

HOWARD COUNTY

Capital Project #D-1159

Junction Industrial Park

Principal Spillway Replacement Project

Storm Water Management Division
Bureau Of Environmental Services

PERMITS/APPROVALS			
AGENCY	PERMIT #	DATE APPLIED	DATE APPROVED
MDE JOINT PERMIT APPLICATION	201661779	10 /25 /2016	3 /27 /2017
MDE DAM SAFETY	N /A	N /A	N /A
HOWARD SOIL CONSERVATION DISTRICT	EP-12-29	90% 10 /26 /2016	90% 11 /29 /2016
		Final 09 /26 /2017	Final 10 /04 /2017

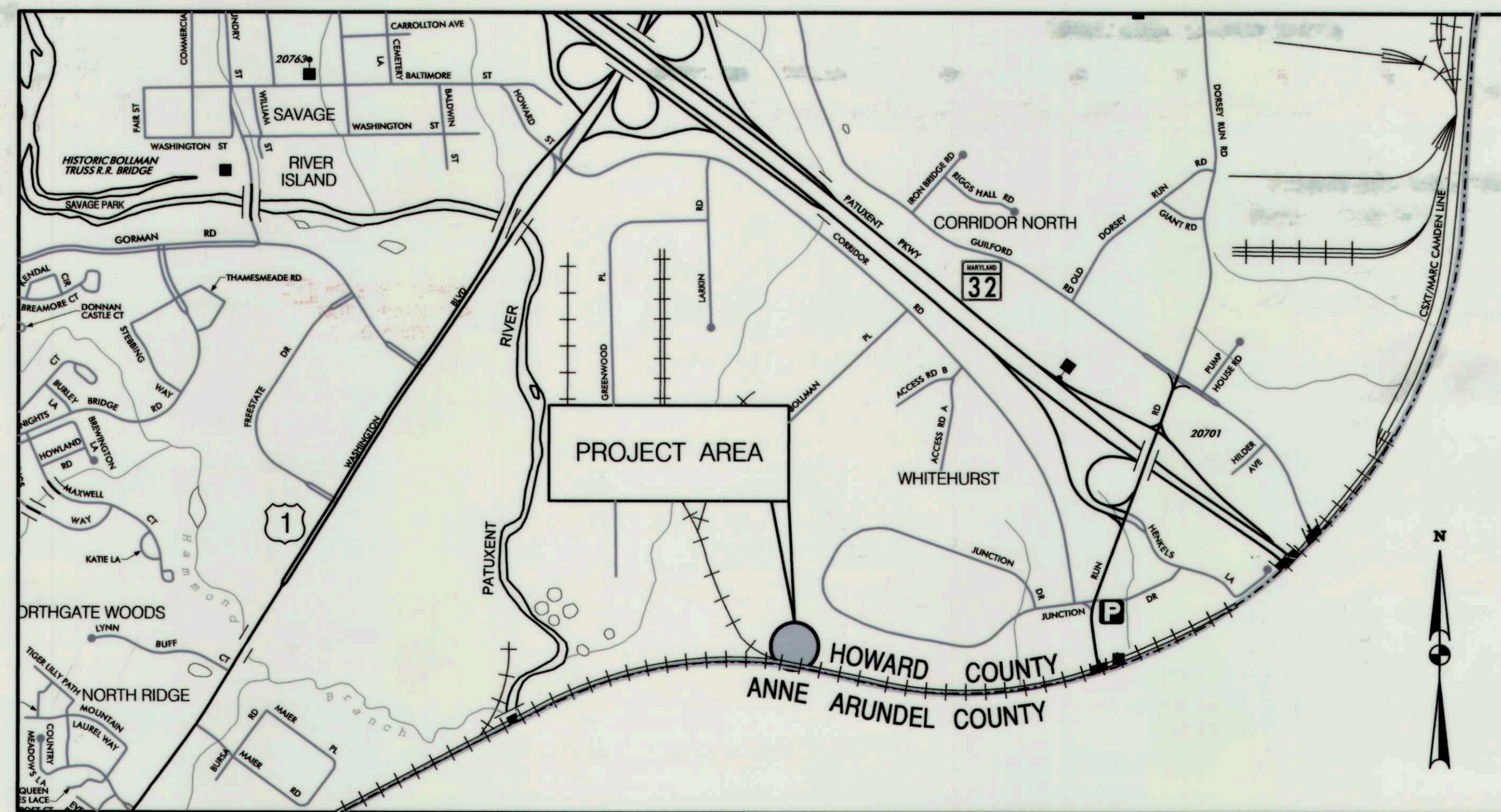
GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MDSA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE.
- THIS PLAN IS PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS /BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- SURVEY OF THIS SITE WAS PERFORMED BY AB CONSULTANTS, INC.-DECEMBER 2011.
- THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. BENCHMARKS SHOWN HEREON WERE PROVIDED BY AB CONSULTANTS, INC.
- WATERS OF THE US WERE DELINEATED BY McCORMICK TAYLOR JANUARY 2012.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND McCORMICK TAYLOR DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION.
- THE EXISTING INFORMATION SHOWN ON THESE PLANS WAS TAKEN FROM THE BEST AVAILABLE SOURCES AND SHALL BE VERIFIED BEFORE STARTING CONSTRUCTION. HOWARD COUNTY DOES NOT GUARANTEE THE COMPLETENESS OR THE CORRECTNESS OF THE SHOWN INFORMATION.
- THE CONTRACTORS SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY. ALL UTILITIES SHALL HAVE A CLEARANCE BY A MINIMUM OF 6 INCHES VERTICALLY AND A MINIMUM OF 5 FEET HORIZONTALLY.
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY McCORMICK TAYLOR IMMEDIATELY TO RESOLVE THE SITUATION.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- SITE DEVELOPMENT DETAILS ARE REFERENCED FROM THE AS-BUILT PLANS FOR JUNCTION INDUSTRIAL PARK SECTION 2 (F-86-126).
- A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT. (TRACKING NUMBER 201661779)
- THE PROJECT IS LOCATED WITHIN A USE 1 WATERWAY; IN-STREAM WORK MAY NOT BE CONDUCTED FROM MARCH 1 THROUGH JUNE 15 INCLUSIVE, OF ANY YEAR. THE PROJECT IS LOCATED WITHIN THE LITTLE PATUXENT RIVER WATERSHED WHICH IS UNDER A TMDL FOR SEDIMENT BUT THE PROJECT IS NOT WITHIN A TIER II CATCHMENT.
- CONTRACTORS SHALL PROVIDE STRUCTURAL SHOP DRAWINGS FOR PRECAST AND PREFABRICATED STRUCTURES FOR ENGINEERS' APPROVAL PRIOR TO CONSTRUCTION.

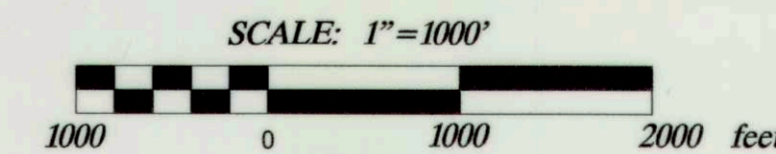
INDEX OF SHEETS	
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2	GEOMETRY SHEET
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LEGEND

PROPOSED MEDIAN BARRIER	
ELECTRICAL HAND BOX - SIGNALS	H.B.
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	180
PROPOSED MINOR CONTOUR	181
LIMIT OF DISTURBANCE	LOD
EXISTING MAJOR CONTOURS	
EXISTING MINOR CONTOURS	
EXISTING PIPE/CULVERT	
EXISTING DROP INLET	
WETLAND	
HEDGE /TREE LINE	
BUSH /TREE	
CONIFEROUS TREE	
LIGHT POLE	



HORIZONTAL DATUM	NAD 83 /91
VERTICAL DATUM	NAVD 88



PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 32013, EXPIRATION DATE: 7/5/2019

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT 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.

OWNER'S/DEVELOPER'S CERTIFICATION

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION PRIOR TO BEGINNING THE PROJECT. I/SHALL ENGAGE A MARYLAND 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. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.



AS-BUILT CERTIFICATION
I CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

HOWARD SCD SIGNATURE BLOCK
THIS PLAN IS APPROVED FOR SMALL POND CONSTRUCTION, AND SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT
DATE: 10/4/17

9/25/17
MARYLAND REGISTRATION NUMBER 32013

DESIGNER'S SIGNATURE
AMY L. HRIBAR
PRINTED NAME

9/29/17
DATE

OWNER/DEVELOPER SIGNATURE
JAMES M. IRVIN
PRINTED NAME AND TITLE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS DATE 9/27/17

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

CHIEF, STORMWATER MANAGEMENT DIVISION DATE 9/27/17

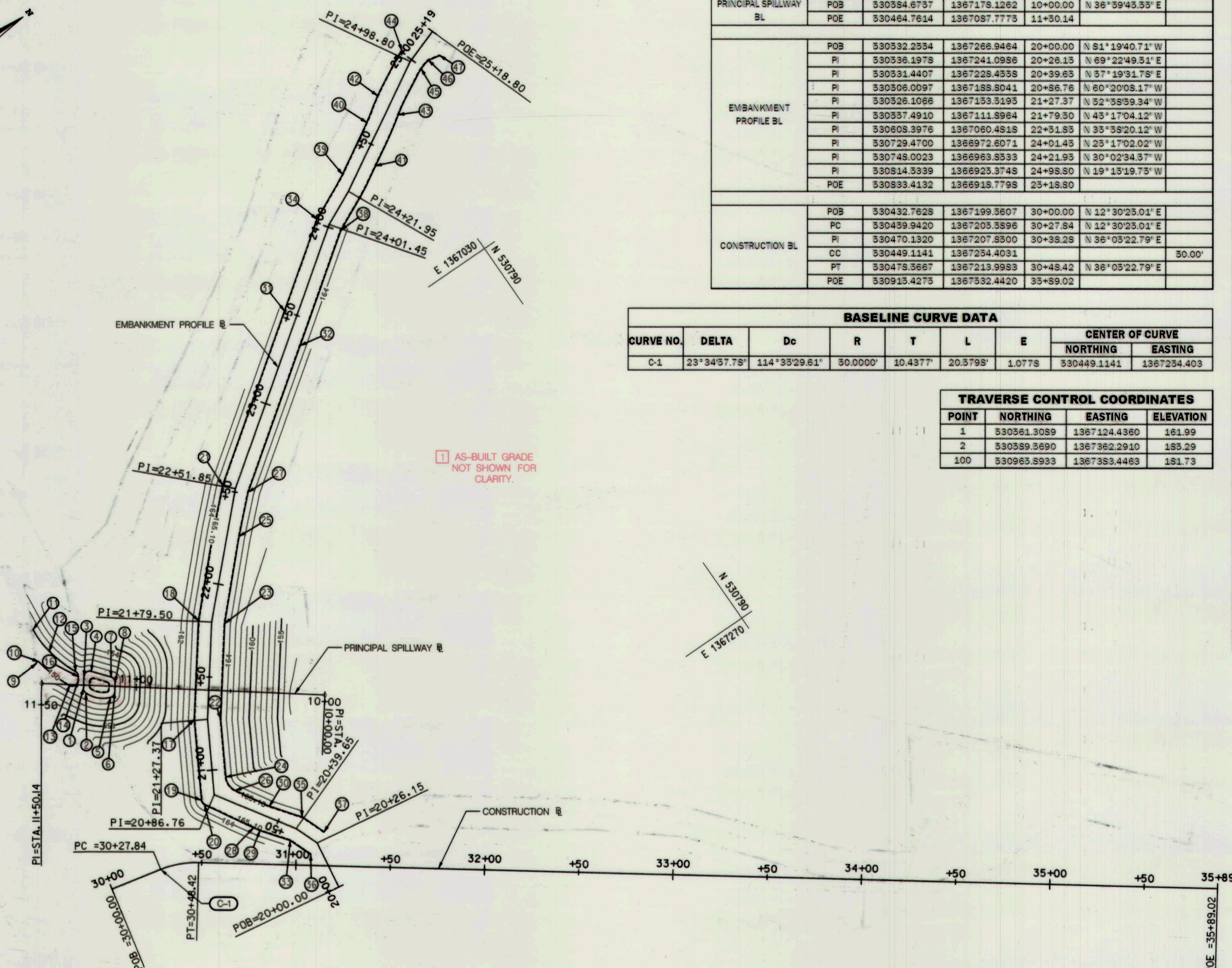
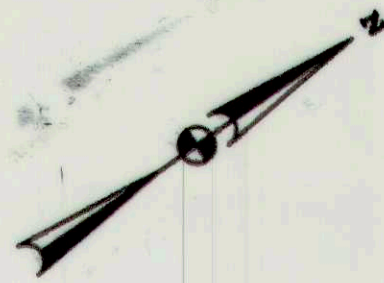
McCORMICK TAYLOR
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

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



DES: AM	ADM	1	AS-BUILT SURVEY	05/15/18
DRN: MR				
CHK: AH				
DATE: 09/20/17	BY	NO.	REVISION	DATE

JUNCTION INDUSTRIAL PARK
PRINCIPAL SPILLWAY REPLACEMENT PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HCSD#: EP-12-29
TITLE SHEET
SCALE AS SHOWN
SHEET 1 OF 12



BASELINE GEOMETRY CONTROL COORDINATES						
BASELINE	POINT	NORTHING	EASTING	STATION	BEARING AH	RADIUS
PRINCIPAL SPILLWAY BL	POB	530534.6757	1367175.1262	10+00.00	N 36°39'43.53" E	
	POE	530464.7614	1367057.7775	11+50.14		
EMBankMENT PROFILE BL	POB	530532.2534	1367266.9464	20+00.00	N 81°19'40.71" W	
	PI	530536.1975	1367241.0966	20+26.15	N 69°22'49.51" E	
	PI	530531.4407	1367225.4535	20+39.65	N 57°19'31.75" E	
	PI	530508.0097	1367188.5041	20+56.76	N 60°20'05.17" W	
	PI	530526.1066	1367153.5193	21+27.37	N 52°38'59.34" W	
	PI	530537.4910	1367111.8964	21+79.30	N 45°17'04.12" W	
	PI	530603.3976	1367060.4815	22+51.85	N 35°35'20.12" W	
	PI	530729.4700	1366972.6071	24+01.45	N 25°17'02.02" W	
	PI	530745.0023	1366963.8333	24+21.93	N 30°02'34.57" W	
	PI	530814.5339	1366925.3745	24+98.50	N 19°15'19.75" W	
POE	530533.4132	1366915.7795	25+16.50			
CONSTRUCTION BL	POB	530432.7625	1367199.5607	30+00.00	N 12°30'25.01" E	
	PC	530459.9420	1367203.5596	30+27.84	N 12°30'25.01" E	
	PI	530470.1320	1367207.8500	30+38.25	N 36°05'22.79" E	
	CC	530449.1141	1367254.4031			50.00'
	PT	530475.5667	1367213.9953	30+48.42	N 36°05'22.79" E	
	POE	530915.4275	1367532.4420	35+59.02		

BASELINE CURVE DATA								
CURVE NO.	DELTA	Dc	R	T	L	E	CENTER OF CURVE	
							NORTHING	EASTING
C-1	23°34'57.78"	114°35'29.61"	50.0000'	10.4377'	20.5795'	1.0778	530449.1141	1367254.403

TRAVERSE CONTROL COORDINATES			
POINT	NORTHING	EASTING	ELEVATION
1	530561.3059	1367124.4360	161.99
2	530559.5690	1367362.2910	153.29
100	530965.8933	1367383.4463	161.73

GRADING TABLE				
POINT	STATION	OFFSET	NORTHING	
1	30+26.30	105.29 LT	530481.4338	1
2	30+26.75	102.35 LT	530481.0465	1
3	30+26.23	111.03 LT	530483.2272	1
4	30+29.65	112.24 LT	530489.9446	1
5	30+31.32	93.75 LT	530490.5095	1
6	30+32.34	97.76 LT	530493.9421	1
7	30+32.49	106.02 LT	530496.9015	1
8	30+32.59	102.52 LT	530496.9762	1
9	30+05.42	127.03 LT	530465.4893	1
10	30+09.54	127.33 LT	530469.9550	1
11	30+13.59	144.51 LT	530477.3225	1
12	30+17.25	130.35 LT	530477.8721	1
13	30+20.31	109.50 LT	530476.3008	1
14	30+25.40	110.11 LT	530481.4019	1
15	30+25.99	115.22 LT	530483.0905	1
16	30+26.33	112.16 LT	530482.7625	1
17	30+46.75	76.61 LT	530520.2466	1
18	30+47.48	129.57 LT	530552.1591	1
19	30+49.05	33.50 LT	530495.8116	1
20	30+50.78	31.11 LT	530495.7950	1
21	30+56.10	202.23 LT	530603.8935	1
22	30+55.22	77.21 LT	530531.9665	1
23	30+59.05	125.46 LT	530562.5232	1
24	30+61.70	46.27 LT	530516.5540	1
25	30+63.53	173.15 LT	530593.5660	1
26	30+66.57	39.10 LT	530516.5131	1
27	30+69.72	198.54 LT	530612.9016	1
28	30+77.03	19.39 LT	530513.1072	1
29	30+80.49	17.94 LT	530515.0462	1
30	30+55.12	31.15 LT	530526.5860	1
31	30+56.51	296.17 LT	530653.5039	1
32	30+95.31	277.89 LT	530680.1479	1
33	30+96.70	13.03 LT	530525.2599	1
34	31+02.52	343.64 LT	530725.8852	1
35	31+02.59	23.92 LT	530537.6036	1
36	31+07.63	5.56 LT	530529.5631	1
37	31+14.46	15.12 LT	530542.6061	1
38	31+15.44	340.08 LT	530733.0518	1
39	31+15.50	369.91 LT	530750.6745	1
40	31+27.66	397.95 LT	530777.0346	1
41	31+32.93	374.89 LT	530767.6853	1
42	31+33.07	412.40 LT	530789.5941	1
43	31+44.24	402.34 LT	530793.1170	1
44	31+45.40	436.93 LT	530814.3092	1
45	31+55.84	427.42 LT	530817.1490	1
46	31+59.49	432.05 LT	530822.5422	1
47	31+65.51	434.77 LT	530829.2851	1

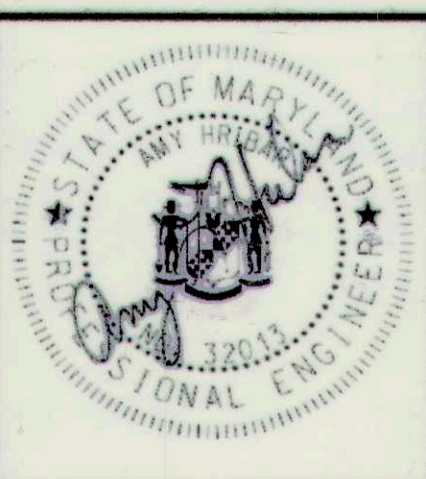
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature]
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

9/27/17 DATE

MCCORMICK TAYLOR
509 South Exeter Street
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Baltimore, Maryland 21202
(410) 662-7400

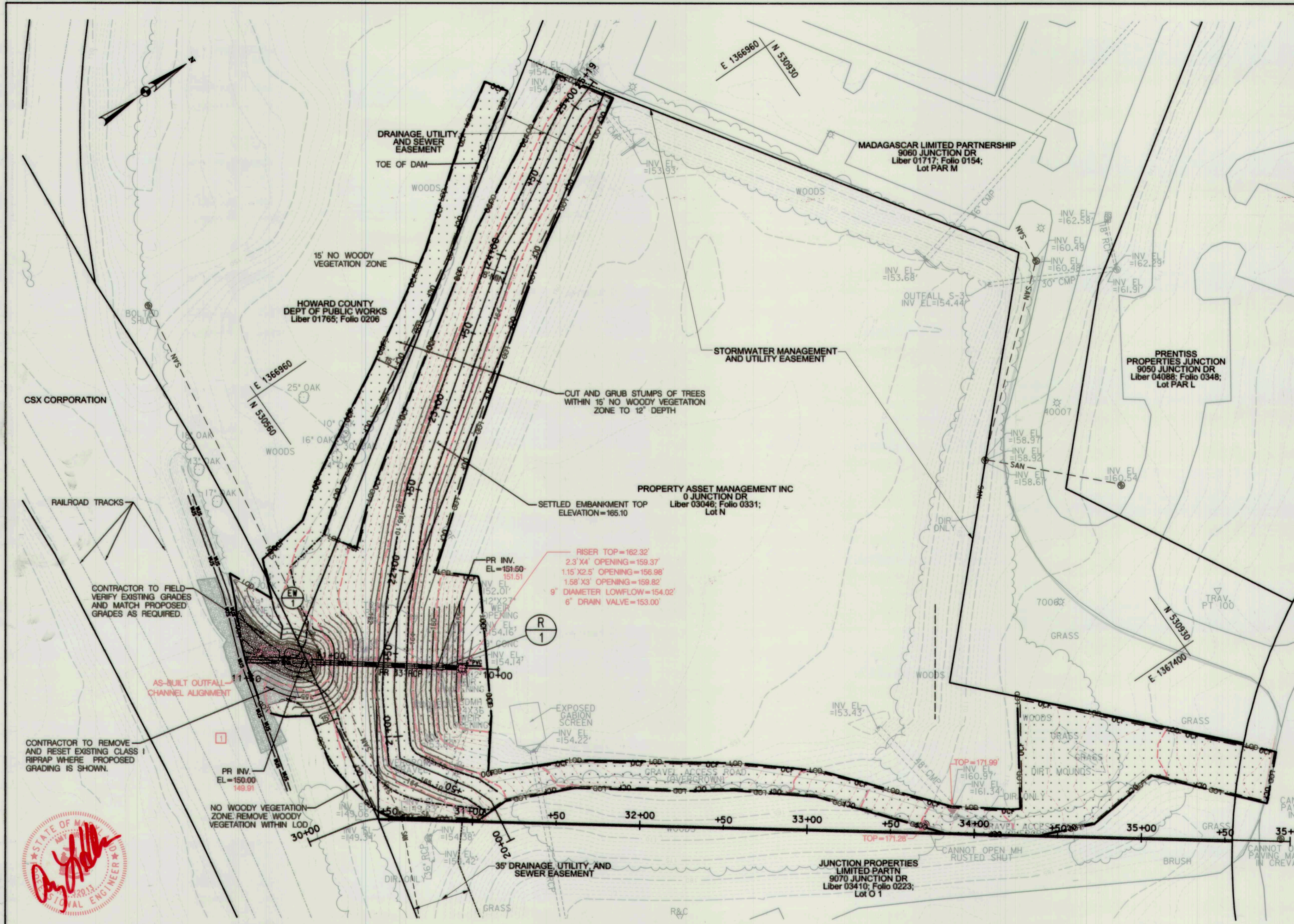
Howard County
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Columbia, Maryland 21046-3143
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DES: AM	ADM	1	AS-BUILT SURVEY	05/15/18
DRN: MR				
CHK: CB				
DATE: 09/20/17	BY	NO.	REVISION	DATE

JUNCTION INDUSTRIAL PARK
PRINCIPAL SPILLWAY REPLACEMENT PROJ.
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD#: EP-12-29

GEOMETRY SHEET



TYPE 'A' SOIL STABILIZATION MATTING	
QTY (SY)	REMARKS
5,322	FOR STABILIZATION OF DISTURBED AREAS

4" TOPSOIL	
QTY (SY)	REMARKS
3,784	FOR GRADED AND DISTURBED AREAS

33" TYPE G ENDWALL (EW-1)		
STATION	QTY (EA)	REMARKS
30+35, 98' LT	1	SEE DETAIL, SHEET 6

33" RCP		
STATION	QTY (LF)	REMARKS
30+35, 98' LT TO 30+89, 92' LT	81	CLASS C-25 ASTM 361

RISER (R-1)		
STATION	QTY (EA)	REMARKS
30+91, 92' LT	1	SEE DETAIL, SHEET 7

EARTH FILL	
QTY (CY)	REMARKS
1,072	FOR EMBANKMENT AND OUTFALL

CLAY BACKFILL	
QTY (CY)	REMARKS
144	FOR CLAY CORE

NOTE: REFER TO SHEET 8 OF 12 FOR FULL LOD AND ACCESS.

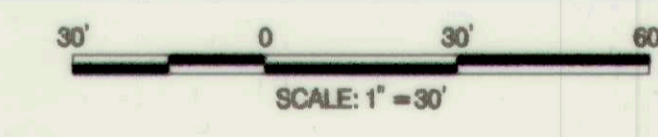
CLASS I EXCAVATION	
QTY (CY)	REMARKS
985	EXCAVATION OF EMBANKMENT AND OUTFALL

CLASS I RIPRAP	
QTY (SY)	REMARKS
110	FOR PLUNGE POOL AND REPLACING EXISTING

TURFGRASS ESTABLISHMENT	
QTY (SY)	REMARKS
5,175	FOR VEGETATIVE STABILIZATION OF DISTURBED AREAS

MIX 3 CONCRETE FOR MISCELLANEOUS STRUCTURES	
QTY (CY)	REMARKS
1	PROJECTION COLLAR

MIX 6 CONCRETE FOR MISCELLANEOUS STRUCTURES	
QTY (CY)	REMARKS
5	ANTI-SEEP COLLAR
7	CONCRETE CRADLE



LEGEND	
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	WATERS OF THE US
	TOE OF DAM
	PROPERTY LINE
	EASEMENT LINE
	EXISTING SANITARY SEWER LINE
	LIMIT OF DISTURBANCE
	ORANGE CONSTRUCTION FENCE
	33" RCP
	RAILROAD TRACK CENTERLINE
	EXISTING TREE
	EXISTING RIP RAP
	CLASS I RIP RAP
	TYPE A SOIL STABILIZATION MATTING



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature]
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

DATE: 8/21/17

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Howard County
MARYLAND

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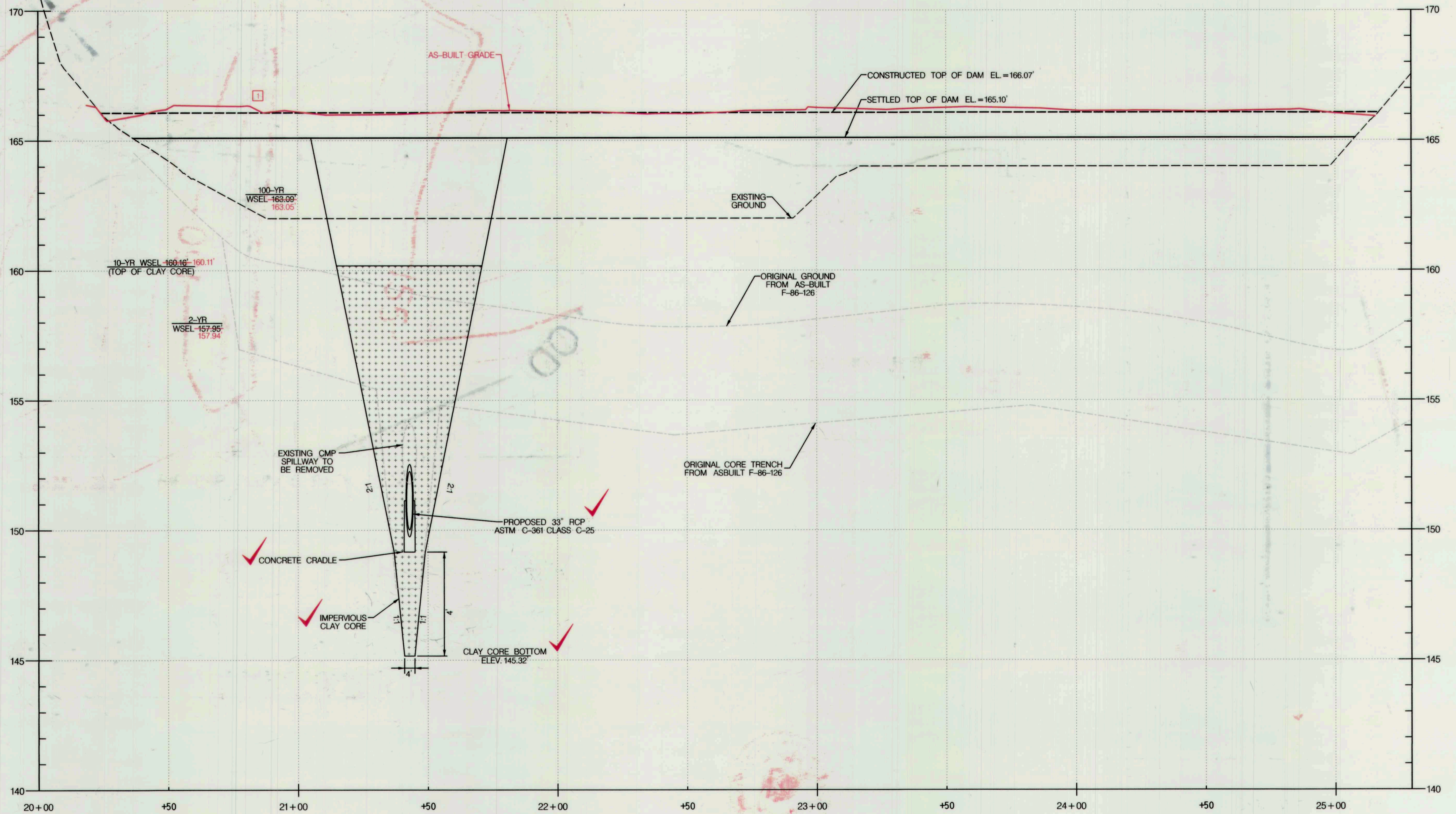


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JUNCTION INDUSTRIAL PARK
PRINCIPAL SPILLWAY REPLACEMENT PROJECT
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SITE PLAN

SCALE: 1" = 30'
SHEET: 3 OF 1



EMBANKMENT PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 2'



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

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

9/27/17
 DATE

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

Howard County
 MARYLAND

Storm Water Management Division
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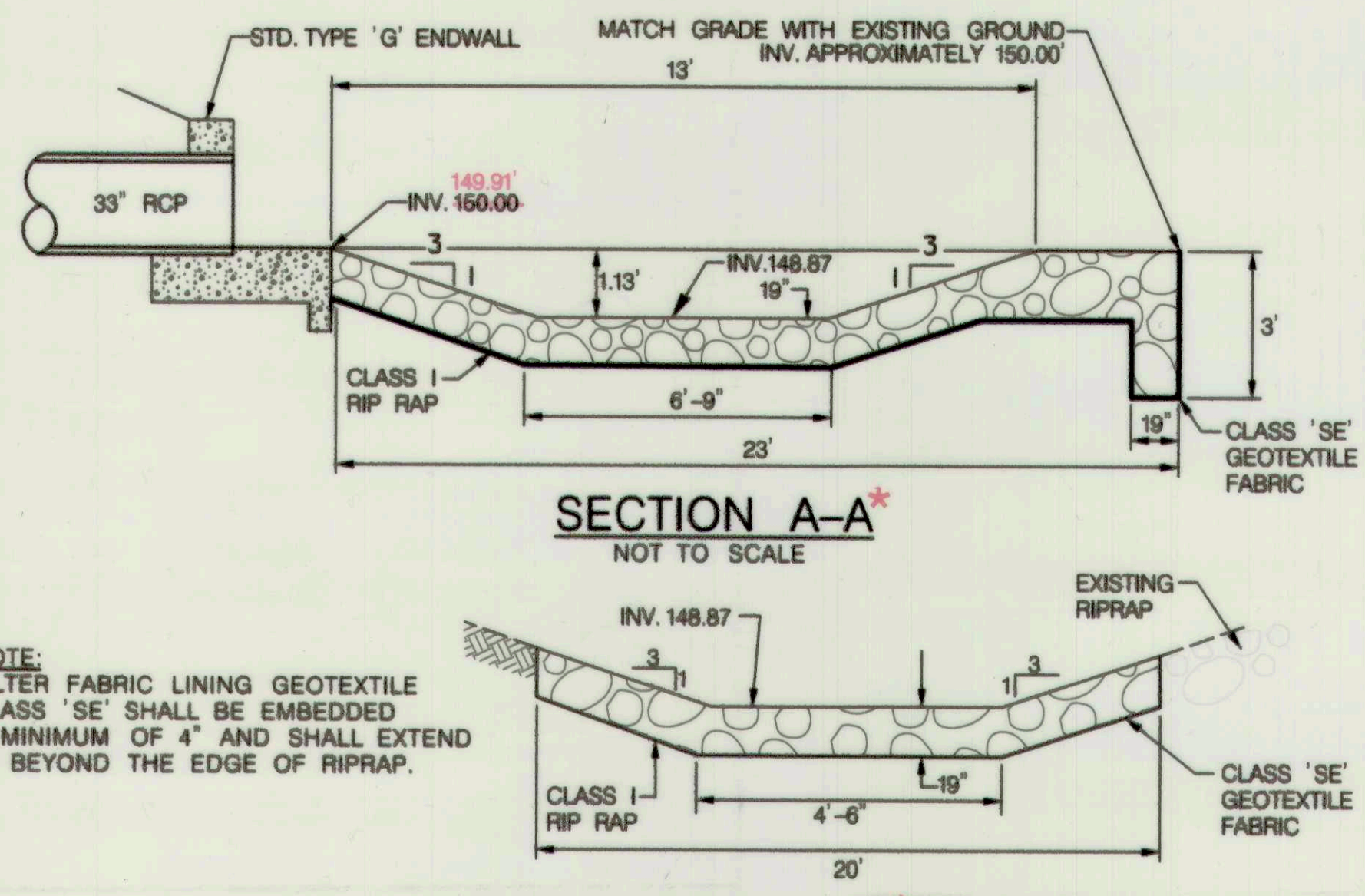
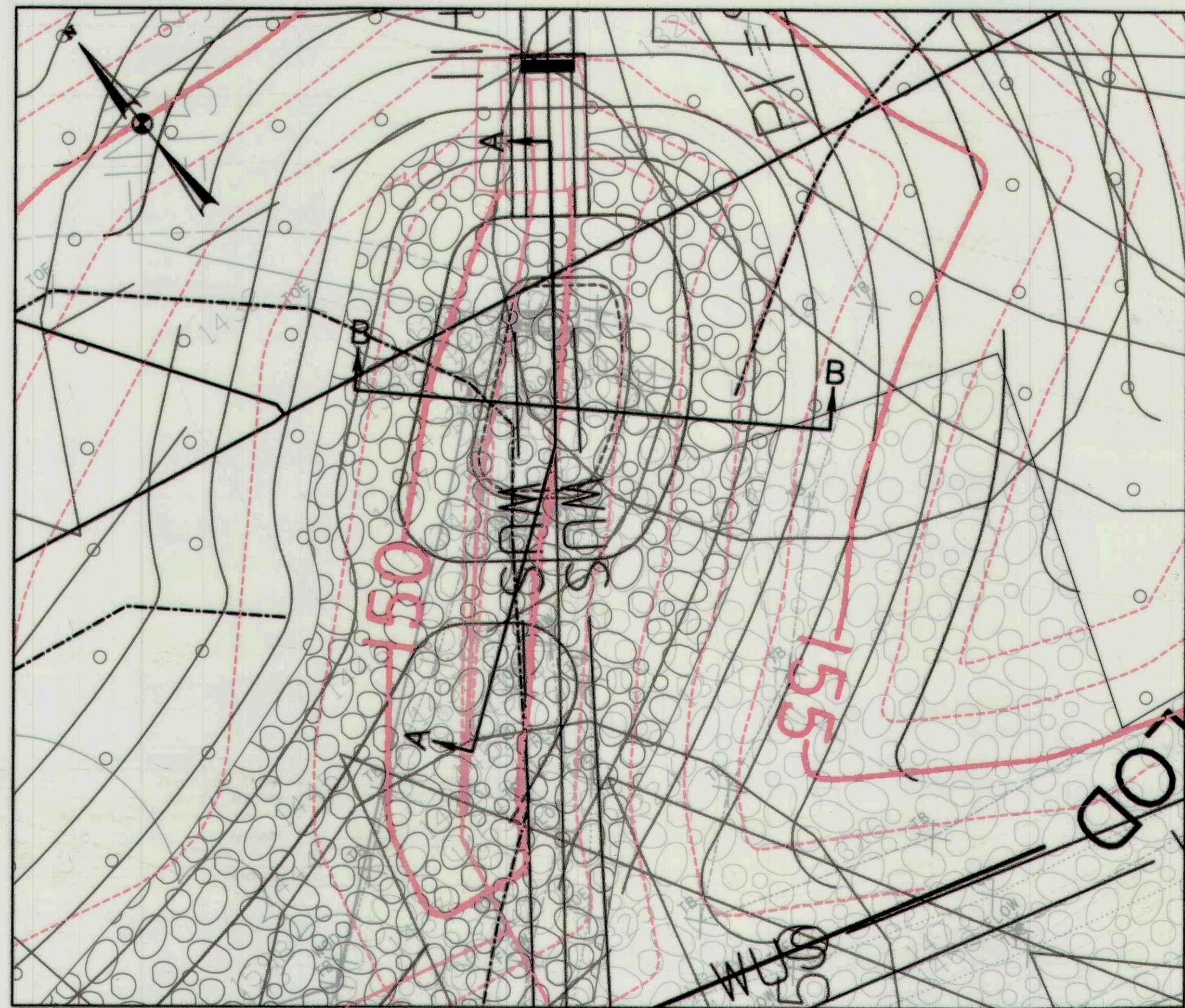


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STORMDRAIN PROFILE SHEET

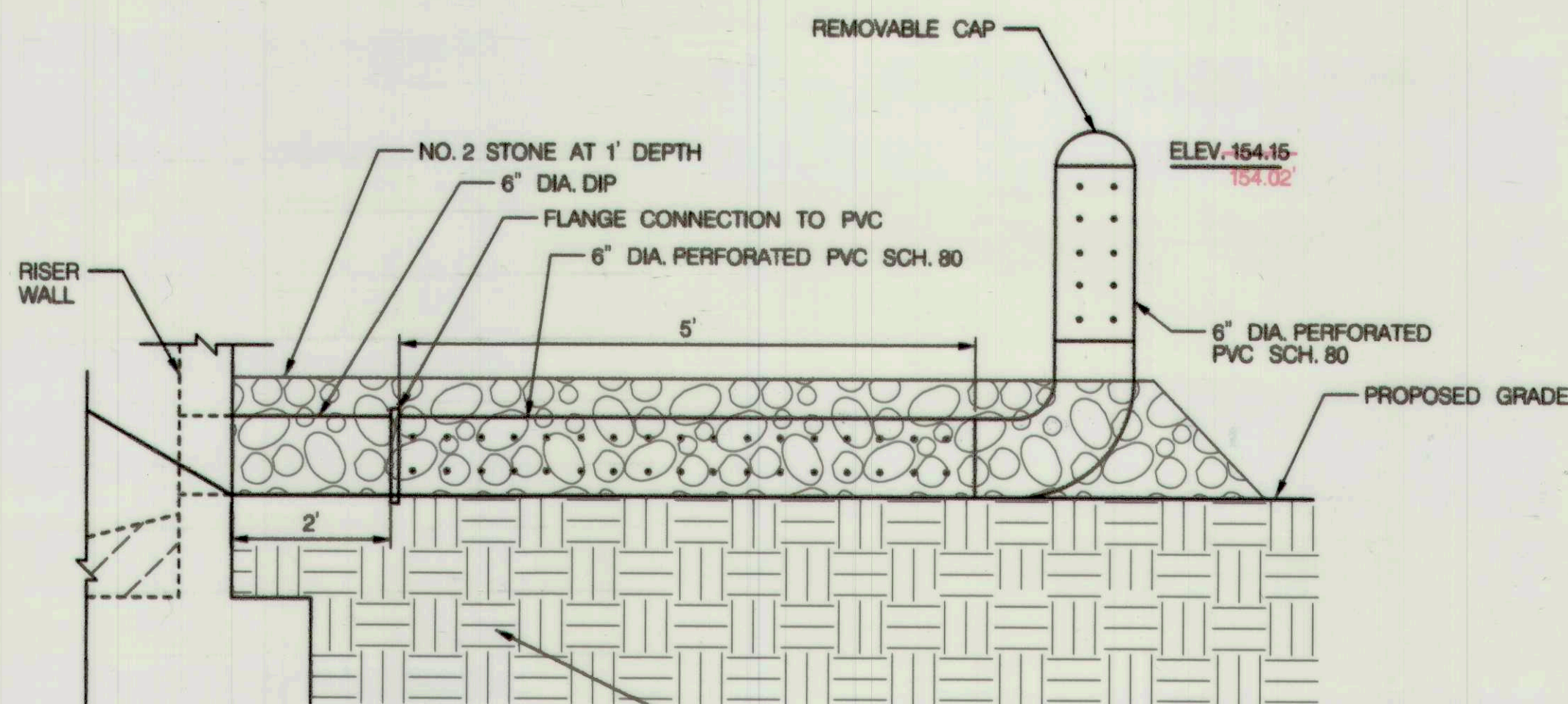
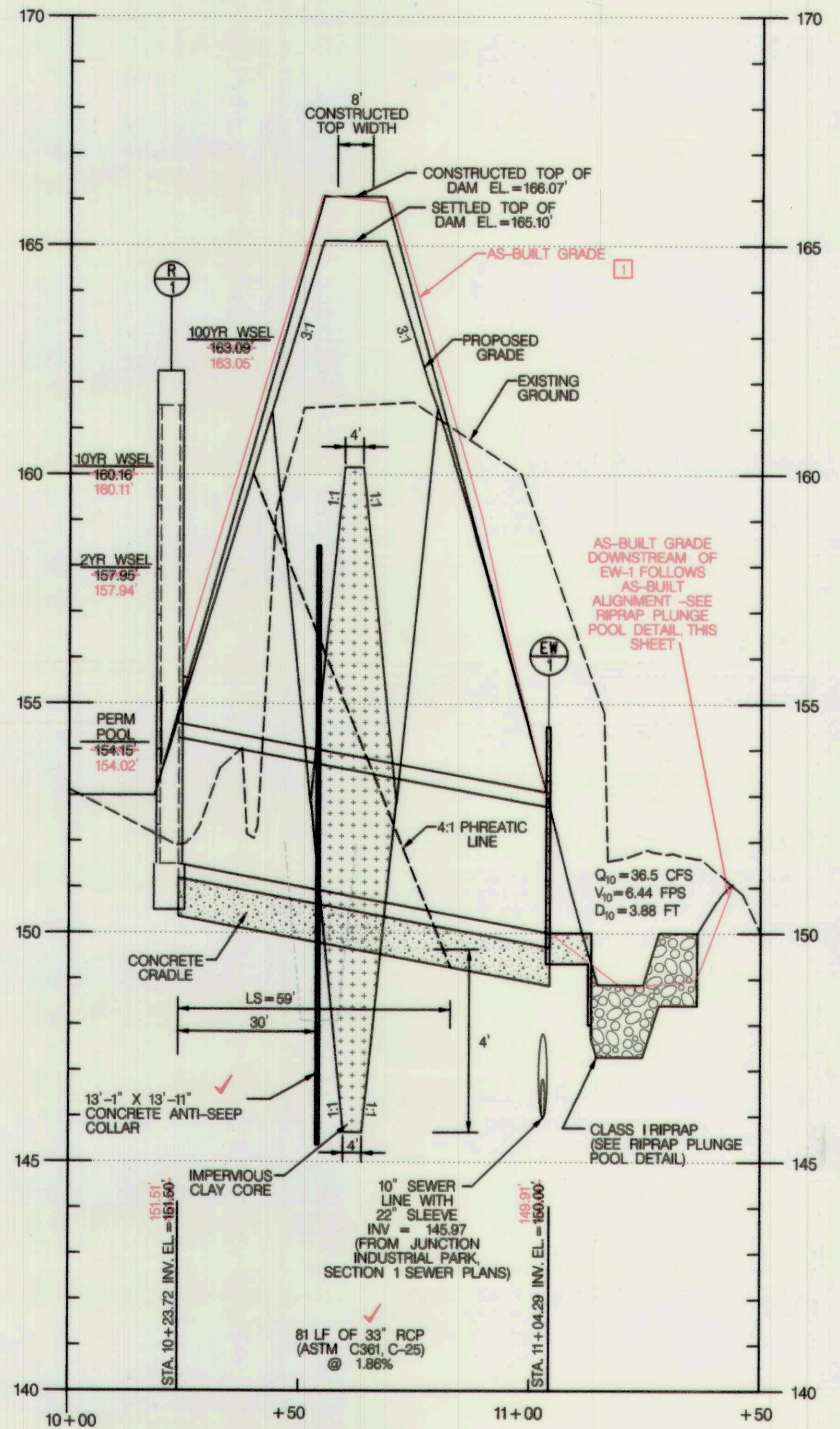
SCALE
 AS SHOWN
 SHEET
 4 OF 12



NOTE:
FILTER FABRIC LINING GEOTEXTILE CLASS 'SE' SHALL BE EMBEDDED A MINIMUM OF 4" AND SHALL EXTEND 6" BEYOND THE EDGE OF RIPRAP.

PLUNGE POOL CONSTRUCTION SPECIFICATIONS

1. PREPARE THE SUBGRADE FOR THE PLUNGE POOL TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
2. USE SPECIFIED CLASS OF RIPRAP.
3. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCHING, CUTTING OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE. EMBED THE GEOTEXTILE A MINIMUM OF 4 INCHES AND EXTEND THE GEOTEXTILE A MINIMUM OF 6 INCHES BEYOND THE EDGE OF THE SCOUR HOLE.
4. STONE FOR THE PLUNGE POOL MAY BE PLACED BY EQUIPMENT. CONSTRUCT TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. DELIVER AND PLACE THE STONE FOR THE PLUNGE POOL IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE STONE FOR THE PLUNGE POOL IN A MANNER TO PREVENT DAMAGE TO THE GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
5. AT THE PLUNGE POOL OUTLET, PLACE THE STONE SO THAT IT MEETS THE EXISTING GRADE.
6. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR BENEATH THE RIPRAP OR DISLODGEEMENT OF STONES. MAKE NECESSARY REPAIRS IMMEDIATELY.



POND DRAIN NOTES:
1. PERFORATIONS SHALL BE 1" DIA. @ 4" O.C. ALL AROUND 5 LF OF PIPE



DEPARTMENT OF PUBLIC WORKS
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DES: AM	ADM	AS-BUILT SURVEY	05/15/18
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JUNCTION INDUSTRIAL PARK
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POND DETAIL SHEET

SCALE
AS SHOWN
SHEET
5 OF 12

GENERAL NOTES:
 SPECIFICATIONS: LATEST S.W.A.
 CONCRETE SHALL BE MIX NO. 3
 REINFORCING: REINFORCED STEEL BARS
 VERTICAL NO. 6 BARS 12" C/C
 HORIZONTAL NO. 4 BARS 12" C/C
 ALL EXPOSED EDGES 1" CHAMFER
 ALL EXPOSED EDGES 1" CHAMFER OR AS DIRECTED.

CONCRETE ANTI-SEEP COLLAR

SLOPE 1:1					SLOPE 2:1								
PIPE DIA. (IN.)	AREA (SQ. FT.)	ENDWALL DIMENSIONS (L, B, H, W)	WING DIMENSIONS (L, B, H, W)	QUANTITIES (CONC. STEEL C.Y., LBS.)	PIPE DIA. (IN.)	AREA (SQ. FT.)	ENDWALL DIMENSIONS (L, B, H, W)	WING DIMENSIONS (L, B, H, W)	QUANTITIES (CONC. STEEL C.Y., LBS.)				
12"	0.79	2'-0"	3'-0"	1'-0"	6"	21	12"	0.79	2'-0"	3'-0"	1'-0"	6"	21
15"	1.23	2'-0"	3'-0"	1'-0"	6"	27	15"	1.23	2'-0"	3'-0"	1'-0"	6"	27
18"	1.77	2'-0"	3'-0"	1'-0"	6"	36	18"	1.77	2'-0"	3'-0"	1'-0"	6"	36
21"	2.40	2'-0"	3'-0"	1'-0"	6"	49	21"	2.40	2'-0"	3'-0"	1'-0"	6"	49
24"	3.14	2'-0"	3'-0"	1'-0"	6"	67	24"	3.14	2'-0"	3'-0"	1'-0"	6"	67
27"	3.98	2'-0"	3'-0"	1'-0"	6"	90	27"	3.98	2'-0"	3'-0"	1'-0"	6"	90
30"	4.91	2'-0"	3'-0"	1'-0"	6"	118	30"	4.91	2'-0"	3'-0"	1'-0"	6"	118
33"	5.94	2'-0"	3'-0"	1'-0"	6"	151	33"	5.94	2'-0"	3'-0"	1'-0"	6"	151
36"	7.07	2'-0"	3'-0"	1'-0"	6"	189	36"	7.07	2'-0"	3'-0"	1'-0"	6"	189
39"	8.42	2'-0"	3'-0"	1'-0"	6"	232	39"	8.42	2'-0"	3'-0"	1'-0"	6"	232
42"	9.97	2'-0"	3'-0"	1'-0"	6"	281	42"	9.97	2'-0"	3'-0"	1'-0"	6"	281
45"	11.72	2'-0"	3'-0"	1'-0"	6"	337	45"	11.72	2'-0"	3'-0"	1'-0"	6"	337
48"	13.67	2'-0"	3'-0"	1'-0"	6"	400	48"	13.67	2'-0"	3'-0"	1'-0"	6"	400
51"	15.84	2'-0"	3'-0"	1'-0"	6"	471	51"	15.84	2'-0"	3'-0"	1'-0"	6"	471
54"	18.24	2'-0"	3'-0"	1'-0"	6"	550	54"	18.24	2'-0"	3'-0"	1'-0"	6"	550
57"	20.87	2'-0"	3'-0"	1'-0"	6"	637	57"	20.87	2'-0"	3'-0"	1'-0"	6"	637
60"	23.74	2'-0"	3'-0"	1'-0"	6"	732	60"	23.74	2'-0"	3'-0"	1'-0"	6"	732

QUANTITIES FOR ESTIMATING PURPOSES ONLY

APPROVED: *[Signature]*
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

DATE: 8/27/17

DETAIL G-2-9 PROJECTION COLLAR

CONSTRUCTION SPECIFICATIONS

- CAST 1 FOOT THICK CONCRETE COLLAR TO OUTLET STRUCTURE WITH FOUR #4 U-SHAPED REBARS.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-5-21

TYPE 1 POLYPROPYLENE PLASTIC COATED STEEL STEP & INLET FOR PRECAST MANHOLE

TYPE 2 CAST IRON STEP FOR BRICK MANHOLE

NOTES:

- STEPS SHALL BE DESIGNED SO THAT FEET CANNOT SLIP OFF THE END.
- STEPS SHALL BE ALIGNED TO FORM A CONTINUOUS LADDER WITH STEPS EQUALLY SPACED VERTICALLY AT A DISTANCE OF 12" APART.
- BOTTOM STEP SHALL BE A MAXIMUM 12" ABOVE THE TOP OF BENCH.
- THE TOP STEP SHALL BE 2'-0" BELOW THE TOP OF MANHOLE FRAME AND COVER FOR BRICK MANHOLE AND 8" BELOW TOP OF THE PRECAST SECTION OF THE MANHOLE.

HOWARD COUNTY, MARYLAND
 DEPARTMENT OF PUBLIC WORKS
 Manhole & Inlet Steps
 Detail G-5.21

DETAIL D-3.91

STORM DRAIN

7" FRAME AND COVER CAST IRON

NOTES:

- THIS LETTERING NOT REQUIRED IN PRIVATE AREAS.
- COVER TO BE PROVIDED WITH TWO 3/4" HOLES OPPOSITE EACH OTHER.
- TOTAL WEIGHT OF FRAME AND COVER TO BE NO LESS THAN 185 LBS.

HOWARD COUNTY, MARYLAND
 DEPARTMENT OF PUBLIC WORKS
 Sidewalk Frame & Cover
 Detail D-3.91

DETAIL G-8.01

SECTION THROUGH TOP HALF OF VALVE BOX

SECTION THROUGH BOTTOM HALF OF VALVE BOX

NOTES:

- ALL VALVE BOXES SHALL BE THE SLIDING TYPE IN PAVED AREAS. USE SLOTTED TYPE VALVE BOXES IN LAWN AREAS.
- ALL VALVE BOXES SHALL BE MARKED "WATER" AND ALL SEWER VALVE BOXES SHALL BE MARKED "SEWER".
- SEWER VALVE BOX AND ASSEMBLY SHALL BE CAST FROM CLASS 35 GREY IRON. ALL PARTS SHALL BE SUPPLIED BY THE SAME MANUFACTURER.
- INSTALLATION SHALL BE PLUMB.
- FOR BOXES ADJUSTABLE 2 1/2" TO 3 1/2" TOP SECTION-15"
- FOR BOXES ADJUSTABLE 3 1/2" TO 4 1/2" TOP SECTION-15"
- FOR BOXES ADJUSTABLE 4 1/2" TO 5 1/2" TOP SECTION-15"
- MINIMUM WEIGHT PER BOX- 100 LBS
- BOTTOM SECTION SHALL REST ON VALVE BONNET.

HOWARD COUNTY, MARYLAND
 DEPARTMENT OF PUBLIC WORKS
 Valve Box Adjustable Round Head
 Detail G-8.01

CONCRETE ANTI-SEEP COLLAR

NOT TO SCALE

NOTE: INSTALL 'VOLCLAY' BRAND 'WATERSTOP-RX' OR APPROVED EQUAL ON PERIPHERY OF RCP AT CENTERLINE OF CONC. COLLAR

NOTE: INSTALL 'VOLCLAY' BRAND 'WATERSTOP-RX' OR APPROVED EQUAL ON PERIPHERY OF RCP AT CENTERLINE OF CONC. COLLAR

CONCRETE CRADLE SEE DETAIL THIS SHEET

- NOTES:**
- PROVIDE MINIMUM 3" CLEAR COVER FOR ALL REINFORCEMENT, EXCEPT AS NOTED.
 - USE MIX NO. 6 CEMENT CONCRETE (f'c = 4500 psi) FOR ANTI-SEEP COLLAR AND CRADLE.
 - USE GRADE 60 REINFORCING STEEL BARS THAT MEET THE REQUIREMENTS OF ASTM A615/A615M, A616/A616M, A617/A617M AND A706/A706M. DO NOT WELD REINFORCING STEEL BARS UNLESS SPECIFIED.

PIPE TRENCH AND CONCRETE CRADLE DETAIL

NOT TO SCALE

EXISTING GROUND

CREST

33" RCP PRINCIPAL SPILLWAY

CONCRETE CRADLE CONCRETE MIX NO. 6

BENCHING AND BLENDING AS SHOWN OR PER GEOTECHNICAL ENGINEER

STRUCTURAL BACKFILL (AS SPECIFIED SHEET 2) CONSISTING OF CLAY MATERIAL OR EXISTING EXCAVATED EMBANKMENT BACKFILL

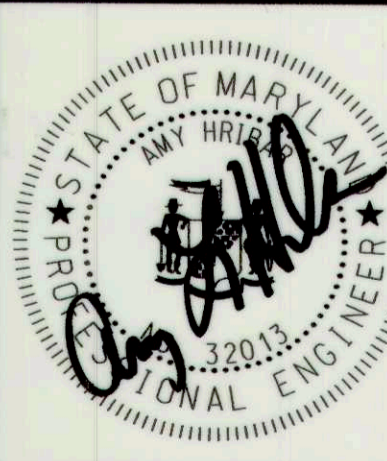
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature]
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

DATE: 8/27/17

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

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



DES: AM				
DRN: MR				
CHK: CB				
DATE: 09/20/17				
BY	NO.	REVISION	DATE	

JUNCTION INDUSTRIAL PARK
 PRINCIPAL SPILLWAY REPLACEMENT PROJECT
 CAPITAL PROJECT #D-1159
 HOWARD COUNTY
 HSCD#: EP-12-29

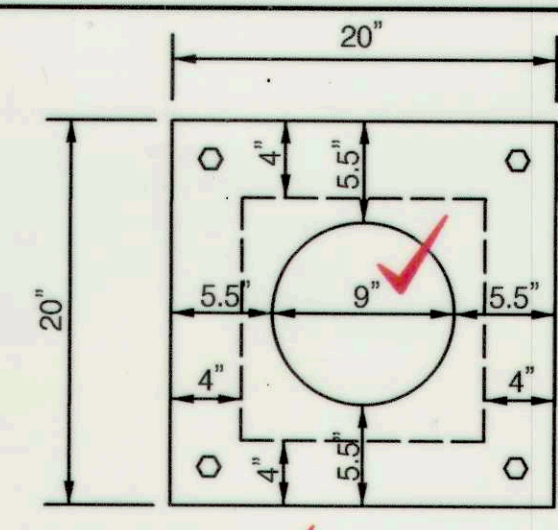
POND DETAIL SHEET

SCALE: AS SHOWN
 SHEET: 6 OF 6

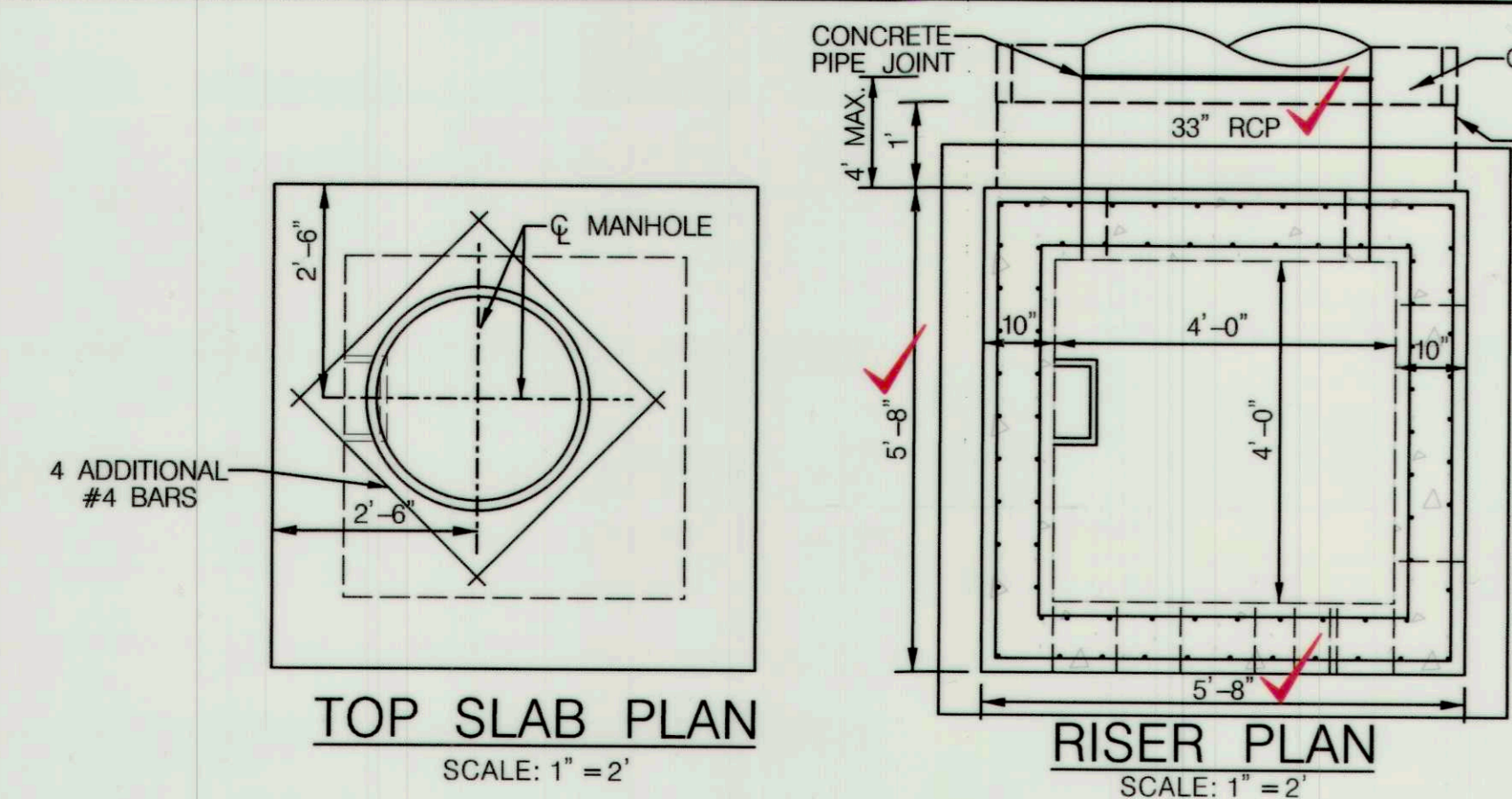
RISER CONSTRUCTION NOTES:

- RISER STEPS SHALL FOLLOW DETAIL G-5.21 FOR MANHOLE AND INLET STEPS
- SHA MIX NO. 3 CONCRETE SHALL BE USED AND SHALL CONFORM TO THE REQUIREMENTS OF LATEST EDITION OF ACI 301 AND ACI 318.
- RISER STRUCTURE SHALL BE DESIGNED IN ACCORDANCE TO LOADING SPECIFIED IN LATEST EDITIONS OF ASTM C857 AND ASTM C890.
- RISER STRUCTURE SHALL CONFORM TO THE REQUIREMENTS OF LATEST EDITIONS OF ASTM C858 AND MARYLAND NRCS POND CODE MD-378.
- RESILIENT CONNECTORS BETWEEN MANHOLE STRUCTURES, PIPES AND LATERALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF LATEST EDITIONS OF ASTM C923.
- INVERT SHALL BE APPROVED PRECAST PLAIN MIX NO. 3 CONCRETE INVERT TO SLOPE DOWN TOWARD SHOWN ON PLAN OR AS OUTLET AT THE RATE OF 2" PER FOOT, OR AS DIRECTED.
- REFER TO DETAIL D-3.91 SIDEWALK FRAME AND COVER FOR MANHOLE COVER.
- FIRST BARREL JOINT OF CONCRETE PIPE SHALL HAVE A WATERTIGHT CONNECTION AND BE PLACED NO MORE THAN 4" FROM RISER.
- A 6" DRAIN VALVE SHALL BE INSTALLED AT THE LOCATION SHOWN ON THE RISER.
- VALVE STEM SHALL BE ANCHORED TO THE CONTROL STRUCTURE AND EXTEND TO THE TOP OF THE RISER FOR MAINTENANCE ACCESS.
- ENSURE WATERTIGHT SEAL AROUND VALVE.
- REFER TO DETAIL G-2.9 FOR CONCRETE PROJECTION COLLAR.
- CONSTRUCT CONCRETE COLLARS TO ENSURE WATERTIGHT SEALS AT RISER AND PIPE CONNECTIONS.
- CONTRACTOR TO ENSURE A SUITABLE SUBBASE IS PROVIDED FOR THE RISER. NO GRAVEL SHALL BE USED FOR THE RISER SUBBASE LEAN CONCRETE IS RECOMMENDED TO IMPROVE SUBBASE STABILITY IF NECESSARY.
- THE RISER WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER EACH RISER. THE PAYMENT WILL BE FULL COMPENSATION FOR ALL EXCAVATION, CONCRETE, MASONRY, SPECIAL OR PRECAST UNITS, REINFORCEMENT, LADDER RUNGS, DRIP STONES, AGGREGATE, UNDERDRAIN, STUBS, FRAMES, GRATES AND COVERS, GRADE AND SLOPE ADJUSTMENTS, BACKFILL, GASKET, WATERTIGHT SEALS, PROJECTION COLLAR, TRASH RACKS, DRAIN VALVES, VALVE STEMS AND FOR ALL MATERIAL, LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

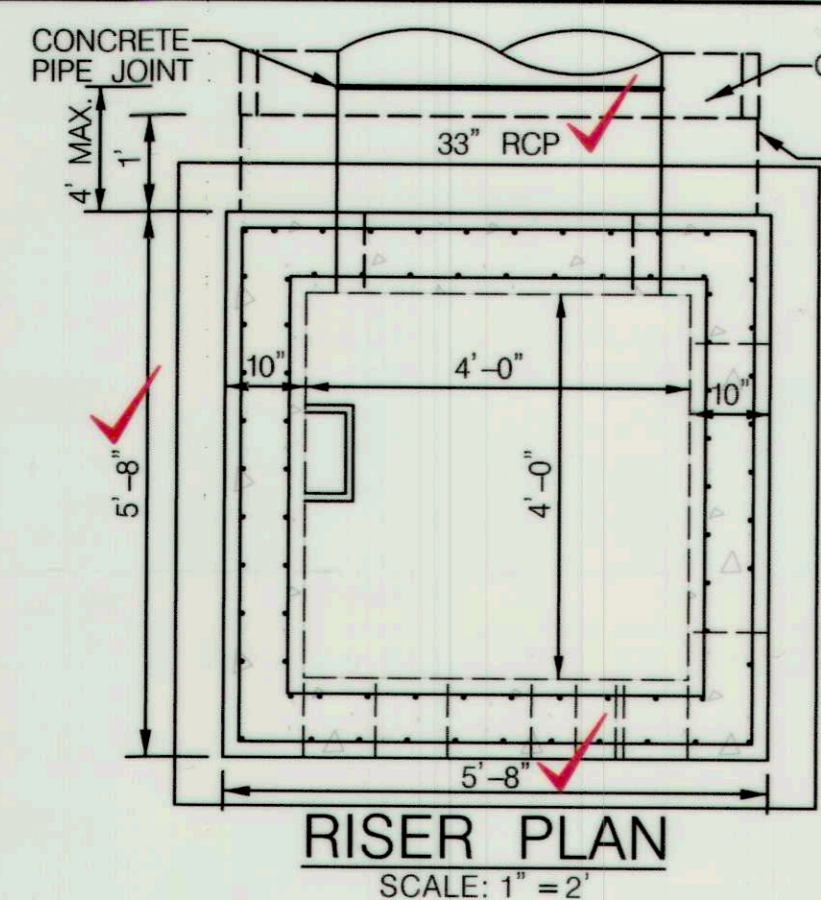
- ORIFICE PLATE NOTES:**
- 20" X 20" X 1/2" GALVANIZED STEEL ORIFICE PLATE.
 - ORIFICE PLATE WITH 9" DIA. OPENING TO BE BOLTED TO THE INSIDE DOWN STREAM FACE OF CONCRETE RISER USING 1/2" STAINLESS STEEL CONCRETE ANCHORS.



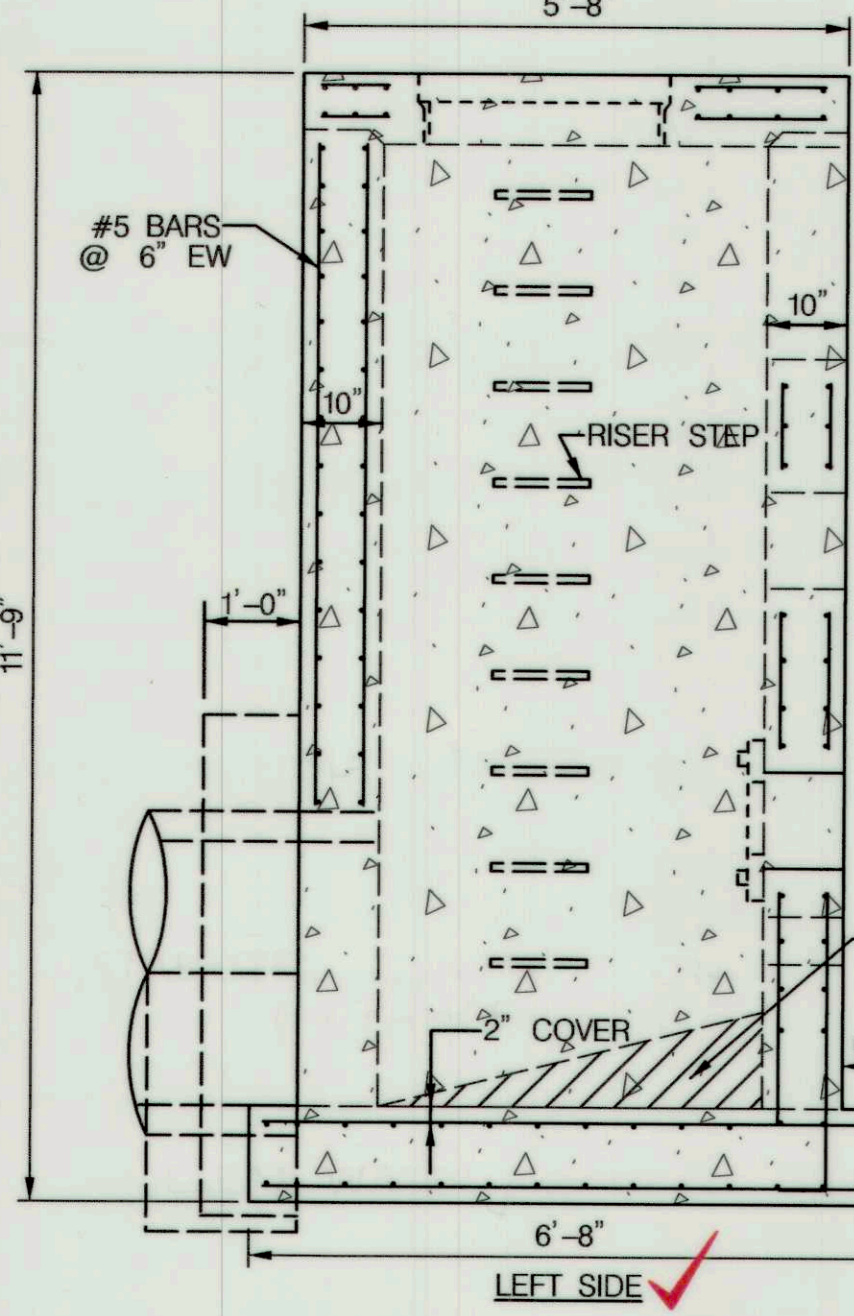
ORIFICE PLATE
NOT TO SCALE



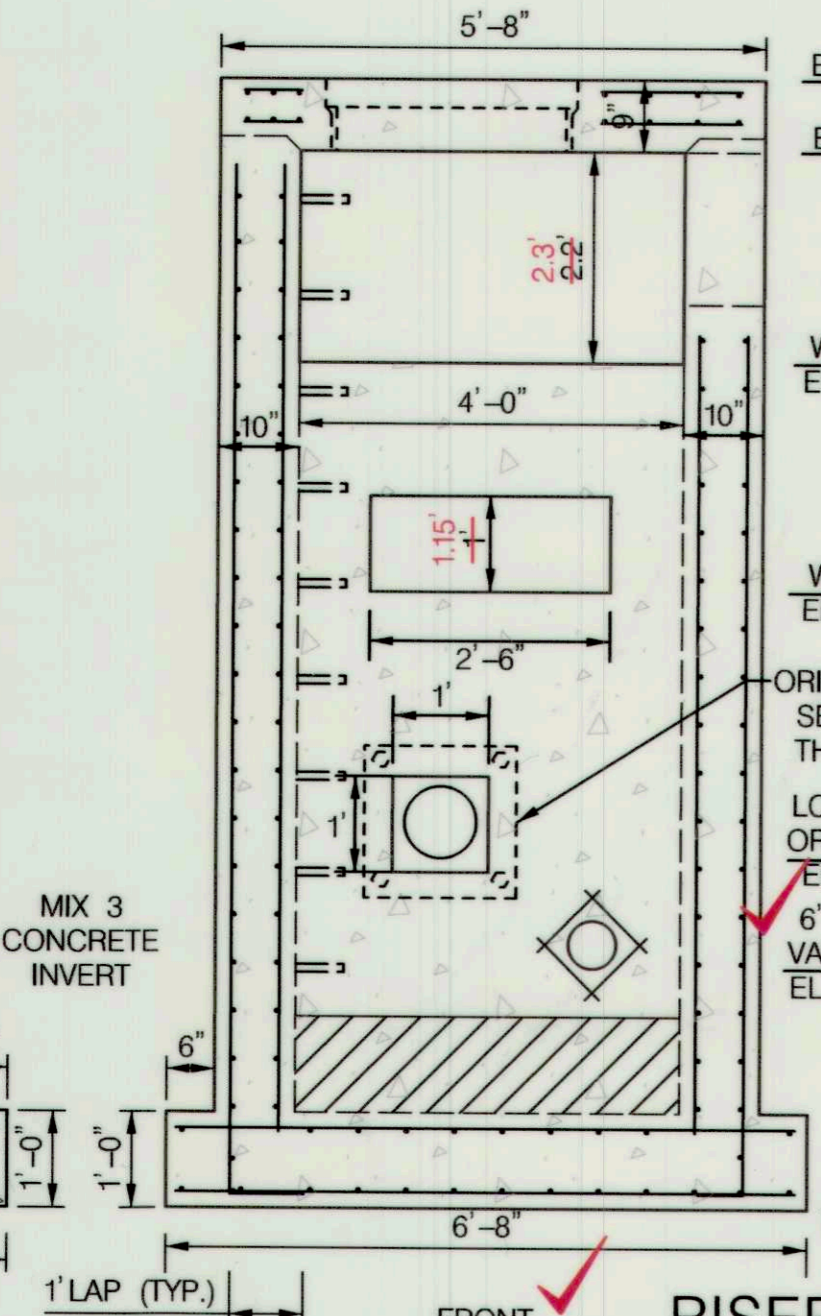
TOP SLAB PLAN
SCALE: 1" = 2'



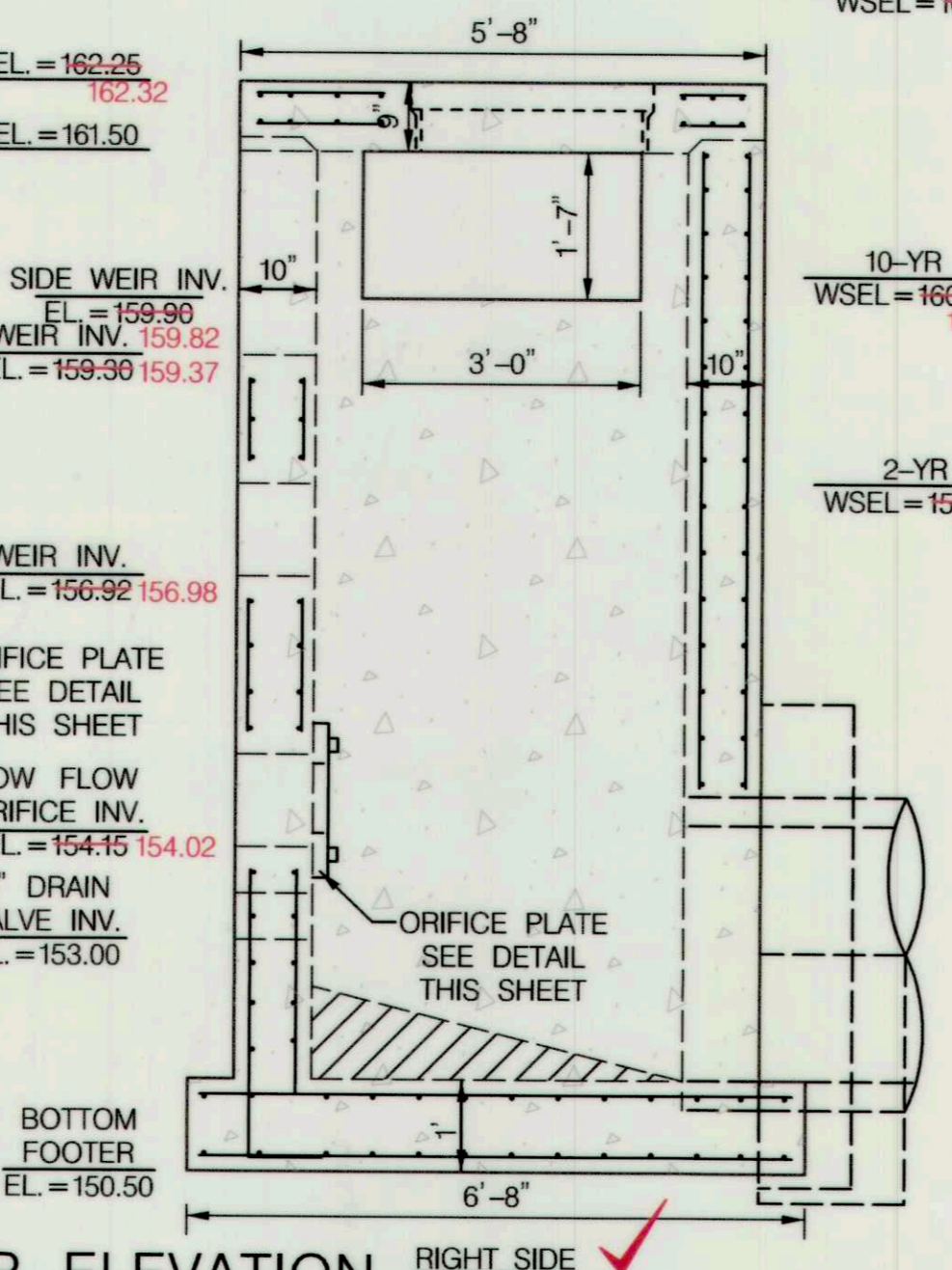
RISER PLAN
SCALE: 1" = 2'



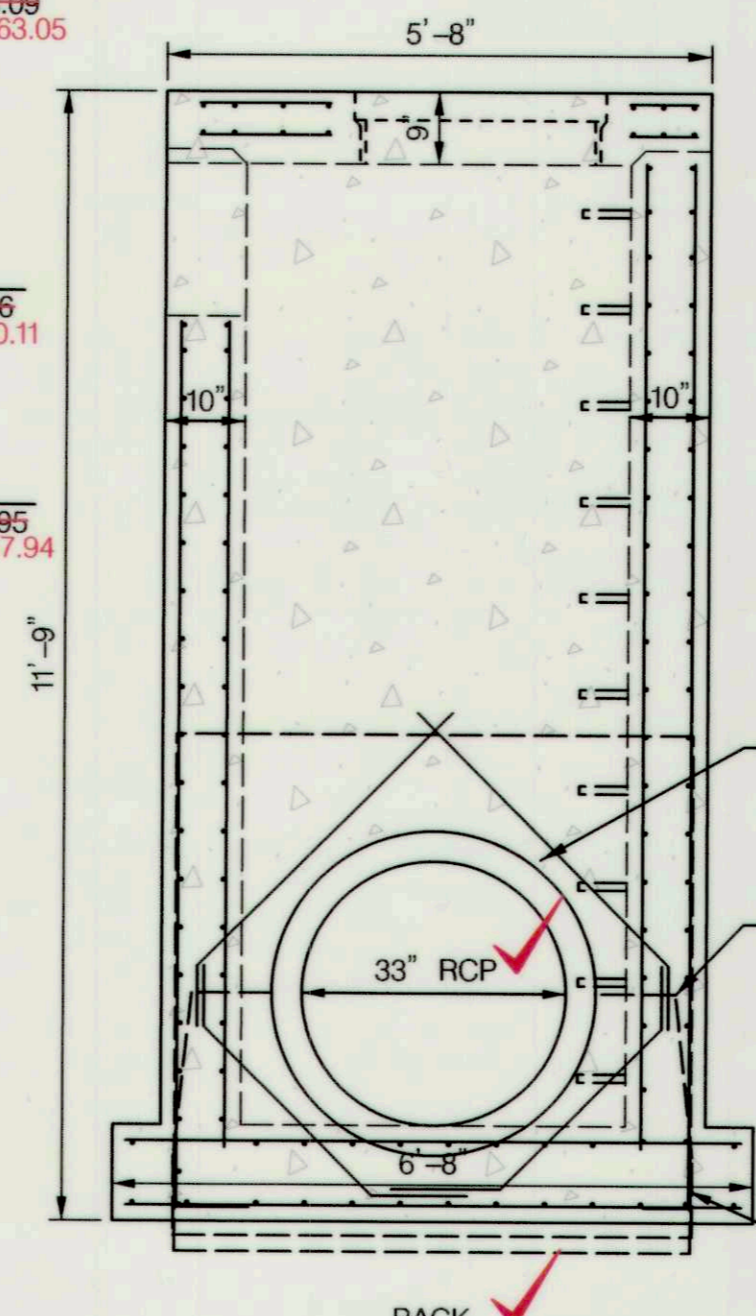
LEFT SIDE



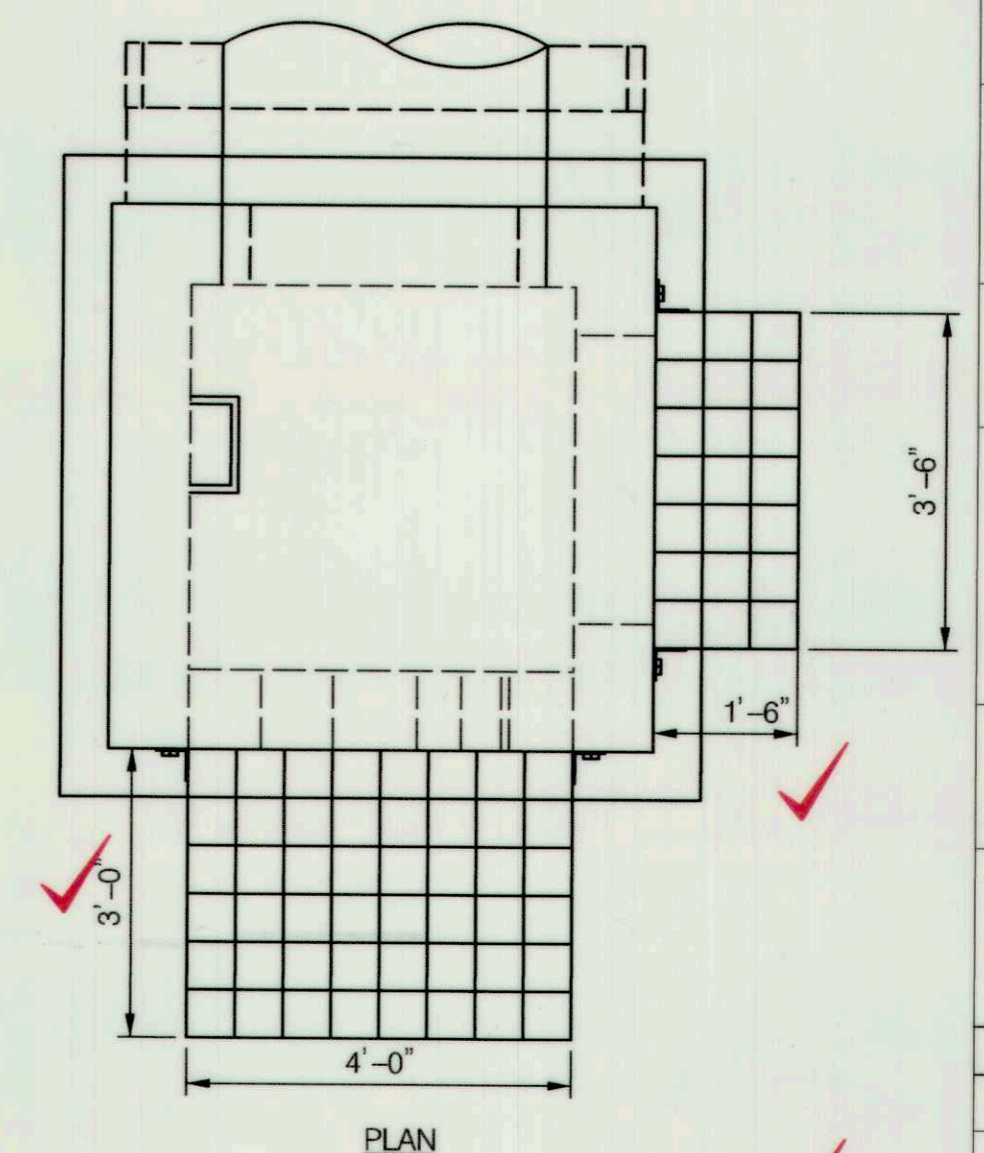
FRONT



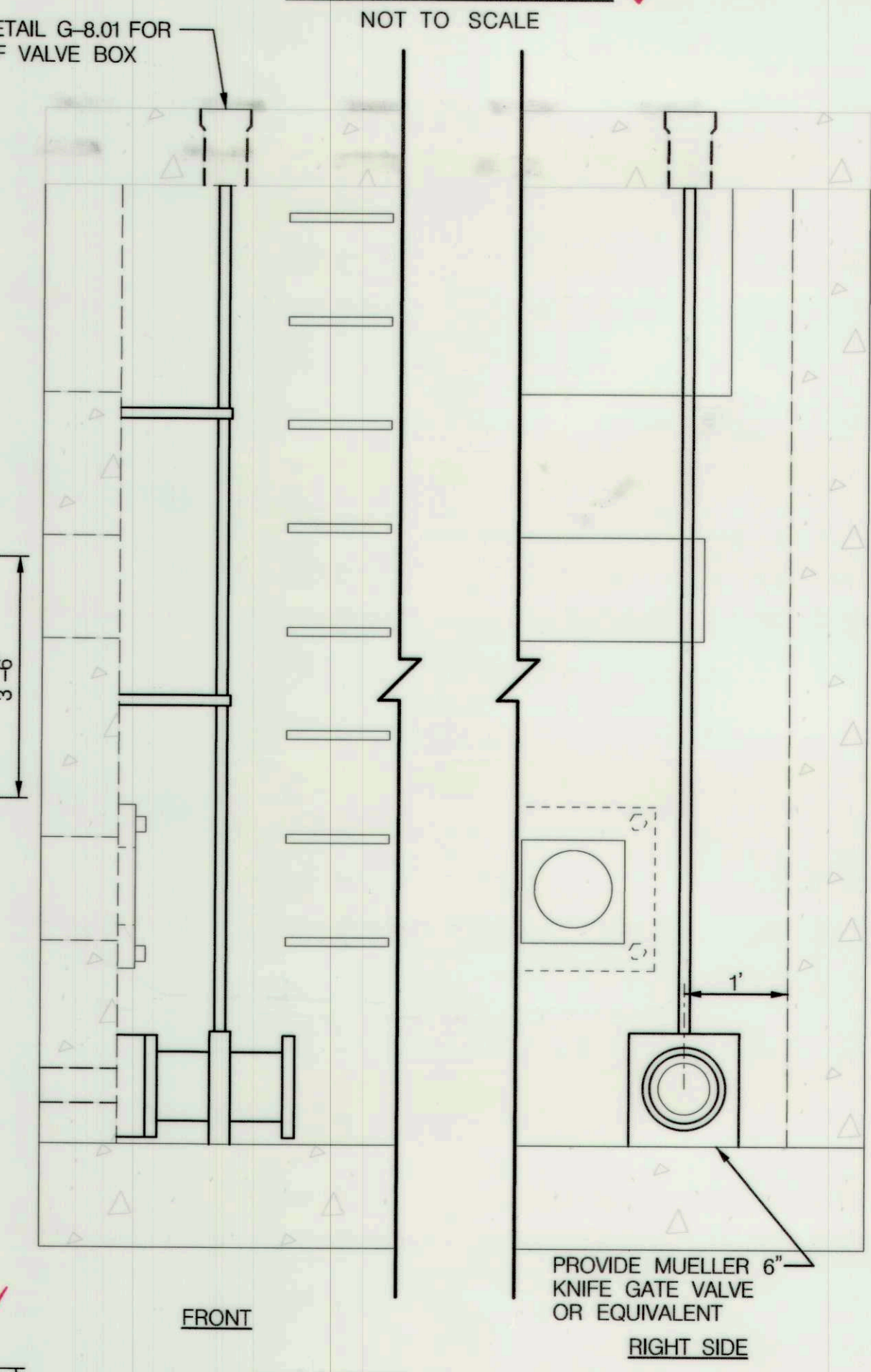
RIGHT SIDE



BACK

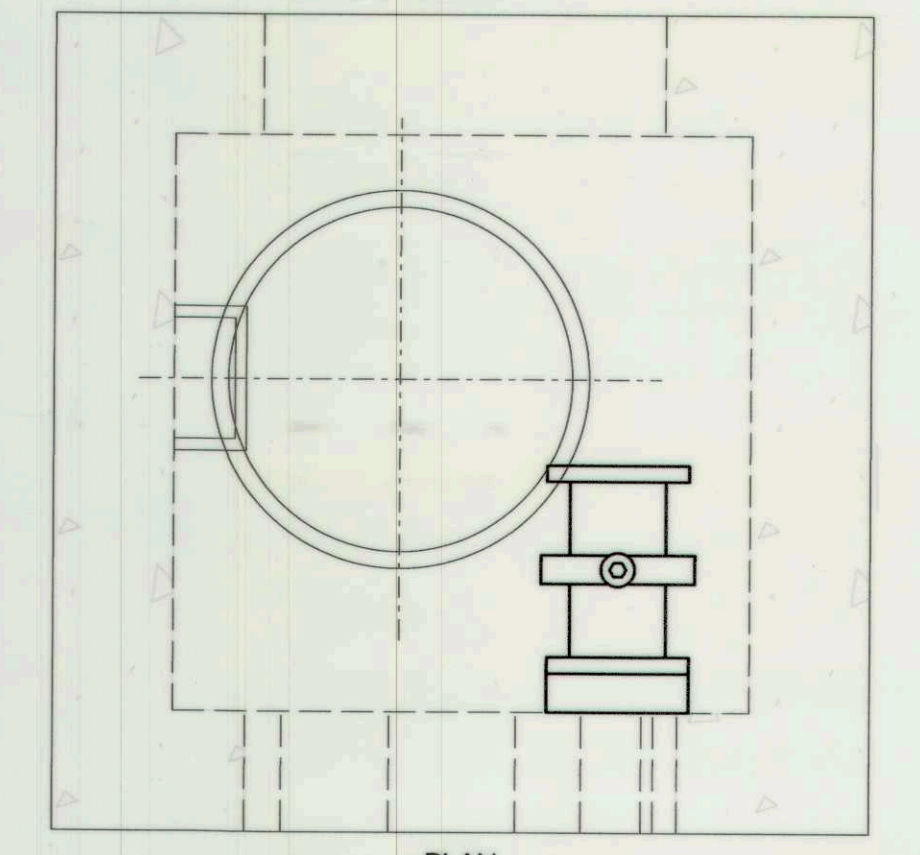


PLAN



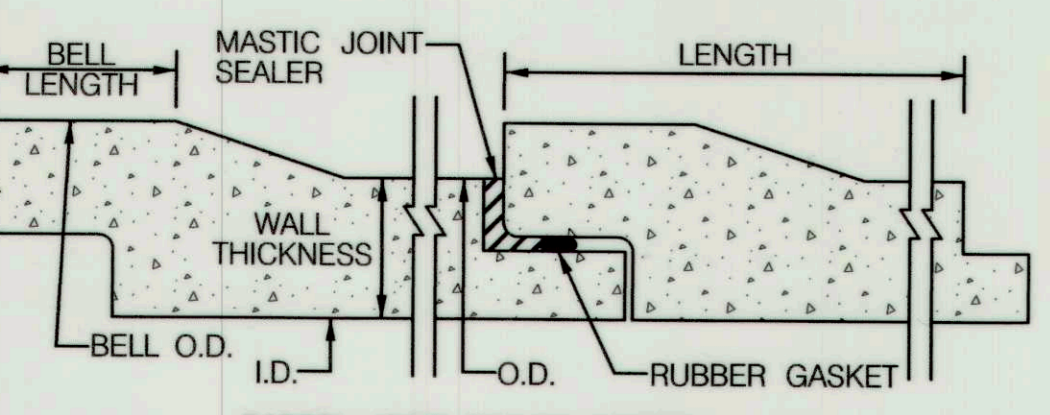
FRONT

RIGHT SIDE



PLAN

GATE VALVE DETAIL
NOT TO SCALE

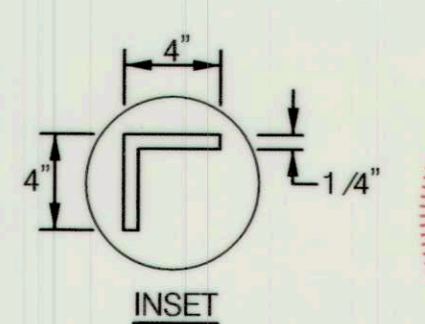


- BARREL JOINT SEALER NOTES:**
- MASTIC JOINT SEALER TO BE APPLIED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
 - JOINT SEALER SHOULD HAVE WATERTIGHT CONNECTION.
 - THE SEALER SHALL BE A MIXTURE OF ASPHALT, MINERAL FILLER, AND PETROLEUM SOLVENTS AND SHALL HAVE ADHESIVE AND COHESIVE PROPERTIES.
- THE SEALER SHALL CONFORM TO THE FOLLOWING:

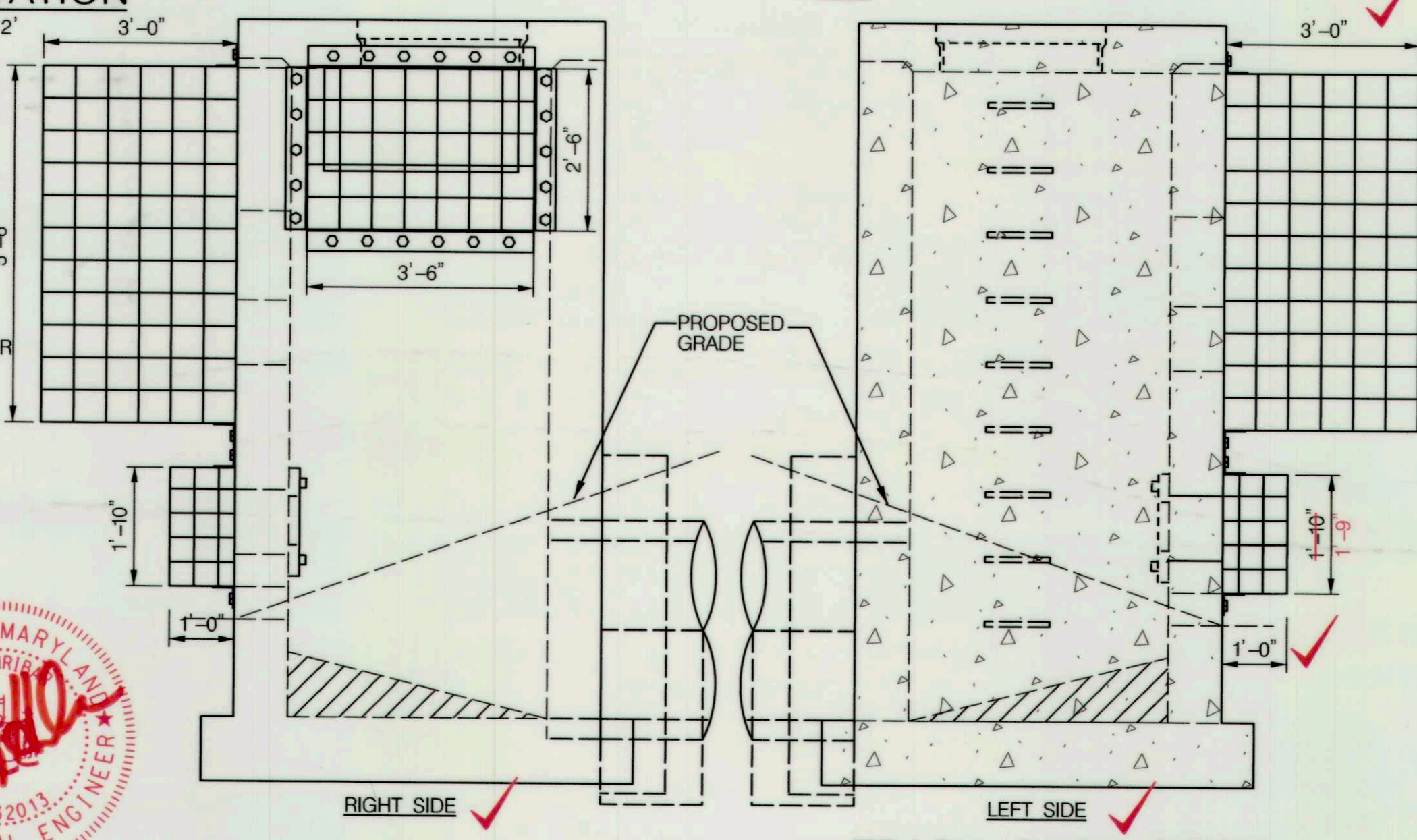
TEST AND METHOD	SPECIFICATION LIMITS
RESIDUES BY EVAPORATION, NONVOLATILE MATTER, D 2939, % MIN.	70
INORGANIC FILLER ON IGNITION, ASH CONTENT, D 2939, %	15-45

BARREL JOINT SEALER DETAIL
NOT TO SCALE

- TRASH RACK CONSTRUCTION NOTES:**
- FRAME SHALL BE CONSTRUCTED OF 4" X 4" X 1/4" STEEL ANGLE WITH THE CORNERS MITRED AND BUTT WELDED.
 - THE FRAME SHALL BE PAINTED WITH TWO COATS OF COLD GALVANIZED COMPOUND IN "BATTLESHIP GREY".
 - TOP TRASH RACK BARS SHALL BE #6 REBAR AT 6" CC EACH WAY, HOT-DIPPED GALVANIZED AND FILLET WELDED TO THE ANGLE FRAME.
 - LOW FLOW TRASH RACK BARS SHALL BE #6 REBAR AT 4" CC EACH WAY, HOT-DIPPED GALVANIZED AND FILLET WELDED TO THE ANGLE FRAME.
 - ALL STEEL SHALL BE ASTM A-36.
 - 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.



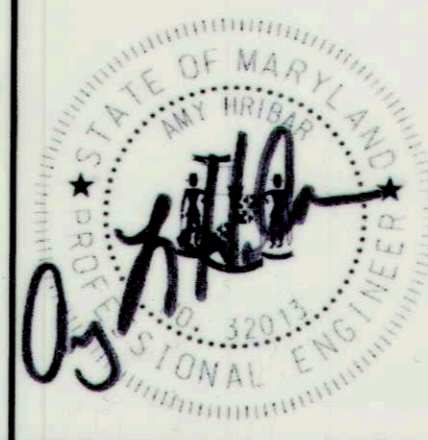
INSET



RIGHT SIDE

LEFT SIDE

TRASH RACK DETAIL
SCALE: 1" = 2'



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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

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

DES: AM	ADM	AS-BUILT SURVEY	05/15/18
DRN: MR			
CHK: CB			
DATE: 09/20/17	BY	NO.	REVISION

**JUNCTION INDUSTRIAL PARK
PRINCIPAL SPILLWAY REPLACEMENT PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD#: EP-12-29
RISER DETAIL SHEET**

SCALE AS SHOWN
SHEET 7 OF 12

TIME RESTRICTION NOTES:

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

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

A) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES STEEPER THEN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND

B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITES NOT UNDER ACTIVE GRADING.

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.



SUMP PIT		
STATION	QTY (EA)	REMARKS
30+99, 86' LT	1	

STABILIZED CONSTRUCTION ENTRANCE	
QTY (LF)	REMARKS
50 TONS - 1 EA	

CLEAR WATER PUMP		
STATION	QTY (EA)	REMARKS
31+17, 78' LT	1	INSIDE POND

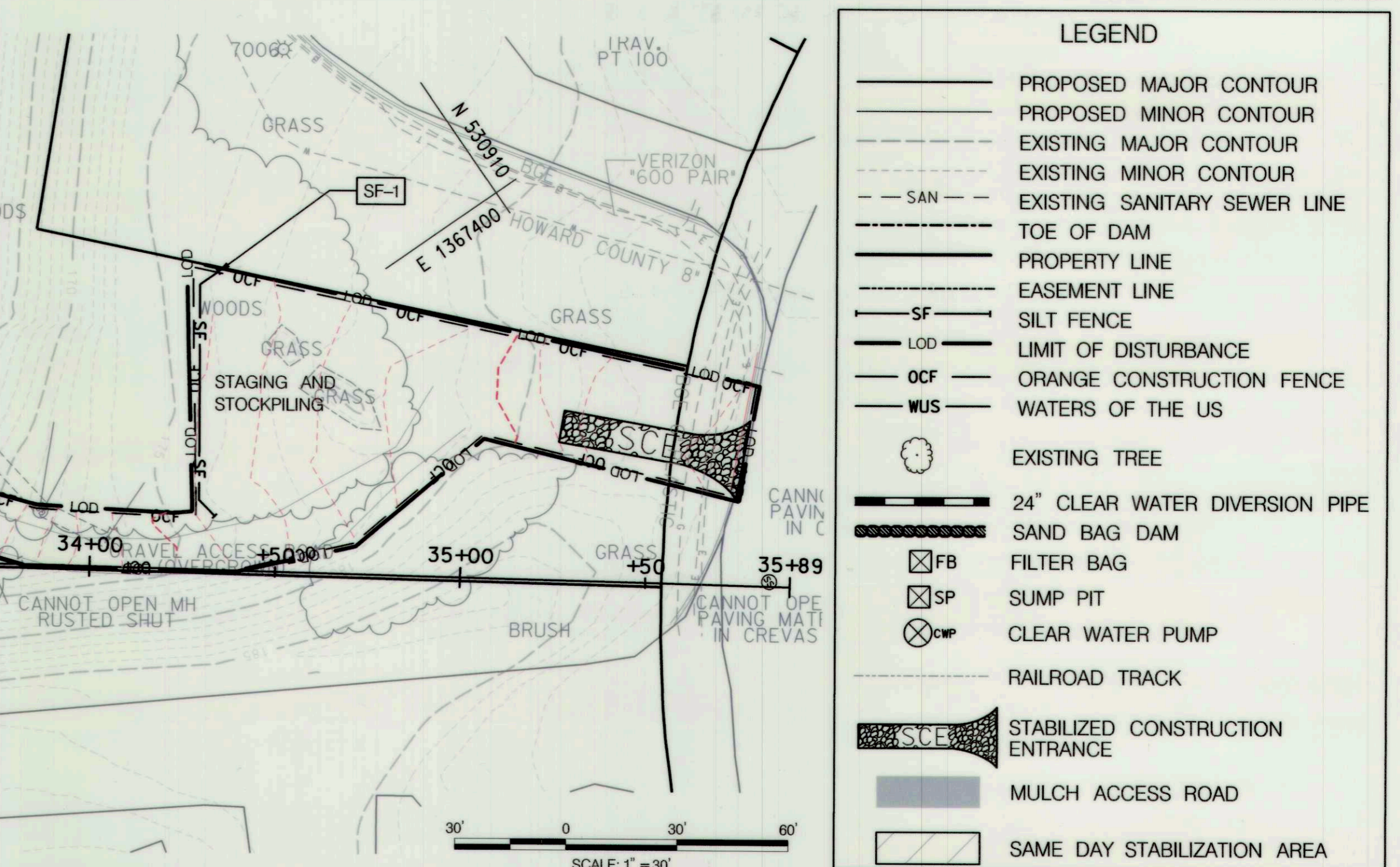
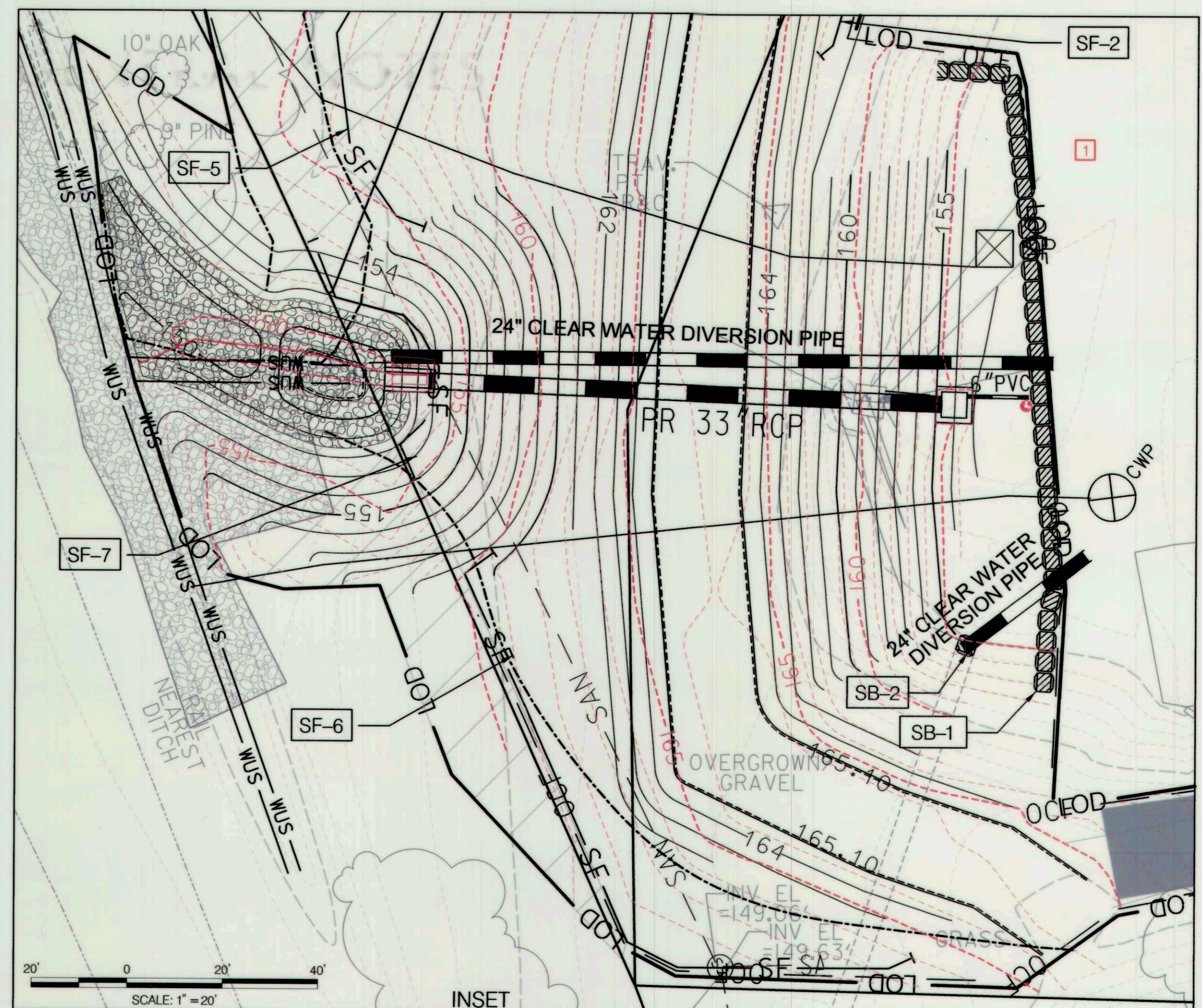
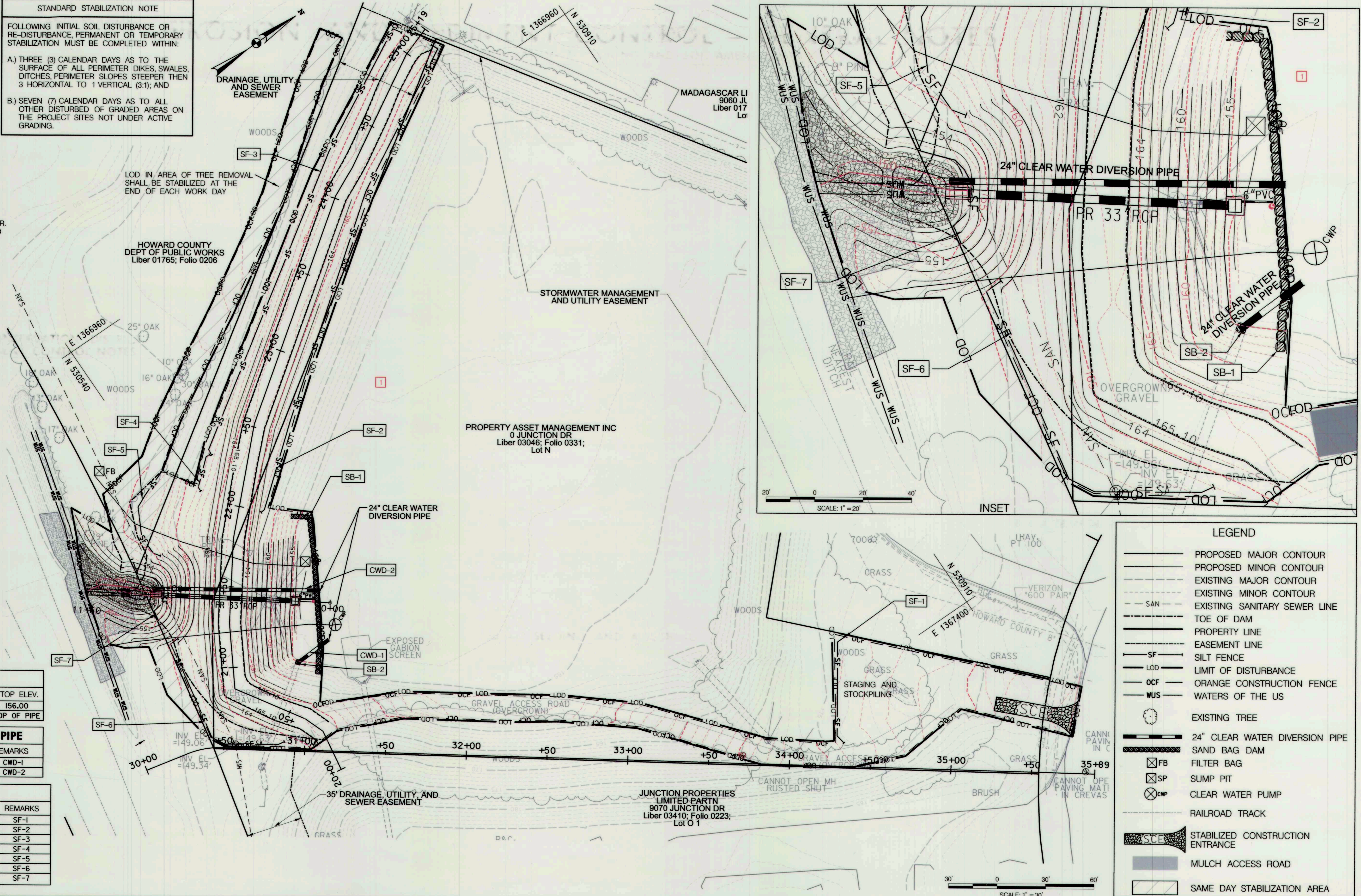
FILTER BAG		
STATION	QTY (EA)	REMARKS
30+30, 154' LT	1	FROM SUMP PIT

ORANGE CONSTRUCTION FENCE	
QTY (LF)	REMARKS
2,243	LOD PERIMETER

SANDBAG DAM (SB)					
FROM	TO	QTY (LF)	REMARKS	TOP ELEV.	
30+87, 144' LT	31+01, 49' LT	105	SB-1	156.00	
30+92, 55' LT	30+96, 54' LT	3	SB-2	TOP OF PIPE	

24" CLEAR WATER DIVERSION PIPE			
FROM	TO	QTY (LF)	REMARKS
30+94, 54' LT	31+07, 65' LT	18	CWD-1
30+32, 105' LT	31+06, 99' LT	108	CWD-2

SILT FENCE (SF)			
FROM	TO	QTY (LF)	REMARKS
34+32, 80' LT	34+33, 15' LT	70	SF-1
31+5, 438' LT	30+72, 144' LT	313	SF-2
31+47, 445' LT	30+46, 181' LT	294	SF-3
30+46, 181' LT	30+44, 159' LT	25	SF-4
30+36, 122' LT	30+40, 173' LT	65	SF-5
30+36, 70' LT	30+87, 5' LT	115	SF-6
30+31, 125' LT	30+33, 84' LT	51	SF-7



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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Howard County MARYLAND
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DES: AM	ADM	1	AS-BUILT SURVEY	05/15/18
DRN: MR				
CHK: CB				
DATE: 09/20/17	BY	NO.	REVISION	DATE

JUNCTION INDUSTRIAL PARK
PRINCIPAL SPILLWAY REPLACEMENT PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD#: EP-12-29

EROSION AND SEDIMENT CONTROL PLAN

SCALE: AS SHOWN
SHEET: 8 OF 12

B-4-3 SEEDING AND MULCHING

EROSION AND SEDIMENT CONTROL - GENERAL NOTES

B-4-2 SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

- B. MULCHING
1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR...
B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE...
2. APPLICATION
A. APPLY MULCH TO ALL SEEDING AREAS IMMEDIATELY AFTER SEEDING...
3. ANCHORING
A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER...

HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

- 1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS...
A. PRIOR TO THE START OF EARTH DISTURBANCE...
B. UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS...
C. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT...
D. PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES...
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN...
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES...
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL...
5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION...
6. SITE ANALYSIS:
TOTAL AREA OF SITE 1.14 ACRES
AREA TO BE DISTURBED 1.14 ACRES
AREA TO BE ROOFED OR PAVED 0.00 ACRES
AREA TO BE VEGETATIVELY STABILIZED 1.14 ACRES
TOTAL CUT 985 CY
TOTAL FILL 1,072 CY
OFFSITE WASTE/BORROW AREA LOCATION SEE NOTE #17
7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE...
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR...
9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY...
10. ANY MAJOR CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION...
11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME...
12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE...
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE...
14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25 MINIMUM INTERVALS...
15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE): USE I AND IP MARCH 1 - JUNE 15 USE II AND IIIP OCTOBER 1 - APRIL 30 USE IV MARCH 1 - MAY 31
16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE...
17. OFFSITE WASTE / BORROW SITE SHALL HAVE AN APPROVED SEDIMENT CONTROL PLAN AND PERMIT.

- A. SOIL PREPARATION
1. TEMPORARY STABILIZATION
A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT...
B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS...
C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS...
2. PERMANENT STABILIZATION
A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE...
B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOIL DOES NOT MEET THE ABOVE CONDITIONS...
C. GRADABLE AREAS MUST BE MAINTAINED AT A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN...
D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST...
E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS...
B. TOPSOILING
1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION...
2. TOPSOIL SPECIFICATIONS: SOIL TO BE USED MUST MEET THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS...
3. TOPSOILING 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...
4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN...
5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED MUST MEET THE FOLLOWING CRITERIA:
A. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND...
6. TOPSOIL APPLICATION
A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL...
C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER...
2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE OF LUMPINESS, AND SUITABLE FOR ACCURATE APPLICATION...
3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING)...
4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL...
5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE...

B-4-3 SEEDING AND MULCHING

- A. SEEDING
1. SPECIFICATIONS
A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW...
B. MULCHING MUST BE APPLIED TO ALL SEEDING AREAS...
C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA...
D. SOIL OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS...
2. APPLICATION
A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS...
B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL...
C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER)...
D. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION...
E. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

SEQUENCE OF CONSTRUCTION

- 1. EROSION AND SEDIMENT CONTROL SHALL BE STRICTLY ENFORCED.
2. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
3. A MINIMUM 5-DAY CLEAR WEATHER (NO PRECIPITATION) FORECAST FROM THE NATIONAL WEATHER SERVICE AND PERMISSION FROM THE INSPECTOR SHALL BE GRANTED PRIOR TO PROCEEDING WITH ANY WORK...
4. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) DAYS PRIOR TO THE START OF WORK...
5. 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, AND THE CONTRACTOR...
6. MOBILIZE EQUIPMENT, DURING A 5 DAY DRY WEATHER FORECAST FROM THE NATIONAL WEATHER SERVICE...
7. CLEAR AND GRUB SITE AS SHOWN ON THE PLANS (2 DAYS).
8. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR BEFORE PROCEEDING AND DURING A 3-DAY DRY FORECAST FROM THE NATIONAL WEATHER SERVICE...
9. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR BEFORE PROCEEDING AND DURING A 5-DAY DRY WEATHER FORECAST FROM THE NATIONAL WEATHER SERVICE...
10. RAISE EMBANKMENT AS SHOWN ON THE PLANS...
11. STABILIZE AREAS WITH SOIL STABILIZATION MATTING, TOPSOIL AND VEGETATIVE ESTABLISHMENT AS SHOWN ON THE PLANS (4 DAYS)
12. WHEN AREAS ARE FULLY STABILIZED AND WITH PERMISSION FROM THE INSPECTOR, REMOVE THE REMAINING SEDIMENT CONTROL DEVICES AND MULCH ACCESS ROAD...

B-4-4 TEMPORARY STABILIZATION

Table with columns: NO., SPECIES, APPLICATION RATE (LB/AC), SEEDING DATES, SEEDING DEPTHS, FERTILIZER RATE (10-20-20), LIME RATE. Includes rows for ANNUAL RYEGRASS and FOXTAIL WILLET.

B-4-5 PERMANENT STABILIZATION

Table with columns: NO., SPECIES, APPLICATION RATE (LB/AC), SEEDING DATES, SEEDING DEPTHS, FERTILIZER RATE (10-20-20), LIME RATE. Includes rows for SWITCH GRASS, CREeping RED FESCUE, and PARTRIDGE PEA.

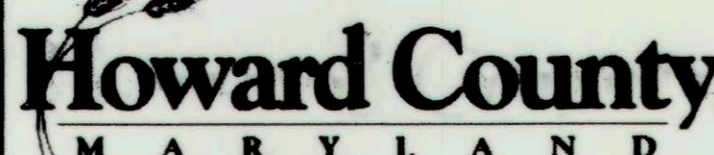
NOTE: MAY 16 TO JUNE 15 ARE ADDITIONAL PLANTING DATES DURING WHICH SUPPLEMENTAL WATERING MAY BE NEEDED TO ENSURE PLANT ESTABLISHMENT

Table with columns: NO., SPECIES, APPLICATION RATE (LB/AC), SEEDING DATES, SEEDING DEPTHS, FERTILIZER RATE (10-20-20), LIME RATE. Includes rows for TALL FESCUE, PERENNIAL RYEGRASS, and WHITE CLOVER.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND



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



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



DES: AM DRN: MR CHK: CB DATE: 09/20/17 BY NO. REVISION DATE

JUNCTION INDUSTRIAL PARK PRINCIPAL SPILLWAY REPLACEMENT PROJECT CAPITAL PROJECT #D-1159 HOWARD COUNTY HSCD#: EP-12-29

EROSION AND SEDIMENT CONTROL NOTES

SCALE

NOT TO SCALE

SHEET

9 OF 12

Chief, Bureau of Environmental Services

DATE

SWM POND CONSTRUCTION SPECIFICATIONS (MARYLAND CODE 378 POND - JANUARY 2000)

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH, AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

EARTH FILL

MATERIALS: - THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT, AND CUTOFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

PLACEMENT: - AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION: - THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRE OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.

WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN +/- 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

CUT OFF TRENCH: - THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

EMBANKMENT CORE: - THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM IMPERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

EARTH FILL (CONTINUED)

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7" TO ASSURE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:

1. MATERIALS - (POLYMER COATED STEEL PIPE) - STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-245 & M-246 WITH WATERTIGHT COUPLING BANDS OR FLANGES.

MATERIALS - (ALUMINUM COATED STEEL PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION ON M-274 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM COATED STEEL PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION ON M-190 TYPE A. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT.

MATERIALS - (ALUMINUM PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-211 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC., MUST BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT.

ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BANDWIDTH.

PIPE CONDUITS (CONTINUED)

THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PRE-PUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12 INCH WIDE STANDARD LAP TYPE BAND WITH 12 INCH WIDE BY 3/8 INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12 INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF 1/2 INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE END. A 24 INCH WIDE BY 3/8 INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.

HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.

2. BEDDING - REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

PLASTIC PIPE - THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIAL - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4"-10" PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.

2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.

3. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSUITABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS. DRAINAGE DIAPHRAGMS - WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

DRAINAGE DIAPHRAGM - WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MIX NO. 3.

ROCK RIPRAP

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311.

GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTION OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

EROSION AND SEDIMENT CONTROL

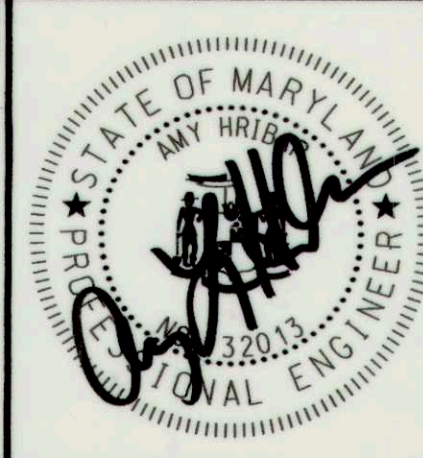
CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

SEE EROSION AND SEDIMENT CONTROL SHEETS FOR DETAILED SEQUENCE OF CONSTRUCTION.

DEPARTMENT OF PUBLIC WORKS
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DRN: MR					
CHK: CB					
DATE: 09/20/17	BY	NO.	REVISION	DATE	

JUNCTION INDUSTRIAL PARK
PRINCIPAL SPILLWAY REPLACEMENT PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD#: EP-12-29

POND CONSTRUCTION SPECIFICATIONS

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10 OF 12

[Signature]
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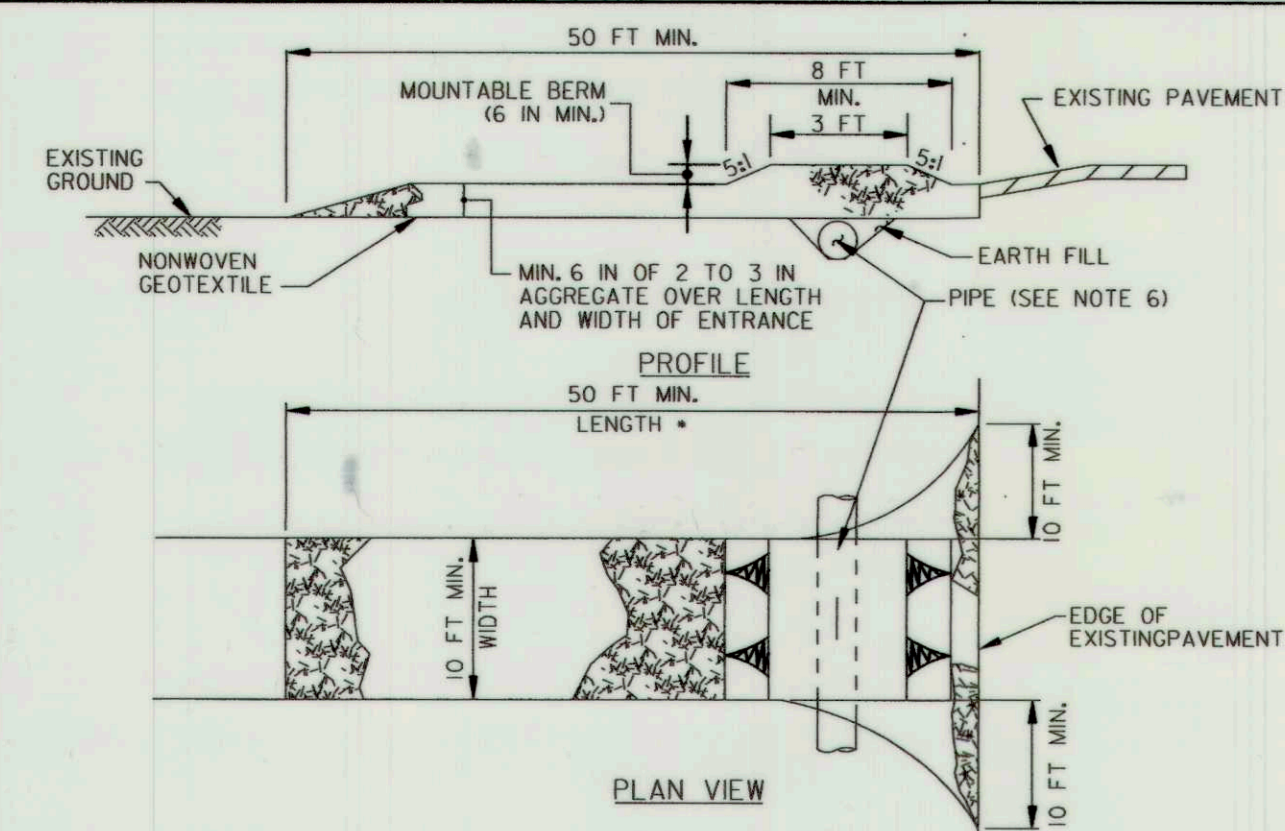
DATE: 9/20/17

(410) 662-7400

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

PROFESSIONAL ENGINEER
NO. 13203
DATE: 2013

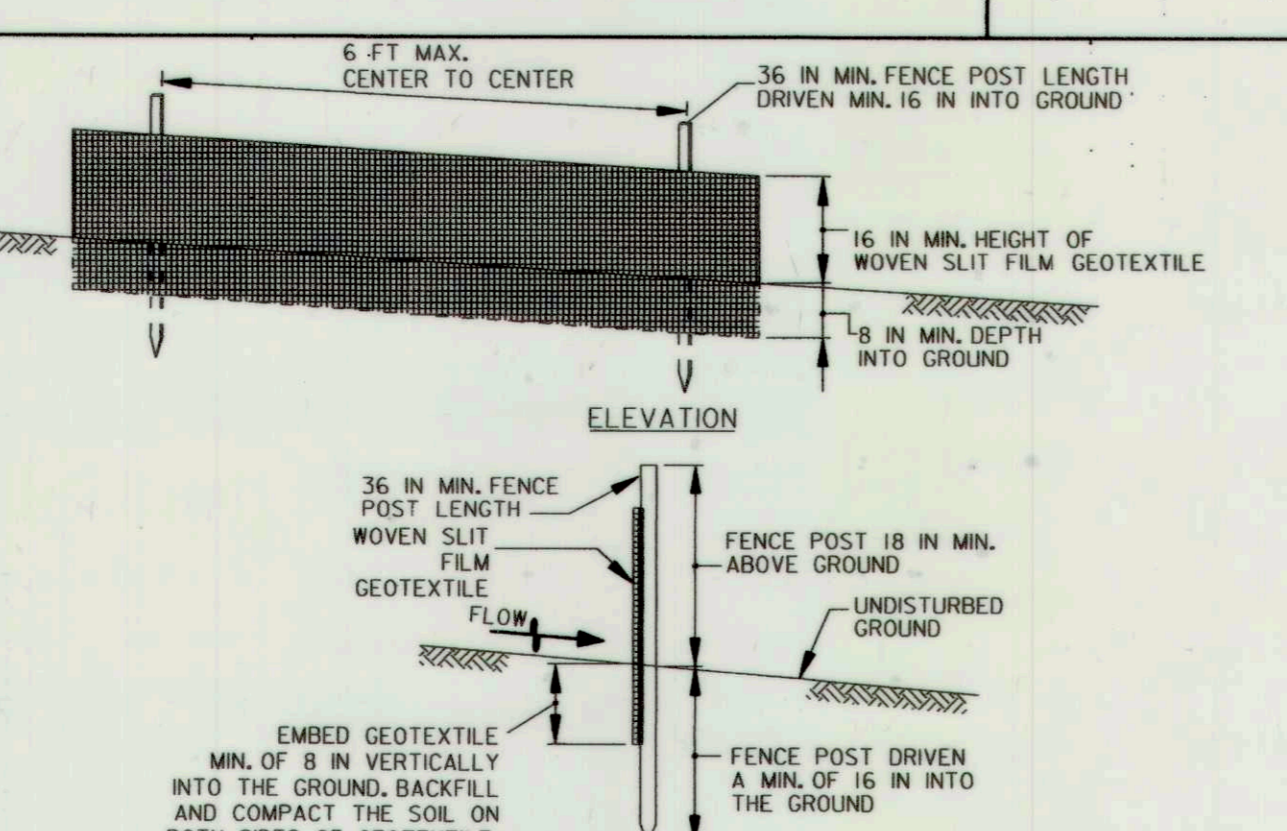
DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE STANDARD SYMBOL



- CONSTRUCTION SPECIFICATIONS**
- PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (+30 FEET FOR SINGLE RESIDENCE LOTS). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
 - PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE. MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5% SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
 - PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
 - PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
 - MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE. MOUNTABLE BERM, AND SPECIFIED DIMENSIONS, IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE STANDARD SYMBOL



- CONSTRUCTION SPECIFICATIONS**
- USE WOOD POSTS 1 1/2 X 1 1/2 X 1/2 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD, AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
 - USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
 - USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
 - PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
 - EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND, BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
 - WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN; OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
 - EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
 - REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL FENCE.

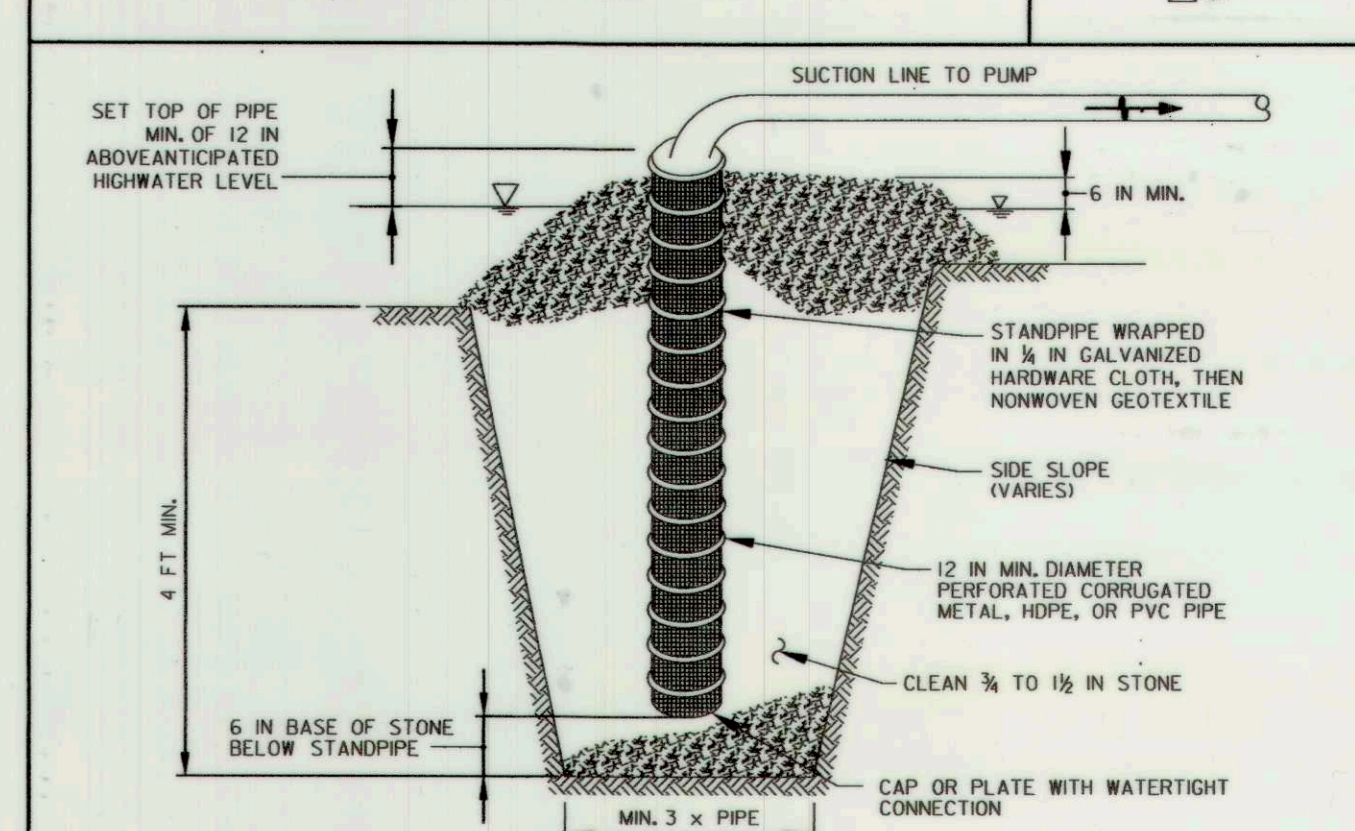
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE STANDARD SYMBOL

- CONSTRUCTION SPECIFICATIONS**
- USE WOOD POSTS 1 1/2 X 1 1/2 X 1/2 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD, AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
 - USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
 - USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
 - PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
 - EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND, BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
 - WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN; OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
 - EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
 - REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

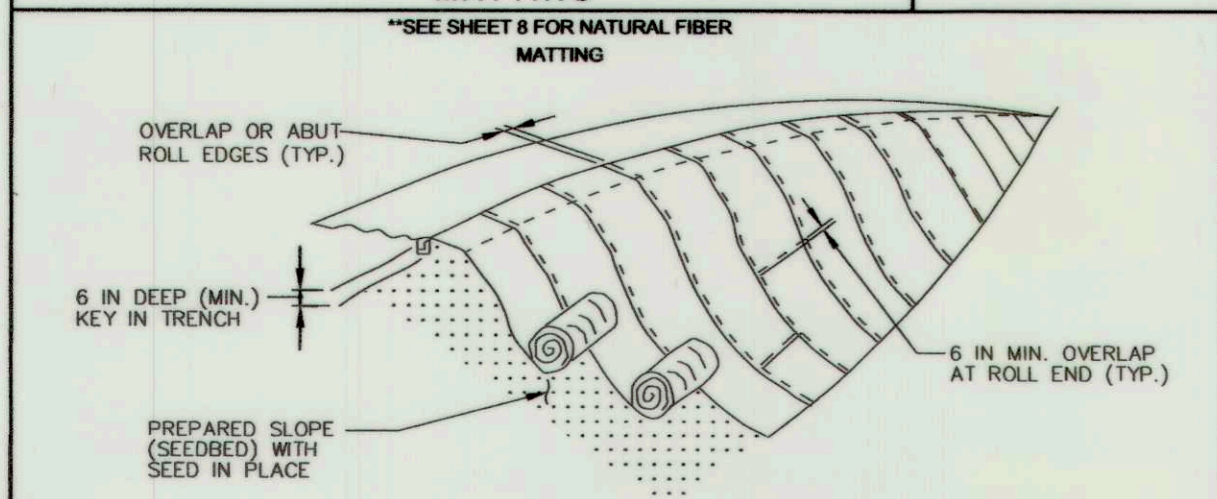
DETAIL F-2 SUMP PIT STANDARD SYMBOL



- CONSTRUCTION SPECIFICATIONS**
- USE 12 INCH OR LARGER DIAMETER CORRUGATED METAL, HOPE, OR PVC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER. BOTTOM OF PIPE MUST BE CAPPED WITH WATER TIGHT SEAL.
 - WRAP PIPE WITH 1/2 INCH GALVANIZED HARDWARE CLOTH AND WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
 - EXCAVATE PIT TO THREE TIMES THE PIPE DIAMETER AND FOUR FEET IN DEPTH. PLACE 3/4 TO 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
 - SET TOP OF PIPE MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
 - BACKFILL PIT AROUND THE PIPE WITH 3/4 TO 1/2 INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
 - DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
 - A SUMP PIT REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, REMOVE PERFORATED PIPE AND REPLACE GEOTEXTILE AND STONE. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

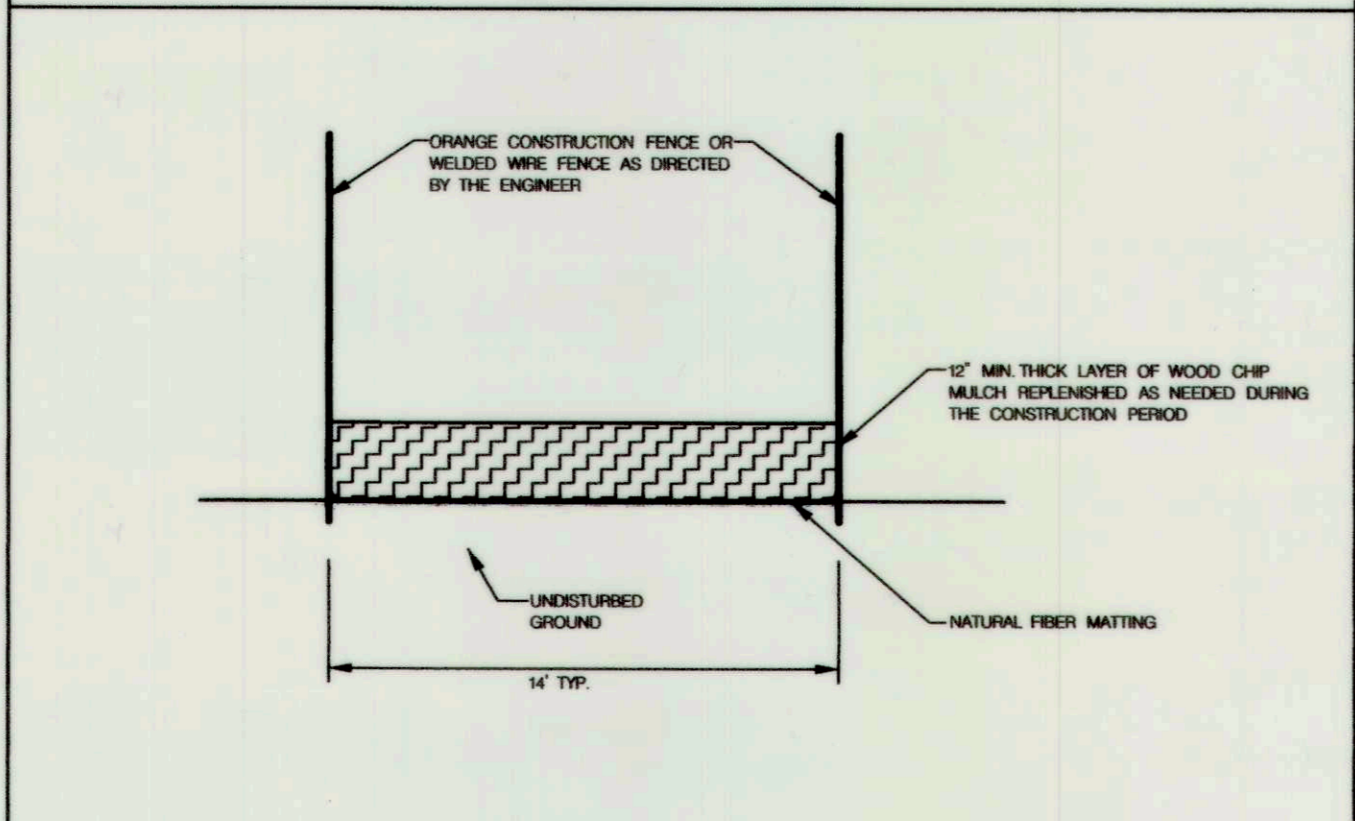
DETAIL B-4-6-B TYPE A SOIL STABILIZATION MATTING STANDARD SYMBOL



- CONSTRUCTION SPECIFICATIONS**
- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
 - USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SHOWER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2-22 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXES OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
 - SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "T" OR "Y" SHAPED STEEL BARS HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "Y" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1 X 3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
 - PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.
 - UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING.
 - OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
 - KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
 - STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
 - ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

MULCH ACCESS ROAD DETAIL



- NOTES**
- ACCESS ROUTES TO BE VERIFIED BY ENGINEER AT PRE-CONSTRUCTION MEETING. REVISIONS TO THE ALIGNMENT THAT MINIMIZE TREE DISTURBANCE ARE ENCOURAGED AND REQUIRE REVIEW AND APPROVAL BY THE ENGINEER.
 - NATURAL FIBER MATTING SHALL BE PLACED WITH SEAMS PARALLEL TO THE FLOW OF TRAFFIC. OVERLAP FABRIC BY 12" MINIMUM AT SEAMS.
 - NATURAL FIBER MATTING MAY BE ELIMINATED AT DIRECTION OF ENGINEER.
 - CONTRACTOR SHALL MAINTAIN MULCH MAT THROUGHOUT CONSTRUCTION PERIOD. UPON COMPLETION OF THE PROJECT, MULCH CAN REMAIN IN PLACE AT A MAXIMUM DEPTH OF 2" IF APPROVED BY THE ENGINEER.
 - SCARIFICATION OF COMPACTED MULCH TO OCCUR UPON REMOVAL OF HAUL ROAD, AT DIRECTION OF THE ENGINEER.

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

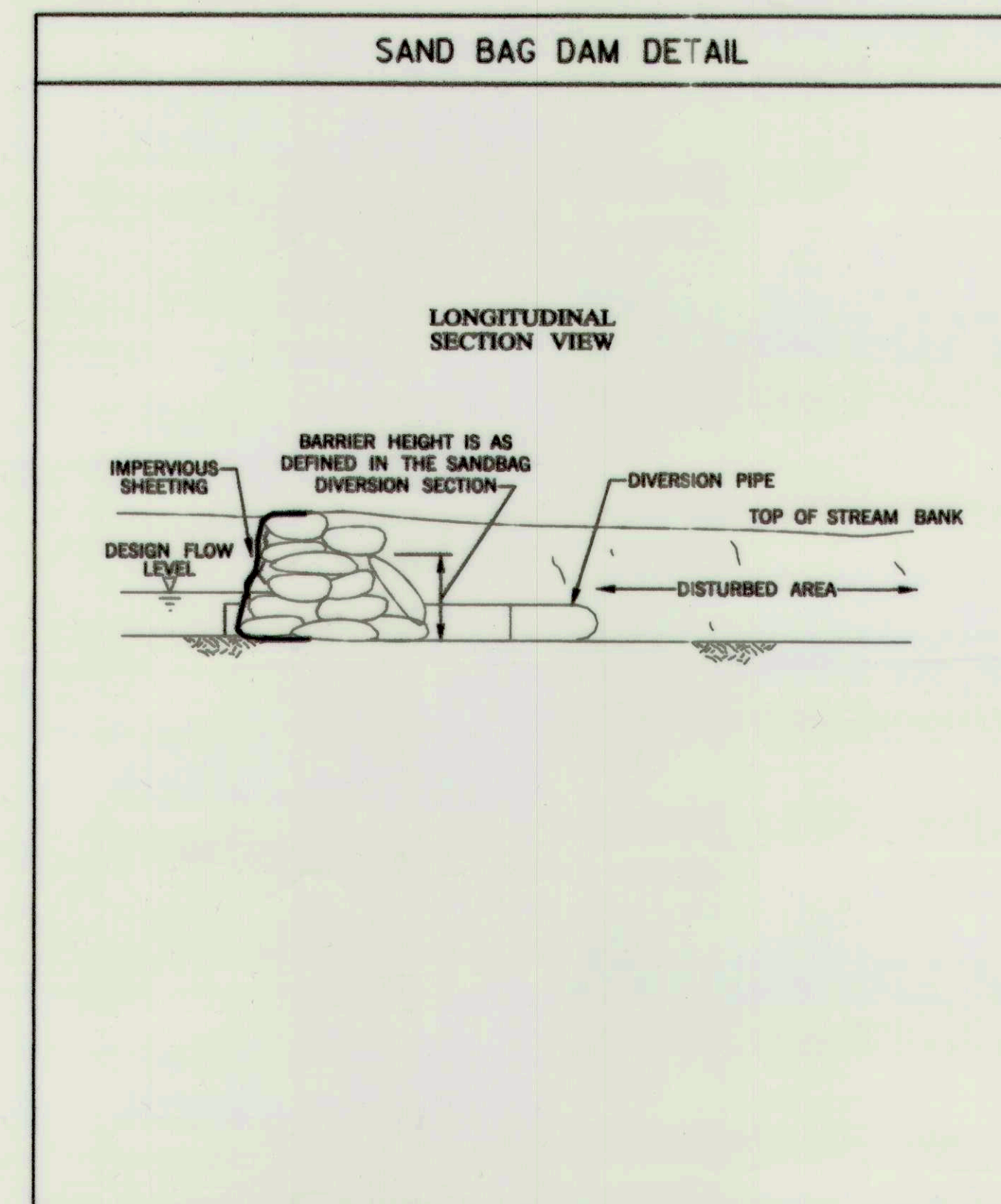
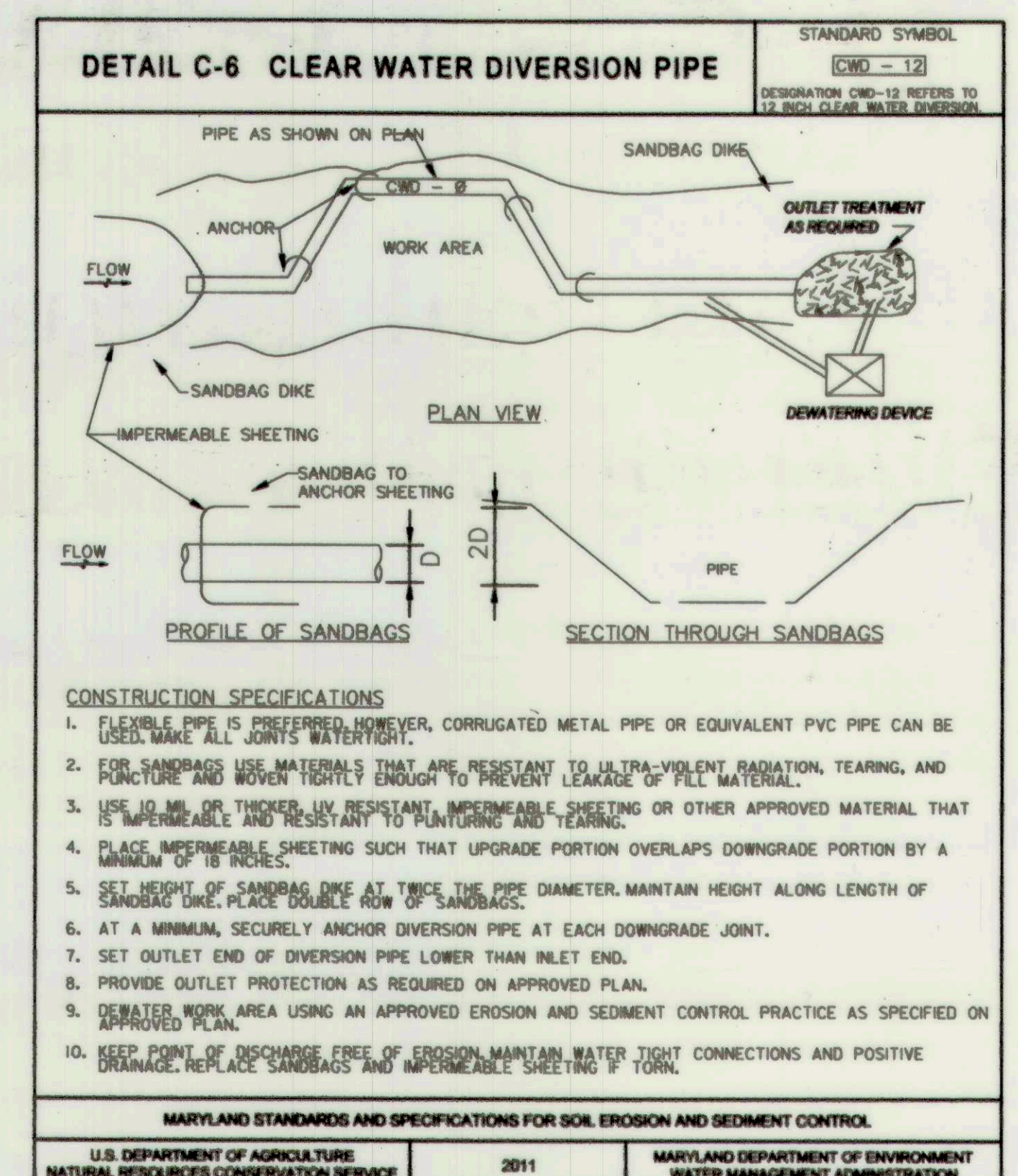
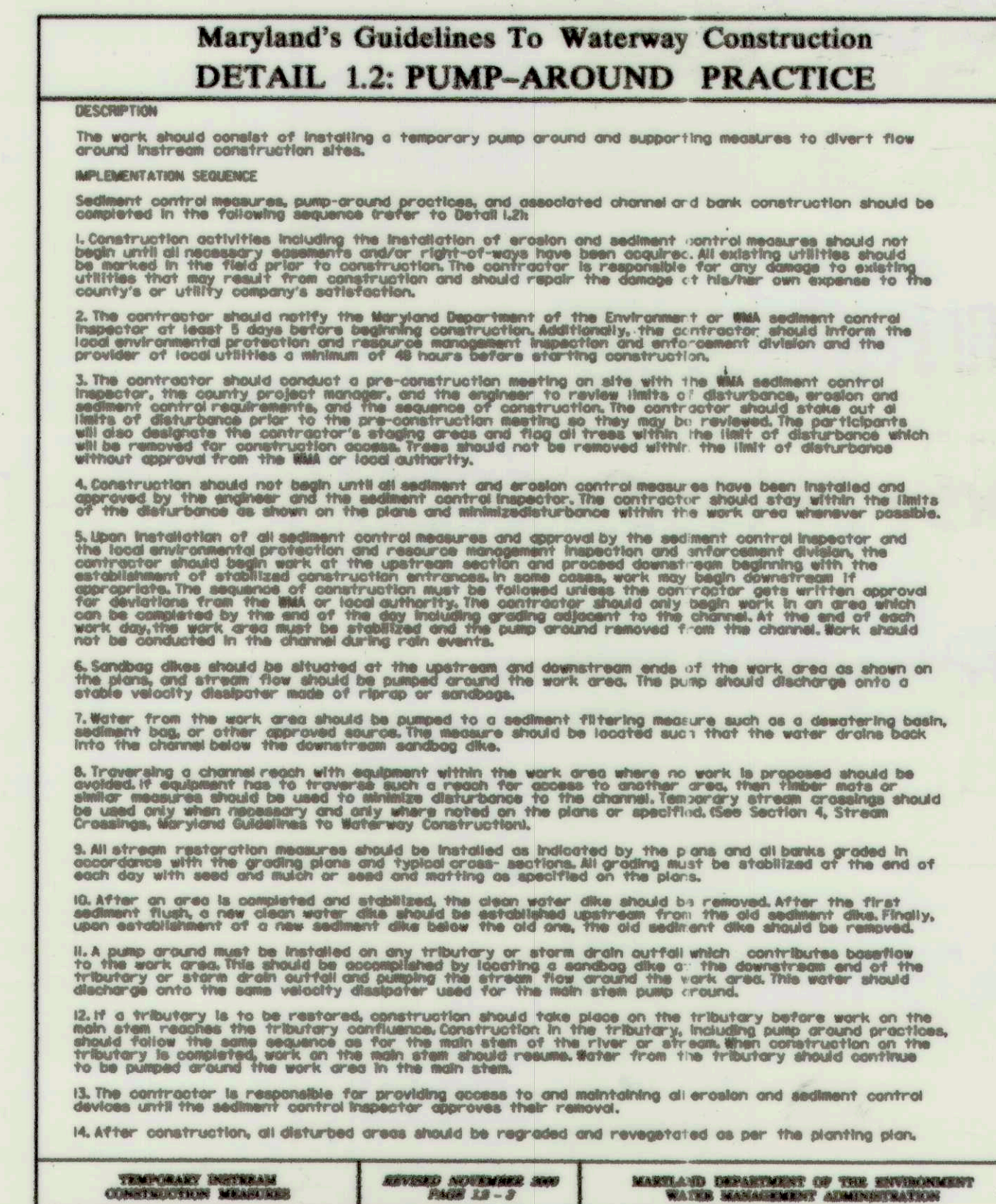
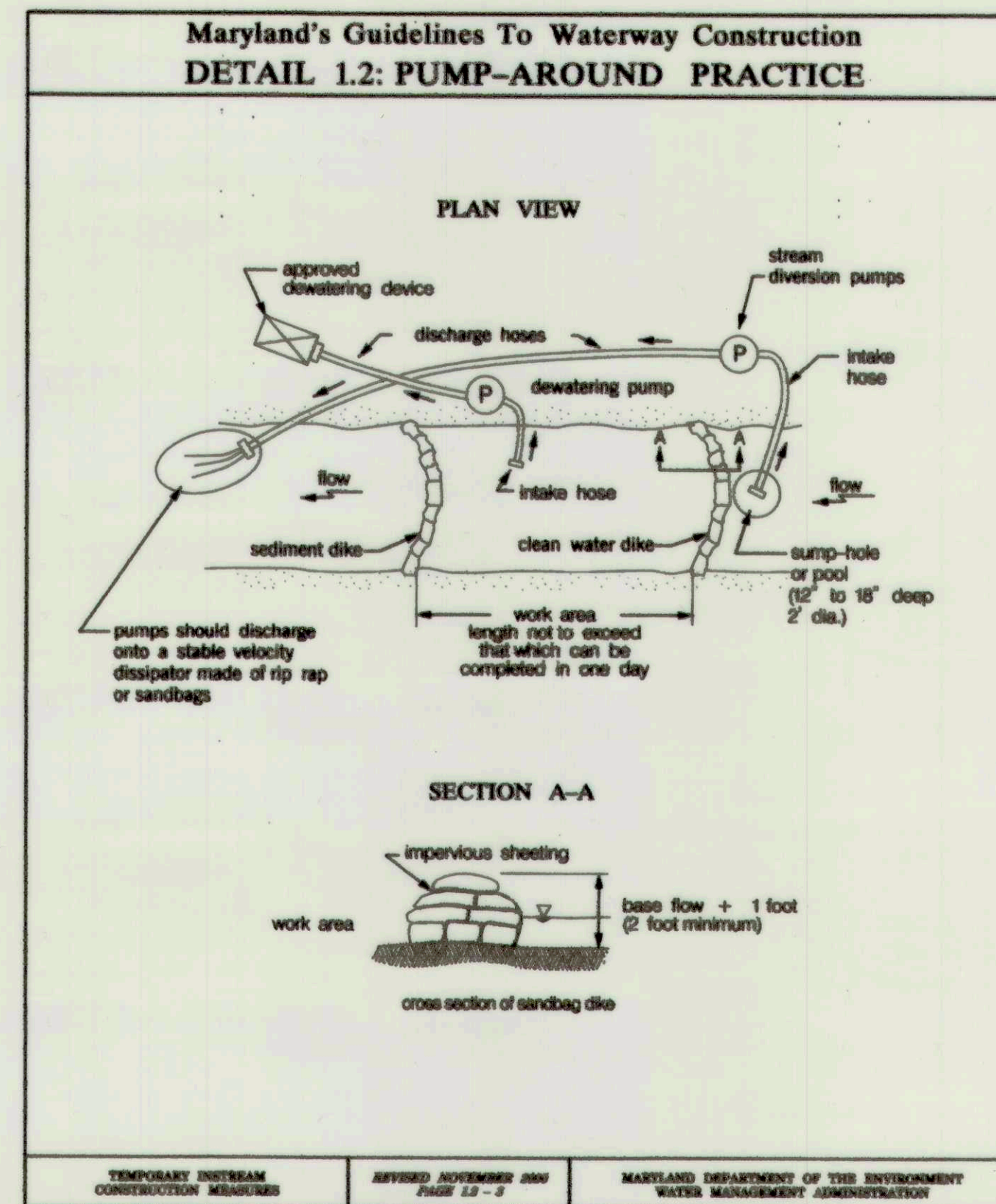
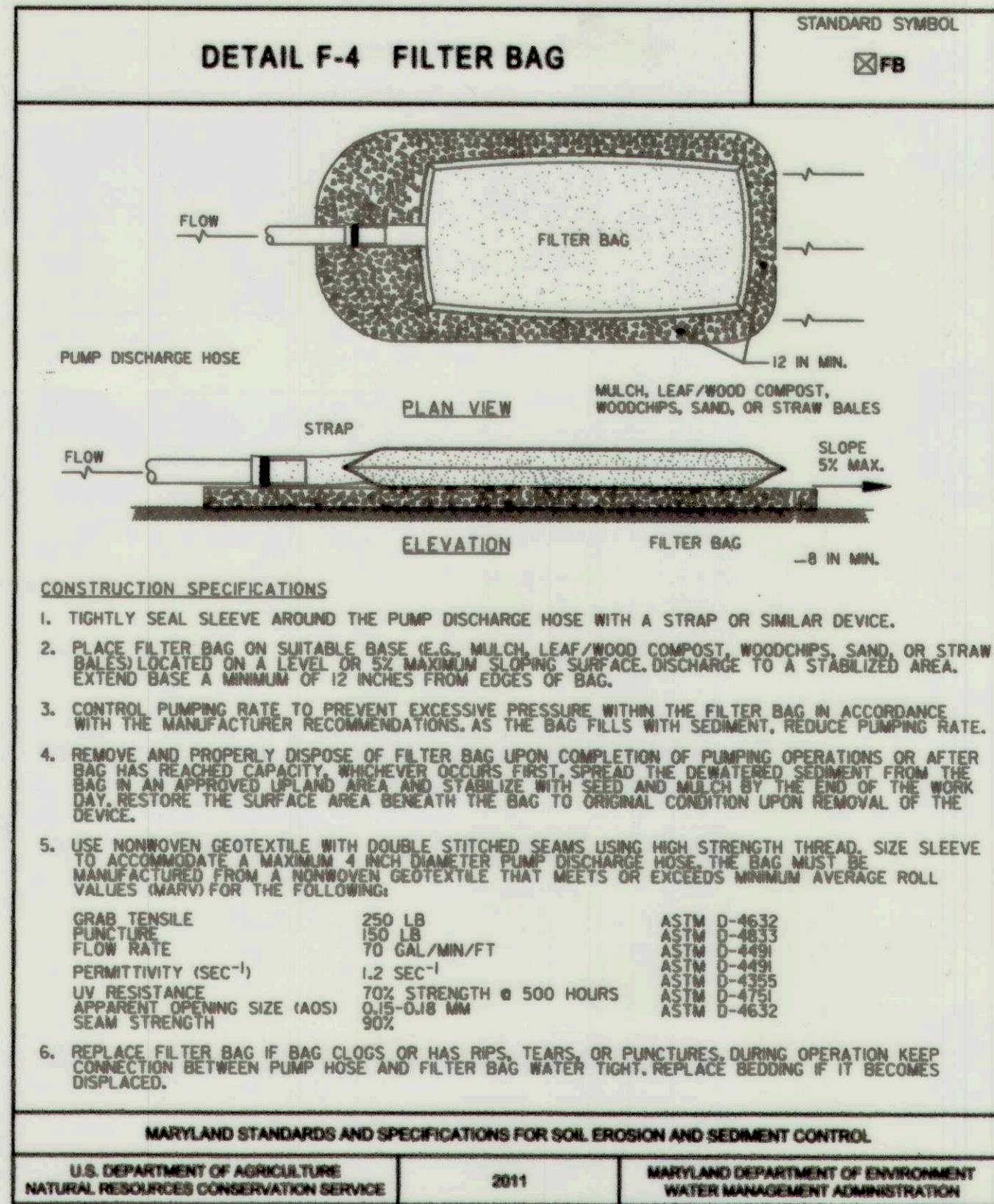
 509 South Exeter Street
 4th Floor
 Baltimore, Maryland 21202
 (410) 662-7400
 DATE: 9/27/15

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

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JUNCTION INDUSTRIAL PARK
PRINCIPAL SPILLWAY REPLACEMENT PROJECT
CAPITAL PROJECT #D-1159
HOWARD COUNTY
HSCD#: EP-12-29
EROSION AND SEDIMENT CONTROL DETAIL SHEET

SCALE
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 11 OF 12



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

M. D. Taylor
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

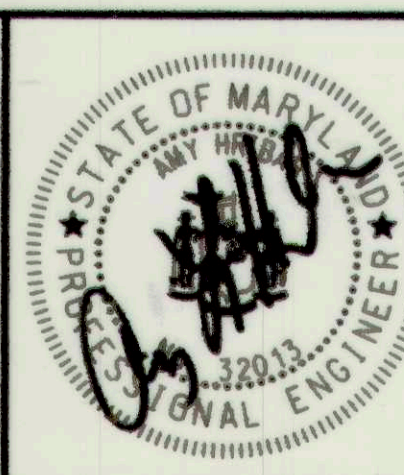
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EROSION AND SEDIMENT CONTROL DETAIL SHEET

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SHEET: 12 OF 12