HOWARD COUNTY

Capital Project #D-1158

Pinehurst Court Stream Rehabilitation Project

Stormwater Management Division
Bureau Of Environmental Services

INDEX OF SHEETS

LEGEND

PROPOSED MEDIAN BARRIER
ELECTRICAL HAND BOX – SIGNALS (H.B.)
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STATE, COUNTY OR CITY LINES
PROPOSED TRAFFIC BARRIER
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PROPOSED FENCE LINE
EXISTING FENCE LINE
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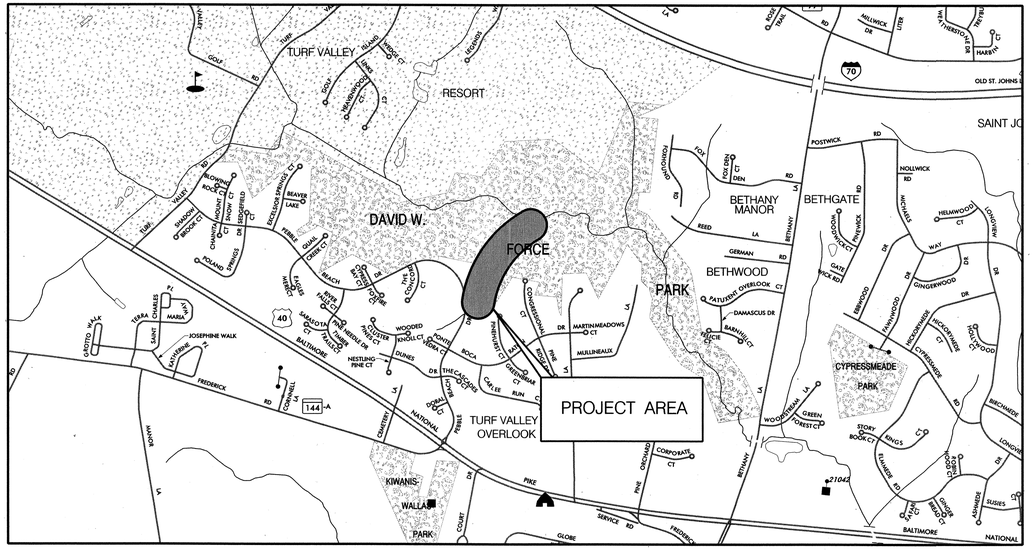
EXISTING DROP INLET
WETLAND
HEDGE /TREE LINE
BUSH /TREE
CONIFEROUS TREE
LIGHT POLE
TREE TO BE REMOVED



HORIZONTAL DATUM	NAD 83 /91
VERTICAL DATUM	NAVD 88

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

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MDSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1–800–257–7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE.
3. THIS PLAN IS PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
4. 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.
5. SURVEY OF THIS SITE WAS PERFORMED BY AB CONSULTANTS, INC–JAN 2014
6. 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.
7. WETLANDS AND WATERS OF THE US WERE DELINEATED BY McCORMICK TAYLOR– JAN 2014.
8. 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.
9. 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.
10. THE CONTRACTORS SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTORS'S 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.
11. SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY McCORMICK TAYLOR IMMEDIATELY TO RESOLVE THE SITUATION.
12. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
13. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
14. SITE DEVELOPMENT DETAILS ARE REFERENCED FROM THE AS–BUILT PLANS FOR TURF VALLEY OVERLOOK SECTION 1 AREA 1 (F–86–229) AND SECTION 1 AREA 2 (F–87–029).
15. A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT. (TRACKING NUMBER 201461215)
16. PROJECT IMPACTS INCLUDE WORK IN A USE IV–P STREAM. WORK MAY NOT BE CONDUCTED DURING THE PERIOD BETWEEN MARCH 1 AND MAY 31.
17. AS OF OCTOBER 16, 2014, THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING APPROVED THE REQUEST TO WAIVE SUBSECTIONS 16.155(a)(1)(ii), 16.1201(n) AND 16.1205(a)(7) OF THE HOWARD COUNTY CODE FOR THIS PROJECT. WAIVER PETITION WP–15–033 WAS APPROVED OCTOBER 16, 2014 BY THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING FOR THIS PROJECT, SUBJECT TO THE FOLLOWING CONDITIONS:
    - A) 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 $44,758.00 TO THE FOREST CONSERVATION FUND – SECTION 16.1211, SAP ACCT #2060000000–3000–3000000000–PWPW000000000000–432521.
    - B) PETITIONER SHALL SUBMIT A COMPLETED FOREST CONSERVATION DATA SUMMARY TO THE DPZ, DIVISION OF LAND DEVELOPMENT, ATTN: DAVE BOELLNER.
    - C) PETITIONER SHALL, PRIOR TO GRADING PERMIT APPLICATION, OBTAIN A RIGHT–OF–ENTRY FROM THE OWNERS OF THE KEENAN AND MERZA PROPERTIES.

DEPARTMENT OF RECREATION AND PARKS, HOWARD COUNTY, MD

John R. Byrd — 11/17/14
DIRECTOR OF RECREATION AND PARKS — /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 — 11/18/14
HOWARD SOIL CONSERVATION DISTRICT — DATE

DESIGN CERTIFICATION

I CERTIFY THAT THIS PLAN FOR, EROSION AND SEDIMENT CONTROL REPRESENTS A PRATICAL 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.

11/13/14 — Amy L. Hribar
DATE — DESIGNER'S SIGNATURE

MARYLAND REGISTRATION NUMBER 32013 — AMY L. HRIBAR
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.

11/14/14 — Mark S. Richmond
DATE — OWNER /DEVELOPER SIGNATURE

Mark S. Richmond, Chief Sswm Division
PRINTED NAME AND TITLE

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. 32013, EXPIRATION DATE: 7 / 5 / 2015

EP-14-031

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 11/14/14
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 11/14/14
CHIEF, STORMWATER MANAGEMENT DIVISION — DATE 11/14/14

McCORMICK TAYLOR
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

STATE OF MARYLAND — AMY L. HRIBAR — No. 32013 — PROFESSIONAL ENGINEER

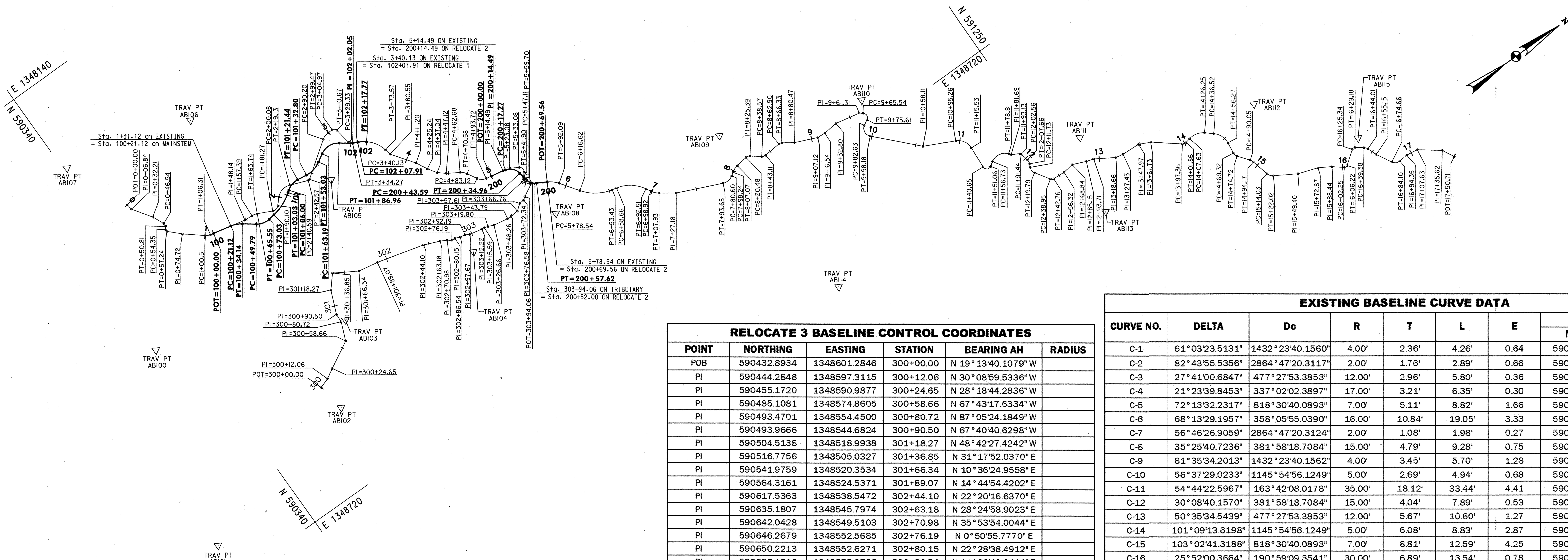
DES: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D–1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP–15–033

TITLE SHEET

SCALE: AS SHOWN

SHEET: 1 OF 27



EXISTING BASELINE CURVE DATA								
CURVE NO.	DELTA	Dc	R	T	L	E	CENTER OF CURVE	
							NORTH	EAST
C-1	61°03'23.5131"	1432°23'40.1560"	4.00'	2.36'	4.26'	0.64	590391.7976	1348352.3365
C-2	82°43'55.5356"	2864°47'20.3117"	2.00'	1.76'	2.89'	0.66	590394.4235	1348358.7908
C-3	27°41'00.6847"	477°27'53.3853"	12.00'	2.96'	5.80'	0.36	590432.9853	1348379.7276
C-4	21°23'39.8453"	337°02'02.3897"	17.00'	3.21'	6.35'	0.30	590479.5381	1348417.7326
C-5	72°13'32.2317"	818°30'40.0893"	7.00'	5.11'	8.82'	1.66	590505.5914	1348403.4262
C-6	68°13'29.1957"	358°05'55.0390"	16.00'	10.84'	19.05'	3.33	590529.2449	1348411.7470
C-7	56°46'26.9059"	2864°47'20.3124"	2.00'	1.08'	1.98'	0.27	590555.7416	1348402.6679
C-8	35°25'40.7236"	381°58'18.7084"	15.00'	4.79'	9.28'	0.75	590604.3363	1348388.6843
C-9	81°35'34.2013"	1432°23'40.1562"	4.00'	3.45'	5.70'	1.28	590609.7827	1348377.6585
C-10	56°37'29.0233"	1145°54'56.1249"	5.00'	2.69'	4.94'	0.68	590621.4810	1348394.6599
C-11	54°44'22.5967"	163°42'08.0178"	35.00'	18.12'	33.44'	4.41	590610.7871	1348433.6467
C-12	30°08'40.1570"	381°58'18.7084"	15.00'	4.04'	7.89'	0.53	590690.5521	1348508.1299
C-13	50°35'34.5439"	477°27'53.3853"	12.00'	5.67'	10.60'	1.27	590720.2509	1348506.0433
C-14	101°09'13.6198"	1145°54'56.1249"	5.00'	6.08'	8.83'	2.87	590752.8311	1348533.2384
C-15	103°02'41.3188"	818°30'40.0893"	7.00'	8.81'	12.59'	4.25	590758.2822	1348545.1291
C-16	25°52'00.3664"	190°59'09.3541"	30.00'	6.89'	13.54'	0.78	590756.9178	1348586.6291
C-17	42°10'44.8597"	114°35'29.6125"	50.00'	19.28'	36.81'	3.59	590836.4030	1348560.4774
C-18	48°29'42.2583"	143°14'22.0156"	40.00'	18.02'	33.86'	3.87	590821.9353	1348649.4607
C-19	25°49'29.4721"	286°28'44.0312"	20.00'	4.59'	9.01'	0.52	590877.5388	1348626.0251
C-20	57°30'05.1090"	440°44'12.3557"	13.00'	7.13'	13.05'	1.83	590935.8994	1348662.8660
C-21	25°18'10.1926"	286°28'44.0312"	20.00'	4.49'	8.83'	0.50	590958.1508	1348687.6640
C-22	46°51'09.6186"	954°55'46.7709"	6.00'	2.60'	4.91'	0.54	590969.2949	1348671.8006
C-23	43°25'02.7603"	954°55'46.7706"	6.00'	2.39'	4.55'	0.46	590987.0692	1348670.5097
C-24	39°23'58.0089"	1145°54'56.1249"	5.00'	1.79'	3.44'	0.31	591007.7749	1348679.6554
C-25	115°22'23.3169"	1145°54'56.1249"	5.00'	7.91'	10.07'	4.35	591100.7862	1348704.9696
C-26	99°01'21.4097"	636°37'11.1805"	9.00'	10.54'	15.55'	4.86	591102.0440	1348720.0880
C-27	68°17'40.5630"	337°02'02.3897"	17.00'	11.53'	20.26'	3.54	591163.0575	1348801.0455
C-28	126°49'26.7274"	1219°03'32.8989"	4.70'	9.39'	10.40'	5.80	591183.0275	1348827.5679
C-29	84°20'37.1065"	381°58'18.7084"	15.00'	13.59'	22.08'	5.24	591198.5080	1348841.0058
C-30	48°25'27.7490"	2864°47'20.3115"	2.00'	0.90'	1.69'	0.19	591219.4357	1348840.5295
C-31	36°30'48.6313"	716°11'50.0781"	8.00'	2.64'	5.10'	0.42	591215.4048	1348850.9594
C-32	57°40'01.3595"	716°11'50.0781"	8.00'	4.40'	8.05'	1.13	591228.1493	1348861.4556
C-33	54°39'04.9664"	1432°23'40.1562"	4.00'	2.07'	3.82'	0.50	591235.0633	1348879.7687
C-34	51°33'14.1233"	1145°54'56.1249"	5.00'	2.41'	4.50'	0.55	591377.8331	1348931.0216
C-35	53°20'41.3178"	286°28'44.0312"	20.00'	10.05'	18.62'	2.38	591388.9985	1348954.1234
C-36	56°34'18.0698"	286°28'44.0312"	20.00'	10.76'	19.75'	2.71	591396.8000	1348960.8003
C-37	44°15'50.7795"	818°30'40.0893"	7.00'	2.85'	5.41'	0.56	591421.9717	1348977.0984
C-38	23°39'41.7496"	572°57'28.0625"	10.00'	2.09'	4.13'	0.22	591417.6682	1348999.5757
C-39	45°46'42.7756"	572°57'28.0625"	10.00'	4.22'	7.99'	0.85	591441.7442	1349014.2274
C-40	75°46'35.2085"	1909°51'33.5419"	3.00'	2.33'	3.97'	0.80	591508.4350	1349058.5512
C-41	73°15'44.9432"	1909°51'33.5417"	3.00'	2.23'	3.84'	0.74	591527.3425	1349051.8977
C-42	33°10'23.0519"	716°11'50.0781"	8.00'	2.38'	4.63'	0.35	591532.5724	1349061.9783
C-43	67°37'02.0780"	716°11'50.0781"	8.00'	5.36'	9.44'	1.63	591560.2054	1349083.0754

RELOCATE 3 BASELINE CONTROL COORDINATES					
POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
POB	590432.8934	1348601.2846	300+00.00	N 19°13'40.1079" W	
PI	590444.2848	1348597.3115	300+12.06	N 30°08'59.5336" W	
PI	590455.1720	1348590.9877	300+24.65	N 28°18'44.2836" W	
PI	590485.1081	1348574.8605	300+58.66	N 67°43'17.6334" W	
PI	590493.4701	1348554.4500	300+80.72	N 87°05'24.1849" W	
PI	590493.9666	1348544.6824	300+90.50	N 67°40'40.6298" W	
PI	590504.5138	1348518.9938	301+18.27	N 48°42'27.4242" W	
PI	590516.7756	1348505.0327	301+36.85	N 31°17'52.0370" E	
PI	590541.9759	1348520.3534	301+66.34	N 10°36'24.9558" E	
PI	590564.3161	1348524.5371	301+89.07	N 14°44'54.4202" E	
PI	590617.5363	1348538.5472	302+44.10	N 22°20'16.6370" E	
PI	590635.1807	1348545.7974	302+63.18	N 28°24'58.9023" E	
PI	590642.0428	1348549.5103	302+70.98	N 35°53'54.0044" E	
PI	590646.2679	1348552.5685	302+76.19	N 0°50'55.7770" E	
PI	590650.2213	1348552.6271	302+80.15	N 22°28'38.4912" E	
PI	590656.1318	1348555.0726	302+86.54	N 11°06'49.8414" E	
PI	590661.6701	1348556.1606	302+92.19	N 29°36'17.5611" E	
PI	590666.4359	1348558.8684	302+97.67	N 11°20'53.2089" E	
PI	590680.6972	1348561.7306	303+12.22	N 3°21'45.0592" E	
PI	590684.0704	1348561.9288	303+15.59	N 18°40'07.9916" E	
PI	590688.0584	1348563.2762	303+19.80	N 21°48'51.3441" E	
PI	590694.4228	1348565.8236	303+26.66	N 9°40'31.9580" E	
PI	590711.3141	1348568.7035	303+43.79	N 1°15'21.4539" E	
PI	590715.7813	1348568.8014	303+48.26	N 4°21'02.1152" W	
PI	590725.0967	1348568.0927	303+57.61	N 38°00'32.9701" W	
PI	590732.3089	1348562.4561	303+66.76	N 5°47'30.8273" W	
PI	590737.8567	1348561.8934	303+72.34	N 35°07'56.9094" W	
PI	590741.3271	1348559.4514	303+76.58	N 28°48'19.2933" W	
POE	590756.6436	1348551.0292	303+94.06		

TRAVERSE CONTROL COORDINATES			
POINT	NORTHING	EASTING	ELEVATION
AB100	590306.7661	1348460.2912	424.41
AB101	590236.6246	1348678.8056	423.78
AB102	590437.9488	1348632.3908	418.87
AB103	590498.5437	1348555.7268	413.48
AB104	590658.5192	1348576.9893	407.32
AB105	590576.2215	1348418.7098	411.93
AB106	590487.0524	1348273.3817	430.92
AB107	590343.7836	1348236.9921	428.01
AB108	590758.5215	1348595.0896	404.80
AB109	590958.3207	1348628.9521	397.21
AB110	591110.8629	1348688.1570	395.97
AB111	591285.5505	1348862.7031	390.79
AB112	591465.3608	1348944.8109	382.11
AB113	591260.5406	1348947.5891	390.43
AB114	590968.8626	1348843.7442	418.85
AB115	591538.2210	1349042.9076	378.84

RELOCATE 1 BASELINE CURVE DATA								
CURVE NO.	DELTA	Dc	R	T	L	E	CENTER OF CURVE	
							NORTH	EAST
C-45	24°52'01.7348"	190°59'09.3541"	30.00'	6.61'	13.02'	0.72	590448.5030	1348425.9718
C-46	45°08'44.5610"	286°28'44.0312"	20.00'	8.31'	15.76'	1.66	590491.0309	1348395.3725
C-47	28°38'52.5129"	95°29'34.6771"	60.00'	15.32'	30.00'	1.93	590492.6917	1348354.7119
C-48	44°15'04.2455"	286°28'44.0312"	20.00'	8.13'	15.45'	1.59	590543.1068	1348416.8979
C-49	38°37'20.8293"	190°59'09.3541"	30.00'	10.51'	20.22'	1.79	590560.7621	1348368.7593
C-50	68°05'21.5744"	286°28'44.0312"	20.00'	13.51'	23.77'	4.14	590595.4114	1348406.2128
C-51	16°09'02.3743"	163°42'08.0178"	35.00'	4.97'	9.87'	0.35	590610.7872	1348433.6467

RELOCATE 2 BASELINE CURVE DATA								
CURVE NO.	DELTA	Dc	R	T	L	E	CENTER OF CURVE	
							NORTH	EAST
C-52	67°34'44.6244"	381°58'18.7084"	15.00'	10.04'	17.69'	3.05	590737.3239	1348536.8273
C-53	53°37'02.5479"	381°58'18.7084"	15.00'	7.58'	14.04'	1.81	590768.1940	1348541.4590

60' 0 60' 120'
SCALE: 1" = 60'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

11/14/14
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE

McCORMICK TAYLOR
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

STATE OF MARYLAND — PROFESSIONAL ENGINEER

DES: MM, DF
DRN: MR
CHK: AH
DATE: 11/13/14

BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D–1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP–15–033

STREAM GEOMETRY

SCALE 1" = 60'

SHEET 2 OF 27

EXISTING BASELINE CONTROL COORDINATES

POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
POB	590374.3986	1348309.8522	0+00.00	N 81°14'21.0619" E	
PI	590375.4403	1348316.6122	0+06.84	N 55°50'32.6319" E	
PI	590389.6829	1348337.6029	0+32.21	N 66°14'35.8298" E	
PC	590395.4587	1348350.7251	0+46.54	N 66°14'35.8298" E	
PI	590396.4089	1348352.8841	0+48.90	S 52°42'00.6571" E	
CC	590391.7976	1348352.3365			4.00'
PT	590394.9795	1348354.7605	0+50.81	S 52°42'00.6573" E	
PC	590392.8325	1348357.5788	0+54.35	S 52°42'00.6573" E	
PI	590391.7653	1348358.9797	0+56.11	N 44°34'03.8070" E	
CC	590394.4235	1348358.7908			2.00'
PT	590393.0200	1348360.2156	0+57.24	N 44°34'03.8070" E	
PI	590405.4774	1348372.4864	0+74.72	N 39°42'01.4465" E	
PC	590425.3200	1348388.9604	1+00.51	N 39°42'01.4465" E	
PI	590427.5950	1348390.8490	1+03.47	N 12°01'00.7618" E	
CC	590432.9853	1348379.7276			12.00'
PT	590430.4869	1348391.4646	1+06.31	N 12°01'00.7618" E	
PI	590471.4010	1348400.1738	1+48.14	N 3°40'55.2889" E	
PC	590480.6299	1348400.7677	1+57.39	N 3°40'55.2889" E	
PI	590483.8346	1348400.9739	1+60.60	N 25°04'35.1342" E	
CC	590479.5381	1348417.7326			17.00'
PT	590486.7432	1348402.3350	1+63.74	N 25°04'35.1342" E	
PC	590502.6246	1348409.7664	1+81.27	N 25°04'35.1342" E	
PI	590507.2501	1348411.9308	1+86.38	N 47°08'57.0976" W	
CC	590505.5914	1348403.4262			7.00'
PT	590510.7233	1348408.1868	1+90.10	N 47°08'57.0976" W	
PC	590517.5149	1348400.8656	2+00.08	N 47°08'57.0976" W	
PI	590524.8856	1348392.9200	2+10.92	N 21°04'32.0982" E	
CC	590529.2449	1348411.7470			16.00'
PT	590534.9985	1348396.8173	2+19.13	N 21°04'32.0982" E	
PC	590555.0224	1348404.5341	2+40.59	N 21°04'32.0982" E	
PI	590556.0309	1348404.9228	2+41.67	N 35°41'54.8077" W	
CC	590555.7416	1348402.6679			2.00'
PT	590556.9087	1348404.2921	2+42.57	N 35°41'54.8077" W	
PC	590595.5835	1348376.5029	2+90.20	N 35°41'54.8077" W	
PI	590599.4744	1348373.7071	2+94.99	N 0°16'14.0841" W	
CC	590604.3363	1348388.6843			15.00'
PT	590604.2655	1348373.6845	2+99.47	N 0°16'14.0841" W	
PC	590609.7638	1348373.6585	3+04.97	N 0°16'14.0841" W	
PI	590613.2161	1348373.6422	3+08.42	N 81°19'20.1172" E	
CC	590609.7827	1348377.6585			4.00'
PT	590613.7369	1348377.0550	3+10.67	N 81°19'20.1172" E	
PC	590616.5525	1348395.5026	3+29.33	N 80°17'48.6844" E	
PI	590617.0065	1348398.1577	3+32.02	N 23°40'19.6611" E	
CC	590621.4810	1348394.6599			5.00'
PT	590619.4735	1348399.2392	3+34.27	N 23°40'19.6611" E	
PC	590624.8397	1348401.5917	3+40.13	N 23°40'19.6611" E	
PI	590641.4341	1348408.8665	3+58.25	N 78°24'42.2580" E	
CC	590610.7871	1348433.6467			35.00'
PT	590645.0737	1348426.6160	3+73.57	N 78°24'42.2580" E	
PI	590646.4762	1348433.4556	3+80.55	N 54°26'18.5627" E	
PI	590664.3042	1348458.3927	4+11.20	N 62°39'14.5954" E	
PI	590670.7493	1348470.8554	4+25.24	N 56°35'24.0902" E	
PI	590677.2490	1348480.7090	4+37.04	N 40°34'03.7672" E	
PI	590684.9065	1348487.2648	4+47.12	N 30°54'57.5689" E	
PC	590698.2588	1348495.2611	4+62.68	N 30°54'57.5689" E	
PI	590701.7244	1348497.3365	4+66.72	N 61°03'37.7260" E	
CC	590690.5521	1348508.1299			15.00'
PT	590703.6791	1348500.8716	4+70.58	N 61°03'37.7260" E	
PC	590709.7493	1348511.8499	4+83.12	N 61°03'37.7260" E	
PI	590712.4937	1348516.8132	4+88.79	N 10°28'03.1820" E	
CC	590720.2509	1348506.0433			12.00'
PT	590718.0708	1348517.8436	4+93.72	N 10°28'03.1820" E	
PI	590738.5021	1348521.6183	5+14.49	N 14°54'41.3962" E	
PI	590746.7958	1348523.8269	5+23.08	N 30°45'51.1714" E	
PC	590755.3886	1348528.9420	5+33.08	N 30°45'51.1714" E	
PI	590760.6148	1348532.0530	5+39.16	S 48°04'55.2086" E	
CC	590752.8311	1348533.2384			5.00'
PT	590756.5516	1348536.5787	5+41.90	S 48°04'55.2086" E	
PC	590753.0735	1348540.4526	5+47.11	S 48°04'55.2086" E	
PI	590747.1897	1348547.0061	5+55.92	N 28°52'23.4726" E	
CC	590758.2822	1348545.1291			7.00'

EXISTING BASELINE CONTROL COORDINATES

POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
PT	590754.9021	1348551.2589	5+59.70	N 28°52'23.4726" E	
PC	590771.4039	1348560.3583	5+78.54	N 28°52'23.4726" E	
PI	590777.4369	1348563.6850	5+85.43	N 54°44'23.8390" E	
CC	590756.9178	1348586.6291			30.00'
PT	590781.4140	1348569.3104	5+92.09	N 54°44'23.8390" E	
PC	590795.5760	1348589.3418	6+16.62	N 54°44'23.8390" E	
PI	590806.7078	1348605.0871	6+35.90	N 12°33'38.9791" E	
CC	590836.4030	1348560.4774			50.00'
PT	590825.5292	1348609.2806	6+53.43	N 12°33'38.9791" E	
PC	590830.6343	1348610.4181	6+58.66	N 12°33'38.9791" E	
PI	590848.2197	1348614.3363	6+76.67	N 61°03'21.2376" E	
CC	590821.9353	1348649.4607			40.00'
PT	590856.9390	1348630.1025	6+92.51	N 61°03'21.2376" E	
PC	590860.0369	1348635.7042	6+98.92	N 61°03'21.2376" E	
PI	590862.2560	1348639.7167	7+03.50	N 35°13'51.7655" E	
CC	590877.5388	1348626.0251			20.00'
PT	590866.0013	1348642.3617	7+07.93	N 35°13'51.7655" E	
PI	590881.7269	1348653.4677	7+27.18	N 23°31'07.8576" E	
PC	590930.7117	1348674.7861	7+80.60	N 23°31'07.8576" E	
PI	590937.2515	1348677.6322	7+87.74	N 33°58'57.2513" W	
CC	590935.8994	1348662.8660			13.00'
PT	590943.1656	1348673.6457	7+93.65	N 33°58'57.2513" W	
PC	590946.9720	1348671.0799	7+98.24	N 33°58'57.2513" W	
PI	590950.6947	1348668.5706	8+02.73	N 8°40'47.0588" W	
CC	590958.1508	1348687.6640			20.00'
PT	590955.1326	1348667.8931	8+07.07	N 8°40'47.0588" W	
PC	590968.3894	1348665.8693	8+20.48	N 8°40'47.0588" W	
PI	590970.9594	1348665.4770	8+23.08	N 38°10'22.5600" E	
CC	590969.2949	1348671.8006			6.00'
PT	590973.0031	1348667.0837	8+25.39	N 38°10'22.5600" E	
PC	590983.3610	1348675.2266	8+38.57	N 38°10'22.5600" E	
PI	590985.2389	1348676.7029	8+40.95	N 5°14'40.2003" W	
CC	590987.0692	1348670.5097			6.00'
PT	590987.6176	1348676.4846	8+43.11	N 5°14'40.2005" W	
PC	591007.3179	1348674.6763	8+62.90	N 5°14'40.2005" W	
PI	591009.1006	1348674.5127	8+64.69	N 34°09'17.8084" E	
CC	591007.7749	1348679.6554			5.00'
PT	591010.5821	1348675.5177	8+66.33	N 34°09'17.8084" E	
PI	591022.2818	1348683.4554	8+80.47	N 22°36'49.2400" E	
PI	591046.8851	1348693.7037	9+07.12	N 3°09'27.8976" E	
PI	591056.2865	1348694.2224	9+16.54	N 5°40'06.1026" W	
PI	591072.4707	1348692.6160	9+32.80	N 11°46'43.4859" E	
PI	591100.3786	1348698.4354	9+61.31	N 36°38'11.6998" E	
PC	591103.7699	1348700.9574	9+65.54	N 36°38'11.6998" E	
PI	591110.1132	1348705.6747	9+73.44	S 27°59'24.9833" E	
CC	591100.7862	1348704.9696			5.00'
PT	591103.1328	1348709.3847	9+75.61	S 27°59'24.9833" E	
PC	591096.9348	1348712.6789	9+82.63	S 34°35'21.6565" E	
PI	591088.2563	1348718.6634	9+93.17	N 46°23'16.9340" E	
CC	591102.0440	1348720.0880			9.00'
PT	591095.5278	1348726.2960	9+98.18	N 46°23'16.9340" E	
PI	591136.8665	1348769.6878	10+58.11	N 25°32'32.7083" E	
PC	591170.3876	1348785.7070	10+95.26	N 25°32'32.7083" E	
PI	591180.7910	1348790.6786	11+06.79	S 86°09'46.7289" E	
CC	591163.0575	1348801.0455			17.00'
PT	591180.0194	1348802.1831	11+15.53	S 86°09'46.7289" E	
PC	591178.3380	1348827.2534	11+40.65	S 86°09'46.7289" E	
PI	591177.7096	1348836.6230	11+50.04	N 32°59'13.4564" W	
CC	591183.0275	1348827.5679			4.70'
PT	591185.5864	1348831.5103	11+51.06	N 32°59'13.4564" W	
PC	591190.3413	1348828.4239	11+56.73	N 32°59'13.4564" W	
PI	591201.7386	1348821.0261	11+70.31	N 51°21'23.6501" E	
CC	591198.5080	1348841.0058			15.00'
PT	591210.2237	1348831.6388	11+78.81	N 51°21'23.6501" E	
PI	591212.0248	1348833.8915	11+81.69	N 30°15'15.2121" E	
PC	591220.4434	1348838.8019	11+91.44	N 30°15'15.2121" E	
PI	591221.2203	1348839.2550	11+92.34	N 78°40'42.9609" E	
CC	591219.4357	1348840.5295			2.00'
PT	591221.3968	1348840.1368	11+93.13	N 78°40'42.9609" E	
PC	591223.2492	1348849.3889	12+02.56	N 78°40'42.9609" E	

EXISTING BASELINE CONTROL COORDINATES

POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
PI	591223.7673	1348851.9766	12+05.20	S 64°48'28.4079" E	
CC	591215.4048	1348850.9594			8.00'
PT	591222.6439	1348854.3647	12+07.66	S 64°48'28.4079" E	
PC	591220.9102	1348858.0504	12+11.73	S 64°48'28.4079" E	
PI	591219.0356	1348862.0356	12+16.14	N 57°31'30.2328" E	
CC	591228.1493	1348861.4556			8.00'
PT	591221.4003	1348865.7510	12+19.79	N 57°31'30.2328" E	
PC	591231.6888	1348881.9164	12+38.95	N 57°31'30.2326" E	
PI	591232.7985	1348883.6600	12+41.01	N 2°52'25.2662" E	
CC	591235.0633	1348879.7687			4.00'
PT	591234.8628	1348883.7636	12+42.76	N 2°52'25.2662" E	
PI	591248.4006	1348884.4432	12+56.32	N 8°42'58.2567" W	
PI	591260.7737	1348882.5463	12+68.84	N 22°30'17.4313" E	
PI	591275.8418	1348888.7892	12+85.15	N 16°13'29.8989" E	
PI	591284.0688	1348891.1833	12+93.71	N 31°22'49.9805" E	
PI	591305.3683	1348904.1746	13+18.66	N 10°24'26.0826" E	
PI	591313.9898	1348905.7580	13+27.43	N 2°33'36.3393" E	
PI	591334.5092	1348906.6755	13+47.97	N 25°33'25.8906" E	
PI	591346.9259	1348912.6132	13+61.73	N 38°46'03.0407" E	
PC	591374.7023	1348934.9201	13+97.36	N 38°46'03.0407" E	
PI	591376.5850	1348936.4320	13+99.77	N 12°47'11.0826" W	
CC	591377.8331	1348931.0216			5.00'
PT	591378.9397	1348935.8976	14+01.86	N 12°47'11.0826" W	
PC	591384.5721	1348934.6194	14+07.63	N 12°47'11.0826" W	
PI	591394.3699	1348932.3958	14+17.68	N 40°33'30.2352" E	
CC	591388.9985	1348954.1234			20.00'
PT	591402.0029	1348938.9285	14+26.25	N 40°33'30.2352" E	
PC	591409.8044	1348945.6054	14+36.52	N 40°33'30.2352" E	
PI	591417.9812	1348952.6034	14+47.28	S 82°52'11.6950" E	
CC	591396.8000	1348960.8003			20.00'
PT	591416.6453	1348963.2827	14+56.27	S 82°52'11.6950" E	
PC	591415.0258	1348976.2295	14+69.32	S 82°52'11.6950" E	
PI	591414.6724	1348979.0545	14+72.16	N 52°51'57.5255" E	
CC	591421.9717	1348977.0984			7.00'
PT	591416.3911	1348981.3241	14+74.72	N 52°51'57.5255" E	
PC	591425.6405	1348993.5389	14+90.05	N 52°51'57.5255" E	
PI	591426.9050	1348995.2089	14+92.14	N 76°31'39.2751" E	
CC	591417.6682	1348999.5757			10.00'
PT	591427.3930	1348997.2459	14+94.17	N 76°31'39.2751" E	
PC	591432.0194	1349016.5571	15+14.03	N 76°31'39.2751" E	
PI	591433.0030	1349020.6629	15+18.25	N 30°44'56.4995" E	
CC	591441.7442	1349014.2274			10.00'
PT	591436.6315	1349022.8215	15+22.02	N 30°44'56.4995" E	
PI	591460.1583	1349036.8180	15+49.40	N 18°27'32.6321" E	
PI	591482.4210	1349044.2493	15+72.87	N 30°41'42.1401" E	
PI	591495.8138	1349052.1998	15+88.44	N 38°58'17.9063" E	
PC	591506.5482	1349060.8835	16+02.25	N 38°58'17.9063" E	
PI	591508.3631	1349062.3517	16+04.58	N 36°48'17.3024" W	
CC	591508.4350	1349058.5512			3.00'
PT	591510.2323	1349060.9532	16+06.22	N 36°48'17.3024" W	
PC	591525.5452	1349049.4956	16+25.34	N 36°48'17.3024" W	
PI	591527.3312	1349048.1593	16+27.57	N 36°27'27.6411" E	
CC	591527.3425	1349051.8977			3.00'
PT	591529.1252	1349049.4848	16+29.18	N 36°27'27.6409" E	
PC	591537.3263	1349055.5439	16+39.38	N 36°27'27.6409" E	
PI	591539.2428	1349056.9599	16+41.76	N 69°37'50.6928" E	
CC	591532.5724	1349061.9783			8.00'
PT	591540.0722	1349059.1937	16+44.01	N 69°37'50.6928" E	
PI	591543.9523	1349069.6443	16+55.15	N 61°52'02.5574" E	
PC	591553.1506	1349086.8475	16+74.66	N 61°52'02.5574" E	
PI	591555.6766	1349091.5718	16+80.02	N 5°44'59.5207" W	
CC	591560.2054	1349083.0754			8.00'
PT	591561.0069	1349091.0351	16+84.10	N 5°44'59.5207" W	
PI	591571.2003	1349090.0087	16+94.35	N 8°10'11.9051" E	
PI	591584.3501	1349091.8966	17+07.63	N 36°58'17.9016" E	
PI	591606.7079	1349108.7271	17+35.62	N 62°24'31.1779" E	
POE	591613.6986	1349122.1039	17+50.71		

RELOCATE 1 BASELINE CONTROL COORDINATES

POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
POB	590434.0953	1348392.2328	100+00.00	N 12°01'00.7618" E	
PC	590454.7490	1348396.6292	100+21.12	N 12°01'00.7618" E	
PI	590461.2184	1348398.0063	100+27.73	N 36°53'02.4969" E	
CC	590448.5030	1348425.9718			30.00'
PT	590466.5089	1348401.9762	100+34.14	N 36°53'02.4969" E	
PC	590479.0269	1348411.3695	100+49.79	N 36°53'02.4969" E	
PI	590485.6770	1348416.3596	100+58.10	N 8°15'42.0642" W	
CC	590491.0309	1348395.3725			20.00'
PT	590493.9048	1348415.1649	100+65.55	N 8°15'42.0642" W	
PC	590501.3133	1348414.0892	100+73.03	N 8°15'42.0642" W	
PI	590516.4749	1348411.8877	100+88.35	N 36°54'34.5770" W	
CC	590492.6917	1348354.7119			60.00'
PT	590528.7249	1348402.6869	101+03.03	N 36°54'34.5770" W	
PC	590531.0958	1348400.9062	101+06.00	N 36°54'34.5770" W	
PI	590537.5976	1348396.0228	101+14.13	N 7°20'29.6685" E	
CC	590543.1068	1348416.8979			20.00'
PT	590545.6625	1348397.0619	101+21.44	N 7°20'29.6685" E	
PC	590556.9285	1348398.5134	101+32.80	N 7°20'29.6685" E	
PI	590567.3548	1348399.8567	101+43.32	N 31°16'51.1608" W	
CC	590560.7621	1348368.7593			30.00'
PT	590576.3391	1348394.3983	101+53.03	N 31°16'51.1608" W	
PC	590585.0267	1348389.1201	101+63.19	N 31°16'51.1608" W	
PI	590596.5753	1348382.1038	101+76.70	N 36°48'30.4136" E	
CC	590595.4114	1348406.2128			20.00'
PT	590607.3942	1348390.1999	101+86.96	N 36°48'30.4136" E	
PI	590619.4735	1348399.2391	102+02.05	N 23°40'19.6611" E	
PC	590624.8398	1348401.5916	102+07.91	N 23°40'19.6611" E	
PI	590629.3878	1348403.5854	102+12.87	N 39°49'22.0354" E	
CC	590610.7872	1348433.6467			35.00'

RELOCATE 2 BASELINE CONTROL COORDINATES

POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
POB	590724.2498	1348518.9852	200+00.00	N 10°28'03.1820" E	
PI	590738.5021	1348521.6183	200+14.49	N 14°54'41.3962" E	
PC	590741.1838	1348522.3325	200+17.27	N 14°54'41.3962" E	
PI	590750.8835	1348524.9154	200+27.31	N 82°29'26.0206" E	
CC	590737.3239	1348536.8273			15.00'
PT	590752.1953	1348534.8670	200+34.96	N 82°29'26.0206" E	
PC	590753.3227	1348543.4193	200+43.59	N 82°29'26.0206" E	
PI	590754.3133	1348550.9342	200+51.17	N 28°52'23.4726" E	
CC	590768.1940	1348541.4590			15.00'
PT	590760.9509	1348554.5943	200+57.62	N 28°52'23.4726" E	
POE	590771.4039	1348560.3583	200+69.56		

60' 0 60' 120'
SCALE: 1" = 60'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

11/14/14
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE

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

Howard County
M A R Y L A N D
Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
(410) 313-6444

STATE OF MARYLAND — PROFESSIONAL ENGINEER — NO. 20113

DES: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

STREAM GEOMETRY

SCALE: 1" = 60'

SHEET

BMP BASELINE CONTROL			
POINT	STATION	NORTHING	EASTING
PI	20+00.00	590498.41	1348425.89
PI	22+12.00	590401.62	1348615.09

BMP GEOMETRY

NO.	STATION	OFFSET (FT)	NORTHING	EASTING	ELEVATION
1	20+21.64	37.04 LT	590521.5315	1348462.0251	417.00
2	20+26.90	101.81 LT	590576.8025	1348496.2056	417.00
3	20+34.73	100.19 LT	590571.7891	1348502.4399	417.00
4	20+36.33	34.00 LT	590512.1315	1348473.7144	412.00
5	20+38.93	119.08 LT	590586.7003	1348514.7798	417.00
6	20+41.21	127.81 LT	590593.4276	1348520.7862	415.00
7	20+41.39	112.64 LT	590579.8412	1348514.0374	417.00
8	20+42.42	131.72 LT	590596.3617	1348523.6473	414.00
9	20+44.32	24.37 LT	590499.9251	1348476.4472	412.00
10	20+44.62	9.38 LT	590486.4382	1348469.8821	417.00
11	20+46.32	109.03 LT	590574.3853	1348516.7848	415.00
12	20+46.40	139.46 LT	590601.4358	1348530.7110	412.00
13	20+48.79	107.19 LT	590571.6204	1348518.1411	414.00
14	20+52.65	44.55 LT	590514.0945	1348493.0493	410.50
15	20+52.73	140.96 LT	590599.8915	1348537.0350	412.00
16	20+53.54	95.84 LT	590559.3558	1348517.2008	411.00
17	20+54.57	92.45 LT	590555.8583	1348516.5774	410.50
18	20+55.01	103.92 LT	590565.8806	1348522.1902	412.00
19	20+59.37	68.68 LT	590532.5161	1348510.0224	408.00
20	20+59.46	136.39 LT	590592.7511	1348540.9420	414.00
21	20+60.27	82.07 LT	590544.0318	1348516.9222	408.00
22	20+61.12	105.40 LT	590564.4143	1348528.3048	412.00
23	20+62.10	133.93 LT	590589.3601	1348542.1672	415.00
24	20+63.27	99.66 LT	590558.3210	1348527.6068	411.00
25	20+65.09	112.51 LT	590568.9263	1348535.0792	414.00
26	20+65.36	38.56 LT	590502.9744	1348501.6417	410.50
27	20+66.34	94.62 LT	590552.4380	1348528.0393	410.50
28	20+66.35	115.88 LT	590571.3615	1348537.7381	415.00
29	20+67.37	129.00 LT	590582.5781	1348544.6176	417.00
30	20+68.30	68.37 LT	590528.1792	1348517.8308	408.00
31	20+68.41	81.61 LT	590539.9111	1348523.9628	408.00
32	20+68.87	122.64 LT	590576.2319	1348543.0560	417.00
33	20+70.88	48.95 LT	590509.7132	1348511.2865	409.00
34	20+74.69	43.32 LT	590502.9632	1348512.1118	409.00
35	20+75.57	85.30 LT	590539.9338	1348532.0171	410.50
36	20+76.79	59.83 LT	590516.7011	1348521.5002	410.50
37	20+76.80	54.08 LT	590511.5795	1348518.8936	409.00
38	20+78.18	86.25 LT	590539.5916	1348534.7714	411.00
39	20+79.56	31.19 LT	590489.9458	1348510.9296	411.00
40	20+85.68	43.76 LT	590498.3483	1348522.0925	409.00
41	20+86.50	51.63 LT	590504.9858	1348526.4092	409.00
42	20+92.81	80.49 LT	590527.8046	1348545.1712	411.00
43	20+97.21	54.12 LT	590502.3214	1348537.0840	410.50
44	21+01.13	137.72 LT	590574.9599	1348578.6402	417.00
45	21+01.91	113.23 LT	590552.8035	1348568.1894	412.00
46	21+02.96	129.93 LT	590567.1917	1348576.7286	417.00
47	21+07.07	51.50 LT	590495.4975	1348544.6608	408.00
48	21+07.79	84.10 LT	590524.1893	1348560.1522	411.00
49	21+08.67	48.74 LT	590492.3167	1348544.8323	408.00
50	21+14.16	124.76 LT	590557.4856	1348584.3391	417.00

BMP GEOMETRY

NO.	STATION	OFFSET (FT)	NORTHING	EASTING	ELEVATION
51	21+17.71	60.26 LT	590498.4496	1348558.1267	408.00
52	21+17.92	68.88 LT	590506.0308	1348562.2412	410.50
53	21+18.06	37.07 LT	590477.6428	1348547.8760	411.00
54	21+18.43	49.54 LT	590488.5832	1348553.8837	408.00
55	21+21.98	56.43 LT	590493.1006	1348560.1809	408.00
56	21+22.00	79.21 LT	590513.3694	1348570.5806	412.00
57	21+22.83	124.10 LT	590552.9553	1348591.7608	417.00
58	21+24.15	40.17 LT	590477.6273	1348554.7093	411.00
59	21+25.44	33.28 LT	590470.9085	1348552.7153	412.00
60	21+30.28	57.89 LT	590490.6130	1348568.2373	410.50
61	21+30.77	62.56 LT	590494.5490	1348570.8019	411.00
62	21+32.47	51.87 LT	590484.2564	1348567.4431	411.00
63	21+33.14	23.44 LT	590458.6387	1348555.0967	416.00
64	21+34.28	88.01 LT	590515.6064	1348585.5110	417.00
65	21+37.92	49.86 LT	590479.9838	1348571.3832	412.00
66	21+38.10	60.17 LT	590489.0853	1348576.2421	412.00
67	21+38.96	91.96 LT	590516.9958	1348591.4790	417.00
68	21+40.52	18.22 LT	590450.6374	1348559.2890	417.00
69	21+43.92	42.80 LT	590470.9667	1348573.5046	415.00
70	21+44.61	28.55 LT	590457.9663	1348567.6290	416.00
71	21+45.19	39.45 LT	590467.4043	1348573.1159	416.00
72	21+46.71	74.25 LT	590497.6956	1348590.3182	417.00
73	21+47.55	29.11 LT	590457.1226	1348570.5079	415.00
74	21+48.57	37.02 LT	590463.7083	1348575.0157	416.00
75	21+52.66	37.59 LT	590462.3491	1348578.9115	415.00
76	21+53.12	53.99 LT	590476.7375	1348586.7965	415.00
77	21+54.92	61.70 LT	590482.7905	1348591.9106	417.00
78	21+59.69	31.41 LT	590453.6502	1348582.3571	412.00
79	21+62.09	60.39 LT	590478.3564	1348597.7008	417.00
80	21+63.26	11.33 LT	590434.1432	1348576.3910	417.00
81	21+63.87	28.64 LT	590449.2797	1348584.8268	412.00
82	21+64.82	54.63 LT	590471.9885	1348597.5018	415.00
83	21+66.98	62.57 LT	590478.0626	1348603.0432	417.00
84	21+67.00	56.32 LT	590472.4962	1348600.2160	415.00
85	21+68.06	65.15 LT	590479.8701	1348605.1809	417.00
86	21+68.61	43.91 LT	590460.7085	1348595.9933	412.00
87	21+72.28	14.42 LT	590432.7877	1348585.8274	417.00
88	21+72.78	40.49 LT	590455.7696	1348598.1546	412.00
89	21+87.51	48.11 LT	590455.8449	1348614.7392	417.00
90	21+88.87	36.46 LT	590444.8560	1348610.6425	417.00

NOTE:
IT IS NOT REQUIRED TO STAKE OUT ALL POINTS AS SHOWN FOR CONSTRUCTION. IT SHALL BE AT THE CONTRACTOR'S DISCRETION TO DETERMINE WHICH POINTS ARE NECESSARY TO PROPERLY GRADE THE FACILITY.

20' 0 20' 40'
SCALE: 1" = 20'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

11/14/14
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE

McCORMICK TAYLOR
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

STATE OF MARYLAND — AMY HRIBAR — PROFESSIONAL ENGINEER — 32013

DES: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

BMP GEOMETRY LAYOUT

SCALE 1" = 20'

SHEET 4 OF 27

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE PONDS SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

NOTE:
SWM POND EMBANKMENT IS CLASSIFIED AS A CLASS "A" LOW HAZARD DAM.

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPERTY LINE
- WUS — WATERS OF THE US
- SAN — 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
- EXISTING TREE TO BE REMOVED
- TOE BOULDER PROTECTION
- RIFFLE GRADE CONTROL
- STEP POOL STRUCTURE
- FLOW DIVERSITY STRUCTURE
- ENCAPSULATED SOIL LIFTS WITH TOE BOULDER
- CASCADE STRUCTURE
- TRIBUTARY STABILIZATION
- BANK ROUGHNESS FEATURE
- ROCK ROOT PACK
- CLASS 1 RIPRAP PROTECTION

LITWACK SAMUEL A
LITWACK RONITE E T/E
10323 PINEHURST CT
ELLICOTT CITY, MD 21042
Liber: 04939 Folio: 0328 Lot: 91

GEOTEXTILE - BMP	
REMARKS	QTY (S.Y.)
CLASS SE	102

CLASS 1 RIP RAP - BMP		
STA.	QTY (C.Y.)	REMARKS
21+74.01, 32' LT	26	FOREBAY
20+57.97, 105' LT	44	S. OF WEIR (POND)
20+46.91, 154' LT	44	N. OF WEIR (OUTFALL)

STABILIZATION MATTING - BMP	
QTY (SY)	REMARKS
3441	BIODEGRADABLE STRAW MATTING

4" TOPSOIL - BMP	
QTY (SY)	REMARKS
2543	FOR GRADED AND DISTURBED AREAS

EMBANKMENT CLAY	
QTY (CY)	REMARKS
471	FOR CLAY CORE

EXCAVATION - BMP	
QTY (CY)	REMARKS
1152	EMBANKMENT, OUTFALL AND POND GRADING

CONCRETE WEIR		
STA.	QTY (EA)	REMARKS
20+54.07, 121' LT	1	SEE DETAIL, PAGE 8

STANDARD METAL END SECTION		
STA.	QTY (EA)	REMARKS
21+76.95, 31' LT	1	SEE DETAIL, PAGE 8

20' 0 20' 40'
SCALE: 1" = 20'

TRIBUTARY STABILIZATION (TS)		
STRUCTURE	STATION FROM	STATION TO
TS-1	302+41	302+80

RIFFLE GRADE CONTROL (RGC)			
STRUCTURE		STATION FROM	STATION TO
RGC-1	GLIDE	1+09.0	1+14.0
RGC-1	RIFFLE	100+04.0	100+24.0
RGC-2	RIFFLE	101+93.0	102+13.0
RGC-2	RUN	3+45.2	3+49.2

FLOW DIVERSITY STRUCTURE (FDS)		
STRUCTURE	STATION FROM	STATION TO
FDS-1	100+24.0	100+71.5
FDS-2	101+04.5	101+45.0

STEP-POOL STRUCTURE TABLE		
STRUCTURE	STATION FROM	STATION TO
STEP-POOL CREST	100+71.5	100+74.5
STEP-POOL POOL	100+74.5	100+86.5
STEP-POOL CREST	100+86.5	100+89.5
STEP-POOL POOL	100+89.5	101+01.5
STEP-POOL CREST	101+01.5	101+04.5
STEP-POOL CREST	101+45.0	101+48.0
STEP-POOL POOL	101+48.0	101+60.0
STEP-POOL CREST	101+60.0	101+63.0
STEP-POOL POOL	101+63.0	101+75.0
STEP-POOL CREST	101+75.0	101+78.0
STEP-POOL POOL	101+78.0	101+90.0
STEP-POOL CREST	101+90.0	101+93.0

BLUM LAWRENCE R
MOLLO-BLUM LISA J T/E
3039 PEBBLE BEACH DR
ELLICOTT CITY, MD 21042
Liber: 08598 / Folio: 0480
Lot: 57

OPEN SPACE
HOWARD COUNTY MARYLAND
DEPT OF RECREATION & PARKS
0 PEBBLE BEACH DR, MD
Liber: 01579/Folio: 0101
Lot: 56
4.20 AC

KEENAN MICHAEL C
KEENAN JILL H T/E
3031 PEBBLE BEACH DR
ELLICOTT CITY, MD 21042
Liber: 10186/Folio: 0094
Lot: 55

MERZA WILLIAM S
MERZA JOAN P
3027 PEBBLE BEACH DR
ELLICOTT CITY, MD 21042
Liber: 04338
Folio: 0636
Lot: 54

RITTER JOHN R
RITTER HELEN S
3023 PEBBLE BEACH D
ELLICOTT CITY,
MD 21042
Liber: 01774
Folio: 0013
Lot: 53

BOARD OF COUNTY COMMISSIONERS
HOWARD COUNTY
3430 COURT HOUSE DR
ELLICOTT CITY, MD 21043
Liber: 01522 / Folio: 0331

HOWARD COUNTY MARYLAND
DEPT RECREATION & PARKS
0 CONGRESSIONAL CT, MD
Liber: 01659 / Folio: 0163 / Lot: 92

REPAIR PARK TRAIL AT THE DIRECTION OF THE ENGINEER TO ENSURE POSITIVE DRAINAGE. SEE TRAIL TYPICAL SECTION DETAIL

SALVAGE FELLED WILLOWS FOR ONSITE BIOENGINEERING AT THE DIRECTION OF THE ENGINEER

TOKEN EMERGENCY SPILLWAY

REMOVE AND REPLACE FENCE UPON COMPLETION OF GRADING

IN THIS AREA HAS WASHED OUT UNDER FENCE

HIGH PRIVACY

NO ACCESS TO YARD

PRESERVE EXISTING CLUMP WILLOW IN THIS LOCATION

PONDS UP IN THIS AREA

20' R/W FOR A SEWER MAIN

20' DRAINAGE & UTILITY EASEMENT

EXISTING PARK TRAIL

SEWER PIPE TO BE BOLTED SHUT

PINEHURST COURT

MATCHLINE SEE SHEET 6 OF 27

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 4/14/14

McCORMICK TAYLOR
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

STATE OF MARYLAND — AMY HRIC — 32013 — PROFESSIONAL ENGINEER

DES: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

SITE PLAN

SCALE 1" = 20'

SHEET 5 OF 27

CASCADE SEQUENCE (CS)

STRUCTURE	STATION FROM	STATION TO
CASCADE CREST	200+14.0	200+20.0
CASCADE POOL	200+20.0	200+34.5
CASCADE CREST	200+34.5	200+40.5
CASCADE POOL	200+40.5	200+55.0
CASCADE CREST	200+55.0	200+58.0

ROOT PACK (RP)

STRUCTURE	STATION FROM	STATION TO
RP-1	7+86	7+96

CLASS I RIPRAP

STRUCTURE	STATION FROM	STATION TO
CLASS I RIPRAP	5+83	5+89

TRIBUTARY STABILIZATION (TS)

STRUCTURE	STATION FROM	STATION TO
TS-1	302+80	303+93

ENCAPSULATED SOIL LIFTS WITH TOE BOULDER PROTECTION (ESL)

STRUCTURE	STATION FROM	STATION TO	OFFSET
ESL-1	4+81	4+95	RT
ESL-2	6+26	6+51	RT

HOWARD COUNTY MARYLAND
DEPT OF RECREATION & PARKS
3007 PEBBLE BEACH DR
ELLICOTT CITY, MD 21043
Liber: 01579 / Folio: 0101 / Lot: 49
REMOVE WOODEN BAFFLES AND STABILIZE OUTFALL WITH CLASS I RIPRAP AS DIRECTED BY THE ENGINEER
FLOODPLAIN HABITAT ENHANCEMENT WITH INVASIVE SPECIES REMOVAL, MICROGRADING AND PLANTING
UTILIZE EXISTING WOODY DEBRIS TO STABILIZE ERODING BANK, AT THE DIRECTION OF THE ENGINEER
MATCHLINE SEE SHEET 5 OF 27
MATCHLINE SEE SHEET 7 OF 27
TRAV PT ABI09 R&C
TRAV PT ABI10 R&C
TRAV PT ABI08 R&C
TRAV PT ABI04 R&C
TRAV PT ABI14 R&C
200+70
BOARD OF COUNTY COMMISSIONERS
HOWARD COUNTY
3430 COURT HOUSE DR
ELLICOTT CITY, MD 21043
Liber: 01522 / Folio: 0331
EXISTING PARK TRAIL
HOWARD COUNTY MARYLAND
DEPT RECREATION & PARKS
0 CONGRESSIONAL CT
ELLICOTT CITY, MD 21042
Liber: 01659 / Folio: 0163 / Lot: 92
PEARSON ROBERT L JR
WALKER CONCETTA J T/E
10341 CONGRESSIONAL CT
ELLICOTT CITY, MD 21042
Liber: 10733 / Folio: 0173
Lot: 114
STURM LAWRENCE R JR
STURM KRISTI K T/E
10345 CONGRESSIONAL CT
ELLICOTT CITY, MD 21042
Liber: 05037 / Folio: 0599 / Lot: 115
LEGEND
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
PROPERTY LINE
WATERS OF THE US
EXISTING SANITARY SEWER
LIMIT OF DISTURBANCE
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ENCAPSULATED SOIL LIFTS WITH TOE BOULDER
CASCADE STRUCTURE
TRIBUTARY STABILIZATION
BANK ROUGHNESS FEATURE
ROCK ROOT PACK
CLASS 1 RIPRAP PROTECTION
SCALE: 1" = 20'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 11/14/14

McCORMICK TAYLOR
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: MM, DF
DRN: MR
CHK: AH
DATE: 11/13/14

BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

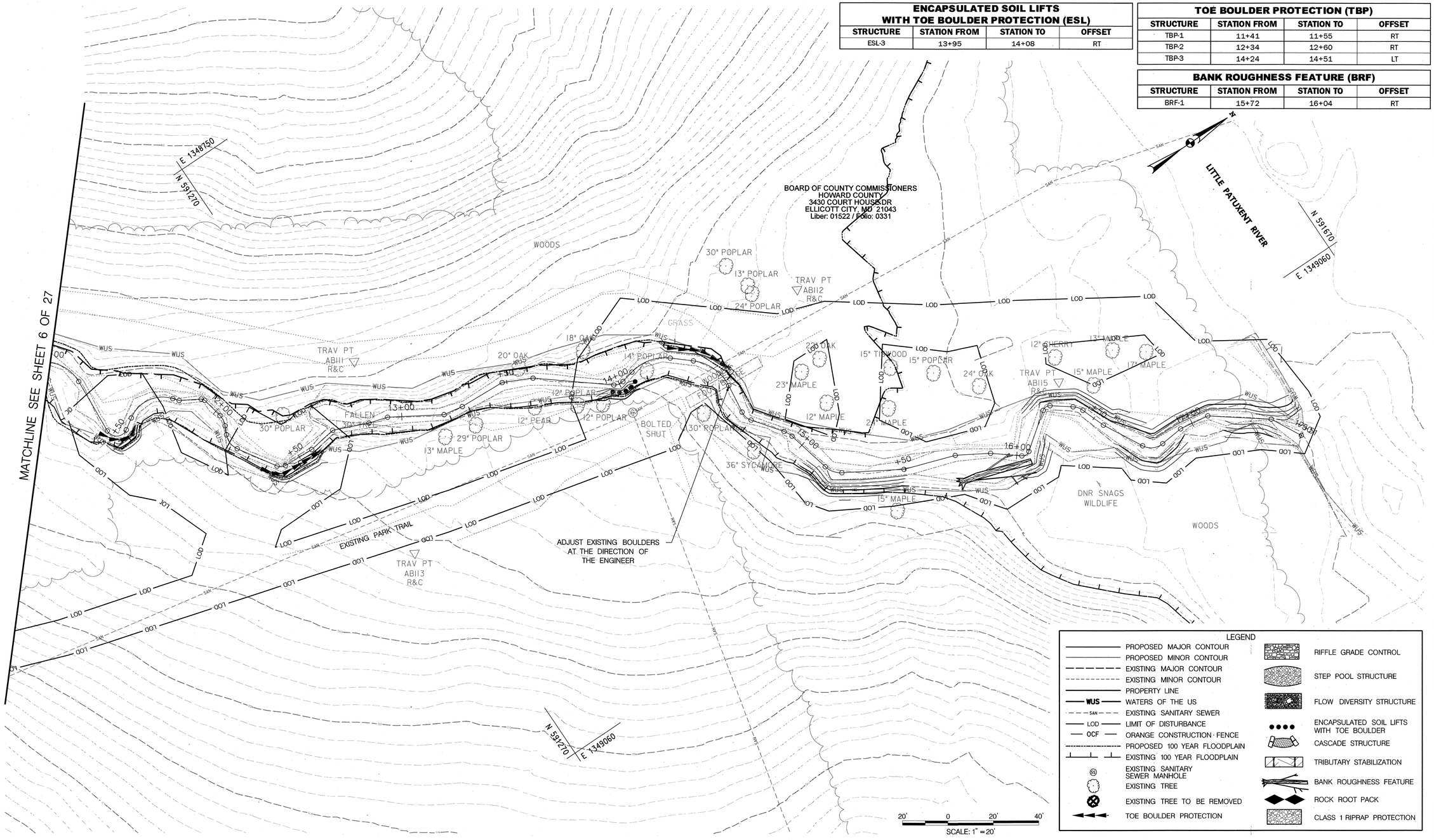
SITE PLAN

SCALE 1" = 20'

ENCAPSULATED SOIL LIFTS WITH TOE BOULDER PROTECTION (ESL)			
STRUCTURE	STATION FROM	STATION TO	OFFSET
ESL-3	13+95	14+08	RT

TOE BOULDER PROTECTION (TBP)			
STRUCTURE	STATION FROM	STATION TO	OFFSET
TBP-1	11+41	11+55	RT
TBP-2	12+34	12+60	RT
TBP-3	14+24	14+51	LT

BANK ROUGHNESS FEATURE (BRF)			
STRUCTURE	STATION FROM	STATION TO	OFFSET
BRF-1	15+72	16+04	RT



LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
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- WUS — WATERS OF THE US
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- CASCADE STRUCTURE
- TRIBUTARY STABILIZATION
- BANK ROUGHNESS FEATURE
- ROCK ROOT PACK
- CLASS 1 RIPRAP PROTECTION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 11/14/14

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Baltimore, Maryland 21202
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Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
(410) 313-6444

STATE OF MARYLAND — AMY HRIBAR — PROFESSIONAL ENGINEER — 22021

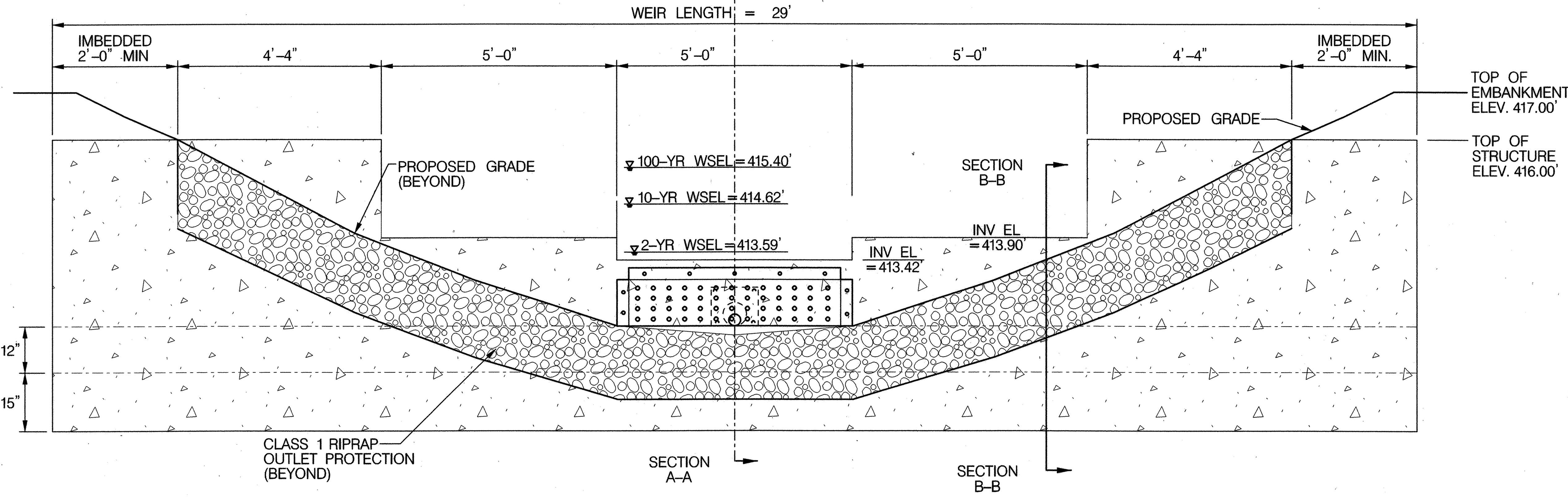
DES: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

SITE PLAN

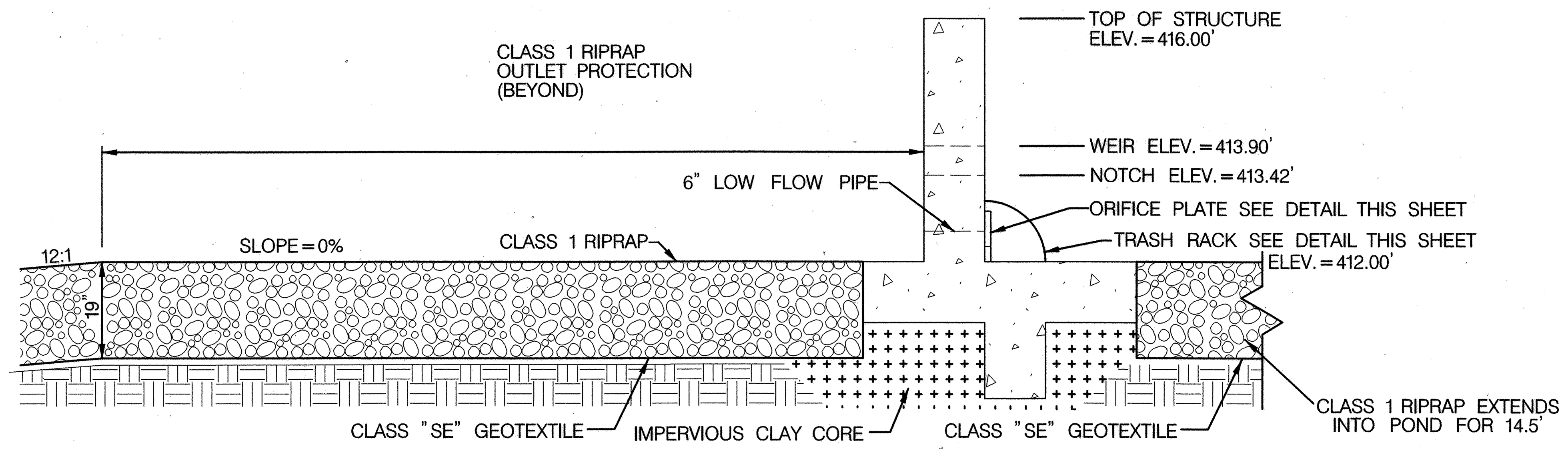
SCALE 1" = 20'

SHEET 7 OF 27



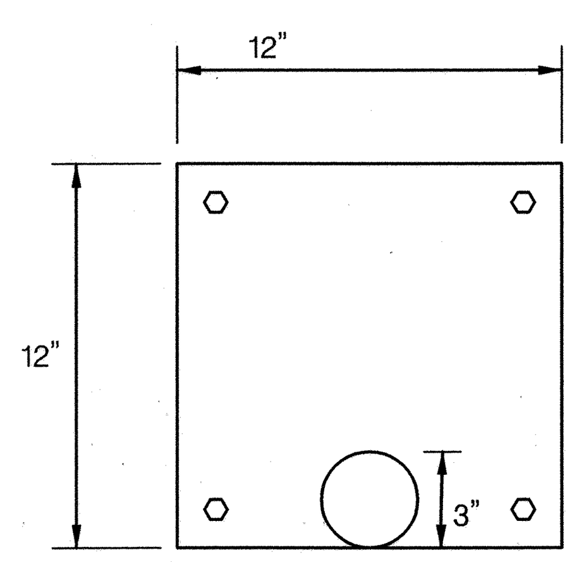
WEIR ELEVATION

SCALE: 1" = 2'



WEIR PROFILE

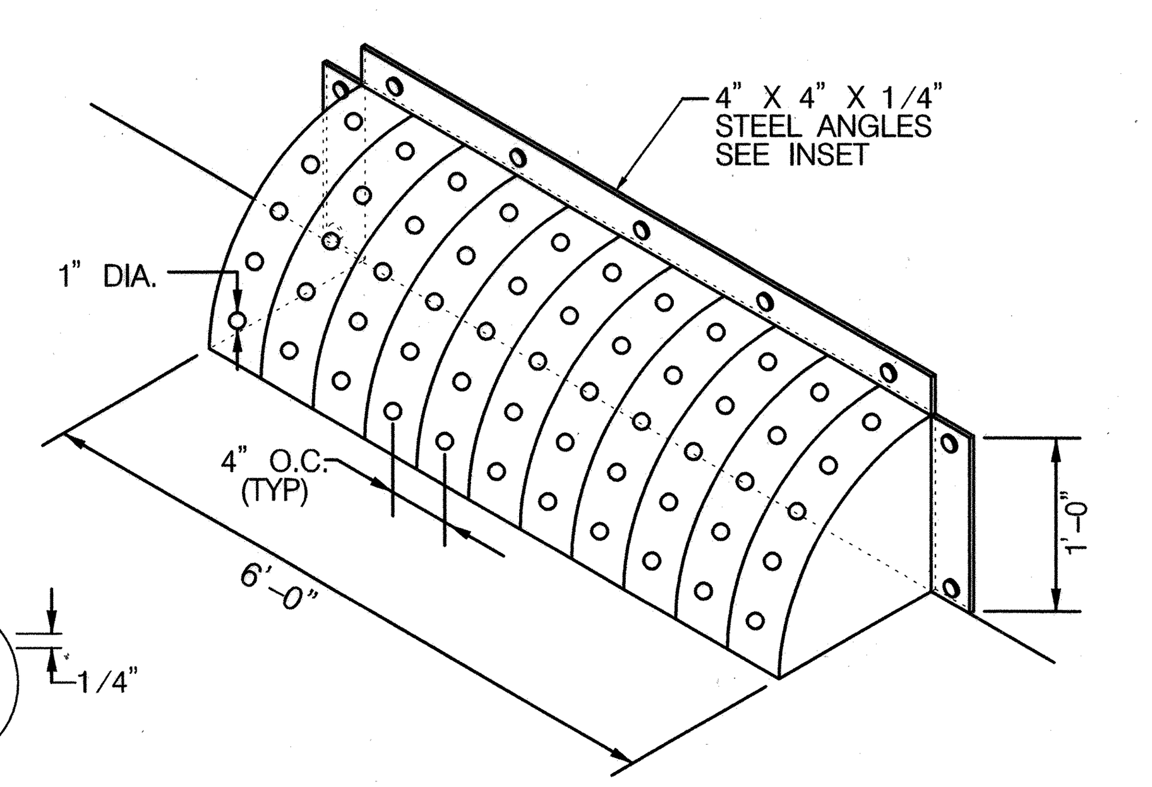
SCALE: 1" = 2'

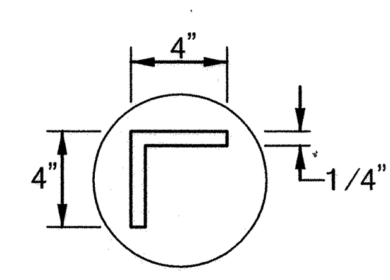


ORIFICE PLATE NOTES:
1. 1' X 1' X 1/2" GALVANIZED STEEL ORIFICE PLATE.

2. 3" DIA. ORIFICE PLATE TO BE BOLTED TO THE UP STREAM FACE OF CONCRETE WEIR USING 1/2" STAINLESS STEEL CONCRETE ANCHORS AND PROVIDE A WATERTIGHT SEAL.

ORIFICE PLATE





INSET

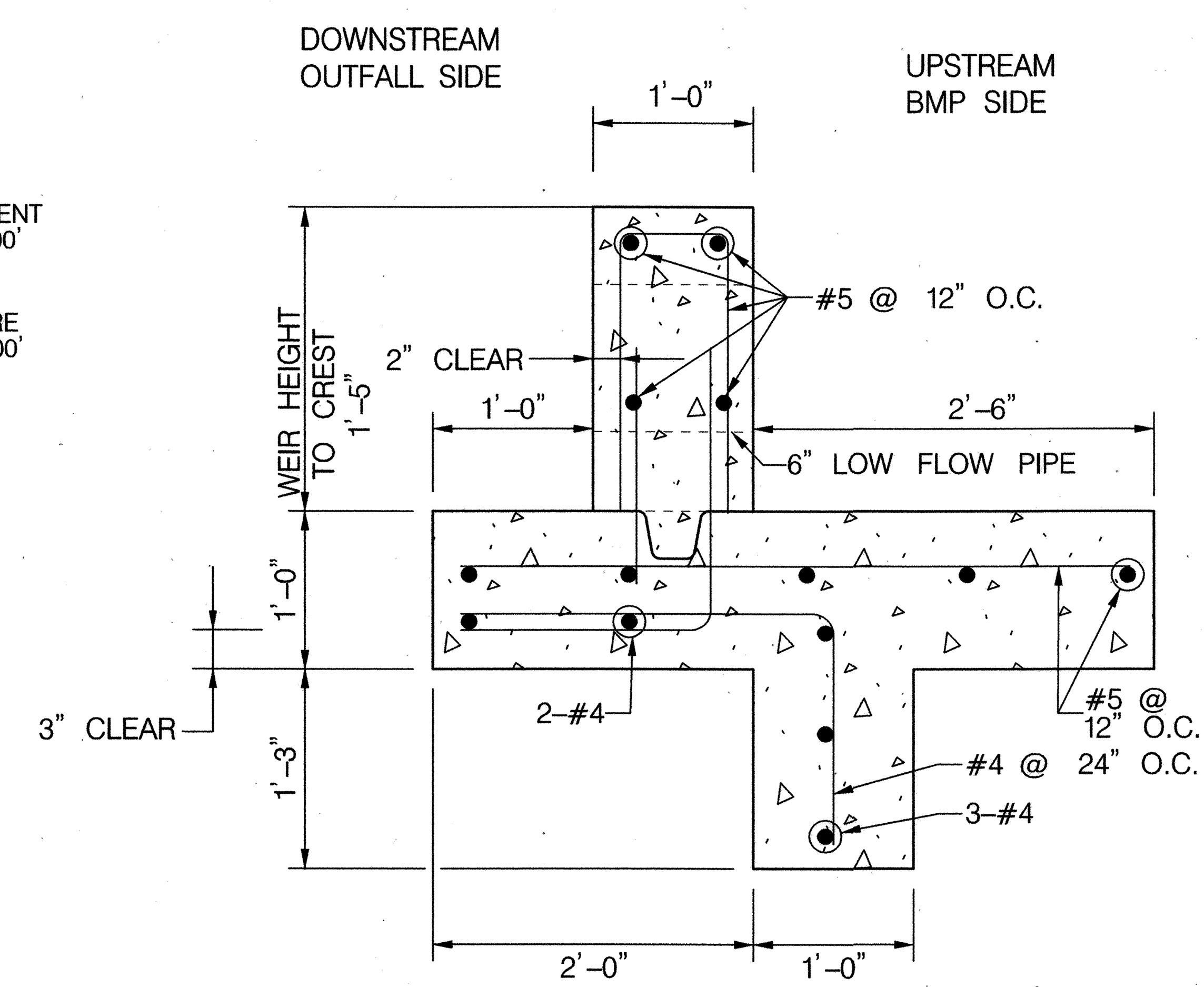
TRASH RACK NOTES:
1. TRASH RACK STEEL TO CONFORM TO ASTM A-36.

2. ALL SURFACES TO BE COATED WITH ZRC COLD GALVANIZED COMPOUND AFTER WELDING.

3. TRASH RACK TO BE FASTENED TO THE CONCRETE WITH MASONRY ANCHORS. TRASH RACK TO BE REMOVABLE.

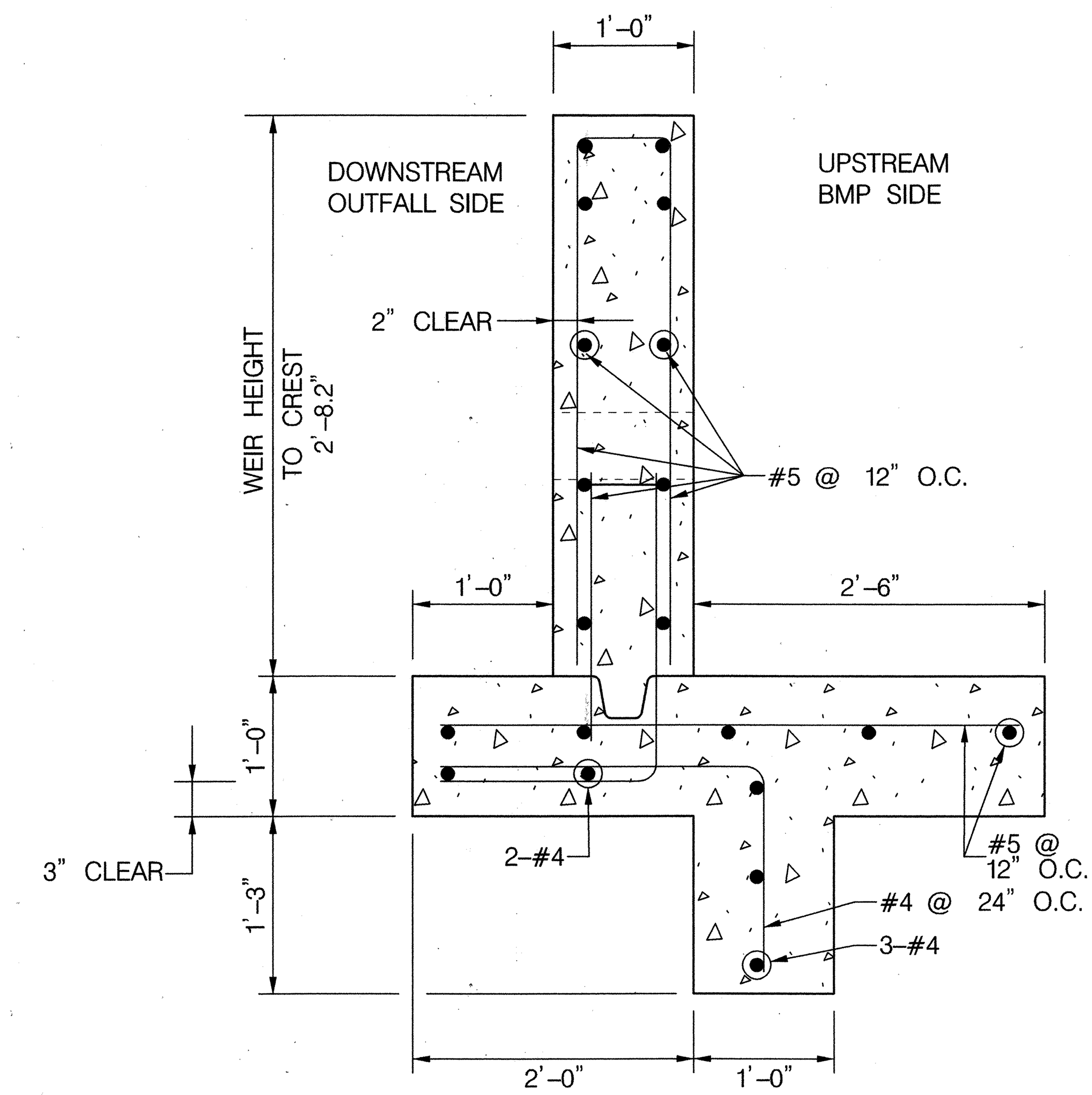
4. CENTER TRASH RACK OVER ORIFICE OPENING IN WEIR STRUCTURE.

TRASH RACK DETAIL



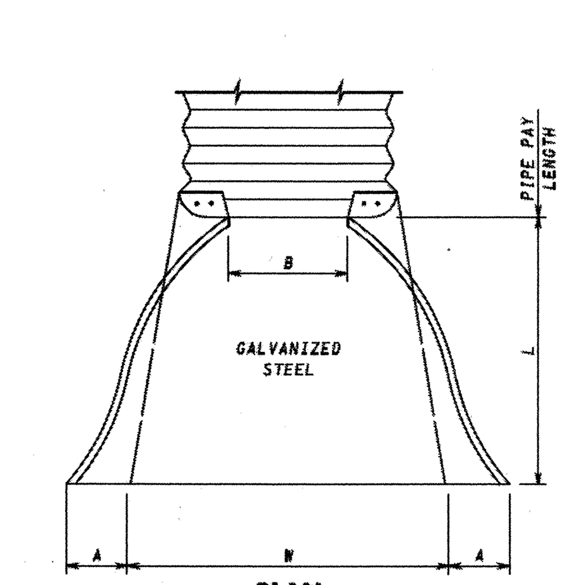
WEIR SECTION A–A

SCALE: 1" = 1'



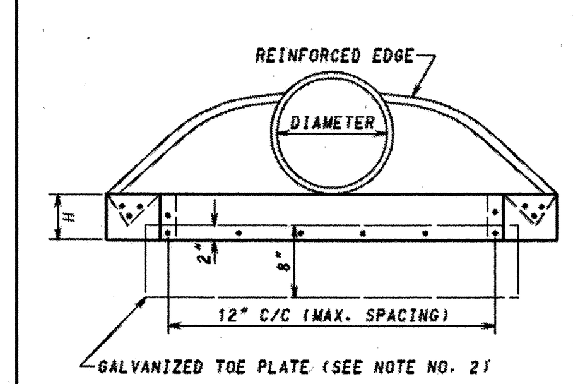
WEIR SECTION B–B

SCALE: 1" = 1'

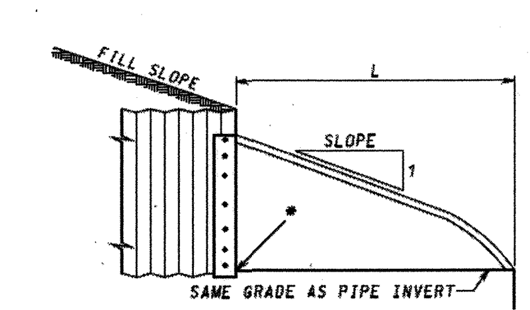


PLAN

DIMENSIONS								
PIPE DIA.	GA.	A 1"±	B MAX.	H 1"±	L 1½"±	W 2"±	APPROX. SLOPE	UNIT
12"	16	6"	6"	6"	21"	24"	2½	1 PC.
15"	16	7"	8"	6"	26"	30"	2½	1 PC.
18"	16	8"	10"	6"	31"	36"	2½	1 PC.
21"	16	9"	12"	6"	36"	42"	2½	1 PC.
24"	16	10"	13"	6"	41"	48"	2½	1 PC.
30"	14	12"	16"	8"	51"	60"	2½	1 PC.
36"	14	14"	19"	9"	60"	72"	2½	2 PC.



END VIEW



SIDE VIEW

* INVERT ELEVATION TO BE AT THE PIPE END OF THE STANDARD END SECTION. ELEVATIONS TO BE NOTED ON THE CONSTRUCTION PLANS.

NOTES

1. METAL END SECTIONS SHALL BE GAGE 16 FOR PIPES RANGING FROM 15" THRU 24", AND GAGE 14 FOR PIPES RANGING FROM 30" THRU 36". MULTIPLE PANEL UNITS TO HAVE LAP SEAMS WHICH ARE TO BE TIGHTLY JOINED BY 3/8" DIAMETER GALVANIZED RIVETS OR BOLTS.

2. TOE PLATES SHALL BE USED WHEN SPECIFIED ON THE PLANS. THICKNESS OF END PLATE TO BE SAME AS END SECTION. COST OF TOE PLATE TO BE INCIDENTAL TO THE BID PRICE PER EACH OF METAL END SECTION.

SPECIFICATION 303	CATEGORY CODE ITEMS		Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
APPROVED	Kirk G. McClelland, DIRECTOR – OFFICE OF HIGHWAY DEVELOPMENT		STANDARD METAL END SECTION ROUND METAL PIPE
SHA State Highway Administration	APPROVAL • SHA REVISIONS	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION	
	APPROVAL 9-20-06	APPROVAL 12-12-06	
	REVISED 10-1-01	REVISED 7-27-09	STANDARD NO. MD 370.01
	REVISED 7-1-09	REVISED	
	REVISED	REVISED	

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 11/14/14

McCORMICK TAYLOR
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

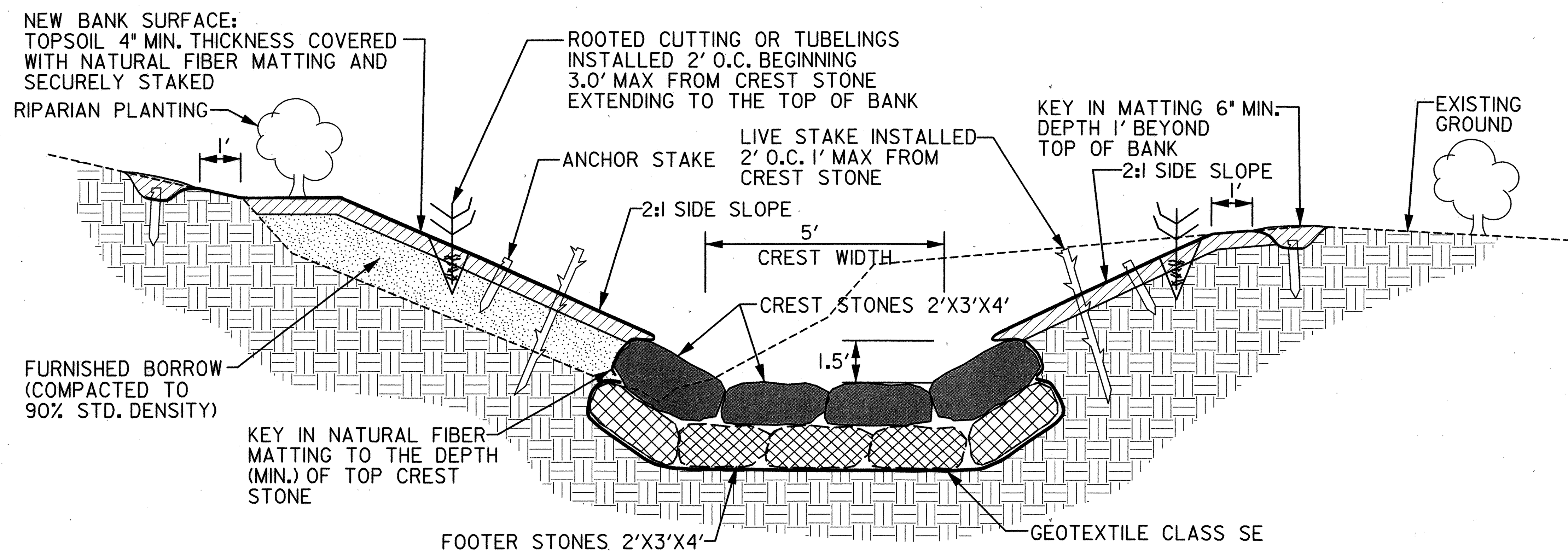
STATE OF MARYLAND — PROFESSIONAL ENGINEER

DES: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

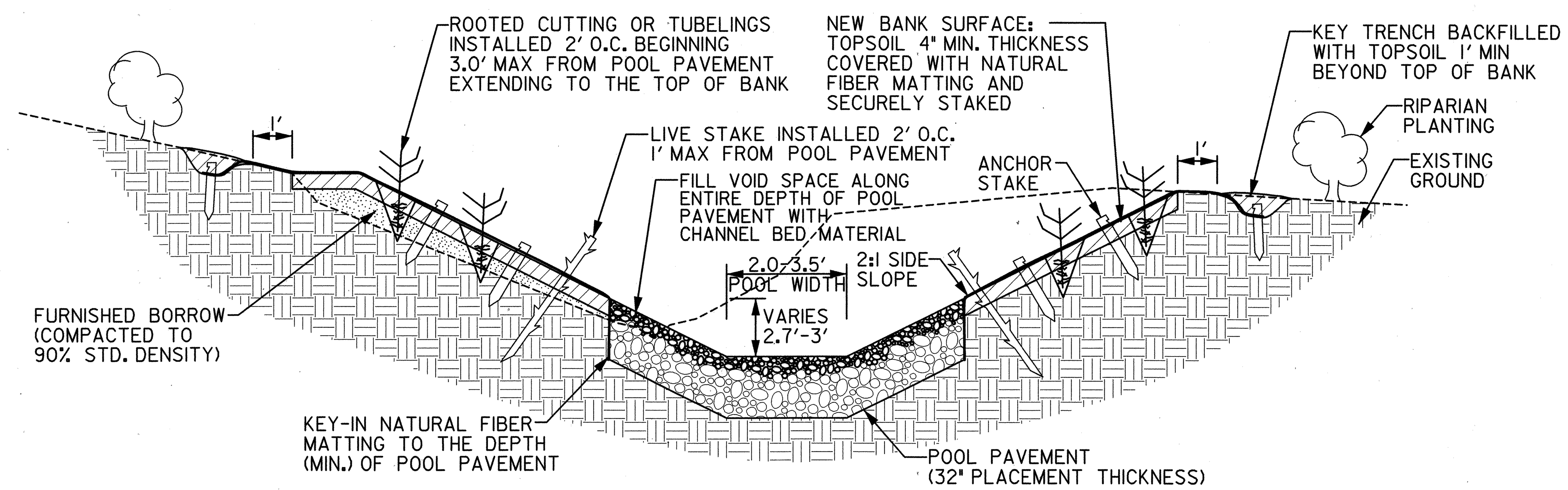
BMP DETAILS

SCALE: NOT TO SCALE



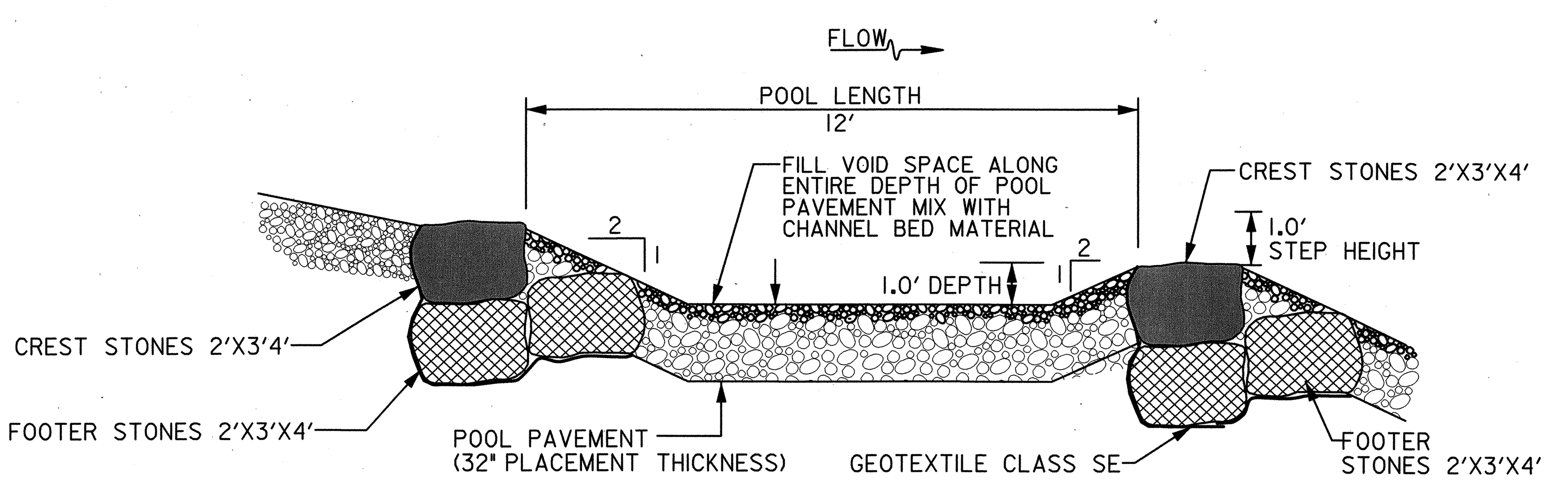
TYPICAL CROSS SECTION OF STEP-POOL CREST
NOT TO SCALE

POOL PAVEMENT	
Amount of Stone (%)	Stone Type
10	SHA Class 0
20	SHA Class 1
70	SHA Class 2
100	Total



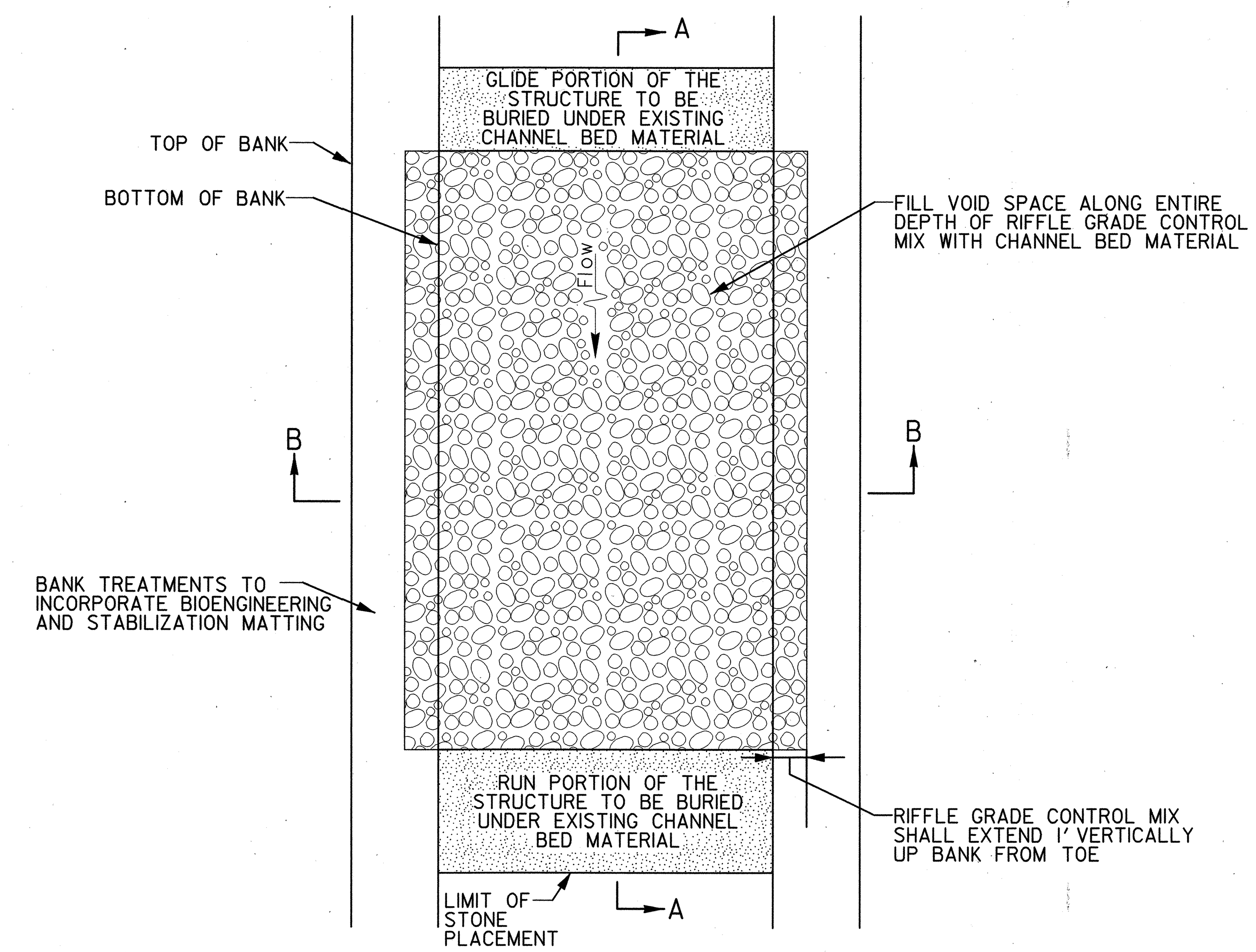
TYPICAL CROSS SECTION OF STEP-POOL POOL
NOT TO SCALE

RIFFLE GRADE CONTROL MIX	
Amount of Stone (%)	Stone Type
30	SHA Class 0
30	SHA Class 1
40	SHA Class 2
100	Total

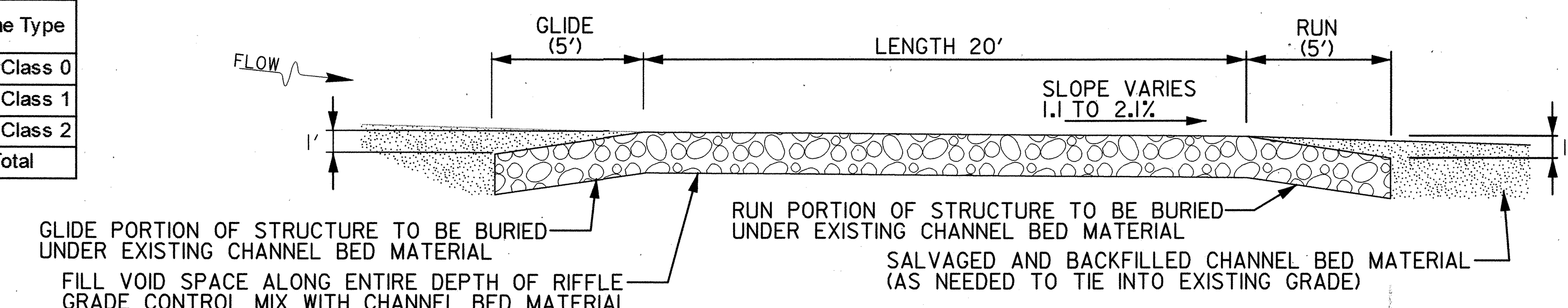


TYPICAL PROFILE THROUGH STEP-POOL
NOT TO SCALE

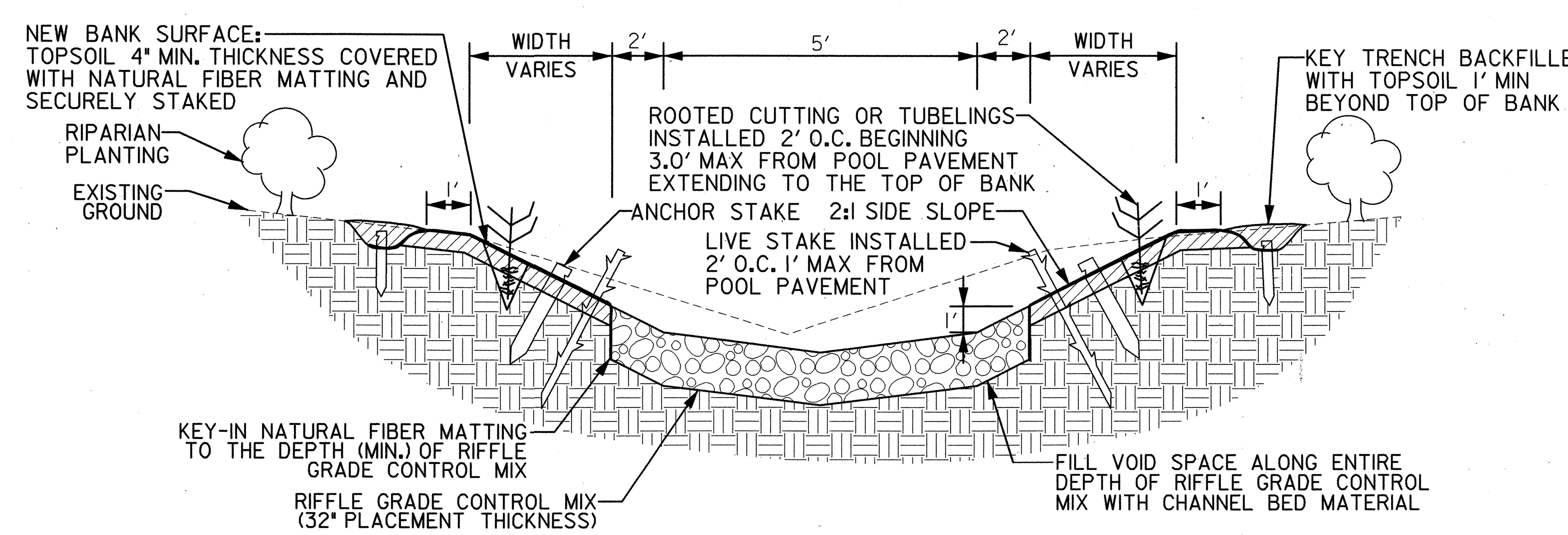
NOTE:
CHANNEL BED MATERIAL SHALL BE SALVAGED FROM THE EXISTING STREAM CHANNEL IN AREAS TO BE FILLED DUE TO RELOCATION OR IN AREAS WHERE STREAM BED GRADING IS TO OCCUR.



PLAN VIEW
RIFFLE GRADE CONTROL
NOT TO SCALE



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



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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

11/14/14
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE

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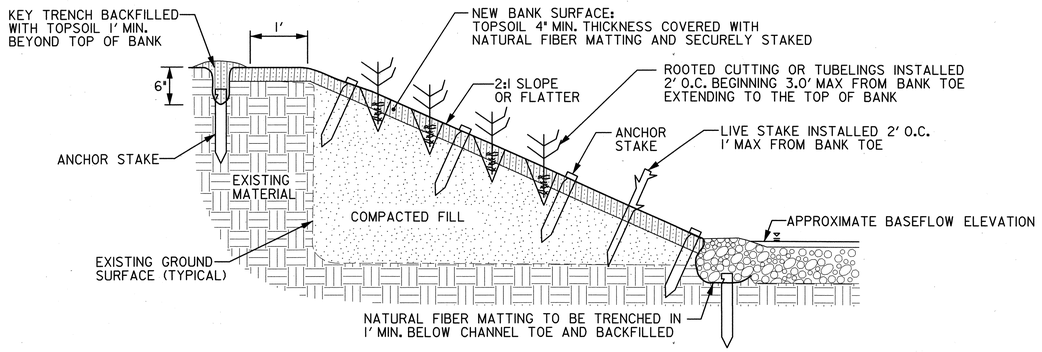
HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

STREAM STABILIZATION DETAILS

SCALE: NTS

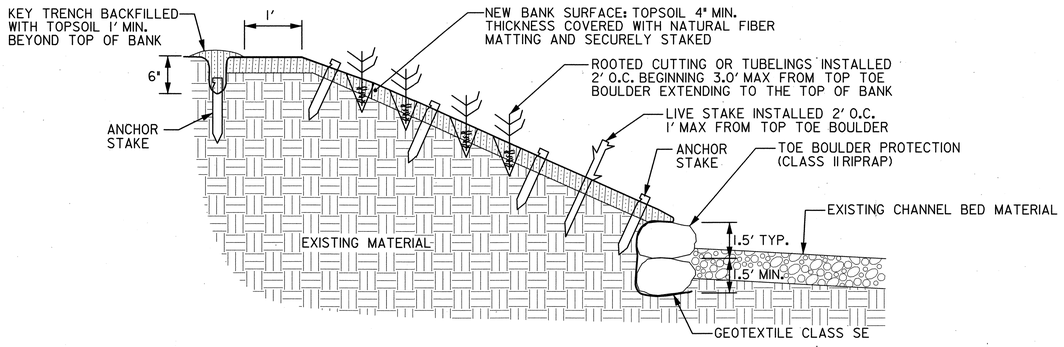
SHEET: 9 OF 27



TYPICAL STREAMBANK STABILIZATION IN FILL

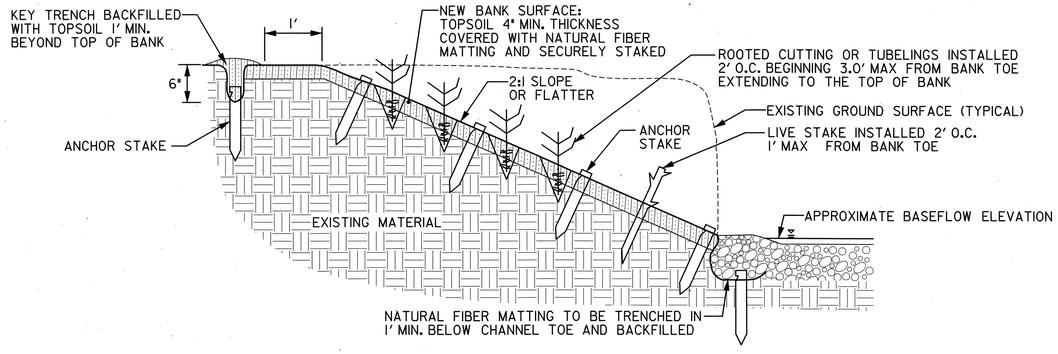
NOT TO SCALE

NOTE:
FURNISHED BORROW REQUIRED FOR ALL FILL UPSTREAM/UPSTATION OF 6+00



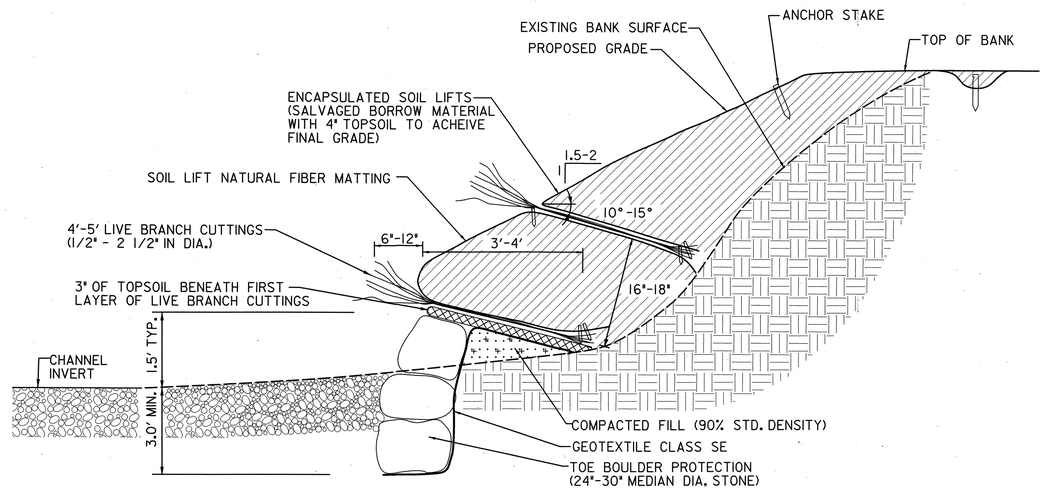
TOE BOULDER PROTECTION TYPICAL

NOT TO SCALE



TYPICAL STREAMBANK STABILIZATION IN CUT

NOT TO SCALE



TYPICAL SECTION
ENCAPSULATED SOIL LIFTS WITH TOE BOULDER PROTECTION

NOT TO SCALE

NOTE:
CHANNEL BED MATERIAL SHALL BE SALVAGED FROM THE EXISTING STREAM CHANNEL IN AREAS TO BE FILLED DUE TO RELOCATION OR IN AREAS WHERE STREAM BED GRADING IS TO OCCUR.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 11/14/14

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Howard County MARYLAND
Storm Water Management Division
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Columbia, Maryland 21046-3143
(410) 313-6444

STATE OF MARYLAND — AMY HRTAS — PROFESSIONAL ENGINEER

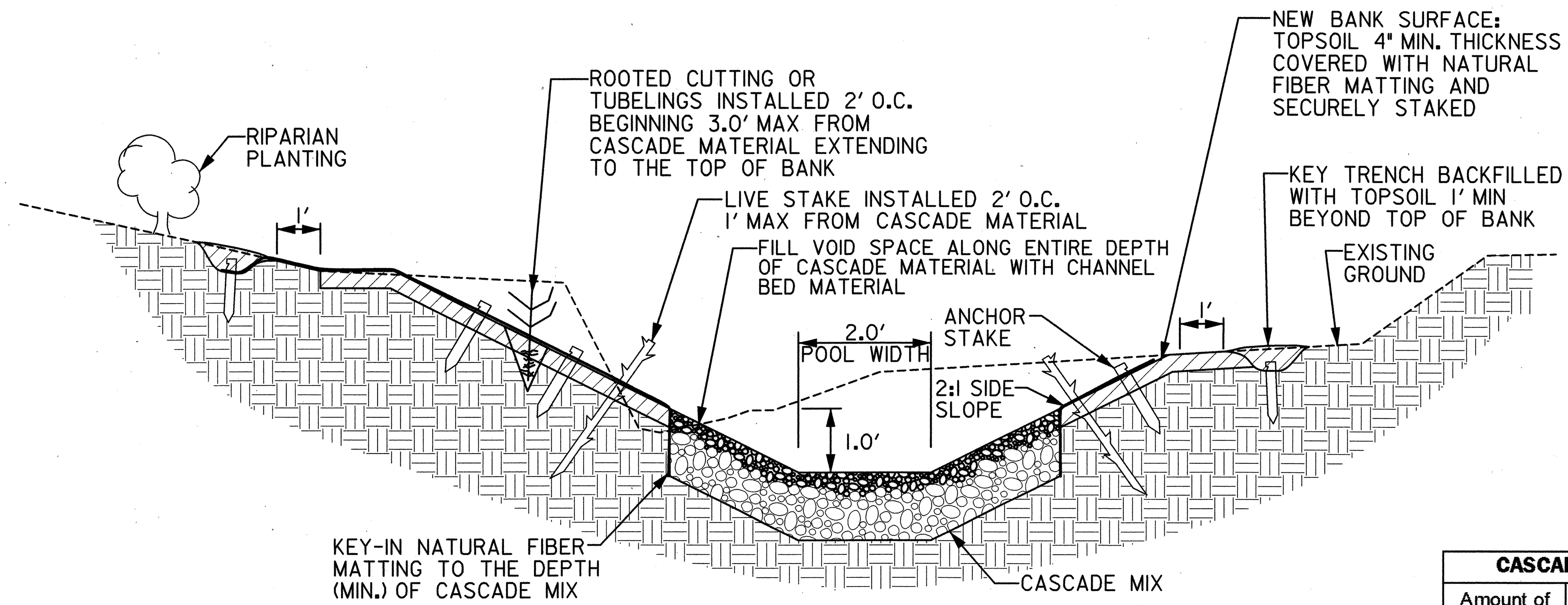
DES: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

STREAM STABILIZATION DETAILS

SCALE: NTS

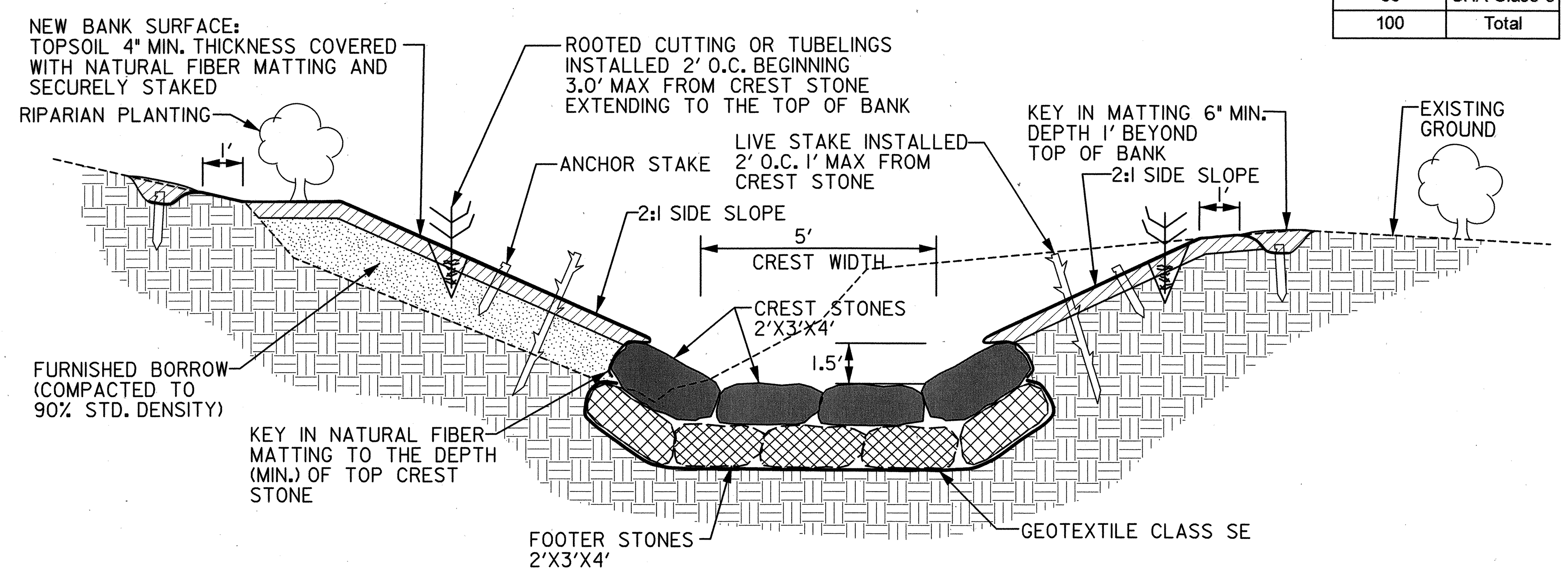
SHEET: 10 OF 27



TYPICAL CROSS SECTION OF CASCADE POOL

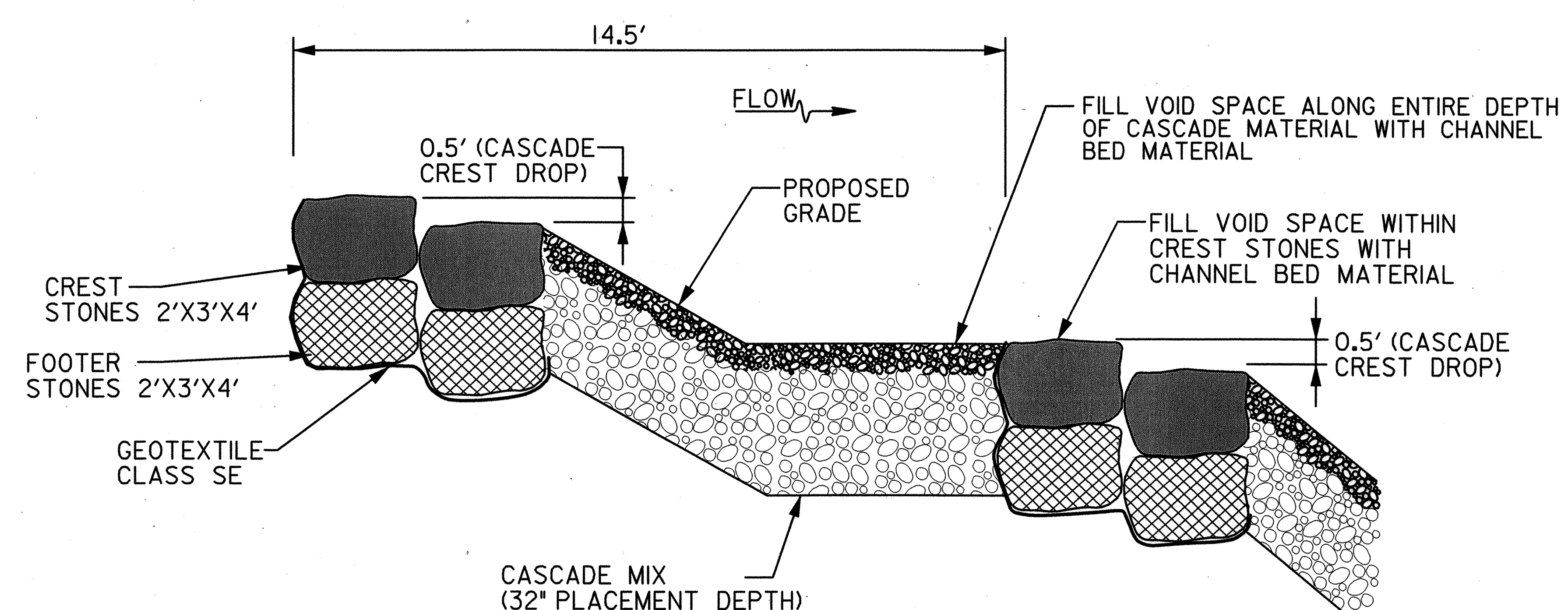
NOT TO SCALE

CASCADE MIX	
Amount of Stone (%)	Stone Type
20	SHA Class 1
20	SHA Class 2
60	SHA Class 3
100	Total



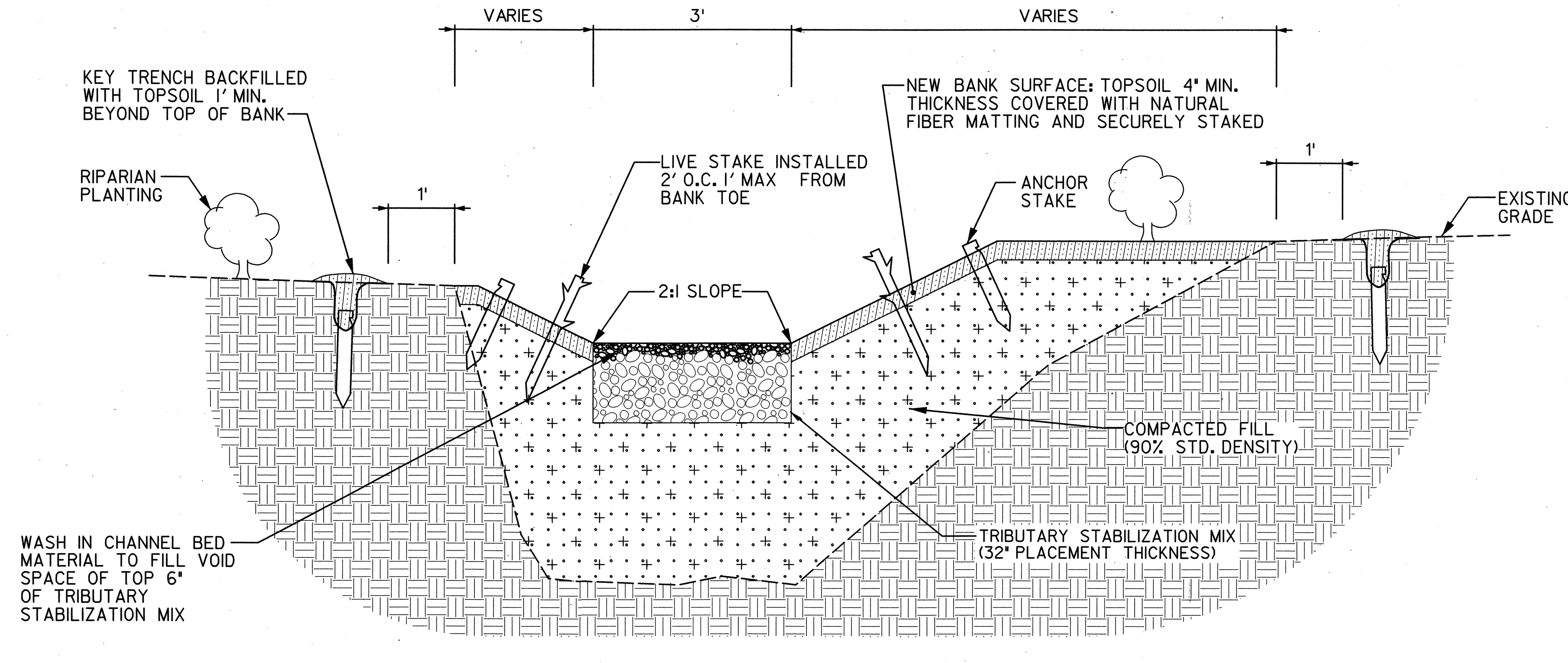
TYPICAL CROSS SECTION OF CASCADE CREST

NOT TO SCALE



TYPICAL CASCADE PROFILE

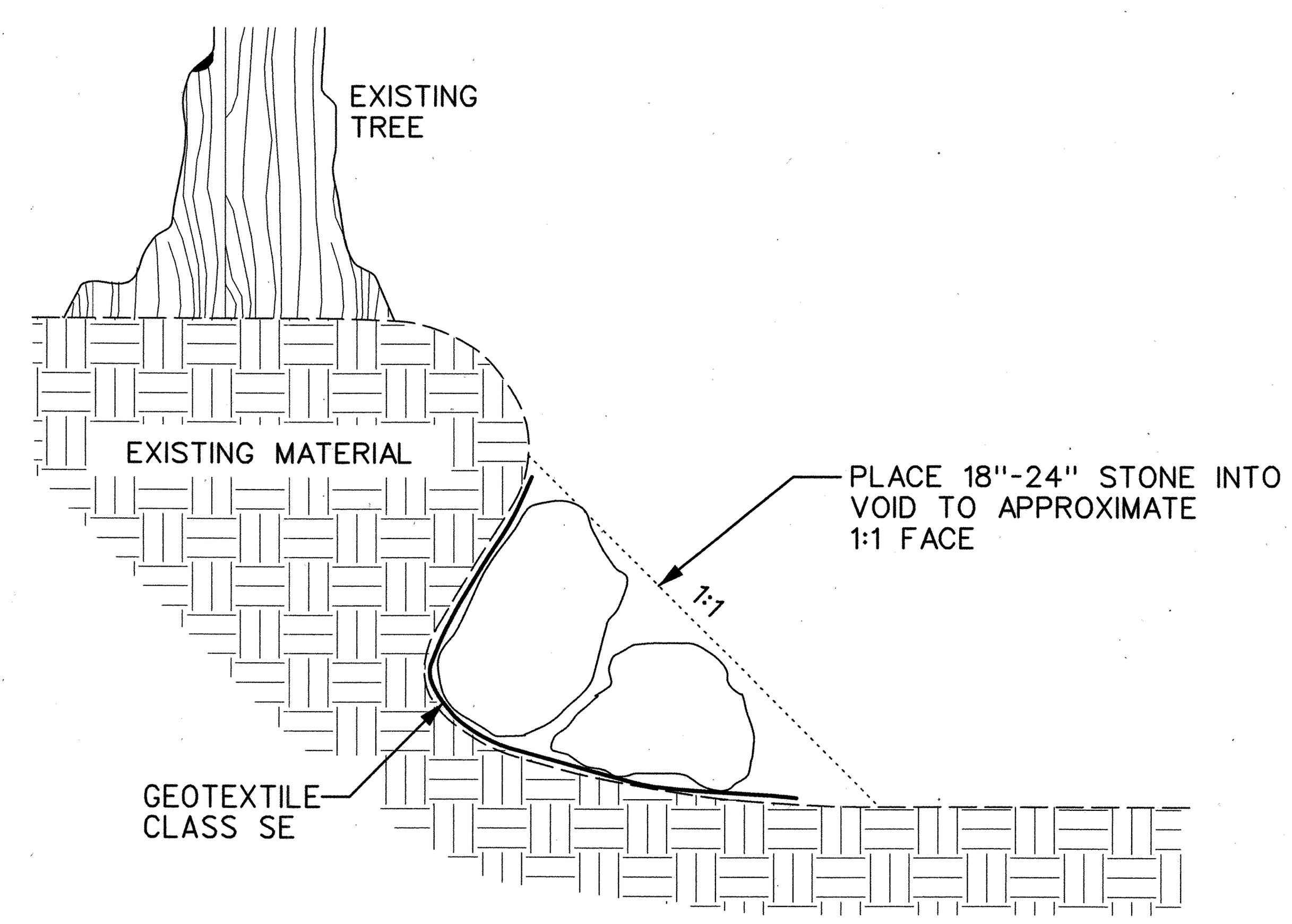
NOT TO SCALE



TYPICAL CROSS SECTION OF TRIBUTARY

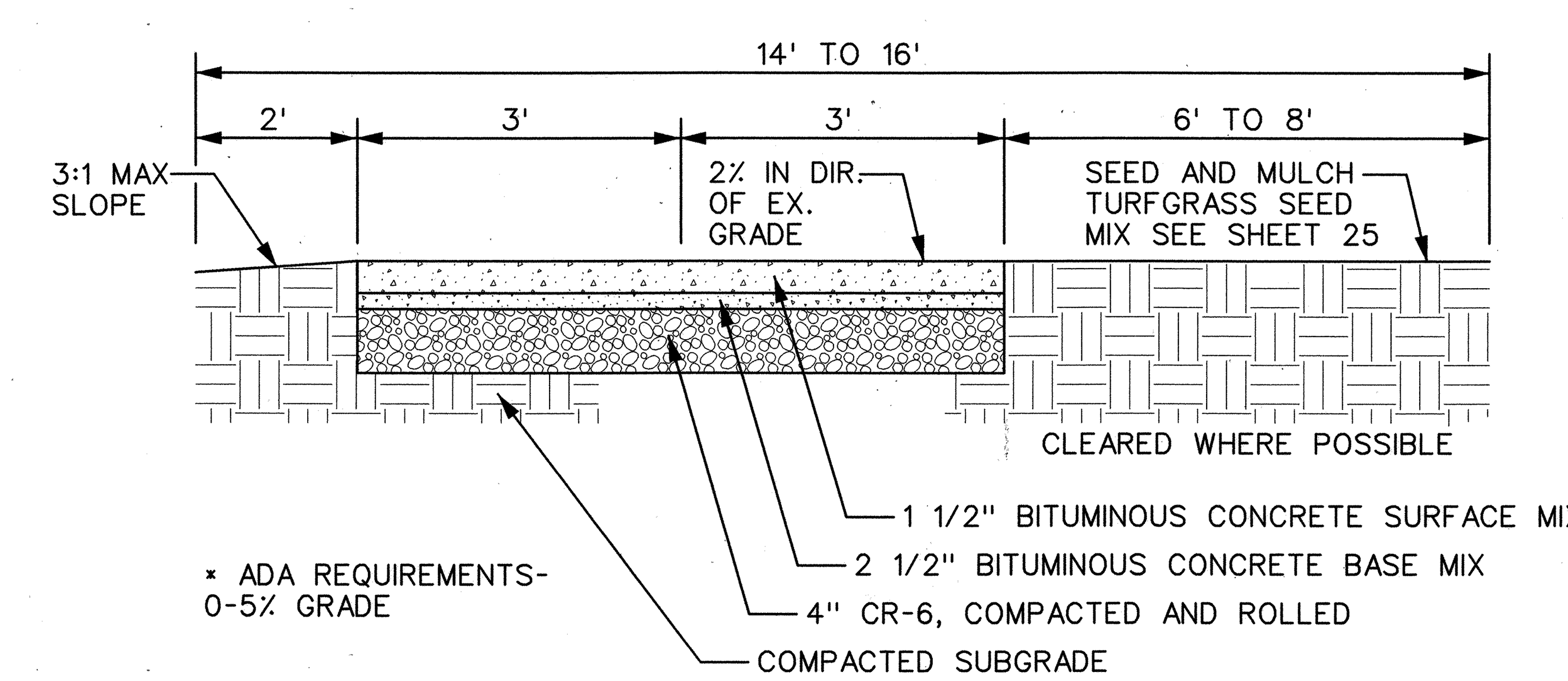
NOT TO SCALE

TRIBUTARY STABILIZATION MIX			
AMOUNT OF STONE (%)			STONE TYPE
LOCATION			
STA 302+41 TO 303+38	STA 303+38 TO 303+82	STA 303+82 TO 303+93	
20	—	—	SHA CLASS 0
60	70	50	SHA CLASS 1
20	30	50	SHA CLASS 2



ROCK ROOT PACK

(NOT TO SCALE)



PARK TRAIL TYPICAL SECTION

(NOT TO SCALE)

NOTE:
CHANNEL BED MATERIAL SHALL BE SALVAGED FROM THE EXISTING STREAM CHANNEL IN AREAS TO BE FILLED DUE TO RELOCATION OR IN AREAS WHERE STREAM BED GRADING IS TO OCCUR.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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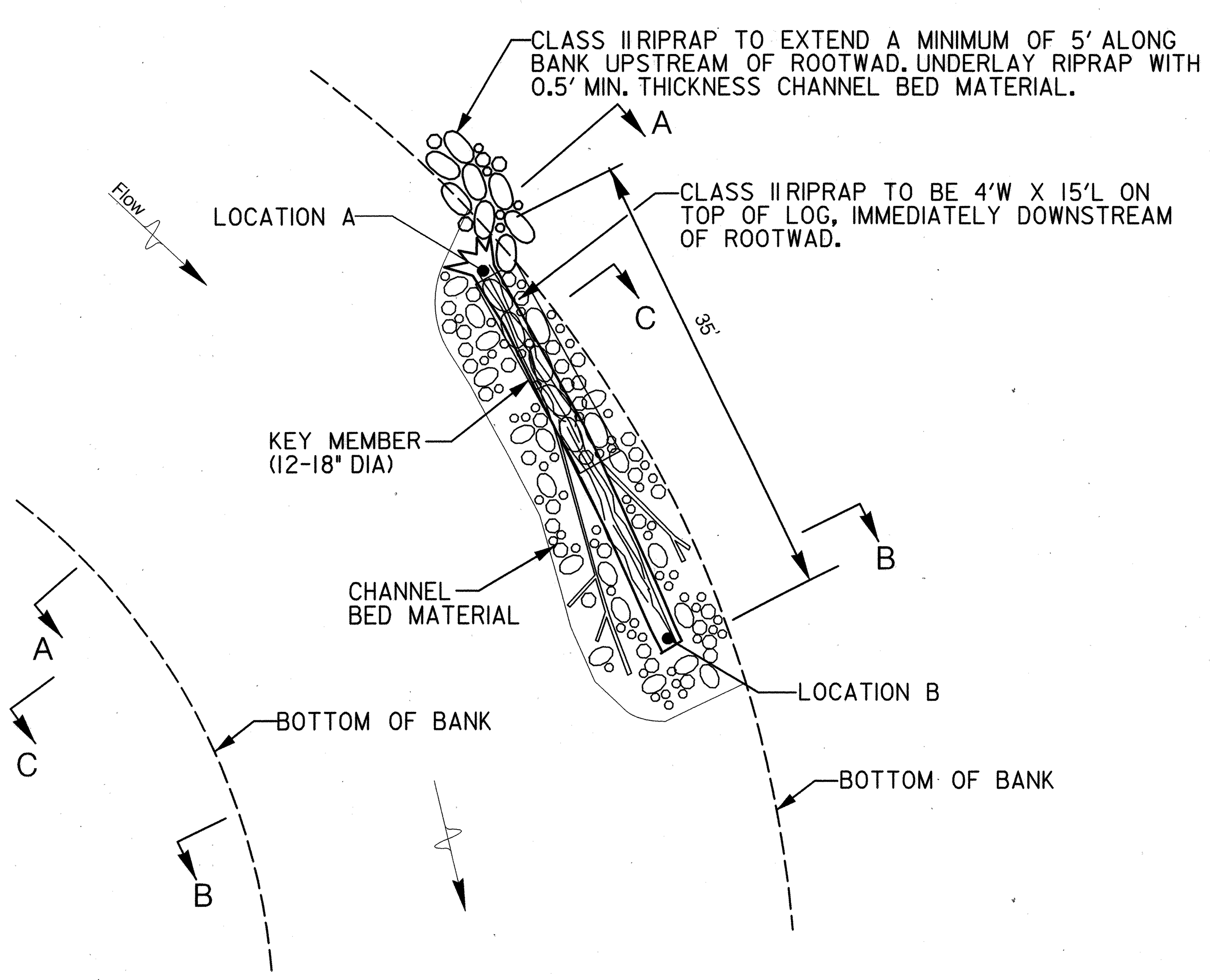
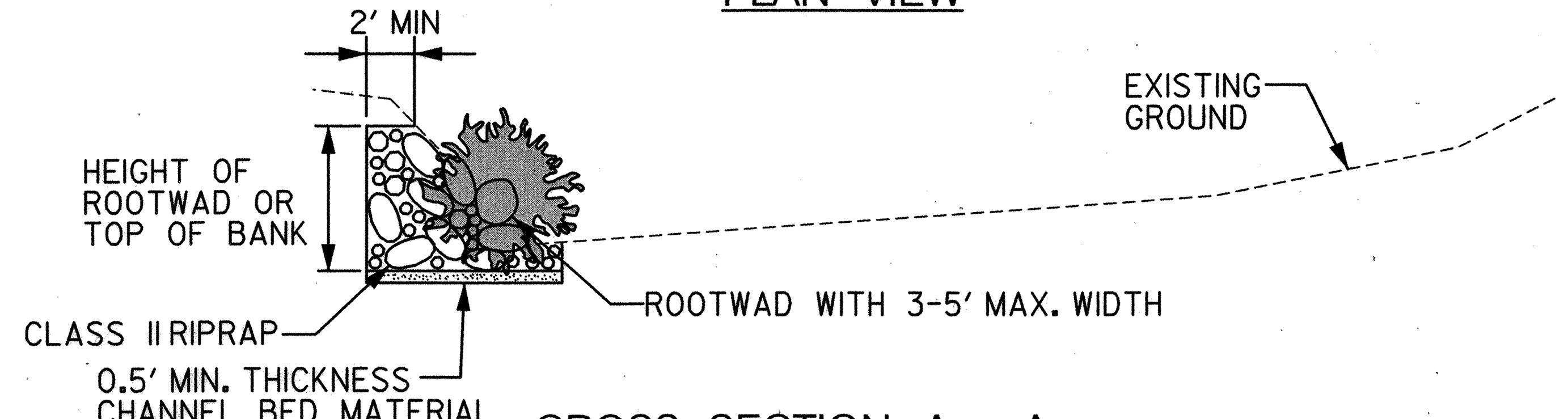
HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

STREAM STABILIZATION DETAILS

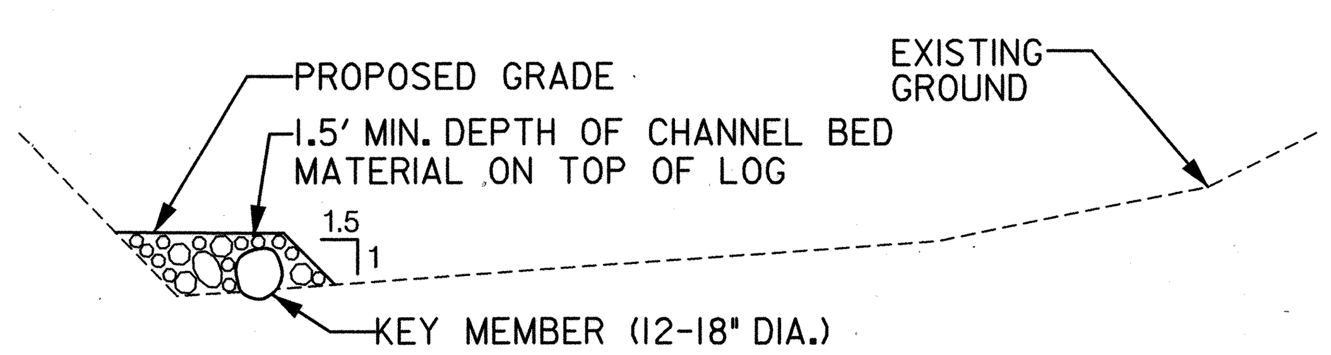
SCALE NTS



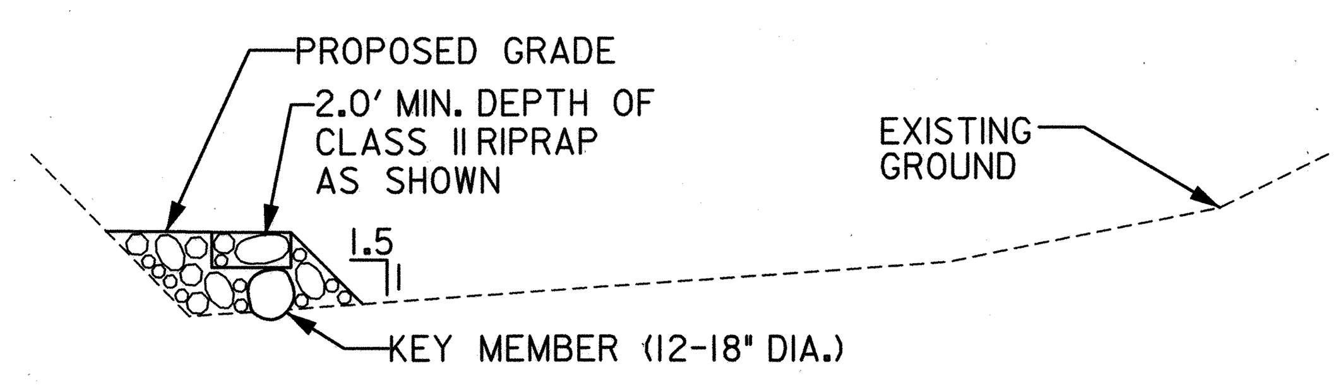
PLAN VIEW



CROSS SECTION A – A



CROSS SECTION B – B



CROSS SECTION C – C

BANK ROUGHNESS FEATURE (BRF)
NOT TO SCALE

FLOW DIVERSITY MIX	
Amount of Stone (%)	Stone Type
20	SHA Class 1
80	SHA Class 2
100	Total

NOTE:
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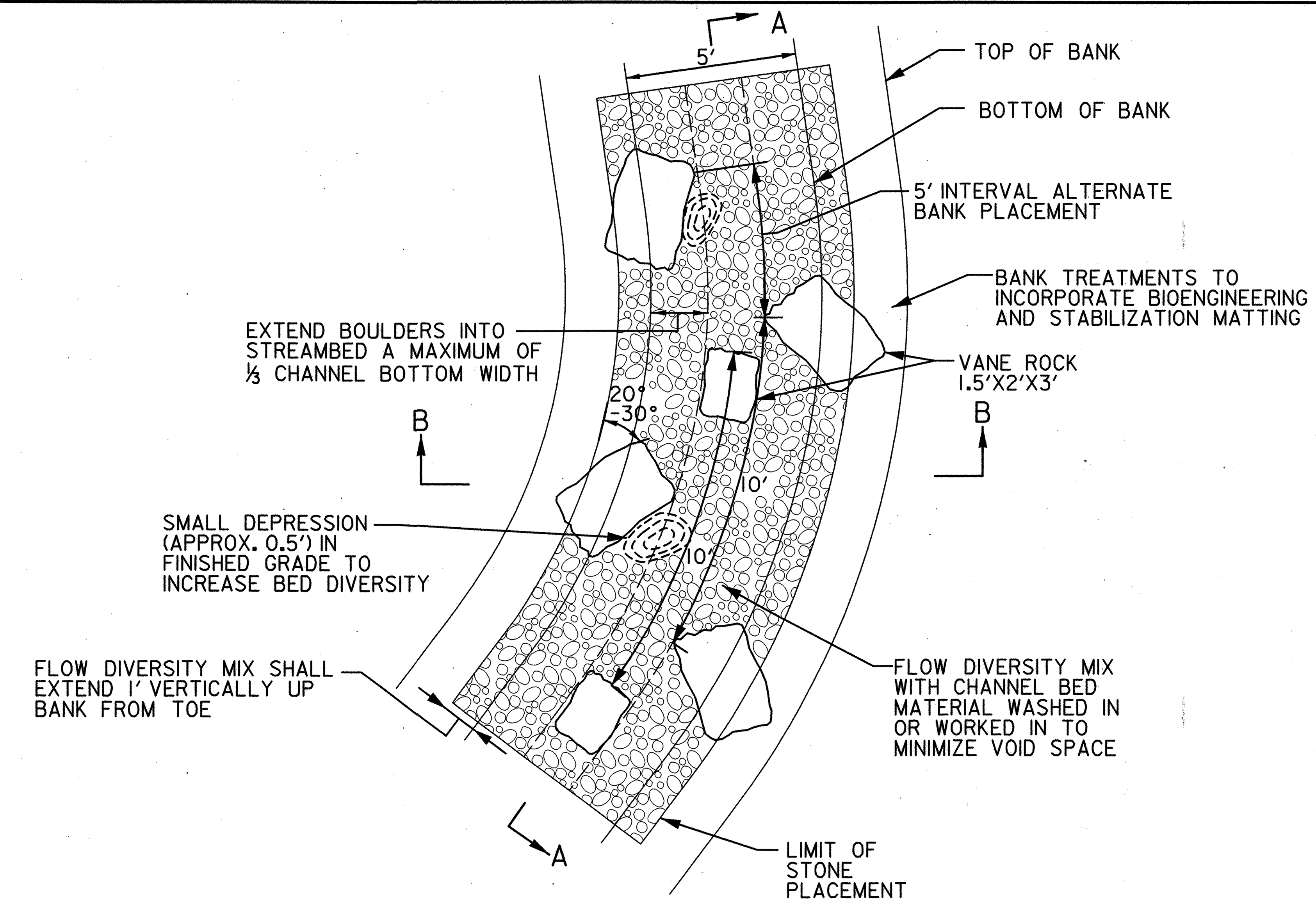
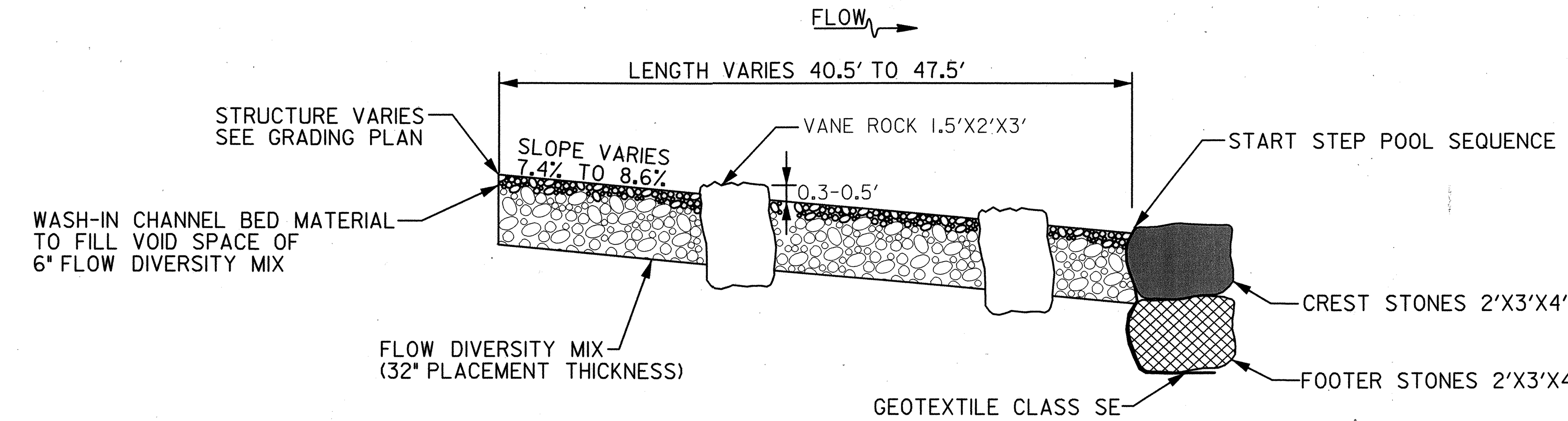
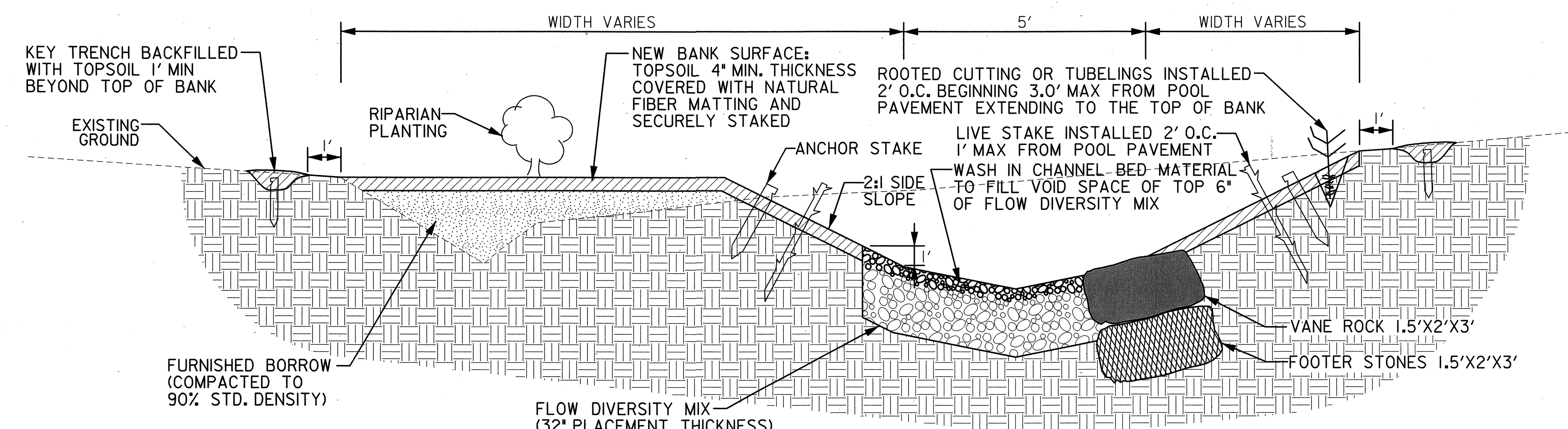


PLAN VIEW



CROSS SECTION A–A



CROSS SECTION B–B

FLOW DIVERSITY STRUCTURE
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

11/14/14
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

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MARYLAND
Storm Water Management Division
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

STREAM STABILIZATION DETAILS

SCALE
NTS
SHEET
12 OF 27

STANDARD STABILIZATION NOTE

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 STEEPER THEN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND

B.) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OF GRADED AREAS ON THE PROJECT SITES NOT UNDER ACTIVE GRADING.

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.

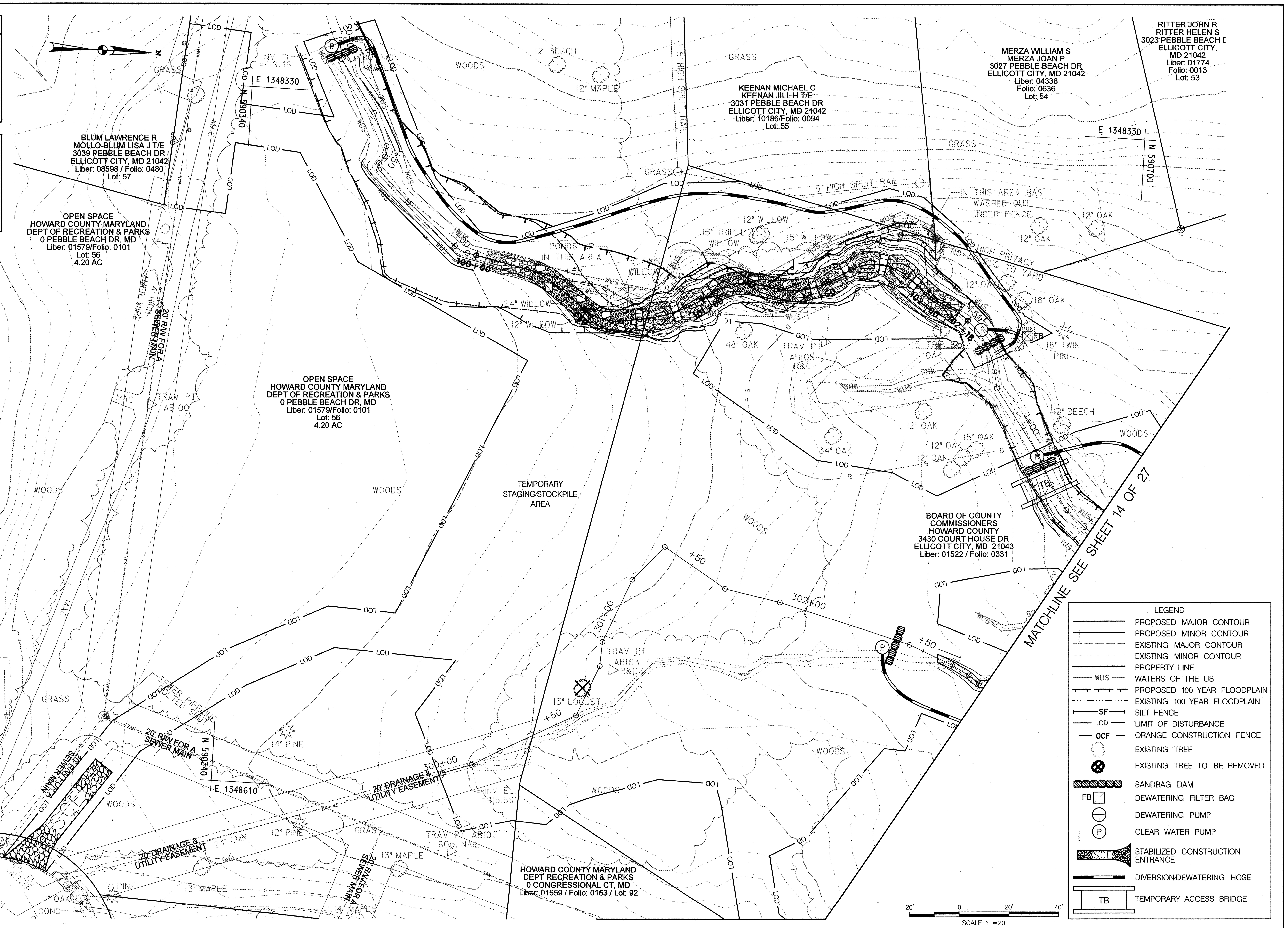
HOWARD COUNTY SOIL CONSERVATION DISTRICT — 11/18/14 — DATE

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.

NOTES:

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.
3. CONTRACTOR SHALL STABILIZE DISTURBED AREAS WITHIN THE WORK AREA AT THE END OF EACH WORK DAY.
4. ANY STOCKPILE OF MATERIALS MUST REMAIN OUTSIDE THE 100 YEAR FLOODPLAIN.
5. ADDITIONAL SEDIMENT CONTROLS SHALL BE PROVIDED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
6. SILT FENCE TO BE REPLACED BY SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
7. PIPE SLOPE DRAIN MAY BE MOVED DURING THE DAY TO FACILITATE GRADING.



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — 11/14/14 — DATE

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Howard County
M A R Y L A N D
Storm Water Management Division
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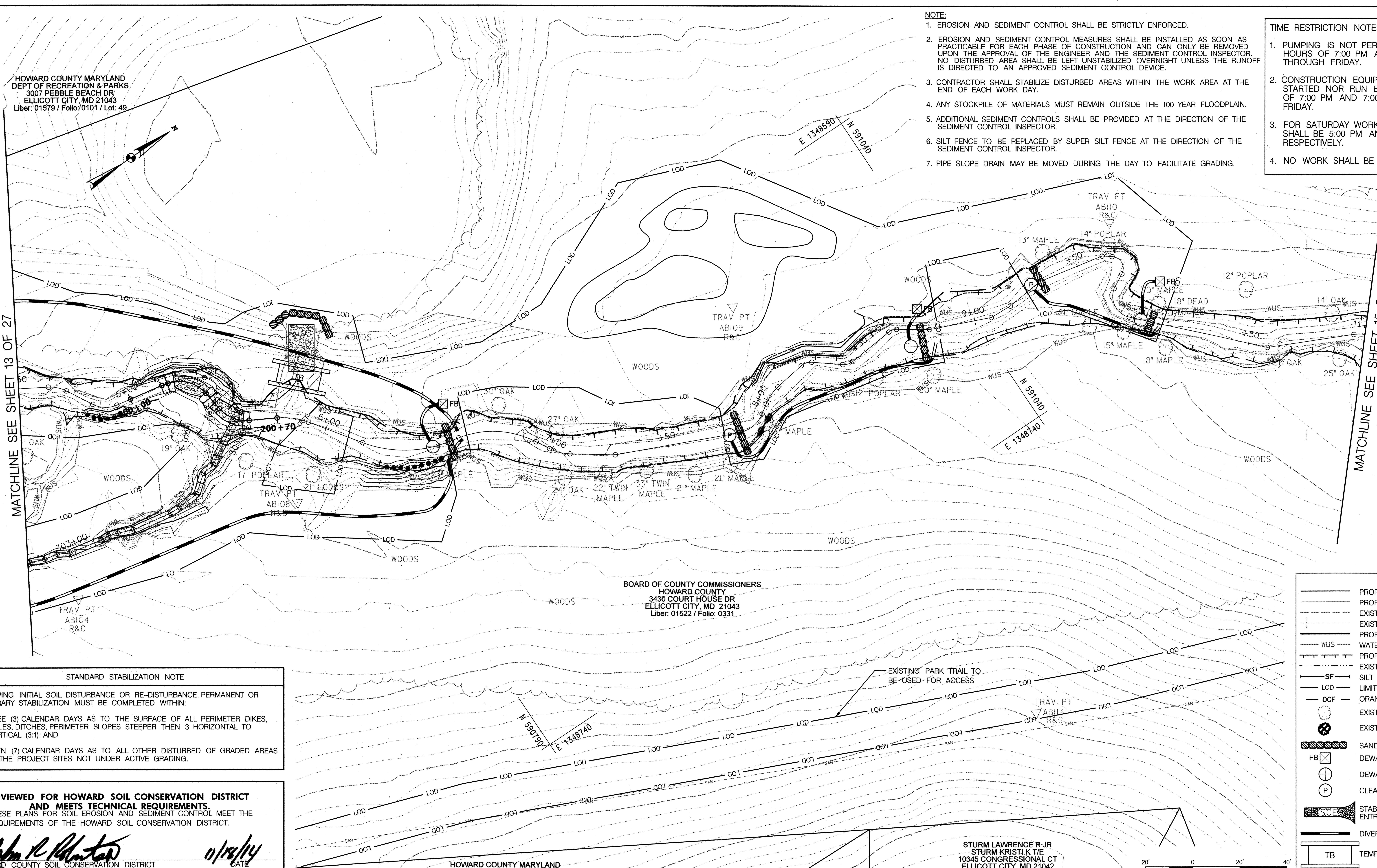
HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

EROSION AND SEDIMENT CONTROL PLAN - PHASE 1

SCALE 1" = 20'

SHEET 13 OF 27



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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.
3. CONTRACTOR SHALL STABILIZE DISTURBED AREAS WITHIN THE WORK AREA AT THE END OF EACH WORK DAY.
4. ANY STOCKPILE OF MATERIALS MUST REMAIN OUTSIDE THE 100 YEAR FLOODPLAIN.
5. ADDITIONAL SEDIMENT CONTROLS SHALL BE PROVIDED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
6. SILT FENCE TO BE REPLACED BY SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
7. PIPE SLOPE DRAIN MAY BE MOVED DURING THE DAY TO FACILITATE GRADING.

TIME RESTRICTION NOTES:

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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.

LEGEND

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- P — CLEAR WATER PUMP
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- DIVERSION/DEWATERING HOSE
- TB — TEMPORARY ACCESS BRIDGE

STANDARD STABILIZATION NOTE

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 STEEPER THEN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND

B.) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OF GRADED AREAS ON THE PROJECT SITES NOT UNDER ACTIVE GRADING.

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.

HOWARD COUNTY SOIL CONSERVATION DISTRICT — DATE 11/18/14

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 11/14/14

McCORMICK TAYLOR
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

STATE OF MARYLAND — AMY HAMPTON — PROFESSIONAL ENGINEER — 32013

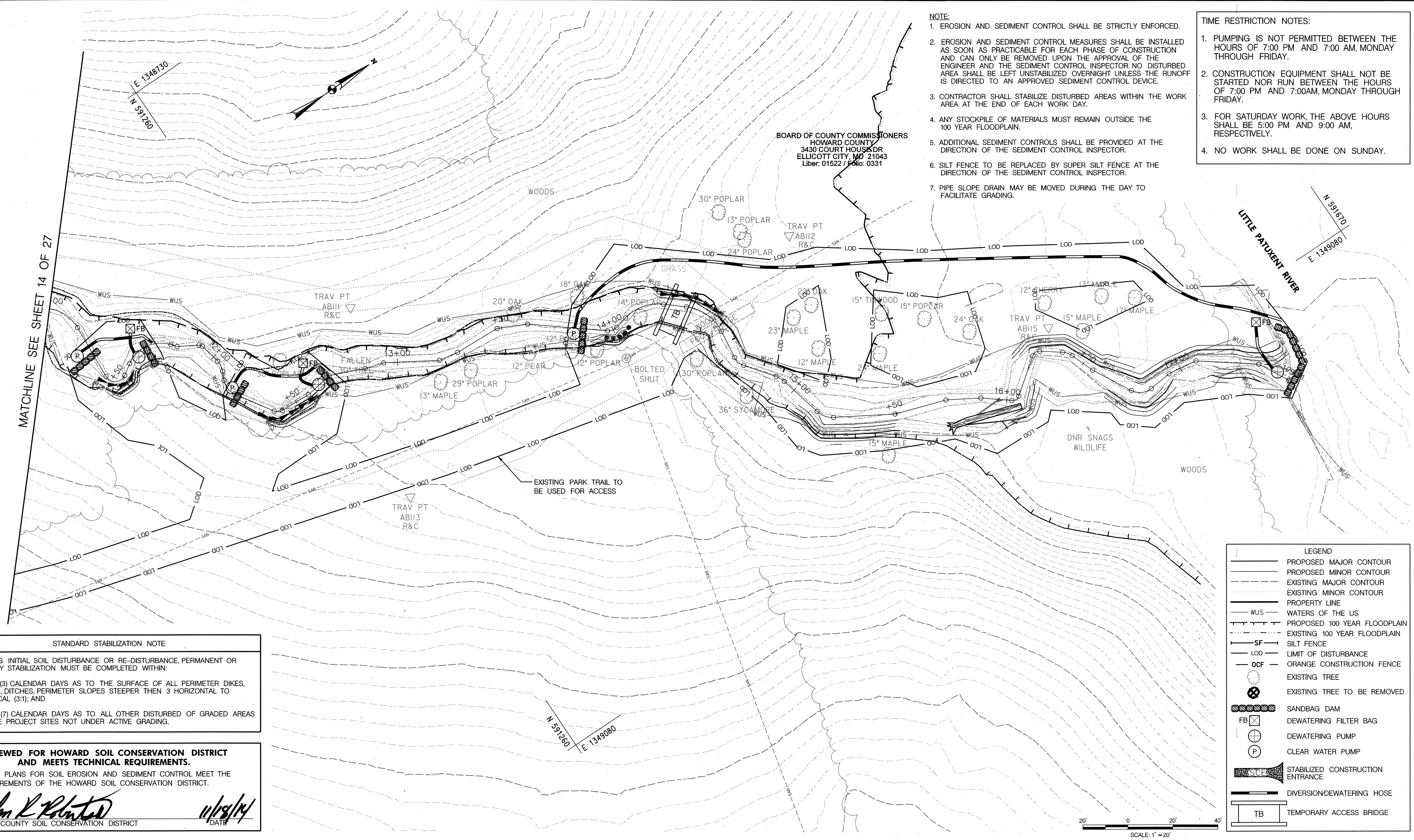
DES: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

EROSION AND SEDIMENT CONTROL PLAN - PHASE 1

SCALE 1" = 20'

SHEET 14 OF 27



NOTE:

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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.

HOWARD COUNTY SOIL CONSERVATION DISTRICT — DATE 11/18/14

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 11/14/14

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

Howard County
MARYLAND
Storm Water Management Division
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6751 Columbia Gateway Drive, Suite 514
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STATE OF MARYLAND — PROFESSIONAL ENGINEER

DES: MM, DF				
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

EROSION AND SEDIMENT CONTROL PLAN - PHASE 1

SCALE 1" = 20'

SAND BAGS			
FROM	TO	QTY (L.F.)	REMARKS
21+68.83, 9.3' LT	21+98.10, 43' LT	57	SB-1
20+38.68, 155' LT	20+41.29, 165' LT	10	SB-2
20+54.06, 172' LT	20+64.36, 165' LT	14	SB-3

24" PIPE SLOPE DRAIN (SEE NOTE 5)			
FROM	TO	QTY (L.F.)	REMARKS
21+73.26, 33' LT	20+48.44, 168' LT	211	PSD-1

SILT FENCE			
FROM	TO	QTY (LF)	REMARKS
20+00.05, 118' LT	20+38.68, 155' LT	62	SF-1
20+64.36, 165' LT	20+80.55, 170'LT	18	SF-2
20+76.93, 159' LT	20+94.32, 164' LT	20	SF-3
20+25.02, 11' RT	21+18.01, 5.2' LT	102	SF-4

TEMPORARY RIPRAP		
STA.	QTY (SY)	REMARKS
20+33.50, 31' RT	3	OUTFALL FOR DF-1
21+13.75, 155' LT	3	OUTFALL FOR DF-2

DIVERSION FENCE			
FROM	TO	QTY (L.F.)	REMARKS
21+40.95, 24' RT	20+33.50, 31' RT	108	DF-1
21+80.63, 66' LT	21+13.75, 155' LT	116	DF-2

TEMPORARY GABION OUTLET STRUCTURE		
STA.	QTY (SY)	REMARKS
20+48.44, 168' LT	1	SEE DETAIL, SHEET 20

4" DIVERSION HOSE			
FROM	TO	QTY (L.F.)	REMARKS
21+78.95, 35' LT	20+52.02, 170' LT	206	-

3" DEWATERING HOSE			
FROM	TO	QTY (L.F.)	REMARKS
20+89.02, 107' LT	20+98.03, 172' LT	66	-

SUMP PIT	
STATION	QTY (EA)
20+89.02, 107' RT	1

FILTER BAG	
STATION	QTY (EA)
20+98.03, 172' LT	1

TEMPORARY PUMP	
STATION	QTY (EA)
21+78.95, 35' LT	1

STANDARD STABILIZATION NOTE

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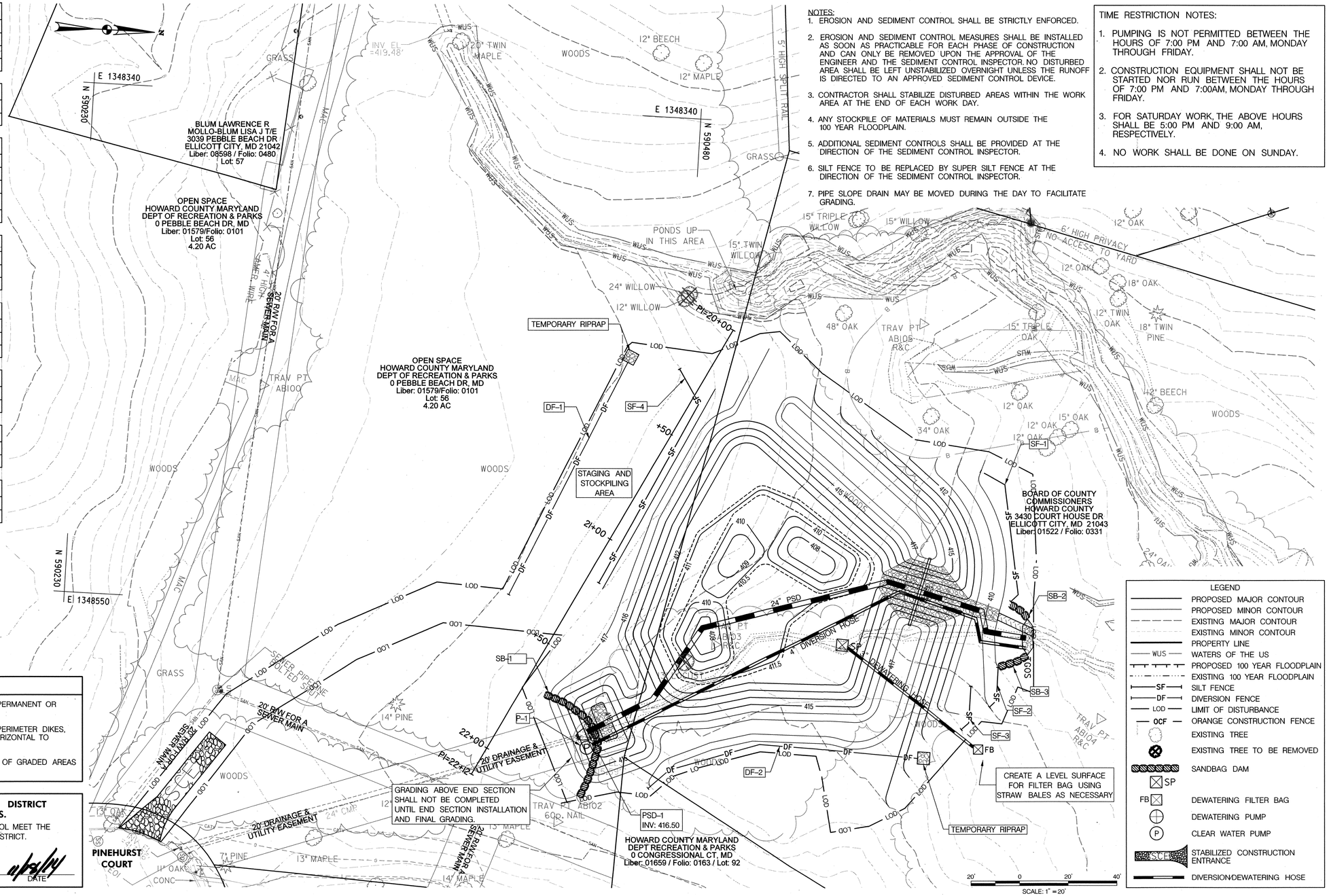
REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

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

HOWARD COUNTY SOIL CONSERVATION DISTRICT — DATE 11/25/14



NOTES:

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 11/14/14

McCORMICK TAYLOR
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

STATE OF MARYLAND — AMY HRIBAR — 21613 — 11/13/2014 — PROFESSIONAL ENGINEER

DES: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

EROSION AND SEDIMENT CONTROL PLAN - PHASE 2

SCALE: 1" = 20'

SHEET 16 OF 27

EROSION AND SEDIMENT CONTROL – GENERAL NOTES

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT AND MDE PERMIT (TRACKING NUMBER 201461215).

2. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) DAYS PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION 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 ENVIRONMENT INSPECTOR AT (301) 665-2850, FIVE (5) DAYS BEFORE ANY LAND DISTURBING ACTIVITY.

3. THE LOD SHALL BE STAKED OUT 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. TREES TO BE REMOVED SHALL BE MARKED AT THE PRE-CONSTRUCTION MEETING. (1 DAY)

5. ORANGE CONSTRUCTION FENCE SHALL BE MANUALLY INSTALLED WHERE INDICATED ON THE PLANS. (1 DAY)

PHASE 1A: STA. 17+51 TO STA. 13+80 AND STA. 12+75 TO STA. 11+25

6. CONSTRUCT THE FOLLOWING PERIMETER CONTROLS AS SHOWN ON THE PLAN: STABILIZED CONSTRUCTION ENTRANCE AND SILT FENCE, CLEARING ONLY THE AREA NEEDED TO INSTALL THE E&S CONTROLS. (1 DAY)

7. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, INSTALL TEMPORARY ACCESS BRIDGE AND THE STREAM DIVERSION/PUMP AROUND WHICH INCLUDES THE SANDBAG, PUMP AND DIVERSION HOSES FOR THE PHASE 1A STREAM REACH. DEWATER ALL WORK AREAS AS NEEDED TO A DEWATERING FILTER BAG. (1 DAY)

8. COMMENCE IN STREAM CONSTRUCTION AND GRADING. STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORK DAY AND REMOVE THE STREAM DIVERSION/PUMP AROUND. COMPLETE CHANNEL GRADING FROM DOWNSTREAM TO UPSTREAM. (8 DAYS)

9. STABILIZE TEMPORARY CONSTRUCTION ACCESS AND GRADE TO FINAL ELEVATIONS REMOVING ALL RUTS. (1 DAY)

PHASE 1B: STA. 10+20 TO STA. 4+15 AND STA. 303+95 TO STA. 302+50

10. WHEN AREAS ARE FULLY STABILIZED, AND UPON PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, RESET THE REMAINING SEDIMENT CONTROL DEVICES FOR PHASE 1B. (1 DAY)

11. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, INSTALL TEMPORARY ACCESS BRIDGES THE STREAM DIVERSION/PUMP AROUND WHICH INCLUDES THE SANDBAG, PUMP AND DIVERSION HOSES FOR THE PHASE 1B STREAM REACH. DEWATER ALL WORK AREAS AS NEEDED TO A DEWATERING FILTER BAG. (1 DAY)

12. COMMENCE IN STREAM CONSTRUCTION AND GRADING. STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORK DAY AND REMOVE THE STREAM DIVERSION/PUMP AROUND. COMPLETE CHANNEL GRADING AND STRUCTURE INSTALLATION FROM DOWNSTREAM TO UPSTREAM. (10 DAYS)

13. STABILIZE TEMPORARY CONSTRUCTION ACCESS AND GRADE TO FINAL ELEVATIONS REMOVING ALL RUTS. (1 DAY)

PHASE 1C: STA. 3+70 TO STA. 0+00

14. WHEN AREAS ARE FULLY STABILIZED, AND UPON PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, RESET THE REMAINING SEDIMENT CONTROL DEVICES FOR PHASE 1C. (1 DAY)

15. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, INSTALL THE STREAM DIVERSION/PUMP AROUND WHICH INCLUDES THE SANDBAG, PUMP AND DIVERSION HOSES FOR THE PHASE 1C STREAM REACH. DEWATER ALL WORK AREAS AS NEEDED TO A DEWATERING FILTER BAG. (1 DAY)

16. COMMENCE IN STREAM CONSTRUCTION AND GRADING. STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORK DAY AND REMOVE THE STREAM DIVERSION/PUMP AROUND. COMPLETE CHANNEL GRADING FROM DOWNSTREAM TO UPSTREAM. (12 DAYS)

17. STABILIZE TEMPORARY CONSTRUCTION ACCESS AND GRADE TO FINAL ELEVATIONS REMOVING ALL RUTS. (1 DAY)

PHASE 2: BMP CONSTRUCTION

18. DURING A 5 DAY DRY WEATHER FORECAST FROM THE NATIONAL WEATHER SERVICE, INSTALL SANDBAGS, SILT FENCE, DIVERSION FENCE, TEMPORARY RIPRAP, SUMP PIT AND FILTER BAG AS SHOWN ON THE PLANS. INSTALL 24-IN PIPE SLOPE DRAIN FROM DOWNSTREAM TO UPSTREAM. INSTALL TEMPORARY PUMP AND DEWATERING HOSE FROM DOWNSTREAM TO UPSTREAM. (4 DAYS)

19. EXCAVATE PROPOSED SHALLOW MARSH WETLAND TO DESIRED ELEVATION. INSTALL CLAY CORE A MINIMUM OF 4 FT BELOW EXISTING GROUND AS SHOWN ON PLANS AND FOLLOWING CODE 378 GUIDELINES. INSTALL WEIR WALL AND ESTABLISH EMBANKMENT TO ELEVATION SHOWN ON PLANS. INSTALL RIPRAP AROUND WEIR. STABILIZE WITH TOPSOIL AND MATTING WHEN COMPLETE. DEWATER FROM SUMP PIT TO FILTER BAG AS NEEDED. ADJUST PSD AND UTILIZE TEMPORARY PUMP AS NECESSARY TO COMPLETE POND GRADING. REMOVE CLEAR WATER DIVERSION CONTROLS AND COMPLETE GRADING OF THOSE AREAS USING SAME-DAY STABILIZATION. (7 DAYS)

20. INSTALL END SECTION AT OUTLET OF EXISTING CMP PIPE AND COMPLETE FINAL GRADING. INSTALL RIPRAP IN FOREBAY AS SHOWN.

21. WHEN AREAS ARE FULLY STABILIZED AND WITH PERMISSION FROM THE INSPECTOR, REMOVE THE DIVERSION PIPE AND DIVERSION FENCE FROM DOWNSTREAM TO UPSTREAM AND COMPLETE FINAL POND GRADING. PROVIDE PUMP AROUND FOR CHANNEL FLOW DURING REMOVAL OF DIVERSION FENCE AND DIVERSION PIPE AND FINAL POND GRADING. STABILIZE ALL DISTURBED AREAS AT THE END OF EACH DAY. ATTACH ORIFICE PLATE TO RISER AND REMOVE THE REMAINING SEDIMENT CONTROL DEVICES. ATTACH TRASH RACK. STABILIZE ANY REMAINING DISTURBED AREAS WITH SEED AND MULCH. (4 DAYS).

ALL PHASES

22. INSTALL LANDSCAPING PER PLAN. (10 DAYS)

23. STABILIZE TEMPORARY CONSTRUCTION ACCESS AND GRADE TO FINAL ELEVATIONS REMOVING ALL RUTS. (1 DAY)24. WHEN AREAS ARE FULLY STABILIZED, AND UPON PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE THE REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE ANY DISTURBED AREAS. (1 DAY)

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) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1. B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. 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-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

5. 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.

6. SITE ANALYSIS:

TOTAL AREA OF SITE	3.06 ACRES
AREA DISTURBED	3.06 ACRES
AREA TO BE ROOFED OR PAVED	0.00 ACRES
AREA TO BE VEGETATIVELY STABILIZED	2.20 ACRES
TOTAL CUT	1,383.97 CU. YDS.
TOTAL FILL	1,173.06 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	SEE NOTE 13

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.

HOWARD COUNTY SOIL CONSERVATION DISTRICT — DATE 11/18/14

HOWARD COUNTY CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

9. 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.

10. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.

11. ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.

12. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

13. OFFSITE WASTE / BORROW SITE SHALL HAVE AN APPROVED SEDIMENT CONTROL PLAN AND PERMIT.

B-4-2 SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

A. SOIL PREPARATION
  1. TEMPORARY STABILIZATION
    A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
    B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
    C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
  2. PERMANENT STABILIZATION
    A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
      I. SOIL PH BETWEEN 6.0 AND 7.0.
      II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
      III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
      IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
      V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
    B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
    C. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
    D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
    E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING
  1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS 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.
  2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED 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-NRCS.
  3. TOPSOILING 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.
  4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
  5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
    A. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 INCH IN DIAMETER.
    B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
    C. 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.
  6. TOPSOIL APPLICATION
    A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
    B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO 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 MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
    C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
  1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
  2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
  3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
  4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
  5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

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.

B-4-3 SEEDING AND MULCHING

A. SEEDING
  1. SPECIFICATIONS
    A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
    B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
    C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
    D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
  2. APPLICATION
    A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
      I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
      II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
    B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
      I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
      II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
    C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
      I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P2O5 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
      II. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
      III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
      IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING
  1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
    A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
    B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
      I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
      II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
      III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
      IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
      V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
  2. APPLICATION
    A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
    B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
    C. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
  3. ANCHORING
    A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
      I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
      II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
      III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
      IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

B-4-4 TEMPORARY STABILIZATION

HARDINESS ZONE (FROM FIGURE B.3) 6B SEED MIXTURE (FROM TABLE B.3) SEE BELOW					FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	436 LB/AC (10 LB/ 1000 SF)	
	ANNUAL RYEGRASS	40	MAR. 1 TO MAY 15; AUG. 1 TO OCT 15	0.5		2 TON/AC (90 LB/ 1000 SF)
	FOXTAIL MILLET	30	MAY 16 TO JULY 31	0.5		

B-4-5 PERMANENT STABILIZATION

HARDINESS ZONE (FROM FIGURE B.3) 6B SEED MIXTURE (FROM TABLE B.3) 1					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P_2O_5	K_2O	
1	SWITCH GRASS	10	MAR. 1 TO MAY 15; MAY 16 TO JUNE 15	1/4-1/2 IN.	45 LB/AC (1.0 LB/ 1000 SF)	90 LB/AC (2.0 LB/ 1000 SF)	90 LB/AC (2.0 LB/ 1000 SF)	2 TON/AC (90 LB/ 1000 SF)
	CREEPING RED FESCUE	15	MAR. 1 TO MAY 15; MAY 16 TO JUNE 15	1/4-1/2 IN.				
	PARTRIDGE PEA	4	MAR. 1 TO MAY 15; MAY 16 TO JUNE 15	1/4-1/2 IN.				

NOTE: MAY 16 TO JUNE 15 ARE ADDITIONAL PLANTING DATES DURING WHICH SUPPLEMENTAL WATERING MAY BE NEEDED TO ENSURE PLANT ESTABLISHMENT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 11/14/14

McCORMICK TAYLOR
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

STATE OF MARYLAND — AMY HRIBAR — PROFESSIONAL ENGINEER — 32013

DES: MM, DF
DRN: MR
CHK: AH
DATE: 11/13/14

BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

EROSION AND SEDIMENT CONTROL NOTES

SCALE: NOT TO SCALE

SWM POND CONSTRUCTION SPECIFICATIONS (MARYLAND CODE 378 POND – JANUARY 2000)

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH, AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

EARTH FILL

MATERIAL: – THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT, AND CUTOFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

PLACEMENT: – AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION: – THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.

WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN +/- 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

CUT OFF TRENCH: – THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

EMBANKMENT CORE: – THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM IMPERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

EARTH FILL (CONTINUED)

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7" TO ASSURE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE – ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:

1. MATERIALS – (POLYMER COATED STEEL PIPE) – STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-245 & M-246 WITH WATERTIGHT COUPLING BANDS OR FLANGES.

MATERIALS – (ALUMINUM COATED STEEL PIPE) – THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION ON M-274 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM COATED STEEL PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION ON M-190 TYPE A. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT.

MATERIALS – (ALUMINUM PIPE) – THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-211 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC., MUST BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS – ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT.

ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BANDWIDTH.

PIPE CONDUITS (CONTINUED)

THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PRE-PUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12 INCH WIDE STANDARD LAP TYPE BAND WITH 12 INCH WIDE BY 3/8 INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12 INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF 1/2 INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE END. A 24 INCH WIDE BY 3/8 INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.

HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING – THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE – ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS – REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.

2. BEDDING – REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE – BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

PLASTIC PIPE – THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIAL – PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4"-10" PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.

2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.

3. BEDDING – THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSUITABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS. DRAINAGE DIAPHRAGMS – WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

DRAINAGE DIAPHRAGM – WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MIX NO. 3.

ROCK RIPRAP

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311.

GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANING DRAWINGS.

EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

SEE EROSION AND SEDIMENT CONTROL SHEETS FOR DETAILED SEQUENCE OF CONSTRUCTION.

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 11/18/14

HOWARD COUNTY SOIL CONSERVATION DISTRICT — DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

11/14/14

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE

McCORMICK TAYLOR
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

STATE OF MARYLAND — PROFESSIONAL ENGINEER

DES: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

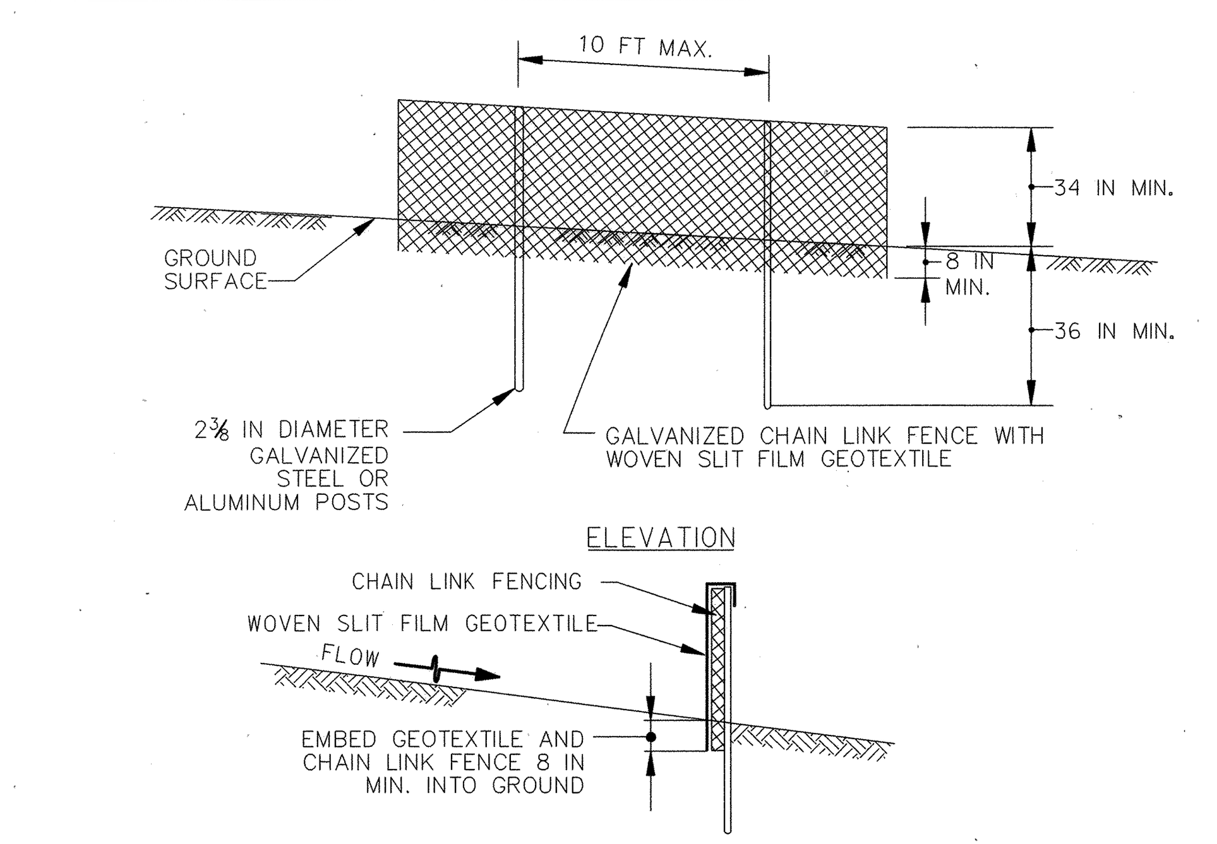
EROSION AND SEDIMENT CONTROL NOTES

SCALE: NOT TO SCALE

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL

SSF



CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2 ⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

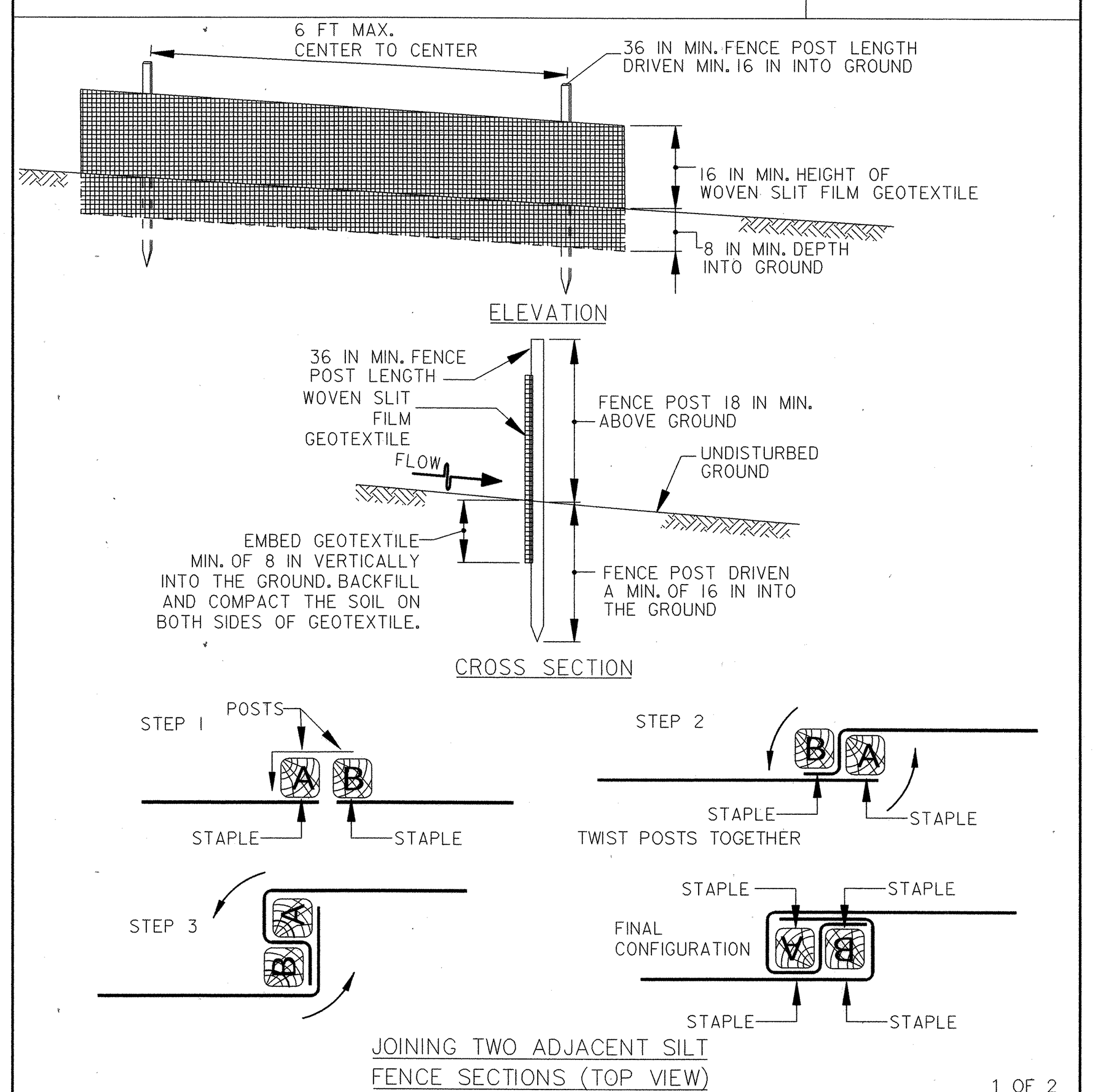
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL

SF



1 OF 2

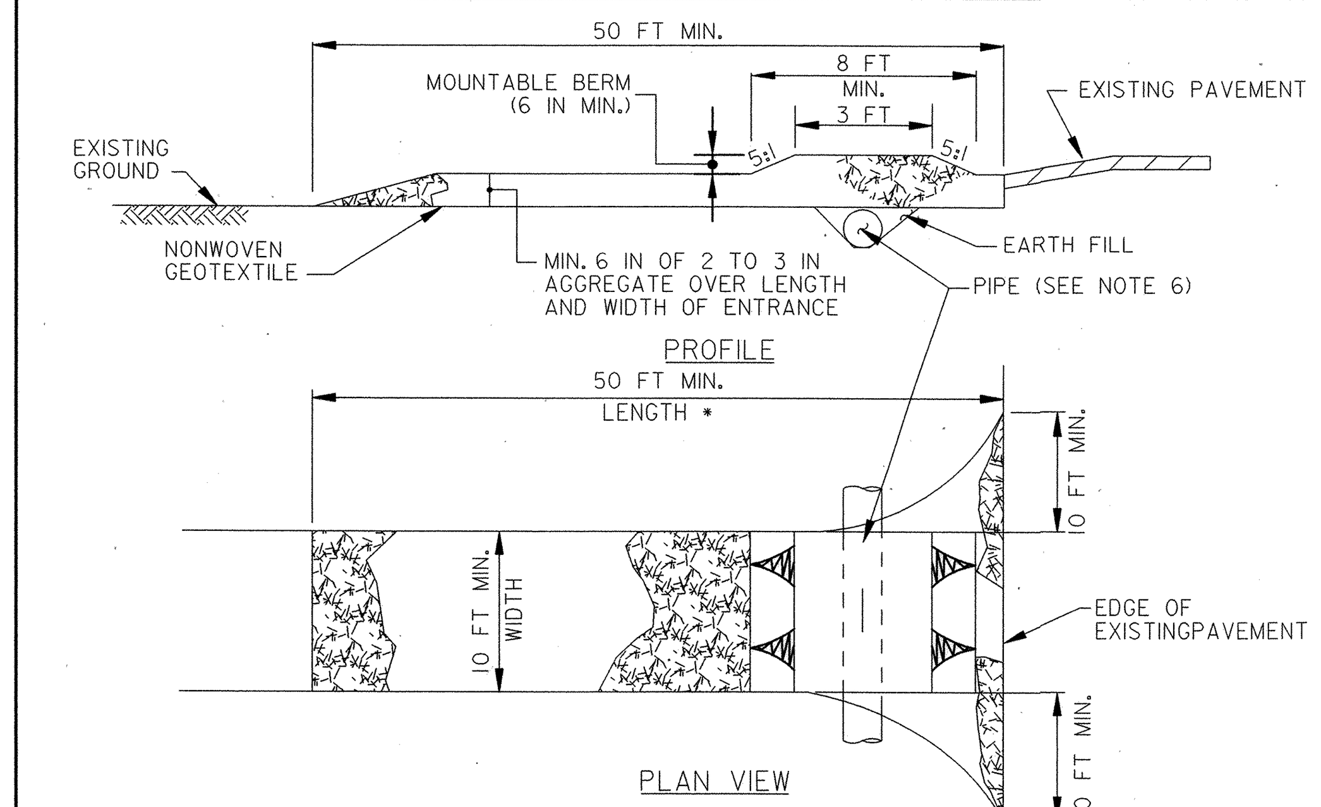
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL

SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

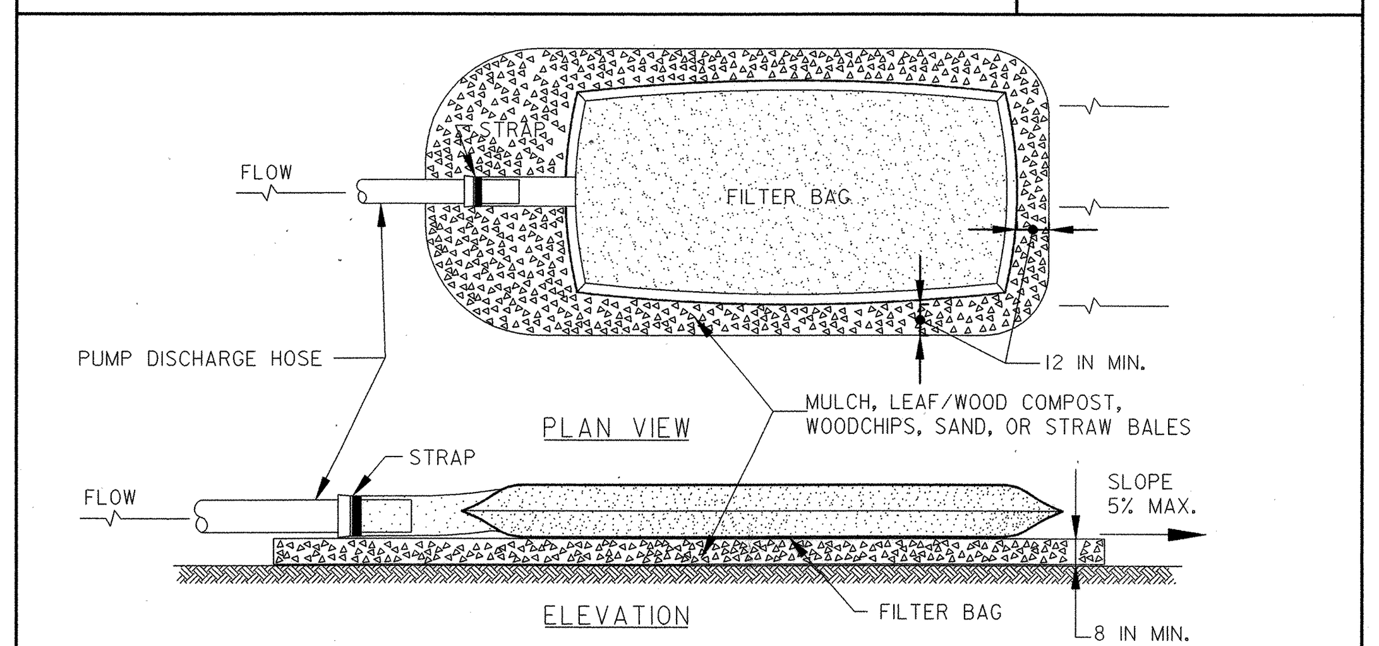
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-4 FILTER BAG

STANDARD SYMBOL

FB



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT^2	ASTM D-4491
PERMITTIVITY (SEC^{-1})	1.2 SEC^{-1}	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B-4-8 STOCKPILE AREA

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.
3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.
4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.
5. CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE MANNER.
6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.
7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION.
8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.

MAINTENANCE

THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

DETAIL E-1 SILT FENCE

STANDARD SYMBOL

SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± 1/16 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

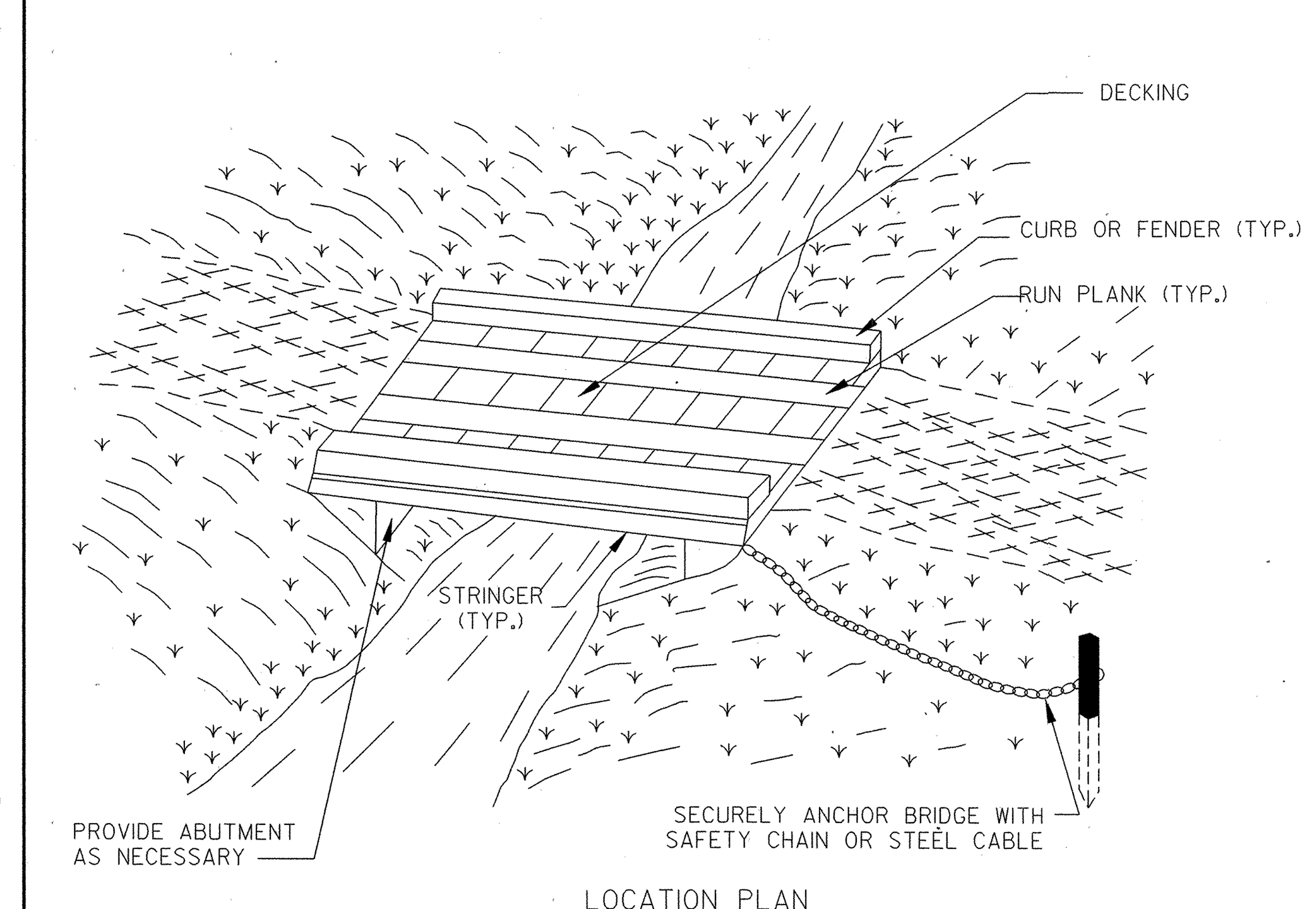
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL H-4-1 TEMPORARY ACCESS BRIDGE

STANDARD SYMBOL

TB



NOTE:
TIME OF YEAR RESTRICTIONS DO NOT APPLY TO THE CONSTRUCTION OR REMOVAL OF A TEMPORARY ACCESS BRIDGE UNLESS THERE IS DISTURBANCE TO THE STREAM CHANNEL.

1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL H-4-1 TEMPORARY ACCESS BRIDGE

STANDARD SYMBOL

TB

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT TEMPORARY BRIDGE STRUCTURE AT OR ABOVE THE BANK ELEVATION TO PREVENT IMPACTS FROM FLOATING MATERIALS AND DEBRIS.
2. PLACE ABUTMENTS PARALLEL TO, AND ON, STABLE BANKS.
3. CONSTRUCT BRIDGE TO SPAN ENTIRE CHANNEL UNLESS OTHERWISE INDICATED ON APPROVED PLAN.
4. USE STRINGERS CONSISTING OF LOGS, SAWN TIMBER, PRESTRESSED CONCRETE BEAMS, METAL BEAMS, OR OTHER APPROVED MATERIALS.
5. SELECT DECKING MATERIALS TO PROVIDE SUFFICIENT STRENGTH TO SUPPORT THE ANTICIPATED LOAD. PLACE ALL DECKING MEMBERS PERPENDICULAR TO THE STRINGERS, BUTT TIGHTLY, AND SECURELY FASTEN. DECKING MATERIALS MUST BE BUTTED TIGHTLY TO PREVENT ANY SOIL MATERIAL TRACKED ONTO THE BRIDGE FROM FALLING INTO THE WATERWAY BELOW.
6. SECURELY FASTEN OPTIONAL RUN PLANKING FOR THE LENGTH OF THE SPAN. PROVIDE A RUN PLANK FOR EACH TRACK OF THE EQUIPMENT WHEELS. ALTHOUGH RUN PLANKS ARE OPTIONAL, THEY MAY BE NECESSARY TO PROPERLY DISTRIBUTE LOADS.
7. INSTALL CURBS THE ENTIRE LENGTH OF THE OUTER SIDES OF THE DECK TO PREVENT SEDIMENT FROM ENTERING THE STREAM CHANNEL.
8. ANCHOR BRIDGE SECURELY AT ONLY ONE END USING STEEL CABLE OR CHAIN. ANCHORING AT ONLY ONE END WILL PREVENT CHANNEL OBSTRUCTION IN THE EVENT THAT FLOODWATERS FLOAT THE BRIDGE. ACCEPTABLE ANCHORS ARE LARGE TREES, LARGE BOULDERS, OR DRIVEN STEEL POSTS. ANCHOR MUST BE SUFFICIENT TO PREVENT THE BRIDGE FROM FLOATING DOWNSTREAM.
9. AREAS DISTURBED DURING BRIDGE INSTALLATION AND\OR REMOVAL MUST NOT BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
10. STABILIZE APPROACH TO BRIDGE AND KEEP FREE OF EROSION. CLEAN SEDIMENT FROM DECKING AND CURBS DAILY BY SCRAPING, SWEEPING, AND/OR VACUUMING. ENSURE THAT DECKING AND CURBS REMAIN TIGHTLY BUTTED WITHOUT GAPS. REMOVE DEBRIS TRAPPED BY BRIDGE. MAINTAIN AREAS ADJACENT TO CROSSING TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
11. AFTER THE TEMPORARY CROSSING IS NO LONGER NEEDED, REMOVE IT WITHIN 14 CALENDAR DAYS. IF SUBJECT TO THE USE DESIGNATION CLOSURE, REMOVE AT THE END OF CLOSURE PERIOD. PROTECT STREAM BANKS DURING BRIDGE REMOVAL AND STABILIZE ALL DISTURBED AREAS WITH EROSION CONTROL MATTING. ACCOMPLISH REMOVAL OF THE BRIDGE AND CLEAN UP OF THE AREA WITHOUT CONSTRUCTION EQUIPMENT WORKING IN THE WATERWAY CHANNEL. STORE ALL REMOVED MATERIALS IN AN APPROVED STAGING AREA.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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.

HOWARD COUNTY SOIL CONSERVATION DISTRICT — DATE 11/18/14

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 11/14/14

McCORMICK TAYLOR
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: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

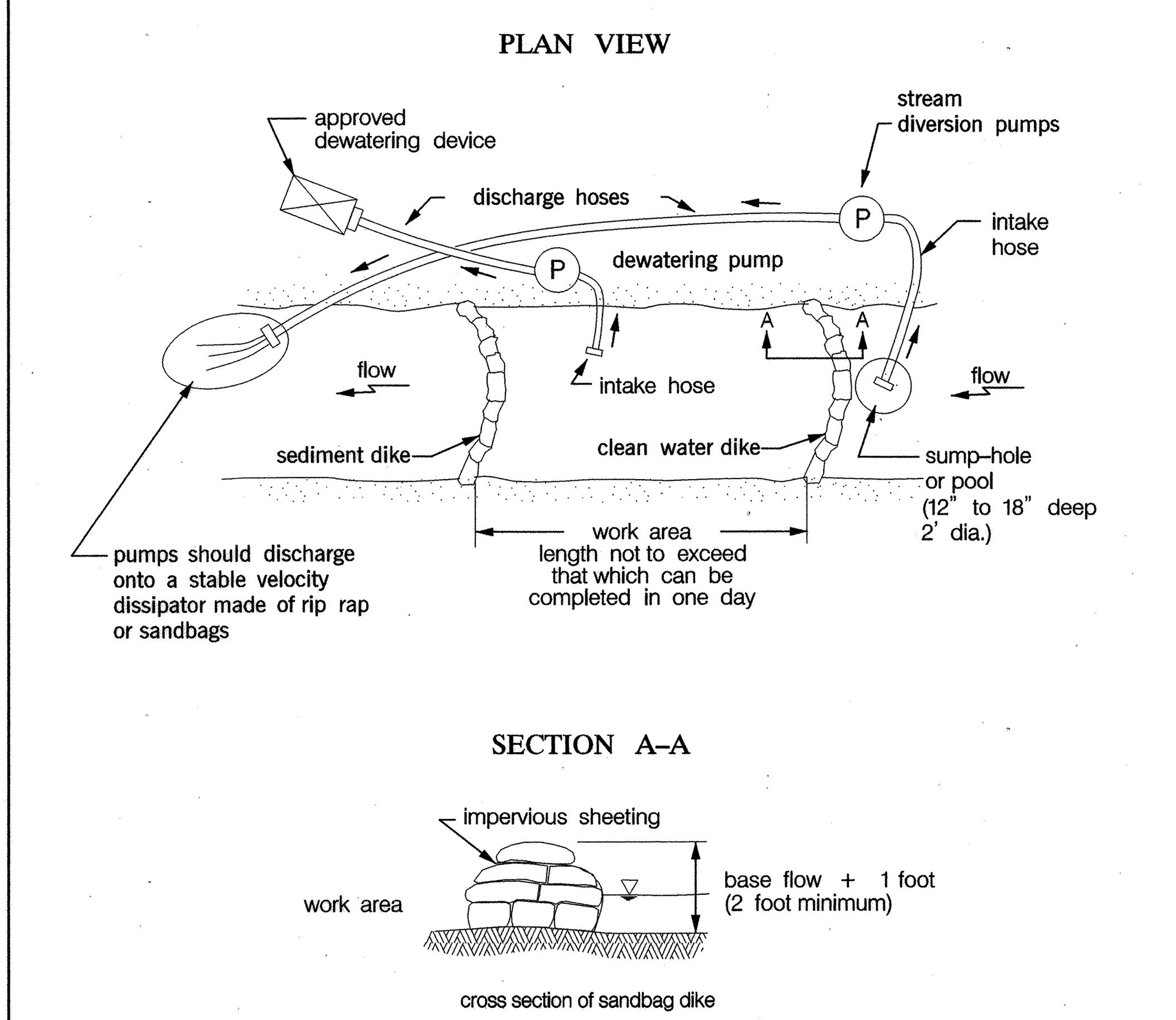
HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

EROSION AND SEDIMENT CONTROL DETAILS

SCALE: NOT TO SCALE

SHEET

Maryland's Guidelines To Waterway Construction
DETAIL 1.2: PUMP-AROUND PRACTICE



TEMPORARY INSTREAM CONSTRUCTION MEASURES	*REVISED NOVEMBER 2000 PAGE 1.2 - 3*	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Maryland's Guidelines To Waterway Construction
DETAIL 1.2: PUMP-AROUND PRACTICE

DESCRIPTION

The work should consist of installing a temporary pump around and supporting measures to divert flow around instream construction sites.

IMPLEMENTATION SEQUENCE

Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

1. Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.

2. The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.

3. The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out al limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.

4. Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and minimizedisturbance within the work area whenever possible.

5. Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.

6. Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags.

7. Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.

8. Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction).

9. All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross- sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.

10. After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.

11. A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.

12. If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.

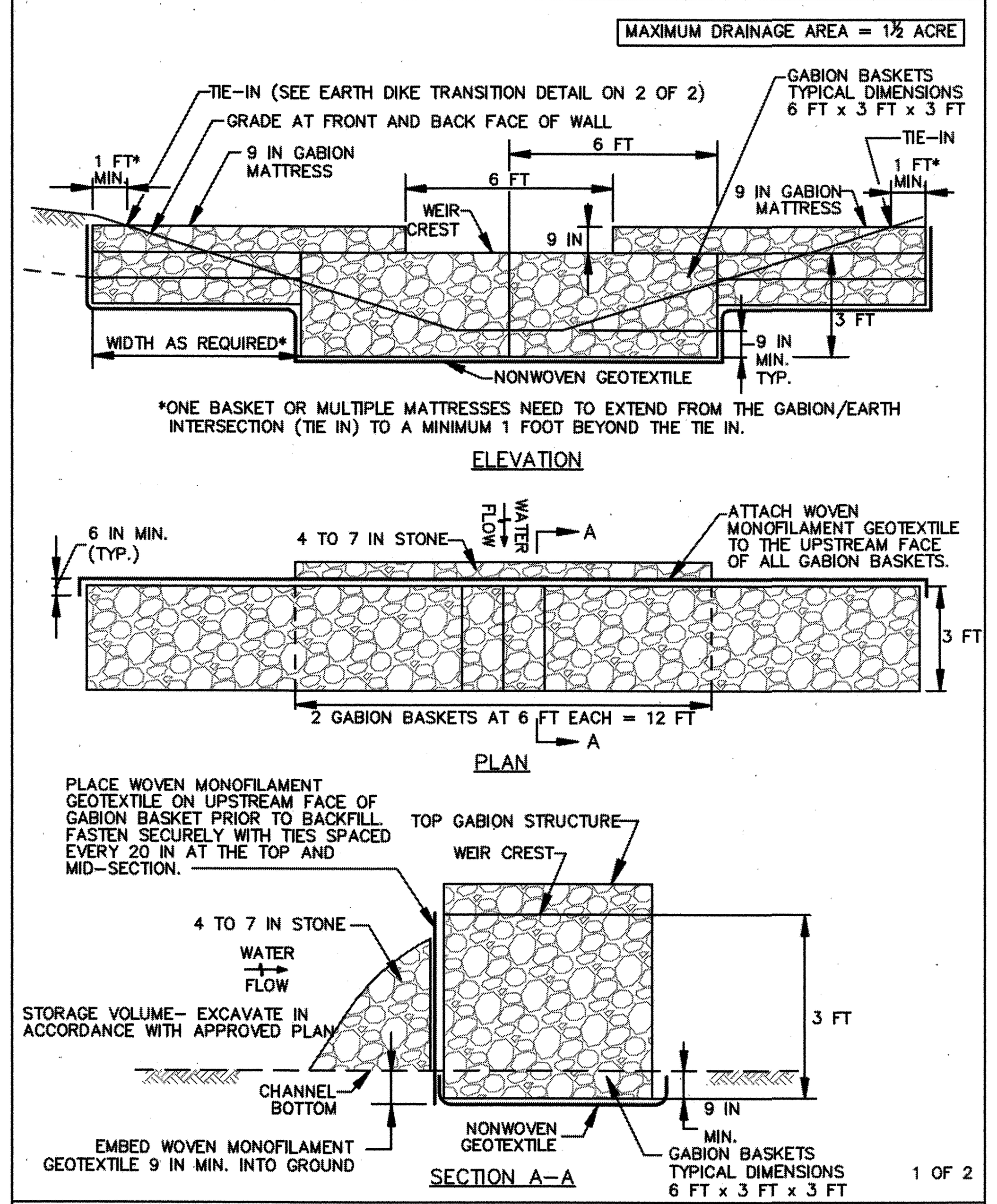
13. The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.

14. After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

TEMPORARY INSTREAM CONSTRUCTION MEASURES	*REVISED NOVEMBER 2000 PAGE 1.2 - 3*	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE

STANDARD SYMBOL TGOS



1 OF 2

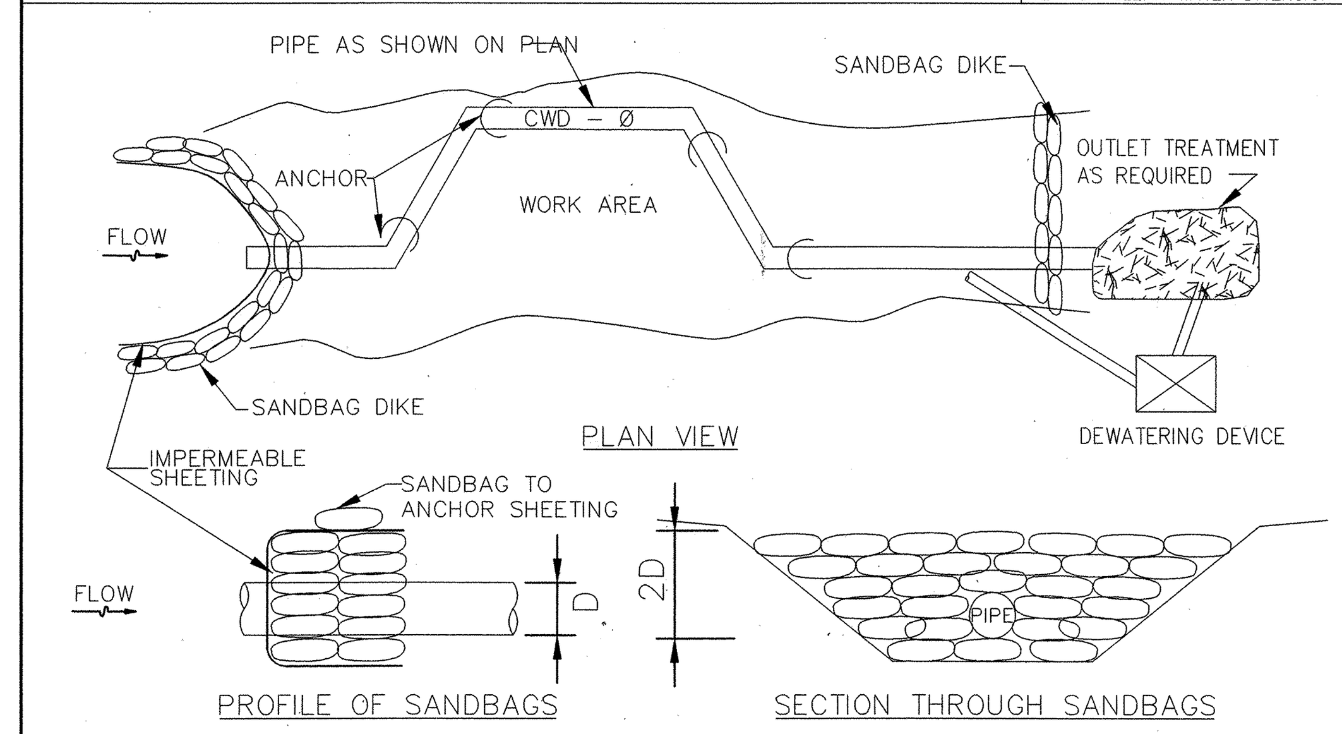
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-6 CLEAR WATER DIVERSION PIPE

STANDARD SYMBOL CWD - 12

DESIGNATION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION



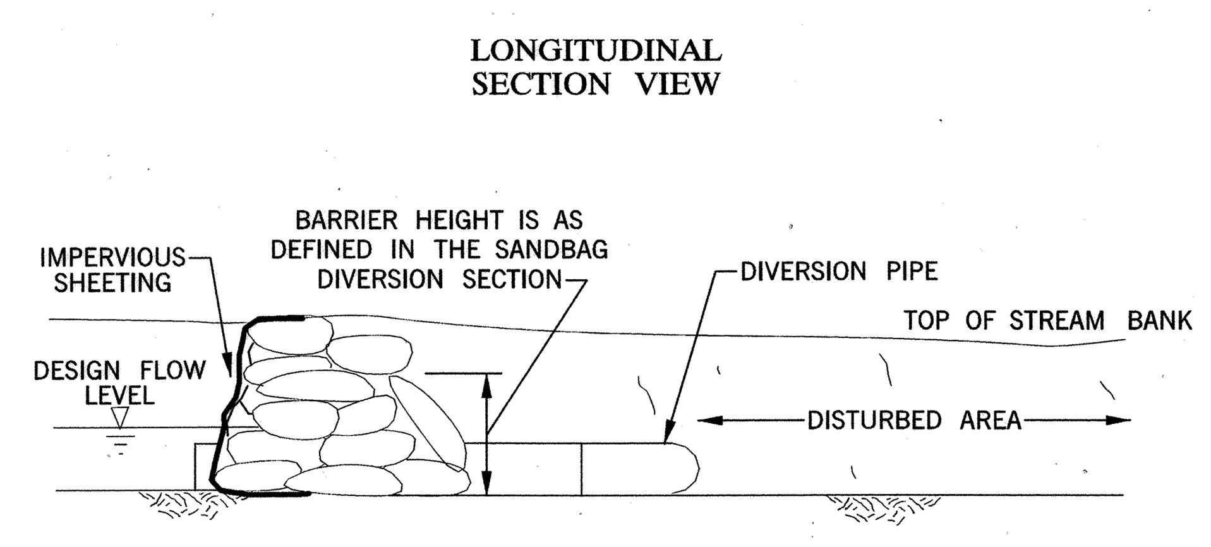
CONSTRUCTION SPECIFICATIONS

1. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. MAKE ALL JOINTS WATERTIGHT.
2. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLENT RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNTURING AND TEARING.
4. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
5. SET HEIGHT OF SANDBAG DIKE AT TWICE THE PIPE DIAMETER. MAINTAIN HEIGHT ALONG LENGTH OF SANDBAG DIKE. PLACE DOUBLE ROW OF SANDBAGS.
6. AT A MINIMUM, SECURELY ANCHOR DIVERSION PIPE AT EACH DOWNGRADE JOINT.
7. SET OUTLET END OF DIVERSION PIPE LOWER THAN INLET END.
8. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
10. KEEP POINT OF DISCHARGE FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

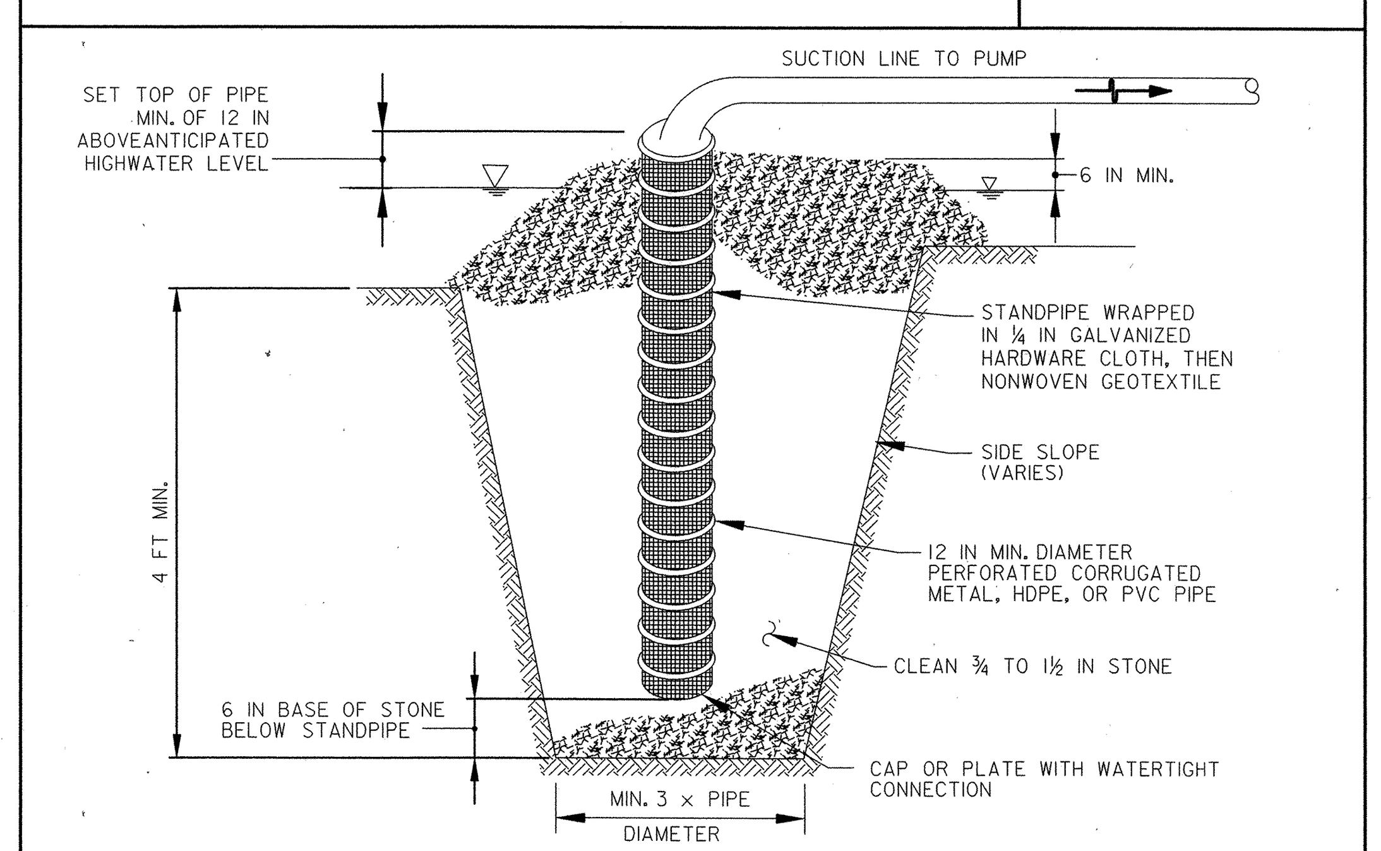
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SAND BAG DAM DETAIL



DETAIL F-2 SUMP PIT

STANDARD SYMBOL SP



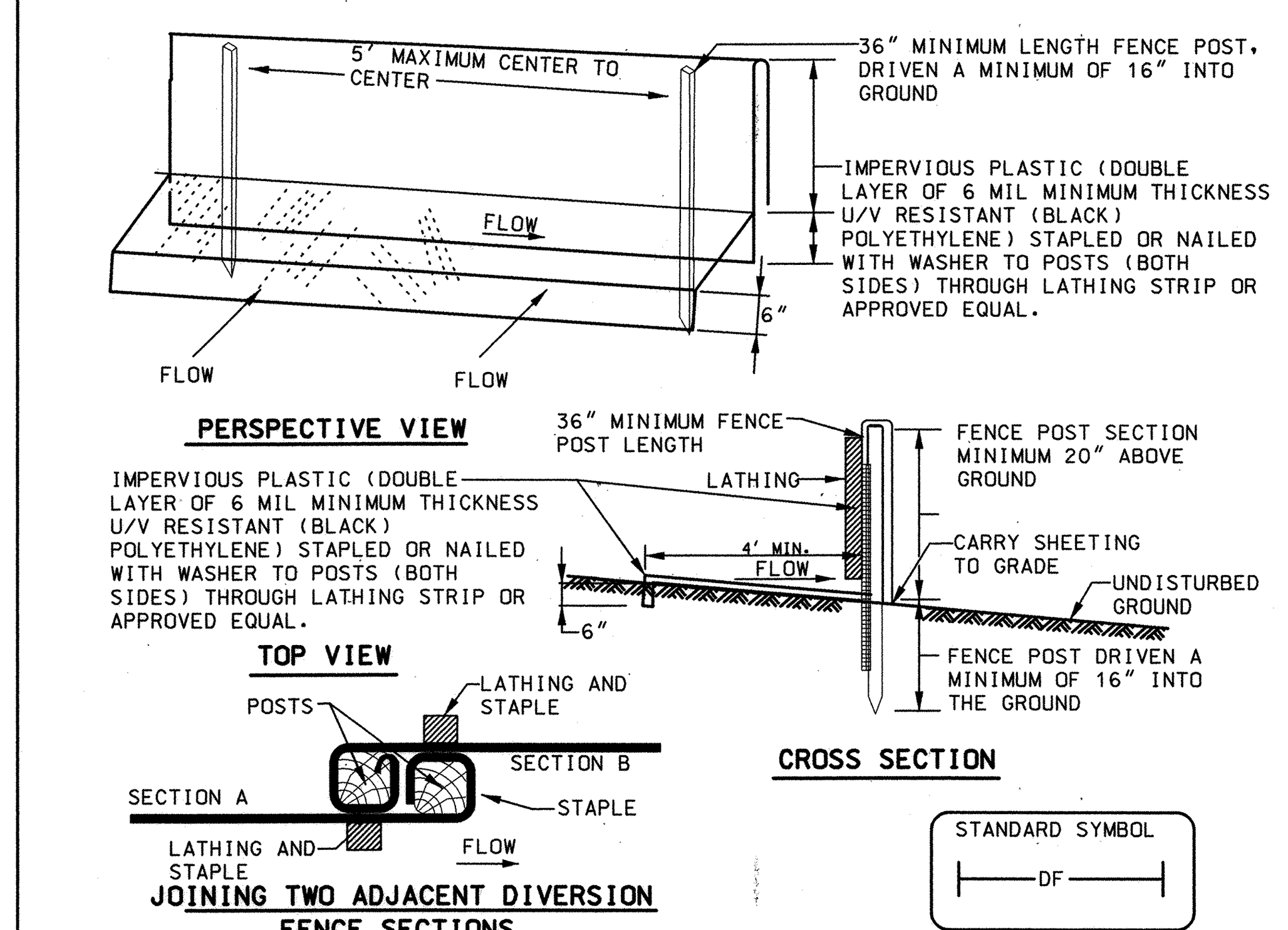
CONSTRUCTION SPECIFICATIONS

1. USE 12 INCH OR LARGER DIAMETER CORRUGATED METAL, HDPE, OR PVC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER. BOTTOM OF PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
2. WRAP PIPE WITH 1/4 INCH GALVANIZED HARDWARE CLOTH AND WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
3. EXCAVATE PIT TO THREE TIMES THE PIPE DIAMETER AND FOUR FEET IN DEPTH. PLACE 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
4. SET TOP OF PIPE MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
5. BACKFILL PIT AROUND THE PIPE WITH 3/4 TO 1 1/2 INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
6. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
7. A SUMP PIT REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, REMOVE PERFORATED PIPE AND REPLACE GEOTEXTILE AND STONE. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DIVERSION FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Posts shall be 2 " x 2 " square (minimum) cut. and shall be of sound quality hardwood. Maximum post spacing shall be 5 feet center to center.
2. Double layer of 6 mil polyethylene sheeting shall be fastened securely to each fence post with lathing and staples at top and mid-section.
3. Ends of polyethylene sheeting shall come together only at posts. Ends shall be overlapped, folded and stapled to prevent runoff bypass. The upgrade section shall overlap the downgrade section.
4. Diversion fence shall have an uninterupted positive grade to a stable outlet.
5. The contributing drainage area measured to the outlet shall not exceed 2 acres.
6. Diversion Fence shall be inspected after each rainfall event and maintained when necessary.

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	PAGE A - 3 - 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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.

HOWARD COUNTY SOIL CONSERVATION DISTRICT — DATE 11/18/14

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 11/14/14

McCORMICK TAYLOR
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

STATE OF MARYLAND — PROFESSIONAL ENGINEER

DES: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

EROSION AND SEDIMENT CONTROL DETAILS

SCALE: NOT TO SCALE

CROFTON PAUL J
CROFTON DONNA J WF
3043 PEEBLE BEACH DR
ELLICOTT CITY, MD 21042
Liber: 01719 / Folio: 0644 / Lot: 58

BLUM LAWRENCE R
MOLLO-BLUM LISA J T/E
3039 PEEBLE BEACH DR
ELLICOTT CITY, MD 21042
Liber: 08598 / Folio: 0480
Lot: 57

OPEN SPACE
HOWARD COUNTY MARYLAND
DEPT OF RECREATION & PARKS
0 PEBBLE BEACH DR, MD
Liber: 01579/Folio: 0101
Lot: 56
4.20 AC

KEENAN MICHAEL C
KEENAN JILL H T/E
3031 PEEBLE BEACH DR
ELLICOTT CITY, MD 21042
Liber: 10186/Folio: 0094
Lot: 55

MERZA WILLIAM S
MERZA JOAN P
3027 PEBBLE BEACH DR
ELLICOTT CITY, MD 21042
Liber: 04338
Folio: 0636
Lot: 54

RITTER JOHN R
RITTER HELEN S
3023 PEBBLE BEACH D
ELLICOTT CITY,
MD 21042
Liber: 01774
Folio: 0013
Lot: 53

LITWACK SAMUEL A
LITWACK RONITE E T/E
10323 PINEHURST CT
ELLICOTT CITY, MD 21042
Liber: 04939 Folio: 0328 Lot: 91

BOARD OF COUNTY
COMMISSIONERS
HOWARD COUNTY
3430 COURT HOUSE DR
ELLICOTT CITY, MD 21043
Liber: 01522 / Folio: 0331

HOWARD COUNTY MARYLAND
DEPT RECREATION & PARKS
0 CONGRESSIONAL CT, MD
Liber: 01659 / Folio: 0163 / Lot: 92

PINEHURST COURT

MATCHLINE SEE SHEET 22 OF 27

LEGEND
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPERTY LINE
- WUS — WATERS OF THE US
- LOD — LIMIT OF DISTURBANCE
- PROPOSED 100 YEAR FLOODPLAIN
- EXISTING 100 YEAR FLOODPLAIN
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- STREAMBANK ZONE
- RIPARIAN TREE AND SHRUB
- TURFGRASS SEED ZONE
- PERIMETER SHADE PLANTING (BMP)
- MEADOW MIX (BMP)
- FREQUENTLY FLUCTUATING PLUG PLANTINGS (BMP)
- EMERGENT PLUG PLANTINGS (BMP)
- SUBMERGED PLUG PLANTINGS (BMP)

SCALE: 1" = 20'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 11/14/14

McCORMICK TAYLOR
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

STATE OF MARYLAND — AMY HRIBAR — 21701 — PROFESSIONAL ENGINEER

DES: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

LANDSCAPING PLAN

SCALE: 1" = 20'

SHEET 21 OF 27

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

11/14/14
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE

McCORMICK TAYLOR
509 South Exeter Street
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
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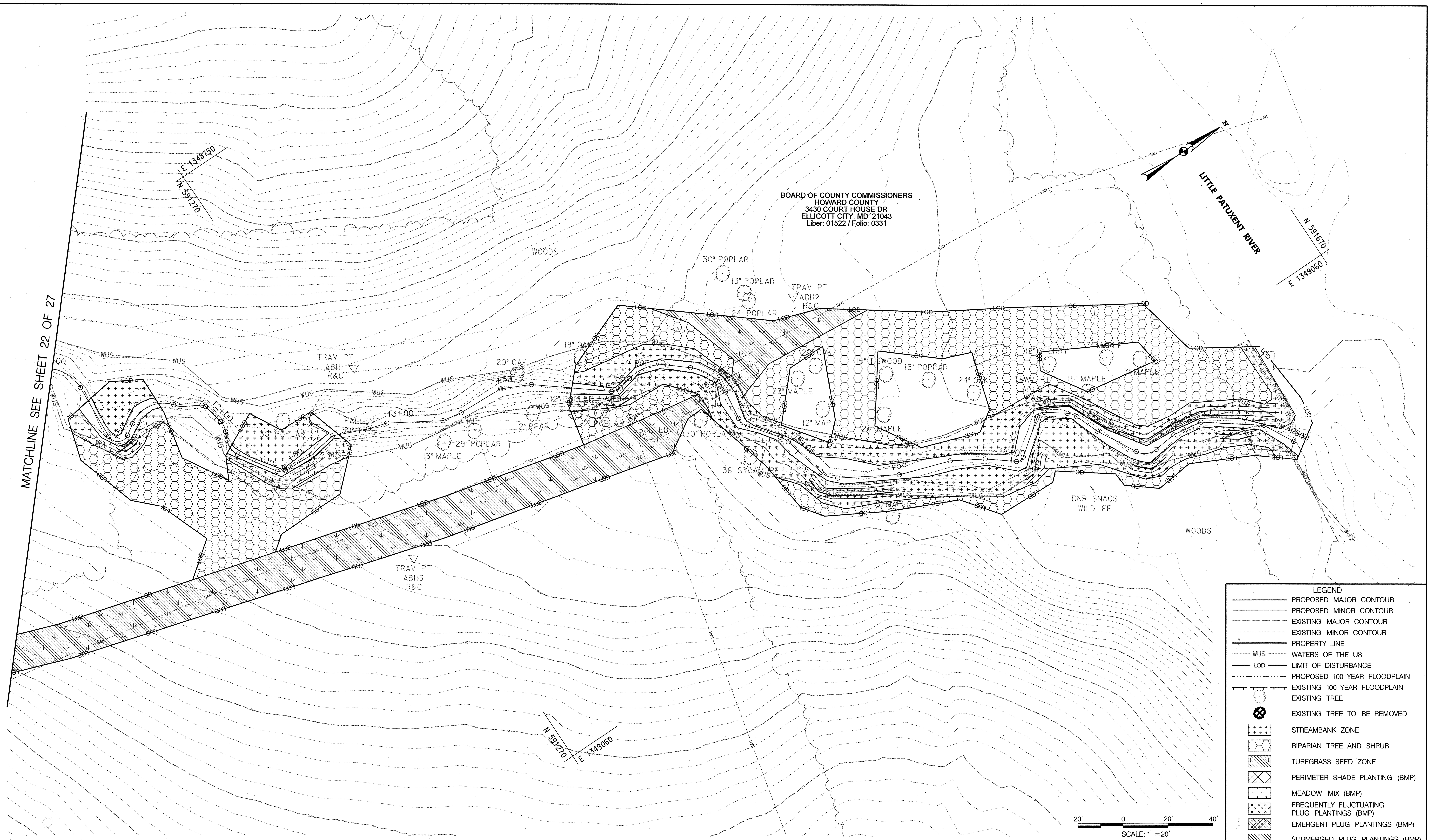
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

LANDSCAPING PLAN

SCALE
1" = 20'

SHEET
22 OF 27



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

11/14/14

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE

McCORMICK TAYLOR
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
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ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
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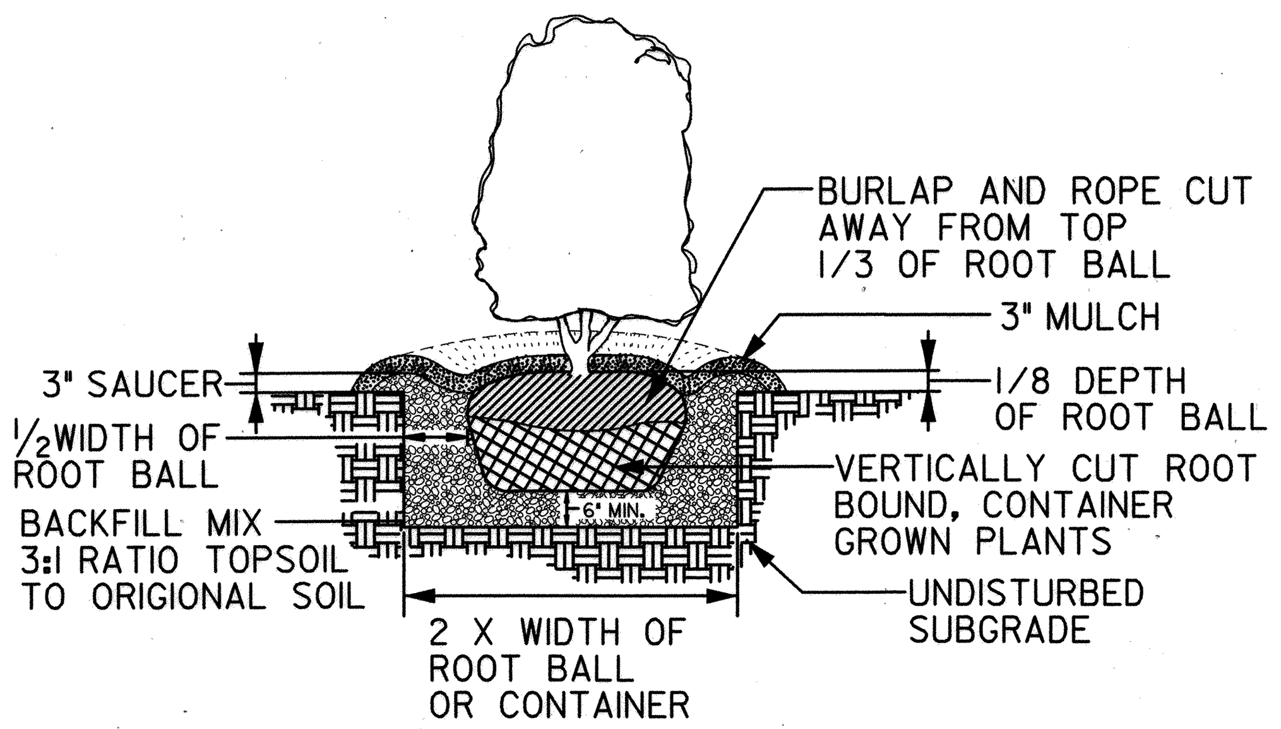
WAIVER PETITION WP-15-033

LANDSCAPING PLAN

SCALE 1" = 20'

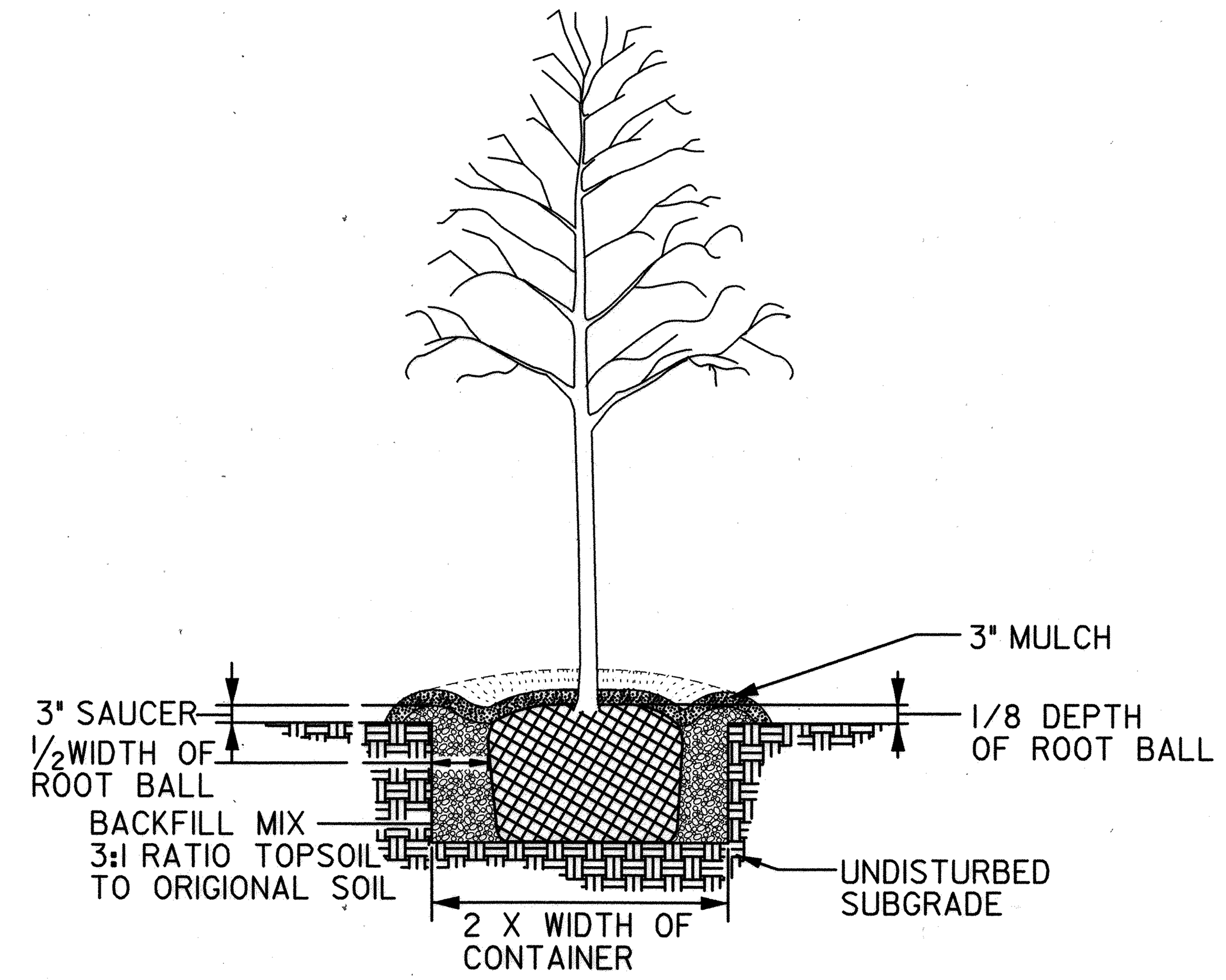
SHEET



SHRUB PLANTING DETAIL

B & B AND CONTAINER GROWN

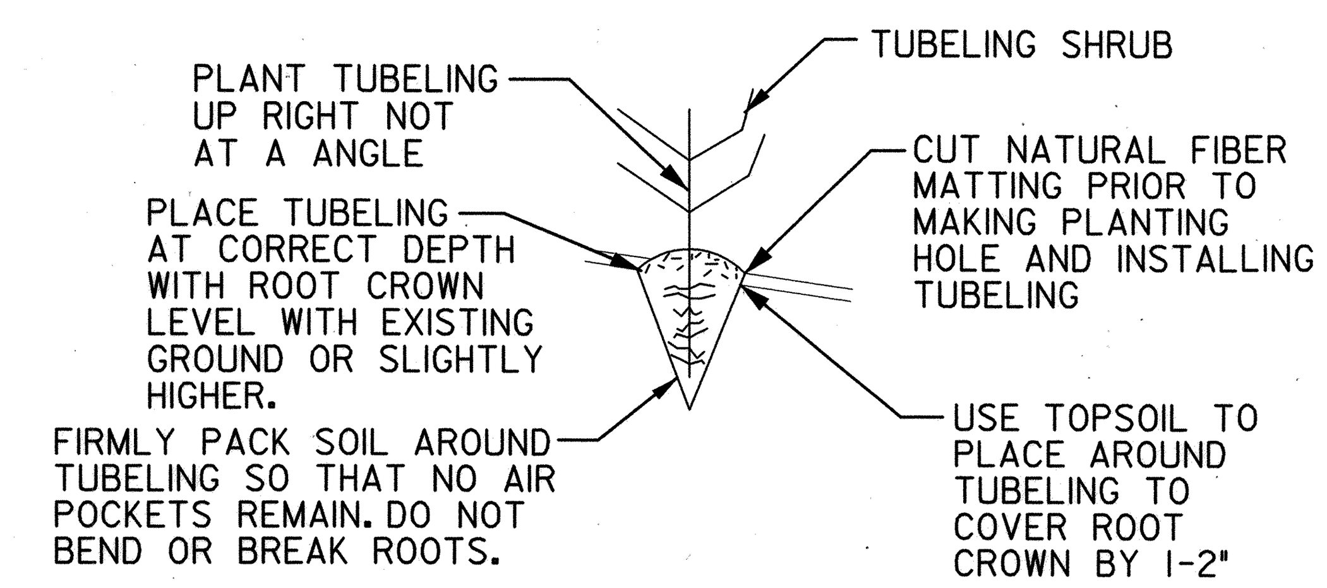
NOT TO SCALE



DECIDUOUS TREE PLANTING DETAIL

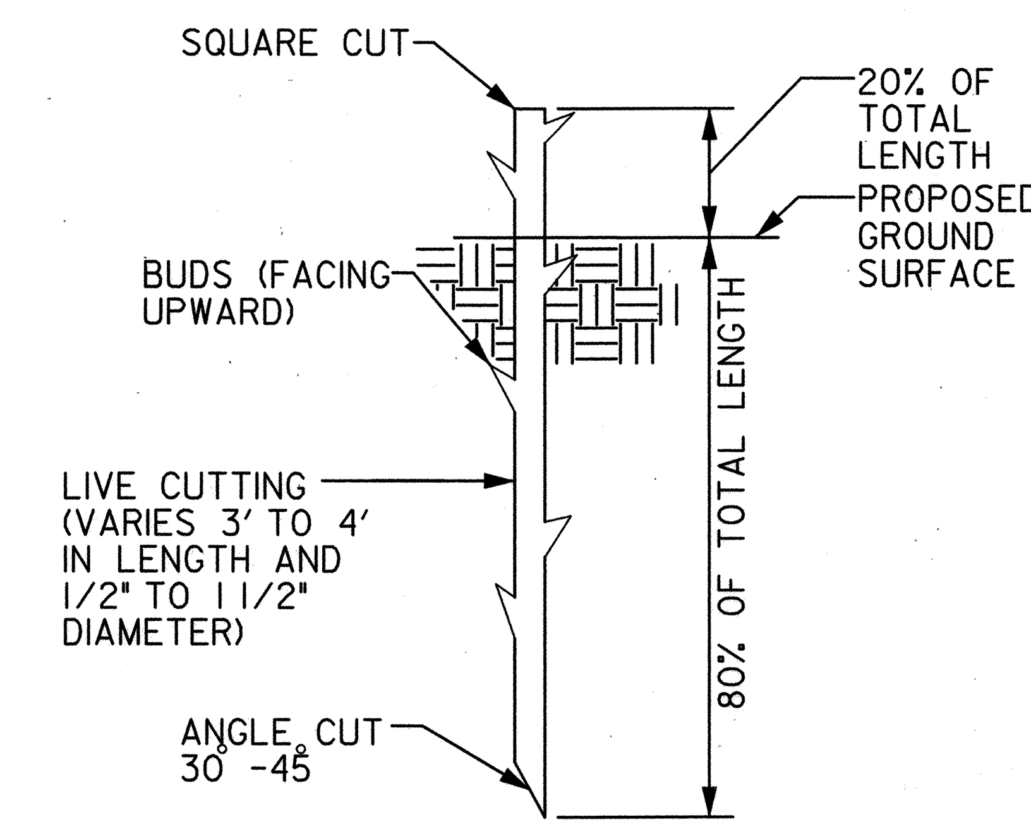
CONTAINER GROWN

NOT TO SCALE



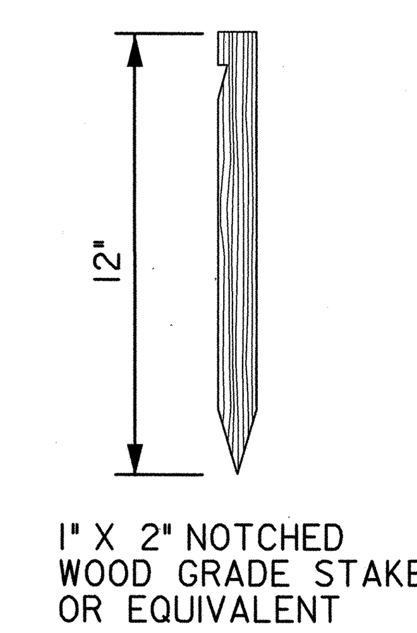
TUBELING DETAIL

NOT TO SCALE



LIVE STAKE

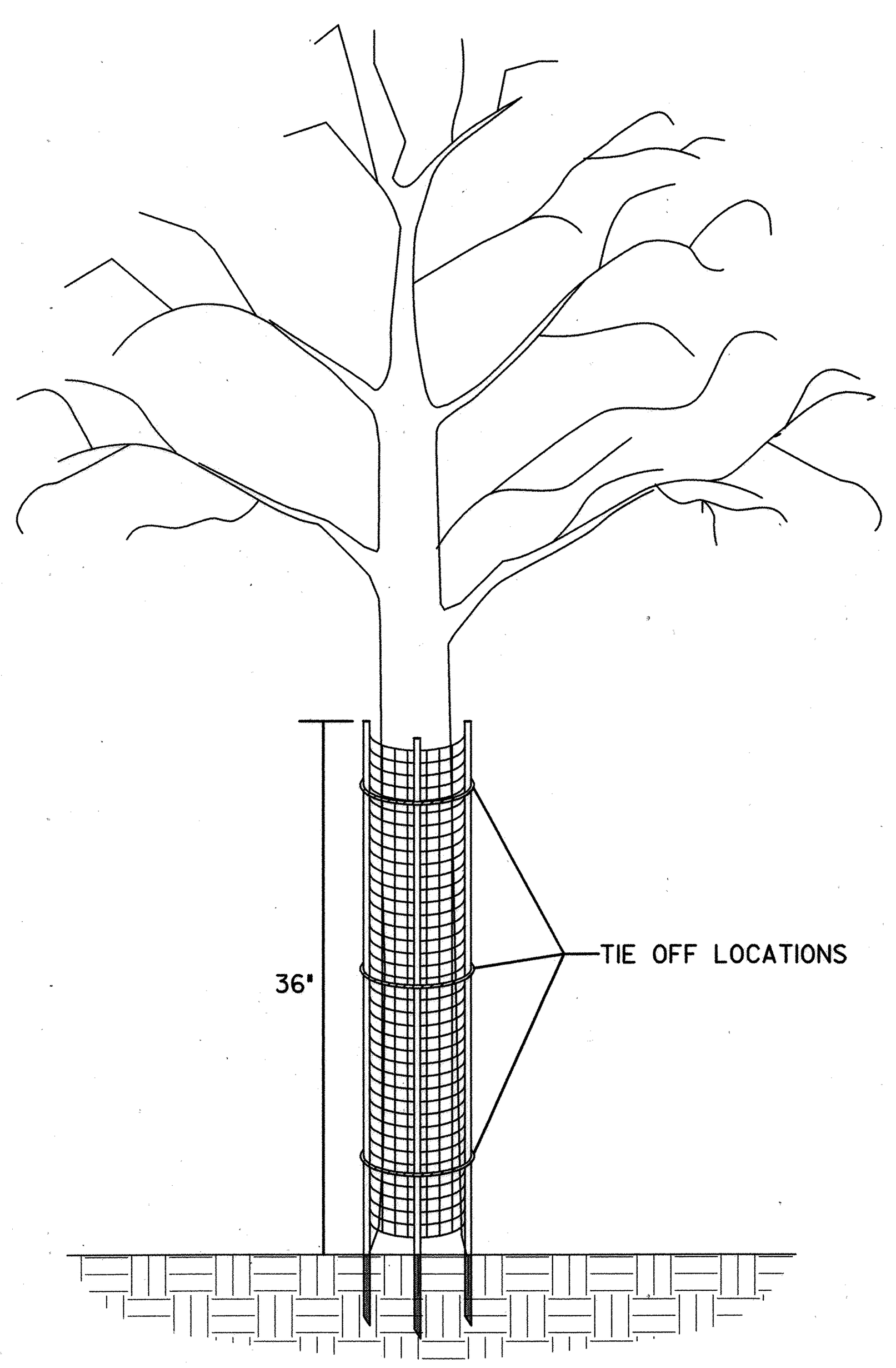
NOTE:
1. LIVE STAKES MUST BE INSTALLED WHILE DORMANT (LATE FALL TO EARLY SPRING). DO NOT ALLOW THEM TO DRY OUT.



1" X 2" NOTCHED WOOD GRADE STAKE OR EQUIVALENT

ANCHOR STAKE

NOT TO SCALE



INSTALLATION INSTRUCTIONS:

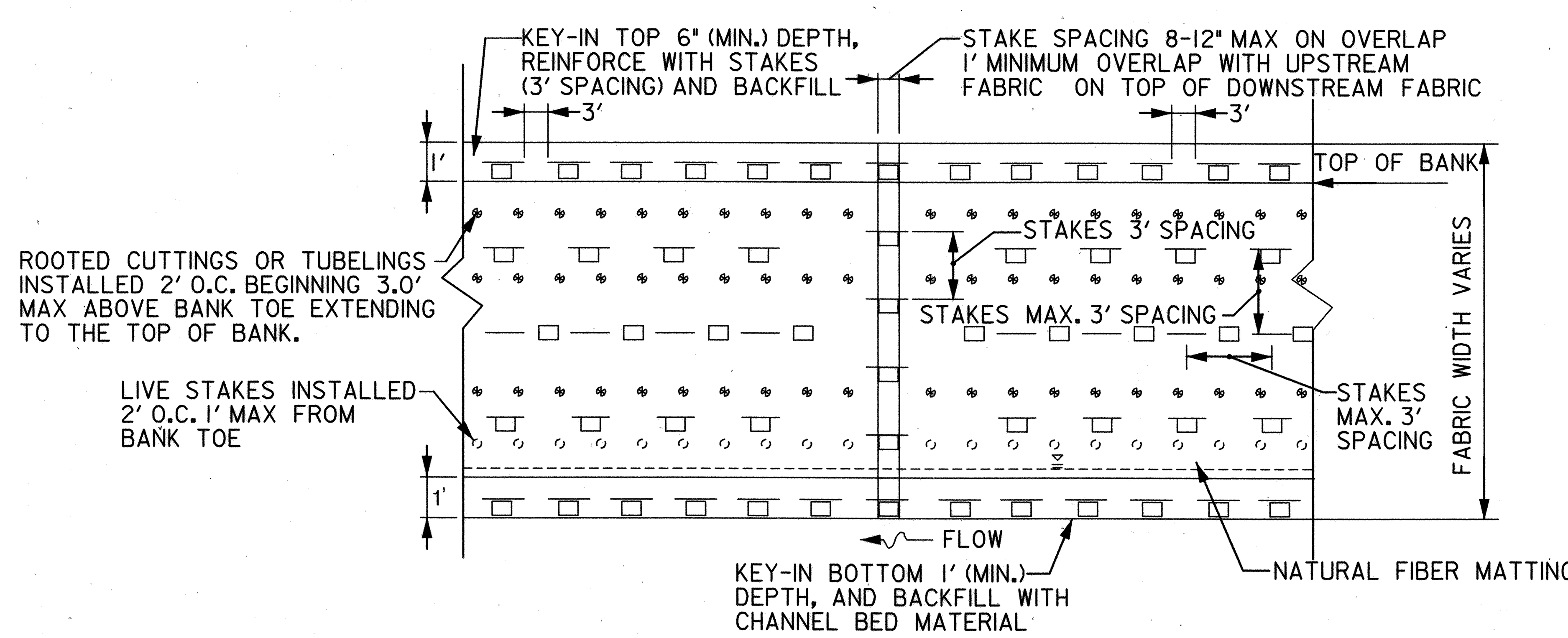
1. PLANT TREE ACCORDING TO STANDARD SPECIFICATIONS.
2. PLACE THE SHELTER AROUND THE TREE.
3. DRIVE LONGER STAKES INTO THE GROUND.
4. TIE-OFF ROPE ENDS AROUND TREE.

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.

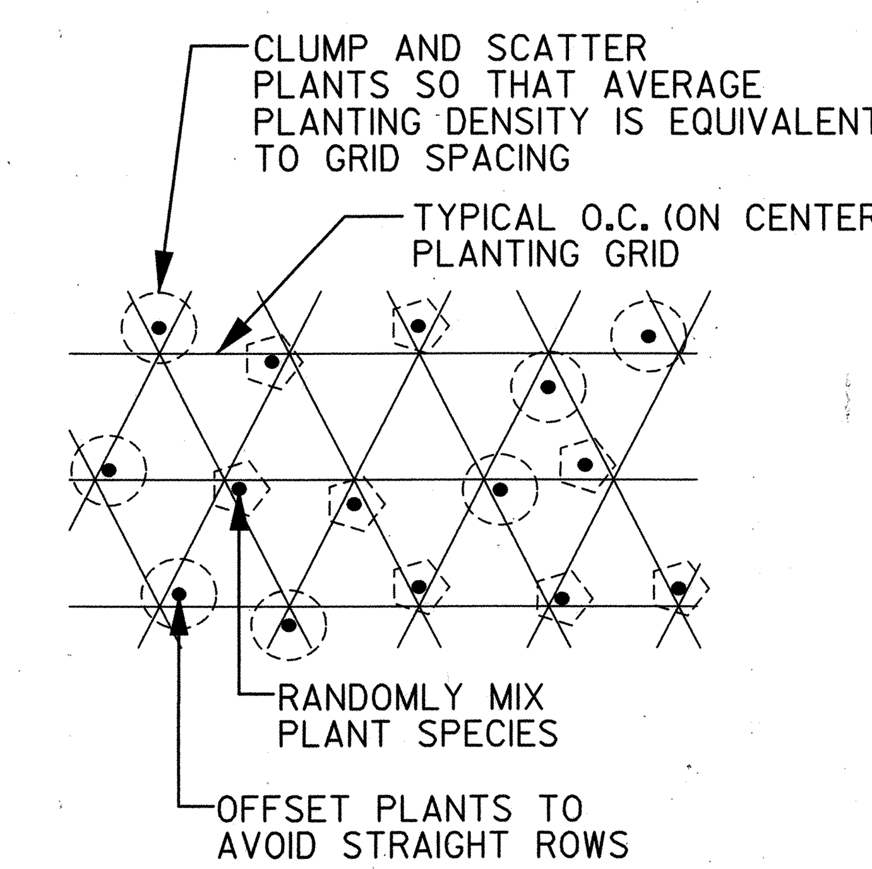
TREE SHELTER DETAIL

NOT TO SCALE



NATURAL FIBER MATTING – PLAN VIEW

NOT TO SCALE



RANDOM PLANTING PATTERN

NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

11/14/14

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE

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

STATE OF MARYLAND — AMY HRICKO — PROFESSIONAL ENGINEER — 32013

DES: MM, DF				
DRN: MR				
CHK: AH				
DATE: 11/13/14	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP-15-033

LANDSCAPING NOTES AND DETAILS

SCALE: NOT TO SCALE

SHEET 24 OF 27

Planting Schedule					
Zone	**Botanical Name**	**Common Name**	**Size**	**Comment**	**Quantity**
Streambank	*Cornus sericea*	Red Osier Dogwood	3'-4' Live Stake	Plant 2' O. C.	423
Streambank	*Viburnum dentatum*	Southern Arrowwood	3'-4' Live Stake	Plant 2' O. C.	423
Streambank	*Salix sericea*	Silky Willow	3'-4' Live Stake	Plant 2' O. C.	423
Streambank	*Cornus sericea*	Red Osier Dogwood	1" Dia. X 8-12" Deep Tubeling	Plant 2' O. C.	1324
Streambank	*Viburnum dentatum*	Southern Arrowwood	1" Dia. X 8-12" Deep Tubeling	Plant 2' O. C.	1324
Streambank	*Salix sericea*	Silky Willow	1" Dia. X 8-12" Deep Tubeling	Plant 2' O. C.	1324
Live Branch Cuttings	*Cornus sericea*	Red Osier Dogwood	0.5-2.5" Dia. X 4-5' HT	See Detail	65 LF
Live Branch Cuttings	*Viburnum dentatum*	Southern Arrowwood	0.5-2.5" Dia. X 4-5' HT	See Detail	65 LF
Live Branch Cuttings	*Salix sericea*	Silky Willow	0.5-2.5" Dia. X 4-5' HT	See Detail	65 LF
Riparian Tree & Shrub	*Cercis canadensis*	Eastern Redbud	5' HT, 3 GAL Cont.	Plant 12' O.C.	50
Riparian Tree & Shrub	*Quercus alba*	White Oak	5' HT, 3 GAL Cont.	Plant 12' O.C.	50
Riparian Tree & Shrub	*Platanus occidentalis*	American Sycamore	5' HT, 3 GAL Cont.	Plant 12' O.C.	50
Riparian Tree & Shrub	*Acer saccharum*	Sugar Maple	5' HT, 3 GAL Cont.	Plant 12' O.C.	50
Riparian Tree & Shrub	*Amelanchier arborea*	Serviceberry	2' HT, 3 GAL. Cont.	Plant 8' O.C.	149
Riparian Tree & Shrub	*Cornus amomum*	Silky Dogwood	2' HT, 3 GAL. Cont.	Plant 8' O.C.	149
Riparian Tree & Shrub	*Lindera benzoin*	Spice Bush	2' HT, 3 GAL. Cont.	Plant 8' O.C.	149

Riparian Seed Mix					
Zone	**Botanical Name**	**Common Name**	**Percent Mix**	**Seeding Rate**	**Quantity (lbs.)**
Streambank, Riparian	*Elymus virginicus*	Virginia Wildrye	5	30 lbs per acre	3
Streambank, Riparian	*Agrostis alba*	Redtop	5	30 lbs per acre	3
Streambank, Riparian	*Poa compressa*	Canada Bluegrass	5	30 lbs per acre	3
Streambank, Riparian	*Festuca arundinacea*	Trident tall Fescue	10	30 lbs per acre	5
Streambank, Riparian	*Sorghastrum nutans*	Indian Grass	5	30 lbs per acre	3
Streambank, Riparian	*Lolium multiflorum*	Annual Ryegrass	25	30 lbs per acre	14
Streambank, Riparian	*Elymus sp.*	Saint Perennial Ryegrass	20	30 lbs per acre	11
Streambank, Riparian	*Festuca rubra*	Creeping Red Fescue	25	30 lbs per acre	14
			TOTAL MIX		54

Turfgrass Seed Mix					
Zone	**Botanical Name**	**Common Name**	**Percent Mix**	**Seeding Rate**	**Quantity (lbs.)**
Turfgrass	*Poa pratengis*	Kentucky Blue Grass	33	50 lbs per acre	7
Turfgrass	*Lolium perenne*	Perennial Rye Grass	33	50 lbs per acre	7
Turfgrass	*Schedonoris phoenix*	Tall Fescue	34	50 lbs per acre	7
			TOTAL MIX		21

Meadow Mix		
Percent Mix	**Quantity (lbs.)**	**Species**
10	1.0	Agrostis alba / Redtop
10	1.0	Andropogon gerardii / Big Bluestem
10	1.0	Elymus canadensis / Wild Rye
10	1.0	Festuca rubra / Red Fescue
50	4.7	Lolium multiflorum / Annual Rye
10	1.0	Panicum virgatum / Switchgrass
100	9.7	Total

NOTE: APPLY 40 LBS. PER ACRE (TOTAL 22,742 SF)

BMP PLANTING SCHEDULE			
FREQUENTLY FLUCTUATING ZONE PLUG PLANTINGS -455 SF			
KEY	% FREQUENCY	SPECIES	QUANTITY
	40	Iris versicolor / Blue Flad Iris	191
	15	Lobelia cardinalis / Cardinal Flower	67
	25	Panicum virgatum / Switchgrass	115
	10	Verbena hastata / Blue Vervain	41
	10	Vernonia noveboracensis / New York Ironweed	41
NOTES:	1. SPACE 12" ON CENTER. 2. RANDOMLY MIX GROUPINGS OF 10 TO 50 SPECIES TOGETHER.		
EMERGENTS PLUG PLANTINGS - 2,376 SF			
KEY	% FREQUENCY	SPECIES	QUANTITY
	15	Acorus calamus / Sweet Flag	356
	25	Juncus effusus / Soft Rush	594
	15	Peltandra virginica / Arrow Arrum	356
	20	Pontederia cordata / Pickerelweed	476
	25	Scirpus pungens / Swordgrass	594
NOTES:	1. SPACE 12" ON CENTER. 2. RANDOMLY MIX GROUPINGS OF 5 TO 15 SPECIES TOGETHER.		
SUBMERGED PLUG PLANTINGS - 2,048 SF			
KEY	% FREQUENCY	SPECIES	QUANTITY
	30	Elodea canadensis / Waterweed	614
	40	Nuphar luteum / Spatterdock	820
	30	Sagittaria latifolia / Duck Potato	614
NOTES:	1. SPACE 12" ON CENTER. 2. RANDOMLY MIX GROUPINGS OF 5 TO 15 SPECIES TOGETHER.		

BMP AND SURROUNDING PLANTING SCHEDULE 1,305 SF				
MAJOR DECIDUOUS TREES				
SYMBOL	SPECIES	SPACING	SIZE	QUANTITY
AS	Acer saccharum 'Legacy' / Sugar Maple	20' O.C.	1.5" CAL, B&B	1
FLOWERING TREES				
SYMBOL	SPECIES	SPACING	SIZE	QUANTITY
AC	Amelanchier canadensis /Serviceberry	15' O.C.	1.5" CAL, CG	2
EVERGREEN TREES				
SYMBOL	SPECIES	SPACING	SIZE	QUANTITY
JV	Juniperus virginiana / Eastern Red Cedar	15' O.C.	5'HT, CG	2
SHRUBS				
SYMBOL	SPECIES	SPACING	SIZE	QUANTITY
CA	Clethra alnifolia 'Ruby Spice' / Summersweet	5' O.C.	3'HT, CG	7
VD	Viburnum dentatum / Arrowwood Viburnum	5' O.C.	3'HT, CG	3

BMP PLANTING AREAS		
SYMBOL	AREA (SF)	DESCRIPTION
	2,808	PERIMETER SHADE PLANTING
	22,742	MEADOW MIX
	455	FREQUENTLY FLUCTUATING ZONE PLUG PLANTINGS (ELEVATIONS 412.0 TO 412.5)
	2,376	EMERGENTS PLUG PLANTINGS (ELEVATIONS 411.5 TO 412.0)
	2,048	SUBMERGED PLUG PLANTINGS (ELEVATIONS 410.5 TO 411.5)

BMP PLANTING CALCULATIONS	
PERIMETER SHADE AREA = 2,808 SF	
MAJOR DECIDUOUS TREES	1 TREES
FLOWERING TREES	2 TREES
EVERGREEN TREES	2 TREES
SHRUBS	10 SHRUBS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES 11/14/14 DATE

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Howard County MARYLAND
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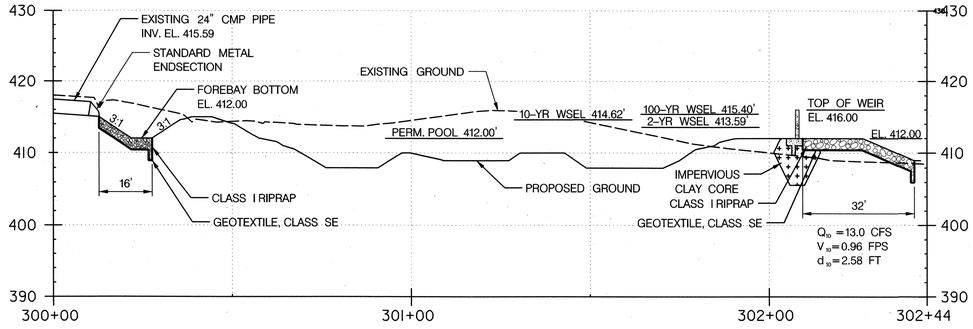
HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
PINEHURST COURT STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D–1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 19
WAIVER PETITION WP–15–033

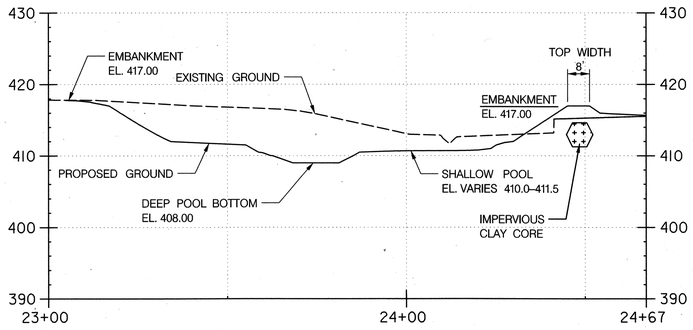
LANDSCAPING NOTES AND DETAILS

SCALE NOT TO SCALE



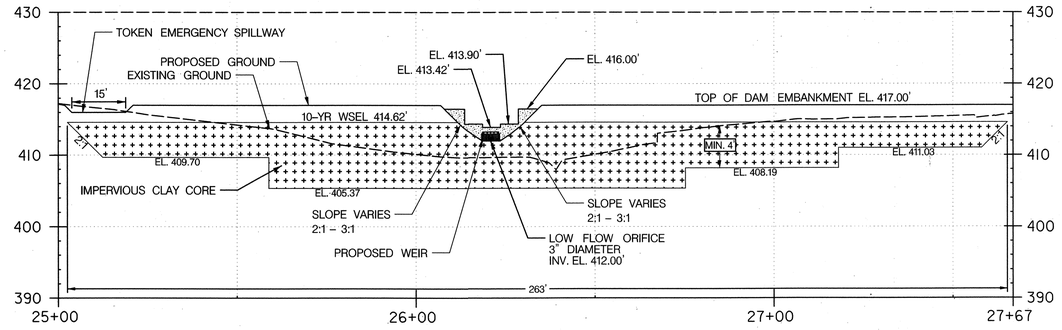
BMP FLOW LINE A-A

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



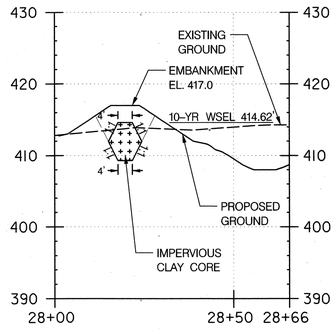
EMBANKMENT PROFILE C-C

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



BMP CROSS SECTION B-B

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



EMBANKMENT CROSS SECTION D-D

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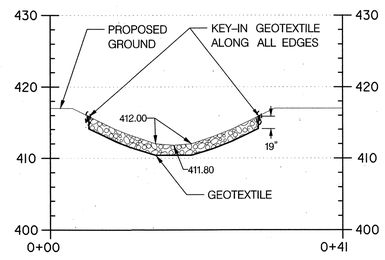
VERTICAL SCALE: 1" = 4'



RIPRAP OUTFALL CROSS SECTION E-E

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND — MM HOWARD — 32013 — PROFESSIONAL ENGINEER

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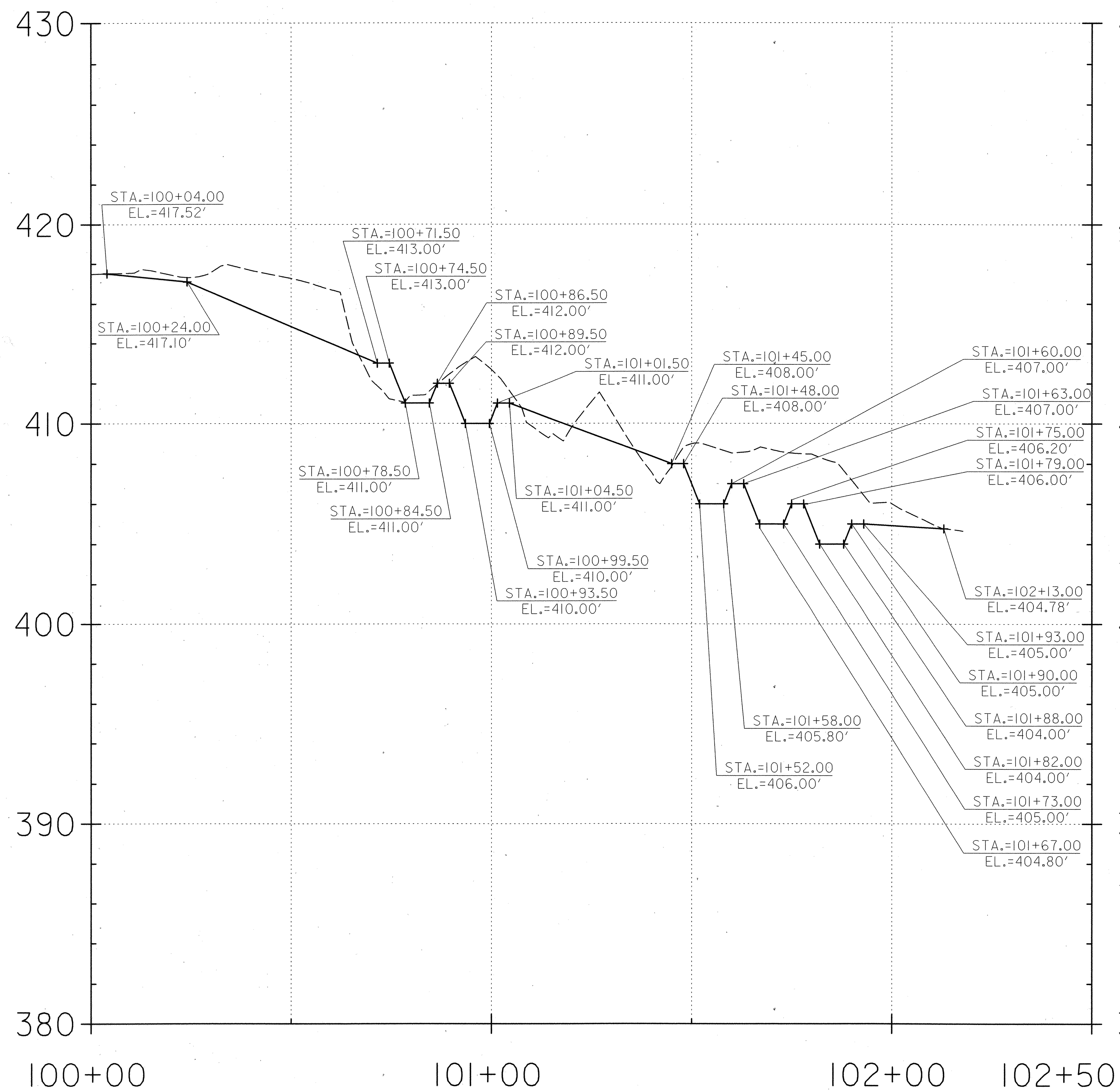
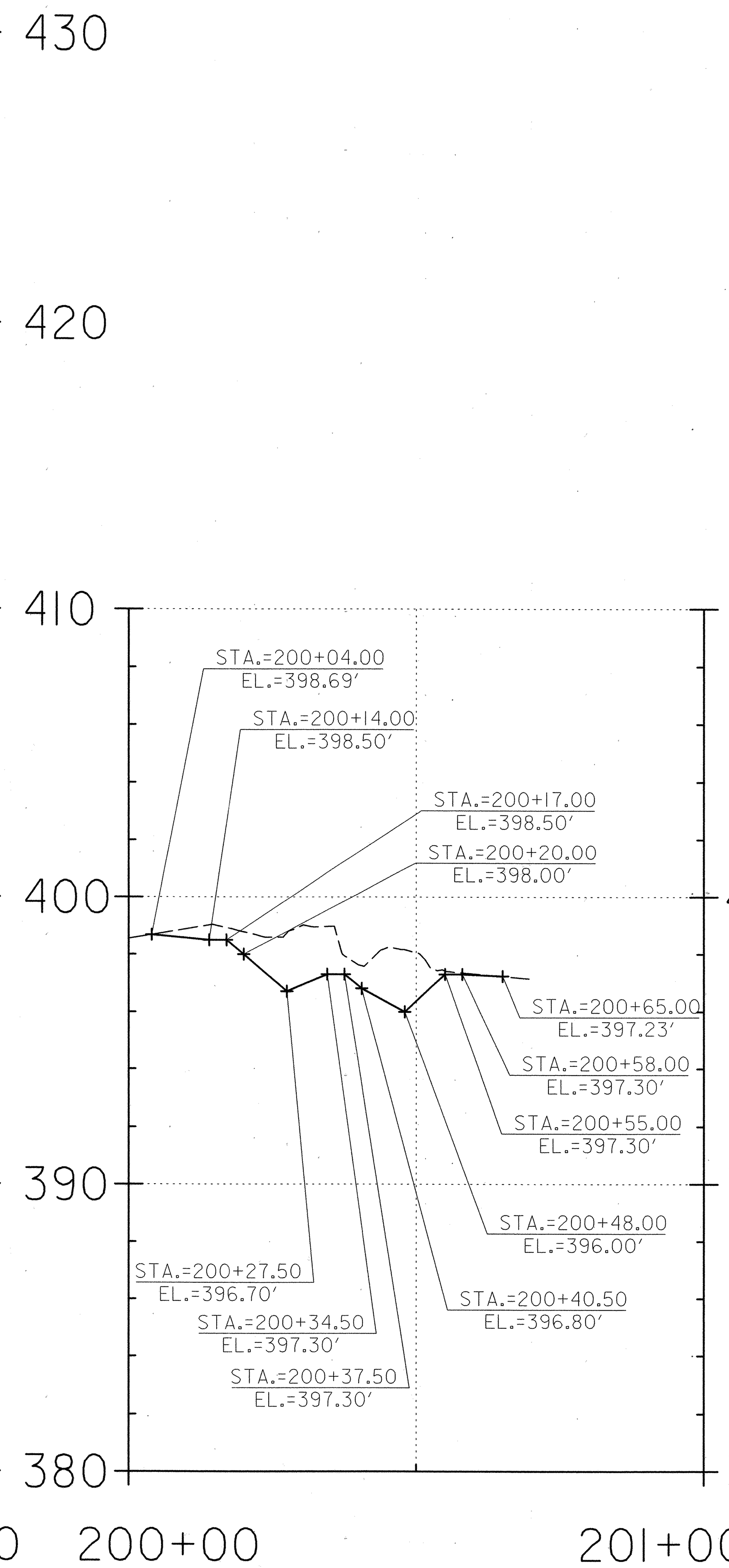
BMP PROFILE SHEET

SCALE: AS SHOWN

SHEET: 26 OF 27



RELOCATE 1 PROFILE



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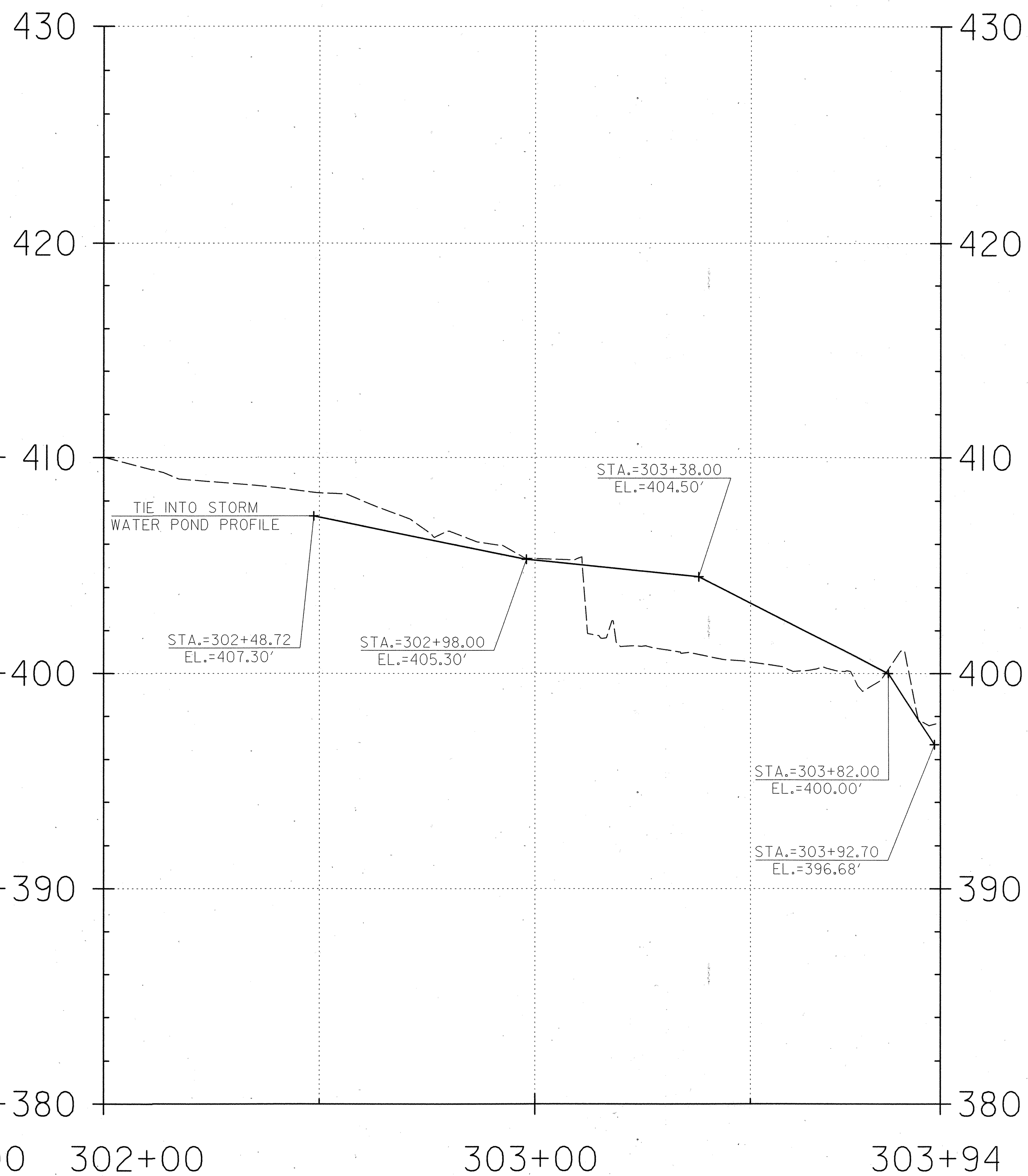

TRIBUTARY PROFILE

SCALE
HORIZONTAL: 1" = VERTICAL: 1"

LEGEND
EXISTING
PROPOSED

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

11/14/14
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STREAM PROFILE SHEET

SCALE: AS SHOWN

SHEET 27 OF 27