

HOWARD COUNTY

Capital Project #D-1158

Tiller Drive

Stream Rehabilitation Project

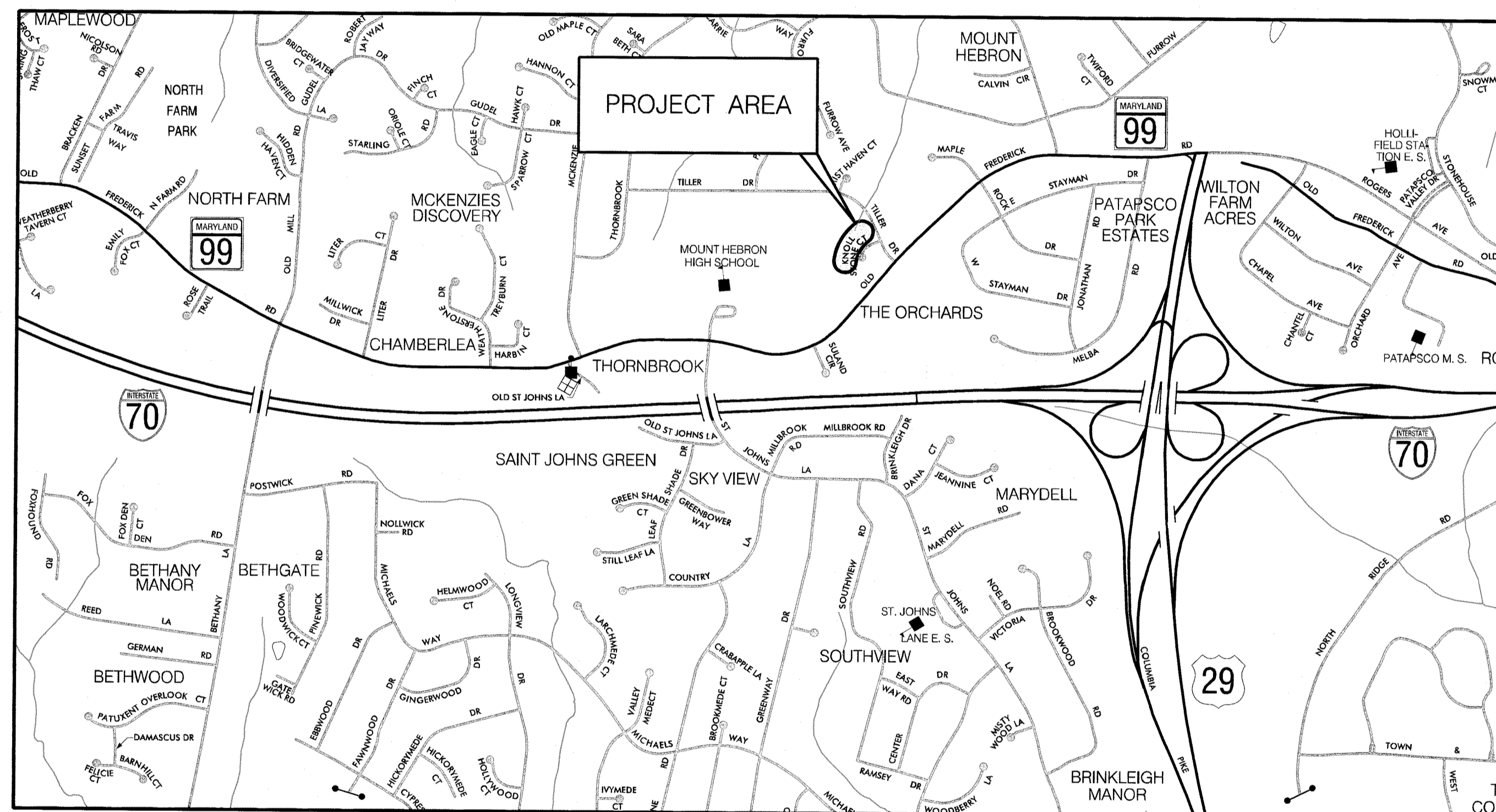
Storm Water Management Division
Bureau Of Environmental Services

GENERAL NOTES

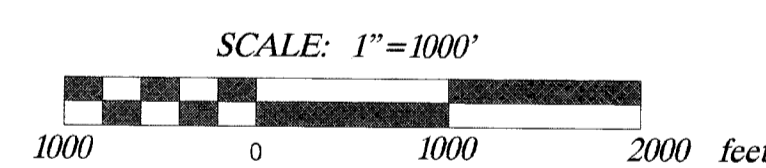
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MDSA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE.
- THIS PLAN IS PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS /BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- SURVEY OF THIS SITE WAS PERFORMED BY AB CONSULTANTS, INC-APRIL/MAY 2012.
- THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. BENCHMARKS SHOWN HEREON WERE PROVIDED BY AB CONSULTANTS INC.
- WATERS OF THE US WERE DELINEATED BY McCORMICK TAYLOR JUNE 2012.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND McCORMICK TAYLOR DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION.
- THE EXISTING INFORMATION SHOWN ON THESE PLANS WAS TAKEN FROM THE BEST AVAILABLE SOURCES AND SHALL BE VERIFIED BEFORE STARTING CONSTRUCTION. HOWARD COUNTY DOES NOT GUARANTEE THE COMPLETENESS OR THE CORRECTNESS OF THE SHOWN INFORMATION.
- THE CONTRACTORS SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'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.
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY McCORMICK TAYLOR IMMEDIATELY TO RESOLVE THE SITUATION.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- SITE DEVELOPMENT DETAILS ARE REFERENCED FROM THE AS-BUILT PLANS FOR TBD (TBD).
- A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT. (TRACKING NUMBER 201360740 /13-NT-3151)
- STORMWATER MANAGEMENT IS NOT REQUIRED FOR THIS PROJECT SINCE THE PROJECT WILL NOT ADD IMPERVIOUS AREA.
- THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS (DPW) HAS SATISFIED THE FOREST CONSERVATION OBLIGATION OF 0.14 ACRES OF REFORESTATION FOR THIS PLAN WITH A FEE-IN-LIEU PAYMENT OF \$4,573.80 MADE TO THE HOWARD COUNTY FOREST CONSERVATION FUND.
- AS OF OCTOBER 29, 2013, THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING APPROVED THE REQUEST TO WAIVE SECTION 16.155(a)(1)(i), SECTION 16.116, SECTION 16.1201(n) AND SECTION 16.1202(b)(1)(i) FOR THIS PROJECT. WAIVER PETITION WP-14-024 WAS APPROVED OCTOBER 29, 2013 BY THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING FOR THIS PROJECT, SUBJECT TO THE FOLLOWING CONDITIONS:
 - THE PETITIONER SHALL OBTAIN AUTHORIZATION FROM THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND THE U.S. ARMY CORPS OF ENGINEERS FOR ACTIVITIES IN REGULATED AREAS ASSOCIATED WITH THE TILLER DRIVE STREAM RESTORATION PROJECT. A COPY OF THAT AUTHORIZATION WILL BE PROVIDED TO THE DEPARTMENT OF PLANNING AND ZONING FOR THE WAIVER FILE.
 - THE APPLICANT SHALL PROVIDE WRITTEN PROOF THAT \$4,573.80 HAS BEEN TRANSFERRED FROM CAPITAL PROJECT D-1158 TO THE FOREST CONSERVATION FUND (SAP ACCT 2060000000-3000-3000000000-PWP/W0000000000-432521) AS FEE-IN-LIEU PAYMENT FOR A TOTAL OF 0.14 ACRES OF REQUIRED REFORESTATION IN ASSOCIATION WITH THE MOUNT HEBRON TILLER DRIVE STREAM RESTORATION PROJECT.
 - DISTURBANCE IS LIMITED TO 200± LINEAR FEET OF STREAM WITHIN THE LOD AS DEPICTED ON THE WAIVER EXHIBIT AND AS DESCRIBED IN THE JUSTIFICATION PREPARED BY RICHARD POWELL, RECEIVED ON OCTOBER 23, 2013.
 - PROVIDE WRITTEN VERIFICATION OF PERMITTED RIGHT-OF-ENTRY FROM THE OWNERS OF LOT 12 (WILLIAM AND BETTY MOORE) LOCATED AT 9375 TILLER DRIVE (TAX MAP 17, PARCEL 688, LOT12).
 - SUBMIT 2 FOLDED, PAPER COPIES (ONE TO DLD AND ONE TO DED) OF REVISED SHEET 1 OF "HOWARD COUNTY CAPITAL PROJECT #D-1158, TILLER DRIVE STREAM REHABILITATION PROJECT" TO REFLECT THE FOLLOWING:
 - UPDATE/CORRECT GENERAL NOTE #17 ON SHEET 1 TO ADDRESS WP-14-024. INCLUDE APPLICABLE SECTION NUMBERS, DATE OF APPROVAL AND LIST OUT ALL CONDITIONS.
 - ADD A GENERAL NOTE TO SHEET 1 TO READ AS FOLLOWS: "THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS (DPW) HAS SATISFIED THE FOREST CONSERVATION OBLIGATION OF 0.14 ACRES OF REFORESTATION FOR THIS PLAN WITH A FEE-IN-LIEU PAYMENT OF \$4,573.80 MADE TO THE HOWARD COUNTY FOREST CONSERVATION FUND."

INDEX OF SHEETS	
SHEET NO.	TITLE
1	TITLE SHEET
2	GEOMETRY SHEET
3	SITE PLAN
4-5	STREAM STABILIZATION DETAILS
6	EROSION AND SEDIMENT CONTROL PLAN
7	EROSION AND SEDIMENT CONTROL NOTES
8	EROSION AND SEDIMENT CONTROL DETAILS
9	LANDSCAPE PLAN
10	LANDSCAPE NOTES AND DETAILS
11	PROFILE SHEET

LEGEND	
PROPOSED MEDIAN BARRIER	
ELECTRICAL HAND BOX - SIGNALS	
FLOW LINE	
STATE, COUNTY OR CITY LINES	
PROPOSED TRAFFIC BARRIER	
EXISTING TRAFFIC BARRIER	
PROPOSED FENCE LINE	
EXISTING FENCE LINE	
RIGHT OF WAY LINE	
EXISTING ROADWAY	
BASE OR SURVEY LINE	
TRAVERSE POINT	
APPROXIMATE LIMITS OF CUT AND/OR FILL	
PROPOSED MAJOR CONTOUR	
PROPOSED MINOR CONTOUR	
LIMIT OF DISTURBANCE	
EXISTING MAJOR CONTOURS	
EXISTING MINOR CONTOURS	
EXISTING PIPE/CULVERT	
EXISTING DROP INLET	
WETLAND	
WATERS OF THE US	
HEDGE /TREE LINE	
BUSH /TREE	
CONIFEROUS TREE	
LIGHT POLE	



HORIZONTAL DATUM	NAD 83 /91
VERTICAL DATUM	NAVD 88



PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 25819, EXPIRATION DATE: 2 / 5 / 2015

DESIGN CERTIFICATION

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

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.

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.

[Signature]
HOWARD SOIL CONSERVATION DISTRICT
DATE: 4/14/13

11-8-13
DATE
[Signature]
DESIGNER'S SIGNATURE
MARYLAND REGISTRATION NUMBER: 25819
CHRIS BROOKS P.E.
PRINTED NAME

11/8/13
DATE
[Signature]
OWNER /DEVELOPER SIGNATURE
Mark S. Richmond, Act. Division Chief
PRINTED NAME AND TITLE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DIRECTOR OF PUBLIC WORKS: *[Signature]* DATE: 4/13/13
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES: *[Signature]* DATE: 4/13/13

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

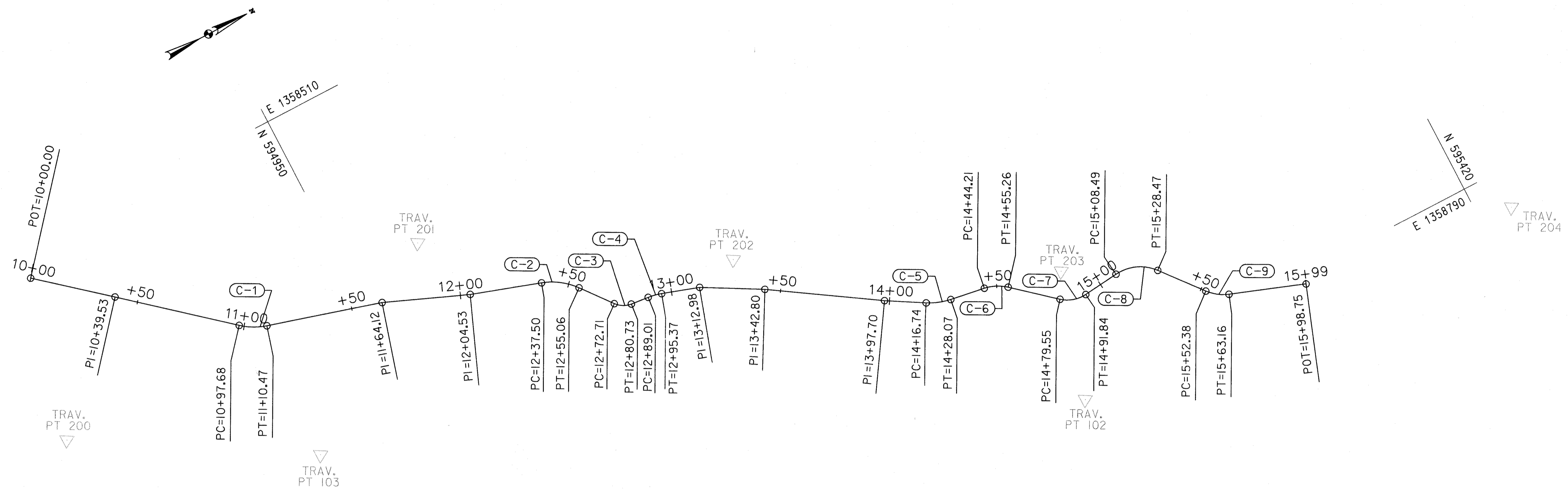
Howard County
MARYLAND
Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
(410) 313-6444



DES:	LN	LEN	AS-BUILT	4/1/14
DRN:	MR			
CHK:	CB			
DATE:	11/7/13			
BY	NO.	REVISION	DATE	

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
TILLER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 5, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 10, ZONING R-20
PARCEL NO. 0688, LOT NO. 8,11,12,
WAIVER PETITION WP-14-024
TITLE SHEET
SCALE: AS SHOWN
SHEET 1 OF 11

TRAV. PT 104

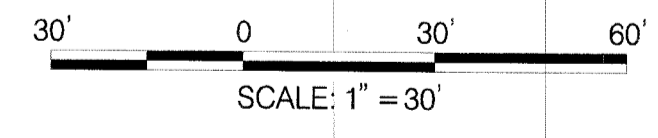


CURVE DATA									
CURVE NO.	Δ	Dc	R	T	L	E	CENTER OF CURVE		
							NORTHING	EASTING	
C-1	24°25'25.6091"	190°59'09.3541"	30.00'	6.49'	12.79'	0.69	594914.9507	1358563.3598	
C-2	33°32'32.6022"	190°59'09.3541"	30.00'	9.04'	17.56'	1.33	595017.3131	1358661.3358	
C-3	45°55'39.0369"	572°57'28.0625"	10.00'	4.24'	8.02'	0.86	595059.6781	1358650.5279	
C-4	12°09'43.3940"	190°59'09.3541"	30.00'	3.20'	6.37'	0.17	595063.7663	1358691.1704	
C-5	21°38'10.6353"	190°59'09.3541"	30.00'	5.73'	11.33'	0.54	595193.5601	1358696.4474	
C-6	31°38'54.7222"	286°28'44.0312"	20.00'	5.67'	11.05'	0.79	595201.7225	1358748.3528	
C-7	46°57'18.4991"	381°58'18.7084"	15.00'	6.52'	12.29'	1.35	595242.9405	1358737.5988	
C-8	57°14'28.9153"	286°28'44.0312"	20.00'	10.91'	19.98'	2.78	595263.3456	1358770.5504	
C-9	30°53'55.3139"	286°28'44.0312"	20.00'	5.53'	10.79'	0.75	595309.4651	1358763.8842	

TRAVERSE CONTROL COORDINATES			
POINT	NORTHING	EASTING	ELEVATION
100	594,926.0149	1,359,306.8720	450.98'
101	595,314.9923	1,359,126.2991	438.23'
102	595,222.1064	1,358,794.8178	431.94'
103	594,900.9534	1,358,655.5698	443.15'
104	594,772.4293	1,358,360.6975	459.85'
105	594,511.9898	1,358,603.6301	461.71'
106	594,159.2543	1,358,233.4951	464.61'
200	594,801.4896	1,358,595.6814	448.29'
201	594,985.1367	1,358,590.5371	438.47'
202	595,109.3776	1,358,663.9758	434.22'
203	595,239.5054	1,358,737.8101	428.29'
204	595,435.2819	1,358,807.3422	431.99'
205	595083.6361	1358864.545	444.7537

BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
TILLER DRIVE	POB =100	594821.1670	1358522.6164	10+00.00	N 40°20'15.2910" E	
	PI	594851.2961	1358548.2018	10+39.53	N 40°40'58.9793" E	
	PC =101	594895.3945	1358586.1096	10+97.68	N 40°40'58.9746" E	
	PI	594900.3181	1358590.3421	11+04.17	N 16°15'33.3657" E	
	CC =102	594914.9507	1358563.3598			30.00'
	PT=103	594906.5511	1358592.1599	11+10.47	N 16°15'33.3591" E	
	PI	594958.0548	1358607.1809	11+64.12	N 22°15'27.9531" E	
	PI	594995.4593	1358622.4894	12+04.53	N 18°20'03.5881" E	
	PC =104	595026.7498	1358632.8586	12+37.50	N 18°20'02.6743" E	
	PI	595035.3320	1358635.7025	12+46.54	N 51°52'35.2764" E	
	CC =105	595017.3131	1358661.3358			30.00'
	PT=106	595040.9136	1358642.8150	12+55.06	N 51°52'33.6392" E	
	PC =107	595051.8114	1358656.7015	12+72.71	N 51°52'33.6392" E	
	PI	595054.4273	1358660.0349	12+76.95	N 5°56'54.6022" E	
	CC =108	595059.6781	1358650.5279			10.00'
	PT=109	595058.6418	1358660.4740	12+80.73	N 5°56'54.6022" E	
	PC =110	595066.8754	1358661.3319	12+89.01	N 5°56'54.6022" E	
	PI	595070.0542	1358661.6631	12+92.20	N 18°06'37.9961" E	
	CC =111	595063.7663	1358691.1704			30.00'
	PT=112	595073.0919	1358662.6566	12+95.37	N 18°06'37.9961" E	
	PI	595089.8260	1358668.1296	13+12.98	N 29°20'26.8921" E	
	PI	595115.8198	1358682.7410	13+42.80	N 32°55'22.1802" E	

BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
TILLER DRIVE	PI	595161.9034	1358712.5798	13+97.70	N 30°35'55.4941" E	
	PC =113	595178.2894	1358722.2700	14+16.74	N 30°35'55.4883" E	
	PI	595183.2238	1358725.1881	14+22.47	N 8°57'44.8531" E	
	CC =114	595193.5601	1358696.4474			30.00'
	PT=115	595188.8864	1358726.0811	14+28.07	N 8°57'44.8597" E	
	PC =116	595204.8381	1358728.5969	14+44.21	N 8°57'43.1149" E	
	PI	595210.4375	1358729.4800	14+49.88	N 40°36'37.8372" E	
	CC =117	595201.7225	1358748.3528			20.00'
	PT=118	595214.7406	1358733.1695	14+55.26	N 40°37'35.2912" E	
	PC =119	595233.1737	1358748.9834	14+79.55	N 40°37'35.2912" E	
	PI	595238.1185	1358753.2256	14+86.06	N 6°19'43.2080" W	
	CC =120	595242.9405	1358737.5988			15.00'
	PT=121	595244.5939	1358752.5074	14+91.84	N 6°19'43.2080" W	
	PC =122	595261.1408	1358750.6723	15+08.49	N 6°19'44.4684" W	
	PI	595271.9880	1358749.4691	15+19.40	N 50°54'44.4467" E	
	CC =123	595263.3456	1358770.5504			20.00'
	PT=124	595278.8690	1358757.9399	15+28.47	N 50°54'42.5408" E	
	PC =125	595293.9415	1358776.4945	15+52.38	N 50°54'42.5408" E	
	PI	595297.4267	1358780.7848	15+57.90	N 20°00'47.2269" E	
	CC =126	595309.4651	1358763.8842			20.00'
	PT=127	595302.6202	1358782.6764	15+63.16	N 20°00'47.2304" E	
	POE =128	595336.0577	1358794.8553	15+98.75		



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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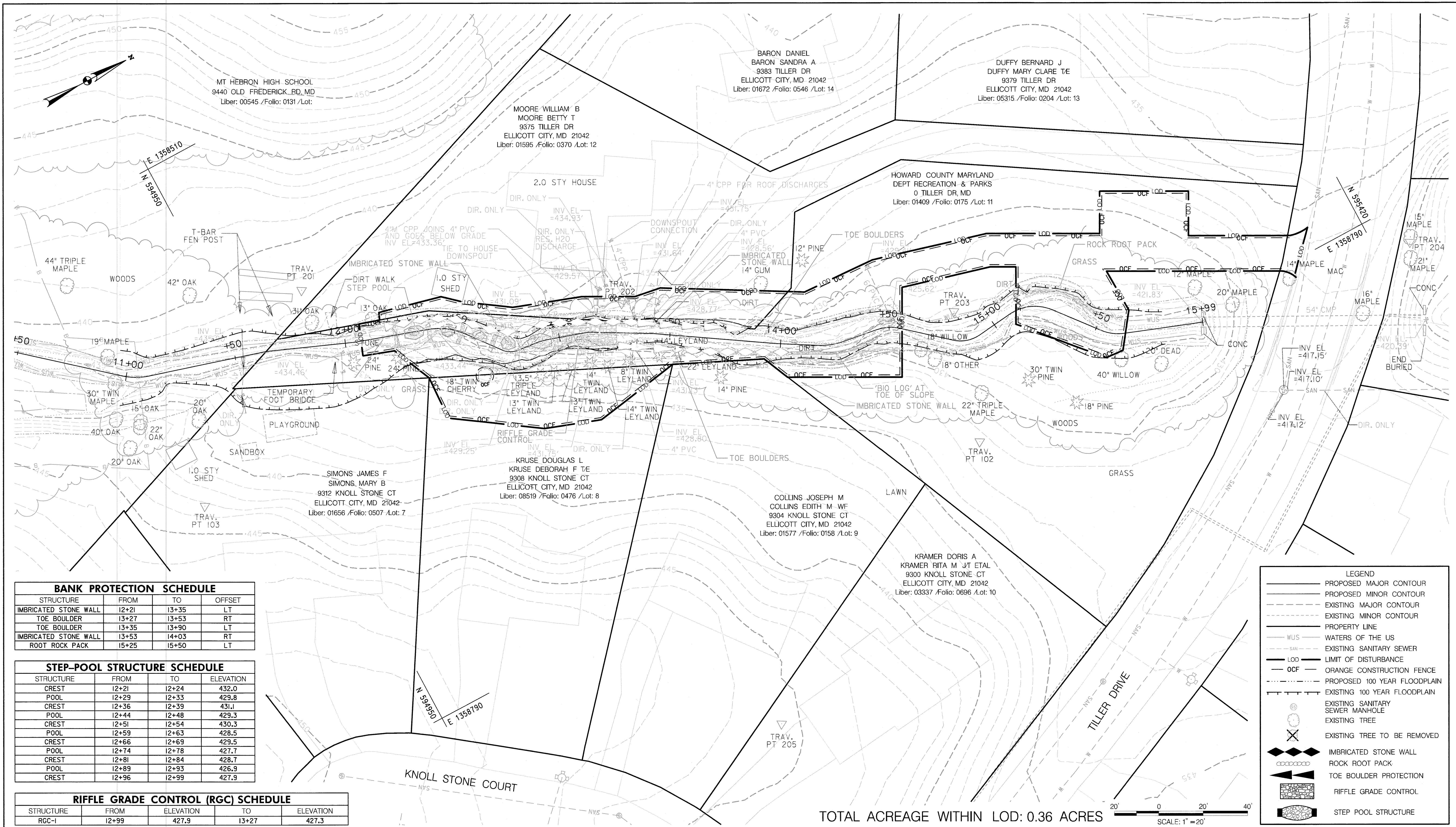
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TILLER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 5, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 10, ZONING R-20
PARCEL NO. 0688, LOT NO. 8,11,12,
WAIVER PETITION WP-14-024
GEOMETRY SHEET

SCALE
1" = 30'
SHEET
2 OF 11



BANK PROTECTION SCHEDULE

STRUCTURE	FROM	TO	OFFSET
IMBRICATED STONE WALL	12+21	13+35	LT
TOE BOULDER	13+27	13+53	RT
TOE BOULDER	13+35	13+90	LT
IMBRICATED STONE WALL	13+53	14+03	RT
ROOT ROCK PACK	15+25	15+50	LT

STEP-POOL STRUCTURE SCHEDULE

STRUCTURE	FROM	TO	ELEVATION
CREST	12+21	12+24	432.0
POOL	12+29	12+33	429.8
CREST	12+36	12+39	431.1
POOL	12+44	12+48	429.3
CREST	12+51	12+54	430.3
POOL	12+59	12+63	428.5
CREST	12+66	12+69	429.5
POOL	12+74	12+78	427.7
CREST	12+81	12+84	428.7
POOL	12+89	12+93	426.9
CREST	12+96	12+99	427.9

RIFLE GRADE CONTROL (RGC) SCHEDULE

STRUCTURE	FROM	ELEVATION	TO	ELEVATION
RGC-1	12+99	427.9	13+27	427.3

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPERTY LINE
- WATERS OF THE US
- EXISTING SANITARY SEWER
- LOD - LIMIT OF DISTURBANCE
- ORANGE CONSTRUCTION FENCE
- PROPOSED 100 YEAR FLOODPLAIN
- EXISTING 100 YEAR FLOODPLAIN
- EXISTING SANITARY SEWER MANHOLE
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- IMBRICATED STONE WALL
- ROCK ROOT PACK
- TOE BOULDER PROTECTION
- RIFLE GRADE CONTROL
- STEP POOL STRUCTURE

TOTAL ACREAGE WITHIN LOD: 0.36 ACRES

SCALE: 1" = 20'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Michael J. Taylor
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

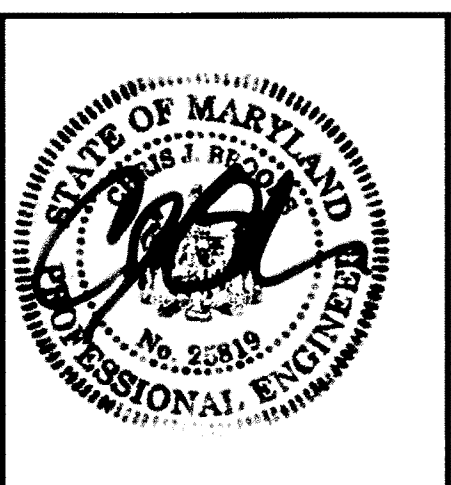
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Howard County
MARYLAND

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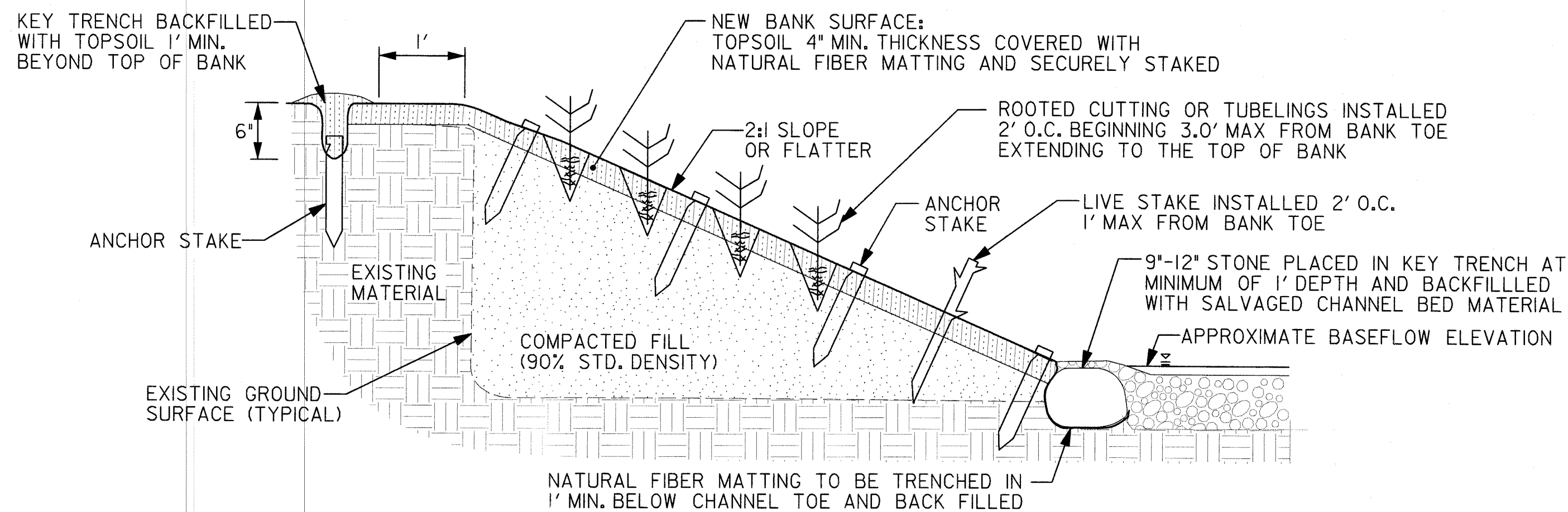
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MR			
CB			
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BY:	NO.:	REVISION:	DATE:

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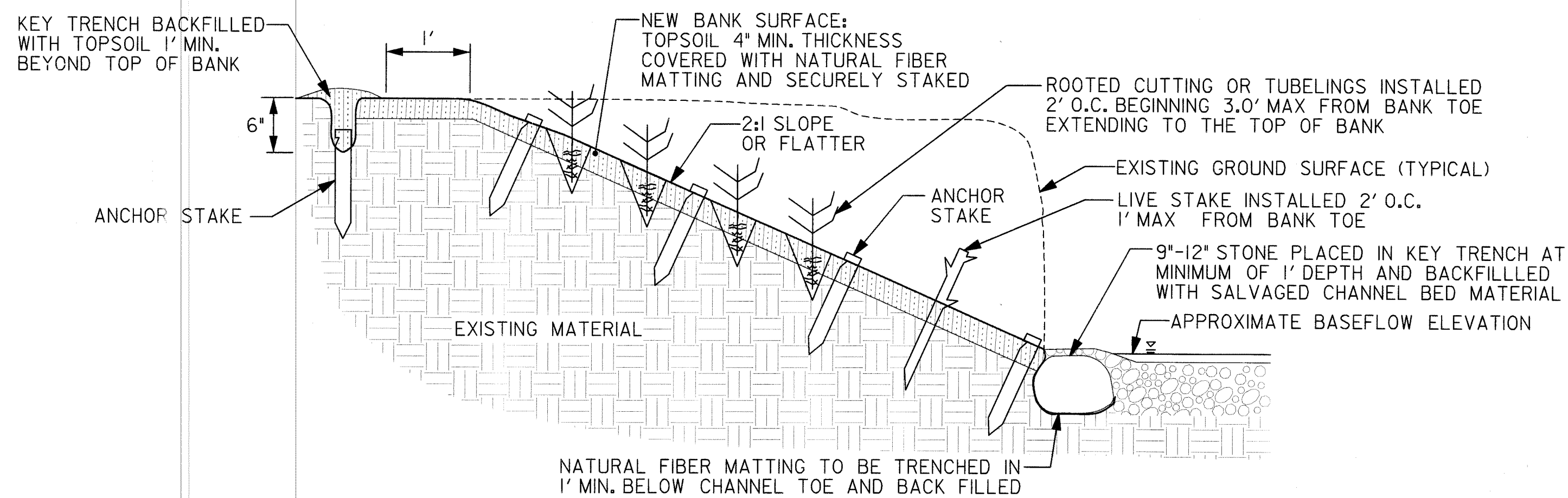
SITE PLAN

SCALE: 1" = 20'

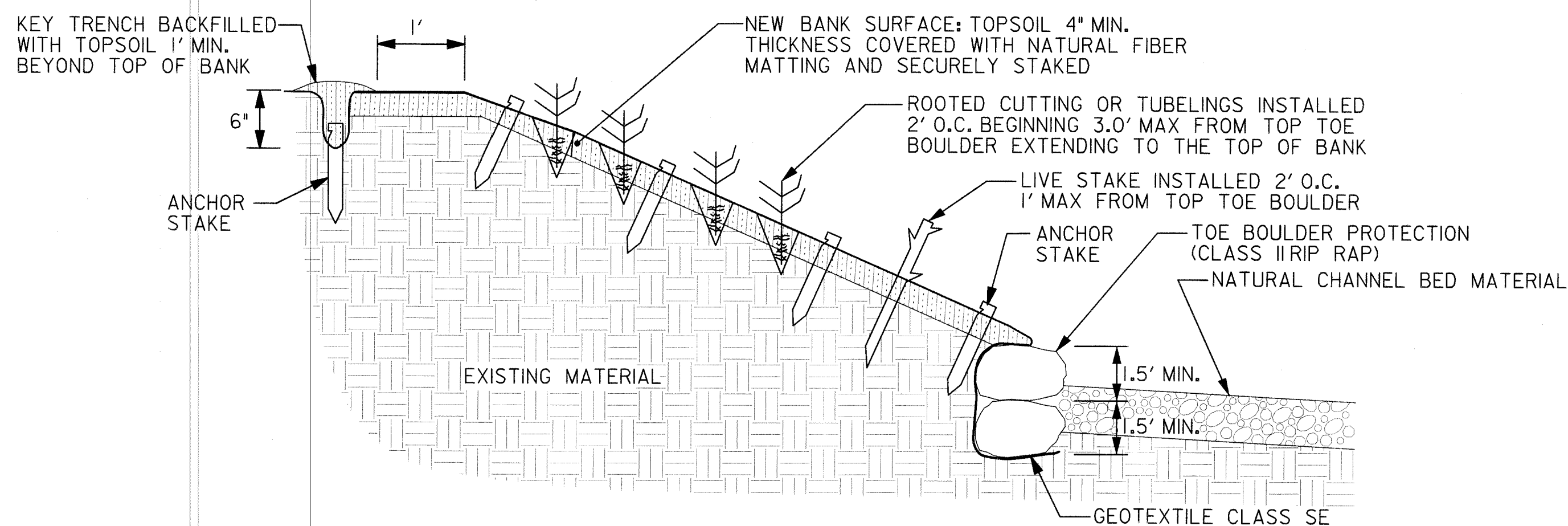
SHEET: 3 OF 11



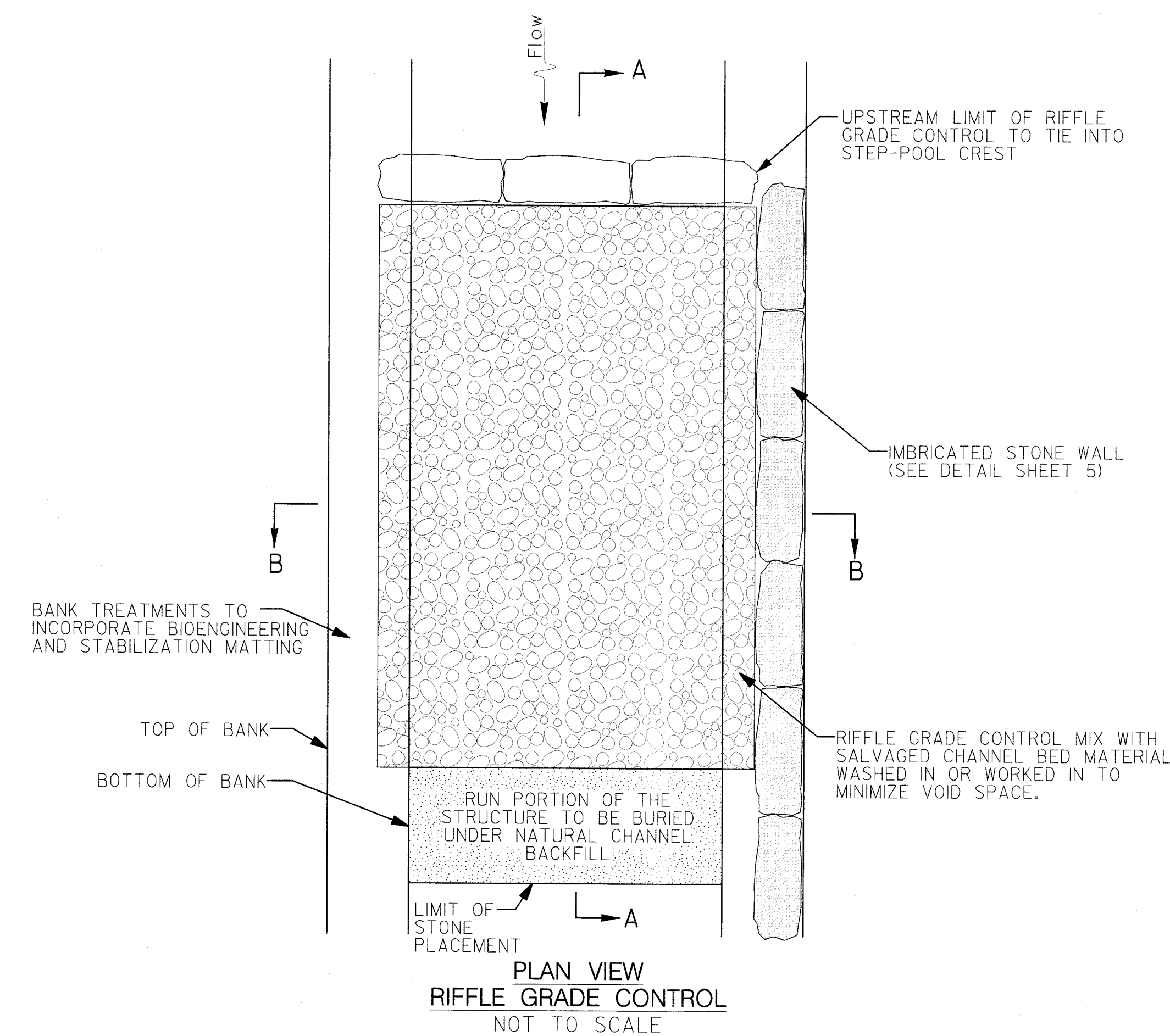
TYPICAL STREAMBANK STABILIZATION IN FILL WITH STONE KEY
NOT TO SCALE



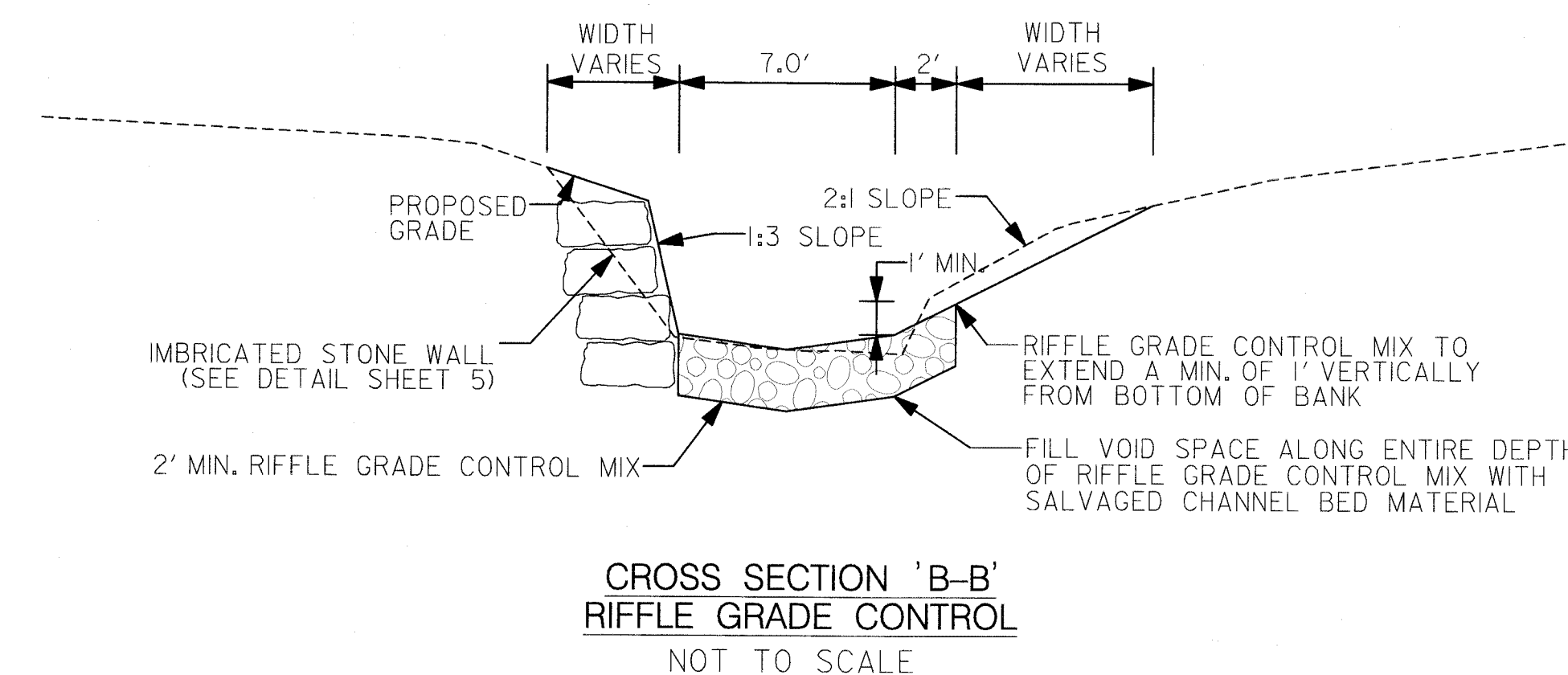
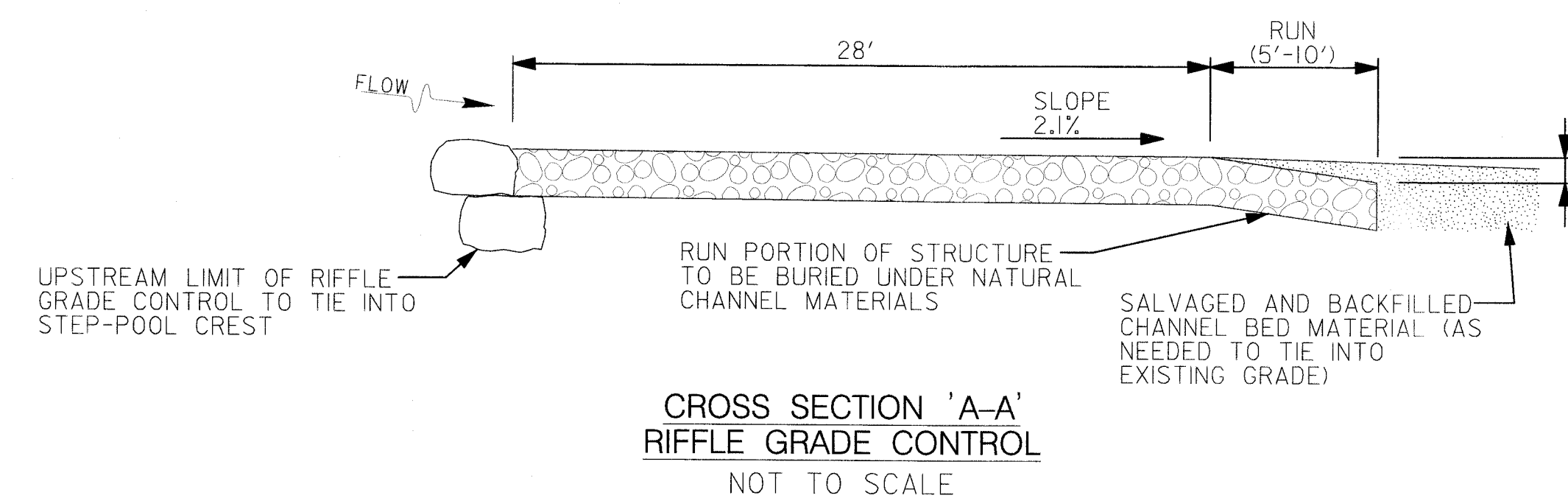
TYPICAL STREAMBANK STABILIZATION IN CUT WITH STONE KEY
NOT TO SCALE



TOE BOULDER PROTECTION TYPICAL
NOT TO SCALE



RIFFLE GRADE CONTROL MIX	
AMOUNT OF STONE (% VOL)	TYPE
20	SHA CLASS 0
50	SHA CLASS 1
30	SHA CLASS 2
100	TOTAL



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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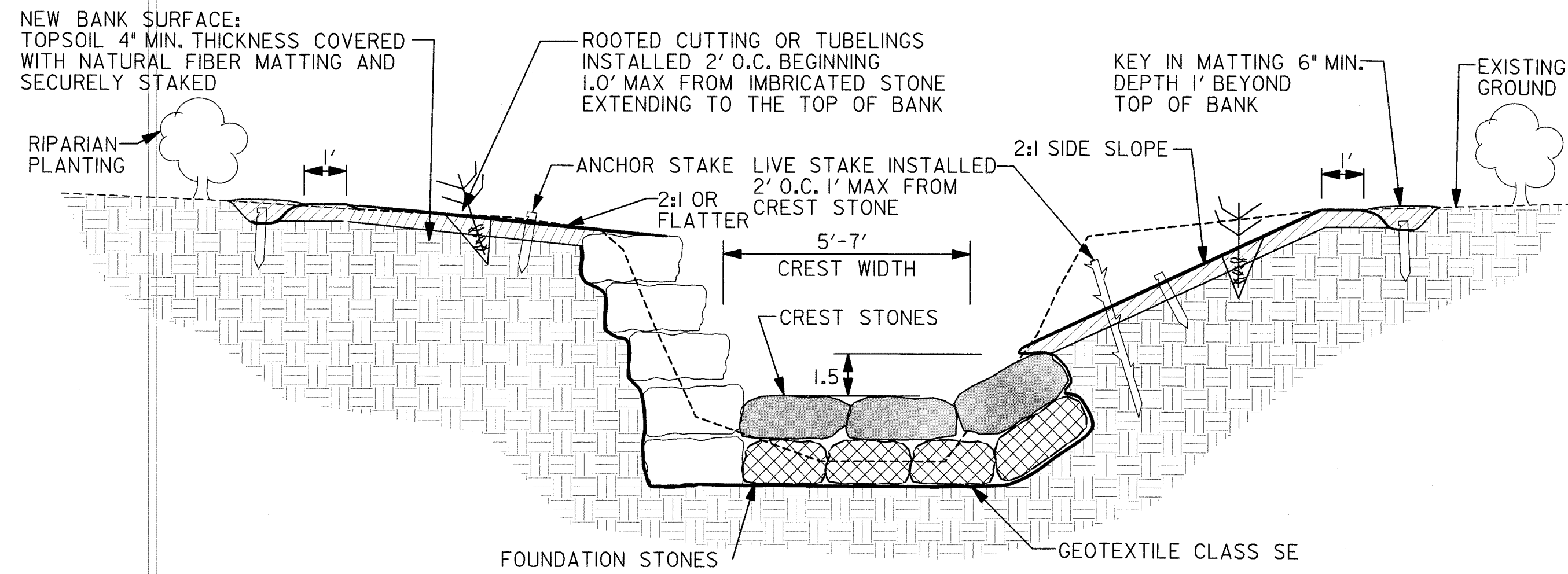
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DATE: 11/7/13	BY	NO.	REVISION	DATE	

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
TILLER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 5, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 10, ZONING R-20
PARCEL NO. 0688, LOT NO. 8,11,12,
WAIVER PETITION WP-14-024
STREAM STABILIZATION DETAILS

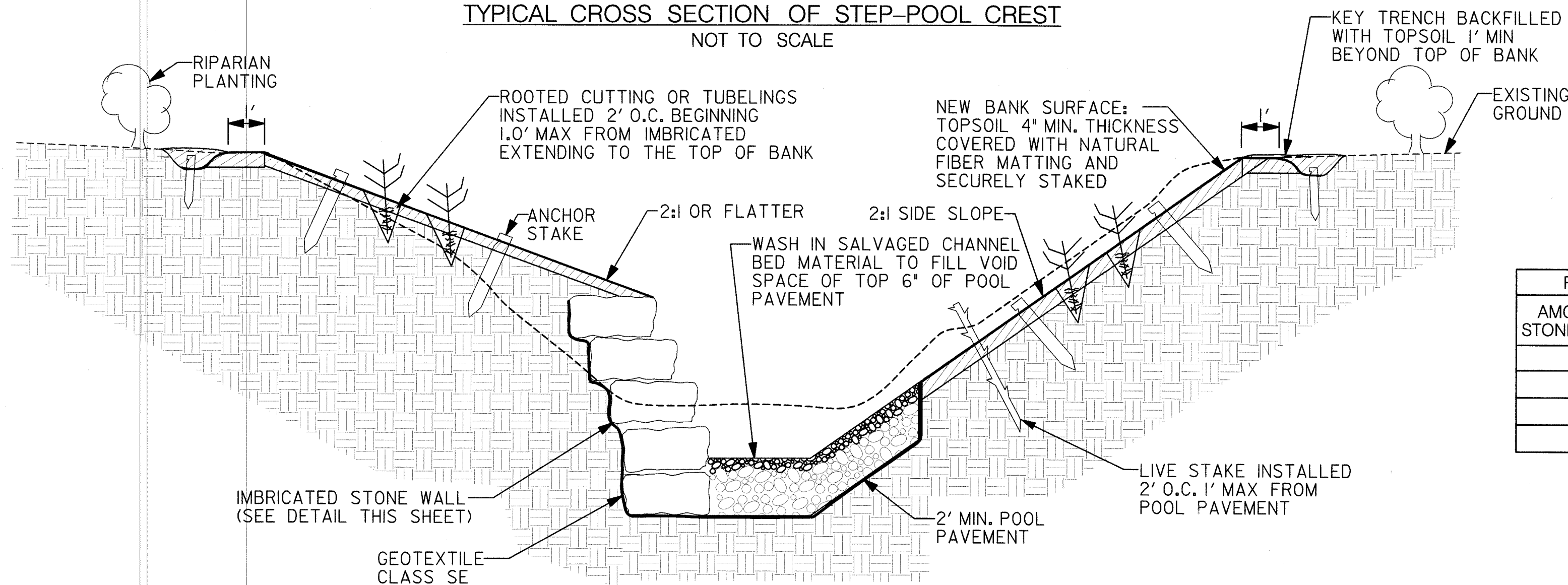
SCALE
AS NOTED
SHEET
4 OF 11

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

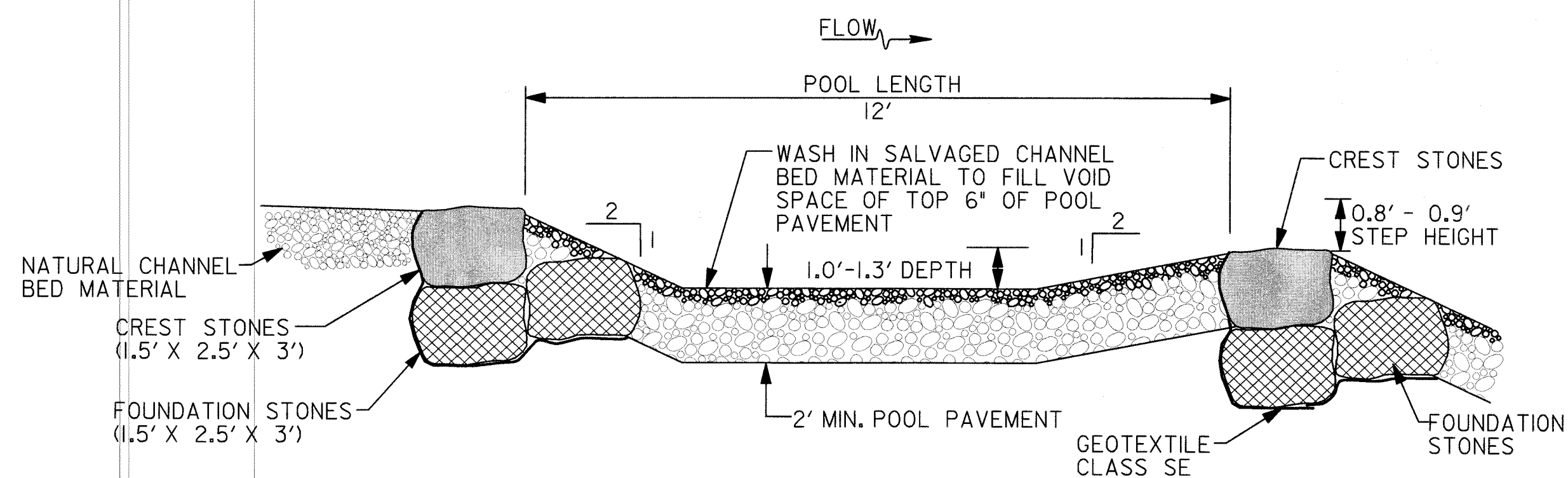
11/13
DATE



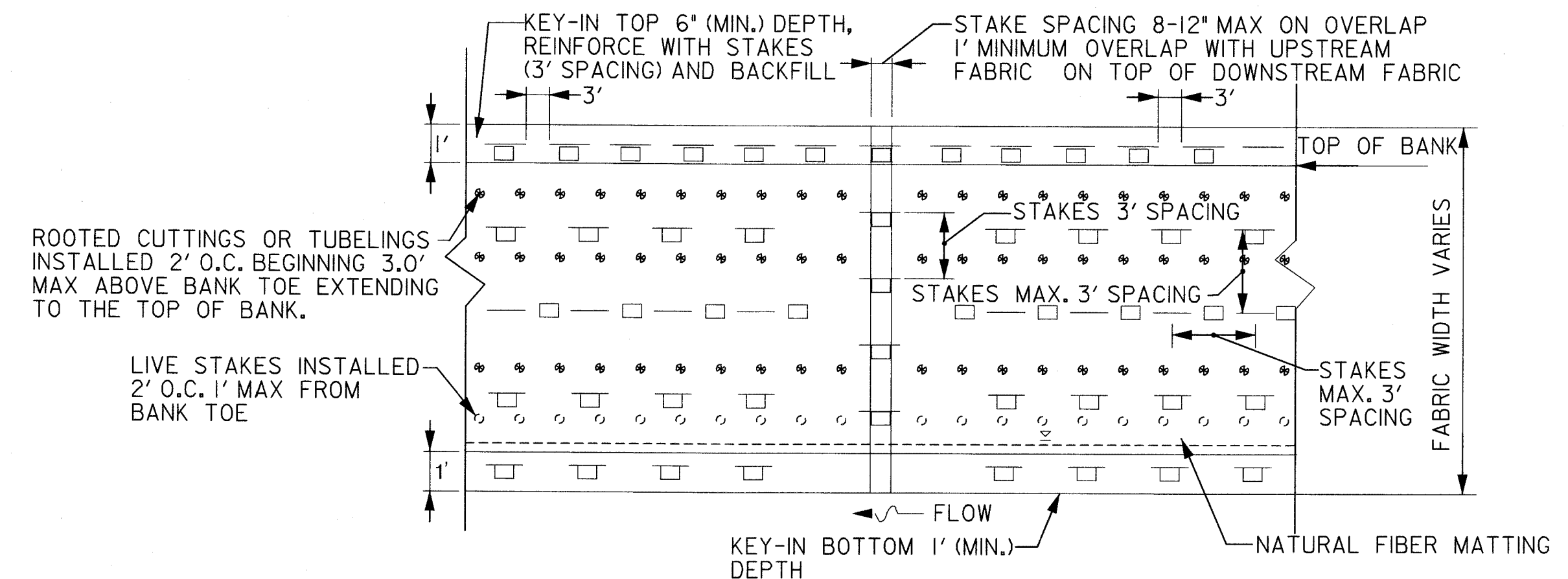
TYPICAL CROSS SECTION OF STEP-POOL CREST
NOT TO SCALE



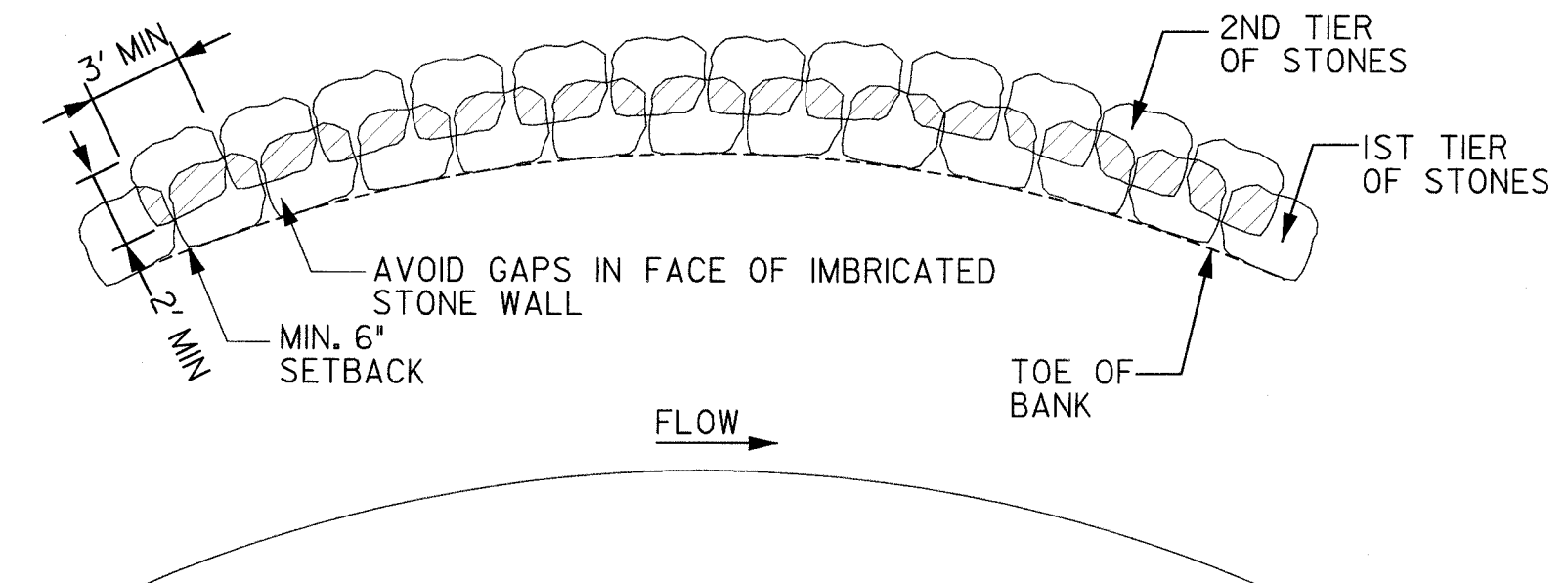
TYPICAL CROSS SECTION OF STEP-POOL POOL
NOT TO SCALE



TYPICAL PROFILE THROUGH STEP-POOL
NOT TO SCALE

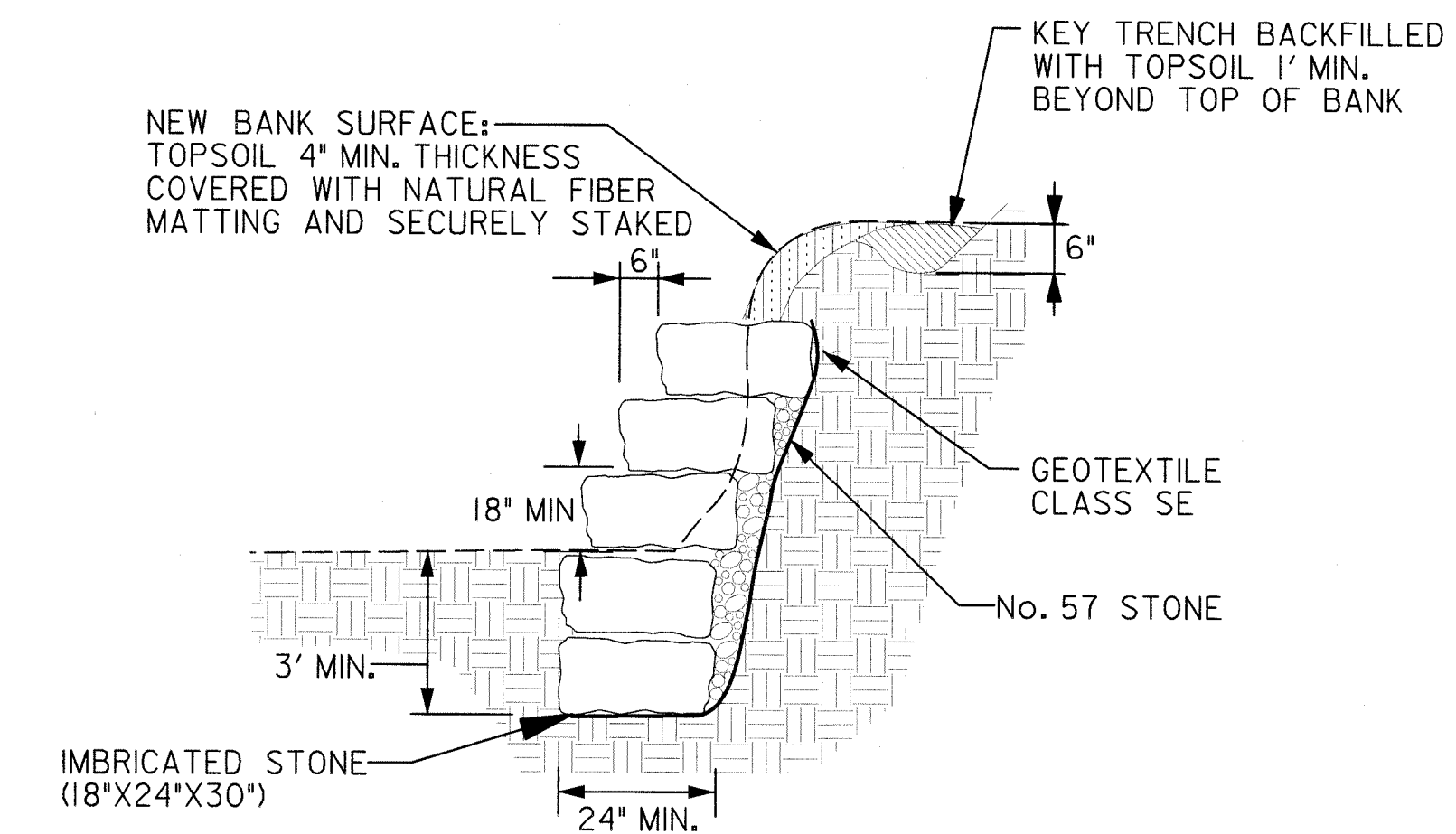


NATURAL FIBER MATTING - PLAN VIEW
NOT TO SCALE

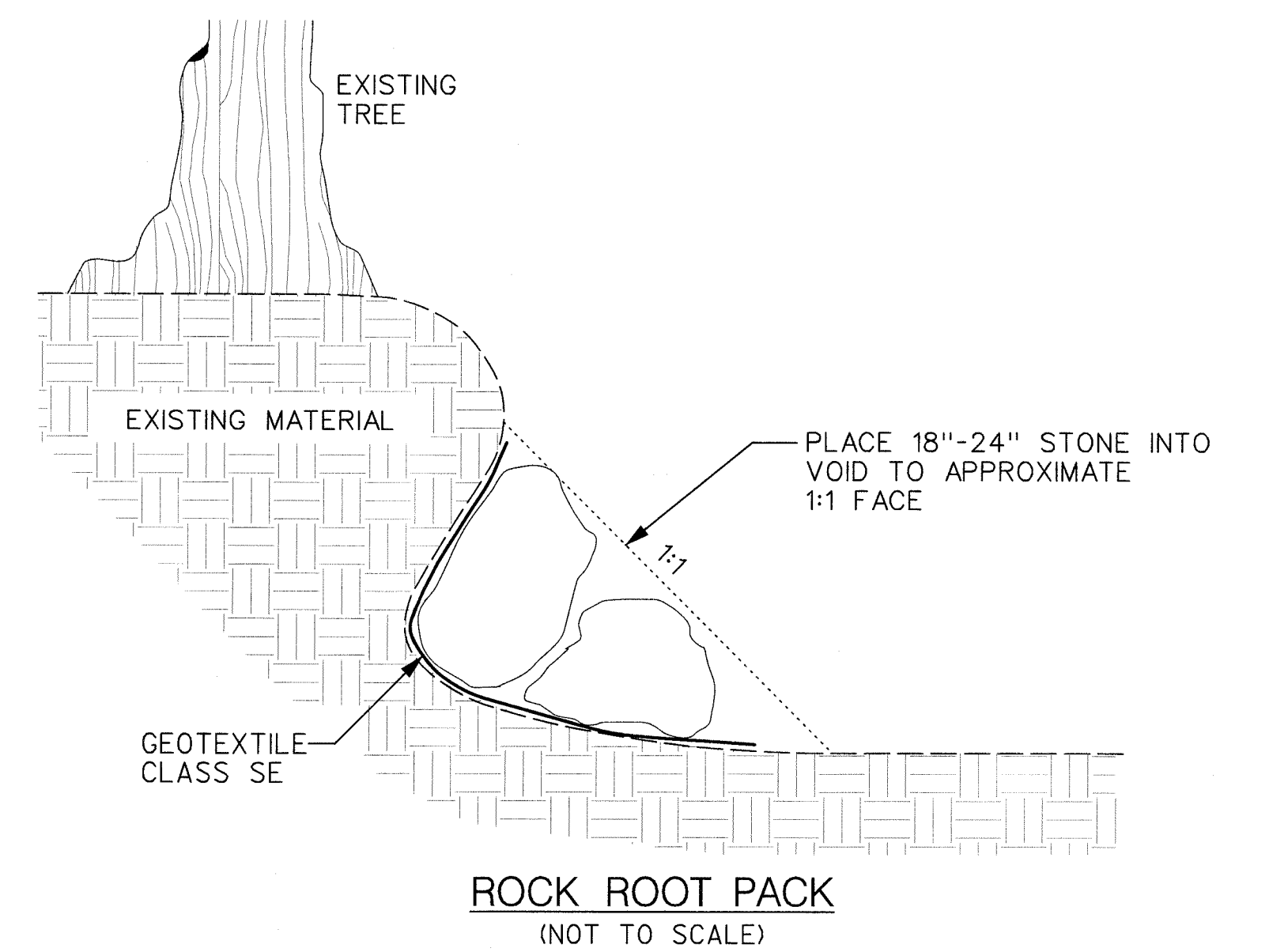


IMBRICATED STONE WALL CHANNEL PROTECTION-PLAN VIEW
NOT TO SCALE

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



IMBRICATED STONE WALL CHANNEL PROTECTION-SECTION VIEW
NOT TO SCALE



ROCK ROOT PACK
(NOT TO SCALE)

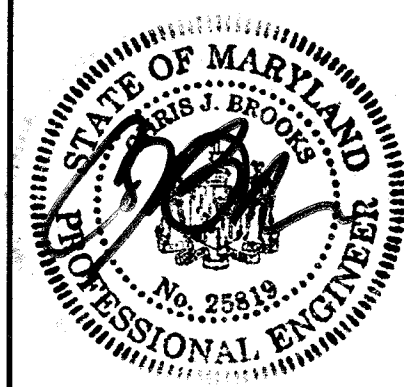
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HOWARD COUNTY, MARYLAND

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(410) 662-7400

Howard County
MARYLAND

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



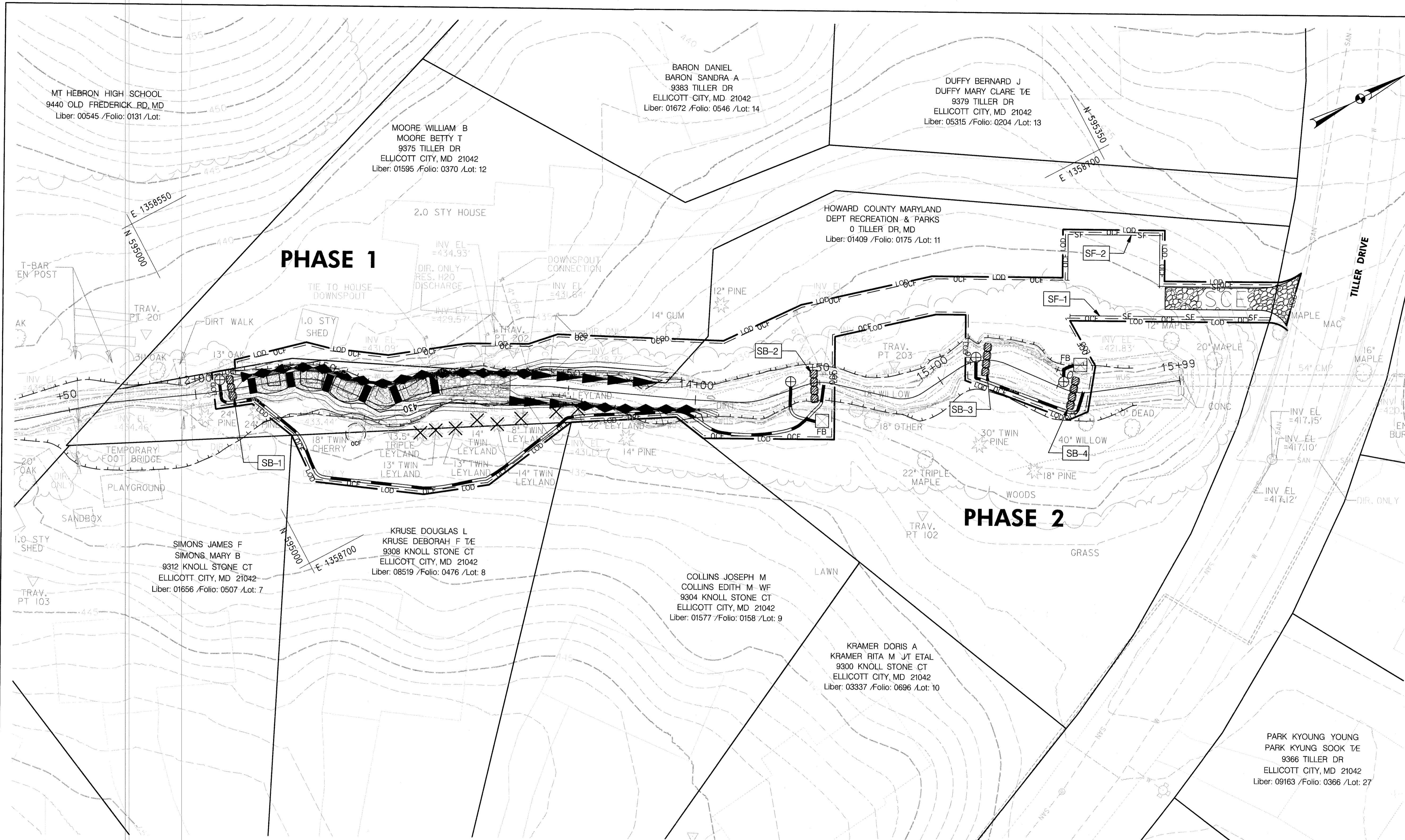
DES: LN					
DRN: MR					
CHK: CB					
DATE: 11/7/13	BY	NO.	REVISION	DATE	

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STREAM STABILIZATION DETAILS

SCALE
AS NOTED
SHEET
5 OF 11

M. D. L...
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

4/12/13
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.

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

STABILIZED CONSTRUCTION ENTRANCE

STATION	QTY (EA)	REMARKS
15+99, 30' LT	1	

SANDBAG DAM (SB)

STATION	QTY (LF)	REMARKS	TOP ELEV.
12+14	10	SB-1	434.00
14+50	13	SB-2	427.00
15+18	14	SB-3	426.00
15+58	14	SB-4	425.00

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPERTY LINE
- WATERS OF THE US
- PROPOSED 100 YEAR FLOODPLAIN
- EXISTING 100 YEAR FLOODPLAIN
- SILT FENCE
- LOD - LIMIT OF DISTURBANCE
- OCF - ORANGE CONSTRUCTION FENCE
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- SANDBAG DAM
- DEWATERING FILTER BAG
- DEWATERING PUMP
- CLEAR WATER PUMP
- STABILIZED CONSTRUCTION ENTRANCE
- DIVERSION/DEWATERING HOSE

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

John D. Roberts
 HOWARD COUNTY SOIL CONSERVATION DISTRICT
 DATE: 4/12/13

CLEAR WATER PUMP

STATION	QTY (EA)	REMARKS
12+10	1	
15+15	1	

DEWATERING FILTER BAG

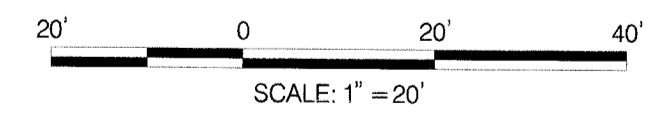
STATION	QTY (EA)	REMARKS
14+52, 15' RT	1	
15+60, 12' LT	1	

DEWATERING PUMP

STATION	QTY (EA)	REMARKS
14+45	1	
15+52	1	

SILT FENCE (SF)

FROM	TO	QTY (LF)	REMARKS
15+55	16+40	80	SF-1
15+55	16+40	122	SF-2



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

John D. Roberts
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
 DATE: 4/12/13

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WAIVER PETITION WP-14-024
EROSION AND SEDIMENT CONTROL PLAN

SCALE
 1" = 20'
 SHEET
 6 OF 11

EROSION AND SEDIMENT CONTROL – GENERAL NOTES

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT AND MDE PERMIT (TRACKING NUMBER TBD).
 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 1 – STATION 12+10 TO STATION 14+50**
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 THE STREAM DIVERSION/PUMP AROUND WHICH INCLUDES THE SANDBAG, PUMP AND DIVERSION HOSES FOR THE UPSTREAM/SOUTHERN 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 AND STRUCTURE INSTALLATION FROM UPSTREAM TO DOWNSTREAM. (10 DAYS)
 9. INSTALL LANDSCAPING PER PLAN. (1 DAY)
 10. STABILIZE TEMPORARY CONSTRUCTION ACCESS AND GRADE TO FINAL ELEVATIONS REMOVING ALL RUTS. (1 DAY)
- PHASE 2 – STATION 15+15 TO STATION 15+60**
11. WHEN AREAS ARE FULLY STABILIZED, AND UPON PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, RESET THE REMAINING SEDIMENT CONTROL DEVICES FOR PHASE 2. (1 DAY)
 12. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, INSTALL THE STREAM DIVERSION/PUMP AROUND WHICH INCLUDES THE SANDBAG, PUMP AND DIVERSION HOSES FOR THE DOWNSTREAM/NORTHERN STREAM REACH. DEWATER ALL WORK AREAS AS NEEDED TO A DEWATERING FILTER BAG. (1 DAY)
 13. 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. (1 DAY)
 14. INSTALL LANDSCAPING PER PLAN. (1 DAY)
 15. STABILIZE TEMPORARY CONSTRUCTION ACCESS AND GRADE TO FINAL ELEVATIONS REMOVING ALL RUTS. (1 DAY)
 16. 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)

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 MWC 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 1 WATERS. IN-STREAM WORK IS PROHIBITED MARCH 1 THROUGH JUNE 15, INCLUSIVE DURING ANY YEAR.

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 0.36 ACRES
AREA DISTURBED 0.36 ACRES
AREA TO BE ROOFED OR PAVED 0 ACRES
AREA TO BE VEGETATIVELY STABILIZED 0.36 ACRES
TOTAL CUT 78.00 CU. YDS.
TOTAL FILL 60.00 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

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 ACRES 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 25 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 SLOPES 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.

B-4-3 SEEDING AND MULCHING

- A. SEEDING
 1. SPECIFICATIONS
 - A. 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 SEEDER AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - B. DRILL OR CULTIPACKER SEEDING:
 - I. CULTIPACKER 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; P205 (PHOSPHORUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - II. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - III. 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 FIBER MULCH.
 - 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 TO 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 MULCH 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 TO A MINIMUM OF 4 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 MULCH 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 TACK 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 HEAVYER 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		FERTILIZER RATE (10-20-20)	LIME RATE
SEED MIXTURE (FROM TABLE B.3)				SEE BELOW			
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS			
	ANNUAL RYEGRASS	40	MAR. 1 TO MAY 15 AUG. 1 TO OCT 15	0.5	436 LB/AC (10 LB/ 1000 SF)	2 TON/AC (90 LB/ 1000 SF)	
	FOXTAIL MILLET	30	MAY 16 TO JULY 31	0.5			

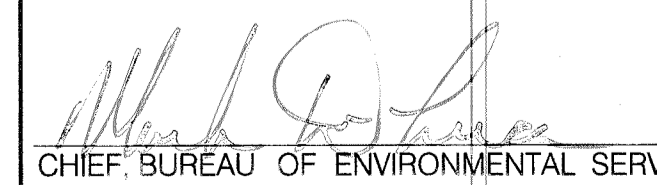
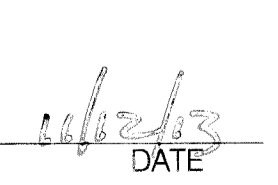
B-4-5 PERMANENT STABILIZATION

HARDINESS ZONE (FROM FIGURE B.3)					6B				FERTILIZER RATE (10-20-20)	LIME RATE	
SEED MIXTURE (FROM TABLE B.3)					1						
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P ₂ O ₅	K ₂ O				
1	SWITCH GRASS	10	MAR. 1 TO MAY 15 MAY 16 TO JUNE 15	1/4-1/2 IN.				45 LB/AC	90 LB/AC	90 LB/AC	2 TON/AC
	CREeping RED FESCUE	15	MAR. 1 TO MAY 15 MAY 16 TO JUNE 15	1/4-1/2 IN.				(1.0 LB/ 1000 SF)	(2.0 LB/ 1000 SF)	(2.0 LB/ 1000 SF)	(90 LB/ 1000 SF)
	PARTRIDGE PEA	4	MAR. 1 TO MAY 15 MAY 16 TO JUNE 15	1/4-1/2 IN.							(90 LB/ 1000 SF)

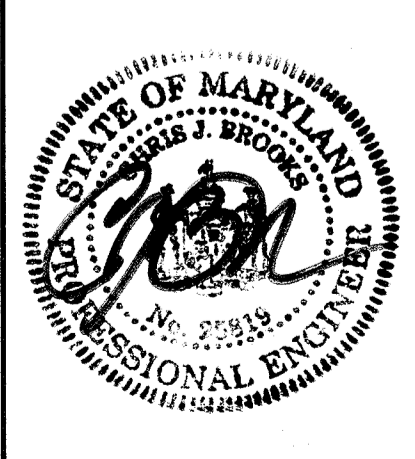
NOTE: MAY 16 TO JUNE 15 ARE ADDITIONAL PLANTING DATES DURING WHICH SUPPLEMENTAL
WATERING MAY BE NEEDED TO ENSURE PLANT ESTABLISHMENT

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BY	NO.		REVISION							

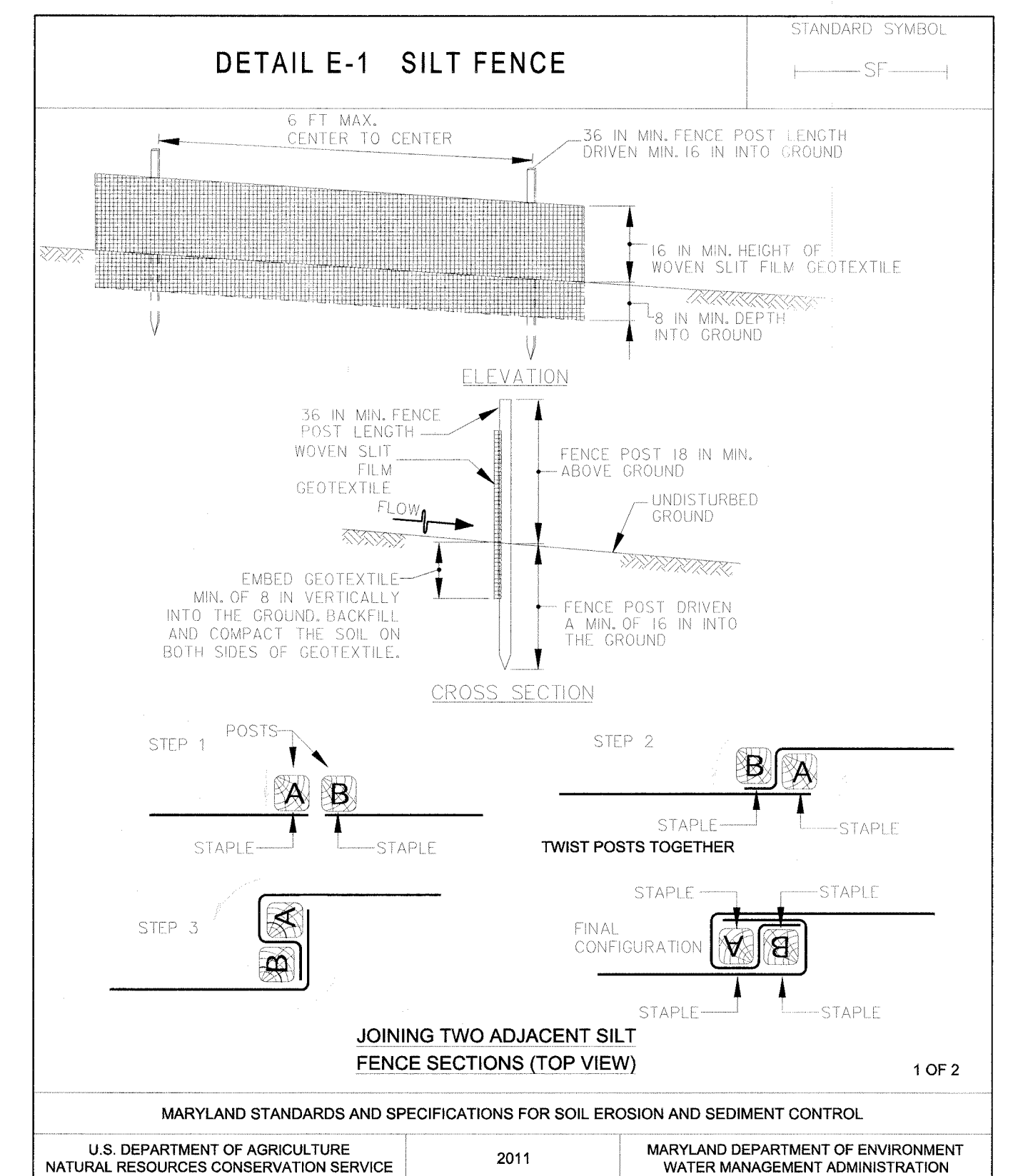
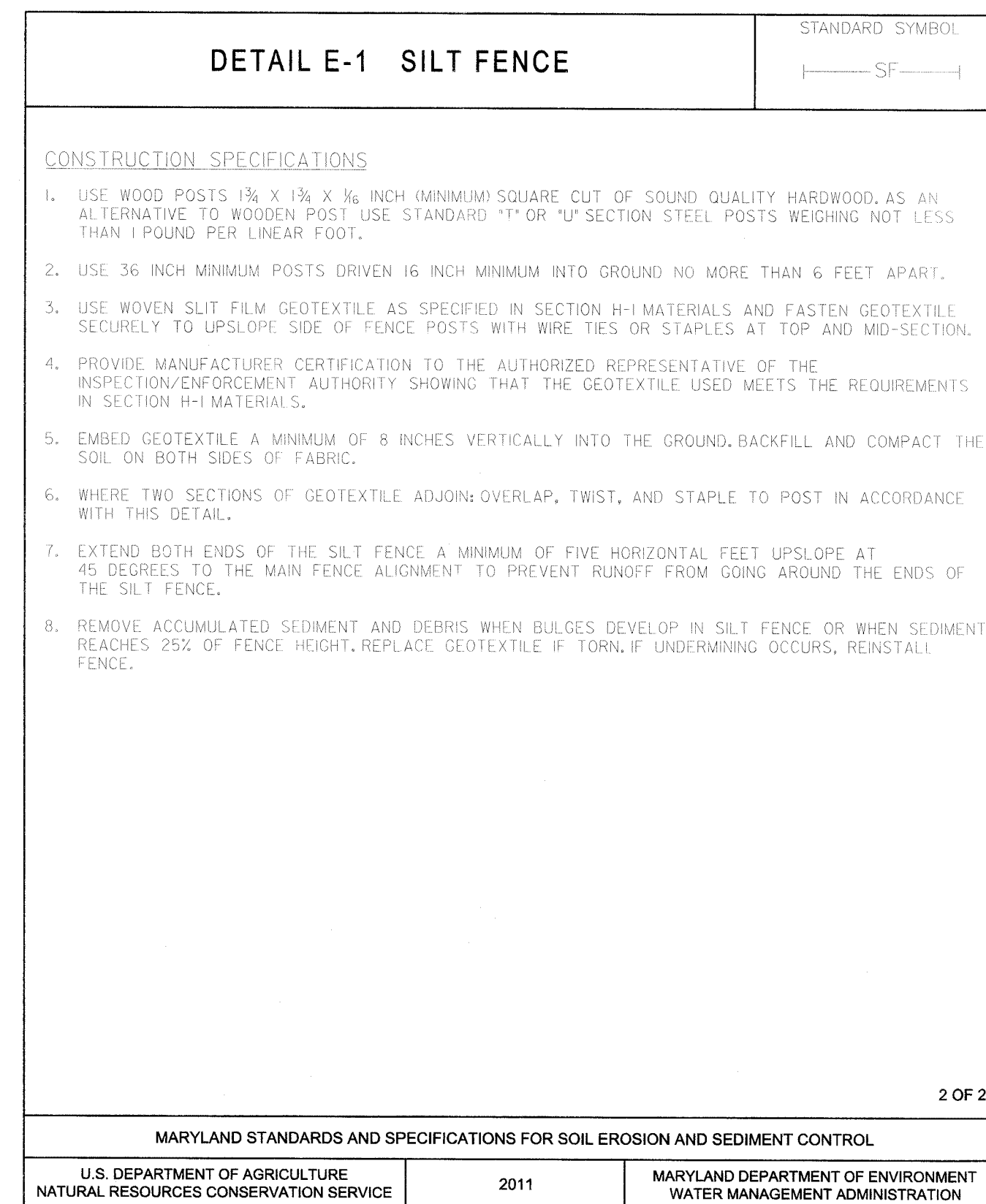
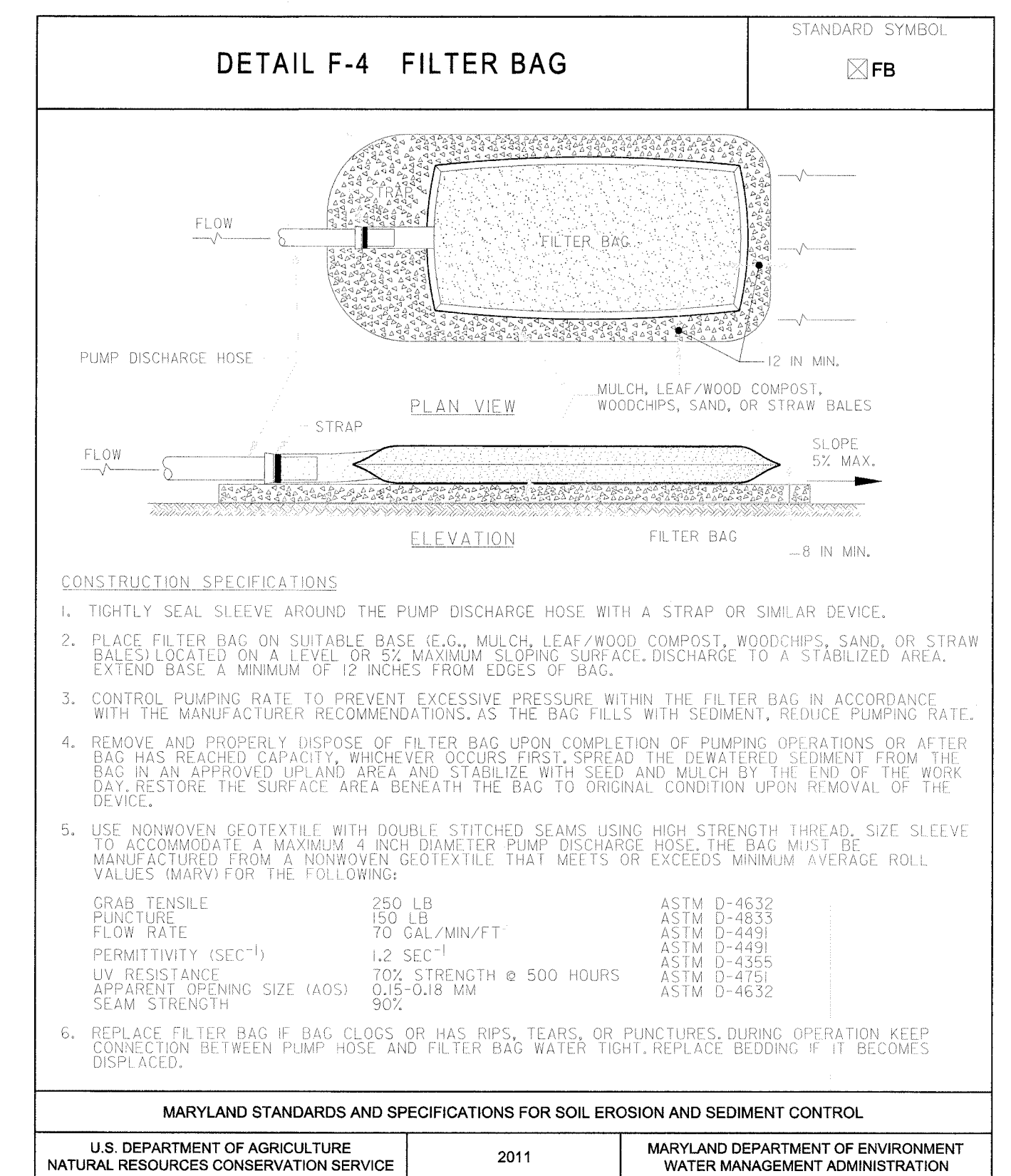
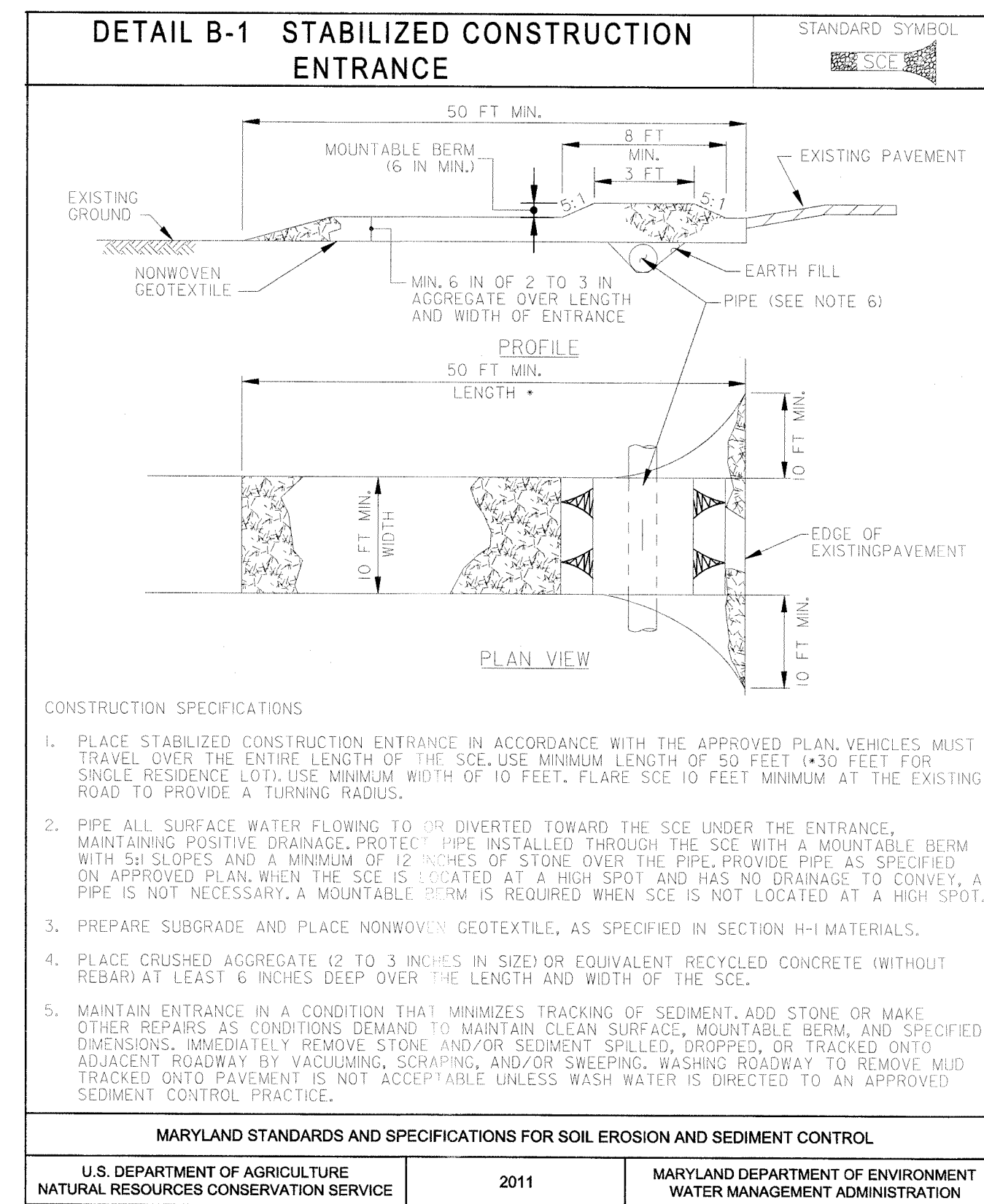
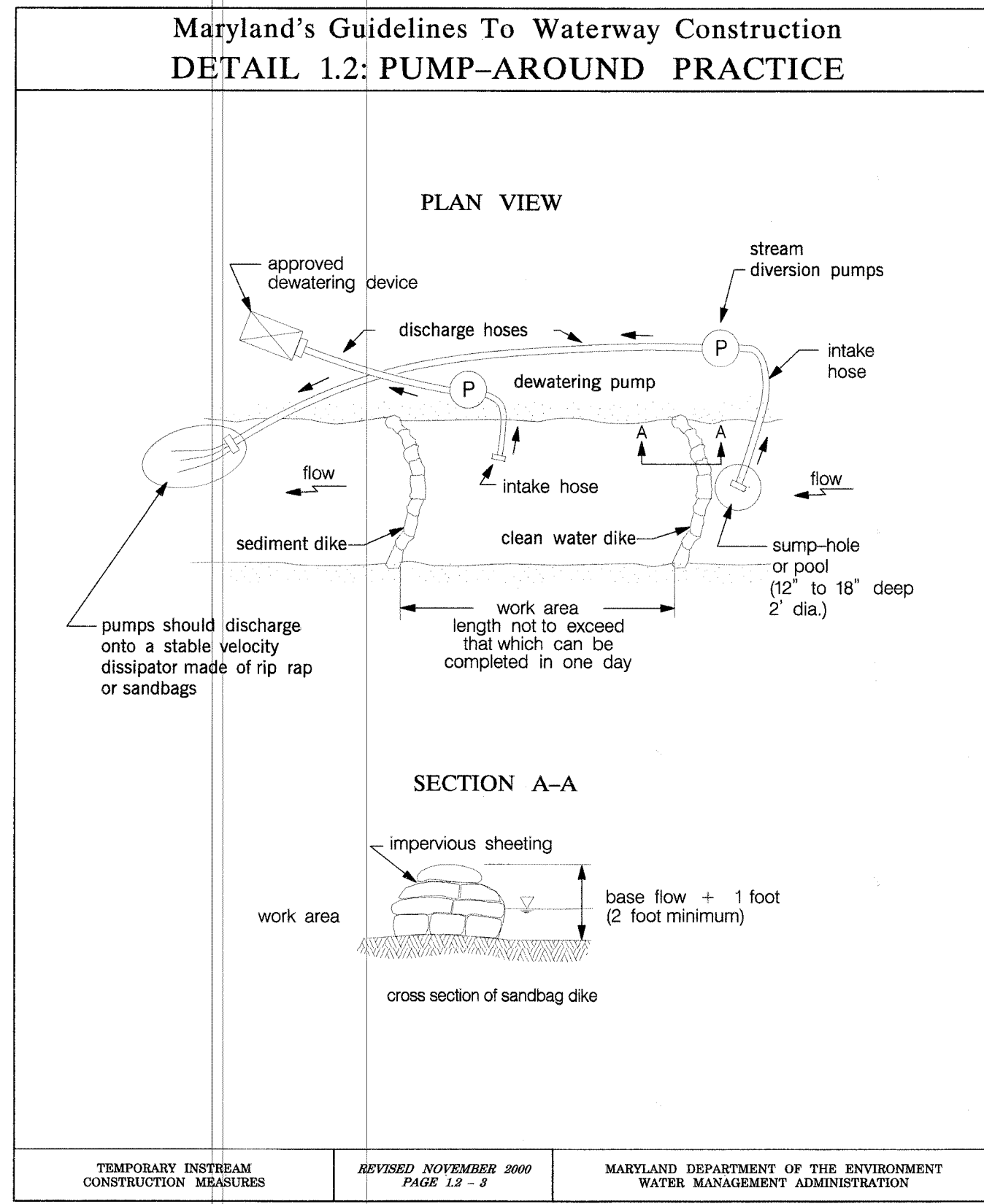
**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
TILLER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 5, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 10, ZONING R-20
PARCEL NO. 0688, LOT NO. 8,11,12,
WAIVER PETITION WP-14-024
EROSION AND SEDIMENT CONTROL NOTES**

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	McCormick & Taylor Engineers & Planners Since 1946
	
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REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

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

John R. Robinson
HOWARD COUNTY SOIL CONSERVATION DISTRICT

W. J. S.
DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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

W. J. S.
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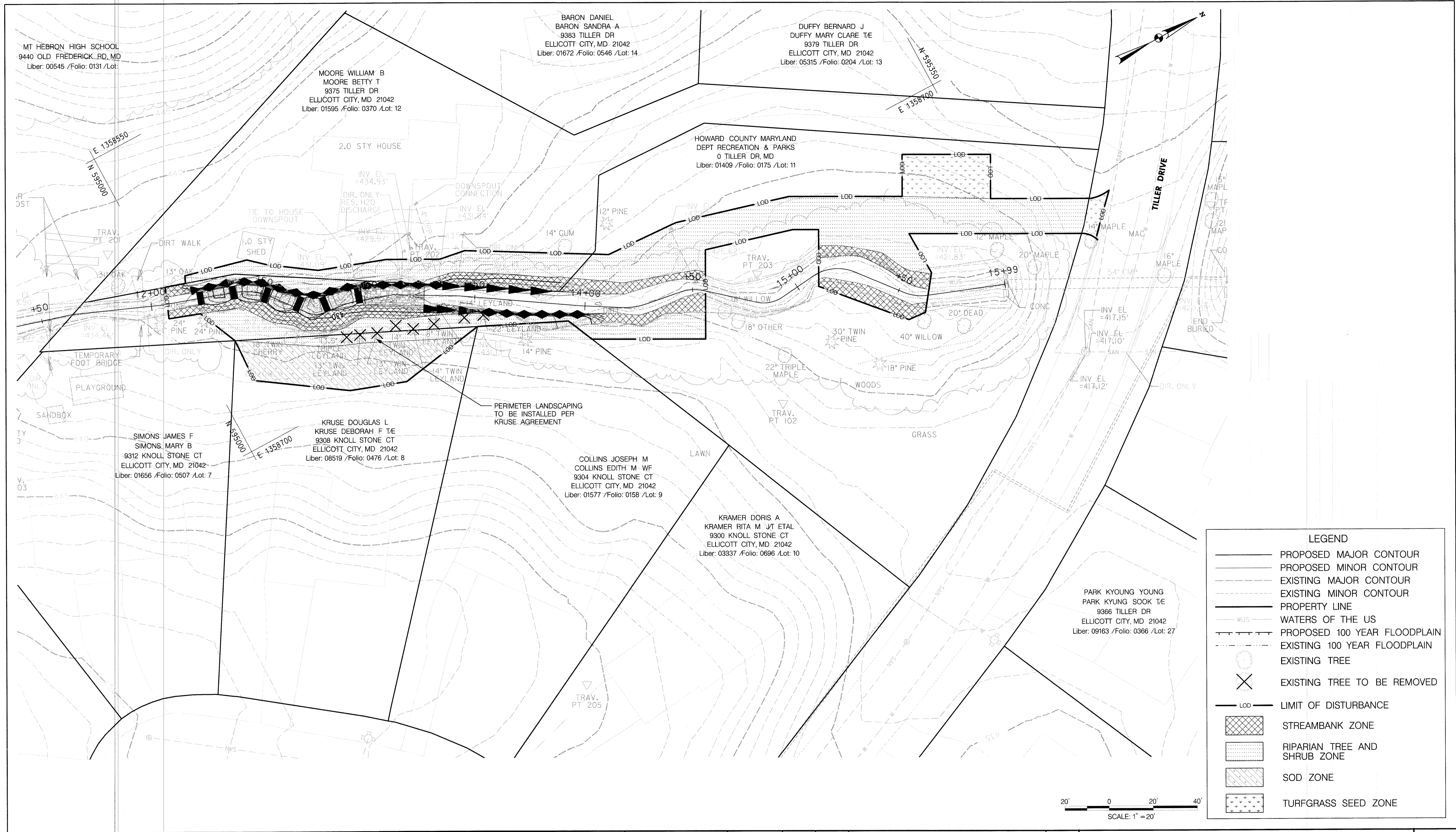
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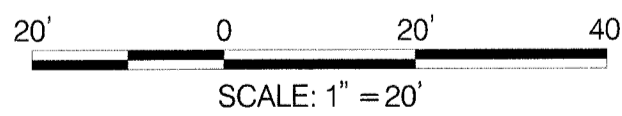
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EROSION AND SEDIMENT CONTROL DETAILS**

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SHEET: 8 OF 11



LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- - - EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- WUS WATERS OF THE US
- PROPOSED 100 YEAR FLOODPLAIN
- - - EXISTING 100 YEAR FLOODPLAIN
- EXISTING TREE
- ✕ EXISTING TREE TO BE REMOVED
- LOD LIMIT OF DISTURBANCE
- ▨ STREAMBANK ZONE
- ▤ RIPARIAN TREE AND SHRUB ZONE
- ▥ SOD ZONE
- ▧ TURFGRASS SEED ZONE



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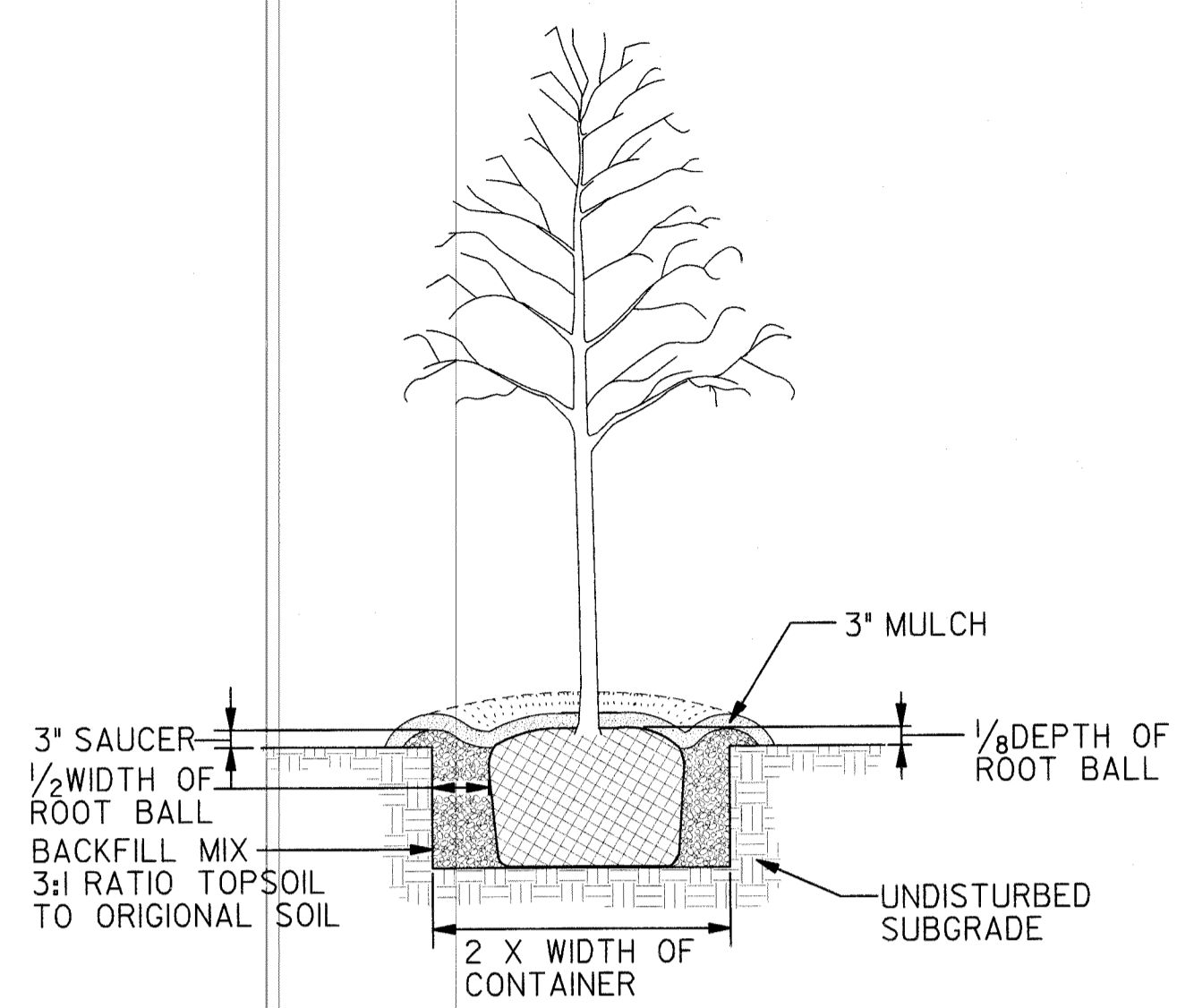


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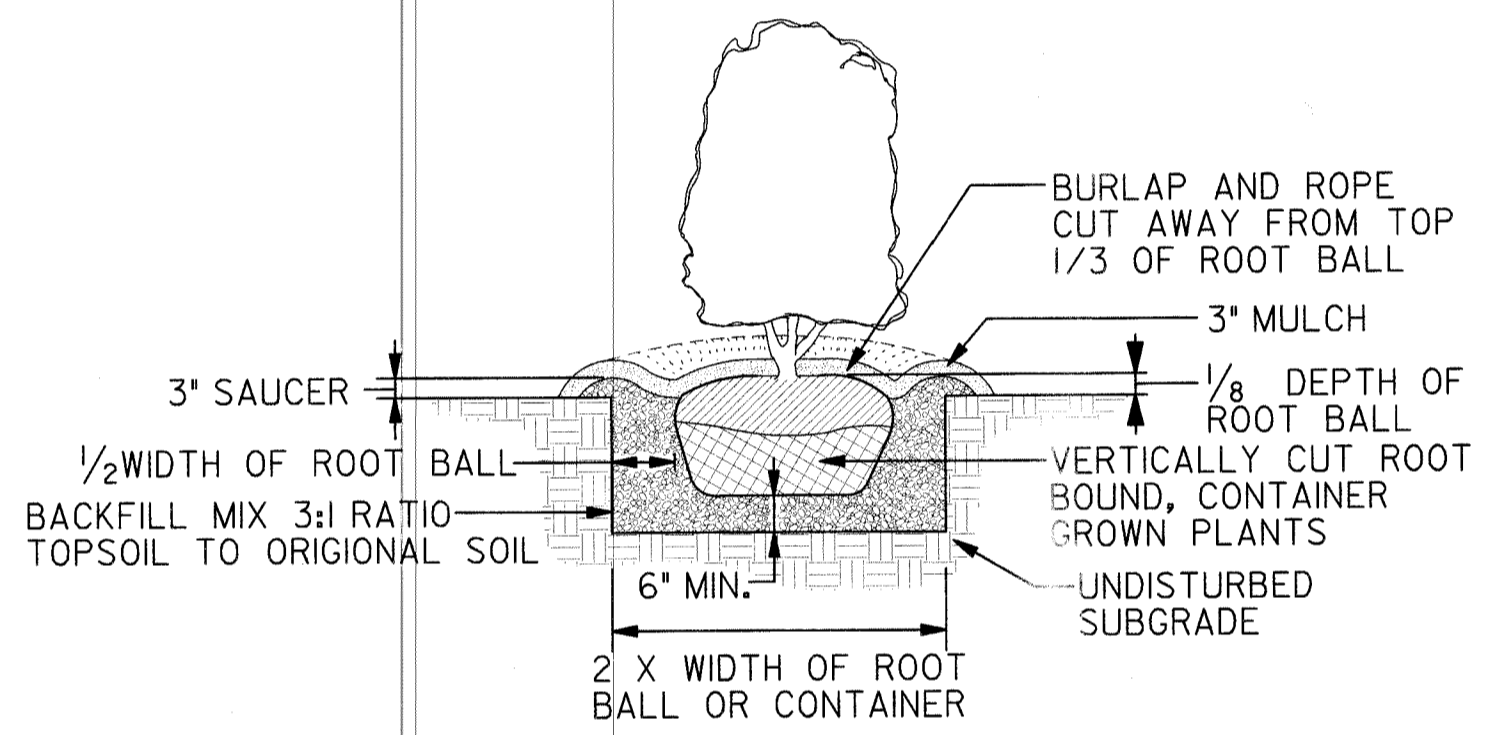
LANDSCAPING PLAN

SCALE: 1" = 20'
 SHEET: 9 OF 11



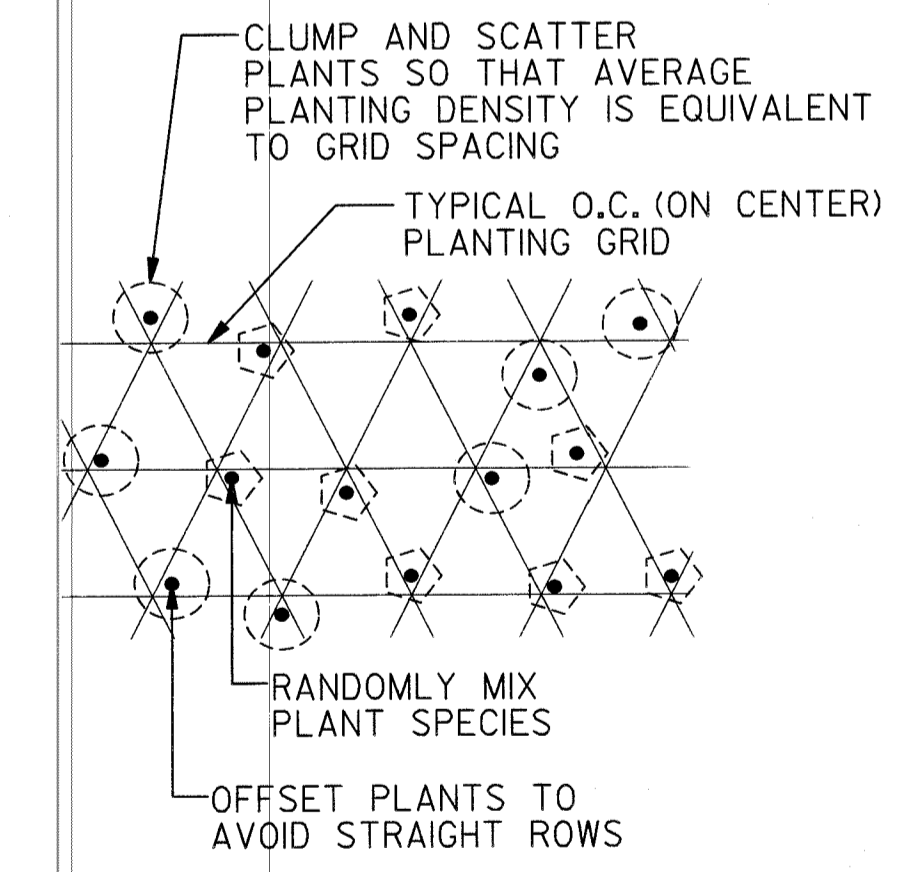
DECIDUOUS TREE PLANTING DETAIL

CONTAINER GROWN
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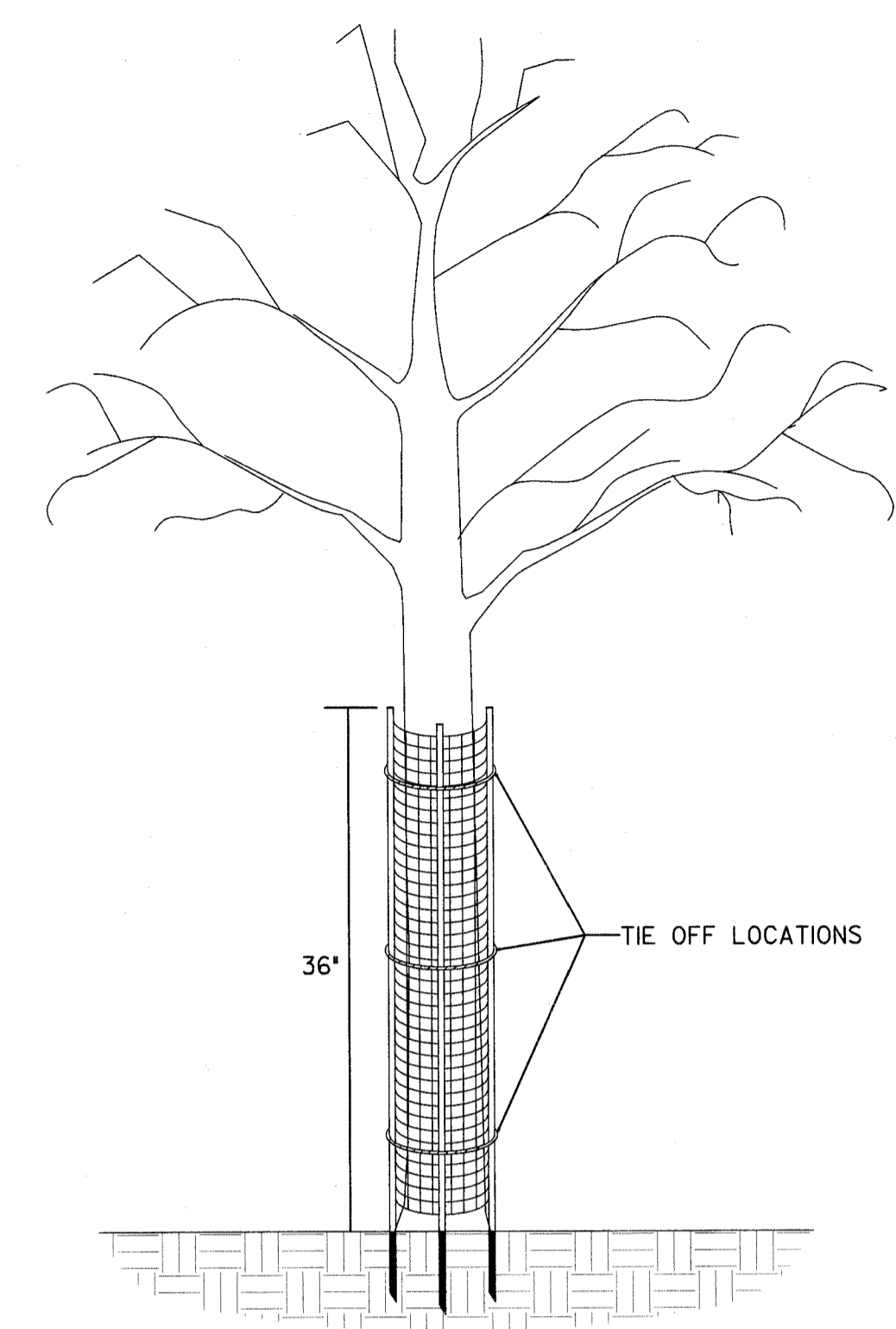
SHRUB PLANTING DETAIL

B & B AND CONTAINER GROWN
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RANDOM PLANTING PATTERN

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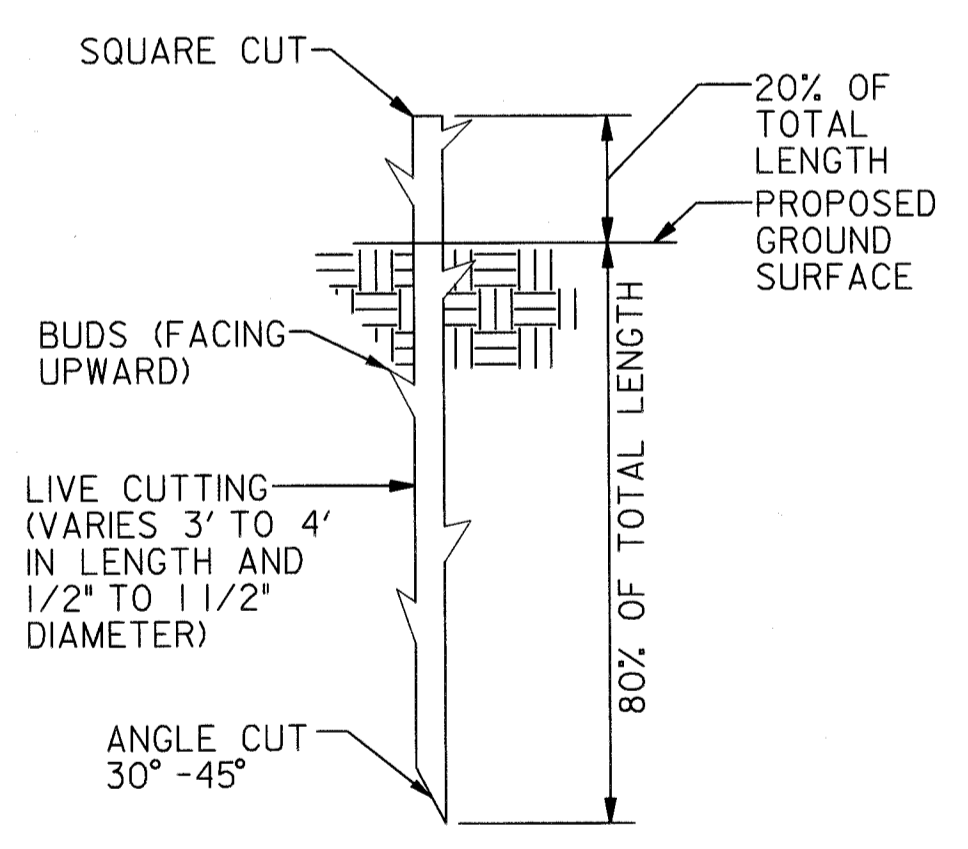
TREE SHELTER DETAIL

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.



LIVE STAKE

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

Planting Schedule

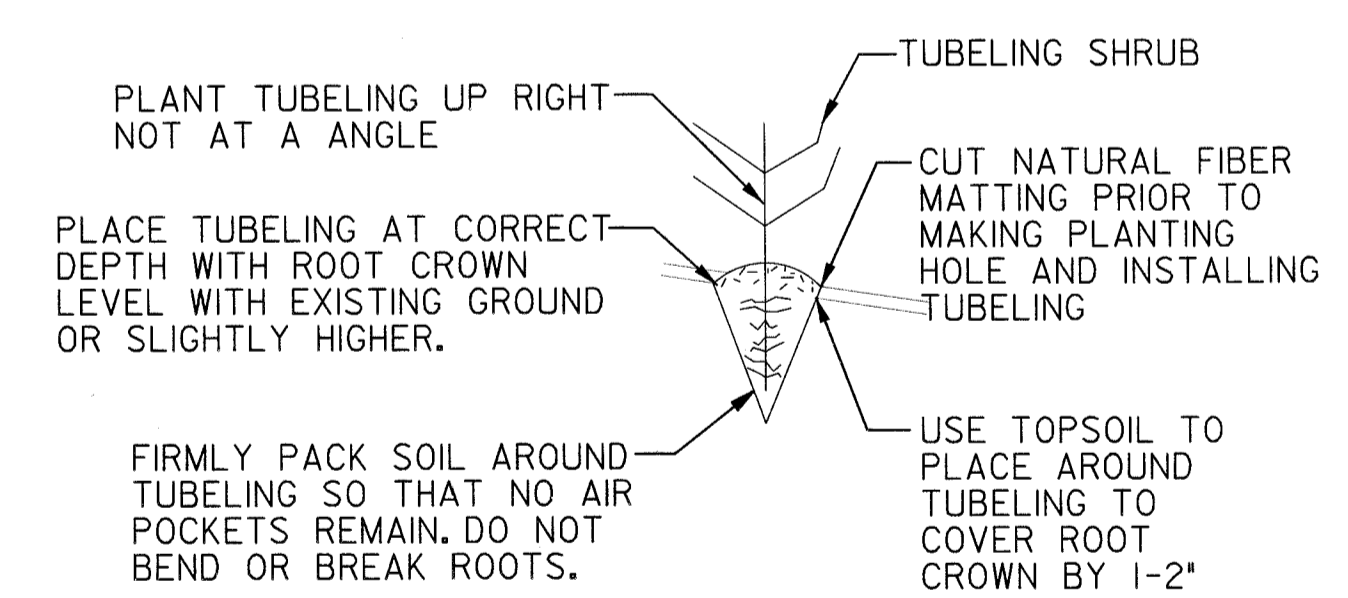
Zone	Botanical Name	Common Name	Size	Comment	Quantity
Streambank	Cornus sericea	Red Osier Dogwood	3'-4' Live Stake	Plant 2' O.C.	105
Streambank	Viburnum dentatum	Southern Arrowwood	3'-4' Live Stake	Plant 2' O.C.	105
Streambank	Salix sericea	Silky Willow	3'-4' Live Stake	Plant 2' O.C.	105
Streambank	Cornus sericea	Red Osier Dogwood	1" Dia. X 8-12" Deep Tubeling	Plant 2' O.C.	95
Streambank	Viburnum dentatum	Southern Arrowwood	1" Dia. X 8-12" Deep Tubeling	Plant 2' O.C.	95
Streambank	Salix sericea	Silky Willow	1" Dia. X 8-12" Deep Tubeling	Plant 2' O.C.	95
Riparian	Acer rubrum	Red Maple	5' HT, 3 GAL. Cont.	Plant 12' O.C.	8
Riparian	Plantanus Occidentalis	American Sycamore	5' HT, 3 GAL. Cont.	Plant 12' O.C.	8
Riparian	Quercus palustris	Pin Oak	5' HT, 3 GAL. Cont.	Plant 12' O.C.	8
Riparian	Amelanchier arborea	Serviceberry	2' HT, 3 GAL. Cont.	Plant 8' O.C.	14
Riparian	Cornus amomum	Silky Dogwood	2' HT, 3 GAL. Cont.	Plant 8' O.C.	14
Riparian	Lindera benzoin	Spice Bush	2' HT, 3 GAL. Cont.	Plant 8' O.C.	14

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	
Streambank, Riparian	Agrostis alba	Redtop	5	30 lbs per acre	
Streambank, Riparian	Poa compressa	Canada Bluegrass	5	30 lbs per acre	
Streambank, Riparian	Festuca arundinacea	Trident tall Fescue	10	30 lbs per acre	
Streambank, Riparian	Sorghastrum nutans	Indian Grass	5	30 lbs per acre	
Streambank, Riparian	Lolium multiflorum	Annual Ryegrass	25	30 lbs per acre	
Streambank, Riparian	Elymus sp.	Saint Perennial Ryegrass	20	30 lbs per acre	
Streambank, Riparian	Festuca rubra	Creeping Red Fescue	25	30 lbs per acre	
TOTAL MIX					8.0

Turfgrass Seed Mix

Zone	Botanical Name	Common Name	Percent Mix	Seeding Rate	Quantity (lbs.)
Turfgrass	Poa pratensis	Kentucky Blue Grass	33	50 lbs per acre	
Turfgrass	Lolium perenne	Perennial Rye Grass	33	50 lbs per acre	
Turfgrass	Schedonoris phoenix	Tall Fescue	34	50 lbs per acre	
TOTAL MIX					2.0



TUBELING DETAIL

NOT TO SCALE

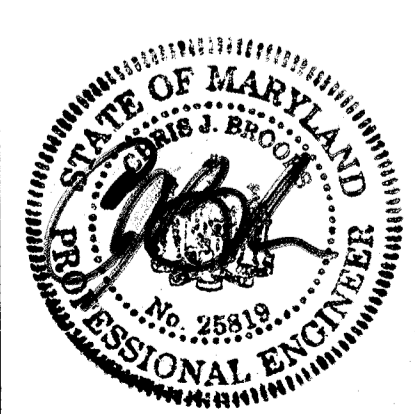
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
TILLER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 5, HOWARD COUNTY MARYLAND
TAX MAP 17, GRID/BLOCK NO. 10, ZONING R-20
PARCEL NO. 0688, LOT NO. 8,11,12,
WAIVER PETITION WP-14-024

LANDSCAPE NOTES AND DETAILS

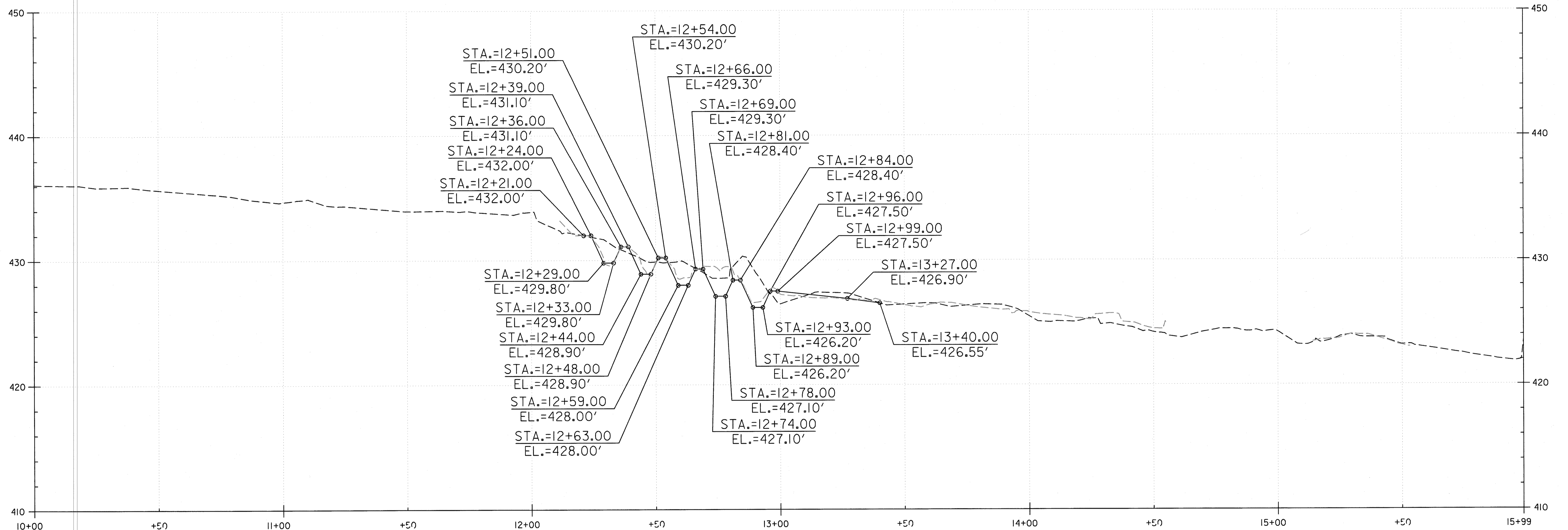
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10 OF 11

Mad Dog
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

11/2/13
DATE

STEP-POOL PROFILE ELEVATIONS		
LOCATION	PROPOSED ELEV. (FT)	AS-BUILT ELEV. (FT)
CREST 1	432.0	432.0
POOL 1	429.8	429.7
CREST 2	431.1	431.1
POOL 2	428.9	428.8
CREST 3	430.2	430.1
POOL 3	428.0	428.0
CREST 4	429.3	429.3
POOL 4	427.1	427.2
CREST 5	428.4	428.3
POOL 5	426.2	426.5
CREST 6	427.5	427.6

NOTE:
AS-BUILT PROFILE SHOWN DEPICTS THE CONSTRUCTION CENTERLINE ALONG THE CONSTRUCTED STEP-POOL SYSTEM. STRUCTURE INVERTS MAY BE OFFSET FROM CENTERLINE. REFER TO THE STEP-POOL ELEVATION TABLE FOR PROPOSED STRUCTURE COMPARISON. CRESTS AND POOLS ARE DESIGNATED.



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

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

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HOWARD COUNTY, MARYLAND

Mark G. Luce
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

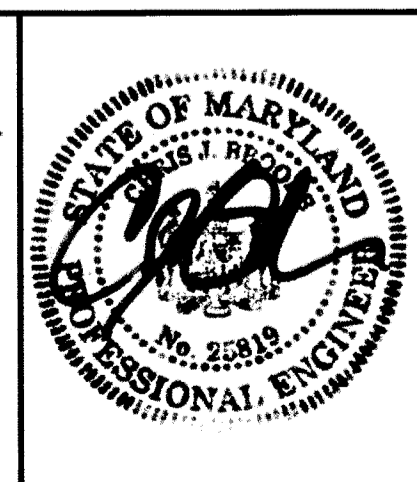
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PROFILE SHEET

SCALE
AS SHOWN
SHEET
11 OF 11