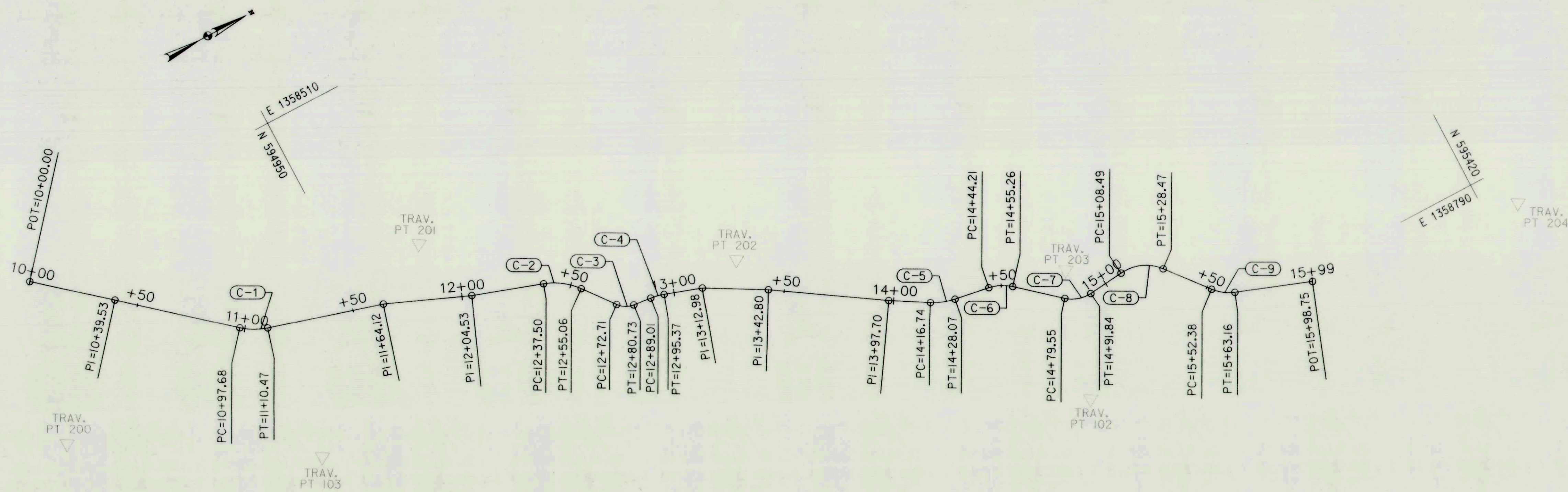


TRAV. PT 104

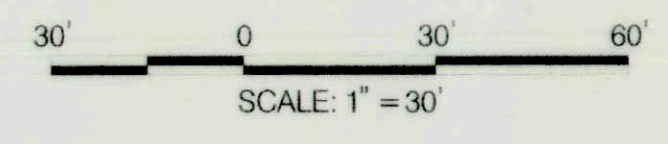


CURVE DATA								
CURVE NO.	Δ	Dc	R	T	L	E	CENTER OF CURVE	
							NORTHING	EASTING
C-1	24°25'25.6091"	190°59'09.3541"	30.00'	6.49'	12.79'	0.69	594914.9507	1358563.3598
C-2	33°32'32.6022"	190°59'09.3541"	30.00'	9.04'	17.56'	1.33	595017.3131	1358661.3358
C-3	45°55'39.0369"	190°59'09.3541"	10.00'	4.24'	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

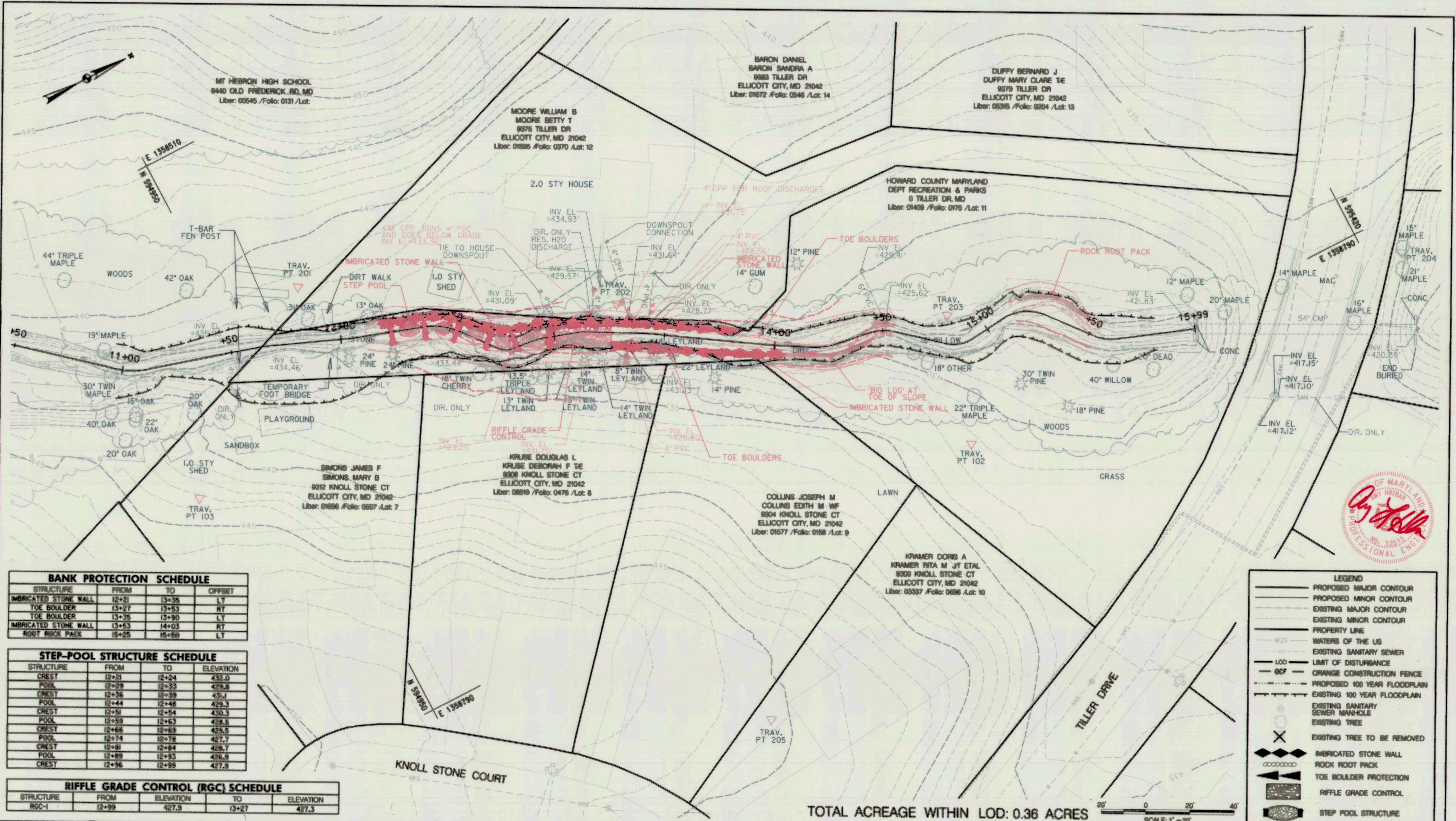
TRAVERSE CONTROL COORDINATES			
POINT	NORTHING	EASTING	ELEVATION
100	594,926.0149	1,359,306.8720	450.98'
101	595,314.9923	1,359,126.2991	438.23'
102	595,222.1064	1,358,794.8178	431.94'
103	594,900.9534	1,358,655.5698	443.15'
104	594,772.4293	1,358,360.6975	459.85'
105	594,511.9898	1,358,603.6301	461.71'
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			



<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>Michael J. DeLuca</i> CHIEF, BUREAU OF ENVIRONMENTAL SERVICES</p>	<p>McCormick Taylor Engineers & Planners Since 1946</p> <p>509 South Exeter Street 4th Floor Baltimore, Maryland 21202 (410) 662-7400</p>	<p>Howard County MARYLAND</p> <p>Storm Water Management Division Bureau of Environmental Services 6751 Columbia Gateway Drive, Suite 514 Columbia, Maryland 21046-3143 (410) 313-6444</p>	DES: LN				<p>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</p> <p>GEOMETRY SHEET</p>	SCALE
			DRN: MR					1" = 30'
CHK: CB							SHEET	
DATE: 11/7/13	BY	NO	REVISION	DATE			2 OF 11	



BANK PROTECTION SCHEDULE

STRUCTURE	FROM	TO	OFFSET
IMBRICATED STONE WALL	12+20	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	428.5
POOL	12+74	12+78	427.7
CREST	12+80	12+84	428.7
POOL	12+89	12+93	426.9
CREST	12+96	12+99	427.9

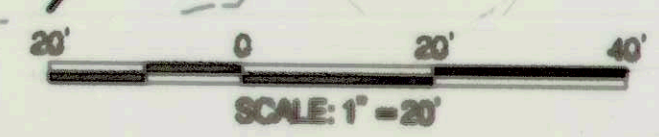
RIFFLE GRADE CONTROL (RGC) SCHEDULE

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
- WUS - WATERS OF THE US
- 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
- IMBRICATED STONE WALL
- ROOT ROCK PACK
- TOE BOULDER PROTECTION
- RIFFLE GRADE CONTROL
- STEP POOL STRUCTURE

TOTAL ACREAGE WITHIN LOD: 0.36 ACRES



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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

DATE: 4/12/12

McCormick Taylor
Engineers & Planners
Since 1946

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

Howard County
MARYLAND

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

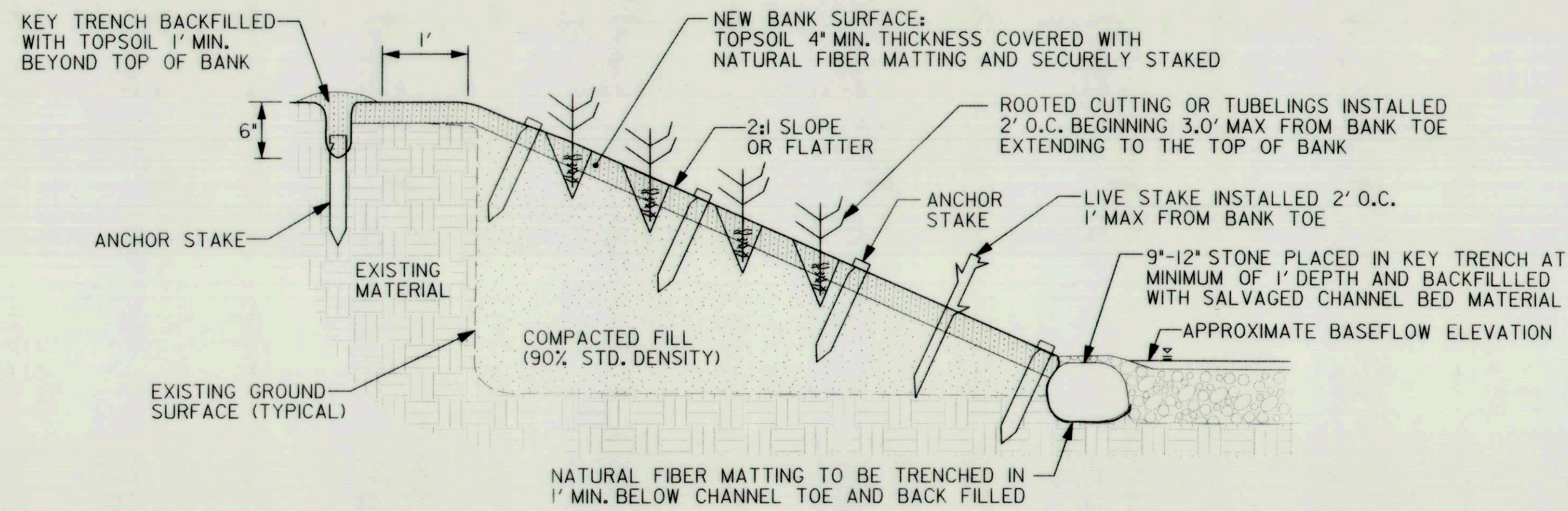


DES:	LEN:	AS-BUILT:	DATE:
LN			4/1/14
MR			
CB			
DATE: 11/7/13	BY:	NO.:	REVISION:

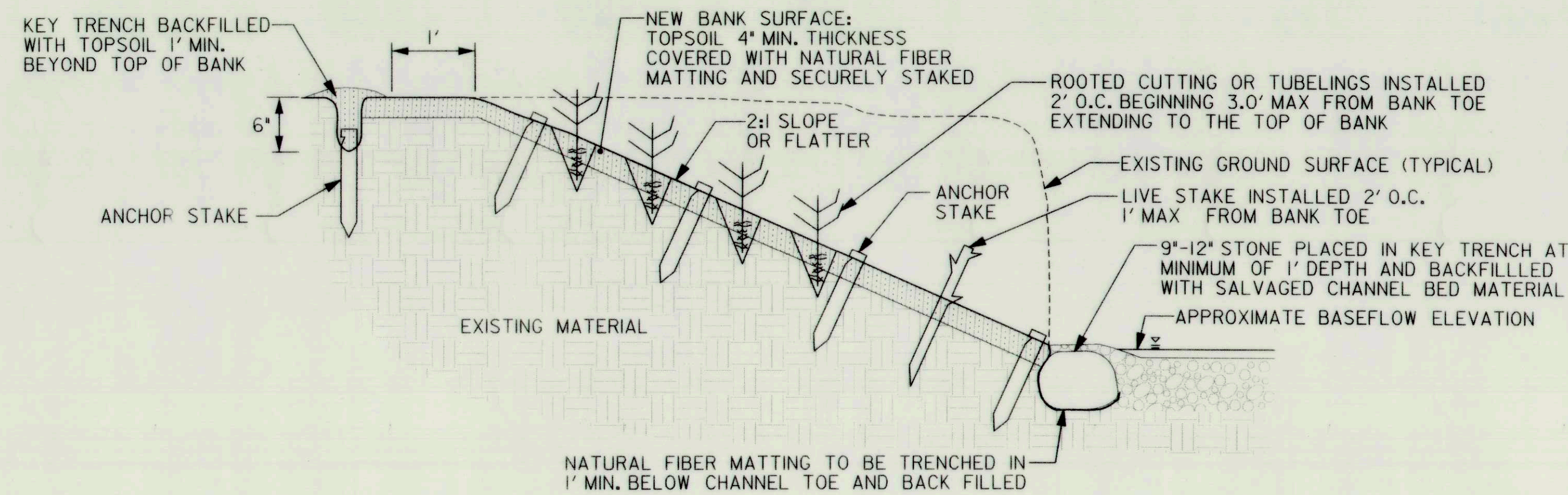
HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
TILLER DRIVE STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
ELECTION DISTRICT NO. 5, HOWARD COUNTY MARYLAND
TAX MAP 17, GRIDBLOCK NO. 10, ZONING R-20
PARCEL NO. 0688, LOT NO. 8,11,12,
WAIVER PETITION WP-14-024

SCALE: 1" = 20'
SHEET: 3 OF 11

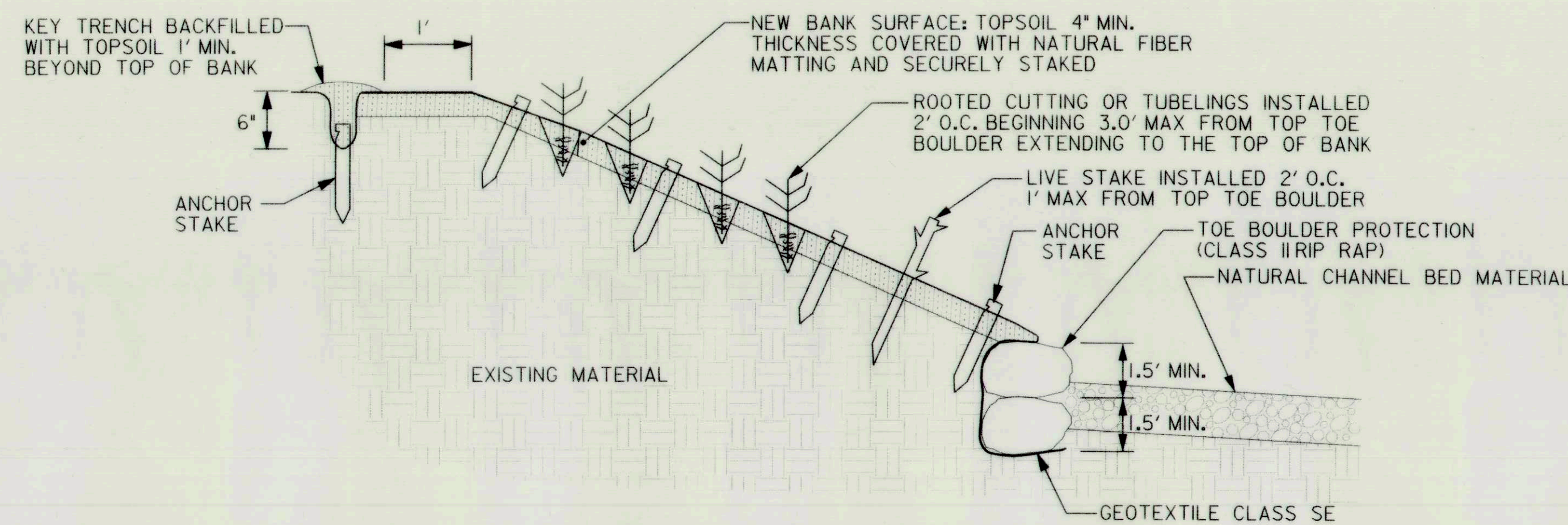
PF SITE PLAN



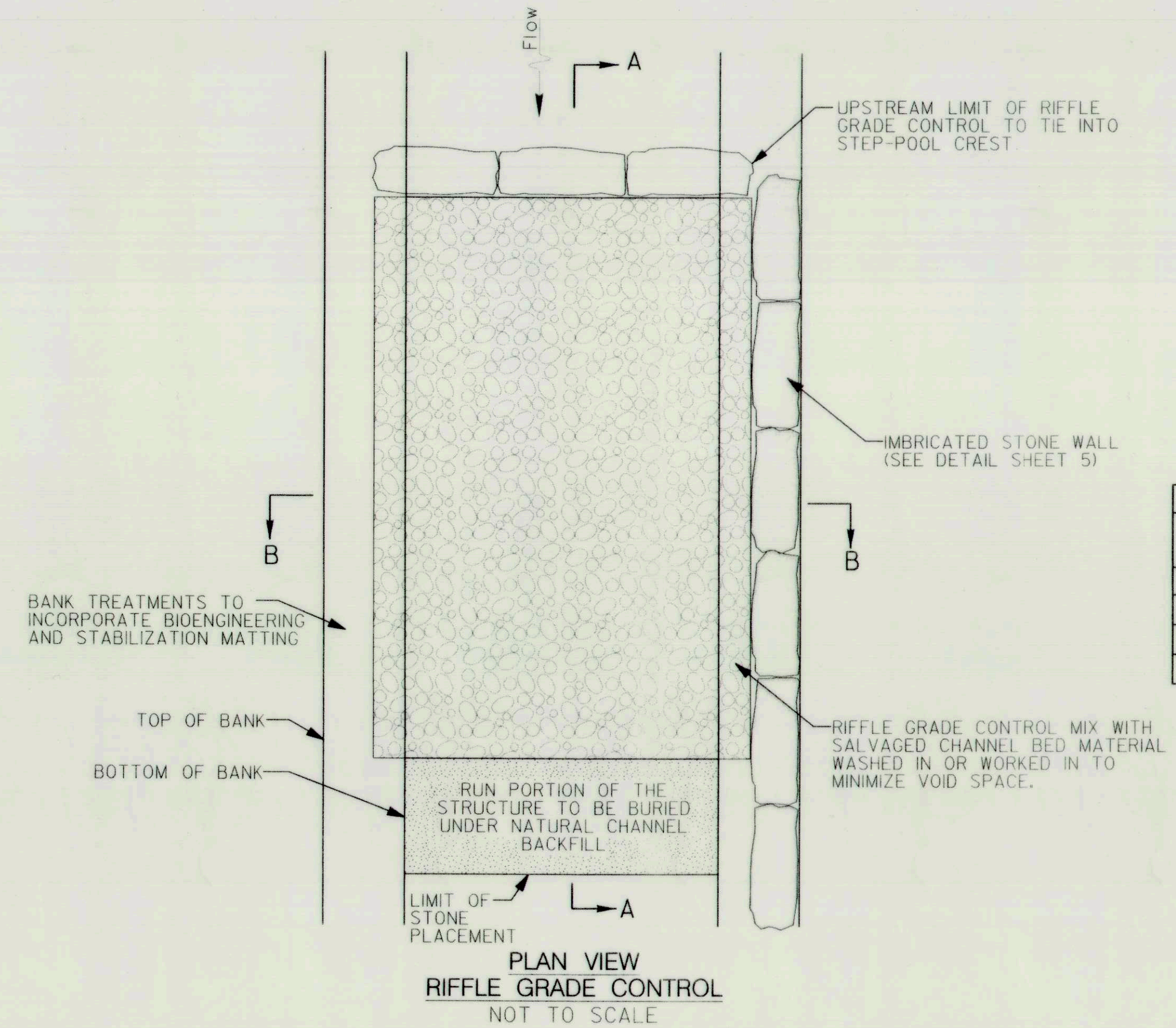
TYPICAL STREAMBANK STABILIZATION IN FILL WITH STONE KEY
NOT TO SCALE



TYPICAL STREAMBANK STABILIZATION IN CUT WITH STONE KEY
NOT TO SCALE

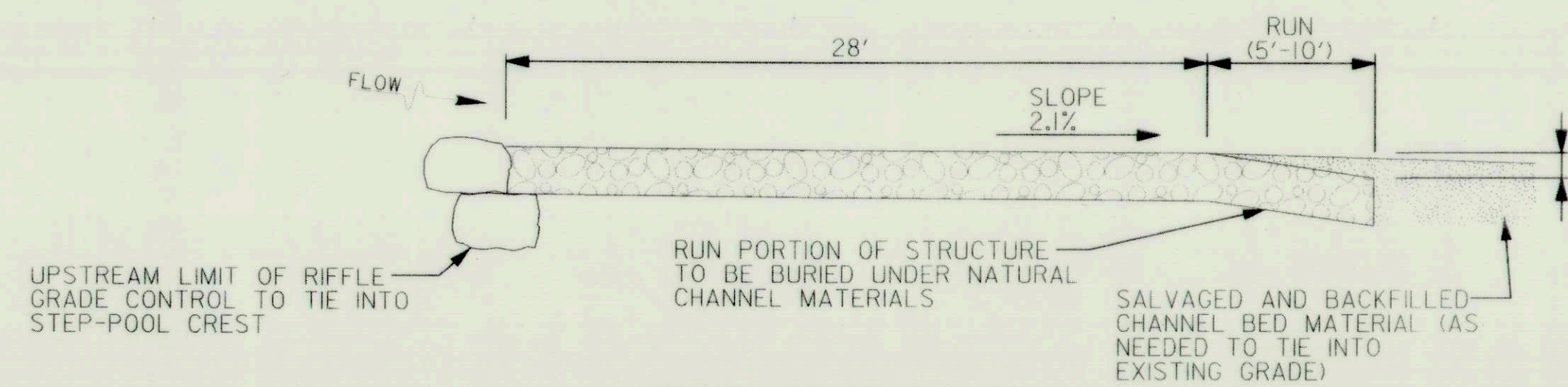


TOE BOULDER PROTECTION TYPICAL
NOT TO SCALE

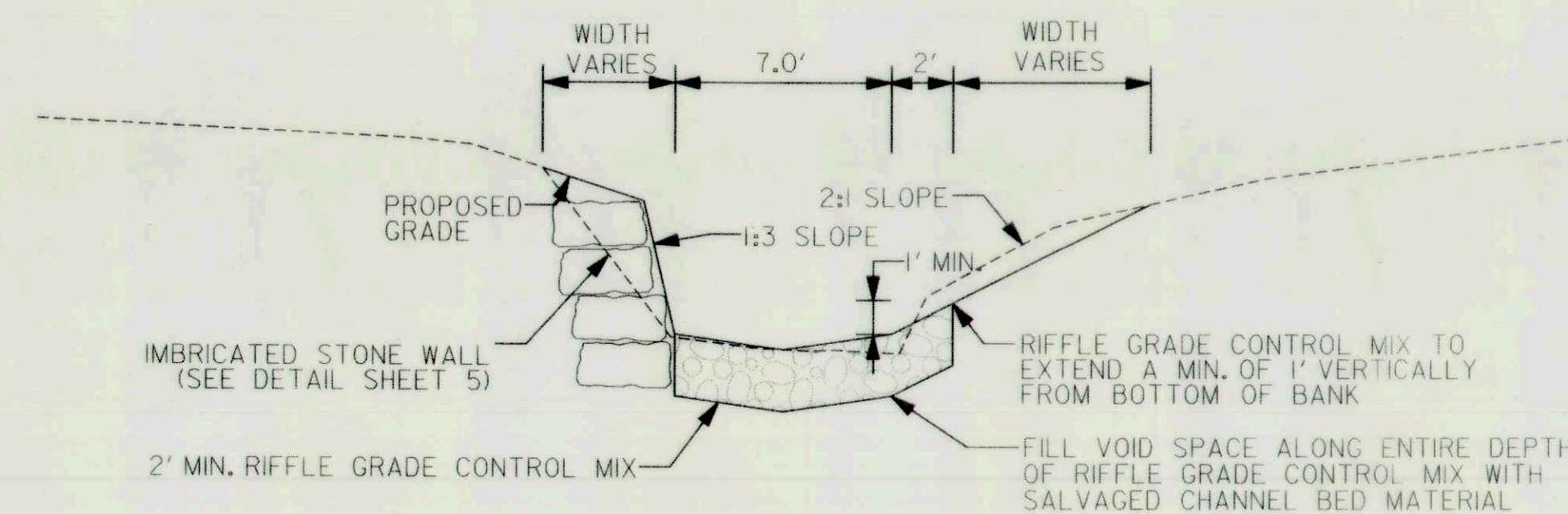


PLAN VIEW
RIFFLE GRADE CONTROL
NOT TO SCALE

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



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

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



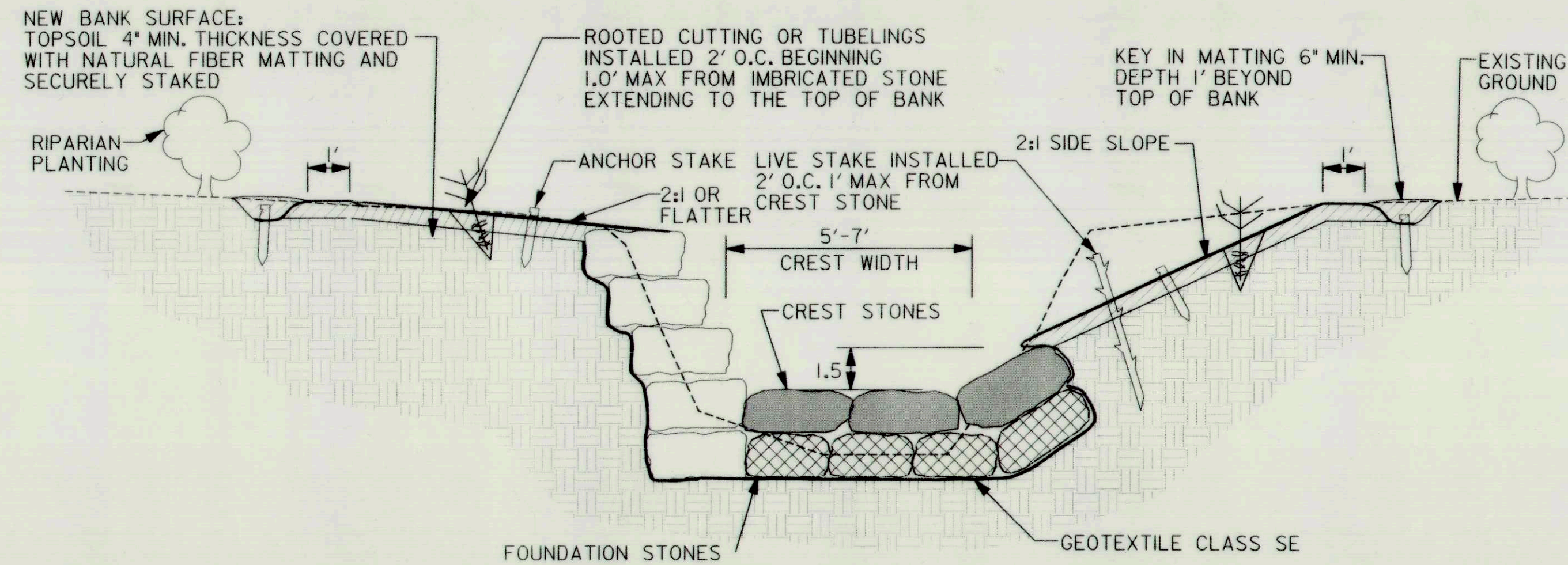
DES: LN					
DRN: MR					
CHK: CB					
DATE: 11/7/13	BY	NO.	REVISION	DATE	

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
STREAM STABILIZATION DETAILS

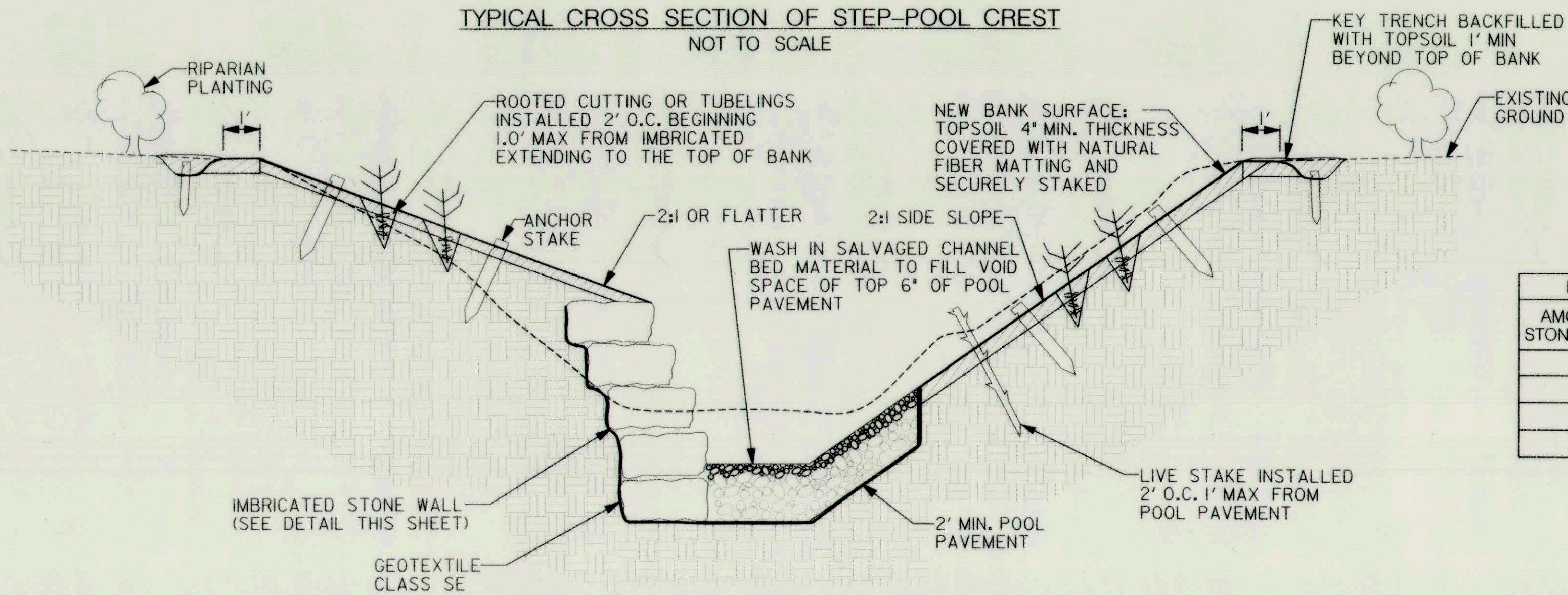
SCALE
AS NOTED
SHEET
4 OF 11

Mark DeLuca
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

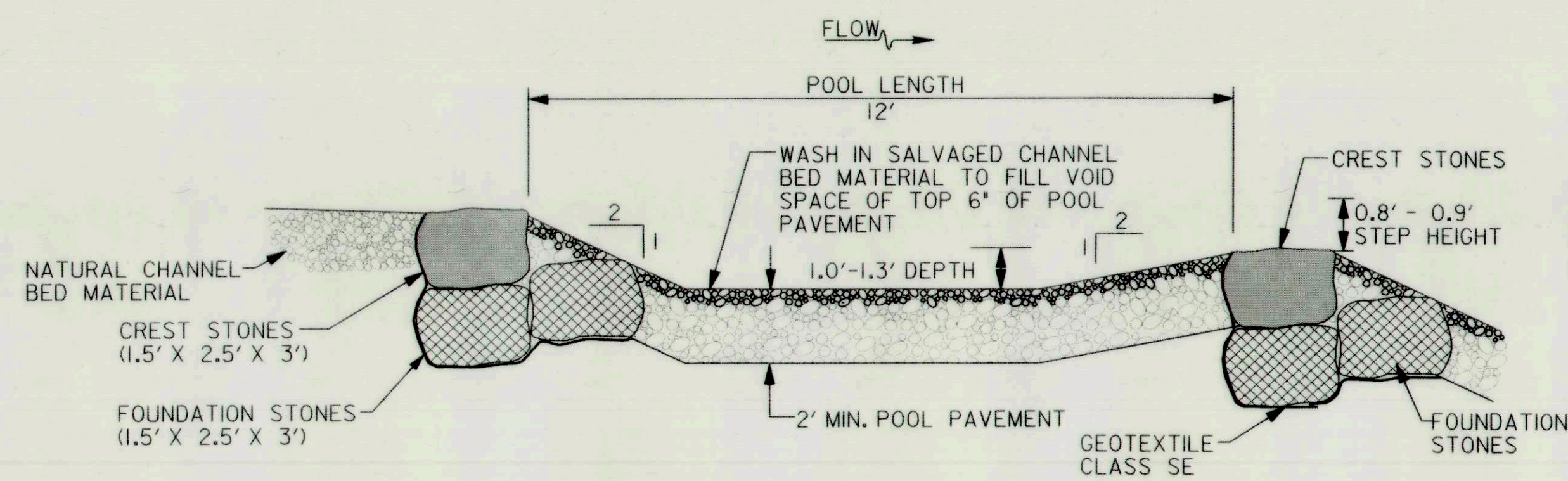
11/21/13
DATE



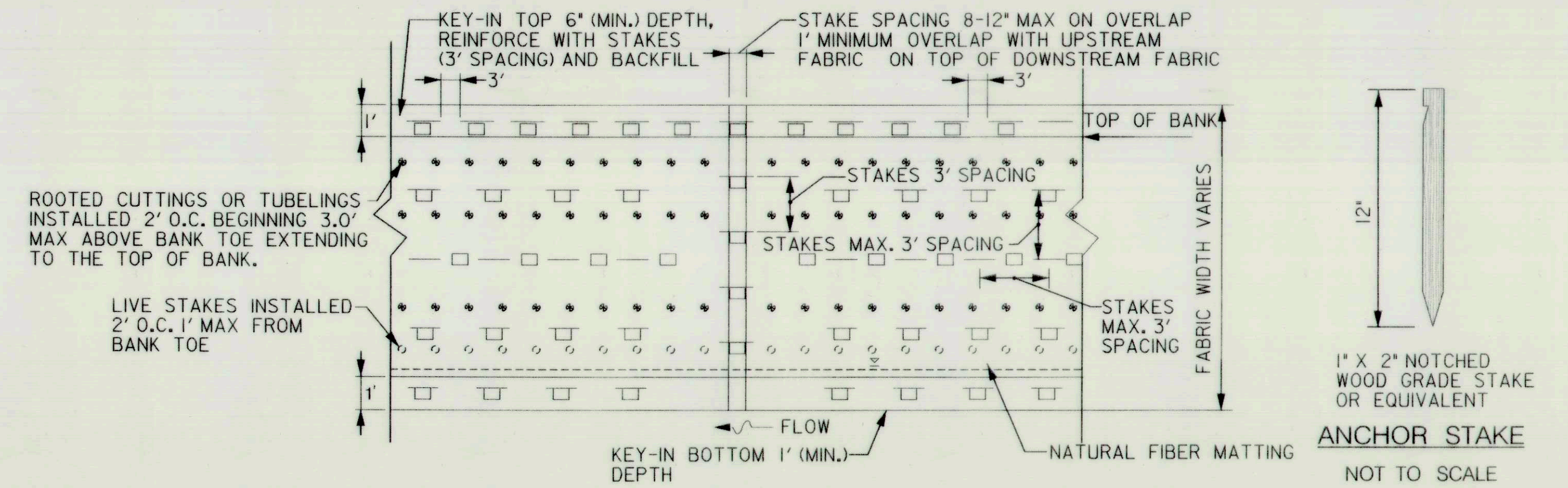
TYPICAL CROSS SECTION OF STEP-POOL CREST
NOT TO SCALE



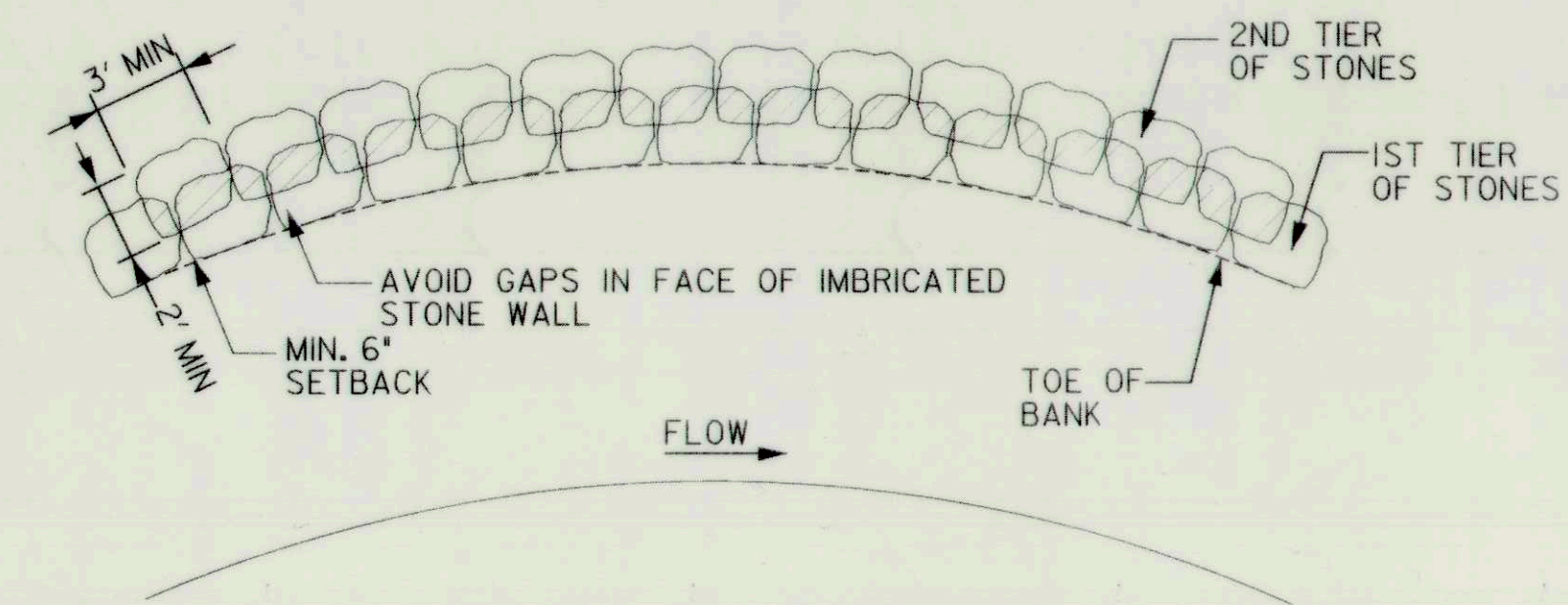
TYPICAL CROSS SECTION OF STEP-POOL POOL
NOT TO SCALE



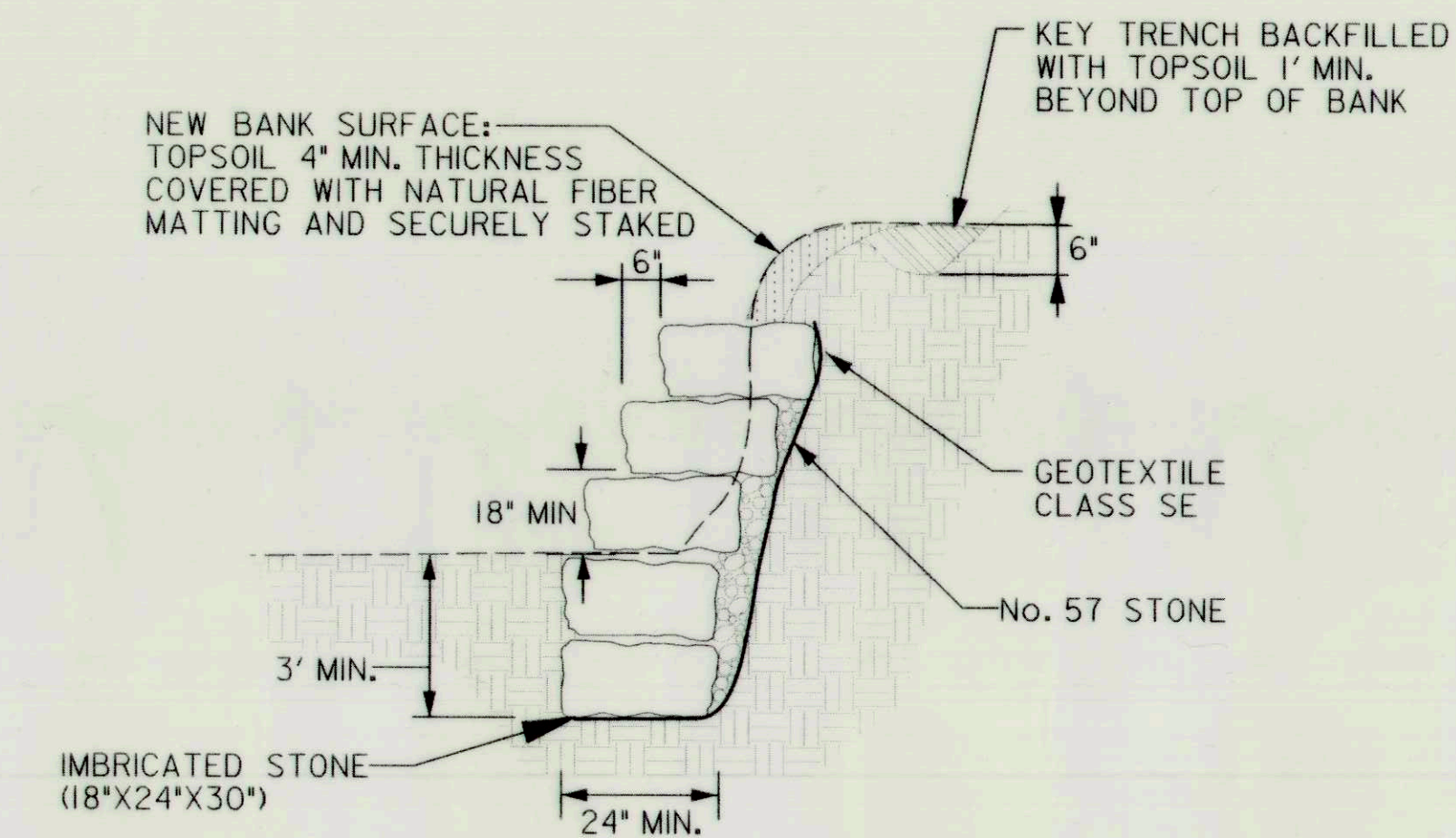
TYPICAL PROFILE THROUGH STEP-POOL
NOT TO SCALE



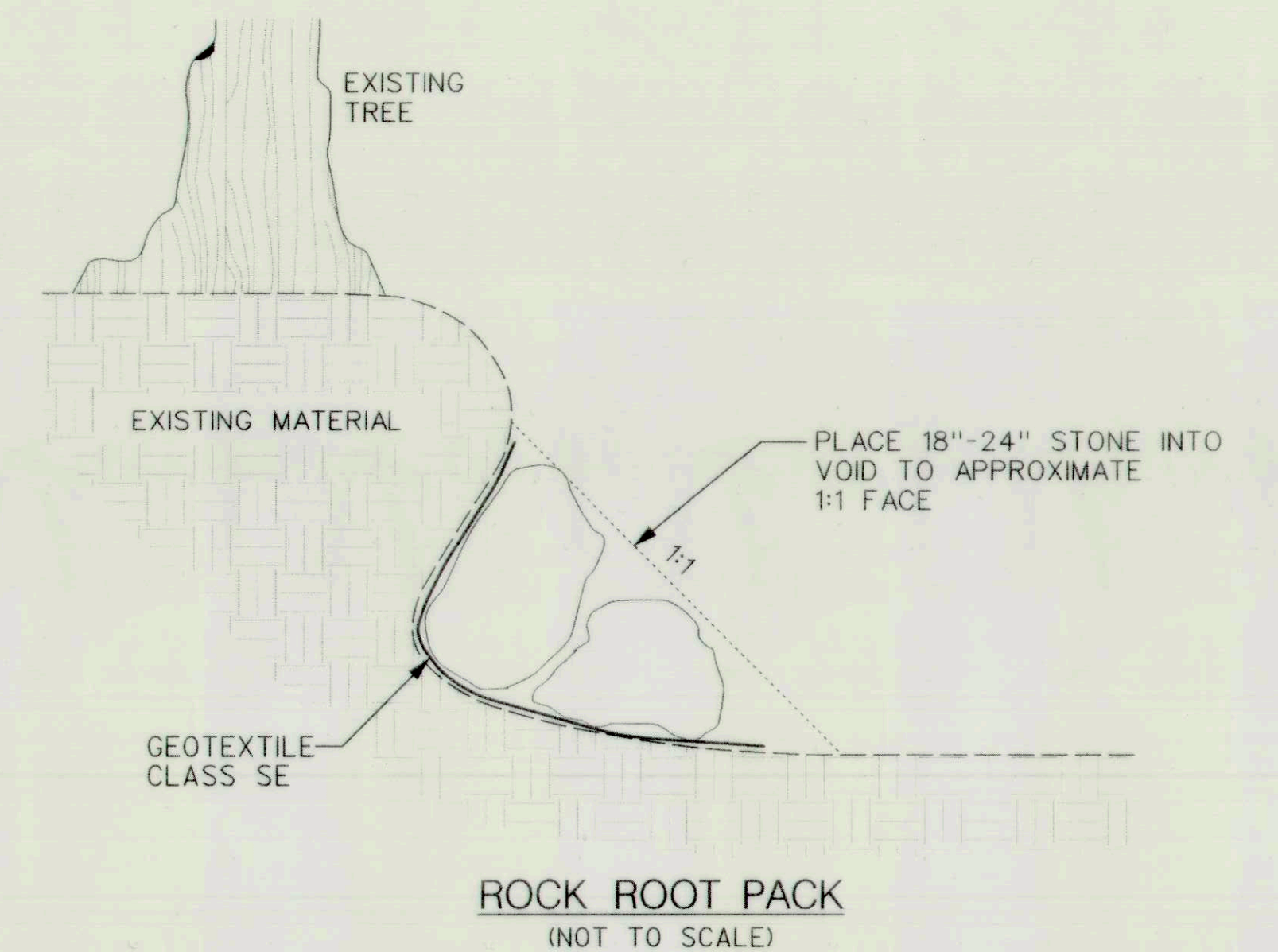
NATURAL FIBER MATTING - PLAN VIEW
NOT TO SCALE



IMBRICATED STONE WALL CHANNEL PROTECTION-PLAN VIEW
NOT TO SCALE



IMBRICATED STONE WALL CHANNEL PROTECTION-SECTION VIEW
NOT TO SCALE



ROCK ROOT PACK
NOT TO SCALE

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

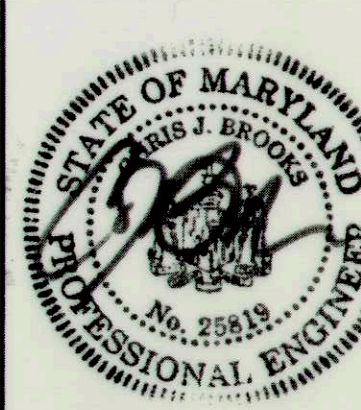
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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

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
STREAM STABILIZATION DETAILS

SCALE

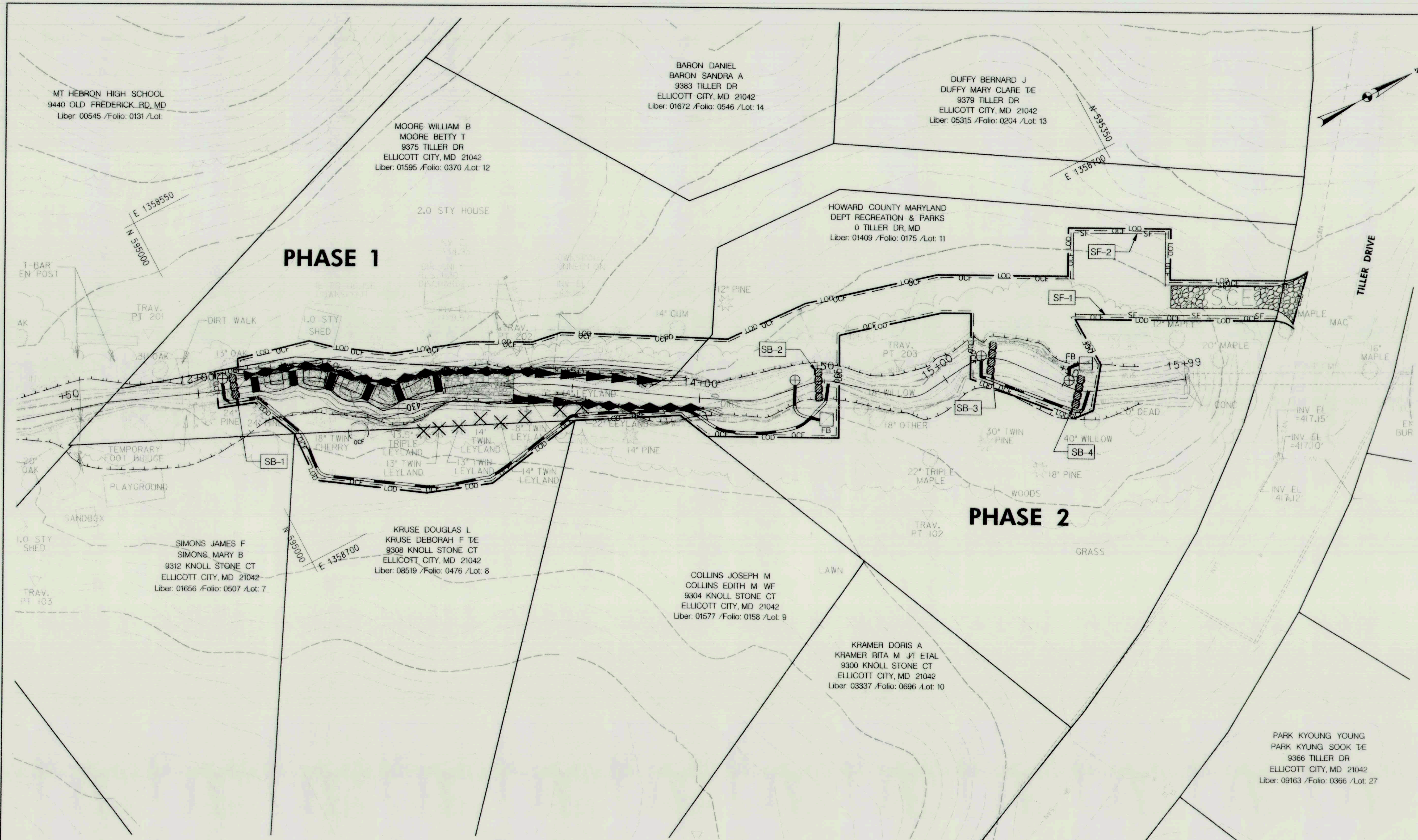
AS NOTED

SHEET

5 OF 11

Mark DeLuca
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 7:00 AM, 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
- SF — SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- OCF — ORANGE CONSTRUCTION FENCE
- EXISTING TREE
- ✕ EXISTING TREE TO BE REMOVED
- SB SANDBAG DAM
- FB DEWATERING FILTER BAG
- P 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 R. Roberts
HOWARD COUNTY SOIL CONSERVATION DISTRICT

4/12/13
DATE

CLEAR WATER PUMP

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

DEWATERING FILTER BAG

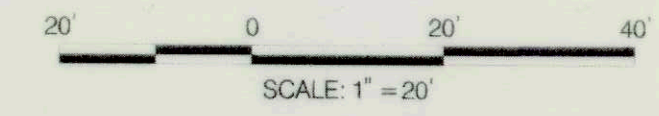
STATION	QTY (EA)	REMARKS
14+52, 15' RT	1	
15+60, 12' LT	1	

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**

Mark DeWitt
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

4/12/13
DATE

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					
DRN: MR					
CHK: CB					
DATE: 1V 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
EROSION AND SEDIMENT CONTROL PLAN**

SCALE: 1" = 20'
SHEET: 6 OF 11

EROSION AND SEDIMENT CONTROL - GENERAL NOTES

HOWARD COUNTY CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL 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 PLANS: STABILIZED CONSTRUCTION ENTRANCE AND SILT FENCE. CLEARING ONLY THE AREA NEEDED TO INSTALL THE ESS 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 MCM 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. INSTREAM 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 COUNTY CONSERVATION DISTRICT.

John R. Roberts
HOWARD COUNTY SOIL CONSERVATION DISTRICT
DATE: 11/14/13

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. SOO 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.
 1. 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.
 2. 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.
 1. 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.
 2. 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 INCLUDING SEED AND FERTILIZER) TO EXCEED THE FOLLOWING:
 1. 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.
 2. 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.
 3. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 4. 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.
 1. 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 UNIFORMITY SPREAD SLURRY.
 2. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 3. 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.
 4. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 5. 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 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:
 1. 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.
 2. 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.
 3. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TACK II, TERRA TACK 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.
 4. 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 (1.0 LB/ 1000 SF)	90 LB/AC (2.0 LB/ 1000 SF)	90 LB/AC (2.0 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

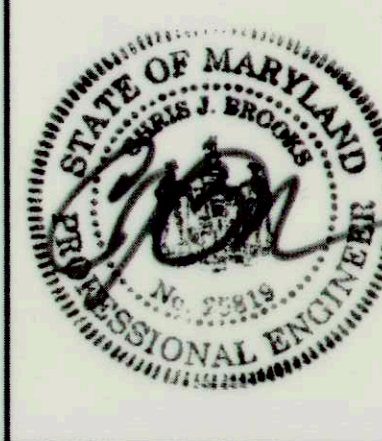
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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

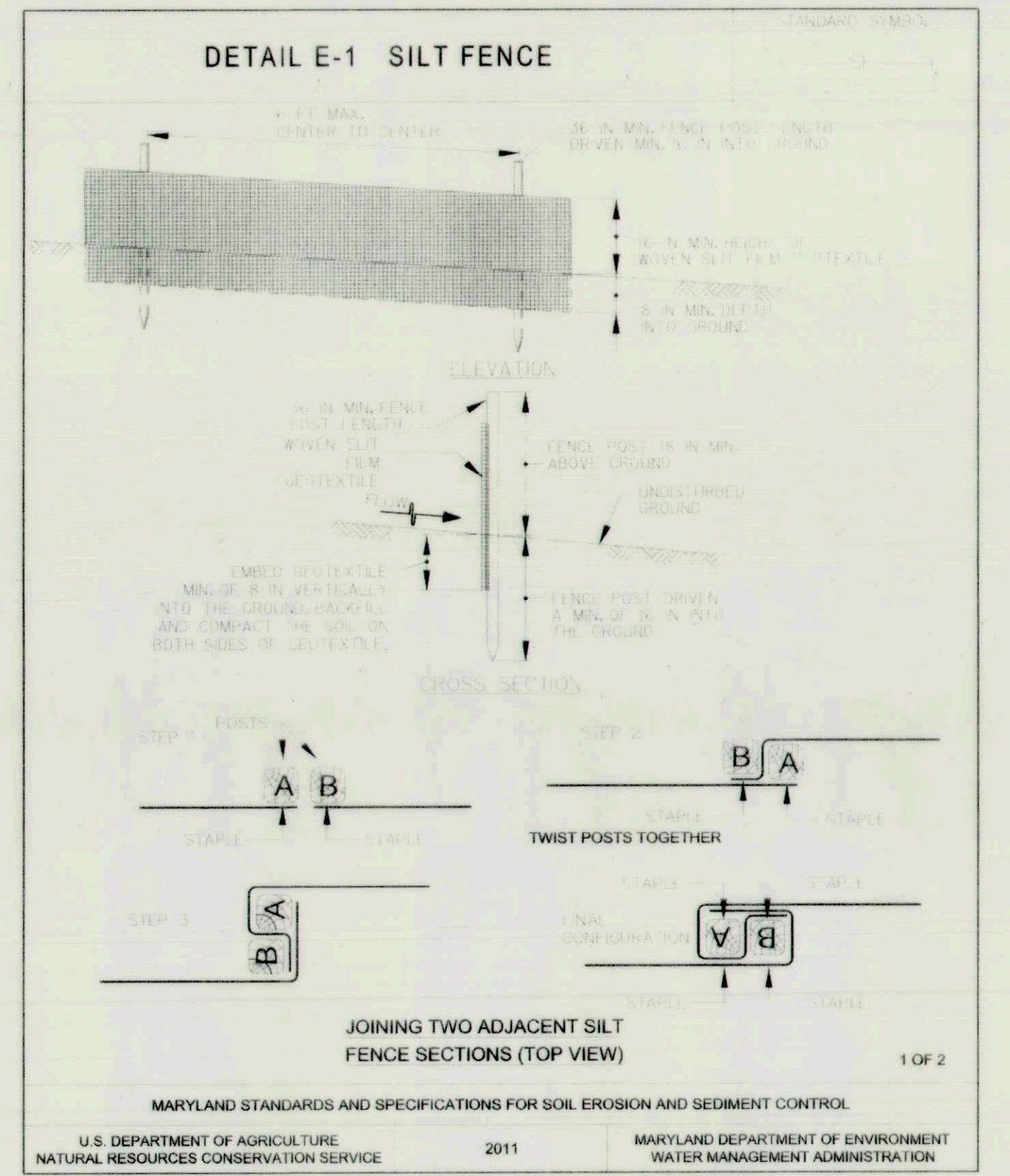
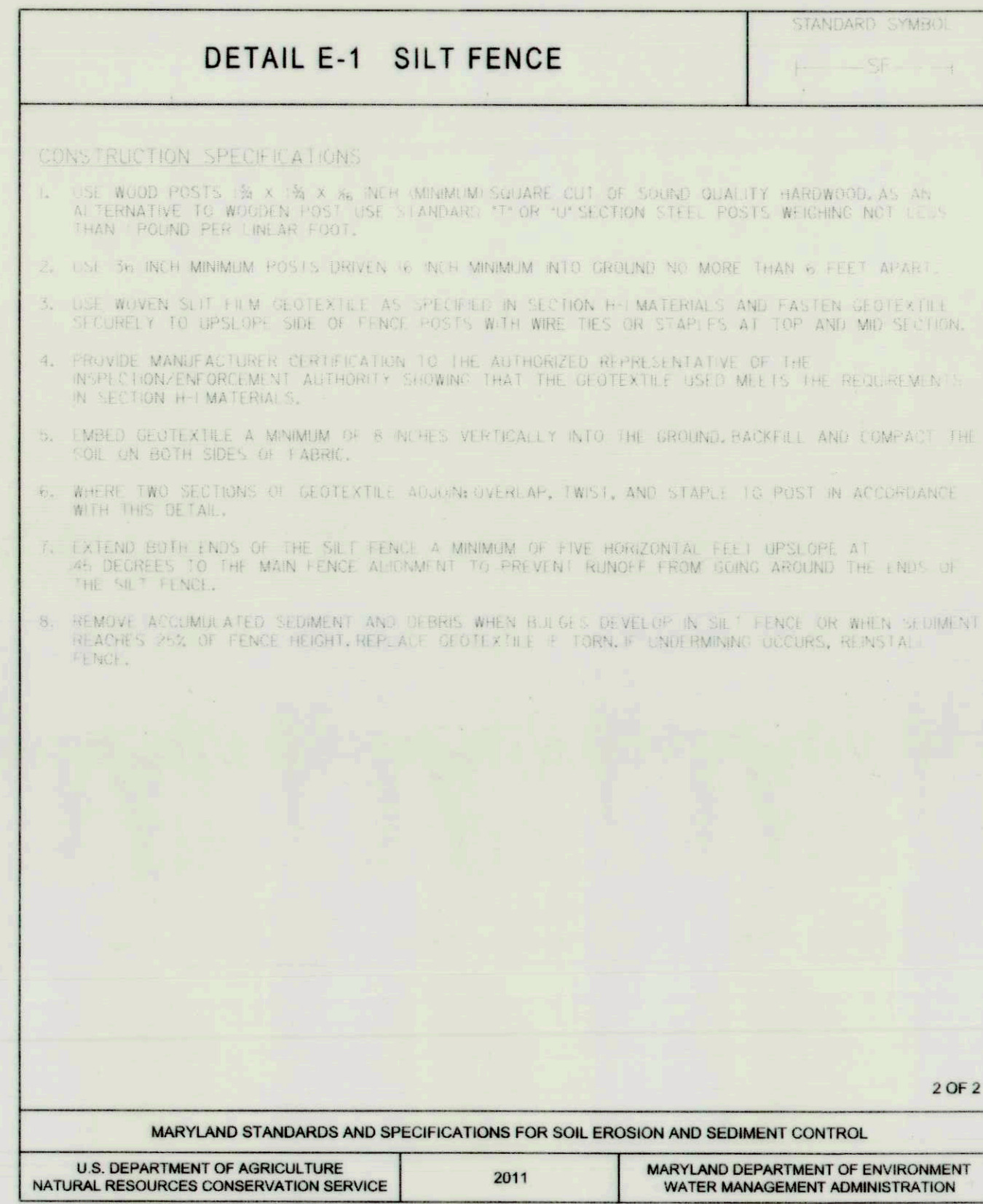
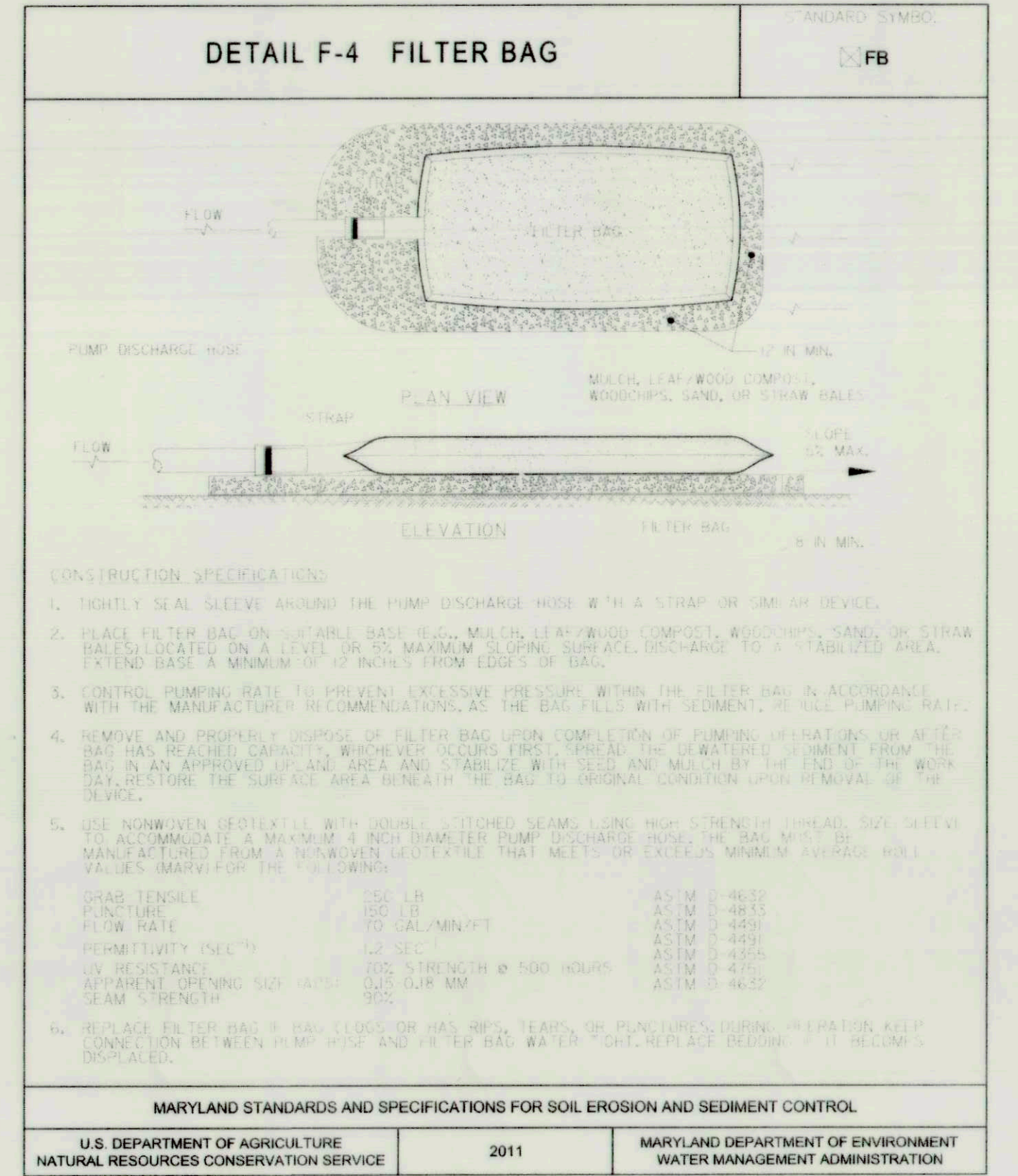
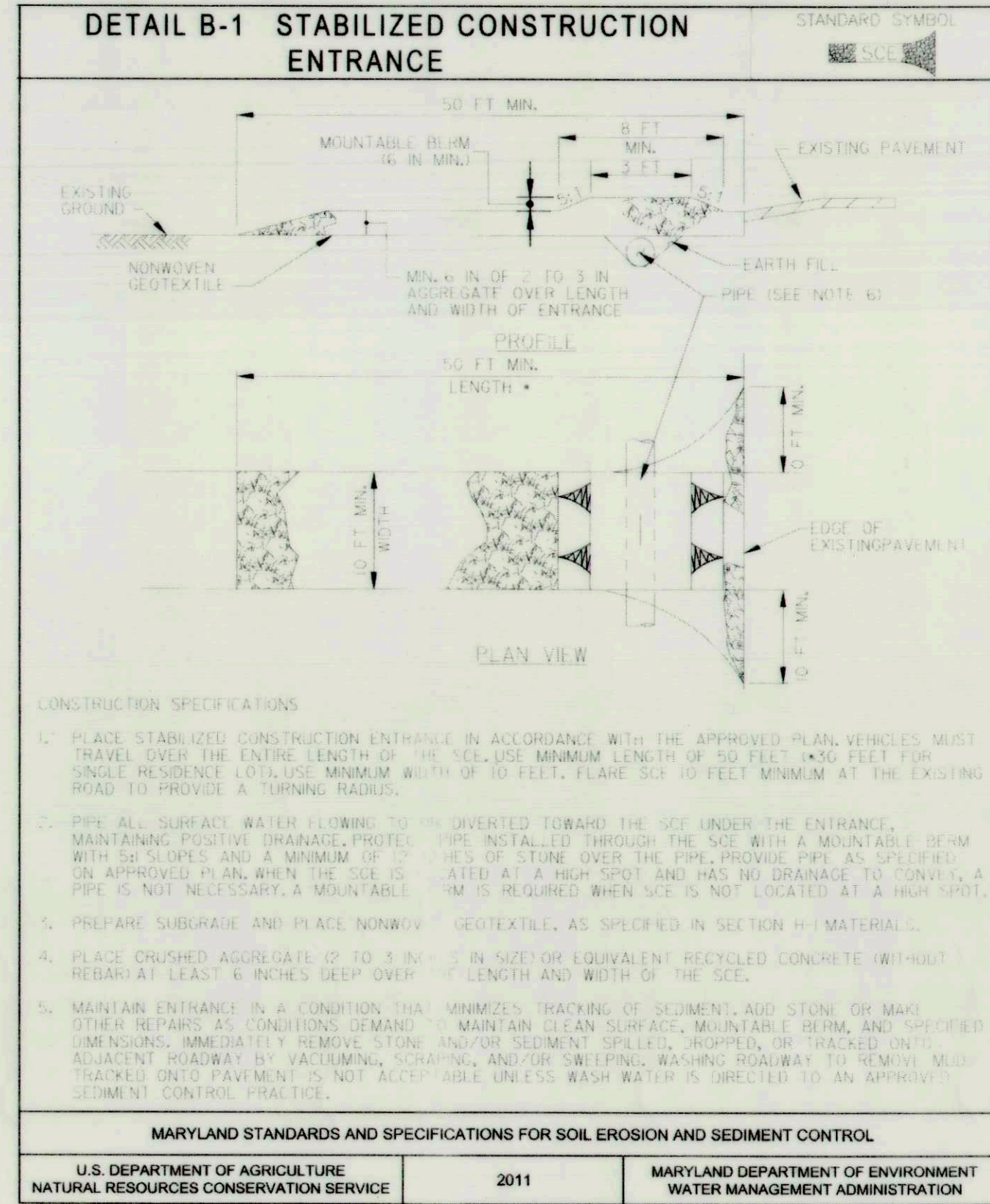
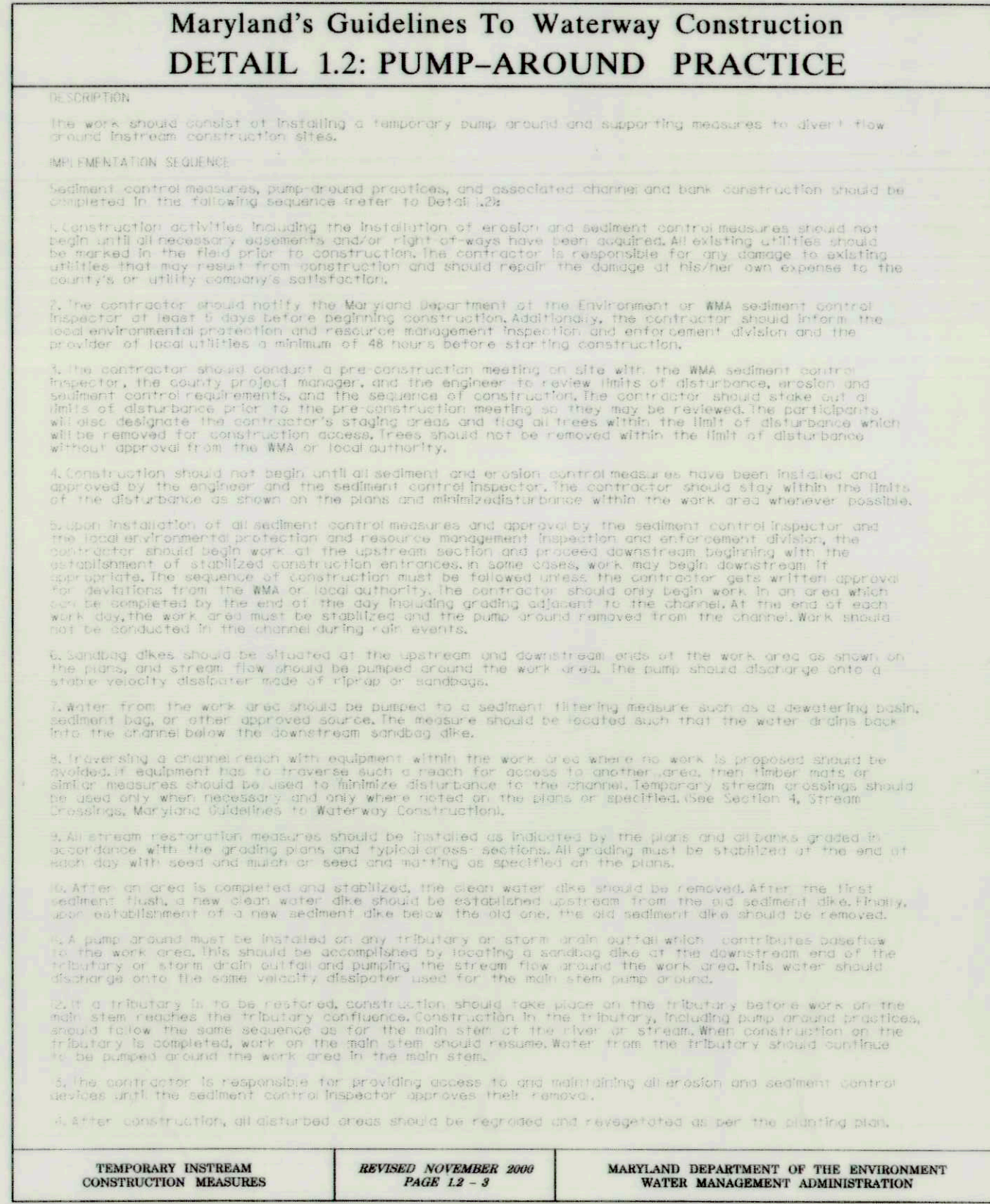
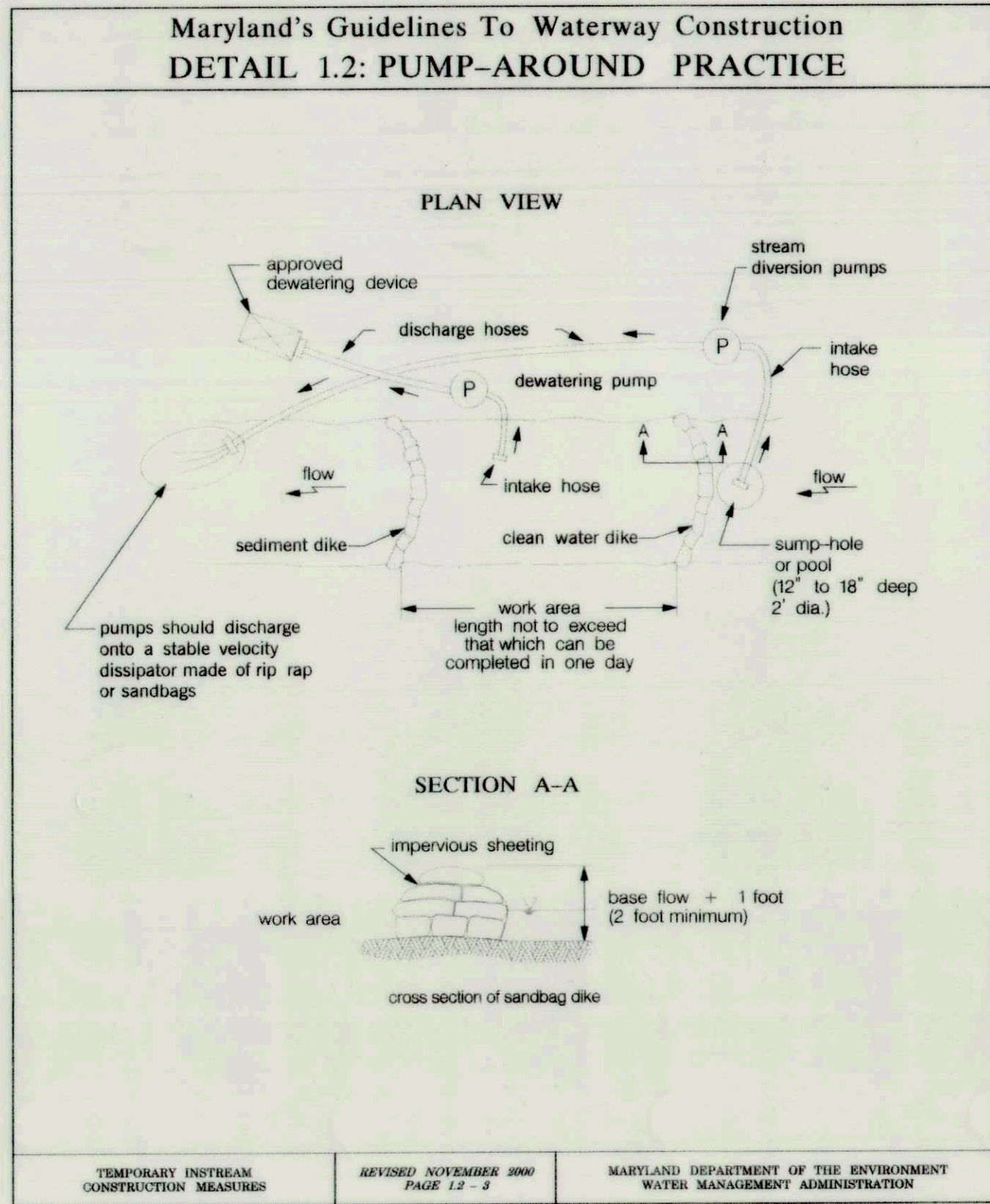


DES: LN			
DRN: MR			
CHK: CB			
DATE: 11/7/13	BY	NO.	REVISION

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

SCALE
NOT TO SCALE
SHEET
7 OF 11

Mark DeLuca
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
DATE: 11/12/13



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.

John R. Roberts
HOWARD COUNTY SOIL CONSERVATION DISTRICT

11/14/13
DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark D. Jones
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

11/12/13
DATE

McCormick
Engineers & Planners
Since 1946
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: LN							
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
EROSION AND SEDIMENT CONTROL DETAILS

SCALE
NOT TO SCALE
SHEET
8 OF 11

Planting Schedule

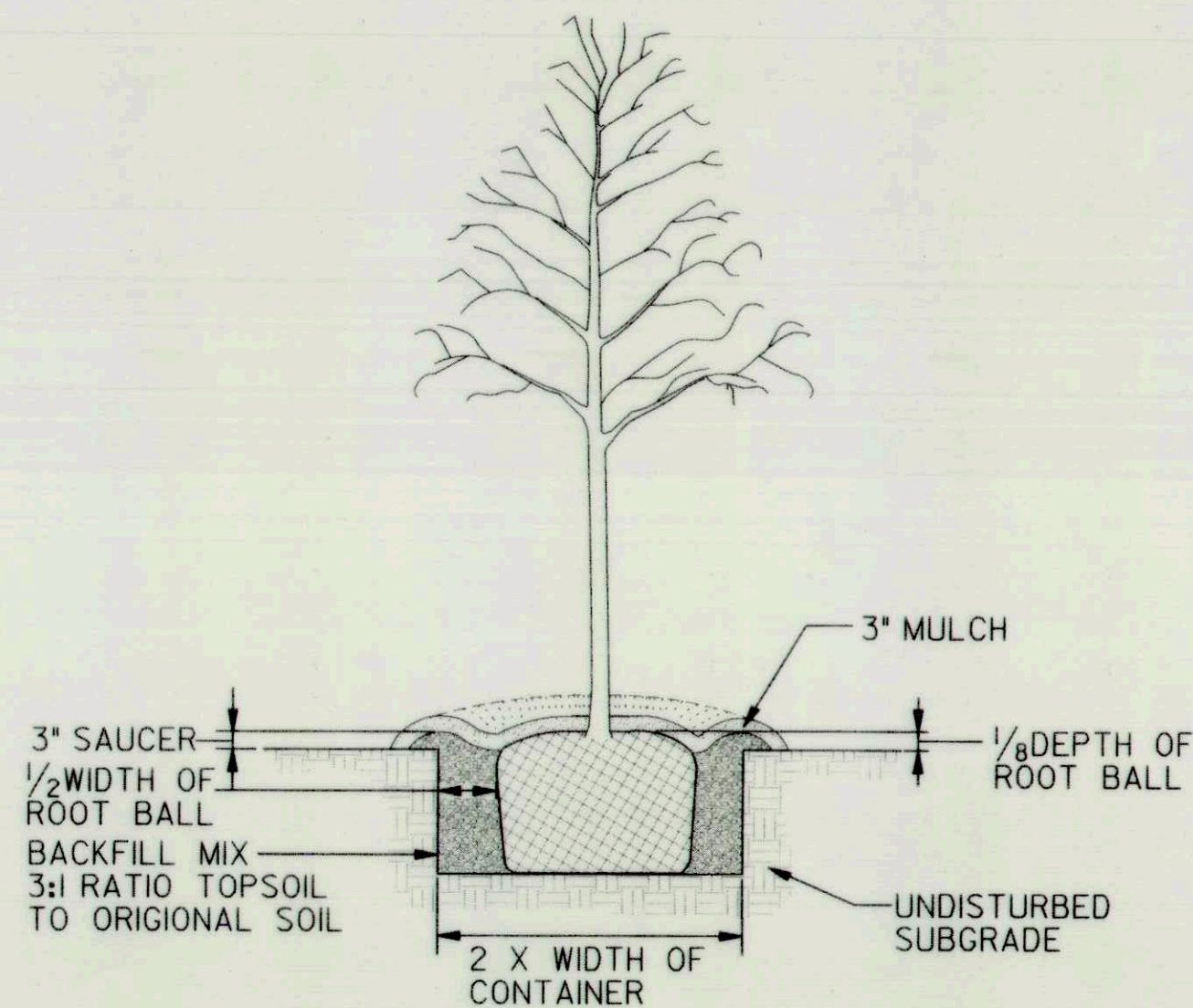
Zone	Botanical Name	Common Name	Size	Comment	Quantity
Streambank	<i>Cornus sericea</i>	Red Osier Dogwood	3'-4' Live Stake	Plant 2' O.C.	105
Streambank	<i>Viburnum dentatum</i>	Southern Arrowwood	3'-4' Live Stake	Plant 2' O.C.	105
Streambank	<i>Salix sericea</i>	Silky Willow	3'-4' Live Stake	Plant 2'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

Riparian Seed Mix

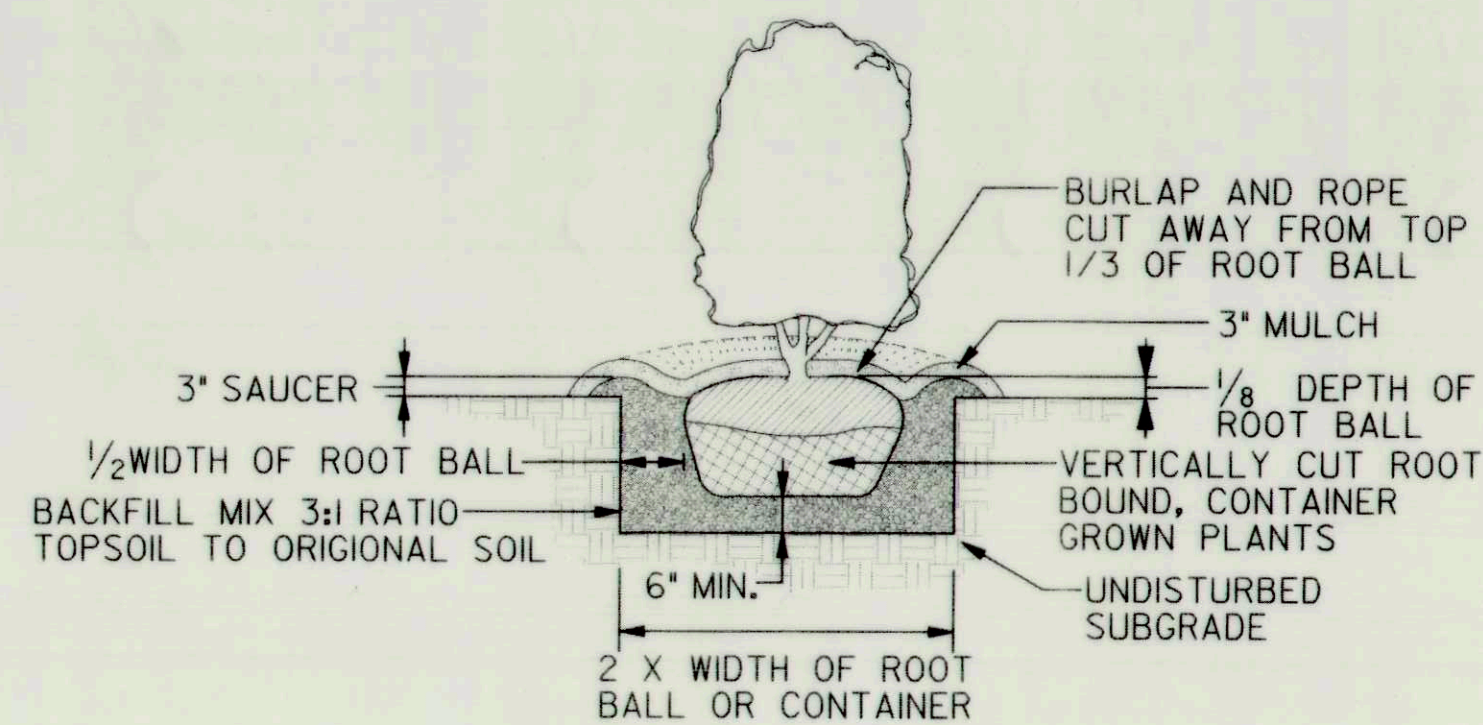
Zone	Botanical Name	Common Name	Percent Mix	Seeding Rate	Quantity (lbs.)
Streambank, Riparian	<i>Elymus virginicus</i>	Virginia Wildrye	5	30 lbs per acre	
Streambank, Riparian	<i>Agrostis alba</i>	Redtop	5	30 lbs per acre	
Streambank, Riparian	<i>Poa compressa</i>	Canada Bluegrass	5	30 lbs per acre	
Streambank, Riparian	<i>Festuca arundinacea</i>	Trident tall Fescue	10	30 lbs per acre	
Streambank, Riparian	<i>Sorghastrum nutans</i>	Indian Grass	5	30 lbs per acre	
Streambank, Riparian	<i>Lolium multiflorum</i>	Annual Ryegrass	25	30 lbs per acre	
Streambank, Riparian	<i>Elymus sp.</i>	Saint Perennial Ryegrass	20	30 lbs per acre	
Streambank, Riparian	<i>Festuca rubra</i>	Creeping Red Fescue	25	30 lbs per acre	
TOTAL MIX					8.0

Turfgrass Seed Mix

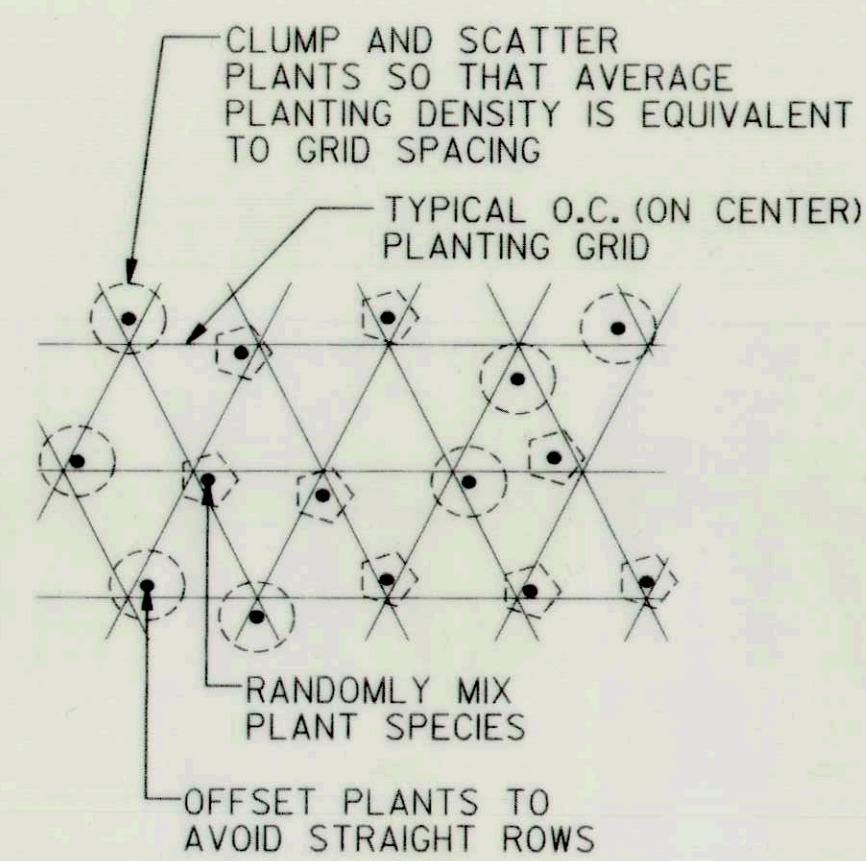
Zone	Botanical Name	Common Name	Percent Mix	Seeding Rate	Quantity (lbs.)
Turfgrass	<i>Poa pratensis</i>	Kentucky Blue Grass	33	50 lbs per acre	
Turfgrass	<i>Lolium perenne</i>	Perennial Rye Grass	33	50 lbs per acre	
Turfgrass	<i>Schedonorus phoenix</i>	Tall Fescue	34	50 lbs per acre	
TOTAL MIX					2.0



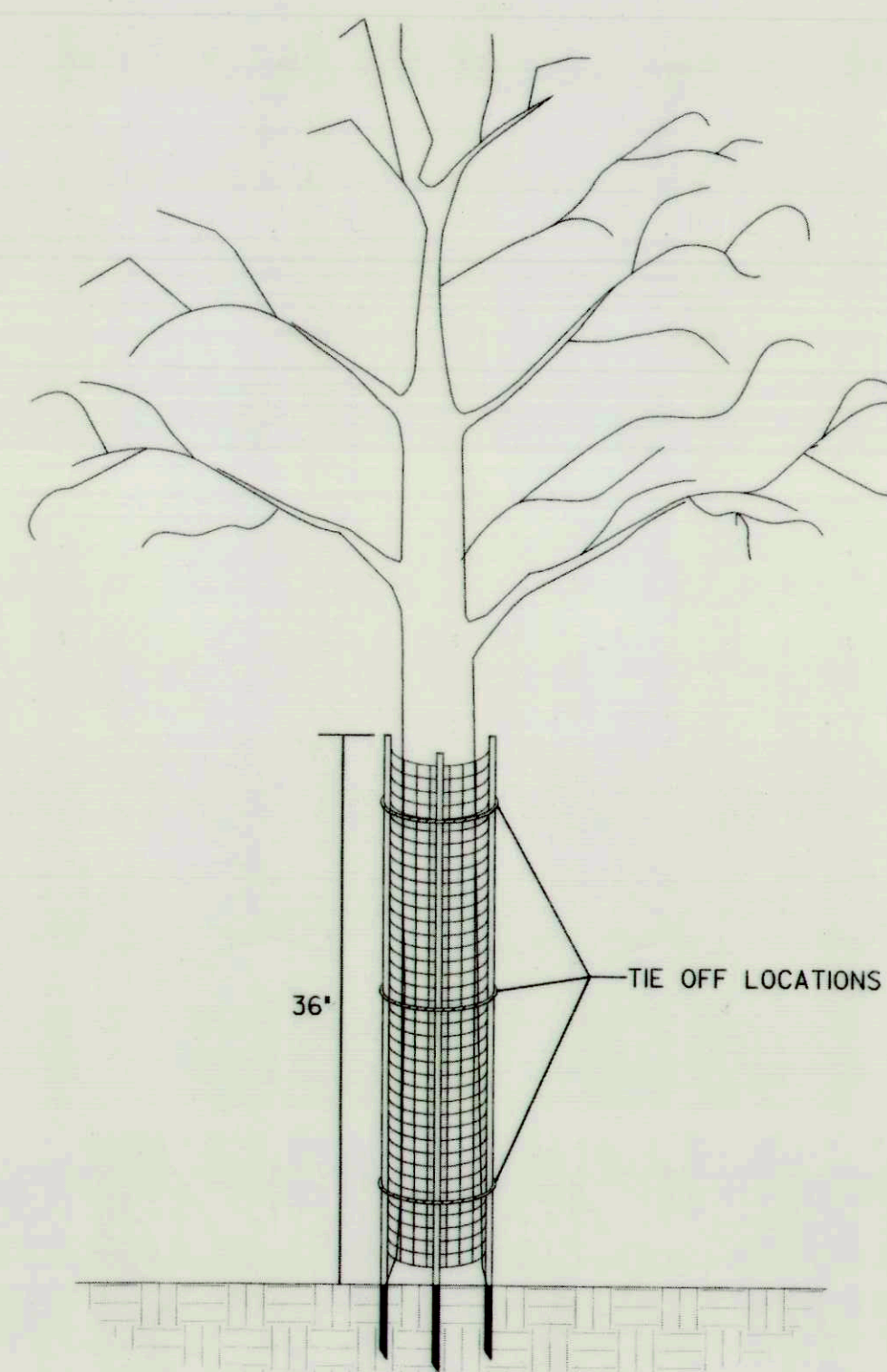
DECIDUOUS TREE PLANTING DETAIL
CONTAINER GROWN
NOT TO SCALE



SHRUB PLANTING DETAIL
B & B AND CONTAINER GROWN
NOT TO SCALE



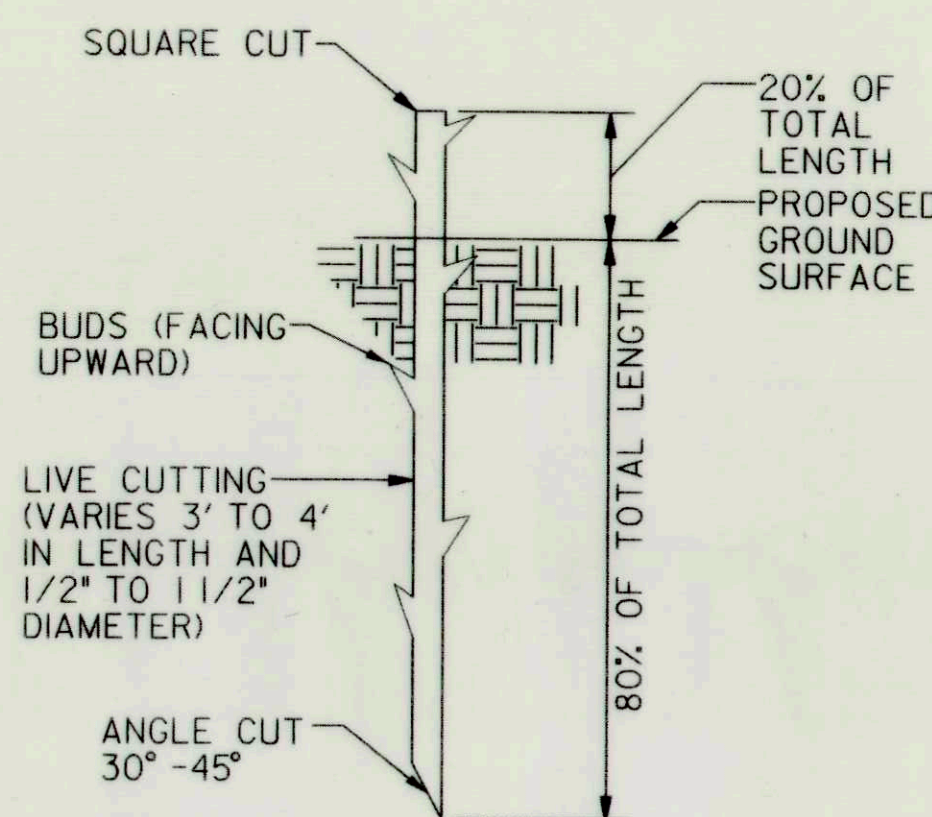
RANDOM PLANTING PATTERN
NOT TO SCALE



- 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.

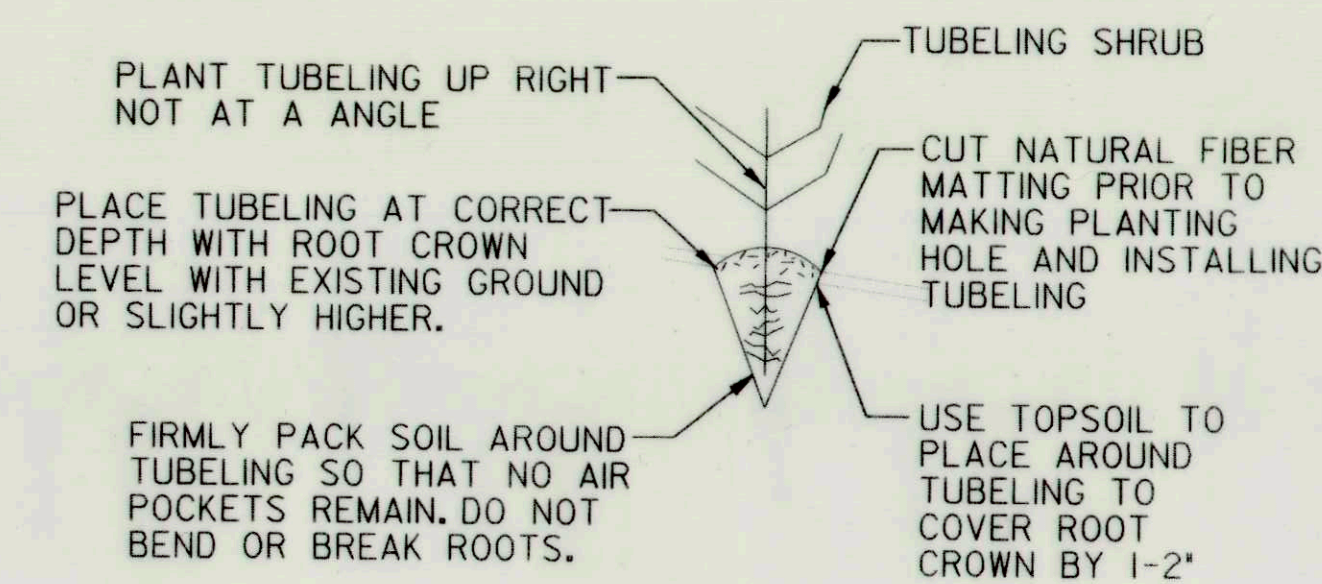
- PRODUCT NOTES:
1. TREE SHELTER SHALL BE A.M. LEONARD TREE BARK PROTECTOR OR APPROVED EQUAL.
 2. TREE SHELTER MUST HAVE LONGER, HARDY STAKES FOR INSERTION INTO GROUND TO PROVIDE SUPPORT.

TREE SHELTER DETAIL
NOT TO SCALE



LIVE STAKE

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



TUBELING DETAIL
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

**McCormick
Engineers & Planners
Since 1946**
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: LN

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

LANDSCAPE NOTES AND DETAILS

SCALE

NOT TO SCALE

SHEET

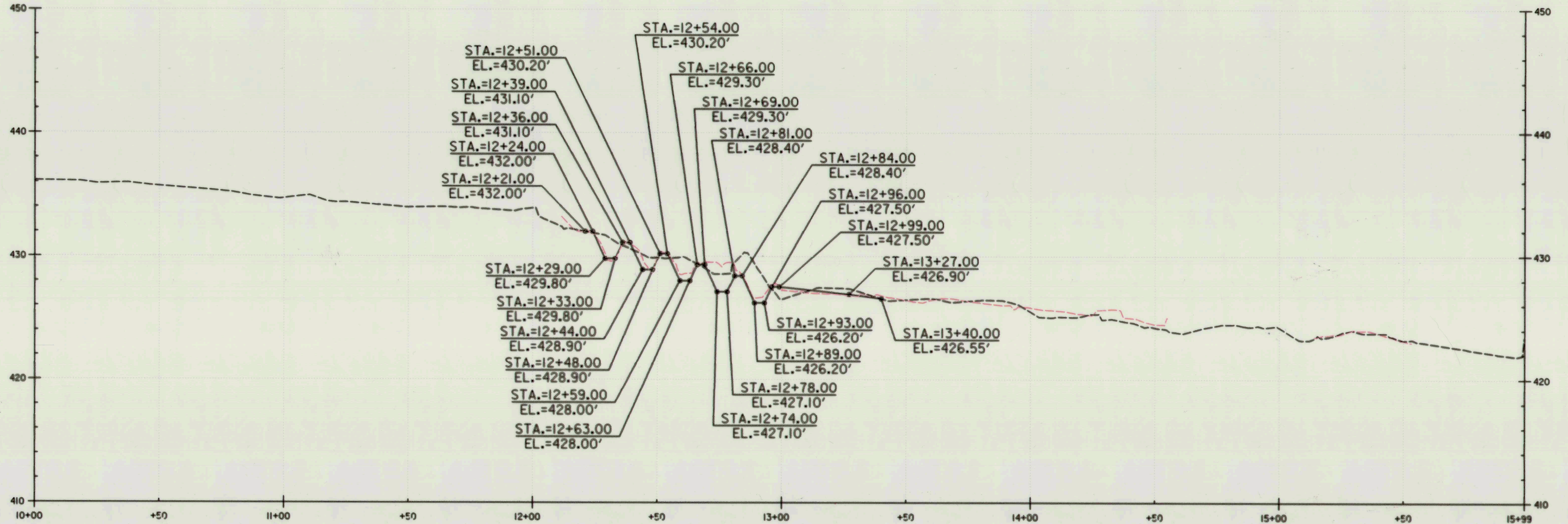
10 OF 11

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

11/2/13
DATE

STEP-POOL PROFILE ELEVATIONS				
LOCATION	PROPOSED ELEV. (FT)	AS-BUILT ELEV. (FT)	STATION FROM (DESIGN/AS-BUILT)	STATION TO (DESIGN/AS-BUILT)
CREST 1	432.0	432.0	12+21 / 12+22	12+24 / 12+24
POOL 1	429.8	429.7	12+29 / 12+30	12+33 / 12+33
CREST 2	431.1	431.1	12+36 / 12+36	12+39 / 12+39
POOL 2	428.9	428.8	12+44 / 12+48	12+48 / 12+48
CREST 3	430.2	430.1	12+51 / 12+50	12+54 / 12+54
POOL 3	428.0	428.0	12+59 / 12+59	12+63 / 12+64
CREST 4	429.3	429.3	12+66 / 12+67	12+69 / 12+69
POOL 4	427.1	427.2	12+74 / 12+73	12+78 / 12+78
CREST 5	428.4	428.3	12+81 / 12+81	12+84 / 12+83
POOL 5	426.2	426.2	12+89 / 12+89	12+93 / 12+92
CREST 6	427.5	427.6	12+96 / 12+96	12+99 / 12+99

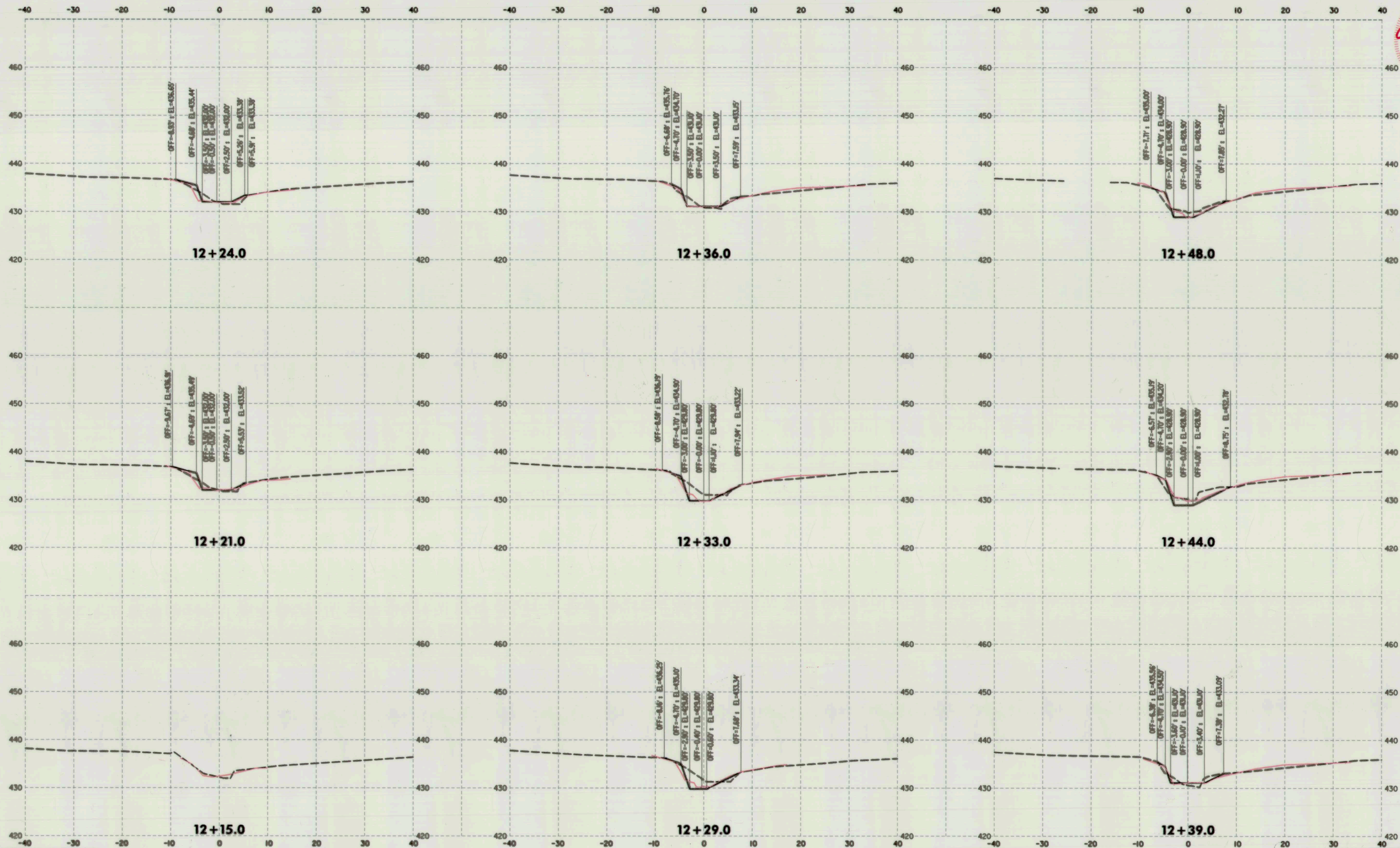
NOTE:
AS-BUILT PROFILE SHOWN DEPICTS THE CONSTRUCTION CENTERLINE ALONG THE CONSTRUCTED STEP-POOL SYSTEM.
STRUCTURE INVERTS MAY BE OFFSET FROM CENTERLINE. REFER TO THE STEP-POOL ELEVATION TABLE FOR PROPOSED
STRUCTURE COMPARISON. CRESTS AND POOLS ARE DESIGNATED UPSTREAM TO DOWNSTREAM ALONG THE PROFILE.



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

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

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>Mark G. Lewis</i> CHIEF, BUREAU OF ENVIRONMENTAL SERVICES	McCormick Taylor Engineers & Planners Since 1946 509 South Exeter Street 4th Floor Baltimore, Maryland 21202 (410) 662-7400	Howard County MARYLAND Storm Water Management Division Bureau of Environmental Services 6751 Columbia Gateway Drive, Suite 514 Columbia, Maryland 21046-3143 (410) 313-6444		DES: LN	LEN	AS-BUILT	4/1/14	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 PROFILE SHEET	SCALE
				DRN: MR					
				CHK: CB					SHEET
				DATE: 11/7/13	BY	NO.	REVISION	DATE	11 OF 11



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

NOTE: CROSS SECTIONS FOR CONTRACTOR'S USE.
NOT PART OF GRADING PERMIT PLANS.

— AS-BUILT
--- EXISTING — PROPOSED

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark C. Lucas
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

4/22/14
DATE

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) 313-6146

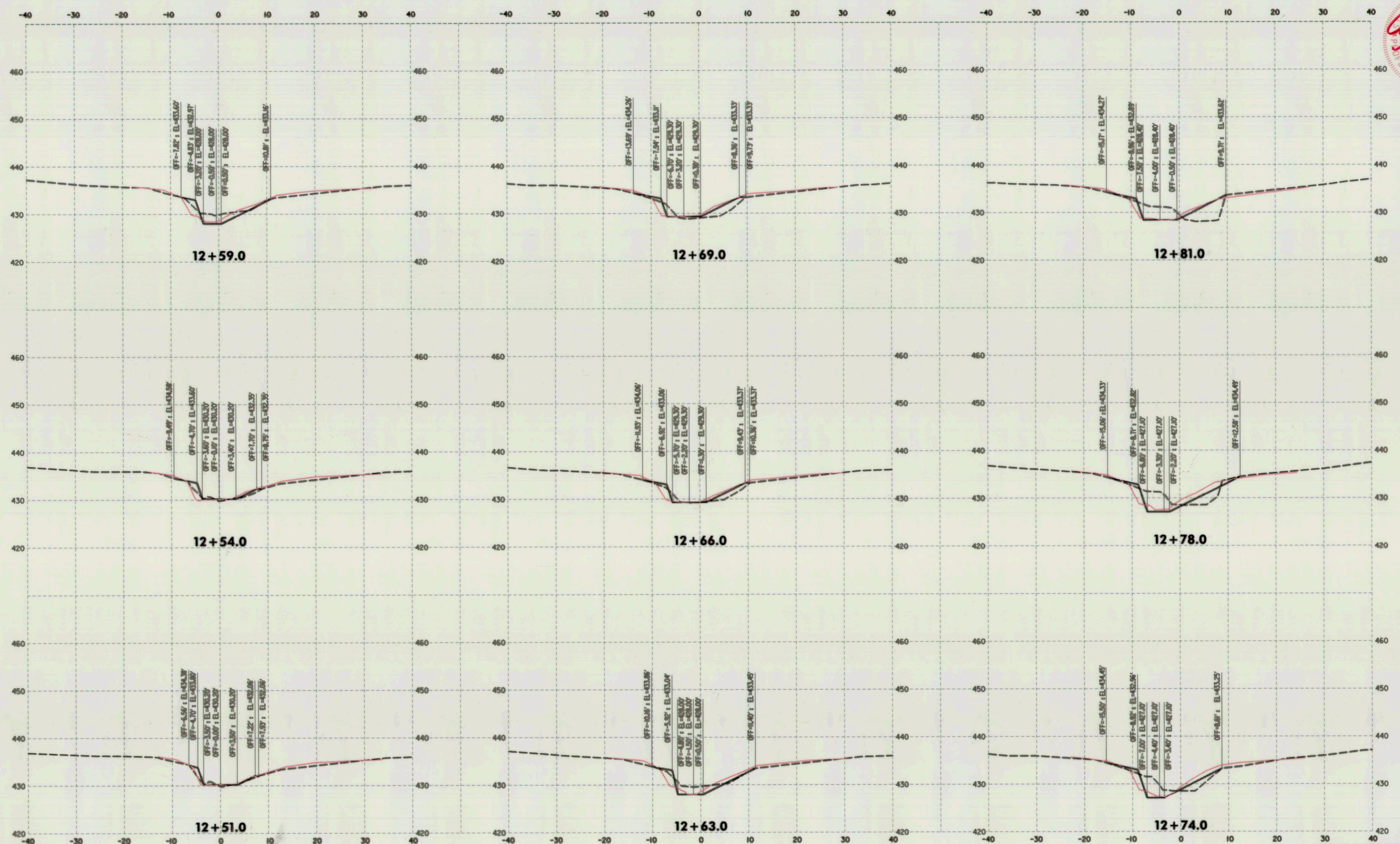
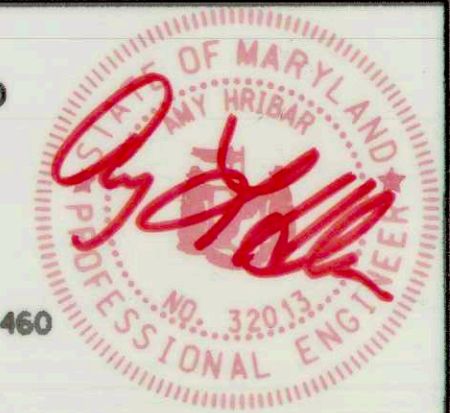


DES: LN	LEN	AS-BUILT	4/1/14
DRN: RB			
CHK: CB			
DATE: 11/7/13	BY	NO.	REVISION
			DATE

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

CROSS SECTIONS

SCALE
AS SHOWN
SHEET
1 OF 4



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

NOTE: CROSS SECTIONS FOR CONTRACTOR'S USE.
NOT PART OF GRADING PERMIT PLANS.

LEGEND
— AS-BUILT
- - - EXISTING
— PROPOSED

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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

4/12/14
DATE

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) 313-6146

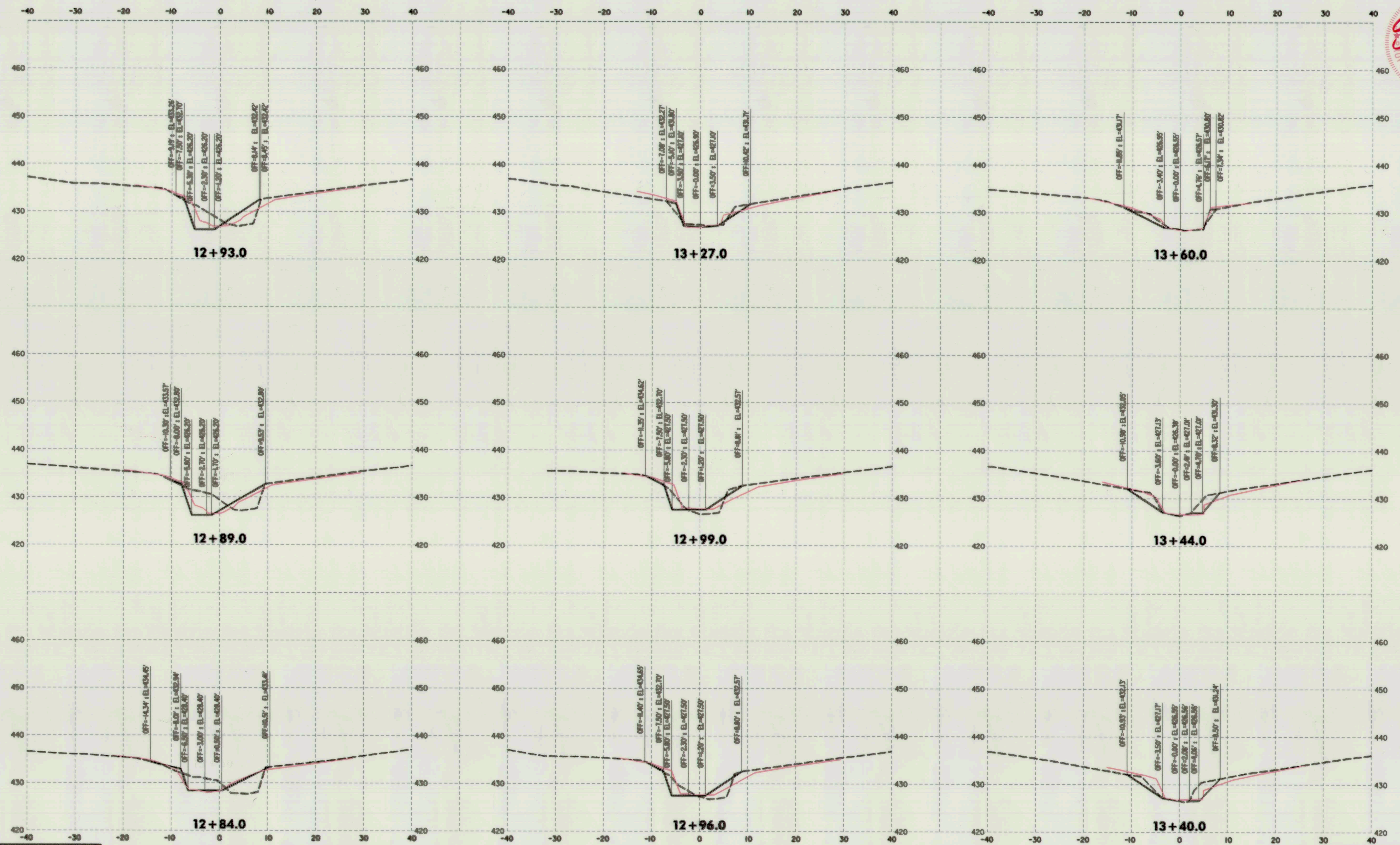
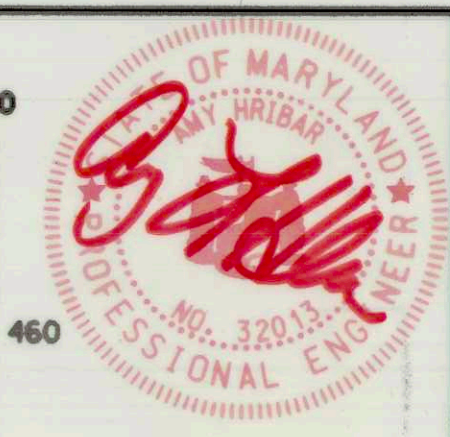


DES: LN	LEN	AS-BUILT	4/1/14
DRN: RB			
CHK: CB			
DATE: 11/7/13	BY	NO.	REVISION
			DATE

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

CROSS SECTIONS

SCALE
AS SHOWN
SHEET
2 OF 4



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

NOTE: CROSS SECTIONS FOR CONTRACTOR'S USE.
NOT PART OF GRADING PERMIT PLANS.

LEGEND
— AS-BUILT — EXISTING — PROPOSED

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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

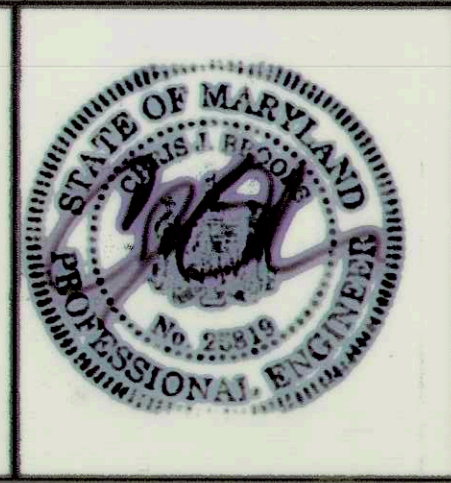
11/22/12
DATE

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) 313-6146



DES: LN	LEN	AS-BUILT	4/1/14
DRN: RB			
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

CROSS SECTIONS

SCALE
AS SHOWN
SHEET
3 OF 4



-40 -30 -20 -10 0 10 20 30 40

460 450 440 430 420

14+10.0

460 450 440 430 420

13+80.0

460 450 440 430 420

13+77.0

-40 -30 -20 -10 0 10 20 30 40

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

NOTE: CROSS SECTIONS FOR CONTRACTOR'S USE.
NOT PART OF GRADING PERMIT PLANS.

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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

McCormick Taylor
Engineers & Planners
Since 1946

509 South Esoter 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) 313-6146



DES: LN	LEN	AS-BUILT	4/1/14
DRN: RB			
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

CROSS SECTIONS

SCALE
AS SHOWN
SHEET
1 OF 4

Mark L. Lucas
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

11/22/13
DATE