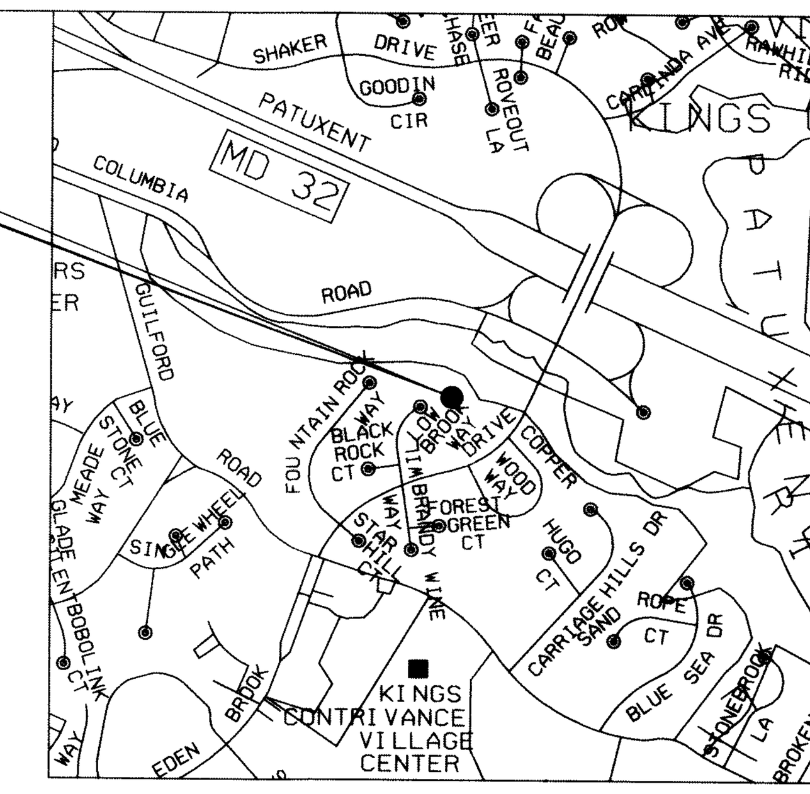
KINGS MEADE, SECTION 1, LOT 81
SWM POND REPAIRS PROJECT

HOWARD COUNTY, MARYLAND
STORMWATER MANAGEMENT DIVISION
CAPITAL PROJECT D-1159

SITE LOCATION



VICINITY MAP
NOT TO SCALE

NO.	REVISIONS DESCRIPTION	DATE

KCIFILE:M:\ 2004 \ 01043223.17\DRAWINGS\ T101willow.dgn

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY AND MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. 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 ANY EXCAVATION WORK BEING DONE.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 5 DAYS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. 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 HOWARD COUNTY SURVEY DIVISION AND AB CONSULTANTS.
5. EXISTING UTILITIES ARE BASED ON FIELD SURVEYS AND AVAILABLE RECORD DRAWINGS.
6. THE WETLAND DELINEATION FOR THIS PROJECT WAS PERFORMED BY KCI TECHNOLOGIES, INC. IN AUGUST 2006.
7. TOPOGRAPHIC SURVEY OF THE SITE WAS PERFORMED BY AB CONSULTANTS, INC. IN AUGUST 2006.
8. A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT. (TRACKING NUMBER 200667514)
9. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
10. 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. THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION.
11. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES BETWEEN THE PLANS AND THE FIELD CONDITIONS, 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.
12. 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.
13. EXISTING GROUND AND/OR VEGETATION DISTURBED BY THE PROPOSED WORK SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITION OR BETTER BY CONCLUSION OF THE PROJECT..
14. THE PROPOSED PROJECT IS LOCATED OFF WILLOW BROOK WAY.
15. THIS UNNAMED TRIBUTARY OF THE LITTLE PATUXENT RIVER IS A USE 1 STREAM. IN-STREAM CONSTRUCTION IS PROHIBITED FOR THE PERIOD OF MARCH 1 TO JUNE 15, INCLUSIVE OF ANY YEAR.

LEGEND

○	EX. TREES
—180—	EXIST. MAJOR CONTOUR
--183--	EXIST. MINOR CONTOUR
—346—	PROP. CONTOURS
Ⓟ	PROP. CONTOURS
⊠ RPS	REMOVABLE PUMPING STATION
SB	SILT BAG FILTERING DEVICE
———	INTAKE & DISCHARGE HOSES
●	SANDBAG DAM
— SF —	SILT FENCE
— SSF —	SUPER SILT FENCE
— OSF —	ORANGE SAFETY FENCE
— LOD —	LIMIT OF DISTURBANCE
SCE	STABILIZED CONSTRUCTION ENTERANCE

INDEX OF SHEETS

SITE ANALYSIS DATA CHART

1. TOTAL PROJECT AREA: 0.39 ACRES.
2. DISTURBED AREA: 0.39 ACRES (16,782 SF).
3. PROPOSED USE FOR THE SITE: RETROFIT EXISTING STORMWATER FACILITY
4. ORIGINAL POND CONSTRUCTION PERFORMED UNDER KINGS MEADE, SECTION 1 (F-85-203).

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.

[illegible] 18470 5-4-07
SIGNATURE PE NO. DATE

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

[illegible] 1/8/07
USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE

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

[illegible] 1/8/07
HOWARD SOIL CONSERVATION DISTRICT DATE

ENGINEER'S CERTIFICATE

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

[illegible] PE# 20903 1/5/07
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) DATE
JAMES G. KESTER, P.E.

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. I SHALL 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. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Howard E. Saltzman 1-8-07
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) DATE
Howard E. Saltzman

HOWARD COUNTY SURVEY CONTROL			
DESIGNATION	NORTHING	EASTING	ELEVATION
42 R1	547820.238	1351171.590	375.85
42 R2	546946.800	1352118.566	331.52

AS - BUILT
MAY 2007

EP-07-07

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
KCI TECHNOLOGIES www.kci.com

STATE OF MARYLAND KERRY B. REXROAD NO. 18470 REGISTERED PROFESSIONAL ENGINEER

KINGS MEADE, SECTION 1, LOT 81
SWM POND REPAIRS
PROJECT

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

TITLE SHEET

SCALE: AS SHOWN
DATE: 1/5/07
KCI JOB NO.: 01-043223.17
CAPITAL PROJECT NO.: D-1159
PERMIT ISSUE:
CONSTRUCTION ISSUE:

PLOTTED: "02:20 PM on Friday, January 05, 2007"
BY: Kristy Potter Division: Water Resources
FILE: M:\2004\01043223.17\drawings\T101willow.dgn

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

Material - 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 cut off 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 tired 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 density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

Structure Backfill

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 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 M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating com-pound. 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.

3. 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 thick-ness.

4. 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. 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.

5. 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.

6. Backfilling shall conform to "**Structure Backfill**".

7. 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 bed-ding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its out-side 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. Materials - 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" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. 3. 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.

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.

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

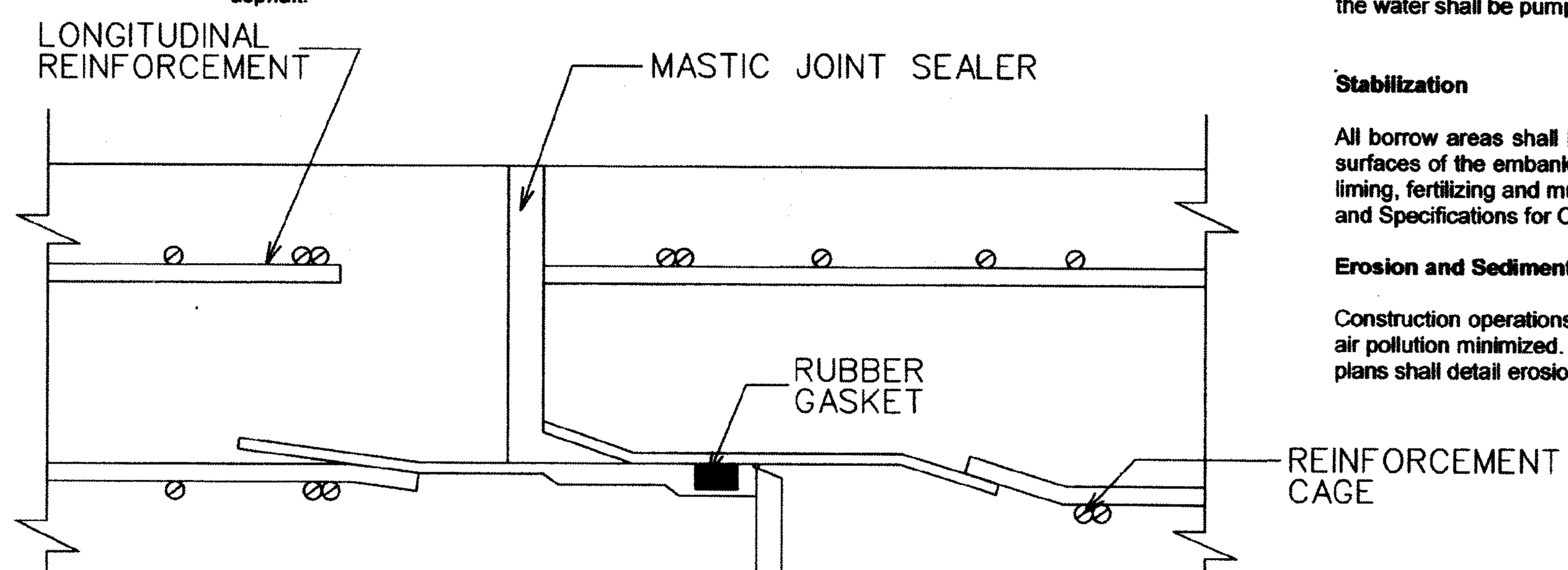
All work on permanent structures shall be carried out in areas free from water. The Con-tractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, in-stall, 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 or directed 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 compacting 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.



BARREL JOINT SEAL DETAIL

AS-BUILT
MAY 2007

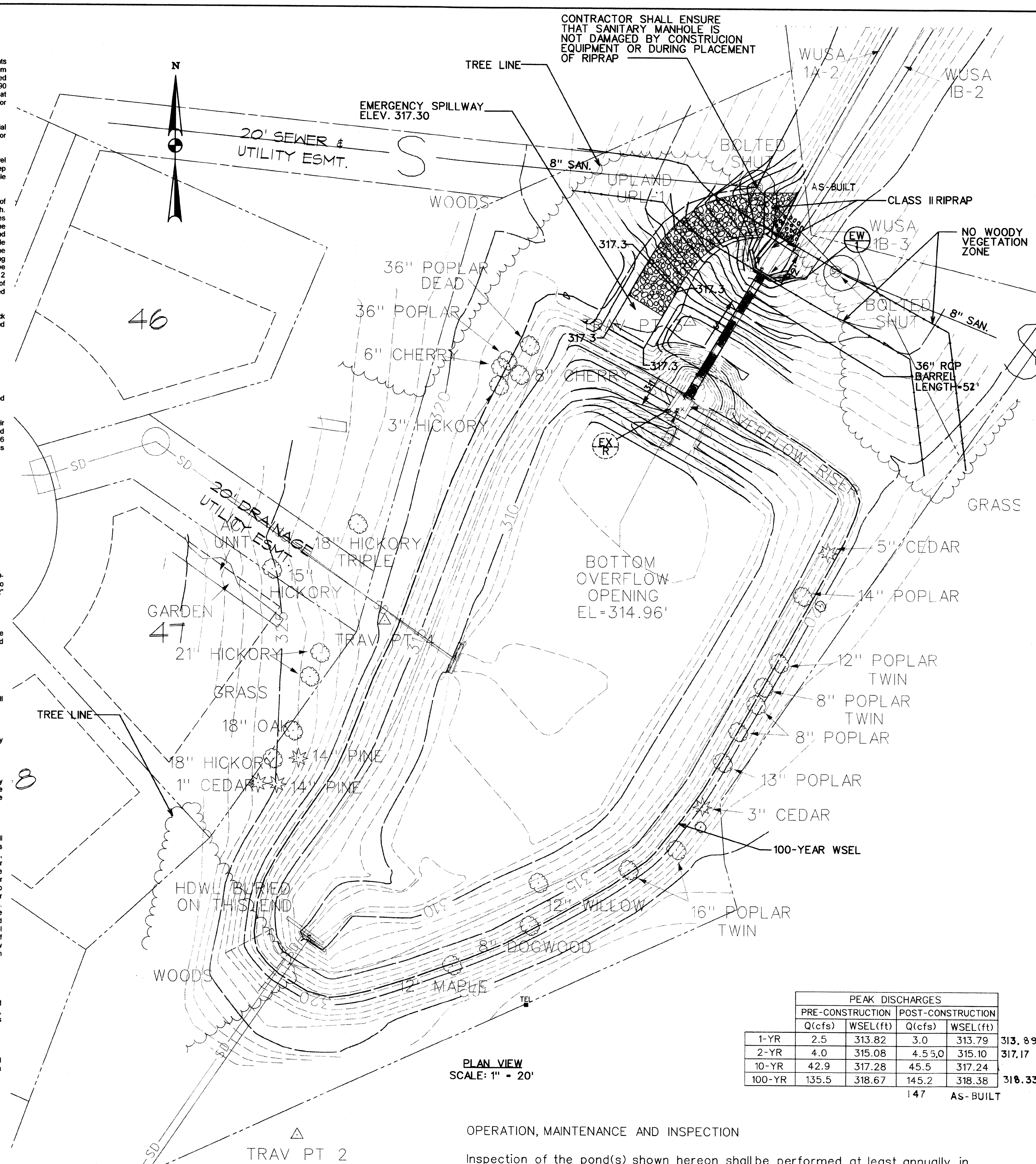
THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

Jim Myers / G.S. — 1/8/07
USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

[signature] — 1/8/07
HOWARD SOIL CONSERVATION DISTRICT — DATE

PLOTTED: "04:29 PM on Friday, January 05, 2007"
BY: Kristy Potter Division: Water Resources
FILE: M:\2004\01043223.17\drawings\PS01willow.dgn



PLAN VIEW
SCALE: 1" = 20'

	PEAK DISCHARGES				
	PRE-CONSTRUCTION		POST-CONSTRUCTION		
	Q(cfs)	WSEL(ft)	Q(cfs)	WSEL(ft)	
1-YR	2.5	313.82	3.0	313.79	313.89
2-YR	4.0	315.08	4.5 5.0	315.10	317.17
10-YR	42.9	317.28	45.5	317.24	
100-YR	135.5	318.67	145.2	318.38	318.33
			147	AS-BUILT	

OPERATION, MAINTENANCE AND INSPECTION

Inspection of the pond(s) shown hereon shall be performed at least annually, in accordance with the checklist and requirements contained within USDA, NRCS "Standards And Specifications For Ponds" (MD-378). The pond owner(s) and any heirs, successors, or assigns shall be responsible for the safety of the pond and the continued operation, surveillance, inspection, and maintenance thereof. The pond owner(s) shall promptly notify the Soil Conservation District of any unusual observations that may be indications of distress such as excessive seepage, turbid seepage, sliding, or slumping.

EP-07-07

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2004 \ 01043223.17\DRAWINGS\ PS01willow.dgn

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
www.kci.com

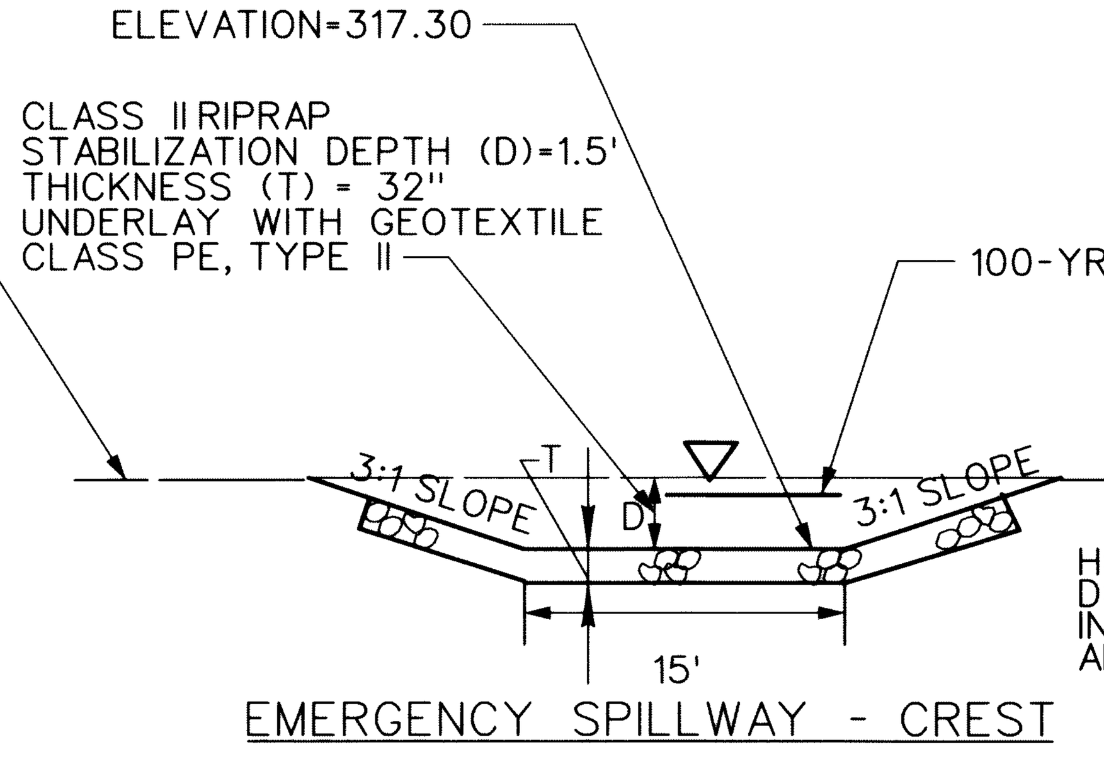
STATE OF MARYLAND — PROFESSIONAL ENGINEER

KINGS MEADE SECTION 1, LOT 81
SWM POND REPAIRS PROJECT

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

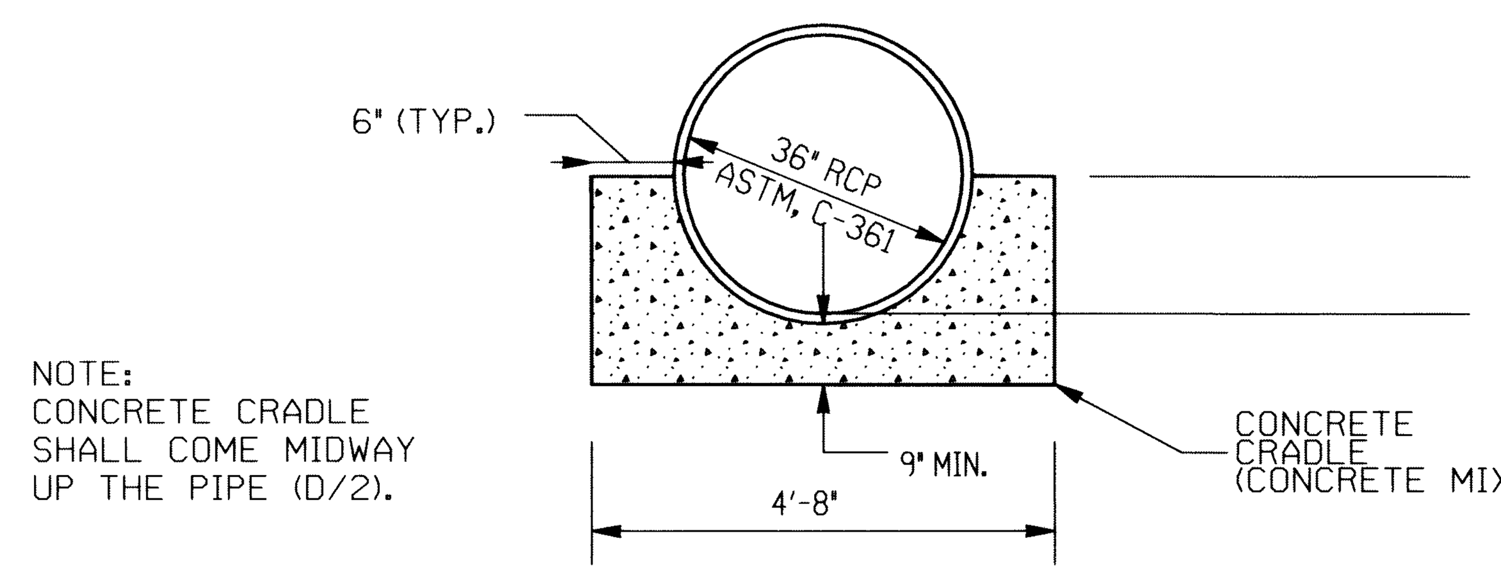
STORMWATER MANAGEMENT PLAN

SCALE: 1"= 20'
DATE: 1/5/07
KCI JOB NO.: 01-043223.17
CAPITAL PROJECT NO.: D-1159
PERMIT ISSUE:
CONSTRUCTION ISSUE:



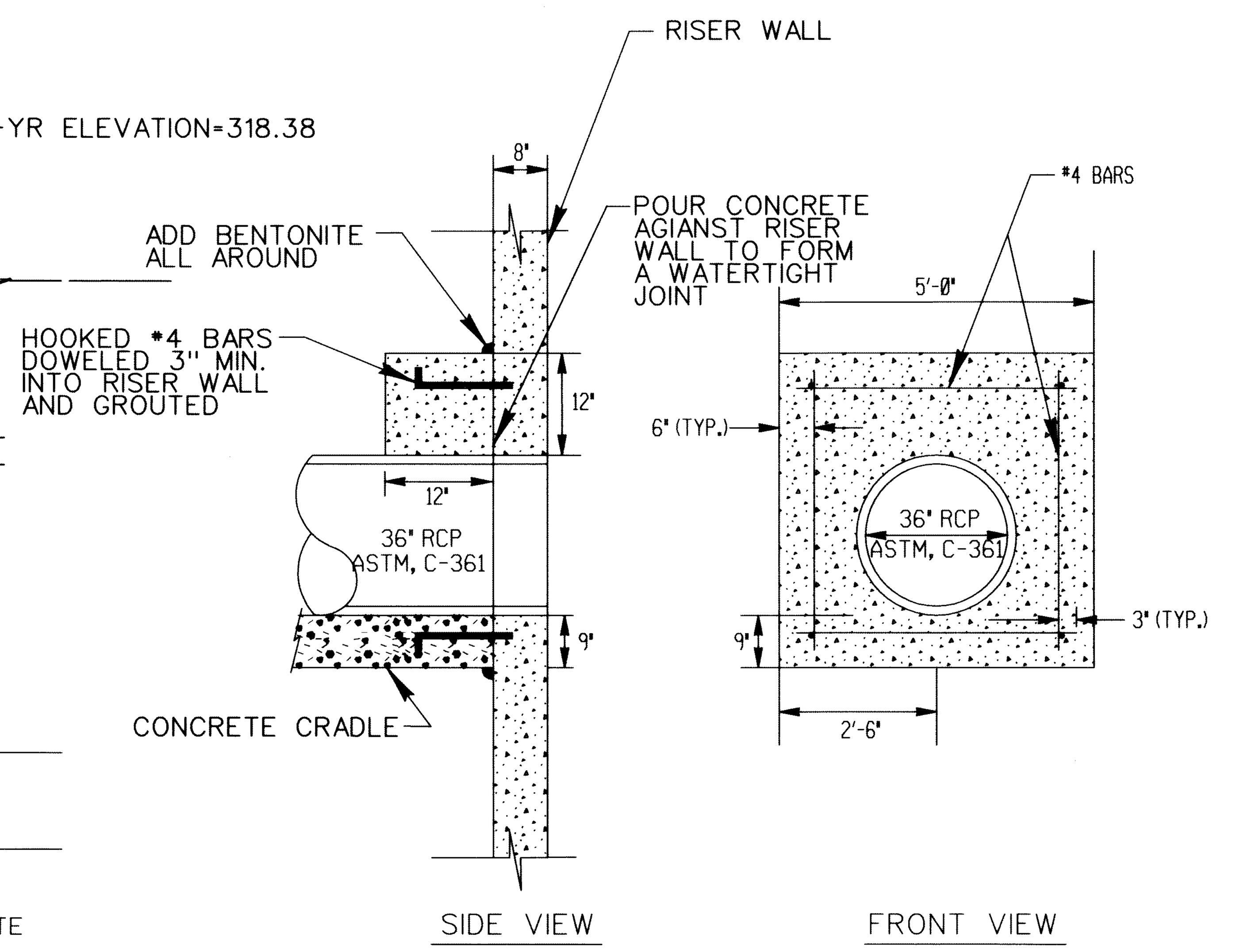
EMERGENCY SPILLWAY - CREST

NOT TO SCALE



PRINCIPAL SPILLWAY CONCRETE CRADLE DETAIL

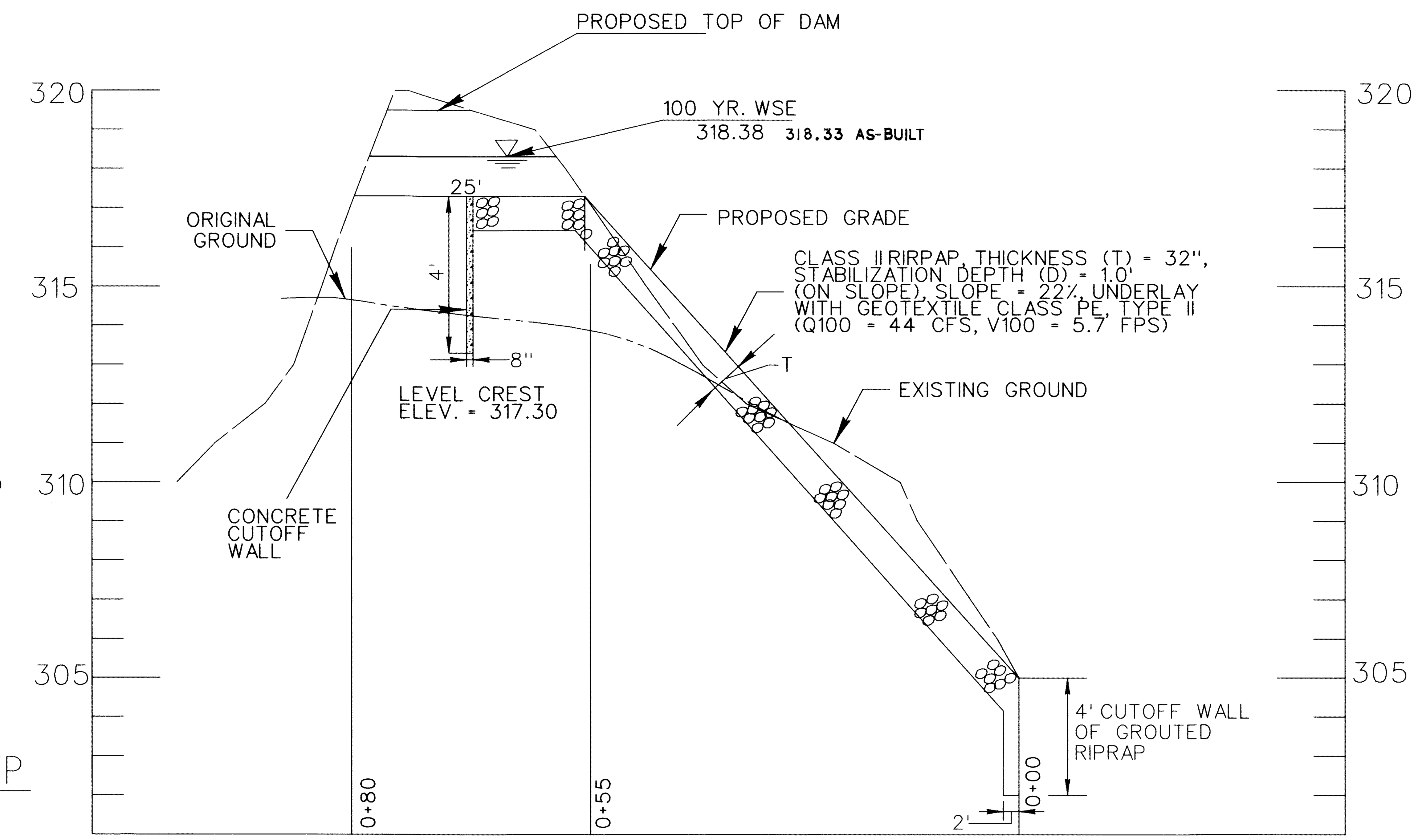
NOT TO SCALE



CONCRETE COLLAR DETAIL FOR 36" RCP

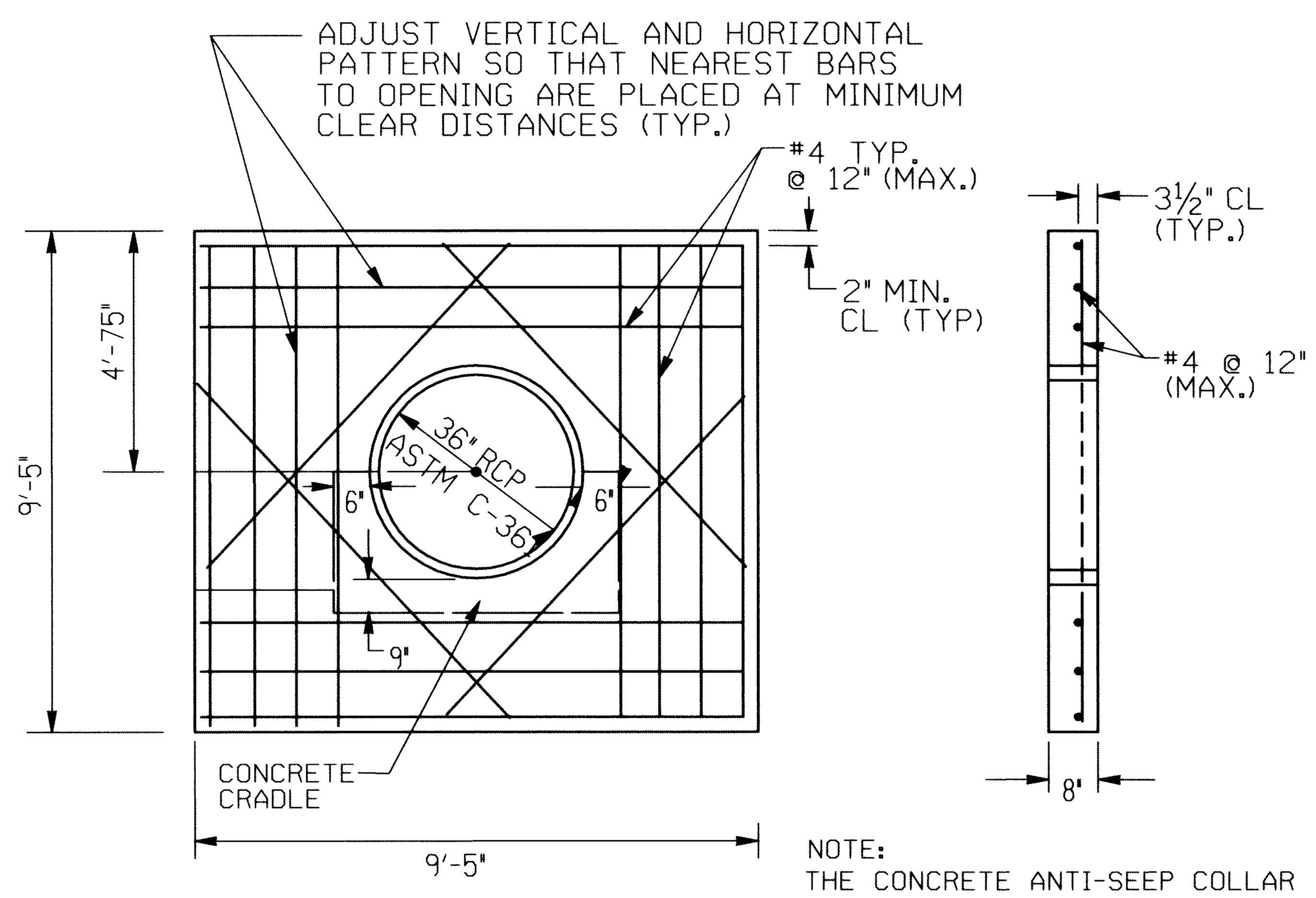
NOT TO SCALE

NOTE: FILL VOID IN EXISTING RISER WALL AROUND 36" RCP WITH CONCRETE AND PARGE.



PROFILE ALONG ℄ OF EMERGENCY SPILLWAY

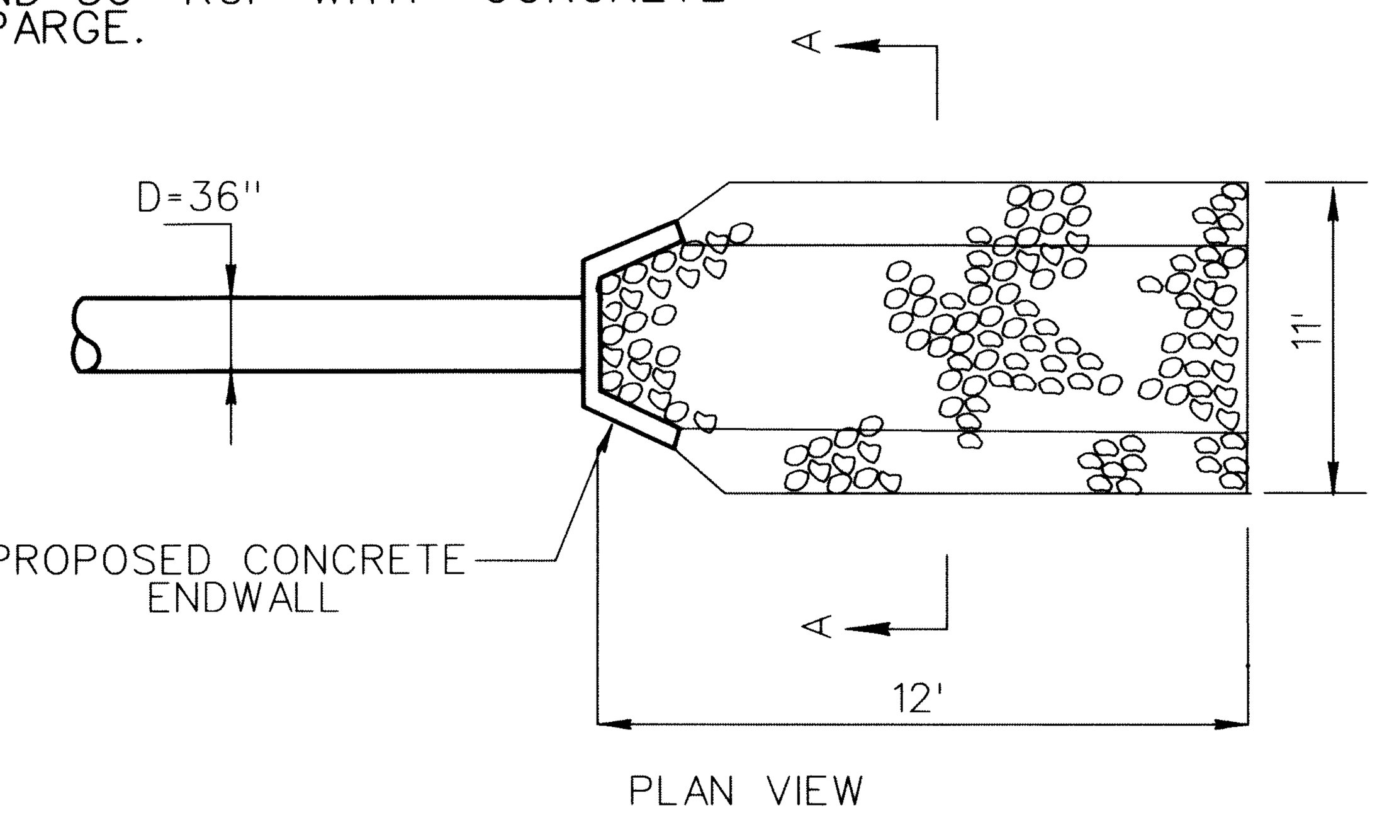
NOT TO SCALE

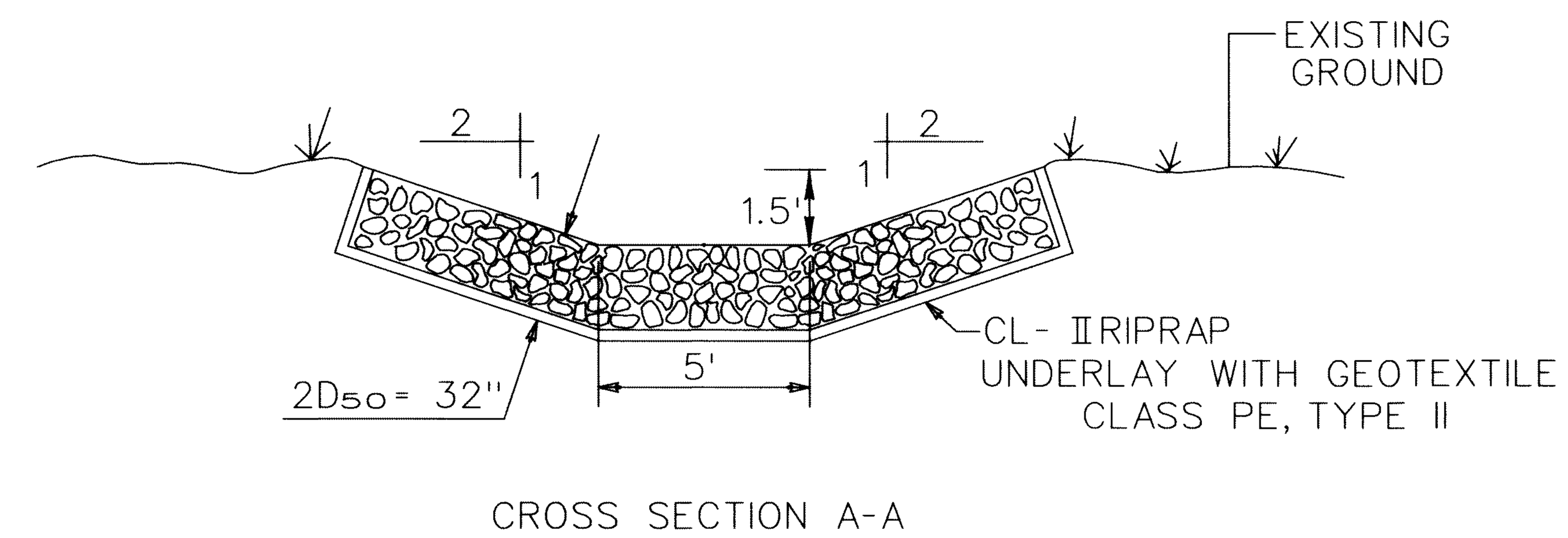


NOTE:
THE CONCRETE ANTI-SEEP COLLAR SHALL BE FINISHED IN ONE POUR.

CONCRETE ANTI-SEEP COLLAR DETAIL

NOT TO SCALE

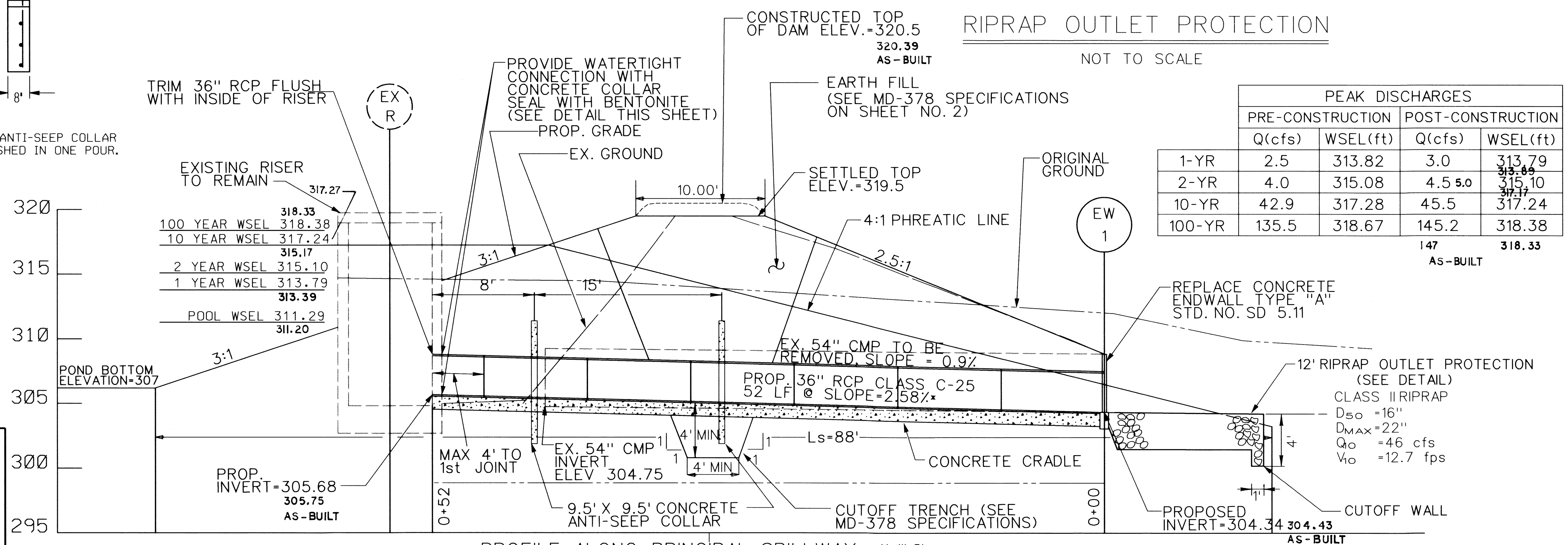




RIPRAP OUTLET PROTECTION

NOT TO SCALE

PEAK DISCHARGES				
	PRE-CONSTRUCTION		POST-CONSTRUCTION	
	Q(cfs)	WSEL(ft)	Q(cfs)	WSEL(ft)
1-YR	2.5	313.82	3.0	313.79 313.39
2-YR	4.0	315.08	4.5 5.0	315.10 315.17
10-YR	42.9	317.28	45.5	317.24
100-YR	135.5	318.67	145.2 147 AS-BUILT	318.38 318.33



PROFILE ALONG PRINCIPAL SPILLWAY H: 1"=5' V: 1"=5'

*NOTE: SEE BARREL JOINT SEAL DETAIL ON SHEET 2

*NOTE

1) ANTI-SEEP COLLAR AT THE CONNECTION TO THE CONDUIT SHALL BE WATERTIGHT.

2) ANTI-SEEP COLLAR SHALL BE PLACED A MINIMUM OF TWO FEET FROM PIPE JOINTS.

AS-BUILT, MAY 2007

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 1/8/07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 1/8/07

NO.	REVISIONS DESCRIPTION	DATE

KCIFILE=\\ 2004 \\ 010432223.17\\DRAWINGS\\ SW02willow.dgn

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
www.kci.com

KCI TECHNOLOGIES

KINGS MEADE, SECTION 1, LOT 81 SWM POND REPAIRS PROJECT

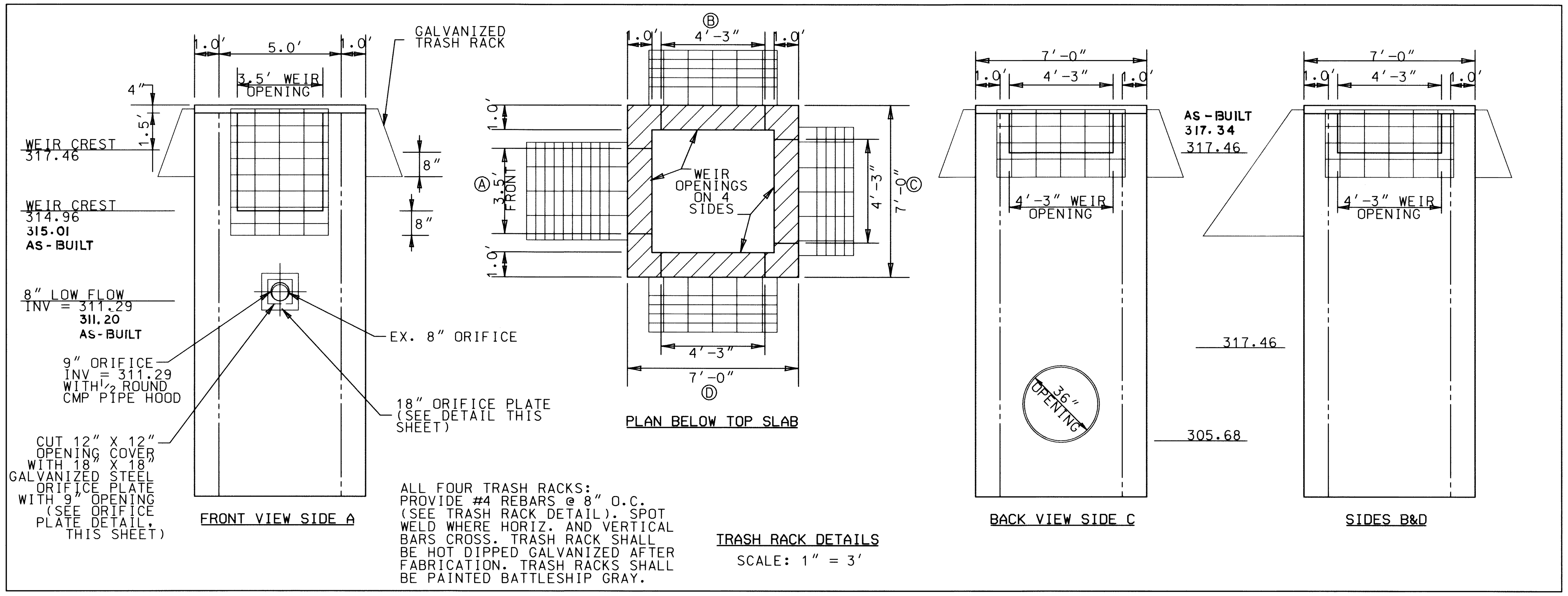
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

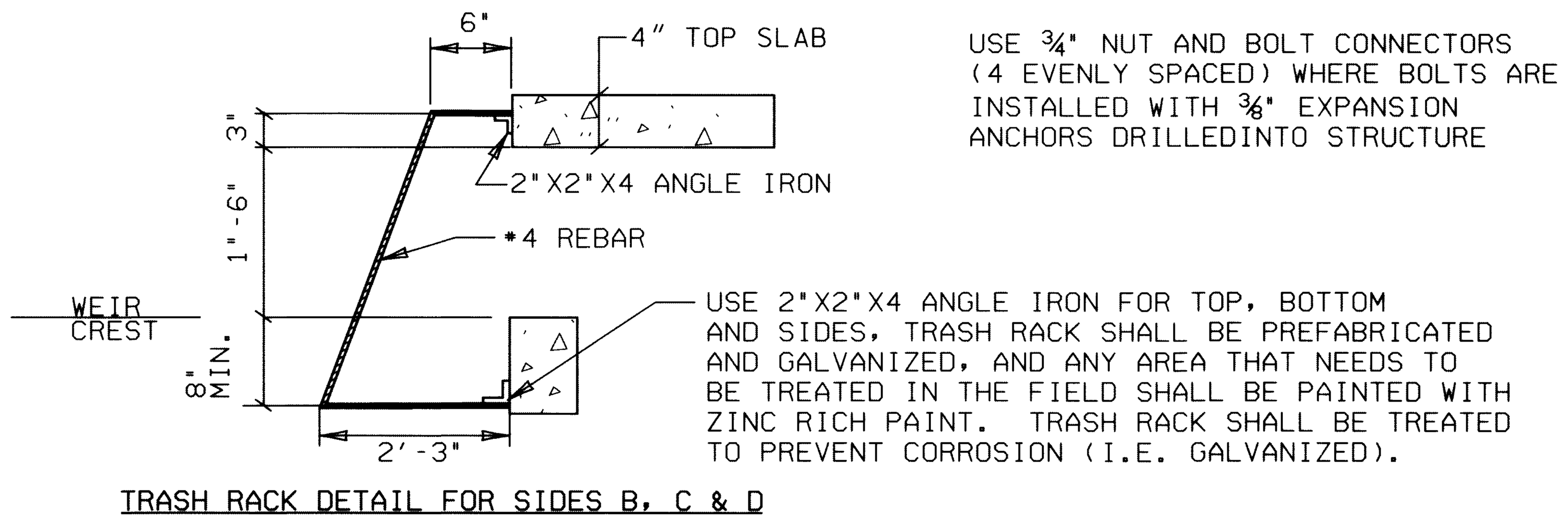
SWM RETROFIT DETAILS

SCALE: AS SHOWN
DATE: 1/5/07
KCI JOB NO.: 01-043223.17
CAPITAL PROJECT NO.: D-1159
PERMIT ISSUE:
CONSTRUCTION ISSUE:

EP-07-07

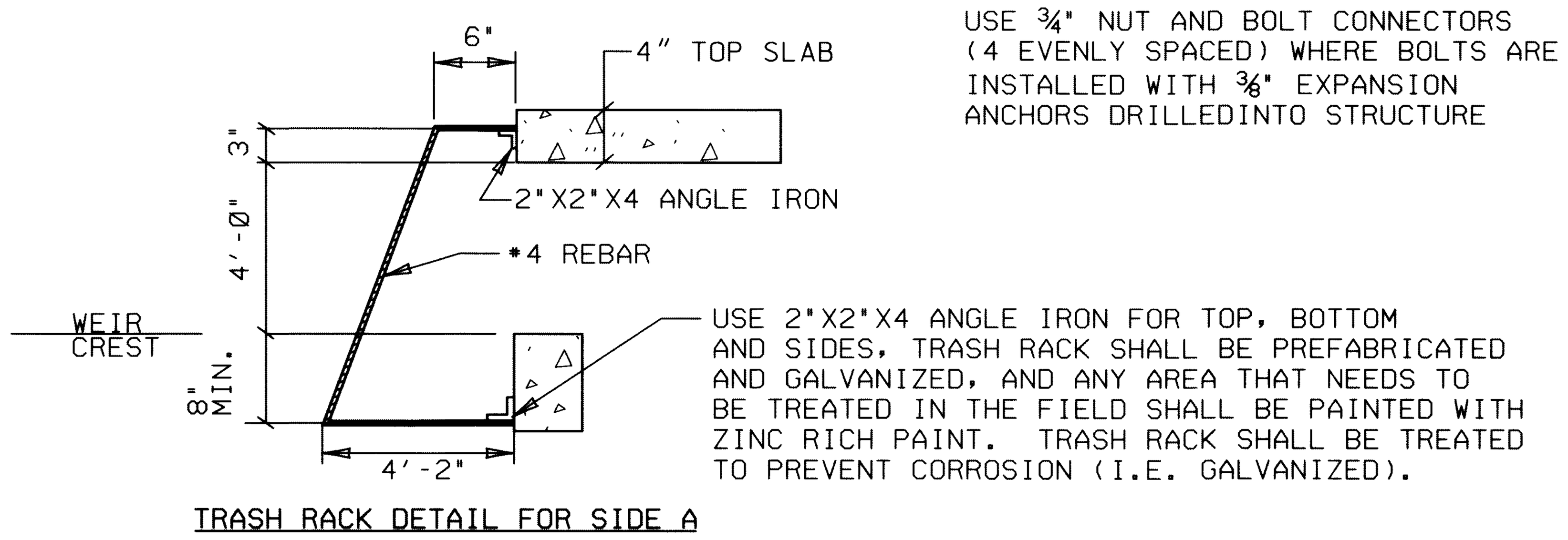
SHEET NO.: 3 OF 6





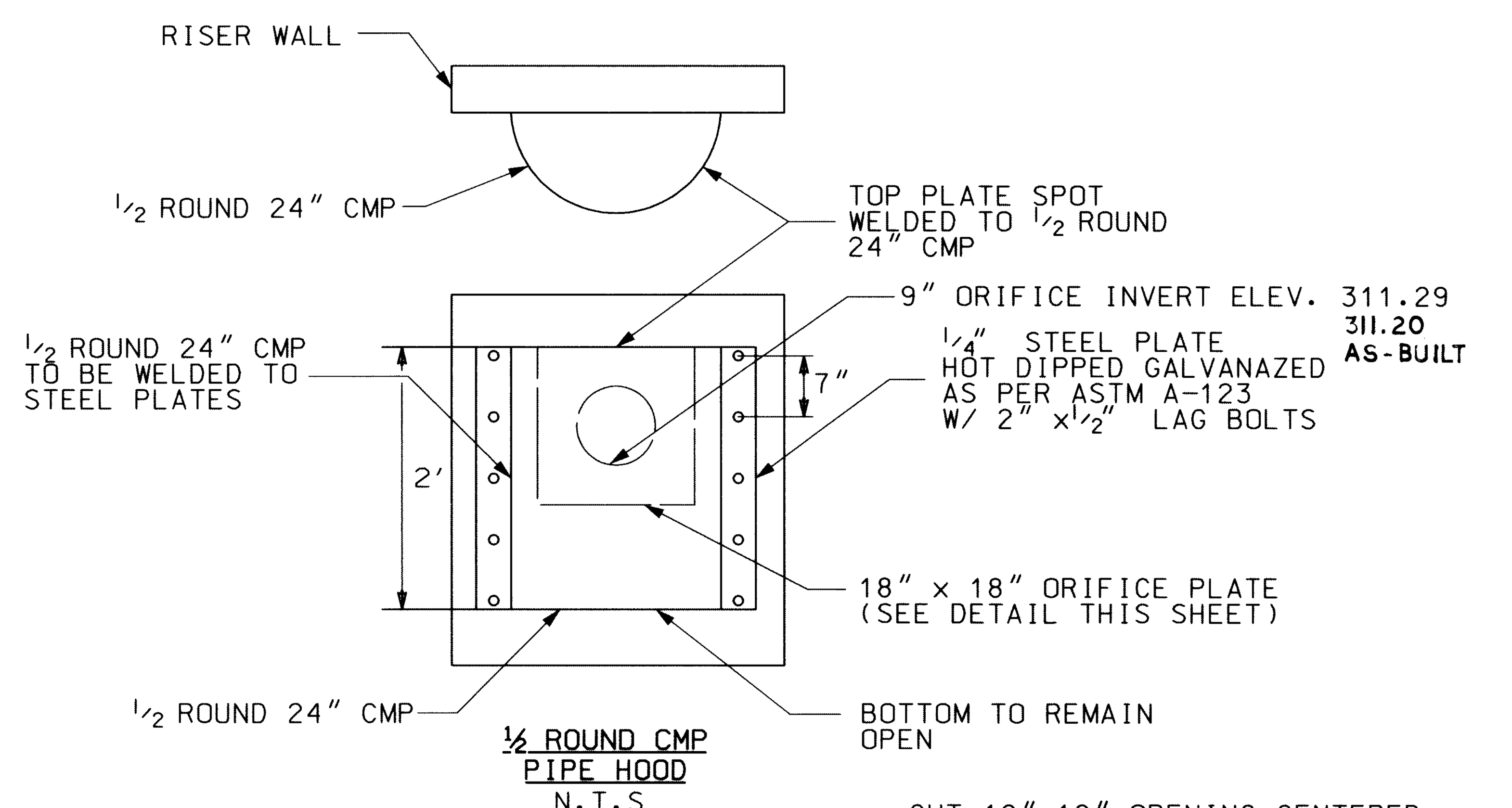
USE ¾" NUT AND BOLT CONNECTORS (4 EVENLY SPACED) WHERE BOLTS ARE INSTALLED WITH ⅜" EXPANSION ANCHORS DRILLEDINTO STRUCTURE

TRASH RACK DETAIL FOR SIDES B, C & D
NOT TO SCALE

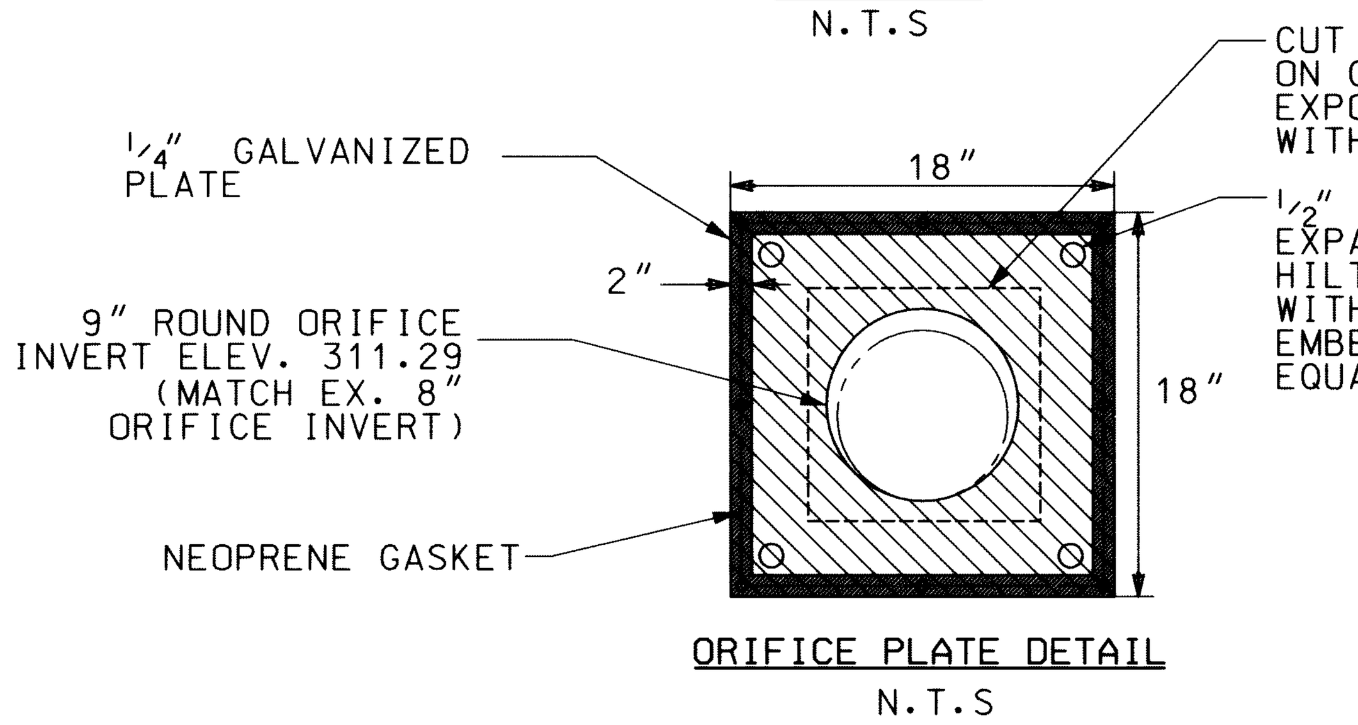


USE ¾" NUT AND BOLT CONNECTORS (4 EVENLY SPACED) WHERE BOLTS ARE INSTALLED WITH ⅜" EXPANSION ANCHORS DRILLEDINTO STRUCTURE

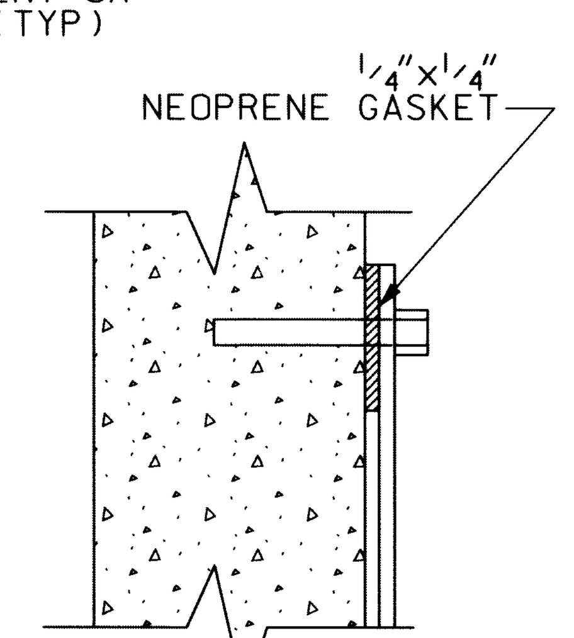
TRASH RACK DETAIL FOR SIDE A
NOT TO SCALE



½ ROUND CMP PIPE HOOD
N.T.S



ORIFICE PLATE DETAIL
N.T.S



ORIFICE PLATE GASKET DETAIL
N.T.S

AS-BUILT, MAY 2007

NOTES

1) THE CONTRACTOR SHALL FIELD MEASURE THE RISER STRUCTURE DIMENSIONS FOR EXACT FITTING OF TRASH RACKS.

2) THE CONTRACTOR SHALL HOT-DIP GALVANIZE TRASH RACKS AS PER ASTM AL23.

3) ANGLES SHALL CONFORM TO ASTM A36.

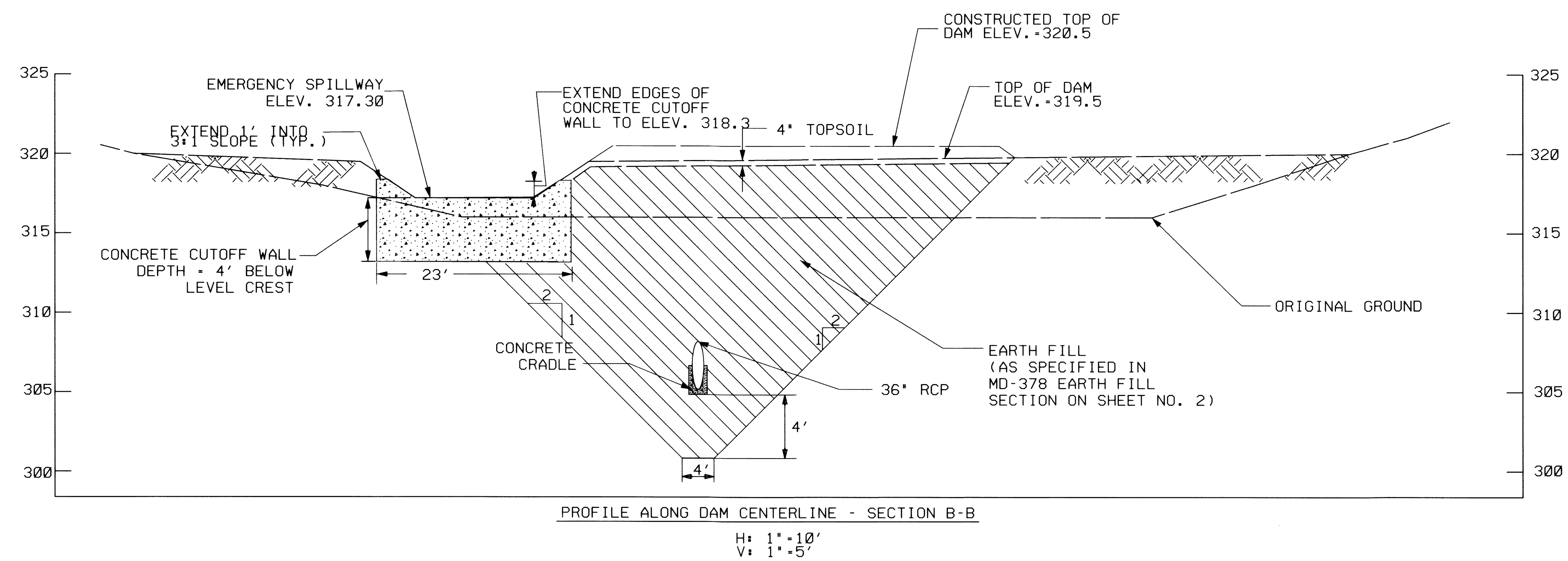
4) ALL #4 REBAR TO BE WELDED TO EACH OTHER WHERE THEY CROSS (8" EACH WAY) AND TO 2"x2"x4 ANGLE IRON.

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

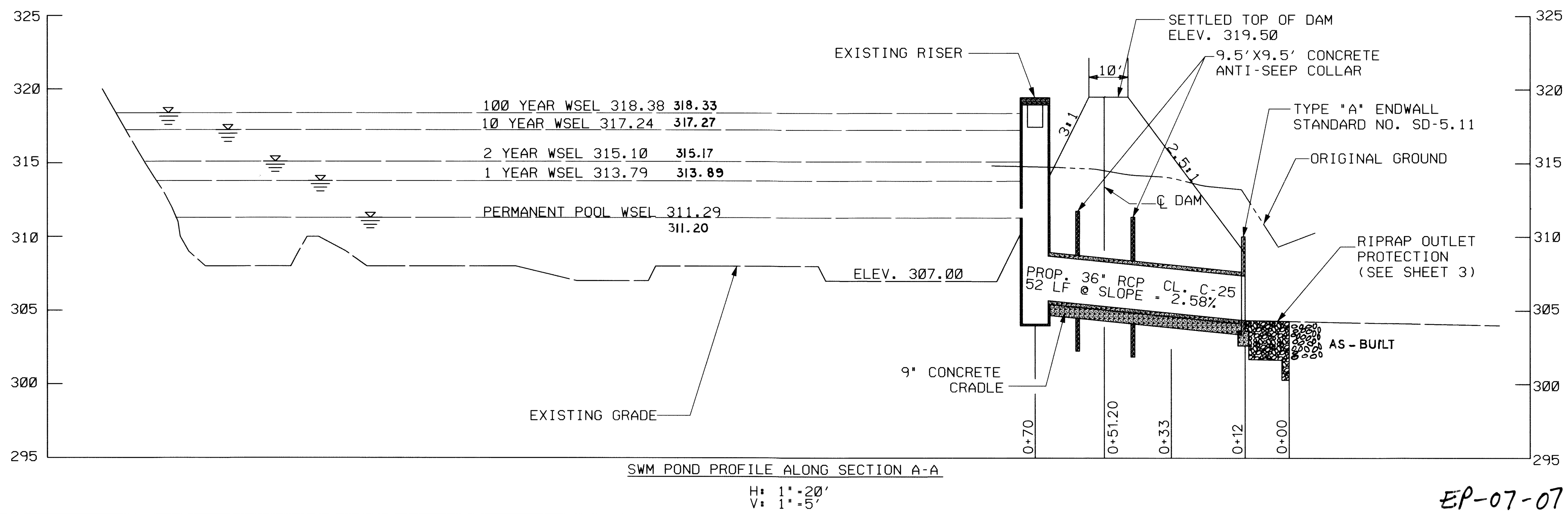
USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 1/8/07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 1/8/07



PROFILE ALONG DAM CENTERLINE - SECTION B-B
H: 1"-10'
V: 1"-5'



SWM POND PROFILE ALONG SECTION A-A
H: 1"-20'
V: 1"-5'

EP-07-07

NO.	REVISIONS DESCRIPTION	DATE

KCIFILEM:\ 2004 \ 01043223.17\DRAWINGS\ SW01willow.dgn

KCI TECHNOLOGIES
ENGINEERS · PLANNERS · SCIENTISTS · CONSTRUCTION MANAGERS
www.kci.com

KINGS MEADE, SECTION 1, LOT 81 SWM POND REPAIRS PROJECT

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

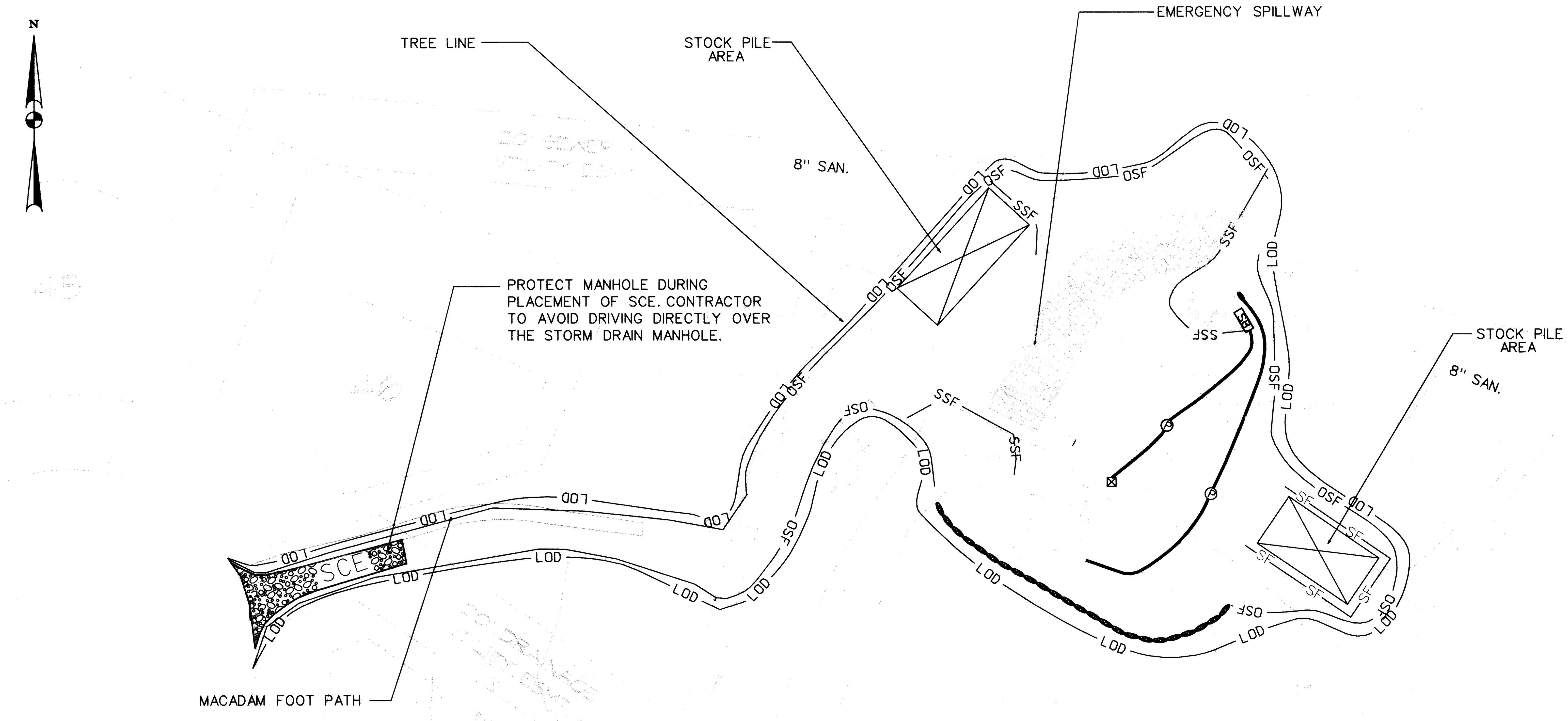
SWM RETROFIT DETAILS

SCALE:	AS SHOWN
DATE:	1/5/07
KCI JOB NO.:	01-043223.17
CAPITAL PROJECT NO.:	D-1159
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

PLOTTED: 02:24 PM on Friday, January 05, 2007
BY: Kristy Potter Division: Water Resources
FILE: M:\2004\01043223.17\drawings\SW01willow.dgn

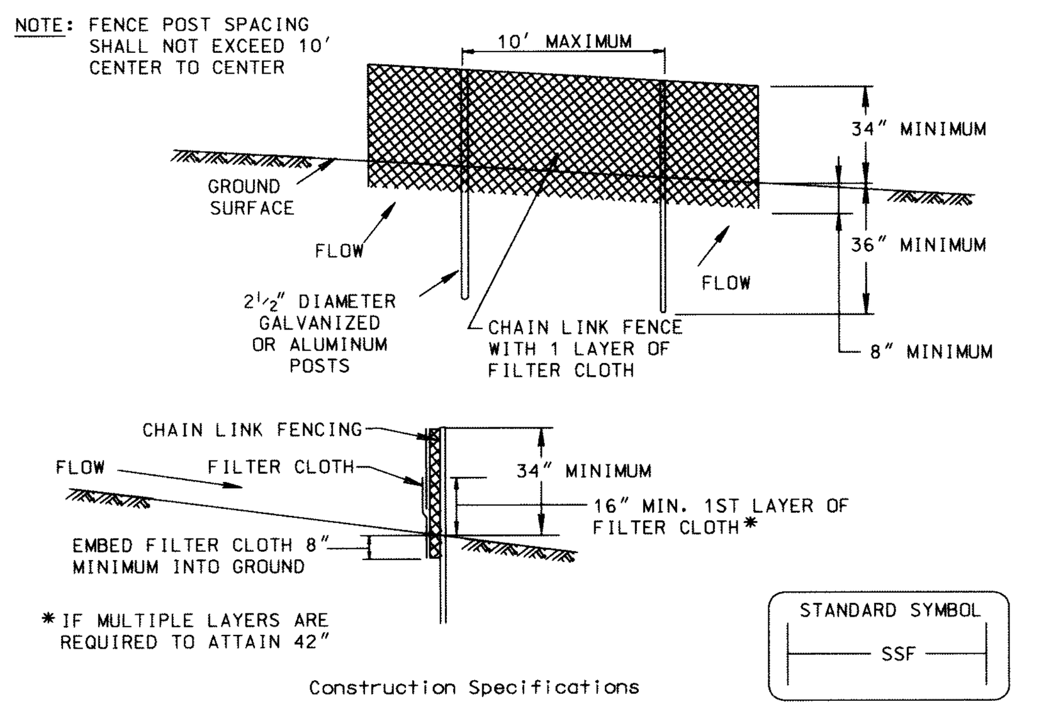
SEQUENCE OF CONSTRUCTION

1 WEEK	1. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AND THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS/ BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION (410-313-1880) AT LEAST 5 DAYS PRIOR TO BEGINNING ANY WORK. THIS UNNAMED TRIBUTARY TO THE LITTLE PATUXENT RIVER IS A USE 1 STREAM. IN-SREAM CONSTRUCTION IS PROHIBITED DURING THE PERIOD OF MARCH 1 TO JUNE 15, INCLUSIVE OF ANY YEAR.
1 DAY	2. CONTRACTOR SHALL COORDINATE AN ON-SITE PRE-CONSTRUCTION MEETING WHICH SHALL INCLUDE, BUT NOT BE LIMITED TO, THE COUNTY PROJECT MANAGER, THE ENGINEER, AND A REPRESENTATIVE FROM HOWARD COUNTY CONSTRUCTION INSPECTION.
1 DAY	3. CLEAR AND GRUB THOSE AREAS WITHIN THE LIMIT OF DISTURBANCE REQUIRED TO ESTABLISH THE PROPOSED SEDIMENT CONTROL MEASURES.
3 DAYS	5. CONSTRUCT ALL PERIMETER CONTROL DEVICES INCLUDING SILT FENCE, ORANGE SAFETY FENCE AND SCE. NO WORK SHALL BE PERFORMED UNTIL THESE DEVICES ARE APPROVED BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
3 DAYS	6. INSTALL SANDBAG DIVERSION AT EXISTING RISER AND DEWATER ENTRAPPED AREA AS SHOWN ON THE PLANS. INSTALL PROPOSED 36" RCP BARREL, END SECTION AND RIRPAP OUTLET PROTECTION AND BACKFILL TRENCH ACCORDING TO THE RETROFIT PLANS. NO SEDIMENT-LADEN FLOW SHALL BE ALLOWED TO ENTER THE DOWNSTREAM CHANNEL.
2 WEEKS	7. CONSTRUCT EMERGENCY SPILLWAY DURING PERIOD OF DRY WEATHER AND PROVIDE PERMANENT STABILIZATION ACCORDING TO RETROFIT PLANS IMMEDIATELY UPON COMPLETION.
1 DAY	8. BLOCK OFF INFLOW PIPES AND PROVIDE PUMP-AROUND, IF REQUIRED FOR CONSTRUCTION. DEWATER ENTRAPPED AREA AS SHOWN ON THE PLANS. NO SEDIMENT-LADEN FLOW SHALL BE ALLOWED TO ENTER THE DOWNSTREAM CHANNEL.
1 WEEK	9. GRADE THE FOREBAY AREA ACCORDING TO THE RETROFIT PLANS.
2 DAYS	10. PLACE TOPSOIL AND PERMANENTLY STABILIZE ALL DISTURBED AREAS.
1 DAY	11. WHEN THE SITE IS STABILIZED AND WITH THE PERMISSION OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE ANY AREAS DISTURBED BY THIS ACTIVITY.



WILLOW BROOK WAY

DETAIL 33 - SUPER SILT FENCE



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

4. Filter cloth shall be embedded a minimum of 8" into the ground.

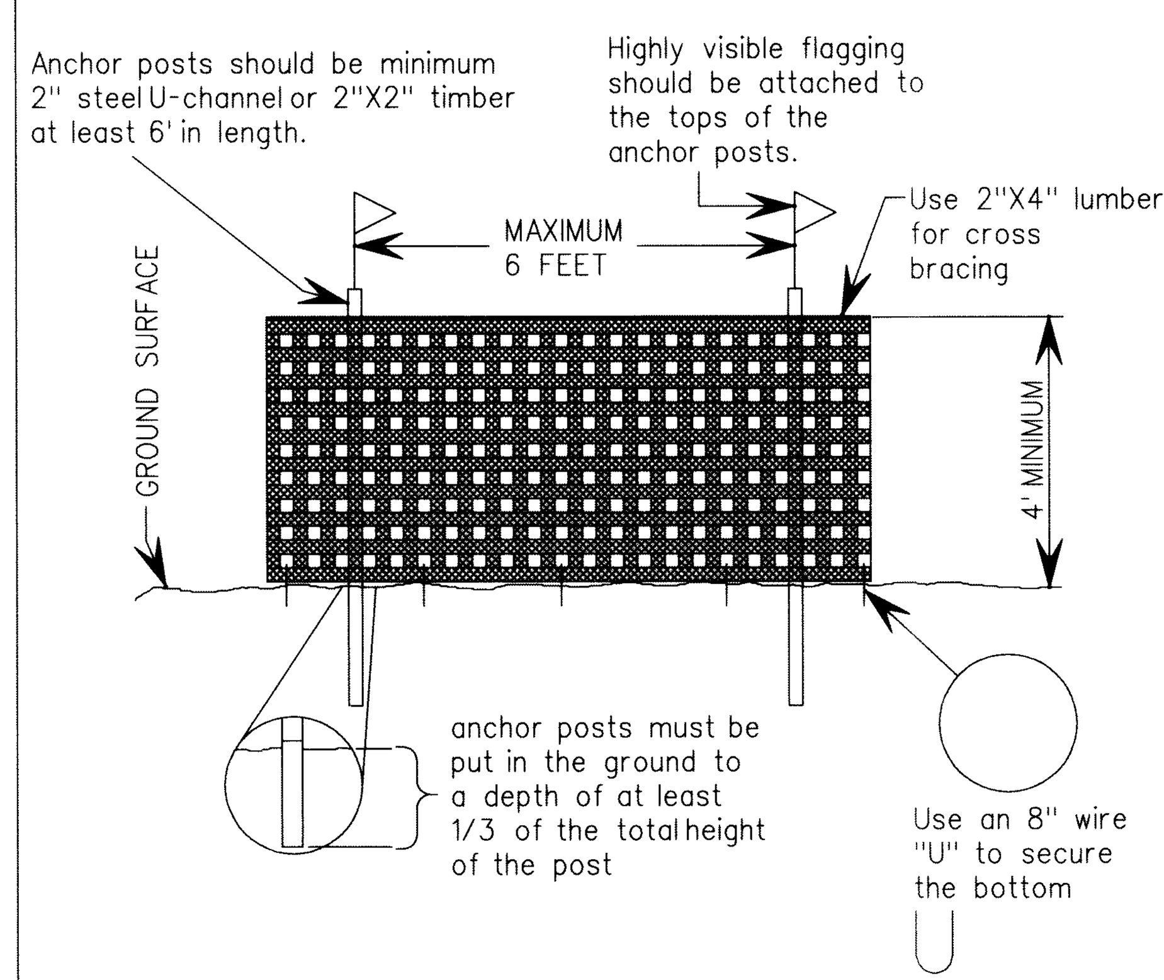
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height

7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

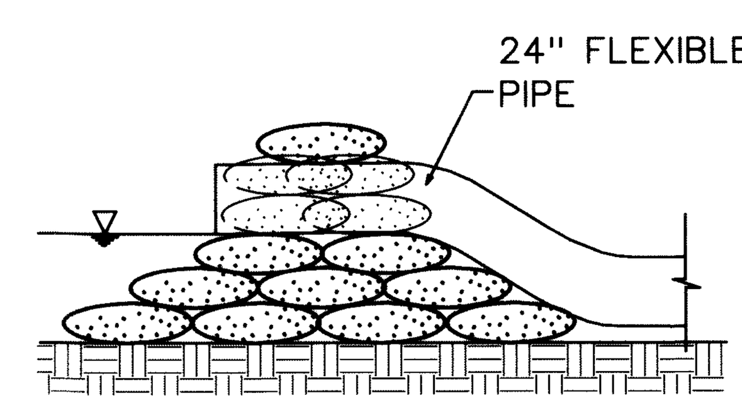
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

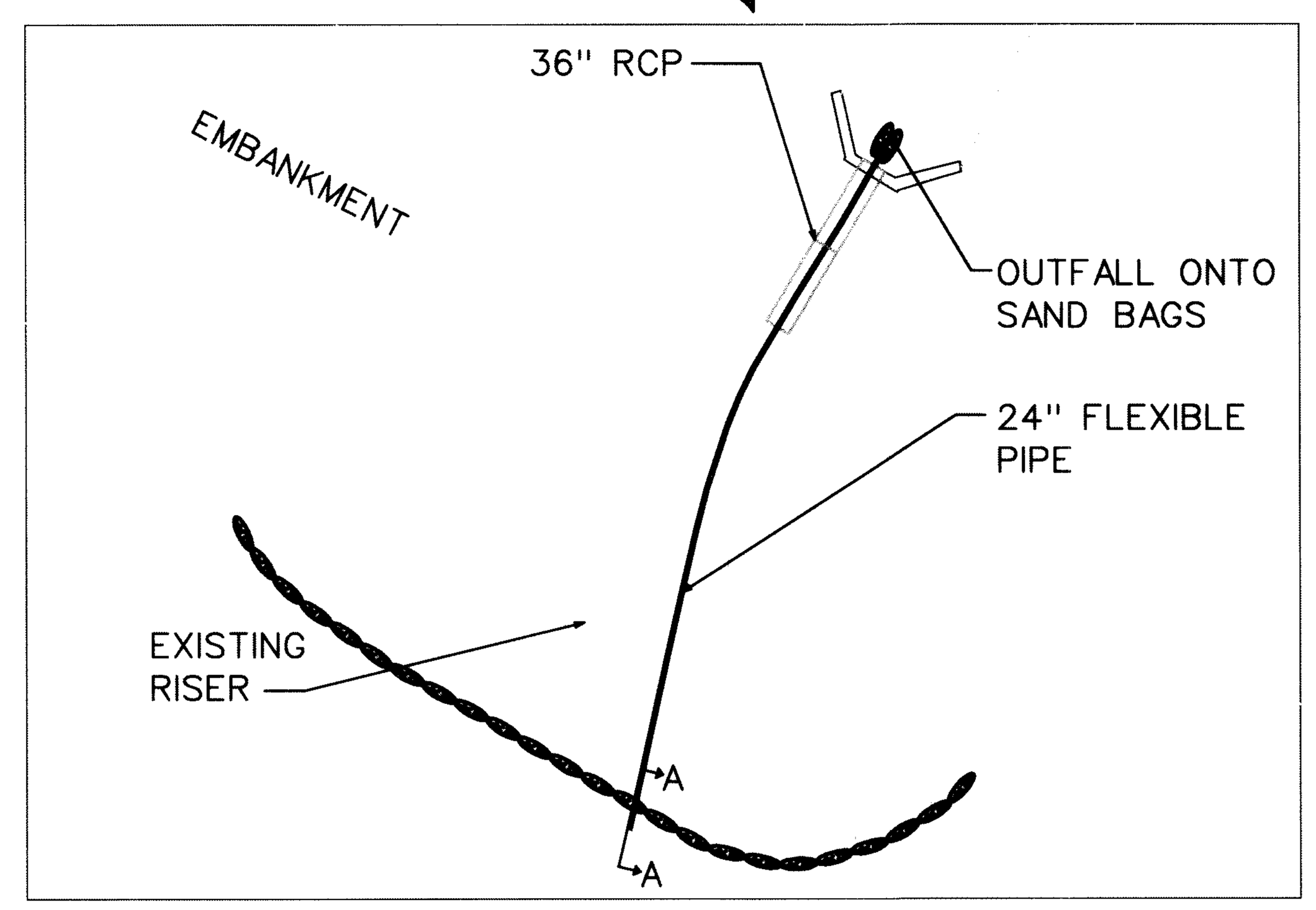


DETAIL FOR
BLAZE ORANGE PLASTIC
MESH SAFETY FENCE
NOT TO SCALE

PLAN VIEW
SCALE: 1" = 20'



SECTION A-A



ALTERNATE DIVERSION
N.T.S

NOTE: TO BE USED AT THE DESCRETION OF THE INSPECTOR WHEN PUMP IS TURNED OFF.

LEGEND

⊙	EX. TREES
—180—	EXIST. MAJOR CONTOUR
—183—	EXIST. MINOR CONTOUR
—346—	PROP. CONTOURS
Ⓟ	PROP. CONTOURS
⊠ RPS	REMOVABLE PUMPING STATION
SB	SILT BAG FILTERING DEVICE
———	INTAKE & DISCHARGE HOSES
(sandbag symbol)	SANDBAG DAM
——— SF	SILT FENCE
—SSF—	SUPER SILT FENCE
—OSF—	ORANGE SAFETY FENCE
——— LOD	LIMIT OF DISTURBANCE
SCE	STABILIZED CONSTRUCTION ENTRANCE

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 1/8/07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 1/8/07

EP-07-07

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2004 \ 01043223.17\DRAWINGS\ ES01willow.dgn

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

KCI TECHNOLOGIES www.kci.com

STATE OF MARYLAND — KERRY B. REXAOND — No. 18470 — PROFESSIONAL ENGINEER

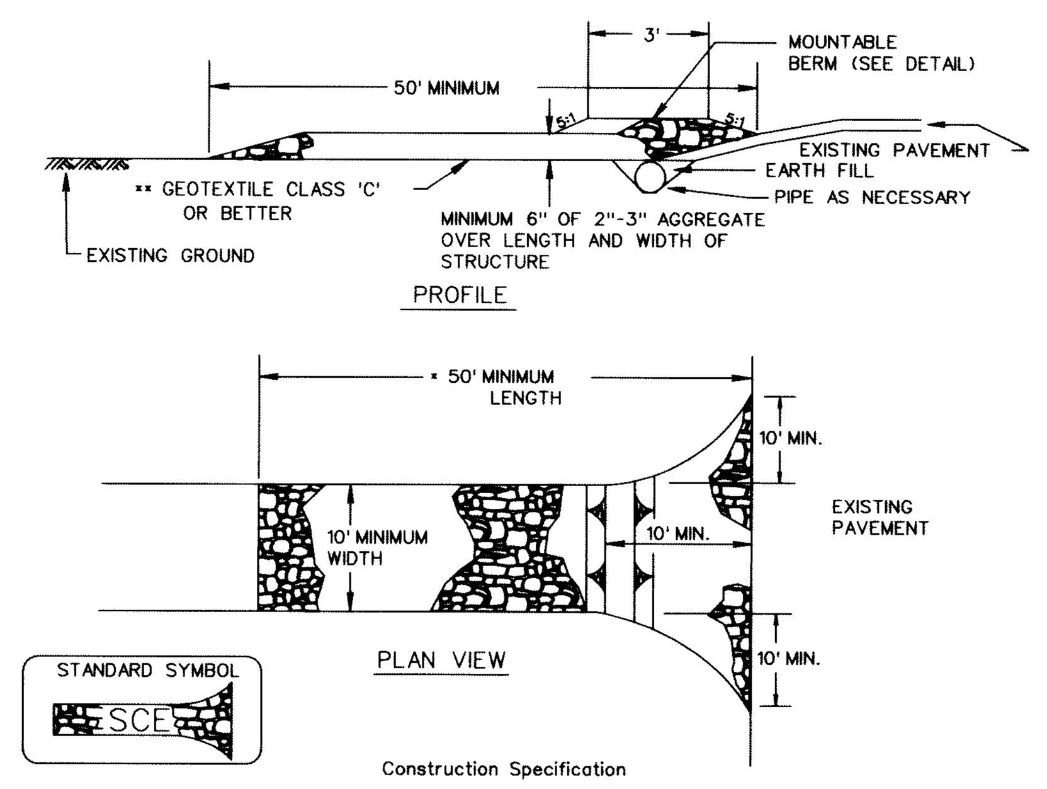
KINGS MEADE, SECTION 1, LOT 81 SWM POND REPAIRS PROJECT

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

SEDIMENT AND EROSION CONTROL PLAN

SCALE:	AS SHOWN
DATE:	1/5/07
KCI JOB NO.:	01-043223.17
CAPITAL PROJECT NO.:	D-1159
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length - minimum of 50' (*30' for single residence lot).

2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

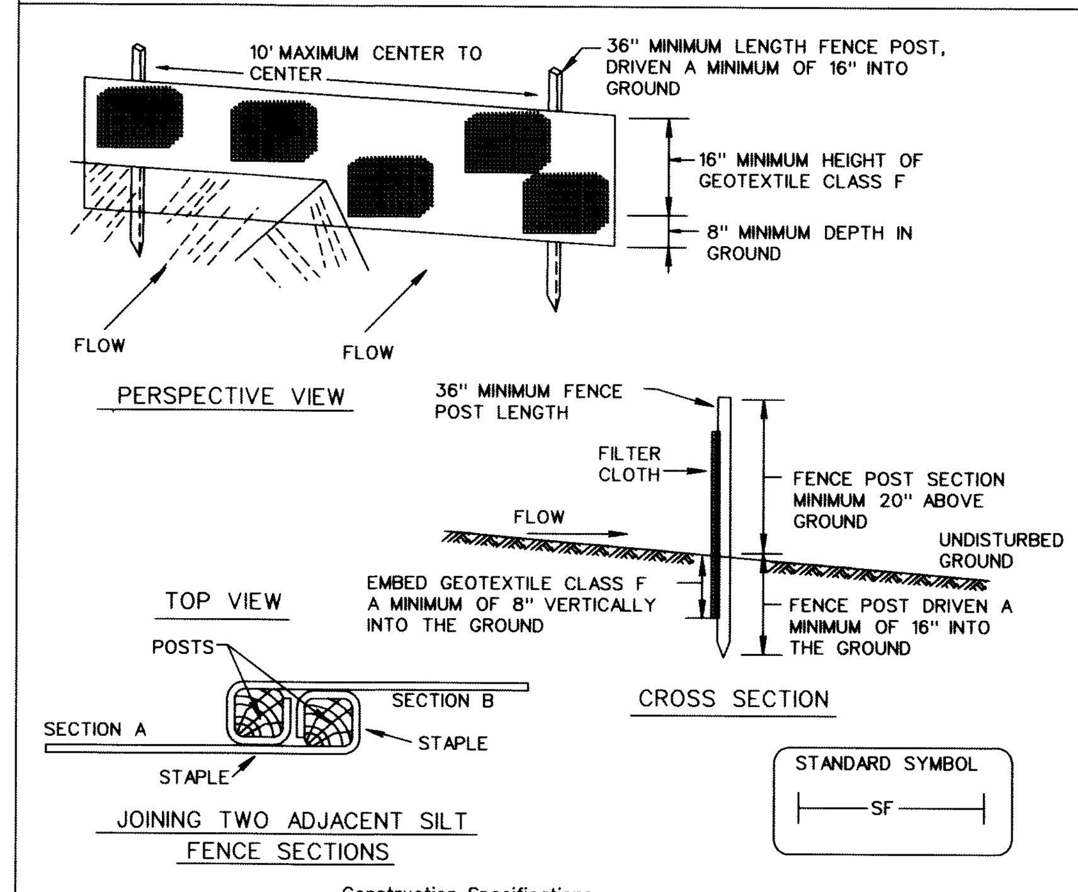
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F --17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22. - SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1½" x 1½" square (minimum) cut, or 1¾" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

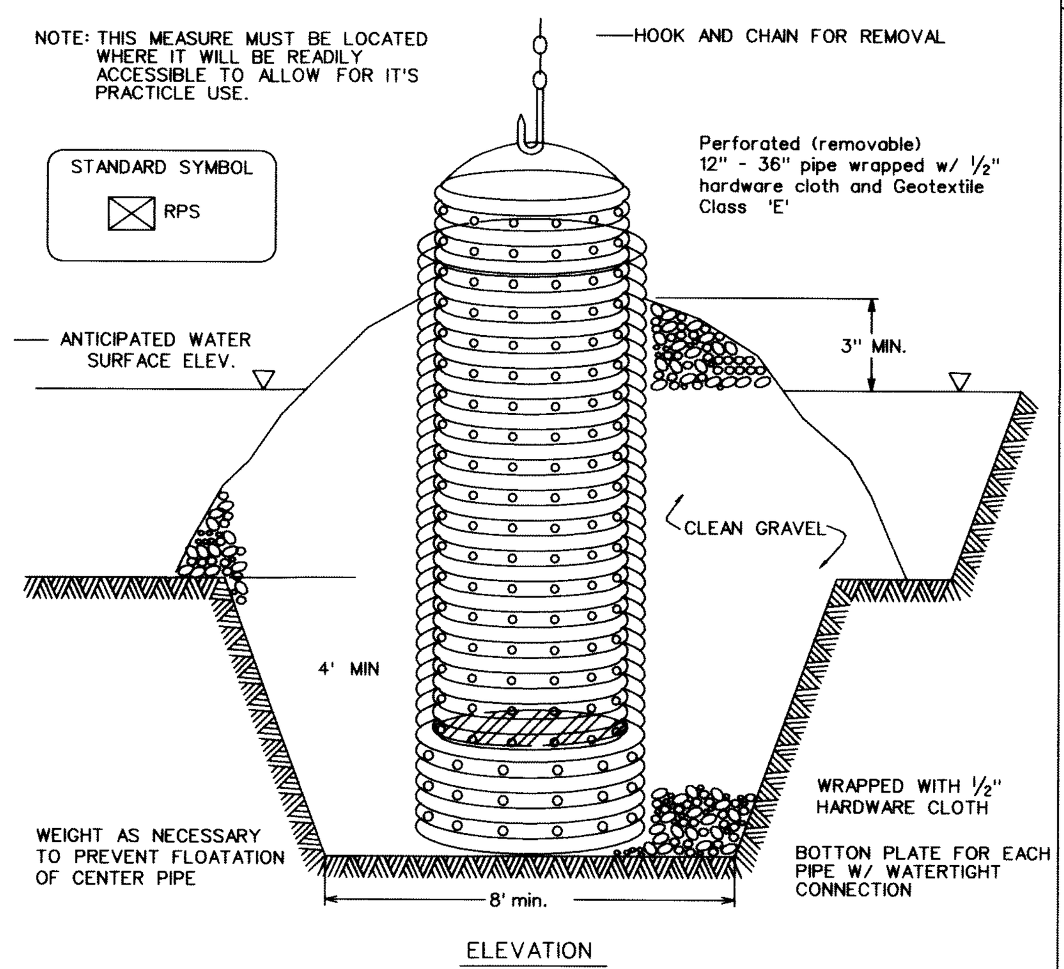
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.) *	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

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

DETAIL 20A - REMOVABLE PUMPING STATION



Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with ½" hardware cloth to prevent backfill material from entering the perforations.

2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.

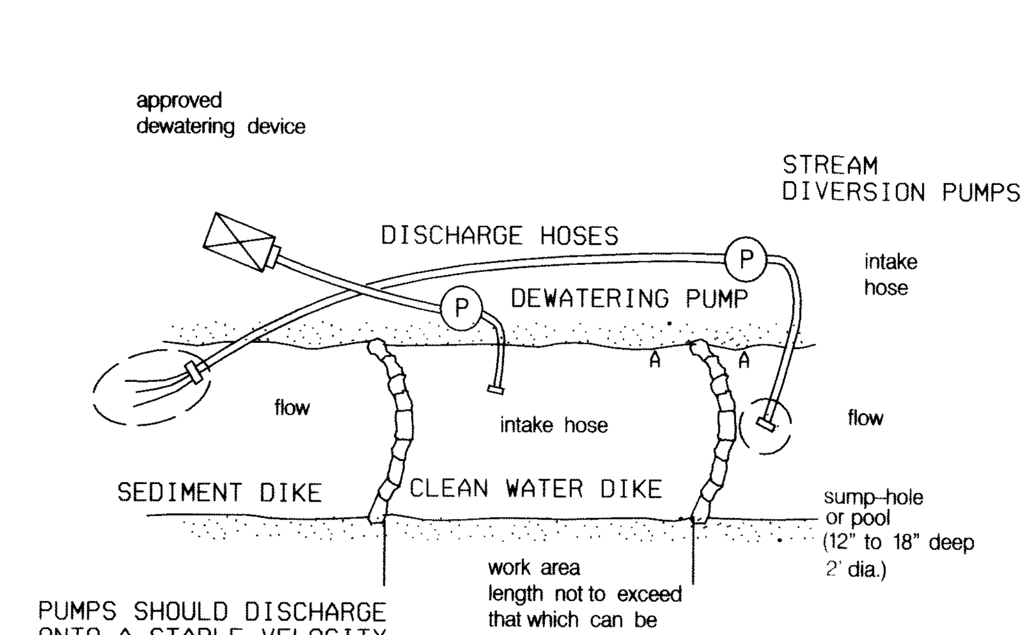
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be ½" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with ½" hardware cloth first, then wrapped again with Geotextile Class E.

4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D - 12 - 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

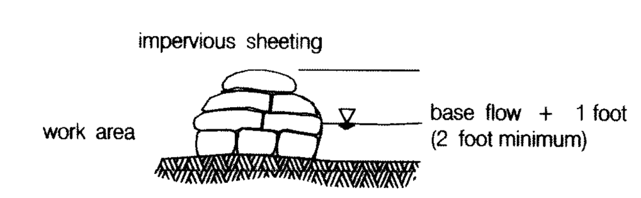
DETAIL 1.2: PUMP-AROUND PRACTICE

PLAN VIEW



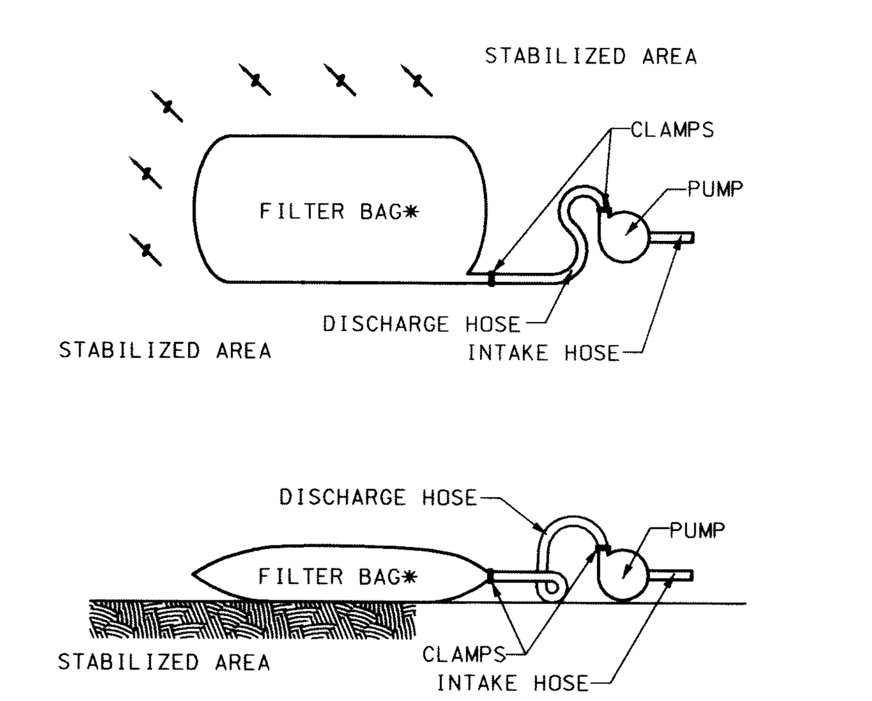
PUMPS SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATOR MADE OF RIP RAP OR SANDBAGS

SECTION A-A



CROSS SECTION OF SANDBAG DIKE

TEMPORARY INSTREAM CONSTRUCTION MEASURES	REVISED NOVEMBER 2000 PAGE 1.2 - 3	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



* NON-WOVEN GEOTEXTILE FILTER BAG WHICH RETAINS ALL SEDIMENT PARTICLES LARGER THAN 150 MICRONS.

SILT BAG DEWATERING DEVICE FOR PUMPED WATER
NOT TO SCALE

NOTES: 1. PLACE FILTER BAGS ON STABLE OR WELL VEGETATED AREAS WHICH ARE FLATTER THAN 5% AND WILL NOT ERODE WHEN SUBJECTED TO BAG DISCHARGES.

2. CLAMP PUMP DISCHARGE HOSES SECURELY INTO FILTER BAGS.

3. LIMIT PUMPING RATE TO ½ THE MANUFACTURER'S MAXIMUM PUMPING RATE.

4. WHEN SEDIMENTS FILL ½ THE VOLUME OF A FILTER BAG, IMMEDIATELY REMOVE THAT BAG FROM SERVICE. PROPERLY DISPOSE OF SPENT BAGS WITH THEIR SEDIMENTS.

NOTE: ALL WATER COLLECTED WITHIN THE LIMIT OF DISTURBANCE (WITH THE EXCEPTION OF WATER DIVERTED AROUND THE WORK AREA) SHALL BE PUMPED THROUGH THE FILTER BAG.

FILTER BAG SPECIFICATIONS

1. FILTER BAG SHALL BE MADE OF NON-WOVEN GEOTEXTILE WITH A MINIMUM SURFACE AREA OF 225 SQUARE FEET PER SIDE.
2. ALL STRUCTURAL SEAMS SHALL BE SEWN WITH A DOUBLE STITCH USING A DOUBLE NEEDLE MACHINE WITH HIGH STRENGTH THREAD. SEAM STRENGTH SHALL WITHSTAND 100 LB/IN USING ASTM D-4884 TEST METHOD.
3. FILTER BAG SHALL HAVE A NOZZLE LARGE ENOUGH TO ACCOMMODATE A FOUR(4) INCH DIAMETER PUMP DISCHARGE HOSE.
4. NOZZLE SHALL BE SEALED TIGHTLY AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE TO PREVENT UNFILTERED WATER FROM ESCAPING.
5. FILTER BAG SHALL BE PLACED ON A LEVEL OR GENTLY SLOPING (5% MAXIMUM) AREA.
6. FILTER BAG SHALL BE PLACED UPON A BASE OF STRAW BALES OR THREE (3) INCHES OF CLEAN STONE TO PROMOTE DEWATERING THROUGH BOTTOM SURFACE OF THE FILTER BAG.
7. PUMPING RATES SHALL BE CONTROLLED TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG. AS THE BAG BECOMES FILLED WITH SEDIMENT THE PUMPING RATE SHALL BE REDUCED.
8. THE FILTER BAG SHALL BE DEWATERED, REMOVED AND DISPOSED OF UPON COMPLETION OF PUMPING OPERATIONS OR AFTER IT HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. THE DEWATERED SEDIMENT FROM THE BAG SHALL BE SPREAD IN AN UPLAND AREA AND STABILIZED WITHIN 24 HOURS.
9. THE GEOTEXTILE FABRIC SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS WITH PROPERTIES DETERMINED IN ACCORDANCE WITH THE FOLLOWING PROCEDURES:

WEIGHT	10 OZ/YD	ASTM D-3776
GRAB TENSILE	210 LBS.	ASTM D-4632
PUNCTURE	150 LBS.	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT2	ASTM D-4491
PERMITIVITY (SEC)	1.3	ASTM D-4991
UV RESISTANCE	70%	ASTM D-4355
APPARENT OPENING SIZE (AOS)	40-80	ASTM D-4751

MGWC 1.2: PUMP-AROUND PRACTICE

TEMPORARY MEASURE FOR DEWATERING IN CHANNEL CONSTRUCTION SITES

DESCRIPTION

THE WORK SHOULD CONSIST OF INSTALLING A TEMPORARY PUMP AROUND AND SUPPORTING MEASURES TO DIVERT FLOW AROUND IN-STREAM CONSTRUCTION SITES.

IMPLEMENTATION SEQUENCE

SEDIMENT CONTROL MEASURES, PUMP-AROUND PRACTICES, AND ASSOCIATED CHANNEL AND BANK CONSTRUCTION SHOULD BE COMPLETED IN THE FOLLOWING SEQUENCE (REFER TO DETAIL 1.2):

1. CONSTRUCTION ACTIVITIES INCLUDING THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES SHOULD NOT BEGIN UNTIL ALL NECESSARY EASEMENTS AND/OR RIGHT-OF-WAYS HAVE BEEN ACQUIRED. ALL EXISTING UTILITIES SHOULD BE MARKED IN THE FIELD PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES THAT MAY RESULT FROM CONSTRUCTION AND SHOULD REPAIR THE DAMAGE AT HIS/HER OWN EXPENSE TO THE COUNTY'S OR UTILITY COMPANY'S SATISFACTION.

2. THE CONTRACTOR SHOULD NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT OR WMA SEDIMENT CONTROL INSPECTOR AT LEAST 5 DAYS BEFORE BEGINNING CONSTRUCTION. ADDITIONALLY, THE CONTRACTOR SHOULD INFORM THE LOCAL ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT INSPECTION AND ENFORCEMENT DIVISION AND THE PROVIDER OF LOCAL UTILITIES A MINIMUM OF 48 HOURS BEFORE STARTING CONSTRUCTION.

3. THE CONTRACTOR SHOULD CONDUCT A PRE-CONSTRUCTION MEETING ON SITE WITH THE WMA SEDIMENT CONTROL INSPECTOR, THE COUNTY PROJECT MANAGER, AND THE ENGINEER TO REVIEW LIMITS OF DISTURBANCE, EROSION AND SEDIMENT CONTROL REQUIREMENTS, AND THE SEQUENCE OF CONSTRUCTION. THE CONTRACTOR SHOULD STAKE OUT ALL LIMITS OF DISTURBANCE PRIOR TO THE PRE-CONSTRUCTION MEETING SO THEY MAY BE REVIEWED. THE PARTICIPANTS WILL ALSO DESIGNATE THE CONTRACTOR'S STAGING AREAS AND FLAG ALL TREES WITHIN THE LIMIT OF DISTURBANCE, WHICH WILL BE REMOVED FOR CONSTRUCTION ACCESS. TREES SHOULD NOT BE REMOVED WITHIN THE LIMIT OF DISTURBANCE WITHOUT APPROVAL FROM THE WMA OR LOCAL AUTHORITY.

4. CONSTRUCTION SHOULD NOT BEGIN UNTIL ALL SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED AND APPROVED BY THE ENGINEER AND THE SEDIMENT CONTROL INSPECTOR. THE CONTRACTOR SHOULD STAY WITHIN THE LIMITS OF THE DISTURBANCE AS SHOWN ON THE PLANS AND MINIMIZE DISTURBANCE WITHIN THE WORK AREA WHENEVER POSSIBLE.

5. UPON INSTALLATION OF ALL SEDIMENT CONTROL MEASURES AND APPROVAL BY THE SEDIMENT CONTROL INSPECTOR AND THE LOCAL ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT INSPECTION AND ENFORCEMENT DIVISION, THE CONTRACTOR SHOULD BEGIN WORK AT THE UPSTREAM SECTION AND PROCEED DOWNSTREAM BEGINNING WITH THE ESTABLISHMENT OF STABILIZED CONSTRUCTION ENTRANCES. IN SOME CASES, WORK MAY BEGIN DOWNSTREAM IF APPROPRIATE. THE SEQUENCE OF CONSTRUCTION MUST BE FOLLOWED UNLESS THE CONTRACTOR GETS WRITTEN APPROVAL FOR DEVIATIONS FROM THE WMA OR LOCAL AUTHORITY. THE CONTRACTOR SHOULD ONLY BEGIN WORK IN AN AREA WHICH CAN BE COMPLETED BY THE END OF THE DAY INCLUDING GRADING ADJACENT TO THE CHANNEL. AT THE END OF EACH WORKDAY, THE WORK AREA MUST BE STABILIZED AND THE PUMP AROUND REMOVED FROM THE CHANNEL. WORK SHOULD NOT BE CONDUCTED IN THE CHANNEL DURING RAIN EVENTS.

6. SANDBAG DIKES SHOULD BE SITUATED AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE WORK AREA AS SHOWN ON THE PLANS, AND STREAM FLOW SHOULD BE PUMPED AROUND THE WORK AREA. THE PUMP SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATER MADE OF RIPRAP OR SANDBAGS.

7. WATER FROM THE WORK AREA SHOULD BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A DEWATERING BASIN, SEDIMENT BAG, OR OTHER APPROVED SOURCE. THE MEASURE SHOULD BE LOCATED SUCH THAT THE WATER DRAINS BACK INTO THE CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE.

8. TRAVERSING A CHANNEL REACH WITH EQUIPMENT WITHIN THE WORK AREA WHERE NO WORK IS PROPOSED SHOULD BE AVOIDED. IF EQUIPMENT HAS TO TRAVERSE SUCH A REACH FOR ACCESS TO ANOTHER AREA, THEN TIMBER MATS OR SIMILAR MEASURES SHOULD BE USED TO MINIMIZE DISTURBANCE TO THE CHANNEL. TEMPORARY STREAM CROSSINGS SHOULD BE USED ONLY WHEN NECESSARY AND ONLY WHERE NOTED ON THE PLANS OR SPECIFIED. (SEE SECTION 4, STREAM CROSSINGS, MARYLAND GUIDELINES TO WATERWAY CONSTRUCTION).

9. ALL STREAM RESTORATION MEASURES SHOULD BE INSTALLED AS INDICATED BY THE PLANS AND ALL BANKS GRADED IN ACCORDANCE WITH THE GRADING PLANS AND TYPICAL CROSS-SECTIONS. ALL GRADING MUST BE STABILIZED AT THE END OF EACH DAY WITH SEED AND MULCH OR SEED AND MATTING AS SPECIFIED ON THE PLANS.

10. AFTER AN AREA IS COMPLETED AND STABILIZED, THE CLEAN WATER DIKE SHOULD BE REMOVED. AFTER THE FIRST SEDIMENT FLUSH, A NEW CLEAN WATER DIKE SHOULD BE ESTABLISHED UPSTREAM FROM THE OLD SEDIMENT DIKE. FINALLY, UPON ESTABLISHMENT OF A NEW SEDIMENT DIKE BELOW THE OLD ONE, THE OLD SEDIMENT DIKE SHOULD BE REMOVED.

11. A PUMP AROUND MUST BE INSTALLED ON ANY TRIBUTARY OR STORM DRAIN OUTFALL, WHICH CONTRIBUTES BASEFLOW TO THE WORK AREA. THIS SHOULD BE ACCOMPLISHED BY LOCATING A SANDBAG DIKE AT THE DOWNSTREAM END OF THE TRIBUTARY OR STORM DRAIN OUTFALL AND PUMPING THE STREAM FLOW AROUND THE WORK AREA. THIS WATER SHOULD DISCHARGE ONTO THE SAME VELOCITY DISSIPATER USED FOR THE MAIN STEM PUMP AROUND.

12. IF A TRIBUTARY IS TO BE RESTORED, CONSTRUCTION SHOULD TAKE PLACE ON THE TRIBUTARY BEFORE WORK ON THE MAIN STEAM REACHES THE TRIBUTARY CONFLUENCE. CONSTRUCTION IN THE TRIBUTARY, INCLUDING PUMP AROUND PRACTICES, SHOULD FOLLOW THE SAME SEQUENCE AS FOR THE MAIN STEM OF THE RIVER OR STREAM. WHEN CONSTRUCTION ON THE TRIBUTARY IS COMPLETED, WORK ON THE MAIN STEM SHOULD RESUME. WATER FROM THE TRIBUTARY SHOULD CONTINUE TO BE PUMPED AROUND THE WORK AREA IN THE MAIN STEM.

13. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS TO AND MAINTAINING ALL EROSION AND SEDIMENT CONTROL DEVICES UNTIL THE SEDIMENT CONTROL INSPECTOR APPROVES THEIR REMOVAL.

14. AFTER CONSTRUCTION, ALL DISTURBED AREAS SHOULD BE REGRADED AND REVEGETATED AS PER THE PLANTING PLAN.

TEMPORARY VEGATATIVE STABILIZATION

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

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

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

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

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

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

MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND AND WATER. THE TYPE OF MULCH ANCHORING USED MUST COMPLY WITH THE 1994 MARYLAND STANDARD AND SPECIFICATIONS.

* IF OTHER SEED MIXES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 1994 MARYLAND STANDARD AND SPECIFICTAIONS, CHAPTER 20, TABLE 25.
** IF A DIFFERENT TYPE OF MULCH IS TO BE USED, IT MUST COMPLY WITH THE 1994 MARYLAND STANDARD AND SPECIFICTION, CHAPTER 20.

PERMANENT VEGATATIVE STABILIZATION

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

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

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

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

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

FOR PERIOD OF OCTOBER 16 TO FEBRUARY 28, PROTECT SITE BY:
OPTIONS - 1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, 2) USE SOD, OR 3) SEED WITH 60 LBS PER ACRE OF TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.

NOTE: FOR QUICK COVER WITH TALL FESCUE, ADD 2 LBS OF SMALL GRAIN PER 1,000 SQ. FT.
D) MULCHING SPECIFICATIONS:
MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

APPLY 2 TONS PER ACRE OF STRAW OVER ALL SEEDED AREAS. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHALL BE INCREASED TO 2.5 TONS PER ACRES.**
MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND AND WATER. THE TYPE OF MULCH ANCHORING USED MUST COMPLY WITH THE 1994 MARYLAND STANDARD AND SPECIFICATIONS.

* IF OTHER SEED MIXES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 1994 MARYLAND STANDARD AND SPECIFICTAIONS, CHAPTER 20, TABLE 25.
** IF A DIFFERENT TYPE OF MULCH IS TO BE USED, IT MUST COMPLY WITH THE 1994 MARYLAND STANDARD AND SPECIFICTION, CHAPTER 20.

HOWARD COUNTY CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES

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

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

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

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

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

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

7. SITE ANALYSIS:

TOTAL AREA OF SITE	0.44 ACRES
AREA DISTURBED	0.44 ACRES
AREA TO BE ROOFED OR PAVED	0 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.34 ACRES
TOTAL CUT	766 CU. YDS.
TOTAL FILL	1,243 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	TO BE DETERMINED*

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

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

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

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

*OFFSITE WASTE/BORROW SITE SHALL HAVE AN APPROVED SEDIMENT CONTROL PLAN.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TOSTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE

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

CONDITIONS WHERE PRACTICE APPLIES

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

a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.

b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.

c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

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

CONSTRUCTION AND MATERIAL SPECIFICATIONS

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

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

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

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

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

III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:

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

IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

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

a. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.

b. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.

c. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.

d. NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME AS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

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

ii. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I -

V. TOPSOIL APPLICATION

i. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.

ii. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4" - 8" HIGHER IN ELEVATION.

iii. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE WATER POCKETS.

iv. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION. CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 1/8/07

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

HOWARD SCD — DATE 1/8/07

PERMANENT SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 6B) FROM TABLE 25					FERTILIZER RATE (10-20-20)			LIME
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
1	TALL FESCUE (85%) PERENNIAL RYEGRASS (10%) KENTUCKY BLUEGRASS (5%)	125 15 10	3/1-5/15 8/15-10/15	1-2 INCH	90 LB/AC (2.0 LB/ 1000 SF)	175 lb/ac (4.0 LB/ 1000 SF)	175 lb/ac (4.0 LB/ 1000 SF)	2 tons/ac (100 LB/ 1000 SF)
2	KENTUCKY BLUEGRASS (50%) HARD FESCUE (40%) RED TOP (10%)	150	3/1-5/15 8/15-10/15	1-2 INCH				

TEMPORARY SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 6B) FROM TABLE 26					FERTILIZER RATE (10-10-10)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
1	RYE	140	3/1-4/30 8/15-11/15	1-2 INCH	600 LB/AC (15 LB/1000 SF)	2 tons/ac (100 LB/ 1000 SF)
2	RYE PLUS FOXTAIL MILLET	150	3/1-4/30 5/1-8/14 8/15-11/15	1 INCH		

EP-07-07

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2004 \ 01043223.17\DRAWINGS\ ES02willow.dgn

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
www.kci.com

STATE OF MARYLAND — KERRY B. REXROAD — PROFESSIONAL

KINGS MEADE, SECTION 1, LOT 81 SWM POND REPAIRS PROJECT

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

SEDIMENT CONTROL NOTES & DETAILS

SCALE:	N/A
DATE:	1/5/07
KCI JOB NO.:	01-043223.17
CAPITAL PROJECT NO.:	D-1159
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

SHEET NO.: 6 OF 6

PLOTTED: "02:32 PM on Friday, January 05, 2007"
BY: Kristy Potter Division: Water Resources
FILE: M:\2004\01043223.17\drawings\ES02willow.dgn