

HOWARD COUNTY

Capital Project #D-1141

Baltimore Washington Industrial Park

Stormwater Retrofit

Storm Water Management Division Bureau Of Enviromental Services

INDEX OF SHEETS

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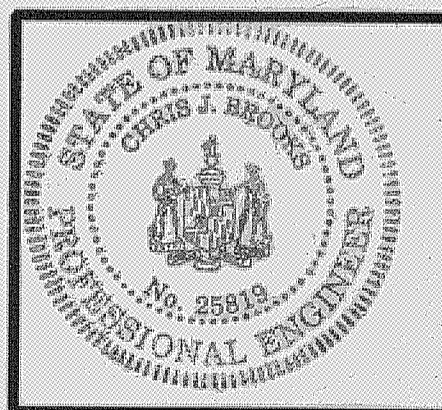
LEGEND

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

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

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

[Signature]
HOWARD SOIL CONSERVATION DISTRICT
7/27/09
DATE



DESIGN CERTIFICATION

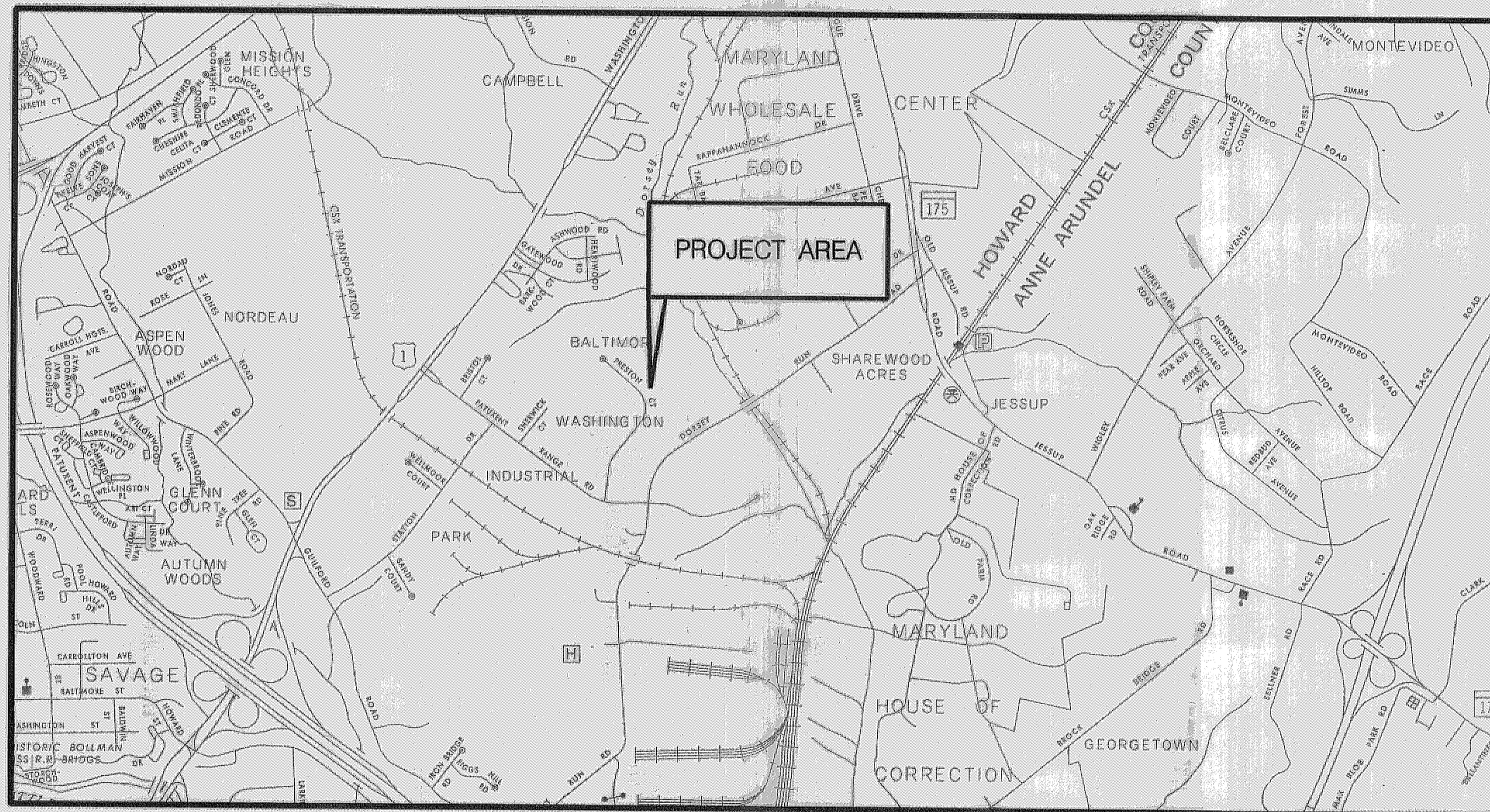
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

7/24/09
DATE
[Signature]
DESIGNER'S SIGNATURE
MARYLAND
REGISTRATION
NUMBER 25819
CHRIS BROOKS, P.E.
PRINTED NAME

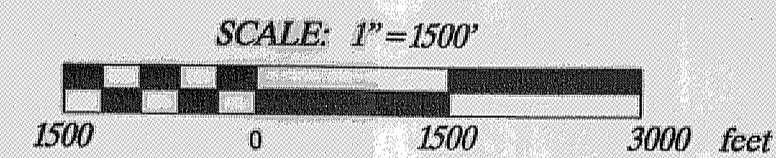
OWNER'S/DEVELOPER'S CERTIFICATION

I/WE HEREBY CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION, AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY 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.

7/27/09
DATE
[Signature]
OWNER/DEVELOPER SIGNATURE
Howard E. Saltzman
Chief, Stormwater Management Division
PRINTED NAME AND TITLE



HORIZONTAL DATUM	NAD 83 /91
VERTICAL DATUM	NAVD 88



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 2008
- 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 TO THE EXISTING STORMWATER MANAGEMENT FACILITY.
- 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 CONTRACTORS'S OPERATION SHALL BE REPAIRED IMMEDIATELY. ALL UTILITIES SHALL HAVE A CLEARANCE BY A MINIMUM OF 6 INCHES VERTICALLY AND A MINIMUM OF 5 FEET HORIZONTALLY.
- 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 ORIGINAL SITE DEVELOPMENT PLAN FOR BALTIMORE WASHINGTON INDUSTRIAL PARK - SEC. II (F-86-210).

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 7/24/09
DIRECTOR OF PUBLIC WORKS DATE
[Signature] 7/27/09
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE
[Signature] 7/27/09
CHIEF, STORMWATER MANAGEMENT DIVISION 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 414
Columbia, Maryland 21046-3143

DES: ALH					
DRN: MER					
CHK: CJB					
DATE: 07-23-09	BY	NO.	REVISION	DATE	

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
CAPITAL PROJECT #D-1141

BALTIMORE WASHINGTON INDUSTRIAL PARK
STORMWATER RETROFIT

TITLE SHEET

SCALE
AS SHOWN

SHEET

1 OF 13

POND GEOMETRY STAKE OUT

POINT	STATION	OFFSET	NORTHING	EASTING
A1	102+54.02	-60.27	540384.7376	1371343.3847
A2	102+50.93	-62.88	540384.9239	1371347.4251
A3	102+50.08	-69.40	540380.7206	1371352.4801
A4	102+25.09	-71.15	540396.4107	1371372.0104
A5	102+49.29	-116.66	540346.5714	1371385.1670
A6	102+87.97	-94.19	540336.7846	1371341.5168
A7	102+89.63	-84.24	540342.9635	1371333.5391
A8	102+81.78	-72.61	540356.8269	1371331.3982
A9	102+59.67	-60.79	540380.5191	1371339.5956
A10	102+61.14	-48.54	540388.5140	1371330.1948
A11	102+08.16	-46.49	540426.0012	1371367.6801
A12	102+04.45	-48.16	540427.3004	1371371.5373
A13	102+02.75	-61.15	540418.9272	1371381.6072
A14	102+11.75	-78.11	540400.3651	1371386.5277
A15	102+38.55	-126.22	540346.8519	1371399.5441
A16	102+45.30	-134.22	540336.3987	1371400.0230
A17	103+04.50	-98.47	540322.4192	1371332.2957
A18	103+03.83	-84.21	540333.3394	1371323.0998
A19	102+91.34	-64.55	540356.2500	1371318.9108
A20	101+55.10	-76.15	540440.2882	1371426.7672
A21	101+44.44	-76.67	540447.1473	1371434.9447
A22	101+27.86	-100.95	540440.5918	1371463.6070
A23	102+05.67	-145.28	540355.2022	1371436.6183
A24	102+08.18	-142.27	540355.7101	1371432.7313
A25	101+90.43	-70.67	540420.3043	1371397.1151
A27	101+68.50	-70.24	540435.5197	1371412.9237
A26	101+42.66	-73.89	540450.3909	1371434.3580
A28	101+24.30	-104.90	540440.1124	1371468.9018
A29	102+05.35	-148.51	540353.0480	1371439.0511
A30	102+17.42	-139.26	540351.6393	1371423.9020
A31	102+25.01	-132.75	540351.2557	1371413.9103
A32	102+06.46	-80.94	540401.8836	1371392.3333
A33	101+93.83	-60.49	540425.4728	1371387.7061
A34	101+67.78	-61.26	540442.5954	1371407.3440
A35	101+37.35	-65.55	540460.1214	1371432.5980
A36	101+23.63	-85.42	540454.8586	1371456.1592
A37	101+13.29	-101.36	540450.1911	1371474.5770
A38	101+11.71	-107.74	540446.5790	1371480.0702
A39	101+26.88	-116.02	540430.1981	1371474.5649
A40	101+47.94	-127.52	540407.4485	1371466.9192
A41	101+61.98	-135.19	540392.2821	1371461.8221
A42	101+83.05	-146.69	540369.5325	1371454.1765
A43	102+06.67	-159.59	540344.0237	1371445.6035
A44	102+37.26	-136.24	540340.3709	1371407.2955
A45	102+33.26	-129.05	540348.3705	1371405.3497
A46	102+23.51	-111.56	540367.8298	1371400.6165
A47	102+28.80	-108.73	540366.3112	1371394.8109
A48	102+21.49	-95.61	540380.9057	1371391.2610
A49	102+16.20	-98.44	540382.4243	1371397.0665
A50	101+12.17	-128.50	540431.0254	1371493.8323
A51	101+01.79	-141.11	540428.8306	1371510.0159
A52	101+06.51	-167.00	540406.6216	1371524.1347
A53	101+62.08	-184.75	540355.8441	1371495.4231
A54	101+80.36	-165.73	540357.3836	1371469.0828
A55	101+24.00	-121.29	540428.2866	1371480.2523
A56	101+08.16	-112.64	540445.3896	1371486.0002
A57	100+89.05	-138.69	540439.2564	1371517.7246
A58	101+00.16	-175.59	540404.6317	1371534.6304
A59	101+20.24	-181.61	540386.5750	1371523.9861
A60	101+56.64	-192.52	540353.8395	1371504.6887

POND GEOMETRY STAKE OUT

POINT	STATION	OFFSET	NORTHING	EASTING
A61	101+66.31	-194.40	540345.8853	1371498.8671
A62	101+71.54	-189.62	540345.8500	1371491.7866
A63	101+99.44	-168.29	540342.5501	1371456.8214
A64	102+00.92	-163.28	540345.2163	1371452.3341
A65	101+80.17	-151.96	540367.6211	1371459.8638
A66	101+45.07	-132.78	540405.5381	1371472.5935
A66	101+59.11	-140.46	540390.3707	1371467.5095
A68	101+23.28	-221.51	540355.2248	1371548.8606
A69	101+28.69	-231.83	540343.9783	1371551.9049
A70	101+34.40	-231.37	540340.4379	1371547.3947
A71	101+36.98	-219.72	540347.2319	1371537.5968
A72	101+37.05	-211.70	540353.0677	1371532.0935
A73	101+26.86	-208.65	540362.2369	1371537.4986
A74	101+23.00	-211.68	540362.6288	1371542.3920
A75	101+20.89	-228.49	540351.7260	1371555.3579
A76	101+29.14	-249.12	540330.9849	1371563.3191
A77	101+36.76	-248.50	540326.2644	1371557.3055
A78	101+42.66	-221.82	540341.8363	1371534.8484
A79	101+48.38	-205.70	540349.7728	1371519.7037
A80	101+19.24	-196.72	540376.1566	1371534.9867
A81	101+16.62	-204.90	540371.9356	1371542.4676
A82	101+17.24	-216.26	540363.1849	1371549.7263
A83	101+20.25	-250.87	540335.7354	1371571.0269
A84	101+46.94	-244.48	540322.3001	1371547.1048
A85	101+62.31	-203.62	540341.8485	1371508.0675
A86	101+61.48	-200.23	540344.8927	1371506.3796
A87	101+54.92	-198.27	540350.7925	1371509.8575
A88	101+18.52	-187.35	540383.5280	1371529.1548
A89	101+01.80	-185.56	540396.1957	1371540.2074
A90	101+10.70	-206.24	540374.9791	1371547.7209
A91	101+09.89	-80.87	540467.5301	1371463.1477
A92	101+07.94	-77.80	540471.1126	1371462.4997
A93	100+83.79	-81.22	540485.0042	1371482.5424
A94	100+80.44	-86.02	540483.7533	1371488.2637
A95	100+87.49	-109.41	540461.8018	1371498.9800
A96	100+91.07	-109.87	540459.0352	1371496.6681
A97	101+18.60	-82.15	540460.6747	1371457.6332
A98	101+26.17	-70.48	540464.0930	1371444.1449
A99	101+24.22	-67.41	540467.6755	1371443.4969
A100	100+73.09	-74.66	540497.0885	1371485.9339
A101	100+70.58	-78.26	540496.1503	1371490.2249
A102	100+88.72	-128.18	540447.1949	1371510.8239
A103	101+08.25	-98.09	540456.0072	1371476.0509
A104	100+73.29	-90.80	540485.1117	1371496.7551
A105	100+84.20	-124.90	540452.6720	1371511.9103
A106	101+35.76	-150.50	540398.8604	1371491.4620
A107	101+27.49	-166.03	540393.0779	1371508.0855
A108	101+56.27	-174.66	540367.1927	1371492.8264
A109	101+61.54	-164.57	540371.0206	1371482.1056

SPILLWAY GEOMETRY STAKE OUT

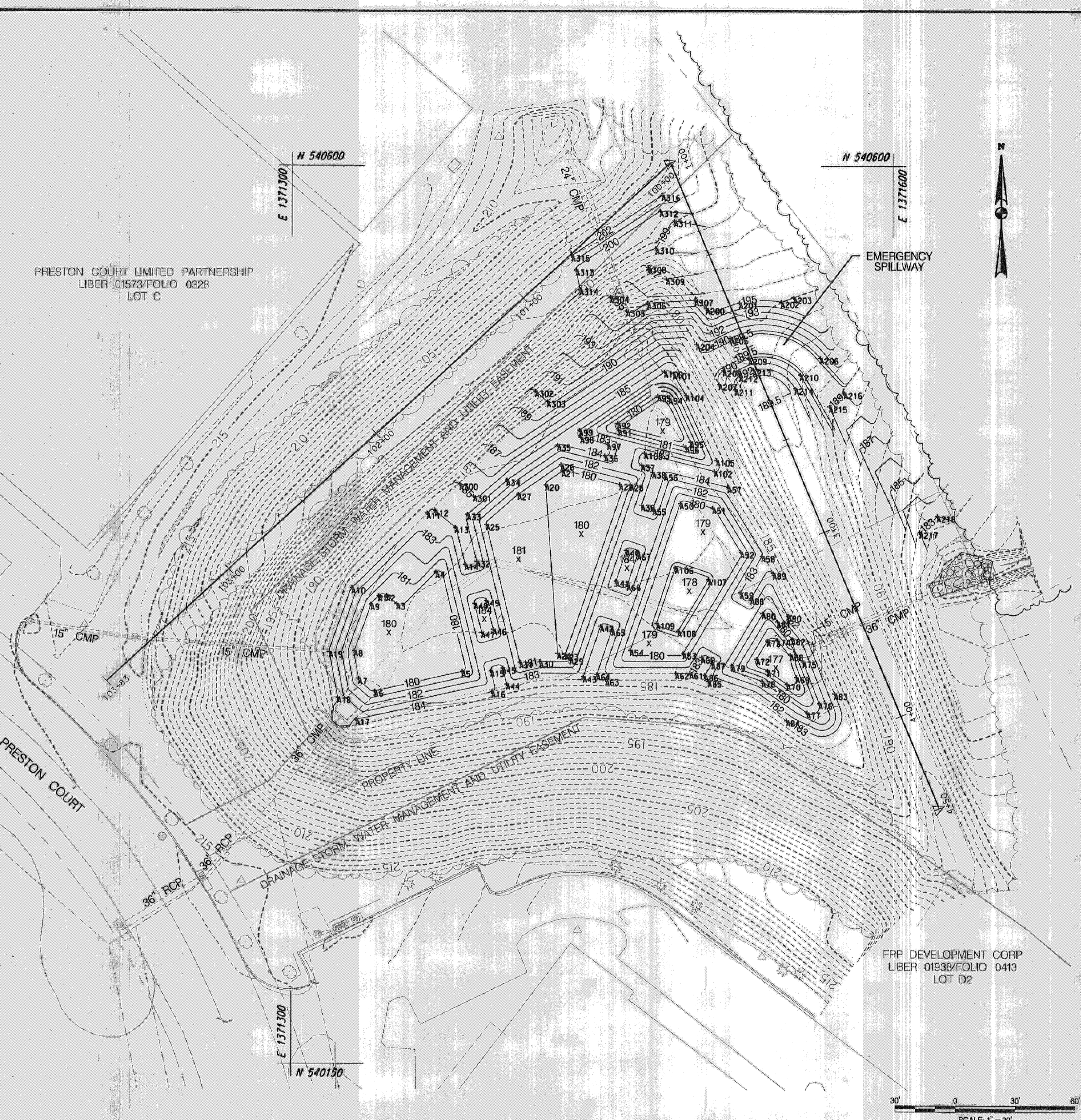
POINT	STATION	OFFSET	NORTHING	EASTING
A200	1+74.34	11.56	540528.4573	1371506.7678
A201	1+78.09	-4.85	540531.3001	1371523.3619
A202	1+85.61	-24.24	540531.8171	1371544.1526
A203	1+86.03	-30.80	540533.9514	1371550.3745
A204	1+88.80	22.96	540510.7213	1371501.8065
A205	1+92.43	6.24	540513.8004	1371518.6420
A206	2+18.85	-31.61	540503.9654	1371563.7329
A207	2+11.62	20.20	540490.7247	1371513.1310
A208	2+06.06	15.55	540497.6437	1371515.2838
A209	2+05.48	1.43	540503.6023	1371528.0938
A210	2+22.65	-19.17	540495.6764	1371553.7141
A211	2+17.17	13.71	540488.0896	1371521.2544
A212	2+11.65	9.06	540494.9730	1371523.4268
A213	2+11.49	1.66	540497.9649	1371530.1952
A214	2+28.08	-14.08	540488.7042	1371551.0886
A215	2+43.05	-26.40	540479.6217	1371568.2335
A216	2+39.51	-35.95	540486.5687	1371575.6858
A217	3+18.56	-44.05	540416.7084	1371613.5533
A218	3+14.42	-55.18	540424.8085	1371622.2425

ACCESS GEOMETRY STAKE OUT

POINT	STATION	OFFSET	NORTHING	EASTING
A300	101+86.42	-46.79	540440.5549	1371383.8397
A301	101+85.36	-55.80	540434.6650	1371390.7395
A302	101+27.02	-38.07	540487.3060	1371421.5115
A303	101+26.15	-46.01	540482.0696	1371427.5440
A304	100+67.63	-29.22	540534.1438	1371459.0834
A305	100+66.48	-39.73	540527.2162	1371467.0643
A306	100+56.08	-43.96	540531.1673	1371477.5693
A307	100+37.77	-58.92	540532.6289	1371501.1681
A308	100+43.75	-30.83	540549.1868	1371477.6969
A309	100+41.00	-41.35	540543.3324	1371486.8665
A310	100+34.43	-26.47	540558.7126	1371481.5747
A311	100+18.43	-22.80	540572.2794	1371490.8257
A312	100+20.33	-14.24	540577.2635	1371483.6165
A313	100+71.11	-7.38	540547.8048	1371441.6928
A314	100+76.17	-15.91	540538.1046	1371443.7714
A315	100+67.74	-0.70	540555.0022	1371439.6236
A316	100+14.10	-9.07	540585.2906	1371484.6736

CONSTRUCTION BASELINE CONTROL COORDINATES

POINT	STATION	NORTHING	EASTING	REMARKS
POT	100+00.00	540601.5267	1371488.8596	POND BASELINE
POT	103+83.00	540341.2807	1371207.7124	POND BASELINE
POT	1+00.00	540601.5267	1371488.8596	SPILLWAY BASELINE
POT	4+50.00	540278.4314	1371623.4310	SPILLWAY BASELINE



LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREE

NOTE:
IT IS NOT REQUIRED TO STAKE OUT ALL POINTS AS SHOWN FOR CONSTRUCTION. THE CONTRACTOR MAY CHOOSE AT HIS DISCRETION WHICH POINTS ARE NECESSARY TO PROPERLY GRADE THE FACILITY.

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

APPROVED: *[Signature]* 7/27/09
DATE

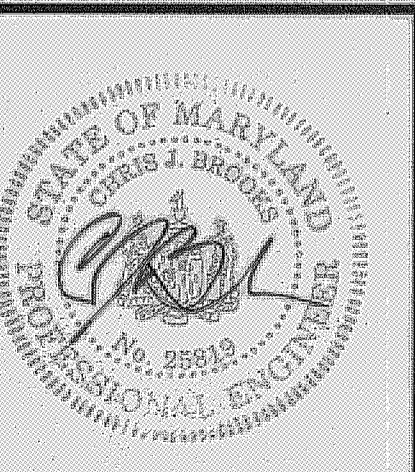
HOWARD SOIL CONSERVATION DISTRICT

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



DES: ALH			
DRN: MER			
CHK: CJB			
DATE: 07-23-09	BY	NO.	REVISION
			DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
CAPITAL PROJECT #D-1141

BALTIMORE WASHINGTON INDUSTRIAL PARK
STORMWATER RETROFIT

GEOMETRY SHEET

SCALE: 1" = 30'

SHEET 2 OF 13

CLASS 1 RIPRAP OUTFALL PROTECTION					
STATION	WIDTH (FT)	LENGTH (FT)	DEPTH (IN)	QUANTITY (SY)	REMARKS
2+04.50 - 51' RT	6	10	19.00	7.00	LINE WITH CLASS SE GEOTEXTILE *

* GROUT RIPRAP AT END SECTION (SEE DETAIL, SHEET 12) TO CREATE A CUTOFF WALL. COST OF TROUT TO BE INCIDENTAL TO ES-1 DRAINAGE STRUCTURE.

GABION BASKET WEIRS						
NO.	STATION	WIDTH (FT)	LENGTH (FT)	DEPTH (FT)	QUANTITY (CY)	REMARKS
GW-1	2+57.00 - 170' RT	18	22	3	15.50	LINE WITH CLASS SE GEOTEXTILE
GW-2	2+91.50 - 176' RT	18	22	3	15.50	LINE WITH CLASS SE GEOTEXTILE
GW-3	2+64.00 - 84' RT	18	26	3	19.50	LINE WITH CLASS SE GEOTEXTILE
GW-4	2+94.00 - 111' RT	18	26	3	19.50	LINE WITH CLASS SE GEOTEXTILE
GW-5	3+26.00 - 64' RT	18	28	3	33.50	LINE WITH CLASS SE GEOTEXTILE
GW-6	2+27.00 - 78' RT	16	21	3	13.50	LINE WITH CLASS SE GEOTEXTILE

GABION MATTRESS OUTFALL PROTECTION						
NO.	STATION	WIDTH (FT)	LENGTH (FT)	DEPTH (FT)	QUANTITY (CY)	REMARKS
GM-1	2+60.50 - 252' RT	9	23	1	8.00	LINE WITH CLASS SE GEOTEXTILE
GM-2	2+95.00 - 262' RT	13	33	1	16.00	LINE WITH CLASS SE GEOTEXTILE

DRAINAGE STRUCTURE SCHEDULE					
NO.	STATION	TC/TG	INV. OUT	REMARKS	
EW-1	3+50 - 36.80 RT	N/A	179.87	TYPE C ENDWALL - D-5.21	
ES-1	2+00 - 50.70 RT	N/A	181.00	METAL END SECTION - SHA STANDARD MD 370.01	
MH-1	1+72 - 49.50 RT	N/A	182.65	48" PRECAST MANHOLE - G-5.12 *	

PIPE SCHEDULE				
FROM	TO	SIZE (IN.)	TYPE	LENGTH (L.F.)
EW-1	RISER	15	PVC SCHEDULE 40	17
MH-1	ES-1	24	HDPE	24

TIED CONCRETE BLOCK MAT
345 SY - EMERGENCY SPILLWAY

TURF ESTABLISHMENT
3145 SY - ACCESS/POND AREA

TOPSOIL
4" DEPTH | 4065 SY

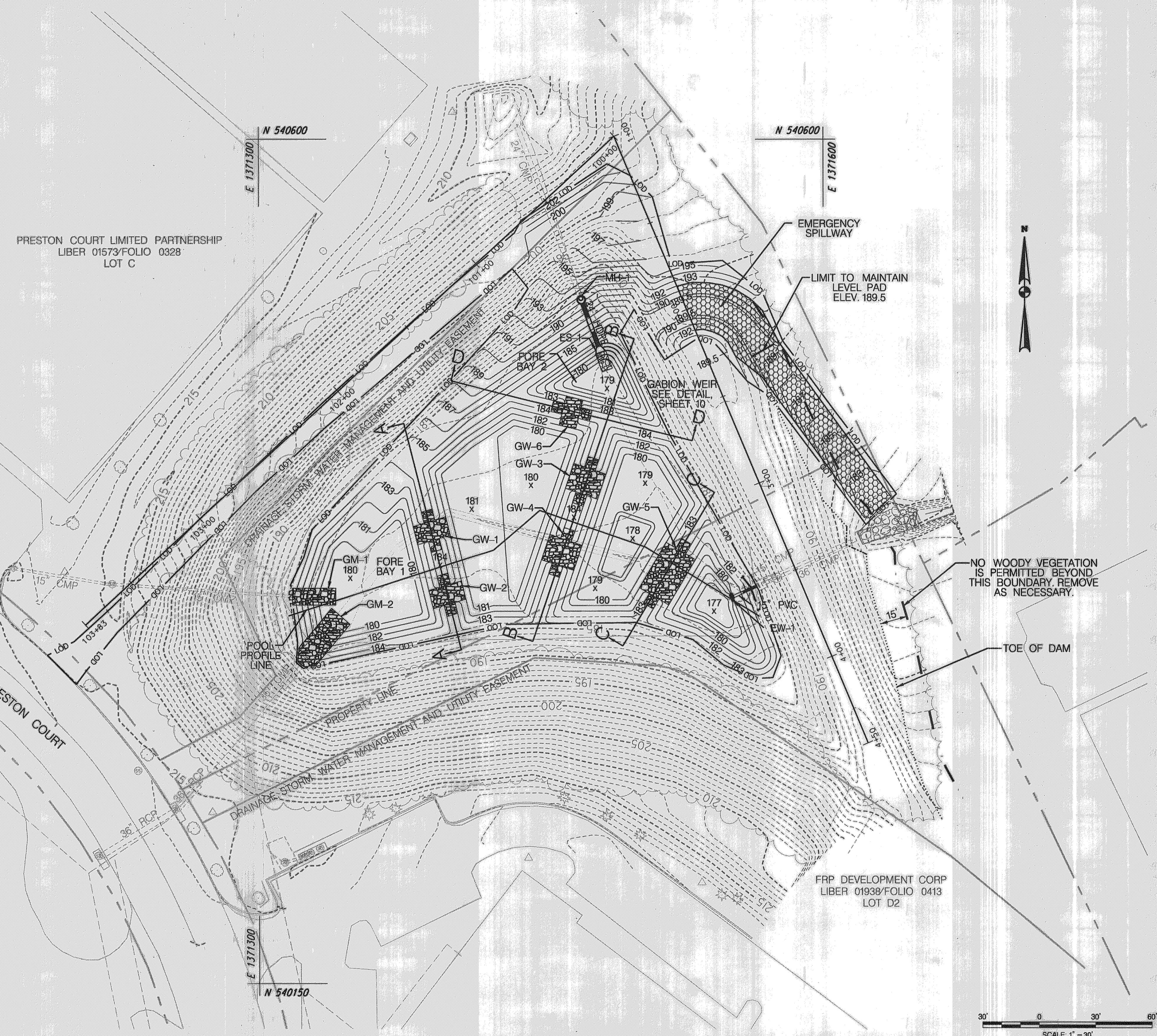
EARTHWORK SCHEDULE
CUT | 2033 CY
FILL | 915 CY

REPLACE RISER TRASH RACK
1 - EACH | SEE DETAIL

- NOTES:
- TURF ESTABLISHMENT SHALL BE USED FOR PERMANENT STABILIZATION OF AREAS ABOVE THE PERMANENT POOLS NOT COVERED BY WETLAND SEED MIX. SEE LANDSCAPE PLAN, SHEET 9.
 - CROSS SECTIONS A,B,C, AND D ARE SHOWN ON SHEET 10 OF 13.

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPERTY LINE
- DRAINAGE, STORM WATER MANAGEMENT AND UTILITY EASEMENT (FROM AS-BUILT F-86210)
- EXISTING TREE
- CLASS 1 RIP RAP
- GABIONS
- TIED CONCRETE BLOCK MAT
- LCD - LIMIT OF DISTURBANCE



REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

APPROVED: *[Signature]* 7/27/09
DATE

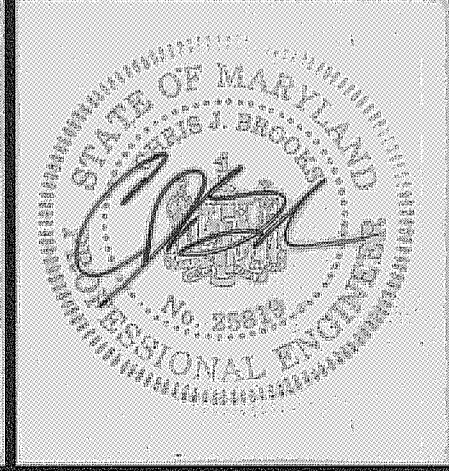
HOWARD SOIL CONSERVATION DISTRICT

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



DES: ALH					
DRN: MER					
CHK: CJB					
DATE: 07-23-09	BY	NO.	REVISION	DATE	

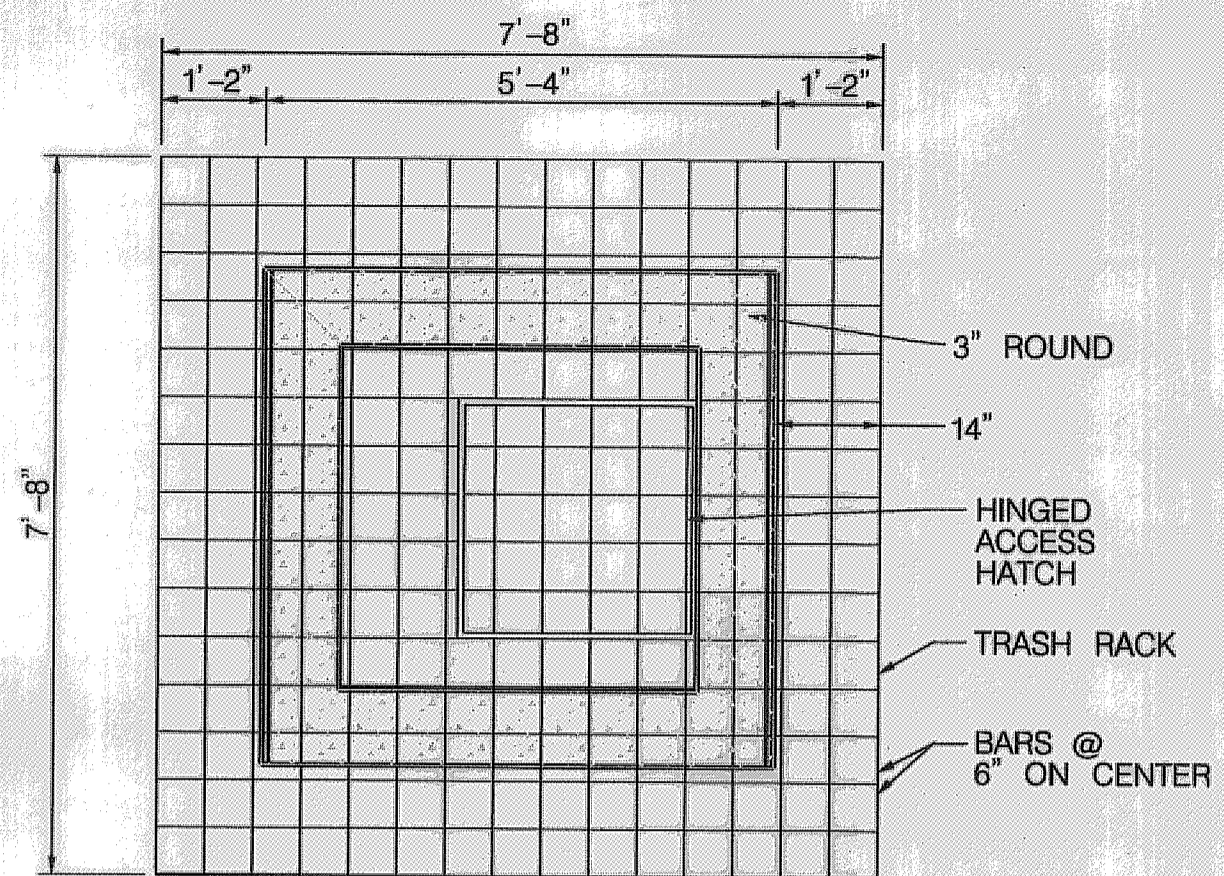
HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
CAPITAL PROJECT #D-1141

BALTIMORE WASHINGTON INDUSTRIAL PARK
STORMWATER RETROFIT

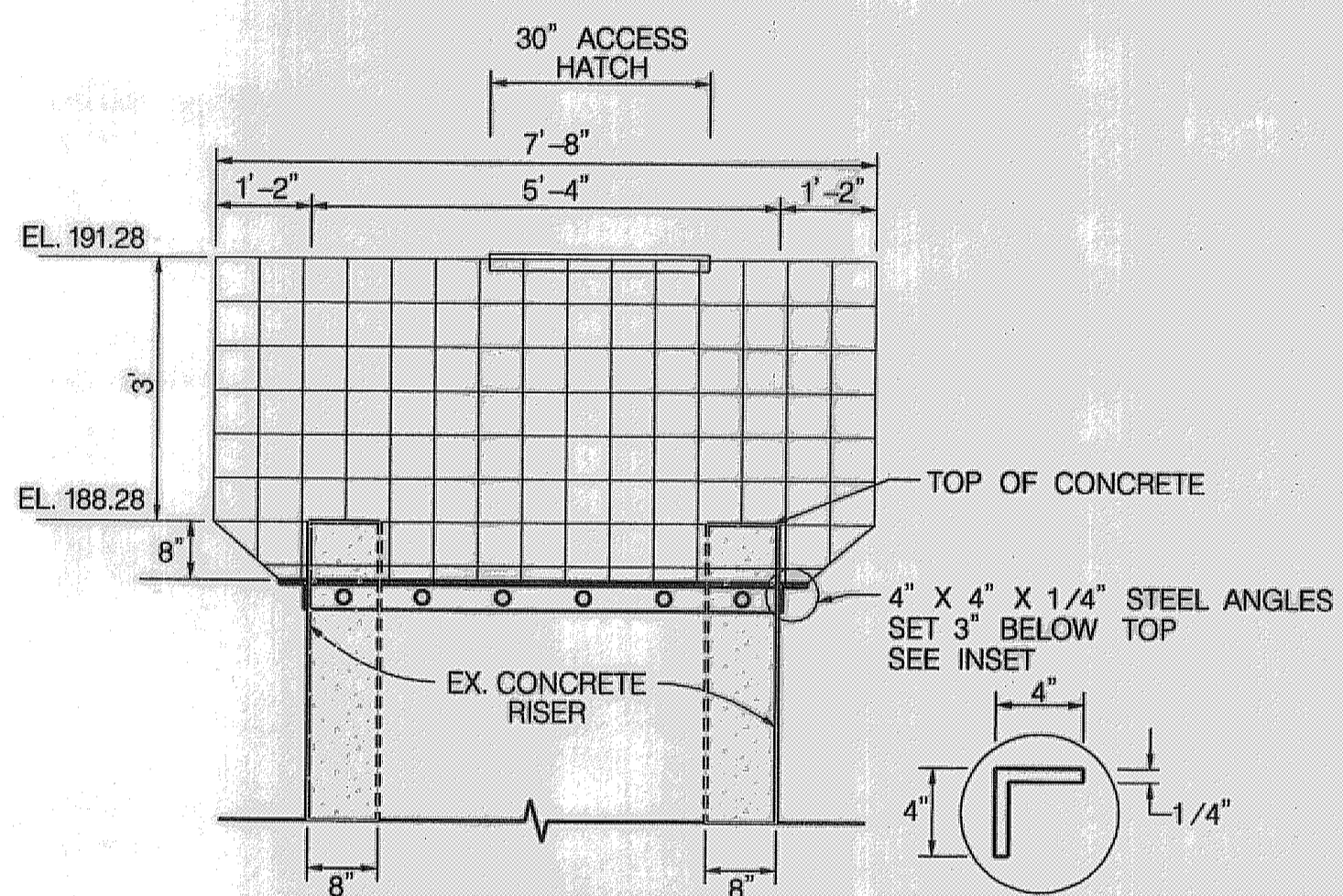
SITE PLAN

SCALE: 1" = 30'

SHEET 3 OF 13



PLAN VIEW



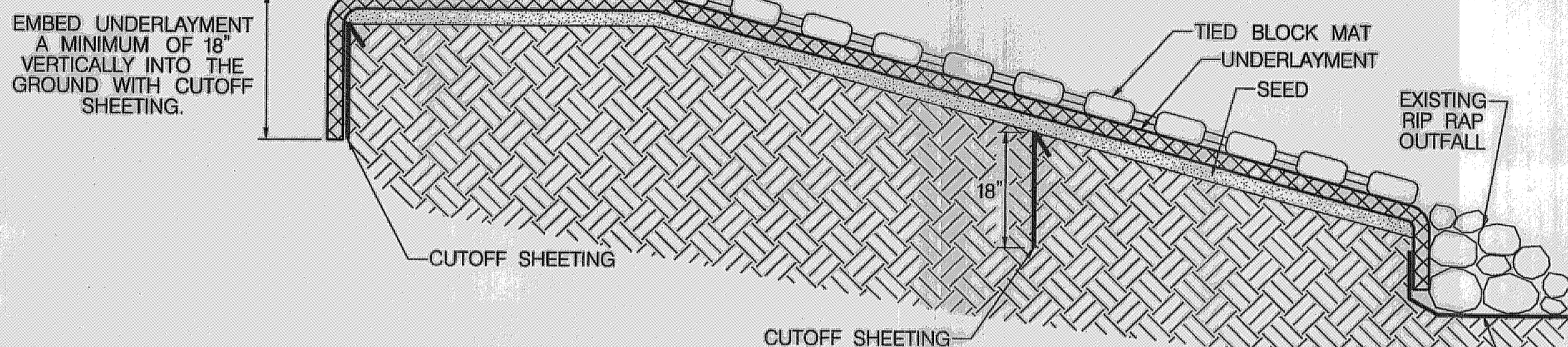
PROFILE VIEW

TRASH RACK CONSTRUCTION NOTES:

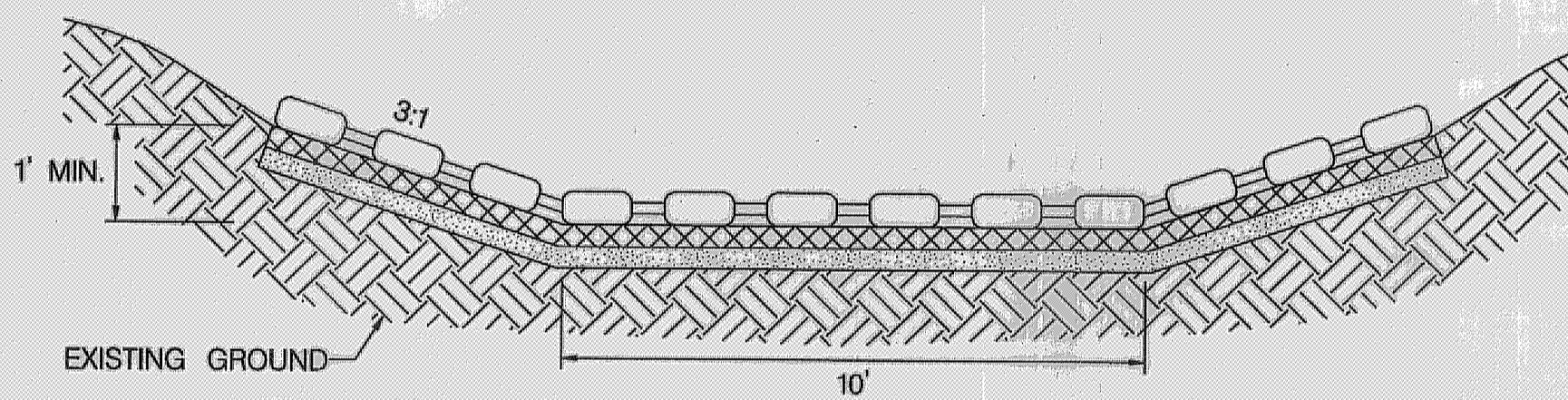
1. FRAME SHALL BE CONSTRUCTED OF 4" X 4" X 3/16" STEEL ANGLE WITH THE CORNERS MITRED AND BUTT WELDED.
2. THE FRAME SHALL BE PAINTED WITH TWO COATS OF COLD GALVANIZED COMPOUND IN "BATTLESHIP GREY".
3. BARS SHALL BE #6 REBAR AT 6" CC EACH WAY, HOT-DIPPED GALVANIZED AND FILLET WELDED TO THE ANGLE FRAME.
4. ALL STEEL SHALL BE ASTM A-36.
5. TRASH RACK SHALL BE BOLTED ONTO THE OUTSIDE FACE OF THE RISER USING 3/8" DIA. STAINLESS STEEL EXPANSION BOLTS @ 11" CC MIN. 4" FROM EDGE OF CONCRETE RISER. DRILL ANGLE FRAME TO ALLOW PASSAGE OF BOLTS.
6. ENSURE A 1' CLEARANCE BETWEEN TRASH RACK AND DAM EMBANKMENT SLOPE.
7. PROVIDE LOCKABLE HINGED ACCESS HATCH IN TOP OF TRASH RACK OVER EXISTING LADDER RUNGS.

TRASH RACK DETAIL

(NOT TO SCALE)



PROFILE VIEW



CROSS SECTION VIEW

CONSTRUCTION NOTES

1. APPLY SEED DIRECTLY TO PREPARED SOIL USE SEED/FERTILIZER PER PROJECT SPECIFICATIONS.
2. FORTRAC 3D-30 UNDERLAYMENT OR EQUIVALENT SHALL BE PLACED OVER THE SEEDED EXISTING GROUND AND SHALL UNDERLAP EXISTING RIP RAP AND OVERLAP EXISTING GEOTEXTILE AT DOWNSTREAM END. RIP RAP SHALL BE ADJUSTED BY HAND TO ACHIEVE THIS.

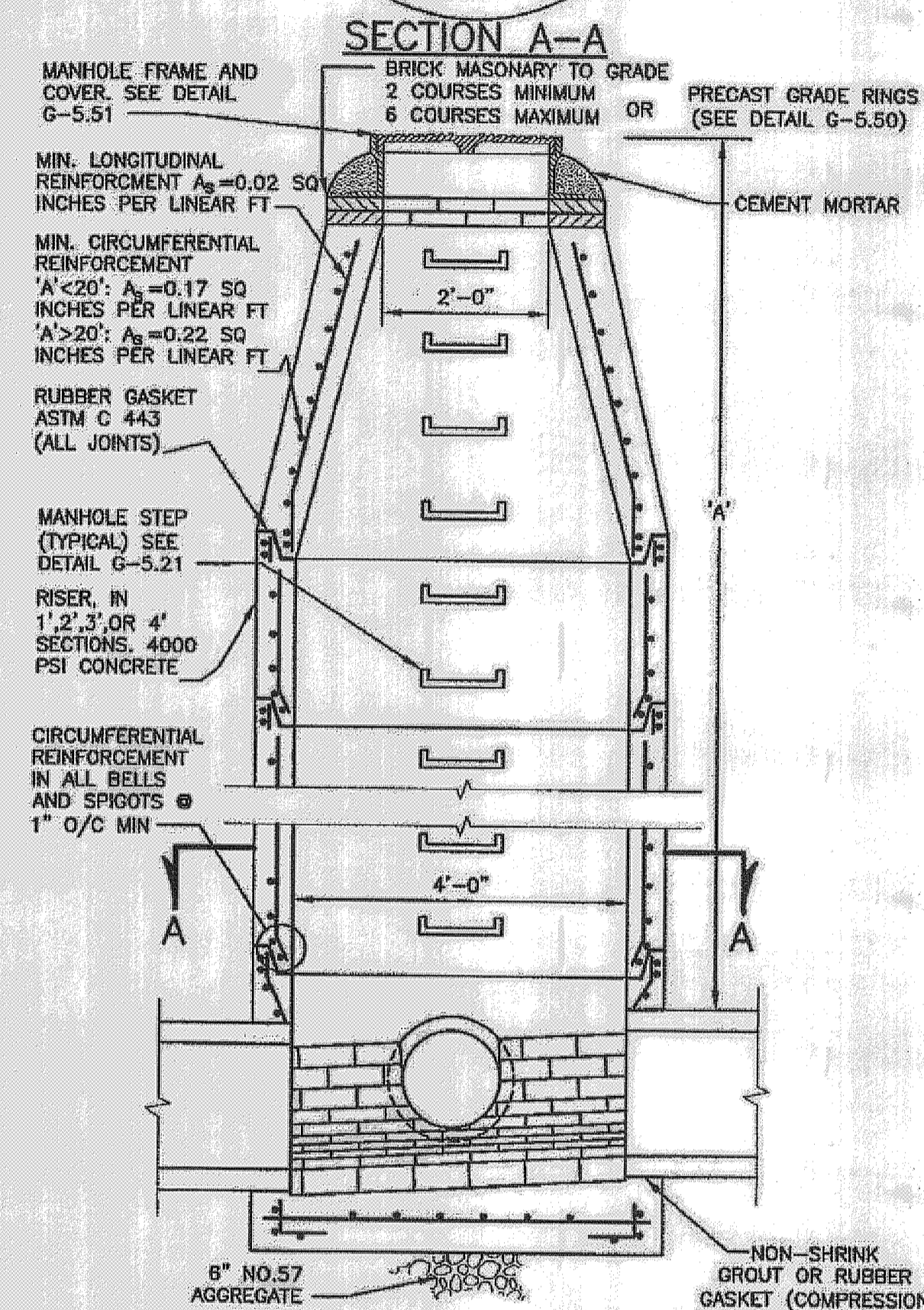
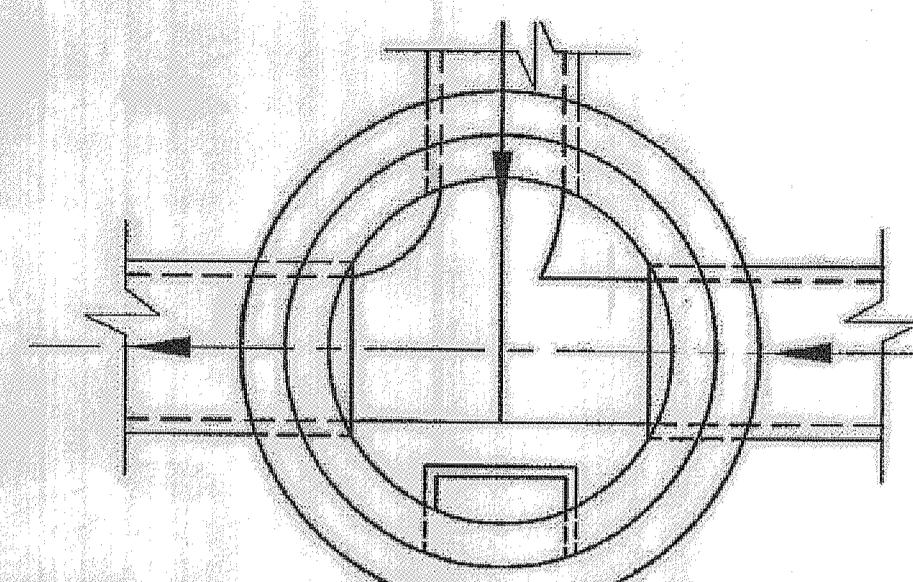
THE UNDERLAYMENT SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS WITH PROPERTIES DETERMINED IN ACCORDANCE WITH THE FOLLOWING PROPERTIES:

PROPERTY	TEST METHOD	UNITS
MASS/UNIT AREA	ASTM D-5261	8.8 oz./yd
PERCENT OPEN AREA	CW022015	50%
ULTIMATE WIDE WIDTH TENSILE STRENGTH	ASTM D-6637	2055 lb./ft
ELONGATION AT BREAK	ASTM D-6637	10%
UV RESISTANCE	ASTM D-4355	80%

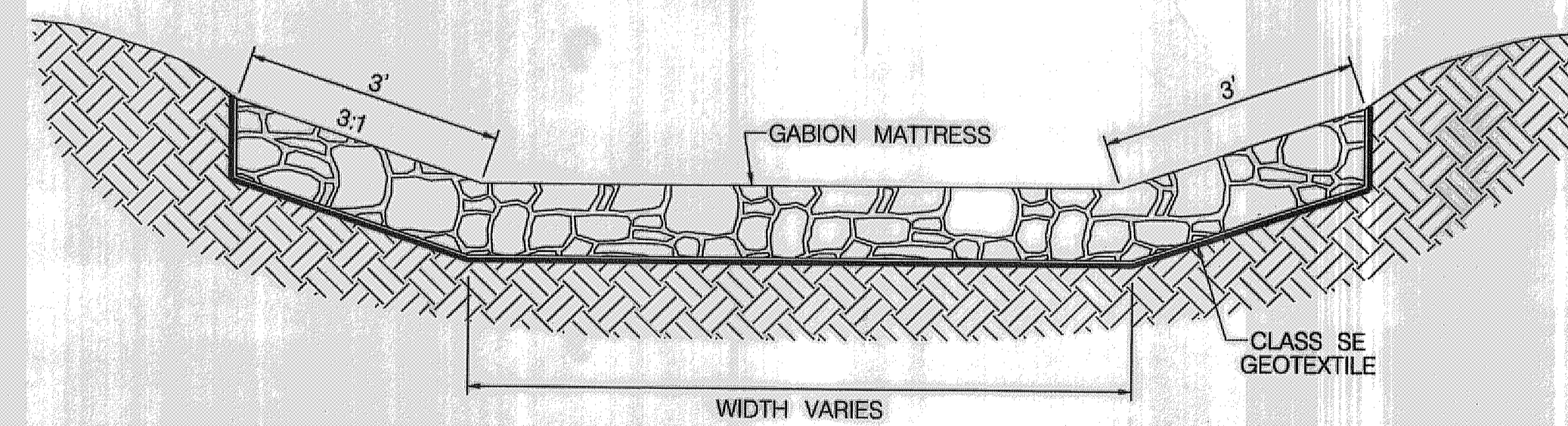
3. INSTALL THE TIED CONCRETE BLOCK MAT AS SHOWN AS PER FLEXAMAT SPECIFICATIONS OR EQUIVALENT.
4. THE CUTOFF SHEETS AS SHOWN CONSIST OF A FOLDED DOUBLE LAYER OF 6 MIL POLYETHYLENE SHEETING TRENCHED A MINIMUM OF 18 INCHES INTO EXISTING GROUND, WITH A 6 INCH HORIZONTAL LAP FOLDED OVER IN A DOWNSTREAM DIRECTION, DIRECTLY UNDER THE UNDERLAYMENT AS SHOWN. 2 CUTOFF SHEETS SHALL BE INSTALLED WHERE INDICATED ON THE EMERGENCY SPILLWAY PROFILE SHEET 11. THE COST SHALL BE INCIDENTAL TO THE TIED CONCRETE BLOCK INSTALLATION.

TIED CONCRETE BLOCK MAT DETAIL

(NOT TO SCALE)



STANDARD PRECAST MANHOLE



GABION MATTRESS OUTFALL PROTECTION DETAIL

(NOT TO SCALE)

NOTES:

1. SEE GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES ON DETAIL G-5.11.
2. FOR PIPE SIZES 27" TO 36" AND LARGER USE DETAIL G-5.13.
3. WHERE 'A' (COVER) IS MORE THAN 4.5 FEET USE STANDARD PRECAST MANHOLE.
4. MAXIMUM INVERT DIFFERENTIAL IS 6" WITHOUT DROP CONNECTION. (SEE DETAIL S-1.32 FOR DROP CONNECTION)

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

APPROVED:

[Signature]
HOWARD SOIL CONSERVATION DISTRICT

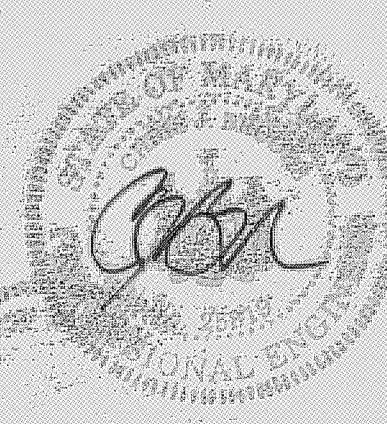
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MARYLAND

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6751 Columbia Gateway Drive, Suite 514
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
CAPITAL PROJECT #D-1141

BALTIMORE WASHINGTON INDUSTRIAL PARK
STORMWATER RETROFIT

TYPICAL DETAILS

SCALE
AS SHOWN
SHEET
4 OF 13

LEGEND

- PROPOSED MAJOR CONTOUR
- - - PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- EXISTING TREE
- ▭ CLASS 1 RIPRAP
- LIMIT OF DISTURBANCE
- SILT FENCE

NOTE:
 CONSTRUCTION WITHIN THE STORMWATER FACILITY SHALL ONLY OCCUR DURING A 5 DAY FORECASTED DRY WEATHER PERIOD. NO MATERIALS OR EQUIPMENT MAY BE STORED WITHIN THE FACILITY OVERNIGHT.

EXTEND TIED CONCRETE BLOCK MAT TO RIP RAP SEE DETAIL AND NOTE SHEET 4. REMOVE SILT FENCE TO TIE IN AND HAND PLACE RIP RAP AT INTERFACE FOR A SMOOTH TRANSITION.



SILT FENCE (SF)

FROM	TO	QTY (LF)	REMARKS
3+31 LT	3+38 LT	25	
1+36 RT	1+42 RT	20	
1+60 RT	1+75 RT	20	

PHASE 3

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT.
 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 24 HOURS 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. 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 HOWARD COUNTY CONSTRUCTION INSPECTION.
 3. ORANGE HIGH VISIBILITY FENCE SHALL BE MANUALLY INSTALLED ALONG THE ULTIMATE LOD INDICATED ON THE PLANS. THIS SHALL BE COMPLETED BY AND INSPECTED AT THE PRECONSTRUCTION MEETING. (1 DAY)
- PHASE 1**
4. CONSTRUCT THE FOLLOWING PERIMETER CONTROLS AS SHOWN ON THE PLAN INCLUDING: STABILIZED CONSTRUCTION ENTRANCE AND SILT FENCE, CLEARING ONLY THE AREA NEEDED TO INSTALL THE E&S CONTROLS. PLACE A W11-10(1), TRUCKS ENTERING HIGHWAY (SYMBOL) (30" X 30"), SIGN IN EACH DIRECTION ON PRESTON COURT. SIGNS ARE TO BE PLACED 450 FEET IN ADVANCE OF THE CONSTRUCTION ENTRANCE, AS PER THE MD MUTCD. (1 DAY)
 5. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, INSTALL SANDBAGS AT RISER AND INSTALL PUMP AROUND TO THE RISER. REMOVE LOW FLOW PIPE TO RISER AND STABILIZE AREA INSIDE OF SANDBAGS. (1 DAY)
 6. INSTALL PIPE EXTENSION AND RIP RAP AS SHOWN ON PLANS. (1 DAY)
 7. INSTALL PUMP AROUND AND SANDBAG DIVERSION WITH 24" TEMPORARY PIPE AS SHOWN ON THE PLANS TO DIVERT CLEAR WATER TO THE RISER DURING GRADING. (1 DAY)
 8. COMMENCE EXCAVATION AND GRADING WITHIN THE STORMWATER FACILITY, GRADING THE ACCESS ROAD, BASIN AND OUTFALL AREA FIRST THEN THE FOREBAYS. NO EXCAVATED MATERIAL MAY BE STOCKPILED WITHIN THE FACILITY OVERNIGHT. THE CONTRACTOR MAY ADJUST THE TEMPORARY PIPES AS NEEDED DURING EXCAVATION. ALTERNATIVELY THE CONTRACTOR MAY CHOOSE TO UTILIZE A CLEAR WATER PUMP AROUND FROM THE STORMDRAIN OUTFALLS DURING WORKING HOURS IF BASE FLOW IS PRESENT. THE TEMPORARY PIPES MUST BE IN PLACE AT THE END OF EACH WORKDAY. (21 DAYS)
 9. INSTALL THE REVERSE SLOPE LOW FLOW PIPE AND REPLACE TRASH RACK. UPON COMPLETION OF THE GRADING THE CONTRACTOR SHALL PERMANENTLY STABILIZE ALL DISTURBED AREAS WITHIN THE STORMWATER FACILITY ABOVE THE PERMANENT POOL ELEVATION THAT WILL NOT BE DISTURBED IN PHASE 2. WHEN AREAS ARE FULLY STABILIZED, AND UPON PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE THE SANDBAG DIVERSIONS AND TEMPORARY PIPE AND STABILIZE ANY DISTURBED AREAS RESULTING FROM THIS PROCESS. (3 DAYS)
- PHASE 2**
10. CONTRACTOR SHALL ADJUST THE EXISTING EROSION AND SEDIMENT CONTROLS AS SHOWN ON THE PHASE 2 PLANS. (1 DAY)
 11. DURING A 3 DAY DRY FORECAST WITH NO BASE FLOW, CONTRACTOR MAY COMMENCE INSTALLATION OF THE RIPRAP OUTFALL PROTECTION, AND COMPLETE ANY MINOR GRADING IN THE AREAS OF THE STORMDRAIN OUTFALLS. (2 DAYS)
 12. UPON COMPLETION OF THE OUTFALL STABILIZATION, THE CONTRACTOR SHALL PERMANENTLY STABILIZE ALL REMAINING DISTURBED AREAS WITHIN THE STORMWATER FACILITY. (1 DAY)
- PHASE 3**
13. CONTRACTOR SHALL ADJUST THE EXISTING EROSION AND SEDIMENT CONTROLS AND INSTALL ADDITIONAL CONTROLS AS SHOWN ON THE PHASE 3 PLANS. (1 DAY)
 14. THE CONTRACTOR MAY COMMENCE CONSTRUCTION OF THE EMERGENCY SPILLWAY DITCH FROM DOWNSTREAM TO UPSTREAM. (3 DAYS)
 15. UPON PERMANENT STABILIZATION OF THE DITCH WITH TIED CONCRETE BLOCK MATTING AND ALL ADJACENT DISTURBED AREAS ALONG THE DITCH CONTRACTOR MAY COMMENCE EXCAVATION OF THE EMERGENCY SPILLWAY. (3 DAYS)
 16. WHEN ALL PROPOSED WORK IS COMPLETED THE CONTRACTOR SHALL STABILIZE THE MAINTENANCE ACCESS ROAD AND RETURN ALL STAGING AND STOCKPILE AREAS TO THEIR PREEXISTING CONDITION. (2 DAYS)
 17. WHEN ALL AREAS ARE PERMANENTLY STABILIZED, AND UPON PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE THE PERIMETER CONTROLS AND STABILIZE ANY DISTURBED AREAS RESULTING FROM THIS PROCESS. (1 DAY)

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
 THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT

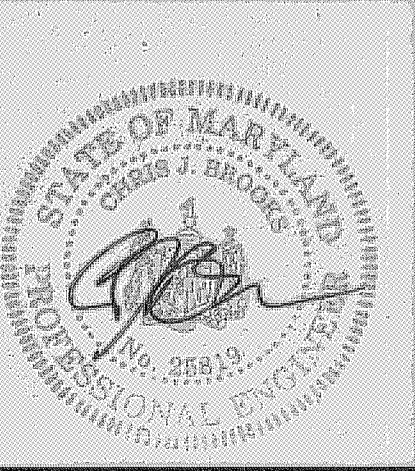
APPROVED: *[Signature]* 7/27/09
 HOWARD COUNTY SOIL CONSERVATION DISTRICT DATE

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 Engineers & Planners Since 1946

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Howard County
 MARYLAND

Storm Water Management Division
 Bureau of Environmental Services
 6751 Columbia Gateway Drive, Suite 514
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DES: ALH					
DRN: MER					
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DATE: 07-23-09	BY	NO.	REVISION	DATE	

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION CAPITAL PROJECT #D-1141

BALTIMORE WASHINGTON INDUSTRIAL PARK STORMWATER RETROFIT

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 30'

SHEET: 6 OF 13

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

SEE SHEET 6 OF 13

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER PONDS

ROUTINE MAINTENANCE:

- FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
- TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
- DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIPRAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

- STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
- SEDIMENT SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS.

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:

- 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.).
- 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 SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

- 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).
- 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.
- 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.
- 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.
- 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.
- 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.
- SITE ANALYSIS:

TOTAL AREA OF SITE	0.96 ACRES
AREA DISTURBED	0.96 ACRES
AREA TO BE ROOFED OR PAVED	0.0 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.96 ACRES
TOTAL CUT	2033 CY
TOTAL FILL	915 CY
OFF SITE WASTE/BORROW AREA LOCATION	TO BE DETERMINED BY CONTRACTOR
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 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.
- 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.
- OFFSITE WASTE / BORROW SITE SHALL HAVE AN APPROVED SEDIMENT CONTROL PLAN AND SHALL BE DETERMINED PRIOR TO ISSUING GRADING 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

- THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - 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.
 - THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
- 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

- 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:

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

- 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:

- ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
 - 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.
 - ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
 - TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
 - NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STABILIZANTS 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.

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

V. TOPSOIL APPLICATION

- 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.
- GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4" - 8" HIGHER IN ELEVATION.
- 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.
- 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 COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

APPROVED:



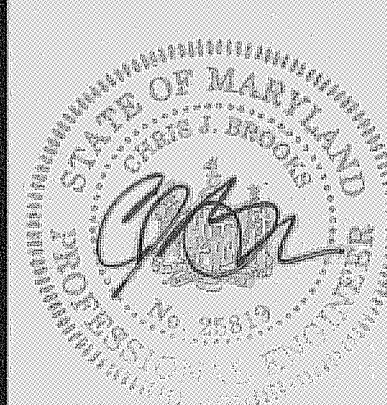
7/27/09
DATE

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Since 1946**
Taylor

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Howard County
MARYLAND

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Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143



DES: ALH					
DRN: MER					
CHK: CJB					
DATE: 07-23-09	BY	NO.	REVISION	DATE	

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
CAPITAL PROJECT #D-1141

BALTIMORE WASHINGTON INDUSTRIAL PARK
STORMWATER RETROFIT

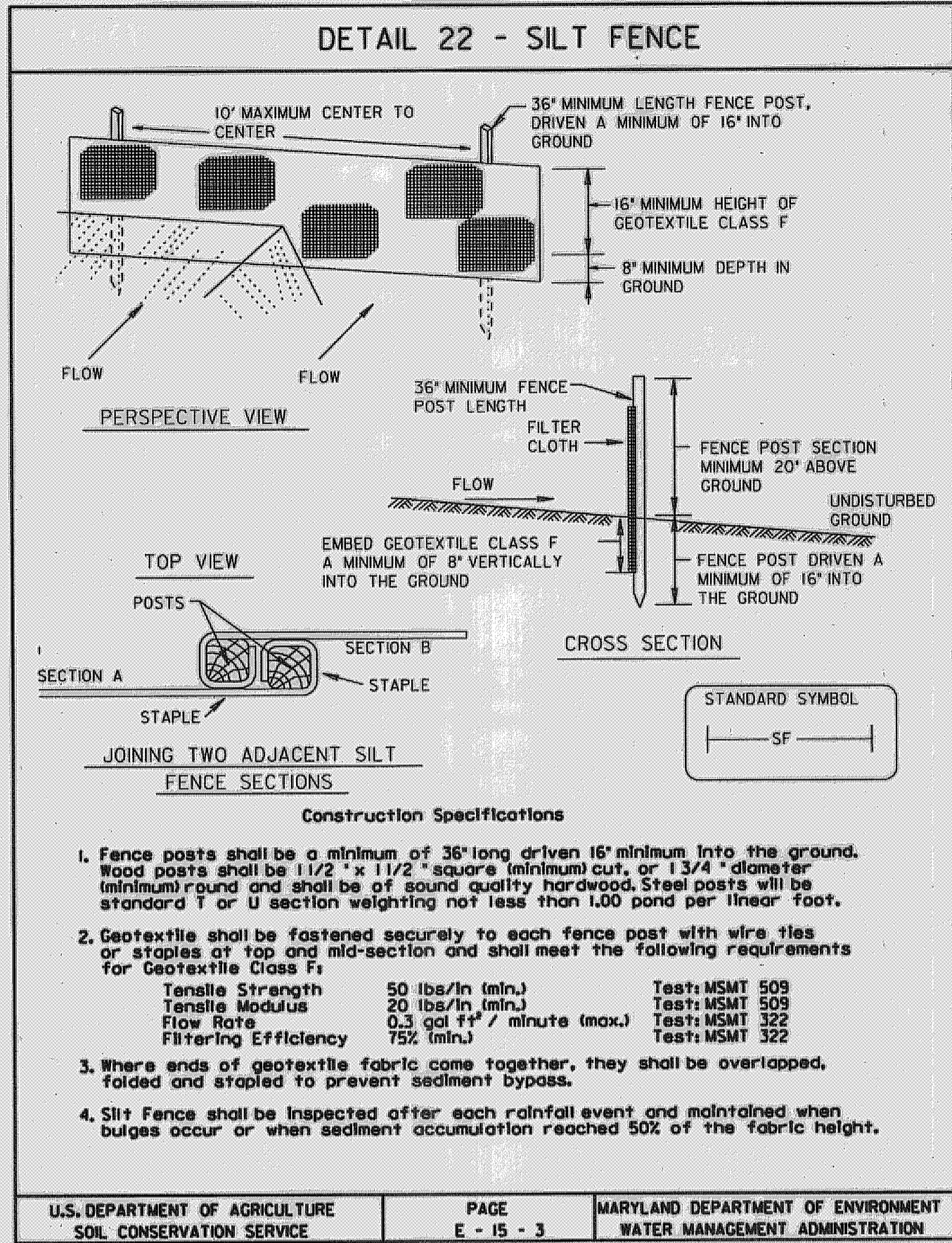
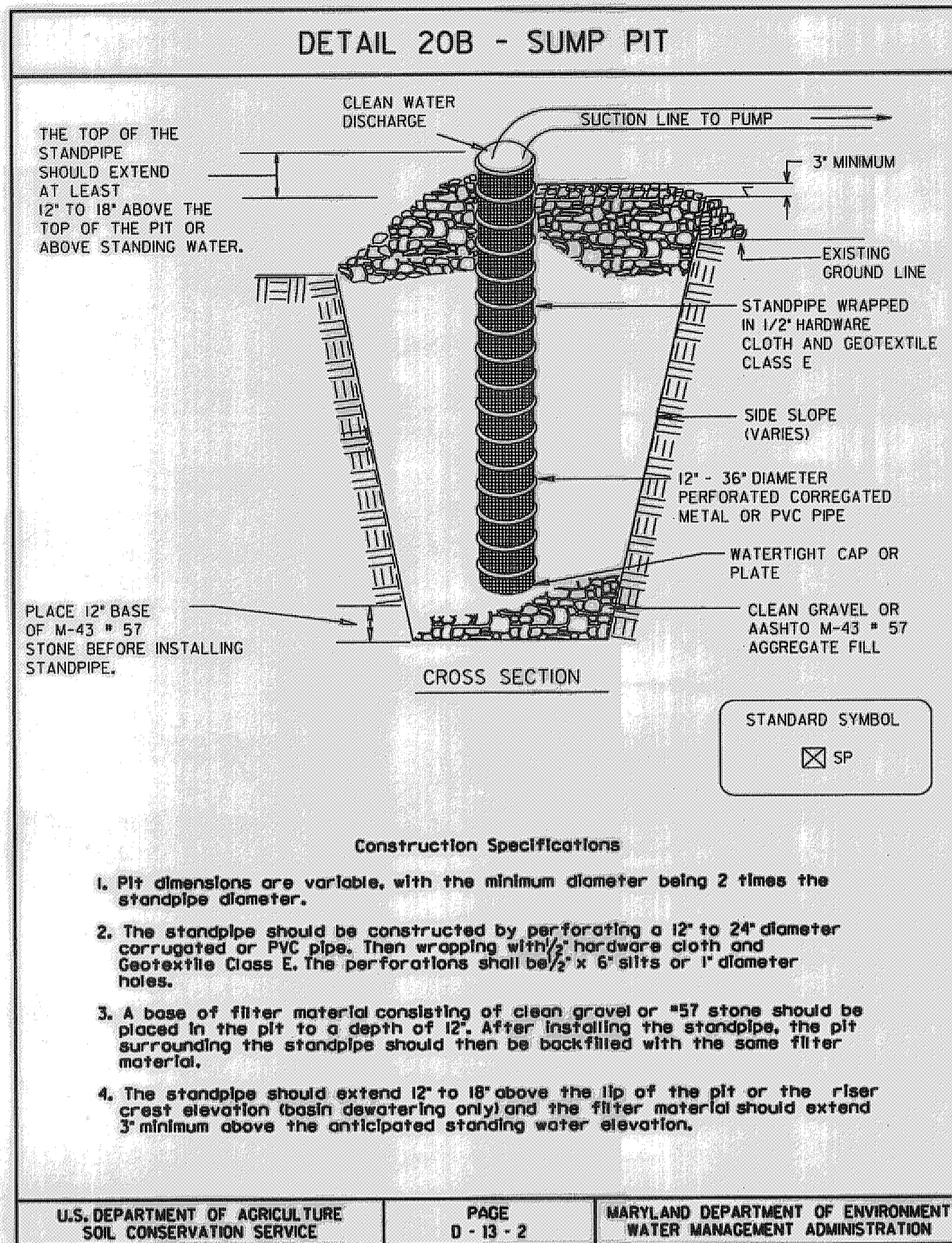
EROSION AND SEDIMENT CONTROL NOTES

SCALE

NOT TO
SCALE

SHEET

7 OF 13



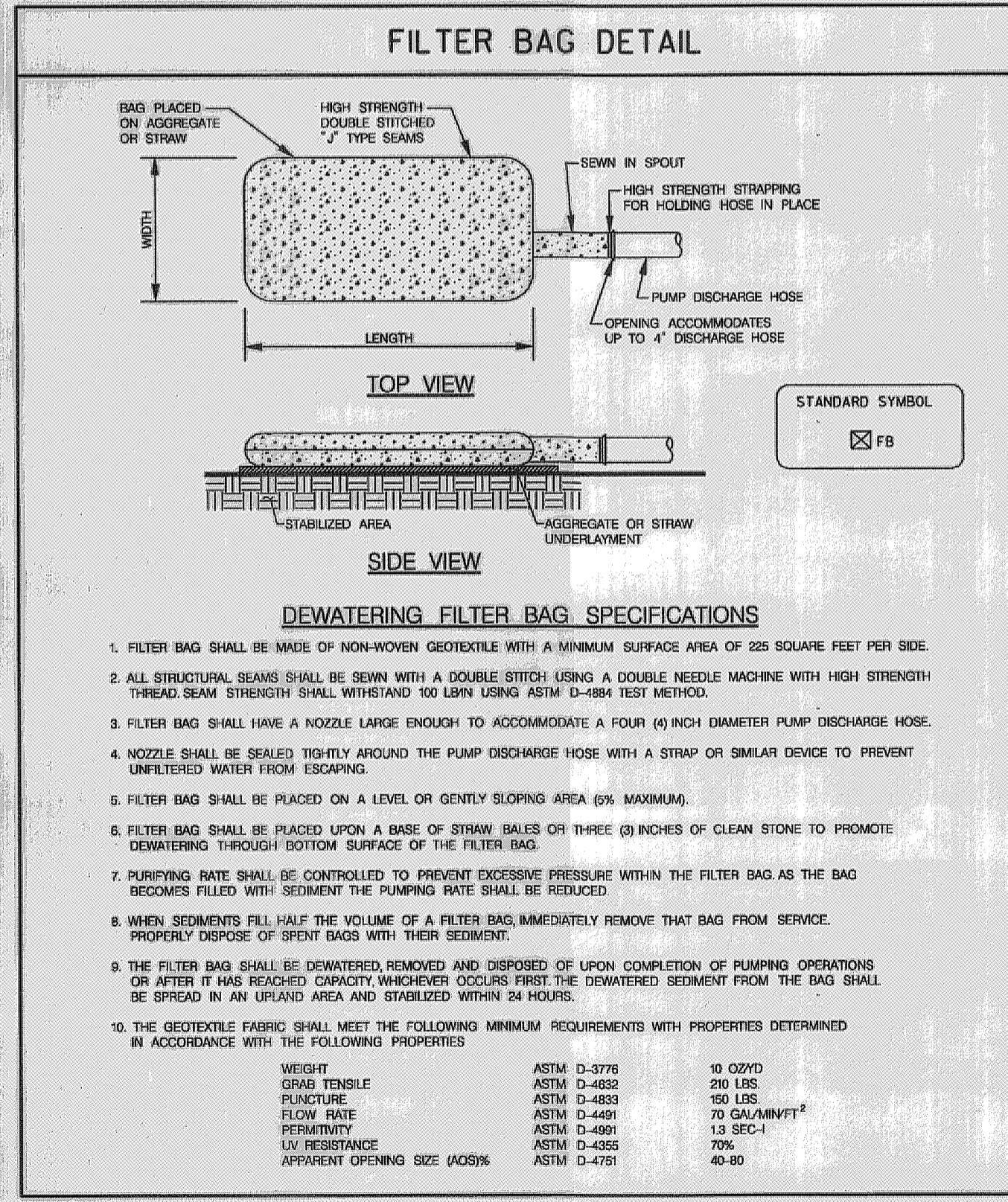
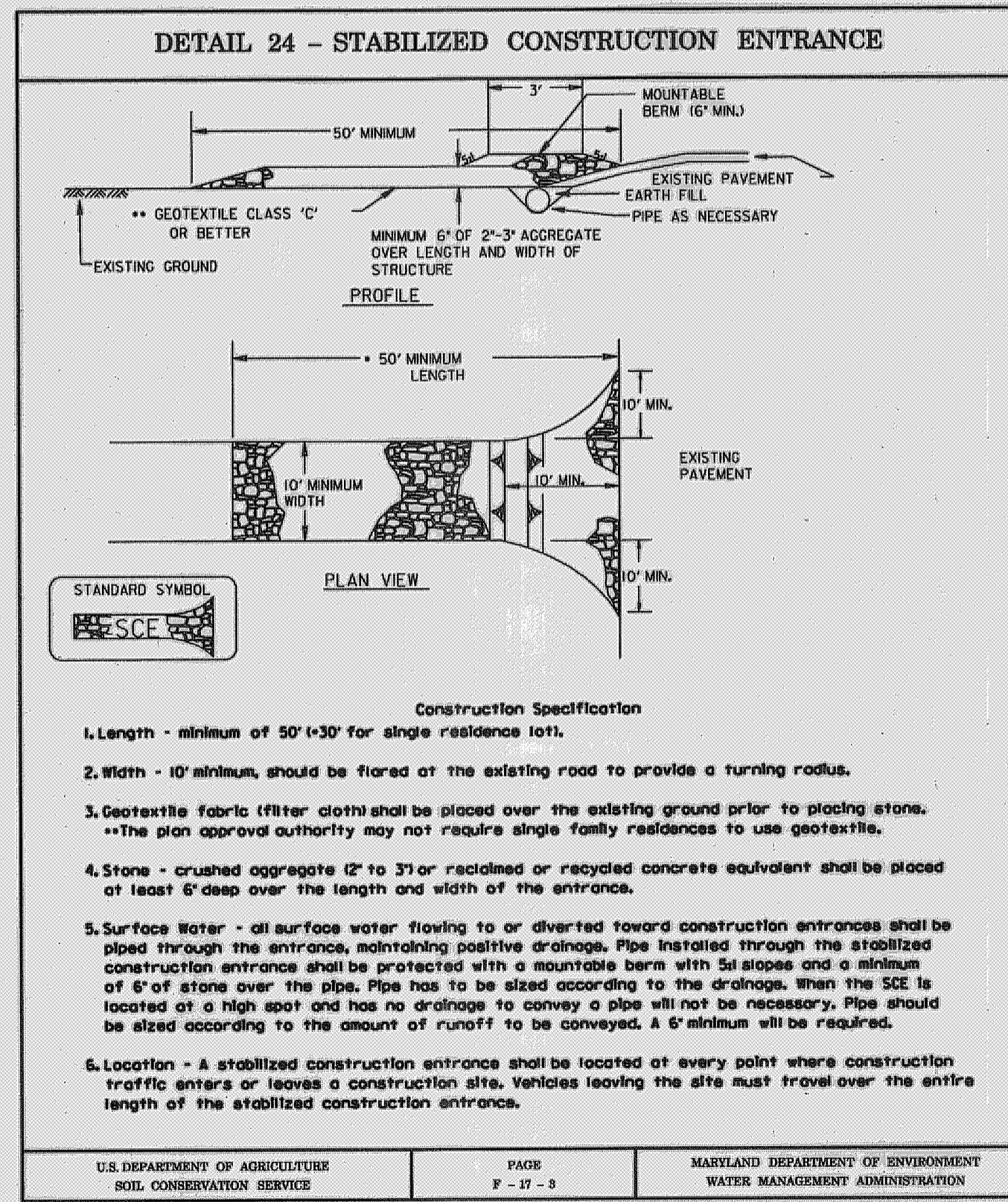
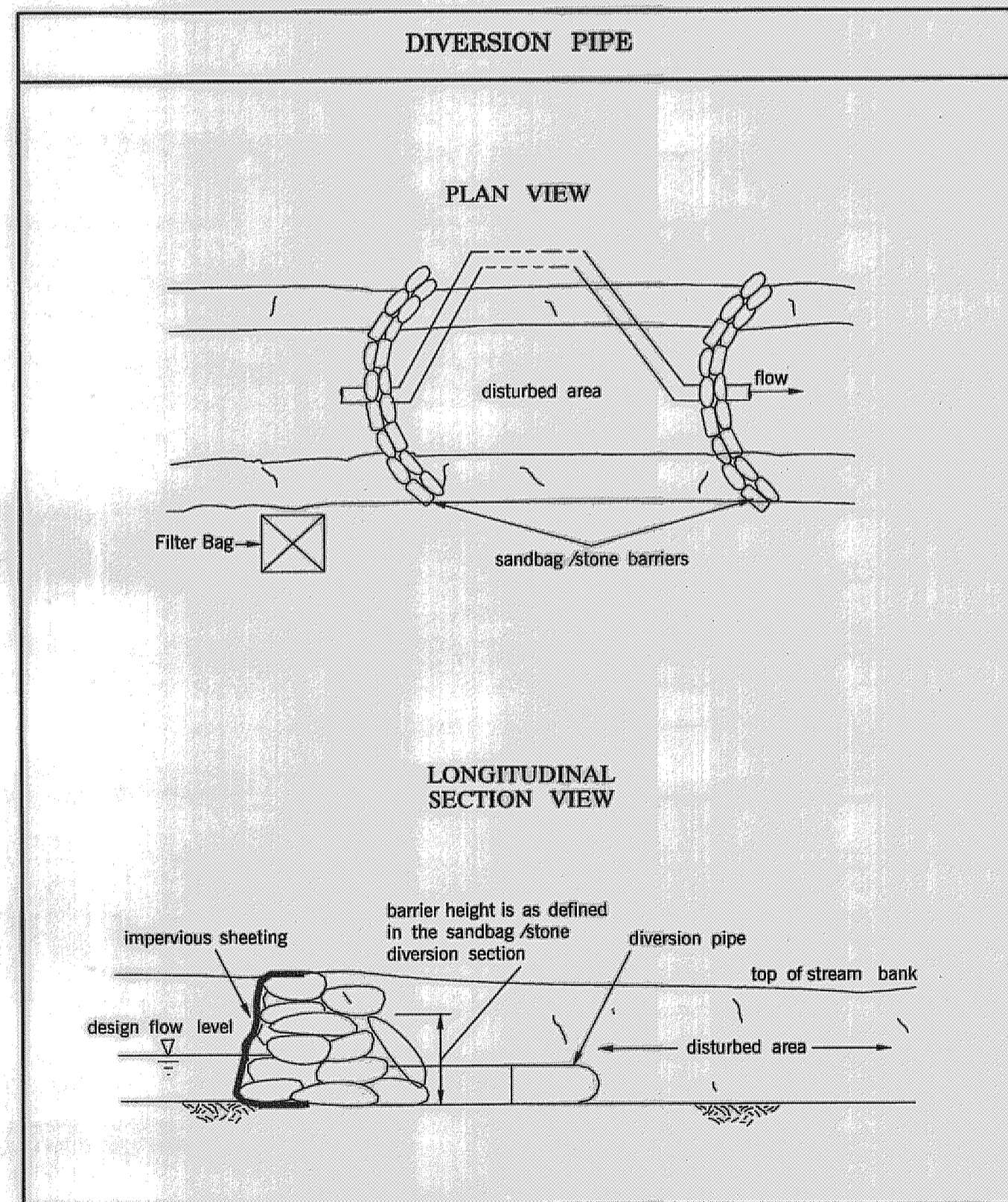
SILT FENCE

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

Note: 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



REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS. THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

APPROVED: 7/27/09
HOWARD SOIL CONSERVATION DISTRICT DATE

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Engineers & Planners Since 1946

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Howard County
MARYLAND

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6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143

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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION CAPITAL PROJECT #D-1141

BALTIMORE WASHINGTON INDUSTRIAL PARK STORMWATER RETROFIT

EROSION AND SEDIMENT CONTROL DETAIL SHEET

SCALE NOT TO SCALE

SHEET 8 OF 13

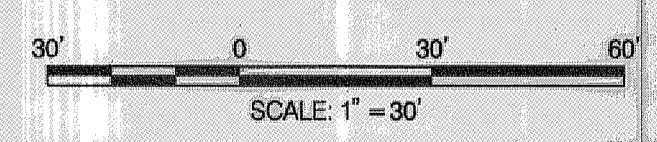
SOIL STABILIZATION MATTING		
TYPE	QUANTITY (SY)	REMARKS
A	980	STABILIZATION OVER WETLAND SEED MIX

NOTE: SOIL STABILIZATION MATTING SHALL BE PLACED OVER AREAS COVERED WITH WETLAND SEED MIX AS NOTED IN THE SPECIFICATIONS, AND AT THE UPPER END OF E.S. AS SHOWN ON SHEET 11.

WETLAND SEED MIX - 920 SY		
COMMON NAME	SCIENTIFIC NAME	FREQUENCY (%)
AGROSTIS ALBA	RED TOP	20
ANDROPOGON VIRGINICUS	BROOM SEDGE	20
CAREX LANUGINOSE	WOOLY SEDGE	20
RUDBECKIA TRILOBUM	BLACK-EYED SUSAN	10
AESCLEPIAS INCARNATA	SWAMP MILKWEED	10
ASTER NOVAE-ANGLAE	NEW ENGLAND ASTER	10
EUPATORIUM MACULATUM	JOE PYE WEED	10

NOTE: OTHER DISTURBED AREAS WITHIN THE LOD NOT WITHIN WETLAND SEED ZONES SHOWN SHALL BE STABILIZED AS PER EROSION AND SEDIMENT CONTROL PLAN SHEET 7 OF 13.

LEGEND	
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EXISTING TREE
	LIMIT OF DISTURBANCE
	SOIL STABILIZATION MATTING
	RIPARIAN SEED ZONE



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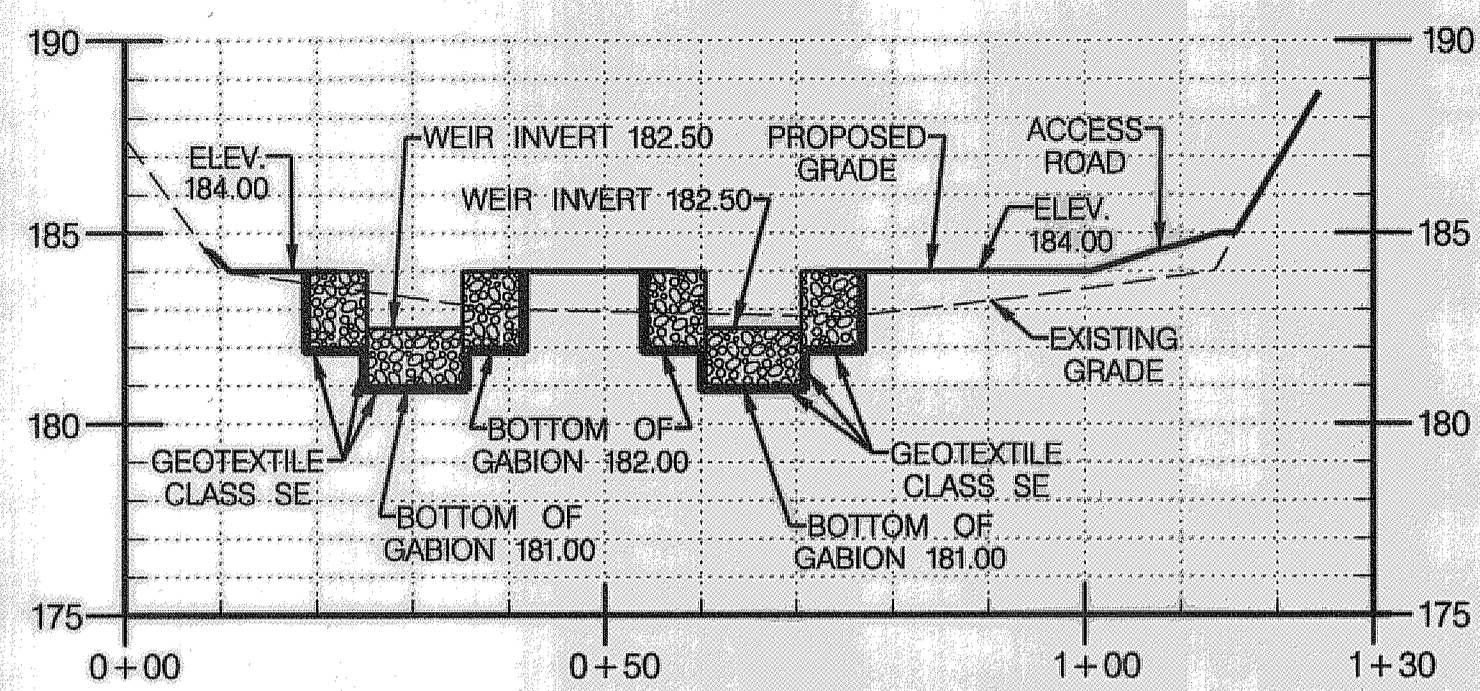
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
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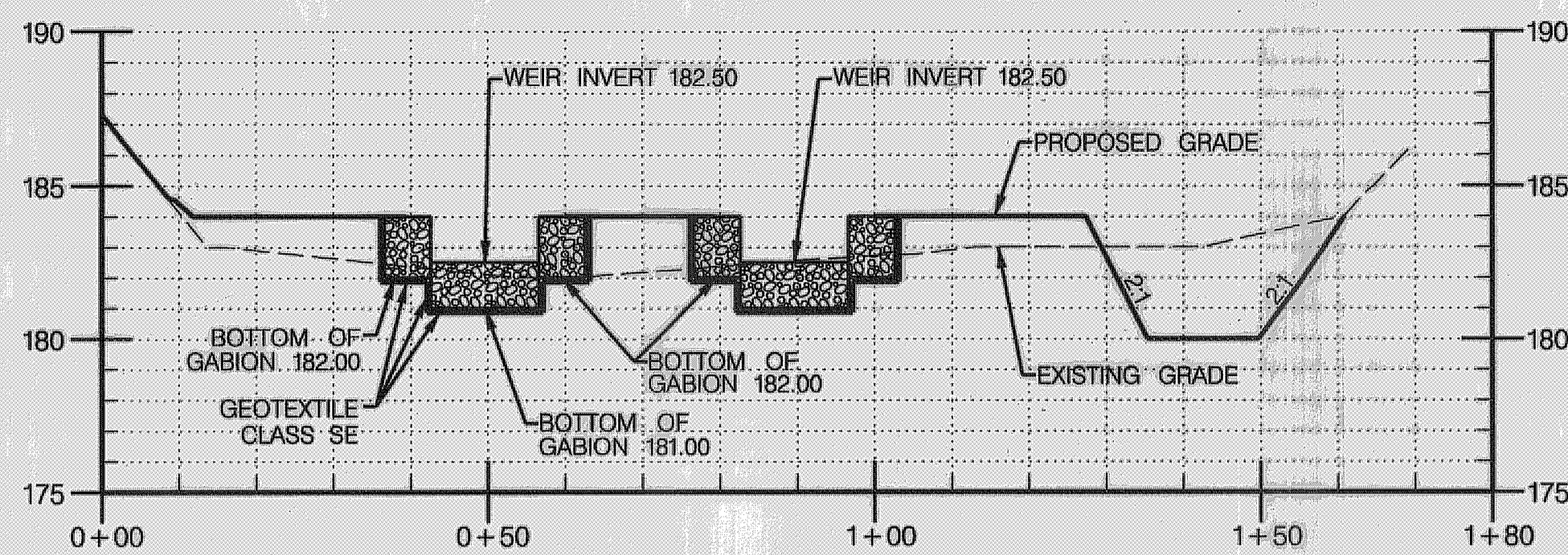
BALTIMORE WASHINGTON INDUSTRIAL PARK
 STORMWATER RETROFIT

LANDSCAPING PLAN

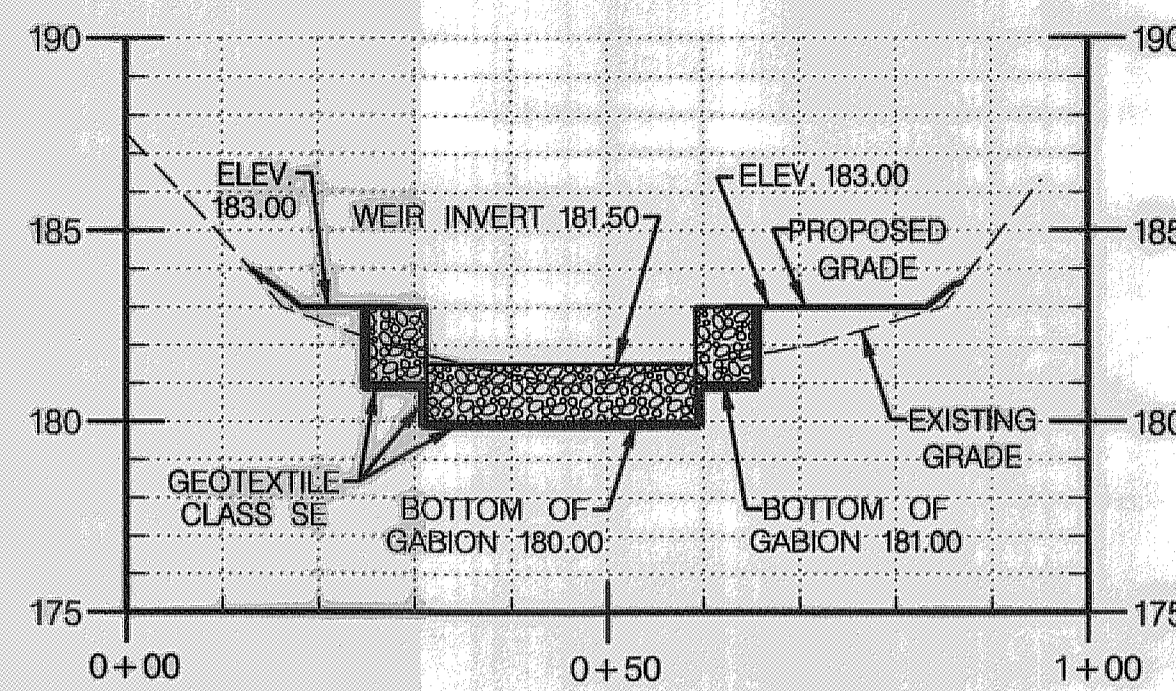
SCALE: 1" = 30'
 SHEET 9 OF 13



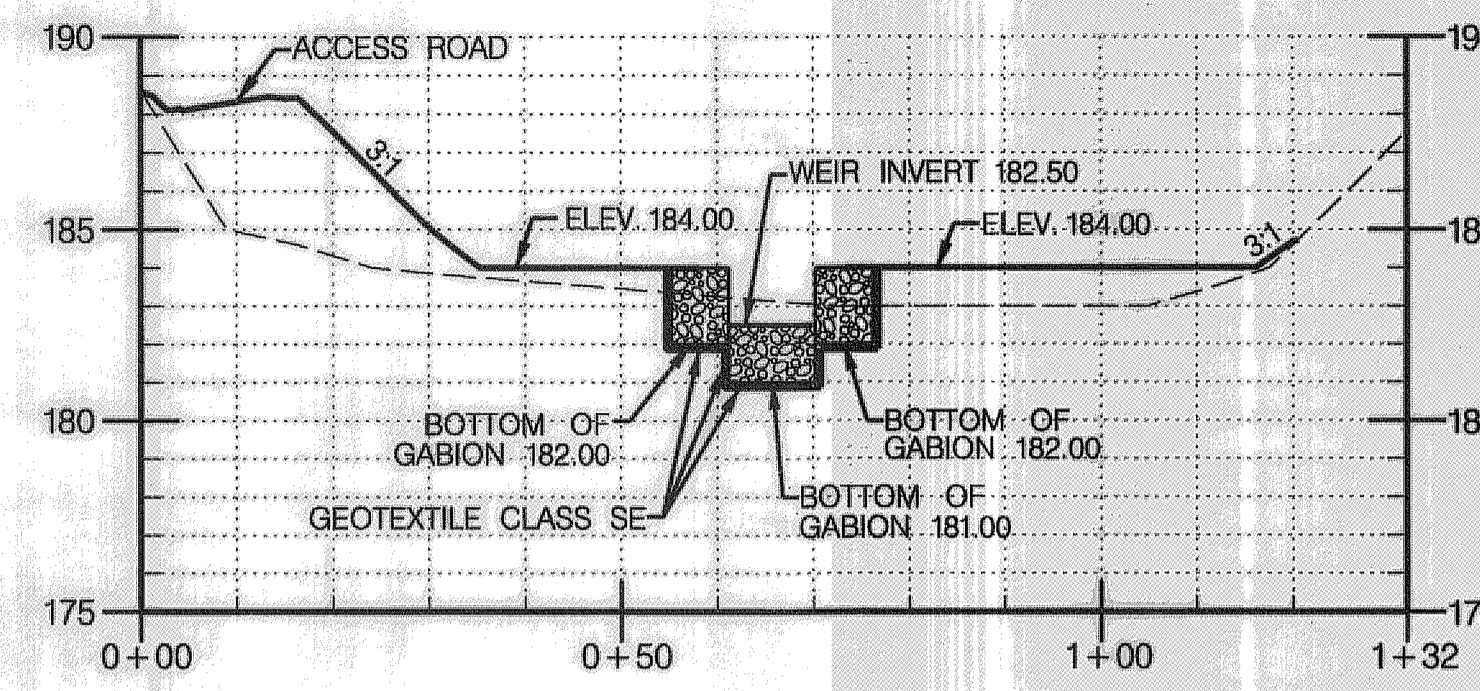
SECTION A
 VERTICAL SCALE: 1" = 5'
 HORIZONTAL SCALE: 1" = 20'



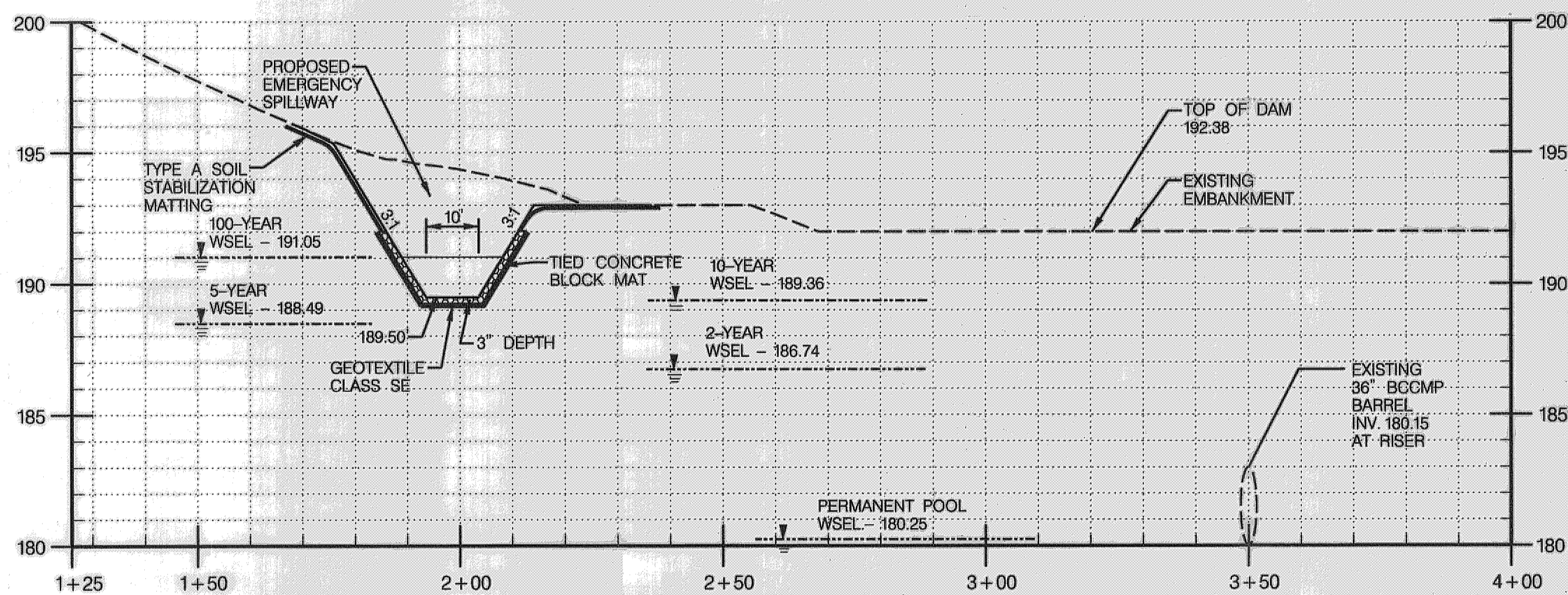
SECTION B
 VERTICAL SCALE: 1" = 5'
 HORIZONTAL SCALE: 1" = 20'



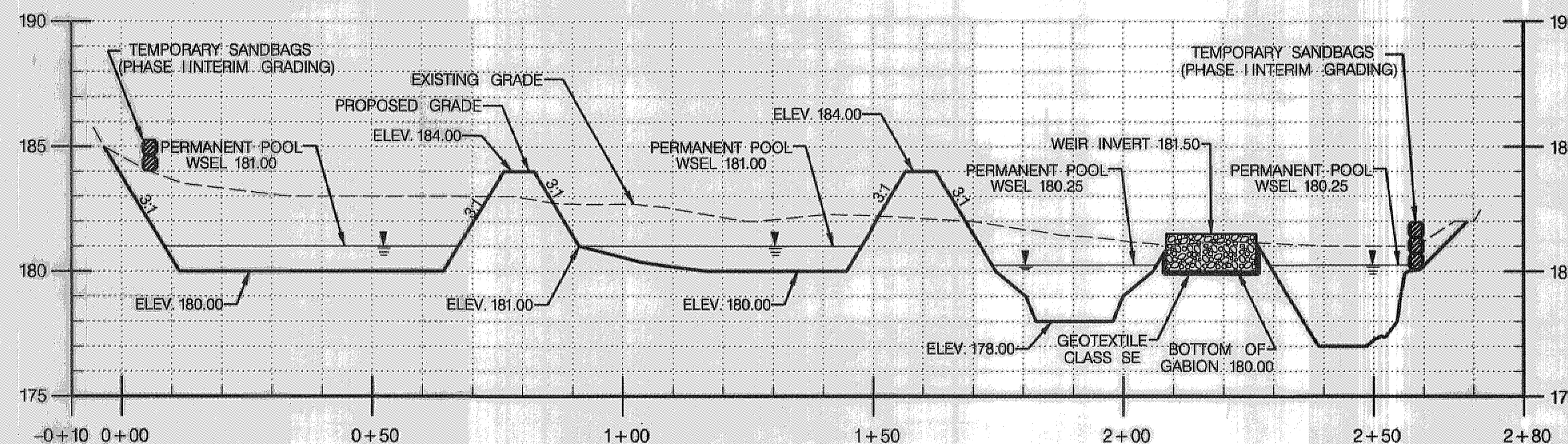
SECTION C
 VERTICAL SCALE: 1" = 5'
 HORIZONTAL SCALE: 1" = 20'



SECTION D
 VERTICAL SCALE: 1" = 5'
 HORIZONTAL SCALE: 1" = 20'



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



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

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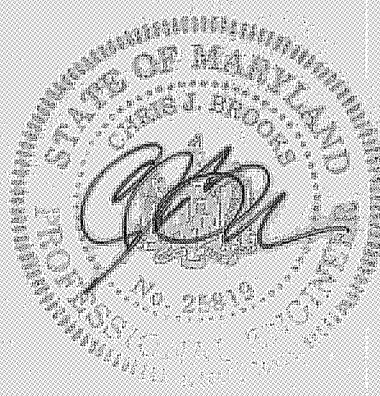
[Signature] 7/22/09
 HOWARD SOIL CONSERVATION DISTRICT DATE

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BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
 CAPITAL PROJECT #D-1141

BALTIMORE WASHINGTON INDUSTRIAL PARK
 STORMWATER RETROFIT

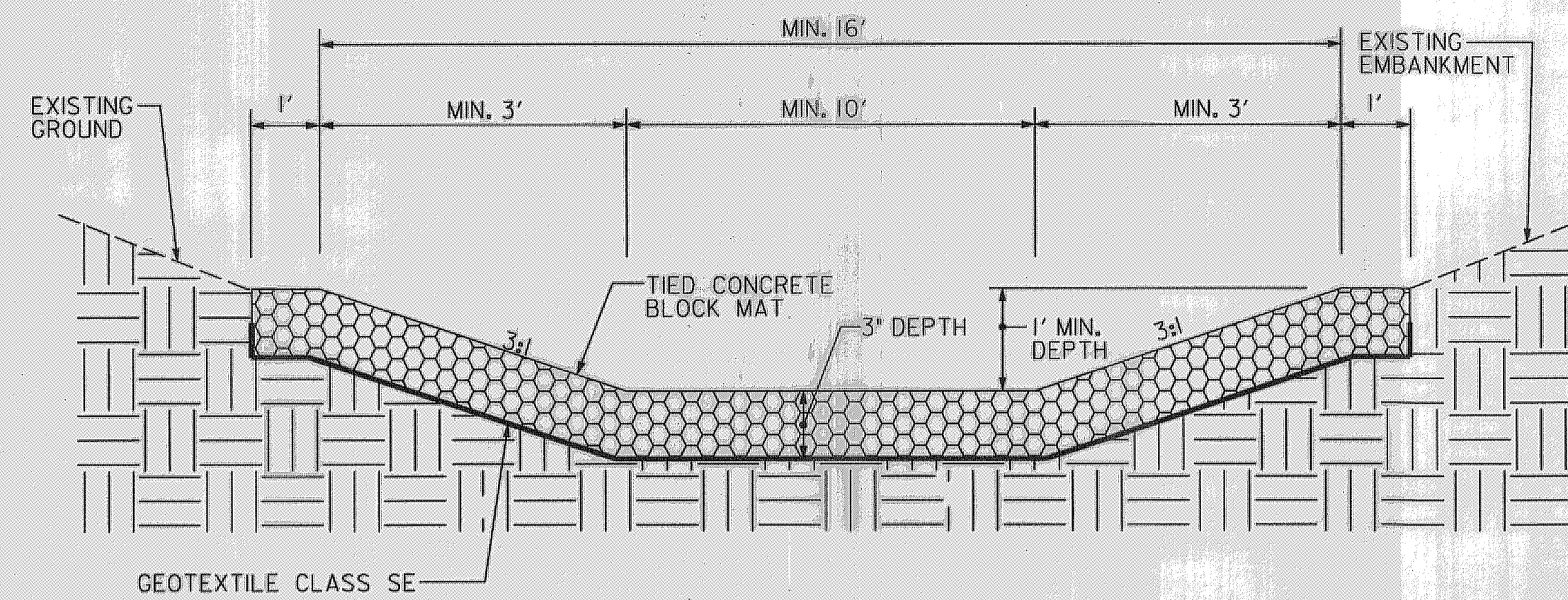
CROSS SECTIONS AND PROFILES

SCALE

AS SHOWN

SHEET

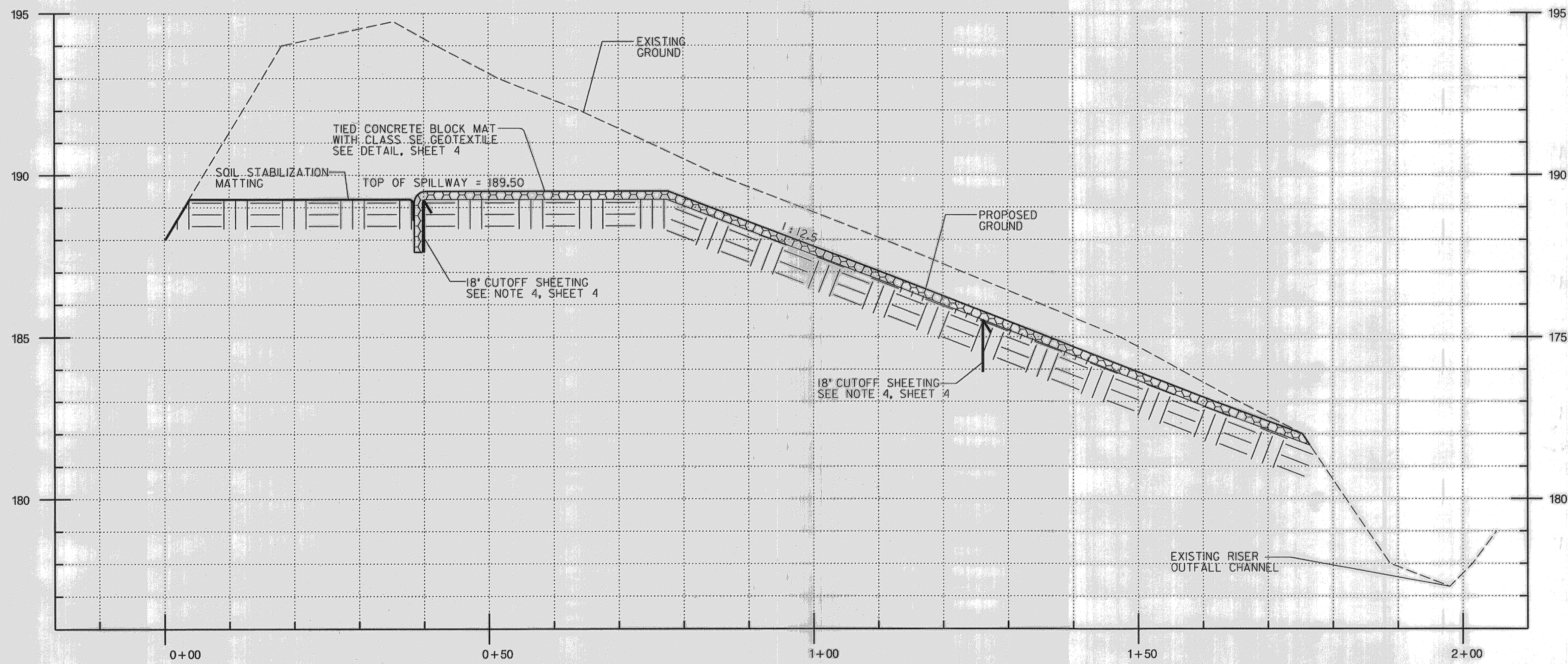
10 OF 13



DITCH SCHEDULE

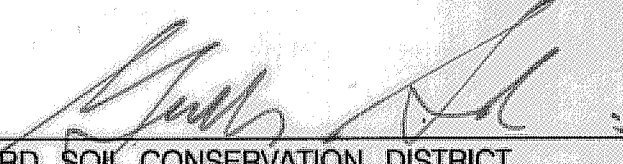
STATION	ELEVATION (FT)
1+98, 0.00 LT	189.50
2+41, 31.18 LT	189.00
2+57, 36.90 LT	187.00
2+82, 42.72 LT	185.00
3+16, 42.72 LT	183.00

**EMERGENCY SPILLWAY
DITCH CROSS SECTION**
N.T.S



EMERGENCY SPILLWAY PROFILE
HORZ.: 1" = 10'
VERT.: 1" = 2'

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THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

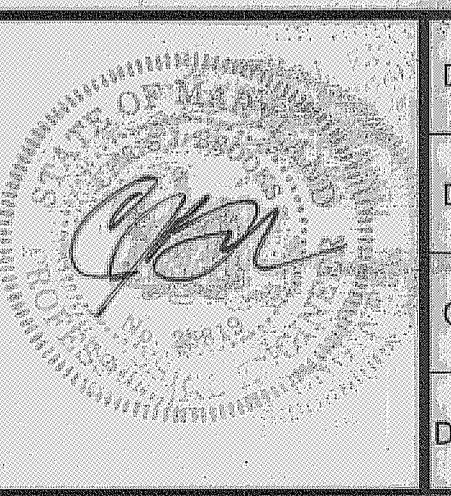
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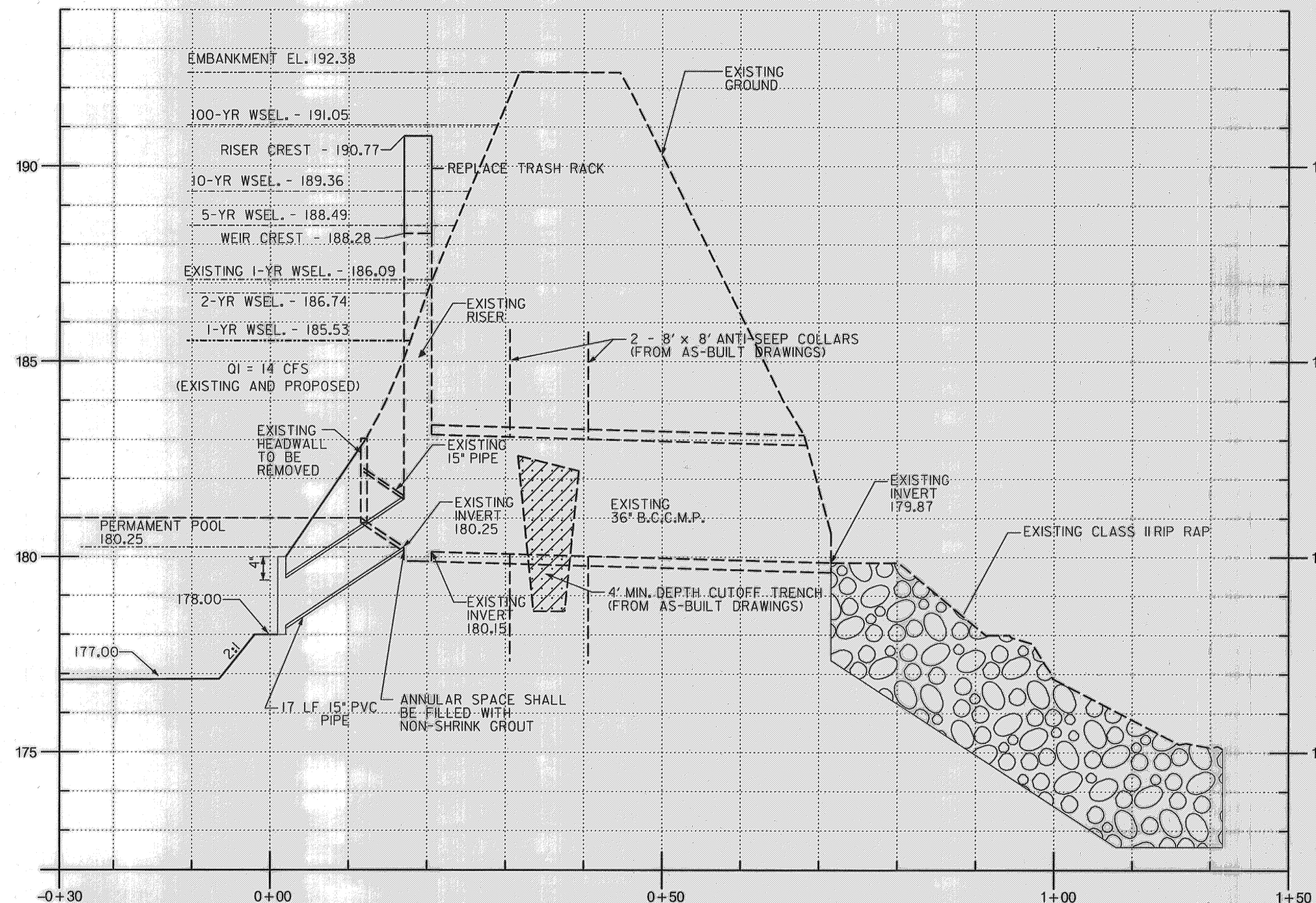
**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
CAPITAL PROJECT #D-1141**

**BALTIMORE WASHINGTON INDUSTRIAL PARK
STORMWATER RETROFIT**

**EMERGENCY SPILLWAY
CROSS SECTION AND PROFILES**

SCALE
AS SHOWN

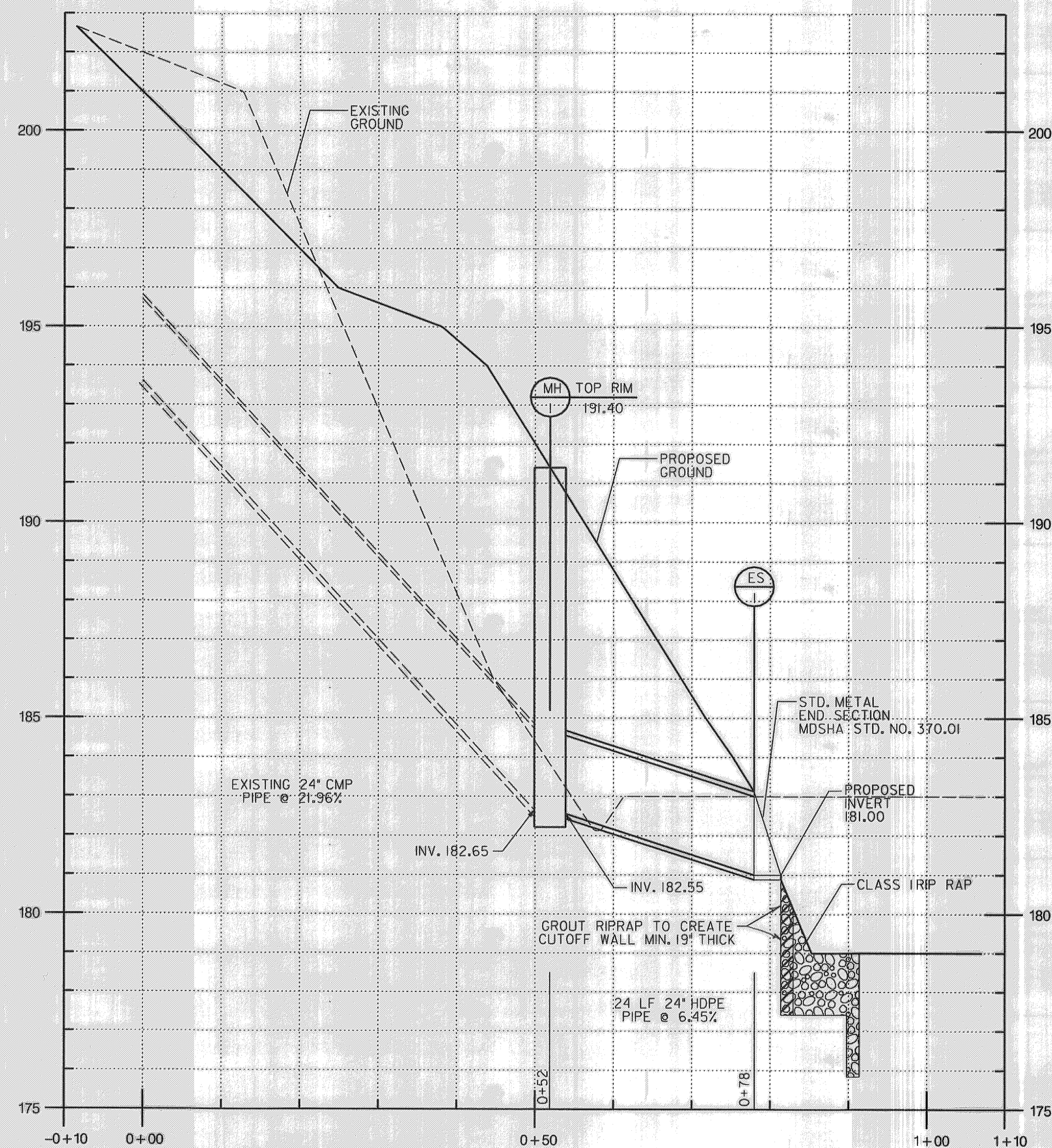
SHEET
11 OF 13



REVERSE SLOPE LOWFLOW PIPE PROFILE

HORZ.: 1" = 10'
VERT.: 1" = 2'

NOTE:
ANTI-SEEP COLLARS AND CUTOFF TRENCH SHOWN
PER AS-BUILT DRAWINGS (F-86-210). LOCATIONS
WERE NOT FIELD VERIFIED AS PART OF THIS SURVEY.



24" PIPE EXTENSION PIPE PROFILE

HORZ.: 1" = 10'
VERT.: 1" = 2'

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APPROVED:

[Signature]
HOWARD SOIL CONSERVATION DISTRICT

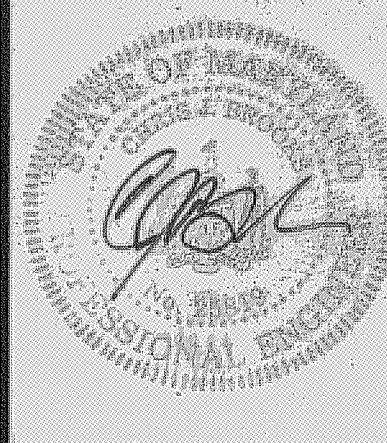
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CAPITAL PROJECT #D-1141

BALTIMORE WASHINGTON INDUSTRIAL PARK
STORMWATER RETROFIT

PIPE PROFILES

SCALE

AS SHOWN

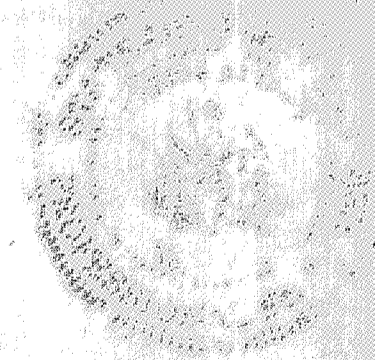
SHEET

12 OF 13

As-Built Inspection Tabulations/Checklist	
Accepted by	
Name _____	Date _____

ACTIVITY	DESIGNED	AS-BUILT	DIFFERENCE	INSPECTOR INITIALS	ACCEPTANCE DATE
As-Built Survey	N/A				
WQ Storage Elevation					
WQ Storage Volume					
CPv Storage Elevation					
CPv Storage Volume					
CPv Discharge (CFS)*					
CPv Control Opening/Elevation					
2 YR Storage Elevation					
2 YR Storage Volume					
2 YR Discharge (CFS)*					
2 YR Control Opening/Elevation					
10 YR Storage Elevation					
10 YR Storage Volume					
10 YR Discharge (CFS)*					
10 YR Control Opening/Elevation					
100 YR Storage Elevation					
100 YR Storage Volume					
100 YR Discharge (CFS)*					
Principal Spillway: Elev. Out/ Diameter/ Slope					
Emergency Spillway: Width / Length / Elevation					
Embankment: Elevation					
Yr. Freeboard Provided					

* As-Built Discharges are not required if tolerances and freeboard are met.



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				DRN: MER						
				CHK: CJB						SHEET
				DATE: 07-23-09	BY	NO.	REVISION	DATE		13 OF 13