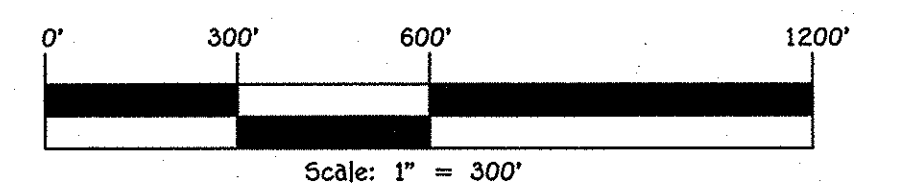


SITE MAP
Scale: 1" = 300'



KEY SHEET PLAN
SCHULTE PROPERTY
LOTS 1-44,
BUILDABLE PRESERVATION PARCEL 'A',
NON-BUILDABLE PRESERVATION PARCELS 'B'-'K',
AND PARCEL 'L'
15250 OLD FREDERICK ROAD
ZONED: RC-DEO TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: JULY 10, 2014
SHEET 2 OF 16

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY
Frank J. Manalang
PLANNING DIRECTOR
8-15-14
DATE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELICOTT CITY, MARYLAND 21042
(410) 451-2295

OWNER
ESTATE OF F.J. SCHULTE
2215 DUNNALL ROAD
WOODBINE, MD 21797
410-977-1327

DEVELOPER
LAND DESIGN & DEVELOPMENT
5300 DORSEY HALL DRIVE
SUITE 102
ELICOTT CITY, MARYLAND 21042
(410)-977-0422

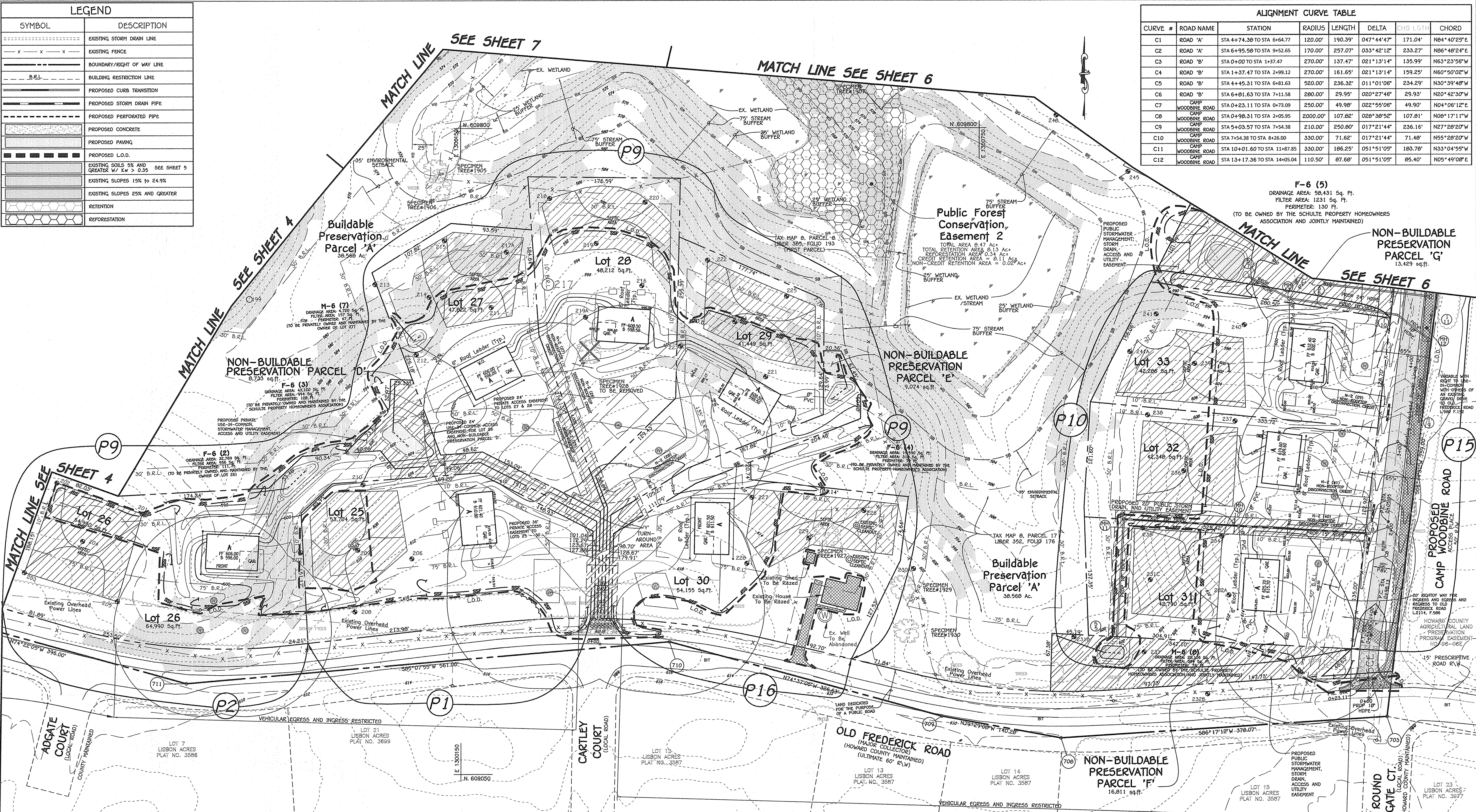
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRES: 7/14/15.
Frank J. Manalang
FRANK J. MANALANG
7-18-14
DATE

SP14-002

11/20/05 10:05:00 am J:\PSP FOLDER\05106 PSP.dwg, 8/4/2014 2:32:48 PM, 1:1

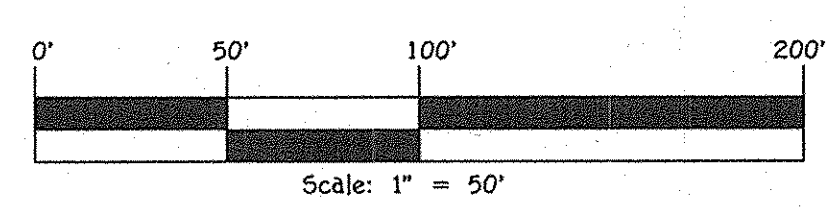
SYMBOL	DESCRIPTION
-----	EXISTING STORM DRAIN LINE
-x-x-x-	EXISTING FENCE
-----	BOUNDARY/RIGHT OF WAY LINE
-----	BUILDING RESTRICTION LINE
-----	PROPOSED CURB TRANSITION
-----	PROPOSED STORM DRAIN PIPE
-----	PROPOSED PERFORATED PIPE
-----	PROPOSED CONCRETE
-----	PROPOSED PAVING
-----	PROPOSED L.O.D.
-----	EXISTING SOILS 5% AND GREATER W/ K _v > 0.35 SEE SHEET 5
-----	EXISTING SLOPES 15% TO 24.9%
-----	EXISTING SLOPES 25% AND GREATER
-----	RETENTION
-----	REFORESTATION

ALIGNMENT CURVE TABLE							
CURVE #	ROAD NAME	STATION	RADIUS	LENGTH	DELTA	CHORD	CHORD
C1	ROAD 'A'	STA 4+74.36 TO STA 6+64.77	120.00'	190.39'	047°44'47"	171.04'	N84°40'25"E
C2	ROAD 'A'	STA 6+95.58 TO STA 9+52.65	170.00'	257.07'	033°42'12"	233.27'	N66°40'24"E
C3	ROAD 'B'	STA 0+00 TO STA 1+37.47	270.00'	137.47'	021°13'14"	135.99'	N63°23'56"W
C4	ROAD 'B'	STA 1+37.47 TO STA 2+99.12	270.00'	161.65'	021°13'14"	159.25'	N60°50'02"W
C5	ROAD 'B'	STA 4+45.31 TO STA 6+81.63	520.00'	236.32'	011°01'06"	234.29'	N30°39'48"W
C6	ROAD 'B'	STA 6+81.63 TO STA 7+11.58	280.00'	29.95'	020°27'46"	29.93'	N20°42'30"W
C7	CAMP WOODBINE ROAD	STA 0+23.11 TO STA 0+73.09	250.00'	49.90'	022°55'06"	49.90'	N04°06'12"E
C8	CAMP WOODBINE ROAD	STA 0+98.31 TO STA 2+05.95	2000.00'	107.82'	028°30'52"	107.81'	N08°17'11"W
C9	CAMP WOODBINE ROAD	STA 5+03.57 TO STA 7+54.38	210.00'	250.80'	017°21'44"	236.16'	N27°28'20"W
C10	CAMP WOODBINE ROAD	STA 7+54.38 TO STA 8+26.00	330.00'	71.62'	017°21'44"	71.48'	N55°28'20"W
C11	CAMP WOODBINE ROAD	STA 10+01.60 TO STA 11+87.85	330.00'	186.25'	051°51'05"	183.78'	N33°04'55"W
C12	CAMP WOODBINE ROAD	STA 13+17.36 TO STA 14+05.04	110.50'	87.88'	051°51'05"	85.40'	N05°49'08"E



F-6 (5)
 DRAINAGE AREA: 58,431 Sq. Ft.
 FILTER AREA: 1231 Sq. Ft.
 PERIMETER: 130 Ft.
 (TO BE OWNED BY THE SCHULTE PROPERTY HOMEOWNERS ASSOCIATION AND JOINTLY MAINTAINED)

PRELIMINARY EQUIVALENT SKETCH, PERC CERTIFICATION, LANDSCAPING, AND EROSION & SEDIMENT CONTROL PLAN
 SCHULTE PROPERTY
 LOTS 1-44,
 BUILDABLE PRESERVATION PARCEL 'A',
 NON-BUILDABLE PRESERVATION PARCELS 'B'-'K',
 AND PARCEL 'L'
 15250 OLD FREDERICK ROAD
 ZONED: RC-DEO TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: 1" = 50' DATE: JULY 10, 2014
 SHEET 3 OF 16



TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

 PLANNING DIRECTOR
 F-15-14
 DATE

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS,
 HOWARD COUNTY HEALTH DEPARTMENT.

 COUNTY HEALTH OFFICER
 8/7/2014
 DATE

OWNER
 ESTATE OF F.J. SCHULTE
 2215 DUNNALL ROAD
 WOODBINE, MD 21797
 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND 21042
 (410)-977-0422

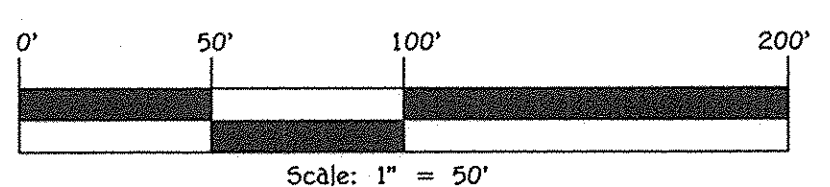
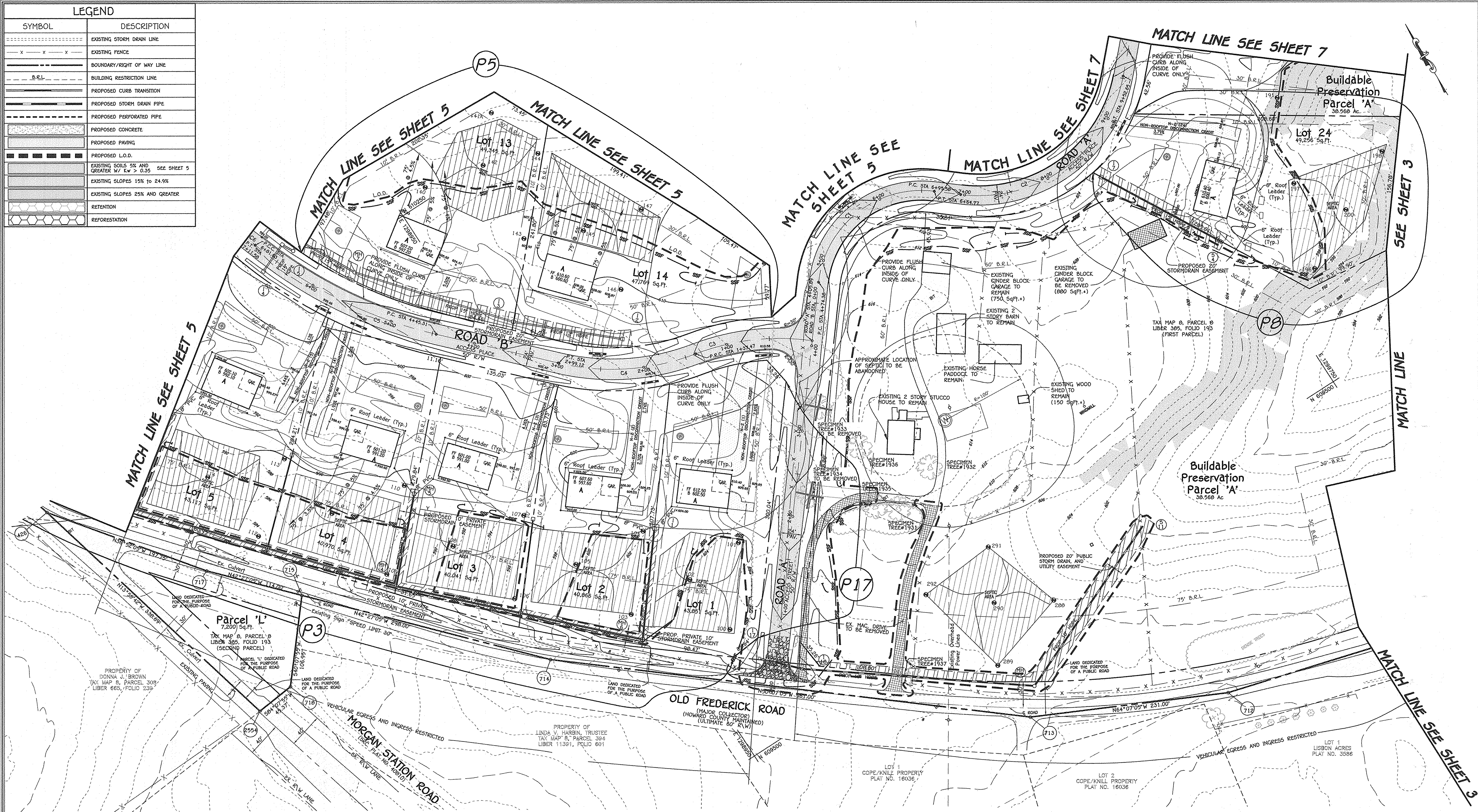
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

 FRANK J. MANUPELLI, P.E.
 7-18-14
 DATE

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10722 BALTIMORE NATIONAL PIKE
 GAITHERSBURG, MARYLAND 21042
 (410) 461-2295

SP-14-002

SYMBOL	DESCRIPTION
-----	EXISTING STORM DRAIN LINE
-x-x-x-	EXISTING FENCE
-----	BOUNDARY/RIGHT OF WAY LINE
-----	BUILDING RESTRICTION LINE
-----	PROPOSED CURB TRANSITION
-----	PROPOSED STORM DRAIN PIPE
-----	PROPOSED PERFORATED PIPE
-----	PROPOSED CONCRETE
-----	PROPOSED PAVING
-----	PROPOSED L.O.D.
-----	EXISTING SOILS 5% AND GREATER W/ K _w > 0.35 SEE SHEET 5
-----	EXISTING SLOPES 15% TO 24.9%
-----	EXISTING SLOPES 25% AND GREATER
-----	RETENTION
-----	REFORESTATION



PRELIMINARY EQUIVALENT SKETCH, PERC CERTIFICATION LANDSCAPING, AND EROSION & SEDIMENT CONTROL PLAN
 SCHULTE PROPERTY
 LOTS 1-44,
 BUILDABLE PRESERVATION PARCEL 'A',
 NON-BUILDABLE PRESERVATION PARCELS 'B'-'K',
 AND PARCEL 'L'
 15250 OLD FREDERICK ROAD
 ZONED: RC-DEO TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: 1" = 50' DATE: JULY 10, 2014
 SHEET 4 OF 16

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY
Handwritten signature
 8-15-14
 DATE

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS,
 HOWARD COUNTY HEALTH DEPARTMENT.
Handwritten signature
 COUNTY HEALTH OFFICER
 8/7/2014
 DATE

OWNER
 ESTATE OF F.J. SCHULTE
 2215 DUNNALL ROAD
 WOODBINE, MD 21797
 410-977-1327

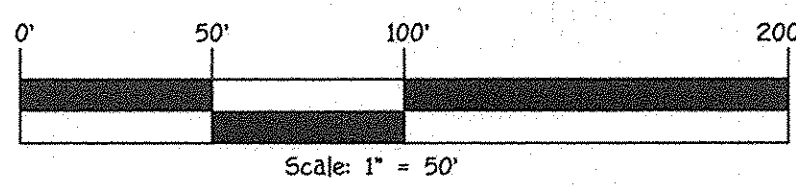
DEVELOPER
 LAND DESIGN & DEVELOPMENT
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND 21042
 (410)-977-0422

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NUMBER: 17114/15.
Handwritten signature
 FRANK J. MANIANSKI, P.E.
 DATE: 8-15-14

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL FREE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2295

SP-14-002

LEGEND	
SYMBOL	DESCRIPTION
-----	EXISTING STORM DRAIN LINE
x x x	EXISTING FENCE
-----	BOUNDARY/RIGHT OF WAY LINE
B.R.L.	BUILDING RESTRICTION LINE
-----	PROPOSED CURB TRANSITION
-----	PROPOSED STORM DRAIN PIPE
-----	PROPOSED PERFORATED PIPE
-----	PROPOSED CONCRETE
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-----	EXISTING SLOPES 25% AND GREATER
-----	RETENTION
-----	REFORESTATION



FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELKOTT CITY, MARYLAND 21042
 (410) 461-2955

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

Shirley Longo
 PLANNING DIRECTOR

8-15-14
 DATE

OWNER
 ESTATE OF F.J.
 SCHULTE 2215 DUNNALL
 ROAD WOODBINE, MD
 21797 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND
 21042 (410)-977-0422

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY
 ME AND THAT I AM A DULY LICENSED PROFESSIONAL SURVEYOR UNDER THE LAWS
 OF THE STATE OF MARYLAND. GENERAL REGISTRATION DATE: 7/14/15

Frank J. Manalac
 FRANK J. MANALAC
 7-18-14
 DATE

PRELIMINARY EQUIVALENT SKETCH,
 LANDSCAPING, AND EROSION & SEDIMENT
 CONTROL PLAN
 SCHULTE PROPERTY
 LOTS 1-44,
 BUILDABLE PRESERVATION PARCEL 'A',
 NON-BUILDABLE PRESERVATION PARCELS 'B'-'K',
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 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE 1" = 50' DATE: JULY 10, 2014
 SHEET 8 OF 16

SP-14-002

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FOREST CONSERVATION WORKSHEET
VERSION 1.0

PROJECT: SCHULTE PROPERTY
DATE: MARCH 18, 2014

NET TRACT AREA	ACRES
A. TOTAL TRACT AREA	138.60
B. DEDUCTIONS AREA WITHIN 100 YEAR FLOODPLAIN	2.36
C. AREA TO REMAIN IN AGRICULTURAL PRODUCTION	0.0
D. NET TRACT AREA	136.24
LAND USE CATEGORY: MEDIUM DENSITY RESIDENTIAL	
E. AFFORESTATION THRESHOLD (NET TRACT AREA (C) x 20%)	27.25
F. CONSERVATION THRESHOLD (NET TRACT AREA (C) x 25%)	34.06
EXISTING FOREST COVER	
G. EXISTING FOREST COVER WITHIN THE NET TRACT AREA	41.00
H. AREA OF FOREST ABOVE AFFORESTATION TRESHOLD	13.79
I. AREA OF FOREST ABOVE CONSERVATION TRESHOLD	6.94
BREAK EVEN POINT	
J. FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION	35.45
BREAK-EVEN POINT	
K. CLEARING PERMITTED WITHOUT MITIGATION	5.55
PROPOSED FOREST CLEARING	
L. TOTAL AREA OF FOREST TO BE CLEARED OR RETAINED OUTSIDE FCE	6.91
M. TOTAL AREA OF FOREST TO BE RETAINED	34.09
PLANTING REQUIREMENTS	
N. REFORESTATION FOR CLEARING ABOVE THE CONSERVATION THRESHOLD	1.73
P. REFORESTATION FOR CLEARING BELOW THE CONSERVATION THRESHOLD	0.00
Q. CREDIT FOR RETENTION ABOVE THE CONSERVATION THRESHOLD	0.03
R. TOTAL REFORESTATION REQUIRED	1.70
S. TOTAL AFFORESTATION REQUIRED	0.0
T. TOTAL PLANTING REQUIREMENT	1.70

FOREST CONSERVATION
AREA SUMMARY

FOREST CONSERVATION EASEMENT NO.	TOTAL RETENTION AREA	CREDIT RETENTION AREA	NON-CREDIT RETENTION AREA	REFORESTATION AREA
FCE NO. 1	1.61 Ac.	1.61 Ac.	0.00 Ac.	1.26 Ac.
FCE NO. 2	8.13 Ac.	8.11 Ac.	0.02 Ac.	0.34 Ac.
FCE NO. 3	4.63 Ac.	4.63 Ac.	0.00 Ac.	0 Ac.
FCE NO. 4	17.62 Ac.	17.62 Ac.	0.00 Ac.	0.16 Ac.
FCE NO. 5	2.12 Ac.	2.12 Ac.	0.00 Ac.	0 Ac.
TOTAL	34.11 Ac.	34.09 Ac.	0.02 Ac.	1.76 Ac.

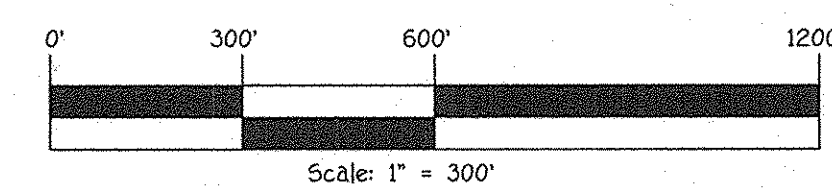
LINE TABLE

LINE	BEARING	DISTANCE
L1	N86°17'12"E	378.07'
L2	S79°29'08"E	140.28'
L3	N74°37'05"W	326.63'
L4	S85°07'55"W	561.00'
L5	N74°22'05"W	396.00'
L6	N64°07'05"W	231.00'
L7	N50°07'05"W	561.00'
L8	N42°27'05"W	298.00'
L9	N42°27'05"W	114.00'
L10	N36°52'05"W	197.75'
L11	S40°07'55"W	106.95'
L12	S84°07'55"W	45.37'
L13	N13°55'42"W	338.69'
L14	N14°50'16"W	819.78'
L15	S75°45'49"E	1795.25'
L16	N14°41'48"E	380.49'
L17	S77°59'52"E	352.06'
L18	S78°29'41"E	1124.75'
L19	N14°08'40"E	369.00'
L20	S87°07'30"E	602.19'
L21	S09°38'40"W	328.00'
L22	S89°58'01"W	635.68'
L23	S14°17'46"W	759.00'
L24	S06°44'31"W	759.00'
L25	N59°13'45"W	1004.53'
L26	N39°37'36"E	663.48'
L27	N25°49'38"E	490.71'
L28	N66°49'38"E	297.00'
L29	N66°49'38"E	297.00'
L30	S59°10'22"E	264.00'
L31	S39°48'51"E	558.52'
L32	S38°31'01"W	264.00'
L33	S38°31'01"W	1188.00'



SITE MAP

SCALE: 1" = 300'



Scale: 1" = 300'

Schulte Specimen Tree List

TAG #	COMMON NAME	SCIENTIFIC NAME	DBH*	VIGOR**	NOTES
#1905	BLACK CHERRY	<i>Prunus serotina</i>	32"	Fair	position ivy & oriental bittersweet
#1906	BLACK CHERRY	<i>Prunus serotina</i>	33"	Good	some oriental bittersweet
#1907	NORTHERN RED OAK	<i>Quercus rubra</i>	32"	Good	
#1908	BLACK OAK (HYBRID)	<i>Quercus velutina</i>	33"	Fair	some dead branches
#1909	WHITE OAK	<i>Quercus alba</i>	37"	Good	
#1910	NORTHERN RED OAK	<i>Quercus rubra</i>	31"	Fair	some dead branches
#1911	WHITE OAK	<i>Quercus alba</i>	31"	Good	double at 5'
#1912	CHESTNUT OAK	<i>Quercus prinus</i>	38.5"	Fair	some dead branches
#1913	WHITE OAK	<i>Quercus alba</i>	34.5"	Fair	dead branches
#1914	WHITE OAK	<i>Quercus alba</i>	31.5"	Good	
#1915	WHITE OAK	<i>Quercus alba</i>	35"	Fair	some dead branches
#1916	NORTHERN RED OAK	<i>Quercus rubra</i>	33"	Fair	some dead branches
#1917	RED MAPLE	<i>Acer rubrum</i>	41"	Fair	some dead branches
#1918	RED MAPLE	<i>Acer rubrum</i>	33"	Fair	some dead branches
#1919	TULIP POPLAR	<i>Liriodendron tulipifera</i>	30.5"	Good	
#1920	WHITE OAK	<i>Quercus alba</i>	33"	Fair	some dead branches
#1921	CHESTNUT OAK	<i>Quercus prinus</i>	36.5"	Fair	some dead branches
#1922	BLACK OAK	<i>Quercus velutina</i>	30.5"	Fair	dead branches, position ivy
#1923	NORTHERN RED OAK	<i>Quercus rubra</i>	32"	Fair	some dead branches
#1924	NORTHERN RED OAK	<i>Quercus rubra</i>	37"	Bad	fungus, dead branches, <5 years to live
#1925	RED MAPLE	<i>Acer rubrum</i>	43.5"	Fair	
#1926	WHITE OAK	<i>Quercus alba</i>	35"	Fair	some dead branches
#1927	RED MAPLE	<i>Acer rubrum</i>	38"	Good	
#1928	BLACK GUM	<i>Nyssa sylvatica</i>	34"	Fair	over spray
#1929	WHITE PINE	<i>Pinus strobus</i>	44"	Fair	
#1930	WHITE PINE	<i>Pinus strobus</i>	36"	Fair	
#1931	E. RED CEDAR	<i>Juniperus virginiana</i>	31.5"	Good	
#1932	RED MAPLE	<i>Acer rubrum</i>	32.5"	Fair	dead branch
#1933	WHITE PINE	<i>Pinus strobus</i>	31.5"	Good	
#1934	WHITE PINE	<i>Pinus strobus</i>	30"	Poor	trunk rot
#1935	E. RED CEDAR	<i>Juniperus virginiana</i>	31.5"	Fair	
#1936	SIBERIA ELM	<i>Ulmus pumila</i>	31.5"	Poor	deceased
#1937	WHITE PINE	<i>Pinus strobus</i>	31"	Poor	trunk rot
#1938	WHITE OAK	<i>Quercus alba</i>	31"	Good	
#1939	BLACK OAK	<i>Quercus velutina</i>	32"	Fair	trunk rot
#1940	NORTHERN RED OAK	<i>Quercus rubra</i>	31"	Good	
#1941	NORTHERN RED OAK	<i>Quercus rubra</i>	31"	Good	
#1942	NORTHERN RED OAK	<i>Quercus rubra</i>	35"	Good	
#1943	WHITE OAK	<i>Quercus alba</i>	33"	Good	
#1944	TULIP POPLAR	<i>Liriodendron tulipifera</i>	38"	Good	
#1945	SOUTHERN RED OAK	<i>Quercus falcata</i>	41"	Good	
#1973	BLACK CHERRY	<i>Prunus serotina</i>	32"	Good	double at 5'
#2401	TULIP POPLAR	<i>Liriodendron tulipifera</i>	34.5"	Fair	Dead Branch 1/3 Triple
#2402	TULIP POPLAR	<i>Liriodendron tulipifera</i>	38"	Fair	Dead Branches
#2403	TULIP POPLAR	<i>Liriodendron tulipifera</i>	38"	Good	Double at 2'
#2404	TULIP POPLAR	<i>Liriodendron tulipifera</i>	41.5"	Good	Vines
#2405	TULIP POPLAR	<i>Liriodendron tulipifera</i>	35"	Good	1/2 of Double
#2406	TULIP POPLAR	<i>Liriodendron tulipifera</i>	32"	Good	1/2 of Double
#2407	WHITE OAK	<i>Quercus alba</i>	36"	Fair	Vines, fence through tree, split at 6', dead branch
#2408	TULIP POPLAR	<i>Liriodendron tulipifera</i>	33"	Good	
#2409	WHITE OAK	<i>Quercus alba</i>	39.5"	Fair	Dead Branch, Fence through Tree
#2410	WHITE OAK	<i>Quercus alba</i>	35"	Fair	Dead Branch, Vines
#2411	TULIP POPLAR	<i>Liriodendron tulipifera</i>	30.5"	Good	
#2412	TULIP POPLAR	<i>Liriodendron tulipifera</i>	32"	Good	1/2 of Double
#2413	WHITE OAK	<i>Quercus alba</i>	38"	Fair	Dead Branch
#2414	WHITE OAK	<i>Quercus alba</i>	36"	Good	
#2415	NORTHERN RED OAK	<i>Quercus rubra</i>	31.5"	Good	Lean, Dead Branch
#2416	TULIP POPLAR	<i>Liriodendron tulipifera</i>	39"	Good	1/2 of Double
#2417	TULIP POPLAR	<i>Liriodendron tulipifera</i>	40"	Good	
#2418	TULIP POPLAR	<i>Liriodendron tulipifera</i>	44"	Good	Dead Branch
#2419	TULIP POPLAR	<i>Liriodendron tulipifera</i>	32"	Good	
#2420	SYCAMORE	<i>Platanus occidentalis</i>	32"	Good	Lean
#2421	TULIP POPLAR	<i>Liriodendron tulipifera</i>	39"	Good	Dead Branch
#2422	WHITE OAK	<i>Quercus alba</i>	39"	Good	Vines
#2423	TULIP POPLAR	<i>Liriodendron tulipifera</i>	36.5"	Good	Dead Branch
#2424	RED MAPLE	<i>Acer rubrum</i>	31.5"	Good	Growth of Trunk
#2425	NORTHERN RED OAK	<i>Quercus rubra</i>	41.5"	Good	Dead Branch
#2426	PIN OAK	<i>Quercus palustris</i>	36"	Good	Dead Branch
#2427	TULIP POPLAR	<i>Liriodendron tulipifera</i>	31.5"	Fair	Split at 15'
#2428	RED MAPLE	<i>Acer rubrum</i>	38"	Good	
#2429	NORTHERN RED OAK	<i>Quercus rubra</i>	40.5"	Good	
#2430	SHINGLE OAK	<i>Quercus imbricaria</i>	38"	Good	Dead Branch
#2431	RED MAPLE	<i>Acer rubrum</i>	33"	Good	Dead Branch
#2432	RED MAPLE	<i>Acer rubrum</i>	36.5"	Fair	Dead Branch
#2433	RED MAPLE	<i>Acer rubrum</i>	38"	Good	Dead Branch
#2434	RED MAPLE	<i>Acer rubrum</i>	33"	Fair	Hole in Trunk
#2435	PIN OAK	<i>Quercus palustris</i>	36"	Good	Lean
#2436	NORTHERN RED OAK	<i>Quercus rubra</i>	34"	Fair	Dead Branch
#2437	WHITE OAK	<i>Quercus alba</i>	37"	Good	
#2438	WHITE OAK	<i>Quercus alba</i>	39"	Good	Split at 6'
#2439	WHITE OAK	<i>Quercus alba</i>	32"	Good	
#2440	NORTHERN RED OAK	<i>Quercus rubra</i>	31.5"	Good	
#2441	NORTHERN RED OAK	<i>Quercus rubra</i>	43"	Poor	Split, hollow growth on trunk
#2442	WHITE OAK	<i>Quercus alba</i>	38"	Good	Dead Branch
#2443	WHITE OAK	<i>Quercus alba</i>	38"	Good	
#2444	CHESTNUT OAK	<i>Quercus prinus</i>	35"	Good	Dead Branch
#2445	CHESTNUT OAK	<i>Quercus prinus</i>	31"	Good	
#2446	NORTHERN RED OAK	<i>Quercus rubra</i>	35"	Fair	Trunk Rot
#2447	NORTHERN RED OAK	<i>Quercus rubra</i>	37.5"	Fair	Dead Branch

NOTE: (*) DENOTES SEVEN(7) SPECIMEN TREES TO BE REMOVED. OTHERS TO REMAIN.

LEGEND

- SPECIMEN TREES TO BE REMAIN.
- SPECIMEN TREES TO BE REMOVED.
- DENOTES 15%-24.9% SLOPES
- DENOTES 25% AND GREATER SLOPE

PRELIMINARY FOREST CONSERVATION PLAN
SCHULTE PROPERTY

LOTS 1-44,
BUILDABLE PRESERVATION PARCEL 'A',
NON-BUILDABLE PRESERVATION PARCELS 'B'-'K',
AND PARCEL 'L'

15250 OLD FREDERICK ROAD
ZONED: RC-DEO TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE AS SHOWN DATE: JULY 10, 2014
SHEET 10 OF 16

FISHER, COLLINS & CARTER, INC.
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CENTRAL SQUARE OFFICE PARK - 1072 BALTIMORE NATIONAL PARK
ELLSWORTH CITY, MARYLAND 21042
410.461.2855

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY
David J. Lavelle
PLANNING DIRECTOR
8-15-14
DATE

OWNER

ESTATE OF F.J. SCHULTE 2215 DUNWALL
ROAD WOODBINE, MD
21797 410-977-1327

DEVELOPER

LAND DESIGN & DEVELOPMENT
5300 DORSEY HALL DRIVE
SUITE 102
ELLCOTT CITY, MARYLAND
21042 (410)-977-0422

PROFESSIONAL CERTIFICATION

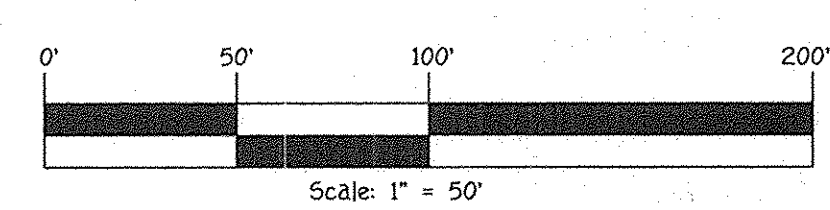
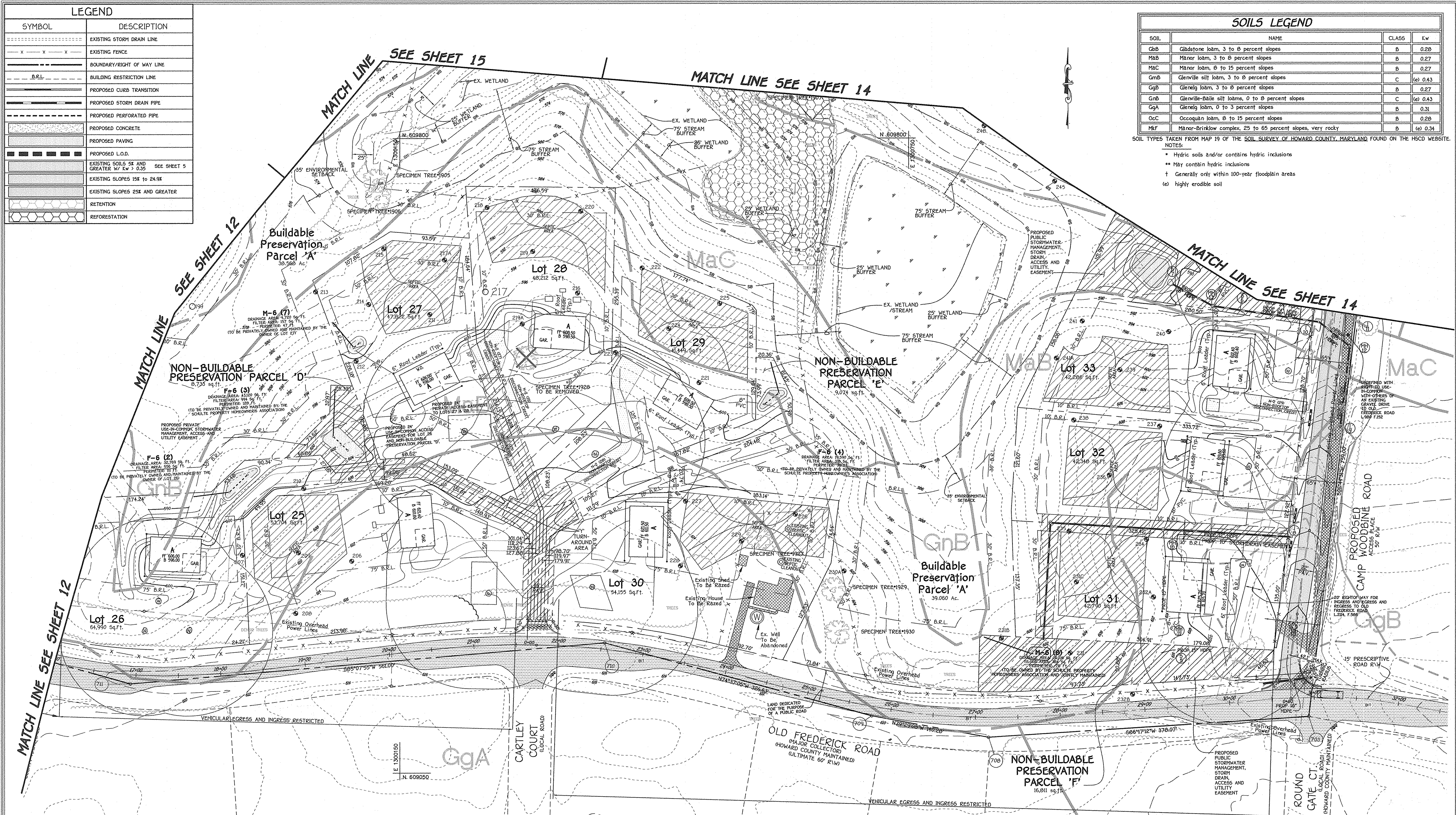
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED OR APPROVED BY ME AND THAT I AM A DESIGNER OR SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND.
Frank J. Manly
FRANK J. MANLY
7-18-14
DATE

SR 14-002

LEGEND	
SYMBOL	DESCRIPTION
-----	EXISTING STORM DRAIN LINE
-x-x-x-	EXISTING FENCE
-----	BOUNDARY/RIGHT OF WAY LINE
-----	BUILDING RESTRICTION LINE
-----	PROPOSED CURB TRANSITION
-----	PROPOSED STORM DRAIN PIPE
-----	PROPOSED PERFORATED PIPE
-----	PROPOSED CONCRETE
-----	PROPOSED PAVING
-----	PROPOSED L.O.D.
-----	EXISTING SOILS 5% AND GREATER W/ K _w > 0.35 SEE SHEET 5
-----	EXISTING SLOPES 15% TO 24.9%
-----	EXISTING SLOPES 25% AND GREATER
-----	RETENTION
-----	REFORESTATION

SOILS LEGEND			
SOIL	NAME	CLASS	K _w
GbB	Gladstone loam, 3 to 8 percent slopes	B	0.28
MaB	Minor loam, 3 to 8 percent slopes	B	0.27
MaC	Minor loam, 8 to 15 percent slopes	B	0.27
GmB	Glenville silt loam, 3 to 8 percent slopes	C	(e) 0.43
GgB	Glenely loam, 3 to 8 percent slopes	B	0.27
GnB	Glenville-Baile silt loams, 0 to 8 percent slopes	C	(e) 0.43
GgA	Glenely loam, 0 to 3 percent slopes	B	0.31
OcC	Occoquan loam, 8 to 15 percent slopes	B	0.28
MkF	Minor-Brinklow complex, 25 to 65 percent slopes, very rocky	B	(e) 0.34

SOIL TYPES TAKEN FROM MAP 19 OF THE SOIL SURVEY OF HOWARD COUNTY, MARYLAND FOUND ON THE HSCD WEBSITE.
 NOTES:
 * Hydric soils and/or contains hydric inclusions
 ** May contain hydric inclusions
 † Generally only within 100-year floodplain areas
 (e) highly erodible soil



PRELIMINARY DRAINAGE AREA AND SOILS MAP
 SCHULTE PROPERTY
 LOTS 1-44,
 BUILDABLE PRESERVATION PARCEL 'A',
 NON-BUILDABLE PRESERVATION PARCELS 'B'-'K',
 AND PARCEL 'L'
 15250 OLD FREDERICK ROAD
 ZONED: RC-DEO TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: 1" = 50' DATE: JULY 10, 2014
 SHEET 11 OF 16

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY
[Signature]
 PLANNING DIRECTOR
 DATE: 8/15/14

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS,
 HOWARD COUNTY HEALTH DEPARTMENT.
[Signature]
 COUNTY HEALTH OFFICER
 DATE: 8/17/2014

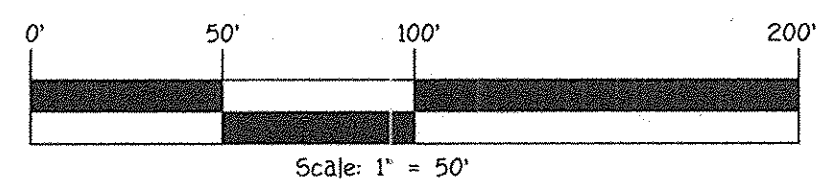
OWNER
 ESTATE OF F.J.
 SCHULTE 2215 DUNALL
 ROAD WOODBINE, MD
 21797 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND
 21042 (410)-977-0422

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY
 ME AND THAT I AM A DULY LICENSED PROFESSIONAL SURVEYOR UNDER THE LAWS
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[Signature]
 FRANK J. MANALAYAN
 DATE: 7-10-14

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 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PARK
 ELLICOTT CITY, MARYLAND 21042
 (410) 461-2999

LEGEND	
SYMBOL	DESCRIPTION
-----	EXISTING STORM DRAIN LINE
-x-x-x-	EXISTING FENCE
-----	BOUNDARY/RIGHT OF WAY LINE
-----	BUILDING RESTRICTION LINE
-----	PROPOSED CURB TRANSITION
-----	PROPOSED STORM DRAIN PIPE
-----	PROPOSED PERFORATED PIPE
-----	PROPOSED CONCRETE
-----	PROPOSED PAVING
-----	PROPOSED L.O.D.
-----	EXISTING SOILS 5% AND GREATER W/ K _w > 0.35 SEE SHEET 5
-----	EXISTING SLOPES 15% TO 24.9%
-----	EXISTING SLOPES 25% AND GREATER
-----	RETENTION
-----	REFORESTATION



PRELIMINARY DRAINAGE AREA AND SOILS MAP
 SCHULTE PROPERTY
 LOTS 1-44,
 BUILDABLE PRESERVATION PARCEL 'A',
 NON-BUILDABLE PRESERVATION PARCELS 'B'-'K',
 AND PARCEL 'L'
 15250 OLD FREDERICK ROAD
 ZONED: RC-DEO TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: 1" = 50' DATE: JULY 10, 2014
 SHEET 12 OF 16

TENTATIVELY APPROVED
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 HOWARD COUNTY

 PLANNING DIRECTOR
 8-15-14
 DATE

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 HOWARD COUNTY HEALTH DEPARTMENT.

 COUNTY HEALTH OFFICER
 8/7/2014
 DATE

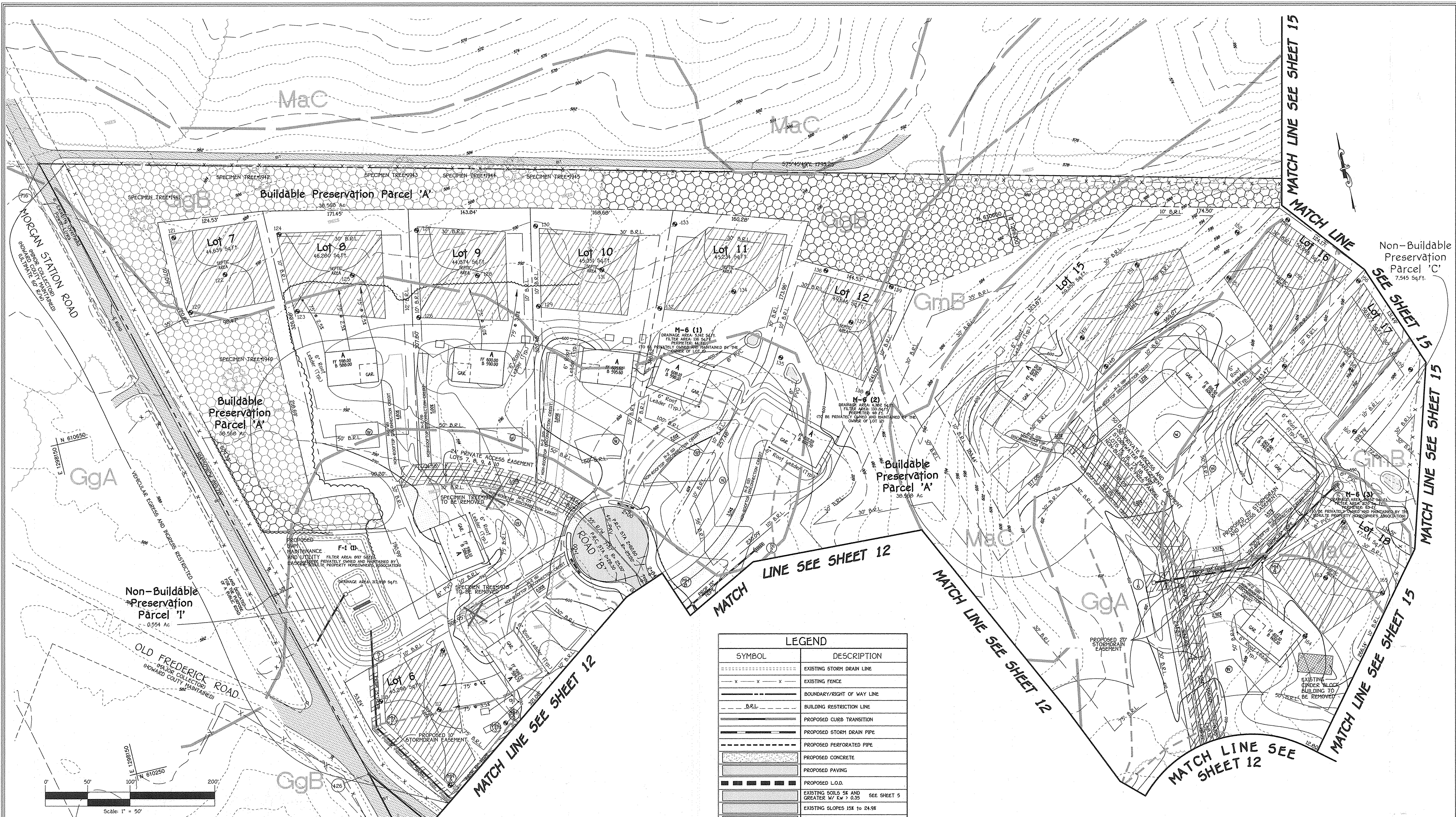
OWNER
 ESTATE OF F.J. SCHULTE 2215 DUVAL
 ROAD WOODBINE, MD
 21797 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND
 21042 (410)-977-0422

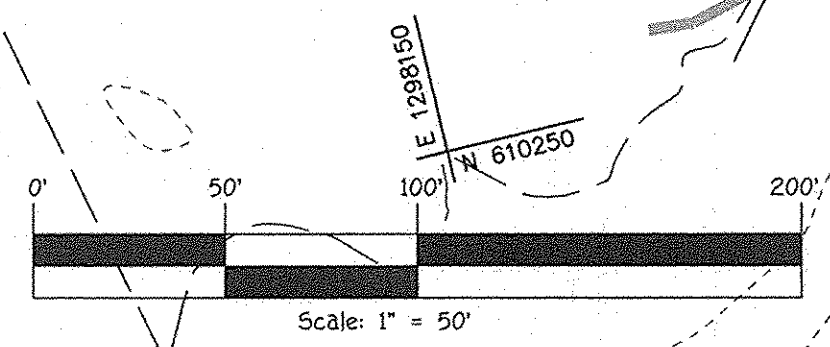
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THIS MAP WAS PREPARED OR APPROVED BY
 ME AND THAT I AM A DULY LICENSED SURVEYOR UNDER THE LAWS
 OF THE STATE OF MARYLAND. REGISTRATION NO. 17477 DATE: 7/10/15

 Frank J. Manalunga
 DATE: 7-10-14

SP-14-002



LEGEND	
SYMBOL	DESCRIPTION
---x---x---x---	EXISTING STORM DRAIN LINE
---	EXISTING FENCE
---	BOUNDARY/RIGHT OF WAY LINE
---	B.R.L.
---	PROPOSED CURB TRANSITION
---	PROPOSED STORM DRAIN PIPE
---	PROPOSED PERFORATED PIPE
---	PROPOSED CONCRETE
---	PROPOSED PAVING
---	PROPOSED L.O.D.
---	EXISTING SOILS 5% AND GREATER W/ S _w > 0.35 SEE SHEET 5
---	EXISTING SLOPES 15% TO 24.9%
---	EXISTING SLOPES 25% AND GREATER
---	RETENTION
---	REFORESTATION



PRELIMINARY DRAINAGE AREA AND SOILS MAP
 SCHULTE PROPERTY
 LOTS 1-44,
 BUILDABLE PRESERVATION PARCEL 'A',
 NON-BUILDABLE PRESERVATION PARCELS 'B'-'K',
 AND PARCEL 'L'
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 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: 1" = 50' DATE: JULY 10, 2014
 SHEET 3 OF 16

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY
[Signature]
 PLANNING DIRECTOR
 8-15-14
 DATE

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS,
 HOWARD COUNTY HEALTH DEPARTMENT.
[Signature]
 COUNTY HEALTH OFFICER
 8/8/2014
 DATE

OWNER
 ESTATE OF F.J. SCHULTE 2215 DUVALL ROAD WOODBINE, MD 21797 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT 5300 DORSEY HALL DRIVE SUITE 102 ELLICOTT CITY, MARYLAND 21042 (410)-977-0422

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THIS MAP WAS PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRES 7/10/15.
[Signature]
 FRANK J. MANALAPAN II
 7-10-14
 DATE

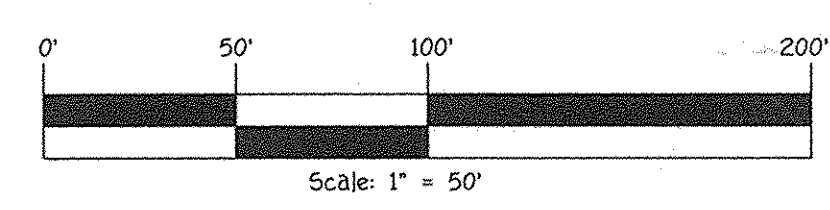
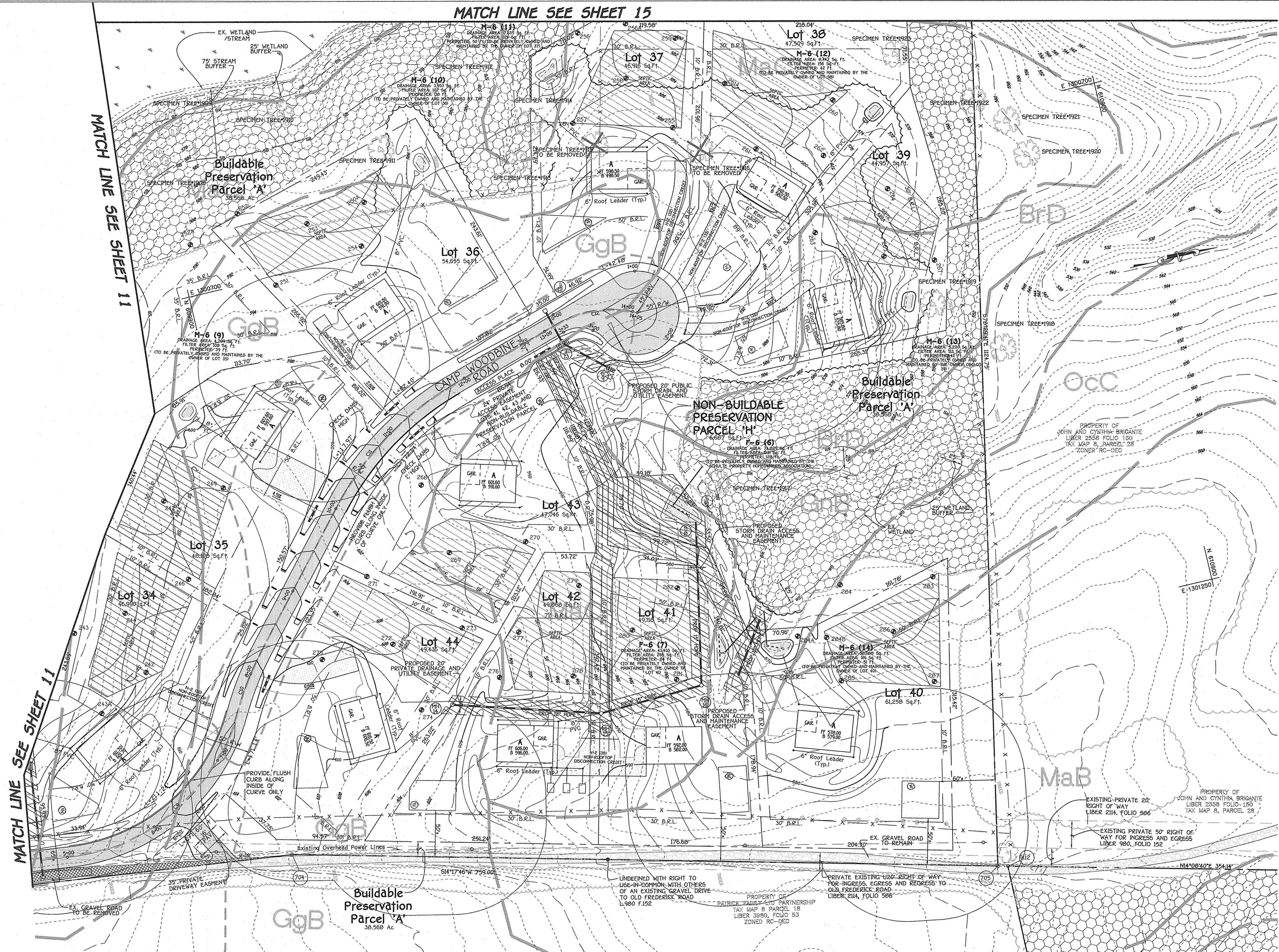
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 CENTRAL SQUARE OFFICE PARK - 10272 BALTOUR NATIONAL PKWY. ELLICOTT CITY, MARYLAND 21042 (410) 461-2995

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SP-14-002

MATCH LINE SEE SHEET 15

LEGEND	
SYMBOL	DESCRIPTION
	EXISTING STORM DRAIN LINE
	EXISTING FENCE
	BOUNDARY/RIGHT OF WAY LINE
	BUILDING RESTRICTION LINE
	PROPOSED CURB TRANSITION
	PROPOSED STORM DRAIN PIPE
	PROPOSED PERFORATED PIPE
	PROPOSED CONCRETE
	PROPOSED PAVING
	PROPOSED L.O.D.
	EXISTING SOILS S1 AND GREATER W/ K _w > 0.35 SEE SHEET 5
	EXISTING SLOPES 15% TO 24.9%
	EXISTING SLOPES 25% AND GREATER
	RETENTION
	REFORESTATION



PRELIMINARY DRAINAGE AREA AND SOILS MAP
 SCHULTE PROPERTY
 LOTS 1-44,
 BUILDABLE PRESERVATION PARCEL 'A',
 NON-BUILDABLE PRESERVATION PARCELS 'B'-'K',
 AND PARCEL 'L'
 15250 OLD FREDERICK ROAD
 ZONED: RC-DEO TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: 1" = 50' DATE: JULY 10, 2014
 SHEET 14 OF 16

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

 PLANNING DIRECTOR
 DATE: 8-15-14

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS,
 HOWARD COUNTY HEALTH DEPARTMENT.

 COUNTY HEALTH OFFICER
 DATE: 8/7/2014

OWNER
 ESTATE OF F.J. SCHULTE 2215 DUNALL ROAD WOODBINE, MD 21797 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT 5300 DORSEY HALL DRIVE SUITE 102 ELLICOTT CITY, MARYLAND 21042 (410)-977-0422

PROFESSIONAL CERTIFICATION
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 DATE: 7-10-14

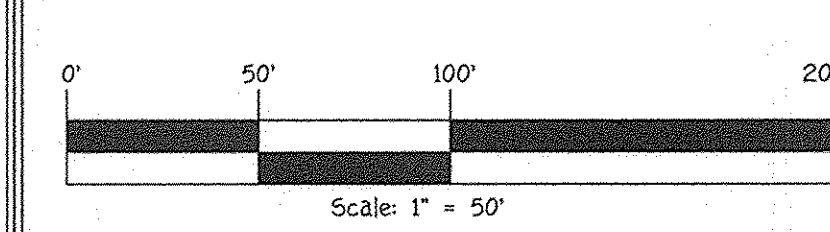
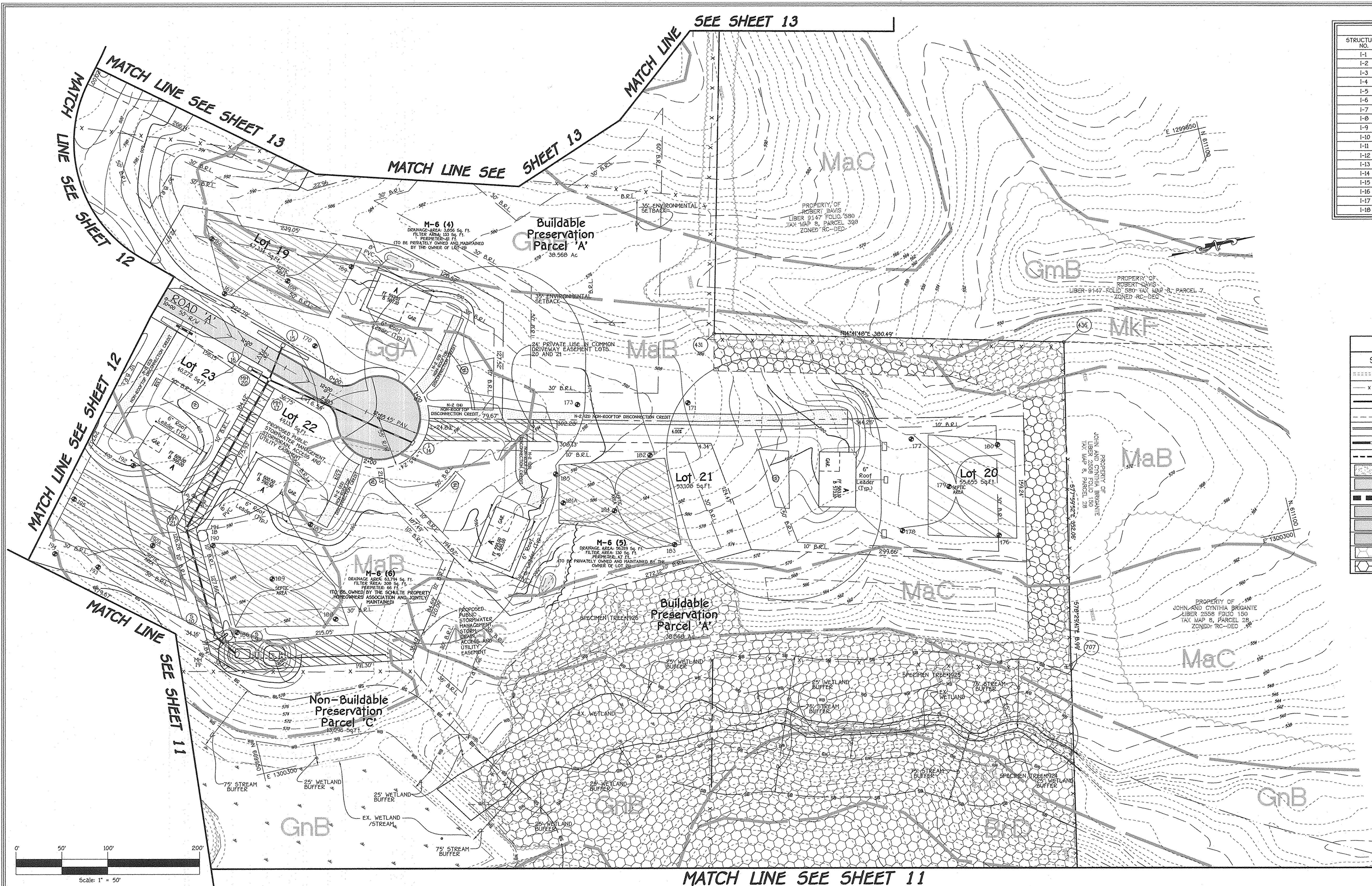
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 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MARYLAND 21042 (410) 461-2999

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SP-14-002

DRAINAGE AREA DATA				
STRUCTURE NO.	AREA	"C"	ZONED	% IMP.
I-1	0.49 AC.	0.30	RC-DEO	20%
I-2	0.30 AC.	0.24	RC-DEO	0%
I-3	0.17 AC.	0.24	RC-DEO	0%
I-4	0.62 AC.	0.60	RC-DEO	40%
I-5	1.86 AC.	0.45	RC-DEO	29%
I-6	0.63 AC.	0.32	RC-DEO	11%
I-7	1.34 AC.	0.24	RC-DEO	0%
I-8	0.23 AC.	0.25	RC-DEO	2%
I-9	0.29 AC.	0.42	RC-DEO	22%
I-10	0.39 AC.	0.47	RC-DEO	32%
I-11	4.45 AC.	0.24	RC-DEO	0%
I-12	0.55 AC.	0.57	RC-DEO	46%
I-13	0.50 AC.	0.56	RC-DEO	45%
I-14	0.20 AC.	0.95	RC-DEO	100%
I-15	0.50 AC.	0.43	RC-DEO	35%
I-16	0.95 AC.	0.34	RC-DEO	24%
I-17	0.29 AC.	0.46	RC-DEO	39%
I-18	1.97 AC.	0.27	RC-DEO	15%

LEGEND	
SYMBOL	DESCRIPTION
	EXISTING STORM DRAIN LINE
	EXISTING FENCE
	BOUNDARY/RIGHT OF WAY LINE
	BUILDING RESTRICTION LINE
	PROPOSED CURB TRANSITION
	PROPOSED STORM DRAIN PIPE
	PROPOSED PERFORATED PIPE
	PROPOSED CONCRETE
	PROPOSED PAVING
	PROPOSED L.O.D.
	EXISTING SOILS 5% AND GREATER W/ K _w > 0.35 SEE SHEET 5
	EXISTING SLOPES 15% TO 24.9%
	EXISTING SLOPES 25% AND GREATER
	RETENTION
	REFORESTATION



PRELIMINARY DRAINAGE AREA AND SOILS MAP
 SCHULTE PROPERTY
 LOTS 1-44,
 BUILDABLE PRESERVATION PARCEL 'A',
 NON-BUILDABLE PRESERVATION PARCELS 'B'-'K',
 AND PARCEL 'L'
 15250 OLD FREDERICK ROAD
 ZONED: RC-DEO TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: 1" = 50' DATE: JULY 10, 2014
 SHEET 15 OF 16

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 13 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21042
 (410) 461-2255

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

 PLANNING DIRECTOR
 E-15-14
 DATE

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS,
 HOWARD COUNTY HEALTH DEPARTMENT.

 COUNTY HEALTH OFFICER
 8/7/2014
 DATE

OWNER
 ESTATE OF F.J. SCHULTE 2215 DUVALL ROAD WOODBINE, MD 21797 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 5300 DORSEY HALL DRIVE SUITE 102
 ELLICOTT CITY, MARYLAND 21042 (410)-977-0422

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THIS MAP WAS PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRES: 7/10/15.

 FRANK J. MACDONALD
 7-10-14
 DATE

SP-14-008

Infiltration and Filter System Construction Specifications

Infiltration and filter systems either take advantage of existing permeable soils or create a permeable medium such as sand for (N-1) and (N-2). In some instances where permeability is great, these facilities may be used for (Q) as well. The most common systems include infiltration trenches, infiltration basins, sand filters, and organic filters.

When properly planted, vegetation will thrive and enhance the functioning of these systems. For example, pre-treatment buffers will trap sediments that often are bound with phosphorus and metals. Vegetation planted in the facility will aid in nutrient uptake and water storage. Additionally, plant roots will provide arteries for stormwater to permeate soil for groundwater recharge. Finally, successful plantings provide aesthetic value and wildlife habitat making these facilities more desirable to the public.

Design Constraints:

- Planting buffer strips of at least 20 feet will cause sediments to settle out before reaching the facility, thereby reducing the possibility of clogging.
- Determine areas that will be saturated with water and water table depth so that appropriate plants may be selected (hydrology will be similar to bioretention facilities, see figure A.5 and Table A.4 for planting material guidance).
- Plants known to send down deep taproots should be avoided in systems where filter fabric is used as part of facility design.
- Test soil conditions to determine if soil amendments are necessary.
- Plants shall be located so that access is possible for structure maintenance.
- Stabilize heavy flow areas with erosion control mats or sod.
- Temporarily divert flows from seeded areas until vegetation is established.
- See Table A.5 for additional design considerations.

Bio-retention

Soil Bed Characteristics

The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through absorption and microbial activity within the soil profile. Therefore, soils must balance their chemical and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should be less than 25% by volume (Environmental Quality Resources (EQ2), 1996; Engineering Technology Inc. and Biohabitats, Inc. (ETAB), 1993). Soils should fall within the SM, ML, SC classifications of the Unified Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.5"/hr) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds (e.g., Johnson Grass, Mugwort, Nuttall's, and Canada Thistle or other noxious weeds as specified under COMAR 15.08.01.05) should not be present in the soils. Placement of the planting soil should be in 12 to 18 lifts that are loosely compacted (tamped lightly with a backhoe bucket) or traversed by dozer tracks. The specific characteristics are presented in Table A.3.

Table A.3 Planting Soil Characteristics

Parameter	Value
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Magnesium	35 lbs. per acre, minimum
Phosphorus (phosphate - P2O5)	75 lbs. per acre, minimum
Potassium (potash - K2O)	85 lbs. per acre, minimum
Soluble salts	500 ppm
Clay	10 to 25 %
Silt	30 to 55 %
Sand	35 to 60%

Mulch Layer

The mulch layer plays an important role in the performance of the bioretention system. The mulch layer helps maintain soil moisture and avoids surface sealing, which reduces permeability. Mulch helps prevent erosion, and provides a microenvironment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments, which remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double shredded hardwood mulch or chips. The mulch layer should be well aged (stockpiled or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch material.

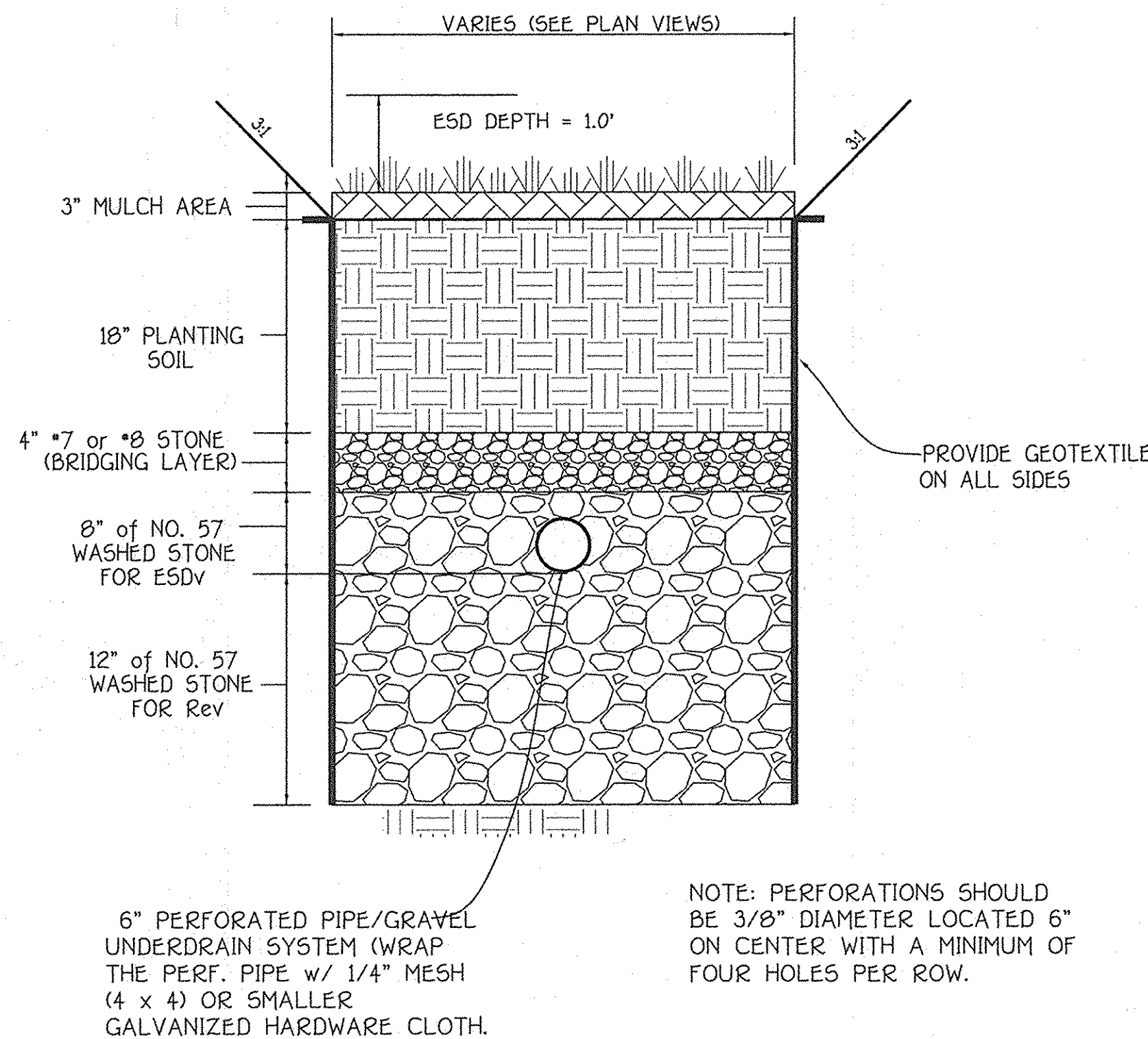
Planting Guidance

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an upland-species ecosystem. The community should be dominated by trees, but have a distinct community of understory trees, shrubs and herbaceous materials. By creating a diverse, dense plant cover, a bioretention facility will be able to treat stormwater runoff and withstand urban stresses from insects, disease, drought, temperature, wind, and exposure.

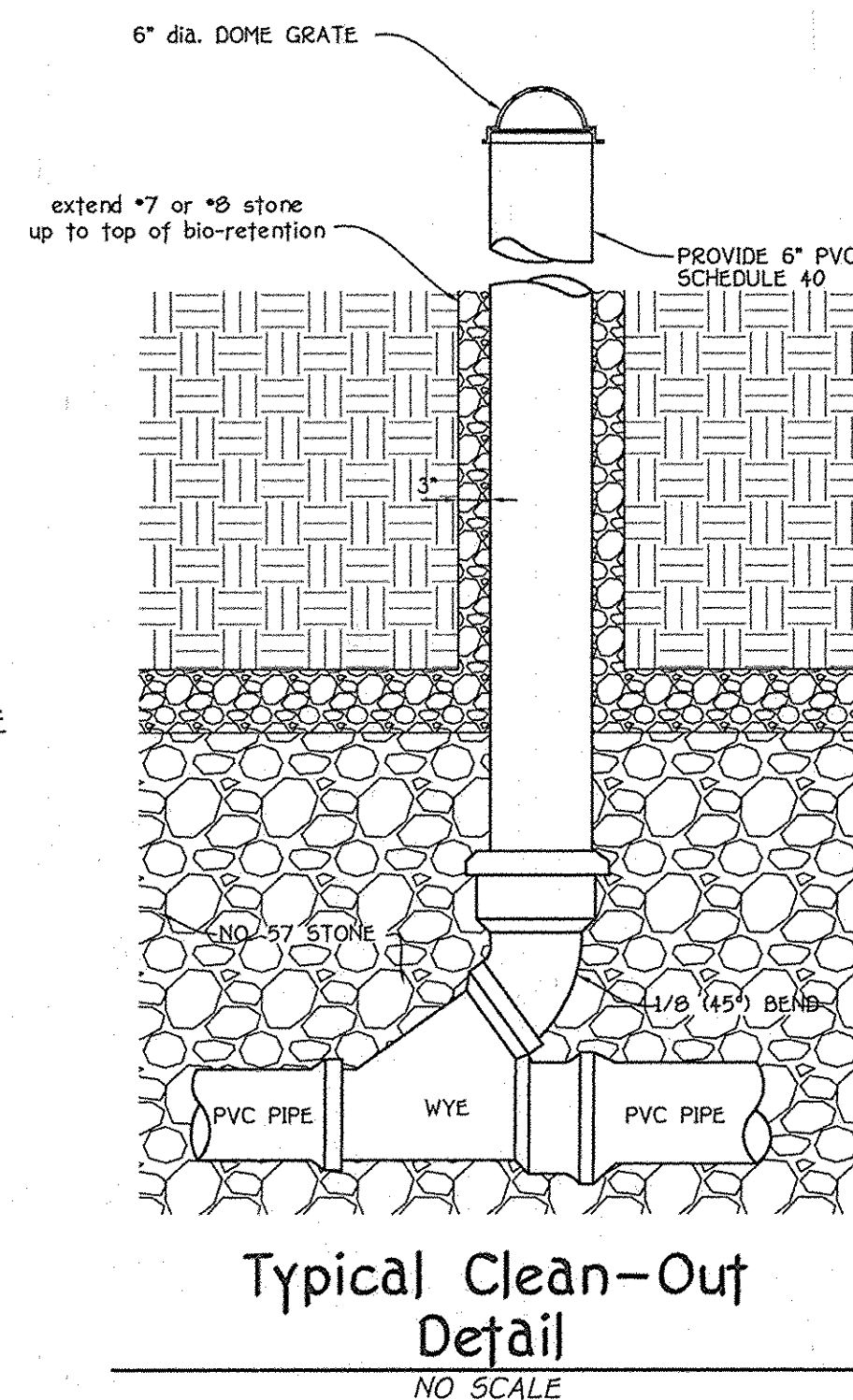
The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bioretention facility (figure A.5). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports plants that like drier soil conditions, but can still tolerate occasional inundation by water. The outer edge is the highest elevation and generally supports plants adapted to drier conditions. A sample of appropriate plant materials for bioretention facilities are included in Table A.4. The layout of plant material should be flexible, but should follow the general principals described in Table A.5. The objective is to have a system, which resembles a random, and natural plant layout, while maintaining optimal conditions for plant establishment and growth. For a more extensive bioretention plan, consult ETAB, 1993 or Clayton and Schueler, 1997.

Operation and Maintenance Schedule For Bio-Retention Areas (M-6)

- The owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland stormwater design manual volume II, table A.4.1 and 2.
- The owner shall perform a plant in the spring and in the fall each year, during the inspection, the owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material. Treat diseased trees and shrubs and replace all deficient stakes and wires.
- The owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.
- The owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.



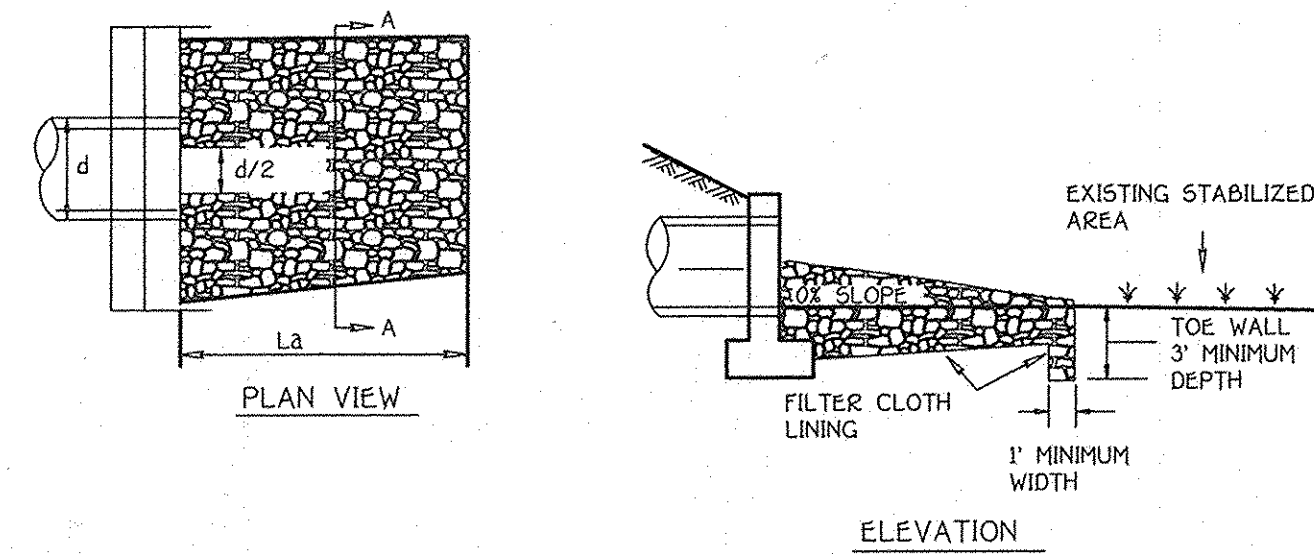
NOTE: PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW.



Typical Clean-Out Detail
NO SCALE

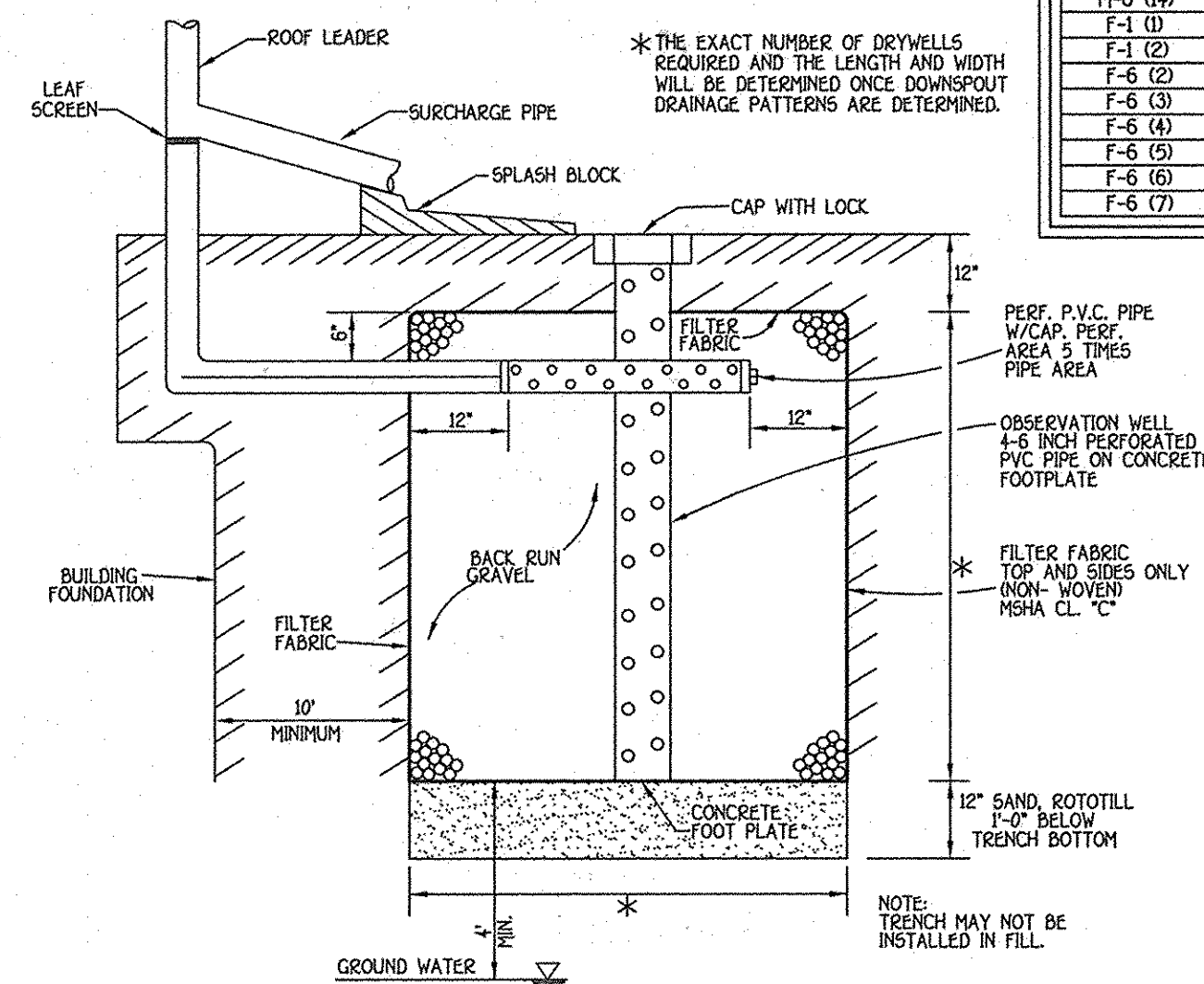
Micro Bio-Retention (M-6) Section

NO SCALE

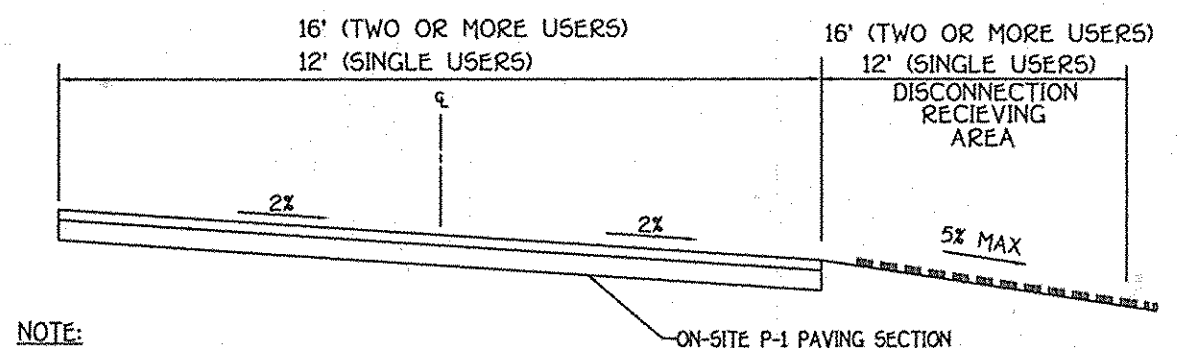


NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

ROCK OUTLET PROTECTION III



GUTTER DRAIN FILTER DETAIL
NOT TO SCALE



Typical Private Drive Cross Slope Section
NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR DRYWELLS (M-5)

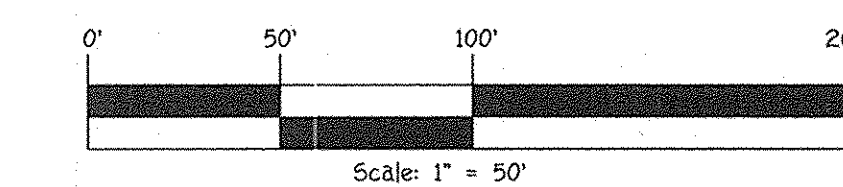
- THE OWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY BASIS AND AFTER EVERY HEAVY STORM EVENT.
- THE OWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
- THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN A SEVENTY TWO (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
- THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- 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 SCHEDULE IS REQUIRED.

Operation & Maintenance Schedule For Privately Owned And Maintained Disconnection Of Nonrooftop Runoff (N-2)

- Maintenance Of Areas Receiving Disconnection Runoff Is Generally No Different Than That Required For Other Lawn Or Landscaped Areas. The Areas Receiving Runoff Should Be Protected From Future Compaction Or Development Of Impervious Area. In Commercial Areas, Foot Traffic Should Be Discouraged As Well.

PRELIMINARY SWM NOTES AND DETAILS
SCHULTE PROPERTY
LOTS 1-44,
BUILDABLE PRESERVATION PARCEL 'A',
NON-BUILDABLE PRESERVATION PARCELS 'B'-'K',
AND PARCEL 'L'

15250 OLD FREDERICK ROAD
ZONED: RC-DEO TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 50' DATE: JULY 10, 2014
SHEET 16 OF 16



PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE NOTES AND DETAILS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRES: 7/10/15.
Frank J. Mansueti, P.E.
DATE: 7-10-14

OWNER

ESTATE OF F.J. SCHULTE, 2215 DUNWALL ROAD WOODBINE, MD 21797 410-977-1327

DEVELOPER

LAND DESIGN & DEVELOPMENT 5300 DORSEY HALL DRIVE SUITE 102 ELLICOTT CITY, MARYLAND 21042 (410)-977-0422

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE PARK - 10272 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MARYLAND 21042 (410) 661-2925

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY
DATE: 8-15-14

1:2005\051009\dwg\PEEP FOLDER\051006 DAM.dwg, Sheet: 16 (PEEP), 7/18/2014 10:53:48 AM, 1:1

SP-14-002