MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION

FRANKLIN KNOLLS PHASE 2

LOW IMPACT DEVELOPMENT PROJECT

CONTRACT NO. 8803000101-CD

Task Order 13 - Subtask B

INDEX OF SHEETS

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1 Redline No. 1 - 01/28/14

THE LOCATION OF THE UNDERGROUND AND SURFACE UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE AS TO THE ACCURACY OF SAID LOCATIONS. CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 1-800-257-777, 48 HOURS PRIOR TO EXCAVATION FOR MARKING AND LOCATION OF UTILITIES.

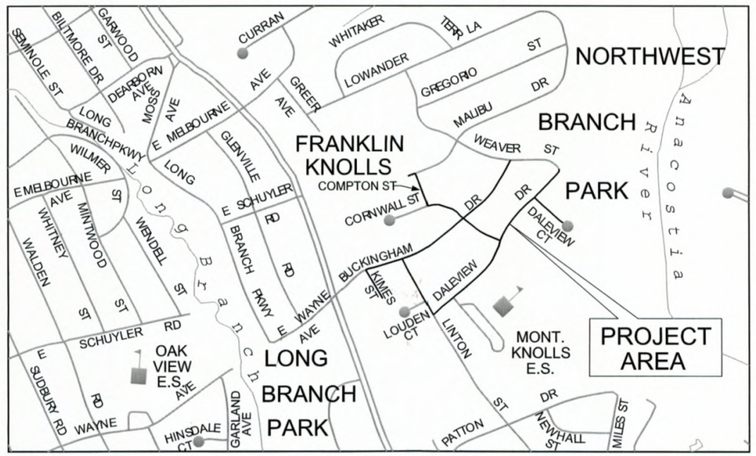
CONVENTIONAL SYMBOLS

EXISTING CONSTRUCTION

- 100 YEAR FLOODPLAIN
- RIGHT OF WAY LINE
- PROPERTY LINE
- CONCRETE CURB AND GUTTER
- EDGE OF WOODED AREAS
- TREE (FREE STANDING)
- SIGN
- FIRE HYDRANT
- LIGHT POLE
- UTILITY POLE
- STORM DRAIN
- SANITARY (8" SAN)
- WATER (24"W)
- GAS (G)
- ELECTRICAL HAND BOX - SIGNALS (H.B.)
- ELECTRIC (UNDERGROUND) (E)

PROPOSED CONSTRUCTION

- ℄ CONSTRUCTION (101 +50 102)
- CURB & GUTTER
- TRAVERSE POINT
- SIDEWALK
- PAVEMENT REMOVAL
- APPROXIMATE LIMITS OF CUT AND/OR FILL (C / F)
- LIMIT OF DISTURBANCE (LOD)
- STORM DRAIN PIPE
- TEST PIT (TP-2)
- TEMPORARY CONSTRUCTION EASEMENT (TCE)
- PERPETUAL EASEMENT (PE)



VICINITY MAP

SCALE : 1"= 500'

GENERAL NOTES

1. THE CONTRACTOR WILL IMMEDIATELY INFORM THE COUNTY OF ANY DISCREPANCIES FOUND BETWEEN THE PROJECT PLANS AND CONTRACT SPECIFICATIONS.
2. FOR CONSTRUCTION, ALL HORIZONTAL SHALL BE BASED ON NAD 83/91, NAVD 88 DATUM.
3. TYPES OF STORM DRAIN STRUCTURES REFER TO THE "DESIGN STANDARDS" OF MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION, UNLESS OTHERWISE NOTED.
4. WHEN THE DROP ON THE MAIN LINE THROUGH A STORM DRAIN STRUCTURE CAN BE ACCOMMODATED BY AN INVERT SLOPE OF 1.5:1 OR FLATTER, A ROUNDED CHANNEL LINED WITH SEWER BRICK ON EDGE SHALL BE BUILT TO THE CROWN OF THE PIPES. WHEN THE INVERT SLOPES WOULD BE GREATER THAN 1.5:1 A SPECIAL INVERT SHALL BE CONSTRUCTED AS NOTED.
5. ALL STORM DRAIN PIPE SHALL BE INSTALLED WITH CLASS "C" BEDDING UNLESS OTHERWISE SPECIFIED.
6. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS TO STORM DRAIN STRUCTURES, WHEN NECESSARY, TO MEET EXISTING CONDITIONS, AS APPROVED BY MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES RIGHT OF WAY INSPECTOR.
7. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF THE LINES BY DIGGING TEST PITS BY HAND AT ALL UTILITY CROSSINGS, WELL IN ADVANCE OF TRENCHING. IF CLEARANCES ARE LESS THAN SHOWN OR TWELVE (12) INCHES, WHICHEVER IS LESS, THE CONTRACTOR SHALL CONTACT THE COUNTY.
8. REPAIRS TO UTILITIES OR PROPERTY DAMAGE AS A RESULT OF THE CONTRACTOR'S NEGLIGENCE OR METHOD OF OPERATION MUST BE MADE AT THE CONTRACTOR'S EXPENSE BEFORE PROCEEDING WITH CONSTRUCTION.
9. CALL "MISS UTILITY" AT 1-800-257-7777 FORTY-EIGHT (48) HOURS PRIOR TO BEGINNING EXCAVATION TO DETERMINE THE EXACT LOCATION OF EXISTING UTILITIES.
10. CLEARING IS TO BE LIMITED TO THE "LIMIT OF DISTURBANCE" AS SHOWN ON THE PLANS.
11. ALL GRADING SHALL BE DONE IN SUCH A MANNER AS TO PROVIDE POSITIVE DRAINAGE.
12. DISTURBED AREAS ADJACENT TO ESTABLISHED LAWNS SHALL BE SODDED. OTHER DISTURBED AREAS SHALL BE SEEDED AND MULCHED.
13. THE CONTRACTOR SHALL UTILIZE THE MCDOT'S BLANKET ROADSIDE TREE PERMIT #2013-0557 FOR ANY MAINTENANCE, TREATMENT, PLANTING, REMOVAL, OR ROOT PRUNING ON TREES WITHIN THE PUBLIC RIGHT OF WAY. PERMIT REQUIREMENTS MAY BE OBTAINED FROM THE MCDOT ARBORIST AT (240) 777-7653.
14. CONTACT THE WASHINGTON SUBURBAN SANITARY COMMISSION SYSTEM MAINTENANCE ENGINEER BEFORE EXCAVATING BENEATH OR IN THE VICINITY OF EXISTING WATER OR SEWER LINES. BACKFILL TO BE DONE UNDER SUPERVISION OF W.S.S.C. CALL 301-699-4420.
    W.S.S.C. UTILITY CONTRACT NUMBERS WITHIN THE PROJECT LIMITS:
    55779 & 582829 (SANITARY) AND 55778 & 582828 (WATER).
15. CONTACT WASHINGTON GAS DISPATCH OFFICER AT (703)750-4831 BEFORE EXCAVATING BENEATH OR IN THE VICINITY OF EXISTING GAS MAIN AND SERVICE LATERALS.
16. CONTRACTOR SHALL COORDINATE WITH THE MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES (DPS) RIGHT OF WAY INSPECTOR AND SEDIMENT CONTROL INSPECTOR PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES.
17. CONTRACTOR SHALL PROVIDE STANDARD TRAFFIC CONTROL IN ACCORDANCE WITH MCDOT FOR ALL CONSTRUCTION ACTIVITIES.
18. CONTRACTOR SHALL CONSTRUCT PROPOSED IMPROVEMENTS IN COMPLIANCE WITH CURRENT ADA GUIDELINES.

ENGINEER'S 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 NO. 31204, EXPIRATION DATE: JAN. 13, 2015.

STATE OF MARYLAND · KIMI C. SCHMIDT · No. 31204 · PROFESSIONAL ENGINEER

11/20/13
DATE

Kimi Schmidt
KIMI C SCHMIDT, P.E.
P.E. # 31204

DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME IN ACCORDANCE WITH MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION "STORM DRAIN DESIGN CRITERIA" AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 31204, EXPIRATION DATE: JANUARY 13, 2015.

I FURTHER CERTIFY THAT THE TOTAL AMOUNTS OF EXCAVATION AND FILL AS SHOWN ON ~~THESE PLANS~~ 1 HAVE BEEN COMPUTED TO BE ~~xxx~~ 438 CUBIC YARDS OF EXCAVATION AND ~~xx~~ CUBIC YARDS OF FILL AND THAT THE TOTAL AREA TO BE DISTURBED AS SHOWN ON THESE PLANS HAS BEEN DETERMINED TO BE A MAXIMUM OF 14,899 SQUARE FEET OR 0.34 ACRES.

2 1

STATE OF MARYLAND · KIMI C. SCHMIDT · No. 31204 · PROFESSIONAL ENGINEER

11/20/13
DATE

Kimi Schmidt
KIMI C SCHMIDT, P.E.
P.E. # 31204

STATE OF MARYLAND · KATHARINE KYLE MUNDY · 3565 · BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS

11/20/13
DATE

KATHARINE KYLE MUNDY, R.L.A.
R.L.A. # 3565

CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS TO PREVENT DAMAGE TO THE NEWLY INSTALLED PAVEMENT, CURB AND SIDEWALK BY MCDOT. CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION AND REMOVAL OF ALL DEMOLISHED ITEMS NECESSARY FOR THE CONSTRUCTION OF THEIR WORK. REPLACEMENT OF ANY DAMAGED ITEMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR NO ADDITIONAL COMPENSATION.

CONTRACTOR SHALL COORDINATE WITH THE COUNTY ARBORIST TO MINIMIZE IMPACTS TO EXISTING TREES AND TO DETERMINE THE LIMITS OF ROOT PRUNING OR TREE REMOVAL AS NECESSARY.

PROPOSED SECTIONS OF CURB AND GUTTER SHOWN ON THIS PLAN SET SHOULD BE CONSTRUCTED AT THE TIE-IN POINTS UNLESS OTHERWISE NOTED. STATION LIMITS ARE APPROXIMATE AND MAY NEED TO BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF CONSTRUCTION.

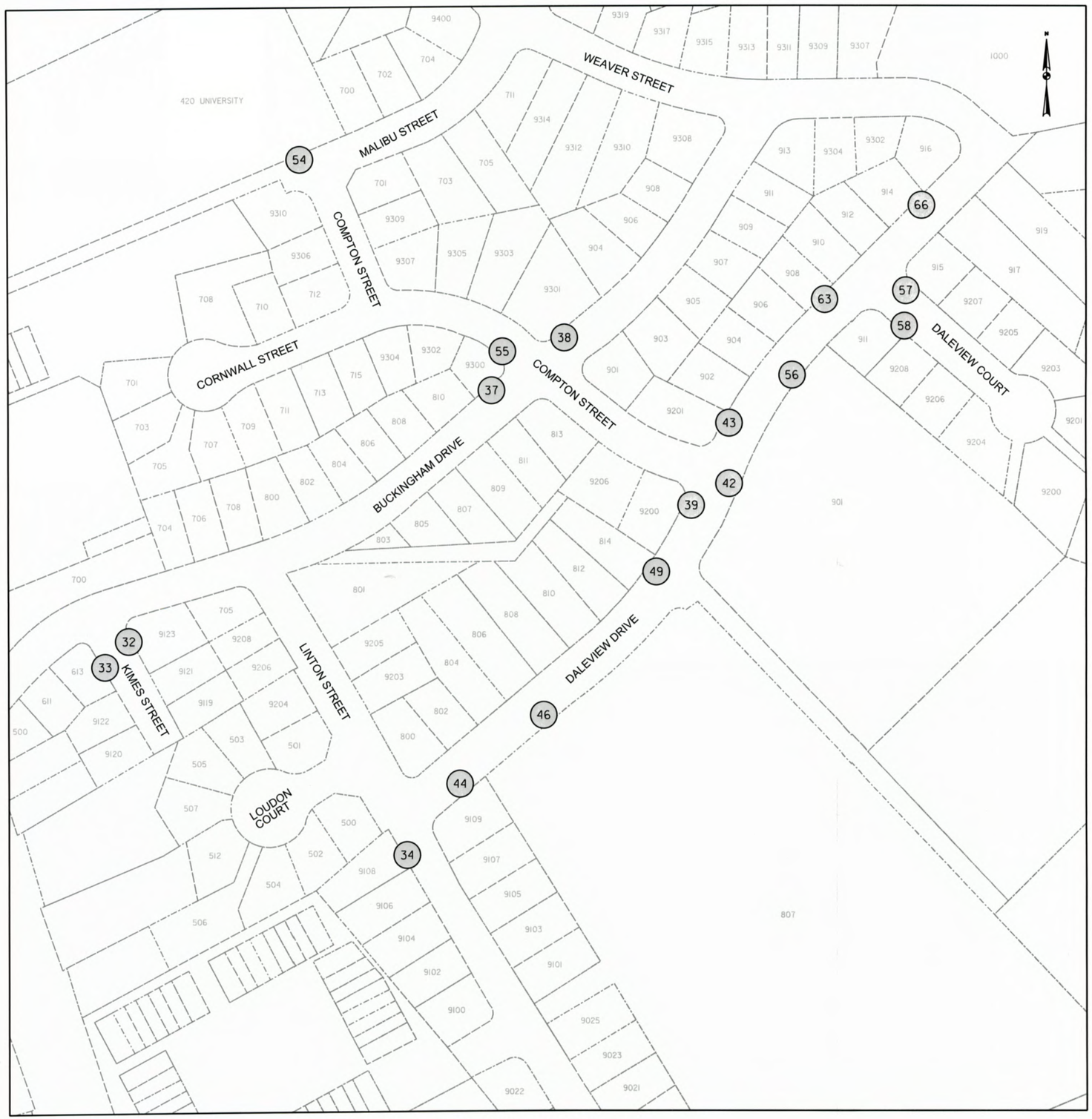
DPS PERMIT NO. 296228 A.3

MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF PERMITTING SERVICES
FINAL APPROVAL
DATE 12/6/2013
BY

*SUBJECT TO DEDICATION OF RIGHT OF WAY AND EASEMENTS PER COUNTY CODE SECTION 50.

OWNER/CONTACT/ADDRESS:
DEPARTMENT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, STE 120
ROCKVILLE MD 20850-4166
(240) 777-7713 CRAIG CARSON

McCormick Taylor
Engineers & Planners Since 1946
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400



PROPOSED LID FACILITY LOCATIONS

80' 0 80' 160'

SCALE: 1"=80'

BMP ID	Approximate Address	SWM Practice Proposed	Plan Sheet
32	9123 Kimes St	Rain Garden	8
33	613 Buckingham Dr (along Kimes St)	Rain Garden	8
34	9106 Linton St	Tree Box Filter/Filterra System	7
37	9300 Compton St (along Buckingham Dr)	Tree Box Filter/Filterra System	15
38	9301 Compton St (along Buckingham Dr)	Tree Box Filter/Filterra System	1 ~~15~~ 16
39	9200 Compton St (along Daleview Dr)	Bioretention	10
42	901 Daleview Dr (at end of Compton Street)	Bioretention	11
43	9201 Compton St (along Daleview Dr)	Tree Box Filter/Filterra System	11
44	9109 Linton St (along Daleview Dr)	Bioswale	7
46	807 Daleview Dr (across from 806 Daleview Dr)	Bioretention	9
49	814 Daleview Dr	Rain Garden	10
54	420 University Blvd (Malibu Dr dead end)	Tree Box Filter/Filterra System	1 ~~16~~ 17
55	9300 Compton St (along Compton St)	Tree Box Filter/Filterra System	15
56	901 Daleview Dr (across from 904 Daleview Dr)	Rain Garden	12
57	915 Daleview Dr (along Daleview Ct)	Rain Garden	13
58	911 Daleview Dr (along Daleview Ct)	Rain Garden	13
63	908 Daleview Dr	Rain Garden	12
66	914 Daleview Dr	Rain Garden	14

**BMPs 26-31, 35-36, 40-41, 45, 47-48, 50-53, 59, 60-62 and 64-65 have been removed from the project due to major utility and/or tree conflicts, soil and groundwater issues or limited space between the existing curb and sidewalk.

McCormick Taylor
Engineers & Planners Since 1946
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

OVERALL SITE PLAN
FRANKLIN KNOLLS-PHASE 2
SLIGO (13th) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

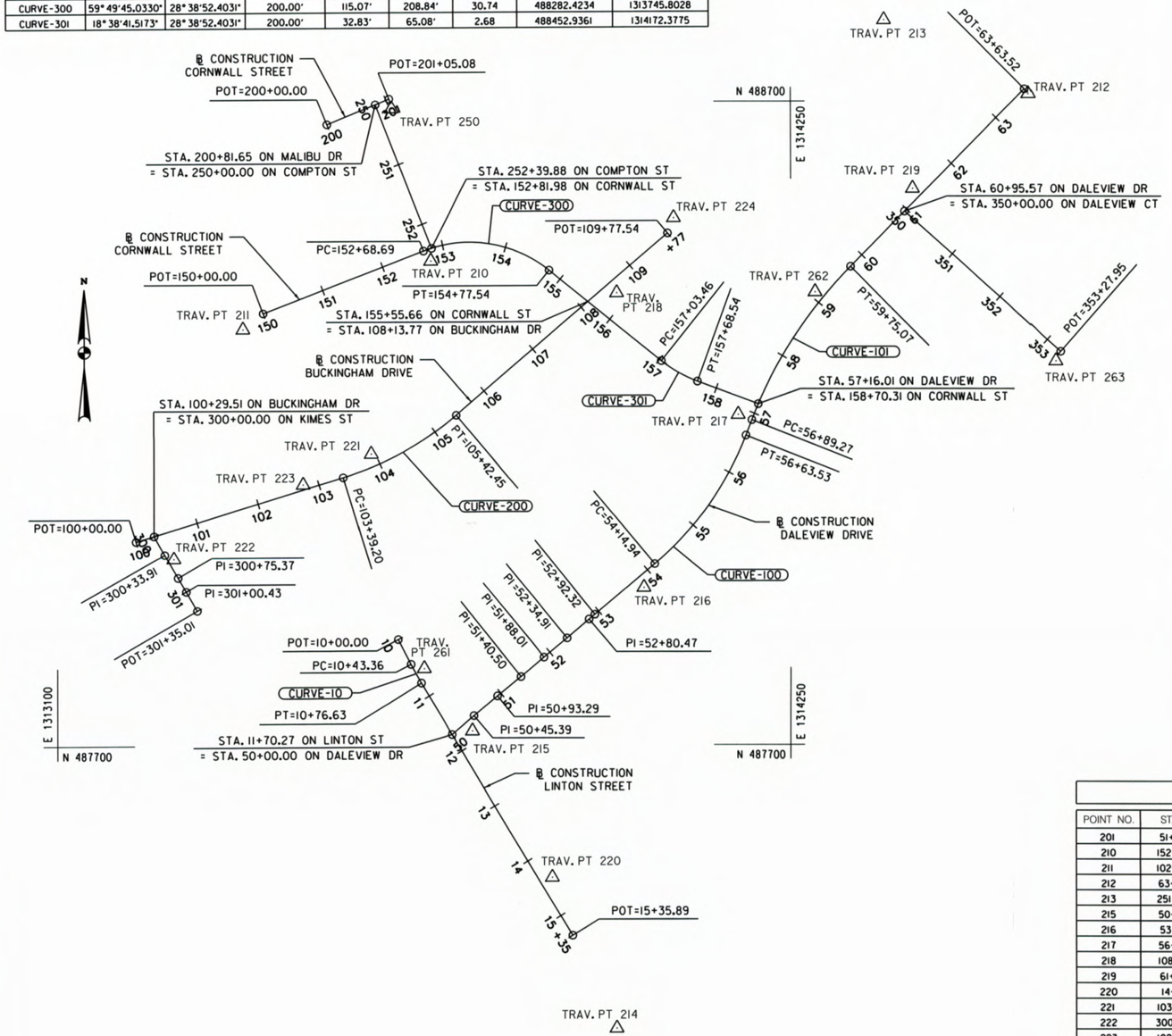
DESIGN	
DRAFT	WJW
APPROVED	HJD
DATE	JUNE 12'
SCALE	

SHEET 2 OF 21

FILE: \\5182\13 - roadway lid - forest estates and the four corners area\design\engineering\planset\fk p2\pGN-L001_FK2.dgn
PLOTTED: Wednesday, November 20, 2013 AT 09:38 AM

CURVE DATA

							CENTER OF CURVE	
CURVE NO.	DELTA	Dc	R	T	L	E	NORTH	EAST
CURVE-10	3°48'42.9617"	11°27'32.9612"	500.00'	16.64'	33.27'	0.28	488055.4194	1314096.2214
CURVE-100	28°29'11.0959"	11°27'32.9612"	500.00'	126.92'	248.59'	15.86	488363.9534	1313714.0424
CURVE-101	23°23'35.2565"	8°11'06.4009"	700.00'	144.92'	285.80'	14.84	487949.9608	1314840.6624
CURVE-200	23°17'25.1974"	11°27'32.9612"	500.00'	103.05'	203.25'	10.51	488595.5465	1313401.6812
CURVE-300	59°49'45.0330"	28°38'52.4031"	200.00'	115.07'	208.84'	30.74	488282.4234	1313745.8028
CURVE-301	18°38'41.5173"	28°38'52.4031"	200.00'	32.83'	65.08'	2.68	488452.9361	1314172.3775



BASELINE CONTROL COORDINATES

℄ CONSTRUCTION	POINT NO.	NORTHING	EASTING	STATION	BEARING AHEAD	RADIUS
LINTON STREET	POB = 2000	487863.4024	1313632.5301	10+00.00	S 27°27'03.7829" E	
	PC = 2001	487824.9241	1313652.5189	10+43.36	S 27°27'03.7829" E	
	PI	487810.1587	1313660.1892	10+60.00	S 31°15'46.7446" E	
	CC = 2002	488055.4194	1314096.2214			500.00'
	PT= 2003	487795.9359	1313668.8242	10+76.63	S 31°15'46.7446" E	
	POE = 2004	487403.3613	1313907.1661	15+35.89		
DALEVIEW DRIVE	POB = 2005	487715.8865	1313717.4242	50+00.00	N 49°38'07.1074" E	
	PI	487745.2863	1313752.0119	50+45.39	N 50°34'23.7411" E	
	PI	487775.7054	1313789.0095	50+93.29	N 51°04'41.7997" E	
	PI	487805.3625	1313825.7355	51+40.50	N 50°25'27.4709" E	
	PI	487835.6319	1313862.3565	51+88.01	N 50°22'27.2013" E	
	PI	487865.5452	1313898.4824	52+34.91	N 49°41'04.9844" E	
	PI	487895.0221	1313933.2216	52+80.47	N 50°35'31.0680" E	
	PI	487902.5426	1313942.3745	52+92.32	N 49°53'31.0892" E	
	PC = 2006	487981.5379	1314036.1578	54+14.94	N 49°53'31.0892" E	
	PI	488063.3041	1314133.2307	55+41.86	N 21°24'19.9931" E	
	CC = 2007	488363.9534	1314174.0424			500.00'
	PT= 2008	488181.4699	1314179.5526	56+63.53	N 21°24'19.9931" E	
	PC = 2009	488205.4377	1314188.9481	56+89.27	N 21°24'19.9931" E	
	PI	488340.3605	1314241.8389	58+34.19	N 44°47'55.2495" E	
	CC = 2010	487949.9608	1314840.6624			700.00'
	PT= 2011	488443.1933	1314343.9516	59+75.07	N 44°47'55.2495" E	
	POE = 2012	488718.8271	1314617.6552	63+63.52		
BUCKINGHAM DRIVE	POB = 2013	488018.2631	1313223.3529	100+00.00	N 73°00'48.2453" E	
	PC = 2014	488117.3599	1313547.7552	103+39.20	N 73°00'48.2453" E	
	PI	488147.4646	1313646.3057	104+42.25	N 49°43'23.0479" E	
	CC = 2015	488595.5465	1313401.6812			500.00'
	PT= 2016	488214.0821	1313724.9225	105+42.45	N 49°43'23.0479" E	
	POE = 2017	488495.3611	1314056.8661	109+77.54		
CORNWALL STREET	POB = 2018	488372.4268	1313423.1656	150+00.00	N 68°55'30.1388" E	
	PC = 2019	488469.0455	1313673.8850	152+68.69	N 68°55'30.1388" E	
	PI	488510.4245	1313781.2608	153+83.76	S 51°14'44.8280" E	
	CC = 2020	488282.4234	1313745.8028			200.00'
	PT= 2021	488438.3910	1313870.9990	154+77.54	S 51°14'44.8280" E	
	PC = 2022	488296.9685	1314047.1814	157+03.46	S 51°14'44.8280" E	
	PI	488276.4165	1314072.7847	157+36.29	S 69°53'26.3455" E	
	CC = 2023	488452.9361	1314172.3775			200.00'
	PT= 2024	488265.1285	1314103.6149	157+68.54	S 69°53'26.3455" E	
	POE = 2025	488230.1391	1314199.1797	158+70.31		
MALIBU DRIVE	POB = 2026	488666.1802	1313523.6372	200+00.00	N 67°54'04.5543" E	
	POE = 2027	488705.7112	1313620.9963	201+05.08		
COMPTON STREET	POB = 2028	488696.8970	1313599.2883	250+00.00	S 21°18'07.7514" E	
	POE = 2029	488473.2138	1313686.5084	252+40.09		
KIMES STREET	POB = 2030	488026.8832	1313251.5714	300+00.00	S 29°14'46.0989" E	
	PI	487997.2919	1313268.1406	300+33.91	S 29°59'00.5454" E	
	PI	487961.3808	1313288.8601	300+75.37	S 30°19'27.4483" E	
	PI	487939.7559	1313301.5090	301+00.43	S 29°49'14.7226" E	
	POE = 2031	487909.7542	1313318.7056	301+35.01		
DALEVIEW COURT	POB = 2032	488528.6977	1314428.8572	350+00.00	S 48°31'37.7156" E	
	POE = 2033	488311.5062	1314674.5820	353+27.95		

TRAVERSE CONTROL COORDINATES

POINT NO.	STATION	OFFSET *	ALIGNMENT	NORTHING	EASTING	ELEVATION
201	51+98.84	1012.87	DALEVIEW DR	487062.4023	1314516.6723	245.03
210	152+74.28	18.50	CORNWALL ST	488453.5436	1313685.2908	254.90
211	102+56.88	-265.98	BUCKINGHAM DR	488347.6897	1313391.3246	271.53
212	63+62.32	9.31	DALEVIEW DR	488711.4132	1314623.4195	244.75
213	251+68.84	-789.85	COMPTON ST	488826.5364	1314396.5091	249.73
215	50+28.28	16.54	DALEVIEW DR	487721.6012	1313749.6888	269.50
216	53+78.19	17.42	DALEVIEW DR	487944.5428	1314019.2759	255.54
217	56+89.29	-23.00	DALEVIEW DR	488213.8500	1314167.5460	236.45
218	108+57.15	19.02	BUCKINGHAM DR	488403.0187	1313977.3126	243.55
219	61+29.79	-16.02	DALEVIEW DR	488564.2682	1314441.6047	243.07
220	14+41.73	-19.96	LINTON ST	487494.2016	1313875.3640	276.05
221	103+93.82	-19.26	BUCKINGHAM DR	488153.8364	1313591.4187	277.81
222	300+46.91	-8.97	KIMES ST	487990.5165	1313282.4047	287.22
223	102+76.28	-7.64	BUCKINGHAM DR	488106.2809	1313485.3501	280.33
224	155+79.20	-185.29	CORNWALL ST	488519.2495	1314066.2728	252.40
250	250+15.01	-21.28	COMPTON ST	488690.6419	1313624.5660	263.73
261	10+59.27	-15.17	LINTON ST	487818.3383	1313673.3069	271.57
262	59+09.32	-14.99	DALEVIEW DR	488403.9490	1314288.3031	236.91
263	60+98.89	332.39	DALEVIEW DR	488296.8440	1314667.0595	228.95

* NEGATIVE DENOTES LEFT OF BASELINE

McCormick Taylor
Engineers & Planners Since 1946
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

GEOMETRIC LAYOUT

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	WJW
DRAFT	
APPROVED	HJD
DATE	JUNE 12'
SCALE	
SHEET	3 OF 21

FILE: I:\16\213 - cradlery ltd - forest estates and the four corners area\design\engineering\planset\fk_p2kGSE-P001_PK2.dgn
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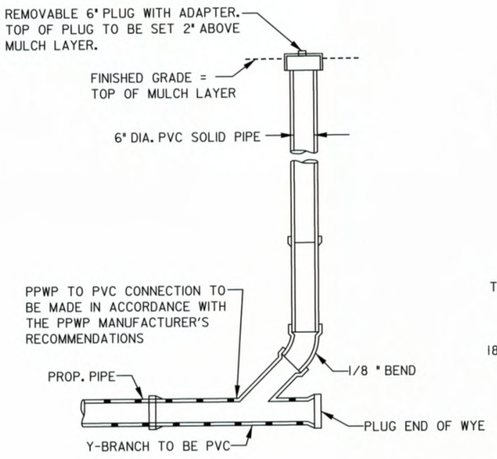

CO X STANDARD CLEANOUT DETAIL

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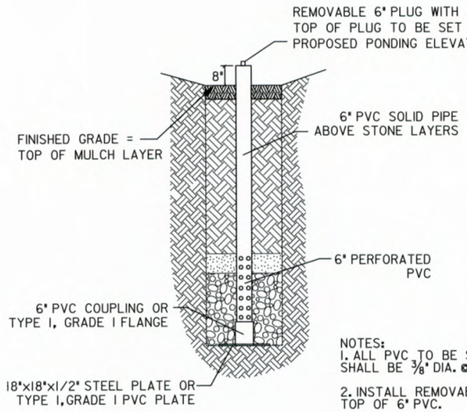


NOTES:
1. ALL PVC TO BE SCHEDULE 40. PERFORATIONS SHALL BE 3/8" DIA. @ 4" O/C 90° ALL AROUND PIPE.

2. INSTALL REMOVABLE WATER TIGHT PVC CAP ON TOP OF 6" PVC.

3. BOTTOM EXCAVATION IS TO BE IN NATURAL UNCOMPACTED EARTH.

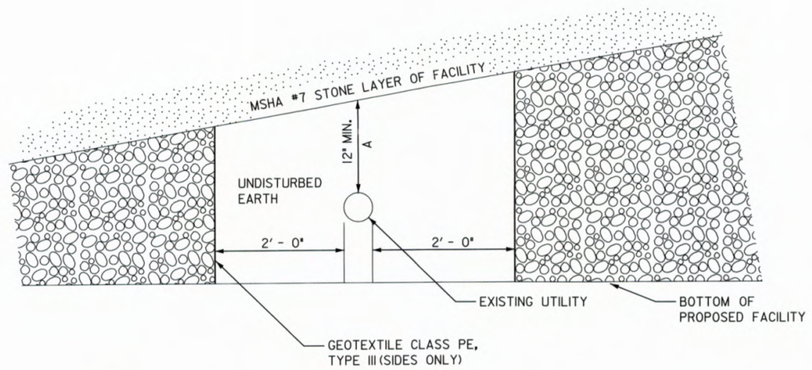
4. THREE 1" HOLES SHOULD BE DRILLED INTO THE BOTTOM PLATE TO ALLOW WATER TO DRAIN FROM THE OBSERVATION WELL.

5. REFER TO BMP PROFILE FOR SPECIFIC STONE AND PLANTING MEDIA DEPTHS AND ELEVATIONS.

6. PVC PIPE SHALL BE ATTACHED TO THE FLANGE WITH SOLVENT CEMENT PER THE MANUFACTURER'S SPECIFICATIONS.

QW X OBSERVATION WELL DETAIL

N.T.S.



NOTES:
1. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL FIELD LOCATE ALL EXISTING UTILITIES AND SHALL HAND DIG AROUND UTILITIES LOCATED IN THE VICINITY OF THE PROPOSED EXCAVATION. CONTACT MISS UTILITY 48 HOURS PRIOR TO DIGGING TO HAVE UTILITIES LOCATED.

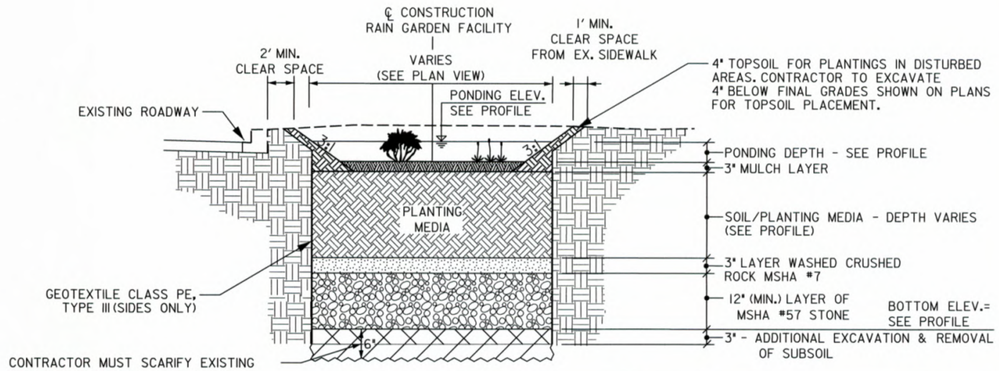
2. WHEN THE CONTRACTOR ENCOUNTERS AN EXISTING UTILITY WITH LESS THAN 12" OF VERTICAL CLEARANCE BETWEEN THE TOP OF UTILITY AND THE BOTTOM OF THE FACILITY, THE TYPICAL UTILITY CROSSING TREATMENT SHALL BE FOLLOWED.

3. WHEN THE VERTICAL CLEARANCE BETWEEN THE TOP OF UTILITY AND THE BOTTOM OF THE NO. 57 STONE LAYER (SHOWN AS DIMENSION A) IS LESS THAN 12", ADJUST MEDIA DEPTH AND CHANNEL SLOPE TO OBTAIN THE REQUIRED COVER DEPTH.

4. UNDISTURBED EARTH AREA SURROUNDING EXISTING UTILITY SHALL EXTEND ACROSS THE ENTIRE FACILITY WIDTH.

TYPICAL UTILITY CROSSING DETAIL

NOT TO SCALE

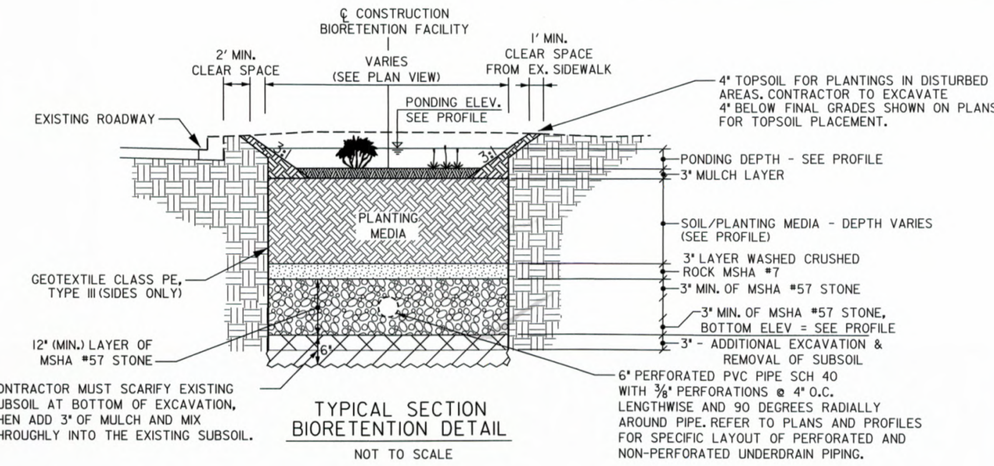


CONTRACTOR MUST SCARIFY EXISTING SUBSOIL AT BOTTOM OF EXCAVATION, THEN ADD 3" OF MULCH AND MIX THROUGHLY INTO THE EXISTING SUBSOIL.

TYPICAL SECTION RAIN GARDEN DETAIL

NOT TO SCALE

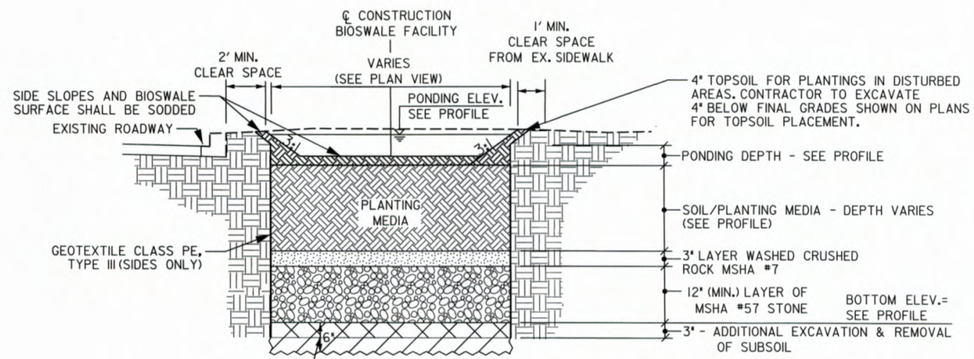
NOTES:
1. FOR ALL DISTURBED AREAS, REGARDLESS OF SLOPE, FOUR (4) INCHES OF TOPSOIL SHALL BE USED.
2. TOPSOIL SHALL NOT CONTAIN MORE THAN 50% SAND.
3. SOIL/PLANTING MEDIA TO FOLLOW SPECIFICATION. (SEE E&S SHEET 18)



CONTRACTOR MUST SCARIFY EXISTING SUBSOIL AT BOTTOM OF EXCAVATION, THEN ADD 3" OF MULCH AND MIX THROUGHLY INTO THE EXISTING SUBSOIL.

TYPICAL SECTION BIORETENTION DETAIL

NOT TO SCALE



CONTRACTOR MUST SCARIFY EXISTING SUBSOIL AT BOTTOM OF EXCAVATION, THEN ADD 3" OF MULCH AND MIX THROUGHLY INTO THE EXISTING SUBSOIL.

TYPICAL SECTION BIOSWALE DETAIL

NOT TO SCALE

DETAILS REVISED 02/13

McCormick Taylor
Engineers & Planners Since 1946
509 South Exeter Street
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Baltimore, Maryland 21202
(410) 662-7400

STORMWATER MANAGEMENT DETAILS

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

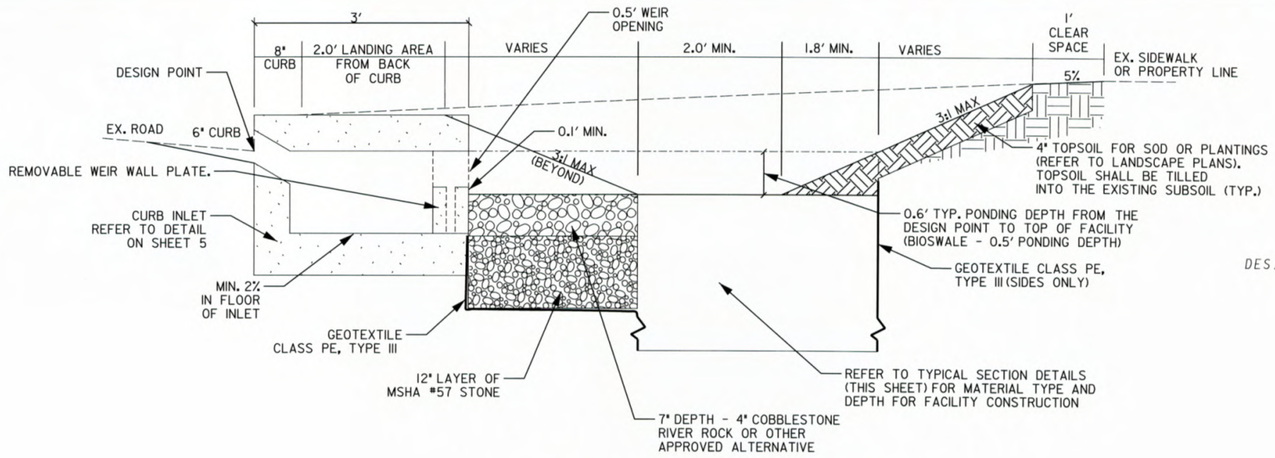
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS
DRAFT	WJW
APPROVED	HJD
DATE	JUNE 12'
SCALE	NOT TO SCALE

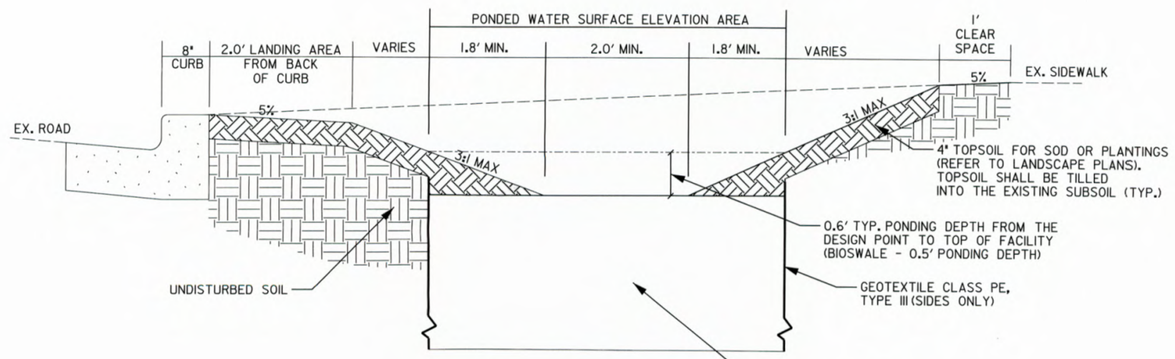
SHEET 4 OF 21

I.E. (10/12/13, courtney jin - forest conservation act the four corners area\designing\engineering\plan\earth p2p05-5001_PKZ.dgn
PLOTTED: Wednesday, November 20, 2013 AT 09:36 AM



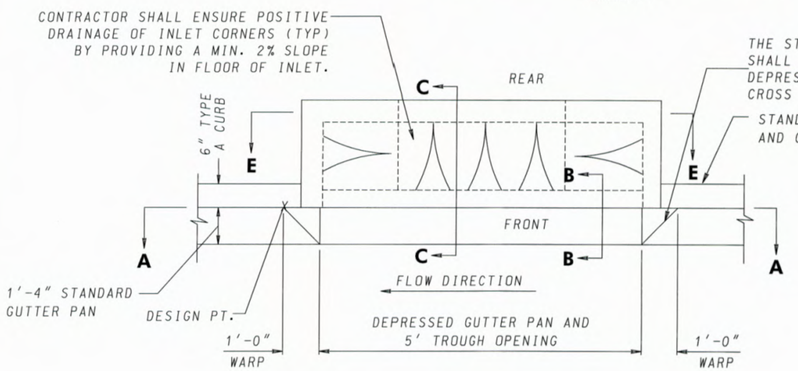
TYPICAL RIGHT OF WAY INLET SECTION

SCALE: 1"=1'



TYPICAL RIGHT OF WAY SECTION

SCALE: 1"=1'

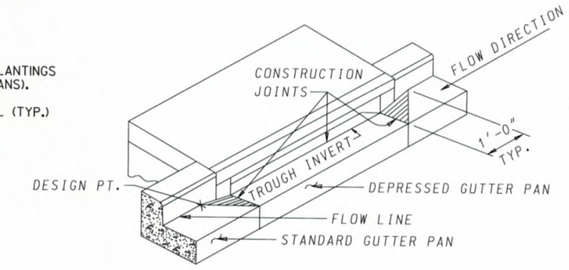


PLAN

WHENEVER STANDARD MC-101.01 CURB IS USED IN CONJUCTION WITH THIS STANDARD, A 10 FOOT TRANSITION SHALL BE PROVIDED FROM THE STANDARD MC-100.01 TO STANDARD MC-101.01 FOR CURB RETURNS AND CURB SECTIONS WHICH INCLUDES INLETS.

I/X MODIFIED CURB OPENING INLET DETAIL

NOT TO SCALE



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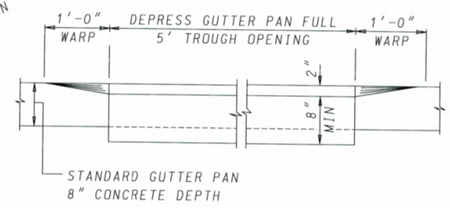
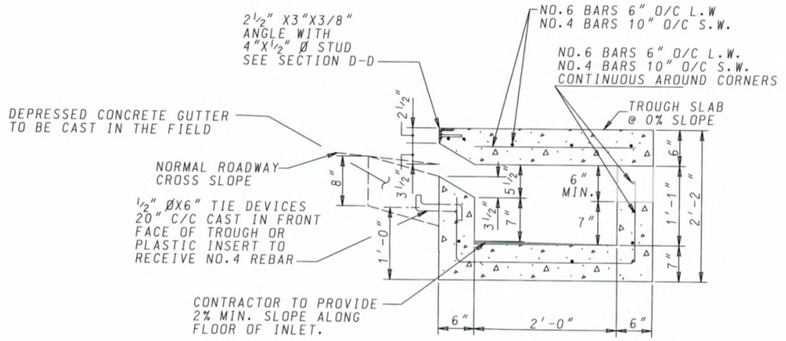


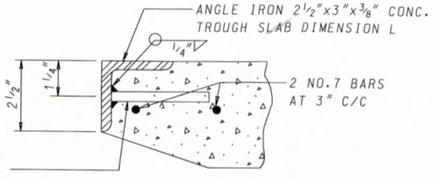
SECTION A-A

(SHOWN LOOKING TOWARD ROADWAY)

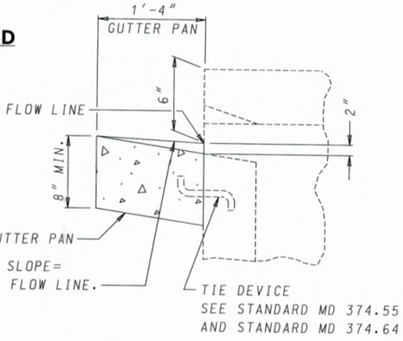


SECTION C-C

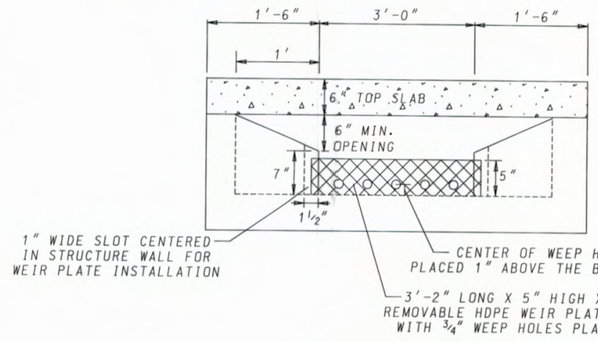
(MODIFIED MSHA STD. NO. MD 374.55-01)



SECTION D-D



SECTION B-B



SECTION E-E

(SHOWN LOOKING TOWARD ROADWAY)

GENERAL NOTES:

1. REFER TO MARYLAND STATE HIGHWAY ADMINISTRATION FOR MATERIALS AND METHODS OF CONSTRUCTION.
2. CONTRACTOR MUST PROVIDE SHOP DRAWINGS AND SEALED COMPUTATIONS FOR THE CURB INLETS TO MONTGOMERY COUNTY DEP FOR APPROVAL.
3. CURB INLET SHALL BE H-20 LOAD RATED.
4. STATIONING, TC/TG AND INVERT ELEVATIONS SHOWN IN THE DRAINAGE STRUCTURE TABLES ARE TAKEN AT THE CENTER OF THE STRUCTURE, ALONG THE CURBLINE.
5. MODIFIED CURB OPENING INLET SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD OF MIX NO. 6 CONCRETE FOR MISCELLANEOUS STRUCTURES.

DETAILS REVISED 02/13

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STORMWATER MANAGEMENT DETAILS

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

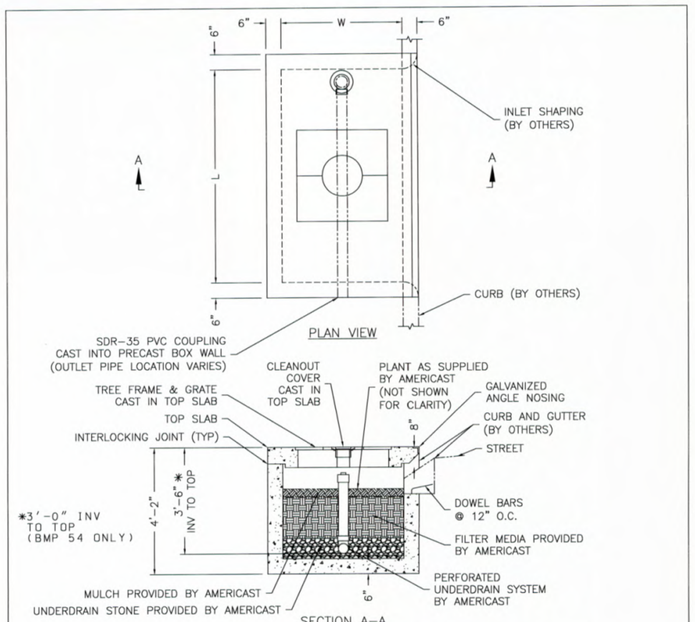
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS	DRAFT	WJW	APPROVED	HJD	DATE	JUNE 12	SCALE	NOT TO SCALE

SHEET 5 OF 21

PLT: (10/10/13 - rosario) fbl - forest exists and the four corners area\design\engineering\plansetfk p2\p2E-D002_FK2.dgn
PLOTTED: Wednesday, November 20, 2013 at 10:56:56 AM



DESIGNATION	L	W	TREE GRATE QTY & SIZE	OUTLET PIPE
6 x 4	6'-0"	4'-0"	(1) 3x3	4" SDR-35 PVC
8 x 4	8'-0"	4'-0"	(1) 3x3	4" SDR-35 PVC
8 x 6	8'-0"	6'-0"	(1) 4x4	4" SDR-35 PVC
10 x 6	10'-0"	6'-0"	(1) 4x4	6" SDR-35 PVC
12 x 4	12'-0"	4'-0"	(2) 3x3	4" SDR-35 PVC
12 x 6	12'-0"	6'-0"	(2) 4x4	6" SDR-35 PVC
13 x 7	13'-0"	7'-0"	(2) 4x4	6" SDR-35 PVC

MODIFICATIONS OF DRAWINGS ARE ONLY PERMITTED BY WRITTEN AUTHORIZATION FROM FILTERRA

DRAWING AVAILABLE IN TIF FILE FORMAT.

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DATE: 09-04-07 | DWG: FTNW-3

PRECAST FILTERRA® UNIT NARROW WIDTH CONFIGURATION

filterra®

US PAT 6,277,274 AND 6,569,321

GENERAL NOTES:

1. CONTRACTOR TO PERFORM ALL WORK AS SHOWN 'BY OTHERS'.
2. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT SUPPLIER FULFILLS SPECIFIED RESPONSIBILITIES AND PERFORMS SPECIFIED DUTIES.
3. REFER TO THE LANDSCAPE PLAN (SHEET 21 OF 21) FOR TREE TYPE AND SIZE TO BE INSTALLED IN EACH UNIT.

TREE BOX FILTER/ FILTERRA SYSTEM STANDARD NOTES

CONSTRUCTION AND INSTALLATION

A. EACH UNIT SHALL BE CONSTRUCTED AT THE LOCATIONS AND ELEVATIONS ACCORDING TO THE SIZES SHOWN ON THE APPROVED DRAWINGS.

B. IF THE FILTERRA IS STORED BEFORE INSTALLATION, THE TOP SLAB MUST BE PLACED ON THE BOX USING THE 2x4 WOOD PROVIDED, TO PREVENT ANY CONTAMINATION FROM THE SITE. ALL INTERNAL FITTINGS SUPPLIED (IF ANY), MUST BE LEFT IN PLACE AS PER THE DELIVERY.

C. THE UNIT SHALL BE PLACED ON A COMPACTED SUB-GRADE WITH A MINIMUM OF 6-INCH GRAVEL BASE MATCHING THE FINAL GRADE OF THE CURB LINE IN THE AREA OF THE UNIT. THE UNIT IS TO BE PLACED SUCH THAT THE UNIT AND TOP SLAB MATCH THE GRADE OF THE CURB IN THE AREA OF THE UNIT. COMPACT UNDISTURBED SUB-GRADE MATERIALS TO 95% OF MAXIMUM DENSITY AT +I-2% OF OPTIMUM MOISTURE. UNSUITABLE MATERIAL BELOW SUB-GRADE SHALL BE REPLACED TO THE SITE ENGINEER'S APPROVAL.

D. OUTLET CONNECTIONS SHALL BE ALIGNED AND SEALED TO MEET THE APPROVED DRAWINGS WITH MODIFICATIONS NECESSARY TO MEET SITE CONDITIONS AND LOCAL REGULATIONS.

E. ONCE THE UNIT IS SET, THE INTERNAL WOODEN FORMS AND PROTECTIVE MESH COVER MUST BE LEFT INTACT. REMOVE ONLY THE TEMPORARY WOODEN SHIPPING BLOCKS BETWEEN THE BOX AND TOP SLAB. THE TOP LID SHOULD BE SEALED ONTO THE BOX SECTION BEFORE BACKFILLING, USING A NON-SHRINK GROUT, BUTYL RUBBER OR SIMILAR WATERPROOF SEAL. THE BOARDS ON TOP OF THE LID AND BOARDS SEALED IN THE UNIT'S THROAT MUST NOT BE REMOVED. THE SUPPLIER (AMERICAST OR ITS AUTHORIZED DEALER) WILL REMOVE THESE SECTIONS AT THE TIME OF ACTIVATION. BACKFILLING SHOULD BE PERFORMED IN A CAREFUL MANNER, BRINGING THE APPROPRIATE FILL MATERIAL UP IN 6' LIFTS ON ALL SIDES. PRECAST SECTIONS SHALL BE SET IN A MANNER THAT WILL RESULT IN A WATERTIGHT JOINT. IN ALL INSTANCES, INSTALLATION OF FILTERRA UNIT SHALL CONFORM TO ASTM SPECIFICATION C891 'STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST UTILITY STRUCTURES', UNLESS DIRECTED OTHERWISE IN CONTRACT DOCUMENTS.

F. THE CONTRACTOR IS RESPONSIBLE FOR INLET PROTECTION/SEDIMENT CONTROL AND CLEANING AROUND EACH FILTERRA UNIT.

G. CURB AND GUTTER CONSTRUCTION (WHERE PRESENT) SHALL ENSURE THAT THE FLOW-LINE OF THE FILTERRA UNIT IS AT A GREATER ELEVATION THAN THE FLOW LINE OF THE BYPASS STRUCTURE OR RELIEF (DROP INLET, CURB CUT OR SIMILAR). FAILURE TO COMPLY WITH THIS GUIDELINES MAY CAUSE FAILURE AND/OR DAMAGE TO THE FILTERRA ENVIRONMENTAL DEVICE.

H. EACH FILTERRA UNIT MUST RECEIVE ADEQUATE IRRIGATION TO ENSURE SURVIVAL OF THE LIVING SYSTEM DURING PERIODS OF DRIER WEATHER. THIS MAY BE ACHIEVED THROUGH A PIPED SYSTEM, GUTTER FLOW OR THROUGH THE TREE GRATE.

ACTIVATION

A. ACTIVATION OF THE FILTERRA UNIT IS PERFORMED ONLY BY THE SUPPLIER. PURCHASER IS RESPONSIBLE FOR FILTERRA INLET PROTECTION AND SUBSEQUENT CLEAN OUT COST. THIS PROCESS CANNOT COMMENCE UNTIL THE PROJECT SITE IS FULLY STABILIZED AND CLEANED (FULL LANDSCAPING, GRASS COVER, FINAL PAVING AND STREET SWEEPING COMPLETED), NEGATING THE CHANGE OF CONSTRUCTION MATERIALS CONTAMINATING THE FILTERRA SYSTEM. CARE SHALL BE TAKEN DURING CONSTRUCTION NOT TO DAMAGE THE PROTECTIVE THROAT AND TOP PLATES.

B. ACTIVATION INCLUDES INSTALLATION OF PLANT(S) AND MULCH LAYERS AS NECESSARY.

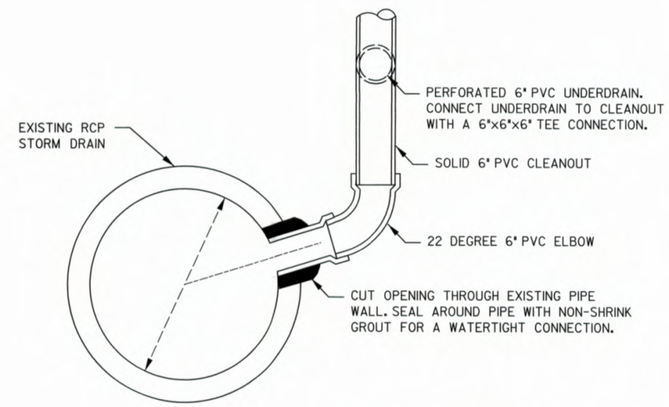
INCLUDED MAINTENANCE

A. EACH CORRECTLY INSTALLED FILTERRA UNIT IS TO BE MAINTAINED BY THE SUPPLIER OR A SUPPLIER APPROVED CONTRACTOR FOR A MINIMUM PERIOD OF I YEAR. THE COST OF THIS SERVICE IS TO BE INCLUDED IN THE PRICE OF EACH FILTERRA UNIT.

B. ANNUAL INCLUDED MAINTENANCE CONSISTS OF A MAXIMUM OF (2) SCHEDULED VISITS. THE VISITS AREA SCHEDULED SEASONALLY; THE SPRING VISIT AIMS TO CLEAN UP AFTER WINTER LOADS THAT MAY INCLUDE SALTS AND SANDS. THE FALL VISIT HELPS THE SYSTEM BY REMOVING EXCESSIVE LEAF LITTER.

C. EACH INCLUDED MAINTENANCE VISIT CONSISTS OF THE FOLLOWING TASKS:

1. FILTERRA UNIT INSPECTION
2. FOREIGN DEBRIS, SILT, MULCH AND TRASH REMOVAL
3. FILTER MEDIA EVALUATION AND RECHARGE AS NECESSARY
4. PLANT HEALTH EVALUATION AND PRUNING OR REPLACEMENT AS NECESSARY
5. REPLACEMENT OF MULCH
6. DISPOSAL OF ALL MAINTENANCE REFUSE ITEMS
7. MAINTENANCE RECORDS UPDATED AND STORED (REPORTS AVAILABLE UPON REQUEST)



NOTE:
REFER TO PLAN SHEETS FOR ELEVATION OF PIPE CONNECTION. CONNECTION SHOULD BE ABOVE THE FLOWLINE OF THE EXISITNG RCP STORM DRAIN.

UNDERDRAIN TO EX. PIPE CONNECTION DETAIL

N.T.S.

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STORMWATER MANAGEMENT DETAILS

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

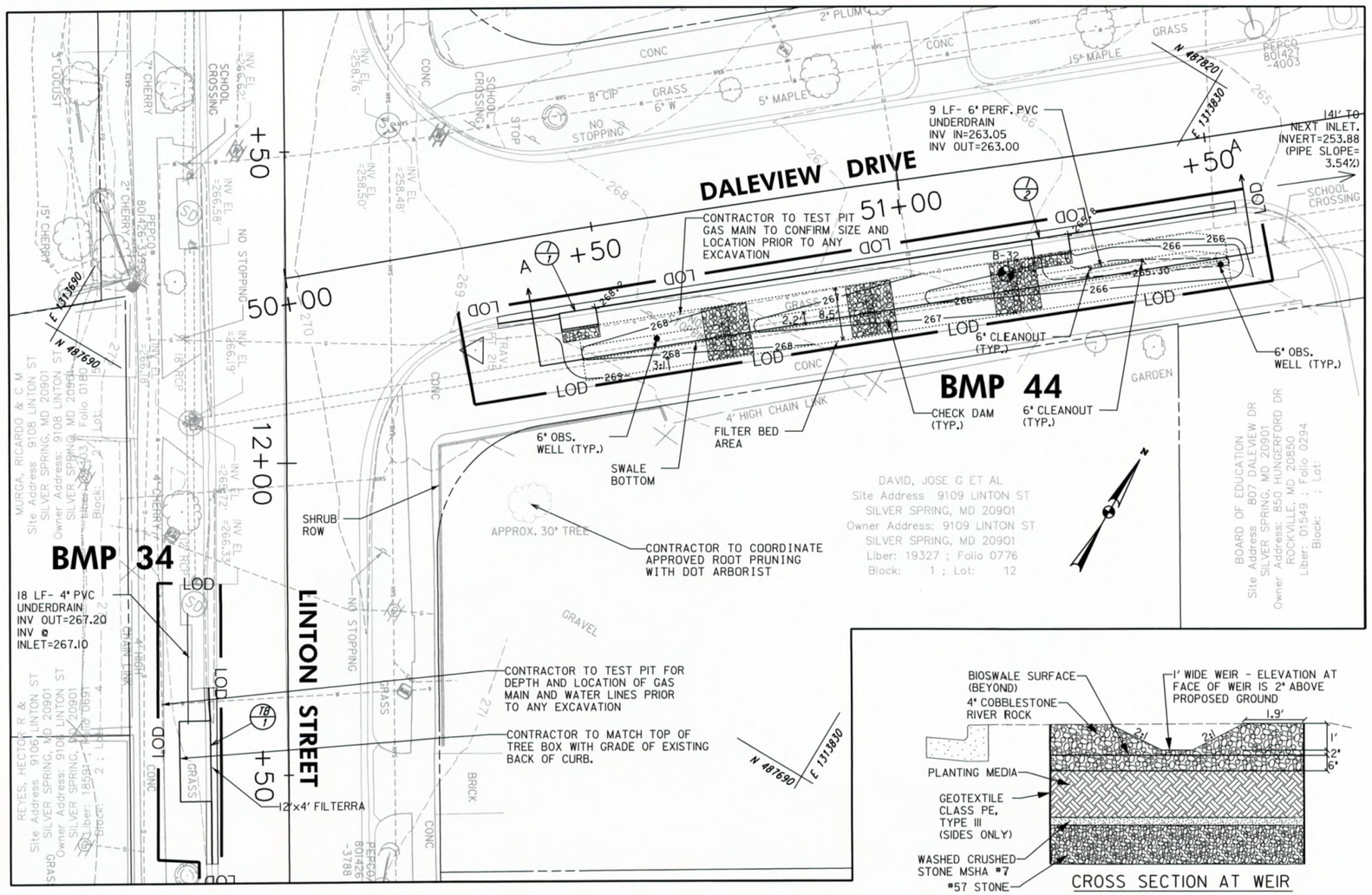
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS
DRAFT	WJW
APPROVED	HJD
DATE	JUNE 12'
SCALE	NOT TO SCALE

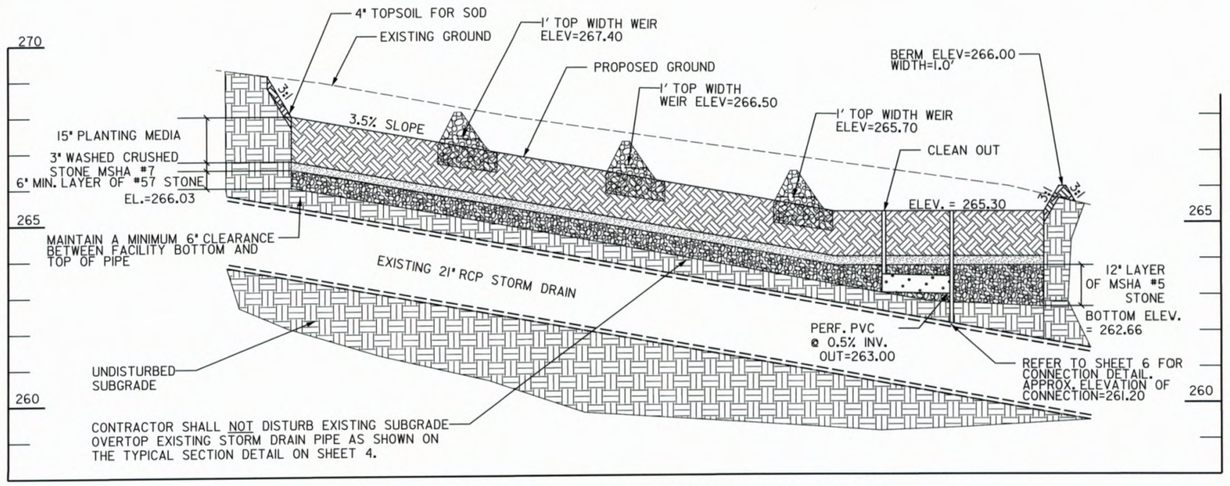
SHEET 6 OF 21

FILE: 13182113 - roadway list - forest estates and the four corners area\design\engineering\planset\fk p2p2E-0003_FKD.dgn
PLOTTED: Wednesday, November 20, 2013 AT 09:38 AM



CROSS SECTION AT WEIR

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



PROFILE A-A - BIOSWALE FACILITY (BMP44)

SCALE: HORIZ. 1"=10'
VERT. 1"=2'

AS-BUILT DATA FOR FILTERS (BIORETENTION/RAIN GARDENS)

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: BIOSWALE — BMP ID: 44

FEATURE	DESIGN	*AS-BUILT
DRAINAGE AREA (AC)	0.74	
TOTAL IMPERVIOUS AREA (AC)	0.32	
TREATMENT VOLUME PROVIDED (CF)	539	
TARGET WQv TREATMENT VOLUME (CF)	1180	
FILTER BED AREA (SF) [1]	899	
FILTER BED SURFACE ELEVATION	265.30	
DESIGN POINT/MAX. PONDING ELEVATION	265.80	
PONDED WATER SURFACE ELEVATION AREA (SF) [2]	178	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	6"/263.00	
THICKNESS OF FILTER MEDIA	REFER TO PROFILE	
PLACEMENT OF GEOTEXTILE (SIDES ONLY)	REFER TO FACILITY TYP. SECTION – SHEET 5	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION OF FILTER MEDIA	REFER TO SPECS – SHEET 19	

*NOTES:
1. "FILTER BED AREA (SF)" REPRESENTS THE EXPOSED SURFACE AREA AT THE PROPOSED "FILTER BED SURFACE ELEVATION".
2. FOR MATERIAL QUANTITY ESTIMATIONS, THE PLANTING MEDIA, STONE, MULCH, ETC. SHOULD BE BASED ON THE AREA OF "PONDED WATER SURFACE ELEVATION AREA (SF)".
3. CONTRACTOR SHALL TEST PIT UTILITIES PRIOR TO CONSTRUCTION. IF UTILITY IS UNAVOIDABLE, CONTRACTOR SHALL REFER TO SHEET 4 FOR UTILITY CROSSING DETAIL WITHIN THE FACILITY.

AS-BUILT DATA FOR TREE BOX FILTERS/FILTERRA SYSTEM

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

BMP ID: 34

FEATURE	DESIGN	**AS-BUILT
DRAINAGE AREA (AC)	1.42	
TOTAL IMPERVIOUS AREA (AC)	0.36	
FILTER BOX DIMENSIONS (L x W)	12' X 4'	
TOP OF STRUCTURE ELEVATION	270.70	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	4"/267.20	
THICKNESS OF FILTER MEDIA	REFER TO FACILITY TYP. SECTION – SHEET 6	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION & DEPTH OF FILTER MEDIA	REFER TO MANUFACTURER SPECIFICATIONS	

DRAINAGE STRUCTURE SCHEDULE

NO.	STATION / OFFSET	TC/TG	INV. OUT	REMARKS
I-1	50+46, 13' RT	268.70	267.12	MODIFIED CURB INLET
OW-440	50+57.7, 16' RT	-	-	OBSERVATION WELL
I-2	51+22.7, 12' RT	266.30	264.72	MODIFIED CURB INLET
CO-440	51+28.7, 18' RT	-	-	CLEANOUT
CO-441	51+37.3, 18' RT	-	-	CLEANOUT
OW-441	51+35.2, 18' RT	-	-	OBSERVATION WELL
TB-1	12+47.6, 13' RT	270.70	267.20	TREE BOX/FILTERRA

PIPE SCHEDULE

FROM	TO	SIZE (IN.)	TYPE	LENGTH (L.F.)
51+28.7	51+37.3	6	PERF. PVC	10
51+37.3	51+37.9	6	PVC	2
12+41.5	12+24.0	4	PVC	18

COMBINATION CONC. CURB AND GUTTER

STA. TO STA.	L.F.	REMARKS
12+36 TO 12+41, RT	5	TYPE A, MC-100.01
12+54 TO 12+64, RT	10	TRANSITION TYPE A TO TYPE C
50+33 TO 50+43, RT	10	TRANSITION TYPE C TO TYPE A
50+49 TO 51+20, RT	71	TYPE A, MC-100.01
51+26 TO 51+43, RT	17	TYPE A, MC-100.01
51+43 TO 51+53, RT	10	TRANSITION TYPE A TO TYPE C

DPS PERMIT NO. 296228

MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF PERMITTING SERVICES
FINAL APPROVAL
DATE 12/6/2013
BY

*SUBJECT TO DEDICATION OF RIGHT OF WAY AND EASEMENTS PER COUNTY CODE SECTION 50.

10' 0 10' 20'
SCALE: 1"=10'

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(410) 662-7400

PLAN AND PROFILE - BMPs 34 AND 44

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

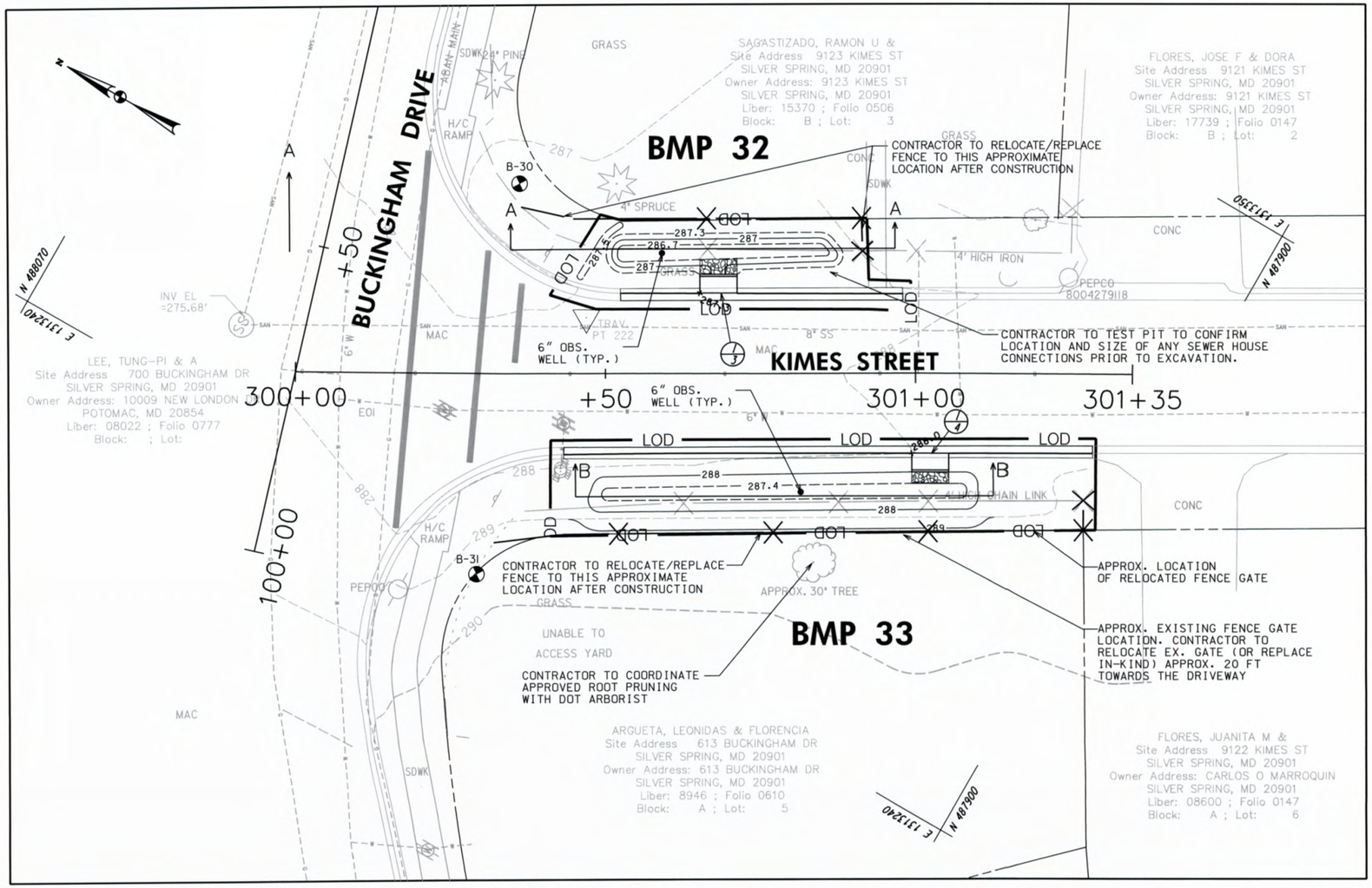
MONTGOMERY COUNTY, MARYLAND

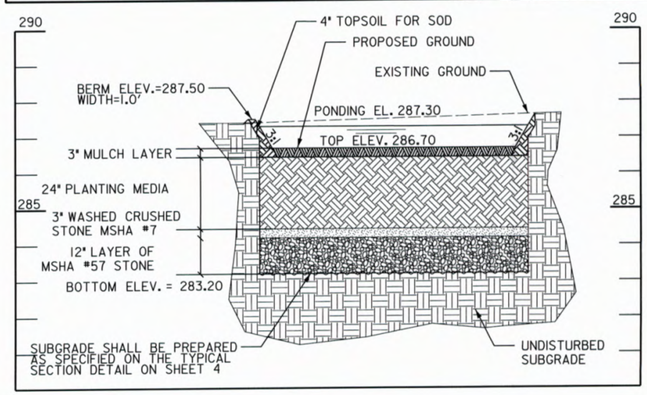
MONTGOMERY COUNTY DEPT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS	DATE	JUNE 12'
DRAFT	WJW	SCALE	1"=10'
APPROVED	HJD		

SHEET 7 OF 21

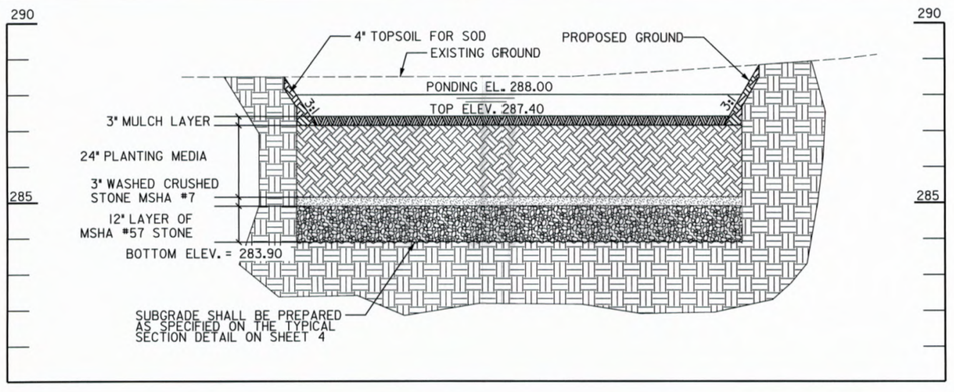
FILE: I:\5\50\13 - roadway ltd - forest estates and the four corners area\design\engineering\plans\landfx_pOpHD-P001_PK2.dgn
PLOTTED: Wednesday, November 20, 2013 AT 08:38 AM





PROFILE A-A - RAIN GARDEN FACILITY (BMP 32)

SCALE: HORIZ. 1"=10' VERT. 1"=2'



PROFILE B-B - RAIN GARDEN FACILITY (BMP 33)

SCALE: HORIZ. 1"=10' VERT. 1"=2'

DRAINAGE STRUCTURE SCHEDULE

NO.	STATION / OFFSET	TC/TG	INV. OUT	REMARKS
OW-320	300+59.1, 19' LT	-	-	OBSERVATION WELL
I-3	300+68.3, 13' LT	287.80	286.22	MODIFIED CURB INLET
OW-330	300+81.4, 19' RT	-	-	OBSERVATION WELL
I-4	301+02.4, 13' RT	288.50	286.92	MODIFIED CURB INLET

AS-BUILT DATA FOR FILTERS (BIORETENTION/RAIN GARDENS)

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: RAIN GARDEN — BMP ID: 32

FEATURE	DESIGN	*AS-BUILT
DRAINAGE AREA (AC)	0.31	
TOTAL IMPERVIOUS AREA (AC)	0.12	
TREATMENT VOLUME PROVIDED (CF)	266	
TARGET WQv TREATMENT VOLUME (CF)	448	
FILTER BED AREA (SF) [1]	77	
FILTER BED SURFACE ELEVATION	286.70	
DESIGN POINT/MAX. PONDING ELEVATION	287.30	
PONDED WATER SURFACE ELEVATION AREA (SF) [2]	221	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	N/A	
THICKNESS OF FILTER MEDIA	REFER TO PROFILE	
PLACEMENT OF GEOTEXTILE (SIDES ONLY)	REFER TO FACILITY TYP. SECTION – SHEET 5	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION OF FILTER MEDIA	REFER TO SPECS – SHEET 19	

*NOTES:
1. "FILTER BED AREA (SF)" REPRESENTS THE EXPOSED SURFACE AREA AT THE PROPOSED "FILTER BED SURFACE ELEVATION".
2. FOR MATERIAL QUANTITY ESTIMATIONS, THE PLANTING MEDIA, STONE, MULCH, ETC. SHOULD BE BASED ON THE AREA OF "PONDED WATER SURFACE ELEVATION AREA (SF)".
3. CONTRACTOR SHALL TEST PIT UTILITIES PRIOR TO CONSTRUCTION. IF UTILITY IS UNAVOIDABLE, CONTRACTOR SHALL REFER TO SHEET 4 FOR UTILITY CROSSING DETAIL WITHIN THE FACILITY.

AS-BUILT DATA FOR FILTERS (BIORETENTION/RAIN GARDENS)

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: RAIN GARDEN — BMP ID: 33

FEATURE	DESIGN	*AS-BUILT
DRAINAGE AREA (AC)	0.96	
TOTAL IMPERVIOUS AREA (AC)	0.22	
TREATMENT VOLUME PROVIDED (CF)	436	
TARGET WQv TREATMENT VOLUME (CF)	893	
FILTER BED AREA (SF) [1]	130	
FILTER BED SURFACE ELEVATION	287.40	
DESIGN POINT/MAX. PONDING ELEVATION	288.00	
PONDED WATER SURFACE ELEVATION AREA (SF) [2]	361	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	N/A	
THICKNESS OF FILTER MEDIA	REFER TO PROFILE	
PLACEMENT OF GEOTEXTILE (SIDES ONLY)	REFER TO FACILITY TYP. SECTION – SHEET 5	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION OF FILTER MEDIA	REFER TO SPECS – SHEET 19	

COMBINATION CONC. CURB AND GUTTER

STA. TO STA.	L.F.	REMARKS
300+43 TO 300+99, RT	56	TYPE A, MC-100.01
300+52 TO 300+65, LT	13	TYPE A, MC-100.01
300+71 TO 300+88, LT	16	TYPE A, MC-100.01
300+88 TO 300+98, LT	10	TRANSITION TYPE A TO TYPE C
301+05 TO 301+18, RT	13	TYPE A, MC-100.01
301+18 TO 301+29, RT	11	TRANSITION TYPE A TO TYPE C

DPS PERMIT NO. 296228

MONTGOMERY COUNTY, MARYLAND DEPARTMENT OF PERMITTING SERVICES

FINAL APPROVAL

DATE 12/6/2013

BY

*SUBJECT TO DEDICATION OF RIGHT OF WAY AND EASEMENTS PER COUNTY CODE SECTION 50.

10' 0 10' 20'

SCALE: 1"=10'

McCormick Taylor
Engineers & Planners Since 1946
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

PLAN AND PROFILE - BMP s 32 AND 33

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

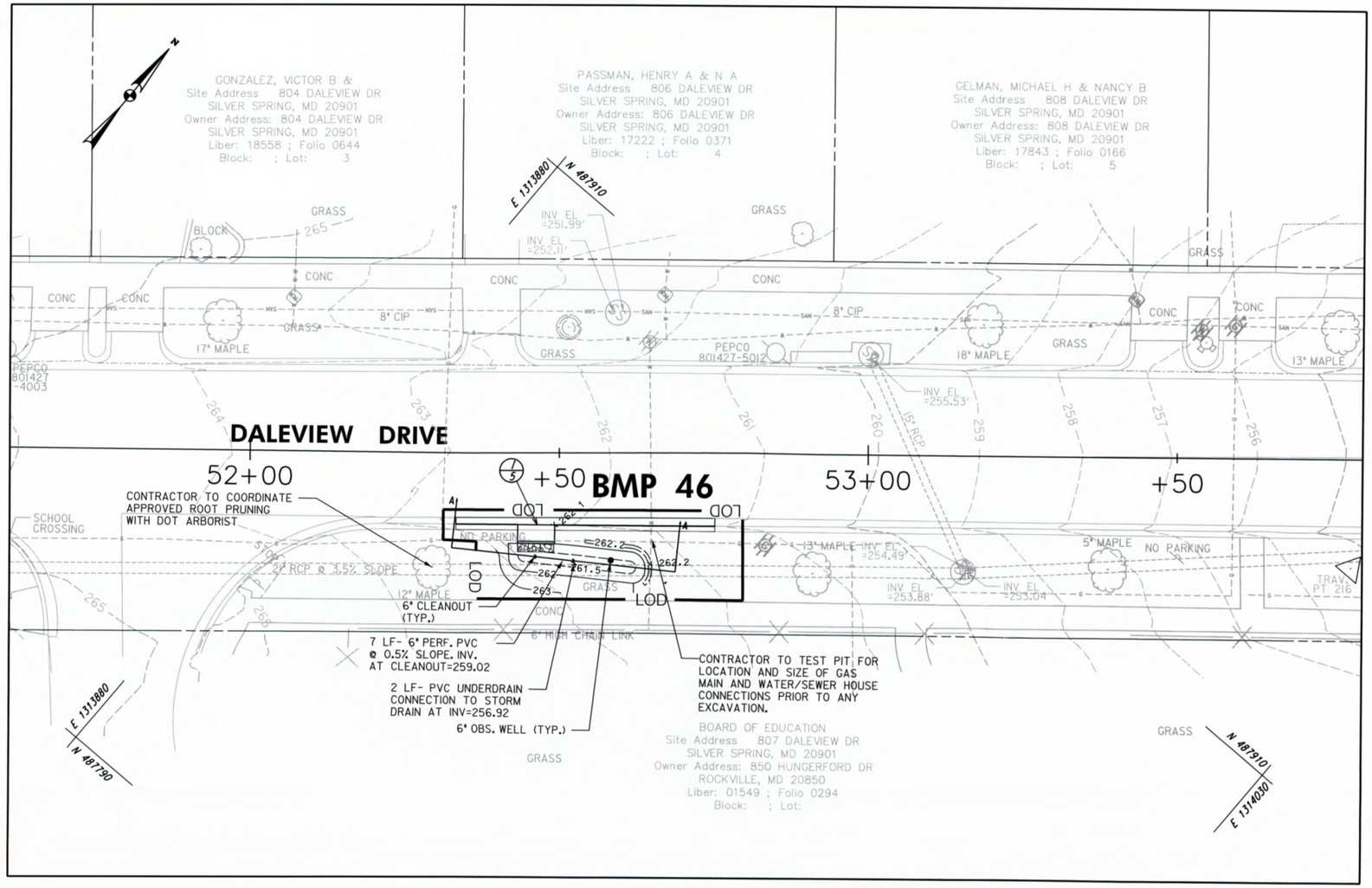
MONTGOMERY COUNTY, MARYLAND

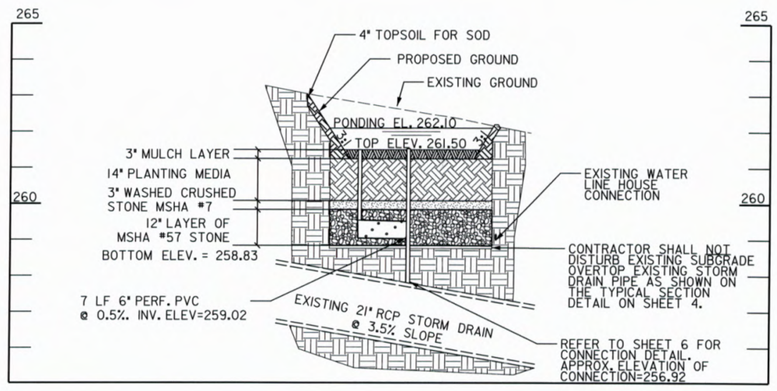
MONTGOMERY COUNTY DEPT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS
DRAFT	WJW
APPROVED	HJD
DATE	JUNE 12'
SCALE	1"=10'

SHEET 8 OF 21

FILE: 13152\13 - roadway list - forest estates and the four corners area\design\engineering\plans\wtfl_p2\pH2-P002_PH2.dgn
PLOTTED: Wednesday, November 20, 2013 AT 09:38 AM





PROFILE A-A - BIORETENTION FACILITY (BMP 46)

SCALE: HORIZ. 1"=10'
VERT. 1"=2'

AS-BUILT DATA FOR FILTERS (BIORETENTION/RAIN GARDENS)

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: BIORETENTION BMP ID: 46

FEATURE	DESIGN	*AS-BUILT
DRAINAGE AREA (AC)	0.14	
TOTAL IMPERVIOUS AREA (AC)	0.06	
TREATMENT VOLUME PROVIDED (CF)	101	
TARGET WQv TREATMENT VOLUME (CF)	221	
FILTER BED AREA (SF) [1]	41	
FILTER BED SURFACE ELEVATION	261.50	
DESIGN POINT/MAX. PONDING ELEVATION	262.10	
PONDED WATER SURFACE ELEVATION AREA (SF) [2]	116	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	6" / 259.02	
THICKNESS OF FILTER MEDIA	REFER TO PROFILE	
PLACEMENT OF GEOTEXTILE (SIDES ONLY)	REFER TO FACILITY TYP. SECTION – SHEET 5	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION OF FILTER MEDIA	REFER TO SPECS – SHEET 19	

*NOTES:

1. "FILTER BED AREA (SF)" REPRESENTS THE EXPOSED SURFACE AREA AT THE PROPOSED "FILTER BED SURFACE ELEVATION".
2. FOR MATERIAL QUANTITY ESTIMATIONS, THE PLANTING MEDIA, STONE, MULCH, ETC. SHOULD BE BASED ON THE AREA OF "PONDED WATER SURFACE ELEVATION AREA (SF)".
3. CONTRACTOR SHALL TEST PIT UTILITIES PRIOR TO CONSTRUCTION. IF UTILITY IS UNAVOIDABLE, CONTRACTOR SHALL REFER TO SHEET 4 FOR UTILITY CROSSING DETAIL WITHIN THE FACILITY.

DRAINAGE STRUCTURE SCHEDULE

NO.	STATION / OFFSET	TC/TG	INV. OUT	REMARKS
I-5	52+46.2, 11' RT	262.60	261.02	MODIFIED CURB INLET
CO-460	52+46.2, 17' RT	-	-	CLEANOUT
OW-460	52+52.4, 17' RT	-	-	OBSERVATION WELL
CO-461	52+59.1, 19' RT	-	-	CLEANOUT

PIPE SCHEDULE

FROM	TO	SIZE (IN.)	TYPE	LENGTH (L.F.)
52+46.2	52+52.4	6	PERF. PVC	7
52+52.4	52+52.9	6	PVC	2

COMBINATION CONC. CURB AND GUTTER

STA. TO STA.	L.F.	REMARKS
52+33 TO 52+43, RT	10	TRANSITION TYPE C TO TYPE A
52+49 TO 52+65, RT	16	TYPE A, MC-100.01
52+65 TO 52+75, RT	10	TRANSITION TYPE A TO TYPE C

DPS PERMIT NO. 296228

MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF PERMITTING SERVICES
FINAL APPROVAL
DATE 12/16/2013
BY

*SUBJECT TO DEDICATION OF RIGHT OF WAY AND EASEMENTS PER COUNTY CODE SECTION 50.

10' 0 10' 20'
SCALE: 1"=10'

McCormick Taylor
Engineers & Planners Since 1946
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

PLAN AND PROFILE - BMP 46

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

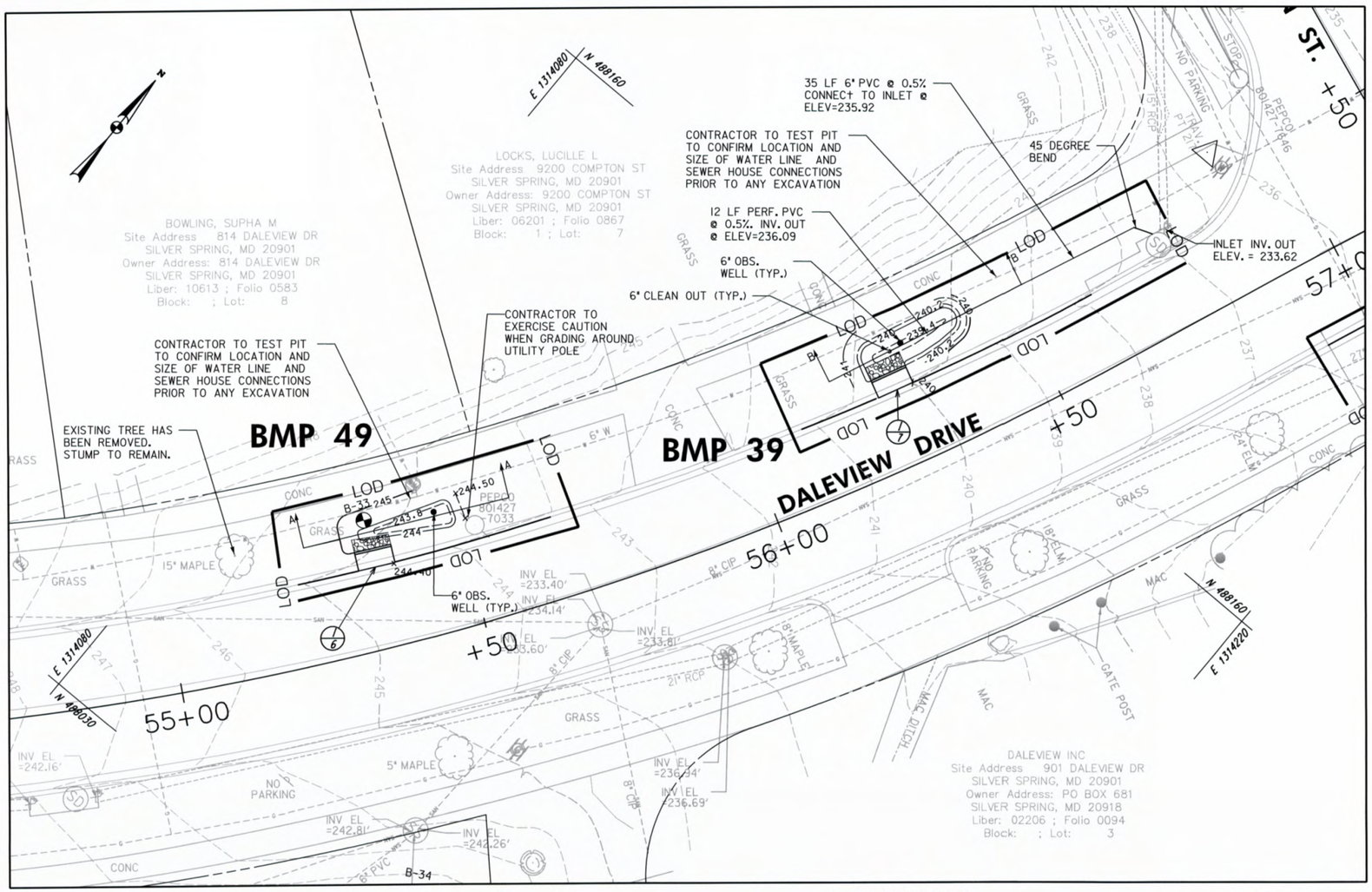
MONTGOMERY COUNTY, MARYLAND

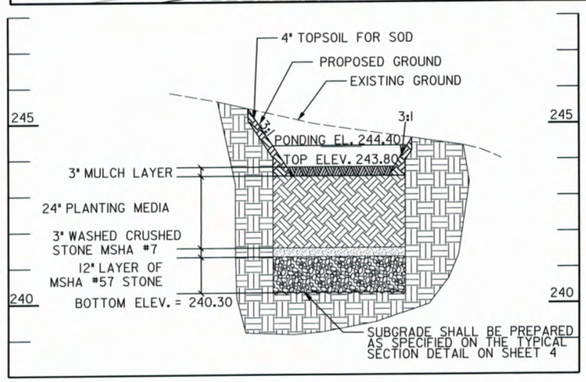
MONTGOMERY COUNTY DEPT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS
DRAFT	WJW
APPROVED	HJD
DATE	JUNE '12
SCALE	1"=10'

SHEET 9 OF 21

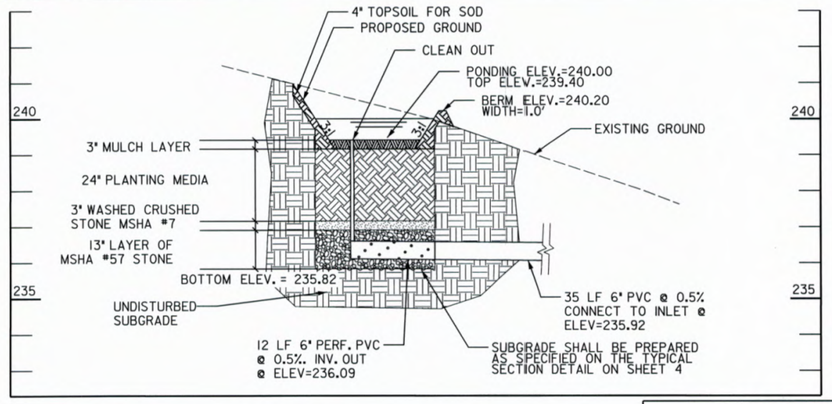
FILE: I:\51\0213 - roadway ltd – forest estates and the four corners area\design\engineering\plans\fk p2\pr\HD-P003_PK2.dgn
PLOTTED: Wednesday, November 20, 2013 AT 08:35 AM





PROFILE A-A - RAIN GARDEN FACILITY (BMP 49)

SCALE: HORIZ. 1"=10'
VERT. 1"=2'



PROFILE B-B - BIORETENTION FACILITY (BMP 39)

SCALE: HORIZ. 1"=10'
VERT. 1"=2'

DRAINAGE STRUCTURE SCHEDULE

NO.	STATION / OFFSET	TC/TG	INV. OUT	REMARKS
I-6	55+35.2, 13' LT	244.90	243.32	MODIFIED CURB INLET
OW-490	55+45.6, 19' LT	-	-	OBSERVATION WELL
I-7	56+26.0, 12' LT	240.50	238.92	MODIFIED CURB INLET
CO-390	56+27.7, 18' LT	-	-	CLEANOUT
OW-390	56+29.9, 18' LT	-	-	OBSERVATION WELL

AS-BUILT DATA FOR FILTERS (BIORETENTION/RAIN GARDENS)
*TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: BIORETENTION — BMP ID: 39

FEATURE	DESIGN	*AS-BUILT
DRAINAGE AREA (AC)	0.16	
TOTAL IMPERVIOUS AREA (AC)	0.09	
TREATMENT VOLUME PROVIDED (CF)	94	
TARGET WQv TREATMENT VOLUME (CF)	323	
FILTER BED AREA (SF) [1]	16	
FILTER BED SURFACE ELEVATION	239.40	
DESIGN POINT/MAX. PONDING ELEVATION	240.00	
PONDED WATER SURFACE ELEVATION AREA (SF) [2]	81	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	6"/236.07	
THICKNESS OF FILTER MEDIA	REFER TO PROFILE	
PLACEMENT OF GEOTEXTILE (SIDES ONLY)	REFER TO FACILITY TYP. SECTION – SHEET 5	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION OF FILTER MEDIA	REFER TO SPECS – SHEET 19	

*NOTES:
1. "FILTER BED AREA (SF)" REPRESENTS THE EXPOSED SURFACE AREA AT THE PROPOSED "FILTER BED SURFACE ELEVATION".
2. FOR MATERIAL QUANTITY ESTIMATIONS, THE PLANTING MEDIA, STONE, MULCH, ETC. SHOULD BE BASED ON THE AREA OF "PONDED WATER SURFACE ELEVATION AREA (SF)".
3. CONTRACTOR SHALL TEST PIT UTILITIES PRIOR TO CONSTRUCTION. IF UTILITY IS UNAVOIDABLE, CONTRACTOR SHALL REFER TO SHEET 4 FOR UTILITY CROSSING DETAIL WITHIN THE FACILITY.

AS-BUILT DATA FOR FILTERS (BIORETENTION/RAIN GARDENS)
*TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: RAIN GARDEN — BMP ID: 49

FEATURE	DESIGN	*AS-BUILT
DRAINAGE AREA (AC)	0.39	
TOTAL IMPERVIOUS AREA (AC)	0.14	
TREATMENT VOLUME PROVIDED (CF)	116	
TARGET WQv TREATMENT VOLUME (CF)	528	
FILTER BED AREA (SF) [1]	27	
FILTER BED SURFACE ELEVATION	243.80	
DESIGN POINT/MAX. PONDING ELEVATION	244.40	
PONDED WATER SURFACE ELEVATION AREA (SF) [2]	98	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	N/A	
THICKNESS OF FILTER MEDIA	REFER TO PROFILE	
PLACEMENT OF GEOTEXTILE (SIDES ONLY)	REFER TO FACILITY TYP. SECTION – SHEET 5	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION OF FILTER MEDIA	REFER TO SPECS – SHEET 19	

PIPE SCHEDULE

FROM	TO	SIZE (IN.)	TYPE	LENGTH (L.F.)
56+27.7	56+40.4	6	PERF. PVC	12
56+40.4	56+75.3	6	PVC	35

COMBINATION CONC. CURB AND GUTTER

STA. TO STA.	L.F.	REMARKS
55+22 TO 55+32, LT	10	TRANSITION TYPE C TO TYPE A
55+38 TO 55+55, LT	16	TYPE A, MC-100.01
55+55 TO 55+65, LT	10	TRANSITION TYPE A TO TYPE C
56+09 TO 56+19, LT	10	TRANSITION TYPE C TO TYPE A
56+19 TO 56+23, LT	3	TYPE A, MC-100.01
56+29 TO 56+62, LT	32	TYPE A, MC-100.01

DPS PERMIT NO. 296228

MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF PERMITTING SERVICES
FINAL APPROVAL
DATE 12/6/2013
BY

*SUBJECT TO DEDICATION OF RIGHT OF WAY AND EASEMENTS PER COUNTY CODE SECTION 50.

10' 0 10' 20'
SCALE: 1"=10'

McCormick Taylor
Engineers & Planners Since 1946
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

PLAN AND PROFILE - BMPs 39 AND 49

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

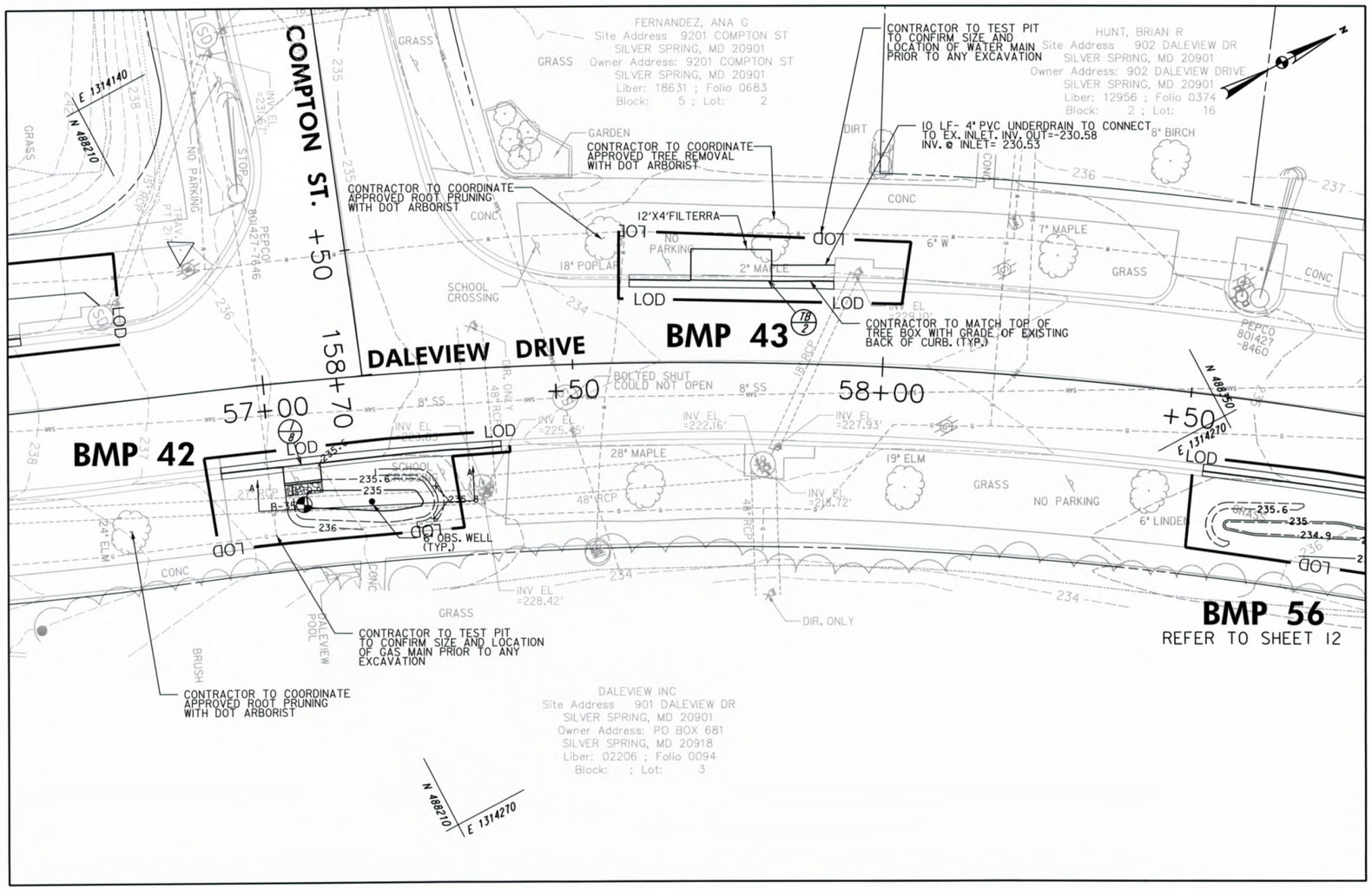
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	DRAFT	APPROVED	DATE	SCALE
KCS	WJW	HJD	JUNE 12'	1"=10'

SHEET 10 OF 21

I.E. (4/1/2013, ...\sheet plots\ part for four corners area\design\engineering\plan\dfs p2\pP-D-P004_FR2.dgn
PLOTTED: Wednesday, November 20, 2013 AT 09:38 AM



AS-BUILT DATA FOR FILTERS (BIORETENTION/RAIN GARDENS)

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: RAIN GARDEN — BMP ID: 42

FEATURE	DESIGN	*AS-BUILT
DRAINAGE AREA (AC)	0.16	
TOTAL IMPERVIOUS AREA (AC)	0.09	
TREATMENT VOLUME PROVIDED (CF)	116	
TARGET WQv TREATMENT VOLUME (CF)	323	
FILTER BED AREA (SF) [1]	55	
FILTER BED SURFACE ELEVATION	235.00/236.00	
DESIGN POINT/MAX. PONDING ELEVATION	235.60/236.60	
PONDED WATER SURFACE ELEVATION AREA (SF) [2]	142	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	N/A	
THICKNESS OF FILTER MEDIA	REFER TO PROFILE	
PLACEMENT OF GEOTEXTILE (SIDES ONLY)	REFER TO FACILITY TYP. SECTION – SHEET 5	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION OF FILTER MEDIA	REFER TO SPECS – SHEET 19	

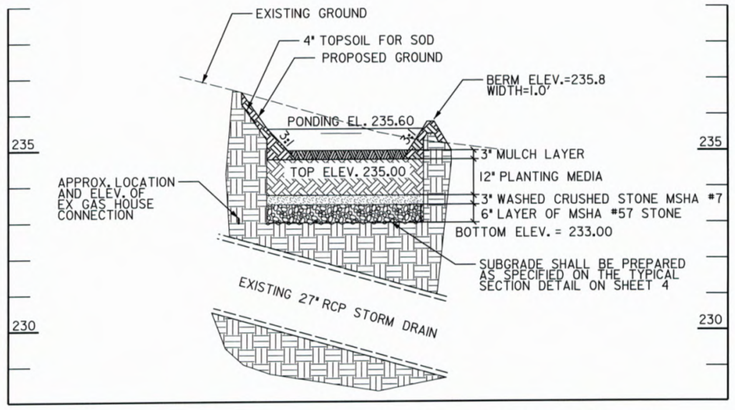
*NOTES:
1. "FILTER BED AREA (SF)" REPRESENTS THE EXPOSED SURFACE AREA AT THE PROPOSED "FILTER BED SURFACE ELEVATION".
2. FOR MATERIAL QUANTITY ESTIMATIONS, THE PLANTING MEDIA, STONE, MULCH, ETC. SHOULD BE BASED ON THE AREA OF "PONDED WATER SURFACE ELEVATION AREA (SF)".
3. CONTRACTOR SHALL TEST PIT UTILITIES PRIOR TO CONSTRUCTION. IF UTILITY IS UNAVOIDABLE, CONTRACTOR SHALL REFER TO SHEET 4 FOR UTILITY CROSSING DETAIL WITHIN THE FACILITY.

AS-BUILT DATA FOR TREE BOX FILTERS/FILTERRA SYSTEM

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

BMP ID: 43

FEATURE	DESIGN	**AS-BUILT
DRAINAGE AREA (AC)	1.36	
TOTAL IMPERVIOUS AREA (AC)	0.56	
FILTER BOX DIMENSIONS (L x W)	12' X 4'	
TOP OF STRUCTURE ELEVATION	234.08	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	4"/230.58	
THICKNESS OF FILTER MEDIA	REFER TO FACILITY TYP. SECTION – SHEET 6	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION & DEPTH OF FILTER MEDIA	REFER TO MANUFACTURER SPECIFICATIONS	



PROFILE A-A - RAIN GARDEN FACILITY (BMP 42)
SCALE: HORIZ. 1"=10'
VERT. 1"=2'

DRAINAGE STRUCTURE SCHEDULE

	STATION / OFFSET	TC/TG	INV. OUT	REMARKS
I-8	57+04.9, 13' RT	236.10	234.52	MODIFIED CURB INLET
OW-420	57+16.0, 20' RT	-	-	OBSERVATION WELL
TB-2	57+76.0, 13' LT	234.08	230.58	TREE BOX/FILTERRA

PIPE SCHEDULE

FROM	TO	SIZE (IN.)	TYPE	LENGTH (L.F.)
57+81.8	57+92.3	4	PVC	10

COMBINATION CONC. CURB AND GUTTER

STA. TO STA.	L.F.	REMARKS
56+92 TO 57+02, RT	10	TRANSITION TYPE C TO TYPE A
57+08 TO 57+28, RT	19	TYPE A, MC-100.01
57+28 TO 57+38, RT	10	TRANSITION TYPE A TO TYPE C
57+60 TO 57+70, LT	10	TRANSITION TYPE C TO TYPE A
57+82 TO 57+92, LT	10	TYPE A, MC-100.01

DPS PERMIT NO. 296228 J.S.
MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF PERMITTING SERVICES
FINAL APPROVAL
DATE 12/6/2013
BY
*SUBJECT TO DEDICATION OF RIGHT OF WAY AND EASEMENTS PER COUNTY CODE SECTION 50.

10' 0 10' 20'
SCALE: 1"=10'

McCormick Taylor
Engineers & Planners Since 1946
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

PLAN AND PROFILE - BMPs 42 AND 43

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

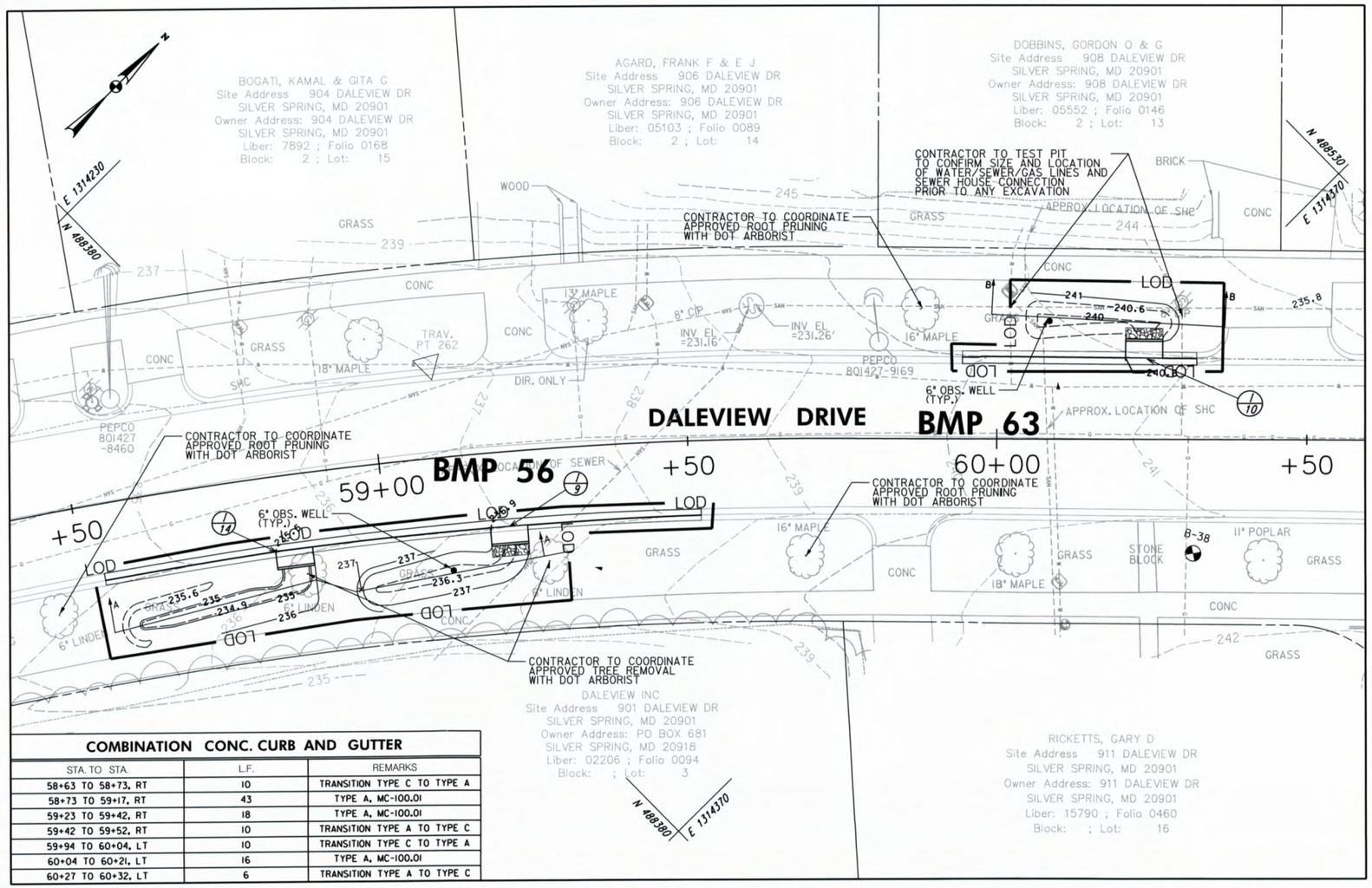
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF
ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS	APPROVED	HJD	SCALE	1"=10'
DRAFT	WJW	DATE	JUNE 12'		

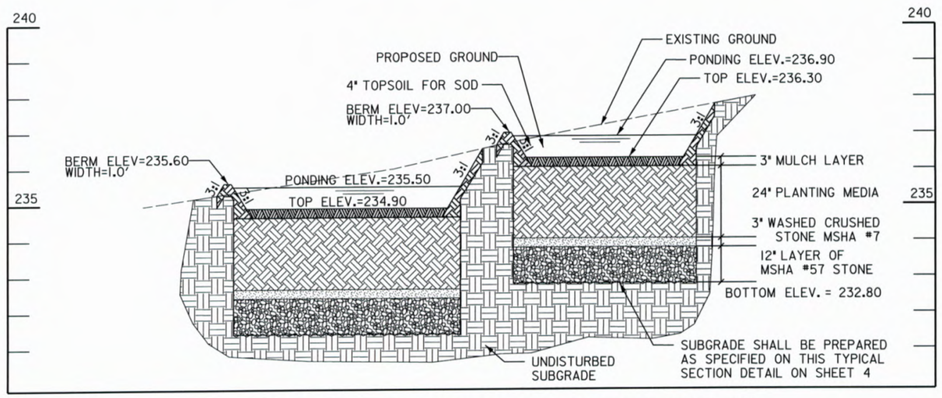
SHEET 11 OF 21

E:\14\14013\Roadway\64-forest planting and the four corners area\design\engineering\plans\fk p2phPD-P005_FK2.dgn
PLOTTED: Wednesday, November 20, 2013 AT 08:38 AM



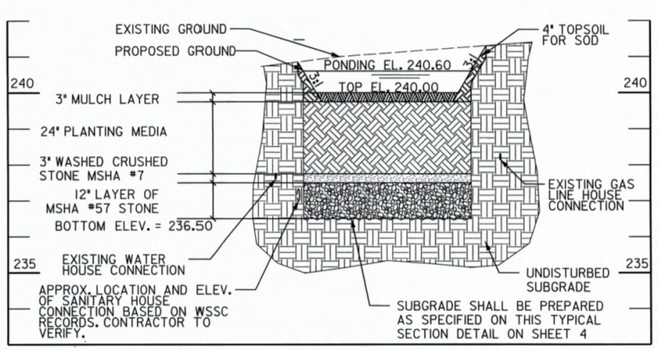
COMBINATION CONC. CURB AND GUTTER

STA. TO STA.	L.F.	REMARKS
58+63 TO 58+73, RT	10	TRANSITION TYPE C TO TYPE A
58+73 TO 59+17, RT	43	TYPE A, MC-100.01
59+23 TO 59+42, RT	18	TYPE A, MC-100.01
59+42 TO 59+52, RT	10	TRANSITION TYPE A TO TYPE C
59+94 TO 60+04, LT	10	TRANSITION TYPE C TO TYPE A
60+04 TO 60+21, LT	16	TYPE A, MC-100.01
60+27 TO 60+32, LT	6	TRANSITION TYPE A TO TYPE C



PROFILE A-A - RAIN GARDEN FACILITY (BMP 56)

SCALE: HORIZ. 1"=10', VERT. 1"=2'



PROFILE B-B - RAIN GARDEN FACILITY (BMP 63)

SCALE: HORIZ. 1"=10', VERT. 1"=2'

1 58+67.7, 20' RT

DRAINAGE STRUCTURE SCHEDULE

NO.	STATION / OFFSET	TC/TG	INV. OUT	REMARKS
OW-560	60+08.4, 19' LT.	-	-	OBSERVATION WELL
I-14	58+84.5, 12' LT	236.00	234.42	MODIFIED CURB INLET
OW-561	59+10.5, 18' RT	-	-	OBSERVATION WELL
I-9	59+20.2, 12' RT	237.40	235.82	MODIFIED CURB INLET
OW-630	60+08.4, 19' LT	-	-	OBSERVATION WELL
I-10	60+23.7, 13' LT	241.10	239.52	MODIFIED CURB INLET

AS-BUILT DATA FOR FILTERS (BIORETENTION/RAIN GARDENS)

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: RAIN GARDEN — BMP ID: 56

FEATURE	DESIGN	*AS-BUILT
DRAINAGE AREA (AC)	0.13	
TOTAL IMPERVIOUS AREA (AC)	0.06	
TREATMENT VOLUME PROVIDED (CF)	351	
TARGET WQv TREATMENT VOLUME (CF)	220	
FILTER BED AREA (SF) [1]	97	
FILTER BED SURFACE ELEVATION	234.90/236.30	
DESIGN POINT/MAX. PONDING ELEVATION	235.50/236.90	
PONDED WATER SURFACE ELEVATION AREA (SF) [2]	293	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	N/A	
THICKNESS OF FILTER MEDIA	REFER TO PROFILE	
PLACEMENT OF GEOTEXTILE (SIDES ONLY)	REFER TO FACILITY TYP. SECTION – SHEET 5	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION OF FILTER MEDIA	REFER TO SPECS – SHEET 19	

*NOTES:
1. "FILTER BED AREA (SF)" REPRESENTS THE EXPOSED SURFACE AREA AT THE PROPOSED "FILTER BED SURFACE ELEVATION".
2. FOR MATERIAL QUANTITY ESTIMATIONS, THE PLANTING MEDIA, STONE, MULCH, ETC. SHOULD BE BASED ON THE AREA OF "PONDED WATER SURFACE ELEVATION AREA (SF)".
3. CONTRACTOR SHALL TEST PIT UTILITIES PRIOR TO CONSTRUCTION. IF UTILITY IS UNAVOIDABLE, CONTRACTOR SHALL REFER TO SHEET 4 FOR UTILITY CROSSING DETAIL WITHIN THE FACILITY.

AS-BUILT DATA FOR FILTERS (BIORETENTION/RAIN GARDENS)

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: RAIN GARDEN — BMP ID: 63

FEATURE	DESIGN	*AS-BUILT
DRAINAGE AREA (AC)	0.74	
TOTAL IMPERVIOUS AREA (AC)	0.25	
TREATMENT VOLUME PROVIDED (CF)	132	
TARGET WQv TREATMENT VOLUME (CF)	951	
FILTER BED AREA (SF) [1]	27	
FILTER BED SURFACE ELEVATION	240.00	
DESIGN POINT/MAX. PONDING ELEVATION	240.60	
PONDED WATER SURFACE ELEVATION AREA (SF) [2]	113	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	N/A	
THICKNESS OF FILTER MEDIA	REFER TO PROFILE	
PLACEMENT OF GEOTEXTILE (SIDES ONLY)	REFER TO FACILITY TYP. SECTION – SHEET 5	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION OF FILTER MEDIA	REFER TO SPECS – SHEET 19	

DPS PERMIT NO. 296228

MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF PERMITTING SERVICES
FINAL APPROVAL
DATE 12/6/2013
BY

*SUBJECT TO DEDICATION OF RIGHT OF WAY AND EASEMENTS PER COUNTY CODE SECTION 50.

10' 0 10' 20'
SCALE: 1"=10'

McCormick Taylor
Engineers & Planners Since 1946
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

PLAN AND PROFILE - BMPs 56 AND 63

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

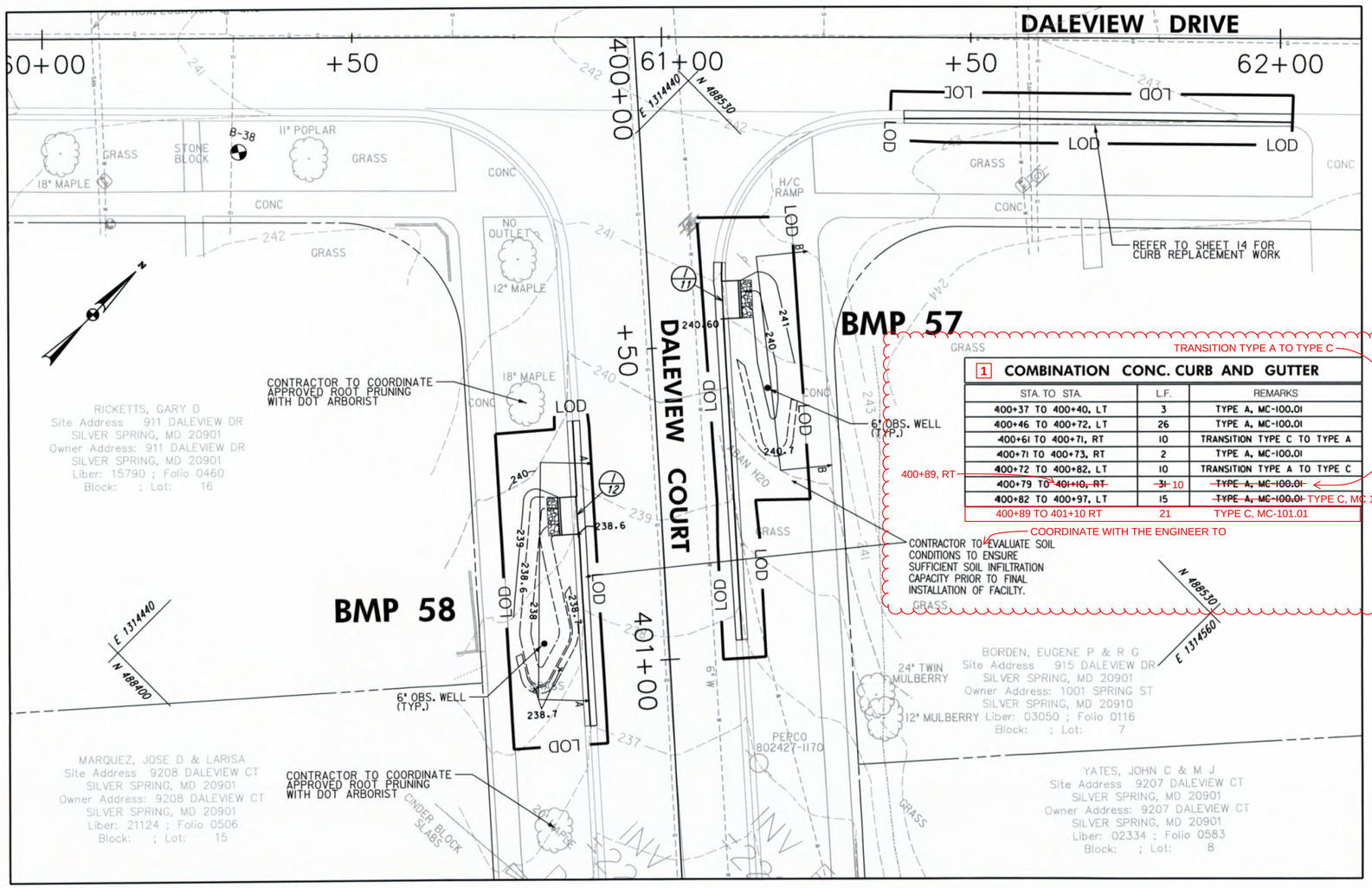
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	DRAFT	APPROVED	DATE	SCALE
KCS	WJW	HJD	JUNE 12'	1"=10'

SHEET 12 OF 21

FILE: I:\5182\13-roadway ltd – forest sotrds a and he tour comers area\design\engineering\plan\earth_2x2xRD-P006_FK2.dgn
PLOTTED: Wednesday, November 20, 2013 At 09:38 AM



STA. TO STA.	L.F.	REMARKS
400+37 TO 400+40, LT	3	TYPE A, MC-100.01
400+46 TO 400+72, LT	26	TYPE A, MC-100.01
400+61 TO 400+71, RT	10	TRANSITION TYPE C TO TYPE A
400+71 TO 400+73, RT	2	TYPE A, MC-100.01
400+72 TO 400+82, LT	10	TRANSITION TYPE A TO TYPE C
400+79 TO 401+10, RT	~~31~~ 10	~~TYPE A, MC-100.01~~
400+82 TO 400+97, LT	15	~~TYPE A, MC-100.01~~ TYPE C, MC-101.01
400+89 TO 401+10 RT	21	TYPE C, MC-101.01

AS-BUILT DATA FOR FILTERS (BIORETENTION/RAIN GARDENS)

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: RAIN GARDEN BMP ID: 57

FEATURE	DESIGN	*AS-BUILT
DRAINAGE AREA (AC)	0.85	
TOTAL IMPERVIOUS AREA (AC)	0.45	
TREATMENT VOLUME PROVIDED (CF)	171	
TARGET WQv TREATMENT VOLUME (CF)	1,624	
FILTER BED AREA (SF) [1]	48	
FILTER BED SURFACE ELEVATION	240.00	
DESIGN POINT/MAX. PONDING ELEVATION	240.60	
PONDED WATER SURFACE ELEVATION AREA (SF) [2]	142	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	N/A	
THICKNESS OF FILTER MEDIA	REFER TO PROFILE	
PLACEMENT OF GEOTEXTILE (SIDES ONLY)	REFER TO FACILITY TYP. SECTION – SHEET 5	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION OF FILTER MEDIA	REFER TO SPECS – SHEET 19	

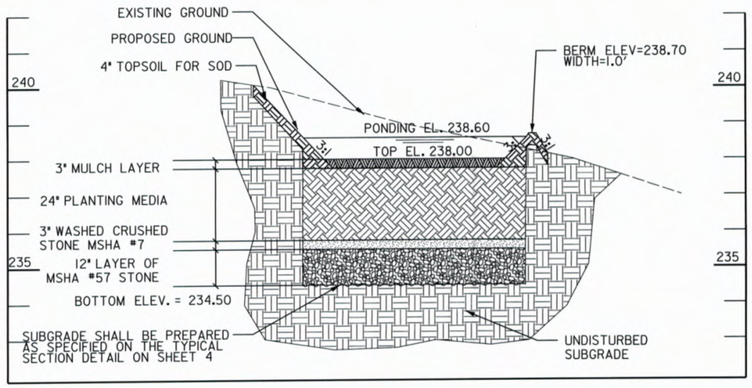
*NOTES:
1. "FILTER BED AREA (SF)" REPRESENTS THE EXPOSED SURFACE AREA AT THE PROPOSED "FILTER BED SURFACE ELEVATION".
2. FOR MATERIAL QUANTITY ESTIMATIONS, THE PLANTING MEDIA, STONE, MULCH, ETC. SHOULD BE BASED ON THE AREA OF "PONDED WATER SURFACE ELEVATION AREA (SF)".
3. CONTRACTOR SHALL TEST PIT UTILITIES PRIOR TO CONSTRUCTION. IF UTILITY IS UNAVOIDABLE, CONTRACTOR SHALL REFER TO SHEET 4 FOR UTILITY CROSSING DETAIL WITHIN THE FACILITY.

AS-BUILT DATA FOR FILTERS (BIORETENTION/RAIN GARDENS)

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

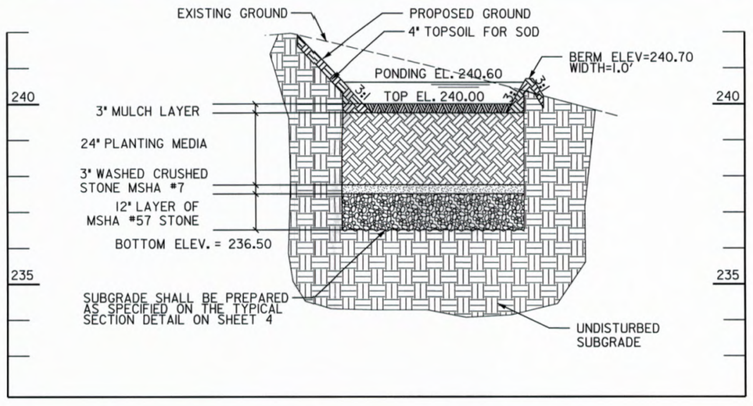
TYPE OF FACILITY: RAIN GARDEN BMP ID: 58

FEATURE	DESIGN	*AS-BUILT
DRAINAGE AREA (AC)	0.082	
TOTAL IMPERVIOUS AREA (AC)	0.035	
TREATMENT VOLUME PROVIDED (CF)	204	
TARGET WQv TREATMENT VOLUME (CF)	129	
FILTER BED AREA (SF) [1]	61	
FILTER BED SURFACE ELEVATION	238.00	
DESIGN POINT/MAX. PONDING ELEVATION	238.60	
PONDED WATER SURFACE ELEVATION AREA (SF) [2]	169	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	N/A	
THICKNESS OF FILTER MEDIA	REFER TO PROFILE	
PLACEMENT OF GEOTEXTILE (SIDES ONLY)	REFER TO FACILITY TYP. SECTION – SHEET 5	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION OF FILTER MEDIA	REFER TO SPECS – SHEET 19	



PROFILE A-A - RAIN GARDEN FACILITY (BMP 58)

SCALE: HORIZ. 1"=10'
VERT. 1"=2'



PROFILE B-B - RAIN GARDEN FACILITY (BMP 57)

SCALE: HORIZ. 1"=10'
VERT. 1"=2'

DRAINAGE STRUCTURE SCHEDULE

NO.	STATION / OFFSET	TC/TG	INV. OUT	REMARKS
I-11	400+42.9, 11.9' LT	241.10	239.52	MODIFIED CURB INLET
OW-570	400+57.4, 18.3' LT	-	-	OBSERVATION WELL
I-12	400+76.0, 13.6' RT	239.10	237.52	MODIFIED CURB INLET
OW-580	400+96.3, 20.2' RT	-	-	OBSERVATION WELL

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PLAN AND PROFILE - BMP s 57 AND 58

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

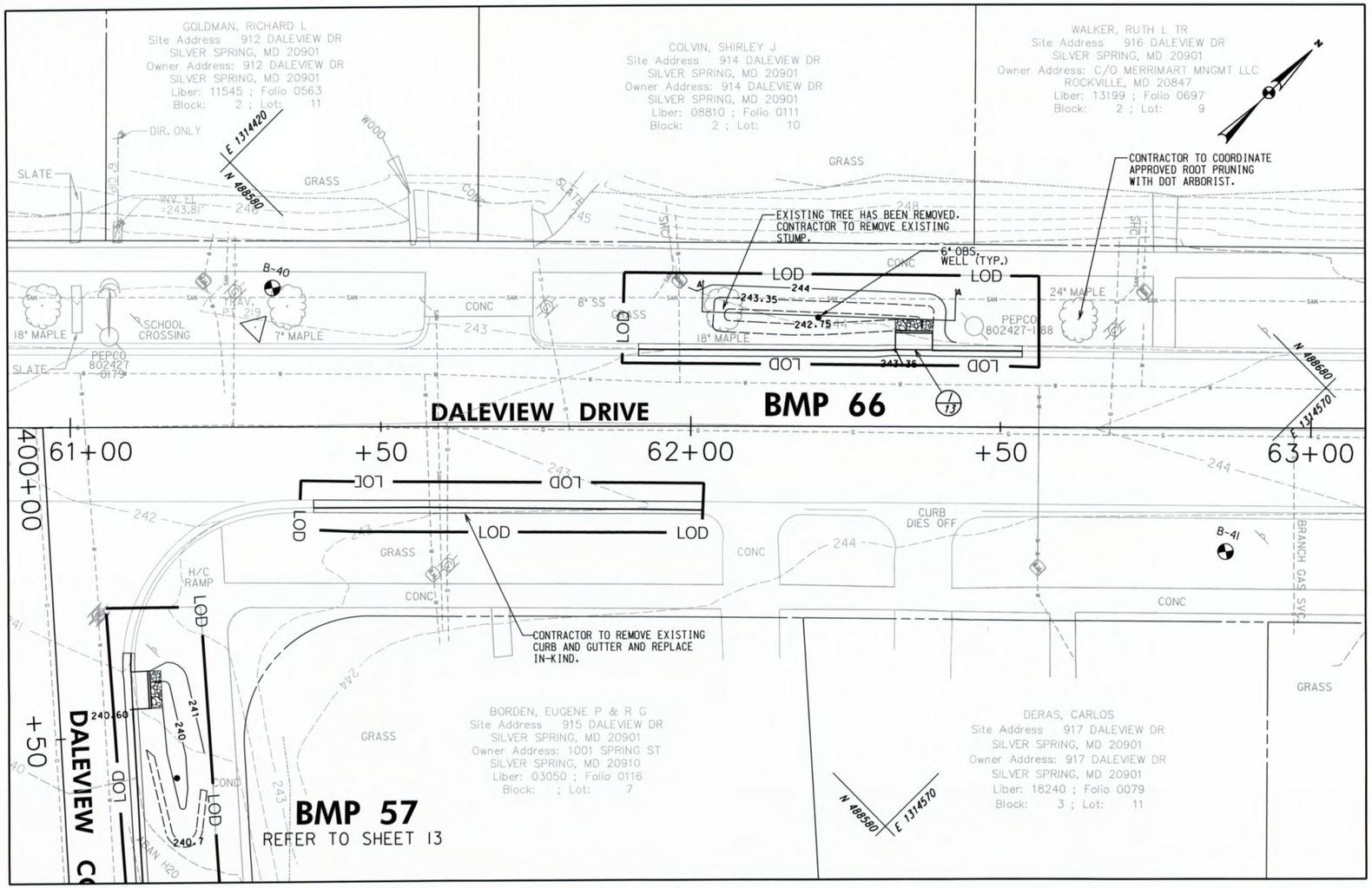
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF
ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS	APPROVED	HJD	SCALE	1"=10'
DRAFT	WJW	DATE	JUNE 12'		

SHEET 13 OF 21

FILE: 130212f13 - roadway.tpl - format update only for Bluebeam
PLOTTED: Wednesday, November 20, 2013 AT 09:28 AM



AS-BUILT DATA FOR FILTERS (BIORETENTION/RAIN GARDENS)

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: RAIN GARDEN — BMP ID: 66

FEATURE	DESIGN	*AS-BUILT
DRAINAGE AREA (AC)	0.85	
TOTAL IMPERVIOUS AREA (AC)	0.34	
TREATMENT VOLUME PROVIDED (CF)	210	
TARGET WQv TREATMENT VOLUME (CF)	1,265	
FILTER BED AREA (SF) [1]	51	
FILTER BED SURFACE ELEVATION	242.75	
DESIGN POINT/MAX. PONDING ELEVATION	243.35	
PONDED WATER SURFACE ELEVATION AREA (SF) [2]	177	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	N/A	
THICKNESS OF FILTER MEDIA	REFER TO PROFILE	
PLACEMENT OF GEOTEXTILE (SIDES ONLY)	REFER TO FACILITY TYP. SECTION – SHEET 5	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION OF FILTER MEDIA	REFER TO SPECS – SHEET 19	

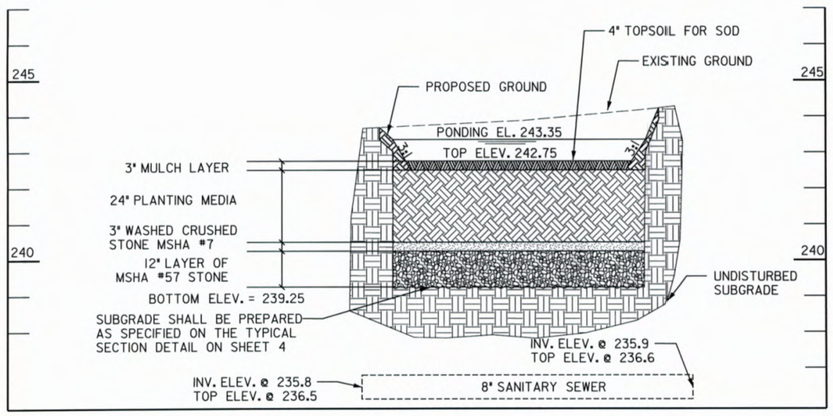
*NOTES:
1. "FILTER BED AREA (SF)" REPRESENTS THE EXPOSED SURFACE AREA AT THE PROPOSED "FILTER BED SURFACE ELEVATION".
2. FOR MATERIAL QUANTITY ESTIMATIONS, THE PLANTING MEDIA, STONE, MULCH, ETC. SHOULD BE BASED ON THE AREA OF "PONDED WATER SURFACE ELEVATION AREA (SF)".
3. CONTRACTOR SHALL TEST PIT UTILITIES PRIOR TO CONSTRUCTION. IF UTILITY IS UNAVOIDABLE, CONTRACTOR SHALL REFER TO SHEET 4 FOR UTILITY CROSSING DETAIL WITHIN THE FACILITY.

DRAINAGE STRUCTURE SCHEDULE

NO.	STATION / OFFSET	TC/TG	INV. OUT	REMARKS
OW-660	62+20.5, 17' LT	-	-	OBSERVATION WELL
I-13	62+36.0, 12' LT	243.85	242.27	MODIFIED CURB INLET

COMBINATION CONC. CURB AND GUTTER

STA. TO STA.	L.F.	REMARKS
61+39 TO 61+49, RT	10	TRANSITION TYPE A TO TYPE C
61+49 TO 62+02, RT	53	TYPE C, MC.101.01
61+92 TO 62+02, LT	10	TRANSITION TYPE C TO TYPE A
62+02 TO 62+33, LT	31	TYPE A, MC-100.01
62+39 TO 62+42, LT	3	TYPE A, MC-100.01
62+42 TO 62+53, LT	11	TRANSITION TYPE A TO TYPE C



PROFILE A-A - RAIN GARDEN FACILITY (BMP 66)
SCALE: HORIZ. 1"=10'
VERT. 1"=2'

DPS PERMIT NO. 296228

MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF PERMITTING SERVICES
FINAL APPROVAL
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BY

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McCormick Taylor
Engineers & Planners Since 1946
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

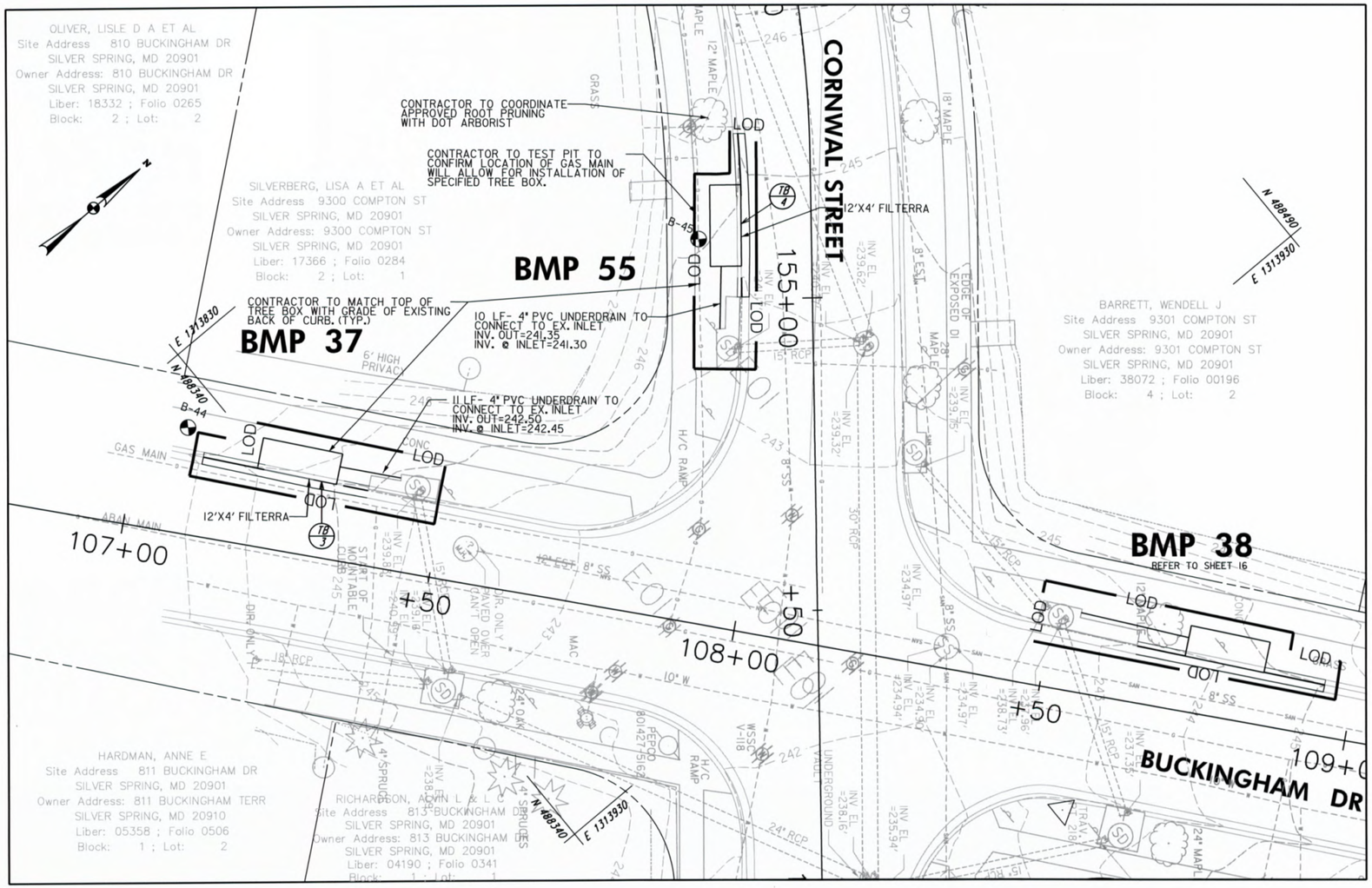
PLAN AND PROFILE - BMP 66
FRANKLIN KNOLLS-PHASE 2
SLIGO (13th) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF
ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS
DRAFT	WJW
APPROVED	HJD
DATE	JUNE 12'
SCALE	1"=10'

SHEET 14 OF 21

FILE: I:\515\13 - roadway &t - &mail addies and the four corners area\design\engineering\planesht\fk_p2\p-HD-P066_FK2.dgn
PLOTTED: Wednesday, November 20, 2013 AT 09:38 AM



AS-BUILT DATA FOR TREE BOX FILTERS/FILTERRA SYSTEM

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

BMP ID: 37

FEATURE	DESIGN	**AS-BUILT
DRAINAGE AREA (AC)	0.95	
TOTAL IMPERVIOUS AREA (AC)	0.40	
FILTER BOX DIMENSIONS (L x W)	12' x 4'	
TOP OF STRUCTURE ELEVATION	246.00	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	4" / 242.50	
THICKNESS OF FILTER MEDIA	REFER TO FACILITY TYP. SECTION – SHEET 6	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION & DEPTH OF FILTER MEDIA	REFER TO MANUFACTURER SPECIFICATIONS	

AS-BUILT DATA FOR TREE BOX FILTERS/FILTERRA SYSTEM

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

BMP ID: 55

FEATURE	DESIGN	**AS-BUILT
DRAINAGE AREA (AC)	0.87	
TOTAL IMPERVIOUS AREA (AC)	0.25	
FILTER BOX DIMENSIONS (L x W)	12' x 4'	
TOP OF STRUCTURE ELEVATION	244.85	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	4" / 241.35	
THICKNESS OF FILTER MEDIA	REFER TO FACILITY TYP. SECTION – SHEET 6	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION & DEPTH OF FILTER MEDIA	REFER TO MANUFACTURER SPECIFICATIONS	

DRAINAGE STRUCTURE SCHEDULE

NO.	STATION / OFFSET	TC/TG	INV. OUT	REMARKS
TB-3	107+27.4, 12' LT	246.00	242.50	TREE BOX/FILTERRA
TB-4	154+90.2, 11' RT	244.85	241.35	TREE BOX/FILTERRA

PIPE SCHEDULE

FROM	TO	SIZE (IN.)	TYPE	LENGTH (L.F.)
107+33.5	107+43.5	4	PVC	11
154+95.9	155+05.4,	4	PVC	10

COMBINATION CONC. CURB AND GUTTER

STA. TO STA.	L.F.	REMARKS
107+11 TO 107+21, LT	10	TRANSITION TYPE C TO TYPE A
107+34 TO 107+38, LT	4	TYPE A, MC-100.01
108+64 TO 108+72, LT	8	TYPE A, MC-100.01
108+85 TO 108+95, LT	10	TRANSITION TYPE A TO TYPE C
154+73 TO 154+84, RT	10	TRANSITION TYPE C TO TYPE A
154+97 TO 155+00, RT	3	TYPE A, MC-100.01

DPS PERMIT NO. 296228 - 8

MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF PERMITTING SERVICES
FINAL APPROVAL
DATE 12/6/2013
BY

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SCALE: 1"=10'

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PLAN AND PROFILE - BMPs 37 AND 55

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

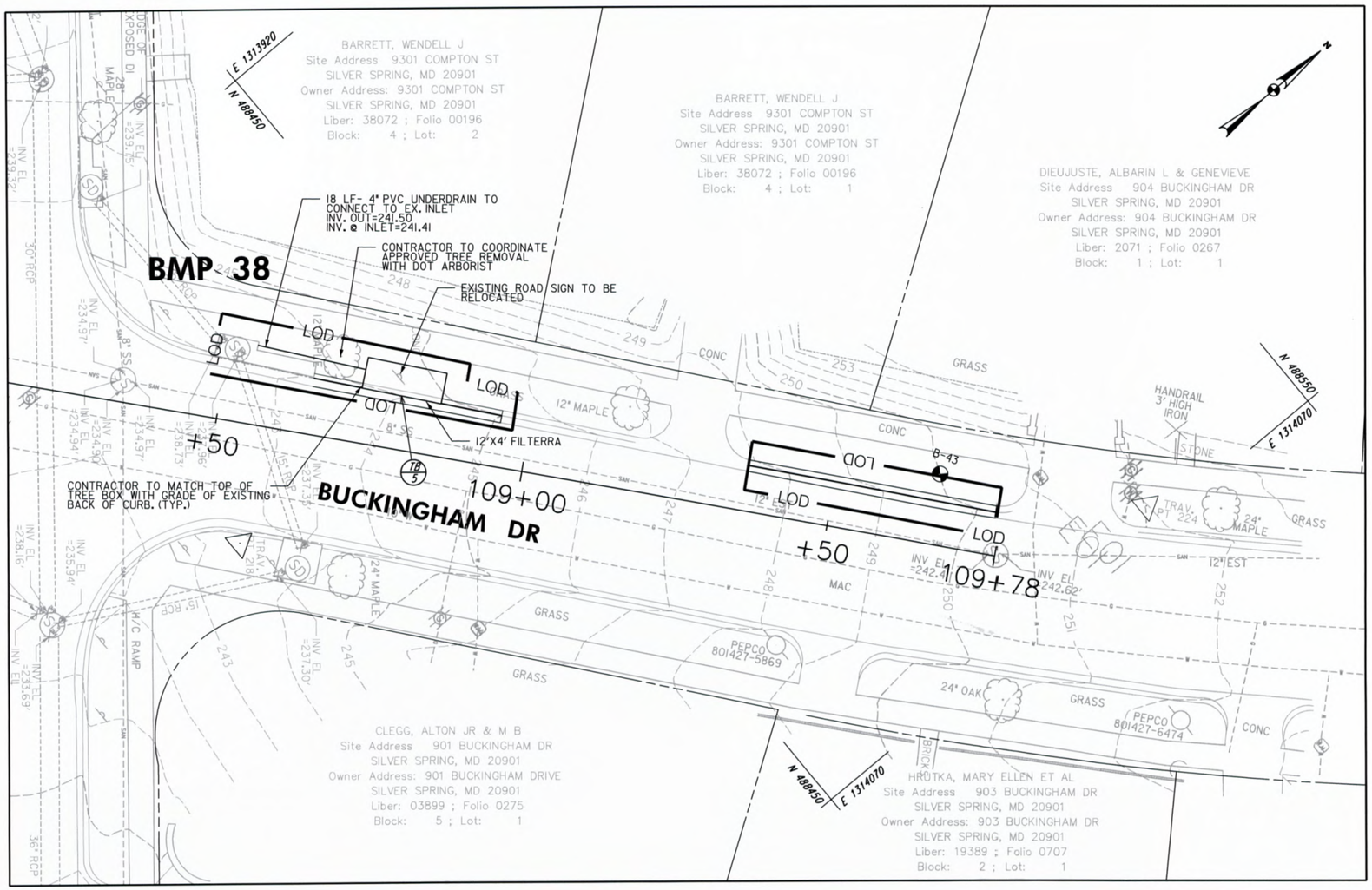
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF
ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS	DATE	JUNE 12'
DRAFT	WJW	SCALE	1"=10'
APPROVED	HJD		

SHEET 15 OF 21

F:\E-15\15213 roadway for - forest estates and the four corners area\design\engineering\plansheets p2\pH2-P009_PH2.dgn
PLOTTED: Wednesday, November 20, 2013 AT 09:38 AM



AS-BUILT DATA FOR TREE BOX FILTERS/FILTERRA SYSTEM

*TO BE COMPLETED BY THE CERTIFYING ENGINEER

BMP ID: 38

FEATURE	DESIGN	**AS-BUILT
DRAINAGE AREA (AC)	2.03	
TOTAL IMPERVIOUS AREA (AC)	0.63	
FILTER BOX DIMENSIONS (L x W)	12' x 4'	
TOP OF STRUCTURE ELEVATION	244.50	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	4" / 241.50	
THICKNESS OF FILTER MEDIA	REFER TO FACILITY TYP. SECTION – SHEET 6	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION & DEPTH OF FILTER MEDIA	REFER TO MANUFACTURER SPECIFICATIONS	

DRAINAGE STRUCTURE SCHEDULE

NO.	STATION / OFFSET	TC/TG	INV. OUT	REMARKS
TB-5	108+78.8, 9' LT	244.50	241.50	TREE BOX/FILTERRA

PIPE SCHEDULE

FROM	TO	SIZE (IN.)	TYPE	LENGTH (L.F.)
108+54.6	108+72.4	4	PVC	18

COMBINATION CONC. CURB AND GUTTER

STA. TO STA.	L.F.	REMARKS
108+64 TO 108+72, LT	8	TYPE C, MC-101.01
108+85 TO 108+95, LT	10	TRANSITION TYPE A TO TYPE C
109+36 TO 109+77, LT	41	TYPE C, MC-101.01

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DATE 12/6/2013
BY

•SUBJECT TO DEDICATION OF RIGHT OF WAY AND EASEMENTS PER COUNTY CODE SECTION 50.

10' 0 10' 20'
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McCormick Taylor
Engineers & Planners Since 1946
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Baltimore, Maryland 21202
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PLAN AND PROFILE - BMP 38

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

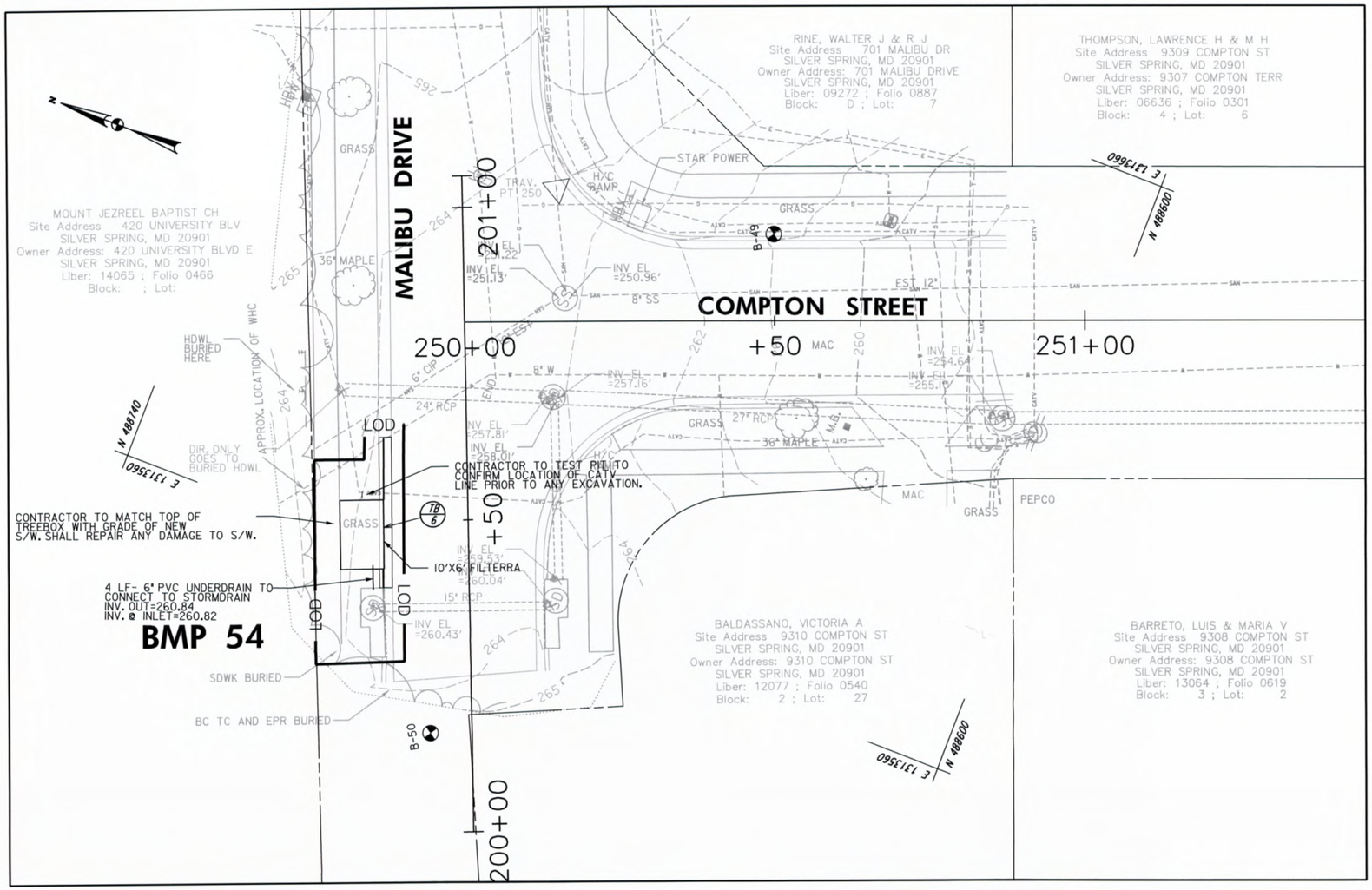
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS
DRAFT	WJW
APPROVED	HJD
DATE	JUNE 12
SCALE	1"=10'

SHEET 16 OF 21

F:\E\ 15162\13 - roadway list – forest estates and the four corners area\design\engineering\plans\civil\fk p2\pH\D-P010_FK2.dgn
PLOTTED: Wednesday, November 20, 2013 AT 09:38 AM



AS-BUILT DATA FOR TREE BOX FILTERS/FILTERRA SYSTEM *TO BE COMPLETED BY THE CERTIFYING ENGINEER		
BMP ID: 54		
FEATURE	DESIGN	**AS-BUILT
DRAINAGE AREA (AC)	1.55	
TOTAL IMPERVIOUS AREA (AC)	0.40	
FILTER BOX DIMENSIONS (L x W)	10' X 6'	
TOP OF STRUCTURE ELEVATION	263.84	
OUTLET PIPE (UNDERDRAIN) SIZE / INVERT ELEV.	6"/260.84	
THICKNESS OF FILTER MEDIA	REFER TO FACILITY TYP. SECTION – SHEET 6	
PLANTINGS	REFER TO LANDSCAPE PLAN – SHEET 21	
COMPOSITION & DEPTH OF FILTER MEDIA	REFER TO MANUFACTURER SPECIFICATIONS	

DRAINAGE STRUCTURE SCHEDULE

NO.	STATION / OFFSET	TC/TG	INV. OUT	REMARKS
TB-6	200+48.1, 14' LT	263.84	260.84	TREE BOX/FILTERRA

PIPE SCHEDULE

FROM	TO	SIZE (IN.)	TYPE	LENGTH (L.F.)
200+39.1	200+43.2	6	PVC	4

COMBINATION CONC. CURB AND GUTTER

STA. TO STA.	L.F.	REMARKS
200+39 TO 200+42, LT	3	TYPE A, MC-100.01
200+53 TO 200+63, LT	10	TRANSITION TYPE A TO TYPE C

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DEPARTMENT OF PERMITTING SERVICES
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BY Stig Parjohni

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PLAN AND PROFILE - BMP 54
FRANKLIN KNOLLS-PHASE 2
SLIGO (13th) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF
ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS
DRAFT	WJW
APPROVED	HJD
DATE	JUNE 12
SCALE	1"=10'

SHEET 17 OF 21

FILE: I:\612\13 - roadway ltd – forest estates and the four corners area\design\engineering\plans\mfc p2p54-P01_PK2.dgn
PLOTTED: Wednesday, November 20, 2013 At 09:36 AM

MONTGOMERY COUNTY GOVERNMENT
STANDARD EROSION AND SEDIMENT CONTROL NOTES (REV. August 2008)

1. The permittee shall notify the Department of Permitting Services (DPS) forty–eight (48) hours before commencing any land disturbing activity and, unless waived by the Department, shall be required to hold a pre–construction meeting between them or their representative, their engineer and an authorized representative of the Department.

2. The permittee must obtain inspection and approval by DPS at the following points:
A. At the required pre–construction meeting.
B. Following installation of sediment control measures and prior to any other land disturbing activity.
C. During the installation of a sediment basin or stormwater management structure at the required inspection points (see Inspection Checklist on plan). Notification prior to commencing construction is mandatory.
D. Prior to removal or modification of any sediment control structure(s).
E. Prior to final acceptance.

3. The permittee shall construct all erosion and sediment control measures per the approved plan and construction sequence, shall have them inspected and approved by the Department prior to beginning any other land disturbances, shall ensure that all runoff from disturbed areas is directed to the sediment control devices, and shall not remove any erosion or sediment control measure without prior permission from the Department.

4. The permittee shall protect all points of construction ingress and egress to prevent the deposition of materials onto traversed public thoroughfare(s). All materials deposited onto public thoroughfare(s) shall be removed immediately.

5. The permittee shall inspect periodically and maintain continuously in effective operating condition, all erosion and sediment control measures until such time as they are removed with prior permission from the Department. The permittee is responsible for immediately repairing or replacing any sediment control measures which have been damaged or removed by the permittee or any other person.

6. Following initial soil disturbance or re–disturbance, permanent or temporary stabilization must be completed within:
a) Three (3) calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter slopes and all slopes steeper than 3 horizontal to 1 vertical (3:1); and
b) Seven (7) calendar days as to all other disturbed or graded areas on the project site not under active grading.All areas disturbed outside of the perimeter sediment control system must be minimized and stabilized immediately. Maintenance must be performed as necessary to ensure continued stabilization.

7.The permittee shall apply sod, seed, and anchored straw mulch, or other approved stabilization measures to all disturbed areas within seven (7) calendar days after stripping and grading activities have ceased on that area. Maintenance shall be performed as necessary to ensure continued stabilization. Active construction areas such as borrow or stockpile areas, roadway improvements, and areas within fifty (50) feet of a building under construction may be exempt from this requirement, provided that erosion and sediment control measures are installed and maintained to protect those areas.

8. Prior to removal of sediment control measures, the permittee shall stabilize all contributory disturbed areas with required soil amendments and topsoil, using sod or an approved permanent seed mixture and an approved anchored mulch. Wood fiber mulch may only be used in seeding season when the slope does not exceed 10% and grading has been done to promote sheet flow drainage. Areas brought to finished grade during the seeding season shall be permanently stabilized within seven (7) calendar days of establishment. When property is brought to finished grade during the months of November through February, and permanent stabilization is found to be impractical, an approved temporary seed and straw anchored mulch shall be applied to disturbed areas. The final permanent stabilization of such property shall be completed prior to the following April 15.

9. The site permit, work, materials, approved SC/SM plans, and test reports shall be available at the site for inspection by duly authorized officials of Montgomery County.

10. Surface drainage flows over unstabilized cut and fill slopes shall be controlled by either preventing drainage flows from traversing the slopes or by installing mechanical devices to lower the water down slope without causing erosion. Dikes shall be installed and maintained at the top of cut or fill slopes until the slope and drainage area to it are fully stabilized, at which time they must be removed and final grading done to promote sheet flow drainage. Mechanical devices must be provided at points of concentrated flow where erosion is likely to occur.

11. Permanent swales or other points of concentrated water flow shall be stabilized within 3 calendar days of establishment with sod or seed with an approved erosion control matting or by other approved stabilization measures.

12. Sediment control devices shall be removed, with permission of the Department, within thirty (30) calendar days following establishment of permanent stabilization in all contributory drainage areas. Stormwater management structures used temporarily for sediment control shall be converted to the permanent configuration within this time period as well.

13. No permanent cut or fill slope with a gradient steeper than 3:1 will be permitted in lawn maintenance areas or on residential lots. A slope gradient of up to 2:1 will be permitted in non– maintenance areas provided that those areas are indicated on the erosion and sediment control plan with a low–maintenance ground cover specified for permanent stabilization. Slope gradient steeper than 2:1 will not be permitted with vegetative stabilization.

14. The permittee shall install a splashblock at the bottom of each downspout unless the downspout is connected by a drain line to an acceptable outlet.

15. For finished grading, the permittee shall provide adequate gradients so as to prevent water from standing on the surface of lawns more than twenty–four (24) hours after the end of a rainfall, except in designated drainage courses and swale flow areas, which may drain as long as forty–eight (48) hours after the end of a rainfall.

16. Sediment traps or basins are not permitted within 20 feet of a building which is existing or under construction. No building may be constructed within 20 feet of a sediment trap or basin.

17. All inlets in non–sump areas shall have asphalt berms installed at the time of base paving establishment.

18.The sediment control inspector has the option of requiring additional sediment control measures, as deemed necessary.

19. All trap elevations are relative to the outlet elevation, which must be on existing undisturbed ground.

20.Vegetative stabilization shall be performed in accordance with the Standards and Specifications for Soil Erosion and Sediment Control.

21.Sediment trap(s)/basin(s) shall be cleaned out and restored to the original dimensions when sediment has accumulated to the point of one–half (1/2) the wet storage depth of the trap/basin (1/4 the wet storage depth for ST–III) or when required by the sediment control inspector.

22.Sediment removed from traps/basins shall be placed and stabilized in approved areas, but not within a floodplain.

23. All sediment basins and traps must be surrounded with a welded wire safety fence. The fence must be at least 42 inches high, have posts spaced no farther apart than 8 feet, have mesh openings no greater the two inches in width and four inches in height, with a minimum of 14 gauge wire. Safety fence must be maintained in good condition at all times.

24. No excavation in the areas of existing utilities is permitted unless their location has been determined. Call "Miss Utility" at 1–800–257–7777, 48 hours prior to the start of work.

25.Off–site spoil or borrow areas must have prior approval by DPS.

26.Sediment trap/basin dewatering for cleanout or repair may only be done with the DPS inspector's permission. The inspector must approve the dewatering method for each application. The following methods may be considered:

A. Pump discharge may be directed to another on–site sediment trap or basin, provided it is of sufficient volume and the pump intake is floated to prevent agitation or suction of deposited sediments; or

B. The pump intake may utilize a Removable Pumping Station and must discharge into an undisturbed area through a non–erosive outlet; or

C. The pump intake may be floated and discharge into a Dirt Bag (12 oz. non–woven fabric), or approved equivalent, located in an undisturbed buffer area.

Remember: Dewatering operation and method must have prior approval by the DPS inspector.

27. The permittee must notify the Department of all utility construction activities within the permitted limits of disturbance prior to the commencement of those activities.

28. Topsoil must be applied to all pervious areas within the limits of disturbance prior to permanent stabilization in accordance with MDE *Standards and Specifications for Soil Preparation, Topsoiling, and Soil Amendments*.

TEMPORARY SEEDING SPECIFICATIONS

1. TEMPORARY SEEDING: SHALL BE DONE BETWEEN MARCH 1 – MAY 15 AND AUGUST 15 – OCTOBER 15. ALL OTHER DISTURBED AREAS REQUIRING STABILIZATION NOT WITHIN THE SEEDING DATES SHALL BE MULCHED.

2. ALL TEMPORARY SEEDED AREAS SHALL BE MULCHED IMMEDIATELY AFTER SEEDING. MULCH MATERIALS SHOULD BE UNWEATHERED, UNCHOPPED, SMALL GRAIN STRAW SPREAD AT A RATE OF 2 TONS PER ACRE. THE MULCH SHALL BE ANCHORED IMMEDIATELY AFTER PLACEMENT WITH ASPHALT, PEG AND TWINE, PLASTIC NETTINGS OR BY A MULCH ANCHORING TOOL.

3. LIME AND FERTILIZER SHALL BE REQUIRED FOR TEMPORARY SEEDING IN ACCORDANCE WITH THE FOLLOWING PROCEDURES:
   1. PULVERIZED DOLOMITIC LIMESTONE IS TO BE APPLIED AT THE RATE OF 100 LBS. PER 1,000 SQ. FT.
   2. FERTILIZER SHALL BE 10–10–10 OR EQUIVALENT AND APPLIED AT THE RATE OF 15 LBS. PER 1,000 SQ. FT.

PERMANENT SEEDING AND SODDING SPECIFICATIONS

1. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED.

2. SOIL PREPARATION: WEEDS AND UNDESIRABLE GRASSES GROWING ON EXISTING GRADE THAT IS TO BE SEEDED AND/OR SODDED MUST BE CUT AND REMOVED BEFORE SOIL PREPARATION BEGINS. BEFORE SEEDING OR SODDING ALL SOILS SHALL BE LOOSENED BY MEANS OF FILLING AND/OR DISCING. ALL TRASH, DEBRIS, ROOTS, BRUSH, WIRE, ROCKS, STONE AND OTHER FOREIGN DEBRIS OVER ONE INCH IN DIAMETER SHALL BE REMOVED PRIOR TO SEEDING AND/OR SODDING, TO A DEPTH OF FOUR (4) INCHES.

3. TOPSOIL: THE MINIMUM ORGANIC CONTENT IN THE MSHA SPECIFICATION REFERENCED SHALL BE INCREASED TO 10%. ORGANIC MATTER SHALL BE ADDED USING COMPOST MATERIAL MEETING THE STANDARD REQUIREMENTS IN THE SPECS.

4. SEEDED PREPARATION: THE TOP LAYER OF SOIL SHALL BE LOOSENED BY DISCLING OR RAKING (SHALL BE DONE ON CONTOUR) AT A DEPTH OF AT LEAST 3", BEFORE SEEDING OCCURS. APPLY 100LBS PER 1,000 SQ.FT. OF LIME AND 15 LB. PER 1,000 SQ.FT. OF 10–10–10 FERTILIZER OR EQUIVALENT. THOROUGHLY MIX INTO SOIL TO A MINIMUM OF 3".

5. SEEDING: USE 40% KENTUCKY BLUEGRASS, 10% ANNUAL RYE AND 25% RED FESCUE AT THE RATE OF 250 LB. PER ACRE.

6. MULCHING: USE CLEAN, UNWEATHERED, UNCHOPPING SMALL GRAIN STRAW AT THE RATE OF 1.5 TO 2 TONS PER ACRE ANCHORED DOWN WITH CUTBACK ASPHALT AT THE RATE OF 5–8 GALLONS PER 1000 SQ. FT.

7. DISCING AND HARROWING SHALL BE DONE ON CONTOUR.

8. SOD SHALL BE STATE APPROVED SOD INSPECTED AND APPROVED BY MD. DEPT. OF AGRICULTURE. ALL SOD SHALL BE LAID ON SITE NO MORE THAN 36 HOURS AFTER HARVEST, AND SHALL BE A MIXTURE OF 60% (MIN.) TALL FESCUE AND 40% (MIN.) KENTUCKY BLUEGRASS.

9. SOD PEGS OR STAKES BE UNTREATED WOOD PEGS DRIVEN THROUGH, AND FLUSH WITH SOD. ALL SLOPES WITH A GRADE 3 TO 1 OR STEEPER SHALL BE PEGGED AT A MINIMUM OF 4 PEGS PER SQUARE YARD OF SOD.

10.SODDING, SEEDING AND MULCHING MAY BE DONE IMMEDIATELY AFTER FINAL GRADING, PROVIDED THAT THE BED HAS REMAINED IN GOOD, FRIABLE CONDITION AND HAS NOT BECOME MUDDY OR HARD. IF IT HAS BECOME HARD, IT SHALL BE FILLED TO FRIABLE CONDITION AGAIN.

11.SEED SHALL BE WORKED INTO THE TOP 3" OF SOIL BY MEANS OF RAKING, WIRE DRAG OR OTHER APPROVED EQUIPMENT. DURING PERIODS OF HIGH TEMPERATURE AND/OR DROUGHT. THE SOIL SHALL BE WATERED IMMEDIATELY PRIOR TO LAYING THE SOD. ALL SOD SHALL BE LAID AT RIGHT ANGLES TO SLOPES. NO SOD SHALL BE APPLIED TO FROZEN GROUND AND NO FROZEN SOD IS TO BE LAID. WATERING SHALL COMMENCE IMMEDIATELY DURING OR AFTER THE LAYING OPERATION, AND SHALL BE SUFFICIENT TO THOROUGHLY WET THE SOD ROOTS AND THE SOIL BELOW.

12.PERMANENT SEEDING: SHALL BE DONE MARCH 1 – MAY 15 AND AUGUST 15 – OCTOBER 15. IRRIGATION FOR PERMANENT SEEDING SHALL BE DONE BETWEEN MAY 15 AND AUGUST 14.

13.SEDIMENT CONTROL DEVICES (DITCHES, DIKES, TRAIPS, ETC.) ARE TO REMAIN IN PLACE UNTIL CONTRIBUTING WATERSHED HAS BEEN STABILIZED. MAINTENANCE TO SEDIMENT CONTROL DEVICES DURING THE UNDER GOING GRADING, CONSTRUCTION AND DEVELOPMENT SHOULD BE DONE AS NECESSARY. REMOVAL OF THESE DEVICES SHALL BE WITH THE APPROVAL OF THE MONTGOMERY COUNTY SEDIMENT CONTROL INSPECTOR.

STANDARDS AND SPECIFICATIONS
FOR TOPSOIL

DEFINITION
PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES
THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES.

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.

TOPSOIL SPECIFICATIONS – SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

1. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY DPS. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS, AND SHALL CONTAIN LESS THAN 1 % BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2 " IN DIAMETER. THE SUBSOIL SHALL BE TILLED TO A MINIMUM DEPTH OF 6 INCHES BEFORE PLACEMENT OF TOPSOIL.

CONSTRUCTION AND MATERIAL SPECIFICATIONS
WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4–8 TONS/ACRE (200–400 LBS PER 1000 SQ FT) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL.

TOPSOIL SHALL BE TESTED AND AMENDED AS PER SOIL TEST RECOMMENDATIONS.

TOPSOIL APPLICATION.

1. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES.
2. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4–8 INCH LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4 INCHES. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
3. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL 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.

EARTH FILL FOR FACILITY EMBANKMENTS

MATERIAL
THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN SIX INCHES, FROZEN OR OTHER OBJECTIONABLE MATERIALS. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER AND APPROVED BY MCDPS.

PLACEMENT
AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM EIGHT INCH HEIGHT (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. PIPES OR UNDERDRAINS MUST BE INSTALLED CONCURRENT WITH EMBANKMENT CONSTRUCTION TO AVOID EXCAVATION INTO THE COMPLETED EMBANKMENT AT A LATER TIME.

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 THE EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MIN. OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT SO WET THAT WATER CAN BE SQUEEZED OUT.

THE DENSITY OF EACH LIFT SHALL NOT BE LESS THAN 95% OF MAX. DRY DENSITY WITH A MOISTURE CONTENT WITHIN $\pm$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).

McCormick Taylor
Engineers & Planners Since 1946
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662–7400

EROSION AND SEDIMENT CONTROL NOTES
FRANKLIN KNOLLS-PHASE 2
SLIGO (13th) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF
ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN KCS
DRAFT WJW
APPROVED HJD
DATE JUNE 12'
SCALE

FILE: i:\5182\13 - roadway lid – forest estates and the four corners area\design\engineering\planset\fk p2\pES-N001_FK2.dgn
PLOTTED: Wednesday, November 20, 2013 AT 09:38 AM

DEPARTMENT OF PERMITTING SERVICES

Isiah Leggett
County Executive

Diane R Schwartz Jones
Director

SEDIMENT CONTROL PERMIT

Issue Date: 01/25/2010

Permit No: 236507
Expires: 01/25/2014
Ref. No:
ID: AC1087238

THIS IS TO CERTIFY THAT: MONTGOMERY COUNTY DEPT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE
SUITE 120
ROCKVILLE, MD 20850

HAS PERMISSION TO: DISTURB 0

PURPOSE: CONSTRUCTION

PERMIT CONDITIONS: BLANKET PERMIT FOR DEP ROADSIDE LID RETROFITS - ALL PROJECT SITE WILL INVOLVE LESS THAN 5,000 SQ FEET OF LOD -

PREMISE ADDRESS: VARIOUS LOCATIONS LID RETROFITS

The permittee must contact JOHN THRASHER Field Inspector at (301)370-3633 to obtain an inspection prior to:
1. Commencing land-disturbing activity;
2. Installing sediment-control basins or stormwater-management structures;
3. Removing sediment-control devices; and
4. Changing ownership of the permitted area.

LOT - BLOCK: -
ZONE:
ELECTION DISTRICT:
BOND NO.:
BOND TYPE:
PS NUMBER:
PERMIT FEE: $ 1,155.00
SUBDIVISION: FY2010 - GENL PERMIT ROW LID

Diane R. Schwartz Jones

Director, Department of Permitting Services

255 Rockville Pike, 2nd Floor · Rockville, MD 20850 · (240)777-0311 · (240)777-6256 TTY
www.montgomerycountymd.gov/permittingservices

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
John R. Griffin, Secretary
Joseph P. Gill, Deputy Secretary

ROADSIDE TREE PERMIT- BLANKET (RTB): 2013-0557

Name: Brett Linkletter, Montgomery County

Address: 100 Edison Park Dr, 4th Fl, Gaithersburg, MD. 20878

The applicant is a public agency: Yes

Applicant type: A governmental entity possessing an easement for the public road right-of-way in which the tree(s) are located

Specific crew identifier:

Is hereby granted a permit to perform tree care in the following counties:
MONTGOMERY

The proposed tree care will: Eliminate a hazard to property, public safety, or health

Described as follows:

PARTICULAR TYPES OF TREE CARE PERMITTED:

Tree Removal (Nat Res Art § 5-406), Tree Pruning (COMAR 08.07.02.07.A.), Tree clearance from overhead facilities (COMAR 08.07.02.07.B.), Tree Planting (COMAR 08.07.02.09), Ground disturbance (COMAR 08.07.02.07.C.), Protection of tree roots (COMAR 08.07.02.07.D.), Use of Pesticides (COMAR 08.07.02.08), 8991-55794

LIMITATIONS OR CONDITIONS ON THE TREE CARE OR PLANTING:

All work done under this permit shall be conducted according to the " 2013 Terms and Conditions".

EXCLUDING ANY TREE NOT WITHIN THE RIGHT-OF-WAY OF A PUBLIC HIGHWAY

Provided, that the work authorized by this permit shall not begin until the Forest Warden designated by the Director as his agent shall be present and give their sanction to the means employed, and that the work may be suspended by order of the Forest Warden upon any failure or refusal of the operators to perform it in accordance with the rules and regulations of the Department of Natural Resources - Forest Service.

This permit is granted under authority of the Annotated Code of Maryland, 1973, under Title 5, Subtitle 406, which places the care and protection of all trees growing within the right-of-way of any public road or between the curb and property lines of any street in any incorporated town in Maryland under the Department of Natural Resources - Forest Service. This permit, in no way cancels or contravenes the right of property owners to restrict or prevent the trimming or cutting of trees upon their own properties, except that trees covered by this permit may not be treated in any way other than as herein specified.

Authorized by: Wayne Merkel **Title:** Regional Forester **Date:** 03/26/2013

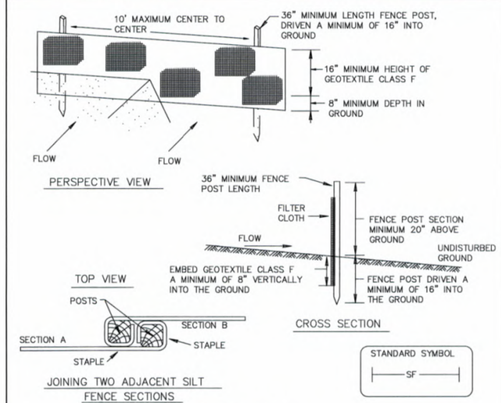
Address: 2 South Bond Street, Bel Air, MD. 21014

RTCE performing the work Brett Linkletter

THIS PERMIT IS AN ANNUAL PERMIT

Maryland Forest Service * Tawes State Office Building * 580 Taylor Avenue * Annapolis, Maryland 21401
410.260.8DNR or toll free in Maryland 877.620.8DNR * www.dnr.maryland.gov * TTY users call via Maryland Relay

DETAIL 22 - SILT FENCE



Construction Specifications

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

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

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

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

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

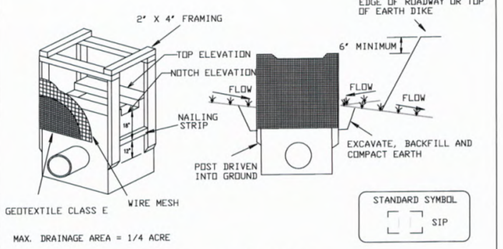
Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) 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 required.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3 & 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23A - STANDARD INLET PROTECTION



MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.

2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.

3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.

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

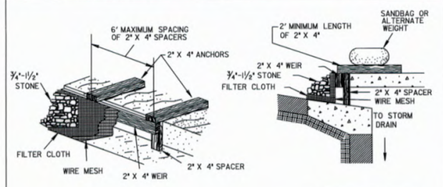
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.

6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.

7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 16 - 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23C-CURB INLET PROTECTION (COG OR COS INLETS)



MAX. DRAINAGE AREA = 1/4 ACRE

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.

2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.

3. Securely nail the 2" X 4" weir to a 9' long vertical spacer to be located between the weir and the inlet face (max. 4' apart).

4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.

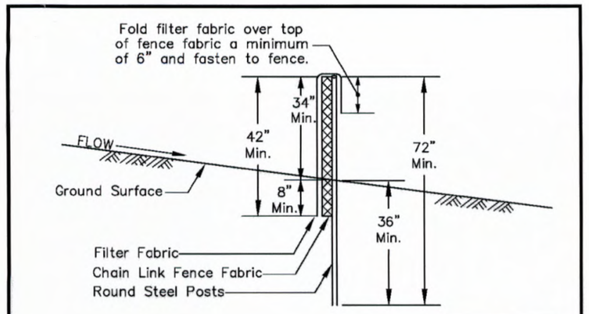
5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.

6. Form the 1/2" x 1/2" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4" x 1 1/2" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.

7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.

8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 16 - 5B	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



NOTES

1. Steel Posts must be Schedule 40 or 'SS-40', 2.5" diameter, galvanived pipe. Post Spacing must not exceed 10 linear feet. Posts do not need to be set in concrete.
2. Chain link fence fabric must be 2" x #9 gauge x 42" KK wire. Chainlink fence fabric must be stretched taut and securely fastened to posts with fence wire.
3. Filter fabric must be MSHA Class 'F' fabric. Filter fabric must be streched taut and securely fastened to chain link fence, front and back. Where two ends of filter cloth meet, they must be overlapped a minimum of 6", folded together and fastened.
4. Maintenance must be performed as needed and silt buildups removed when they reach an 18" depth above existing ground or when "bulges" develop in the silt fence.
5. All other details and specifications shall be in accordance with U.S.D.A.-S.C.S., M.D.E.-W.M.A. and M.S.H.A. specifications.

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES WATER RESOURCES	MODIFIED SUPER SILT FENCE	DATE: 6/03	
		SCALE: NONE	

STATE OF MARYLAND
KIMI C. SCHMITT
No. 31204
PROFESSIONAL ENGINEER

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 NO. 31204 , EXPIRATION DATE: 1 / 13 / 2015.

McCormick Taylor
Engineers & Planners Since 1946
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

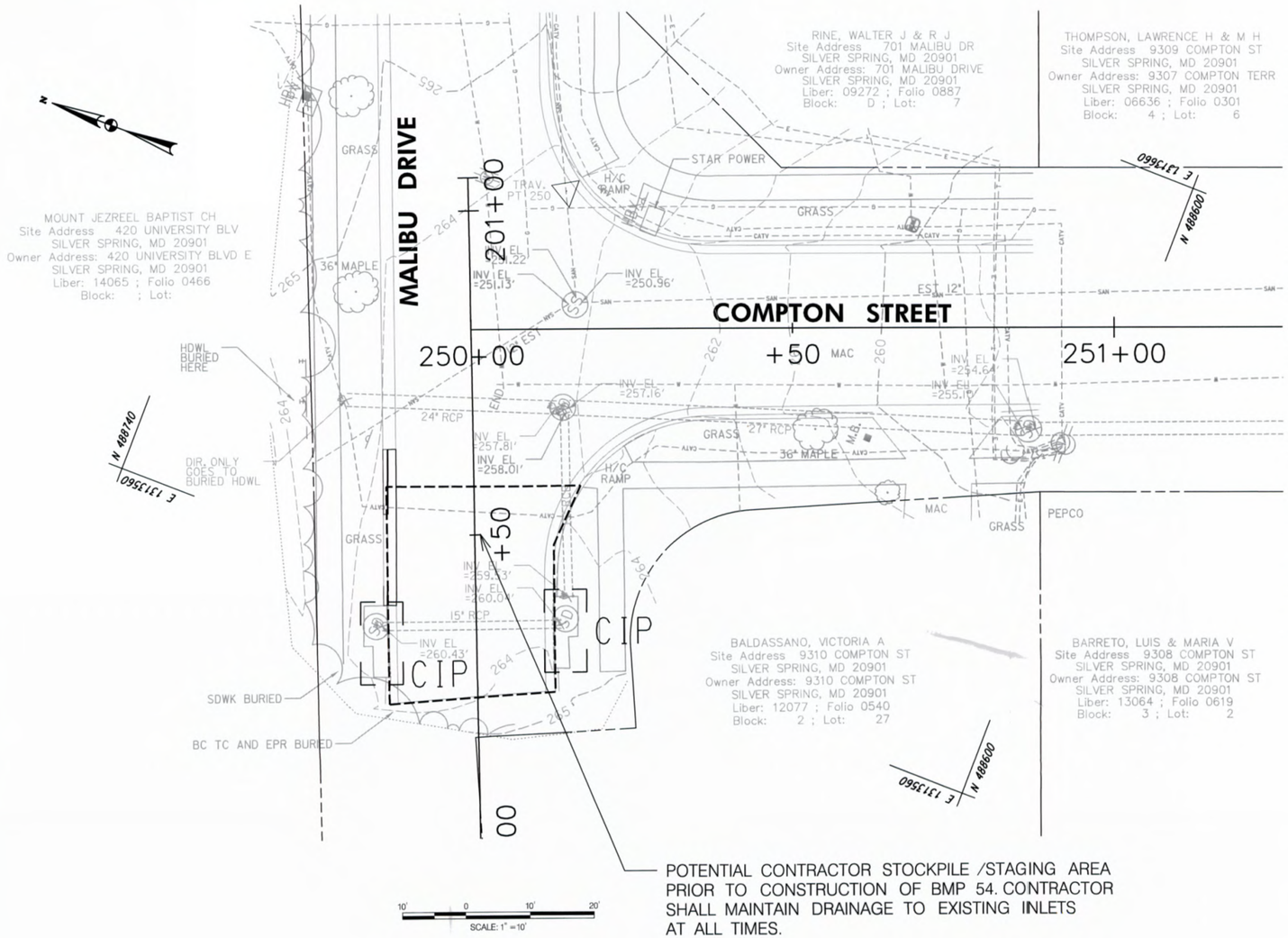
EROSION AND SEDIMENT CONTROL NOTES
FRANKLIN KNOLLS-PHASE 2
SLIGO (13th) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF
ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS	APPROVED	HJD	DATE	JUNE '12	SCALE	NOT TO SCALE
DRAFT	WJW						

SHEET 19 OF 21

FILE: I:\616213 - roadway list - forest estates and the four corners area\design\engineering\plans\sht\fk p2\pES-N002_PK2.dgn
PLOTTED: Wednesday, November 20, 2013 AT 09:38 AM



POTENTIAL CONTRACTOR STOCKPILE /STAGING AREA PRIOR TO CONSTRUCTION OF BMP 54. CONTRACTOR SHALL MAINTAIN DRAINAGE TO EXISTING INLETS AT ALL TIMES.

SEQUENCE OF CONSTRUCTION

1. PRIOR TO CLEARING OF TREES, INSTALLING SEDIMENT CONTROL MEASURES, OR GRADING, A PRECONSTRUCTION MEETING MUST BE CONDUCTED ON-SITE WITH THE MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES (MCDPS) SEDIMENT CONTROL INSPECTOR (240) 777-6300 (48 HOURS NOTICE), THE MCDPS RIGHT OF WAY INSPECTOR (301) 370-3686 (48 HOURS NOTICE), THE OWNER'S REPRESENTATIVE, THE CONTRACTOR AND THE SITE ENGINEER.

2. THE CONTRACTOR SHALL COMPLY WITH MCDOT'S WORK ZONE TEMPORARY TRAFFIC CONTROL STANDARDS AND MSHA STANDARDS NO. 104.02-10 AND NO. 104.02-14.

3. THE LIMITS OF DISTURBANCE MUST BE FIELD MARKED PRIOR TO CLEARING OF TREES, INSTALLATION OF SEDIMENT CONTROL MEASURES, CONSTRUCTION, OR OTHER LAND DISTURBING ACTIVITIES.

4. CLEAR AND GRADE FOR INSTALLATION OF SEDIMENT CONTROL DEVICES, ONLY DISTURBING THE AREA NEEDED FOR INSTALLATION OF THE SEDIMENT CONTROL DEVICES.

5. INSTALL SEDIMENT CONTROL DEVICES INCLUDING INLET PROTECTION, SILT FENCE AND TREE PROTECTION FENCING. TREE PROTECTION AREAS ARE SHOWN ON THE PLAN AND PROFILE SHEETS, IF REQUIRED. IMMEDIATELY STABILIZE ANY DISTURBANCE CAUSED BY THIS.

6. ONCE THE SEDIMENT CONTROL DEVICES ARE INSTALLED, THE PERMITTEE MUST OBTAIN WRITTEN APPROVAL FROM THE MCDPS INSPECTOR BEFORE PROCEEDING WITH ANY ADDITIONAL CLEARING, GRUBBING OR GRADING.

7. DISTURBED AREAS WITHIN THE PROJECT LIMITS SHALL HAVE EITHER PERMANENT OR TEMPORARY STABILIZATION AT THE END OF EACH WORK DAY.

8. CONTRACTOR MAY COMPLETE WORK IN EACH LOD AREA CONCURRENTLY AS LONG AS THE LOD IS STAKED OUT AND ALL SEDIMENT CONTROLS ARE IN PLACE. THE CONTRACTOR SHALL NOT EXCEED A MAXIMUM OF 5,000 SF OF DISTURBANCE AT ANY ONE TIME PER MCDEP'S SMALL LAND DISTURBANCE PERMIT FOR ROADSIDE LID RETROFITS.

9. THE CONTRACTOR SHALL UTILIZE THE DESIGNATED STOCKPILE/STAGING AREA AT THE END OF MALIBU DRIVE. ANY ADDITIONAL STOCKPILE/STAGING AREA REQUIRES APPROVAL BY THE MCDPS SEDIMENT INSPECTOR PRIOR TO USE.

10. STOCKPILE/STAGING AREAS ARE TO BE REMOVED AND RESTORED TO ORIGINIAL CONDITION UPON COMPLETION OF WORK. STOCKPILE/STAGING AREAS ARE NOT TO BE CONSIDERED PART OF THE LIMITS OF DISTURBANCE AND NOT COUNTED AGAINST THE MAXIMUM 5,000 SF DISTURBED AREA REQUIREMENT OF THE PERMIT.

11. CONSTRUCTION OF EACH BMP FACILITY WILL FOLLOW A BASIC SEQUENCE OUTLINED BELOW:

a. THE LOD SHALL BE FIELD MARKED PRIOR TO INSTALLATION OF ANY SEDIMENT CONTROL MEASURES OR ANY OTHER LAND DISTURBING ACTIVITIES.

b. INSTALL SILT FENCE (SF) OR SUPER SILT FENCE (SSF) FOR STEEP SLOPES, ALONG THE SIDEWALK AND DOWNSTREAM DRIVEWAY ENTRANCES. INLET PROTECTION (IP) SHALL BE INSTALLED AT THE CLOSEST DOWNSTREAM INLET.

c. THE PERMITTEE MUST OBTAIN WRITTEN APPROVAL FROM THE MCDPS SEDIMENT CONTROL INSPECTOR BEFORE PROCEEDING WITH CONSTRUCTION.

d. CONSTRUCT THE FACILITY PER THE PLANS AND DETAILS. CURB INLETS TO THE FACILITY SHALL BE BLOCKED WITH SAND BAGS UNTIL THE FACILITY IS STABILIZED AND IS READY TO BE BROUGHT ON LINE. STABILIZE ALL AREAS PRIOR TO PLACEMENT OF THE FILTER MEDIA.

e. THE CONTRACTOR SHALL TAKE EXTREME CAUTION TO NOT ALLOW DISTURBED AREAS TO DRAIN INTO THE FACILITY. ALL DISTURBED AREAS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.

f. FINAL GRADE FACILITY AND PERMANENTLY STABILIZE ALL DISTURBED AREAS AS SHOWN ON THE LANDSCAPE PLANS AND/OR TYPICAL SECTIONS.

h. THE CONTRACTOR MUST OBTAIN WRITTEN APPROVAL FROM MCDPS SEDIMENT INSPECTOR, PRIOR TO THE REMOVAL OF ANY SEDIMENT CONTROL DEVICE, THAT THE AREA IS ADEQUATELY STABILIZED AND CAN BE REMOVED FROM THE TOTAL 5,000 SF DISTURBED AREA TABULATION.

i. ANY AREAS DISTURBED DURING THE REMOVAL OF E&S CONTROLS SHALL BE IMMEDIATELY STABILIZED.

10' 0 10' 20'
SCALE: 1"=10'

McCormick Taylor
Engineers & Planners Since 1946
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

EROSION AND SEDIMENT CONTROL PLAN

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

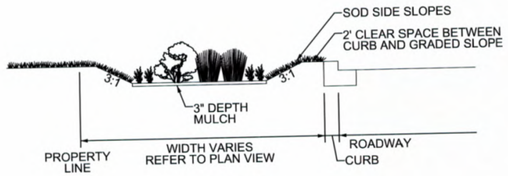
MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF
ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	KCS
DRAFT	WJW
APPROVED	HJD
DATE	JUNE 12'
SCALE	

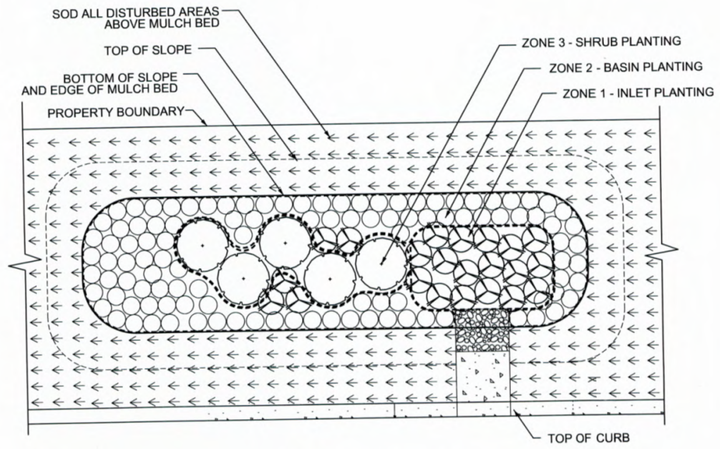
SHEET 20 OF 21

FILE: I:\612\13 - roadway ltd — forest cutoffs and fire box corners area\design\mengineering\planset\fk p2\ES-P001_FK2.dgn
PLOTTED: Wednesday, November 20, 2013 AT 09:58 AM



PLANTING TYPICAL SECTION

NOT TO SCALE



BMP PLANTING TYPICAL PLAN VIEW

NOT TO SCALE

LEGEND

- ZONE 1 - INLET PLANTINGS ORNAMENTAL GRASS - PLANT 18" ON CENTER
- ZONE 2 - BASIN PLANTINGS PERENNIAL - PLANT 18" ON CENTER
- ZONE 3 - SHRUB PLANTINGS SHRUB - PLANT 3' ON CENTER

CONCEPTUAL ZONE SCHEDULE

ZONE 1	15% BMP AREA
ZONE 2	60% BMP AREA
ZONE 3	25% BMP AREA

NOTES:

1. This plan is for landscape purposes only.
2. All proposed layouts are conceptual.
3. Cluster species in groupings.
4. When no Zone 3 plantings are specified, distribute Zone 2 plantings evenly over Zone 2 and Zone 3.

MASTER ZONE PLANTING SCHEDULE

Zone	Botanical / Common Name	Unit	Size	Spacing	BMP 32	BMP 33	BMP 34	BMP 37	BMP 38	BMP 39	BMP 42	BMP 43	BMP 44	BMP 46	BMP 49	BMP 54	BMP 55	BMP 56	BMP 57	BMP 58	BMP 63	BMP 66	TOTAL
Groundcovers	Turfgrass Sod	SY			45	99	14	16	22	79	43	24	44	48	54	14	15	88	57	57	39	76	834
	Shredded Hardwood Mulch	SY	3" Depth		9	15	0	0	0	2	6	0	0	5	3	0	0	11	5	7	3	6	72
Total BMP SF		SF			77	130	0	0	0	16	55	0	0	41	27	0	0	97	48	61	27	51	
Zone 1 - Inlet Plantings	Chasmanthium latifolium / River Oats	EA	Gal.	15" o.c.	0	12	0	0	0	3	5	0	0	4	4	0	0	0	0	0	0	5	33
(15% SF BMP)	Juncus effusus / Common Rush	EA	Gal.	15" o.c.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	6	0	0	11
	Panicum vergatum 'Shenandoah' / 'Shenandoah' Switchgrass	EA	Gal.	15" o.c.	8	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	3	0	20
																							0
Zone 2 - Basin Plantings	Asclepias incarnata 'Soulmate' / Swamp Milkweed	EA	Gal.	18" o.c.	8	20	0	0	0	0	0	0	0	0	0	0	0	0	8	7	0	0	43
(60% SF BMP)	Aster noviae-angliae / 'English Countryside' Aster	EA	Gal.	18" o.c.	0	0	0	0	0	6	0	0	0	7	6	0	0	0	0	0	0	7	26
	Iris versicolor / Blue Flag Iris	EA	Gal.	18" o.c.	12	14	0	0	0	0	8	0	0	0	0	0	0	12	10	16	4	0	76
	Osmundia cinnamomea / Cinnamon Fern	EA	Gal.	18" o.c.	0	0	0	0	0	0	5	0	0	0	0	0	0	15	0	0	6	0	26
	Rudbeckia fulgida 'Goldstrum' / Black-Eyed Susan	EA	Gal.	18" o.c.	0	0	0	0	0		0	0	0	8	4	0	0	0	0	0	0	12	24
Zone 3 - Shrub Plantings	Clethra alnifolia 'Hummingbird' / Hummingbird Summersweet	EA	18" HT, Cont	3' o.c.	3	5	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	8
(25% SF BMP)	Viburnum dentatum 'Christom' / Arrowwood Viburnum	EA	18" HT, Cont	3' o.c.	0	0	0	0	0	0	3	0	0	0	0	0	0	3	0	0	0	0	6
Tree Box Filter	Amelanchier x grandiflora / Serviceberry	EA	5' HT, Cont		0	0	2	2	2	0	0	2	1	0	0	1	2	0	0	0	0	0	12

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LANDSCAPE PLAN

FRANKLIN KNOLLS-PHASE 2

SLIGO (13th) ELECTION DISTRICT

MONTGOMERY COUNTY, MARYLAND

MONTGOMERY COUNTY DEPT OF
ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850-4166
MR. CRAIG CARSON
(240) 777-7713

DESIGN	ALN
DRAFT	WJW
APPROVED	HJD
DATE	JUNE 12
SCALE	1" = 10'

SHEET 21 OF 21

FILE: I:\518213 - roadway ltd – forest estates and the four corners area\design\engineering\plans\ffk p2\pLD-D001_Pk2.dgn
PLOTTED: Wednesday, November 20, 2013 AT 09:38 AM