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GENERAL NOTES

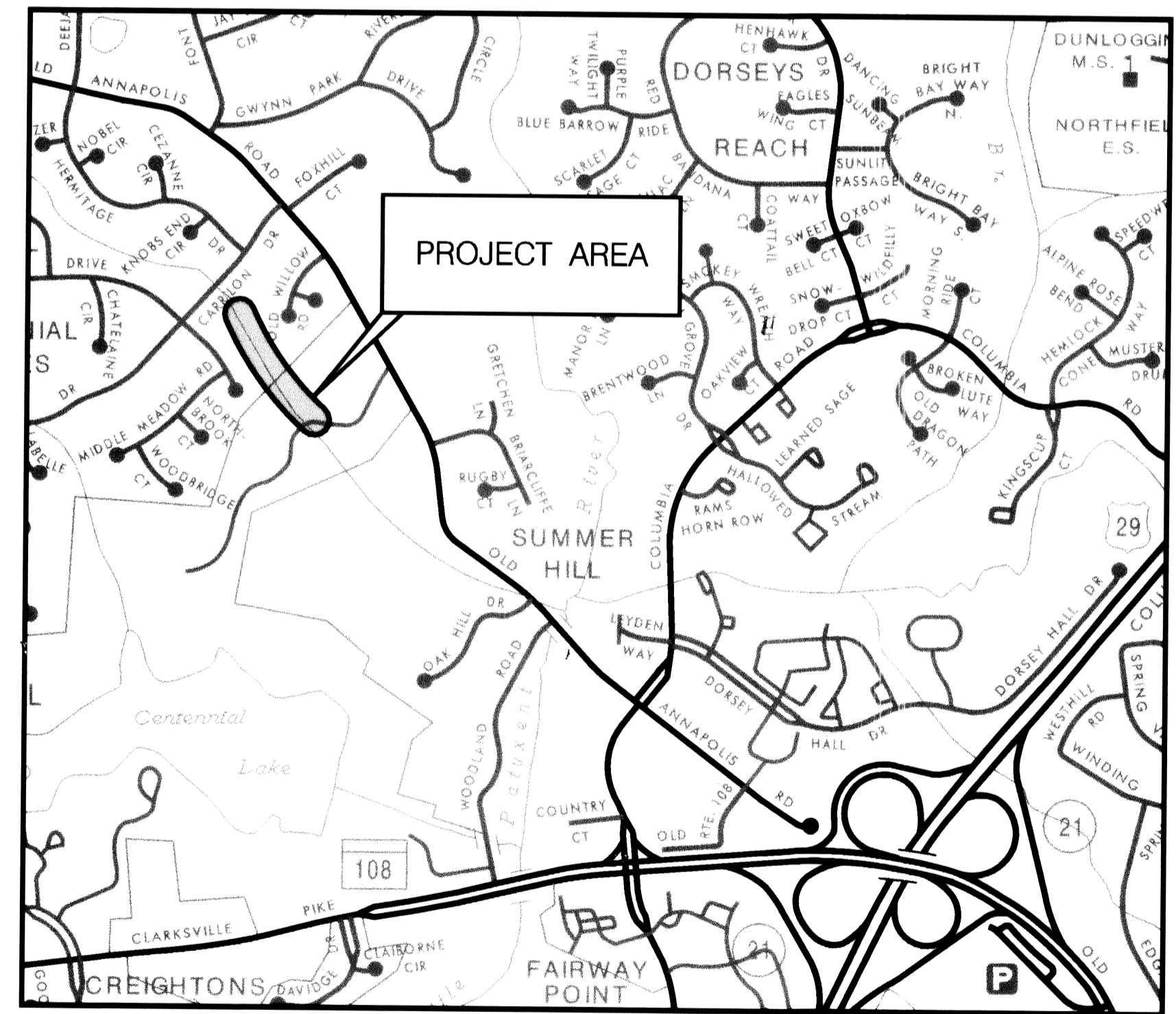
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE.
- THIS PLAN IS PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS /BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- SURVEY OF THIS SITE WAS PERFORMED BY AB CONSULTANTS, INC-NOVEMBER 2009
- THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. BENCHMARKS SHOWN HEREON WERE PROVIDED BY AB CONSULTANTS INC.
- STORMWATER MANAGEMENT IS NOT REQUIRED FOR THIS PROJECT SINCE THE PROJECT WILL NOT ADD IMPERVIOUS AREA.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND MCCORMICK TAYLOR DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION.
- THE EXISTING INFORMATION SHOWN ON THESE PLANS WAS TAKEN FROM THE BEST AVAILABLE SOURCES AND SHALL BE VERIFIED BEFORE STARTING CONSTRUCTION. THE HOWARD COUNTY DOES NOT GUARANTEE THE COMPLETENESS OR THE CORRECTNESS OF THE SHOWN INFORMATION.
- THE CONTRACTORS SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY. ALL UTILITIES SHALL HAVE A CLEARANCE BY A MINIMUM OF 6 INCHES VERTICALLY AND A MINIMUM OF 5 FEET HORIZONTALLY.
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY MCCORMICK TAYLOR IMMEDIATELY TO RESOLVE THE SITUATION.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- SITE DEVELOPMENT DETAILS ARE REFERENCED FROM THE AS-BUILT PLANS FOR THE WILLOWS, SECTION 1 AREA 1 (F-86-59) AND SECTION 1 AREA 2.
- A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT. (TRACKING NUMBER 201060787)

HOWARD COUNTY

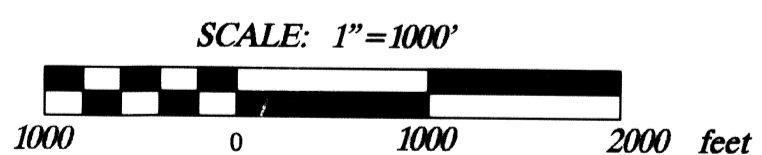
Election District No. 2,
Tax Maps 24 & 30, Lot 22

Old Willow Way Stream Restoration Capital Project D-1158

Storm Water Management Division
Bureau Of Environmental Services



HORIZONTAL DATUM NAD 83 /91
VERTICAL DATUM NAVD 88



PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO. 25819, EXPIRATION DATE: 2/25/2011

DESIGN CERTIFICATION

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

9-13-2010 DATE
Chris Brooks DESIGNER'S SIGNATURE

MARYLAND REGISTRATION NUMBER 25819
CHRIS BROOKS P.E. PRINTED NAME

OWNER'S/DEVELOPER'S CERTIFICATION

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

9/16/10 DATE
Howard E. Saltzman OWNER/DEVELOPER SIGNATURE

Howard E. Saltzman
Chief, Stormwater Management Division
PRINTED NAME AND TITLE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John K. Roberts 9/30/10
HOWARD SOIL CONSERVATION DISTRICT DATE

DEPARTMENT OF RECREATION AND PARKS, HOWARD COUNTY, MD
John R. Byrd 9/20/10
DIRECTOR OF RECREATION AND PARKS DATE

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

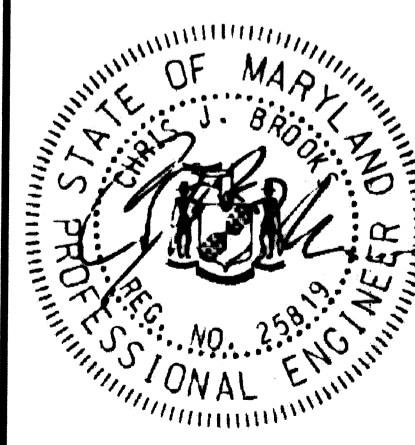
John R. Byrd 9/16/10 DATE
DIRECTOR OF PUBLIC WORKS
Edyssa E. Jomb 9/16/10 DATE
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
Howard E. Saltzman 9/16/10 DATE
CHIEF, STORMWATER MANAGEMENT DIVISION

McCormick Taylor
Engineers & Planners
Since 1946

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

Howard County
MARYLAND

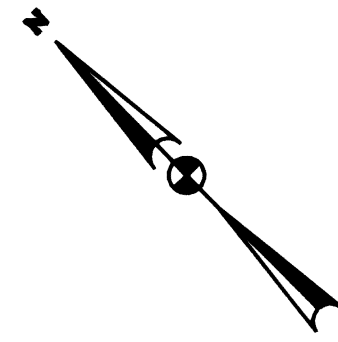
Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
(410) 313-6444



DES: DF	ALH	AS-BUILT	6/14/11
DRN: AH			
CHK: CB			
DATE: 9/9/10	BY	NO.	REVISION

**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
OLD WILLOW WAY STREAM REHABILITATION PROJECT
CAPITAL PROJECT D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAPS 24 & 30; LOT 22
WAIVER PETITION #WP-10-163
TITLE SHEET**

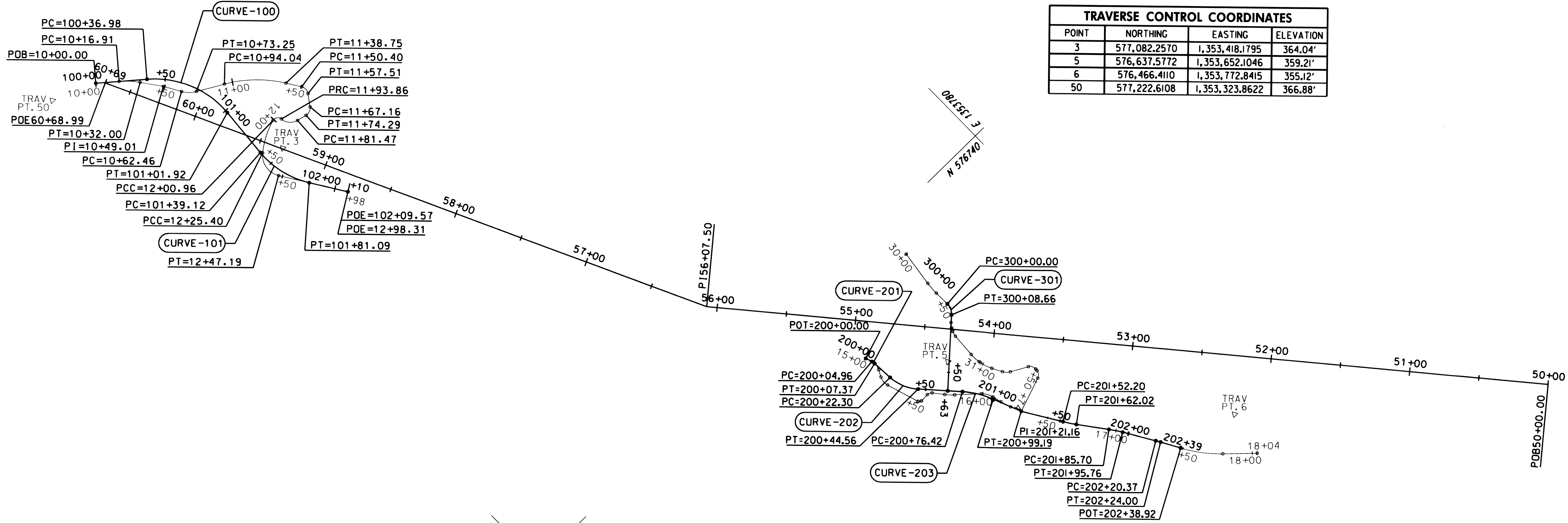
SCALE AS SHOWN
SHEET 1 OF 26



N 571100
E 135720

N 576740
E 135780

N 576740
E 135740



CURVE DATA								
CURVE NO.	Δ	Dc	R	T	L	E	CENTER OF CURVE	
							NORTHING	EASTING
C-100	54°43'12.3709"	84°15'30.6054"	68.00	35.19	64.94	8.57	577,133.6337	1,353,339.6273
C-101	36°59'45.2114"	88°08'50.5055"	65.00	21.75	41.97	3.54	577,085.8551	1,353,469.1950

CURVE DATA								
CURVE NO.	Δ	Dc	R	T	L	E	CENTER OF CURVE	
							NORTHING	EASTING
C-201	13°48'42.2911"	572°57'28.0625"	10.00	1.21	2.41	0.07	576,672.7137	1,353,603.4994
C-202	38°13'00.3662"	171°42'14.0104"	33.37	11.56	22.26	1.95	576,660.8265	1,353,647.8106
C-203	20°04'30.1493"	88°08'50.4116"	65.00	11.51	22.77	1.01	576,571.1451	1,353,596.3696

CURVE DATA								
CURVE NO.	Δ	Dc	R	T	L	E	CENTER OF CURVE	
							NORTHING	EASTING
C-301	49°36'35.7187"	572°57'28.0625"	10.00	4.62	8.66	1.02	576,667.2380	1,353,670.8826

TRAVERSE CONTROL COORDINATES			
POINT	NORTHING	EASTING	ELEVATION
3	577,082.2570	1,353,418.1795	364.04'
5	576,637.5772	1,353,652.1046	359.21'
6	576,466.4110	1,353,772.8415	355.12'
50	577,222.6108	1,353,323.8622	366.88'

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

John P. Robertson *WNA* *9/15/10*

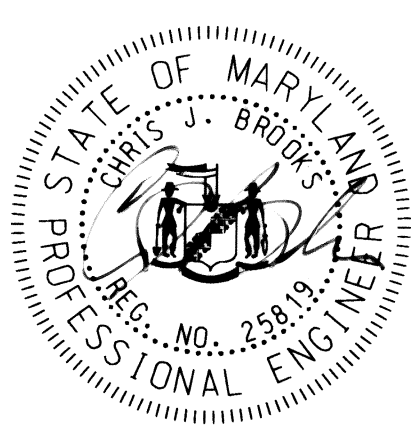
HOWARD SCD DATE

McCormick Taylor
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Since 1946

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(410) 662-7400

Howard County
MARYLAND

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



DES: DF						
DRN: AH						
CHK: DG						
DATE: 9/9/10	BY	NO.	REVISION	DATE		

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
OLD WILLOW WAY STREAM REHABILITATION PROJECT
CAPITAL PROJECT D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAPS 24 & 30; LOT 22
WAIVER PETITION #WP-10-163

GEOMETRY PLAN

SCALE
1" = 40'
SHEET
2 OF 26

BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
UPSTREAM REALIGNMENT	POB=10	577,209.5247	1,353,354.8579	100+00.00	S 50°06'52.6083" E	
	PC=10I	577,185.8121	1,353,383.2326	100+36.98	S 4°36'19.7626" W	
	PI	577,163.2478	1,353,410.2331	100+72.17		
	CC=102	577,133.6337	1,353,339.6273			68.00'
	PT=103	577,128.1737	1,353,407.4077	101+01.92	S 4°37'38.9992" W	
	PC=104	577,091.0991	1,353,404.4069	101+39.12	S 32°22'06.2122" E	
	PI	577,069.4239	1,353,402.6525	101+60.86		
	CC=105	577,085.8551	1,353,469.1950			65.00'
	PT=106	577,051.0566	1,353,414.2945	101+81.09	S 32°22'06.1837" E	
	POE=36	577,026.9978	1,353,429.5441	102+09.57		

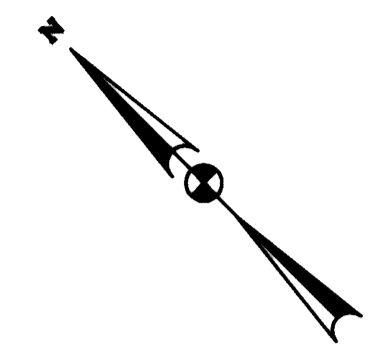
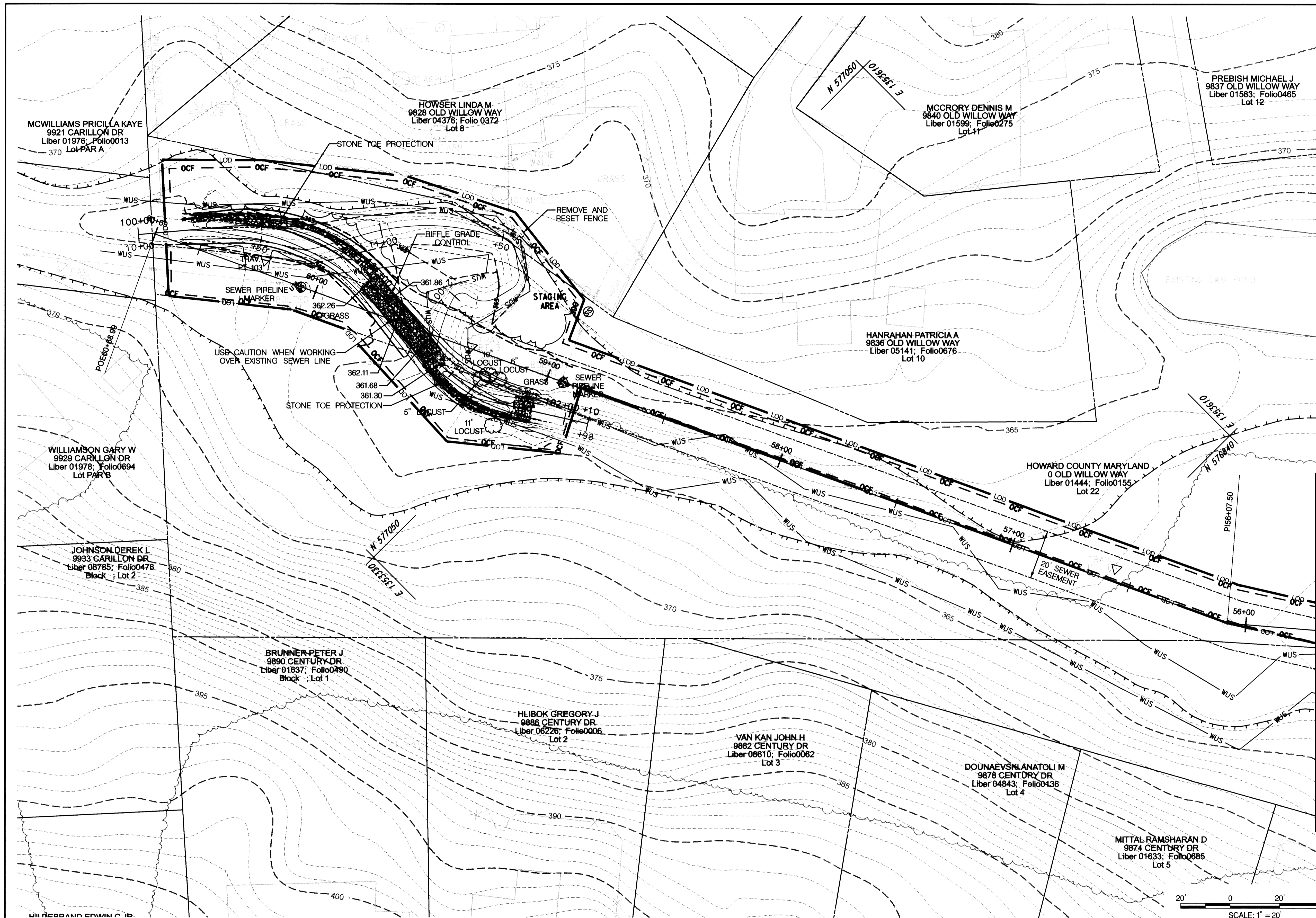
BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
DOWNSTREAM EXISTING	PI	576,619.5227	1,353,636.2729	15+76.10		
	CC=51	576,650.5272	1,353,669.0822			45.00'
	PT=52	576,617.1315	1,353,638.9205	15+79.65	S 47°54'46.2804" E	
	PC=53	576,604.3466	1,353,653.0762	15+98.73	S 14°39'41.8530" E	
	PI	576,601.3446	1,353,656.4002	16+03.20		
	CC=54	576,593.2148	1,353,643.0223			15.00'
	PT=55	576,597.0114	1,353,657.5339	16+07.43	S 14°39'41.8530" E	
	PC=56	576,590.4169	1,353,659.2592	16+14.25	S 22°09'41.2904" E	
	PI	576,586.6125	1,353,660.2545	16+18.18		
	CC=57	576,605.6035	1,353,717.3054			60.00'
	PT=58	576,582.9705	1,353,661.7379	16+22.10	S 22°09'41.2904" E	
	PI=59	576,575.3194	1,353,664.8543	16+30.36	S 31°14'55.4028" E	
	PC=60	576,548.7783	1,353,680.9590	16+61.41	S 36°52'13.3066" E	
	PI	576,544.5908	1,353,683.5060	16+66.32		
	CC=61	576,600.6537	1,353,766.4514			100.00'
	PT=62	576,540.6531	1,353,686.4518	16+71.22	S 36°52'13.3066" E	
	PC=63	576,521.7098	1,353,700.6596	16+94.90	S 31°06'08.0572" E	
	PI	576,517.6795	1,353,703.6823	16+99.94		
	CC=64	576,461.7091	1,353,620.6600			100.00'
	PT=65	576,513.3658	1,353,706.2847	17+04.96	S 31°06'08.0572" E	
	PC=66	576,492.2958	1,353,718.9961	17+29.57	S 29°01'29.4520" E	
	PI	576,490.7433	1,353,719.9327	17+31.39		
	CC=67	576,440.6391	1,353,633.3714			100.00'
	PT=68	576,489.1580	1,353,720.8124	17+33.20	S 29°01'29.4520" E	
	PC=69	576,476.1079	1,353,728.0535	17+48.12		
	PI	576,462.5649	1,353,735.5682	17+63.61		
	CC=70	576,524.6268	1,353,815.4944			100.00'
	PT=71	576,451.9297	1,353,746.8277	17+78.85	S 46°37'59.1656" E	
POE=72	576,434.9508	1,353,764.8031	18+03.58			

BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
EXISTING TRIBUTARY	PI	576,654.8331	1,353,671.9225	30+62.90		
	CC=81	576,648.5840	1,353,679.9585			10.00'
	PT=82	576,653.1370	1,353,671.0551	30+64.76	S 27°05'03.3861" W	
	PC=83	576,650.6328	1,353,669.7746	30+67.57	S 3°27'31.4076" W	
	PI	576,648.7707	1,353,668.8223	30+69.67		
	CC=84	576,646.0798	1,353,678.6780			10.00'
	PT=85	576,646.6831	1,353,668.6962	30+71.70	S 3°27'31.4076" W	
	PC=86	576,629.4981	1,353,667.6575	30+88.91	S 11°06'46.9460" E	
	PI	576,625.6695	1,353,667.4261	30+92.75		
	CC=87	576,627.6883	1,353,697.6029			30.00'
	PT=88	576,621.9059	1,353,668.1654	30+96.54	S 11°06'46.9460" E	
	PC=89	576,620.5906	1,353,668.4238	30+97.88	S 28°06'33.8983" E	
	PI	576,616.1921	1,353,669.2878	31+02.37		
	CC=90	576,626.3730	1,353,697.8612			30.00'
	PT=91	576,612.2383	1,353,671.3997	31+06.78	S 28°06'33.8983" E	
	PC=92	576,605.2103	1,353,675.1538	31+14.75	S 61°27'29.2420" E	
	PI	576,602.5684	1,353,676.5651	31+17.75		
	CC=93	576,609.9219	1,353,683.9743			10.00'
	PT=94	576,601.1372	1,353,679.1963	31+20.57	S 61°27'29.2420" E	
	PC=95	576,594.7123	1,353,691.0089	31+34.02	S 5°28'08.7419" W	
	PI	576,593.1332	1,353,693.9121	31+37.32		
	CC=96	576,590.3200	1,353,688.6199			5.00'
	PT=97	576,589.8434	1,353,693.5971	31+39.86	S 5°28'08.7419" W	
	PC=98	576,588.3694	1,353,693.4560	31+41.34	S 70°47'22.2762" W	
PI	576,585.1790	1,353,693.1505	31+44.54			
CC=99	576,588.8460	1,353,688.4788			5.00'	
PT=100	576,584.1244	1,353,690.1240	31+47.04	S 70°47'22.2762" W		
POE=59	576,575.3194	1,353,664.8543	31+73.80			

BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
UPSTREAM EXISTING	POB=10	577,209.5247	1,353,354.8579	10+00.00	S 50°06'52.6083" E	
	PC=11	577,198.6838	1,353,367.8302	10+16.91	S 35°42'06.9364" E	
	PI	577,193.8189	1,353,373.6515	10+24.49		
	CC=12	577,152.6441	1,353,329.3549			60.00'
	PT=13	577,187.6582	1,353,378.0788	10+32.00	S 35°42'06.9364" E	
	PII4	577,173.8424	1,353,388.0071	10+49.01	S 29°46'04.3920" E	
	PC=15	577,162.1723	1,353,394.6820	10+62.46		
	PI	577,157.3720	1,353,397.4276	10+67.99		
	CC=16	577,172.1020	1,353,412.0429			20.00'
	PT=17	577,154.6640	1,353,402.2492	10+73.25	S 60°40'48.5979" E	
	PC=18	577,144.4822	1,353,420.3783	10+94.04	S 32°12'55.4513" E	
	PI	577,133.3039	1,353,440.2817	11+16.87		
	CC=19	577,066.0112	1,353,376.3067			90.00'
	PT=20	577,113.9906	1,353,452.4512	11+38.75	S 32°12'55.4513" E	
	PC=21	577,104.1382	1,353,458.6592	11+50.40	S 35°41'30.9788" W	
	PI	577,100.7202	1,353,460.8130	11+54.44		
	CC=22	577,100.9396	1,353,453.5829			6.00'
	PT=23	577,097.4390	1,353,458.4559	11+57.51	S 35°41'30.9788" W	
	PC=24	577,089.6008	1,353,452.8253	11+67.16	N 76°13'51.2320" W	
	PI	577,086.3091	1,353,450.4607	11+71.21		
	CC=25	577,093.1014	1,353,447.9523			6.00'
	PT=26	577,087.2738	1,353,446.5242	11+74.29	N 76°13'51.2320" W	
	PC=27	577,088.9831	1,353,439.5489	11+81.47	N 5°13'54.7670" W	
	PI	577,090.6808	1,353,432.6211	11+88.60		
	CC=28	577,098.6957	1,353,441.9290			10.00'
	PRC=29	577,097.7839	1,353,431.9706	11+93.86	S 73°05'51.9897" W	
	PI	577,102.6740	1,353,431.5229	11+98.77		
	CC=30	577,097.4191	1,353,427.9873			4.00'
	PCC=31	577,101.2463	1,353,426.8243	12+00.96	S 50°52'07.6833" W	
	PI	577,097.6479	1,353,414.9823	12+13.34		
	CC=32	577,040.9678	1,353,445.1409			63.00'
	PCC=33	577,089.8371	1,353,405.3817	12+25.40	S 32°22'06.2122" E	
PI	577,081.4268	1,353,395.0445	12+38.73			
CC=34	577,078.2015	1,353,414.8482			15.00'	
PT=35	577,070.1711	1,353,402.1789	12+47.19	S 32°22'06.2122" E		
POE=36	577,026.9978	1,353,429.5441	12+98.31			

BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
DOWNSTREAM REALIGNMENT	POB=107	576,680.5011	1,353,611.4977	200+00.00	S 17°50'45.6440" E	
	PC=38	576,675.7759	1,353,613.0190	200+04.96	S 4°01'11.0734" E	
	PI	576,674.6229	1,353,613.3899	200+06.18		
	CC=39	576,672.7137	1,353,603.4994			10.00'
	PT=108	576,673.4147	1,353,613.4748	200+07.37	S 4°01'11.0734" E	
	PC=109	576,658.5231	1,353,614.5213	200+22.30	S 42°10'29.8978" E	
	PI	576,646.9902	1,353,615.3193	200+33.86		
	CC=110	576,660.8265	1,353,647.8106			33.37'
	PT=111	576,638.4227	1,353,623.0809	200+44.56	S 42°11'41.4396" E	
	PC=112	576,614.8376	1,353,644.4940	200+76.42	S 22°09'41.2904" E	
	PI	576,606.3195	1,353,652.2277	200+87.92		
	CC=113	576,571.1451	1,353,596.3696			65.00'
	PT=114	576,595.6643	1,353,656.5677	200+99.19	S 22°09'41.2904" E	
	PI=59	576,575.3194	1,353,664.8543	201+21.16	S 31°14'47.5223" E	
	PC=115	576,548.7790	1,353,680.9572	201+52.20	S 36°52'13.3066" E	
	PI	576,544.5798	1,353,683.5050	201+57.11		
	CC=120	576,600.6512	1,353,766.4515			100.00'
	PT=121	576,540.6505	1,353,686.4520	201+62.02	S 36°52'13.3066" E	
	PC=122	576,521.7070	1,353,700.6599	201+85.70	S 31°06'17.0586" E	
	PI	576,517.6785	1,353,703.6813	201+90.73		
	CC=123	576,461.7064	1,353,620.6603			100.00'
	PT=124	576,513.3668	1,353,706.2828	201+95.76	S 31°06'17.0586" E	
	PC=125	576,492.2976	1,353,718.9949	202+20.37	S 29°01'29.4520" E	
	PI	576,490.7433	1,353,719.9327	202+22.18		
	CC=126	576,440.6372	1,353,633.3725			100.00'
	PT=127	576,489.1561	1,353,720.8134	202+24.00	S 29°01'29.4518" E	
	POE=69	576,476.1079	1,353,728.0535	202+38.92		

BASELINE CONTROL COORDINATES						
CONSTRUCTION	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
TRIBUTARY REALIGNMENT	PC=77	576,667.4044	1,353,680.8812	300+00.00	S 48°39'22.4844" W	
	PI	576,662.7834	1,353,680.9582	300+04.62		
	CC=78	576,667.2380	1,353,670.8826			10.00'
	PT=79	576,659.7304	1,353,677			



NOTE:
 4' SPLIT RAIL FENCE SHALL BE REMOVED WITHIN PROJECT AREA AND TEMPORARILY RESET WITH THE WIRE MESH 2' OUTSIDE THE LOD. THE RESET FENCE SHALL PROVIDE AN ENCLOSED AREA FOR THE HOWSER PROPERTY AT 9828 OLD WILLOW WAY. UPON COMPLETION OF THE PROJECT, THE FENCE WITH THE WIRE MESH SHALL BE RESET IN THE ORIGINAL LOCATION NOTED ON THE PLANS. ANY POSTS NOT IN SALVAGABLE CONDITION WILL BE REPLACED.

CONSTRUCTION MATERIALS - PHASE 1	
MATERIAL	S.Y.
NATURAL FIBER MATTING	296
GEOTEXTILE	96

CONSTRUCTION MATERIALS - PHASE 1	
MATERIAL	C.Y.
12" TO 24" ROCK	29
RIFFLE GRADE CONTROL MIX	43
NATURAL CHANNEL BED MATERIAL	20
TOPSOIL	26

REMOVE AND RESET 4' HIGH SPLIT RAIL FENCE		
FROM	TO	QTY (LF)
STA. 59+10	STA. 59+38	45

ORANGE CONSTRUCTION FENCE (OCF)			
PHASE	FROM	TO	QTY (LF)
1	STA. 50+00	STA. 60+69	2367
2	STA. 50+00	STA. 55+05	1150

TRAVERSE CONTROL COORDINATES			
POINT	NORTHING	EASTING	ELEVATION
3	577,082.2570	1,353,418.1795	364.04'
4	576,834.4594	1,353,539.4492	361.79'
50	577,222.6108	1,353,323.8622	366.88'

LEGEND

- PROPOSED MAJOR CONTOUR
- - - PROPOSED MINOR CONTOUR
- - - EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- WUS — WATERS OF THE US
- - - 100 YEAR FLOOD PLAIN
- - - EXISTING 8" SANITARY SEWER
- LOD — LIMIT OF DISTURBANCE
- OCF — ORANGE CONSTRUCTION FENCE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING TREE
- ROCK TOE PROTECTION
- ▒ RIFFLE GRADE CONTROL
- ▒ OUTFALL SLOPE STABILIZATION
- ▒ STEP-POOL POOL
- ▒ STEP-POOL CREST

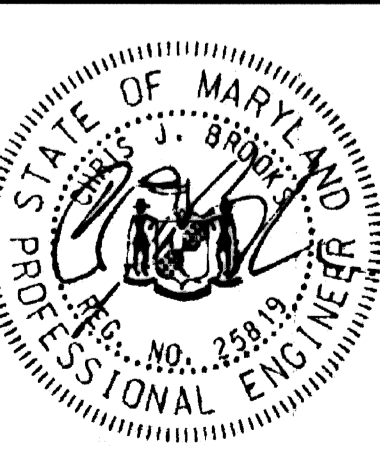
MATCHLINE SEE SHEET 5 OF 26



REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
 THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
 [Signature] 9/13/10
 HOWARD SCD DATE

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

Howard County
 MARYLAND
 Storm Water Management Division
 Bureau of Environmental Services
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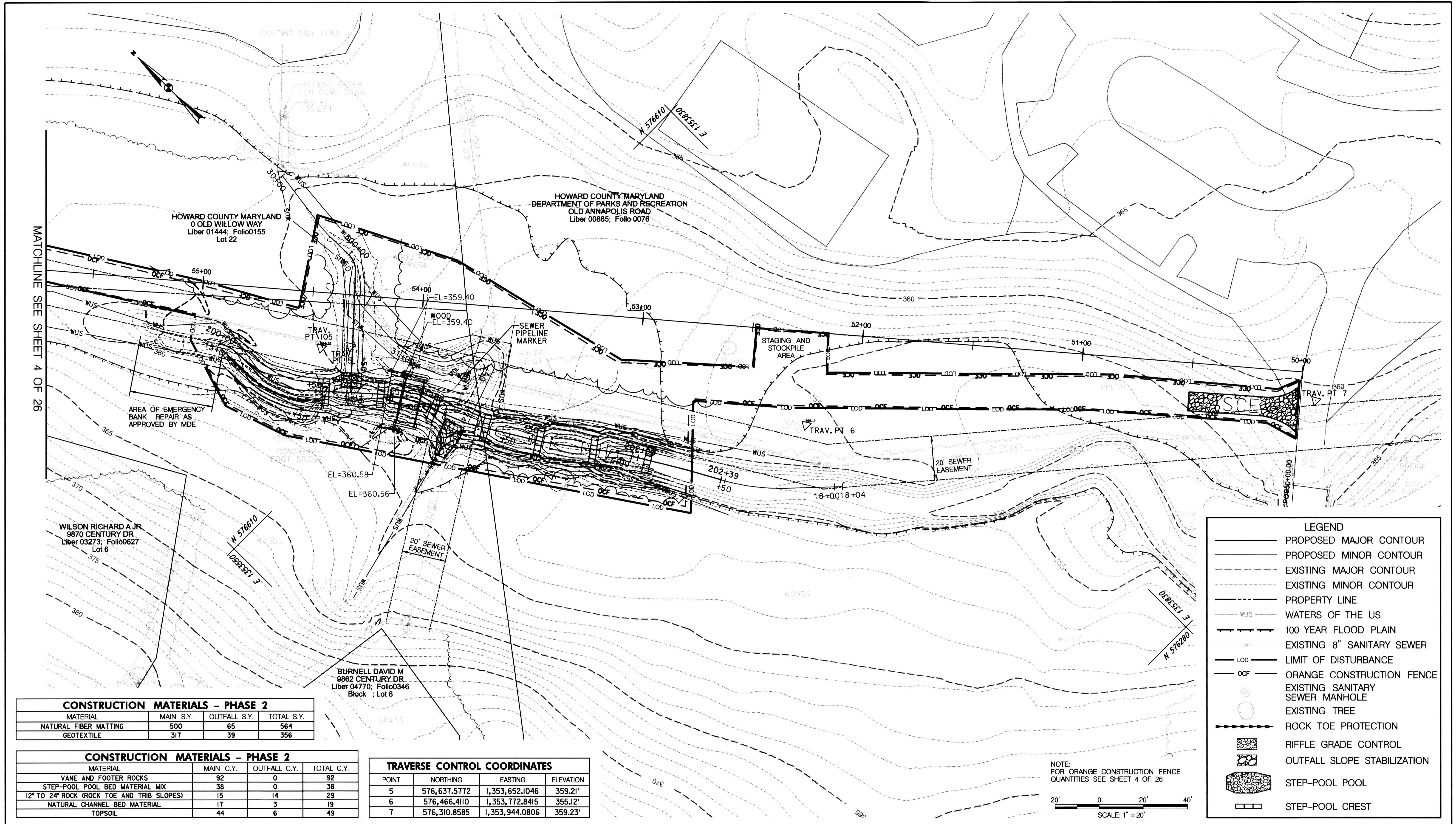


DES: DF	ALH	AS-BUILT	6/14/11
DRN: AH			
CHK: DG			
DATE: 9/9/10	BY	NO.	REVISION

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION OLD WILLOW WAY STREAM REHABILITATION PROJECT CAPITAL PROJECT D-1158 ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND TAX MAPS 24 & 30; LOT 22 WAIVER PETITION #WP-10-163

SITE PLAN

SCALE
 1" = 20'
 SHEET
 4 OF 26



LEGEND

- PROPOSED MAJOR CONTOUR
- - - PROPOSED MINOR CONTOUR
- - - EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- WUS WATERS OF THE US
- 100 YEAR FLOOD PLAIN
- EXISTING 8" SANITARY SEWER
- LOD LIMIT OF DISTURBANCE
- OCF ORANGE CONSTRUCTION FENCE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING TREE
- ROCK TOE PROTECTION
- ▨ RIFFLE GRADE CONTROL
- ▨ OUTFALL SLOPE STABILIZATION
- ▨ STEP-POOL POOL
- ▨ STEP-POOL CREST

CONSTRUCTION MATERIALS - PHASE 2

MATERIAL	MAIN S.Y.	OUTFALL S.Y.	TOTAL S.Y.
NATURAL FIBER MATTING	500	65	564
GEOTEXTILE	317	39	356

CONSTRUCTION MATERIALS - PHASE 2

MATERIAL	MAIN C.Y.	OUTFALL C.Y.	TOTAL C.Y.
VANE AND FOOTER ROCKS	92	0	92
STEP-POOL POOL BED MATERIAL MIX	38	0	38
12" TO 24" ROCK (ROCK TOE AND TRIB SLOPES)	15	14	29
NATURAL CHANNEL BED MATERIAL	17	3	19
TOPSOIL	44	6	49

TRAVERSE CONTROL COORDINATES

POINT	NORTHING	EASTING	ELEVATION
5	576,637.5772	1,353,652.1046	359.21'
6	576,466.4110	1,353,772.8415	355.12'
7	576,310.8585	1,353,944.0806	359.23'

NOTE:
FOR ORANGE CONSTRUCTION FENCE
QUANTITIES SEE SHEET 4 OF 26

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

REVIEWED FOR HOWARD SCD
AND MEETS TECHNICAL REQUIREMENTS

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BY THE HOWARD SOIL CONSERVATION DISTRICT

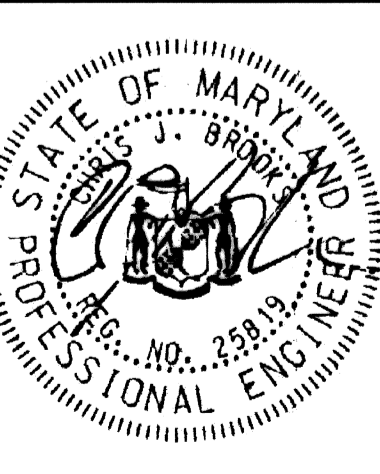
[Signature] 9/2/10
DATE

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Howard County
MARYLAND

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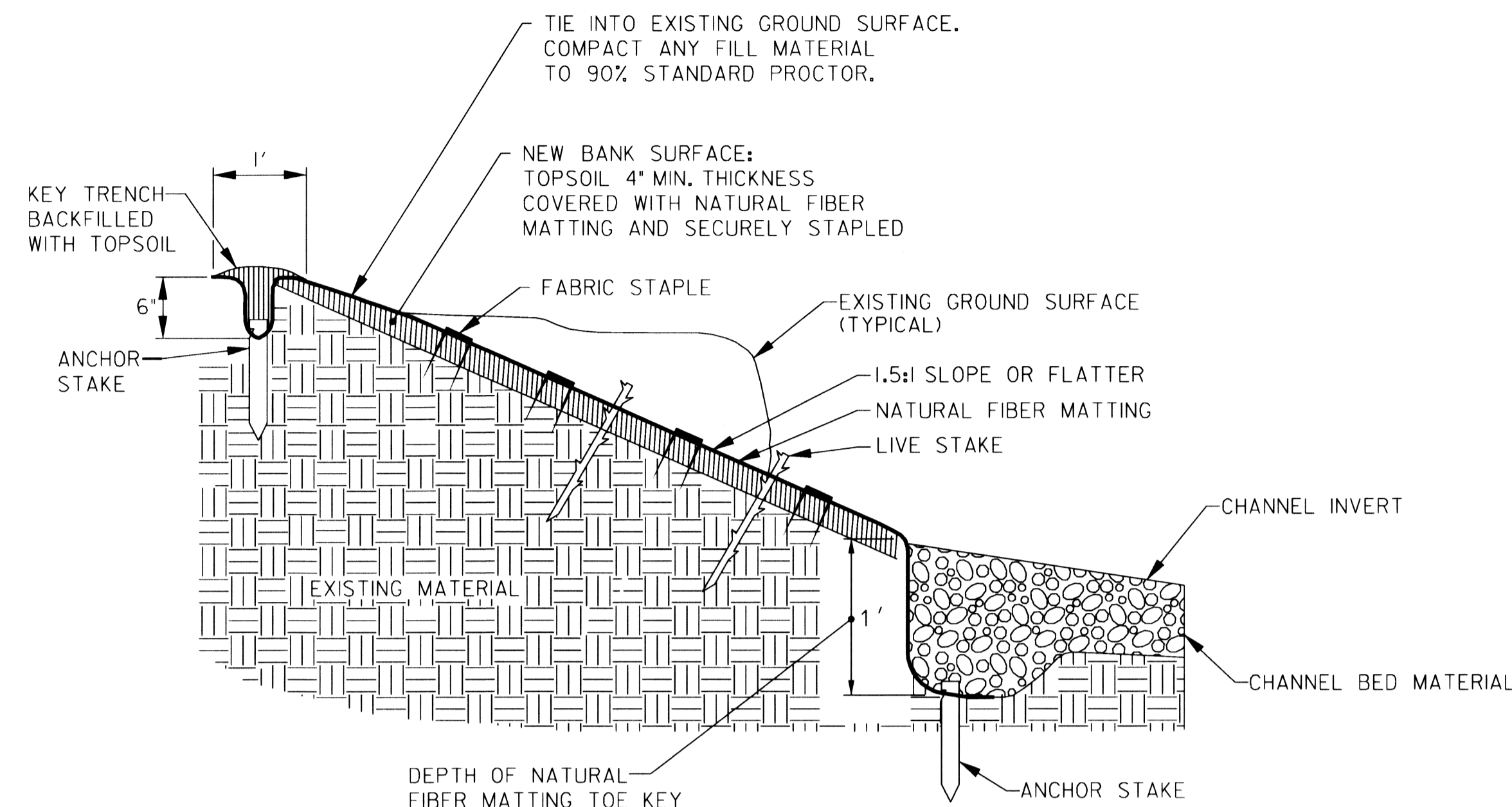


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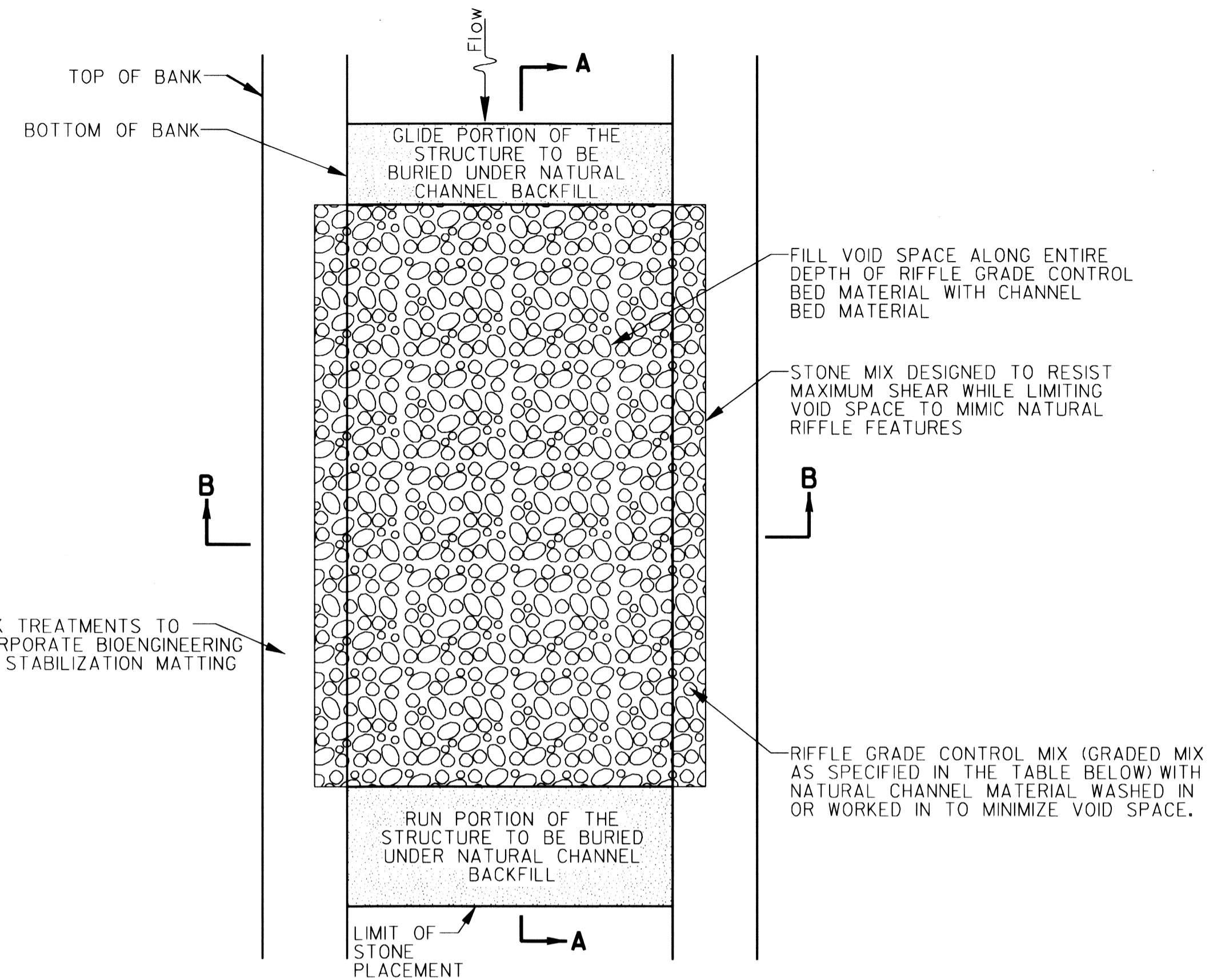
**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
OLD WILLOW WAY STREAM REHABILITATION PROJECT
CAPITAL PROJECT D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAPS 24 & 30; LOT 22
WAIVER PETITION #WP-10-163**

SITE PLAN

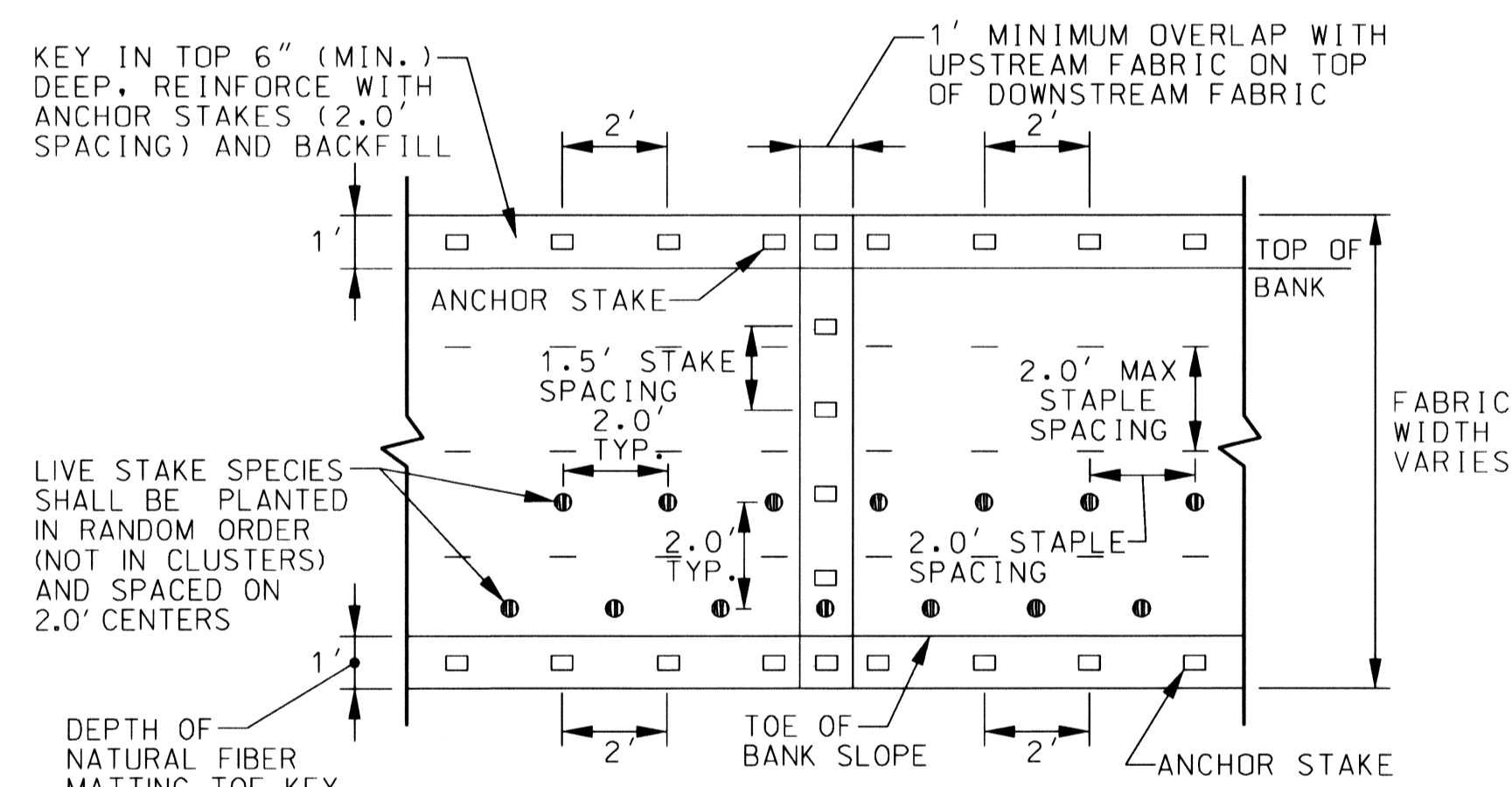
SCALE
1" = 20'
SHEET
5 OF 26



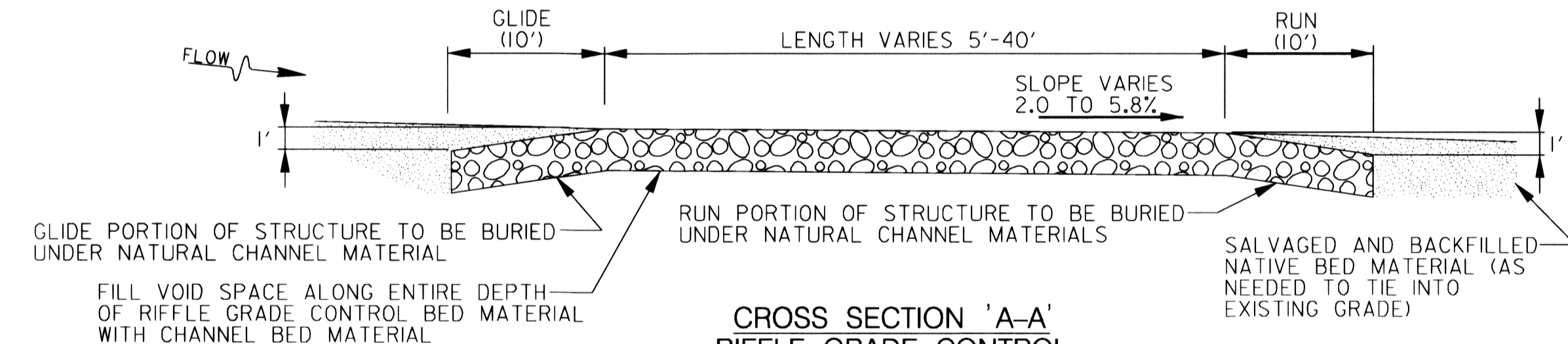
NATURAL FIBER MATTING AND BIOENGINEERING STABILIZATION WITH TOE ANCHOR TRENCH
(NOT TO SCALE)



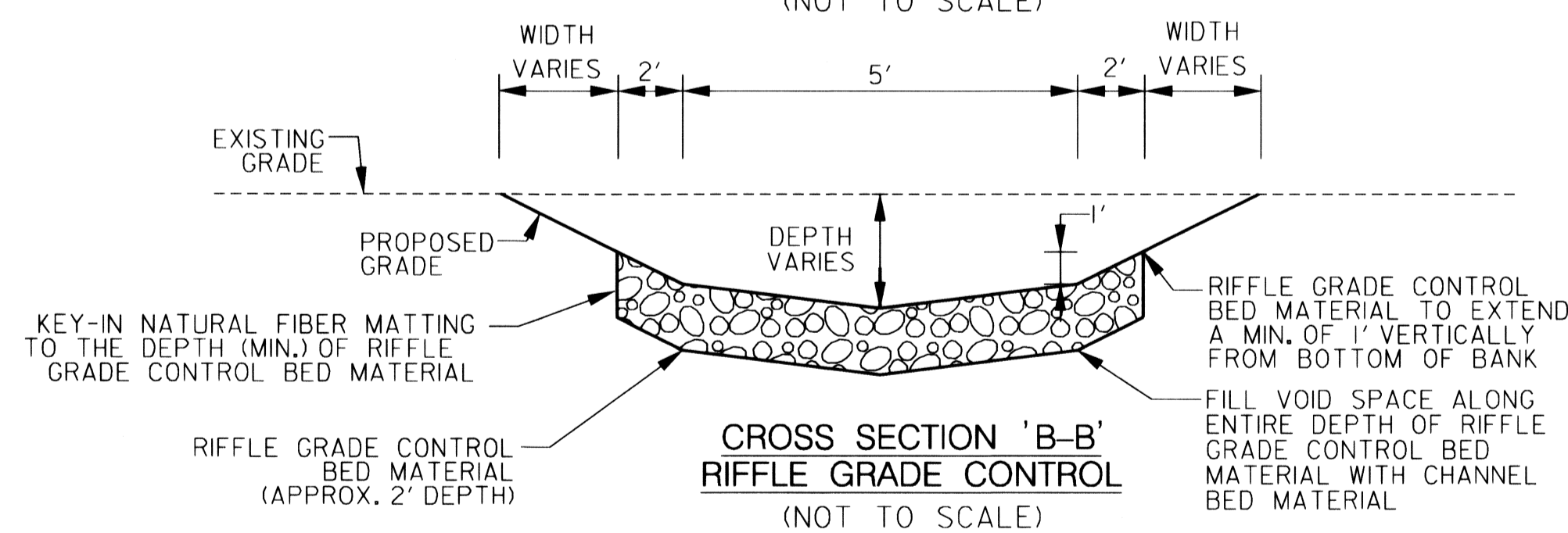
PLAN VIEW RIFFLE GRADE CONTROL
(NOT TO SCALE)



PLAN VIEW OF NATURAL FIBER MATTING AND BIOENGINEERING STABILIZATION WITH TOE ANCHOR TRENCH
(NOT TO SCALE)



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



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

RIFFLE GRADE CONTROL	
STATION FROM	STATION TO
101+00	101+40
101+81	101+86

RIFFLE GRADE CONTROL MIX	
AMOUNT OF STONE %	STONE TYPE
40	SHA CLASS 0
50	SHA CLASS 1
10	SHA CLASS 2
100	TOTAL

- NOTES:
1. COMPACT NATURAL CHANNEL BACKFILL TO MATCH PRE-CONSTRUCTION GRADE UNLESS OTHERWISE SPECIFIED.
 2. IF CLAY OR UNSUITABLE MATERIAL IS FOUND IN IN SUBGRADE THEN OVER EXCAVATE AND PLACE 6" MIN. THICKNESS CHANNEL BED MATERIAL BELOW CONSTRUCTED RIFFLE MIX.
 3. THE RIFFLE GRADE CONTROL FROM STA. 101+81 TO STA. 101+86 SHALL NOT INCLUDE THE "RUN" PORTION OF THE STRUCTURE.

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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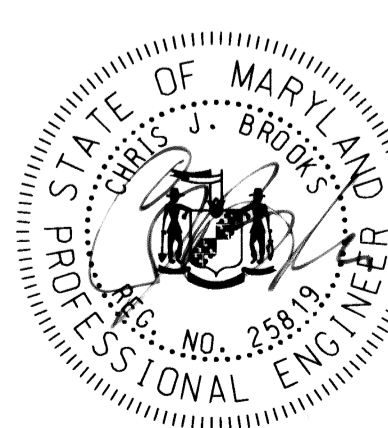
HOWARD SCD DATE

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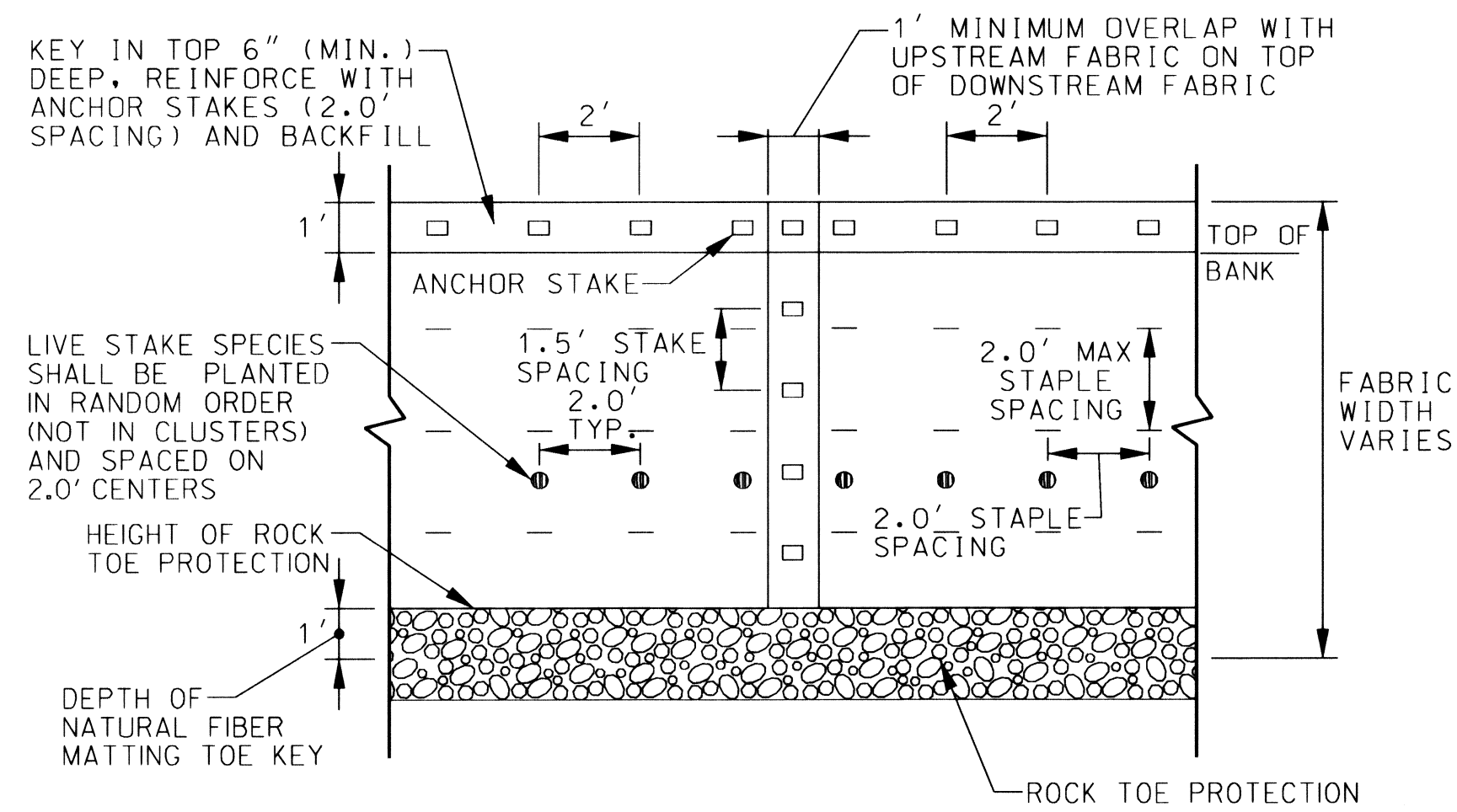


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**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
OLD WILLOW WAY STREAM REHABILITATION PROJECT
CAPITAL PROJECT D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAPS 24 & 30; LOT 22
WAIVER PETITION #WP-10-163**

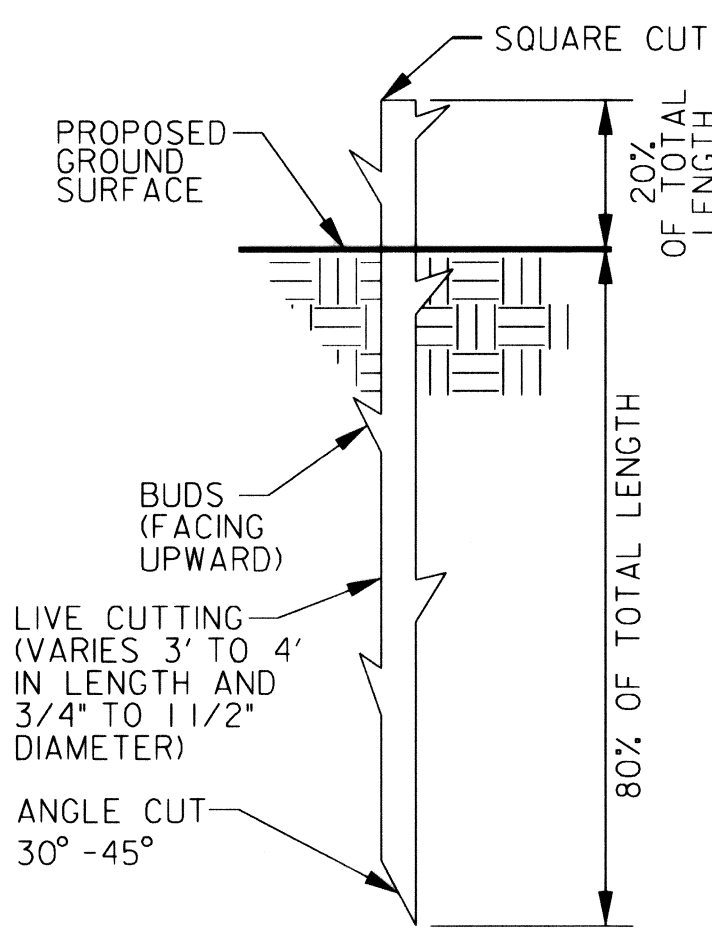
TYPICAL DETAILS

SCALE
NOT TO SCALE
SHEET
6 OF 26



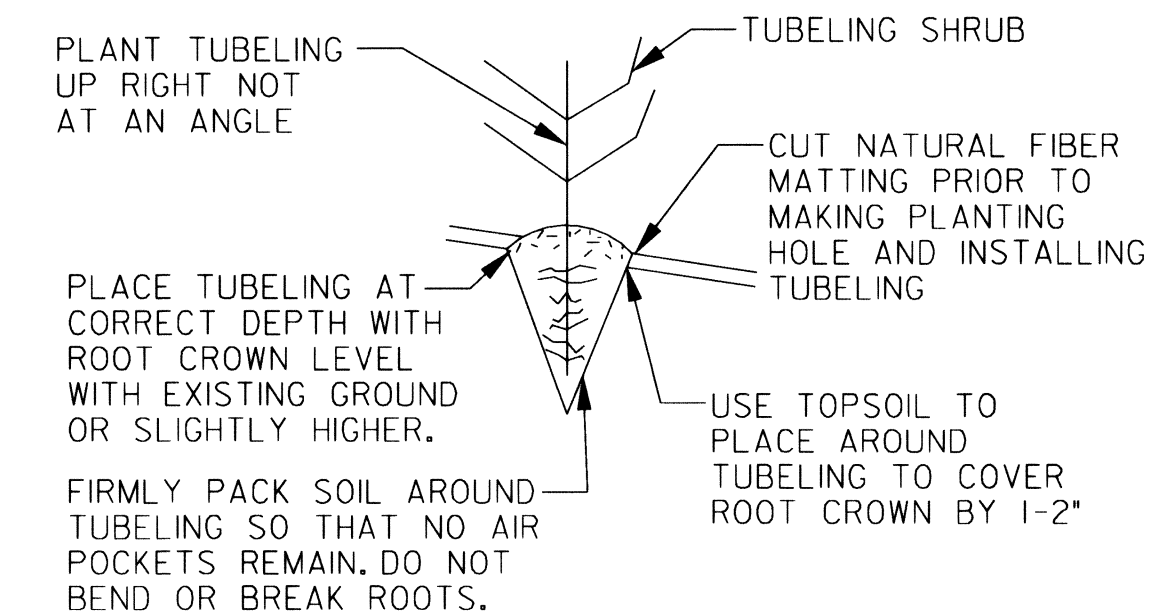
NOTE:
MATTING TO BE ROLLED LENGTHWISE ALONG STREAMBANK EXTENDING BELOW THE ROCK TOE PROTECTION AND A MINIMUM OF 1.0' OVER TOP OF BANK. IF MORE THAN ONE ROLL IS REQUIRED, MID-BANK OVERLAP SHOULD BE A MINIMUM OF 1.0' AND SECURELY FASTENED WITH ANCHOR STAKES. TOP EDGE OF MATTING SHALL BE KEYED INTO EXISTING GROUND SURFACE AT A MINIMUM DEPTH OF 6\"/>

PLAN VIEW OF NATURAL FIBER MATTING AND BIOENGINEERING STABILIZATION WITH ROCK TOE PROTECTION
(NOT TO SCALE)

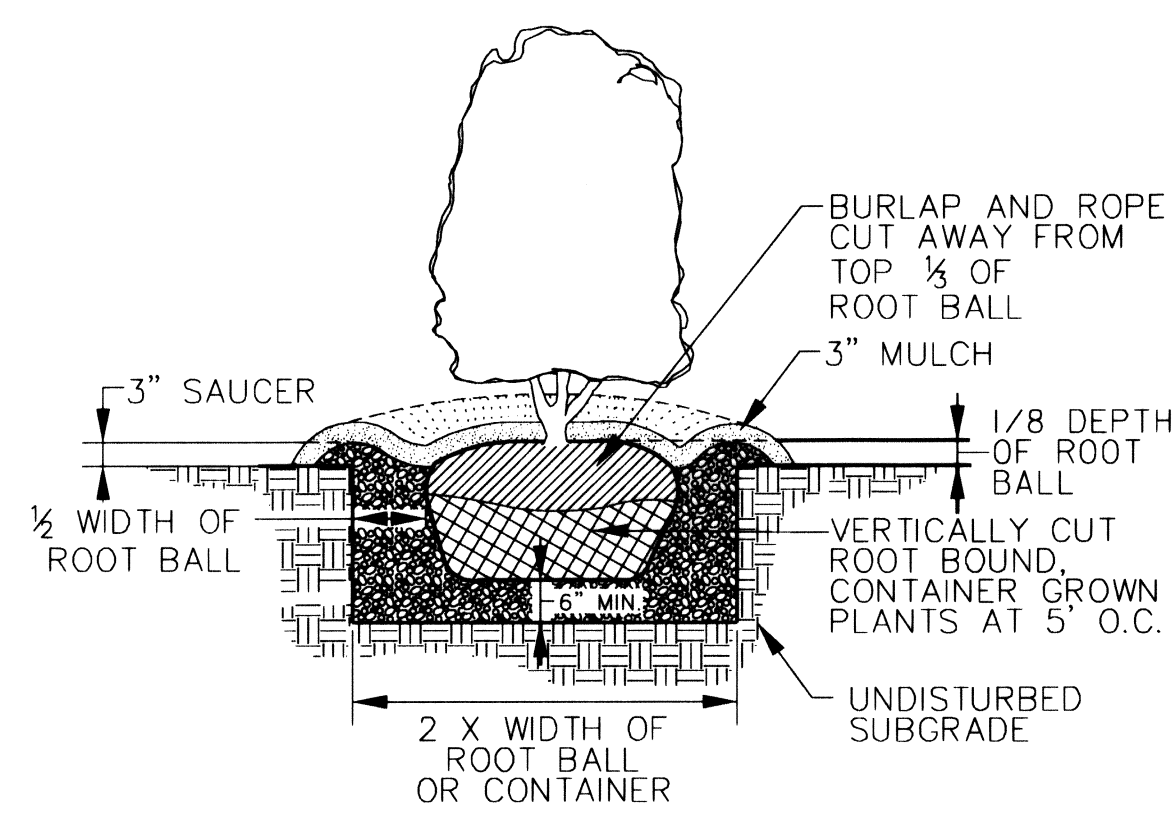


NOTE:
LIVE STAKES MUST BE INSTALLED WHILE DORMANT (LATE FALL TO EARLY SPRING). DO NOT ALLOW THEM TO DRY OUT. CONSTRUCTION METHODS SHALL FOLLOW GUIDANCE AS PER PRACTICE 2.6 OF THE DCR MANUAL.

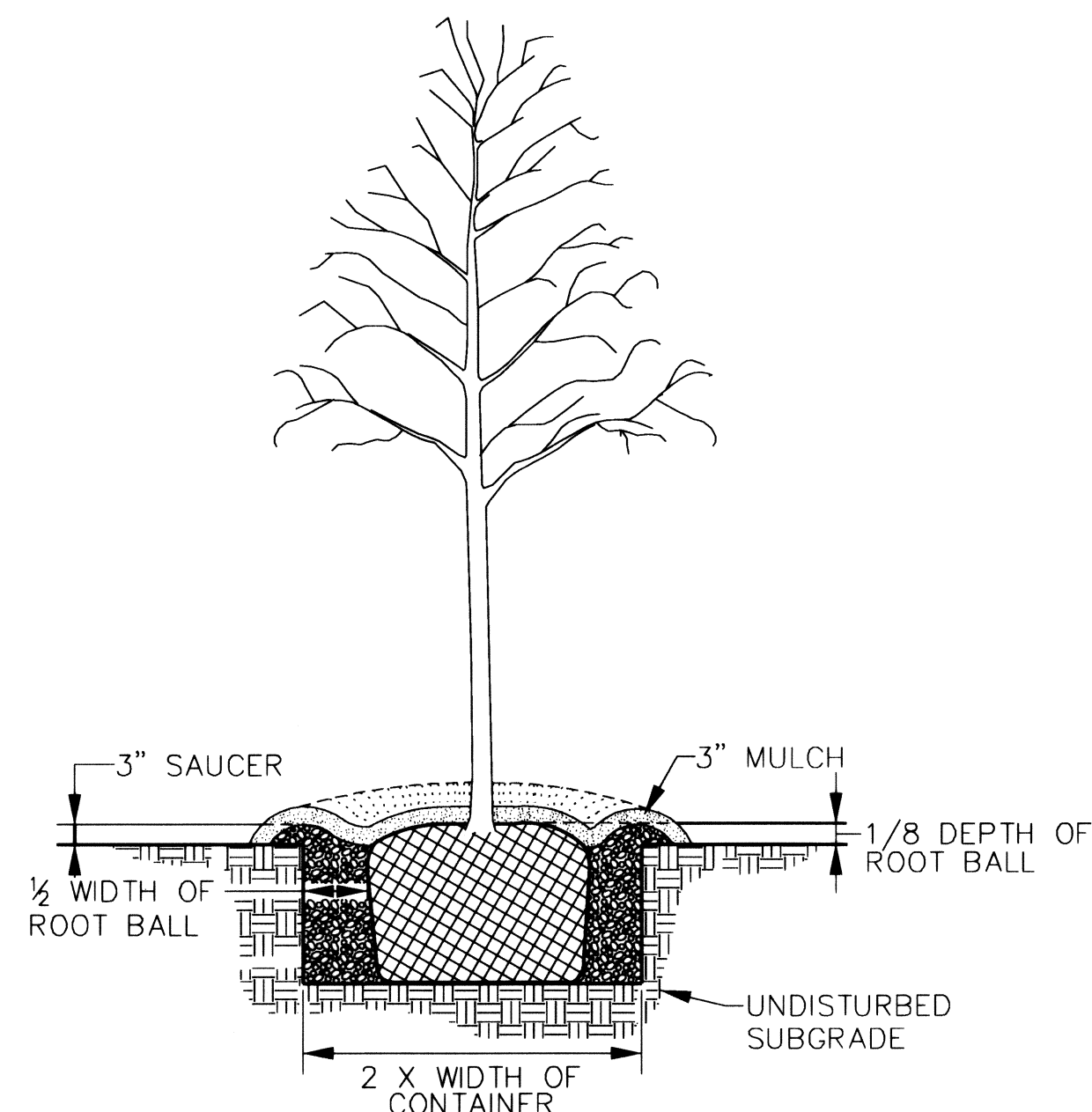
LIVE STAKE
(NOT TO SCALE)



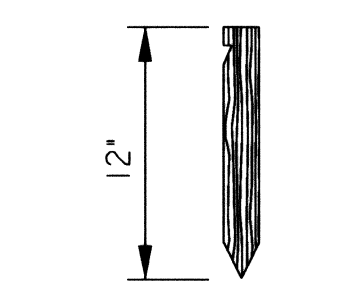
TUBELING DETAIL
(NOT TO SCALE)



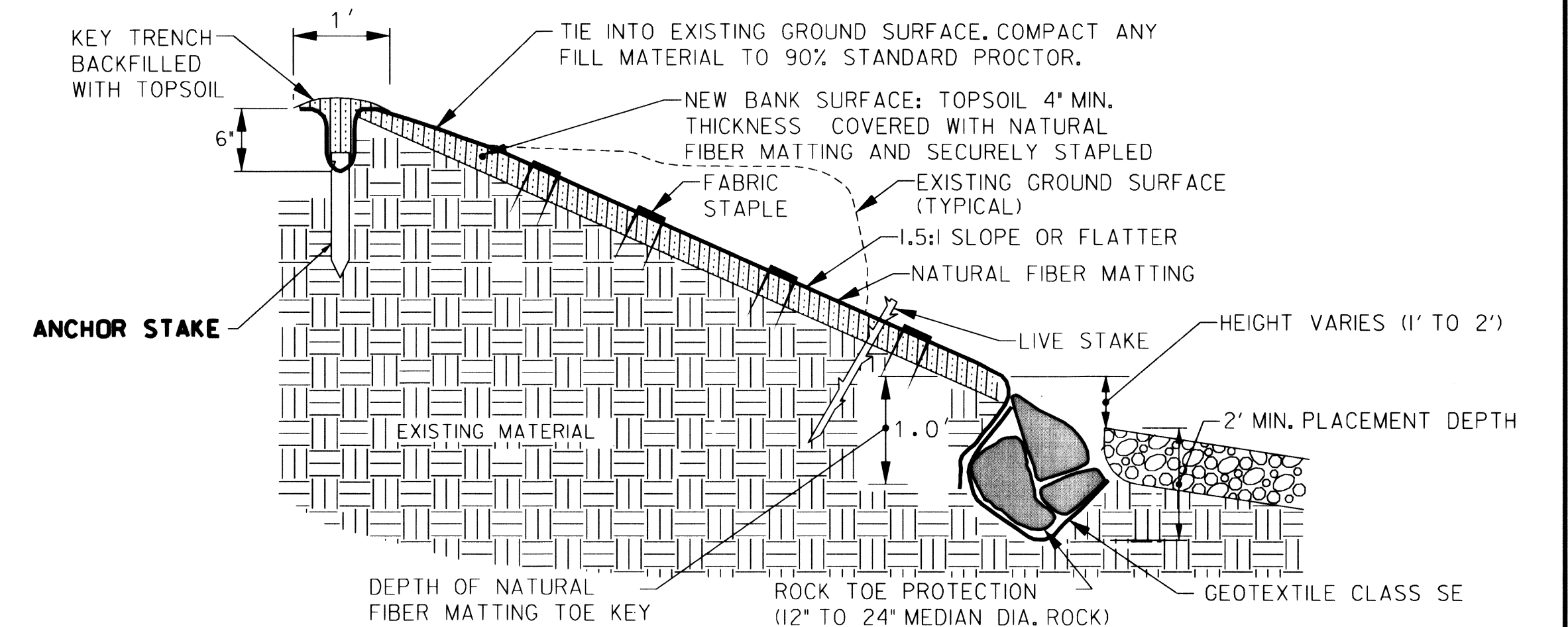
SHRUB PLANTING DETAIL
B & B AND CONTAINER GROWN
(NOT TO SCALE)



DECIDUOUS TREE PLANTING DETAIL
CONTAINER GROWN
(NOT TO SCALE)



ANCHOR STAKE
• OR EQUIVALENT
(NOT TO SCALE)



NATURAL FIBER MATTING AND BIOENGINEERING STABILIZATION WITH ROCK TOE PROTECTION
(NOT TO SCALE)

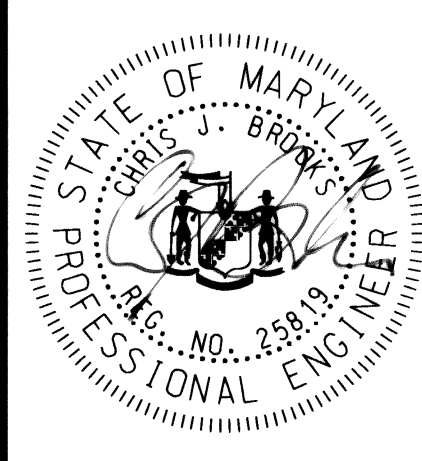
ROCK TOE PROTECTION	
STATION FROM*	STATION TO*
100+24, LT	101+00, LT
101+40, RT	101+81, RT
200+10, RT	200+53, RT

*LT AND RT REFERS TO LEFT AND RIGHT OF THE BASELINE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
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HOWARD SCD DATE

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MARYLAND
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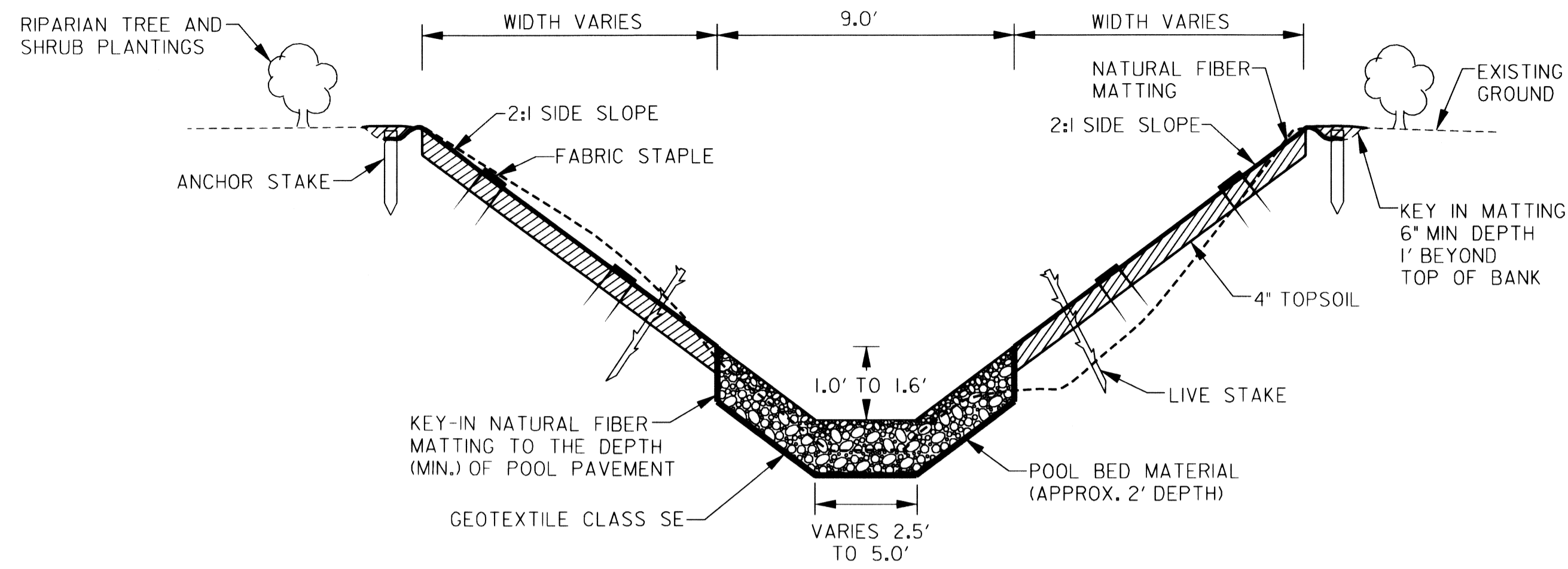


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DRN: AH					
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DATE: 9/9/10					
BY	NO.	REVISION	DATE		

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION OLD WILLOW WAY STREAM REHABILITATION PROJECT CAPITAL PROJECT D-1158 ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND TAX MAPS 24 & 30; LOT 22 WAIVER PETITION #WP-10-163

TYPICAL DETAILS

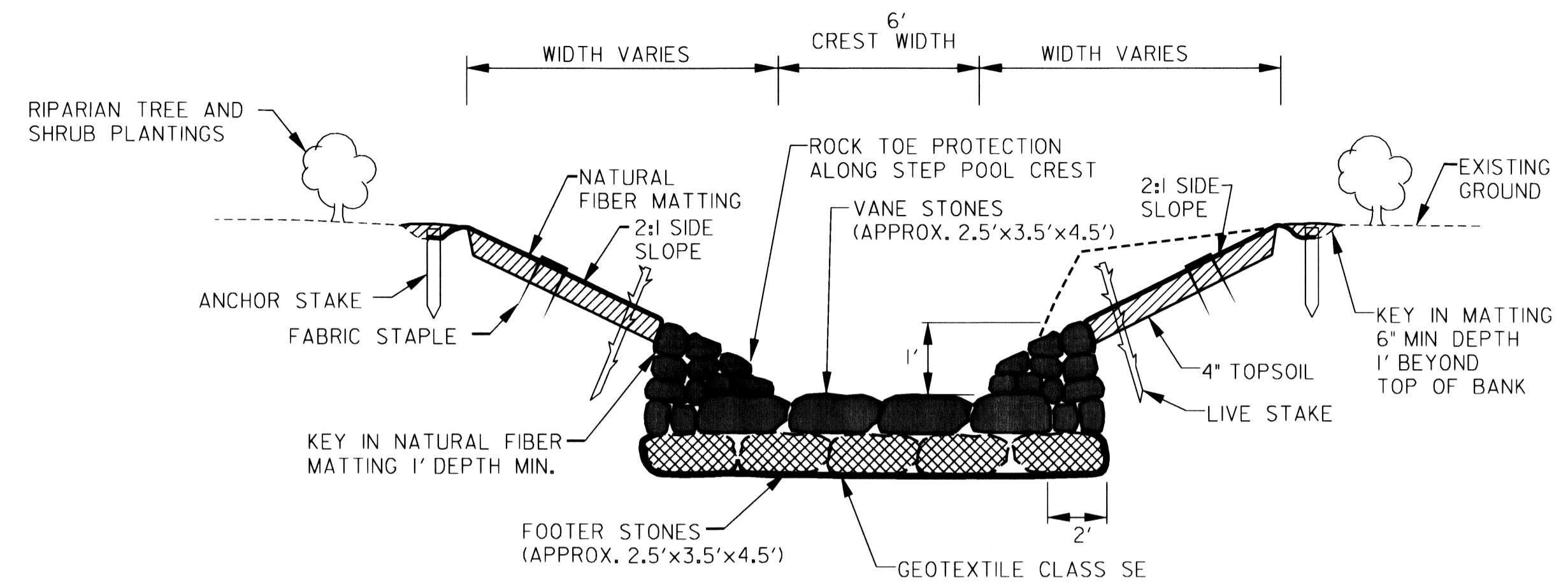
SCALE
NOT TO SCALE
SHEET
7 OF 26



CROSS SECTION VIEW OF STEP-POOL POOL
(NOT TO SCALE)

STEP-POOL	
STATION FROM	STATION TO
200+61	200+70.5
200+86	200+95.5
201+11	201+20.5
201+36	201+45.5
201+61	201+70.5
201+86	201+95.5

NOTE:
1. IF NECESSARY, FILL UNDER CREST SHALL CONSIST OF COMPACTED FILL MATERIAL.
2. IF NECESSARY, FILL ALONG CHANNEL BANK SHALL CONSIST OF FILL MATERIAL COMPACTED TO 90% PROCTOR.

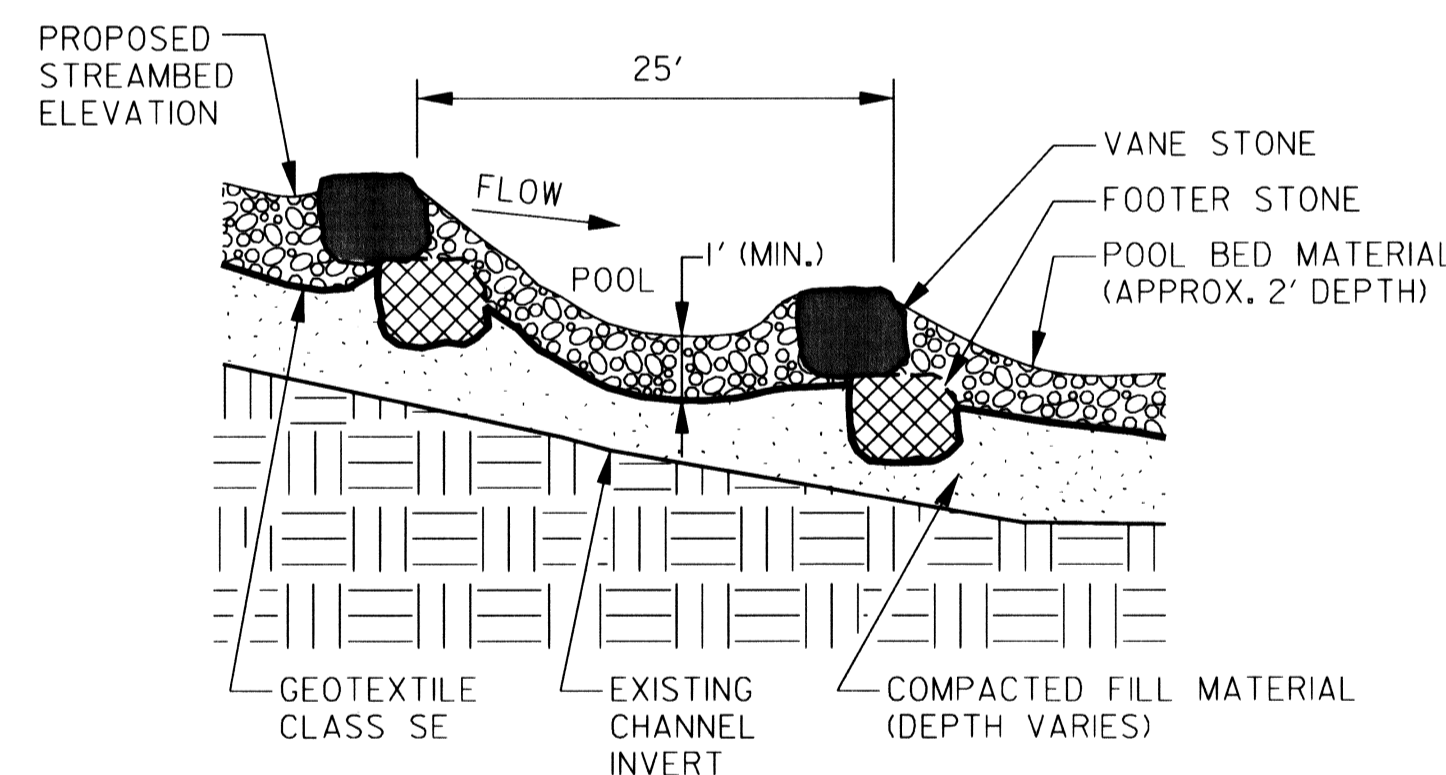


CROSS SECTION OF STEP-POOL CREST
(NOT TO SCALE)

STEP-CREST	
STATION FROM	STATION TO
200+53	200+56
200+78	200+81
201+03	201+06
201+28	201+31
201+53	201+56
201+78	201+81
202+03	202+06

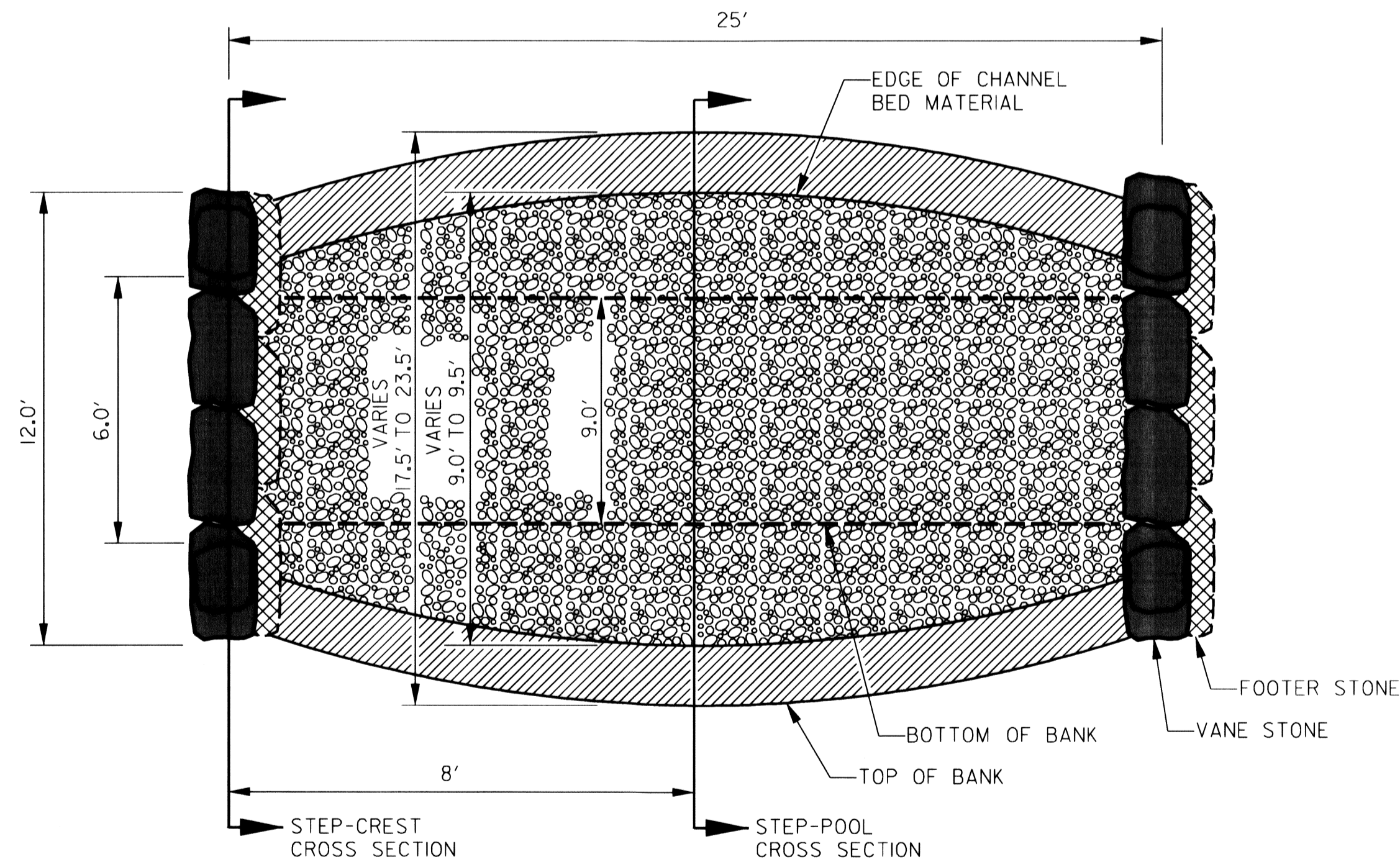
NOTE:
IF NECESSARY, FILL ALONG CHANNEL BANK SHALL CONSIST OF FILL MATERIAL COMPACTED TO 90% PROCTOR.

POOL BED MATERIAL MIX	
AMOUNT OF STONE %	STONE TYPE
40	SHA CLASS 0
50	SHA CLASS 1
10	SHA CLASS 2
100	TOTAL



• SEE PROFILE FOR EXACT DIMENSIONS OF STRUCTURES

STEP-POOL STRUCTURES
PROFILE VIEW
(NOT TO SCALE)



STEP-POOL STRUCTURES
TYPICAL PLAN VIEW
(NOT TO SCALE)

REVIEWED FOR HOWARD SCD
AND MEETS TECHNICAL REQUIREMENTS

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[Signature]

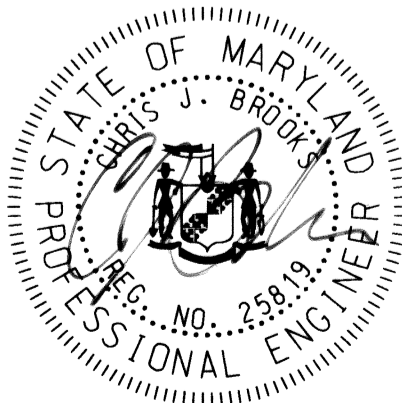
HOWARD SCD DATE

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DES: DF

DRN: AH

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DATE: 9/9/10

BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
OLD WILLOW WAY STREAM REHABILITATION PROJECT
CAPITAL PROJECT D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAPS 24 & 30; LOT 22
WAIVER PETITION #WP-10-163

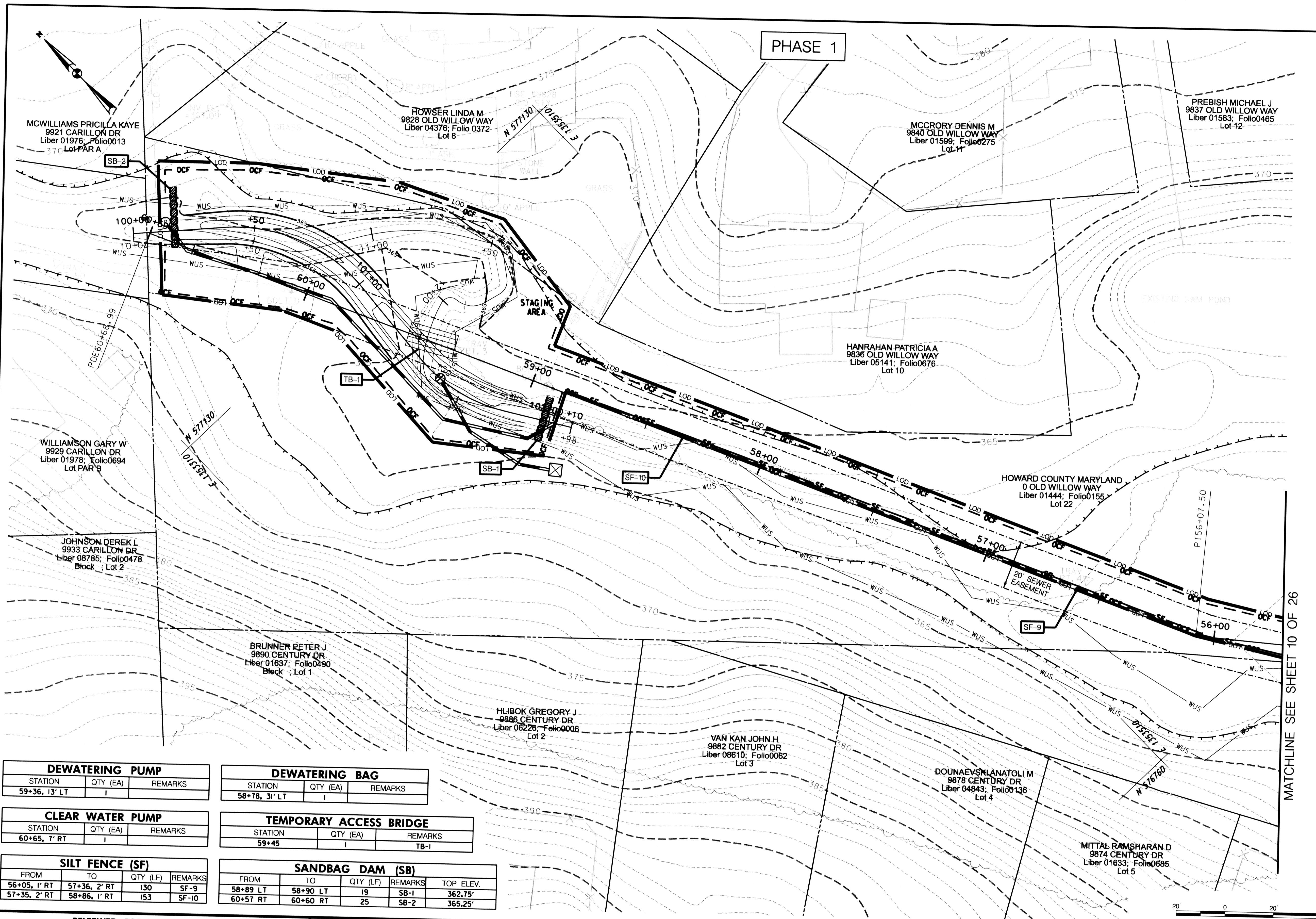
TYPICAL DETAILS

SCALE
NOT TO
SCALE

SHEET

8 OF 26

PHASE 1



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

- NOTE:**
1. EROSION AND SEDIMENT CONTROL SHALL BE STRICTLY ENFORCED.
 2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS SOON AS PRACTICABLE FOR EACH PHASE OF CONSTRUCTION AND CAN ONLY BE REMOVED UPON THE APPROVAL OF THE ENGINEER AND THE SEDIMENT CONTROL INSPECTOR. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
 3. CONTRACTOR SHALL STABILIZE DISTURBED AREAS WITHIN THE WORK AREA AT THE END OF EACH WORK DAY.
 4. ANY STOCKPILE OF MATERIALS MUST REMAIN OUTSIDE THE 100 YEAR FLOODPLAIN.

LEGEND

- PROPOSED MAJOR CONTOUR
- - - PROPOSED MINOR CONTOUR
- - - EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- WUS WATERS OF THE US
- 100 YEAR FLOOD PLAIN
- SF SILT FENCE
- LOD LIMIT OF DISTURBANCE
- OCF ORANGE CONSTRUCTION FENCE
- ⊙ EXISTING TREE
- ▩ SANDBAG DAM
- ⊗ DEWATERING FILTER BAG
- ⊕ DEWATERING PUMP
- ⊙ CLEAR WATER PUMP
- ▭ TEMPORARY ACCESS BRIDGE
- ▨ STABILIZED CONSTRUCTION ENTRANCE

DEWATERING PUMP			
STATION	QTY (EA)	REMARKS	
59+36, 13' LT	1		

DEWATERING BAG			
STATION	QTY (EA)	REMARKS	
58+78, 31' LT	1		

CLEAR WATER PUMP			
STATION	QTY (EA)	REMARKS	
60+65, 7' RT	1		

TEMPORARY ACCESS BRIDGE			
STATION	QTY (EA)	REMARKS	
59+45	1	TB-1	

SILT FENCE (SF)			
FROM	TO	QTY (LF)	REMARKS
56+05, 1' RT	57+36, 2' RT	130	SF-9
57+35, 2' RT	58+86, 1' RT	153	SF-10

SANDBAG DAM (SB)					
FROM	TO	QTY (LF)	REMARKS	TOP ELEV.	
58+89 LT	58+90 LT	19	SB-1	362.75'	
60+57 RT	60+60 RT	25	SB-2	365.25'	

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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[Signature]
HOWARD SCD

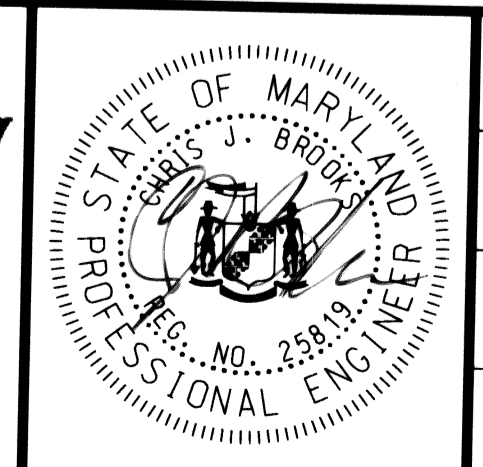
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**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
OLD WILLOW WAY STREAM REHABILITATION PROJECT
CAPITAL PROJECT D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAPS 24 & 30; LOT 22
WAIVER PETITION #WP-10-163**

EROSION AND SEDIMENT CONTROL PLAN

SCALE
1" = 20'

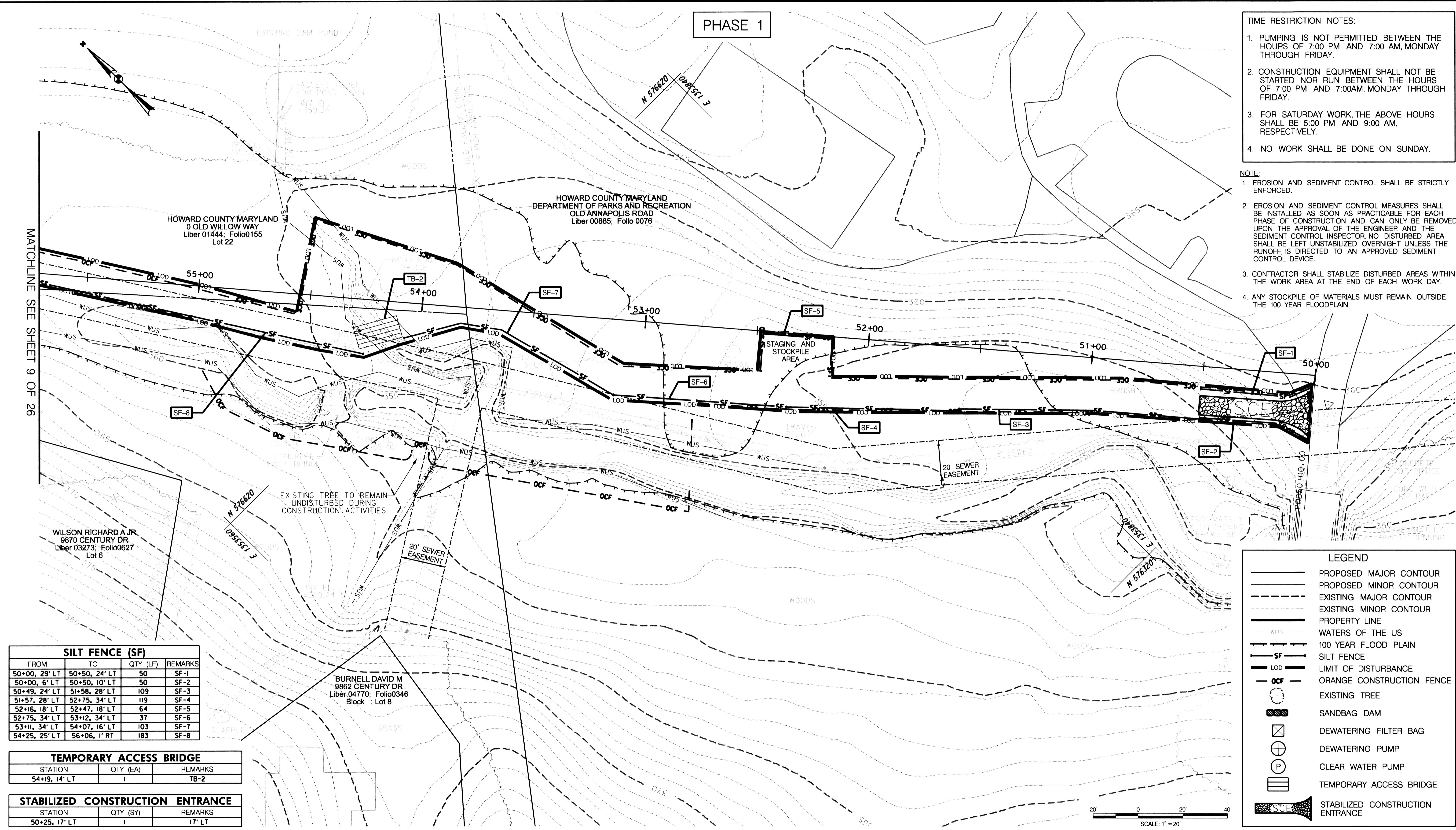
SHEET
9 OF 26

MATCHLINE SEE SHEET 10 OF 26

PHASE 1

- TIME RESTRICTION NOTES:**
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 2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS SOON AS PRACTICABLE FOR EACH PHASE OF CONSTRUCTION AND CAN ONLY BE REMOVED UPON THE APPROVAL OF THE ENGINEER AND THE SEDIMENT CONTROL INSPECTOR. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
 3. CONTRACTOR SHALL STABILIZE DISTURBED AREAS WITHIN THE WORK AREA AT THE END OF EACH WORK DAY.
 4. ANY STOCKPILE OF MATERIALS MUST REMAIN OUTSIDE THE 100 YEAR FLOODPLAIN.



SILT FENCE (SF)

FROM	TO	QTY (LF)	REMARKS
50+00, 29' LT	50+50, 24' LT	50	SF-1
50+00, 6' LT	50+50, 10' LT	50	SF-2
50+49, 24' LT	51+58, 28' LT	109	SF-3
51+57, 28' LT	52+75, 34' LT	119	SF-4
52+16, 18' LT	52+47, 18' LT	64	SF-5
52+75, 34' LT	53+12, 34' LT	37	SF-6
53+11, 34' LT	54+07, 16' LT	103	SF-7
54+25, 25' LT	56+06, 1' RT	183	SF-8

TEMPORARY ACCESS BRIDGE

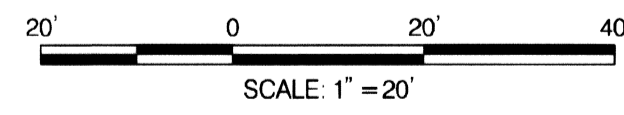
STATION	QTY (EA)	REMARKS
54+19, 14' LT	1	TB-2

STABILIZED CONSTRUCTION ENTRANCE

STATION	QTY (SY)	REMARKS
50+25, 17' LT	1	17' LT

LEGEND

- PROPOSED MAJOR CONTOUR
- - - PROPOSED MINOR CONTOUR
- · · EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- WUS WATERS OF THE US
- 100 YEAR FLOOD PLAIN
- SF SILT FENCE
- LOD LIMIT OF DISTURBANCE
- OCF ORANGE CONSTRUCTION FENCE
- EXISTING TREE
- SANDBAG DAM
- DEWATERING FILTER BAG
- DEWATERING PUMP
- CLEAR WATER PUMP
- TEMPORARY ACCESS BRIDGE
- SCE STABILIZED CONSTRUCTION ENTRANCE



REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

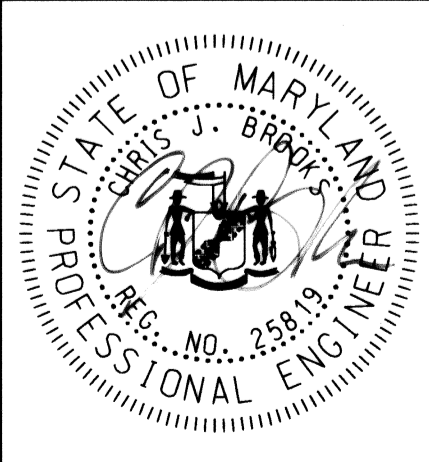
HOWARD SCD _____ DATE _____

McCormick Taylor
 Engineers & Planners Since 1946

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

Howard County
 MARYLAND

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



DES: DF				
DRN: AH				
CHK: DG				
DATE: 9/9/10				
BY	NO.	REVISION	DATE	

**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
 OLD WILLOW WAY STREAM REHABILITATION PROJECT
 CAPITAL PROJECT D-1158
 ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
 TAX MAPS 24 & 30; LOT 22
 WAIVER PETITION #WP-10-163**

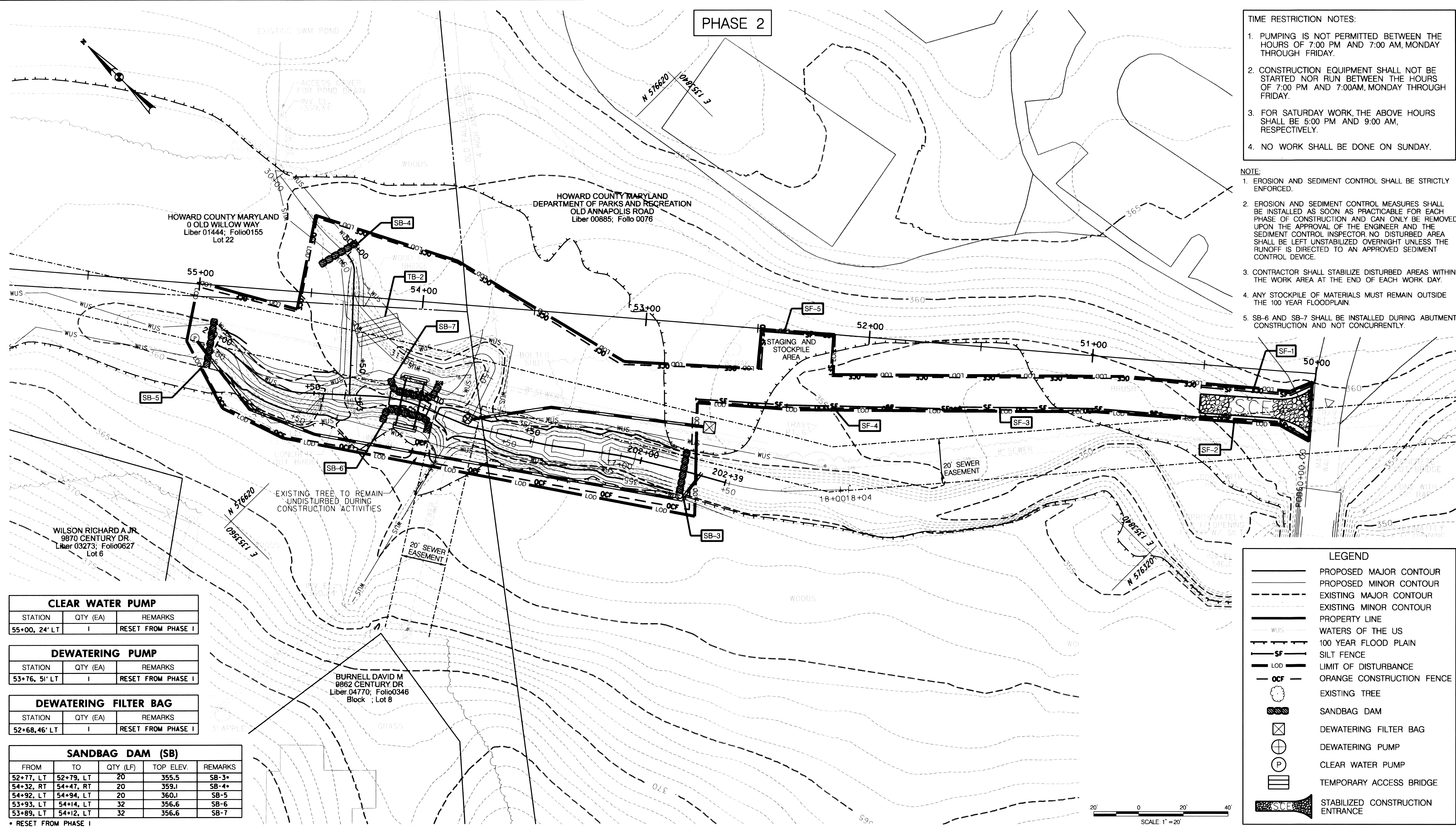
EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 20'
 SHEET: 10 OF 26

PHASE 2

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

- NOTE:**
1. EROSION AND SEDIMENT CONTROL SHALL BE STRICTLY ENFORCED.
 2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS SOON AS PRACTICABLE FOR EACH PHASE OF CONSTRUCTION AND CAN ONLY BE REMOVED UPON THE APPROVAL OF THE ENGINEER AND THE SEDIMENT CONTROL INSPECTOR. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
 3. CONTRACTOR SHALL STABILIZE DISTURBED AREAS WITHIN THE WORK AREA AT THE END OF EACH WORK DAY.
 4. ANY STOCKPILE OF MATERIALS MUST REMAIN OUTSIDE THE 100 YEAR FLOODPLAIN.
 5. SB-6 AND SB-7 SHALL BE INSTALLED DURING ABUTMENT CONSTRUCTION AND NOT CONCURRENTLY.



LEGEND

- PROPOSED MAJOR CONTOUR
- - - PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- WUS WATERS OF THE US
- 100 YEAR FLOOD PLAIN
- SF SILT FENCE
- LOD LIMIT OF DISTURBANCE
- OCF ORANGE CONSTRUCTION FENCE
- ⊙ EXISTING TREE
- ▨ SANDBAG DAM
- ⊗ DEWATERING FILTER BAG
- ⊕ DEWATERING PUMP
- ⊙ CLEAR WATER PUMP
- ▭ TEMPORARY ACCESS BRIDGE
- SCE STABILIZED CONSTRUCTION ENTRANCE

CLEAR WATER PUMP

STATION	QTY (EA)	REMARKS
55+00, 24' LT	1	RESET FROM PHASE I

DEWATERING PUMP

STATION	QTY (EA)	REMARKS
53+76, 51' LT	1	RESET FROM PHASE I

DEWATERING FILTER BAG

STATION	QTY (EA)	REMARKS
52+68, 46' LT	1	RESET FROM PHASE I

SANDBAG DAM (SB)

FROM	TO	QTY (LF)	TOP ELEV.	REMARKS
52+77, LT	52+79, LT	20	355.5	SB-3*
54+32, RT	54+47, RT	20	359.1	SB-4*
54+92, LT	54+94, LT	20	360.1	SB-5
53+93, LT	54+14, LT	32	356.6	SB-6
53+89, LT	54+12, LT	32	356.6	SB-7

* RESET FROM PHASE I

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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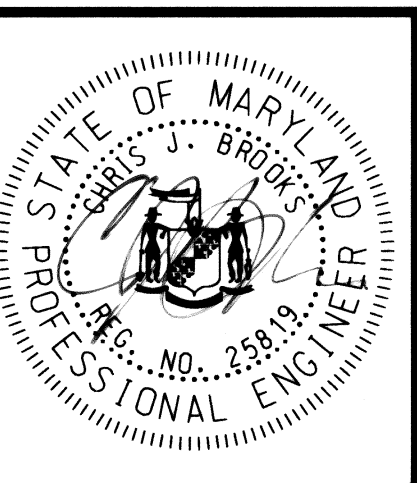
[Signature] 9/30/10
HOWARD SCD DATE

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**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
OLD WILLOW WAY STREAM REHABILITATION PROJECT
CAPITAL PROJECT D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAPS 24 & 30; LOT 22
WAIVER PETITION #WP-10-163**

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 20'
SHEET: 11 OF 26

EROSION AND SEDIMENT CONTROL – GENERAL NOTES

HOWARD SOIL CONSERVATION DISTRICT TEMPORARY SEEDING NOTES

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

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

SOIL AMENDMENTS: – APPLY 600 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.).

SEEDING: – FOR PERIODS MARCH 1 – APRIL 30 AND FROM AUGUST 15 – OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ. FT.), FOR THE PERIOD MAY 1 – AUGUST 14, SEED WITH 3 LBS / ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 FT.). FOR THE PERIOD NOVEMBER 16 – FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS/ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: – APPLY 1-1/2 TO 2 TONS/ACRE (70 TO 90 LBS/1000 SQ. FT.) OF UNROTTED WEED-FREE, SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL. NO ASPHALT EMULSION SHALL BE USED FOR ANCHORING. ONLY A NON-TOXIC, LATEX BACKING MATERIAL IS ALLOWED.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT AND MDE PERMIT (TRACKING NUMBER 201060787).
2. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) DAYS PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION (410) 313-1880 A MINIMUM OF 5 DAYS PRIOR TO THE START OF ANY CONSTRUCTION. THE CONTRACTOR SHALL ALSO NOTIFY THE HOWARD COUNTY BUREAU OF UTILITIES (410) 313-4900 AND MARYLAND DEPARTMENT OF ENVIRONMENT INSPECTOR AT (301) 665-2850, FIVE (5) DAYS BEFORE ANY LAND DISTURBING ACTIVITY.
3. ORANGE HIGH VISIBILITY FENCE SHALL BE MANUALLY INSTALLED WHERE INDICATED ON THE PLANS. THIS SHALL BE COMPLETED BY AND INSPECTED AT THE PRECONSTRUCTION MEETING. (1 DAY)
4. THE CONTRACTOR SHALL COORDINATE AN ON-SITE PRE-CONSTRUCTION MEETING WHICH SHALL INCLUDE, BUT NOT BE LIMITED TO, THE COUNTY PROJECT MANAGER, THE ENGINEER, A REPRESENTATIVE FROM THE DEPARTMENT OF RECREATION AND PARKS, A REPRESENTATIVE FROM THE BUREAU OF UTILITIES AND A REPRESENTATIVE FROM HOWARD COUNTY CONSTRUCTION INSPECTION. (1 DAY)

PHASE 1

5. CONSTRUCT THE FOLLOWING PERIMETER CONTROLS AS SHOWN ON THE PLAN: STABILIZED CONSTRUCTION ENTRANCE AND SILT FENCE, CLEARING ONLY THE AREA NEEDED TO INSTALL THE E&S CONTROLS. (1 DAY)
6. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, INSTALL THE TEMPORARY ACCESS BRIDGES AND STREAM DIVERSION/PUMP AROUND WHICH INCLUDES THE SANDBAG, PUMP AND DIVERSION HOSES FOR THE NORTHERN STREAM REACH. DEWATER ALL WORK AREAS AS NEEDED TO A DEWATERING FILTER BAG. (1 DAY)
7. REMOVE EXISTING SPLIT RAIL FENCE AND COMMENCE IN STREAM CONSTRUCTION AND GRADING. STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORK DAY AND REMOVE THE STREAM DIVERSION/PUMP AROUND. COMPLETE CHANNEL GRADING FROM UPSTREAM TO DOWNSTREAM. (5 DAYS)
8. INSTALL LANDSCAPING PER PLAN AND RESET SPLIT RAIL FENCE. (1 DAY)
9. STABILIZE TEMPORARY CONSTRUCTION ACCESS AND GRADE TO FINAL ELEVATIONS REMOVING ALL RUTS. (1 DAY)

PHASE 2

10. WHEN AREAS ARE FULLY STABILIZED, AND UPON PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, RESET THE REMAINING SEDIMENT CONTROL DEVICES FOR PHASE 2. (1 DAY)
11. COMMENCE IN STREAM CONSTRUCTION AND GRADING. REMOVE CULVERT AND WOODEN FOOT BRIDGE. INSTALL ABUTMENTS FOR THE PEDESTRAIN BRIDGE (SUPERSTRUCTURE TO BE INSTALLED IN FUTURE BY OTHERS). STABILIZE ALL DISTURBED AREAS AT THE END OF EACH WORK DAY AND REMOVE THE STREAM DIVERSION/PUMP AROUND. COMPLETE CHANNEL GRADING FROM UPSTREAM TO DOWNSTREAM. (10 DAYS)
12. INSTALL LANDSCAPING PER PLAN. (1 DAY)
13. STABILIZE TEMPORARY CONSTRUCTION ACCESS AND GRADE TO FINAL ELEVATIONS REMOVING ALL RUTS. (1 DAY)
14. WHEN AREAS ARE FULLY STABILIZED, AND UPON PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE THE REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE ANY DISTURBED AREAS. (1 DAY)

IN-CHANNEL PUMPING NOTES

1. AT THE END OF EACH WORK DAY, THE WORK AREA MUST BE STABILIZED AND THE PUMP AROUND REMOVED FROM THE CHANNEL. REFER TO THE DETAILS AND SPECIFICATIONS FOR MCWC 1.2: PUMP-AROUND PRACTICE INCLUDED ON THE PLANS.
2. THE CONTRACTOR SHALL USE A PUMP AND DIVERSION HOSES TO ACCOMMODATE A 3 INCH DISCHARGE DIAMETER AND THE FLOWS ANTICIPATED DURING CONSTRUCTION IN THE CHANNEL SECTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING A CONSTRUCTION PHASE DEWATERING SYSTEM, INCLUDING A TEMPORARY SYSTEM OF PUMPS, DRAINAGE DITCHES AND, SANDBAG/ STONE DIVERSIONS, AS REQUIRED TO REMOVE WATER FROM ANY SOURCE, INCLUDING GROUND WATER, AND MAINTAIN WORKABLE, DRY CONDITIONS IN THE WORK AREA.

HOWARD SOIL CONSERVATION DISTRICT PERMANANT SEEDING NOTES

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

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

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

1. **PREFERRED** – APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 600 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS/ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ. FT.).
2. **ACCEPTABLE** – APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 1000 LBS/ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

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

MULCHING – APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL. NO ASPHALT EMULSION SHALL BE USED FOR ANCHORING. ONLY A NON-TOXIC, LATEX TACKING MATERIAL IS ALLOWED.

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

HOWARD COUNTY CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1. B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12 OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.

5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

7. SITE ANALYSIS:	
TOTAL AREA OF SITE	0.96 ACRES
AREA DISTURBED	0.96 ACRES
AREA TO BE ROOFED OR PAVED	0 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.96 ACRES
TOTAL CUT	242.92 CU. YDS.
TOTAL FILL	351.54 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	SEE NOTE 12

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

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

10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

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

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

STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE

TO PROVIDE A SUITABLE, SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:

- A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
- B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
- C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
- D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

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

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

A. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1-1/2" IN DIAMETER.

B. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

C. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTURBED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:

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

IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

A. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:

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

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

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

V. TOPSOIL APPLICATION

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

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

[Signature]
HOWARD SCD

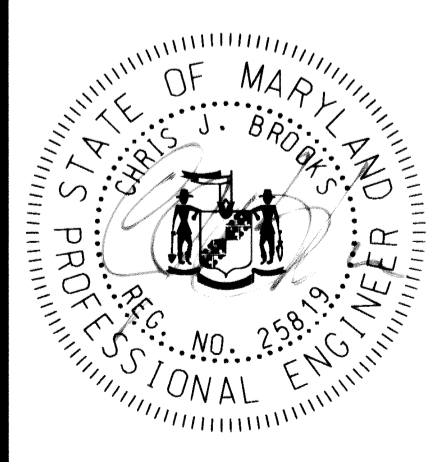
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BY

NO.

REVISION

DATE

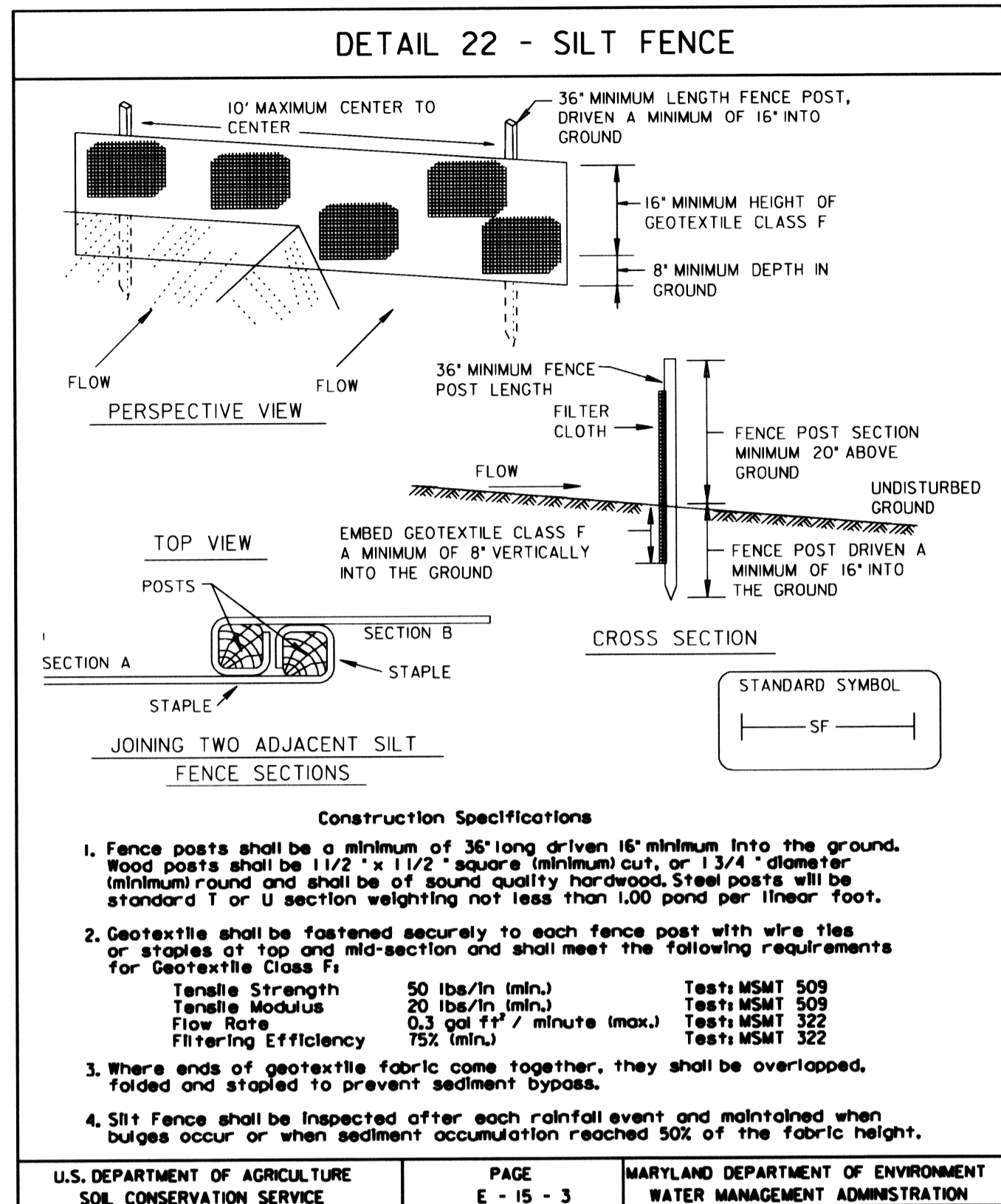
**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
OLD WILLOW WAY STREAM REHABILITATION PROJECT
CAPITAL PROJECT D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAPS 24 & 30; LOT 22
WAIVER PETITION #WP-10-163
EROSION AND SEDIMENT
CONTROL NOTES**

SCALE

NOT TO SCALE

SHEET

12 OF 26



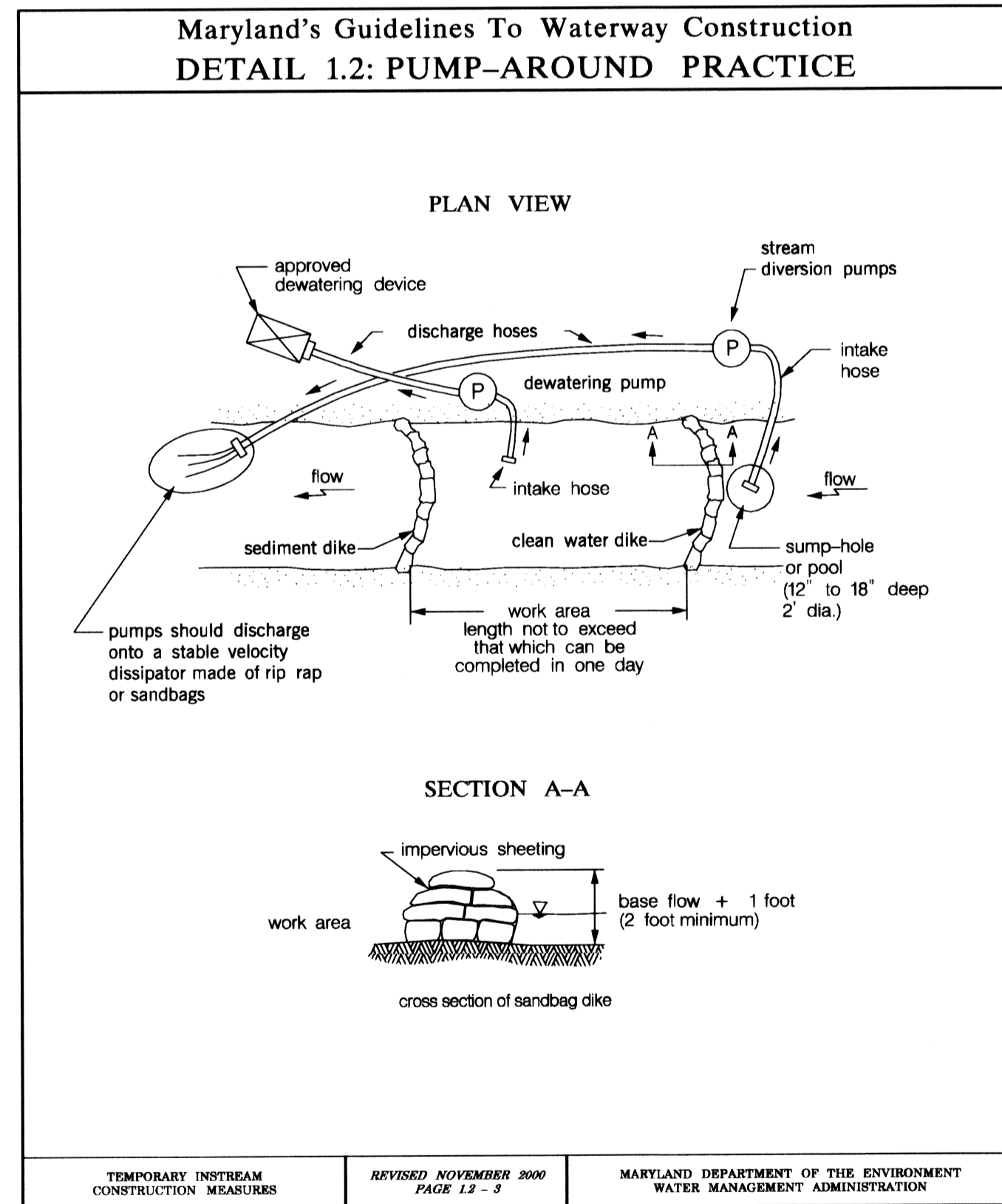
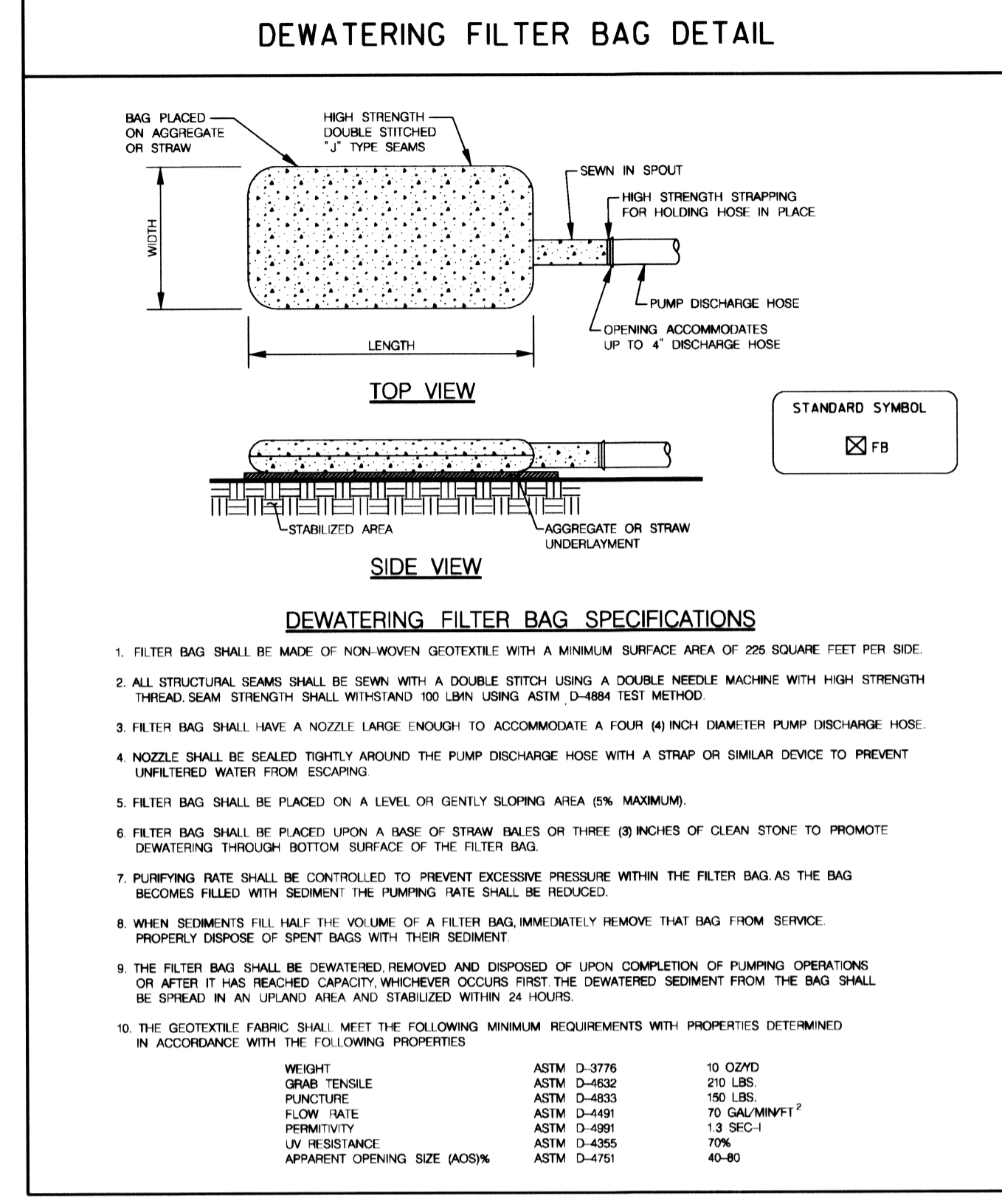
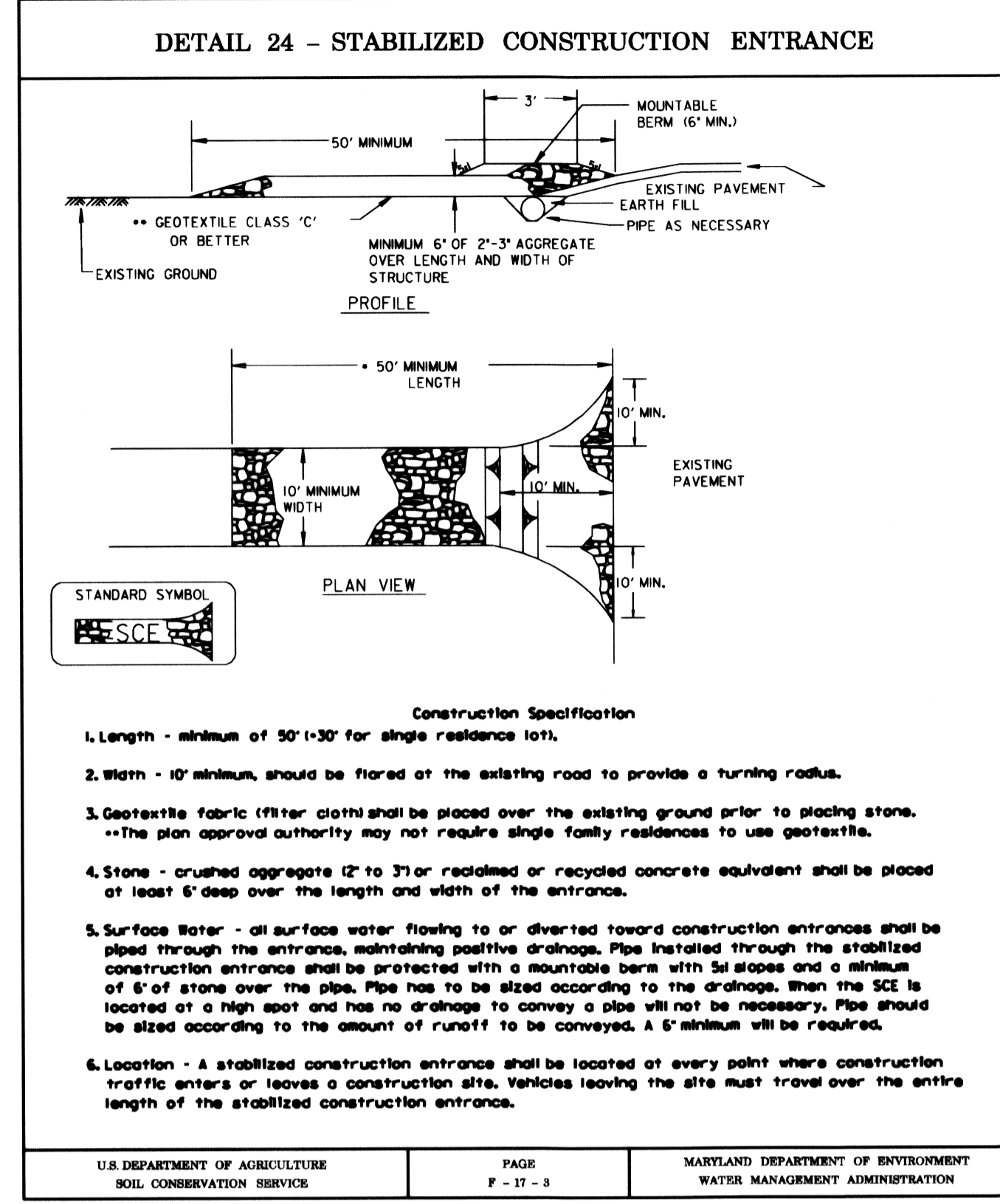
SILT FENCE

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Notes in areas of less than 2% slope and sandy soils USDA general classification system, soil Class A: maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE E-15-3A | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



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

DESCRIPTION

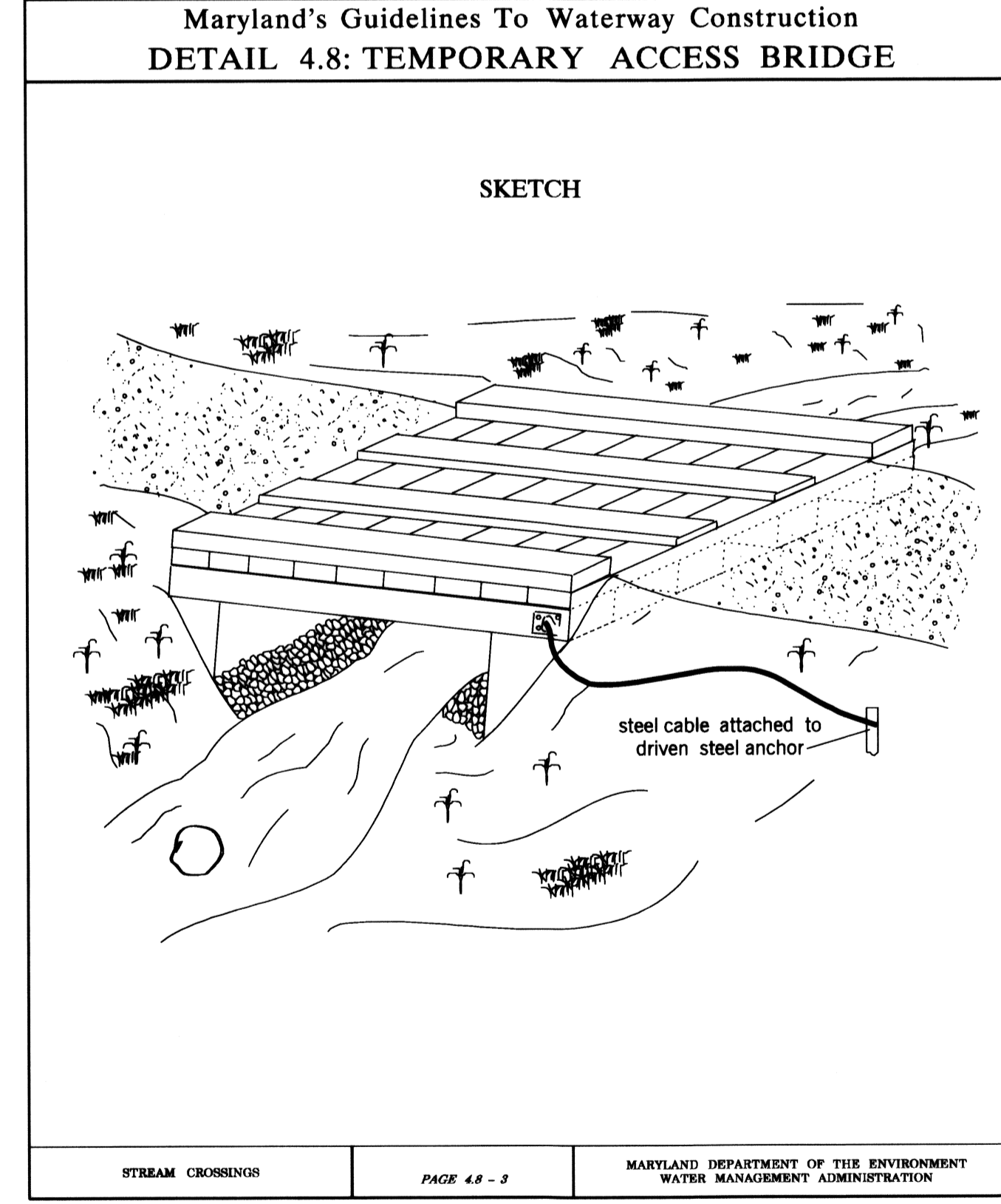
The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE

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

- Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at their own expense to the county's or utility company's satisfaction.
- The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should before the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
- The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.
- Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and stabilize disturbance within the work area whenever possible.
- Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the establishment of stabilized construction entrances in sand areas, work may begin downstream. If deviations from the WMA or local authority's approved plans occur, the contractor should obtain written approval from the WMA or local authority. The contractor should only begin work in an area which has been approved by the WMA or local authority and the pump around removed from the channel. Work should not be conducted in the channel during rain events.
- Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags.
- Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved device. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.
- Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment must traverse such a reach for access to another area, then timber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction.
- All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the approved plans and typical cross-sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.
- After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.
- A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.
- If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practice, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.
- The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.
- After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | REVISED NOVEMBER 2000 PAGE 12-3 | MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



TEMPORARY ACCESS BRIDGE

SEQUENCE OF CONSTRUCTION

- Abutments should be placed parallel to, and on, stable banks such that the structure is at or above bankfull depth to prevent the entrapment of floating materials and debris.
- Temporary access bridges should be constructed to span the entire channel.
- All decking members should be placed perpendicular to the stringers, butted tightly, and securely fastened to the stringers. Decking materials must be butted tightly to prevent any soil material tracked onto the bridge from falling into the waterway.
- Although run planks are optional, they may be necessary to properly distribute loads. One run plank should be provided for each track of the equipment wheels and should be securely fastened to the length of the span.
- Curbs or fenders may be installed along the outer sides of the deck to provide additional safety.
- Bridges should be securely anchored at one end using steel cable or chain to prevent the bridge from floating downstream and possibly causing an obstruction to the flow. Anchoring at only one end will prevent channel obstruction in the event that flood waters float the bridge. Acceptable anchors are large trees, boulders, or driven steel anchors.
- All areas disturbed during installation should be stabilized within 14 calendar days in accordance with a revegetation plan approved by the WMA.
- Periodic inspection should be performed by the user to ensure that the bridge, streambed, and stream banks are maintained and not damaged.
- Maintenance should be performed as needed to ensure that the structure complies with all standards and specifications. This should include the removal of trapped sediment and debris which should then be disposed of and stabilized outside the floodplain.
- When the temporary bridge is no longer needed, all structures including abutments and other bridging materials should be removed within 14 calendar days. Removal of the bridge and clean-up of the area, including protection and stabilization of disturbed stream banks, should be accomplished without the use of construction equipment in the waterway.

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REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

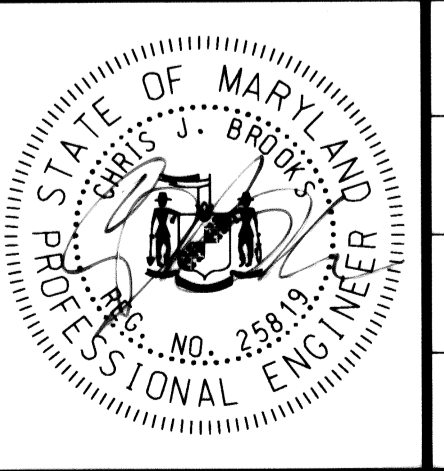
John R. Reuter 9/20/10
HOWARD SCD DATE

McCormick & Taylor
Engineers & Planners Since 1946

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

Howard County
MARYLAND

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

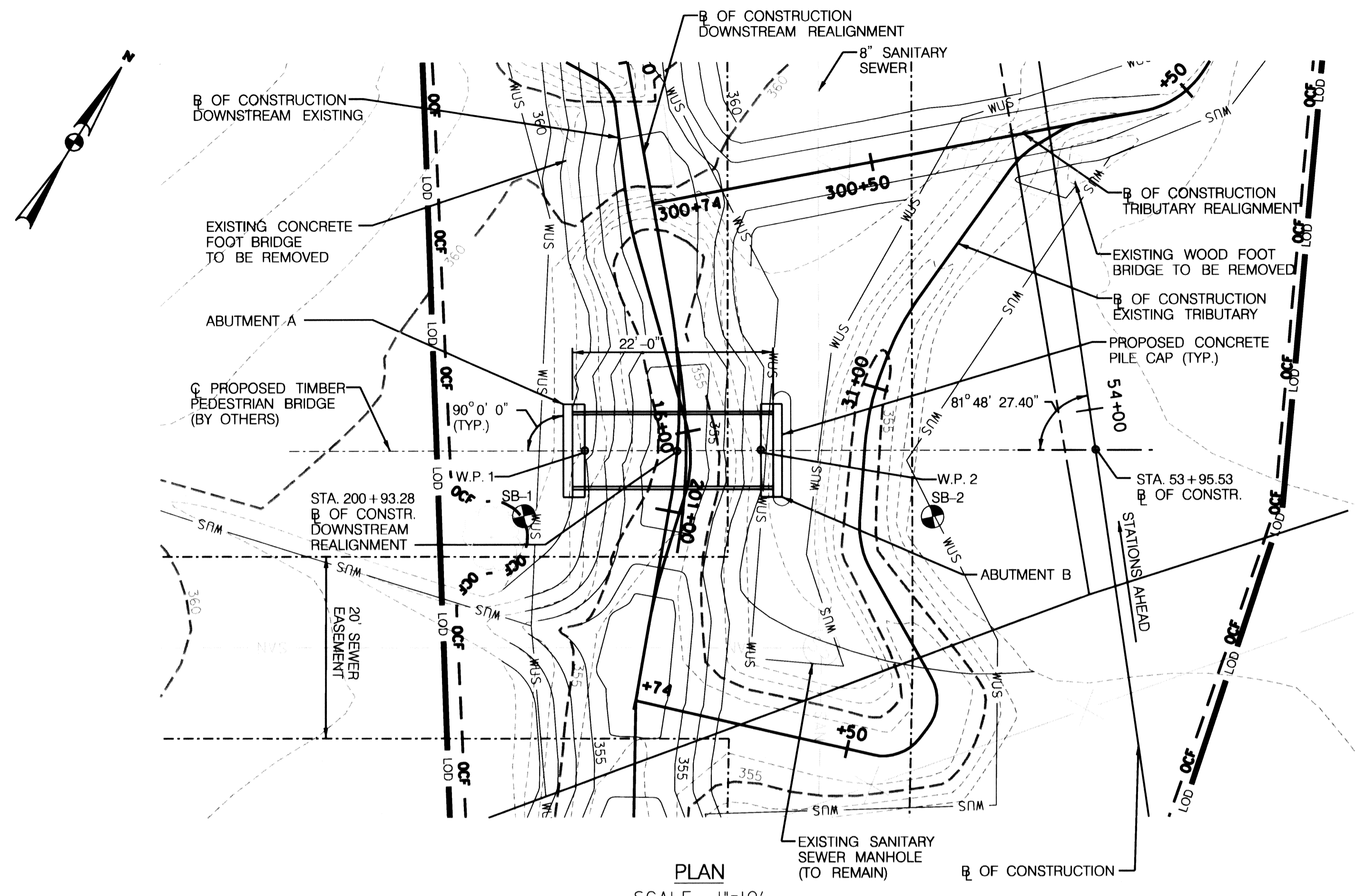


DES: DF					
DRN: AH					
CHK: DG					
DATE: 9/9/10	BY	NO.	REVISION	DATE	

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
OLD WILLOW WAY STREAM REHABILITATION PROJECT
CAPITAL PROJECT D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAPS 24 & 30; LOT 22
WAIVER PETITION #WP-10-163
EROSION AND SEDIMENT CONTROL DETAIL SHEET

SCALE NOT TO SCALE

SHEET 13 OF 26



- LEGEND**
- 360 --- EXISTING 1' CONTOURS
 - 360 — PROPOSED 1' CONTOURS
 - LOD — LIMIT OF DISTURBANCE
 - OCF — ORANGE CONSTRUCTION FENCE
 - SAN — EXISTING SANITARY
 - WUS — WATERS OF THE U.S.
 - ℄ BASELINE
 - B.P.C.E. BOTTOM OF PILE CAP ELEVATION
 - ℄ CENTERLINE
 - CONSTR. CONSTRUCTION
 - EL./ ELEV. ELEVATION
 - TYP. TYPICAL
 - W.S.E. WATER SURFACE ELEVATION
 - W.P. WORKING POINT
 - ⊙ EXISTING STRUCTURE BORING

NOTE:
1. RIP RAP, BOULDERS, AND STEP POOLS FOR STREAM REHABILITATION NOT SHOWN FOR CLARITY. SEE SHEET NOS. 5 & 8 FOR DETAILS.

- ABUTMENT GENERAL NOTES:**
- SPECIFICATIONS:**
HOWARD COUNTY DESIGN MANUAL, VOLUME III, ROADS & BRIDGES, OCTOBER 2006.
SHA SPECIFICATIONS DATED JULY 2008, REVISIONS THEROF AND ADDITIONS THERETO AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2010.
AASHTO LFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES, AUGUST 1997
REINFORCING STEEL DESIGN: $f_y = 60\text{ksi}$
- LOADING:**
PEDESTRIAN LIVE LOAD: 85 PSF
- CONCRETE:**
ALL SUBSTRUCTURE CONCRETE SHALL BE MIX NO. 3 (3500 PSI).
- REINFORCING STEEL:**
REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. MINIMUM COVER FOR ANY 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.
FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCES.
ONLY GRADE 60 STEEL CAN BE USED ON THIS PROJECT

TIMBER PEDESTRIAN BRIDGE DESIGN/CONSTRUCTION:
PEDESTRIAN BRIDGE TO BE DESIGNED BY OTHERS

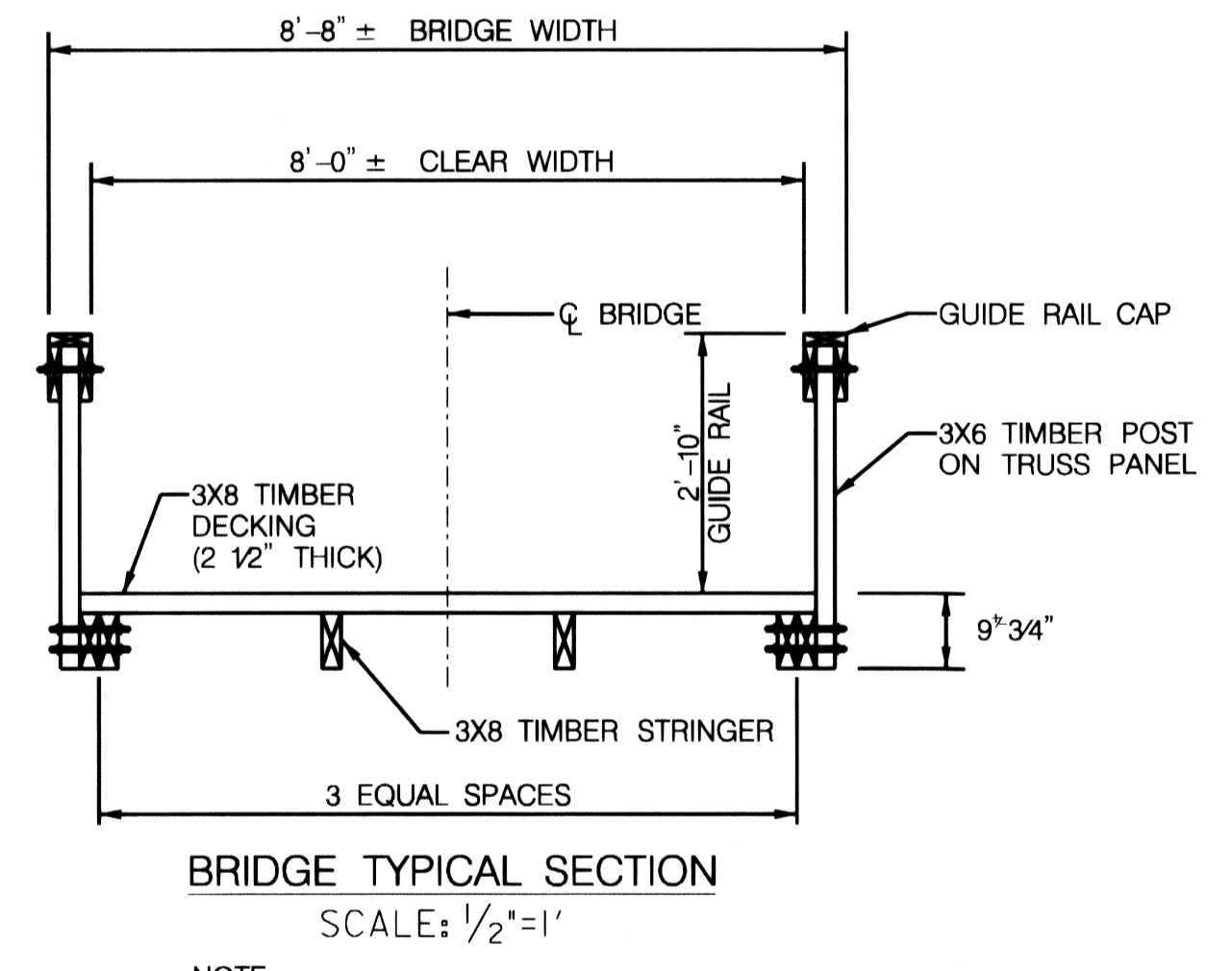
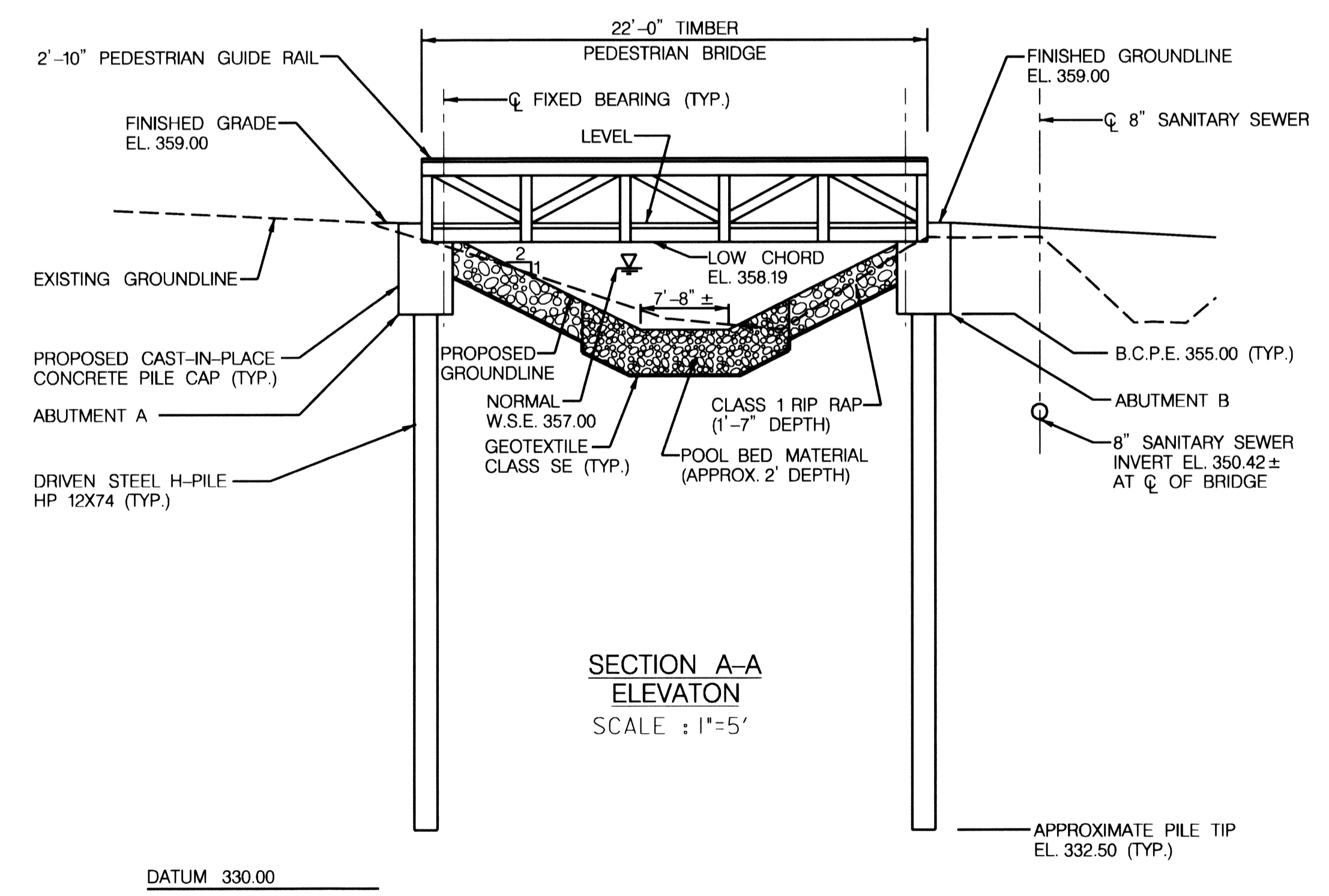
STABILIZING STRUCTURAL EXCAVATION:
THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF ALL EXCAVATED SLOPES AND THE DESIGN OF ANY TEMPORARY SHORING AND BRACING THAT MAY BE USED. ALL SURFACE RUNOFF SHOULD BE DIVERTED AWAY FROM EXCAVATIONS. PERFORM ALL EXCAVATIONS IN ACCORDANCE WITH OSHA REQUIREMENTS.

CONTRACTOR IS TO EXERCISE EXTREME CAUTION WHEN PERFORMING EXCAVATIONS FOR THE EAST ABUTMENT DUE TO THE CLOSE PROXIMITY OF THE 8" SANITARY SEWER LINE. ANY DAMAGE TO THE 8 INCH SEWER LINE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

SHORING IS REQUIRED FOR ANY EXCAVATION EXCEEDING 5 FEET IN HEIGHT. PAYMENT FOR DESIGN AND CONSTRUCTION OF SHORING OR COFFERDAMS SHALL BE MADE UNDER CLASS 3 EXCAVATION. IN LIEU OF SHORING, THE CONTRACTOR MAY USE 2:1 CUT SLOPE IF PERMITTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR ADDITIONAL EXCAVATION OR FILL OUTSIDE THE PAY LIMITS DEFINED IN SECTION 402 OF THE SHA STANDARD SPECIFICATIONS.

BACKFILL AND GRADE ALL EXCAVATIONS AS SOON AS POSSIBLE TO PREVENT SURFACE WATER PONDING AND CONCENTRATING FLOW FROM ENTERING THE EXCAVATION. KEEP THE EXCAVATION DRY WITH PUMPS AS REQUIRED.

UTILITIES
UTILITIES AS SHOWN ON THE PLANS FOR INFORMATION ONLY. THE PRESENCE, SIZE, AND LOCATION OF ALL UTILITIES SHALL BE VERIFIED IN THE FIELD.



NOTE:
1. EXACT SIZE OF BRIDGE MEMBERS TO BE DETERMINED BY OTHERS.

- NOTES:**
1. TIMBER PEDESTRIAN BRIDGE TO BE DESIGNED BY OTHERS.
 2. FOR ABUTMENT PILE LAYOUT & REINFORCEMENT DETAILS, SEE SHEET NO. 15.
 3. FOR SEQUENCE OF CONSTRUCTION, SEE SHEET NO. 12.
 4. AFTER THE CONSTRUCTION OF THE BRIDGE ABUTMENTS IS COMPLETE, THE CONTRACTOR SHALL INSTALL THE RIP RAP, BOULDERS, AND STEP POOLS AS OUTLINED ON SHEET NOS. 5 & 8.

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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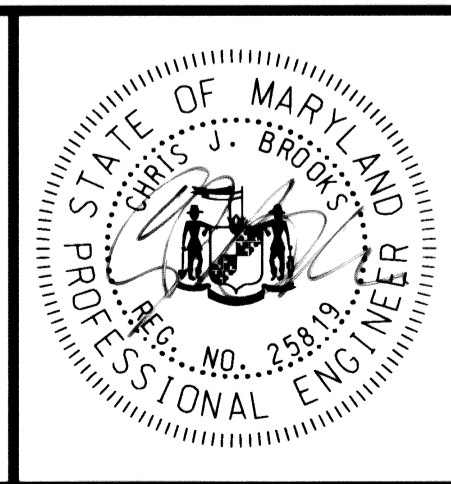
HOWARD SCD DATE

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(410) 662-7400

Howard County
MARYLAND

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



DES: HUM					
DRN: MER					
CHK: CJB					
DATE: 9/9/10	BY	NO.	REVISION	DATE	

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OLD WILLOW WAY STREAM REHABILITATION PROJECT
CAPITAL PROJECT D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAPS 24 & 30; LOT 22
WAIVER PETITION #W/P-10-163
BRIDGE PLAN, ELEVATION
& TYPICAL SECTION**

SCALE
1"=10'
SHOWN

SHEET
14 OF 26

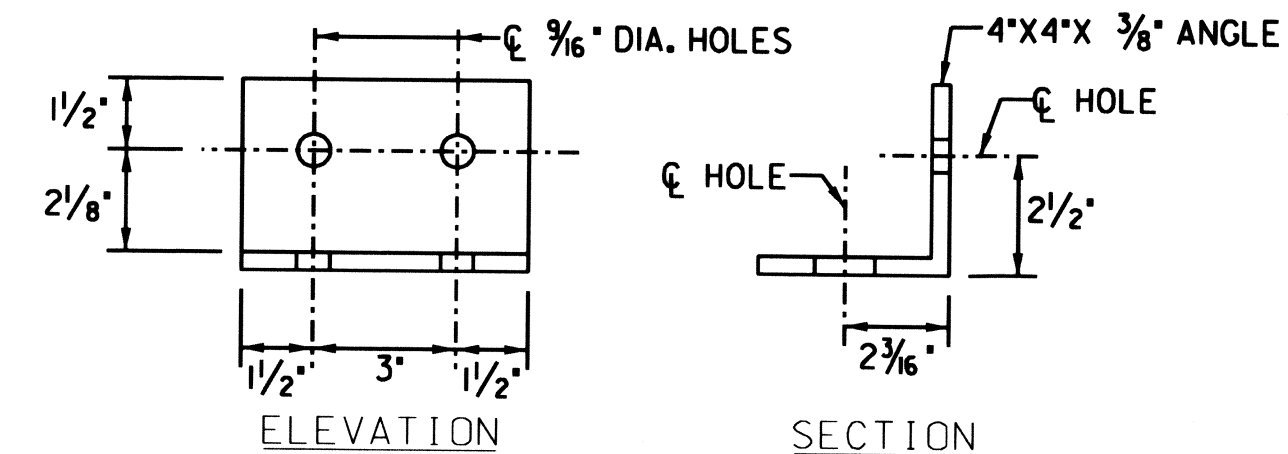
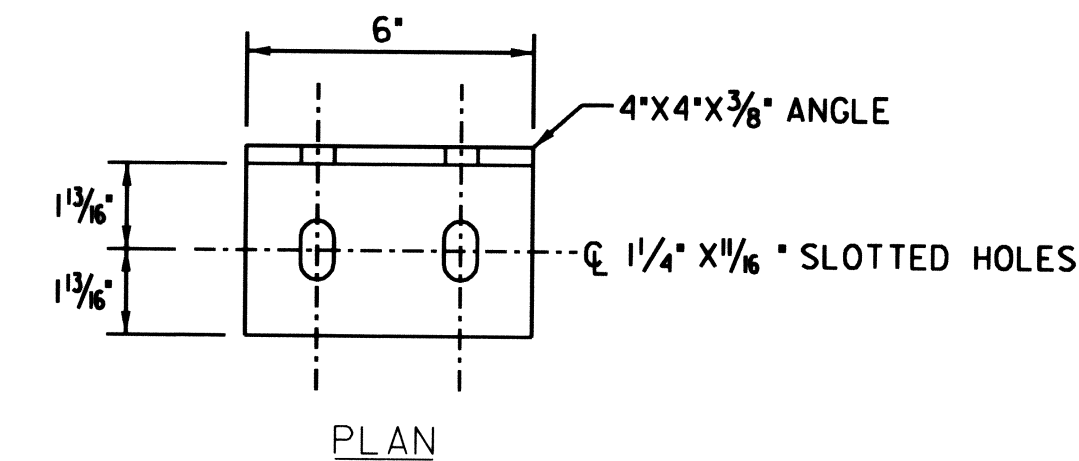
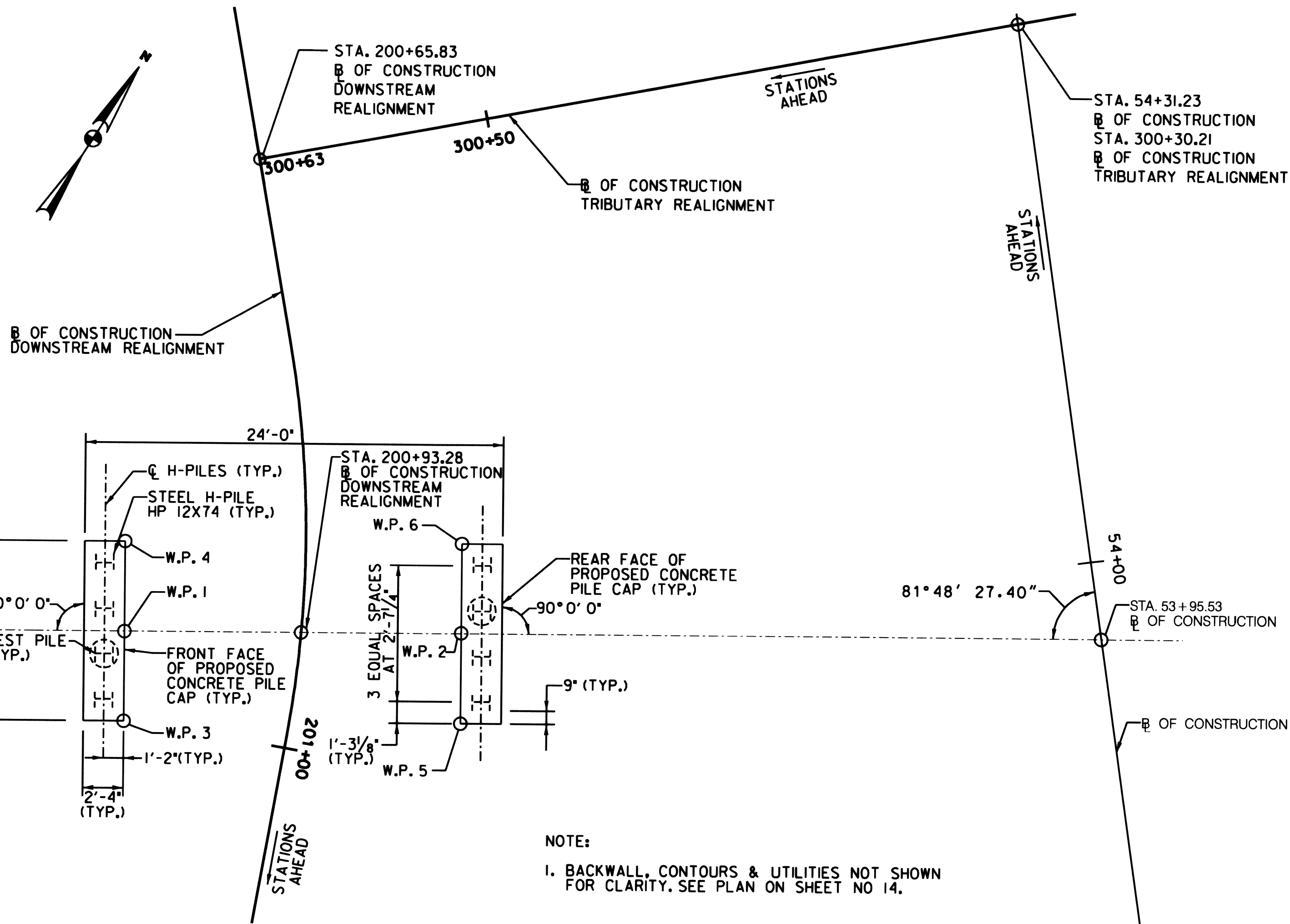
WORKING POINTS TABLE				
W.P. NO.	B OF CONSTRUCTION STATION	OFFSET	NORTHING	EASTING
1	54+03.52	55.52 LT	576,595.6303	1,353,645.5011
2	54+00.77	36.38 LT	576,605.9217	1,353,661.8677
3	53+98.41	56.25 LT	576,591.2565	1,353,648.2514
4	54+08.64	54.78 LT	576,600.0041	1,353,642.7508
5	53+95.65	37.12 LT	576,601.5479	1,353,664.6180
6	54+05.88	35.64 LT	576,610.2956	1,353,659.1174

PILE DESIGN DATA	
B.P.C.E.	355.00
FACTORED AXIAL LOAD (KIP/PILE)	5.93
FACTORED AXIAL RESISTANCE (KIP/PILE)	5.94
GOVERNING LIMIT STATE	SER-1
FACTORED LATERAL LOAD (KIP/PILE)	6.14
FACTORED LATERAL RESISTANCE (KIP/PILE)	10.70
GOVERNING LIMIT STATE	STR-1

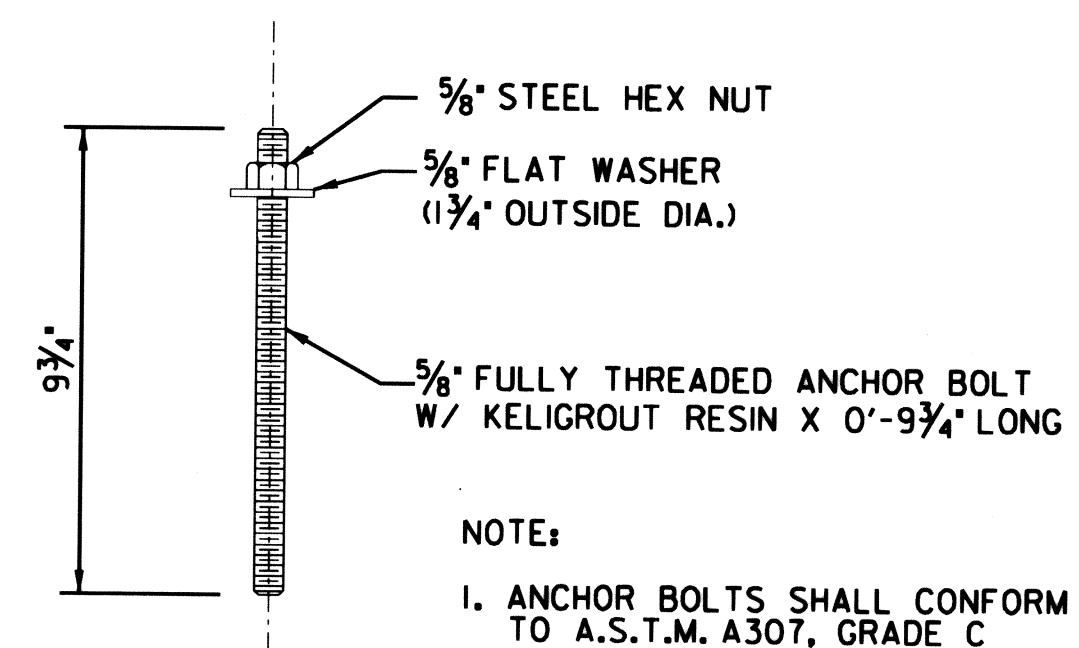
PILING NOTE:
 THE DESIGN BEARING VALUE OF THE HP 12x74 PILING IS 5.93 KIPS. THE MINIMUM SAFE BEARING VALUE TO WHICH THE HP 12x74 PILING CAN BE DRIVEN IS 19.00 KIPS. THE MINIMUM CUT-OFF ELEVATION OF THE HP 12x74 PILING WITHIN THE PILE CAP SHALL BE ELEVATION 356.00. THE ESTIMATED PILE TIP ELEVATION FOR THE HP 12x74 PILING IS ELEVATION 332.50. THE MINIMUM PILE TIP ELEVATION IS ELEVATION 332.50.

SHOP DRAWINGS SHALL SHOW HOW REINFORCEMENT IS TO BE TIED AS WELL AS HOW THEY WILL BE HELD IN PLACE ABOVE PILING.

THE MINIMUM SAFE BEARING VALUE AND MINIMUM PENETRATION SHOWN ON THESE PLANS MUST BE ACHIEVED FOR EACH PILE. IF THE ESTIMATED TIP ELEVATION IS NOT REACHED OR IS EXCEEDED WHILE ACHIEVING THE MINIMUM SAFE BEARING VALUE AND THE MINIMUM PENETRATION, THE PILE WILL BE CONSIDERED SATISFACTORY.

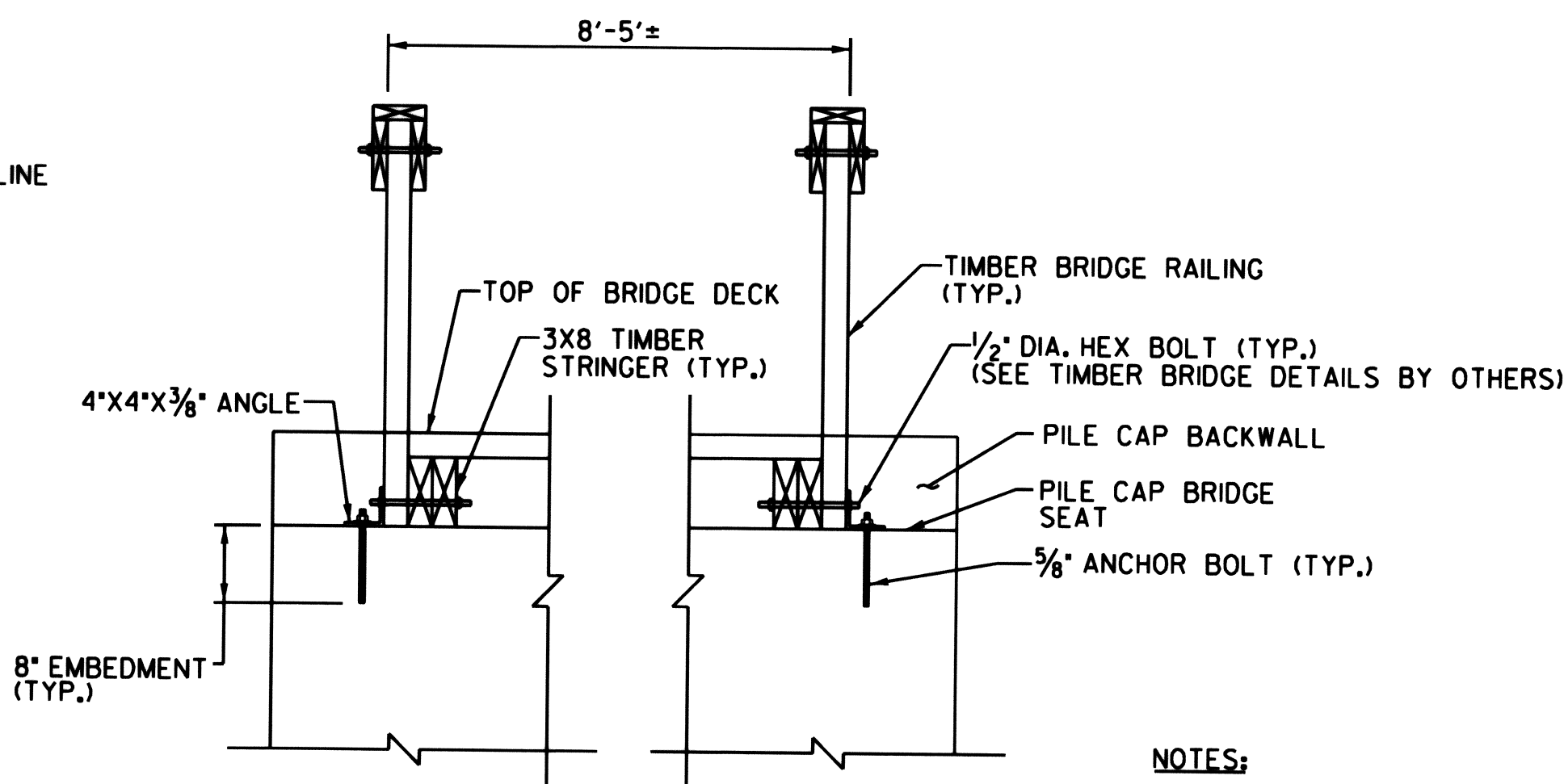
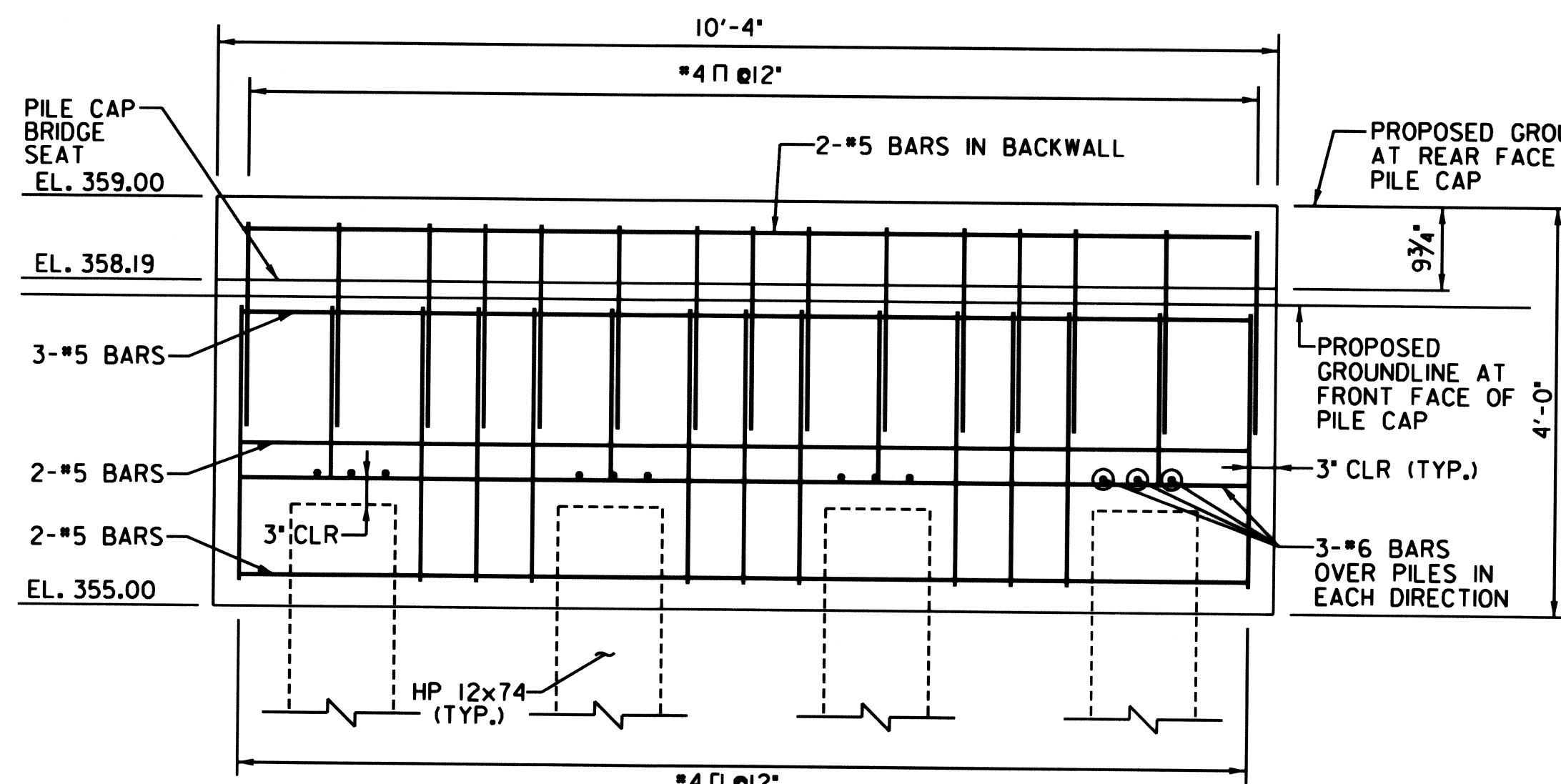
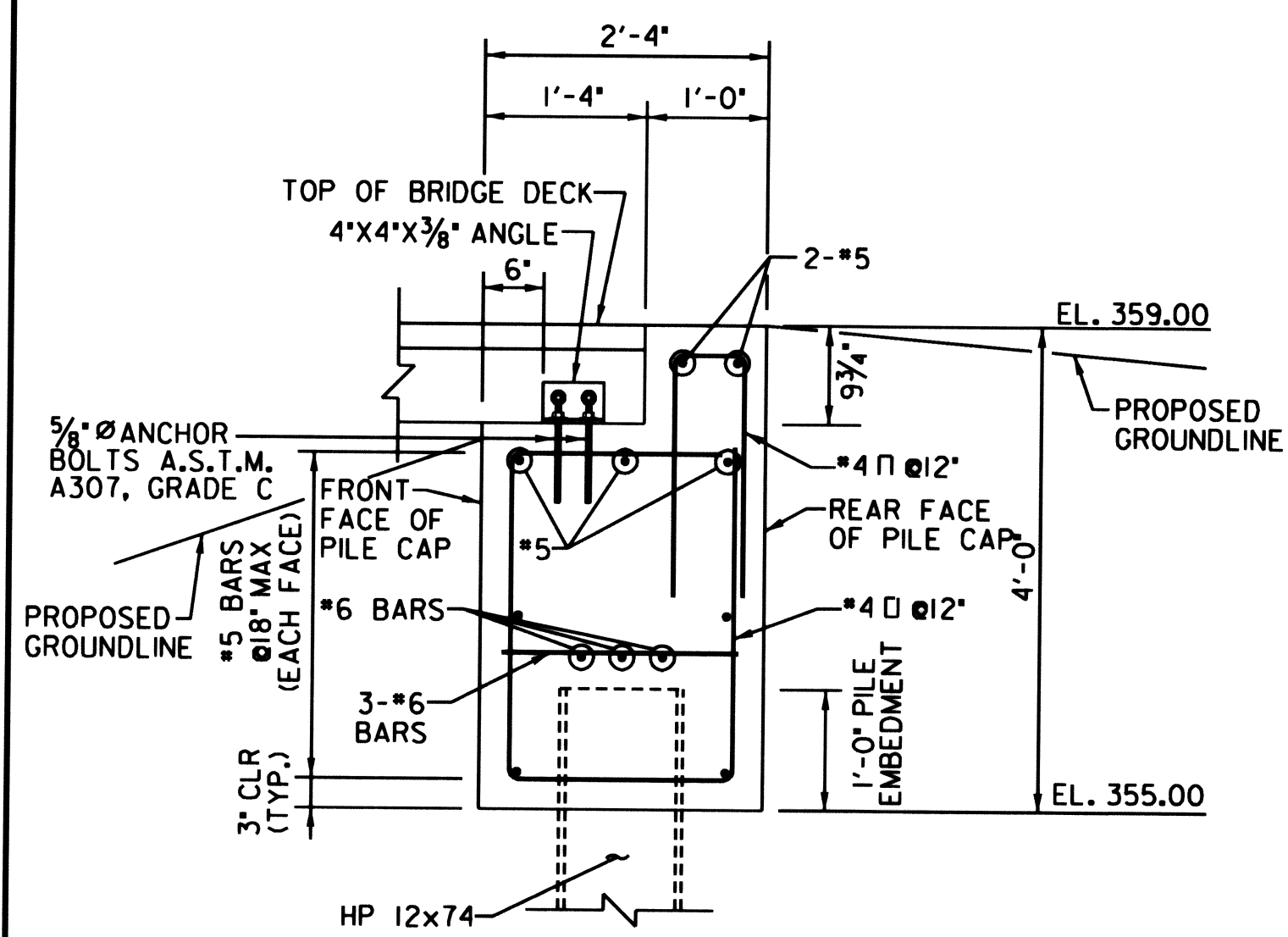


ANGLE DETAIL
 SCALE: 3" = 1'-0"



NOTE:
 1. ANCHOR BOLTS SHALL CONFORM TO A.S.T.M. A307, GRADE C

ABUTMENT PILE LAYOUT
 SCALE: 1" = 5'

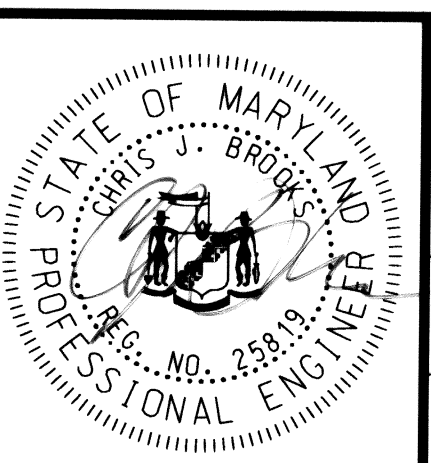


NOTES:
 1. FOR ABUTMENT GENERAL NOTES AND GENERAL PLAN & ELEVATION, SEE SHEET NO 14.

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
 THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
 HOWARD SCD DATE

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Howard County
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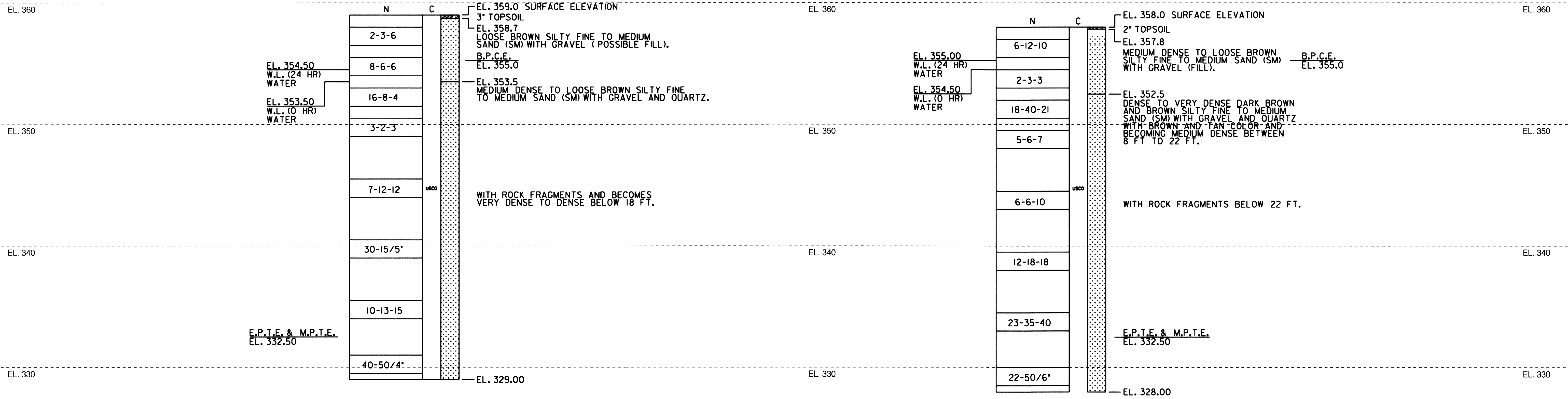
DES: HUM				
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 ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
 TAX MAPS 24 & 30; LOT 22
 WAIVER PETITION #WP-10-163
ABUTMENT PILE LAYOUT & REINFORCEMENT DETAILS

SCALE AS SHOWN
 SHEET 15 OF 26

BORING SB-1
 B OF CONSTRUCTION STA. 53+97.35±,
 OFFSET 63.13± LT.

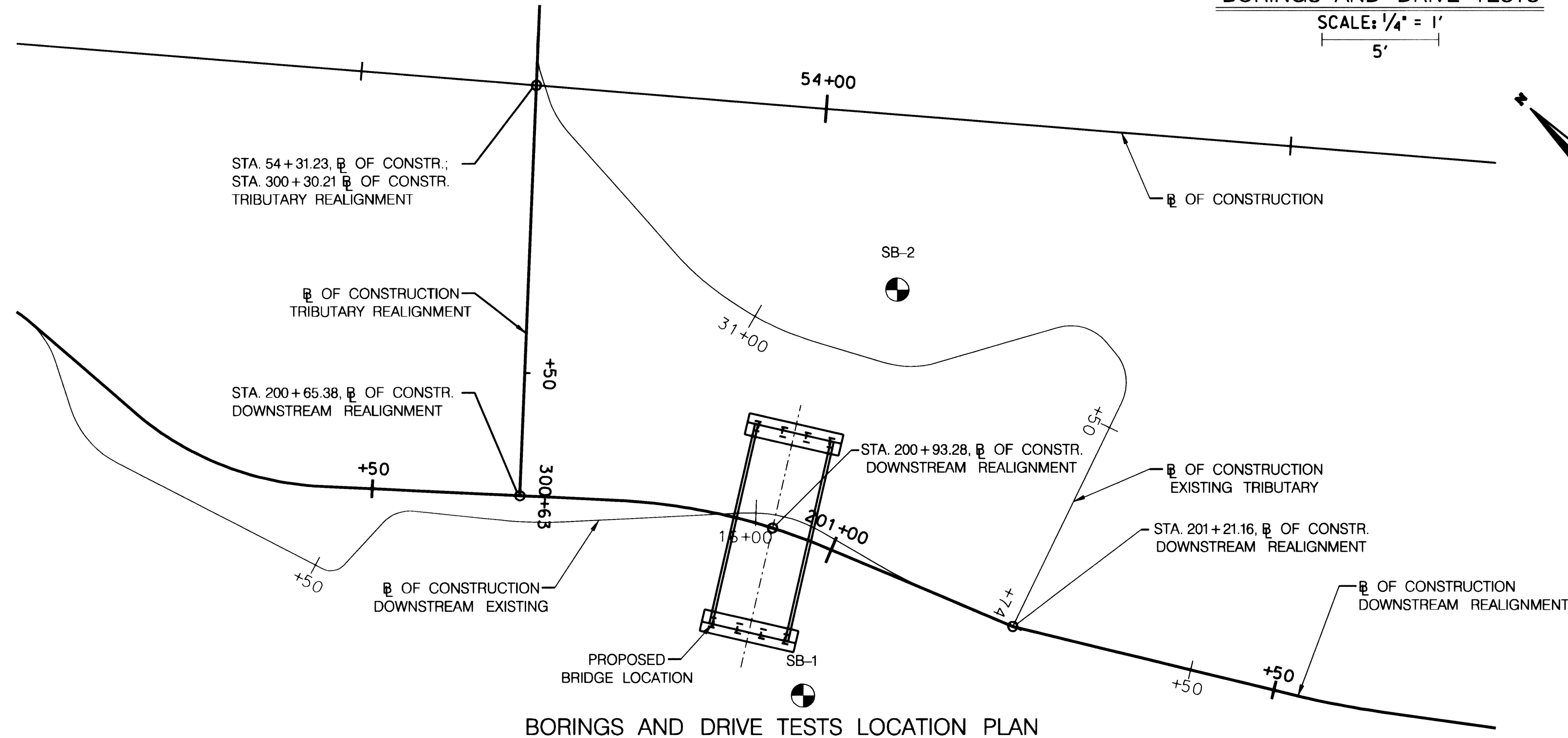
BORING SB-2
 B OF CONSTRUCTION STA. 53+90.82±,
 OFFSET 18.76± LT.



DATUM EL. 325

BORINGS AND DRIVE TESTS

SCALE: 1/4" = 1'
 5'



BORINGS AND DRIVE TESTS LOCATION PLAN

SCALE: 1" = 10'
 10'

NOTES:

1. THE BORINGS AND DRIVE TESTS WERE TAKEN IN APRIL, 2010 BY AB CONSULTANTS. THE LOCATIONS OF THE BORINGS ARE APPROXIMATE
2. THE SOIL SYMBOLS REFLECT ONLY THE MAJOR SOIL CONSTITUENT, FOR MORE COMPLETE SOIL CHARACTERISTIC REFER TO THE SOIL DESCRIPTIVE TEXT.
3. THE FIELD BORING LOGS RECORD SAMPLE SPOON RECOVERY, THE LOGS ARE AVAILABLE UPON REQUEST.
4. N = BLOWS ON A 2 INCH OD SAMPLING SPOON BY 140 LB. DRIVE-WEIGHT FALLING 30 INCHES INDICATING SUCCESSIVE 6 INCH INCREMENTS OF PENETRATION IN LIEU OF BLOWS PER FOOT.
5. C = DEPTH OF HOLLOW-STEM CONTINUOUS FLIGHT AUGER WITH A 3/4" INCH ID.
6. W.L. = WATER LEVEL READING, THE FIGURE IN PARENTHESIS INDICATES THE READING IN HOURS AFTER COMPLETION OF BORING.
7. BORINGS AND SAMPLINGS CONFORM TO AASHTO DESIGNATIONS T-206 AND T-306.
8. THE SOIL HAS BEEN VISUALLY CLASSIFIED BY THE DRILLER.
9. B.P.C.E. = BOTTOM OF PILE CAP ELEVATION
10. E.P.T.E. = ESTIMATED PILE TIP ELEVATION
11. M.P.T.E. = MINIMUM PILE TIP ELEVATION

REVIEWED FOR HOWARD SCD
 AND MEETS TECHNICAL REQUIREMENTS

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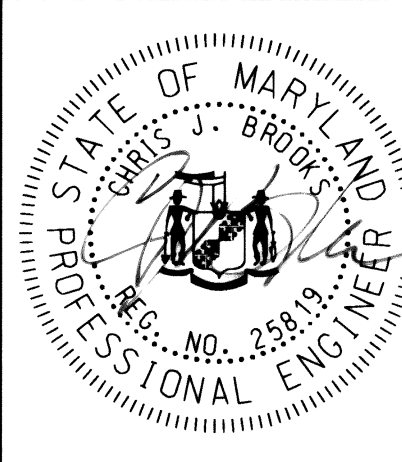
HOWARD SCD DATE

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Howard County
 MARYLAND

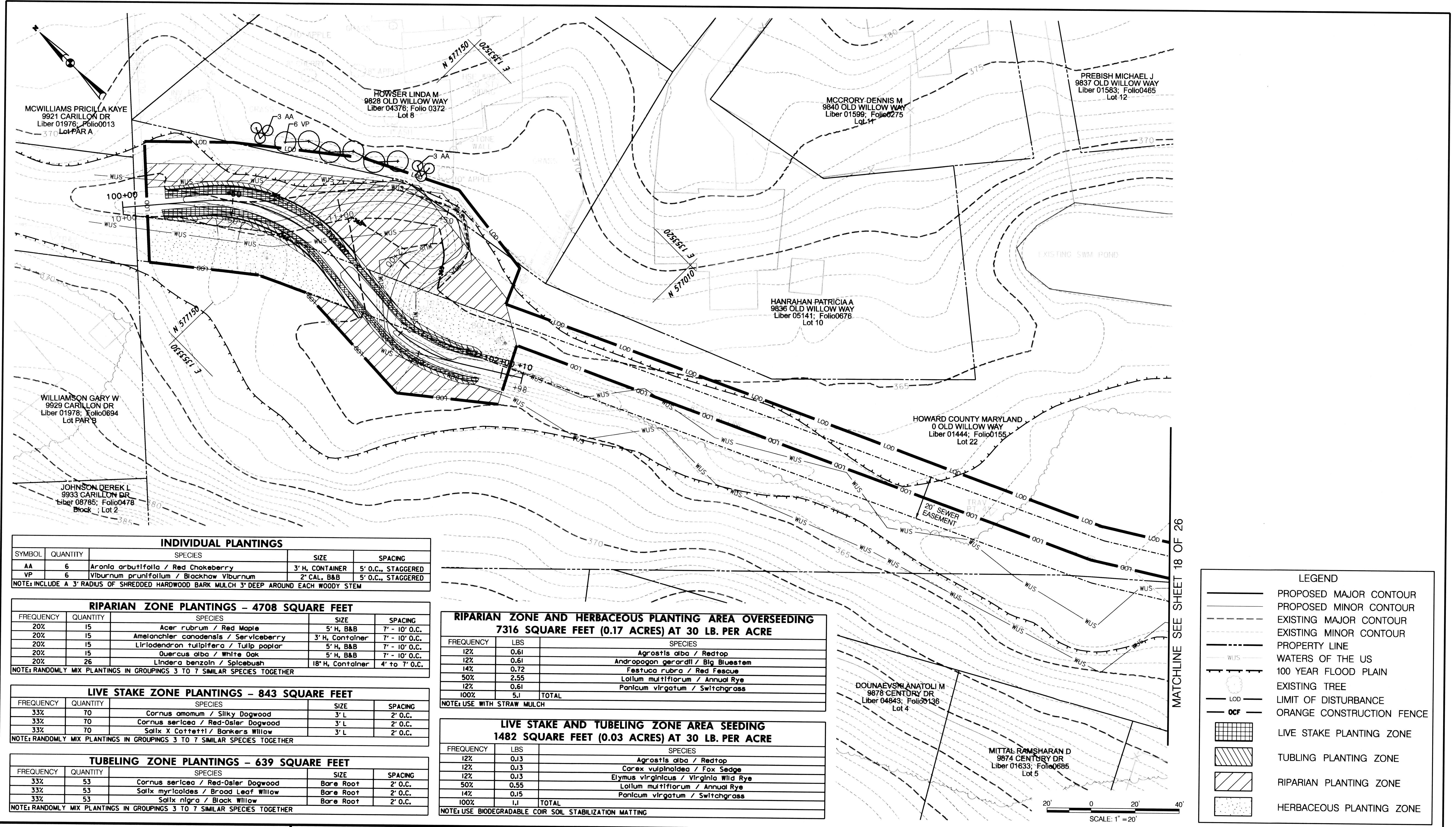
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 TAX MAPS 24 & 30; LOT 22
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SOIL BORING AND DRIVE TESTS

SCALE
 AS SHOWN
 SHEET
 16 OF 26



INDIVIDUAL PLANTINGS				
SYMBOL	QUANTITY	SPECIES	SIZE	SPACING
AA	6	<i>Aronia arbutifolia</i> / Red Chokeberry	3' H. CONTAINER	5' O.C., STAGGERED
VP	6	<i>Viburnum prunifolium</i> / Blackhaw Viburnum	2" CAL. B&B	5' O.C., STAGGERED

NOTE: INCLUDE A 3' RADIUS OF SHREDDED HARDWOOD BARK MULCH 3" DEEP AROUND EACH WOODY STEM

RIPARIAN ZONE PLANTINGS - 4708 SQUARE FEET				
FREQUENCY	QUANTITY	SPECIES	SIZE	SPACING
20%	15	<i>Acer rubrum</i> / Red Maple	5' H. B&B	7' - 10' O.C.
20%	15	<i>Amelanchier canadensis</i> / Serviceberry	3' H. CONTAINER	7' - 10' O.C.
20%	15	<i>Liriodendron tulipifera</i> / Tulip poplar	5' H. B&B	7' - 10' O.C.
20%	15	<i>Quercus alba</i> / White Oak	5' H. B&B	7' - 10' O.C.
20%	26	<i>Lindera benzoin</i> / Spicebush	18" H. CONTAINER	4' to 7' O.C.

NOTE: RANDOMLY MIX PLANTINGS IN GROUPINGS 3 TO 7 SIMILAR SPECIES TOGETHER

LIVE STAKE ZONE PLANTINGS - 843 SQUARE FEET				
FREQUENCY	QUANTITY	SPECIES	SIZE	SPACING
33%	70	<i>Cornus amomum</i> / Silky Dogwood	3' L	2' O.C.
33%	70	<i>Cornus sericea</i> / Red-Osier Dogwood	3' L	2' O.C.
33%	70	<i>Salix X Coffeati</i> / Bankers Willow	3' L	2' O.C.

NOTE: RANDOMLY MIX PLANTINGS IN GROUPINGS 3 TO 7 SIMILAR SPECIES TOGETHER

TUBELING ZONE PLANTINGS - 639 SQUARE FEET				
FREQUENCY	QUANTITY	SPECIES	SIZE	SPACING
33%	53	<i>Cornus sericea</i> / Red-Osier Dogwood	Bare Root	2' O.C.
33%	53	<i>Salix myricoides</i> / Broad Leaf Willow	Bare Root	2' O.C.
33%	53	<i>Salix nigra</i> / Black Willow	Bare Root	2' O.C.

NOTE: RANDOMLY MIX PLANTINGS IN GROUPINGS 3 TO 7 SIMILAR SPECIES TOGETHER

RIPARIAN ZONE AND HERBACEOUS PLANTING AREA OVERSEEDING 7316 SQUARE FEET (0.17 ACRES) AT 30 LB. PER ACRE			
FREQUENCY	LBS	SPECIES	
12%	0.61	<i>Agrostis alba</i> / Redtop	
12%	0.61	<i>Andropogon gerardii</i> / Big Bluestem	
14%	0.72	<i>Festuca rubra</i> / Red Fescue	
50%	2.55	<i>Lolium multiflorum</i> / Annual Rye	
12%	0.61	<i>Panicum virgatum</i> / Switchgrass	
100%	5.1	TOTAL	

NOTE: USE WITH STRAW MULCH

LIVE STAKE AND TUBELING ZONE AREA SEEDING 1482 SQUARE FEET (0.03 ACRES) AT 30 LB. PER ACRE			
FREQUENCY	LBS	SPECIES	
12%	0.13	<i>Agrostis alba</i> / Redtop	
12%	0.13	<i>Carex vulpinoidea</i> / Fox Sedge	
12%	0.13	<i>Elymus virginicus</i> / Virginia Wild Rye	
50%	0.55	<i>Lolium multiflorum</i> / Annual Rye	
14%	0.15	<i>Panicum virgatum</i> / Switchgrass	
100%	1.1	TOTAL	

NOTE: USE BIODEGRADABLE COIR SOIL STABILIZATION MATTING

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPERTY LINE
- WATERS OF THE US
- 100 YEAR FLOOD PLAIN
- EXISTING TREE
- LIMIT OF DISTURBANCE
- ORANGE CONSTRUCTION FENCE
- LIVE STAKE PLANTING ZONE
- TUBLING PLANTING ZONE
- RIPARIAN PLANTING ZONE
- HERBACEOUS PLANTING ZONE

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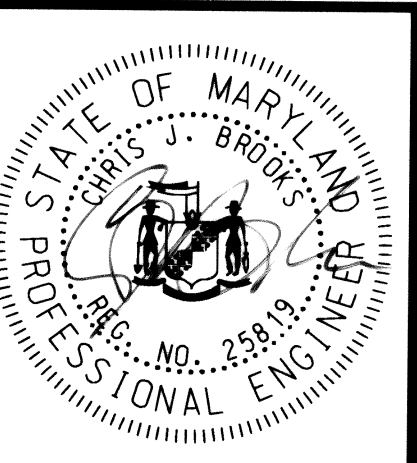
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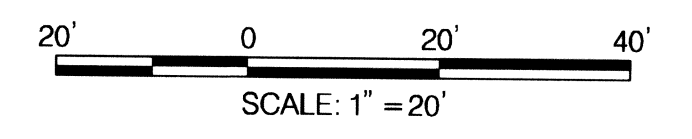
HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
OLD WILLOW WAY STREAM REHABILITATION PROJECT
CAPITAL PROJECT D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAPS 24 & 30; LOT 22
WAIVER PETITION #WP-10-163

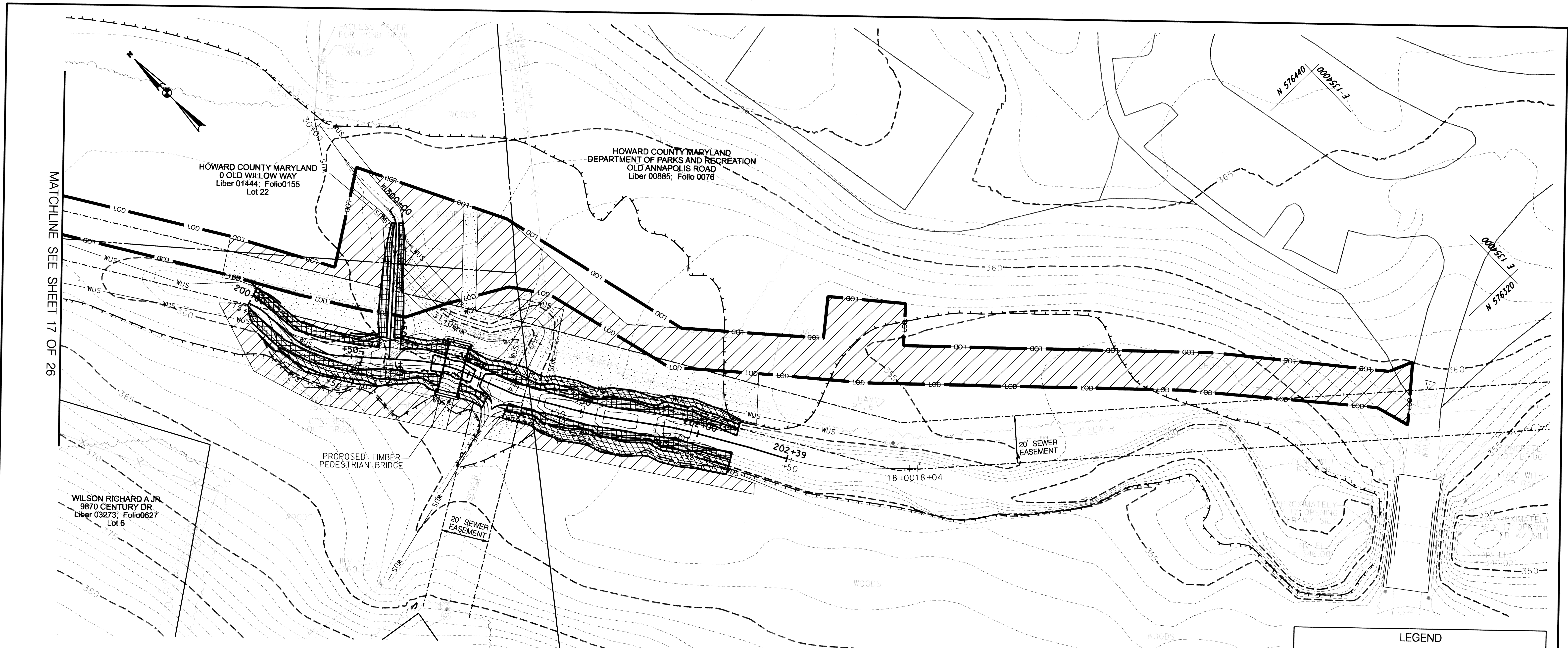
LANDSCAPING PLAN

SCALE
1" = 20'

SHEET
17 OF 26

MATCHLINE SEE SHEET 18 OF 26





MATCHLINE SEE SHEET 17 OF 26

RIPARIAN ZONE PLANTINGS - 11997 SQUARE FEET

FREQUENCY	QUANTITY	SPECIES	SIZE	SPACING
20%	38	Acer rubrum / Red Maple	5' H, B&B	7' - 10' O.C.
20%	38	Amelanchier canadensis / Serviceberry	3' H, CONTAINER	7' - 10' O.C.
20%	38	Liriodendron tulipifera / Tulip poplar	5' H, B&B	7' - 10' O.C.
20%	38	Quercus alba / White Oak	5' H, B&B	7' - 10' O.C.
20%	67	Lindera benzoin / Spicebush	18" H, CONTAINER	4' to 7' O.C.

NOTE: RANDOMLY MIX PLANTINGS IN GROUPINGS 3 TO 7 SIMILAR SPECIES TOGETHER

LIVE STAKE ZONE PLANTINGS - 1610 SQUARE FEET

FREQUENCY	QUANTITY	SPECIES	SIZE	SPACING
33%	134	Cornus amomum / Silky Dogwood	3' L	2' O.C.
33%	134	Cornus sericea / Red-Osier Dogwood	3' L	2' O.C.
33%	134	Salix x cottinii / Bankers Willow	3' L	2' O.C.

NOTE: RANDOMLY MIX PLANTINGS IN GROUPINGS 3 TO 7 SIMILAR SPECIES TOGETHER

TUBELING ZONE PLANTINGS - 1414 SQUARE FEET

FREQUENCY	QUANTITY	SPECIES	SIZE	SPACING
33%	118	Cornus sericea / Red-Osier Dogwood	Bare Root	2' O.C.
33%	118	Salix myricoides / Broad Leaf Willow	Bare Root	2' O.C.
33%	118	Salix nigra / Black Willow	Bare Root	2' O.C.

NOTE: RANDOMLY MIX PLANTINGS IN GROUPINGS 3 TO 7 SIMILAR SPECIES TOGETHER

**RIPARIAN ZONE AND HERBACEOUS PLANTING AREA OVERSEEDING
16220 SQUARE FEET (0.37 ACRES) AT 30 LB. PER ACRE**

FREQUENCY	LBS	SPECIES
12%	1.34	Agrostis alba / Redtop
12%	1.34	Andropogon gerardii / Big Bluestem
14%	1.57	Festuca rubra / Red Fescue
50%	5.60	Lolium multiflorum / Annual Rye
12%	1.34	Panicum virgatum / Switchgrass
100%	11.2	total

NOTE: USE WITH STRAW MULCH

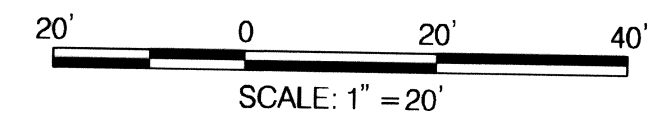
**LIVE STAKE AND TUBELING ZONE AREA SEEDING
3024 SQUARE FEET (0.07 ACRES) AT 30 LB. PER ACRE**

FREQUENCY	LBS	SPECIES
12%	0.25	Agrostis alba / Redtop
12%	0.25	Carex vulpinoidea / Fox Sedge
12%	0.25	Elymus virginicus / Virginia Wild Rye
50%	1.05	Lolium multiflorum / Annual Rye
14%	0.29	Panicum virgatum / Switchgrass
100%	2.1	total

NOTE: USE BIODEGRADABLE COIR SOIL STABILIZATION MATTING

LEGEND

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- - - EXISTING MINOR CONTOUR
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- WUS WATERS OF THE US
- 100 YEAR FLOOD PLAIN
- EXISTING TREE
- LOD LIMIT OF DISTURBANCE
- OCF ORANGE CONSTRUCTION FENCE
- [Grid Pattern] LIVE STAKE PLANTING ZONE
- [Diagonal Lines] TUBELING PLANTING ZONE
- [Hatched Pattern] RIPARIAN PLANTING ZONE
- [Dotted Pattern] HERBACEOUS PLANTING ZONE



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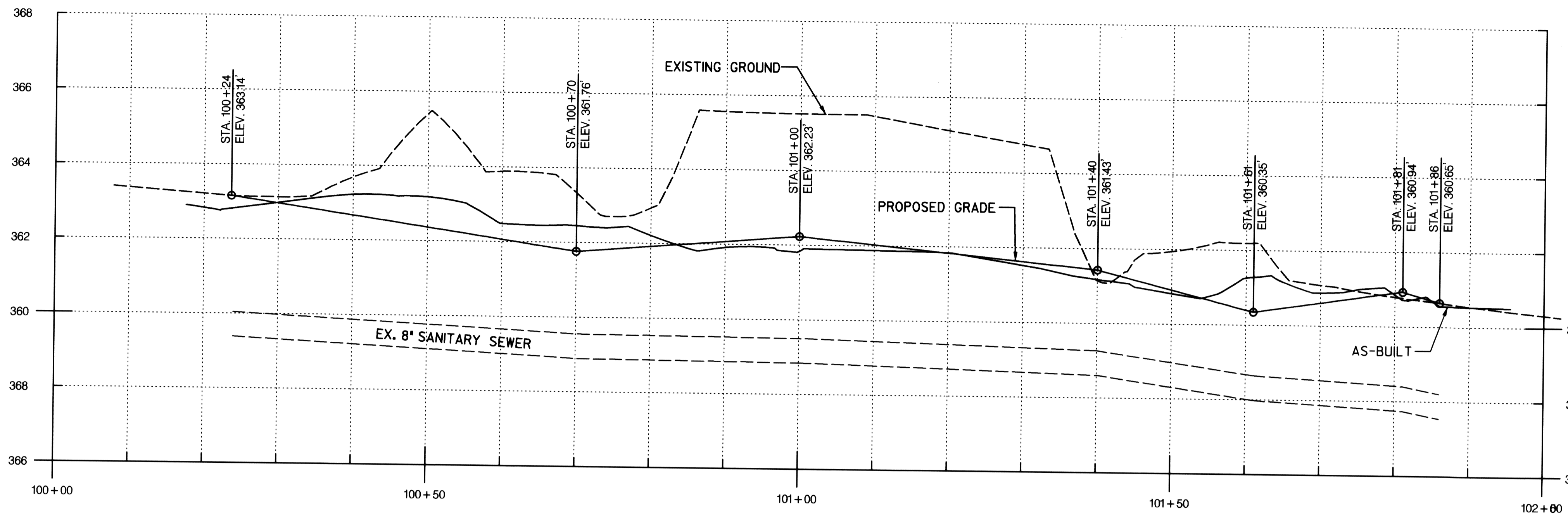
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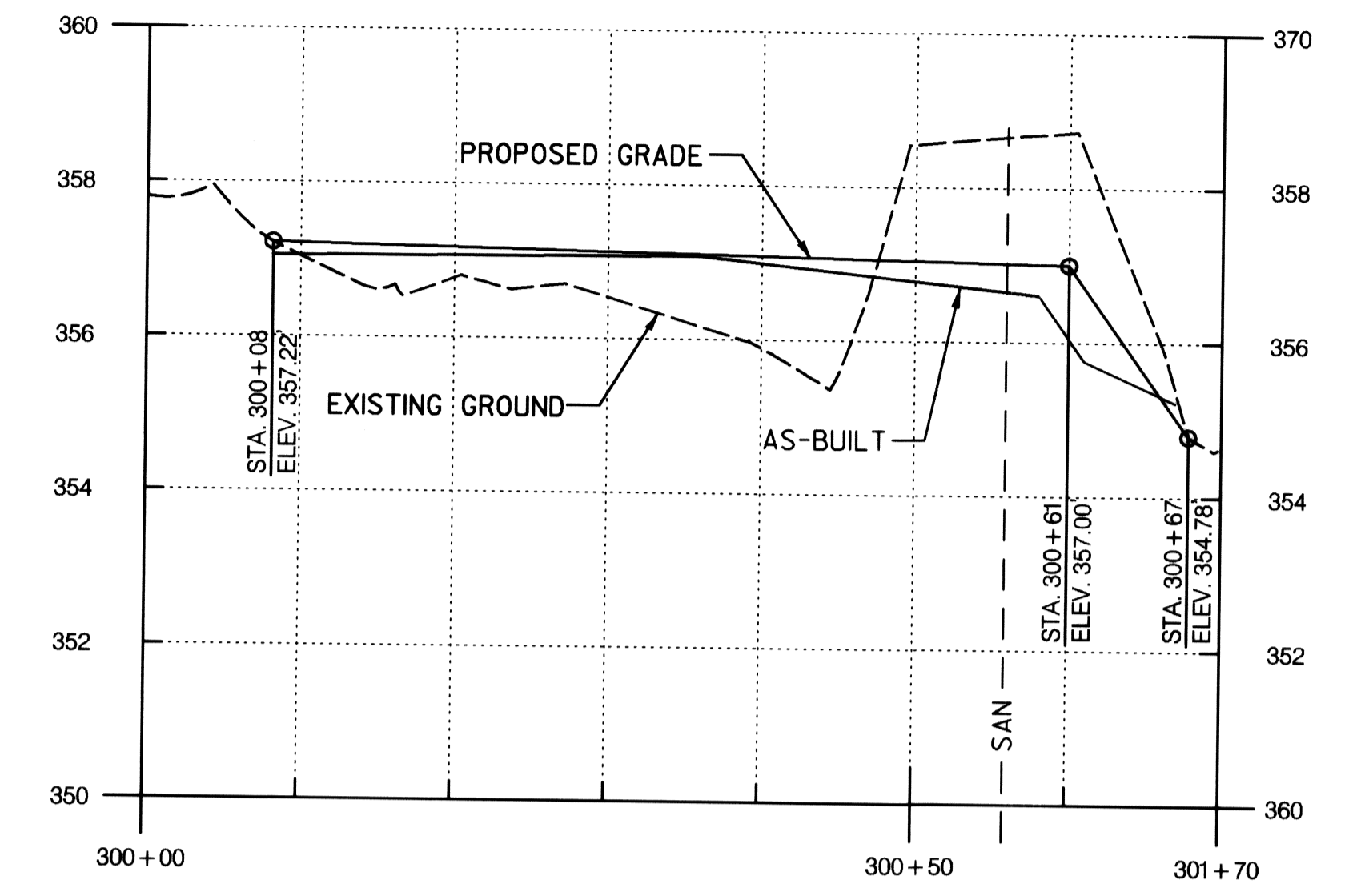
**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
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CAPITAL PROJECT D-1158
ELECTION DISTRICT NO. 2, HOWARD COUNTY MARYLAND
TAX MAPS 24 & 30; LOT 22
WAIVER PETITION #WP-10-163**

LANDSCAPING PLAN

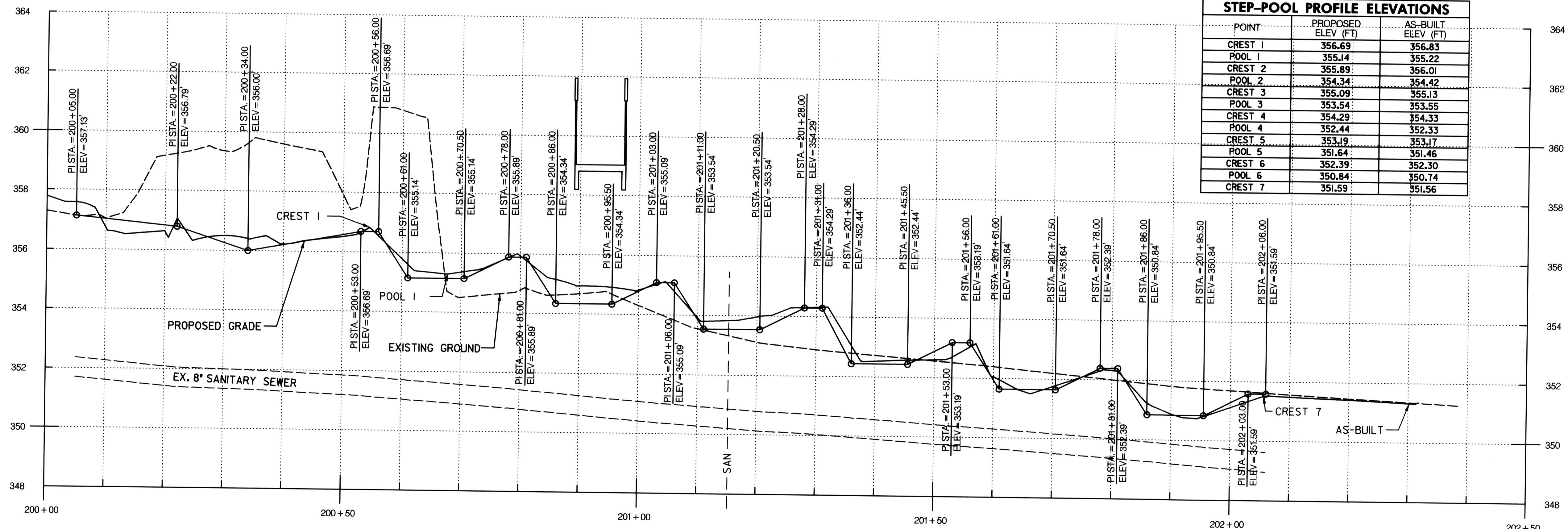
SCALE: 1" = 20'
SHEET: 18 OF 26



REALIGNMENT 1 MAINSTEM PROFILE



REALIGNMENT 2 TRIBUTARY PROFILE



REALIGNMENT 2 MAINSTEM PROFILE

STEP-POOL PROFILE ELEVATIONS		
POINT	PROPOSED ELEV (FT)	AS-BUILT ELEV (FT)
CREST 1	356.69	356.83
POOL 1	355.14	355.22
CREST 2	355.89	356.01
POOL 2	354.34	354.42
CREST 3	355.09	355.13
POOL 3	353.54	353.55
CREST 4	354.29	354.33
POOL 4	352.44	352.33
CREST 5	353.19	353.17
POOL 5	351.64	351.46
CREST 6	352.39	352.30
POOL 6	350.84	350.74
CREST 7	351.59	351.56

NOTES:
 1. AS-BUILT PROFILE SHOWN DEPICTS THE CENTERLINE OF THE CONSTRUCTED STEP-POOL SYSTEM. REFER TO THE STEP-POOL ELEVATION TABLE FOR COMPARISON. CRESTS AND POOLS ARE DESIGNATED 1 TO 7 STARTING AT THE UPSTREAM END OF THE PROJECT.
 2. FIELD ADJUSTMENTS WERE MADE AS DIRECTED BY THE STREAM SPECIALIST.

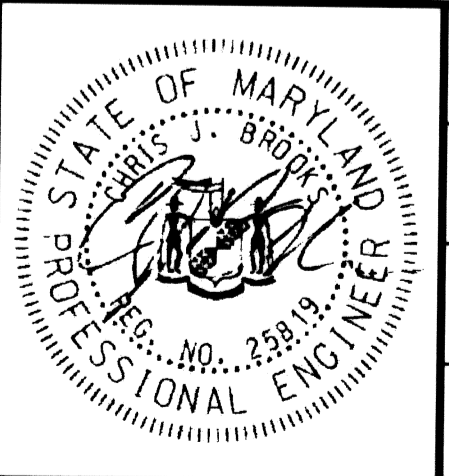
SCALE
 HORIZONTAL: 1"=10' VERTICAL: 1"= 2'

LEGEND
 --- EXISTING — PROPOSED

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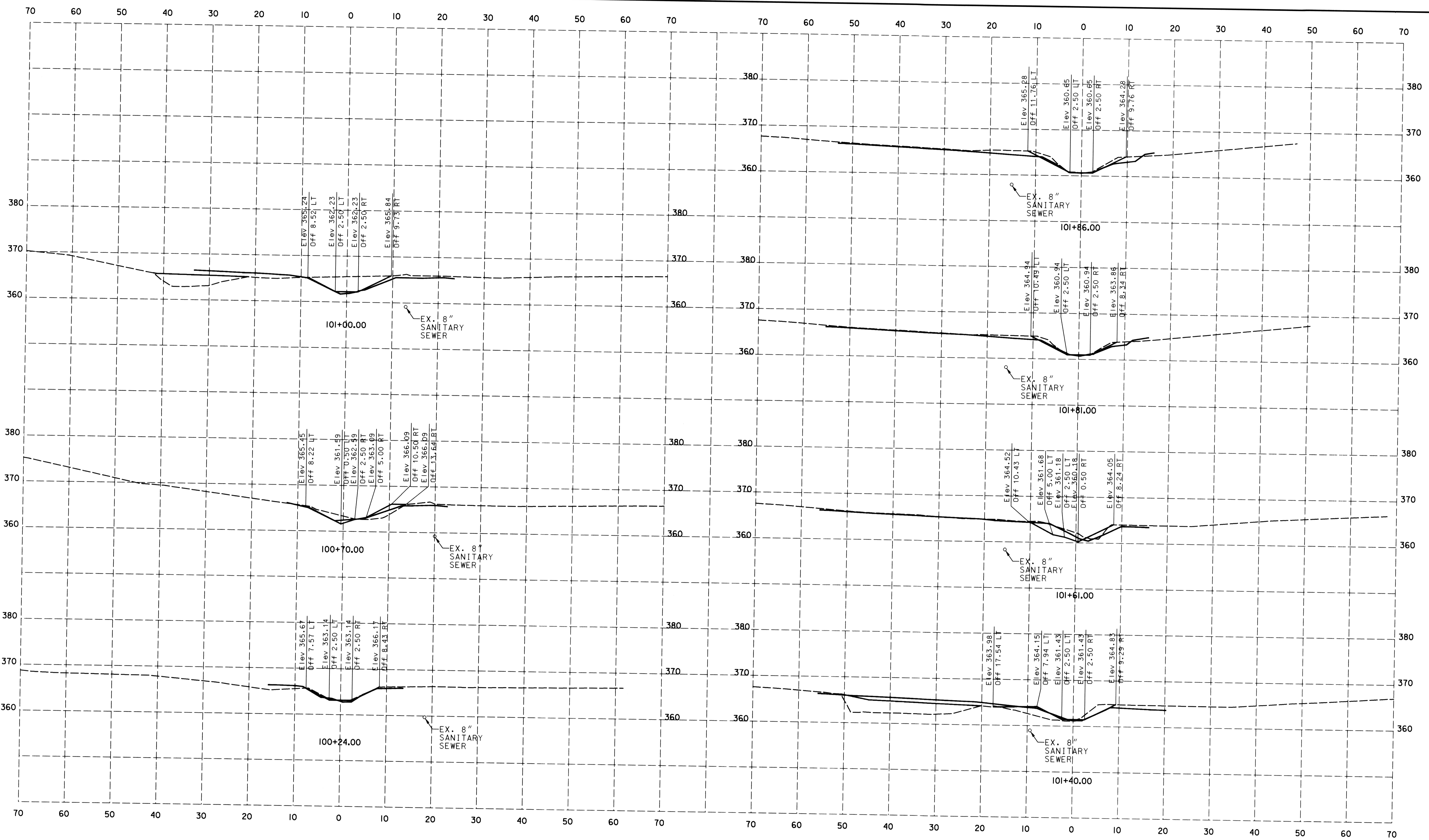


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PROFILE SHEET

SCALE
 AS SHOWN
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 19 OF 26



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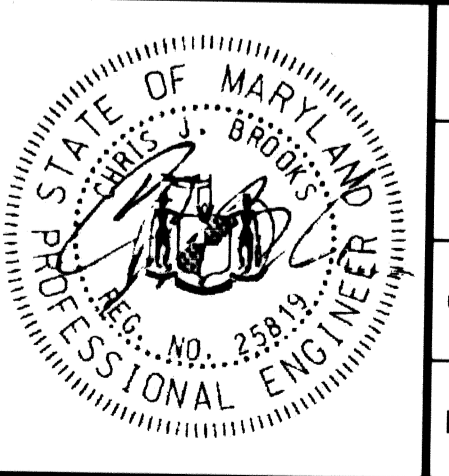
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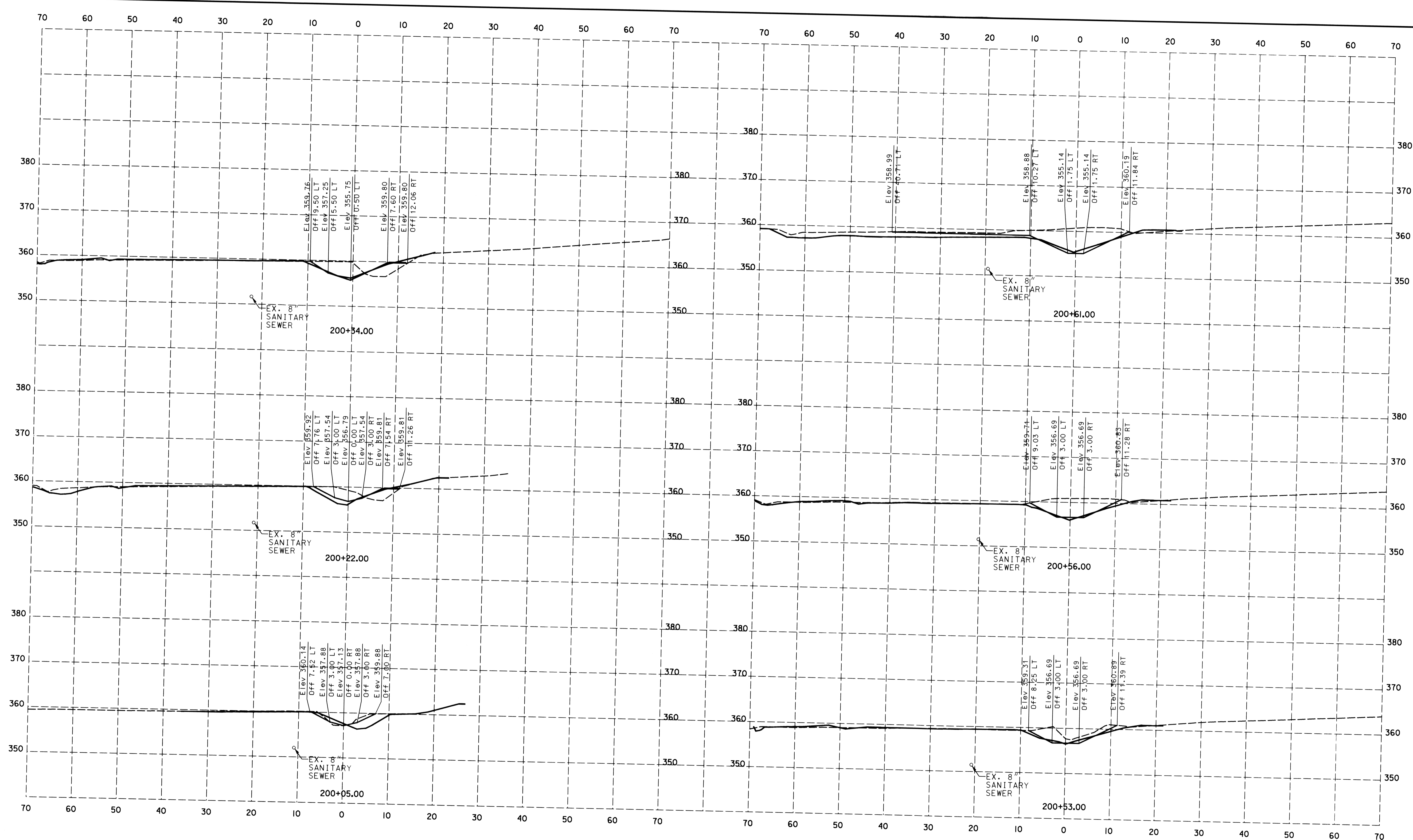
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SCALE
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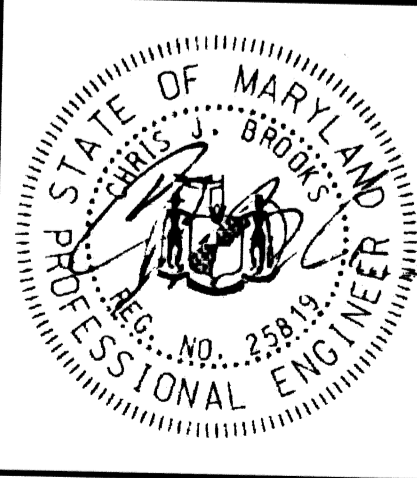
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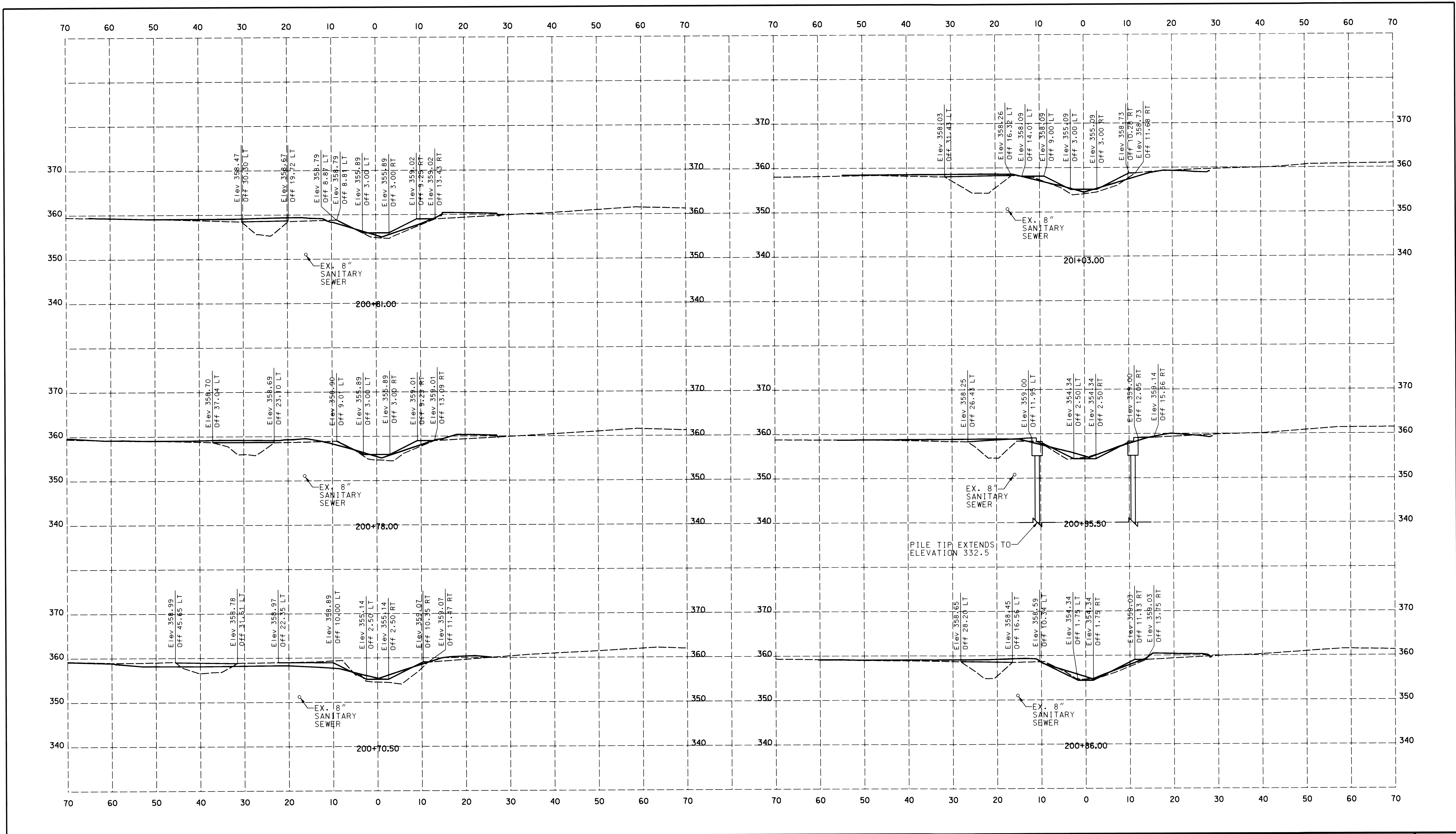
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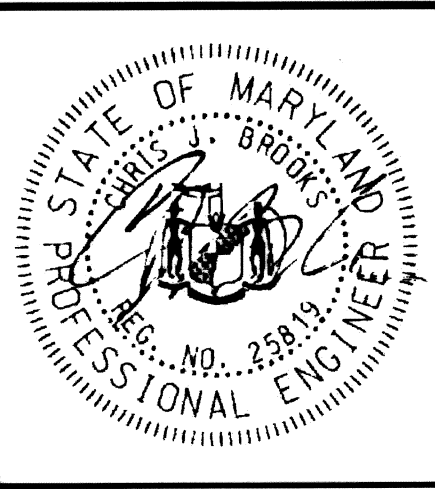
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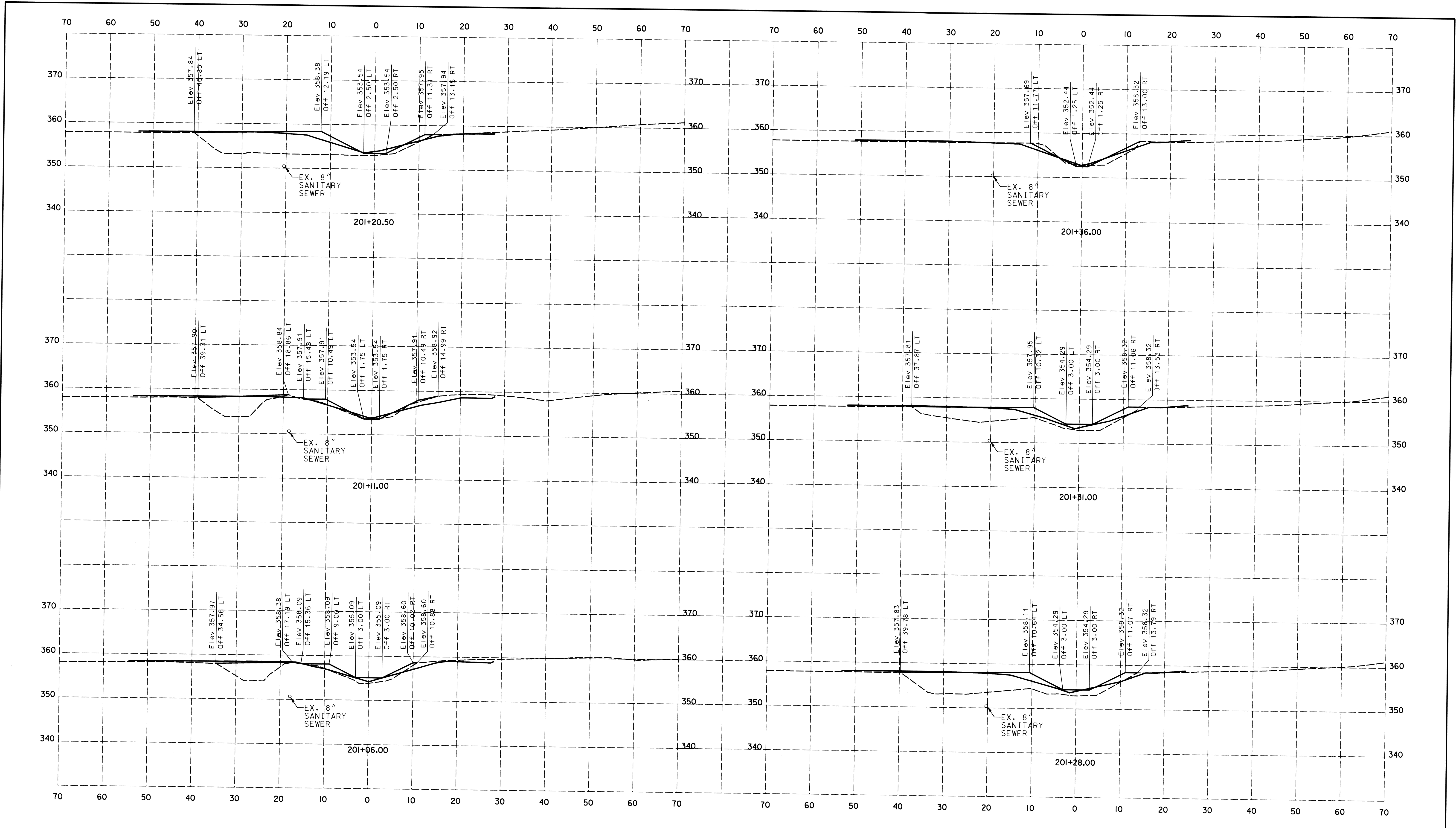
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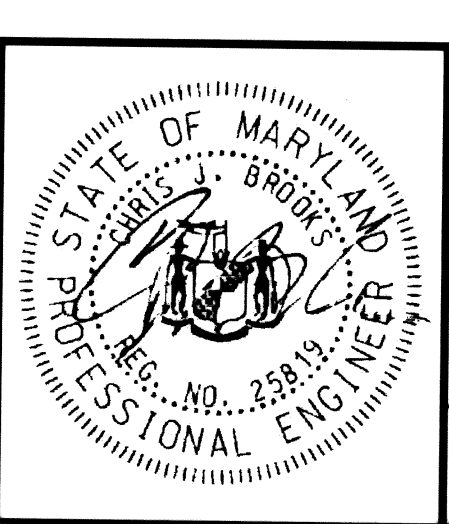
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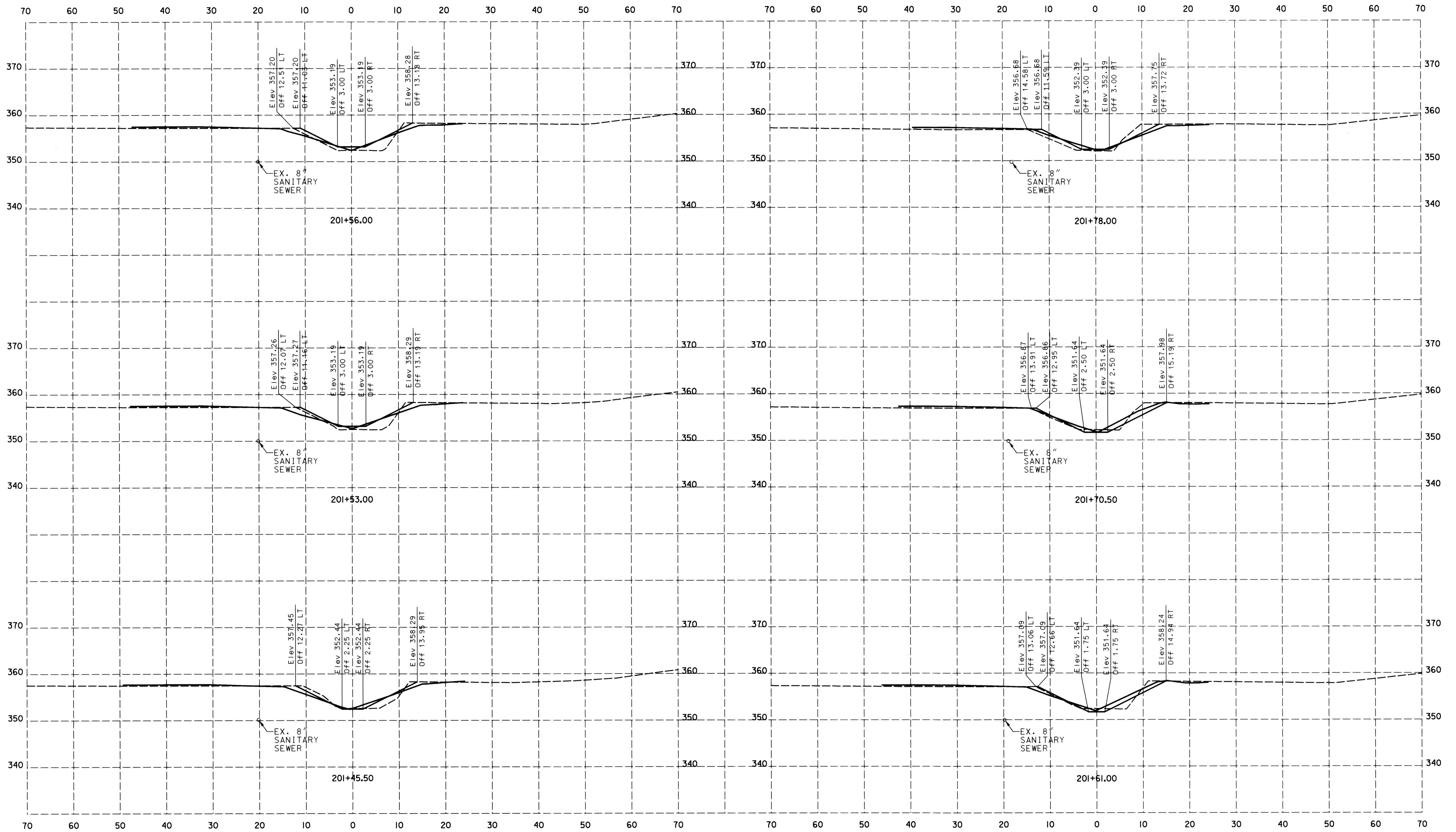


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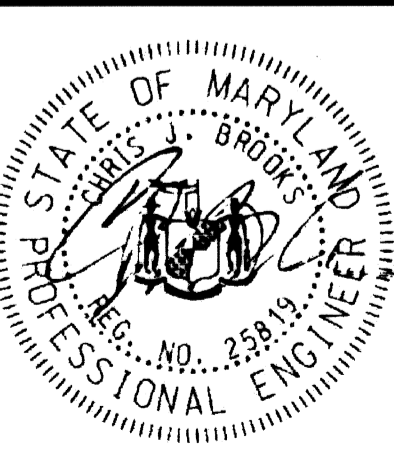
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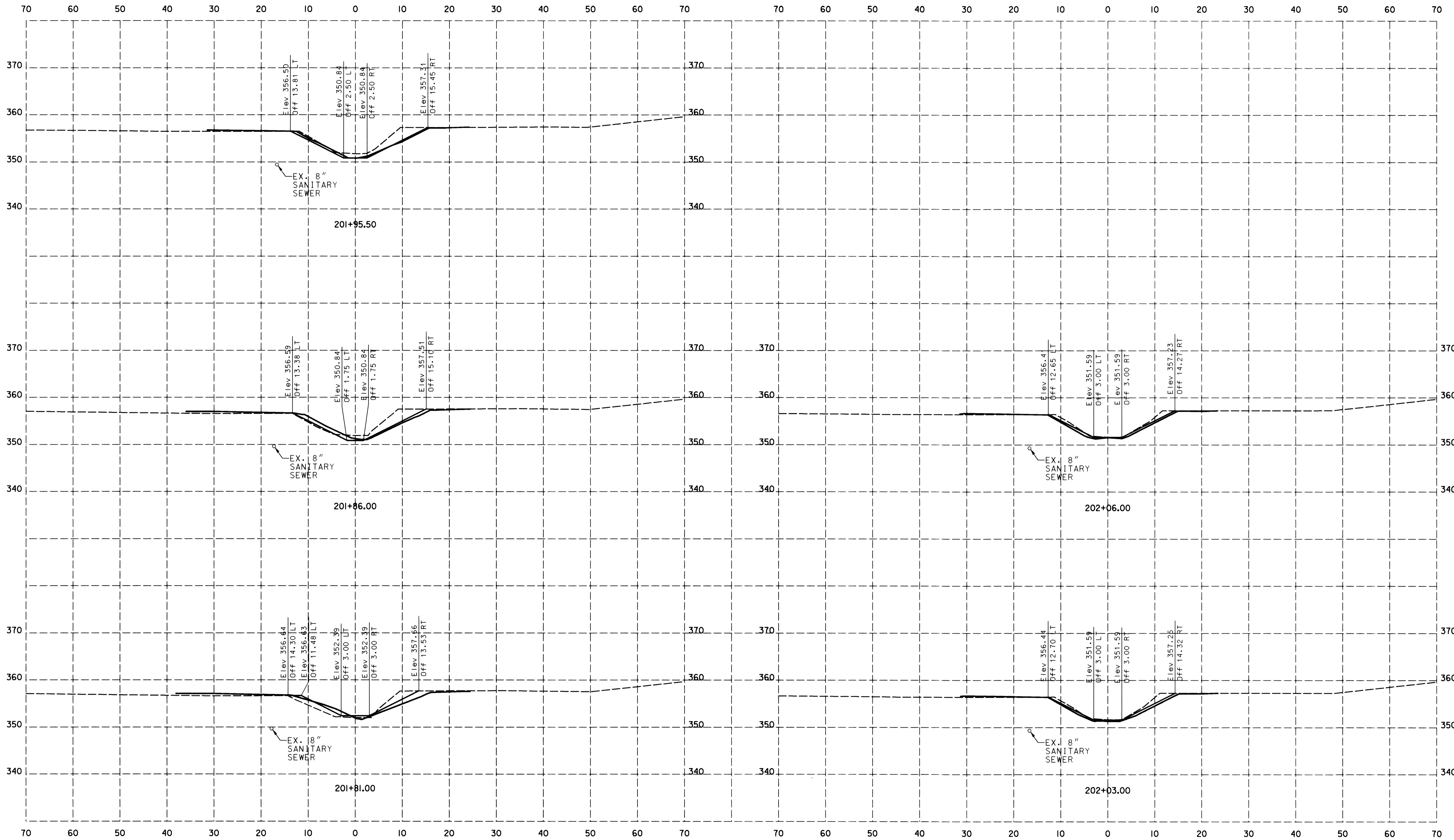
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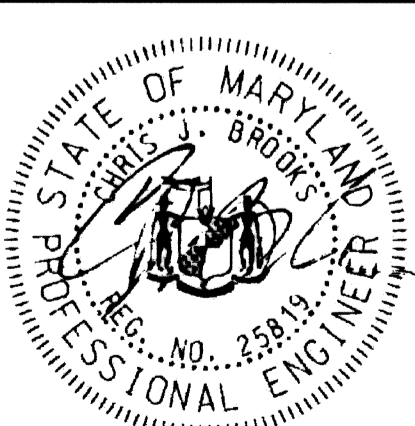
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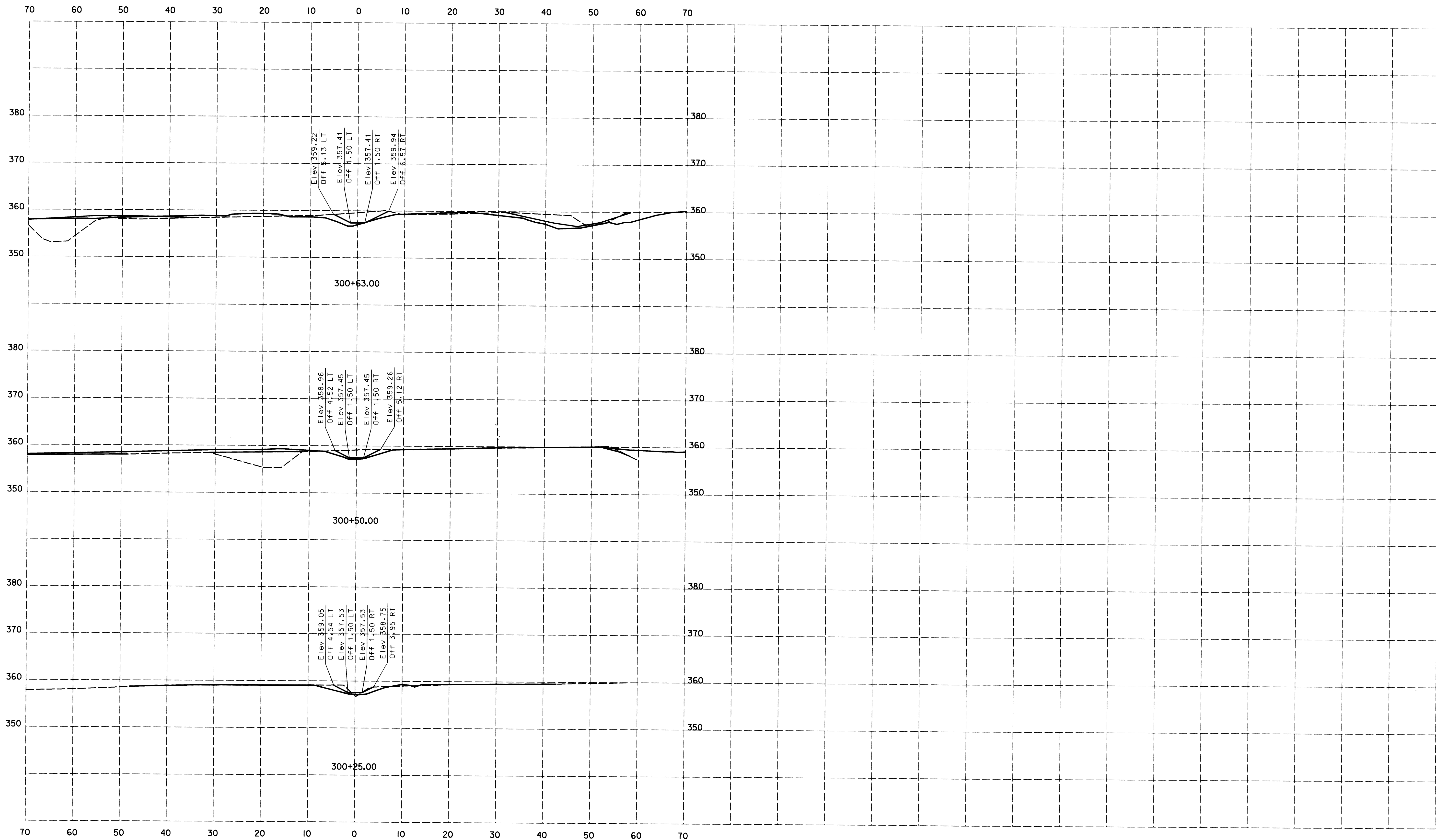
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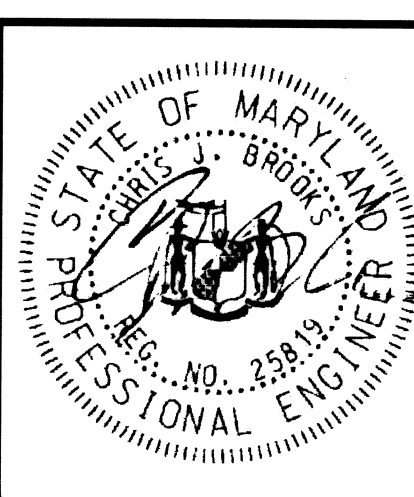
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