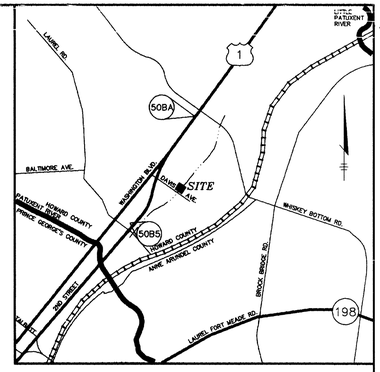
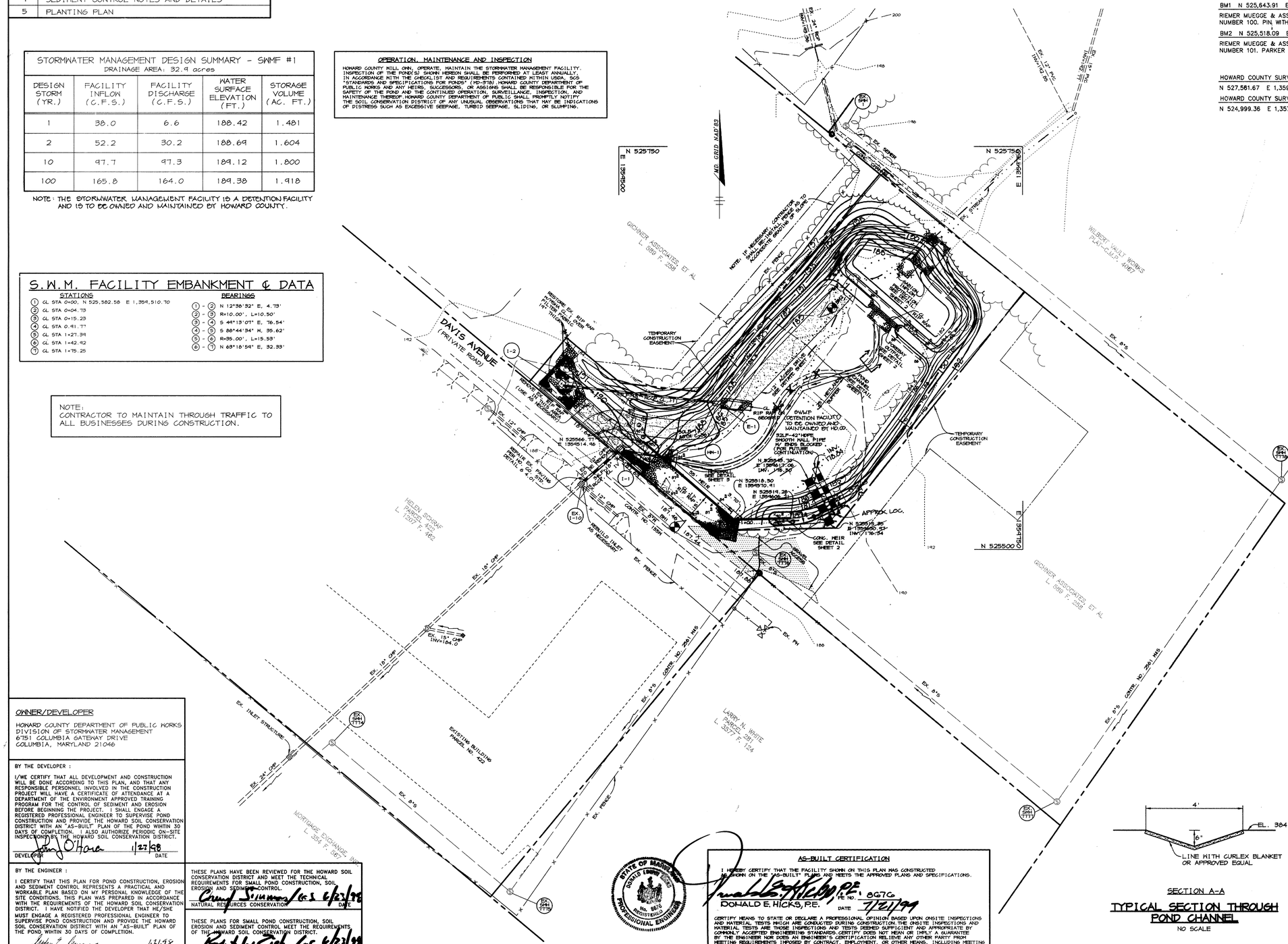




SHEET INDEX

1	PLAN OF DAVIS AVENUE STORMWATER MANAGEMENT
2	PROFILES AND DETAILS
3	SEDIMENT CONTROL PLAN
4	SEDIMENT CONTROL NOTES AND DETAILS
5	PLANTING PLAN

STORMWATER MANAGEMENT DESIGN SUMMARY - SWMF #1
DRAINAGE AREA: 32.9 acres

DESIGN STORM (YR.)	FACILITY INFLOW (C.F.S.)	FACILITY DISCHARGE (C.F.S.)	WATER SURFACE ELEVATION (FT.)	STORAGE VOLUME (AC. FT.)
1	38.0	6.6	188.42	1.481
2	52.2	30.2	188.69	1.604
10	97.7	97.3	189.12	1.800
100	165.8	164.0	189.38	1.918

NOTE: THE STORMWATER MANAGEMENT FACILITY IS A DETENTION FACILITY AND IS TO BE OWNED AND MAINTAINED BY HOWARD COUNTY.

OPERATION, MAINTENANCE AND INSPECTION

HOWARD COUNTY WILL OWN, OPERATE, MAINTAIN THE STORMWATER MANAGEMENT FACILITY. INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. HOWARD COUNTY DEPARTMENT OF PUBLIC 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.

S.W.M. FACILITY EMBANKMENT ℄ DATA

STATIONS

①	CL STA 0+00, N 525,582.58 E 1,359,510.70
②	CL STA 0+04.73
③	CL STA 0+15.23
④	CL STA 0.91.77
⑤	CL STA 1+27.39
⑥	CL STA 1+42.92
⑦	CL STA 1+75.25

BEARINGS

① - ②	N 12°38'32" E, 4.73'
② - ③	R=10.00', L=10.50'
③ - ④	S 49°13'07" E, 76.54'
④ - ⑤	S 88°44'34" W, 35.62'
⑤ - ⑥	R=35.00', L=15.53'
⑥ - ⑦	N 63°18'59" E, 32.33'

NOTE:
CONTRACTOR TO MAINTAIN THROUGH TRAFFIC TO ALL BUSINESSES DURING CONSTRUCTION.

BENCHMARKS

BM1 N 525,643.91 E 1,359,624.32 EL.=189.95
RIEMER MUEGGE & ASSOC., INC CONTROL STATION NUMBER 100. PIN WITH YELLOW CAP.

BM2 N 525,518.09 E 1,359,541.62 EL.=187.48
RIEMER MUEGGE & ASSOC., INC CONTROL STATION NUMBER 101. PARKER KALON NAIL WITH SHINER.

HOWARD COUNTY SURVEY CONTROL STATION 50BA
N 527,561.67 E 1,359,772.59 EL.=249.40

HOWARD COUNTY SURVEY CONTROL STATION 50B5
N 524,999.36 E 1,357,925.68 EL.=178.15

VICINITY MAP
SCALE: 1" = 2000'

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS 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 THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
5. THE EXISTING TOPOGRAPHYIS TAKEN FROM AN APRIL, 1997, FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY RIEMER MUEGGE & ASSOCIATES, INC.
6. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 50BA AND 50B5 WERE USED FOR THIS PROJECT.
7. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
8. A TRAFFIC STUDY IS NOT REQUIRED FOR THIS PROJECT.
9. A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
10. A GEOTECHNICAL STUDY WAS PREPARED BY HILLES-CARNES, INC DATED MAY, 1997.
11. A BOUNDARY SURVEY WAS NOT PREPARED FOR THIS PROJECT.
12. SUBJECT PROPERTY ZONED M-2.
13. ALL ELEVATIONS SHOWN ARE BASED ON THE U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929. HORIZONTAL ELEVATIONS ARE BASED ON N.A.D. 83.
14. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
15. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
16. PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.
17. NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
18. SEDIMENT AND EXCAVATED MATERIAL SHALL BE HAULED OFF-SITE AND DISPOSED AT AN APPROVED SOIL DISPOSAL AREA WITH AN APPROVED SEDIMENT CONTROL PLAN.
19. ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
20. ALL PIPE ELEVATIONS SHOWN ARE INVERT ⊘⌒ ELEVATIONS.
21. STORM DRAIN TRENCHES WITHIN ROAD RIGHT OF WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, i.e., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, LATEST AMENDMENTS.
22. THIS PROJECT HAS BEEN APPROVED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER #97-NT-0665, TRACKING #1997765737.
23. ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T180.
24. CONTRACTOR TO GRADE AROUND THE TOP OF THE PROPOSED INLETS IN ORDER TO PROVIDE POSITIVE DRAINAGE TO THE INLETS. LINING SHALL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
25. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO MAXIMUM EXTENT.
26. CLEAR ALL UTILITIES BY A MINIMUM OF 12". CLEAR ALL POLES BY 2'-0" MINIMUM OR TUNNEL AS REQUIRED. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES, AT THE CONTRACTORS EXPENSE.
27. PROPERTY INFORMATION HAS BEEN OBTAINED FROM THE BEST AVAILABLE SOURCE, AND CANNOT BE WARRANTED TO BE COMPLETE AND ACCURATE.
28. CONTRACTOR SHALL INSTALL A WATERTIGHT JOINT BETWEEN CONCRETE WALL AND 12" CONCRETE PIPE USING A WATER STOP (WS-30) AS MANUFACTURED BY PRESS SEAL GASKET CORPORATION OR APPROVED EQUIVALENT.
29. THE CONTRACTOR SHALL VIDEO TAPE THE SITE, INCLUDING DAVIS AVENUE, BEFORE AND IMMEDIATELY AFTER CONSTRUCTION. TAPE SHALL BE AT LEAST 5 MIN. LONG FOR EACH SESSION AND TAPE SHALL BE GIVEN TO COUNTY INSPECTOR. TAPE SHALL SHOW SITE DETAIL AND BE OF GOOD QUALITY.
30. EXISTING MANHOLES 7777, 7778 AND SMH 1 HAVE NOT BEEN FIELD LOCATED.
31. CONTRACTOR SHALL PLACE 4" TOPSOIL OVER DISTURBED AREAS TO BE VEGETATED. REVISE EXISTING TOPSOIL WHERE POSSIBLE.

SECTION A-A
TYPICAL SECTION THROUGH POND CHANNEL
NO SCALE

OWNER/DEVELOPER

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

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 WIHTIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

John J O'Hara 1/27/98
DEVELOPER DATE

BY THE ENGINEER :

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 WIHTIN 30 DAYS OF COMPLETION.

Arthur E. Muegge 1.21.98
ENGINEER 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.

Cheryl Simmons/GS 6/23/98
NATURAL RESOURCES CONSERVATION DATE

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

Robert W. Eichen/GS 6/23/98
HOWARD SOIL CONSERVATION DISTRICT DATE

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.

Donald E. Hicks, P.E.
DONALD E. HICKS, P.E.
PE NO. 8676
DATE 7/21/99

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

DONALD EDWIN HICKS
No. 8676

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

1/29/98
DIRECTOR OF PUBLIC WORKS DATE

John J O'Hara 1/27/98
CHIEF, BUREAU OF WASTE MANAGEMENT DATE

Andrew M. Danelle 1-30-98
CHIEF, BUREAU OF HIGHWAYS DATE

Howard E Saltzman 1/27/98
CHIEF, STORMWATER MANAGEMENT DIVISION DATE

RIEMER MUEGGE & ASSOCIATES, INC.
ENGINEERING • ENVIRONMENTAL SERVICES • PLANNING • SURVEYING
8818 Centre Park Drive, Columbia, Maryland 21045
tel 410.997.8900 fax 410.997.9282
FILE: 97085/SDP1

ARTHUR E. MUEGGE #8707

DES: AAP
DRN: BLW
CHK: AAP
DATE: 1/21/98

BY	NO.	REVISION	DATE
BAC		REVISED SWMF PER AS BUILT REDLINES	12.30.99

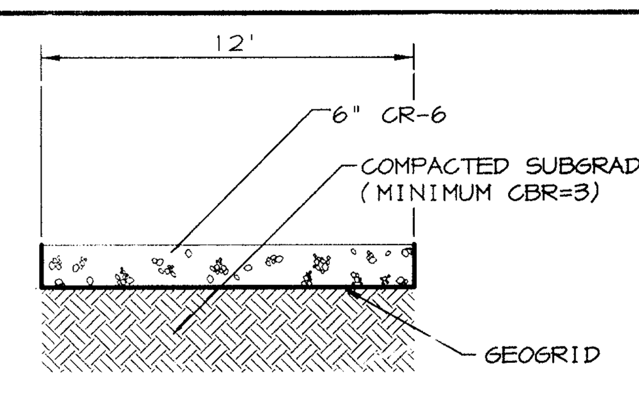
PLAN OF DAVIS AVENUE
STORMWATER MANAGEMENT

600' SCALE MAP NO. 50 BLOCK NO. 4.10

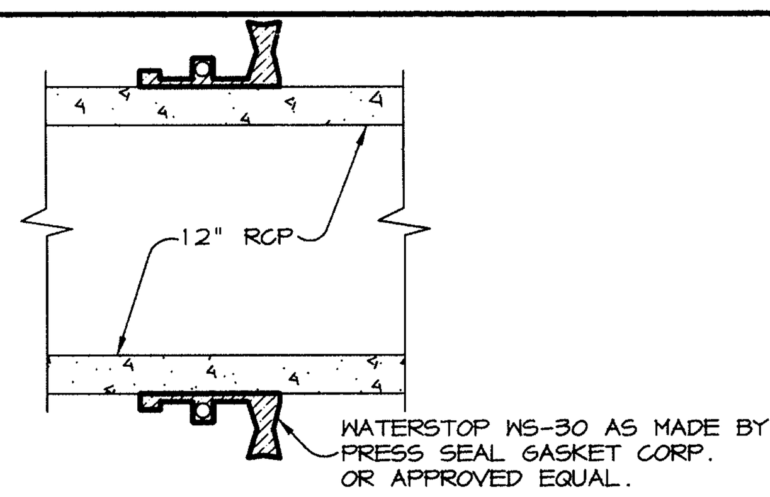
DAVIS AVENUE
STORMWATER MANAGEMENT
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT No. D-1112

SCALE
1"=30'

SHEET
1 OF 5



ACCESS DRIVE DETAIL
NO SCALE



WATERSTOP SECTION
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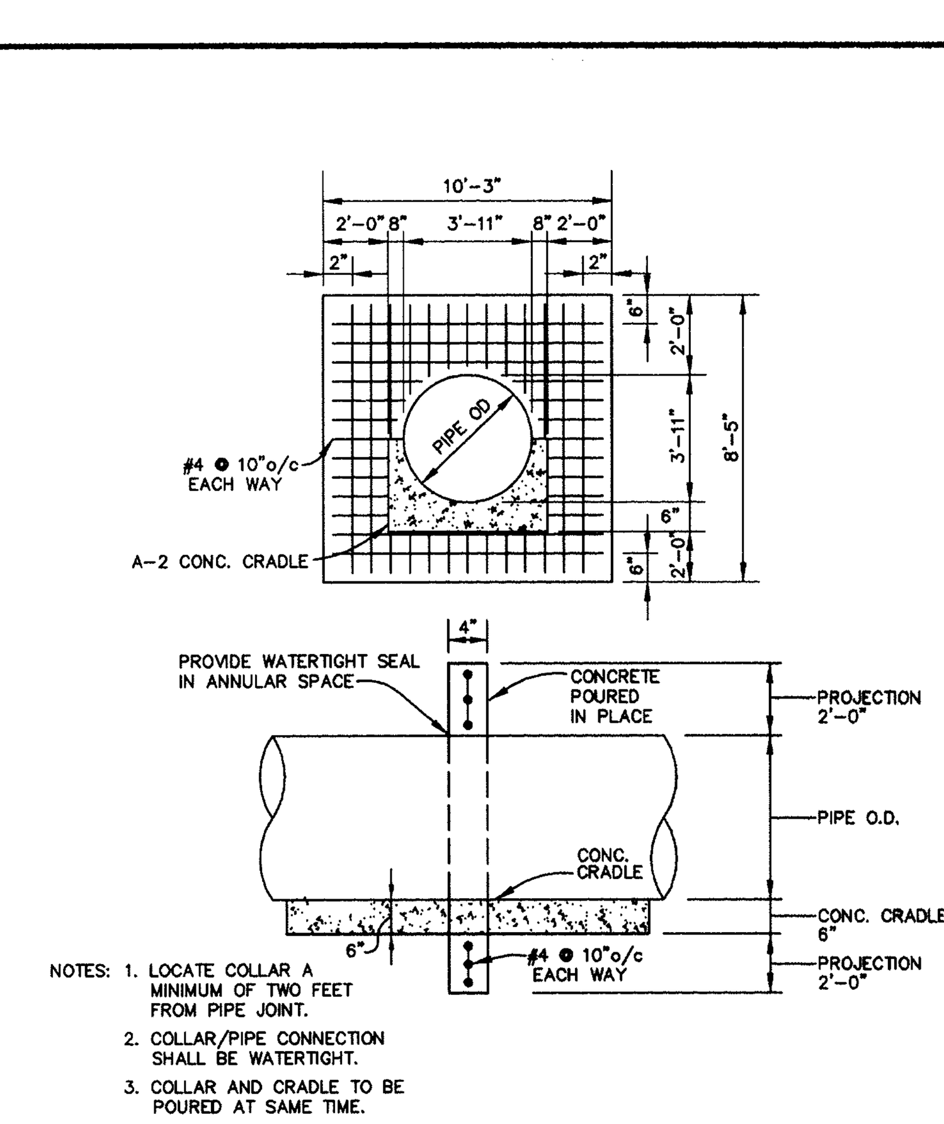
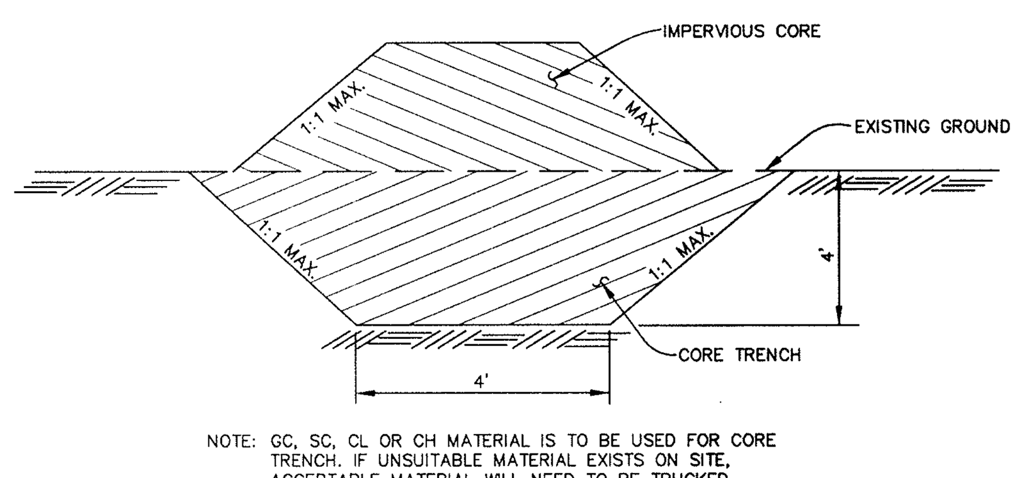
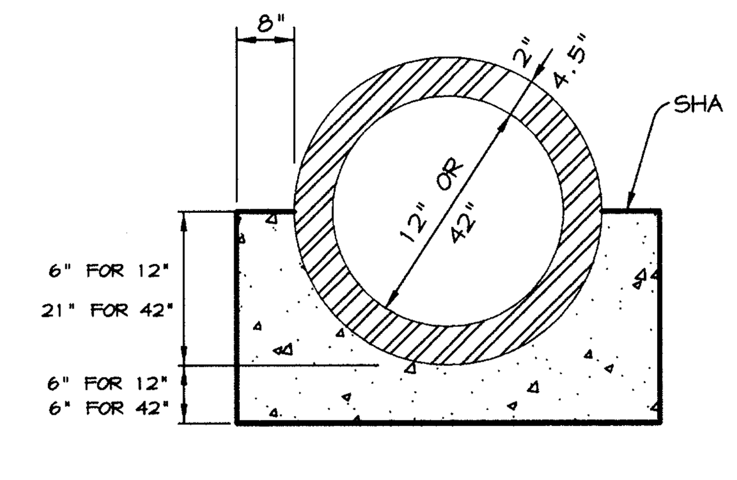


CONCRETE ANTI-SEEP COLLAR

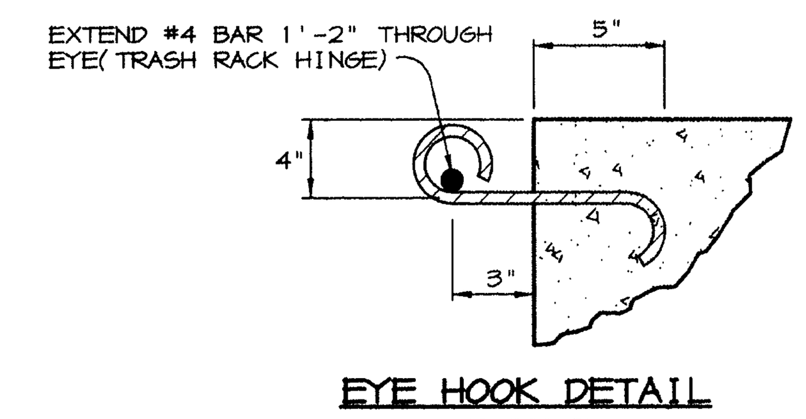


IMPERVIOUS CORE AND CORE TRENCH DETAIL
NO SCALE

NOTE: GC, SC, CL OR CH MATERIAL IS TO BE USED FOR CORE TRENCH. IF UNSUITABLE MATERIAL EXISTS ON SITE, ACCEPTABLE MATERIAL WILL NEED TO BE TRUCKED TO SITE.



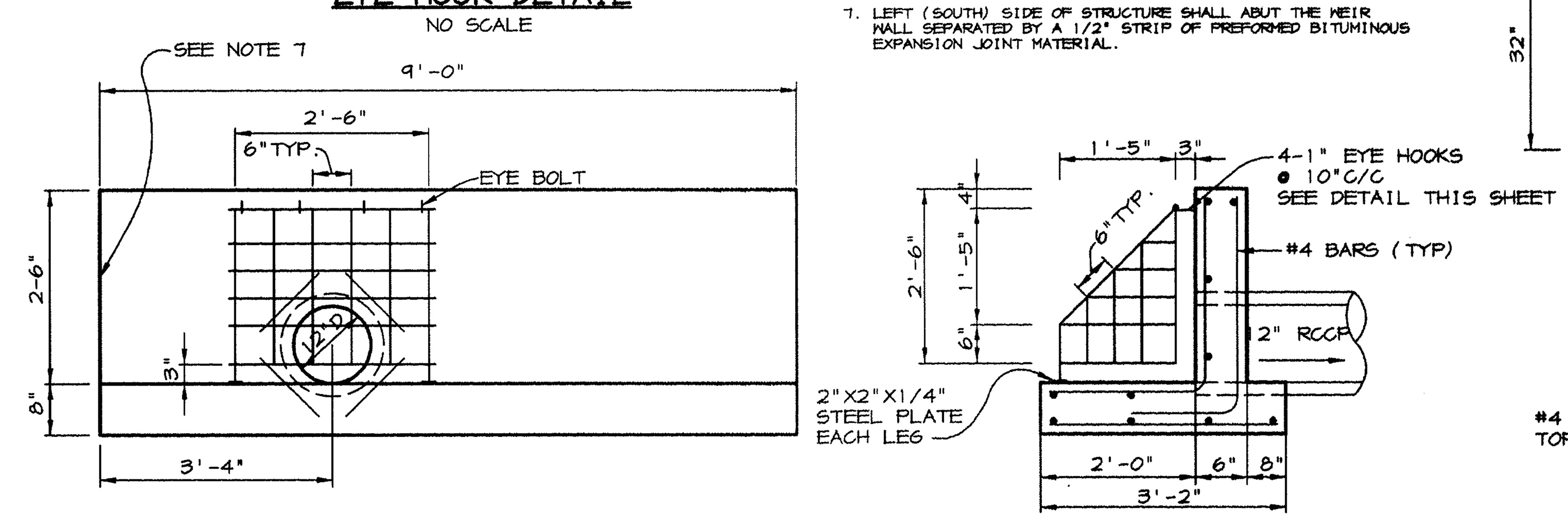
CONCRETE CRADLE
NO SCALE



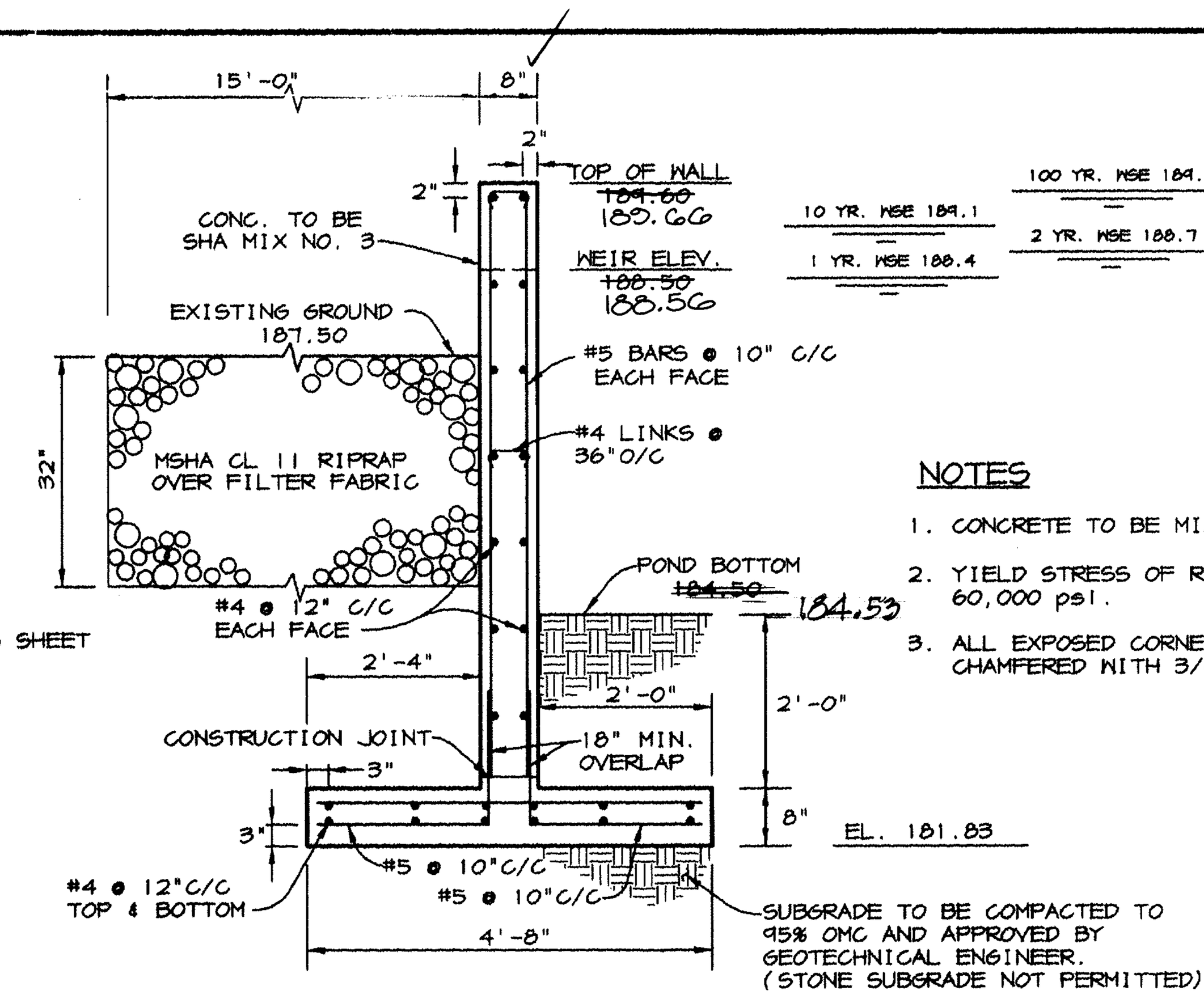
EYE HOOK DETAIL
NO SCALE

HEADWALL HW-1 NOTES

1. TRASH RACK REBAR TO BE NO. 4 SMOOTH BARS AND SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION AND PAINTED BATTLESHIP GRAY.
2. WELD ALTERNATE REBAR INTERSECTIONS.
3. CONCRETE HEADWALL REBAR TO BE DEFORMED BAR, CLEAN GRADE 60 AND 8" C/C EACH FACE. EXTEND VERTICAL BAR INTO BASE w/12" OVERLAP. PROVIDE 2" COVER.
4. TRASH RACK "CAGE" HAS REBAR ON FRONT AND SIDES ONLY. THERE IS NO "CAGE" ON BOTTOM AND BACK (ADJACENT TO HEADWALL FACE).
5. CONCRETE TO BE MIX NO. 3.
6. 2"X2"X1/4" LEG PLATES ARE NOT TO BE FASTENED TO HEADWALL BASE.
7. LEFT (SOUTH) SIDE OF STRUCTURE SHALL ABUT THE WEIR WALL SEPARATED BY A 1/2" STRIP OF PREFORMED BITUMINOUS EXPANSION JOINT MATERIAL.



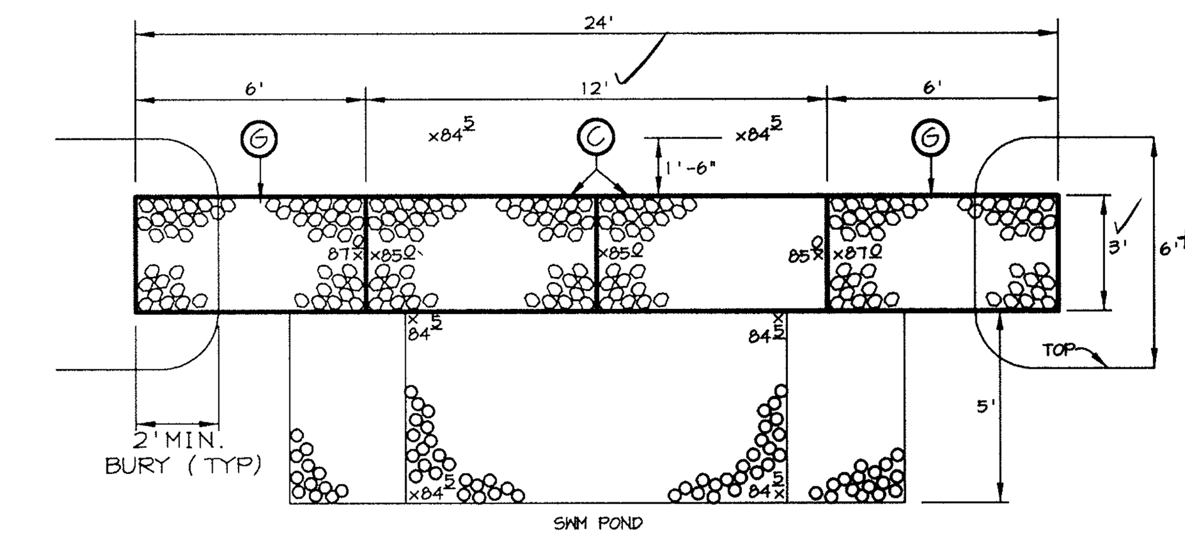
HEADWALL HW-1 w/TRASH RACK
SCALE: 1"=2'



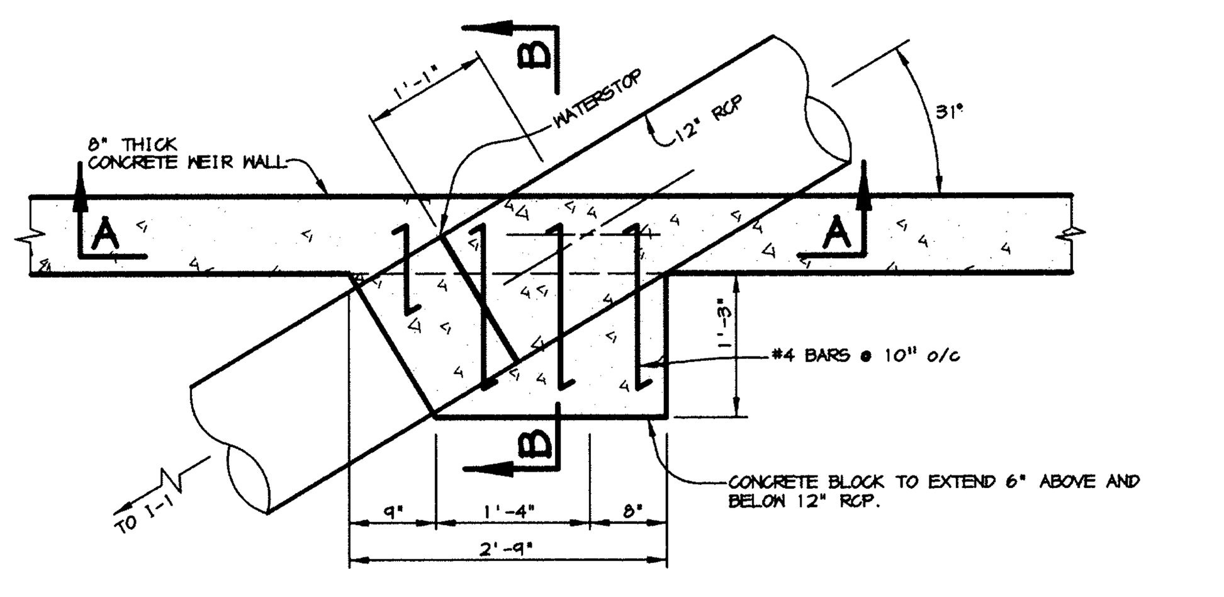
CONCRETE WEIR DETAIL
NO SCALE

NOTES

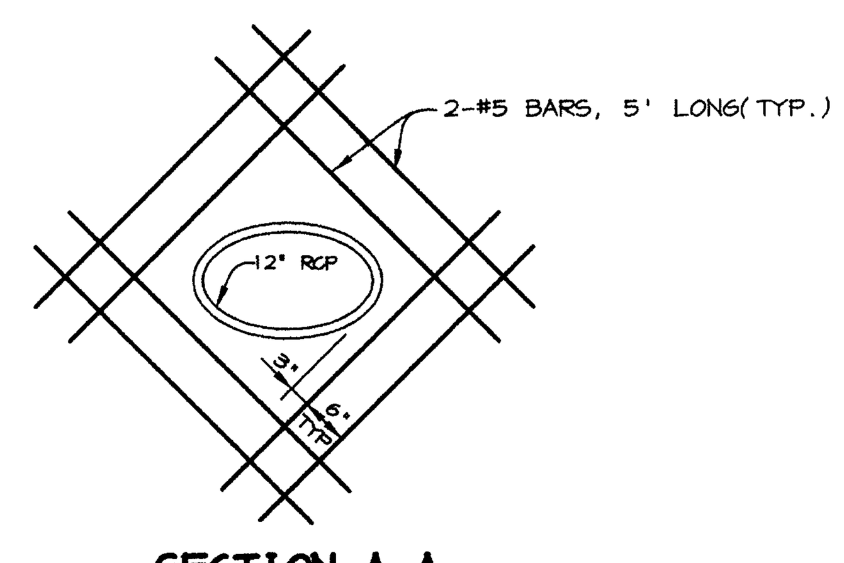
1. CONCRETE TO BE MIX NO.3.
2. YIELD STRESS OF REINFORCING 60,000 psi.
3. ALL EXPOSED CORNERS TO BE CHAMFERED WITH 3/4" CHAMFER.



PLAN



CONCRETE WALL MODIFICATION AT WALL STA 0+33
NO SCALE



SECTION A-A
NO SCALE

SOILS SPECIFICATION

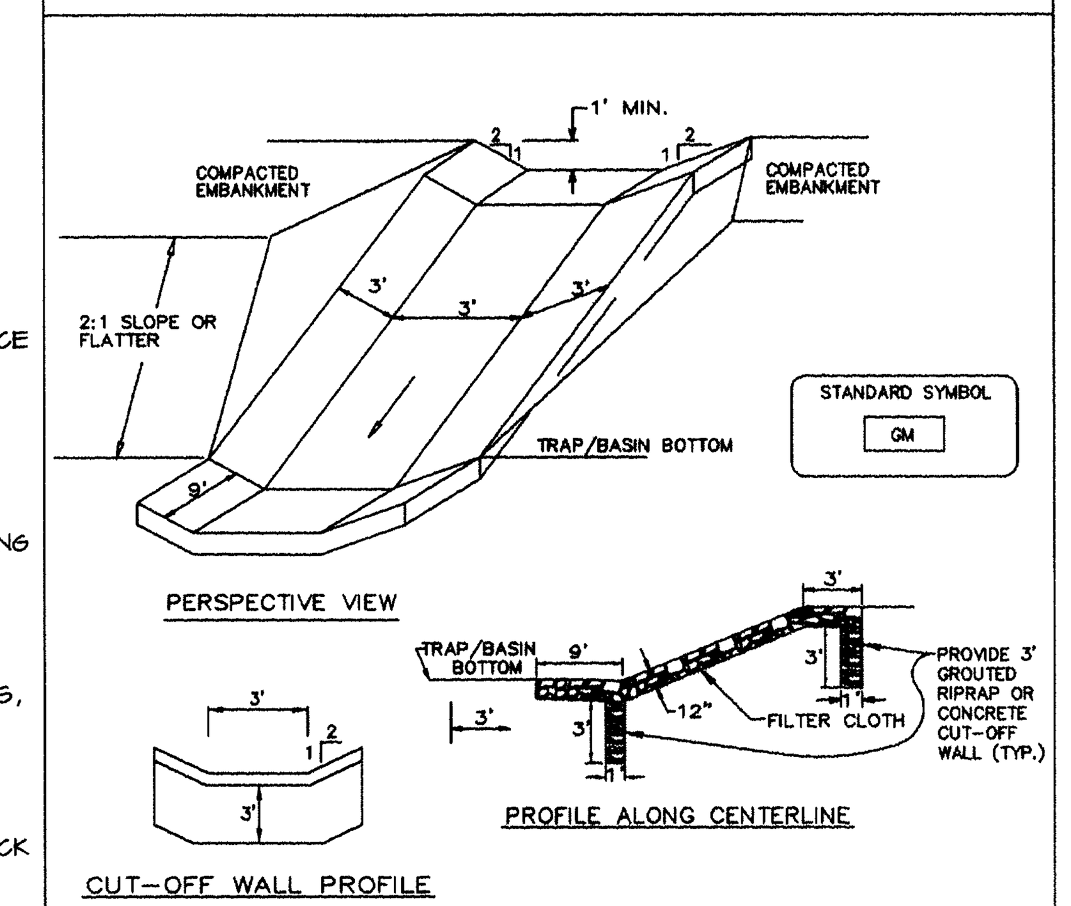
THE SITE SHOULD BE STRIPPED OF TOP SOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK OF SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, THE EXPOSED MATERIALS SHOULD BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.

A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH. IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SPECIFICATION 378 SOILS, CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUT-OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL.

DUE TO COHESIVE NATURE OF THE SURFICIAL CLAYEY SOILS IN THE WEIR WALL AREA, THESE MATERIALS SHALL BE CUT BACK FROM BEHIND THE WALLS AT AN ANGLE OF 45 DEGREES AS PROJECTED UPWARD FROM THE TOP OF THE HEEL OF THE WALL FOOTING.

WALL BACKFILL MATERIALS SHOULD BE COMPACTED TO 95 PERCENT OF THE MODIFIED PROCTOR DENSITY.

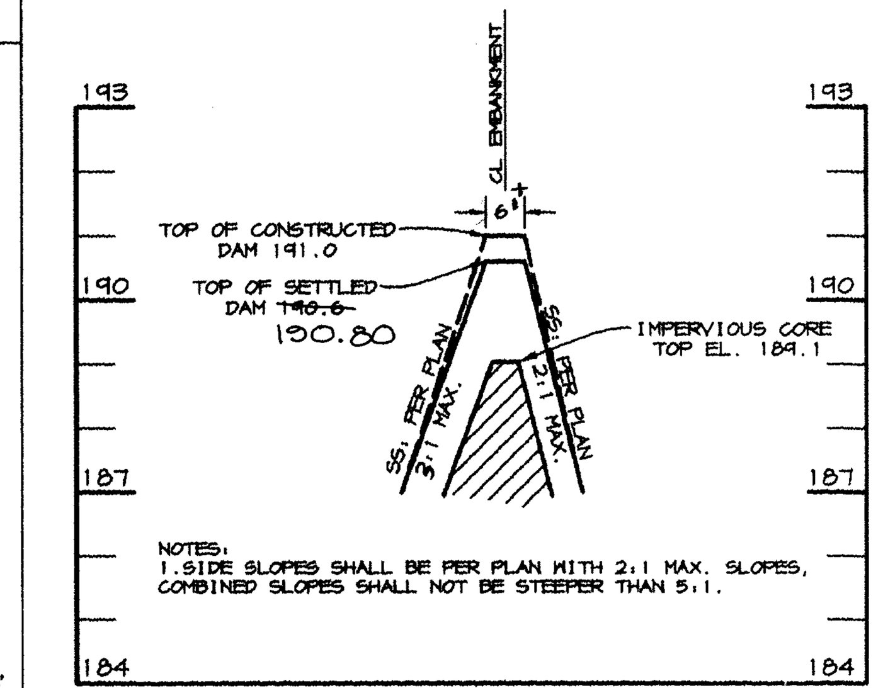
DETAIL 6 - GABION INFLOW PROTECTION



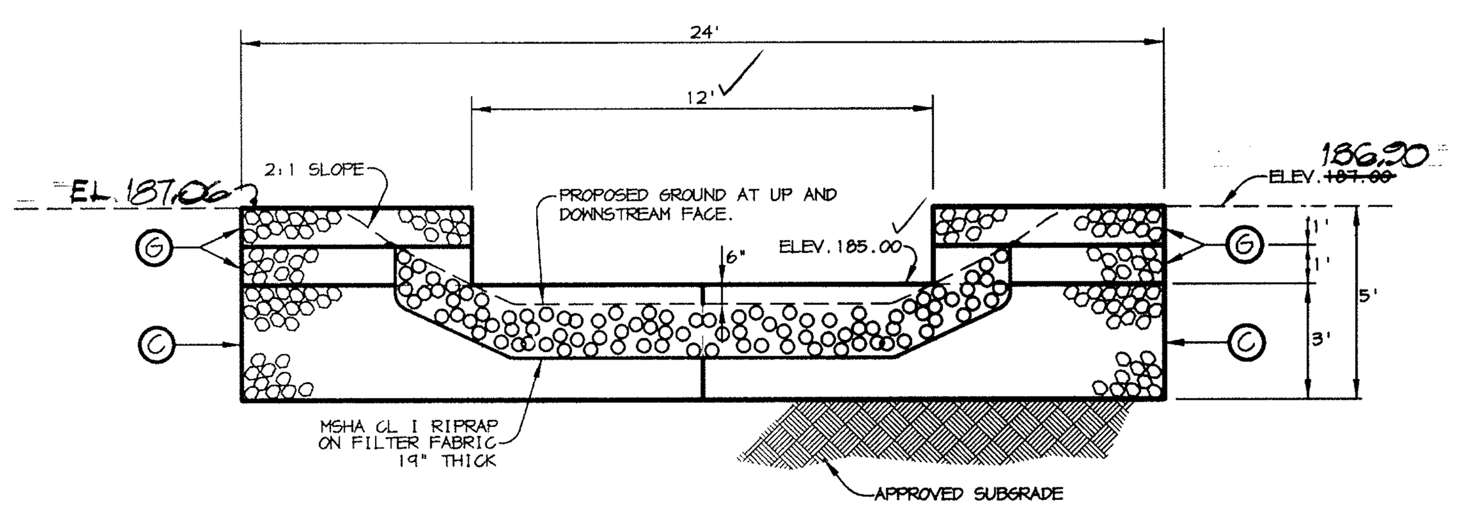
Construction Specifications

1. Gabion inflow protection shall be constructed of 9' x 3' x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
2. Geotextile Class C shall be installed under all gabion baskets.
3. The stone used to fill the gabion baskets shall be 4" - 7".
4. Gabions shall be installed in accordance with manufacturers recommendations.
5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.
6. Gabions to be PVC coated.

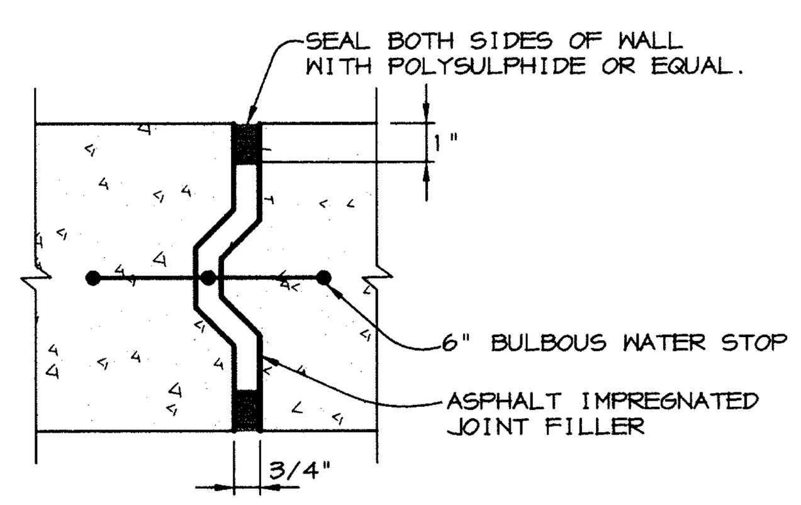
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE 8 - 7 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



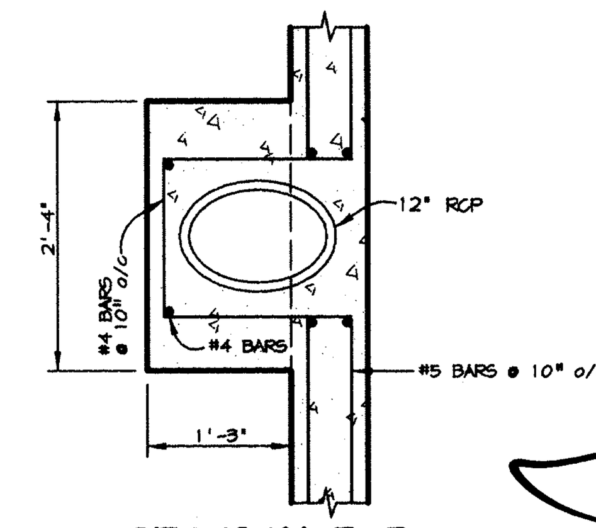
TYPICAL SECTION THRU EMBANKMENT
SCALE :
HOR. -1"=30'
VERT. -1"=3'



FOREBAY GABION WEIR OUTFALL PROFILE ALONG EMBANKMENT
NO SCALE



EXPANSION JOINT DETAIL
NO SCALE



SECTION B-B
NO SCALE

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

HICKS ENGR. CO., INC.
Donald E. Hicks — DONALD E. HICKS, P.E. — P.E. NO. 10.8676 — DATE 7/21/99

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTION AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

GABION SCHEDULE

LETTER DESIGNATION	NO. OF GABIONS	GABION DIMENSIONS
C	2	12'x3'x3'
G	4	6'x3'x1'

NOTES:
1. GABIONS SHALL BE PVC COATED.
2. OUTFALL RIPRAP SHALL EXTEND UP TO ELEV. 86.0

STRUCTURE SCHEDULE

STRUCTURE	TYPE	LOCATION	INV. IN	INV. OUT	ELEV.	REMARKS
I-1 *	D INLET	N 525,562.31 E 1,259,500.94	184.~~23~~ .27	184.~~13~~ .14	187.~~00~~ .11	HOCO STD. DETAIL SD 4.11 THROAT @ N.E. & S.E. SIDE
I-2 *	D INLET	N 525,603.00 E 1,359,464.59	-	186.~~00~~ .01	188.~~50~~ .26	HOCO STD. DETAIL SD 4.11 THROAT @ N.W. SIDE
E-1 **	END SECTION	N 525,591.43 E 1,359,557.08	-	-	184.~~60~~ .01	HOCO STD. DETAIL SD 5.51
HW-1 **	-	N 525,556.13 E 1,359,531.91	-	-	184.~~50~~ .54	SEE DETAIL THIS SHEET

* LOCATION IS AT CENTER OF STRUCTURE. ELEVATION IS AT THROAT OPENING.
** LOCATION IS AT CONNECTION TO STORM DRAIN. ELEVATION IS AT PIPE INVERT.

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 WIHTIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

John J. O'Hare — 1/27/98
DEVELOPER — DATE

BY THE ENGINEER :

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 WIHTIN 30 DAYS OF COMPLETION.

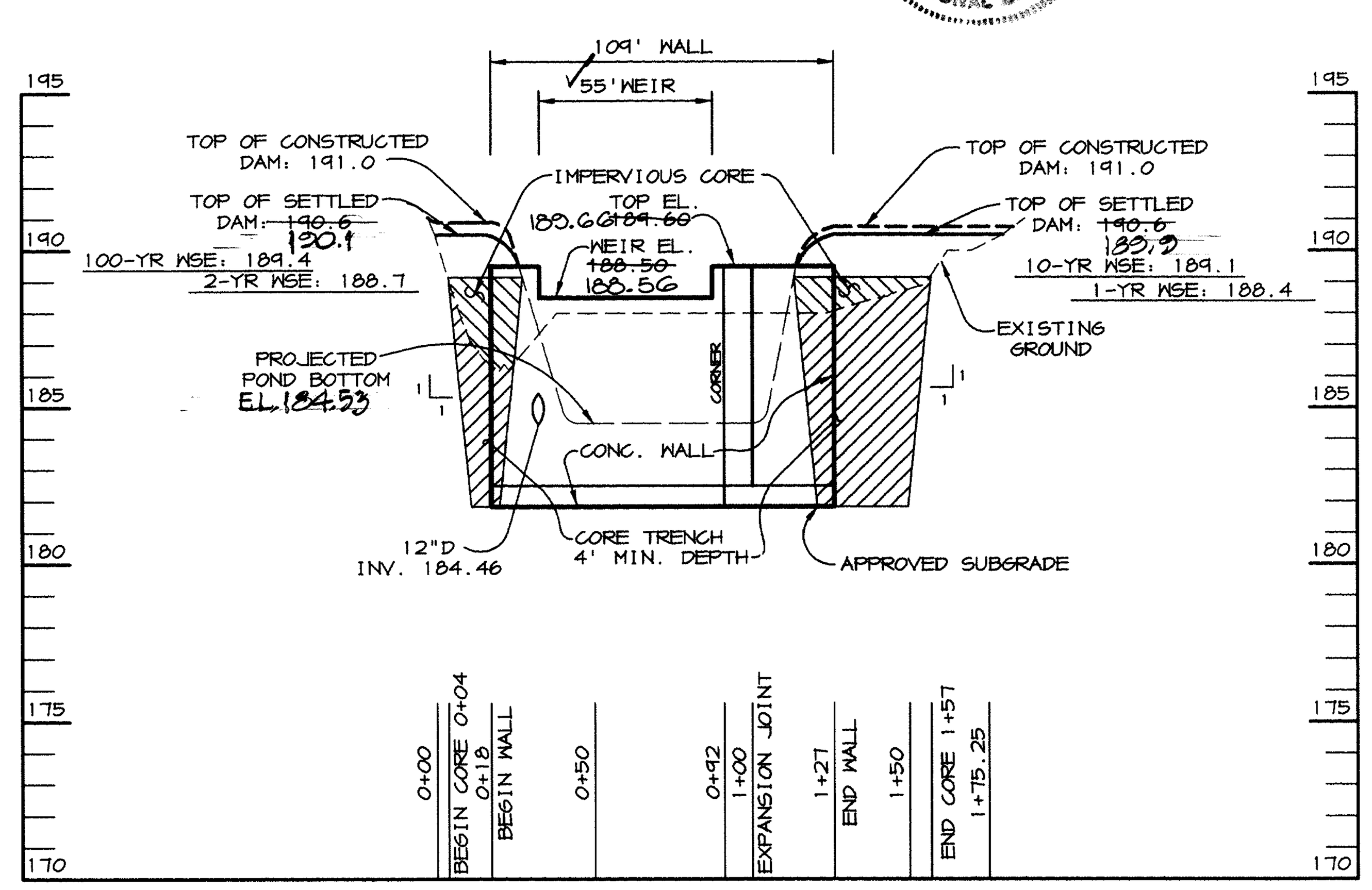
Arthur E. Muegge — 1.21.98
ENGINEER — DATE

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.

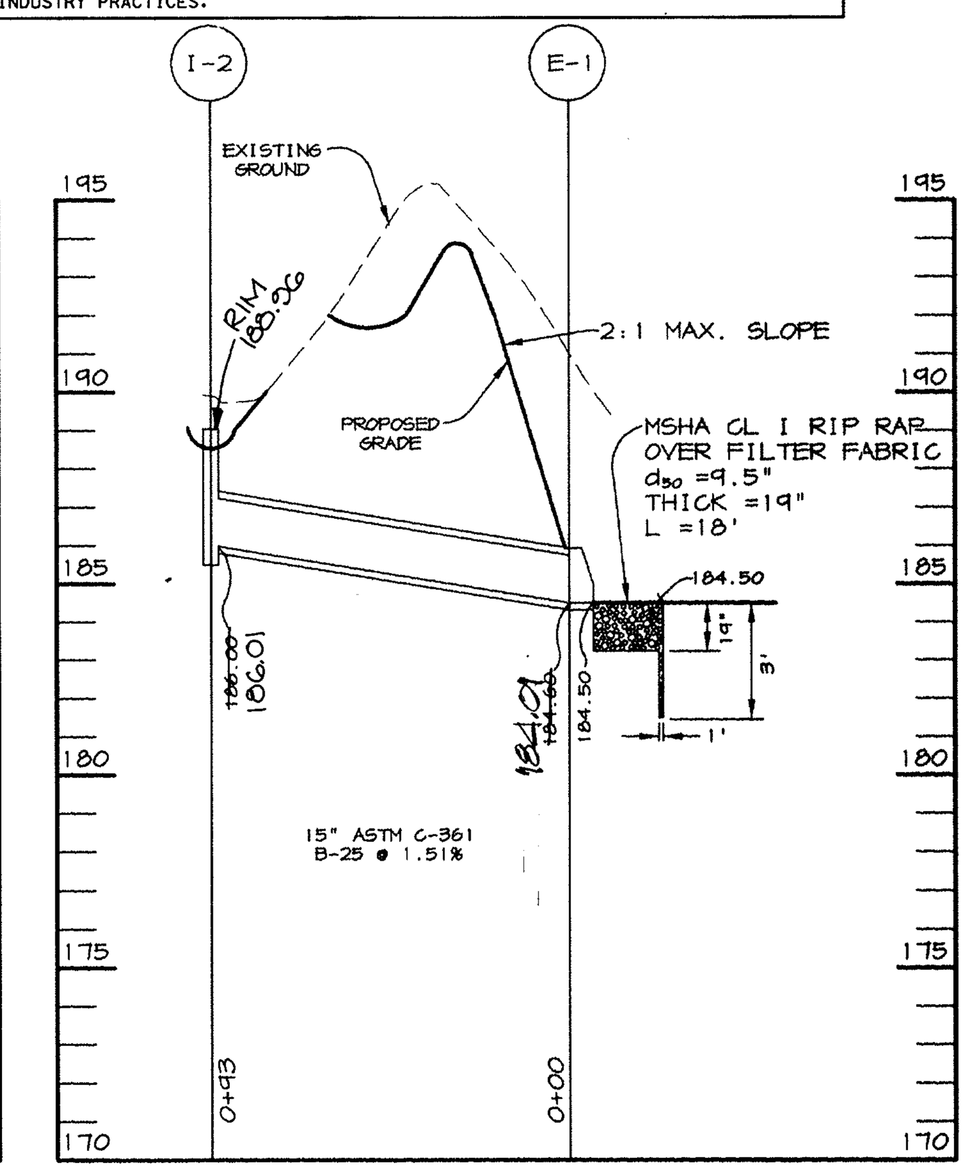
6/23/98
NATURAL RESOURCES CONSERVATION — DATE

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

Robert G. Eichen — 6/23/98
HOWARD SOIL CONSERVATION DISTRICT — DATE



CENTERLINE OF EMBANKMENT PROFILE
SCALE :
HOR. -1"=50'
VERT. -1"=5'



STORM DRAIN PROFILE
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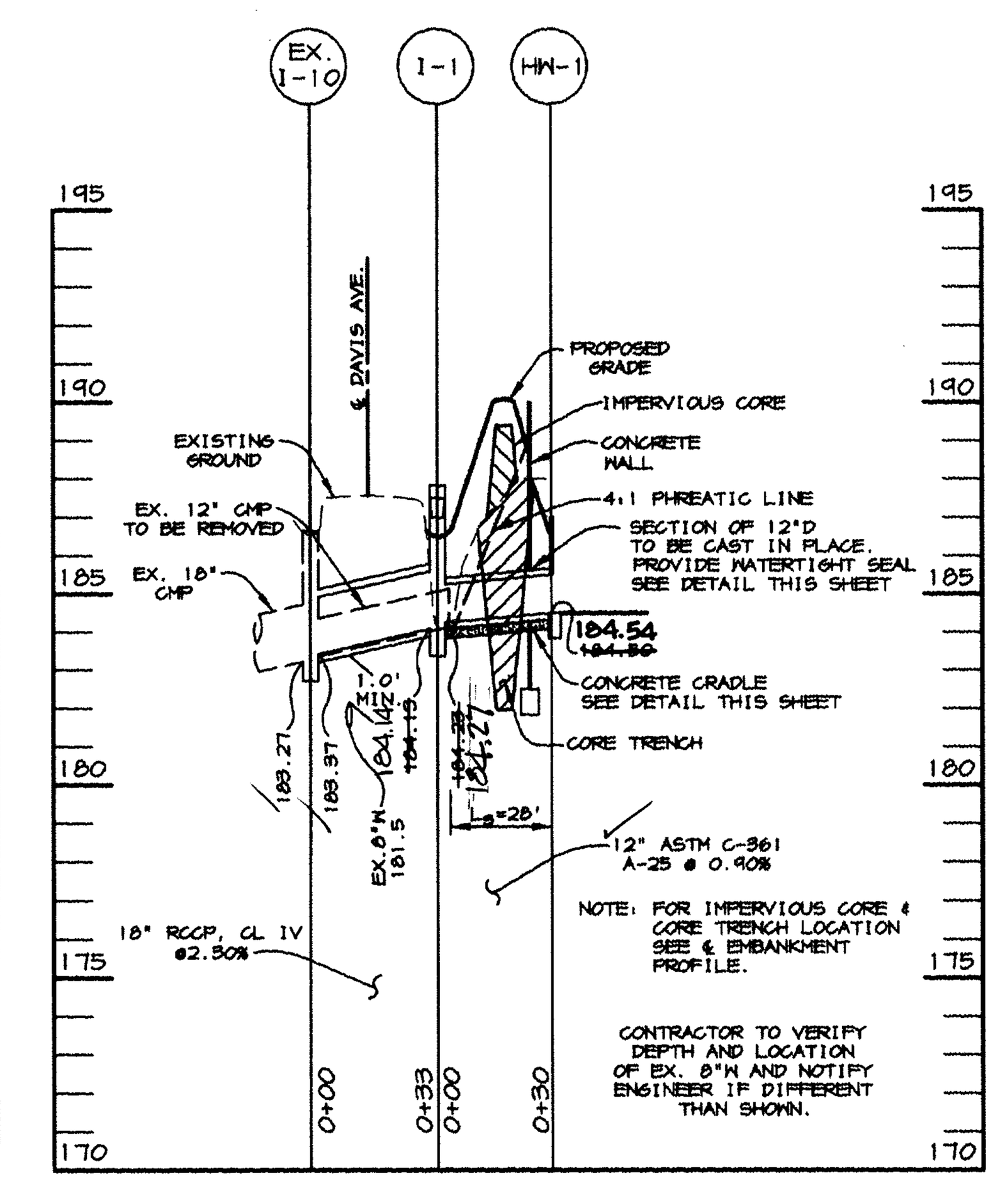

EMBANKMENT AND STORM DRAIN PROFILE
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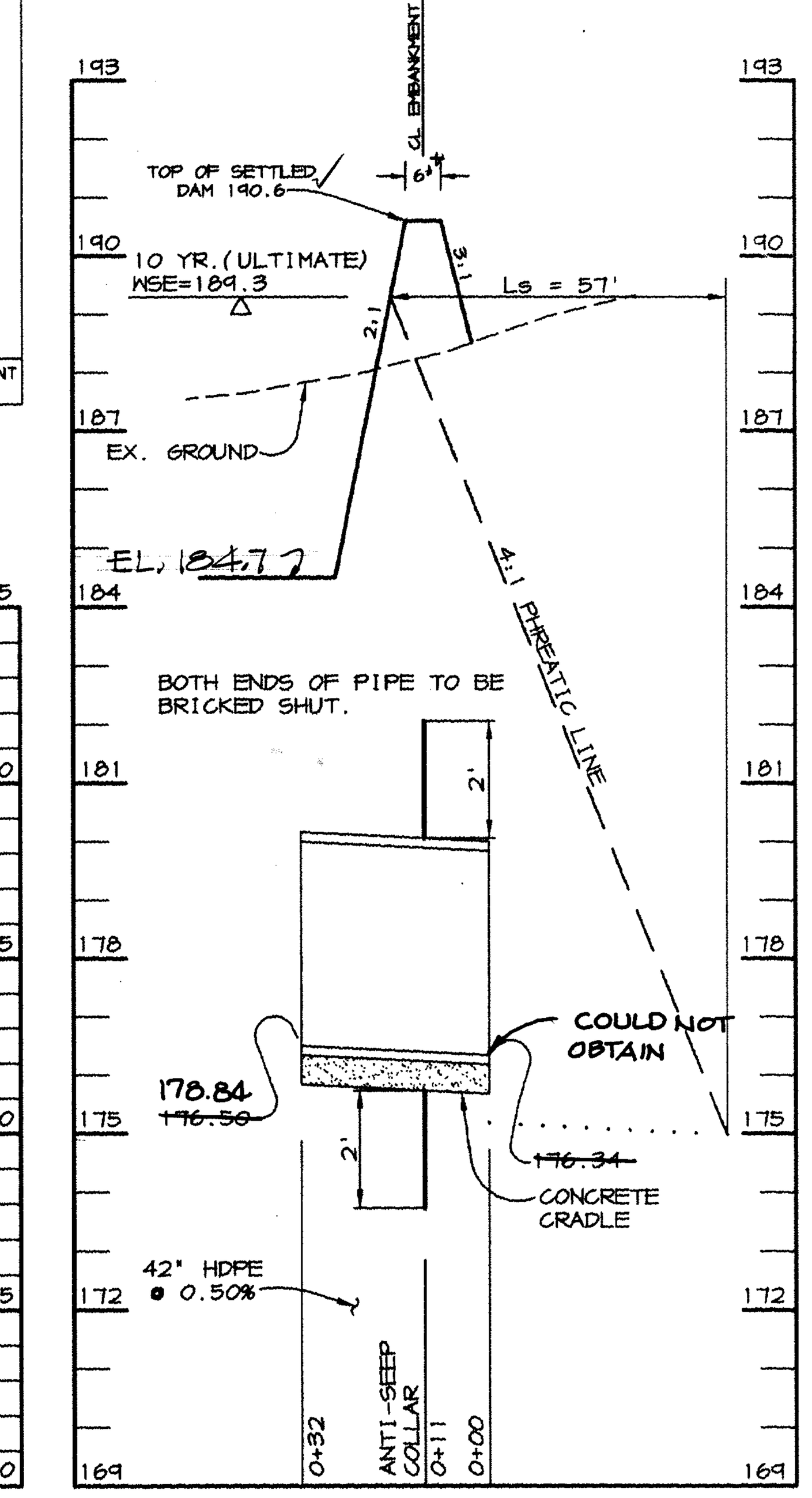


42" HDPE PROFILE
SCALE :
HOR. -1"=30'
VERT. -1"=3'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

1/29/98 — DIRECTOR OF PUBLIC WORKS — DATE
John J. O'Hare 1/27/98 — CHIEF, BUREAU OF WASTE MANAGEMENT DATE
1-30-98 — CHIEF, BUREAU OF HIGHWAYS — DATE
1/27/98 — CHIEF, STORMWATER MANAGEMENT DIVISION DATE

RIEMER MUEGGE & ASSOCIATES, INC.
ENGINEERING • ENVIRONMENTAL SERVICES • PLANNING • SURVEYING
8818 Centre Park Drive, Columbia, Maryland 21045
tel 410.997.8900 fax 410.997.9282
FILE: 97085/SDP3

ARTHUR E. MUEGGE #8707

DES: AAP			
DRN: BLW			
CHK: AAP			
DATE: 1/21/98	BAC	REVISE PER AS-BUILT RED LINES	12-30-99
	BY	NO.	REVISION	DATE

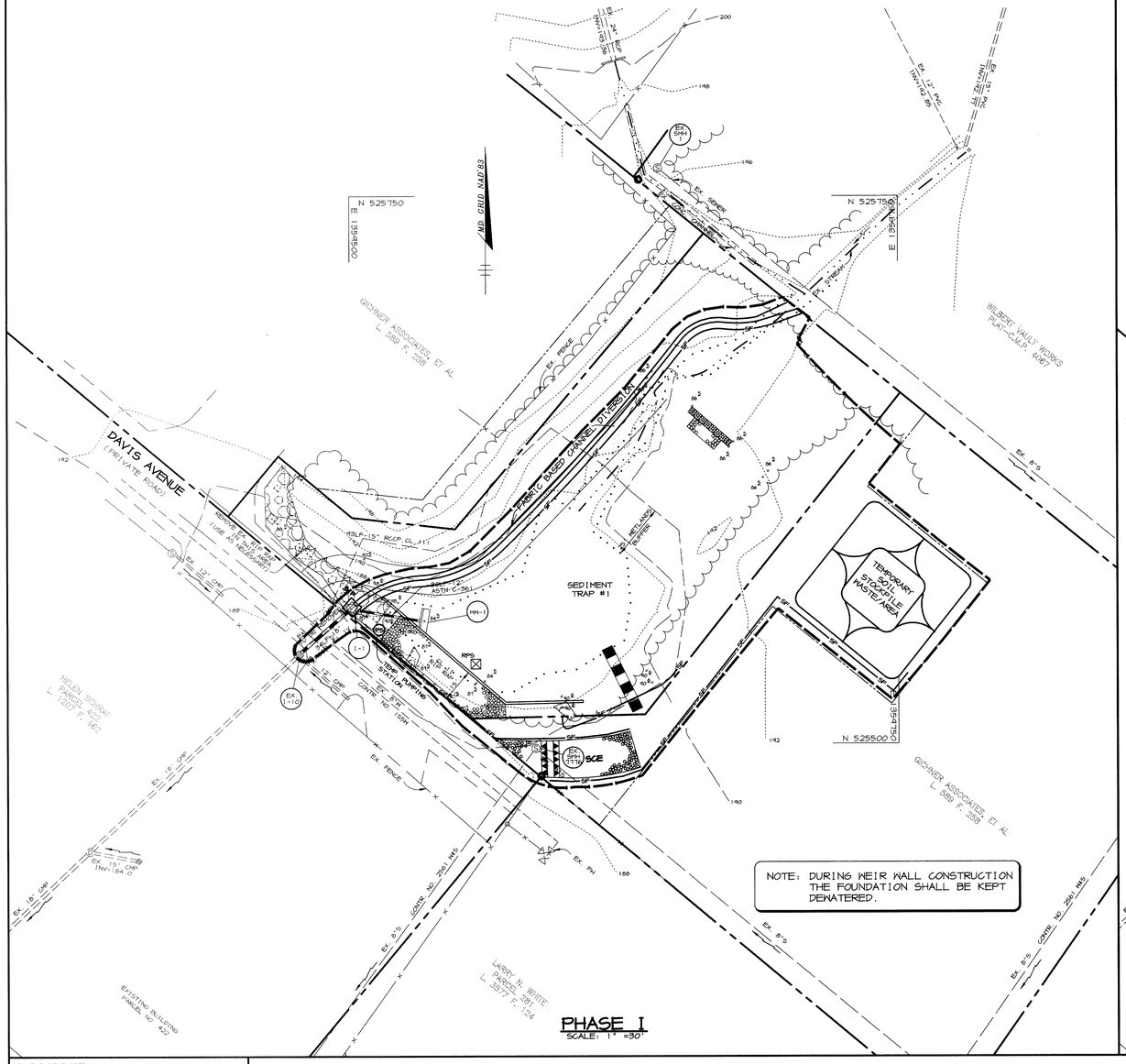
PROFILES AND DETAILS

600' SCALE MAP NO. 50 BLOCK NO. 4.10

DAVIS AVENUE
STORMWATER MANAGEMENT
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT No. D-1112

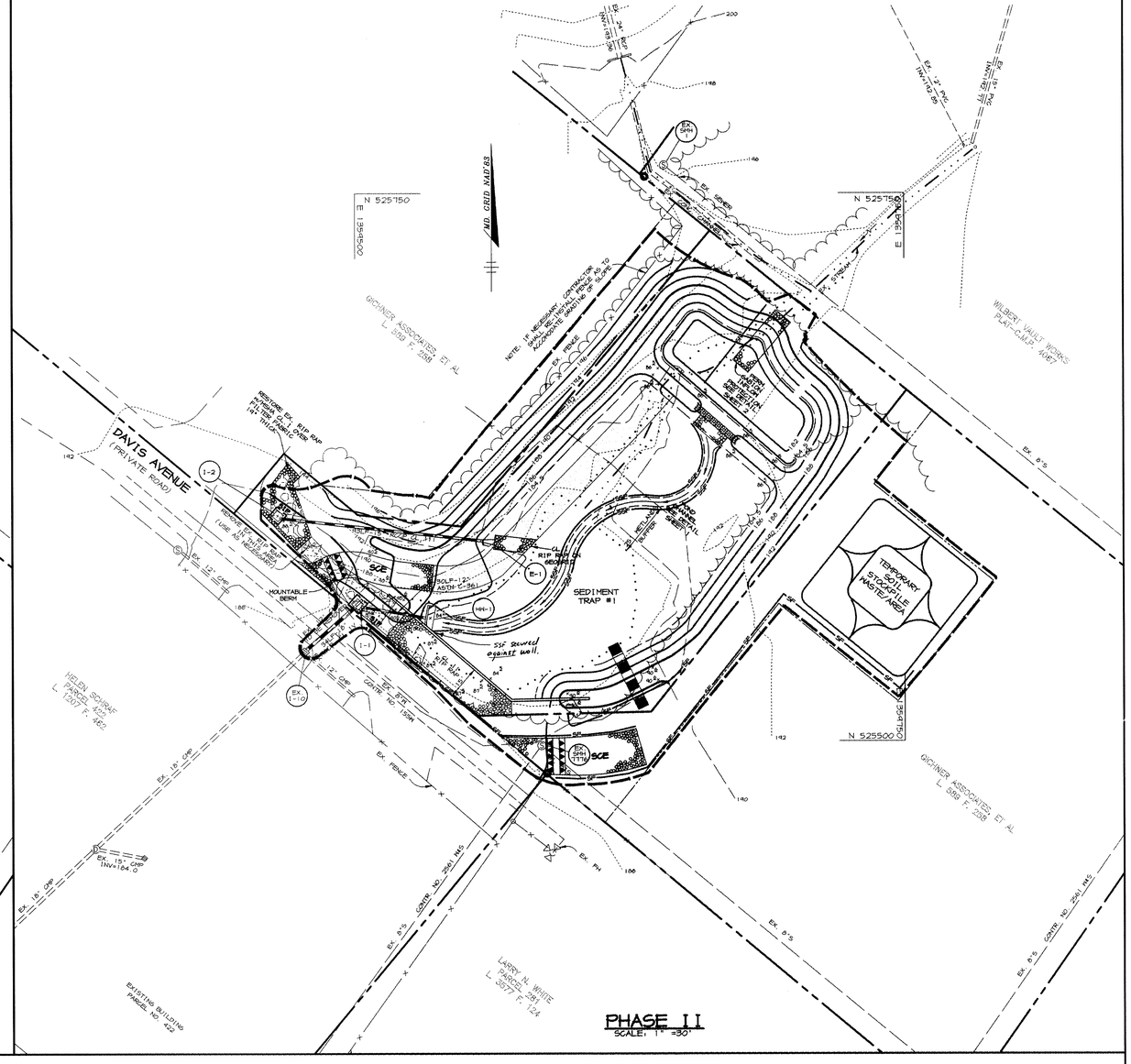
SCALE AS SHOWN

SHEET 2 OF 5



PHASE I
SCALE: 1" =30'

NOTE: DURING WEIR WALL CONSTRUCTION THE FOUNDATION SHALL BE KEPT DEWATERED.



PHASE II
SCALE: 1" =30'

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 WIHTIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER — DATE 1/27/98

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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 WIHTIN 30 DAYS OF COMPLETION.

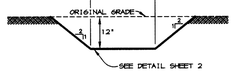
ENGINEER — DATE 1.21.98

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.

NATURAL RESOURCES CONSERVATION — DATE 6/22/98

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 6/22/98



FABRIC BASED CHANNEL DIVERSION TYPICAL SECTION

NO SCALE

LEGEND

- SCE — STABILIZED CONSTRUCTION ENTRANCE
- SF — SILT FENCE
- LIMIT OF DISTURBANCE
- [ ] SIP — STANDARD INLET PROTECTION
- RPS — REMOVABLE PUMPING STATION
- PS — TEMPORARY PUMPING (ESTIMATED PUMP SIZE = 2 HP)

SEQUENCE OF CONSTRUCTION

THIS SHEET FOR SEDIMENT CONTROL ONLY

PHASE I
1. Obtain grading permit.
2. Install perimeter controls (silt fence, stabilized construction entrance, fabric based channel diversion).
3. With permission of SEC inspector, install concrete wall, 12" lowflow structure and 42" pipe.
4. Using a pump to pass stream water over work area, or during a dry weather forecast, install inlet I-1, rebuild existing I-10 and inlet protection, replace existing 12" CMP with 18" RCP, and connect 12" low flow to I-1.
5. Excavate east side of pond, stabilize banks, install riprap at concrete wall outfall, construct and stabilize meandering channel thru pond.
6. Using a pump to pass stream water over work area, or during a dry weather forecast, install gabion inflow protection, east portion of forebay and forebay outfall.

PHASE II
7. Install silt fence on both sides of pond channel, install inlet protection on inlet I-1 and divert stream to forebay. *Obtain permission from SEC inspector to proceed.*
8. Grade west side of pond and forebay. Install S.C.E.
9. Install inlet I-2 to E-1, on riprap outfall.
10. Fine grade and stabilize area per planting plan.
11. With permission of SEC inspector, remove sediment controls and stabilize area disturbed by this process.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 1/29/98
CHIEF, BUREAU OF HIGHWAYS — DATE 1-30-98
CHIEF, BUREAU OF WASTE MANAGEMENT — DATE 1/27/98
CHIEF, STORMWATER MANAGEMENT DIVISION — DATE 1/27/98

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FILE: 97085/SDP2

STATE OF MARYLAND — ARTHUR E. MUEGGE — No. 8107 — REGISTERED PROFESSIONAL ENGINEER
ARTHUR E. MUEGGE #8107

DES: AAP
DRN: BLH
CHK: AAP
DATE: 1/21/98

BY	NO.	REVISION	DATE

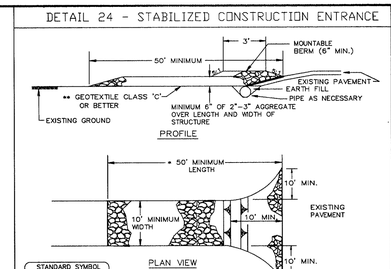
SEDIMENT CONTROL PLANS

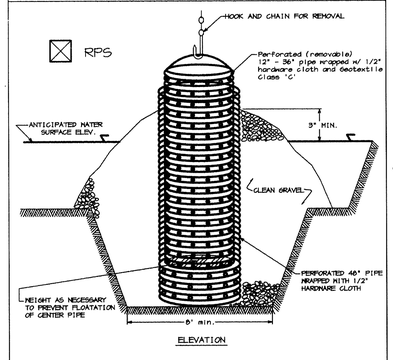
600' SCALE MAP NO. 50 BLOCK NO. 4.10

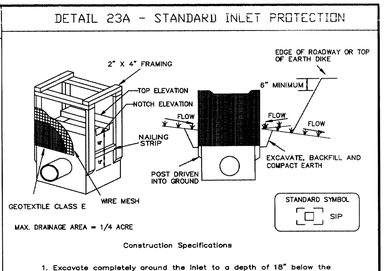
DAVIS AVENUE STORMWATER MANAGEMENT
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT No. D-1112

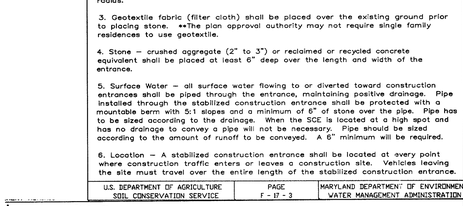
SCALE 1"=30'

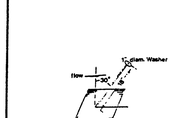
SHEET 3 OF 5

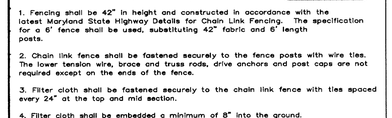


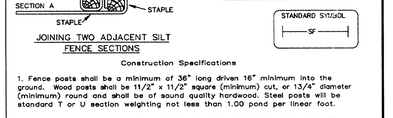


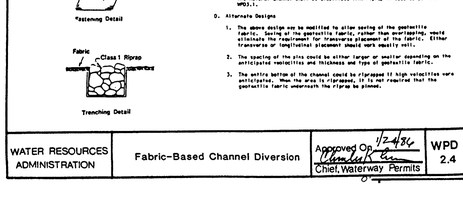












MD-378 STANDARDS AND SPECIFICATIONS

SPECIFICATIONS

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.

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 50 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 material. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

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 the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tire or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

Where a minimum required density is specified, it 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.

Cutoff 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 back fill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

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.

PIPE CONDUITS

All pipes shall be circular in cross section.

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 Designation C-361.
2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the side of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
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 2 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.

Polyvinyl Chloride (PVC) Pipe - All of the following criteria shall apply for polyvinyl chloride (PVC) pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.
2. Joints and connections to anti-seep collars shall be completely watertight.
3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other 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.

CONCRETE

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 608, 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 608, Mix No.3.

The riprap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth 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 919.12.

CARE OF WATER DURING CONSTRUCTION

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the 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 of 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 to 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 Maryland Soil 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 to be employed during the construction process.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seedbed Preparation : Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

Soil Amendments : Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1000 sq.ft.).

Seeding : For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2-1/2 bushels per acre of annual rye (3.2 lbs. per 1000 sq.ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (0.07 lbs. per 1000 sq.ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching : Apply 1-1/2 to 2 tons per acre (70 to 90 lbs. per 1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal. per 1000 sq.ft.) of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation : Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

Soil Amendments : In lieu of soil test recommendations, use one of the following schedules :

1) Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs. per 1000 sq.ft.) and 600 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs. per 1000 sq.ft.).
2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs. per 1000 sq.ft.) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs. per 1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil.

Seeding : For the period March 1 thru April 30 and from August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs. per 1000 sq.ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (0.05 lbs. per 1000 sq.ft.) of weeping lovegrass. During the period October 16 thru February 28, protect site by one of the following options :

1) 2 tons per acre of well-anchored mulch straw and seed as soon as possible in the spring.
2) Use sod.
3) Seed with 60 lbs. per acre Kentucky 31 Tall Fescue and mulch with 2 tons per acre well anchored straw.

Mulching : Apply 1-1/2 to 2 tons per acre (70 to 90 lbs. per 1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal. per 1000 sq.ft.) of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

Maintenance : Inspect all seeded areas and make needed repairs, replacements and reseedings.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:
  a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
  b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
  c. The original soil to be vegetated contains material toxic to plant growth.
  d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimentation 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 mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½" in diameter.

  II. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.

  III. Where 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 distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

II. 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.

III. 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 has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

Note: Topsoil substitutes to 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.

  II. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

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 minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

  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 may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

  I. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for site having disturbed areas under 5 acres shall conform to the following requirements:
    a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
    b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
    c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
    d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS 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 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL, AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE 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 1991 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL FOR PERMANENT SEEDINGS (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	0.69 ACRES
AREA DISTURBED	0.98 ACRES
AREA TO BE ROOFED OR PAVED	0.00 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.98 ACRES
TOTAL CUT	3246 CU. YARDS
TOTAL FILL	18 CU. YARDS
WASTE/BORROW AREA	0.08 ACRES

REMAINDER OF EARTHWORK PERFORMED UNDER GP-98-23.

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 CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.
11. CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL, NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS WHICH MAY AFFECT THE WORK.
12. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 AC., 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.
13. BORROW SITE TO BE PRE-APPROVED BY THE SEDIMENT CONTROL INSPECTOR, OR IN CASE OF EXCESS MATERIAL, AN APPROVED SEDIMENT CONTROL PLAN WILL BE NEEDED TO DEPOSIT EXCESS OFF-SITE.

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.

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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 1/2" 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 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

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DETAIL 23A - STANDARD INLET PROTECTION

MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotixtile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

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A. Channel Excavation

1. All erosion and sediment control devices shall be installed as the first order of business.
2. All disturbance resulting from construction of the channel shall be contained by appropriate sediment control measures.
3. Excavation of the channel shall begin at the downstream end and proceed upstream. All excavated materials shall be stockpiled outside of the floodplain and temporarily stabilized to prevent re-entry into the stream channel.
4. The process of excavation and stabilization with fabric shall be a continuous (uninterrupted) operation. All materials shall be on-site prior to channel consruction.
5. The downstream and upstream connection to the natural channel shall be constructed under dry conditions. The stream shall be contained by sandbags along the opposing bank during the process of cutting the diversion channel into the natural stream channel. Excavation and stabilization shall be a continuous (uninterrupted) operation.
6. All debris (rocks, sticks, etc.) shall be removed and the channel surfaces made smooth so that the fabric will rest flush with the channel sides and bottom.

B. Stabilization with Geotextile Fabric

1. The fabric shall have a minimum width such that it is keyed in and anchored at the top of stream bank.
2. Fabric shall be placed so that it rests flush with the channel at all points of contact.
3. Fabric shall be placed such that one piece will line the entire channel. If this is not possible, fabric shall be placed so that transverse overlapping occurs in accordance with the detail. Longitudinal overlaps shall not be allowed. Upstream sections shall overlap downstream sections. Overlap width shall equal 2 feet minimum.
4. The fabric shall be keyed into 2 x 2 feet trenches located at the upstream edge and at 50 feet intervals (the overlap nearest to each 50 feet increment). The key-in shall be from top of channel to top of channel. Class I riprap (WPD3.1) shall be carefully placed into the trench (zero drop height).
5. The fabric sections shall be secured with holddown pins (L = 18 inch minimum) and washer (diameter = 1.0 inch minimum). Overlaps shall be pinned along transverse and longitudinal axes with spacing equal to 3 feet maximum.
6. Sediment from surrounding areas of disturbance shall not be allowed to enter the diversion chanel.

C. Removal of Diversion

1. Water shall not be allowed through the natural stream until all construction is completed.
2. After diversion of the stream through the natural stream bed, the temporary diversion channel shall be backfilled and stabilized. Points of tie-in to the natural channel shall be stabilized with riprap in accordance with WPD3.1.

D. Alternate Designs

1. The above design may be modified to allow sewing of the geotextile fabric. Sewing of the geotextile fabric, rather than overlapping, would eliminate the requirement for transverse placement of the fabric. Either transverse or longitudinal placement should work equally well.
2. The spacing of the pins could be either larger or smaller depending on the anticipated veolocities and thickness and type of geotextile fabric.
3. The entire bottom of the channel could be riprapped if high velocities were anticipated. When the area is riprapped, it is not required that the geotextile fabric underneath the riprap be pinned.

WATER RESOURCES ADMINISTRATION	Fabric-Based Channel Diversion	Approved On 1/24/86 Charles K Lee Chief, Waterway Permits	WPD 2.4

DETAIL 33 - SUPER SILT FENCE

NOTE: FENCE POST SPACING SHALL NOT EXCEED 10' CENTER TO CENTER

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/ft ²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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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 11/2" x 11/2" square (minimum) cut, or 13/4" 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 ²/ 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.

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BORING B-1

NO SCALE

0'	RED AND GRAY MOIST, SOFT, SANDY CLAY, TRACE GRAVEL, WITH ORGANICS (CL) (FILL)
2'	GRAY TO TAN AND GRAY, WET, VERY LOOSE SAND, LITTLE TO SOME SILT, TRACE CLAY (SM)(SANDY LOAM)
4.5'	GRAY TO TAN, SATURATED, VERY LOOSE SAND, SOME CLAYEY SILT (SC-SM)(SANDY LOAM)
7.5'	YELLOWISH BROWN, MOIST, VERY STIFF, SANDY CLAY INTERBEDDED WITH CLAYEY SAND LAYERS, LITTLE GRAVEL (CL)(CLAY)
10'	

BORING B-2

NO SCALE

0'	BROWN MOIST, LOOSE SILTY SAND TRACE GRAVEL WITH ORGANICS (SM)(FILL)
1'	REDDISH BROWN, MOIST MEDIUM STIFF SANDY CLAY, WITH ORGANICS (CL)(FILL)
2'	GRAY TO TAN/BROWN, VERY MOIST MEDIUM DENSE SILTY SAND, TRACE CLAY (SM)(SANDY LOAM)
4.5'	GRAY, SATURATED, MEDIUM DENSE SAND TRACE TO LITTLE SILT (SM, LOAMY SAND/SANDY LOAM)
7.5'	BROWN TO PURPLE AND GRAY, MOIST, VERY STIFF CLAY (CL)(CLAY)
10'	

BORING B-3

NO SCALE

0'	DARK GRAYISH BROWN, SATURATED VERY SOFT, CLAYEY SILT, LITTLE SAND, WITH ORGANICS (ML)(SILTY CLAY LOAM)
2'	LIGHT GRAY, SATURATED, LOOSE SILTY SAND WITH SANDY SILT LENSES, TRACE CLAY (SM)(SANDY LOAM)
4.5'	GRAY TO TAN, SATURATED, MEDIUM DENSE SILT, LITTLE SILT, TRACE GRAVEL (SM) (LOAMY SAND)
7.5'	MOTTLED GRAY, RED, AND BROWN, WET VERY STIFF SANDY CLAY, TRACE GRAVEL (CL)(CLAY)
10'	

BORING B-4

NO SCALE

0'	VERY DARK GRAYISH BROWN (10YR 3/2) MOIST SANDY LOAM, HIGH ORGANICS (NOT HISTIC) A1
3"	DARK GRAYISH BROWN (10YR 4/2) MOIST SANDY LOAM, MODERATE ORGANICS
5"	LIGHT BROWNISH GRAY (10YR 6/2) VERY MOIST SANDY LOAM (50%) WITH REDDISH YELLOW (7.5YR 6/8) MOTTLES(50%)(NO ORGANICS)
10"	LIGHT BROWNISH GRAY (10YR 6/2) SATURATED SANDY LOAM (50%) WITH REDDISH YELLOW (7.5YR 6/8) MOTTLES(50%) ORGANIC STREAKS
24"	YELLOW RED (5YR 5/8) MOIST LOAM, FIRM IN PLACE
30"	LIGHT GRAY (7.5YR 7/1) VERY MOIST TO SATURATED SANDY LOAM
60"	

BORING B-5

NO SCALE

0'	DARK BROWN (10YR 3/3) MOIST LIGHT SILT LOAM, MANY ROOTS, MODERATE ORGANIC CONTENT
4"	GRAYISH BROWN (10YR 5/2) MOIST, SILT LOAM, MODERATE ORGANICS
12"	GRAY (10YR 5/1) MOIST SILT LOAM
15"	STRONG BROWN (7.5YR 5/8) MOIST SANDY LOAM, VERY COMPACT IN PLACE, TRACE GRAVEL
24"	GRAY (10YR 5/1) MOIST LOAM VARIED WITH LIGHT BROWN (7.5YR 5/3) LIGHT CLAY LOAM
33"	VARIEGATED GRAY (10YR 5/1-6/1) YELLOWISH BROWN (10YR 5/6-5/8) MOIST CLAY
60"	

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 WIHTIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

John J O'Hare 1/27/98
DEVELOPER DATE

BY THE ENGINEER :

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 WIHTIN 30 DAYS OF COMPLETION.

Arthur E. Muegge 1.21.98
ENGINEER 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.

Cheryl Simmons /CS 6/23/98
NATURAL RESOURCES CONSERVATION DATE

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

Robert W. Ziehm/CS 6/23/98
HOWARD SOIL CONSERVATION DISTRICT DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James M. Irvin 1/29/98
DIRECTOR OF PUBLIC WORKS DATE

John J O'Hare 1/27/98
CHIEF, BUREAU OF WASTE MANAGEMENT DATE

Andrew M. Dannecker 1-30-98
CHIEF, BUREAU OF HIGHWAYS DATE

Howard E. Saltzman 1/27/98
CHIEF, STORMWATER MANAGEMENT DIVISION DATE

RIEMER MUEGGE & ASSOCIATES, INC.
ENGINEERING • ENVIRONMENTAL SERVICES • PLANNING • SURVEYING
8818 Centre Park Drive, Columbia, Maryland 21045
tel 410.997.8900 fax 410.997.9282
FILE: 97085/SDP5

ARTHUR E. MUEGGE #8707

DES: AAP
DRN: BLW
CHK: AAP
DATE: 1/21/98

BY	NO.	REVISION	DATE

SEDIMENT CONTROL
NOTES AND DETAILS

600' SCALE MAP NO. 50 BLOCK NO. 4.10

DAVIS AVENUE
STORMWATER MANAGEMENT
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT No. D-1112

SCALE
1"=30'

SHEET
4 OF 5

STORMWATER MANAGEMENT FACILITY PLANTING SPECFICATIONS

1. PLANT SPECIES REQUIRED ARE NORMALLY UNAVAILABLE FROM STANDARD LANDSCAPE NURSERY SOURCES. THE CONTRACTOR MUST MAKE ARRANGEMENTS WITH COMPETENT WETLANDS RESTORATION SPECIALISTS TO INSURE A SUPPLY OF THE REQUIRED MATERIAL.

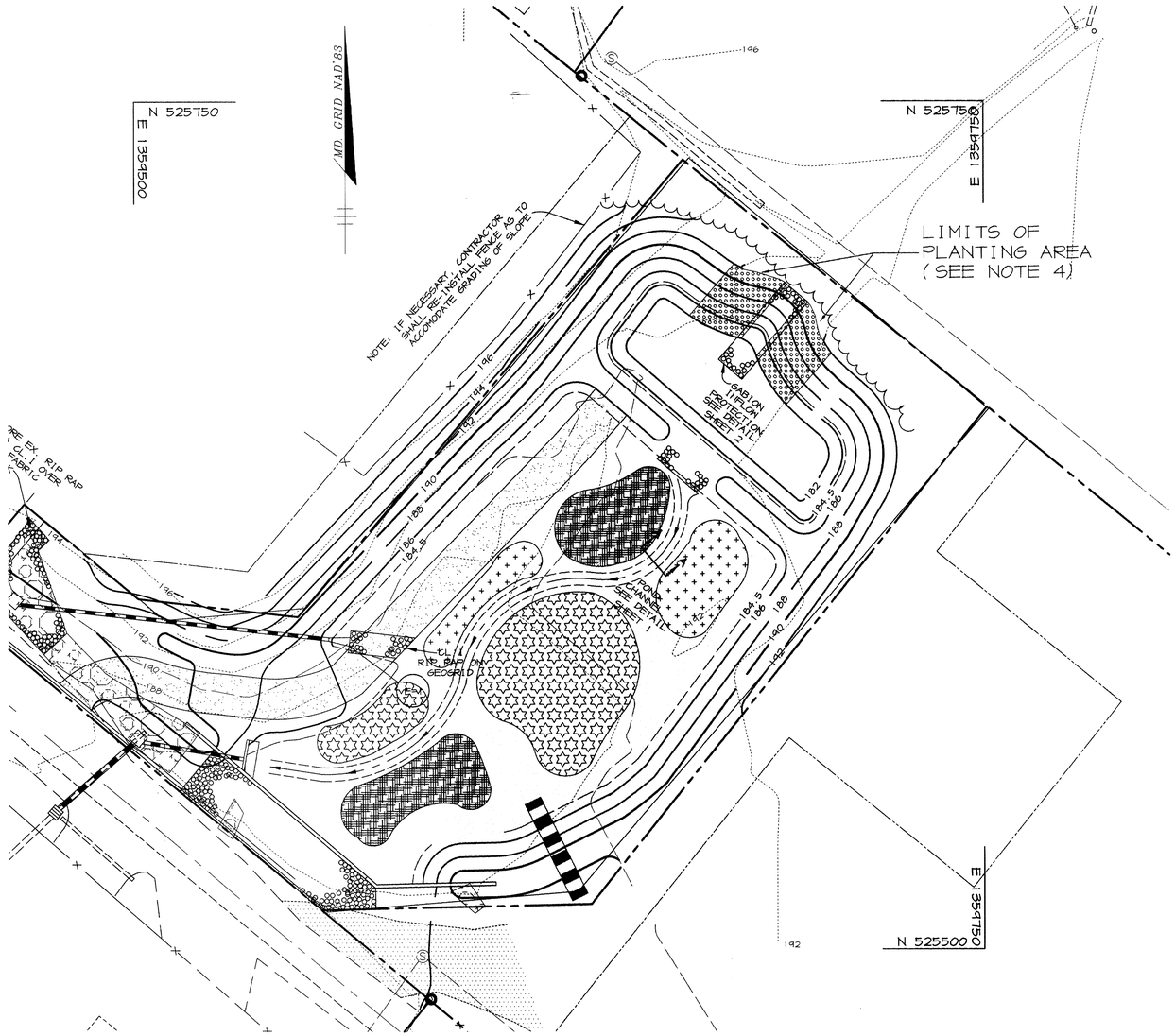
2. THE CONTRACTOR AND/OR THEIR SUBCONTRACTOR SHOULD BE AWARE OF THE SITE DESIGN CONDITIONS AND SHOULD TAKE ALL PRUDENT STEPS TO INSURE THAT THE PLANT MATERIAL SPECIFIED ON THE PLANS IS PROPERLY ACCLIMATED. IF THE PLANT MATERIAL IS AVAILABLE FROM SOURCES WHERE WETLAND CONDITIONS ARE DUPLICATED AT THE NURSERY, THE CONTRACTOR SHOULD FAVOR THESE SOURCES AS THE SUPPLIER.

3. IT IS RECOMMENDED THAT PLANTING BE COMPLETED EARLY IN THE SPRING.

4. PLANT LIVE STAKES 1' (ONE FOOT) INTO GABION MATTRESS ON EACH SIDE AND 15' (FIFTEEN FEET) FROM OUTER EDGE OF MATTRESS IN DIAMOND PATTERN (2' O.C.).

STORMWATER MANAGEMENT FACILITY PLANTING SCHEDULE

SYMBOL	QTY.	SPECIES	SIZE	SPACING	INDICATOR
	979	LEERSIA ORYZOIDES RICE CUTGRASS	1¾" P.P.	1' O.C.	OBL
	91	SAURUS CERNUUS LIZARDS TAIL	1 QT. POT	4' O.C.	OBL
	244	EUPATORIUM PURPUREUM JOE PYE WEED	1 QT. POT	3'O.C.	FACW
	202	PANICUM VIRGATUM SWITCHGRASS	1 QT. POT	4' O.C.	FAC
	171	SALIX PURPUREA STREAMCO WILLOW SEE NOTE 4 ABOVE	3' LENGTH (LIVE STAKES)	2'O.C.	OBL



THIS PLAN FOR PLANTING PURPOSES ONLY.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 1/29/98
CHIEF, BUREAU OF HIGHWAYS — DATE 1-30-98
CHIEF, BUREAU OF WASTE MANAGEMENT — DATE 1/27/98
CHIEF, STORMWATER MANAGEMENT DIVISION — DATE 1/27/98

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97085/SDP4.DWG

ARTHUR E. MUEGGE #8707

DES:	KEH
DRN:	KEH
CHK:	AAP
DATE:	1/21/98

BY	NO.	REVISION	DATE

STORMWATER MANAGEMENT FACILITY PLANTING PLAN

600' SCALE MAP NO. 50 BLOCK NO. 4.10

DAVIS AVENUE
STORMWATER MANAGEMENT
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT No. D-1112

SCALE 1"=20'

SHEET 5 OF 5