

HARFORD COUNTY

Bid No. : 20-122

Heavenly Pond Stream Restoration

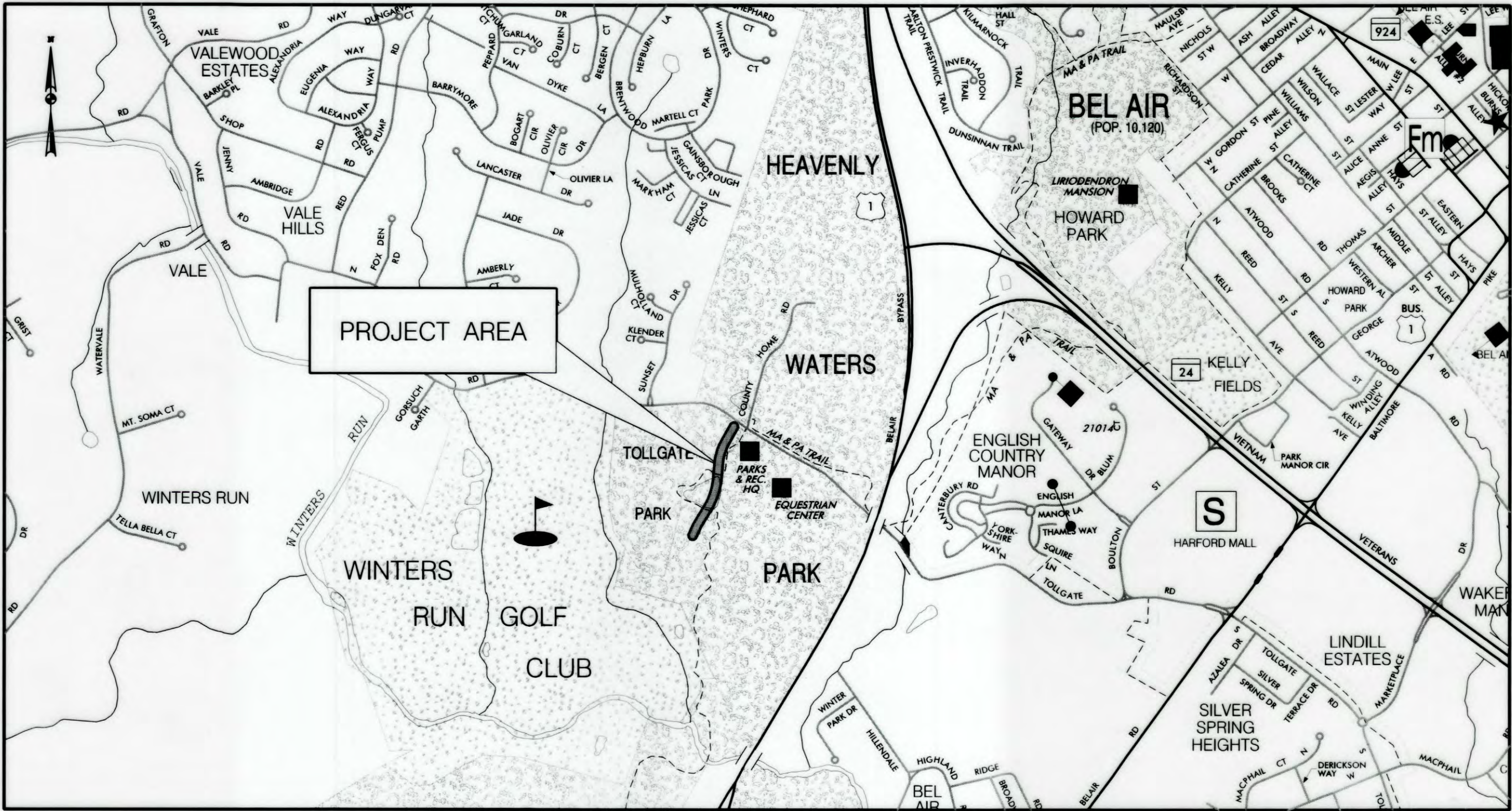
Department Of Public Works
Water Resources Engineering

INDEX OF SHEETS

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LEGEND

EXISTING ROADWAY	---
BASE OR SURVEY LINE	---
TRAVERSE POINT	△
RIGHT OF WAY LINE	---
LIMIT OF DISTURBANCE	---
GRADING ELEVATION CONTOURS (5')	---
GRADING ELEVATION CONTOURS (1')	---
EXISTING GROUND CONTOURS (5')	---
EXISTING GROUND CONTOURS (1')	---
EXISTING FENCE LINE	---
EXISTING PIPE/CULVERT	---
EXISTING DROP INLET	---
WETLAND	•••••
WETLAND BUFFER	---
WATERS OF THE US	WUS
HEDGE /TREE LINE	---
BUSH /TREE	---
CLAY CHANNEL BLOCK	---
TOE BOULDER PROTECTION	---
OVERFLOW STABILIZATION	---
TRIBUTARY STABILIZATION	---
CASCADE STRUCTURE	---
STEP-POOL STRUCTURE	---
RIFFLE STABILIZATION	---
WOOD RIFFLE STABILIZATION	---
OUTFALL POOL	---
PARK TRAIL	---



NOTE: COORDINATES AND BEARINGS SHOWN HEREON ARE REFERRED TO THE MARYLAND COORDINATE SYSTEM (NAD 83/91) AND ARE BASED ON THE FOLLOWING HARFORD COUNTY SURVEY CONTROL MONUMENTS:

FALLSTON	N 675,445.19	E 1,477,585.69
MALL	N 677,491.95	E 1,494,171.14
BYNUM	N 689,572.61	E 1,489,940.03

NOTE: ALL ELEVATIONS SHOWN HEREON ARE REFERRED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) WITH LOCAL REFERENCE TO THE FOLLOWING HARFORD COUNTY SURVEY CONTROL MONUMENTS:

FALLSTON	ELEV. 455.79
MALL	ELEV. 363.62
BYNUM	ELEV. 433.18

NOTE: STATE STREAM USE CLASS DESIGNATION IV-P (RECREATIONAL TROUT WATERS) IN STREAM CLOSURE MARCH 1 THROUGH MAY 31 INCLUSIVE OF ANY YEAR.

HORIZONTAL DATUM	NAD 83 / 91
VERTICAL DATUM	NAVD 88

SCALE: 1" = 1000'

GENERAL NOTES

- ALL WORK PERFORMED ON THIS PROJECT SHALL BE IN ACCORDANCE WITH MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO AND MAINTENANCE AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES. THIS IS TO INCLUDE ALL SEWER LINES AND SERVICE LINES.
- PRIOR TO ANY ONSITE LAND DISTURBANCES, FORTY-EIGHT (48) HOURS ADVANCE NOTICE SHALL BE GIVEN TO THE D.P.W. INSPECTION SECTION BY CONTACTING THE CHIEF INSPECTOR AT 410-638-3128 AT WHICH TIME A PRECONSTRUCTION MEETING WILL BE SCHEDULED.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND SEVEN (7) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF TRAFFIC AND TRAFFIC CONTROL DURING CONSTRUCTION AND PRIOR TO ACCEPTANCE BY THE COUNTY; CONSISTENT WITH THE MDOT SHA BOOK OF STANDARDS FOR HIGHWAY AND INCIDENTAL STRUCTURES.
- BEFORE THE START OF CONSTRUCTION, THE CONTRACTOR IS TO VERIFY THE LOCATION OF EXISTING UTILITIES BY CONTACTING "MISS UTILITY" (1-800-257-7777).

REVIEWED FOR TECHNICAL SUFFICIENCY	DATE
<i>CM Bailey</i>	7/27/20
STORMWATER MANAGEMENT	
REVIEWED AND APPROVAL RECOMMENDED	DATE
<i>CM Bailey</i>	7/27/20
CHIEF ENGINEER	
APPROVAL RECOMMENDED	DATE
<i>Stallway</i>	7/28/2020
DEPUTY DIRECTOR OF PUBLIC WORKS	
APPROVED	DATE
<i>Stallway</i>	7-28-2020
DIRECTOR OF PUBLIC WORKS	

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

**MCCORMICK
TAYLOR**

HEAVENLY POND
STREAM RESTORATION

TITLE SHEET

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS

WATER RESOURCES ENGINEERING
152 FLOOR, BOND STREET
BEL AIR, MARYLAND 21014
410-638-3277
SC PLAN #59839
GR PERMIT #15366-2016

DATE
7/2/20

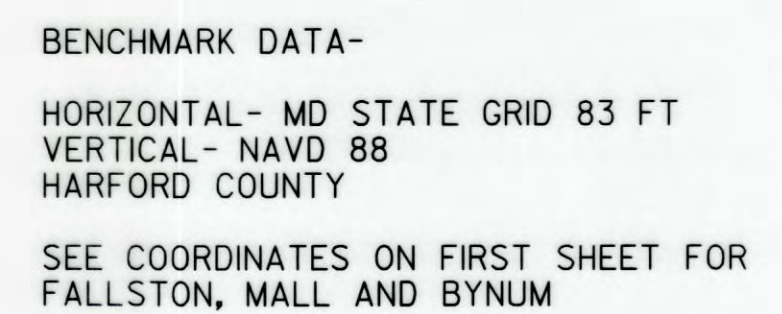
SCALE
1" = 1000'

DESIGNED BY
MRM

DRAWN BY
MER

SHEET 1 OF 58
MT JOB NUMBER
5786-01

201198



HEAVENLY POND
STREAM RESTORATION

GEOMETRY SHEET



HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS

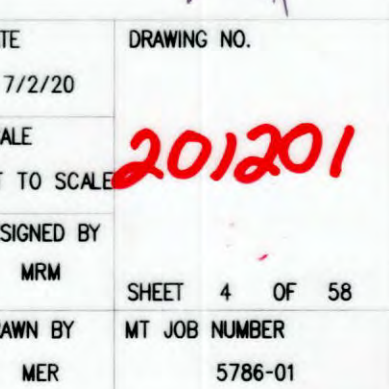
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
FIRST FLOOR
BELL AIR MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018

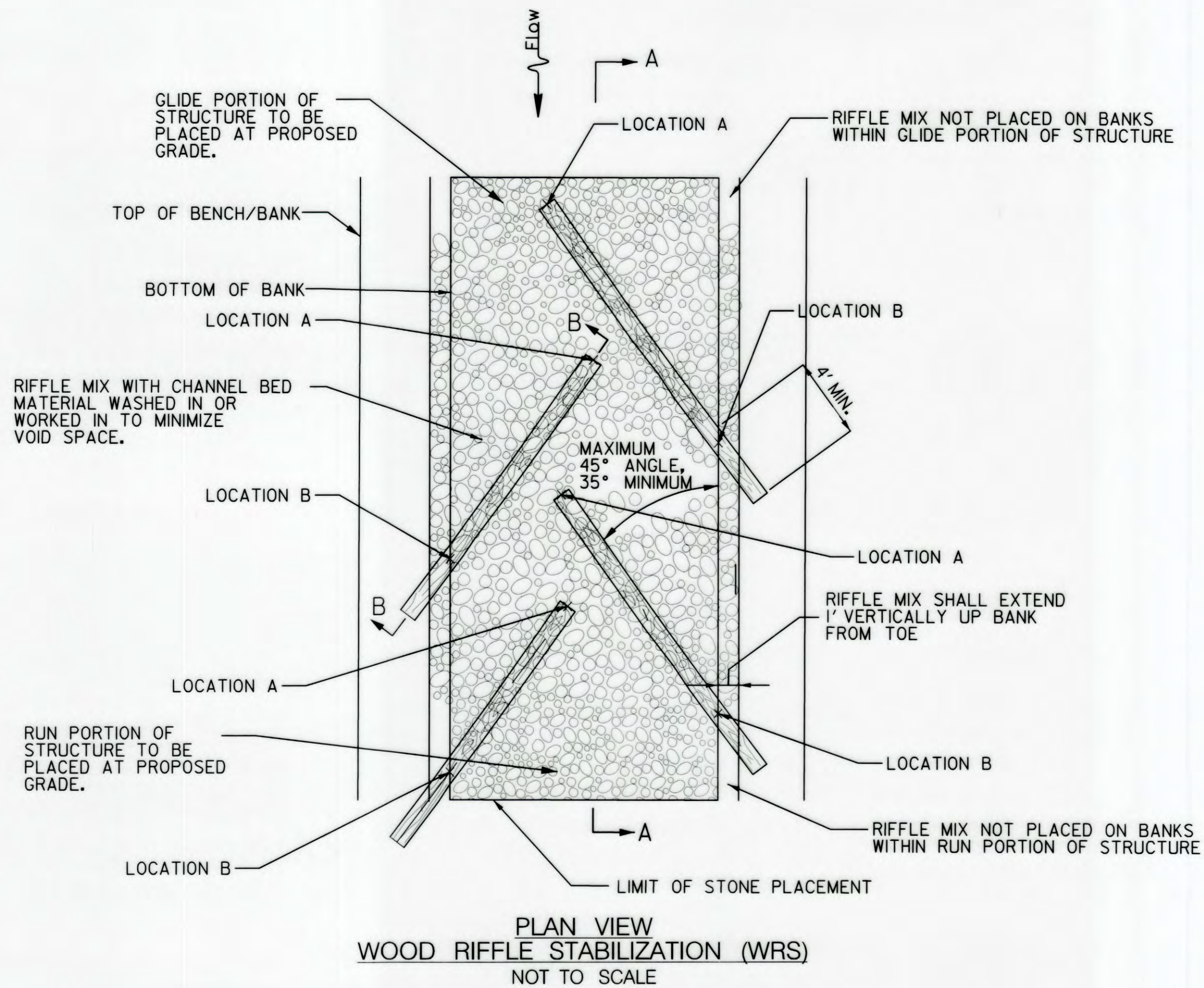


DATE 7/2/20	DRAWING NO. 201199
SCALE 1" = 50'	
DESIGNED BY MRM	
DRAWN BY MER	SHEET 2 OF 58 MT JOB NUMBER 5786-01

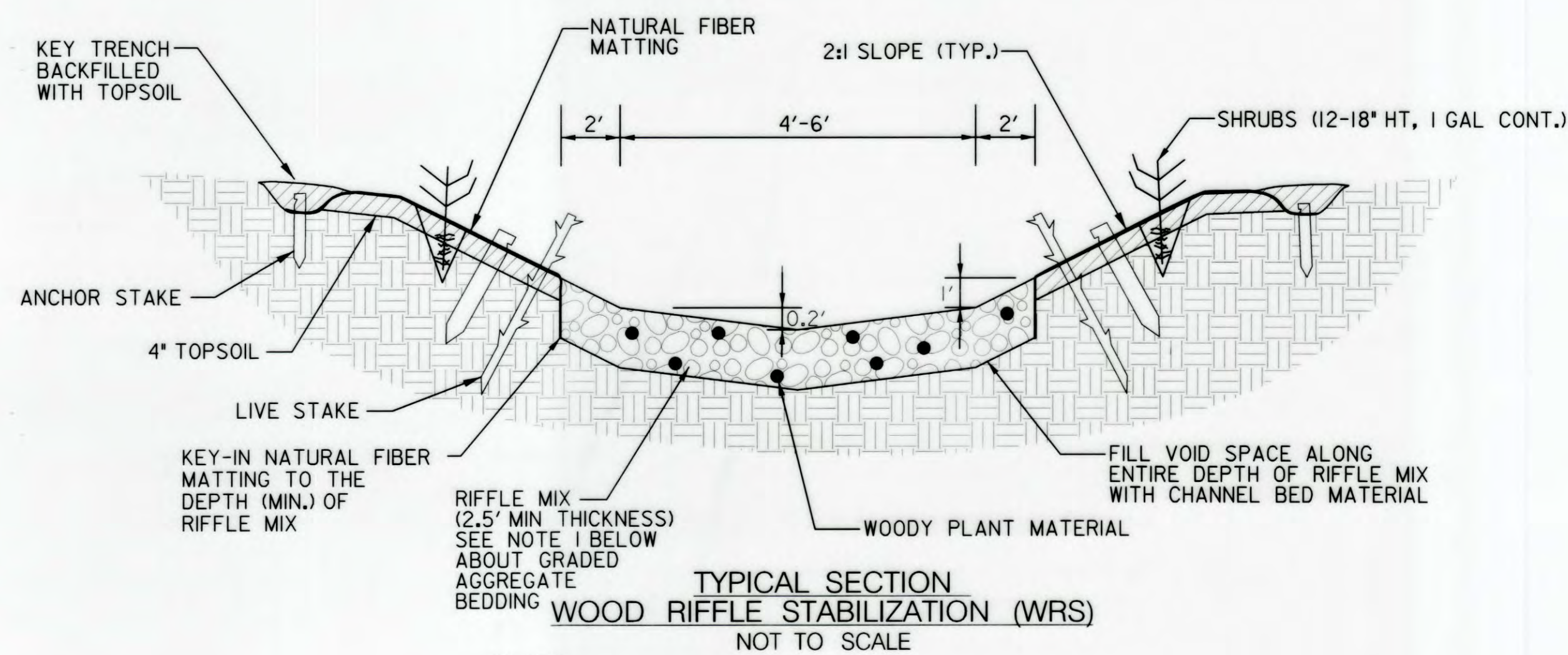
BASELINE CONTROL COORDINATES						
BL CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
MAINSTEM	POT	678775.6799	1489056.8220	0+00.00	S 36°07'33.3795" W	
	PC	678735.2937	1489027.3439	0+50.00	S 36°07'33.3795" W	
	PI	678723.2509	1489018.5538	0+64.91	S 4°45'32.6367" E	
	CC	678711.7113	1489059.6529			40.0000'
	PT	678708.3926	1489019.7908	0+78.54	S 4°45'32.6367" E	
	PC	678692.3909	1489021.1230	0+94.60	S 4°45'32.6367" E	
	PI	678678.9928	1489022.2384	1+08.04	S 32°23'49.7612" W	
	CC	678689.0722	1488981.2609			40.0000'
	PT	678667.6409	1489015.0350	1+20.54	S 32°23'49.7612" W	
	PC	678653.4299	1489006.0175	1+37.37	S 32°23'49.7612" W	
	PI	678646.0847	1489001.3566	1+46.07	S 0°03'21.3642" W	
	CC	678637.3563	1489031.3481			30.0000'
	PT	678637.3856	1489001.3481	1+54.30	S 0°03'21.3642" W	
	PC	678619.1974	1489001.3304	1+72.49	S 0°03'21.3642" W	
	PI	678604.9972	1489001.3165	1+86.69	S 50°42'58.3776" W	
	CC	678619.2267	1488971.3304			30.0000'
	PT	678596.0061	1488990.3252	1+99.02	S 50°42'58.3776" W	
	PC	678570.7770	1488959.4834	2+38.86	S 50°42'58.3776" W	
	PI	678564.7733	1488952.1441	2+48.35	S 15°38'08.7115" W	
	CC	678547.5564	1488978.4783			30.0000'
	PT	678555.6420	1488949.5884	2+57.23	S 15°38'08.7115" W	
	PC	678541.7664	1488945.7050	2+71.64	S 15°38'08.7115" W	
	PI	678527.9899	1488941.8492	2+85.95	S 50°54'27.0682" W	
	CC	678553.8948	1488902.3702			45.0000'
	PT	678518.9690	1488930.7460	2+99.34	S 50°54'27.0682" W	
	PC	678508.7855	1488918.2119	3+15.49	S 50°54'27.0682" W	
	PI	678490.0294	1488895.1263	3+45.24	S 12°39'49.0145" E	
	CC	678471.5313	1488948.4794			48.0000'
	PT	678461.0084	1488901.6471	3+68.75	S 12°39'49.0143" E	
	PC	678417.6934	1488911.3796	4+13.15	S 12°39'49.0145" E	
	PI	678405.5152	1488914.1160	4+25.63	S 21°59'49.4502" W	
	CC	678408.9243	1488872.3527			40.0000'
	PT	678393.9420	1488909.4408	4+37.34	S 21°59'49.4502" W	
	PC	678356.5165	1488894.3221	4+77.71	S 21°59'49.4502" W	
	PI	678345.7652	1488889.9790	4+89.30	S 27°46'05.5345" E	
	CC	678347.1525	1488917.5022			25.0000'
	PT	678335.5051	1488895.3812	4+99.42	S 27°46'05.5345" E	
	PC	678320.3476	1488903.3621	5+16.55	S 27°46'05.5345" E	
	PI	678315.0214	1488906.1665	5+22.57	S 5°43'55.2948" W	
	CC	678311.0297	1488885.6653			20.0000'
	PT	678309.0322	1488905.5653	5+28.25	S 5°43'55.2948" W	
	PC	678268.3861	1488901.4854	5+69.10	S 5°43'55.2948" W	
	PI	678246.3755	1488899.2760	5+91.22	S 78°32'24.9793" W	
	CC	678271.3824	1488871.6354			30.0000'
	PT	678241.9805	1488877.5957	6+07.22	S 78°32'24.9793" W	
	PC	678237.7959	1488856.9534	6+28.28	S 78°32'24.9793" W	
	PI	678235.6305	1488846.2717	6+39.18	S 21°21'50.7931" W	
	CC	678218.1946	1488860.9270			20.0000'
	PT	678225.4804	1488842.3013	6+48.24	S 21°21'50.7931" W	
	PC	678214.8481	1488838.1422	6+59.66	S 21°21'50.7931" W	
	PI	678203.6443	1488833.7596	6+71.69	S 40°41'29.5085" E	
	CC	678207.5622	1488856.7679			20.0000'
	PT	678194.5225	1488841.6033	6+81.32	S 40°41'29.5085" E	
	PC	678178.2311	1488855.6119	7+02.80	S 40°41'29.5085" E	
	PI	678169.5585	1488863.0693	7+14.24	S 18°50'18.4571" W	
	CC	678165.1914	1488840.4473			20.0000'
	PT	678158.7333	1488859.3760	7+23.58	S 18°50'18.4571" W	
	PC	678144.3869	1488854.4813	7+38.74	S 18°50'18.4571" W	
	PI	678134.0776	1488850.9640	7+49.63	S 38°18'37.7122" E	
	CC	678137.9289	1488873.4100			20.0000'
	PT	678125.5304	1488857.7167	7+58.69	S 38°18'37.7122" E	
	PC	678115.4151	1488865.7083	7+71.58	S 38°18'37.7122" E	
	PI	678103.0219	1488875.4995	7+87.38	S 38°17'13.1176" W	
	CC	678103.0166	1488850.0150			20.0000'
	PT	678090.6246	1488865.7134	7+98.32	S 38°17'13.1176" W	
	PC	678076.4165	1488854.4977	8+16.42	S 38°17'13.1176" W	
	PI	678067.3871	1488847.3701	8+27.92	S 80°14'44.7062" W	
	CC	678095.0045	1488830.9502			30.0000'
	PT	678065.4382	1488836.0328	8+38.39	S 80°14'44.7062" W	
	PC	678062.0910	1488816.5623	8+58.15	S 80°14'44.7062" W	
	PI	678058.5744	1488796.1057	8+78.90	S 11°52'53.5851" E	
	CC	678042.3802	1488819.9508			20.0000'
	PT	678038.2624	1488800.3793	8+90.30	S 11°52'53.5851" E	
	PC	678027.7719	1488802.5865	9+01.02	S 11°52'53.5851" E	
	PI	678021.8088	1488803.8411	9+07.12	S 22°00'30.2151" W	
	CC	678023.6541	1488783.0150			20.0000'
	PT	678016.1593	1488801.5575	9+12.85	S 22°00'30.2151" W	
	PC	677921.0421	1488763.1115	10+15.45	S 22°00'30.2151" W	
	PI	677916.8297	1488761.4089	10+19.99	S 3°35'20.1312" E	
	CC	677913.5472	1488781.6541			20.0000'
	PT	677912.2953	1488761.6933	10+24.38	S 3°35'20.1312" E	
	PC	677894.6743	1488762.7985	10+42.04	S 3°35'20.1312" E	
	PI	677878.8201	1488763.7929	10+57.92	S 73°19'44.9314" W	
	CC	677893.4223	1488742.8377			20.0000'

BASELINE CONTROL COORDINATES						
BL CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
MAINSTEM	PT	677874.2630	1488748.5752	10+68.89	S 73°19'44.9314" W	
	PC	677869.9229	1488734.0821	10+84.02	S 73°19'44.9314" W	
	PI	677865.4819	1488719.2521	10+99.50	S 2°09'10.0564" E	
	CC	677850.7635	1488739.8195			20.0000'
	PT	677850.0122	1488719.8337	11+10.37	S 2°09'10.0564" E	
	PC	677831.9997	1488720.5108	11+28.39	S 2°09'10.0564" E	
	PI	677820.8316	1488720.9306	11+39.57	S 56°14'24.5316" W	
	CC	677831.2484	1488700.5249			20.0000'
	PT	677814.6209	1488711.6392	11+48.77	S 56°14'24.5316" W	
	PC	677805.4862	1488697.9731	11+65.21	S 56°14'24.5316" W	
	PI	677799.3524	1488688.7967	11+76.25	S 1°32'49.3716" E	
	CC	677788.8587	1488709.0874			20.0000'
	PT	677788.3188	1488689.0947	11+85.38	S 1°32'49.3716" E	
	PC	677773.2919	1488689.5005	12+00.42	S 1°32'49.3716" E	
	PI	677762.5786	1488689.7899	12+11.13	S 54°49'22.3798" W	
	CC	677772.7519	1488669.5078			20.0000'
	PT	677756.4044	1488681.0299	12+20.09	S 56°37'02.9912" W	
	PC	677737.6883	1488652.6265	12+54.11	S 56°37'02.9912" W	
	PI	677725.4161	1488634.0024	12+76.41	S 39°37'01.0442" E	
	CC	677720.9879	1488663.6310			20.0000'
	PT	677708.2349	1488648.2245	12+87.70	S 39°37'01.0442" E	
	PC	677689.2865	1488663.9094	13+12.30	S 39°37'01.0442" E	
	PI	677658.8254	1488689.1243	13+51.84	N 88°34'00.3810" W	
	CC	677677.8088	1488650.0436			18.0000'
	PT	677659.8144	1488649.5934	13+53.47	N 88°34'00.3810" W	
	PC	677660.1515	1488636.1205	13+66.95	N 88°34'00.3810" W	
	PI	677660.4593	1488623.8204	13+79.25	S 0°00'00.0001" W	
	CC	677648.1553	1488635.8204			12.0000'
	PT	677648.1553	1488623.8204	13+86.10	S 0°00'00.0001" W	
	POE	677641.3501	1488623.8204	13+92.90		
	TRIBUTARY 1	POT	678549.2266	1488922.947	100+00.00	S 19°41'54.0455" E
		POE	678520.9825	1488933.059	100+30.00	
	TRIBUTARY 2	POT	678522.5719	1488884.147	200+00.00	S 22°27'29.2419" E
		PC	678510.3211	1488889.211	200+13.26	S 22°27'29.2419" E
		PI	678506.8273	1488890.656	200+17.04	S 36°49'22.5927" E
		CC	678521.7814	1488916.936		30.0000'
		PT	678503.801	1488892.921	200+20.78	S 36°49'22.5927" E
	TRIBUTARY 3	POT	677802.4114	1488758.541	300+00.00	N 60°20'07.8572" W
		PC	677813.2461	1488739.518	300+21.89	N 60°20'07.8572" W
		PI	677815.3285	1488735.862	300+26.10	S 88°19'37.0022" W
		CC	677800.212	1488732.094		15.0000'
		PT	677815.2056	1488731.656	300+30.10	S 88°19'37.0022" W
	TRIBUTARY 4	POT	677752.3126	1488595.398	400+00.00	S 46°39'22.4302" E
		PC	677739.7691	1488608.689	400+18.28	S 46°39'22.4302" E
		PI	677736.2195	1488612.45	400+23.45	N 78°39'07.5434" E
		CC	677747.0416	1488615.552		10.0000'
		PT	677737.2371	1488617.52	400+27.82	N 78°39'07.5434" E
		PC	677738.2969	1488622.801	400+33.21	N 78°39'07.5434" E
		PI	677739.2299	1488627.45	400+37.95	S 66°15'43.7494" E
		CC	677723.5902	1488625.752		15.0000'
		PT	677737.3211	1488631.791	400+42.39	S 66°15'43.7494" E
		POE	677730.9464	1488646.287	400+58.23	
	TRAIL 1	POT	678305.6525	1488855.151	500+00.00	S 60°00'21.3935" E
		PI	678297.9778	1488868.448	500+15.35	S 60°19'39.5720" E

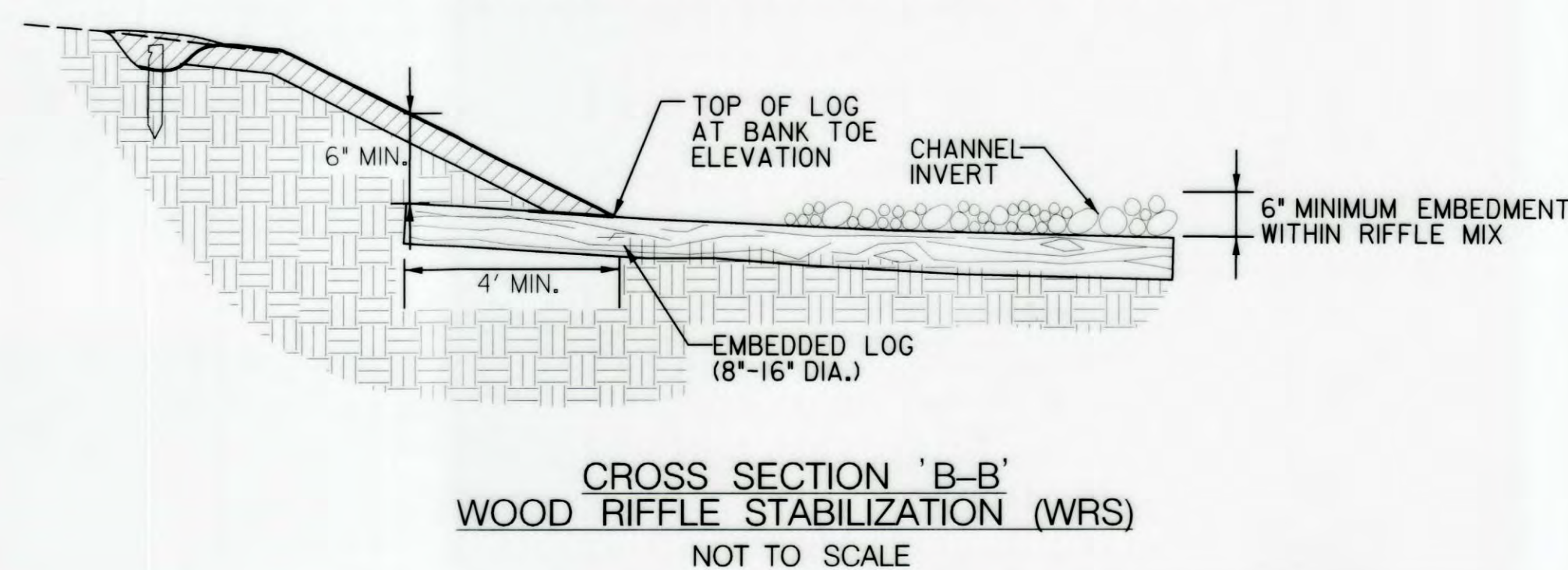




NOTES:
1. LOCATIONS A AND B ARE PROVIDED IN THE WOOD RIFFLE STABILIZATION STRUCTURE TABLES ON THE PLAN SHEETS (SHEETS 19 AND 20).



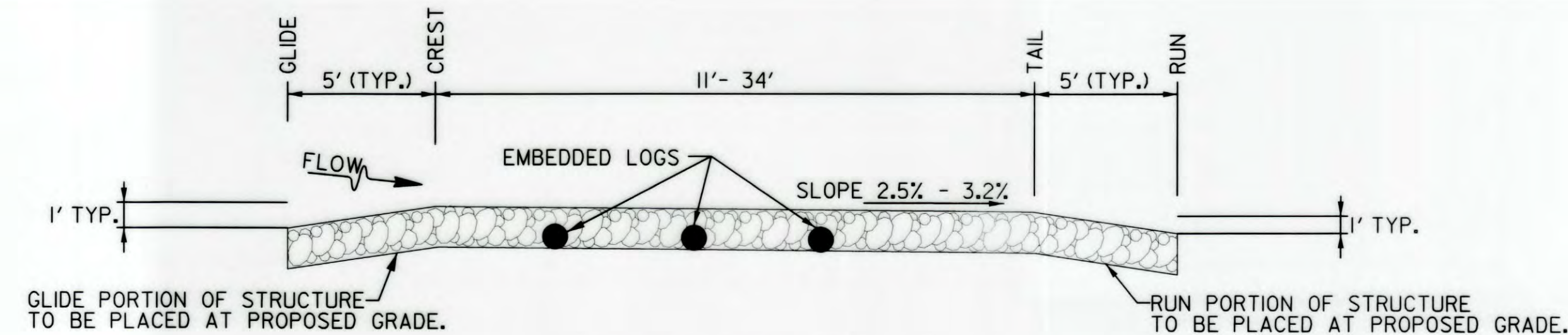
NOTES:
1. PLACE 6" OF GRADED AGGREGATE BEDDING UNDERNEATH RIFFLE MIX PLACED WITHIN THE LIMITS OF THE FORMER POND (STA. 5+70 TO 9+40). THIS INCLUDES WRS-1, WRS-2, WRS-3 AND WRS-4.
2. INCORPORATE SALVAGED WOODY PLANT MATERIAL BETWEEN 4'-6" IN LENGTH AND 1"-3" DIA. (MEASURED AT CENTER OF LOG) INTO RIFFLE HABITAT STRUCTURE.
3. HARDWOOD SPECIES PREFERRED FOR THE EMBEDDED LOG.



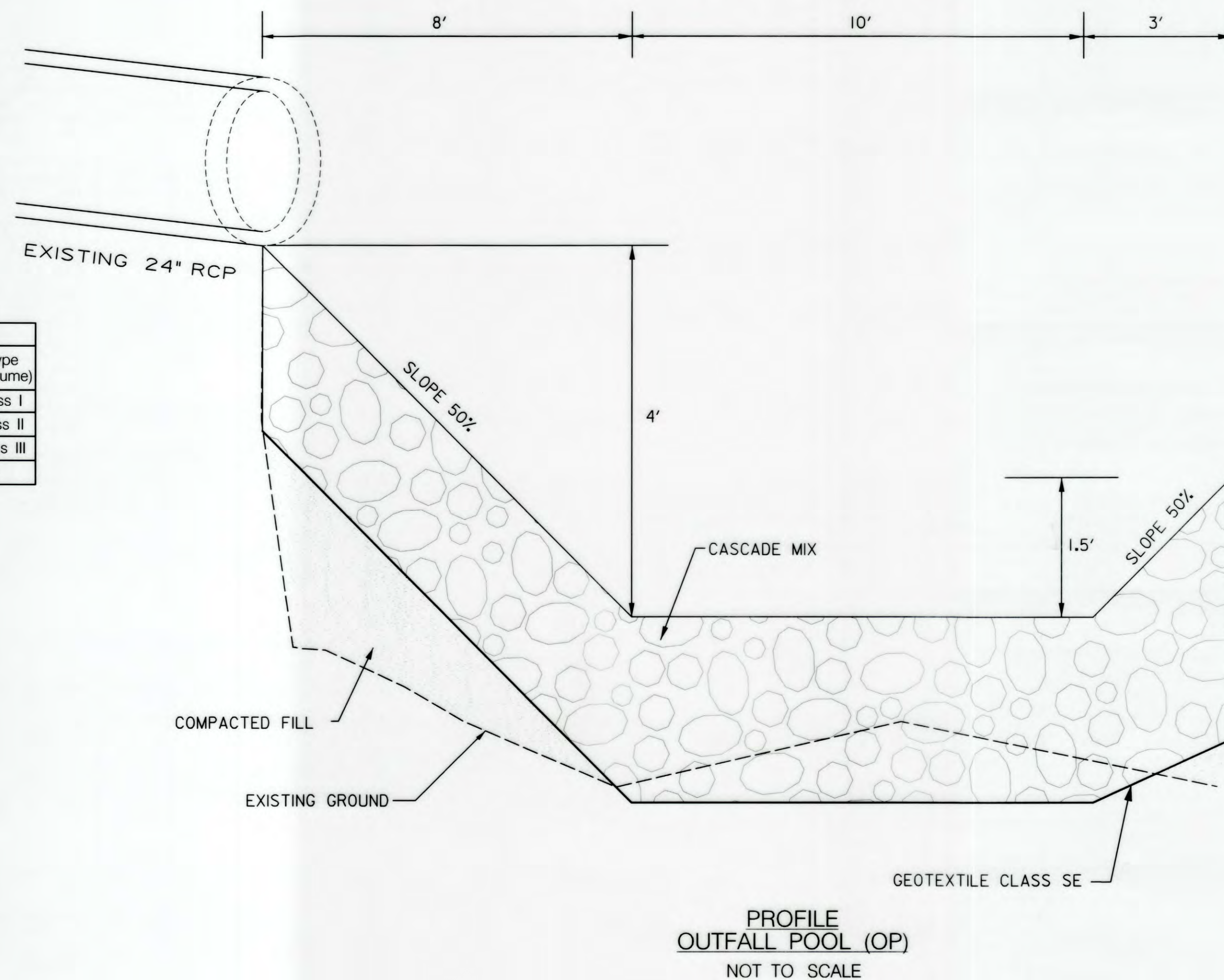
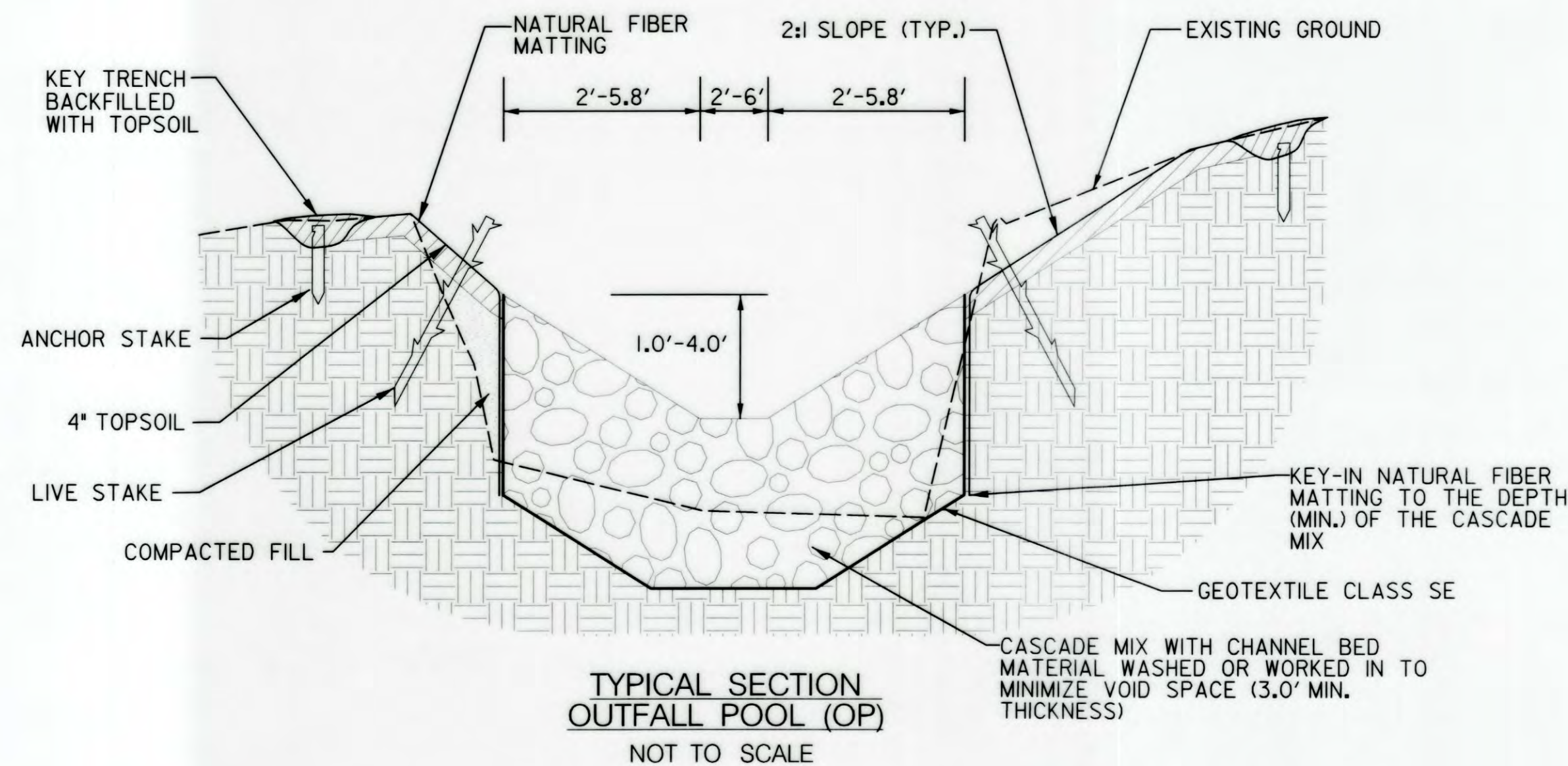
Riffle Mix	
Amount of Stone (%)	Stone Type (% by Volume)
70	SHA Class I
30	SHA Class II
100	Total

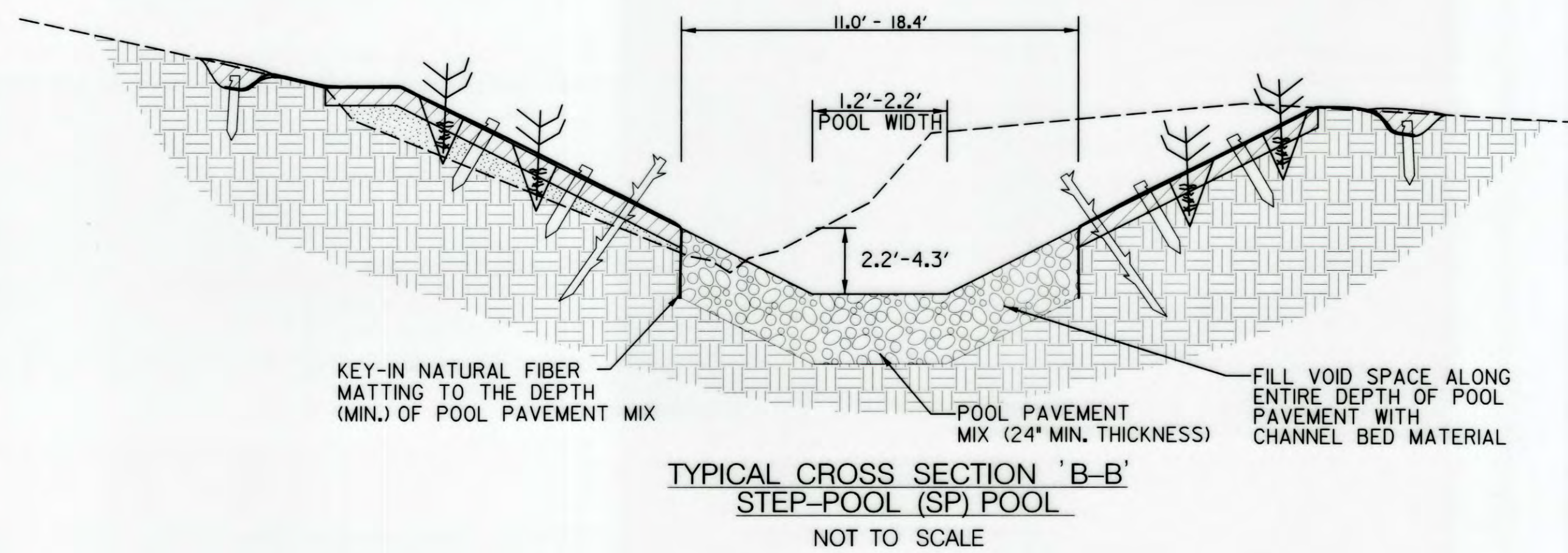
CASCADE MIX PLACEMENT HEIGHT FOR OUTFALL POOL	
STATION	PLACEMENT HEIGHT (FT)
0+10	1.0
0+18	4.0
0+28	3.0
0+31	1.0

Cascade Mix	
Amount of Stone (%)	Stone Type (% by Volume)
20	SHA Class I
60	SHA Class II
20	SHA Class III
100	Total

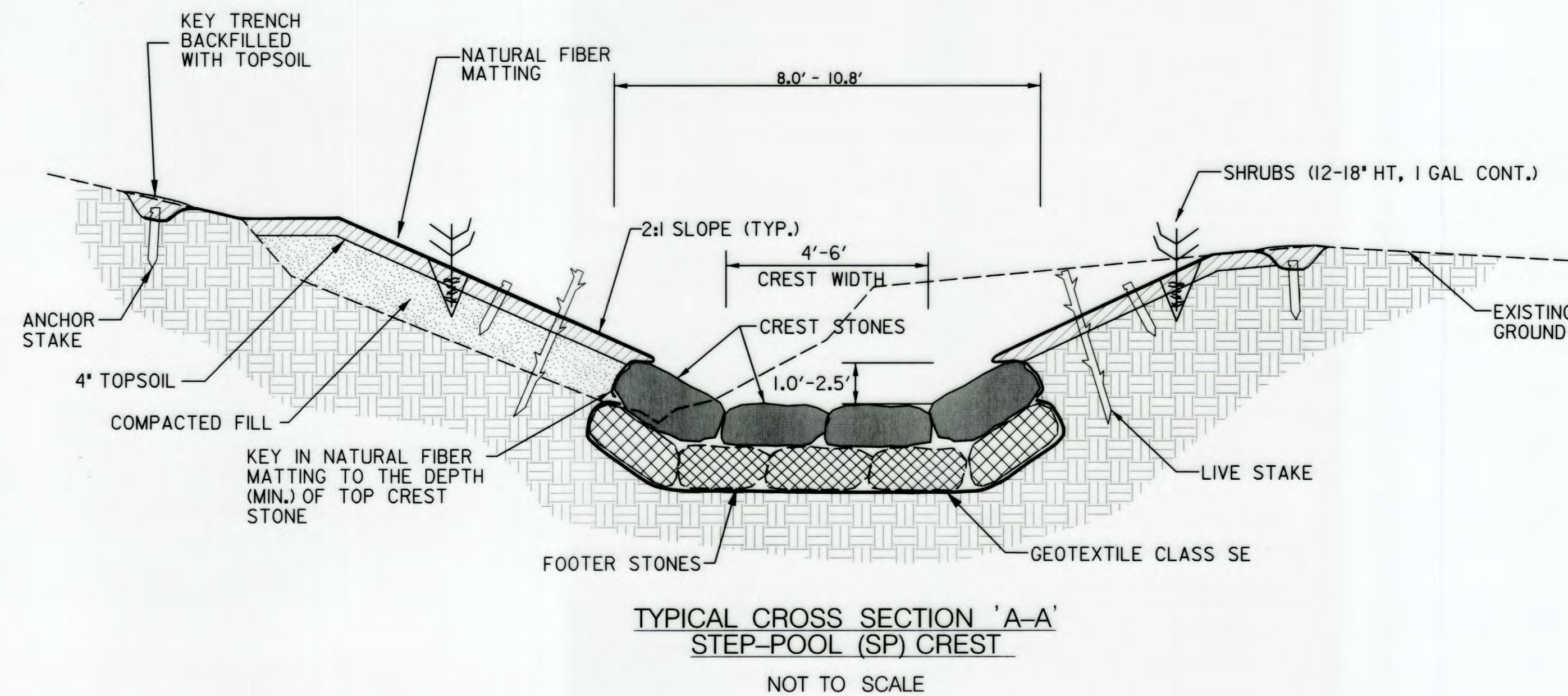


NOTES:
1. RIFFLE MIX SHALL BE PLACED SO THAT IT SHINGLES IN THE DOWNSTREAM DIRECTION. SMALL AND LARGE RIPRAP SHALL BE WELL MIXED TO MINIMIZE VOID SPACES. RIPRAP MUST BE PLACED IN A MANNER TO PROMOTE INTERLOCKING. DUMPING OF RIPRAP WILL NOT BE PERMITTED.

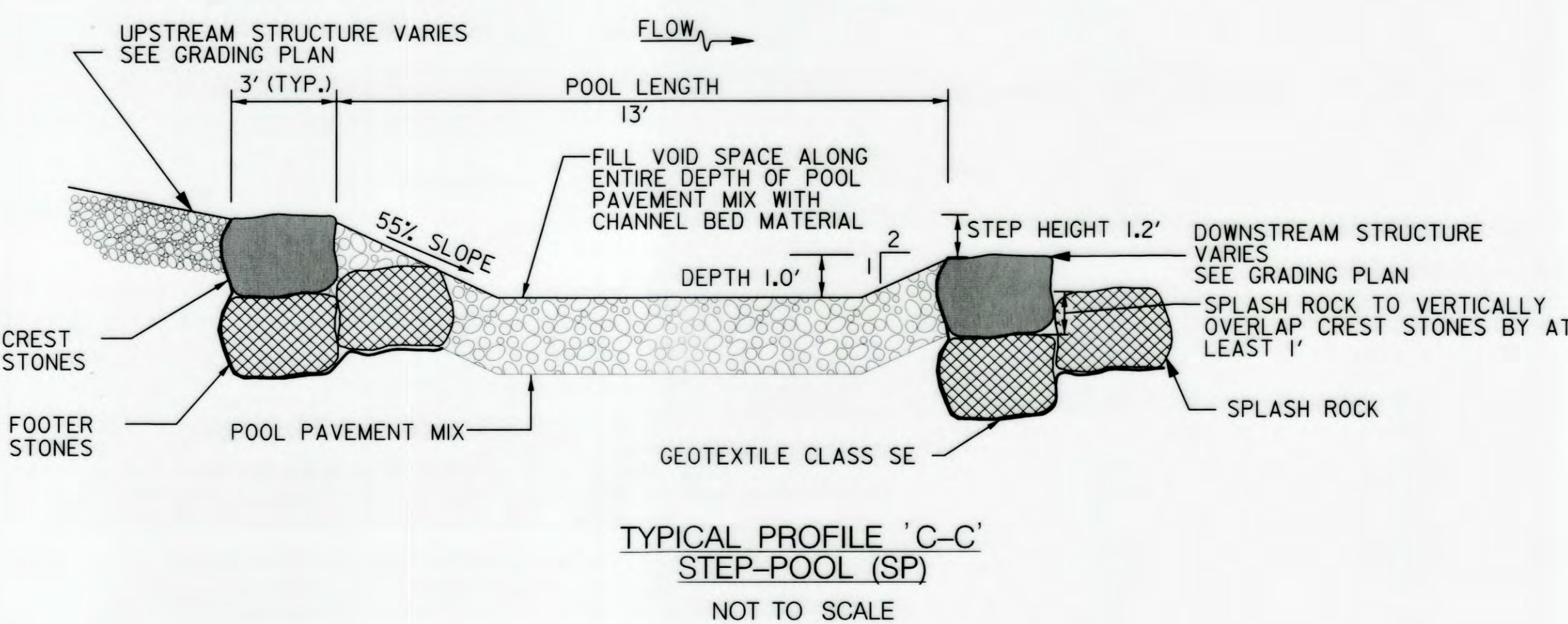




Pool Pavement Mix	
Amount of Stone (%)	Stone Type (% by Volume)
40	SHA Class 0
40	SHA Class I
20	SHA Class II
100	Total



POOL PAVEMENT PLACEMENT HEIGHT FOR STEP POOL POOLS	
STATION	PLACEMENT HEIGHT (FT)
0+47	2.8
0+54	2.2
2+16	2.8
2+23	2.2
3+81	2.8
3+88	2.2
4+53	2.8
4+60	2.2
9+46	3.6
9+53	3.5
9+62	4.3
9+69	3.7
9+78	4.3
9+85	3.7
9+94	4.3
10+01	3.7
10+10	2.8
10+17	2.2

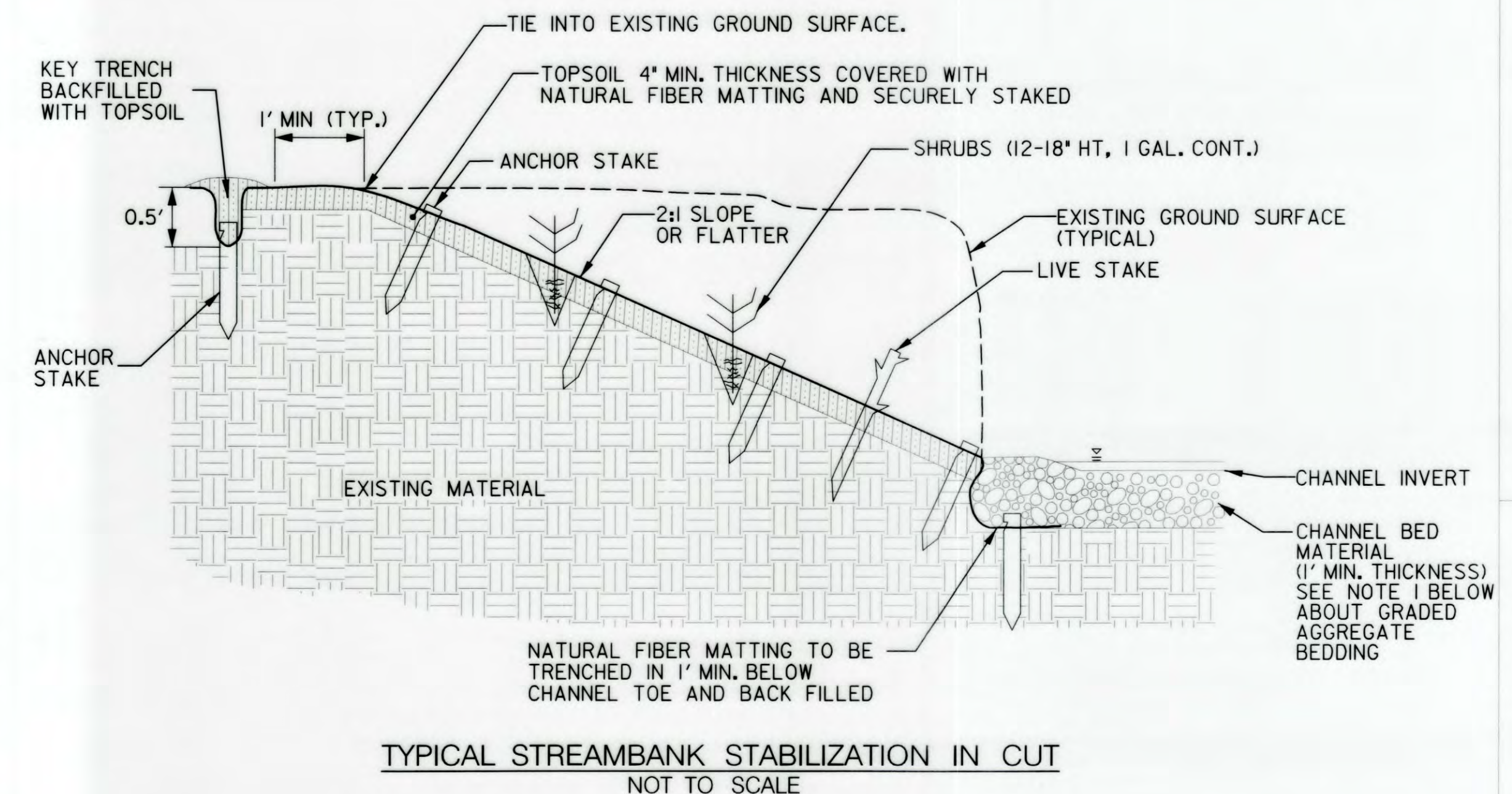
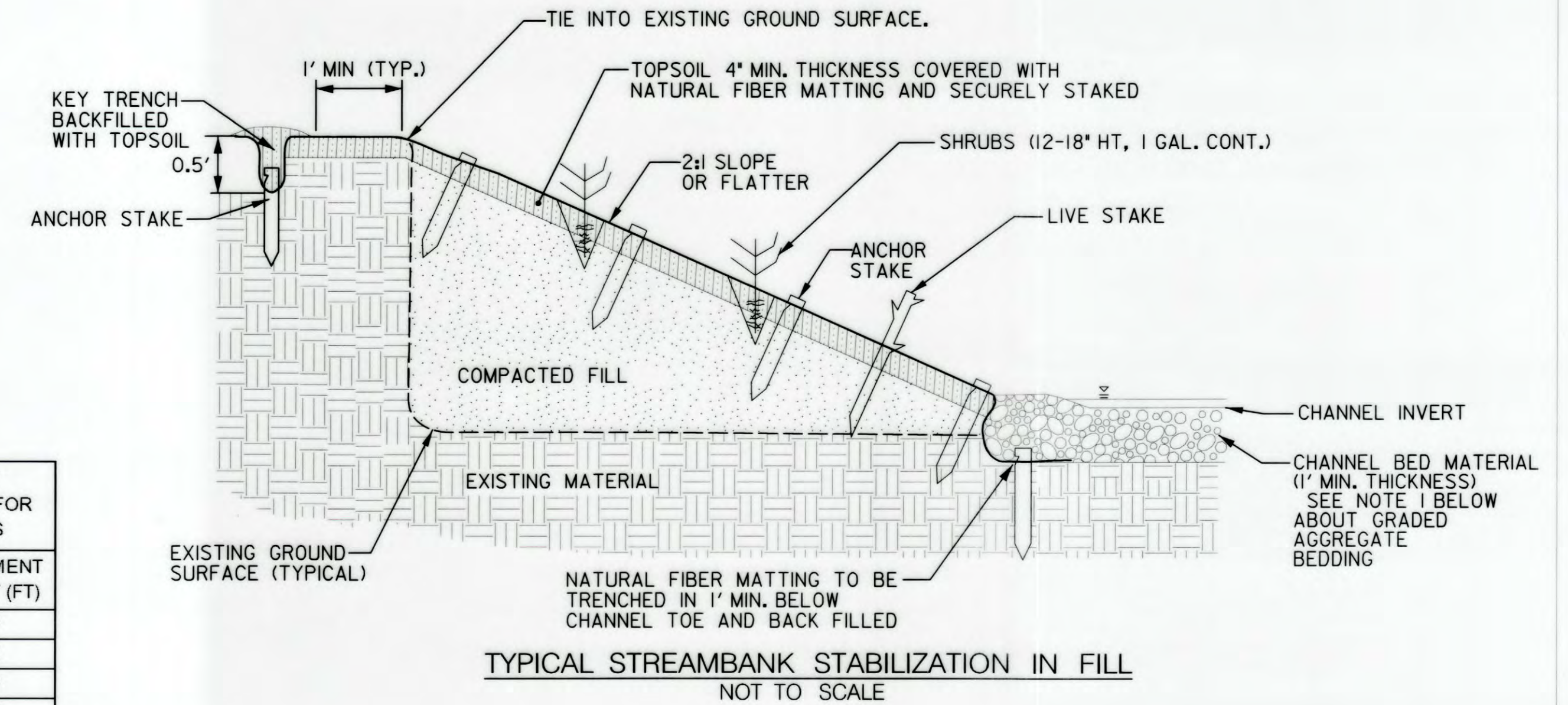


CREST STONES PLACEMENT HEIGHT FOR STEP POOL CRESTS		
STATION FROM	STATION TO	PLACEMENT HEIGHT (FT)
0+40	0+43	1.0
0+56	0+59	1.0
2+09	2+12	1.0
2+25	2+28	1.0
3+74	3+77	1.0
3+90	3+93	1.0
4+46	4+49	1.0
4+62	4+65	1.0
9+39	9+42	1.5
9+55	9+58	2.5
9+71	9+74	2.5
9+87	9+90	2.5
10+03		2.5
10+06		1.8
10+19	10+22	1.0

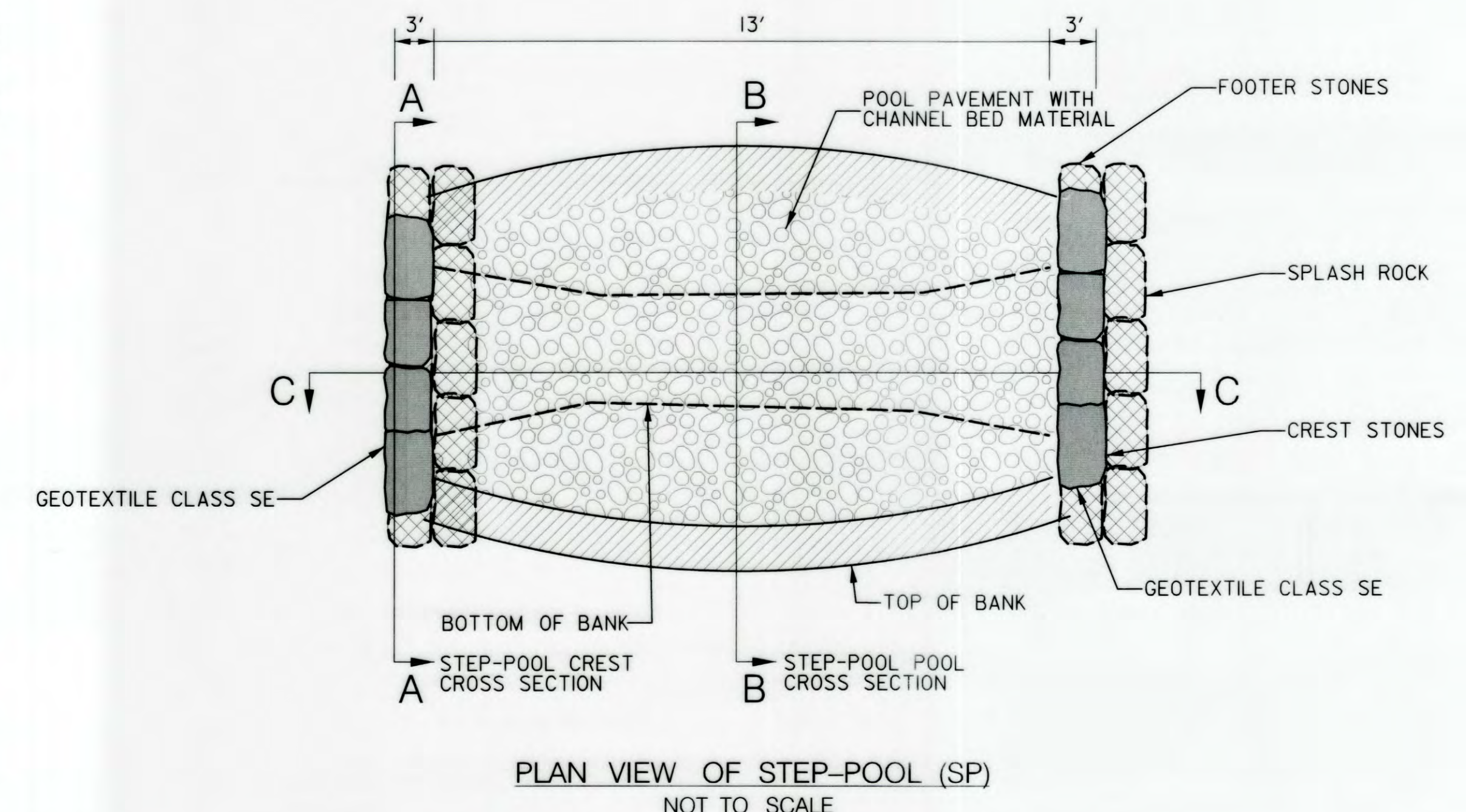
NOTE: THE CREST ALONG STA 10+03 TO 10+06 HAS VARIED PLACEMENT HEIGHT.

NOTES:
1. SPLASH ROCKS TO EXTEND ACROSS THE ENTIRE WIDTH OF FOOTER STONE PLACEMENT.

CREST STONE, FOOTER STONES, AND SPLASH ROCK			
ROCK SIZE RANGE	ROCK DIAMETER (INCHES)		
	SHORT AXIS	INTERMEDIATE AXIS	LONG AXIS
MINIMUM	24	30	30
MAXIMUM	36	40	50



NOTES:
1. PLACE 6" OF GRADED AGGREGATE BEDDING UNDERNEATH CHANNEL BED MATERIAL PLACED WITHIN THE LIMITS OF THE FORMER POND (STA. 5+70 TO 9+40).



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(410) 662-7400

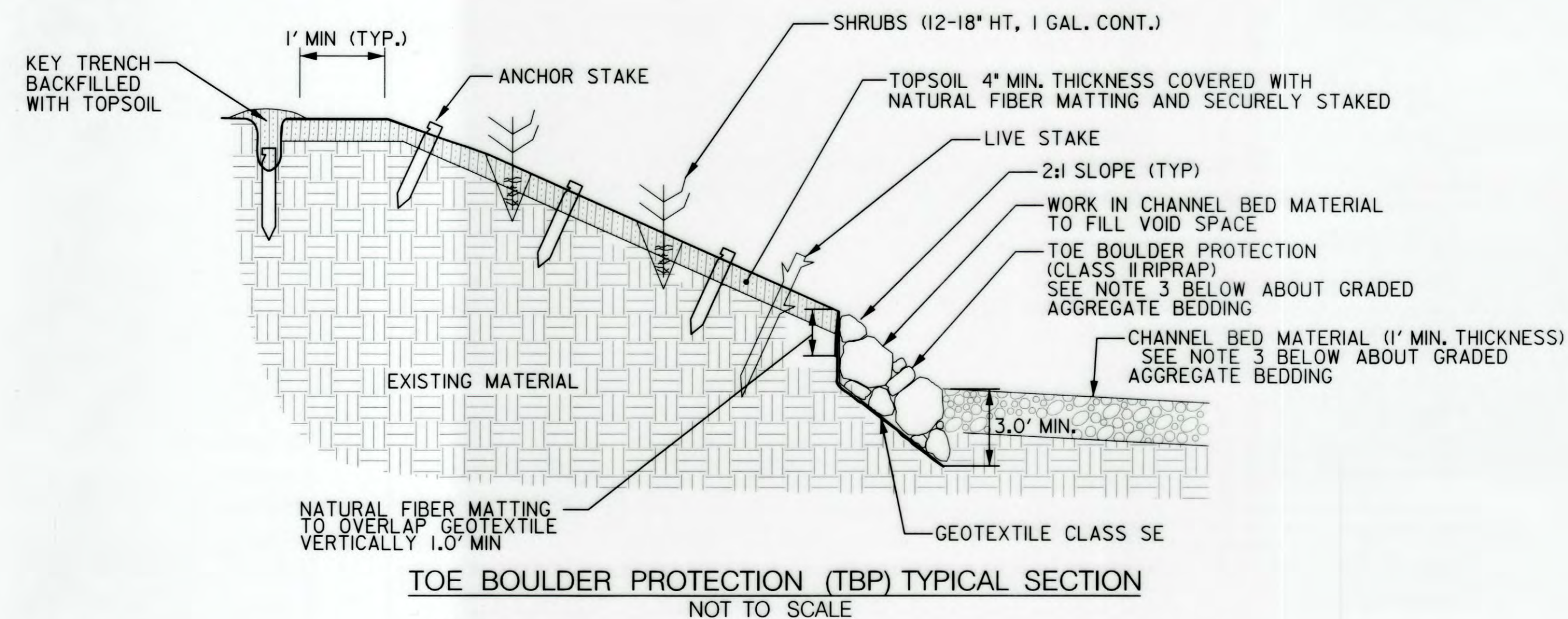
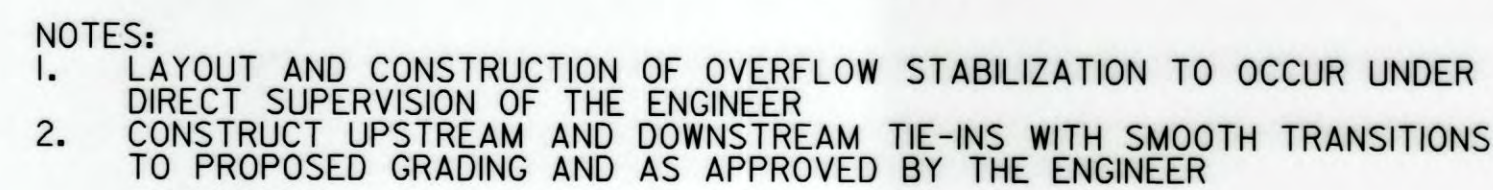
**MCCORMICK
TAYLOR**

HEAVENLY POND
STREAM RESTORATION
DETAIL SHEET

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
432 SOUTH BOND STREET
BALTIMORE, MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018

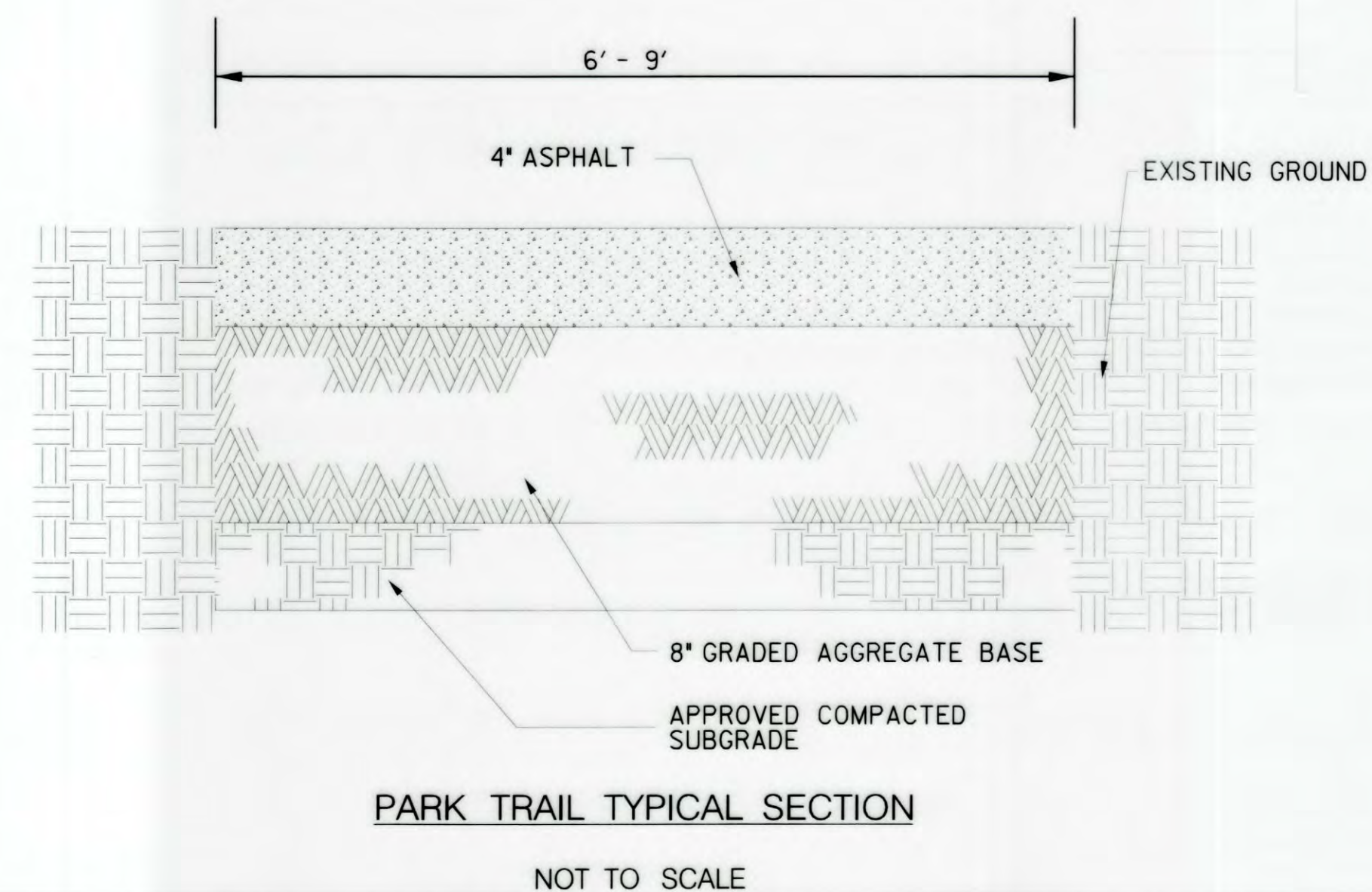


DATE: 7/2/20
SCALE: NOT TO SCALE
DESIGNED BY: MRM
DRAWN BY: MER
SHEET 6 OF 58
MT JOB NUMBER: 5786-01



- NOTES:
1. ROCK PLACEMENT HEIGHT VARIES FROM 1' AT THE UPSTREAM AND DOWNSTREAM LIMITS OF PROPOSED TOE BOULDER PROTECTION TO A MAXIMUM OF 3.5 FT AS INDICATED IN THE CROSS SECTIONS.
 2. SEE CROSS SECTIONS FOR TOE BOULDER PLACEMENT HEIGHT AT SPECIFIC LOCATIONS.
 3. PLACE 6" OF GRADED AGGREGATE BEDDING UNDERNEATH TOE BOULDER PROTECTION AND CHANNEL BED MATERIAL PLACED WITHIN THE LIMITS OF THE FORMER POND (STA. 5+70 TO 9+40).

- | Riffle Mix | |
|---------------------|--------------------------|
| Amount of Stone (%) | Stone Type (% by Volume) |
| 70 | SHA Class I |
| 30 | SHA Class II |
| 100 | Total |

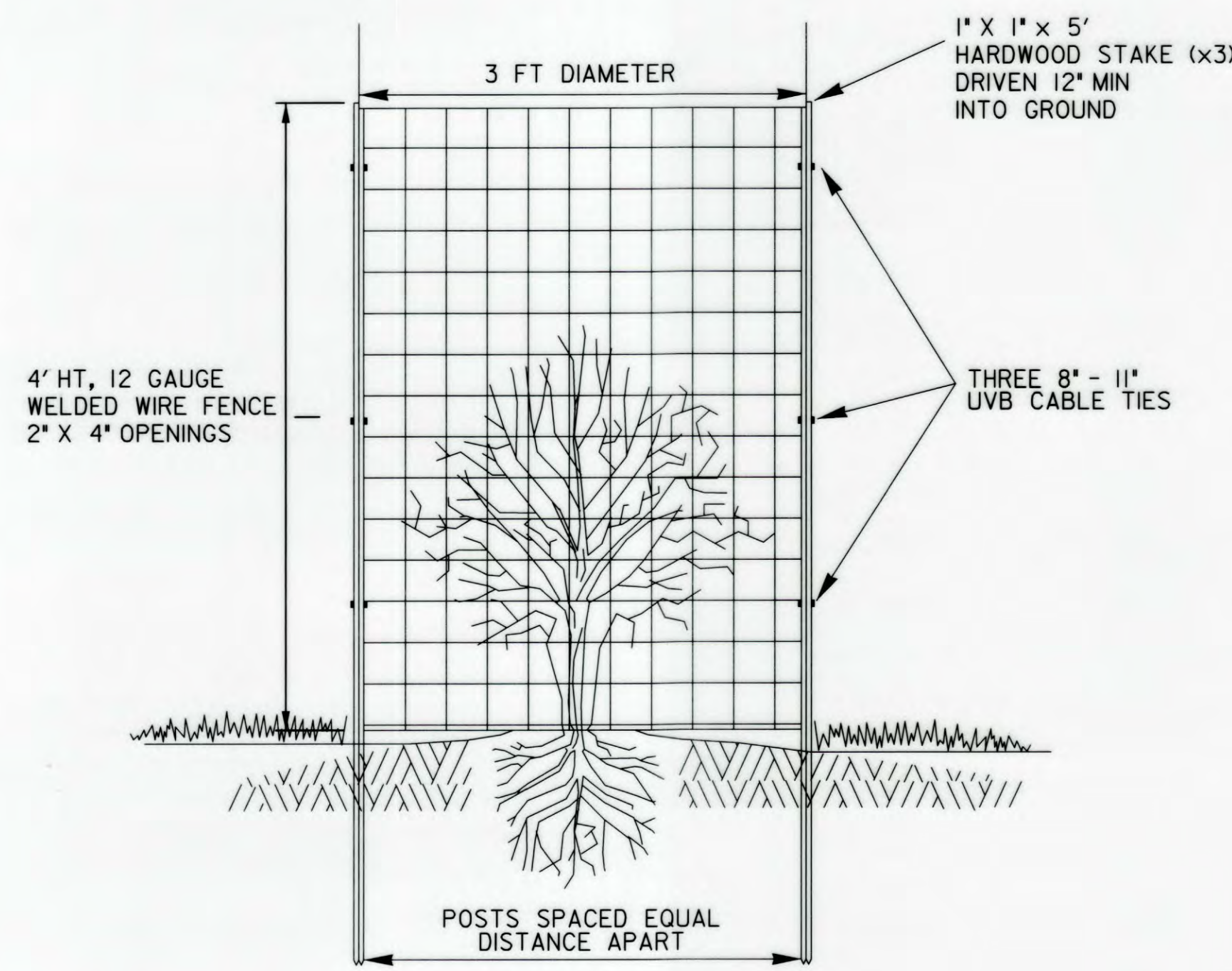


TURF SCHEDULE		LEGEND
ZONE	QUANTITY (SY)	REMARKS
TURFGRASS	5296	TURF ESTABLISHMENT (SEED)

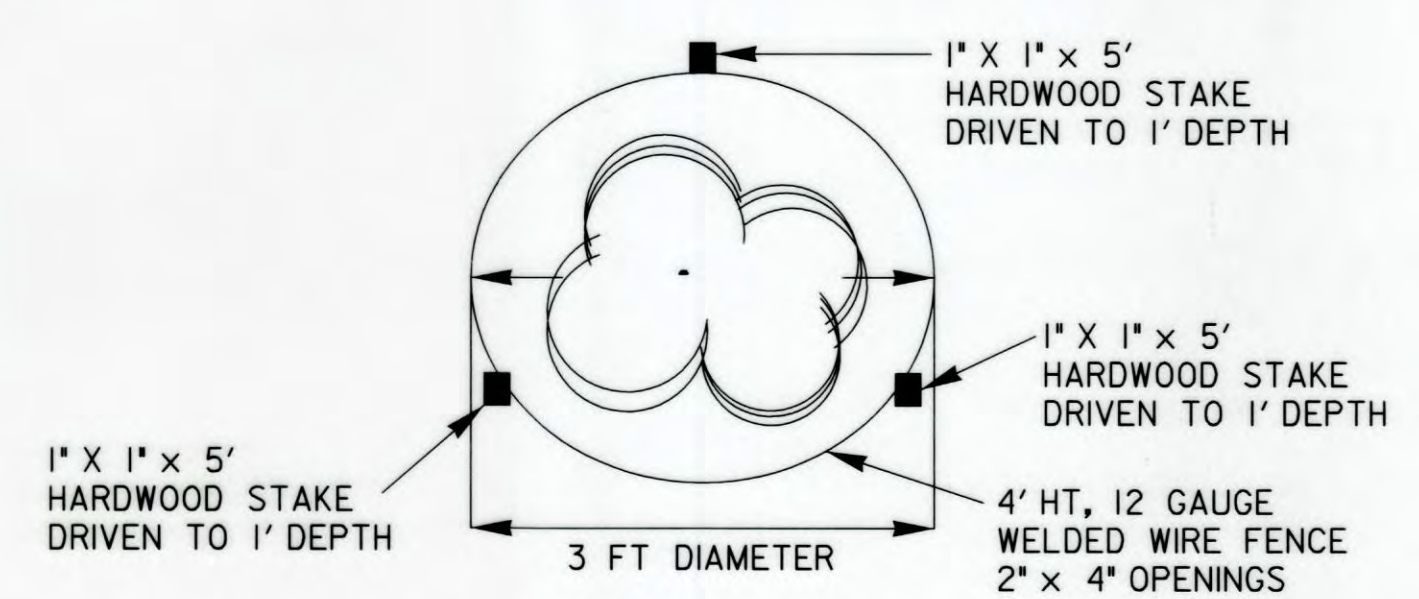
* SEED SOWING RATE TO BE APPLIED AT 200 LBS/AC

WETLAND SEED MIX				LEGEND	
ZONE	BOTANICAL NAME	COMMON NAME	WETLAND STATUS	PERCENT MIX	TOTAL MIX (LBS)
WETLAND	<i>Carex vulpinoidea</i>	Fox Sedge	OBL	32	
WETLAND	<i>Elymus virginicus</i>	Virginia Wildrye	FACW	20	
WETLAND	<i>Carex lurida</i>	Shallow Sedge	OBL	14	
WETLAND	<i>Carex lupulina</i>	Hop Sedge	OBL	10	
WETLAND	<i>Carex tribuloides</i>	Blunt Broom Sedge	FACW	6.3	
WETLAND	<i>Juncus effusus</i>	Soft Rush	FACW	3	
WETLAND	<i>Symphotrichum puniceum</i>	Purplestem Aster	OBL	2	
WETLAND	<i>Helopsis helianthoides</i>	Oxeye Sunflower	FACU	2	
WETLAND	<i>Verbena hastata</i>	Blue Vervain	FACW	2	
WETLAND	<i>Asclepias incarnata</i>	Swamp Milkweed	OBL	1.5	
WETLAND	<i>Doellingeria umbellata</i>	Flat Topped White Aster	FACW	1	
WETLAND	<i>Eupatorium perfoliatum</i>	Boneset	FACW	1	
WETLAND	<i>Onoclea sensibilis</i>	Sensitive Fern	FACW	1	
WETLAND	<i>Alisma subcordatum</i>	Mud Plantain	OBL	0.5	
WETLAND	<i>Carex intumescens</i>	Bladder Sedge	FACW	0.5	
WETLAND	<i>Calamagrostis perplexa</i>	Wood Reedgrass	FACW	0.5	
WETLAND	<i>Juncus tenuis</i>	Path Rush	FAC	0.5	
WETLAND	<i>Scirpus cyperinus</i>	Woolgrass	FACW	0.5	
WETLAND	<i>Zizia aurea</i>	Golden Alexanders	FAC	0.5	
WETLAND	<i>Eupatorium fistulosum</i>	Joe Pye Weed	FACW	0.3	
WETLAND	<i>Penthorum sedoides</i>	Ditch Stonecrop	OBL	0.3	
WETLAND	<i>Chelone glabra</i>	WhiteTurtlehead	OBL	0.2	
WETLAND	<i>Ludwigia alternifolia</i>	Seedbox	FACW	0.2	
WETLAND	<i>Mimulus ringens</i>	Square Stemmed Monkeyflower	OBL	0.2	
Total				100	21

* SEED SOWING RATE TO BE APPLIED AT 50 LBS/AC

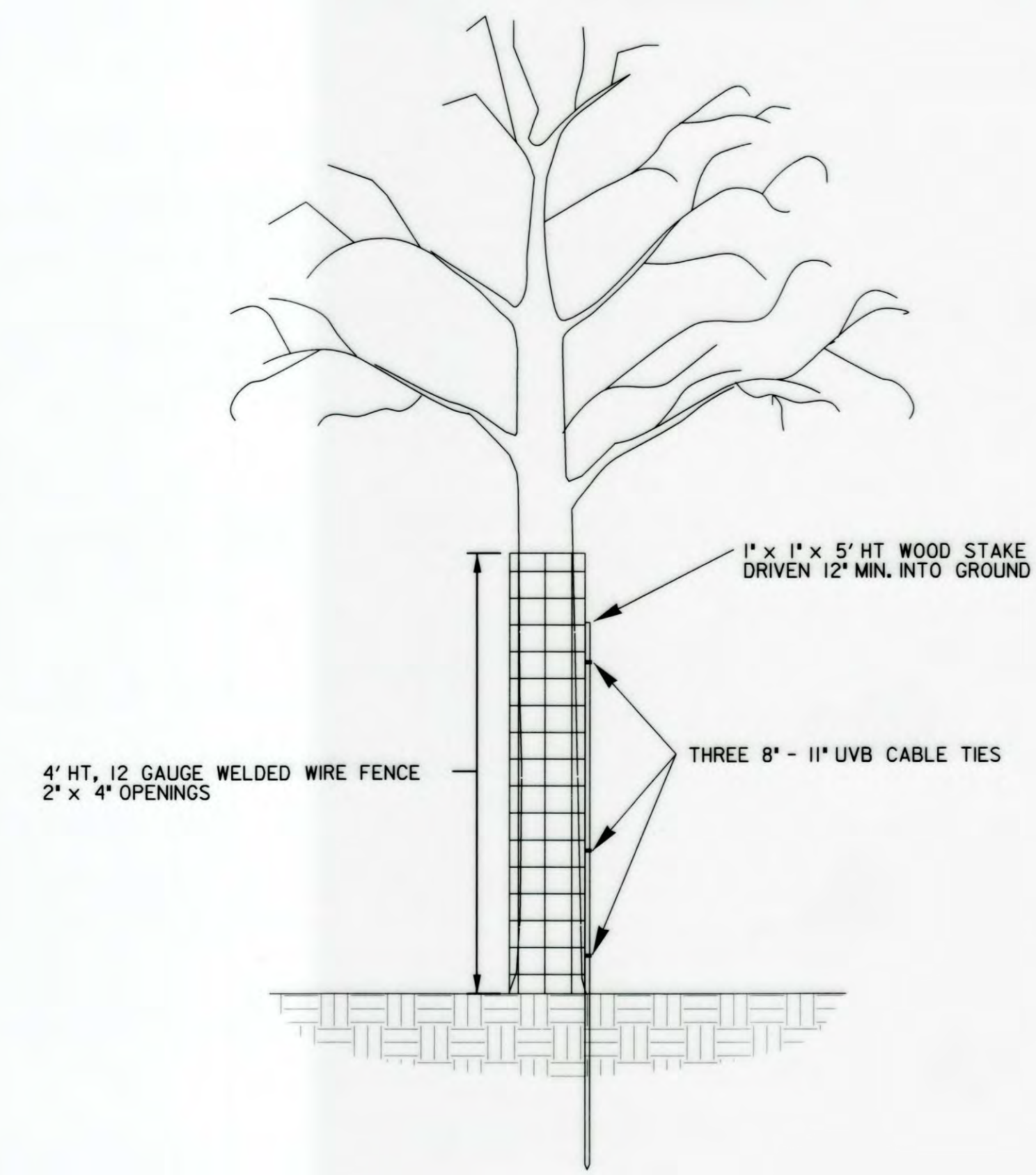


DEER PROTECTION DETAIL - SHRUB
NOT TO SCALE

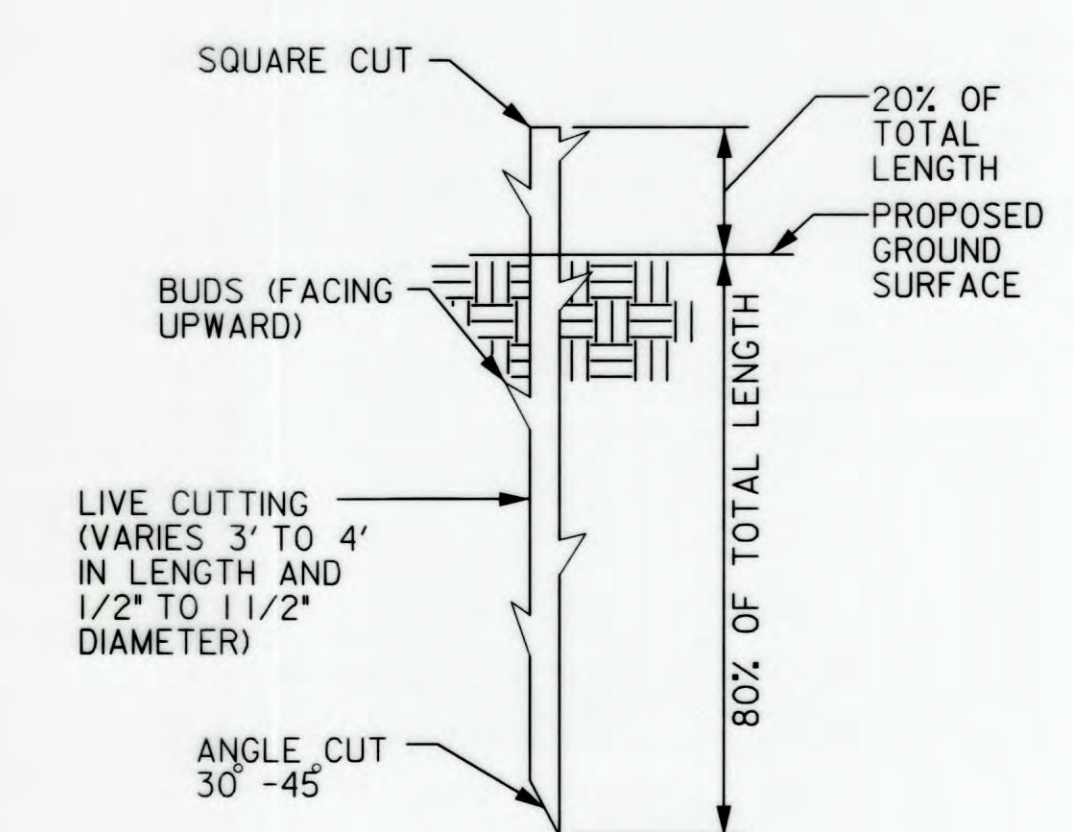


DEER PROTECTION - SHRUB TOP VIEW
NOT TO SCALE

NOTE:
1. INSTALL DEER PROTECTION ON ALL TREES AND SHRUBS WITHIN THE RIPARIAN ZONE.

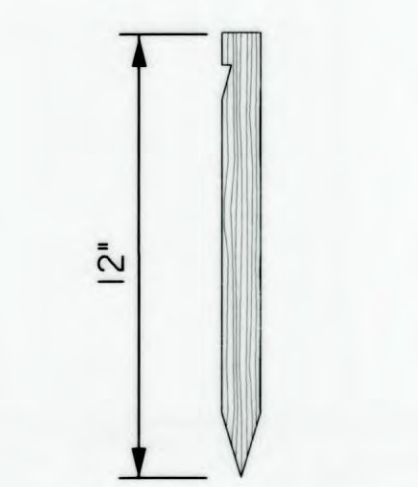


DEER PROTECTION DETAIL - TREE
NOT TO SCALE

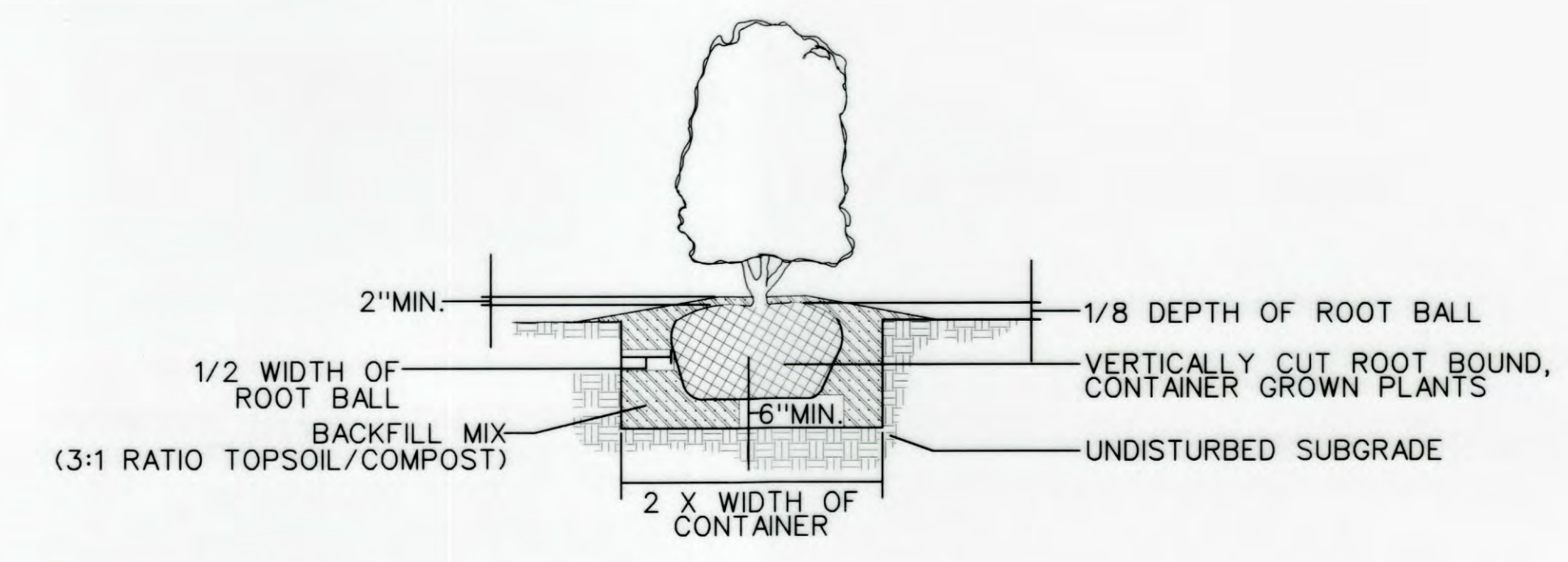


LIVE STAKE

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

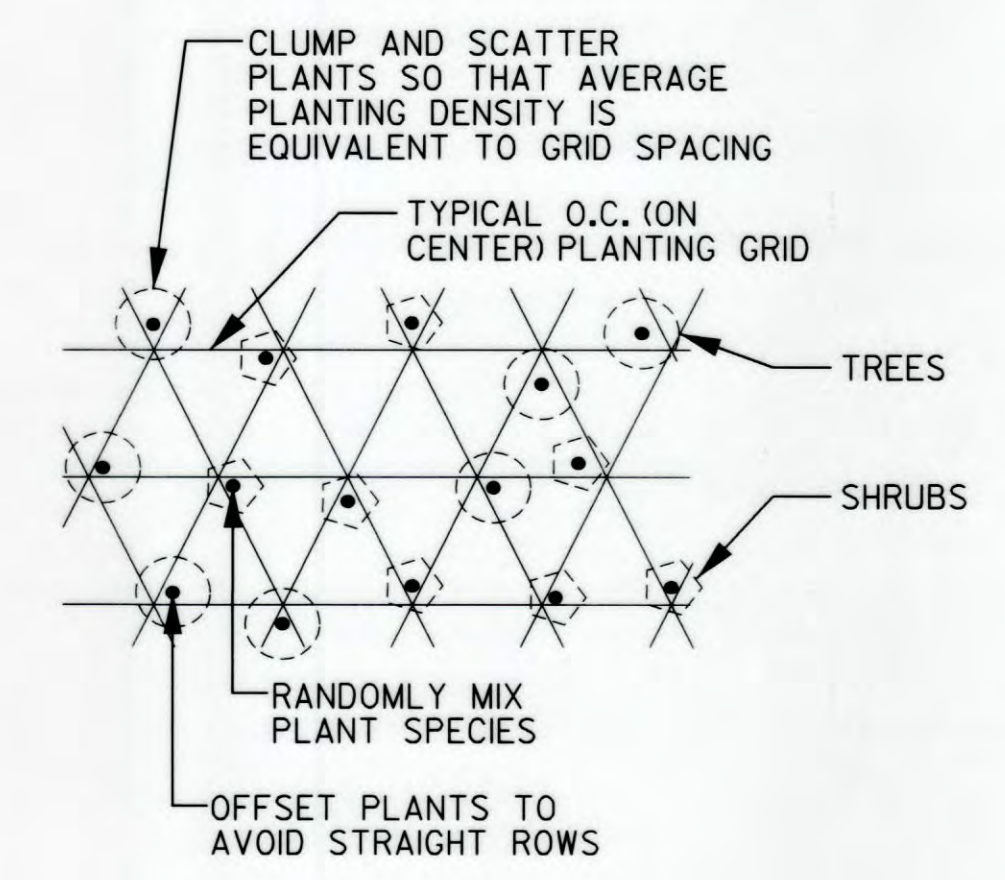


ANCHOR STAKE
NOT TO SCALE

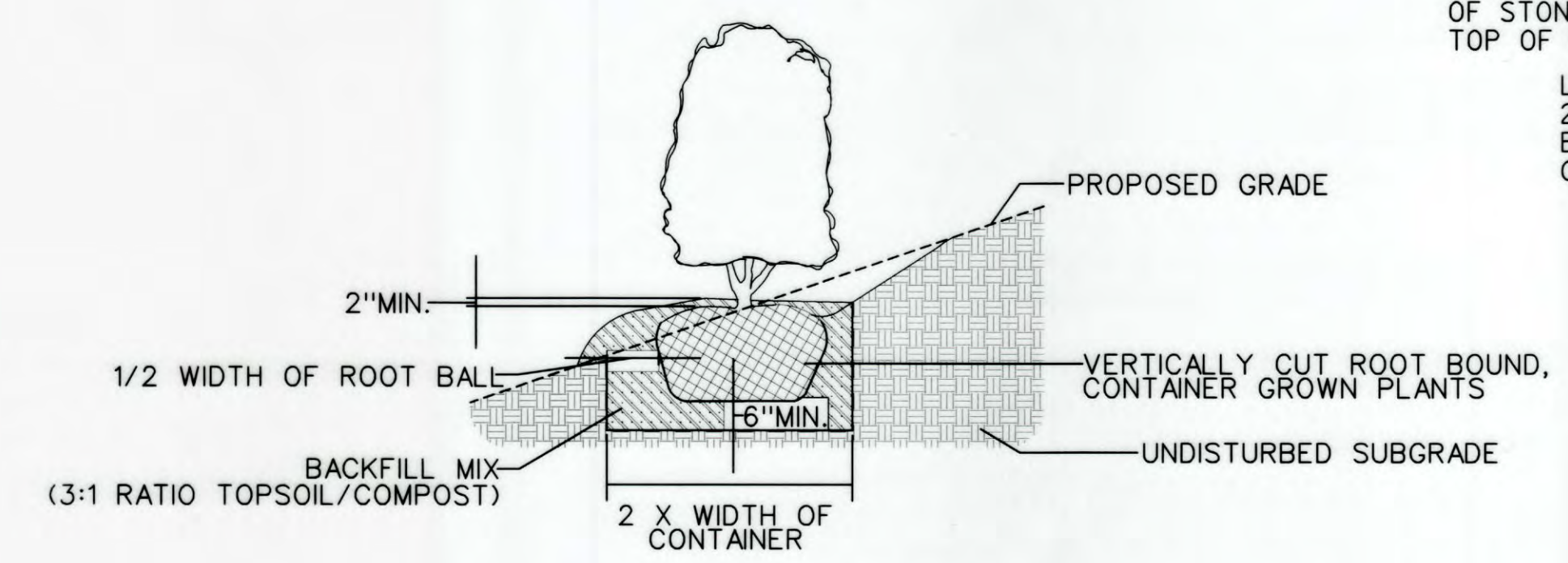


SHRUB PLANTING DETAIL

NOTE:
1. ALL TREES AND SHRUBS SHALL HAVE A MINIMUM OF ONE BRANCHED GROWTH AT TIME OF PLANTING

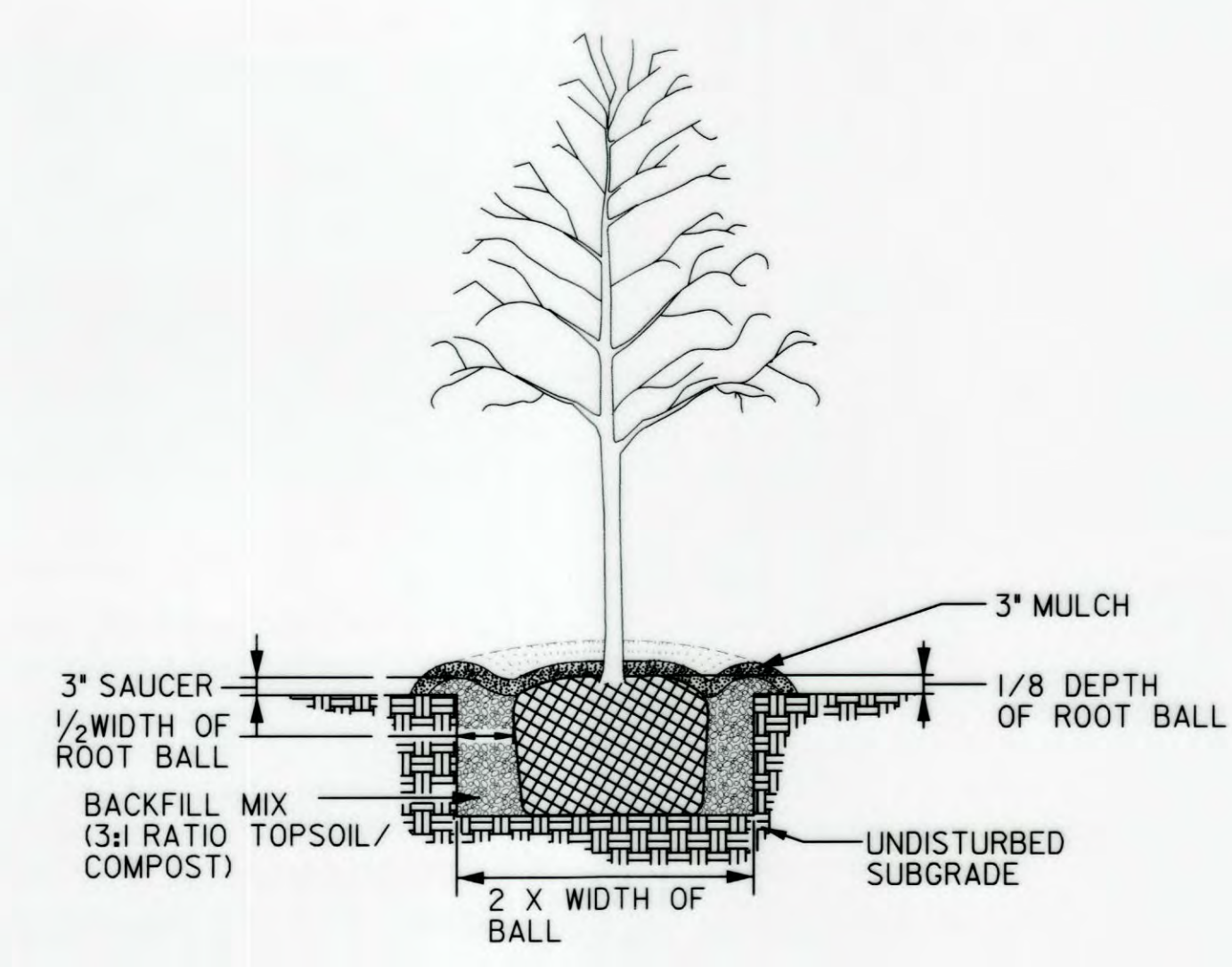


RANDOM PLANTING PATTERN
NOT TO SCALE



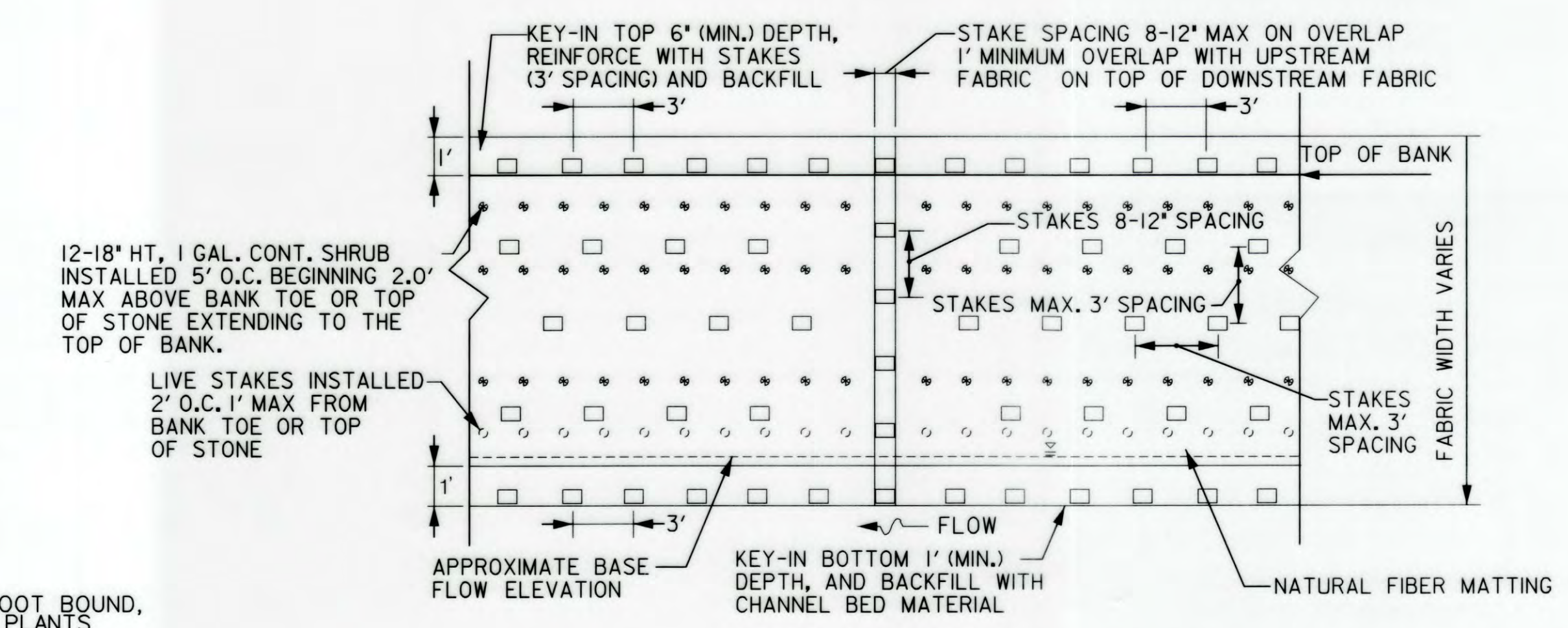
SLOPE PLANTING DETAIL
FOR SHRUBS
CONTAINER GROWN
(NOT TO SCALE)

NOTE:
1. ALL TREES AND SHRUBS SHALL HAVE A MINIMUM OF ONE BRANCHED GROWTH AT TIME OF PLANTING



DECIDUOUS TREE PLANTING DETAIL
CONTAINER GROWN
(NOT TO SCALE)

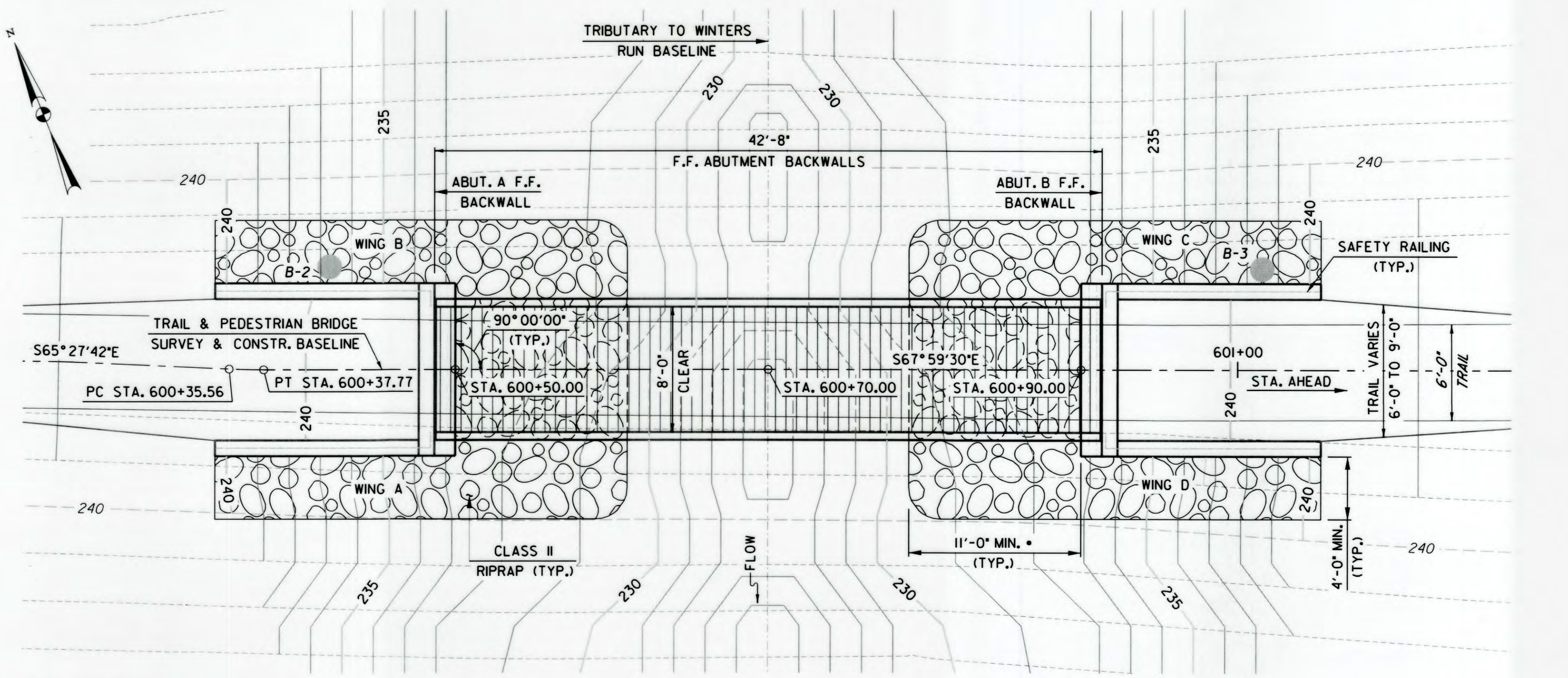
NOTE:
1. ALL TREES AND SHRUBS SHALL HAVE A MINIMUM OF ONE BRANCHED GROWTH AT TIME OF PLANTING



NATURAL FIBER MATTING - PLAN VIEW
NOT TO SCALE

USE NEDIA KOIR MAT 700 TYPE MATTING, ECO MESH CM 700, GEOCOIR DEKOWE 900 TYPE MATTING, OR AN EQUIVALENT MATTING CONSISTING OF MACHINE PRODUCED MATTING MEETING THE FOLLOWING MINIMUM SPECIFICATIONS.

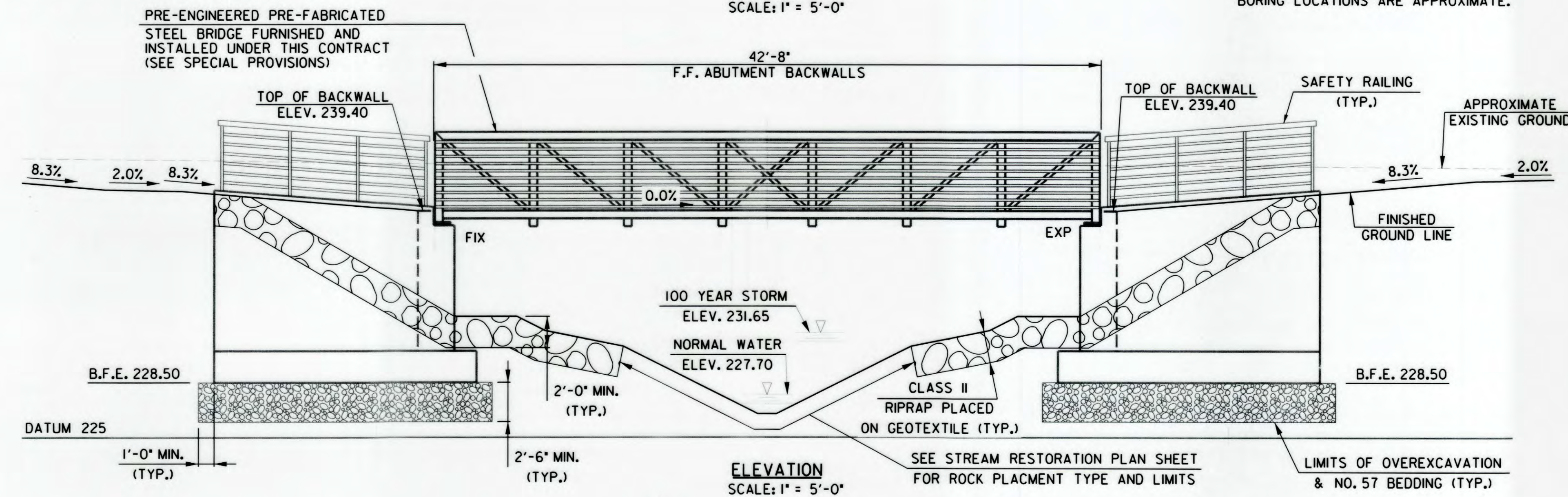
MATERIAL	WOVEN COIR MATTING
THICKNESS	0.35 IN.
WEIGHT	20 OZ/SY
WATER VELOCITY	12 FT/SEC
OPEN AREA	50%



• PLAN DIMENSION

PLAN
SCALE: 1" = 5'-0"

NOTE:
BORING LOCATIONS ARE APPROXIMATE.



ELEVATION
SCALE: 1" = 5'-0"

TRAIL SURVEY & CONSTR.
BASELINE HORIZONTAL CURVE DATA

PI STA. = 600+36.67
Δ = 2°31'47" RIGHT
D = 114°35'30"
T = 1.10'
L = 2.21'
R = 50.0'
E = 0.01'
PC STA. = 600+35.56
PT STA. = 600+37.77

HYDRAULIC DATA

DRAINAGE AREA = 0.12 SQ. MI.

Q100 = 286 CFS
100 YR. H.W. = 231.65 FT
V100 = 6.07 FT/S

EXISTING
HYDRAULIC DATA

DRAINAGE AREA = 0.12 SQ. MI.

Q100 = 286 CFS
100 YR. H.W. = 243.60 FT
V100 = 13.28 FT/S

LEGEND:

ABUT. = ABUTMENT
B.F.E. = BASELINE
B.F.E. = BOTTOM FOOTING
ELEVATION
BOT. = BOTTOM
C. = CENTERLINE
CLR. = CLEAR COVER
CONSTR. = CONSTRUCTION
DIA. = DIAMETER
ELEV. = ELEVATION
E.F. = EACH FACE
EQ. SPA. = EQUAL SPACING
F.F. = FRONT FACE
JT. = JOINT
MAX. = MAXIMUM
MIN. = MINIMUM
P.G. = PROFILE GRADE
R.F. = REAR FACE
STA. = STATION
STR. = STRAIGHT
TYP. = TYPICAL
VERT. = VERTICAL
W.P. = WORK POINT

PRE-ENGINEERED BRIDGE STRUCTURE NOTES

18. THE BRIDGE SHALL BE DESIGNED, FABRICATED, DELIVERED AND ERECTED BY A FIRM EXPERIENCED IN PRE-ENGINEERED BRIDGE CONSTRUCTION.
19. ALL STEEL FOR THE BRIDGE STRUCTURE SHALL BE WEATHERING STEEL WITH A MINIMUM YIELD STRENGTH OF 50,000 PSI, SEE SPECIAL PROVISIONS.
20. PRIOR TO FABRICATION, THE CONTRACTOR SHALL SUBMIT THE FOLLOWING ITEMS TO THE ENGINEER FOR HIS REVIEW (SUBMITTED ITEMS SHALL BE PREPARED UNDER THE SUPERVISION OF, AND BEAR THE SEAL OF, A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MARYLAND):

BRIDGE DESIGN CALCULATIONS INCLUDING A TABLE OF BRIDGE REACTIONS.

ERECTION DRAWINGS TO INCLUDE DETAILS SHOWING FABRICATION AND ASSEMBLY OF THE PRE-ENGINEERING BRIDGE STRUCTURE.

ANCHOR BOLT PLACEMENT DRAWING TO SHOW ALL ANCHOR BOLT LOCATIONS.
21. SHOP DRAWING SUBMITTALS FOR ALL MAJOR STRUCTURE COMPONENTS AND SYSTEMS SHALL BE INCLUDED AS A PART OF THE SCOPE OF THIS PROJECT AND MUST BE FORWARDED TO AND APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO FABRICATION. CONTRACTOR SHALL ALLOW A MINIMUM OF 3 WEEKS IN THE SCHEDULE FOR ENGINEER'S REVIEW OF SHOP DRAWINGS.
22. ERECT THE BRIDGE TRUE TO LINE, LEVEL AND PLUMB. LEVEL BASE PLATES TO A TRUE PLANE WITH FULL BEARING TO THE SUPPORTING STRUCTURE. USE NON-SHRINK GROUT TO OBTAIN UNIFORM BEARING AND TO MAINTAIN A LEVEL BASE LINE ELEVATION.

GENERAL NOTES

- SPECIFICATIONS: 1. ALL WORK PERFORMED ON THIS PROJECT SHALL BE IN ACCORDANCE WITH MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.
2. DESIGN IS IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SEVENTH EDITION, 2014.
- LOADING: 3. THE BRIDGE STRUCTURE SHALL BE DESIGNED FOR THE FOLLOWING LOADS:
UNIFORM LIVE LOAD: IN ACCORDANCE WITH THE AASHTO GUIDE SPECIFICATIONS DESIGN OF PEDESTRIAN BRIDGES.
VEHICLE LIVE LOAD: H-5
- CONCRETE: 4. ALL CONCRETE SHALL BE MIX NO. 3 (3,500 PSI).
5. ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED $\frac{3}{4}$ " x $\frac{3}{4}$ " WITH MILLED CHAMFER STRIPS EXCEPT ON UNEXPOSED FOOTINGS AND WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS "DO NOT CHAMFER".
- REINFORCING STEEL: 6. REINFORCING STEEL SHALL BE DEFORMED, GRADE 60 BARS CONFORMING TO ASTM A615. ALL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A775. TOUCH UP SCRATCHED OR DAMAGED EPOXY COATING IN THE FIELD PRIOR TO CLOSING UP FORM WORK AND PLACING CONCRETE. ALL FORM WORK, REINFORCING STEEL, AND INSERTS WILL BE CHECKED AND APPROVED PRIOR TO CONCRETE PLACEMENT.
7. MINIMUM COVER FOR ANY REINFORCING BAR SHALL BE 2" UNLESS OTHERWISE NOTED, WITH THE EXCEPTION OF BARS AT THE BOTTOM AND SIDES OF ALL FOOTINGS, WHICH SHALL HAVE 3" MINIMUM COVER.
8. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- STRUCTURAL STEEL: 9. STRUCTURAL STEEL SHALL CONFORM TO A 709, GRADE 50W.

FOUNDATION NOTES

10. THE DESIGN OF THE BRIDGE FOUNDATIONS HAS BEEN BASED ON THE GEOTECHNICAL INFORMATION AND RECOMMENDATIONS CONTAINED IN "REPORT OF GEOTECHNICAL EXPLORATION" PREPARED BY GEO-TECHNOLOGY ASSOCIATES, INC. AND DATED AUGUST, 2016.
11. THE MAXIMUM DESIGN FOUNDATION PRESSURE IS 3,500 PSF.
12. A TABLE OF BRIDGE REACTIONS TO THE ABUTMENTS SHALL BE FURNISHED TO THE ENGINEER. CONSTRUCTION OF THE ABUTMENTS, INCLUDING FABRICATION OF REINFORCING STEEL, SHALL NOT BEGIN PRIOR TO THE APPROVAL OF ABUTMENT FOUNDATIONS AND DETAILS.
13. THE CONTRACTOR SHALL ENGAGE AN INDEPENDENT GEOTECHNICAL ENGINEER TO INSPECT FOUNDATION EXCAVATIONS AND TO FIELD VERIFY FOUNDATION CONDITIONS IMMEDIATELY PRIOR TO PLACING CONCRETE. SHOULD CONDITIONS BE FOUND TO BE OTHER THAN THOSE INDICATED, THE CONTRACTOR SHALL STOP WORK ON THE EXCAVATION IN QUESTION, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER.
14. THE REQUIRED BEARING PRESSURE BENEATH THE FOOTINGS SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION MUST BE PROVIDED TO THE HARFORD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION.
15. THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN. EACH EIGHT INCH LIFT MUST BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HARFORD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.
16. BEFORE BEGINNING EXCAVATION, DIVERT ALL SURFACE WATER BY THE USE OF TEMPORARY SWALES OR OTHER MEANS. DO NOT ALLOW SURFACE WATER TO POND BEHIND THE WALLS DURING CONSTRUCTION.
17. DEWATER THE EXCAVATION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. CONDUCT IN ACCORDANCE WITH ALL APPLICABLE REGULATORY REQUIREMENTS. REMOVE SEDIMENT PRIOR TO DISCHARGE.

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Baltimore, Maryland 21202
(410) 662-7400

**MCCORMICK
TAYLOR**

REVISIONS
DATE
DESCRIPTION

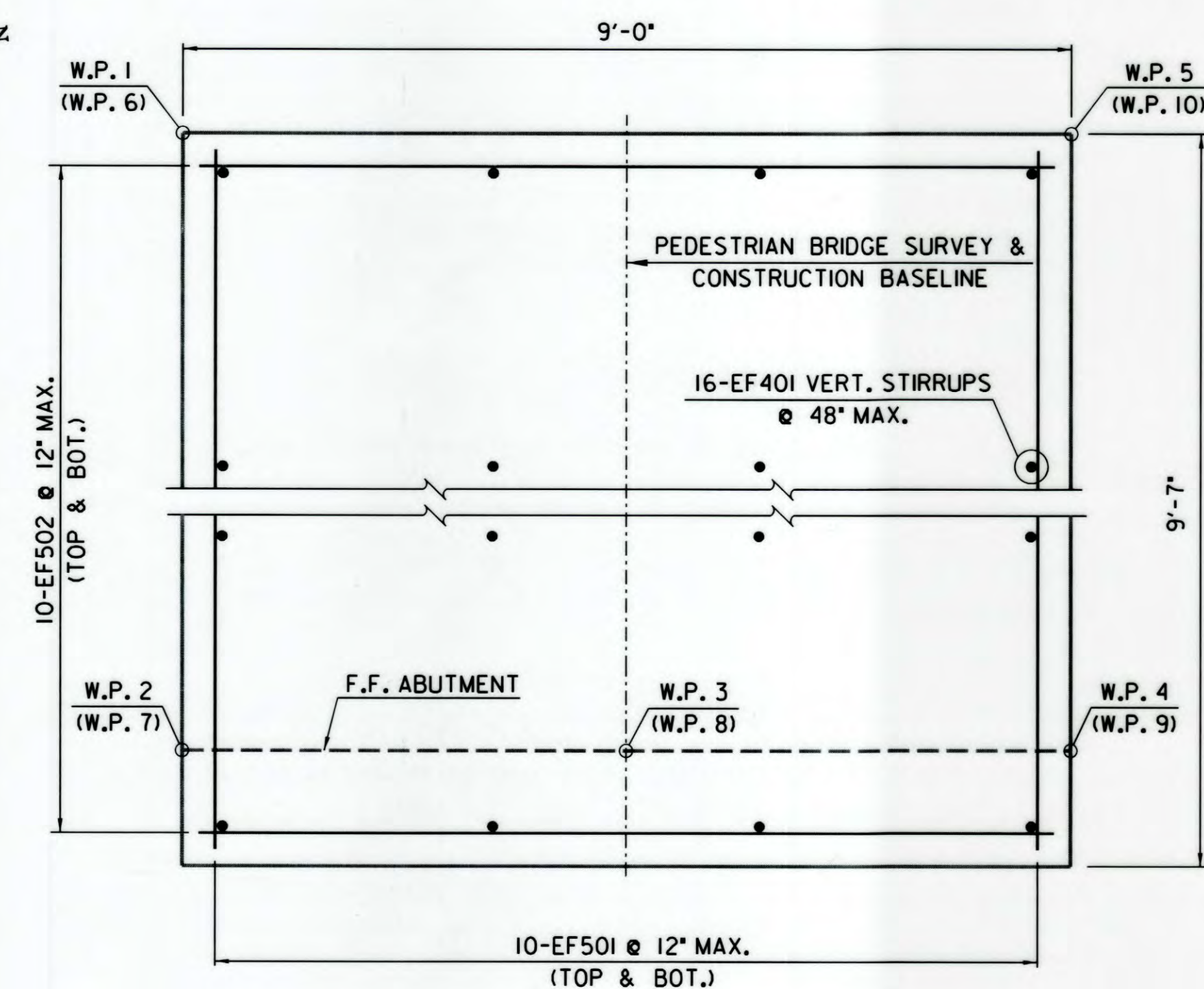
HEAVENLY POND
STREAM RESTORATION
DOWNSTREAM PEDESTRIAN
BRIDGE - BR01
GENERAL PLAN ELEVATION
& TYPICAL SECTION

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BAL AIR MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018

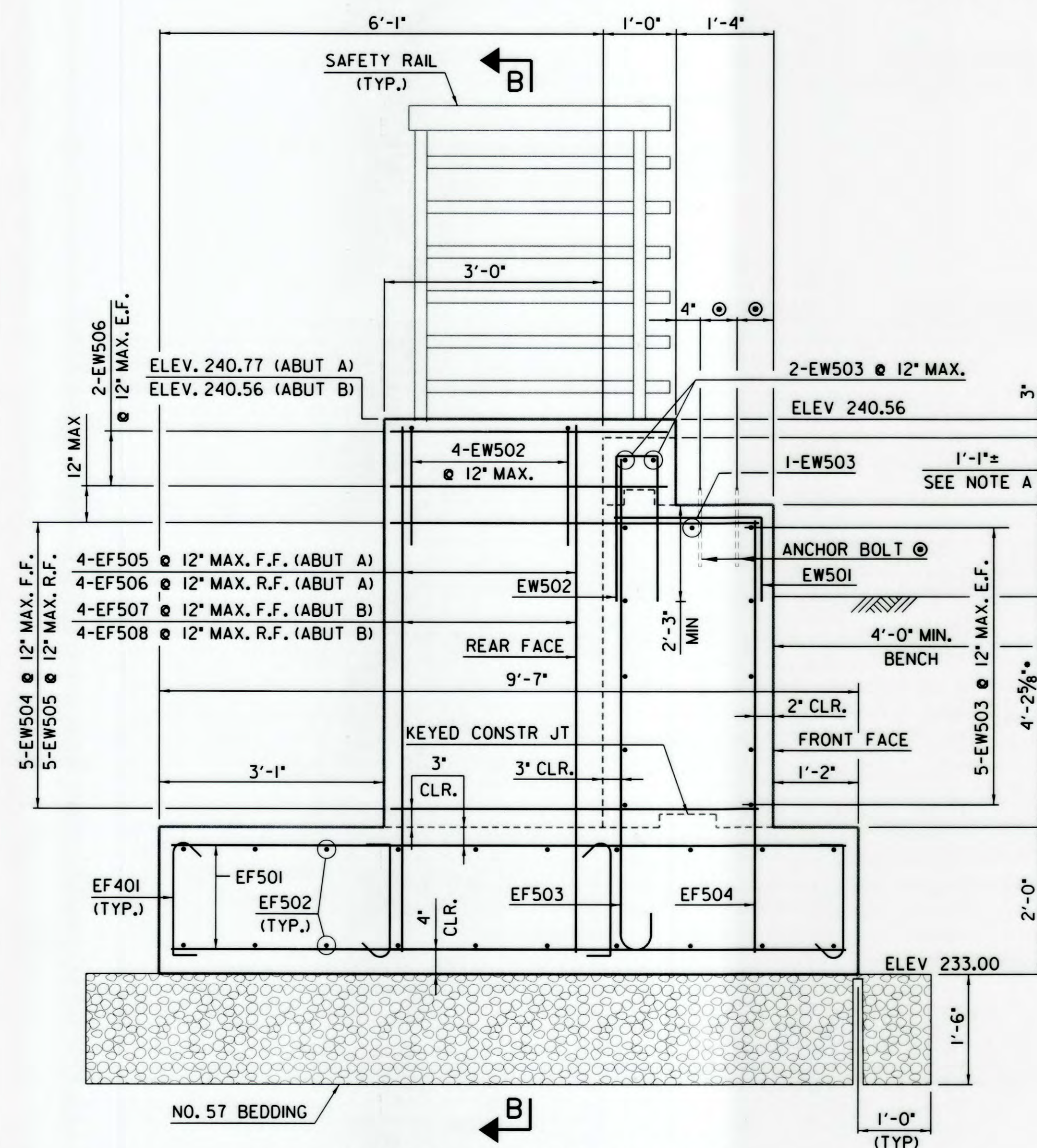


DATE: 7/2/20
SCALE: AS INDICATED
DESIGNED BY: SDH/ASF
DRAWN BY: WT
TAD/ASF
SHEET 10 OF 58
JOB NUMBER: 5786-01

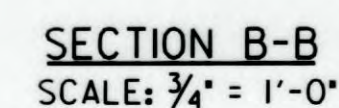
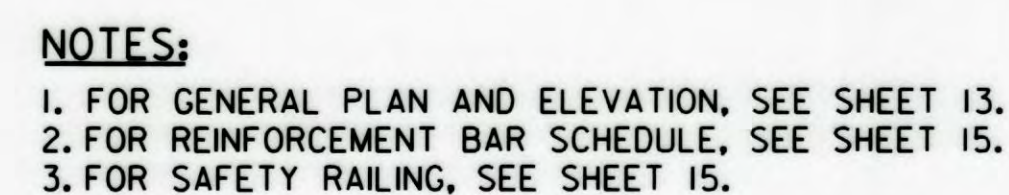
DATE 7/2/20	DRAWING NO.
SCALE AS INDICATED	201209
DESIGNED BY SDH/AJF	
DRAWN BY TAD/AJF	SHEET 12 OF 58
	MT JOB NUMBER 5786-01



SECTION A-A
(INDICATES ABUTMENT B)
SCALE: $\frac{3}{4}" = 1'-0"$



ABUTMENT A & B TYPICAL SECTION
& WINGWALL ELEVATION
SCALE: $\frac{3}{4}" = 1'-0"$



HEAVENLY POND
STREAM RESTORATION

UPSTREAM PEDESTRIAN
BRIDGE - BR02

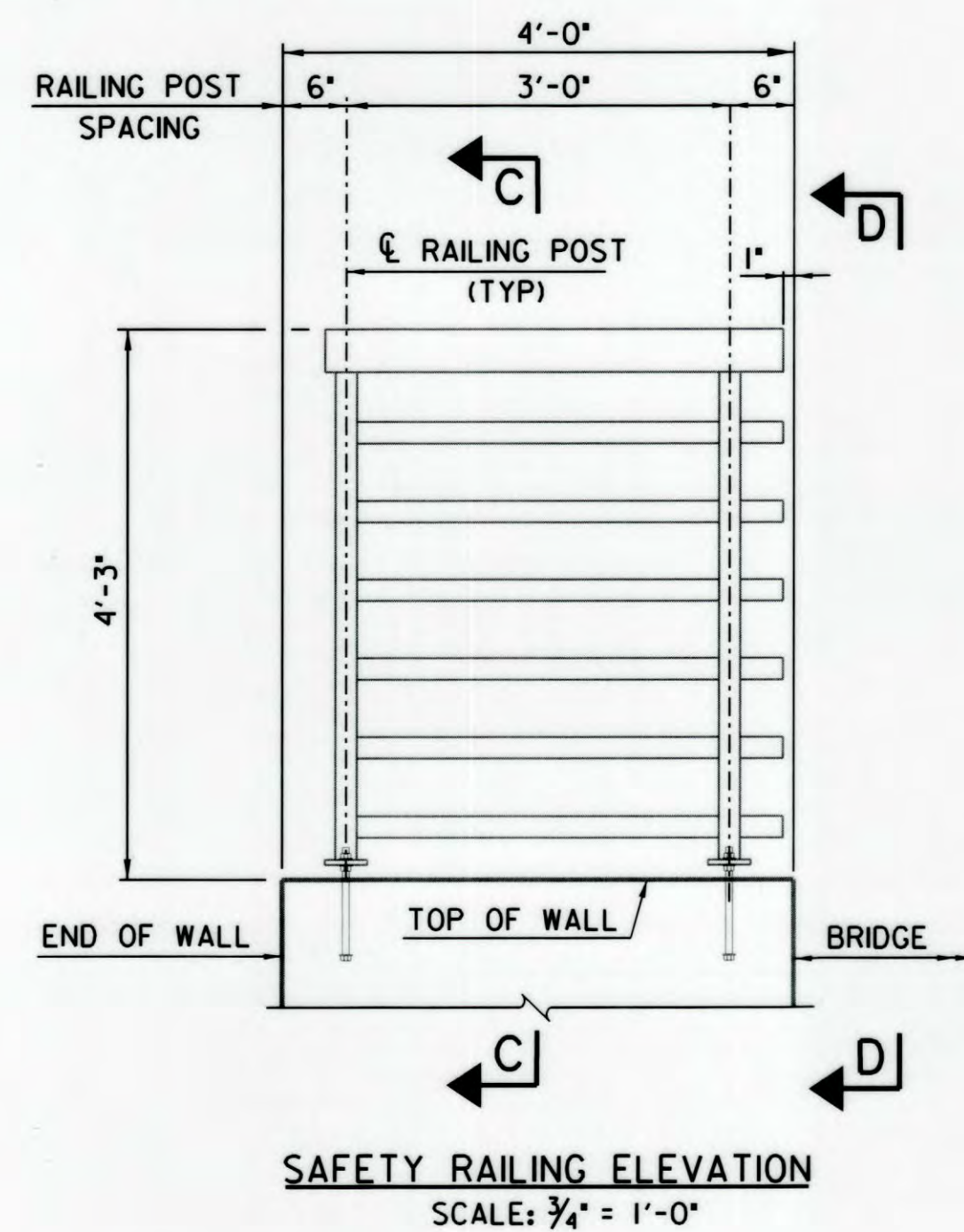
ABUTMENT PLAN ELEVATION
& TYPICAL SECTION

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS

WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BELL AIR MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018

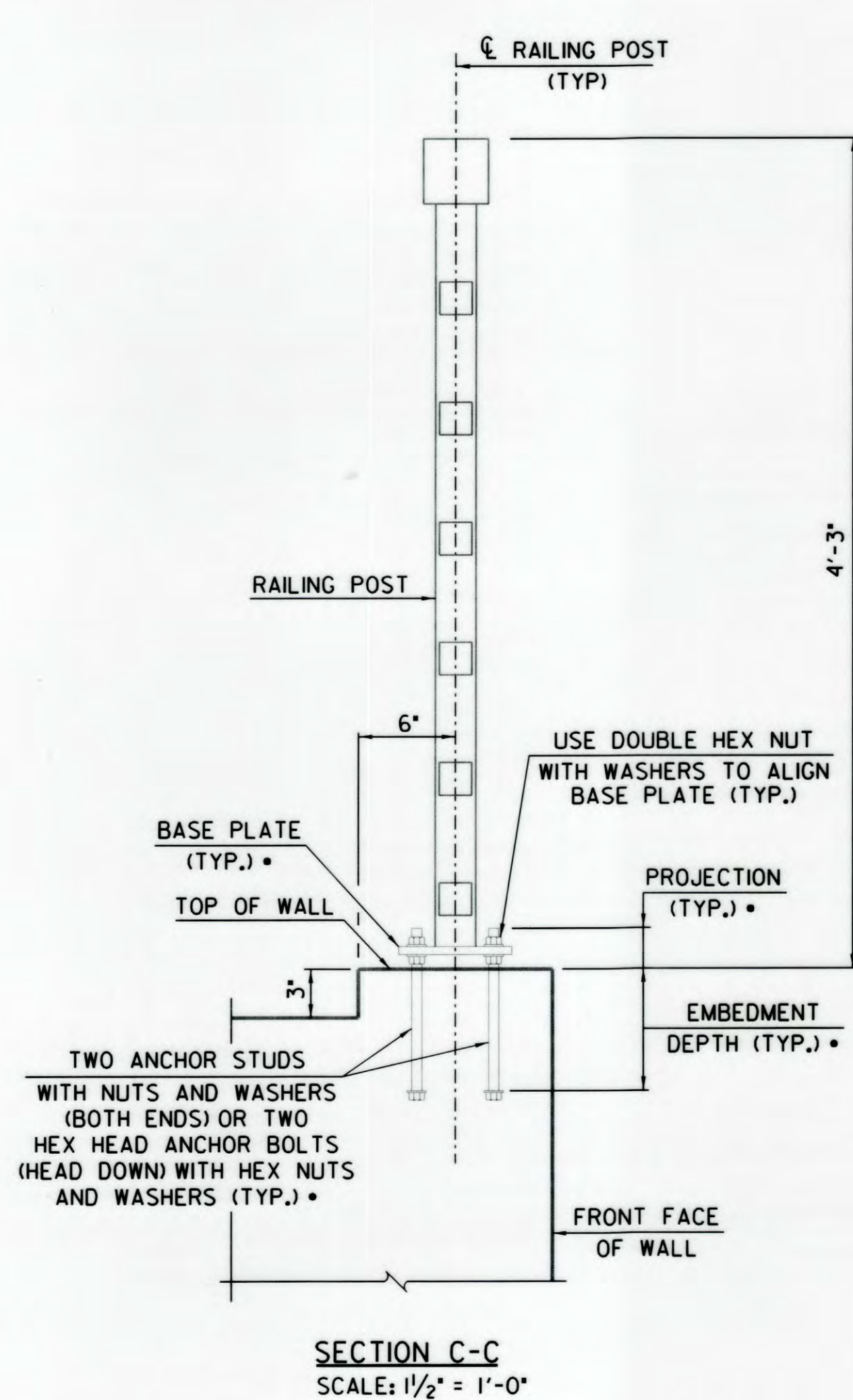


DATE 7/2/20	DRAWING NO.
SCALE AS INDICATED	201211
DESIGNED BY SDH/JAF	
	SHEET 14 OF 58
DRAWN BY TAD/JAF	MT JOB NUMBER 5786-01

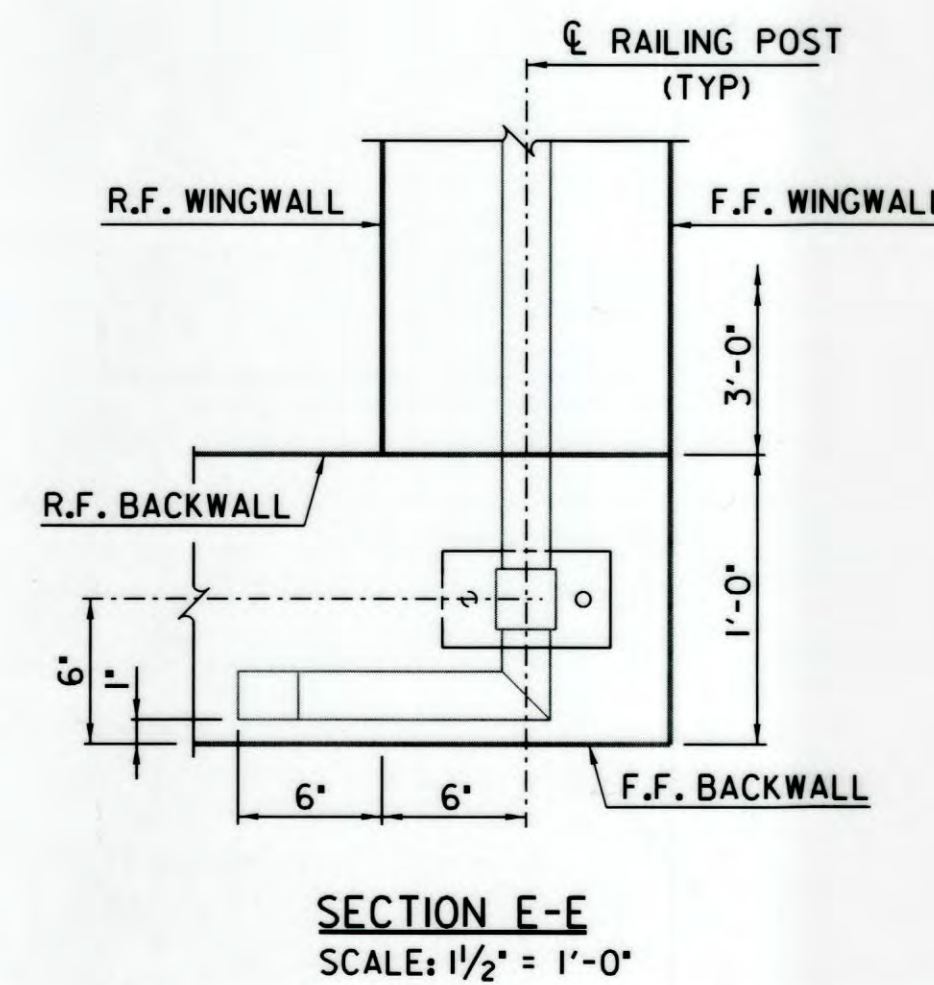
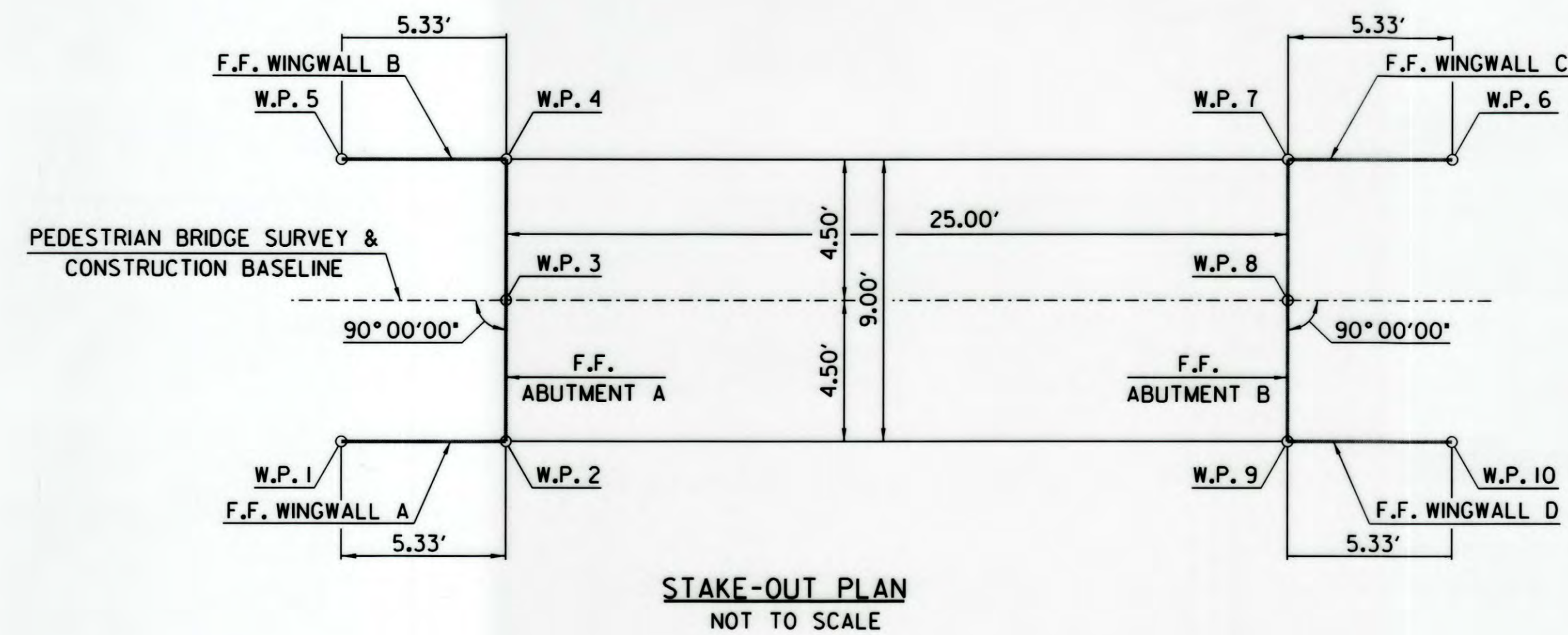
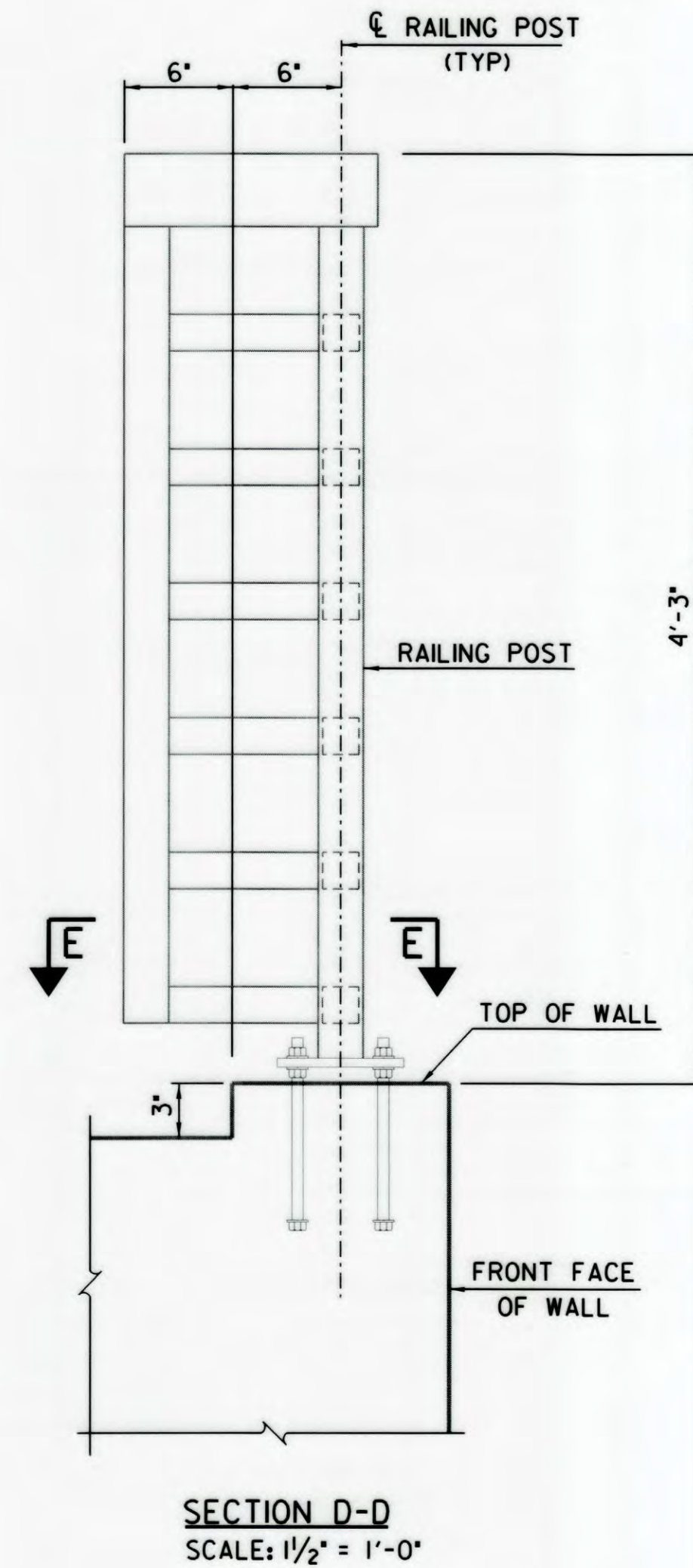


RAILING NOTES:

1. ALL POSTS AND RAILING SHALL BE HOT ROLLED STEEL CONFORMING TO A 787, G90. ALL RAIL AND POST MEMBERS SHALL BE STRUCTURAL STEEL TUBING CONFORMING TO A 500, GRADE B. ALL STEEL SHALL BE HOT DIPPED GALVANIZED IN CONFORMANCE WITH A 525, G90.
2. ALL ANCHOR PLATES SHALL BE STEEL CONFORMING TO A 709, GRADE 50.
3. ANCHOR STUDS OR ANCHOR BOLTS SHALL CONFORM TO A 276, TYPE 430 OR TYPE 304 STAINLESS STEEL ANNEALED, HOT-FINISHED, ULTIMATE STRENGTH 70,000 PSI MINIMUM, 20% MINIMUM ELONGATION. THREADS MAY BE ROLLED OR CUT.
4. ALL LONGITUDINAL RAILS SHALL BE PARALLEL TO TOP OF WALL.
5. ALL METAL SHALL BE PAINTED PER SECTION 435.
6. THE FINISHED COLOR SHOULD BE BROWN.
7. SAFETY RAIL SYSTEM AND ANCHORAGE TO BE DETERMINED BY CONTRACTOR (SEE SPECIAL PROVISIONS).



• SEE RAILING NOTE 7.

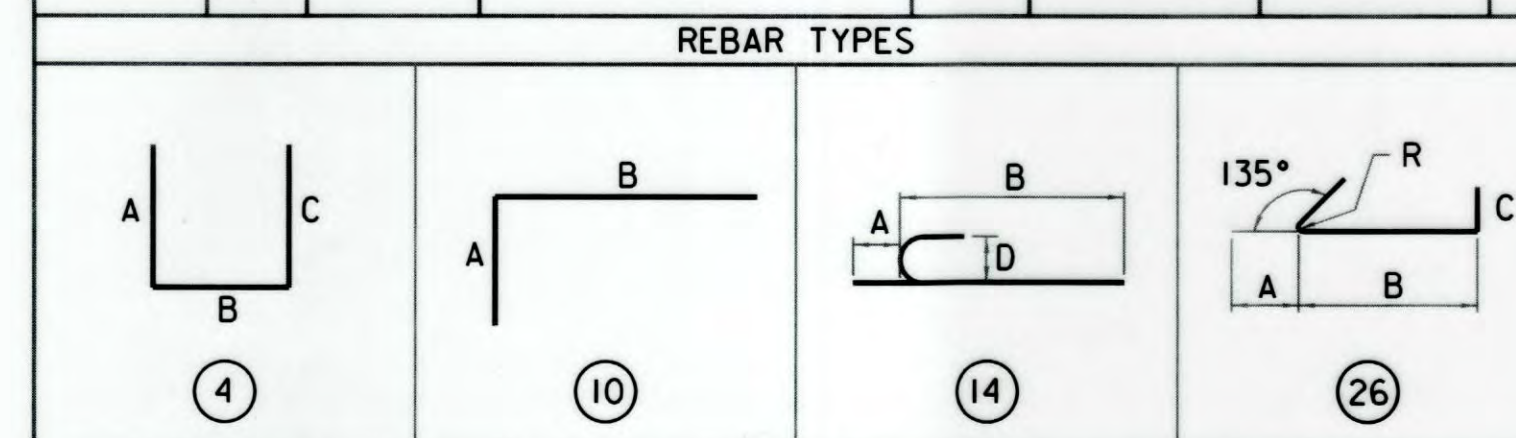


WORKPOINTS - BRIDGE				
W.P.	STATION	OFFSET	NORTHING	EASTING
1	500+34.26	4.50 RT	678286.2001	1488885.1801
2	500+39.60	4.50 RT	678285.6678	1488890.4867
3	500+39.60	0.00	678290.1454	1488890.9358
4	500+39.60	4.50 LT	678294.6229	1488891.3850
5	500+34.26	4.50 LT	678295.1552	1488886.0783
6	500+69.93	4.50 LT	678291.5955	1488921.5668
7	500+64.60	4.50 LT	678292.1278	1488916.2601
8	500+64.60	0.00	678287.6502	1488915.8110
9	500+64.60	4.50 RT	678283.1727	1488915.3619
10	500+69.93	4.50 RT	678282.6404	1488920.6686

STAKE-OUT NOTE:

FOUR PLACE COORDINATES ARE FOR COMPUTATIONAL PURPOSES ONLY AND DO NOT IMPLY A PRECISION BEYOND TWO DECIMAL POINTS.

REINFORCEMENT BAR SCHEDULE										
MARK	SIZE	NUMBER	LENGTH	TYPE	A	B	C	D	E	REMARKS
EF401	4	32	2'-2"	26	4 1/2"	1'-5"	4 1/2"			
EF501	5	40	9'-1"	STR						
EF502	5	40	8'-6"	STR						
EF503	5	20	7'-4"	14	7"	6'-9"		5"		
EF504	5	20	5'-8"	STR						
EF505	5	8	7'-2" to 7'-4"	STR						
EF506	5	8	7'-8" TO 7'-10"	14	7"	7'-1" TO 7'-3"		5"		ADJUST AS NEEDED FOR BEAM SEAT ELEVATION ADJUSTMENTS
EF507	5	8	7'-1"	STR						
EF508	5	8	7'-7"	14	7"	7'-0"		5"		VARY B BY 5/8" (+); (2 SETS OF 4)
EW501	5	20	5'-0"	10	3'-0"	2'-0"				ADJUST AS NEEDED FOR BEAM SEAT ELEVATION ADJUSTMENTS
EW502	5	36	7'-1"	4	3'-3"	7"	3'-3"			ADJUST AS NEEDED FOR BEAM SEAT ELEVATION ADJUSTMENTS
EW503	5	26	8'-8"	STR						
EW504	5	20	5'-0"	STR						
EW505	5	20	4'-2"	STR						
EW506	5	16	3'-8"	STR						
EW507	5	24	6'-0"	10	3'-0"	3'-0"				



- ** DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
- FOR REINFORCEMENT BAR FABRICATION DETAILS, REFER TO STANDARD DRAWING BC-736M.
- FIGURES IN CIRCLES SHOW TYPES.
- *E* - INDICATES EPOXY COATED REBARS.
- FOR ALL BAR TYPES SHOWN, DIMENSIONS A-E AND LENGTH ARE MEASURED ALONG OUTSIDE OF BAR. R IS MEASURED ALONG INSIDE OF BAR.

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

**MCCORMICK
TAYLOR**

REV	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
UPSTREAM PEDESTRIAN
BRIDGE - BR02
SAFETY RAILING DETAILS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BEL AIR, MARYLAND 21014
410-688-3217
SC PLAN #09839
GR PERMIT #15366-2018



STATE OF MARYLAND
JAMES J. JONES
PROFESSIONAL ENGINEER
No. 23313

DATE	7/2/20	DRAWING NO.	201212
SCALE	AS INDICATED	SHEET	15 OF 58
DESIGNED BY	SDH/AJF	DRAWN BY	MT
DATE	7/2/20	JOB NUMBER	5786-01

NOTES FOR EXPLORATION LOGS

KEY TO USCS TERMINOLOGY AND GRAPHIC SYMBOLS

MAJOR DIVISIONS (BASED UPON ASTM D 2488)			SYMBOLS	
			GRAPHIC	LETTER
COARSE-GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 15% PASSING THE NO. 200 SIEVE)		GW
		GRAVELS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		GP
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LESS THAN 15% PASSING THE NO. 200 SIEVE)		SW
				SP
		SANDS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		SM
				SC
FINE-GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILT OR CLAY (<15% RETAINED ON THE NO. 200 SIEVE) SILT OR CLAY WITH SAND OR GRAVEL (15% TO 30% RETAINED ON THE NO. 200 SIEVE) SANDY OR GRAVELLY SILT OR CLAY (>30% RETAINED ON THE NO. 200 SIEVE)	SILTS AND LEAN CLAYS LIQUID LIMIT LESS THAN 50		ML
				CL
				OL
		ELASTIC SILTS AND FAT CLAYS LIQUID LIMIT GREATER THAN 50		MH
				CH
				OH
HIGHLY ORGANIC SOILS				PT

NOTE: DUAL SYMBOLS ARE USED TO INDICATE COARSE-GRAINED SOILS WHICH CONTAIN AN ESTIMATED 5 TO 15% FINES BASED ON VISUAL CLASSIFICATION OR BETWEEN 5 AND 12% FINES BASED ON LABORATORY TESTING; AND FINE-GRAINED SOILS WHEN THE PLOT OF LIQUID LIMIT & PLASTICITY INDEX VALUES FALLS IN THE PLASTICITY CHART'S CROSS-HATCHED AREA. FINE-GRAINED SOILS ARE CLASSIFIED AS ORGANIC (OL OR OH) WHEN ENOUGH ORGANIC PARTICLES ARE PRESENT TO INFLUENCE ITS PROPERTIES. LABORATORY TEST RESULTS ARE USED TO SUPPLEMENT SOIL CLASSIFICATION BY THE VISUAL-MANUAL PROCEDURES OF ASTM D 2488.

ADDITIONAL TERMINOLOGY AND GRAPHIC SYMBOLS

ADDITIONAL DESIGNATIONS	DESCRIPTION		GRAPHIC SYMBOLS
	TOPSOIL		
	MAN MADE FILL		
	GLACIAL TILL		
	COBBLES AND BOULDERS		
RESIDUAL SOIL DESIGNATIONS	DESCRIPTION	"N" VALUE	
	HIGHLY WEATHERED ROCK	50 TO 50/1"	
	PARTIALLY WEATHERED ROCK	MORE THAN 50 BLOWS FOR 1" OF PENETRATION OR LESS, AUGER PENETRABLE	

COARSE-GRAINED SOILS (GRAVEL AND SAND)

DESIGNATION	BLOWS PER FOOT (BPF) "N"
VERY LOOSE	0 - 4
LOOSE	5 - 10
MEDIUM DENSE	11 - 30
DENSE	31 - 50
VERY DENSE	>50

NOTE: "N" VALUE DETERMINED AS
PER ASTM D 1586

FINE-GRAINED SOILS
(SILT AND CLAY)

CONSISTENCY	BPF "N"
VERY SOFT	<2
SOFT	2 - 4
MEDIUM STIFF	5 - 8
STIFF	9 - 15
VERY STIFF	16 - 30
HARD	>30

NOTE: ADDITIONAL DESIGNATIONS
TO ADVANCE SAMPLER INDICATED
IN BLOW COUNT COLUMN:
WOH = WEIGHT OF HAMMER
WOR = WEIGHT OF ROD(S)

SAMPLE TYPE

DESIGNATION	SYMBOL
SOIL SAMPLE	S-
SHELBY TUBE	U-
ROCK CORE	R-

WATER DESIGNATION

DESCRIPTION	SYMBOL
ENCOUNTERED DURING DRILLING	
UPON COMPLETION OF DRILLING	
24 HOURS AFTER COMPLETION	

NOTE: WATER OBSERVATIONS WERE MADE AT THE TIME INDICATED. POROSITY OF SOIL STRATA, WEATHER CONDITIONS, SITE TOPOGRAPHY, ETC. MAY CAUSE WATER LEVEL CHANGES.

LOG OF BORING NO. B-1

Sheet 1 of 1

PROJECT: **Heavenly Pond**
PROJECT NO.: **31161626**
PROJECT LOCATION: **Harford County, Maryland**

WATER LEVEL (ft):	 7.0	 BOC	
DATE:	8/8/16		
CAVED (ft):	7.5		

DATE STARTED: 8/8/2016
DATE COMPLETED: 8/8/2016
DRILLING CONTRACTOR: MDA Drilling, Inc.
DRILLER: D. Addison
DRILLING METHOD: HSA/SPT
SAMPLING METHOD: Split-Spoon

WATER ENCOUNTERED DURING DRILLING (ft) **None**
GROUND SURFACE ELEVATION: **240**
DATUM: **Topo**
EQUIPMENT: **B-57**
LOGGED BY: **E. Kussman**
CHECKED BY: **T. Wirth**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					240.0	0	FILL		Orange/ brown/ gray, moist, stiff, lean clay (FILL)	Topsoil = 5 inches
S-1	1.0	15	3-5-8	13					Orange, moist, stiff, sandy lean clay (FILL)	
S-2	3.5	16	6-8-6	14						
					234.0	6	SM		Gray, moist, medium dense, Silty SAND	
S-3	6.0	15	6-8-10	18					Brown, moist, medium dense, Silty SAND	
S-4	8.5	18	8-10-15	25						
						12				
S-5	13.5	14	3-5-10	15	225.0				Same	
									Boring Terminated at 15 feet	
						18				
						24				
						30				
						36				

NOTES: Elevations and locations are approximate. BOC = Backfilled on completion.



GEO-TECHNOLOGY
ASSOCIATES, INC.

3445-A Box Hill Corporate Center Drive
Abingdon, MD 21009

LOG OF BORING NO. B-1

Sheet 1 of 1

4th Floor
Baltimore, Maryland 21202
(410) 662-7400



**MCCORMICK
TAYLOR**

[illegible]

HEAVENLY POND
STREAM RESTORATION

UPSTREAM PEDESTRIAN
BRIDGE - BR02

BORING SHEET 1

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS

WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BEL AIR MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018



DATE 7/2/20	DRAWING NO.
SCALE	<i>201213</i>
TO SCALE	
SIGNED BY	
--	
	SHEET 16 OF 58
DRAWN BY	MT JOB NUMBER
STAD/AJF	5786-01

LOG OF BORING NO. B-2

Sheet 1 of 1

PROJECT: **Heavenly Pond**
PROJECT NO.: **31161626**
PROJECT LOCATION: **Harford County, Maryland**

WATER LEVEL (ft): **21.8** **15.2** **15.0**
DATE: **8/8/16** **8/10/16** **8/18/16**
CAVED (ft): **18.5** **Pipe** **Pipe**

DATE STARTED: **8/8/2016**
DATE COMPLETED: **8/8/2016**
DRILLING CONTRACTOR: **MDA Drilling, Inc.**
DRILLER: **D. Addison**
DRILLING METHOD: **HSA/SPT**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft) **24.0**
GROUND SURFACE ELEVATION: **242**
DATUM: **Topo**
EQUIPMENT: **B-57**
LOGGED BY: **E. Kussman**
CHECKED BY: **T. Wirth**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S-1	0.0	15	3-6-9-13	15	242.0	0	FILL		Brown, moist, medium dense, silty sand (FILL)	Topsoil = 5 inches
S-2	2.0	24	5-6-10-9	16					Brown/ orange, moist, very stiff, sandy silt (FILL)	
S-3	4.0	10	5-5-5-6	10					Brown, moist, loose, silty sand (FILL)	
S-4	6.0	20	5-5-6-6	11		6			Grayish brown, moist, stiff, sandy silt (FILL)	
S-5	8.0	18	4-4-4-8	8					Grayish brown, moist, medium stiff, sandy silt (FILL)	
S-6	10.0	20	6-6-9-10	15					Grayish brown, moist, stiff, lean clay (FILL)	
S-7	12.0	16	5-3-3-4	6		12			Grayish brown, moist medium stiff, lean clay (FILL)	
S-8	14.0	20	3-2-5-16	7					Gray, moist, medium stiff, fat clay (FILL)	
S-9	16.0	24	10-5-5-9	10	226.0		SM		Orange, moist, loose, Silty SAND	
S-10	18.0	20	10-10-14-18	24		18			Orangish brown, moist, medium dense, Silty SAND	
S-11	20.0	24	15-18-20-31	38					Orange, moist dense, Silty SAND	
S-12	22.0	16	20-25-31-38	56			SM		Orange/ brown, moist, very dense, Silty SAND	
S-13	24.0	20	6-21-28-39	49		24			Orange/ brown, moist, dense, Silty SAND	
S-14	26.0		21-39-50/4"		216.0		HW		Orangish brown, moist, very dense, Highly Weathered Rock	
S-15	28.0	14	23-40-50/3"						Same	
					212.0	30			Boring Terminated at 30 feet	
						36				

NOTES: Elevations and locations are approximate. BOC = Backfilled on completion.



GEO-TECHNOLOGY
ASSOCIATES, INC.

3445-A Box Hill Corporate Center Drive
Abingdon, MD 21009

LOG OF BORING NO. B-2

Sheet 1 of 1

LOG OF BORING NO. B-3

Sheet 1 of 1

PROJECT: **Heavenly Pond**
PROJECT NO.: **31161626**
PROJECT LOCATION: **Harford County, Maryland**

WATER LEVEL (ft): **22.0** **14.0** **13.3**
DATE: **8/8/16** **8/10/16** **8/18/16**
CAVED (ft): **17.5** **Pipe** **Pipe**

DATE STARTED: **8/8/2016**
DATE COMPLETED: **8/8/2016**
DRILLING CONTRACTOR: **MDA Drilling, Inc.**
DRILLER: **D. Addison**
DRILLING METHOD: **HSA/SPT**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft) **22.0**
GROUND SURFACE ELEVATION: **242**
DATUM: **Topo**
EQUIPMENT: **B-57**
LOGGED BY: **E. Kussman**
CHECKED BY: **T. Wirth**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S-1	0.0	8	4-5-8-12	13	242.0	0	FILL		Brown, moist, medium dense, silty sand (FILL)	Topsoil = 6 inches
S-2	2.0	15	12-6-6-7	12					Same (FILL)	
S-3	4.0	24	10-6-7-6	13					Grayish brown, moist, stiff, sandy silt (FILL)	
S-4	6.0	10	3-3-2-4	5		6			Grayish brown, moist, loose, silty sand (FILL)	
S-5	8.0	18	3-4-4-5	8					Grayish brown, moist, loose, silty sand (FILL)	
S-6	10.0	18	3-4-4-5	8					Brown, moist, loose, silty sand (FILL)	
S-7	12.0	20	4-4-7-10	11	230.0	12	SM		Brown, moist, medium dense, Silty SAND USDA - Sandy Loam	
S-8	14.0	19	6-6-7-9	13					Same	
S-9	16.0	17	6-10-12-12	22		18			Gray/ orange, moist, medium dense, Silty SAND	
S-10	18.0	24	10-14-18-25	32					Brown, moist, dense, Silty SAND	
S-11	20.0	24	15-33-35-45	68					Orange/ brown, moist, very dense, Silty SAND	
S-12	22.0	20	20-24-31-44	55					Orange/ white/ gray, moist, very dense, Silty SAND	
S-13	24.0	10	12-31-50/4"		218.0	24	HW		Gray/ brown/ orange, moist, very dense, Highly Weathered Rock	
S-14	26.0	8	28-50/4"						Gray, moist, very dense, Highly Weathered Rock	
S-15	28.0	8	50-50/3"						Same	
					212.0	30			Boring Terminated at 30 feet	
						36				

NOTES: Elevations and locations are approximate. BOC = Backfilled on completion.



GEO-TECHNOLOGY
ASSOCIATES, INC.

3445-A Box Hill Corporate Center Drive
Abingdon, MD 21009

LOG OF BORING NO. B-3

Sheet 1 of 1

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



REV	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
DOWNSTREAM PEDESTRIAN
BRIDGE - BRO1
BORING SHEET 2

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
21ST FLOOR
BEL AIR MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2016



DATE	DRAWING NO.
7/2/20	
SCALE	
NOT TO SCALE	
DESIGNED BY	
DRAWN BY	SHEET 17 OF 58
TAD/AJF	MT JOB NUMBER 5786-01

BANK PROTECTION (TBP) SCHEDULE			
STRUCTURE	STATION FROM	STATION TO	OFFSET
TBP-9	12+54	12+63	RT
TBP-10	12+65	12+88	RT
TBP-11	13+12	13+47	LT

RIFFLE STABILIZATION (RS)		
STRUCTURE	STATION FROM	STATION TO
RS-6	11+85	12+00
RS-7	13+47	13+67

CASCADE STRUCTURE (CAS)		
STRUCTURE	STATION FROM	STATION TO
CAS-18	10+69	10+84
CAS-19	11+10	11+28
CAS-20	12+88	13+12

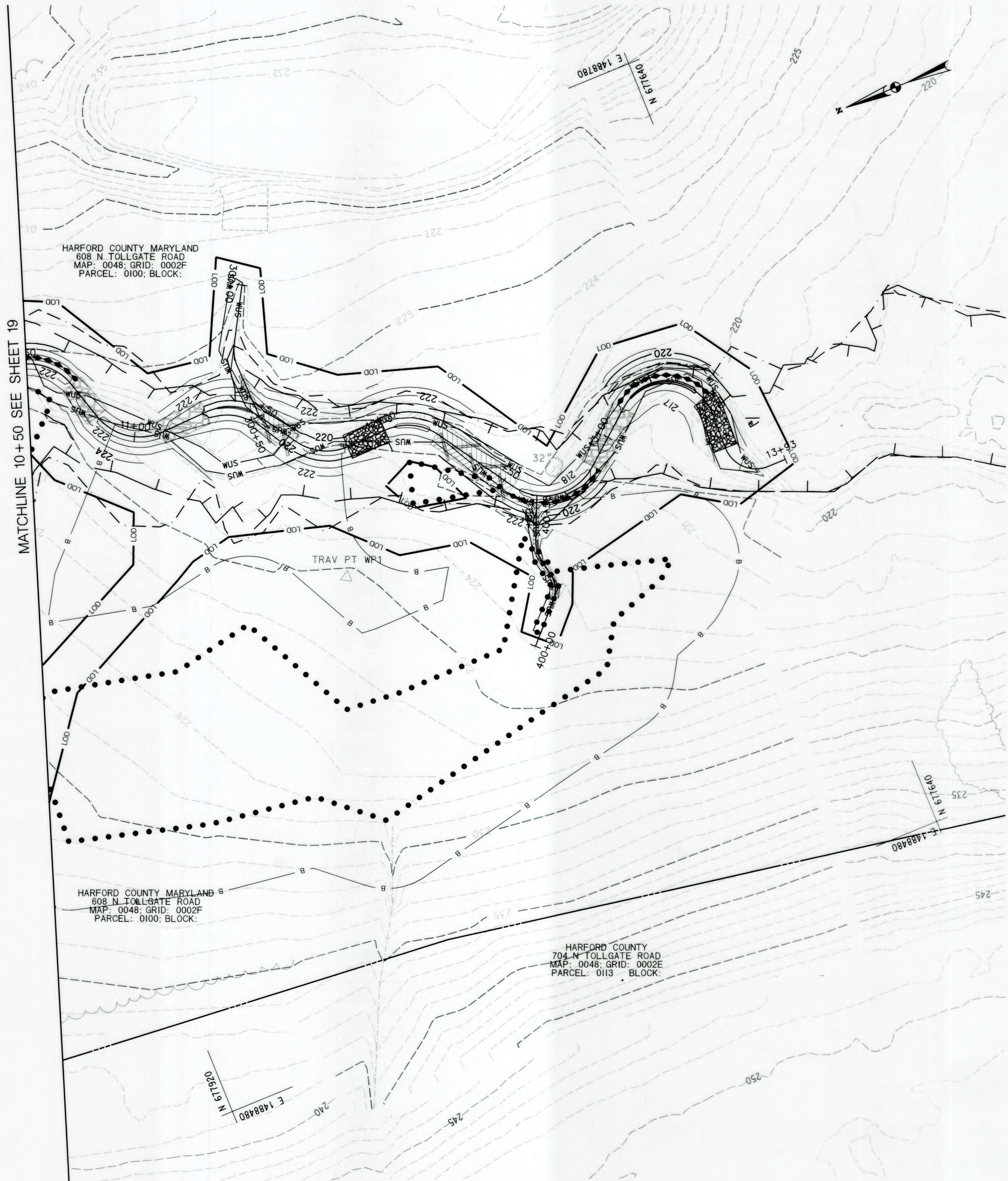
TRIBUTARY STABILIZATION (TS)		
STRUCTURE	STATION FROM	STATION TO
TS-3	300+34	300+48
TS-4	400+19	400+58

WOOD RIFFLE STABILIZATION (WRS)						
STRUCTURE	STATION FROM	STATION TO	LOG LOCATION A		LOG LOCATION B	
			STATION	OFFSET	STATION	OFFSET
WRS-5	11+49	11+65	11+49	1.0', LT	11+56	4.5', RT
			11+54	1'0, RT	11+60.5	4.5', LT
			11+58.5	1.0', LT	11+64	4.5', RT
WRS-6	12+20	12+54	12+21	1.0', LT	12+27.5	4.5', RT
			12+27.5	1'0, RT	12+34	4.5', LT
			12+34	1.0', LT	1240.5	4.5', RT
			12+40.5	1'0, RT	12+47	4.5', LT
			12+47	1.0', LT	12+52.5	4.5' RT

NOTES:

- STRUCTURE PLACEMENTS SHOWN ON PLANS ARE FOR VISUALIZATION PURPOSES ONLY. SEE TABLES AND CROSS SECTIONS FOR THE PLACEMENT OF STRUCTURES. CHANGES IN FIELD CONDITIONS MAY WARRANT FIELD CHANGES AS DIRECTED BY HARFORD COUNTY.
- STATIONS PROVIDED IN THE CASCADE STRUCTURE (CAS), RIFFLE STABILIZATION (RS) AND WOOD RIFFLE STABILIZATION (WRS) TABLES REPRESENT THE MAIN PART OF THE FEATURE AND DO NOT INCLUDE THE GLIDE AND RUN PARTS OF THE FEATURE. SEE THE DETAILS, PROFILES, AND CROSS SECTIONS FOR FULL EXTENTS OF THE CAS, RS AND WRS FEATURES.

LEGEND	
	EXISTING 100 YEAR FLOODPLAIN
	PROPOSED 100 YEAR FLOODPLAIN
	WETLAND BOUNDARY
	WETLAND BUFFER
	CLAY CHANNEL BLOCK
	TOE BOULDER PROTECTION
	OVERFLOW STABILIZATION
	TRIBUTARY STABILIZATION
	CASCADE STRUCTURE
	STEP-POOL STRUCTURE
	RIFFLE STABILIZATION
	WOOD RIFFLE STABILIZATION
	OUTFALL POOL
	PARK TRAIL



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

**MCCORMICK
TAYLOR**

REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION

PLAN SHEET
SCALE: 1" = 20'

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
210 SOUTH BOND STREET
1ST FLOOR
BAL AIR MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2016

DATE
7/2/20

SCALE
1" = 20'

DESIGNED BY
MRM

DRAWN BY
MER

DRAWING NO.
201217

SHEET 20 OF 58

MT JOB NUMBER
5786-01

EROSION AND SEDIMENT CONTROL – GENERAL NOTES

SEQUENCE OF CONSTRUCTION

1. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) DAYS PRIOR TO THE START OF WORK.
2. THE CONTRACTOR SHALL NOTIFY THE HARFORD COUNTY CONSTRUCTION INSPECTION DIVISION (410) 612-1612 AND WATER AND SEWER DIVISION (410) 638-3300; A MINIMUM OF 24 HOURS PRIOR TO THE START OF ANY CONSTRUCTION. THE CONTRACTOR SHALL ALSO NOTIFY THE MARYLAND DEPARTMENT OF ENVIRONMENT INSPECTOR AT (301) 665-2850, FIVE (5) DAYS BEFORE ANY LAND DISTURBING ACTIVITY
3. ORANGE CONSTRUCTION FENCE SHALL BE MANUALLY INSTALLED WHERE INDICATED ON THE PLANS AND ALONG THE OUTER LOD PERIMETER. THIS SHALL BE COMPLETED BY AND INSPECTED AT THE PRECONSTRUCTION MEETING.
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, AND THE EROSION AND SEDIMENT CONTROL INSPECTOR.
5. THE CONTRACTOR SHALL REFER TO STANDARD NO. MD 104.00-13 GENERAL NOTE 11 FOR CONSTRUCTION ACCESS CONSIDERATIONS.

PHASE 1 UPSTREAM OF POND (STA 0+00 TO STA 5+40)

1. CONSTRUCT THE PERIMETER CONTROLS AS SHOWN ON THE PLAN INCLUDING STABILIZED CONSTRUCTION ENTRANCES, SILT FENCE, AND SILT FENCE ON PAVEMENT. CLEARING ONLY THE AREAS NEEDED TO INSTALL THE E&S CONTROLS. CARE SHALL BE TAKEN TO MINIMIZE DISTURBANCE TO ALL TREES.
2. AS THE PERIMETER CONTROLS ARE INSTALLED, CLEAR AND GRUB ACCESS ROADS ALONG PROJECT AREA. ACCESS ROADS SHALL BE STABILIZED AT THE END OF EACH WORK DAY WITH WOOD MULCH. NO DISTURBED AREA SHALL BE LEFT OVERNIGHT UNLESS DIRECTED TO AN APPROVED EROSION AND SEDIMENT CONTROL DEVICE. STAGING AND STORAGE AREAS MAY BE CLEARED AND UTILIZED AS NEEDED.
3. ALL STREAM CROSSING SHALL BE CONDUCTED WITHIN THE DIVERSION AREA OR WITH A TEMPORARY ACCESS BRIDGE.
4. STREAM RESTORATION SHALL PROCEED UPSTREAM TO DOWNSTREAM UTILIZING SANDBAG DAMS WITH PUMP AROUNDS TO ALLOW ACCESS INTO THE STREAM. WORK AREA SHALL BE DEWATERED AND PUMPED TO AN APPROVED DEWATERING DEVICE. AT THE END OF EACH DAY ALL DISTURBED AREAS SHALL BE STABILIZED UNLESS DIRECTED TO AN APPROVED EROSION AND SEDIMENT CONTROL DEVICE. AREAS WITHIN THE CHANNEL SHALL BE STABILIZED WITH STREAM BED MATERIAL. CHANNEL BANKS SHALL BE STABILIZED WITH MATTING. NO PUMPING OPERATIONS SHALL BE UTILIZED DURING OFF WORK HOURS.

PHASE 2 – POND (STA 5+40 TO 9+20)

1. STREAM RESTORATION SHALL PROCEED UPSTREAM TO DOWNSTREAM UTILIZING SANDBAG DAMS WITH PUMP AROUNDS TO ALLOW ACCESS INTO THE STREAM. WORK AREA SHALL BE DEWATERED AND PUMPED DIRECTLY INTO THE EXISTING RISER STRUCTURE/TO AN APPROVED DEWATERING DEVICE. AS FIELD CONDITIONS WARRANT AND WITH PRIOR, WRITTEN APPROVAL FROM THE ENGINEER, INSTALL CONTINGENT DEWATERING TRENCHES TO CONTROL SATURATED CONDITIONS FOR EFFECTIVE CONSTRUCTION. AT THE END OF EACH DAY ALL DISTURBED AREAS SHALL BE STABILIZED UNLESS DIRECTED TO AN APPROVED EROSION AND SEDIMENT CONTROL DEVICE. AREAS WITHIN THE CHANNEL SHALL BE STABILIZED WITH STREAM BED MATERIAL. CHANNEL BANKS SHALL BE STABILIZED WITH MATTING. NO PUMPING OPERATIONS SHALL BE UTILIZED DURING OFF WORK HOURS.
2. ALL STREAM CROSSING SHALL BE CONDUCTED WITHIN THE DIVERSION AREA OR WITH A TEMPORARY ACCESS BRIDGE.
3. STREAM RESTORATION SHALL PROCEED UPSTREAM TO DOWNSTREAM UTILIZING SANDBAG DAMS WITH PUMP AROUNDS TO ALLOW ACCESS INTO THE STREAM. WORK AREA SHALL BE DEWATERED AND PUMPED TO AN APPROVED DEWATERING DEVICE. AT THE END OF EACH DAY ALL DISTURBED AREAS SHALL BE STABILIZED UNLESS DIRECTED TO AN APPROVED EROSION AND SEDIMENT CONTROL DEVICE. AREAS WITHIN THE CHANNEL SHALL BE STABILIZED WITH STREAM BED MATERIAL. CHANNEL BANKS SHALL BE STABILIZED WITH MATTING. NO PUMPING OPERATIONS SHALL BE UTILIZED DURING OFF WORK HOURS.
4. UPON COMPLETION OF WORK PERMANENTLY STABILIZE ALL DISTURBED AREAS FROM ALL PHASES AS SHOWN ON THE LANDSCAPE PLANS.
5. WHEN AREAS ARE FULLY STABILIZED, AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE THE REMAINING SEDIMENT CONTROL DEVICES AND IMMEDIATELY STABILIZE ANY DISTURBED AREAS.

**PUMPS SHALL ONLY
OPERATE DURING APPROVED
WORKING HOURS**

SITE ANALYSIS

TOTAL SITE AREA:	2.94 AC
TOTAL DISTURBED AREA:	2.94 AC
AREA TO BE PAVED:	0.00 AC
AREA TO BE STABILIZED:	2.94 AC
CUT:	1,670 CY
FILL:	530 CY
TOPSOIL:	967 CY
NPDES ID PT. N: 678178.798 E: 1488883.677	

PERMANENT VEGETATIVE STABILIZATION

ALL DISTURBED AREAS, WHICH ARE NOT TO BE PAVED, SHALL BE PERMANENTLY STABILIZED AS FOLLOWS:

A) SEEDBED PREPARATION:
LOOSEN UPPER THREE INCHES BY RAKING, DISCING, OR OTHER ACCEPTABLE MEANS AFTER SPREADING FOUR INCHES OF TOPSOIL.

B) SOIL AMENDMENTS:
APPLY 500 LBS PER ACRE OF 10-10-10 FERTILIZER AND TWO TONS PER ACRE OF LIME.

C) SEEDING:*
FOR PERIODS OF MARCH 1 TO MAY 15 AND AUGUST 15 TO OCTOBER 15, SEED WITH 125 LBS PER ACRE OF TALL FESCUE, 15 LBS PER ACRE OF PERENNIAL RYEGRASS, AND 10 LBS OF KENTUCKY BLUEGRASS.

FOR PERIOD OF MAY 16 TO AUGUST 14, SEED WITH 110 LBS PER ACRE OF TALL FESCUE AND 3 LBS PER ACRE OF WEEPING LOVEGRASS.

FOR PERIOD OF OCTOBER 16 TO FEBRUARY 28, PROTECT SITE BY: OPTIONS – 1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, 2) USE SOD, OR 3) SEED WITH 60 LBS PER ACRE OF TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.
NOTE: FOR QUICK COVER WITH TALL FESCUE, ADD 2 LBS OF SMALL GRAIN PER 1,000 SQ. FT.

D) MULCHING SPECIFICATIONS:
MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

APPLY 2 TONS PER ACRE OF STRAW OVER ALL SEEDED AREAS. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHALL BE INCREASED TO 2.5 TONS PER ACRES. **

MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND AND WATER. THE TYPE OF MULCH ANCHORING USED MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS.

* IF OTHER SEED MIXES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS, CHAPTER B, TABLE B-3 (PAGES B 26 TO B 31)
** IF A DIFFERENT TYPE OF MULCH IS TO BE USED, IT MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATION, CHAPTER B: MULCHING (PAGES B 6 & B 7)

TEMPORARY VEGETATION STABILIZATION

TEMPORARY VEGETATION STABILIZATION

A) SEEDBED PREPARATION:
LOOSEN UPPER THREE INCHES BY DISCING, RAKING OR OTHER ACCEPTABLE MEANS.

B) SOIL AMENDMENTS:
APPLY 600 LBS PER ACRE OF 10-10-10 FERTILIZER AND TWO TONS PER ACRE OF LIME.

C) SEEDING: *
FOR PERIODS OF MARCH 1 TO APRIL 30 AND AUGUST 15 TO NOVEMBER 15, SEED WITH 2.5 BU PER ACRE OF CEREAL RYE PLUS 30 LBS PER ACRE OF TALL FESCUE OR 5 LBS PER ACRE OF REDTOP OR 20 LBS PER ACRE OF PERENNIAL RYEGRASS.

FOR PERIOD OF MAY 1 TO AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS OR 40 LBS PER ACRE OF JAPANESE OR FOXTAIL MILLET.

FOR THE PERIOD OF NOVEMBER 16 TO FEBRUARY 28, PROTECT THE SITE BY APPLYING TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OR USE SOD.

D) MULCHING SPECIFICATIONS:
MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

APPLY 2 TONS PER ACRE OF STRAW OVER ALL SEEDED AREAS. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHALL BE INCREASED TO 2.5 TONS PER ACRES. **

MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND AND WATER. THE TYPE OF MULCH ANCHORING USED MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS.

* IF OTHER SEED MIXES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS, CHAPTER B, TABLE B-1 (PAGE B 20)
** IF A DIFFERENT TYPE OF MULCH IS TO BE USED, IT MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATION, CHAPTER B: MULCHING (PAGES B 6 & B 7)

HARFORD COUNTY SEDIMENT CONTROL NOTES

1. THE CONTRACTOR/OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS. FURTHER, NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE UNTIL ALL REQUIRED PERMITS HAVE BEEN OBTAINED.

2. THE LIMITS OF DISTURBANCE SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO GRADING OF THE SITE TO ENSURE COMPLIANCE WITH APPROVED PLANS. ALL FOREST RETENTION AREAS WILL BE DELINEATED WITH BLAZE ORANGE FENCE AS WELL AS ANY SWM INFILTRATION PRACTICE PRIOR TO ANY CLEARING. WORK BEYOND THE LIMITS OF DISTURBANCE AND IN ANY AREA INSIDE THE FOREST RETENTION AND SWM INFILTRATION AREA IS CONSIDERED TO BE A VIOLATION OF THIS PLAN.

3. ALL SEDIMENT CONTROL PRACTICES MUST BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. UPON COMPLETION OF THE INSTALLATION OF PERIMETER SEDIMENT CONTROL PRACTICES THE SITE MUST BE INSPECTED BY THE DEPARTMENT OF PUBLIC WORKS (DPW). NO ADDITIONAL CONSTRUCTION ACTIVITY WILL BE AUTHORIZED WITHOUT THE APPROVAL FROM DPW.

4. ALL POINTS OF INGRESS AND EGRESS SHALL BE PROTECTED TO PREVENT TRACKING OF MUD INTO PUBLIC WAYS. DURING CONSTRUCTION, EVERY MEANS WILL BE TAKEN TO CONTROL SOIL EROSION AND SILTATION. IF NECESSARY A WASH RACK MAY NEED TO BE ESTABLISHED.

5. EARTH DIKES, SEDIMENT TRAPS, ETC. WILL BE LOCATED AS SHOWN ON THESE DRAWINGS. FIELD CHANGES AND MINOR ADJUSTMENTS ARE PERMISSIBLE AS LONG AS THE INSTALLATION FUNCTIONS AND CONFORMS TO SPECIFICATIONS. THE SITE INSPECTOR PRIOR TO INSTALLATION MUST APPROVE ALL SUCH CHANGES. MAJOR CHANGES TO THE APPROVED PLAN WILL REQUIRE RE-APPROVAL BY THE HARFORD SOIL CONSERVATION DISTRICT.

6. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
A) THREE CALENDAR DAYS ON SLOPES GREATER THAN 3:1, ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS.
B) SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT SITE.

7. DUST CONTROL MUST BE MANAGED AS PART OF ALL SEDIMENT CONTROL PLANS. FAILURE TO DO SO IS A VIOLATION OF THIS PLAN.

8. SEDIMENT BASINS MUST BE BUILT TO DESIGN SPECIFICATIONS SHOWN ON THE PLAN. IF THE BASIN IS TO BE USED AS A FUTURE SWM FACILITY, THE BASIN WILL BE BUILT IN ACCORDANCE WITH THE LATEST MD-378 STANDARDS AND SPECIFICATIONS. SPECIFIED MATERIALS MUST BE USED. NO CHANGES OR MODIFICATIONS WILL BE MADE WITHOUT WRITTEN AUTHORIZATION OF THE HARFORD SOIL CONSERVATION DISTRICT.

9. TEMPORARY FENCING SHALL BE PLACED AROUND ALL SEDIMENT BASINS, TRAPS, AND PONDS DURING CONSTRUCTION AND SITE GRADING.

10. AT THE END OF EACH WORKING DAY ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT OPERATIONAL. A WEEKLY LOG WILL BE KEPT IN ACCORDANCE WITH NOI/NPDES REGULATIONS. A COPY OF THE APPROVED SEDIMENT CONTROL PLANS SHALL BE AVAILABLE AT THE SITE AT ALL TIMES.

11. ENSURE POSITIVE DRAINAGE TO ALL ROAD INLETS DURING ALL PHASES OF ROAD CONSTRUCTION TO ENSURE POSITIVE FLOW TO TRAPS AND OR BASINS.

12. CUT AND/OR FILL SHALL BE DONE IN CONFORMANCE WITH 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS FOR LAND GRADING.

13. SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY CONVEY WATER DOWN SLOPES WITHOUT CAUSING EROSION.

14. OFF-SITE WASTE OR BORROW AREAS SHALL HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN PRIOR TO THE IMPORT OR EXPORT OF MATERIAL TO/FROM THE PROJECT SITE.

15. ALL MATERIAL ORIGINATING FROM THE DEVELOPMENT OF THE PROPERTY AND DEPOSITED ON THE PUBLIC RIGHT-OF-WAY SHALL BE IMMEDIATELY REMOVED.

16. STORM DRAIN INLETS AND OUTLETS SHALL BE PROTECTED PER 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.

17. TOPSOIL, LIMING, FERTILIZING, SEEDING, MULCHING, SOD, ETC. ARE ALL ESSENTIAL PARTS OF THE SEDIMENT CONTROL PLAN AND MUST BE COMPLETED ALONG WITH ALL OTHER PRACTICES.

18. TRAPS TO BE REMOVED SHALL BE DEWATERED AS PER THE 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.

19. PRIOR TO REMOVAL OF TRAPS OR CONVERSION OF SEDIMENT BASINS TO SWM FACILITIES, THE STORM DRAINS WILL BE FLUSHED

20. SEDIMENT CONTROL PRACTICES WILL BE MAINTAINED UNTIL ALL DISTURBED AREAS FOR WHICH THE PRACTICES WERE INSTALLED HAVE BEEN STABILIZED. SEDIMENT CONTROL PRACTICES MAY BE REMOVED ONLY WITH THE AUTHORIZATION OF THE DPW INSPECTOR. ALL DISTURBED AREAS RESULTING FROM THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE STABILIZED IMMEDIATELY. REMOVAL PRIOR TO INSPECTOR'S APPROVAL CONSTITUTES A VIOLATION.

ENGINEER'S CERTIFICATION

I certify that this plan for erosion and sediment control and storm water management represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the 2011 Maryland Standard and Specifications for Soil Erosion and Sediment Control.

(Engineer / Date)

OWNER'S CERTIFICATION

I / We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that any responsible personnel involved in the construction project will have a certification of attendance at a Department of Natural Resources Approved Training Program for the control of sediment and erosion before beginning the project. I also authorize periodic onsite inspection by the Harford Soil Conservation District or their authorized agents, or as deemed necessary.

(Owner / Date)

EROSION AND SEDIMENT CONTROL
PLAN #:59839

RECOMMENDED FOR APPROVAL
Robert O. [Signature] 7-29-20

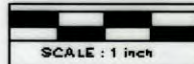
HARFORD COUNTY, DPW

TECHNICAL CONCURRENCE:

Robert O. [Signature] 7-31-20
HARFORD SOIL CONSERVATION DISTRICT

APPROVED:

Robert O. [Signature] 7-31-20
HARFORD SOIL CONSERVATION DISTRICT



201105

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

**MCCORMICK
TAYLOR**

REVISIONS

DATE

HEAVENLY POND
STREAM RESTORATION

EROSION AND SEDIMENT
GENERAL NOTES SHEET

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
201 E. BOND STREET
1ST FLOOR
BAL AIR MARYLAND 21014
410-638-3217 #59839
GR PERMIT #15366-2018



DATE

7/2/20

SCALE

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DESIGNED BY

MRM

DRAWN BY

MER

DRAWING NO.

201213

SHEET

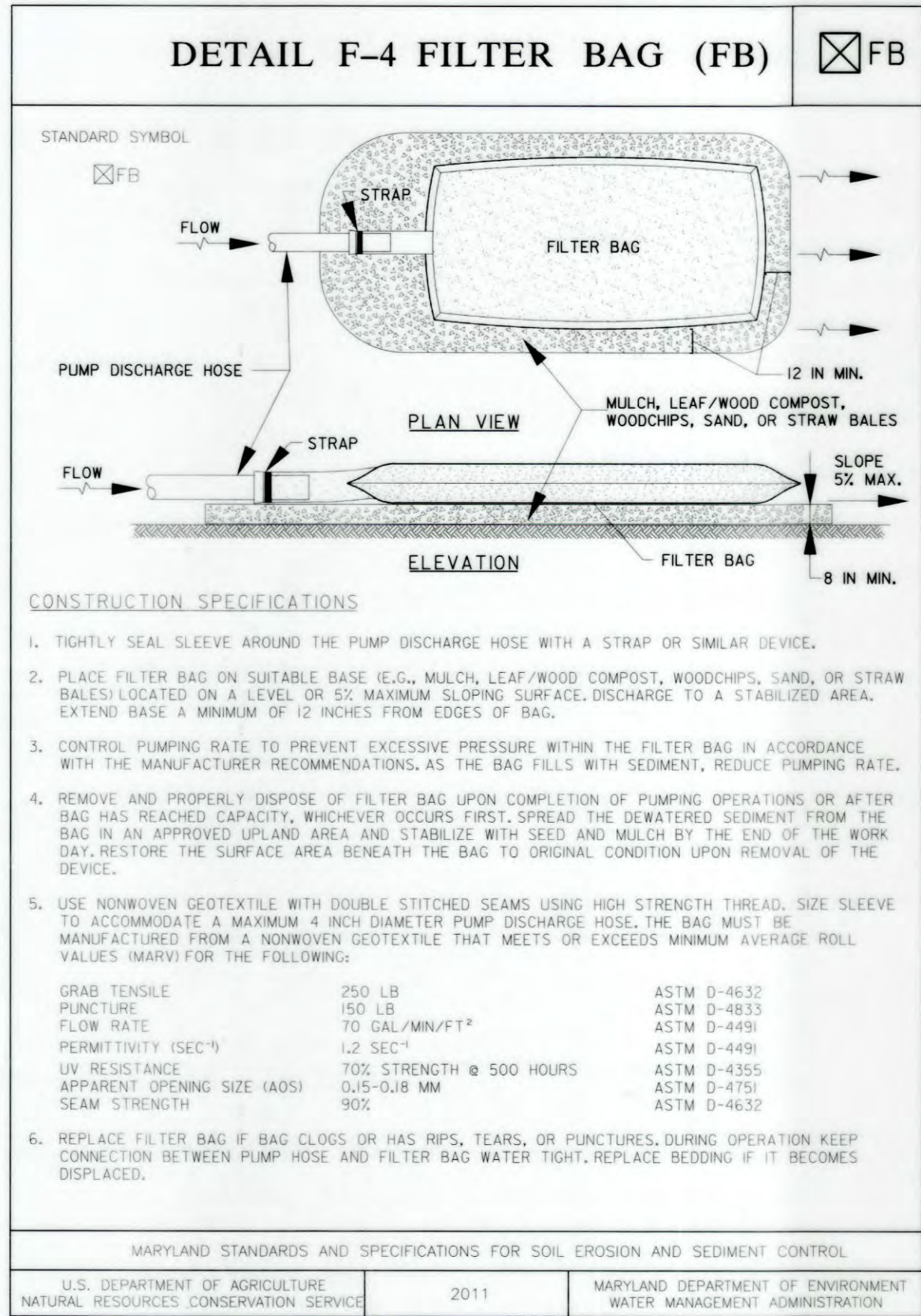
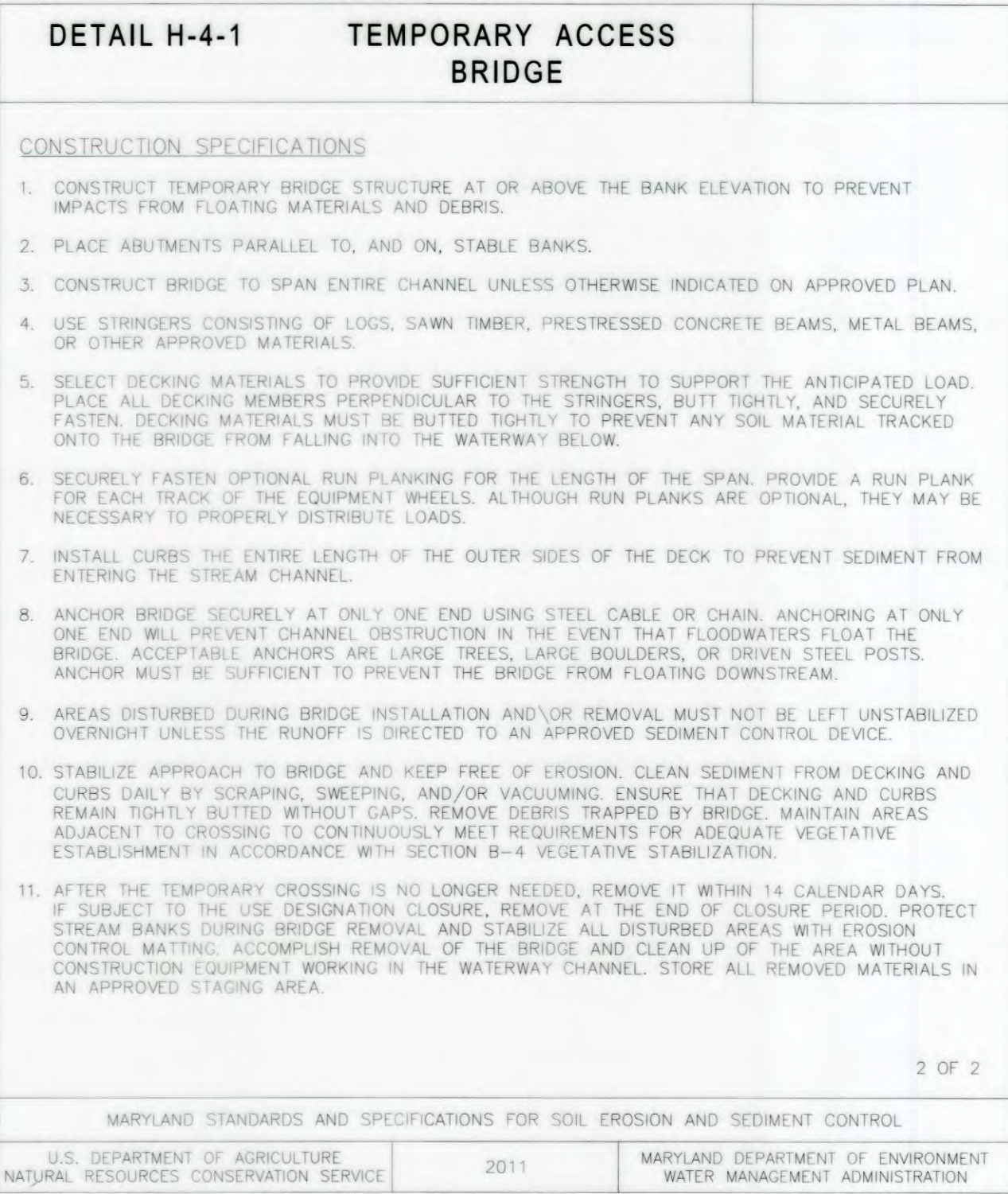
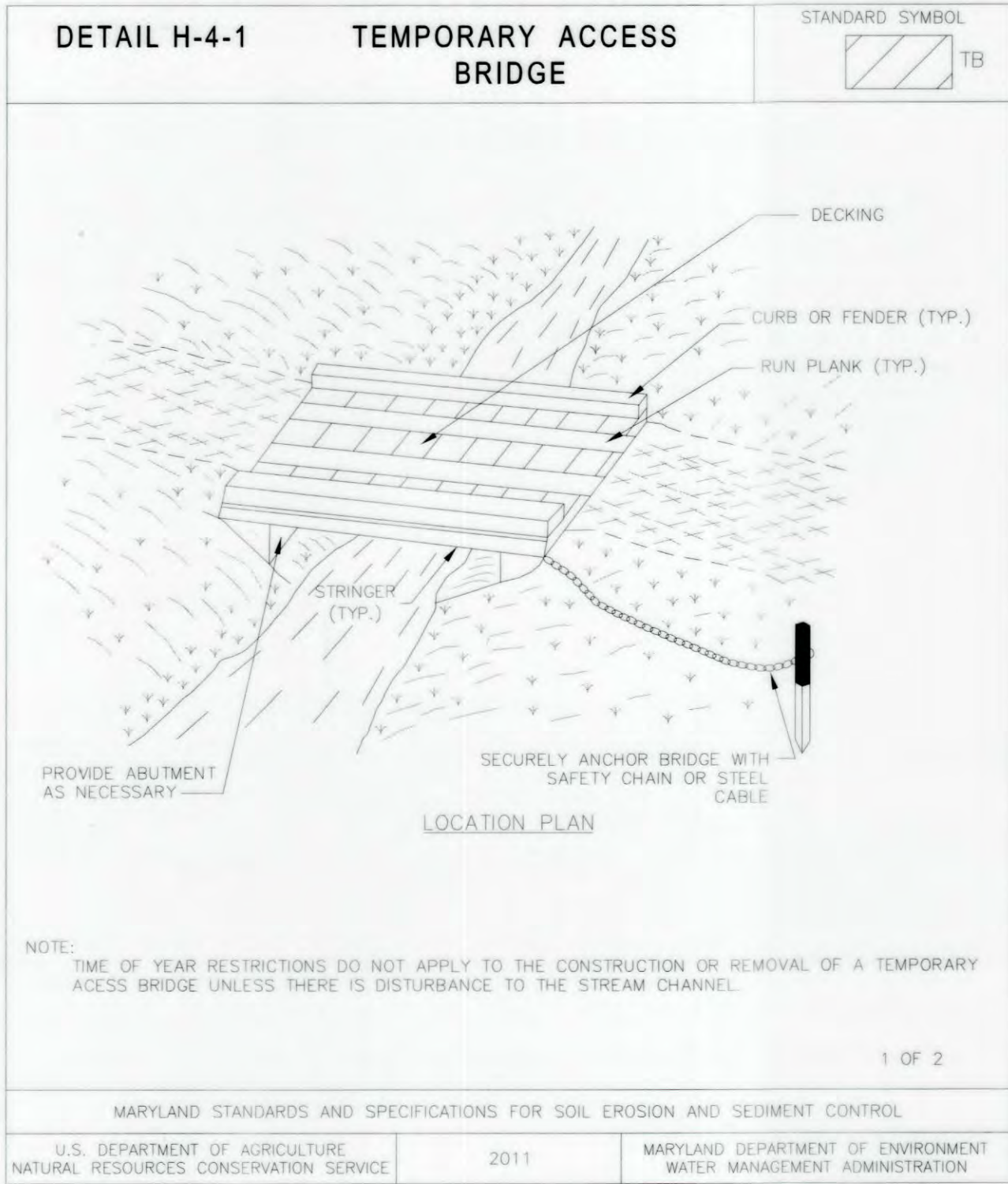
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OF

58

MT JOB NUMBER

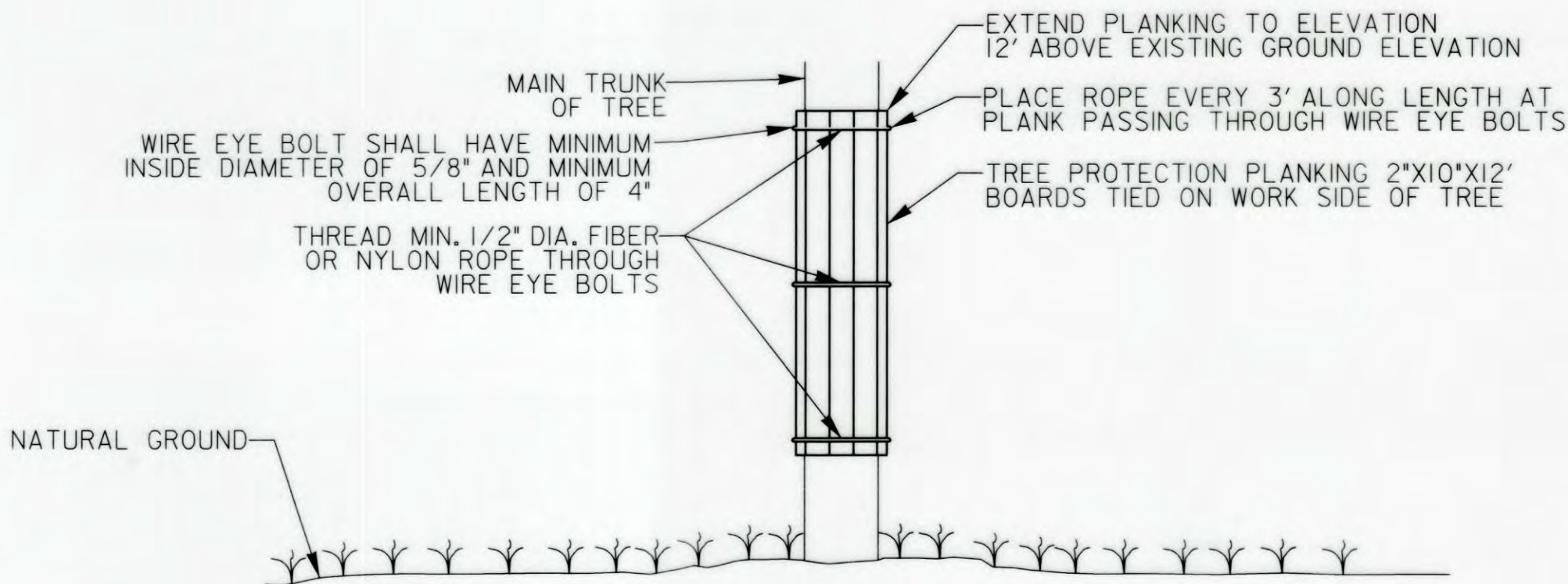
5786-01



BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAIN

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF THE NONTIDAL WETLAND, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO THE NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION, KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDING AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:

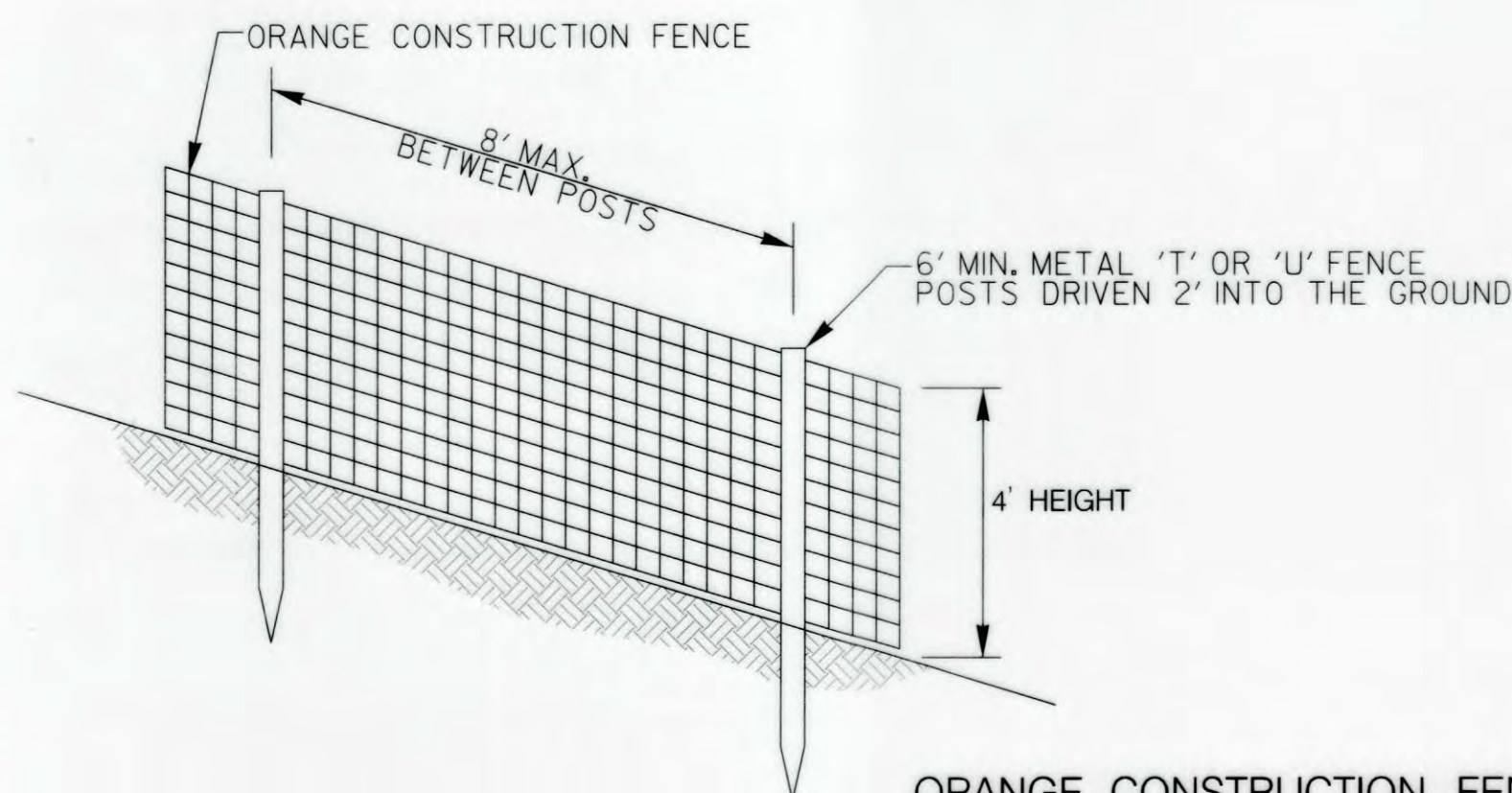
USE IV-P. WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.



NOTE:
FOR TREE PROTECTION PLANKING, AS DIRECTED BY THE ENGINEER, TIE WITH 1/2" DIAMETER ROPE (FIBER OR NYLON), SUFFICIENT 2"x10"x12' BOARDS AROUND MAIN TRUNK OF TREE TO PROTECT ALL AREAS EXPOSED TO CONSTRUCTION. IN THE EVENT THAT 2"x10"x12' BOARDS ARE TOO LARGE FOR A TREE, 2"x10"x6', 2"x10"x8' OR 2"x10"x10' BOARDS MAY BE USED AS DIRECTED BY THE ENGINEER

TREE PROTECTION PLANKING DETAIL

NOT TO SCALE

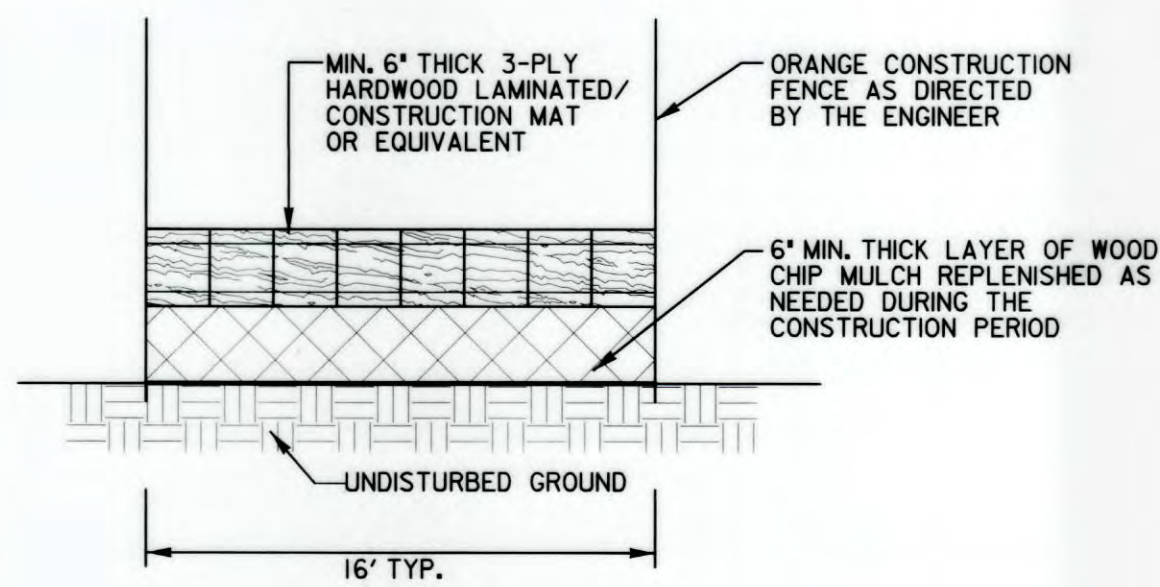


ORANGE CONSTRUCTION FENCE DETAIL

NOT TO SCALE

NOTES:

1. PRACTICE MAY BE COMBINED WITH SEDIMENT CONTROL FENCING.
2. LOCATION AND LIMITS OF FENCING SHALL BE COORDINATED IN FIELD WITH ENGINEER.
3. BOUNDARIES OF PROTECTION AREA SHALL BE STAKED PRIOR TO INSTALLING PROTECTIVE DEVICE.
4. FENCING SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
5. ROOT DAMAGE SHALL BE AVOIDED.
6. SECURE FENCING TO POSTS USING TENSION WIRE OR REINFORCED PLASTIC TIE OF GAUGE SUFFICIENT TO PREVENT TEARING OF FENCING FROM POSTS.



ACCESS PATH WITH SWAMP/TIMBER MATS DETAIL
NOT TO SCALE

ACCESS PATH DETAIL NOTES:

1. MATS SHALL BE PLACED END TO END TO FORM A CONTINUOUS SPAN FOR THE ENTIRE LENGTH OF THE AREA TO BE PROTECTED.
2. MATS SHALL BE INSPECTED FREQUENTLY AND MAINTAINED OR REPLACED AS NECESSARY TO ENSURE THEIR PROPER FUNCTION.
3. INDIVIDUAL MATS SHALL BE SECURELY CONSTRUCTED WITH INDIVIDUAL COMPONENT LAYERS BOLTED, CABLED OR OTHERWISE SECURELY FASTENED. ACCESS ROUTES TO BE TO BE VERIFIED BY ENGINEER AT PRE-CONSTRUCTION MEETING. MINOR ADJUSTMENTS TO THE ALIGNMENT THAT MINIMIZES TREE DISTURBANCE ARE ENCOURAGED AND REQUIRE REVIEW AND APPROVAL BY THE ENGINEER AND THE SEDIMENT CONTROL INSPECTOR.
4. AS FIELD CONDITIONS WARRANT, ADDITIONAL WOOD CHIP MULCH (EXCEEDING THE MINIMUM 6" OR 12" AS INDICATED IN THE DETAILS ABOVE) MAY BE REQUIRED AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR TO AVOID RUTTING OF THE SOIL SURFACE.
5. SWAMP MATS ARE REQUIRED WHEN CROSSING WETLANDS.
6. AS FIELD CONDITIONS WARRANT, SWAMP/TIMBER MATS IN ADDITION TO THOSE INDICATED ON THE PLANS MAY BE NECESSARY AT NO ADDITIONAL COST TO THE COUNTY.
7. CONTRACTOR SHALL MAINTAIN MULCH MAT THROUGHOUT CONSTRUCTION PERIOD. UPON COMPLETION OF THE PROJECT, MULCH CAN REMAIN IN PLACE, BEING SPREAD THROUGHOUT THE SITE AT A MAXIMUM DEPTH OF 2". THE CONTRACTOR MUST ENSURE THAT THIS PROCESS IS DONE THROUGHOUT THE GRADING PROCESS, IN A MANNER WHICH ENSURES PROPOSED GRADES ARE MET AND MAINTAINED, WITHOUT DISTURBANCE TO FINAL SEEDING AND PLANTING OF THE SITE.
8. SCARIFICATION OF COMPACTED MULCH TO OCCUR UPON REMOVAL OF ACCESS PATH, AT DIRECTION OF THE ENGINEER. IF SOILS ARE EXPOSED AND RUTTED BELOW MULCH MATTING, CONTRACTOR TO ADDRESS ACCORDINGLY TO RESTORE NATURAL CONDITIONS. STABILIZE ALL EXPOSED SOIL WITH APPROPRIATE PERMANENT SEED MIX, AS DEFINED IN THE LANDSCAPE PLANS. SOIL STABILIZATION MATTING MAY BE REQUIRED AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR TO STABILIZE SLOPED AREAS.
9. THE ACCESS PATH IS DESIGNED TO PREVENT COMPACTION OF EXISTING SOILS USING LOW PRESSURE EQUIPMENT WHICH EXERTS NO MORE THAN 12 PSI. IF THE CONTRACTOR INTENDS TO USE ANY EQUIPMENT WITH HIGHER LOADS, ADDITIONAL PROTECTION MEASURES MUST BE PROVIDED, AT NO ADDITIONAL COST TO THE COUNTY, AND THOSE MEASURES MUST BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTATION.

EROSION & SEDIMENT CONTROL LEGEND

PROPOSED C...	1+00
LIMIT OF DISTURBANCE/ ORANGE CONSTRUCTION FENCE	LOD
SILT FENCE	SF SF
SILT FENCE ON PAVEMENT	SFOP
STABILIZED CONSTRUCTION ENTRANCE	SCE
DEWATERING PUMP	DW
CLEAR WATER PUMP	CWP
DIVERSION/PUMP AROUND HOSE	
SANDBAG DAM	
EXISTING MAJOR CONTOURS	-290-
EXISTING MINOR CONTOURS	292
PROPOSED MAJOR CONTOURS	295
PROPOSED MINOR CONTOURS	292
SUPER SILT FENCE	SSF SSF
PROPOSED 100 YEAR FLOOD PLAIN	
EXISTING 100 YEAR FLOOD PLAIN	
TEMPORARY ACCESS BRIDGE (TB)	TB
WATERS OF THE US	WUS
DEWATERING FILTER BAG	FB
PUMP DISCHARGE OUTFALL PROTECTION	OP
ACCESS PATH WITH MULCH	
ACCESS PATH WITH SWAMP/TIMBER MATS	
TEMPORARY ACCESS BRIDGE	TB
TREE PROTECTION PLANKING	P
TREE TO BE REMOVED	X
MOUNTABLE BERM	
WETLAND BOUNDARY	
WETLAND BUFFER	B

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4th Floor
Baltimore, Maryland 21202
(410) 662-7400

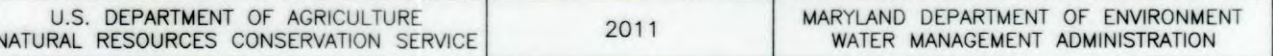
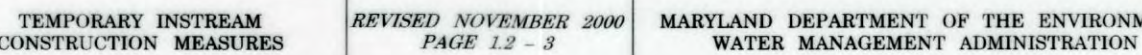
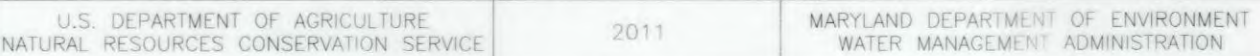
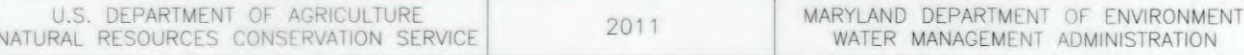
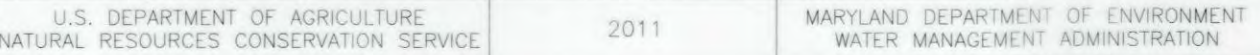
**MCCORMICK
TAYLOR**

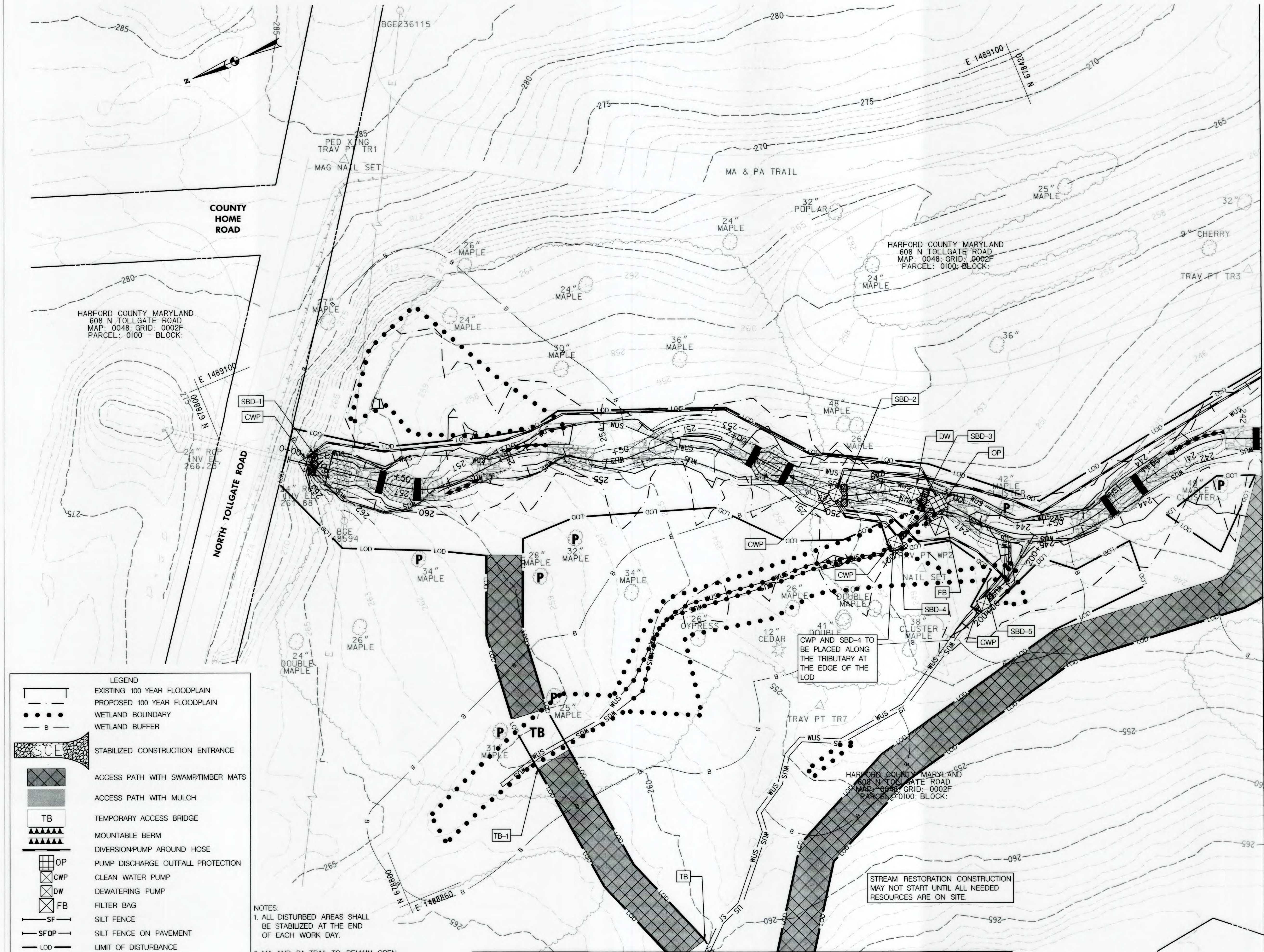
HEAVENLY POND
STREAM RESTORATION
EROSION AND SEDIMENT
CONTROL DETAIL SHEET

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
152 FLORENCE STREET
BAL AIR MARYLAND 21014
410-638-3217 #59839
SC PLAN #15366-2018
GR



DATE
7/2/20
SCALE
AS INDICATED
DESIGNED BY
MRM
DRAWN BY
MER
DRAWING NO.
20219
SHEET 22 OF 58
MT JOB NUMBER
5786-01





FILTER BAG	
QTY (EA)	REMARKS
1	

TREE PLANKING	
QTY (EA)	REMARKS
7	

SAND BAG DIVERSION (SBD)	
QTY (LF)	REMARKS
11	SBD-1
10	SBD-2
10	SBD-3
4	SBD-4
3	SBD-5

ACCESS PATH	
QTY (LF)	REMARKS
447	

TEMPORARY BRIDGE (TB)	
STA.	REMARKS
N/A	TB-1

CLEAN WATER PUMP	
QTY (EA)	REMARKS
4	

PUMP DISCHARGE OUTFALL PROTECTION	
QTY (EA)	REMARKS
1	

DEWATERING PUMP	
QTY (EA)	REMARKS
1	

- NOTES:
- ALL DISTURBED AREAS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
 - MA AND PA TRAIL TO REMAIN OPEN DURING CONSTRUCTION.
 - PUMP AROUND/MAINTENANCE OF STREAM FLOW MAY BE SHORTENED TO DAILY PUMP AROUND OPERATIONS AS CONTRACTOR PLANS OPERATIONS.

MATCHLINE SEE SHEET 27

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



REVISIONS

DATE

HEAVENLY POND
STREAM RESTORATION
EROSION AND SEDIMENT
CONTROL PLAN

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS

WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
BALTIMORE, MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018



DATE

7/27/20

SCALE

1" = 20'

DESIGNED BY

MRM

DRAWN BY

MT

MER

DRAWING NO.

20221

SHEET 24 OF 58

MT JOB NUMBER

5786-01

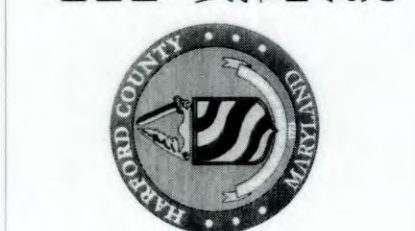
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 682-7400



REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
EROSION AND SEDIMENT
CONTROL PLAN

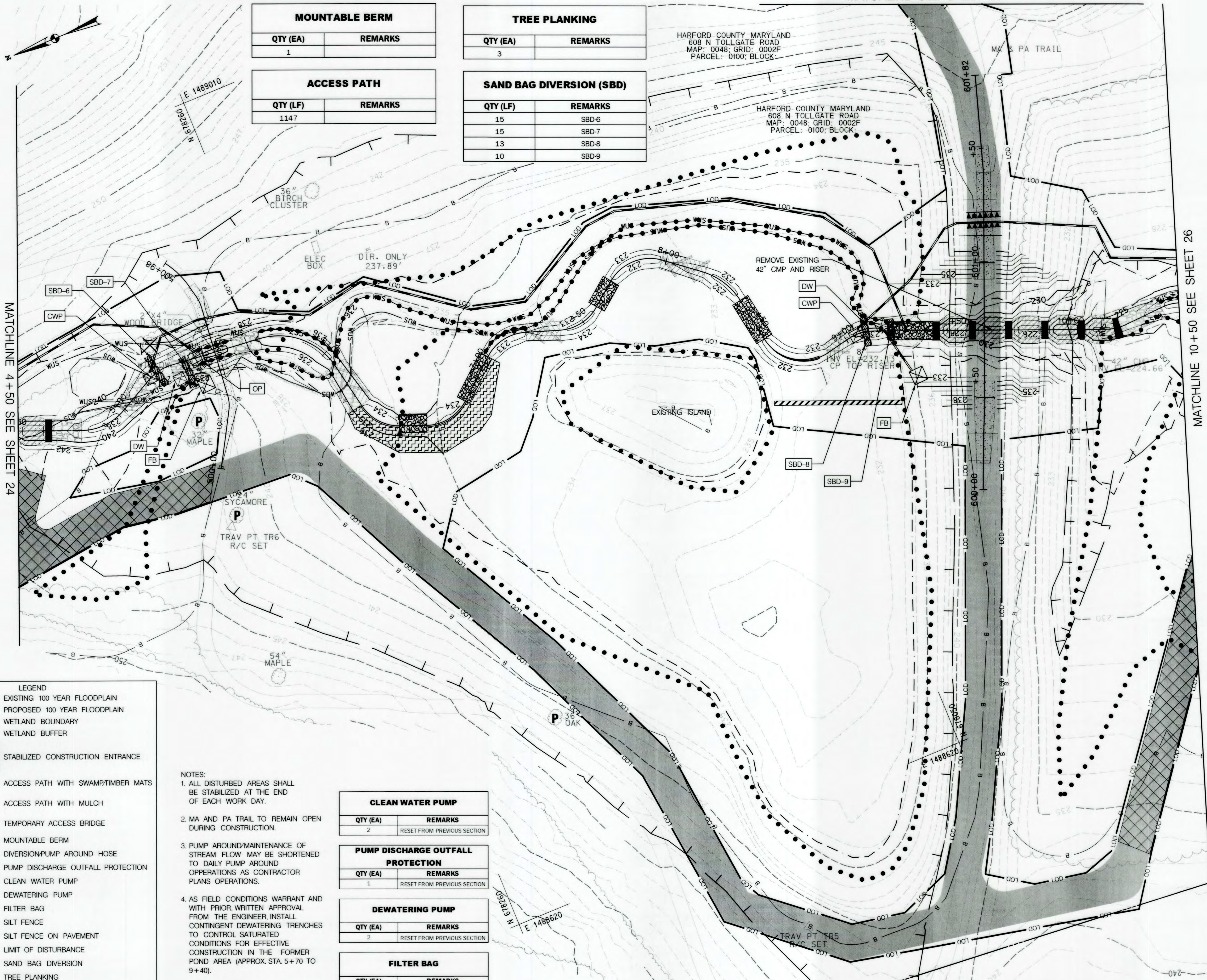
HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
222 SOUTH BOND STREET
BALTIMORE, MARYLAND 21014
410-638-3217
SC PLAN #59639
GR PERMIT #15366-2018



DATE	DRAWING NO.
7/2/20	20222
SCALE	1" = 20'
DESIGNED BY	MRM
DRAWN BY	MT
MER	5786-01

MATCHLINE SEE SHEET 28

MATCHLINE 10+50 SEE SHEET 26



MOUNTABLE BERM	
QTY (EA)	REMARKS
1	

TREE PLANKING	
QTY (EA)	REMARKS
3	

ACCESS PATH	
QTY (LF)	REMARKS
1147	

SAND BAG DIVERSION (SBD)	
QTY (LF)	REMARKS
15	SBD-6
15	SBD-7
13	SBD-8
10	SBD-9

LEGEND	
	EXISTING 100 YEAR FLOODPLAIN
	PROPOSED 100 YEAR FLOODPLAIN
	WETLAND BOUNDARY
	WETLAND BUFFER
	STABILIZED CONSTRUCTION ENTRANCE
	ACCESS PATH WITH SWAMP/TIMBER MATS
	ACCESS PATH WITH MULCH
	TEMPORARY ACCESS BRIDGE
	MOUNTABLE BERM
	DIVERSION/PUMP AROUND HOSE
	PUMP DISCHARGE OUTFALL PROTECTION
	CLEAN WATER PUMP
	DEWATERING PUMP
	FILTER BAG
	SILT FENCE
	SILT FENCE ON PAVEMENT
	LIMIT OF DISTURBANCE
	SAND BAG DIVERSION
	TREE PLANKING
	TREE TO BE REMOVED

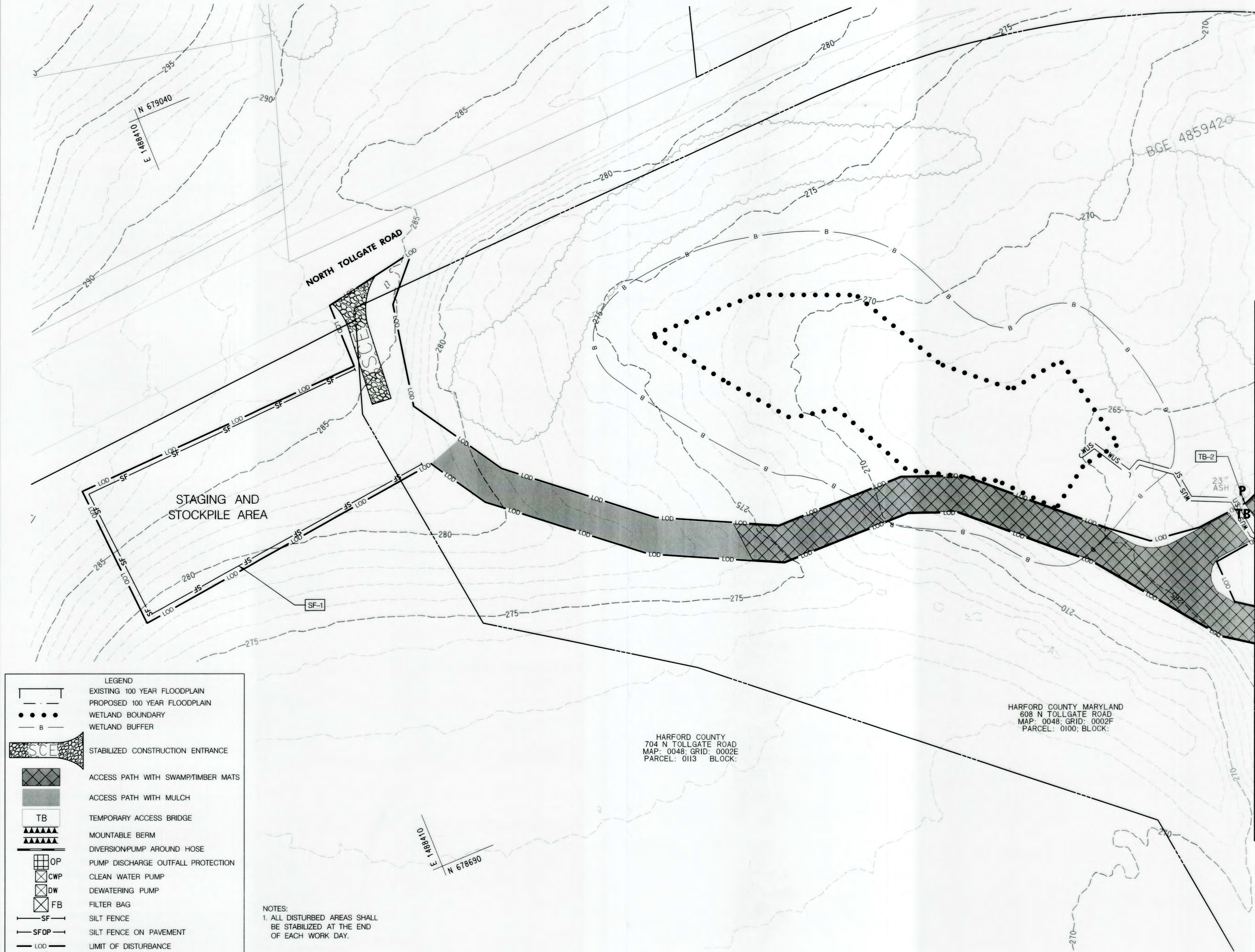
- NOTES:
- ALL DISTURBED AREAS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
 - MA AND PA TRAIL TO REMAIN OPEN DURING CONSTRUCTION.
 - PUMP AROUND/MAINTENANCE OF STREAM FLOW MAY BE SHORTENED TO DAILY PUMP AROUND OPERATIONS AS CONTRACTOR PLANS OPERATIONS.
 - AS FIELD CONDITIONS WARRANT AND WITH PRIOR WRITTEN APPROVAL FROM THE ENGINEER, INSTALL CONTINGENT DEWATERING TRENCHES TO CONTROL SATURATED CONDITIONS FOR EFFECTIVE CONSTRUCTION IN THE FORMER POND AREA (APPROX. STA. 5+70 TO 9+40).

CLEAN WATER PUMP	
QTY (EA)	REMARKS
2	RESET FROM PREVIOUS SECTION

PUMP DISCHARGE OUTFALL PROTECTION	
QTY (EA)	REMARKS
1	RESET FROM PREVIOUS SECTION

DEWATERING PUMP	
QTY (EA)	REMARKS
2	RESET FROM PREVIOUS SECTION

FILTER BAG	
QTY (EA)	REMARKS
2	



MATCHLINE SEE SHEET 24

LEGEND

EXISTING 100 YEAR FLOODPLAIN
PROPOSED 100 YEAR FLOODPLAIN
WETLAND BOUNDARY
WETLAND BUFFER

SC STABILIZED CONSTRUCTION ENTRANCE

Access Path

ACCESS PATH WITH SWAMP/TIMBER MATS
ACCESS PATH WITH MULCH

Temporary Access Bridge

TEMPORARY ACCESS BRIDGE

Mountable Berm

MOUNTABLE BERM

Diversion/Pump Around Hose

DIVERSION/PUMP AROUND HOSE

Pump Discharge Outfall Protection

PUMP DISCHARGE OUTFALL PROTECTION

Clean Water Pump

CLEAN WATER PUMP

Dewatering Pump

DEWATERING PUMP

Filter Bag

FILTER BAG

Silt Fence

SILT FENCE

Silt Fence on Pavement

SILT FENCE ON PAVEMENT

Limit of Disturbance

LIMIT OF DISTURBANCE

Sand Bag Diversion

SAND BAG DIVERSION

Tree Planking

TREE PLANKING

Tree to be Removed

TREE TO BE REMOVED

NOTES:
1. ALL DISTURBED AREAS SHALL
BE STABILIZED AT THE END
OF EACH WORK DAY.

SILT FENCE (SF)	
QTY (LF)	REMARKS
322	SF-1

ACCESS PATH	
QTY (LF)	REMARKS
422	

STABILIZED CONSTRUCTION ENTRANCE	
QTY (EA)	REMARKS
1	

TREE PLANKING	
QTY (EA)	REMARKS
1	

TEMPORARY BRIDGE (TB)	
STA.	REMARKS
N/A	TB-2

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Baltimore, Maryland 21202
(410) 662-7400

MCCORMICK TAYLOR

REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
EROSION AND SEDIMENT
CONTROL PLAN

PROJECT LOCATION

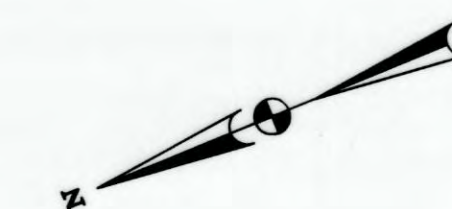
HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS

WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BAL AIR MARYLAND 21014
410-638-3271
C.D. PERMIT #15366-2018

DATE: 7/2/20
SCALE: 1" = 20'

DESIGNED BY: MRM
DRAWN BY: MER

DRAWING NO.: 201224
SHEET 27 OF 58
WT JOB NUMBER: 5786-01



SILT FENCE (SF)	
QTY (LF)	REMARKS
131	SF-2
126	SF-3

SILT FENCE ON PAVEMENT (SFOP)	
QTY (LF)	REMARKS
64	SFOP-1

ACCESS PATH	
QTY (LF)	REMARKS
131	

STABILIZED CONSTRUCTION ENTRANCE	
QTY (EA)	REMARKS
1	

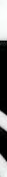
TREE PLANKING	
QTY (EA)	REMARKS
2	

NOTES:

1. ALL DISTURBED AREAS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
2. MA AND PA TRAIL TO REMAIN OPEN DURING CONSTRUCTION.

MATCHLINE SEE SHEET 25

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4th Floor
Baltimore, Maryland 21202
(410) 662-7400



McCORMICK
TAVI OB

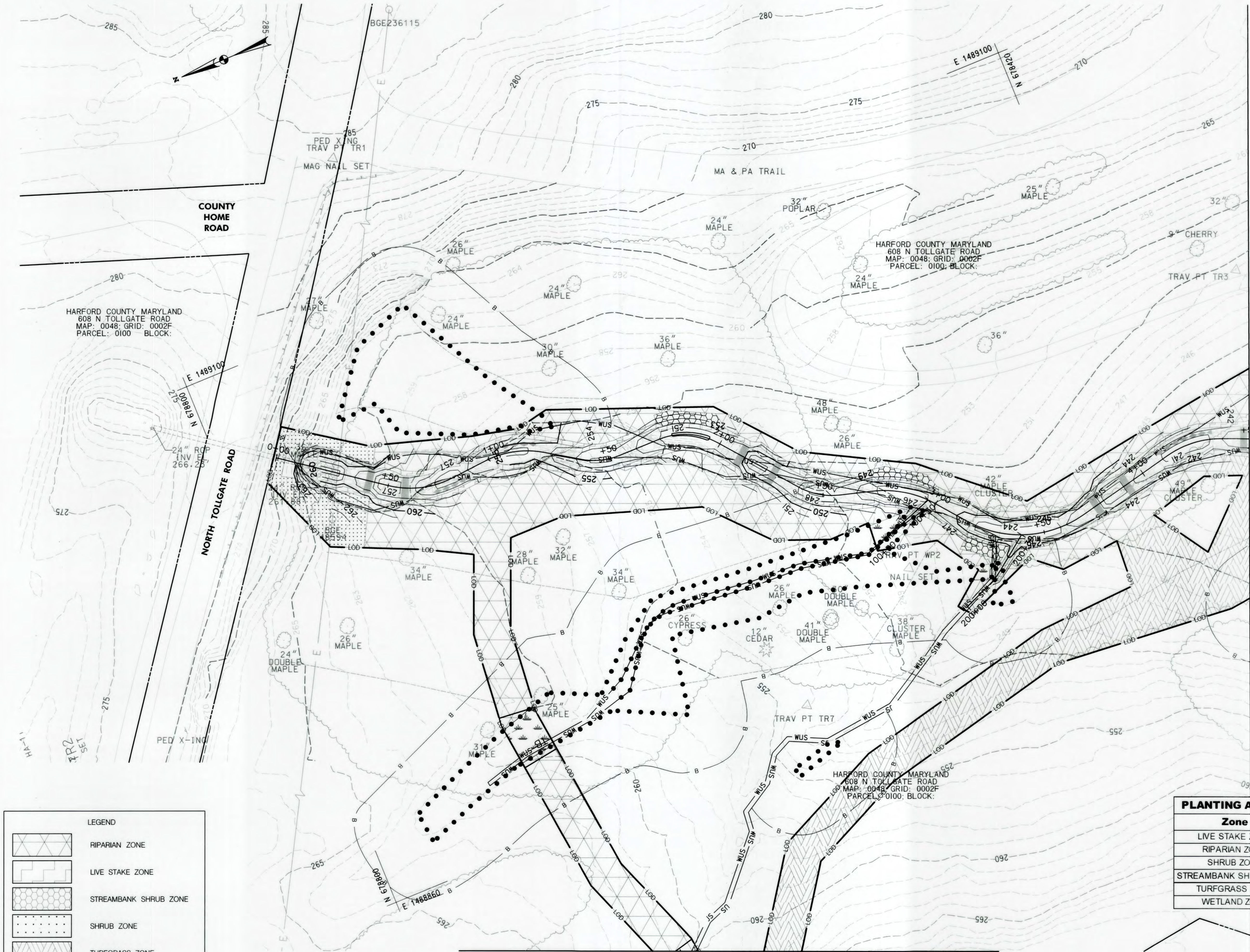
HEAVENLY POND
STREAM RESTORATION
EROSION AND SEDIMENT
CONTROL PLAN

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS

WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BEL AIR MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018



DATE 7/2/20	DRAWING NO.
SCALE 1" = 20'	201225
DESIGNED BY MRM	
DRAWN BY MER	SHEET 28 OF 58 MT JOB NUMBER 5786-01



LEGEND	
	RIPARIAN ZONE
	LIVE STAKE ZONE
	STREAMBANK SHRUB ZONE
	SHRUB ZONE
	TURFGRASS ZONE
	WETLAND ZONE

PLANTING AREAS BY ZONE (This Sheet Only)	
Zone	Area
LIVE STAKE ZONE	1873 SF
RIPARIAN ZONE	12210 SF
SHRUB ZONE	1081 SF
STREAMBANK SHRUB ZONE	407 SF
TURFGRASS ZONE	5996 SF
WETLAND ZONE	481 SF

REVISIONS

NO.	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION

LANDSCAPE PLAN

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS

WATER RESOURCES ENGINEERING
222 SOUTH BOND STREET
BALTIMORE, MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018

DATE
7/2/20

SCALE
1" = 20'

DESIGNED BY
MRM

DRAWN BY
MER

DRAWING NO.
201226

SHEET 29 OF 58

MT JOB NUMBER
5786-01

OR SHRUBS SHALL BE PLACED
OF ANY BRIDGE STRUCTURES.

LEGEND

RIPARIAN ZONE

LIVE STAKE ZONE

STREAMBANK SHRUB ZONE

SHRUB ZONE

TURFGRASS ZONE

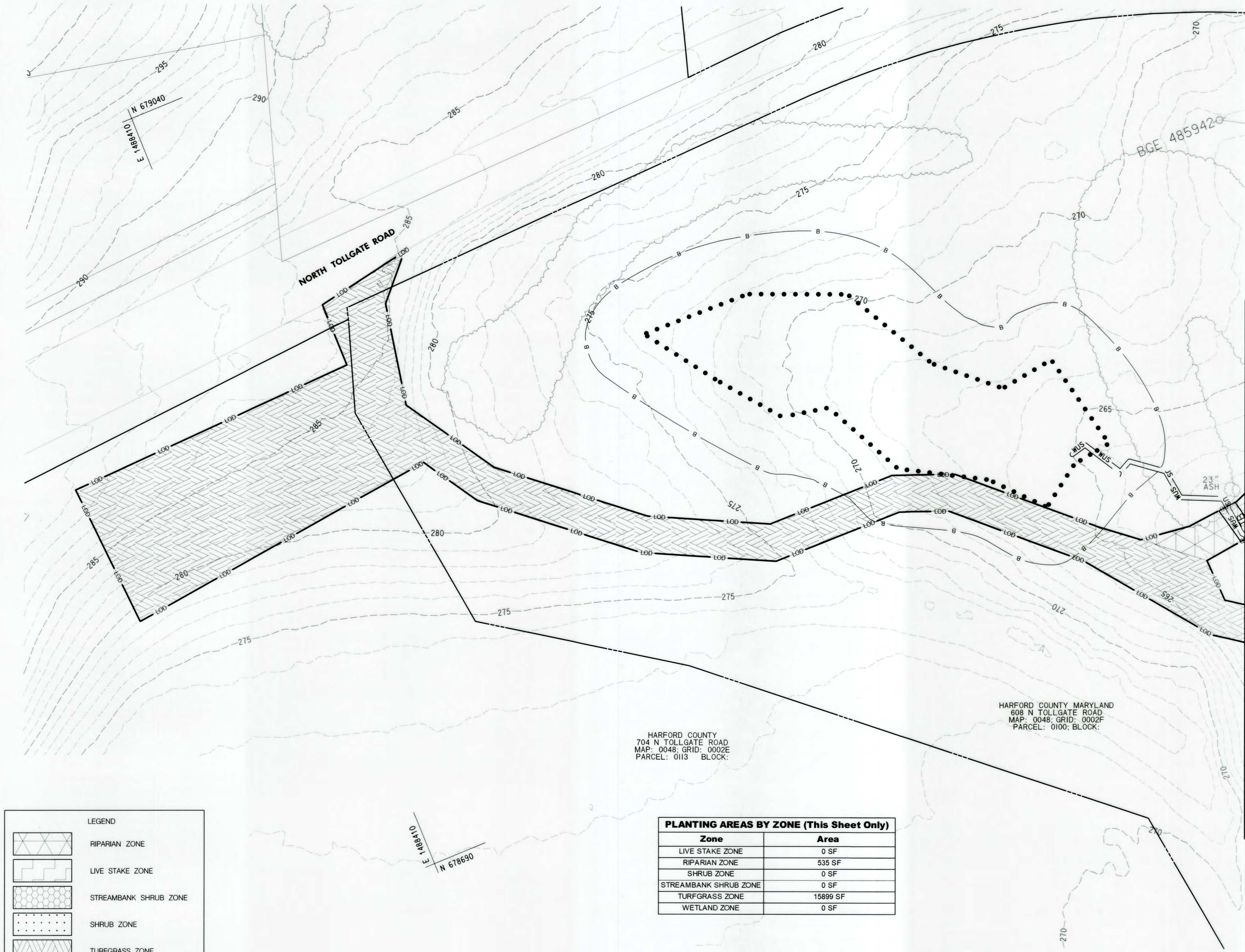
PLANTING AREAS BY ZONE (This Sheet Only)	
Zone	Area
LIVE STAKE ZONE	2055 SF
RIPARIAN ZONE	8567 SF
SHRUB ZONE	0 SF
STREAMBANK SHRUB ZONE	361 SF
TURFGRASS ZONE	20760 SF
WETLAND ZONE	16394 SF

LEGEND

- RIPARIAN ZONE
- LIVE STAKE ZONE
- STREAMBANK SHRUB ZONE
- SHRUB ZONE
- TURFGRASS ZONE
- WETLAND ZONE

PLANTING AREAS BY ZONE (This Sheet Only)	
Zone	Area
LIVE STAKE ZONE	2055 SF
RIPARIAN ZONE	8567 SF
SHRUB ZONE	0 SF
STREAMBANK SHRUB ZONE	361 SF
TURFGRASS ZONE	20760 SF
WETLAND ZONE	16394 SF

		HARPORD COUNTY DEPARTMENT OF PUBLIC WORKS		WATER RESOURCES ENGINEERING 212 SOUTH BOND STREET BSI FLOOR BALTIMORE MARYLAND 21014 410-639-3217 SC PLAN #59839 GR PERMIT #15366-2018		LANDSCAPE PLAN 		HEAVENLY POND STREAM RESTORATION		509 South Exeter Street 4th Floor Baltimore, Maryland 21202 (410) 862-7400 McCORMICK TAYLOR	
DATE		DRAWING NO.				REV#		DATE		DESCRIPTION	
7/2/20											
SCALE 1" = 20'		201227									
DESIGNED BY MRW				SHEET 30 OF 58							
DRAWN BY MER				MT JOB NUMBER 5786-01							



E 148870
N 678690

LEGEND	
	RIPARIAN ZONE
	LIVE STAKE ZONE
	STREAMBANK SHRUB ZONE
	SHRUB ZONE
	TURFGRASS ZONE
	WETLAND ZONE

HARFORD COUNTY
704 N TOLLGATE ROAD
MAP: 0048; GRID: 0002E
PARCEL: 0113 BLOCK:

HARFORD COUNTY MARYLAND
608 N TOLLGATE ROAD
MAP: 0048; GRID: 0002F
PARCEL: 0100; BLOCK:

PLANTING AREAS BY ZONE (This Sheet Only)	
Zone	Area
LIVE STAKE ZONE	0 SF
RIPARIAN ZONE	535 SF
SHRUB ZONE	0 SF
STREAMBANK SHRUB ZONE	0 SF
TURFGRASS ZONE	15899 SF
WETLAND ZONE	0 SF

MATCHLINE SEE SHEET 29

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

REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION

LANDSCAPE PLAN

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS

WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BAL AIR MARYLAND 21014
410-638-3271
SC PERMIT #15366-2018

DATE
7/2/20

SCALE
1" = 20'

DESIGNED BY
MRM

DRAWN BY
MER

DRAWING NO.
201229

SHEET 32 OF 58
WT JOB NUMBER
5786-01

LEGEND	
	RIPARIAN ZONE
	LIVE STAKE ZONE
	STREAMBANK SHRUB ZONE
	SHRUB ZONE
	TURFGRASS ZONE
	WETLAND ZONE

PLANTING AREAS BY ZONE (This Sheet Only)	
Zone	Area
LIVE STAKE ZONE	0 SF
RIPARIAN ZONE	0 SF
SHRUB ZONE	0 SF
STREAMBANK SHRUB ZONE	0 SF
TURFGRASS ZONE	5012 SF
WETLAND ZONE	0 SF

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Baltimore, Maryland 21202
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REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
LANDSCAPE PLAN

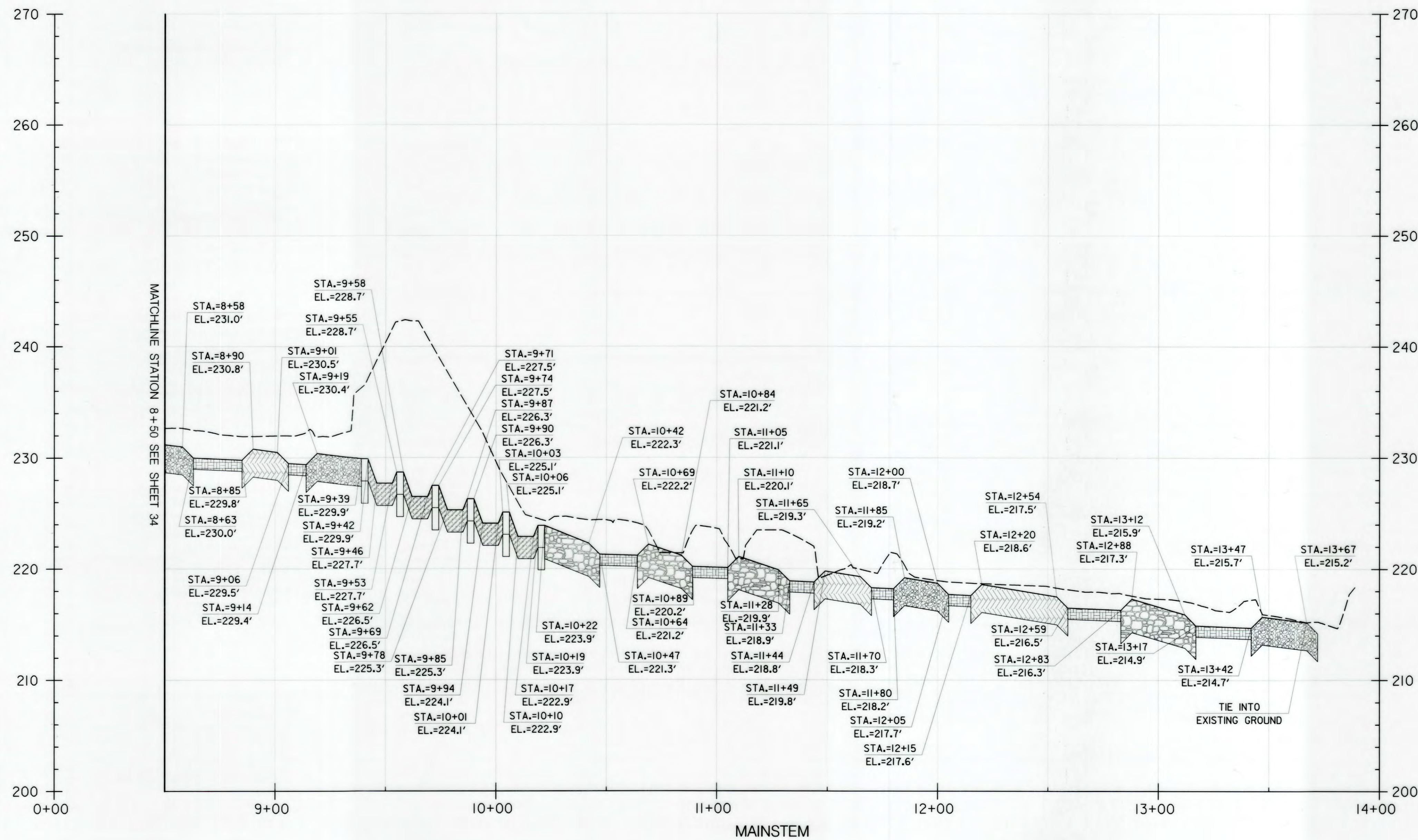
HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
21ST FLOOR
1ST FLOOR
BEL AIR MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018

DATE: 7/2/20
SCALE: 1" = 20'
DESIGNED BY: MRW
DRAWN BY: MER

DRAWING NO. 201230
SHEET 33 OF 58
MT JOB NUMBER 5786-01

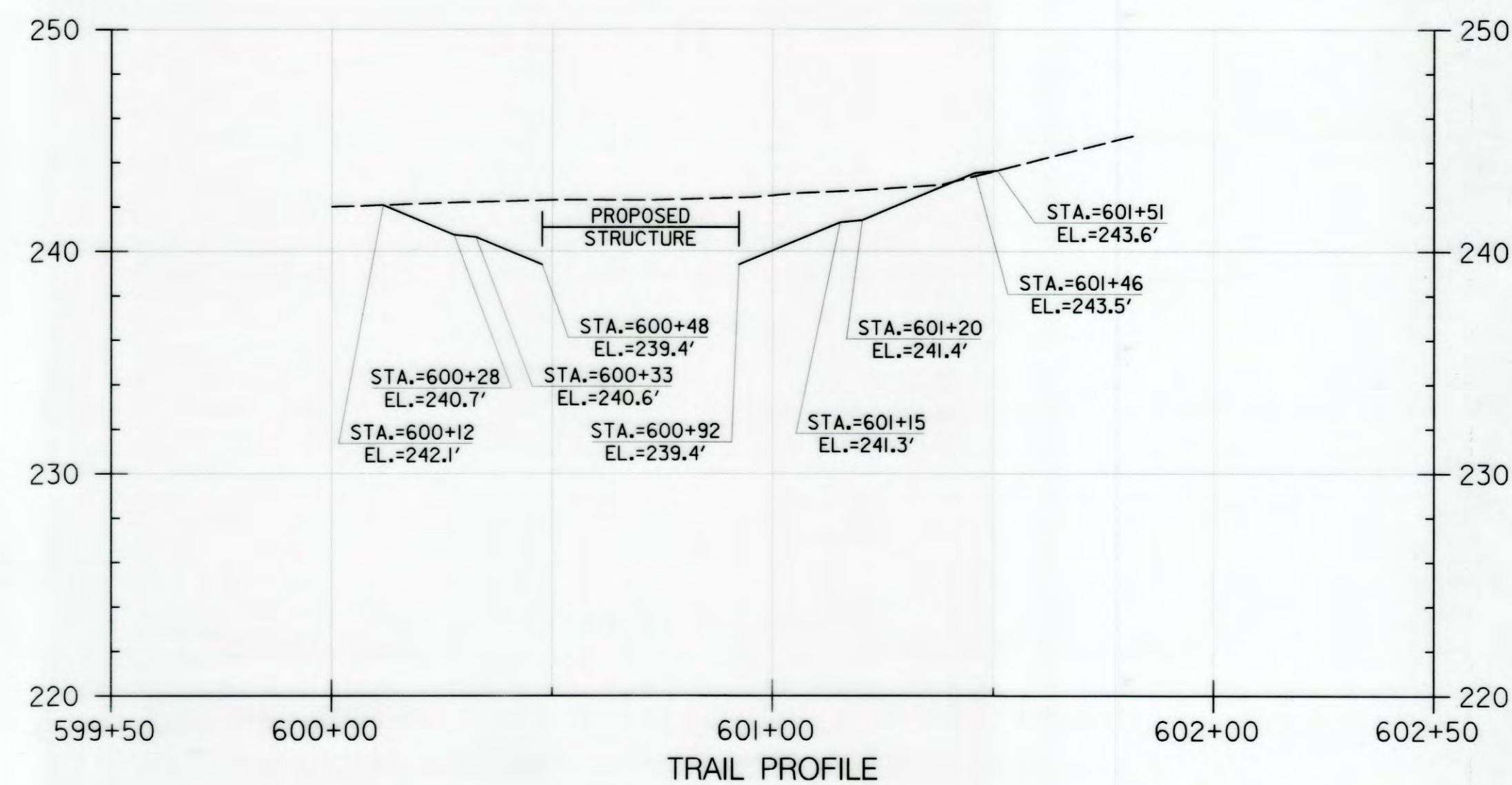


MATCHLINE SEE SHEET 30



SCALE:
HORIZONTAL: 1"=30' VERTICAL: 1"= 6'

LEGEND	
-----	EXISTING PROFILE
-----	PROPOSED PROFILE
[Hatched Box]	TRIBUTARY STABILIZATION
[Stippled Box]	CASCADE STRUCTURE
[Cross-hatched Box]	RIFFLE STABILIZATION
[Diagonal Hatched Box]	WOOD RIFFLE STABILIZATION
[Dotted Box]	OUTFALL POOL
[Horizontal Hatched Box]	POOL PAVEMENT
[Vertical Line]	STEP-POOL CREST
[Grid Box]	CHANNEL BED MATERIAL



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**MCCORMICK
TAYLOR**

REVISIONS
DATE
BY

HEAVENLY POND
STREAM RESTORATION

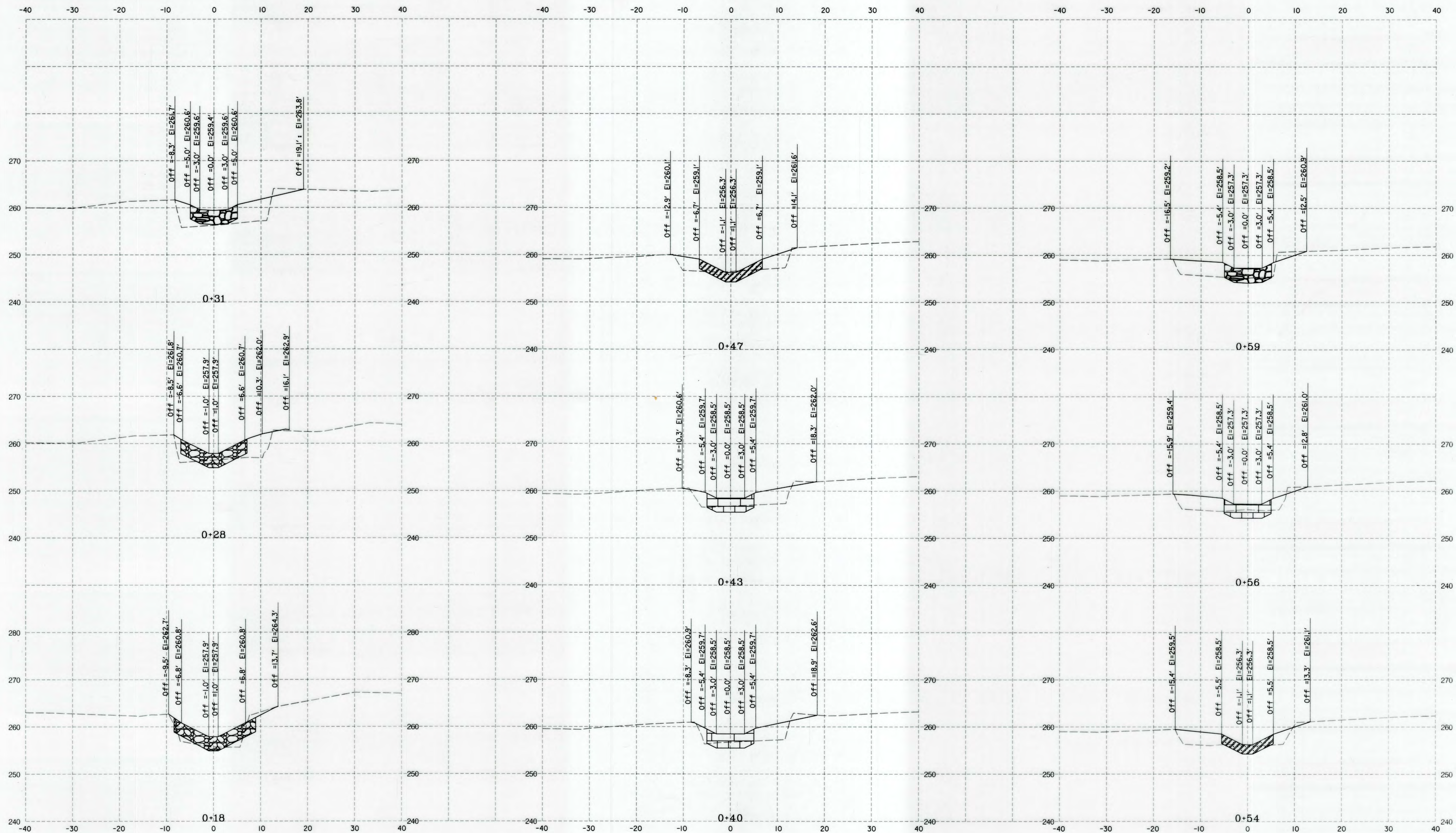
PROFILE SHEET

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS

WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
BETHESDA, MARYLAND 20814
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018

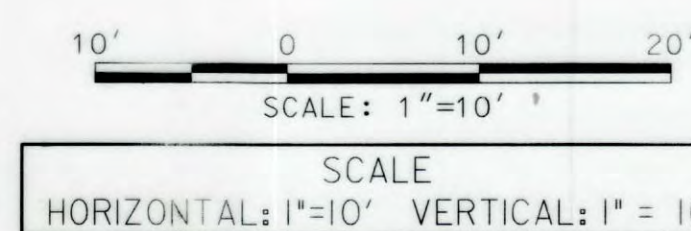


DATE
7/2/20
SCALE
AS INDICATED
DESIGNED BY
MRM
DRAWN BY
MER
DRAWING NO.
201232
SHEET 35 OF 58
MT JOB NUMBER
5786-01



LEGEND

- | | | |
|-----------------------|---------------------------------|------------------------------------|
| --- EXISTING GROUND | [Symbol] STEP-POOL CREST | [Symbol] WOOD RIFFLE STABILIZATION |
| — PROPOSED GRADE | [Symbol] POOL PAVEMENT | [Symbol] RIFFLE STABILIZATION |
| [Symbol] OUTFALL POOL | [Symbol] TOE BOULDER PROTECTION | [Symbol] TRIBUTARY STABILIZATION |
| [Symbol] CASCADE | [Symbol] CHANNEL BED MATERIAL | [Symbol] OVERFLOW STABILIZATION |
| | | [Symbol] GRADED AGGREGATE BEDDING |



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

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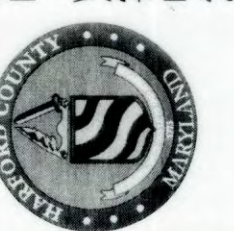


REVISIONS

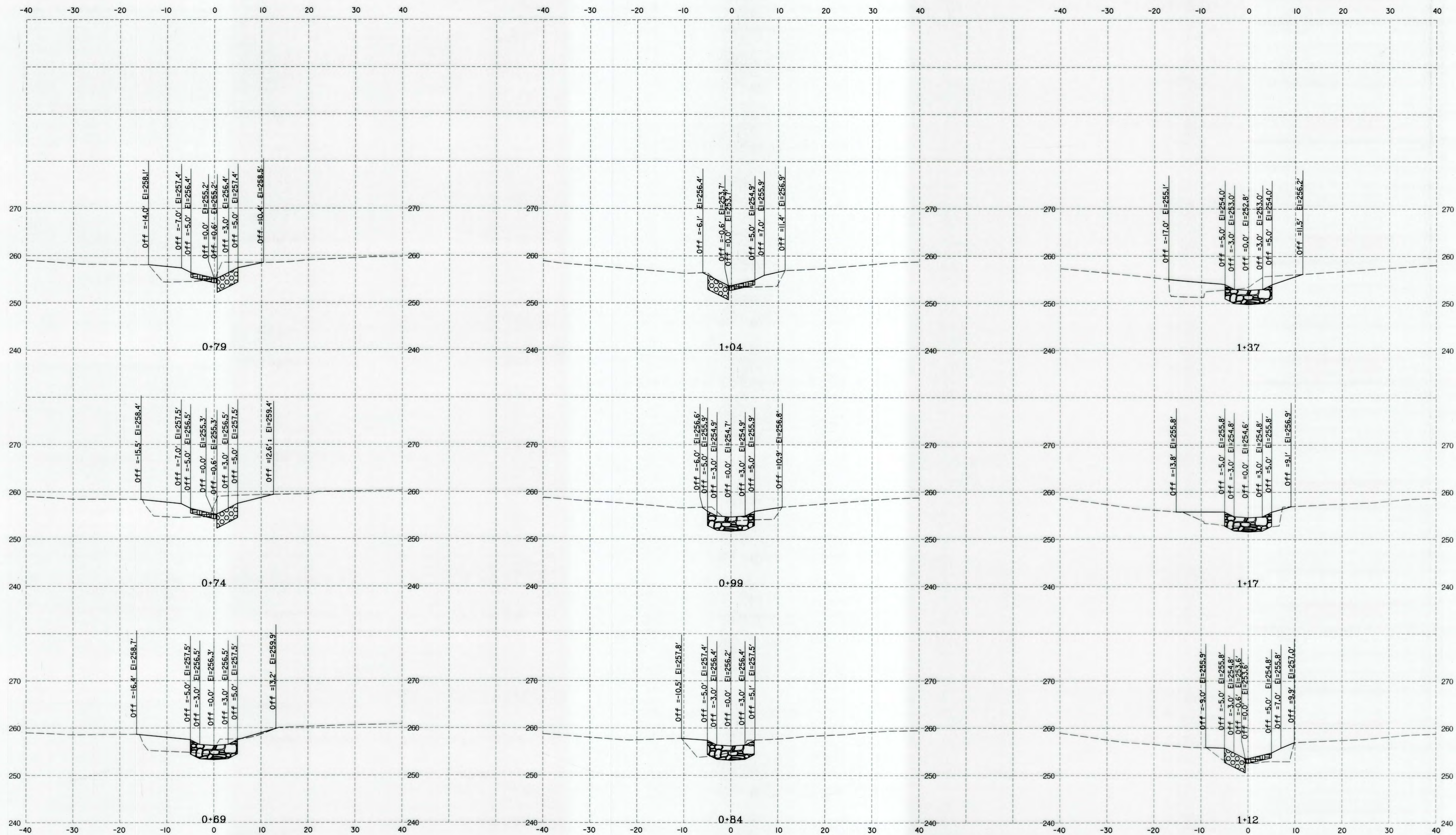
REV# DATE DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BALTIMORE, MARYLAND 21014
PROJECT # 201233
SC PLAN # 59839
GR PERMIT # 15366-2018

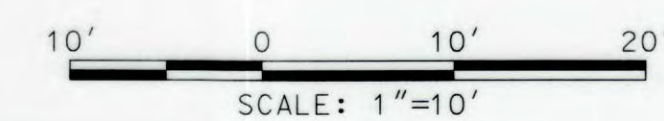


DATE 7/2/20	DRAWING NO. 201233
SCALE AS INDICATED	SHEET 36 OF 58
DESIGNED BY MRW	MT JOB NUMBER 5786-01
DRAWN BY MER	



LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- OUTFALL POOL
- CASCADE
- STEP-POOL CREST
- POOL PAVEMENT
- TOE BOULDER PROTECTION
- CHANNEL BED MATERIAL
- WOOD RIFFLE STABILIZATION
- RIFFLE STABILIZATION
- TRIBUTARY STABILIZATION
- OVERFLOW STABILIZATION
- GRADED AGGREGATE BEDDING



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

DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

REVISIONS

REV#	DATE	DESCRIPTION

HEAVENLY BOND STREAM RESTORATION CROSS SECTIONS

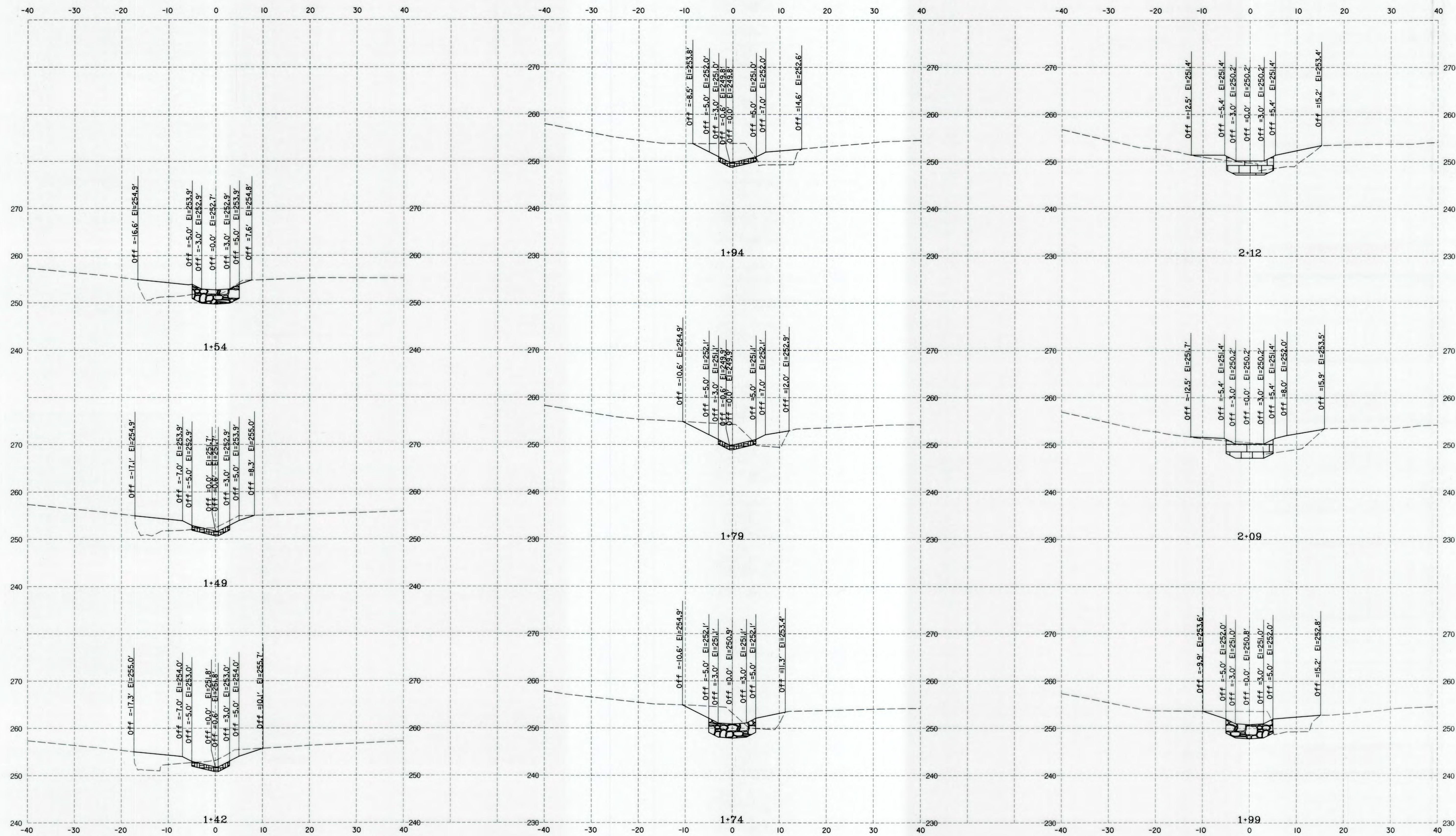
HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BEL AIR, MARYLAND 21014
PROJECT #59839
SHEET #13366-2018
GR PERMIT #15366-2018



DATE 7/2/20	DRAWING NO. 201234
SCALE AS INDICATED	SHEET 37 OF 58
DESIGNED BY MRM	MT JOB NUMBER 5786-01
DRAWN BY MER	

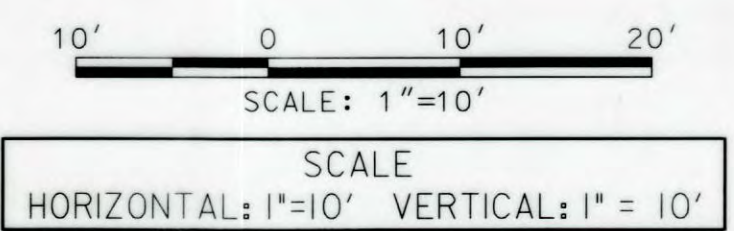
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400





LEGEND

- | | | |
|---------------------|------------------------|---------------------------|
| --- EXISTING GROUND | STEP-POOL CREST | WOOD RIFFLE STABILIZATION |
| — PROPOSED GRADE | POOL PAVEMENT | RIFFLE STABILIZATION |
| OUTFALL POOL | TOE BOULDER PROTECTION | TRIBUTARY STABILIZATION |
| CASCADE | CHANNEL BED MATERIAL | OVERFLOW STABILIZATION |
| | | GRADED AGGREGATE BEDDING |



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

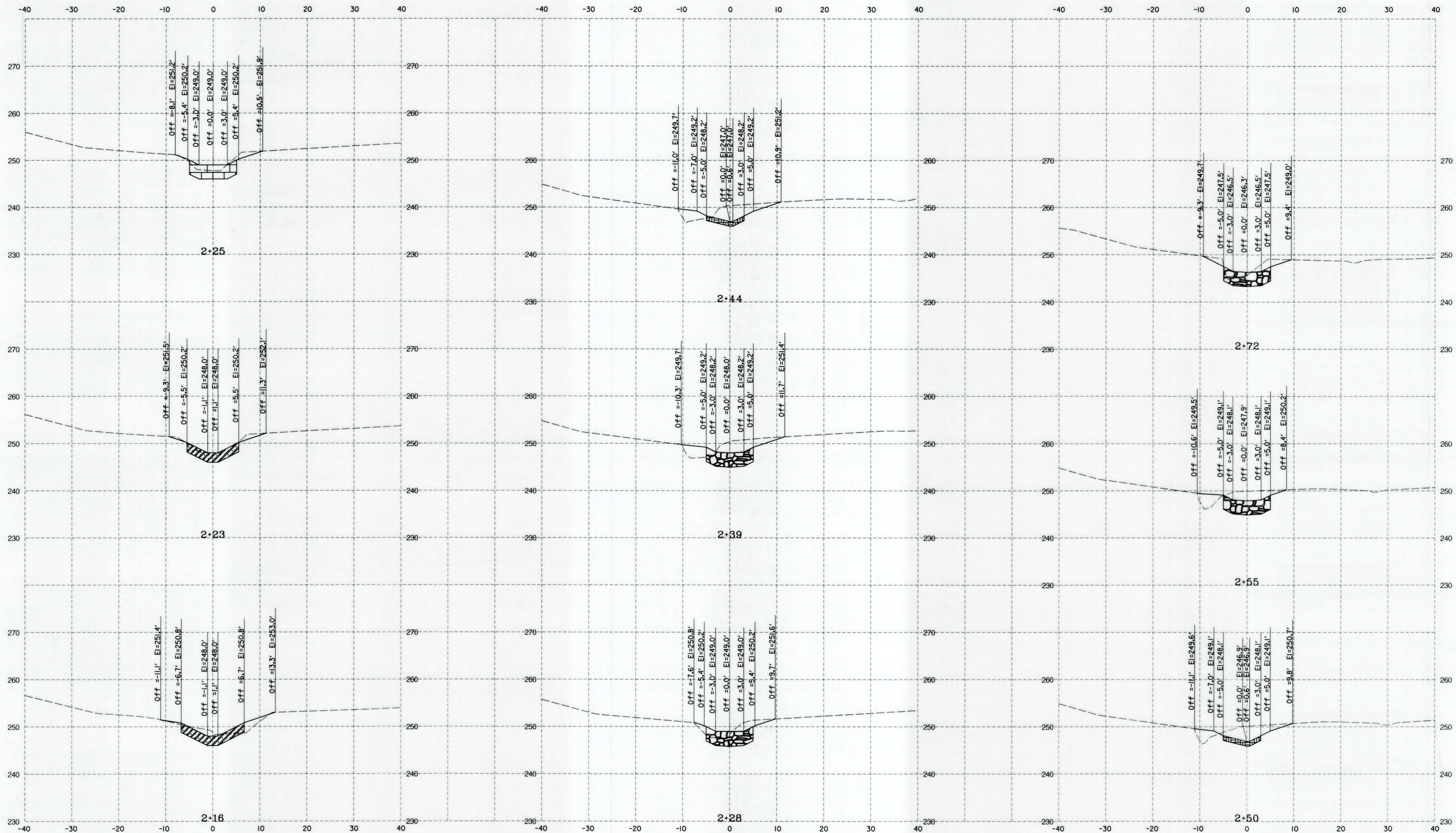
REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018

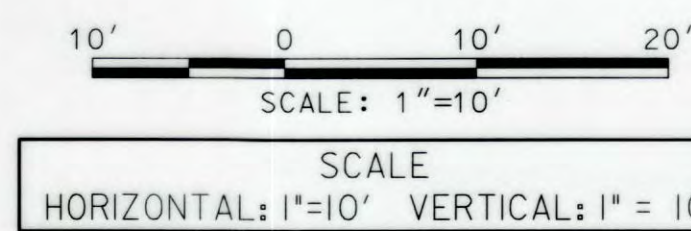


DATE 7/2/20	DRAWING NO. 201235
SCALE AS INDICATED	SHEET 38 OF 58
DESIGNED BY MRM	DRAWN BY MER
	MT JOB NUMBER 5786-01



LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- OUTFALL POOL
- CASCADE
- STEP-POOL CREST
- POOL PAVEMENT
- TOE BOULDER PROTECTION
- CHANNEL BED MATERIAL
- WOOD RIFFLE STABILIZATION
- RIFFLE STABILIZATION
- TRIBUTARY STABILIZATION
- OVERFLOW STABILIZATION
- GRADED AGGREGATE BEDDING



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

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Baltimore, Maryland 21202
(410) 662-7400



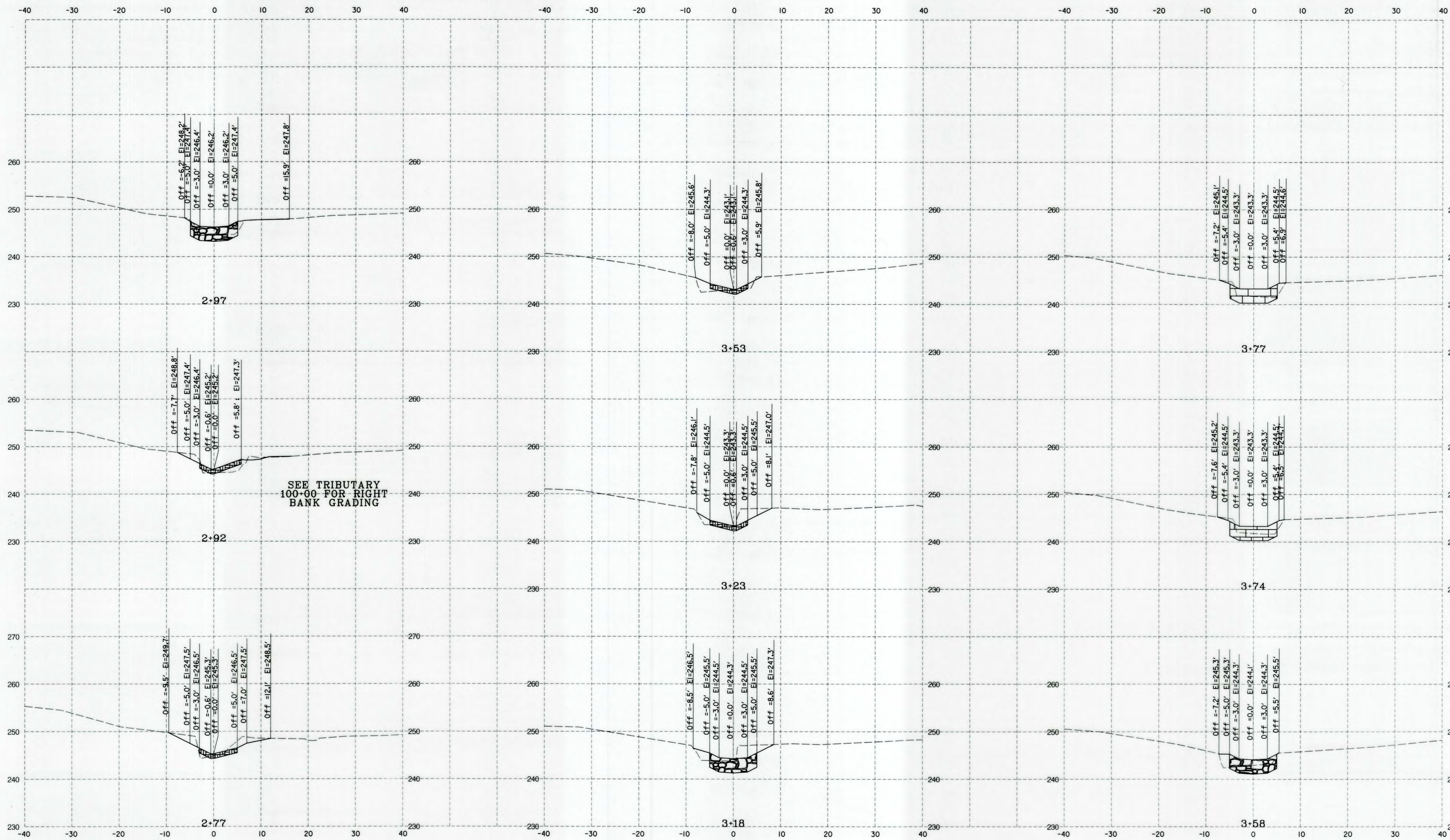
REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
BETHESDA, MARYLAND 20814
TEL 301-278-3271
SC PLAN #59839
GR PERMIT #16366-2018



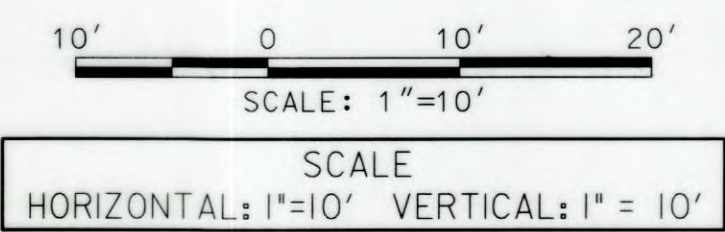
DATE 7/2/20	DRAWING NO. 201236
SCALE AS INDICATED	SHEET 39 OF 58
DESIGNED BY MRM	WT JOB NUMBER 5786-01
DRAWN BY MER	



SEE TRIBUTARY
100+00 FOR RIGHT
BANK GRADING

LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- OUTFALL POOL
- CASCADE
- STEP-POOL CREST
- POOL PAVEMENT
- TOE BOULDER PROTECTION
- CHANNEL BED MATERIAL
- WOOD RIFFLE STABILIZATION
- RIFFLE STABILIZATION
- TRIBUTARY STABILIZATION
- OVERFLOW STABILIZATION
- GRADED AGGREGATE BEDDING



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

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

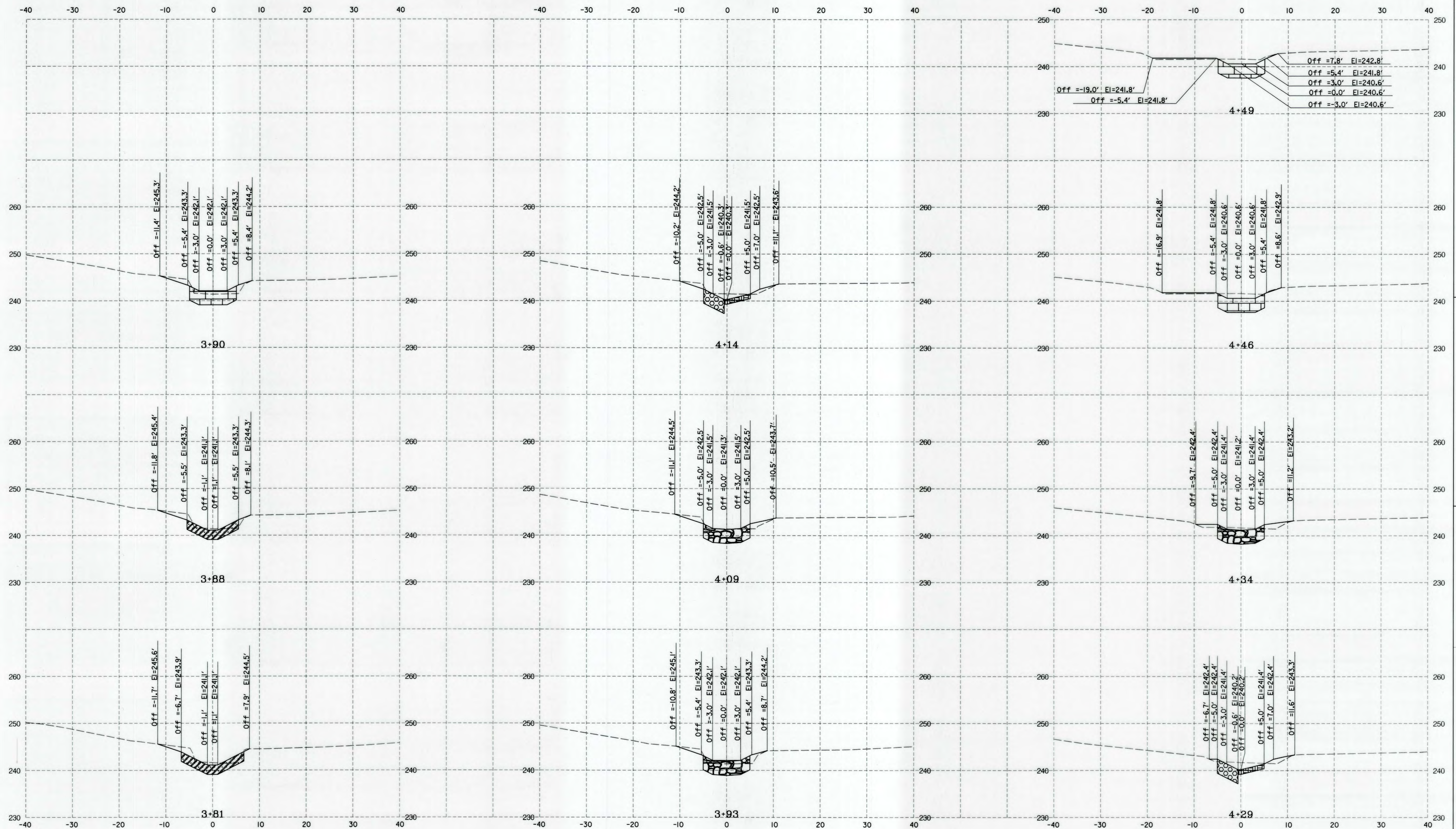
REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS

WATER RESOURCES ENGINEERING
152 FLORENCE STREET
BAL AIR MARYLAND 21014
410-639-3217
SC PLAN #59839
GR PERMIT #15366-2018

DATE 7/2/20	DRAWING NO. 201237
SCALE AS INDICATED	SHEET 40 OF 58
DESIGNED BY MRM	DRAWN BY MT JOB NUMBER 5786-01



LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- OUTFALL POOL
- CASCADE
- STEP-POOL CREST
- POOL PAVEMENT
- TOE BOULDER PROTECTION
- CHANNEL BED MATERIAL
- WOOD RIFFLE STABILIZATION
- RIFFLE STABILIZATION
- TRIBUTARY STABILIZATION
- OVERFLOW STABILIZATION
- GRADED AGGREGATE BEDDING

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

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

DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

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Baltimore, Maryland 21202
(410) 662-7400

**MCCORMICK
TAYLOR**

REVISIONS

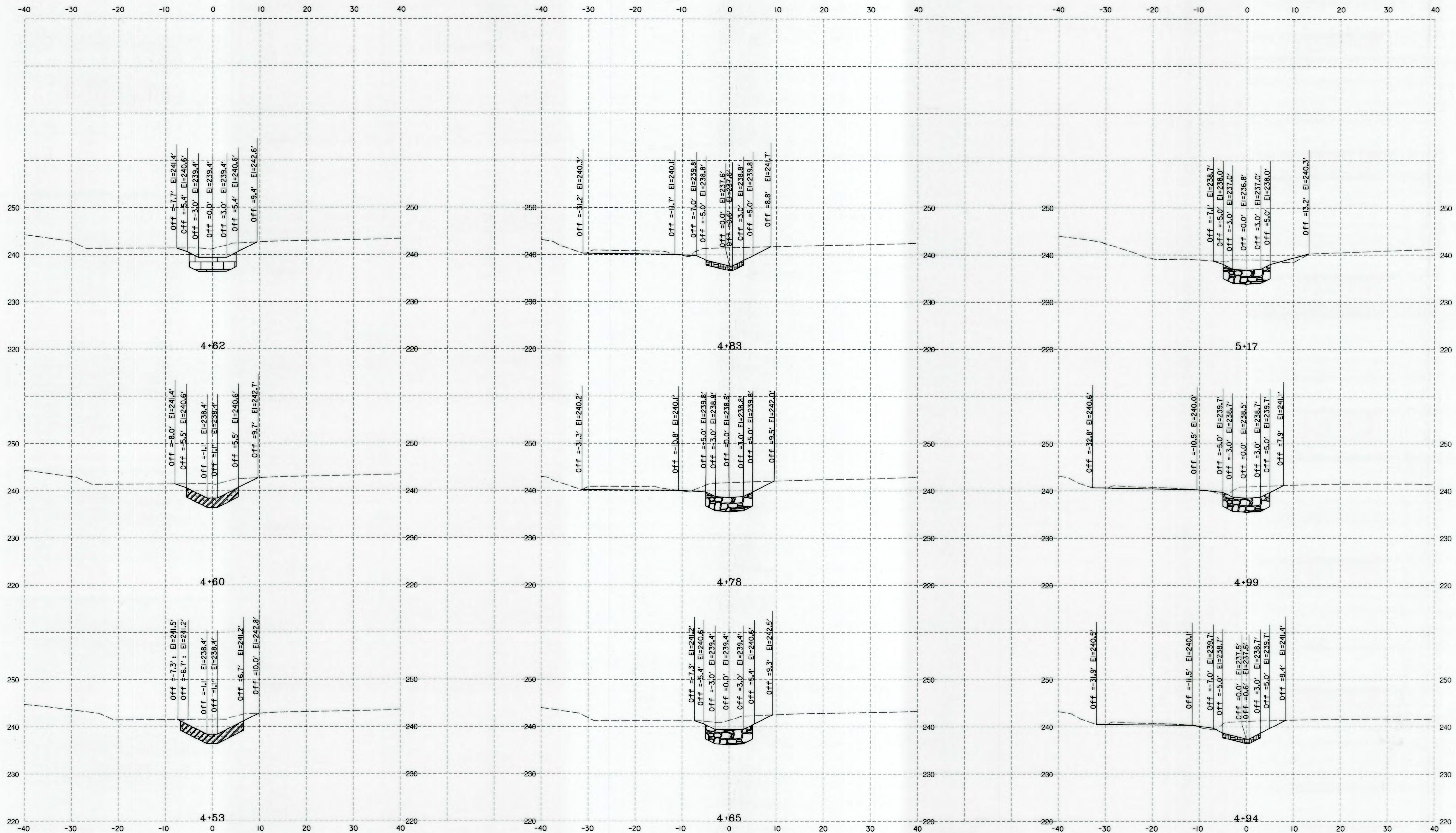
DATE

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BEL AIR MARYLAND 21014
PROJECT #59839
PLAN #13366-2018
GR PERMIT #13366-2018

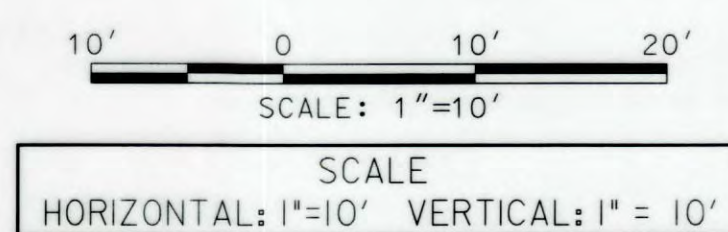


DATE
7/2/20
SCALE
AS INDICATED
DESIGNED BY
MRM
DRAWN BY
MER
DRAWING NO.
201238
SHEET 41 OF 58
MT JOB NUMBER
5786-01



LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- OUTFALL POOL
- CASCADE
- STEP-POOL CREST
- POOL PAVEMENT
- TOE BOULDER PROTECTION
- CHANNEL BED MATERIAL
- WOOD RIFFLE STABILIZATION
- RIFFLE STABILIZATION
- TRIBUTARY STABILIZATION
- OVERFLOW STABILIZATION
- GRADED AGGREGATE BEDDING



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

**MCCORMICK
TAYLOR**

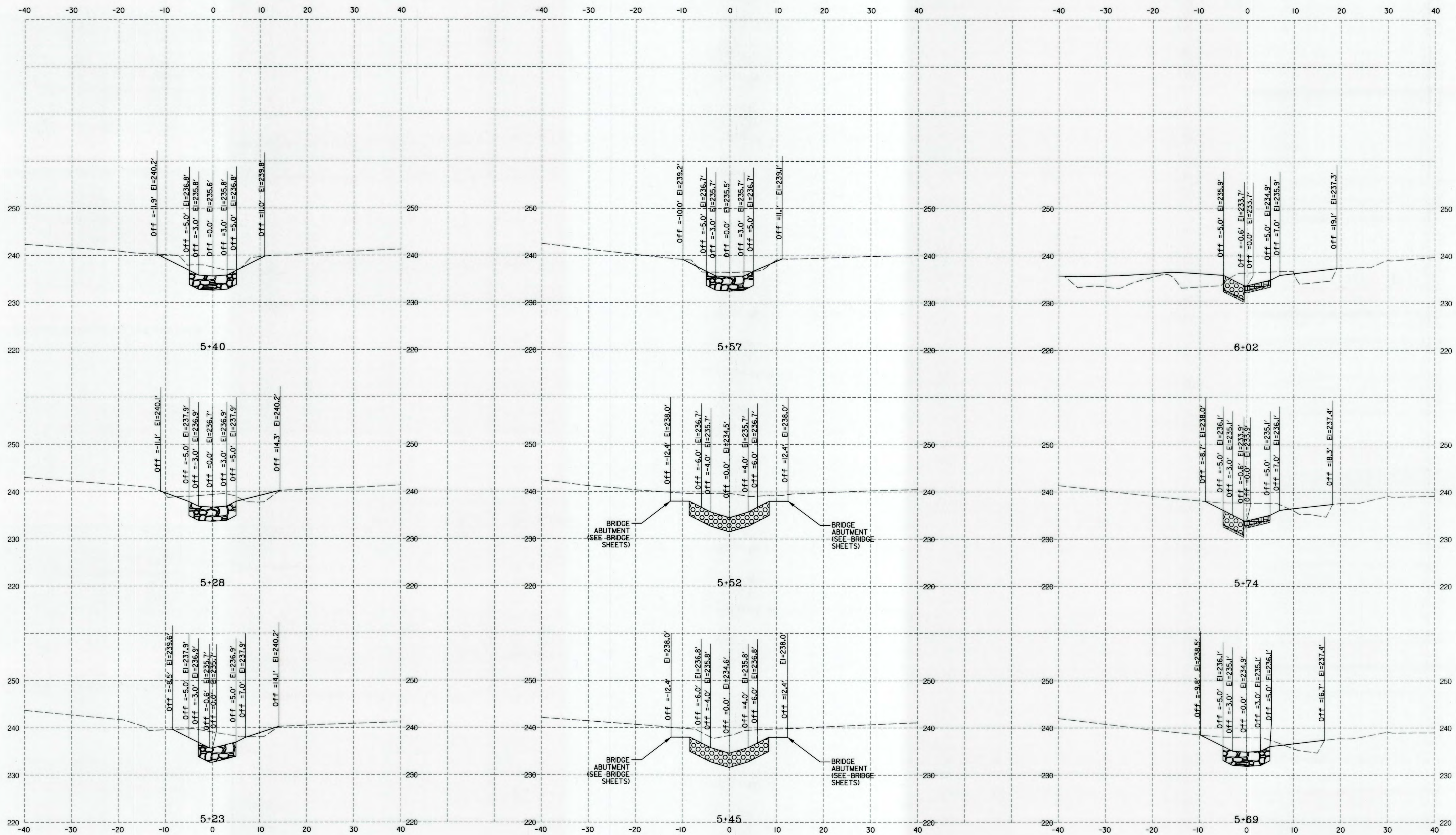
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

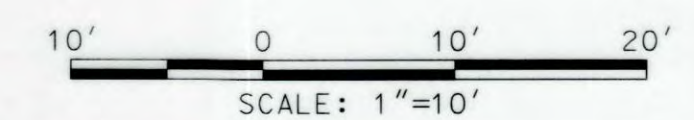
HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BEL AIR, MARYLAND 21014
PROJECT # 153366-2018
PLAN # 59839
GR PERMIT # 153366-2018

DATE: 7/2/20
SCALE: AS INDICATED
DRAWING NO. 201239
DESIGNED BY: MRM
DRAWN BY: MER
SHEET 42 OF 58
MT JOB NUMBER 5786-01



LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- [Symbol] OUTFALL POOL
- [Symbol] CASCADE
- [Symbol] STEP-POOL CREST
- [Symbol] POOL PAVEMENT
- [Symbol] TOE BOULDER PROTECTION
- [Symbol] CHANNEL BED MATERIAL
- [Symbol] WOOD RIFFLE STABILIZATION
- [Symbol] RIFFLE STABILIZATION
- [Symbol] TRIBUTARY STABILIZATION
- [Symbol] OVERFLOW STABILIZATION
- [Symbol] GRADED AGGREGATE BEDDING



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

DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

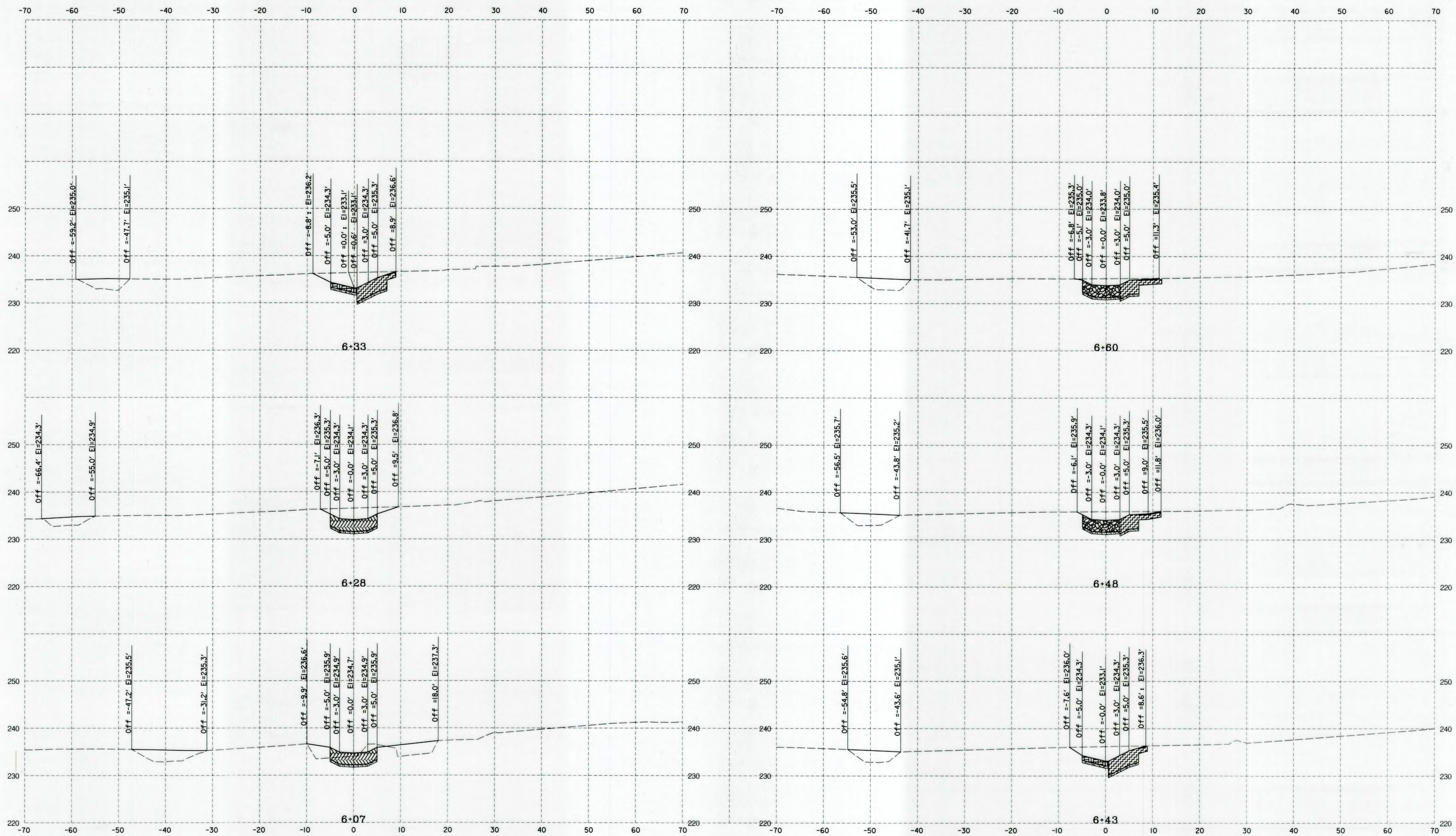
REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
BEL AIR, MARYLAND 21014
PROJECT #59839
SR PERMIT #15366-2018

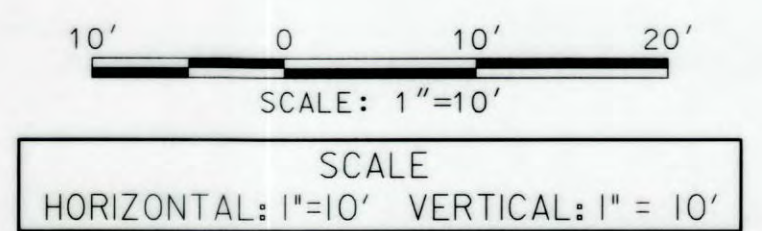


DATE 7/2/20	DRAWING NO. 201240
SCALE AS INDICATED	SHEET 43 OF 58
DESIGNED BY MRW	MT JOB NUMBER 5786-01
DRAWN BY MER	



LEGEND

- | | | |
|-----------------------|---------------------------------|------------------------------------|
| --- EXISTING GROUND | [Symbol] STEP-POOL CREST | [Symbol] WOOD RIFFLE STABILIZATION |
| — PROPOSED GRADE | [Symbol] POOL PAVEMENT | [Symbol] RIFFLE STABILIZATION |
| [Symbol] OUTFALL POOL | [Symbol] TOE BOULDER PROTECTION | [Symbol] TRIBUTARY STABILIZATION |
| [Symbol] CASCADE | [Symbol] CHANNEL BED MATERIAL | [Symbol] OVERFLOW STABILIZATION |
| | | [Symbol] GRADED AGGREGATE BEDDING |



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

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



REVISIONS

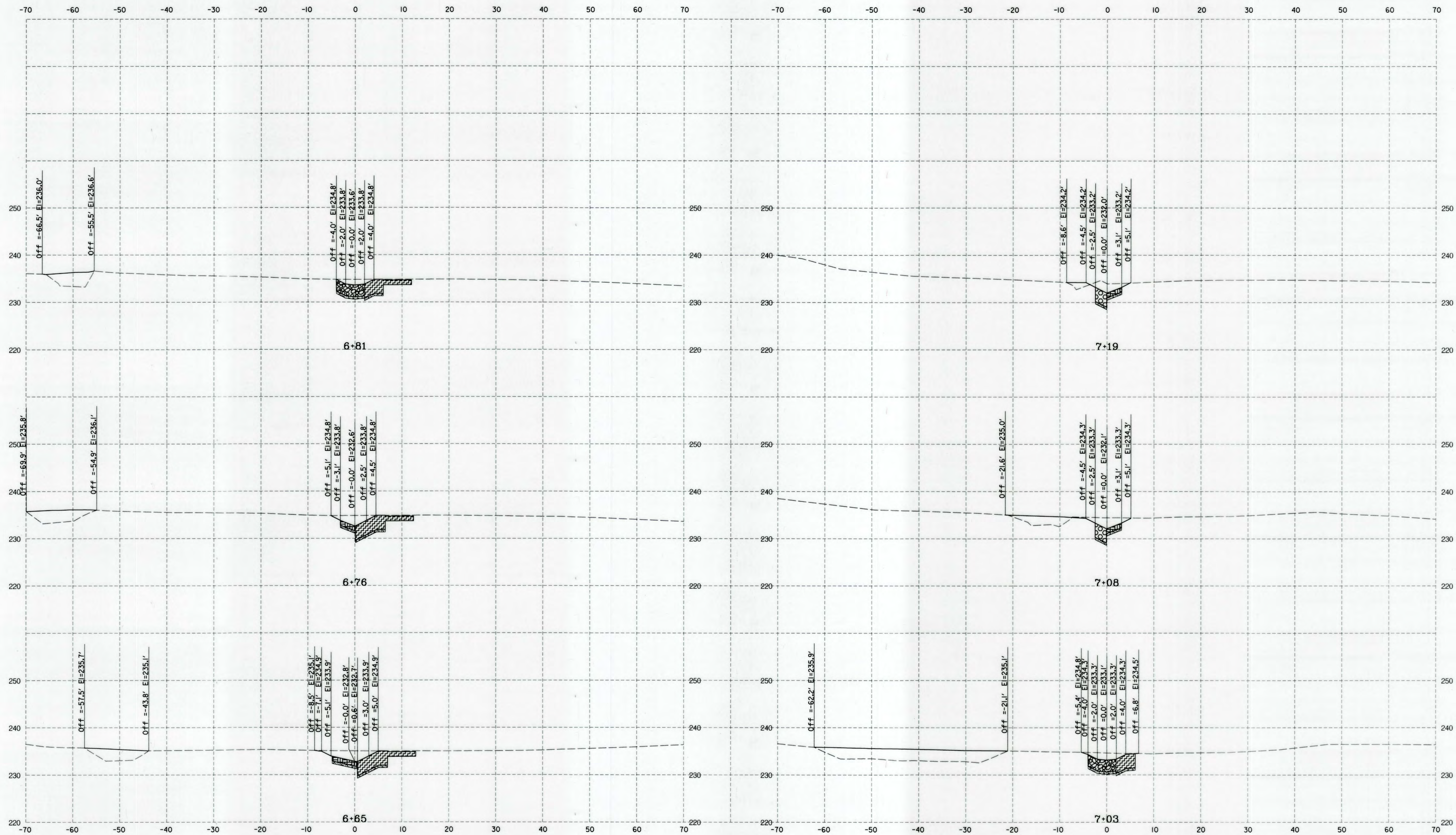
REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BEL AIR MARYLAND 21014
PROJECT #2121759839
SC PLAN
GR PERMIT #15366-2018

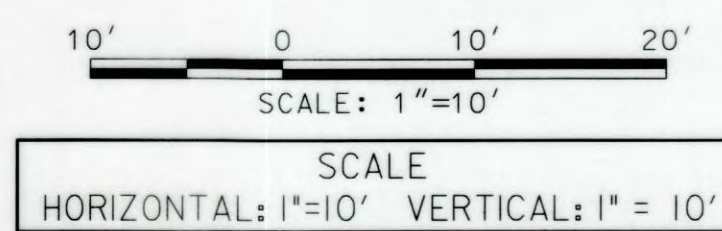


DATE 7/2/20	DRAWING NO. 201241
SCALE AS INDICATED	SHEET 44 OF 58
DESIGNED BY MRM	MT JOB NUMBER 5786-01
DRAWN BY MER	



LEGEND

- | | | |
|----------------------------|--------------------------------------|---|
| --- EXISTING GROUND | [Hatched Box] STEP-POOL CREST | [Hatched Box] WOOD RIFFLE STABILIZATION |
| — PROPOSED GRADE | [Hatched Box] POOL PAVEMENT | [Hatched Box] RIFFLE STABILIZATION |
| [Hatched Box] OUTFALL POOL | [Hatched Box] TOE BOULDER PROTECTION | [Hatched Box] TRIBUTARY STABILIZATION |
| [Hatched Box] CASCADE | [Hatched Box] CHANNEL BED MATERIAL | [Hatched Box] OVERFLOW STABILIZATION |
| | | [Hatched Box] GRADED AGGREGATE BEDDING |



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

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

**MCCORMICK
TAYLOR**

REVISIONS

REV# DATE

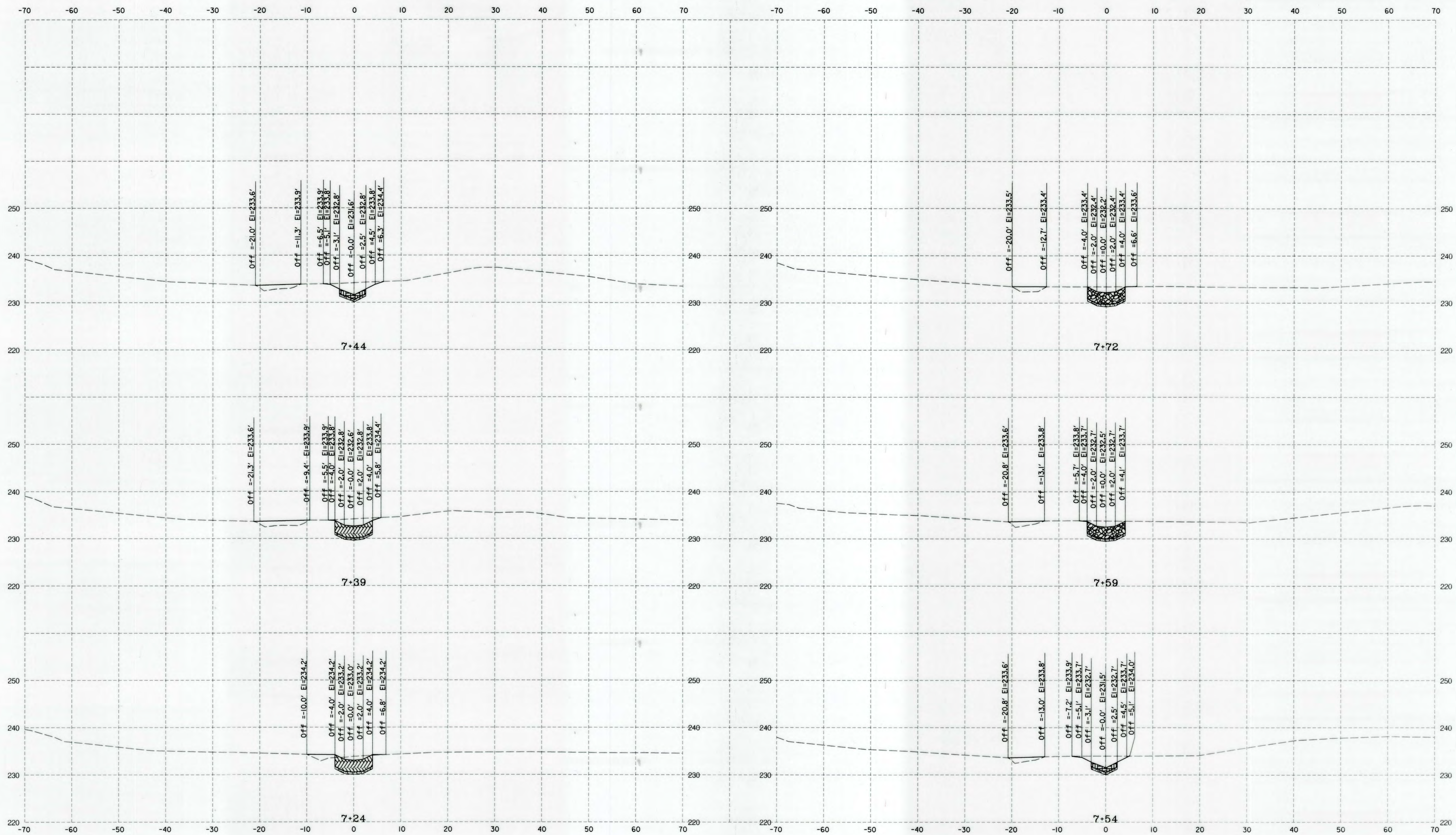
HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
BEL AIR, MARYLAND 21014
PROJECT #59839
SC PLAN #15366-2018
GR PERMIT #15366-2018



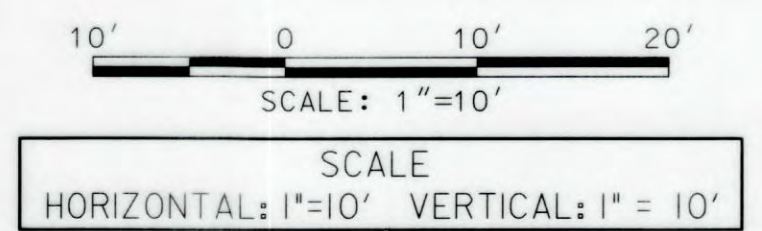
DATE	7/2/20	DRAWING NO.	
SCALE	AS INDICATED		
DESIGNED BY	MRM	SHEET	45 OF 58
DRAWN BY	MR	MT JOB NUMBER	5786-01

201242



LEGEND

- | | | |
|---------------------|------------------------|---------------------------|
| --- EXISTING GROUND | STEP-POOL CREST | WOOD RIFFLE STABILIZATION |
| — PROPOSED GRADE | POOL PAVEMENT | RIFFLE STABILIZATION |
| OUTFALL POOL | TOE BOULDER PROTECTION | TRIBUTARY STABILIZATION |
| CASCADE | CHANNEL BED MATERIAL | OVERFLOW STABILIZATION |
| | | GRADED AGGREGATE BEDDING |



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

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



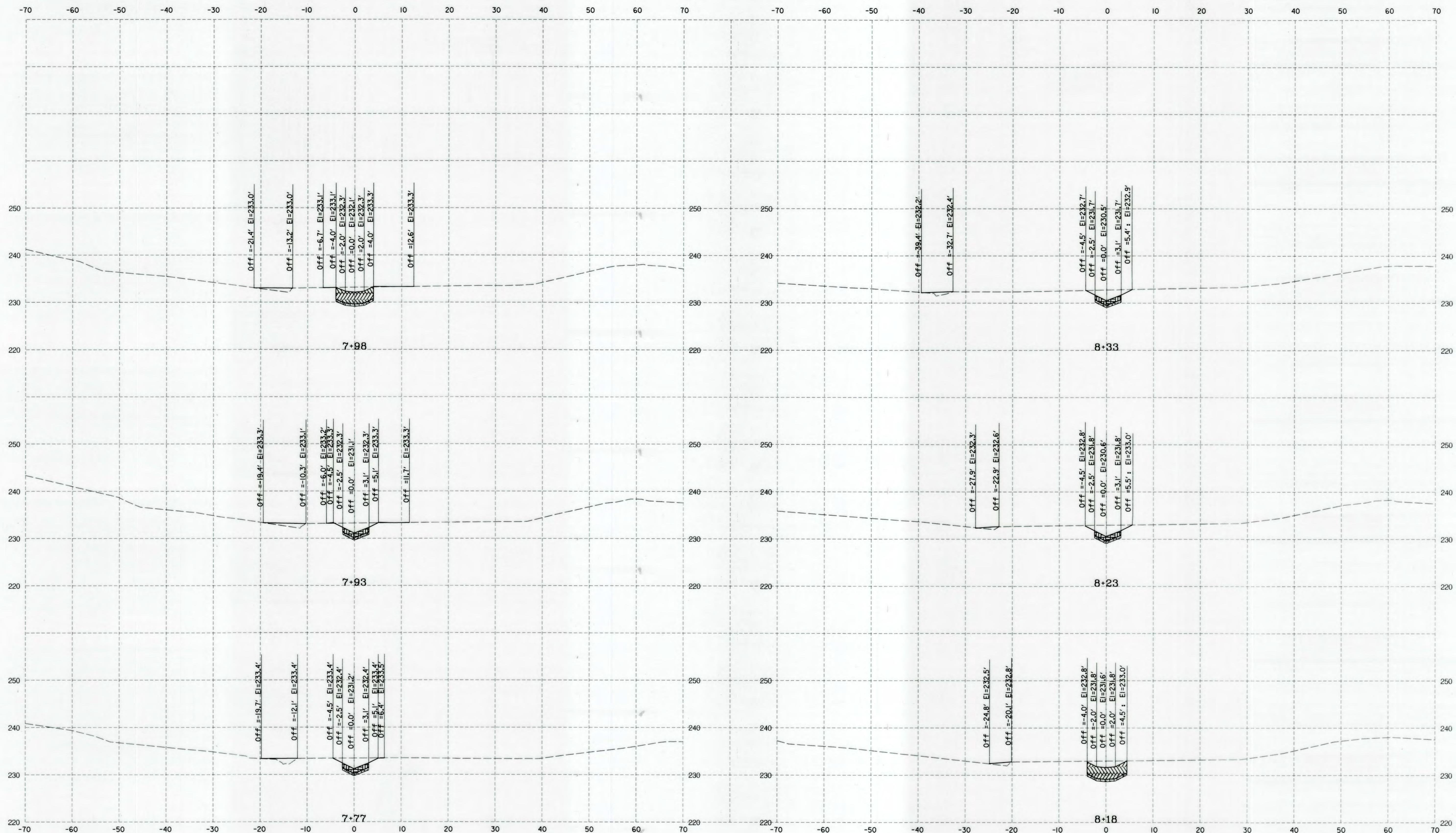
REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BAL AIR MARYLAND 21014
10-033217-59839
SR PERMIT #15366-2018

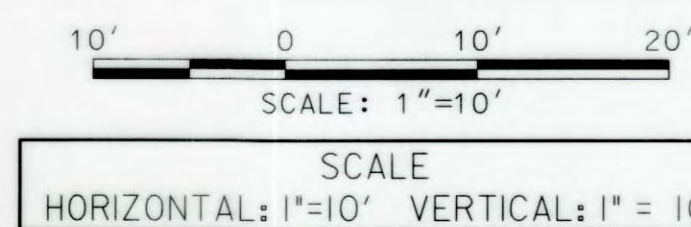


DATE 7/2/20	DRAWING NO. 201243
SCALE AS INDICATED	SHEET 46 OF 58
DESIGNED BY MFW	MT JOB NUMBER 5786-01
DRAWN BY MER	



LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- OUTFALL POOL
- CASCADE
- STEP-POOL CREST
- POOL PAVEMENT
- TOE BOULDER PROTECTION
- CHANNEL BED MATERIAL
- WOOD RIFFLE STABILIZATION
- RIFFLE STABILIZATION
- TRIBUTARY STABILIZATION
- OVERFLOW STABILIZATION
- GRADED AGGREGATE BEDDING



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

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

**MCCORMICK
TAYLOR**

REVISIONS

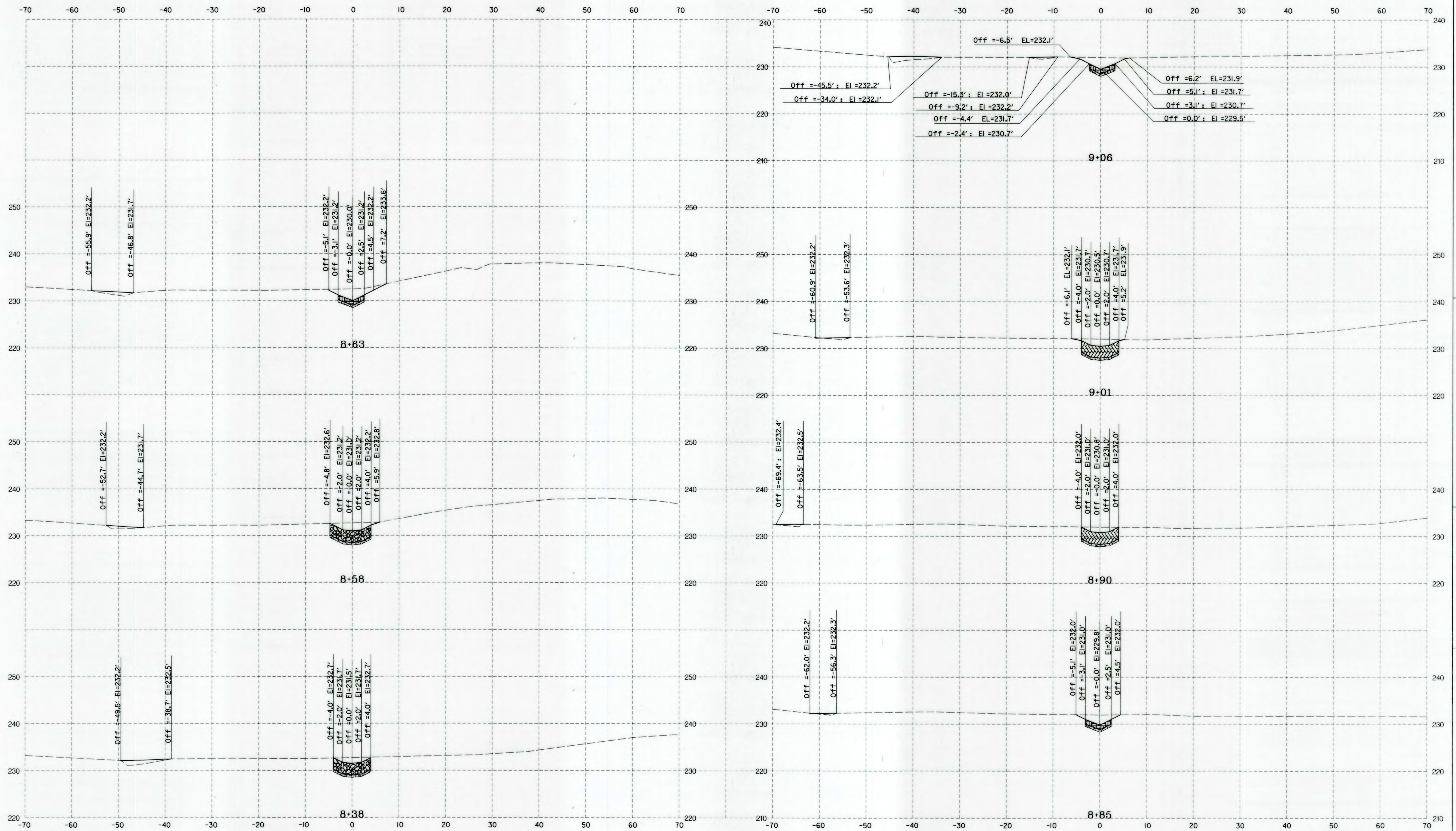
REV# DATE DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
4TH FLOOR
BALTIMORE, MD 21202
TEL: 410-336-3277
SC PLAN #59839
GR PERMIT #15366-2018

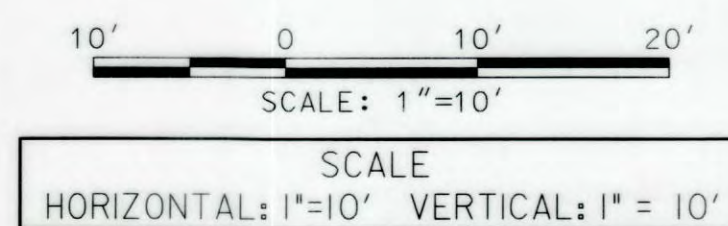


DATE 7/2/20	DRAWING NO. 201244
SCALE AS INDICATED	SHEET 47 OF 58
DESIGNED BY MRM	MT JOB NUMBER 5786-01
DRAWN BY MER	



LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- OUTFALL POOL
- CASCADE
- STEP-POOL CREST
- POOL PAVEMENT
- TOE BOULDER PROTECTION
- CHANNEL BED MATERIAL
- WOOD RIFFLE STABILIZATION
- RIFFLE STABILIZATION
- TRIBUTARY STABILIZATION
- OVERFLOW STABILIZATION
- GRADED AGGREGATE BEDDING



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

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

**MCCORMICK
TAYLOR**

REVISIONS

DESCRIPTION

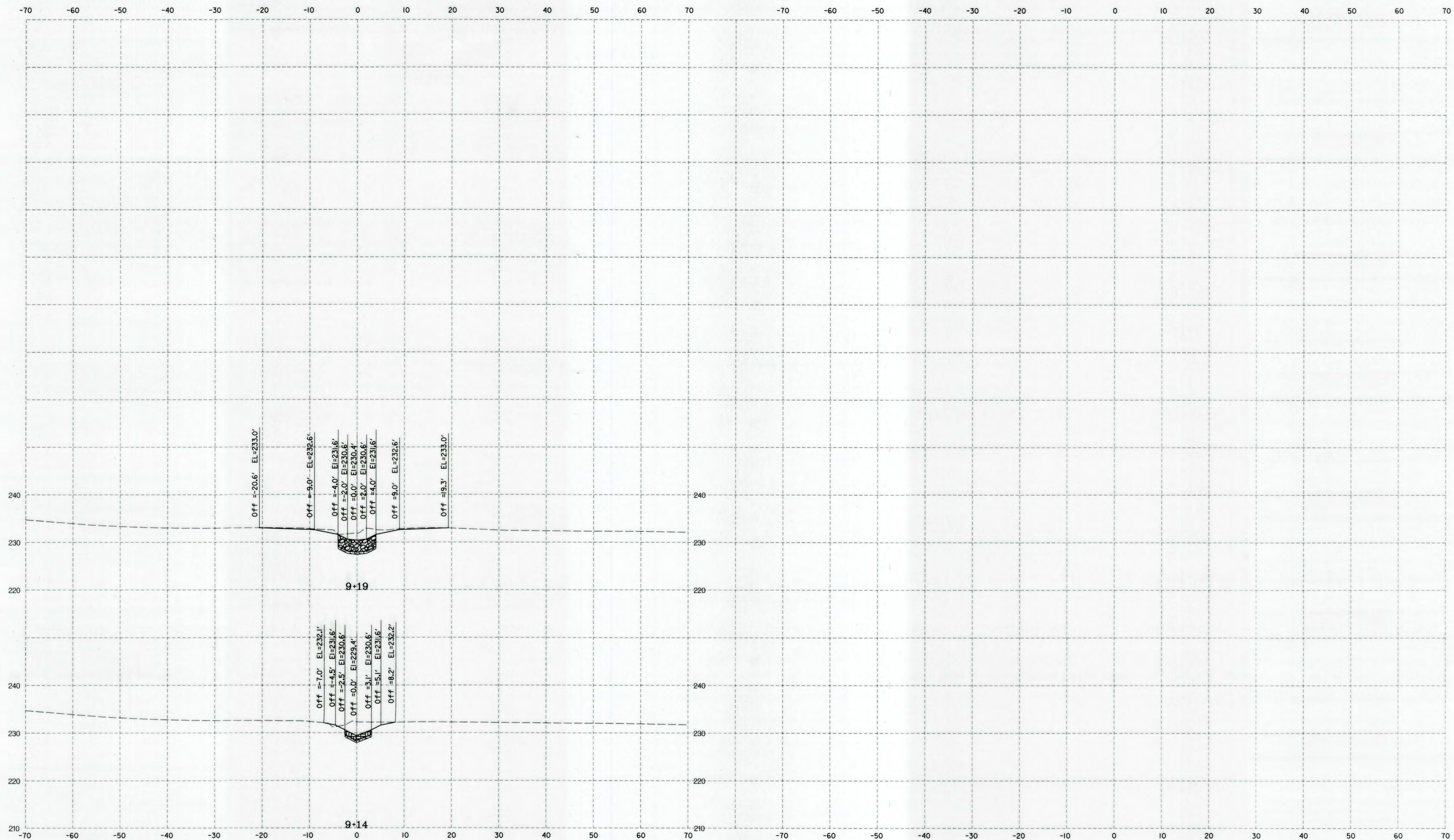
DATE

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
4TH FLOOR BALTIMORE, MARYLAND 21202
TEL: 410-327-5983
SC PLAN #59839
GR PERMIT #15366-2018

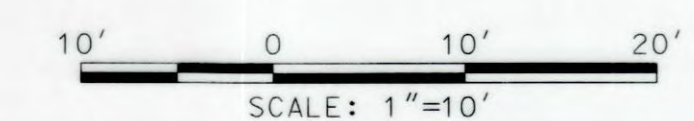


DATE	7/2/20	DRAWING NO.	201245
SCALE	AS INDICATED	SHEET	48 OF 58
DESIGNED BY	MRM	MT JOB NUMBER	5786-01
DRAWN BY	MER		



LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- OUTFALL POOL
- CASCADE
- STEP-POOL CREST
- POOL PAVEMENT
- TOE BOULDER PROTECTION
- CHANNEL BED MATERIAL
- WOOD RIFFLE STABILIZATION
- RIFFLE STABILIZATION
- TRIBUTARY STABILIZATION
- OVERFLOW STABILIZATION
- GRADED AGGREGATE BEDDING



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

DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

REVISIONS

DESCRIPTION

DATE

REV#

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
HEAVENLY POND STREET
1ST FLOOR
BEL AIR MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018

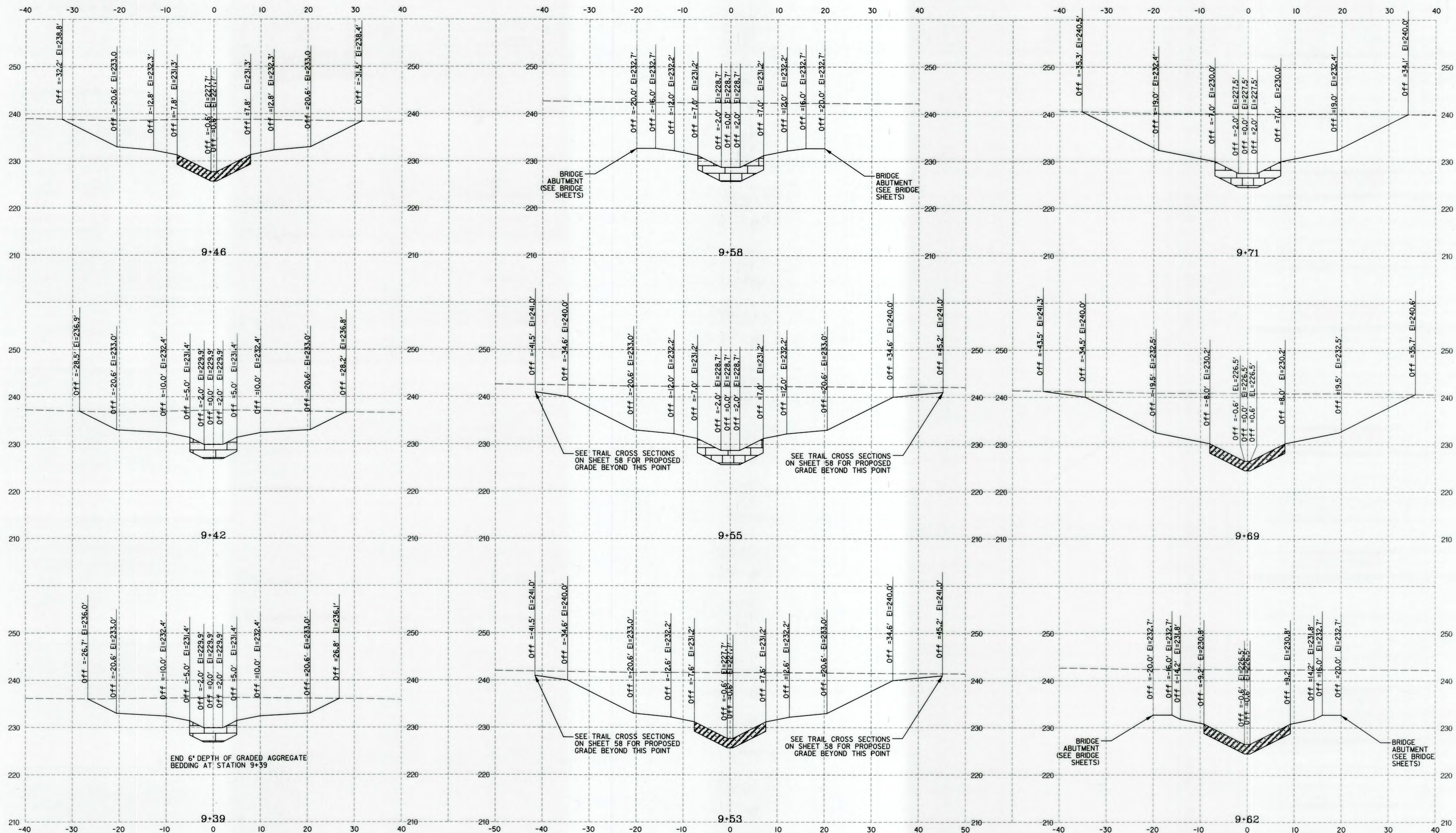


DATE	7/2/20
SCALE	AS INDICATED
DESIGNED BY	MRM
DRAWN BY	MT
SHEET	49 OF 58
MT JOB NUMBER	5786-01

201246

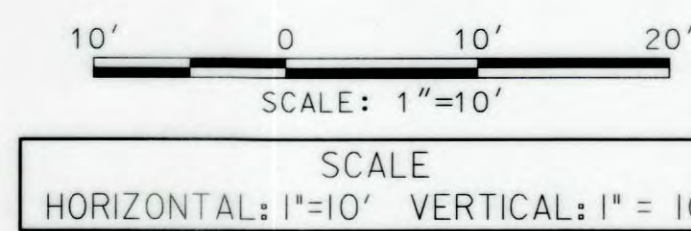
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

**McCormick
Taylor**



LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- OUTFALL POOL
- CASCADE
- STEP-POOL CREST
- POOL PAVEMENT
- TOE BOULDER PROTECTION
- CHANNEL BED MATERIAL
- WOOD RIFFLE STABILIZATION
- RIFFLE STABILIZATION
- TRIBUTARY STABILIZATION
- OVERFLOW STABILIZATION
- GRADED AGGREGATE BEDDING



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

REV#	DATE	DESCRIPTION

CROSS SECTIONS

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

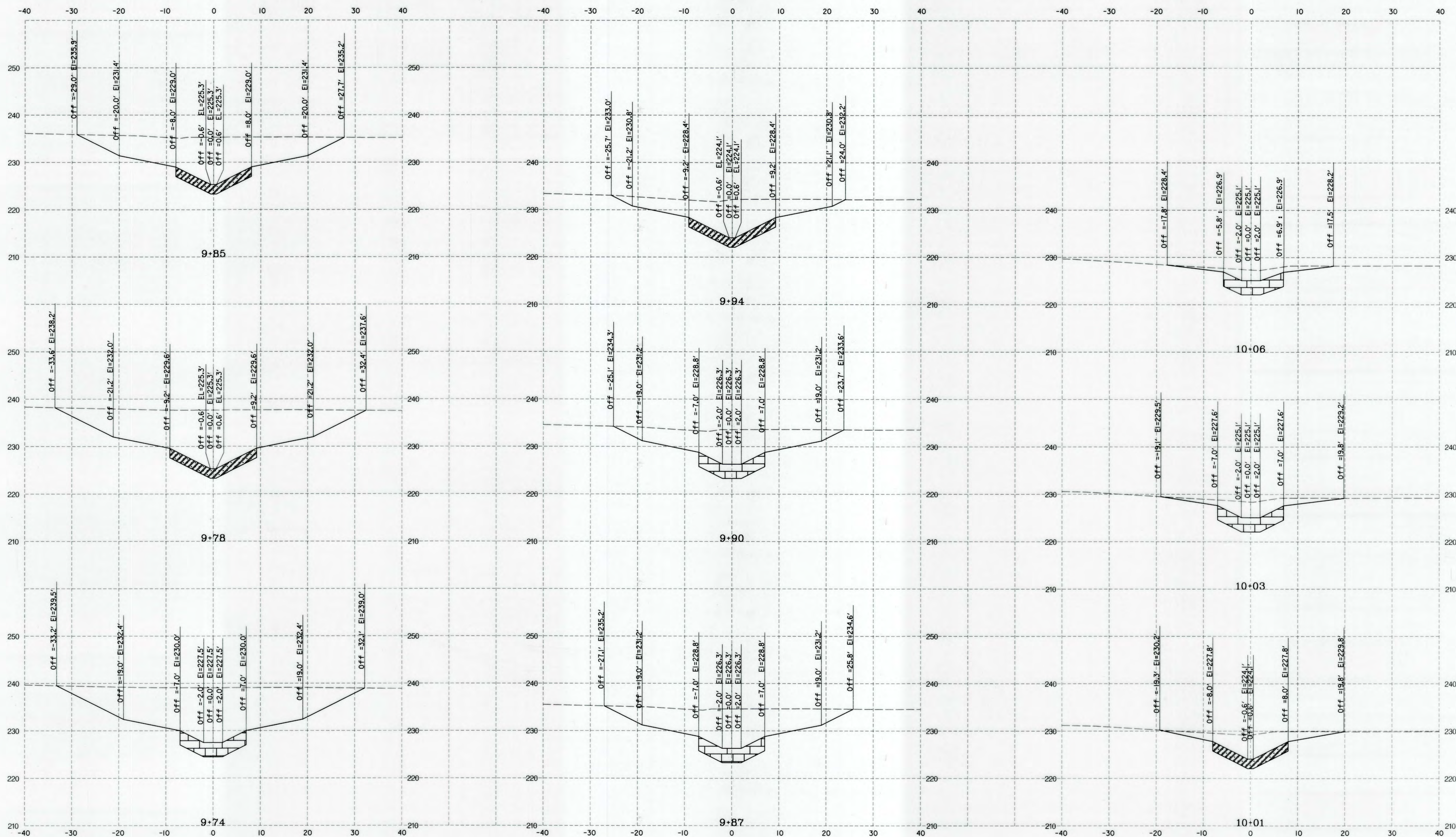


DATE	7/2/20
SCALE	AS INDICATED
DESIGNED BY	MRM
DRAWN BY	MT
SHEET	50 OF 58
MT JOB NUMBER	5786-01

2012.47

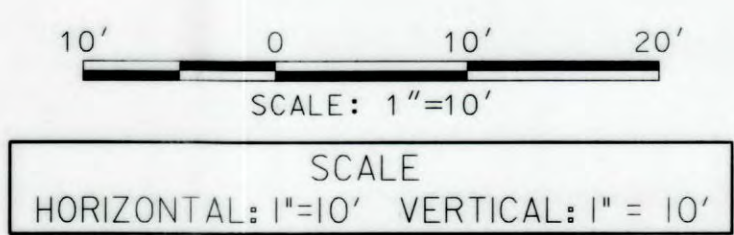
508 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

**MCCORMICK
TAYLOR**



LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- OUTFALL POOL
- CASCADE
- STEP-POOL CREST
- POOL PAVEMENT
- TOE BOULDER PROTECTION
- CHANNEL BED MATERIAL
- WOOD RIFFLE STABILIZATION
- RIFFLE STABILIZATION
- TRIBUTARY STABILIZATION
- OVERFLOW STABILIZATION
- GRADED AGGREGATE BEDDING



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

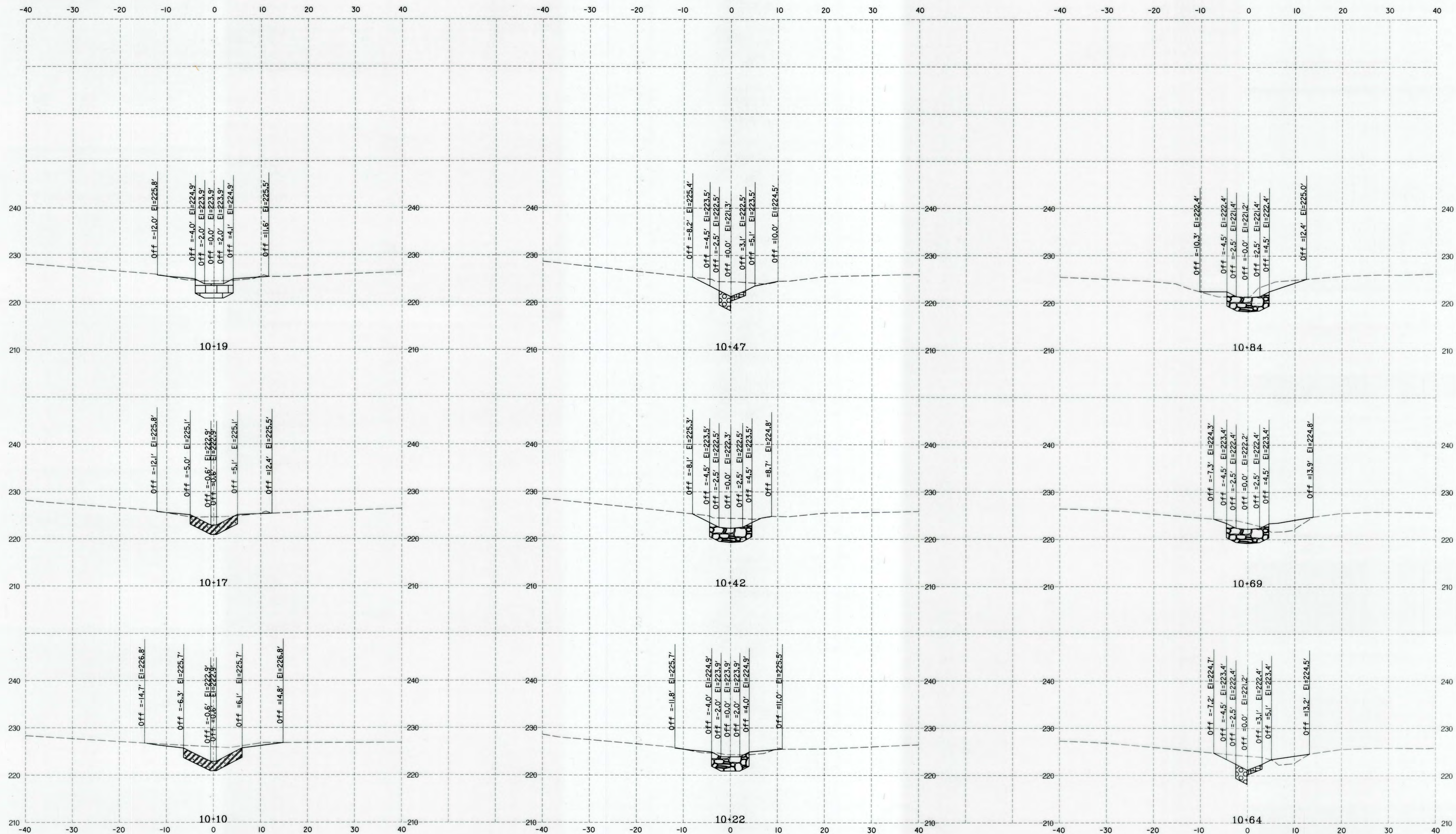
REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
152 FLOPPY BOND STREET
BEL AIR, MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018

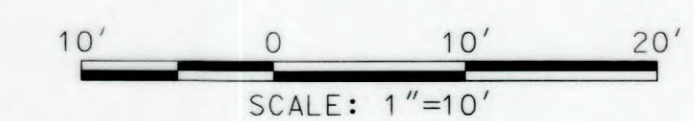


DATE 7/2/20	DRAWING NO. 201248
SCALE AS INDICATED	SHEET 51 OF 58
DESIGNED BY MRM	DRAWN BY MT JOB NUMBER 5786-01



LEGEND

- | | | |
|-----------------------|------------------------|---------------------------|
| ----- EXISTING GROUND | STEP-POOL CREST | WOOD RIFFLE STABILIZATION |
| ----- PROPOSED GRADE | POOL PAVEMENT | RIFFLE STABILIZATION |
| OUTFALL POOL | TOE BOULDER PROTECTION | TRIBUTARY STABILIZATION |
| CASCADE | CHANNEL BED MATERIAL | OVERFLOW STABILIZATION |
| | | GRADED AGGREGATE BEDDING |



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

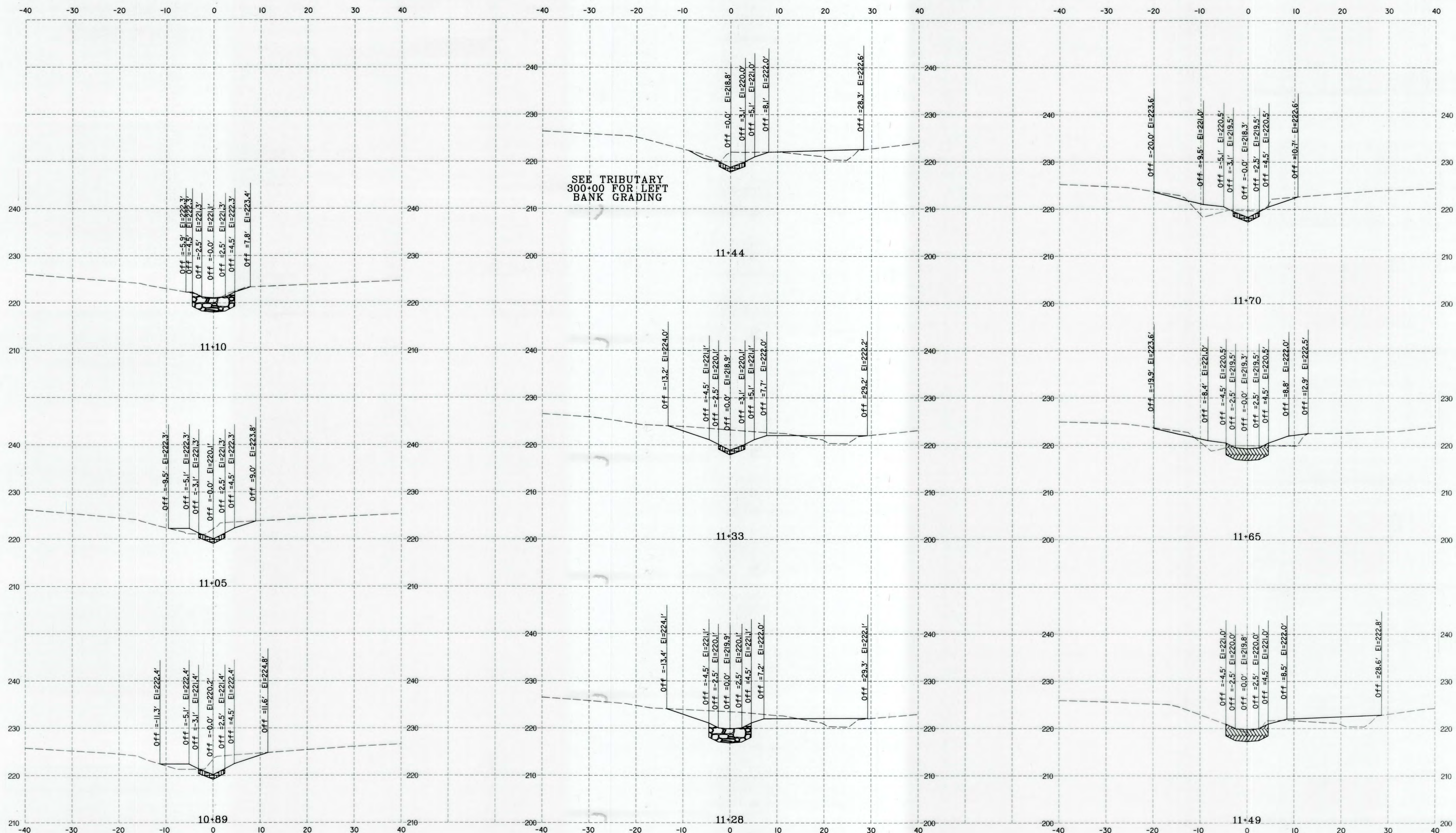
DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

HEAVENLY POND STREAM RESTORATION CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
1ST FLOOR
BEL AIR MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018



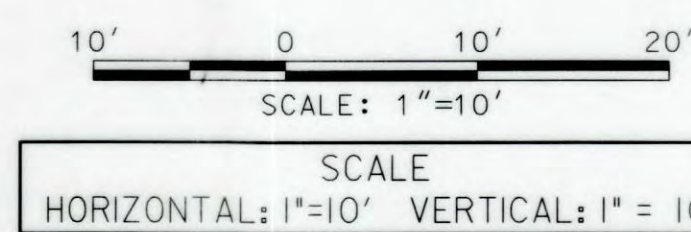
DATE 7/2/20	DRAWING NO. 201249
SCALE AS INDICATED	
DESIGNED BY MRM	SHEET 52 OF 58
DRAWN BY MER	MT JOB NUMBER 5786-01



SEE TRIBUTARY
300+00 FOR LEFT
BANK GRADING

LEGEND

- | | | |
|----------------------------|--------------------------------------|---|
| --- EXISTING GROUND | [Hatched Box] STEP-POOL CREST | [Hatched Box] WOOD RIFFLE STABILIZATION |
| — PROPOSED GRADE | [Hatched Box] POOL PAVEMENT | [Hatched Box] RIFFLE STABILIZATION |
| [Hatched Box] OUTFALL POOL | [Hatched Box] TOE BOULDER PROTECTION | [Hatched Box] TRIBUTARY STABILIZATION |
| [Hatched Box] CASCADE | [Hatched Box] CHANNEL BED MATERIAL | [Hatched Box] OVERFLOW STABILIZATION |
| | | [Hatched Box] GRADED AGGREGATE BEDDING |



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

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

REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BALTIMORE, MARYLAND 21014
TEL 636-327-
4433 FAX 636-327-
59839 SC PLAN #59839
GR PERMIT #15366-2018

DATE
7/2/20

SCALE
AS INDICATED

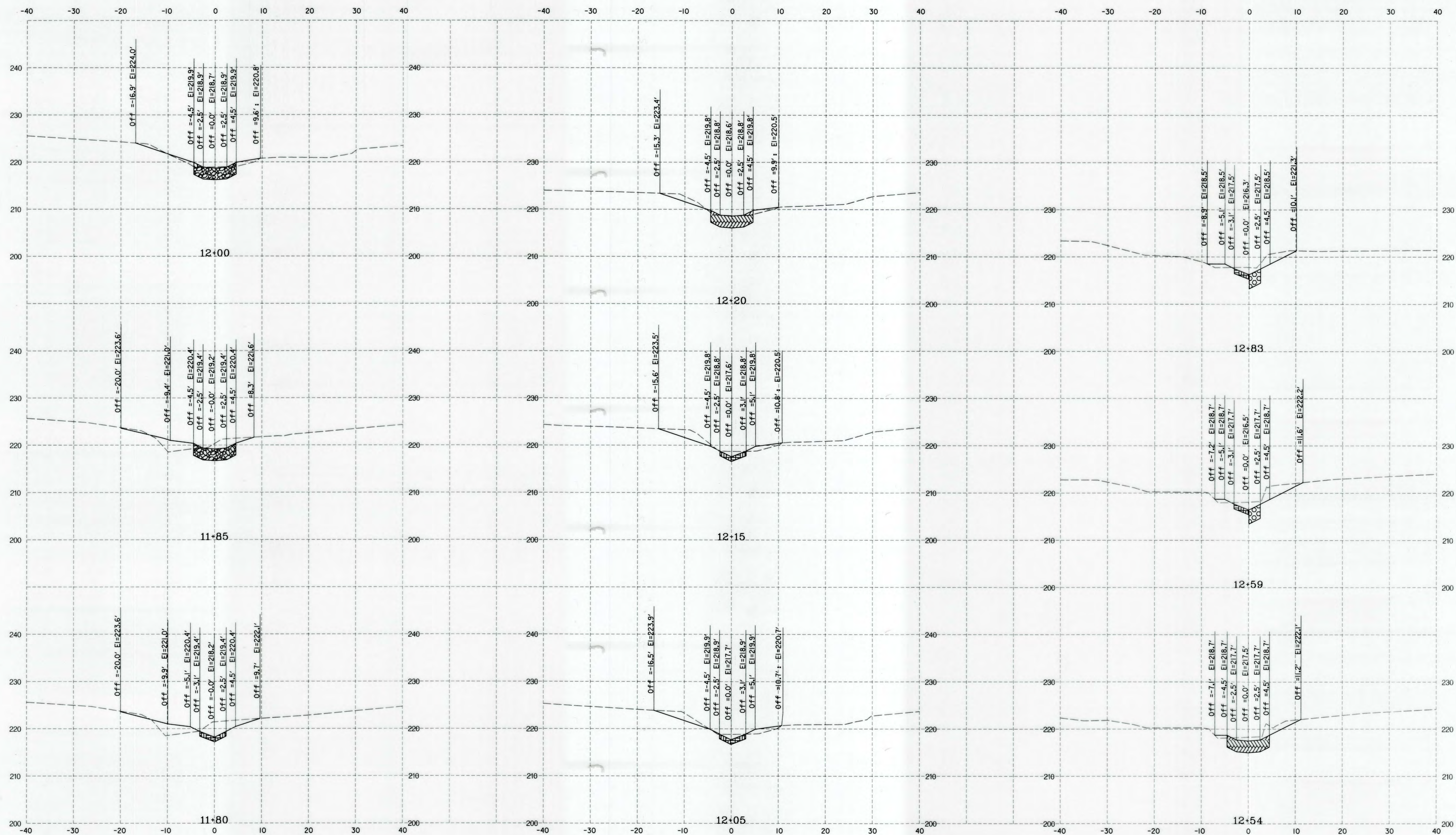
DESIGNED BY
MRW

DRAWN BY
MER

DRAWING NO.
201250

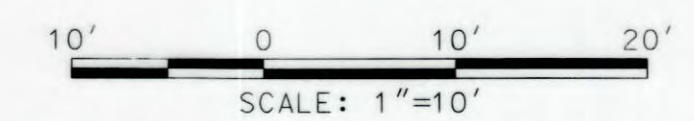
SHEET 53 OF 58

MT JOB NUMBER
5786-01



LEGEND

- | | | |
|---------------------|------------------------|---------------------------|
| --- EXISTING GROUND | STEP-POOL CREST | WOOD RIFFLE STABILIZATION |
| — PROPOSED GRADE | POOL PAVEMENT | RIFFLE STABILIZATION |
| OUTFALL POOL | TOE BOULDER PROTECTION | TRIBUTARY STABILIZATION |
| CASCADE | CHANNEL BED MATERIAL | OVERFLOW STABILIZATION |
| | | GRADED AGGREGATE BEDDING |



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

DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

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



REVISIONS

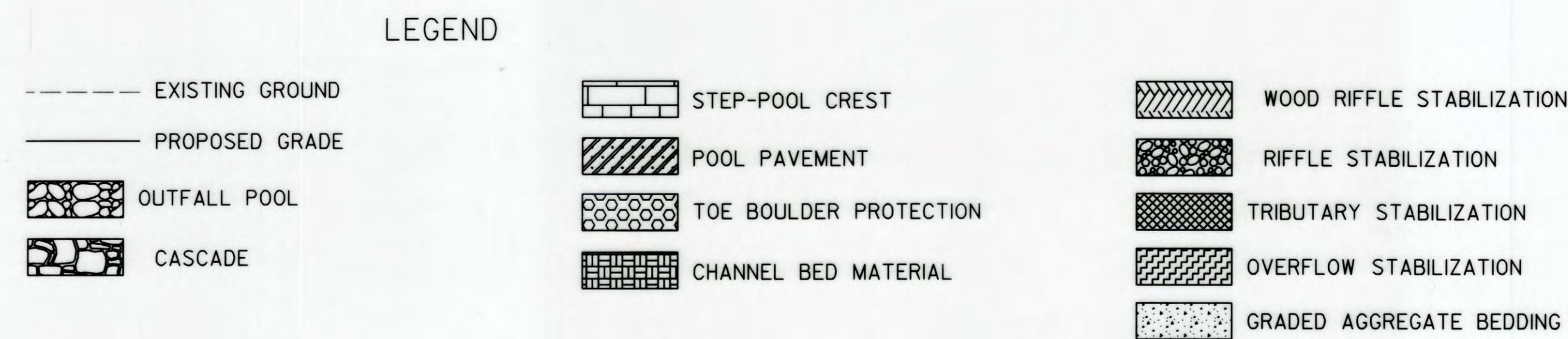
REV#	DATE	DESCRIPTION

HEAVENLY POND STREAM RESTORATION CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BEL AIR MARYLAND 21014
410-638-3217
CADD #59830
OR PERMIT #15366-2018

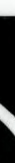


DATE 7/2/20	DRAWING NO. 201251
SCALE AS INDICATED	
DESIGNED BY MRM	SHEET 54 OF 58
DRAWN BY MER	MT JOB NUMBER 5786-01

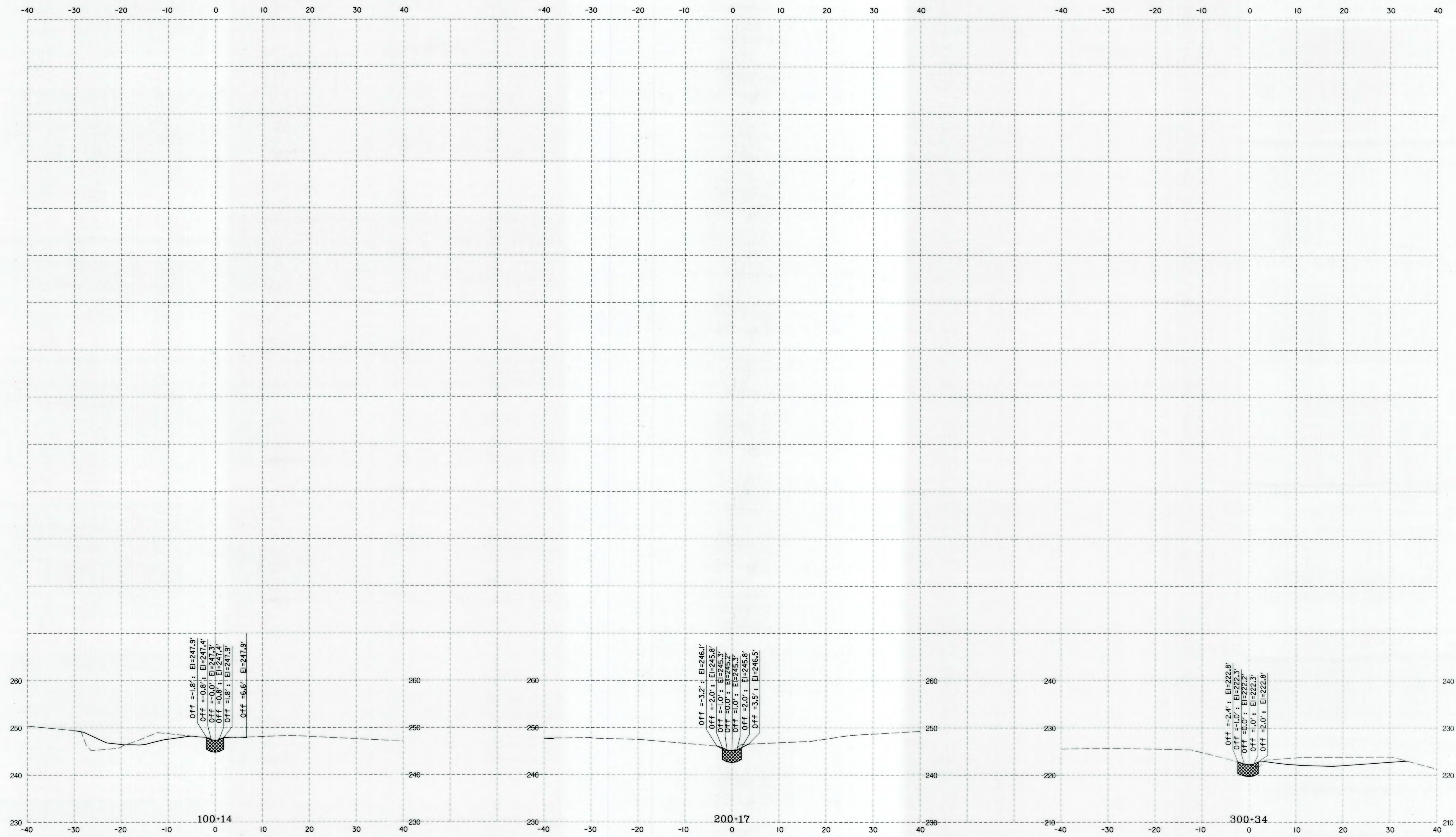


DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

DATE 7/2/20	DRAWING NO.
SCALE AS INDICATED	201251
DESIGNED BY MRM	
DRAWN BY MER	SHEET 55 OF 58 MT JOB NUMBER 5786-01

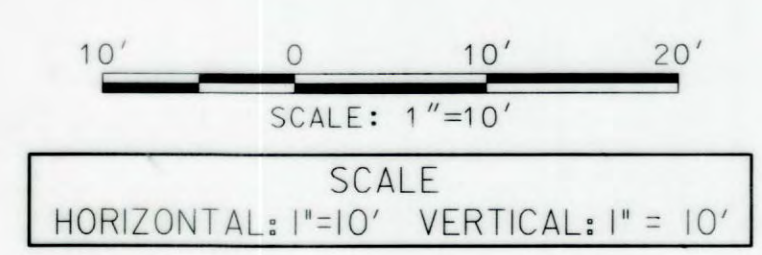


**McCORMICK
TAYLOR**



LEGEND

- | | | |
|------------------------|----------------------------------|-------------------------------------|
| --- EXISTING GROUND | [Pattern] STEP-POOL CREST | [Pattern] WOOD RIFFLE STABILIZATION |
| — PROPOSED GRADE | [Pattern] POOL PAVEMENT | [Pattern] RIFFLE STABILIZATION |
| [Pattern] OUTFALL POOL | [Pattern] TOE BOULDER PROTECTION | [Pattern] TRIBUTARY STABILIZATION |
| [Pattern] CASCADE | [Pattern] CHANNEL BED MATERIAL | [Pattern] OVERFLOW STABILIZATION |
| | | [Pattern] GRADED AGGREGATE BEDDING |



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

REV#	DATE	DESCRIPTION

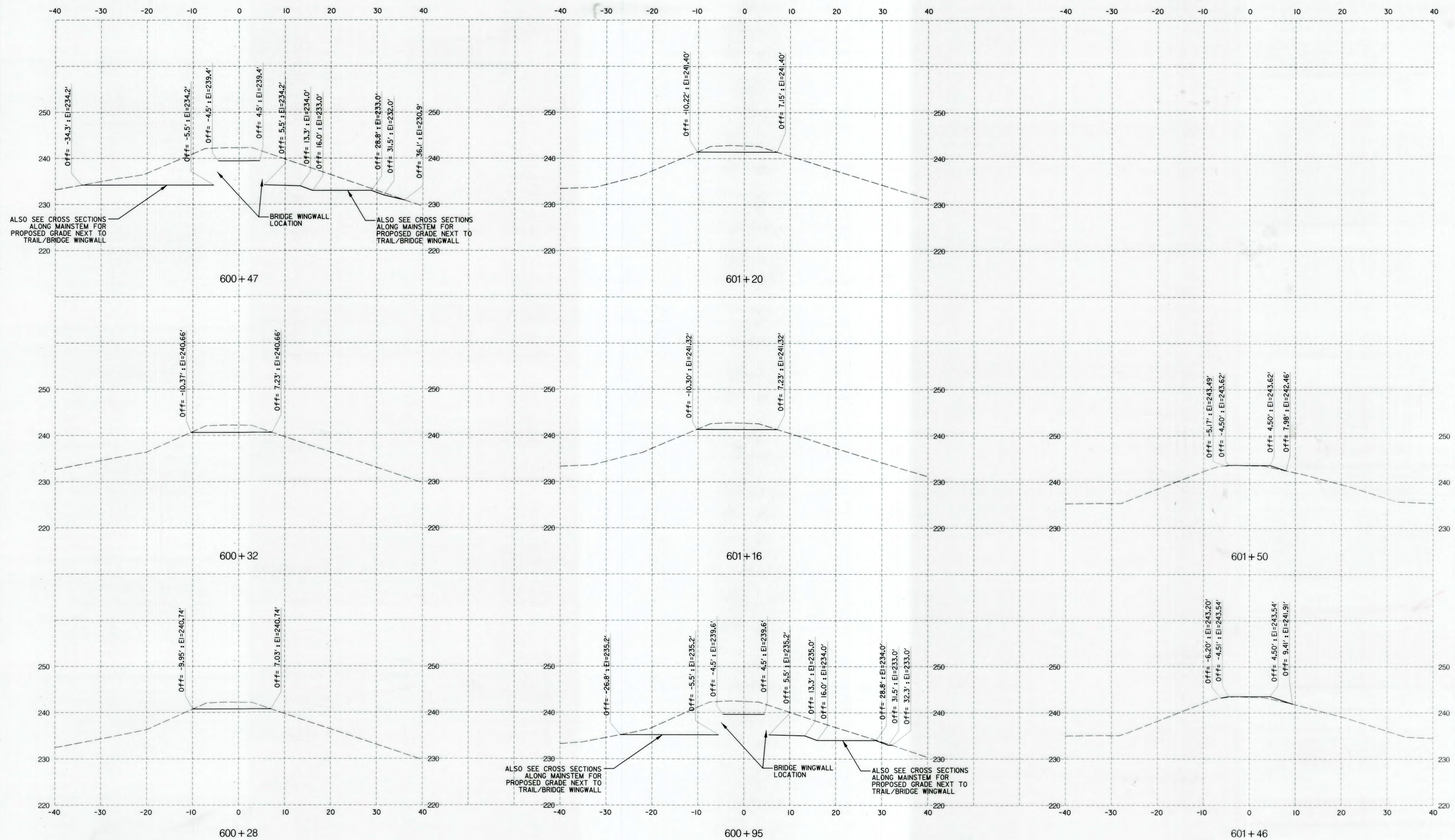
HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
212 SOUTH BOND STREET
1ST FLOOR
BAL AIR MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018



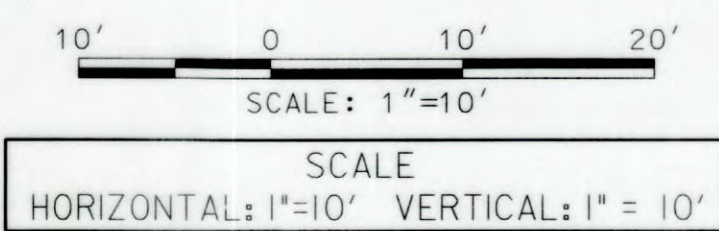
DATE 7/2/20	DRAWING NO. 201253
SCALE AS INDICATED	SHEET 56 OF 58
DESIGNED BY MRM	MT JOB NUMBER 5786-01
DRAWN BY MER	

DATE 7/2/20	DRAWING NO.
SCALE	201254
AS INDICATED	
DESIGNED BY MRM	
DRAWN BY MER	SHEET 57 OF 58 MT JOB NUMBER 5786-01



LEGEND

- | | | |
|---------------------|------------------------|---------------------------|
| --- EXISTING GROUND | STEP-POOL CREST | WOOD RIFFLE STABILIZATION |
| — PROPOSED GRADE | POOL PAVEMENT | RIFFLE STABILIZATION |
| OUTFALL POOL | TOE BOULDER PROTECTION | TRIBUTARY STABILIZATION |
| CASCADE | CHANNEL BED MATERIAL | OVERFLOW STABILIZATION |
| | | GRADED AGGREGATE BEDDING |



DESIGN AND DRAWING BASED UPON THE MARYLAND COORDINATE SYSTEM
HORIZONTAL = NAD 83/91
VERTICAL = NAVD 88

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

**MCCORMICK
TAYLOR**

REV#	DATE	DESCRIPTION

HEAVENLY POND
STREAM RESTORATION
CROSS SECTIONS

HARFORD COUNTY
DEPARTMENT OF
PUBLIC WORKS
WATER RESOURCES ENGINEERING
202 SOUTH BOND STREET
BALTIMORE, MARYLAND 21014
410-638-3217
SC PLAN #59839
GR PERMIT #15366-2018



DATE	DRAWING NO.
7/2/20	201255
SCALE	AS INDICATED
DESIGNED BY	MRM
DRAWN BY	MT
	SHEET 58 OF 58
	5786-01