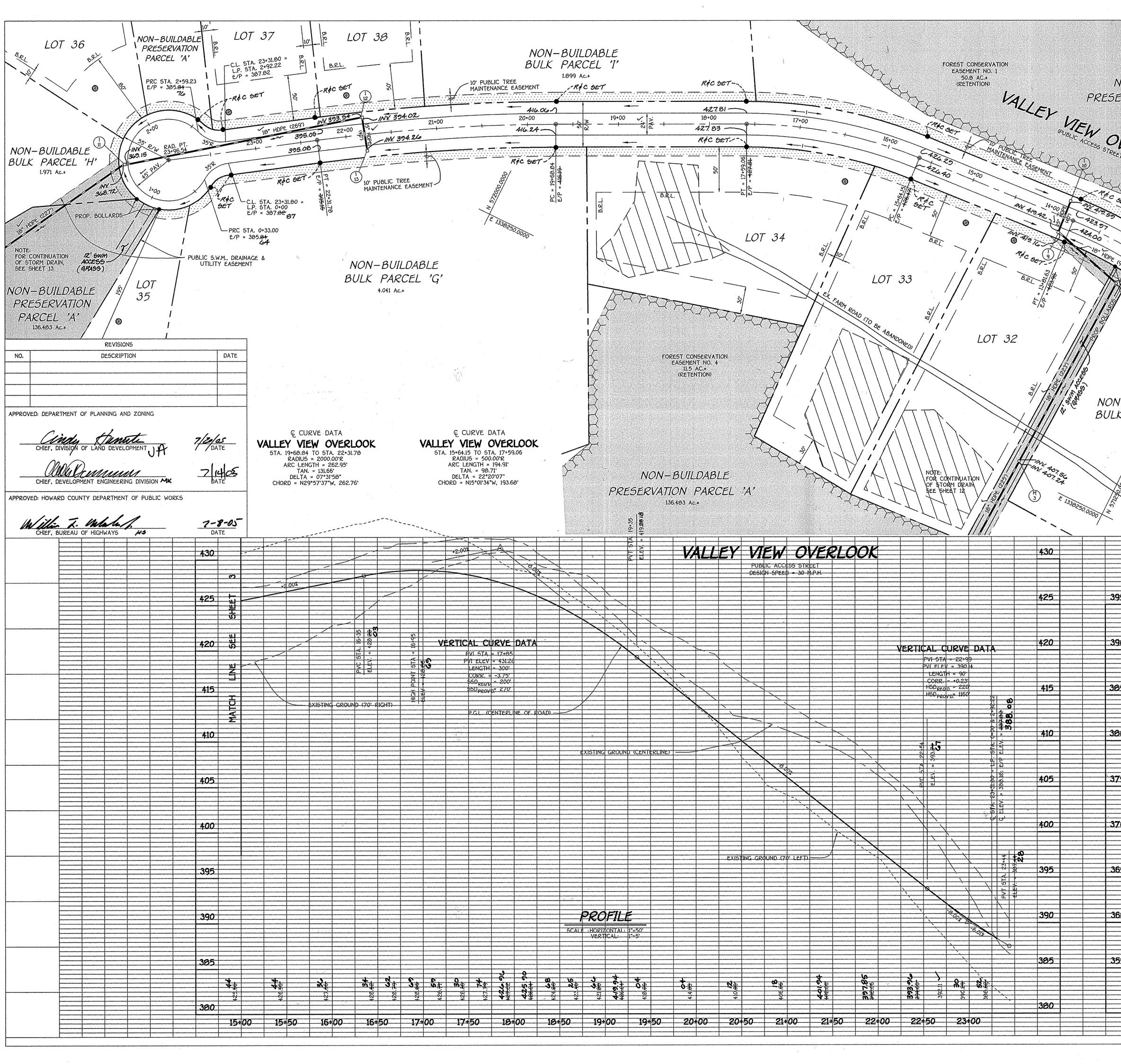


As-Built 8.17.09

•



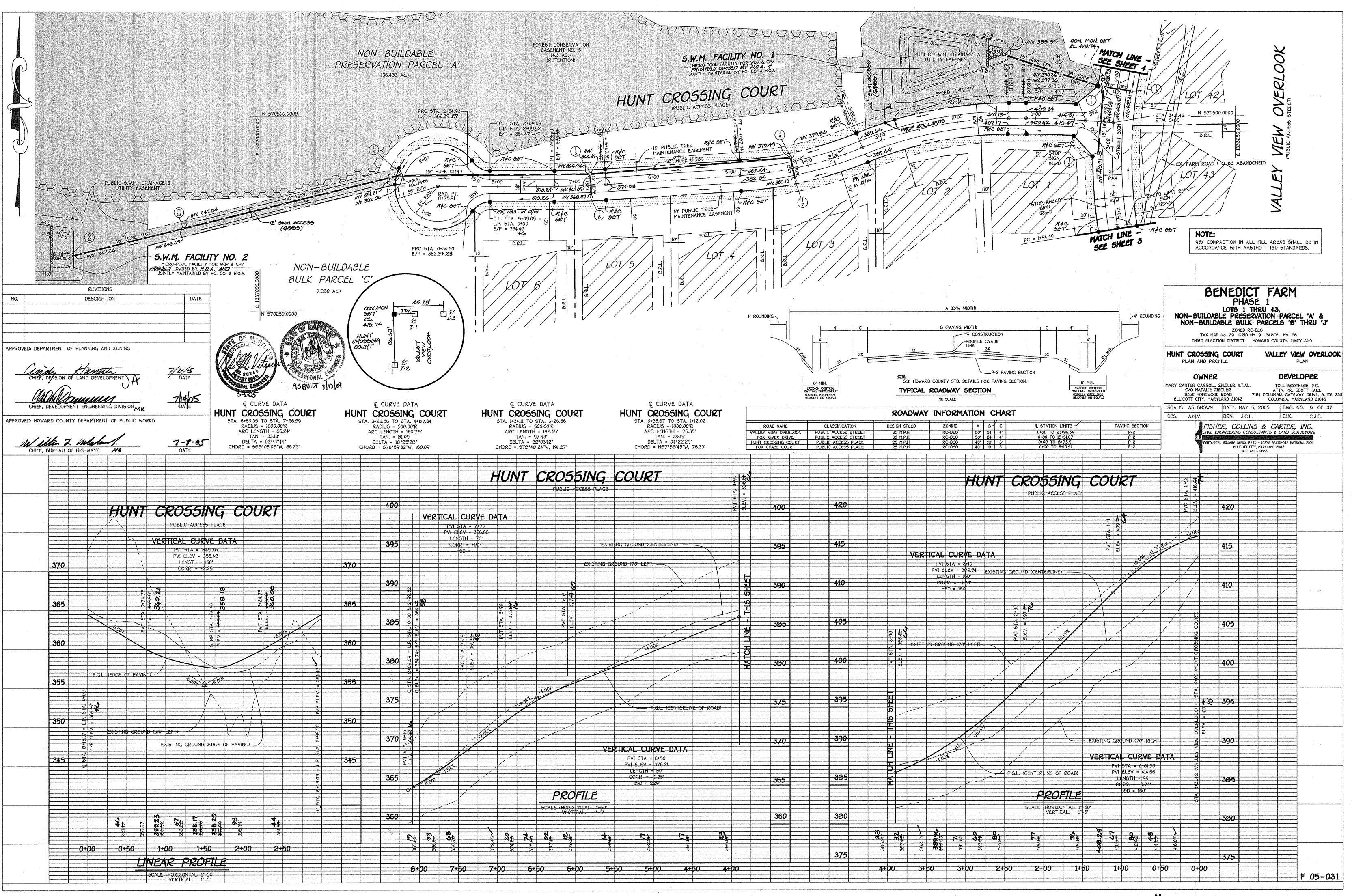
As-Built 8.17.09



	DN—E ZVATI 136.	102 A 44 4	PAR		;д;		1338750	$\sim$	~					Ę	LEY V TA. 10+19. RADI ARC L TA	88 TO 9 IUS = 50 ENGTH = AN. = 189 TA = 41°	<b>OVER</b> 5TA: 13+8 0.00'R • 361.75' 9.20' 27'12*	
	ERL		*				/	Corror Corror						L.		Ð		
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	13,00 13,00 N. W. W. W. S. S.							~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		, L		A	s Bull	S J CO S	7 09		A CONTRACTOR	M.Viture M.Viture 101100
SULK	- BUIL PAR 2.972 Ad	CEL?				WIS		E 6	, , , , , , , , , , , , , , , , , , ,	:	VAL		ILDAP DUILDA FAX MAF D ELECT VIEW PLAN WNES	PLOTS LE PR BLE 1 ZO No. 29 ION DISTR OVER	NED RC-DEA GRID No. 9 RICT HOW LOOK	1 RU 43, MON 1 ARCEL PARCEL ARD COUR FO	PARCE 5 'B' No. 20 NTY, MAR DX CH PR DEVEL OLL BROT	ASE COUR OFILE
N 57/29 MON			[		OMPACTIO			AREAS S				11352 H	IOMEWOO TY, MAR HOWN /. <i>FTSI</i> <i>CIVIL</i>	DRN. HER, C ENGINEER	716 1042 :: MAY 5,	4 COLUME COLU 2005 & CA TANTS & - 10272 BAL MARYLAND 2	DWG. I DWG. I CHK.	INC. EVEYORS
395				LE GL. (EI				<b>OVE</b> STREET	ERL	00	<b>K</b>	<u>/</u>			395			
390					io l	erev. = 382.9 <del>5</del>	5UMR 5TA. 5TA = 1+46.11		STA.			*6005	2492.22		390 385			
380	00+0						207 A	+60074					E 5TA. 23+4492 = L.P. 5TA		380 375			
370	5TA 23+44.92 =	1									= 1+46. = 379. + = 100* = +1.50'	H 25 :			370	· · · · · · · · · · · · · · · · · · ·		
360					LIN	EAR ALE :HO VE	<b>PK</b> RIZONTA RTICAL	e of p/ <b>?OF1</b> : 1°=50' 1'=5'	LE.						360			
			5 8 5 8		381.03 (1.02)	<b>8</b>	000 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	<b>8</b>	382 <b>25</b>		<b>3</b> (							

As-Built 8.17.09

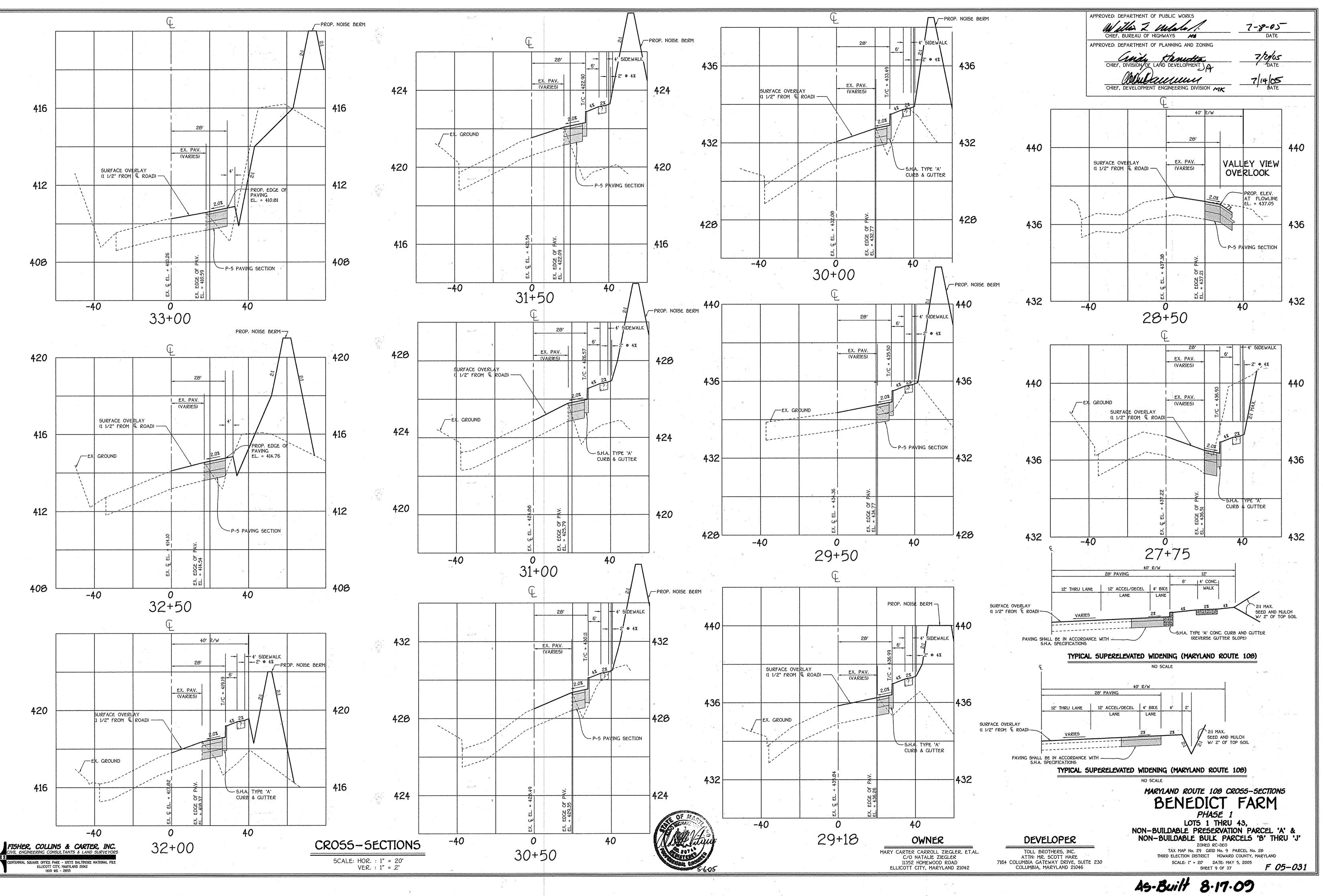
•

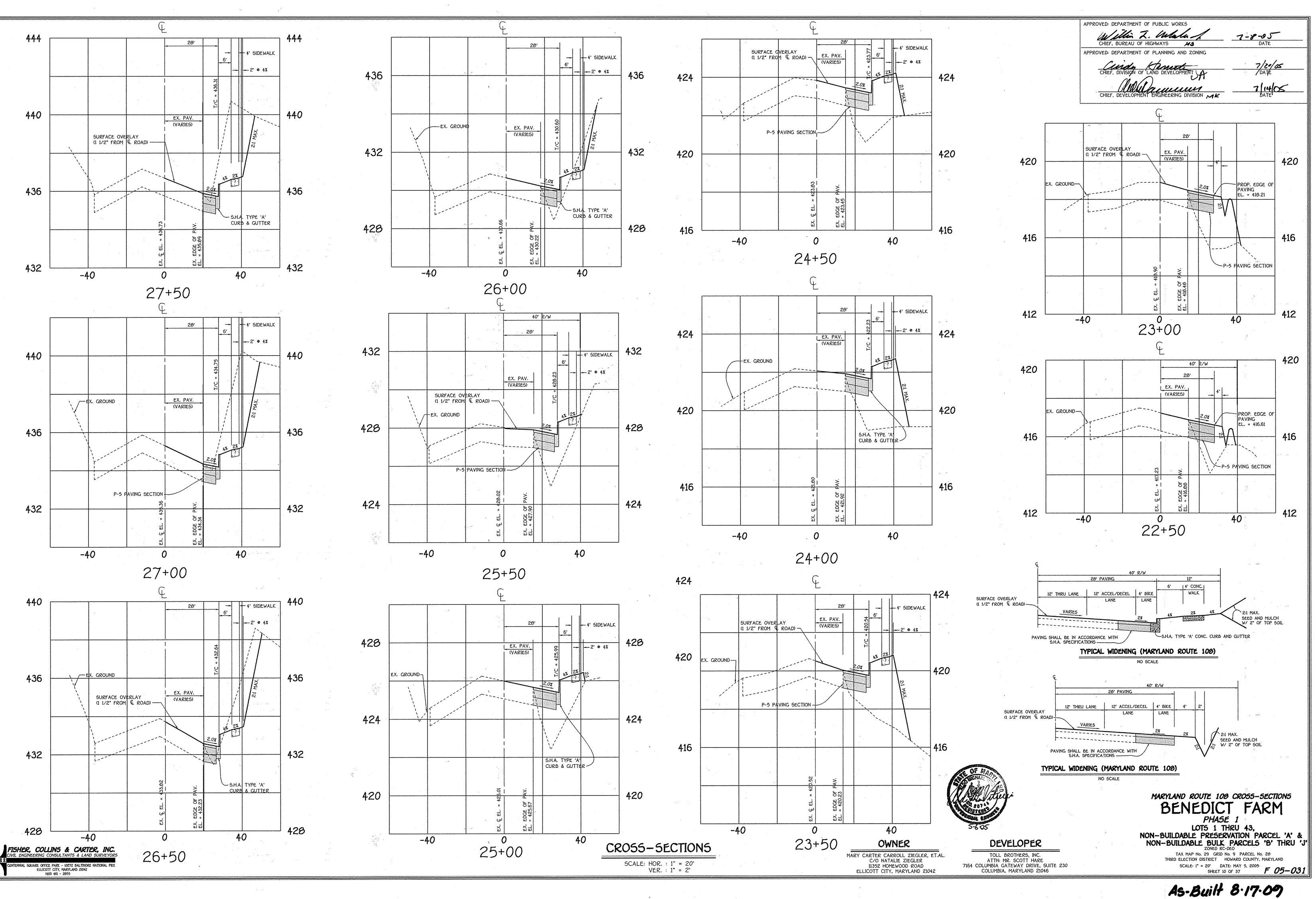


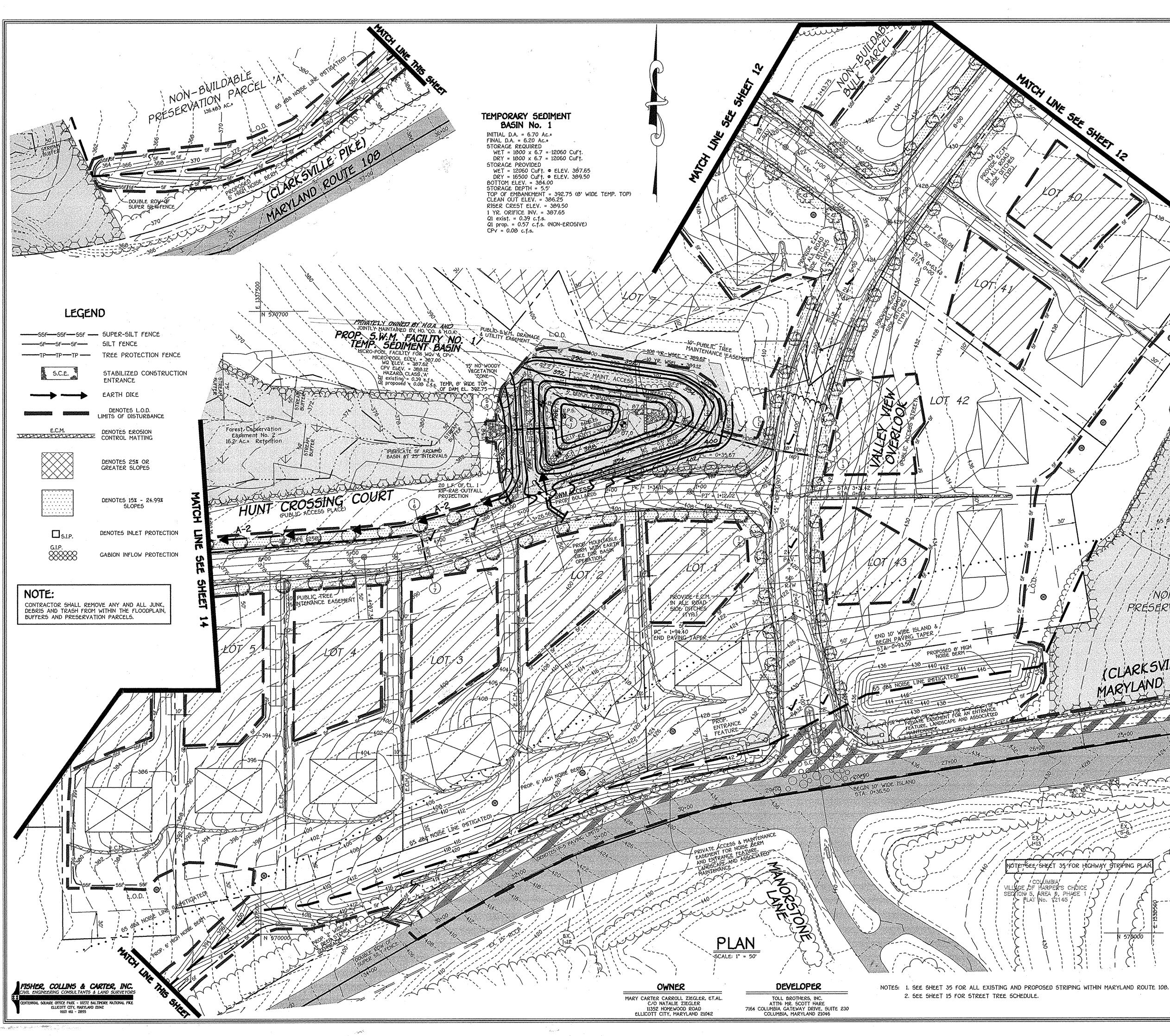
ana manananan ina asian pinan minana ina

As-Built 8.17.09

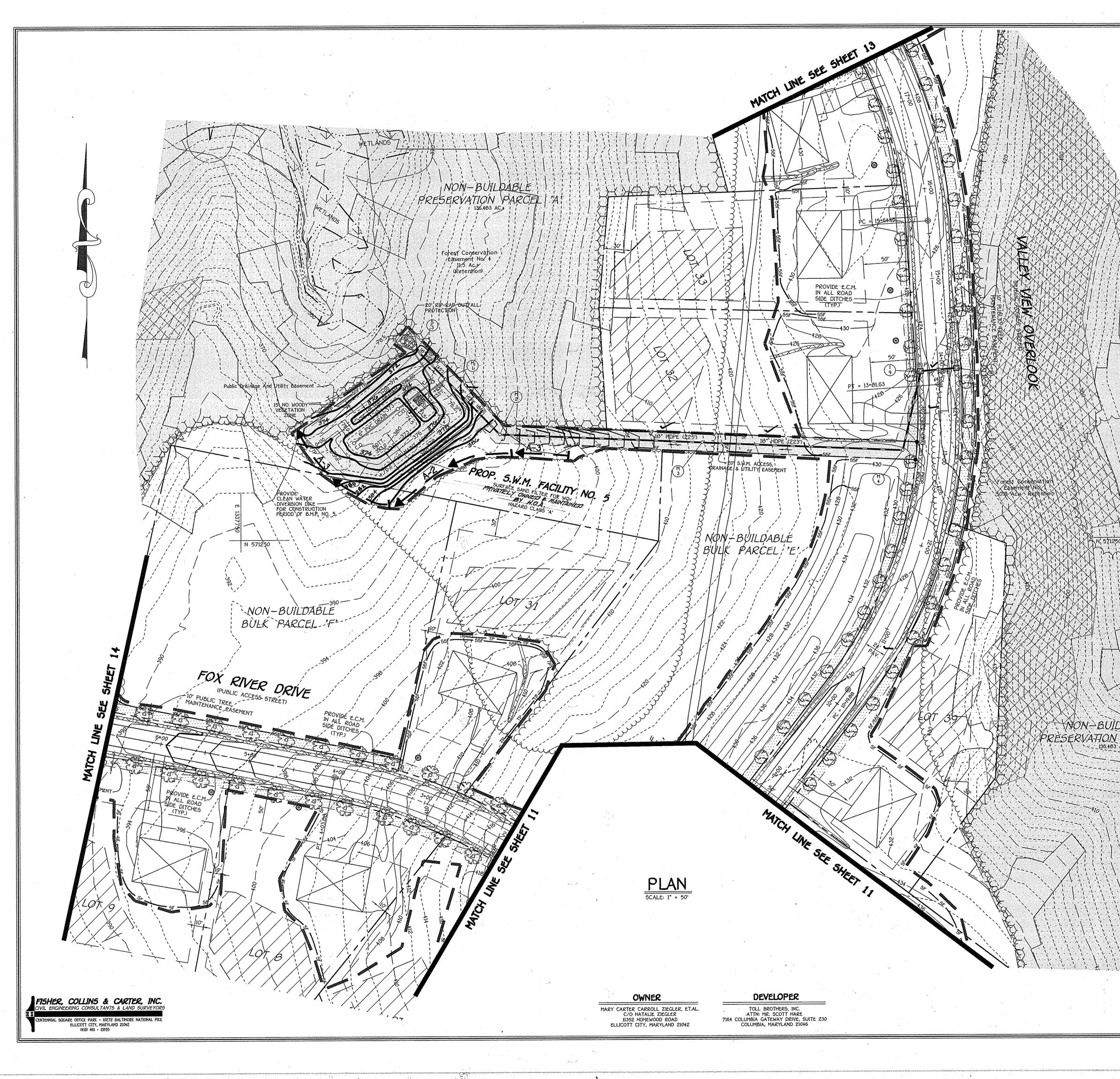
n an Arraya Na Arraya Na



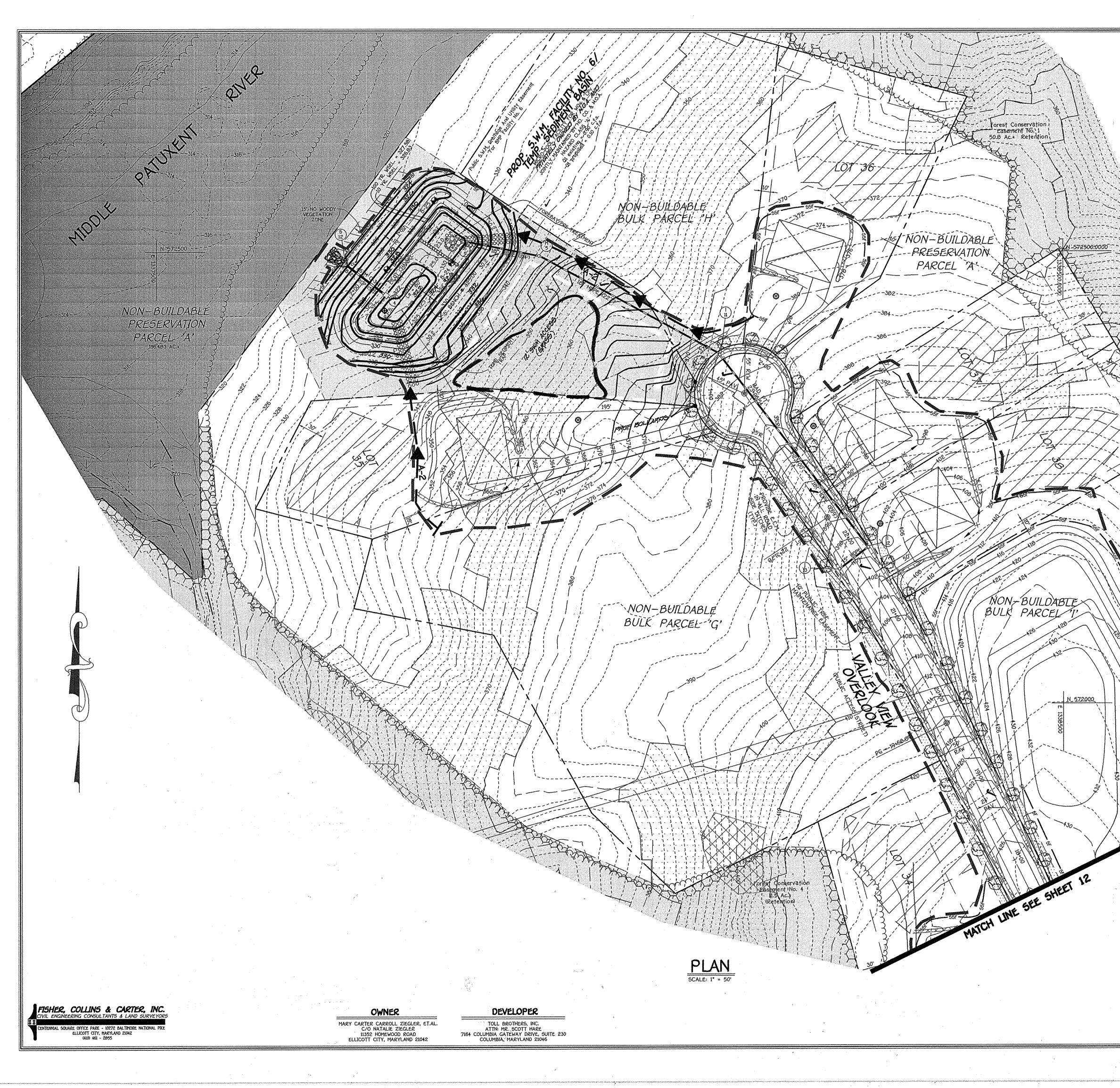




By The Developer: "I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of 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 Quilt" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District." 5-6-05 20th Jack Printed Name Of Developer By The Engineer; r Pond Construction, Erosion And Sediment Control Represents A Based On My Personal Knowledge Of The Site Conditions. This Plan With The Requirements Of The Howard Soil Conservation District. That He/She Must Engage A Registered Professional Engineer To and Provide The Howard Soil Conservation District With An Within 30 Days Of Completion." "I Certi Pract Was lan on the 5-6-05 ALPO 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. 5/12/05 Date USDA-Natural Resources Conservation Service These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District. 5/17/05 Howard Soil Conservation District Approved: Department Of Public Works Chief Bureau Of Highways 413 7-8-05 Date Approved: Department Of Planning And Zoning Indy Janulie Chief, Division of Land Development Ma Samun Chief, Development Engineering Division MK 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 13204 P.E. No. 2/17/09 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, Forest Conservation Employment, Or Other Means, Including Meeting Commonly Accepted 50.8 Ad. \* Retention Industry Practices. REVISIONS DESCRIPTION DATE NON-BUILDABLE PRÉSERVATION PARCEL 'A' 136 483 AC + (CLARKSVILLE PIKE) MARYLAND ROUTE 108 and the second and STET SEE SHEET 35 FOR HIGHWAY STRIPING PLA STREET TREE, GRADING & SEDIMENT CONTROL PLAN BENEDICT FARM PHASE 1 LOTS 1 THRU 43, NON-BUILDABLE PRESERVATION PARCEL 'A' & NON-BUILDABLE BULK PARCELS 'B' THRU 'J' ZONED RC-DEO TAX MAP No. 29 GRID No. 9 PARCEL No. 28 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE: 1" = 50' DATE: MAY 5, 2005 F 05-031 AS BUILT 8 17 SHEET 11 OF 37 As-Built 8.17.09



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 Authorized Periodic On-Stre Inspections By The Howard Soil Conservation District." nare 5-06-05 Date Printed Name Of Developer By The Engineer: Pond Construction, Erosion And Sediment Control Represents A used On My Personal Knowledge Of The Site Conditions. This Plan with The Requirements Of The Howard Soil Conservation District. That He/She Must Engage A Registered Professional Engineer To and Provide The Howard Soil Conservation District With An in 30 Days Of Completion." E PF "I Certi Practic Was I Have 5-6-05 Date ALPO 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. Sin Myes 100 5/17/05 USDA-Natural Resources Conservation Service Dáte These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District. 5/17/05-Howard Soll Conservation District Approved: Department Of Public Works 7-8-05 Willin I. auto Chief Bureau Of Highways Date Approved: Department Of Planning And Zoning Undy Amuta Chief. Division of Land Development Manum Chief, Development Engineering Division MK 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 As Shown On The Specifications. 13204 8/17/09 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. **REVISIONS** in which DATE DESCRIPTION NO LEGEND SILT FENCE -TP-TP-TP --- TREE PROTECTION FENCE STABILIZED CONSTRUCTION ENTRANCE 5.C.E. NON-BUILDABLE EARTH DIKE DENOTES L.O.D. LIMITS OF DISTURBANCE E.C.M. DENOTES EROSION CONTROL MATTING NOTE: CONTRACTOR SHALL REMOVE ANY AND ALL JUNK, DEBRIS AND TRASH FROM WITHIN THE FLOODPLAIN, BUFFERS AND PRESERVATION PARCELS. AS BUILT 8 17 0 STREET TREE, GRADING & SEDIMENT CONTROL PLAN BENEDICT FARM PHASE 1 LOTS 1 THRU 43, NON-BUILDABLE PRESERVATION PARCEL 'A' & NON-BUILDABLE BULK PARCELS 'B' THRU 'J' ZONED RC-DEO TAX MAP No. 29 GRID No. 9 PARCEL No. 20 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE: 1" = 50' DATE: MAY 5, 2005 SHEET 12 OF 37 F 05-031 As-Built 8.17.09

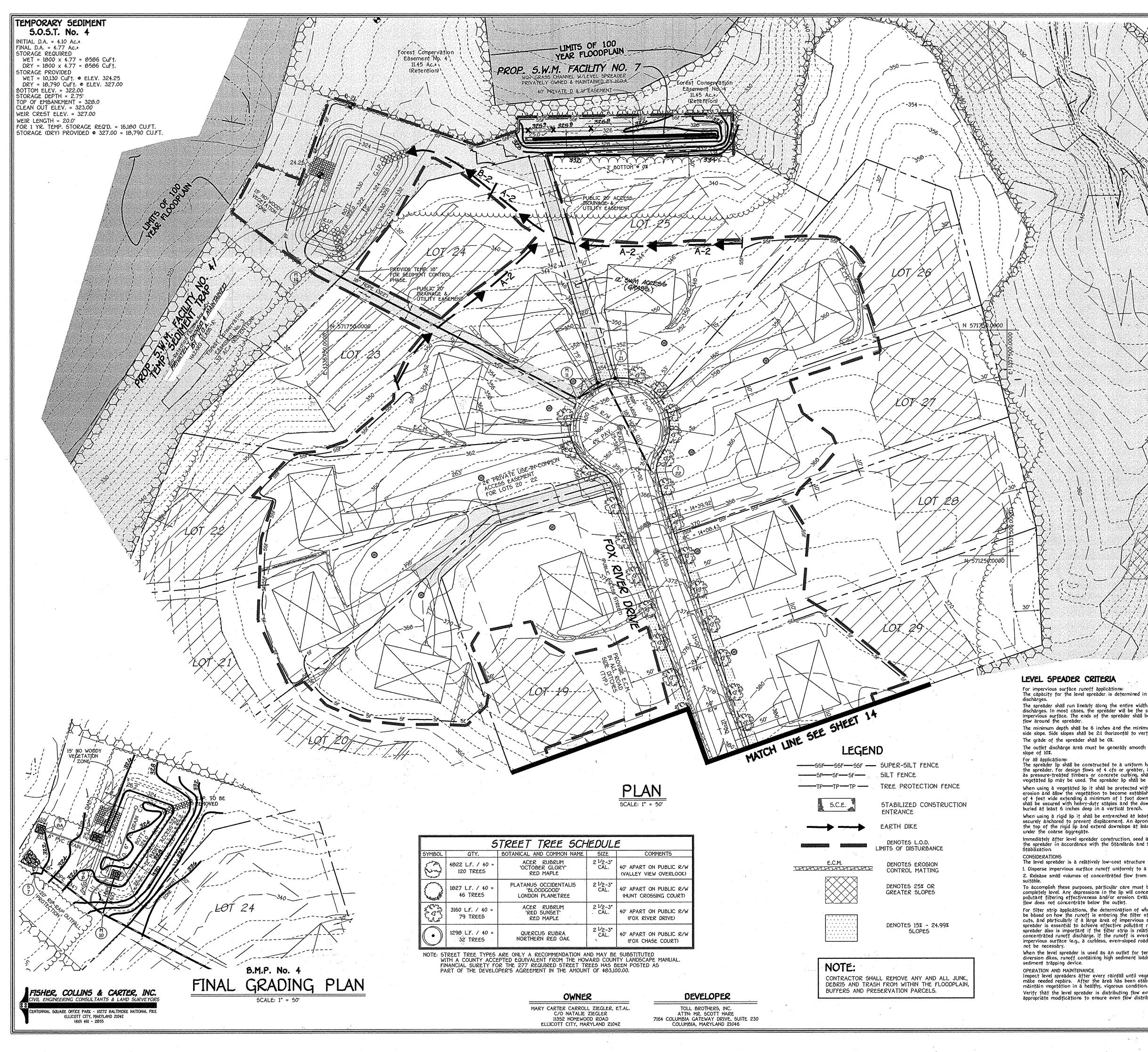


By The Developer: "I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of 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 Transportions By The Howard Soil Conservation District." TEMPORARY SEDIMENT BASIN No. 6 INITIAL D.A. = 3.69 Ac.+ FINAL D.A. = 6.78 Ac.+ STORAGE REQUIRED WET = 1800 x 6.78 = 12204 CuFt. we i = 1000 x 6.70 = 12204 Curt. DRY = 1000 x 6.70 = 12204 Curt. STORAGE PROVIDED WET = 12204 Curt. @ ELEV. 325.70 DRY = 12204 Curt. @ ELEV. 327.20 BOTTOM ELEV. = 322.00 EDEDTIM = 270 2 not lare 5-6-05 fure Of Develop STORAGE DEPTH = 3.70' TOP OF EMBANKMENT = 330.00 CLEAN OUT ELEV. = 324.75 RISER CREST ELEV. = 328.75 Printed Name Of Developer By The Engineer: 1 YR. ORIFICE INV. = 325.70 Q1 exist. = 0.9 c.f.s. Q1 prop. = 0.9 c.f.s. "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." CPv. = 0.10 c.f.s.5-6-05 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 5/17/05 Date These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District. 5/17/05 Howard Soil Conservation Distr Approved: Department Of Public Works Chief Bureau Of Highways 7-8-05 Date Approved: Department Of Planning And Zoning andy Sanutra Chief, Division of Land Development, 14 Chief, Development Engineering Division MK 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. 13204 P.E. No. 8/17/09 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 Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices. REVISIONS DESCRIPTION DATE NO. Forest Conservation Easament No. 1. 150.0 Acit Retantion LEGEND -SSF-SSF-SSF ---- SUPER-SILT FENCE -SF-SF-SF-SILT FENCE TP-TP-TP-TP TREE PROTECTION FENCE 5.C.E. STABILIZED CONSTRUCTION ENTRANCE EARTH DIKE DENOTES L.O.D. LIMITS OF DISTURBANCE E.C.M. DENOTES EROSION CONTROL MATTING G.I.P. GABION INFLOW PROTECTION 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 BENEDICT FARM PHASE 1 LOTS 1 THRU 43, NON-BUILDABLE PRESERVATION PARCEL 'A' & NON-BUILDABLE BULK PARCELS 'B' THRU 'J' ZONED RC-DEO TAX MAP No. 29 GRID No. 9 PARCEL No. 28 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE: 1" = 50' DATE: MAY 5, 2005 SHEET 13 OF 37 F 05-031 As-Built 8.17.09

PROP. S.W.M. FACILITY NO. 3/ TEMP. SEDIMENT BASIN MICRO-POOL FACILITY FOR WOY & CP PRIVATELY OWNED BY H.O.A. AND HAZARD CLASS 'A' Q1 existing = 0.60 cits Of proposed = 0.20 bits 15' NO WOODY VEGETATION ZONE TREE PROTECTION FENCE-<u>-----282</u> 24 PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 16 & 17 PROVIDE E.C.M. , SIDE DITCHES (TYP.),-K j PUBLIC S.W.M. DRAINAGE Forest Conservation Easement No. 2 16.2 Act Retention **€**<sup>6-14</sup> NOTE: EROSION CONTROL MATTING SHALL BE PLACED AS NECESSARY AROUND/OUTFALL CHANNEL WHERE 340 L.O.D. THES INTO RIP-RAP (TYP.) NO WOODY VEGETATION PROP. 5 W.M. FACILITY NO. 2/ TEMP SEDIMENT BASIN MICRO-POOL FACILITY FOR WQV & CPV PRIVATELY OWNED BY HO. CO. & HO.A. JOINTLY MAINTAINED BY HO. CO. & HO.A. HAZARD CLASS 'A' Q1'existing = 0.54 c.t.s. Q1 proposed = Q.18 c.t.s. NON-BUILDABLE BULK PARCEL `\*C' 24.9 NOTE: NO BAFFLES REQUIRED OR THIS BASIN N 570250 FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS ARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIK ELLICOTT CITY, MARYLAND 21042 (410) 451 - 2855 ··....



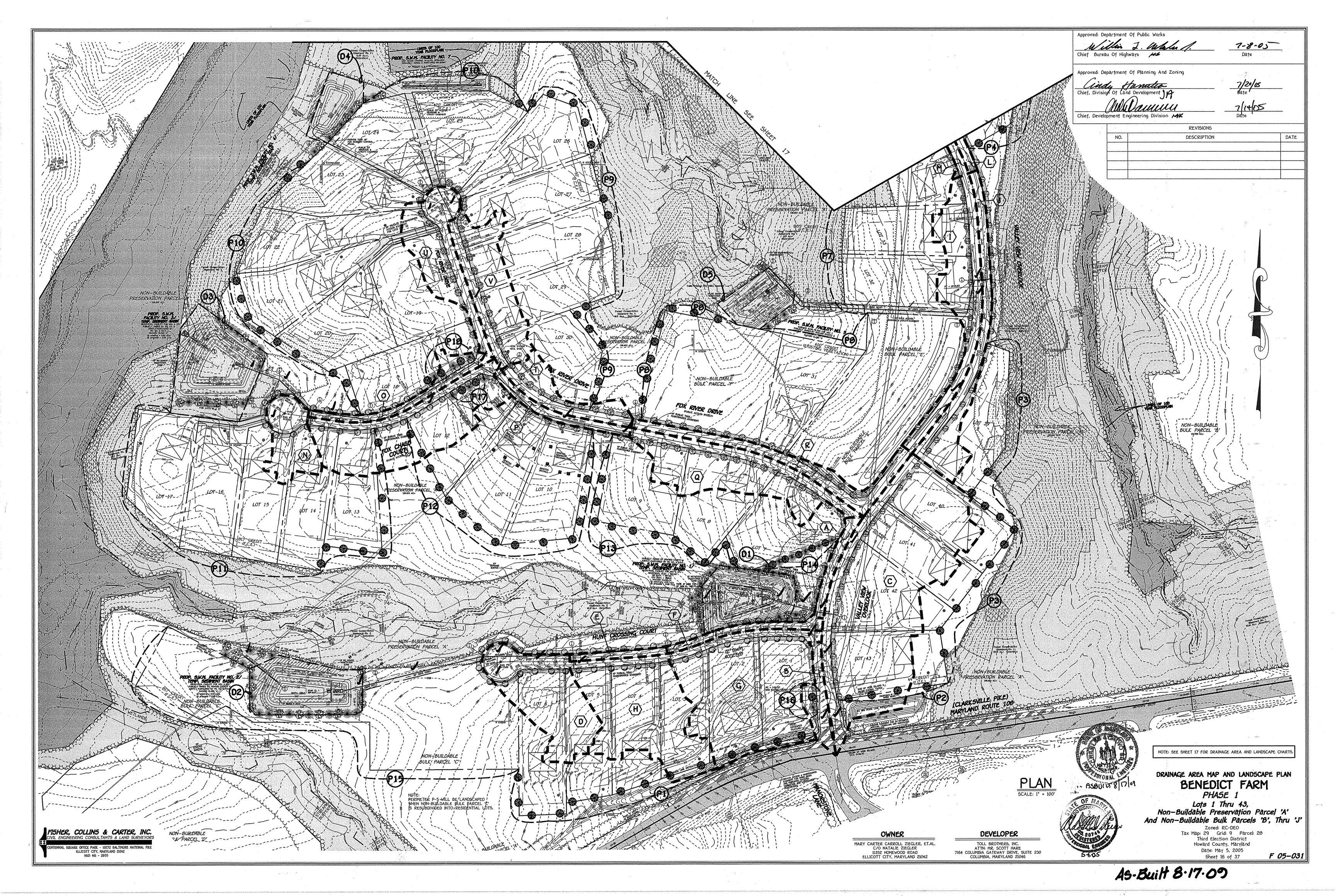
Forest Conservation Easement No. 4 By The Developer: H+5 Ac. + Retention "I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment 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." THE MOUNTER NON-BUILDABLE RRESERVATION PARCEL 5-6-05 Joutt Vull 136.403 AC.+ / Signature Of Developer 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 Decemper That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction and Provide The Howard Soil Conservation District With An "As-Budy" Plan Of The Ford With in 30 Days Of Completion." 5-6-05 -386 - - -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 5/17/05 Date These Plan's For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District. 5/17/05 Date Howard Soil Conservation District Approved: Department Of Public Works 7-8-05 Willin F. ala Chief Bureau Of Highways 45 Dàte Approved: Department Of Planning And Zoning Undy Manutin MIC Chief, Division Of Land Development Mulanun Chief, Development Engineering Division MK Date AS-BUILT CERTIFICATION I Hereby Certify That The Facility Shown On This Plan Was Constructed. As Shown On The " As-Built" Plans And Meets The Approved Plans And As Shown On The 13204 P.E. No. 8/17/09 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. REVISIONS DESCRIPTION DATE NO. 5707 TEMPORARY SEDIMENT BASIN No. 3 INITIAL D.A. = 10.05 Ac.+ FINAL D.A. = 10.10 Ac.+ STORAGE REQUIRED WET = 1800 x 10.1 = 18180 CuFt. DRY = 1800 x 10.1 = 18180 CuFt. STORAGE PROVIDED WET = 18180 CuFt. • ELEV. 322.65 DRY = 26815 CuFt. • ELEV. 325.00 BOTTOM ELEV. = 320.00 STORAGE DEPTH = 3.0' TOP OF EMBANKMENT = 328.00 CLEAN OUT ELEV. = 321.50 RISER CREST ELEV. = 325.00 10'x6' CL. RIP-RAP-2 YR. ORIFICE INV. = 322.65 15' NO WOODY -VEGETATION ZONE----Q1 exist. = 0.6 c.f.s. Q1 prop. = 1.0 c.f.s. (NON-EROSIVE) CPv. = 0.20 c.f.s. - - 332 - -w/ TOP OF GABIONS -328 37<sup>4</sup> 36<sup>7</sup> -334 - - --336 -B.M.P. No. 3 GRADING PLAN SCALE: 1" = 50' STREET TREE, GRADING & SEDIMENT CONTROL PLAN (10)375 BENEDICT FARM PHASE 1 LOTS 1 THRU 43, PROPOSED RIP-RAP OUTFALL @ 5-10 ASPONT 8 W/ GABION LEVEL SPREADER NON-BUILDABLE PRESERVATION PARCEL 'A' & SCALE: 1" = 10' NON-BUILDABLE BULK PARCELS 'B' THRU 'J' ZONED RC-DEO DEVELOPER OWNER TAX MAP No. 29 GRID No. 9 PARCEL No. 28 MARY CARTER CARROLL ZIEGLER, ET.AL TOLL BROTHERS, INC. THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND C/O NATALIE ZIEGLER ATTN: MR. SCOTT HARE SCALE: 1" = 50' DATE: MAY 5, 2005 7164 COLUMBIA GATEWAY DRIVE, SUITE 230 COLUMBIA, MARYLAND 21046 11352 HOMEWOOD ROAD ELLICOTT CITY, MARYLAND 21042 F 05-031 SHEET 14 OF 37 AS-Built 8.17.09



The level spreader is a relatively low-cost structure to: 1. Disperse impervious surface runoff uniformly to a filter strip or

flow does not concentrate below the outlet.

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 Besidic On Site Inspections By The Howard Soil Conservation District." 5-6-05 Printed Name Of Developer By The Engineer: Pond Construction, Erosion And Sediment Control Represents A ased On My Personal Knowledge Of The Site Conditions. This Plan 'l Certify Practici th The Requirements Of The Howard Soil Conservation District. That He/She Must Engage A Registered Professional Engineer To A Provide The Howard Soil Conservation District With An Inn 30 Days Of Completion." Was P I Hav Supe 5-6-05  $\pi$ 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. Myus / les. 5/17/05 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. 5/17/05 Howard Soil Conservation District Approved: Department Of Public Works Willin I. mla 7-8-05 Chief Bureau Of Highways HS Date Approved: Department Of Planning And Zoning Indy Chief, Division Of Land Development 10 MANJAMMA Chief, Development Engineering Division MK 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 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, mployment, Or Other Means, Including Meeting Commonly Accepted Industry Practices. REVISIONS DATE DESCRIPTION NO. white -FLOW ENTERS AS SHEET FLOW OR CONCENTRATED FLOW 0% CHANNEL GRADE (SPREADER CHANNEL. The capacity for the level spreader is determined in the design of the filter strip to which it BOTTOM WIDTH The spreader shall run linearly along the entire width of the filter strip to which it discharges. In most cases, the spreader will be the same width as the contributing impervious surface. The ends of the spreader shall be tied into higher ground to prevent 6' MINIMUM The minimum depth shall be 6 inches and the minimum width shall be 6 feet for the lower side slope. Side slopes shall be 2:1 (horizontal to vertical) or flatter. The outlet discharge area must be generally smooth and well vegetated with a maximum LEVEL LIP-PLAN VIEW The spreader lip shall be constructed to a uniform height and zero grade over the length of the spreader. For design flows of 4 cfs or greater, a rigid lip of non-erodible material, such as pressure-treated timbers or concrete curbing, shall be used. For flows less than 4 cfs, a vegetated lip may be used. The spreader lip shall be constructed on undisturbed soil. -ORIGINAL GROUND When using a vegetated lip it shall be protected with an erosion control blanket to prevent erosion and allow the vegetation to become established. The blanket shall be a minimum of 4 feet wide extending a minimum of 1 foot downstream over the level lip. The blanket shall be secured with heavy-duty staples and the downstream and upstream edges shall be \*\*\*\* -LEVEL LIP 0% GRADE @ EL. 326.0 When using a rigid lip it shall be entrenched at least 4 inches below existing ground and securely anchored to prevent displacement. An apron of Class I rip-rap shall be placed to the top of the rigid lip and extend downslope at least 3 feet. A filter fabric shall be placed under the coarse aggregate. LOR FLATTER Immediately after level spreader construction, seed and mulch the entire disturbed area of the spreader in accordance with the Standards and Specifications for Vegetative EROSION MAT ----EROSION MAT BURIED PROFILE >12 in. (305 mm.) 2. Release small volumes of concentrated flow from diversions when conditions are (B.M.P. FACILITY No. 7) To accomplish these purposes, particular care must be taken to construct the spreader lip completely level. Any depressions in the lip will concentrate the flow, resulting in a loss of LEVEL SPREADER Ston M. pollutant filtering effectiveness and/or erosion. Evaluate the outlet system to be sure that ASBUILT 8 17 101 NOT TO SCALE For filter strip applications, the determination of whether a level spreader is needed should be based on how the runoff is entering the filter strip. If the runoff is concentrated by curb cuts, and particularly if a large area of impervious surface drains to one point, a level spreader is essential to achieve effective pollutant removal in the filter strip. A level spreader also is important if the filter strip is relatively steep in order to avoid erosion from concentrated runoff discharge. If the runoff is eveny distributed over the width of the STREET TREE, GRADING & SEDIMENT CONTROL PLAN BENEDICT FARM impervious surface (e.g., a curbless, even-sloped road or parking lot), a level spreader may When the level spreader is used as an outlet for temporary or permanent diversions and diversion dikes, runoff containing high sediment loads must be treated in an approved PHASE 1 LOTS 1 THRU 43, Inspect level spreaders after every rainfall until vegetation is established, and promptly make needed repairs. After the area has been stabilized, make periodic inspections and NON-BUILDABLE PRESERVATION PARCEL 'A' & NON-BUILDABLE BULK PARCELS 'B' THRU 'J' Verify that the level spreader is distributing flow evenly. If problems are noted, make appropriate modifications to ensure even flow distribution. ZONED RC-DEO TAX MAP No. 29 GRID No. 9 PARCEL No. 28 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE: 1" = 50' DATE: MAY 5, 2005 F 05-031 SHEET 15 OF 37 AS-Built 8.17.09



				5CHEDULE A PER	Meter Landscape	EDGE						
PERIMETER	CATEGORY (PROPERTIES/ ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF OF ROADWAY FRONTAGE PERIMETER (a)	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED) (b)	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	REMAINING PERIMETER (a - b)	NUMBER SHADE TREES	OF PLANTS ( EVERGREEN TREES	SHRUBS	NUMBER SHADE TREES	OF PLANTS F EVERGREEN TREES	PROVIDED SHRUBS
P-1	ADJACENT TO ROADWAY	в	838.33	NO	YES (038.33' BERM)	638.33'	14	o*	-	14	o*	-
P-2	ADJACENT TO ROADWAY	B	303.29'	YES 44' (F.C.E.)	YES (259.29' BERM)	259.29'	4	o*	-	4	o*	-
P-3	ADJACENT TO PERIMETER	A	1122.75	YES 462" (F.C.E.)	NO	660.75	11	-	-	11		-
P-4	ADJACENT TO PERIMETER	A	1180'	YE5 840' (F.C.E.)	NO	340.00'	6	-	~	6		-
P-5	ADJACENT TO PERIMETER	A	1046'	YE5 242' (F.C.E.)	NO	804.00'	13	-	-	13		-
P-6	ADJACENT TO PERIMETER	A	360'	NO	NO	360.00'	6	-	<b>~</b> v	6	-	-
P-7	ADJACENT TO PERIMETER	A	1385'	YES 885' (F.C.E.)	NO	500.00°	.8	-	-	8	-	-
P-8	ADJACENT TO PERIMETER	A	900'	YES 400'	NO	500.00'	в	-	-	8	-	-
P-9	ADJACENT TO PERIMETER	A	1049.85'	YES 350' (F.C.E.)	NO	699.85'	14	<b>-</b> .	-	14	-	-
P-10	ADJACENT TO PERIMETER	A	1381.00'	YE5 817' (F.C.E.)	NO	564.00'	9	-	-	9	-	-
P-11	ADJACENT TO PERIMETER	A	1471.93'	- YES 780' (F.C.E.)	NO	691.93'	12	-	-	12		-
P-12	ADJACENT TO PERIMETER	<b>A</b> , 2	924.79'	NO	NO	924.79'	15	-	-	15	, <b>-</b>	-
P-13	ADJACENT TO PERIMETER	A	777'	NO	NO	- 777.00'	13	-	***	13	-	-
P-14	ADJACENT TO ROADWAY	в	250.67'	NO	NO	250.67'	5	6	-	5	6	*
P-15	ADJACENT TO ROADWAY	В	1385'	YE5 403' (F.Ç.E.)	NO	902.00*	18	23		o**	°**	-
P-16	ADJACENT TO ROADWAY	в	60'	NO	NO	60'	1	1 .	-	1	1	-
P-17	ADJACENT TO ROADWAY	В	100'	NO 📜	NO	100'	2	3	-	2	3	-
P-18	ADJACENT TO ROADWAY	ß	130'	NO	NO ,	130'	3	3	-	3	3	-

NOTE: \*1. CREDIT HAS BEEN TAKEN FOR THE PROPOSED BERMS ALONG P-1 & P-2 ONE (1) SHADE TREE PER 60 LINEAR FEET WILL BE PROVIDED ALONG THESE PERIMETERS. \*\*2. PERIMETER P-15 WILL BE LANDSCAPED WHEN NON-BUILDABLE BULK PARCEL 'C' IS RESUBDIVIDED INTO RESIDENTIAL LOTS.

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING									
PERIMETER	D1	D2	D3	D4	D5	D6			
LINEAR FEET OF PERIMETER (a)	761'	850'	925'	764'	533'	874'			
CREDIT FOR EXISTING VEGETATION (b) (NO, YES AND X)	YE5 93'	YE5 228'	YES 523'	Yes 522'	YE5 450'	NO			
remaining perimeter (a - b)	660'	622'	402'	242'	<i>8</i> 3'	874			
NUMBER OF TREES REQUIRED AND PROVIDED: SHADE TREES (remaining perimeter divided by 50) EVERGREEN TREES (remaining perimeterdivided by 40)	13 17	12 15	8 10	5 6	2 2	17 22			
CREDIT FOR OTHER LANDSCAPING (NO, YES AND X)	NO	NO	NO ,	NO	NO	NO			

LANDSCAPING PLANT LIST								
QTY.	KEY	NAME	SIZE					
144	×	ACER SACCHARUM 'GREEN MOUNTAIN' (SUGAR MAPLE)	2 - 2 1/2" CALIPER FULL CROWN, B&B					
57	and the second s	ACER RUBRUM 'OCTOBER GLORY' RED MAPLE	2 - 2 1/2" CALIPER FULL CROWN, B&B					
85	₩	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 286 REQUIRED LANDSCAPE TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$73,050.00.



5-6-06



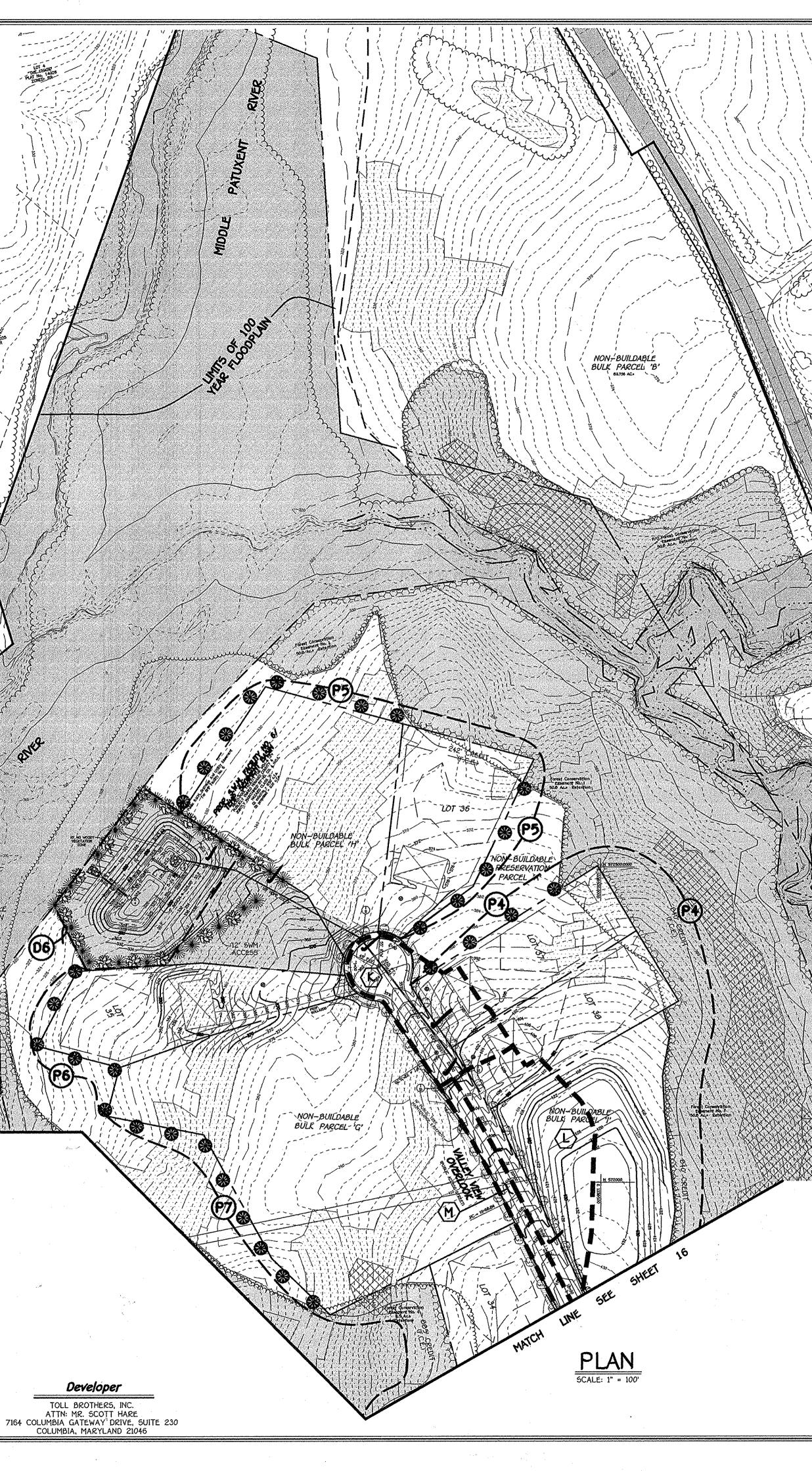
MATCH

LINE

SEE

SHEET

NON-BUILDABLE PRESERVATION PARCEL "A"

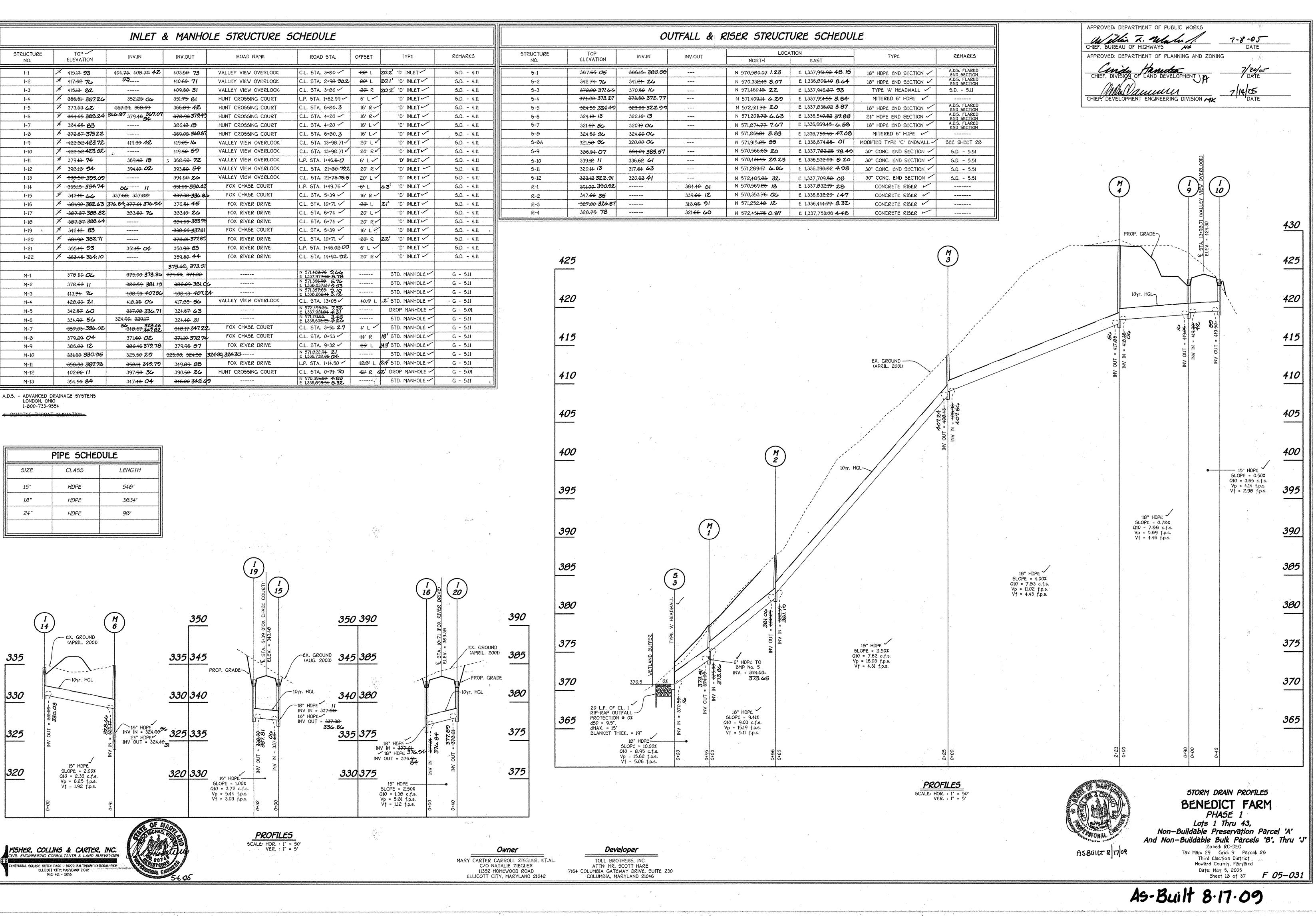


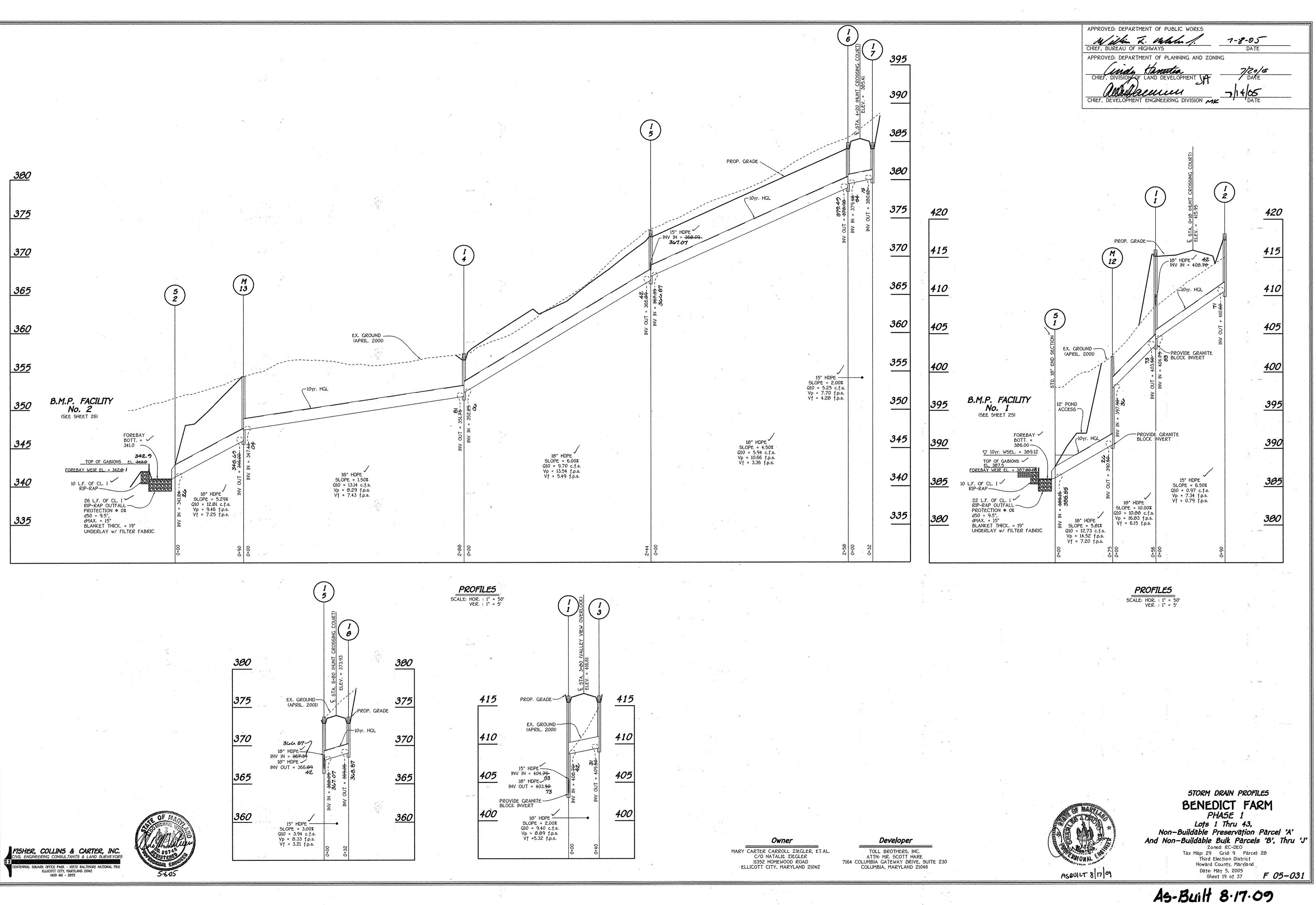
Approved: Department Of Public Works 7-8-95 Date Chief Bureau Of Highways Approved: Department Of Planning And Zoning andy Hante 7/20/cs Chief, Division Of Land Development Mannu Chief, Development Engineering Division MK REVISIONS DESCRIPTION DATE NO. DRAINAGE AREA DATA STRUCTURE DRAINAGE AREA 'C' ZONED % IMP. A 0.18 AC. 0.54 RC-DEO 51% I-1 I-2 B 0.29 AC. 0.50 RC-DEO 45% I-3 C 4.03 AC. 0.35 RC-DEO 22% D 1.26 AC. 0.41 RC-DEO 1-4 31% E 0.12 AC. 0.57 RC-DEO 1-5 54% F 0.21 AC. 0.50 RC-DEO 43% I-6 I-7 G 2.46 AC. 0.32 RC-DEO 17% I-8 H 1.82 AC. 0.33 RC-DEO 18% I 1.15 AC. 0.55 RC-DEO 1-9 51% J 0.82 AC. 0.66 RC-DEO I-10 68% K 0.70 AC. 0.52 RC-DEO I-11 46% L 1.09 AC. 0.32 RC-DEO 1-12 17% M 0.29 AC. 0.54 RC-DEO I-13 49% N 0.56 AC. 0.56 RC-DEO I-14 53% 0 0.37 AC. 0.48 RC-DEO I-15 41% I-16 P 0.23 AC. 0.55 RC-DEO 51% I-17 Q 1.39 AC. 0.43 RC-DEO 34% 1-18 R 0.64 AC. 0.46 RC-DEO 38% 5 1.69 AC. 0.33 RC-DEO I-19 19% I-20 T 0.52 AC 0.40 RC-DEO 29% 1-21 U 0.92 AC. 0.45 RC-DEO 36% I-22 V 1.08 AC. 0.42 RC-DEO 31% HOMEWOOD EOND NON-BUILDABLE / BULK PARCEL 'B' drainage area map and landscape plan BENEDICT FARM PHASE 1 Lots 1 Thru 43, Non-Buildable Preservation Parcel 'A' And Non-Buildable Bulk Parcels 'B', Thru 'J' Zoned: RC-DEO Tax Map: 29 Grid: 9 Parcel: 28 Third Election District Howard County, Maryland Date: May 5, 2005 Sheet 17 of 37 F 05-031 ASBUI 07 8 17 09 F 05-031 AS-Built 8.17.09

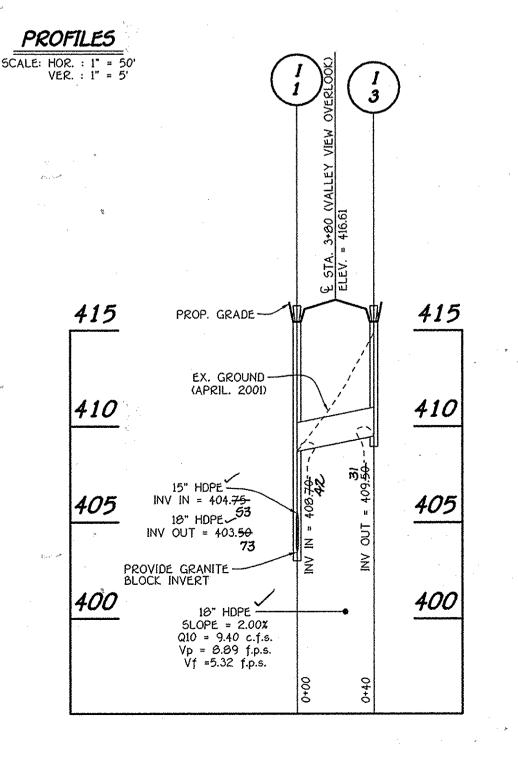
NO.         LEEVA ION         Image: constraint of the second sec			INLET o	& MANHO	DLE STRUCTURE	SCHEDULE		
1-2       # 117.62 76       53			INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE
1-2       1/14       1/15	I-1	* 415. <del>13</del> <b>93</b>		403. <del>50</del> 73	VALLEY VIEW OVERLOOK	C.L. STA. 3+80 🗸	<del>-20'</del> L	zó.z' 'd' INLET
1-4       # 386.5+ 397.22       352.25 OL       351.75* 81       HUNT CROSSING COURT       L.P. STA. 1462.99       6° L       10°         1-5       # 373.89 OL       366.73       356.69* 42       HUNT CROSSING COURT       CL. STA. 6*60.3       16° R       10°         1-6       # 384.66 35        360.64* 74       HUNT CROSSING COURT       CL. STA. 6*60.3       16° R       10°       16° R       10° <td< td=""><td>I-2</td><td>* 417<del>.02</del> 76</td><td>53</td><td>410.<del>60-</del>71</td><td>VALLEY VIEW OVERLOOK</td><td>C.L. STA. 2+9<del>2</del> 90.2</td><td><del>20'</del> L</td><td>20.1' 'D' INLET</td></td<>	I-2	* 417 <del>.02</del> 76	53	410. <del>60-</del> 71	VALLEY VIEW OVERLOOK	C.L. STA. 2+9 <del>2</del> 90.2	<del>20'</del> L	20.1' 'D' INLET
1-5       X	I-3	* 415. <del>13</del> 82		409. <del>50-</del> <b>31</b>	VALLEY VIEW OVERLOOK	C.L. STA. 3+80 -	<del>-20'</del> R	20.2' 'D' INLET
1-5       # 384.95 385.24       326.87 379.49 307.07       379.49 379.47       HUNT CROSSING COURT       C.L. 5TA, 4+20 // 16' L/       10'         1-7       # 384.85 63	I-4	* 356.51-357.24	352 <del>.25</del> 06	351. <del>75</del> 81	HUNT CROSSING COURT	L.P. STA. 1+62.99 🗸	6' L 🗸	'D' INLET
1-7       ※ 384-36 63	I-5	* 373. <del>59</del> <b>62</b>	<del>367.39</del> , <del>368.09</del>	366. <del>89</del> <b>4Z</b>	HUNT CROSSING COURT	C.L. STA. 6+80.3	16' R 🗸	D' INLET
1-7       ※ 394,46-63	1-6	* 384.05 385.24	366.87 379.48 367.07	378.98 379.49	HUNT CROSSING COURT	C.L. 5TA. 4+20 🗸	16' R 🗸	'D' INLET 🗸
I-9 <i>#</i> +428-92-423.72        419.86 42        419.65 42        VALLEY VIEW OVERLOOK        CL. STA. 13-96.71        20 <sup>-</sup> L        D          I-10 <i>#</i> 428-92-423.57 <i>#</i> 37935-74        369.92 72        VALLEY VIEW OVERLOOK        CL. STA. 13-96.71        20 <sup>-</sup> L        D	l-7	* 384. <del>05</del> - <b>83</b>			HUNT CROSSING COURT	C.L. STA. 4+20 🗸	16' L 🗸	'D' INLET
1-10       ¥ 422.02.423.52	I-8	* 372.57 373.22		-369.05-368.87	HUNT CROSSING COURT	C.L. STA. 6+80.3	16' L 🗸	'D' INLET
I-II       # 37949-74       36942-75       VALLEY VIEW OVERLOOK       LP. STA. I+46.H_O       6 L ✓       'D         I-12       # 39949-94       39446-02       39360-54       VALLEY VIEW OVERLOOK       CL. STA. 21+0+72.6       20 R ✓       'D'         I-13       # 39559-39.00        39459-22       VALLEY VIEW OVERLOOK       CL. STA. 21+0+72.6       20 L ✓       'D'         I-14       # 33545-334.74        337.66       337.66       337.66       337.66       337.66       337.66       37.67       37.67        4.63       'D'         I-16       # 34545-334.74        337.66       37.64       STA.64       FOX CHASE COURT       CL. STA. 5-39       If R        'D'         I-16       # 34547-388.82       333.66       76       393.64       FOX RIVER DRIVE       CL. STA. 6-74       20' L        'D'         I-18       # 367467-388.42       333.66       76       393.69       FOX RIVER DRIVE       CL. STA. 6-74       20' L        'D'         I-19       # 342.42       63        -364.69       337.66       76       20' R        'D'         I-20       # 364.67       351.46        378.62       FOX RIVER	I-9	* 422.82-423.72	419. <del>30</del> <b>42</b>	419: <del>05-</del> 16	VALLEY VIEW OVERLOOK	C.L. STA. 13+98.71	20' L 🗸	'D' INLET
I-11       # 37949-74       36942-75       VALLEY VIEW OVERLOOK       LP. STA. I+46.H-0       6 <sup>+</sup> L ✓       'D'         I+12       # 39949-74       39949-72       39346-74       39346-72       39346-72       20' R ✓       'D'         I+13       # 39949-732       20' R ✓       'D'       'D'       'D'       'D'         I+14       # 34545-334.74       Out_       'D'       'D'       'D'       'D'         I+14       # 34545-334.74       Out_       'D'	I-10	* -422.824R3.5R		419. <del>50</del> <b>59</b>	VALLEY VIEW OVERLOOK	C.L. STA. 13+98.71	20' R 🗸	'D' INLET
1-13 <i>X</i> 399.56         399.00          394.56         Zo         L         VALLEY VIEW OVERLOOK         C.L. STA. 21:76-76.6         20' L	I-11	<b>*</b> 379 <del>.13</del> <b>74</b>		: 368 <del>.92-</del> 72	VALLEY VIEW OVERLOOK	L.P. STA. 1+46. <del>11-0</del>	6' L 🗸	'D' INLET
I-14       ¥       335.65       337.47       000000000000000000000000000000000000	1-12	* 398 <del>.18</del> <b>94</b>	394. <del>10</del> . OZ	393. <del>60</del> <b>54</b>	VALLEY VIEW OVERLOOK	C.L. STA. 21+80-722	20' R 🗸	'D' INLET 🛩
1-14       ¥ 335:55 334:74       ∞       11       331:00:330.03       FOX CHASE COURT       L.P. STA. 1+49,76       -0: L       6.3       0''         1-15       ¥ 342:12:6.0       337:00:337:00       337:30:337:00       337:30:337:00       337:30:337:00       337:30:337:00       10: R       V	I-13	*		394. <del>50</del> <b>2</b> 6	VALLEY VIEW OVERLOOK	C.L. STA. 21+76-76.6	20' L 🗸	'D' INLET
1-15       ¥       342:#2       64       337.60       337.30       3	I-14	<u> </u>	No 11	-331.00-330.03	FOX CHASE COURT	L.P. STA. 1+49.76 -	- <del>6'-</del> L	6.3' 'D' INLET
I-16       ★ 301-90 382.63       370.64 37.04 370.94       376.54 45       FOX RIVER DRIVE       CL. STA. 10+71 √       20 <sup>-</sup> L       Z1 <sup>-</sup> D <sup>-</sup> I-17       ★ 307.67 388.82       303.60 76       303.40 26       FOX RIVER DRIVE       CL. STA. 6+74 √       20 <sup>-</sup> L       D <sup>-</sup> </td <td></td> <td>* 342<del>:12</del> 66</td> <td></td> <td></td> <td>FOX CHASE COURT</td> <td>C.L. 5TA. 5+39 🗸</td> <td>16' R 🗸</td> <td>'D' INLET</td>		* 342 <del>:12</del> 66			FOX CHASE COURT	C.L. 5TA. 5+39 🗸	16' R 🗸	'D' INLET
I-17       X → 307-07 388.82       303-60 76       303.40 26       FOX RIVER DRIVE       CL. 5TA. 6+74       20° L       'D'         I-18       X → 307-07 388.44            20' LO'       'D'         I-19       X → 302-00 383.26       FOX RIVER DRIVE       CL. 5TA. 6+74 ✓       20' R ✓       'D'         I-19       X → 342-00 383.27             20' R ✓       'D'         I-20       X → 349-00 382.71            20' R ✓       'D'         I-21       X → 355-9       73        350.90 83       FOX RIVER DRIVE       L.P. 5TA. 1+46.02.00       6' L ✓       'D'         I-22       X → 363.45 32.41.10        373.46, 373.61        373.46, 373.61        EI 337.977.86 8.78       'D'       D'         M-1       376.62 11        373.46, 373.64        N 571.428-74       'D'       STD. M         M-2       376.62 11        N 571.428-74        N 571.428-75       'D'       STD. M         M-3       4	1-16			376. <del>51</del> <b>45</b>	FOX RIVER DRIVE	C.L. STA. 10+71 🗸	<del>-20'</del> L	ZI' D' INLET
I-18       X 397.97 388.44        394.00 383.26       FOX RIVER DRIVE       C.L. STA. 6+74 ✓       20' R.✓       'D'         I-19       X 342.42 83        330.00 337.81       FOX CHASE COURT       C.L. STA. 5+39 ✓       16' L.✓       'D'         I-20       X 304.00 382.71        378.01 377.82       FOX RIVER DRIVE       C.L. STA. 10+71 ✓       -20' R.✓       22' D'         I-21       X 355.49 23       351.45 04       350.90 83       FOX RIVER DRIVE       L.P. STA. 146.02 DO       6' L.✓       'D'         I-22       X 363.45 304.10        359.50 44       FOX RIVER DRIVE       C.L. STA. 14+93 92       20' R.✓       'D'         M-1       378.60 25       375.00 373.84       374.00, 374.00        E 137.977.86 9.73        STD. M         M-2       370.62 11       392.69 381.19       392.09 380.04        E 138.037.67 9.53        STD. M         M-3       413.74 76       408.93 407.56       409.43 407.24        E 133.037.66 9.73        STD. M         M-4       420.000 21       410.35 026       417.95 56       VALLEY VIEW OVERLOOK       C.L. STA. 13+05 ✓       40.5' L. 2' STD. M         M-5				383 <del>.10-</del> <b>26</b>	FOX RIVER DRIVE	C.L. STA. 6+74	20' L 🗸	'D' INLET
1-19       X       342±2       83        328:00-337.81       FOX CHASE COURT       CL. STA. 5+39 ✓       16' L ✓       'D'         1-20       X       301:00-382.71        376:01-377.82       FOX RIVER DRIVE       CL. STA. 10+71 ✓       -e0+ R       2.2'       'D'         1-21       X       355:49       93       351:45-04       350:90-83       FOX RIVER DRIVE       L.P. STA. 10+60:200       6' L ✓       'D'         1-22       X       363:45-364.10        359:50-44       FOX RIVER DRIVE       CL. STA. 11+60:92-02       20' R ✓       'D'         1-22       X       363:45-364.10        359:50-444       FOX RIVER DRIVE       CL. STA. 14+93:92       20' R ✓       'D'         1-22       X       363:45-364.10        373:46, 373:61        E 1337,977:66-878        STD. M         M-1       378:67       374:00, 374:00        E 1337,977:66-878        STD. M         M-2       376:62       381.19       392:073       381.04        E 1337,977:66-878        STD. M         M-3       413:74       74       400:93:40754       400:724					FOX RIVER DRIVE	C.L. STA. 6+74 🗸	20' R -	'D' INLET
1-20       ×       301-90       382.71        378-01-37782       FOX RIVER DRIVE       C.L. STA. 10+71 ✓       -20 R       22'       'D'         1-21       ×       355.49       93       351.45       04       350.90       83       FOX RIVER DRIVE       L.P. STA. 1446.92-00       6' L ✓       'D'         1-22       ×       363.45       364.10        359.50       44       FOX RIVER DRIVE       C.L. STA. 14+93-92       20' R ✓       'D'         1-22       ×       363.45       364.10        359.50       44       FOX RIVER DRIVE       C.L. STA. 14+93-92       20' R ✓       'D'         1-22       ×       378.69       77.00       373.66, 373.51        E       137.97.766.97.80        STD. M         M-1       378.69       78.62       11       362.69       381.02        E       1336.037.77.9.53        STD. M         M-2       378.62 11       362.69       381.02        E       1330.037.77.9.53       STD. M       STD. M         M-3       413.74       76.08       332.71       324.67       407.24        E       1330.262.44 & 31 <td< td=""><td></td><td></td><td></td><td>-336:00-337.81</td><td>FOX CHASE COURT</td><td>C.L. STA. 5+39 🗸</td><td>16' L</td><td>'D' INLET 🗸</td></td<>				-336:00-337.81	FOX CHASE COURT	C.L. STA. 5+39 🗸	16' L	'D' INLET 🗸
1-21 <sup>#</sup> 355:+9         93         351:+5         04         350:90         83         FOX RIVER DRIVE         L.P. STA. 1+46:02:00         6'L         (L         )D         1         20'R         (D) 363:+5         364:+0          359:50         44         FOX RIVER DRIVE         C.L. STA. 1+4:03:02         20'R         (D) 373:45, 373:51 M-1         378:50         0C         375:00         373.80         374:00         374:00         374:00         374:00         374:00         374:00         374:00         374:00          E         1:337,07749:63:78          STD. M         N         571:428-76         9:22         S72         STD. M         N         -2         378:62 11         392:59         381.19         392:09         381.02          E         1:330:03707:2,53          STD. M         N         -3         413:74         72         400:93         407:52         400:43         407:24          E         1:330:03707:2,53          STD. M         N          STD. M          E         1:330:03707:2,53          STD. M          STD. M          E         1:330:03707:2,53          STD. M         M         -4         428:000         21         418:35         72         400:43         407:52         400:43         407:52         400:43          E         1:330:03707:2,53          STD. M         M         -5         342:57         40         31          STD.93:56:5         732         S40:5         737         S24:99:43          STD. M          STD.93:56:5         7         S4					FOX RIVER DRIVE	C.L. STA. 10+71 🗸		
I-22       X       363.45       364.10        359.50       44       FOX RIVER DRIVE       C.L. STA. 14+93-92       20' R√       'D         M-1       378.50       375.00       373.66, 373.51        N 571.426-76       9.24        6TD. M         M-1       378.50       375.00       374.00, 374.00        N 571.426-76       9.24        6TD. M         M-2       378.62       11       302.59       381.19       302.09       381.04        N 571.37650       674       6TD. M         M-3       413.74       76       400.93       407.56       400.43       407.24        N 571.37659       9.10        5TD. M         M-4       428.00       21       418.35       06       417.95       56       VALLEY VIEW OVERLOOK       C.L. STA. 13+05 ✓       40.57 L       2' STD. M         M-5       342.57       40       324.407       324.407       324.407        N 571.174654       3.1        DROP M         M-6       334.90       52       324.707       324.40       31        N 571.17465       3.42        STD. M			35145-04					'D' INLET
M-1         378.66, 373.61         N 571.428.76         9.2.6           M-1         378.62         375.00         374.00, 374.00          E 1.337.97469         572         5TD. M           M-2         378.62         11         382.99         381.09         382.09         380.02          E 1.338,037.07 26.53          STD. M           M-3         413.74         72         408.93         407.52         408.43         407.24          E 1.338,037.07 26.53          STD. M           M-3         413.74         72         408.93         407.52         408.43         407.24          E 1.338,037.07 26.53          STD. M           M-4         428.00-21         418.95         02         417.95         52         VALLEY VIEW OVERLOOK         CL. STA. 13+05 ✓         40.51 L         .2' STD. M           M-5         342.57         60         337.06         324.46         31          E 1.338,039.07 26.53         737.2          DROP M           M-6         334.96         52         324.46         31          E 1.336.63.93.67         42.6          STD. M <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>'D' INLET 🗸</td></t<>								'D' INLET 🗸
M-1       378.50       375.00       373.86       374.00, 374.00, 374.00        N 571,428.76        STD. M         M-2       378.62 II       302.59       381.19       302.09       381.04        N 571,366.92       5.74        STD. M         M-2       378.62 II       302.59       381.19       302.09       381.04        N 571,366.92       5.74        STD. M         M-3       413.74       74       406.93       407.54       408.13       407.24        N 571,326.92       571       STD. M         M-4       428.69       21       418.35       02       417.95       56       VALLEY VIEW OVERLOOK       C.L. STA. 13+05 ✓       40.57 L       .2' STD. M         M-5       342.57       60       337.00       332.071       324.67       63        N 571,174.65       34.55        DROP M         M-6       334.90       56       324.67       341        N 571,174.65       3.45        STD. M         M-7       357.03-356.02       324.67       341.73       324.40       31        N 571,174.65       3.45	4 m m	,						
M-2       378.62 II       302.59 38I.19       302.09 38I.0        N 571,356.69       572        STD. M         M-3       413.74 70       408.93 407.50       408.43 407.24        N 571,357.65 9.10        STD. M         M-4       428.00 21       418.35 06       417.55 56       VALLEY VIEW OVERLOOK       C.L. STA. 13+05 ✓       40.51 L       2' STD. M         M-5       342.57 60       337.00 330.71       324.67 63        E 1,338,036.67 34.67       41.7       DROP M         M-6       334.90 56       322.99.17       324.40 31        E 1,336,633.45 4.25        DROP M         M-7       357.03 356.02       324.90 324.17       324.40 31        E 1,336,633.45 4.25        STD. M         M-7       357.03 356.02       324.90 324.71       324.40 31        E 1,336,633.45 4.27       STD. M         M-7       357.03 356.02       324.90 320.77       324.40 31        E 1,336,633.45 4.27       STD. M         M-8       379.29 04       371.60 02       371.10 370.74       FOX CHASE COURT       C.L. STA. 9+32 7       4' L ✓       STD. M         M-9       386.60 12       306.46 372.78 </td <td>M-1</td> <td>378.<del>50</del> 06</td> <td><del>375.00</del>-<b>373.8</b>6</td> <td>· · · · · · · · · · · · · · · · · · ·</td> <td></td> <td>N 571,428.76 9.66</td> <td></td> <td>STD. MANHOLE .</td>	M-1	378. <del>50</del> 06	<del>375.00</del> - <b>373.8</b> 6	· · · · · · · · · · · · · · · · · · ·		N 571,428.76 9.66		STD. MANHOLE .
M-3       413.74       76       408.93-40756       408.43-407.24        N 571.357.65       7.02        STD. M         M-4       420.00-21       410.35-06       417.95-56       VALLEY VIEW OVERLOOK       C.L. STA. 13+05-/       40.57 L       .2' STD. M         M-5       342.57-60       337.00-330.71       324.67-63        N 571.134.65-7.32        DROP M         M-6       334.90-56       324.90, 329.17       324.67-63        N 571.174.65-3.4.55        STD. M         M-7       357.03-356.02       324.90, 329.17       324.40-31        N 571.174.65-3.4.55        STD. M         M-7       357.03-356.02       328.66       340.17-347.22       FOX CHASE COURT       C.L. STA. 3+51-2.7       4' L        STD. M         M-8       379.92-04       371.60-02       371.10-370.74       FOX CHASE COURT       C.L. STA. 9+32        4' L        STD. M         M-9       386.00-12       300.46 379.78       379.95 57       FOX RIVER DRIVE       C.L. STA. 9+32        25' L 243' STD. M         M-10       331.50-330.95       325.50 20       325.00, 324.50       324.80,324.30       N 571.822.94 2.1        STD. M <t< td=""><td></td><td>378.<del>62</del> 11</td><td>382.59 381.19</td><td><del>362.09-<b>38</b>1.0</del></td><td>4</td><td>N 571,366.98 5.76</td><td></td><td>STD. MANHOLE .</td></t<>		378. <del>62</del> 11	382.59 381.19	<del>362.09-<b>38</b>1.0</del>	4	N 571,366.98 5.76		STD. MANHOLE .
M-4       428.00 - 21       418.35 OG       417.85 5G       VALLEY VIEW OVERLOOK       C.L. STA. 13+05 ✓       40.5 L       .2' STD. M         M-5       342.57 GO       337.00 330.71       324.67 G3        E 1,337.924.94 4.31        DROP M         M-6       334.90 5G       324.90, 329.17       324.40 31        N 571.174.65 3.45        STD. M         M-6       334.90 5G       324.90, 329.17       324.40 31        N 571.174.65 3.45        STD. M         M-7       357.03 356.02       348.67 347.82       FOX CHASE COURT       C.L. STA. 3+51 2.7       4' L ✓       STD. M         M-7       357.03 356.02       340.67 347.82       FOX CHASE COURT       C.L. STA. 0+53 ✓       4' L ✓       STD. M         M-8       379.29 04       371.60 02       371.10 370.74       FOX CHASE COURT       C.L. STA. 0+53 ✓       4' L ✓       STD. M         M-9       386.60 12       300.46 379.78       379.95 57       FOX RIVER DRIVE       C.L. STA. 9+32 ✓       25' L       243' STD. M         M-10       331.50 330.95       325.50 29       325.00, 324.50       324.80,324.30       E 1,336,738.66 04        STD. M         M-11       350.00 357.78						N 571,35 <del>7.65</del> <b>2</b> .10 F 1338 26 <del>241</del> <b>3</b> .12		STD. MANHOLE .
M-5       342.57 60       337.08 336.71       324.67 63        N 572,495.35 7.32        DROP M         M-6       334.90 56       324.90, 329.17       324.40 31        N 571,17465 3.45        STD. M         M-6       334.90 56       324.90, 329.17       324.40 31        N 571,17465 3.45        STD. M         M-7       357.03 356.02       56 348.67 347.82       340.17 347.22       FOX CHASE COURT       C.L. STA. 3+51 2.7       4' L        STD. M         M-8       379.29 04       371.60 02       371.10 370.74       FOX CHASE COURT       C.L. STA. 0+53        14' R       15' STD. M         M-9       386.00 12       360.46 379.78       379.96 57       FOX RIVER DRIVE       C.L. STA. 9+32        25' L       243' STD. M         M-10       331.50 330.95       325.50 29       325.00, 324.50       324.80, 324.30       N 571,622.94 21        STD. M         M-11       350.00 357.78       350.14 349.79       349.09 58       FOX RIVER DRIVE       L.P. STA. 1+14.50        12.6' L       2.4' STD. M							40.5°L	.2' STD. MANHOLE .
M-6 $334.90$ 56 $324.90$ $329.17$ $324.40$ $31$ N $571,17465$ $3.45$ STD. MM-7 $357.03$ $356.02$ $340.67$ $328.66$ $340.17$ $347.82$ FOX CHASE COURTC.L. STA. $3+51$ $2.7$ $4'$ L $\checkmark$ STD. MM-8 $379.29$ $04$ $371.60$ $02$ $371.10$ $370.74$ FOX CHASE COURTC.L. STA. $0+53$ $4'$ L $\checkmark$ STD. MM-9 $386.00$ $12$ $360.46$ $372.78$ $379.96$ $57$ FOX RIVER DRIVEC.L. STA. $0+53$ $44'$ R $15'$ STD. MM-10 $331.50$ $330.95$ $325.50$ $325.00$ $324.50$ $324.80$ $324.30$ $$ N $571.022.94$ $21'$ M-10 $331.50$ $330.95$ $325.50$ $325.00$ $324.50$ $324.80$ $324.30$ $$ N $571.022.94$ $21'$ M-11 $356.00$ $357.78$ $350.14$ $349.79$ $349.69$ $58$ FOX RIVER DRIVEL.P. STA. $1+14.50$ $12.6'$ L $2.4'$ STD. M					*	N 572,495.35- 7.32		DROP MANHOLE
M-7 $357.03-356.02$ $56_{348.67}, 347.82$ $348.17.347.22$ FOX CHASE COURTC.L. STA. $3+51-2.7$ $4'$ L $5TD.$ MM-8 $379.29$ $04$ $371.60$ $02$ $371.10-370.74$ FOX CHASE COURTC.L. STA. $0+53$ $14'$ R $15'$ STD. MM-9 $386.00$ $12$ $300.46$ $379.78$ $379.96$ $57$ FOX RIVER DRIVEC.L. STA. $0+32$ $25'$ L $243'$ STD. MM-10 $331.50$ $330.95$ $325.50$ $29$ $325.00$ $324.80$ $324.30$ $$ N $571.022.94$ $21'$ M-10 $336.00$ $357.78$ $350.14$ $349.09$ $58$ FOX RIVER DRIVEL.P. STA. $1+14.50$ $12.6'$ L $24'$ STD. MM-11 $350.00$ $357.78$ $350.14$ $349.09$ $58$ FOX RIVER DRIVEL.P. STA. $1+14.50$ $12.6'$ L $24'$ STD. M						N 571,17465 3.45		STD. MANHOLE
M-B $379.29$ O4 $371.60$ O2 $371.10-370.74$ FOX CHASE COURT       C.L. STA. 0+53 · · · · · · · · · · · · · · · · · · ·					, FOX CHASE COURT		4' L 🗸	STD. MANHOLE
M-9       386.00 12       380.46 379.78       379.95 57       FOX RIVER DRIVE       C.L. STA. 9+32 ✓       25' L       24.3' STD. M         M-10       331.50 330.95       325.50 29       325.00, 324.50       324.80,324.30       N 571.922.94 21        STD. M         M-11       350.00 357.78       350.14 349.79       349.09 58       FOX RIVER DRIVE       L.P. STA. 1+14.50 ✓       12.8' L       12.4' STD. M								15' STD. MANHOLE
M-10         331.50         330.95         325.50         29         325.00,         324.80,         324.30         N         571.822.94         21         5TD. M           M-11         358.00         357.78         350.14         349.99         58         FOX RIVER DRIVE         L.P. STA. 1+14.50          12.8' L         12.4' STD. M								43' STD. MANHOLE
M-11 358.00 357.78 350.14 349.79 349.89 58 FOX RIVER DRIVE L.P. STA. 1+14.50 12.8 L 12.4 STD. M						N 571,822.94 ZI	·····	STD. MANHOLE
								2.4' STD. MANHOLE
	M-11 M-12	402. <del>00</del> 11	397 <del>.90</del> <b>3</b> 6	349. <del>59</del> <b>56</b> 390. <del>50</del> <b>24</b>	HUNT CROSSING COURT	C.L. STA. 0+74 70		z' DROP MANHOLE
								STD. MANHOLE

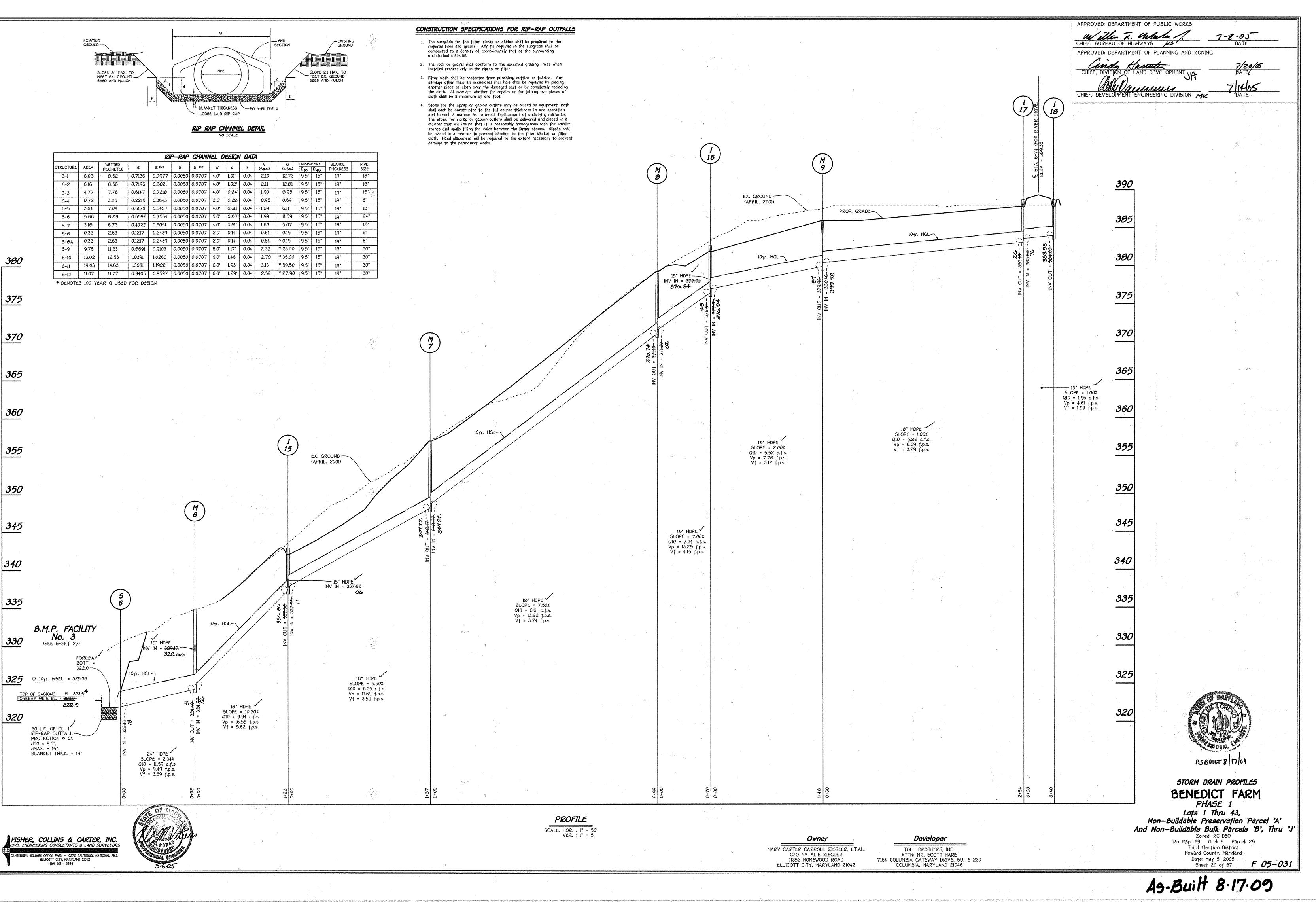
+ DENOTES	ELEVATION-

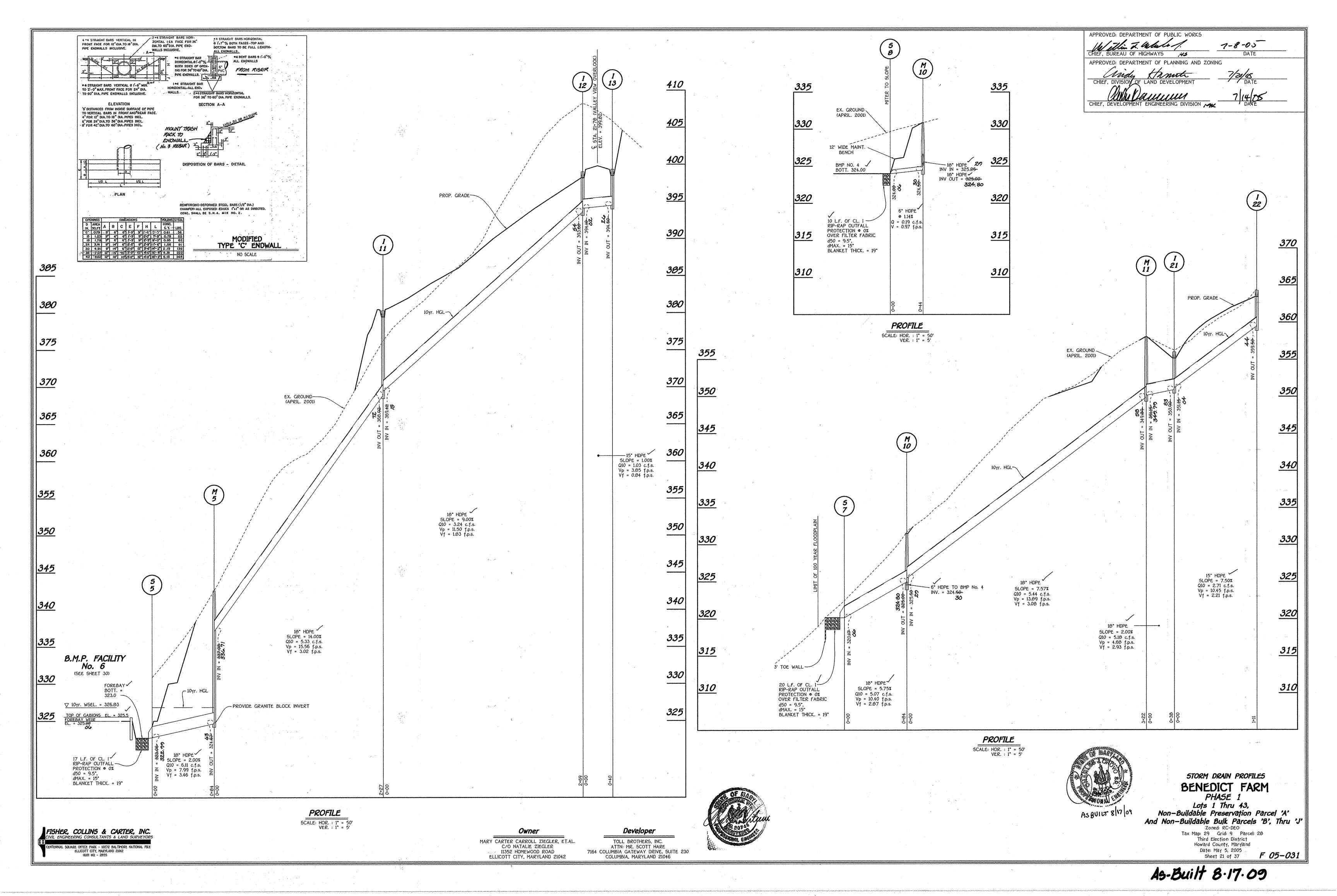
PIPE SCHEDULE					
SIZE	CLASS	LENGTH			
15"	HDPE	548'			
18"	HDPE	3834'			
24"	HDPE	98'			











## 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 Olup 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

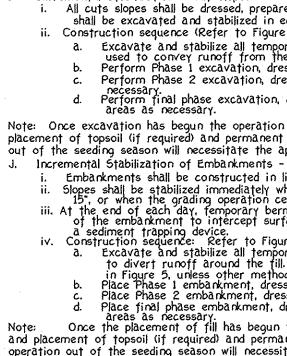
Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity 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

- Install erosion and sediment control structures (either temporary of permanent) such as diversions. grade stabilization structures, berms, waterways, or sediment control basins.
- 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. Soil Amendments (Fertilizer and Lime Specifications)
- 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 iv. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
- 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.
- 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.
  - Soluble salts shall be less than 500 parts per million (ppm). 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 Soil shall contain 1.5% minimum organic matter by weight.
  - Soil must contain sufficient pore space to permit adequate root penetration. 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
- 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.
- 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.
- 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. 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.
- Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction. Mulch Specifications (In order of preference)
- 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. 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. WCFM material shall contain no elements or compounds at concentration levels that will be phytol-toxic. е.
- 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. 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 according to the theorem of the seeding season returns and seeding can be performed in
- accordance with these specifications. 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. 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: 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. 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 printing tool areas and the source of wood cellulose fiber shall be mixed with water and the printing tool areas and the source of the s
- the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons 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.
- 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.





ncremental 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):	STANDARDS AND SPECIFICATIONS FOR TOPSOIL Definition
<ul> <li>Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.</li> <li>Perform Phase 1 excavation, dress, and stabilize.</li> </ul>	Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.
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	Purpose To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low
areas as necessary. Once excavation has begun the operation should be continuous from grubbing through the completion of grading nent of topsoil (if required) and permanent seed and mulch. Any interruptions int he operation of completing the	nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
f the seeding season will necessitate the application of temporary stabilization. ncremental Stabilization of Embankments - Fill Slopes i	1. This practice is limited to areas having 2:1 or flatter slopes where:
<ul> <li>Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches</li> <li>15°, or when the grading operation ceases as prescribed in the plans.</li> <li>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</li> </ul>	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.
of the embankment to intercept surface runoff and convey it down the slope in a non-érosive manner to a sediment trapping device. iv. Construction sequence: Refer to Figure 4 (below).	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.
of the embankment to intercept surface funoff 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.	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.
<ul> <li>c. Place Phase 2 embankment, dress and stabilize.</li> <li>d. Place final phase embankment, dress and stabilize.</li> <li>d. Place final phase embankment, dress and stabilize.</li> <li>Overseed previously seeded areas as necessary.</li> <li>Once the placement of fill has begun the operation should be continuous from grubbing through the completion</li> </ul>	
Once the placement of fill has begun the operation should be continuous from grubbing through the completio acement of topsoil (if required) and permanent seed and mulch. any interruptions in the operation or completing tion out of the seeding season will necessitate the application of temporary stabilization.	the l. 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
Section 2 - Temporary Seeding	cooperation with Maryland Agricultural Experimental Station. 11. Topsoil Specifications - Soil to be used as topsoil must meet the following:
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.	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.
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. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson grass, nutsedge, poison ivy, thistle, or others as specified.
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.	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.
[]	11. For sites having, disturbed areas under 5 acres:
Seed Mixture (Hardiness Zone) From Table 26 Rate	i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
No.         Species         Application Rate (lb/ac)         Seeding Dates         Seeding Depths         (10-10-10)	<ul> <li>i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime</li> </ul>
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	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.
RYE 140	b. Organic content of topsoil shall be not less than 1.5 percent by weight.
Section 3 - Permanent seeding	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
Seeding grass and legumes to establish groung cover for a minimum of one year on disturbed areas generally receiving low maintenance.	chemicals used for weed control until sufficient time has elapsed (14 days min) to permit dissipation of phyto-toxic materials.
A. Seed mixtures - Permanent Seeding	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.
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	ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
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	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.
342 - Critical Area Planting. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.	ii. Grades on the areas to be top soiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
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. 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
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	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.
the time of seeding.	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
Seed Mixture (Hardiness Zone6b_)     Fertilizer Rate (10-20-20)     Lime Rate       From Table 25     Application     Seeding     N     P205     K20	grading and seedbed preparation. VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial
Rate (lb/ac) seeding buyes Depths 11 1205 120	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:
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	a. Composted sludge shall be supplied by, or originate from, a person or persons that are
IV         HARD FESCUE (20%)         30         8/15 - 10/15         1 - 2	permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06. b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2
ter all a second se	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 1 ton/1,000 square feet.
DUST CONTROL	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.
DEFINITION CONTROLLING DUST BLOWING AND MOVEMENT ON CONSTRUCTION SITES AND ROADS.	References: Guideline Specifications, Soil Preparation and Sodding, MD-VA, Pub. «I, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.
PURPOSE	SEDIMENT CONTROL NOTES
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	1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY
THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.	DEPARTMENT OF INSPECTIONS, LISCENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855). 2) ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED
SPECIFICATIONS	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.
TEMPORARY METHODS 1. MULCHES - SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY.	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,
MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.	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
2. VEGETATIVE COVER - SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER. 3. TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN	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
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.	SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN
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.	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
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	THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. 7) SITE ANALYSIS: TOTAL AREA OF SITE 306.76 ACRES
BLOWING. 6. CALCIUM CHLORIDE - APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.	AREA DISTURBED 41.64 ACRES AREA TO BE ROOFED OR PAVED 10.48 ACRES AREA TO BE VEGETATIVELY STABILIZED 31.16 ACRES TOTAL CUT 33,000 CU.YD5. TOTAL FILL 33,000 CU.YD5.
PERMANENT METHODS	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
1. PERMANENT VEGETATION - SEE STANDARDS FOR PERMANENT VEGETATIVE COVER, AND PERMANENT STABILIZATION WITH SOD. EXISTING TREES OR LARGE SHRUBS MAY AFFORD VALUABLE	SAME DAY OF DISTURBANCE. 9) ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
PROTECTION IF LEFT IN PLACE. 2. TOPSOILING - COVERING WITH LESS EROSIVE SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING.	10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON
3. STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.	COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION
and an	APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. 11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE
	LENGHTS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
Owner Developer	

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'.	STANDARDS AND SPECIFICATIONS FOR TOPSOIL
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.	<u>Definition</u> Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.
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.	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.
ote: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and acement of topsoil (if required) and permanent seed and mulch. Any interruptions int he operation of completing the operation ut of the seeding season will necessitate the application of temporary stabilization. Incremental Stabilization of Embankments - Fill Slopes	Conditions Where Practice Applies
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	<ol> <li>This practice is limited to areas having 2:1 or flatter slopes where:         <ul> <li>a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.</li> <li>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.</li> <li>c. The original soil to be vegetated contains material toxic to plant growth.</li> <li>d. The soil is so acidic that treatment with limestone is not feasible.</li> </ul> </li> </ol>
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. ote: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading of placement of tonsoil (if required) and permanent seed and multiplication and interruptions in the operation of completion of grading	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
peration out of the seeding season will necessitate the application of temporary stabilization.	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.
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	<ul> <li>II. Topsoil Specifications - Soil to be used as topsoil must meet the following:</li> <li>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.</li> </ul>
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. 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
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.	<ul> <li>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.</li> <li>II. For sites having, disturbed areas under 5 acres:</li> </ul>
Seed Mixture (Hardiness Zone6b)     From Table 26     Fertilizer     Lime Rate       No.     Application     Genetics Dates     Seeding     (io. to. to)	i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
No.SpeciesRate (lb/ac)Seeding DatesDepths(10-10-10)BARLEY122 $3(1 - 5/15)$ $1^* - 2^*$ Coole is	<ul> <li>III For sites having disturbed areas over 5 acres:</li> <li>i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:</li> </ul>
$\begin{bmatrix} 1 & 0ATS & 96 & 3/1 - 3/15 & 1^* - 2^* \\ RYE & 140 & 1^* - 2^* & (15 \text{ b}/1000\text{ sf}) \end{bmatrix} \begin{bmatrix} 2 \text{ tons/ac} \\ (100 \text{ b}/1000\text{ sf}) \end{bmatrix}$	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.
<b>SECTION 3 - PERMANENT SEEDING</b> Seeding grass and legumes to establish groung cover for a minimum of one year on disturbed areas generally receiving low maintenance.	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.
generally receiving low maintenance. A. Seed mixtures - Permanent Seeding	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.
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	ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.
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.	<ul> <li>V. Topsoil Application</li> <li>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.</li> </ul>
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.	ii. Grades on the areas to be top soiled, which have been previously established, shall be maintained, albeit 4" - O" higher in elevation. iii. Topsoil shall be uniformly distributed in a 4" - O" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can
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.	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.
Seed Mixture (Hardiness Zone6b_) From Table 25	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.
No.     Species     Application Rate (lb/ac)     Seeding Dates     Seeding Depths     N     P205     K20       3     TALL FESCUE (053)     125     3/1 - 5/15     1° - 2°     90  b/ac     175  b/ac     175  b/ac     2 tons/ac	<ul> <li>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:</li> <li>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:</li> </ul>
KENTUCKY BLUEGRASS (5x)         10 $0/15 - 10/15$ (2.0 b/         (4 b/         (100 b/           10         TALL FESCUE (80x)         120 $3/1 - 5/15$ 1° - 2°         1000sf)         1000sf)         1000sf)         1000sf)         1000sf)	<ul> <li>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.</li> <li>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,</li> </ul>
	percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use. c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
DUST CONTROL DEFINITION	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.
CONTROLLING DUST BLOWING AND MOVEMENT ON CONSTRUCTION SITES AND ROADS.	References: Guideline Specifications, Soil Preparation and Sodding, MD-VA, Pub. •1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.
<u>PURPOSE</u> TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON AND OFF-SITE DAMAGE, HEALTH HAZARDS, AND IMPROVE TRAFFIC SAFETY.	SEDIMENT CONTROL NOTES
CONDITIONS WHERE PRACTICE APPLIES THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT	<ol> <li>A MINIMUM OF 40 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LISCENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).</li> <li>ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED</li> </ol>
WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.  SPECIFICATIONS  TENDOLOGY METHODE	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.
TEMPORARY METHODS 1. MULCHES - SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.	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
2. VEGETATIVE COVER - SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER.	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,
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.	CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE. 5) ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN
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.	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
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.	THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. 7) SITE ANALYSIS: TOTAL AREA OF SITE AREA DISTURBED 41.64 ACRES
6. CALCIUM CHLORIDE - APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.	AREA TO BE ROOFED OR PAVED 10.48 ACRES AREA TO BE VEGETATIVELY STABILIZED 31.16 ACRES TOTAL CUT 33,000 CU.YDS. TOTAL FILL 33,000 CU.YDS.
PERMANENT METHODS	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
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.	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.
2. TOPSOILING - COVERING WITH LESS EROSIVE SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING. 3. STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.	APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH
	DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
	11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGHTS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
Owner Developer	

- Owner MARY CARTER CARROLL ZIEGLER, ET.AL. C/O NATALIE ZIEGLER

11352 HOMEWOOD ROAD ELLICOTT CITY, MARYLAND 21042 TOLL BROTHERS, INC.

ATTN: MR. SCOTT HARE

7164 COLUMBIA GATEWAY DRIVE, SUITE 230

COLUMBIA, MARYLAND 21046

	ENGINEER'S CERTIFICATE	-
	1 Hereby Certify That This Plan For Erosion And Sedir Represents A Practical And Workable Plan Based On My Pe	ersonal Knowledge
	Of The Sife Condition And That It Was Prepared In Accor With the Requirements Of The Howard Soil Conservation [	District.
	Stabelles Viture	5-6-05
	Signature of Sugineer	Date
	DEVELOPER'S CERTIFICAT	
	"I/We Certify That All Development And Construction Done According To This Plan Of Development And Plan Fo And Sediment Control And That All Responsible Personnel	r Erosion
	In The Construction Project Will Have A Certificate Of At At A Department Of Natural Resources Approved Training	tendance Program
	For The Control Of Sediment And Erosion Before Beginnin I Also Authorize Periodic On-Site Inspection By The Howar Conservation District of Their Authorized Agents, As Are	ig The Project. d Soil
	Conservation costrict of men Authorized Agents, As Are	Deemea Necessary.
	Signature Of Developer	Date
	Reviewed For Howard County Soil Conservation District Ar	nd Meets
	Technical Requirements.	clistor
	U.S.D.A Natural Resources Conservation Service	Date
	Approved: This Development Is Approved For Erosion And S The Howard Soil Conservation District.	Sediment Control By
	Hill II	and and an
· · ·	District Howard Soil Conservation Dist.	Date
	Approved: Department Of Planning And Zöning	ru, tunia
_	Chief, Division Of Land Development In	7/20/US Date
	Mar. Da	- luda
	Chief, Development Engineering Division	
	Approved: Howard County Department Of Public Works	
	Willin I. alala 1.	7-8-05
	Chief, Bureau Of Highways 145	Date
	REVISIONS	
•	NO. DESCRIPTION	DATE
۶.		
		ng Success
Securres of Construction		
Sequence of Construction		•,
<ol> <li>OBTAIN A GRADING PERMIT.</li> <li>NOTIFY "MISS UTILITY" AT LEAST 48 HOURS E</li> </ol>	EFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY	THE HOWARD
COUNTY OFFICE OF CONSTRUCTION/INSPECTION A	T 410-313-1330 24-HOURS BEFORE STARTING WORK.	
	URES ASSOCIATED WITH SEDIMENT BASIN No. 1 & BASIN No. EPS 4 TO 9 EXCEPT AS CONSTRUCTION TRAFFIC MUST MOV	
	SEDIMENT CONTROL INSPECTOR, THE CONTRACTOR MAY PR	
	550CIATED WITH SEDIMENT BASIN No. 1 & BASIN No. 2. TH KES. INTERNAL EARTH DIKES WITH HVF TO BE INSTALLED O	
COMPLETION OF BASINS. ALSO INSTALL TREE PRO	OTECTION FENCE AND SILT FENCE AS INDICATED ON THESE TION OF THE BASINS AND TRAPS EXCEPT AS PERMITTED BY	PLANS. NO
	RY, RIPPING AND JACK HAMMERING SHOULD BE UTILIZED IN	
5. OBTAIN PERMISSION FROM THE INSPECTOR PRI	OR TO PROCEEDING WITH STEP 6.	
6. CLEAR AND GRUB ALL AREAS DRAINING TO S AND ALL ASSOCIATED ROADS. ALSO CLEAR AND	EDIMENT BASIN No. 1 & BASIN No. 2. THIS INCLUDES LOTS O GRUB NON-BUILDABLE BULK PARCEL 'E'.	1-6, 31, 40-43
7. GRADE THE AREAS LISTED IN STEP 6 TO THE	PROPOSED SUBGRADE FOR EACH ROAD AND INSTALL THE	
8. INSTALL BASE COURSE PAVING FOR THE PROF	Y SLOPES IMMEDIATELY UPON COMPLETION OF THE GRADING	AS SHOWN.
9. CLEAR AND GRUB FOR REMAINING SEDIMENT		
10. INSTALL THE REMAINING SEDIMENT CONTROL	MEASURES. THIS WOULD INCLUDE SEDIMENT BASIN No. 3, B	ASIN No. 6
	EARTH DIKE, TREE PROTECTION FENCE, AND SILT FENCE AS TTED FOR THE EXCAVATION OF BASINS AND TRAPS EXCEPT	
NOTE: STEPS 11 TO 17 APPLY TO AREAS DRAIN	· · · ·	
11. OBTAIN PERMISSION OF THE INSPECTOR PRIOR	TO PROCEEDING WITH STEP 12.	
12. CLEAR AND GRUB REMAINDER OF (PHASE I) S	ITE.	
13. GRADE TO THE PROPOSED SUBGRADE FOR EASTABILIZE ROADWAY SLOPES IMMEDIATELY UPON	CH ROAD AND INSTALL THE STORM DRAIN SYSTEM AND UT COMPLETION OF THE GRADING AS SHOWN.	LITIES.
X BEGIN HOUSE CONSTRUCTION AS SOON AS LO	TO ARE ROUGH GRADED AND ROADWAY STONE DASE IS IN	TALLED. Gut
15. INSTALL BASE COURSE PAVING FOR PROPOSE	D ROADS.	
د. ۱۹	OR THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEED	
THE SEDIMENT CONTROL INSPECTOR, THE TEMPOR	51N5 AND TRAPS HAVE BEEN STABILIZED AND WITH THE PEA RARY DEVICE MAY BE REMOVED, BACKFILLED OR REGRADED ES. THIS INCLUDES THE BMP FACILITIES 1 THRU 6. STABIL	TO THE
REMAINING AREAS PER PERMANENT SEEDING NOT	E5.	
18. APPLY TACK COAT TO BASE COURSE AND LA SEQUENCE NOTES:	AY SURFACE COURSE PAVING.	
1. THE CONTRACTOR SHALL INSPECT AND PROVID	E NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSIC ALL EVENT AND ON A WEEKLY BASIS. REMOVE SEDIMENTS	
TRAPS WHEN CLEAN OUT ELEVATIONS ARE REAC BASIN OR TRAP DEVICE.	HED. ALL SEDIMENTS MUST BE PLACED UPSTREAM OF AN	
2. THE CONTRACTOR SHALL ONLY DISTURB A MA	AXIMUM OF ZU ACKES AT A TIME.	
	SEDIMENT CONTROL NOTES &	SPECIFICATIONS
· · · · · · · · · · · · · · · · · · ·	BENEDICT F/	
OF MAR	DENEDICI FI PHASE 1	
AT THE WE ARE	Lots 1 Thru 43,	
11/1/49	Non-Buildable Preservation	n Parcel 'A'
2 20740 0	And Non-Buildable Bulk Parce Zoned: RC-DEO	<u>\</u>
A COLORIDA	Tax Map: 29 Grid: 9 Parc Third Election District	

A. 4

10. N

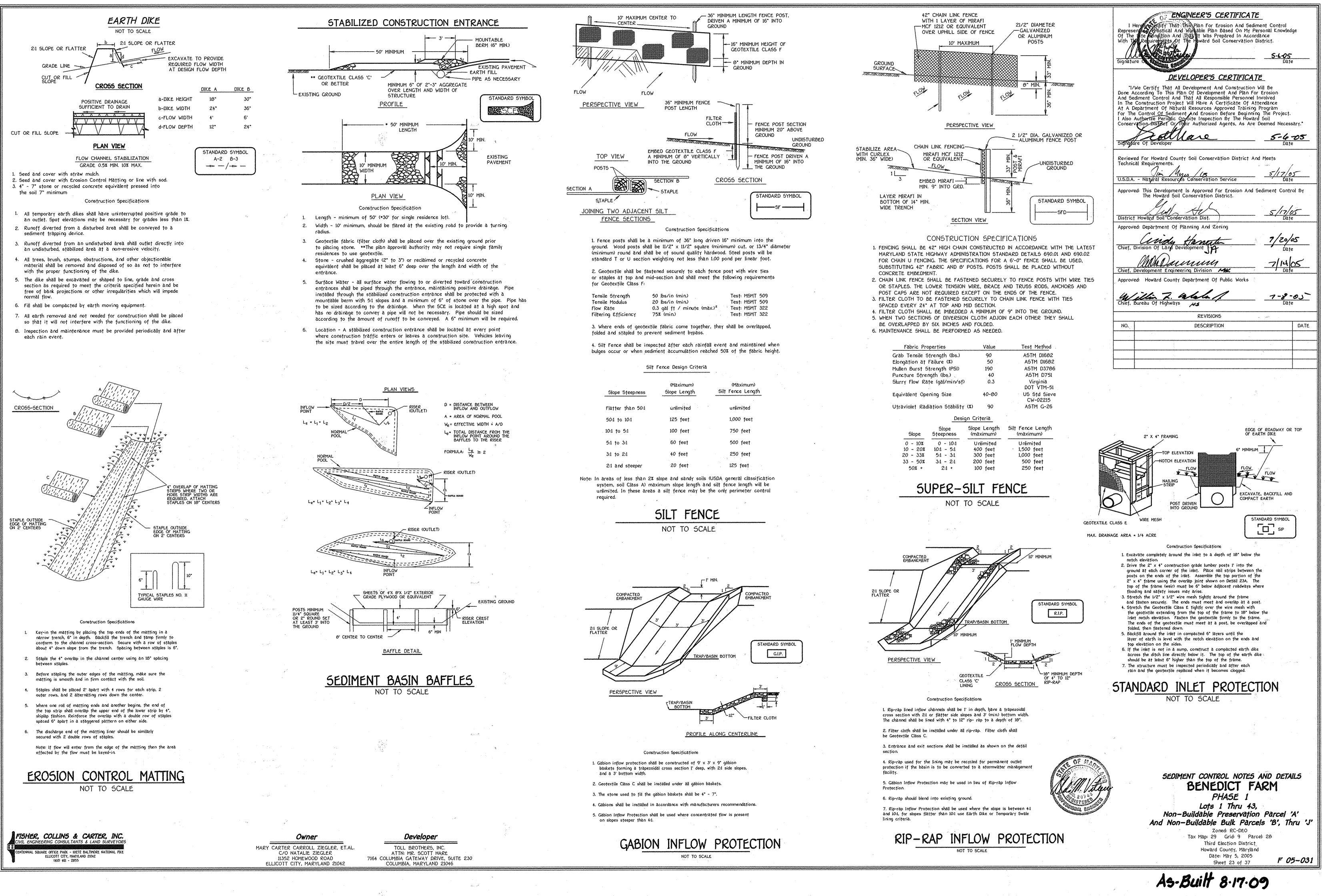
F 05-031

Howard County, Maryland

Sheet 22 of 37

Date: May 5, 2005

AS-Built 8.17.09



## 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 areater 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

metal pipe:

All pipes shall be circular in cross section

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

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 banks 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 thick ress.

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 flance 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 caskets 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 5, and 12" through 24" inch shall meet the requirement of AASHTO M294 Type 5.

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

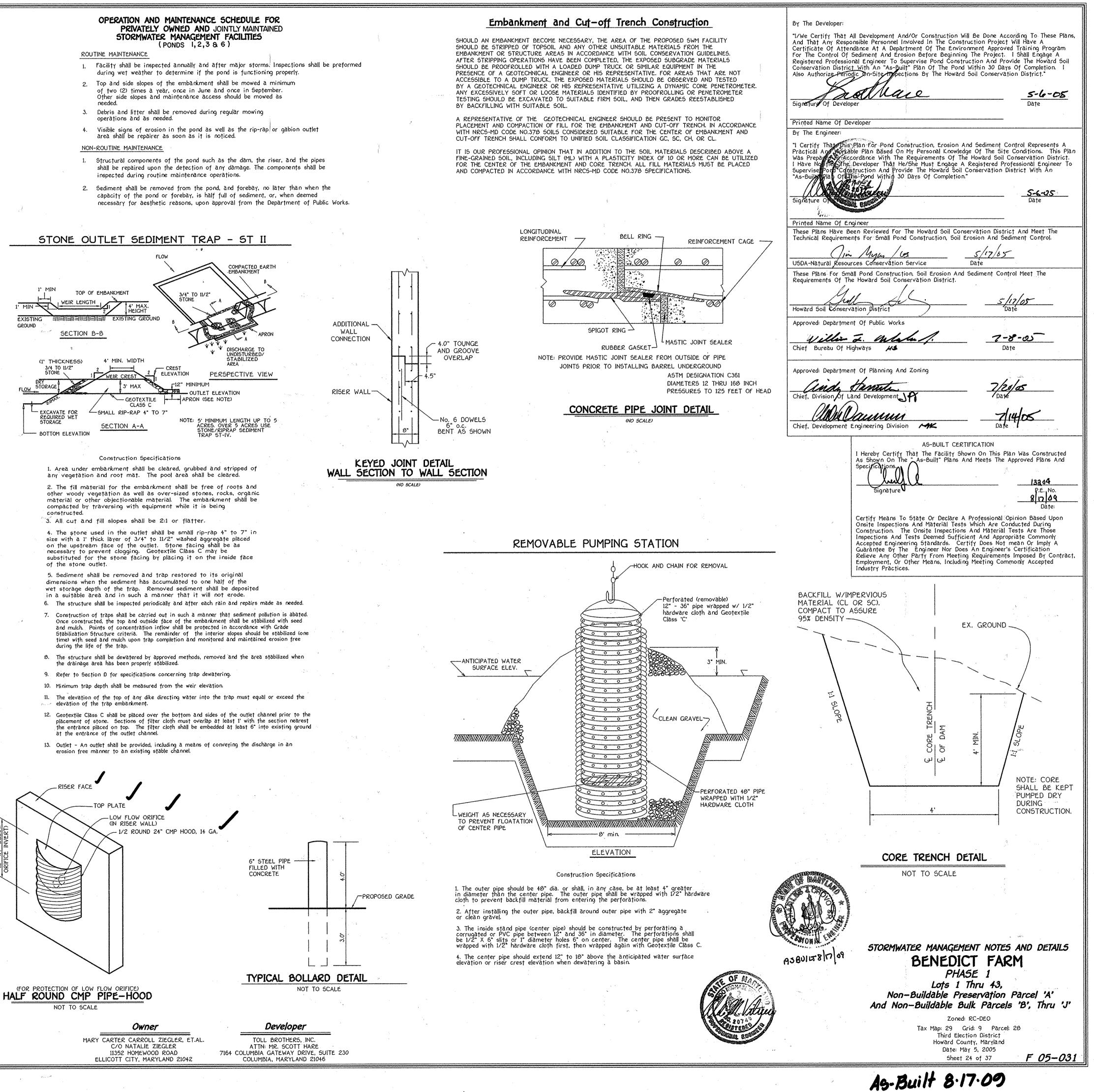
All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service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

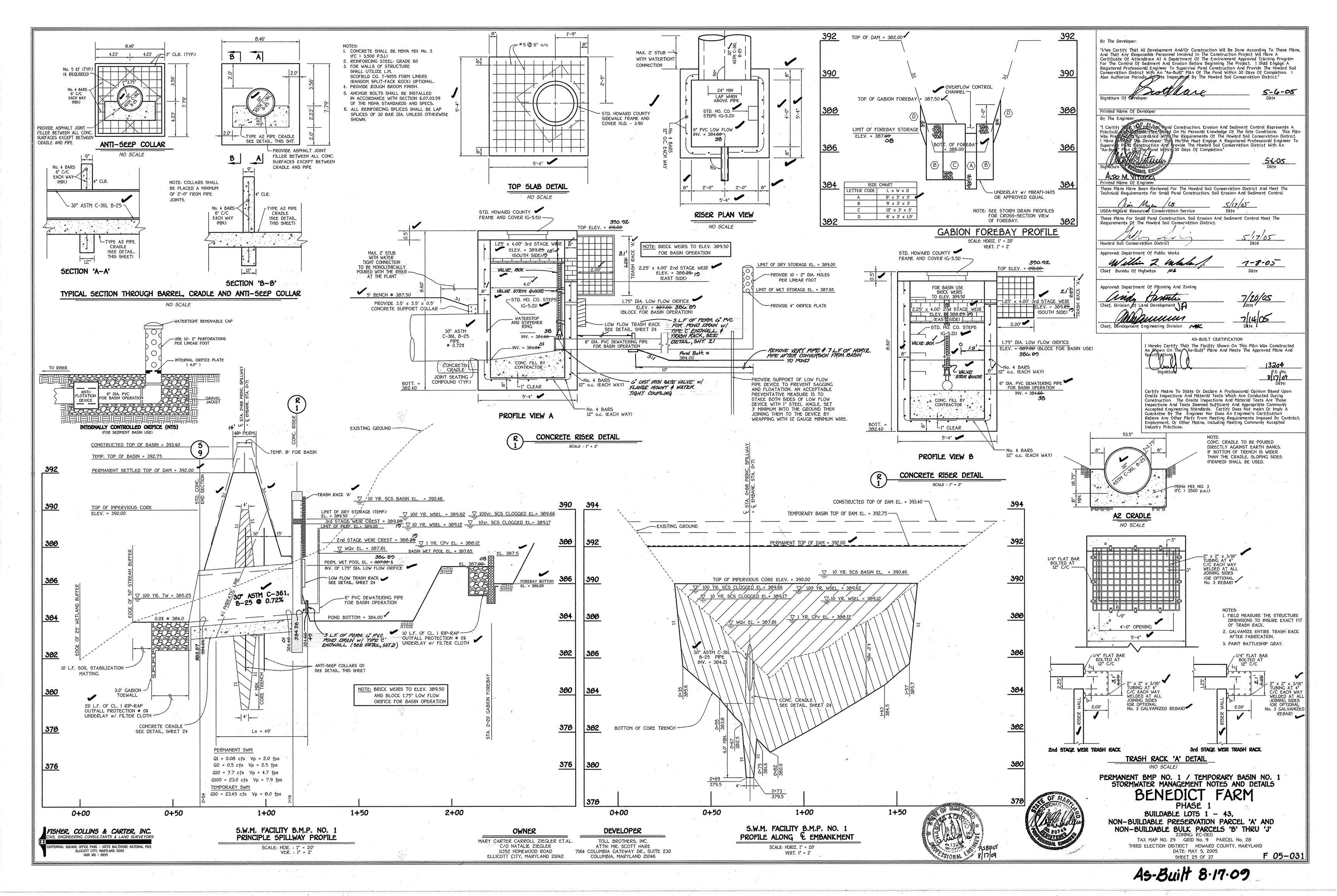
#### Erosion and Sediment Control

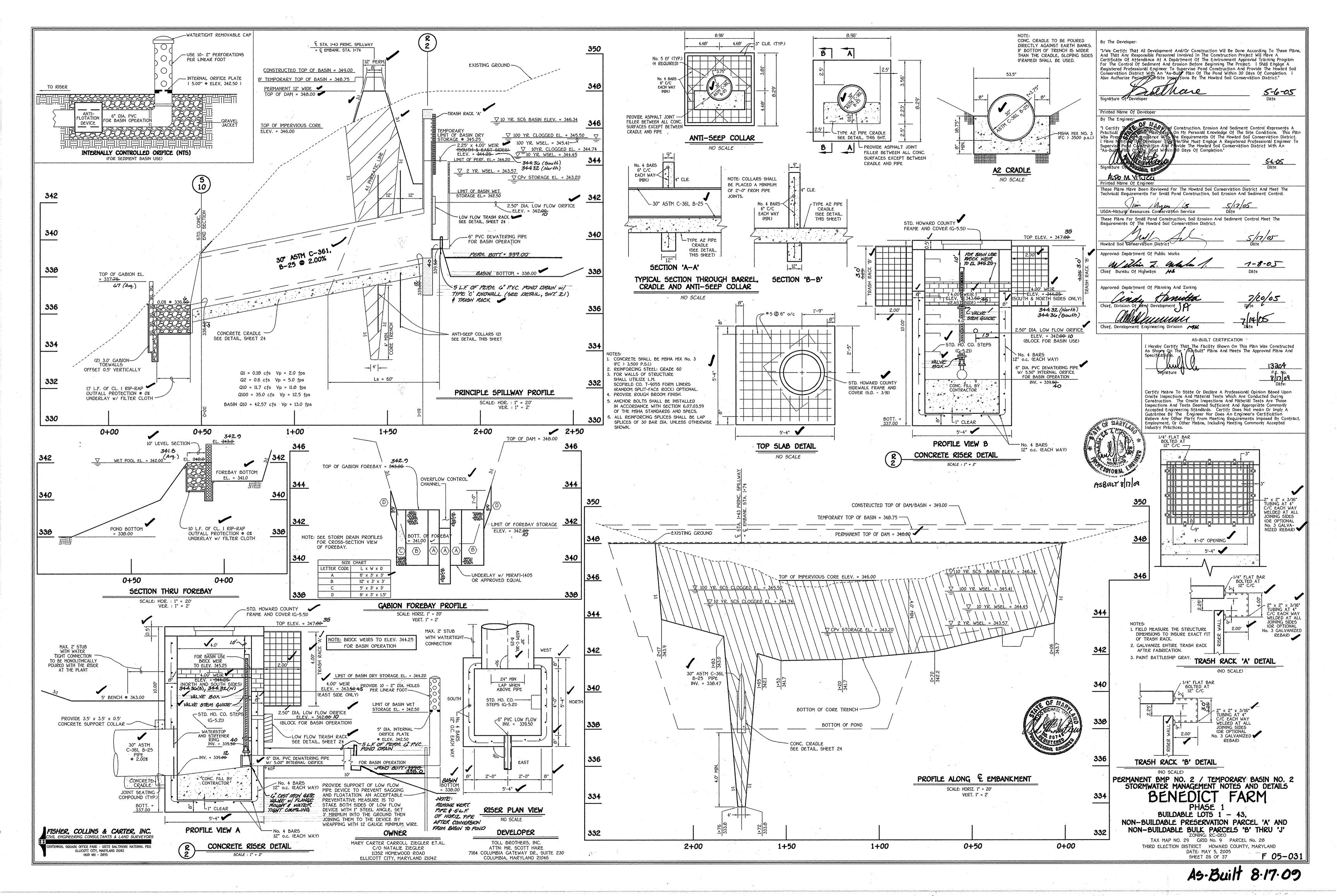
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

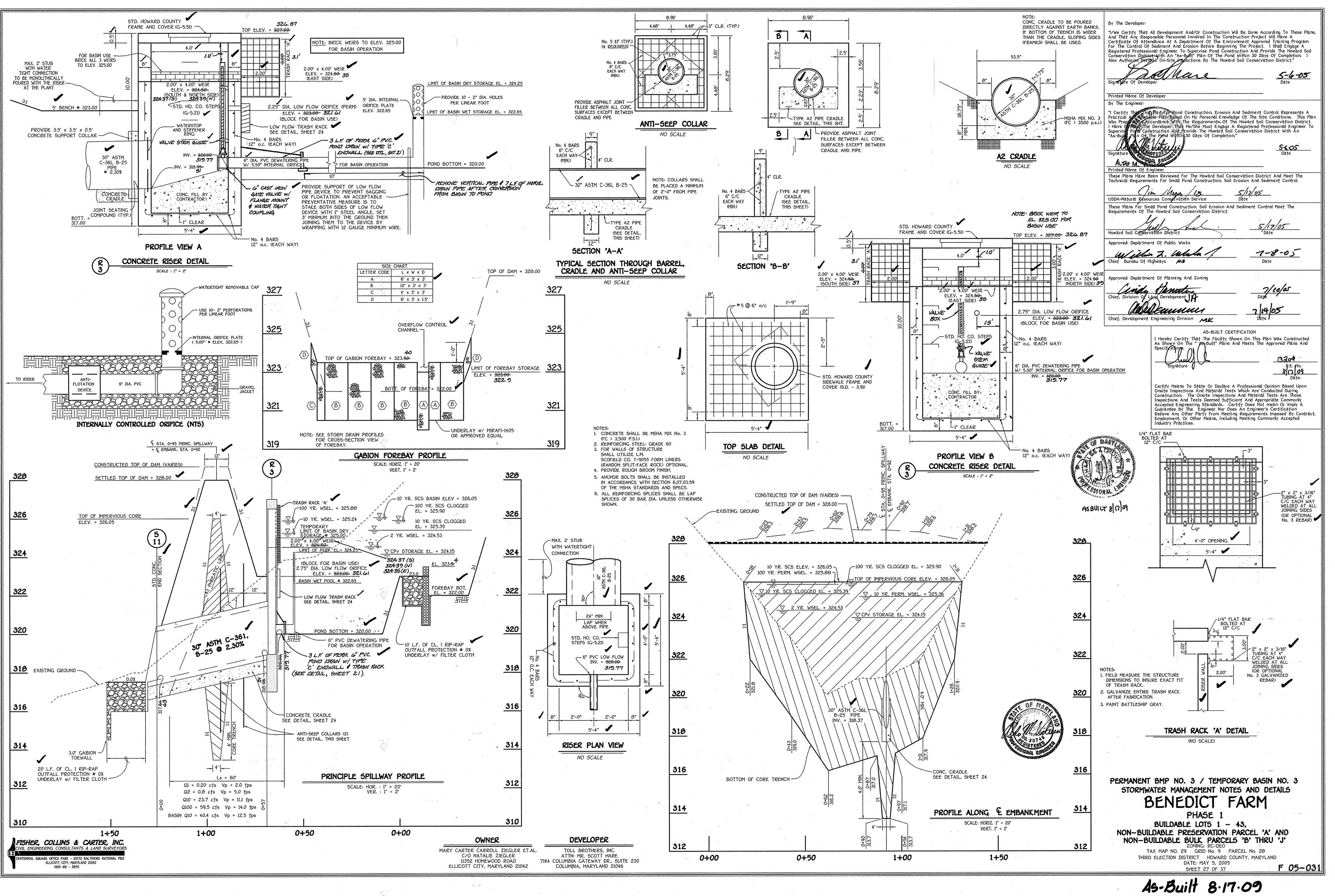
#### OPERATION AND MAINTENANCE

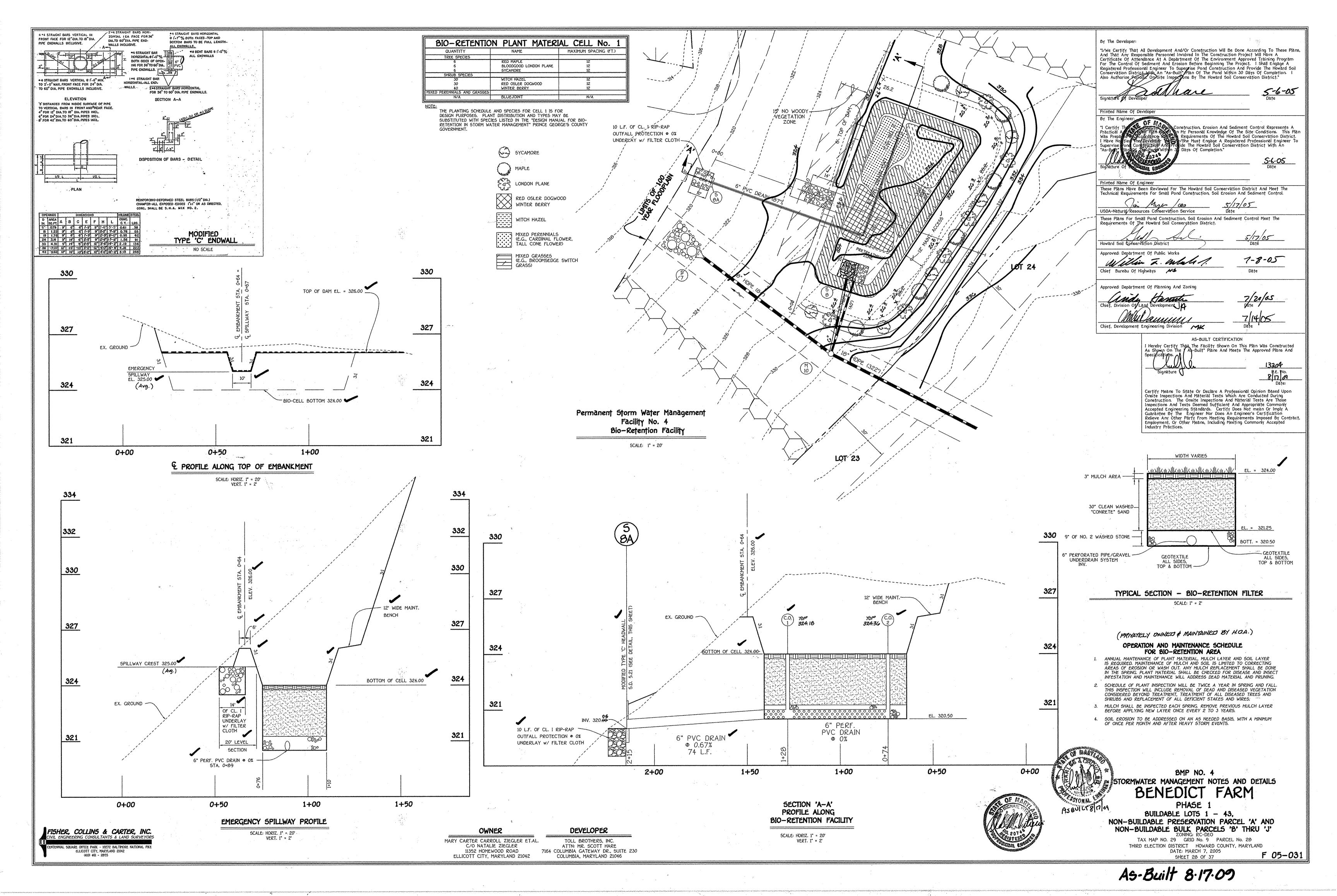
An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance 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.

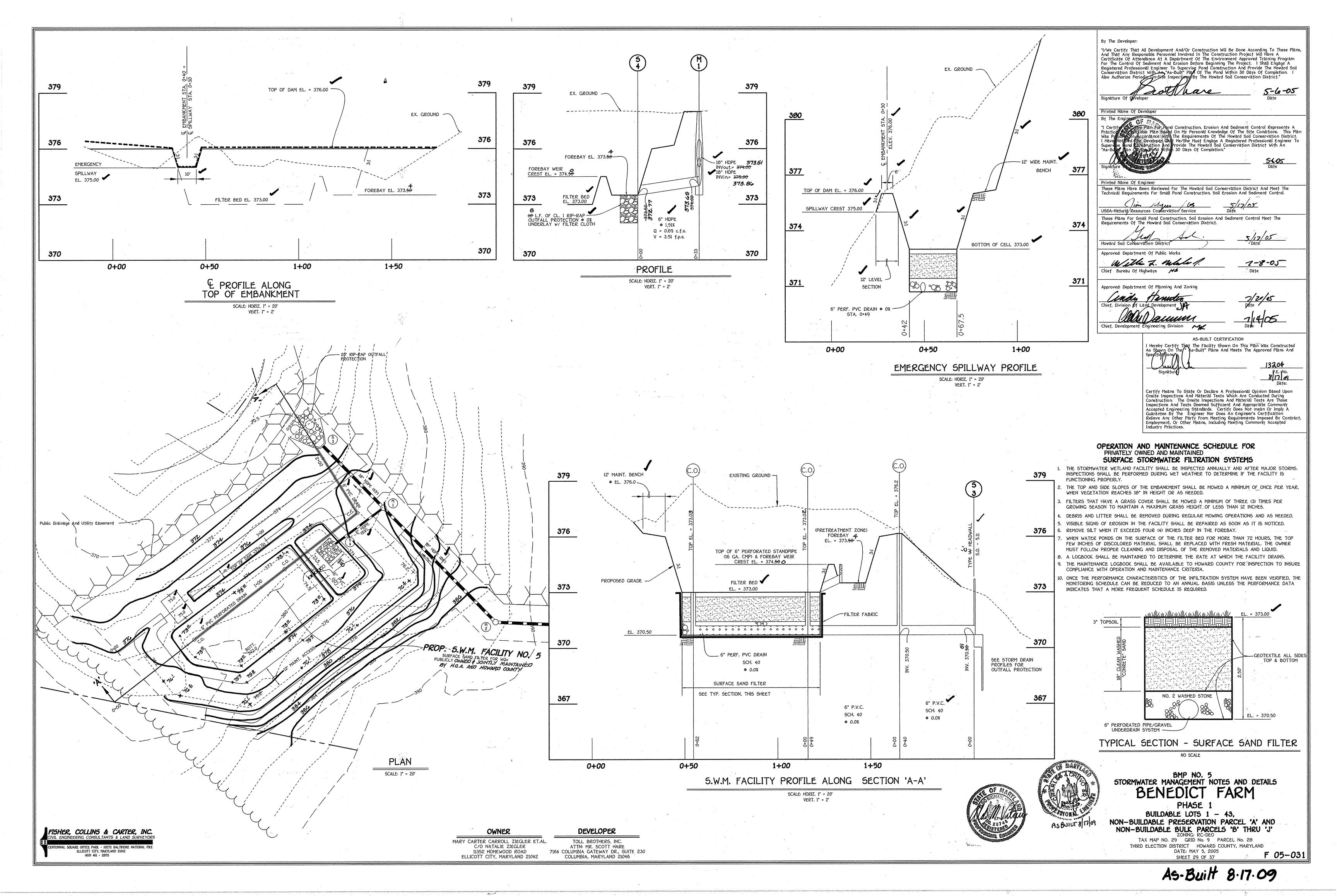


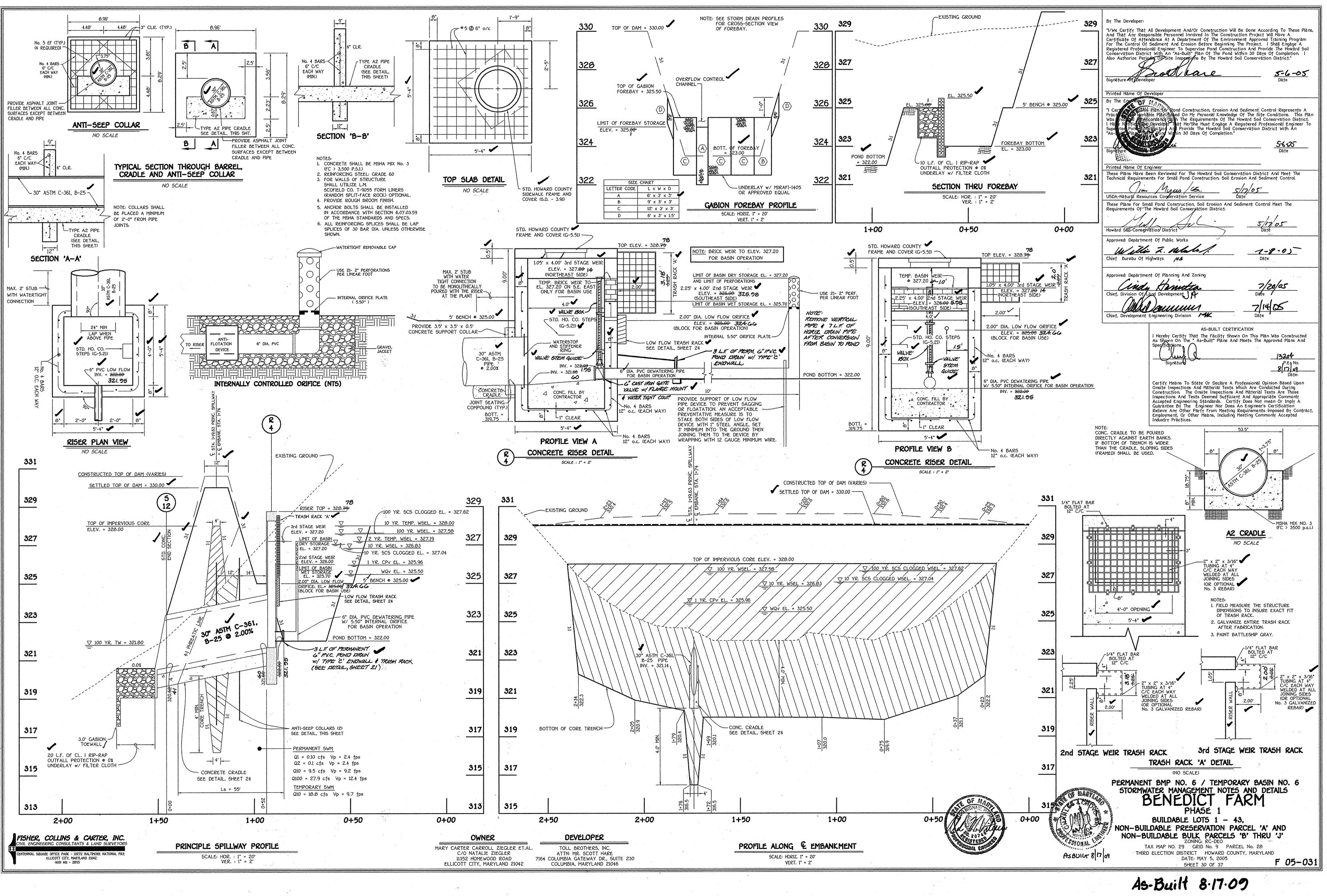


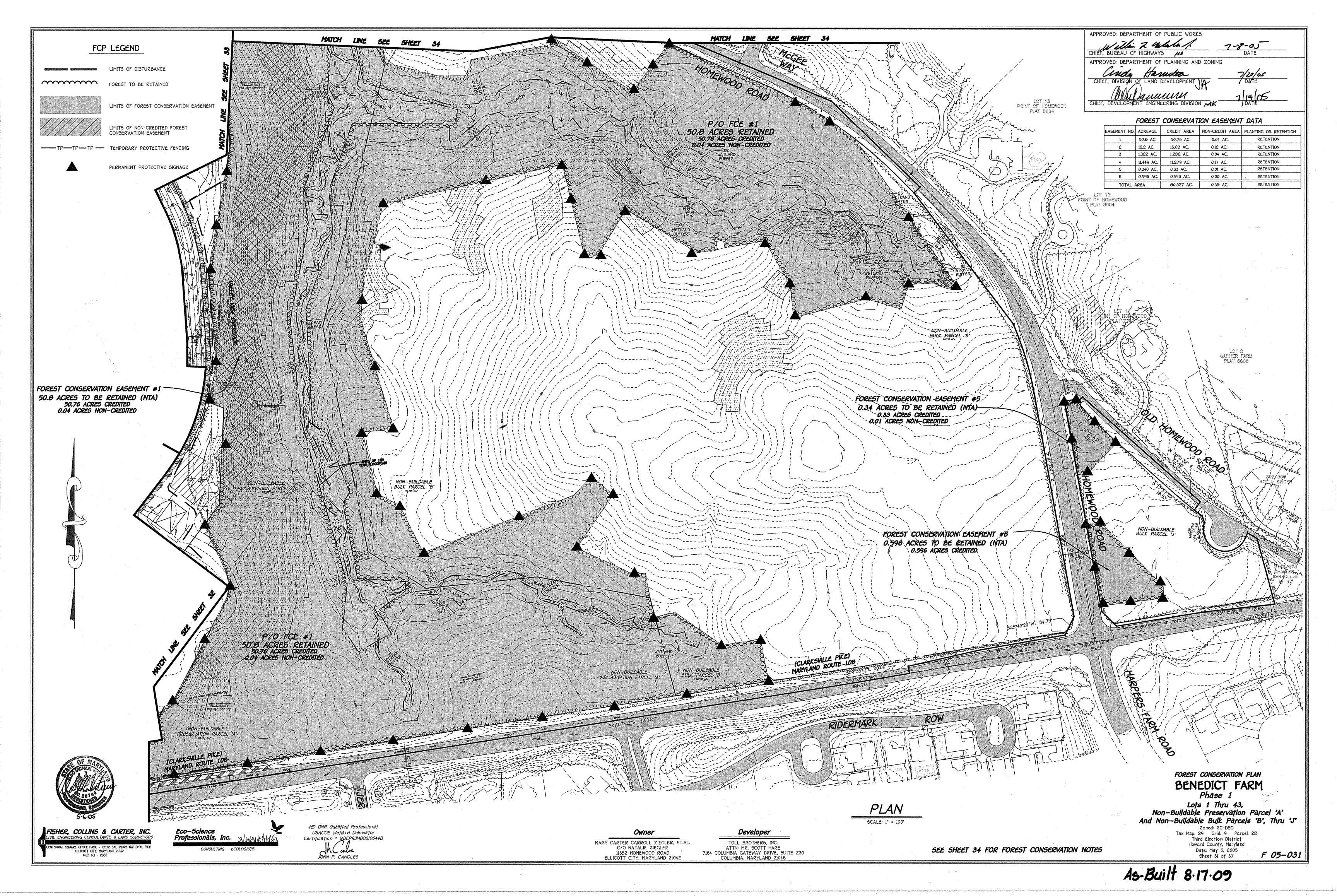


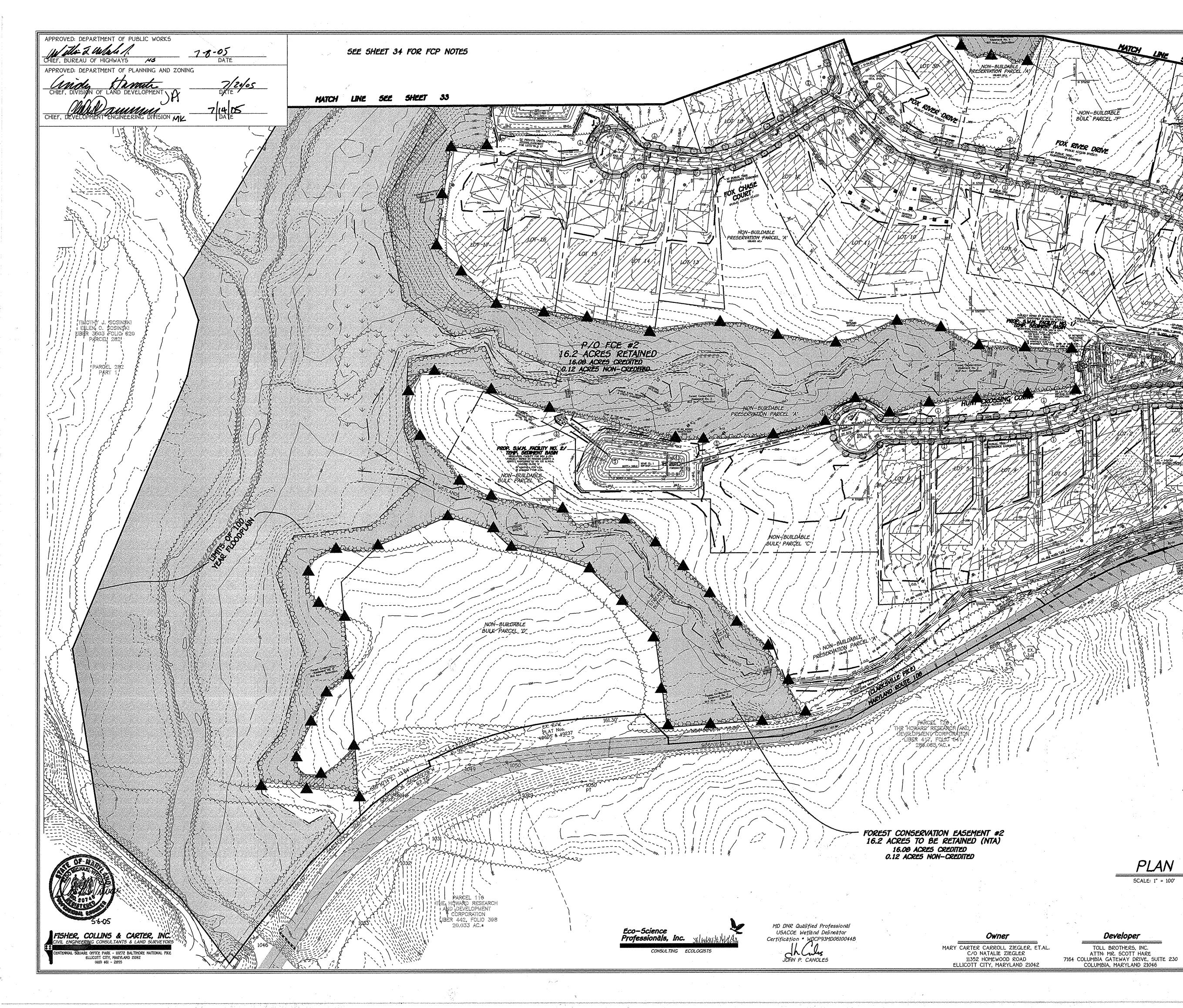


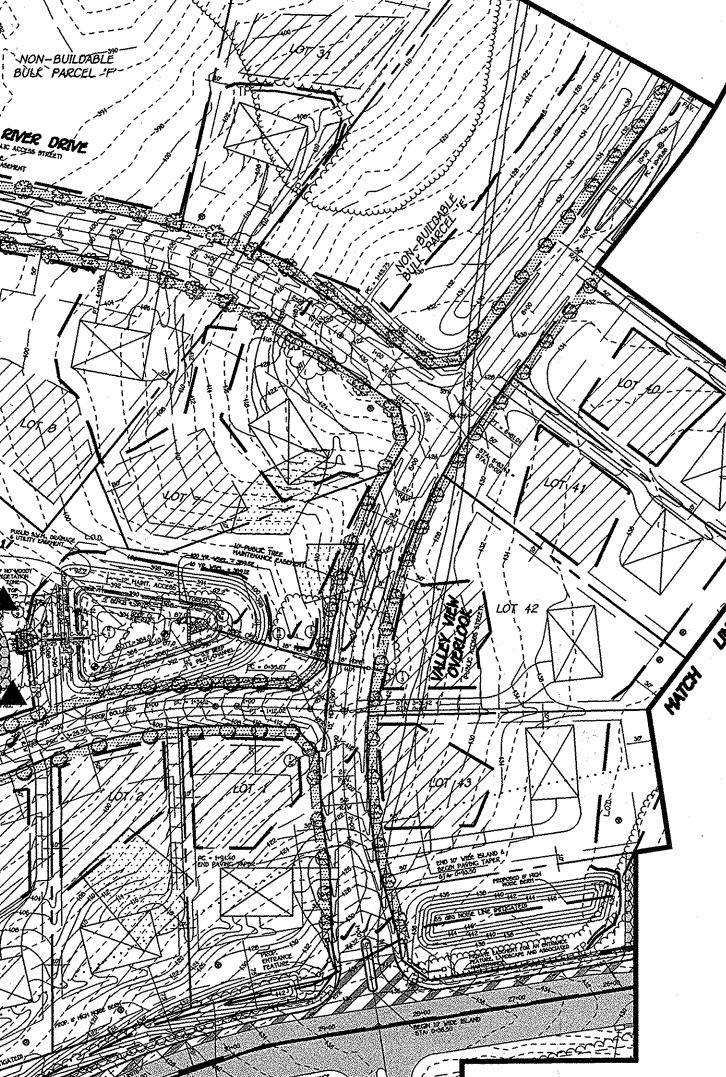






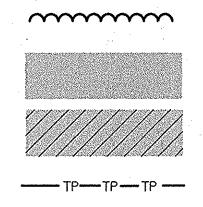






**ICH** 

# FCP LEGEND



LIMITS OF DISTURBANCE

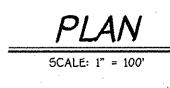
FOREST TO BE RETAINED

LIMITS OF FOREST CONSERVATION EASEMENT

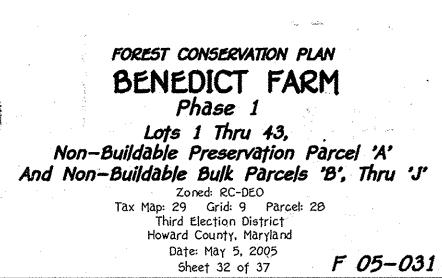
LIMITS OF NON-CREDITED FOREST CONSERVATION EASEMENT

TEMPORARY PROTECTIVE FENCING

PERMANENT PROTECTIVE SIGNAGE



Developer



As-Built 8.17.09

APPROVED: DEPARTMENT OF PUBLIC WORKS CHIEF, BUREAU OF HIGHWAYS 7-8-05 *H*3 APPROVED: DEPARTMENT OF PLANNING AND ZONING lina ON OF LAND DEVELOPMEN SH VELOPMENT ENGINEERING DIVISION MK CHIEF, DEVELOF

## FOREST CONSERVATION EASEMENT DATA

ACREAGE	CREDIT AREA	NON-CREDIT AREA	PLANTING OR RETENTION
50.8 AC.	50.76 AC.	0.04 AC.	RETENTION
16.2 AC.	16.08 AC.	0.12 AC.	RETENTION
1.322 AC.	1.282 AC.	0.04 AC.	RETENTION
11.449 AC.	11.279 AC.	0.17 AC.	RETENTION
0.340 AC.	0.33 AC.	0.01 AC.	RETENTION
0.596 AC.	0.596 AC.	0.00 AC.	RETENTION
AREA	80.327 AC.	0.38 AC.	RETENTION
	16.2 AC. 1.322 AC. 11.449 AC. 0.340 AC. 0.596 AC.	50.8 AC.         50.76 AC.           16.2 AC.         16.08 AC.           1.322 AC.         1.282 AC.           11.449 AC.         11.279 AC.           0.340 AC.         0.33 AC.           0.596 AC.         0.596 AC.	50.8 AC.       50.76 AC.       0.04 AC.         16.2 AC.       16.08 AC.       0.12 AC.         1.322 AC.       1.282 AC.       0.04 AC.         11.449 AC.       11.279 AC.       0.17 AC.         0.340 AC.       0.33 AC.       0.01 AC.         0.596 AC.       0.596 AC.       0.00 AC.

FOREST CONSERVATION EASEMENT #3-1.322 ACRES TO BE RETAINED (NTA) 1.282 ACRES CREDITED 0.04 ACRES NON-CREDITED

MATCH LINE

THE SHORE RE

P/O FCE #2 16.2 ACRES RETAINED 16.00 ACRES CREDITED 0.12 ACRES NON-CREDITED

CONSULTING ECOLOGISTS

Eco-Science Professionals, Inc.

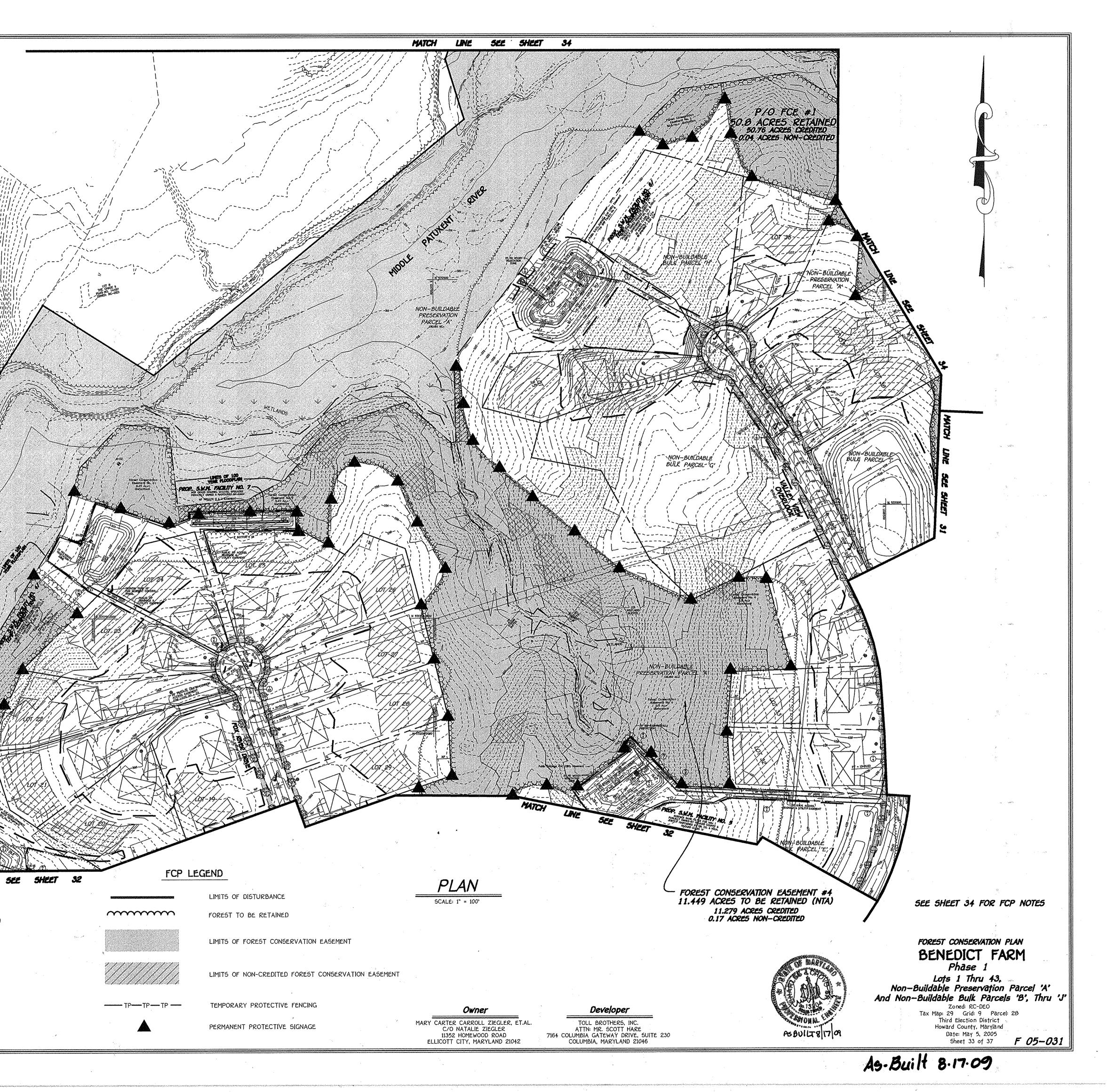
FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

> QUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MARYLAND 21042 (410) 461 - 2855

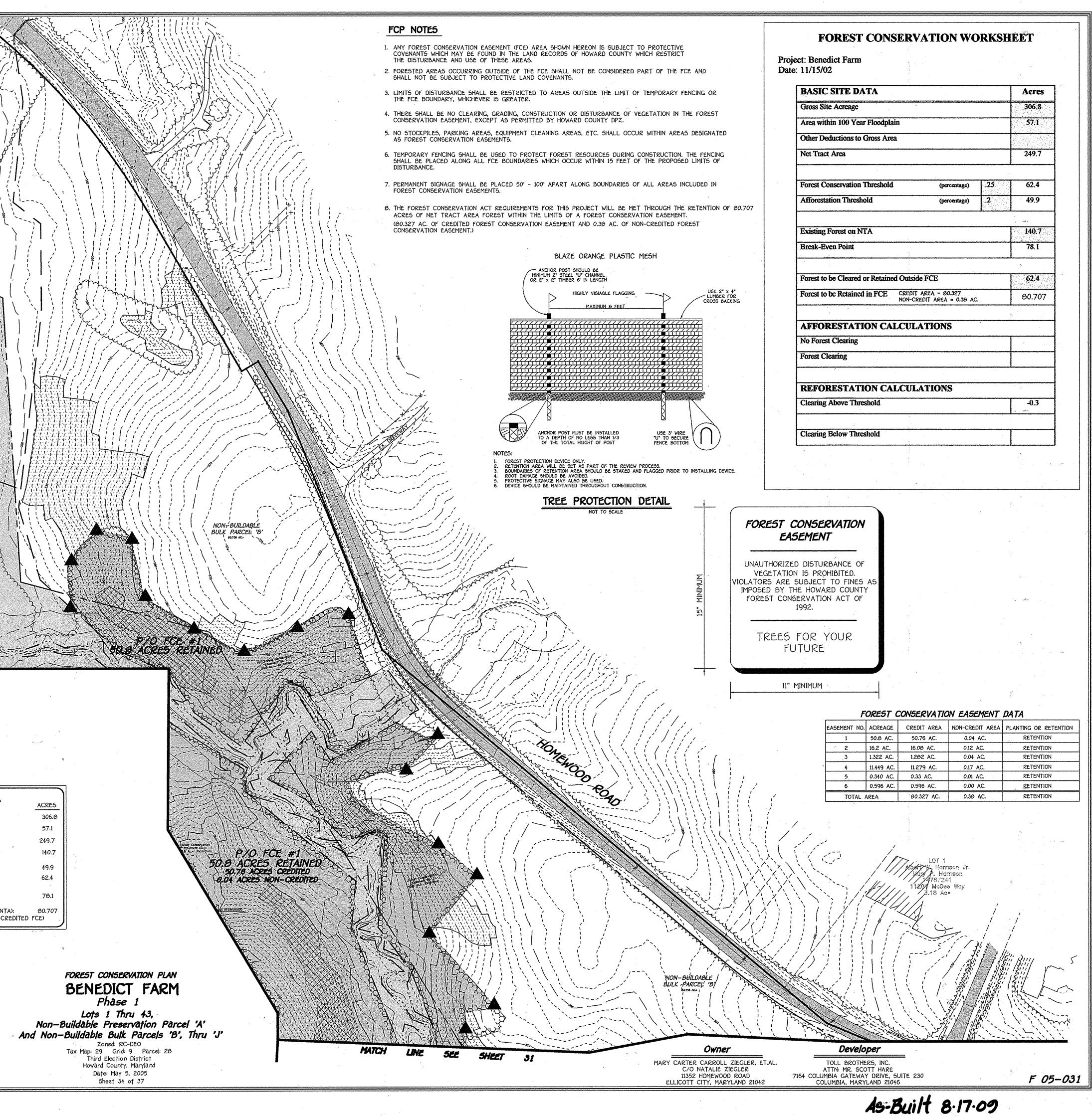
MD DNR Qualified Professional USACOE Wetland Delineator Certification • WDCP93MD0610044B JOHN P. CANOLE5

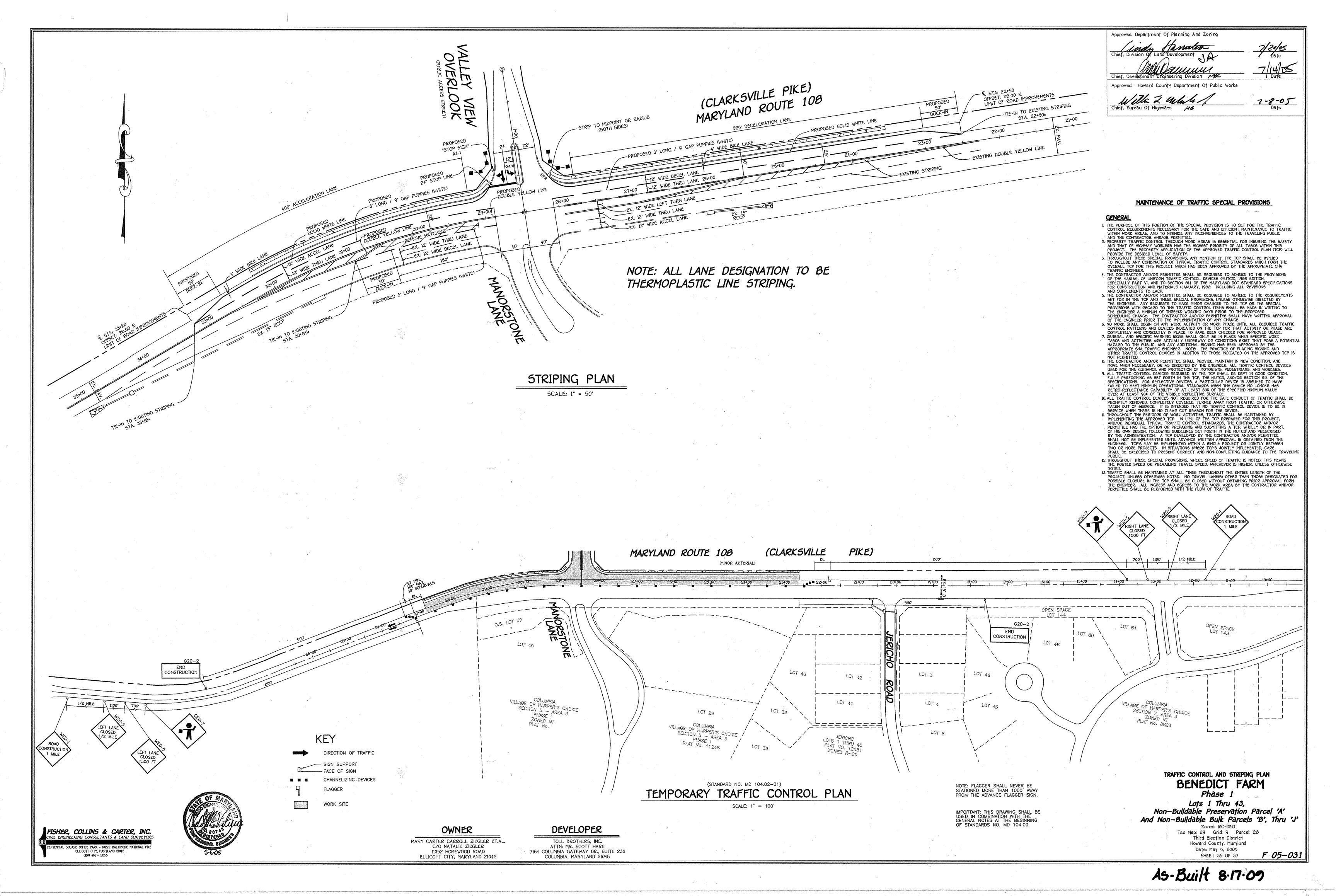
NON-BUILDABLE PRESERVATION PARCEL

> PROP. S.W.M. PACELITY NO. 3/ TONP. SECREDIT ONS



APPROVED: DEPARTMENT OF PUBLIC WORKS We other I. Walach / 7-8-05 CHIEF, BUREAU OF HIGHWAYS HS DATE APPROVED: DEPARTMENT OF PLANNING AND ZONING ----------م می این بی مد مد مد س - ما شي موجو موجو موجو موجو \_\_\_\_\_ \_\_\_\_\_ www MAN COUNT ALES CES SEE SHEET MATCH LINE 33 FLOODPLAIN NOTE: PORTIONS OF THE SITE OCCURRING WITHIN THE 100 YEAR FLOODPLAIN ARE NOT INCLUDED AS PART OF THE NET TRACT AREA OF THE SITE. AREAS OF FLOODPLAIN FOREST OCCURRING WITHIN THE LIMITS OF A FOREST CONSERVATION EASEMENT WILL BE PROTECTED BY THE EASEMENT RESTRICTIONS BUT HAVE NOT BEEN CREDITED TOWARD THE PROJECTS FCA OBLIGATIONS. PLAN SITE DATA SCALE: 1" = 100' GROSS AREA: FCP LEGEND 100 YEAR FLOODPLAIN: NET TRACT AREA (NTA): LIMITS OF DISTURBANCE EXISTING FOREST (NTA):  $\dots$ FOREST TO BE RETAINED AFFORESTATION THRESHOLD: CONSERVATION THRESHOLD: LIMITS OF FOREST CONSERVATION EASEMENT BREAK-EVEN POINT: FOREST TO BE RETAINED IN FCE (NTA): (AREA INCLUDES 0.38 AC. OF NON-CREDITED FCE) LIMITS OF NON-CREDITED FOREST CONSERVATION EASEMENT TEMPORARY PROTECTIVE FENCING ------ TP ----- TP -----RMANENT PROTECTIVE SIGNAGE MD DNR Qualified Professional USACOE Wetland Delineator FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS Eco-Science Professionals, Inc. Certification • WDCP93MD0610044B IAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PD JOHN P. CANOLES CONSULTING ECOLOGISTS ELLICOTT CITY, MARYLAND 21042 (410) 461 - 2855





HILLIS - CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 1 RECORD OF SOIL EXPLORATION Project Name Benedict Farm SWM Boring Number B-10 02254A Howard County, Maryland Location Job# SAMPLER 140 Lbs. 30 Inches Hole Diameter 6\* Rock Core Dia. Boring Method HSA Foreman J. Hersl Hammer WL 383.26 Hammer Dx 05-23-02 Pipe Size Surf. Elev. Hammer Drop Inspector Completed 05-23-02 2.0 Inches OD Date Started ELEV. SAMPLE BORING & SAMPLING SOIL DESCRIPTION STRA DEPTH Color Molecure Density State Proportion DEPTH SCALE CON BLOWS 6" NO. REC NOTES SURFACE 0.0 3" Topsol Brown moist, very loose to mediu dense micaceous sity fine sand (SM) 2-2-3 23-2 Caved in at 7.5 after 24 6-5-8 Caved in at 8.0' at Completion Groundwater encountered 4-4-26 15" lat 9.0" while drilling Bottom of Hole at 10.0' SAMPLE CONDITIONS GROUND WATER DEPTH BORING METHOD SAMPLER TYPE ATCOMPLETION HSA-HOLLOW STEM AUGERS ORIVEN SPLIT SPOON UNLESS D-DISINTEGRATED Dry AFTER 24 brs Dry CFA-CONT. FLIGHT AUGERS OTHERWISE NOTED. DC-DRIVING CASING PT-PRESSED SHELBY TUBE U-UNDISTURBED AFTER AND-MUD DRILLING CA-CONTINUOUS FLIGHT AUGER L-LOST RC-ROCK CORE

8.4

olitom of Hole at 10,0" SAMPLER TYPE SAMPLE CONDITIONS ORIVEN SPLIT SPOON UNLESS D-DISINTEGRATED OTHERWISE NOTED. HINTACT PT-PRESSED SHELBY TUBE U-UNIOSTURBED CA-CONTINUOUS FLIGHT AUGER L-LOST RC-ROCK CORE Project Nam Benedict Farm SWM Location Howard County, Maryland Datum Hammer Wt. 140 Lts. FLEY SOIL DESCRIPTION Frown, and tan, moist to dry, toose to medium dense, micaceous sity line sand (SM) 11 om of Hole at 10.0' 

Project Name Benedict Farm SWM

gravel

I ocation

Datum

ELEV.

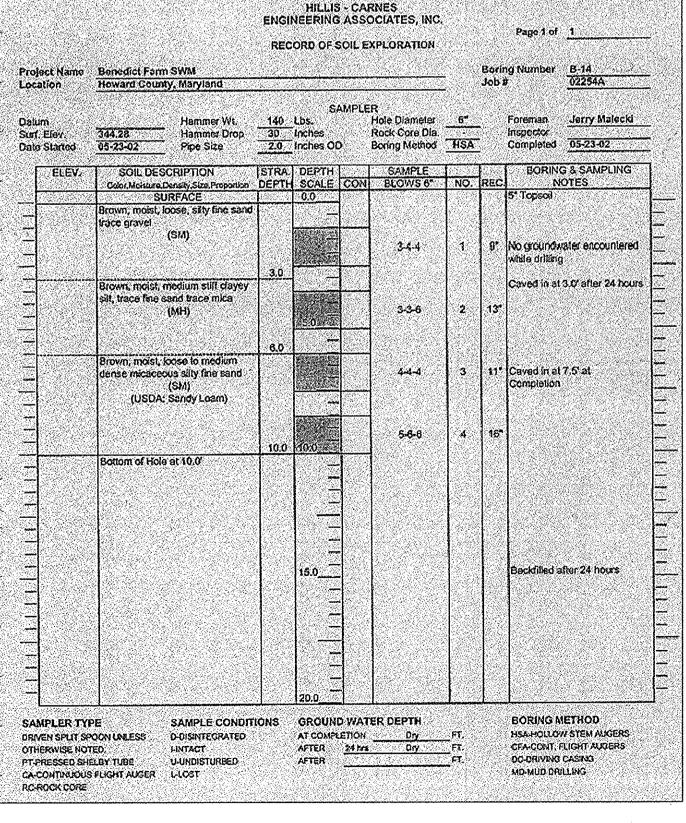
Howard County, Maryland

Surf. Elev. <u>388.32</u> Hammer Drop Date Started <u>05-23-02</u> Pipe Size

Hammer WE

SURFACE

(SIA)



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

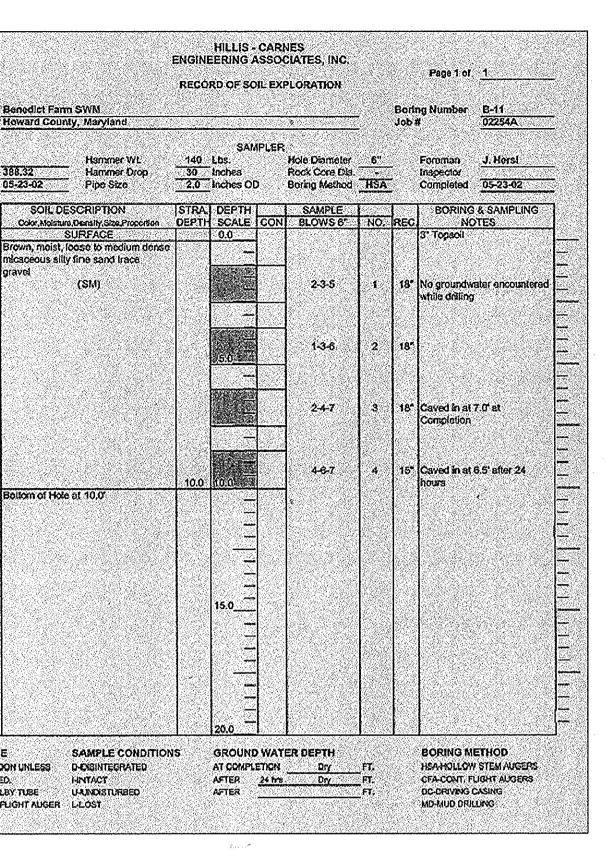


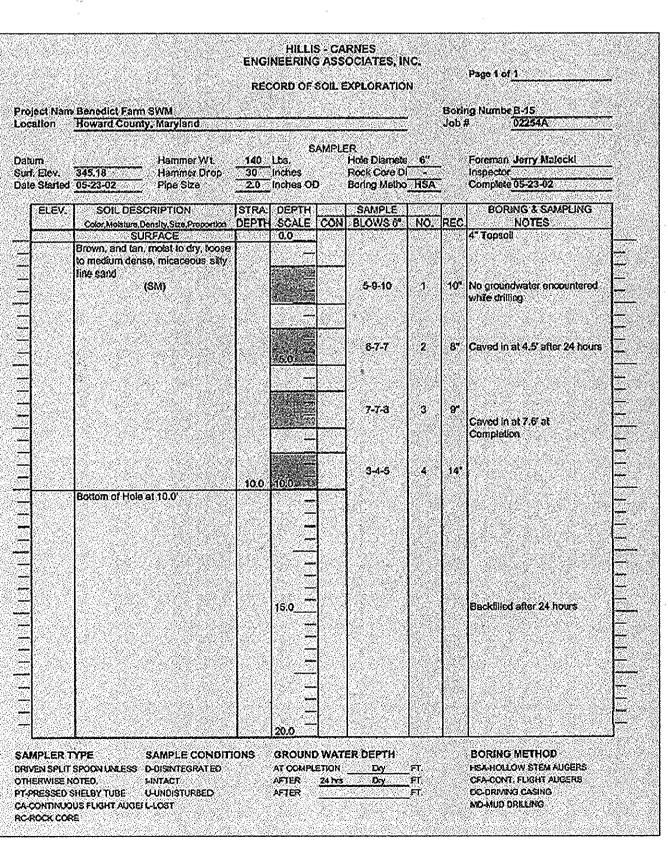
SAMPLER TYPE SAMPLE CONDITIONS DRIVEN SPLIT SPOON UNLESS D-DISINTEGRATED OTHERWISE NOTED. PT-PRESSED SHELBY TUBE U-UNDISTURBED CA-CONTINUOUS FLIGHT AUGE/L-LOST RC-ROCK CORE MARY CARTER CARROLL ZIEGLER, ET.AL. C/O NATALIE ZIEGLER

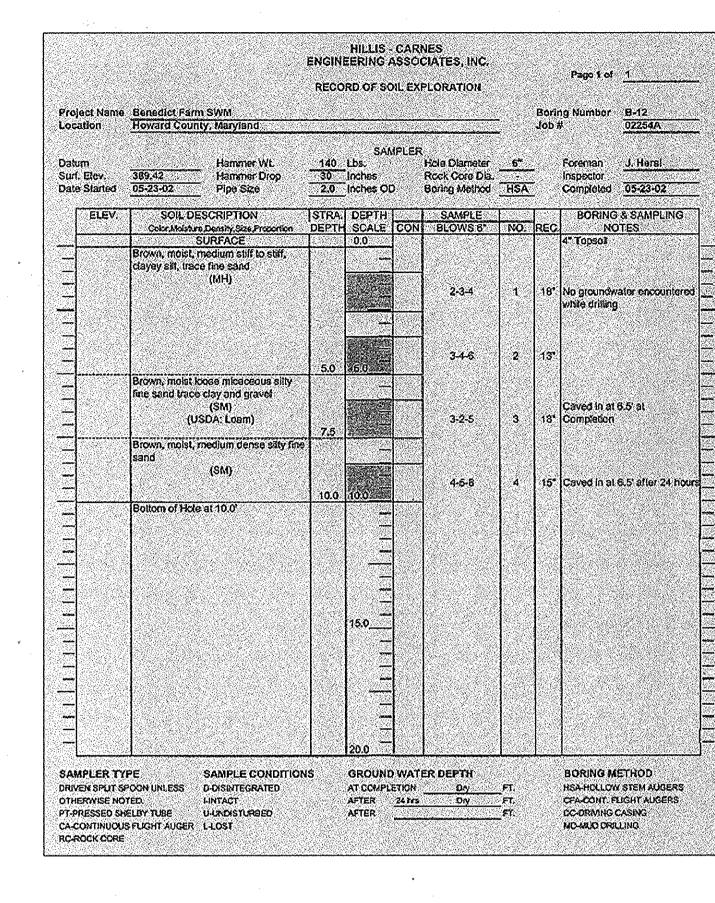
OWNER

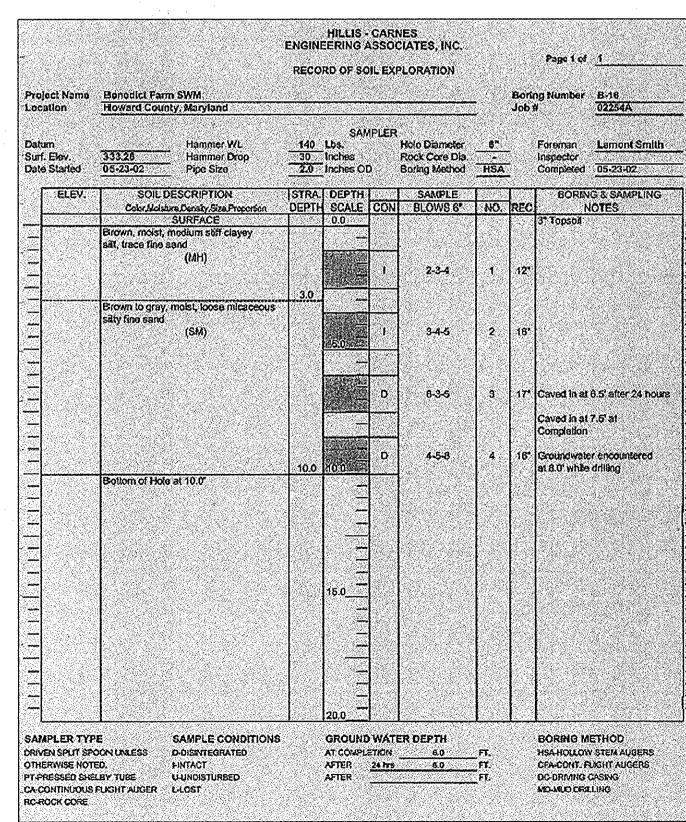
11352 HOMEWOOD ROAD

ELLICOTT CITY, MARYLAND 21042









DEVELOPER TOLL BROTHERS, INC. ATTN: MR. SCOTT HARE 7164 COLUMBIA GATEWAY DR., SUITE 230 COLUMBIA, MARYLAND 21046

APPROVED: DEPARTMENT OF PUBLIC WORKS CHIEF, BUREAU OF HIGHWAYS 7-8-05 DATE APPROVED: DEPARTMENT OF PLANNING AND ZONING Manat. 7/20/05 CHIEF, DIVISION OF LAND DEVELOPMENT Mu Dannun 7/14/05 CHIEF, DEVELOPMENT ENGINEERING DIVISION HILLIS - CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 1 RECORD OF SOIL EXPLORATION Project Nam Benedict Farm SWM Boring Numbe 8-13 Location Howard County, Maryland Job # 02254A SAMPLER 
 Datum
 Hammer WL
 140
 Lts.
 Hole Diamets
 6"
 Foreman
 Foreman
 Jenny Malecki

 Surf. Elev.
 348.50
 Herniner Drop
 30
 Inches
 Rick Core Di
 Inspector
 Inspector

 Date Standed
 05-23-02
 Pipe Size
 2.0
 Inches OD
 Boring Metho
 HSA
 Complete 05-23-02

 ELEV.
 SOIL DESCRIPTION
 STRA
 DEPTH
 SAMPLE
 BORING & SAMPLING

 Colv: Moisture Density, Size Propertion
 DEPTH
 SCALE
 CON
 BLOWS 6"
 NO.
 REC
 NOTES

 SURFACE
 0.0
 5" Topsoil
 5" Topsoil
 trace fine sand (CL) 3-3-4 8" [No groundwater encountered.] while drilling Brown, moist, medium dense micaceous ailly fine sand. Gaved in at 3.5' after 24 hours (SM) 8-12-14 8-14-14 15" Caved in at 6.8' at -----أشتنك 1-12-12 ltom of Hole at 10.0 C. GANG -Bacikiled after 24 hours SAMPLER TYPE SAMPLE CONDITIONS GROUND WATER DEPTH BORING METHOD AT COMPLETION Dry HSA HOLLOW STEM AUGERS DRIVEN SPLIT SPOCH UNLESS D-DISINTEGRATED OFA-CONT. FUGHT AUGERS OTHERWISE NOTED, HINTACT AFTER 24 hrs Dry F DC-DRMING CASING PT-PRESSED SHELBY TUBE U-UNDISTURBED AFTER CA-CONTINUOUS FLIGHT AUGER L-LOST SED AS DO ORULING RC-ROCK CORE HILLIS - CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 1 \$ RECORD OF SOIL EXPLORATION Project Name Banedict Farm SWM Location Howard County, Maryland Boring Number B-17 02254A Job # SAMPLER 
 Hammer Wt.
 140
 Lbs.
 Hole Diameter
 8"
 Foreman
 Lamont Smith

 328.39
 Hammer Drop
 30
 Inches
 Rock Core Dia.
 - Inspector
 Inspector

 05-23-02
 Pipe Size
 2.0
 Inches OD
 Boring Method
 HSA
 Completed
 05-23-02
 Datum Surf. Elev. Inspector Completed 05-23-02 Date Started SOIL DESCRIPTION STRAL DEPTH SAMPLE CON MOISSANCE NO. REC. SELEN BORING & SAMPLING NOTES SURFACE 0.0 Brown, moles, medium still to very still sandy silt (MIL) 2-4-5 4" No groundwater encountere while drilling ·----344 50 Gaved in at 7.0' after 24 hours 5-7-10 Coved in at 7.5' at Commeter rown, moist medium dens micaceous sity fine sand 9-10-8 \_\_\_(SM)∍ ottom of Hola at 10.0" SAMPLER TYPE SAMPLE CONDITIONS GROUND WATER DEPTH BORING METHOD DRIVEN SPLIT SPOON UNLESS D-DISINTEGRATED AT COMPLETION Dry HEAMOLLOW STEM AUGERS AFTER 24 brs Dry OTHERWISE NOTED. HNTACT CFA-CONT. FLIGHT AUGERS PT-PRESSED SHELBY TUBE U/U/WD/STURBED AFTER DC-CRIVING CASING CA-CONTINUOUS FLIGHT AUGER LLOST MD-MUO DRIULING RC-ROCK CORE SOIL BORINGS BENEDICT FARM Phase 1 Lots 1 Thru 43, Non-Buildable Preservation Parcel 'A' And Non-Buildable Bulk Parcels 'B', Thru 'J' Zoned: RC-DEO Tax Map: 29 Grid: 9 Parcel: 28

Third Election District

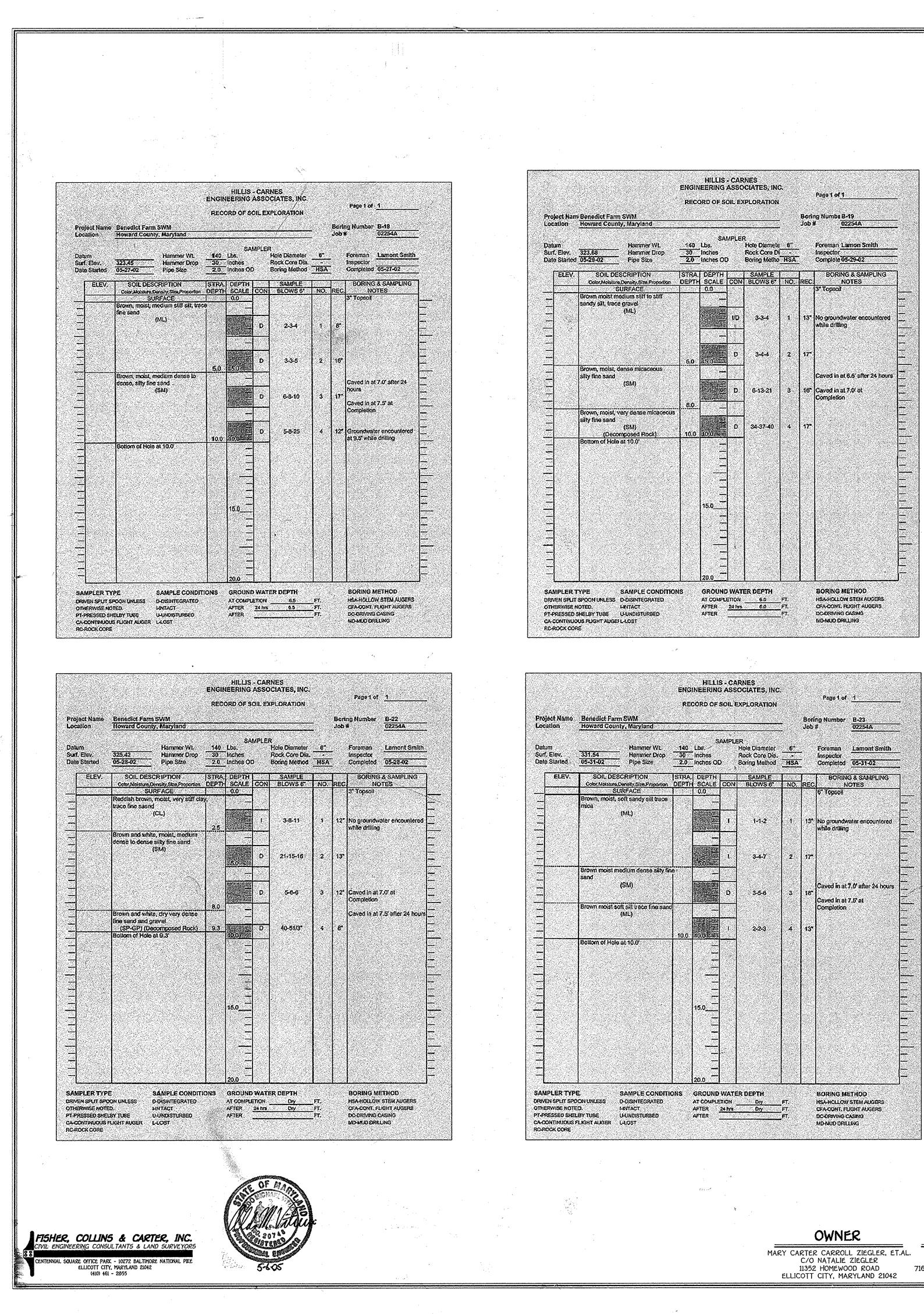
Howard County, Maryland

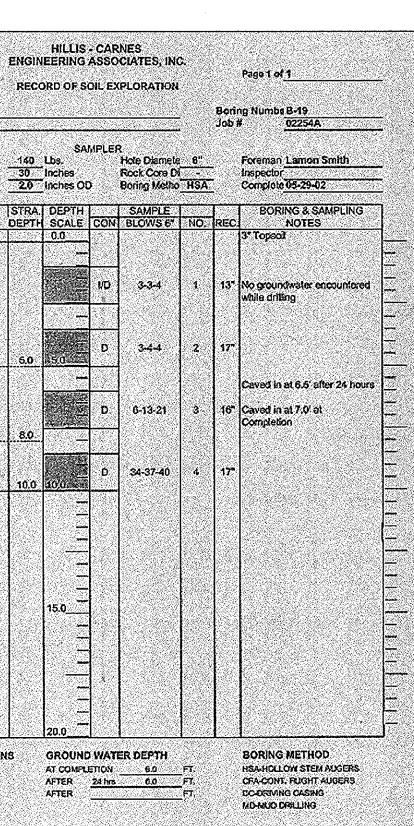
Date: May 5, 2005

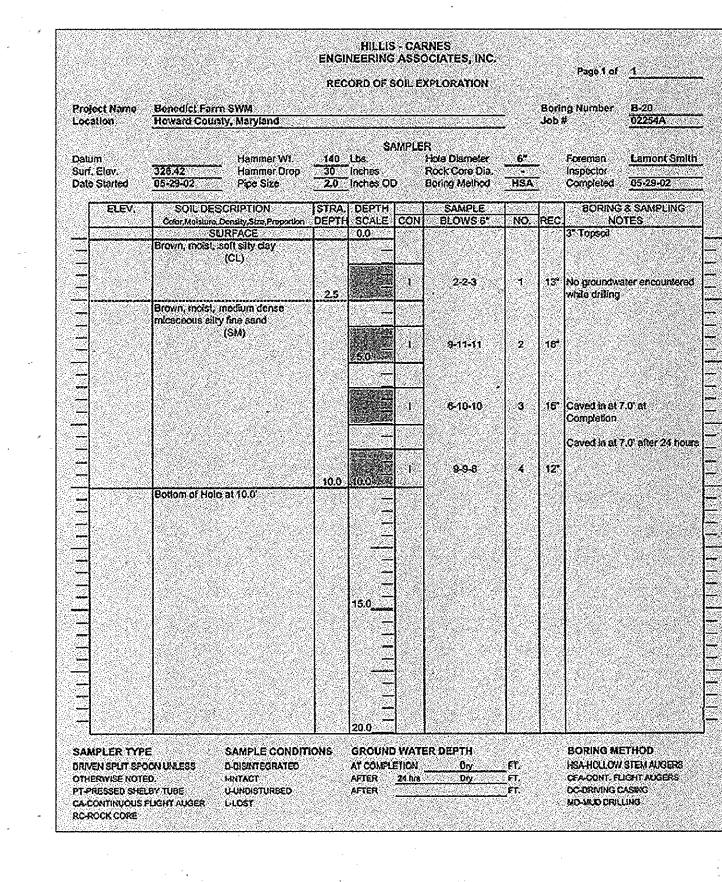
SHEET 36 OF 37

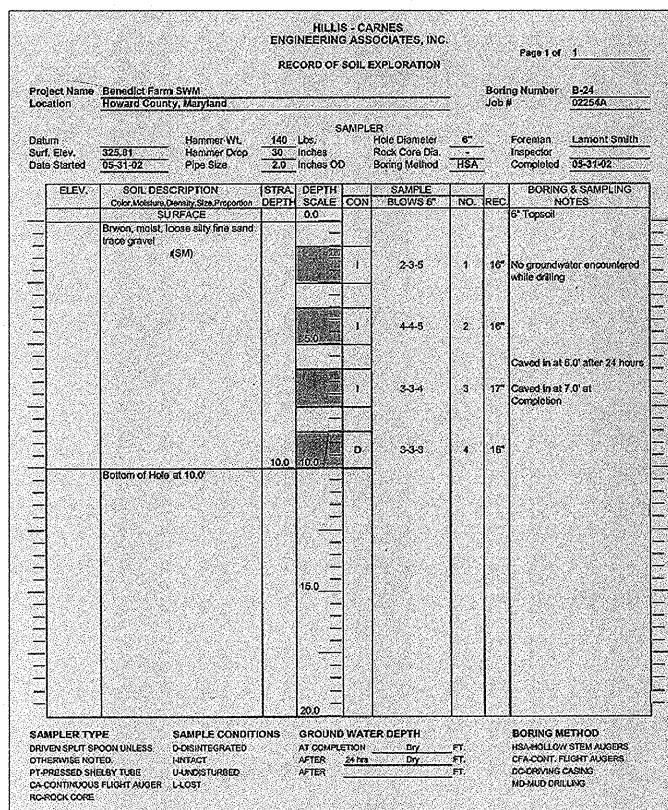
As-Built 8.17.09

F 05-031

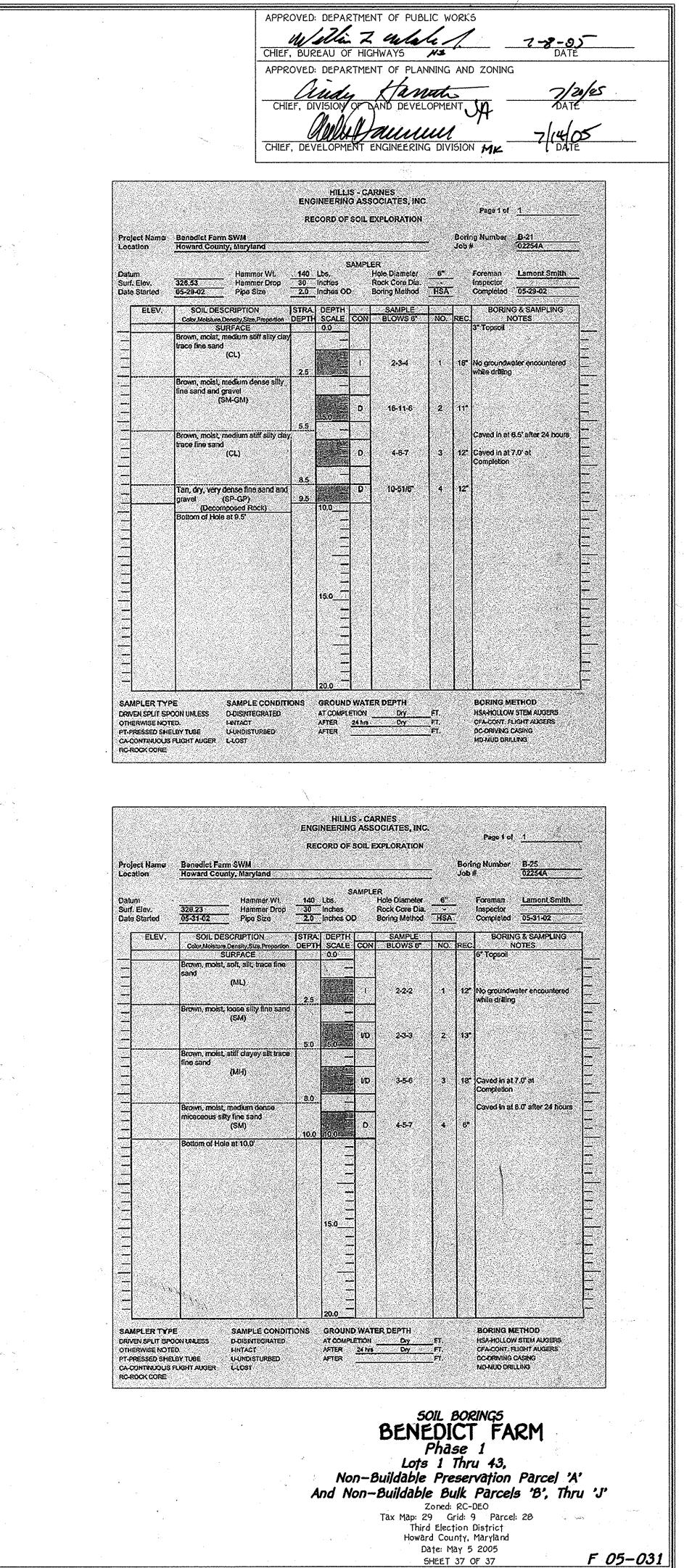








DEVELOPER TOLL BROTHERS, INC. ATTN: MR. SCOTT HARE 7164 COLUMBIA GATEWAY DR., SUITE 230 COLUMBIA, MARYLAND 21046



SHEET 37 OF 37 As-Built 8.17.09