

Construction Notes

- THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, DISTRICT INSPECTION DIVISION, 7700 WINDYBROOK LANE, TOWSON, MARYLAND 21286, PRIOR TO STARTING WORK ON THE WORK SHOWN HEREON.
- ALL WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE PLANS APPROVED BY THE HOWARD COUNTY ENGINEERING DISTRICT.
- THE CONTRACTOR SHALL NOTIFY THE DISTRICT OF DISCREPANCY BETWEEN THE FIELD DIMENSIONS AND THE REQUIRED DIMENSIONS SHOWN ON THESE PLANS. THE REQUIRED DIMENSIONS SHALL GOVERN. CONTRACTOR SHALL NOTIFY ALL AFFECTED INTERESTED PARTIES IMMEDIATELY UPON THE OCCURRENCE OF SUCH DISCREPANCY.
- ALL WORK SHOWN ON THESE PLANS SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STANDARD SPECIFICATIONS OF THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND OF THE MARYLAND STATE HIGHWAY ADMINISTRATION AND THE HOWARD COUNTY ENGINEERING DISTRICT'S "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION".
- ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE TO EXISTING OR PROPOSED DRAINAGE SYSTEMS. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE TO EXISTING OR PROPOSED DRAINAGE SYSTEMS. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE TO EXISTING OR PROPOSED DRAINAGE SYSTEMS.
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Sequence Of Operations

- OBTAIN GRADING PERMIT (3 DAYS).
- NOTIFY THE HOWARD COUNTY DEPARTMENT OF PERMITS AND LICENSES INSPECTOR, 48 HOURS BEGINNING WORK (1 DAY).
- CLEAR GRUB FOR, AND INSTALL STABILIZED CONSTRUCTION ENTRANCE AND INSTALL SUPER SILT FENCE AT ENTRANCE.
- STAKE LIMIT OF DISTURBANCE (5 DAYS).
- BEGIN INITIAL CLEARING, GRUBBING AND GRADING FOR THE CONSTRUCTION OF THE FOLLOWING SEDIMENT CONTROL DEVICES (21 DAYS):
SUPER SILT FENCE, SEDIMENT BASIN NO. 1 ** PIPE OUTLET TRAP NO. 4 AND NO. 5 ** AND EARTH PIERS AS SHOWN ON PLANS.
** PROVIDE INLET PROTECTION FOR EXISTING INLET.
* CONSTRUCT SEDIMENT BASIN NO. 1 PER SPECIFICATIONS AS SHOWN ON THE SEDIMENT BASIN PLAN FOR INITIAL CONSTRUCTION. CONTACT THE ENGINEER IN CHARGE @ (410) 825-8120 AND THE GEOTECHNICAL ENGINEER SO THEY CAN INSPECT THE FOLLOWING:
A. INSTALL CUTOFF TRENCH
B. INSTALL GUTTER PIPE, GRADIENT-SEEP COLLARS, DEWATERING DEVICE, CONCRETE END SECTION AND OUTLET PROTECTION
C. CONSTRUCT EMBANKMENT AND STABILIZE ACCORDING TO SPECIFICATIONS SHOWN ON THESE PLANS.
- GRADE AREA FOR, AND INSTALL STORM DRAIN SYSTEM 5-10, M-11 AND 5-11; AND 5-10 TO 5-14.
- UPON COMPLETION OF THE ABOVE INSTALLATIONS NOTIFY AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO BEGIN MASS GRADING. MAINTAIN POSITIVE DRAINAGE TO SEDIMENT CONTROL MEASURES.
- TROY HILL DRIVE, FROM STA 0+00 TO STA 8+00 TO BE STABILIZED WITH STONE IMMEDIATELY AFTER BEING BROUGHT TO SUBGRADE.
- STABILIZE ALL DISTURBED AREAS ACCORDING TO THE PERMANENT STABILIZATION SPECIFICATIONS (3 DAYS).
- WHEN STABILIZATION IS EVIDENT ON SITE, WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR REMOVE ALL SEDIMENT CONTROL MEASURES AND STABILIZE (3 DAYS).

Notes

- IN AN AREA WHERE EXCAVATION IS NEEDED WITHIN THE ROAD RIGHT-OF-WAY, EXCAVATION MUST BE MADE WITH ONE (1) FOOT OF THE FINAL SUB-GRADE.
- WHEN FILL IS PROPOSED WITHIN THE ROAD RIGHT-OF-WAY, THE FILL SHALL BE A MINIMUM OF TWO (2) FEET BELOW THE FINAL ROAD SUB-GRADE.

Note

THE WAIVER PETITION FILE NUMBER IS WP 99-23 WHICH WAS GRANTED ON SEPTEMBER 23, 1998.

NOTE:

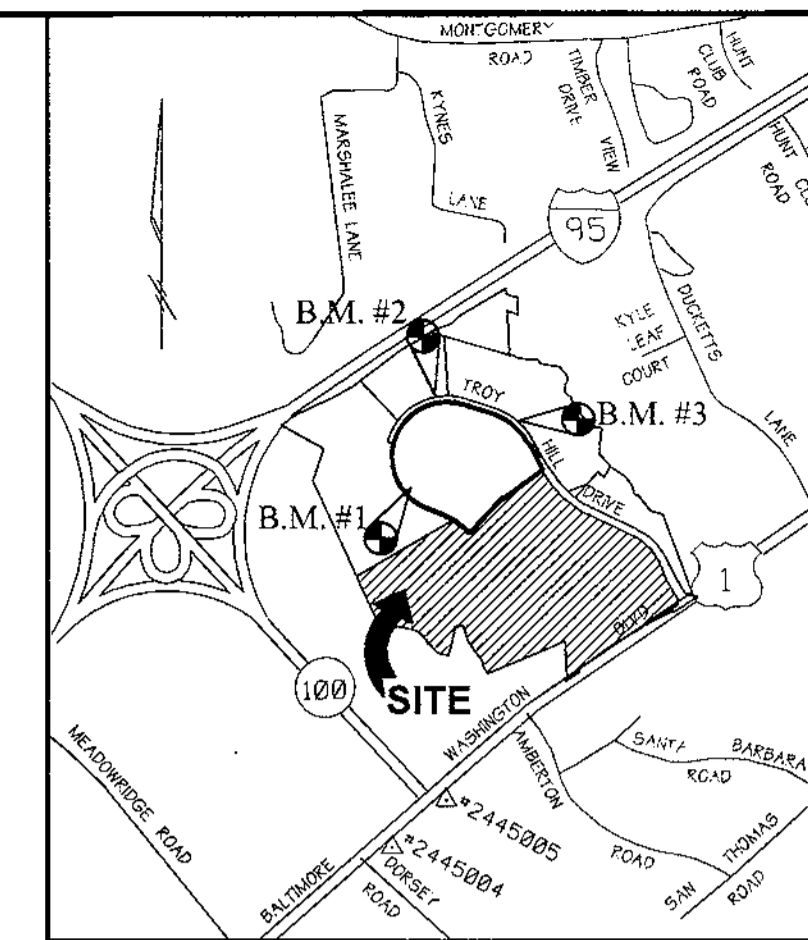
CERTAIN PORTIONS OF THE WETLANDS AND BUFFERS SHOWN ON THESE PLANS MAY BE FILLED AND/OR IMPACTED IN ACCORDANCE WITH CORPS OF ENGINEERS NATIONWIDE PERMIT CE184B-09-RP90-00883-3, MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER QUALITY CERTIFICATE 91-WQC-0326 MARYLAND WATER RESOURCES ADMINISTRATION WATERWAYS CONSTRUCTION PERMIT 90-WC-0647 AND HOWARD COUNTY WAIVER PETITION FILE No WP 91-187.

Site Data

TOTAL AREA OF SITE - 141.85 AC +/-
AREA OF PLAN SUBMISSION - 83.8 AC +/-
EXISTING ZONING - R-11
PROPERTY REFERENCE - F 91-24 (1995) 241 (16) 4891 : 222/471 : 2259/644 : 1818 472 : 2688 276
EXISTING USE - "C-4" (FUT) WAREHOUSE DISTRIBUTION
PROPOSED USE - AREA TO BE DISTURBED - AREA TO BE VEGETATIVELY STABILIZED -
SKETCH PLAN NO. - S 90-06
PRELIMINARY PLAN NO. - P 90-25
FINAL PLAT NO. - F 88-136
WAIVER PETITION - W.P. 96-97

BENCHMARKS

BENCHMARK #1
IRON PIN @ TRAVERSE #1066
N 496.5013597' E 869.1344576'
ELEVATION = 175.92'
BENCHMARK #2
IRON PIN @ TRAVERSE #1061
N 496.0366945' E 868.791802'
ELEVATION = 242.49'
BENCHMARK #3
IRON PIN @ TRAVERSE #1034
N 497.6367437' E 868.2356686'
ELEVATION = 214.85'
COORDINATES BASED ON NAD 27, AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS #2445004, #118 #2445005



Vicinity Map
SCALE: 1" = 2000'

Site / Mass Grading / Sediment Control / Storm Water Management Plans

for Phase IIB, Parcel A - 4 Troy Hill Corporate Center Howard County, Maryland SDP 98 - 149

Index of Sheets

SHEET NO. 1 -	COVER SHEET, GENERAL NOTES
SHEET NO. 2 -	OVERALL MASS GRADING PLAN (1"=200')
SHEET NO. 3 -	MASS GRADING SEDIMENT CONTROL PLAN
SHEET NO. 4 -	MASS GRADING SEDIMENT CONTROL PLAN
SHEET NO. 5 -	SEDIMENT CONTROL DETAILS & SPECIFICATIONS
SHEET NO. 6 -	SEDIMENT CONTROL DETAILS
SHEET NO. 7 -	SEDIMENT BASIN PLAN - BASIN # 1
SHEET NO. 8 -	SEDIMENT BASIN SECTIONS & DETAILS
SHEET NO. 9 -	SWM & SEDIMENT BASIN BORINGS & DETAILS
SHEET NO. 10 -	SEDIMENT BASIN DETAILS & NOTES
SHEET NO. 11 -	STORM WATER MANAGEMENT PLAN - POND #1
SHEET NO. 12 -	STORM WATER MANAGEMENT SECTIONS & DETAILS
SHEET NO. 13 -	STORM WATER MANAGEMENT D.A. MAP

Legend

- Ex. 2' Contours
- Ex. 10' Contours
- Prop. 2' Contours
- Prop. 10' Contours
- Earth Dike
- Ex. Earth Dike
- Limit of Disturbance
- Silt Fence
- Super Silt Fence
- Flood Plain Line
- Wetland Line
- Wetland Buffer Line
- Stream Buffer Line
- Stabilized Construction Entrance
- Removable Pumping Station
- Drainage Area Line

MANEKIN

MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA MARYLAND 21046
410-290-1400

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120

OWNER/DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
c/o MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND
21046
410-290-1400

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

APPROVED: HOWARD SOIL CONSERVATION DISTRICT

PLAN NUMBER _____ DATE _____

Reviewed For the Howard Conservation District and meets technical requirements.

NATURAL RESOURCES CONSERVATION SERVICE _____ DATE _____

APPROVED: Howard County Department of Planning and Zoning

William Dammann 1/6/99
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

David Handman 1/16/99
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

David Smith 1/12/99
DIRECTOR DATE

ADDRESS CHART

PARCEL NO. _____ STREET ADDRESS _____
A-4 7302 TROY HILL DR
FOR MASS GRADING

SUBDIVISION NAME	SECTION NAME	PARCEL #
TROY HILL CORPORATE CENTER	1	A - 4
PLAT # 12428	BLOCK # 18	ZONE M-1
TAX MAP 37	ELECT. DIST. 1st	CENSUS TRACT 6011.02
WATER CODE C04	SEWER CODE 4020000	

COVER SHEET, GENERAL NOTES
FOR
TROY HILL CORPORATE CENTER
PHASE IIB PARCEL A - 4
PREVIOUS FILE #S 590-05, P90-25, F91-24, WP 96-91, P96-136
HOWARD COUNTY, MARYLAND SCALE: AS SHOWN
1st ELECTION DISTRICT SHEET 1 of 13 JUNE 15, 1998

DETAIL 4-PIPE SLOPE DRAIN

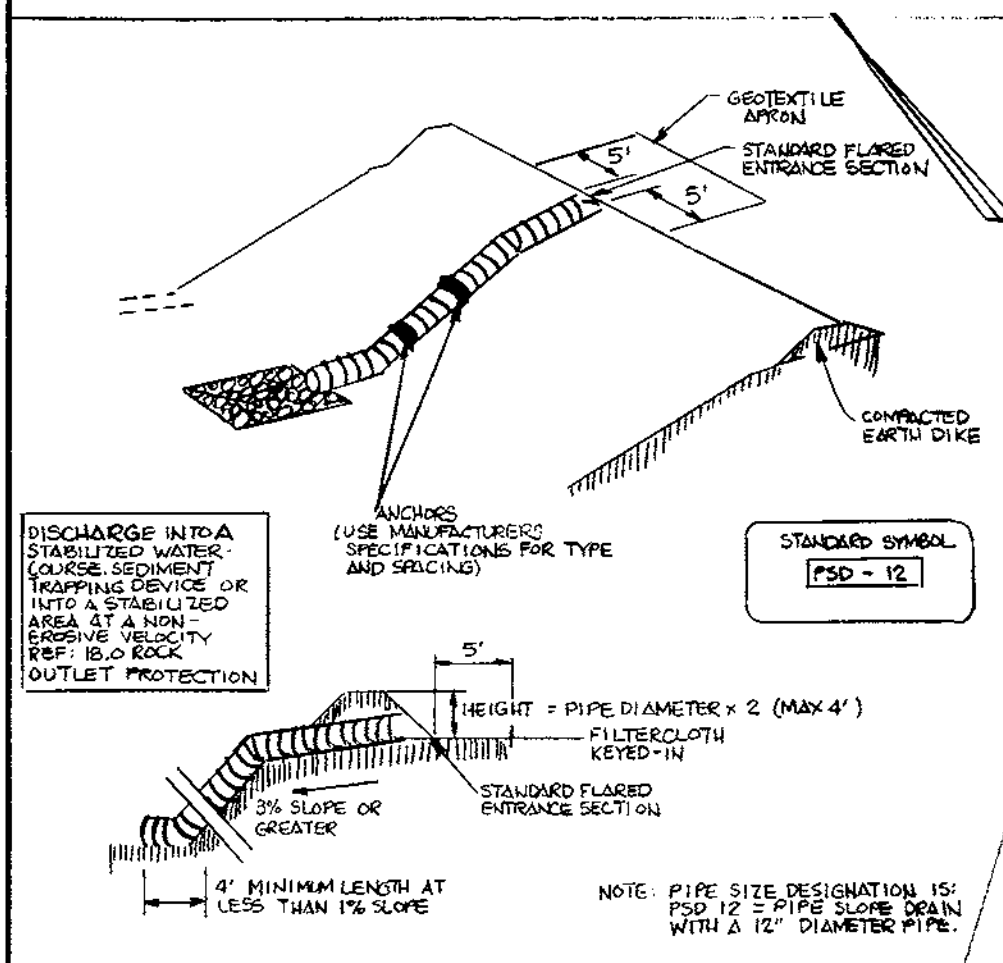
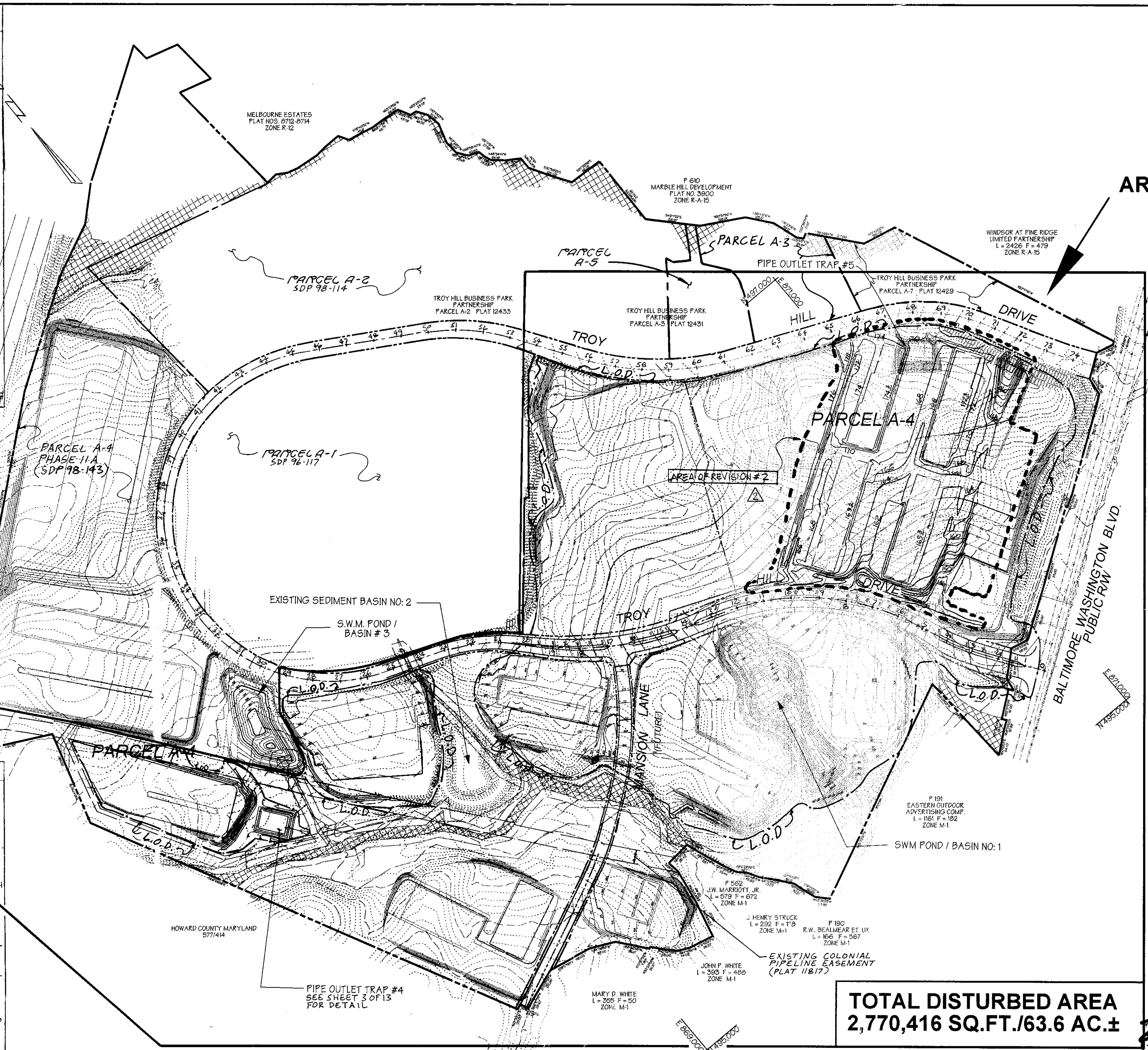


Table 6 Design Criteria for Pipe Slope Drain

SIZE	Pipe/Tubing Diameter (in)	Maximum Drop (feet)
PSD-12	12	0.5
PSD-18	18	1.5
PSD-21	21	2.5
PSD-24	24	3.5
PSD-24 (2)	24	5.0

NOTE: PIPE SIZE DESIGNATION IS: PSD 12 = PIPE SLOPE DRAIN WITH A 12" DIAMETER PIPE.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 6-15-4 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



AREA OF SUBMISSION

PIPE SLOPE DRAIN

- CONSTRUCTION SPECIFICATIONS - PIPE SLOPE DRAIN
1. THE PIPE SLOPE DRAIN (PSD) SHALL HAVE A SLOPE OF 3 PERCENT OR STEEPER.
 2. THE TOP OF THE EARTH DIKE OVER THE INLET PIPE SHALL BE AT LEAST 2 TIMES THE PIPE DIAMETER MEASURED AT THE INVERT OF THE PIPE.
 3. FLEXIBLE TUBING IS PREFERRED HOWEVER CORRUGATED METAL PIPE OR EQUIVALENT PVC CAN BE USED. ALL CONNECTIONS SHALL BE WATERTIGHT.
 4. A FLARED END SECTION SHALL BE ATTACHED TO THE INLET END OF PIPE WITH A WATER TIGHT CONNECTION FILTER CLOTH SHALL BE PLACED UNDER THE INLET OF THE PIPE SLOPE DRAIN AND SHALL EXTEND OUT 5' FROM THE INLET. THE FILTER CLOTH SHALL BE KEYS IN ON ALL SIDES.
 5. THE PIPE SLOPE DRAIN SHALL BE SECURELY ANCHORED TO THE SLOPE BY STAKING AT THE GRADIENTS PROVIDED SPACING FOR ANCHORS SHALL BE AS PROVIDED BY MANUFACTURERS SPECIFICATIONS IN NO CASE SHALL LESS THAN TWO (2) ANCHORS BE PROVIDED, EQUALLY SPACED ALONG THE LENGTH OF PIPE THESE DETAILS SHOULD BE PROVIDED BY PIPE SUPPLIERS.
 6. THE SOIL AROUND AND UNDER THE PIPE AND END SECTION SHALL BE HAND TAMPED IN 4 INCH LIFTS TO THE TOP OF THE EARTH DIKE.
 7. ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.
 8. WHENEVER POSSIBLE WHERE A PSD DRAINS ON UNSTABILIZED AREA IT SHALL OUTLET INTO A SEDIMENT TRAP OR BASIN. IF THIS IS NOT POSSIBLE THEN THE SLOPE DRAIN WILL DISCHARGE INTO A STABLE CONVEYANCE THAT LEADS TO A SEDIMENT TRAP OR BASIN. WHEN DISCHARGING INTO A TRAP OR BASIN THE PSD SHALL DISCHARGE AT THE SAME ELEVATION AS THE WET POOL ELEVATION. THE DISCHARGE FROM THE PSD MUST BE AS FAR AWAY FROM THE SEDIMENT CONTROL OUTLET AS POSSIBLE.
 9. WHEN THE DRAINAGE AREA IS STABILIZED THE PSD SHALL DISCHARGE ONTO A STABILIZED AREA AT A NON-EROSIVE VELOCITY.
 10. INSPECTION AND ANY REQUIRED MAINTENANCE SHALL BE PERFORMED PERIODICALLY AND AFTER EACH RAIN EVENT.
 11. THE INLET MUST BE KEPT OPEN AT ALL TIMES.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 6-15-4 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

TOTAL DISTURBED AREA
2,770,416 SQ.FT./63.6 AC.±

PLAN
SCALE: 1"=200'

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

John R. Robertson
APPROVED: HOWARD SOIL CONSERVATION DISTRICT
DATE: 1/4/99

PLAN NUMBER: _____ DATE: _____

Reviewed for the Howard Conservation District and meets technical requirements.

Cheryl Simmons
NATURAL RESOURCES CONSERVATION SERVICE
DATE: 1/4/99

APPROVED: Howard County Department of Planning and Zoning

John D. ...
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1/6/99

Cindy Hammett
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1/11/99

...
DIRECTOR
DATE: 1/28/99

ADDRESS CHART

PARCEL NO.	STREET ADDRESS
A-4	7020 TROY HILL DRIVE

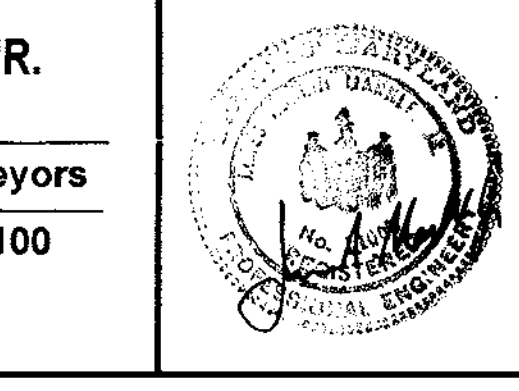
SUBDIVISION NAME	SECTION NAME	PARCEL #
TROY HILL CORPORATE CENTER	N/A	A-4

PLAT #	BLOCK #	ZONE	/ZONE MAP	ELECT. DIST.	CENSUS TRACT
12428	18	M-1	37	1st	601102

WATER CODE C04 SEWER CODE 4020000

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120



ENGINEER CERTIFICATION:

I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Engineer: *James A. Manekin, Jr.* Date: 6/16/98
Name: James A. Manekin, Jr. PE # 11005

DEVELOPER CERTIFICATION:

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 also authorize periodic on-site inspection by the Howard Soil Conservation District.

Developer: *David E. Meiners* Date: 6/16/98
Name: David E. Meiners

OWNER / DEVELOPER

TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

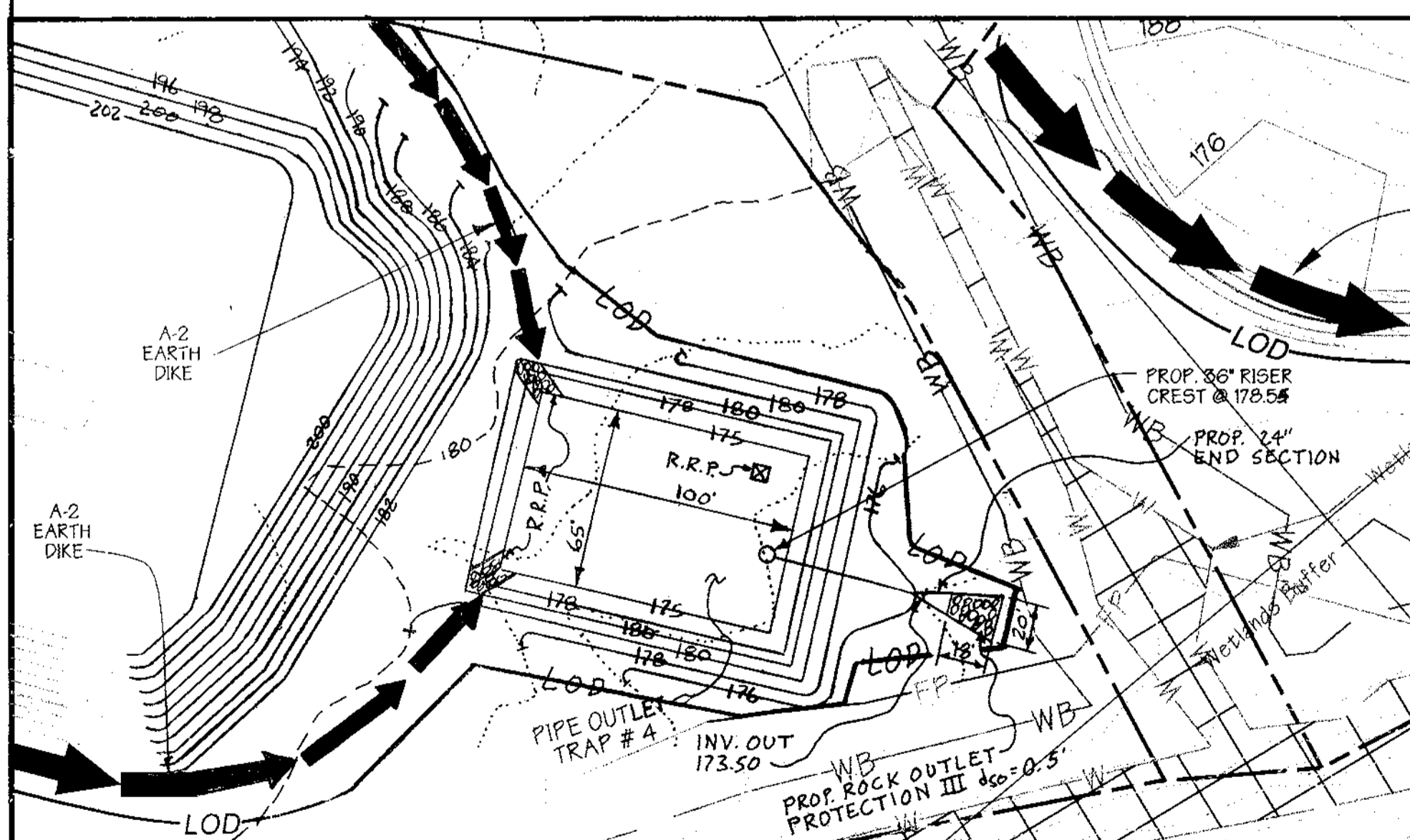
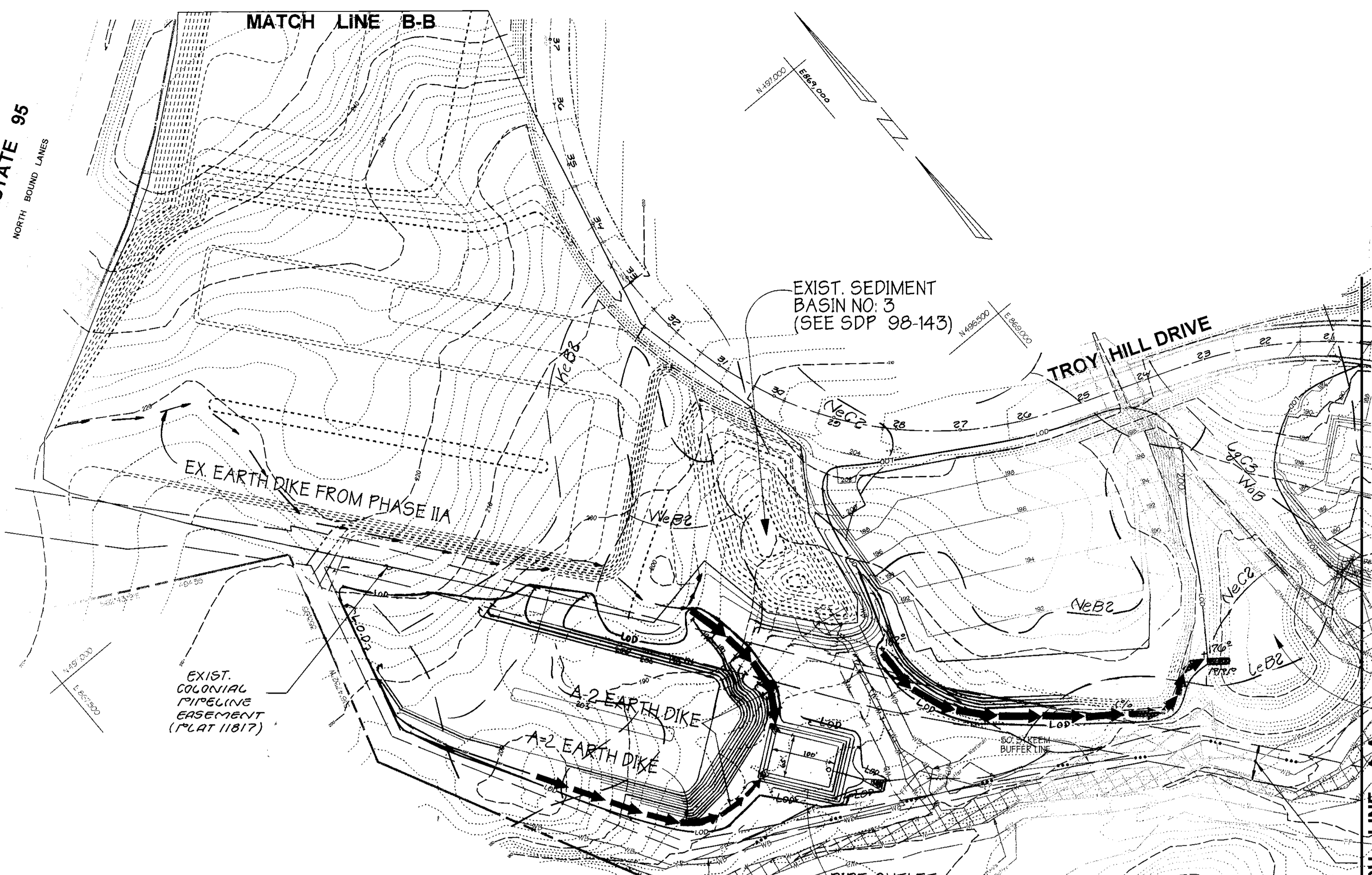
DESIGNED BY: P.R.C.
DRAWN BY: A.S.
CHECKED BY: P.R.C.
REVISIONS:

OVERALL MASS GRADING PLAN (1"=200')
FOR
TROY HILL CORPORATE CENTER
PHASE 11B PARCEL A-4

ELECTION DISTRICT: 1st HOWARD CO., MARYLAND SHT. 2 OF 13
SCALE: As Shown DATE: JUNE 5, 1998

SDP 98-149

S&C PLAT NOS. 35833, 35150, 35501, 23005, 23006 & 23007
 SOUTH BOUND LINES
INTERSTATE 95
 NORTH BOUND LINES



PIPE OUTLET TRAP # 4

EXISTING DRAINAGE AREA = 4.06 AC.
 PROPOSED DRAINAGE AREA = 3.70 AC.
 VOLUME REQUIRED 4.06 x 1200 WET = 7308 C.F.
 4.06 x 1200 DRY = 7308 C.F.

VOLUME REQUIRED FOR 2 YEAR SWM = 7405 C.F.
 TOTAL VOLUME REQUIRED = 22021 C.F.
 TOTAL VOLUME PROVIDED = 41430 C.F.

TOP EMBANKMENT = 120.10
 TOP WIDTH = 4'
 CLEANOUT ELEV. = 175.50
 BARREL DIAMETER = 24"
 RISER DIAMETER = 36"
 TRASH RACK DIAMETER = 54"
 INV. BARREL = 175.0
 TOP RISER = 178.55

2 YR OPENING DIMENSIONS = 0.75' WIDE x 0.50' HIGH
 2 YR OPENING INVERT = 177.0
 2 YR WET STORAGE ELEV. = 176.10
 TOP DRY STORAGE ELEV. = 177.0

CONCRETE ANTI-SEEP COLLARS = 2 COLLARS W/OVERALL DIMENSIONS 6.5' x 6.5' SPACED @ 11' O.C. MIN., 30.8' O.C. MAX.

PLAN
 SCALE: 1" = 100'

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

John R. Palantson
 APPROVED: HOWARD SOIL CONSERVATION DISTRICT
 PLAN NUMBER _____ DATE 1/4/99

Reviewed for the Howard Conservation District and meets technical requirements.
Carol Simmons
 NATURAL RESOURCES CONSERVATION SERVICE
 DATE 1/4/99

APPROVED: Howard County Department of Planning and Zoning
John D. ...
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE 1/6/99

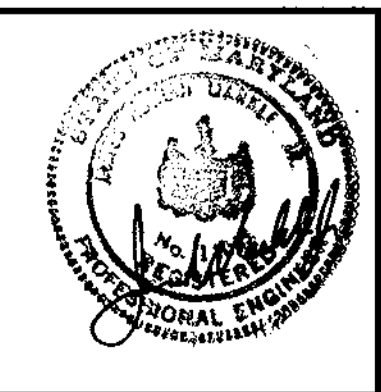
... Hamilton
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE 1/10/99

... Rutter
 DIRECTOR
 DATE 1/12/99

ADDRESS CHART
 PARCEL NO. A-4
 STREET ADDRESS 7020 TROY HILL DRIVE

SUBDIVISION NAME TROY HILL CORPORATE CENTER	SECTION NAME N/A	PARCEL # A
PLAT # 1242B	BLOCK # 18	ZONE M-1
TAX MAP # 37	ELECT. DIST. 1st	CENSUS TRACT 601102
WATER CODE C04	SEWER CODE 4020000	

PREPARED BY:
GWS
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson, Maryland 21204
 (410) 825-8120



ENGINEER CERTIFICATION:
 I certify that this plan for erosion and sediment control represents a professional workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Engineer: *James A. Marple, Jr.* Date 6/16/98
 Name: JAMES A. MARPLE, JR. PE # 11005

DEVELOPER CERTIFICATION:
 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 also authorize periodic on-site inspection by the Howard Soil Conservation District.

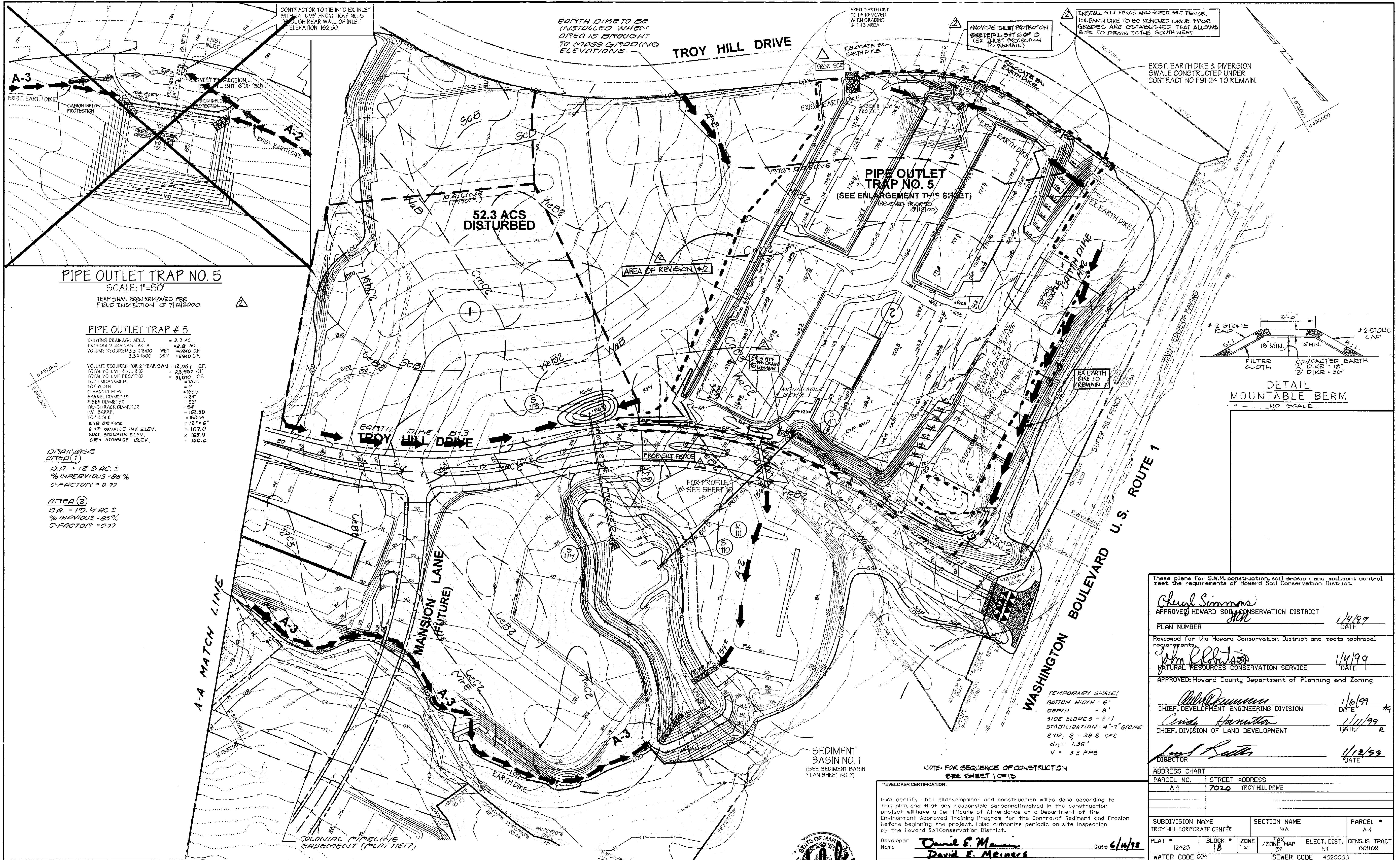
Developer: *David E. Meiners* Date 6/16/98
 Name: DAVID E. MEINERS

OWNER / DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 410-290-1400

DESIGNED BY: P.R.C.
 DRAWN BY: A.S.
 CHECKED BY: P.R.C.
 REVISIONS

MASS GRADING SEDIMENT CONTROL PLAN
 FOR
TROY HILL CORPORATE CENTER
 PHASE II-B PARCEL A-4

ELECTION DISTRICT: 1st
 HOWARD CO., MARYLAND SHT. 3 OF 13
 SCALE: As Shown
 DATE: JUNE 15, 1998



PIPE OUTLET TRAP NO. 5
SCALE: 1"=50'

TRAP 5 HAS BEEN REMOVED PER
FIELD INSPECTION OF 7/11/2000

PIPE OUTLET TRAP # 5

EXISTING DRAINAGE AREA	= 3.3 AC
PROPOSED DRAINAGE AREA	= 2.8 AC
VOLUME REQUIRED 2 YEAR SWM	= 12,027 CF
TOTAL VOLUME REQUIRED	= 23,997 CF
TOTAL VOLUME PROVIDED	= 31,010 CF
TOP EMBANKMENT	= 170.5
TOP WIDTH	= 4'
CLEANOUT ELEV.	= 165.5
BARREL DIAMETER	= 24"
RISER DIAMETER	= 36"
TRASH RACK DIAMETER	= 54"
IN. BARREL	= 168.50
TOP RISER	= 168.54
2 YR ORIFICE	= 12" x 6"
2 YR ORIFICE INV. ELEV.	= 167.0
NET STORAGE ELEV.	= 165.9
DRY STORAGE ELEV.	= 166.2

DRAINAGE AREA

AREA ①
D.A. = 12.3 AC ±
% IMPERVIOUS = 85%
C-FACTOR = 0.77

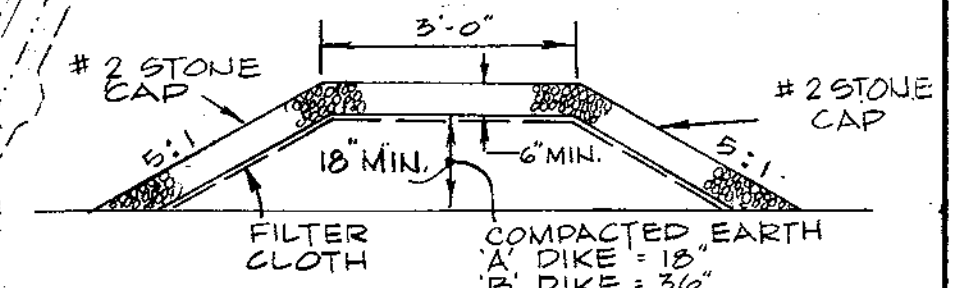
AREA ②
D.A. = 10.4 AC ±
% IMPERVIOUS = 85%
C-FACTOR = 0.77

EARTH DIKE TO BE
INSTALLED WHEN
AREA IS BROUGHT
TO MASS GRADING
ELEVATIONS.

PROVIDE TAILST PROTECTION
SEE DETAIL SHT 6 OF 13
(EX. TAILST PROTECTION
TO REMAIN)

INSTALL SILT FENCE AND SUPER SILT FENCE.
EX. EARTH DIKE TO BE REMOVED ONCE PROP.
GRADES ARE ESTABLISHED THAT ALLOWS
SITE TO DRAIN TO THE SOUTH WEST.

EXIST. EARTH DIKE & DIVERSION
SWALE CONSTRUCTED UNDER
CONTRACT NO F91-24 TO REMAIN.



**DETAIL
MOUNTABLE BERM**
NO SCALE

These plans for S.W.M. construction, soil erosion and sediment control
meet the requirements of Howard Soil Conservation District.

Cheryl Simmons
APPROVED HOWARD SOIL CONSERVATION DISTRICT
PLAN NUMBER: A-4 DATE: 1/4/99

Reviewed for the Howard Conservation District and meets technical
requirements.
John Robertson
NATURAL RESOURCES CONSERVATION SERVICE DATE: 1/4/99

APPROVED: Howard County Department of Planning and Zoning

Cheryl Simmons
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 1/6/99
Andy Hamilton
CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 1/11/99

David E. Mearns
DIRECTOR DATE: 1/12/99

PARCEL NO.	STREET ADDRESS
A-4	7020 TROY HILL DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
TROY HILL CORPORATE CENTER	N/A	A-4
PLAT # 1242B	BLOCK # 18	ZONE M1
TAX MAP # 37	ELECT. DIST. 1st	CENSUS TRACT 60102
WATER CODE C04	SEWER CODE 4020000	

TEMPORARY SHALE!
BOTTOM WIDTH - 6'
DEPTH - 2'
SIDE SLOPES - 2:1
STABILIZATION - 4" x 7" STONE
2 YR, Q = 38.8 CFS
dn = 1.36'
V = 3.3 FPS

NOTE: FOR SEQUENCE OF CONSTRUCTION
SEE SHEET 1 OF 13

DEVELOPER CERTIFICATION:

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 also authorize periodic on-site inspection
by the Howard Soil Conservation District.

Developer Name: **David E. Mearns** Date: 6/14/98
OWNER / DEVELOPER

**TROY HILL BUSINESS PARK
PARTNERSHIP
C/O MANEKIN CORPORATION**
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

DESIGNED BY: P.R.C.
DRAWN BY: A.S.
CHECKED BY: P.R.C.
REVISIONS:
7/14/00 - SEE
EXPLANATION TO LEFT

PREPARED BY:
GWS
**GEORGE W. STEPHENS, JR.
AND ASSOCIATES, INC.**
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120

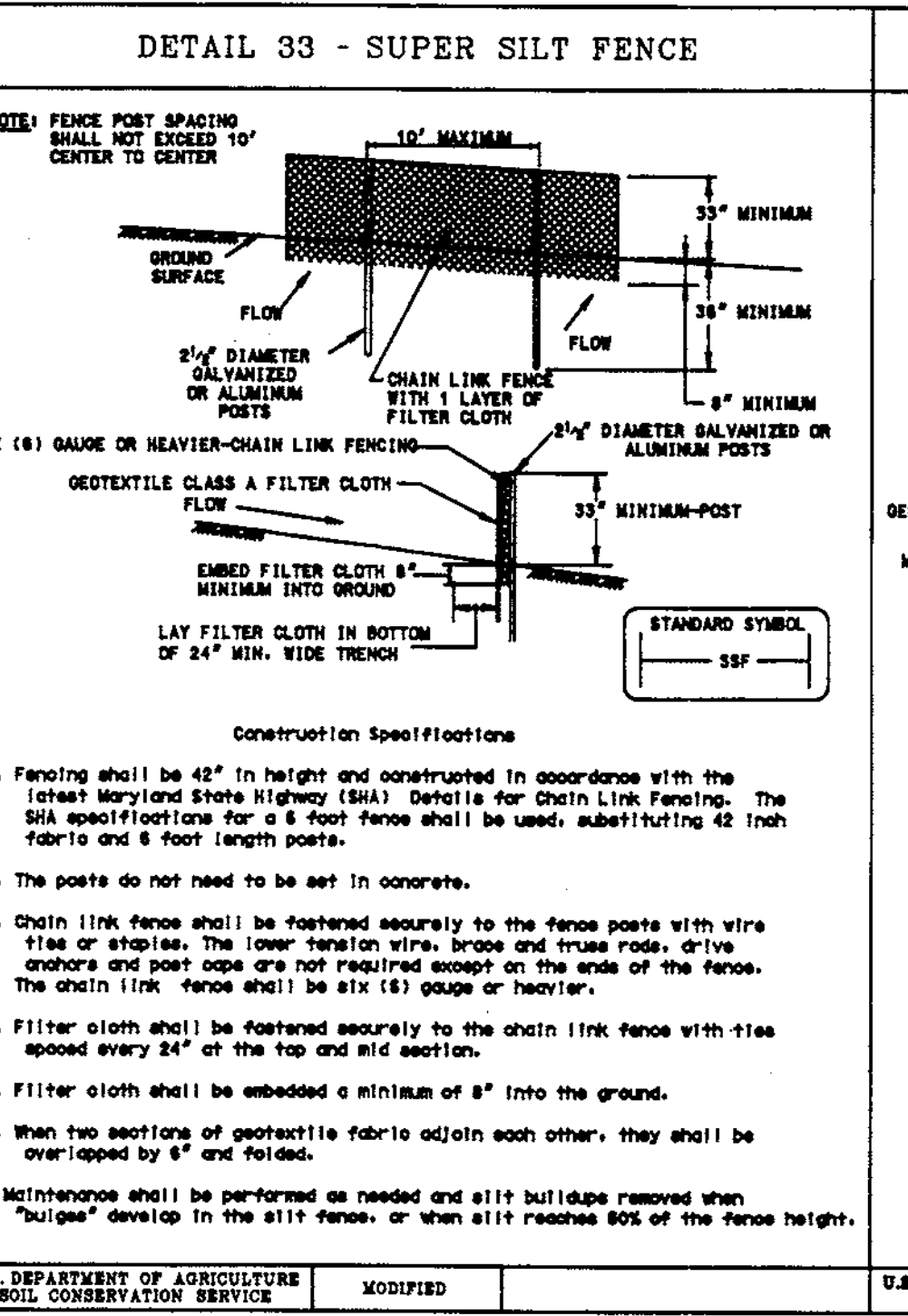
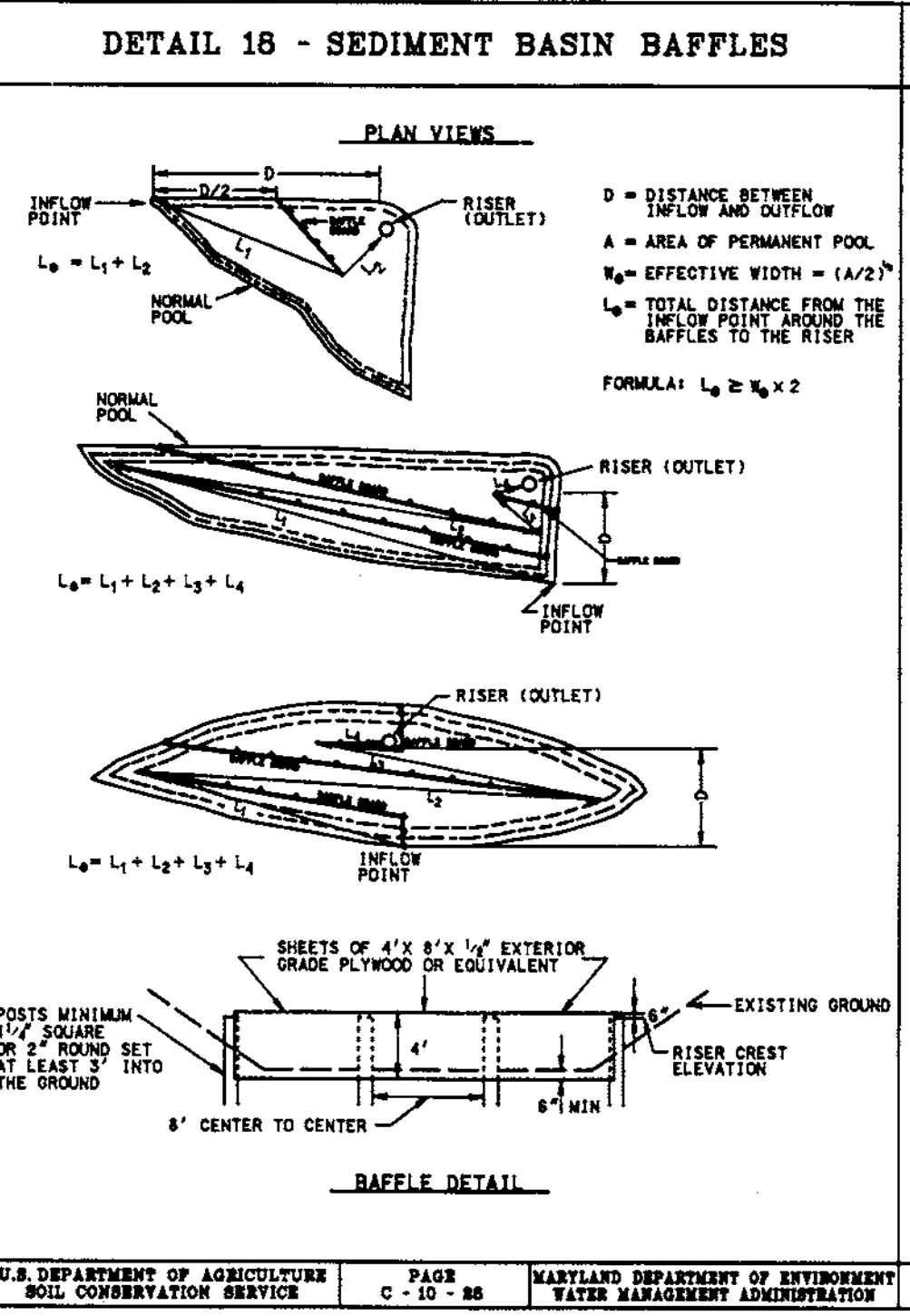
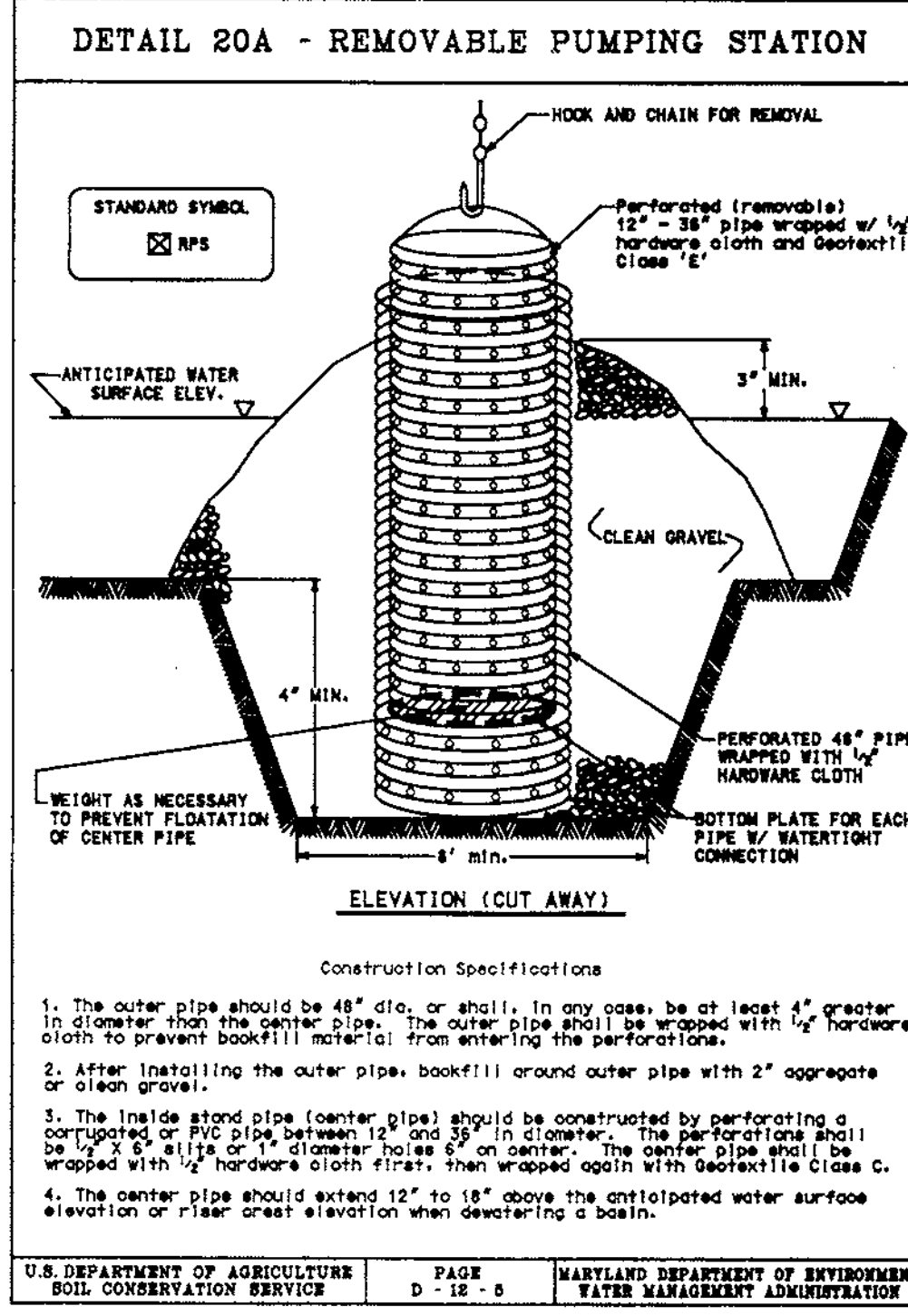
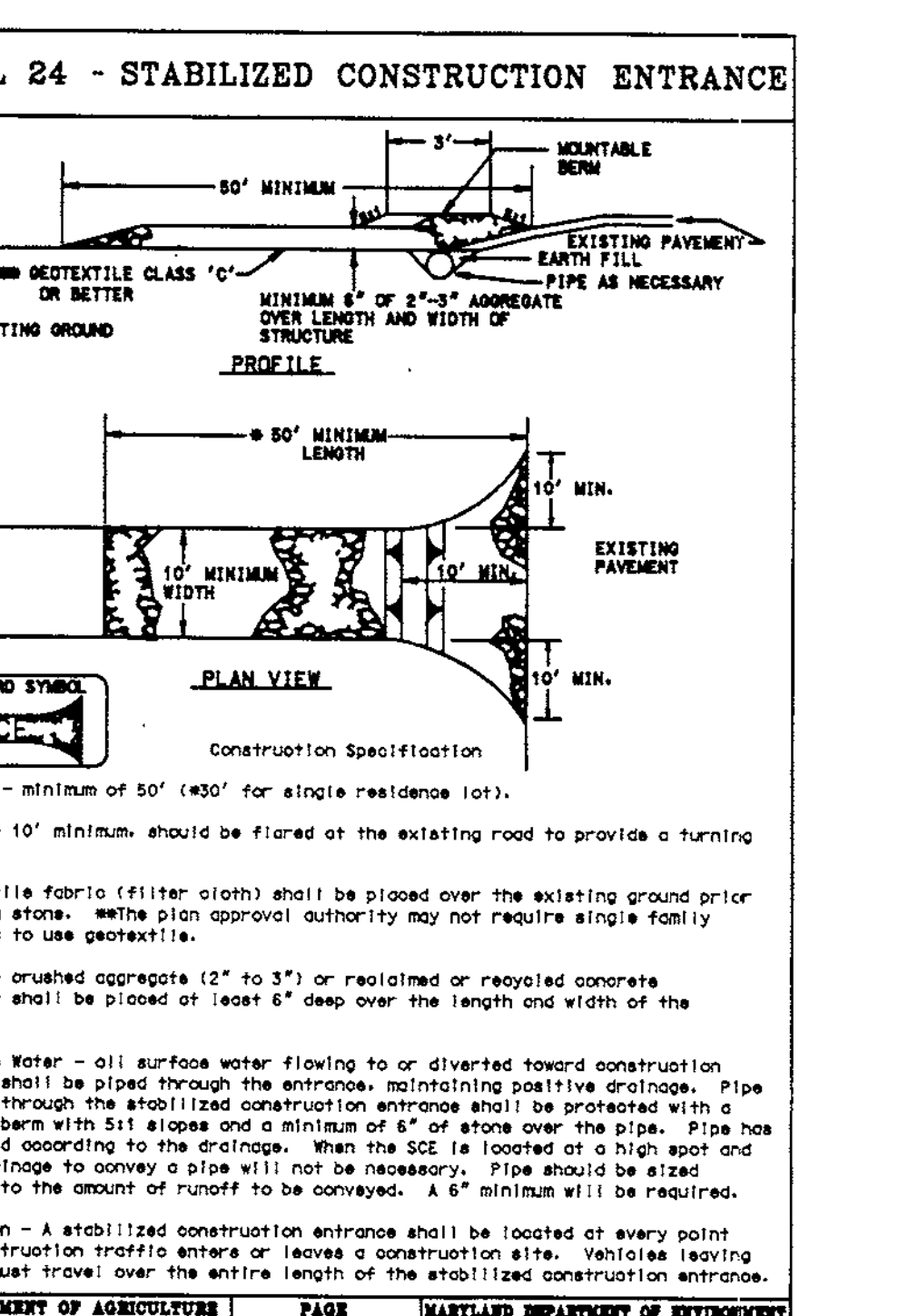
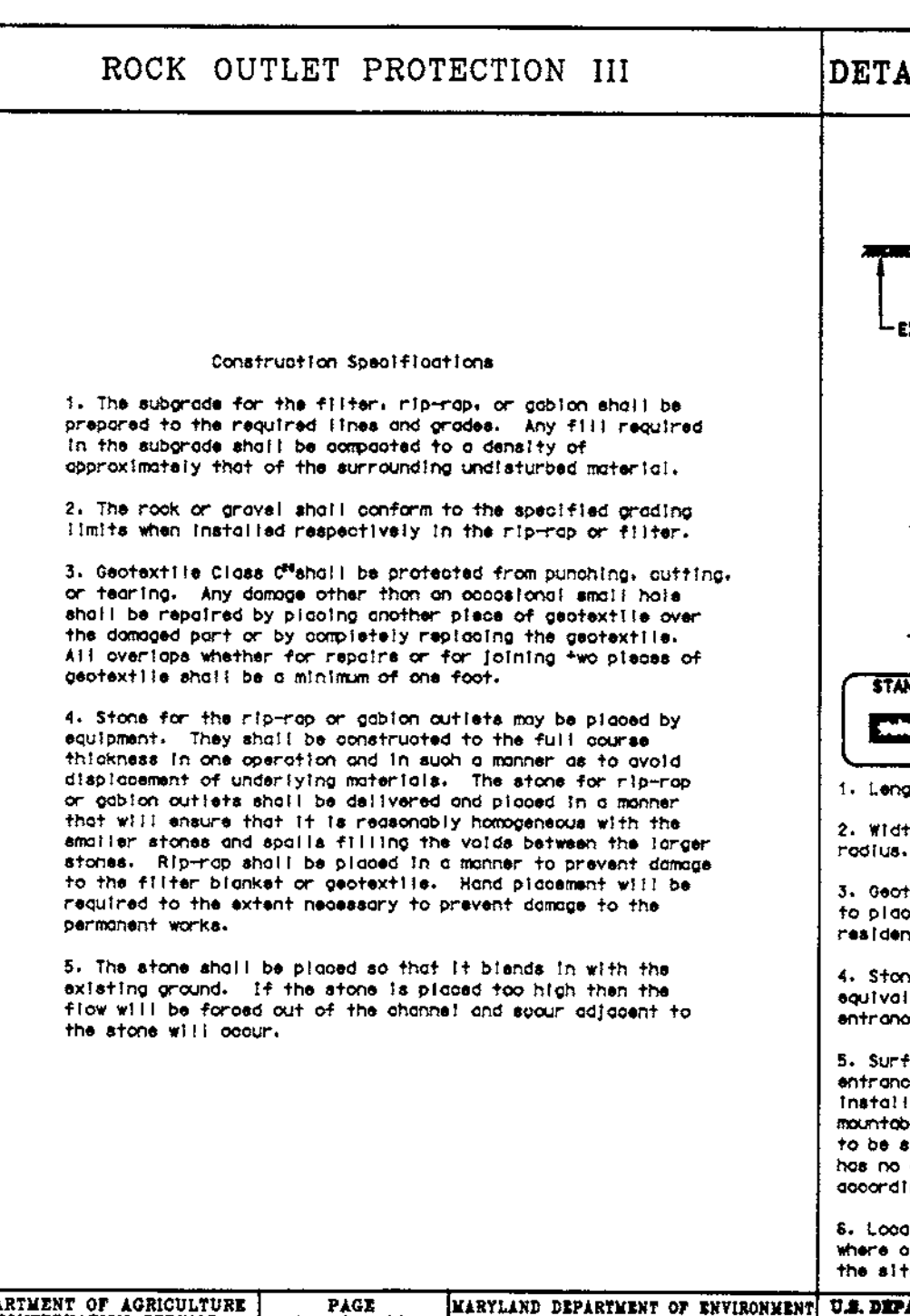
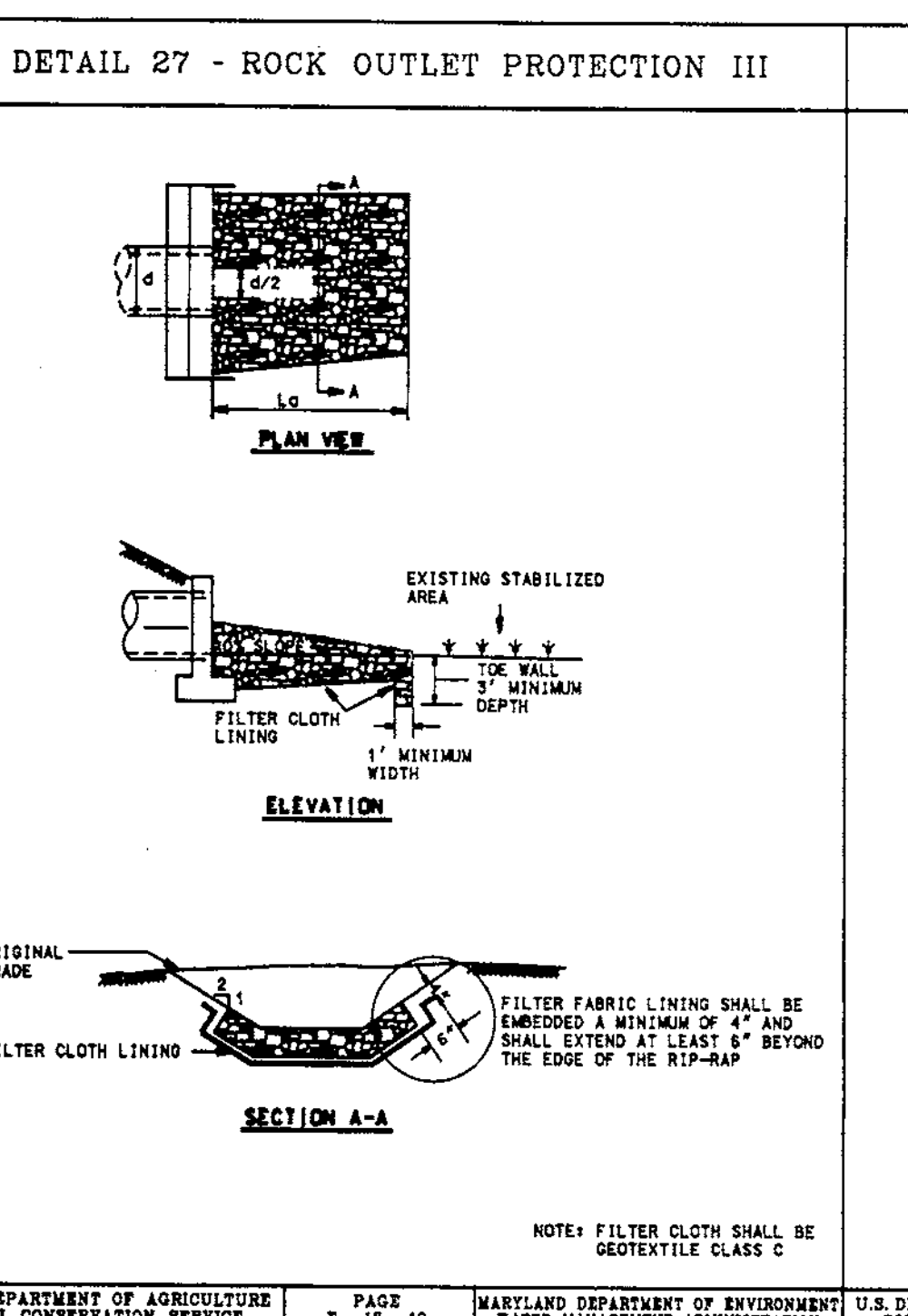
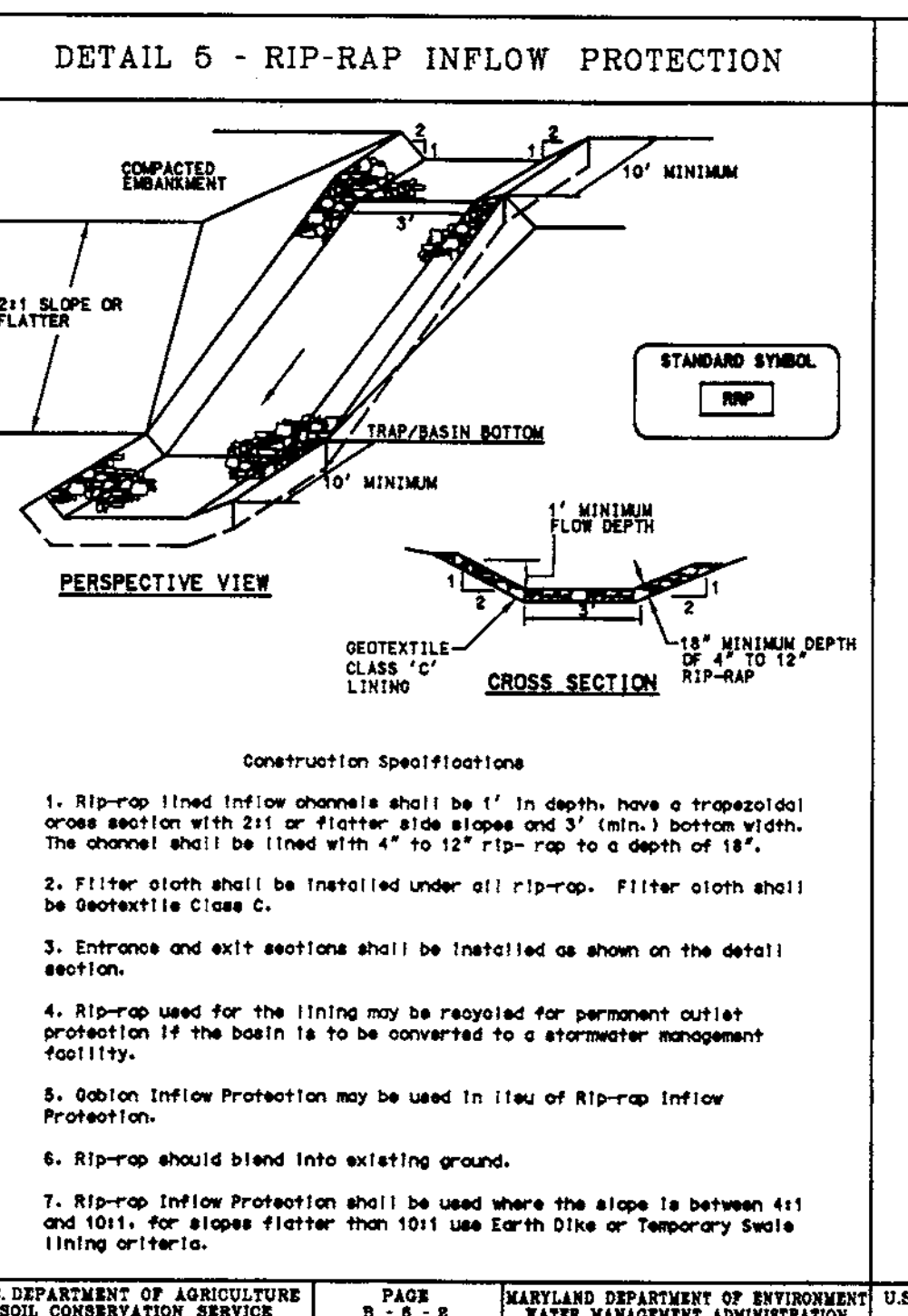
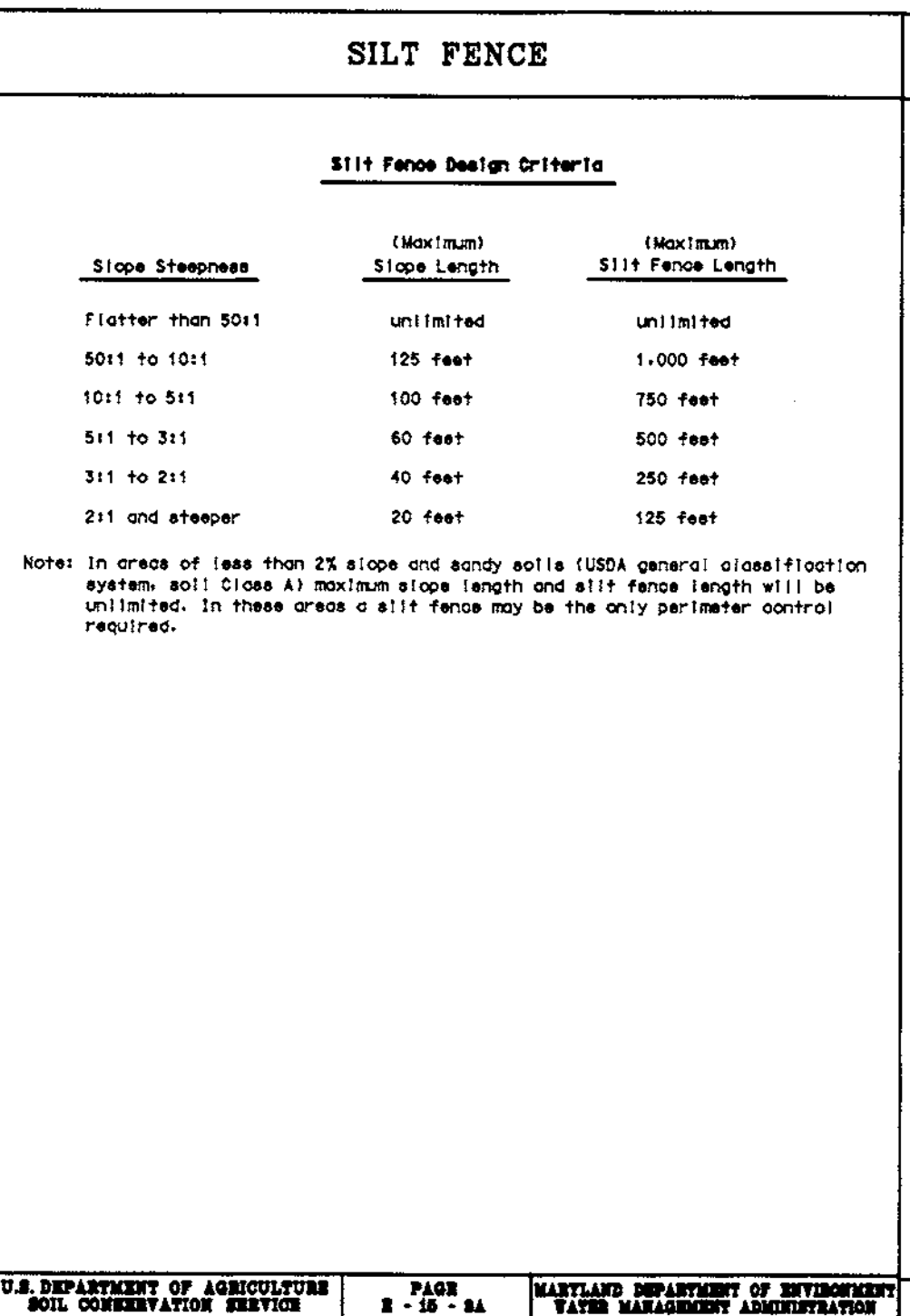
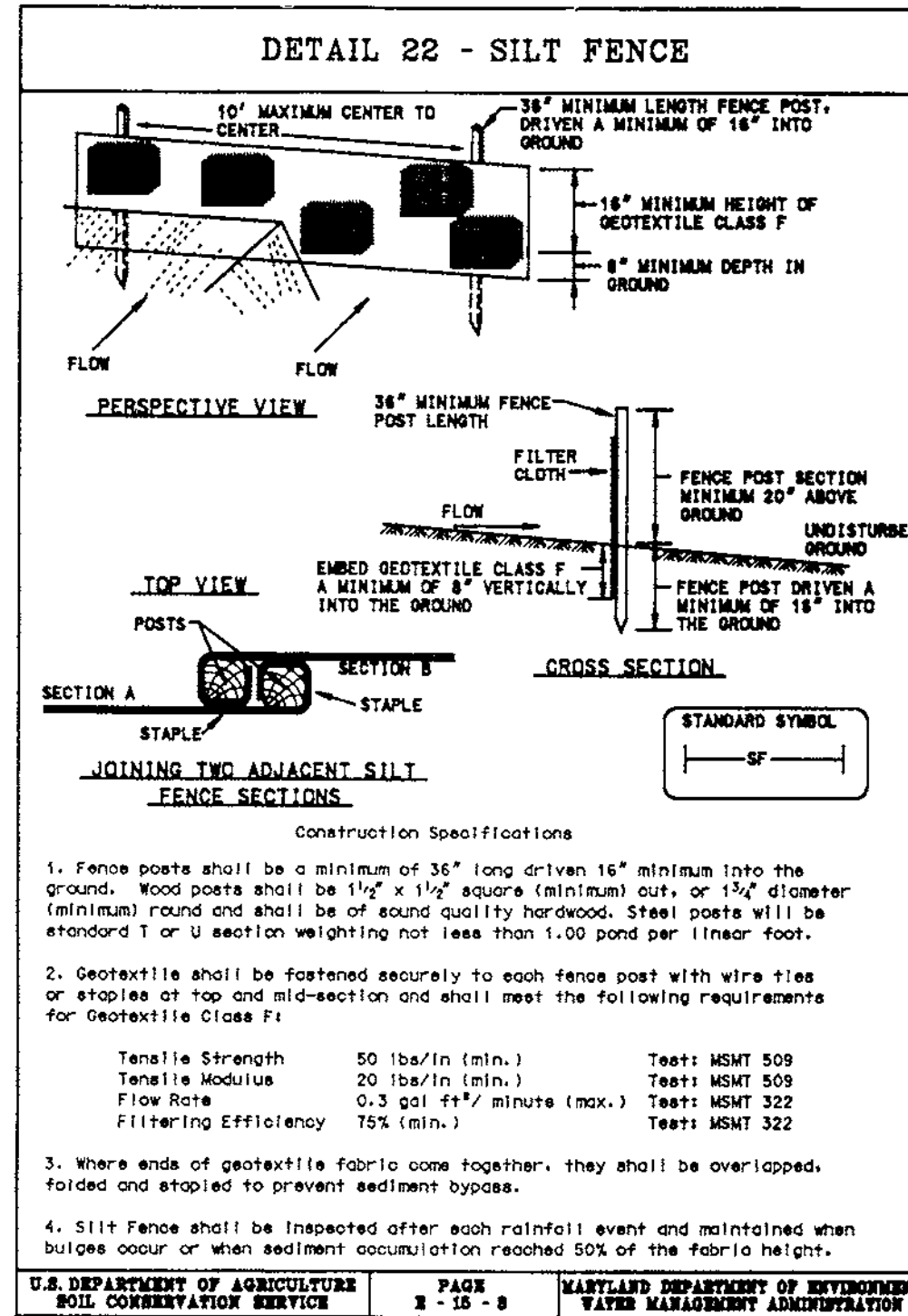


ENGINEER CERTIFICATION:
I certify that this plan for erosion and sediment control represents a
practical and workable plan based on my personal knowledge of the site
conditions and that it was prepared in accordance with the requirements of
the Howard Soil Conservation District.
Engineer: *James A. Marple Jr.* Date: 6/16/98
Name: **JAMES A. MARPLE JR.** PE # 11005

PLAN
SCALE: 1"=100'



7/14/00 REVISION #2 MASS GRADING CONTOURS AND ADD
SILT FENCE AND STABILIZED CONSTRUCTION ENTRANCE.
BY: MATIS WARFIELD INC.
10540 YORK ROAD, SUITE M
HUNT VALLEY, MD 21030
410-683-7004



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

- This practice is limited to areas having 2:1 or flatter slopes where:
 - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - 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.
 - The original soil to be vegetated contains material toxic to plant growth.
 - The soil is so acidic that treatment with limestone is not feasible.

- 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

- Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.
- Topsoil Specifications - Soil to be used as topsoil must meet the following:
 - 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 1 1/4" in diameter.
 - Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.
 - Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
- For sites having disturbed areas over 5 acres:
 - Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
 - On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
 - 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.
 - Organic content of topsoil shall be not less than 1.5 percent by weight.
 - Topsoil having soluble salt content greater than 500 parts per million shall not be used.
 - 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.

Topsoil Application

- 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.

- For sites having disturbed areas over 5 acres:
 - Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

Topsoil Application

- 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.

- 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.

- 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:
 - 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 sites having disturbed areas under 5 acres shall conform to the following requirements:
 - 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.
 - 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.
 - Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lbs/1,000 square feet, and 1/3 the normal lime application rate.

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

John R. Roberts
APPROVED HOWARD SOIL CONSERVATION DISTRICT
PLAN NUMBER 114/99
DATE

Reviewed for the Howard Conservation District and meets technical requirements.

Kevin Simms
NATURAL RESOURCES CONSERVATION SERVICE
DATE 11/19/99

APPROVED Howard County Department of Planning and Zoning

Allen DeWitt
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE 1/6/99

Cindy Hamilton
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE 11/1/99

Paul R. Rutz
DIRECTOR
DATE 1/12/99

ADDRESS CHART

PARCEL NO.	STREET ADDRESS
A-4	7020 TROY HILL DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
TROY HILL CORPORATE CENTER	N/A	A-4

PLAT #	BLOCK #	ZONE	MAP	ELECT. DIST.	CENSUS TRACT
12428	18	M-1	37	15	601102

WATER CODE 004 SEWER CODE 4020000

OWNER / DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

DESIGNED BY: P.R.C.
DRAWN BY: A.S.
CHECKED BY: P.R.C.
REVISIONS

SEDIMENT CONTROL DETAILS
FOR
TROY HILL CORPORATE CENTER
PHASE IIB PARCEL A-4

ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND SHT. 6 OF 13
SCALE: As Shown
DATE: JUNE 15, 1998

SDP-98-1424 P/N: 0951 NAME: sddetail222201

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120

ENGINEER CERTIFICATION:

I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Engineer: *James A. Morris Jr.* Date: 6/16/98
Name: James A. Morris Jr. PE # 11005

DEVELOPER CERTIFICATION:

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, also authorize periodic on-site inspection by the Howard Soil Conservation District.

Developer: *David E. Meiners* Date: 6/16/98
Name: David E. Meiners

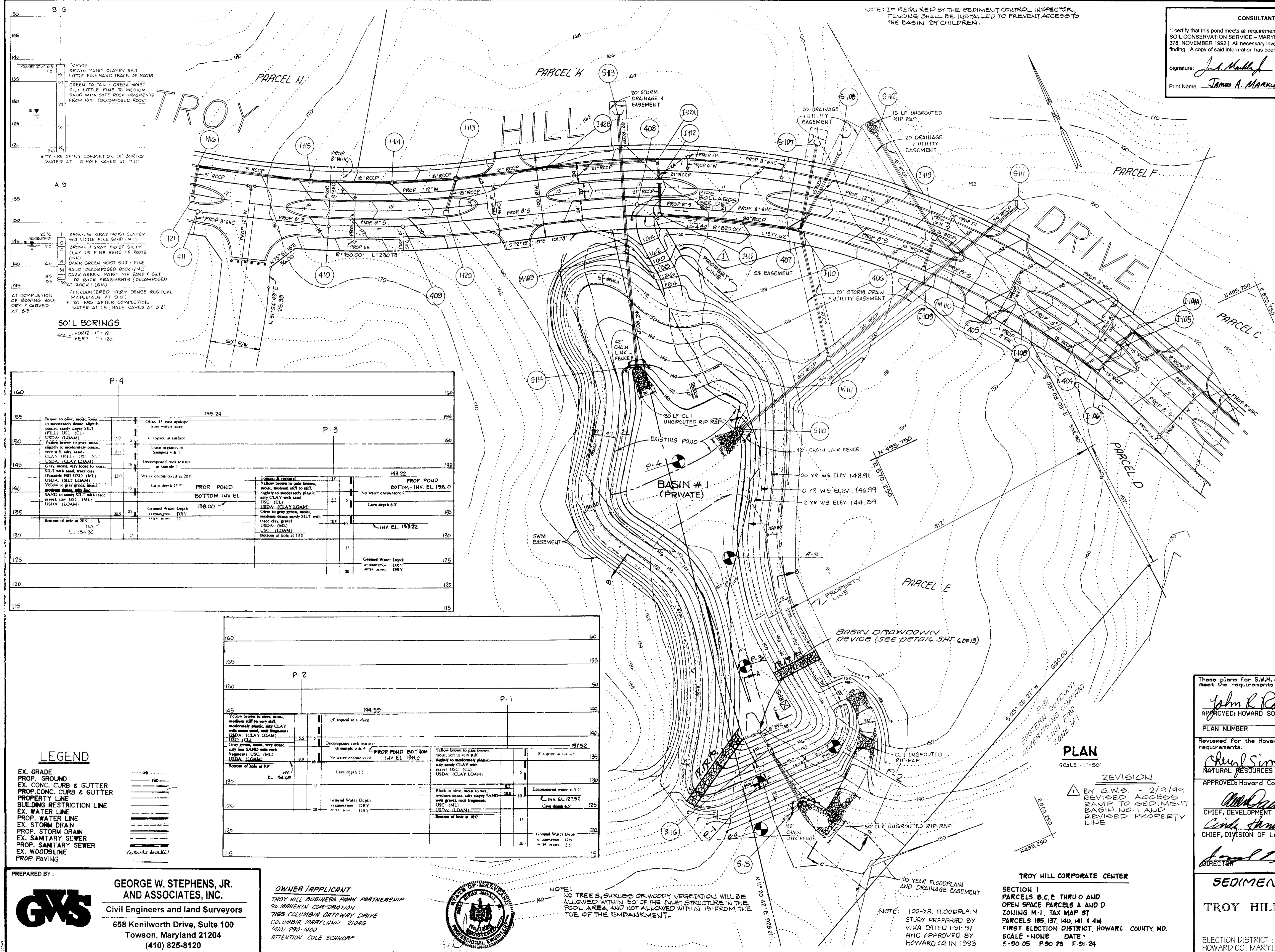
OWNER / DEVELOPER

TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

DESIGNED BY: P.R.C.
DRAWN BY: A.S.
CHECKED BY: P.R.C.
REVISIONS

SEDIMENT CONTROL DETAILS
FOR
TROY HILL CORPORATE CENTER
PHASE IIB PARCEL A-4

ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND SHT. 6 OF 13
SCALE: As Shown
DATE: JUNE 15, 1998



NOTE: IF REQUIRED BY THE SEDIMENT CONTROL INSPECTOR, FENCING SHALL BE INSTALLED TO PREVENT ACCESS TO THE BASIN BY CHILDREN.

CONSULTANT'S HAZARD CLASS CERTIFICATION
 I certify that this pond meets all requirements for hazard class (A, B, or C). (Requirements as stated in the SOIL CONSERVATION SERVICE - MARYLAND STANDARDS AND SPECIFICATIONS FOR POND, CODE 378, NOVEMBER 1992.) All necessary investigations and computations have been performed to verify this finding. A copy of said information has been supplied to Howard County Soil Conservation District.
 Signature: *James A. Markus Jr.* MD License No.: 11005 Date: 9/14/98
 Print Name: James A. Markus Jr.

TOPSOIL
 BROWN MOIST CLAYEY SILT
 LITTLE FINE SAND TRACE OF ROOTS
 GREEN TO TAN / GREEN MOIST
 SILT LITTLE FINE TO MEDIUM
 SAND WITH SOFT ROCK FRAGMENTS
 FROM 18" (DECOMPOSED ROCK)
 79 HRS AFTER COMPLETION OF BORING
 WATER AT 1.0 HOLE CAVED AT 7.0
 25%
 BROWN / GRAY MOIST SILTY
 CLAY TR FINE SAND TR ROOTS
 (M.L.)
 DARK GREEN MOIST SILT / FINE
 SAND (DECOMPOSED ROCK) (M.L.)
 DARK GREEN MOIST M.F. SAND & SILT
 TR ROCK FRAGMENTS (DECOMPOSED
 ROCK) (M.L.)
 * ENCOUNTERED VERY DENSE RESIDUAL
 MATERIALS AT 9.0'
 * 20 HRS AFTER COMPLETION
 WATER AT 1.8 HOLE CAVED AT 3.2'
SOIL BORINGS
 SCALE: HORIZ 1" = 12'
 VERT 1" = 120'

P-4

155	Brown to olive, moist, loose to moderately dense, slightly plastic, sandy clayey SILT (FILL) USC (CL) USDA: (LOAM)	0.0	4" topsoil at surface	155.24
150	Yellow brown to gray, moist, slightly to moderately plastic, very silty, silty sandy (CLAY FILL) USC (CL) USDA: (CLAY LOAM)	8.0	Trace organics in samples # 4 & 5	
145	Gray, moist, very loose to loose, SILT with sand, trace clay (FILLABLE FILL) USC (ML) USDA: (SILT LOAM)	13.0	Uncompacted rock texture at sample 7	
140	Gray to gray, moist, medium dense, silty fine SAND to sandy SILT with trace green clay USC (ML) USDA: (LOAM)	15.0	Water encountered at 20"	
135	Black to olive, moist to wet, medium dense, silty clayey SAND with green, rock fragments USC (ML) USDA: (LOAM)	20.0	Ca-c depth 15.5'	
130	Black to olive, moist to wet, medium dense, silty clayey SAND with green, rock fragments USC (ML) USDA: (LOAM)	25.0	Ground Water Depth at completion DRY after 24 hrs	
125	Black to olive, moist to wet, medium dense, silty clayey SAND with green, rock fragments USC (ML) USDA: (LOAM)	30.0	Ground Water Depth at completion DRY after 24 hrs	
120	Black to olive, moist to wet, medium dense, silty clayey SAND with green, rock fragments USC (ML) USDA: (LOAM)	35.0	Ground Water Depth at completion DRY after 24 hrs	
115	Black to olive, moist to wet, medium dense, silty clayey SAND with green, rock fragments USC (ML) USDA: (LOAM)	40.0	Ground Water Depth at completion DRY after 24 hrs	

P-2

145	Yellow brown to olive, moist, medium stiff to very stiff, moderately plastic, silty CLAY with some sand, root fragments USC: (CL) USDA: (CLAY LOAM)	4.0	4" topsoil at surface	144.59
140	Gray green, moist, very dense, silty fine SAND with root fragments USC (ML) USDA: (LOAM)	5.5	Decomposed rock texture at sample 3 & 4	
135	Black to olive, moist to wet, medium dense, silty clayey SAND with green, rock fragments USC (ML) USDA: (LOAM)	9.0	No water encountered	
130	Black to olive, moist to wet, medium dense, silty clayey SAND with green, rock fragments USC (ML) USDA: (LOAM)	10.0	Encountered water at 9.5'	
125	Black to olive, moist to wet, medium dense, silty clayey SAND with green, rock fragments USC (ML) USDA: (LOAM)	15.0	Ca-c depth 6.5'	
120	Black to olive, moist to wet, medium dense, silty clayey SAND with green, rock fragments USC (ML) USDA: (LOAM)	20.0	Ground Water Depth at completion DRY after 24 hrs	
115	Black to olive, moist to wet, medium dense, silty clayey SAND with green, rock fragments USC (ML) USDA: (LOAM)	25.0	Ground Water Depth at completion DRY after 24 hrs	

LEGEND
 EX. GRADE
 PROP. GROUND
 EX. CONC. CURB & GUTTER
 PROP. CONC. CURB & GUTTER
 PROPERTY LINE
 BUILDING RESTRICTION LINE
 EX. WATER LINE
 PROP. WATER LINE
 EX. STORM DRAIN
 PROP. STORM DRAIN
 EX. SANITARY SEWER
 PROP. SANITARY SEWER
 EX. WOODS LINE
 PROP. WOODS LINE
 PROP. PAVING

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson, Maryland 21204
 (410) 825-8120

OWNER / APPLICANT
TROY HILL BUSINESS PARK PARTNERSHIP
 c/o MARIENIN CORPORATION
 7105 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (410) 290-1400
 ATTENTION: COLE SCHNAFF



NOTE: NO TREES, SHRUBS OR WOODY VEGETATION WILL BE ALLOWED WITHIN 10' OF THE INLET STRUCTURE IN THE POOL AREA AND NOT ALLOWED WITHIN 15' FROM THE TOE OF THE EMBANKMENT.

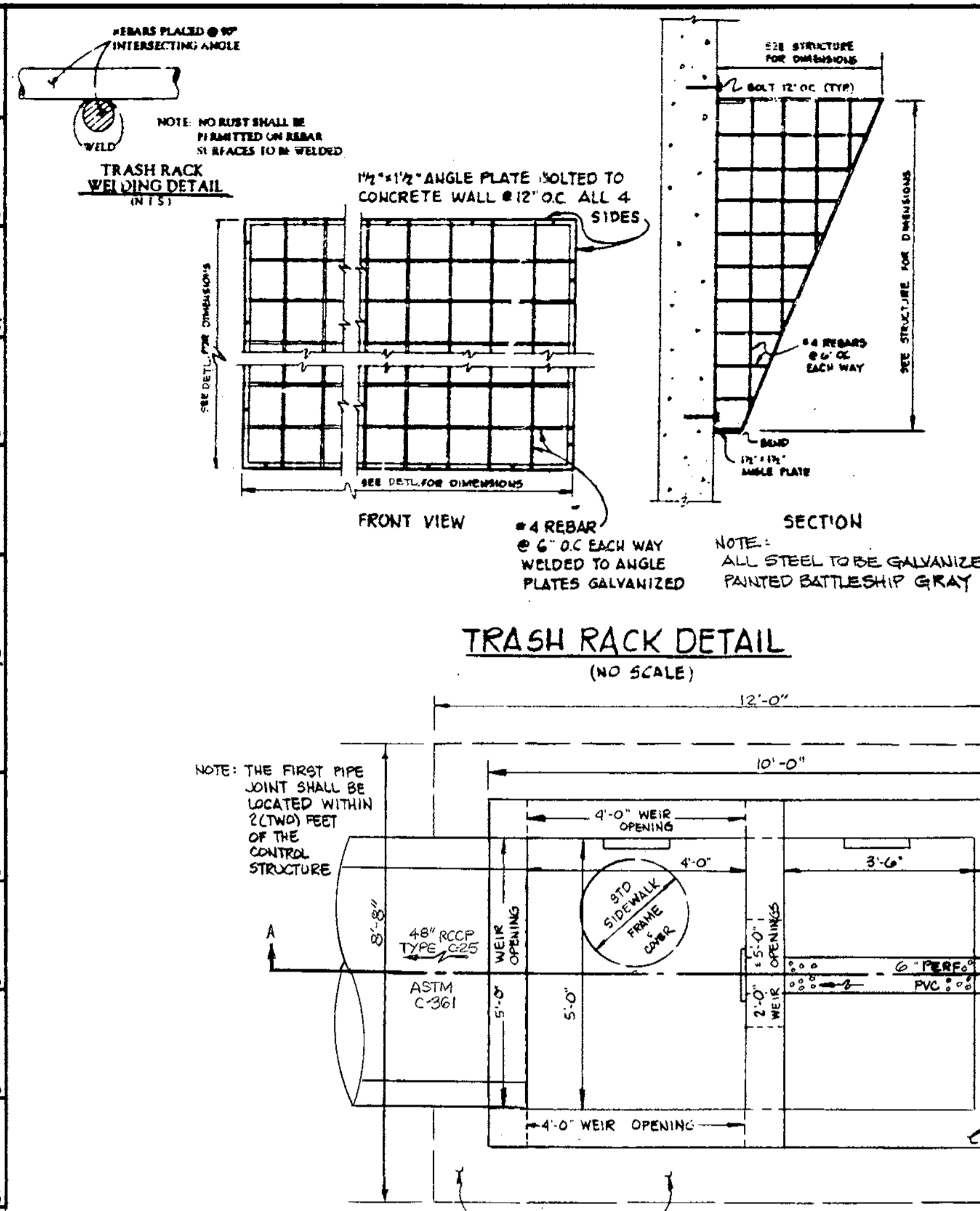
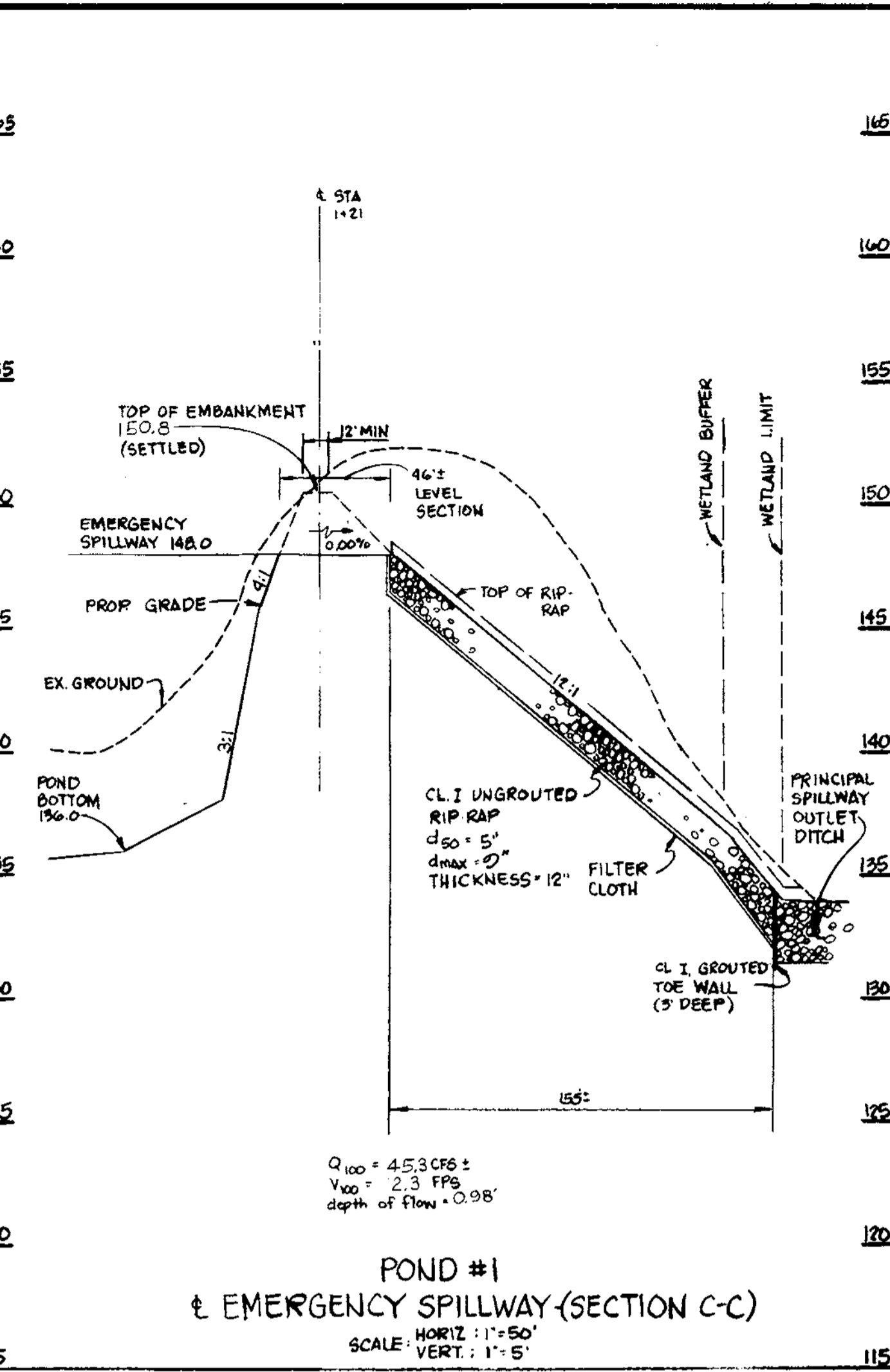
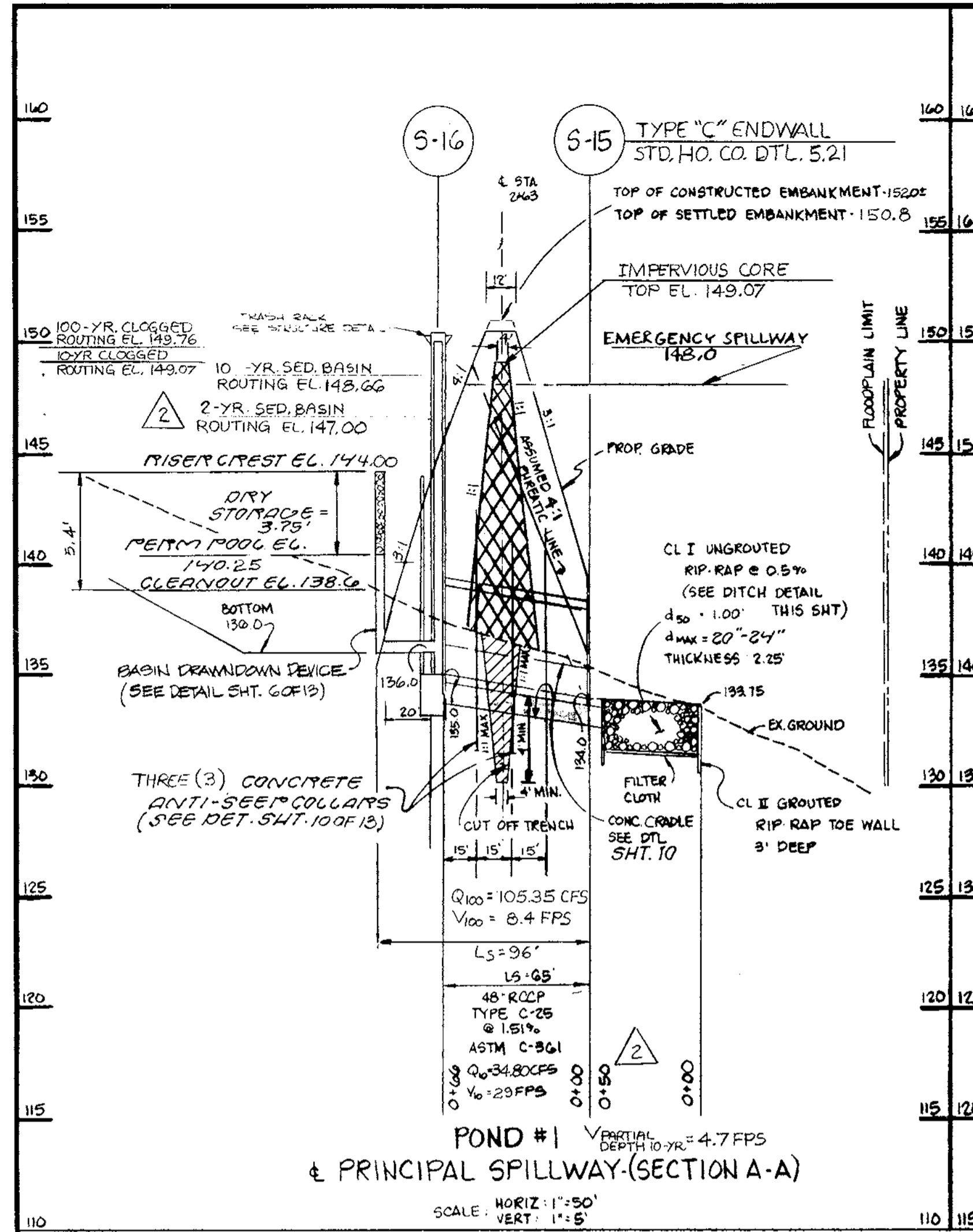
NOTE: 100-YR. FLOODPLAIN STUDY PREPARED BY VIKI DATED 1-31-91 AND APPROVED BY HOWARD CO. IN 1993

DEVELOPER CERTIFICATION:
 I/We certify that development and construction will be done according to this plan and that I/We are responsible for the construction of the project without a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project, and authorize periodic on-site inspection by the Howard Soil Conservation District.
 Developer Name: *David E. Meiners* Date: 9/16/98
 Name: DAVID E. MEINERS

ENGINEER CERTIFICATION:
 I certify this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions, and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
 Engineer Name: *James A. Markus Jr.* Date: 9/14/98
 Name: JAMES A. MARKUS JR. PE # 11005

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.
 Approved: *John R. Robertson* 1/14/99
 APPROVED: HOWARD SOIL CONSERVATION DISTRICT DATE
 PLAN NUMBER DATE
 Reviewed for the Howard Conservation District and meets technical requirements.
 Approved: *Ruehl Simmons* 1/14/99
 NATURAL RESOURCES CONSERVATION SERVICE DATE
 APPROVED: Howard County Department of Planning and Zoning
 Chief, Development Engineering Division: *Ann Danner* 1/6/99 DATE
 Chief, Division of Land Development: *Cindy Hamilton* 1/11/99 DATE
 Director: *James A. Markus Jr.* 1/12/99 DATE

SEDIMENT BASIN #1-PLAN
 FOR
TROY HILL CORPORATE CENTER
 PHASE 1B PARCEL A-4
 ELECTION DISTRICT: 1st HOWARD CO., MARYLAND SHT. 7 OF 13
 SCALE: As Shown DATE: JUNE 15, 1998

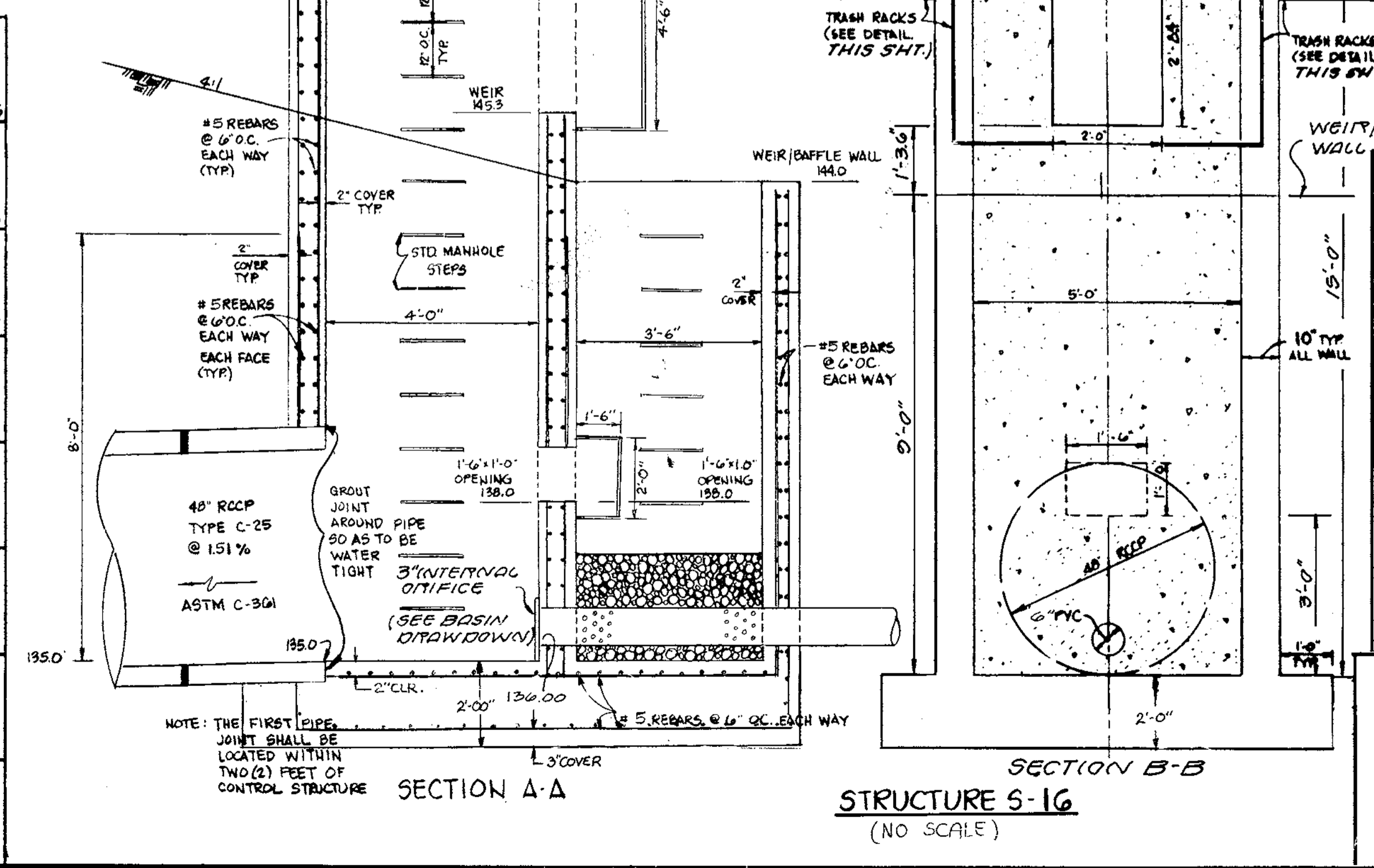
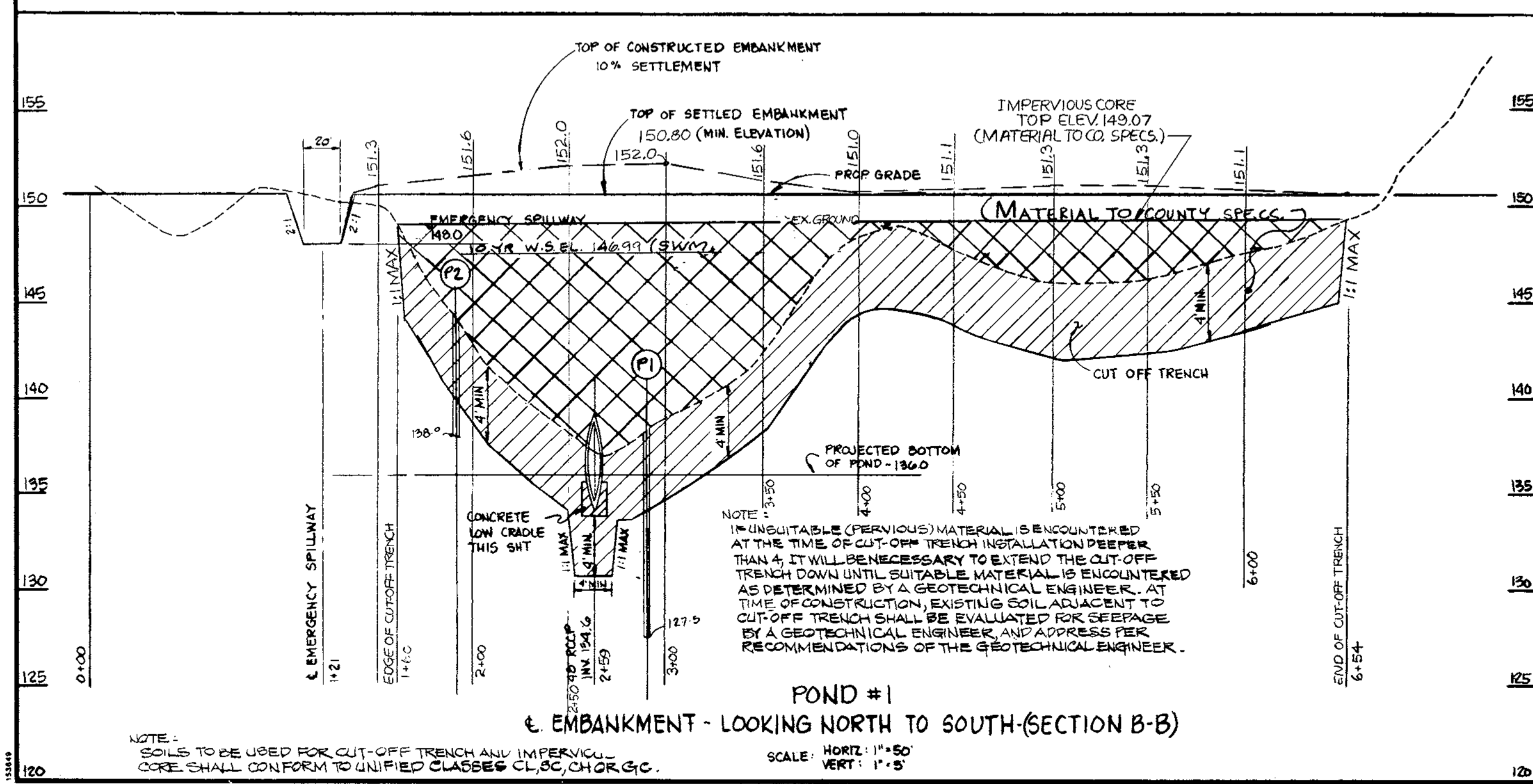
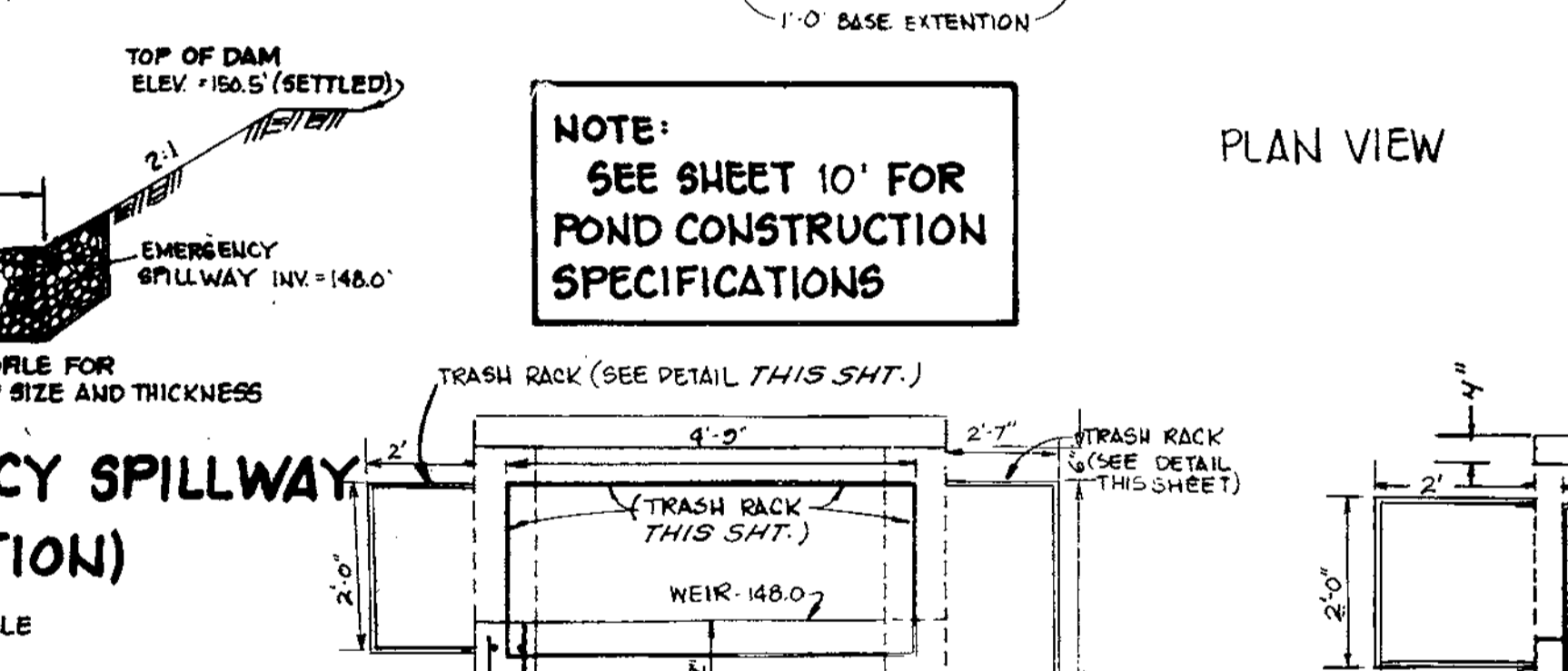
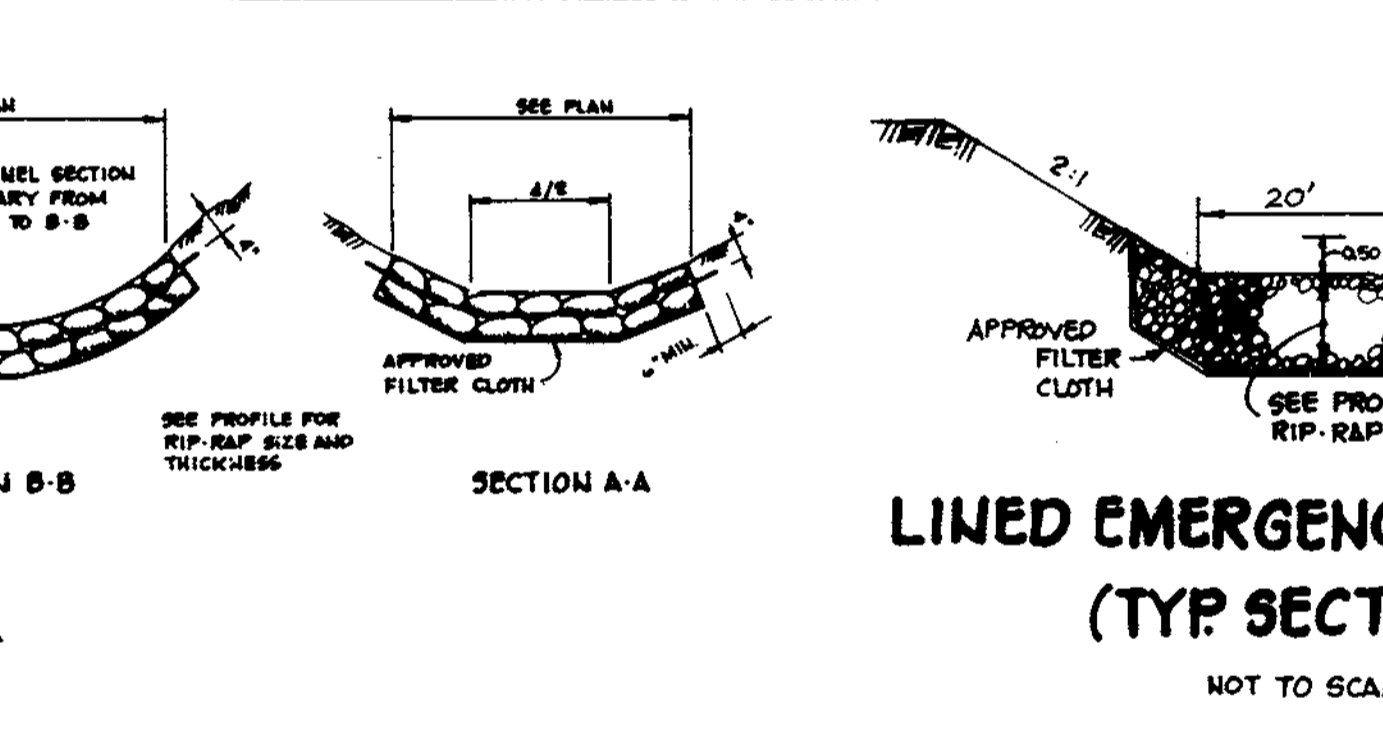
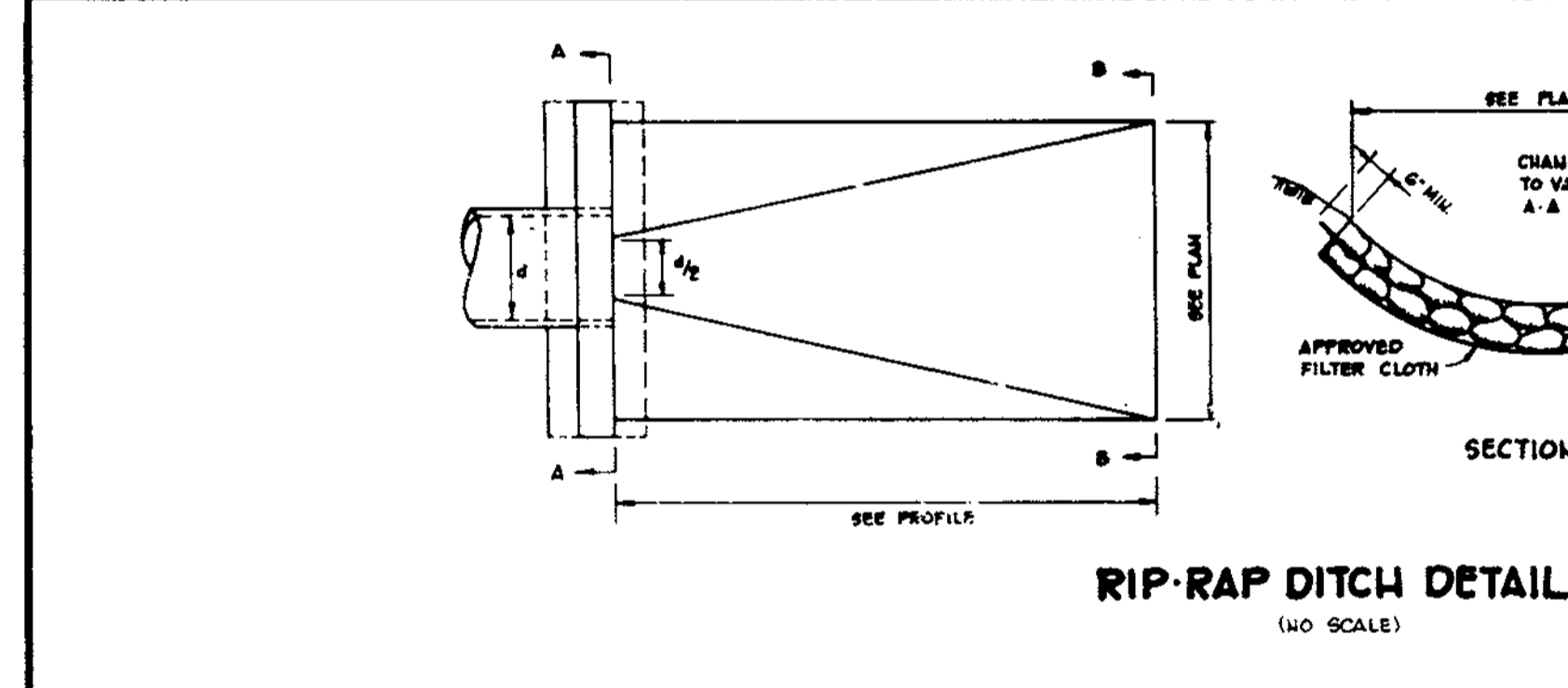


DEVELOPER CERTIFICATION:
I/We certify that all development and/or construction was done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance as a Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a 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.

Developer: *David E. Mennis* Date: 4/14/98
Name: *David E. Mennis*

ENGINEER CERTIFICATION:
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.

Engineer: *James A. Marble, Jr.* P.E. # 10025 Date: 6/16/98
Name: *James A. Marble, Jr.*



APPROVED: HOWARD SOIL CONSERVATION DISTRICT
DATE: 1/14/99

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DATE: 1/16/99

APPROVED: JOHN R. RALSTON
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1/16/99

APPROVED: CINDY HAMMILL
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1/16/99

APPROVED: JAMES A. MARBLE, JR.
DIRECTOR
DATE: 1/16/99

SECTIONS & DETAILS - SEDIMENT BASIN #1
FOR
TROY HILL CORPORATE CENTER
PHASE IIB PARCEL A-4

ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND SHT. 0 OF 13

SCALE: As Shown
DATE: JUNE 15, 1998

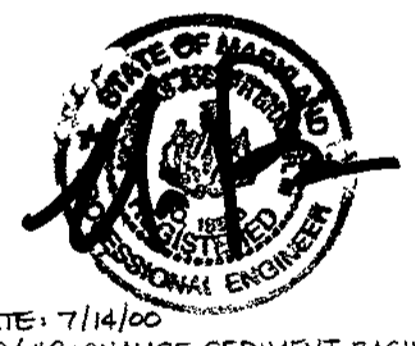
DATE: 7/14/00
REV. #2: CHANGE SEDIMENT BASIN WATER SURFACE TO DISCHARGE TO INCREASE IN D.A. FROM 52.3 TO 55.8 A.C. BY MATS WARFIELD, INC. 10540 YORK RD. STEAM-HUNTSVILLE MD 21030

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

OWNER/DEVELOPER
TROY HILL BUSINESS PARK
PARTNERSHIP
C/O MANEKIN CORPORATION
7166 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

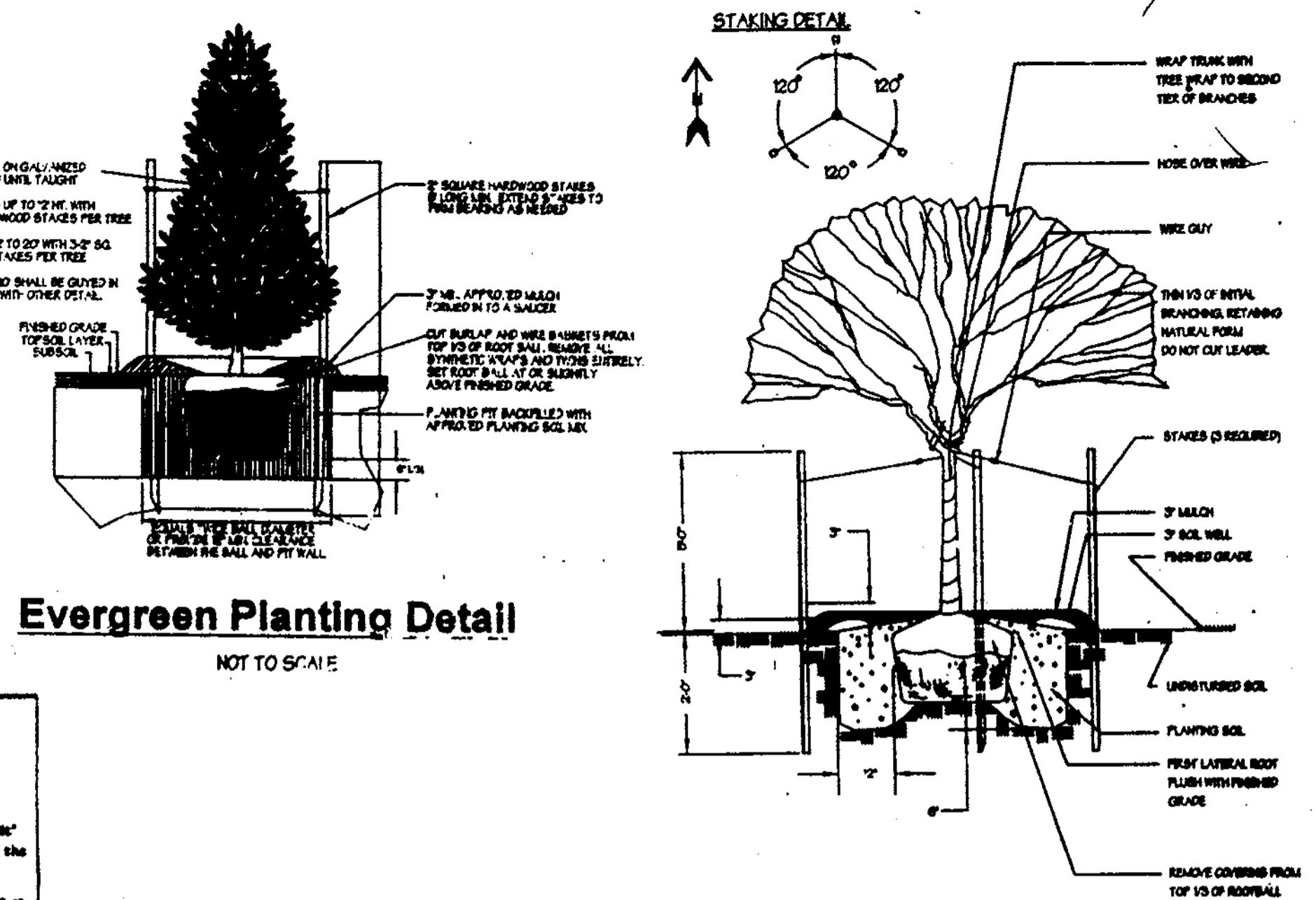
PREPARED BY:
GWS
GEORGE W. STEPHENS, JR.
AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21284
(410) 825-8120

DESIGNED BY: P.R.C.
DRAWN BY: A.S.
CHECKED BY: P.R.C.
REVISIONS



Evergreen Planting Detail

NOT TO SCALE



Tree Planting Detail

NOT TO SCALE

LANDSCAPE NOTES

PLANTING NOTES
 PLANT LOCATIONS SHALL BE FIELD ADJUSTED TO AVOID UTILITIES. CONTRACTOR IS RESPONSIBLE FOR LOCATING UTILITIES PRIOR TO START OF WORK.
 ALL TREES AND SHRUBS SHALL BE MULCHED TO A MINIMUM OF 18" BEYOND THE EDGE OF THE ROOT BALL. SHRUBS MASSIES SHALL BE PLANTED IN CONTINUOUS MULCH BEDS.
 ALL WIRE, PLASTIC AND TWINES SHALL BE REMOVED FROM TOP OF THE ROOT BALL.

PLANT STANDARDS
 ALL NURSERY STOCK SHALL BE TOP QUALITY AND IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF NURSERYMEN INC. "AMERICAN STANDARDS FOR NURSERY STOCK," LATEST EDITION. INFANTRY NURSERY STOCK WILL BE SUBJECT TO REJECTION BY THE LANDSCAPE ARCHITECT. BARE-ROOT SHALL NOT BE ALLOWED FOR ANY TREE DEFINED AS MAJOR DECIDUOUS, MINOR DECIDUOUS OR EVERGREEN.

CHANGES MAY IMPACT REQUIRED CERTIFICATION
 PLANT TYPES (DECIDUOUS TREES, EVERGREEN, ETC.), QUANTITIES, SPACING, LOCATION, AND SPECIES SHOWN ON THE APPROVED LANDSCAPE PLAN ARE BASED ON REQUIREMENTS STATED IN THE LATEST HOWARD COUNTY LANDSCAPE MANUAL. ANY CHANGE IN THESE ITEMS MAY AFFECT THE REQUIRED APPROVAL AND CERTIFICATION OF THE INSTALLED PLANTING. OWNER IS REQUIRED TO ARRANGE AND PAY FOR CERTIFICATION BY LANDSCAPE ARCHITECT.

LANDSCAPE SPECIFICATIONS
 LANDSCAPE SPECIFICATION SHALL CONFORM TO LCA LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREA, INCLUDING PLANTING PROCEDURES AND SOIL PREPARATION FOR SHRUBS AND PERENNIAL BEDS.
 A ONE-YEAR WARRANTY PERIOD SHALL BE REQUIRED. MAINTENANCE REQUIRED TO HONOR THE ONE YEAR WARRANTY SHALL BE PERFORMED AS PART OF THIS CONTRACT.

SPECIAL PROVISIONS TO LCA STANDARD SPECIFICATIONS
 CONTRACTOR IS ENCOURAGED TO PERFORM SOIL TESTING. TEST RESULTS SHALL BE SUBMITTED 30 DAYS BEFORE PLANTING. FAILURE TO PERFORM TESTING WILL NOT VOID GUARANTEE PROVISIONS.

CONTRACTOR SHALL REVIEW AND TEST SUBSOIL DRAINAGE CHARACTERISTICS 30 DAYS PRIOR TO PLANTING AND NOTIFY OWNER UNACCEPTABLE CONDITIONS.

NO EXCEPTIONS TO THE GUARANTEE PROVISIONS ARE ALLOWED UNLESS AGREED TO IN WRITING PRIOR TO PLANTING.

THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 90% LANDSCAPE TREES, IN THE AMOUNT OF \$23,350, IS PART OF THE DEVELOPER'S AGREEMENT.

DEVELOPER CERTIFICATION:

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 Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a 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.

Developer: MANHEIM CORPORATION Date: 6/1/98
 Name: David E. Mearns

P-12		195.05	
200	200		
195	195	195.05	195.05
190	190		
185	185		
180	180		
175	175		
170	170		

P-10		P-9		P-8	
195	195	191.15	191.15	191.15	191.15
190	190				
185	185				
180	180				
175	175				
170	170				

SOIL BORING LOGS

OWNER/APPLICANT
 TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANHEIM CORP.
 7185 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 ATTN: COLE SCHNORF

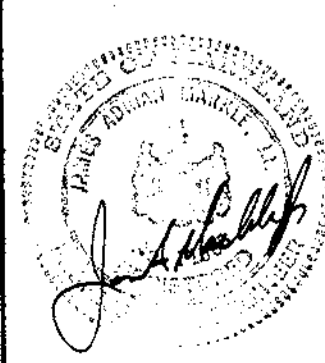
ENGINEER CERTIFICATION:

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.

Engineer: James A. Marcell Jr. P.E. # 11005
 Date: 10/16/98

ENGINEER
GEORGE WILLIAM STEPHENS JR.
AND ASSOCIATES, INC.

658 KENILWORTH DRIVE
 SUITE 100
 TOWSON, MARYLAND 21284
 (410) 825-8120



DESIGNED: KJ
 DRAWN: CDT
 CHECKED: TC

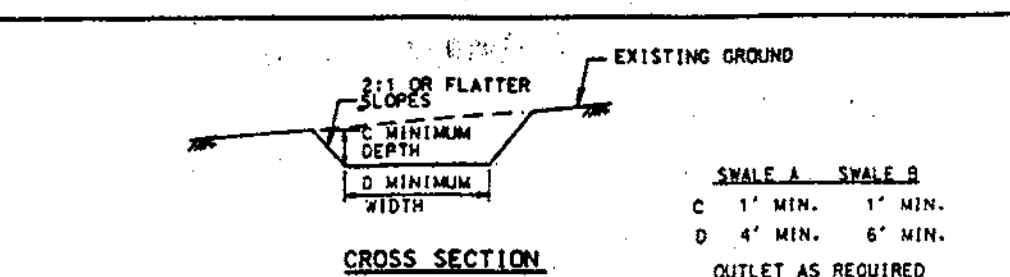
BY	NO	REVISION	DATE

SWM & SEDIMENT BASIN BORINGS & DETAILS LANDSCAPING DETAILS

TROY HILL CORPORATE CENTER
PHASE IIB
TROY HILL DRIVE

HOWARD COUNTY, MD. ELECTION DISTRICT #1
 SCALE: AS SHOWN DATE: 6/15/98
 SHEET NO. 9 OF 13
 FILE NOS. S90-05, P90-25, F91-24

DETAIL 2 - TEMPORARY SWALE



Construction Specifications

1. Seed and cover with arrow mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4"-7" stone or recycled concrete equivalent pressed into soil in a minimum 7" layer.

1. All temporary swales shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area of a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
5. The swale shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fills, if necessary, shall be composed by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the swale.
8. Inspection and maintenance must be provided periodically and after each rain event.

USA DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE A-2/3-4 MARYLAND DEPARTMENT OF ENVIRONMENTAL AND WATER RESOURCES ADMINISTRATION

bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings or an approved equal may be used: Nexon, Plasticox, Bac-Koat, and Best-Co-Loy. Coated galvanized steel pipe shall meet the requirements of AASHTO M-248 and M-246.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appearance shall conform to the requirements of AASHTO Specification M-274 with lightweight coupling bands or flanges. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

Materials - (Aluminum Pipe) - This pipe and its appearance shall conform to the requirements of AASHTO Specification M-211 with lightweight coupling bands or flanges. Aluminum surfaces that are to be protected with concrete shall be primed with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 8.

Bedding - All reinforced concrete pipe shall have bedding and bedding joints with rubber gaskets and shall equal or exceed ASTM Designation C-961. An approved equivalent is AWWA Specification 302.

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 sides of the pipe to at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.

Laying pipe - Bedding spigot pipe shall be placed with the bell and upper joints shall be made in accordance with recommendations of the manufacturer of the material. After 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 rear.

Backfilling shall conform to "Structure Backfill."

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.

When joining pipe sections, the end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bend width. The following type connections are acceptable for pipes less than 48" in diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 1/2" wide by 3/8" thick closed cell circular neoprene gasket; and a 12" wide huggie type band with 6" long gaskets having a minimum diameter of 1/2" greater than the corrugation depth. Pipes 48" in diameter and larger shall be connected by a 24" long annular corrugated band using rods and gaskets. A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24".

Horizontally corrugated pipe shall have either corrugations welded seams or have lock seams.

Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or otherwise unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

Backfilling shall conform to "Structure Backfill."

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 Specifications for Concrete and Materials, Section 606, Mix No. 3.

Rock
 All rock shall be dense, sound, and free from cracks, seams, and other defects conducive to accelerated weathering. The rock fragments shall be angular to subangular in shape. The least dimension of an individual rock fragment shall be not less than one-third the greatest dimension of the fragment.

The rock shall have the following properties:

1. Bulk specific gravity (saturated surface-dry) shall not less than 2.5.
2. Absorption not more than three percent.
3. Soundness: Weight loss in five cycles not more than 20 percent when sodium sulfate is used.
4. Bulk specific gravity and absorption shall be determined according to ASTM C 127. The test for absorption shall be performed according to ASTM C 68.

The riprap shall be placed to the required thickness in a manner that will insure the riprap in place will 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 Specifications for Riprap Control Material. The riprap shall be placed in accordance with the specifications of 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 sediment pollution will be minimized. Approved Construction Plans shall detail erosion and sediment control measures to be employed during the construction process.

Stormwater Management Pond #1 - SECTION 1

P-4		P-3		P-2		P-1	
160	155.24	155.24	143.22	143.22	143.50	143.50	143.50
155	155	155	155	155	155	155	155
150	150	150	150	150	150	150	150
145	145	145	145	145	145	145	145
140	140	140	140	140	140	140	140
135	135	135	135	135	135	135	135
130	130	130	130	130	130	130	130
125	125	125	125	125	125	125	125
120	120	120	120	120	120	120	120
115	115	115	115	115	115	115	115

SOIL BORING LOGS

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

APPROVED: HOWARD SOIL CONSERVATION DISTRICT
 DATE: 1/4/99

PLANNING NUMBER: _____ DATE: 1/4/99

Reviewed for the Howard Conservation District and meets technical requirements.
 APPROVED: NATURAL RESOURCES CONSERVATION SERVICE
 DATE: 1/4/99

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 1/6/99

CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 1/4/99

DIRECTOR
 DATE: 1/12/99

POND CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard Practice MD-37B. 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, fence stubs, 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 at the 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 embankment and cut-off trench shall conform to United Soil Classification GC, SC, CH, or CL.

PLACEMENT: Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in a maximum 8" 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 sheepfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be achieved 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 the water can be squeezed out.

Minimum required density shall not be less than 95% of maximum dry density with a moisture content within +/- 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99.

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 driving 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.

PIPE CONDUITS: All pipes shall be circular in cross section.

REINFORCED CONCRETE PIPE: All pipe to be circular in cross section.

All the following criteria shall apply for reinforced concrete pipe:

- Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361.
- 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 sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
- 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.
- Backfilling shall conform to "Structure Backfill".
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

PERFORATED PIPE

Bituminous coated corrugated metal pipe (BCCMP) shall conform to the requirements of AASHTO M406 (pipe should be specified to be fully bituminous coated in accordance with AASHTO M1000). Perforated pipe is TYPE III. Pipe shall have CLASS 2 perforations 3/8" in diameter.

CONCRETE

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414 (Portland Cement Concrete Mixture), Mix No. 3.

REINFORCING STEEL IN CONCRETE STRUCTURES

Reinforcing steel shall be ASTM A 615, Grade 60. Steel angles and anchor bars shall be ASTM A36.

ROCK RIP-RAP

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311 & Section 9012.

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 92109.

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 lowered and graded to the extent required to prevent destruction 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 excavations 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 sump from which water shall be pumped.

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 Planning (MD-342) or as shown on the accompanying drawings.

Stormwater management facility will be stabilized with permanent slope seeding as follows:

- Soil Preparation - loosen upper 3 inches of soil by raking, disking or other acceptable means before seeding.
- Soil Amendments - apply 2 tons per acre Dolomitic Limestone (92 lbs/1000 sq. ft.), 600 lbs. per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.), and 400 lbs. per acre of 30-0-0 Ureaform Fertilizer (92 lbs/1000 sq. ft.). Harrow or disc lime and fertilizer into upper 3 inches of soil. At time of seeding, apply 400 lbs. (92 lbs/1000 sq. ft.) of 30-0-0 Ureaform Fertilizer and 500 lbs. per acre (115 lbs/1000 sq. ft.) of 10-0-0 fertilizer.
- Seeding - for the period March 1 through April 30 seed with 40 lbs. per acre Kentucky 31 Tall Fescue, and 15 lbs. per acre inoculated Crown Vetch. For the period May 1 through July 31 seed with 60 lbs. per acre Kentucky 31 Tall Fescue and 2 lbs. per acre inoculated Weeping Lovegrass. For the period August 1 through October 15 seed with 40 lbs. per acre Kentucky 31 Tall Fescue, and 20 lbs. per acre inoculated Interstate Series Leuzopoda. For the period October 16 through February 28 protect the site by Option (1); 2 tons per acre of well anchored straw. For the period May 1 through February 28 inoculated Crown Vetch shall be applied during the subsequent period of March 1 through April 30 at the rate of 15 lbs. per acre.
- Mulching - apply 1.5 to 2 tons per acre of un-rotted small grain straw immediately after seeding. Anchor mulch immediately after application using 210 gallons per acre of emulsified asphalt. On flat areas of slope 8 feet or higher, use 340 gallons per acre of anchoring.
- Maintenance - inspect all seeded areas and make needed repairs, replacements and re-seeding.

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.

PERMANENT SLOPE SEEDING

After spreading 4" topsoil, seed with a mixture of 30% inoculated Crown Vetch and 70% Kentucky 31 Tall Fescue applied at a rate of 60 lbs./acre 10-20-20 fertilizer shall be applied at a rate of 25 lbs/1000 sq. ft.; lime at a rate of 92 lbs/1000 sq. ft.; mulch area with unweathered small grain straw at a rate of 15 Tons/acre; anchor with a rapid curing asphalt (RC-70, K-250 or RC-800) at a rate of 0.1 gal/sq. ft.

FILTER CLOTH

Filter cloth shall meet or exceed the requirements in Section 2025-B of the Baltimore County Standard Specifications and Details for Construction. Durable filter fabrics for drainage purposes are not limited to Mirafil 1405, DuPont TYPAC No. 3341 or 3401.

Filter cloth shall be protected from punching or tearing. Any damage other than an occasional small hole shall be repaired by placing another small piece of filter cloth over the damaged area or by replacing the cloth section. All overlaps shall be a minimum of one foot.

GABIONS

Gabions shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 312 and must be CL V, PVC coated.

OUTFALL PROTECTION

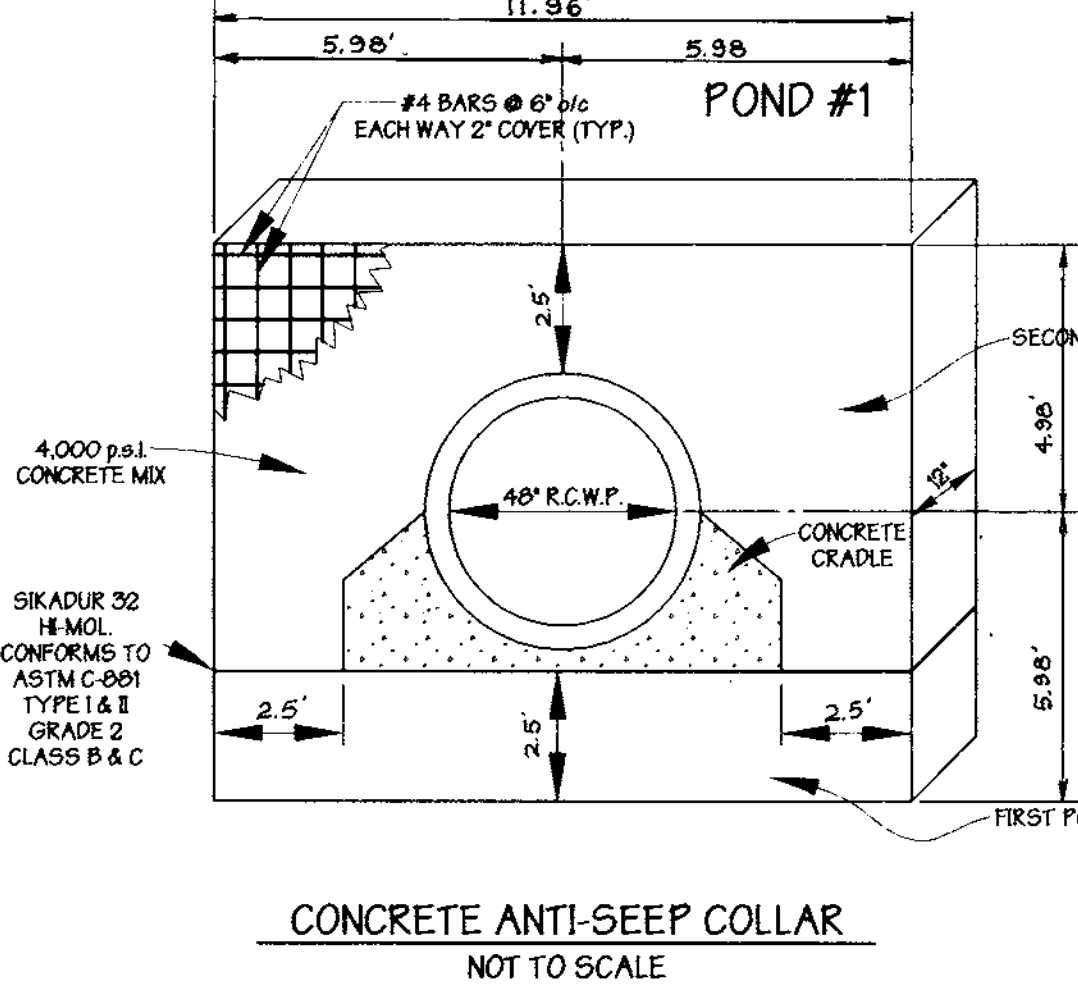
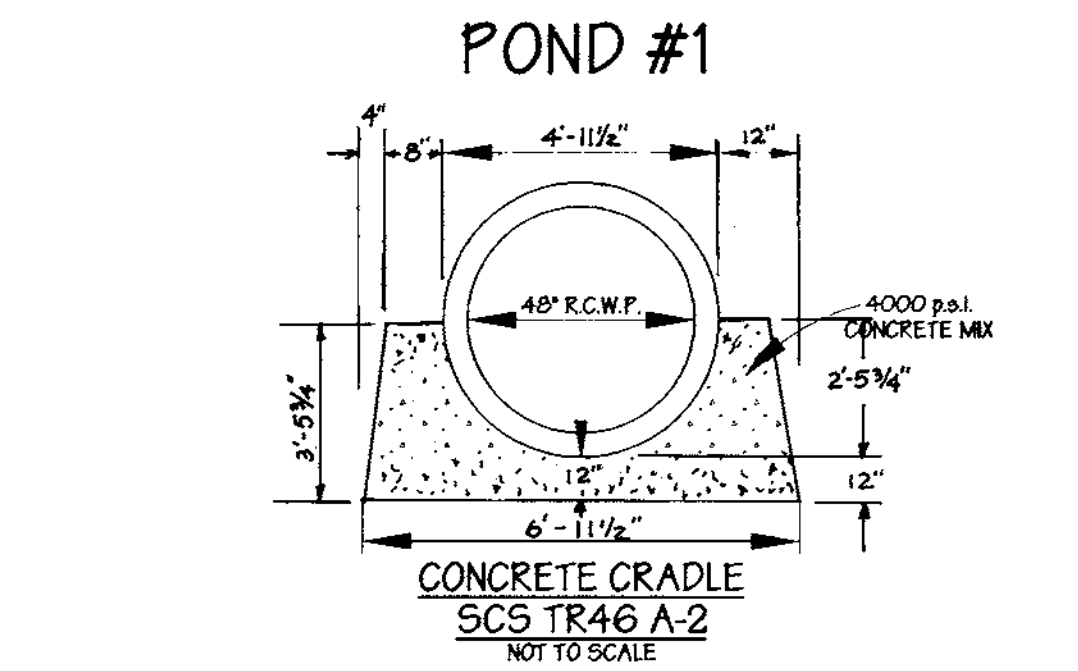
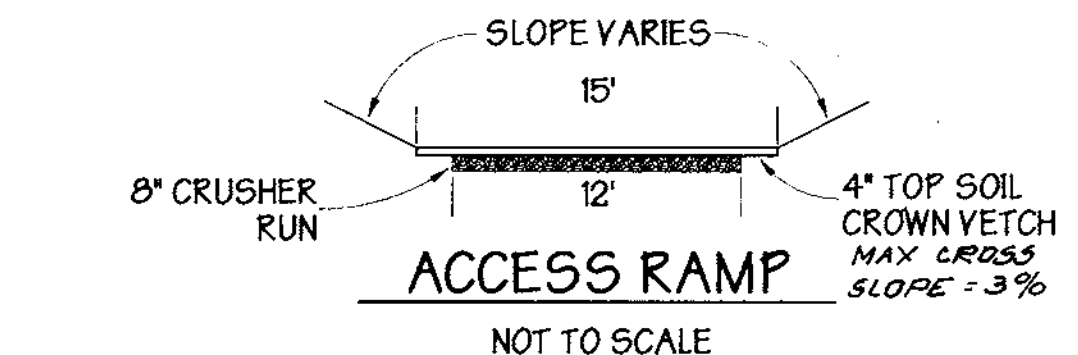
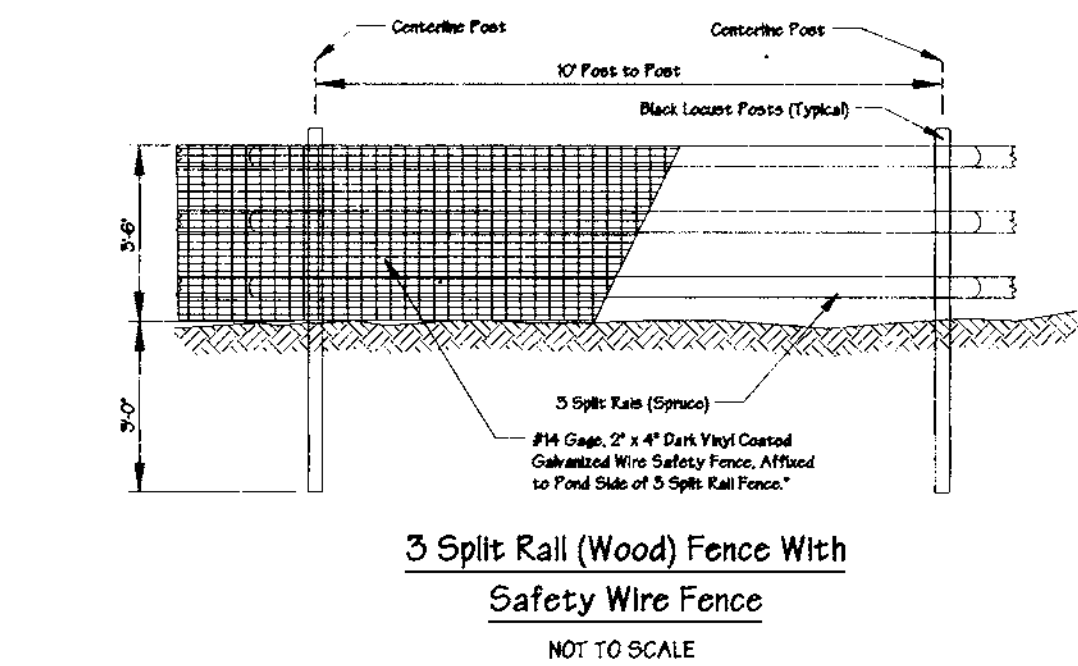
Subgrade for riprap or gabion outfalls shall be prepared to the required line and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material. All rock or gravel shall conform to the specified grading limits when installed in the riprap or gabion. All stone shall be delivered and placed in a manner that will insure the stone 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. Stone for outfalls may be placed by equipment. Riprap or gabion outfalls shall be constructed to full course thickness in one operation and in such a manner as to avoid any displacement of underlying materials. The contractor shall avoid damage to the filter blankets or cloth during placement of riprap. Hand placement shall be required as needed to prevent damage to the permanent works. Filter cloth shall be placed under all riprap and gabions.

FENCE

Construction fencing in accordance with the State Highway Administration standard details 690.01 and 690.02. Use specifications for a 6" fence, substituting 42" fabric and 6" 0" line posts. Construct the fence in accordance with the SHA standard detail 690.01 with 42" fabric. The fabric used for the fence and gate must conform to AASHTO designation M19174. Dark vinyl coating is required for the fence posts and wire fabric in accordance with the landscape manual adopted by resolution 56-90, October 1, 1990. *3 Split rail (wood) fence is optional.

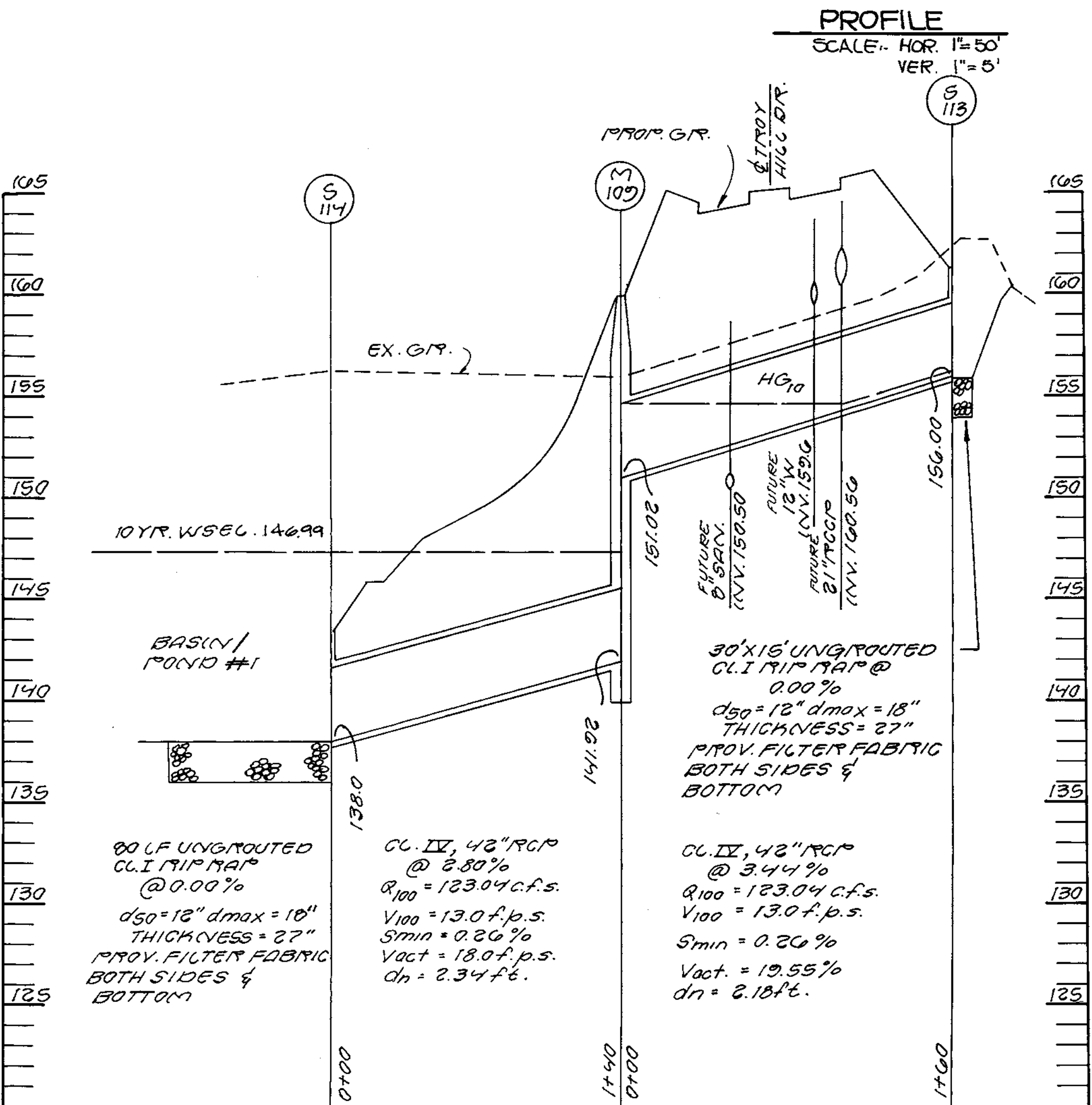
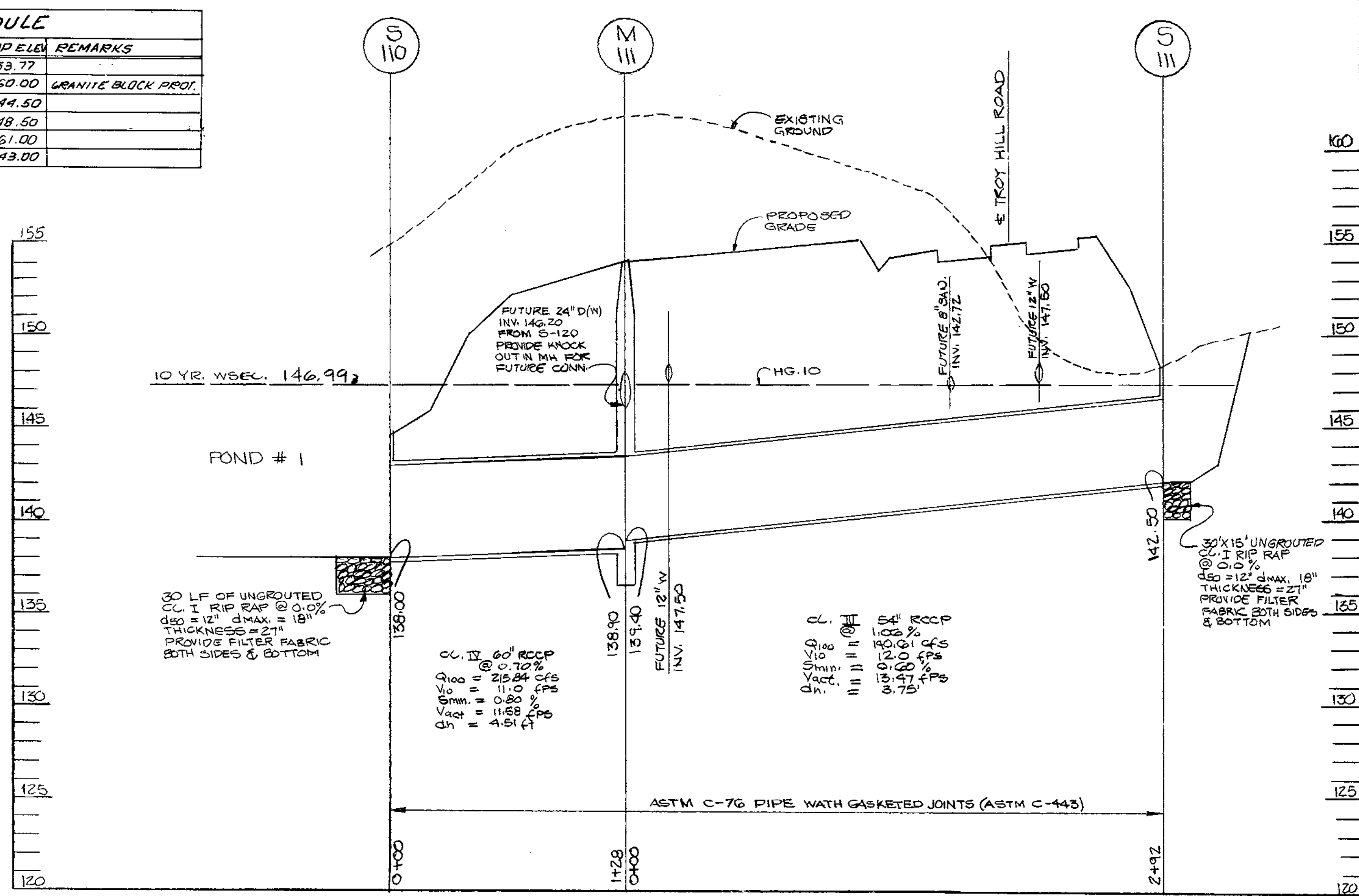
CUT-OFF TRENCH: THE CUT-OFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE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

IMPERVIOUS CORE: THE CORE SHALL BE FILLED ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE FILL SHALL BE GOVERNED BY THE EQUIPMENT USED, WITH MINIMUM WIDTH BEING FOUR FEET. THE TOP WIDTH SHALL BE SHOWN ON THE PLAN. THE SIDE SLOPES OF THE FILL SHALL BE 1:1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS OR HAND TAMPERS TO ASSURE MAX PERMEABILITY.



NOTE:
 1. LOCATE 2' MIN. FROM ALL PIPE JOINTS.
 2. ALL MATERIAL TO BE IN ACCORDANCE WITH CONSTRUCTION AND CONSTRUCTION MATERIALS SPECIFICATIONS.
 3. THE SEAL BETWEEN THE PIPE AND COLLAR SHALL BE WATER TIGHT.
 4. COLLAR SHALL PROJECT A MIN. OF 2.0' FROM THE EXTERIOR OF THE CONCRETE CRADLE AND THE PIPE ON ALL FOUR SIDES.

STRUCTURE SCHEDULE					
NO	TYPE	INV. IN	INV. OUT	TOP ELEV	REMARKS
M-111	H.C. STD 6.503 BRICK MW	148.50	138.00	153.77	
M-109	H.C. STD 6.503 BRICK MW	151.02	141.92	160.00	GRANITE BLOCK PROT.
S-110	H.C. STD 30 5.51 60" 10		138.00	144.50	
S-111	H.C. STD 30 5.51 34" 10	148.50		148.50	
S-113	H.C. STD 30 5.51 48" 10		156.00	161.00	
S-114	H.C. STD 30 5.51 60" 10		138.00	143.00	



SUBDIVISION NAME				SECTION NAME		PARCEL #	
TROY HILL CORPORATE CENTER				I		A-2	
PLAT #	BLOCK #	ZONE	TAX MAP	ELECT. DIST.	CENSUS TRACT		
12428		M-1	37	1st	6011.02		
WATER CODE				SEWER CODE			
CW4				4020000			

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
Building #3	Troy Hill Drive
Building #4	Troy Hill Drive

SEDIMENT BASIN, DETAILS & NOTES FOR TROY HILL CORPORATE CENTER PHASE 2		
HOWARD COUNTY, MARYLAND 1st ELECTION DISTRICT	SHEET 10 of 13	SCALE: AS SHOWN JUNE 15, 1998

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson, Maryland 21204
 (410) 825-8120

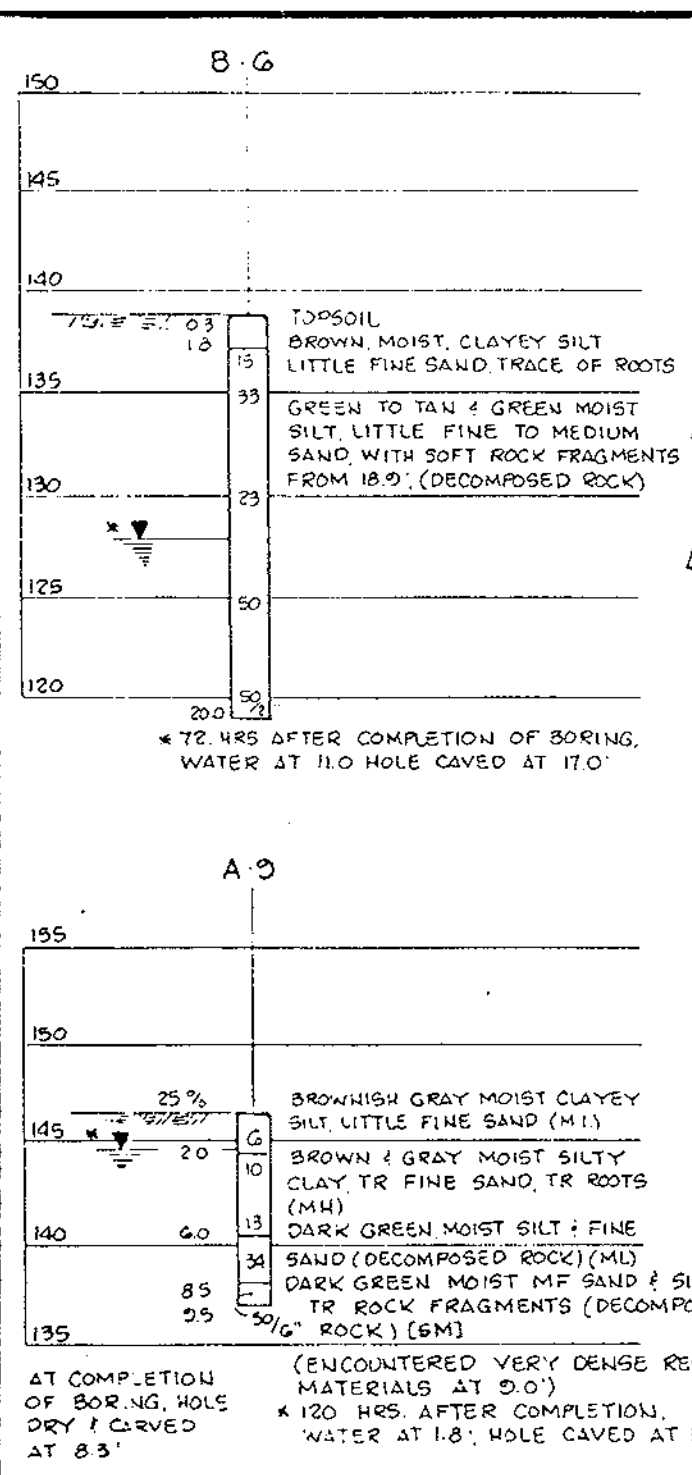
ENGINEER CERTIFICATION:
 I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I 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.
 Engineer: *James A. Markle Jr.* P.E. # 11005
 Name: JAMES A. MARBLE JR. Date: 6/16/98

OWNER/DEVELOPER
 TROY HILL BUSINESS PARK PARTNERSHIP
 c/o MANEKIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (410) 290-1400

DEVELOPER CERTIFICATION:
 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 Dept. of the Environment Approved Training Program for the Control of Sediments and Erosion before beginning the project. I shall engage a 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.
 Developer: *David E. Maurer* Date: 6/16/98
 Name: David E. Maurer

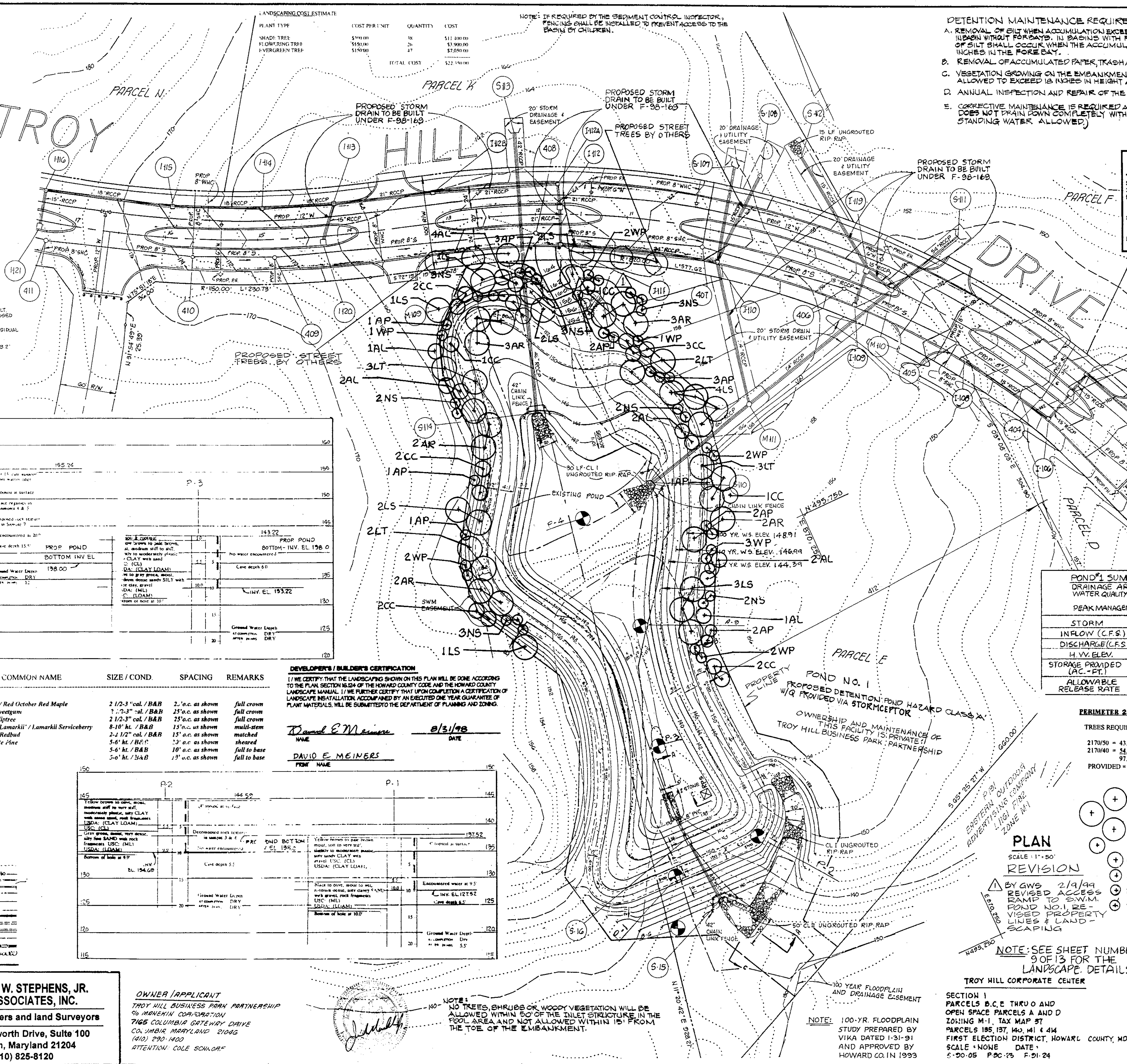
CONSULTANT'S HAZARD CLASS CERTIFICATION:
 I certify that this pond meets all requirements for hazard class B or C. (Requirements as stated in the Soil Conservation Service - Maryland Standards and Specifications for Pond, Code 378, November 1992). All necessary investigations and computations have been performed to verify this finding. A copy of said information has been supplied to Howard County Soil Conservation District.
 Signature: *James A. Markle Jr.* P.E. # 11005
 Name: JAMES A. MARBLE JR. Date: 6/16/98

SEDIMENT BASIN, DETAILS & NOTES FOR TROY HILL CORPORATE CENTER PHASE 2
 HOWARD COUNTY, MARYLAND
 1st ELECTION DISTRICT
 SHEET 10 of 13
 SCALE: AS SHOWN
 JUNE 15, 1998
 SDP-98-140



BORING NO.	DEPTH (IN)	SOIL DESCRIPTION	WATER TABLE ELEVATION (FT)
B-1	0-3	Brown moist clayey silt	
B-1	3-10	Green to tan green moist silt	
B-1	10-25	Dark green moist silt	
B-1	25-30	Dark green moist fine sand	
B-2	0-3	Brownish gray moist clayey silt	
B-2	3-10	Brown to gray moist silty clay	
B-2	10-25	Dark green moist silt	
B-2	25-30	Dark green moist fine sand	
B-3	0-3	Brownish gray moist clayey silt	
B-3	3-10	Brown to gray moist silty clay	
B-3	10-25	Dark green moist silt	
B-3	25-30	Dark green moist fine sand	

KEY	QUANT.	BOTANICAL NAME / COMMON NAME	SIZE / COND.	SPACING	REMARKS
TREES					
AR	12	Acer rubrum 'Red October' / Red October Red Maple	2 1/2-3" cal. / B&B	2' o.c. as shown	full crown
LS	10	Liquidambar styraciflua / Sweetgum	2 1/2-3" cal. / B&B	25' o.c. as shown	full crown
LT	10	Liriodendron tulipifera / Tuliptree	2 1/2-3" cal. / B&B	25' o.c. as shown	full crown
AL	12	Amelanchier canadensis / Lamarkii Serviceberry	3-10" ht. / B&B	15' o.c. as shown	multi-stem
CC	14	Cercis canadensis / Eastern Redbud	2-1 1/2" cal. / B&B	15' o.c. as shown	matched
WP	13	Pinus strobus / Eastern White Pine	5-6" ht. / B&B	3' o.c. as shown	sheared
NS	10	Picea abies / Norway Spruce	5-6" ht. / B&B	10' o.c. as shown	full to base
AP	10	Pinus nigra / Austrian Pine	5-6" ht. / B&B	10' o.c. as shown	full to base



PREPARED BY: **GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120

OWNER/APPLICANT: **TROY HILL BUSINESS PARK PARTNERSHIP**
50 MARIETTA CORPORATION
7165 COLUMBIA GATEWAY DRIVE
CO. JIMMIE MARYLAND 21046
(410) 290-1400
ATTENTION: COLE SCHAFF

SECTION 1 PARCELS B,C,E THRU O AND OPEN SPACE PARCELS A AND D ZONING M-1, TAX MAP 97 PARCELS 195,197, 190, 141 & 144 FIRST ELECTION DISTRICT, HOWARD COUNTY, MD. SCALE: NONE DATE: 5-20-05 P.C. 03 F. 01-24

Linear Feet of Perimeter	2170'
Number of Trees Required	43.4
Shade Trees	24.2
Evergreen Trees	NO
Credits for Existing Vegetation (No. Yes, 50%)	NO
Credits for Other Landscaping (No. Yes, 25%)	NO
Number of Trees Provided	39
Shade Trees	26/15
Evergreen Trees	
Other Trees (1:1 substitution)	

CONSULTANT'S HAZARD CLASS CERTIFICATION
I certify that this pond meets all requirements for hazard class (A, B, or C). [Requirements as stated in the SOIL CONSERVATION SERVICE - MARYLAND STANDARDS AND SPECIFICATIONS FOR POND, CODE 378, NOVEMBER 1992.] All necessary investigations and computations have been performed to verify this finding. A copy of said information has been supplied to Howard County Soil Conservation District.
Signature: *J. Marshall* MD License No.: 11005 Date: 9/14/98
Print Name: *JAMES A. MARKE JR.*

DEVELOPER CERTIFICATION
I/WE certify that all development and construction will be done according to this plan, and that any responsible person involved in the development of this project must obtain and maintain a permit from the Department of Sediment and Erosion before beginning the project. I/WE authorize periodic on-site inspection by the Howard County Soil Conservation District.
Developer Name: *David E. Meiners* Date: *9/14/98*
Developer: *DAVID E. MEINERS*

ENGINEER CERTIFICATION
I/WE certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard County Soil Conservation District.
Engineer: *JAMES A. MARKE JR.* Date: *9/14/98*
Name: PE # *11005*

STORM	2-YR.	10-YR.	100-YR.
INFLOW (C.F.S.)	147.78	254.36	381.26
DISCHARGE (C.F.S.)	12.74	27.61	153.23
H. VV. ELEV.	144.34	146.99	148.91
STORAGE PROVIDED (AC.-FT.)	5.6	9.5	13.0
ALLOWABLE RELEASE RATE	66.07	164.47	N/A

TREES REQUIRED	PROVIDED
2170/50 = 43.4	98
2170/40 = 54.2	
97.6	
PROVIDED = 98	

These plans for S.W.M. construction soil erosion and sediment control meet the requirements of Howard County Soil Conservation District.

APPROVED: HOWARD SOIL CONSERVATION DISTRICT
John R. Robertson 1/4/99
PLAN NUMBER: LS-16 DATE: 1/4/99

Reviewed for the Howard Conservation District and meets technical requirements.
Cheryl Simmons 1/4/99
NATURAL RESOURCES CONSERVATION SERVICE DATE: 1/4/99

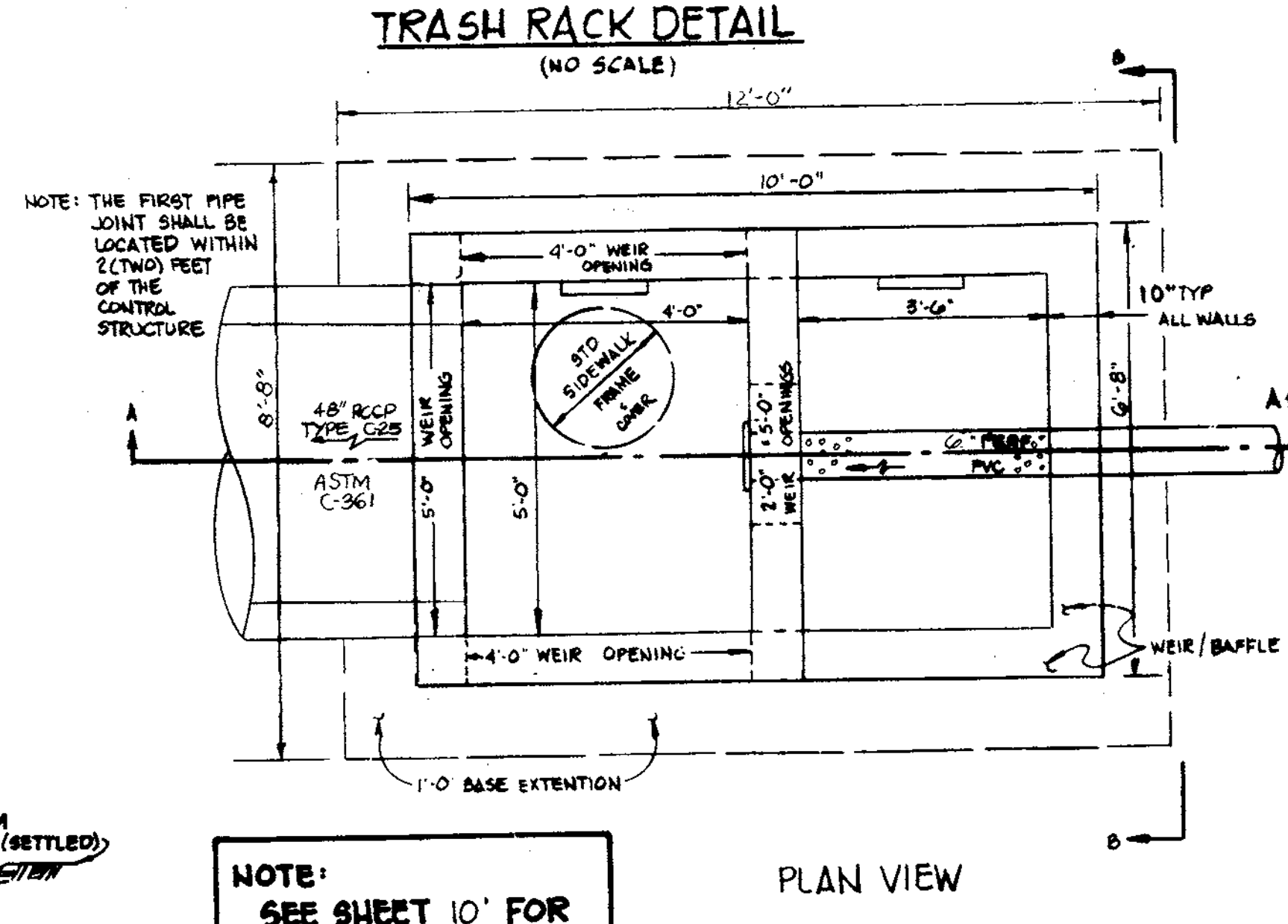
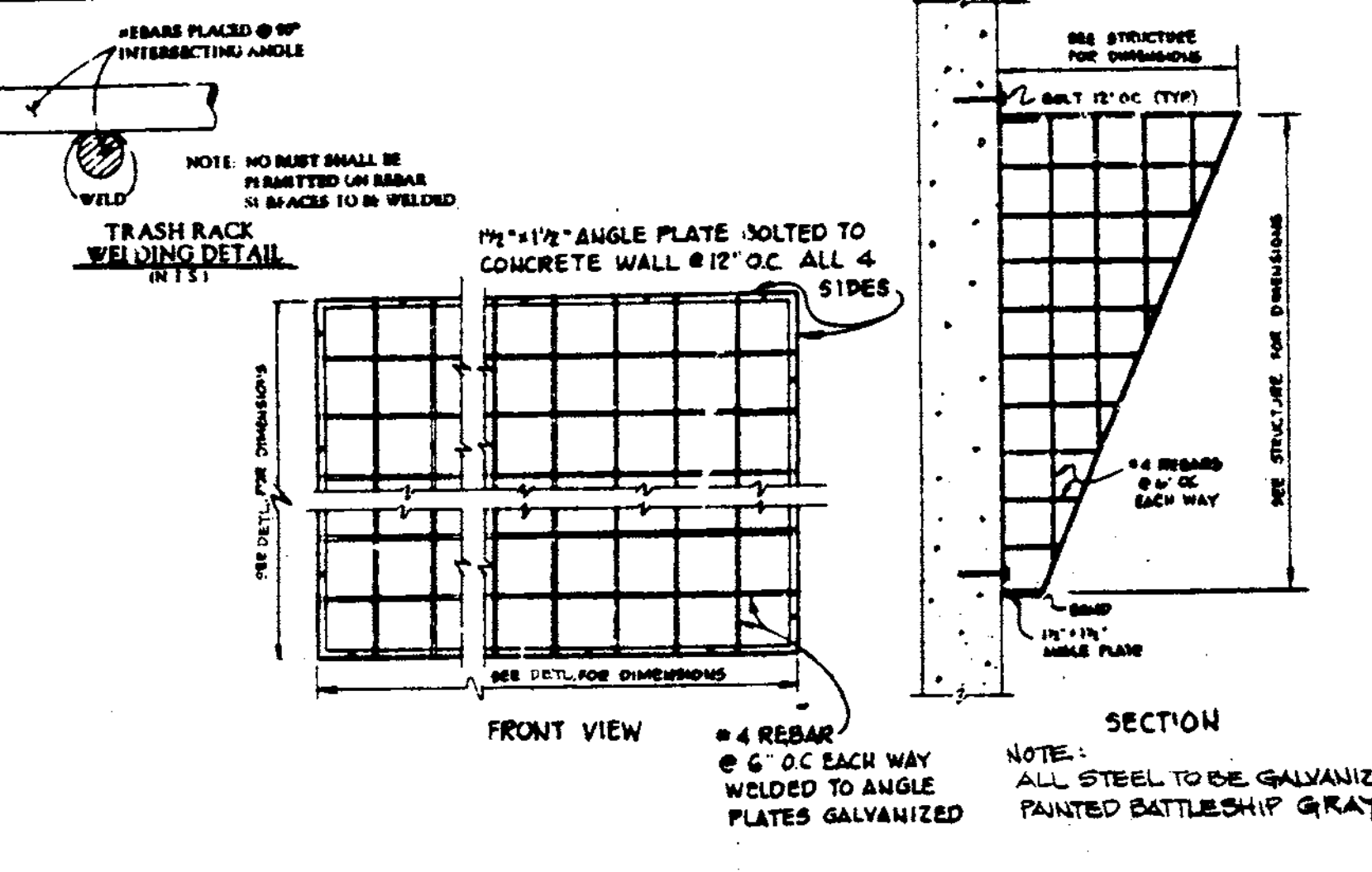
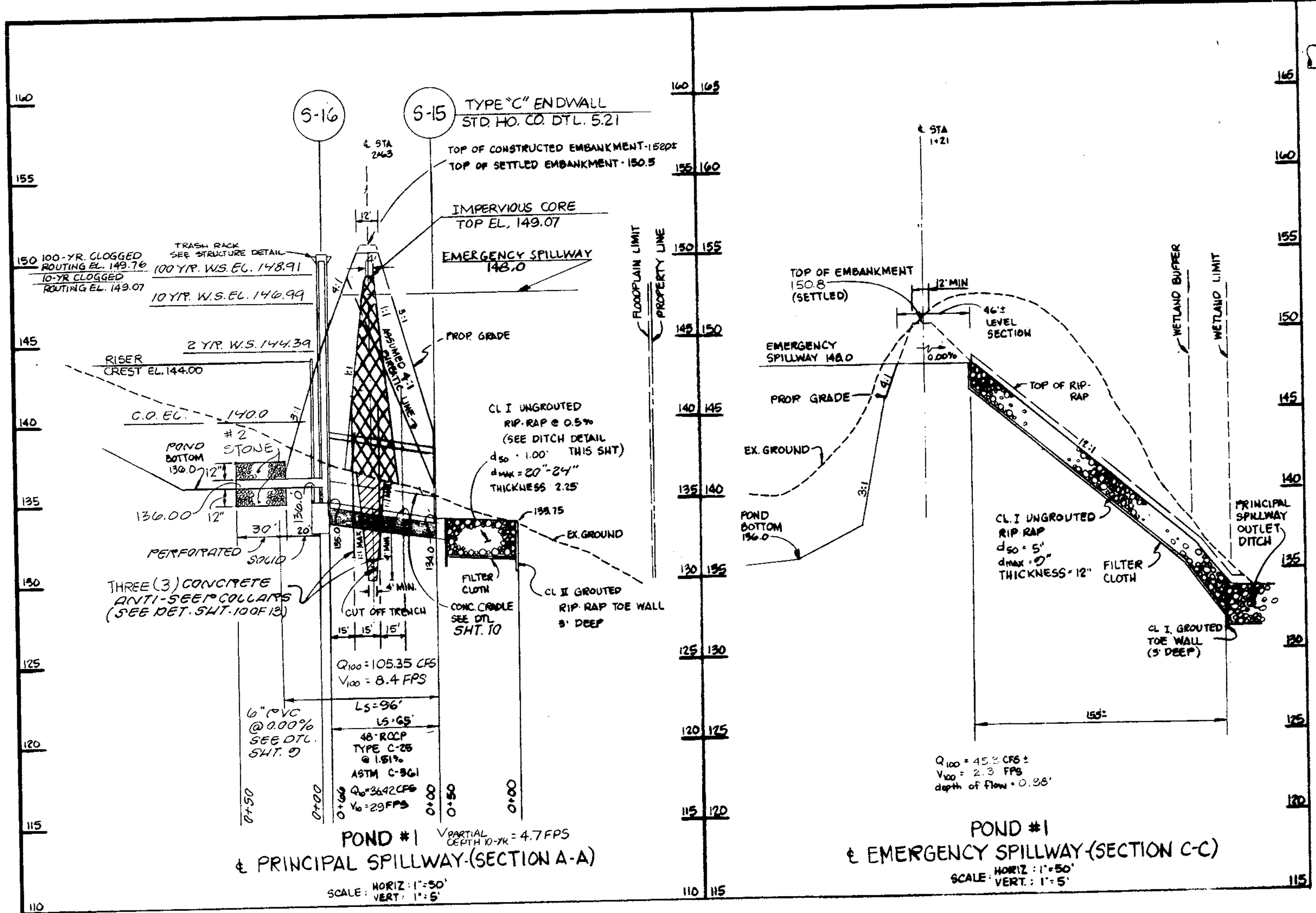
APPROVED: Howard County Department of Planning and Zoning
John P. ... 1/6/99
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 1/6/99

Andy Hamilton 1/12/99
CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 1/12/99

David ... 1/12/99
DIRECTOR DATE: 1/12/99

STORM WATER MANAGEMENT - POND #1 AND LANDSCAPE PLAN
TROY HILL CORPORATE CENTER
PHASE IIB PARCEL A-4

ELECTION DISTRICT: 1st HOWARD CO., MARYLAND SHT. 11 OF 13 SCALE: As Shown DATE: JUNE 15, 1998

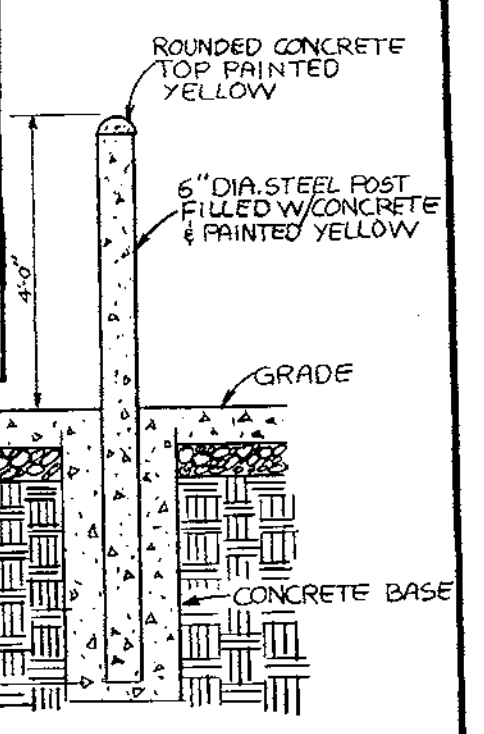


DEVELOPER CERTIFICATION
I/We certify that all development under construction was done according to these plans, and that any reasonably personnel involved in the construction project will have a Certificate of Attendance as a Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a 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.

Developer: David E. Memis Date: 4/14/99
Name: David E. Memis

ENGINEER CERTIFICATION
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.

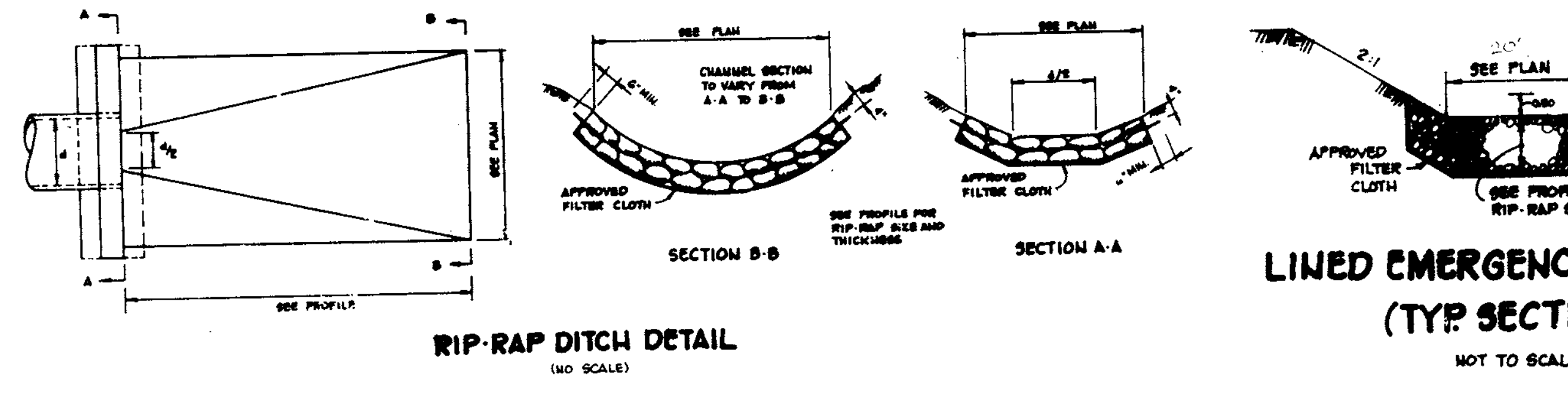
Engineer: James A. ... P.E. # 10025 Date: 4/14/99
Name: JAMES A. ...



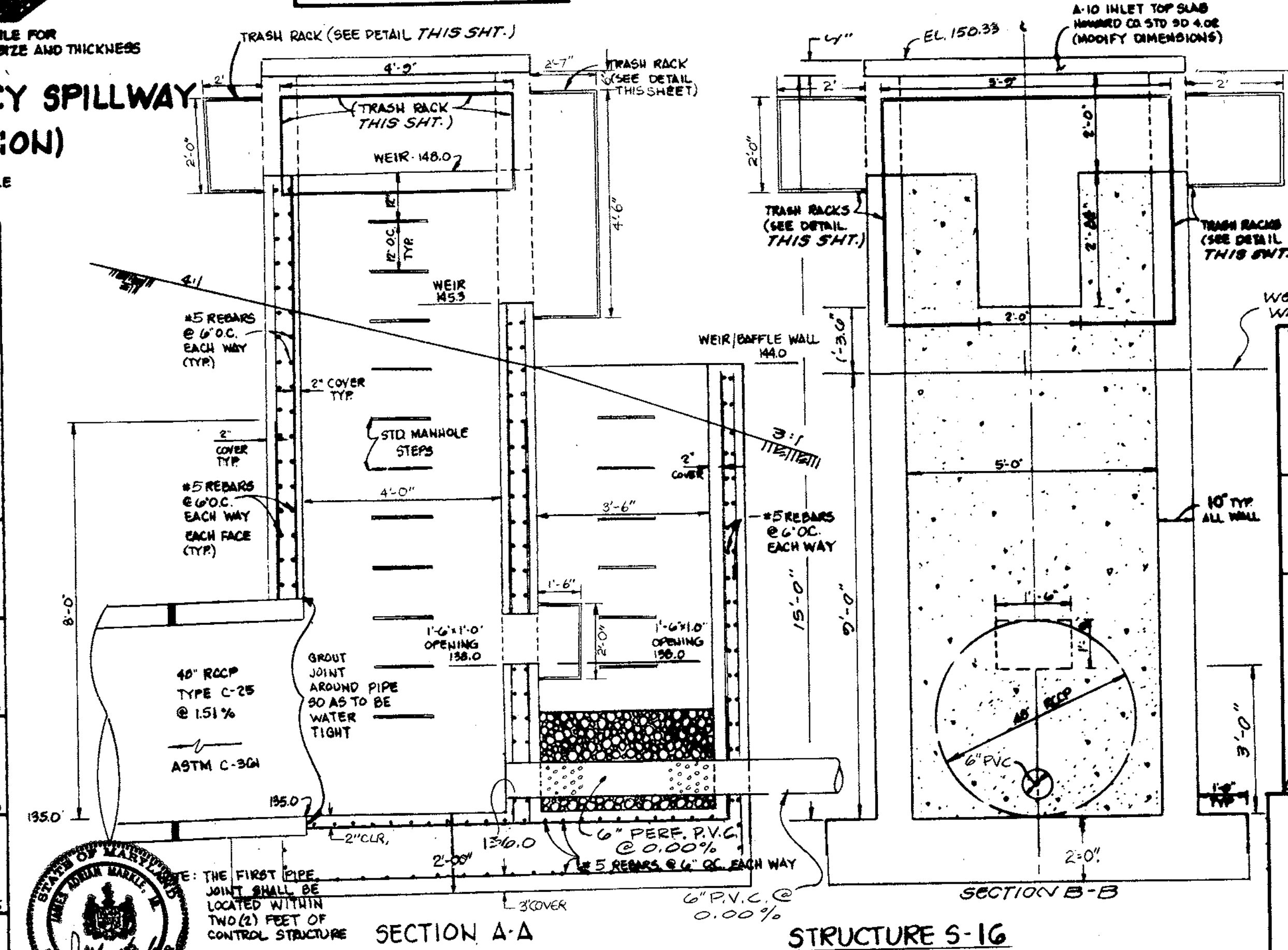
PREPARED BY:
DESIGNED BY: P.A.C.
DRAWN BY: A.S.
CHECKED BY: P.A.C.
REVISIONS

OWNER/DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

GEORGE W. STEPHENS, JR.
AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
668 Kenilworth Drive, Suite 100
Towson, Maryland 21284
(410) 825-8120



NOTE: SEE SHEET 10' FOR POND CONSTRUCTION SPECIFICATIONS



These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

John P. Robertson
APPROVED: HOWARD SOIL CONSERVATION DISTRICT
DATE: 1/4/99

PLAN NUMBER
Revised for the Howard Conservation District and meets technical requirements for small pond construction, soil erosion and sediment control.

Sheila Simmons
USDA-NATURAL RESOURCES CONSERVATION SERVICE
DATE: 1/11/99

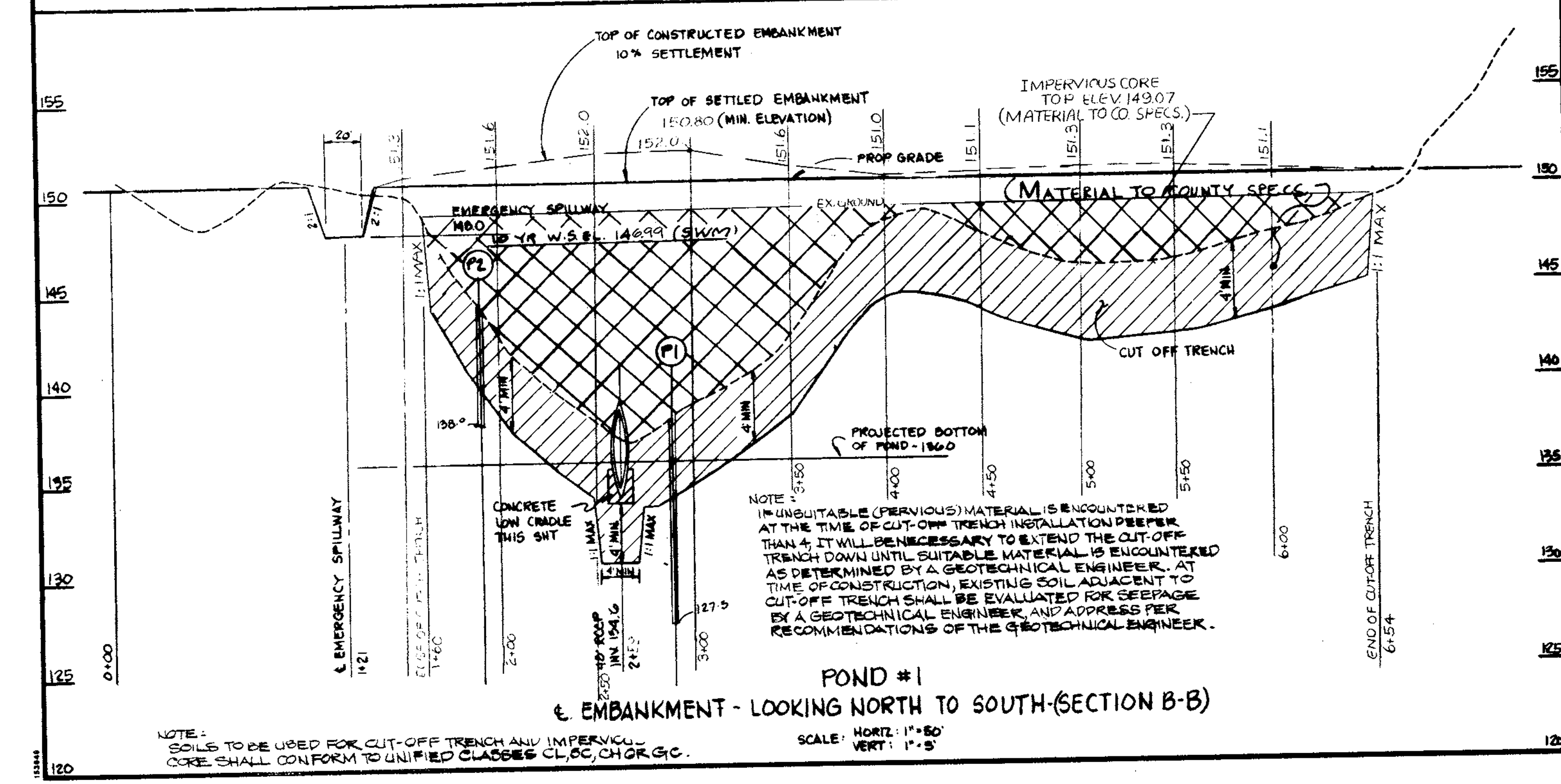
APPROVED: Howard County Department of Planning and Zoning
Chris ...
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1/6/99

Wanda Hamilton
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1/11/99

James A. ...
DIRECTOR
DATE: 1/12/99

SECTIONS & DETAILS - S.W.M. POND #1 FOR TROY HILL CORPORATE CENTER PHASE IIB PARCEL A-4

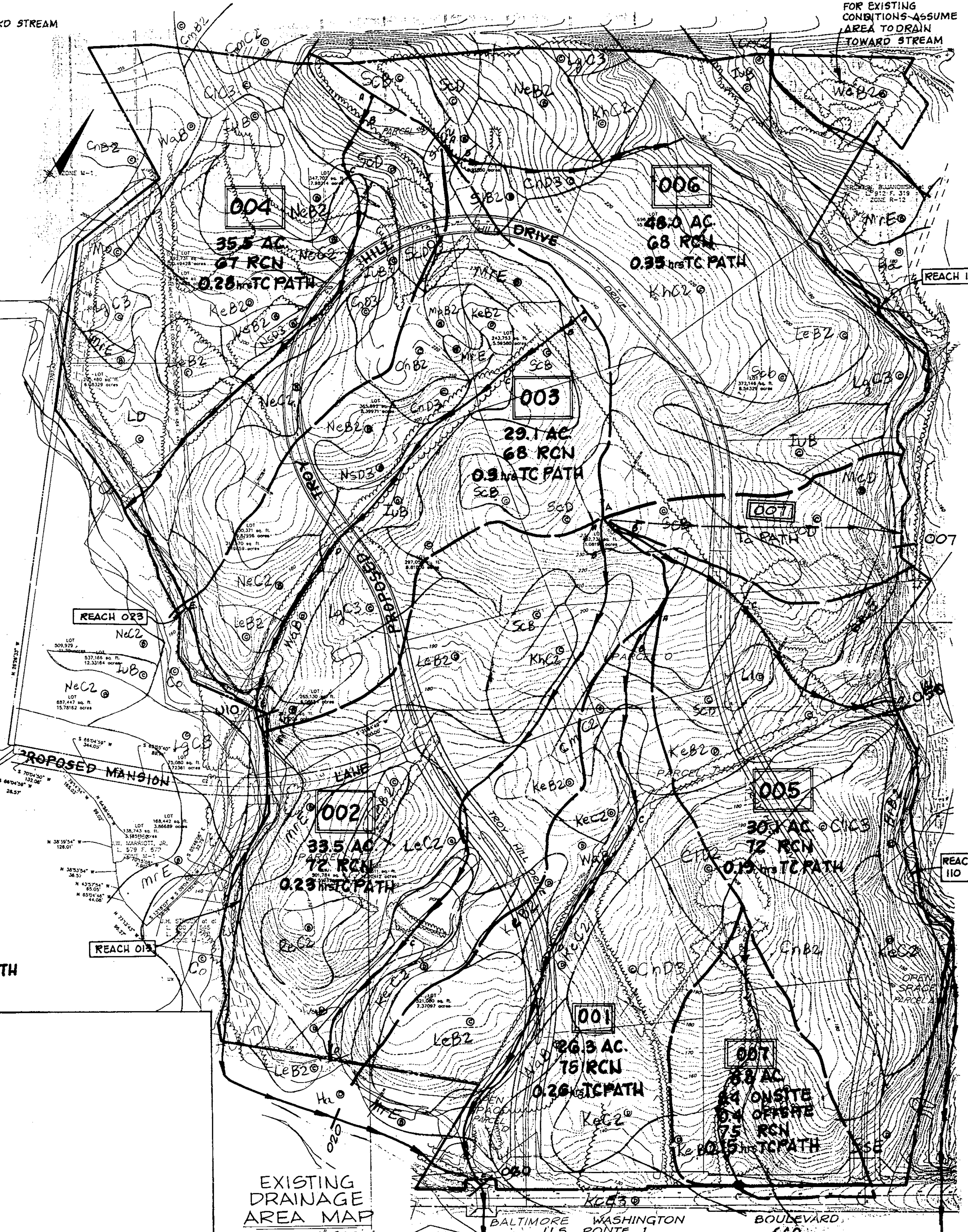
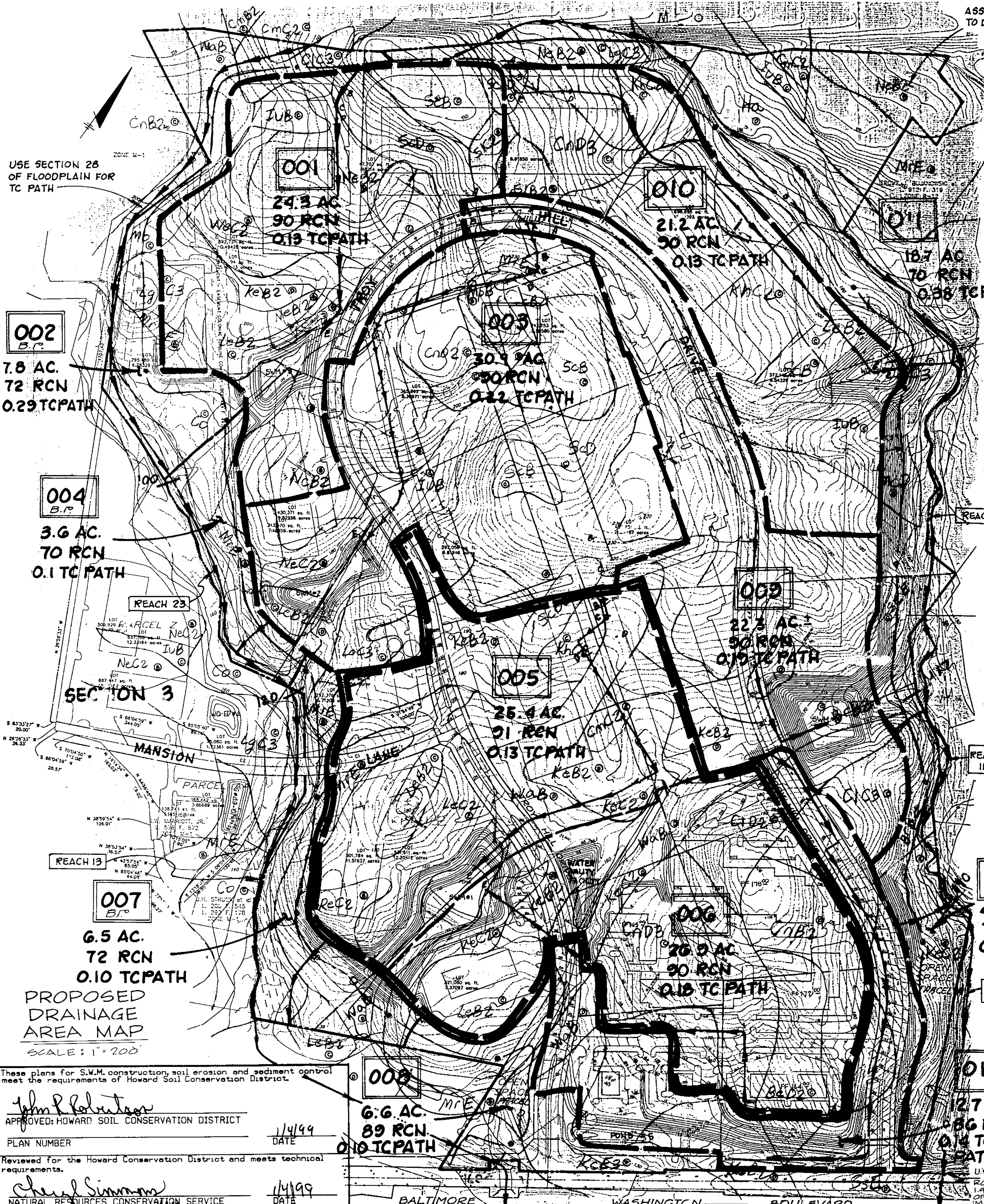
ELECTION DISTRICT: 1st HOWARD CO., MARYLAND SHT. 12 OF 13 SCALE: As Shown DATE: JUNE 15, 1998



USE SECTION 28 OF FLOODPLAIN FOR TC PATH

ASSUME AREA TO DRAIN TOWARD STREAM

FOR EXISTING CONDITIONS ASSUME AREA TO DRAIN TOWARD STREAM



These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

John P. Robertson
APPROVED: HOWARD SOIL CONSERVATION DISTRICT

PLAN NUMBER: 114199 DATE: 1/14/99

Reviewed for the Howard Conservation District and meets technical requirements.

Charles Simmons
NATURAL RESOURCES CONSERVATION SERVICE DATE: 1/14/99

APPROVED: Howard County Department of Planning and Zoning

John D. Simmons
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 1/16/99

Andis Hamilton
CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 1/17/99

David Rutter
DIRECTOR DATE: 1/18/99

000 6.6 AC. 89 RCN 0.10 TC PATH

001 24.3 AC 90 RCN 0.19 TC PATH

002 7.8 AC 72 RCN 0.29 TC PATH

003 30.4 AC 90 RCN 0.22 TC PATH

004 3.6 AC 70 RCN 0.1 TC PATH

005 25.4 AC 91 RCN 0.13 TC PATH

006 70.0 AC 90 RCN 0.18 TC PATH

007 6.5 AC 72 RCN 0.10 TC PATH

008 6.6 AC 89 RCN 0.10 TC PATH

009 22.3 AC 90 RCN 0.19 TC PATH

010 21.2 AC 90 RCN 0.19 TC PATH

011 18.7 AC 70 RCN 0.38 TC PATH

012 4.9 AC 76 RCN 0.1 TC PATH

013 12.7 AC 86 RCN 0.14 TC PATH

EXISTING DRAINAGE AREA MAP
SCALE: 1"=200'

ENGINEER
GEORGE WILLIAM STEPHENS JR. AND ASSOCIATES, INC.
658 KENILWORTH DRIVE SUITE 100 TOWSON, MARYLAND 21204 (301) 825-8120



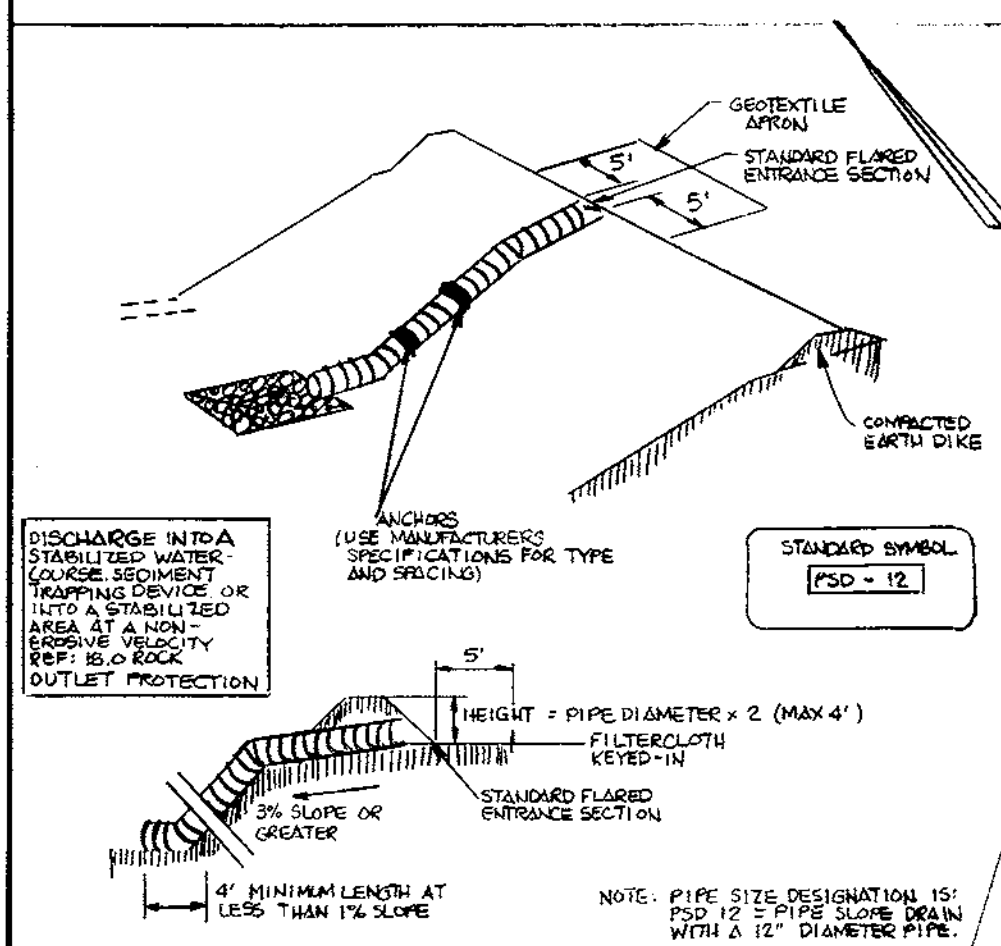
DESIGNED: DRAWN: CHECKED:	BY NO	REVISION	DATE

OWNER/DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
c/o MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

TROY HILL CORPORATE CENTER
PHASE 11B PARCEL A-4
STORMWATER MANAGEMENT
DRAINAGE AREA MAP
HOWARD COUNTY, MD. SCALE: AS SHOWN
ELECTION DISTRICT #1 DATE: 6-15-08
FILE NOS. S90-05, P90-25, F91-24

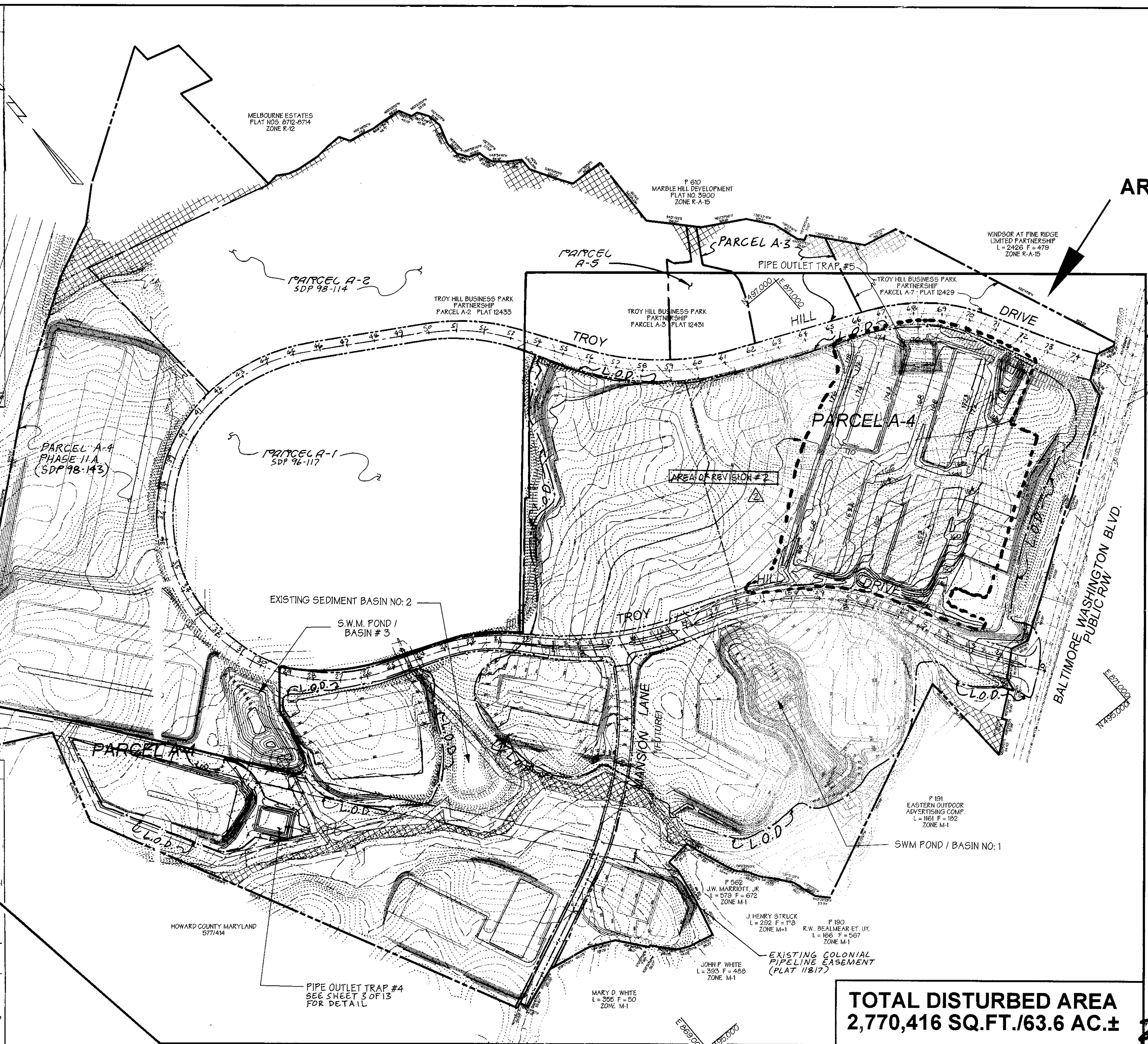
SCALE: AS SHOWN
SHEET NO. 13 OF 13

DETAIL 4-PIPE SLOPE DRAIN



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 6-5-4 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

AREA OF SUBMISSION



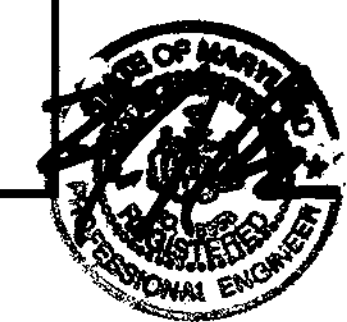
PIPE SLOPE DRAIN

- CONSTRUCTION SPECIFICATIONS - PIPE SLOPE DRAIN
- THE PIPE SLOPE DRAIN (PSD) SHALL HAVE A SLOPE OF 3 PERCENT OR STEEPER.
 - THE TOP OF THE EARTH DIKE OVER THE INLET PIPE SHALL BE AT LEAST 2 TIMES THE PIPE DIAMETER MEASURED AT THE INVERT OF THE PIPE.
 - FLEXIBLE TUBING IS PREFERRED; HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC CAN BE USED. ALL CONNECTIONS SHALL BE WATERTIGHT.
 - A FLARED END SECTION SHALL BE ATTACHED TO THE END OF PIPE WITH A WATER TIGHT CONNECTION FILTER CLOTH SHALL BE PLACED UNDER THE INLET OF THE PIPE SLOPE DRAIN AND SHALL EXTEND OUT 5' FROM THE INLET. THE FILTER CLOTH SHALL BE KEVED IN ON ALL SIDES.
 - THE PIPE SLOPE DRAIN SHALL BE SECURELY ANCHORED TO THE SLOPE BY STAKING AT THE GROMMETS PROVIDED SPACING FOR ANCHORS SHALL BE AS PROVIDED BY MANUFACTURERS SPECIFICATIONS. IN NO CASE SHALL LESS THAN TWO (2) ANCHORS BE PROVIDED, EQUALLY SPACED ALONG THE LENGTH OF PIPE THESE DETAILS SHOULD BE PROVIDED BY PIPE SUPPLIERS.
 - THE SOIL AROUND AND UNDER THE PIPE AND END SECTION SHALL BE HAND TAMPED IN 4 INCH LIFTS TO THE TOP OF THE EARTH DIKE.
 - ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.
 - WHENEVER POSSIBLE WHERE A PSD DRAINS ON UNSTABILIZED AREA IT SHALL OUTLET INTO A SEDIMENT TRAP OR BASIN. IF THIS IS NOT POSSIBLE THEN THE SLOPE DRAIN WILL DISCHARGE INTO A STABLE CONVEYANCE THAT LEADS TO A SEDIMENT TRAP OR BASIN WHEN DISCHARGING INTO A TRAP OR BASIN THE PSD SHALL DISCHARGE AT THE SAME ELEVATION AS THE WET POOL ELEVATION. THE DISCHARGE FROM THE PSD MUST BE AS FAR AWAY FROM THE SEDIMENT CONTROL OUTLET AS POSSIBLE.
 - WHEN THE DRAINAGE AREA IS STABILIZED THE PSD SHALL DISCHARGE ONTO A STABILIZED AREA AT A NON-EROSIVE VELOCITY.
 - INSPECTION AND ANY REQUIRED MAINTENANCE SHALL BE PERFORMED PERIODICALLY AND AFTER EACH RAIN EVENT.
 - THE INLET MUST BE KEPT OPEN AT ALL TIMES.

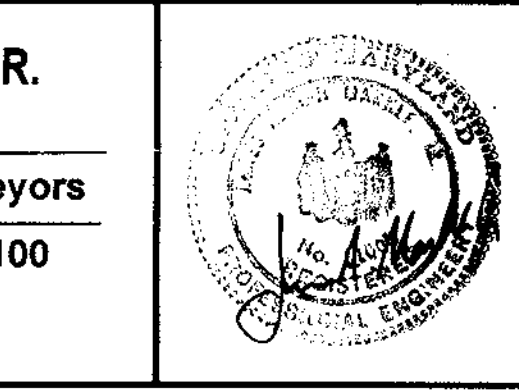
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 6-5-4 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

TOTAL DISTURBED AREA
2,770,416 SQ.FT./63.6 AC.±

PLAN
SCALE: 1" = 200'



PREPARED BY:
GWS
GEORGE W. STEPHENS, JR.
AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120



ENGINEER CERTIFICATION:
I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Engineer: James A. Marzke Jr. Date: 6/16/98
Name: JAMES A. MARZKE JR. PE # 11005

DEVELOPER CERTIFICATION:
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 also authorize periodic on-site inspection by the Howard Soil Conservation District.

Developer: David E. Meiners Date: 6/16/98
Name: DAVID E. MEINERS

OWNER / DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

DESIGNED BY: P.R.C.
DRAWN BY: A.S.
CHECKED BY: P.R.C.
REVISIONS:

DATE	REVISION	BY
7/14/00	CHANGE MASS GRADING CONTOURS + ADD PIPE SLOPE DETAIL (PIPE SLOPE DRAIN WAS PREVIOUSLY ADDED IN THE FIELD + CURRENTLY EXISTS AS A SED. CONT. MEASURE - SEE SHT. 4)	MATIS WARFIELD, INC.

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

APPROVED: HOWARD SOIL CONSERVATION DISTRICT
John R. Robertson 1/4/99
PLAN NUMBER DATE

Reviewed for the Howard Conservation District and meets technical requirements.
Cheryl Simmons 1/14/99
NATURAL RESOURCES CONSERVATION SERVICE DATE

APPROVED: Howard County Department of Planning and Zoning
Chris Dammer 1/10/99
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
Linda Hamada 1/11/99
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
David S. Rutter 1/12/99
DIRECTOR DATE

ADDRESS CHART
PARCEL NO. A-4 STREET ADDRESS 7020 TROY HILL DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
TROY HILL CORPORATE CENTER	N/A	A-4

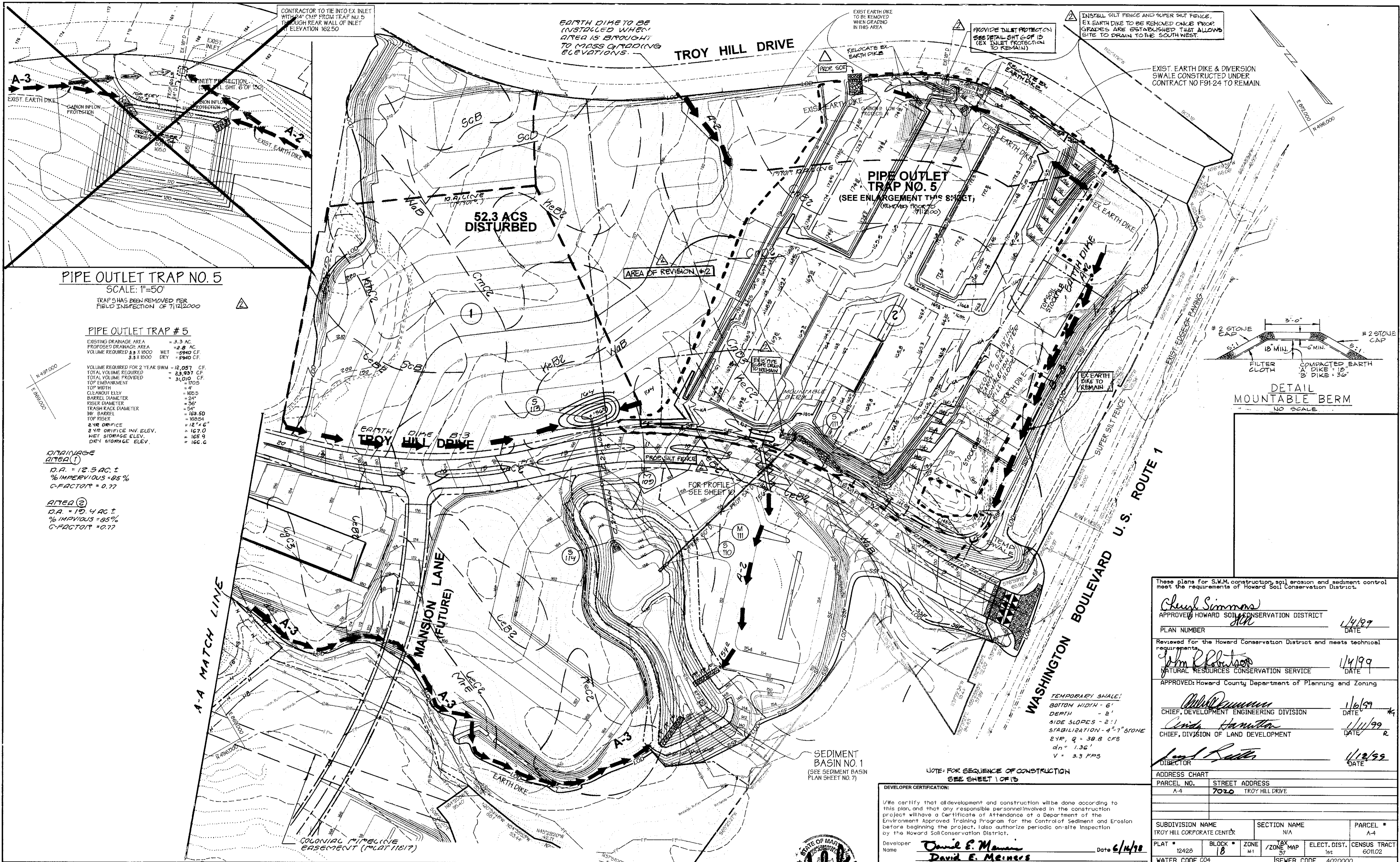
PLAT #	BLOCK #	ZONE	TAX MAP / ZONING MAP	ELECT. DIST.	CENSUS TRACT
12428	12	M-1	37	1st	601102

WATER CODE C04 SEWER CODE 4020000

OVERALL MASS GRADING PLAN (1=200')
FOR
TROY HILL CORPORATE CENTER
PHASE 11B PARCEL A-4

ELECTION DISTRICT: 1st HOWARD CO., MARYLAND SHT. 2 OF 13 SCALE: As Shown DATE: JUNE 15, 1998

SDP 98-149



PIPE OUTLET TRAP NO. 5
SCALE: 1"=50'

TRAP 5 HAS BEEN REMOVED PER FIELD INSPECTION OF 7/12/2000

PIPE OUTLET TRAP # 5

EXISTING DRAINAGE AREA = 3.3 AC
 PROPOSED DRAINAGE AREA = 2.8 AC
 VOLUME REQUIRED 3.3 X 1800 WET = 5940 CF
 3.3 X 1500 DRY = 4950 CF

VOLUME REQUIRED FOR 2 YEAR SWM = 12,057 CF
 TOTAL VOLUME REQUIRED = 23,997 CF
 TOTAL VOLUME PROVIDED = 3,010 CF
 TOP EMBANKMENT = 1705
 TOP WIDTH = 4'
 CLEANOUT ELEV. = 165.5
 BARREL DIAMETER = 24"
 RISER DIAMETER = 36"
 TRASH RACK DIAMETER = 54"
 INV. BARREL = 163.50
 TOP RISER = 168.54
 2 YR ORIFICE = 12" x 6"
 2 YR ORIFICE INV. ELEV. = 167.0
 NET STORAGE ELEV. = 165.9
 DRY STORAGE ELEV. = 166.6

DRAINAGE AREA (1)
 D.A. = 12.3 AC ±
 % IMPERVIOUS = 85%
 C-FACTOR = 0.77

AREA (2)
 D.A. = 19.4 AC ±
 % IMPERVIOUS = 85%
 C-FACTOR = 0.77

EARTH DIKE TO BE INSTALLED WHEN AREA IS BROUGHT TO MASS GRADING ELEVATIONS.

PROVIDE DILUT PROTECTION SEE DETAIL SHIT 6 OF 13 (EX DILUT PROTECTION TO REMAIN)

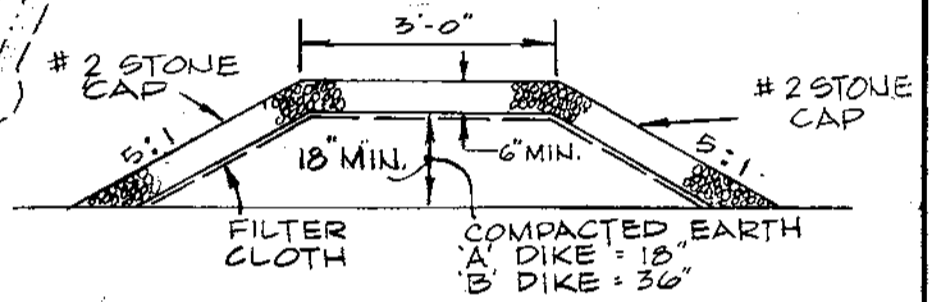
INSTALL SILT FENCE AND SUPER SILT FENCE. EX. EARTH DIKE TO BE REMOVED ONCE PROOF GRADES ARE ESTABLISHED THAT ALLOWS SITE TO DRAIN TO THE SOUTH WEST.

EXIST. EARTH DIKE & DIVERSION SWALE CONSTRUCTED UNDER CONTRACT NO F91-24 TO REMAIN.

PIPE OUTLET TRAP NO. 5
(SEE ENLARGEMENT THIS SHEET)
(REVISED PROJECT 7/12/00)

AREA OF REVISION #2

52.3 ACS DISTURBED



DETAIL MOUNTABLE BERM
NO SCALE

These plans for S.W.M. construction soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

APPROVED: <i>Cheryl Simmons</i> HOWARD SOIL CONSERVATION DISTRICT	DATE: 1/4/97
PLAN NUMBER: <i>HCN</i>	DATE: 1/4/97
Reviewed for the Howard Conservation District and meets technical requirements.	
APPROVED: <i>John Robertson</i> NATURAL RESOURCES CONSERVATION SERVICE	DATE: 1/4/99
APPROVED: Howard County Department of Planning and Zoning	
CHIEF, DEVELOPMENT ENGINEERING DIVISION: <i>William D. Simmons</i>	DATE: 1/6/99
CHIEF, DIVISION OF LAND DEVELOPMENT: <i>Chris Hamilton</i>	DATE: 1/11/99
DIRECTOR: <i>Paul R. Smith</i>	DATE: 1/12/99

DEVELOPER CERTIFICATION:	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 also authorize periodic on-site inspection by the Howard Soil Conservation District.	
Developer Name: <i>David E. Manier</i>	Date: 6/14/98	
OWNER / DEVELOPER: TROY HILL BUSINESS PARK PARTNERSHIP	DESIGNED BY: P.R.C.	DRAWN BY: A.S.
C/O MANEKIN CORPORATION	CHECKED BY: P.R.C.	REVISIONS:
7165 COLUMBIA GATEWAY DRIVE	7/14/00 - SEE EXPANATION TO LEFT	
COLUMBIA, MARYLAND 21046	7/14/00 - SEE EXPANATION TO LEFT	
410-290-1400	7/14/00 - SEE EXPANATION TO LEFT	

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson, Maryland 21204
 (410) 825-8120

ENGINEER CERTIFICATION:
 I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Engineer: *James A. Manier Jr.* Date: 6/14/98
 Name: *JAMES A. MANIER JR.* PE # 11005

PLAN SCALE: 1"=100'

7/14/00 REVISION #2 MASS GRADING CONTOURS AND ADD SILT FENCE AND STABILIZED CONSTRUCTION ENTRANCE BY: MATS WARFIELD, INC. 10540 YORK ROAD, SUITE M HUNT VALLEY, MD 21030 410-883-7004

NOTE: FOR SEQUENCE OF CONSTRUCTION SEE SHEET 1 OF 13

TEMPORARY SHALE: BOTTOM WIDTH - 6' DEPTH - 2' SIDE SLOPES - 2:1 STABILIZATION - 4" x 1" STONE 2 YR, Q > 38.8 CFS dn = 1.36' V = 3.3 FPS

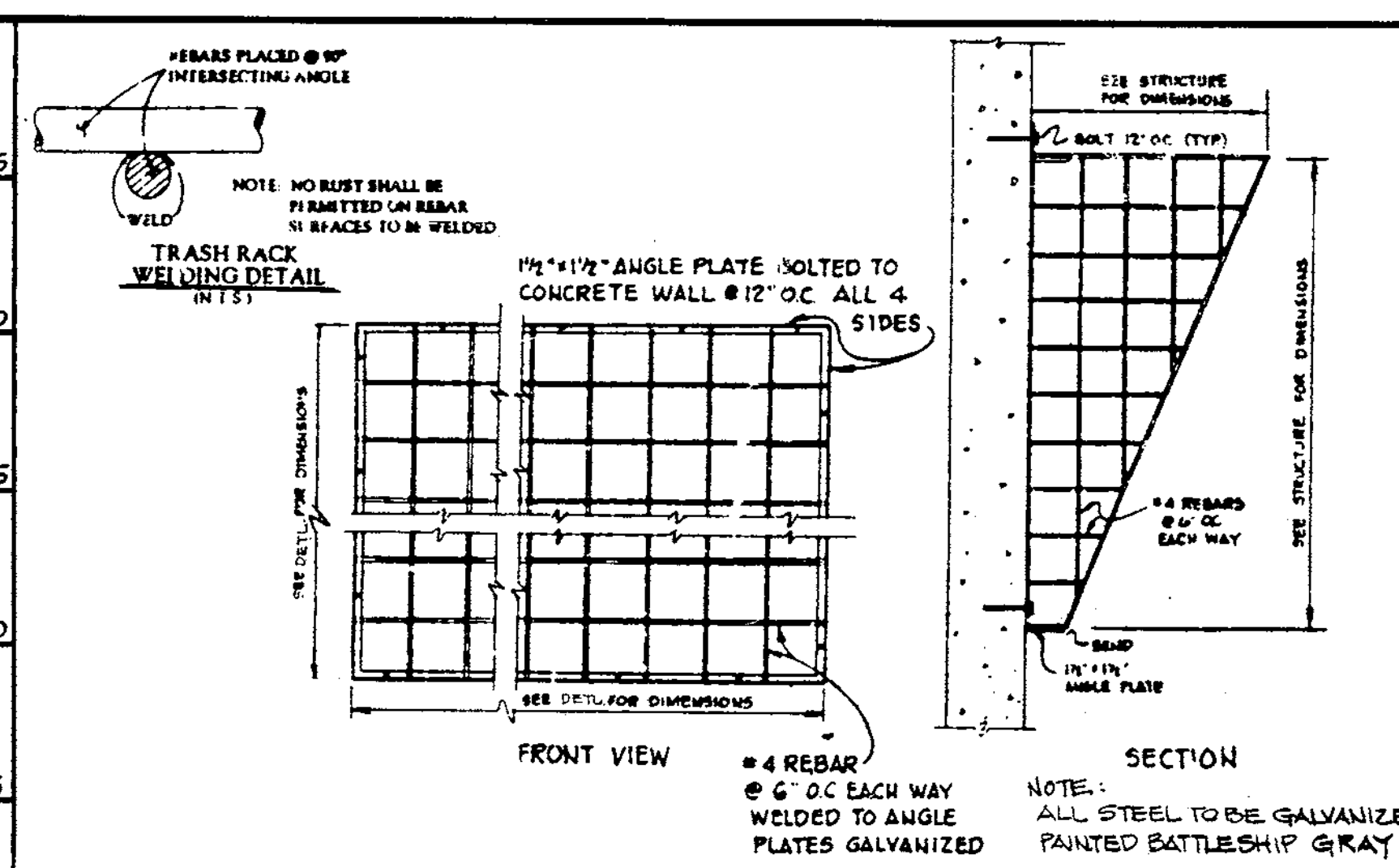
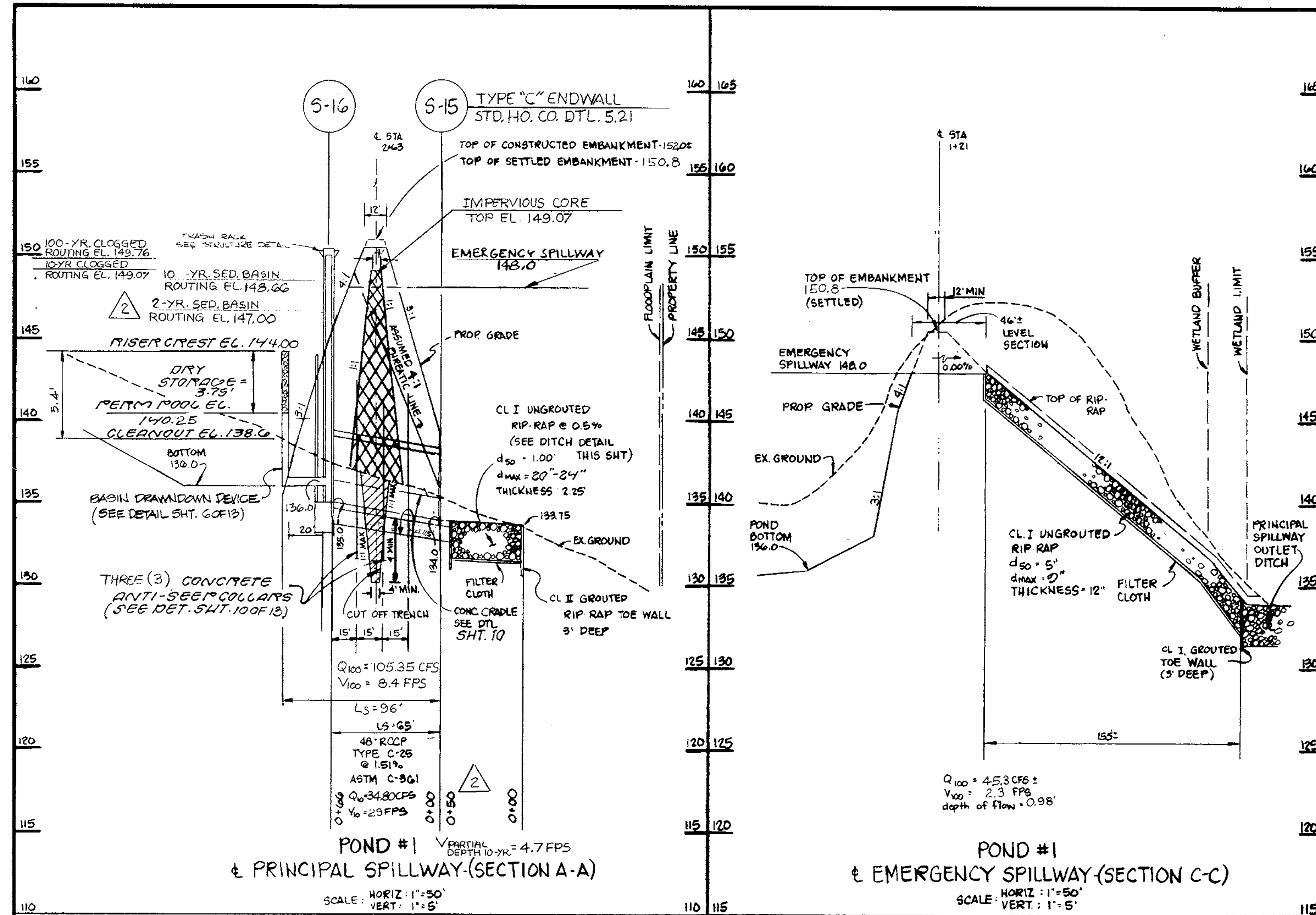
ADDRESS CHART

PARCEL NO. A-4	STREET ADDRESS 7020 TROY HILL DRIVE
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SUBDIVISION NAME TROY HILL CORPORATE CENTER	SECTION NAME N/A	PARCEL # A-4
PLAT # 1242B	BLOCK # 18	ZONE M1
TAX MAP / ZONE MAP	ELECT. DIST. 1st	CENSUS TRACT 601102
WATER CODE C04	SEWER CODE 4020000	

MASS GRADING SEDIMENT CONTROL PLAN
 FOR
TROY HILL CORPORATE CENTER
 PHASE IIB PARCEL A-4

ELECTION DISTRICT: 1st HOWARD CO., MARYLAND SHT. 4 OF 13 SCALE: As Shown DATE: JUNE 15, 1998



DEVELOPER CERTIFICATION:
I/We certify that all development and/or construction work done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance as a Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a 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.

Developer: David E. Mennis Date: 4/14/98
Name: David E. Mennis

ENGINEER CERTIFICATION:
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.

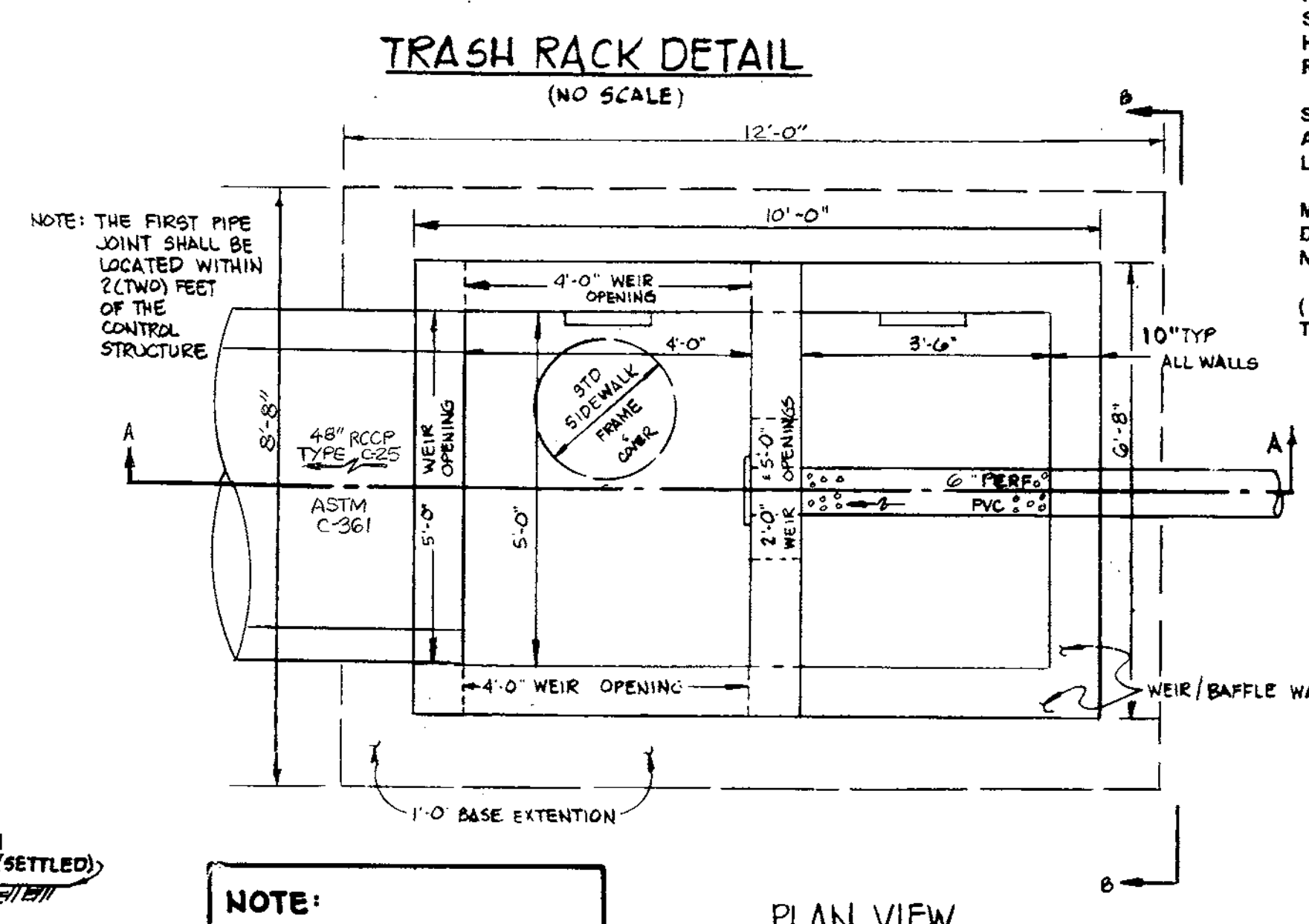
Engineer: James A. Marley, Jr. P.E. # 1005
Name: JAMES A. MARLEY, JR. Date: 4/14/98

PERFORATION DETAIL SEDIMENT BASIN #1

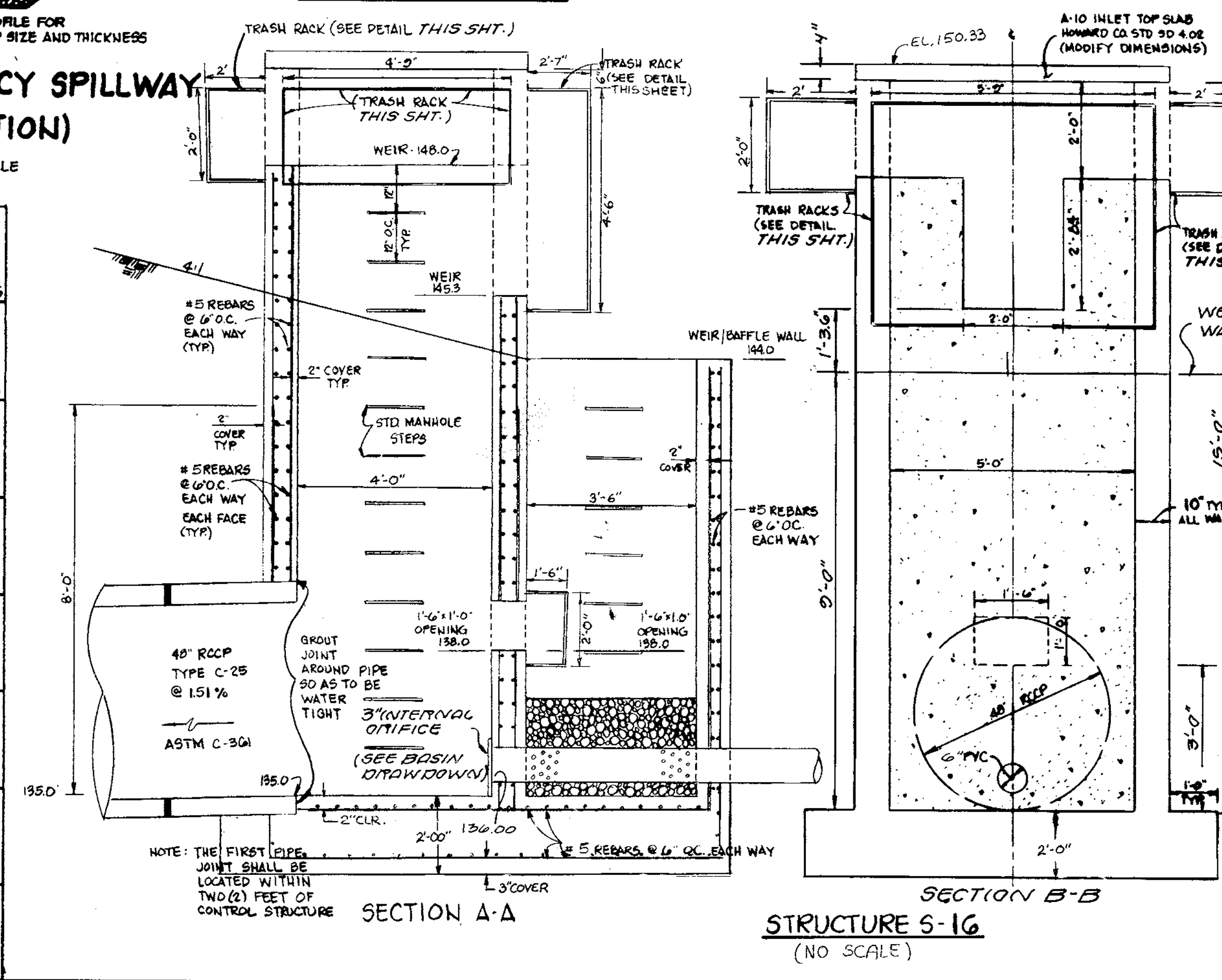
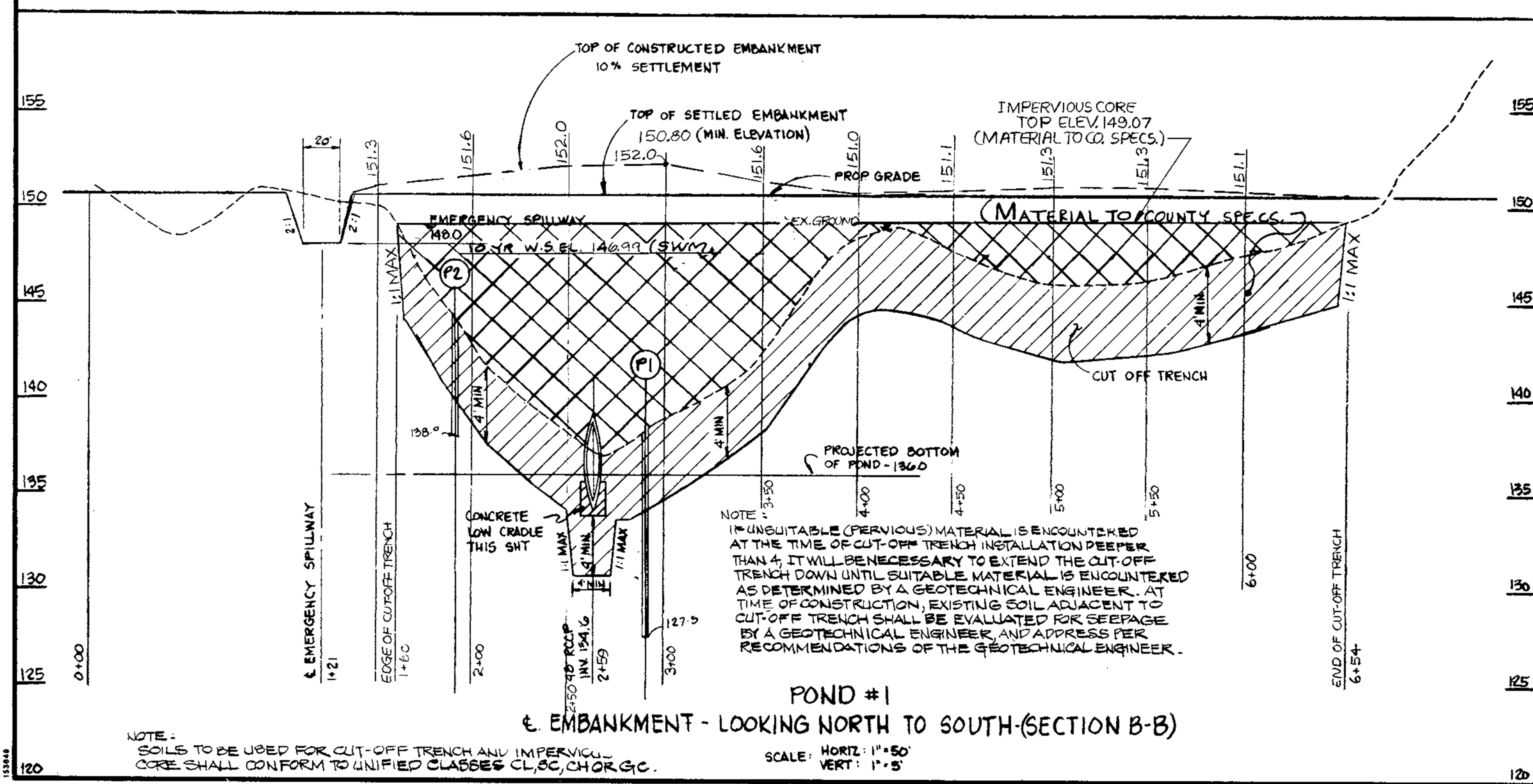
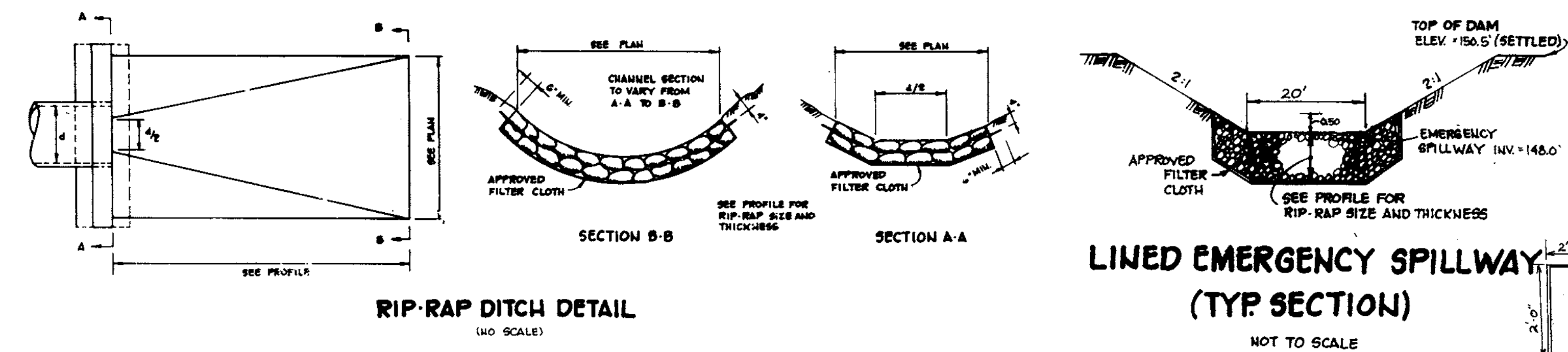
PERFORATED PIPE (AASHTO M-36) STANDARD PATTERN FOR PERFORATION HAS A MIN. THIRTY (30) 3/8" DIA. ROUND HOLES PER SQ. FT. OF PIPE SURFACE

SIZE OF PERFORATIONS	= 3/8" DIA.
AREA OF PERFORATION	= 0.00077 SQ. FT.
LENGTH OF PERFORATED SECTION OF PIPE	= 3.75 FT.
MAX. ORIFICE AREA (A)	= 0.048
DRAW-DOWN ORIFICE DIA.	= 3.0"
NUMBER OF PERFORATIONS PER LINEAR FOOT OF PIPE (TWO DOUBLE ROWS OF PERFORATIONS)	= 28 X 4 = 112
TOTAL AREA OF PERFORATIONS	= 0.32 SQ. FT.

- STRUCTURE SHALL BE CAST-IN-PLACE REINFORCED CONCRETE WITH 3,500 PSI STRENGTH @ 28 DAYS.
- ALL REINFORCING TO BE CONTINUOUS THROUGHOUT STRUCTURE.
- ALL REINFORCING TO HAVE 1'-4" MIN. OVERLAPS.
- PROVIDE ADDITIONAL #5 REBARS ALONG THE PERIMETER OF ALL OPENINGS IN THE STRUCTURE.
- TWO (2) INCH COVER (MIN) FOR ALL REBAR IN WALLS AND THREE (3) INCHES FOR THE BASE.
- REFER TO HOWARD COUNTY STANDARDS AND SPECIFICATIONS FOR STANDARD DETAILS AND SPECIFICATIONS OF ITEMS SHOWN ON DETAILS.
- REFER TO MD. 378 SPECIFICATIONS FOR PIPE AND STONE AGGREGATE DETAILS.
- ALL REINFORCED STEEL TO BE GALVANIZED



NOTE: SEE SHEET 10' FOR POND CONSTRUCTION SPECIFICATIONS



OWNER/DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

DESIGNED BY: P.C.
DRAWN BY: A.S.
CHECKED BY: P.C.
REVISIONS

DATE: 7/14/00
REV #2: CHANGE SEDIMENT BASIN WATER SURFACE DISCHARGE TO INCREASE IN D.A. FROM 52.3 TO 55.8 A.C. BY MATIS WARFIELD, INC. 10540 YORK RD. STEM-HUNT VALLEY, MD 21030

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

APPROVED: HOWARD SOIL CONSERVATION DISTRICT
PLAN NUMBER: _____ DATE: 1/19/99

Reviewed for the Howard Conservation District and meets technical requirements for small pond construction, soil erosion and sediment control.
APPROVED: USDA-NATURAL RESOURCES CONSERVATION SERVICE
DATE: 1/19/99

APPROVED: Howard County Department of Planning and Zoning
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1/16/99

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1/11/99

DIRECTOR
DATE: 1/12/99

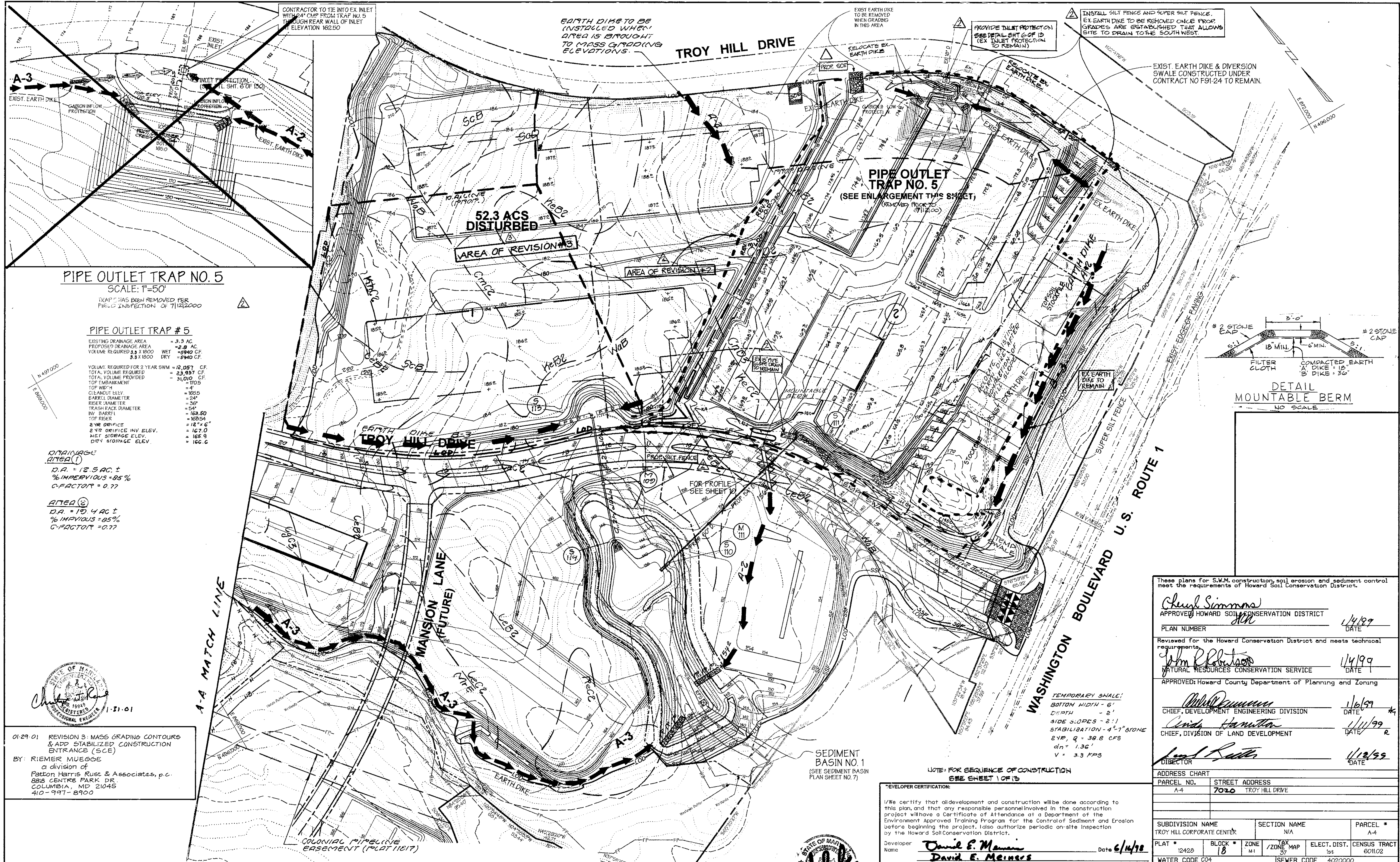
SECTIONS & DETAILS - SEDIMENT BASIN #1
FOR
TROY HILL CORPORATE CENTER
PHASE IIB PARCEL A-4

ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND SHT. 8 OF 13
SCALE: As Shown
DATE: JUNE 15, 1998

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
668 Kenilworth Drive, Suite 100
Towson, Maryland 21284
(410) 825-8120

TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400





PIPE OUTLET TRAP NO. 5
SCALE: 1"=50'

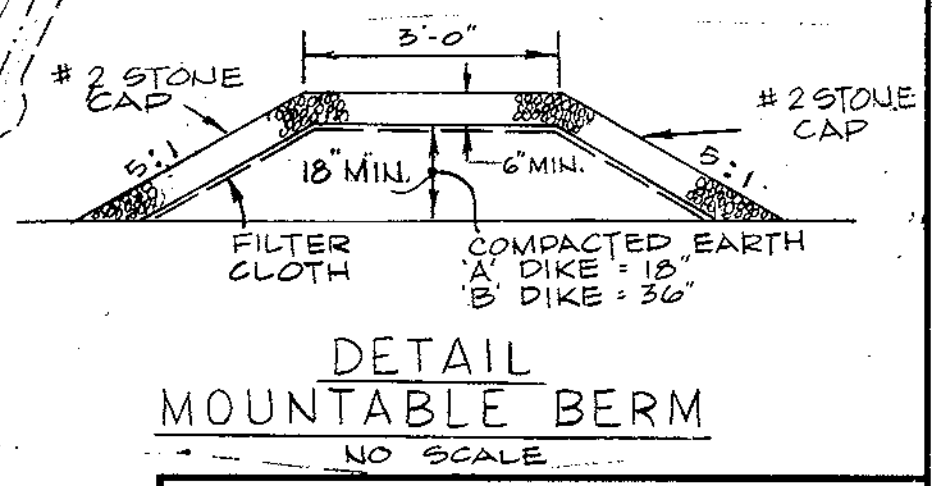
TRAP HAS BEEN REMOVED PER FIELD INSPECTION OF 7/12/2000

PIPE OUTLET TRAP # 5

EXISTING DRAINAGE AREA	= 3.3 AC
PROPOSED DRAINAGE AREA	= 2.8 AC
VOLUME REQUIRED 3.3 X 1800	= 5940 CF
WET	= 5940 CF
DRY	= 5940 CF
VOLUME REQUIRED FOR 2 YEAR SWM	= 12,097 CF
TOTAL VOLUME REQUIRED	= 23,937 CF
TOTAL VOLUME PROVIDED	= 31,010 CF
TOP EMBANKMENT	= 4"
TOP WIDTH	= 16.5'
CLEAROUT ELEV.	= 165.5'
BARREL DIAMETER	= 24"
RISER DIAMETER	= 36"
TRASH RACK DIAMETER	= 54"
INV. BARREL	= 163.50'
TOP RISER	= 163.54'
2 1/2" ORIFICE	= 12" X 6"
2 1/2" ORIFICE INV. ELEV.	= 167.0'
NET STORAGE ELEV.	= 165.9'
DEW STORAGE ELEV.	= 166.6'

DRAINAGE AREA (1)
D.A. = 12.5 AC ±
% IMPERVIOUS = 85%
C-FACTOR = 0.77

AREA (2)
D.A. = 10.4 AC ±
% IMPERVIOUS = 85%
C-FACTOR = 0.77



DETAIL MOUNTABLE BERM
NO SCALE

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

APPROVED: <i>Cheryl Simmons</i> HOWARD SOIL CONSERVATION DISTRICT	1/4/99 DATE
PLAN NUMBER: <i>110</i>	
Reviewed for the Howard Conservation District and meets technical requirements.	
APPROVED: <i>John R. Blanton</i> NATURAL RESOURCES CONSERVATION SERVICE	1/4/99 DATE
APPROVED: Howard County Department of Planning and Zoning	
CHIEF, DEVELOPMENT ENGINEERING DIVISION: <i>William J. Hamilton</i>	1/11/99 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT: <i>William J. Hamilton</i>	1/11/99 DATE
DIRECTOR: <i>David E. Mainers</i>	1/12/99 DATE

PARCEL NO. A-4	STREET ADDRESS 7020 TROY HILL DRIVE				
SUBDIVISION NAME TROY HILL CORPORATE CENTER	SECTION NAME N/A				
PARCEL # A-4					
PLAT # 12428	BLOCK # 18	ZONE # M1	TAX MAP # 37	ELECT. DIST. 1st	CENSUS TRACT # 601102
WATER CODE C04	SEWER CODE 4020000				

DEVELOPER CERTIFICATION:
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 also authorize periodic on-site inspection by the Howard Soil Conservation District.
Developer Name: *David E. Mainers* Date: 6/14/98

OWNER / DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

MASS GRADING SEDIMENT CONTROL PLAN
FOR
TROY HILL CORPORATE CENTER
PHASE IIB PARCEL A-4
ELECTION DISTRICT: 1st HOWARD CO., MARYLAND SHEET 4 OF 13 SCALE: As Shown DATE: JUNE 15, 1998
SDP-98-149 FIN-8891 NAME: scd/ps/0301

01-29-01 REVISION 3: MASS GRADING CONTOURS & ADD STABILIZED CONSTRUCTION ENTRANCE (SCE)
BY: RIEMER MUEEGE
a division of
Faton Harris Rust & Associates, p.c.
8818 CENTRE PARK DRIVE
COLUMBIA, MD 21045
410-997-8900

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120



ENGINEER CERTIFICATION:
I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
Engineer: *James A. Marquie, Jr.* Date: 6/16/98
Name: *JAMES A. MARQUIE, JR.* PE # 11005

PLAN
SCALE: 1"=100'



7/14/00 REVISION #2 MASS GRADING CONTOURS AND ADD SILT FENCE AND STABILIZED CONSTRUCTION ENTRANCE.
BY: MATS WARFIELD INC.
10540 YORK ROAD, SUITE M
HUNT VALLEY, MD 21030
410-683-7004

DETAIL 4-PIPE SLOPE DRAIN

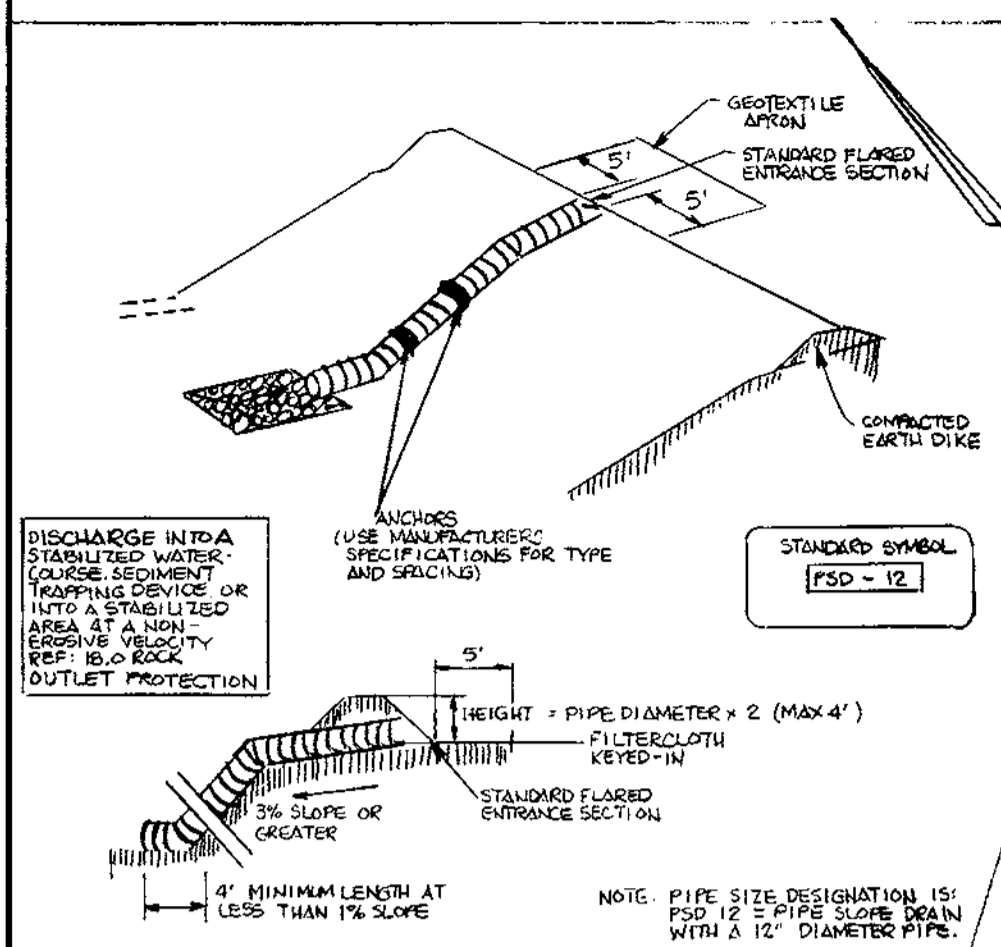
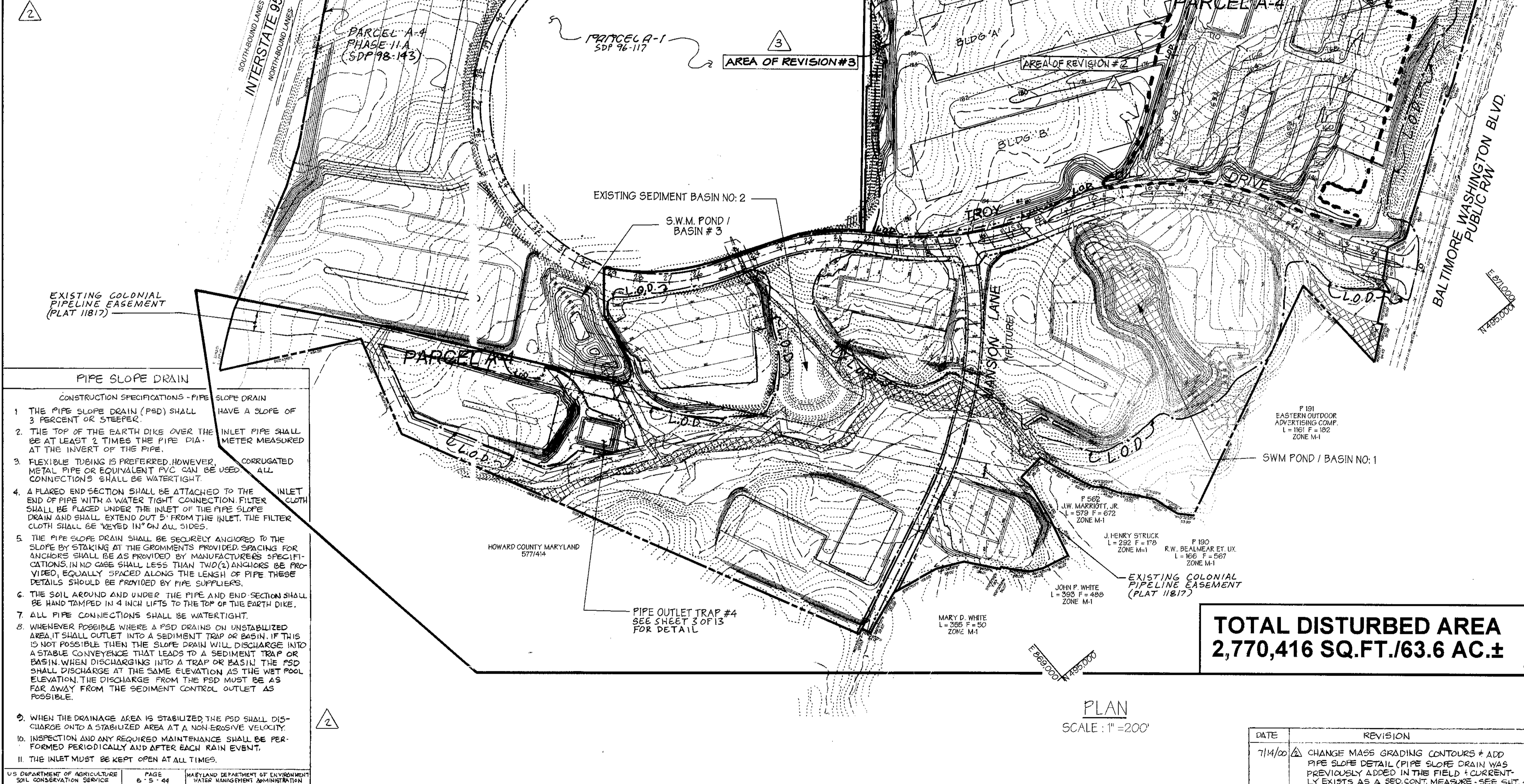


Table 6. Design Criteria for Pipe Slope Drain

Size	Pipe (Using Diameter) (in)	Maximum Drainage Area (Acres)
PSD-12	12	0.5
PSD-18	18	1.5
PSD-21	21	2.5
PSD-24	24	3.5
PSD-24 (L)	24	5.0

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 6-13-4 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



PIPE SLOPE DRAIN

- CONSTRUCTION SPECIFICATIONS - PIPE SLOPE DRAIN
1. THE PIPE SLOPE DRAIN (PSD) SHALL HAVE A SLOPE OF 3 PERCENT OR STEEPER.
 2. THE TOP OF THE EARTH DIKE OVER THE INLET PIPE SHALL BE AT LEAST 2 TIMES THE PIPE DIAMETER MEASURED AT THE INVERT OF THE PIPE.
 3. FLEXIBLE TUBING IS PREFERRED, HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC CAN BE USED. ALL CONNECTIONS SHALL BE WATERTIGHT.
 4. A FLARED END SECTION SHALL BE ATTACHED TO THE INLET END OF PIPE WITH A WATER TIGHT CONNECTION. FILTER CLOTH SHALL BE PLACED UNDER THE INLET OF THE PIPE SLOPE DRAIN AND SHALL EXTEND OUT 5' FROM THE INLET. THE FILTER CLOTH SHALL BE WETTED 11" ON ALL SIDES.
 5. THE PIPE SLOPE DRAIN SHALL BE SECURELY ANCHORED TO THE SLOPE BY STAKING AT THE GRADIENTS PROVIDED SPACING FOR ANCHORS SHALL BE AS PROVIDED BY MANUFACTURERS SPECIFICATIONS. IN NO CASE SHALL LESS THAN TWO (2) ANCHORS BE PROVIDED, EQUALLY SPACED ALONG THE LENGTH OF PIPE THESE DETAILS SHOULD BE PROVIDED BY PIPE SUPPLIERS.
 6. THE SOIL AROUND AND UNDER THE PIPE AND END SECTION SHALL BE HAND TAMPED IN 4 INCH LIFTS TO THE TOP OF THE EARTH DIKE.
 7. ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.
 8. WHENEVER POSSIBLE WHERE A PSD DRAINS ON UNSTABILIZED AREA IT SHALL OUTLET INTO A SEDIMENT TRAP OR BASIN. IF THIS IS NOT POSSIBLE THEN THE SLOPE DRAIN WILL DISCHARGE INTO A STABLE CONVEYANCE THAT LEADS TO A SEDIMENT TRAP OR BASIN. WHEN DISCHARGING INTO A TRAP OR BASIN THE PSD SHALL DISCHARGE AT THE SAME ELEVATION AS THE WET POOL ELEVATION. THE DISCHARGE FROM THE PSD MUST BE AS FAR AWAY FROM THE SEDIMENT CONTROL OUTLET AS POSSIBLE.
 9. WHEN THE DRAINAGE AREA IS STABILIZED THE PSD SHALL DISCHARGE ONTO A STABILIZED AREA AT A NON-EROSIVE VELOCITY.
 10. INSPECTION AND ANY REQUIRED MAINTENANCE SHALL BE PERFORMED PERIODICALLY AND AFTER EACH RAIN EVENT.
 11. THE INLET MUST BE KEPT OPEN AT ALL TIMES.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 6-13-44 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

AREA OF SUBMISSION



DATE	No.	REVISION
01/29/01	3	MASS GRADING CONTOURS & ADD STABILIZED CONSTRUCTION ENTRANCE (SCE)

BY: RIEMER MUEGGLE
a division of:
Patton Harris Rust & Associates, p.c.
8818 CENTER PARK DR.
COLUMBIA, MD. 21045
410-997-8900

These plans for S.W.M. construction soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

John R. Robertson
APPROVED: HOWARD SOIL CONSERVATION DISTRICT 1/4/99 DATE

PLAN NUMBER: A-4

Reviewed for the Howard Conservation District and meets technical requirements.

Cheryl Simmons
NATURAL RESOURCES CONSERVATION SERVICE 1/4/99 DATE

APPROVED: Howard County Department of Planning and Zoning

Chris Damann
CHIEF, DEVELOPMENT ENGINEERING DIVISION 1/6/99 DATE

Chris Hamada
CHIEF, DIVISION OF LAND DEVELOPMENT 1/11/99 DATE

Sean S. Ruder
DIRECTOR 1/28/99 DATE

ADDRESS CHART
PARCEL NO. A-4 STREET ADDRESS 7020 TROY HILL DRIVE



**TOTAL DISTURBED AREA
2,770,416 SQ. FT. / 63.6 AC. ±**

PLAN SCALE: 1" = 200'

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120



ENGINEER CERTIFICATION:
I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Engineer: *James A. Muegge Jr.* Date: 6/16/98
Name: James A. Muegge Jr. PE # 11005

DEVELOPER CERTIFICATION:
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 of a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District.

Developer: *David E. Meiners* Date: 6/16/98
Name: DAVID E. MEINERS

OWNER / DEVELOPER
**TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION**
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

DESIGNED BY: P.R.C.
DRAWN BY: A.S.
CHECKED BY: P.R.C.
REVISIONS:

SUBDIVISION NAME: TROY HILL CORPORATE CENTER SECTION NAME: N/A PARCEL #: A-4

PLAT #: 12428 BLOCK #: 18 ZONE: M-1 ELECT. DIST. 1st CENSUS TRACT 601102

WATER CODE C04 SEWER CODE 4020000

OVERALL MASS GRADING PLAN (1=200') FOR TROY HILL CORPORATE CENTER PHASE IIB PARCEL A-4

ELECTION DISTRICT: 1st HOWARD CO., MARYLAND SHT. 2 OF 13 SCALE: As Shown DATE: JUNE 15, 1998