

SHEET INDEX	
NO	DESCRIPTION
1	S.W.M. IMPROVEMENT PLAN
2	PROFILES AND DETAILS
3	NOTES AND DETAILS

GENERAL NOTES

- THE CONTRACTOR SHALL NOTIFY THE HOWARD CO. DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT 410-313-1080 AND MISS UTILITY AT 1-800-257-7777 AT LEAST (5) FIVE WORKING DAYS BEFORE STARTING WORK.
- SUBJECT PROPERTY AND THE COMMUNITY IS ZONED R-20 PER THE 10-18-93 COMPREHENSIVE ZONING PLAN.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY.
- ALL POND IMPROVEMENTS, INCLUDING EMBANKMENT CONSTRUCTION, INCLUDING FILL MATERIAL, AND COMPACTION SHALL MEET MD-378 STANDARDS AND SPECIFICATIONS.
- ALL WORK SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" ISSUED BY THE WATER RESOURCES ADMINISTRATION AND THE NATURAL RESOURCES CONSERVATION SERVICE.
- TOPOGRAPHY AND HORIZONTAL LOCATIONS WERE TAKEN FROM AS-BUILT PLANS OF BURLEIGH MANOR, SECTION 4, AREA 3 (F-90-08) DATED 9-18-87 AND SEALED BY RICHARD L. UMBARGER (WHITMAN REIGARDT & ASSOCIATES).
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THEN THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES AND SAFETY PRECAUTIONS AND PROGRAMS.
- APPROXIMATE UTILITIES ARE SHOWN FROM AVAILABLE RECORDS. 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.
- THE WETLANDS AND ITS LIMITS ARE SHOWN ARE APPROXIMATE AND HAVE NOT BEEN VERIFIED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- A GEOTECHNICAL ENGINEER SHALL BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILTER DIAPHRAGM AND EMERGENCY SPILLWAY FILL. EMERGENCY SPILLWAY FILL SOIL SHALL BE UNIFIED SOIL CLASSIFICATION SC, SC, CH, OR CL.
- THE CONTRACTOR SHALL NOT STORE ANY EQUIPMENT OR STOCKPILE SOIL WITHIN THE 100 YEAR FLOODPLAIN.
- ALL WASTE MATERIALS SHALL BE DISPOSED OF AT AN APPROVED SITE.
- EMBANKMENT IS A CLASS 'A' HAZARD CLASSIFICATION.
- MDE TRACKING No. 149964092.
- HOWARD COUNTY IS RESPONSIBLE FOR OBTAINING ANY RIGHT OF ENTRY OR ACCESS AGREEMENT TO COMPLETE THE REFERENCED WORK, IF NECESSARY.

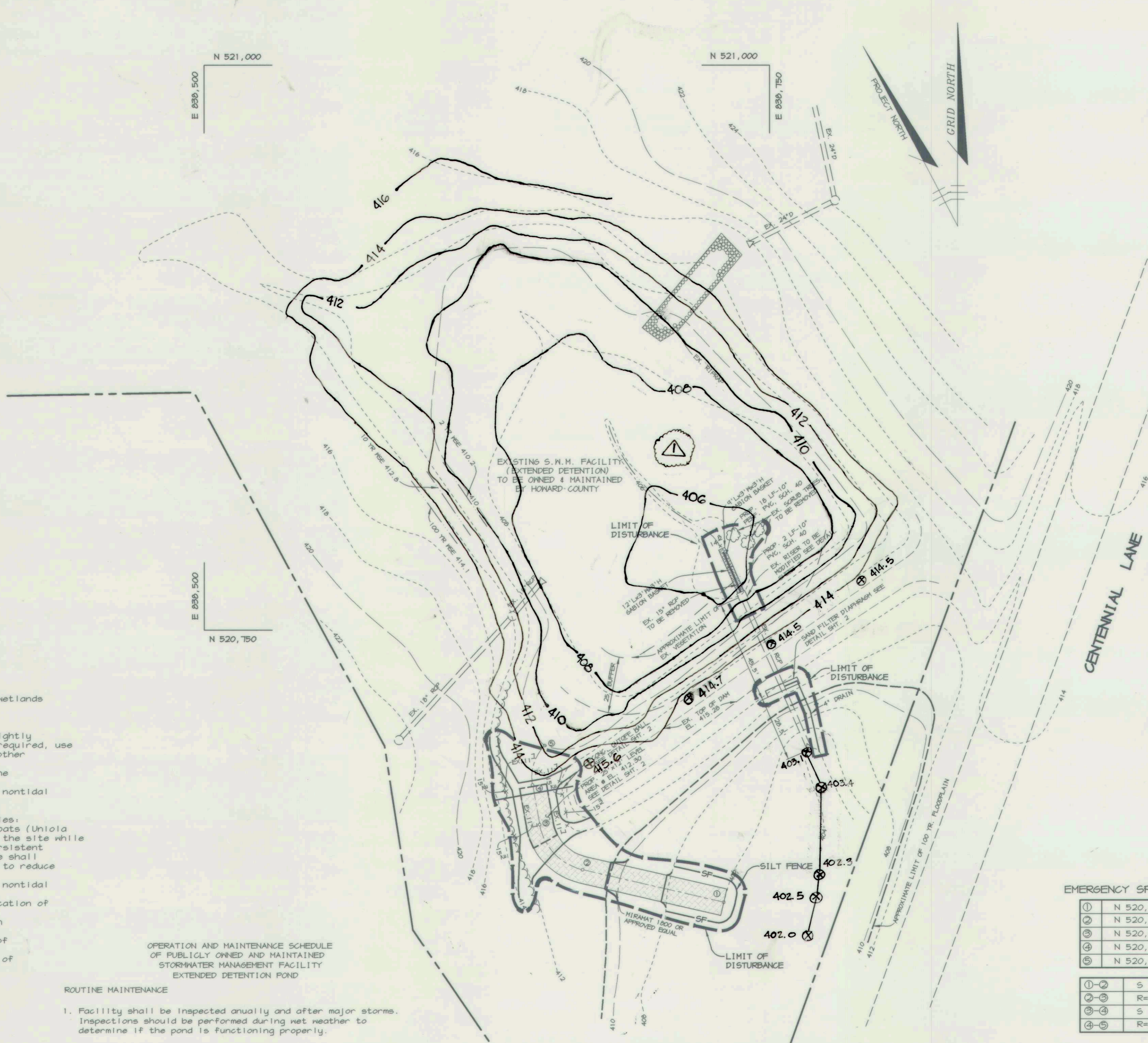
BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAIN

- No excess fill, construction material, or debris shall be stockpiled or stored in the wetlands or buffer.
- Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of the nontidal wetland.
- Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material or any other deleterious substance. If additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic materials or any other deleterious substance.
- Place heavy equipment on mats or suitably operate the equipment to prevent damage to the nontidal wetlands or buffer.
- Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands in excess of nontidal wetlands lost under the original structure or fill.
- Rectify any nontidal wetlands temporarily impacted by any construction.
- All stabilization in the wetland and buffer shall be of the following recommended species: Annual Ryegrass (*Lolium multiflorum*), Millet (*Setaria italica*), Barley (*Hordeum sp.*), oats (*Avena sp.*), and/or Rye (*Secale cereale*). These species will allow for the stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Division. Kentucky 31 fescue shall not be utilized in the wetland or buffer areas. The area should be seeded and mulched to reduce erosion after construction activities have been completed.
- After installation has been completed, make post construction grades and elevations of nontidal wetlands the same as the original grades and elevations in temporarily impacted areas.
- To protect aquatic species, in-stream work is prohibited as determined by the classification of the stream.
- Use 1 waters. In-stream work shall not be conducted during the period March 1 through June 15, inclusive, during any year.
- Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.
- Culverts shall be constructed and any riprap placed so as not to obstruct the movement of aquatic species, unless the purpose of the activity is to impound water.

SEQUENCE OF CONSTRUCTION

- INSTALL SILT FENCE AS SHOWN. (1 DAY)
- INSTALL FILTER DIAPHRAGM AND STABILIZE AREA WHEN COMPLETE. (2 DAYS)
- COMPLETE EMERGENCY SPILLWAY IMPROVEMENTS AND STABILIZE AREA WHEN COMPLETE. (4 DAYS)
- COMPLETE RISER IMPROVEMENTS AND STABILIZE AREA WHEN COMPLETE* (4 DAYS)
- NOTIFY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS WHEN CONSTRUCTION IS COMPLETE.

*CONTRACTOR MAY ELECT TO TEMPORARILY SANDBAG TRICKLE OF WATER. SANDBAGS (OR ANY BLOCKAGE) SHALL BE REMOVED AT END OF WORKING DAY. RISER AND POND SHALL BE ABLE TO DRAIN AFTER EACH WORKING DAY.



OPERATION AND MAINTENANCE SCHEDULE OF PUBLICLY OWNED AND MAINTAINED STORMWATER MANAGEMENT FACILITY EXTENDED DETENTION POND

ROUTINE MAINTENANCE

- Facility shall be inspected annually and after major storms. Inspections should be performed during wet weather to determine if the pond is functioning properly.
- Top and side slopes of the embankment shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side slopes and maintenance access should be mowed as needed.
- Debris and litter next to the outlet structure shall be removed during regular mowing operations and as needed.
- Visible signs of erosion in the pond as well as riprap outlet area shall be repaired as soon as it is noticed.

NON-ROUTINE MAINTENANCE

- Structural components of the pond such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components should be inspected during routine maintenance operations.
- Sediment should be removed when its accumulation significantly reduces the design storage, interfere with the function of the riser, when deemed necessary for aesthetic reasons, or when deemed necessary by the Howard County's Department of Public Works.

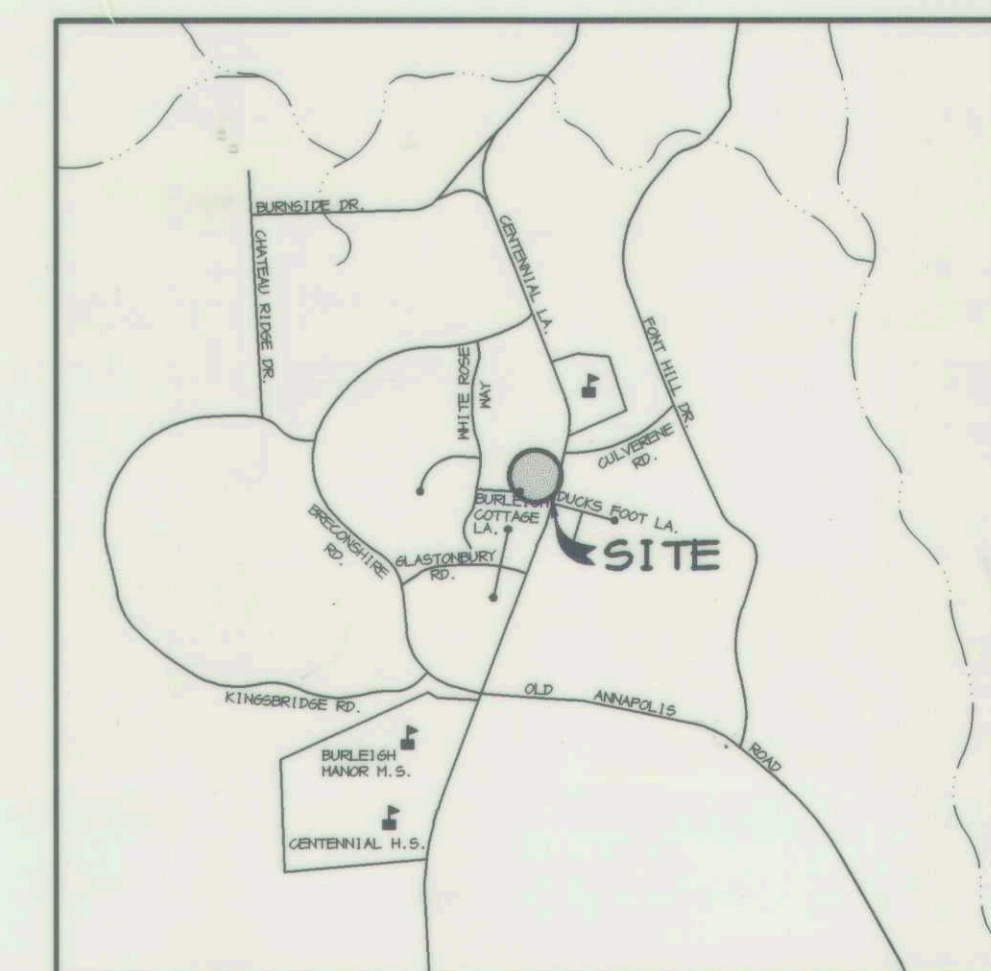
EMERGENCY SPILLWAY CENTERLINE DATA

1	N 520,624.75	E 836,729.75
2	N 520,644.15	E 836,667.32
3	N 520,664.06	E 836,648.34
4	N 520,681.50	E 836,645.19
5	N 520,694.08	E 836,650.57

1-2	S 77° 00' 31" E, 62.79'
2-3	R=25.00', L=21.90'
3-4	S 10° 11' 21" E, 16.51'
4-5	R=20.00', L=17.76'

S.W.M. SUMMARY CHART

STORM	POND INFLOW PEAK DISCHARGES (cfs)	EXISTING PEAK DISCHARGES (cfs)	EXISTING POND ELEVATIONS (ft)	PROPOSED PEAK DISCHARGES (cfs)	PROPOSED POND ELEVATIONS (ft)	PROPOSED STORAGE VOLUMES (AF)
1 YR.	23.6	9.0	408.1	1.9	409.6	1.11
2 YR.	40.6	10.7	409.3	8.1	410.2	1.45
5 YR.	78.4	26.3	410.7	20.7	411.5	2.27
10 YR.	105.7	38.8	412.1	33.4	412.8	3.26
100 YR.	187.1	151.3	413.1	133.7	414.1	4.41



VICINITY MAP
SCALE: 1"=2000'

BMP DATA SUMMARY

ADDRESS	CENTENNIAL LANE ELLICOTT CITY, MD 21043
MD COORDINATES (NAD 21)	838,000 EAST 520,000 NORTH
ADC MAP/GRID	11/6 10
STRUCTURE TYPE	EXTENDED DETENTION STRUCTURE (DRY) ED50
MOP LAND USE	O11 (LOW DENSITY RESIDENTIAL)
STRUCTURE DRAINAGE AREA	46.4 ACRES
TOTAL SITE DRAINAGE AREA	N/A
RCN	T2
ON/OFF SITE SWH	OFF SITE
OWNER	HOWARD COUNTY, MD

AS-BUILT CERTIFICATE

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.

HOWARD E. SALTZMAN, P.E. No. 13748 DATE

BY THE DEVELOPER:
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 6/16/99
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 WITHIN 30 DAYS OF COMPLETION.

Arthur E. Muegge 6/15/99
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 S. Smith 6/22/99
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.

Howard E. Saltzman 6/22/99
HOWARD SOIL CONSERVATION DISTRICT DATE

H. PROJECT/09195/SHT1A Tue Jun 15 09:00:34 1999 RIEMER MUEGGE & ASSOCIATES, INC.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John M. Clark 9/2/99
DIRECTOR OF PUBLIC WORKS DATE

John J. O'Hara 9/1/99
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

Richard L. Umbarger 9/2/99
CHIEF, BUREAU OF HIGHWAYS DATE

Howard E. Saltzman 9/1/99
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 410.997.8282
88196 SHT1A.DWG

ARTHUR E. MUEGGE #8707

DES: AAP
DRN: MAD
CHK: AAP

DATE: 6/15/99

BY: [Signature] NO. AS BUILT POND

DATE: 6/27/01

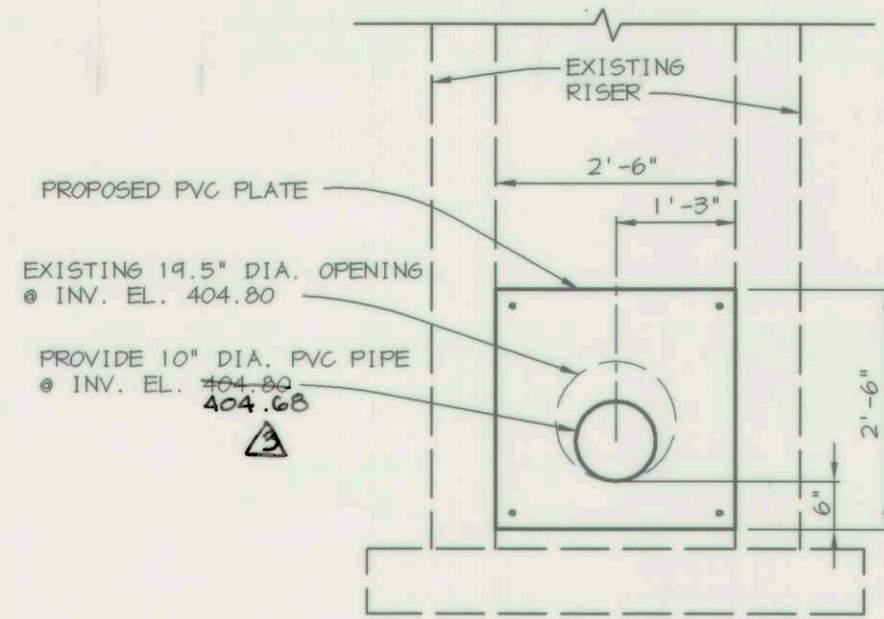
STORMWATER MANAGEMENT
IMPROVEMENT PLAN

600' SCALE MAP NO. 24 BLOCK NO. 13

BURLEIGH MANOR
SECTION 4 AREA 3
POND RETROFIT
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROJECT No. D 98-06

SCALE AS SHOWN
SHEET 1 OF 3

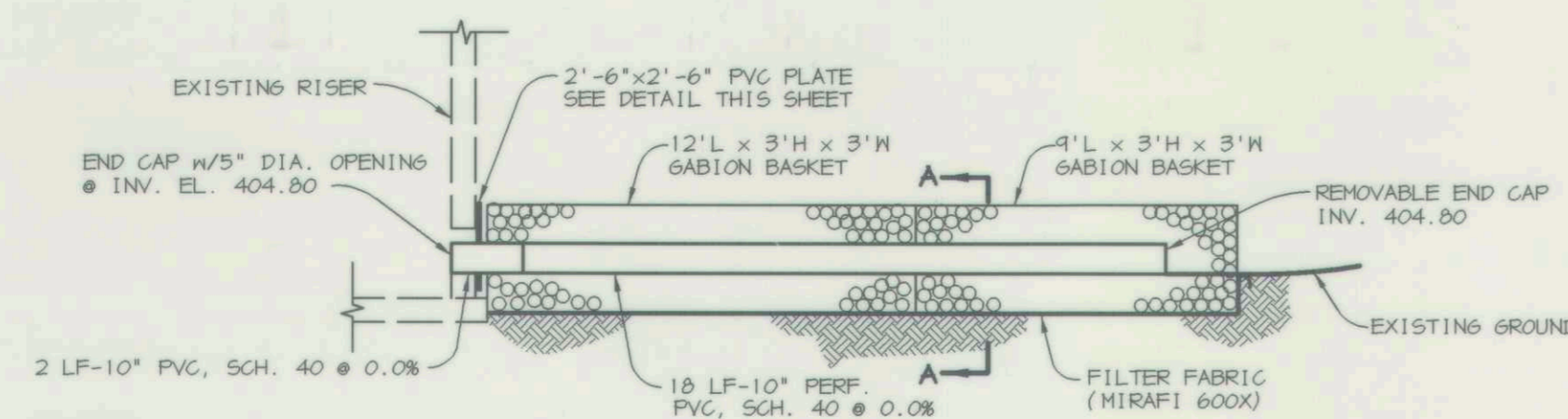
AS BUILT



NOTES:

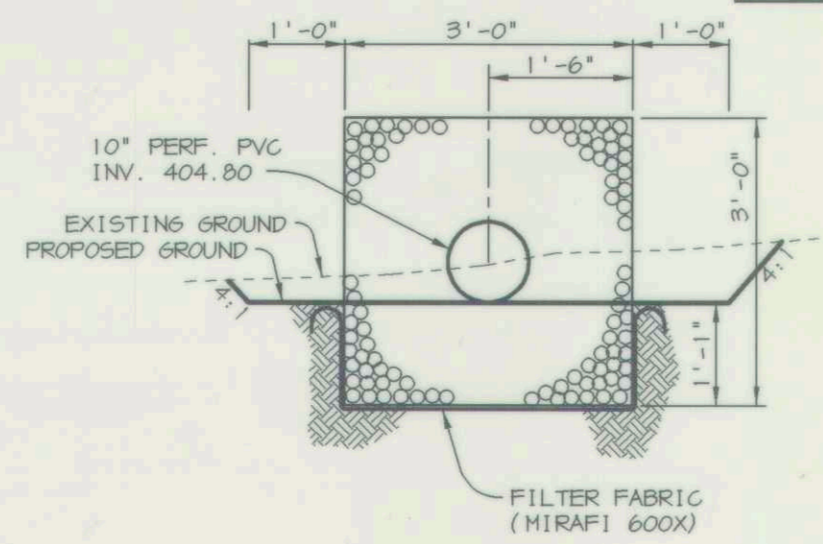
- CONTRACTOR SHALL PROVIDE 1/4" VULCANIZED RUBBER GASKET BETWEEN THE PLATE AND THE EXISTING CONCRETE RISER.
- USE 1/4" THICK PVC PLATE GLUED TO 10" DIA. PVC PIPE AND FASTENED TO RISER WITH 1/4" LAG BOLTS.

PVC PLATE DETAIL
NO SCALE



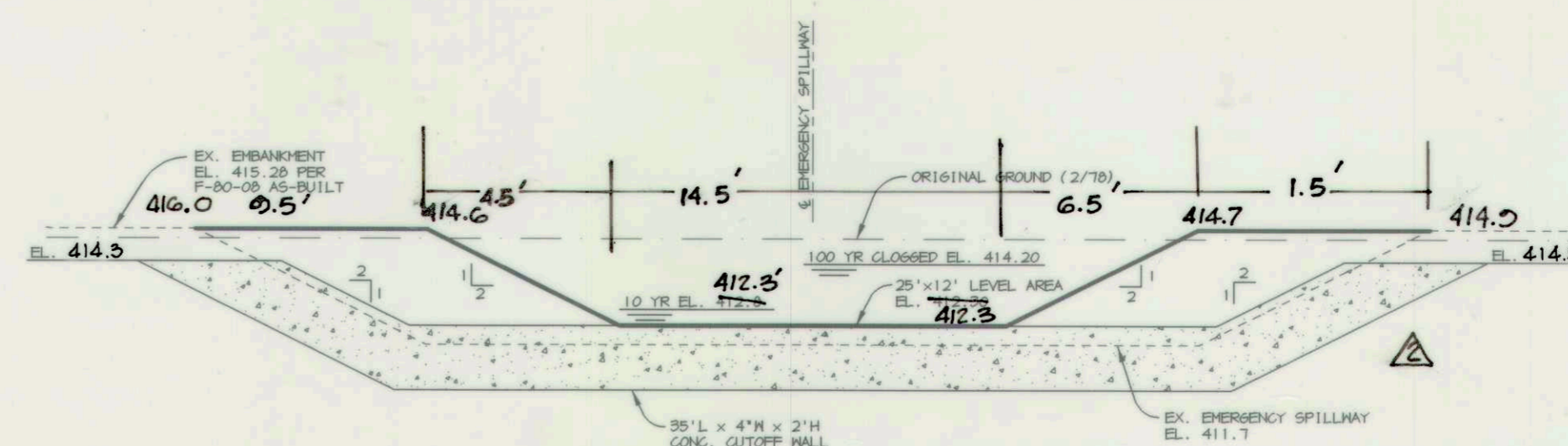
PROFILE

NOTE: GABIONS SHALL BE PVC COATED.



SECTION A-A (TYPICAL)

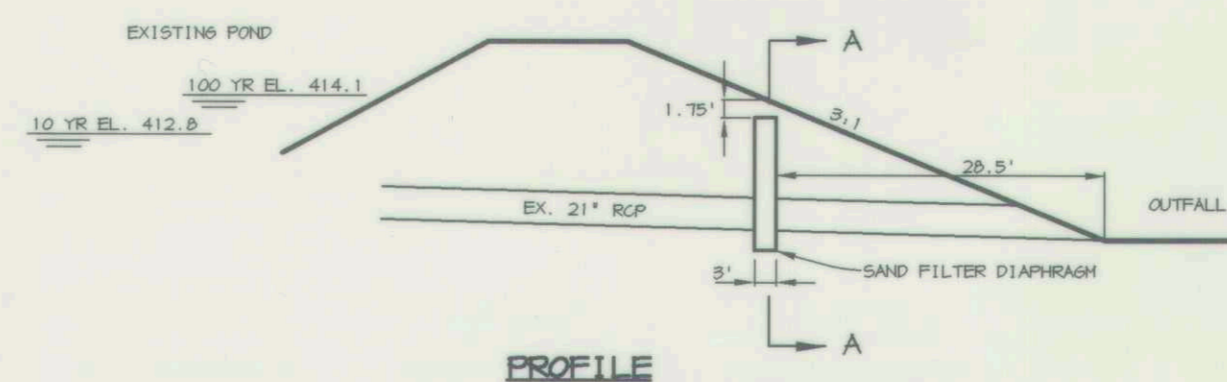
PERMANENT LOW FLOW DEVICE
NO SCALE



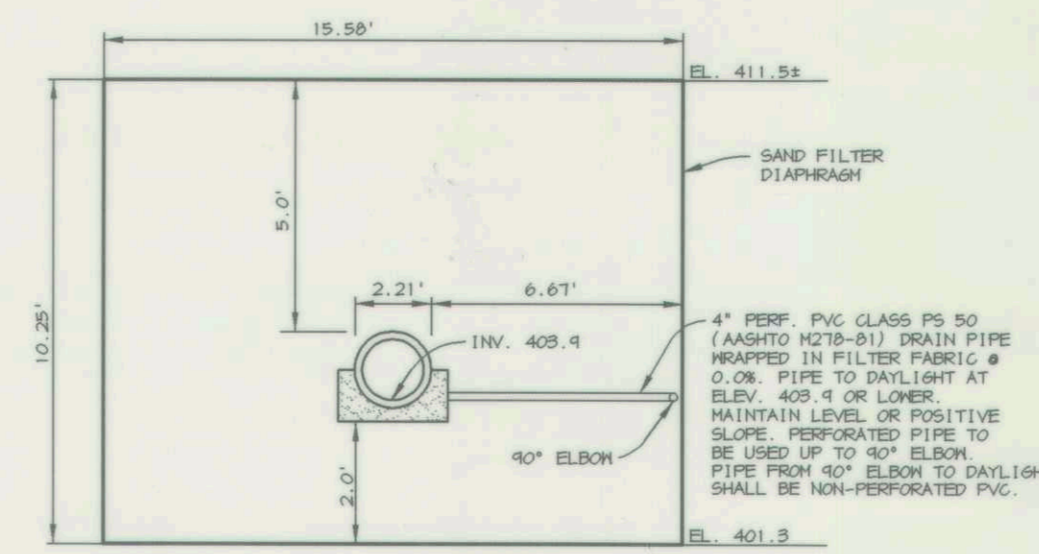
NOTES:

- CONTRACTOR SHALL REMOVE ALL TREES ON THE EMERGENCY SPILLWAY SIDE SLOPES.
- PRIOR TO SOIL PLACEMENT, TOPSOIL SHALL BE REMOVED AND EXPOSED SURFACE SHALL BE SCARIFIED.
- SOIL SHALL BE COMPACTED TO MD-37B STANDARDS AND SHALL BE 60, 50, GH OR CL AS PER THE UNIFIED SOILS CLASSIFICATION SYSTEM.

SECTION THROUGH EMERGENCY SPILLWAY
NO SCALE



PROFILE

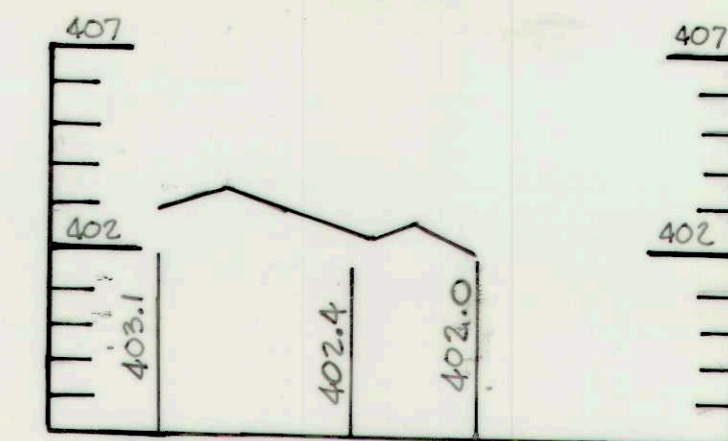


SECTION A-A

FILTER DIAPHRAGM
NO SCALE

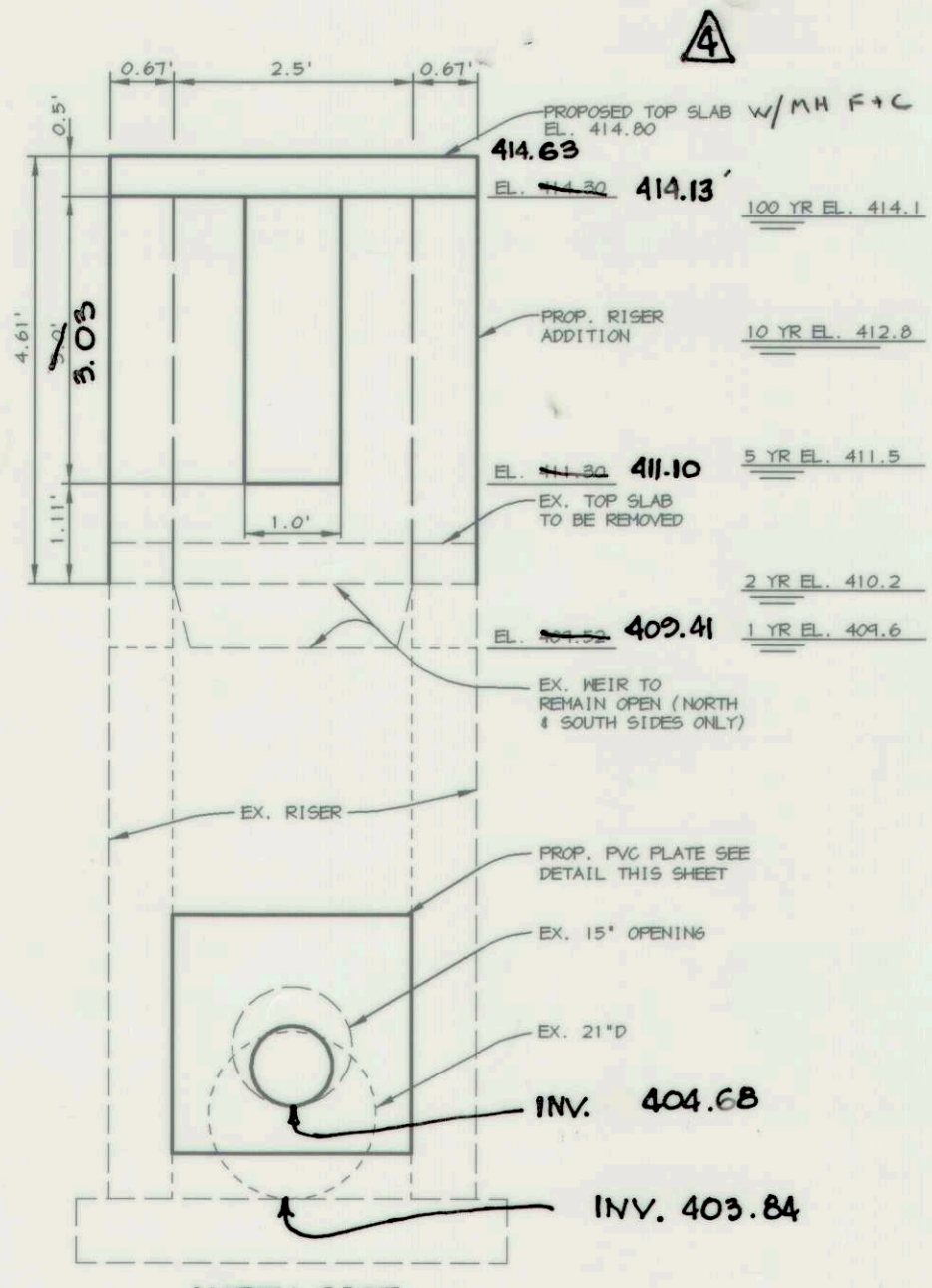
NOTES:

- FILTER DIAPHRAGM TO BE EXCAVATED WITH VERTICAL WALLS.
- SAND SHALL MEET ASTM C-35.
- THE SAND SHALL BE COMPACTED BY THOROUGHLY FLOODING THE FILTER DIAPHRAGM WITH CLEAN WATER.
- FILTER DIAPHRAGM INSTALLATION SHALL BE OBSERVED AND APPROVED BY A MARYLAND REGISTERED ENGINEER.



PROFILE OF PRINCIPAL SPILLWAY

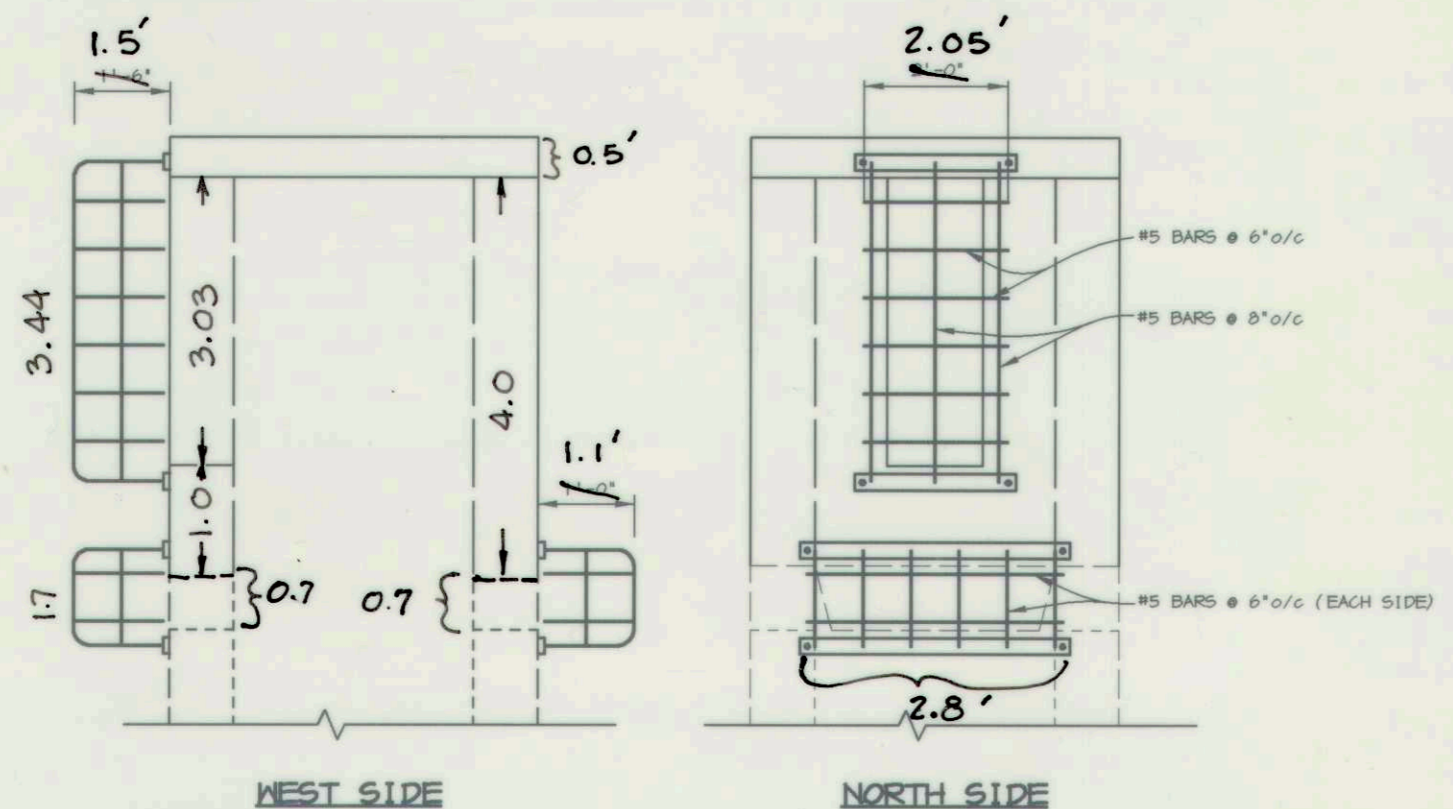
HOR.: 1" = 50'
VERT.: 1" = 5'



RISER NOTES:

- RISER EXTENSION SHALL BE CAST-IN-PLACE.
- CONCRETE SHALL BE MSHA MIX NO. 3 (F'c = 3,500 psi).
- THE RISER EXTENSION SHALL BE REINFORCED WITH #4 BARS @ 2' C/C. REINFORCEMENT SHALL BE CONTINUOUS AT THE CORNERS.
- AT NEW CONCRETE JOINT, ROUGHEN EXISTING SURFACE BY CHIPPING OR SANDBLASTING AND COAT WITH NET TO DRY BROCK PRIOR TO PLACING CONCRETE.
- REBARS SHALL BE CLEAN AND FREE OF RUST AND MEET ASTM STANDARD A615, GRADE 60.
- PROVIDE MANHOLE STEPS PER HOWARD COUNTY STD. DETAIL 6-5.21.
- TOP SLAB TO HAVE A MANHOLE FRAME AND COVER (SD-3.9) LOCATED OVER STEPS (CONTRACTOR TO REUSE EXISTING M.F.C. IF POSSIBLE).
- TOP SLAB TO BE REINFORCED PER SLAB DETAIL SD-4.11.

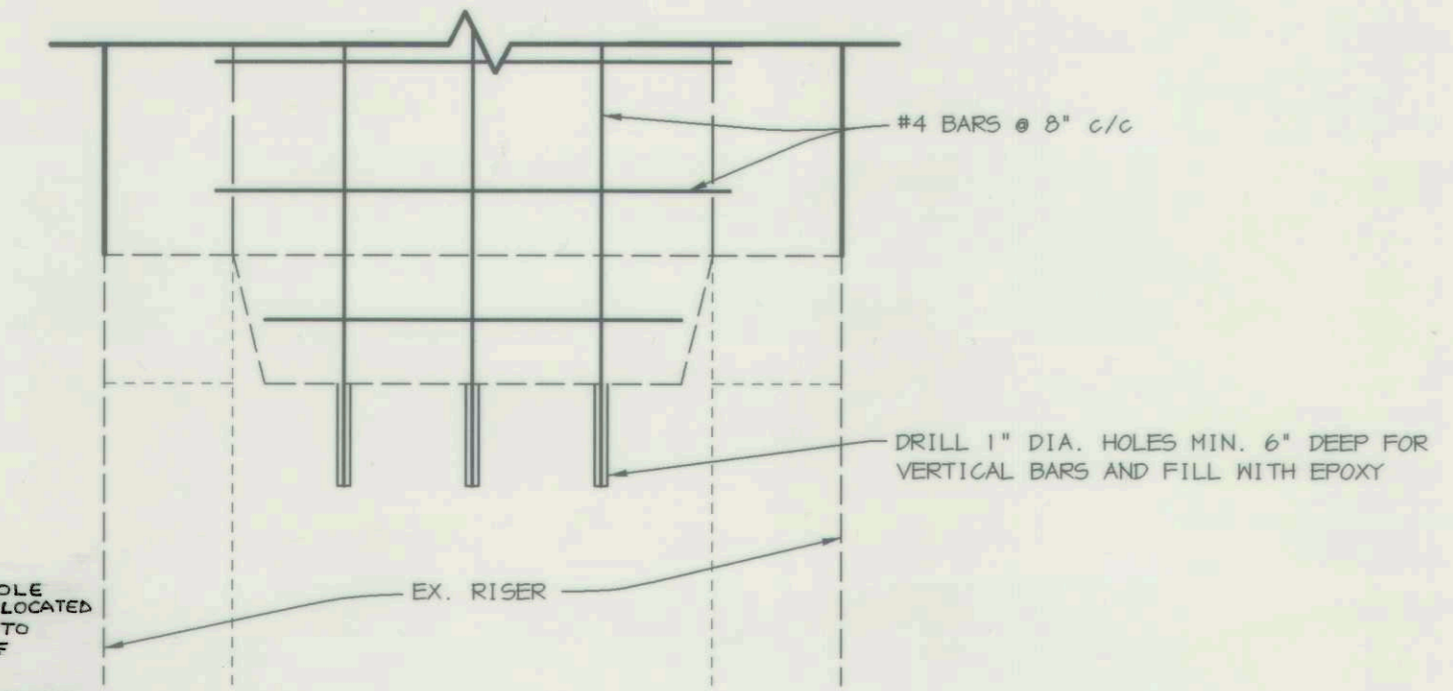
RISER DETAIL
NO SCALE



NOTES:

- STEEL TO CONFORM TO ASTM A-36. BARS TO BE SMOOTH.
- ALL REBAR TO BE WELDED AT ALL INTERSECTIONS.
- ALL BENDS TO BE 2" RADIUS. 2" x 1/8" STEEL PLATE AND 1/2" DIAMETER ANCHOR BOLTS TO BE USED FOR TOP AND BOTTOM OF TRASH RACK FRAME.
- GALVANIZE TRASH RACK AFTER FABRICATION AND PAINT BATTLESHIP GRAY.

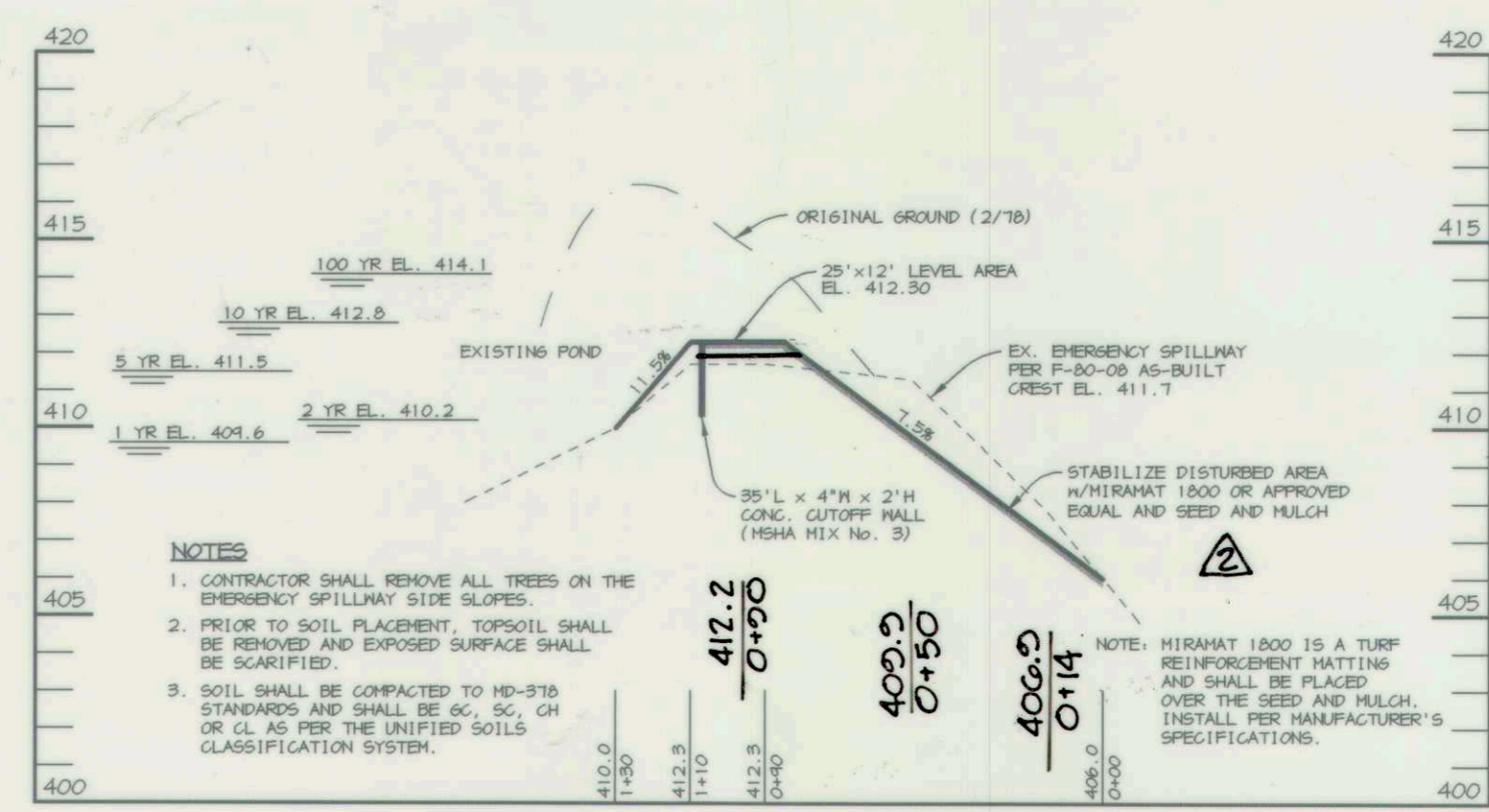
TRASH RACK DETAIL
NO SCALE



NOTES:

- ROUGHEN EXISTING SURFACE BY CHIPPING OR SANDBLASTING AND COAT WITH NET TO DRY BROCK PRIOR TO PLACING CONCRETE.
- HORIZONTAL BARS TO BE TIED TO VERTICAL BARS.
- WEIRS TO BE BLOCKED WHEN RISER EXTENSION IS POURED.

EXISTING WEIR BLOCKING DETAIL
NO SCALE



NOTES:

- CONTRACTOR SHALL REMOVE ALL TREES ON THE EMERGENCY SPILLWAY SIDE SLOPES.
- PRIOR TO SOIL PLACEMENT, TOPSOIL SHALL BE REMOVED AND EXPOSED SURFACE SHALL BE SCARIFIED.
- SOIL SHALL BE COMPACTED TO MD-37B STANDARDS AND SHALL BE 60, 50, GH OR CL AS PER THE UNIFIED SOILS CLASSIFICATION SYSTEM.

EMERGENCY SPILLWAY PROFILE

HOR.: 1" = 50'
VERT.: 1" = 5'

AS-BUILT CERTIFICATE
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.

HOWARD E. SALTZMAN, P.E. No. 13788 DATE
BY THE DEVELOPER:
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 6/16/99
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 WITHIN 30 DAYS OF COMPLETION.
Arthur E. Muegge 6-15-99
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.
Clayton Swain, Jr. 6/22/99
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.
Guffey 6/22/99
HOWARD SOIL CONSERVATION DISTRICT DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
James J. Williams 9/2/99 DIRECTOR OF PUBLIC WORKS DATE
Robert O'Hara 9/1/99 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE
Richard M. Daniels 9/2/99 CHIEF, BUREAU OF HIGHWAYS DATE
Howard E. Saltzman 9/1/99 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
96196 SHS3.DWG
ARTHUR E. MUEGGE #8707

DES:	AAP				
DRN:	MAD				
CHK:	AAP	BAC	4	AS BUILT RISER DETAIL	12/27/01
		BAC	3	AS BUILT PVC DETAIL	12/27/01
		BAC	2	AS BUILT EMERGENCY SPILLWAY	12/27/01
DATE:	6/15/99	BY:	NO.	REVISION	DATE

STORMWATER MANAGEMENT DETAILS
600' SCALE MAP NO. 24 BLOCK NO. 13

BURLEIGH MANOR
SECTION 4 AREA 3
POND RETROFIT
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROJECT No. D 98-06
SCALE AS SHOWN
SHEET 2 OF 3
AS BUILT

MD-370 STANDARDS AND SPECIFICATIONS

SPECIFICATIONS
These specifications are appropriate to all ponds within the scope of the Standard for practice MD-370. 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.

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".

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.

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 on each pass.

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.

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

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.

PIPE CONDUITS
All pipes shall be circular in cross section.

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.

CONCRETE
Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 600, 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 600, 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.

CARE OF WATER DURING CONSTRUCTION
All work on permanent structures shall be carried out in areas free from water.

STABILIZATION
All borrow areas shall be graded to provide proper drainage and left in a slightly 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.

Refer to the 1984 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

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 (313-1255).
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 1984 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1. B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

TOTAL AREA OF SITE 3.0 ACRES
AREA DISTURBED 0.11 ACRES
AREA TO BE ROOFED OR PAVED 0 ACRES
AREA TO BE VEGETATIVELY STABILIZED 0.11 ACRES
TOTAL CUT 20 CU. YARDS
TOTAL FILL 20 CU. YARDS
OFFSITE WASTE/BORROW AREA LOCATION N/A

- 6. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
4. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ANY SEDIMENT-LADEN WATER THAT IS PUMPED FROM THE WORK AREA MUST BE DISCHARGED INTO A FILTER BAG ON A DENATURING BASIN.

11. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.

- 12. 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.

PERMANENT SEEDING NOTES

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

Seeding Preparation - Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

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

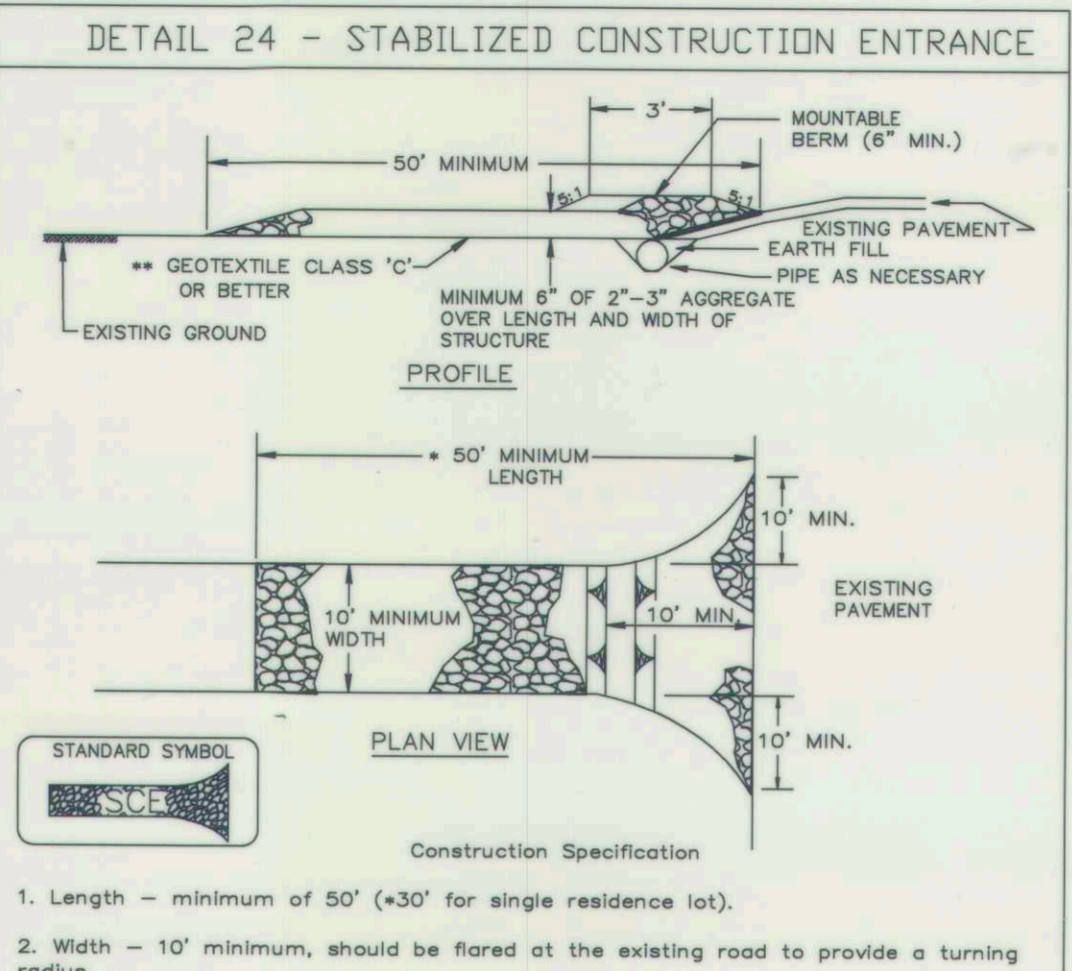
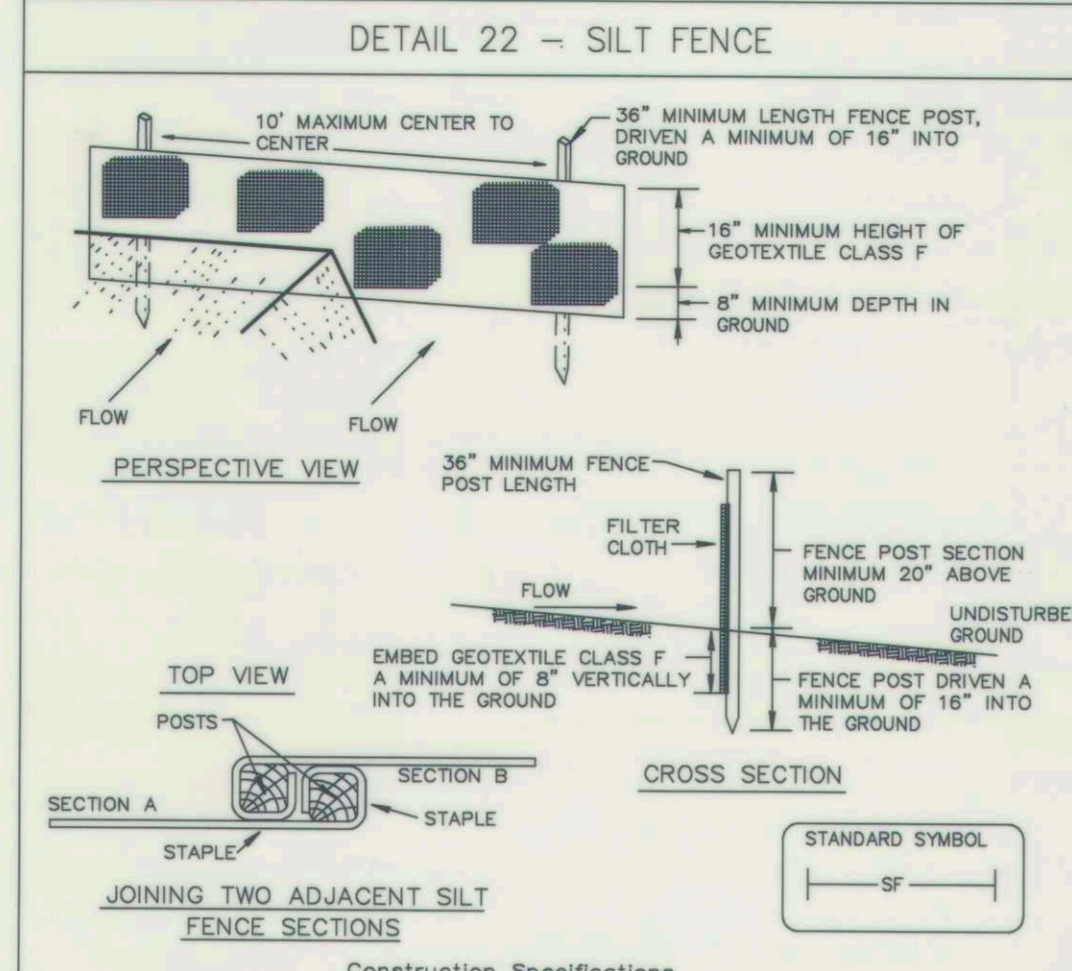
- 1) Preferred - Apply 2 tons per acre dolomitic limestone (42 lbs. per 1000 sq.ft.) and 600 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs. per acre 80-20 urethane fertilizer (14 lbs. per 1000 sq.ft.).
2) Acceptable - Apply 2 tons per acre dolomitic limestone (42 lbs. per 1000 sq.ft.) and 1000 lbs. per acre 10-10-10 fertilizer (28 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 (0.28 lbs. per 1000 sq.ft.) of seeding 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 seed.
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 (30 to 40 lbs. per 1000 sq.ft.) of untreated small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 20 gal. per acre (5 gal. per 1000 sq.ft.) of emulsified asphalt on flat slopes, 8 ft. or higher, use 847 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

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



Construction Specifications table with 4 items detailing fence post requirements, geotextile fastening, fabric overlap, and inspection procedures.

Table with 2 columns: U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE and MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION. Includes page numbers and standard symbols.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND. Includes Director of Public Works, Chief, Bureau of Environmental Services, and Chief, Stormwater Management Division with dates and signatures.

RIEMER MUEGGE & ASSOCIATES, INC. ENGINEERING • ENVIRONMENTAL SERVICES • PLANNING • SURVEYING. 8818 Centre Park Drive, Columbia, Maryland 21045. Includes contact info and professional seal.

Professional Engineer Seal for Arthur E. Muegge #8707, State of Maryland, No. 21257, Exp. 12/31/99.

Revision table with columns for DES, DRN, CHK, DATE, BY, NO., REVISION.

NOTES AND DETAILS
600' SCALE MAP NO. 24 BLOCK NO. 13

BURLEIGH MANOR SECTION 4 AREA 3 POND RETROFIT 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND PROJECT No. D 98-06. Includes scale and sheet info.

AS-BUILT CERTIFICATE. 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. Includes developer and engineer signatures and dates.

M:\PROJECT\08196\SH2A Tue Jun 15 08:01:42 1999 RIEMER MUEGGE & ASSOCIATES, INC.

AS BUILT