

HOWARD COUNTY

Capital Project #D-1158

Windflower Drive

Stream Rehabilitation Project

Storm Water Management Division
Bureau Of Environmental Services

INDEX OF SHEETS

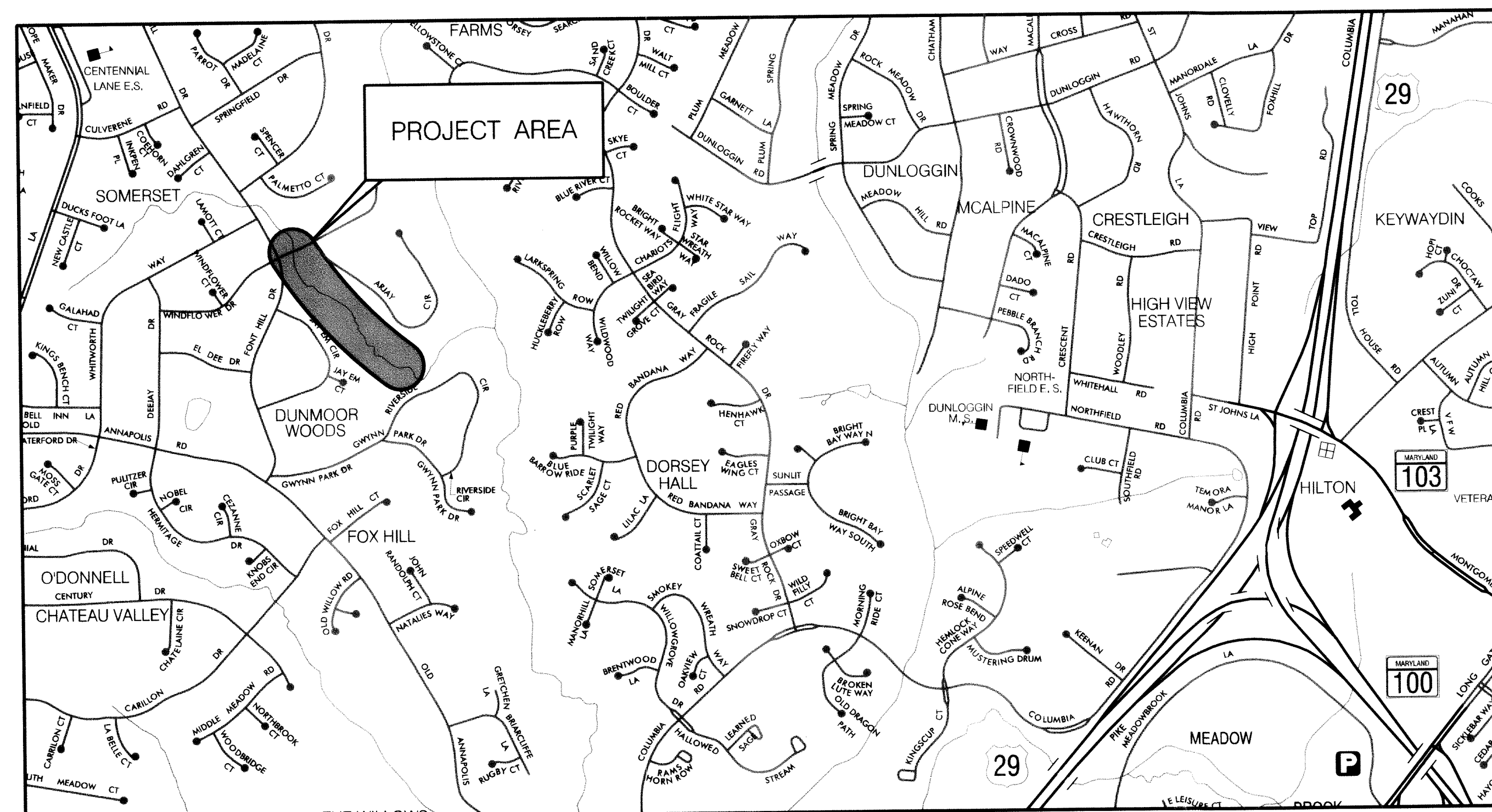
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PROPOSED MEDIAN BARRIER	
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FLOW LINE	
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EXISTING TRAFFIC BARRIER	
PROPOSED FENCE LINE	
EXISTING FENCE LINE	
RIGHT OF WAY LINE	
EXISTING ROADWAY	
BASE OR SURVEY LINE	
TRAVERSE POINT	
APPROXIMATE LIMITS OF CUT AND/OR FILL	
PROPOSED MAJOR CONTOUR	
PROPOSED MINOR CONTOUR	
LIMIT OF DISTURBANCE	
EXISTING MAJOR CONTOURS	
EXISTING MINOR CONTOURS	
EXISTING PIPE/CULVERT	
EXISTING DROP INLET	
WETLAND	
WATERS OF THE US	
HEDGE /TREE LINE	
BUSH /TREE	
CONIFEROUS TREE	
LIGHT POLE	

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE.
- THIS PLAN IS PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS /BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- SURVEY OF THIS SITE WAS PERFORMED BY AB CONSULTANTS, INC.-NOVEMBER 2011.
- THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. BENCHMARKS SHOWN HEREON WERE PROVIDED BY AB CONSULTANTS, INC.
- WATERS OF THE US WERE DELINEATED BY McCORMICK TAYLOR SEPTEMBER 2011.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND McCORMICK TAYLOR DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION.
- THE EXISTING INFORMATION SHOWN ON THESE PLANS WAS TAKEN FROM THE BEST AVAILABLE SOURCES AND SHALL BE VERIFIED BEFORE STARTING CONSTRUCTION. HOWARD COUNTY DOES NOT GUARANTEE THE COMPLETENESS OR THE CORRECTNESS OF THE SHOWN INFORMATION.
- THE CONTRACTORS SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTORS' OPERATION SHALL BE REPAIRED IMMEDIATELY. ALL UTILITIES SHALL HAVE A CLEARANCE BY A MINIMUM OF 6 INCHES VERTICALLY AND A MINIMUM OF 5 FEET HORIZONTALLY.
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY McCORMICK TAYLOR IMMEDIATELY TO RESOLVE THE SITUATION.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- SITE DEVELOPMENT DETAILS ARE REFERENCED FROM THE AS-BUILT PLANS FOR GWYNN ACRES, SECTION 15 (F-76-99) AND SECTION 9 (F-68-05).
- A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT. (TRACKING NUMBER 12-NT-028320126118)
- STORMWATER MANAGEMENT IS NOT REQUIRED FOR THIS PROJECT SINCE THE PROJECT WILL NOT ADD IMPERVIOUS AREA.
- WAIVER PETITION WP-13-011 HAS BEEN APPROVED BY THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING FOR THIS PROJECT. SUBJECT TO THE FOLLOWING CONDITIONS:
 - PETITIONER SHALL SUBMIT TO THE DEPARTMENT OF PLANNING AND ZONING A COPY OF THE MEMORANDUM AUTHORIZING THE DEPARTMENT OF FINANCE, BUREAU OF ACCOUNTING, TO TRANSFER \$10,127.00 TO THE FOREST CONSERVATION FUND- SECTION 16.1211, SAP ACCT. #2060000000-3000-3000000000-PWPW0000000000000000-432521.
 - PETITIONER SHALL SUBMIT A COMPLETED FOREST CONSERVATION DATA SUMMARY TO THE DPZ, DIVISION OF LAND DEVELOPMENT, ATTN: DAVE BOELLNER.



HORIZONTAL DATUM NAD 83 /91
VERTICAL DATUM NAVD 88

SCALE: 1" = 1000'
1000 0 1000 2000 feet

DEPARTMENT OF RECREATION AND PARKS, HOWARD COUNTY, MD

John B. Buel
DIRECTOR OF RECREATION AND PARKS
10/23/12
DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Robertson
HOWARD SOIL CONSERVATION DISTRICT
10/25/12
DATE

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. 25819, EXPIRATION DATE: 2/5/2013

DESIGN CERTIFICATION

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

10-2-2012
DATE

MARYLAND
REGISTRATION
NUMBER 25819

Chris J. Brooks
DESIGNER'S SIGNATURE

CHRIS J. BROOKS
PRINTED NAME

OWNER'S/DEVELOPER'S CERTIFICATION

I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

10/22/12
DATE

Howard E. Saltzman
OWNER/DEVELOPER SIGNATURE

Howard E. Saltzman Chief Stormwater Management
Division

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Howard E. Saltzman
DIRECTOR OF PUBLIC WORKS
10/22/12
DATE

Mark Luca
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

McCormick Taylor
Engineers & Planners
Since 1946

509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

Howard County
MARYLAND

Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
(410) 313-6444

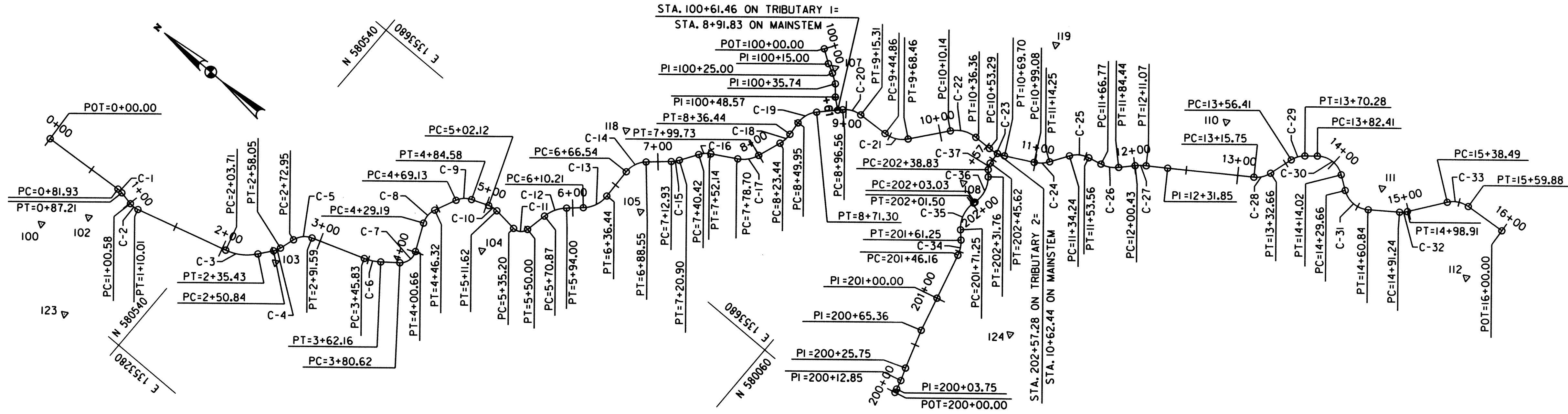


DES:	LEN	AS-BUILT	3/19/13
DRN: MR			
CHK: CB			
DATE: 10/3/12	BY	NO.	REVISION
			DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011
TITLE SHEET

SCALE
AS SHOWN

SHEET
1 OF 39



BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
	POB	580719.9539	1353389.9304	0+00.00	S 3°30'53.7699" E	
	PC	580638.1818	1353394.9532	0+81.93		
	PI	580635.5342	1353395.1158	0+84.58		
	CC	580636.9556	1353374.9908			20.00'
	PT	580632.9358	1353394.5827	0+87.21	S 11°35'41.1860" W	
	PC	580619.8295	1353391.8936	1+00.58		
	PI	580615.1241	1353390.9282	1+05.39		
	CC	580615.8097	1353411.4855			20.00'
	PT	580610.4935	1353392.2050	1+10.01	S 15°24'54.4403" E	
	PC	580520.1714	1353417.1095	2+03.71		
	PI	580504.3448	1353421.4733	2+20.12		
	CC	580533.4619	1353465.3107			50.00'
	PT	580494.1854	1353434.3696	2+35.43	S 51°46'10.9264" E	
	PC	580484.6500	1353446.4737	2+50.84		
	PI	580482.3946	1353449.3367	2+54.48		
	CC	580500.3606	1353458.8502			20.00'
	PT	580481.2941	1353452.8112	2+58.05	S 72°25'30.6575" E	
	PC	580476.7939	1353467.0192	2+72.95		
	PI	580473.7566	1353476.6086	2+83.01		
	CC	580457.7275	1353460.9802			20.00'
	PT	580464.2472	1353479.8877	2+91.59	S 19°01'31.4932" E	
	PC	580412.9752	1353497.5675	3+45.83		
	PI	580405.1864	1353500.2532	3+54.07		
	CC	580429.2746	1353544.8362			50.00'
	PT	580398.6711	1353505.2960	3+62.16	S 37°44'21.5267" E	
	PC	580384.0691	1353516.5977	3+80.62		
	PI	580374.7095	1353523.8419	3+92.46		
	CC	580393.2501	1353528.4598			15.00'
	PT	580379.5778	1353534.6298	4+00.66	N 65°42'41.2551" E	
	PC	580391.3118	1353560.6314	4+29.19		
	PI	580395.0674	1353568.9537	4+38.32		
	CC	580373.0820	1353568.8580			20.00'
	PT	580391.2395	1353577.2430	4+46.32	S 65°12'45.9860" E	
	PC	580381.6779	1353597.9482	4+69.13		
	PI	580378.2665	1353605.3355	4+77.27		
	CC	580363.5205	1353589.5632			20.00'
	PT	580370.6667	1353608.2429	4+84.58	S 20°56'05.6454" E	
	PC	580354.2920	1353614.5073	5+02.12		

BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
	PI	580349.7681	1353616.2379	5+06.96		
	CC	580347.1458	1353595.8275			20.00'
	PT	580344.9536	1353615.7070	5+11.62	S 6°17'34.0374" W	
	PC	580321.5119	1353613.1220	5+35.20		
	PI	580312.4398	1353612.1216	5+44.33		
	CC	580320.4158	1353623.0617			10.00'
	PT	580310.6172	1353621.0648	5+50.00	S 78°28'50.7350" E	
	PC	580306.4489	1353641.5176	5+70.87		
	PI	580304.0563	1353653.2570	5+82.85		
	CC	580271.1740	1353634.3285			36.00'
	PT	580295.1064	1353661.2217	5+94.00	S 41°39'58.2249" E	
	PC	580283.0032	1353671.9924	6+10.21		
	PI	580272.5274	1353681.3149	6+24.23		
	CC	580302.9468	1353694.4034			30.00'
	PT	580272.9612	1353695.3314	6+36.44	N 88°13'38.4805" E	
	PC	580273.8923	1353725.4177	6+66.54		
	PI	580274.2565	1353737.1845	6+78.32		
	CC	580248.9043	1353726.1911			25.00'
	PT	580265.4179	1353744.9607	6+88.55	S 41°20'29.1174" E	
	PC	580247.1121	1353761.0662	7+12.93		
	PI	580244.1019	1353763.7146	7+16.94		
	CC	580266.9284	1353783.5899			30.00'
	PT	580241.8928	1353767.0605	7+20.90	S 56°33'57.2202" E	
	PC	580231.1406	1353783.3460	7+40.42		
	PI	580227.8506	1353788.3291	7+46.39		
	CC	580210.2776	1353769.5715			25.00'
	PT	580222.6637	1353791.2875	7+52.14	S 29°41'56.7261" E	
	PC	580199.5947	1353804.4454	7+78.70		
	PI	580190.0659	1353809.8803	7+89.67		
	CC	580214.4580	1353830.5046			30.00'
	PT	580186.2906	1353820.1799	7+99.73	S 69°52'11.2775" E	
	PC	580178.1290	1353842.4462	8+23.44		
	PI	580175.8568	1353848.6452	8+30.05		
	CC	580206.2964	1353852.7709			30.00'
	PT	580176.3970	1353855.2254	8+36.44	N 85°18'25.2190" E	
	PC	580177.5024	1353868.6915	8+49.95		
	PI	580178.4331	1353880.0284	8+61.33		
	CC	580152.5862	1353870.7369			25.00'

BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
	PT	580170.4973	1353888.1781	8+71.30	S 45°45'41.7160" E	
	PC	580152.8743	1353906.2759	8+96.56		
	PI	580146.0126	1353913.3225	9+06.40		
	CC	580134.9633	1353888.8347			25.00'
	PT	580136.1889	1353913.8047	9+15.31	S 2°48'36.2039" E	
	PC	580106.6722	1353915.2535	9+44.86		
	PI	580094.1353	1353915.8688	9+57.41		
	CC	580108.0449	1353943.2198			28.00'
	PT	580086.2534	1353925.6376	9+68.46	S 51°06'07.3583" E	
	PC	580060.0798	1353958.0774	10+10.14		
	PI	580051.2812	1353968.9823	10+24.15		
	CC	580036.7318	1353939.2393			30.00'
	PT	580037.2716	1353969.2345	10+36.36	S 1°01'51.8129" E	
	PC	580020.3379	1353969.5392	10+53.29		
	PI	580011.9820	1353969.6896	10+61.65		
	CC	580020.9677	1354004.5336			35.00'
	PT	580004.5955	1353973.5989	10+69.70	S 27°53'24.1735" E	
	PC	579978.6262	1353987.3432	10+99.08		
	PI	579971.7753	1353990.9690	11+06.83		
	CC	579992.6594	1354013.8586			30.00'
	PT	579967.5382	1353997.4597	11+14.25	S 56°51'49.5289" E	
	PC	579956.6125	1354014.1966	11+34.24		
	PI	579951.0540	1354022.7116	11+44.41		
	CC	579935.6782	1354000.5308			25.00'
	PT	579941.1301	1354024.9291	11+53.56	S 12°35'45.6563" E	
	PC	579928.2362	1354027.8103	11+66.77		
	PI	579919.3533	1354029.7952	11+75.87		
	CC	579934.7785	1354057.0882			30.00'
	PT	579913.0708	1354036.3813	11+84.44	S 46°21'05.7299" E	
	PC	579902.0387	1354047.9466	12+00.43		
	PI	579898.3505	1354051.8131	12+05.77		
	CC	579865.8592	1354013.4351			50.00'
	PT	579893.9285	1354054.8128	12+11.07	S 34°09'06.0885" E	
	PC	579876.7371	1354066.4749	12+31.85		
	PI	579807.2984	1354113.5798	13+15.75		
	CC	579807.2984	1354113.5798	13+15.75	S 34°09'06.0885" E	
	PT	579800.0231	1354118.5151	13+24.55		
	CC	579821.3330	1354134.2687			25.00'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature]
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

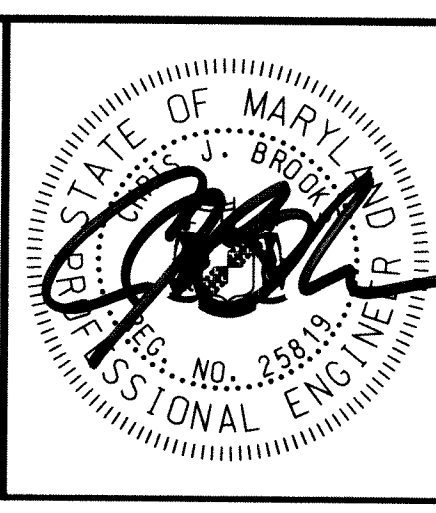
10/23/12
DATE

McCormick Taylor
Engineers & Planners
Since 1946

509 South Exeter Street
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Baltimore, Maryland 21202
(410) 662-7400

Howard County
MARYLAND

Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
(410) 313-6444



DES: LN					
DRN: MR					
CHK: CB					
DATE: 10/3/12	BY	NQ	REVISION	DATE	

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

GEOMETRY SHEET

SCALE
1" = 60'

SHEET
2 OF 39

BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
MAINSTEM	PT	579797.4382	1354126.9178	13+32.66	S 72° 54' 00.6501" E	
	PC	579790.4549	1354149.6175	13+56.41		
	PI	579788.3578	1354156.4342	13+63.54		
	CC	579767.5159	1354142.5606			24.00'
	PT	579782.8785	1354160.9994	13+70.28	S 39° 47' 59.6463" E	
	PC	579773.5572	1354168.7655	13+82.41		
	PI	579759.2916	1354180.6511	14+00.98		
	CC	579758.1946	1354150.3267			24.00'
	PT	579744.2045	1354169.8274	14+14.02	S 35° 39' 22.5514" W	
	PC	579731.4902	1354160.7060	14+29.66		
	PI	579716.8771	1354150.2223	14+47.65		
	CC	579716.9172	1354181.0192			25.00'
	PT	579702.2914	1354160.7440	14+60.84	S 35° 48' 19.5944" E	
	PC	579677.6430	1354178.5245	14+91.24		
	PI	579674.5090	1354180.7853	14+95.10		
	CC	579692.2689	1354198.7997			25.00'
	PT	579672.2038	1354183.8868	14+98.91	S 53° 22' 45.2092" E	
	PC	579648.5937	1354215.6538	15+38.49		
	PI	579641.7931	1354224.8039	15+49.89		
	CC	579628.5287	1354200.7409			25.00'
PT	579630.4255	1354225.6689	15+59.88	S 4° 21' 04.8621" E		
POE	579590.4187	1354228.7130	16+00.00			

BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
TRIBUTARY 1	POB	580204.5705	1353939.9005	100+00.00	S 34° 25' 46.2748" W	
	PI	580192.1982	1353931.4197	100+15.00	S 26° 37' 27.7200" W	
	PI	580183.2586	1353926.9383	100+25.00	S 34° 13' 01.6829" W	
	PI	580174.3791	1353920.8999	100+35.74	S 50° 03' 58.1992" W	
	PI	580166.1442	1353911.0629	100+48.57	S 39° 21' 34.2820" W	
	POE	580156.1752	1353902.8861	100+61.46		

BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
TRIBUTARY 2	POB	579937.3911	1353730.0597	200+00.00	N 76° 50' 37.3882" E	
	PI	579938.2450	1353733.7131	200+03.75	N 76° 08' 54.2955" E	
	PI	579940.4236	1353742.5483	200+12.85	N 70° 04' 38.9972" E	
	PI	579944.8200	1353754.6783	200+25.75	N 72° 20' 57.4252" E	
	PI	579956.8298	1353792.4221	200+65.36	N 75° 47' 36.6954" E	
	PI	579965.3305	1353826.0005	201+00.00	N 75° 47' 36.6954" E	
	PC	579976.6593	1353870.7502	201+46.16		
	PI	579978.5512	1353878.2233	201+53.87		
	CC	580005.7418	1353863.3877			30.00'
	PT	579983.8114	1353883.8586	201+61.25	N 46° 58' 17.2642" E	
	PC	579990.6350	1353891.1688	201+71.25		
	PI	580001.9279	1353903.2668	201+87.80		
	CC	579968.7046	1353911.6396			30.00'
	PT	579997.7175	1353919.2719	202+01.50	S 75° 15' 41.3162" E	
	PC	579997.3290	1353920.7488	202+03.03		
	PI	579993.3667	1353935.8107	202+18.60		
	CC	580026.3419	1353928.3810			30.00'
	PT	580003.4055	1353947.7181	202+31.76	N 49° 54' 00.6888" E	
	PC	580007.9634	1353953.1308	202+38.83		
	PI	580010.3489	1353955.7320	202+42.36		
	CC	580000.5934	1353959.8897			10.00'
	PT	580010.5732	1353959.2543	202+45.62	N 86° 21' 23.7732" E	
	POE	580011.3142	1353970.8912	202+57.28		

MAINSTEM BASELINE CURVE DATA									
CURVE	DELTA	Dc	R	T	L	E	CENTER OF CURVE		
							NORTHING	EASTING	
C-1	15° 06' 34.9559"	286° 28' 44.0312"	20.00'	2.65'	5.27'	0.18'	580636.9556	1353374.9908	
C-2	27° 00' 35.6263"	286° 28' 44.0312"	20.00'	4.80'	9.43'	0.57'	580615.8097	1353411.4855	
C-3	36° 21' 16.4861"	114° 35' 29.6125"	50.00'	16.42'	31.73'	2.63'	580533.4619	1353465.3107	
C-4	20° 39' 19.7312"	286° 28' 44.0312"	20.00'	3.64'	7.21'	0.33'	580500.3606	1353458.8502	
C-5	53° 23' 59.1643"	286° 28' 44.0312"	20.00'	10.06'	18.64'	2.39'	580457.7275	1353460.9802	
C-6	18° 42' 50.0334"	114° 35' 29.6125"	50.00'	8.24'	16.33'	0.67'	580429.2746	1353544.8362	
C-7	76° 32' 57.2182"	381° 58' 18.7084"	15.00'	11.84'	20.04'	4.11'	580393.2501	1353528.4598	
C-8	49° 04' 32.7589"	286° 28' 44.0312"	20.00'	9.13'	17.13'	1.99'	580373.0820	1353568.8580	
C-9	44° 16' 40.3406"	286° 28' 44.0312"	20.00'	8.14'	15.46'	1.59'	580363.5205	1353589.5632	
C-10	27° 13' 39.6827"	286° 28' 44.0312"	20.00'	4.84'	9.50'	0.58'	580347.1458	1353595.8275	
C-11	84° 46' 24.7721"	572° 57' 28.0625"	10.00'	9.13'	14.80'	3.54'	580320.4158	1353623.0617	
C-12	36° 48' 52.5099"	159° 09' 17.7952"	36.00'	11.98'	23.13'	1.94'	580271.1740	1353634.3285	
C-13	50° 06' 23.2947"	190° 59' 09.3541"	30.00'	14.02'	26.24'	3.12'	580302.9468	1353694.4034	
C-14	50° 25' 52.4021"	229° 10' 59.2250"	25.00'	11.77'	22.00'	2.63'	580248.9043	1353726.1911	
C-15	15° 13' 28.1029"	190° 59' 09.3541"	30.00'	4.01'	7.97'	0.27'	580266.9284	1353783.5899	
C-16	26° 52' 00.4941"	229° 10' 59.2250"	25.00'	5.97'	11.72'	0.70'	580210.2776	1353769.5715	
C-17	40° 10' 14.5516"	190° 59' 09.3541"	30.00'	10.97'	21.03'	1.94'	580214.4580	1353830.5046	
C-18	24° 49' 23.5033"	190° 59' 09.3541"	30.00'	6.60'	13.00'	0.72'	580206.2964	1353852.7709	
C-19	48° 55' 53.0650"	229° 10' 59.2250"	25.00'	11.38'	21.35'	2.47'	580152.5862	1353870.7369	
C-20	42° 57' 05.5121"	229° 10' 59.2250"	25.00'	9.84'	18.74'	1.87'	580134.9633	1353888.8347	
C-21	48° 17' 31.1543"	204° 37' 40.0222"	28.00'	12.55'	23.60'	2.68'	580108.0449	1353943.2198	
C-22	50° 04' 15.5454"	190° 59' 09.3541"	30.00'	14.01'	26.22'	3.11'	580036.7318	1353939.2393	
C-23	26° 51' 32.3606"	163° 42' 08.0178"	35.00'	8.36'	16.41'	0.98'	580020.9677	1354004.5336	
C-24	28° 58' 25.3554"	190° 59' 09.3541"	30.00'	7.75'	15.17'	0.99'	579992.6594	1354013.8586	
C-25	44° 16' 03.8726"	229° 10' 59.2250"	25.00'	10.17'	19.32'	1.99'	579935.6782	1354000.5308	
C-26	33° 45' 20.0736"	190° 59' 09.3541"	30.00'	9.10'	17.67'	1.35'	579934.7785	1354057.0882	
C-27	12° 11' 59.6414"	114° 35' 29.6125"	50.00'	5.34'	10.65'	0.28'	579865.8592	1354013.4351	
C-28	38° 44' 54.5616"	229° 10' 59.2250"	25.00'	8.79'	16.91'	1.50'	579821.3330	1354134.2687	
C-29	33° 06' 01.0038"	238° 43' 56.6928"	24.00'	7.13'	13.87'	1.04'	579767.5159	1354142.5606	
C-30	75° 27' 22.1977"	238° 43' 56.6928"	24.00'	18.57'	31.61'	6.34'	579758.1946	1354150.3267	
C-31	71° 27' 42.1458"	229° 10' 59.2250"	25.00'	17.98'	31.18'	5.80'	579716.9172	1354181.0192	
C-32	17° 34' 25.6148"	229° 10' 59.2250"	25.00'	3.86'	7.67'	0.30'	579692.2689	1354198.7997	
C-33	49° 01' 40.3471"	229° 10' 59.2250"	25.00'	11.40'	21.39'	2.48'	579628.5287	1354200.7409	

TRIBUTARY 2 BASELINE CURVE DATA									
CURVE	DELTA	Dc	R	T	L	E	CENTER OF CURVE		
							NORTHING	EASTING	
C-34	28° 49' 19.4312"	190° 59' 09.3541"	30.00'	7.71'	15.09'	0.97'	580005.7418	1353863.3877	
C-35	57° 46' 01.4197"	190° 59' 09.3541"	30.00'	16.55'	30.25'	4.26'	579968.7046	1353911.6396	
C-36	54° 52' 18.6360"	190° 59' 09.3541"	30.00'	15.57'	28.73'	3.80'	580026.3419	1353928.3810	
C-37	38° 52' 48.0703"	572° 57' 28.0625"	10.00'	3.53'	6.79'	0.60'	580000.5934	1353959.8897	

TRAVERSE CONTROL COORDINATES			
POINT	NORTHING	EASTING	ELEVATION
100	580672.8847	1353321.2293	366.59
102	580642.0891	1353355.7064	366.39
103	580476.0410	1353438.9885	355.77
104	580331.1558	1353576.9358	354.59
105	580238.3790	1353704.6304	359.80
107	580184.3563	1353932.4016	349.77
108	580017.9631	1353927.6379	348.88
110	579862.2117	1354137.1568	345.06
111	579705.6584	1354185.4411	344.24
112	579587.4530	1354171.9297	343.56
118	580299.8647	1353755.9840	351.06
119	580036.1670	1354087.7328	346.86
123	580599.5158	1353269.237	366.89
124	579888.8029	1353845.0545	352.12

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HOWARD COUNTY, MARYLAND

Wanda Lopez
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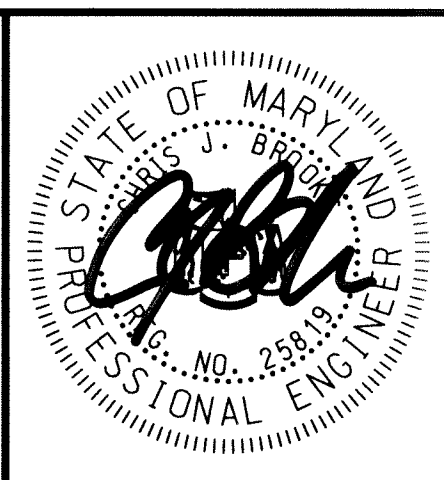
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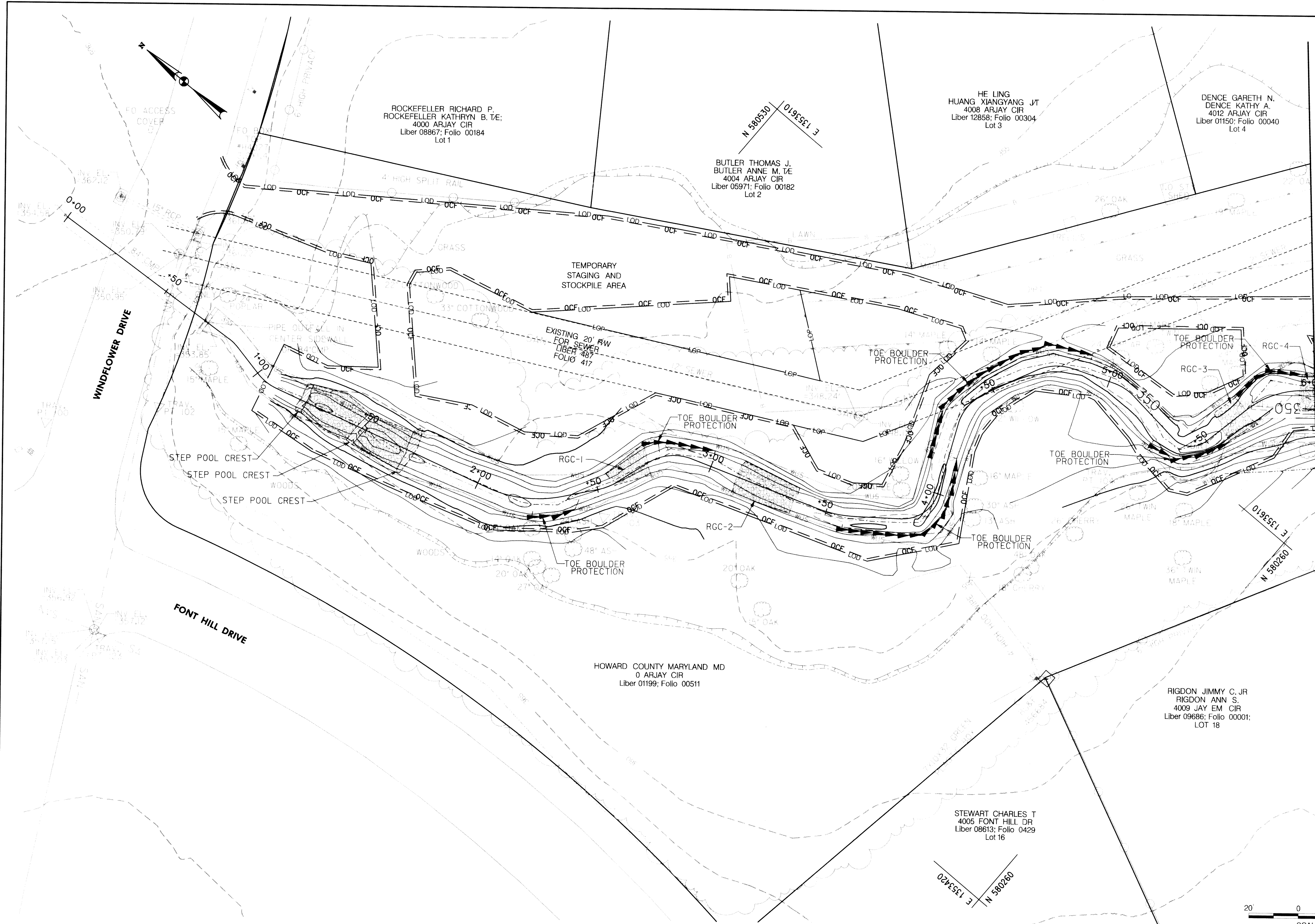


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DRN: MR				
CHK: CB				
DATE: 10/ 3/12	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

GEOMETRY SHEET

SCALE
NOT TO SCALE
SHEET
3 OF 39



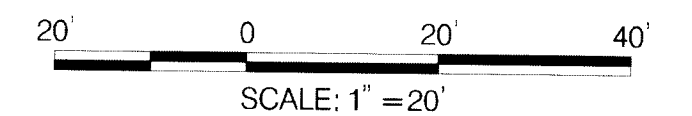
BANK PROTECTION SCHEDULE			
STRUCTURE	FROM	TO	OFFSET
TOE BOULDER PROTECTION	2+73	3+10	LT
TOE BOULDER PROTECTION	3+73	4+10	RT
TOE BOULDER PROTECTION	4+31	4+92	LT
COIR FIBER ROLL	4+92	5+22	LT
TOE BOULDER PROTECTION	5+23	5+59	RT
TOE BOULDER PROTECTION	5+71	5+94	LT

STEP POOL STRUCTURE TABLE		
STRUCTURE	FROM	TO
STEP-POOL CREST	1+19	1+22
STEP-POOL POOL	1+22	1+44
STEP-POOL CREST	1+44	1+47
STEP-POOL POOL	1+47	1+69
STEP-POOL CREST	1+69	1+72

RIFFLE GRADE CONTROL (RGC) TABLE		
STRUCTURE	FROM	TO
RGC-1	2+58	2+73
RGC-2	3+10	3+35
RGC-3	5+59	5+71
RGC-4	5+74	6+10

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- - - EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- - - WATERS OF THE US
- - - WETLAND BOUNDARY
- B - WETLAND BUFFER
- - - EXISTING SANITARY SEWER
- - - LIMIT OF DISTURBANCE
- OCF - ORANGE CONSTRUCTION FENCE
- - - PROPOSED 100 YEAR FLOODPLAIN
- - - EXISTING 100 YEAR FLOODPLAIN
- EXISTING SANITARY SEWER MANHOLE
- EXISTING TREE
- ⊗ EXISTING TREE TO BE REMOVED
- ◆ ROCK ROOT PACK
- COIR FIBER ROLL
- ▲ TOE BOULDER PROTECTION
- OUTFALL CHANNEL STABILIZATION
- ▨ RIFFLE GRADE CONTROL
- ▩ STEP POOL STRUCTURE
- ▩ LOG STEP STRUCTURE



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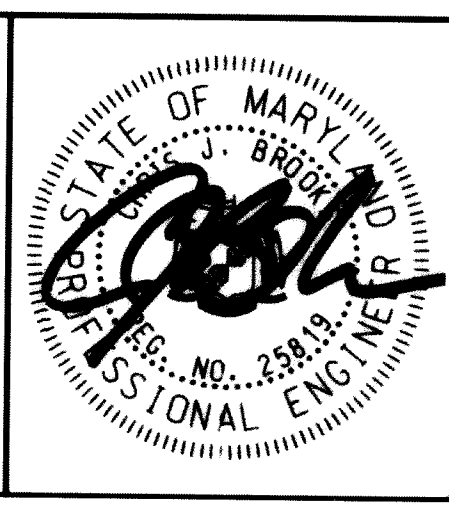
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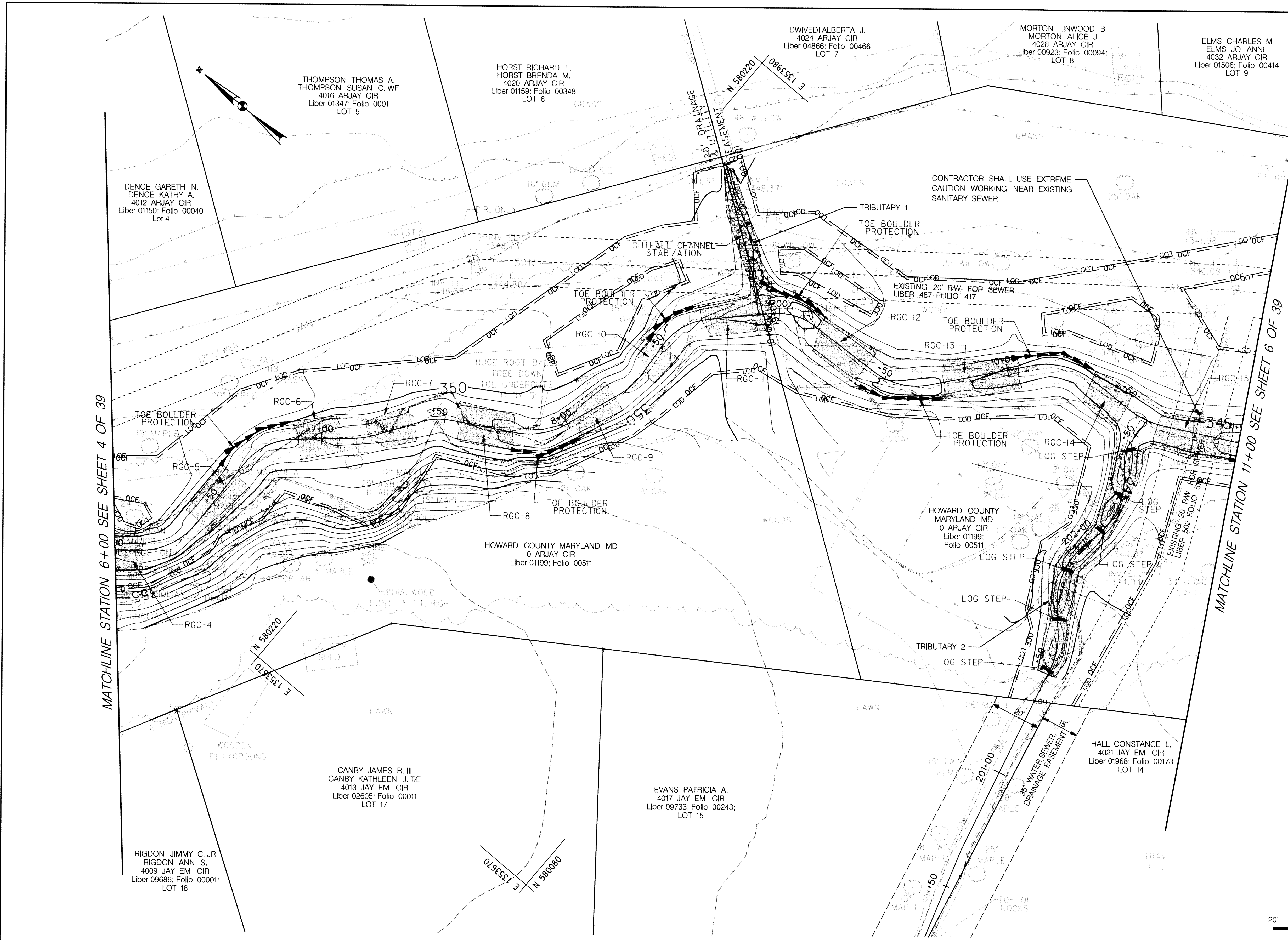
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			DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

SITE PLAN

SCALE
1" = 20'

SHEET
4 OF 39



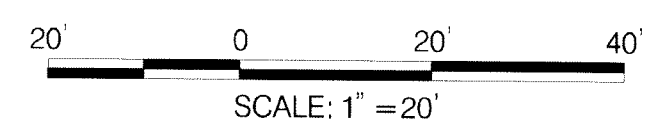
BANK PROTECTION SCHEDULE			
STRUCTURE	FROM	TO	OFFSET
TOE BOULDER PROTECTION	6+61	6+90	LT
TOE BOULDER PROTECTION	7+79	8+00	RT
TOE BOULDER PROTECTION	8+50	8+71	LT
TOE BOULDER PROTECTION	8+96	9+18	LT
TOE BOULDER PROTECTION	9+43	9+75	RT
TOE BOULDER PROTECTION	10+99	11+14	RT

STEP POOL STRUCTURE TABLE		
STRUCTURE	FROM	TO
LOG STEP CREST	201+42.5	201+45.5
LOG STEP POOL	201+45.5	201+62.5
LOG STEP CREST	201+62.5	201+65.5
LOG STEP POOL	201+65.5	201+82.5
LOG STEP CREST	201+82.5	201+85.5
LOG STEP POOL	201+85.5	202+02.5
LOG STEP CREST	202+02.5	202+05.5
LOG STEP POOL	202+05.5	202+22.5
LOG STEP CREST	202+22.5	202+25.5
LOG STEP POOL	202+25.5	202+42.5
LOG STEP CREST	202+42.5	202+45.5

RIFFLE GRADE CONTROL (RGC) TABLE		
STRUCTURE	FROM	TO
RGC-4	5+74	6+10
RGC-5	6+36	6+61
RGC-6	6+90	7+06
RGC-7	7+23	7+38
RGC-8	7+54	7+79
RGC-9	8+00	8+22
RGC-10	8+38	8+50
RGC-11	8+71	8+96
RGC-12	9+18	9+43
RGC-13	9+75	10+05
RGC-14	10+39	10+51
RGC-15	10+69	10+99

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- - - EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR
- PROPERTY LINE
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- WETLAND BOUNDARY
- WETLAND BUFFER
- EXISTING SANITARY SEWER
- LOD — LIMIT OF DISTURBANCE
- OCF — ORANGE CONSTRUCTION FENCE
- PROPOSED 100 YEAR FLOODPLAIN
- EXISTING 100 YEAR FLOODPLAIN
- EXISTING SANITARY SEWER MANHOLE
- EXISTING TREE
- X — EXISTING TREE TO BE REMOVED
- ROCK ROOT PACK
- COIR FIBER ROLL
- TOE BOULDER PROTECTION
- OUTFALL CHANNEL STABILIZATION
- RIFFLE GRADE CONTROL
- STEP POOL STRUCTURE
- LOG STEP STRUCTURE



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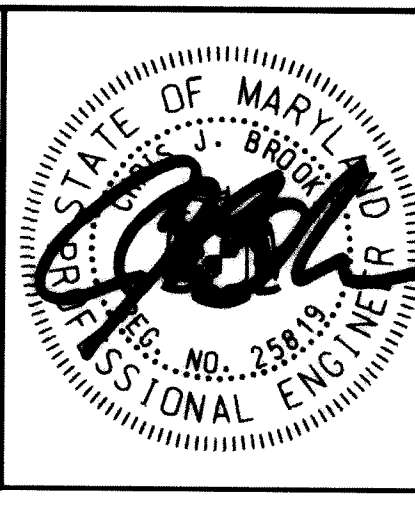
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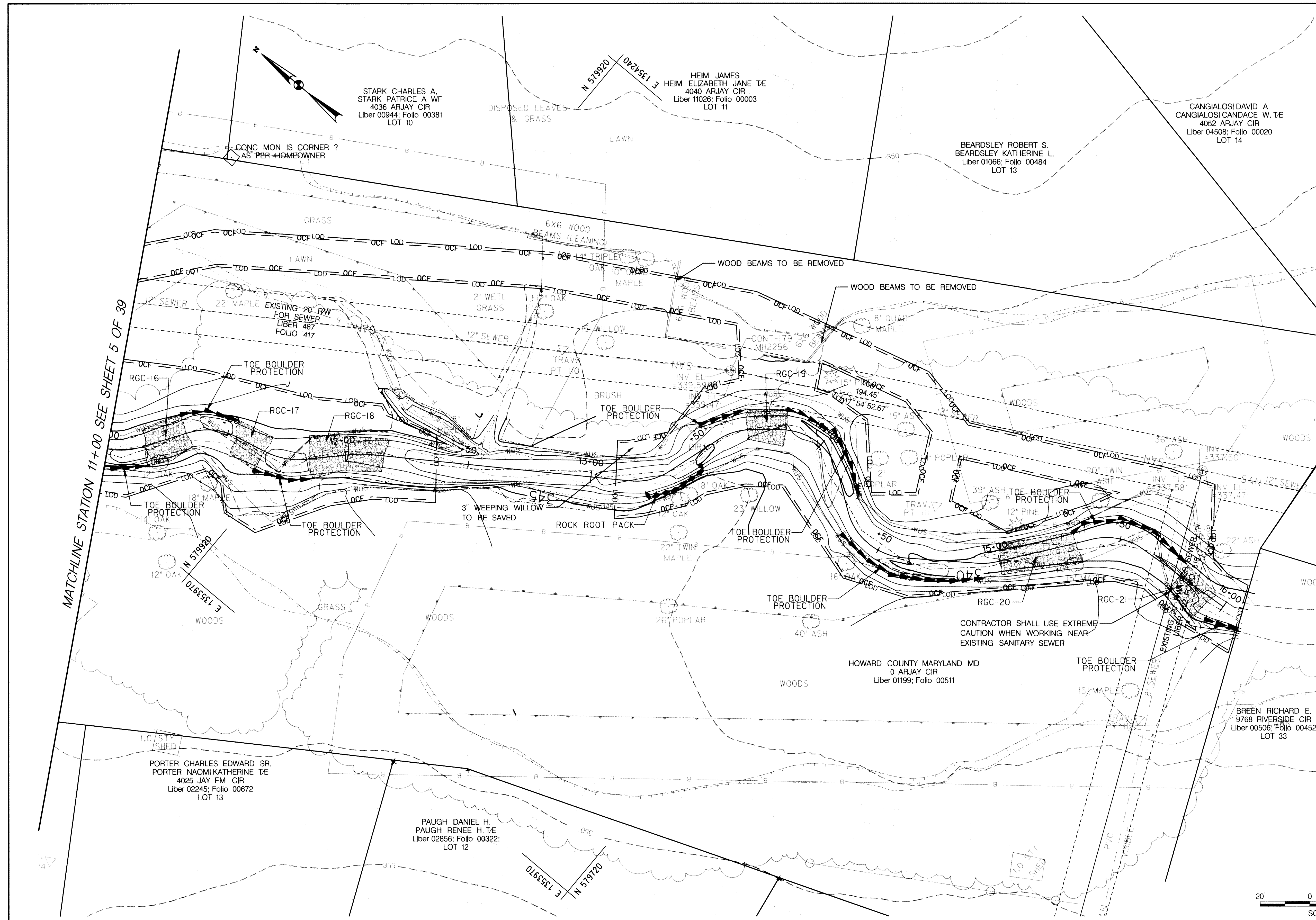
HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

SITE PLAN

SCALE: 1" = 20'
SHEET: 5 OF 39

BANK PROTECTION SCHEDULE			
STRUCTURE	FROM	TO	OFFSET
TOE BOULDER PROTECTION	10+99	11+14	RT
TOE BOULDER PROTECTION	11+34	11+53	RT
TOE BOULDER PROTECTION	11+66	11+85	LT
ROCK ROOT PACK	13+22	13+46	RT
TOE BOULDER PROTECTION	13+55	13+70	LT
TOE BOULDER PROTECTION	13+82	14+24	LT
TOE BOULDER PROTECTION	15+33	15+63	LT

RIFFLE GRADE CONTROL (RGC) TABLE		
STRUCTURE	FROM	TO
RGC-16	11+14	11+34
RGC-17	11+53	11+66
RGC-18	11+85	12+15
RGC-19	13+70	13+82
RGC-20	15+03	15+33
RGC-21	15+63	15+88



LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- - - EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- WUS — WATERS OF THE US
- WETLAND BOUNDARY
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- OUTFALL CHANNEL STABILIZATION
- RIFFLE GRADE CONTROL
- STEP POOL STRUCTURE
- LOG STEP STRUCTURE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark Taylor
10/23/12
DATE

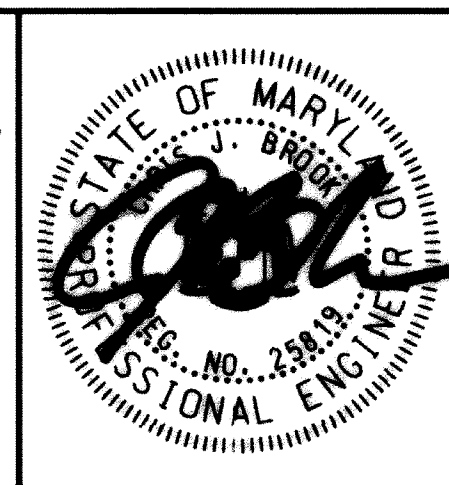
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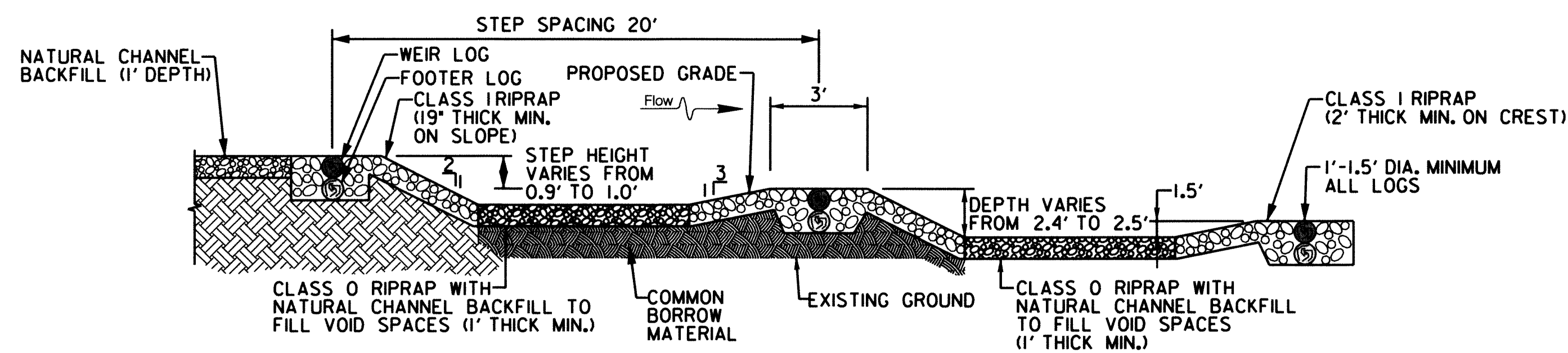
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CB			
DATE: 10/3/12	BY:	NO.:	REVISION:

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

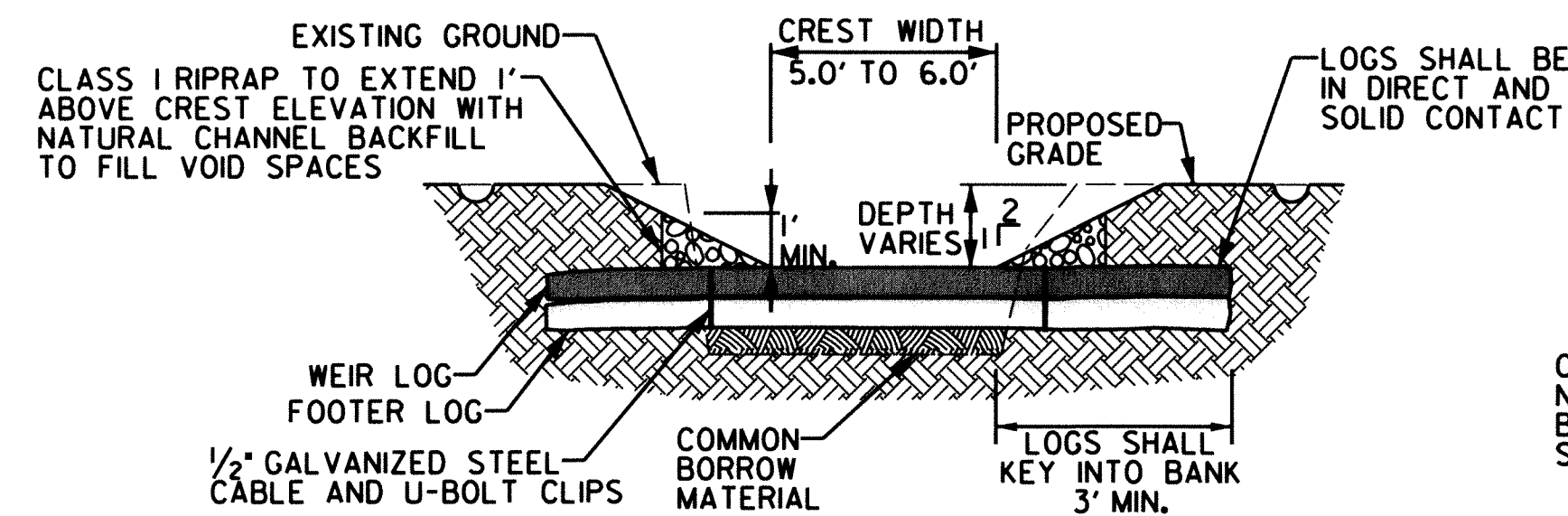
SITE PLAN

SCALE
1" = 20'

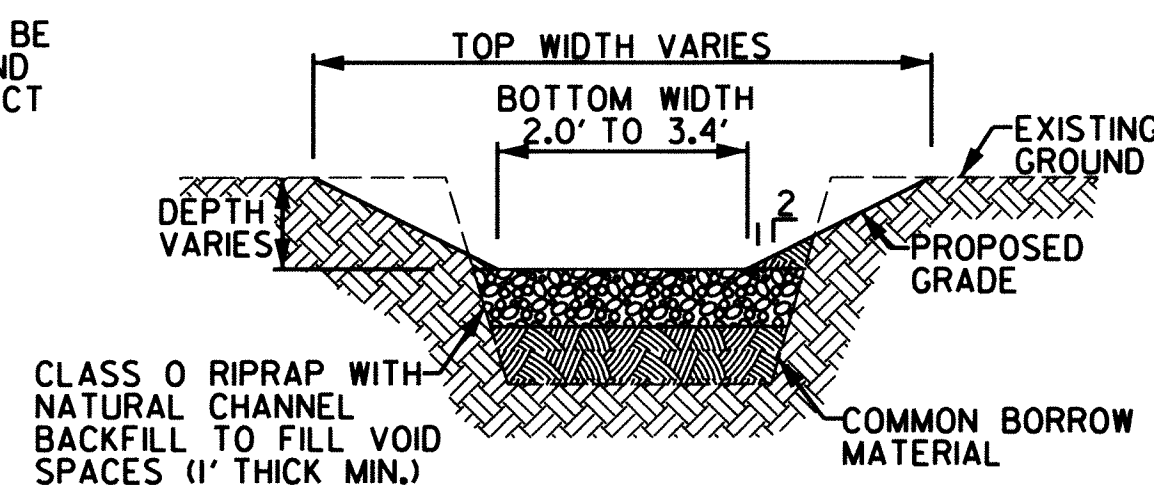
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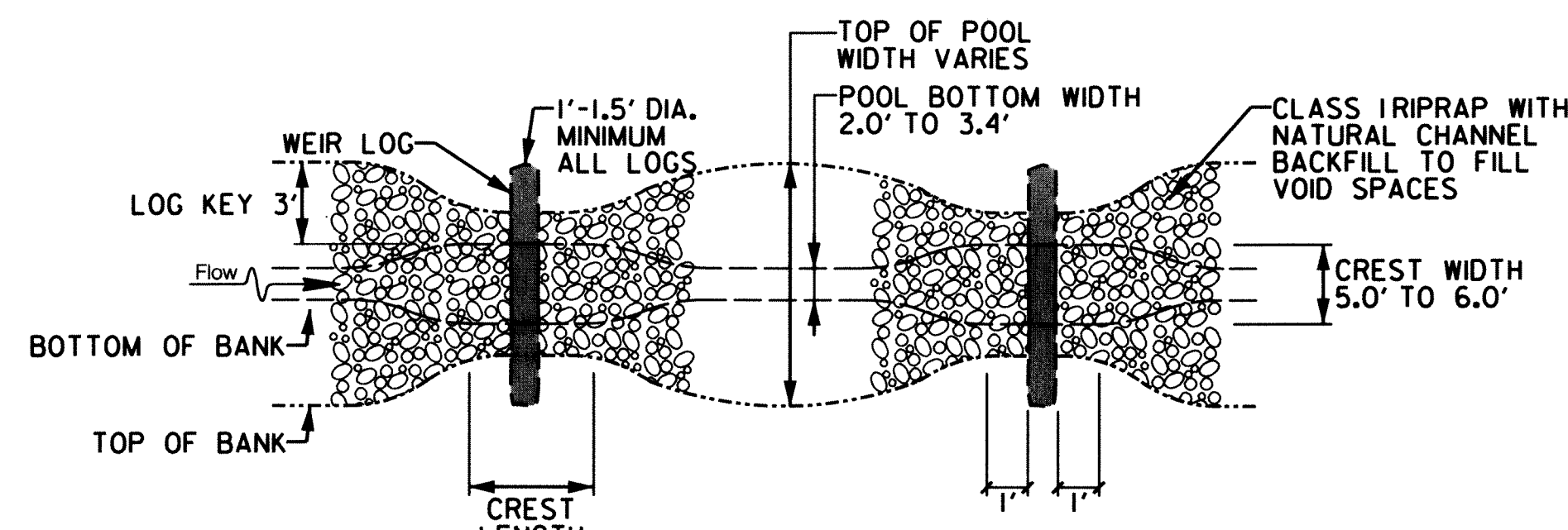
PROFILE VIEW



CROSS SECTION VIEW AT CREST

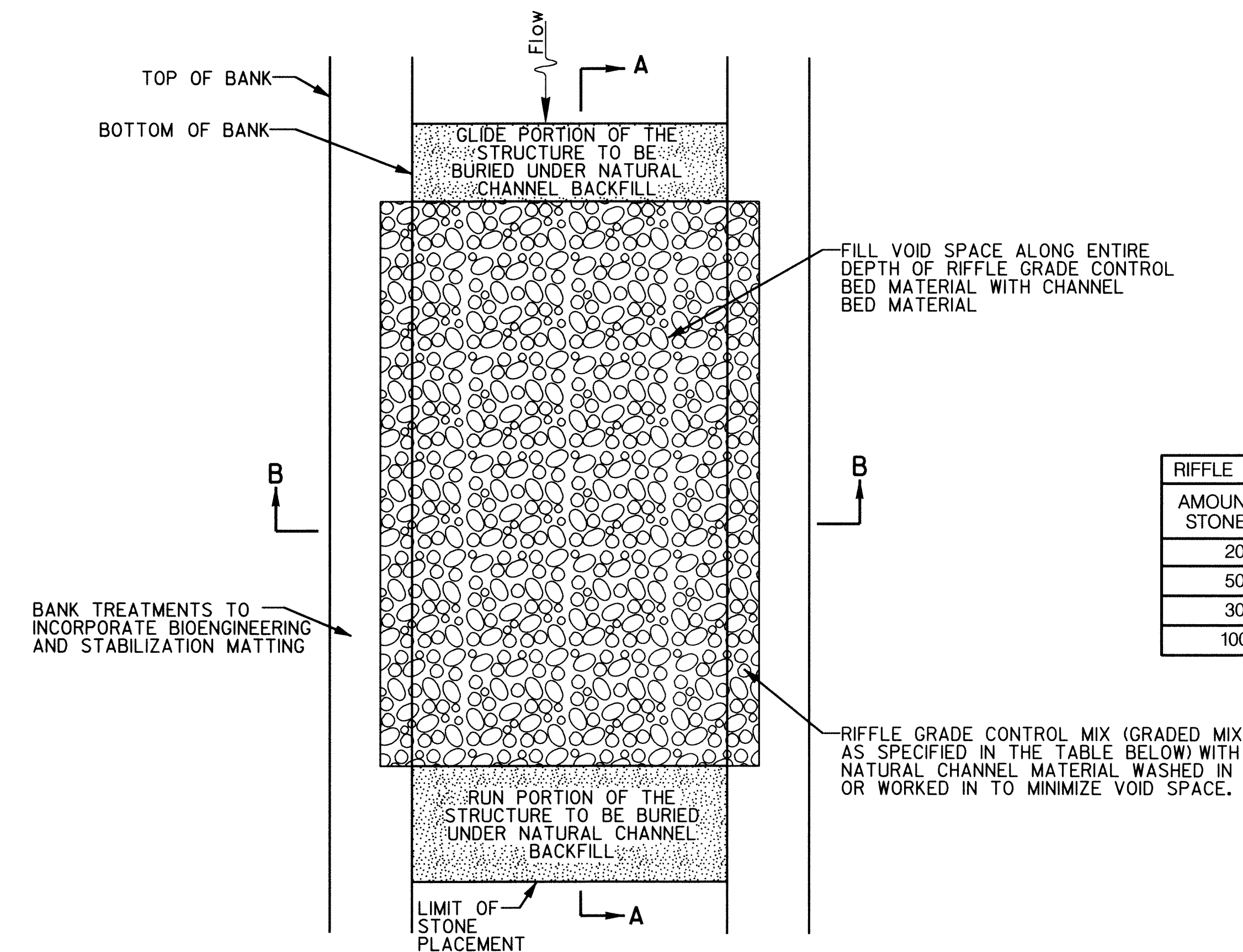


CROSS SECTION VIEW AT POOL



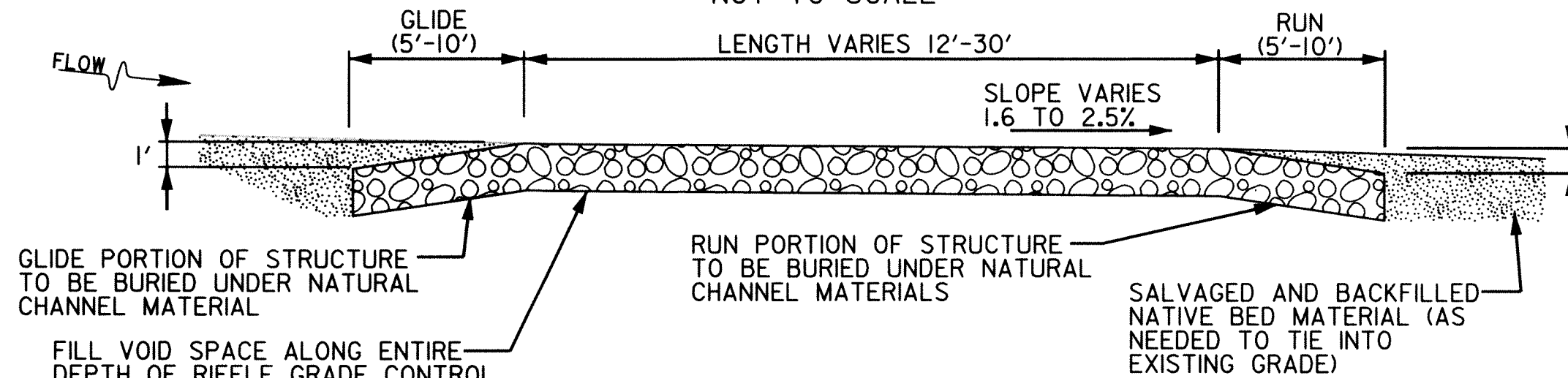
PLAN VIEW
LOG STEP STRUCTURE
NOT TO SCALE

- NOTES:
1. WEIR AND FOOTER LOGS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
 2. CONTRACTOR SHALL USE NATURALLY APPEARING BROWN OR GRAY STONE. WHITE STONE IS NOT ACCEPTABLE.

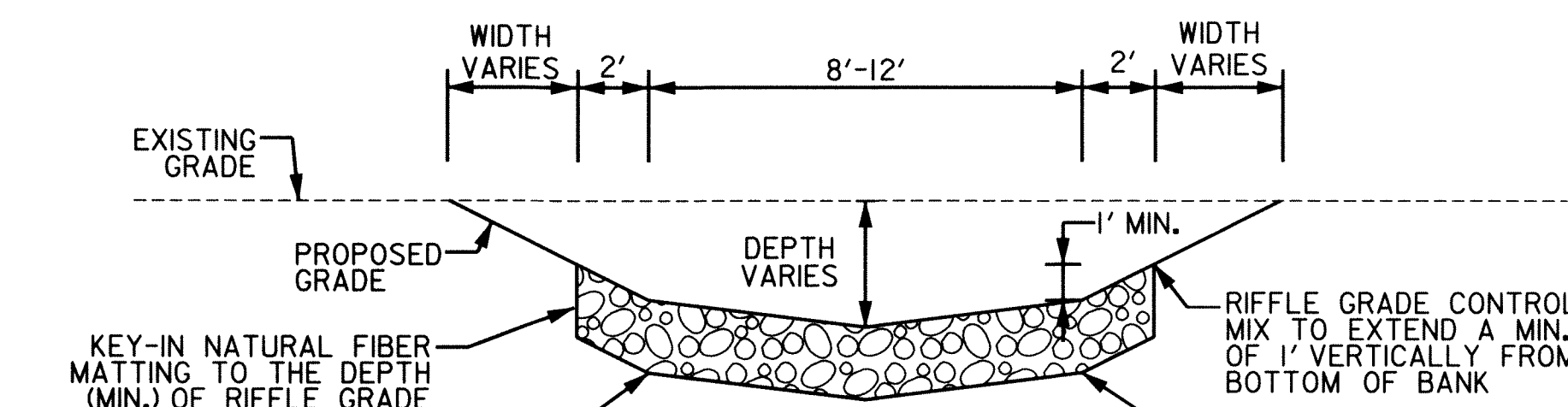


PLAN VIEW
RIFFLE GRADE CONTROL
NOT TO SCALE

RIFFLE GRADE CONTROL MIX	
AMOUNT OF STONE (%)	TYPE
20	57 STONE
50	SHA CLASS 0
30	SHA CLASS 1
100	TOTAL



CROSS SECTION 'A-A'
RIFFLE GRADE CONTROL
NOT TO SCALE



CROSS SECTION 'B-B'
RIFFLE GRADE CONTROL
NOT TO SCALE

- NOTES:
1. COMPACT NATURAL CHANNEL BACKFILL TO MATCH PRE-CONSTRUCTION GRADE UNLESS OTHERWISE SPECIFIED.
 2. IF CLAY OR UNSUITABLE MATERIAL IS FOUND IN IN SUBGRADE THEN OVER EXCAVATE AND PLACE 6" MIN. THICKNESS CHANNEL BED MATERIAL BELOW CONSTRUCTED RIFFLE MIX.
 3. CONTRACTOR SHALL USE NATURALLY APPEARING BROWN OR GRAY STONE. WHITE STONE IS NOT ACCEPTABLE.

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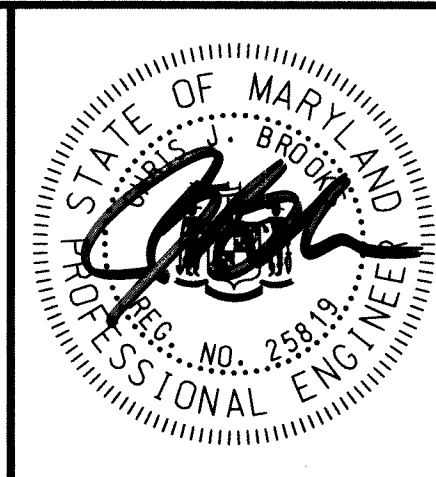
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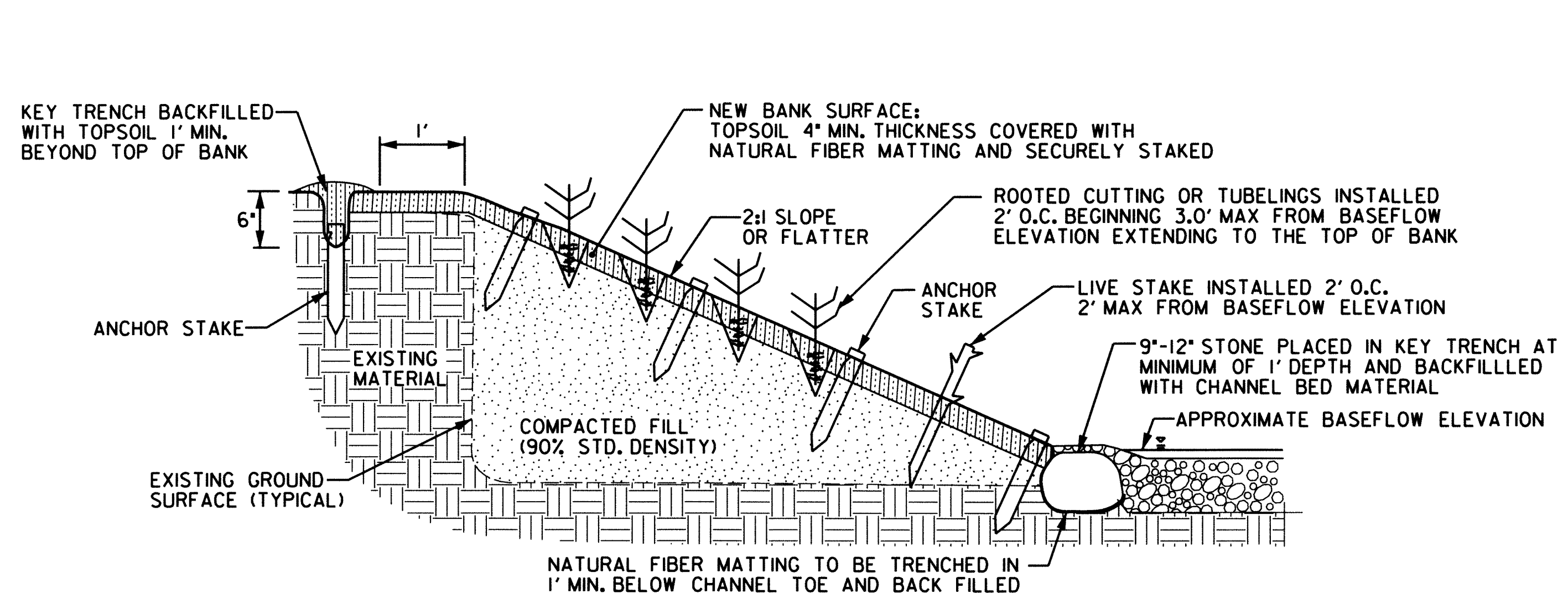


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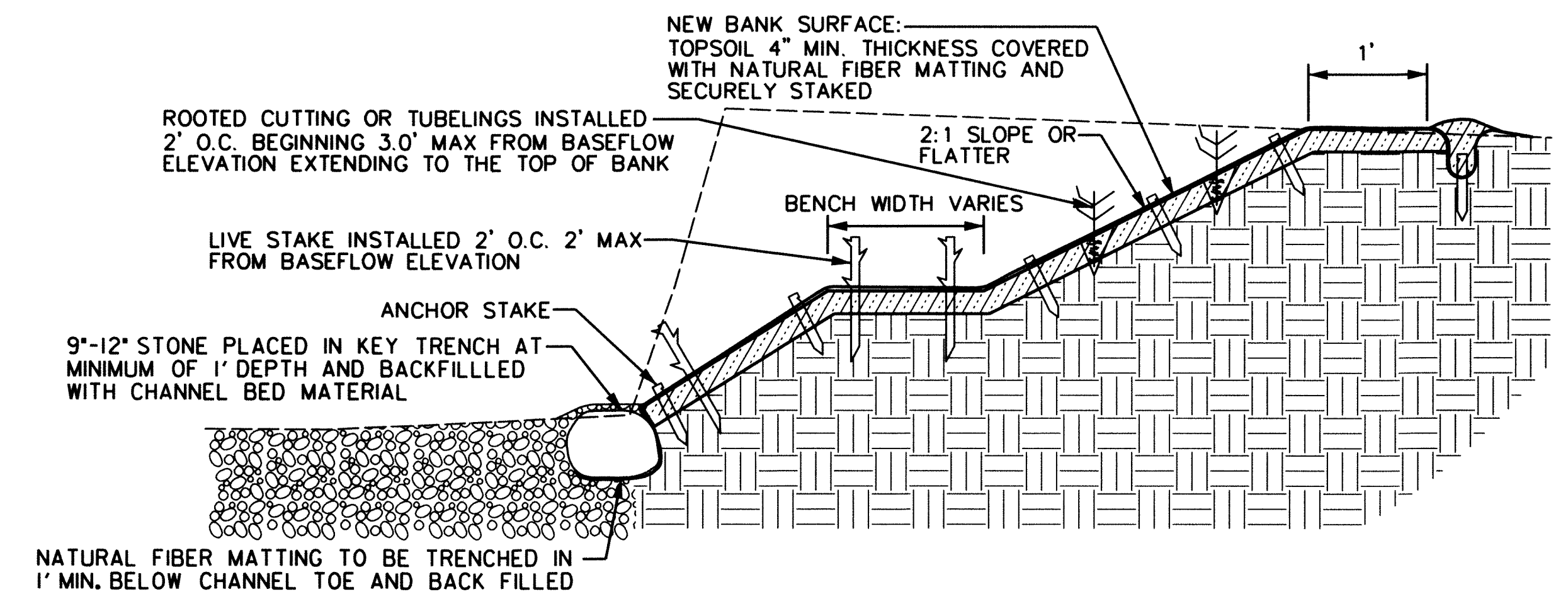
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WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

STREAM STABILIZATION DETAILS

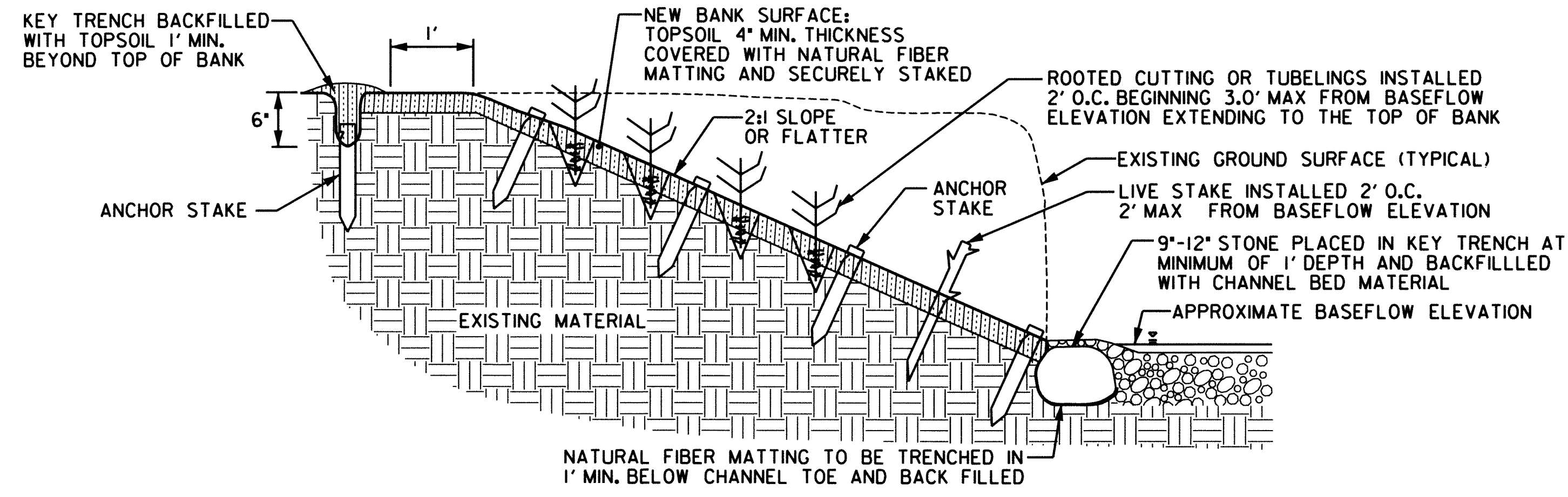
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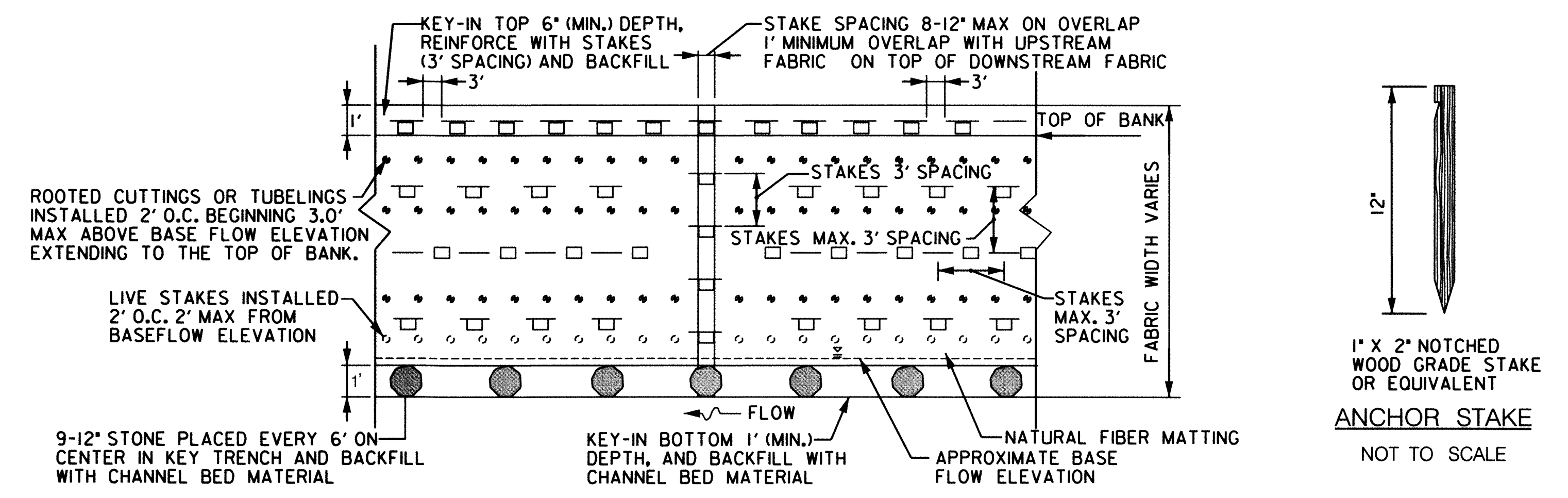
TYPICAL STREAMBANK STABILIZATION IN FILL WITH STONE KEY
NOT TO SCALE



TYPICAL STREAMBANK STABILIZATION WITH FLOODPLAIN BENCH
NOT TO SCALE



TYPICAL STREAMBANK STABILIZATION IN CUT WITH STONE KEY
NOT TO SCALE



NATURAL FIBER MATTING - PLAN VIEW
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark J. ...
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

10/23/12
DATE

McCormick Taylor
Engineers & Planners
Since 1946

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Howard County
MARYLAND

Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
(410) 313-6444

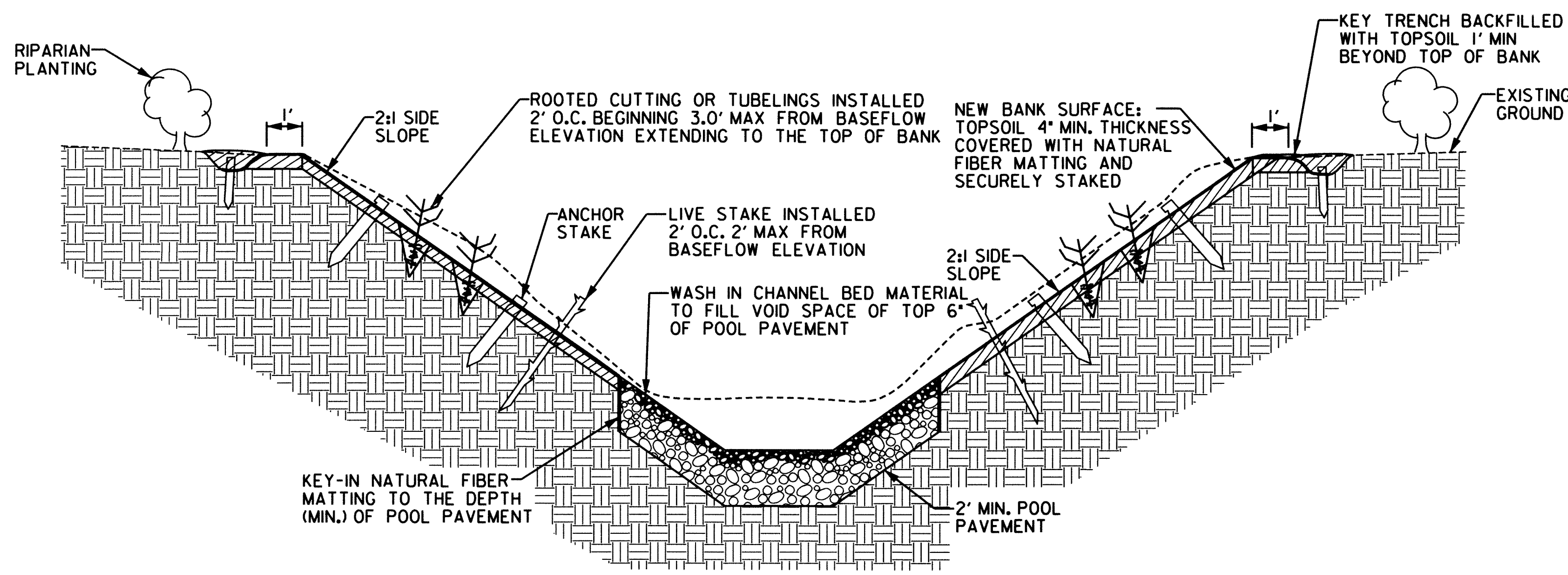


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DRN: MR					
CHK: CB					
DATE: 10/3/12	BY	NO.	REVISION	DATE	

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

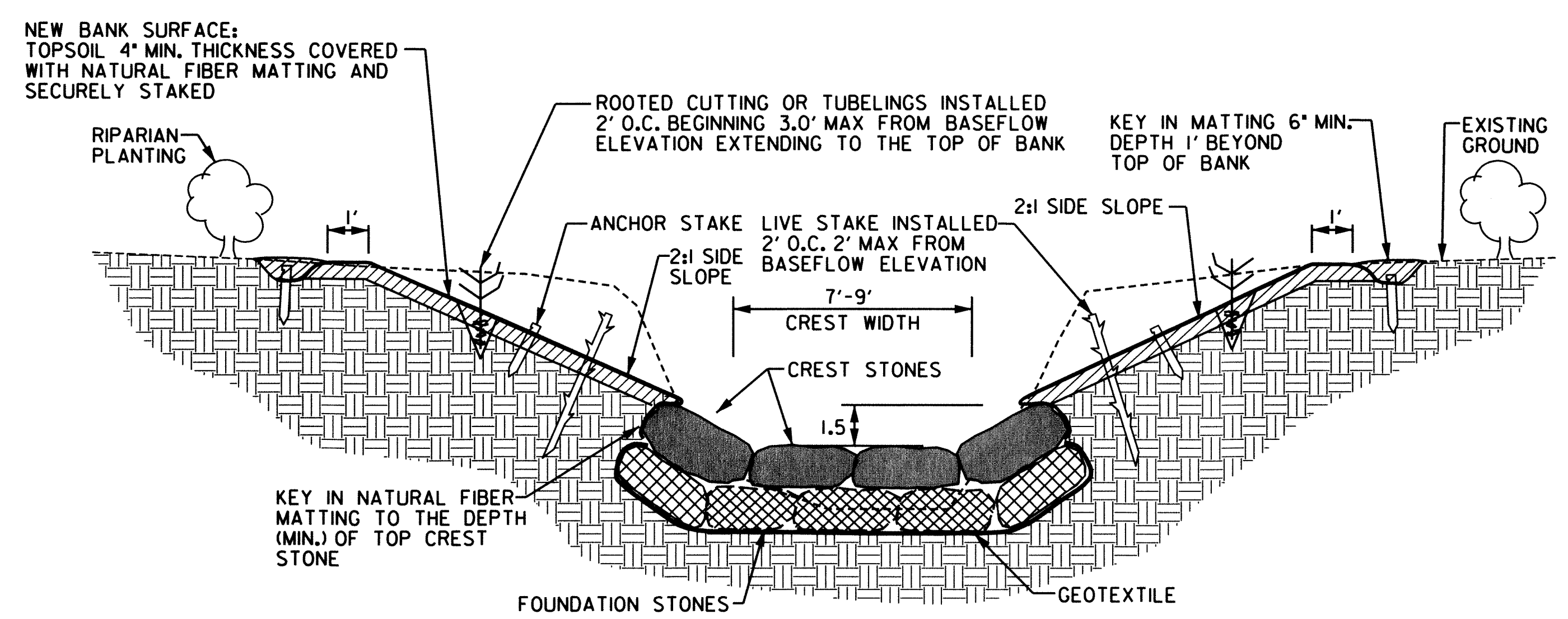
STREAM STABILIZATION DETAILS

SCALE: AS NOTED
SHEET: 8 OF 39

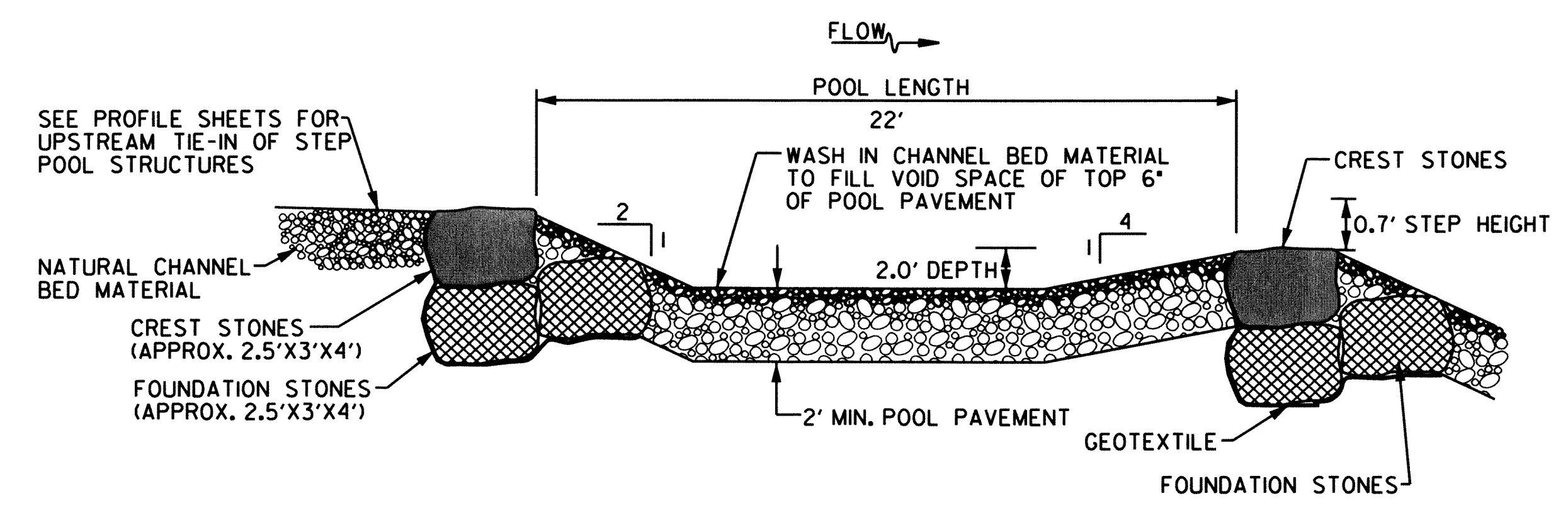


TYPICAL CROSS SECTION OF STEP-POOL POOL
NOT TO SCALE

POOL PAVEMENT MIX	
AMOUNT OF STONE (%)	TYPE
20	57 STONE
50	SHA CLASS 0
30	SHA CLASS 1
100	TOTAL

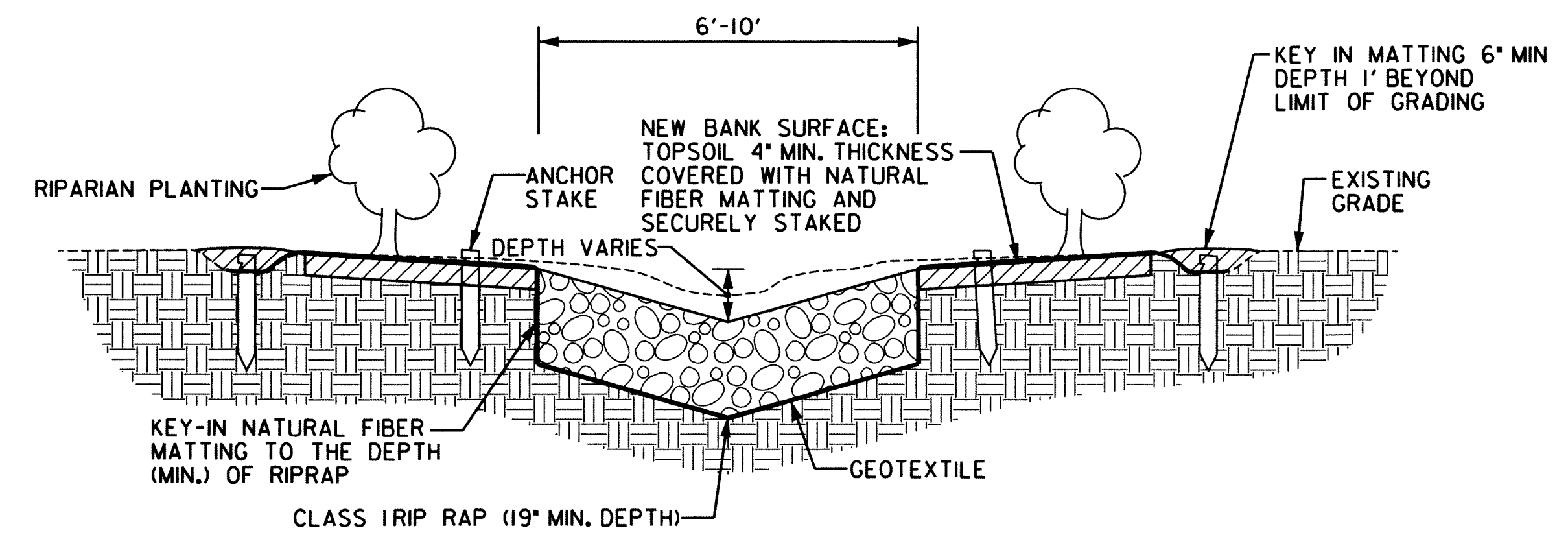


TYPICAL CROSS SECTION OF STEP-POOL CREST
NOT TO SCALE



TYPICAL PROFILE THROUGH STEP-POOL
NOT TO SCALE

NOTE:
CONTRACTOR SHALL USE NATURALLY APPEARING BROWN OR GRAY STONE. WHITE STONE IS NOT ACCEPTABLE.



OUTFALL CHANNEL STABILIZATION
NOT TO SCALE

NOTE:
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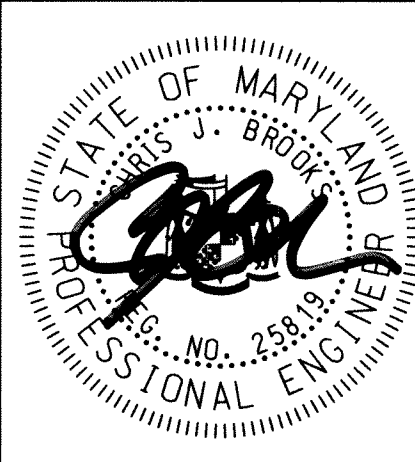
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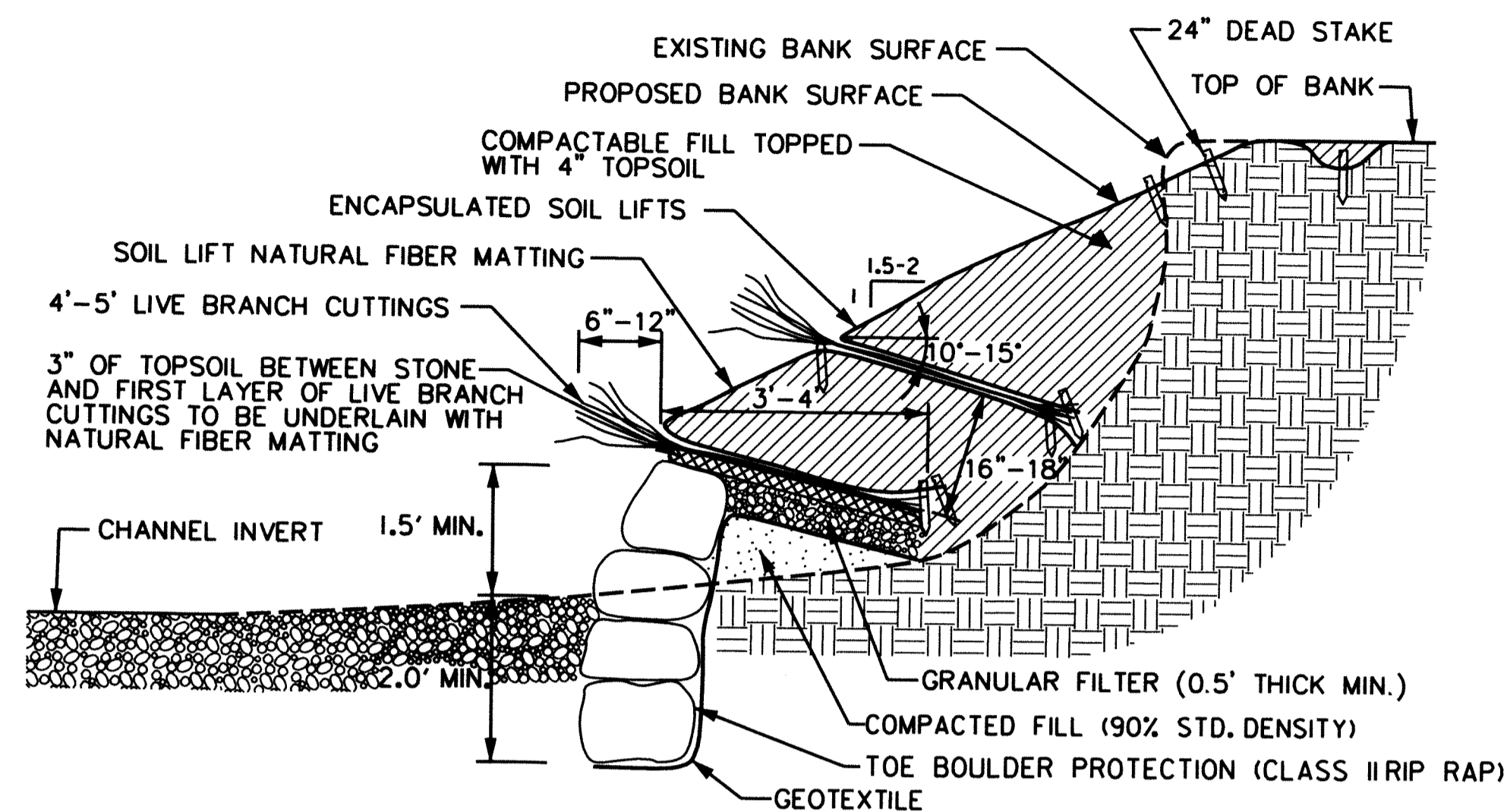
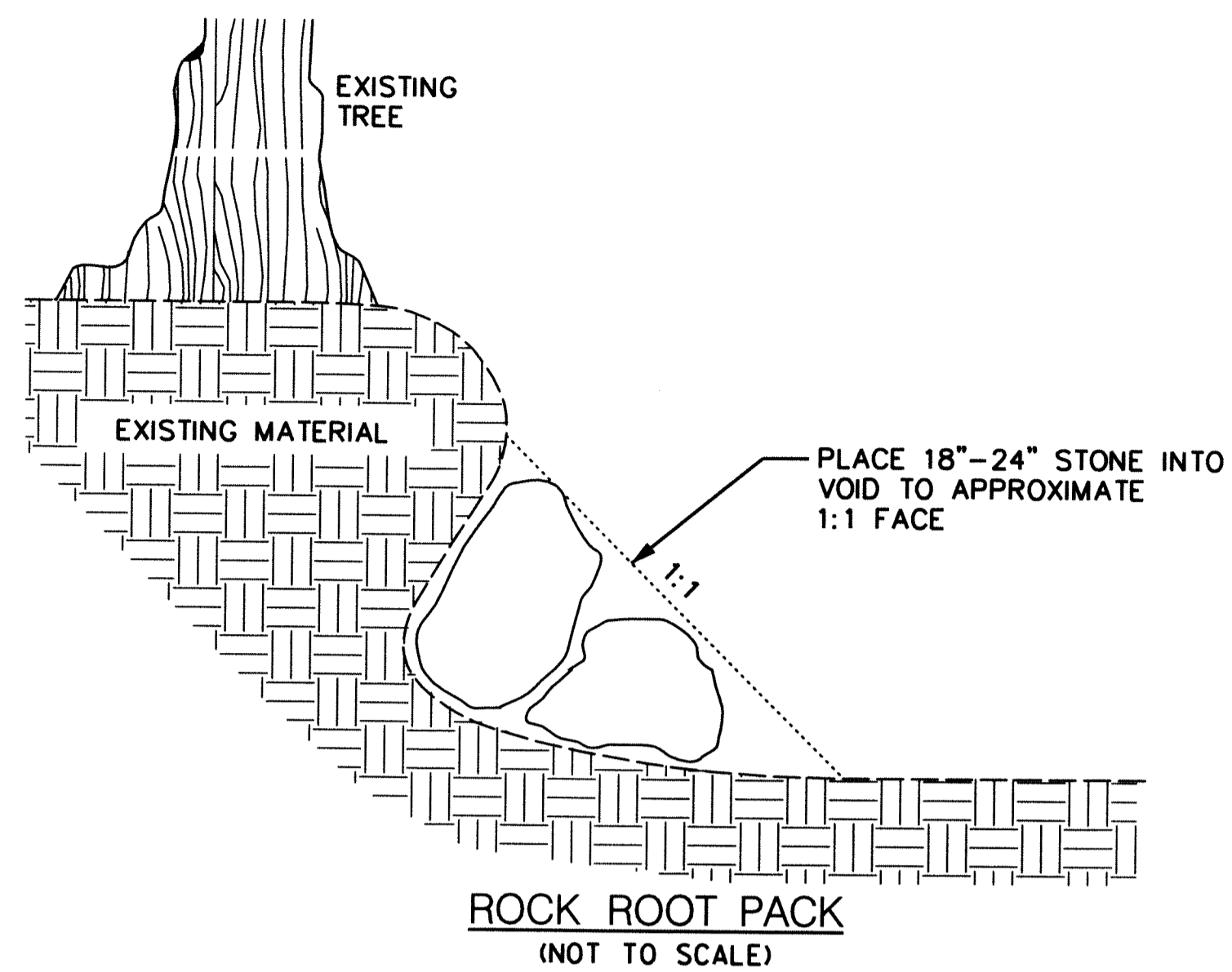
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CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

STREAM STABILIZATION DETAILS

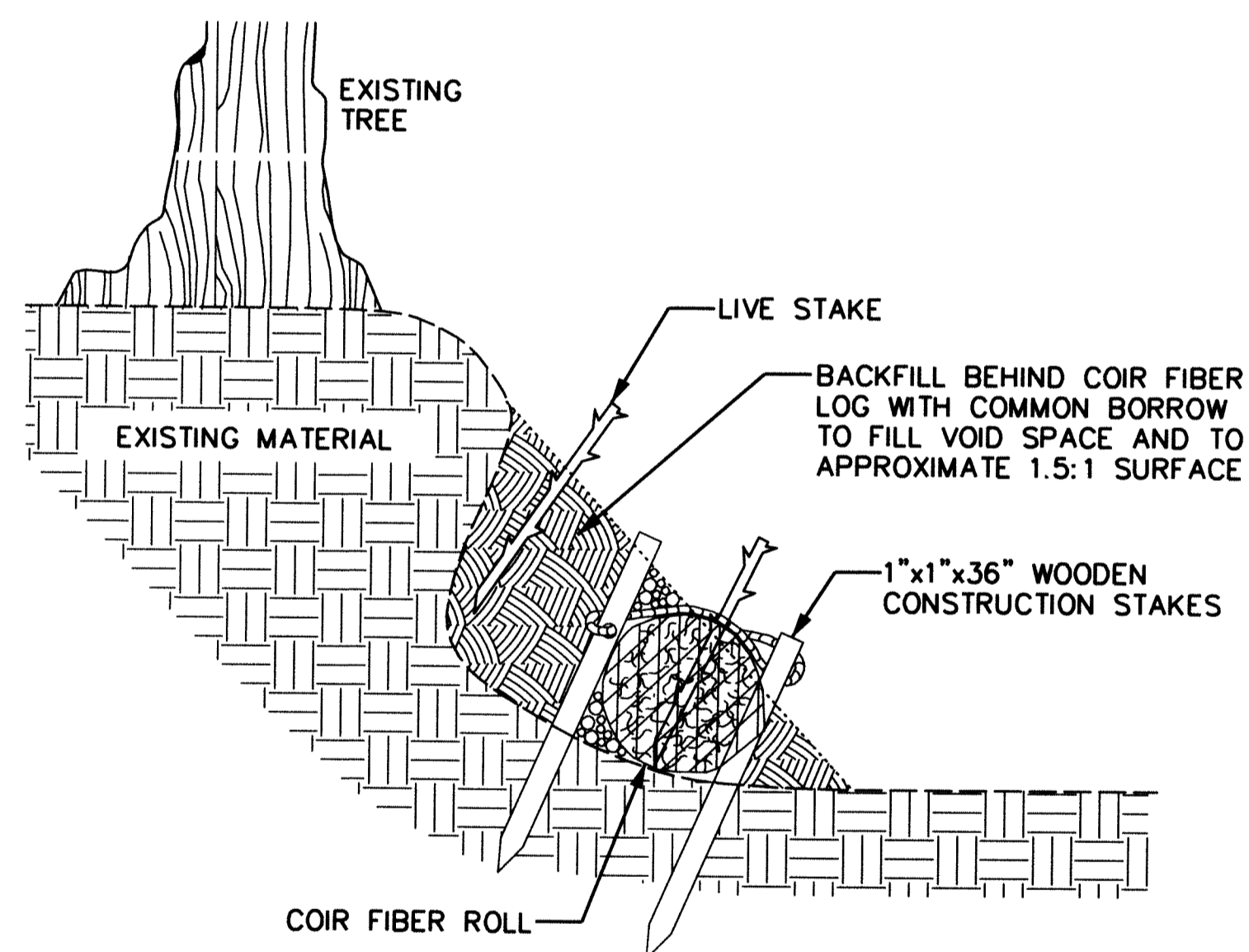
SCALE
AS NOTED
SHEET
9 OF 39

W. J. Brody
10/23/12
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
DATE

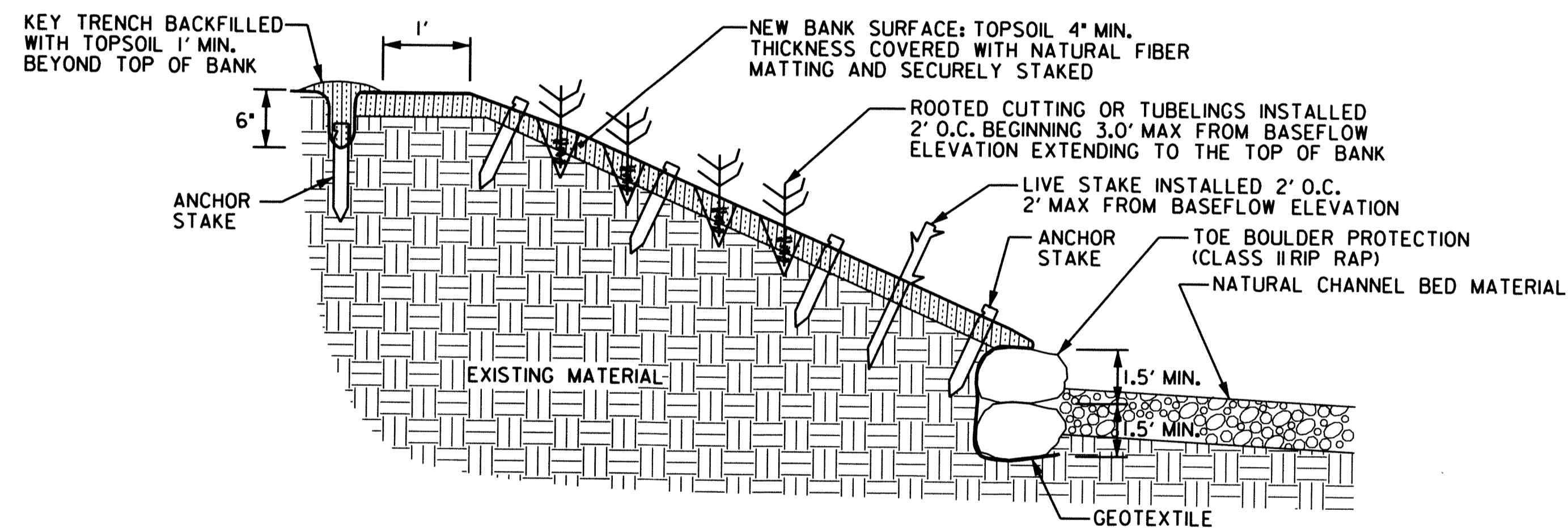


TOE BOULDER PROTECTION WITH BRANCH LAYERING TYPICAL
(NOT TO SCALE)

NOTE:
CONTRACTOR SHALL USE NATURALLY APPEARING BROWN OR GRAY STONE, WHITE STONE IS NOT ACCEPTABLE



COIR FIBER ROLL DETAIL
(NOT TO SCALE)



TOE BOULDER PROTECTION TYPICAL
(NOT TO SCALE)

NOTE:
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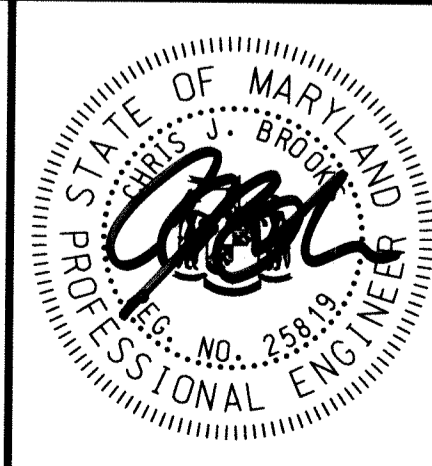
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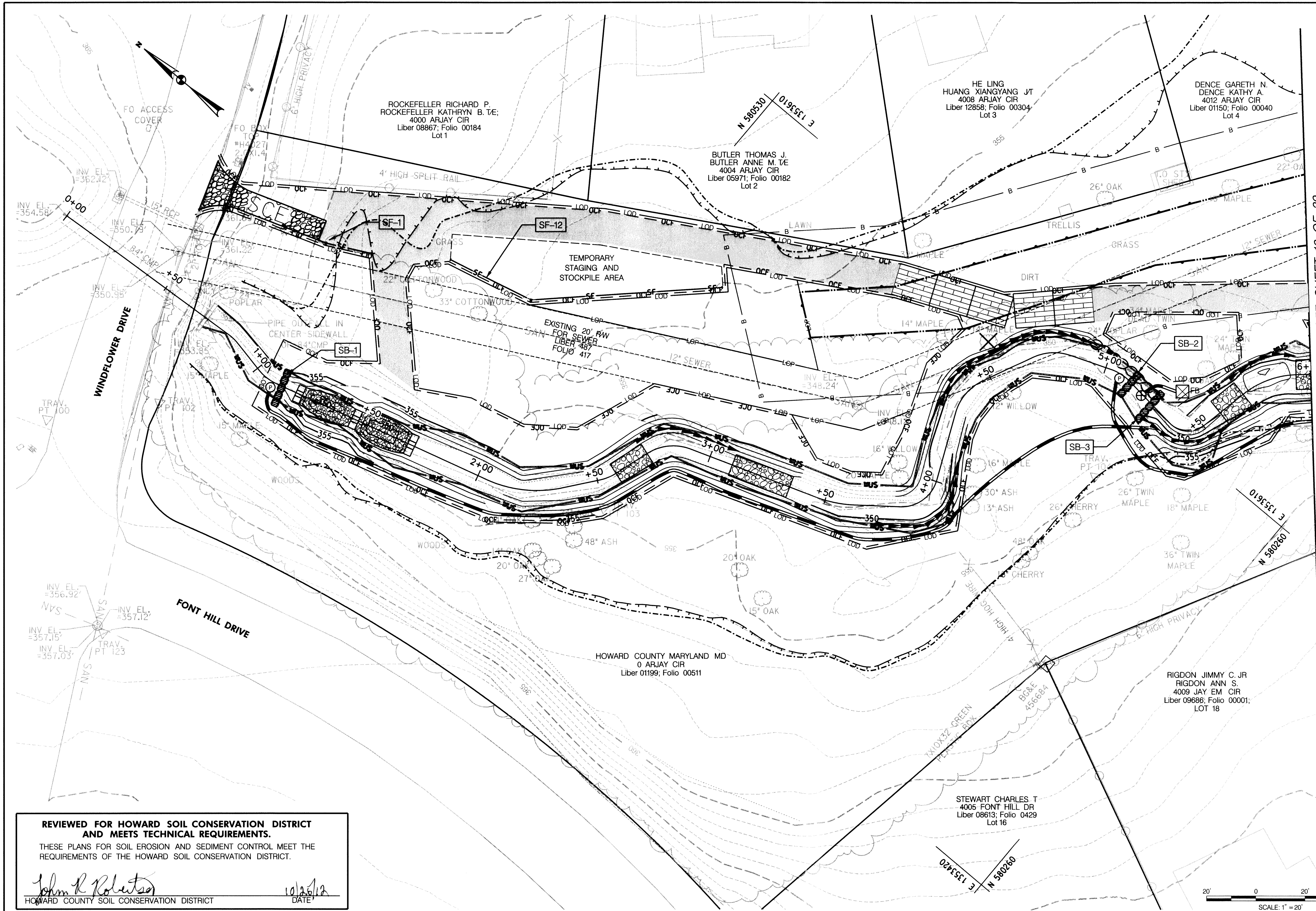
HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
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STREAM STABILIZATION DETAILS

SCALE
AS NOTED
SHEET
10 OF 39

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

DATE



MATCHLINE STATION 6+00 SEE SHEET 12 OF 39

- TIME RESTRICTION NOTES:**
1. PUMPING IS NOT PERMITTED BETWEEN THE HOURS OF 7:00 PM AND 7:00 AM, MONDAY THROUGH FRIDAY.
 2. CONSTRUCTION EQUIPMENT SHALL NOT BE STARTED NOR RUN BETWEEN THE HOURS OF 7:00 PM AND 7:00AM, MONDAY THROUGH FRIDAY.
 3. FOR SATURDAY WORK, THE ABOVE HOURS SHALL BE 5:00 PM AND 9:00 AM, RESPECTIVELY.
 4. NO WORK SHALL BE DONE ON SUNDAY.

- NOTE:**
1. EROSION AND SEDIMENT CONTROL SHALL BE STRICTLY ENFORCED.
 2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS SOON AS PRACTICABLE FOR EACH PHASE OF CONSTRUCTION AND CAN ONLY BE REMOVED UPON THE APPROVAL OF THE ENGINEER AND THE SEDIMENT CONTROL INSPECTOR. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
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 5. ADDITIONAL SEDIMENT CONTROLS SHALL BE PROVIDED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

LEGEND

- PROPOSED MAJOR CONTOUR
- - - PROPOSED MINOR CONTOUR
- - - EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- WATERS OF THE US
- WETLAND BOUNDARY
- WETLAND BUFFER
- PROPOSED 100 YEAR FLOODPLAIN
- - - EXISTING 100 YEAR FLOODPLAIN
- SF — SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- OCF — ORANGE CONSTRUCTION FENCE
- EXISTING TREE
- ⊗ EXISTING TREE TO BE REMOVED
- ⊠ TEMPORARY ACCESS BRIDGE (TB-1)
- ▨ TIMBER MATTING FOR ACCESS ROAD
- ▩ MULCH ACCESS ROAD
- ▨ SANDBAG DAM
- ⊠ FB DEWATERING FILTER BAG
- ⊕ DEWATERING PUMP
- ⊖ CLEAR WATER PUMP
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- DIVERSION/DEWATERING HOSE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Roberts
 HOWARD COUNTY SOIL CONSERVATION DISTRICT
 DATE: 10/25/12

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

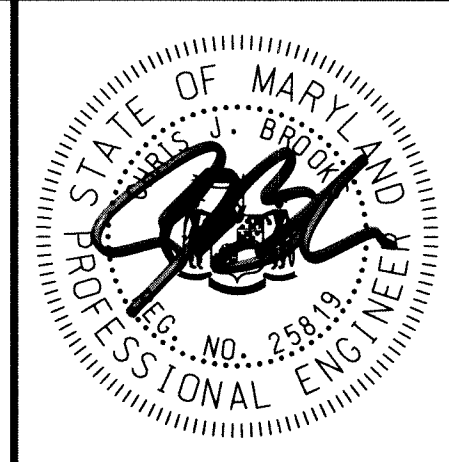
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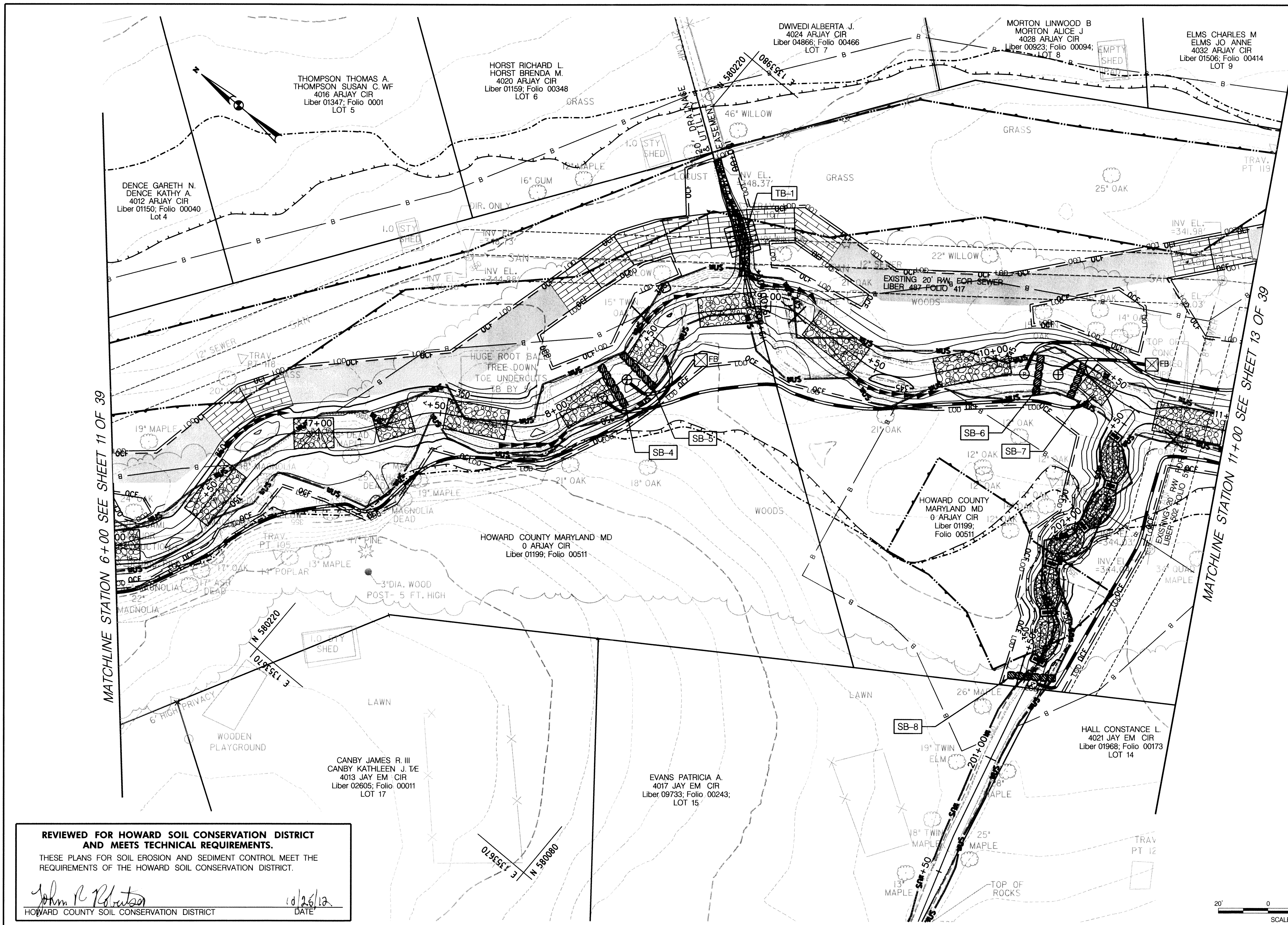


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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

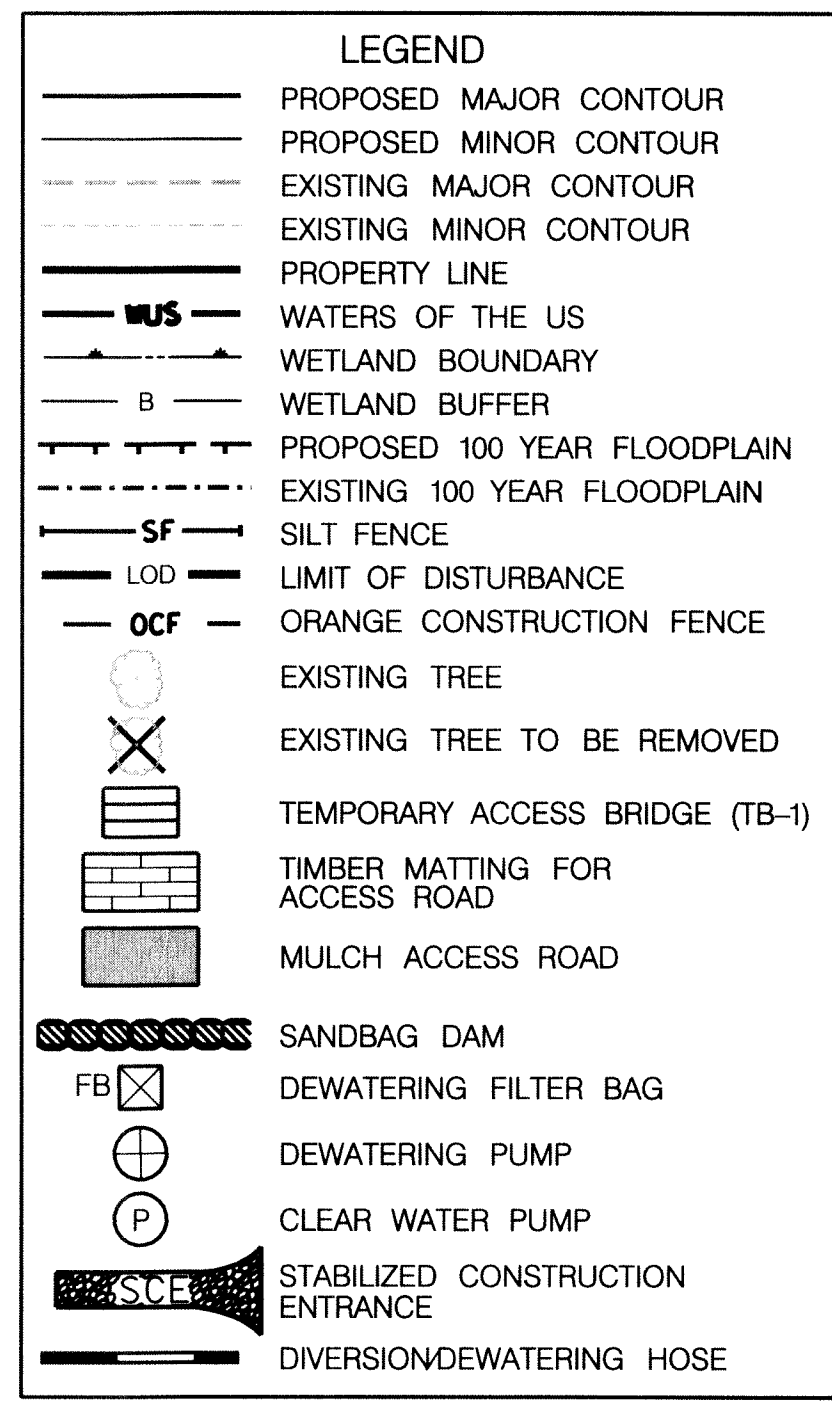
EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 20'
 SHEET: 11 OF 39



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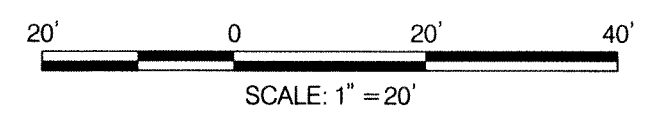
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REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Roberts
 HOWARD COUNTY SOIL CONSERVATION DISTRICT
 DATE: 10/26/12



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

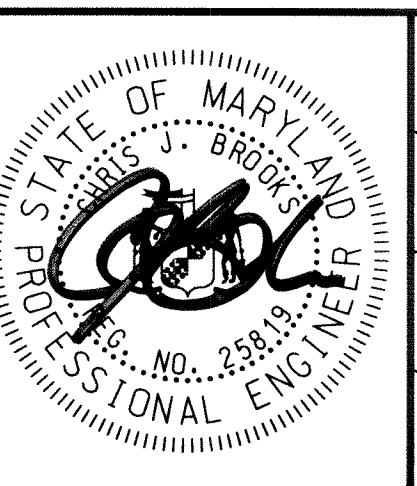
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 DATE: 10/23/12

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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
 CAPITAL PROJECT #D-1158
 ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
 TAX MAP 24
 WAIVER PETITION #WP-13-011

EROSION AND SEDIMENT CONTROL PLAN

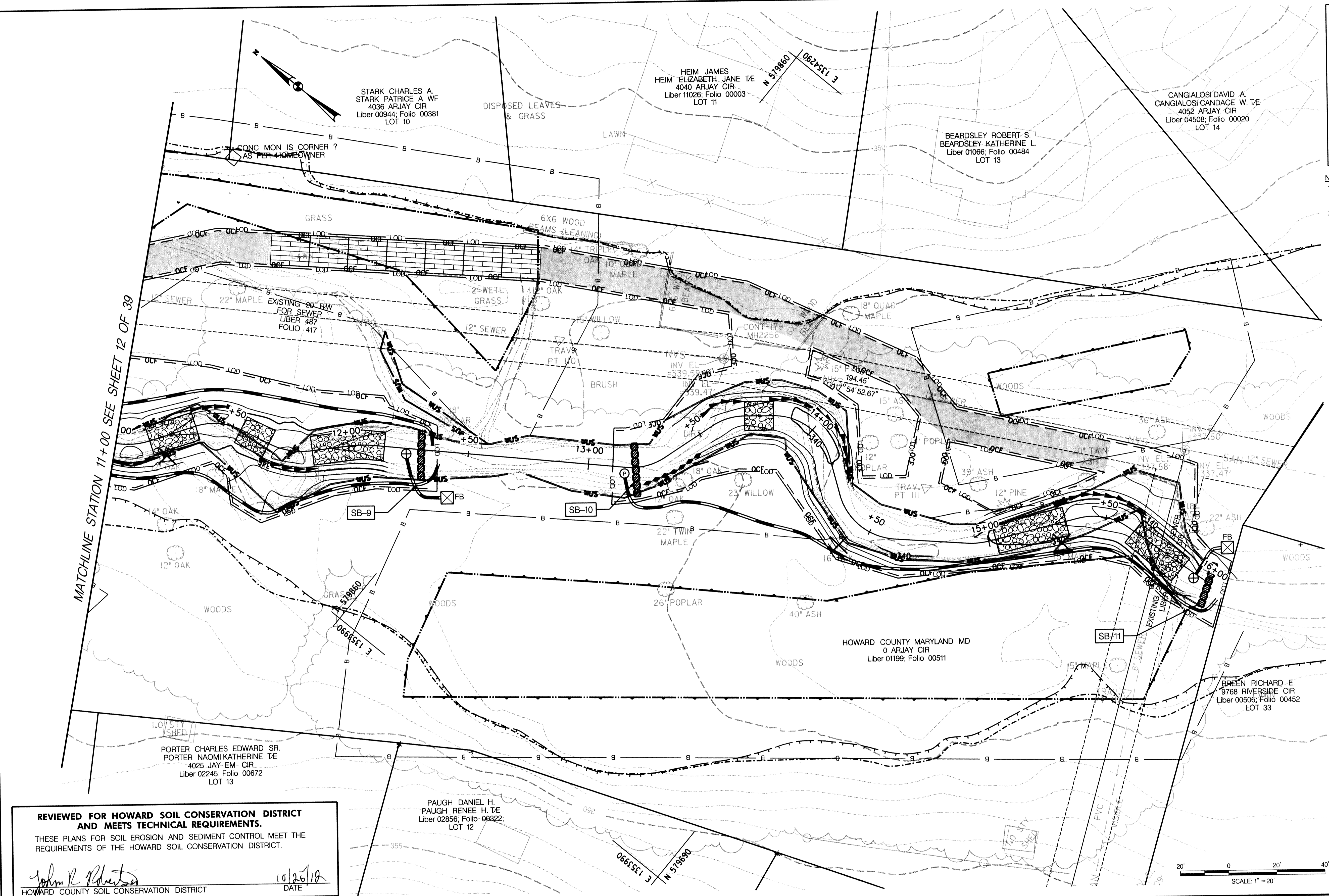
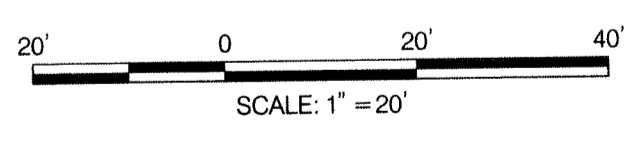
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- ⊕ DEWATERING PUMP
- ⊙ CLEAR WATER PUMP
- ▨ SCLB STABILIZED CONSTRUCTION ENTRANCE
- DIVERSION/DEWATERING HOSE



REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

John R. [Signature] 10/26/12
 HOWARD COUNTY SOIL CONSERVATION DISTRICT DATE

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

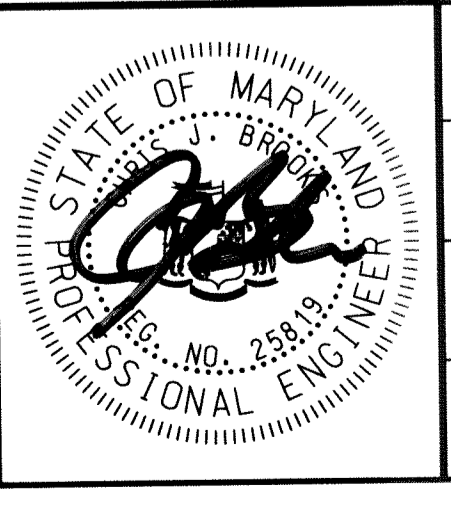
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
 CAPITAL PROJECT #D-1158
 ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
 TAX MAP 24
 WAIVER PETITION #WP-13-011

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 20'
 SHEET: 13 OF 39

EROSION AND SEDIMENT CONTROL – GENERAL NOTES

HOWARD SOIL CONSERVATION DISTRICT TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RE-DISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: – LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING. IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: – APPLY 436 LBS/ACRE 10-20-20 FERTILIZER (10 LBS/1000 SQ. FT.).

SEEDING: – FOR PERIODS MARCH 1 – MAY 15 AND FROM AUGUST 1 – OCTOBER 15, SEED WITH 40 LBS PER ACRE OF ANNUAL RYE (1.0 LBS/1000 SQ. FT.). FOR THE PERIOD MAY 16 – JULY 31, SEED WITH 30 LBS / ACRE OF FOXTAIL WILLET (0.7 LBS/1000 FT.). FOR THE PERIOD OCTOBER 16 – FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS/ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: – APPLY 2 TONS/ACRE (90 LBS/1000 SQ. FT.) OF UNROTTED WEED-FREE, SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL. NO ASPHALT EMULSION SHALL BE USED FOR ANCHORING. ONLY A NON-TOXIC, LATEX BACKING MATERIAL IS ALLOWED.

REFER TO THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT AND MDE PERMIT (TRACKING NUMBER 12-NT-0283/201261118).
2. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-267-7777 AT LEAST FIVE (5) DAYS PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY CONSTRUCTION DIVISION (410) 313-1880 A MINIMUM OF 5 DAYS PRIOR TO THE START OF ANY CONSTRUCTION. THE CONTRACTOR SHALL ALSO NOTIFY THE HOWARD COUNTY BUREAU OF UTILITIES (410) 313-4900 AND MARYLAND DEPARTMENT OF ENVIRONMENTAL INSPECTOR AT (301) 665-2850, FIVE (5) DAYS BEFORE ANY LAND DISTURBING ACTIVITY.
3. ORANGE HIGH VISIBILITY FENCE SHALL BE MANUALLY INSTALLED WHERE INDICATED ON THE PLANS. THIS SHALL BE COMPLETED BY AND INSPECTED AT THE PRECONSTRUCTION MEETING. (1 DAY)
4. THE CONTRACTOR SHALL COORDINATE AN ON-SITE PRE-CONSTRUCTION MEETING WHICH SHALL INCLUDE, BUT NOT BE LIMITED TO, THE COUNTY PROJECT MANAGER, THE ENGINEER, A REPRESENTATIVE FROM THE DEPARTMENT OF RECREATION AND PARKS, A REPRESENTATIVE FROM THE BUREAU OF UTILITIES AND A REPRESENTATIVE FROM HOWARD COUNTY CONSTRUCTION INSPECTION. TREE SAVES SHALL BE CONFIRMED AT THE PRE-CONSTRUCTION MEETING. (1 DAY)
5. WITH APPROVAL OF EAS CONTROL INSPECTOR CLEAR AND GRUB FOR THE INSTALLATION OF THE EROSION AND SEDIMENT CONTROL DEVICES. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE OFF OF WINDFLOWER AND PERIMETER CONTROLS ASSOCIATED WITH THE STAGING AND STOCK PILE AREA. STABILIZE ALL DISTURBED AREAS RESULTING FROM THIS AT THE END OF EACH WORK DAY. THE CONTRACTOR SHALL UTILIZE SAME DAY STABILIZATION ALONG THE ENTIRE ACCESS PATH.
6. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB AREAS NECESSARY TO INSTALL THE TEMPORARY ACCESS BRIDGE AND PUMP AROUND. STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORK DAY. NO WORK SHOULD BE DONE WITHIN THE CHANNEL. WORK AREAS SHALL PROGRESS FROM DOWNSTREAM TO UPSTREAM.
7. INSTALL THE STREAM DIVERSION/PUMP AROUND WHICH INCLUDES THE SANDBAG, PUMPS AND DIVERSION HOSES. DEWATER WORK AREA AS NEEDED TO A DEWATERING FILTER BAG. SANDBAG LOCATIONS ON PLANS ARE FOR REFERENCE ONLY AND TO DESIGNATE WORK AREA LIMITS. SANDBAG DIVERSIONS MAY BE RELOCATED WITHIN THE DESIGNATED WORK AREA TO LIMIT THE AMOUNT OF DAILY DISTURBANCE AND ENCOMPASS THE AREA OF INTENDED WORK FOR THAT DAY.
8. NOTIFY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR UPON COMPLETION OF EROSION AND SEDIMENT CONTROL DEVICE INSTALLATION.
9. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE IN STREAM CONSTRUCTION FROM DOWNSTREAM TO UPSTREAM ONLY DISTURBING AN AREA THAT CAN BE STABILIZED AT THE END OF EACH WORK DAY. STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORK DAY AND REMOVE THE STREAM DIVERSION/PUMP AROUND. ALL IN STREAM WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE PUMP AROUND SPECIFICATIONS.
10. UPON COMPLETION OF THE GRADING AND IMPROVEMENTS PERMANENTLY STABILIZE THE ACCESS PATH AND ALL DISTURBED AREAS.
11. INSTALL LANDSCAPING PER PLAN.
12. WHEN DISTURBED AREAS ARE FULLY STABILIZED, AND UPON PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES. IMMEDIATELY STABILIZE ANY DISTURBANCE RESULTING FROM THIS EFFORT.

IN-CHANNEL PUMPING NOTES

1. AT THE END OF EACH WORK DAY, THE WORK AREA MUST BE STABILIZED AND THE PUMP AROUND REMOVED FROM THE CHANNEL. REFER TO THE DETAILS AND SPECIFICATIONS FOR MCWC 1.2; PUMP-AROUND PRACTICE INCLUDED ON THE PLANS.
2. THE CONTRACTOR SHALL USE A PUMP AND DIVERSION HOSES TO ACCOMMODATE A 3 INCH DISCHARGE DIAMETER AND THE FLOWS ANTICIPATED DURING CONSTRUCTION IN THE CHANNEL SECTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING A CONSTRUCTION PHASE DEWATERING SYSTEM, INCLUDING A TEMPORARY SYSTEM OF PUMPS, DRAINAGE DITCHES AND, SANDBAG/ STONE DIVERSIONS, AS REQUIRED TO REMOVE WATER FROM ANY SOURCE, INCLUDING GROUND WATER, AND MAINTAIN WORKABLE, DRY CONDITIONS IN THE WORK AREA.
4. THE CONTRACTOR SHALL NOTE THAT THE WATERWAY LOCATED WITHIN THE PROJECT LIMITS IS CLASSIFIED AS USE IV-P WATERS. INSTREAM WORK IS PROHIBITED MARCH 1 THROUGH MAY 31, INCLUSIVE DURING ANY YEAR.

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Roberts
HOWARD COUNTY SOIL CONSERVATION DISTRICT

10/25/12
DATE

HOWARD SOIL CONSERVATION DISTRICT PERMANANT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING. IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

1. **PREFERRED** – APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 436 LBS/ACRE 10-20-20 FERTILIZER (10 LBS/1000 SQ.FT) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 150 LBS/ACRE 46-0-0 UREAFORM FERTILIZER (3.5 LBS/1000 SQ. FT.).
2. **ACCEPTABLE** – APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 436 LBS/ACRE 10-20-20 FERTILIZER (10 LBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING – FOR THE PERIODS MARCH 1 – APRIL 30, AND AUGUST 1 – OCTOBER 15, SEED WITH 60 LBS / ACRE (1.4 LBS/1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 – JULY 31, SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS/ACRE (0.05 LBS/100 SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 – FEBRUARY 28, PROTECT SITE BY: **OPTION 1** – TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. **OPTION 2** – USE SOD. **OPTION 3** – SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING – APPLY TO 2 TONS PER ACRE (90 LBS/1000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL. NO ASPHALT EMULSION SHALL BE USED FOR ANCHORING. ONLY A NON-TOXIC, LATEX TACKING MATERIAL IS ALLOWED.

MAINTENANCE – INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

HOWARD COUNTY CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1. B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12 OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-5A), SOD (SEC. B-4-5B), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3B). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	1.85 ACRES
AREA DISTURBED	1.85 ACRES
AREA TO BE ROOFED OR PAVED	0 ACRES
AREA TO BE VEGETATIVELY STABILIZED	1.85 ACRES
TOTAL CUT	885.40 CU. YDS.
TOTAL FILL	708.20 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	SEE NOTE 12
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTH OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.
12. OFFSITE WASTE / BORROW SITE SHALL HAVE AN APPROVED SEDIMENT CONTROL PLAN AND PERMIT.

STANDARD 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

- I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
 - C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
- II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

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

- A. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1-1/2" IN DIAMETER.
- B. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
- C. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTURBED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:

- A. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – SECTION – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

- A. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
 1. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
 2. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
 3. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
 4. NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME AS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST, AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

- B. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – SECTION VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLICATION

- A. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
- B. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4" – 8" HIGHER IN ELEVATION.
- C. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" – 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
- D. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

**DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND**

Mark G. ...
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

10/23/12
DATE

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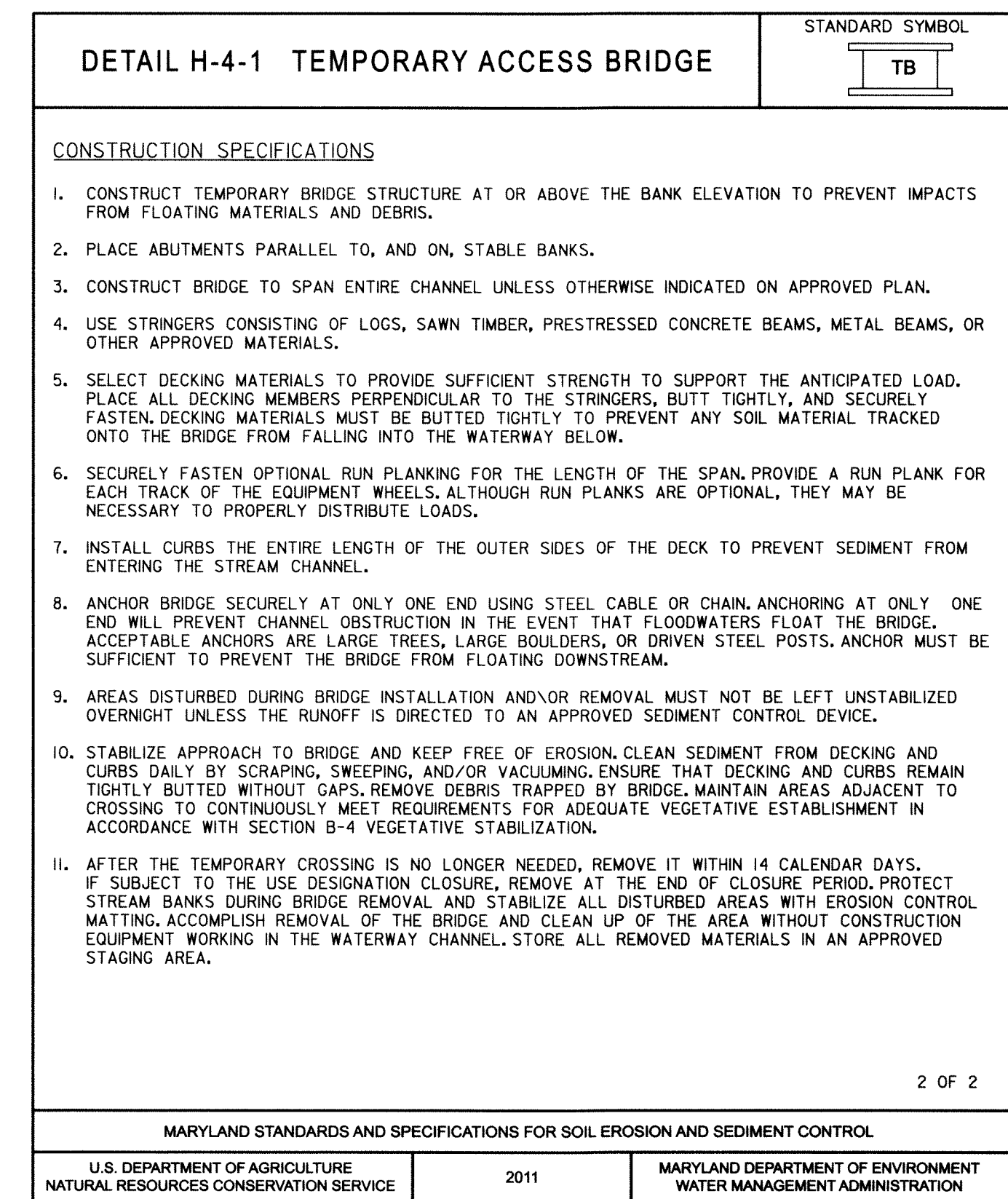
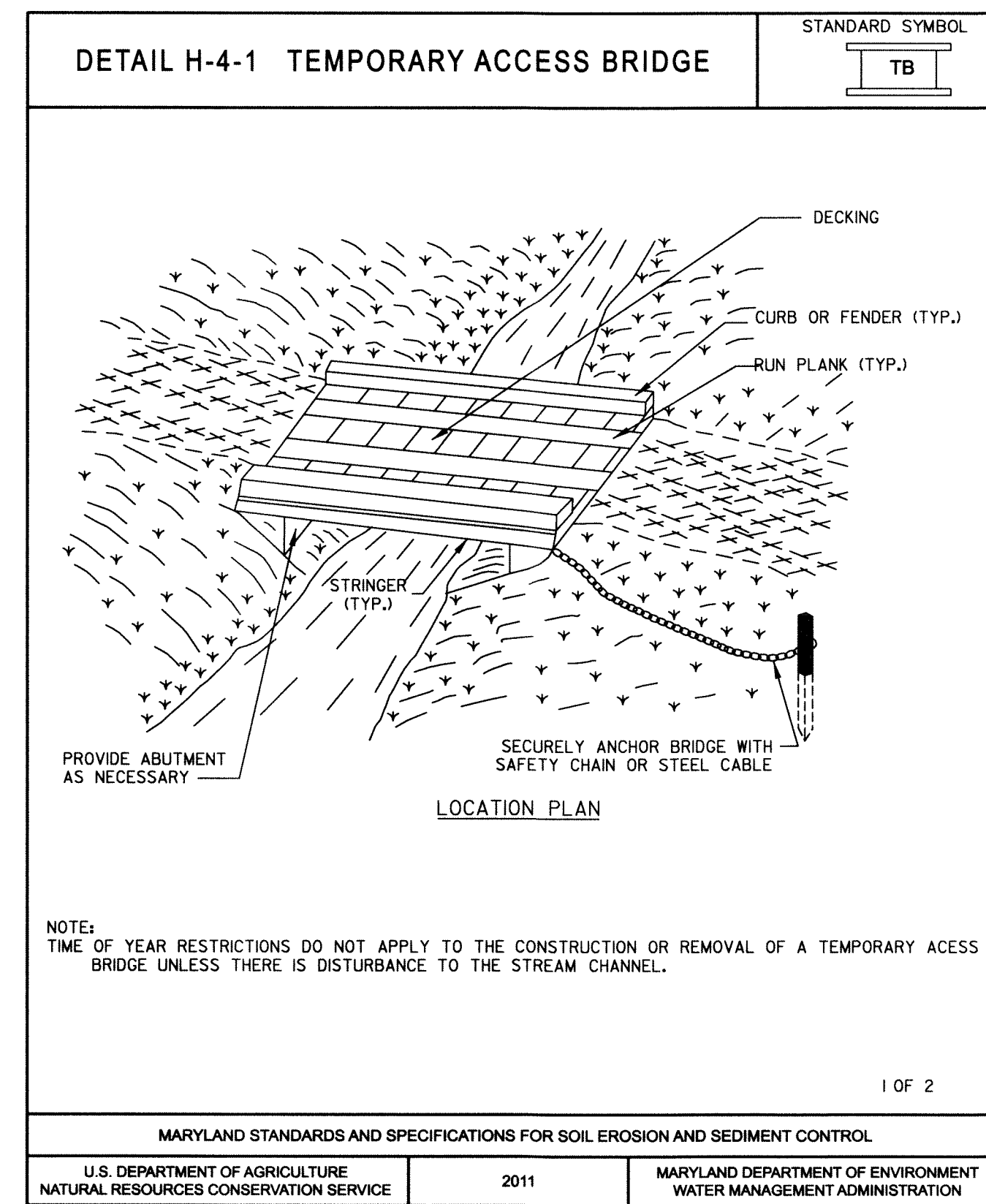
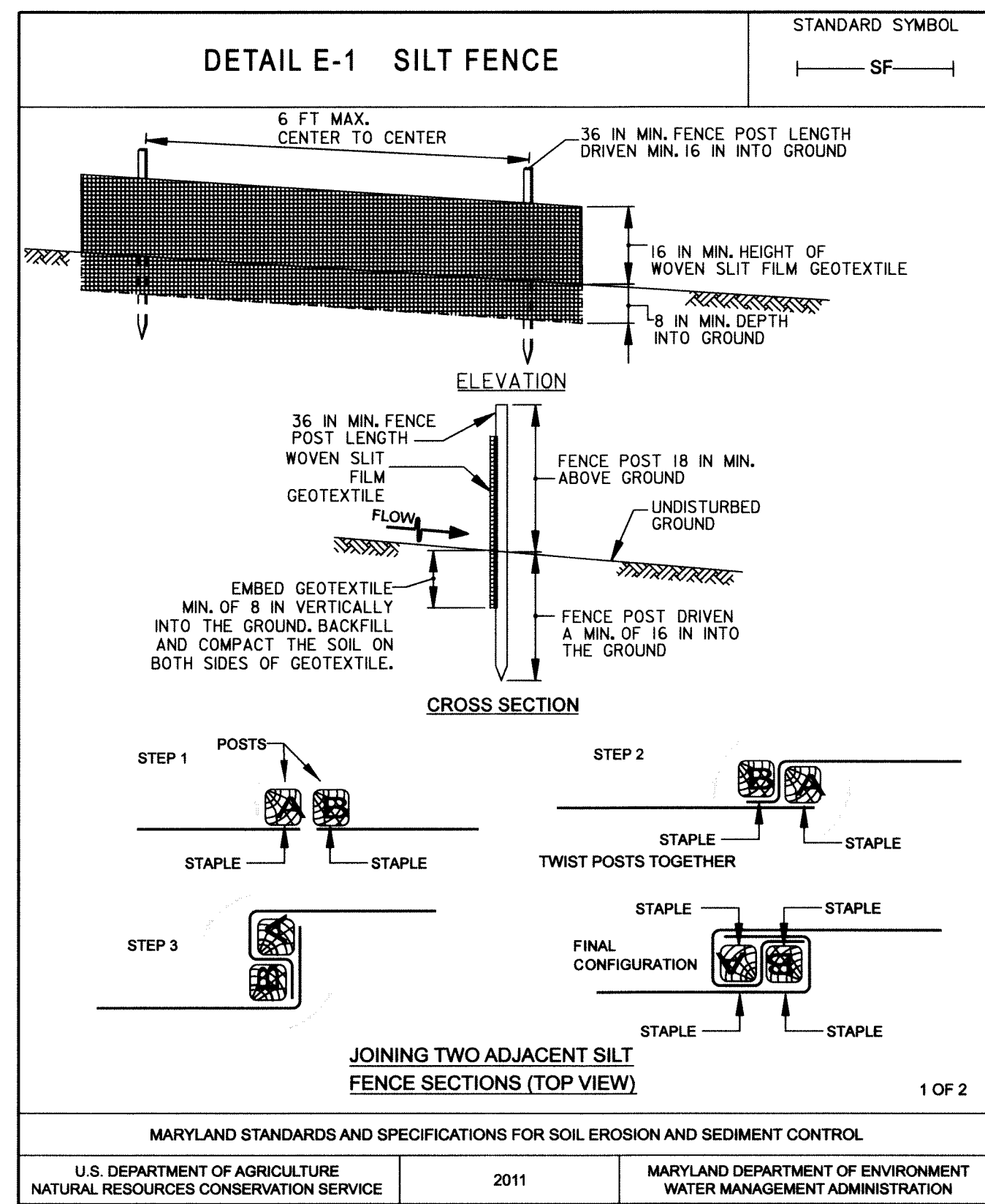
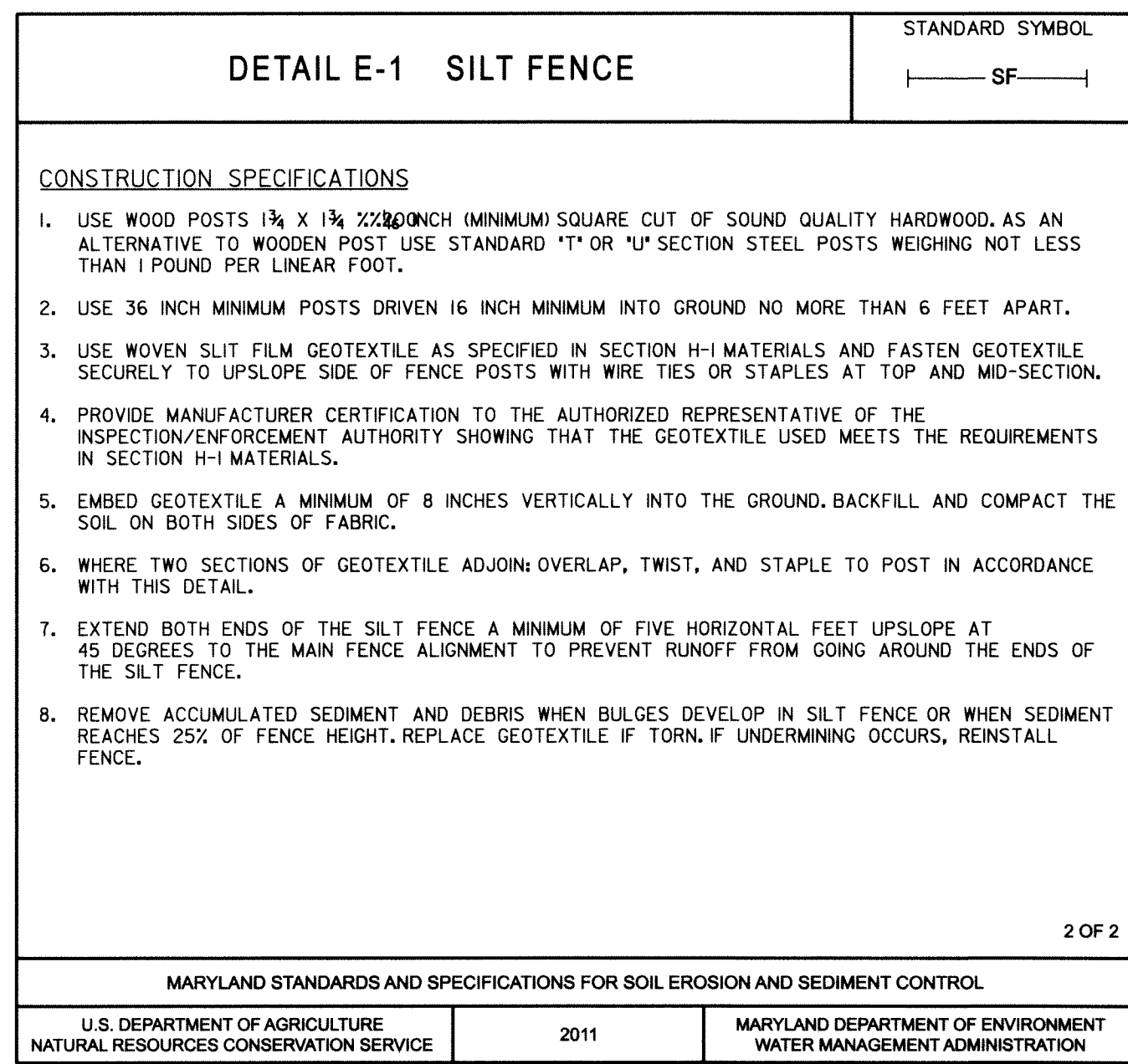
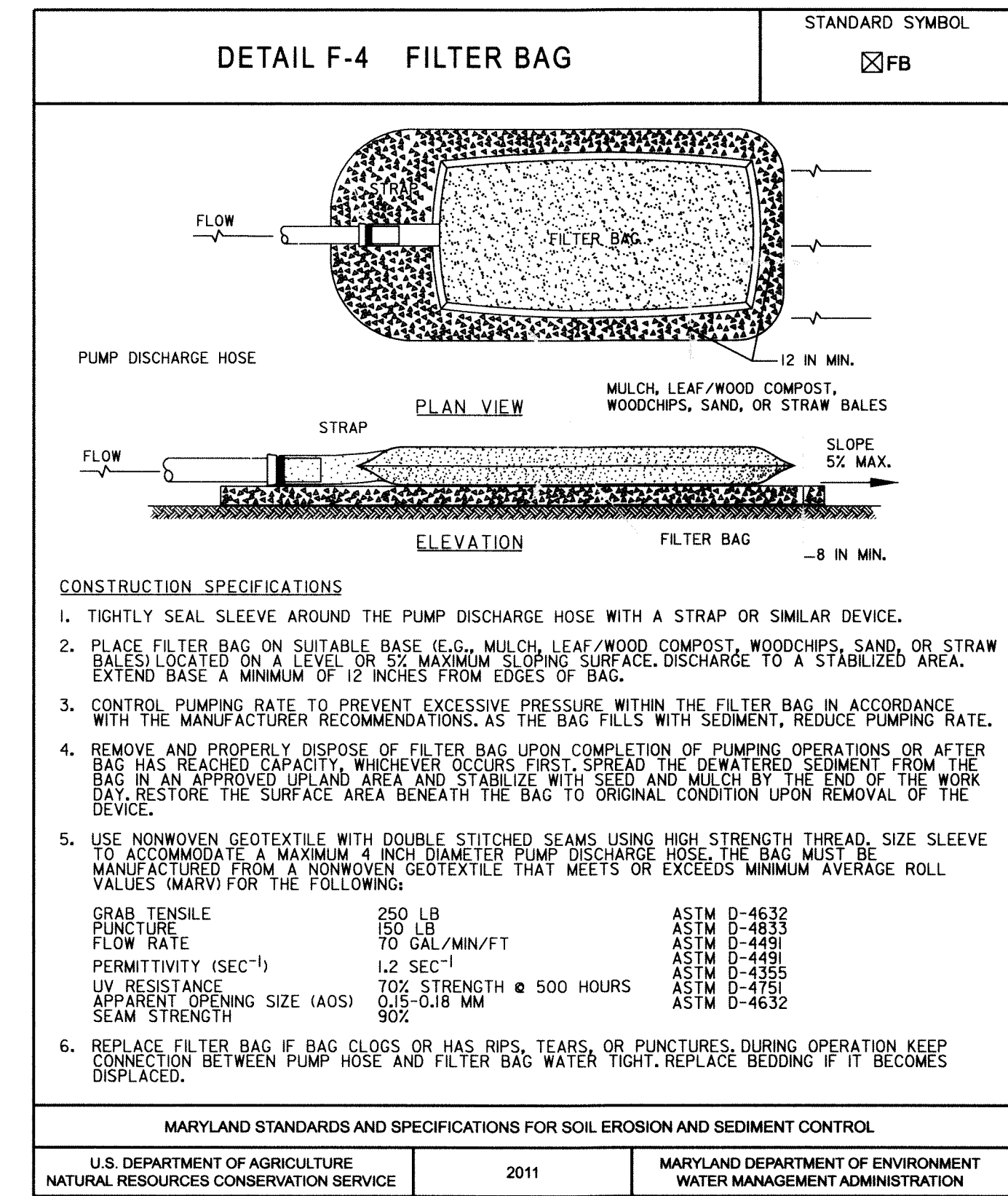
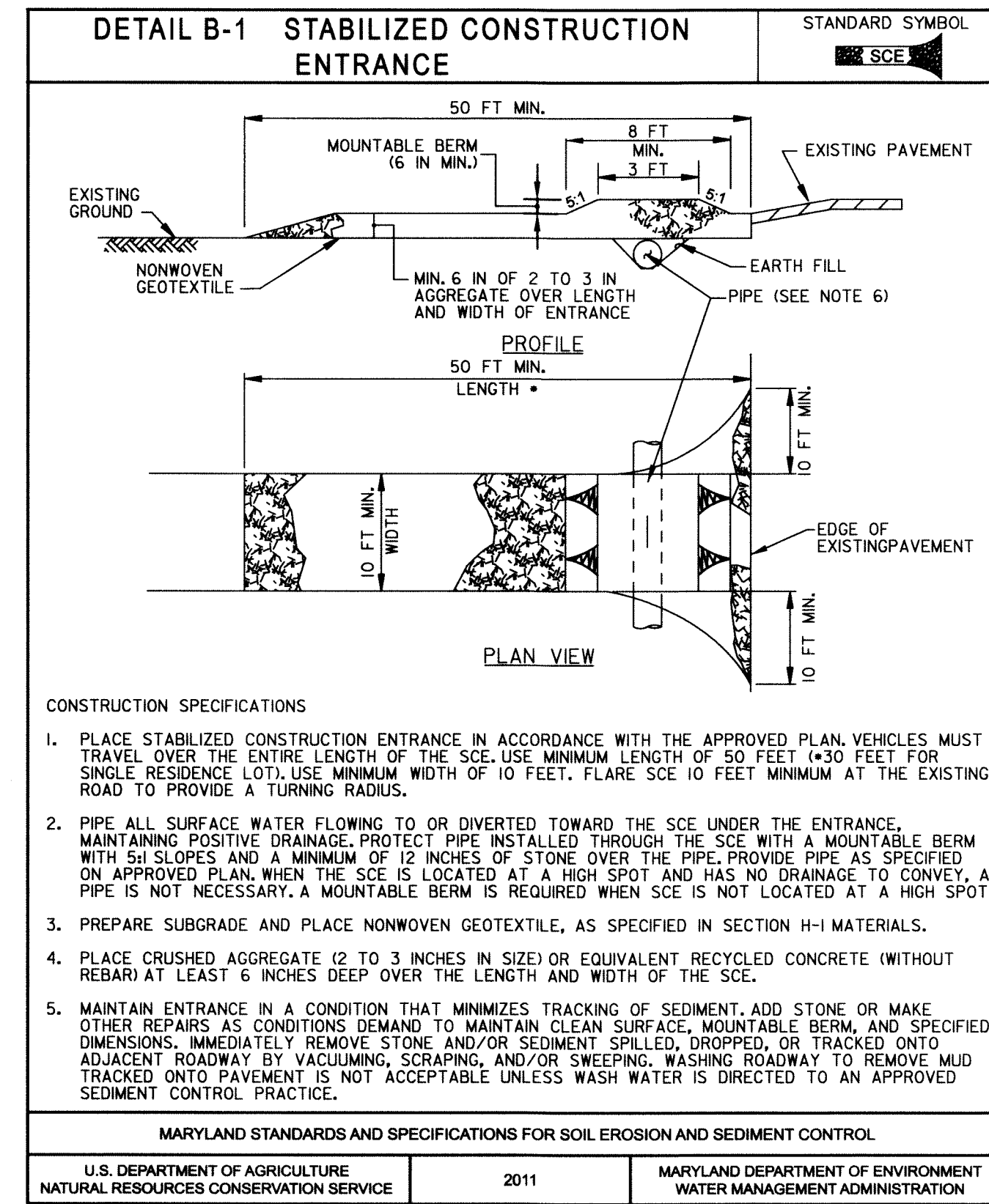
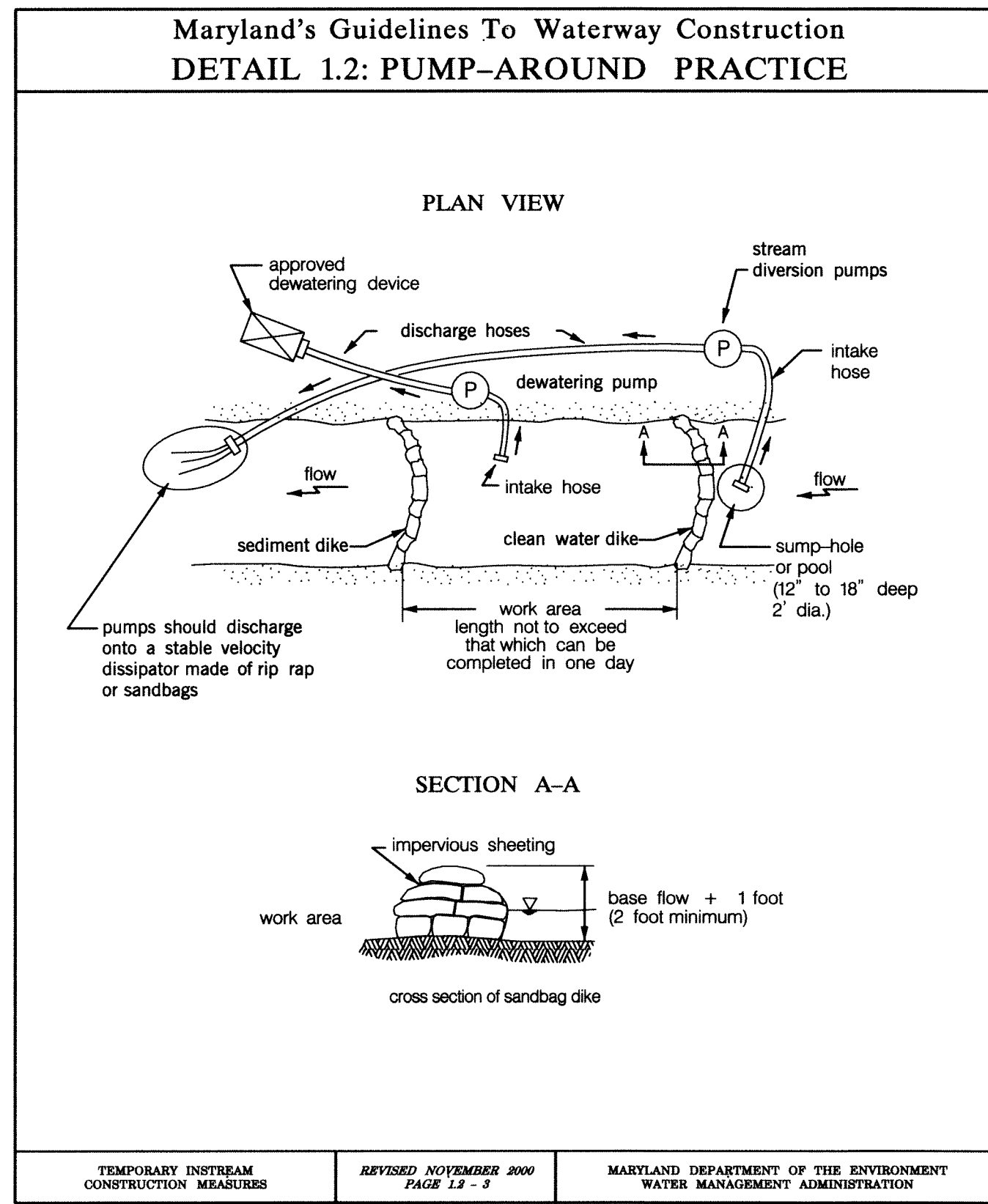


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**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011**

**EROSION AND SEDIMENT
CONTROL NOTES**

SCALE
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14 OF 39



REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Roberts 10/25/12
HOWARD COUNTY SOIL CONSERVATION DISTRICT DATE

**DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND**

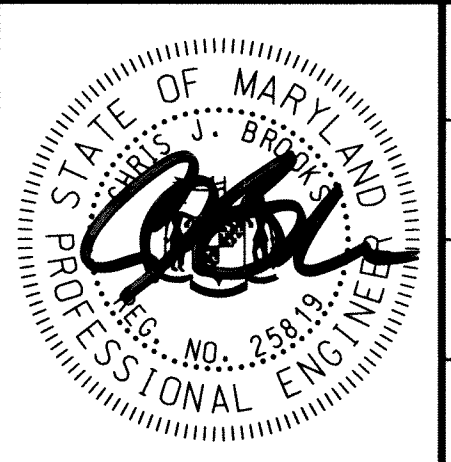
John R. Roberts 10/23/12
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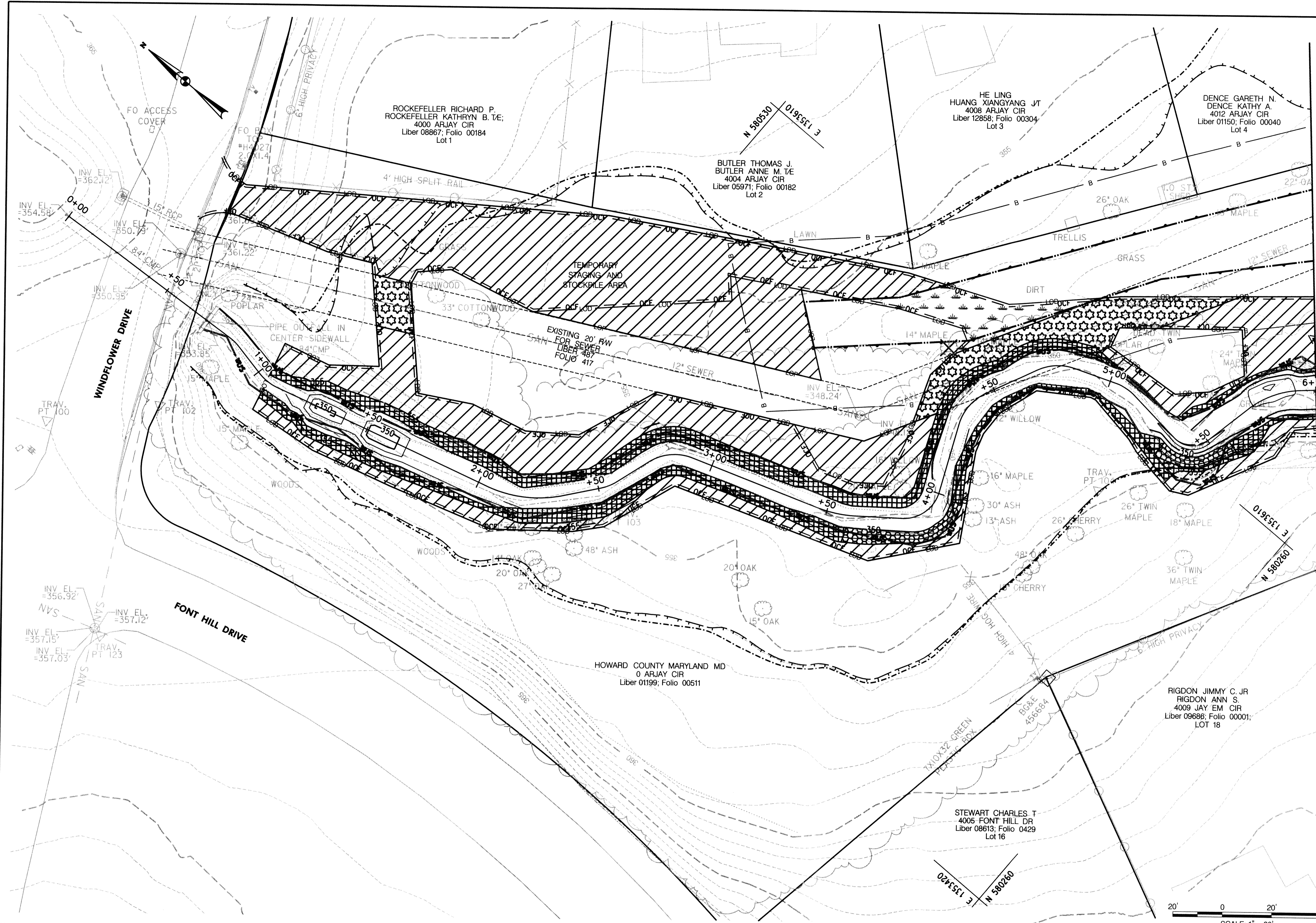


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**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011**

EROSION AND SEDIMENT CONTROL DETAIL SHEET

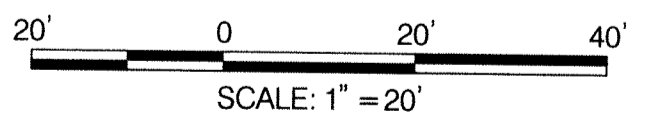
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- NOTES:
- CONTAINERIZED TREES SHALL NOT BE PLANTED WITHIN EXISTING SEWER RIGHT OF WAYS.
 - FOREST CONSERVATION SIGNS TO BE PLACED ALONG LANDSCAPING LIMITS AT THE DIRECTION OF THE ENGINEER.

MATCHLINE STATION 6+00 SEE SHEET 17 OF 39

LEGEND	
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPERTY LINE
	WATERS OF THE US
	PROPOSED 100 YEAR FLOODPLAIN
	EXISTING 100 YEAR FLOODPLAIN
	EXISTING TREE
	EXISTING TREE TO BE REMOVED
	LIMIT OF DISTURBANCE
	ORANGE CONSTRUCTION FENCE
	STREAMBANK ZONE
	RIPARIAN TREE AND SHRUB ZONE
	WETLAND
	RIPARIAN SHRUB ZONE
	BRANCH LAYER



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HOWARD COUNTY, MARYLAND

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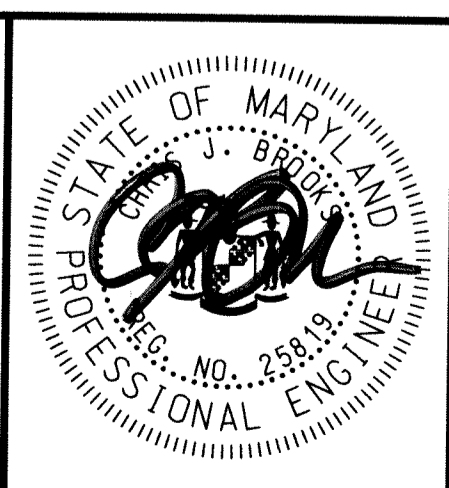
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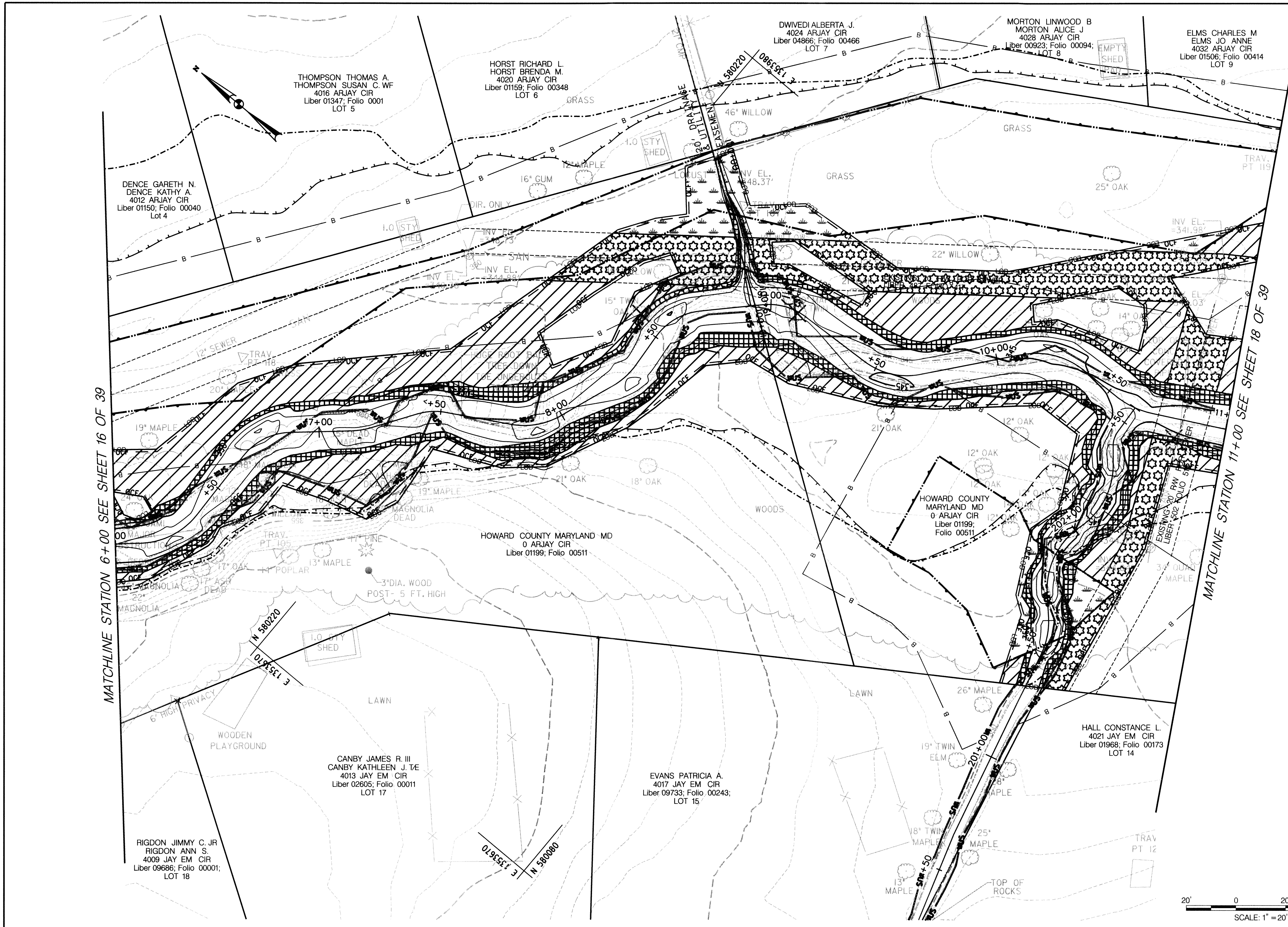


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BY	NO.	REVISION	DATE	

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

LANDSCAPING PLAN

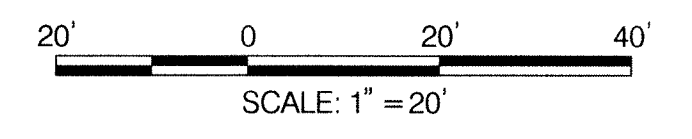
SCALE
1" = 20'
SHEET
16 OF 39



- NOTES:
1. CONTAINERIZED TREES SHALL NOT BE PLANTED WITHIN EXISTING SEWER RIGHT OF WAYS.
 2. FOREST CONSERVATION SIGNS TO BE PLACED ALONG LANDSCAPING LIMITS AT THE DIRECTION OF THE ENGINEER.

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- - - EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- WUS — WATERS OF THE US
- PROPOSED 100 YEAR FLOODPLAIN
- - - EXISTING 100 YEAR FLOODPLAIN
- EXISTING TREE
- ⊗ EXISTING TREE TO BE REMOVED
- LOD — LIMIT OF DISTURBANCE
- OCF — ORANGE CONSTRUCTION FENCE
- ▨ STREAMBANK ZONE
- ▧ RIPARIAN TREE AND SHRUB ZONE
- ▩ WETLAND
- ▤ RIPARIAN SHRUB ZONE
- ▥ BRANCH LAYER



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M. J. ...
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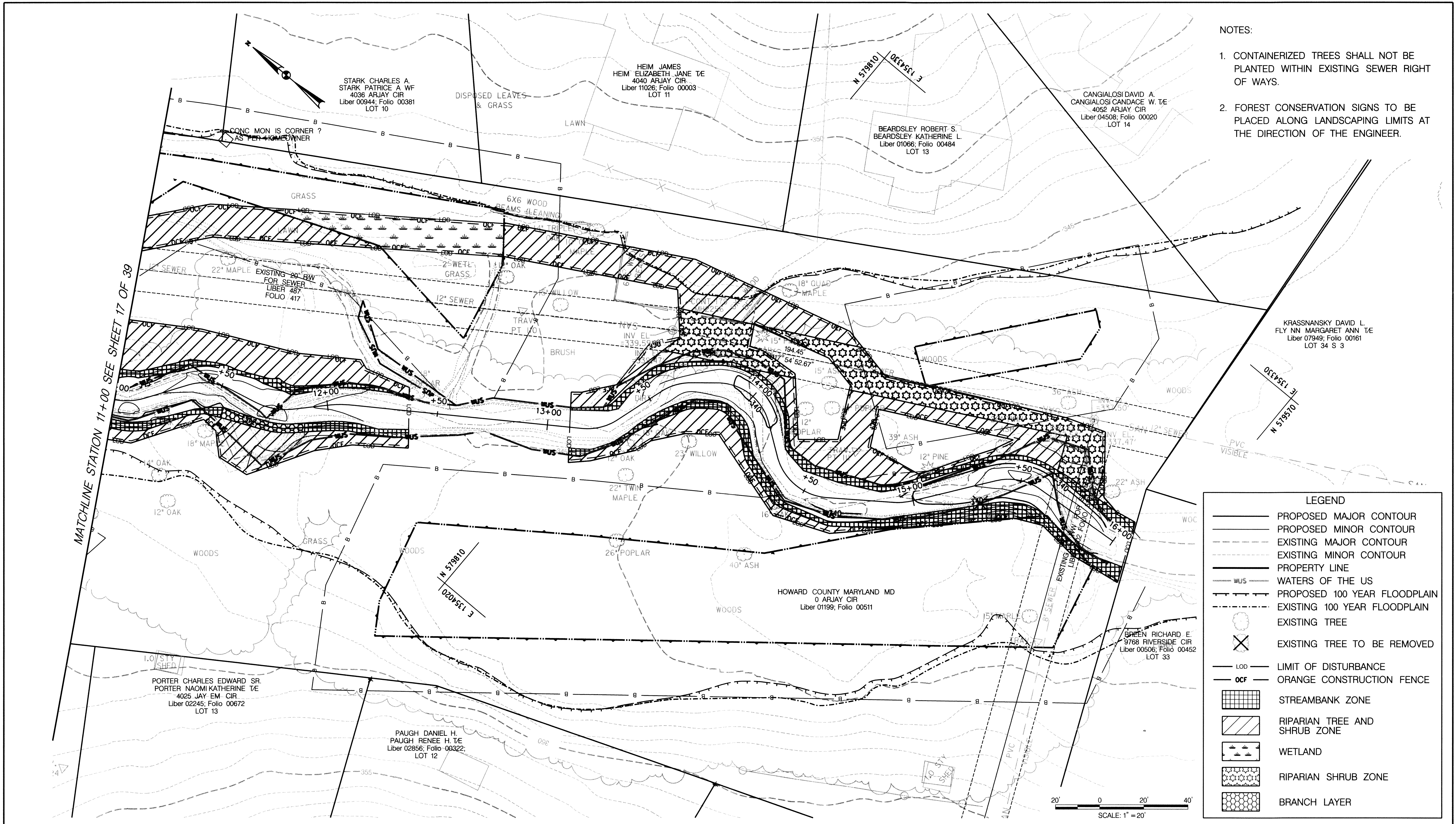
HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

LANDSCAPING PLAN

SCALE
1" = 20'
SHEET
17 OF 39

NOTES:

1. CONTAINERIZED TREES SHALL NOT BE PLANTED WITHIN EXISTING SEWER RIGHT OF WAYS.
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LEGEND

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	PROPOSED MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPERTY LINE
	WATERS OF THE US
	PROPOSED 100 YEAR FLOODPLAIN
	EXISTING 100 YEAR FLOODPLAIN
	EXISTING TREE
	EXISTING TREE TO BE REMOVED
	LIMIT OF DISTURBANCE
	ORANGE CONSTRUCTION FENCE
	STREAMBANK ZONE
	RIPARIAN TREE AND SHRUB ZONE
	WETLAND
	RIPARIAN SHRUB ZONE
	BRANCH LAYER

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HOWARD COUNTY, MARYLAND

Michael S. ...
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10/23/12 DATE

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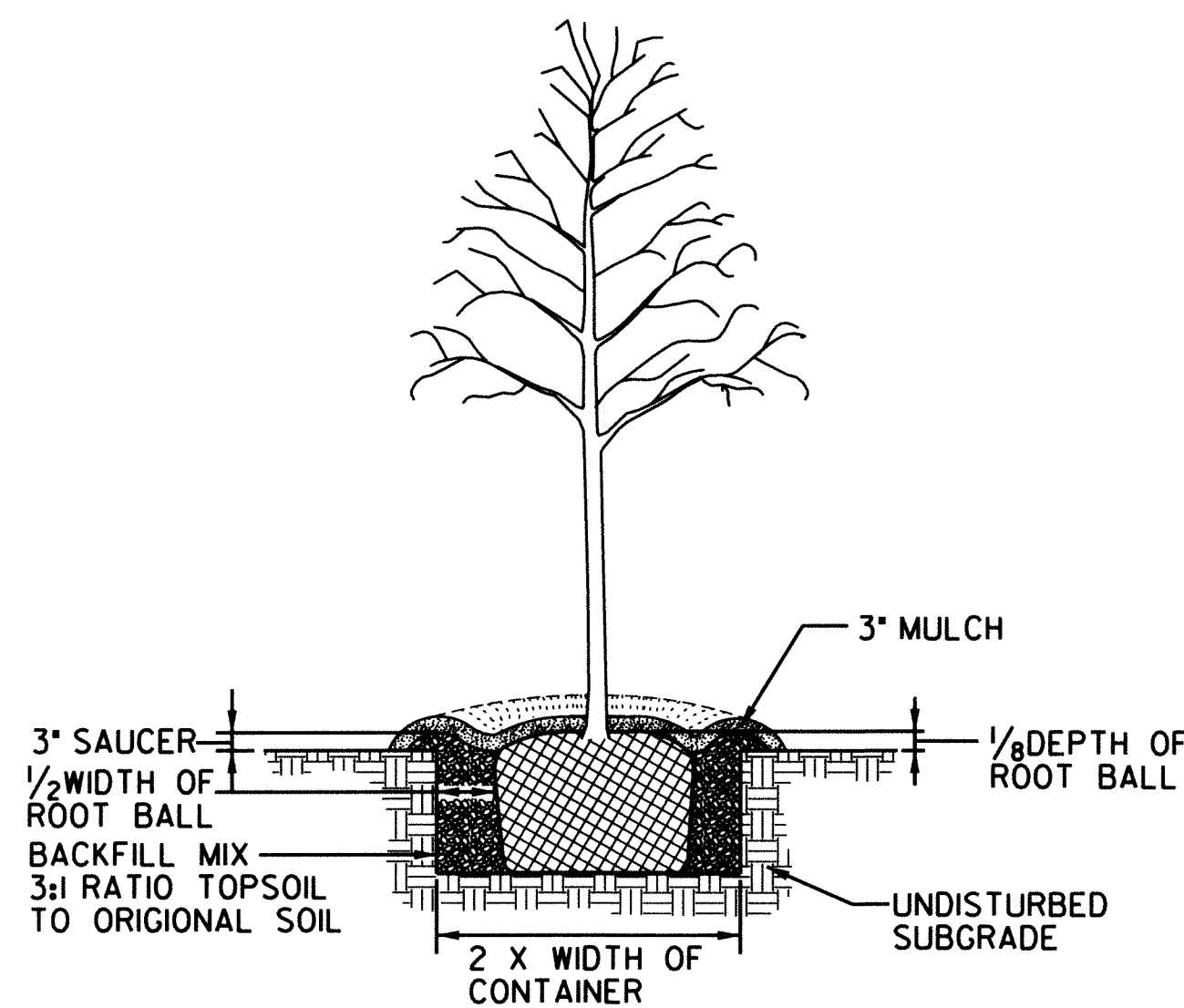


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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
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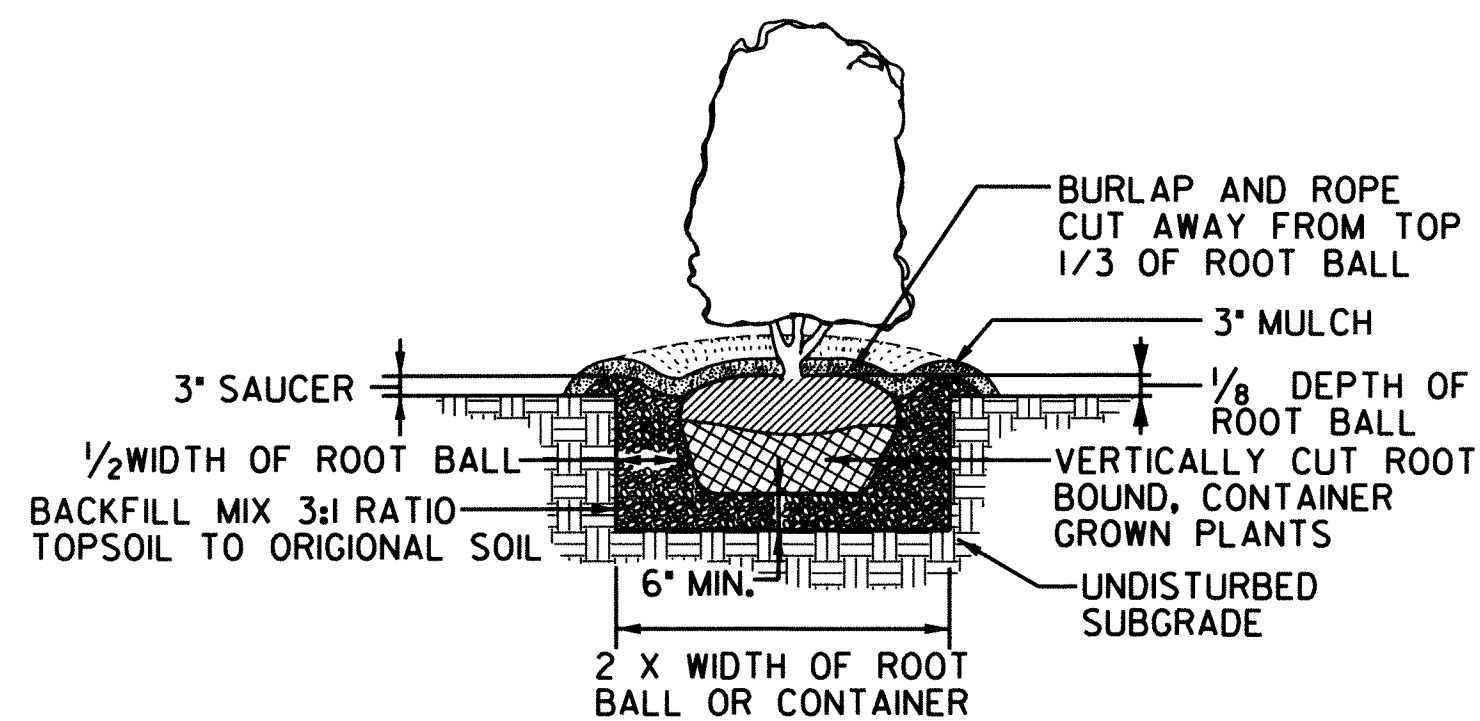
LANDSCAPING PLAN

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1" = 20'
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18 OF 39



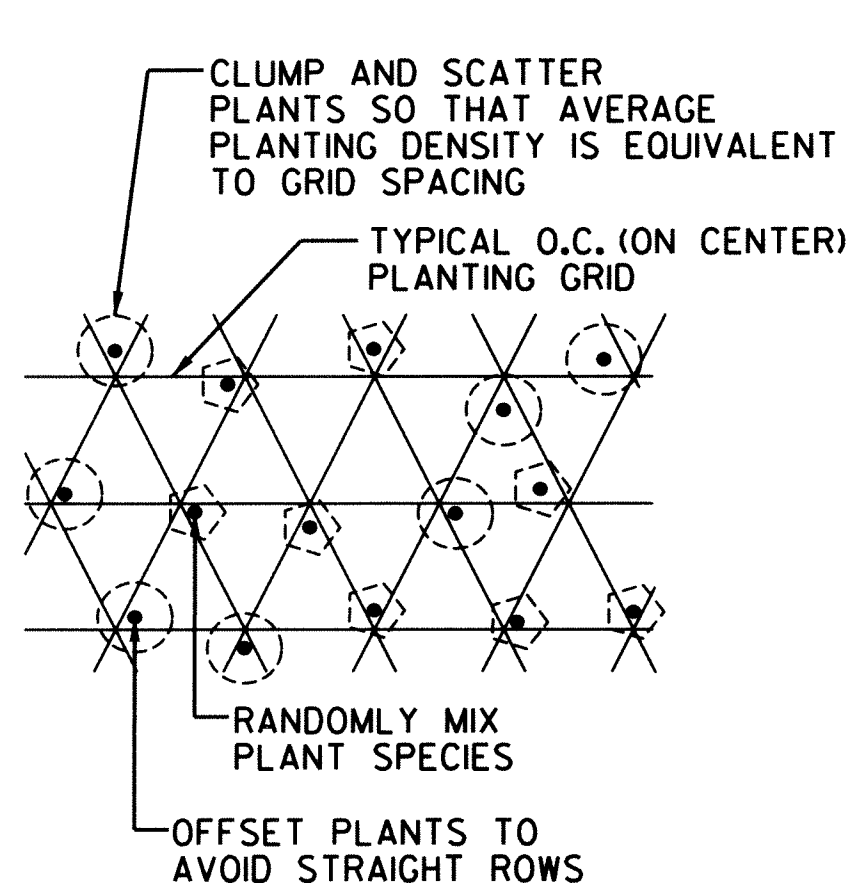
DECIDUOUS TREE PLANTING DETAIL

CONTAINER GROWN
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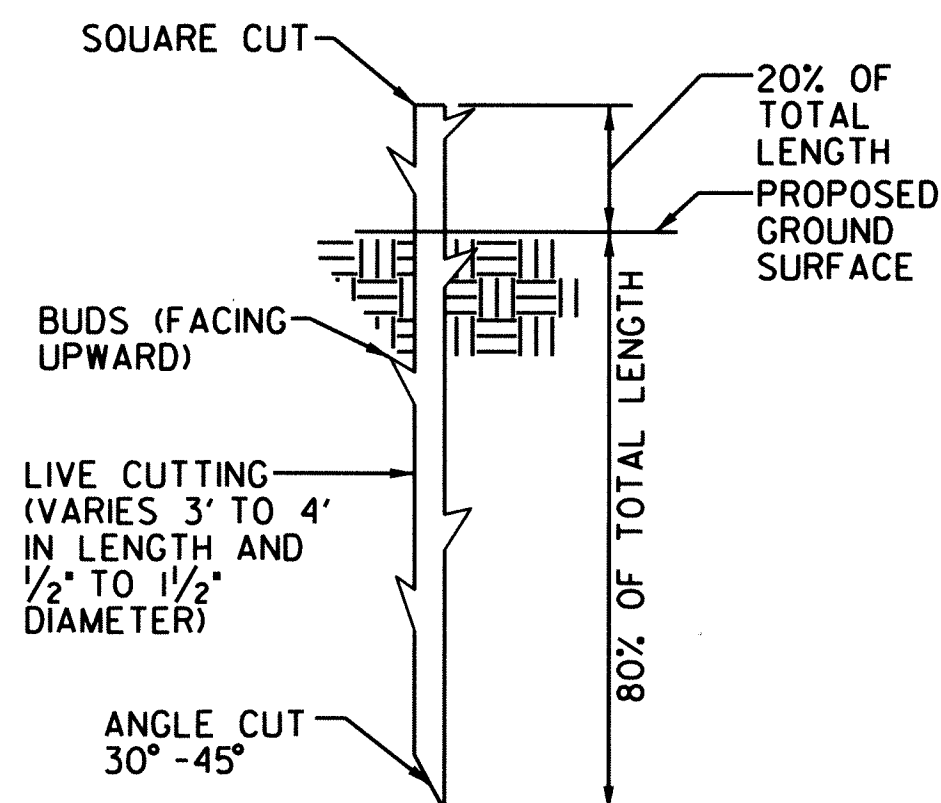


SHRUB PLANTING DETAIL

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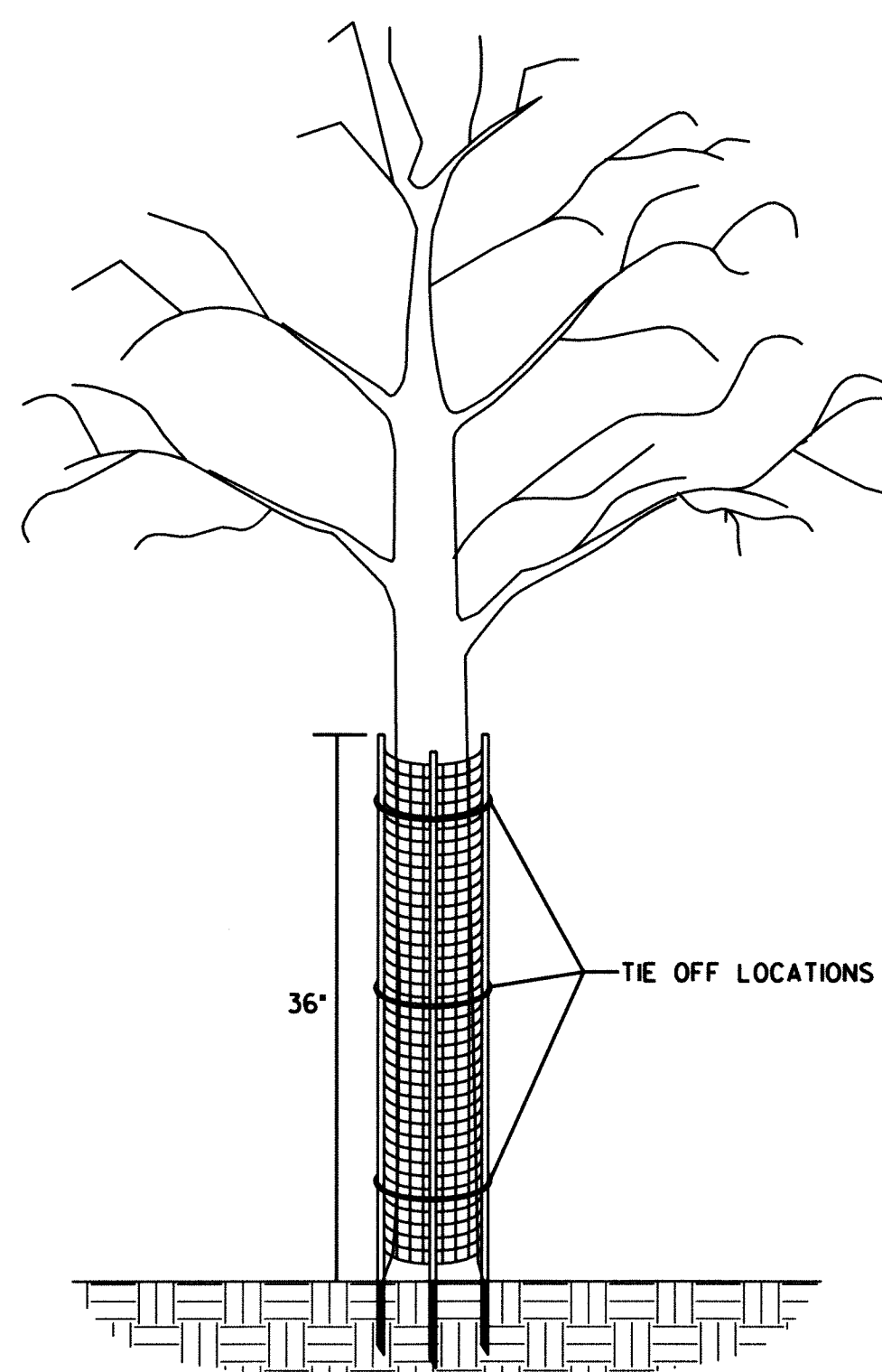


RANDOM PLANTING PATTERN
NOT TO SCALE



LIVE STAKE

NOTE:
1. LIVE STAKES MUST BE INSTALLED WHILE DORMANT (LATE FALL TO EARLY SPRING). DO NOT ALLOW THEM TO DRY OUT.



INSTALLATION INSTRUCTIONS:

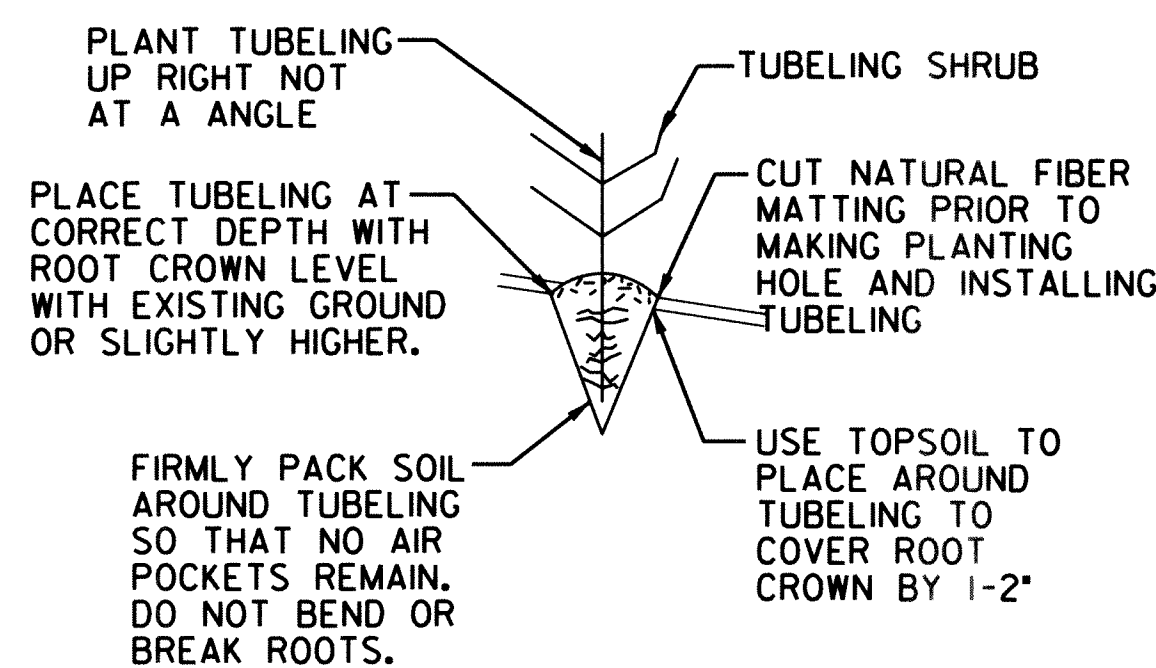
1. PLANT TREE ACCORDING TO STANDARD SPECIFICATIONS.
2. PLACE THE SHELTER AROUND THE TREE.
3. DRIVE LONGER STAKES INTO THE GROUND.
4. TIE-OFF ROPE ENDS AROUND TREE.

PRODUCT NOTES:

1. TREE SHELTER SHALL BE A.M. LEONARD TREE BARK PROTECTOR OR APPROVED EQUAL.
2. TREE SHELTER MUST HAVE LONGER, HARDY STAKES FOR INSERTION INTO GROUND TO PROVIDE SUPPORT.

TREE SHELTER DETAIL

NOT TO SCALE



TUBELING DETAIL

NOT TO SCALE

Planting Schedule

Zone	Botanical Name	Common Name	Size	Comment	Quantity
Streambank	Cornus sericea	Red Osier Dogwood	3'-4' Live Stake	Plant 2' O.C.	570
Streambank	Viburnum dentatum	Southern Arrowwood	3'-4' Live Stake	Plant 2' O.C.	570
Streambank	Salix nigra	Black Willow	3'-4' Live Stake	Plant 2' O.C.	570
Streambank	Cornus amomum	Silky Dogwood	3'-4' Live Stake	Plant 2' O.C.	570
Streambank	Cornus sericea	Red Osier Dogwood	1" Dia. X 8-12" Deep Tubeling	Plant 2' O.C.	70
Streambank	Viburnum dentatum	Southern Arrowwood	1" Dia. X 8-12" Deep Tubeling	Plant 2' O.C.	70
Streambank	Salix nigra	Black Willow	1" Dia. X 8-12" Deep Tubeling	Plant 2' O.C.	70
Streambank	Cornus amomum	Silky Dogwood	1" Dia. X 8-12" Deep Tubeling	Plant 2' O.C.	70
Branch Layer	Cornus sericea	Red Osier Dogwood	Min 3' - 5' Leng/ 0.5-2.5" Dia.	See Detail	50
Branch Layer	Viburnum dentatum	Southern Arrowwood	Min 3' - 5' Leng/ 0.5-2.5" Dia.	See Detail	50
Branch Layer	Salix nigra	Black Willow	Min 3' - 5' Leng/ 0.5-2.5" Dia.	See Detail	50
Branch Layer	Cornus amomum	Silky Dogwood	Min 3' - 5' Leng/ 0.5-2.5" Dia.	See Detail	50
Riparian Tree & Shrub	Acer rubrum	Red Maple	6' - 8' HT, 7 GAL Cont.	Plant 15' O.C.	30
Riparian Tree & Shrub	Platanus occidentalis	American Sycamore	6' - 8' HT, 7 GAL Cont.	Plant 15' O.C.	30
Riparian Tree & Shrub	Nyssa sylvatica	Black Gum	6' - 8' HT, 7 GAL Cont.	Plant 15' O.C.	30
Riparian Tree & Shrub	Liriodendron tulipifera	Yellow Poplar	6' - 8' HT, 7 GAL Cont.	Plant 15' O.C.	30
Riparian Tree & Shrub	Amelanchier arborea	Serviceberry	2' HT, 2 GAL. Cont.	Plant 8' O.C.	60
Riparian Tree & Shrub	Cornus amomum	Silky Dogwood	2' HT, 2 GAL. Cont.	Plant 8' O.C.	60
Riparian Tree & Shrub	Lindera benzoin	Spice Bush	2' HT, 2 GAL. Cont.	Plant 8' O.C.	60
Riparian Shrub	Amelanchier arborea	Serviceberry	2' HT, 2 GAL. Cont.	Plant 8' O.C.	50
Riparian Shrub	Cornus amomum	Silky Dogwood	2' HT, 2 GAL. Cont.	Plant 8' O.C.	50
Riparian Shrub	Lindera benzoin	Spice Bush	2' HT, 2 GAL. Cont.	Plant 8' O.C.	50
Wetland	Quercus bicolor	Swamp White Oak	5' HT, 3 GAL. Cont.	Plant 12' O.C.	10
Wetland	Betula nigra	River Birch	5' HT, 3 GAL. Cont.	Plant 12' O.C.	10
Wetland	Cephalanthus occidentalis	Buttonbush	2' HT, 2 GAL. Cont.	Plant 8' O.C.	15
Wetland	Alnus serrulata	Smooth Alder	2' HT, 2 GAL. Cont.	Plant 8' O.C.	15

Riparian Seed Mix

Zone	Botanical Name	Common Name	Percent Mix	Total Mix (lbs.)
Streambank, Riparian, Branch Layer	Elymus virginicus	Virginia Wildrye	5	2.0
Streambank, Riparian, Branch Layer	Agrostis alba	Redtop	5	2.0
Streambank, Riparian, Branch Layer	Poa compressa	Canada Bluegrass	5	2.0
Streambank, Riparian, Branch Layer	Festuca arundinacea	Trident tall Fescue	10	4.0
Streambank, Riparian, Branch Layer	Sorghastrum nutans	Indian Grass	5	2.0
Streambank, Riparian, Branch Layer	Lolium multiflorum	Annual Ryegrass	25	10.0
Streambank, Riparian, Branch Layer	Elymus sp.	Saint Perennial Ryegrass	20	8.0
Streambank, Riparian, Branch Layer	Festuca rubra	Creeping Red Fescue	25	10.0
		TOTAL MIX		40.0

NOTE: LIVE STAKE, RIPARIAN TREE AND SHRUB, RIPARIAN SHRUB, AND BRUSH LAYERING ZONES ARE TO BE SEEDED WITH RIPARIAN SEED MIX (30 LBS./ACRE).

Wetland Seed Mix

Zone	Botanical Name	Common Name	Percent Mix	Total Mix (lbs.)
Wetland	Elymus virginicus	Virginia Wild Rye	30	0.6
Wetland	Juncus effusus	Soft Rush	10	0.2
Wetland	Carex squarrosa	Squarrose Sedge	30	0.6
Wetland	Cinna arundinacea	Wood Reedgrass	10	0.2
Wetland	Boehmeria cylindrica	False Nettle	10	0.2
Wetland	Scirpus cyperinus	Wool Grass	10	0.2
		TOTAL MIX		2.0

NOTE: WETLAND ZONE IS TO BE SEEDED WITH WETLAND SEED MIX (0.5 LBS./ 1000 SF).

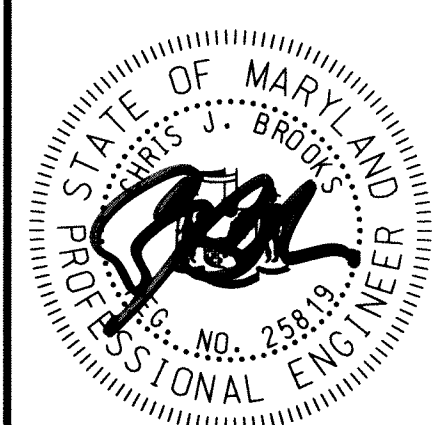
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DRN: MR

CHK: CB

DATE: 10/3/12

BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

LANDSCAPE NOTES AND DETAILS

SCALE

NOT TO SCALE

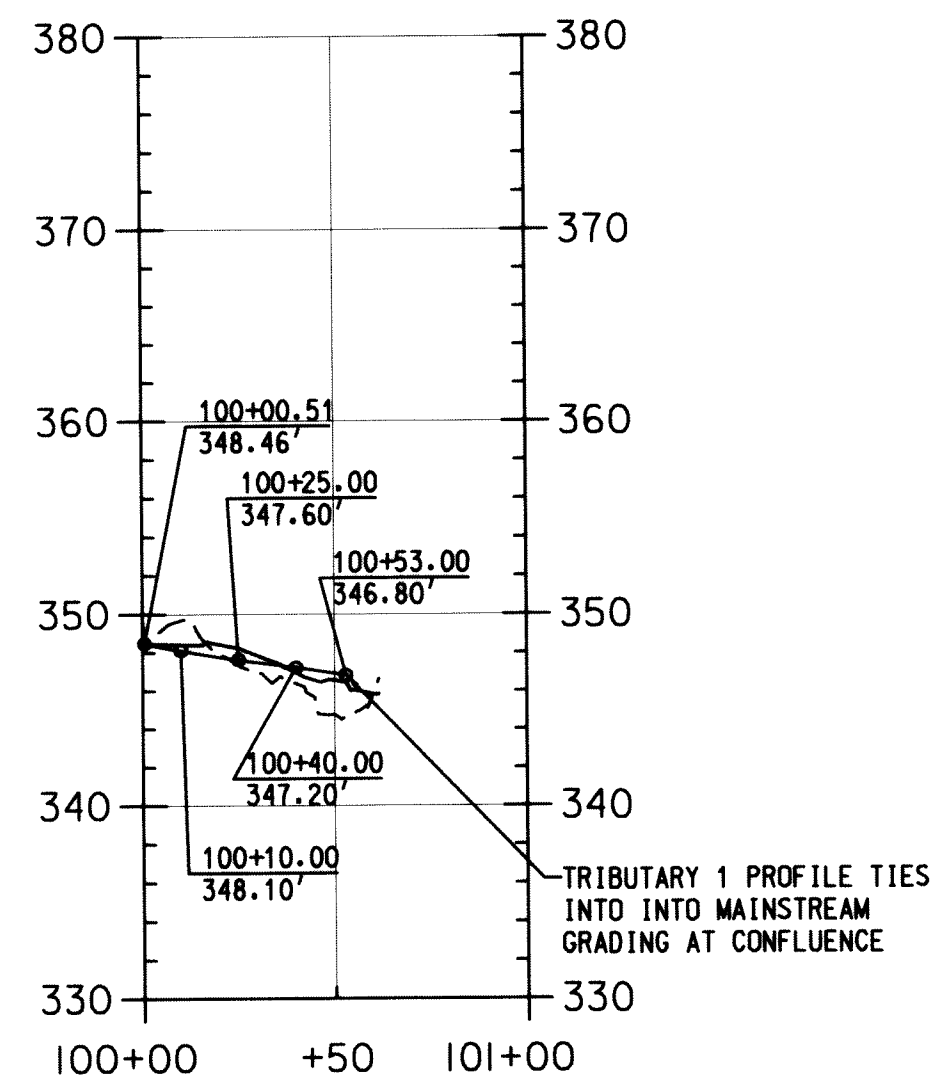
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19 OF 39

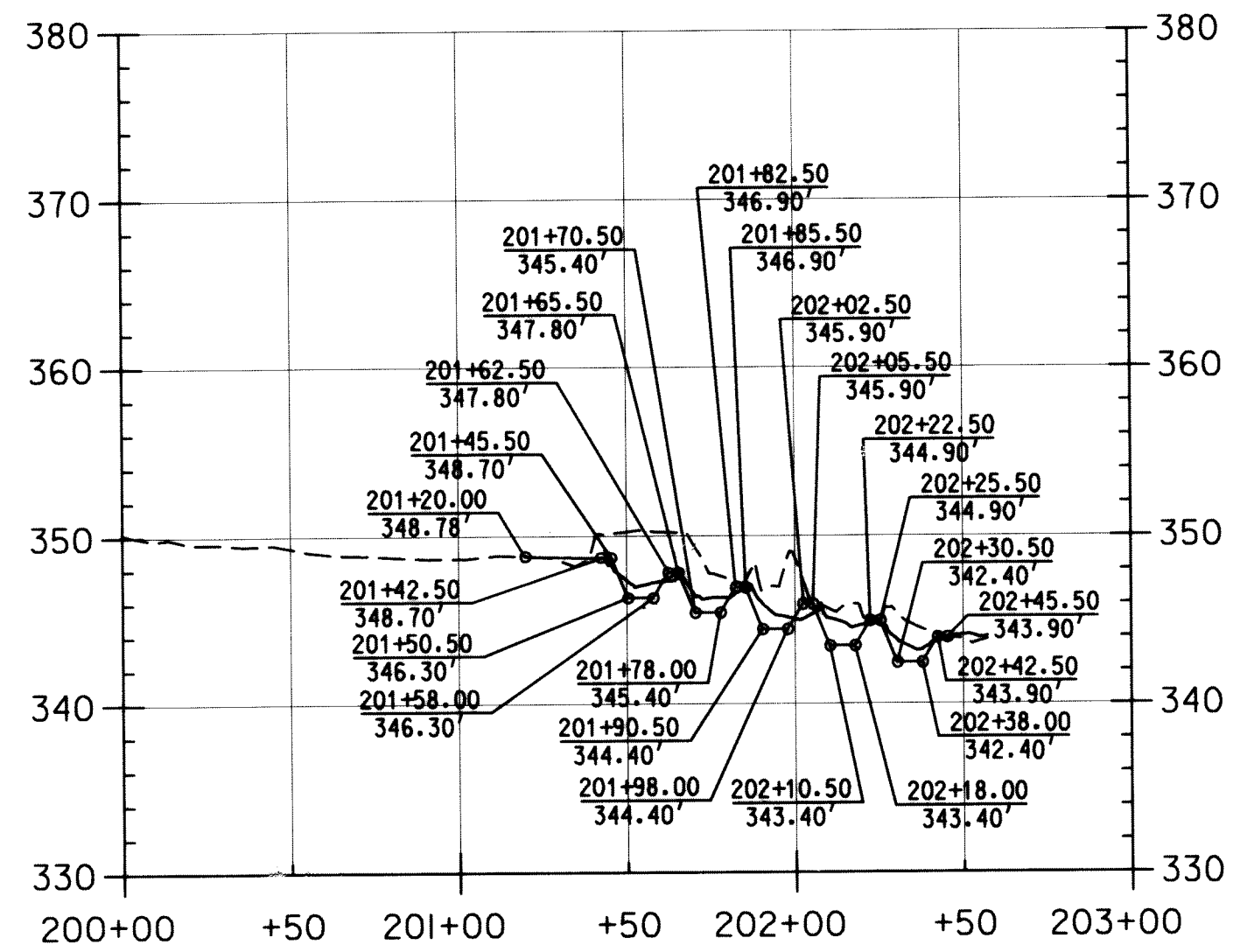
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TRIBUTARY 1



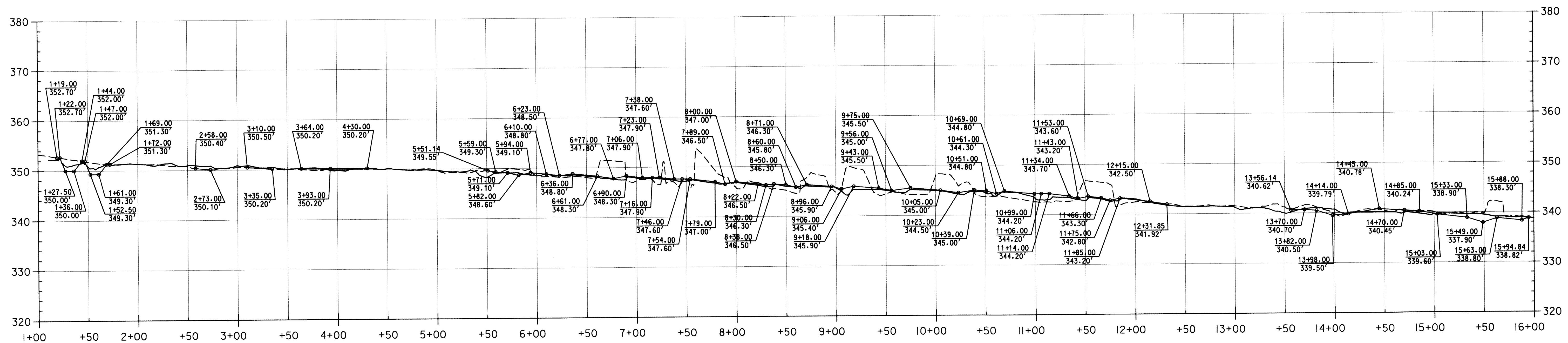
TRIBUTARY 2

STEP-POOL PROFILE ELEVATIONS		
LOCATION	PROPOSED ELEV. (FT)	AS-BUILT ELEV. (FT)
CREST 1	352.7	
POOL 1	350.0	
CREST 2	352.0	
POOL 2	349.3	
CREST 3	351.3	

NOTE:
AS-BUILT PROFILE SHOWN DEPICTS THE CENTERLINE OF THE CONSTRUCTED STEP-POOL SYSTEM. REFER TO THE STEP-POOL ELEVATION TABLE FOR PROPOSED STRUCTURE COMPARISON. CRESTS AND POOLS ARE DESIGNATED 1 TO 3, STARTING AT THE UPSTREAM PROJECT LIMIT AND EXTENDING DOWNSTREAM.

LOG STEP PROFILE ELEVATIONS		
LOCATION	PROPOSED ELEV. (FT)	AS-BUILT ELEV. (FT)
LOG CREST 1	348.7	349.2
POOL 1	346.3	347.0
LOG CREST 2	347.8	348.0
POOL 2	345.4	346.2
LOG CREST 3	346.9	347.1
POOL 3	344.4	345.0
LOG CREST 4	345.9	345.7
POOL 4	343.4	344.5
LOG CREST 5	344.9	344.9
POOL 5	342.4	343.2
LOG CREST 6	343.9	344.1

NOTE:
AS-BUILT PROFILE SHOWN DEPICTS THE CENTERLINE OF THE CONSTRUCTED LOG STEP SYSTEM REFER TO THE STEP-POOL ELEVATION TABLE FOR PROPOSED STRUCTURE COMPARISON. CRESTS AND POOLS ARE DESIGNATED 1 TO 6, STARTING AT THE UPSTREAM TRIBUTARY LIMIT AND EXTENDING DOWN



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SCALE
HORIZONTAL: 1" = 50' VERTICAL: 1" = 10'

LEGEND
— AS-BUILT
- - - EXISTING
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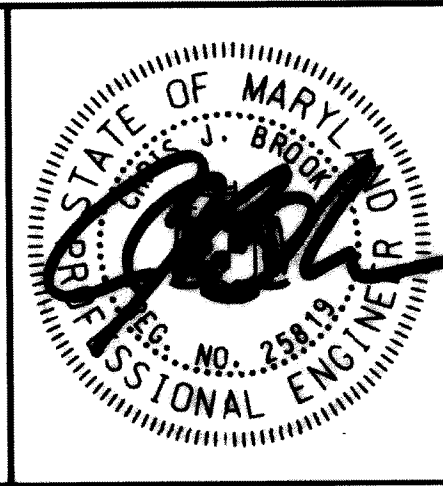
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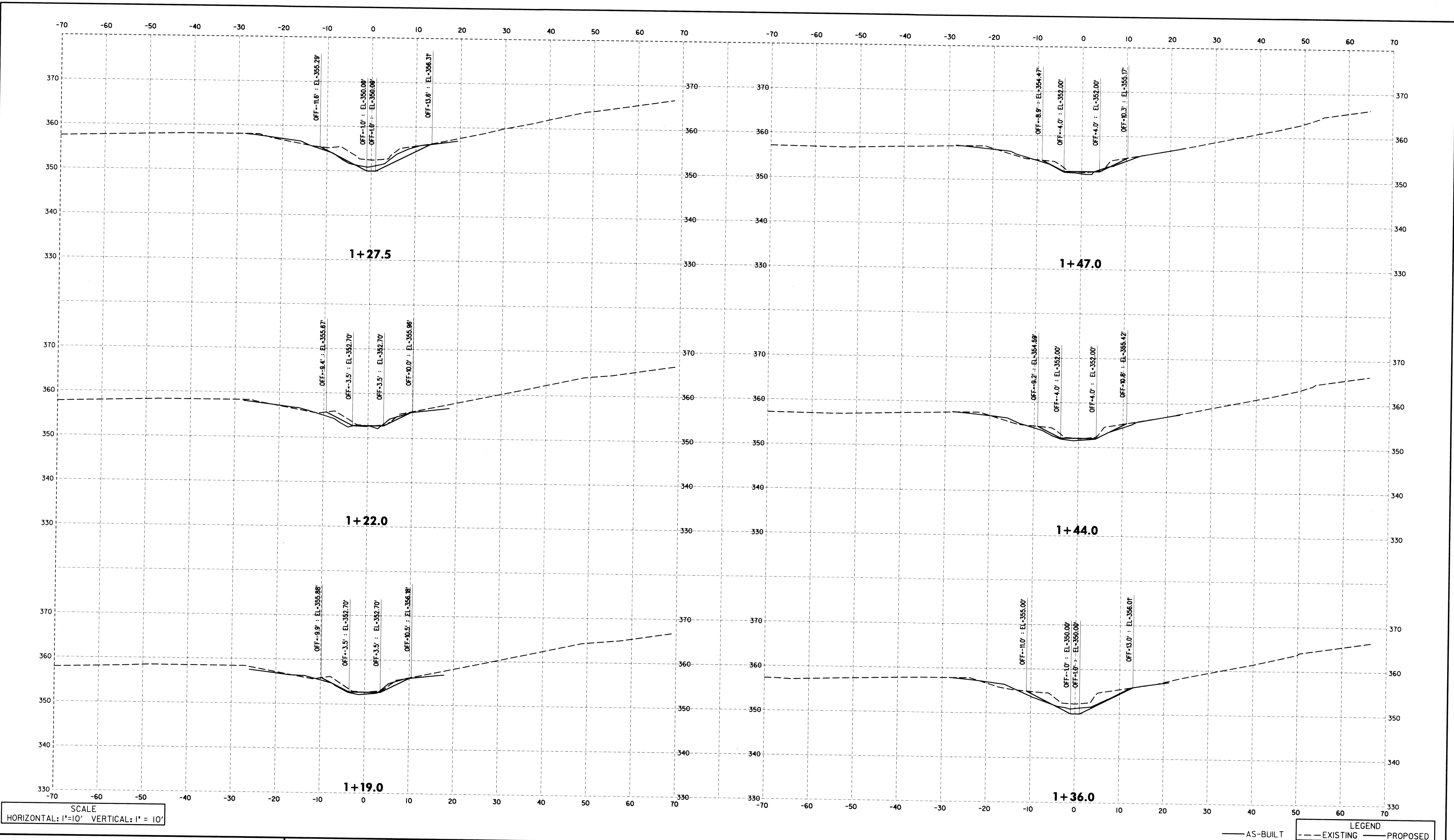


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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

PROFILE SHEET

SCALE
AS SHOWN
SHEET
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SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

— AS-BUILT
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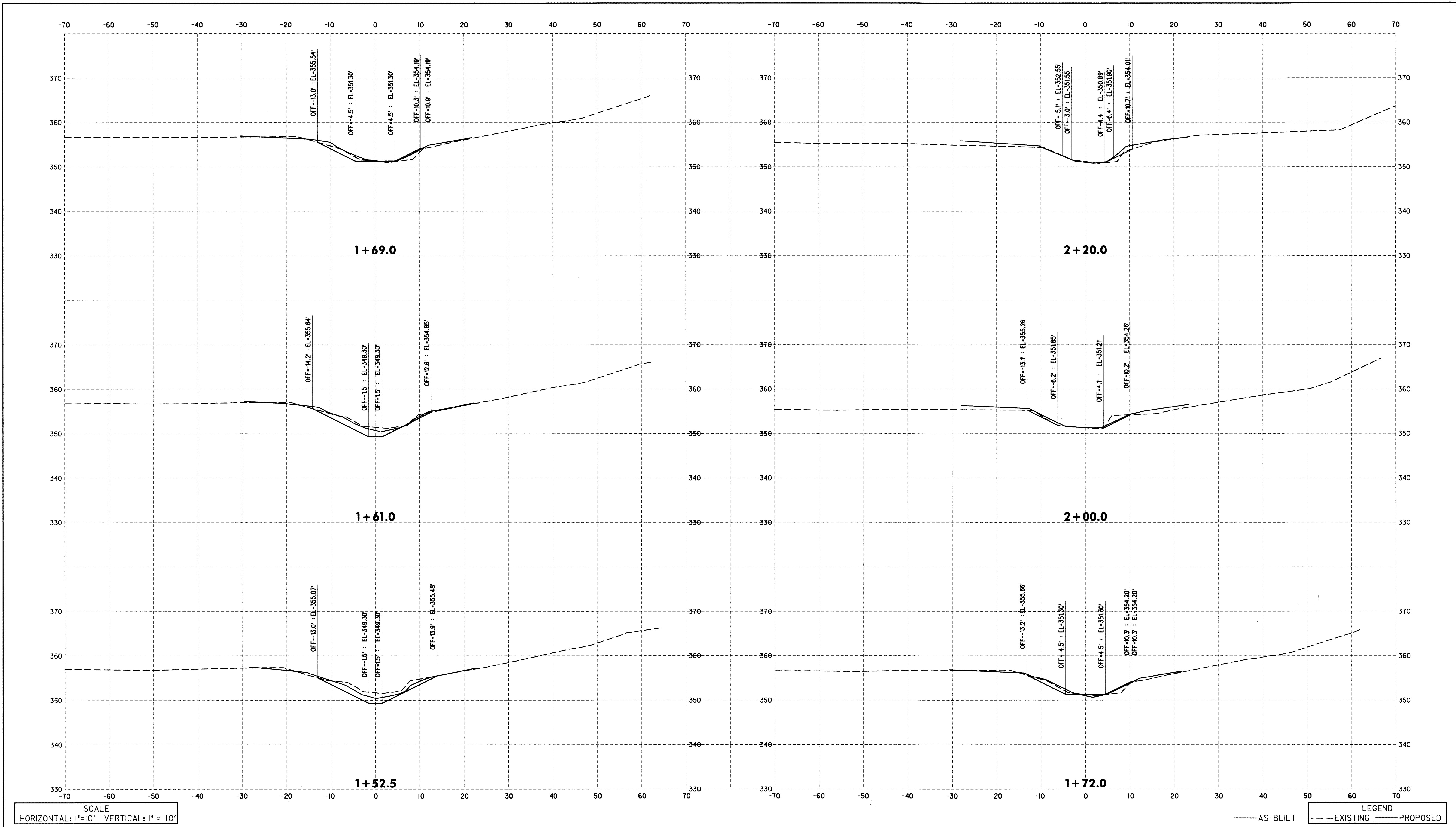
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WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

CROSS SECTIONS

SCALE
AS SHOWN

SHEET
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SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

LEGEND
— AS-BUILT - - - EXISTING PROPOSED

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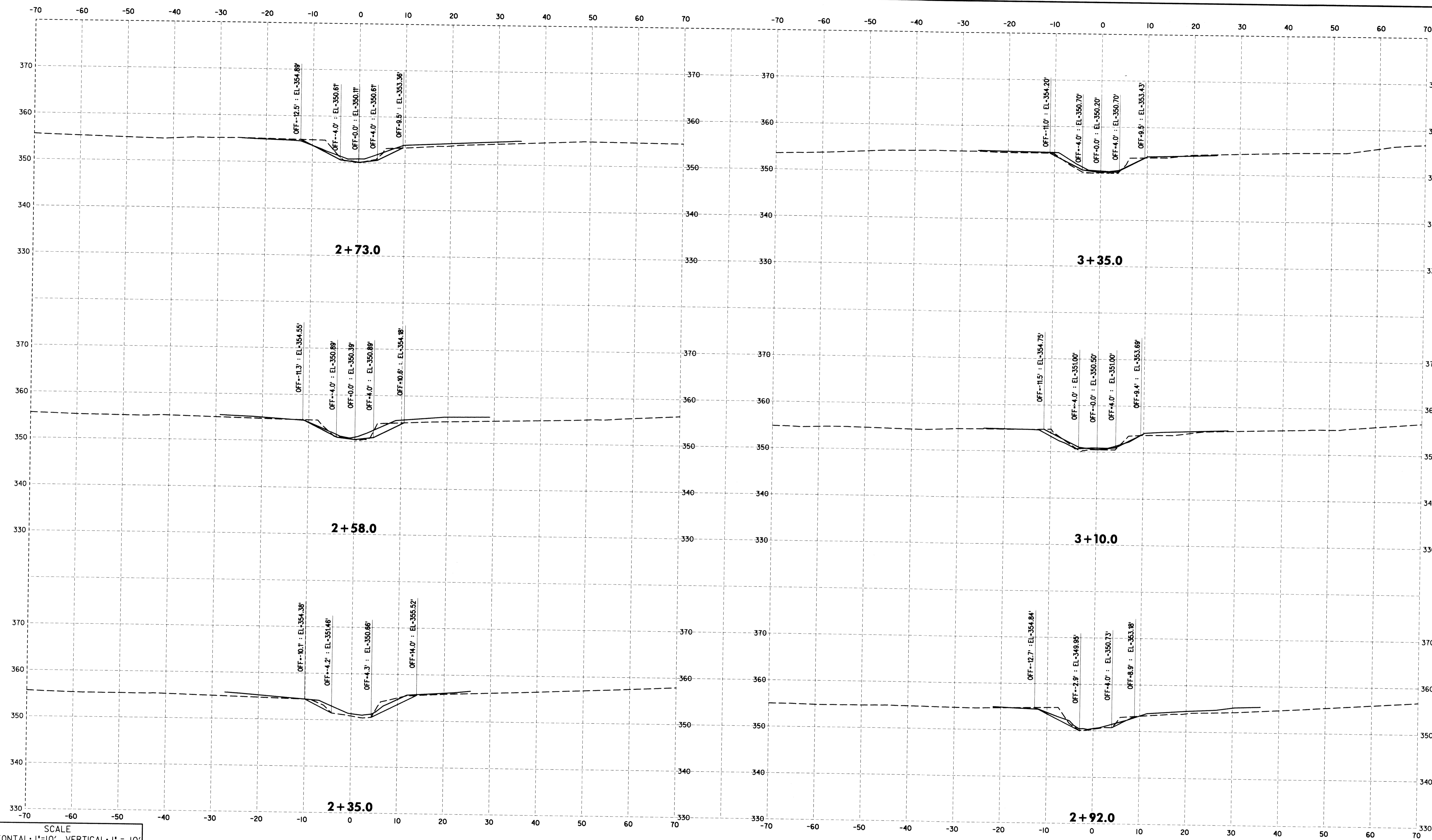


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CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

CROSS SECTIONS

SCALE
AS SHOWN
SHEET
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SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

— AS-BUILT
- - - EXISTING
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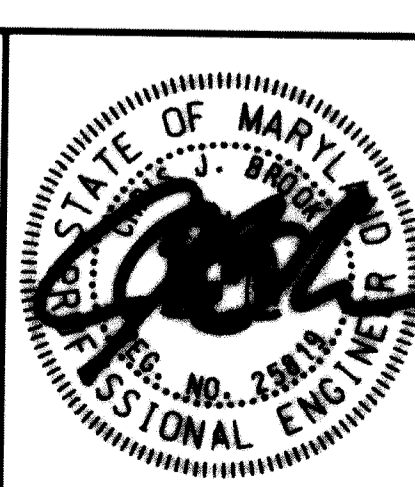
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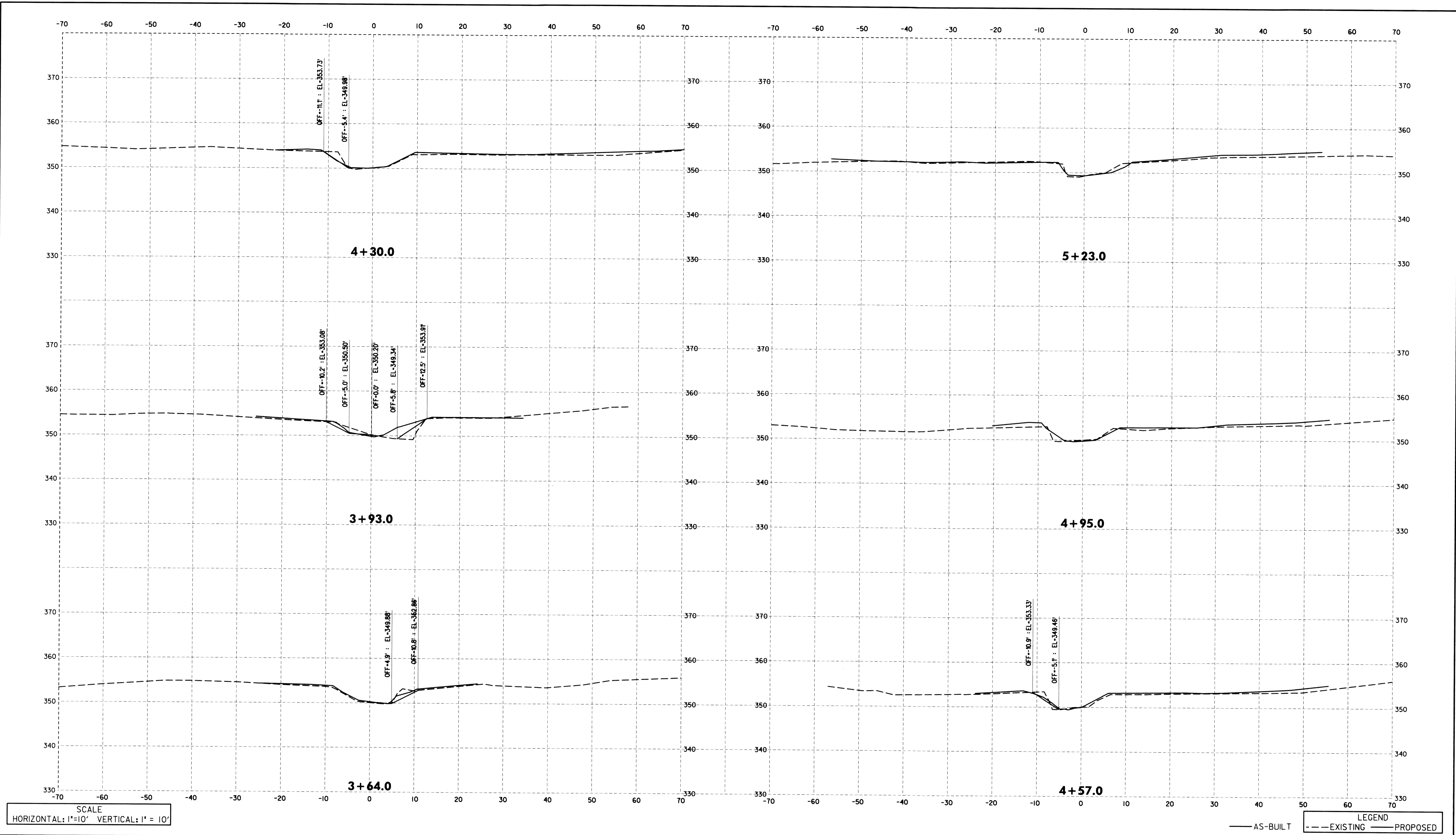


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CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

SCALE
AS SHOWN
SHEET
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CROSS SECTIONS



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

LEGEND
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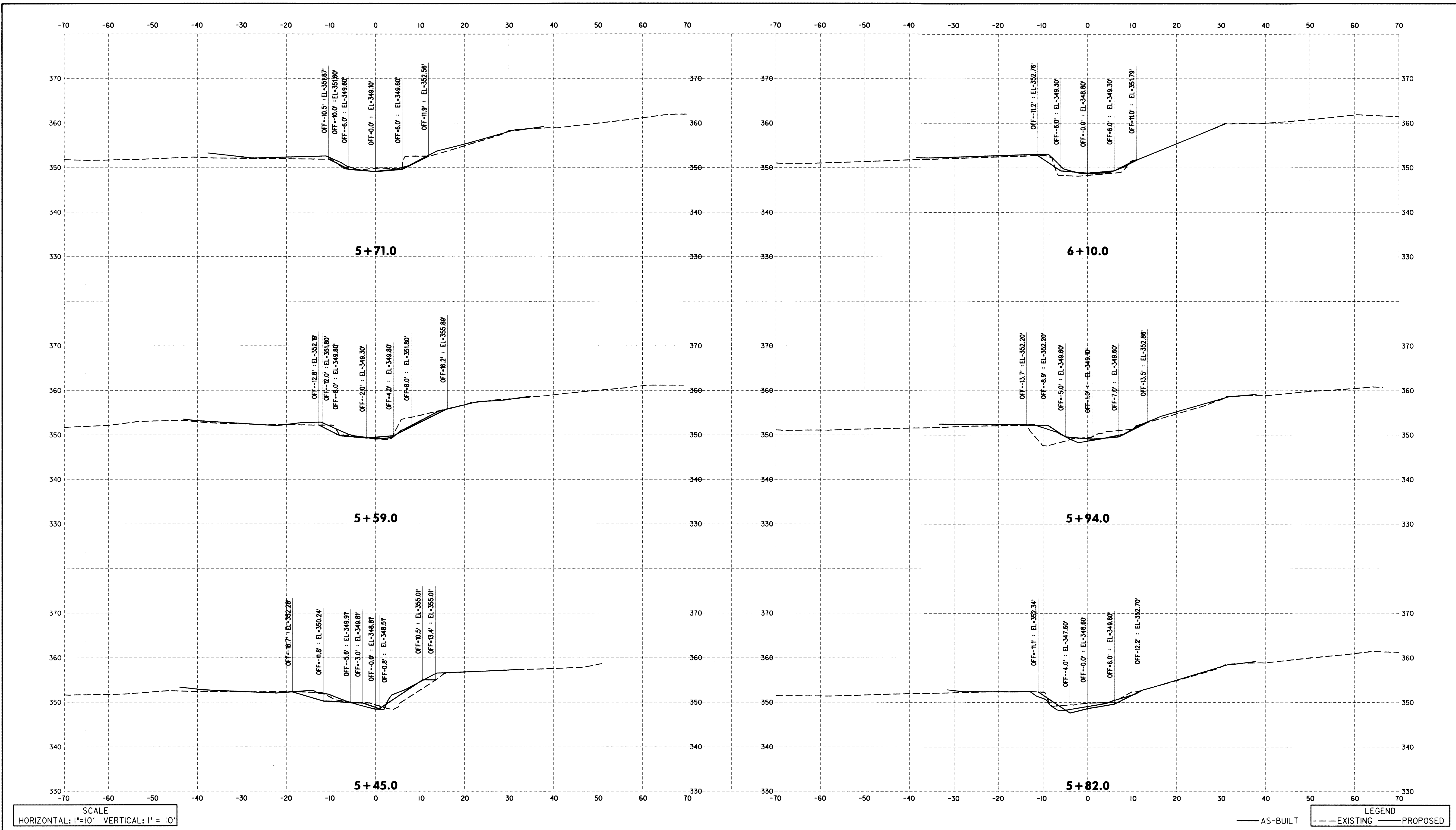


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WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

CROSS SECTIONS

SCALE
AS SHOWN
SHEET
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SCALE
HORIZONTAL: 1"=10' VERTICAL: 1" = 10'

LEGEND
— AS-BUILT --- EXISTING PROPOSED

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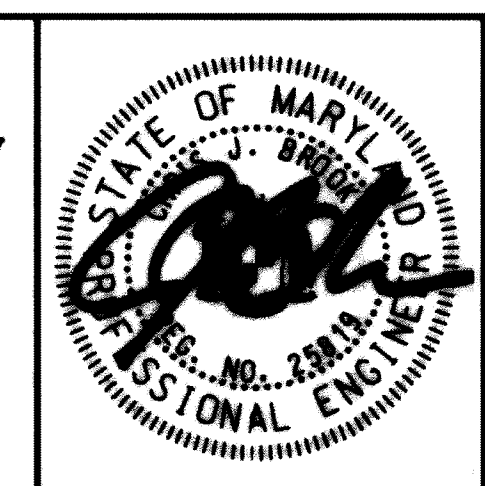
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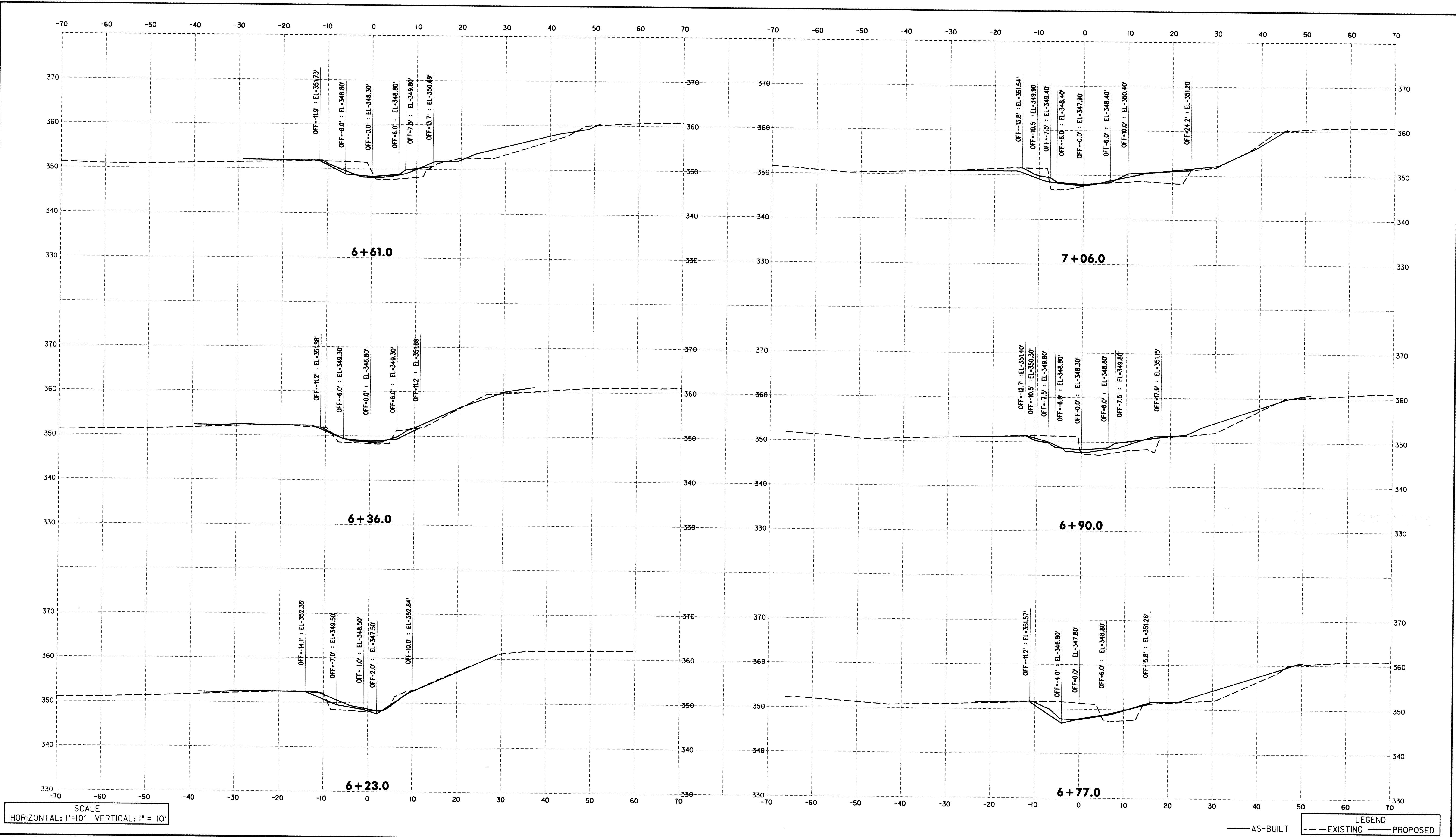


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CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

CROSS SECTIONS

SCALE
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SCALE
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LEGEND
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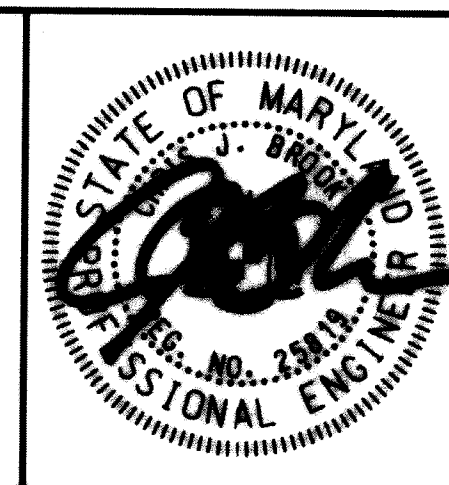
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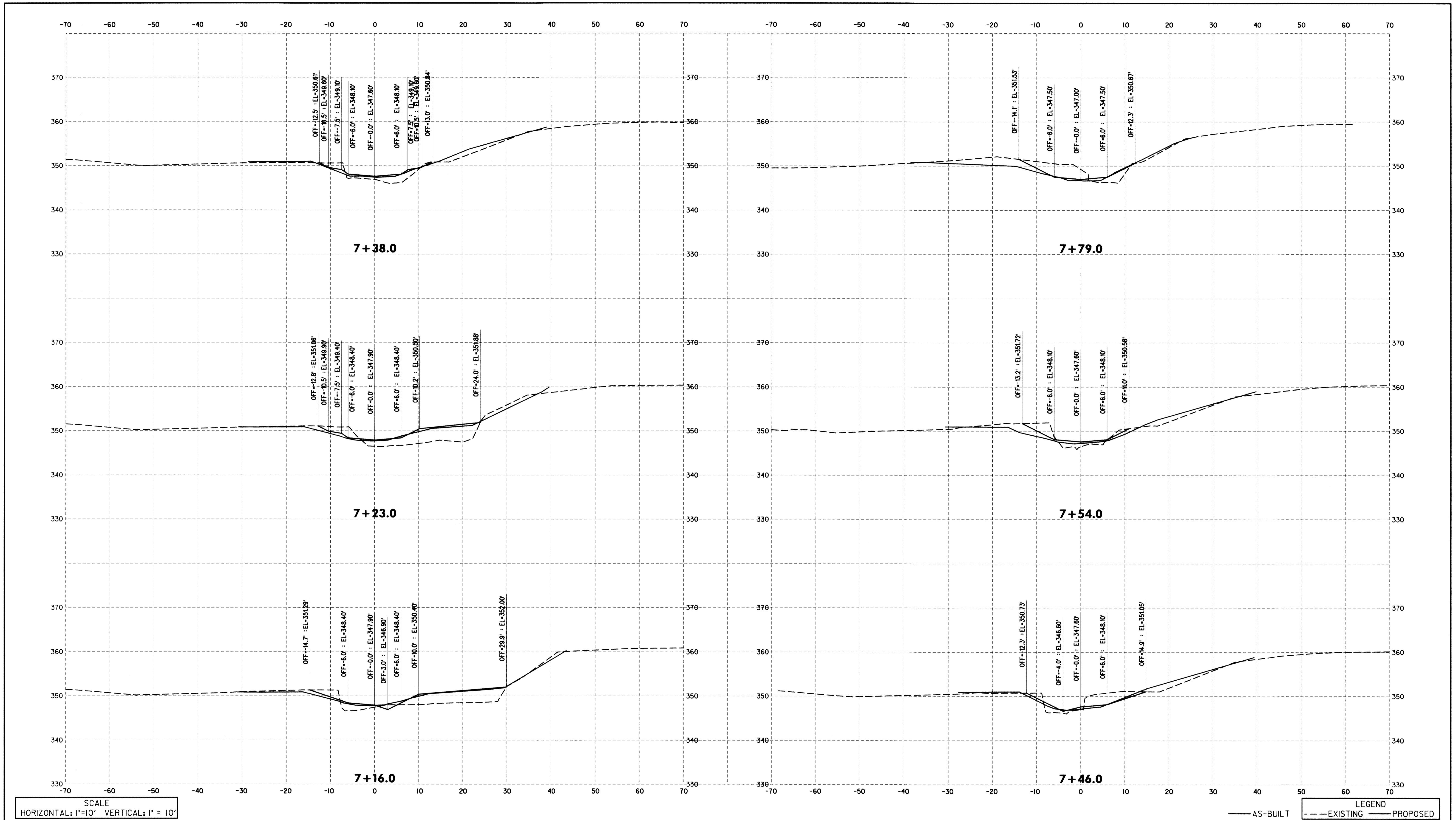


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CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
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CROSS SECTIONS

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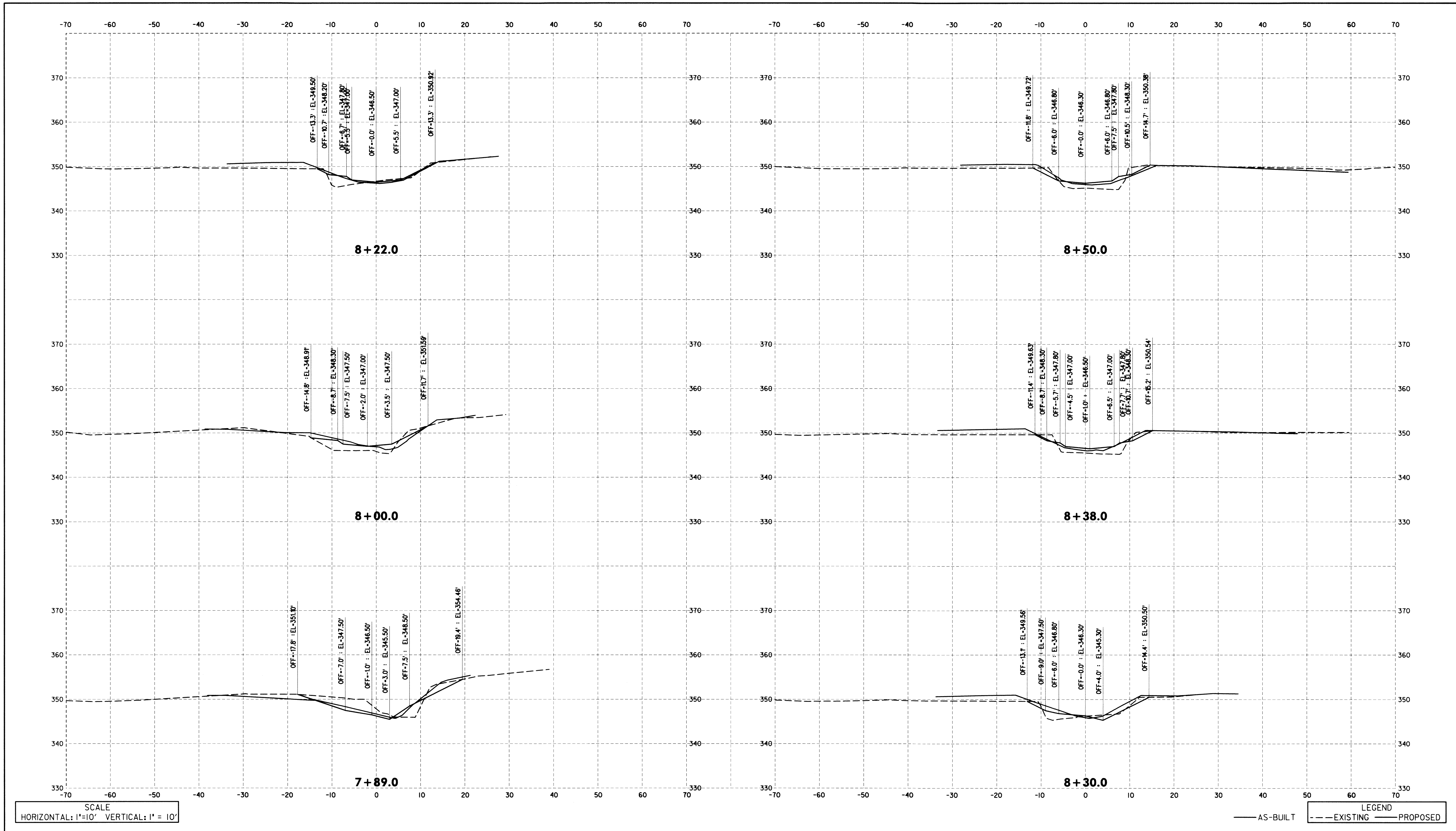


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WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

CROSS SECTIONS

SCALE AS SHOWN
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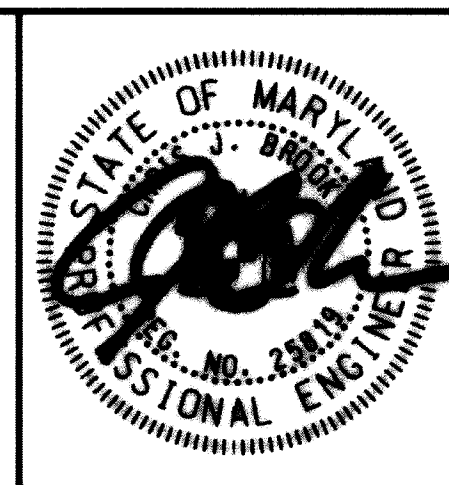
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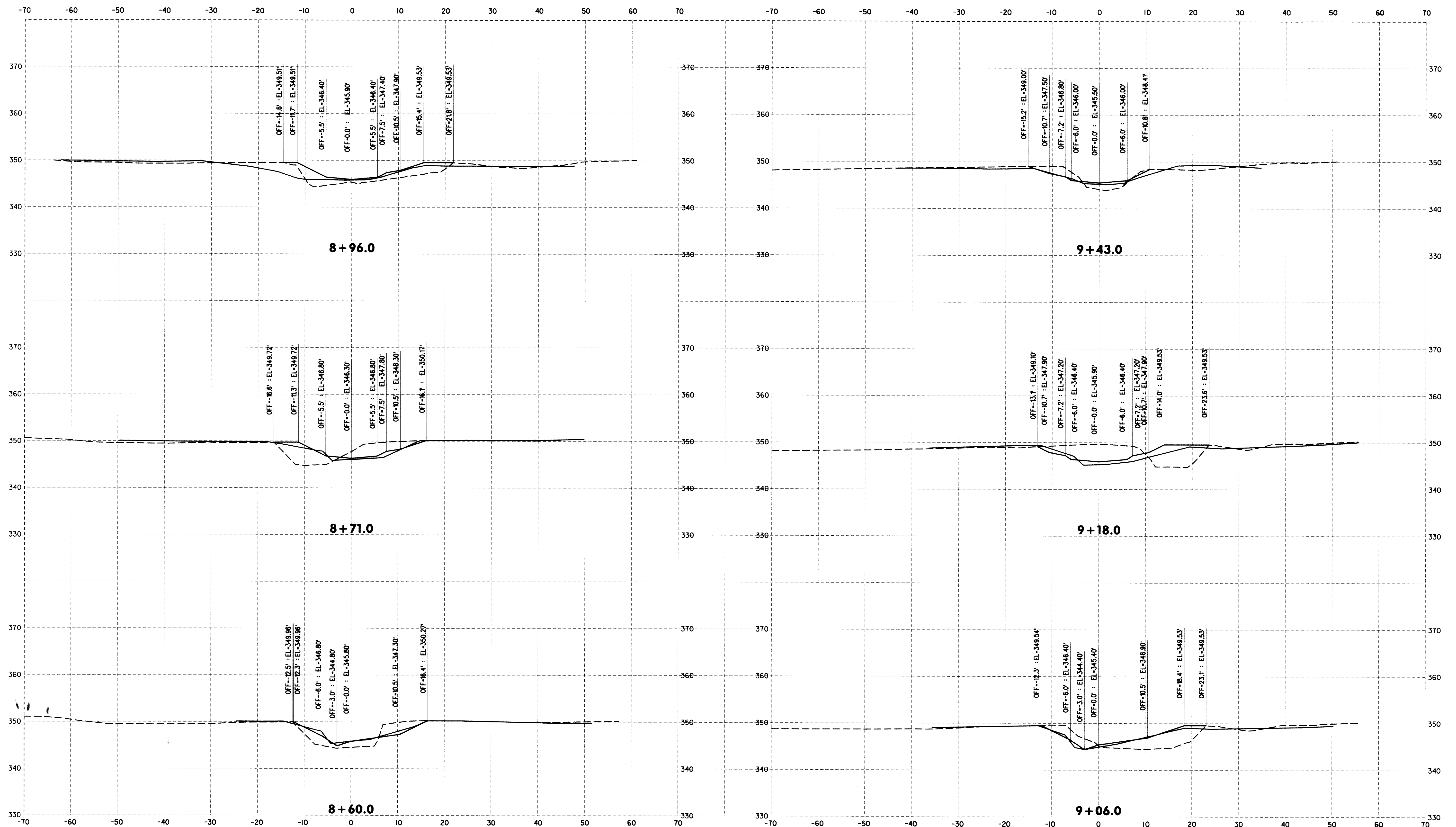


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CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011**

CROSS SECTIONS

SCALE
AS SHOWN
SHEET
28 OF 39



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

LEGEND
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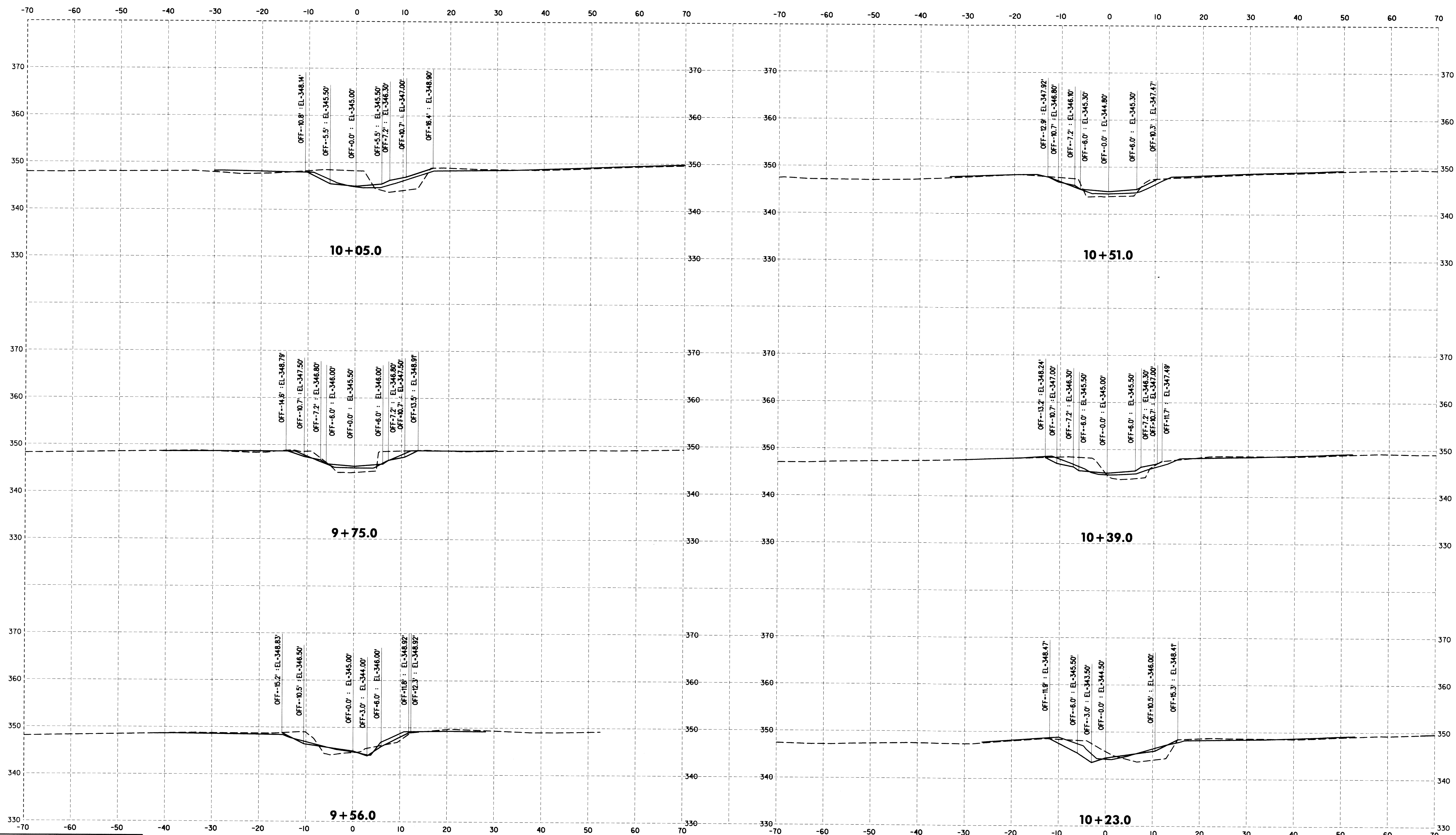


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WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

CROSS SECTIONS

SCALE
AS SHOWN
SHEET
29 OF 39



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"=10'

LEGEND
— AS-BUILT
- - - EXISTING
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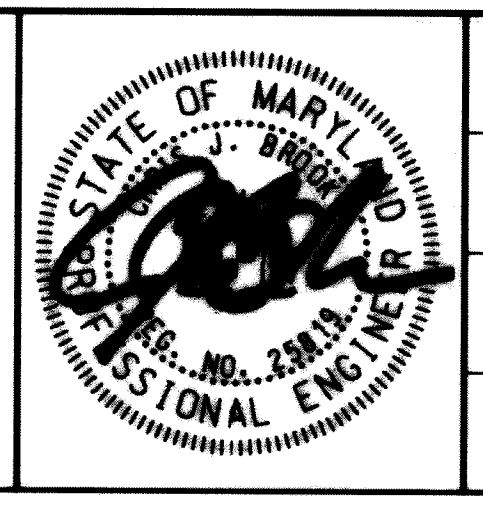
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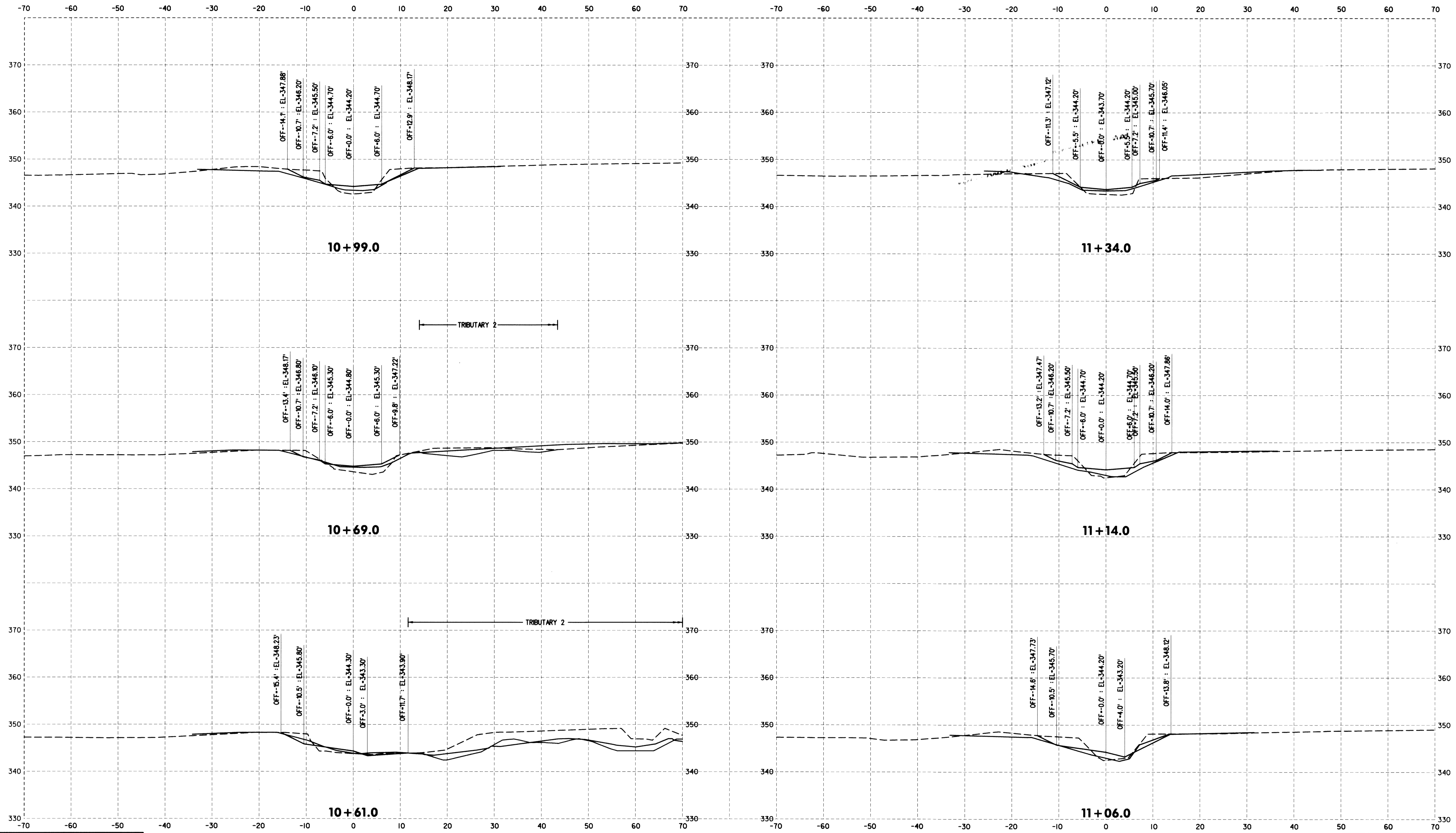


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WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011**

CROSS SECTIONS

SCALE
AS SHOWN
SHEET
30 OF 39



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

LEGEND
— AS-BUILT
- - - EXISTING
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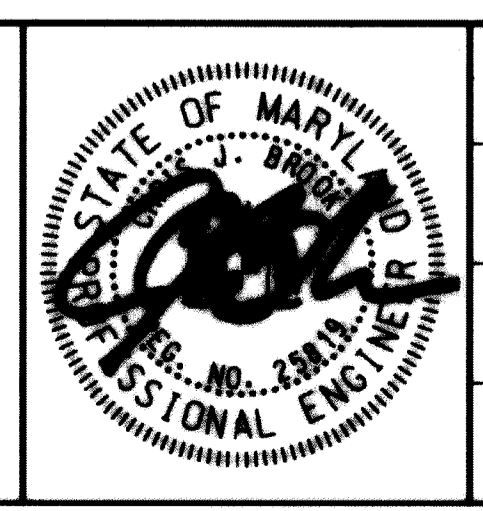
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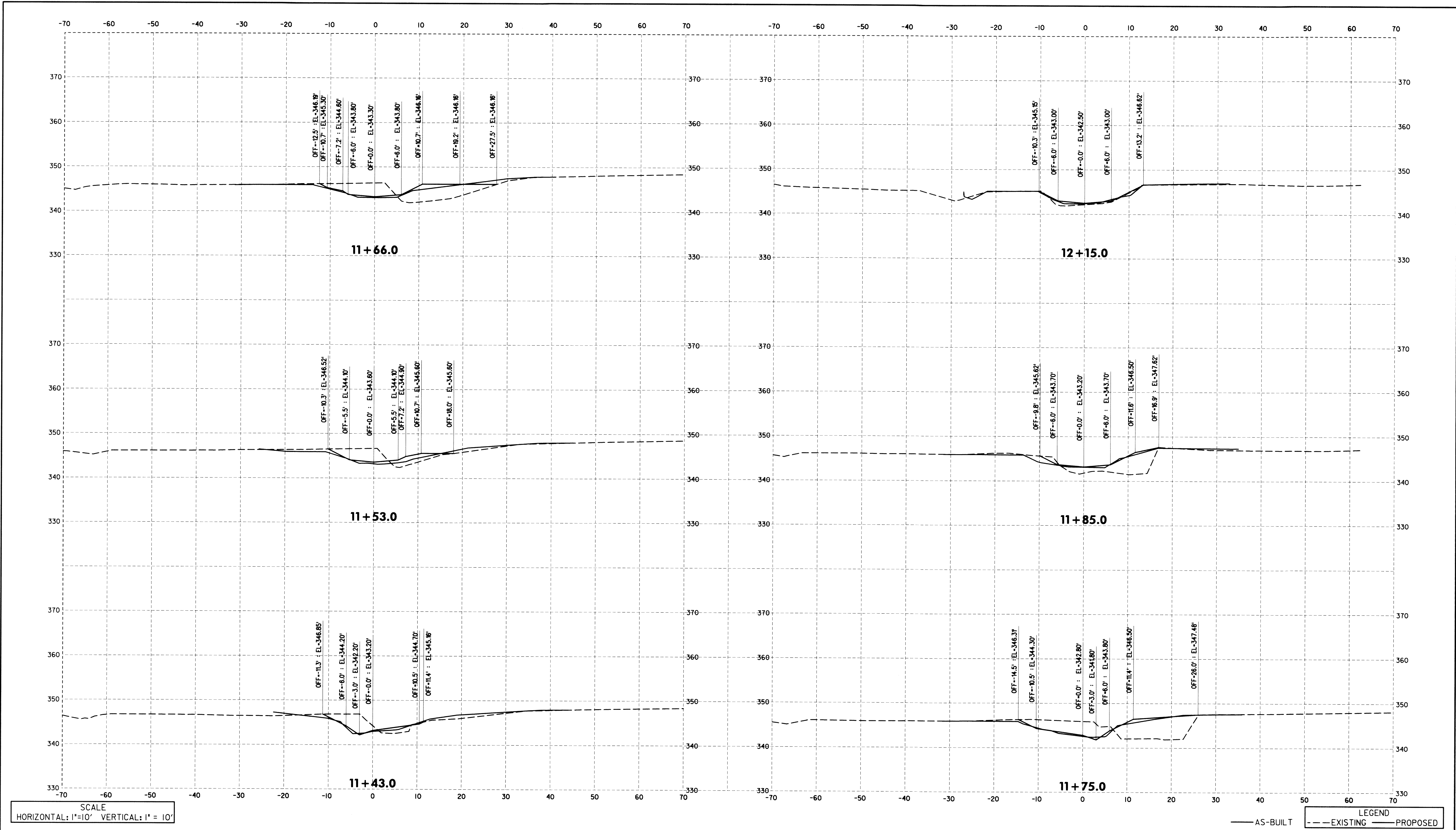


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CHK: CB			
DATE: 10/3/12	BY	NO.	REVISION
			DATE

**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011**

CROSS SECTIONS

SCALE
AS SHOWN
SHEET
31 OF 39



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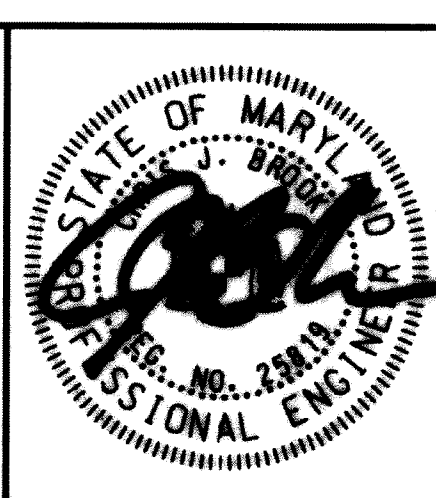
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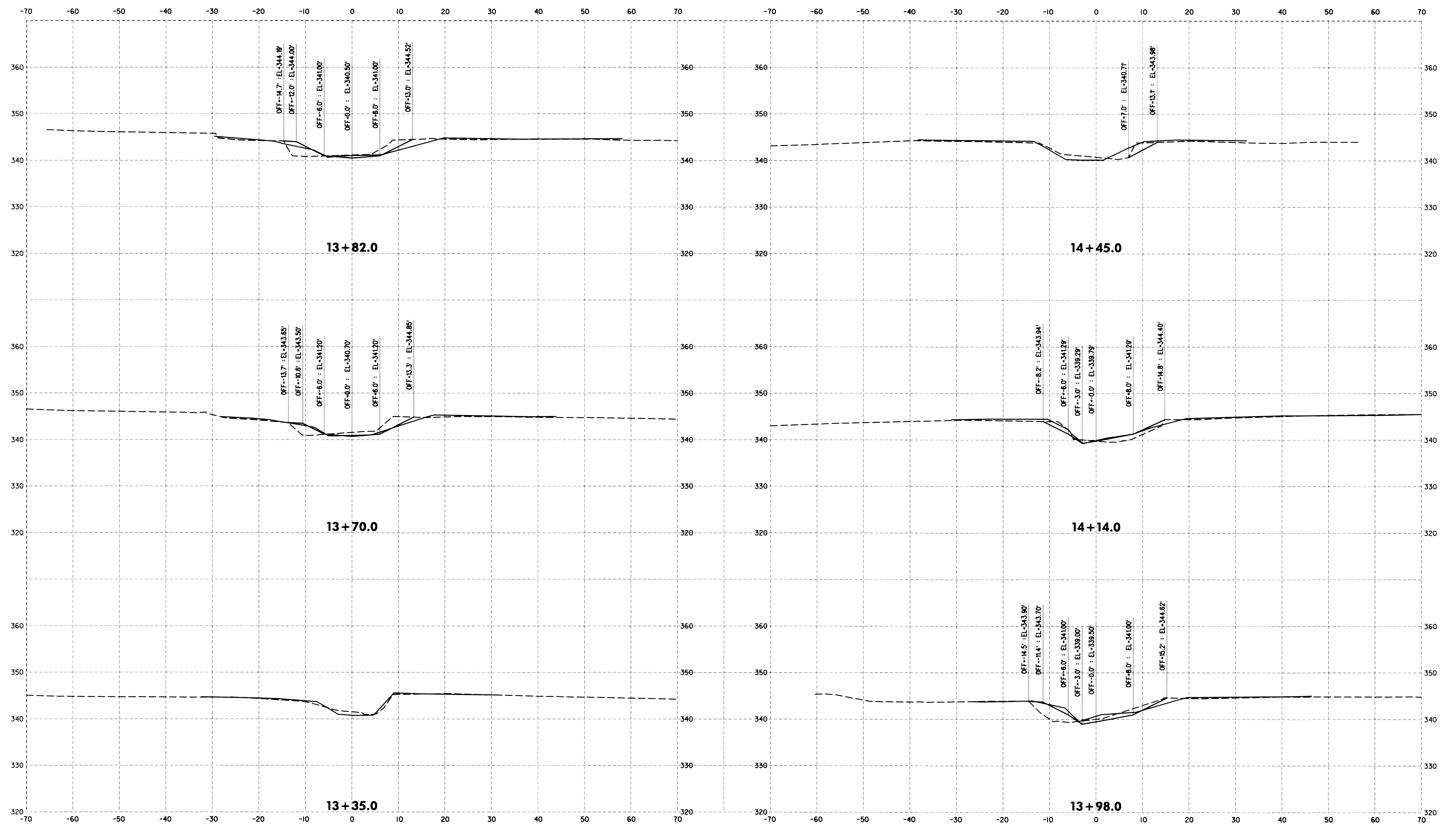


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ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

CROSS SECTIONS

SCALE
AS SHOWN
SHEET
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SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

LEGEND
— AS-BUILT
- - - EXISTING
..... PROPOSED

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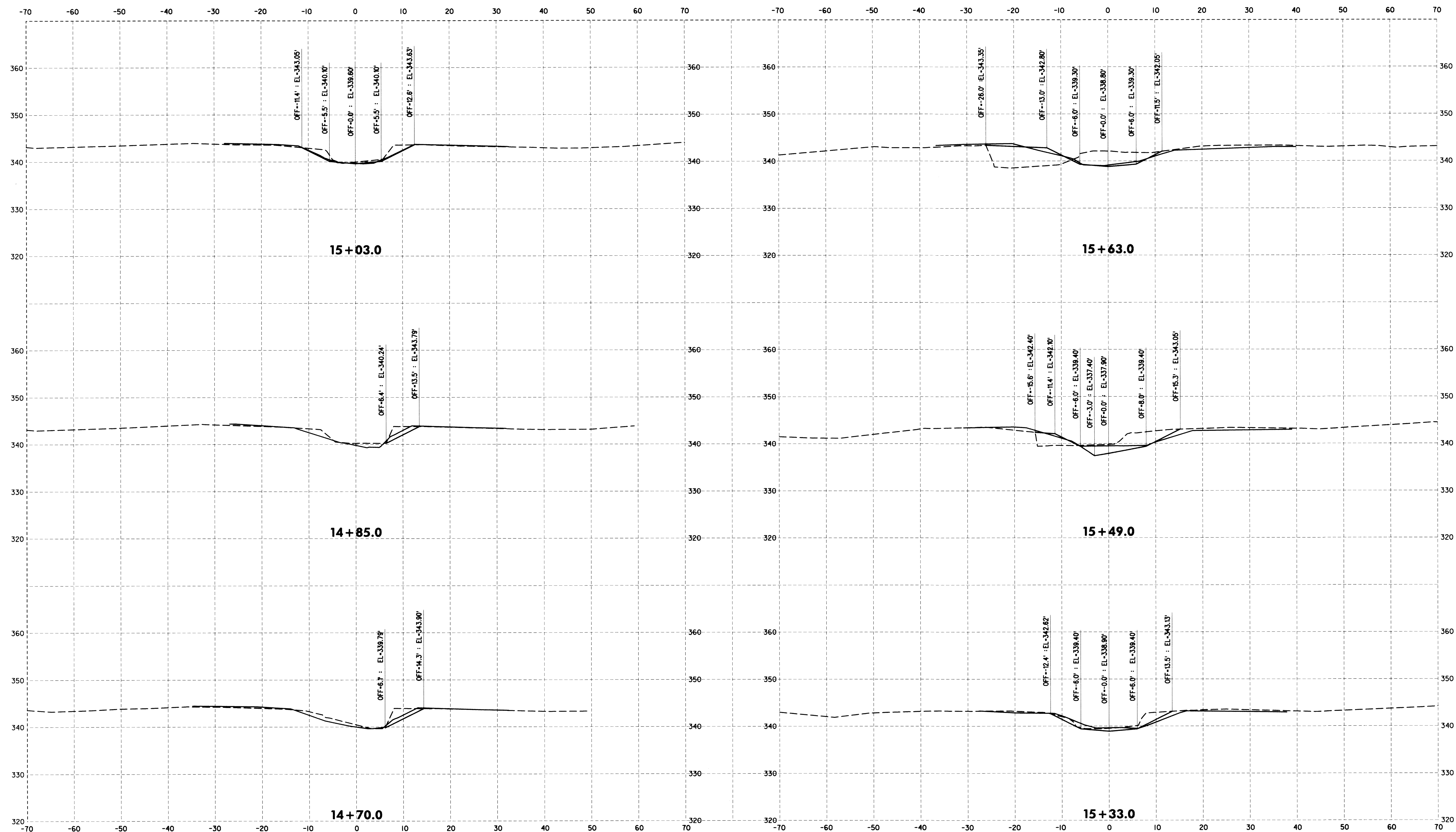


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WINDFLOWER DRIVE STREAM REHABILITATION PROJECT
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ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

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SCALE
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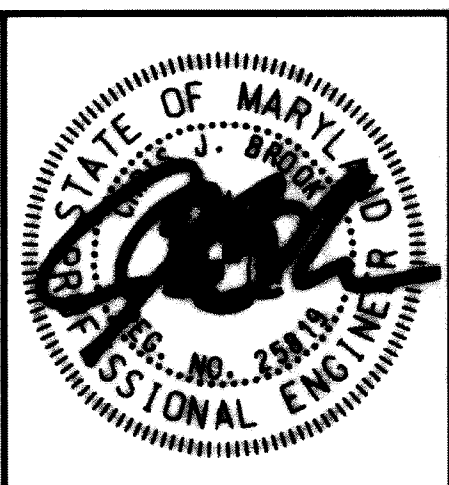
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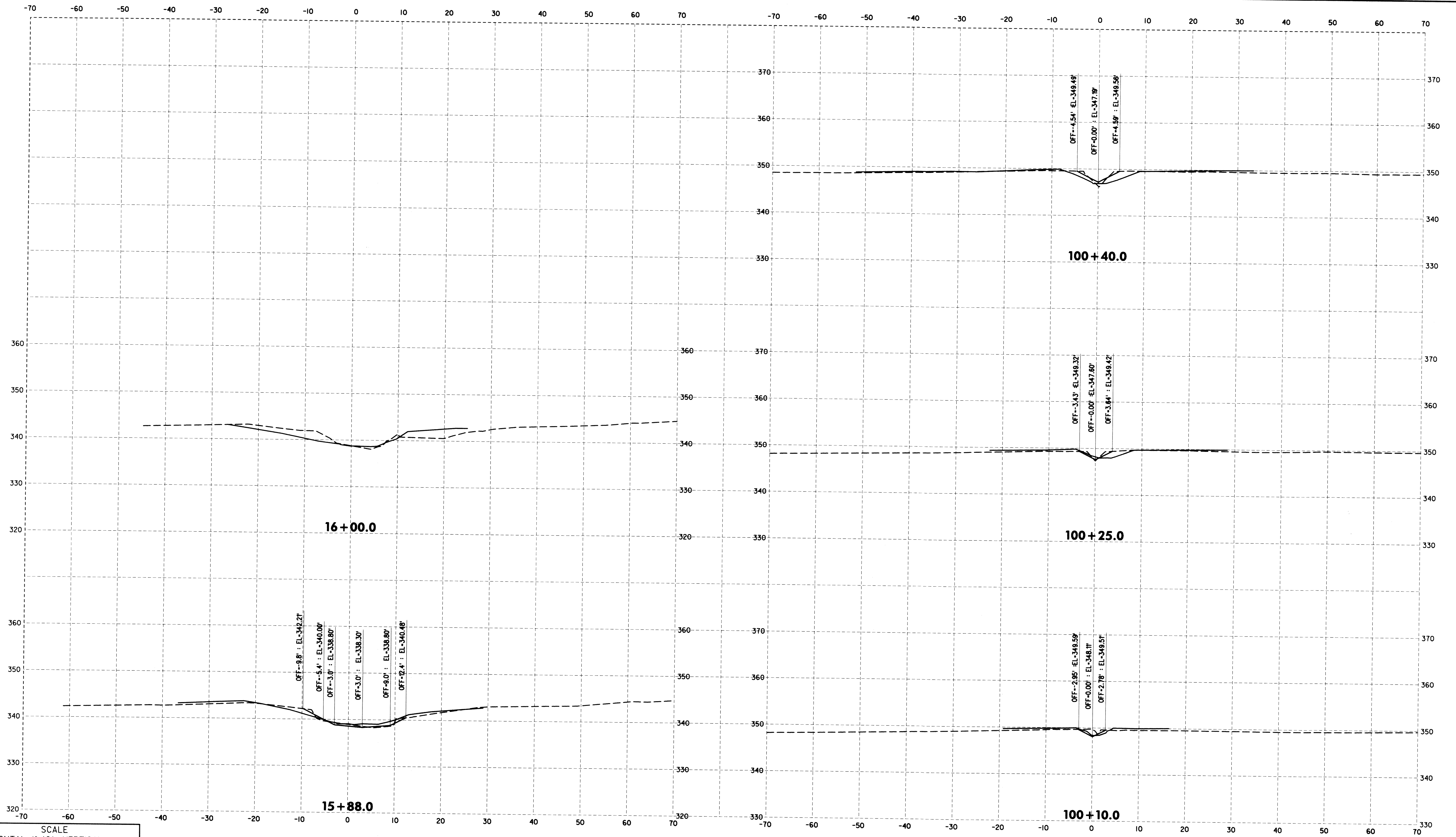


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ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
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CROSS SECTIONS

SCALE
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SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"=10'

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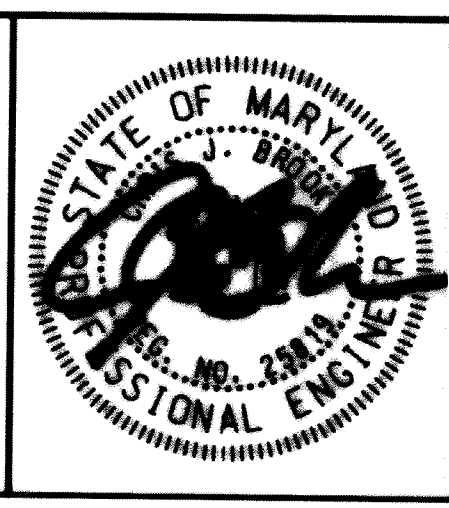
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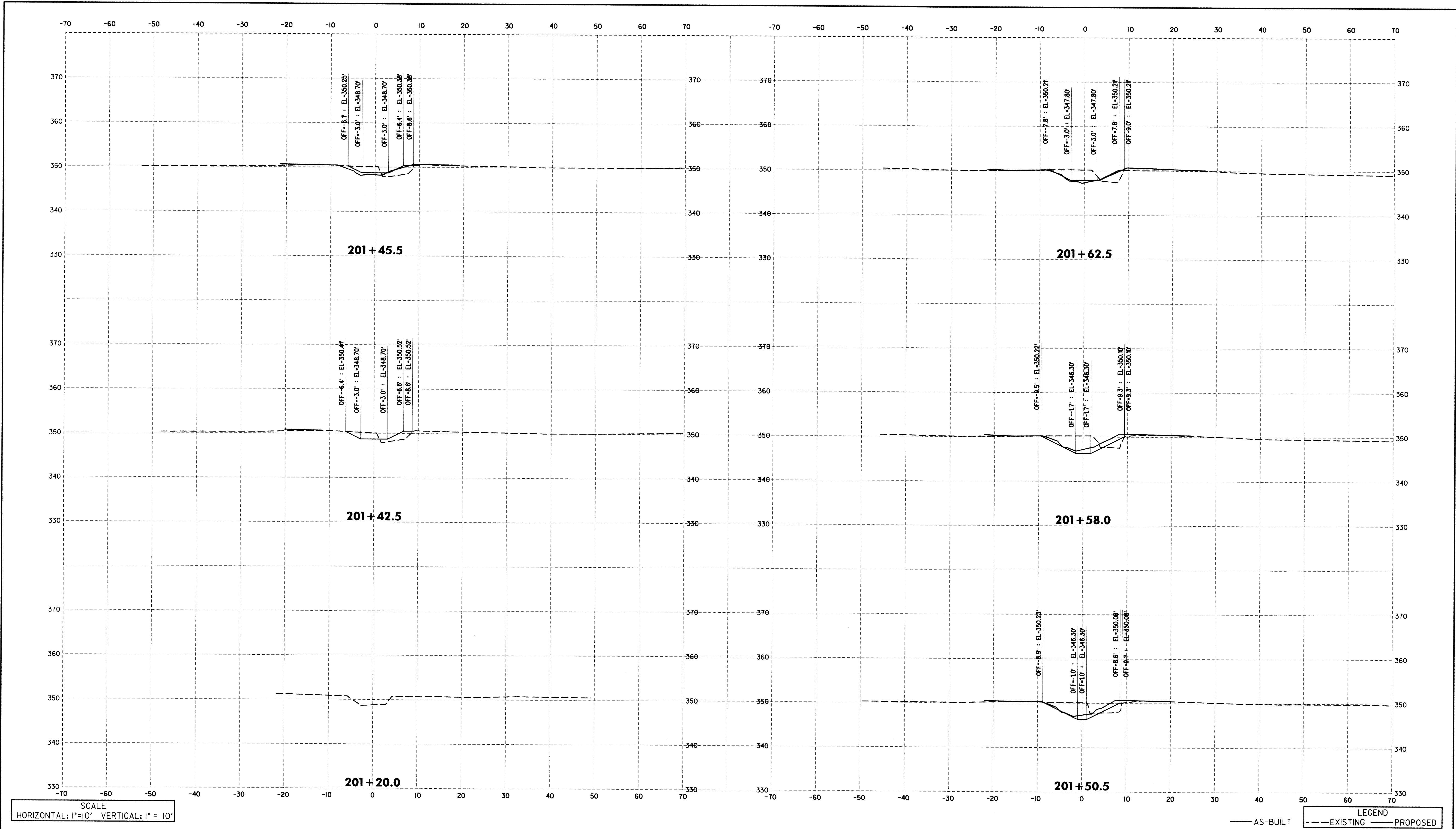


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ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
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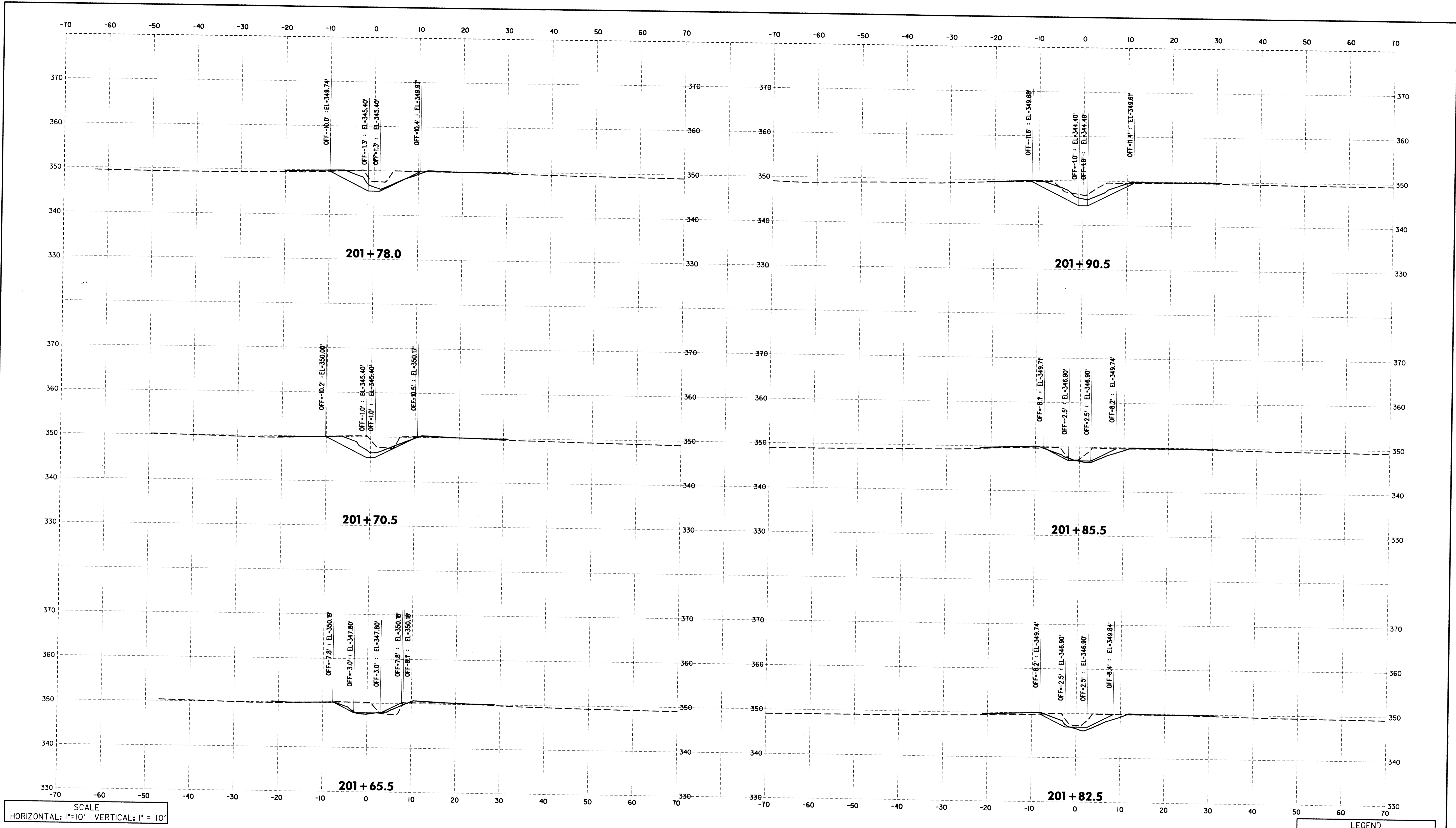


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ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 24
WAIVER PETITION #WP-13-011

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SCALE
 HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

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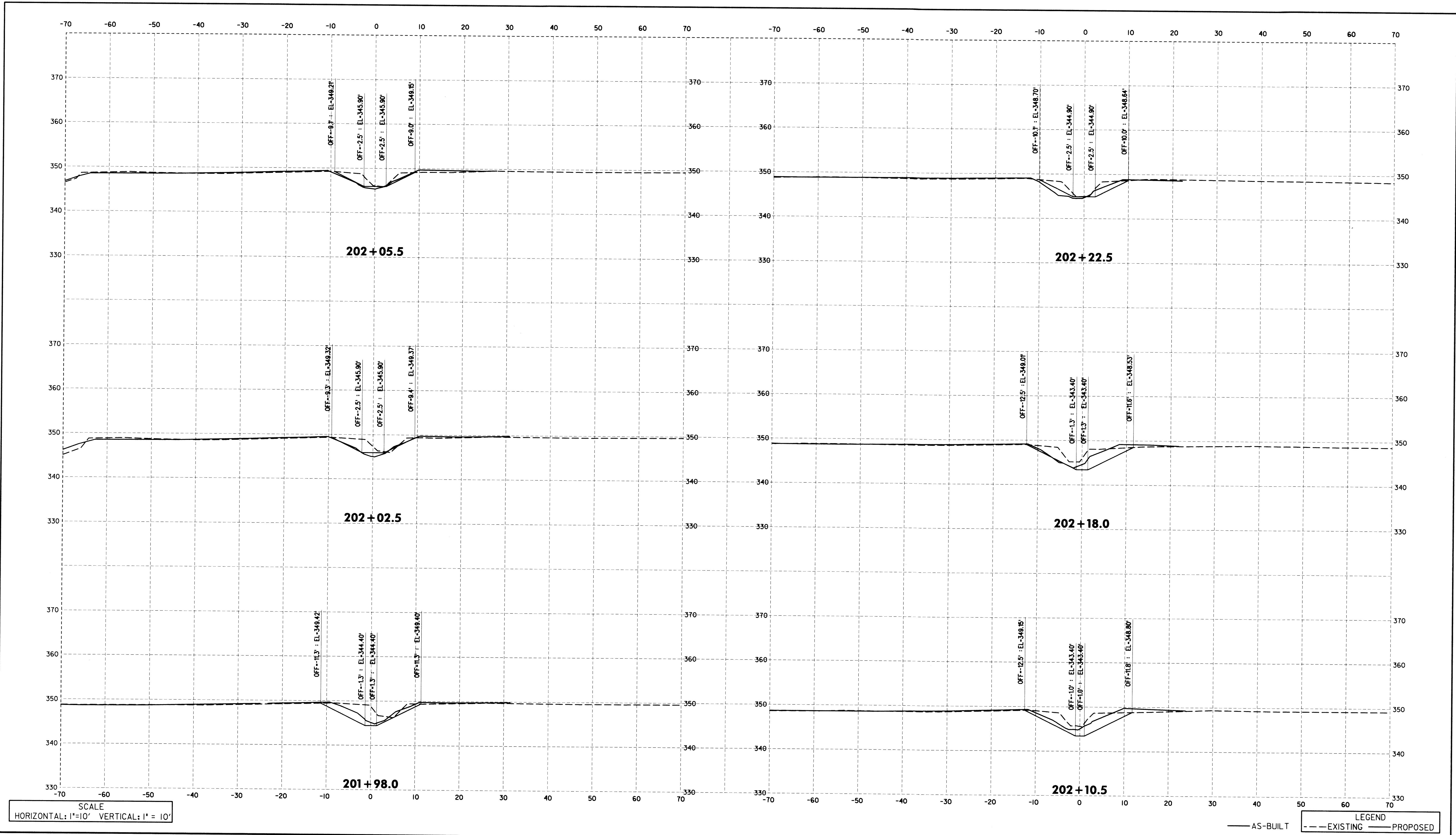


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HOWARD COUNTY, MARYLAND

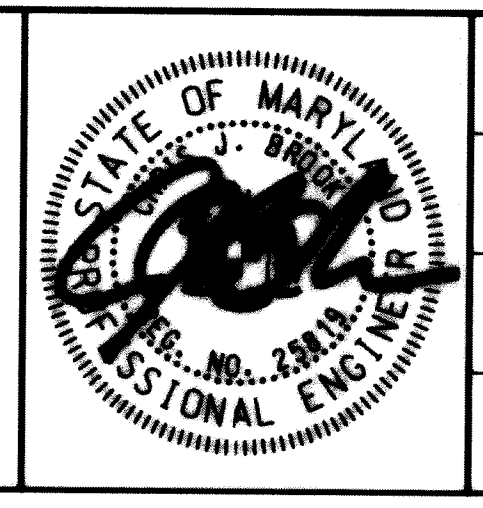
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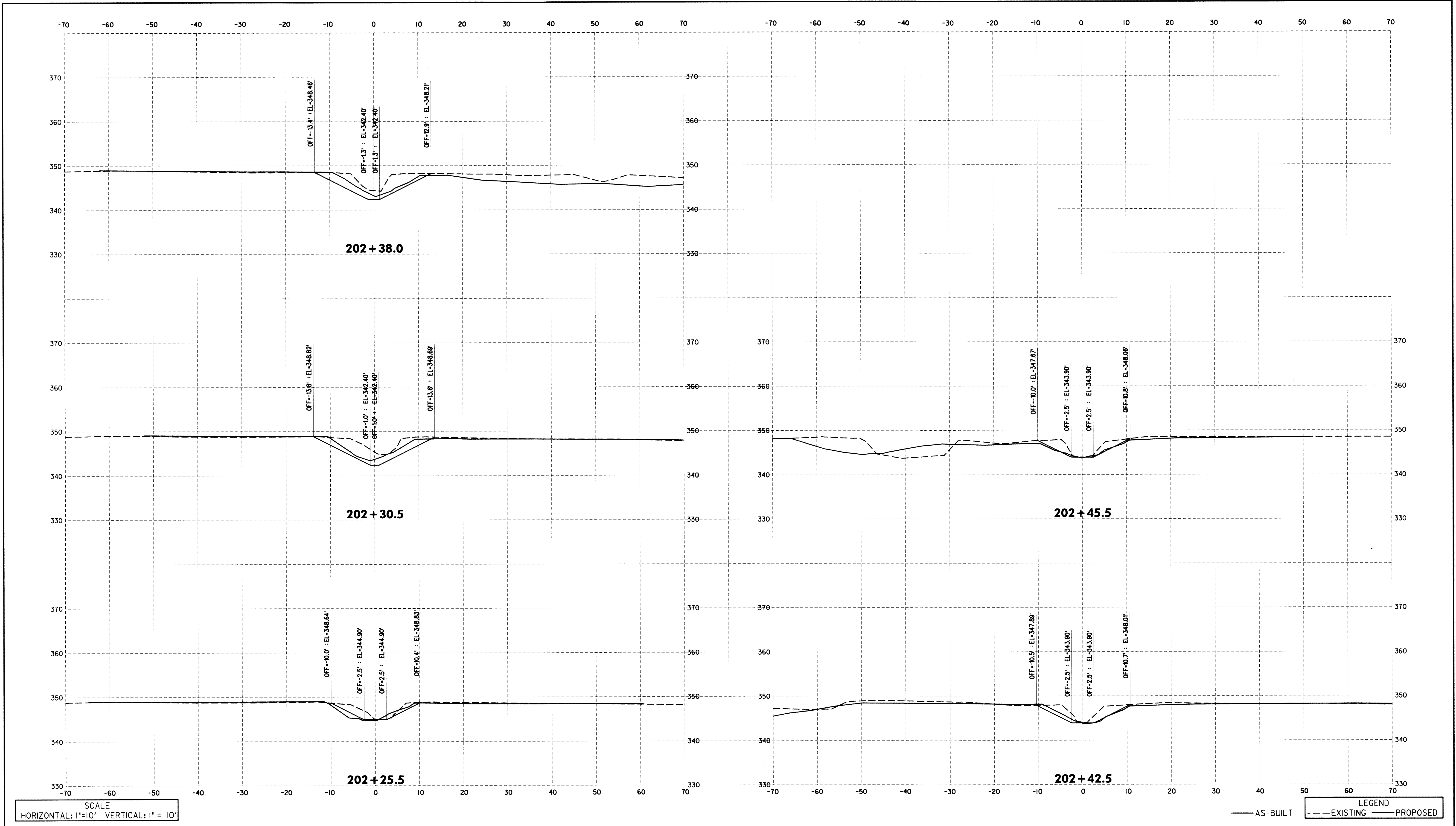


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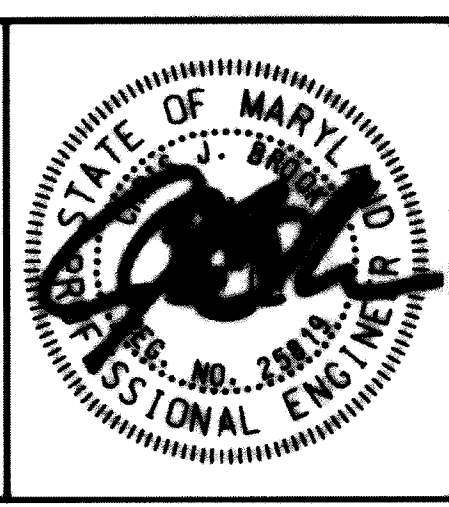
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