

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STORMWATER MANAGEMENT GRADING PLAN
3	STORMWATER MANAGEMENT GEOMETRY SHEET
4	STORMWATER MANAGEMENT PROFILES & SECTIONS
5	STORMWATER MANAGEMENT PROFILES, SECTIONS, AND DETAILS
6	STORMWATER MANAGEMENT DETAILS
7	STORMWATER MANAGEMENT DETAILS & NOTES
8	EROSION & SEDIMENT CONTROL PLAN - PHASE 1
9	EROSION & SEDIMENT CONTROL PLAN - PHASE 2
10	EROSION & SEDIMENT CONTROL PLAN - PHASE 3
11	EROSION & SEDIMENT CONTROL DETAILS
12	EROSION & SEDIMENT CONTROL NOTES I
13	EROSION & SEDIMENT CONTROL NOTES II
14	EROSION & SEDIMENT CONTROL NOTES III
15	LANDSCAPE PLAN
16	LANDSCAPE NOTES & DETAILS

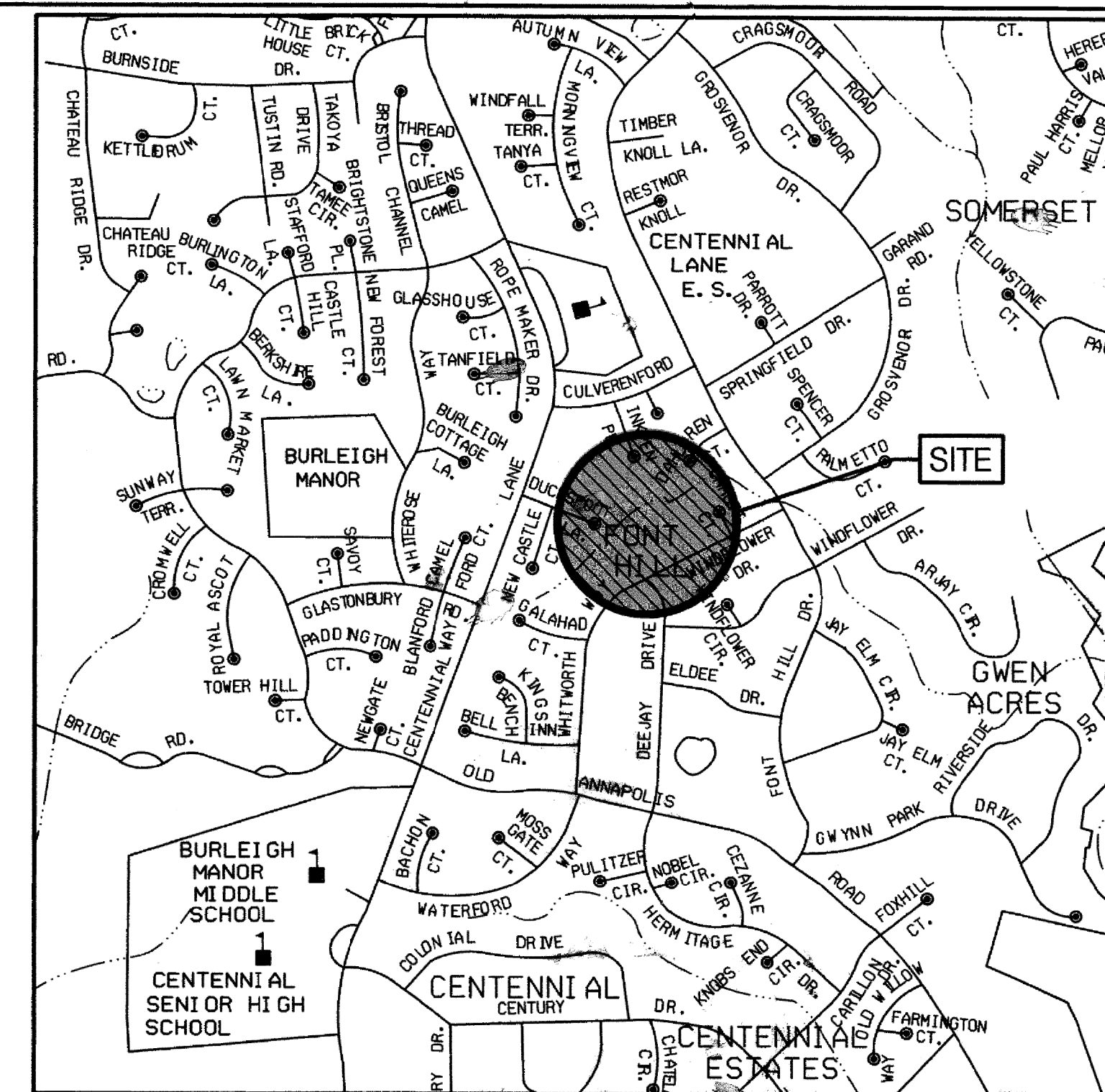
LEGEND

LIMIT OF DISTURBANCE/ORANGE SAFETY FENCE	---	LOD
EXISTING MAJOR CONTOURS	---	387
EXISTING MINOR CONTOURS	---	
PROPOSED CONTOURS	---	387
EXISTING TREE		
SPECIMEN TREE		SP
EXISTING TREE TO BE REMOVED		
EXISTING WOODSLINE		
SOIL TYPE BOUNDARY AND MAP UNIT SYMBOLS		GpC-B
PROPERTY LINE	---	
EXISTING STORM DRAIN	---	SD
EXISTING SEWER MANHOLE		
EXISTING STORM DRAIN MANHOLE		
EXISTING EASEMENT LINE	---	
EXISTING SEWER LINE	---	S
EXISTING EDGE OF PAVEMENT	---	
EXISTING BUILDING		
EXISTING RIPRAP		
PROPOSED RIPRAP PAD		
WATERS OF THE US	---	WUS
EDGE OF WETLAND	---	
100-YEAR WATER SURFACE ELEVATION	---	
SANDBAG DAM		
PUMP AROUND AND HOSES		
REMOVABLE PUMPING STATION		RPS
FILTER BAG		FB
SUPER SILT FENCE	---	SSF
ORANGE SAFETY FENCE	---	OSF
PROPOSED TYPE 'B' SOIL STABILIZATION MATTING		
ACCESS PATH		
SOIL BORING		B-1
STABILIZED CONSTRUCTION ENTRANCE		ECF
TREE PROTECTION FENCE		TPF

# WHITWORTH WAY POND ENHANCEMENTS

HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS  
CAPITAL PROJECT D-1160



VICINITY MAP  
SCALE: 1" = 1000'  
ADC MAP COORD. 11: G10-G11



SITE SCHEMATICS  
SCALE: 1" = 100'

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

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.

SIGNATURE: *J.W. Gett* PE NO. 39696 DATE 02/29/2016

GENERAL INFORMATION

- EXISTING FACILITY WAS CONSTRUCTED UNDER BURLEIGH MANOR, SECTION 1, AREA 1, 2ND ELECTION DISTRICT, HOWARD COUNTY, MARYLAND STORMWATER MANAGEMENT AS-BUILT PLAN F-79-093, AS ACCEPTED BY HOWARD COUNTY SOIL CONSERVATION DISTRICT SEPTEMBER 1982.
- THERE ARE NO BURIAL GROUNDS OR CEMETERY SITES LOCATED ON THE PROJECT SITE.
- THIS PLAN MEETS THE REQUIREMENTS OF THE FOREST CONSERVATION REGULATIONS.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY CONTAINED HEREIN PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 24 HOURS IN ADVANCE OF ANY WORK BEING DONE.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM.
- WATER IS PUBLIC.
- SEWER IS PUBLIC.
- EXISTING UTILITIES ARE BASED ON FIELD SURVEYS AND AVAILABLE RECORD DRAWINGS. CONTRACTOR TO VERIFY INFORMATION TO HIS/HER OWN SATISFACTION.
- KCI PERFORMED A SITE VISIT ON SEPTEMBER 14, 2012 TO VERIFY THE PRESENCE OR ABSENCE OF WETLANDS AND "WATERS OF THE U.S." AT THE SITE.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY AB CONSULTANTS, INC., IN OCTOBER 2012.
- NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND KCI TECHNOLOGIES, INC. DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES BETWEEN THE PLANS AND THE FIELD CONDITIONS, THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
- THE CONTRACTOR 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 AT THE CONTRACTOR'S EXPENSE.
- THE OWNER SHALL REMOVE ALL WOODY VEGETATION FROM THE WOODY-FREE ZONE.

SPECIAL CONTRACTOR NOTES

- 100-YEAR FLOODPLAIN ELEVATION IS SHOWN ON THE PLANS.
- NO STOCKPILE OF ANY MATERIAL IS ALLOWED IN THE 100-YEAR FLOODPLAIN.
- A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO MDE FOR THIS PROJECT (TRACKING NUMBER \*2015-60282). UNDER THIS PERMIT, IN-STREAM WORK IS PROHIBITED FROM MARCH 1ST TO MAY 31ST, INCLUSIVE OF ANY YEAR. STREAM CLASSIFICATION IV-P.
- THE CONTRACTOR SHALL EXERCISE CARE IN ACTIVITIES INVOLVING EITHER CUT AND FILL OR GRADING IN THE VICINITY OF TREES THAT ARE TO REMAIN. ALL EARTH CUTS AND ACTIVITIES IN THE VICINITY OF TREES TO REMAIN SHALL BE MADE IN A MANNER THAT DOES NOT DISTURB THE CRITICAL ROOT ZONE WITHIN THE DRIPLINE OF THE TREE. PROTECTIVE ORANGE FENCING SHALL BE INSTALLED AROUND THE PERIMETER OF THE CRITICAL ROOT ZONE PRIOR TO CONSTRUCTION. THE LOCATION OF THE PROTECTIVE ORANGE FENCING SHALL BE APPROVED BY THE ENGINEER OR HIS/HER REPRESENTATIVE PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL NOT STORE EQUIPMENT, MATERIALS AND/OR SUPPLIES BEYOND THE LIMIT OF DISTURBANCE SHOWN ON THE PLANS.
- UPON COMPLETION OF THE WORK, BUT PRIOR TO DE-MOBILIZATION, THE CONTRACTOR SHALL REMOVE ALL REMNANTS OF CONSTRUCTION MATERIALS FROM THE SITE. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO A CONDITION EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITIONS.
- PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, PHOTOGRAPHS OF THE PROPOSED WORK AREA AND ACCESS SHALL BE TAKEN.
- CONTRACTOR IS RESPONSIBLE FOR REMOVING EXISTING TREES LOCATED WITHIN THE 'WOODY FREE ZONE' OF THE EMBANKMENT (15 FEET FROM TOE OF DAM AND 25 FEET SURROUNDING THE CONTROL STRUCTURE) SEE TABLE 'A' ON SHEET NO. 14 FOR TREE REMOVAL GUIDANCE.

PERMIT INFORMATION CHART			
SUBDIVISION NAME BURLEIGH MANOR	SECTION/AREA SECTION 1 AREA 1	PARCEL* 1140	
PLAY* OF L/F GRID 4322	ZONING 0019	TAX MAP NO. / ELEC. DISTR. 0024 02	DENSITY TRACT
WATER CODE PUBLIC	SEWER CODE PUBLIC		

Maryland Dept. of the Environment  
Dam Safety Division  
Permit No. 15-MR-0059  
Plans Approved By  
Bruce W. Harrington, P.E.  
Date: 8/6/15

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT AND EROSION 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 COUNTY SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER BEFORE BEGINNING THE PROJECT."

*J.W. Gett*  
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE)  
RYAN W. BRIDETTE, PE  
P.E. # 39696  
DATE: July 27, 2015

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."

*Mark S. Richmond*  
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE)  
DATE: 7/29/15

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

*James G. Van...* 7/31/15  
DIRECTOR OF PUBLIC WORKS DATE

*Mark W. Luca* 7/29/15  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

*Mark S. Richmond* 7/29/15  
CHIEF, STORMWATER MANAGEMENT DIVISION DATE

DEPARTMENT OF RECREATION AND PARKS, HOWARD COUNTY, MD

*A.P. Deane* 7/30/15  
DIRECTOR OF RECREATION AND PARKS DATE

NO. REVISIONS DESCRIPTION DATE

AS-BUILT FEB 2016

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
WWW.KCI.COM

KCI TECHNOLOGIES

PROFESSIONAL CERTIFICATE OF REGISTERED PROFESSIONAL ENGINEER  
STATE OF MARYLAND  
BRIDETTE, RYAN W.  
NO. 39696  
EXPIRES 09/30/2017

STORMWATER AND WATERSHED MANAGEMENT EVALUATION / DESIGN-BUILD SERVICES

WHITWORTH WAY POND ENHANCEMENTS

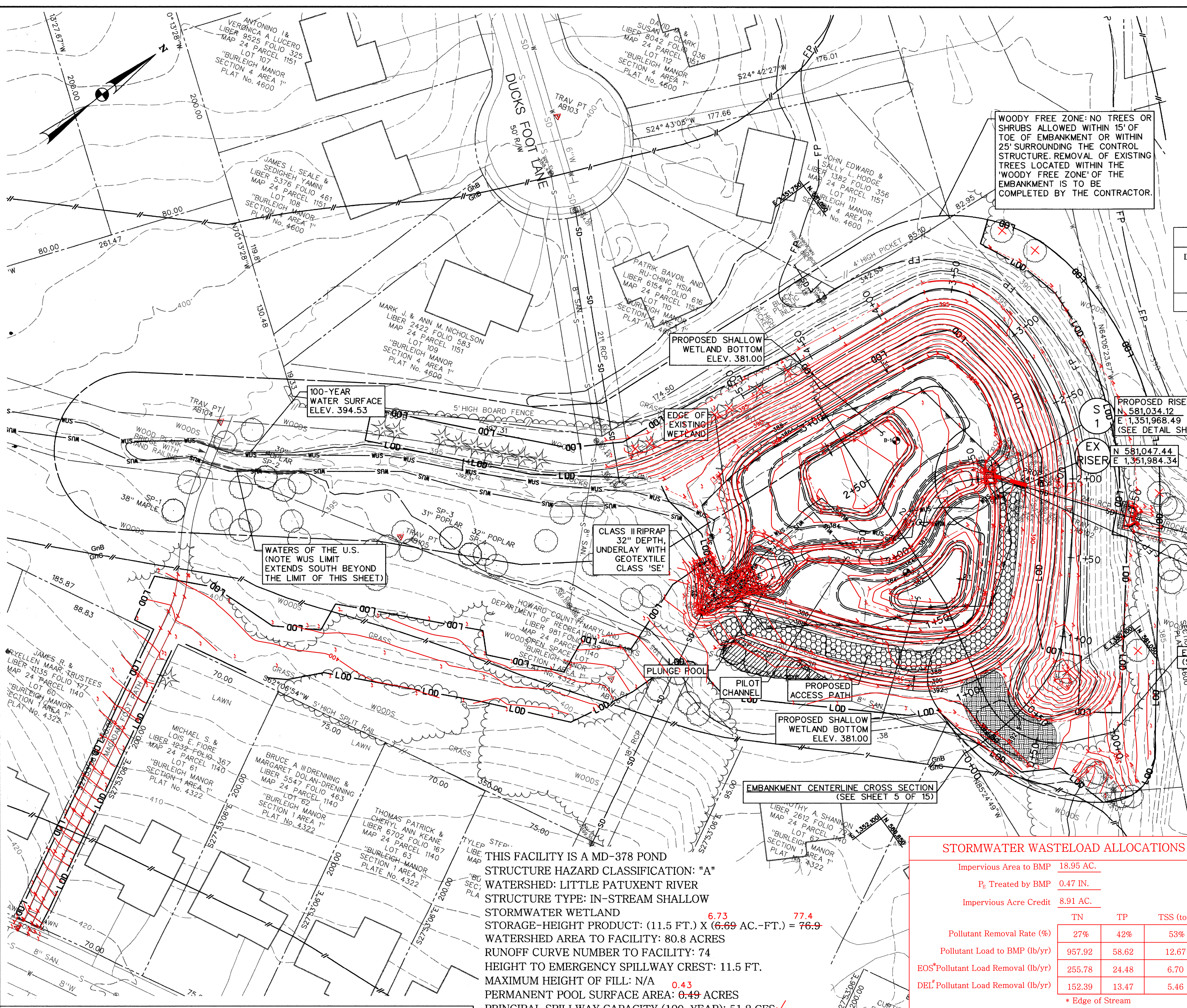
HOWARD COUNTY CONTRACT # CA 24-2013  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046

TITLE SHEET

SCALE: AS SHOWN  
DATE: JULY 2015  
KCI JOB NO.: 17-133314.45  
CAPITAL PROJECT NO.: D-1160  
PERMIT ISSUE:  
CONSTRUCTION ISSUE:

WMA Permit No. 15-MR-0059  
EP-15-027

SHEET NO.: 1 OF 16



STORM FREQUENCY	INFLOW (C.F.S.)	OUTFLOW (C.F.S.)	STORAGE (AC./FT.)	D.H.W. ELEV. (FT.)
1-YR.	50.3	1.8 ✓	<del>2.695</del> 2.619	<del>389.21</del> 389.16
2-YR.	83.6	<del>4.6</del> 4.9	<del>4.269</del> 4.161	<del>391.04</del> 390.90
5-YR.	146.10	<del>38.0</del> 40.7	<del>5.139</del> 5.016	<del>391.89</del> 391.75
10-YR.	207.2	<del>72.6</del> 69.3	<del>6.570</del> 6.610	393.13 ✓
100-YR.	356.7	261.9 ✓	<del>8.578</del> 9.496	<del>394.53</del> 394.57

DRAINAGE AREA (AC.)	T.C. (HRS.)	RCN	WQv (CF.)	REV (CF.)	CPv (CF.)
			PROVIDED	PROVIDED	PROVIDED
80.8	0.34	74	<del>37,751</del> 36,112	--	<del>112,438</del> 173,183

① PROPOSED STORMWATER WETLAND IS A RETROFIT. NO DEVELOPMENT WITHIN THE WATERSHED IS INCLUDED FOR THIS PROJECT.

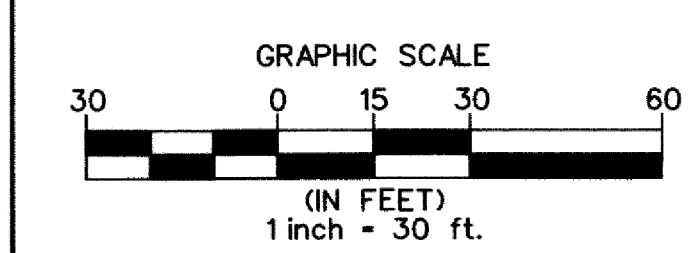
WOODY FREE ZONE: NO TREES OR SHRUBS ALLOWED WITHIN 15' OF TOE OF EMBANKMENT OR WITHIN 25' SURROUNDING THE CONTROL STRUCTURE. REMOVAL OF EXISTING TREES LOCATED WITHIN THE 'WOODY FREE ZONE' OF THE EMBANKMENT IS TO BE COMPLETED BY THE CONTRACTOR.

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 7/29/15  
 DATE

THIS FACILITY IS A MD-378 POND STRUCTURE HAZARD CLASSIFICATION: "A" WATERSHED: LITTLE PATUXENT RIVER STRUCTURE TYPE: IN-STREAM SHALLOW STORMWATER WETLAND STORAGE-HEIGHT PRODUCT: (11.5 FT.) X (6.69 AC.-FT.) = 76.9 WATERSHED AREA TO FACILITY: 80.8 ACRES RUNOFF CURVE NUMBER TO FACILITY: 74 HEIGHT TO EMERGENCY SPILLWAY CREST: 11.5 FT. MAXIMUM HEIGHT OF FILL: N/A PERMANENT POOL SURFACE AREA: 0.43 ACRES PRINCIPAL SPILLWAY CAPACITY (100-YEAR): 51.2 CFS ✓ EMERGENCY SPILLWAY CAPACITY (100-YEAR): 210.9 CFS ✓ LEVEL OF MANAGEMENT: 1-YEAR, 12-HR PROVIDED FREEBOARD: 1.00 FT. REQUIRED: 1.21 FT. PROVIDED WATER QUALITY PROVIDED: 0.87 AC.-FT. MAINTENANCE RESPONSIBILITY: PUBLIC

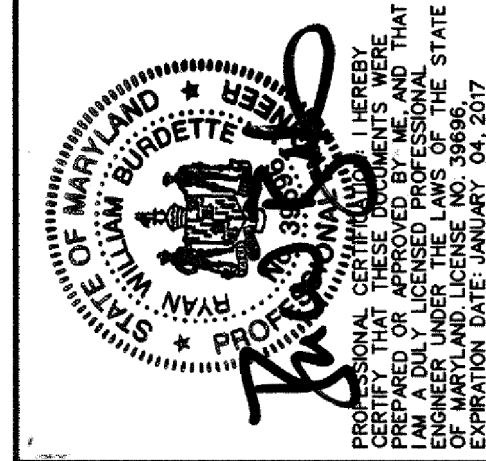
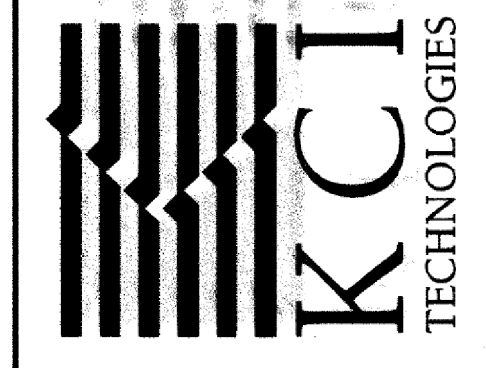
Impervious Area to BMP	18.95 AC.
P <sub>e</sub> Treated by BMP	0.47 IN.
Impervious Acre Credit	8.91 AC.
Pollutant Removal Rate (%)	TN 27% TP 42% TSS (tons) 53%
Pollutant Load to BMP (lb/yr)	957.92 58.62 12.67
EOS <sup>1</sup> Pollutant Load Removal (lb/yr)	255.78 24.48 6.70
DEL <sup>2</sup> Pollutant Load Removal (lb/yr)	152.39 13.47 5.46

\* Edge of Stream  
 \* Delivered to Chesapeake Bay



NO.	REVISIONS DESCRIPTION	DATE
AS-BUILT		FEB 2016

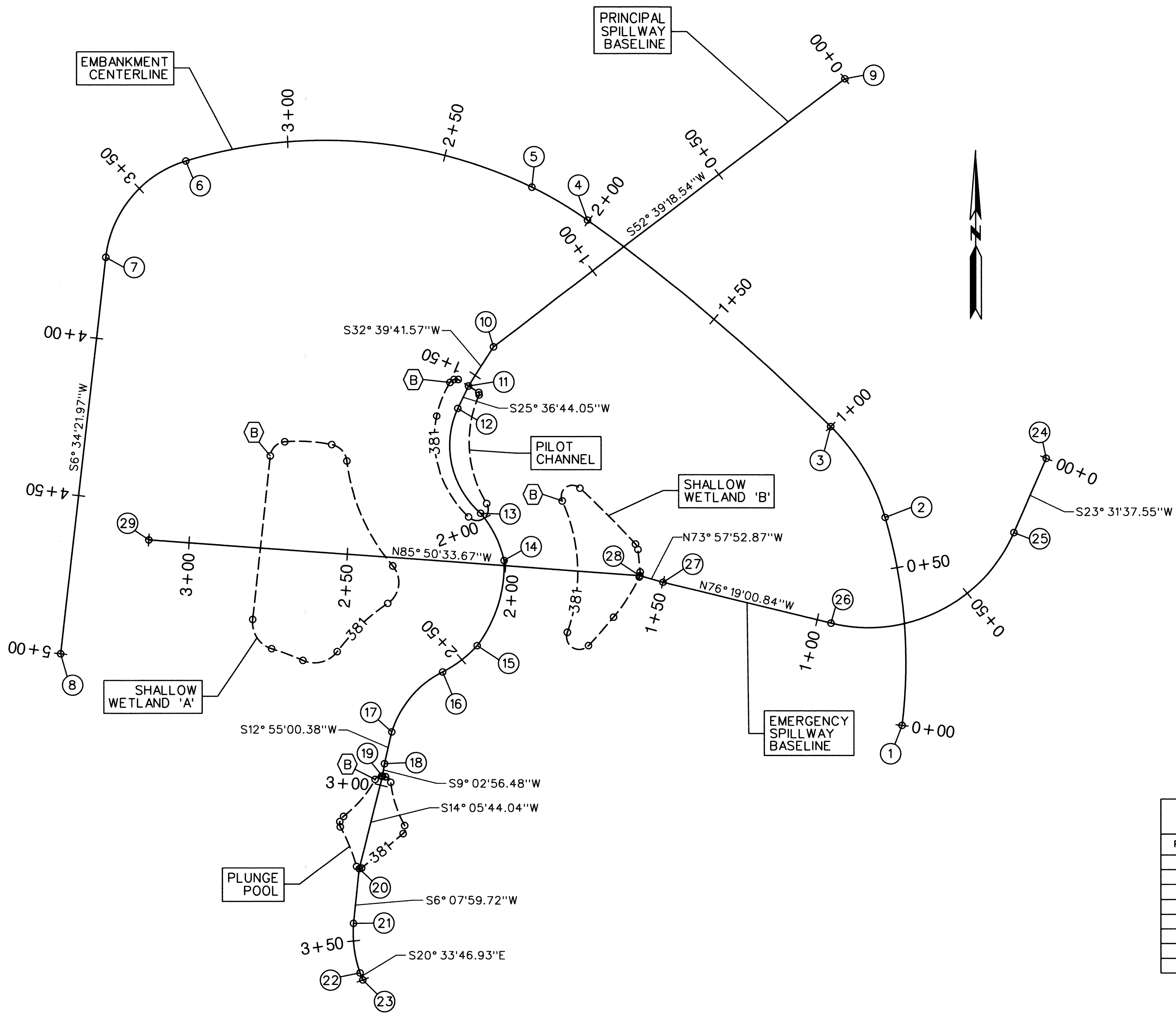
936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
 WWW.KCI.COM



STORMWATER AND WATERSHED MANAGEMENT EVALUATION / DESIGN-BUILD SERVICES  
 WHITWORTH WAY POND ENHANCEMENTS  
 HOWARD COUNTY CONTRACT # CA-28-2013  
 DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046

STORMWATER MANAGEMENT GRADING PLAN

SCALE: 1" = 30'  
 DATE: JULY 2015  
 KCI JOB NO.: 17-133314.45  
 CAPITAL PROJECT NO.: D-1160  
 PERMIT ISSUE:  
 CONSTRUCTION ISSUE:  
 SHEET NO.: 2 OF 16



CONTOUR STAKEOUT INFORMATION			
LOCATION	STATION	NORTHING	EASTING
PILOT CHANNEL	0+00.00	581025.06	1351956.13
	0+01.63	581025.98	1351957.42
	0+02.98	581025.98	1351958.76
	0+10.58	581021.96	1351965.23
	0+11.39	581021.19	1351965.34
	0+47.20	580986.84	1351967.66
	0+57.67	580982.63	1351961.98
	0+92.58	581014.48	1351951.95
	0+00.00	581001.88	1351899.49
	0+06.92	581006.34	1351904.06
0+21.81	581005.46	1351918.87	
0+29.33	581000.27	1351923.63	
0+65.96	580967.19	1351938.07	
0+79.42	580955.37	1351936.47	
1+01.47	580940.29	1351920.51	
1+13.51	580937.53	1351909.70	
1+24.03	580941.22	1351899.84	
1+35.80	580950.28	1351893.89	
0+00.00	580987.65	1351991.50	
0+09.59	580991.67	1351997.07	
0+34.40	580974.08	1352014.56	
0+36.32	580972.35	1352015.33	
0+43.44	580965.27	1352016.03	
0+45.03	580963.71	1352015.76	
0+60.20	580950.98	1352007.62	
0+72.02	580942.19	1351999.71	
0+82.93	580946.31	1351993.06	
0+00.00	580899.73	1351932.44	
0+02.47	580900.77	1351934.51	
0+03.72	580900.56	1351935.74	
0+06.29	580898.81	1351937.37	
0+20.77	580885.12	1351941.75	
0+23.58	580882.58	1351941.26	
0+40.54	580871.78	1351928.18	
0+42.53	580872.28	1351926.57	
0+56.01	580884.70	1351921.44	
0+57.72	580886.34	1351921.29	
0+59.76	580887.97	1351922.47	

NOTE: CONTOUR STAKEOUT POINTS PROCEED IN A CLOCKWISE DIRECTION AROUND CONTOUR.

BASELINE CONTROL COORDINATES EMBANKMENT CENTERLINE			
PT. NO.	STATION	NORTHING	EASTING
1	0+00.00	580916.94	1352098.48
2	0+66.28	580982.55	1352093.21
3	1+00.00	581011.17	1352076.09
4	2+00.45	581075.98	1351999.51
5	2+20.79	581086.33	1351982.01
6	3+32.76	581094.65	1351872.94
7	3+74.49	581064.35	1351847.71
8	5+00.00	580939.66	1351833.35

BASELINE CONTROL COORDINATES PRINCIPAL SPILLWAY BASELINE			
PT. NO.	STATION	NORTHING	EASTING
9	0+00.00	581120.76	1352080.62
10	1+39.33	581036.24	1351969.86
11	1+53.91	581023.97	1351961.99
12	1+61.73	581016.91	1351958.61
13	1+98.04	580983.81	1351965.75
14	2+14.89	580968.86	1351973.14
15	2+43.47	580942.17	1351964.62
16	2+57.26	580933.83	1351953.73
17	2+82.83	580914.79	1351937.70
18	2+93.20	580904.68	1351935.38
19	2+97.20	580900.73	1351934.75
20	3+27.29	580871.55	1351972.42
21	3+44.41	580854.53	1351925.60
22	3+60.25	580838.94	1351927.65
23	3+62.65	580836.70	1351928.51

BASELINE CONTROL COORDINATES EMERGENCY SPILLWAY BASELINE			
PT. NO.	STATION	NORTHING	EASTING
24	0+00.00	581001.25	1352144.01
25	0+25.58	580977.79	1352133.80
26	0+95.53	580949.17	1352076.12
27	1+50.00	580962.06	1352023.20
28	1+57.57	580964.15	1352015.93
29	3+12.73	580975.40	1351861.17

**LEGEND**

Ⓟ BEGINNING OF CONTOUR STAKEOUT POINTS

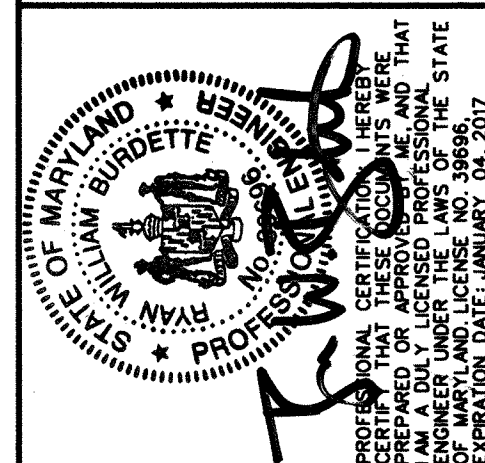
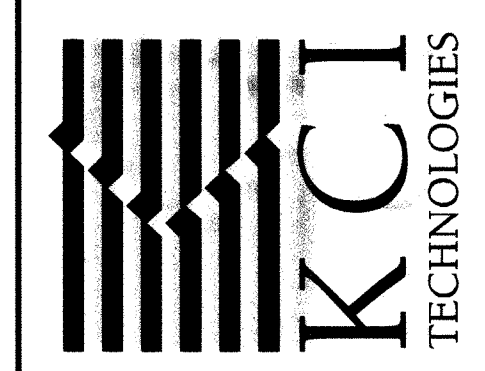
① BASELINE CONTROL POINT

— BASELINE

- - - CONTOUR LINE

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
 WWW.KCI.COM



STORMWATER AND WATERSHED MANAGEMENT EVALUATION / DESIGN-BUILD SERVICES

**WHITWORTH WAY POND ENHANCEMENTS**

HOWARD COUNTY CONTRACT # CA 23-2013  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6725 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046

**STORMWATER MANAGEMENT GEOMETRY SHEET**

SCALE: 1" = 20'

DATE: JULY 2015

KCI JOB NO.: 17-133314.45

CAPITAL PROJECT NO.: D-1160

PERMIT ISSUE:

CONSTRUCTION ISSUE:

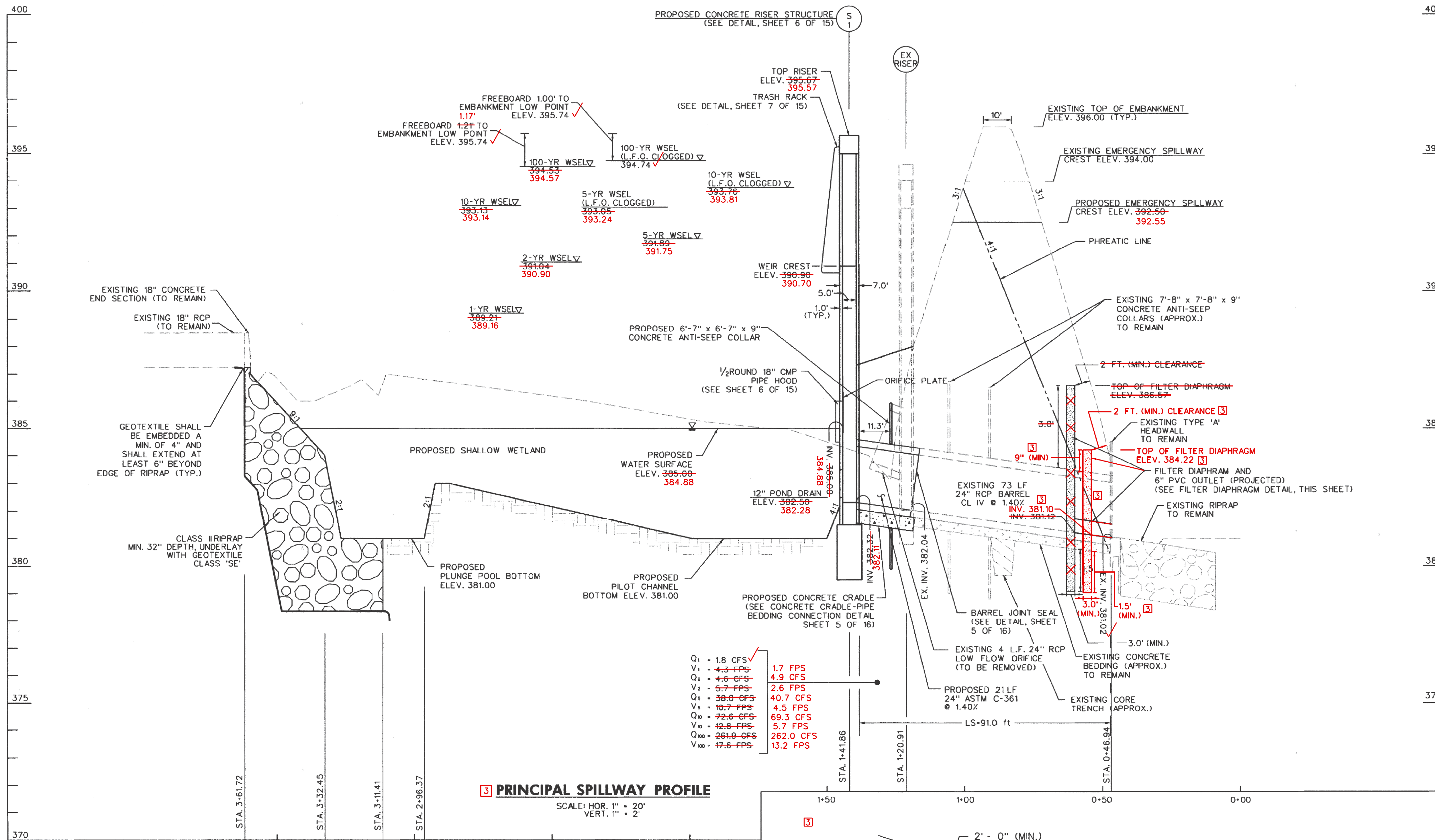
SHEET NO.: 3 OF 16

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

*Mark A. Luca*  
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

7/29/15  
 DATE

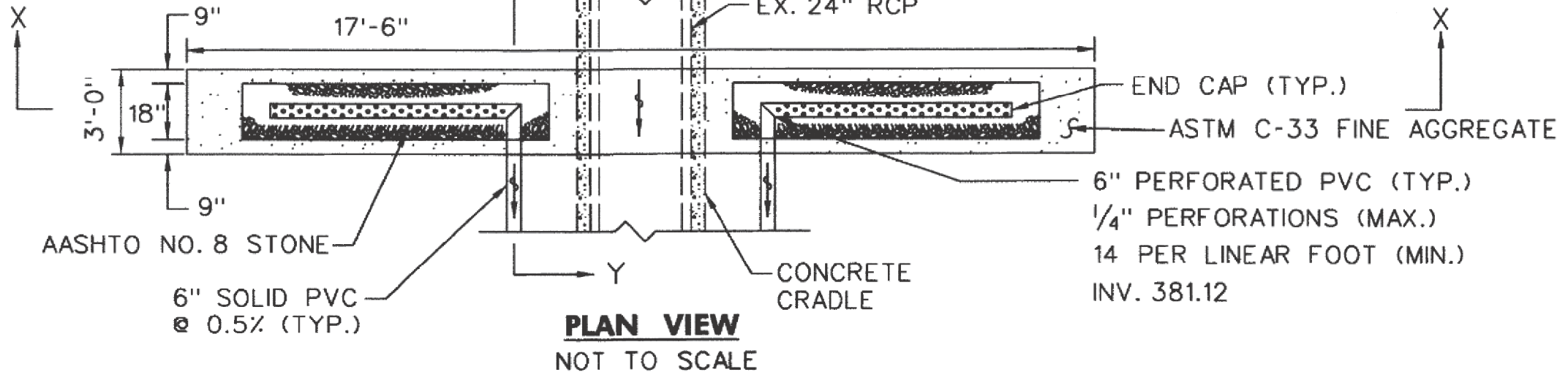
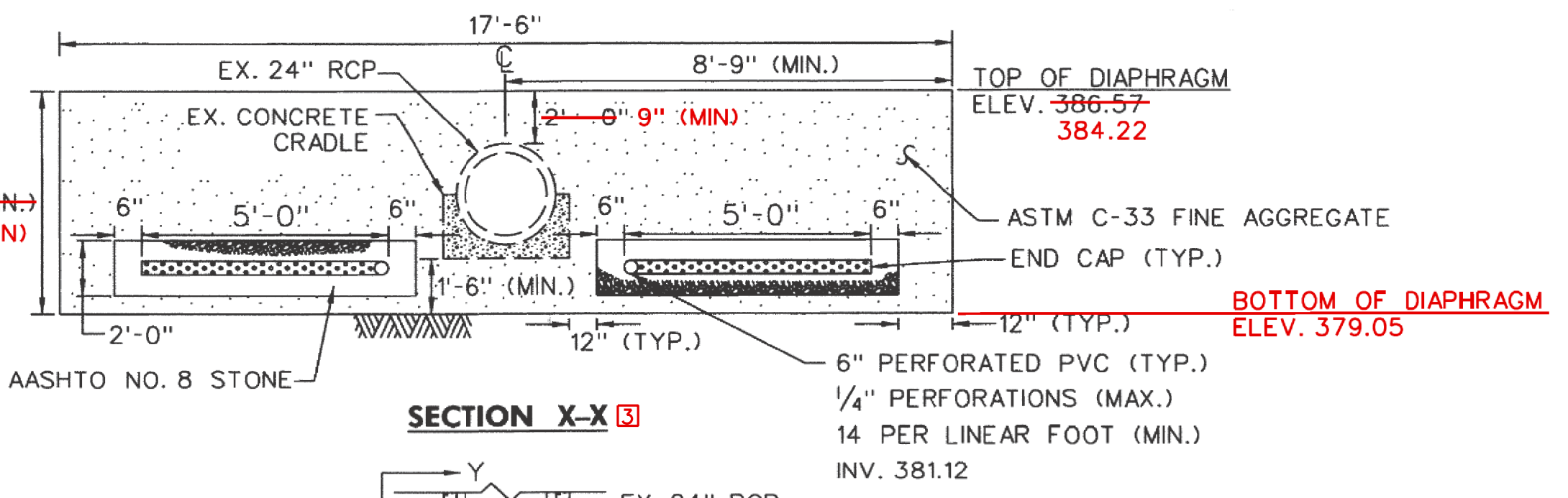
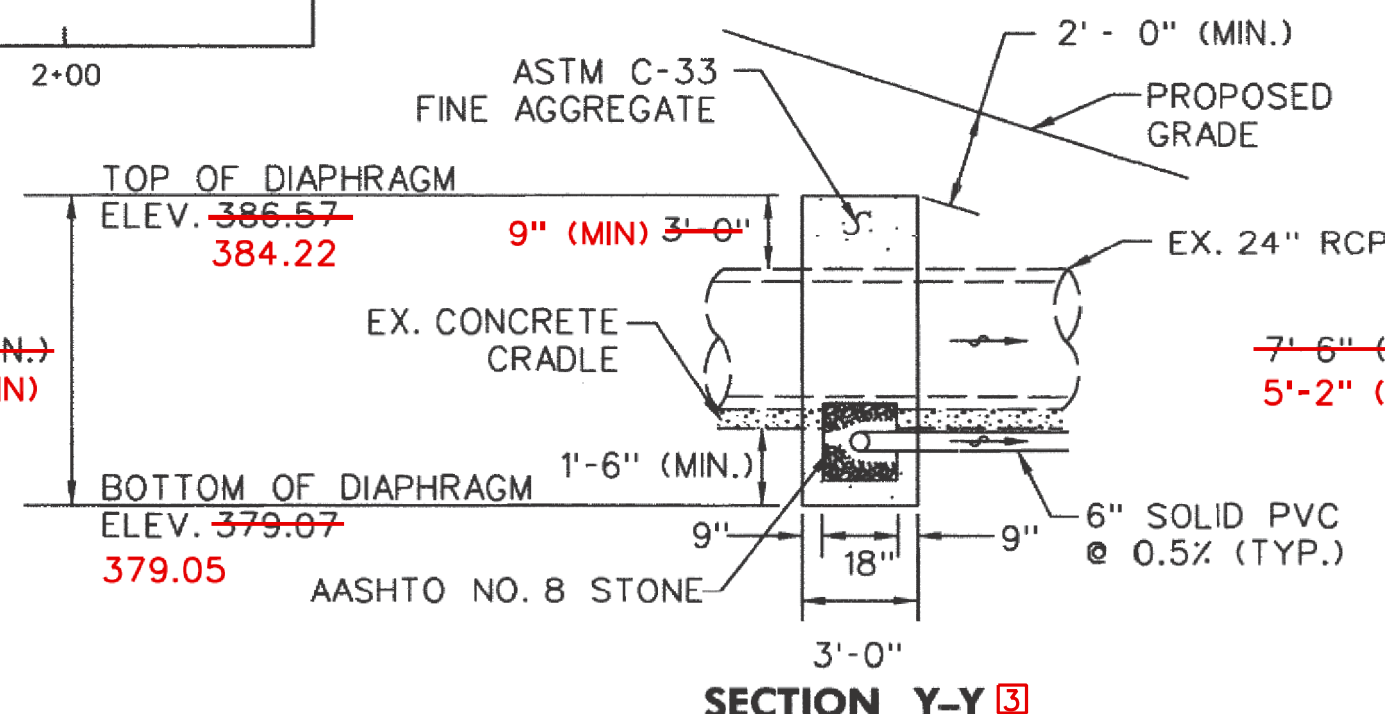
BY: Division: FILE: M:\2008\01081795-88\Drawings\303\_PSW\_P002-WhitworthWay.dgn



**3 PRINCIPAL SPILLWAY PROFILE**  
SCALE: HOR. 1" = 20'  
VERT. 1" = 2'

Q <sub>1</sub> = 1.8 CFS	1.7 FPS
V <sub>1</sub> = 4.3 FPS	4.9 CFS
Q <sub>2</sub> = 4.6 CFS	2.6 FPS
V <sub>2</sub> = 5.7 FPS	40.7 CFS
Q <sub>3</sub> = 38.0 CFS	4.5 FPS
V <sub>3</sub> = 19.7 FPS	69.3 CFS
Q <sub>4</sub> = 72.6 CFS	5.7 FPS
V <sub>4</sub> = 32.8 FPS	262.0 CFS
Q <sub>5</sub> = 261.0 CFS	13.2 FPS
V <sub>5</sub> = 47.6 FPS	

- NOTES:
1. A GEOTECHNICAL ENGINEER SHALL BE PRESENT DURING FILTER DIAPHRAGM CONSTRUCTION.
  2. THE FILTER DIAPHRAGM SHALL BE CONSTRUCTED IN CONTINUOUS HORIZONTAL LAYERS 8 TO 12 INCHES THICK (BEFORE COMPACTION).
  3. CARE SHALL BE TAKEN SO THAT THE FILTER MATERIAL DOES NOT GET CONTAMINATED. ANY CONTAMINATED FILTER MATERIAL SHALL BE REMOVED AND REPLACED WITH APPROVED MATERIAL. PROTECTIVE COVERING OVER THE FILTER MAY BE NECESSARY BETWEEN LIFTS.
  4. NO COMPACTION OF THE DRAIN FILTER MATERIAL IS REQUIRED BEYOND THAT RESULTING FROM PLACING AND SPREADING OPERATIONS. EACH LIFT SHALL BE SATURATED UNIFORMLY WITH APPROXIMATELY 1.2 GALLONS OF POTABLE WATER PER CUBIC FOOT OF LOOSE DRAIN MATERIAL.
  5. THE 6" DIA. PIPE SHALL BE AASHTO M 304-03 PVC.



**3 FILTER DIAPHRAGM DETAIL**

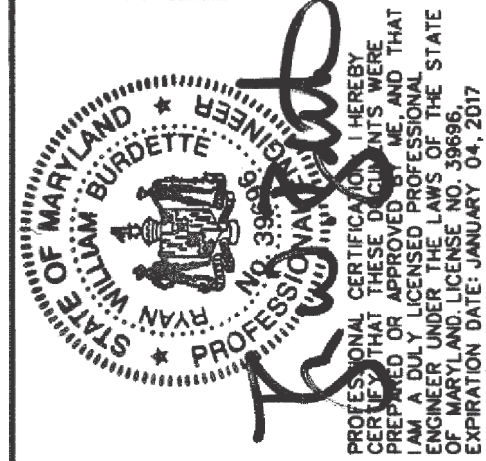
DEPARTMENT OF PUBLIC WORKS,

7/29/15 DATE  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

Maryland Dept. of the Environment  
Dam Safety Division  
Permit No. 15-MR-0059  
Plans Approved By  
Bruce W. Harrington, P.E.  
Date: 8/6/15

NO.	REVISIONS DESCRIPTION	DATE
5	AS-BUILT	FEB 2016
4		
3		
2		
1		

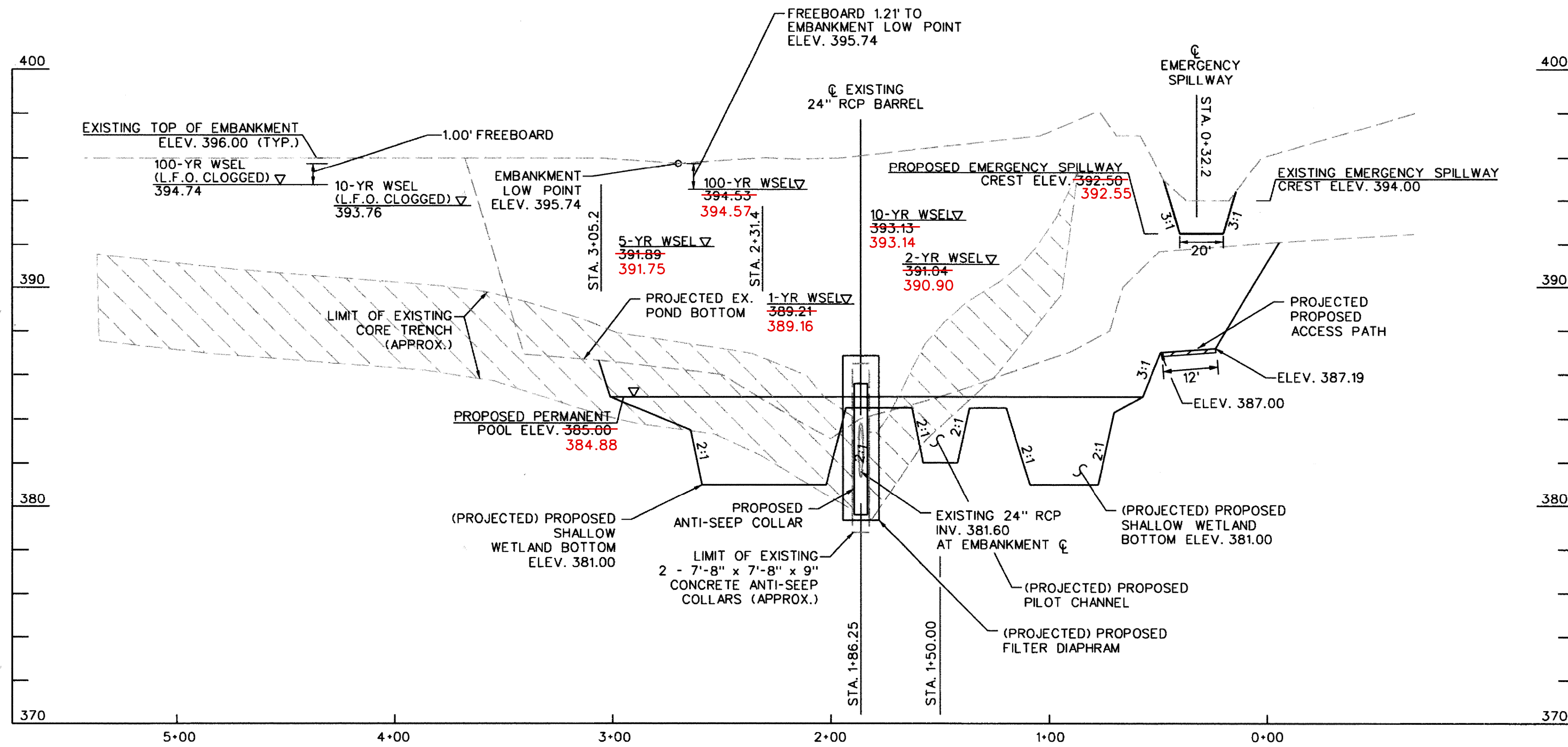
936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
www.kci.com



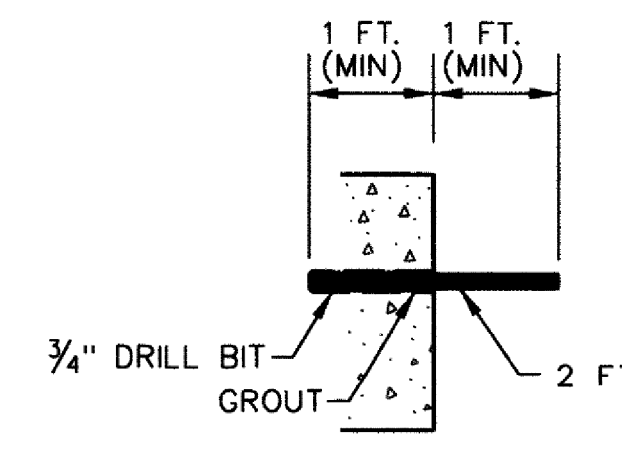
STORMWATER AND WATERSHED MANAGEMENT  
EVALUATION / DESIGN-BUILD SERVICES  
WHITWORTH WAY  
POND ENHANCEMENTS  
HOWARD COUNTY CONTRACT # CA 23-2013  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046

STORMWATER MANAGEMENT PROFILES & SECTIONS	
SCALE:	AS SHOWN
DATE:	JULY 2015
KCI JOB NO.:	17-133314.45
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	
SHEET NO.: 4 OF 16	

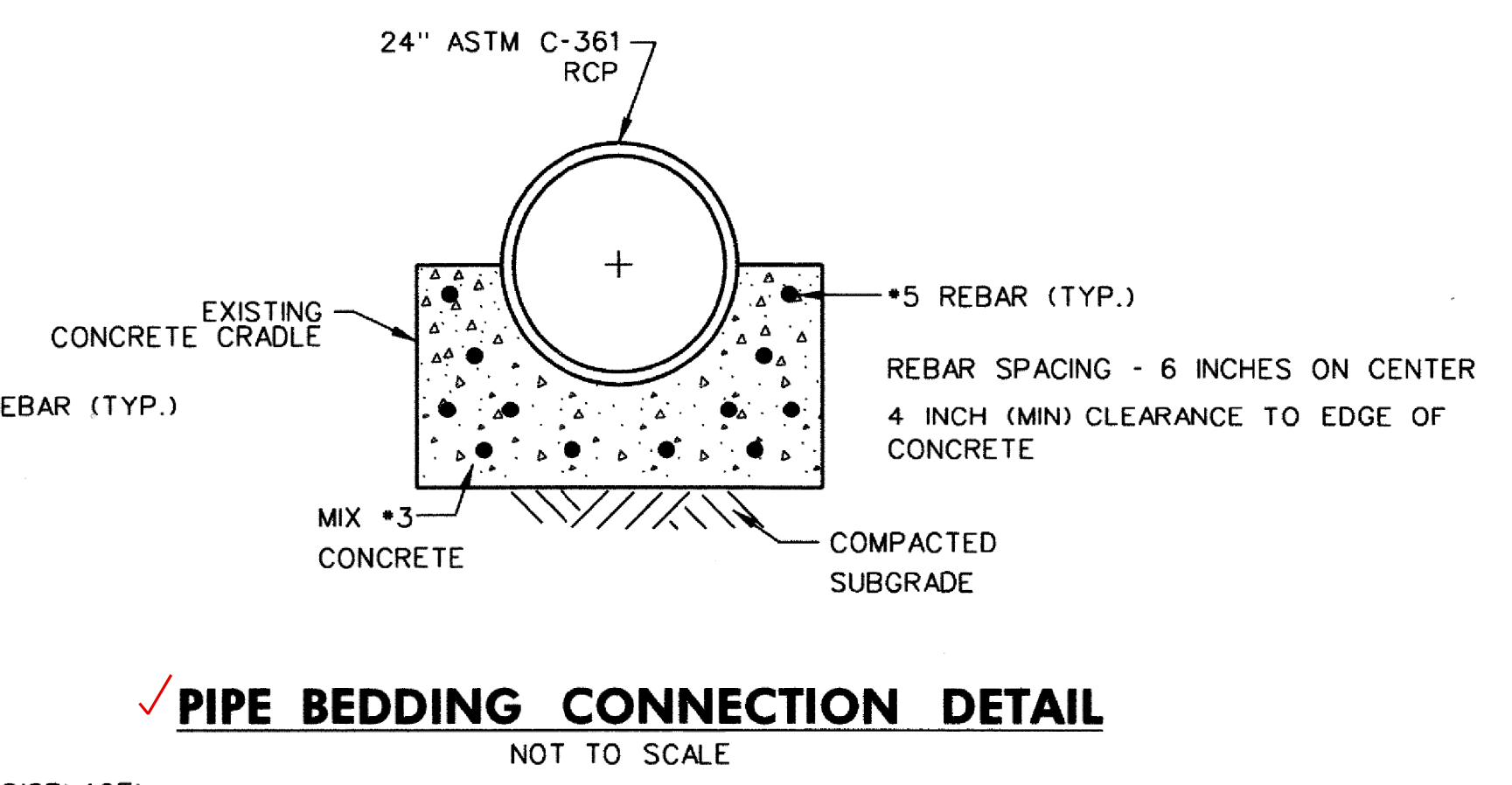
WMA Permit No. 15-MR-0059  
EP-15-027



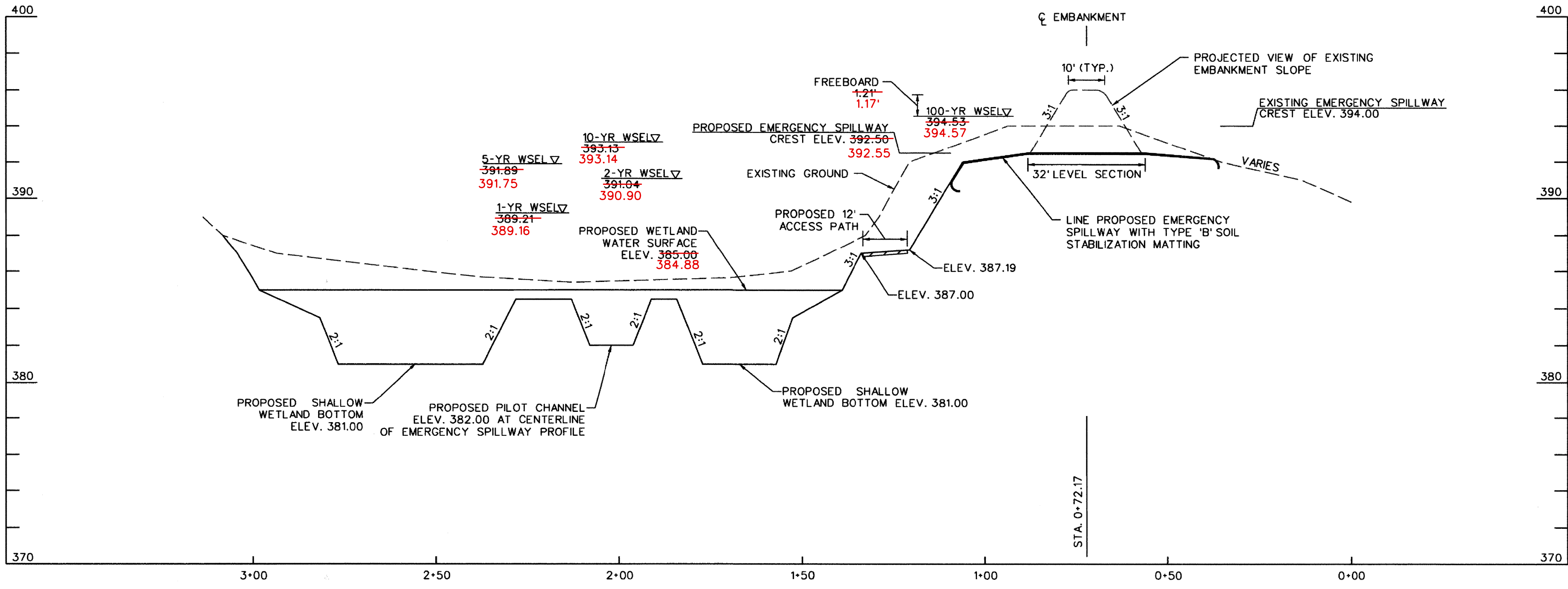
**EMBankment Centerline Cross Section**  
 SCALE: HOR. 1" = 40'  
 VERT. 1" = 4'



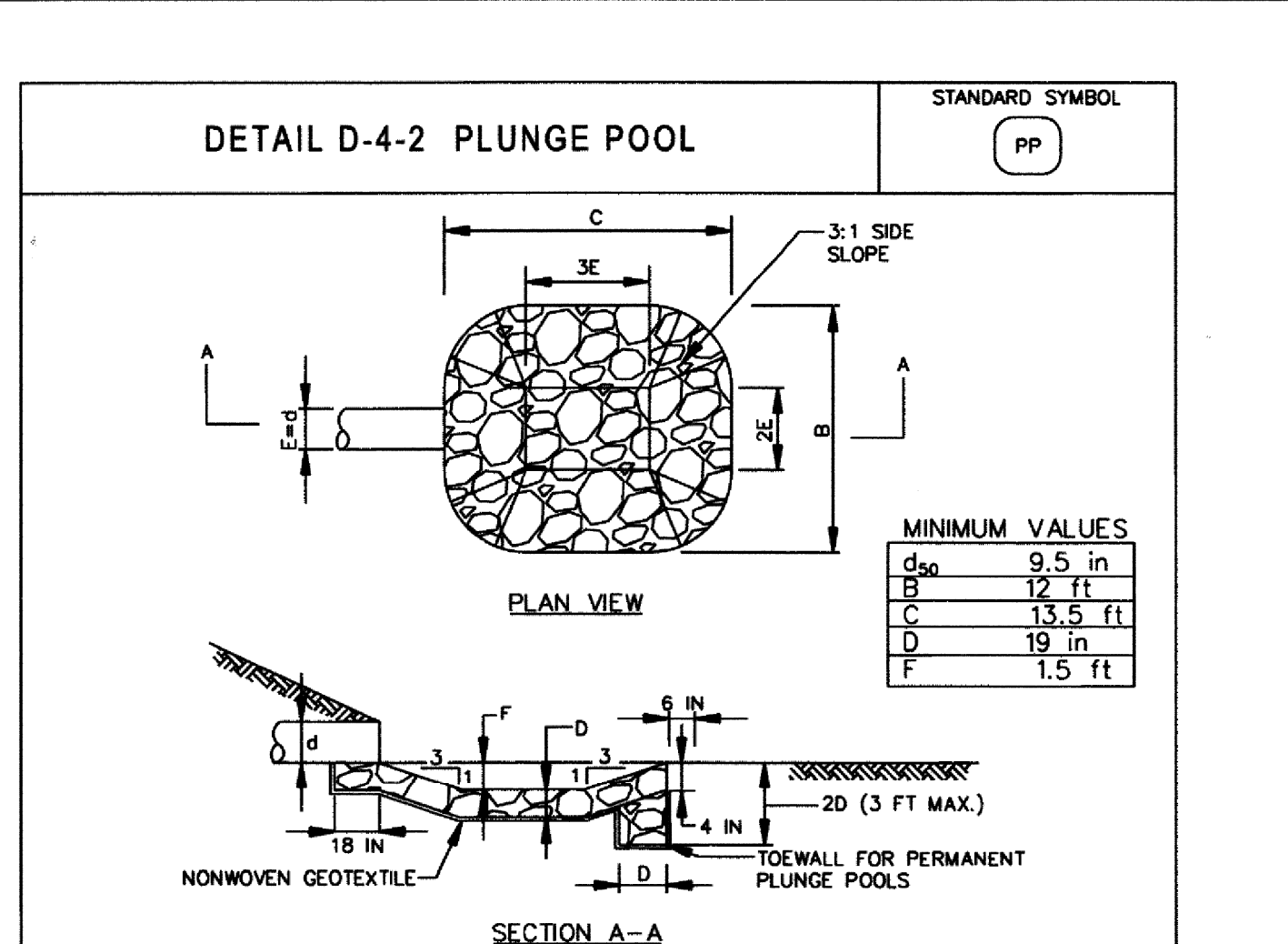
- REBAR INSTALLATION DETAIL**
- 1.) DRILL 3/4" HOLE 1 FT. INTO CONCRETE
  - 2.) FILL HOLE WITH GROUT
  - 3.) INSERT 2 FT SEGMENT OF #5 REBAR INTO 1 FT. HOLE IN CONCRETE (ALLOW GROUT TO DISPLACE)



**PIPE BEDDING CONNECTION DETAIL**  
 NOT TO SCALE

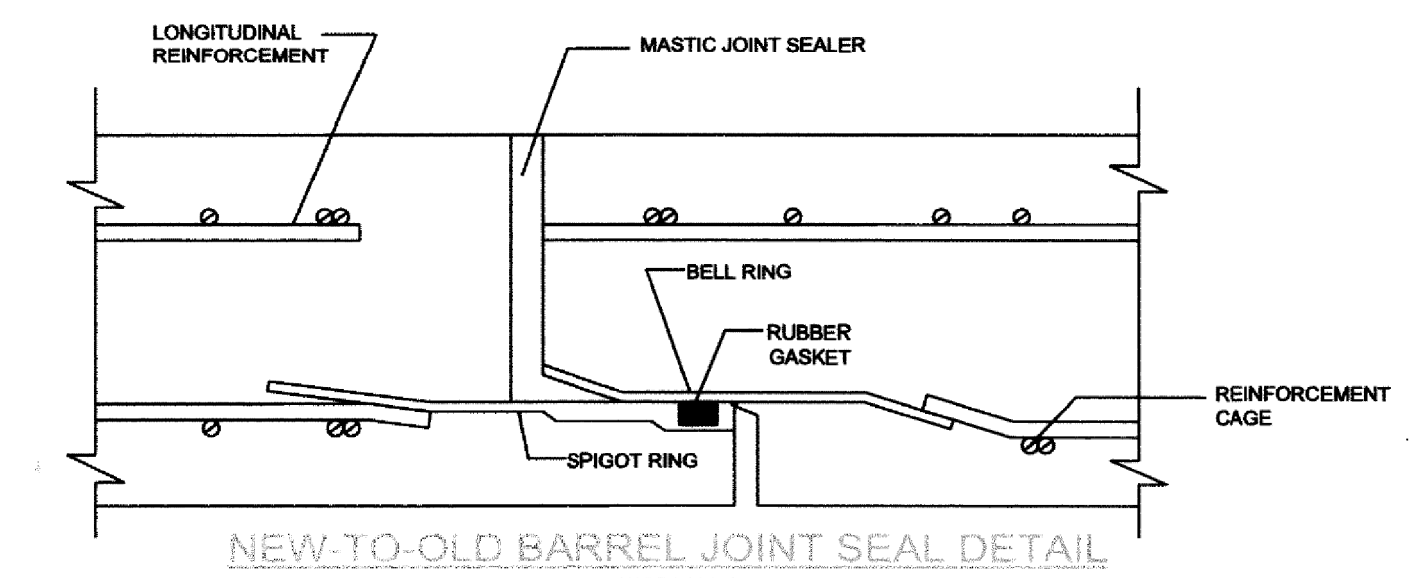


**EMERGENCY SPILLWAY PROFILE**  
 SCALE: HOR. 1" = 20'  
 VERT. 1" = 4'



- CONSTRUCTION SPECIFICATIONS**
1. USE SPECIFIED CLASS OF RIPRAP.
  2. 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.
  3. 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.
  4. EMBED THE GEOTEXTILE A MINIMUM OF 4 INCHES AND EXTEND THE GEOTEXTILE A MINIMUM OF 6 INCHES BEYOND THE EDGE OF THE SCOUR HOLE.
  5. 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.
  6. AT THE PLUNGE POOL OUTLET, PLACE THE STONE SO THAT IT MEETS THE EXISTING GRADE.
  7. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLOGGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

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



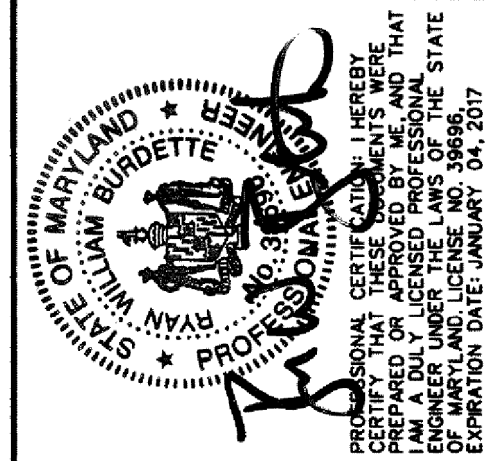
- NOTES:**
1. CONTRACTOR MUST ENSURE THAT THE EXISTING BARREL IS IN GOOD CONDITION TO PROVIDE A WATERTIGHT CONNECTION TO THE NEW PIPE. IF EXISTING BARREL IS FOUND TO BE DAMAGED, CONTRACTOR MUST CUT THE END OF THE BARREL TO PROVIDE A CLEAN EDGE FOR THE SEAL.
  2. IT IS UP TO THE CONTRACTOR TO ENSURE A WATERTIGHT SEAL AT THE JOINT OF THE EXISTING PIPE AND THE NEW.

DEPARTMENT OF PUBLIC WORKS,

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
 DATE: 7/29/15

NO.	REVISIONS DESCRIPTION	DATE
AS-BUILT		FEB 2016

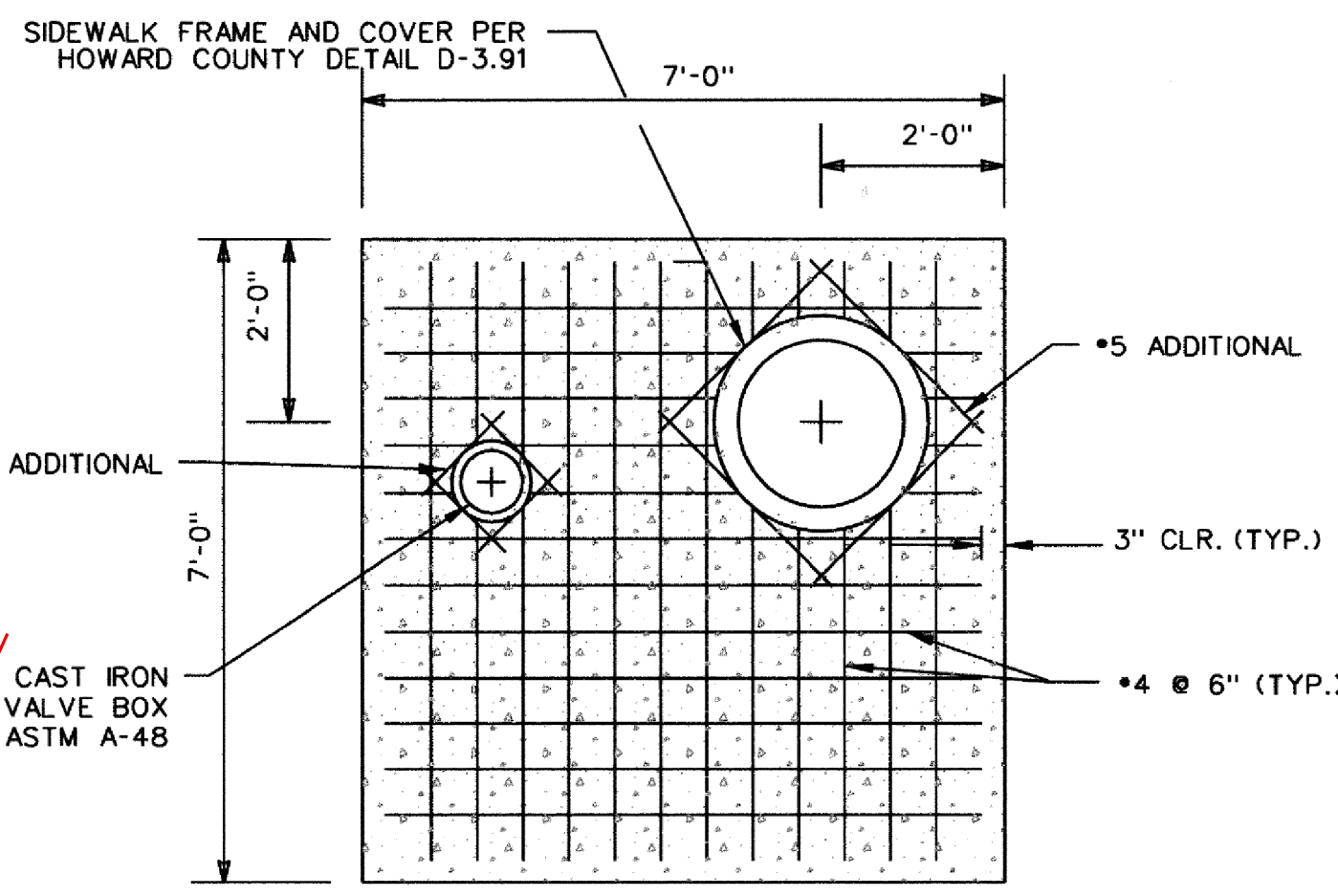
936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
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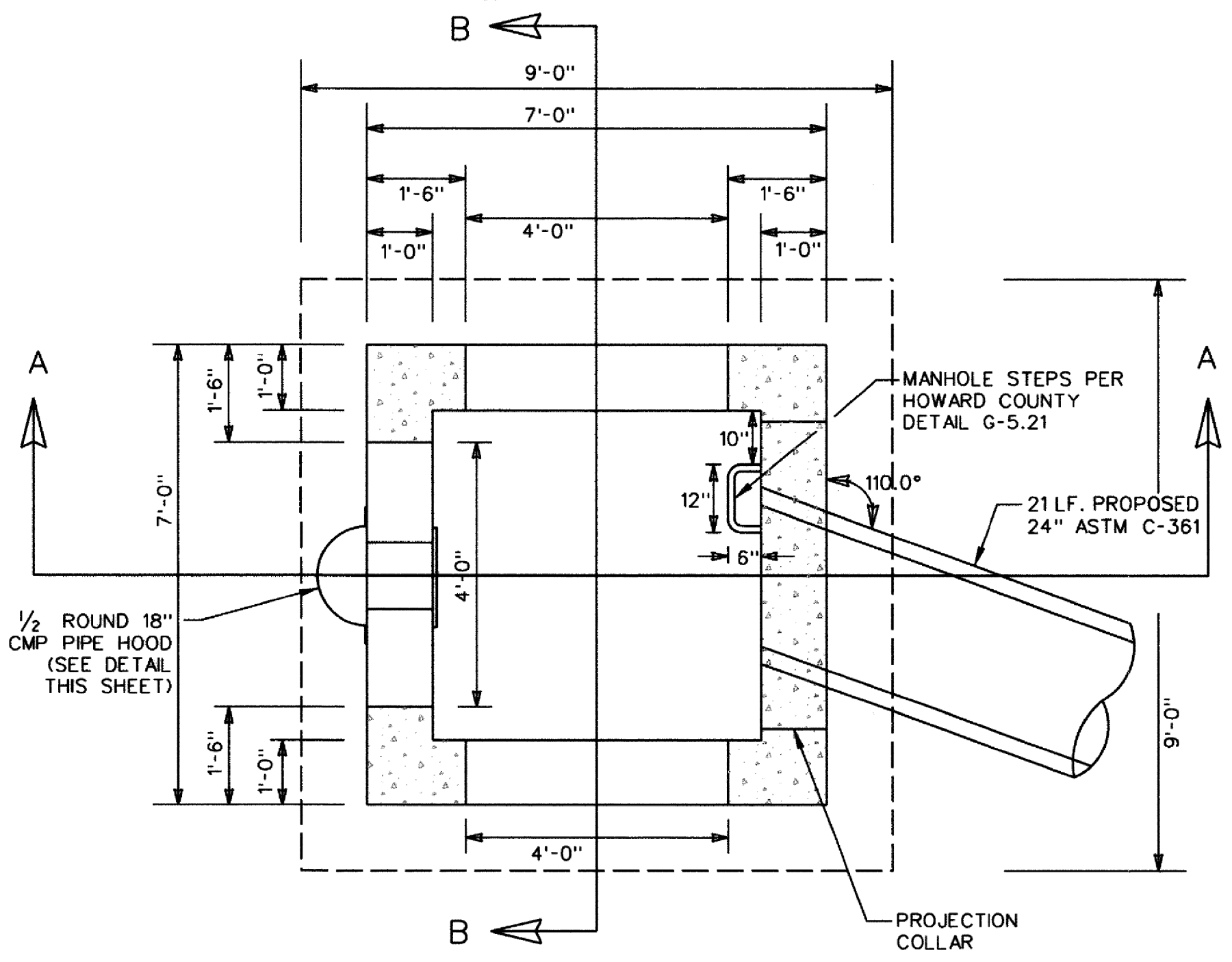
STORMWATER AND WATERSHED MANAGEMENT EVALUATION / DESIGN-BUILD SERVICES  
**WHITWORTH WAY POND ENHANCEMENTS**  
 HOWARD COUNTY CONTRACT # CA 24-2013  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046

**STORMWATER MANAGEMENT PROFILES, SECTIONS & DETAILS**

SCALE:	AS SHOWN
DATE:	JULY 2015
JOB NO.:	17-133314.45
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	



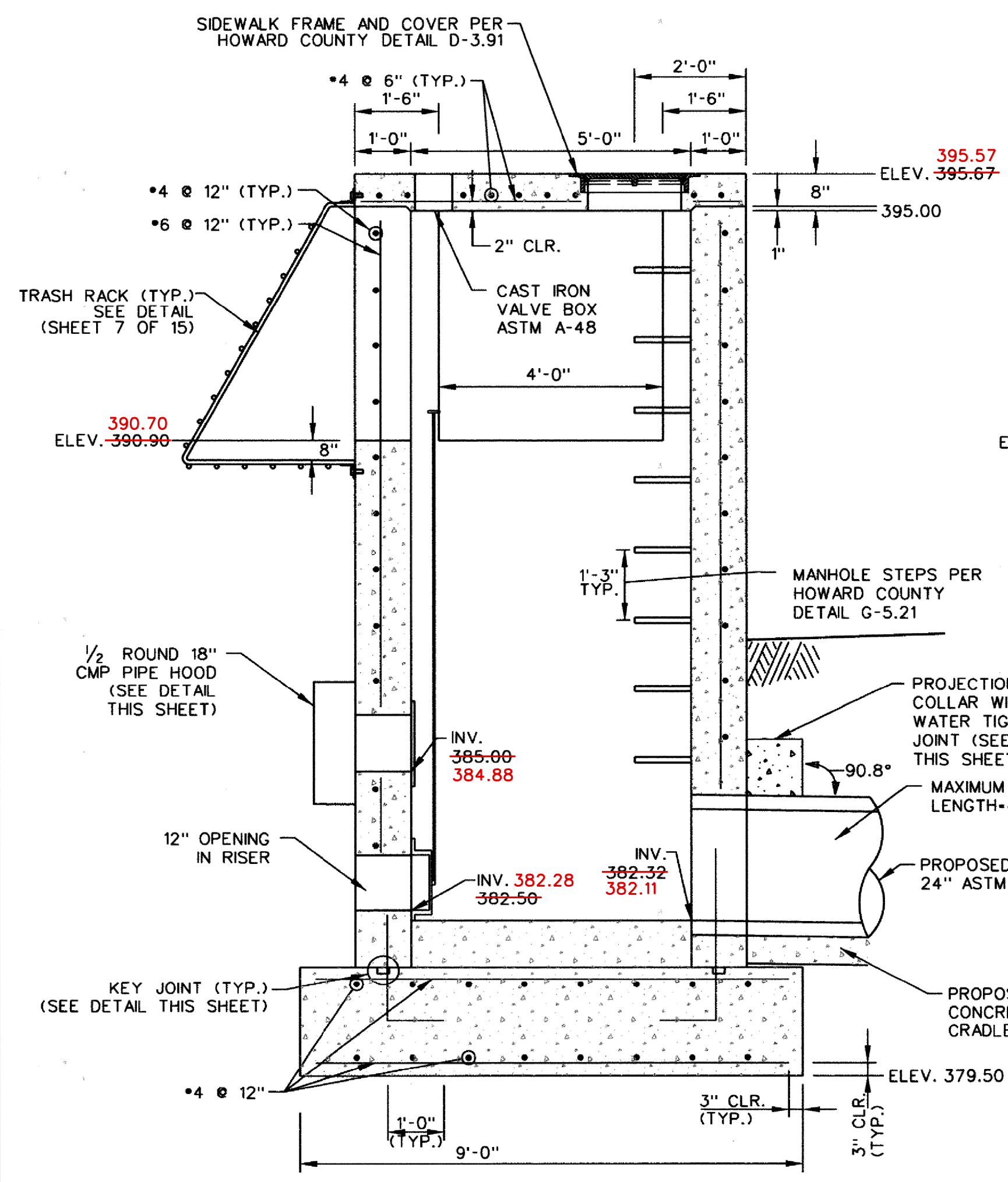
**TOP SLAB DETAIL**  
SCALE: 1/2" = 1'-0"



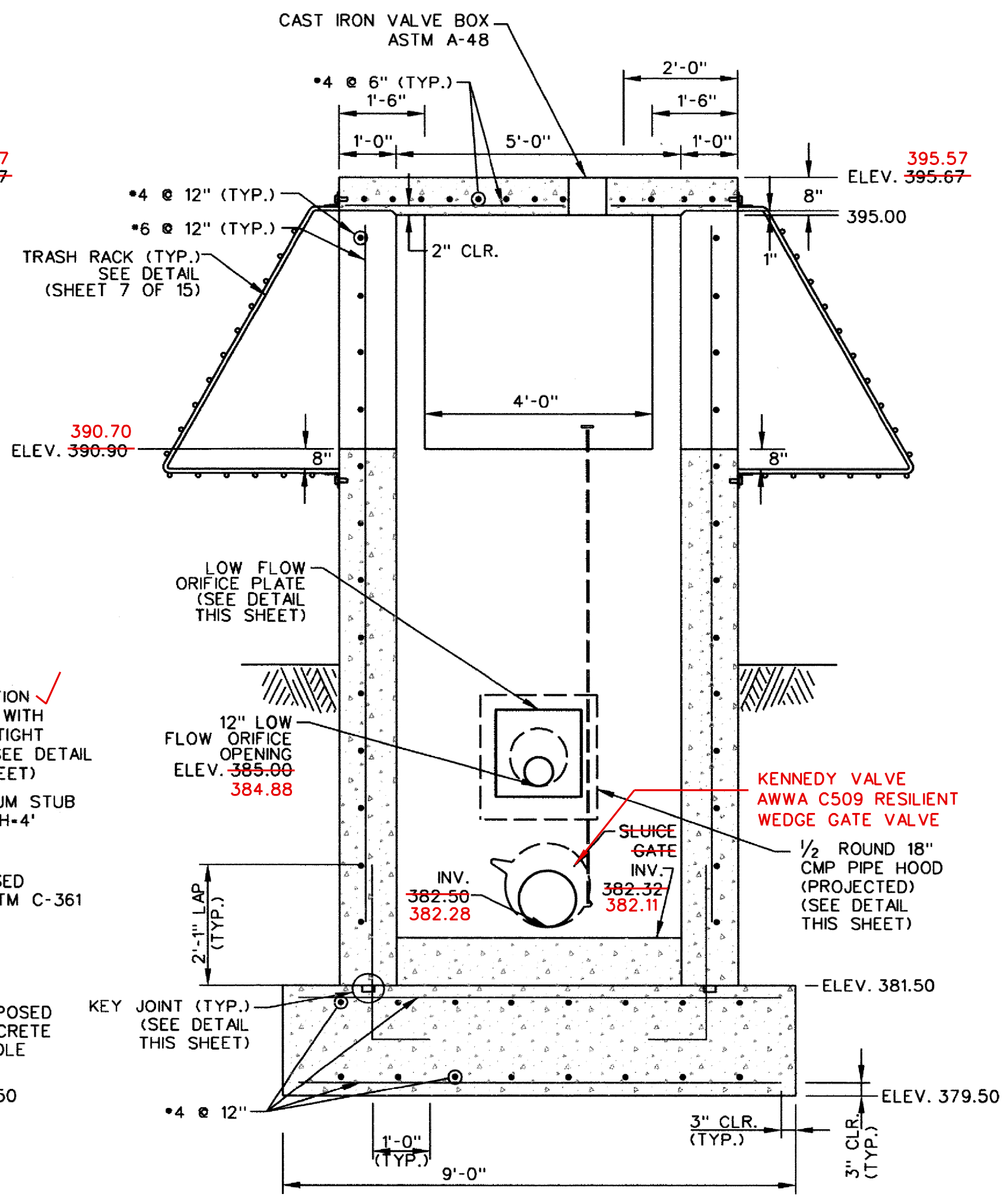
**RISER S-1 PLAN**  
SCALE: 1/2" = 1'-0"

- RISER STRUCTURAL NOTES**
1. CONCRETE UNLESS OTHERWISE NOTED SHALL BE MIX. NO. 6 (4500 PSI).
  2. REINFORCING STEEL SHALL CONFORM TO A 615, GRADE 60.
  3. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

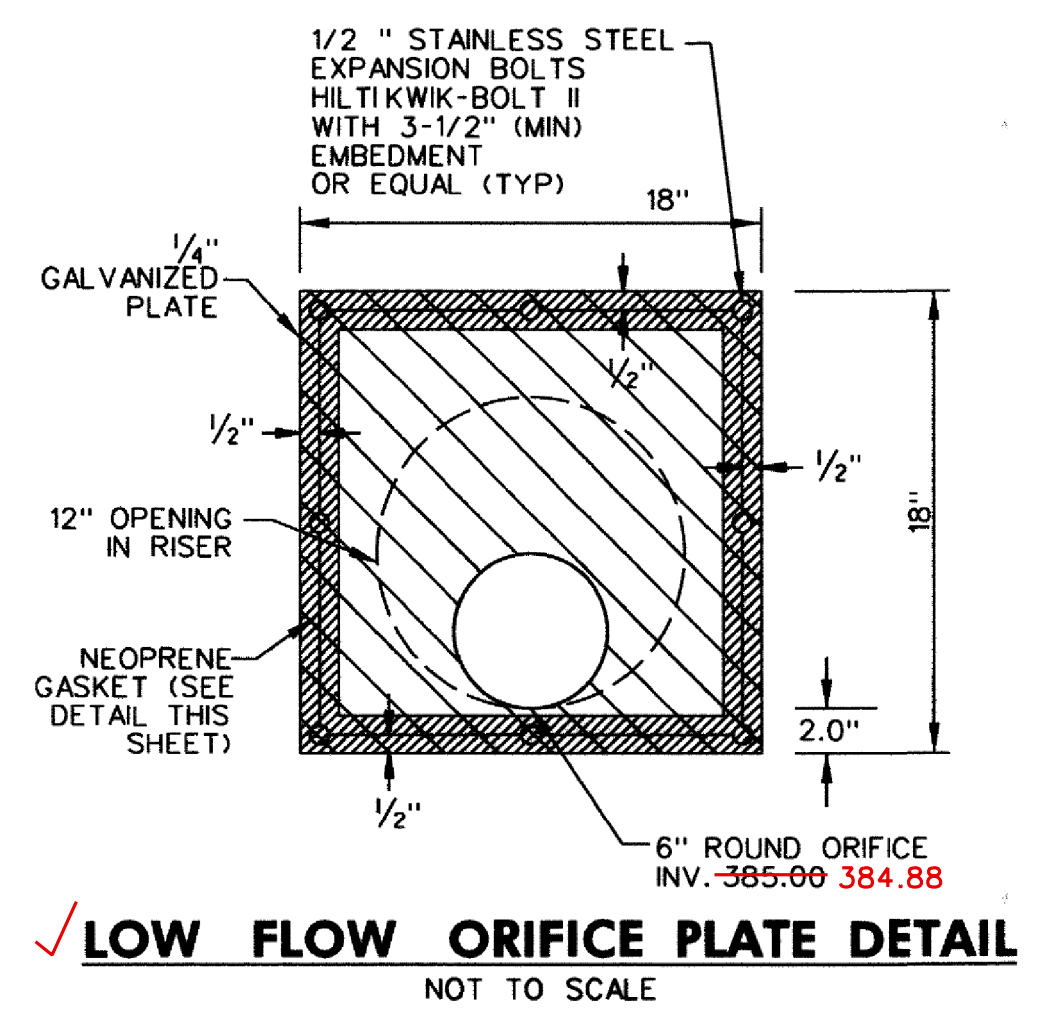
**RISER STRUCTURAL NOTES**



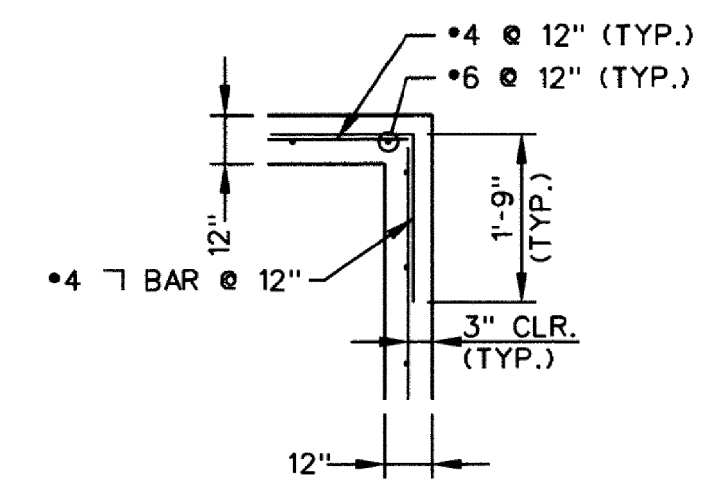
**RISER S-1 CROSS SECTION A-A**  
SCALE: 1/2" = 1'-0"



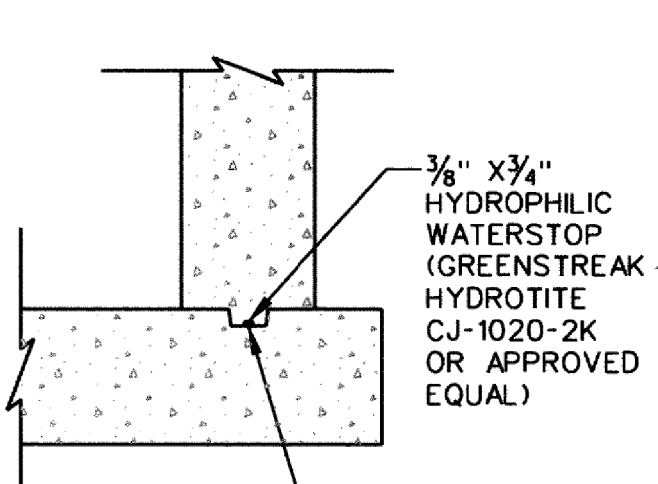
**RISER S-1 CROSS SECTION B-B**  
SCALE: 1/2" = 1'-0"



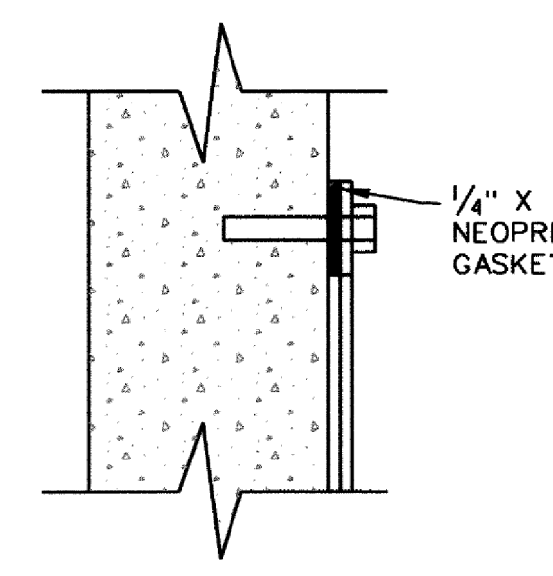
**LOW FLOW ORIFICE PLATE DETAIL**  
NOT TO SCALE



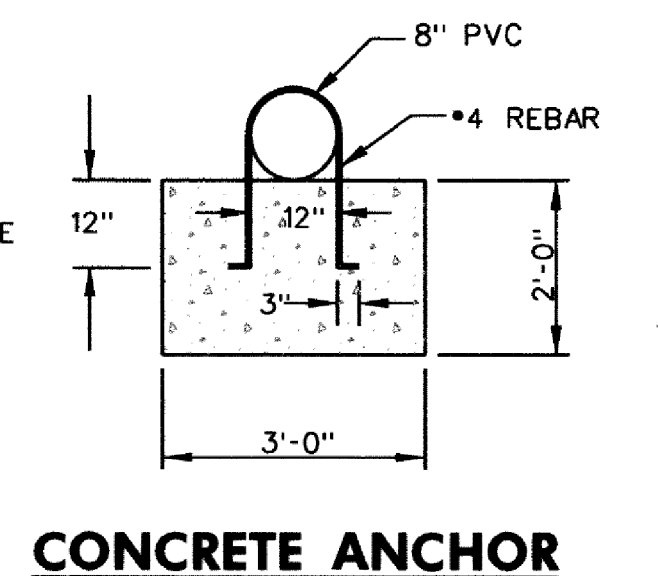
**TYPICAL CORNER DETAIL**  
NOT TO SCALE



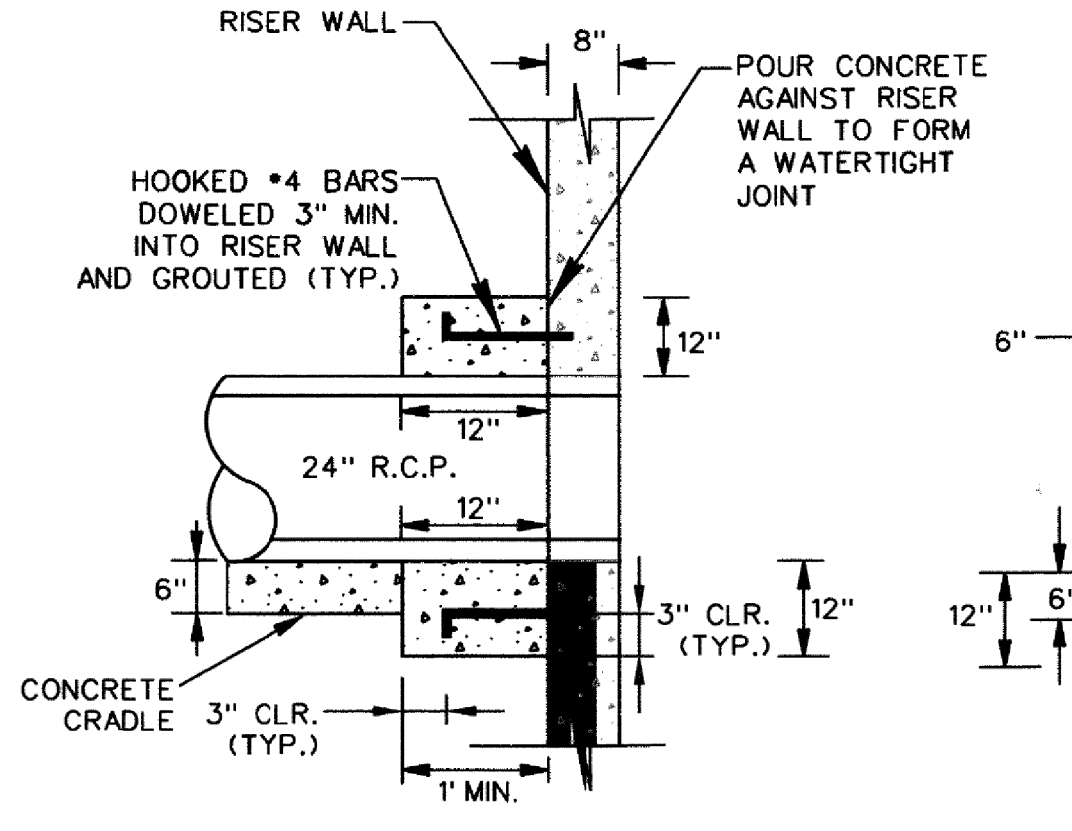
**KEY JOINT DETAIL**  
NOT TO SCALE



**NEOPRENE GASKET DETAIL**  
NOT TO SCALE

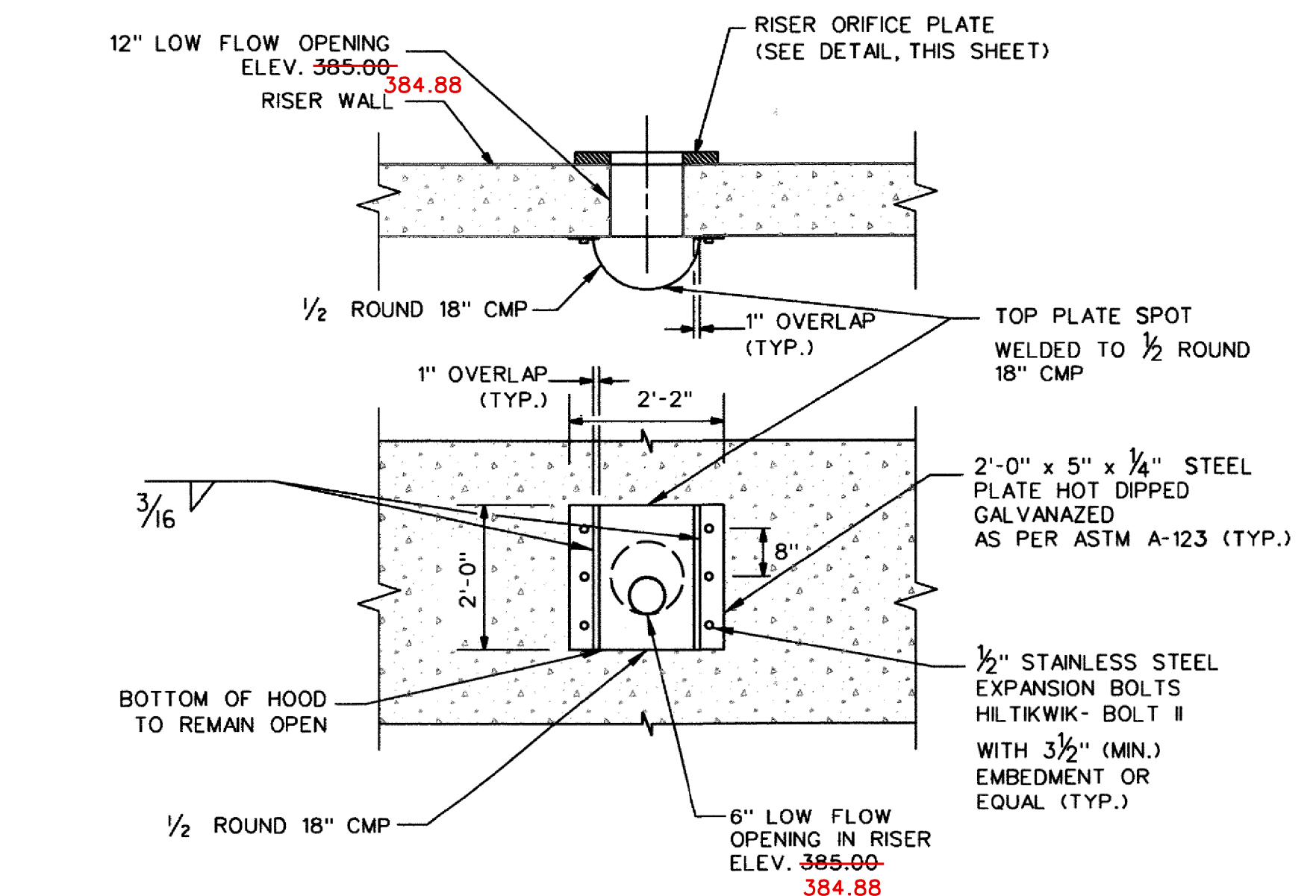


**CONCRETE ANCHOR**  
NOT TO SCALE

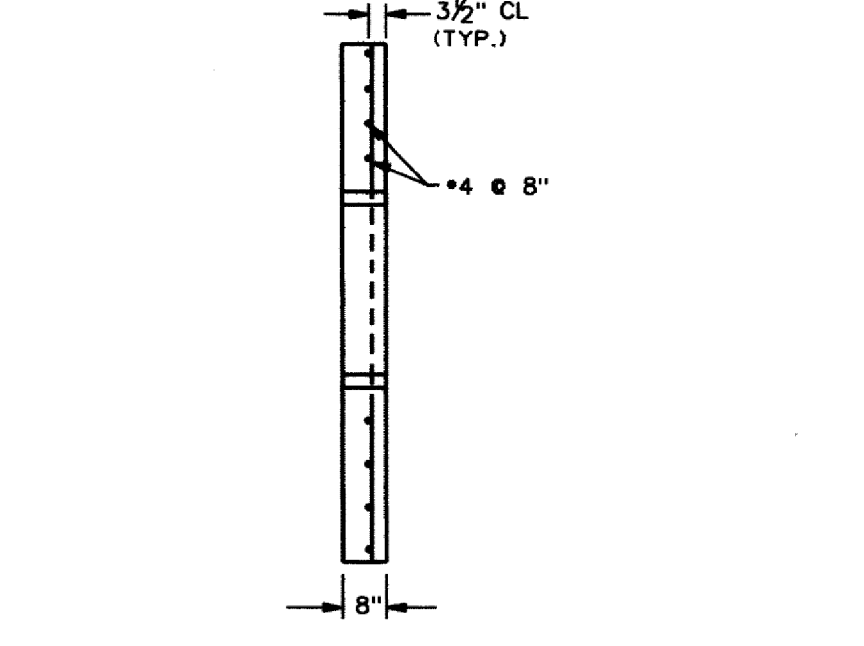


**PROJECTION COLLAR DETAIL**  
NOT TO SCALE

**PIPE BEDDING CONCRETE CRADLE**  
NOT TO SCALE



**1/2 ROUND CMP PIPE HOOD**  
SCALE: 1/2" = 1'-0"



**CONCRETE ANTI-SEEP COLLAR DETAIL**  
NOT TO SCALE

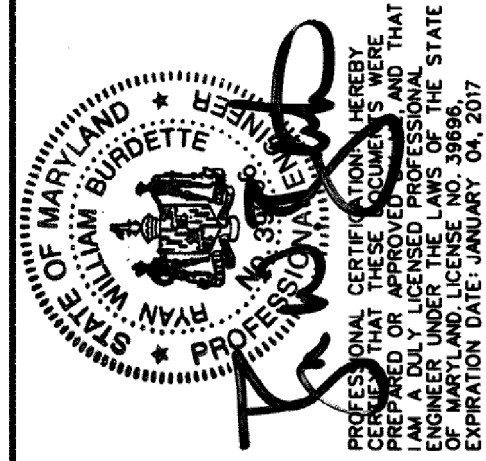
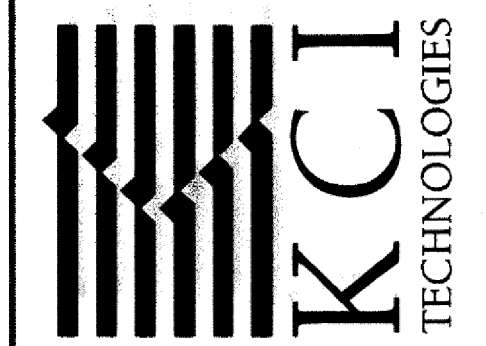
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

WMA Permit No. 15-MR-0059  
EP-15-027  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

7/29/15  
DATE

NO.	REVISIONS DESCRIPTION	DATE
1	AS-BUILT	FEB 2016

936 RIDGEBROOK ROAD  
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STORMWATER AND WATERSHED MANAGEMENT  
EVALUATION / DESIGN-BUILD SERVICES  
**WHITWORTH WAY  
POND ENHANCEMENTS**  
HOWARD COUNTY CONTRACT # CA 23-2013  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046

**STORMWATER  
MANAGEMENT  
DETAILS**

SCALE:	AS SHOWN
DATE:	JULY 2015
KCI JOB NO.:	17-133314.45
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	
SHEET NO.: 6 OF 16	

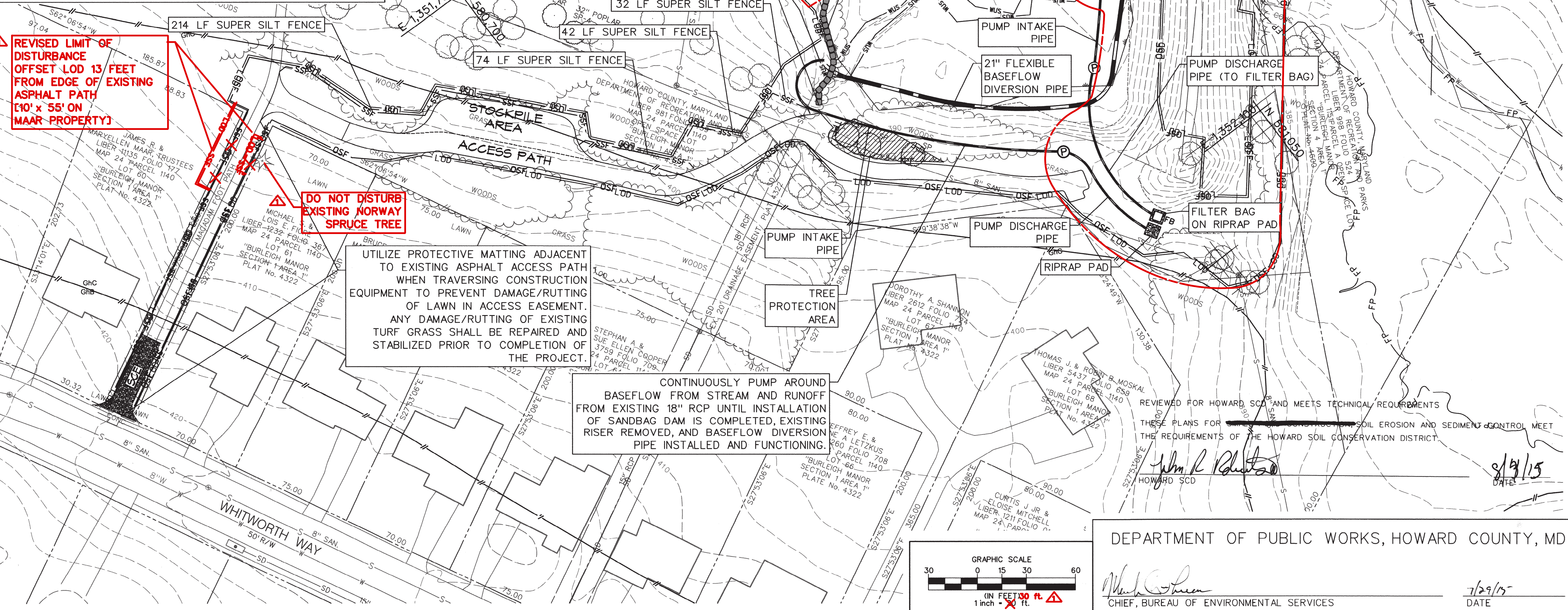


**LEGEND**

LIMIT OF DISTURBANCE/ORANGE SAFETY FENCE	LOD
EXISTING MAJOR CONTOURS	387
EXISTING MINOR CONTOURS	
PROPOSED CONTOURS	387
EXISTING TREES	
EXISTING TREE TO BE REMOVED	
EXISTING WOODLINE	
PROPERTY LINE	---
EXISTING EASEMENT LINE	---
EXISTING STORM DRAIN	SD
EXISTING SEWER MANHOLE	
EXISTING STORM DRAIN MANHOLE	
EXISTING SEWER LINE	S
EXISTING EDGE OF PAVEMENT	---
EXISTING BUILDING	
WATERS OF THE U.S.	WUS
NON-TIDAL WETLAND BOUNDARY	MaD
100 YEAR FLOODPLAIN BOUNDARY	FP
SOIL TYPE BOUNDARY AND MAP UNIT SYMBOLS	GhB
RIPRAP PAD	
SANDBAG DAM	
PUMP AND HOSES	
REMOVABLE PUMPING STATION	RPS
FILTER BAG	FB
SUPER SILT FENCE	SSF
ORANGE SAFETY FENCE	OSF
STABILIZED CONSTRUCTION ENTRANCE	
100-YEAR FLOODPLAIN	FP
TREE PROTECTION FENCE	TPF

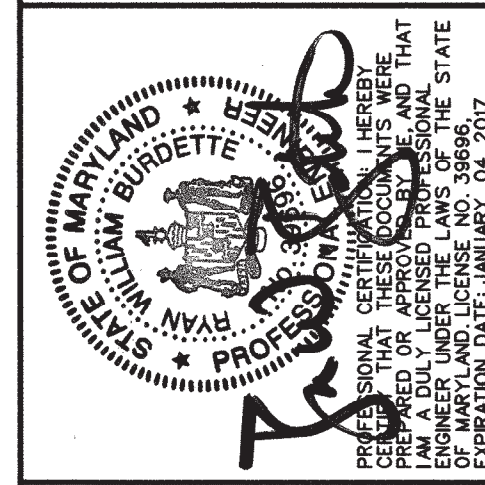
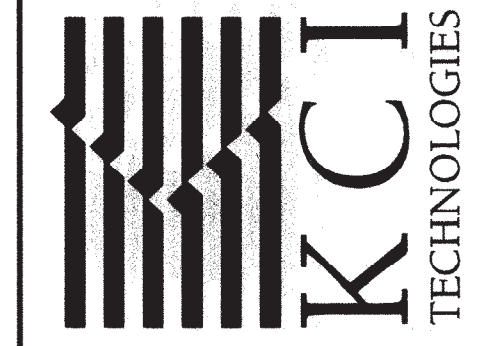
**NOTES:**

1. ALL CONSTRUCTION AREAS SHALL BE DEMARCATED BY PLACING ORANGE CONSTRUCTION FENCING AT THE LOD BOUNDARY LINE AND/OR EDGE OF PAVEMENT.
2. FLEXIBLE INTAKE AND DISCHARGE PIPES MAY BE SHIFTED WITHIN THE LOD AS NEEDED TO ALLOW ACCESS TO WORK AREAS.
3. 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 SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.



NO.	REVISIONS DESCRIPTION	DATE
1	09/24/2015	09/08/2015

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
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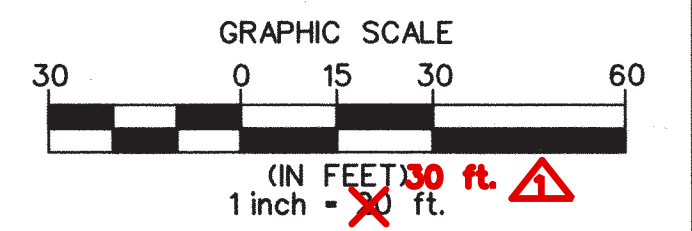
STORMWATER AND WATERSHED MANAGEMENT  
 EVALUATION / DESIGN-BUILD SERVICES  
**WHITWORTH WAY  
 POND ENHANCEMENTS**  
 HOWARD COUNTY CONTRACT # CA 22-2013  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 675 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046

**EROSION AND  
 SEDIMENT  
 CONTROL PLAN  
 PHASE 1**

SCALE:	1" = 30'
DATE:	JULY 2015
KCI JOB NO.:	17-133314.45
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

REVIEWED FOR HOWARD COUNTY AND MEETS TECHNICAL REQUIREMENTS  
 THESE PLANS FOR CONSTRUCTION SOIL EROSION AND SEDIMENT CONTROL MEET  
 THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
 J. R. [Signature]  
 HOWARD SCD  
 DATE: 8/19/15

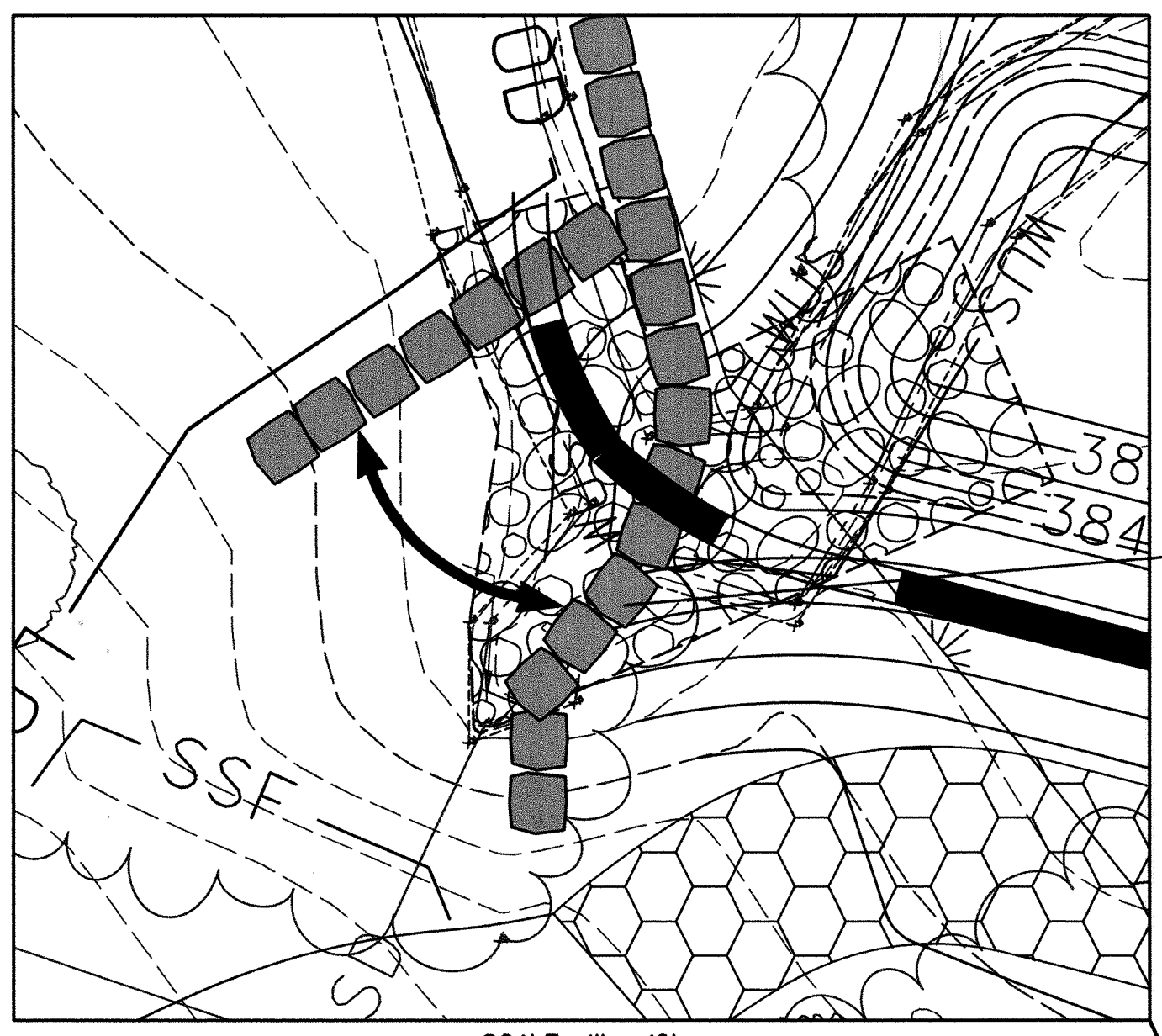
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD



[Signature]  
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

DATE: 7/29/15





SCALE: 1" = 10'

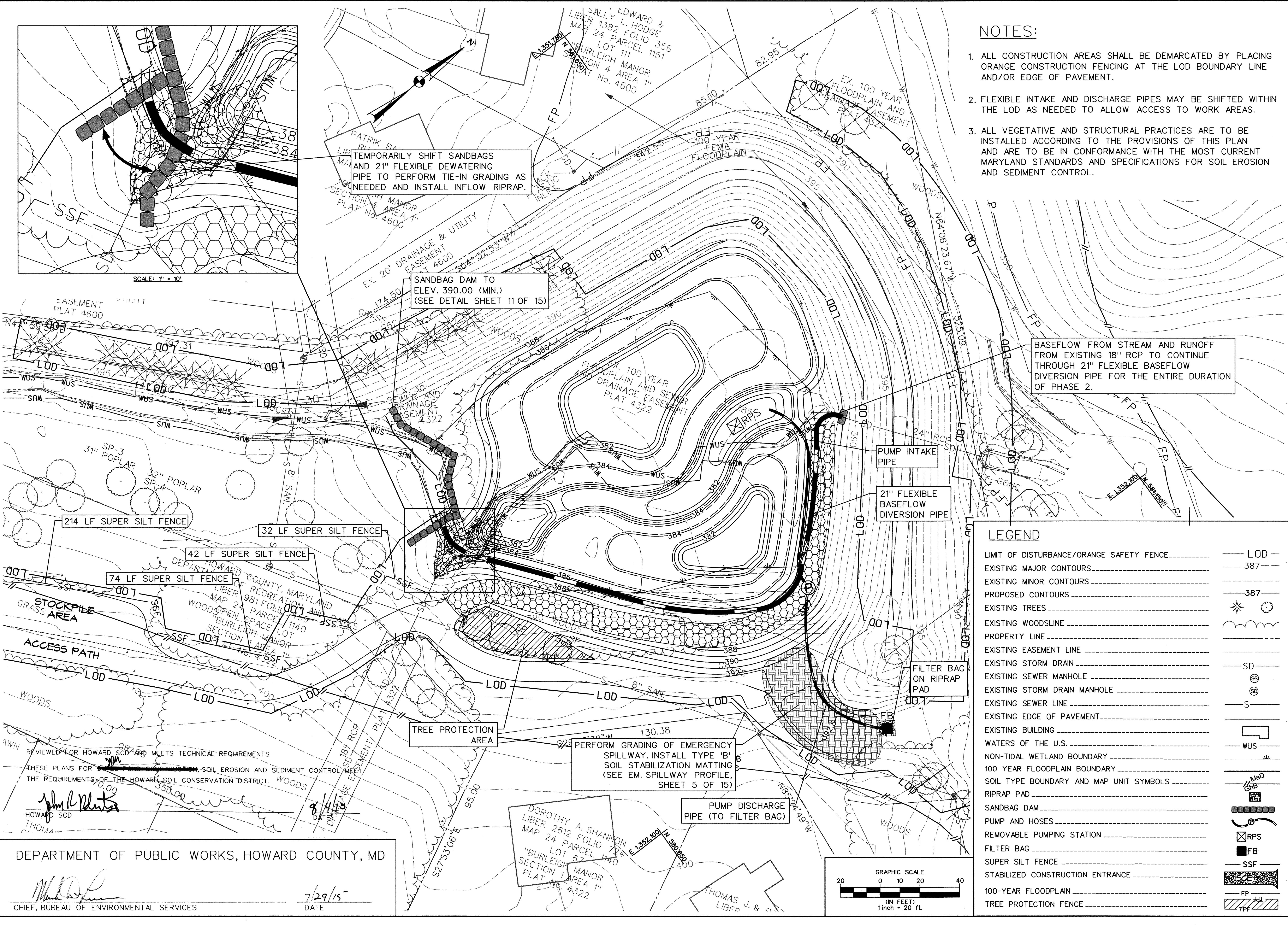
TEMPORARILY SHIFT SANDBAGS AND 21" FLEXIBLE DEWATERING PIPE TO PERFORM TIE-IN GRADING AS NEEDED AND INSTALL INFLOW RIPRAP.

SANDBAG DAM TO ELEV. 390.00 (MIN.) (SEE DETAIL SHEET 11 OF 15)

BASEFLOW FROM STREAM AND RUNOFF FROM EXISTING 18" RCP TO CONTINUE THROUGH 21" FLEXIBLE BASEFLOW DIVERSION PIPE FOR THE ENTIRE DURATION OF PHASE 2.

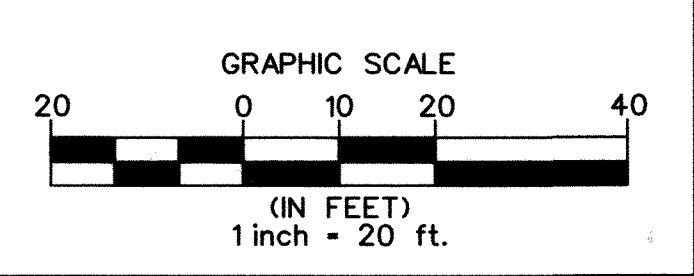
**NOTES:**

1. ALL CONSTRUCTION AREAS SHALL BE DEMARCATED BY PLACING ORANGE CONSTRUCTION FENCING AT THE LOD BOUNDARY LINE AND/OR EDGE OF PAVEMENT.
2. FLEXIBLE INTAKE AND DISCHARGE PIPES MAY BE SHIFTED WITHIN THE LOD AS NEEDED TO ALLOW ACCESS TO WORK AREAS.
3. 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 SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.



**LEGEND**

LIMIT OF DISTURBANCE/ORANGE SAFETY FENCE	LOD
EXISTING MAJOR CONTOURS	387
EXISTING MINOR CONTOURS	387
PROPOSED CONTOURS	387
EXISTING TREES	Tree Symbol
EXISTING WOODSLINE	Woodsline Symbol
PROPERTY LINE	Property Line Symbol
EXISTING EASEMENT LINE	Easement Line Symbol
EXISTING STORM DRAIN	SD
EXISTING SEWER MANHOLE	Manhole Symbol
EXISTING STORM DRAIN MANHOLE	Manhole Symbol
EXISTING SEWER LINE	S
EXISTING EDGE OF PAVEMENT	Edge of Pavement Symbol
EXISTING BUILDING	Building Symbol
WATERS OF THE U.S.	WUS
NON-TIDAL WETLAND BOUNDARY	Wetland Boundary Symbol
100 YEAR FLOODPLAIN BOUNDARY	Floodplain Boundary Symbol
SOIL TYPE BOUNDARY AND MAP UNIT SYMBOLS	Soil Type Symbol
RIPRAP PAD	Riprap Pad Symbol
SANDBAG DAM	Sandbag Dam Symbol
PUMP AND HOSES	Pump and Hoses Symbol
REMOVABLE PUMPING STATION	Pumping Station Symbol
FILTER BAG	FB
SUPER SILT FENCE	SSF
STABILIZED CONSTRUCTION ENTRANCE	Stabilized Entrance Symbol
100-YEAR FLOODPLAIN	FP
TREE PROTECTION FENCE	TPF



REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS  
 THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*John L. Thomas*  
 HOWARD SCD  
 THOMAS

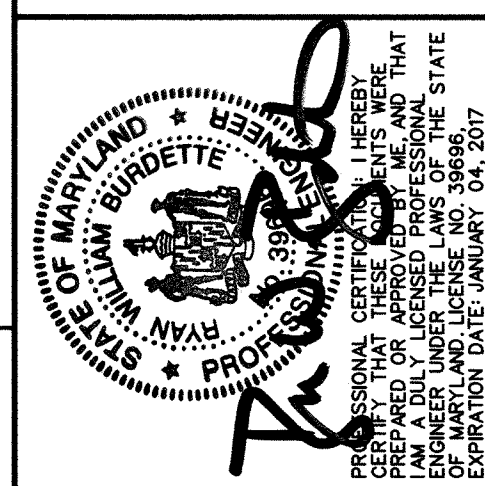
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

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

7/29/15  
 DATE

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
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STORMWATER AND WATERSHED MANAGEMENT EVALUATION / DESIGN-BUILD SERVICES

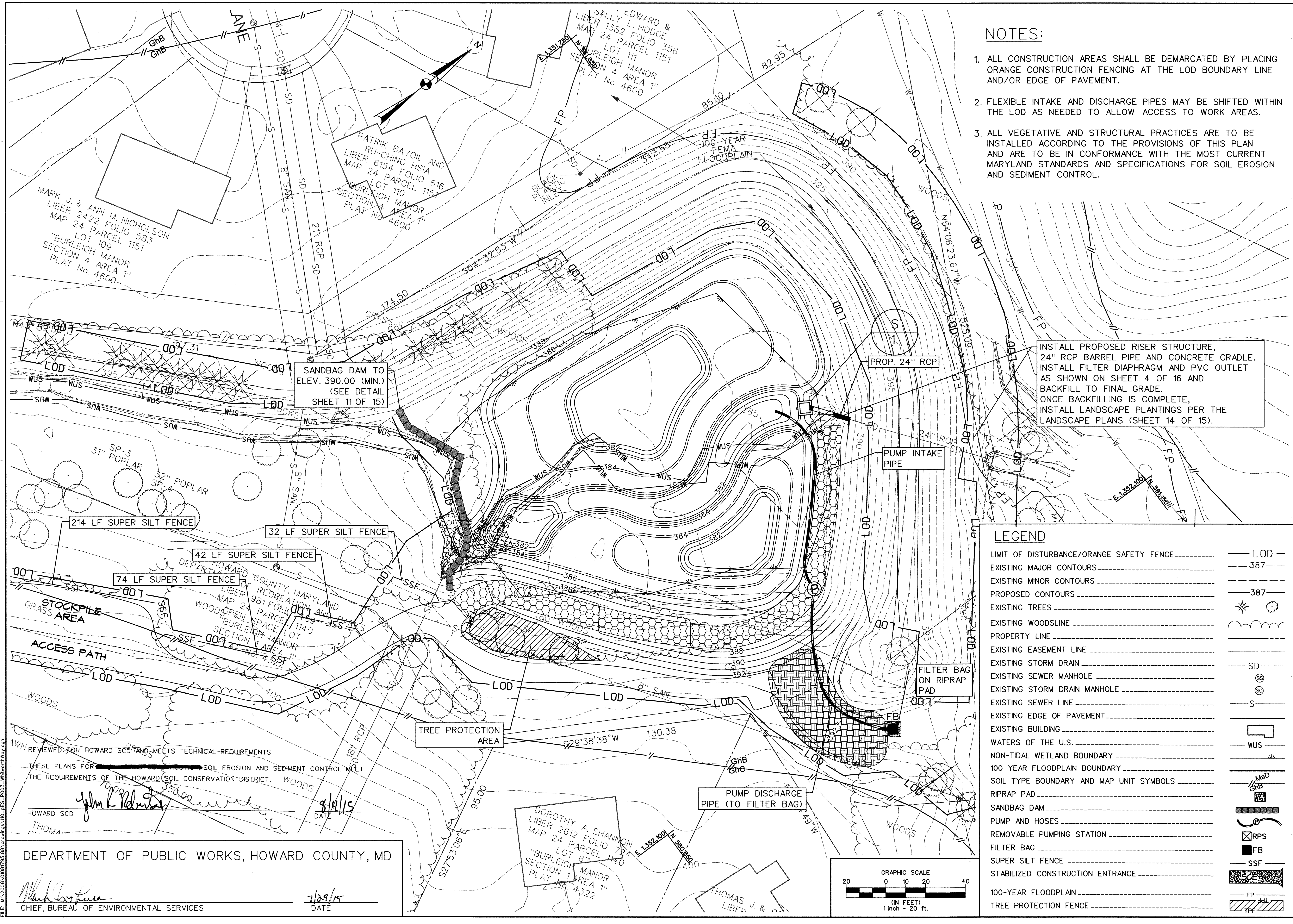
**WHITWORTH WAY POND ENHANCEMENTS**

HOWARD COUNTY CONTRACT # CA 28-2013  
 HOWARD COUNTY WATER MANAGEMENT DISTRICT  
 6761 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046

**EROSION AND SEDIMENT CONTROL PLAN PHASE 2**

SCALE: 1" = 20'  
 DATE: JULY 2015  
 KCI JOB NO.: 17-133314.45  
 CAPITAL PROJECT NO.: D-1160  
 PERMIT ISSUE:  
 CONSTRUCTION ISSUE:

SHEET NO.: 9 OF 16



**NOTES:**

1. ALL CONSTRUCTION AREAS SHALL BE DEMARCATED BY PLACING ORANGE CONSTRUCTION FENCING AT THE LOD BOUNDARY LINE AND/OR EDGE OF PAVEMENT.
2. FLEXIBLE INTAKE AND DISCHARGE PIPES MAY BE SHIFTED WITHIN THE LOD AS NEEDED TO ALLOW ACCESS TO WORK AREAS.
3. 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 SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

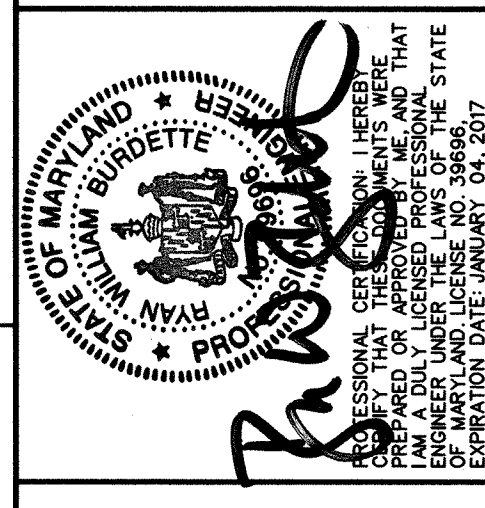
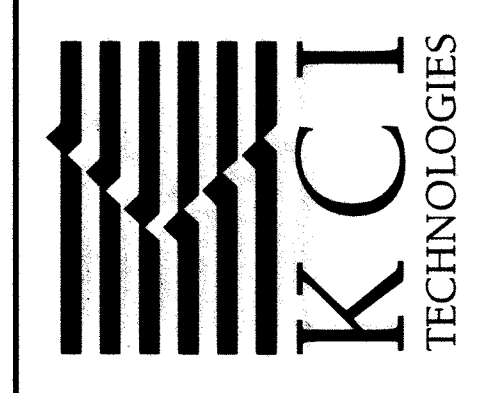
INSTALL PROPOSED RISER STRUCTURE, 24" RCP BARREL PIPE AND CONCRETE CRADLE. INSTALL FILTER DIAPHRAGM AND PVC OUTLET AS SHOWN ON SHEET 4 OF 16 AND BACKFILL TO FINAL GRADE. ONCE BACKFILLING IS COMPLETE, INSTALL LANDSCAPE PLANTINGS PER THE LANDSCAPE PLANS (SHEET 14 OF 15).

**LEGEND**

LIMIT OF DISTURBANCE/ORANGE SAFETY FENCE	LOD
EXISTING MAJOR CONTOURS	387
EXISTING MINOR CONTOURS	387
PROPOSED CONTOURS	387
EXISTING TREES	Tree Symbol
EXISTING WOODSLINE	Woodsline Symbol
PROPERTY LINE	Property Line Symbol
EXISTING EASEMENT LINE	Easement Line Symbol
EXISTING STORM DRAIN	SD
EXISTING SEWER MANHOLE	Manhole Symbol
EXISTING STORM DRAIN MANHOLE	Manhole Symbol
EXISTING SEWER LINE	S
EXISTING EDGE OF PAVEMENT	Edge of Pavement Symbol
EXISTING BUILDING	Building Symbol
WATERS OF THE U.S.	WUS
NON-TIDAL WETLAND BOUNDARY	Wetland Boundary Symbol
100 YEAR FLOODPLAIN BOUNDARY	Floodplain Boundary Symbol
SOIL TYPE BOUNDARY AND MAP UNIT SYMBOLS	Soil Type Symbol
RIPRAP PAD	Riprap Pad Symbol
SANDBAG DAM	Sandbag Dam Symbol
PUMP AND HOSES	Pump and Hoses Symbol
REMOVABLE PUMPING STATION	Pumping Station Symbol
FILTER BAG	Filter Bag Symbol
SUPER SILT FENCE	SSF
STABILIZED CONSTRUCTION ENTRANCE	Stabilized Entrance Symbol
100-YEAR FLOODPLAIN	Floodplain Symbol
TREE PROTECTION FENCE	TPF

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
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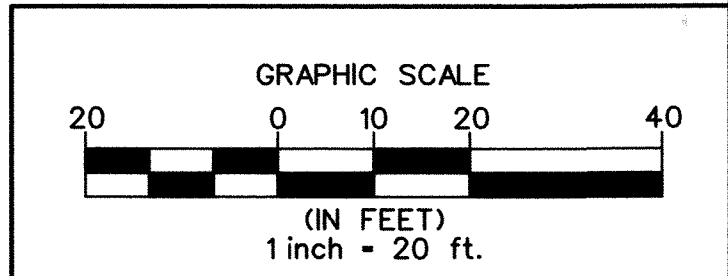


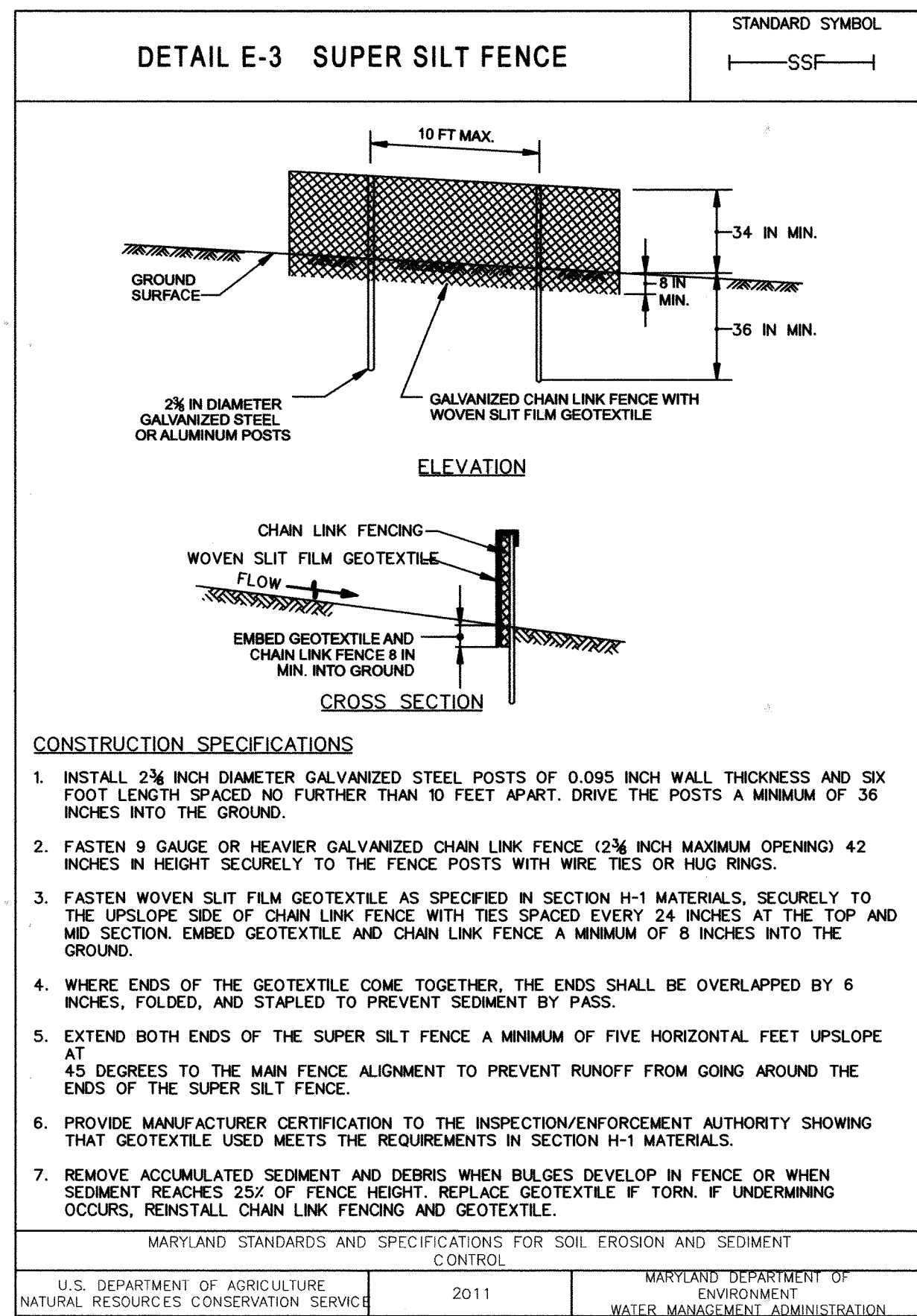
STORMWATER AND WATERSHED MANAGEMENT EVALUATION / DESIGN-BUILD SERVICES  
**WHITWORTH WAY POND ENHANCEMENTS**  
 HOWARD COUNTY CONTRACT # CA 25-2015  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 5177 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046

**EROSION AND SEDIMENT CONTROL PLAN PHASE 3**

SCALE: 1" = 20'
DATE: JULY 2015
KCI JOB NO.: 17-133314.45
CAPITAL PROJECT NO.: D-1160
PERMIT ISSUE:
CONSTRUCTION ISSUE:

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS  
 THESE PLANS FOR [redacted] SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
 HOWARD SCD  
 THOMAS  
 DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
 DATE: 7/29/15

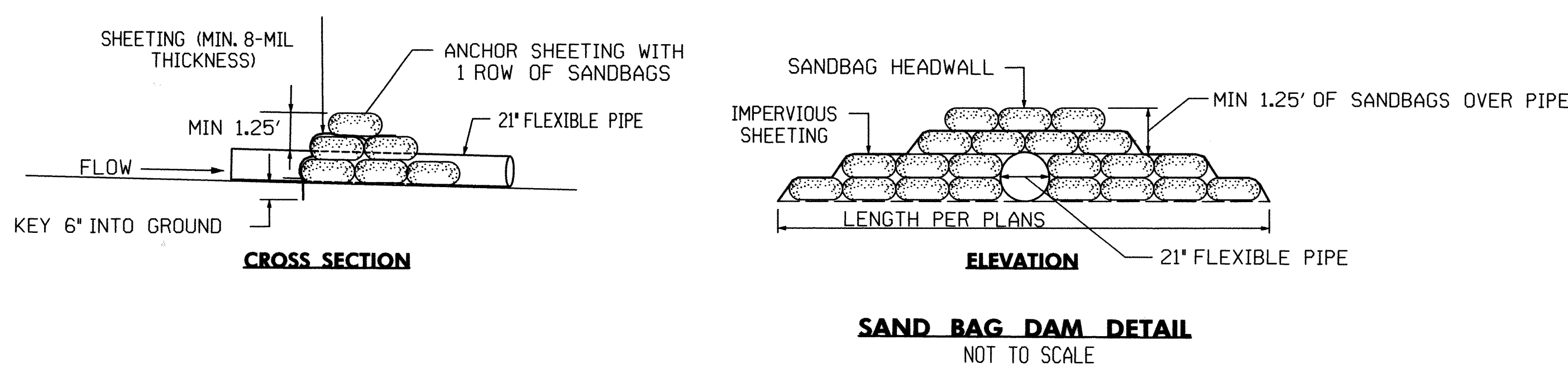
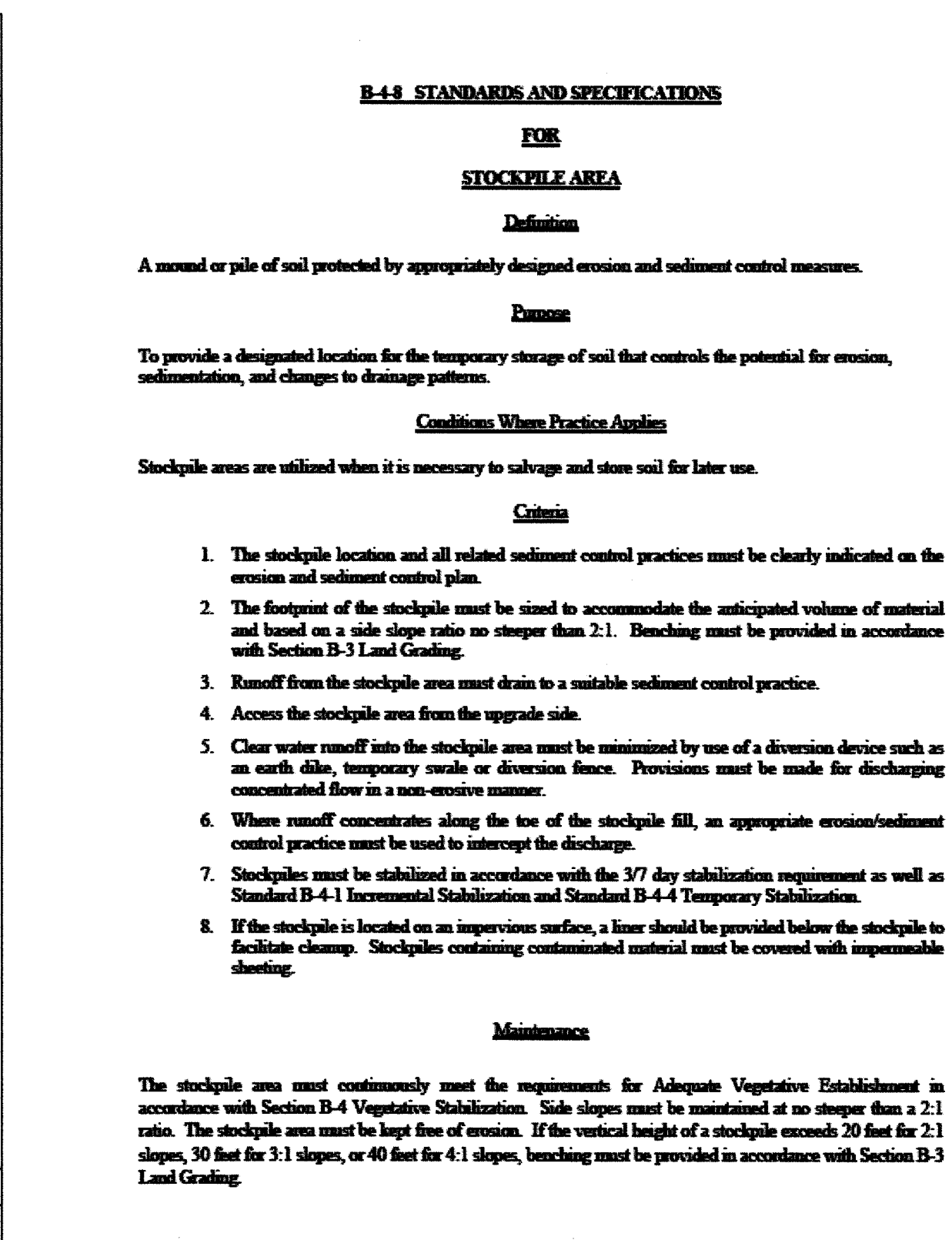
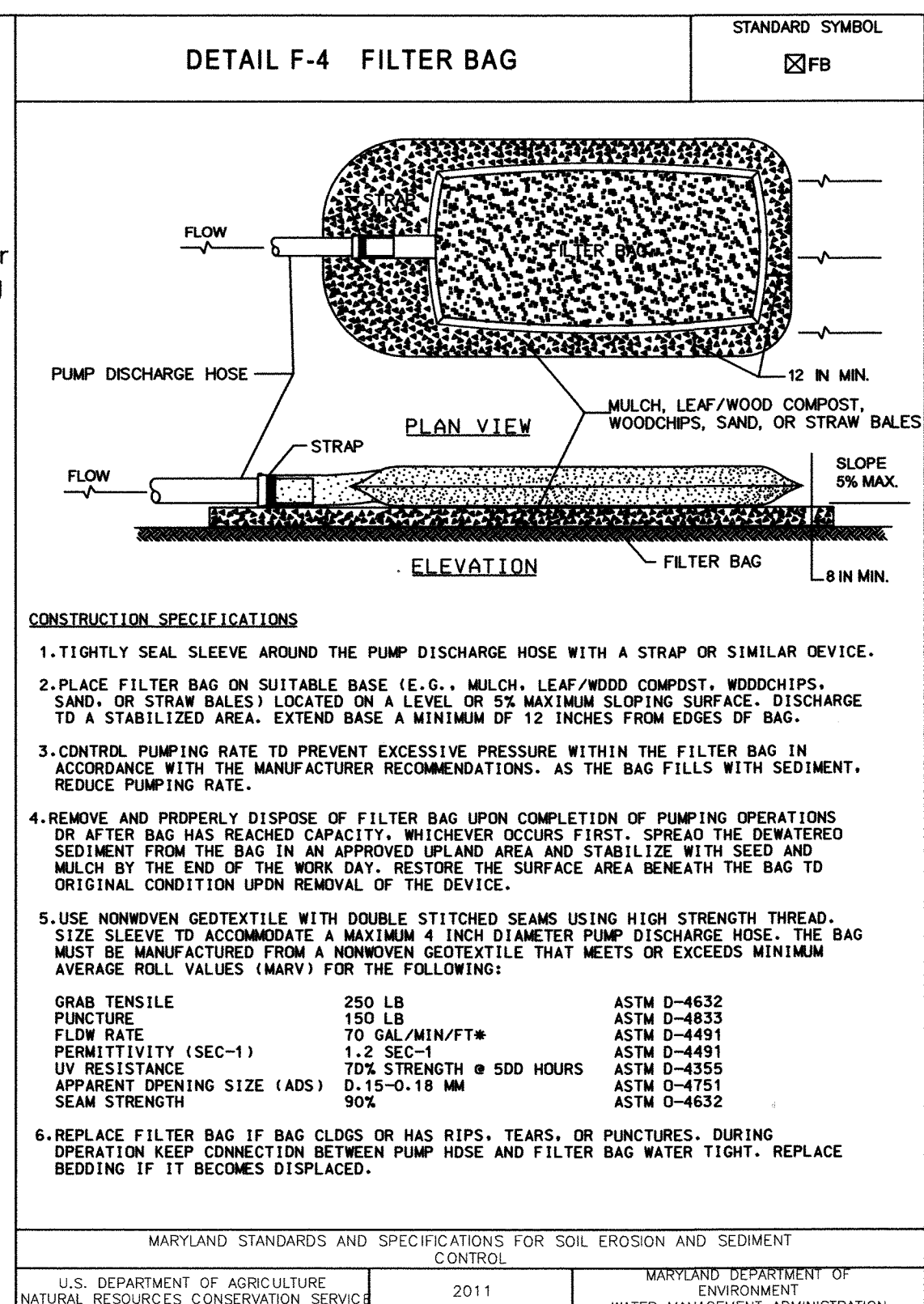
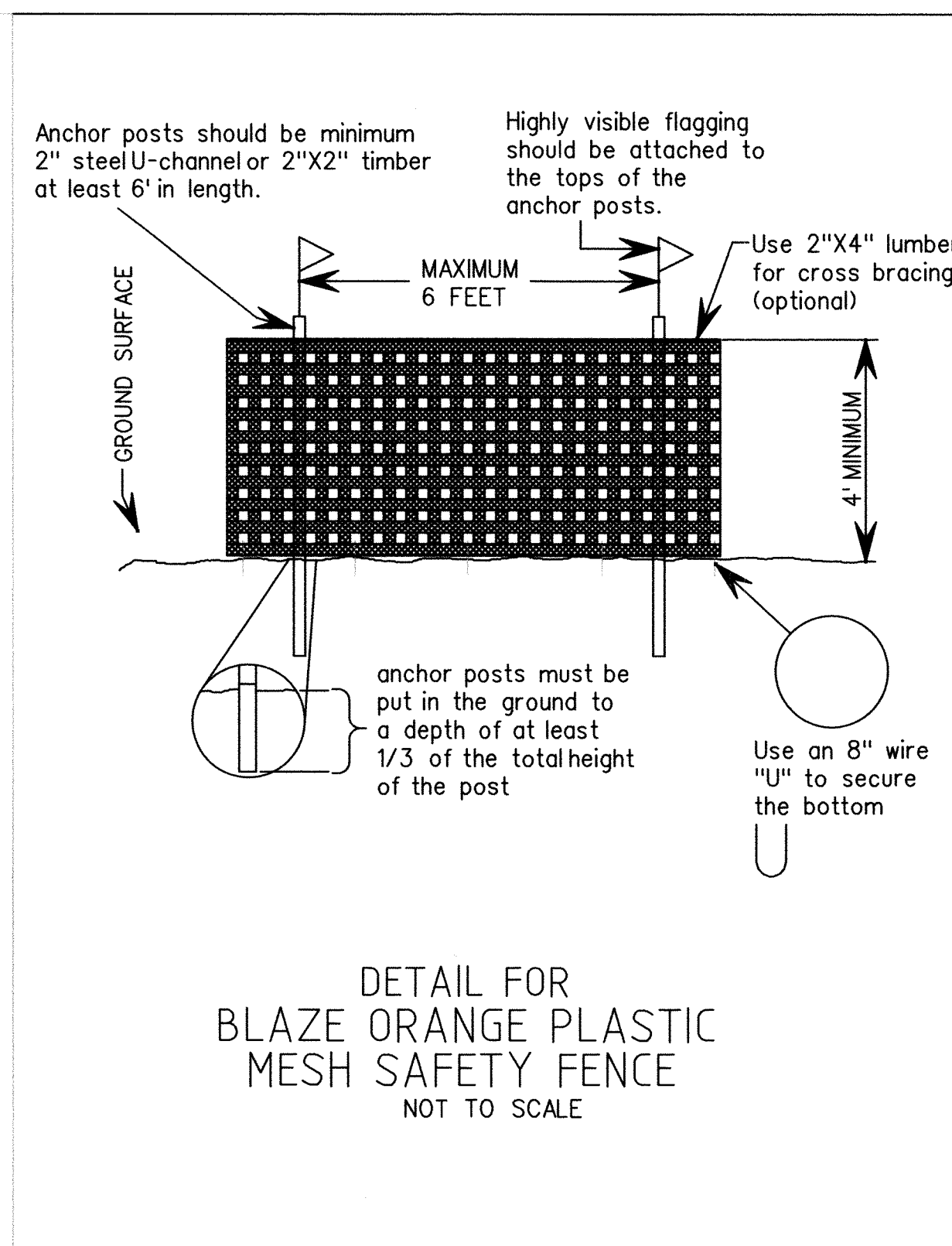
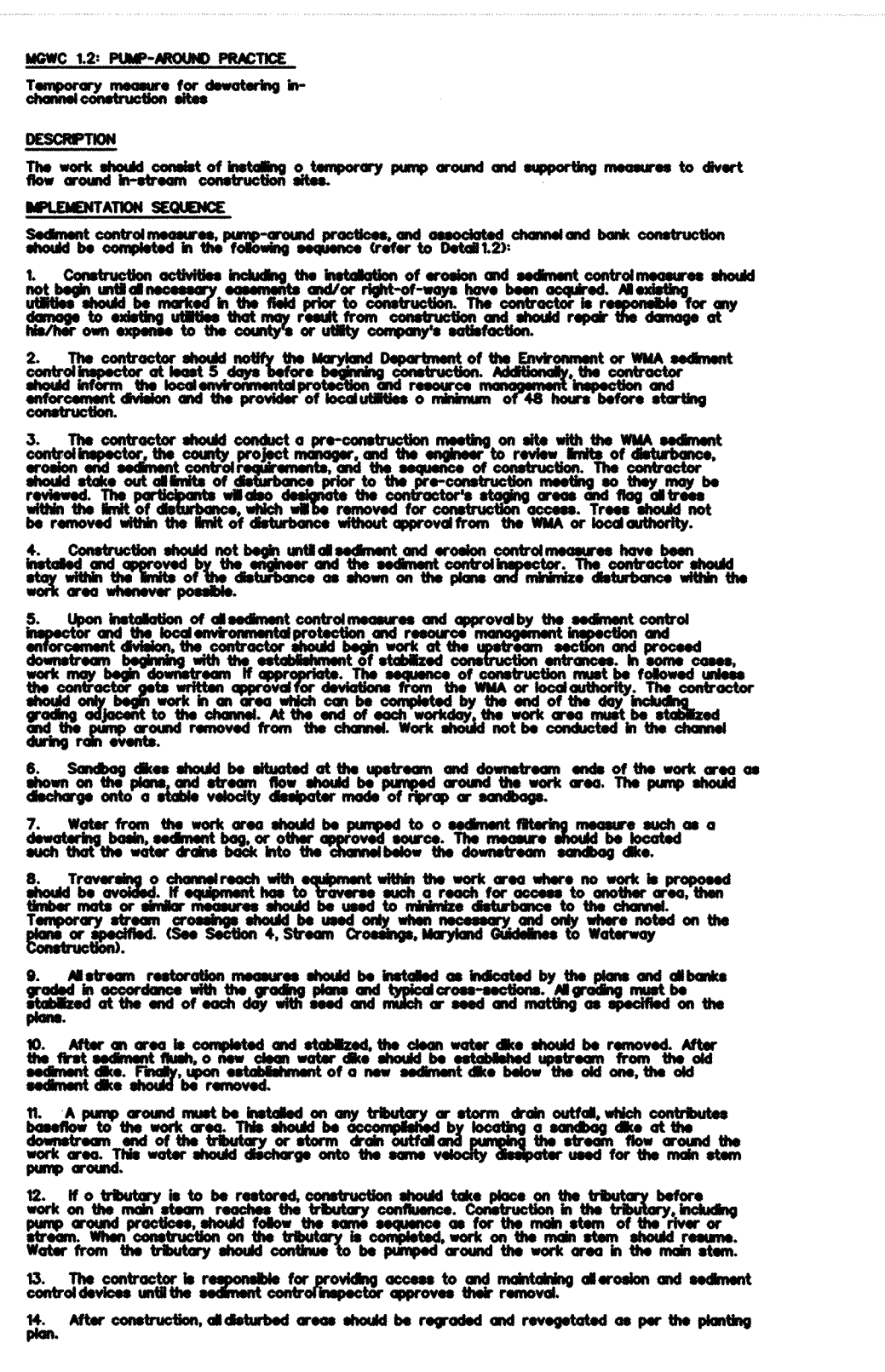
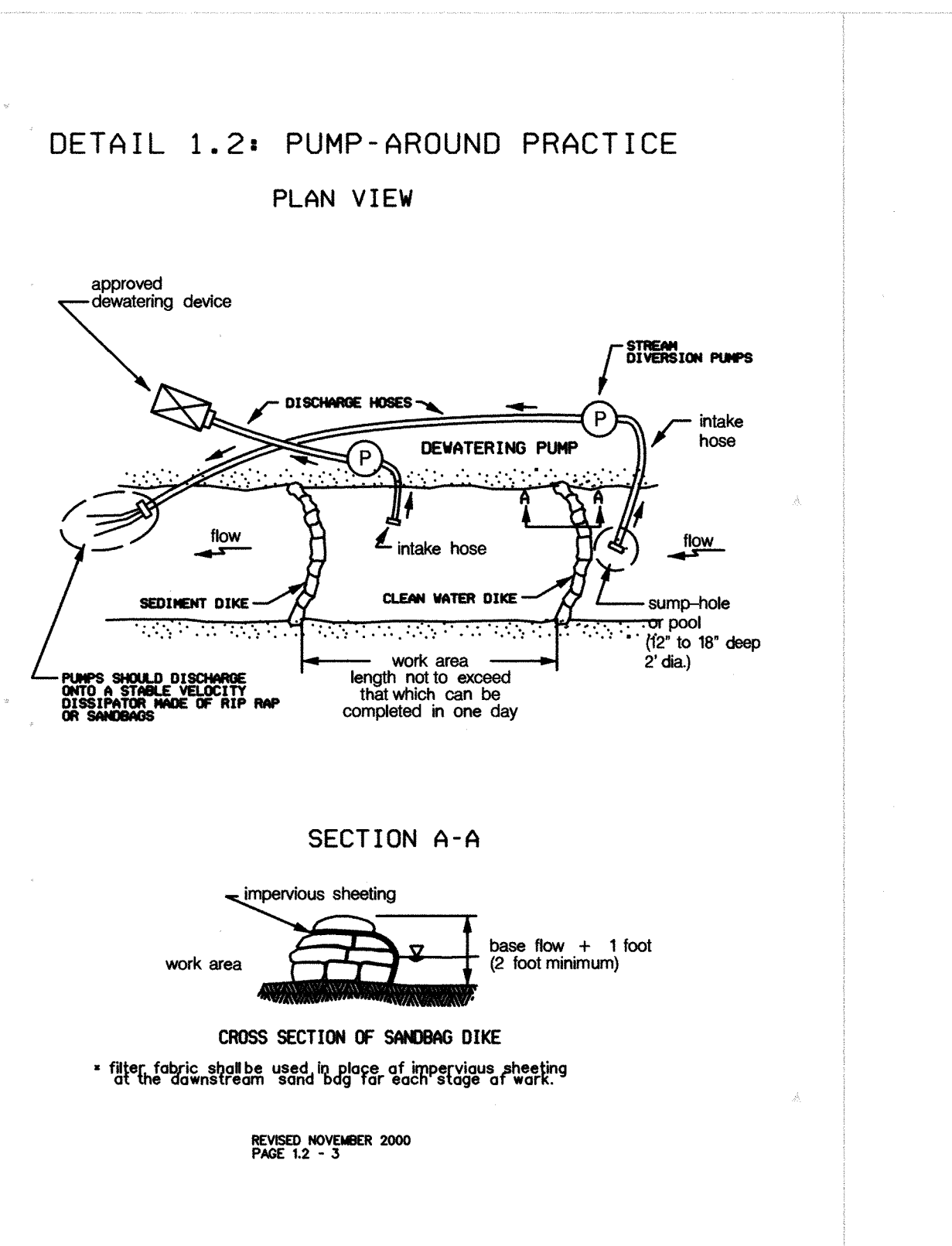
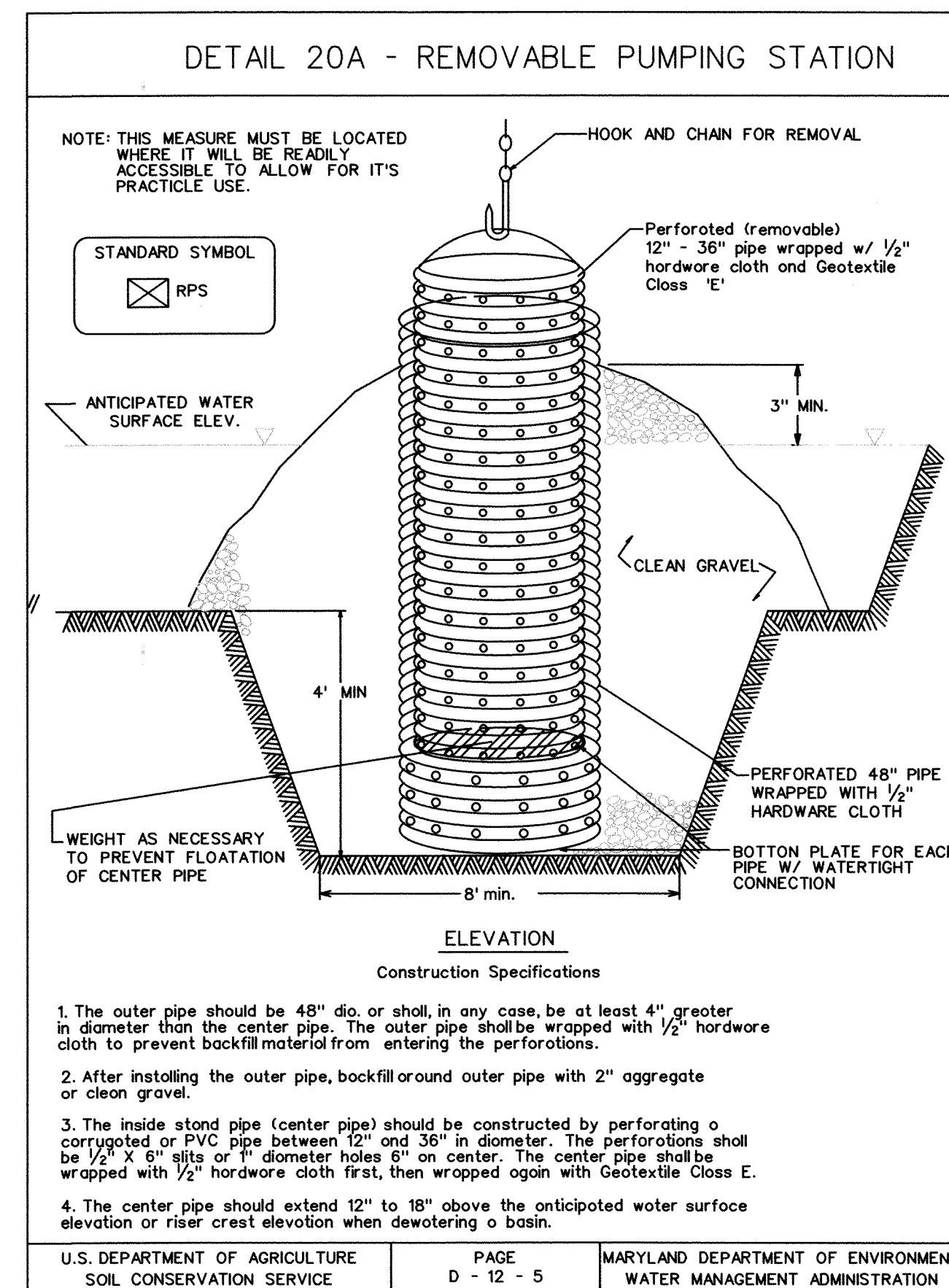
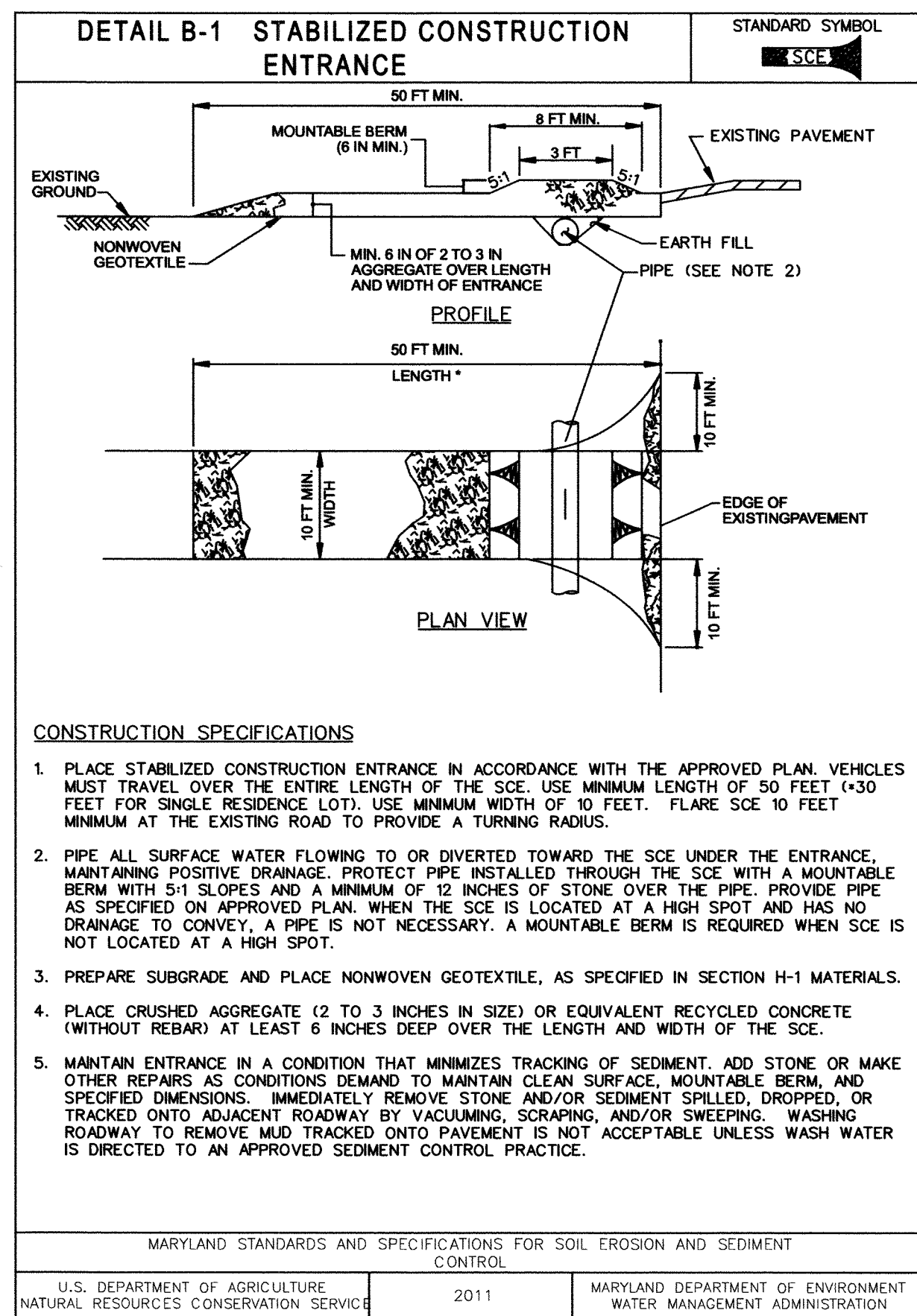




### SUPER SILT FENCE

**Design Criteria**

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet



REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

THESE PLANS FOR *[Signature]* SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*[Signature]*  
HOWARD SCD

*[Signature]*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

8/4/15  
DATE

7/29/15  
DATE

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

NO. REVISIONS DESCRIPTION

DATE

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
WWW.KCI.COM

KCI TECHNOLOGIES

STORMWATER AND WATERSHED MANAGEMENT EVALUATION / DESIGN-BUILD SERVICES

WHITWORTH WAY POND ENHANCEMENTS

HOWARD COUNTY CONTRACT # CA 23-2013  
OF PUBLIC WORKS  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
51075 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046

EROSION AND SEDIMENT CONTROL DETAILS

SCALE: AS SHOWN

DATE: JULY 2015

KGJOB NO.: 17-133314.45

CAPITAL PROJECT NO.: D-1160

PERMIT ISSUE:

CONSTRUCTION ISSUE:

SHEET NO.: 11 OF 16

FILE: M:\2008\01081795-88.dwg  
DATE: 8/29/15  
TIME: 10:00 AM

B-4-2 STANDARDS AND SPECIFICATIONS  
FOR  
SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

**Definition**  
The process of preparing the soils to sustain adequate vegetative stabilization.

**Purpose**  
To provide a suitable soil medium for vegetative growth.

**Conditions Where Practice Applies**  
Where vegetative stabilization is to be established.

**Criteria**  
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, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soils are loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
  - 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. The minimum soil conditions required for permanent vegetative establishment are:
    - i. Soil pH between 6.0 and 7.0.
    - ii. Soluble salts less than 500 parts per million (ppm).
    - iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
    - iv. Soil contains 1.5 percent minimum organic matter by weight.
    - v. Soil contains sufficient pore space to permit adequate root penetration.
  - b. Application of amendments or topsoils required if on-site soils do not meet the above conditions.
  - c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
  - 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. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

- B. Topsoiling**
1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is 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.
  2. Topsoil salvaged from an existing site may be used provided 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-NRCS.
  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.
    - b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
    - c. The original soil to be vegetated contains material toxic to plant growth.
    - d. The soil is so acidic that treatment with limestone is not feasible.

4. Areas having slopes steeper than 2:1 require special consideration and design.
5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
- a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter.
  - b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
  - c. 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.

- 6. Topsoil Application**
- a. Erosion and sediment control practices must be maintained when applying topsoil.
  - b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to 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 must be corrected in order to prevent the formation of depressions or water pockets.
  - c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

- 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 on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
  2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
  3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydrosedimenting) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
  4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
  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 (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

\*\* Contractor shall perform a soil test at the site as a first order of business. The results shall be reviewed by Department of Recreation and Parks to determine appropriate soil amendments and fertilization needs for this project. No fertilizer or soil amendments shall be added without approval of Department of Recreation and Parks.

**FILL MATERIAL AND COMPACTION REQUIREMENTS:**

In general, existing on-site soils free from environmental contamination, building debris, frozen, organic or wet materials and with a Unified Soils Classification of CL-ML, or more granular, with a plasticity index less than 12 can be reused as compacted fill. On-site soils with a Unified Soils Classification of CL, CH, or MH or with liquid limits greater than 40 and plastic indices greater than or equal to 12 are not suitable as structural fill. If imported materials are required it shall have a Unified Soils Classification of SM or more granular and less plastic and a maximum dry density of at least 105-pcf in accordance with the modified proctor test method (ASTM D-1557) or as approved by the Engineer.

Fill shall be placed in horizontal, eight-inch maximum loose lifts and compacted to at least 92 percent of the Modified Proctor maximum dry density (ASTM D-1557), or alternately the Contractor shall compact each lift a minimum of 3 to 4 passes as approved by the Engineer. The moisture content of the fill shall be properly controlled during placement and shall be within 3 percentage points of the optimum moisture. Fill being placed on hillsides shall be benched to prevent a sliding failure plane.

As directed by the Engineer, in-place density tests shall be performed by an engineering technician on a full-time basis under the supervision of a geotechnical engineer licensed in the State of Maryland to verify that the proper degree of compaction is being obtained.

TABLE 28 STONE SIZE

NUMBER	SIZE RANGE	D 50	D 100	AASHTO	HEIGHT
NUMBER 57*	3/8"-1 1/2"			M-43	N/A
NUMBER 1	2"-3"	3"	3"	M-43	N/A
RIP-RAP**	4"-7"	7"	7"	N/A	N/A
CLASS I	N/A	15"	15"	N/A	150 LB. MAX.
CLASS II	N/A	24"	24"	N/A	700 LB. MAX.
CLASS III	N/A	34"	34"	N/A	2000 LB. MAX.

\* THIS CLASSIFICATION IS TO BE USED ON THE INSIDE FACE OF STONE OUTLETS AND CHECK DAMS.  
\*\* THIS CLASSIFICATION IS TO BE USED WHENEVER SMALL RIP-RAP IS REQUIRED. THE STATE HIGHWAY ADMINISTRATION DESIGNATION FOR THIS STONE IS STONE FOR GABIONS ( 905.01.04).

24.0 MATERIALS AND SPECIFICATIONS  
TABLE 27 GEOTEXTILE FABRICS

CLASS	APPARENT OPENING SIZE MM. MAX.	GRAB TENSILE STRENGTH LB. MIN.	BURST STRENGTH P.S.I. MIN.
A	0.30**	250	500
B	0.60	200	320
C	0.30	200	320
D	0.60	90	145
E	0.30	90	145
F (SILT FENCE)	0.40 - 0.80 *	90	190

\* US STD. SIEVE CW-02215      \*\* .50 MM. MAX. FOR SUPER SILT FENCE

- THE PROPERTIES SHALL BE DETERMINED IN ACCORDANCE WITH THE FOLLOWING PROCEDURES:
- APPARENT OPENING SIZE MSMT 323
  - GRAB TENSILE STRENGTH ASTM D 1682 4"x8" SPECIMEN 1"x2" CLAMPS, 12"/ MIN. STRAIN RATE IN BOTH PRINCIPAL DIRECTIONS OF GEOTEXTILE FABRIC.
  - BURST STRENGTH ASTM D 3786

THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS, AND WILL BE ROT AND MILDEW RESISTANT. IT SHALL BE MANUFACTURED FROM FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS, AND COMPOSED OF A MINIMUM OF 85% BY WEIGHT OF POLYOLEPHINS, POLYESTERS, OR POLYAMIDES. THE GEOTEXTILE FABRIC SHALL RESIST DETERIORATION FROM ULTRAVIOLET EXPOSURE.

IN ADDITION CLASSES A THROUGH E SHALL HAVE A 0.01 CM/SEC. MINIMUM PERMEABILITY WHEN TESTED IN ACCORDANCE WITH MSMT 507, AND AN APPARENT MINIMUM ELONGATION OF 20 PERCENT (20%) WHEN TESTED IN ACCORDANCE WITH THE GRAB TENSILE STRENGTH REQUIREMENTS LISTED ABOVE.

SILT FENCE  
CLASS F GEATEXTILE FABRICS FOR ALL SILT FENCE SHALL HAVE A 50LB./IN. MINIMUM TENSILE STRENGTH AND A 20 LB/IN MINIMUM TENSILE MODULES WHEN TESTED IN ACCORDANCE WITH MSMT 509. MATERIAL SHALL ALSO HAVE A 0.3 GAL./FT SQUARED/MIN. FLOW RATE AND SEVENTY-FIVE PERCENT (75%) MINIMUM FILTERING EFFICIENCY WHEN TESTED IN ACCORDANCE WITH MSMT 322.

GEOTEXTILE FABRICS USED IN THE CONSTRUCTION OF THE SILT FENCE SHALL RESIST DETERIORATION FROM ULTRAVIOLET EXPOSURE. THE FABRIC SHALL CONTAIN SUFFICIENT AMOUNTS OF ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 12 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 TO 120 DEGREES F.

MATERIALS SPECIFICATIONS

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

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIALS FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES:
  - \* ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.) AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE
  - \* VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION, KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:
  - A. USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE DURING ANY YEAR.
  - B. USE III WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.
  - C. USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS  
THESE PLANS FOR ~~\_\_\_\_\_~~ SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*John Robert*  
HOWARD SCD      8/4/15  
DATE

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
*Mohammed*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES      7/29/15  
DATE

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
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STORMWATER AND WATERSHED MANAGEMENT EVALUATION / DESIGN-BUILD SERVICES  
WHITWORTH WAY POND ENHANCEMENTS  
HOWARD COUNTY CONTRACT # CA 23-2013  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6750 OLD BRIDGE ROAD  
COLUMBIA, MD 21046

EROSION AND SEDIMENT CONTROL NOTES I

SCALE:	AS SHOWN
DATE:	JULY 2015
KCI JOB NO.:	17-133314-45
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	



SEQUENCE OF CONSTRUCTION

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or graded areas on the project site.
4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
5. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
6. Site Analysis:

WHITWORTH WAY POND

Total Area of Site	5.92 Acres
Area Disturbed	1.93 Acres
Area to be roofed or paved	--
Area to be vegetatively stabilized	1.36 Acres
Total Cut	2492 Cu. Yds.
Total Fill	0 Cu. Yds.
Offsite waste/borrow area location and permit	To Be Determined*

7. Any sediment control practice that 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. 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.
10. 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 workday, whichever is shorter.
11. Any changes or revisions to the sequence of construction must be reviewed and approved by the plan approval authority prior to proceeding with construction.
12. 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. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the enforcement authority. Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time.

GENERAL INFORMATION

CONTRACTOR SHALL TAKE EXTRA PRECAUTION WHEN OPERATING EQUIPMENT AND TRANSPORTING MATERIALS IN THIS RESIDENTIAL AREA.

ALL GRADING OPERATIONS SHALL BE DONE IN STRICT ACCORDANCE WITH THE PUMP AROUND CRITERIA.

ALL EXCAVATED SEDIMENT SHALL BE TRANSPORTED TO AN APPROVED LOCATION OFFSITE.

CONTRACTOR SHALL MINIMIZE THE IMPACT ON EXISTING TREES, EXISTING UTILITIES, AND OTHER EXISTING FEATURES.

FOLLOWING SHALLOW WETLAND FACILITY CONSTRUCTION, PLACE PLANTINGS ACCORDING TO LANDSCAPE PLAN.

DURATION PRE-CONSTRUCTION

1. THE CONTRACTOR SHALL NOTIFY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS/ BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION (410)-313-1880 24 HOURS PRIOR TO BEGINNING ANY WORK. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE. MDE TRACKING #201560282.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION, INCLUDING GRADING PERMIT, FROM THE COUNTY AT THE PRE-CONSTRUCTION MEETING.
3. CONTRACTOR SHALL COORDINATE AN ON-SITE PRE-CONSTRUCTION MEETING THAT SHALL INCLUDE COUNTY PROJECT MANAGER AND HOWARD COUNTY CONSTRUCTION INSPECTION, BUREAU OF UTILITY, AND ENGINEER.
4. CONTRACTOR SHALL STAKE OUT LIMIT OF DISTURBANCE PRIOR TO PRE-CONSTRUCTION MEETING.
5. CLEAR AREAS AS NEEDED WITHIN THE LIMIT OF DISTURBANCE REQUIRED TO ESTABLISH THE PROPOSED SEDIMENT CONTROL MEASURES.
6. INSTALL ALL PERIMETER CONTROL DEVICES INCLUDING ORANGE SAFETY FENCE, SUPER SILT FENCE, STABILIZED CONSTRUCTION ENTRANCE, AND STOCKPILE AREA AS SHOWN ON THE PLANS OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR.
7. NO WORK SHALL BE PERFORMED UNTIL THESE DEVICES ARE APPROVED BY THE SEDIMENT CONTROL INSPECTOR. WITH PERMISSION FROM THE INSPECTOR, CONTRACTOR SHALL PROCEED WITH CONSTRUCTION PHASE 1.

3 DAYS

PHASE 1

- \* TREE REMOVAL WITHIN WOODY FREE ZONE ON THE EMBANKMENT SEE TABLE "A" GENERAL RECOMMENDATIONS FOR TREE REMOVAL BELOW

**NOTE TO CONTRACTOR:**  
WITH PERMISSION FROM THE INSPECTOR, TREE REMOVAL ACTIVITIES CAN BE PERFORMED INDEPENDENTLY AND/OR CONCURRENTLY WITH PHASE 1 AND PHASE 2 OF CONSTRUCTION.

TABLE A  
GENERAL RECOMMENDATIONS FOR TREE REMOVAL 1/

TREE LOCATION ZONE	TREE TYPE A (TAP ROOT)				TREE TYPE B (SPREADING ROOTS)			
	LIGHT COVER	HEAVY COVER	LIGHT COVER	HEAVY COVER	LIGHT COVER	HEAVY COVER	LIGHT COVER	HEAVY COVER
1 1/	Cut and kill stumps.	Cut and kill stumps.	Cut and kill stumps.	Cut and kill stumps.	Cut and kill stumps.	Cut and kill stumps.	Cut and kill stumps.	Cut and kill stumps.
2 2/	Cut and 2/3 kill stumps.	Cut and grub stumps and root mass to 18" depth uniformly.	Cut and grub stumps and root mass to 24" depth in 1/2 crown width diameter area.	Cut and grub stumps and root mass to 24" depth uniformly.	Cut and 2/3 kill stumps.	Cut and grub stumps and root mass to 18" depth uniformly.	Cut and grub stumps and root mass to 18" depth in crown width diameter area.	Cut and grub stumps and root mass to 18" depth uniformly.
3 2/	Cut and kill stumps.	Cut and grub stumps and root mass to 18" depth uniformly.	Cut and grub stumps and root mass to 24" depth in 1/2 crown width diameter area.	Cut and grub stumps and root mass to 18" depth.	Cut and 2/3 kill stumps.	Cut and grub stumps and root mass to 12" depth uniformly.	Cut and grub stumps and root mass to 18" depth in crown width diameter area.	Cut and grub stumps and root mass to 12" 6/ depth.

1/ Tree growth smaller than 2" DBH will be removed by spraying, injection or cutting and stump killing. Trees and shrubs planted for shoreline protection in Zone 1 shall be maintained at heights - 4 feet.

2/ In embankment type (a) dispersed soil--cut stumps 12 inches below surface and backfill with compacted soil.

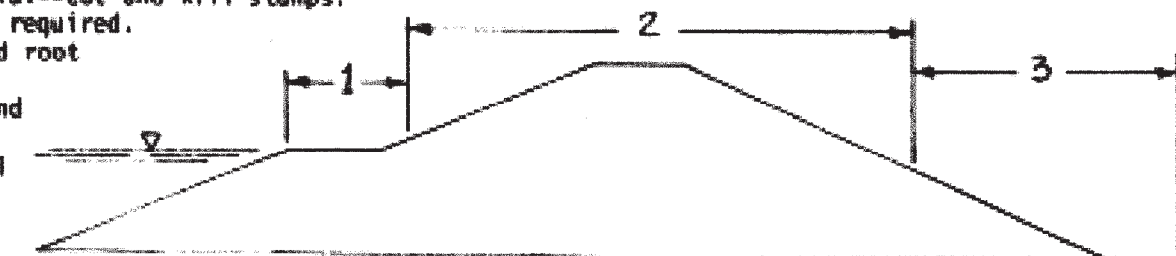
3/ In embankment type (d) earthfill with low piping potential--cut and kill stumps.

4/ In riprapped or heavy rockfill sections grubbing is not required.

5/ For water-loving trees such as willows, remove stump and root mass in twice the crown width area.

6/ For water-loving trees such as willows, remove stumps and root mass to 18" depth uniformly.

7/ Individual large trees in this zone may need the special treatment as described in Section 3.



PHASE 1 (CONT'D)

- \* BASEFLOW FROM STREAM AND RUNOFF FROM EXISTING 18" RCP TO BE CONTINUOUSLY PUMPED AROUND FACILITY TO RIPRAP PAD ON EMERGENCY SPILLWAY FOR THE ENTIRE DURATION OF PHASE 1.
- 8. DURING AN ANTICIPATED THREE (3) DAY PERIOD OF DRY WEATHER, INSTALL SANDBAG DAM AT POND INFLOW. DURING SANDBAG DAM INSTALLATION, PUMP ALL BASEFLOW THROUGH PUMP AROUND PRACTICE TO RIPRAP PAD ON DOWNSTREAM SIDE OF EMERGENCY SPILLWAY. DEWATER ANY DISTURBED AREAS THROUGH PUMP AROUND PRACTICE TO FILTER BAG ON DOWNSTREAM SIDE OF EMERGENCY SPILLWAY AS SHOWN.
- 9. ONCE SANDBAG DAM INSTALLED, BASEFLOW PUMP AROUND INSTALLED AND FUNCTIONING, AND POND INTERIOR DEWATERED, REMOVE THE EXISTING CONCRETE/BRICK RISER AND LOW FLOW PIPE AND INSTALL THE 21" FLEXIBLE BASEFLOW DIVERSION PIPE. ON THE DOWNSTREAM END, PLACE THE 21" DIVERSION PIPE DIRECTLY INSIDE EXISTING 24" RCP AND SECURE WITH SANDBAGS AS NEEDED. INSTALL THE 21" DIVERSION PIPE THROUGH THE SANDBAG DAM ON THE UPSTREAM END OF THE FACILITY AS SHOWN ON SHEET 8 OF 16.
- 10. ALL BASEFLOW FROM STREAM AND RUNOFF FROM 18" RCP INFLOW SHOULD NOW GRAVITY FLOW THROUGH THE 21" FLEXIBLE DIVERSION PIPE FROM THE SANDBAG DAM UPSTREAM TO THE EXISTING 24" RCP BARREL PIPE DOWNSTREAM WITHOUT THE AID OF BASEFLOW PUMP AROUND PRACTICE. ONCE EXISTING RISER REMOVED AND FLEXIBLE DIVERSION PIPE AND SANDBAG DAM INSTALLED AND FUNCTIONING, WITH PERMISSION FROM INSPECTOR, CONTRACTOR SHALL PROCEED WITH CONSTRUCTION PHASE 2.

1 DAY

PHASE 2

- \* BASEFLOW FROM STREAM AND RUNOFF FROM EXISTING 18" RCP SHOULD CONTINUOUSLY FLOW AROUND THE WORK AREA THROUGH THE 21" FLEXIBLE DIVERSION PIPE AND OUT THE EXISTING 24" RCP BARREL PIPE FOR THE ENTIRE DURATION OF PHASE 2.
- \* ANY DEWATERING OF SEDIMENT LADEN SURFACE WATER DURING PHASE 2 WORK SHALL BE THROUGH A PUMP AROUND PRACTICE TO A FILTER BAG, OTHER APPROVED DEWATERING DEVICE.
- \* ONCE PHASE 1 IS COMPLETE AND EROSION AND SEDIMENT CONTROL DEVICES FOR PHASE 2 ARE IN PLACE AND FUNCTIONING PROPERLY, THE CONTRACTOR MAY PERFORM EMERGENCY SPILLWAY ADJUSTMENTS AT ANY TIME.
- 11. DURING AN ANTICIPATED THREE (3) DAY PERIOD OF DRY WEATHER, BEGIN GRADING OPERATIONS BY EXCAVATING ACCESS PATH DOWN INTO THE FACILITY AS SHOWN ON STORMWATER GRADING PLAN, SHEET 2 OF 16. ONCE EQUIPMENT ACCESS TO THE POND INTERIOR IS ACHIEVED, CONTINUE GRADING SHALLOW WETLAND CONFIGURATION AS SHOWN. TEMPORARILY SHIFT SANDBAGS AND 21" FLEXIBLE DEWATERING PIPE TO PERFORM TIE-IN GRADING AND INSTALL INFLOW RIPRAP AS SHOWN ON SHEET 9 OF 16. REMOVABLE PUMPING STATIONS CAN BE INSTALLED IN THE POND INTERIOR AS NEEDED TO DRAWDOWN GROUNDWATER OR AS INSTRUCTED BY THE SEDIMENT CONTROL INSPECTOR DURING GRADING OPERATIONS.
- 12. ONCE ALL GRADING OPERATIONS IN PHASE 2 ARE COMPLETE, THE INFLOW RIPRAP INSTALLED, AND EMERGENCY SPILLWAY ADJUSTMENTS COMPLETE, WITH PERMISSION FROM THE INSPECTOR, CONTRACTOR SHALL PROCEED WITH CONSTRUCTION TO PHASE 3.

4 WEEKS

PHASE 3

13. DURING AN ANTICIPATED THREE (3) DAY PERIOD OF DRY WEATHER, INSTALL BASEFLOW PUMP AROUND PRACTICE AS SHOWN AND REMOVE THE 21" FLEXIBLE DIVERSION PIPE.
14. INSTALL PROPOSED RISER STRUCTURE, S-1, 24" RCP BARREL PIPE AND PROJECTION COLLAR, ANTI-SLEEP COLLAR AND CONCRETE CRADLE, AND FILTER DIAPHRAGM AND DRAIN OUTLET TO EXISTING ENDWALL. CONTRACTOR TO ENSURE THAT THE CONNECTION BETWEEN THE EXISTING BARREL PIPE, CONCRETE CRADLE, AND PROPOSED RISER BOX IS INSTALLED PROPERLY AND WATERTIGHT. BACK FILL ABOVE PROPOSED BARREL AND COMPLETE GRADING OF PROPOSED BENCH AREA SURROUNDING THE RISER AS SHOWN.
15. INSTALL LANDSCAPE PLANTINGS PER THE LANDSCAPE PLANS (SHEETS 15 AND 16).
16. WITH PERMISSION FROM THE INSPECTOR, REMOVE ALL SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE ANY REMAINING DISTURBED AREA.
17. REMOVE ALL STOCKPILE AREAS AND STABILIZE THE AREA TO EXISTING CONDITION.
18. REPLACE/REPAIR ANY DAMAGE TO CURB, TRAIL, AND/OR SIDEWALK PRIOR TO COMPLETION OF THE PROJECT.

2 WEEKS

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

THESE PLANS FOR SHALLOW WETLAND RESTORATION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*John K. Blanton*  
HOWARD SCD  
DATE: 8/4/15

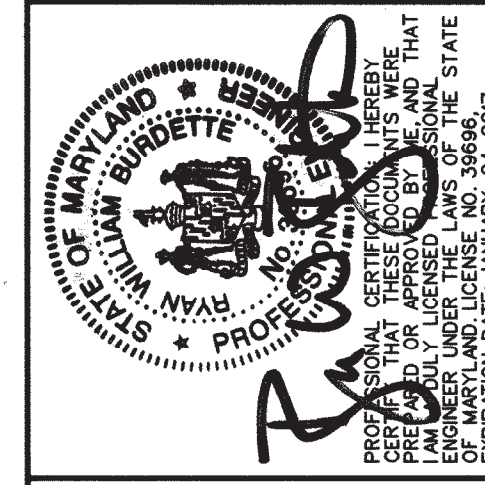
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

*Michelle L...*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
DATE: 7/29/15

NO.	REVISIONS DESCRIPTION	DATE
3	09/16/2015	

936 RIDGEBROOK ROAD  
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**KCI**  
TECHNOLOGIES



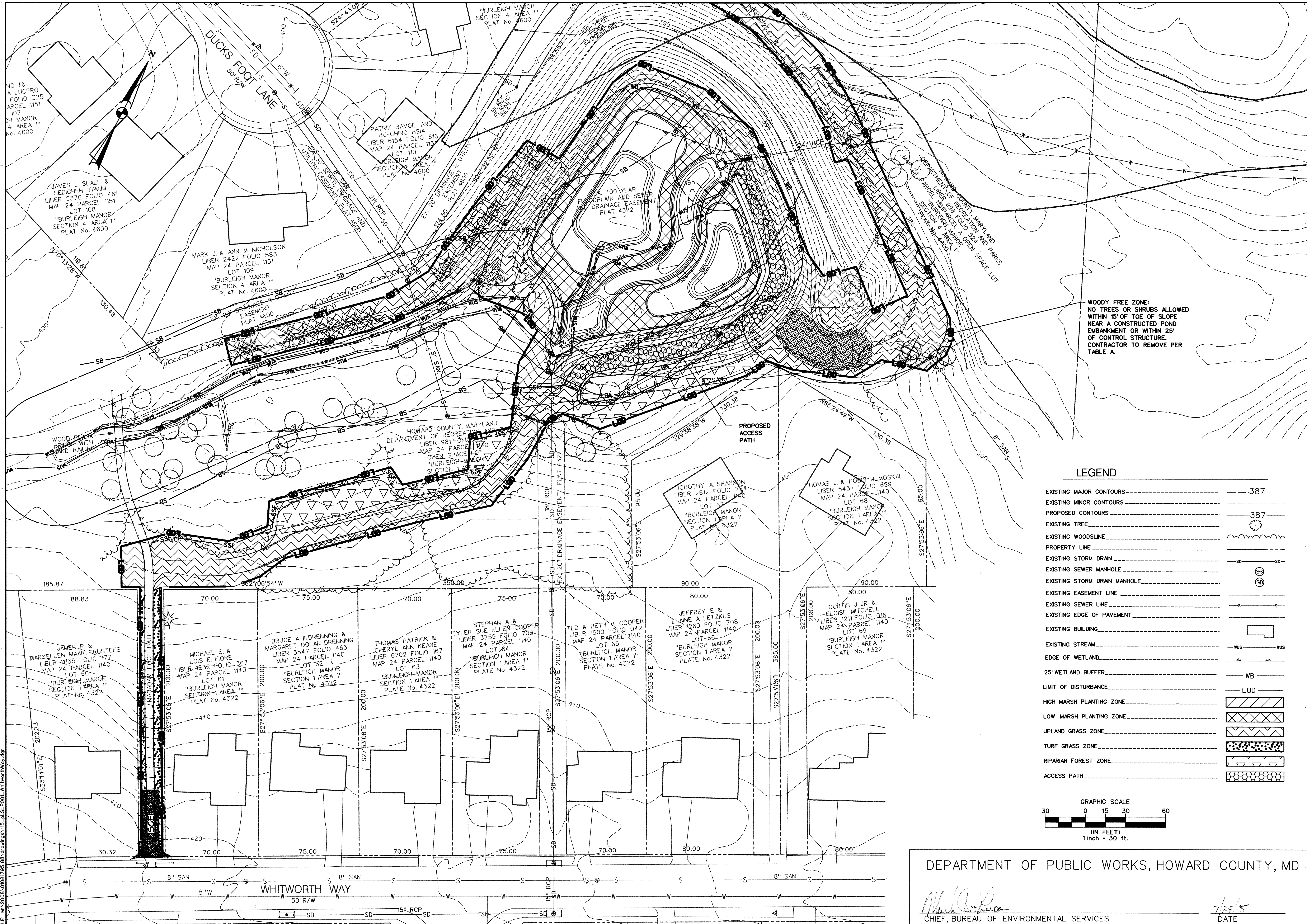
STORMWATER AND WATERSHED MANAGEMENT EVALUATION / DESIGN-BUILD SERVICES

WHITWORTH WAY POND ENHANCEMENTS

HOWARD COUNTY CONTRACT # CA 23-2013  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6701 COLUMBIA AVENUE, SUITE 20106  
COLUMBIA, MD 21046

EROSION AND SEDIMENT CONTROL NOTES III

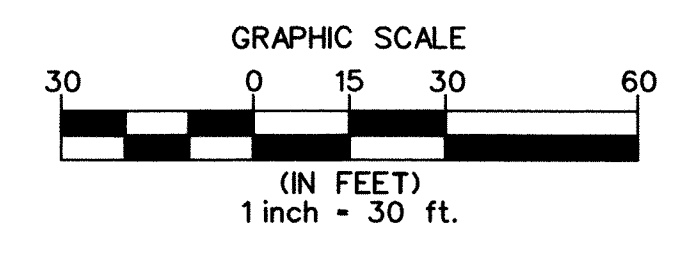
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DATE:	JULY 2015
KCI JOB NO.:	17-133314.45
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	
SHEET NO.:	14 OF 16



WOODY FREE ZONE:  
NO TREES OR SHRUBS ALLOWED  
WITHIN 15' OF TOE OF SLOPE  
NEAR A CONSTRUCTED POND  
EMBANKMENT OR WITHIN 25'  
OF CONTROL STRUCTURE.  
CONTRACTOR TO REMOVE PER  
TABLE A.

**LEGEND**

EXISTING MAJOR CONTOURS	---	387
EXISTING MINOR CONTOURS	---	387
PROPOSED CONTOURS	---	387
EXISTING TREE		
EXISTING WOODSLINE		
PROPERTY LINE	---	
EXISTING STORM DRAIN	---	
EXISTING SEWER MANHOLE		
EXISTING STORM DRAIN MANHOLE		
EXISTING EASEMENT LINE	---	
EXISTING SEWER LINE	---	
EXISTING EDGE OF PAVEMENT	---	
EXISTING BUILDING		
EXISTING STREAM	---	
EDGE OF WETLAND	---	
25' WETLAND BUFFER	WB	
LIMIT OF DISTURBANCE	LOD	
HIGH MARSH PLANTING ZONE		
LOW MARSH PLANTING ZONE		
UPLAND GRASS ZONE		
TURF GRASS ZONE		
RIPARIAN FOREST ZONE		
ACCESS PATH		



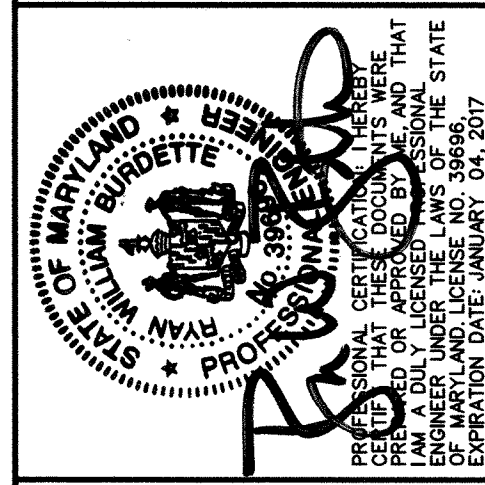
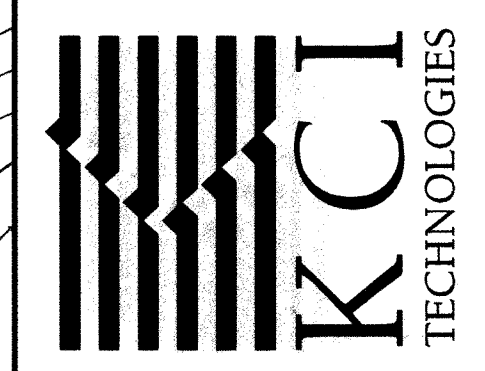
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

*M. A. [Signature]*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

7/25/15  
DATE

NO.	REVISIONS DESCRIPTION	DATE

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STORMWATER AND WATERSHED MANAGEMENT  
EVALUATION / DESIGN-BUILD SERVICES  
**WHITWORTH WAY  
POND ENHANCEMENTS**  
HOWARD COUNTY CONTRACT # CA 23-2013  
DEPARTMENT OF PUBLIC WORKS  
51075 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046

**LANDSCAPE PLAN**

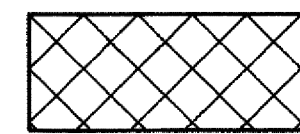
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DATE:	JULY 2015
KCI JOB NO.:	17-133314.45
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

MASTER PLANT SCHEDULE

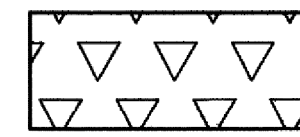


High Marsh Planting Zone (5,079 SF / 0.116 AC)					
Botanical Name	Common Name	Size	Form	Spacing	Quantity
Salix nigra	Black willow	5' Height	Container	10' O.C.	17
Liquidambar styraciflua	Sweet gum	5' Height	Container	10' O.C.	18
Cornus amomum	Silky dogwood	3' Height	Container	6' O.C.	21
Vaccinium corymbosum	Highbush blueberry	3' Height	Container	6' O.C.	21

Amelanchier canadensis-Serviceberry



Low Marsh Planting Zone (7,415 SF / 0.170 AC)					
Botanical Name	Common Name	Size	Form	Spacing	Quantity
Peltandra virginica	Arrow arum	NA	Plug	2' O.C.	264
Sagittaria latifolia	Arrowhead	NA	Plug	2' O.C.	265
<del>Flodea canadensis</del>	<del>Broad water weed</del>	NA	Plug	2' O.C.	265
Andropogon glomeratus	Bushy beardgrass	NA	Plug	2' O.C.	265
Scirpus pungens	Common three square	NA	Plug	2' O.C.	265
Iris versicolor	Blue flag iris	NA	Plug	2' O.C.	265
Pontedaria cordata	Pickerel rush	NA	Plug	2' O.C.	265



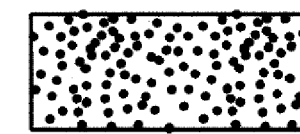
Riparian Forest Zone ( 6,768 SF / 0.155 AC)					
Botanical Name	Common Name	Size	Form	Spacing	Quantity
Acer rubrum	Red maple	5' Height	Container	10' O.C.	13
<del>Juglans nigra</del>	<del>Black walnut</del>	5' Height	Container	10' O.C.	13
Quercus alba	White oak	5' Height	Container	10' O.C.	13
<del>Cornus florida</del>	<del>Flowering dogwood</del>	5' Height	Container	10' O.C.	14
Cercis canadensis	Redbud	5' Height	Container	10' O.C.	14

Nyssa sylvatica- Black gum

Cornus alternifolia- Pagoda dogwood

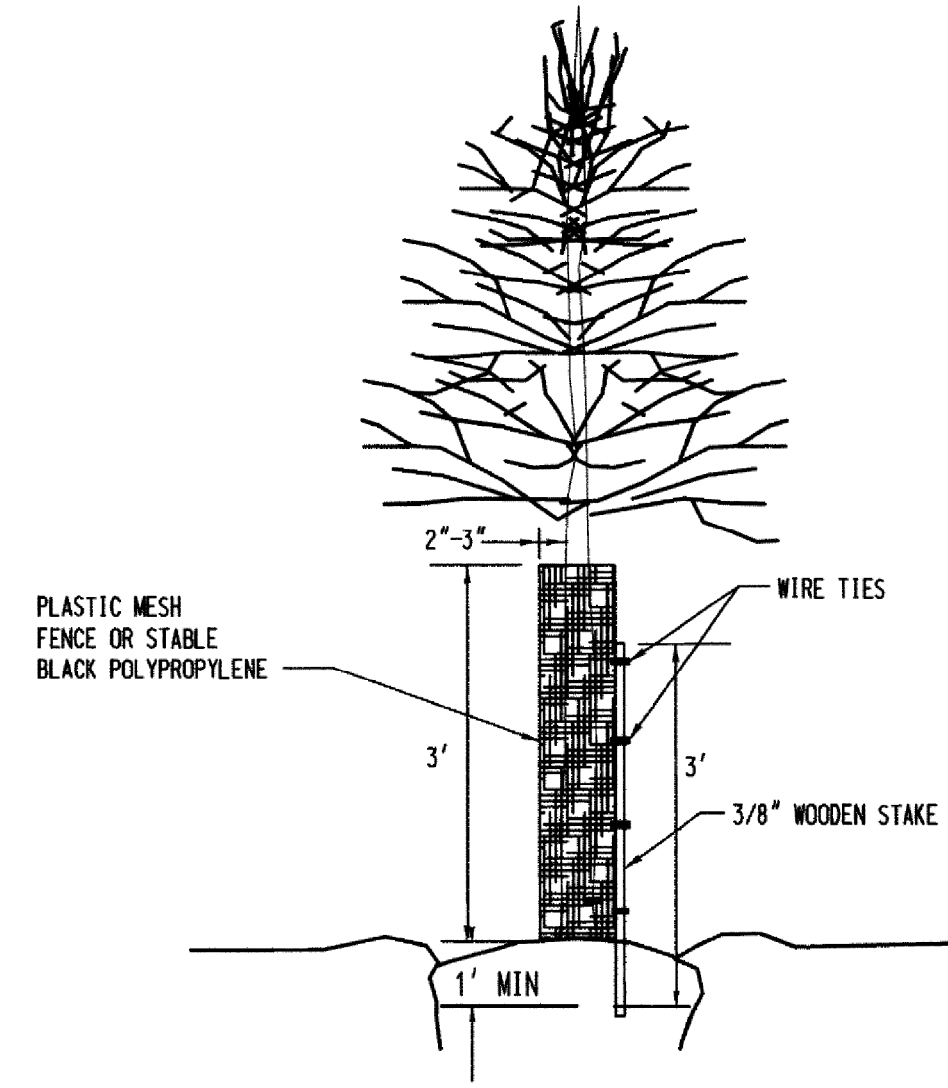


Upland Grass Zone (43,368 SF / 0.996 AC.)			
Seed Mix	Seed Rate	Quantity	
ERNST Upland Grass Mix ERNMX-720	15lb per acre	14.9	

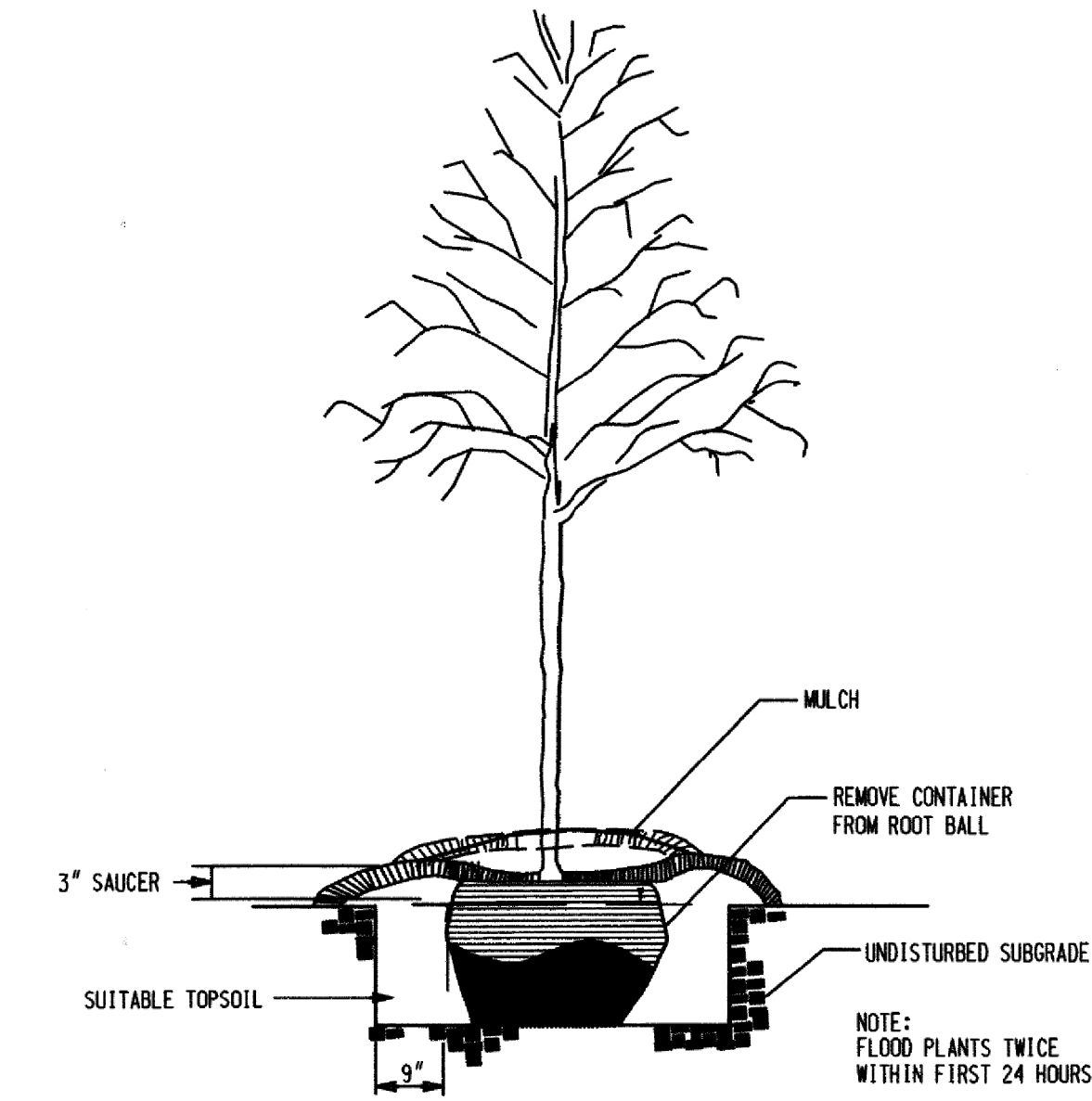


Turf Grass Zone (2,000 SF / 0.046 AC)	
Quantity (lbs)	Seed Mix
9.2	SHA special purpose seed mix 920.06.07 (b)

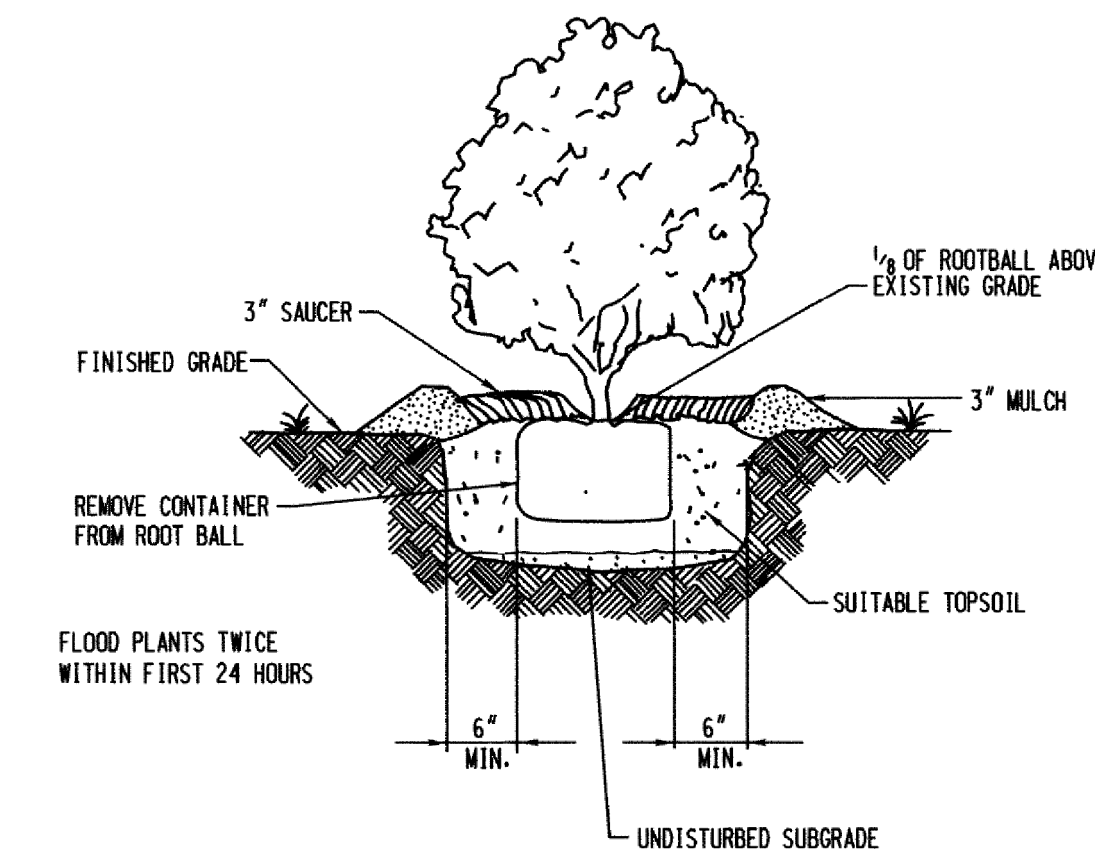
Application rate = 200 lbs. / AC  
 \* No K31 grass shall be placed in any wetland or wetland buffer area  
 Use sod if requested



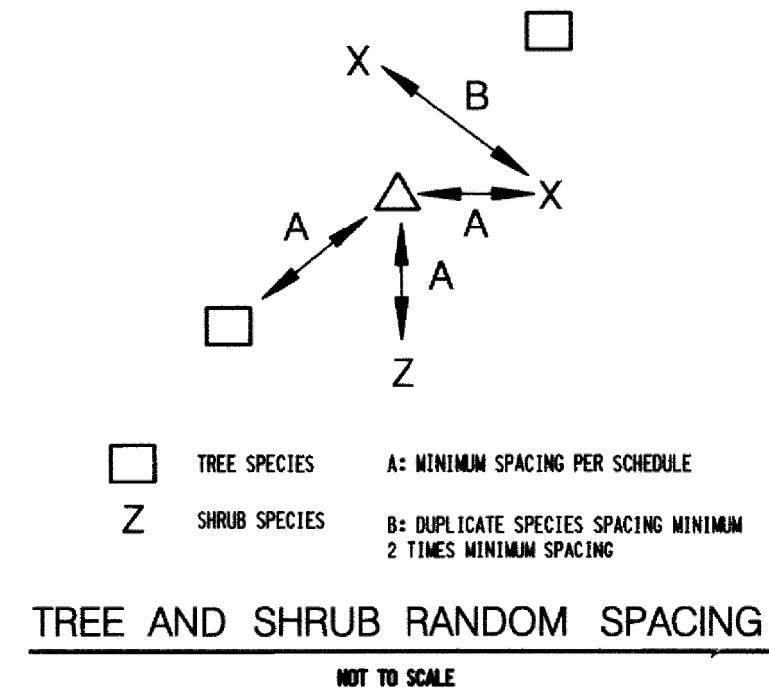
TREE SHELTER DETAIL  
NOT TO SCALE



TREE PLANTING DETAIL  
NOT TO SCALE



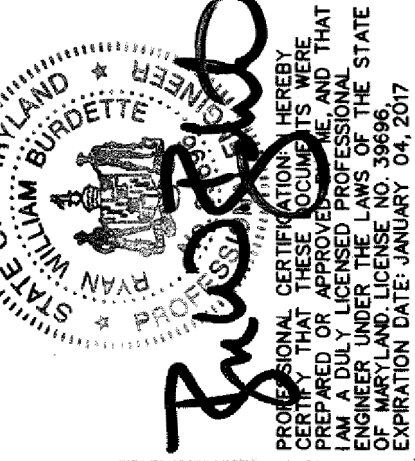
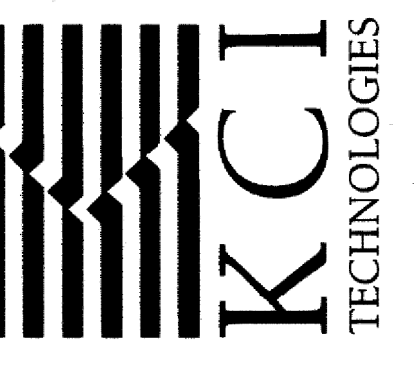
SHRUB PLANTING DETAIL  
NOT TO SCALE



TREE AND SHRUB RANDOM SPACING  
NOT TO SCALE

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AS-BUILT		FEB 2016

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STORMWATER AND WATERSHED MANAGEMENT EVALUATION / DESIGN-BUILD SERVICES  
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 HOWARD COUNTY CONTRACT # CA 22-2013  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046

LANDSCAPE NOTES & DETAILS

SCALE:	N.T.S.
DATE:	JULY 2015
KG JOB NO.:	19-133314.45
CAPITAL PROJECT NO.:	D-1160
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

WMA Permit No. 15-MR-0059  
EP-15-027

*Matthew J. Boudette*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

7/29/15  
DATE