FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLAN

CLOVERFIELD

BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'

ZONING: RC-DEO

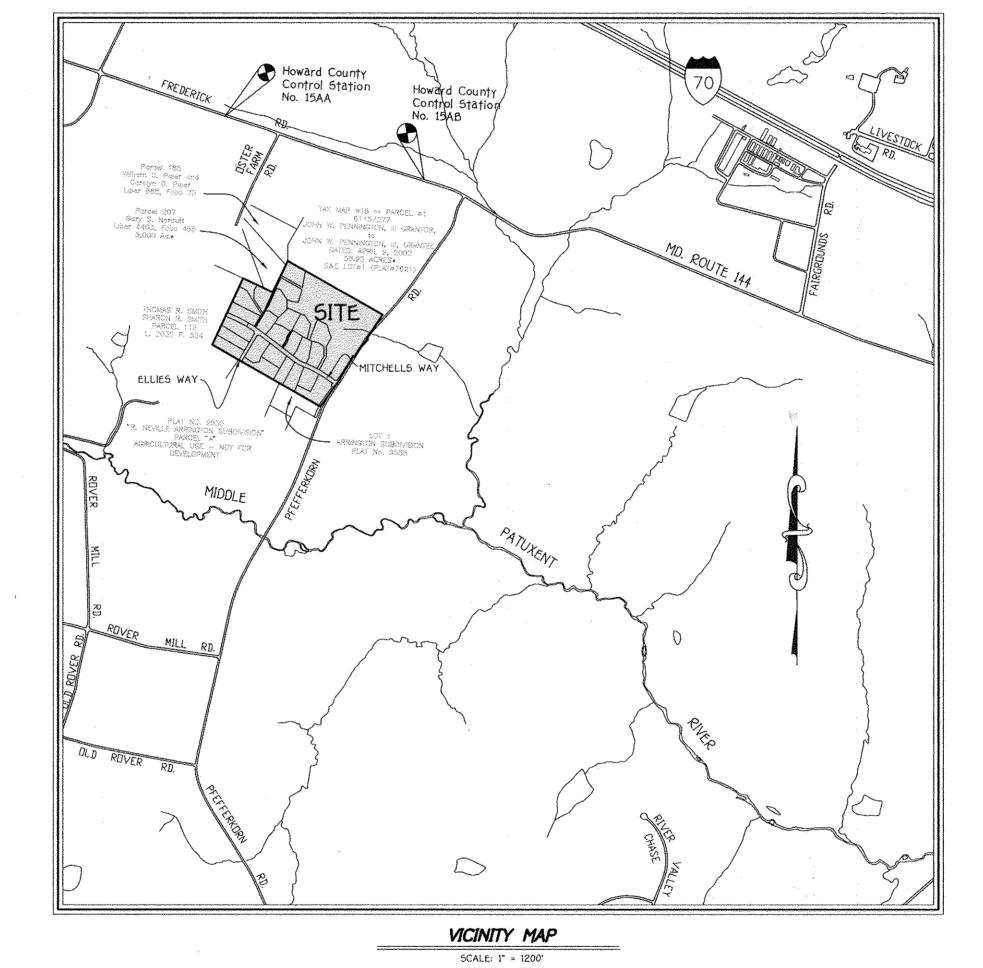
TAX MAP NO. 15 GRID No. 8 PARCEL No. 4

	ROADWAY INFORMA	TION CHART	
ROAD NAME	CLASSIFICATION	DESIGN SPEED	R/W WIDTH
MITCHELLS WAY	PUBLIC ACCESS STREET	30 M.P.H.	50'
ELLIES WAY	PUBLIC ACCESS STREET	25 M.P.H.	40'

	TRAFFIC	CC	NTROL	5IGN5	
ROAD NAME	CENTERLINE	STA.	OFFSET	POSTED SIGN	SIGN COD
MITCHELLS WAY	0+40		14' L	5TOP	R1-1
MITCHELLS WAY	2+00		14' R	SPEED LIMIT 25	R2-1
ELLIES WAY	0+40		13' L	STOP	R1-1
MITCHELLS WAY	2+50		14' L	STOP AHEAD	W3-1a

"SIGN POSTS: ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG, A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST."

	n the grant depote the state of	5T	REET L	IGHT CHART
DWG. No.	STREET NAME	STATION	OFF-SET	FIXTURE/POLE TYPE
2	MITCHELLS WAY	0+40	25' LEFT	150 WATT "PREMIER H.P.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14 FOOT BLACK FIBERGLASS POLE.



GENERAL NOTES CONTINUED:

35. DRIVEWAY (5) SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING (MINIMUM) REQUIREMENTS: A) WIDTH - 12 FEET (14 FEET SERVING MORE THAN ONE RESIDENCE) B) SURFACE - SIX (6") INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING C) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45 FOOT TURNING RADIUS D) STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING) E) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN I FOOT DEPTH OVER DRIVEWAY SURFACE F) STRUCTURE CLEARANCES - MINIMUM 12 FEET G) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE

36. THIS PROPERTY IS SUBJECT TO GROUNDWATER APPROPRIATIONS PERMIT NUMBER HO2006G006 (0)).

THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

OWNER

ROBERT T. MATTHEWS REVOCABLE TRUST c/o MR. TOM LYONS 7 MOSSVIEW COURT BALTIMORE, MARYLAND 21228

DEVELOPER

HERITAGE LAND DEVELOPMENT 15950 NORTH AVENUE P.O. BOX 482 LISBON, MARYLAND 21765 ATTN: MR. TIM FEAGA PHONE: (410) 489-7900



APPROVED: DEPARTMENT OF PUBLIC WORKS 10-3-06

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE

2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING. CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK. 3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 40 HOURS PRIOR TO ANY

4. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL

BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT 5. COORDINATES BASED ON NAD'83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 15 AA AND NO. 15 AB

> √5†a. 15AA N 599,605.293, € 1,314,773.416 √Sta. 15AB N 598,858.934, E 1,316,925.177

6. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP, DATED AUGUST, 2004. THE DEVELOPERS SHARE OF THE CAPITAL PROJECT FOR MD. ROUTE 32/BURNTWOODS ROAD INTERSECTION MITIGATION COST HAS BEEN DETERMINED TO BE \$55,835.00. THE TRAFFIC STUDY WAS APPROVED ON MAY 5, 2005.

7. BACKGROUND INFORMATION: A. SUBDIVISION NAME: CLOVERFIELD

B. TAX MAP NO.: 15 D. ZONING: RC-DEO

E. ELECTION DISTRICT: THIRD G. NO. OF BUILDABLE LOTS: 21

H. NO. OF OPEN SPACE LOTS: 0 J. NO. OF NON-BUILDABLE BULK PARCELS: 1

K. NO. OF BUILDABLE PRESERVATION PARCELS: 1 L. AREA OF BUILDABLE LOTS: 24.592 AC.
M. AREA OF OPEN SPACE LOTS: 0.00 AC.*

N. AREA OF NON-BUILDABLE PRESERVATION PARCELS: 5.462 AC.

O. AREA OF NON-BUILDABLE BULK PARCELS: 0.339 AC.+ P. AREA OF BUILDABLE PRESERVATION PARCELS: 15.034 AC.*

Q. TOTAL AREA OF ROADWAY TO BE DEDICATED: 2.202 AC.+ R. PREVIOUS FILE NOS.: SP 05-02 AS CLOVERFIELD, APPROVAL DATE: 5/05/09

8. NO CEMETERIES EXIST WITHIN THIS SUBDIVISION. 9. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-180.

10. STREET LIGHTS WILL BE REQUIRED IN THE DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.

11. STORMWATER MANAGEMENT FACILITY: B.M.P. No. 1 - TYPE - MICRO-POOL DESIGN. (EXTENDED DETENTION)

OWNER - HOMEOWNERS ASSOCIATION B.M.P. No. 2 - TYPE - POCKET POND DESIGN.

OWNER - HOMEOWNERS ASSOCIATION STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH HOWARD COUNTY AND MARYLAND 378 SPECIFICATIONS. RECHARGE VOLUME WILL BE PROVIDED THROUGH THE USE OF GRASS CHANNELS NEXT TO THE ROADWAY. CHANNEL PROTECTION VOLUMES WILL BE PROVIDED BY A MICRO-POOL EXTENDED DETENTION POND AND A POCKET POND. WATER QUALITY VOLUMES WILL BE PROVIDED BY THE MICRO-POOL EXTENDED DETENTION POND, THE POCKET POND AND INFILTRATABLE DRY WELLS. 25 YR. STORMWATER MANAGEMENT VOLUME HAS BEEN PROVIDED WITHIN BMP No. : EXTREME FLOOD VOLUME IS NOT REQUIRED FOR THIS SITE. THE STORMWATER MANAGEMENT FACILITIES WILL BE OWNED BY THE CLOVERFIELD HOMEOWNER'S ASSOCIATION AND MAINTAINED JOINTLY THROUGH THE CLOVERFIELD H.O.A. AND

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 AFRIAL TOPOGRAPHY PREPARED BY 3DI, L.L.C. DATED APRIL 14, 2001 AND SUPPLEMENTED BY FIELD RUN TOPOGRAPHY PREPARED BY FISHER, COLLINS & CARTER INC. DATED APRIL 2002.

15 FOR FLAC OR PIPESTEM LOTS REFLISE COLLECTION SHOW 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 AUG. 2004 AND APPROVED ON MAY 5, 2005 UNDER SP 05-02.

7. SOILS INFORMATION TAKEN FROM SOIL MAP Nos. 7 & 13, SOIL SURVEY, HOWARD COUNTY, MARYLAND

18. SUBJECT PROPERTY ZONED RC-DEO PER 4/13/04 COMPREHENSIVE ZONING PLAN. 19. This Plat Is In Compliance With The Amended Fifth Edition Of The Subdivision

And Land Development Regulations Per Council Bill 45-2003 And The Zoning Regulations As Amended By Council Bill 75-2003. Development Or Construction On These Lots Must Comply With Setback And Buffer Regulations in Effect At The Time Of Submission Of The Site Development Plan, Waiver Petition Application, Or Building/ Grading Permit.

20. THERE ARE NO AREAS OF STEEP SLOPES (25% OR GREATER) LOCATED ON THIS PROPERTY AS DEFINED BY THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.116.b.

21. AS PER SECTION 104.F.4.b 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 'B' d. BUILDABLE PRESERVATION PARCEL 'A' OWNED: PRIVATELY OWNED OWNED: PRIVATELY OWNED

EASEMENT HOLDERS: HOWARD COUNTY & H.O.A. USE: FOREST CONSERVATION b. NON-BUILDABLE PRESERVATION PARCEL 'C' OWNED: HOMEOWNER'S ASSOCIATION

USE: FOREST CONSERVATION e. NON-BUILDABLE PRESERVATION PARCEL 'E OWNED: HOMEOWNER'S ASSOCIATION EASEMENT HOLDER: HOWARD COUNTY

EASEMENT HOLDERS: HOWARD COUNTY & HO.A.

USE: 5.W.M. C. NON-BUILDABLE PRESERVATION PARCEL 'D EASEMENT HOLDERS: HOWARD COUNTY & H.O.A.

EASEMENT HOLDER: HOWARD COUNTY

USE: FOREST CONSERVATION 22. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAM OR THEIR REQUIRED

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: The reforestation obligation of 15.0 acres for this project shall be met through a combination of onsite planting of 13.3 acres with the remaining 2.5 acres of reforestation obligation to be met in an offsite location ("FEAGA II PROPERTY", TAX MAP No. 6, GRID No. 21, PARCEL No. 56, 4th ELECTION DISTRICT.

The surety amount for the on-site forestation obiligation is 13.3 ac. planting @ \$0.50/sq.ft. = \$289,674.00 and retention of 2.1 ac. • \$0.20/sq.ft. = \$18.295.20. The surety amount for the off-site retention of 5.0 ac. • \$0.20/sq.ft. = \$43.560.00. The total forestation surety amount is \$351,529.20.

24. THE LANDSCAPE SURETY IN THE AMOUNT OF \$33,750.00 FOR PERIMETER LANDSCAPE REQUIREMENTS (09 SHADE TREES AND 47 EVERGREEN TREES) OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL IS POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SUBDIVISION

25. THE NON-CRITICAL FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY FISHER, COLLINS & CARTER, INC. DATED AUGUST, 2004 AND WAS APPROVED UNDER THE 5P-05-02 PLAN ON MAY 5, 2005.

26. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HERBST/BENSON & ASSOCIATES, DATED MAY, 2004. 27. BUILDABLE PRESERVATION PARCEL 'A' DOES NOT RETAIN THE RIGHT TO BE FURTHER SUBDIVIDED IN ACCORDANCE WITH THE DEO CLUSTER REGULATIONS IN SECTION 106 OF THE HOWARD COUNTY ZONING

28. THE EXISTING HOUSE ON BUILDABLE PARCEL 'A' WAS BUILT IN 1963 AND PER THE MEETING ON NOVEMBER 16, 2004 WITH THE SUBDIVISION REVIEW COMMITTEE, THIS HOUSE CAN BE REMOVED PER THIS PLAN.

29. THE EXISTING WELL & SEPTIC AREA LOCATED ON PRESERVATION PARCEL 'A' WILL BE ABANDONED PRIOR TO

30. THE PURPOSE OF NON-BUILDABLE BULK PARCEL 'F' 15 TO PROVIDE A RIGHT-OF-WAY TO THE ADJACENT PROPERTY 31. BASED ON THE INTERACTIVE REVIEW MEETING HELD ON NOVEMBER 16, 2004, THE DESIGN OF THE PRESERVATION PARCELS IS ACCEPTABLE, PER ZONING SECTION 104.F.2. AND THE SCENIC ROAD IMPACT EVALUTION WAS APPROVED

32. BOUNDARY OUTLINE BASED ON FIELD RUN SURVEY PERFORMED BY FISHER COLLINS & CARTER, INC. DATED

33. "SIGN POSTS: ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED

ON TOP OF EACH POST.* 34. ALL WELLS MUST BE DRILLED PRIOR TO FINAL PLAT SIGNATURE.

TITLE SHEET CLOVERFIELD

BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'

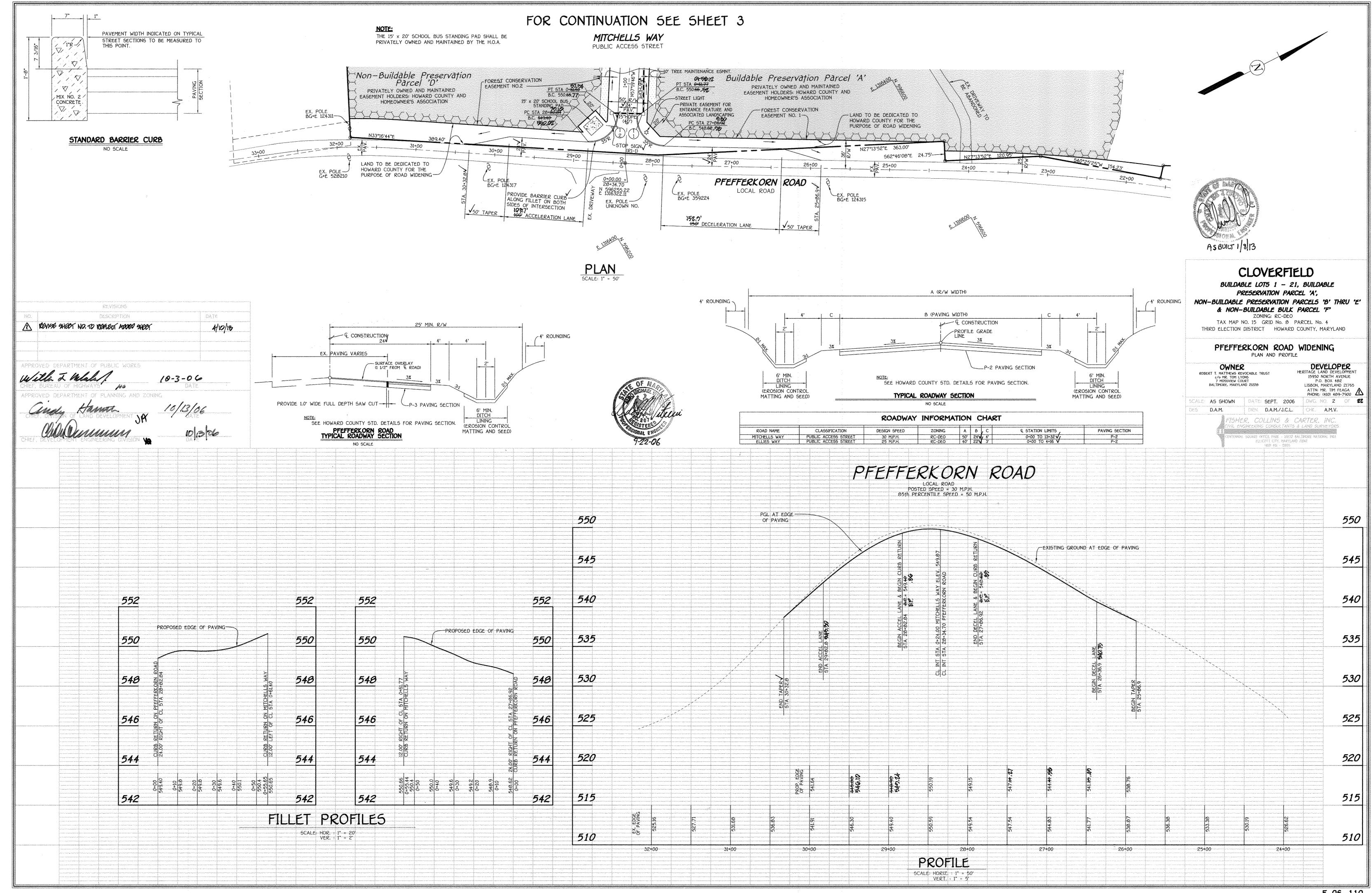
> ZONING: RC-DEO TAX MAP NO. 15 GRID No. 8 PARCEL No. 4 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: SEPTEMBER, 2006

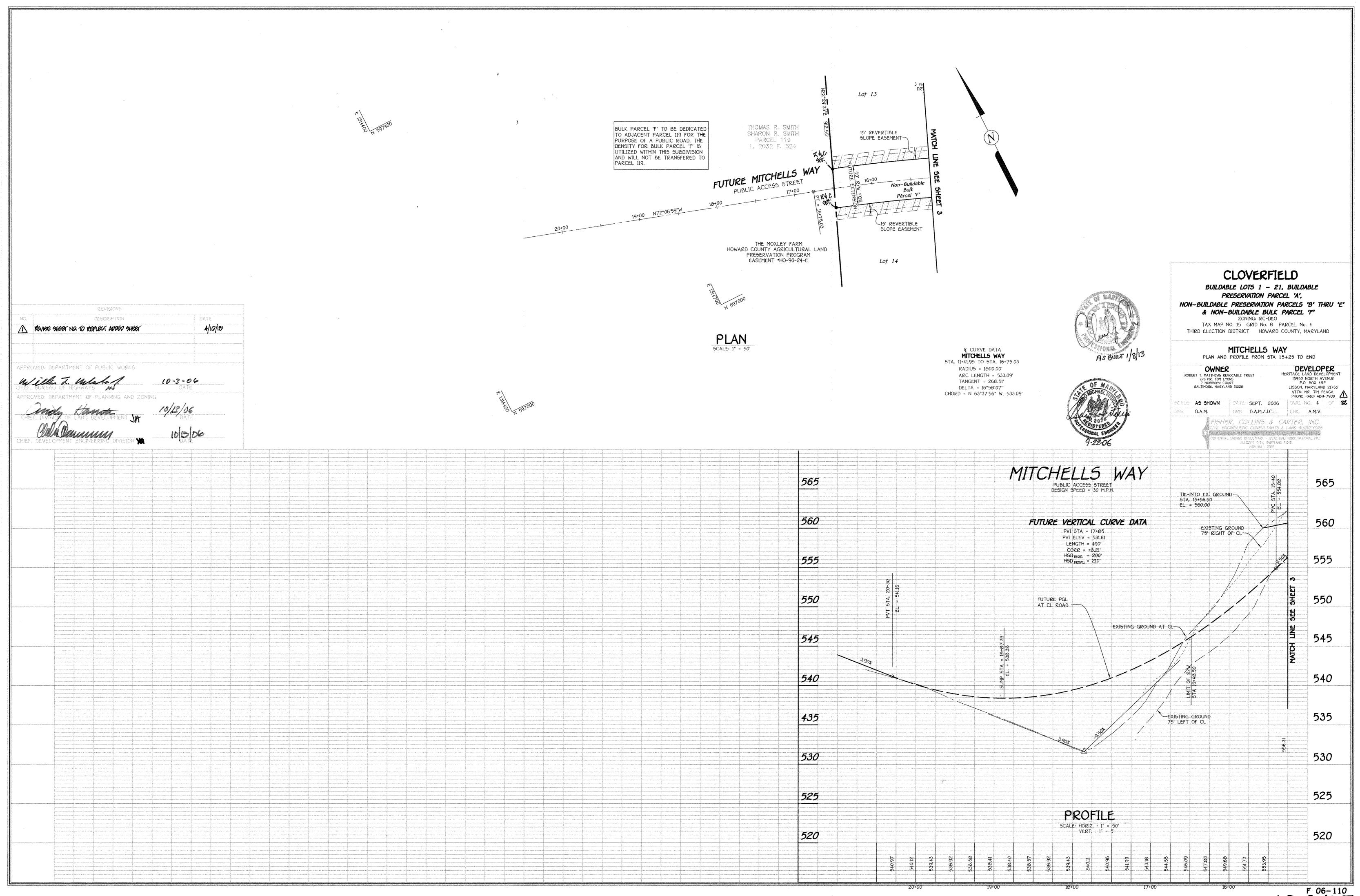
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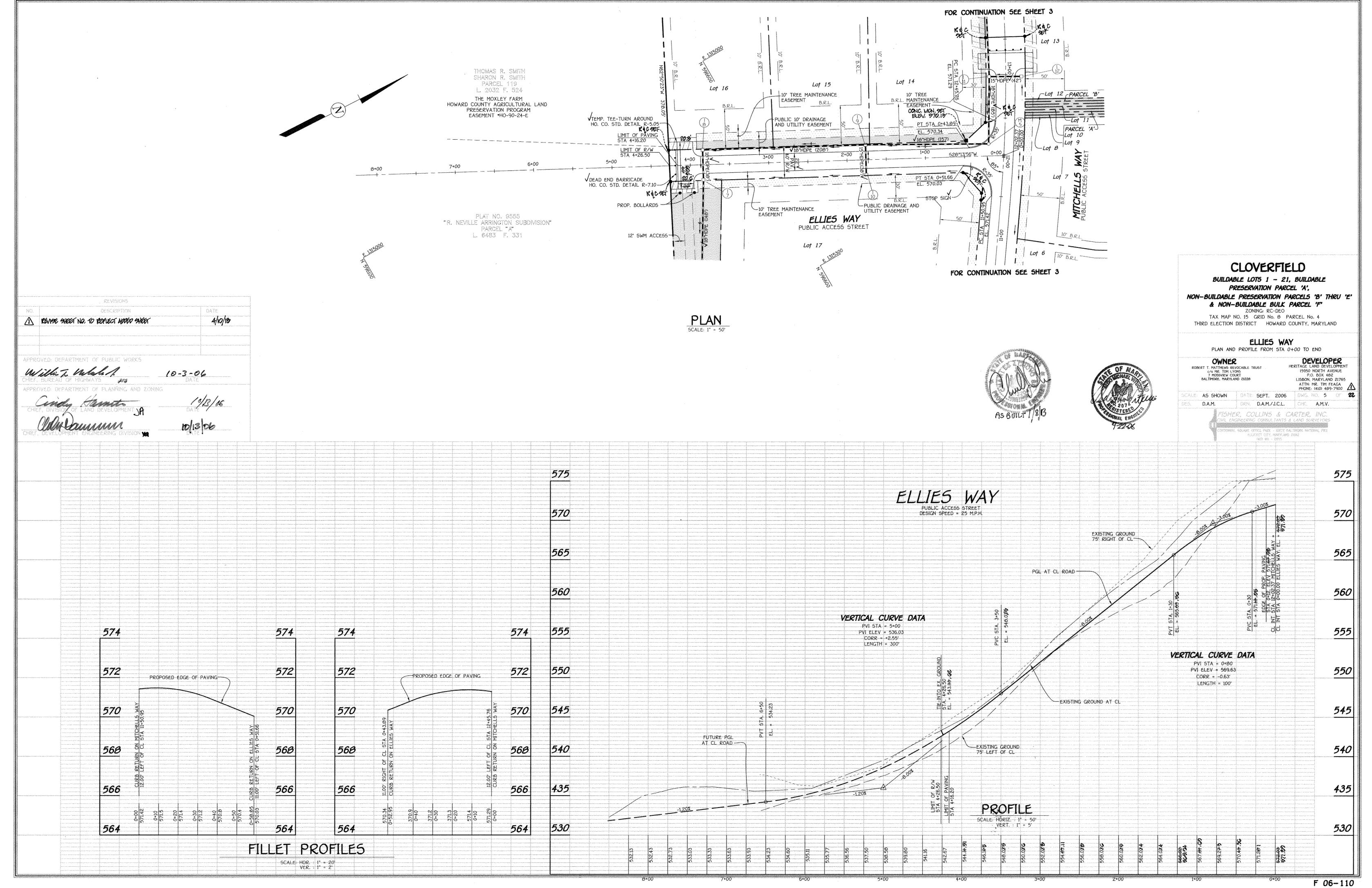
FISHER. COLLINS & CARTER. INC. ELLICOTT CITY, MARYLAND 21042

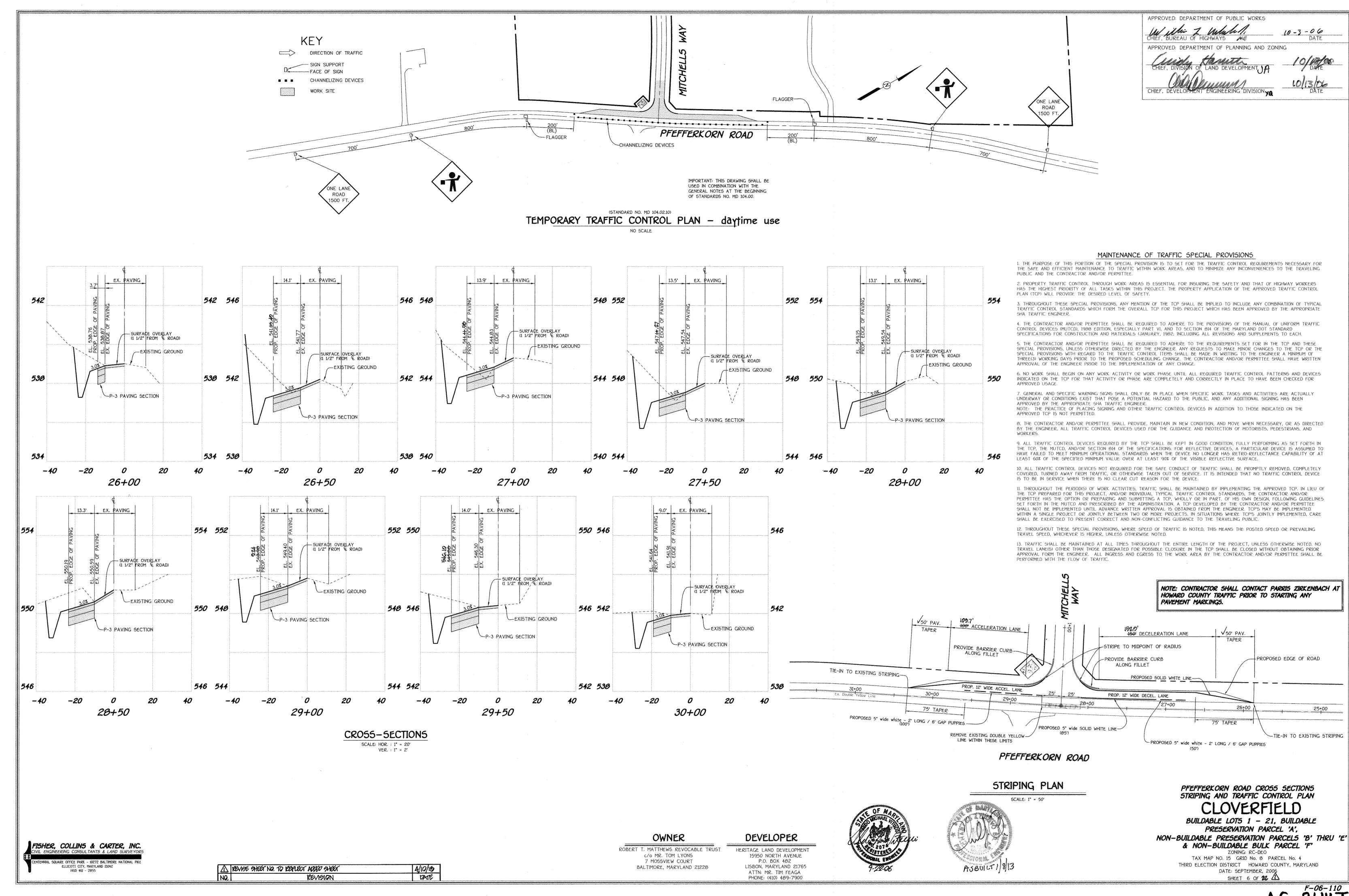
ADD 94861 22, OPP-9116 PLANTING-MULLINEAUX PROPERTY AND 1 REMOVE POREST PROM CLOSEOPIED BUILDADLE PRESERVATION PARCELX 4/10/18 REMODION

SHEET 1 OF 22 A





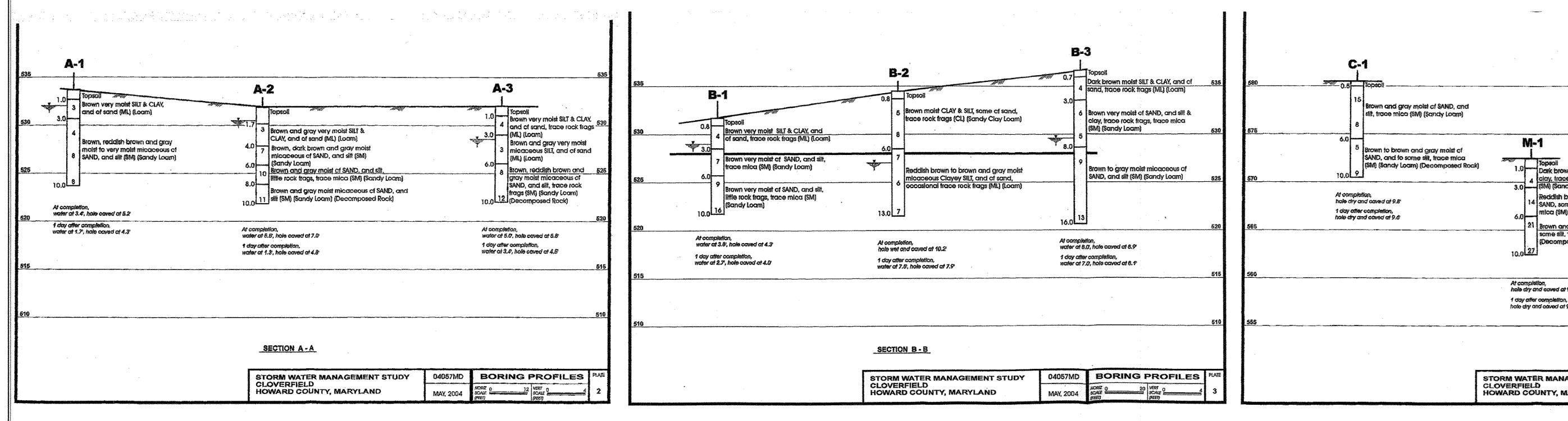


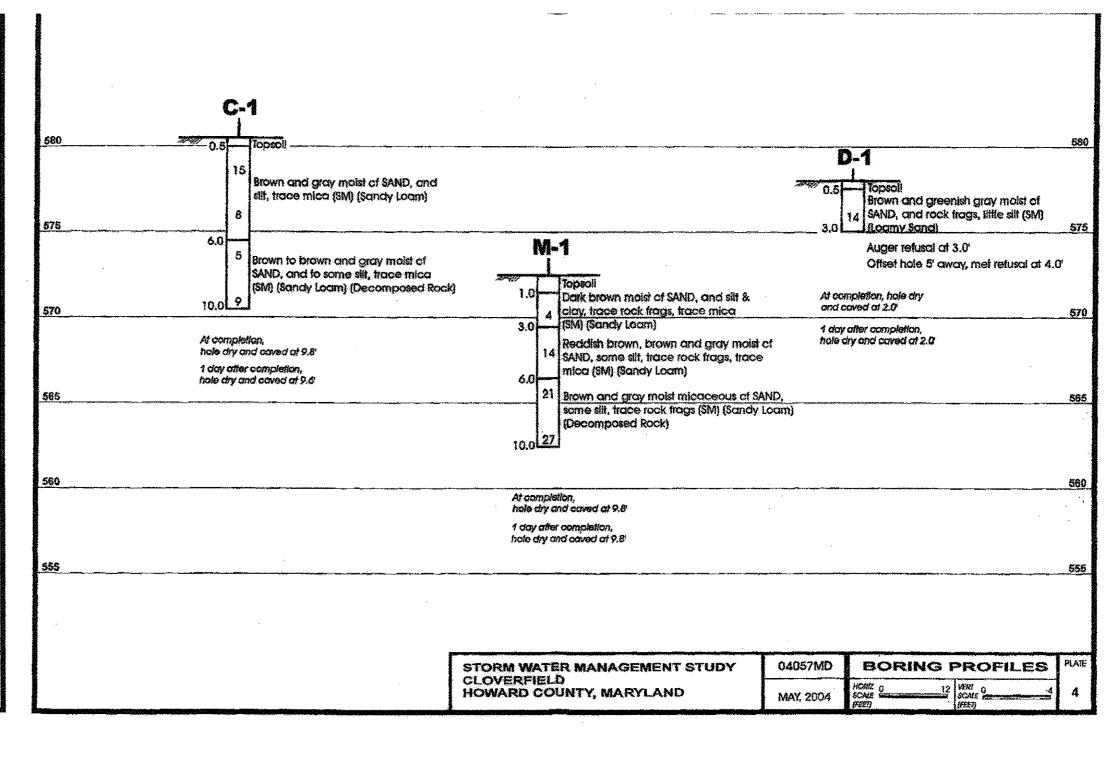


VIL ENGINEERING CONSULTANTS & LAND SURVEYORS

ELLICOTT CITY, MARYLAND 21042

NNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE

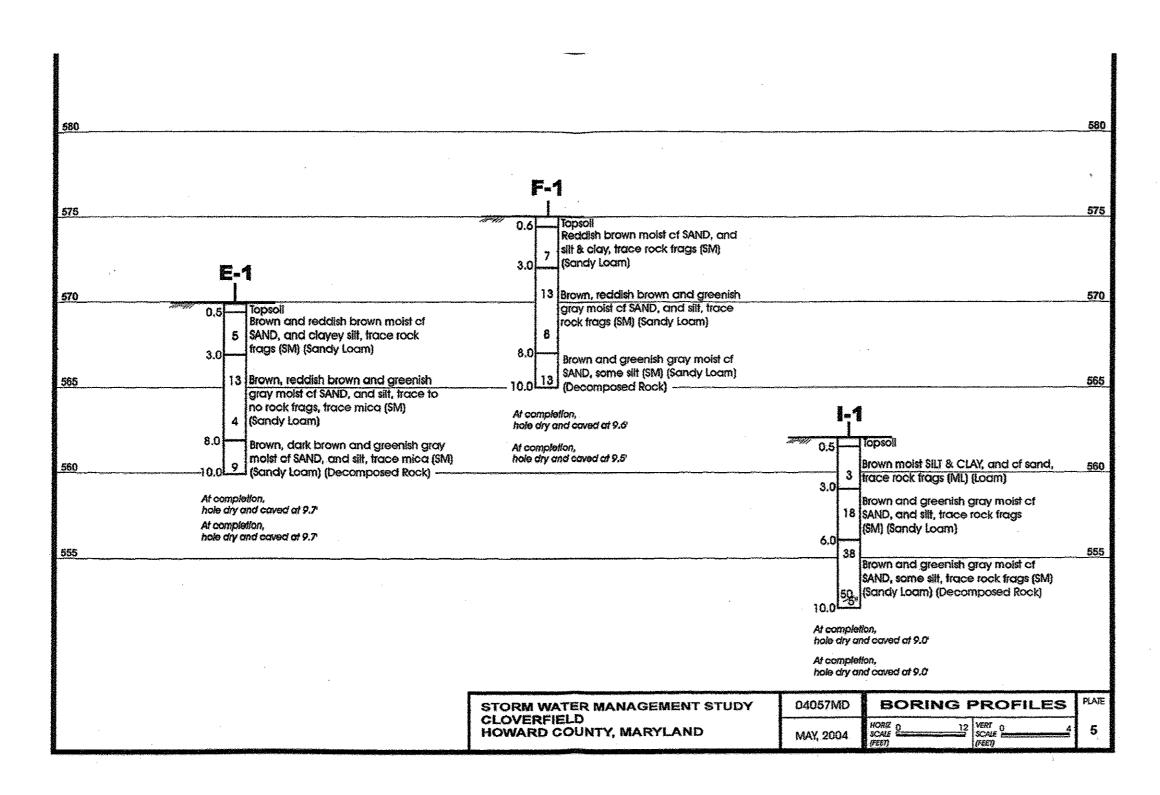




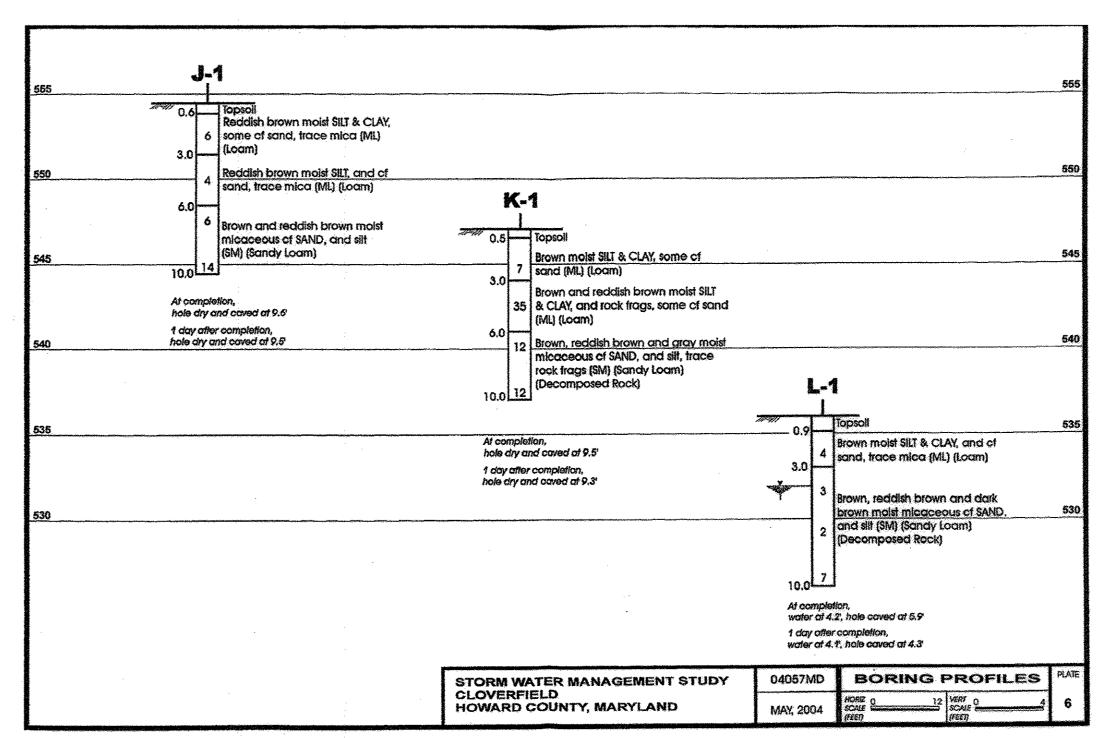
APPROVED: DEPARTMENT OF PUBLIC WORKS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

10-3-06



4/10/18 DATE



SOIL BORINGS NOT TO SCALE

OWNER ROBERT T. MATTHEWS REVOCABLE TRUST c/o MR. TOM LYONS

7 MOSSVIEW COURT

BALTIMORE, MARYLAND 21228

HERITAGE LAND DEVELOPMENT 15950 NORTH AVENUE P.O. BOX 482 LISBON, MARYLAND 21765 ATTN: MR. TIM FEAGA PHONE: (410) 489-7900

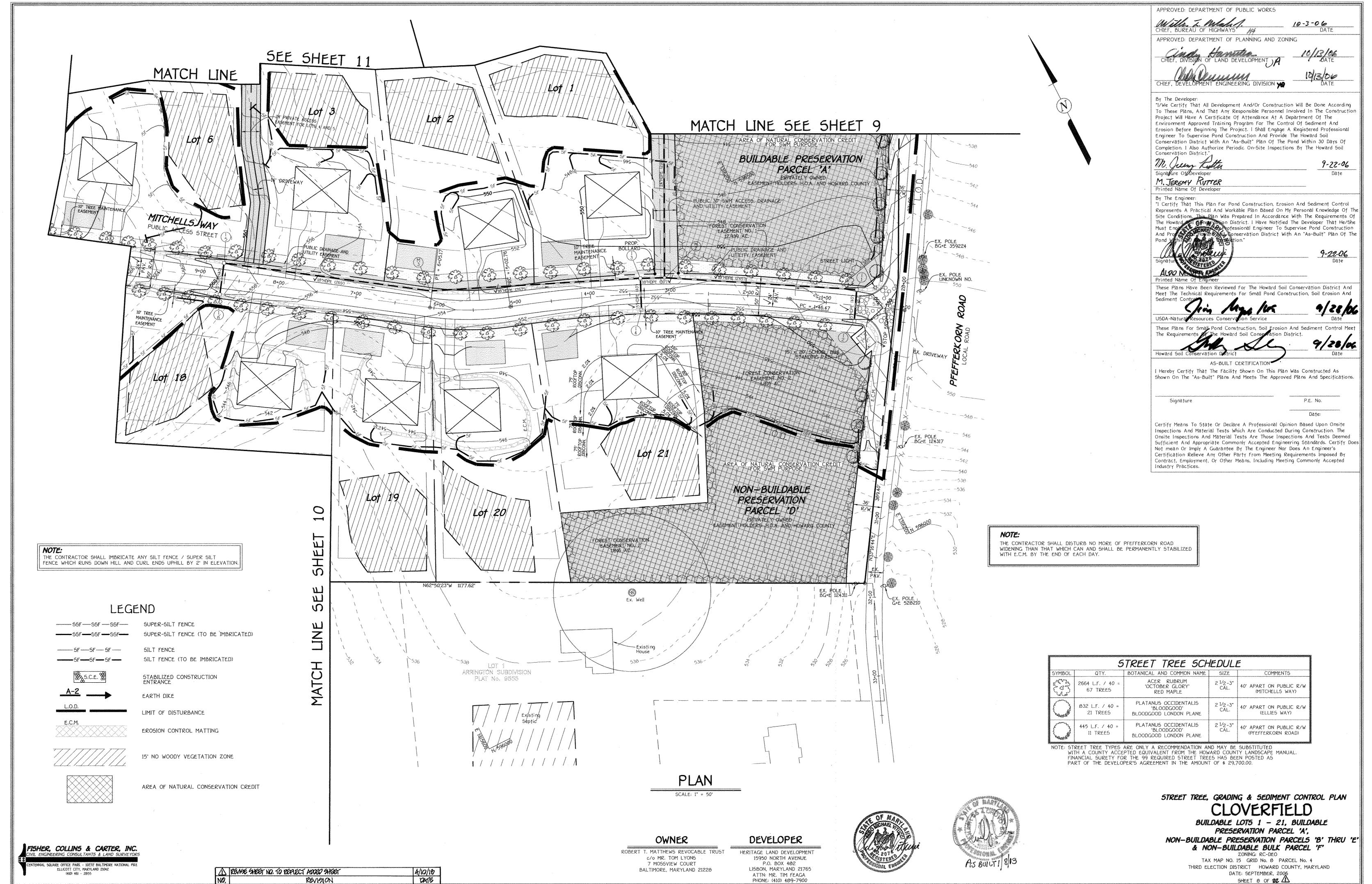
DEVELOPER

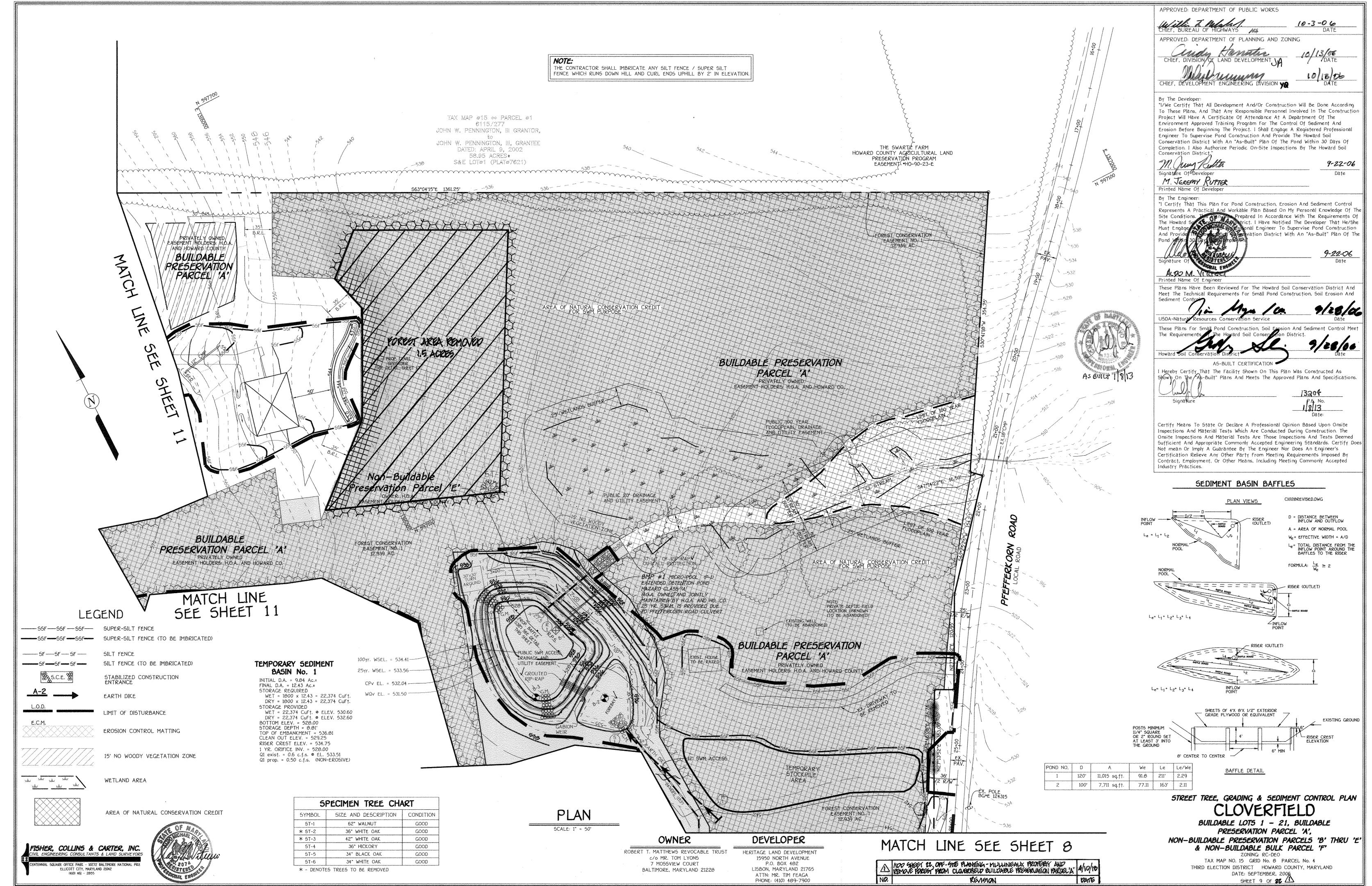


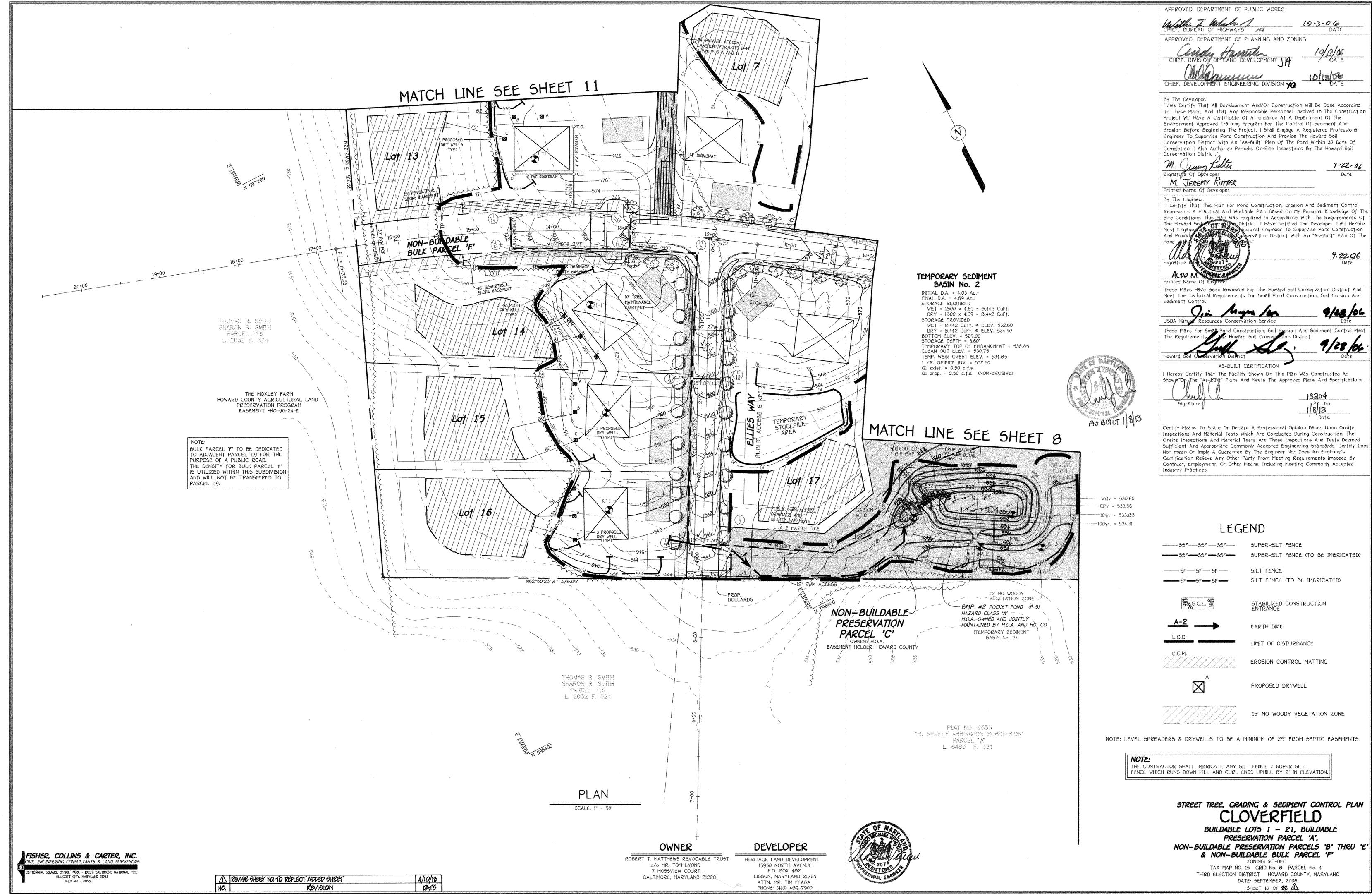
SOIL BORING PROFILES CLOVERFIELD BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A',

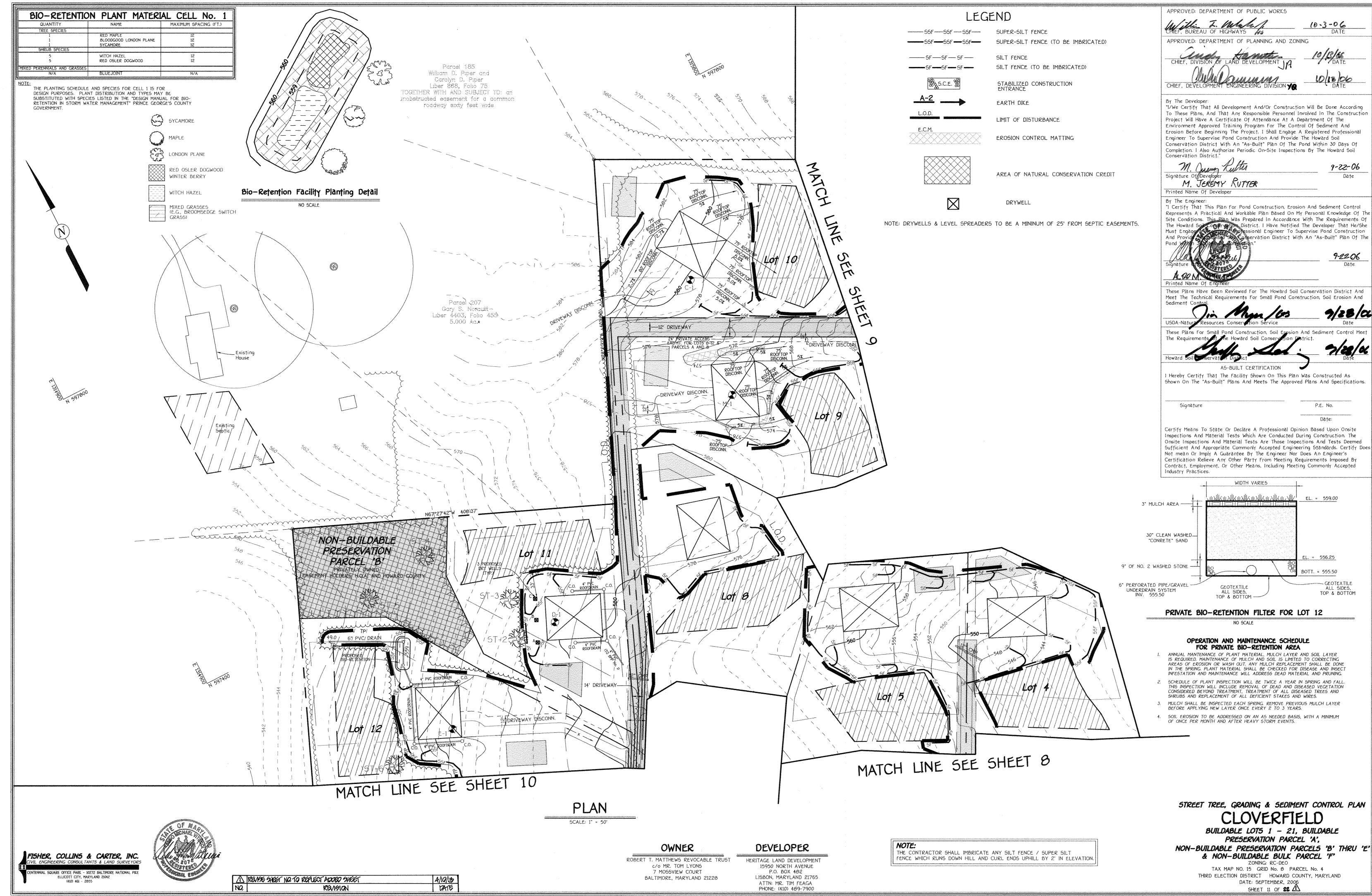
NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F' ZONING: RC-DEO

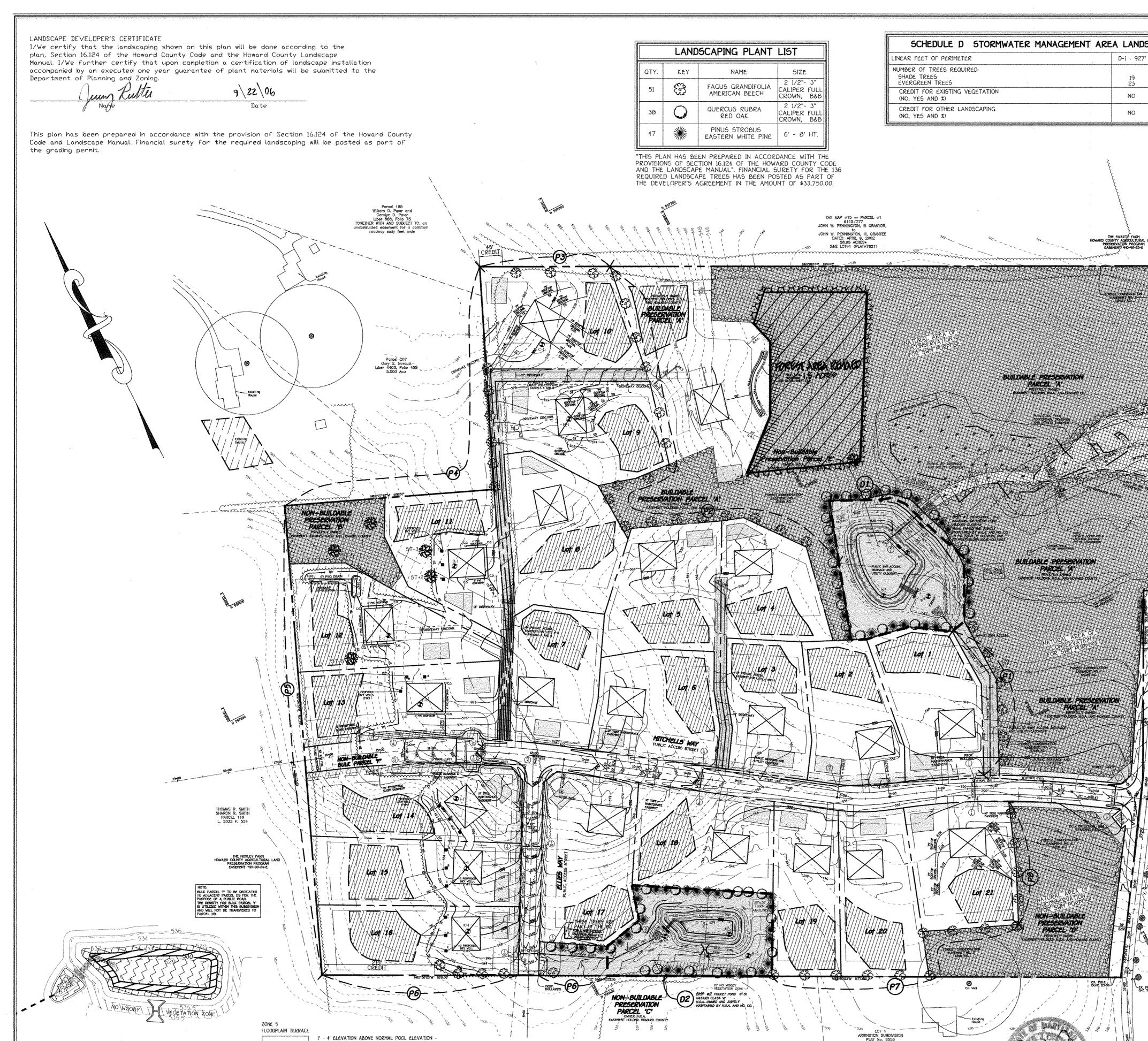
TAX MAP NO. 15 GRID No. 8 PARCEL No. 4 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: SEPTEMBER, 2006 SHEET 7 OF W 🛆











PLAN

ADD SHEET 22, OFF-SHE PLANTING-MULLINEAUX PROPERTY AND 14/10/18

remain

PLANT AREA W/ SWITCH GRASS QUANTITY - N/A SPACING - N/A

PLANT AREA W/ WIDGEON-GRASS

QUANTITY - N/A SPACING - N/A

0" - 12" ELEVATION ABOVE NORMAL POOL ELEVATION -

0" - 12" ELEVATION BELOW NORMAL POOL ELEVATION -PLANT AREA W/ BULRUSH, RIVER QUANTITY - N/A SPACING - N/A

1' - 3' ELEVATION BELOW NORMAL POOL ELEVATION -

QUANTITY - 8 EACH SPACING - 12' MAX.

PLANT BENCH AREA W/ THE FOLLWING: INKBERRY, WITCHHAZEL & WINTERBERRY

SHORELINE FRINGE

SHALLOW WATER BENCH

POCKET POND W/MICRO POOL INTERNAL LANDSCAPING SWM POND NO. 2

FISHER, COLLINS & CARTER, INC.

ELLICOTT CITY, MARYLAND 21042 (410) 461 - 2855

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING D-1: 927' NO

DEVELOPER

HERITAGE LAND DEVELOPMENT

15950 NORTH AVENUE

P.O. BOX 482

LISBON, MARYLAND 21765

ATTN: MR. TIM FEAGA

PHONE: (410) 489-7900

OWNER

ROBERT T. MATTHEWS REVOCABLE TRUST

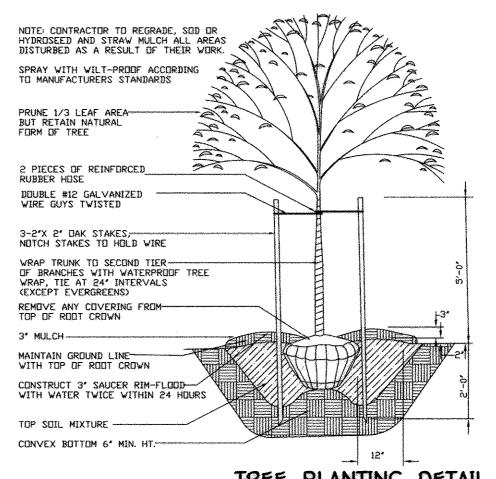
c/o MR. TOM LYONS

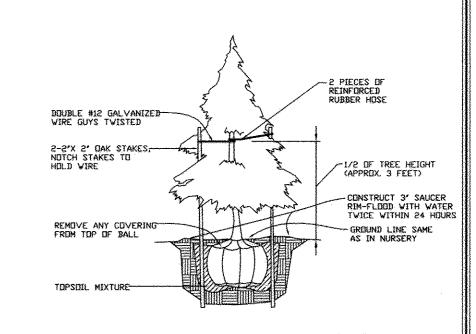
7 MOSSVIEW COURT

BALTIMORE, MARYLAND 21228

APPROVED: DEPARTMENT OF PUBLIC WORKS 10-3-06 APPROVED: DEPARTMENT OF PLANNING AND ZONING

		5	CHEDULE	. A – PERIMETEI	R LANDSCAPING			
PERIMETER	CATEGORY	LANDSCAPE	LINEAR FEET OF OF ROADWAY	CREDIT FOR EXISTING VEGETATION	CREDIT FOR WALL, FENCE OR BERM	NUMBER	OF PLANTS (& PROVIDED	REQUIRED
	(PROPERTIES/ ROADWAYS)	TYPE	FRONTAGE PERIMETER	(YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	(YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	SHADE TREES	EVERGREEN TREES	5HRUB5
P-1	ADJACENT TO PERIMETER	Α	294.1'	NO	NO	5	~	-
P-2	ADJACENT TO PERIMETER	A	1064.9'	NO	NO	18	-	•-
P~3	ADJACENT TO PERIMETER	A	253,6'	YES (45')	NO	3		-
P-4	ADJACENT TO PERIMETER	Α	841.3	YE5 - (500')	Ю	6	-	
P-5	ADJACENT TO PERIMETER	A	912.6'	YE5 (100%)	NO	0		er .
P-6	ADJACENT TO PERIMETER	Α	514.1'	YES - (215')	NO	5	*	-
P-7	ADJACENT TO PERIMETER	. А	582.8'	NO	NO	10	45.	-
P-8	ADJACENT TO PERIMETER	A	240.6'	NO	NO	4	-	-





EVERGREEN PLANTING DETAIL

TREE PLANTING DETAIL PLANTING SPECIFICATIONS

Plants, related material, and operations shall meet the detailed description as given on the plans and as described herein. All plant material, unless otherwise specified, shall be nursery grown, uniformly branched, have a vigorous root system, and shall conform to the species, size, root and shape shown on the plant list and the American Association of Nurserymer from defects, decay, disfiguring roots, sun scald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will not be accepted. All plants shall be freshly dug; no healed-in plants from cold storage will be accepted. Unless otherwise specified, all general conditions, planting operations, details and planting specification shall conform to "Landscape Specification Guidelines for Baltimore-Washington Metropolitan Areas", (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan

Washington and the Potomac Chapter of the American Society of Landscape Architect, latest edition, including all agenda. Contractor shall be required to guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate

section of the Landscape Guidelines Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material. Contractor shall be responsible for notifying utility companies, utility contractors and 'Miss Utility' a minimum of 48 hours prior to beginning any work.

Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.

Protection of existing vegetation to remain shall be accomplished by the temporary installation of 4 foot high snow fence or blaze orange safety fence at the drip line.

Contractor id responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within the growing season of completion of site construction. Bid shall be base on actual site conditions. No extra payment shall be made for work arising from site conditions differing from those indicated on

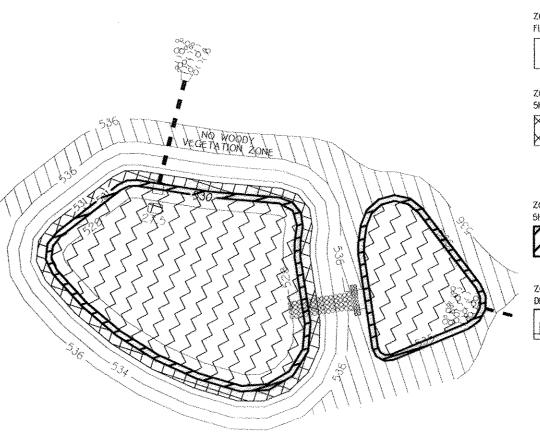
Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on

the plant list, the quantities on the plan take precedence All shrubs shall be planted in continuous trenches or prepared planting beds and mulched with composted hardwood mulch as details and specified except where noted on plans. Positive drainage shall be maintained in planting beds 2 percent slope).

Planting mix shall be as follows: Deciduous Plants - Two parts topsoil, one part well-rotted cow or horse manure. Add 3 lbs. of standard fertilizer per cubic yard of planting mix. Evergreen Plants - two parts topsoil, one part humus or other approved organic material. Add 3 lbs. of evergreen (acidic) fertilizer per cubic yard of planting mix. Topsoil shall conform to the Landscape Guidelines.

Weed Control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. Caution: Be sure to carefully check the chemical used to assure its adaptability to the specific ground cover to be treated.

All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded and seeded. This plan is intended for landscape use only. see other plan sheets for more information on grading, sediment control, layout, etc.



MICRO POOL EXTENDED DETENTION POND INTERNAL LANDSCAPING

5CALE: 1" = 50'

FLOODPLAIN TERRACE 1' - 4' ELEVATION ABOVE NORMAL POOL ELEVATION -PLANT AREA W/ SWITCH GRASS QUANTITY - N/A SPACING - N/A

ZONE 3 SHORELINE FRINGE 0" - 12" ELEVATION ABOVE NORMAL POOL ELEVATION -PLANT BENCH AREA W/ THE FOLLWING: INCBERRY, WITCHHAZEL & WINTERBERRY QUANTITY - 16 EACH SPACING - 12' MAX.

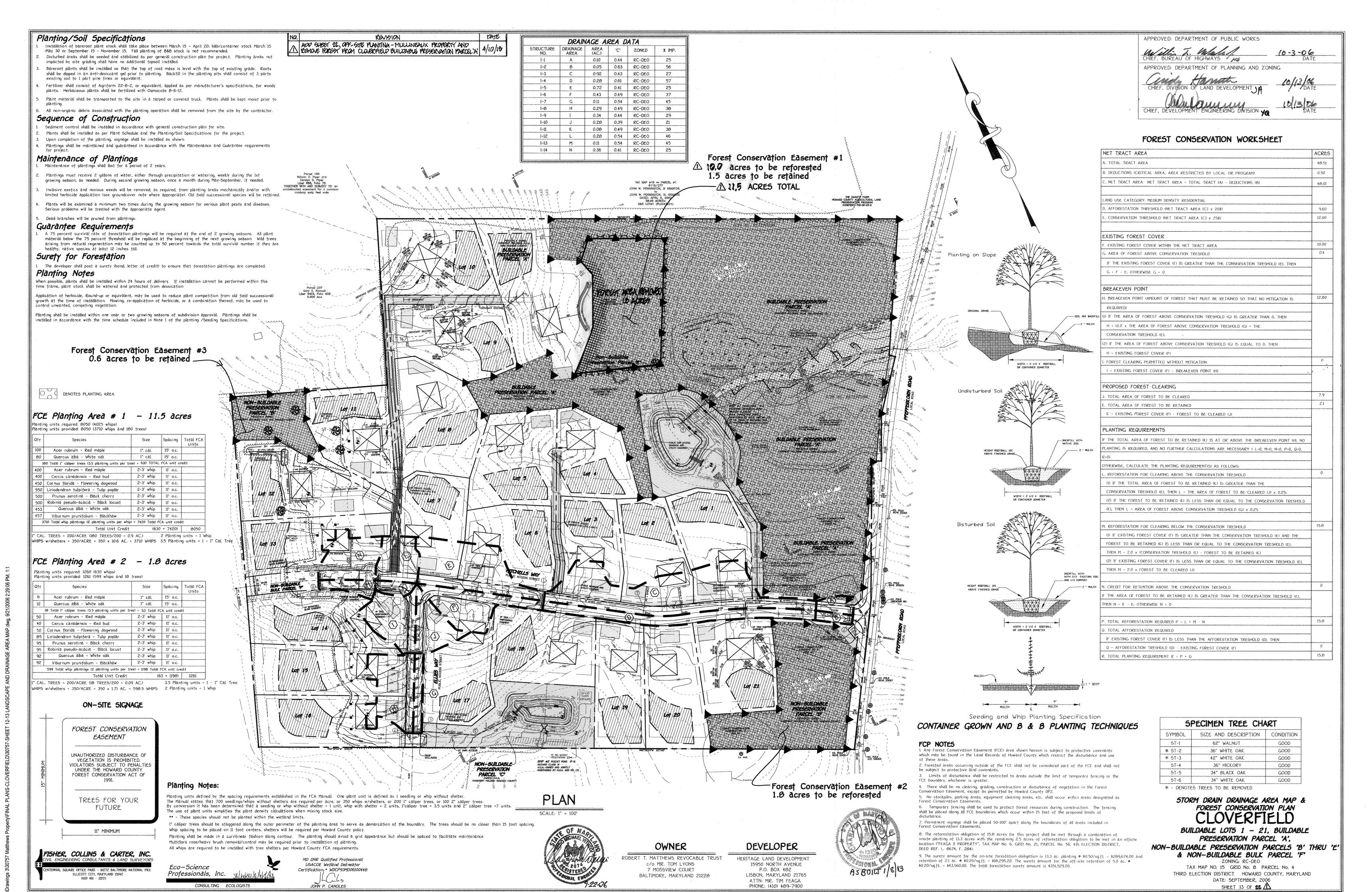
ZONE 2 SHALLOW WATER BENCH 0" - 12" ELEVATION BELOW NORMAL POOL ELEVATION -PLANT AREA W/ BULRUSH, RIVER QUANTITY - N/A SPACING - N/A

DEEPWATER POOL 1' - 3' ELEVATION BELOW NORMAL POOL ELEVATION -PLANT AREA W/ WIDGEON-GRASS QUANTITY - N/A SPACING - N/A

CLOVERFIELD

BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'

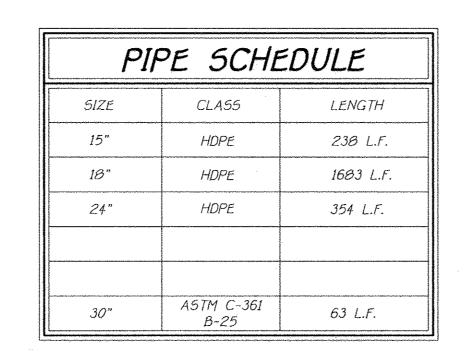
> ZONING: RC-DEO TAX MAP NO. 15 GRID No. 8 PARCEL No. 4 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: SEPTEMBER, 2006 SHEET 12 OF $u\Delta$

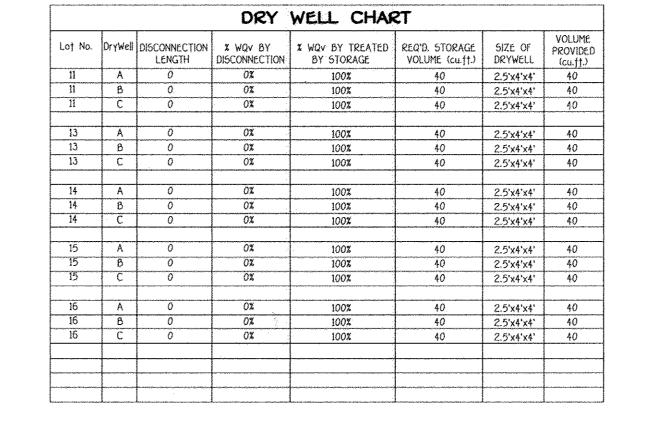


5 BUILT

*	-	DENOTES	TOP	OF	GRATE	

** - CONTACT ADS DRAINAGE SYSTEMS LONDON, OHIO 1-800-733-9554

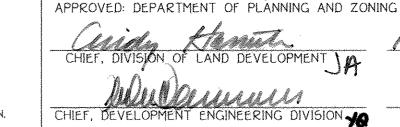




STORMWATER MANAGEMENT NOTES

- 1. STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH THE 2000 MARYLAND STORMWATER DESIGN MANUAL.
- 2. CREDITS ARE GIVEN FOR DISCONNECTION OF IMPERVIOUS
- 3. MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE LESS THAN 500 SQ. FT. 4. DRYWELLS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 75' AT 5%. THE
- SIZE AND CONSTRUCTION OF THE DRYWELL SHALL BE IN THE DETAIL SHOWN ON THIS SHEET.
- ACCORDANCE WITH THE FIGURE 5.2 OF THE MANUAL AND 5. FINAL GRADING IS SHOWN ON THIS SITE DEVELOPMENT PLAN.

-ROOF LEADER



IEF. BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PUBLIC WORKS

10-3-00

LEAF SCREEN--SURCHARGE PIPE - SPLASH BLOCK ----CAP WITH LOCK PERF. P.V.C. PIPE W/CAP. PERF. AREA 5 TIMES PIPE AREA OBSERVATION WELL PVC PIPE ON CONCRETE FOOTPLATE FILTER FABRIC TOP AND SIDES FOUNDATION (NON- WOVEN) MSHA CL. "C" FILTER FABRIC-12" SAND, ROTOTILL 1'-0" BELOW TRENCH BOTTOM CONCRETE GROUND WATER

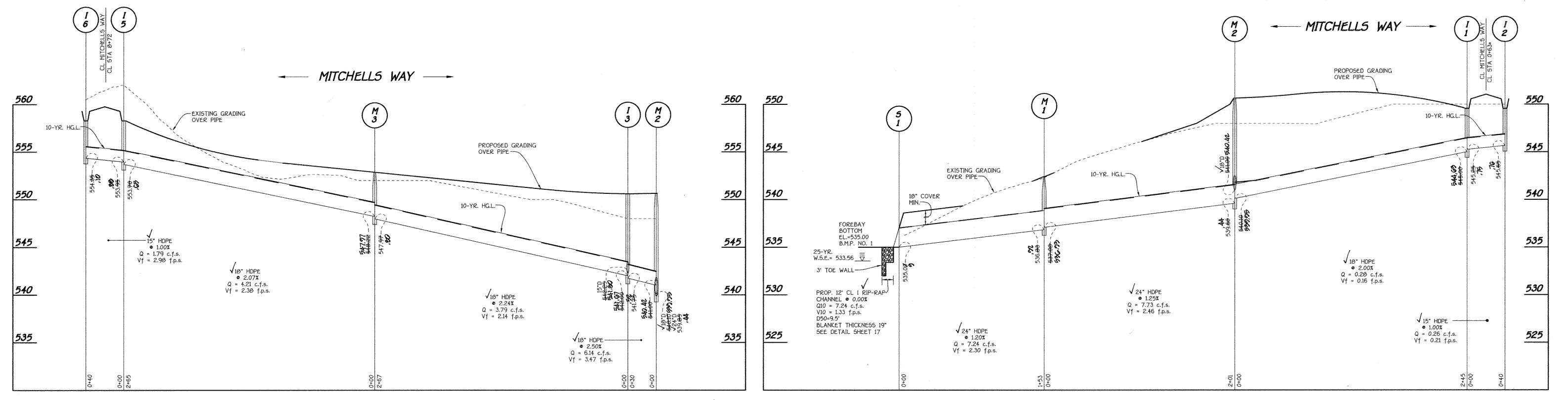
OPERATION AND MAINTENANCE SCHEDULE FOR DRY WELLS

- 1. The monitoring wells and structures shall be inspected on a quarterly basis as well as every storm exceeding 1" of rainfall.
- 2. Water levels and sediment build up in the monitoring wells shall be recorded over a period of several days to insure trench drainage.

DRY WELL DETAIL

NOT TO SCALE

- 3. A logbook shall be maintained to determine the rate at which the facility drains.
- 4. When the facility becomes clogged so that it does not drain down within the 72 hour time period, corrective action shall be taken.
- 5. The maintenance logbook shall be available to Howard County for inspection to insure compliance with operation and mainfenance criteria.
- 6. Once the performance characteristics of the infiltration facility have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedüle is required.



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

> OWNER ROBERT T. MATTHEWS REVOCABLE TRUST c/o MR. TOM LYONS 7 MOSSVIEW COURT BALTIMORE, MARYLAND 21228

DEVELOPER HERITAGE LAND DEVELOPMENT 15950 NORTH AVENUE P.O. BOX 482 LISBON, MARYLAND 21765 ATTN: MR. TIM FEAGA PHONE: (410) 489-7900

PROFILE

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

STORM DRAIN PROFILES & STRUCTURE SCHEDULE CLOVERFIELD

BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A'. NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F'

> ZONING: RC-DEO TAX MAP NO. 15 GRID No. 8 PARCEL No. 4 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: SEPTEMBER, 2006 SHEET 16 OF 22 A

FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS ELLICOTT CITY, MARYLAND 21042 (410) 461 - 2055

A DEAGE SHEET NO, TO REPLECT ADDED SHEET NO. 1 A/10/18 DATE

RIP-RAP CHANNEL DETAIL

	RIP-RAP CHANNEL DESIGN DATA													
STRUCTURE	AREA	WETTED PERIMETER	R	R 2/3	5	5 1/2	W	d	N	V (f.p.s.)	Q (c.f.s.)	RIP-RA	D _{MAX}	BLANKET THICKNES
5-1	5.76	15.74	0.366	0.510	0.0050	0.0707	14'	0.39	0.04	1.34	7.24	9.5"	15"	19"
5-2	1.02	12.37	0.082	0.188	0.0050	0.0707	12'	1.00	0.04	4.97	5.07	9.5"	15"	19"
5-3	12.09	12.17	0.9934	0.9956	0.0050	0.0707	6'	1.38	0.04	2.61	*31.40	9.5"	15"	19"

STANDARD MANHOLE

- BENCH HEIGHT TO ABOVE OUTGOING PIPE INVERT SHALL BE HALF THE DIAMETER

-GRANITE BLOCK

-CONCRETE MIX +2

OR INLET

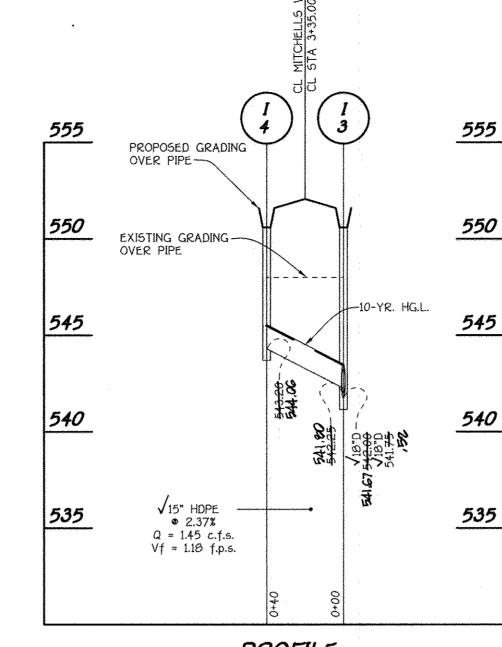
GRANITE BLOCK DETAIL

NOT TO SCALE

* DENOTES 100 YEAR Q OUT OF POND

CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

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



PROFILE

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

- ELLIES WAY --

LEVEL SPEADER CRITERIA

For impervious surface runoff applications:
The capacity for the level spreader is determined in the design of the filter strip to which it

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 flow around the spreader.

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 grade of the spreader shall be 0%.

The outlet discharge area must be generally smooth and well vegetated with a maximum

For all applications: 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. 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

buried at least 6 inches deep in a vertical trench. 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

shall be secured with heavy-duty staples and the downstream and upstream edges shall be

Immediately after level spreader construction, seed and mulch the entire disturbed area of the spreader in accordance with the Standards and Specifications for Vegetative

CONSIDERATIONS The level spreader is a relatively low-cost structure to:

1. Disperse impervious surface runoff uniformly to a filter strip or 2. Release small volumes of concentrated flow from diversions when conditions are 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

pollutant filtering effectiveness and/or erosion. Evaluate the outlet system to be sure that

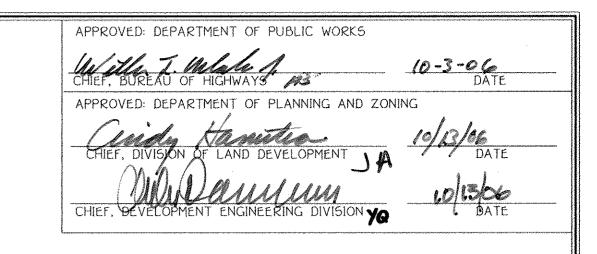
flow does not concentrate below the outlet. For filter strip applications, the determination of whether a level spreader is needed should be based on how the runoff is entering the filter strip. If the runoff is concentrated by curb cuts, and particularly if a large area of impervious surface drains 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 evenly distributed over the width of the impervious surface (e.g., a curbless, even-sloped road or parking lot), a level spreader may

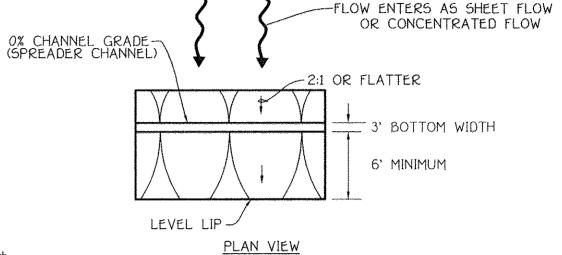
When the level spreader is used as an outlet for temporary or permanent diversions and diversion dikes, runoff containing high sediment loads must be treated in an approved sediment trapping device.

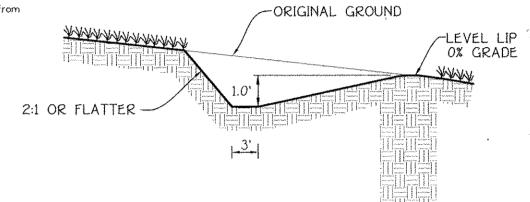
OPERATION AND MAINTENANCE

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 maintain vegetation in a healthy, vigorous condition.

Verify that the level spreader is distributing flow evenly. If problems are noted, make appropriate modifications to ensure even flow distribution







PROFILE

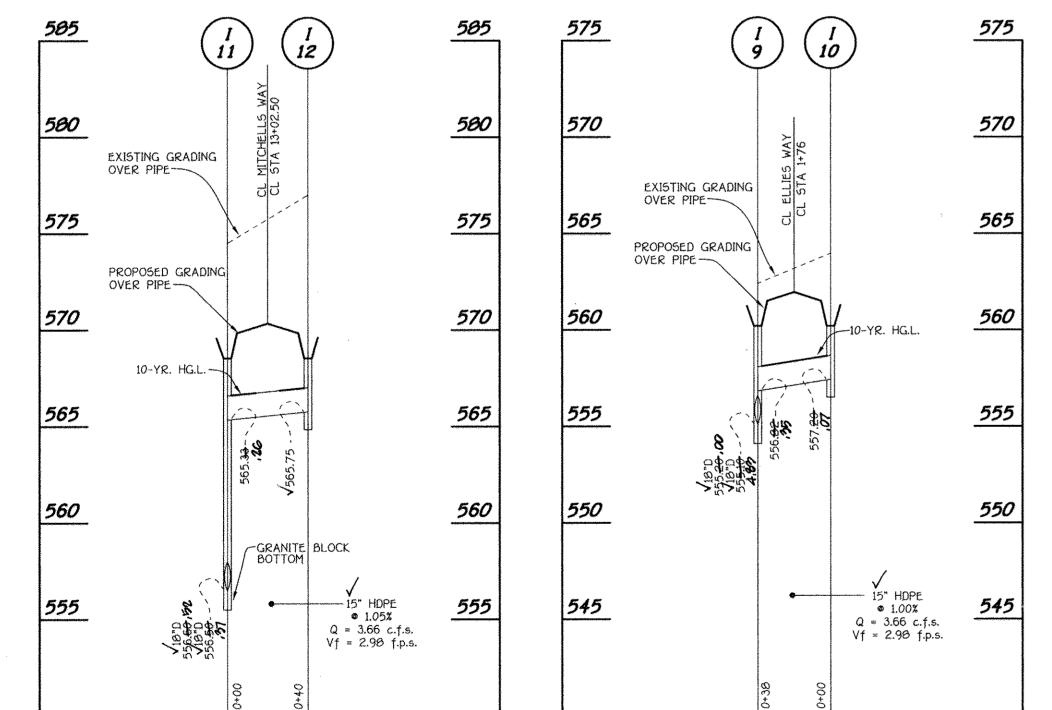
LEVEL SPREADER NOT TO SCALE





5 2

<u>550</u>



PROFILES

SCALE: HORIZ. : 1" = 50"

VERT. : 1" = 5'

MITCHELLS W/ STA 14+53.40 -PROPOSED GRADING OVER PIPE -EXISTING GRADING *560* GRANITE BLOCK ---10-YR. HG.L. -10-YR. HG.L. 15" HDPE • 0.52% Q = 1.28 c.f.s. Vf = 1.04 f.p.s.• 18" HDPE 0.50% Q = 4.80 c.f.s.Vf = 2.72 f.p.s.18" HDPE 18" HDPE 18" HDPE 18" HOPE 18" HDPE 0.50% 0.50% 0.50% **9** 7.00% 2.20% Q = 4.22 c.f.s.Q = 2.84 c.f.s. Vf = 1.61 f.p.s. Q = 1.72 c.f.s.Q = 5.07 c.f.s. Q = 5.07 c.f.s. Q = 2.84 c.f.s.Vf = 2.87 f.p.s.Vf = 2.87 f.p.s.Vf = 2.39 f.p.s.Vf = 0.97 f.p.s.Vf = 1.61 f.p.s.

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

STORM DRAIN PROFILES & DETAILS CLOVERFIELD

18" HDPE • 3.07%

BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F' ZONING: RC-DEO

BOTTOM EL.=534.00

B.M.P. NO. 2

PROP. 10' CL I RIP-RAP CHANNEL . 0.00%

SEE DETAIL THIS SHEET

D50=9.5'
BLANKET THICKNESS=19" 525

Q10 = 5.07 c.f.s.

V10 = 4.97 f.p.s.

TAX MAP NO. 15 GRID No. 8 PARCEL No. 4 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: SEPTEMBER, 2006 SHEET 17 OF 22 🛆

ROBERT T. MATTHEWS REVOCABLE TRUST

DEVELOPER

HERITAGE LAND DEVELOPMENT 15950 NORTH AVENUE P.O. BOX 482 LISBON, MARYLAND 21765 ATTN: MR. TIM FEAGA PHONE: (410) 489-7900

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

NO. REASE SHEET NO. TO REPLECT ADDED SHEET 4/10/18 DATE

AS BUILT

c/o MR. TOM LYONS 7 MOSSVIEW COURT BALTIMORE, MARYLAND 21228

OWNER

A. Site Preparation

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 Stockplies, 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.

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, untrients, 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 STABLIZATION HETHODS AND MATERIALI

- Install erosion and sediment control structures (either temporary of permanent) such as diversions, orade stabilization structures, berms, waterways, or sediment control basins, ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually
 necessary for temporary seeding.
 iii. Schedule required soil tests to determine soil amendment composition and application rates for sites
- häving disturbed äreä over 5 äcres.
 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.

o the applicable state tertilizer laws and shall bear the name, trade name or trademark and warrantee

- 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
- 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 90-100% will pass through a *20
- mesh sieve.
 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 righers traumed on constitution equipment. After the son's toosered it should be received in dragged smooth, but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.

 b. Apply fertilizer and lime as prescribed on the plans.
 c. In corporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.

 Permanent Seeding
 a Micrown soil conditions required for permanent vegetables prescribed on the suitable means.
- Minimum soil conditions required for permanent vegetative establishment:

 1. Soil pH shall be between 6.0 and 7.0. soil pri snall 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 0.30% 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 0.00% silt plus clay) would be acceptable. Soil shall contain 1.5% minimum organic matter by weight.
- 4. Soil shâl contain 1.5% minimum organic mâtter by weight.
 5. Soil must contain sufficient pore space to permit adequate root penetration.
 6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
 b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise bosened 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 for prevent topsoil from elicitor down a slone.
- sliding down à slope. Apply soil amendments às per soil test or às included on the plans. Mix soil amendments into the top 3-5° of topsoil by disking or other suitable means. Lawn 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.
- 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 data indicated as the container, and fresh inoculants and first on addition.
- 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 effectives. Methods of Seeding

 i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeded, or a cultipacker seeder.
- r drop seeded, or a cultipacker seeder.

 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 (phospherous): 200 lbs/ac. K20 (potassium): 200 lbs/ac.

 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 interrustion.
- 2. Seed and partifizer shall be mixed on site and seeding shall be done transchargy 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.
- 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.
- Muich Specifications (in order of preference)

 i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
- as specified in the Maryland Seed Law.

 i. 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.

 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 skurry.

 The mulch material shall form a hotter-like ground cover, application having
- The mulch material shall form a blotter-like ground cover, on application, having in contact with the soil without inhibiting the growth of the grass seedings. WCFM material shall contain no elements or compounds at concentration levels that will be phytol-toxic. moisture absorption and percolation properties and shall cover and hold grass seed
- will be phytis-foxic.

 1. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., phi 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.

 If grading is completed outside of the seeding season mulch along shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications. accordance with these specifications.
- accordance with these specifications.

 ii. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1° and 2°. Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.

 iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.

 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 performed) depending upon size of årea and erosion hazirds. ence), depending upon size of area and erosion hazard
- A much achoring 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 safety. 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 or weight of 750 pounds acre. The wood cellulose fiber shall be mixed with water and
- the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water
- iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crest of banks. The remainder of area should be appear uniform after binder application. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70 Petroset, Terra Tax Terra Tack AR or other approved equal may be used at rates recommended by the anufacturer to anchor mulch.

Lightweight plastic netting may be stapled over the mulch according to manufacturer's recom-

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mendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long

- 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 t
- 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.
- Perform Phase 2 excavation dress and stabilize Overseed Phase I areas as
- Perform final phase excavation, dress and stabilize. Overseed previously seeded
- Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions int he operation of completing the operation out of the seeding season will necessitate the application of temporary stabilization.
- Incremental Stabilization of Embankments Fill Slopes
 i. Embankments shall be constructed in lifts as prescribed on the plans. 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.
 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
- of the embarkment to intercept surface runoff and convey it down the slope in a non-erosive a sediment trapping device.

 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 embarkment, dress and stabilize.

 c. Place Phase 2 embarkment, dress and stabilize.

 d. Place final phase embarkment, dress and stabilize.

 Overseed previously seeded areas as recessary.
- areas as necessary.

 Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

- Vegetation annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required. A. Seed mixtures - Temporary Seeding
- i. Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Temporary seeding summary below, along with application rates, seeding dates and seeding depths. If this summary is not put on the plans and completed, then Table 26 must be put on the plans.
- ii. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

5e	ed Mixture (Hard From	iness Zone <u>6b</u> Table 26	•		Fertilizer	Lime Rate
No.	Species	Application Rate (b/ac)	Seeding Dates	Seeding Depths	Rate (10-10-10)	
l	BARLEY OATS RYE	122 96 140	3/1 ~ 5/15. 8/15 - 10/15	1" - 2" 1" - 2" 1" - 2"	600 b/ac (15 b/1000sf)	2 tons/dc (100 lb/1000st

SECTION 3 - PERMANENT SEEDING

- Seeding grass and legumes to establish groung cover for a minimum of one year on disturbed areas
- A. Seed mixtures Permanent Seeding
- i. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness. Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Techinical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
- ii. For sites having disturbed area over 5 areas, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.
- iii. For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3 1/2 lbs/1000 sq. ft. (150 lbs/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

Seed Mixture (Hardiness Zone 6b) From Table 25				Fertilizer Rate (10-20-20)			Lime Rate	
Na.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P205	K20	Total Control
3	TALL FESCUE (05X) PERENNIAL RYE GRASS (10X) KENTUCKY BLUEGRASS (5X)	125 15 10	3/1 = 5/15, 8/15 - 10/15	r - 2	90 lb/ac (20 lb/		175 lb/ac	2 tons/a
10	TALL FESCUE (80%) HARD FESCUE (20%)	120 30	3/1 - 5/15. 8/15 - 10/15	1" - 2"	1000sf)	100051	1000ef)	1000sf)

DUST CONTROL DEFINITION

- CONTROLLING DUST BLOWING AND MOVEMENT ON CONSTRUCTION SITES AND ROADS.
- TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES. REDUCE ON AND OFF-SITE DAMAGE, HEALTH HAZARDS, AND IMPROVE TRAFFIC S
- CONDITIONS WHERE PRACTICE APPLIES THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMEN SPECIFICATIONS
- TEMPORARY METHODS
- 1. MULCHES SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING
- 2. VEGETATIVE COVER SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER 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,
- 4. IRRIGATION THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST, REPEAT AS NEFDED. AT NO
- 5. BARRIERS SOLID BOARD FENCES, SILT FENCES, SNOW FENCES, BURLAP FENCES, STRAW BALF DIKES, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CLIRRENTS AND SOIL BLOWING, BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS A NTERVALS OF ABOUT 10 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL
- 6. CALCIUM CHLORIDE APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED

PERMANENT METHODS

- PERMANENT VEGETATION SEE STANDARDS FOR PERMANENT VEGETATIVE COVER, AND PERMANENT STABILIZATION WITH SOD. EXISTING TREES OR LARGE SHRUBS MAY AFFORD VALUABLE
- 2. TOPSOILING COVERING WITH LESS EROSIVE SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING. 3. STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

SEDIMENT CONTROL NOTES

- 1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LISCENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855) 2) ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN
- CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO. 3) FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, b) 14 DAYS
- AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. 4) ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 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
- AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES. 6) ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR

PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50)

- THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT 7) SITE ANALYSIS: TOTAL AREA OF SITE
 - AREA DISTURBED AREA TO BE ROOFED OR PAVED AREA TO BE VEGETATIVELY STABILIZED 15.8 26.000 CU.YDS. TOTAL CUT
- OFFSITE WASTE/BORROW AREA LOCATION 12,000 CU,YDS. ON LOTS WITHIN SUBDIVISION 8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING
- ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE 9) ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED IF DEFMED
- NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. 10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION
- APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. 11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGHTS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

STANDARDS AND SPECIFICATIONS FOR TOPSOIL

- Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.
- To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation. Conditions Where Practice Applies
- 1. This practice is limited to areas having 2:1 or flatter slopes where: a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
- c. The original soil to be vegetated contains material toxic to plant growth. d. The soil is so acidic that treatment with limestone is not feasible. II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

- 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.
- Topsoil Specifications Soil to be used as topsoil must meet the following:
- i. Topsoil shall be a loam, sandy loam, clay loam, said loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 11/2" in diameter.
- ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson grass, nutsedge, poison ivy, thistle, or others as specified. iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-0 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated area and worked into the soil in conjunction with tillage operations as described in the following procedures.
- For sites having, disturbed areas under 5 acres: . Place topsoil lif required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
- For sites having disturbed areas over 5 acres:
- i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
- b. Organic content of topsoil shall be not less than 1.5 percent by weight. c. Topsoil having soluble salt content greater than 500 parts per million shall not be used,
- d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials. Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
- ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization Section I Vegetative Stabilization Methods and Materials. Topsoil Application
- When top soiling, maintain needed erosion and sediment control practices such as diversions. Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins. ii. Grades on the areas to be top soiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
- iii. Topsoil shall be uniformly distributed in a 4" 8" layer and lightly compacted to a minimum thickness of 4°. Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from top soiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets
- iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.
- Alternative for Permanent Seeding Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below: i. Composted Studge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
- a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06. b. Composted sludge shall contain at least 1 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 requires
- 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. iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 1b/1,000 square feet, and 1/3 the normal lime application rate.

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

Sequence of Construction

- 1. OBTAIN A GRADING PERMIT. (I WEEK)
- 2. NOTIFY "MISS UTILITY " AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777, NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION AT 410-313-1330 24-HOURS BEFORE STARTING WORK. (3 DAYS)

ILEAR AND GRUB FOR SEDIMENT CONTROL MEASURES ONLY, INSTALL STABILIZED

- CONSTRUCTION ENTRANCE. (2 weeks) 4. INSTALL THE REMAINING SEDIMENT CONTROL MEASURES. THIS WOULD INCLUDE BMP •1
- AND *2 AND ASSOCIATED EARTH DIKES. TREE PROTECTION FENCE AND SILT FENCE AS INDICATED ON THESE PLANS, BOTH OF THESE FACILITIES ARE SIZED TO PROVIDED TEMPORARY STORMWATER MANAGEMENT. NO BLASTING WILL BE PERMITTED FOR THE EXCAVATION OF THE BASINS AND TRAPS WHERE NECESSARY RIPPING AND LACK HAMMERING SHOULD BE UTILIZED IN THE EXCAVATION OF EACH FACILITY. (3 weeks)
- 5. OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEEDING. (1 DAY) 6. CLEAR AND GRUB FOR THE REMAINDER OF THE SITE. (2 weeks)
- 7. GRADE SITE TO THE PROPOSED SUBGRADE FOR EACH ROAD INCLUDING ROAD WIDENING AND INSTALL THE STORM DRAIN SYSTEM AND UTILITIES, STABILIZE ALL ROADWAY SLOPES IMMEDIATELY UPON COMPLETION OF GRADING AS SHOWN. (4 weeks)
- 8. INSTALL BASE COURSE PAVING FOR THE PROPOSED ROADS. (I week) 9. STABILIZE ALL AREAS AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEEDING. (2 DAYS)
- 10. APPLY TACK COAT TO BASE COURSE AND LAY SURFACE COURSE PAVING. (1 week) 11. WHEN ALL CONTRIBUTING AREAS TO THE BASINS HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR. THE TEMPORARY DEVICE MAY BE REMOVED, BACKFILLED OR REGRADED TO THE PROPOSED FINAL GRADES FOR ALL 5WM FACILITIES, THIS INCLUDES THE BMP FACILITIES *1 THRU *2. CONTRACTOR SHALL ALSO REMOVE ALL OLD AND NEW JUNK, TRASH, DEBRIS AND NON-NATURAL ITEMS FROM FLOODPLAIN, STREAM, WETLANDS AND THEIR BUFFERS. STABILIZE ALL REMAINING AREAS WITH PERMANENT SEEDING NOTES. (3 weeks) 12. NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL
- INSPECTION OF THE COMPLETED PROJECT. (2 DAYS) SEQUENCE NOTE: THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL EVENT AND ON A DAILY BASIS. REMOVE SEDIMENTS FROM ALL BASINS WHEN CLEAN OUT ELEVATIONS ARE REACHED. ALL SEDIMENTS MUST BE PLACED UPSTREAM OF ANY APPROVED BASIN DEVICE

GEOTECH SUMMARY AND SPECIFICATIONS

- I. SUBSURFACE PROGRAM The subsurface exploratory program consisted of fifteen standard penetration test borings B-1 through B-3 in the proposed micro-pond, borings A-1 through A-3 in the proposed sand filter, and borings C-1 through F-1 and I-1 through M-1 in proposed individual lot drywells. These borings were drilled by a truck-mounted drill rig using solid stem continuous flight helical augers to advance the boreholes. All borings were extended to scheduled termination depths with the exception of boring D-1 which met refusal at 3 and 4 feet below grade in two attempts.
- Heritage Land Development -2- May 4, 2004 Where the driller did not encounter high ground water or very dense materials at boring locations C-1 through M-1, an adjacent auxiliary borehole was advanced for later infiltrometer testing. These auxiliary boreholes were drilled to a depth of 6 feet adjacent to borings C-1, E-i, F-1, I-1, K-1 and M-1.
- The information obtained from the test borings is presented on PLATE 2 through 6, BORING PROFILES. The method of classification used in preparation of the boring profiles is outlined on the enclosure CLASSIFICATION OF SOILS included in the back of this report.
- II. LABORATORY AND FIELD TESTING One bulk sample of proposed basin cut soil was obtained from test boring 8-3. This sample was subjected to existing moisture, moisture density relationship, and classification testing by sieve gradation and Atterberg limits tests to determine suitability for use as controlled compacted fill. Representative split spoon samples from proposed infiltration elevation in various borings were subjected to USDA classification testing by sieve gradation, hydrometer gradation and Atterberg limits tests. The
- tests was to assist in estimating infiltration characteristics. The results of these tests are presented on TABLE 1, CLASSIFICATION TEST DATA and SHEET 1, COMPACTION TEST. Based upon review of ground water levels, soil density and classification, it was determined that infiltration may be feasible at location C-1, E-1, F-1, I-1, J-1, K-1 and M-1. At these locations, in situ borehole infiltrometer tests were performed in accordance with MDE requirements. The test method and test results are presented on the attached TABLE 2, INFILTROMETER TEST DATA.
- The site is located in western Howard County on the west side of Pfefferkorn Road, south of the intersection with Frederick Road (MD Route 144). The parcel is sloping throughout from high points at elevation 580 to 585 on the ridge line in the west part of the property down to the west and east to a low point of elevation 532 to 535 in the southwest property corner and elevation 510 along a portion of the eastern property boundary. The site is covered predominantly with farm fields with the exception of woodlands in the far western part of the property.
- Below the highly variable topsoil layer encountered at the borings ranging in thickness from 6 to 20 inches, the underlying soils appear to be undisturbed original ground of residual origin having been formed from the
- in-place decomposition of the underlying metamorphic bedrock. In all borings except C-1, E-1, F-1, D-1 and M-1, the soils encountered immediately below the topsoil consist of soft to medium stiff, low plasticity clayer silt to silt & clay with nearly equal proportions of sand and rock fragments (Unified ML or CL: USDA Loam or Sandy Clay Loam). This material typically occupies the upper 3 to 6 feet of the subsurface profile in these borings with the exception of boring 8-2 where predominantly
- Beneath the clayer surface strata and below topsoil layer in the remaining borings, predominantly granular soils are encountered consisting of generally loose to medium dense sand with significant proportion of silt and trace amounts of rock fragments (Unified SM. USDA Sandy Loam). Occasionally, in the lower portion of the boring, higher mica content is evident in these granular soils. Very dense materials are evident at the base of boring 1-1 with standard penetration resistances exceeding an equivalent 100 blows per foot and in B-1 where auger refusal is encountered on resistant rock or rock-like materials at depths of 3 and 4 feet.
- Heritage Land Development -4 May 4, 2004 The (Decomposed Rock) notation indicates that the relict structure of the parent bedrock is evident in the recovered soil samples. It does not necessarily indicate very dense or rock-like conditions which are better indicated by the standard penetration resistances
- V. GROUND WATER CONDITIONS Ground water was encountered one day after completion in both the "A" and "B" borings and in borings L-1 at depths ranging from 1.3 to 7 feet below the existing ground surface. These depths corresponded to approximate elevation 532 at L-1, 520 through 532 and A-1 through A-3, and 527 to 530 in B-1 through B-3. The remaining borings performed at much higher elevation did not encounter ground water to the depths
- The ground water levels represent the conditions at the time of the test boring program. Ground water levels will vary with changes in seasons and precipitation. Given that the borings were performed following a year of record precipitation and a relatively wet winter and early spring, it is expected that ground water levels at present are near their highest levels and will likely recede with average precipitation conditions over the summer months. Ground water levels will be a factor in various portions of the proposed storm water management plan.
- At the time of the study, storm water management plans were in preliminary stages. We were informed that the small retention pond at the location of borings B-1 through B-3 would have a basin elevation of 520 which would require cuts upwards of 9 feet deep at 8-3 for basin grading and possibly shallow fills in the vicinity of B-1 for embankment construction. At boring locations A-1 through A-3, a shallow sand filter will be constructed. Basin grades were not provided, but we would anticipate very shallow cuts to the basin grade with sand filter extending 3 to 4 feet below basin grade. Possibly very shallow fills will be required to form a low embankment around portions of the filter perimeter.
- The other borings were located in individual lots for study of storm water disposal by drywells located off of each downspout. If possible, some the storm water in these drywells would be disposed of through infiltration into the subsoils. Typically drywell construction consists of a stone filled excavation extending 3 to 5 feet below the existing ground surface.
- VII POND CONSTRUCTION RECOMMENDATIONS
- A. General Design Recommendations It is recommended that the geotechnical aspects of the storage pond design and construction be in accordance with MD 378/2000 specifications.

C. Earth Slope Stability

Heritage Land Development -3- May 4, 2004 III. SITE DESCRIPTION

fine-grained somewhat plastic soils extend through the entire 13-foot depth of penetration.

Given the soft to barely medium stiff and loose nature of the residual soils encountered in "B" borings, it is recommended that the cut and fill slopes be no steeper 3HIV for slope stability. However, these soil types are highly susceptible to erosion and the slopes may require periodic maintenance until uniformly thick mature grass cover can be established. Also, ground water seepage from the base of the slopes may result in toe instability requiring the installation of drains or undercutting and replacing failed materials with more suitable soils or aggregate. The location and extent of drains and undercuts would best be determined at the time of construction

Assuming that the principal spillway would be located. below basin grade at either location B-1 or B-2, it appears that the underlying native soils would be suitable to support design bearing pressures upwards of 2,000

Heritage Land Development -6- May 4, 2004

compacted fill.

- The core trench may be excavated to the typical MD 378/2000 specified dimensions below stripped existing grade or at least 2 feet into original soils below any undercut backfill, whichever depth is greater. Given the relatively gradual gentle slopes beneath the proposed pond area, and the expected limited height of embankment, excessive seepage beneath the slope is not expected to be a problem in embankment stability with
- A review of test boring results and laboratory data indicate that Unified "C" classification soils would be available in the approximate upper 6 feet of cut at boring B-2. It has been our experience in similar geologic areas, however, that the quantities of Unified "C" classification soils are limited and typically are encountered near the surface. The native CL soils in these formations are also found to have excessive moisture content. Consequently, it is expected that at least some off site borrow would be required for completion of core trench and dam core fill.
- The ground water control was addressed in the slope stability section. In addition to slope drains, it may be necessary to construct pilot channels in the basins to direct seepage into a low flow orifice to prevent a the very shallow accumulation of water.
- VIII.EARTHWORK CONSTRUCTION Although the soils found at basin grade in borings B-1 through B-3 appear to be acceptable for embankment support, soft to very soft soils were found in other areas of the project. Prior to placement of embankment fill, we recommend that the stripped surface from toe to toe be proof rolled and any exceptionally soft yielding areas undercut to expose firmer soils. Any undercut should extend at least 1 foot beyond
- each proposed toe of slope for every foot depth of undercut. Upon achieving an acceptable surface, the undercut should be backfilled with approved soils, placed and compacted in accordance with APPENDIX I COMPACTED FILL. Undercut backfill soils should exclude Unified GP. GW. SP or SW materials but need not be particularly impermeable since the core trench would be extended down through the fill after embankment undercut and backfilling is complete. Undercut backfill should have an AASHTO T-99 maximum compacted dry density of at least 100 PSE. Examination of the moisture/compacted density relationship test results presented on SHEET 1. COMPACTION TEST indicates that the tested proposed cut soil from boring 8-3 has an acceptably high compacted maximum dry density but an existing moisture at the time of sampling approximately 8 percent above the optimum for most efficient compaction. These soils would be suitable for use as embankment or site development fill, but would not be suitable for use as core trench fill. With the existing moistures approximately 8 percent over optimum, the soils would require significant drying by aeration prior to use as controlled
- Given the elevated soil moistures, it is recommended that earthwork operations be performed during the normally warmer drier summer and early fall construction season when more intense sun and warmer temperatures will maximize drying capabilities. Construction during the colder, wetter seasons of the year may make these high moisture soils unavailable for use as controlled, compacted fill. Further, construction during the cooler, wetter seasons of the year may result in saturated or frozen subgrades requiring undercut and replacement with more suitable materials. Normal soil excavation techniques will be sufficient for removal of materials encountered in the test borings with the exception of materials with standard penetration resistances exceeding 100 blows per foot or materials below auger refusal depth. Depending upon type of excavation, ripping and/or limited blasting may be required in the equivalent 100 plus blow count material at the base of 1-1. Blasting is expected to be
- required for all types of excavations extending below auger refusal depths in D-1.-Temporary ground water control will be required in excavations extended below indicated ground water levels. In residual soils, seepage rates are usually low, unless a fractured rock seam is encountered, and can be
- controlled by a series of pits, trenches and pumps during construction. The Maryland Department of the Environment (MDE) requires that design storm water disposal by infiltration be considered only in undisturbed native soils with a minimum infiltration rate of 0.52 inches/hour. Howard

County has more stringent minimum requirements of 1.02 inches/hour. It is further required that the bottom of the infiltration structure be at least 4 feet above the ground water table or rock (i.e. impermeable

- Ground water levels will prohibit design storm water disposal by infiltration in the proposed quantity storage basin represented by the "B" borings, in the proposed sand filter represented by the "A" borings, and at boring location L-1. The very dense soils found at the base of boring 1-1 also, in our opinion, will prohibit adequate infiltration at this location. For the remaining borings, borehole infiltrometer tests were performed at the approximate depth of 6 feet below existing grade.
- Tests were performed in accordance with the procedures outlined in MDE storm water management manual. The test results and test procedures are presented in TABLE 2, INFILTROMETER TEST DATA. The test results indicate that infiltration would be possible at all the tested locations using the standard design infiltration rate of 1.02 inches/hour. It is our opinion that infiltration rates of soils will decrease over time as very fine sediments washing in with runoff begin to cover the infiltrating surface. Consequently, all infiltration structures should have a gravity discharge directed so as not to adversely affect adiacent structures or properties. Downspout drywells on single-family residential lots should be located a sufficient distance from the house to limit the possibility of infiltrating water reaching the basement
- excavation. It is particularly critical that the high quality exterior foundation drain systems be placed around basements where infiltration drywells are used. Although the ground water table is high in the area of borings A-1 through A-3, typical sand filter construction which include permeable soils underlain by open-graded aggregate outletted by perforated pipe, will lower the ground water table on a permanent basis within the sand filter.
- X. GEOTECHNICAL MONITORING We recommend that Herbst/Benson & Associates be retained to provide the geotechnical monitoring and testing services during the earthwork and principal spillway construction phases of the work. This is to observe compliance with design concepts, specifications or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction. The earthwork construction including stripping, undercutting, proof rolling and controlled fill placement shall be inspected with in-place density tests taken to verify construction according to the specifications. Also, the principal spillway excavations shall be examined and the exposed soil conditions approved for the design bearing. We will provide the indicated geotechnical monitoring and testing services upon request.
- This report has been prepared in accordance with generally accepted geotechnical engineering practice to aid in the evaluation and design of this project. In the event of changes or refinement in the proposed construction plans (types, elevations, locations, etc.) the conclusions and recommendations presented in this report should not be considered valid unless changes are reviewed and the conclusions of this report are modified or approved in writing by our office.

The analyses and recommendations included in this report are based upon the data obtained from the test borings performed at the approximate locations indicated on the boring location plan. This report does not reflect variations which may occur between or away from the borings. The nature and extent of the variations may not become evident until the time of construction. If significant variations then become evident, it may be necessary for us to reevaluate the recommendations of this report

APPROVED: DEPARTMENT OF PUBLIC WORKS F. BUREAU OF HIGHWAYS

Homitia

OF LAND DEVELOPMENT

10-3-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

ENGINEER'S CERTIFICATE This Plan For Erosion And Sediment Control Workable Plan Based On My Personal Knowledge Chât It Was Prepared In Accordance e Howard Soil Conservation District

DEVELOPER'S CERTIFICATE

"I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Also Authorize Periodic On-Site Inspection By The Howard Soil Conservation District Or Their Authorized Agents, As Are Deemed Necessary."

Reviewed For Howard County Soil Conservation District And Meets Technical Requirements

Development Is Approved For Erosion And Sediment Control By

OWNER

ROBERT T. MATTHEWS REVOCABLE TRUST c/o MR. TOM LYONS 7 MOSSVIEW COURT

DEVELOPER

HERITAGE LAND DEVELOPMENT 15950 NORTH AVENUE P.O. BOX 482 LISBON, MARYLAND 21765 ATTN: MR. TIM FEAGA

SEDIMENT CONTROL NOTES CLOVERFIELD BUILDABLE LOTS 1 - 21, BUILDABLE

TAX MAP NO. 15 GRID No. 8 PARCEL No. 4 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: SEPTEMBER, 2006

SHEET IS OF 22 4

& NON-BUILDABLE BULK PARCEL 'F'

PRESERVATION PARCEL 'A'.

NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E'

ACRES

ACRES

ACRES

ACRES.

DATE

BALTIMORE, MARYLAND 21228

PHONE: (410) 489-7900

POSITIVE DRAINAGE SUFFICIENT TO DRAIN

DIKE A DIKE B a-DIKE HEIGHT b-DIKE WIDTH c-FLOW WIDTH d-FLOW DEPTH

STANDARD SYMBOL

A-2 B-3

---/---

PLAN VIEW

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

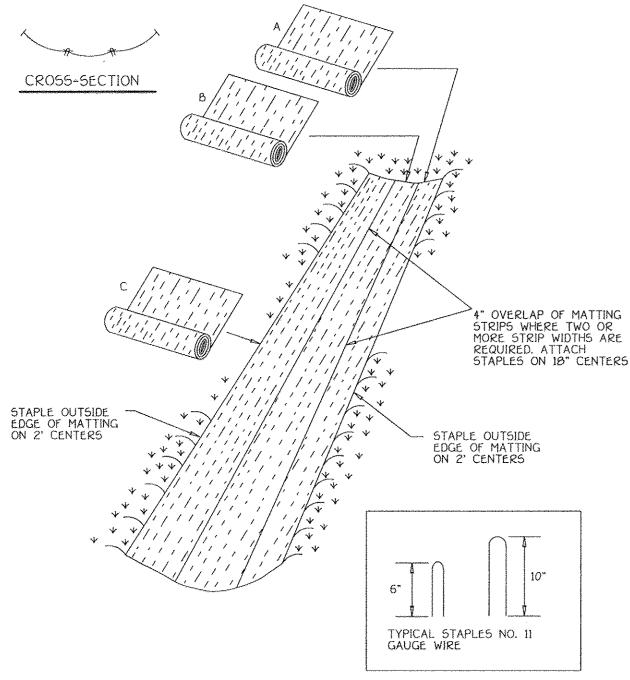
1. Seed and cover with straw mulch. 2. Seed and cover with Erosion Control Matting or line with sod. 3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

CUT OR FILL SLOPE

Construction Specifications

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

EROSION CONTROL MATTING



EROSION CONTROL MATTING

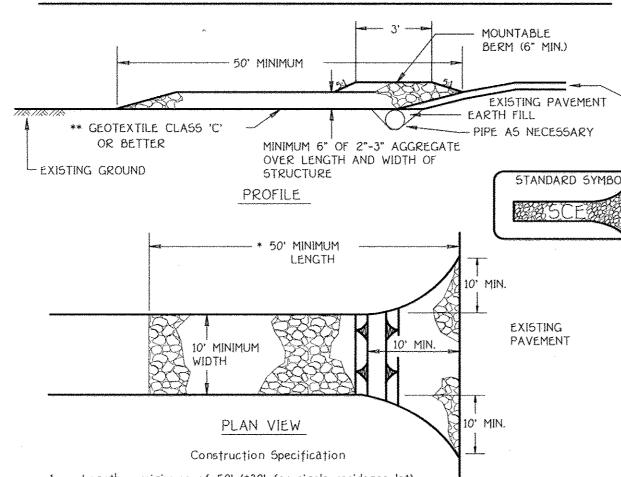
Construction Specifications

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

FISHER, COLLINS & CARTER, INC.



STABILIZED CONSTRUCTION ENTRANCE



1. Length - minimum of 50' (*30' for single residence lot). 2. Width - 10' minimum, should be flared at the existing road to provide a turning

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

- 4. Stone crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the
- 5. Surface Water all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
- 6. Location A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

-SETTLED TOP OF DAM = 535.81 -VERTICAL DRAW-DOWN DEVICE RISER TOP = 534.75W/ WATERTIGHT CAP EL. = 532.10 PERMANENT POOL EL. = 530.60 "DRY" STORAGE "WET" STORAGE INTERNAL ORIFICE -PRINCIPAL SPILLWAY ELEVATION -RISER BASE -TOE OF DAM **SPILLWAY** - RISER LIMIT OF DRY STORAGE -LIMIT OF WET STORAGE VERTICAL DRAW-DOWN DEVICE ---EL. = 530.60

CONSTRUCTION SPECIFICATIONS

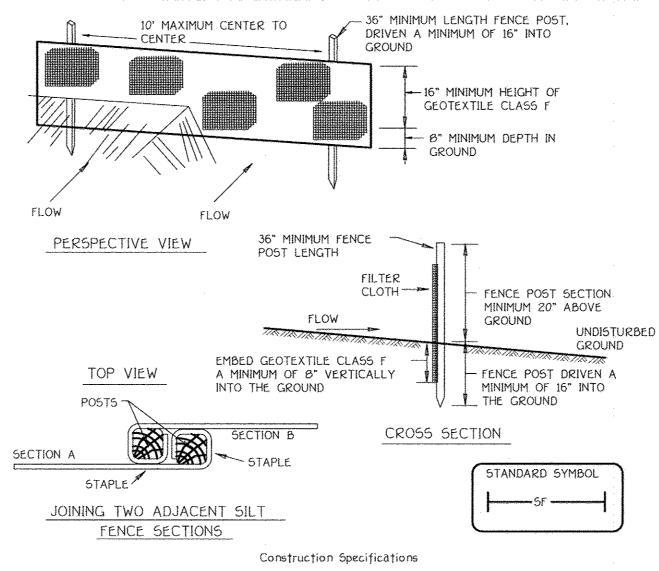
PLAN VIEW

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

VERTICAL DRAW-DOWN DEVICE

NOT TO SCALE

NO. | RELIGIE SHEET NO. TO REALECT ADDED SHEET



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

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

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute $(max.)^{2}$	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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

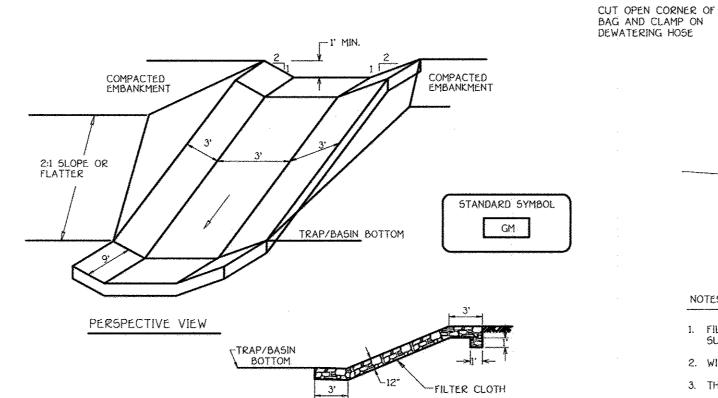
4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

> Silt Fence Design Criteria (Mavimum)

Slope Steepness	(Maximum) Slope Length	Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control

SILT FENCE NOT TO SCALE



PROFILE ALONG CENTERLINE

Construction Specifications

- 1. Gabion inflow protection shall be constructed of 9' x 3' x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
- 2. Geotextile Class C shall be installed under all gabion baskets.
- 3. The stone used to fill the gabion baskets shall be 4" 7". 4. Gabions shall be installed in accordance with manufacturers recommendations.
- 5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

GABION INFLOW PROTECTION NOT TO SCALE

OWNER

4/10/18

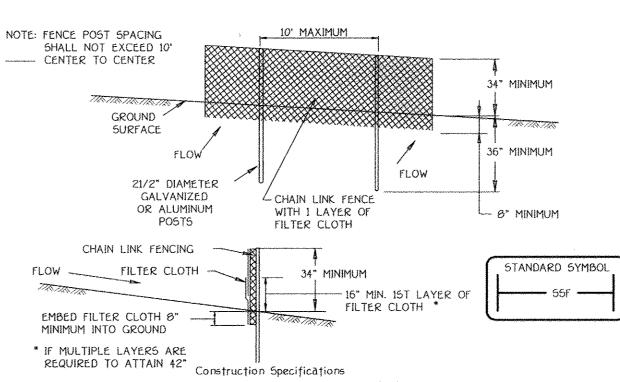
ROBERT T. MATTHEWS REVOCABLE TRUST c/o MR. TOM LYONS 7 MOSSVIEW COURT

BALTIMORE, MARYLAND 21228

DEVELOPER

HERITAGE LAND DEVELOPMENT 15950 NORTH AVENUE P.O. BOX 482 LISBON, MARYLAND 21765 ATTN: MR. TIM FEAGA PHONE: (410) 489-7900

SUPER SILT FENCE



1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

4. Filter cloth shall be embedded a minimum of 8" into the ground. 5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height 7. Filter cloth shall be fastened securely to each fence post with wire ties or

staples at top and mid section and shall meet the following requirements for Geotextile Class F: Tensile Strenath 50 lbs/in (min.) Test: MSMT 509

STAKE THROUGH CONSTRUCTION FENCE TO RESTRAIN, IF SLOPE

IS GREATER THAN 5 PERCENT-

--- STAKE AT 2.5' C.C.

TO HOLD ON SLOPES

2. WITOH AND LENTH SHALL BE AS SHOWN IN THE TABLE.

AVAILABLE FROM:

(800) 659-5111

INDIAN VALLEY INDUSTRIES, INC.

JOHNSON CITY, NEW YORK 13790

SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA.

WATER AND-

SECTION

1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL, WELL GRADED VEGETATED SITE

3. THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISHARGE LINE.

4. FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 300 GPM.

5. DEVICE SHALL BE REMOVED AND DISPOSED OF AFTER BAG IS FILLED WITH SEDIMENT.

SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.

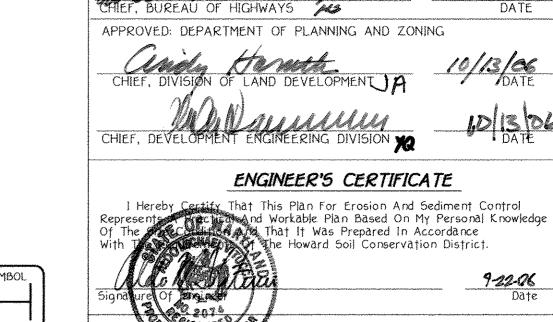
2" X 2"---

Tensile Modulus	20 lbs/in (min.)	Test: M5MT 509
Flow Rate	0.3 gal/ft /minutê (max.)	Test: MSMT 32
Filtering Efficiency	75% (min.)	Test: MSMT 322
·	Design Criteria	
Slope	Slope Length	Silt Fence

Length Steepness (maximum) (maximum) 0 - 10% 0 - 10:1 Unlimited Unlimited 10 - 20% 10:1 - 5:1 200 feet 1,500 feet 20 - 33% 100 feet 1,000 feet 5:1 - 3:1 100 feet 33 - 50% 500 feet 3:1 - 2:1 50% + 2:1 + 50 feet 250 feet

FOR RESTRAINT AND AID

IN LIFTING USED BAG



APPROVED: DEPARTMENT OF PUBLIC WORKS

DEVELOPER'S CERTIFICATE ify that All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources Approved Training Program

For The Control Of Sediment And Erosian Before Beginning The Project.

I Also Authorize Periodic On-Site Inspection By The Howard Soil Conservation District Or Their Authorized Agents, As Are Deemed Necessary." 9-22-06

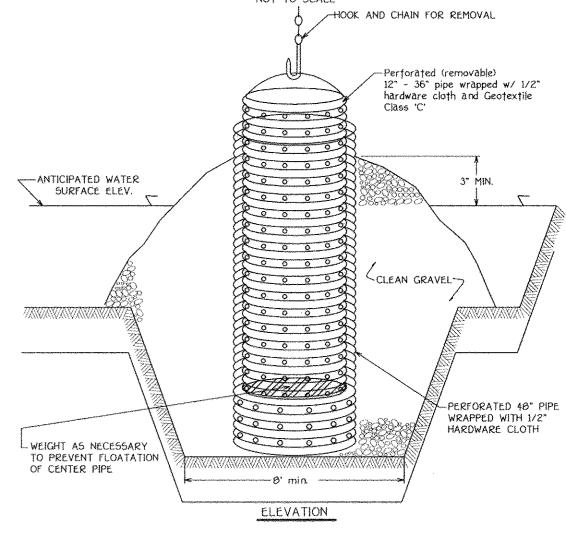
Reviewed For Howard County Soil Conservation District And Meets Technical Requ

U.S.D.A.

10-3-06

9-22-06

REMOVABLE PUMPING STATION



Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 172" hardware cloth to prevent backfill material from entering the perforations. 2. After installing the outer pipe, backfill around outer pipe with 2" aggregate

3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be rapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C 4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

PRICE AND COMPANY, INC. A.C.F. ENVIRONMENTAL 1801-A WILLIS ROAD 425 36TH STREET RICHMOND, VIRGINIA 23237 WYOMING, MI. 49548 TOLL FREE 1-800-448-3636 (616) 530-8230

O TO 10% SLOPE

- FILTER FABRIC

(PHILLIPS FIBERS

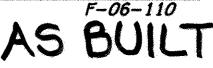
FILTER BAG DETAIL

NOT TO SCALE

SEDIMENT CONTROL DETAILS CLOVERFIELD BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A'. NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E'

> & NON-BUILDABLE BULK PARCEL 'F' ZONING: RC-DEO TAX MAP NO. 15 GRID No. 8 PARCEL No. 4 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: SEPTEMBER, 2006

SHEET 19 OF W 🛆



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 sheepstoot, 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

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

Structure Backfill

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

Structure backfill may be flowable fill meeting the requirements of Maryland

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

Pipe Conduits

All pipes shall be circular in cross section.

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

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

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

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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 3/6-inch thick closed cell circular neoprene gasket will be installed with 12-inches on the end of each pipe. Flanged Joints with 3/8-inch closed cell gaskets the full width of the flange is also acceptable.

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

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

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

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

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

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the loints 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

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

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

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.

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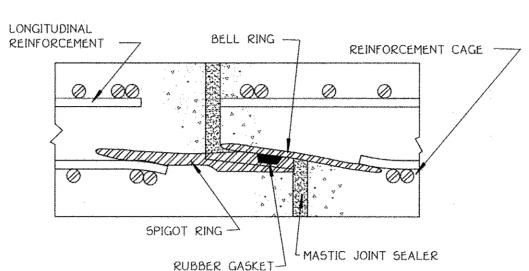
REMEION

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED STORMWATER MANAGEMENT FACILITIES

- 1. Facility shall be inspected annually and after major storms. Inspections shall be preformed during wet weather to determine if the pond is functioning properly.
- 2. Top and side slopes of the embankment shall be moved a minimum of two (2) times a year, once in June and once in September. Other side slopes and maintenance access should be moved as
- 3. Debris and litter shall be removed during regular mowing
- 4. Visible signs of erosion in the pond as well as the rip-rap or gabion outlet

NON-ROUTINE MAINTENANCE

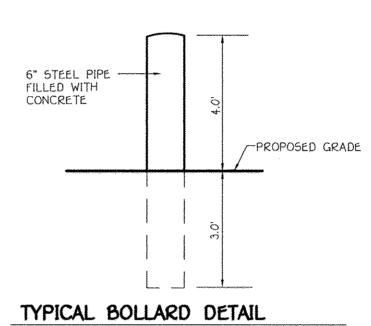
- 1. Structural components of the pond such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components shall be inspected during routine maintenance operations.
- 2. Sediment shall be removed from the pond, and forebay, no later than when the capacity of the pond or forebay, is half full of sediment, or, when deemed necessary for desthetic reasons, upon approval from the Department of Public Works.



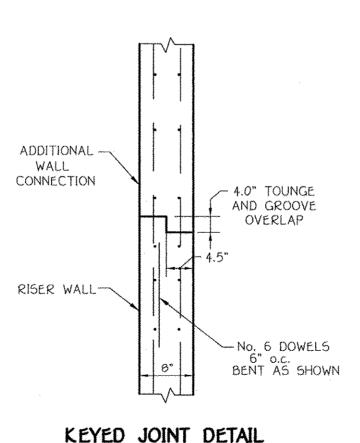
NOTE: PROVIDE MASTIC JOINT SEALER FROM OUTSIDE OF PIPE JOINTS PRIOR TO INSTALLING BARREL UNDERGROUND ASTM DESIGNATION C361 DIAMETERS 12 THRU 168 INCH PRESSURES TO 125 FEET OF HEAD

CONCRETE PIPE JOINT DETAIL

(NO SCALE)



NOT TO SCALE





OWNER

ROBERT T. MATTHEWS REVOCABLE TRUST c/o MR. TOM LYONS

7 MOSSVIEW COURT BALTIMORE, MARYLAND 21228

DEVELOPER

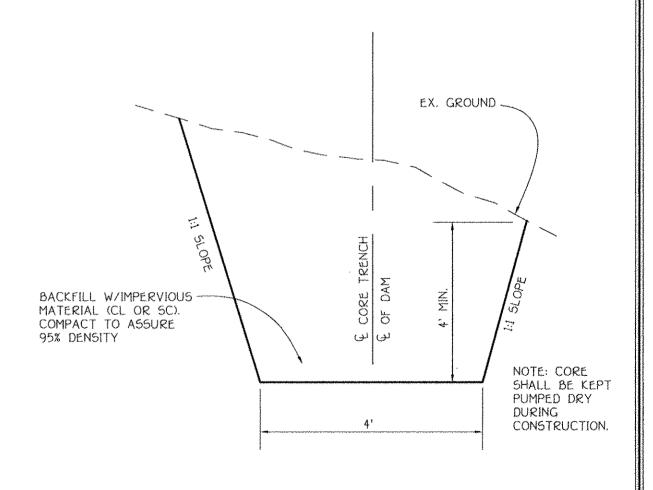
HERITAGE LAND DEVELOPMENT 15950 NORTH AVENUE P.O. BOX 482 LISBON, MARYLAND 21765 ATTN: MR. TIM FEAGA PHONE: (410) 489-7900

APPROVED: DEPARTMENT OF PUBLIC WORKS Tillia I Wholes. BUREAU OF HIGHWAYS APPROVED: DEPARTMENT OF PLANNING AND ZONING By The Developer "I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program for The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District." Signature Of Developer/ "JEREMY RUTTER 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 Plan Was Prepared In Accordance With The Requirements Of The Howard Soli Congression District. I Have Notified The Developer That He/She

Must Engage Area Professional Engineer To Supervise Pond Construction

And Provide The Howard Soli Conservation District With An "As-Built" Plan Of The 9-22-06 These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Contro I Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications Signature P.E. No.

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.



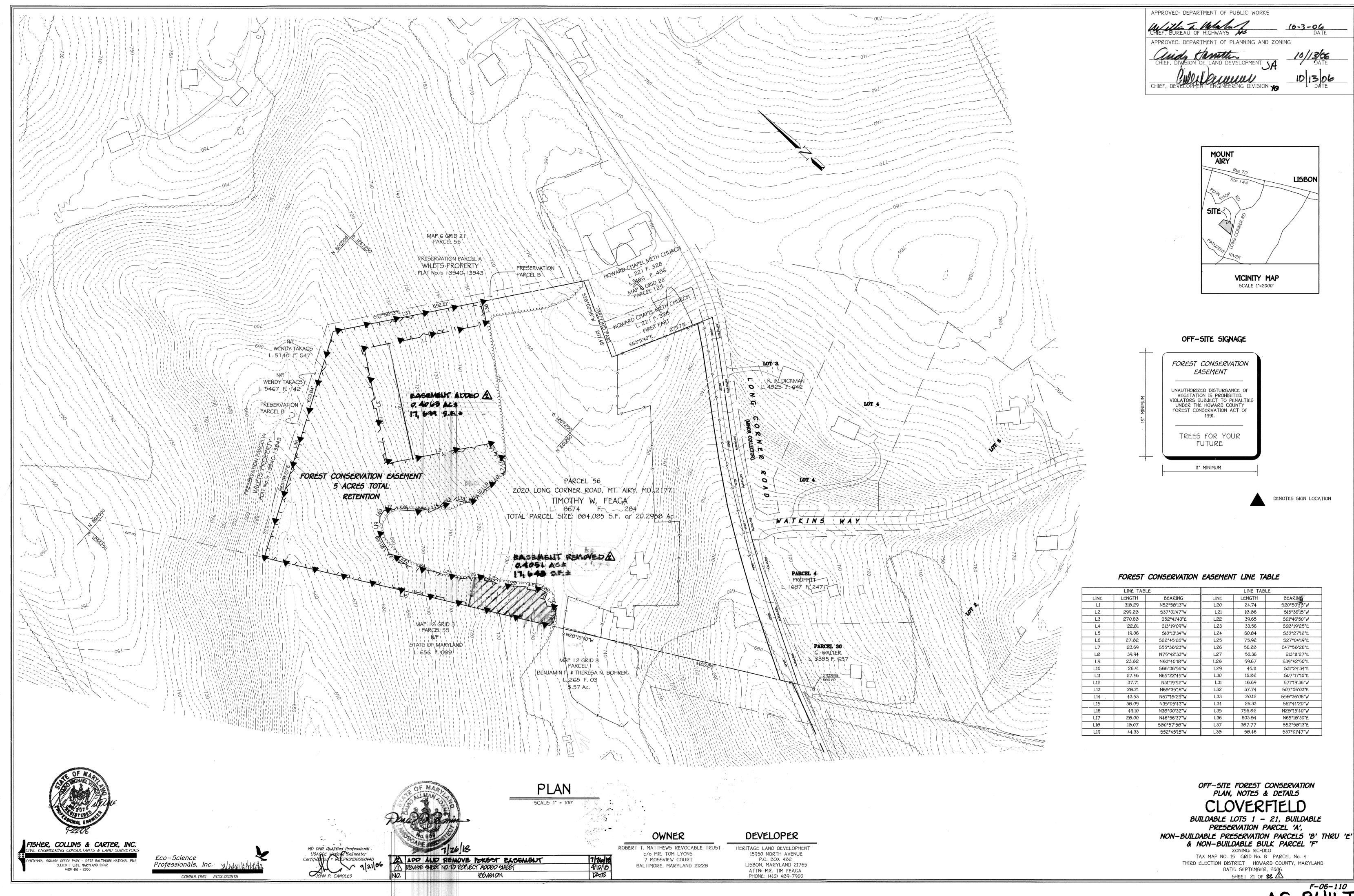
TYPICAL CORE TRENCH DETAIL NOT TO SCALE

STORMWATER MANAGEMENT NOTES AND DETAILS CLOVERFIELD

BUILDABLE LOTS 1 - 21, BUILDABLE PRESERVATION PARCEL 'A'. NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'E' & NON-BUILDABLE BULK PARCEL 'F' ZONING: RC-DEO

TAX MAP NO. 15 GRID No. 8 PARCEL No. 4 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: SEPTEMBER, 2006 SHEET 20 OF 24 🛆

WALL SECTION TO WALL SECTION



Multiflora Rose Control Note:

PRIOR TO PLANTING ALL MULTIFLORA ROSE WITHIN PLANTING AREAS SHALL BE REMOVED. Removal Of The Multiflora Rose May Be Performed With Mowing And Herbicide Treatments. Physical Removal Of All Top Growth Followed By A Periodic Herbicide Treatment Of Stump Sprouts Is Recommended. Native Tree And Shrub Species Occurring Within The Rose Thickets Should Be Retained Wherever Possible. Herbicide Treatments Shall Occur On Two (2) Month Intervals During The First Growing Seaseon And Once in The Spring And Once in the Fall For Subsequent Years. Herbicide Used Shall Be Made Specifically To Address Woody Plant Material And Shall Be Applied As Per Manufacturers Specifications. Care Should Be Taken Not To Spray Planted Trees Or Naturally Occurring Native Tree And Shrub Seedlings. It is Recommended That Initiation Of Rose Removal Begin At Least Six Months Prior To Planting So That New Growth OF Roses Is Able To Be More Successfully Managed.

Planting / Soil Specifications

- Planting Of Nursery Stock Shall Take Place Between March 15th And April 30th Or September 15th And November 15th.
- 2. A Twelve (12) Inch Layer Of Topsoil Shall Be Spread Over All Reforestation Areas Impacted By Site Grading To Assure A Suitable Planting Area, If Applicable. Disturbed Areas Shall Be Seeded And Stabilized In Accordance With The Sediment & Erosion Control Plan For This Project. Planting Areas Not Impacted By Site Grading Shall Have No Additional Topsoil Installed.
- 3. All Bare Rood Planting Stock Shall Have Their Root System Dipped Into An Anti-Desiccant Gel Prior To Planting.
- 4. Plants Shall Be installed So That The Top Of The Root Mass is Level With The Top Of Existing Grade. BackFill In The Planting Pits Shall Consist of

3 Parts Existing Soil to 1 Part Pine Fines Or Equivalent.

- 5. Fertilizer Shall Consist Of Agriform 22-8-2, Or Equivalent, Applied As Per Manufacturer's Specifications.
- 6. A Two (2) Inch Layer Of Hardwood Mulch Shall Be Placed Over The Root Area Of All Plantings. See Planting Detail.
- 7. Plant Material Shall Be Transported To The Site In A Tarped Or Covered Truck. Plants Shall Be Kept Moist Prior To Planting.
- 8. All Non-Organic Debris Associated With The Planting Operation Shall Be Removed From The Site By The Contractor.

Sequence Of Construction

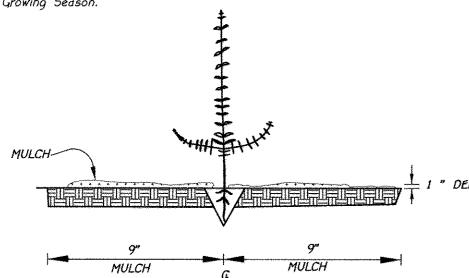
- . Sediment Controls And Tree Protective Devices Shall Be Installed In Accordance With Sediment & Erosion Control Plans For This Site, If Applicable. Site Shall Be Graded In Accordance With The Plans.
- 2. Proposed Reforestation Areas Impacted By The Site Grading Shall Be Topsoiled And Stabilized As Per Note 2 Of The "Planting / Soil Specifications"
- 3. Plants Shall Be Installed And Maintained As Per Notes And Specifications For This Project.
- 4. Upon Completion Of The Plantings, Signage Shall Be Installed As Per The Signage Detail.
- 5. Plantings Shall Be Guaranteed and Maintained In Accordance With The "Guarantee Requirements" And "Maintenance Of Plantings" Associated With This Project.

Maintenance Of Plantings

- 1. Maintenance Of Plantings Shall Last For A Period Of 26 Months.
- 2. All Plant Material Shall Be Generally Watered Twice A Month During The 1st Growing Season. Watering May Be More Or Less Frequent Depending On Weather Conditions.
- 3. During The 2nd Growing Season, Plant Material Shall Be Watered Once A Month From May To September, As Needed.
- Invasive Exotics And Noxious Weeds Shall Be Removed From The Reforestation Area(s). Old Field Successional Species Shall Be
- Plants Shall Be Examined A Minimum Of Two (2) Times During The Growing Season For Serious Plant Pests And Diseases With The
- 6. Dead Branches Shall Be Pruned From The Plantings.

Guarantee Requirements

A 75% Survival Rate For The Reforestation Plantings Is Required At The End Of The 24 Month Maintenance Period. All Plant Material Below The 75% Threshold Is Required To Be Replaced At The Beginning Of The Next Growing Season.

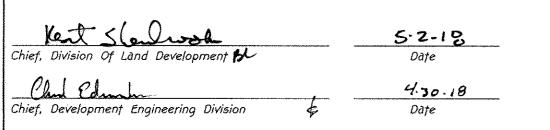


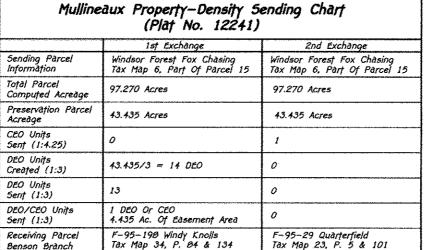
Seedling and Whip Planting Specification

* Each Whip to be protected by a tree shelter

Windsor Forest—Density Sending Chart (Plat No. 18473)						
Total Computed Parcel Acreage	194.7112 Acres					
DEO Units Sent	63					
Receiving Parcel	16 DEO Units Ashleigh Knolls, Phase 3, F-95-63 Tax Map 40, Parcel 174 Tax Map 41, Parcel 137	45 DEO Units Ashleigh Knolls, Phase 3, F-95-60 Tax Map 40, Parcel 174 Tax Map 41, Parcel 137	2 DEO Units Ashleigh Knolls, Phase 3, F-96-22 Tax Map 40, Parcel 174 Tax Map 41, Parcel 137			
Size Of Preservation	194.7112 Acres		***************************************			

Approved: Howard County Department Of Planning And Zoning





3042

CONSERVATION

PLAT OF EASEMENT THE SLETCHER PROPERTY.

(PLAT NO. 21877) ZONED RE-DEO

184709.169418

Stephanie J. Tuite, RLA, PE,

Qualified Professional

(3032)

Planting Schedule
FCE # 3 - 1.527 Acres

Planting Required: 1069

00 Acer rubrum – Red maple 10 Diospyros virginiana – Persimmon

Liriodendron tulipiferā — Tulip poplā Nyssā sylvāticā — Blāck gum

Plātānus occidentālis — Sycamore Prunus serotinā — Blāck cherry

Quercus alba – White oak

Ulmus rubrā — Slippery Elm 7 **Totāl Whip Plāntings**

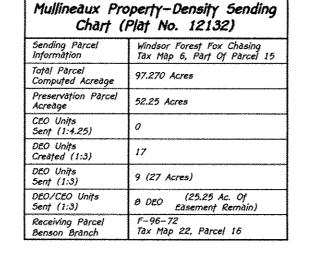
Planting Provided: 1000

Qty Species

189°47'25"E

-R=135.00° L=235.19°

589*47*25*W 46.20* Stone Fnd



AMENCED PLAT OF EASEMENT

DENSITY SENDING

CLEMENTS PROPERTY

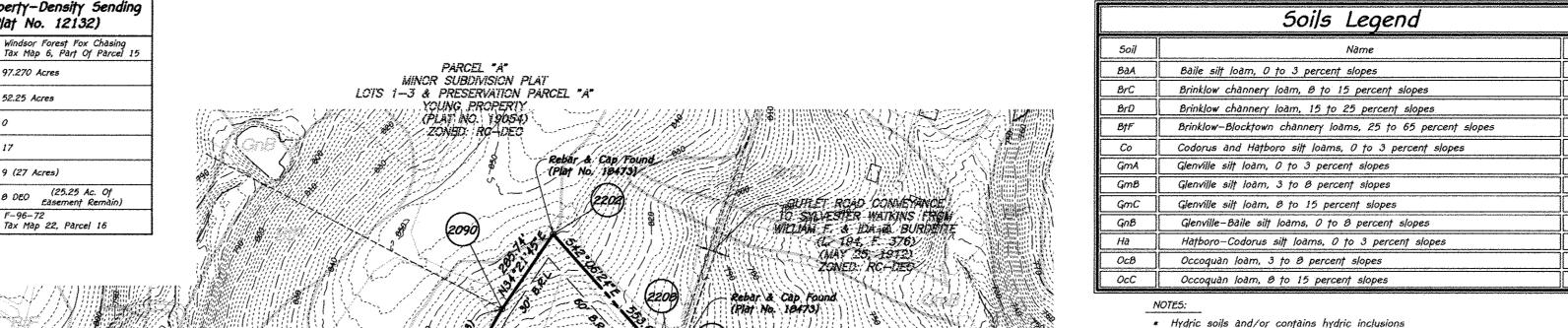
(PLAT NOS. 20798

THRU (20800)

Windsor Forest

2-3' whip 11' o.c. 2-3' whip 11' o.c.

-3' whip 11' o.c.



PROPERTY OF

HARRY W REINHARDI

CHRISTINE RENHARDI

L-1520 \F 87

TAK HAP 6, PHRCEL VOW

RESUBDIVISION

WINDSOR FOREST AND

PARCEL B

CALAT NOS 23967

ZONED RO-MED

PARGEL 'B'

PARCIL BY PAN NEE 214A THRU 31443 ZONEL RC-DEO

PARCEL ALL

ZONED PRO-DEO

1=113.15

\$ 544°21'17'E 64.31'

Public Forest

Conservation

Parcel

PLAY OF

RESUBLIVISION

MINDS TO FOREST AND MOSO PLAN OF EASEMENT PARKEL & COLOR OF THE PROPERTY OF TH

THROED MY

ZONEO RE-DEO

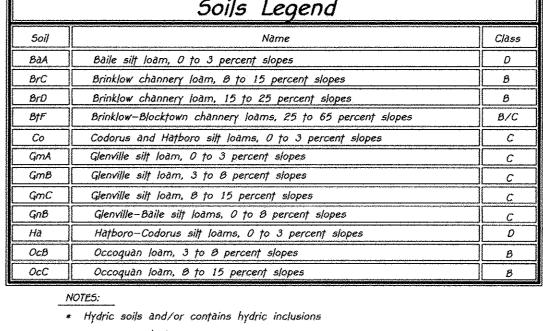
R=115.00

550*43'03"E

L=190.07

L=132.99'

(3161)



- ** May contain hydric inclusions
- t Generally only within 100-year floodplain areas

PROPERTY OF

TRUMAN L KELLEY, JR.

L 4038; E 285

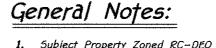
ZONED RC+050

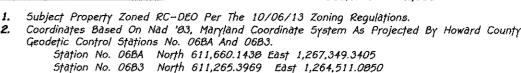
O (PARCEL 1) NAP-6, PARCEL 24

HAROLD 71 DROWDER a

ERMALYN W CROYDER

AV JAP 6 PARCEL 86 ZONEY RC7DED





This Plat Is Based On Field Run Monumented Boundary Survey Performed On Or About May,

Ho. Co. ADC Map

Vicinity Map

Map #7, Grid 8-

- Denotes Iron Pin Set With Cap "F.C.C. 106". 5. 🔊 Denotes Iron Pipe Or Iron Bar Found.
- Denotes Angular Change In Bearing Of Boundary Or Rights-Of-Way.
 Denotes Concrete Monument Set With Cap "F.C.C. 106". 8. # Denotes Concrete Monyment Or Stone Found.

2012 By Vanmar Assoc., Inc., As Shown On Plat Nos. 22267 Thru 22269.

- No Grading, Removal Of Vegetative Cover Or Trees, Or Placement Of New Structures Is Permitted Within The Limits Of Wetlands, Or Their Buffers And Forest Conservation Easement Areas. All Lot Areas Are More Or Less (*).
- Distânces Shown Are Băsed On Surfâce Meăsurement And Not Reduced To Não '83 Grid 12. Previous Department Of Planning And Zoning File Numbers: F-02-13, F-95-29, F-96-072, F-06-19, F-07-030, F-07-030(FC), F-00-203(FC), F-11-026, F-11-026(FC), F-13-059,
- F-13-063. Council Resolution 17-2008 And F-16-074. 13. This Property Is Located Outside The Metropolitan District. 14. There Are Existing Dwellings/Structures Located On Parcel B To Remain. No New Buildings,
- Extensions Or Additions To The Existing Dwelling(s) Are To Be Constructed At A Distance Less Than The Zoning Regulation Requirements. 15. This Plat Is In Compliance With The Amended Fifth Edition Of The Subdivision And Land
- Development Regulations Per The Zoning Regulations. Development Or Construction On These Lots Must Comply With Setback And Buffer Regulations In Effect At The Time Of Submission Of The Site Development Plan, Waiver Petition Application, Or Building/Grading Permit. This Property Is Encumbered By A Preservation Easement Deed With Howard County And The Howard County Conservancy, Inc. Dated June 30, 1995 And Recorded In Liber 3546 At Folio 637.

 [7///]This Area Designates A Private Sewerage Easement Of At Least 10,000 Square Feet As Required By The Maryland State Department Of The Environment For Individual Sewage Disposal.
- And Void Upon Connection To A Public Sewerage System. The County Health Officer Shall Have The Authority To Grant Adjustments To The Private Sewerage Easement. Recordation Of A Revised Sewage Easement Shall Not Be Necessary. 18. The Lots Shown Hereon Comply With The Minimum Ownership Width And Lot Area As Required By

Improvements Of Any Nature In This Easement Are Restricted. This Easement Shall Become Null

The Maryland State Department Of The Environment. 19. A 35' Environmental Setback Is Required On Parcels/Lots That Contain Environmental Features. 20. Topography is Based On Howard County 200' Scale Topographic Maps. 21. This Plan Complies With The Requirements Of Section 16.1200 Of The Howard County Code For Forest Conservation By The Reforestation Of 1.527 Acres (66,512 Sq. Ft.) Of Forest. Surety For

Reforestation Planting Notes

The DPW Developers Agreement Associated With Cloverfield, F-06-110.

1. Plants, Related Material, And Operations Shall Meet The Detailed Description As Given On The Plans And As Described Herein.

The Reforestation In The Amount Of \$33,256.00 (43,560 x \$0.50) Shall Be Posted As Part Of

- 2. Plant Material, Unless Otherwise Specified, Shall Be Nursery Grown, Uniformly Vigorous Plants Free From Defects, Decay, Disfiguring Roots, Sunscald Injuries Abrasions Of The Bark, Plant Disease, Insect Pest Eggs, Boxers, Infestations Or Objectionable Disfigurements. Plant Material That Is Weak Or Which Has Been Cut Back From Larger Grades To Meet Specified Requirements Will Be Rejected. Trees With Forked Leaders Will Not Be Accepted. Plants Shall Be Freshly Dug; No Heeled-in Plants Or Plants From Cold Storage Will Be Accepted.
- 3. Unless Otherwise Specified, Plant Material Shall Conform To "American Standard For Nursery Stock" ANSI Z60.1-1990, Published By The American Association Of Nurserymen, Including All Addenda.
- 4. Contractor Will Be Required to Guarantee Plant Material For A Period of Two (2) Years After The Date Of Acceptance And Maintain A 75% Survivability At The End of
- 5. To Lessen The Chance Of Loss, The Plantings Should Be Checked From Time To Time To Insure That They Are Receiving Sufficient Water. See "Maintenance Of Plantings" For Guidelines.
- 6. The Location And Orientation Of All Plant Material Shall Be Randomly Planted In Designated Reforestation Areas By the Contractor. Contractor Shall Be Responsible For Moving Any Plant Material Installed Without Approval.
- 7. Mowing And Applying Herbicides To The Reforestation Area Is Prohibited At Any And All Stages Of The Planting Process in Order To Encourage The Existing Saplings To
- B. Contractor Is Responsible For Installing And Pruning Plant Material In The Proper Planting Season For Each Plant Type, See Tree Planting & Maintenance Calendar.
- 9. Upon Completion Of Installation, Signage Shall Be Installed As Shown.

Purpose Statement

No. 3 (1.527 Ac.+) (Reforestation) On Parcel B, As Shown On Plats Entitled "Revision Plat Of Easement, Hobart Muillineaux Property, Parcel B" Previously Recorded As Plat Nos. 23691 Thru 23693 To Fulfill The Forest Conservation Off-Site Obligation For Cloverfield, Lots 1-21, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'B' - 'E' & Non-Buildable Bulk Parcel 'F', (F-06-110), Tax Map 15, Grid 8, Parcel 4

Off-Site Forest Planting Plan On Hobart Mullineaux Property Parcel B

> Tax Map #6 Grid #8 Parcel #15 Fourth Election District - Howard County, Maryland Zoned: RC-DEO

For

Cloverfield, (F-06-110) Lots 1-21, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'B' - 'E' & Non-Buildable Bulk Parcel 'F

> Zoned: RC-DEO Tax Map #15 Grid #8 Parcel #4 Third Election District - Howard County, Maryland

Graphic Scale Area Public Forest Conservation Easement No. 3 Line Table BEARING LENGTH Legend CE1 N66°09'46"E 57.91' Existing Public Forest Conservation
Easement Nos. 1 And 2 (Reforestation) N33°48'04"E 81.08' CE3 N10°55'24"W 69.92' Future (Plat Nos. 22265 And 23693) FCE4 564°57'37"E 401.76'
"CE5 548°28'32" W 18.89' Existing Public Forest Conservation Easement Nos. 1, 2 And 3 *CE6 | 557°10'23"W | 66.84' FCE7 573°37'17"W 60.44' FCE8 541°23'18"W 85.22' (Afforestation) (Plat Nos. 19844, 20480 And 21723) Public Forest Conservation Easement No. 3 (Reforestation) (1.527 Ac.±)

Forest Conservation Reforestation Project Trees for Your

PLAT OF EASEMENT BUGLER PROPERTY (PLAT NO 14329)

▲ Forest Conservation

(410) 549-1669 Fisher, Collins & Carter, Inc.
Civil Engineering Consultants & Land Surveyors ennial Square Office Park-10272 Baltimore National Pike Ellicott City, Maryland 21042 (410) 461-2055

Owner

Robert Arthur Scranton

18950 Windsor Forest Road

Mount Airy, Maryland 21771-3922

(410) 549-1669

Developer

Cloverfield/Pfefferkorn, LLC

18950 Windsor Forest Road

Mount Airy, Maryland 21771-3922

