

DRAINAGE AREA G STORMWATER MANAGEMENT MODIFICATIONS

THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY

DEVELOPER & ENGINEER CERTIFICATES

1) BY THE DEVELOPER:

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a certificate of attendance at a Department of the Environment approved training program for the control of sediment and erosion before beginning the project. I shall engage a registered professional engineer to supervise all construction and provide the Howard County Soil Conservation District with an "As-Built" plans within 30 days of completion.

James E. Loesch, July 28, 2003
 Developer Signature Date
 2/5/04
 JAMES LOESCH
 Printed Name

2) BY THE ENGINEER:

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

Robert A. Warner, 2/16/04
 Design Engineer Signature Date

ROBERT A. WARNER 13403
 Printed Name Registration Number
 12750 TWINBROOK PARKWAY
 ROCKVILLE, MARYLAND 20852
 301.881.2545

3) CERTIFICATION BY PROFESSIONAL:

There are no wetlands on the site that will be disturbed. Therefore, the requirement of 401 and 404 wetlands permits from the State of Maryland and Corps of Engineers are not needed.

Robert A. Warner, 2/16/04
 Professional's Signature Date

ROBERT A. WARNER
 Print Name

SEDIMENT CONTROL & POND CONSTRUCTION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

James E. Loesch, 2/5/04
 SIGNATURE OF DEVELOPER DATE
 PRINT NAME BELOW SIGNATURE

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

Robert A. Warner, 2/16/04
 SIGNATURE OF ENGINEER DATE

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

James E. Loesch, 3/4/04
 SIGNATURE OF DEVELOPER DATE
 HOWARD SOIL CONSERVATION DISTRICT

Review for HOWARD SCD and meets Technical Requirements.

USDA - Natural Resources Conservation Service Date

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.

Howard SCD Date

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE 8/11/04
 CHIEF, DIVISION OF LAND DEVELOPMENT HB DATE 3/15/04
 DIRECTOR DATE 3/15/04

SITE ANALYSIS TOTAL JHU/APL PROPERTY:

PROPERTY NOTES

1. COURSES AND COORDINATES ARE BASED ON THE MARYLAND STATE COORDINATE SYSTEM (NAD 83) AND ARE DERIVED FROM THE FOLLOWING JOHNS HOPKINS UNIVERSITY CONTROL STATIONS:

STATION	NORTH	EAST
HOPKINS	544836.5300	1340825.3542
G12	550256.5002	1342325.2642
G7	548107.0328	1341025.0830
GB	549478.7005	1341170.4345
41 EA	544825.8093	1339217.4439

- A. AREA OF PARCEL/LOT = 361 ACRES
- B. PRESENT ZONING = PEC
- C. PARKING TABULATION: EXISTING PARKING SPACES = 3,746
 PROPOSED PARKING SPACES = 0
 TOTAL SPACES PROVIDED = 3,746
- D. EXISTING BUILDING COVERAGE = 42.7 ACRES GROSS FLOOR AREA
 COVERAGE = 19.7 ACRES, 5.5% OF TOTAL LOT AREA
- E. PROPOSED BUILDING COVERAGE = 0 ACRES GROSS FLOOR AREA
 COVERAGE = 0 ACRES, 0% OF TOTAL LOT AREA (NO NEW BUILDINGS)
- F. TOTAL PROPOSED BUILDING COVERAGE = 19.7 ACRES, 5.45% OF TOTAL LOT AREA
- G. PROPOSED BUILDINGS DISTURBED AREA = 2.8 ACRES
- H. PROPOSED USE = EDUCATION/RESEARCH
- I. FLOOR SPACE USE = EDUCATION/RESEARCH
- J. MAXIMUM NUMBER OF EMPLOYEES = 3,937
- K. NO LOT SUBDIVISION IS ANTICIPATED
- L. CASE NUMBERS APPLICABLE: F02-40 FOREST CONSERVATION AND AFFO
 SDP # 90-218 - BUILDING #31
 SDP # 99-63 - BUILDING #52
 SDP # 02-77 SWM BASIN B
 SDP # 03-174 - POND ENTRANCE ROAD
 WP # 04-86 - Reactivate F-02-77

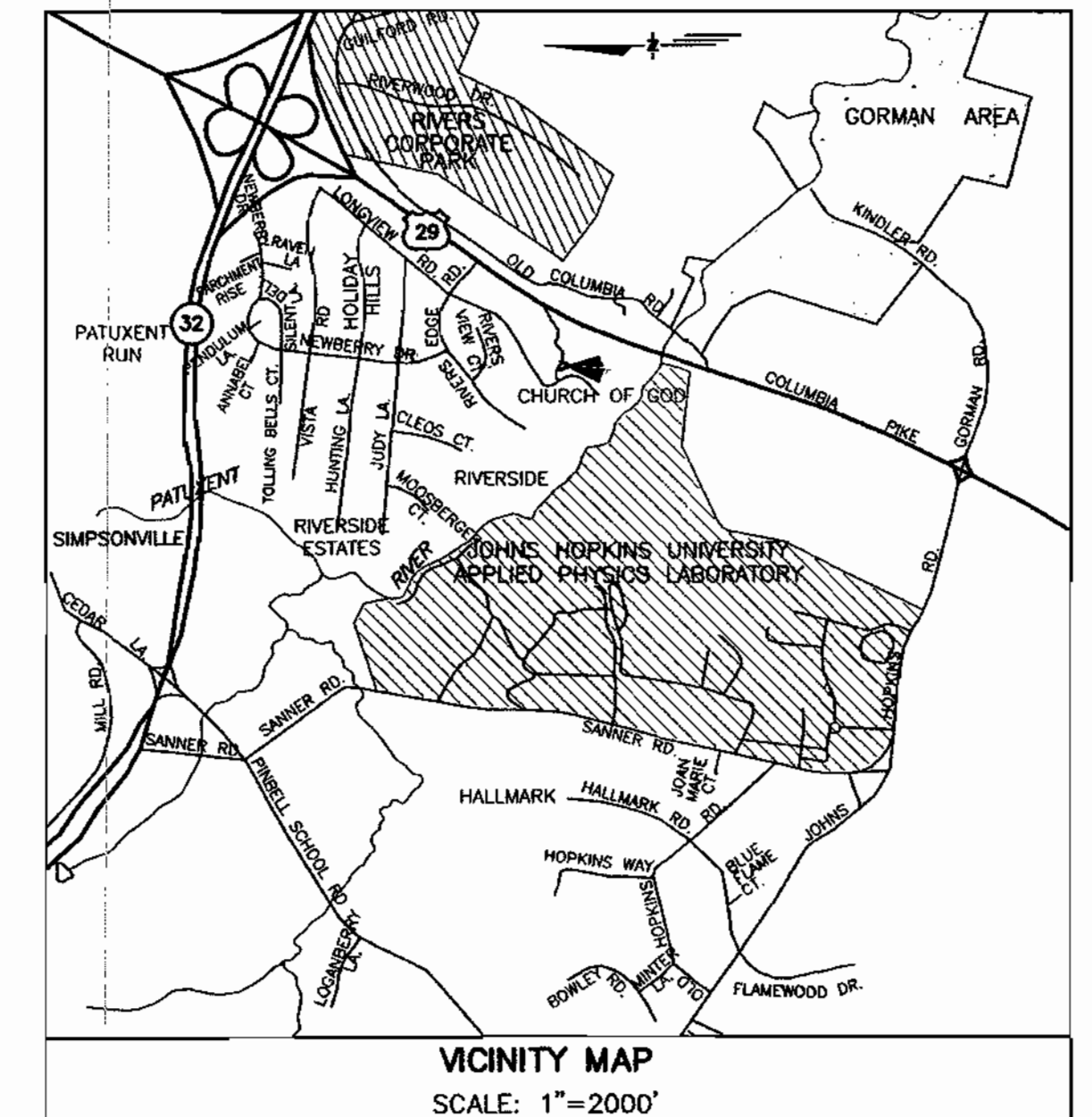
- M. SANITARY SEWER/WATER SERVICE SEE GENERAL NOTES
- N. EXISTING OPEN SPACE AREA (LOT AREA MINUS PARKING & BUILDINGS) = 300 ACRES, 83.8% OF TOTAL LOT AREA
- O. PROPOSED OPEN SPACE AREA = 300 ACRES, 83.8% OF TOTAL LOT AREA

DRAINAGE AREA G BASIN NOTES

- A. DRAINAGE AREA 25.8 ACRES
- B. DESIGN IMPERVIOUS SURFACE 19.5 ACRES (76%)
- C. HYDRAULIC CALCULATIONS FOUND SDP-90-218 (BUILDING #31) AND SDP-04-35 (BASIN EXPANSION)

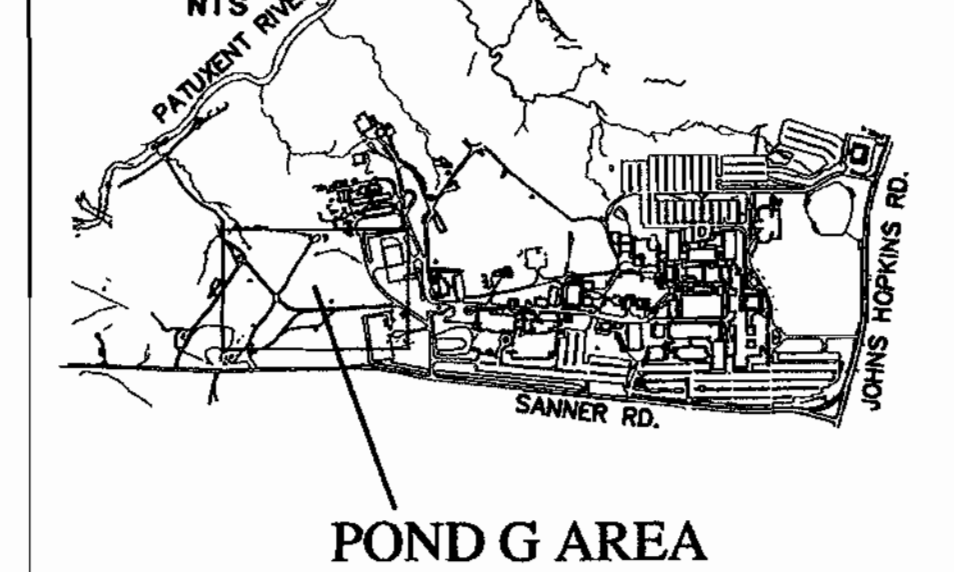
GENERAL NOTES

1. THE TOPOGRAPHIC AND UTILITY INFORMATION SHOWN IN THIS DEVELOPMENT PLAN WERE OBTAINED FROM FIELD SURVEYS PERFORMED BY A. MORTON THOMAS AND ASSOCIATES (TOPOGRAPHY) AND APPLIED PHYSICS LABORATORY (UTILITIES) CONSULTANTS IN NOVEMBER 1998, AND FROM REPORTS PROVIDED BY JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LAB (JHU/APL). SINCE NOT ALL INFORMATION SHOWN MAY REFLECT CURRENT CONDITIONS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION TO HIS OWN SATISFACTION.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY AND MSHA SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, UNLESS OTHERWISE NOTED.
3. ALL WORK ON THESE PLANS SHALL BE COORDINATED WITH TRADES CONTRACT BASIN B AND NORTH PARKING.
4. APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE JHU/APL.
5. NO LANDSCAPING IS REQUIRED FOR THE PROPOSED STORMWATER MANAGEMENT FACILITY DUE TO ITS INTERNAL LOCATION AWAY FROM PUBLIC RIGHT-OF-WAY.
6. SECURITY MUST BE MAINTAINED WITHIN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL COORDINATE ANY REQUIRED FENCE CONSTRUCTION AND RELOCATION WITH JHU/APL WITH NOTIFICATIONS OF ALL SCHEDULES AND REQUIREMENTS.
7. THE CONTRACTOR SHALL CONTACT MR. RUSTY OBER (443) 778-0167 AT LEAST FIVE DAYS BEFORE STARTING WORK OR DISRUPTION OF ANY UTILITIES.
8. ALL "TIE-INS" TO EXISTING STORM DRAIN UTILITIES MAY BE DONE DURING NORMAL WORKING HOURS AT JHU/APL. WORK MUST BE SCHEDULED THRU JHU/APL. NORMAL WORKING HOURS ARE 8:00 A.M. TO 5:00 P.M. MONDAY THROUGH FRIDAY.
9. THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION 24 HOURS IN ADVANCE OF COMMENCING WORK AT (410) 313-1880.
10. ALL UTILITIES SHALL HAVE A MINIMUM CLEARANCE OF 6". ALL POLES AND FOUNDATIONS SHALL HAVE A MINIMUM CLEARANCE OF 2'-0", OR TUNNEL AS REQUIRED.
11. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEMS. COORDINATE WITH THE OWNER FOR OPERATING WATER MAIN VALVES.
12. THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL STORM DRAINS WITHIN 2'-0" OF EXTERIOR MANHOLE WALL.
13. THE CONTRACTOR SHALL PERMANENTLY SEED AND STABILIZE ALL DISTURBED AREAS THAT ARE NOT TO BE PAVED.
14. ALL DRIVEWAYS ARE PRIVATELY OWNED AND MAINTAINED BY JHU/APL.
15. THE AREA SHOWN IS LOCATED ON TAX MAP #41.
16. THE INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION BY DIGGING TEST PITS BY HAND AT ALL CROSSINGS WELL IN ADVANCE OF CONSTRUCTION.
17. ALL SITE UTILITIES ARE THE PROPERTY OF JHU/APL WHO WILL HORIZONTALLY LOCATE ALL ACTIVE UTILITIES FOR THE CONTRACTOR.
18. TRAFFIC SHALL BE MAINTAINED BY THE CONTRACTOR ALONG EXISTING ROADWAYS DURING PROPOSED WORK AT ALL TIMES.
19. SEE DETAIL SHEETS FOR OTHER ITEMS THAT APPLY TO THIS PROJECT.
20. THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO AVOID DAMAGE TO EXISTING ADJACENT FACILITIES AND STRUCTURES. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION OR BETTER UNLESS NOTED OTHERWISE.
21. DUE TO THE PROXIMITY OF LIVE UNDERGROUND UTILITIES, THE JHU/APL A. MORTON THOMAS AND ASSOCIATES, INC. ARE NOT RESPONSIBLE FOR ANY DAMAGE OR INJURY SUSTAINED DURING CONSTRUCTION BY ANY PERSON, VEHICLES, OR EQUIPMENT USED ON OR ADJACENT TO THE SITE.
22. ACCESS TO ALL EXISTING FACILITIES SHALL BE MAINTAINED AT ALL TIMES.
23. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE JHU/APL OF ANY DEVIATION FROM THESE PLANS PRIOR TO ANY CHANGE BEING MADE. ANY DEVIATION FROM THESE PLANS WITHOUT WRITTEN AUTHORIZATION BY THE JHU/APL THE JHU/APL, A. MORTON THOMAS & ASSOC., HOWARD COUNTY DPZ, & SCD.
24. SURFACED STREETS AND PARKING AREAS SHALL BE MAINTAINED IN A CLEAN CONDITION, MUD AND DUST FREE AT ALL TIMES. ADEQUATE MEANS SHALL BE PROVIDED TO CLEAN TRUCKS AND OTHER EQUIPMENT USING EXISTING SURFACED STREETS AND PARKING AREAS.
25. THE CONTRACTOR SHALL MAKE EVERY ATTEMPT TO MINIMIZE DAMAGE TO EXISTING TREES DURING CONSTRUCTION.
26. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL MEET CURRENT HOWARD COUNTY DEPARTMENT OF PERMITTING SERVICES STANDARDS AND DIRECTIVES.
27. EXISTING SIGNS, GUARDRAILS, AND OTHER MINOR SITE FEATURES IN THE WAY OF PROPOSED CONSTRUCTION, WHETHER OR NOT SHOWN ON THESE PLANS, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE JHU/APL.
28. CONTRACTOR SHALL CONTACT JHU/APL PLANT FACILITIES OFFICE (443) 778-0167 AND "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR START OF THE EXCAVATION AND MUST NOTIFY ALL PUBLIC UTILITY COMPANIES AND THE OWNER OF UNDERGROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION.
29. THE SUBJECT PROPERTY IS ZONED PEC PER THE 2/2/2004 COMPREHENSIVE ZONING PLAN.
30. NO CLEARING, GRADING, OR CONSTRUCTION ARE PERMITTED WITHIN THE RESTRICTED FOREST CONSERVATION AREAS, WETLANDS, STREAMS, OR THEIR BUFFERS AS NOT PERMITTED BY MDE, U.S. ARMY CORPS OF ENGINEERS, AND HOWARD COUNTY.
31. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION ARE PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT. THE FOREST CONSERVATION OBLIGATION HAS BEEN ADDRESSED WITH F-02 40, JHU/APL SWM BASIN A.
32. THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED AS DESCRIBED IN GENERAL NOTE #1.
33. WATER IS PUBLIC (HOWARD COUNTY)
34. SEWER IS PUBLIC (HOWARD COUNTY)
35. THE FLOODPLAIN LIMITS FOR THIS PROJECT WAS TAKEN FROM HOWARD COUNTY STUDY.
36. DIMENSION TO NEW STRUCTURES ARE PERPENDICULAR TO PROPERTY LINE.
37. THE FINAL PLAN AREA AND THE LOD OF THE JHU/APL ARE NOT LOCATED IN THE 100 YEAR FLOOD PLAN.
38. SOIL MAP USED SHEET NO. 29, SOIL SURVEY JULY 1968 HOWARD COUNTY, MARYLAND, USDA.
39. JHU/APL ENVIRONMENTAL CONDITIONS ASSESSMENT REPORT REQUIREMENTS HAVE BEEN ADDRESSED BY ENVIRONMENTAL REPORTS ISSUED BY JHU/APL AND ACCEPTED BY HOWARD COUNTY UNDER F-02-40 SWM BASIN A.
40. BASIN G JHU/APL (SDP-90-218) WAS ORIGINALLY CERTIFIED BY MR. JAMES LOESCH OF JHU/APL ON 04/01/93.
41. WP-04-B2 was approved to reactivate F-02-77, SWM Basin "B", which had expired.



VICINITY MAP
SCALE: 1"=2000'

KEY LEGEND
SCALE: NTS



POND G AREA

CONTACT PERSON FOR OWNER: RUSTY OBER
 TELEPHONE: (443) 778-0167 FAX: (443) 778-6122

ADDRESS CHART

LOT/PARCEL #1	STREET ADDRESS
	11100 JOHNS HOPKINS ROAD LAUREL, MD 20723 CONTACT: MR. RUSTY OBER

PERMIT INFORMATION CHART

SUBDIVISION NAME		SECTION / AREA		PARCEL NO	
JHU APPLIED PHYSICS LAB		N/A		1	
PLAT# OR L/F	GRID#	ZONING	TAX MAP NO.	ELEC. DISTRICT	CENSUS TRACT
15429-15433	16	PEC	41	5	6051
WATER CODE		SEWER CODE			
E-21		6480000			

INDEX OF DRAWINGS

SHT. NO.	SHEET TITLE
1	C0.1 - COVER SHEET
2	C0.2 - OVERALL DRAINAGE AREA MAP
3	C0.3 - PROPOSED DRAINAGE AREA G
4	C1.0 - EXISTING CONDITIONS
5	C1.1 - PROJECT AREA SOILS MAP
6	C1.2 - SITE LAYOUT / DEMOLITION PLAN
7	C1.3 - SITE GRADING AND DRAINAGE PLAN
8	C1.4 - PIPE PROFILE AND STRUCTURE SCHEDULES
9	C1.5 - EXISTING AS-BUILT PROFILE - BASIN G
10	C1.6 - DETAILS
11	C1.7 - POCKET SANDFILTER PLAN AND DETAILS
12	C1.8 - SWM BASIN SPECIFICATIONS
13	C1.9 - BORING LOCATION AND LOGS
14	ES1 - EROSION AND SEDIMENT CONTROL PLAN
15	ES2 - EROSION AND SEDIMENT CONTROL DETAILS
16	ES3 - EROSION AND SEDIMENT CONTROL NOTES



JHU/APL INTERNAL USE
 This data shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or in part for any purpose other than to evaluate this RFP or, in the case of a contract award, to perform the work required hereunder, without the express written consent of JHU/APL.

DES: J. KASPA					
DRN: P. FRIAS					
CHK: R. WARNER					
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

DRAINAGE BASIN G

PROPERTY OWNER: JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY
 11100 JOHNS HOPKINS ROAD
 LAUREL, MD 20723
 CONTACT: MR. RUSTY OBER
 (443) 778-0167

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY

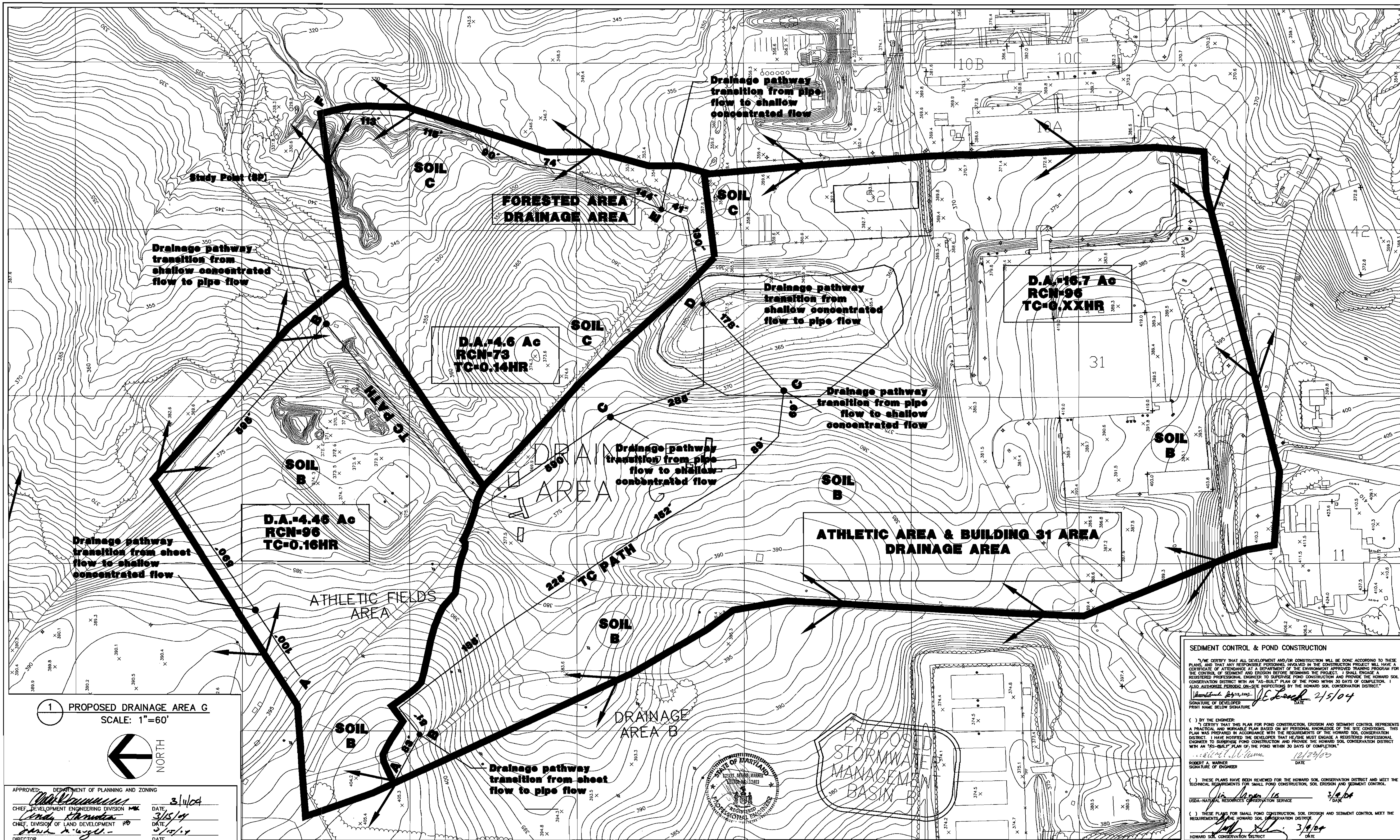
COVER SHEET

TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET C0.1

SHEET 1 OF 16



1 PROPOSED DRAINAGE AREA G
SCALE: 1"=60'



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] DATE: 3/1/04
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] DATE: 3/15/04
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] DATE: 2/15/04
 DIRECTOR



SEDIMENT CONTROL & POND CONSTRUCTION

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE HOWARD SOIL CONSERVATION DISTRICT AND DESIGN BEFORE BEGINNING THE PROJECT. I, SMALL ENGINEER, A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERSONS ON-SITE INSPECTING BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] DATE: 2/5/04
 SIGNATURE OF DEVELOPER
 PRINT NAME BELOW SIGNATURE

() BY THE ENGINEER:
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN HAS BEEN 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.

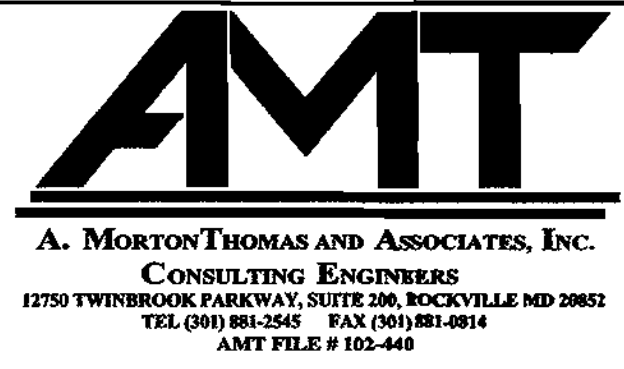
[Signature] DATE: 12/23/03
 ROBERT A. WARNER
 SIGNATURE OF ENGINEER

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

[Signature] DATE: 3/9/04
 USA - NATURAL RESOURCES CONSERVATION SERVICE

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

[Signature] DATE: 3/9/04
 HOWARD SOIL CONSERVATION DISTRICT



DES: J. KASPA									
DRN: P. FRIAS									
CHK: R. WARNER									
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP			

DRAINAGE BASIN G

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
PROPOSED DRAINAGE AREA G

TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET C0.3
 SHEET 3 OF 16

SDP-04-25

LEGEND

EXISTING

- EXISTING CONTOUR
- EXISTING TREELINE
- DRAINAGE AREA
- PROPERTY LINE
- SOIL CLASSIFICATION BOUNDARY
- 8" SAN EXISTING SANITARY SEWER
- 12" W EXISTING WATER
- 18" DRAIN EXISTING STORM DRAIN
- FM EXISTING SANITARY FORCEMAIN
- PVC EXISTING ELECTRICAL CONDUIT
- EXISTING TREE
- EXISTING SHRUB
- C EXISTING COMMUNICATION
- EXISTING LIGHT POLE
- EXISTING CATCH BASIN
- M.H. EXISTING MANHOLE
- S.M.H. EXISTING SANITARY SEWER MANHOLE
- P.V. EXISTING POST INDICATOR VALVE
- W.V. EXISTING WATER VALVE
- F.H.C. EXISTING FIRE HYDRANT
- C.O. EXISTING CLEANOUT
- 1-1" COND. PVC EXISTING ELECTRICAL
- EXISTING SIGN
- EXISTING BOLLARDS
- PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING PICKET FENCE
- EXISTING CHAINLINK FENCE

PROPOSED

- PROPOSED STORM DRAIN
- FUTURE STORM DRAIN
- PROPOSED TELECOMMUNICATION
- PROPOSED ELECTRIC
- PROPOSED MANHOLE
- PROPOSED STORM DRAIN CATCH BASIN

SEDIMENT CONTROL & POND CONSTRUCTION

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SIGNATURE OF DEVELOPER
DATE

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SIGNATURE OF ENGINEER
DATE

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE
DATE

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

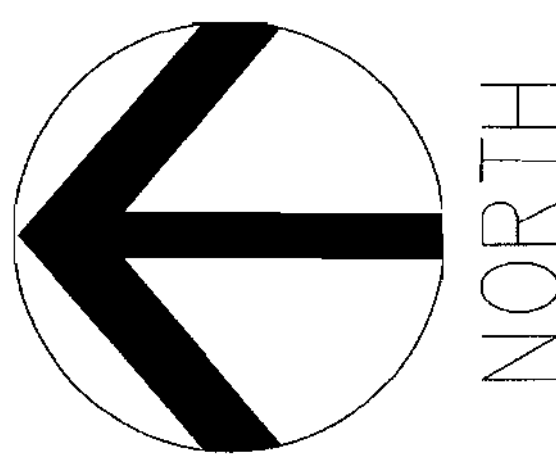
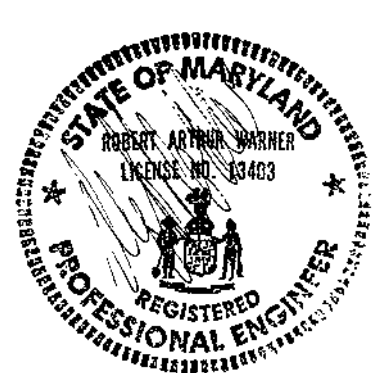
HOWARD SOIL CONSERVATION DISTRICT
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

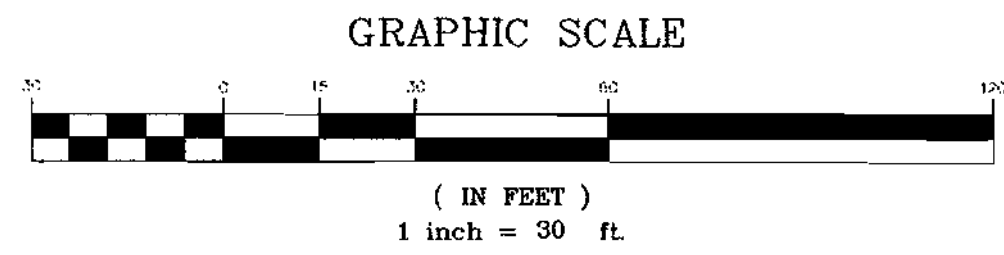
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK
DATE 2/11/09

CHIEF, DIVISION OF LAND DEVELOPMENT HD
DATE 3/15/09

DIRECTOR
DATE 2/15/09



1 EXISTING CONDITIONS
SCALE: 1"=30'



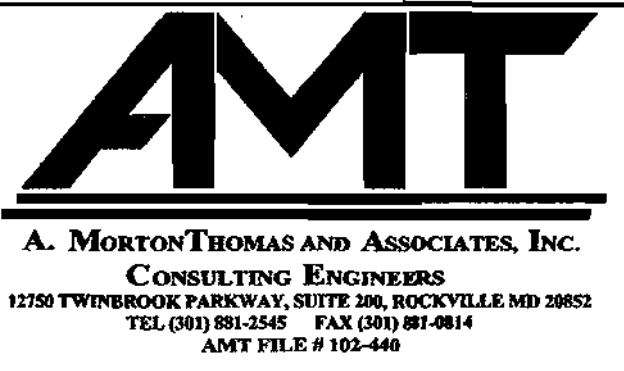
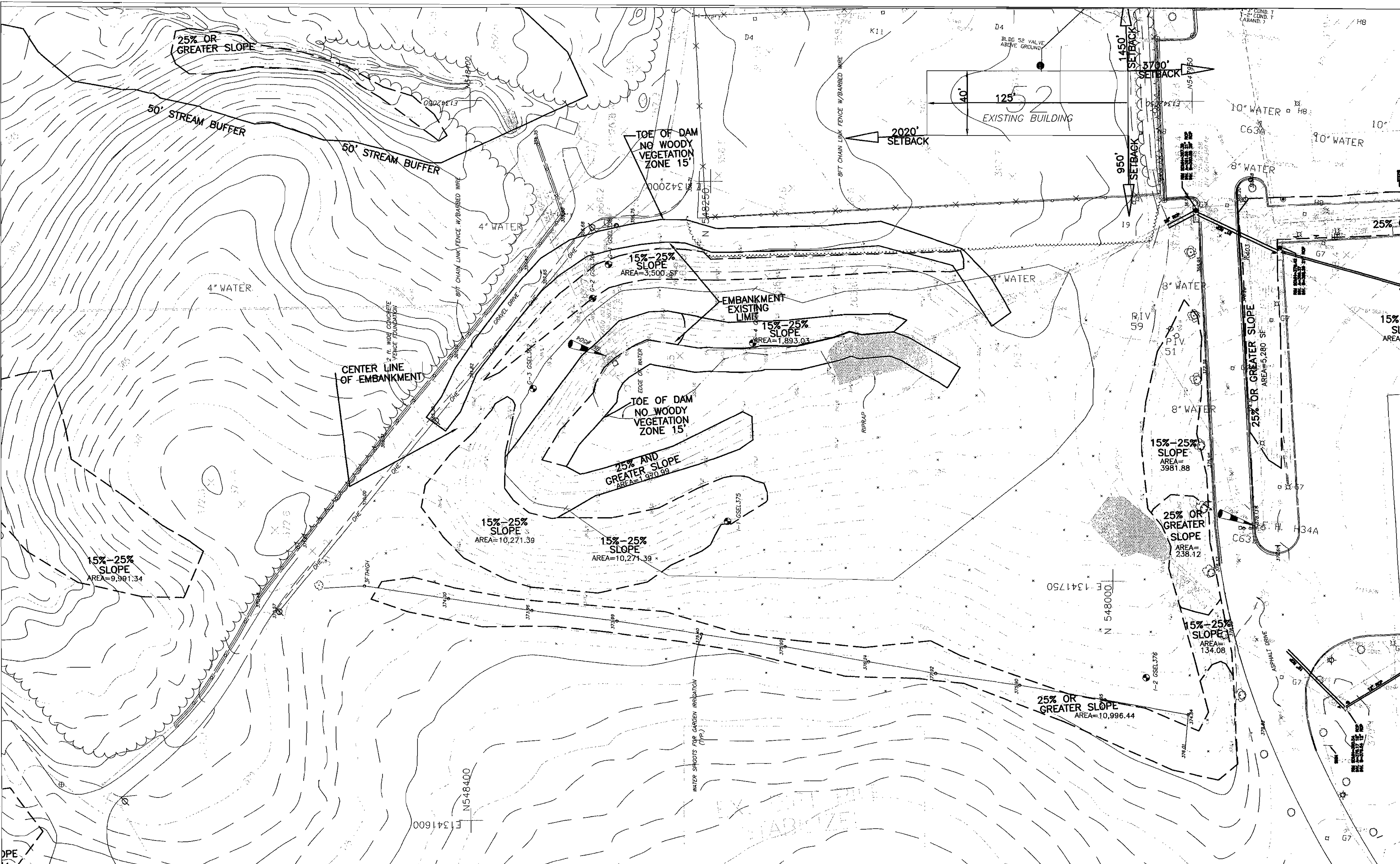
NOTES:
1. NO NEW OR FUTURE BUILDINGS ARE PROPOSED UNDER THIS SDP.

TRAVERSE CONTROL TABLE:

NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
644	48783.0482	1341364.4945	394.92	REBAR & CAP
645	48275.6339	1341941.2036	363.53	REBAR & CAP

BENCH MARK TABLE:

NO.	ELEV.	DESCRIPTION
503	380.63	"X"-CUT ON N.W. FIRE HYDRANT BONNET BOLT
504	362.77	BOX-CUT ON N.E. CORNER OF POND INLET STRUCTURE



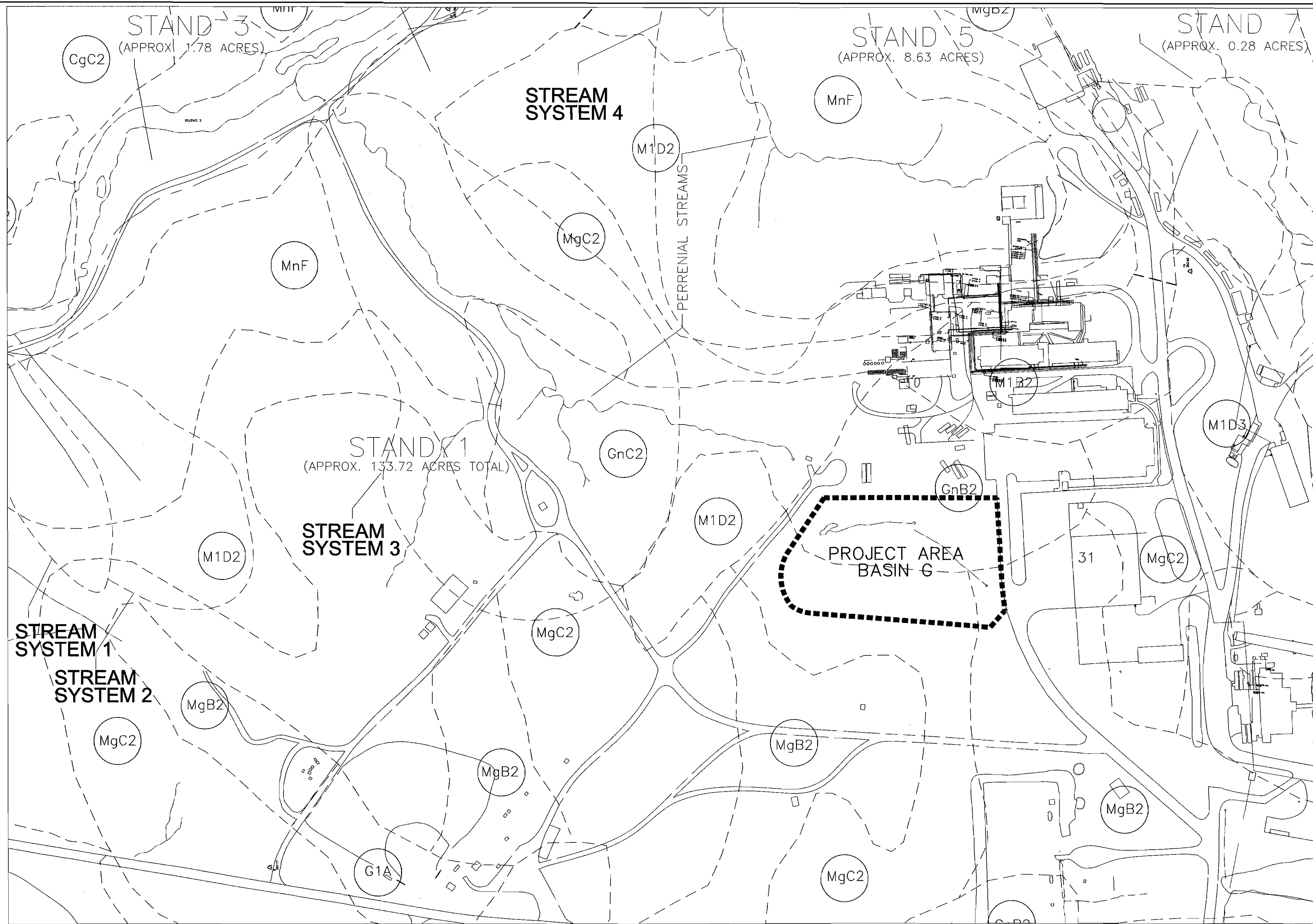
DES: J. KASPA	11/24/03	ADDENDUM #1							
DRN: P. FRIAS									
CHK: R. WARNER									
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP			

DRAINAGE BASIN G

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
EXISTING CONDITIONS
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C1.0
SHEET 4 OF 16

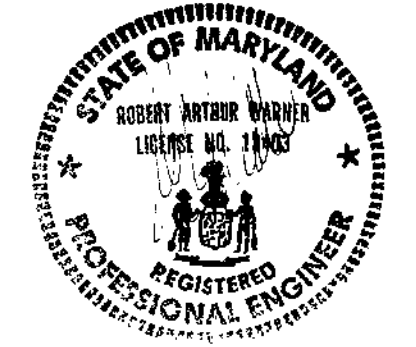
SDP-04-235



SOURCE: HOWARD COUNTY SOIL SURVEY, MARYLAND

SOILS MAP LEGEND:

- G1A GLENELG LOAM, 0-3% SLOPES
- GnC2 GLENVILLE SILT LOAM, 8-15% SLOPES
- GnB2 GLENVILLE SILT LOAM, 3-8% SLOPES
- MgB2 MANOR GRAVELLY LOAM, 3-8% SLOPES
- MgC2 MANOR GRAVELLY LOAM, 8-15% SLOPES, MODERATELY ERODED
- M1B2 MANOR LOAM, 3-8% SLOPES, MODERATELY ERODED
- M1D2 MANOR LOAM, 15-25% SLOPES, MODERATELY ERODED
- M1D3 MANOR LOAM, 15-25% SLOPES, SEVERELY ERODED
- MnF MANOR VERY STONY LOAM, 20-60% SLOPES



SEDIMENT CONTROL & POND CONSTRUCTION

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZED PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature of Developer: *[Signature]* DATE: 2/5/04

() BY THE ENGINEER:
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE ADVISED 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.

Signature of Engineer: *[Signature]* DATE: 12/29/03

ROBERT A. WARNER
SIGNATURE OF ENGINEER

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

Signature: *[Signature]* DATE: 5/6/04

USDA-NATURAL RESOURCES CONSERVATION SERVICE

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

Signature: *[Signature]* DATE: 3/6/04

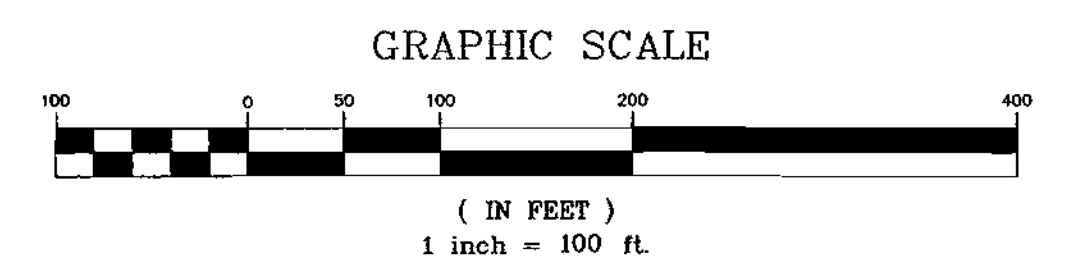
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] DATE: 3/11/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3/15/04
CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3/15/04
DIRECTOR



1 PROJECT AREA SOIL MAP
SCALE: 1"=100'



AMT
A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL: (301) 981-2540 FAX: (301) 981-0914
AMT FILE # 102-440

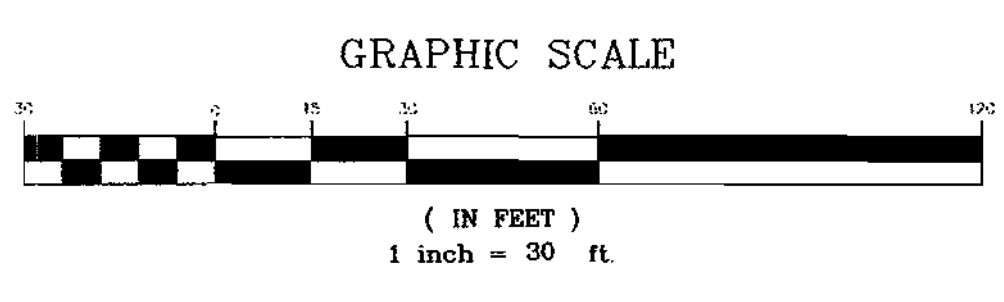
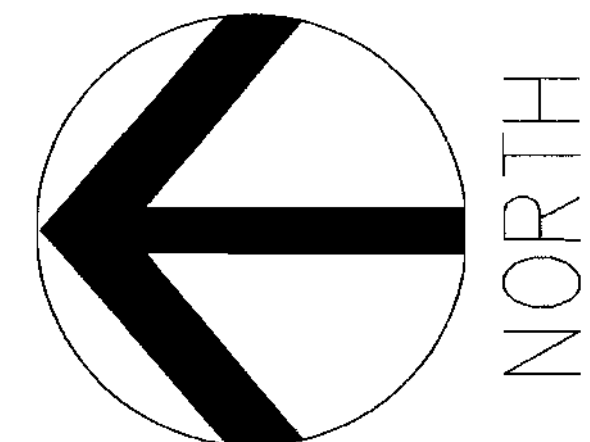
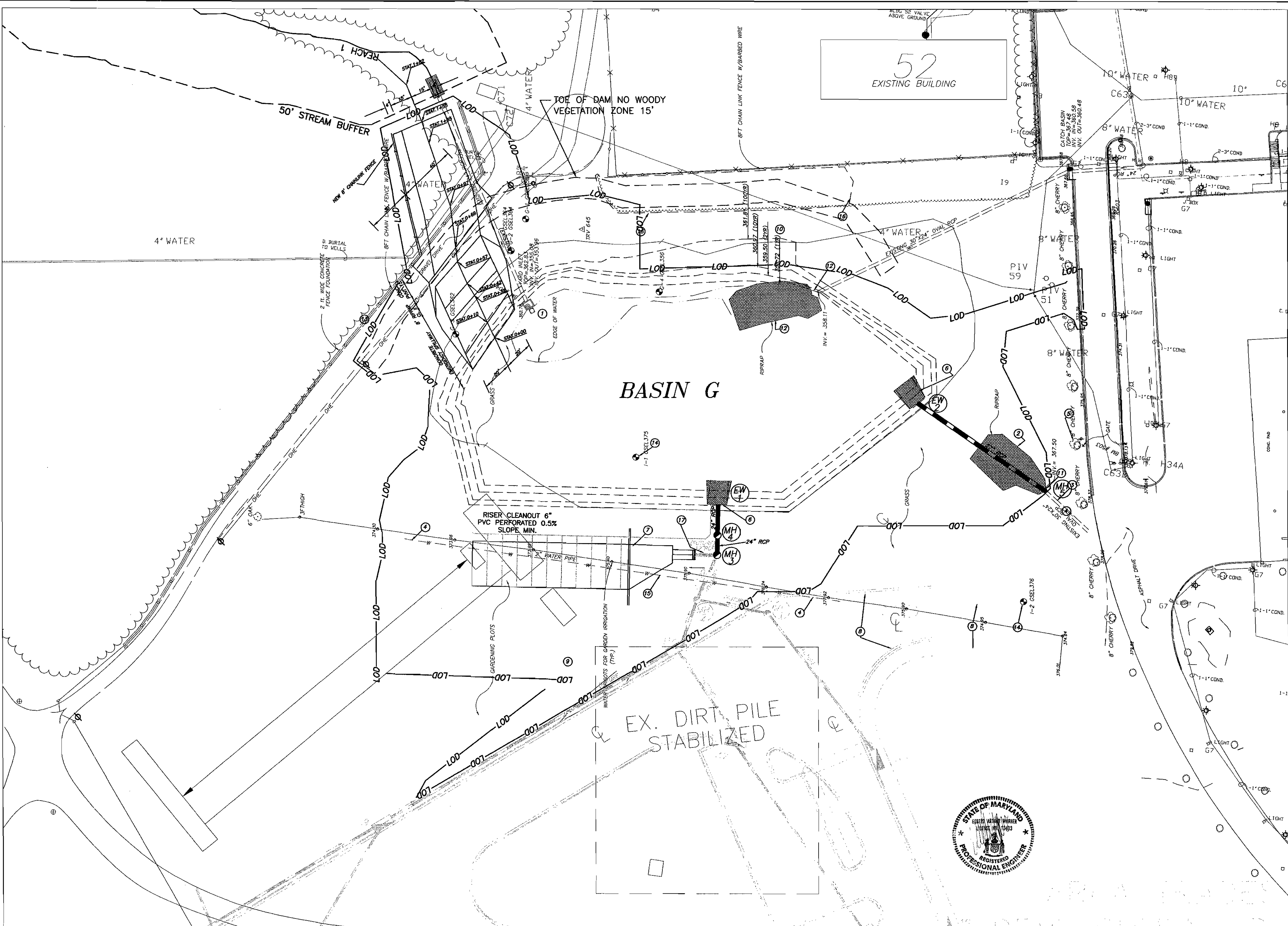
DES: J. KASPA					
DRN: P. FRIAS					
CHK: R. WARNER					
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

DRAINAGE BASIN G					
PROJECT AREA					
SOILS MAP					
TAX MAP 41 PARCEL 1 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND					

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
PROJECT AREA
SOILS MAP
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C1.1
SHEET 5 OF 16

- KEYED NOTES**
- ① EXISTING BASIN OUTLET STRUCTURE TO REMAIN
 - ② EXISTING RIP-RAP TO BE REMOVED, SALVAGED, CLEANED AND RE-USED AT BASIN
 - ③ EXISTING CONCRETE STORM DRAINAGE PIPE SECTION (10') TO AND HEAD WALL TO BE REMOVED TO MAKE ROOM FOR NEW MANHOLE STANDARD
 - ④ LIMIT OF PIPE REMOVAL AND PRESSURE CAP TO COUNTY STANDARD
 - ⑤ EXISTING TREE TO REMAIN (TYP.)
 - ⑥ INSTALL NEW AND SALVAGED RIP-RAP (SEE DETAIL SHT. #C1.6) AND PIPE HEADWALL
 - ⑦ FUTURE POCKET SAND FILTER (PRIVATELY OWNED)
 - ⑧ FUTURE DRIVE
 - ⑨ FUTURE ANTENNA RANGE
 - ⑩ NEW LIMIT OF BASIN STORM DRAINAGE FLOW
 - ⑪ EXISTING FLARED END SECTION AND 10' OF PIPE TO BE REMOVED.
 - ⑫ EXISTING CONCRETE FLARED END SECTION AND RIP-RAP TO REMAIN
 - ⑬ EXISTING 8' HIGH CHAIN LINK FENCE TO REMAIN
 - ⑭ EXISTING 6" PVC GROUND WATER MONITORING PIPES TO BE REMOVED BORINGS # 1-1 AND # 1-2
 - ⑮ EXISTING 2" WATER LINE TO BE REMOVED
 - ⑯ LIMIT OF EXISTING TREE REMOVAL
 - ⑰ FUTURE 12" RCP PIPE TO BE INSTALLED DURING CONSTRUCTION OF SANDFILTER



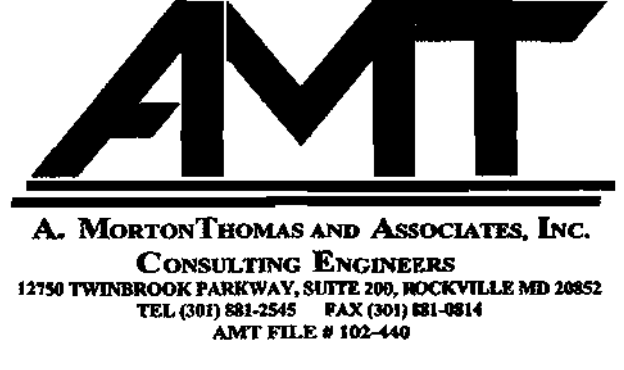
1 SITE LAYOUT PLAN
BASIN G
SCALE: 1"=30'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 3/11/04

 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3/15/04

 DIRECTOR DATE: 3/11/04



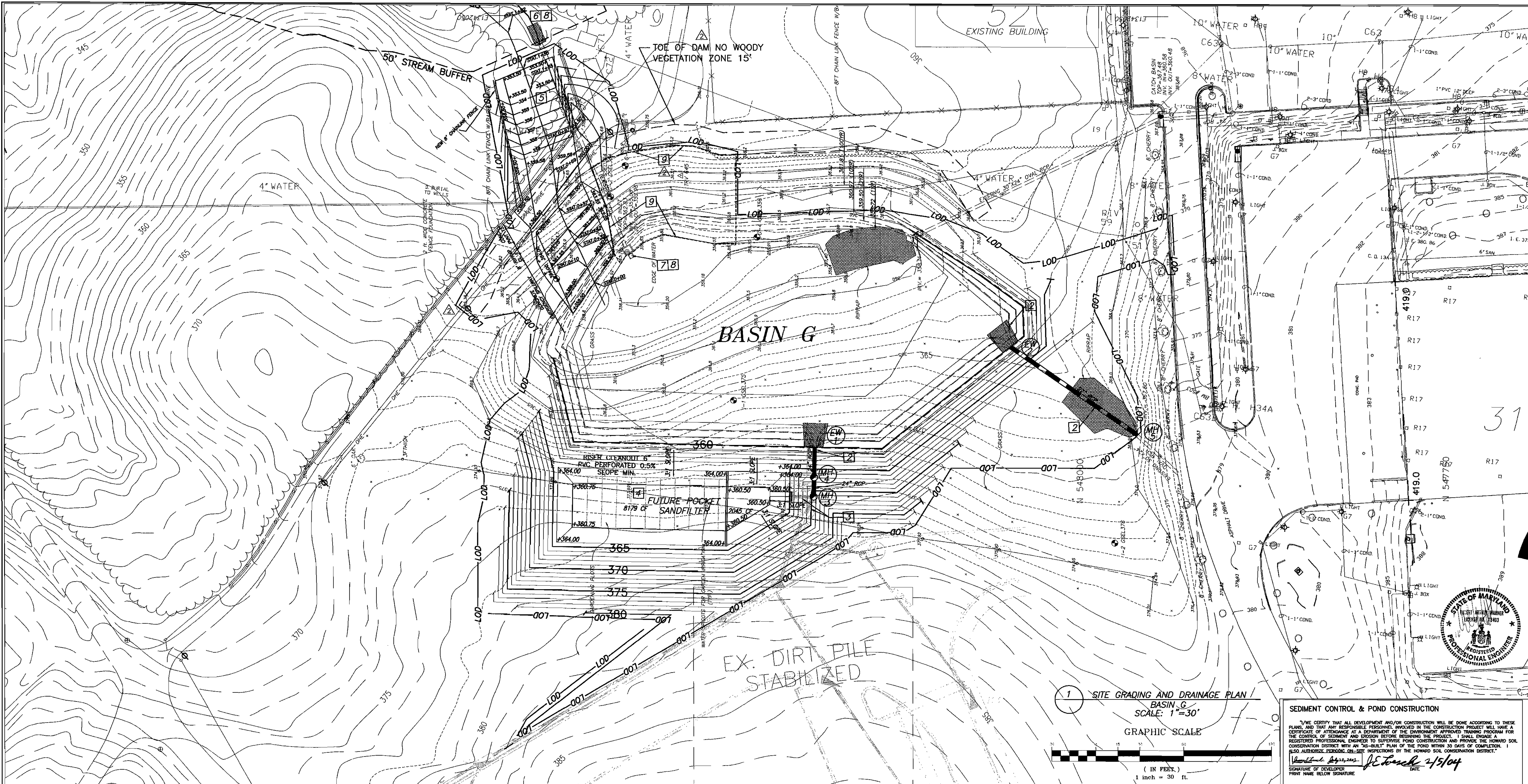
DES: J. KASPA					
DRN: P. FRIAS					
CHK: R. WARNER					
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

DRAINAGE BASIN G

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
SITE LAYOUT / DEMOLITION PLAN

TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C1.2
SHEET 6 OF 16



1. EXISTING DRAINAGE AREA G 1-YR DISCHARGE 11.6 CFS (BASIN 1.5 CFS)
2. DEVELOPED DRAINAGE AREA G 1-YR DISCHARGE 6.4 CFS (BASIN 1.7 CFS)

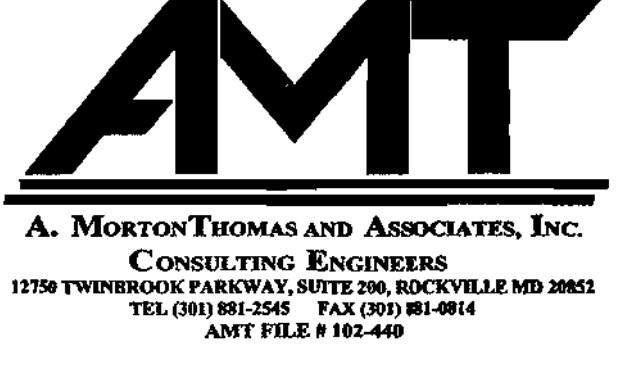
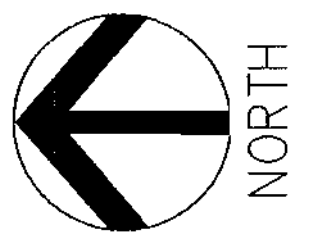
KEYED NOTES:

- 1 PROVIDE AND INSTALL NEW 30"x24" OVAL RCP PIPE SECTION 10', 5' MANHOLE AND 27" RCP PIPE.
- 2 NEW MANHOLES, HEADWALLS, PIPES, AND RIPRAP (SEE SHEETS #C1.4 & C1.6).
- 3 CAP 12" RCP OUT OF SPLITTER BOX (MH3) AND 24" RCP INFLOW PIPE INTO SPLITTER BOX FOR FUTURE CONNECTION.
- 4 GRADE SITE OF FUTURE POCKET SANDFILTER TO ELEVATION 364.00. INSTALL TOPSOIL AND SEED.
- 5 EXISTING TREES (36") AND STUMPS TO BE REMOVED (10 REQ.) IN AREA OF GRADING.
- 6 REMOVE WOODY GROWTH AND EXCESSIVE VEGETATIVE GROWTH WITHIN 25' OF OUTFALL AND WITHIN 5' OF RIPRAP CHANNEL.
- 7 REPAIR AND PAINT (RUST RESISTANT BLACK PAINT) EXPOSED METAL ON THE OUTSIDE AND INSIDE OF RISER. REMOVE DEBRIS FROM THE LOW FLOW TRASH RACK.
- 8 REPAIR JOINT SEPARATION PASSING SOIL AT FIRST JOINT OF 18" INFLOW PIPE. REPAIR DISPLACED RIPRAP AND FABRIC AT THE 27" INFALL CHANNEL. REMOVE SEDIMENT ACCUMULATION AT THE 27" INFALL CHANNEL.

- 9 INSTALL 2" TOPSOIL ON TOP OF EXISTING TURF AND COMPACT TO 95% COMPACTION TO RAISE ELEVATION TO 361.27 (0.17' ABOVE EXISTING - 0.15'+15% FOR SETTLEMENT) (TOP OF DAM WIDTH= 6' 3:1 SIDE SLOPES). SEED AND MULCH IMMEDIATELY AFTER FINE GRADING. MULCH SHALL BE MAINTAINED AT ALL TIMES UNTIL TURF IS ESTABLISHED.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHECK, DIVISION OF LAND DEVELOPMENT
 DIRECTOR

DATE: 2/11/04
 DATE: 3/15/04
 DATE: 3/15/04



DES: J. KASPA	11/24/03	ADDENDUM #1			
DRN: P. FRIAS	12/19/03	HOWARD COUNTY PERMIT/ MYLAR			
CHK: R. WARNER					
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

DRAINAGE BASIN G

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
SITE GRADING AND DRAINAGE PLAN

TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET C1.3
 SHEET 7 OF 16

SEDIMENT CONTROL & POND CONSTRUCTION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL EMPLOY A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Signature of Developer: [Signature] DATE: 2/5/04

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 Signature of Engineer: [Signature] DATE: 12/23/03

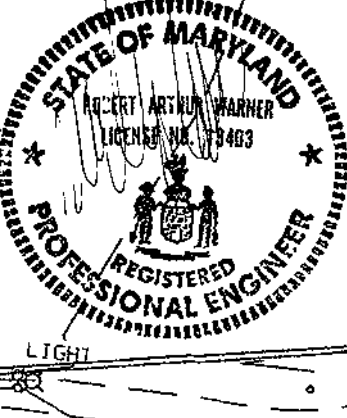
Signature of Engineer: [Signature] DATE: 12/23/03

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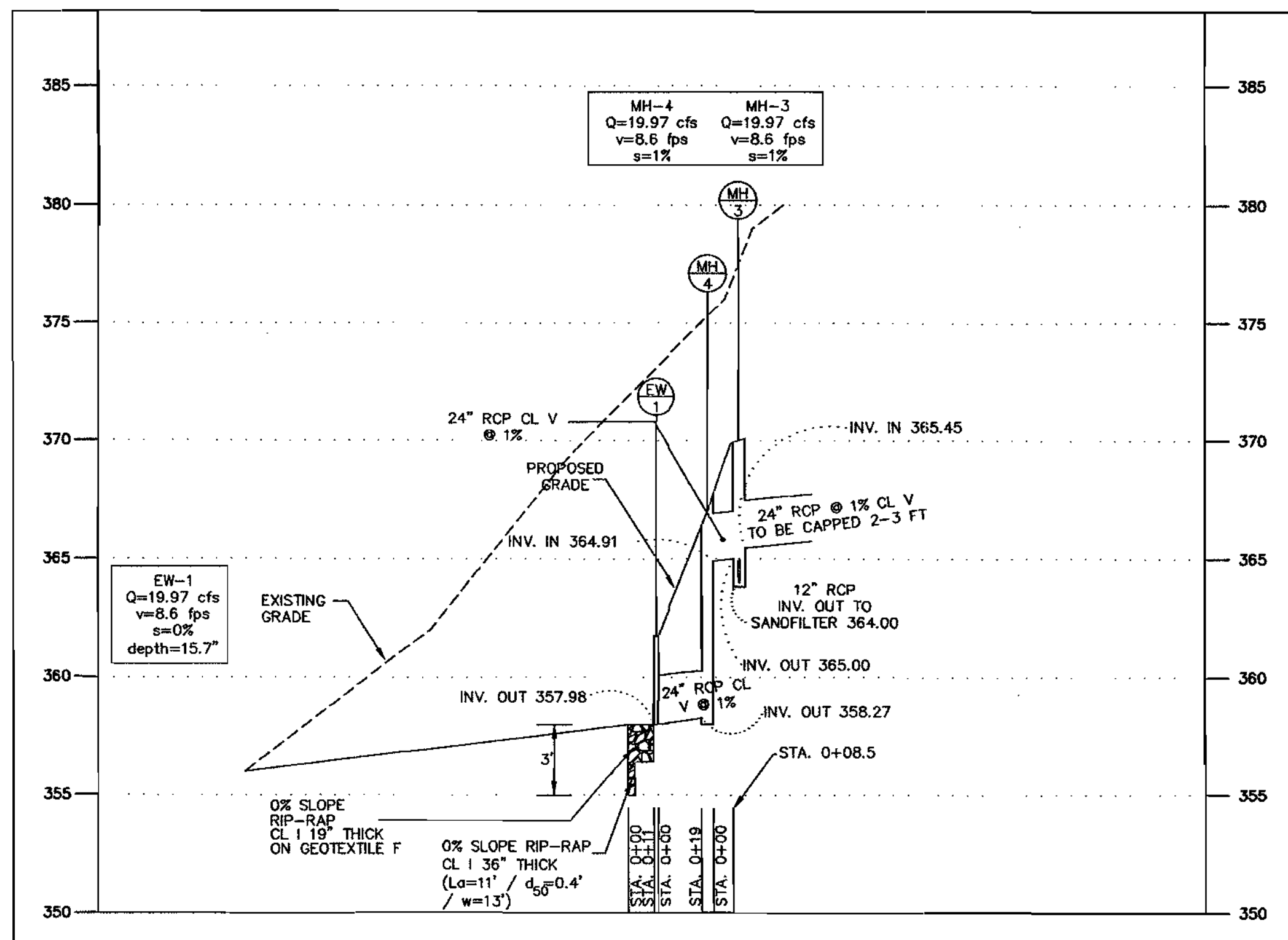
Signature of Engineer: [Signature] DATE: 3/6/04

() THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 Signature of Engineer: [Signature] DATE: 3/6/04

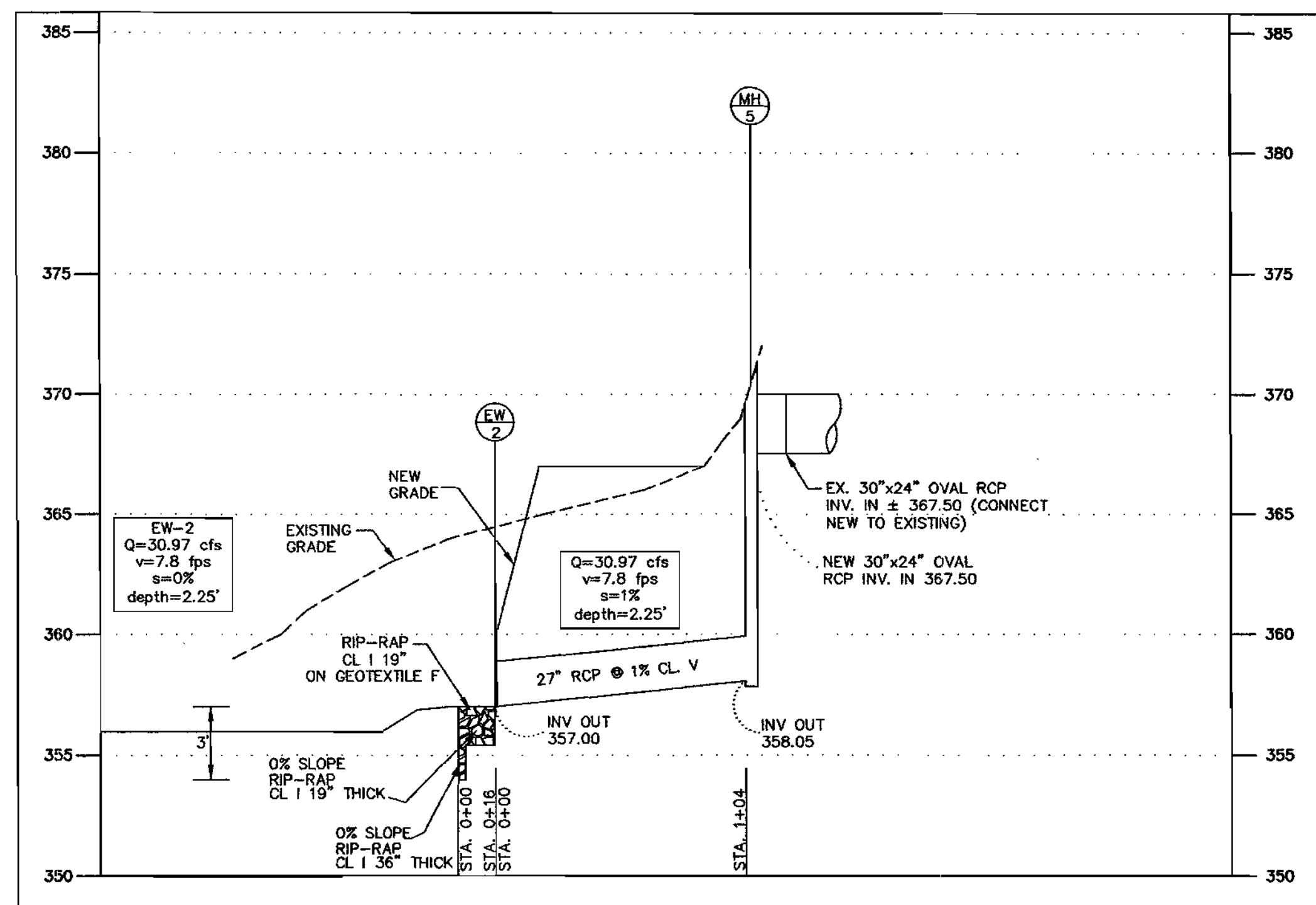
Signature of Engineer: [Signature] DATE: 3/6/04



SDP-04-05



1 PIPE PROFILE MH-2 TO EW-1
SCALE: HORIZ. 1"=50'
VERT. 1"=5'



2 PIPE PROFILE MH-5 TO EW-2
SCALE: HORIZ. 1"=50'
VERT. 1"=5'

STORM DRAIN PIPE SCHEDULE

FROM	TO	SIZE (inches)	LENGTH (feet)	SLOPE (%)	FLOW CAP. (cfs)	10-YR Q (cfs)	VELOCITY (fps)	PIPE Type	PARTIAL FLOW depth (in.)	VELOCITY (fps)
MH-3	MH-4	24"	8.5	1%	22.62	19.97	7.20	RCP CL V	15.7"	8.6
MH-4	EW-1	24"	19.0	1%	22.62	19.97	7.20	RCP CL V	15.7"	8.6
MH-5	EW-2	27"	104	1%	30.97	*	*	RCP CL V	27"	7.8

*EXISTING EXTENDED

STORM DRAIN STRUCTURE SCHEDULE

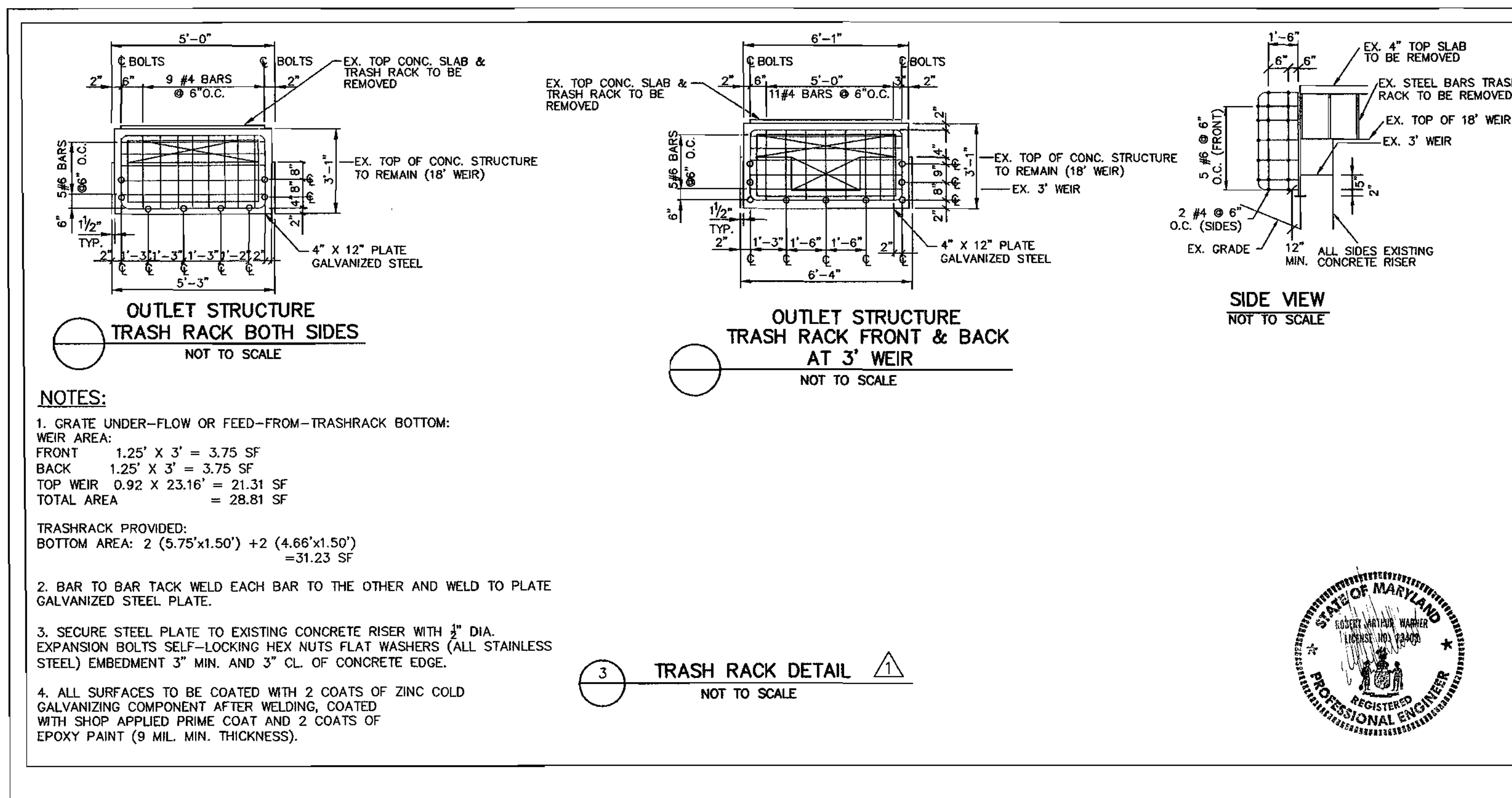
STRUC. NO.	TYPE	STANDARD NO.	TOP ELEVATION	SIZE (ft)	INV. IN	INV. OUT	COMMENT
MH-3	SPLITTER MANHOLE	SEE DETAIL 1 ON SHEET C1.6	370.00	5'	365.45	365.00 (24") 364.00 (12")	PRECAST SPLITTER MANHOLE
MH-4	DROP MANHOLE	SHA #MD-383.11	367.00	-	364.91	358.27	STANDARD DROP MANHOLE
EW-1	ENDWALL	SHA #MD-354.01	361.75	-	-	357.98	STANDARD TYPE C ENDWALL
MH-5	MANHOLE	SHA #MD-384.03	369.50	5'	367.50	358.05	PRECAST MANHOLE
EW-2	ENDWALL	SHA #MD-354.01	360.00	-	-	357.00	STANDARD TYPE C ENDWALL

STORM DRAIN COMPUTATION SHEET

COMPUTED BY: PCF DATE: 10/03 PROJECT: APL-JHU BASIN G
CHECKED BY: JK DATE: 10/03 STORM FREQUENCY: 10-YEAR

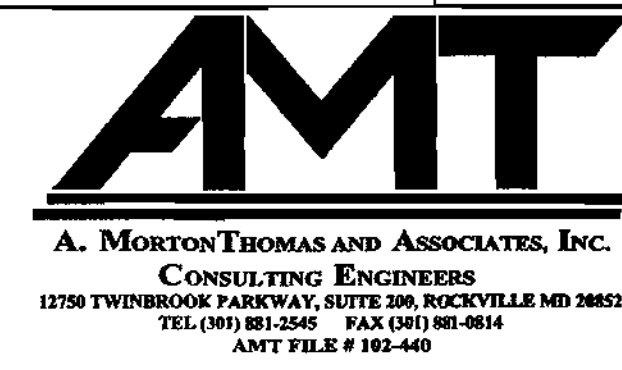
MANNING'S "N" (RCP) = 0.013
MANNING'S "N" (PVC) = 0.011

PIPE STRUCTURE	DRAINAGE AREA	RUNOFF COEFF.	*AREA"x"C*	TIME OF CONC.	RAINFALL INTENSITY	RUNOFF "Q"	PIPE DIAMETER	PIPE LENGTH	MIN. PIPE SLOPE (1/1)	ACTUAL PIPE SLOPE (1/1)	VELOCITY (FPS)	TIME IN PIPE (MIN)	PIPE "Q" CAPACITY (CFS)			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
MH-3	MH-4	2.61	2.61	0.9	2.35	2.35	5.00	8.50	19.97	24	8.5	0.004	0.010	7.20	0.02	22.62
MH-4	EW-1	2.61	2.61	0.9	2.35	2.35	5.00	8.50	19.97	24	19	0.004	0.010	7.20	0.04	22.62
MH-5	EW-2	2.61	2.61	0.9	2.35	2.35	5.00	8.50	19.97	27	104	0.004	0.010	7.79	0.22	30.97



APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
CHIEF, DIVISION OF LAND DEVELOPMENT
DIRECTOR

DATE: 3/11/04
DATE: 3/15/04
DATE: 3/15/04



DES:	DRN:	CHK:	DATE:	NO.	BY	CK	APP
J. KASPA	P. FRIAS	R. WARNER	11/24/03	ADDENDUM #1			
10/09/03							

DRAINAGE BASIN G

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
PIPE PROFILE AND
STRUCTURE SCHEDULES
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C1.4
SHEET 8 OF 16

SEDIMENT CONTROL & POND CONSTRUCTION

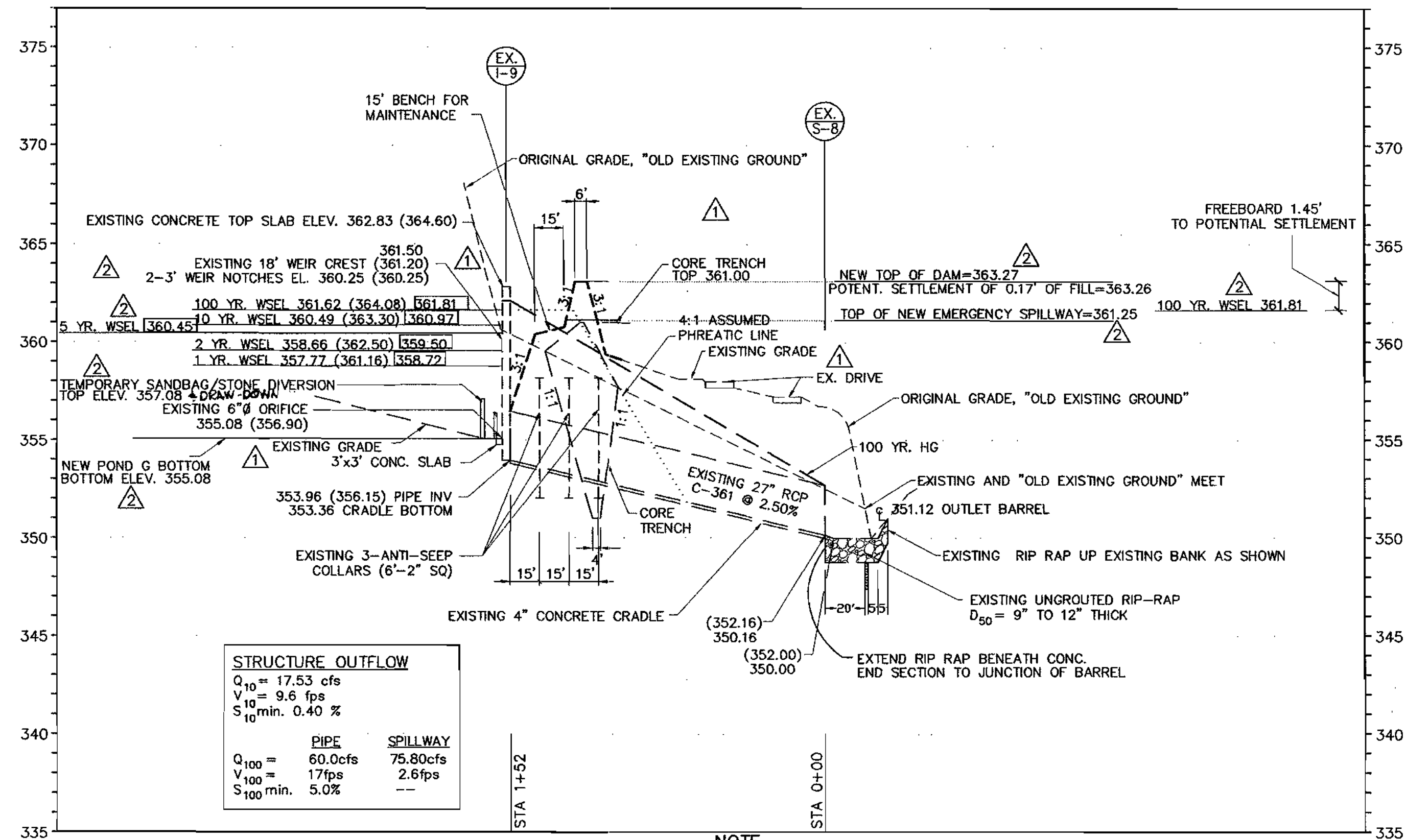
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ROBERT A. WARNER
REGISTERED PROFESSIONAL ENGINEER

DATE: 12/23/03

DATE: 3/4/04

DATE: 3/4/04



STRUCTURE OUTFLOW

Q_{10}	=	17.53 cfs
V_{10}	=	9.6 fps
S_{10}	min.	0.40 %

PIPE	SPILLWAY		
Q_{100}	=	60.0cfs	75.80cfs
V_{100}	=	17fps	2.6fps
S_{100}	min.	5.0%	--

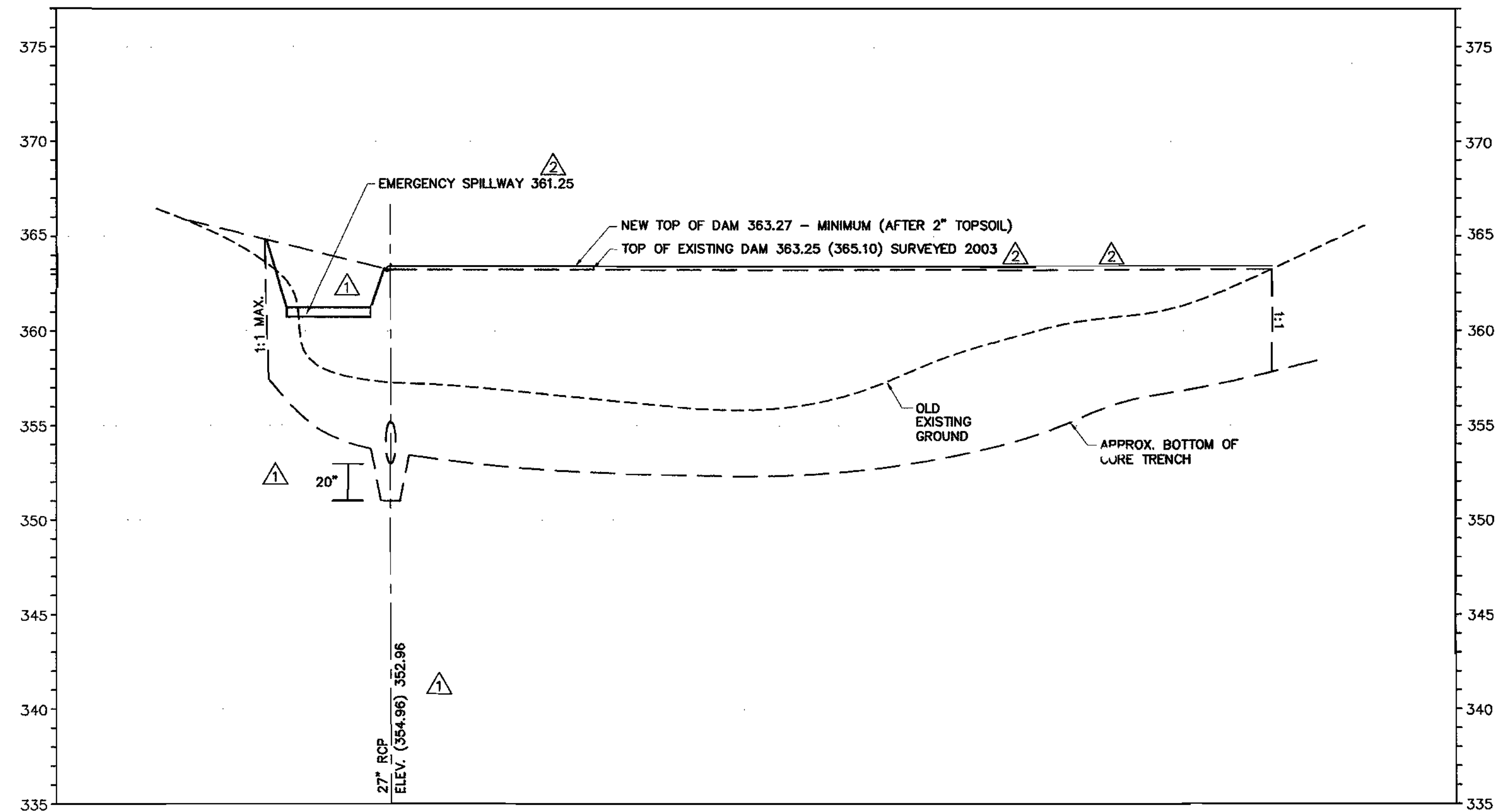
- NOTE**
- EXISTING DRAINAGE AREA G 1-YR DISCHARGE 11.6 CFS (BASIN 1.5 CFS)
 - DEVELOPED DRAINAGE AREA G 1-YR DISCHARGE 6.4 CFS (BASIN 1.7 CFS)
 - HEIGHT OF STRUCTURE: (TOP OF DAM 363.26)-(INVERT CRADLE 353.36)=9.90 FT
 - TOP OF PRINCIPAL SPILLWAY TO TOP OF EMERGENCY SPILLWAY 361.25-360.25=1.0'
 - TOP OF EMERGENCY SPILLWAY TO TOP OF DAM 363.27-361.25=2.02'
 - 10-YEAR WSEL 360.97 IS BELOW EXISTING TOP OF CORE TRENCH ELEV. 361.00

LEGEND
 364.12 ELEVATIONS BASED ON JHU/APL DATUM 2003 AND CALCULATIONS- NEW DATUM
 (366.12) ELEVATIONS BASED ON BASIN G AS-BUILT - OLD DATUM
 364.00 ELEVATIONS CALCULATED EXPANDED BASIN

1

EXISTING AS-BUILT BASIN G PROFILE

SCALE: HORIZ. 1"=50'
 VERT. 1"=5'



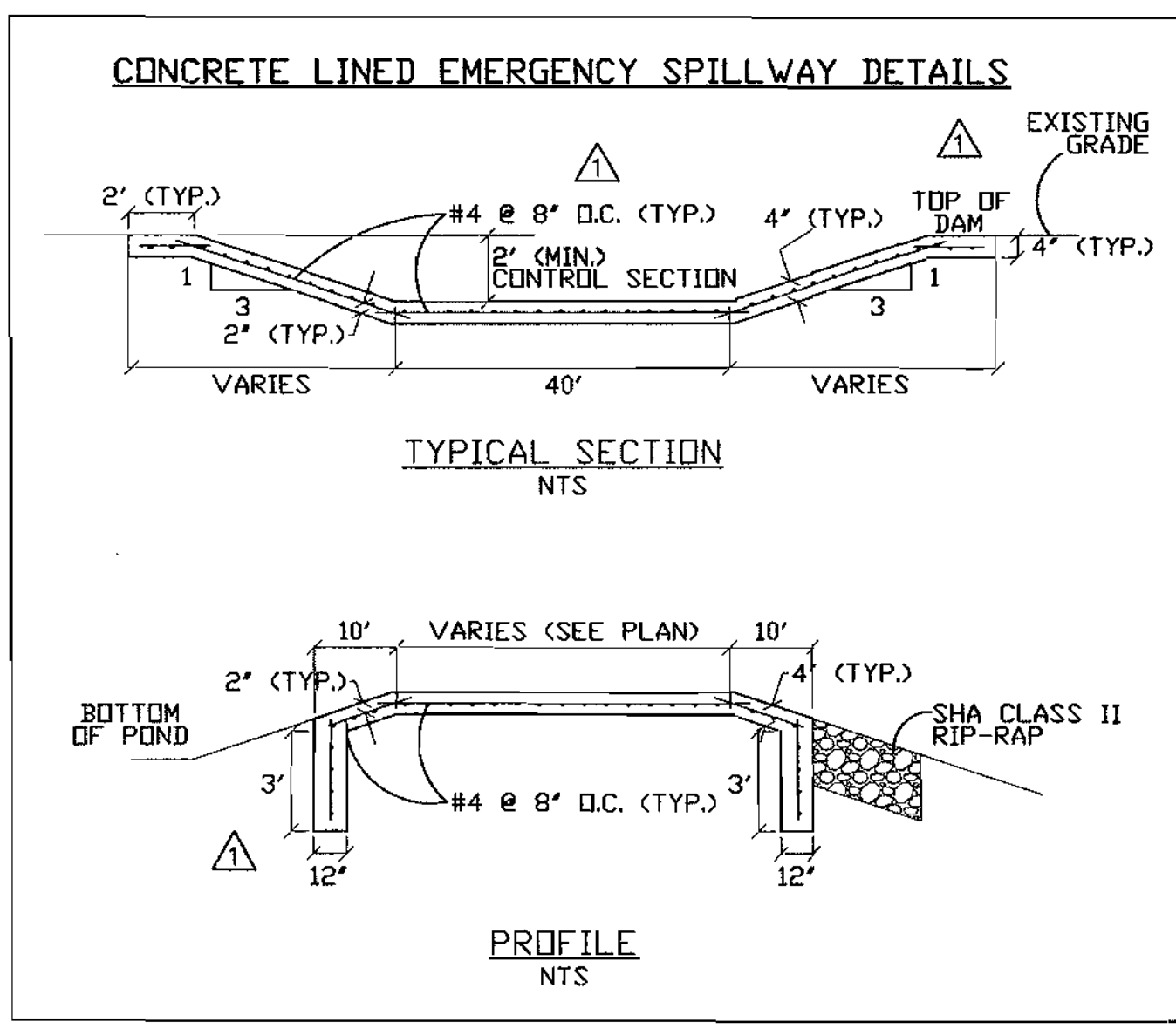
LEGEND
 364.12 ELEVATIONS BASED ON JHU/APL DATUM 2003 - NEW DATUM
 (366.12) ELEVATIONS BASED ON BASIN G AS-BUILT - OLD DATUM

NOTE
 CENTERLINE LOCATED AT TOP OF FILL, SEE SHEET C1.0 FOR LOCATION.

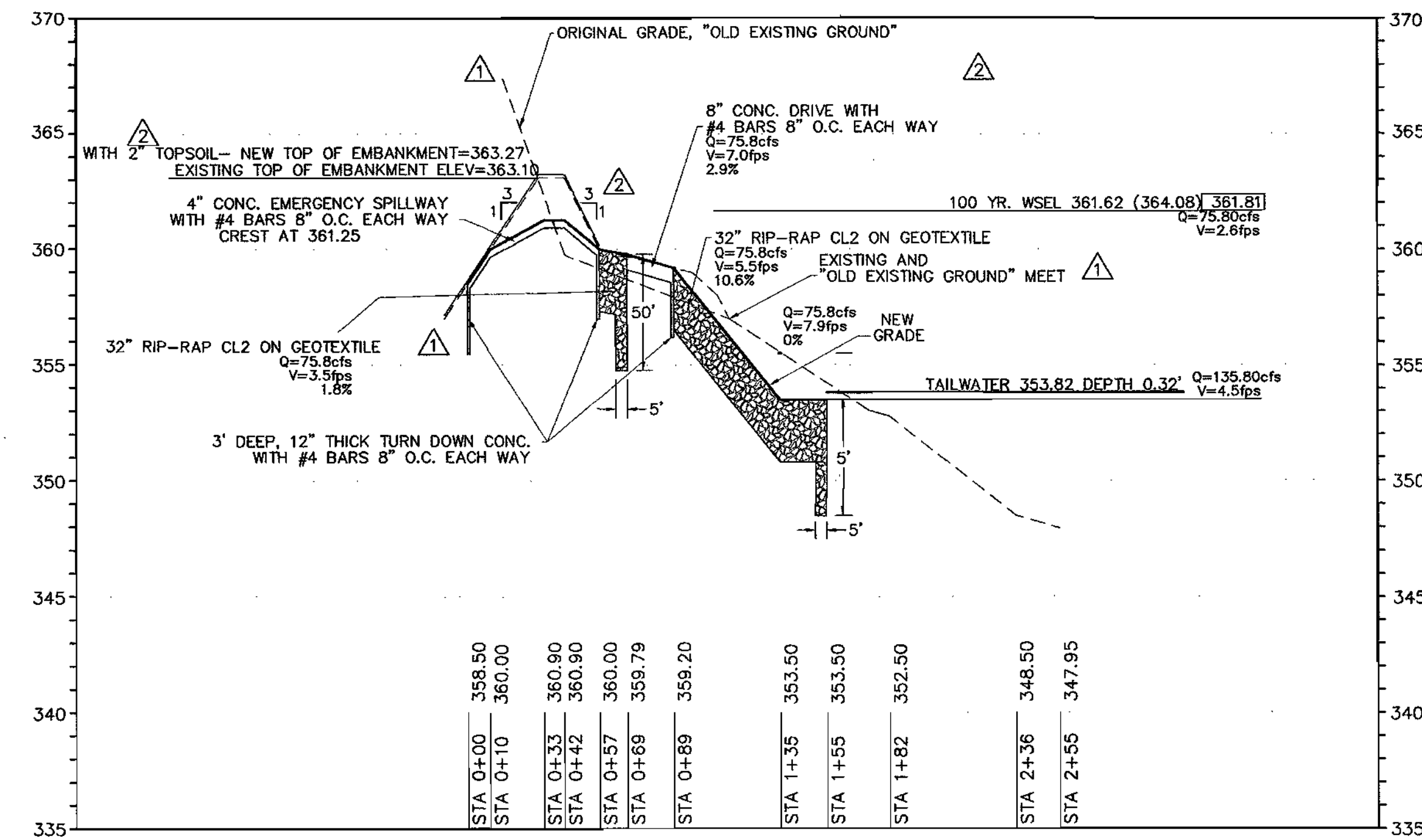
2

EXISTING PROFILE ALONG CENTERLINE LOOKING DOWN STREAM EMBANKMENT AS-BUILT

SCALE: HORIZ. 1"=50'
 VERT. 1"=5'



EMERGENCY SPILLWAY TYPICAL SECTION
 NTS



EMERGENCY SPILLWAY PROFILE

SCALE: HORIZ. 1"=50'
 VERT. 1"=5'



B 31

Howard County
 Department of Public Works
BUREAU OF ENVIRONMENTAL SERVICES
John J. O'Hara, Chief

Wednesday, April 23, 2003

JOHNS HOPKINS UNIVERSITY
 APPLIED PHYSICS LAB
 11100 JOHNS HOPKINS RD.
 LAUREL, MD 20723

Sent Certified and Regular Mail

Subject: Storm Water Management Facility Inspection Results
 SDP-90-218 JOHNS HOPKINS APPLIED PHYSICS LAB Inspection Cycle: P027
 11100 JOHNS HOPKINS ROAD

Dear Facilities Manager,

In regard to our letter to you of 9/16/2002, this is to advise you that an inspection of your stormwater management facility, lined below, at the subject property was conducted on 10/17/2002. The results of the inspection are as follows:

Facility No.	Description / Access
982	Extended Detention Structure, Dry - PARKING AREA @ CENTRALIZED DISTRIBUTION

The following items require immediate repair or maintenance:

- Outlet(s) from pond; headwalls, rip-rap channels.
 Remove woody growth and excessive vegetative growth within 25 feet of the outfall and within 5 feet of the rip rap channel.
- Riser / weir wall / control structure.
 Repair exposed metal on the outside end and on the inside of the riser. Remove debris from the low flow trash rack.
- Pond inlet structures and embankments.
 Repair the joint separation passing soil at the first joint of the 18-inch infall pipe. Repair displaced rip rap, exposed fabric and erosion at the 27-inch infall channel. Remove sediment accumulation at the 27-inch infall channel.

Inspector's Summary

R1) Remove excessive woody and vegetative growth at the outfall from the pond. R2) Repair exposed metal on the top slab of the riser. R3) Repair exposed metal on the inside of the riser. R4) Remove debris from the low flow trash rack. R5) Repair exposed fabric at the 27-inch infall channel. R6) Repair erosion at the 27-inch infall channel. R7) Repair sediment accumulation at the 27-inch infall channel. R8) Repair the sprow crack at the 27-inch infall. R9) Repair the joint separation at the 18-inch infall pipe.

As owners of a property containing private storm water management facilities, you are responsible for maintenance of the facilities, under Howard County Code Section 18.905. The repair and maintenance items listed above must be corrected within 60 days of the date of this letter. If you are unable to correct those deficiencies within that time, you may request additional time for correction. Your request must be: (1) in writing; and (2) received by me within 60 days of the date of this letter. Once corrections have been completed, please contact me to schedule a follow up inspection.

SEDIMENT CONTROL & POND CONSTRUCTION

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Robert A. Warner DATE 2/5/04
 SIGNATURE OF DEVELOPER
 PRINT NAME BELOW SIGNATURE

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

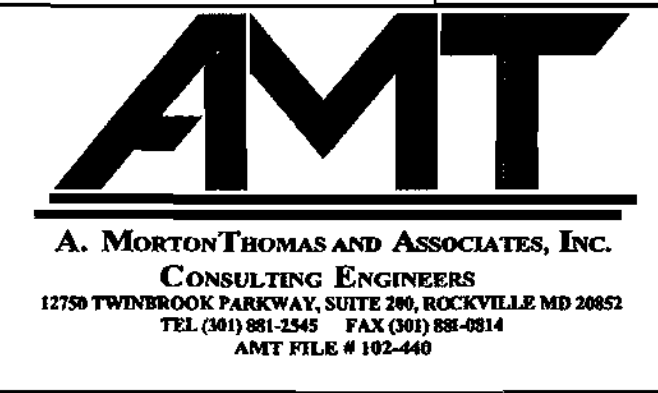
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Jim Meyer DATE 3/4/04
 SIGNATURE OF DEVELOPER
 PRINT NAME BELOW SIGNATURE

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

Robert A. Warner DATE 3/4/04
 SIGNATURE OF ENGINEER
 PRINT NAME BELOW SIGNATURE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
John J. O'Hara DATE 3/11/04
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
John J. O'Hara DATE 3/15/04
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DIRECTOR DATE 3/10/04



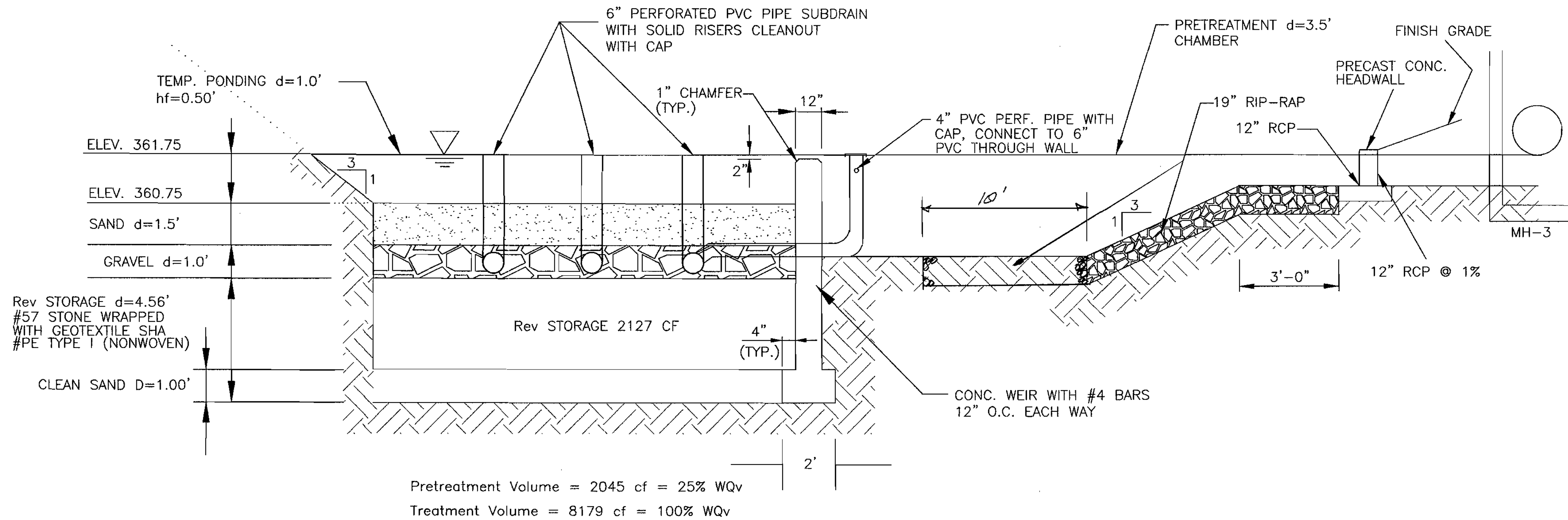
DES: J. KASPA	11/24/03	ADDENDUM #1			
DRN: P. FRIAS	12/19/03	HOWARD COUNTY PERMIT/ MYLAR			
CHK: R. WARNER					
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

DRAINAGE BASIN G

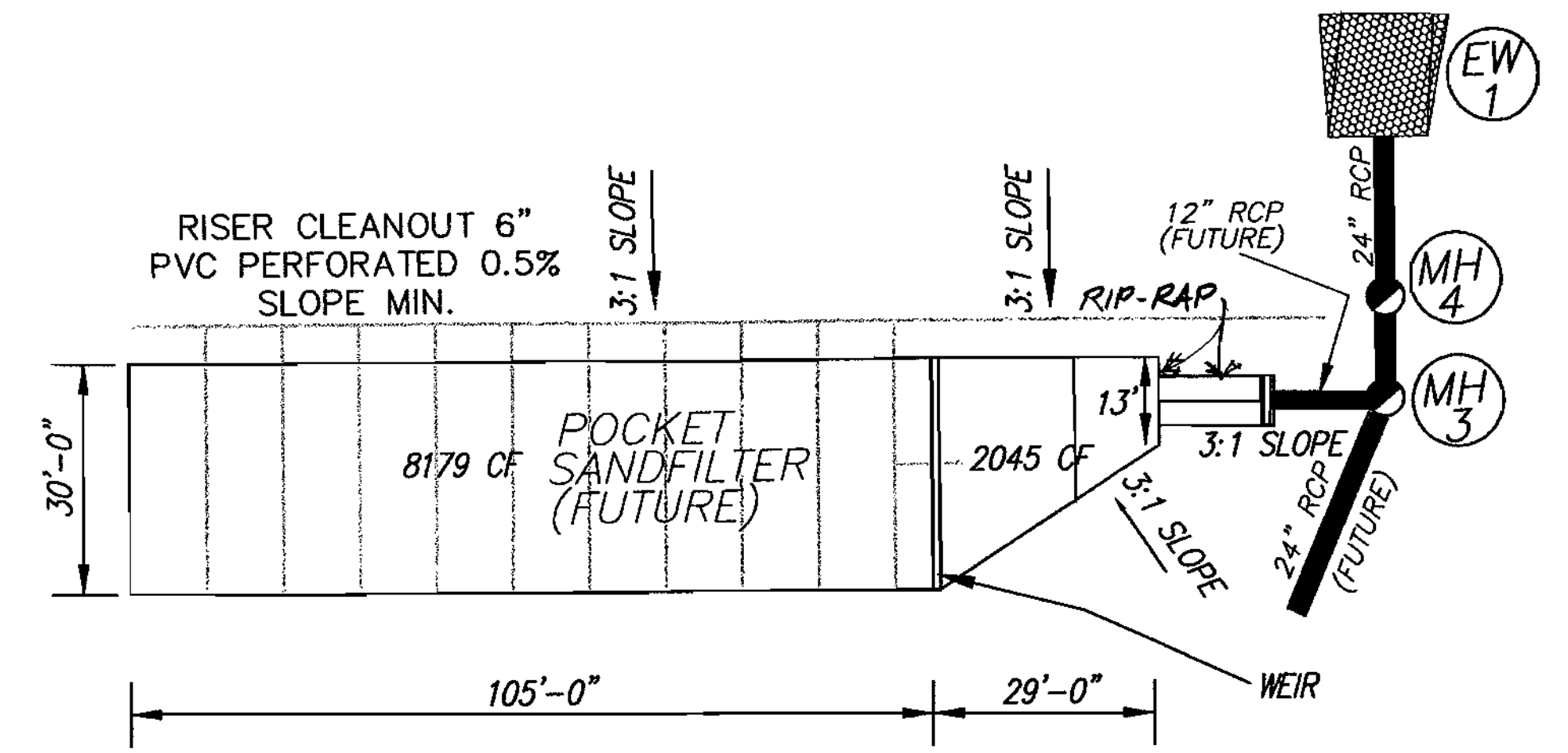
APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
**EXISTING AS-BUILT
 PROFILE - BASIN G**
 TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET C1.5
 SHEET 9 OF 16

SDP-24-35



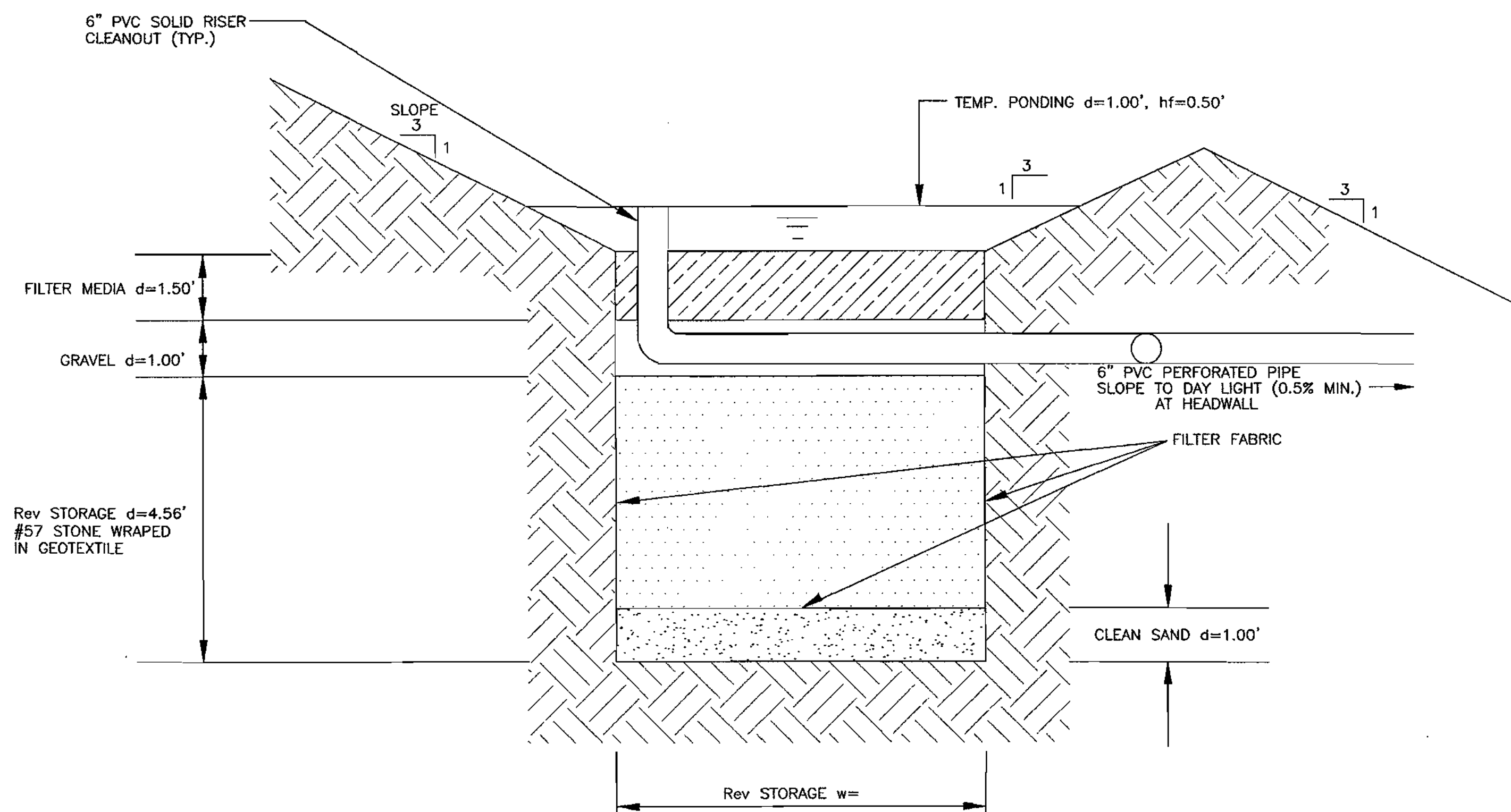
1 SECTION A-A
POCKET SAND FILTER - PROFILE / SECTION
SCALE: NTS



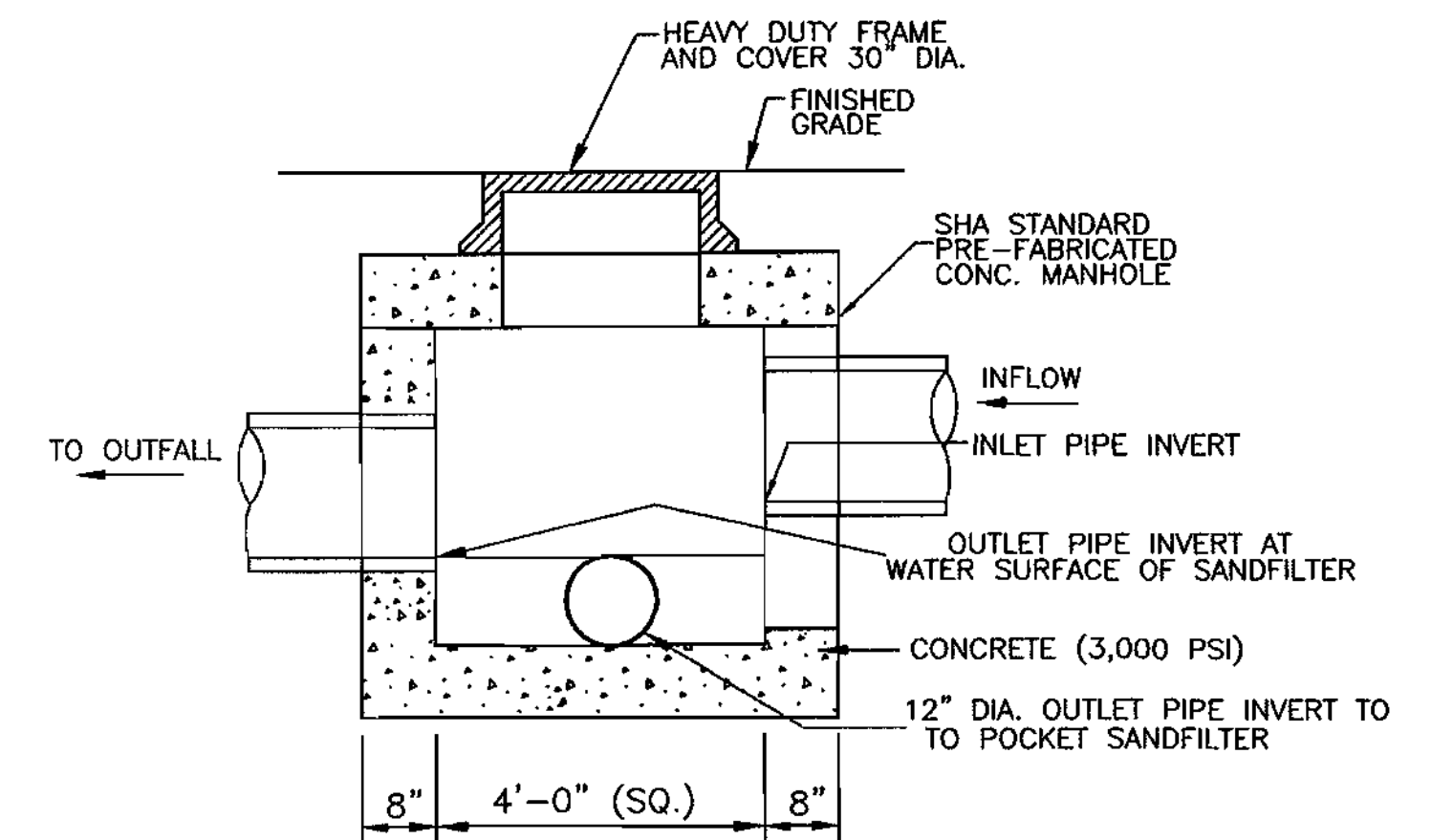
2 POCKET SAND FILTER - PLAN VIEW
SCALE: NTS

GENERAL NOTES

1. SANDFILTER IS FOR FUTURE CONSTRUCTION (N.I.C.)



3 SECTION B-B
POCKET SAND FILTER - CROSS SECTION
SCALE: 1/2"=1'-0"



4 SPLITTER MANHOLE
SCALE: NTS

- NOTES:
1. SEE PROFILE FOR PIPE INVERT AND SIZE.
 2. STRUCTURE AND FRAME/COVER MD SHA 383.00 EXCEPT 30" FRAME AND COVER.
 3. SEE STRUCTURE SCHEDULE FOR ELEVATION.
 4. HYDRAULIC CAPACITY OF SPLITTER MANHOLE IS BASED ON FILLING SANDFILTER TO DESIGN CAPACITY BEFORE FLOW EXITS VIA SPLITTER BOX TO OUTLET PIPE.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] DATE 2/11/04
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] DATE 3/15/04
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] DATE 2/25/04
 DIRECTOR



DES: J. KASPA							
DRN: P. FRIAS							
CHK: R. WARNER							
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP	

DRAINAGE BASIN G

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
**POCKET SANDFILTER
 PLAN AND DETAILS**
 TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET C1.7
 SHEET 11 OF 16

SEDIMENT CONTROL & POND CONSTRUCTION

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] DATE 2/15/04
 SIGNATURE OF DEVELOPER
 PRINT NAME BELOW SIGNATURE

() BY THE ENGINEER:
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND HONORABLE 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.

[Signature] DATE 2/23/04
 SIGNATURE OF ENGINEER
 PRINT NAME BELOW SIGNATURE

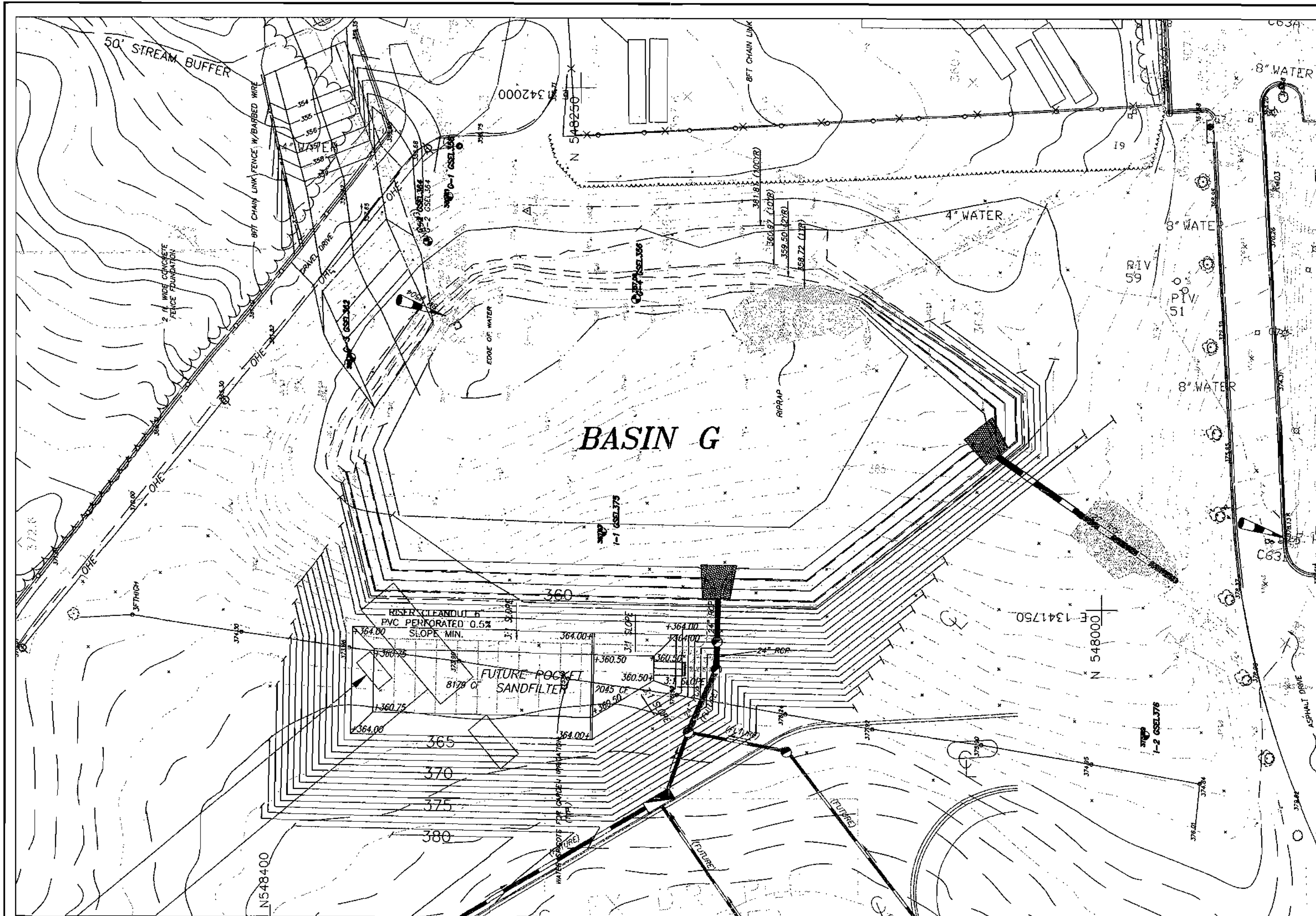
() THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

[Signature] DATE 3/6/04
 SIGNATURE OF PROFESSIONAL ENGINEER
 PRINT NAME BELOW SIGNATURE

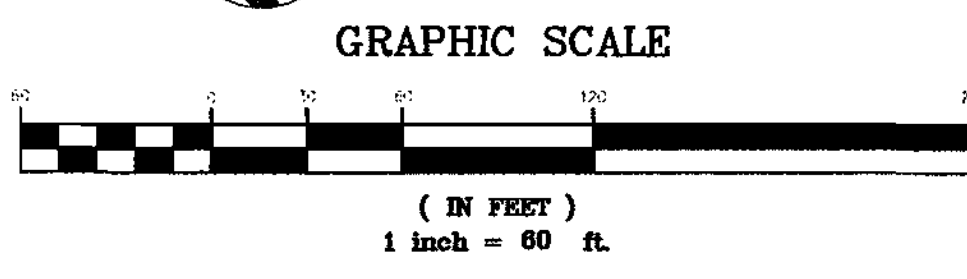
() THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] DATE 3/6/04
 SIGNATURE OF HOWARD SOIL CONSERVATION DISTRICT





BORING LOCATION PLAN
SCALE: 1"=40'



SEDIMENT CONTROL & POND CONSTRUCTION

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER
DATE

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

ROBERT A. WARNER
SIGNATURE OF ENGINEER
DATE

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE
DATE

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

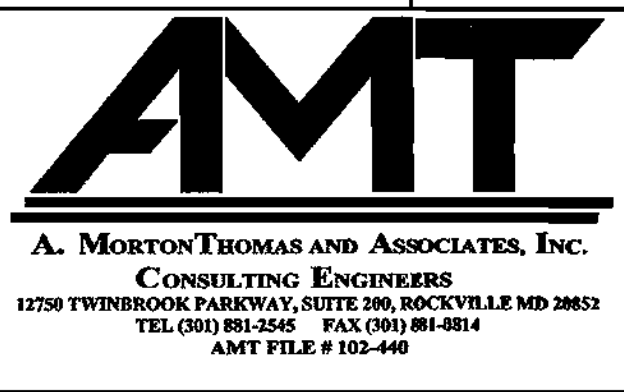
HOWARD SOIL CONSERVATION DISTRICT
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 2/11/04

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 2/15/04

DIRECTOR
DATE: 2/15/04



DES: J. KASPA					
DRN: P. FRIAS					
CHK: R. WARNER					
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

Schnabel TEST BORING LOG G-1

Project: John Hopkins University Applied Physics Lab, Stormwater Pond G, Howard County, MD
Boring Number: 03021098
Sheet: 1 of 1

Boring Contractor: Connelly and Associates, Inc.
Boring Foreman: S. Delosh
Drilling Method: 2-1/4 I.D. Hollow Stem Auger
Drilling Equipment: CME-45C
SEA Representative: Amanda McCurry
Dates Started: 5/28/03 Finished: 5/28/03
Location: See Boring Location Plan

Groundwater Observations		Date	Time	Depth	Casing	Caved
Encountered	5/28	14.0'				
Completion	5/28	16.0'				
Augers Pulled	5/28	9.0'		19.0'		
24 hours	5/29	7.0'		9.0'		

Ground Surface Elevation: 359.0ft (wet)

DEPTH (ft)	STRATA DESCRIPTION	CLASS	ELEV. STRATA (ft)	SAMPLING DEPTH	TESTS	REMARKS
0.0	Topsoil		358.7	1'-2"		
0.5	silty sand FILL, trace mica, moist, reddish-brown	A	358.0	1'-3"	w=21.0%	
3.0	silty SAND, trace mica, trace gravel, moist, reddish-brown	SM	354.0	2'-2"	w=20.2%	
9.5	silty SAND, micaceous, moist, mottled brown	SM	349.5	4'-3"		
15.0				3'-3"		
19.0				1'-1"		
20.0	wet below 18.0 FT. BOTTOM OF BORING @ 20.0 FT.		339.0	2'-0"		

Schnabel TEST BORING LOG G-2

Project: John Hopkins University Applied Physics Lab, Stormwater Pond G, Howard County, MD
Boring Number: 03021098
Sheet: 1 of 1

Boring Contractor: Connelly and Associates, Inc.
Boring Foreman: S. Delosh
Drilling Method: 2-1/4 I.D. Hollow Stem Auger
Drilling Equipment: CME-45C
SEA Representative: Amanda McCurry
Dates Started: 5/28/03 Finished: 5/28/03
Location: See Boring Location Plan

Groundwater Observations		Date	Time	Depth	Casing	Caved
Encountered	5/28	14.0'				
Completion	5/28	14.0'				
Augers Pulled	5/28	Dry		11.0'		
24 hours	5/29	Dry		11.0'		

Ground Surface Elevation: 364.0ft (wet)

DEPTH (ft)	STRATA DESCRIPTION	CLASS	ELEV. STRATA (ft)	SAMPLING DEPTH	TESTS	REMARKS
0.0	Topsoil		363.8	1'-2"		
3.0	sandy silty FILL, trace mica, trace gravel, moist, brown	A	361.0	2'-1"	w=14.0%	
5.0	clayey sand FILL, micaceous, trace gravel, moist, brown	A	359.0	2'-4"	w=18.7%	
8.5	encountered concrete drain at 8.5 feet; boring terminated and offset to 8.5 feet logs BOTTOM OF BORING @ 8.5 FT.		355.5	5'-0"		

Comments: Boring terminated after encountering a concrete drain @ 8.5'; offset 10' North to G-2A.

Schnabel TEST BORING LOG G-2A

Project: John Hopkins University Applied Physics Lab, Stormwater Pond G, Howard County, MD
Boring Number: 03021098
Sheet: 1 of 1

Boring Contractor: Connelly and Associates, Inc.
Boring Foreman: S. Delosh
Drilling Method: 2-1/4 I.D. Hollow Stem Auger
Drilling Equipment: CME-45C
SEA Representative: Amanda McCurry
Dates Started: 5/28/03 Finished: 5/28/03
Location: See Boring Location Plan

Groundwater Observations		Date	Time	Depth	Casing	Caved
Encountered	5/28	18.0'				
Completion	5/28	18.0'				
Augers Pulled	5/28	Dry		8.0'		
24 hours	5/29	Dry		8.0'		

Ground Surface Elevation: 364.0ft (wet)

DEPTH (ft)	STRATA DESCRIPTION	CLASS	ELEV. STRATA (ft)	SAMPLING DEPTH	TESTS	REMARKS
0.0	Auger Probe					
8.5	silty SAND with mica, moist, brown	SM	356.5	2'-2"		
15.0				2'-2"		
20.0	wet below 18.0 FT. BOTTOM OF BORING @ 20.0 FT.		344.0	2'-0"		

Schnabel TEST BORING LOG G-3

Project: John Hopkins University Applied Physics Lab, Stormwater Pond G, Howard County, MD
Boring Number: 03021098
Sheet: 1 of 1

Boring Contractor: Connelly and Associates, Inc.
Boring Foreman: S. Delosh
Drilling Method: 2-1/4 I.D. Hollow Stem Auger
Drilling Equipment: CME-45C
SEA Representative: Amanda McCurry
Dates Started: 5/28/03 Finished: 5/28/03
Location: See Boring Location Plan

Groundwater Observations		Date	Time	Depth	Casing	Caved
Encountered	5/28	16.0'				
Completion	5/28	16.0'				
Augers Pulled	5/28	Dry		8.0'		
24 hours	5/29	Dry		8.0'		

Ground Surface Elevation: 365.0ft (wet)

DEPTH (ft)	STRATA DESCRIPTION	CLASS	ELEV. STRATA (ft)	SAMPLING DEPTH	TESTS	REMARKS
0.0	Topsoil		364.7	1'-4"		
5.0	sandy silty FILL, trace mica, trace roots, moist, brown	A	361.0	8'-6"	w=9.7%	
5.0	silty SAND, with mica, trace rock fragments, moist, mottled brown	SM	360.0	3'-4"		
10.0				1'-5"	w=21.4%	
15.0				1'-4"		
19.0				1'-4"		
20.0	wet below 18.0 FT. BOTTOM OF BORING @ 20.0 FT.		345.0	1'-0"		

Schnabel TEST BORING LOG G-4

Project: John Hopkins University Applied Physics Lab, Stormwater Pond G, Howard County, MD
Boring Number: 03021098
Sheet: 1 of 1

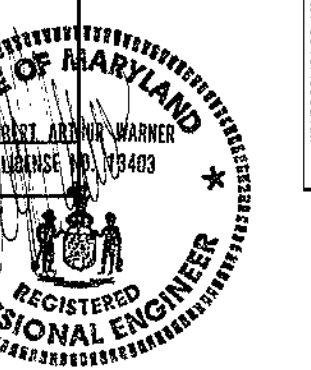
Boring Contractor: Connelly and Associates, Inc.
Boring Foreman: S. Delosh
Drilling Method: 2-1/4 I.D. Hollow Stem Auger
Drilling Equipment: CME-45C
SEA Representative: Amanda McCurry
Dates Started: 5/28/03 Finished: 5/28/03
Location: See Boring Location Plan

Groundwater Observations		Date	Time	Depth	Casing	Caved
Encountered	5/28	14.0'				
Completion	5/28	14.0'				
Augers Pulled	5/28	Dry		11.0'		
24 hours	5/29	Dry		11.0'		

Ground Surface Elevation: 375.0ft (wet)

DEPTH (ft)	STRATA DESCRIPTION	CLASS	ELEV. STRATA (ft)	SAMPLING DEPTH	TESTS	REMARKS
0.0	Topsoil		372.5	1'-3"		
3.0	sandy silty FILL, trace mica, trace roots, moist, brown	A	370.0	6'-8"-10"	w=15.4%	
3.0	silty SAND, moist, brown	SM	372.0	2'-2"	w=19.9%	
9.0	silty SAND, micaceous, moist, dark brown	SM	372.0	10'-20"+11"		
9.0	silty SAND with mica, trace rock fragments, moist, mottled brown	SM	366.0	2'-2"	w=18.7%	
15.0				8'-4"		
15.0	wet below 15.0 FT. BOTTOM OF BORING @ 15.0 FT.		360.0	1'-0"		

Comments: Infiltration Test Hole offset 5' south, drilled to 10' depth, installed 6" Diameter PVC pipe for infiltration test.



Schnabel TEST BORING LOG I-2

Project: John Hopkins University Applied Physics Lab, Stormwater Pond G, Howard County, MD
Boring Number: 03021098
Sheet: 1 of 1

Boring Contractor: Connelly and Associates, Inc.
Boring Foreman: S. Delosh
Drilling Method: 2-1/4 I.D. Hollow Stem Auger
Drilling Equipment: CME-45C
SEA Representative: Amanda McCurry
Dates Started: 5/28/03 Finished: 5/28/03
Location: See Boring Location Plan

Groundwater Observations		Date	Time	Depth	Casing	Caved
Encountered	5/28	Dry				
Completion	5/28	Dry				
Augers Pulled	5/28	Dry		10.0'		
24 hours	5/29	Dry		10.0'		

Ground Surface Elevation: 378.0ft (wet)

DEPTH (ft)	STRATA DESCRIPTION	CLASS	ELEV. STRATA (ft)	SAMPLING DEPTH	TESTS	REMARKS
0.0	Topsoil		375.8	1'-2"		
3.5	sandy silty FILL, trace mica, trace roots, moist, brown	A	372.5	3'-4"	w=18.8%	
3.5	silty SAND, with mica, moist, mottled brown	SM	372.5	7'-7"+13"		
10.0				5'-4"		
15.0	trace rock fragments below 8.0 FT. BOTTOM OF BORING @ 15.0 FT.		361.0	1'-0"		

Comments: Infiltration Test Hole offset 5' south, drilled to 10' depth, installed 6" Diameter PVC pipe for infiltration test.

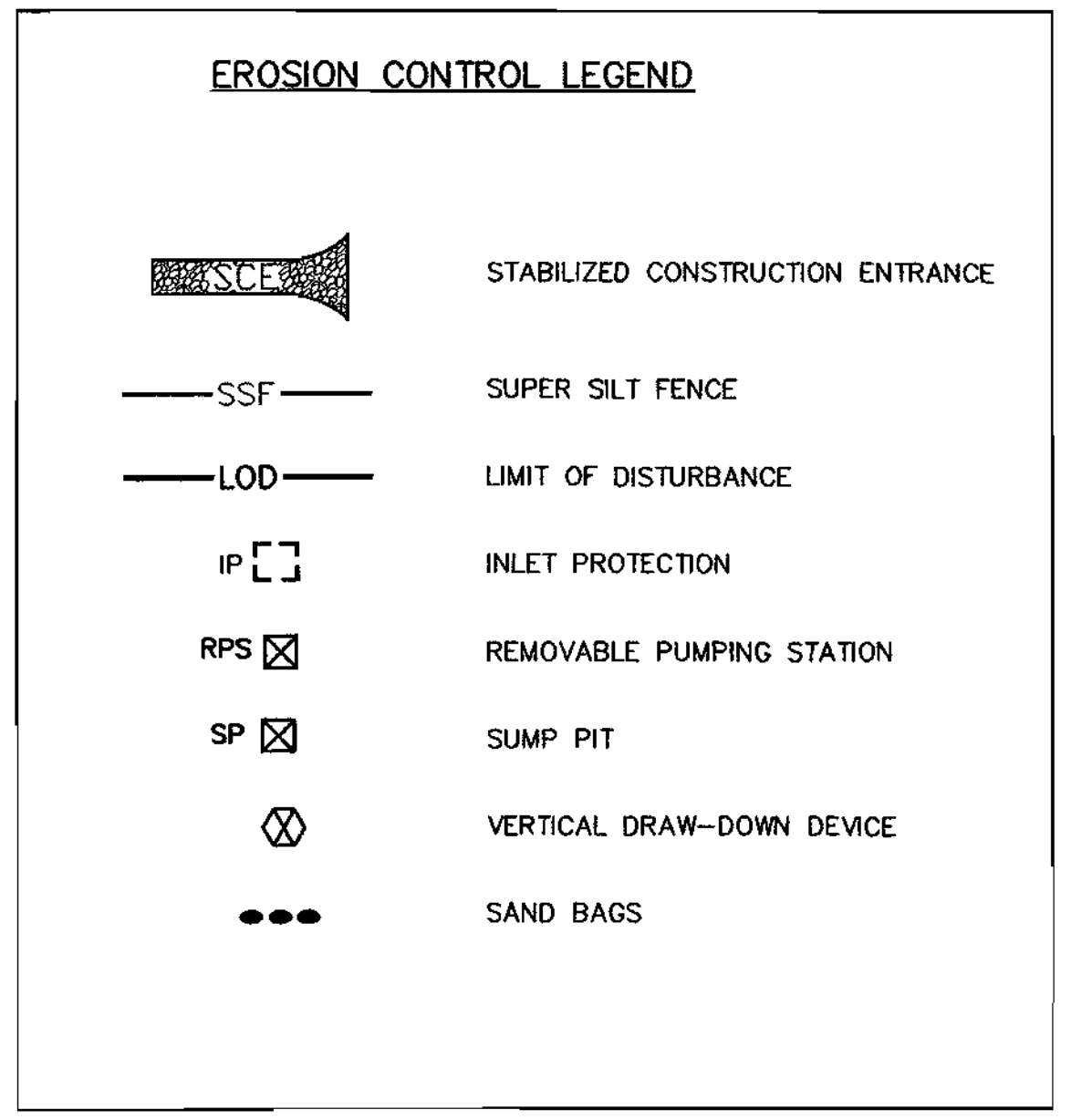
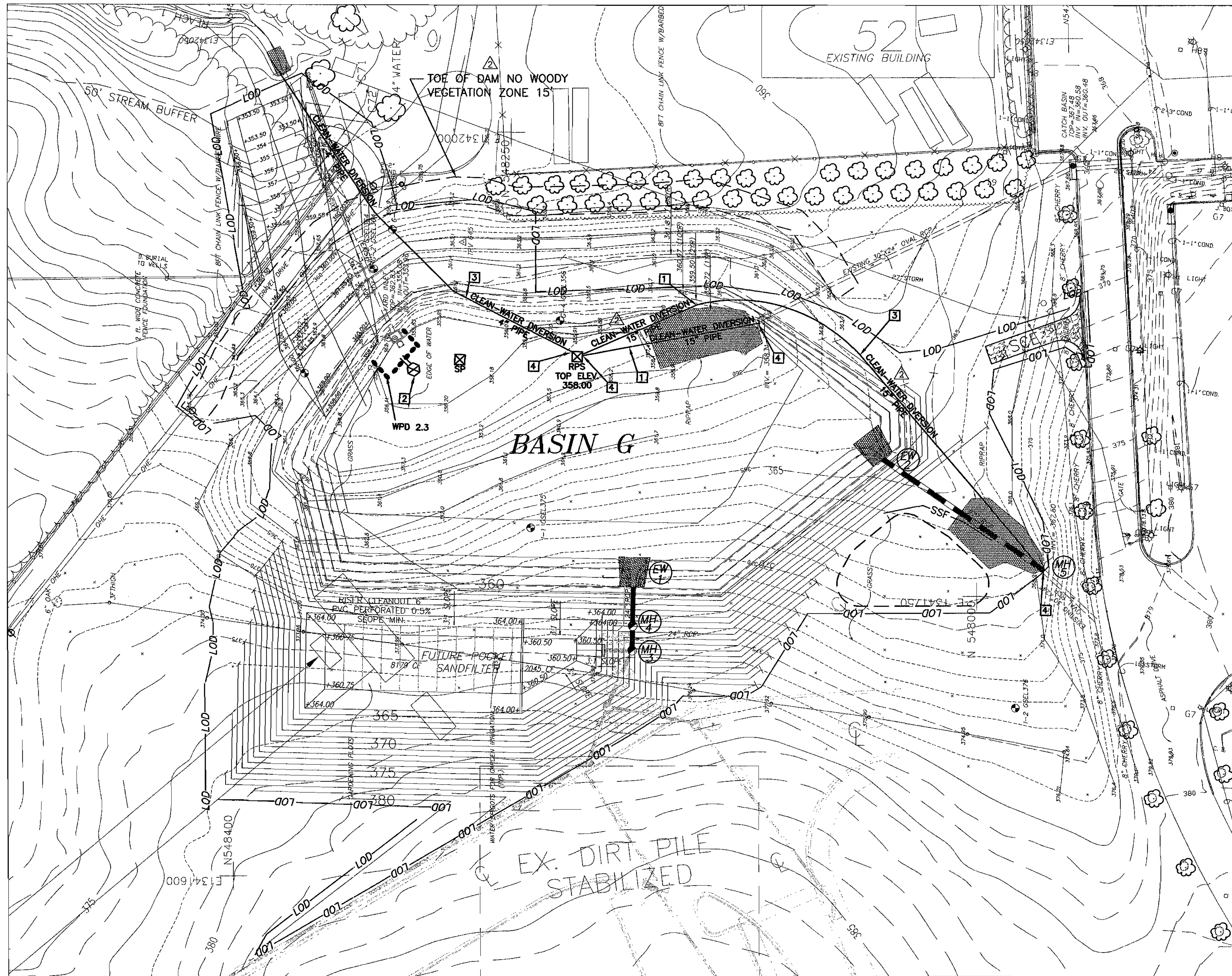
DRAINAGE BASIN G

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
BORING LOCATION AND LOGS

TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C1.9
SHEET 13 OF 16

SDP-04-35

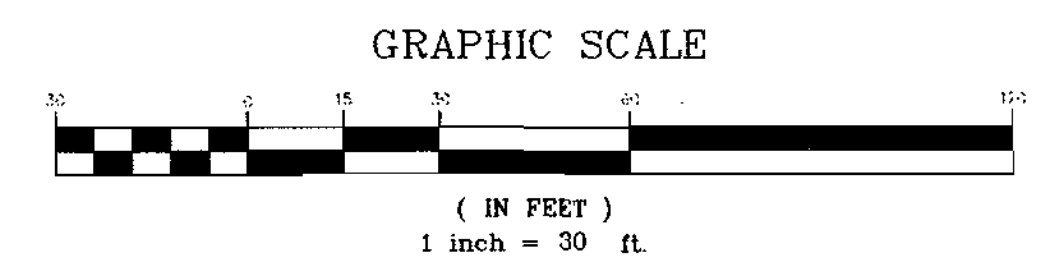


- ### KEYED NOTES
1. INSTALL TEMPORARY SANDBAGS IN THE BOTTOM HALF OF THE TWO (2) 30"x24" OVAL RCP PIPES TO DIRECT EXISTING FLOWS INTO TWO (2) "CLEAN-WATER DIVERSION" 15" FLEXIBLE PIPES. ROUTE PIPES PAST EXISTING AND/OR NEW RIP-RAP OUTFALL(S) TO REMOVABLE PUMPING STATION AND PUMP THRU 4" FLEXIBLE PIPE OVER EMBANKMENT TO EXISTING RIP-RAP AREA. ALL DIVERSION PIPES MUST BE WATERTIGHT AT ALL CONNECTIONS AND ENDPOINTS.
 2. VERTICAL DRAW-DOWN DEVICE (INV. 355.08)
 3. ALL OFFSITE BYPASS CLEAN-WATER RUNOFF MUST FLOW OR BE PUMPED UNEROSIVELY DOWNSTREAM WITHOUT ENTERING OR MIXING WITH DISTURBED AREA.
 4. ALL CONNECTIONS TO CLEAN-WATER DIVERSION PIPES SHALL BE WATER TIGHT.
- ### NOTES
1. ALL EXCESS SOIL MATERIAL TO BE REMOVED FROM THE SITE TO AN APL STOCKPILE AREA.
 2. SEE SHEET 12 FOR ADDITIONAL BASIN G DATA.
 3. CLEAN-WATER DRAINAGE AREA TO BYPASS BASIN G VIA 15" FLEXIBLE PIPE = 12.3 AC (13.4 AC TOTAL DRAINAGE AREA - 1.1 AC E&S DRAINAGE AREA)
 4. FINAL GRADES MUST BE ACHIEVED AND PROGRESS FROM RISER TO LOD TO ENSURE MAXIMUM STORAGE VOLUME FOR E/S CONTROL.

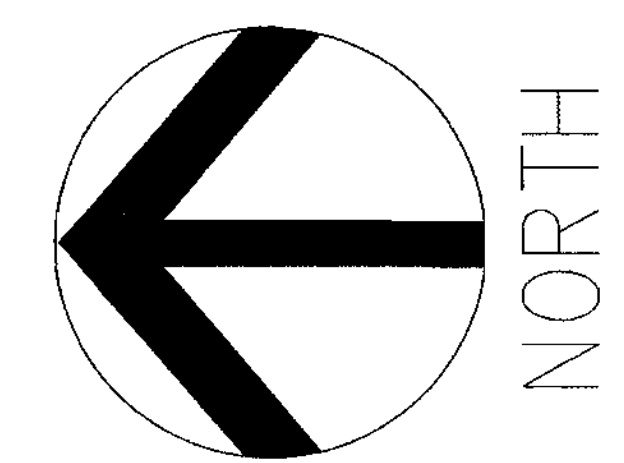
SEDIMENT CONTROL & POND CONSTRUCTION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

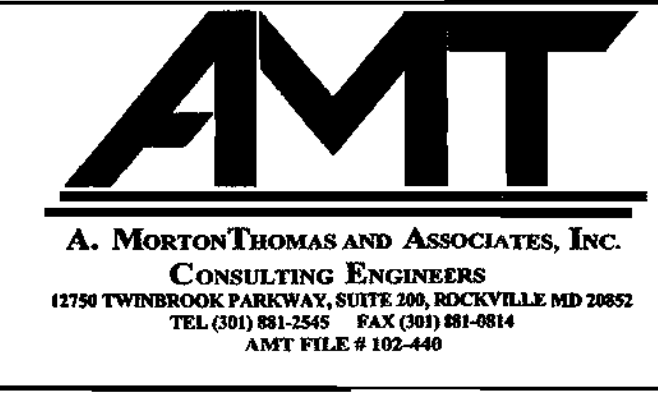
Signature of Developer: *J. E. ...* DATE: 2/5/04
 Signature of Engineer: *Robert A. Warner* DATE: 12/28/03
 Signature of Professional Engineer: *Jim ...* DATE: 3/6/04
 Signature of Professional Engineer: *John ...* DATE: 3/6/04



1 EROSION & SEDIMENT CONTROL
SCALE: 1"=30'



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division: *...* DATE: 3/11/04
 Chief, Division of Land Development: *...* DATE: 3/15/04
 Director: *...* DATE: 4/14/04



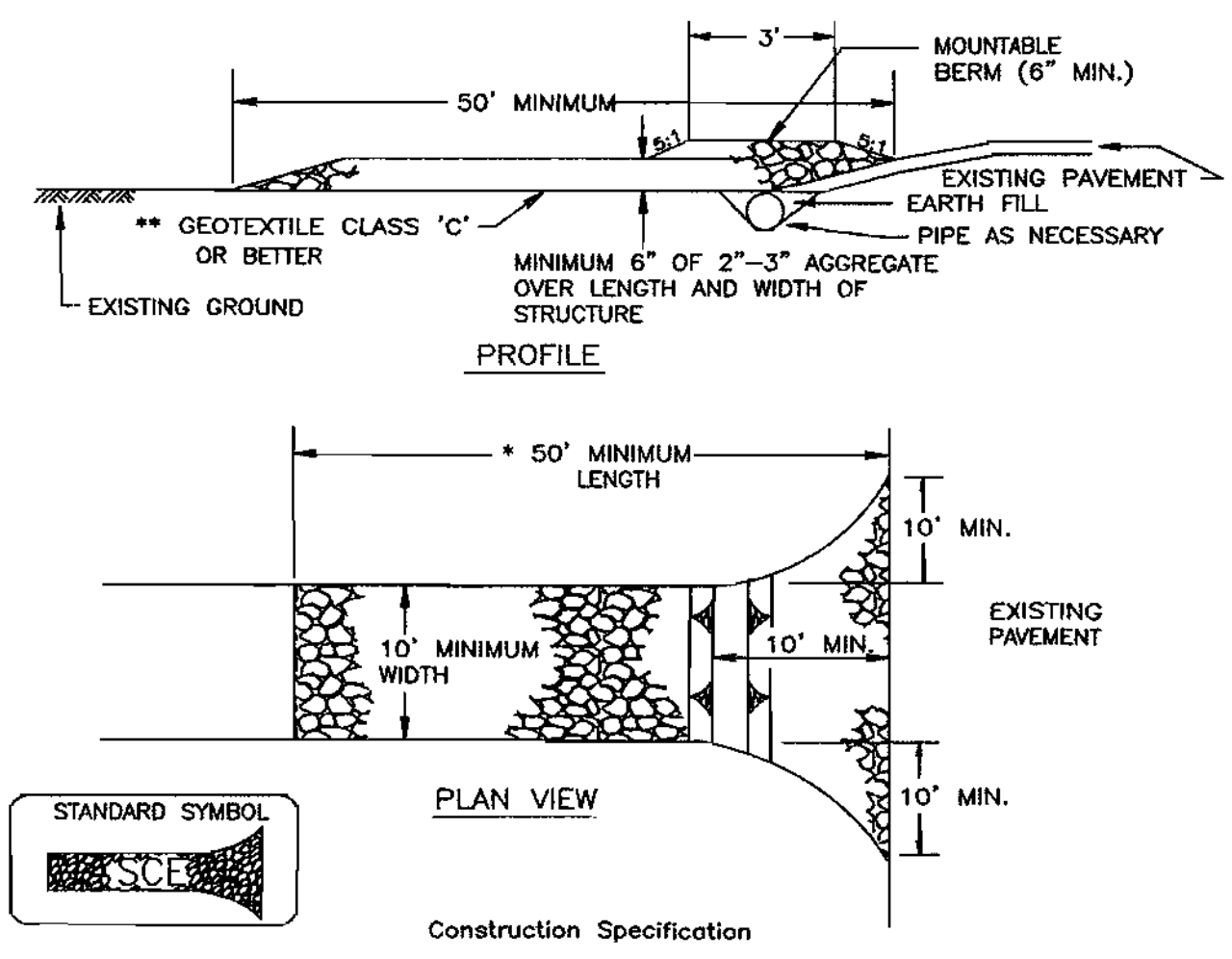
DES:	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CHK	APP
J. KASPA	11/24/03	ADDENDUM #1				
P. FRIAS	12/19/03	HOWARD COUNTY PERMIT/ MYLAR				
R. WARNER						
	10/09/03					

DRAINAGE BASIN G

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
 EROSION & SEDIMENT CONTROL PLAN
 TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET ES1
 SHEET 14 OF 16

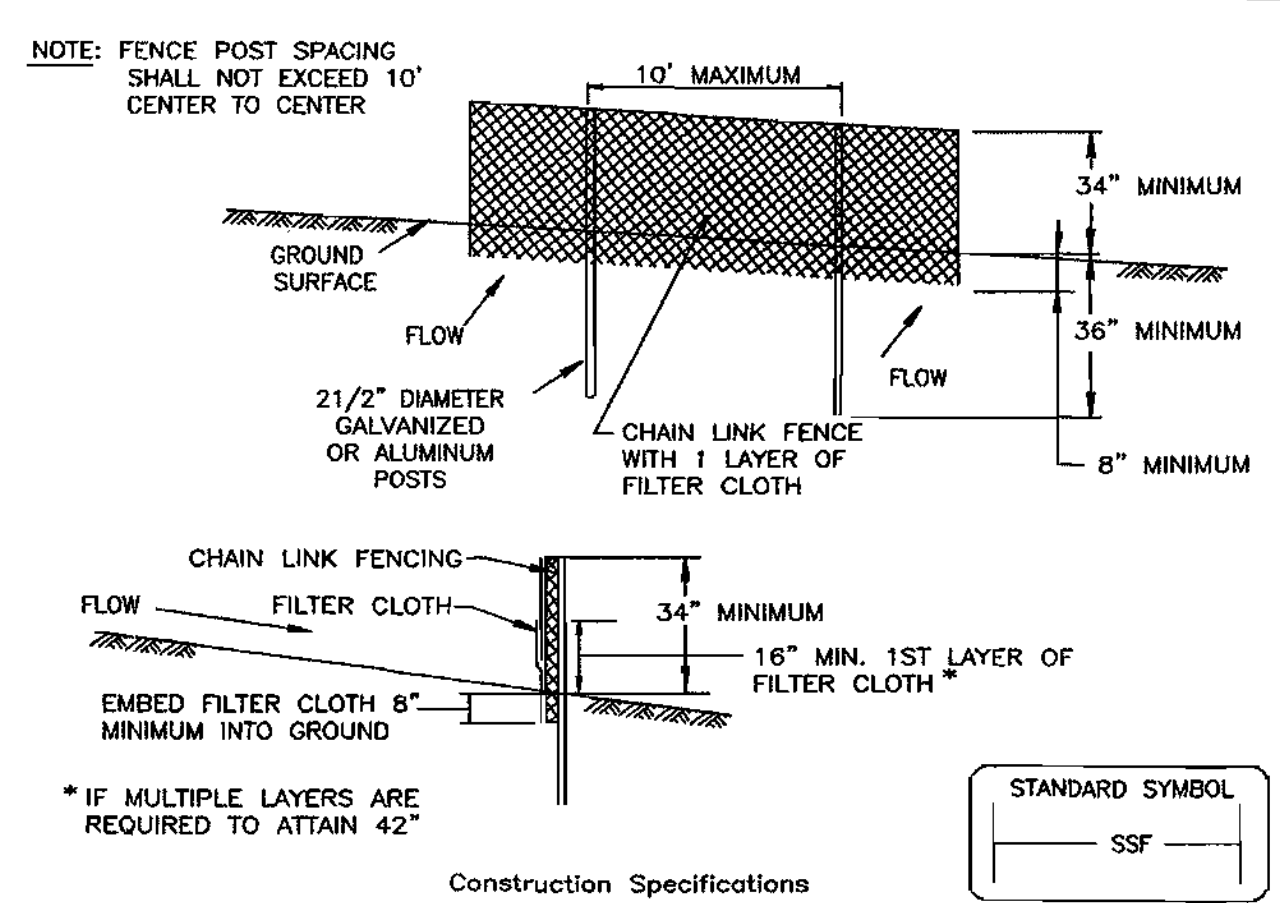
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



- Construction Specification
- Length - minimum of 50' (*30' for single residence lot).
 - Width - 10' minimum, should be flared at the existing road to provide a turning radius.
 - Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.
 - Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
 - Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounded berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
 - Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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

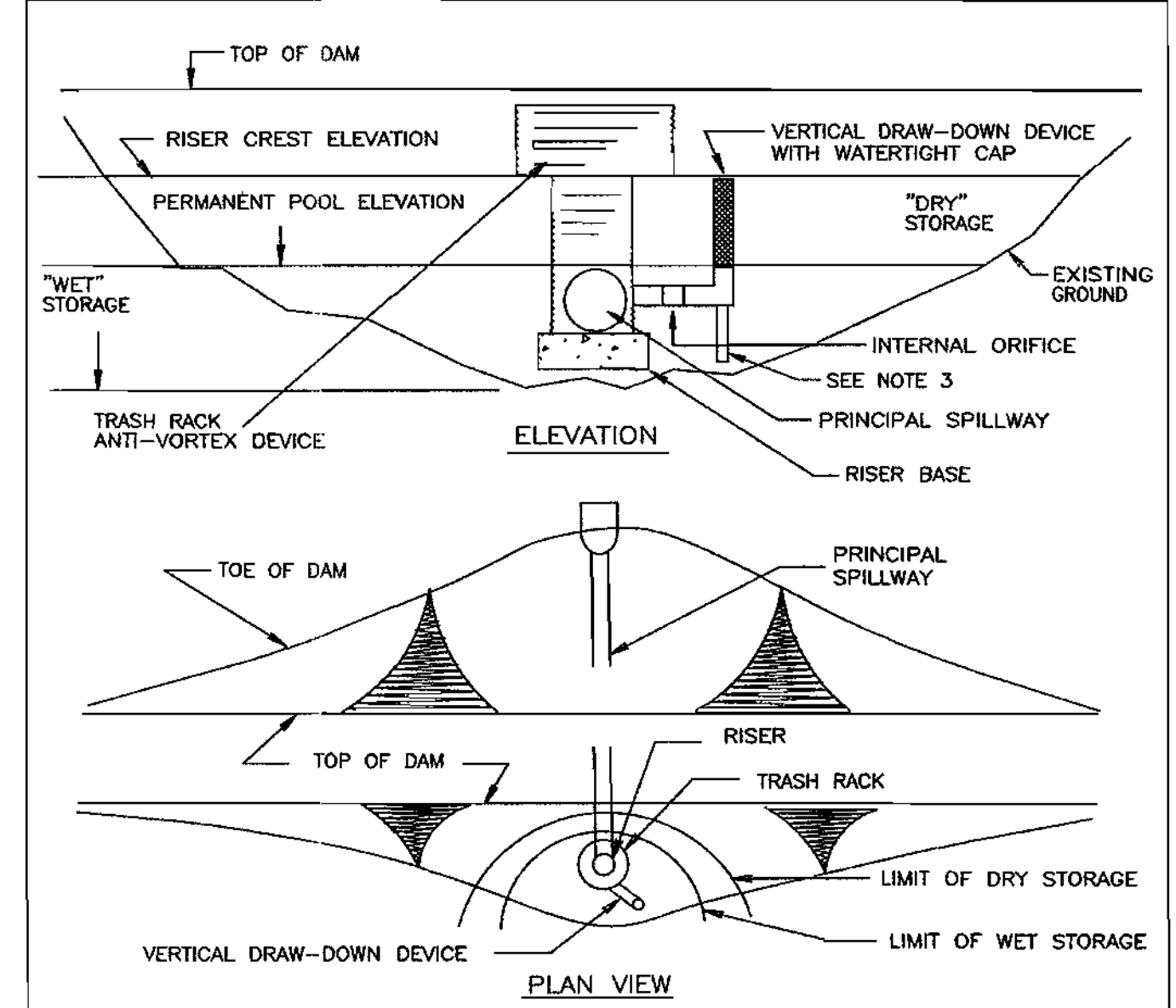
DETAIL 33 - SUPER SILT FENCE



- Construction Specifications
- Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6" fence shall be used, substituting 42" fabric and 8" length posts.
 - Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
 - Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
 - Filter cloth shall be embedded a minimum of 8" into the ground.
 - When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
 - Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height.
 - Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:
Tensile Strength 50 lbs/in (min.) Test: MSMT 509
Tensile Modulus 20 lbs/in (min.) Test: MSMT 509
Flow Rate 0.3 gal/ft²/minute (max.) Test: MSMT 322
Filtering Efficiency 75% (min.) Test: MSMT 322

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

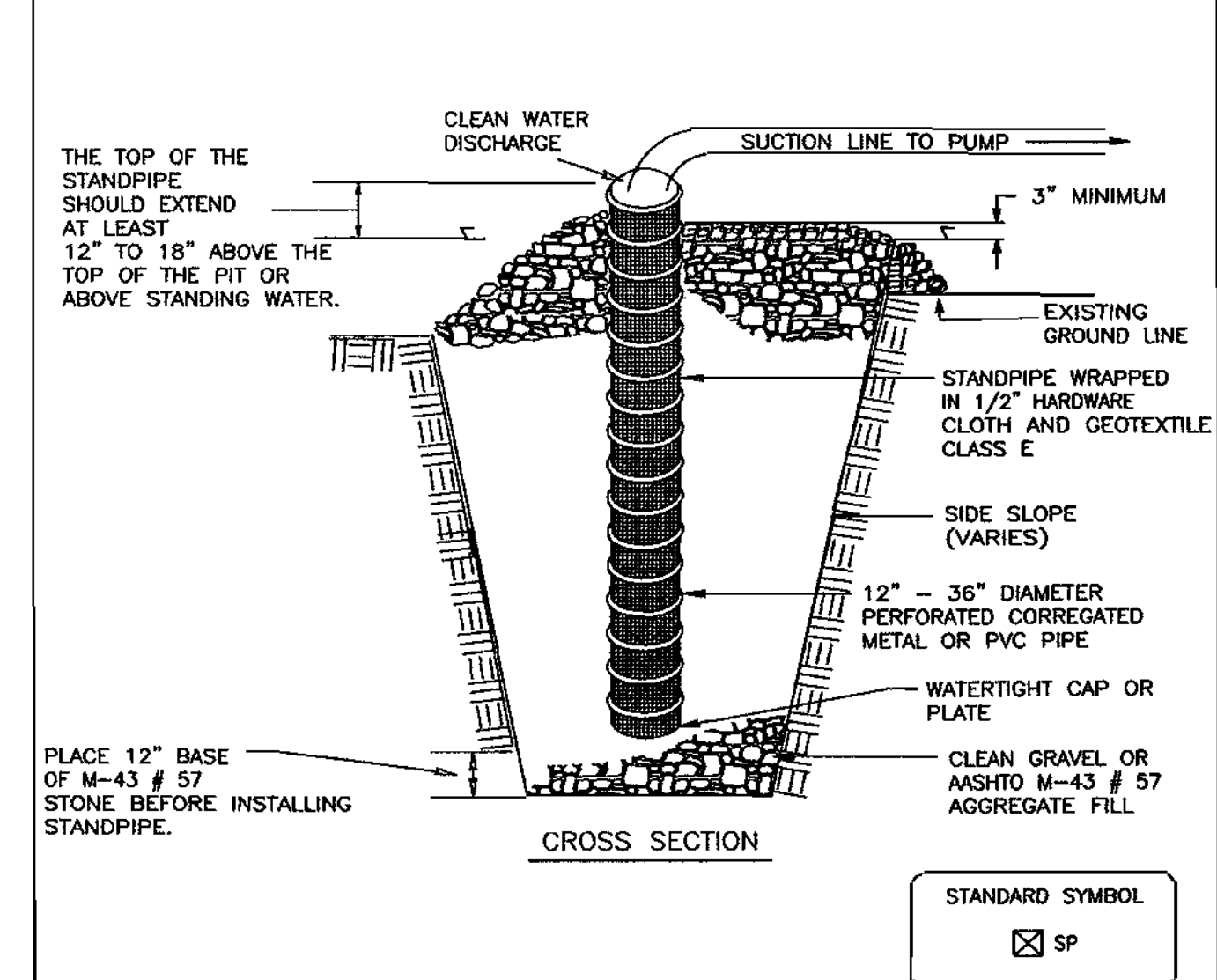
BASIN DRAWDOWN SCHEMATIC VERTICAL DRAW-DOWN DEVICE



- Construction Specifications
- Perforations in the draw-down device may not extend into the wet storage.
 - The total area of the perforations must be greater than 2 times the area of the internal orifice.
 - The perforated portion of the draw-down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
 - Provide support of draw-down device to prevent sagging and flotation. An acceptable preventive measure is to stake both sides of draw-down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3" minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-10-30 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 20B - SUMP PIT



- Construction Specifications
- Pit dimensions are variable, with the minimum diameter being 2 times the standpipe diameter.
 - The standpipe should be constructed by perforating a 12" to 24" diameter corrugated or PVC pipe. Then wrapping with 1/2" hardware cloth and Geotextile Class E. The perforations shall be 1/2" x 6" slits or 1" diameter holes.
 - A base of filter material consisting of clean gravel or #57 stone should be placed in the pit to a depth of 12". After installing the standpipe, the pit surrounding the standpipe should then be backfilled with the same filter material.
 - The standpipe should extend 12" to 18" above the lip of the pit or the riser crest elevation (basin dewatering only) and the filter material should extend 3" minimum above the anticipated standing water elevation.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE B-13-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEDIMENT CONTROL & POND CONSTRUCTION

I, THE ENGINEER, HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZED PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature of Developer: *Robert A. Warner* DATE: 2/5/04

Signature of Engineer: *Robert A. Warner* DATE: 2/2/04

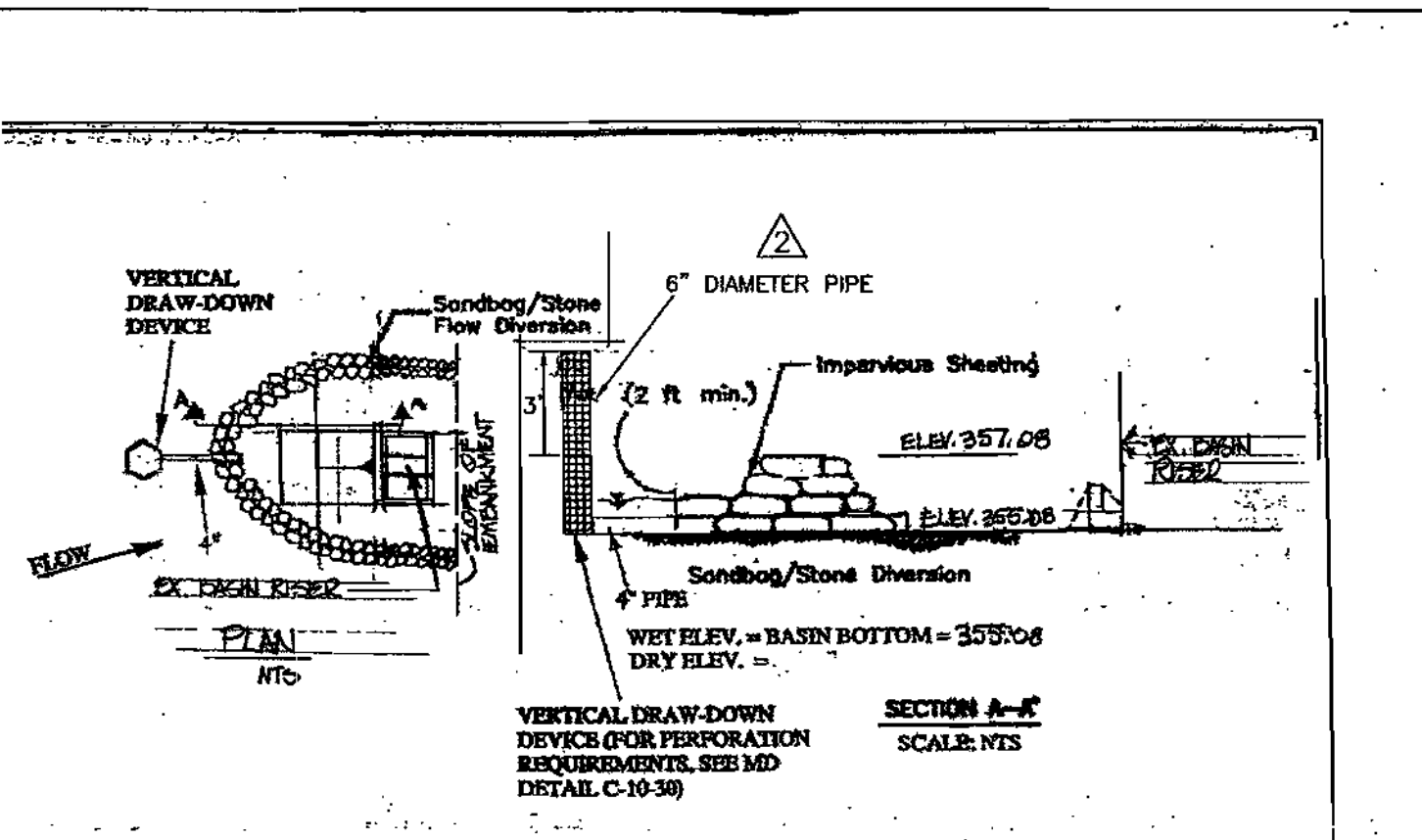
Signature of Professional Engineer: *Jim Myer* DATE: 3/16/04

Signature of Professional Engineer: *Robert A. Warner* DATE: 3/16/04

HOWARD SOIL CONSERVATION DISTRICT

VERTICAL DRAW-DOWN DEVICE (DETAIL C-10-30)

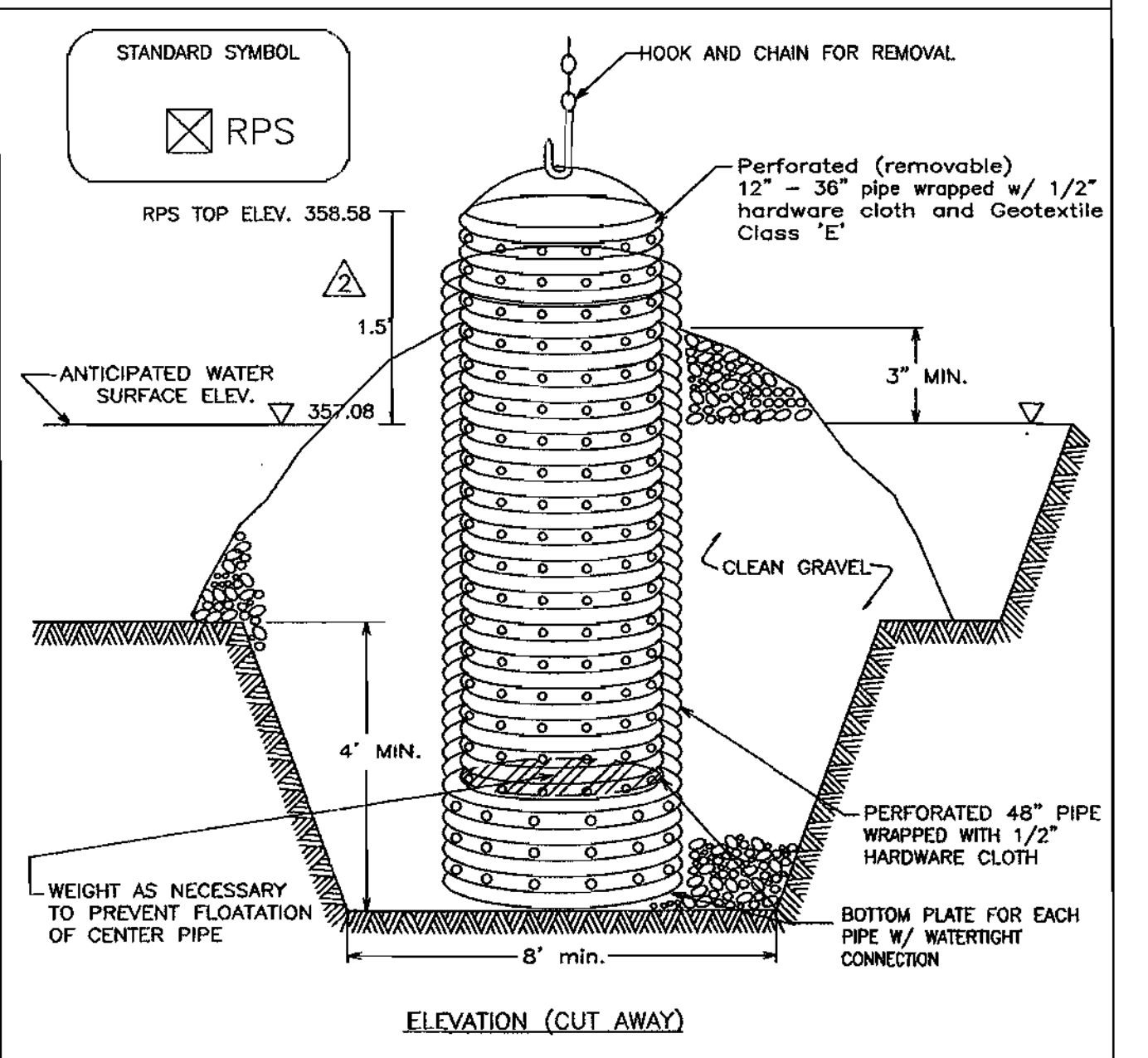
- DIAMETER OF DRAW-DOWN PIPE = 6"=0.5'
- PERFORATION AREA = 1.75 SF
- PERFORATION LENGTH = 3"
- PERFORATION AREA PER FOOT = 0.583 SF
- DIAMETER OF EACH PERFORATION HOLE = 1"
- # PERFORATIONS PER FOOT = 7



- Description
- The vertical draw-down device is installed for the purpose of erosion control when construction activities take place within the stream channel such as bank stabilization or bridge abutment construction.
- Material Specifications
- Sandbags: Sandbags shall consist of materials which are resistant to ultra-violet radiation, tearing and puncture and are tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.).
 - Stone: Stone shall be washed and have a minimum diameter of 6 inches. Sheeting: Sheeting shall consist of polyethylene or other material which is impervious and resistant to puncture and tearing.
- Construction Requirements
- All erosion and sediment control devices shall be installed as the first order of work.
 - The diversion structure shall be installed from upstream to downstream.
 - The height of the diversion structure shall be one half the distance from stream bed to stream bank plus one foot, as indicated on the cross-section view.
 - All excavated materials shall be disposed of in a SCD approved disposal area outside the 100-year floodplain unless otherwise approved on the plans by the WEA.
 - All dewatering of the construction area shall be pumped to a dewatering basin prior to re-entering the stream.
 - Sheeting shall be overlapped such that the upstream portion covers the downstream portion with at least an 18-inch overlap.
 - Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

WATER RESOURCES ADMINISTRATION Sandbag/Stone Diversion Approved On: *3/16/04* Chief, Waterway Permits WPB 2.3

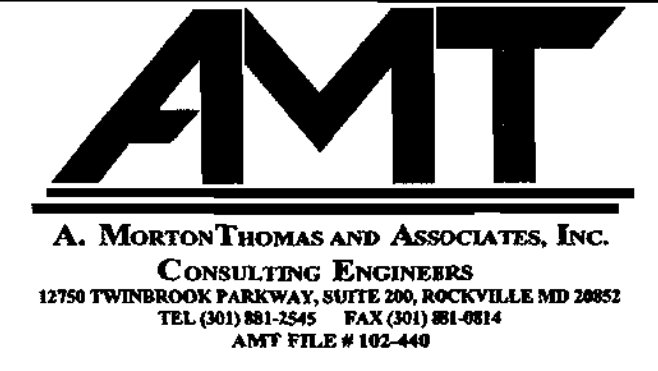
DETAIL 20A - REMOVABLE PUMPING STATION



- Construction Specifications
- The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
 - After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
 - The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" x 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class E.
 - The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 3/11/04
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3/15/04
 DIRECTOR DATE: 3/15/04

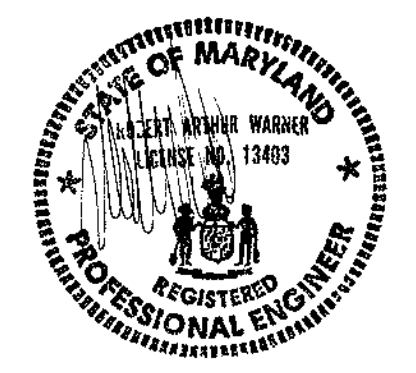


DES: J. KASPA									
DRN: P. FRIAS	12/19/03	HOWARD COUNTY PERMIT/ MYLAR							
CHK: R. WARNER									
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP			

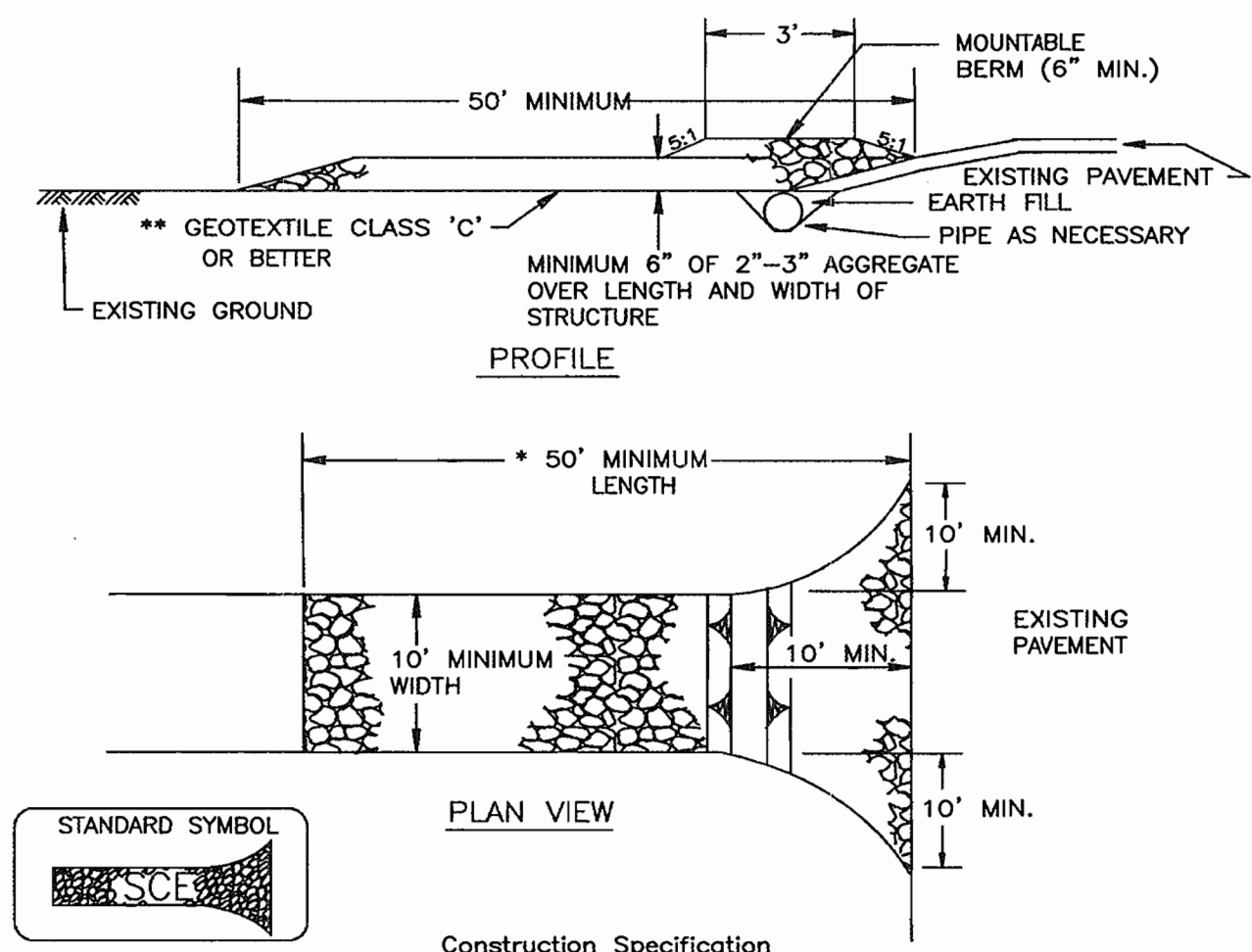
DRAINAGE BASIN G

APPLIED PHYSICS LABORATORY THE JOHNS HOPKINS UNIVERSITY
 EROSION & SEDIMENT CONTROL DETAILS
 TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET ES2
 SHEET 15 OF 16



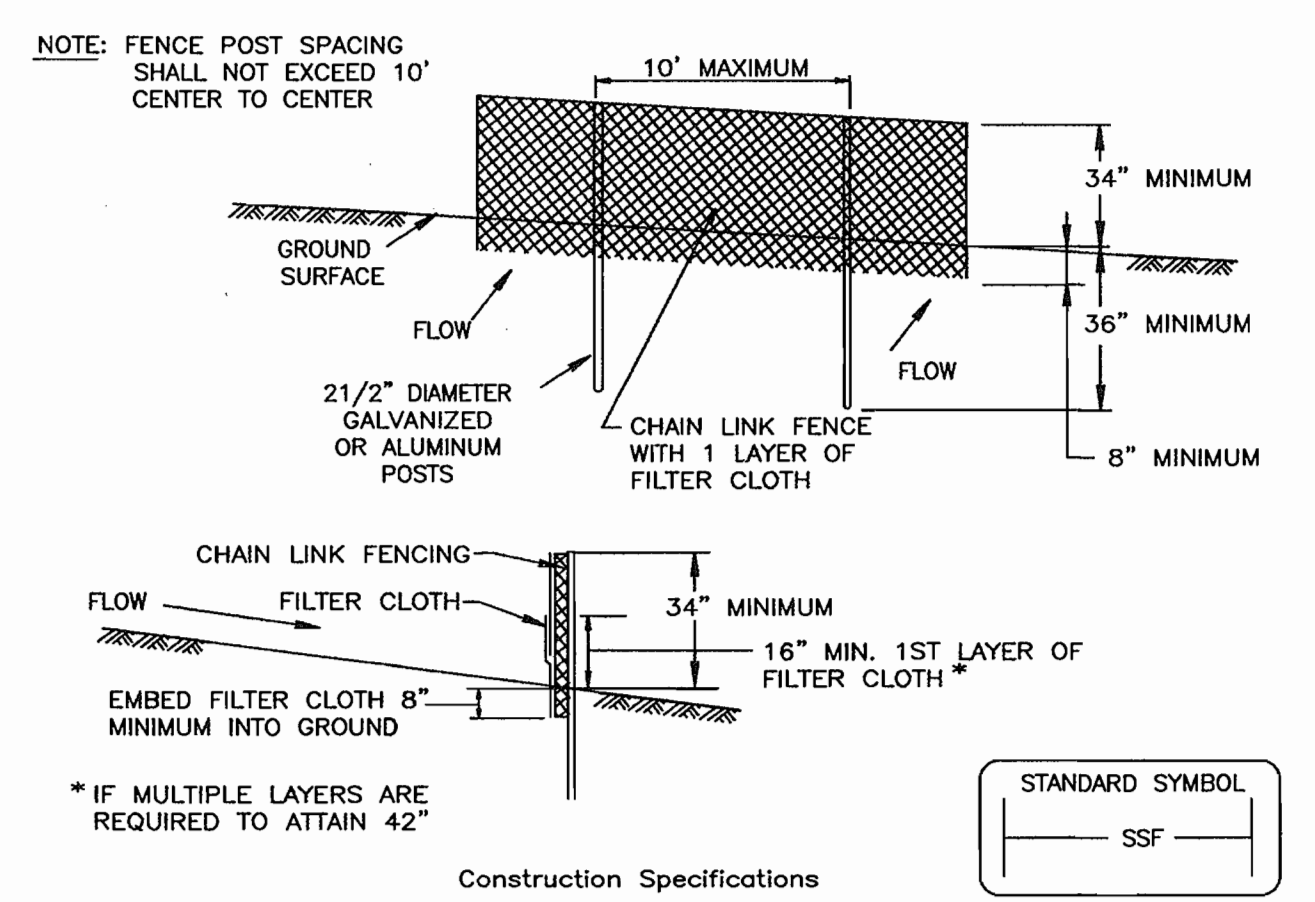
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



- Construction Specification
- Length - minimum of 50' (*30' for single residence lot).
 - Width - 10' minimum, should be flared at the existing road to provide a turning radius.
 - Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.
 - Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
 - Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
 - Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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DETAIL 33 - SUPER SILT FENCE

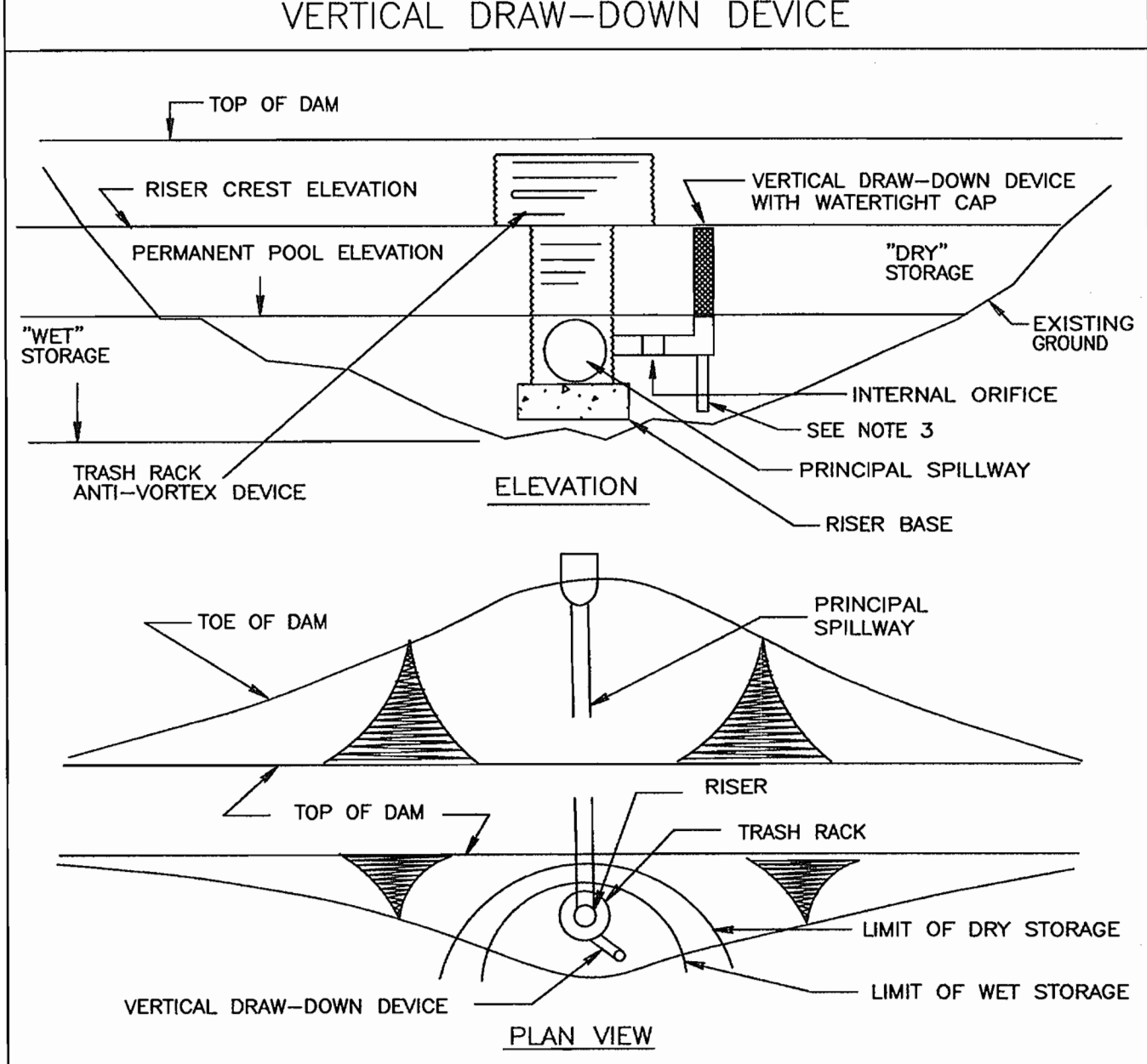


- Construction Specifications
- Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
 - Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
 - Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
 - Filter cloth shall be embedded a minimum of 8" into the ground.
 - When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
 - Maintenance shall be performed as needed and silt bulges removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height.
 - Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft ² /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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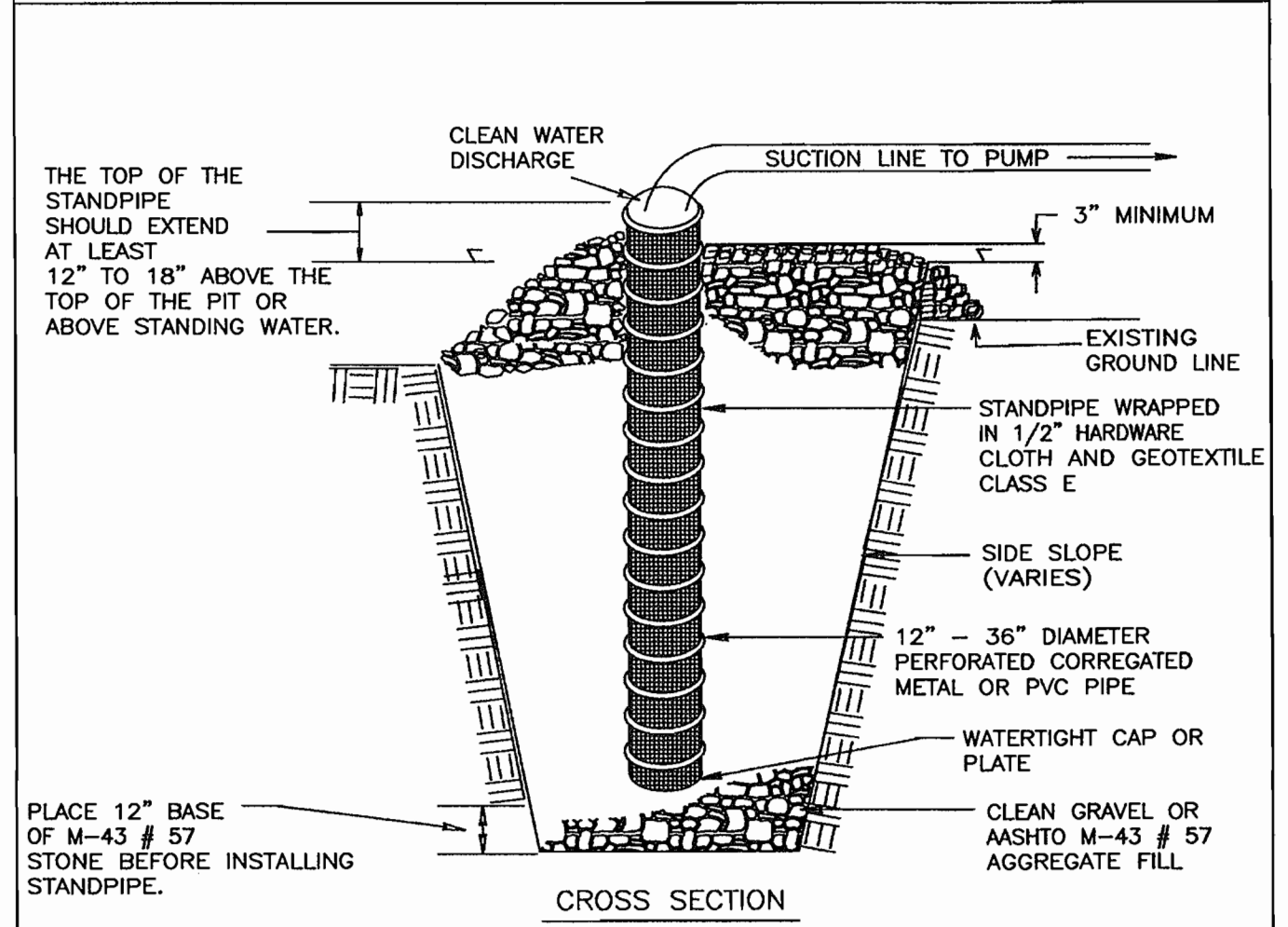
BASIN DRAWDOWN SCHEMATIC
VERTICAL DRAW-DOWN DEVICE



- Construction Specifications
- Perforations in the draw-down device may not extend into the wet storage.
 - The total area of the perforations must be greater than 2 times the area of the internal orifice.
 - The perforated portion of the draw-down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
 - Provide support of draw-down device to prevent sagging and floatation. An acceptable preventative measure is to stake both sides of draw-down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3" minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 10 - 30	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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DETAIL 20B - SUMP PIT



- Construction Specifications
- Pit dimensions are variable, with the minimum diameter being 2 times the standpipe diameter.
 - The standpipe should be constructed by perforating a 12" to 24" diameter corrugated or PVC pipe. Then wrapping with 1/2" hardware cloth and Geotextile Class E. The perforations shall be 1/2" x 6" slits or 1" diameter holes.
 - A base of filter material consisting of clean gravel or #57 stone should be placed in the pit to a depth of 12". After installing the standpipe, the pit surrounding the standpipe should then be backfilled with the same filter material.
 - The standpipe should extend 12" to 18" above the lip of the pit or the riser crest elevation (basin dewatering only) and the filter material should extend 3" minimum above the anticipated standing water elevation.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D - 13 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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SEDIMENT CONTROL & POND CONSTRUCTION

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] DATE: 2/15/04

DATE: 2/15/04

ROBERT A. WARNER
SIGNATURE OF ENGINEER

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

[Signature] DATE: 2/15/04

ROBERT A. WARNER
SIGNATURE OF ENGINEER

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

[Signature] DATE: 2/15/04

USDA-NATURAL RESOURCES CONSERVATION SERVICE

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

[Signature] DATE: 2/15/04

HOWARD SOIL CONSERVATION DISTRICT

- VERTICAL DRAW-DOWN DEVICE (DETAIL C-10-30)
- DIAMETER OF DRAW-DOWN PIPE = 6"=0.5'
 - PERFORATION AREA = 1.75 SF
 - PERFORATION LENGTH = 3'
 - PERFORATION AREA PER FOOT = 0.583 SF
 - DIAMETER OF EACH PERFORATION HOLE = 1"
 - # PERFORATIONS PER FOOT = 7

VERTICAL DRAW-DOWN DEVICE (DETAIL C-10-30)

SECTION A-A
SCALE: NTS

Description
The work shall consist of installing flow diversions for the purpose of erosion control when construction activities take place within the stream channel such as bank stabilization or bridge abutment construction.

I. Material Specifications

- Sandbags: Sandbags shall consist of materials which are resistant to ultra-violet radiation, tearing and puncture and woven tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.)
- Stone: Stone shall be washed and have a minimum diameter of 8 inches.
- Sheeting: Sheeting shall consist of polyethylene or other material which is impervious and resistant to puncture and tearing.

II. Construction Requirements

- All erosion and sediment control devices shall be installed on the first order of work.
- The diversion structure shall be installed from upstream to downstream. The height of the diversion structure shall be one half the distance from stream bed to stream bank plus one foot, as indicated on the cross-section view.
- All excavated materials shall be disposed of in a SCD approved disposal area outside the 100-year floodplain unless otherwise approved on the plans by the WSA.
- Sheeting shall be developed such that the upstream portion covers the downstream portion with at least an 18-inch overlap.
- Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

WATER RESOURCES ADMINISTRATION	Sandbag/Stone Diversion	Approved On: <i>[Signature]</i> Chief, Waterway Permits	WPD 2.3
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DETAIL 20A - REMOVABLE PUMPING STATION

ELEVATION (CUT AWAY)

Construction Specifications

- The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
- After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
- The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" x 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class E.
- The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D - 12 - 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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TYPICAL SECTION POROUS CONCRETE SIDEWALK

NOTE: 1. POROUS CONCRETE CEMENT CONTENT 600 TO 630 POUNDS PER CUBIC YARD, 0.30 WATER/CEMENT-TIOUS RATIO, MAXIMUM AGGREGATE WITH A 20% VOID CONTENT (3,000 PSI CONC. MIN.).

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D - 12 - 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] DATE: 2/11/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 2/15/04

CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 2/15/04

DIRECTOR



DES: J. KASPA					
DRN: P. FRIAS	12/19/03	HOWARD COUNTY PERMIT/ MYLAR			
CHK: R. WARNER	10/05/05	RED-LINE SUBMISSION			
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

DRAINAGE BASIN G

RED-LINE REVISION ADD TO SDP ATHLETIC AREA DRAINAGE AREA G

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
EROSION & SEDIMENT CONTROL DETAILS

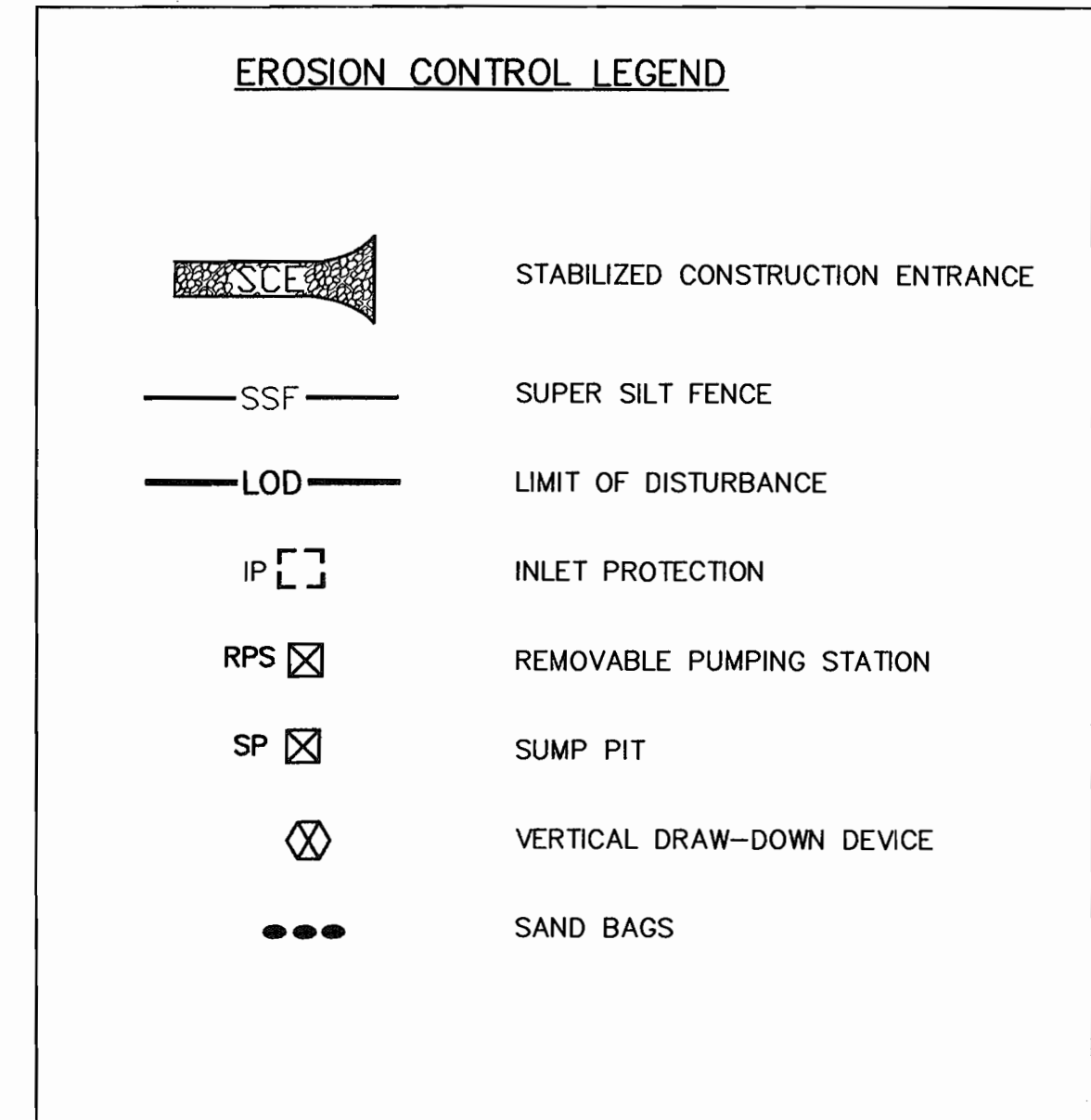
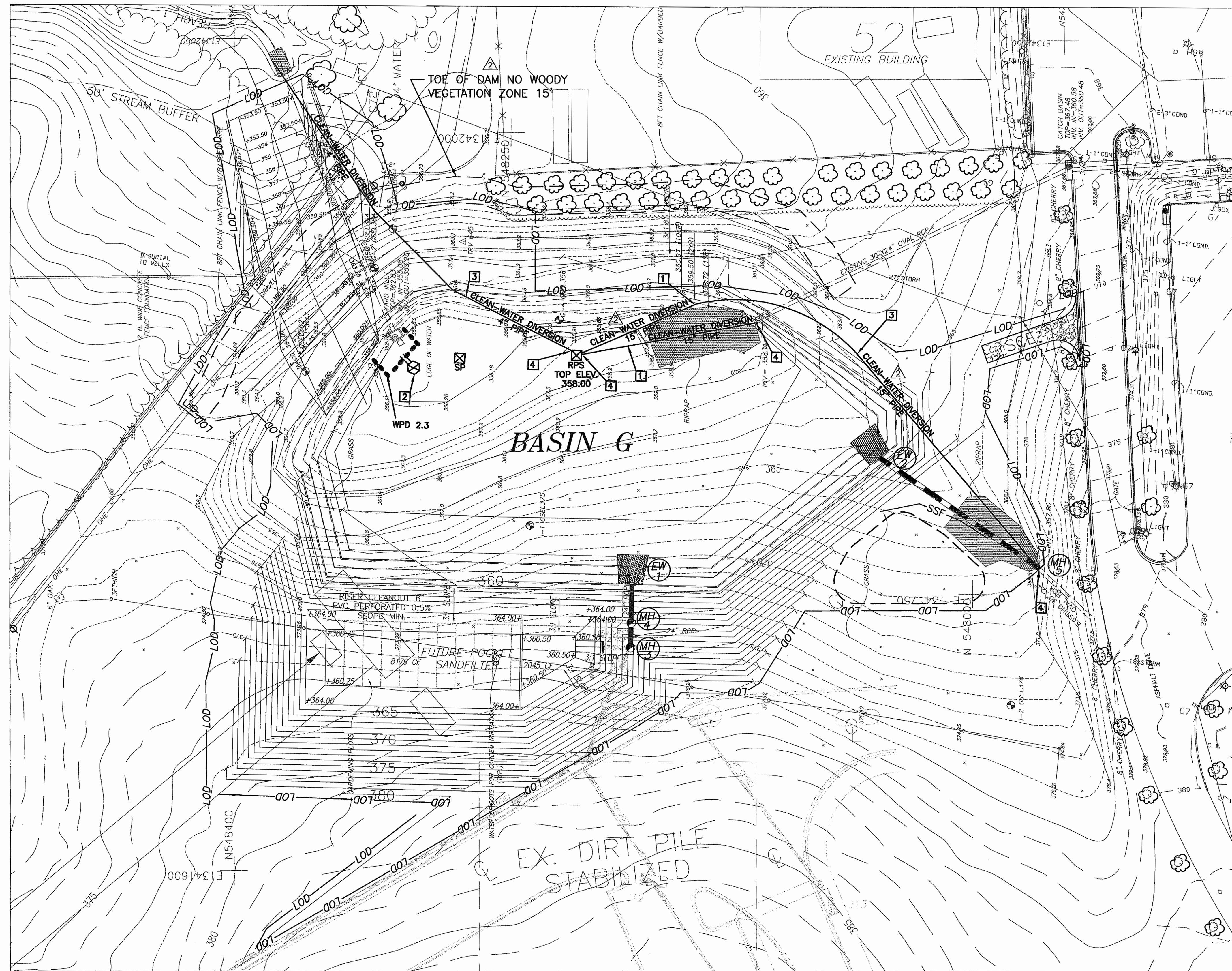
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET ES2

SHEET 15 OF 46





- ### KEYED NOTES
- 1 INSTALL TEMPORARY SANDBAGS IN THE BOTTOM HALF OF THE TWO (2) 30"x24" OVAL RCP PIPES TO DIRECT EXISTING FLOWS INTO TWO (2) "CLEAN-WATER DIVERSION" 15" FLEXIBLE PIPES. ROUTE PIPES PAST EXISTING AND/OR NEW RIP-RAP OUTFALL(S) TO REMOVABLE PUMPING STATION AND PUMP THRU 4" FLEXIBLE PIPE OVER EMBANKMENT TO EXISTING RIP-RAP AREA. ALL DIVERSION PIPES MUST BE WATERTIGHT AT ALL CONNECTIONS AND ENDPOINTS.
 - 2 VERTICAL DRAW-DOWN DEVICE (INV. 355.08)
 - 3 ALL OFFSITE BYPASS CLEAN-WATER RUNOFF MUST FLOW OR BE PUMPED UNEROSIVELY DOWNSTREAM WITHOUT ENTERING OR MIXING WITH DISTURBED AREA.
 - 4 ALL CONNECTIONS TO CLEAN-WATER DIVERSION PIPES SHALL BE WATER TIGHT.
- ### NOTES
1. ALL EXCESS SOIL MATERIAL TO BE REMOVED FROM THE SITE TO AN APL STOCKPILE AREA.
 2. SEE SHEET 12 FOR ADDITIONAL BASIN G DATA.
 3. CLEAN-WATER DRAINAGE AREA TO BYPASS BASIN G VIA 15" FLEXIBLE PIPE = 12.3 AC (13.4 AC TOTAL DRAINAGE AREA - 1.1 AC E&S DRAINAGE AREA)
 4. FINAL GRADES MUST BE ACHIEVED AND PROGRESS FROM RISER TO LOD TO ENSURE MAXIMUM STORAGE VOLUME FOR E/S CONTROL.

SEDIMENT CONTROL & POND CONSTRUCTION

"I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Robert A. Warner 2/15/04
 SIGNATURE OF DEVELOPER DATE
 PRINT NAME BELOW SIGNATURE

() BY THE ENGINEER:
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED 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."

Robert A. Warner 12/20/03
 SIGNATURE OF ENGINEER DATE
 PRINT NAME BELOW SIGNATURE

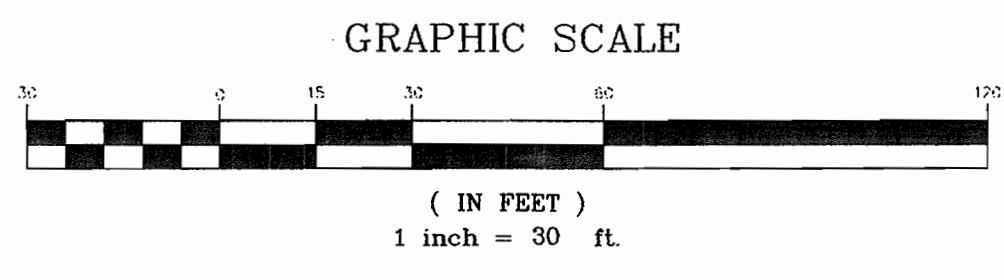
() THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

Dr. Myra G. 3/1/04
 SIGNATURE OF REVIEWER DATE
 PRINT NAME BELOW SIGNATURE
 USDA-NATURAL RESOURCES CONSERVATION SERVICE

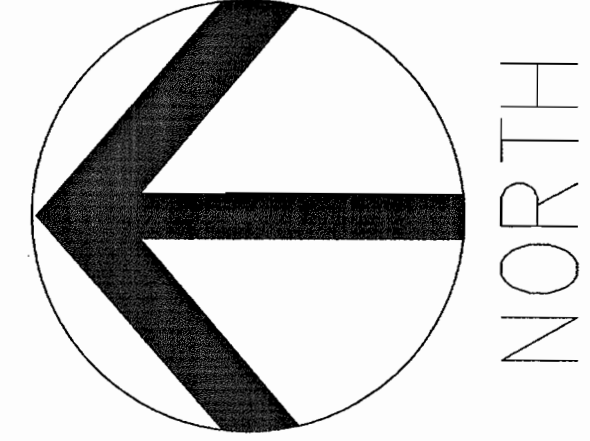
() THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

John J. ... 3/1/04
 SIGNATURE OF REVIEWER DATE
 PRINT NAME BELOW SIGNATURE
 HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Michael ... 3/1/04
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
Andy ... 3/15/04
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
Paul ... 3/15/04
 DIRECTOR DATE



1 EROSION & SEDIMENT CONTROL
 SCALE: 1"=30'

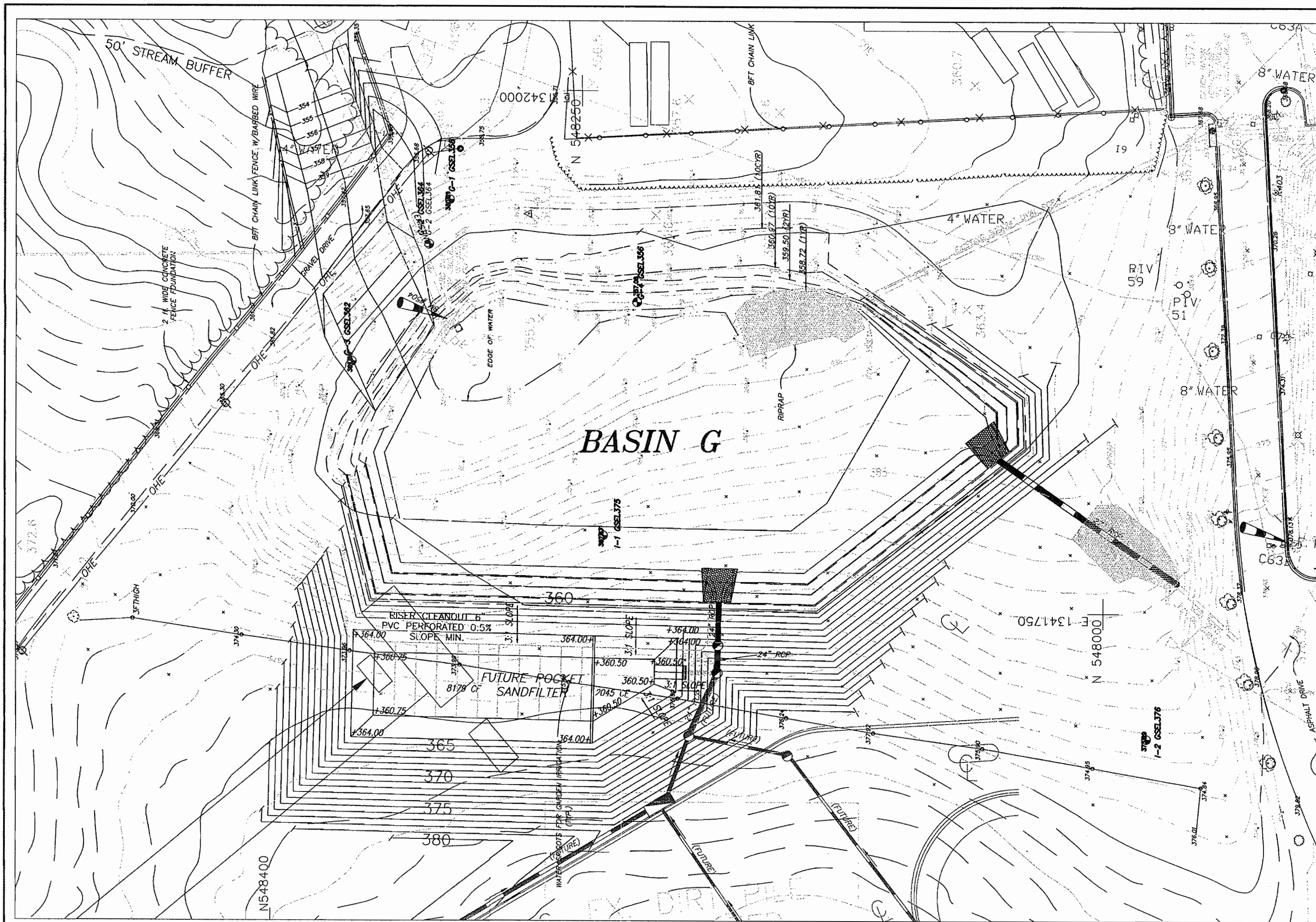


DES: J. KASPA	11/24/03	ADDENDUM #1							
DRN: P. FRIAS	12/19/03	HOWARD COUNTY PERMIT/ MYLAR							
CHK: R. WARNER									
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP			

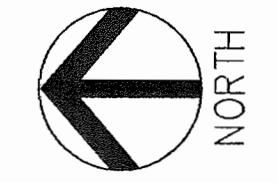
DRAINAGE BASIN G

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
 EROSION & SEDIMENT CONTROL PLAN
 TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

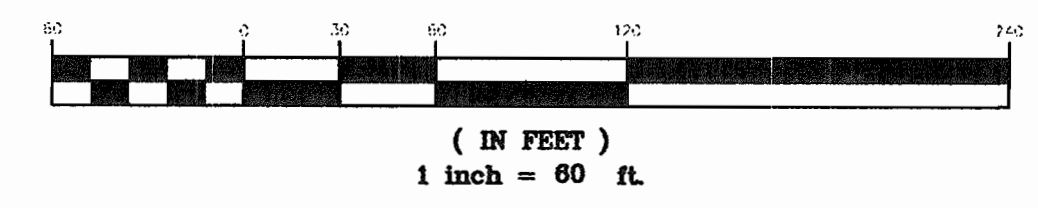
SCALE AS SHOWN
 SHEET ES1
 SHEET 14 OF 18



1 BORING LOCATION PLAN
SCALE: 1"=40'



GRAPHIC SCALE



SEDIMENT CONTROL & POND CONSTRUCTION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER _____ DATE _____
PRINT NAME BELOW SIGNATURE

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

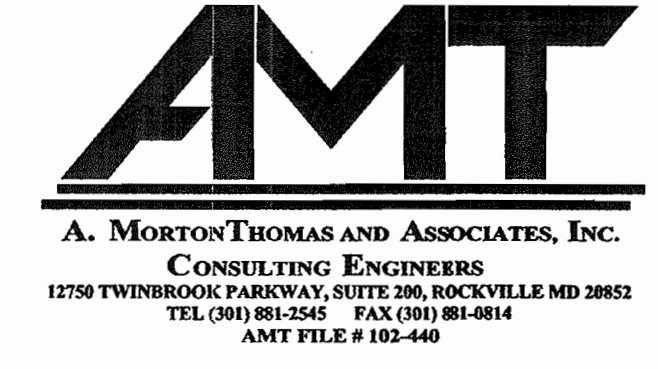
ROBERT A. WARNER _____ DATE _____
SIGNATURE OF ENGINEER

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE _____ DATE _____

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE 2/11/04
CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE 2/15/04
DIRECTOR _____ DATE 2/15/04



DES: J. KASPA					
DRN: P. FRIAS					
CHK: R. WARNER					
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

DRAINAGE BASIN G

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
BORING LOCATION AND LOGS
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C1.9
SHEET 13 OF 16

TEST BORING LOG		Project: John Hopkins University Applied Physics Lab, Stormwater Pond G Howard County, MD		Boring Number: 03021098 Sheet: 1 of 1		G-1	
Boring Contractor: Connelly and Associates, Inc.							
Boring Foreman: S. Delosh							
Drilling Method: 2-1/4 I.D. Hollow Stem Auger							
Drilling Equipment: CME-45C							
SEA Representative: Amanda McCurry							
Dates Started: 5/28/03 Finished: 5/28/03							
Location: See Boring Location Plan							
Ground Surface Elevation: 359.0s (feet)							
DEPTH (ft)	STRATA DESCRIPTION	CLASS.	ELEV. STRATA (ft)	SAMPLING DEPTH DATA	TESTS	REMARKS	
0.3	Topsoil		358.7	1+2+2			
	silty sand FILL, trace mica, moist, reddish-brown			1+3+4	w=21.0%		
5.0		SM	354.0	2+2+2	w=20.2%		
	silty SAND, trace mica, trace gravel, moist, reddish-brown			4+3+3			
9.5		SM	349.5	3+3+5			
	silty SAND, micaceous, moist, mottled brown			3+3+5			
				1+1+2			
20.0			339.0				
	wet below 18.0 FT.						
	BOTTOM OF BORING @ 20.0 FT.						

TEST BORING LOG		Project: John Hopkins University Applied Physics Lab, Stormwater Pond G Howard County, MD		Boring Number: 03021098 Sheet: 1 of 1		G-2	
Boring Contractor: Connelly and Associates, Inc.							
Boring Foreman: S. Delosh							
Drilling Method: 2-1/4 I.D. Hollow Stem Auger							
Drilling Equipment: CME-45C							
SEA Representative: Amanda McCurry							
Dates Started: 5/28/03 Finished: 5/28/03							
Location: See Boring Location Plan							
Ground Surface Elevation: 354.0s (feet)							
DEPTH (ft)	STRATA DESCRIPTION	CLASS.	ELEV. STRATA (ft)	SAMPLING DEPTH DATA	TESTS	REMARKS	
0.2	Topsoil		353.8	1+2+3			
	sandy FILL, trace mica, trace gravel, moist, brown			2+1+3	w=14.0%		
3.0			351.0				
	clayey sand FILL, micaceous, trace gravel, moist, brown			2+4+4	w=18.7%		
5.0			350.0				
	sandy clay FILL, with gravel, moist, brown			50"			
8.5			355.5				
	encountered concrete drain at 8.5 feet; boring terminated and offset 10 feet north						
	BOTTOM OF BORING @ 8.5 FT.						

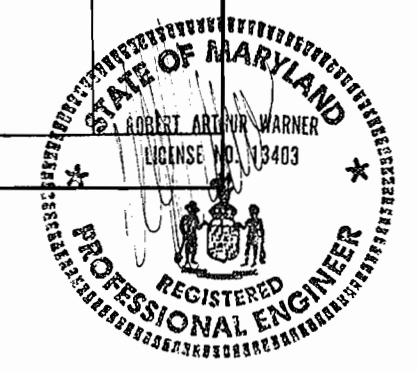
TEST BORING LOG		Project: John Hopkins University Applied Physics Lab, Stormwater Pond G Howard County, MD		Boring Number: 03021098 Sheet: 1 of 1		G-2A	
Boring Contractor: Connelly and Associates, Inc.							
Boring Foreman: S. Delosh							
Drilling Method: 2-1/4 I.D. Hollow Stem Auger							
Drilling Equipment: CME-45C							
SEA Representative: Amanda McCurry							
Dates Started: 5/28/03 Finished: 5/28/03							
Location: See Boring Location Plan							
Ground Surface Elevation: 344.0s (feet)							
DEPTH (ft)	STRATA DESCRIPTION	CLASS.	ELEV. STRATA (ft)	SAMPLING DEPTH DATA	TESTS	REMARKS	
0.2	Topsoil		343.8	1+2+3			
	sandy silty FILL, trace mica, trace roots, moist, brown			2+1+3	w=14.0%		
3.0			341.0				
	clayey sand FILL, micaceous, trace gravel, moist, brown			2+4+4	w=18.7%		
5.0			350.0				
	sandy clay FILL, with gravel, moist, brown			50"			
8.5			355.5				
	silty SAND with mica, moist, brown	SM	355.5	2+2+5			
				3+2+3			
				2+2+5			
20.0			344.0				
	wet below 18.0 FT.						
	BOTTOM OF BORING @ 20.0 FT.						

TEST BORING LOG		Project: John Hopkins University Applied Physics Lab, Stormwater Pond G Howard County, MD		Boring Number: 03021098 Sheet: 1 of 1		G-3	
Boring Contractor: Connelly and Associates, Inc.							
Boring Foreman: S. Delosh							
Drilling Method: 2-1/4 I.D. Hollow Stem Auger							
Drilling Equipment: CME-45C							
SEA Representative: Amanda McCurry							
Dates Started: 5/28/03 Finished: 5/28/03							
Location: See Boring Location Plan							
Ground Surface Elevation: 365.0s (feet)							
DEPTH (ft)	STRATA DESCRIPTION	CLASS.	ELEV. STRATA (ft)	SAMPLING DEPTH DATA	TESTS	REMARKS	
0.1	Topsoil		364.3	1+5+5			
	sandy silty FILL, trace mica, trace roots, slightly moist, brown			9+6+6	w=9.7%		
5.0			360.0				
	silty SAND, with mica, trace rock fragments, moist, mottled brown	SM	360.0	2+4+7			
				4+5+5	w=21.4%		
				10+6+3			
				10+9+18			
20.0			345.0				
	wet below 18.0 FT.						
	BOTTOM OF BORING @ 20.0 FT.						

TEST BORING LOG		Project: John Hopkins University Applied Physics Lab, Stormwater Pond G Howard County, MD		Boring Number: 03021098 Sheet: 1 of 1		G-4	
Boring Contractor: Connelly and Associates, Inc.							
Boring Foreman: S. Delosh							
Drilling Method: 2-1/4 I.D. Hollow Stem Auger							
Drilling Equipment: CME-45C							
SEA Representative: Amanda McCurry							
Dates Started: 5/21/03 Finished: 5/21/03							
Location: See Boring Location Plan							
Ground Surface Elevation: 363.0s (feet)							
DEPTH (ft)	STRATA DESCRIPTION	CLASS.	ELEV. STRATA (ft)	SAMPLING DEPTH DATA	TESTS	REMARKS	
0.5	Topsoil		362.5	1+3+4			
	sandy silty FILL, trace mica, trace roots, moist, brown			6+8+10	w=15.4%		
3.0		SM	360.0				
	silty SAND, moist, brown			3+2+4			
				2+2+3			
8.0		SM	354.0				
	silty SAND, with mica, moist, mottled brown			2+2+3			
				2+4+4			
15.0			348.0				
	BOTTOM OF BORING @ 15.0 FT.						

TEST BORING LOG		Project: John Hopkins University Applied Physics Lab, Stormwater Pond G Howard County, MD		Boring Number: 03021098 Sheet: 1 of 1		I-1	
Boring Contractor: Connelly and Associates, Inc.							
Boring Foreman: S. Delosh							
Drilling Method: 2-1/4 I.D. Hollow Stem Auger							
Drilling Equipment: CME-45C							
SEA Representative: Amanda McCurry							
Dates Started: 5/28/03 Finished: 5/28/03							
Location: See Boring Location Plan							
Ground Surface Elevation: 375.0s (feet)							
DEPTH (ft)	STRATA DESCRIPTION	CLASS.	ELEV. STRATA (ft)	SAMPLING DEPTH DATA	TESTS	REMARKS	
0.3	Topsoil		374.7	2+4+4			
	sandy silty FILL with mica, trace gravel, moist, dark brown			2+2+3	w=19.9%		
3.0		SM	372.0				
	silty SAND, micaceous, moist, dark brown			10+20+11			
				2+2+5	w=18.7%		
9.0		SM	366.0				
	silty SAND with mica, trace rock fragments, moist, mottled brown			8+6+4			
15.0			360.0				
	BOTTOM OF BORING @ 15.0 FT.						

TEST BORING LOG		Project: John Hopkins University Applied Physics Lab, Stormwater Pond G Howard County, MD		Boring Number: 03021098 Sheet: 1 of 1		I-2	
Boring Contractor: Connelly and Associates, Inc.							
Boring Foreman: S. Delosh							
Drilling Method: 2-1/4 I.D. Hollow Stem Auger							
Drilling Equipment: CME-45C							
SEA Representative: Amanda McCurry							
Dates Started: 5/28/03 Finished: 5/28/03							
Location: See Boring Location Plan							
Ground Surface Elevation: 370.0s (feet)							
DEPTH (ft)	STRATA DESCRIPTION	CLASS.	ELEV. STRATA (ft)	SAMPLING DEPTH DATA	TESTS	REMARKS	
0.2	Topsoil		370.8	1+2+2			
	sandy silty FILL, trace mica, trace roots, moist, brown			3+9+7	w=18.9%		
3.5		SM	372.5				
	silty SAND, with mica, moist, mottled brown			7+7+13			
				5+4+5			
	trace rock fragments below 9.0 FT.			12+8+8			
15.0			361.0				
	BOTTOM OF BORING @ 15.0 FT.						



U.S. Department of Agriculture
Natural Resources Conservation Service
3200 SILVER SPRING

Project Name: JHU/APL Bldg. #31 SWH

SCD File No: SDP-04-218

Maryland Coordinates (to nearest 1000 ft):
East: 830,000
North: 489,000
County: HOWARD
ADC Map/Grid: 19 / B1

OWNER INFORMATION
Name: JHU/APL Applied Physics Laboratory
Address: 1150 Johns Hopkins Road
City: Laurel
State: MD Zip: 20723

TYPE OF POND: Excavated Embankment
 Both

Drainage Area: 21.2 acres
Surface Area: 1.1 acres
Normal Depth: N/A feet
Design Storm Frequency: 100 years
Storage at Design High Water (DHW): 5.0 ac-ft

PURPOSE OF POND (check all that apply):
 Stormwater Mgmt. - Wet Sediment Cntrl Wetland Mitigation
 Stormwater Mgmt. - Dry Livestock Wildlife/Fish
 Infiltration/Water Quality Flood Control Fire Control
 Sand & Gravel Wash Pond Borrow Material

EMBAKMENT:
Top Elevation: 363.1 ft. Max Fill Height: 8.0 ft.
Normal Pool Elevation: N/A ft. Side Slopes: U.S.: 1:1
DHW Water Elevation: 361.94 ft. D.S.: 3:1

Will embankment serve as a public roadway? Yes No

PRINCIPAL SPILLWAY
Barrel Size: 27 inches Design Capacity at DHW: 49 cfs
 BOCMP Alum RCP PVC Cast-in-Place Box Culvert
 Weir Channel Other:

EMERGENCY SPILLWAY
Design Capacity at DHW: cfs
Velocity: ft/sec Bottom Width: feet
Crest Elev: ft Side Slopes: 1:1
Spillway Protection: Grass Riprap Gabions Other

DISTANCES BELOW POND TO:
Property Line: 1.10 ft
Public Road: 4.30 ft

Soil Conservation District (Name): Howard County
District Manager Signature: _____ Date: _____
Date As-Built Accepted: _____ District Representative Signature _____

Engineering Firm & Address: _____ Project Name: _____
Plan Number: _____
1st Review Date: _____ 2nd Review Date: _____ 3rd Review Date: _____

POND AS-BUILT CHECKLIST

3rd Rev.	2nd Rev.	1st Rev.	Minimum Information Required
			1. A profile of the top of dam.
			2. A cross-section of the emergency spillway at the control section.
			3. A profile along the centerline of the emergency spillway.
			4. A profile along the centerline of the principal spillway extending at least 100 feet downstream of the fill.
			5. The elevation of the principal spillway crest.
			6. The elevation of the principal spillway conduit invert (inlet & outlet).
			7. The diameter, length, and type of material for the riser.
			8. The diameter, length, and type of material for the conduit.
			9. The size and type of anti-vortex and trash rack device and its elevations in relation to the principal spillway crest.
			10. The number, size, and location of the anti-seep collars. (Certification by the installing contractor is acceptable.)
			11. The diameter and size of any low slope outlets or drain pipes.
			12. Show the length, width, and depth or contours of the pool area so that design volume can be verified.
			13. Notes and measurements to show that any special design features were met.
			14. The size & type of riser base and concrete thickness.
			15. A statement, sealed and dated by a Professional Engineer registered in Maryland, stating that "I hereby certify that the facility shown on this plan was constructed as shown on the 'As-Built' plans and meets the approved plans and specifications."

Legend: INC = Incomplete N/A = Non Applicable

Note: The minimum information shall be shown in red on a clear print of the signature approved plans. A check mark (✓) may be made beside planned values if they were the actually constructed values. For changed values, line out the planned values and enter the actual values and redate. Significant differences may require a re-routing based on as-built hydraulics and storage. Elevations recorded to the nearest 0.1 ft. use decimal.

Note that before a Howard SCD approves an "As-Built," a spot check of the pond may be performed as per the SCD-318 Dam Inspection Checklist (Appendix A). Any visible or otherwise known defects may defer approval until the situation is remedied. Pond defects left unresolved will be reported to the Maryland Department of the Environment, Dam Safety Division for their enforcement action.

Reviewed: September 27, 2000 Prepared By: _____
City/State/County: _____ District: Howard Soil Conservation District (410) 489-7887

Pond MD - 378 - 14

Plastic Pipe: The following criteria shall apply for plastic pipe:
1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following 4" - 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" shall meet the requirements of AASHTO D294 Type S.
2. Joints and connections to anti-seep collars shall be completely watertight.
3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
4. Backfilling shall conform to "Structure Backfill".
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diaphragms when a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

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

Rock Riprap
Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, section 921.09, Class C.

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 various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require drainage the water sumps from which the water shall be pumped.

Stabilization
All borrow areas shall be graded to provide proper drainage and left in a 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 Natural Resources Conservation Service Standards and specifications for critical area planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

NRCS - MARYLAND JANUARY 2000

AS-BUILT CERTIFICATION

I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.

Signature: _____ Date: _____

FE No: _____

OPERATION, MAINTENANCE AND INSPECTION

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

Figure 2 Temporary Sediment Basin Design Data Sheet

Computed by: EW Date: 10/18/03 Checked by: _____ Date: _____
Project name: JHU/APL BLDG. G Basin #: G
Location: JHU/APL, LAUREL, HOWARD COUNTY

Total area draining to basin: 19.4 acres (ac)
DISTURBED AREA USED: 1.1 ac

Basin Volume Design
Note: 1. Also see Surface Area Design #30, this form.
2. To convert ft³ to yd³, divide ft³ by 27. To convert ft³ to yd³, divide ft³ by 9.

1. Min. required vol. = 3600 ft³/ac x 1.1 ac. drainage = 3960 ft³
2. Actual Volume of basin = 61740 ft³
3. Excavate 0 ft (0 yd) to obtain required capacity.
4. Vol. at downstream elev. = 1800 ft³/ac x 1.1 ac. = 1980 ft³
5. Vol. of basin at cleanout = 900 ft³/ac x 1.1 ac. = 990 ft³
6. Elevation corresponding to min. required volume of basin (riser crest elevation) 357.08 ft.
7. Permanent pool elevation 356.08 ft. (TOP OF DIVERSION)
8. Distance from riser crest elevation to permanent pool elevation 1.0 ft.
9. Basin cleanout elevation 355.58 ft. (AREA (125')² = 15625 ft²)
10. Distance from riser crest elevation to cleanout elevation 1.0 ft.

Spillway Design
11. Q₁₀ = 48.1 cfs (peak discharge from 10 yr. 24-hr storm event, attach computations)
(TR-20 CALZ. EXIST) (SANDWICH DIVERSION) 65' LONG, FLOW HEIGHT 0.45'
SWH REPORT EMBANK. 2'

Design Elevations
23. Riser Crest Elevation = 357.08 ft. 24. Design High Water (DHW) = 360.54 ft.
25. Emergency Spillway Crest = 357.08 ft. 26. Min. settled top of dam = 362.10 ft.
27. Permanent pool = 356.08 ft. 28. Bottom of Basin = 355.08 ft.
29. Draw-down office invert = 355.08 ft.

Surface Area Design
33. Min. basin surface area; SA ≥ 0.0035 x Q₁₀ = 0.0035 x 48.1 cfs = 0.64 ac. = 7333 ft²

Draw-down Device
31. Draw-down device office diameter = 4" in. (From Table 11)
32. A₁ = Total area of perforations ≥ A₂.
A₁ = (ft of perforation/100)(perforation area ft²/perforated section length ft.)
A₂ = 0.87 ft²
A₃ = Internal orifice area (from Table 11 or computed)

Pond MD - 378 - 14

CONSTRUCTION SPECIFICATIONS
These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation
Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots, and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment. Areas to be covered by the reservoir will be cleared of all trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared. All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Earth Fill
Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, and wood. Rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.
Materials used in the outer shell if the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8-inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with the fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not so wet that it is squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 98 maximum dry density with a moisture content within ± 2% of the optimum. Each layer of fill shall be compacted as specified to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction as to be determined by ASTM Method T-99 (Standard Proctor).

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10-year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition the core shall be placed concurrently with the outer shell of the embankment.

Structure Backfill
Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a concrete structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Materials shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability if the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstance shall equipment be driven over any part of a structure of pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment materials.

Pipe Conduits
All pipes shall be circular in cross section.

Reinforced Concrete Pipe: All of the following criteria shall apply for reinforced concrete pipe:
1. Materials - Reinforced concrete pipe shall have a bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.
2. Bedding - Reinforced concrete pipe conduit shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 30% of its outside diameter with its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.
3. Laying Pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all the spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.
4. Backfilling shall conform to "Structure Backfill".
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

NRCS - MARYLAND JANUARY 2000

MAINTENANCE AND INSPECTION

MAINTENANCE
MAINTENANCE SHALL BE ACCORDING TO THE PROVISIONS SPECIFIED IN THE CURRENT EDITION OF THE MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I & II AND THIS DESIGN MANUAL FOR EACH SPECIFIC TYPE OF STORMWATER MANAGEMENT SYSTEM.

INSPECTION

A. INSPECTION SCHEDULE AND REPORTS
1. THE DEVELOPER SHALL NOTIFY THE COUNTY AT LEAST 48 HOURS BEFORE COMMENCING ANY WORK IN CONNECTION WITH THE STORMWATER MANAGEMENT PLAN AND UPON COMPLETION OF A PROJECT WHEN A FINAL INSPECTION WILL BE CONDUCTED.
2. INSPECTIONS SHALL BE CONDUCTED BY THE DEPARTMENT OF PUBLIC WORKS OR ITS AUTHORIZED REPRESENTATIVE. WRITTEN INSPECTION REPORTS SHALL BE MADE OF THE PERIODIC INSPECTIONS NECESSARY DURING CONSTRUCTION OF STORMWATER MANAGEMENT SYSTEMS TO ENSURE COMPLIANCE WITH THE APPROVED PLAN.
3. WRITTEN INSPECTION REPORTS SHALL INCLUDE:
(A) DATE AND LOCATION OF THE INSPECTION;
(B) WHETHER CONSTRUCTION WAS IN COMPLIANCE WITH THE APPROVED STORMWATER MANAGEMENT PLAN;
(C) ANY VARIATIONS FROM THE APPROVED CONSTRUCTION SPECIFICATIONS;
(D) ANY VIOLATIONS THAT EXIST.
4. THE OWNER/DEVELOPER AND ON-SITE PERSONNEL SHALL BE NOTIFIED IN WRITING WHEN VIOLATIONS ARE OBSERVED. WRITTEN NOTIFICATION SHALL DESCRIBE THE NATURE OF THE VIOLATION AND THE REQUIRED CORRECTIVE ACTION.
5. NO WORK SHALL PROCEED UNTIL THE COUNTY INSPECTS AND APPROVES THE WORK PREVIOUSLY COMPLETED AND FURNISHES THE DEVELOPER WITH THE RESULTS OF THE INSPECTION REPORTS AFTER COMPLETION OF EACH REQUIRED INSPECTION.

B. INSPECTION REQUIREMENTS DURING CONSTRUCTION
1. AT A MINIMUM, REGULAR INSPECTIONS SHALL BE MADE AND DOCUMENTED AT THE FOLLOWING SPECIFIED STAGES OF CONSTRUCTION:
(A) UPON COMPLETION OF EXCAVATION TO SUB-FOUNDATION AND WHEN REQUIRED, INSTALLATION OF STRUCTURAL SUPPORTS OR REINFORCEMENT FOR STRUCTURES, INCLUDING BUT NOT LIMITED TO CORE TRENCHES FOR STRUCTURAL EMBANKMENTS, INLET AND OUTLET STRUCTURES, ANTI-SEEP COLLARS OR FILTER DIAPHRAGMS, WATER TIGHT CONNECTORS ON PIPES, AND TRENCHES FOR ENCLOSED STORM DRAIN FACILITIES.
(B) DURING PLACEMENT OF STRUCTURAL FILL, CONCRETE AND INSTALLATION OF PIPING AND CATCH BASINS.
(C) DURING BACKFILL OF FOUNDATIONS AND TRENCHES.
(D) DURING EMBANKMENT CONSTRUCTION.
(E) UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.
2. THE COUNTY MAY, FOR ENFORCEMENT PURPOSES, USE ANY ONE OF A COMBINATION OF THE FOLLOWING ACTIONS:
(A) A NOTICE OF VIOLATION SHALL BE ISSUED SPECIFYING THE NEED FOR A VIOLATION TO BE CORRECTED IF STORMWATER MANAGEMENT PLAN NON-COMPLIANCE IS IDENTIFIED.
(B) A STOP WORK ORDER SHALL BE ISSUED FOR THE SITE BY THE COUNTY IF A VIOLATION PERSISTS.
(C) BONDS OR SECURITIES MAY BE WITHHELD OR THE CASE MAY BE REFERRED FOR LEGAL ACTION IF REASONABLE EFFORTS TO CORRECT THE VIOLATION HAVE NOT BEEN UNDERTAKEN.
(D) IN ADDITION TO ANY OTHER SANCTIONS, A CIVIL ACTION OR CRIMINAL PROSECUTION MAY BE BROUGHT AGAINST ANY PERSON IN VIOLATION OF THE STORMWATER MANAGEMENT SUBTITLE 18.900.
3. ANY STEP IN THE ENFORCEMENT PROCESS MAY BE TAKEN AT ANY TIME, DEPENDING ON THE SEVERITY OF THE VIOLATION.
4. ONCE CONSTRUCTION IS COMPLETE, AN AS-BUILT PLAN CERTIFICATION SHALL BE PROVIDED BY THE APPROPRIATE DESIGN PROFESSIONAL ENGINEER TO THE STATE OF MARYLAND TO ENSURE THAT CONSTRUCTED STORMWATER MANAGEMENT PRACTICES AND CONVEYANCE SYSTEMS COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE APPROVED PLANS. AT A MINIMUM, AS-BUILT CERTIFICATION SHALL INCLUDE A SET OF DRAWINGS COMPARING THE APPROVED STORMWATER MANAGEMENT PLAN WITH WHAT WAS CONSTRUCTED. THE COUNTY RESERVES THE RIGHT TO REQUIRE ADDITIONAL INFORMATION IF IT DEEMS NECESSARY TO ENFORCE COMPLIANCE WITH THE APPROVED PLANS.
5. THE COUNTY SHALL SUBMIT NOTICE OF CONSTRUCTION COMPLETION TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT. BEFORE SUPPLYING MDE FOR EACH STRUCTURAL STORMWATER MANAGEMENT PRACTICE WITH 45 DAYS OF CONSTRUCTION COMPLETION OF BMS'S REQUIRING HSCD APPROVAL ARE CONSTRUCTED, NOTICE OF CONSTRUCTION COMPLETION SHALL ALSO BE SUBMITTED TO HSCD.

C. MAINTENANCE INSPECTION
1. THE DEPARTMENT OF PUBLIC WORKS SHALL ENSURE THAT PREVENTATIVE MAINTENANCE IS PERFORMED BY INSPECTING ALL STORMWATER MANAGEMENT SYSTEMS DURING THE FIRST YEAR OF OPERATION AND AT LEAST ONCE EVERY 3 YEARS THEREAFTER. THE DEPARTMENT OF PUBLIC WORKS SHALL NOTIFY IN WRITING ANY PROPERTY OWNER OF DEFICIENCIES IN STORMWATER MANAGEMENT SYSTEMS THAT ARE FOUND DURING THE INSPECTIONS PURSUANT TO THE CRITERIA SET FORTH IN THIS DESIGN MANUAL.
2. INSPECTION REPORTS SHALL BE MAINTAINED BY THE COUNTY FOR ALL STORMWATER MANAGEMENT SYSTEMS.
3. INSPECTION REPORTS FOR STORMWATER MANAGEMENT SYSTEM SHALL INCLUDE THE FOLLOWING:
(A) THE DATE OF INSPECTION;
(B) NAME OF INSPECTOR;
(C) THE CONDITION OF:
1) SPILLWAYS, VALVES OR OTHER CONTROL STRUCTURES;
2) EMBANKMENTS, SLOPES AND SAFETY BENCHES;
3) RESERVOIR AREAS;
4) INLET AND OUTLET STRUCTURES;
5) UNDERGROUND DRAINAGE SYSTEMS;
6) SEDIMENT AND DEBRIS ACCUMULATION IN STORAGE AND FOREBAY AREAS;
7) ANY OTHER ITEM THAT COULD AFFECT THE PROPER FUNCTION STORMWATER MANAGEMENT SYSTEM.
(D) DESCRIPTION OF NEEDED MAINTENANCE.

SEDIMENT CONTROL & POND CONSTRUCTION

"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 CERTAIN ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Signature of Developer: J.E. Jordan Date: 2/5/04
Signature of Engineer: _____ Date: _____

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

Signature of Engineer: Robert A. Warner Date: 1/19/04
Signature of Engineer: _____ Date: _____

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

Signature: John Mays Date: 3/10/04
Signature: _____ Date: _____

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

Signature: John Mays Date: 3/10/04
Signature: _____ Date: _____

APPROVED: DEPARTMENT OF PLANNING AND ZONING

3/11/04

DATE: _____

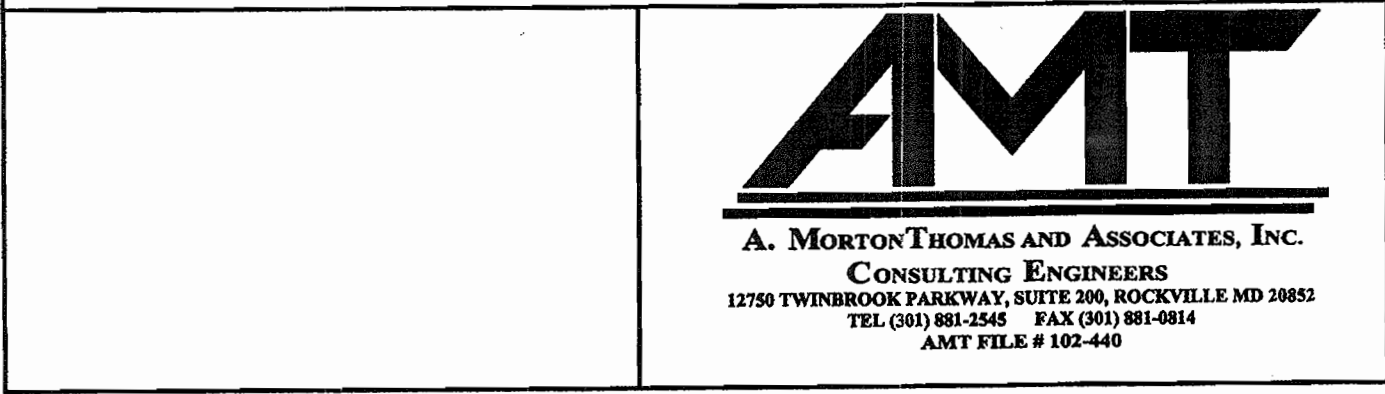
CHIEF, DEVELOPMENT ENGINEERING DIVISION

DATE: 2/5/04

CHIEF, DIVISION OF LAND DEVELOPMENT

DATE: 2/25/04

DIRECTOR



DES: J. KASPA									
DRN: P. FRIAS									
CHK: R. WARNER									
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP			

DRAINAGE BASIN G

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

SWM BASIN SPECIFICATIONS

TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C1.8
SHEET 12 OF 16

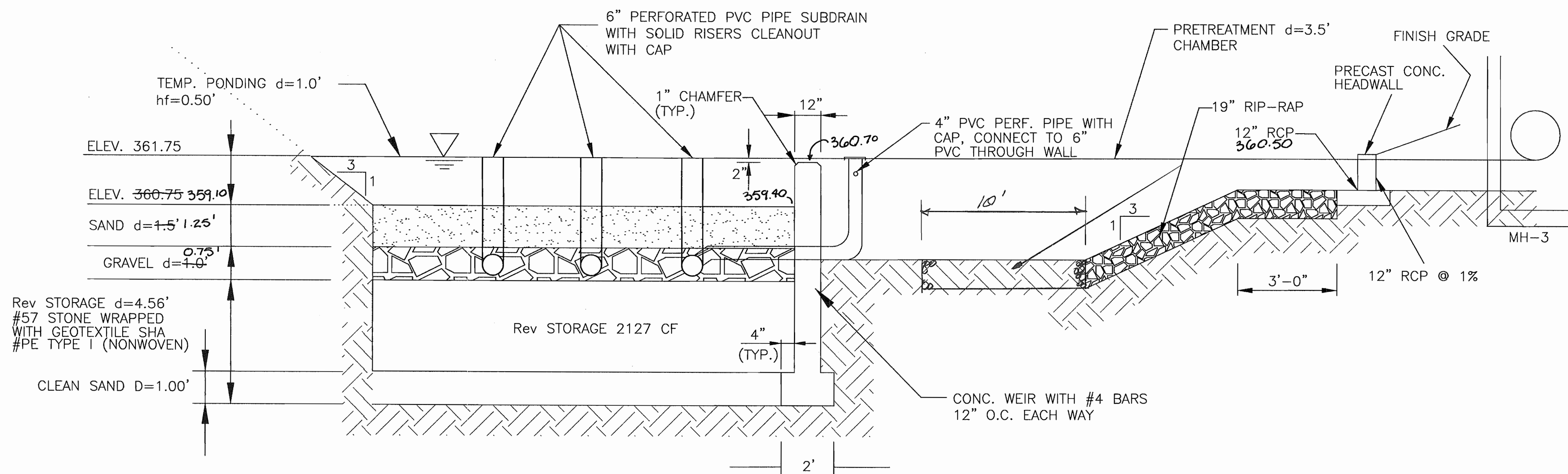
SDP-04-35

Signature: _____ Date: _____

Signature: _____ Date: _____

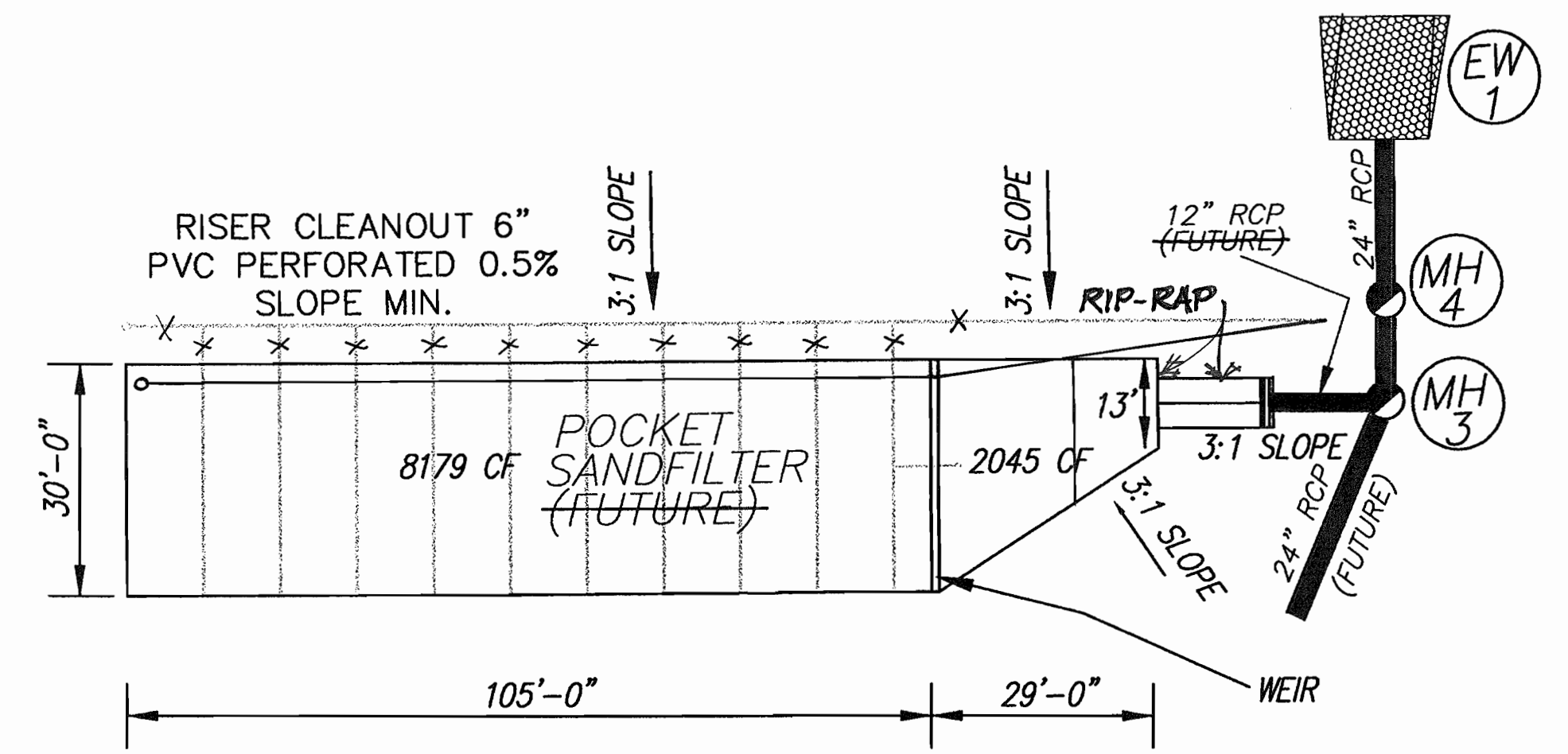
Signature: _____ Date: _____

Signature: _____ Date: _____



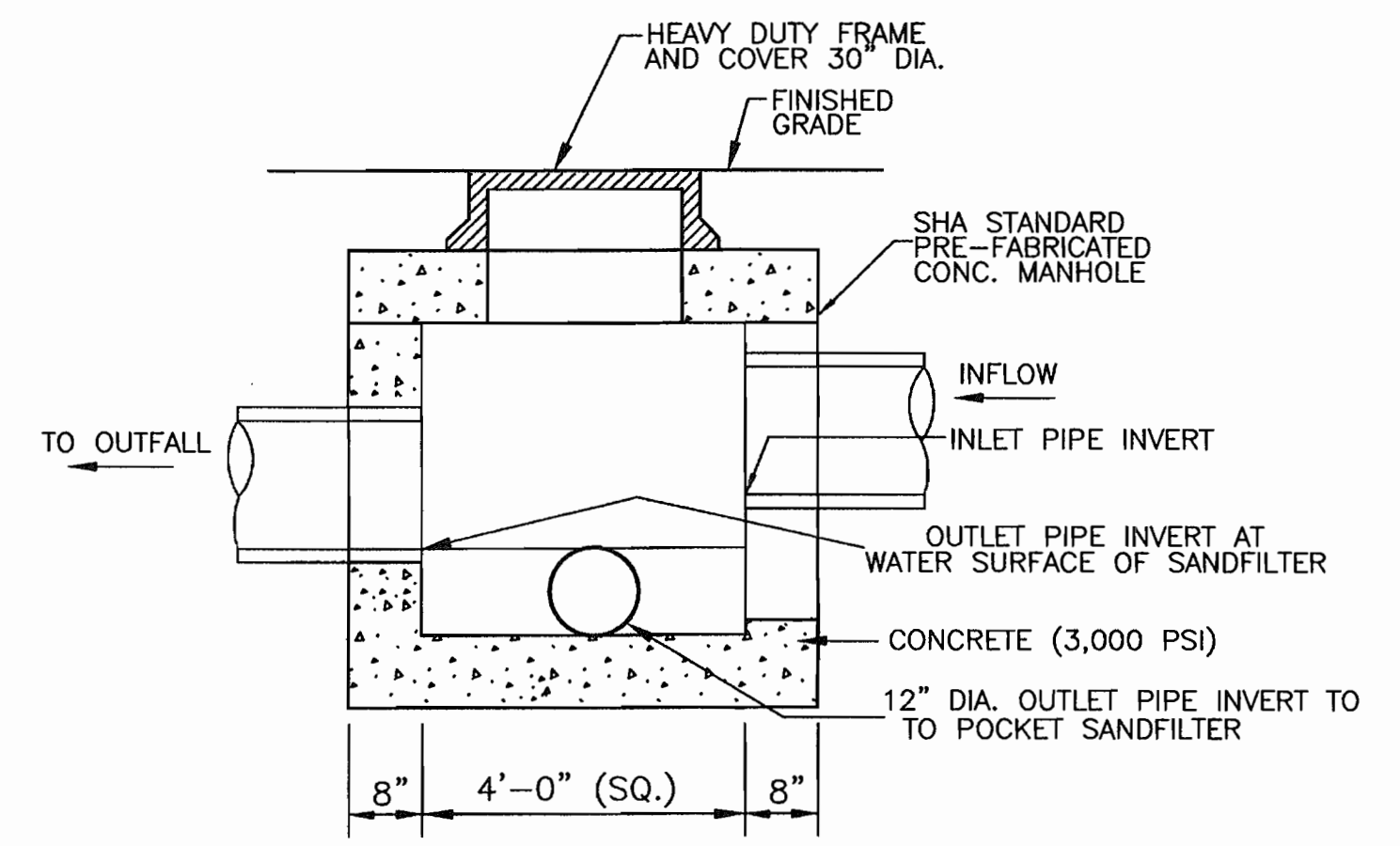
Pretreatment Volume = 2045 cf = 25% WQv
 Treatment Volume = 8179 cf = 100% WQv

1 SECTION A-A
 POCKET SAND FILTER - PROFILE / SECTION
 SCALE: NTS



2 POCKET SAND FILTER - PLAN VIEW
 SCALE: NTS

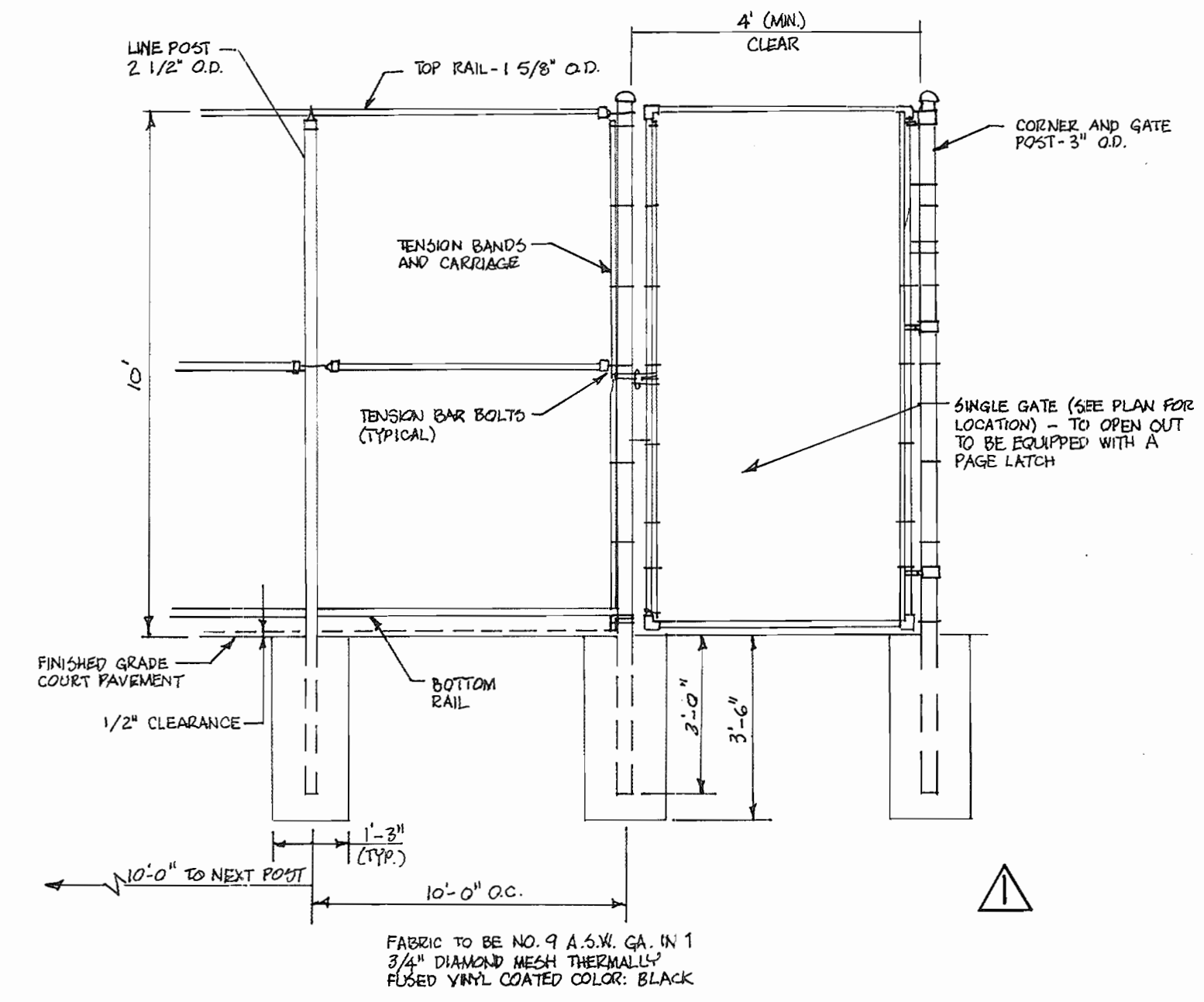
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS. THIS IS BASED ON INFORMATION PROVIDED BY APL AND VISUAL OBSERVATIONS.



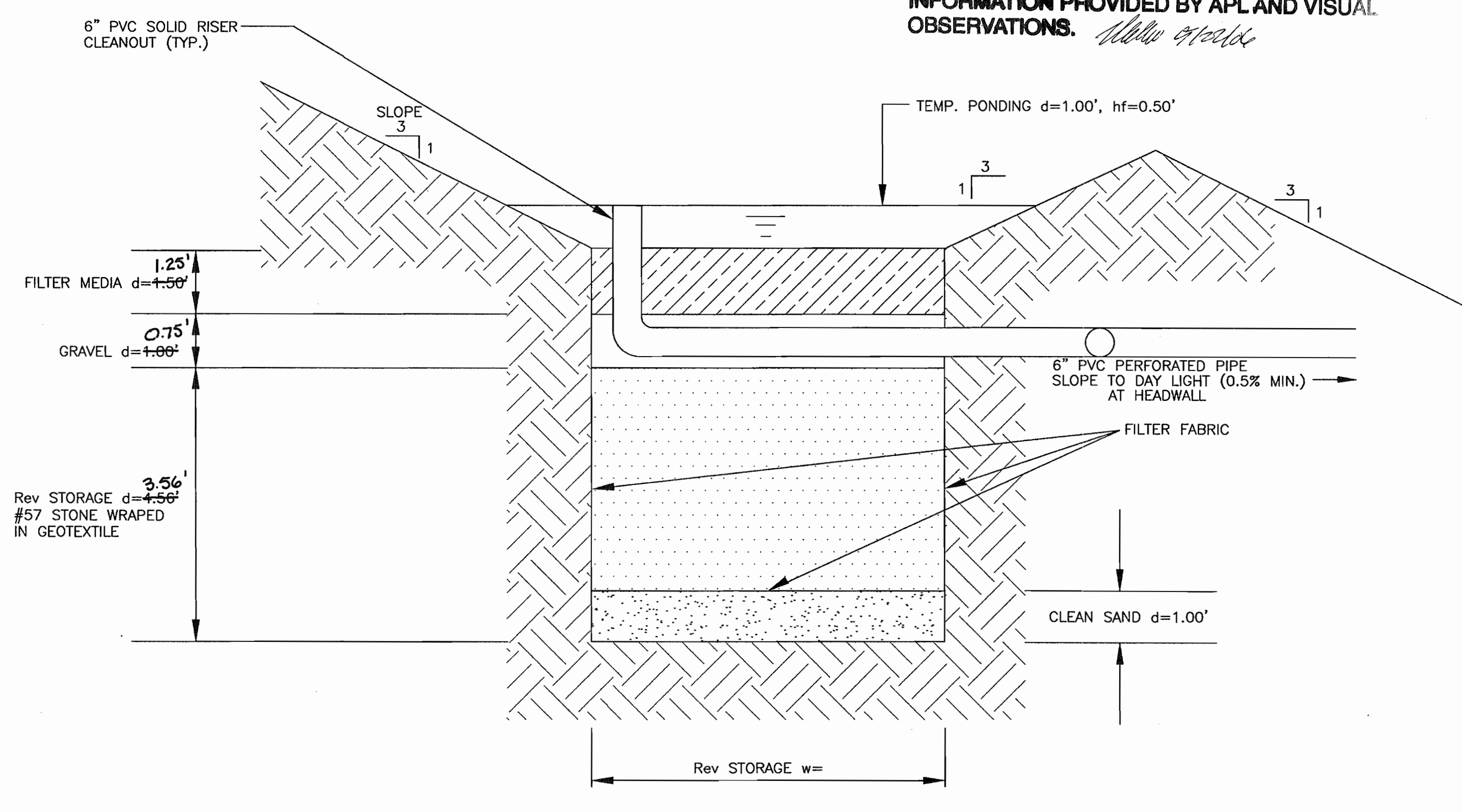
- NOTES:
- SEE PROFILE FOR PIPE INVERT AND SIZE.
 - STRUCTURE AND FRAME/COVER MD SHA 383.00 EXCEPT 30" FRAME AND COVER.
 - SEE STRUCTURE SCHEDULE FOR ELEVATION.
 - HYDRAULIC CAPACITY OF SPLITTER MANHOLE IS BASED ON FILLING SANDFILTER TO DESIGN CAPACITY BEFORE FLOW EXITS VIA SPLITTER BOX TO OUTLET PIPE.

4 SPLITTER MANHOLE
 SCALE: NTS

GENERAL NOTES:
 1. SANDFILTER IS FOR FUTURE CONSTRUCTION (N.I.C.)

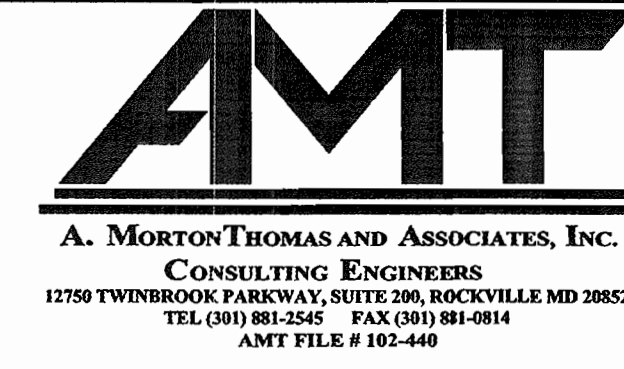


5 CHAIN LINK FENCE AND GATE
 NOT TO SCALE



3 POCKET SAND FILTER - CROSS SECTION
 SCALE: 1/2"=1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 3/11/04
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 3/15/04
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 3/15/04
 DIRECTOR



DES: J. KASPA					
DRN: P. FRIAS					
CHK: R. WARNER					
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP
	10/05/05	RED-LINE SUBMISSION			

DRAINAGE BASIN G
 RED-LINE REVISION ADD TO SDP
 ATHLETIC AREA DRAINAGE AREA G
 AS-BUILT PLAN (BASIN G)



SEDIMENT CONTROL & POND CONSTRUCTION

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER: *JE P... 2/15/04*
 PRINT NAME BELOW SIGNATURE: _____ DATE: _____

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

SIGNATURE OF ENGINEER: *Robert A. Warner* 10/23/03
 ROBERT A. WARNER DATE: _____
 SIGNATURE OF ENGINEER

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

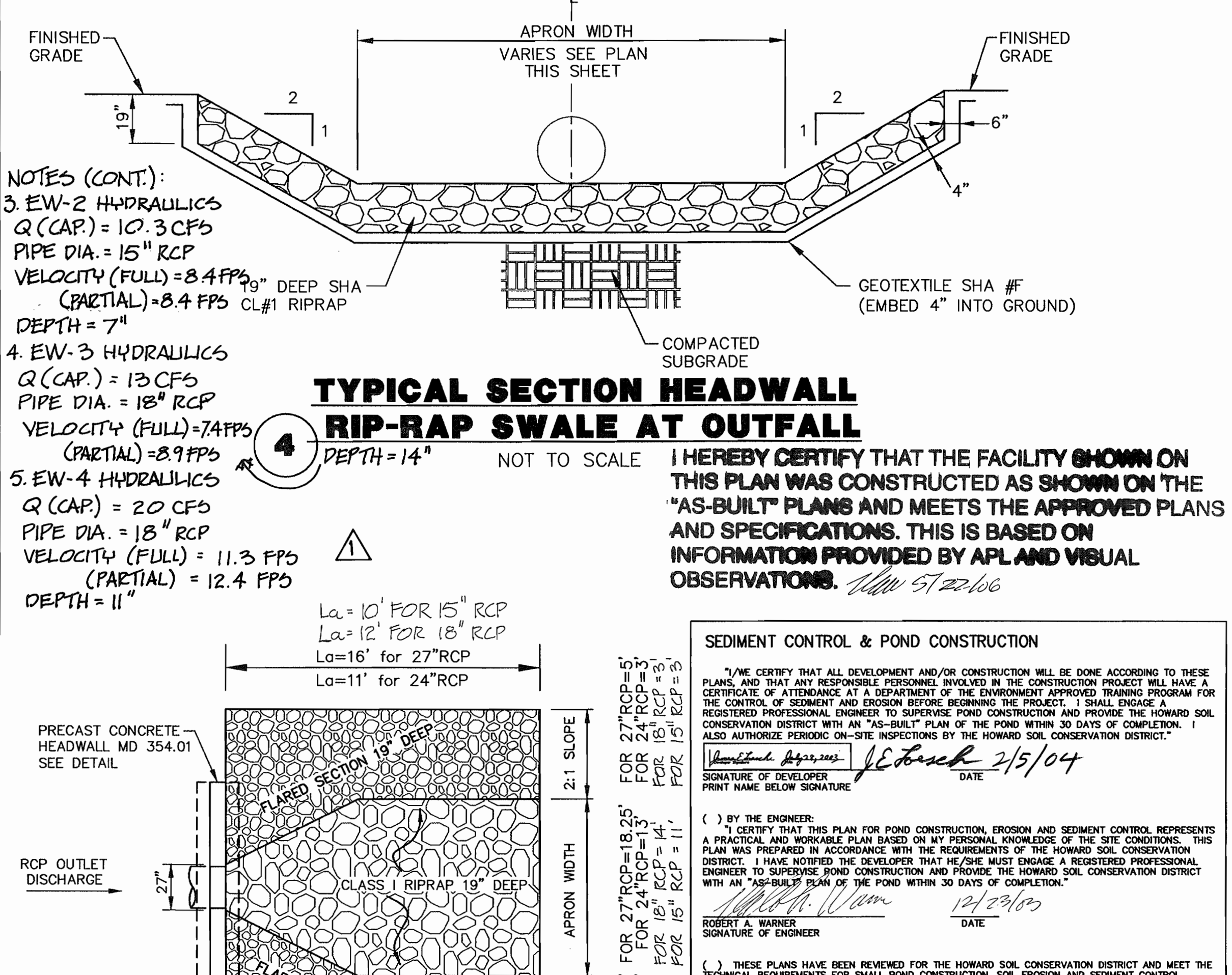
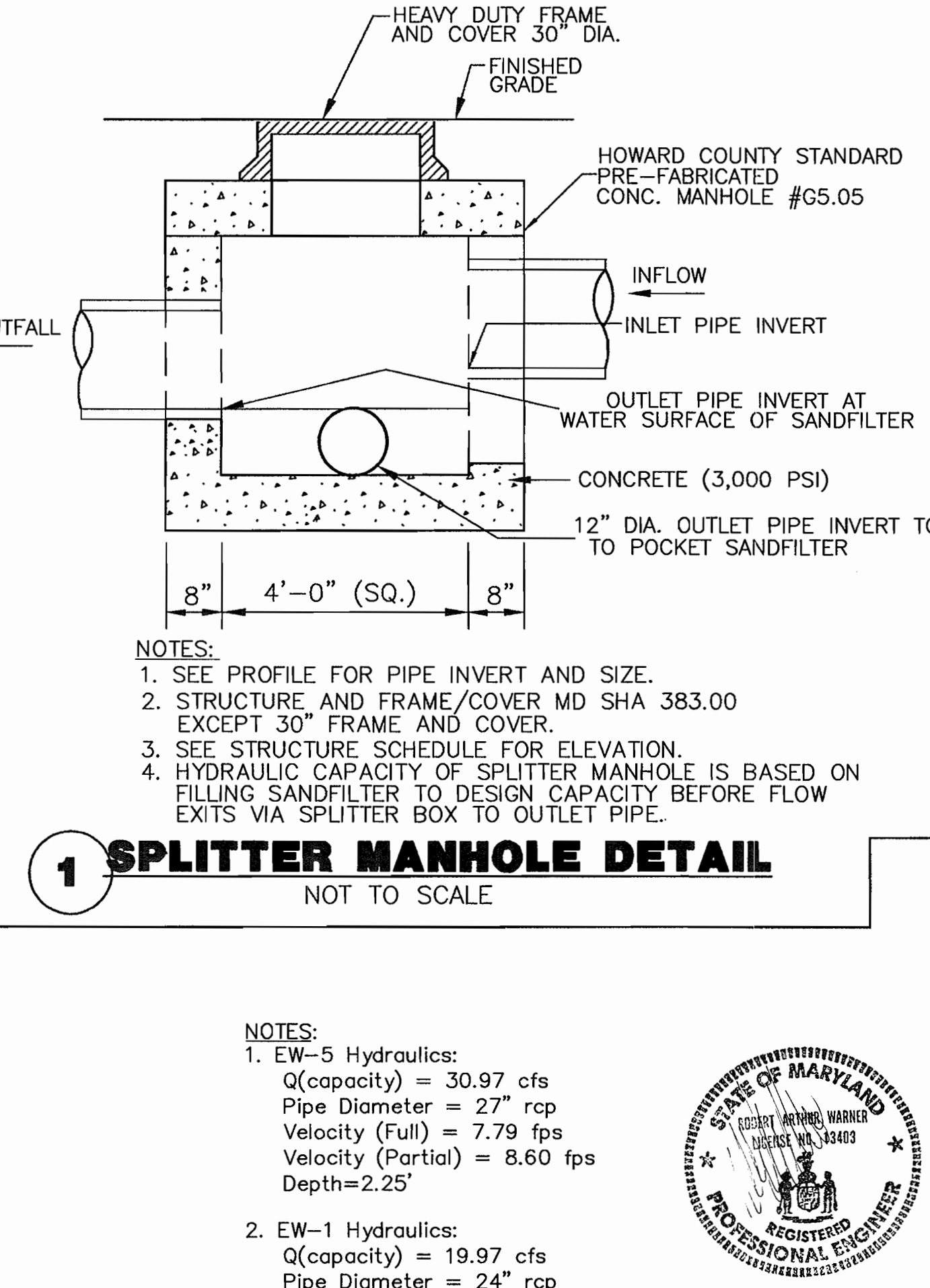
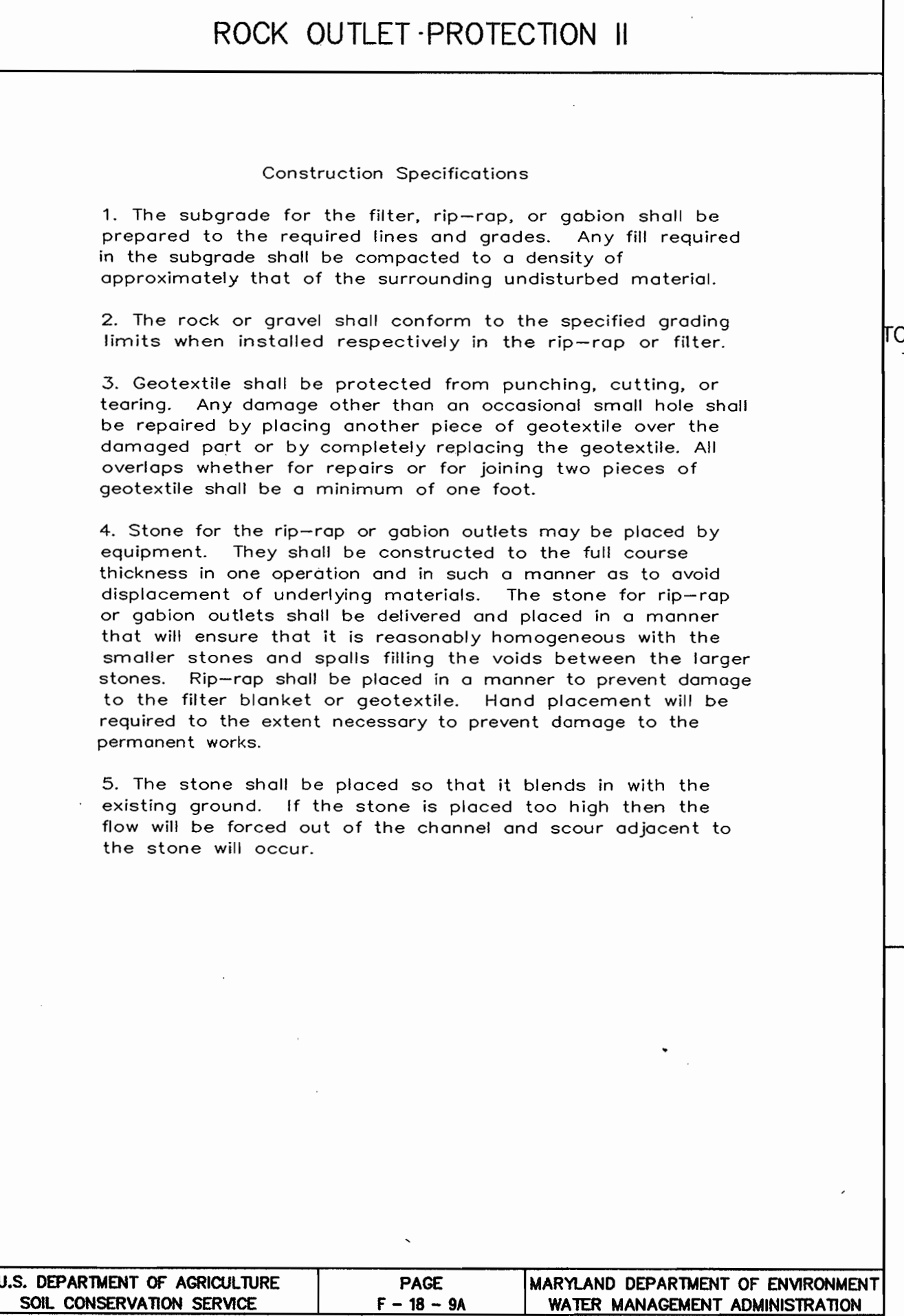
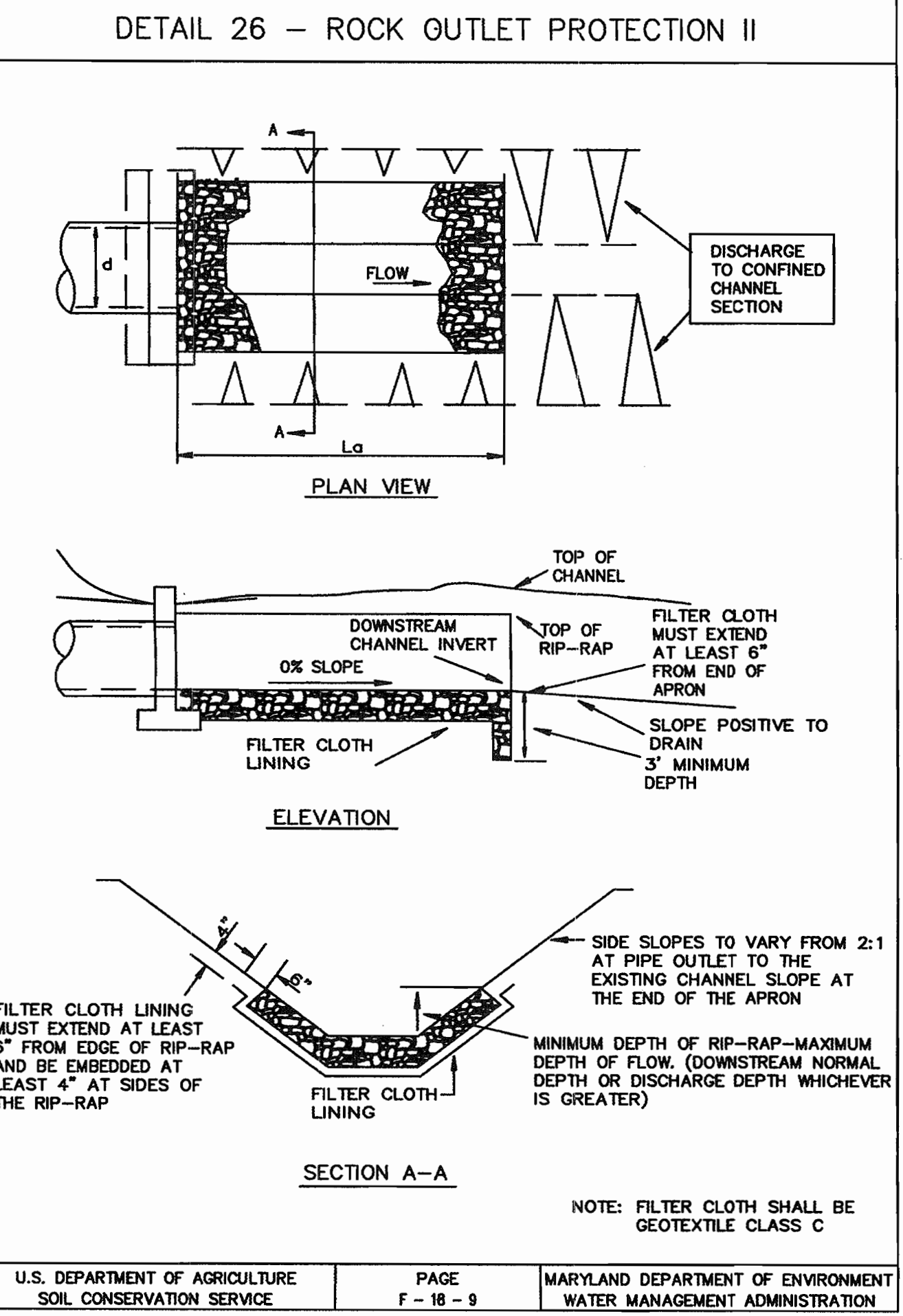
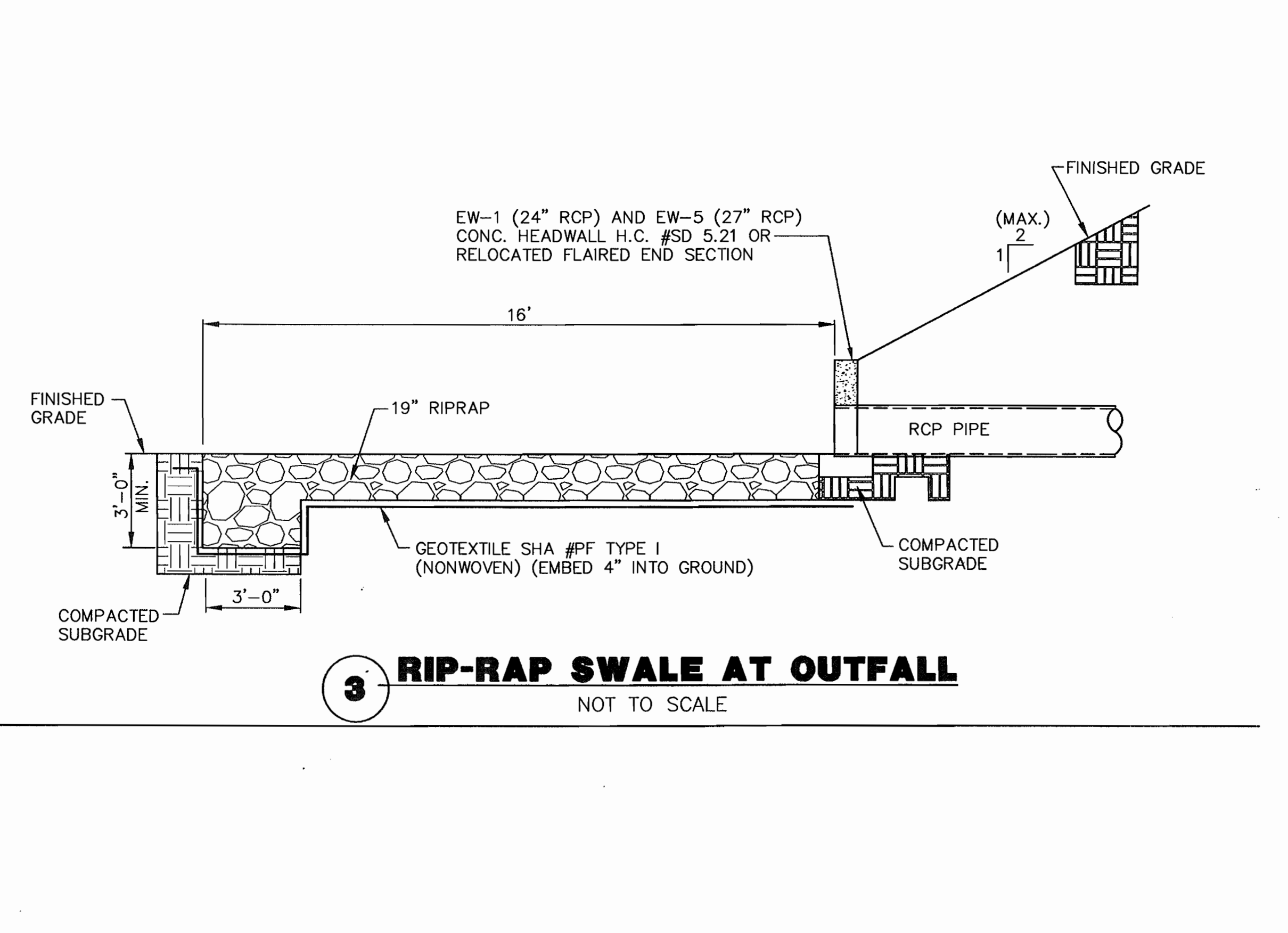
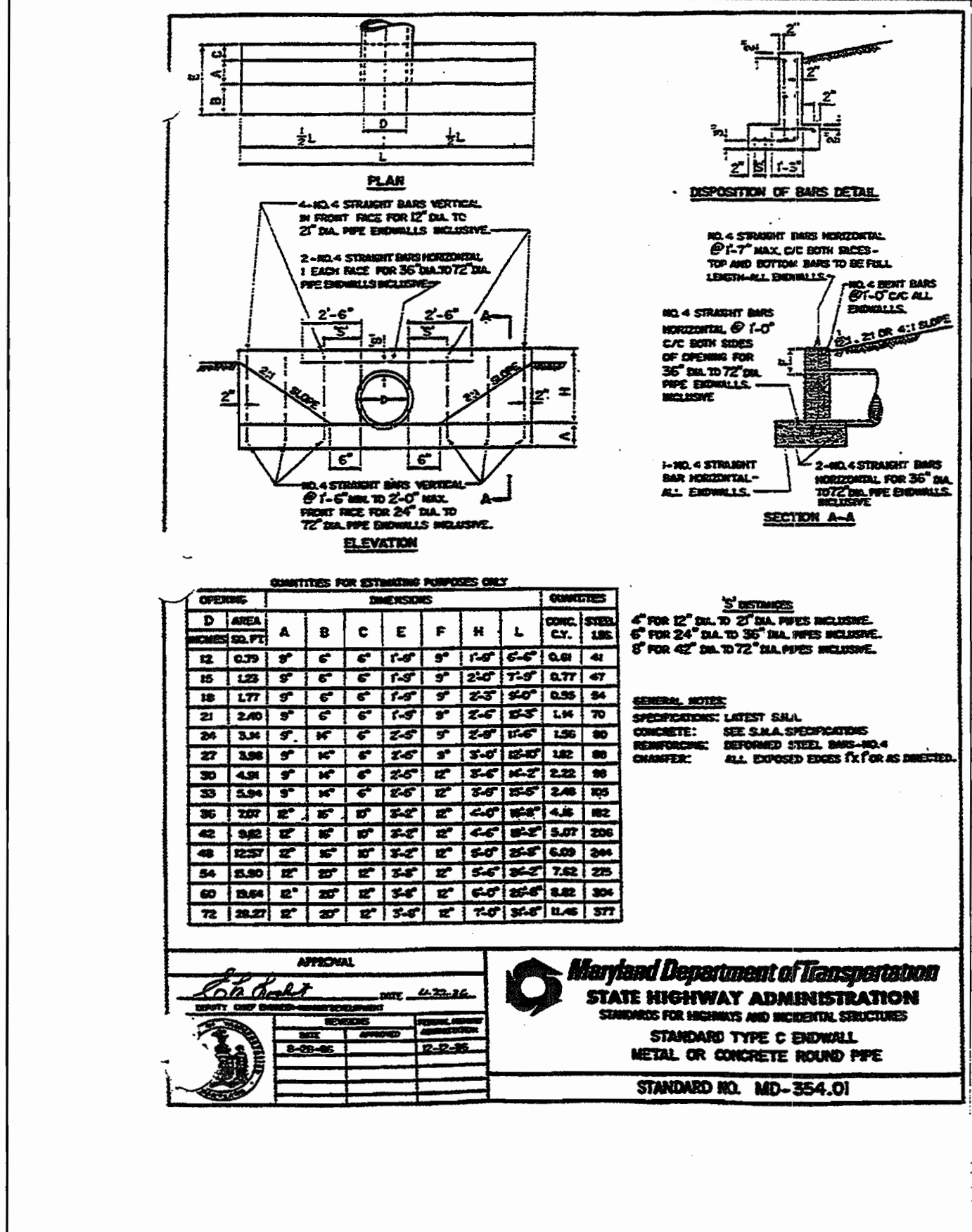
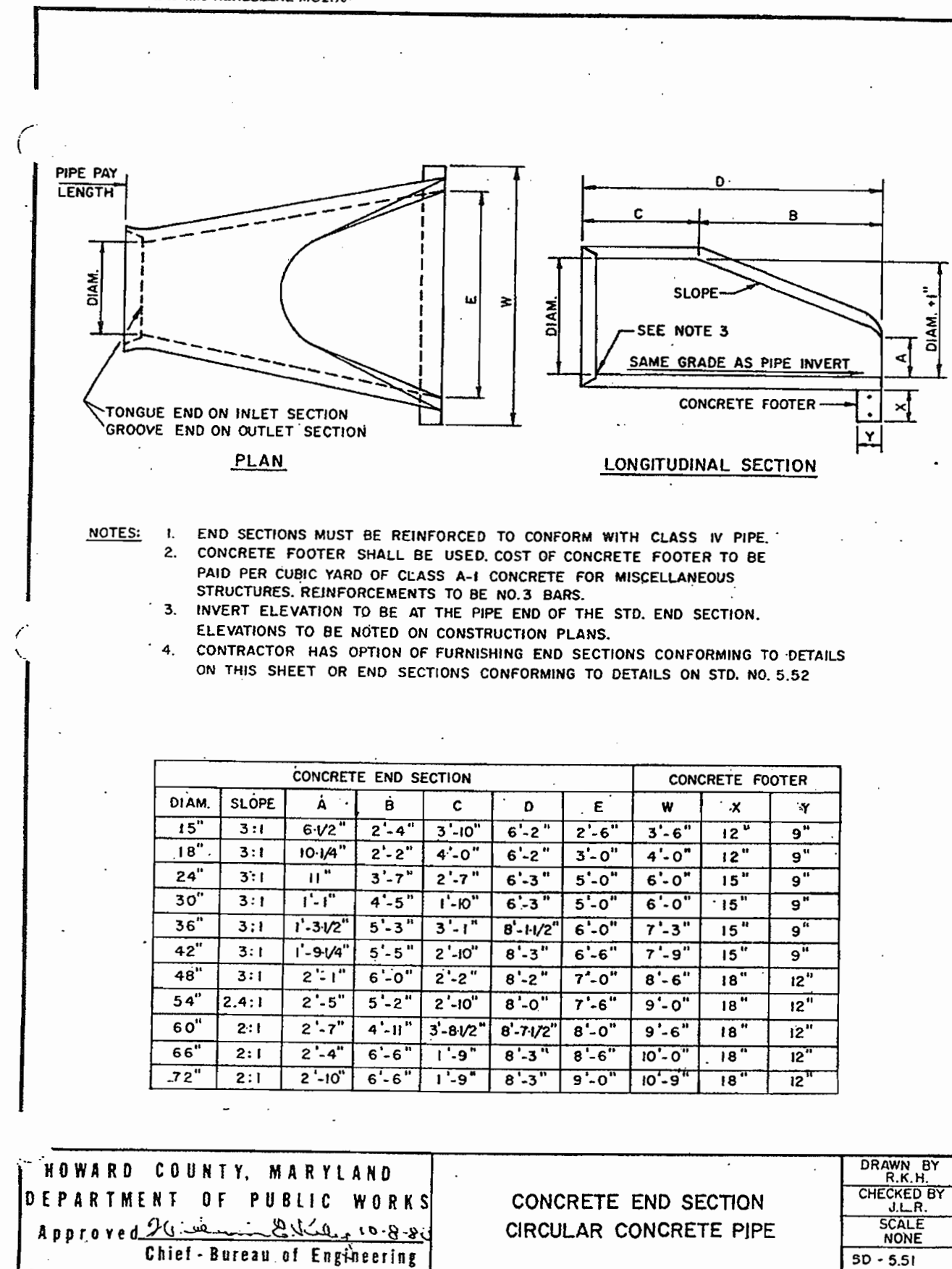
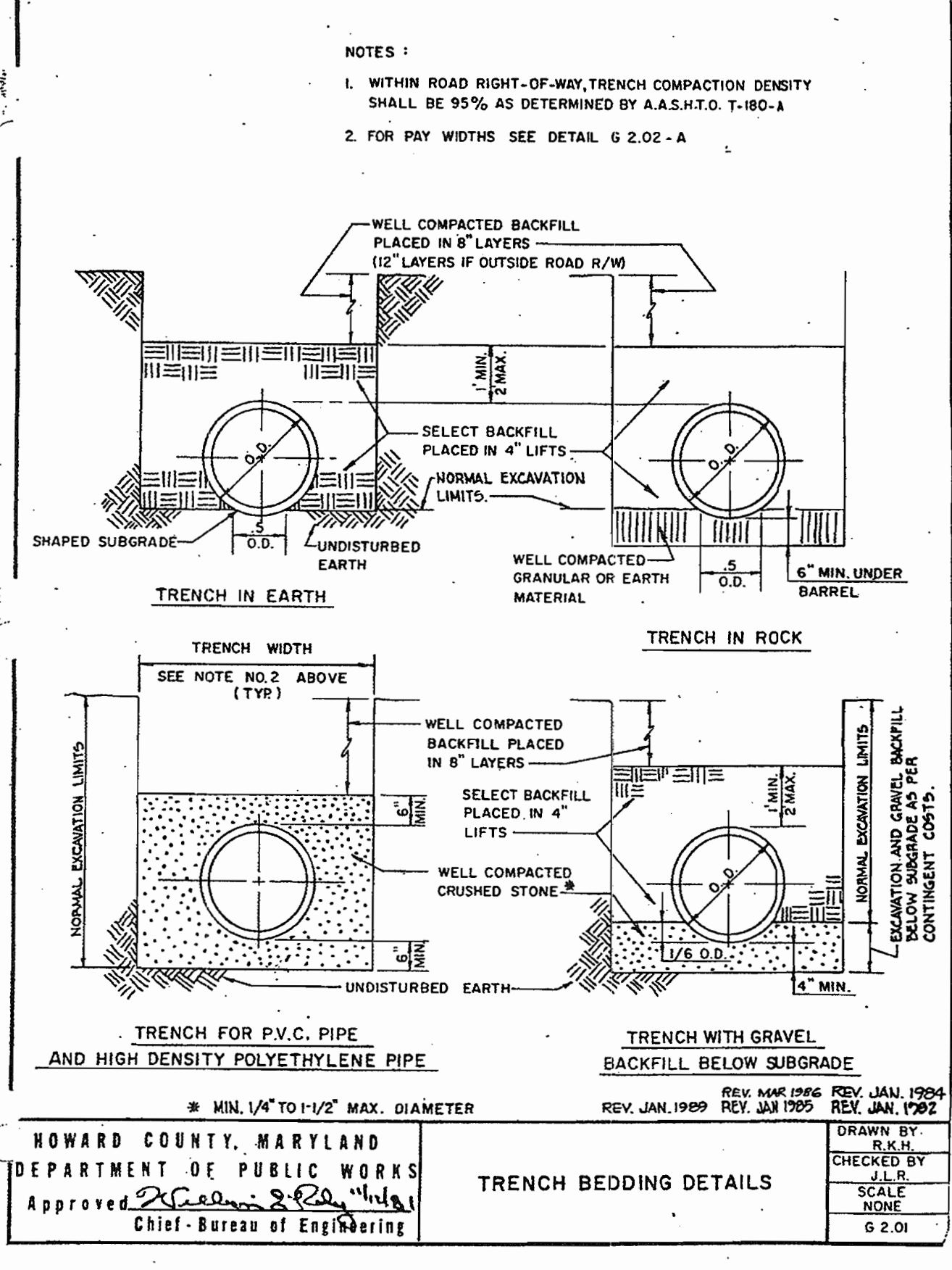
SIGNATURE: *Jim ...* 3/16/04
 USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE: _____

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

SIGNATURE: *...* 3/16/04
 HOWARD SOIL CONSERVATION DISTRICT DATE: _____

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
 POCKET SANDFILTER
 PLAN AND DETAILS
 TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET C1.7
 SHEET 11 OF 48



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 2/11/04

CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3/15/04

DIRECTOR DATE: 2/15/04

AMT
A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINDROOP PARKWAY, SUITE 200, ROCKVILLE, MD 20852
TEL (301) 881-2545 FAX (301) 881-0814
AMT #102-440

DES: J. KASPA					
DRN: P. FRIAS					
CHK: R. WARNER					
DATE: 10/09/03	DATE: 10/05/03	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

STATE OF MARYLAND
ROBERT A. WARNER
REGISTERED PROFESSIONAL ENGINEER

DRAINAGE BASIN G

RED-LINE REVISION ADD TO SDP
ATHLETIC AREA DRAINAGE AREA G
AS-BUILT PLAN (BASIN G)

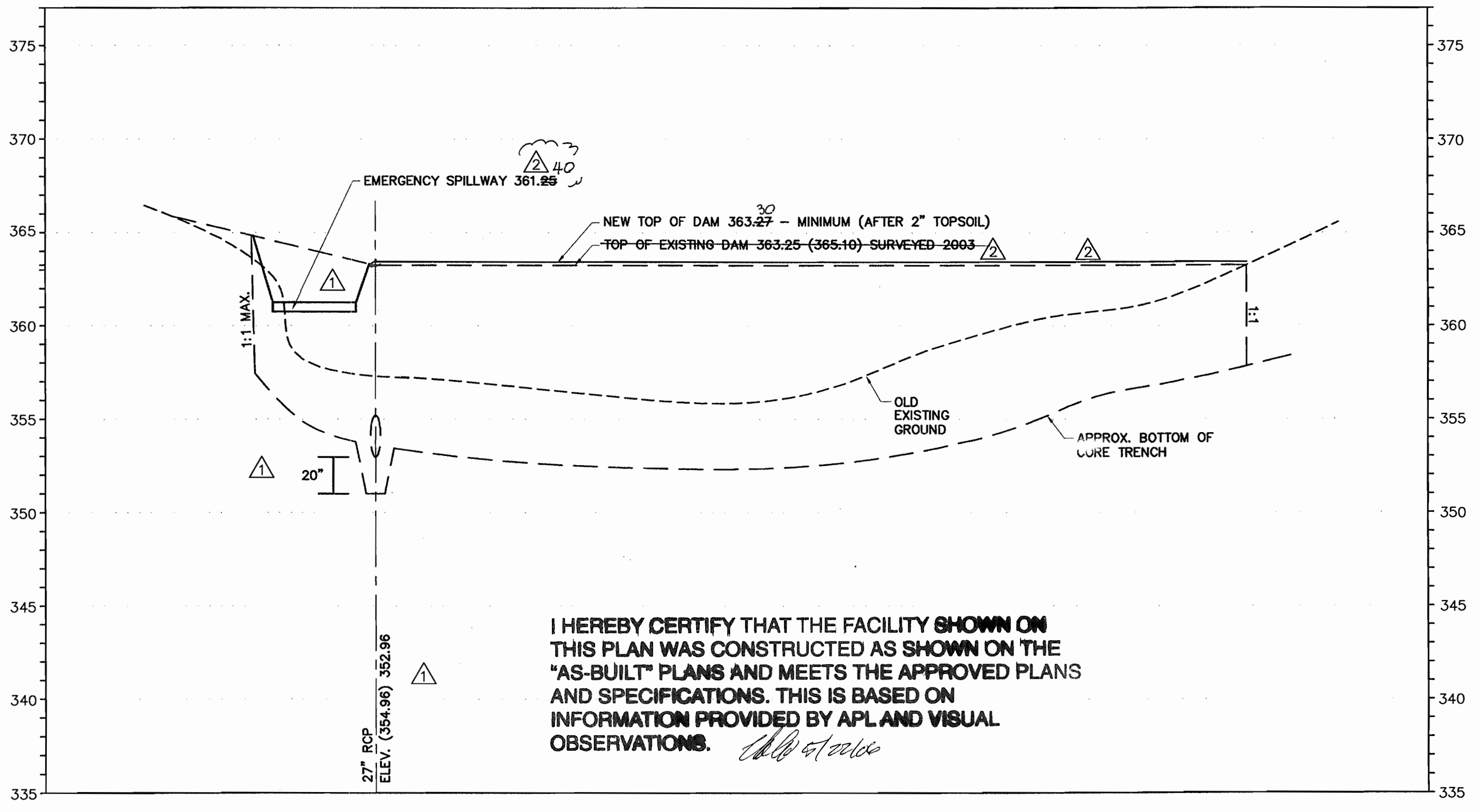
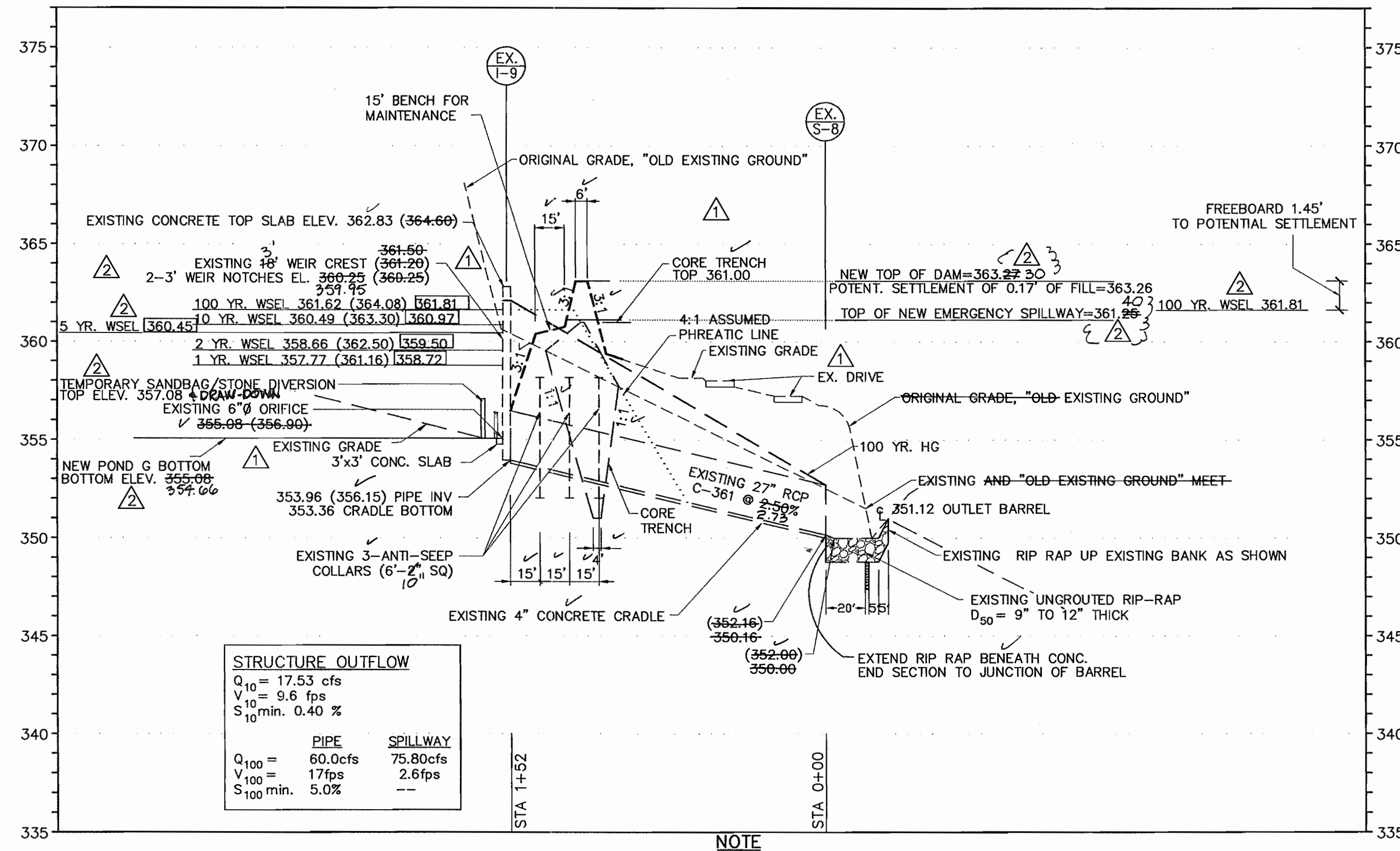
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

DETAILS

TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C1.6
SHEET 10 OF 16

SDP-04-35



LEGEND
 364.12 ELEVATIONS BASED ON JHU/APL DATUM 2003 AND CALCULATIONS - NEW DATUM
 (366.12) ELEVATIONS BASED ON BASIN G AS-BUILT - OLD DATUM
 (367.89) ELEVATIONS CALCULATED EXPANDED BASIN

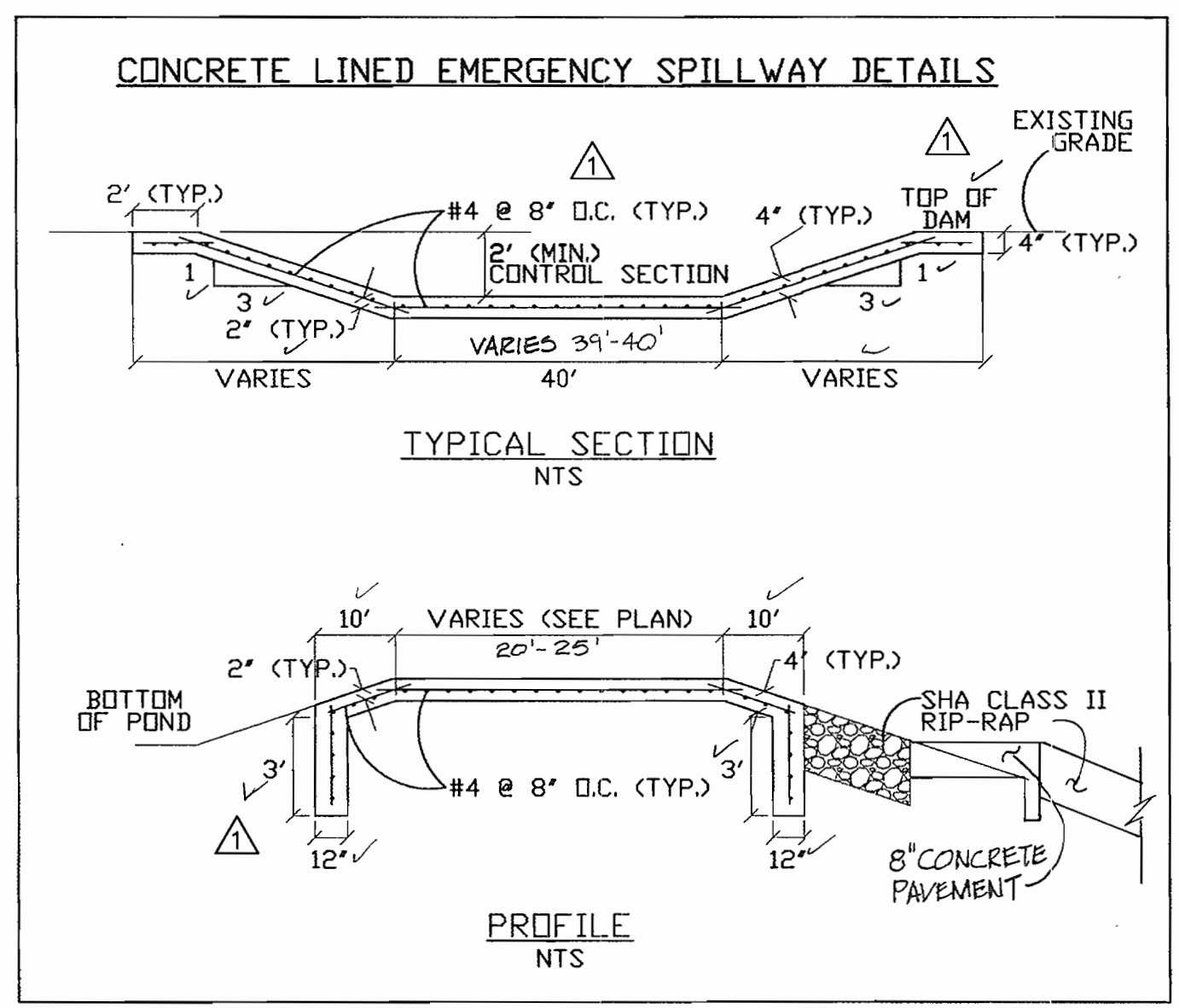
NOTE
 1. EXISTING DRAINAGE AREA G 1-YR DISCHARGE 11.6 CFS (BASIN 1.5 CFS)
 2. DEVELOPED DRAINAGE AREA G 1-YR DISCHARGE 6.4 CFS (BASIN 1.7 CFS)
 3. HEIGHT OF STRUCTURE: (TOP OF DAM 363.26) - (INVERT CRADLE 353.36) = 9.90 FT
 4. TOP OF PRINCIPAL SPILLWAY TO TOP OF EMERGENCY SPILLWAY 361.25 - 360.25 = 1.0'±
 5. TOP OF EMERGENCY SPILLWAY TO TOP OF DAM 363.27 - 361.25 = 2.02'±
 6. 10-YEAR WSEL 360.97 IS BELOW EXISTING TOP OF CORE TRENCH ELEV. 361.00

LEGEND
 364.12 ELEVATIONS BASED ON JHU/APL DATUM 2003 - NEW DATUM
 (366.12) ELEVATIONS BASED ON BASIN G AS-BUILT - OLD DATUM

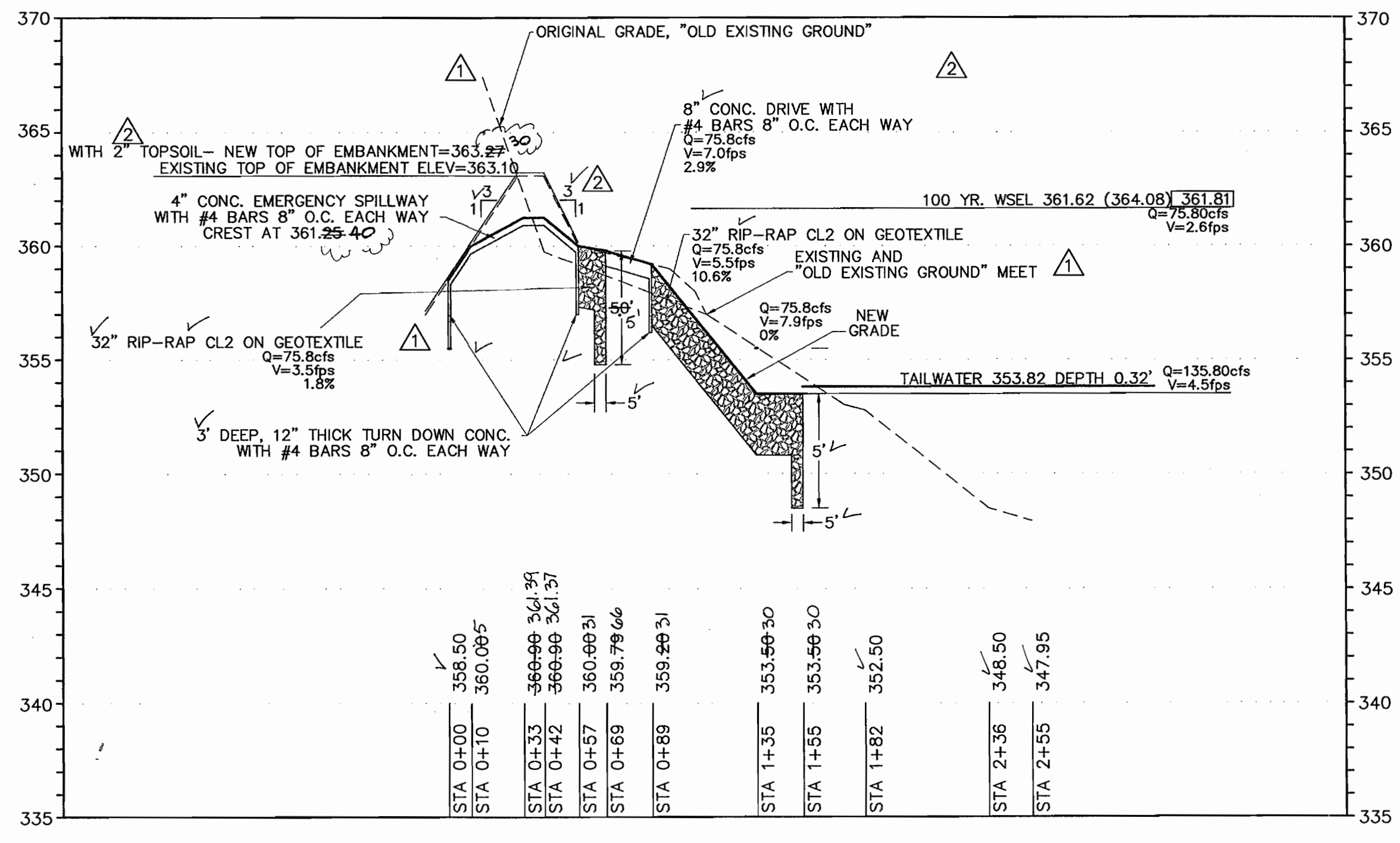
NOTE
 CENTERLINE LOCATED AT TOP OF FILL, SEE SHEET C1.0 FOR LOCATION.

1 EXISTING AS-BUILT BASIN G PROFILE
 SCALE: HORIZ. 1"=50'
 VERT. 1"=5'

2 EXISTING PROFILE ALONG CENTERLINE LOOKING DOWN STREAM
 EMBANKMENT AS-BUILT
 SCALE: HORIZ. 1"=50'
 VERT. 1"=5'



3 EMERGENCY SPILLWAY TYPICAL SECTION
 NTS



4 EMERGENCY SPILLWAY PROFILE
 SCALE: HORIZ. 1"=50'
 VERT. 1"=5'

Howard County
 Department of Public Works
 BUREAU OF ENVIRONMENTAL SERVICES
 John L. O'Hara, Chief

Wednesday, April 23, 2003

JOHNS HOPKINS UNIVERSITY
 APPLIED PHYSICS LAB
 11100 JOHNS HOPKINS RD.
 LAUREL, MD 20723

Subject: Storm Water Management Facility Inspection Results
 SDP-90-218 JOHNS HOPKINS APPLIED PHYSICS LAB Inspection Cycle: P027
 11100 JOHNS HOPKINS ROAD

Dear Facilities Manager,
 In regard to our letter to you of 9/16/2002, this is to advise you that an inspection of your stormwater management facility, listed below, at the subject property was conducted on 10/17/2002. The results of the inspection are as follows:

Facility No. 982 Description / Access: Extended Detention Structure, Dry - PARKING AREA @ CENTRALIZED DISTRIBUTION

The following items require immediate repair or maintenance:

- Outlet(s) from pond; headwalls, rip-rap channels
Remove woody growth and excessive vegetative growth within 25 feet of the outfall and within 5 feet of the rip rap channel.
- Riser / weir wall / control structure
Repair exposed metal on the outside and on the inside of the riser. Remove debris from the low flow trash rack.
- Pond inlet structures and embankments
Repair the joint separation passing soil at the first joint of the 18-inch infall pipe. Repair displaced rip rap, exposed fabric and erosion at the 27-inch infall channel. Remove sediment accumulation at the 27-inch infall channel.

Inspector's Summary
 R1) Remove excessive woody and vegetative growth at the outfall from the pond. R2) Repair exposed metal on the top slab of the riser. R3) Repair exposed metal on the inside of the riser. R4) Remove debris from the low flow trash rack. R5) Repair exposed fabric at the 27-inch infall channel. R6) Repair erosion at the 27-inch infall channel. R7) Repair sediment accumulation at the 27-inch infall channel. R8) Repair the apron crack at the 27-inch infall. R9) Repair the joint separation at the 18-inch infall pipe.

As owners of a property containing private storm water management facilities, you are responsible for maintenance of the facilities, under Howard County Code Section 18.905. The repair and maintenance items listed above must be corrected within 60 days of the date of this letter. If you are unable to correct these deficiencies within that time, you may request additional time for correction. Your request must be: (1) in writing; and (2) received by me within 60 days of the date of this letter. Once corrections have been completed, please contact me to schedule a follow up inspection.

SEDIMENT CONTROL & POND CONSTRUCTION

I, THE ENGINEER, 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. I ALSO AUTHORIZE PERSONS ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

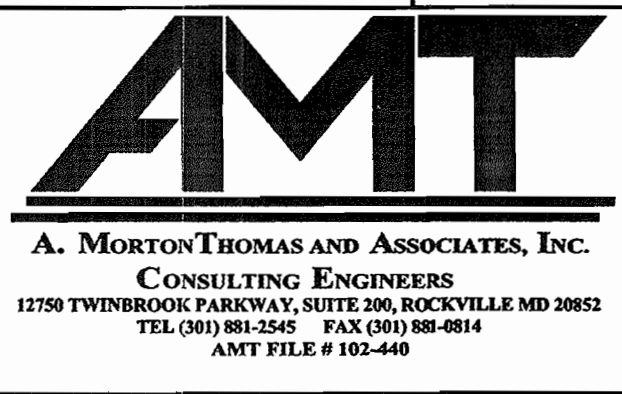
Signature of Developer: *John L. O'Hara* DATE: 2/5/04

Signature of Engineer: *Robert A. Warner* DATE: 10/23/03

Signature of District: *Jim Mays* DATE: 3/10/04

Signature of District: *John J. ...* DATE: 3/6/04

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division: *Mark ...* DATE: 3/11/04
 Chief, Division of Land Development: *Andy ...* DATE: 3/15/04
 Director: *David ...* DATE: 3/20/04



DES: J. KASPA	11/24/03	ADDENDUM #1					
DRN: P. FRIAS	12/19/03	HOWARD COUNTY PERMIT/ MYLAR					
CHK: R. WARNER							
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP	

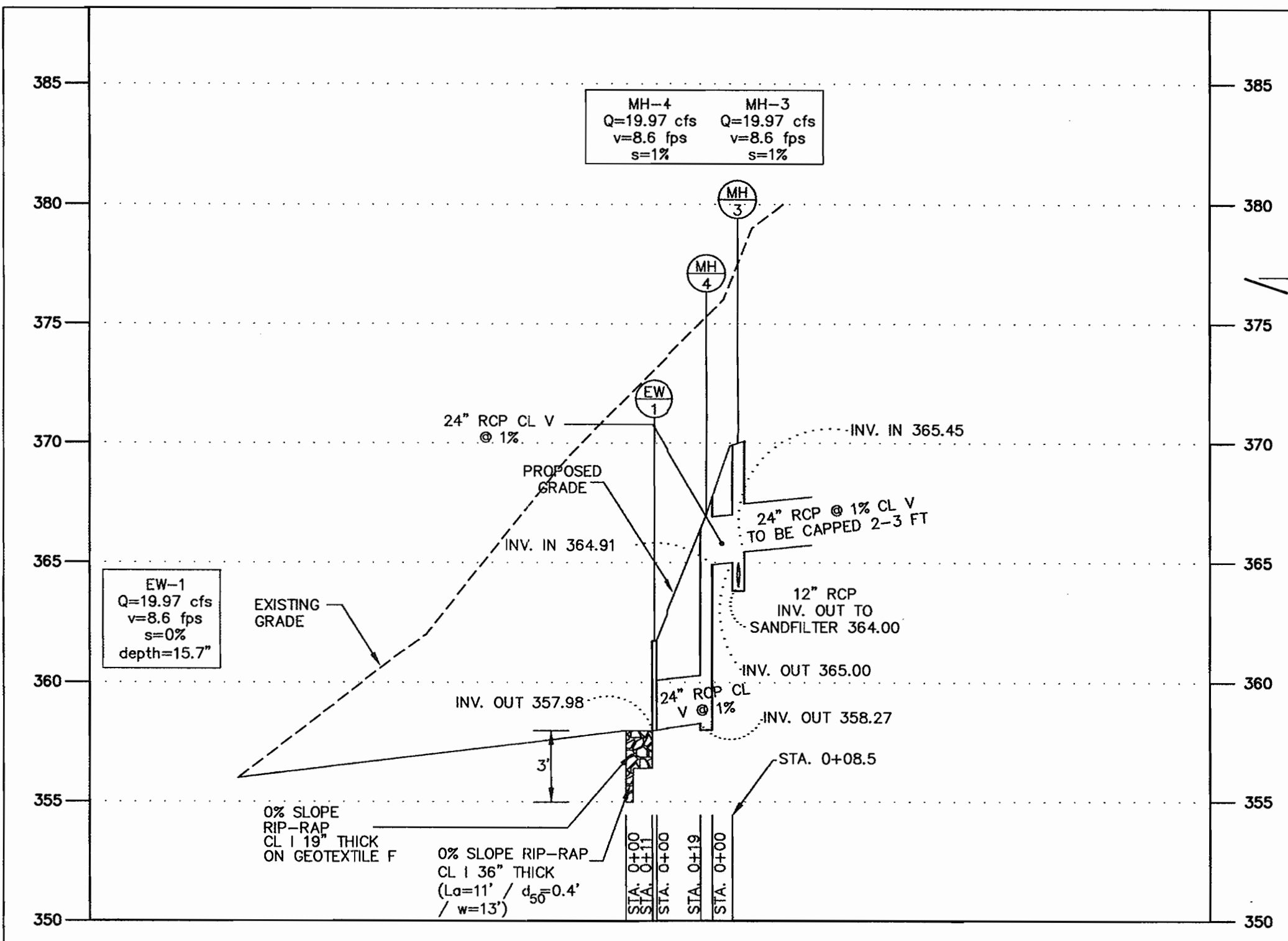
DRAINAGE BASIN G

AS-BUILT PLAN

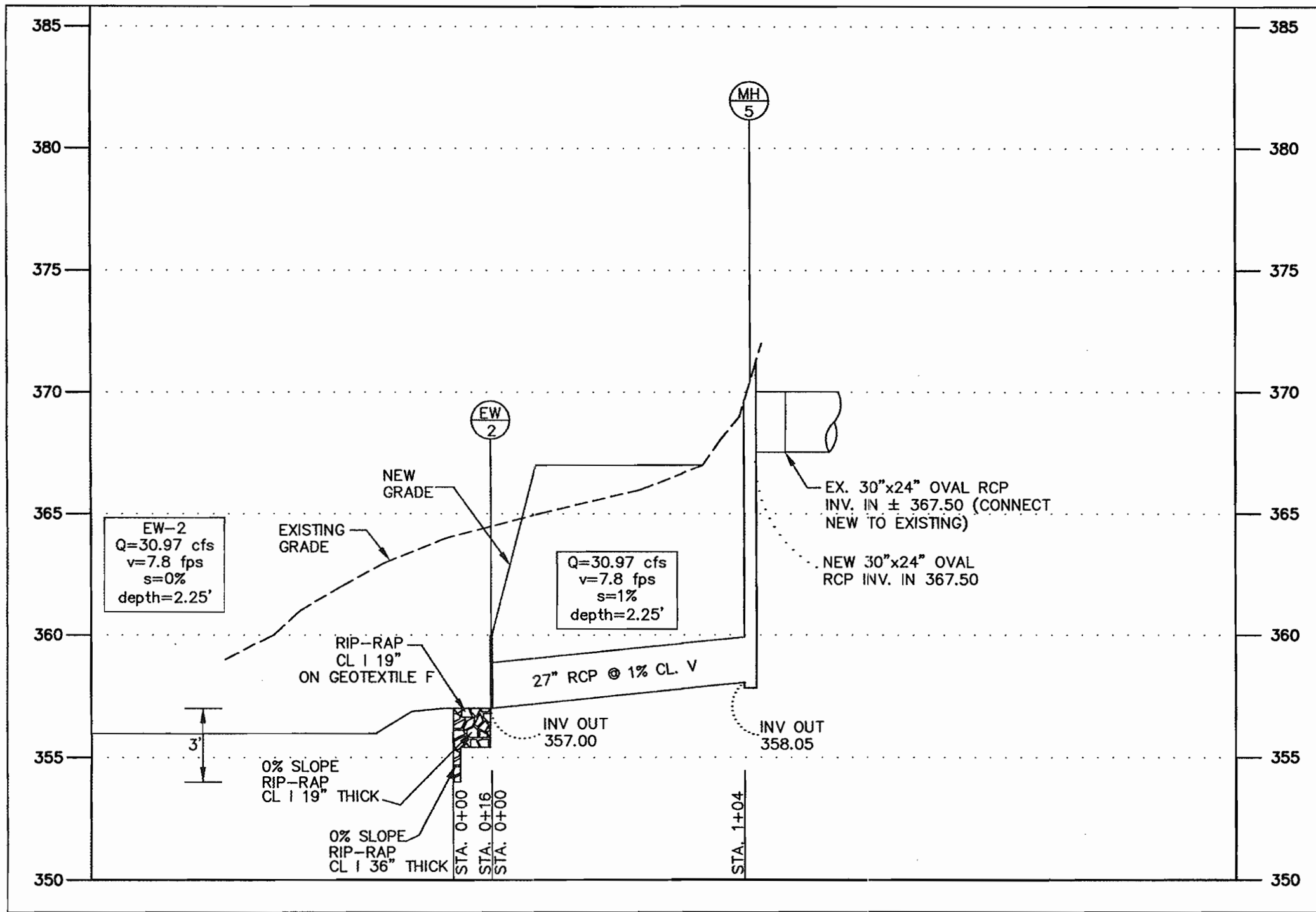
APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
 EXISTING AS-BUILT
 PROFILE - BASIN G
 TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET C1.5
 SHEET 9 OF 46

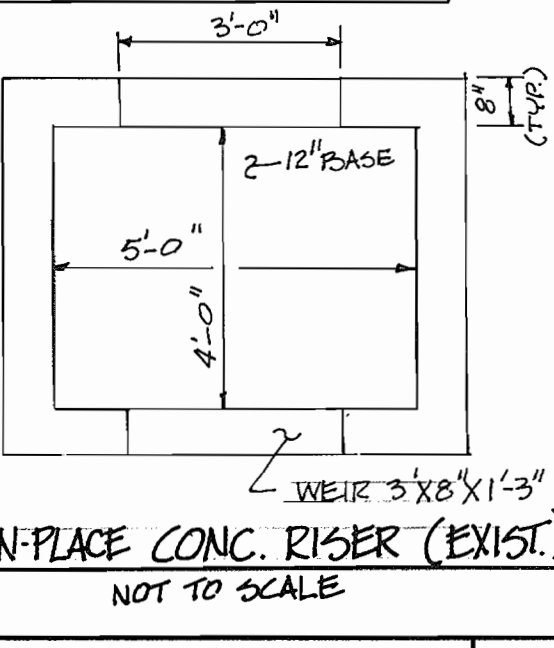
SDP-04-35



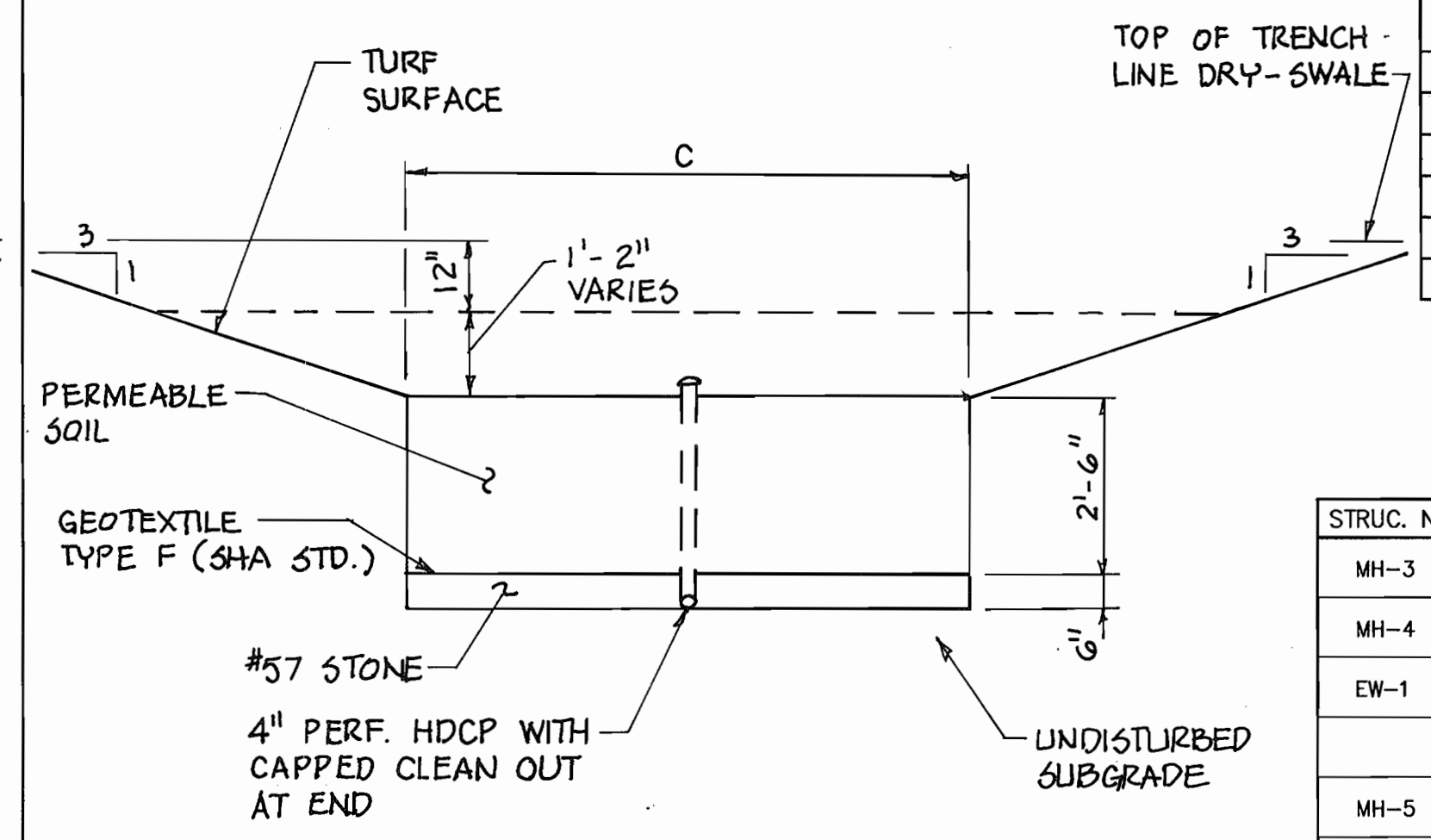
1 PIPE PROFILE MH-2 TO EW-1
SCALE: HORIZ. 1"=50'
VERT. 1"=5'



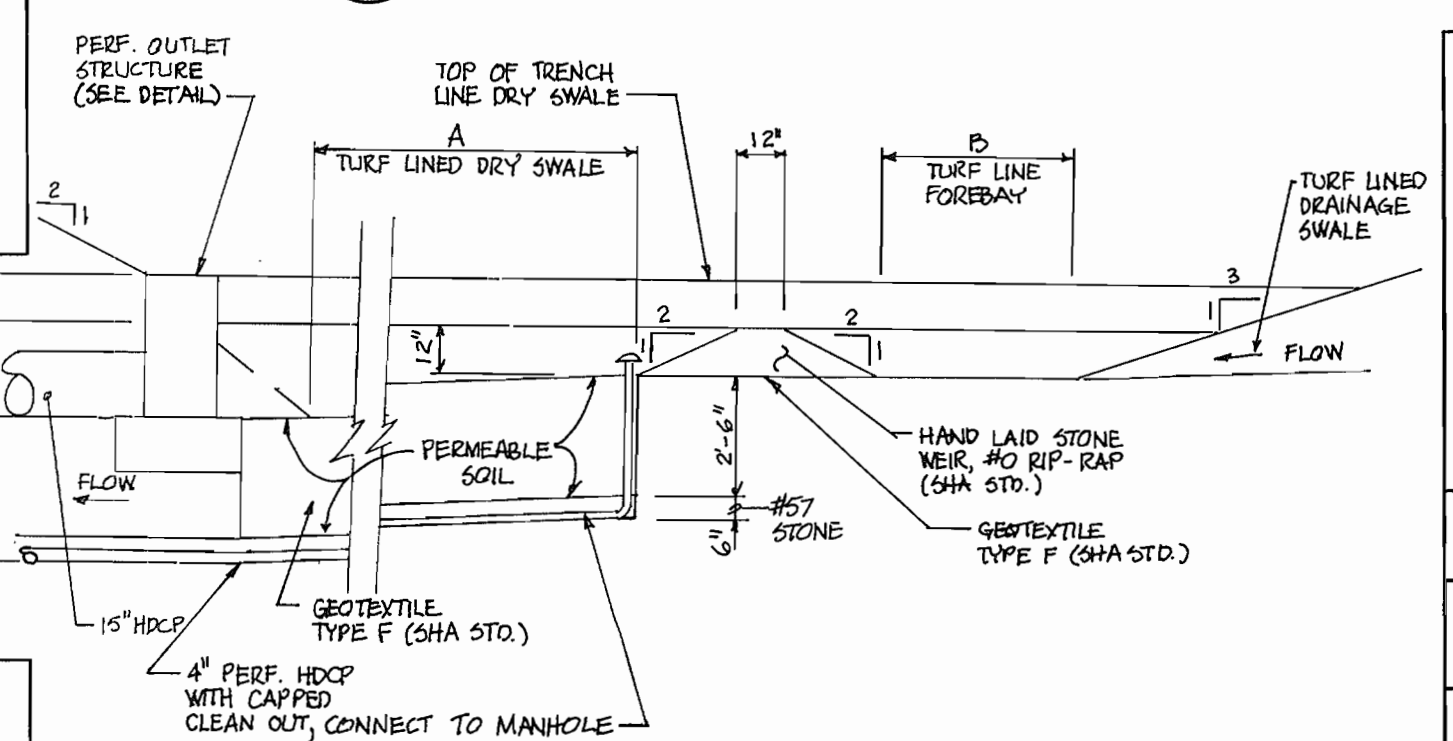
2 PIPE PROFILE MH-5 TO EW-2
SCALE: HORIZ. 1"=50'
VERT. 1"=5'



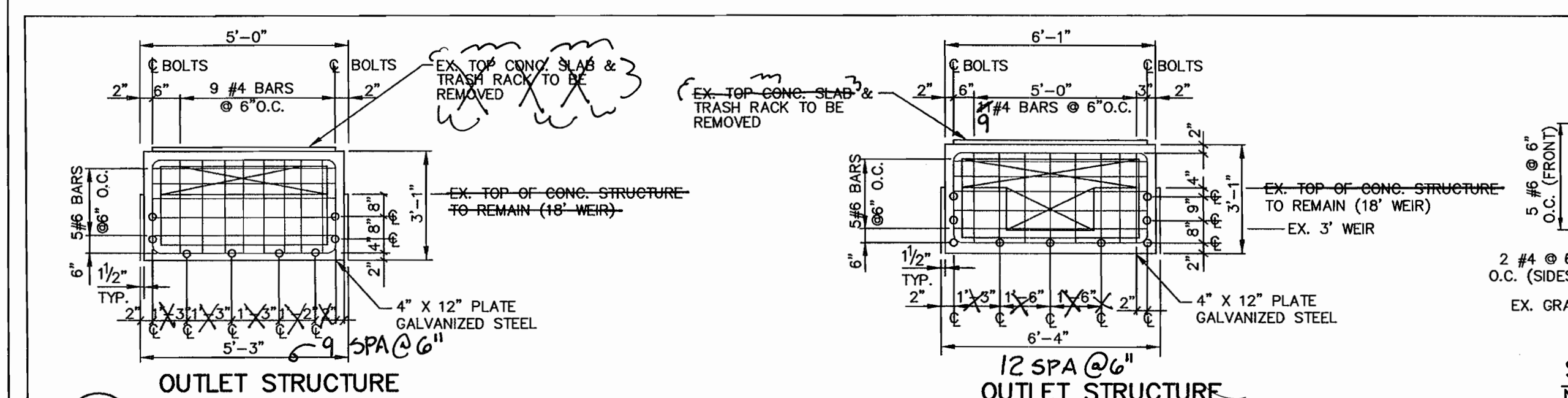
7 CASE-IN-PLACE CONC. RISER (EXIST.)
NOT TO SCALE



4 TYPICAL SECTION DRY-SWALE
NOT TO SCALE



5 TYPICAL PROFILE DRY-SWALE
SCALE: 1"=4'



3 TRASH RACK DETAIL
NOT TO SCALE

NOTES:
1. GRATE UNDER-FLOW OR FEED-FROM-TRASHRACK BOTTOM:
WEIR AREA:
FRONT 1.25' X 3' = 3.75 SF
BACK 1.25' X 3' = 3.75 SF
TOP WEIR 0.92 X 23.16' = 21.31 SF
TOTAL AREA = 28.81 SF
TRASHRACK PROVIDED:
BOTTOM AREA: 2 (5.75'x1.50') + 2 (4.66'x1.50') = 31.23 SF
2. BAR TO BAR TACK WELD EACH BAR TO THE OTHER AND WELD TO PLATE GALVANIZED STEEL PLATE.
3. SECURE STEEL PLATE TO EXISTING CONCRETE RISER WITH 3/4" DIA. EXPANSION BOLTS SELF-LOCKING HEX NUTS FLAT WASHERS (ALL STAINLESS STEEL) EMBEDMENT 3" MIN. AND 3" CL. OF CONCRETE EDGE.
4. ALL SURFACES TO BE COATED WITH 2 COATS OF ZINC COLD GALVANIZING COMPONENT AFTER WELDING, COATED WITH SHOP APPLIED PRIME COAT AND 2 COATS OF EPOXY PAINT (9 MIL. MIN. THICKNESS).

STORM DRAIN PIPE SCHEDULE

FROM	TO	SIZE (Inches)	LENGTH (feet)	SLOPE %	FLOW CAP. (cfs)	10-YR Q (cfs)	VELOCITY (fps)	PIPE type	PARTIAL FLOW depth (in.)	velocity (fps)
MH-3	MH-4	24"	8.5	1%	22.62	19.97	7.20	RCP CL V	15.7"	8.6
MH-4	EW-1	24"	19.0	1%	22.62	19.97	7.20	RCP CL V	15.7"	8.6
MH-5	EW-2	27"	104	1%	30.97	*	*	RCP CL V	27"	7.8

STORM DRAIN STRUCTURE SCHEDULE

STRUC. NO.	TYPE	STANDARD NO.	TOP ELEVATION	SIZE (ft)	INV. IN	INV. OUT	COMMENT
MH-3	SPLITTER MANHOLE	SEE DETAIL 1 ON SHEET C1.6	370.00	5'	365.45	365.00 (24") 364.00 (12")	PRECAST SPLITTER MANHOLE
MH-4	DROP MANHOLE	SHA #MD-383.11	367.00	-	364.91	358.27	STANDARD DROP MANHOLE
EW-1	ENDWALL	SHA #MD-354.01	361.75	-	-	357.98	STANDARD TYPE C ENDWALL
MH-5	MANHOLE	SHA #MD-384.03	369.50	5'	367.50	358.05	PRECAST MANHOLE
EW-2	ENDWALL	SHA #MD-354.01	360.00	-	-	357.00	STANDARD TYPE C ENDWALL

STORM DRAIN COMPUTATION SHEET

COMPUTED BY: PCF DATE: 10/03 PROJECT: APL-JHU BASIN G
CHECKED BY: JK DATE: 10/03 STORM FREQUENCY: 10-YEAR

MANNING'S "N" (RCP) = 0.013
MANNING'S "N" (PVC) = 0.011

PIPE STRUCTURE	DRAINAGE AREA (AC)	RUNOFF COEFF.	*AREA*X"C*	TIME OF CONC. (MIN)	RAINFALL INTENSITY (N/HR)	RUNOFF "Q" (CFS)	PIPE DIAMETER (IN)	PIPE LENGTH (FT)	MIN. SLOPE (1/1')	ACTUAL SLOPE (1/1')	VELOCITY (FPS)	TIME IN PIPE (MIN)	PIPE "Q" CAPACITY (CFS)
MH-3	2.61	0.9	2.35	5.00	8.50	19.97	24	8.5	0.004	0.010	7.20	0.02	22.62
MH-4	2.61	0.9	2.35	5.00	8.50	19.97	24	19	0.004	0.010	7.20	0.04	22.62
MH-5	2.61	0.9	2.35	5.00	8.50	19.97	27	104	0.004	0.010	7.79	0.22	30.97

DRY-SWALE MAINTENANCE PROCEDURES
INSPECT THE DRY-SWALE FROM THE SURFACE. THE PRETREATMENT FOREBAY SHALL BE CLEANED/REPAIRED WHEN DRAWDOWN TIME WITHIN THE CHAMBER EXCEEDS 36 HOURS. TRASH AND DEBRIS SHALL BE REMOVED AS NECESSARY.

SEDIMENT SHALL BE CLEANED OUT OF THE PRETREATMENT FOREBAY WHEN IT ACCUMULATES TO A DEPTH OF MORE THAN 5 INCHES. VEGETATION WITHIN THE PRETREATMENT FOREBAY SHALL BE LIMITED TO A HEIGHT OF 18 INCHES.

WHEN THE FILTERING CAPACITY OF THE DRY-SWALE DIMINISHES SUBSTANTIALLY (E.G. WHEN WATER PONDS ON THE SURFACE OF THE DRY-SWALE PERMEABLE SOIL FOR MORE THAN 72 HOURS) THE TOP FEW INCHES OF DISCOLORED PERMEABLE SOIL SHALL BE REMOVED AND SHALL BE REPLACED WITH FRESH PERMEABLE SOIL MATERIAL PER THE MATERIAL SPECIFICATIONS. THE REMOVED SEDIMENTS SHALL BE DISPOSED OF IN AN ACCEPTABLE MANNER (E.G. LICENSED LANDFILL). SILT/SEDIMENT SHOULD BE REMOVED FROM THE DRY-SWALE BED WHEN THE ACCUMULATED SILT/SEDIMENT EXCEEDS 1 INCH.

DRY SWALE SCHEDULE DIMENSION

LOCATION	SWALE (FEET)	FOREBAY (FEET)	IMPERVIOUS AREA	REQUIRED VOLUME	PROVIDED VOLUME	NOTES
D5-1	75	8	5,760 SF	593 CF	593 CF	BASKETBALL
D5-2	88	11	13,888 SF	87 CF	87 CF	TENNIS COURTS
D5-3	88	8	13,888 SF	87 CF	87 CF	TENNIS COURTS

NOTE: SEE TYPICAL PROFILE AND SECTION FOR DIMENSIONS, LOCATIONS, AVERAGE DEPTH OF SWALE 1.5 FT. SEE SITE DEVELOPMENT PLAN FOR LOCATIONS. DIMENSION "A", "B", "C" BOTTOM SWALE.

SEDIMENT CONTROL & POND CONSTRUCTION

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

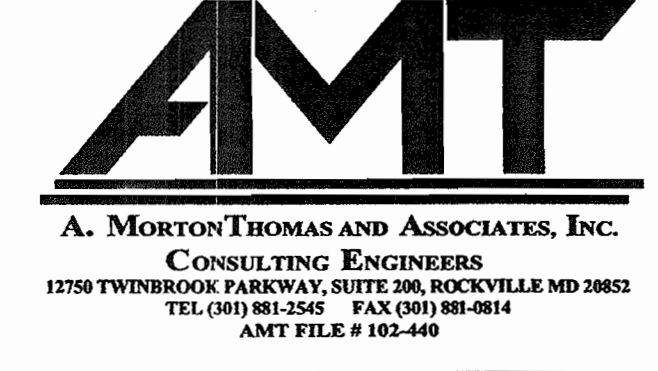
Signature: Robert A. Warner, License No. 1228103, Date: 10/23/03

Signature: Robert A. Warner, License No. 1228103, Date: 10/23/03

Signature: Robert A. Warner, License No. 1228103, Date: 10/23/03

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
CHIEF, DIVISION OF LAND DEVELOPMENT
DIRECTOR

DATE: 3/11/04
DATE: 3/15/04
DATE: 3/15/04



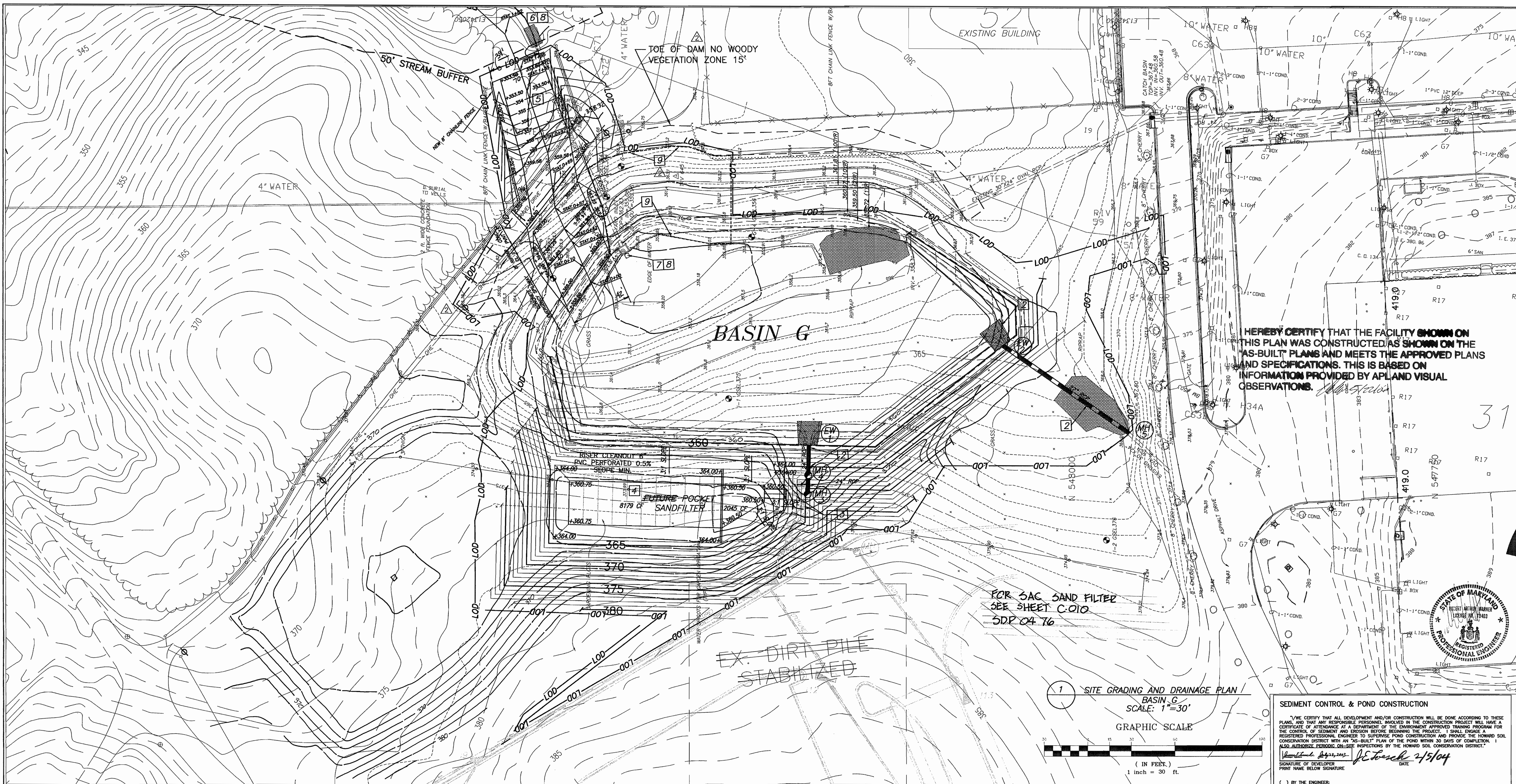
DES: J. KASPA
DRN: P. FRIAS
CHK: R. WARNER
DATE: 10/09/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
2/14/06	RED-LINE SUBMISSION				
10/05/05	RED-LINE SUBMISSION				
11/24/03	ADDENDUM #1				

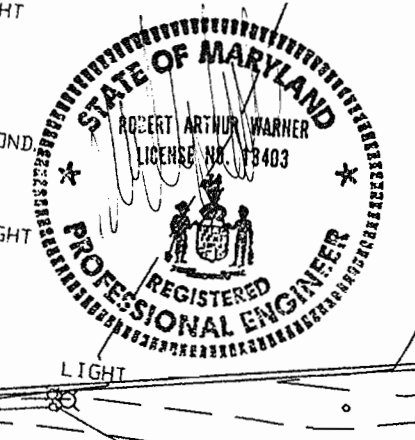
DRAINAGE BASIN G
RED-LINE REVISION ADD TO SDP
ATHLETIC AREA DRAINAGE AREA G
AS-BUILT PLAN (BASIN G)

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
PIPE PROFILE AND
STRUCTURE SCHEDULES
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C1.4
SHEET 8 OF 18



HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS. THIS IS BASED ON INFORMATION PROVIDED BY APLAND VISUAL OBSERVATIONS.



FOR SAC SAND FILTER
SEE SHEET C.010
SDP 04 76

1 SITE GRADING AND DRAINAGE PLAN
BASIN G
SCALE: 1"=30'
GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

1. EXISTING DRAINAGE AREA G 1-YR DISCHARGE 11.6 CFS (BASIN 1.5 CFS)
2. DEVELOPED DRAINAGE AREA G 1-YR DISCHARGE 6.4 CFS (BASIN 1.7 CFS)

KEYED NOTES:

- 1 PROVIDE AND INSTALL NEW 30"x24" OVAL RCP PIPE SECTION 10', 5' MANHOLE AND 27" RCP PIPE.
- 2 NEW MANHOLES, HEADWALLS, PIPES, AND RIPRAP (SEE SHEETS #C1.4 & C1.6).
- 3 CAP 12" RCP OUT OF SPLITTER BOX (MH3) AND 24" RCP INFLOW PIPE INTO SPLITTER BOX FOR FUTURE CONNECTION.
- 4 GRADE SITE OF FUTURE POCKET SANDFILTER TO ELEVATION 364.00. INSTALL TOPSOIL AND SEED.
- 5 EXISTING TREES (36") AND STUMPS TO BE REMOVED (10 REQ.) IN AREA OF GRADING.
- 6 REMOVE WOODY GROWTH AND EXCESSIVE VEGETATIVE GROWTH WITHIN 25' OF OUTFALL AND WITHIN 5' OF RIPRAP CHANNEL.
- 7 REPAIR AND PAINT (RUST RESISTANT BLACK PAINT) EXPOSED METAL ON THE OUTSIDE AND INSIDE OF RISER. REMOVE DEBRIS FROM THE LOW FLOW TRASH RACK.
- 8 REPAIR JOINT SEPARATION PASSING SOIL AT FIRST JOINT OF 18" INFLOW PIPE. REPAIR DISPLACED RIPRAP AND FABRIC AT THE 27" INFALL CHANNEL. REMOVE SEDIMENT ACCUMULATION AT THE 27" INFALL CHANNEL.
- 9 INSTALL 2" TOPSOIL ON TOP OF EXISTING TURF AND COMPACT TO 95% COMPACTION TO RAISE ELEVATION TO 361.27 (0.17' ABOVE EXISTING - 0.15'+15% FOR SETTLEMENT) (TOP OF DAM WIDTH= 6' 3.1' SIDE SLOPES). SEED AND MULCH IMMEDIATELY AFTER FINE GRADING. MULCH SHALL BE MAINTAINED AT ALL TIMES UNTIL TURF IS ESTABLISHED.

SEDIMENT CONTROL & POND CONSTRUCTION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

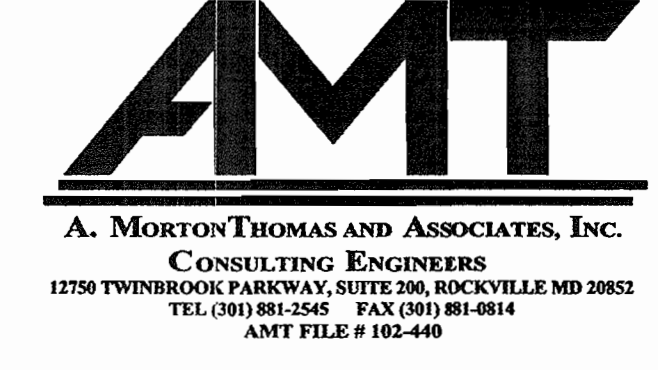
Signature of Developer: *Robert A. Warner* DATE: 2/15/04
Signature of Engineer: *Robert A. Warner* DATE: 2/23/04

() BY THE ENGINEER:
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.
Signature of Engineer: *Robert A. Warner* DATE: 2/23/04

() THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
Signature of Engineer: *John Murphy* DATE: 2/23/04

() THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Signature of Engineer: *Robert A. Warner* DATE: 2/23/04

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE: 2/11/04
CHIEF, DIVISION OF LAND DEVELOPMENT RB DATE: 2/15/04
DIRECTOR DATE: 2/15/04



DES: J. KASPA	11/24/03	ADDENDUM #1					
DRN: P. FRIAS	12/19/03	HOWARD COUNTY PERMIT/ MYLAR					
CHK: R. WARNER							
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP	

DRAINAGE BASIN G

AS-BUILT PLAN

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

SITE GRADING AND DRAINAGE PLAN

TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

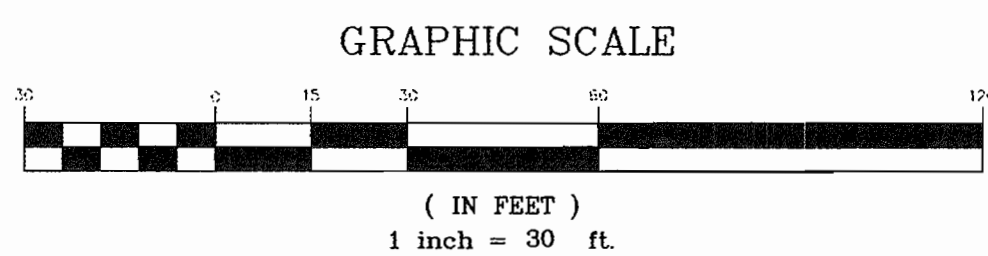
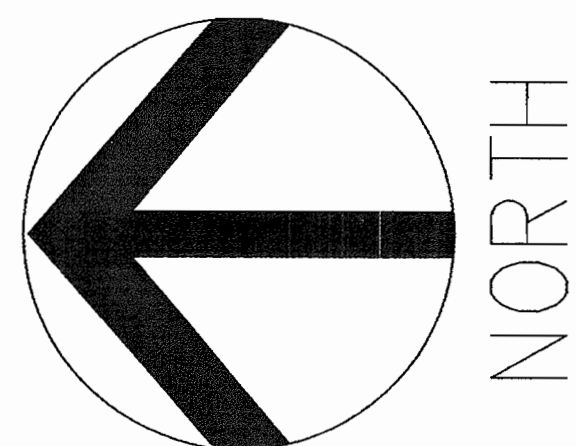
SCALE AS SHOWN

SHEET C1.3

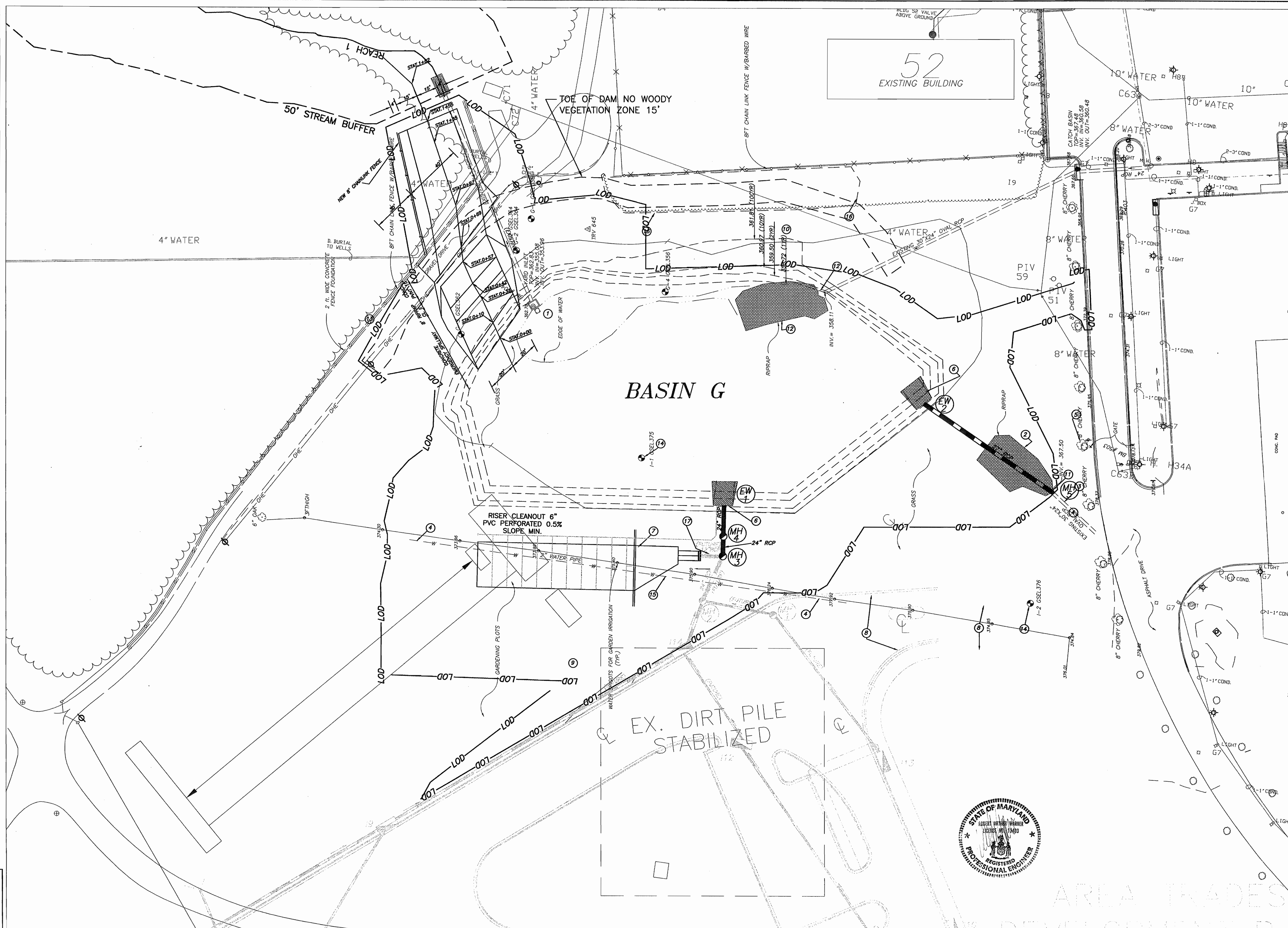
SHEET 7 OF 18

SDP-04-25

- KEYED NOTES**
- ① EXISTING BASIN OUTLET STRUCTURE TO REMAIN
 - ② EXISTING RIP-RAP TO BE REMOVED, SALVAGED, CLEANED AND RE-USED AT BASIN
 - ③ EXISTING CONCRETE STORM DRAINAGE PIPE SECTION (10') TO AND HEAD WALL TO BE REMOVED TO MAKE ROOM FOR NEW MANHOLE
 - ④ LIMIT OF PIPE REMOVAL AND PRESSURE CAP TO COUNTY STANDARD
 - ⑤ EXISTING TREE TO REMAIN (TYP.)
 - ⑥ INSTALL NEW AND SALVAGED RIP-RAP (SEE DETAIL SH. #C1.6) AND PIPE HEADWALL
 - ⑦ FUTURE POCKET SAND FILTER (PRIVATELY OWNED)
 - ⑧ FUTURE DRIVE
 - ⑨ FUTURE ANTENNA RANGE
 - ⑩ NEW LIMIT OF BASIN STORM DRAINAGE FLOW
 - ⑪ EXISTING FLARED END SECTION AND 10' OF PIPE TO BE REMOVED.
 - ⑫ EXISTING CONCRETE FLARED END SECTION AND RIP-RAP TO REMAIN
 - ⑬ EXISTING 8' HIGH CHAIN LINK FENCE TO REMAIN
 - ⑭ EXISTING 6" PVC GROUND WATER MONITORING PIPES TO BE REMOVED BORINGS # 1-1 AND # 1-2
 - ⑮ EXISTING 2" WATER LINE TO BE REMOVED
 - ⑯ LIMIT OF EXISTING TREE REMOVAL
 - ⑰ FUTURE 12" RCP PIPE TO BE INSTALLED DURING CONSTRUCTION OF SANDFILTER



1 SITE LAYOUT PLAN
BASIN G
SCALE: 1"=30'



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 3/11/04

 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 3/15/04

 DIRECTOR DATE 3/16/04



DES: J. KASPA					
DRN: P. FRIAS					
CHK: R. WARNER					
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

DRAINAGE BASIN G

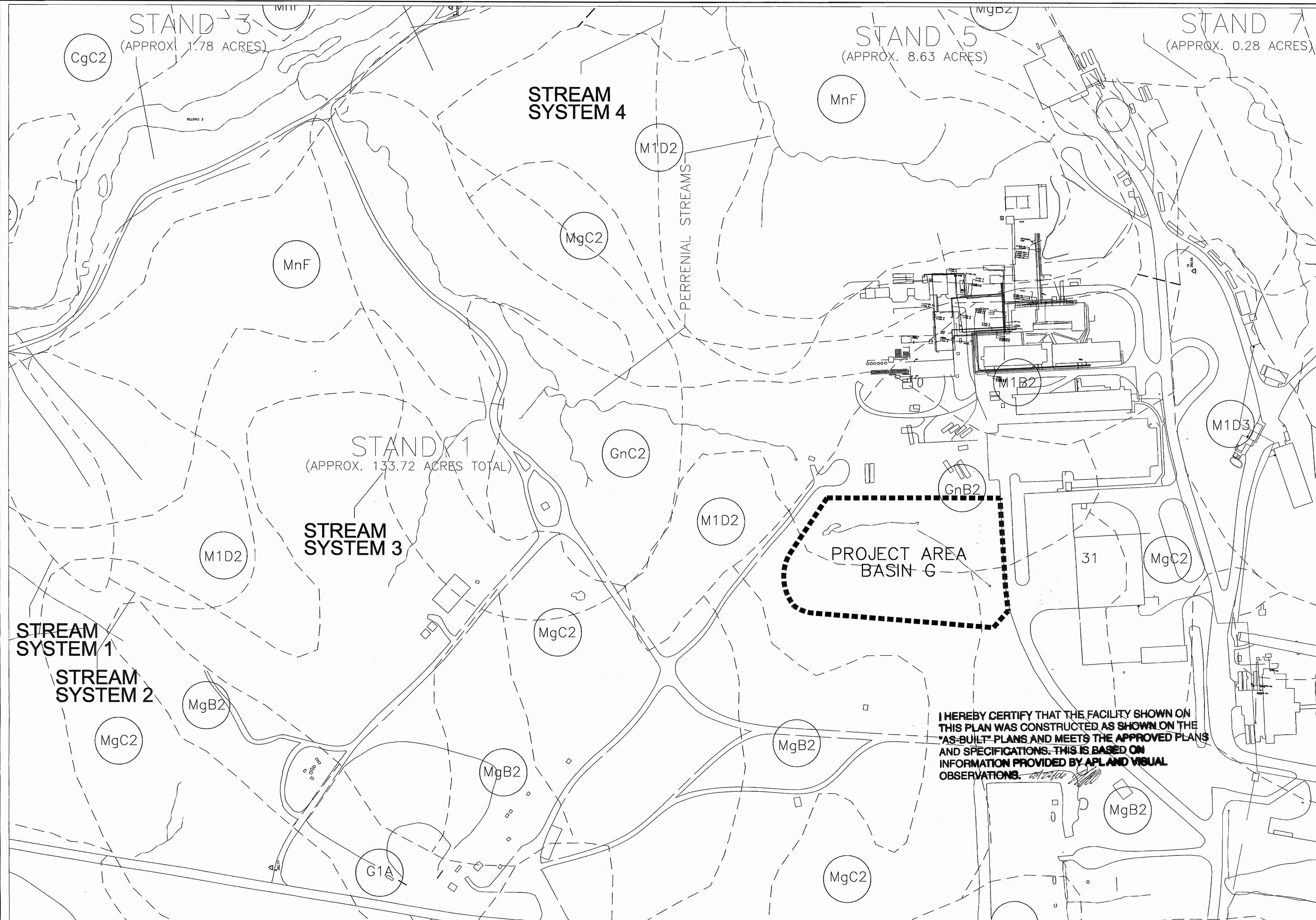
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
SITE LAYOUT / DEMOLITION PLAN

TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET C1.2

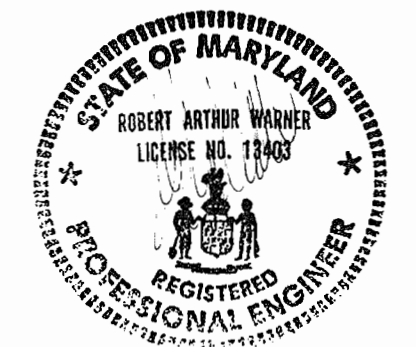
SHEET 6 OF 19



SOURCE: HOWARD COUNTY SOIL SURVEY, MARYLAND

SOILS MAP LEGEND:

- G1A GLENELG LOAM, 0-3% SLOPES
- GnB2 GLENNVILLE SILT LOAM, 8-15% SLOPES
- GnB2 GLENNVILLE SILT LOAM, 3-8% SLOPES
- MgB2 MANOR GRAVELLY LOAM, 3-8% SLOPES
- MgC2 MANOR GRAVELLY LOAM, 8-15% SLOPES, MODERATELY ERODED
- M1B2 MANOR LOAM, 3-8% SLOPES, MODERATELY ERODED
- M1D2 MANOR LOAM, 15-25% SLOPES, MODERATELY ERODED
- M1D3 MANOR LOAM, 15-25% SLOPES, SEVERELY ERODED
- MnF MANOR VERY STONY LOAM, 20-60% SLOPES



I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS. THIS IS BASED ON INFORMATION PROVIDED BY APL AND VISUAL OBSERVATIONS.

SEDIMENT CONTROL & POND CONSTRUCTION

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Signature of Developer: *[Signature]* DATE: 2/5/04

Signature of Engineer: *[Signature]* DATE: 2/23/04

Signature of Engineer: *[Signature]* DATE: 3/6/04

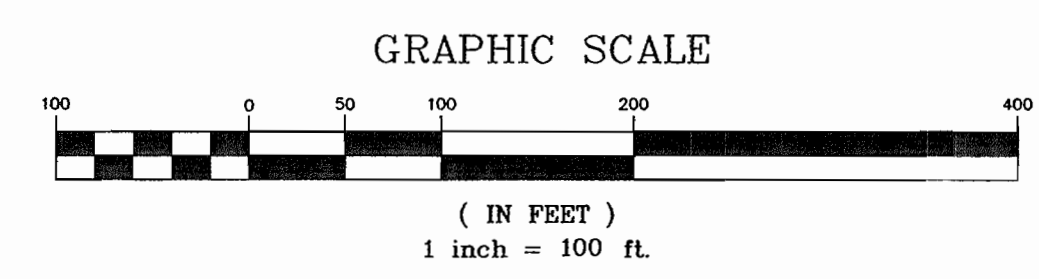
Signature of Engineer: *[Signature]* DATE: 3/6/04

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] DATE: 3/11/04
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3/15/04
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3/15/04
 DIRECTOR



1 PROJECT AREA SOIL MAP
 SCALE: 1"=100'

AMT
 A. MORTON THOMAS AND ASSOCIATES, INC.
 CONSULTING ENGINEERS
 12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE, MD 20852
 TEL (301) 881-2545 FAX (301) 881-0814
 AMT FILE # 102-449

DES: J. KASPA					
DRN: P. FRIAS					
CHK: R. WARNER					
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

DRAINAGE BASIN G

AS-BUILT PLAN

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
 PROJECT AREA
 SOILS MAP
 TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET C1.1
 SHEET 5 OF 19

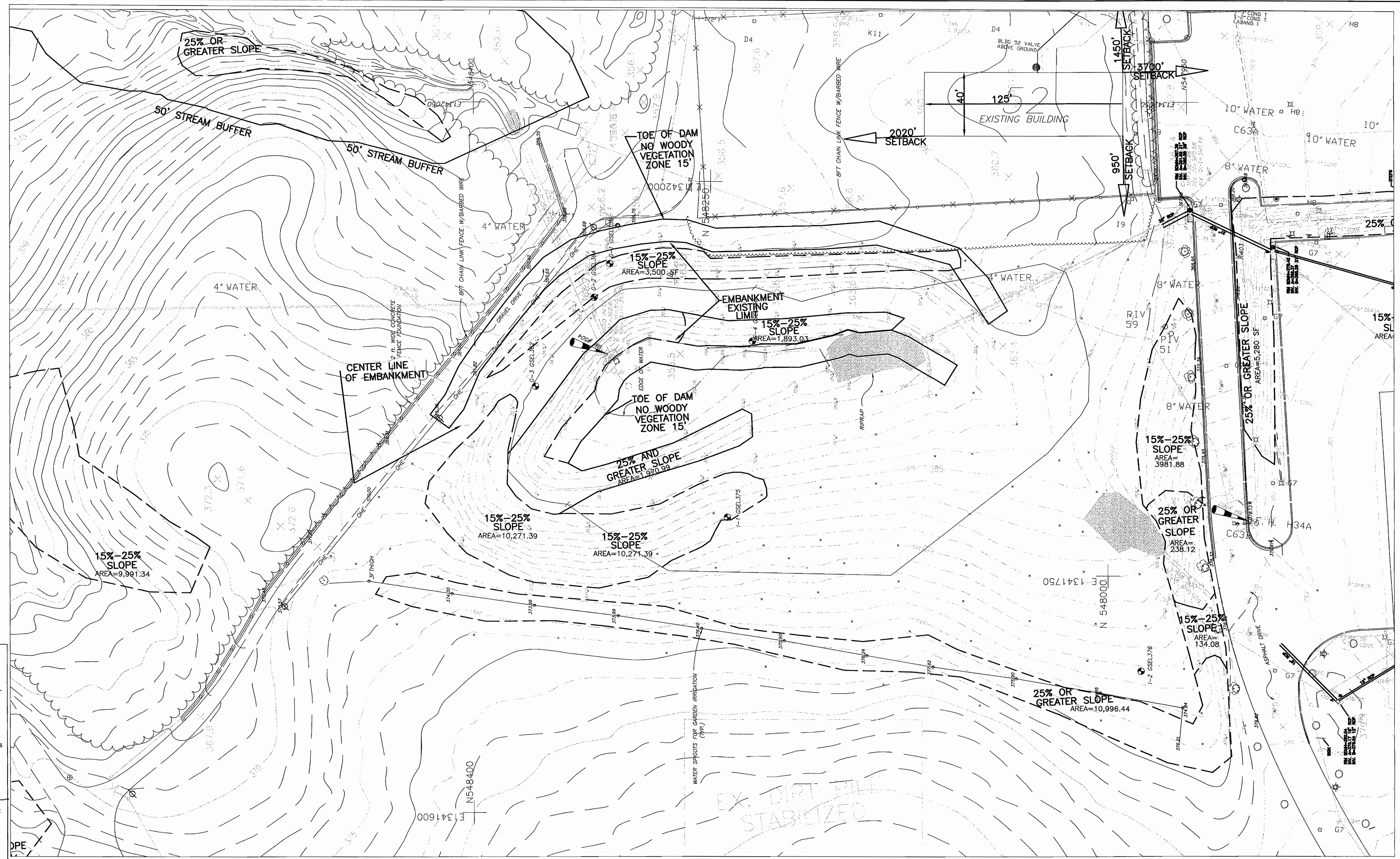
LEGEND

EXISTING

- EXISTING CONTOUR
- EXISTING TREELINE
- DRAINAGE AREA
- PROPERTY LINE
- SOIL CLASSIFICATION BOUNDARY
- 8" SAN. EXISTING SANITARY SEWER
- 12" W. EXISTING WATER
- 18" DRAIN EXISTING STORM DRAIN
- FM EXISTING SANITARY FORCEMAIN
- PVC EXISTING ELECTRICAL CONDUIT
- EXISTING TREE
- EXISTING SHRUB
- C EXISTING COMMUNICATION
- EXISTING LIGHT POLE
- EXISTING CATCH BASIN
- C.B. C.B.
- M.H. EXISTING MANHOLE
- S.M.H. EXISTING SANITARY SEWER MANHOLE
- P.I.V. EXISTING POST INDICATOR VALVE
- W.V. EXISTING WATER VALVE
- F.H.C. EXISTING FIRE HYDRANT
- C.O. EXISTING CLEANOUT
- 1-1" COND. PVC EXISTING ELECTRICAL
- EXISTING SIGN
- EXISTING BOLLARDS
- PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING PICKET FENCE
- EXISTING CHAINLINK FENCE

PROPOSED

- PROPOSED STORM DRAIN
- FUTURE STORM DRAIN
- PROPOSED TELECOMMUNICATION
- PROPOSED ELECTRIC
- PROPOSED MANHOLE
- PROPOSED STORM DRAIN CATCH BASIN



SEDIMENT CONTROL & POND CONSTRUCTION

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Signature of Developer: _____ DATE: _____
 Signature of Engineer: _____ DATE: _____

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

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

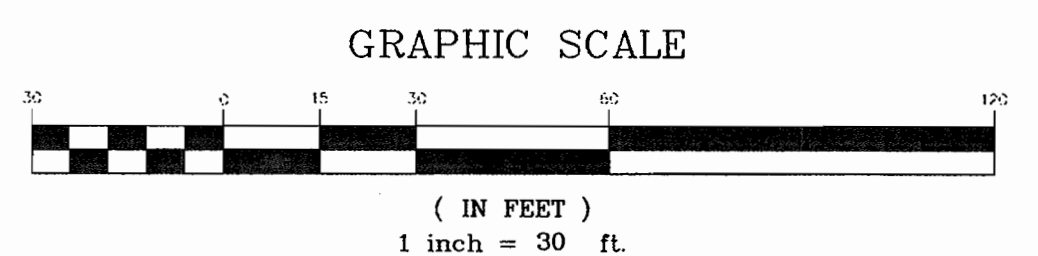
USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE: _____

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

HOWARD SOIL CONSERVATION DISTRICT DATE: _____

NOTES:
 1. NO NEW OR FUTURE BUILDINGS ARE PROPOSED UNDER THIS SDP.

1 EXISTING CONDITIONS
 SCALE: 1"=30'



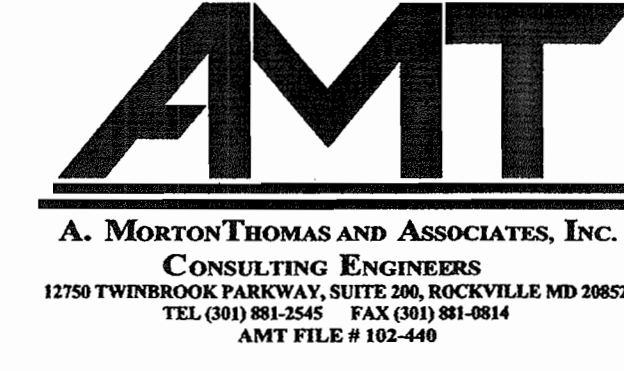
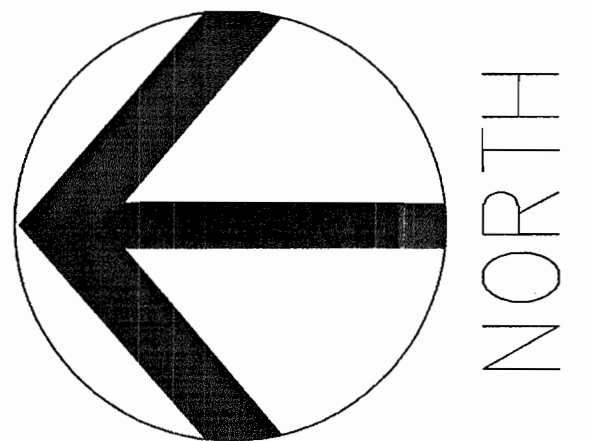
TRAVERSE CONTROL TABLE:

NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
644	48783.0482	1341364.4945	394.92	REBAR & CAP
645	48275.6339	1341941.2036	363.53	REBAR & CAP

BENCH MARK TABLE:

NO.	ELEV.	DESCRIPTION
503	380.65	"X"-CUT ON N.W. FIRE HYDRANT BONNET BOLT
504	362.77	BOX-CUT ON N.E. CORNER OF POND INLET STRUCTURE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division MKK DATE: 2/11/09
 Chief, Division of Land Development HP DATE: 3/15/09
 Director DATE: 2/15/09

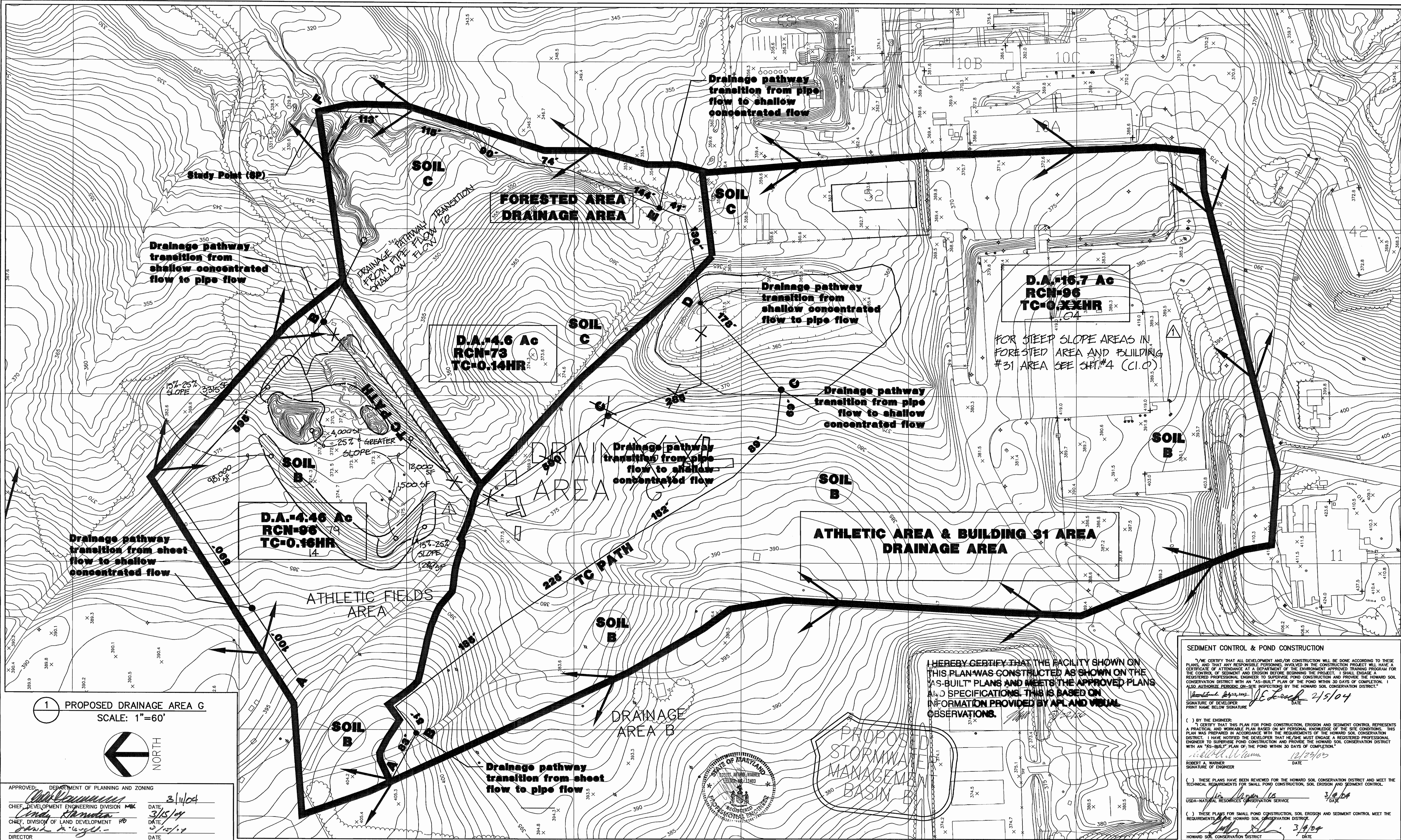


DES: J. KASPA	11/24/03	ADDENDUM #1						
DRN: P. FRIAS								
CHK: R. WARNER								
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP		

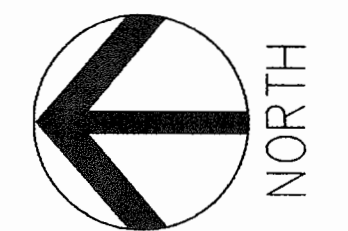
DRAINAGE BASIN G

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
EXISTING CONDITIONS
 TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET C1.0
 SHEET 4 OF 19

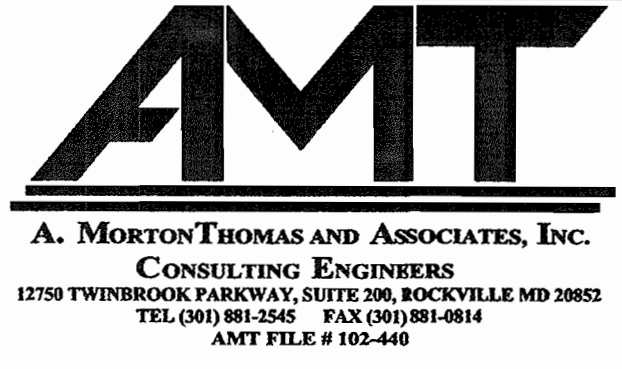


1 PROPOSED DRAINAGE AREA G
SCALE: 1"=60'



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director

DATE: 3/11/04
 DATE: 3/15/04
 DATE: 3/15/04



DES: J. KASPA					
DRN: P. FRIAS					
CHK: R. WARNER					
DATE: 10/09/03	10/05/05	RED-LINE SUBMISSION			
DATE		REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS. THIS IS BASED ON INFORMATION PROVIDED BY APL AND VISUAL OBSERVATIONS.



SEDIMENT CONTROL & POND CONSTRUCTION

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: Robert Warner, Date: 2/5/04

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

Signature: Robert Warner, Date: 12/29/03

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

Signature: Jim Hagan, Date: 3/04

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

Signature: [Signature], Date: 3/04



DRAINAGE BASIN G

RED-LINE REVISION ADD TO SDP
 ATHLETIC AREA DRAINAGE AREA G
 - AS-BUILT PLAN

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY

PROPOSED DRAINAGE AREA G

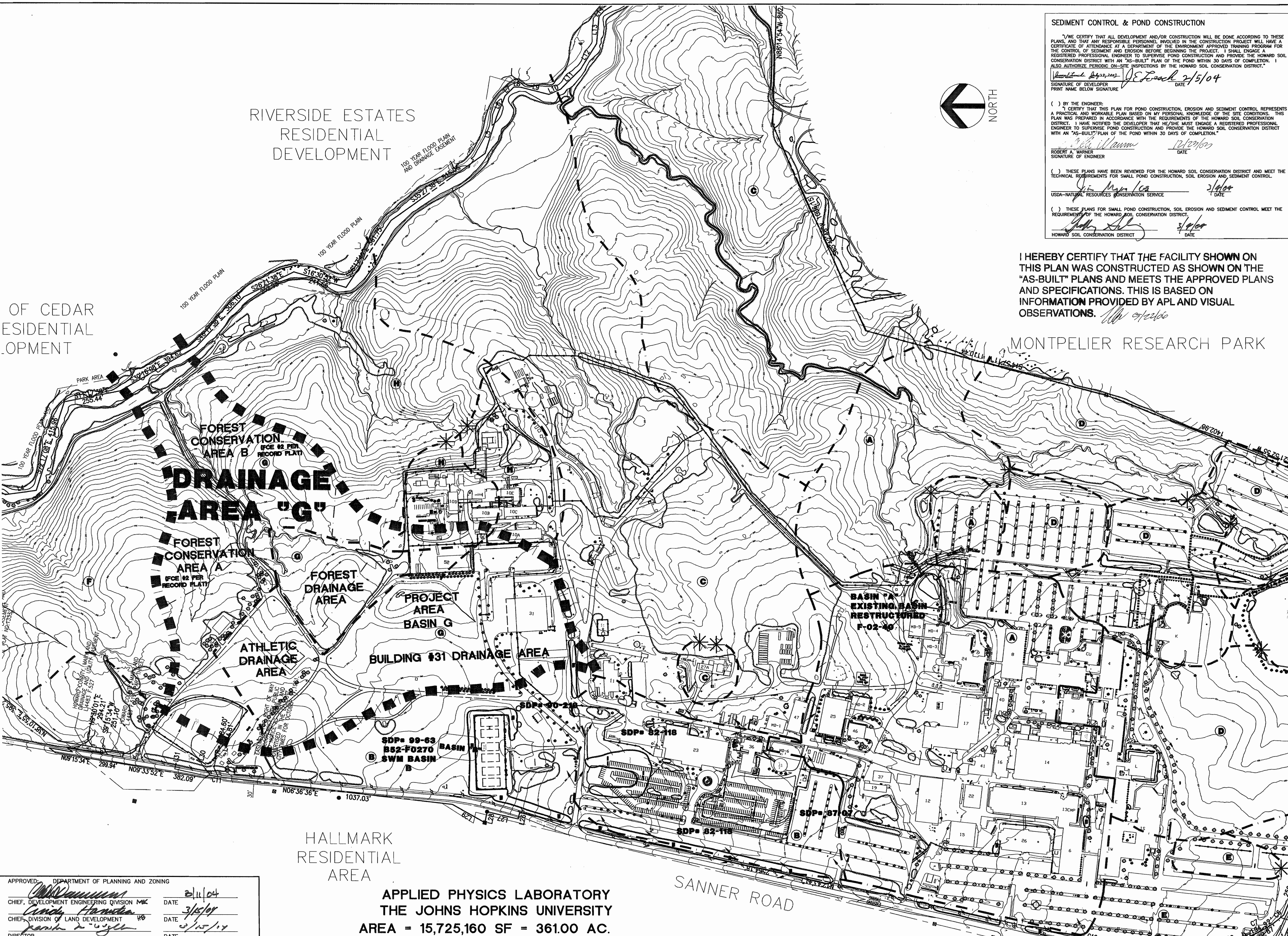
TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET C0.3

SHEET 3 OF 19

SDP-04-35



SEDIMENT CONTROL & POND CONSTRUCTION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Robert A. Warner 12/27/03
 SIGNATURE OF DEVELOPER DATE

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

Robert A. Warner 12/27/03
 SIGNATURE OF ENGINEER DATE

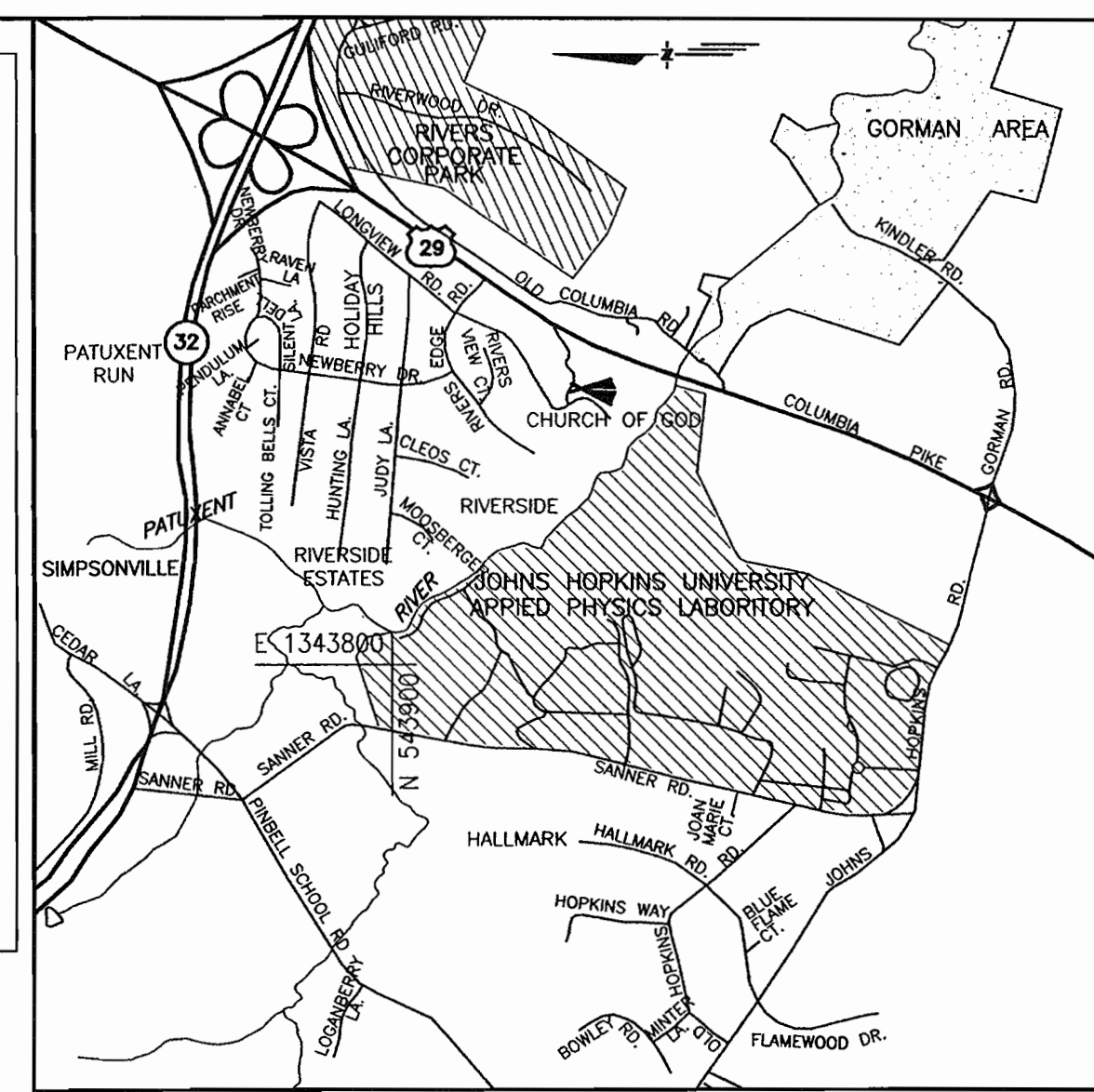
() THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

John M. Mulla 3/14/04
 USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE

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

John M. Mulla 3/14/04
 HOWARD SOIL CONSERVATION DISTRICT DATE

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS. THIS IS BASED ON INFORMATION PROVIDED BY APL AND VISUAL OBSERVATIONS.



- VICINITY MAP**
 SCALE: 1"=2000'
- LEGEND**
- EXISTING CONTOUR
 - TREELINE
 - - - DRAINAGE AREA
 - - - 100 YEAR FLOODPLAIN
 - STREAM SYSTEM
 - WETLANDS
 - STREAMS
 - DRAINAGE DITCH
 - PROPERTY LINE
 - 8" SAN. EXISTING SANITARY SEWER
 - 8" SAN. PROPOSED SANITARY SEWER
 - 12" W. EXISTING WATER
 - 12" W. PROPOSED WATER
 - 18" SD EXISTING STORM DRAIN
 - 18" SD PROPOSED STORM DRAIN
- (ABC) SOILS CLASSIFICATION
 - (C.B.) CATCH BASIN
 - (M.H.) EXISTING MANHOLE
 - (S.M.H.) EXISTING SANITARY SEWER MANHOLE
 - (P.M.H.) PROPOSED MANHOLE
 - (P.I.V.) EXISTING POST INDICATOR VALVE
 - (W.V.) EXISTING WATER VALVE
 - (F.H.D.) EXISTING FIRE HYDRANT
 - (C.O.P.) EXISTING CLEANOUT
 - (P.S.D.C.B.) PROPOSED STORM DRAIN CATCH BASIN
 - (A) DRAINAGE AREA

OF CEDAR
 RESIDENTIAL
 DEVELOPMENT

RIVERSIDE ESTATES
 RESIDENTIAL
 DEVELOPMENT

MONTPELIER RESEARCH PARK

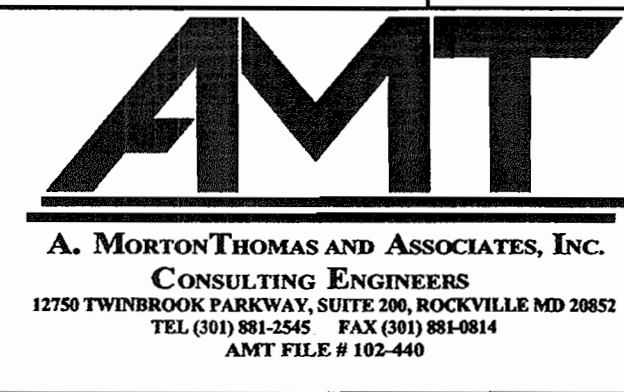
APPROVED: DEPARTMENT OF PLANNING AND ZONING

John M. Mulla 2/11/04
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Andy Hamilton 3/15/04
 CHIEF, DIVISION OF LAND DEVELOPMENT

Patrick A. Uggler 2/15/14
 DIRECTOR

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
 AREA = 15,725,160 SF = 361.00 AC.



DES: J. KASPA					
DRN: P. FRIAS					
CHK: R. WARNER					
DATE: 10/09/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

DRAINAGE BASIN G

AS-BUILT PLAN

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
 OVERALL DRAINAGE AREA MAP

TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET C0.2

SHEET 2 OF 19

SDP-04-35

DRAINAGE AREA G STORMWATER MANAGEMENT MODIFICATIONS

THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY

DEVELOPER & ENGINEER CERTIFICATES

1) BY THE DEVELOPER:

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a certificate of attendance at a Department of the Environment approved training program for the control of sediment and erosion before beginning the project. I shall engage a registered professional engineer to supervise all construction and provide the Howard County Soil Conservation District with an "As-Built" plans within 30 days of completion.

James E. Loesch, July 28, 2003
 Developer Signature Date 2/5/04
 Developer Signature Date 2/5/04
 JAMES LOESCH
 Printed Name

2) BY THE ENGINEER:

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

Robert A. Warner, 2/16/04
 Design Engineer Signature Date
 ROBERT A. WARNER 13403
 Printed Name Registration Number

12750 TWINBROOK PARKWAY
 ROCKVILLE, MARYLAND 20852
 301.881.2545

3) CERTIFICATION BY PROFESSIONAL:

There are no wetlands on the site that will be disturbed. Therefore, the requirement of 401 and 404 wetlands permits from the State of Maryland and Corps of Engineers are not needed.

Robert A. Warner, 2/16/04
 Professional's Signature Date
 ROBERT A. WARNER
 Print Name

SEDIMENT CONTROL & POND CONSTRUCTION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERSONS ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

James E. Loesch, July 28, 2003
 Signature of Developer Date 2/5/04
 PRINT NAME BELOW SIGNATURE

Robert A. Warner, 2/16/04
 Signature of Engineer Date
 SIGNATURE OF ENGINEER

These plans have been reviewed for the HOWARD SOIL CONSERVATION DISTRICT and MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

These plans for SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Howard Soil Conservation District, 2/16/04
 DATE

Review for HOWARD SCD and meets Technical Requirements.

USDA - Natural Resources Conservation Service Date

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.

Howard SCD Date

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division MK, 8/11/04
 Chief, Division of Land Development HB, 3/15/04
 Director, 3/15/04

AMT
 A. MORTON THOMAS AND ASSOCIATES, INC.
 CONSULTING ENGINEERS
 12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE, MD 20852
 TEL. (301) 881-2545 FAX (301) 881-0814
 AMT FILE # 110-440

SITE ANALYSIS TOTAL JHU/APL PROPERTY:

PROPERTY NOTES

1. COURSES AND COORDINATES ARE BASED ON THE MARYLAND STATE COORDINATE SYSTEM (NAD 83) AND ARE DERIVED FROM THE FOLLOWING JOHNS HOPKINS UNIVERSITY CONTROL STATIONS:

STATION	NORTH	EAST
HOPKINS	544836.5300	1340825.3542
G12	550256.5002	1342325.2642
G7	548107.0328	1341025.0830
G8	549478.7005	1341170.4345
41 EA	544825.8093	1339217.4439

- A. AREA OF PARCEL/LOT = 361 ACRES
- B. PRESENT ZONING = PEC
- C. PARKING TABULATION: EXISTING PARKING SPACES = 3,746
 PROPOSED PARKING SPACES = 4
 TOTAL SPACES PROVIDED = 3,746 + 4 = 3,750
- D. EXISTING BUILDING COVERAGE = 42.7 ACRES GROSS FLOOR AREA
 COVERAGE = 19.7 ACRES, 5.5% OF TOTAL LOT AREA
- E. PROPOSED BUILDING COVERAGE = 0 ACRES GROSS FLOOR AREA
 COVERAGE = 0 ACRES, 0% OF TOTAL LOT AREA (NO NEW BUILDINGS)
- F. TOTAL PROPOSED BUILDING COVERAGE = 19.7 ACRES, 5.45% OF TOTAL LOT AREA
- G. PROPOSED BUILDINGS DISTURBED AREA = 2.8 ACRES
- H. PROPOSED USE = EDUCATION/RESEARCH
- I. FLOOR SPACE USE = EDUCATION/RESEARCH
- J. MAXIMUM NUMBER OF EMPLOYEES = 3,937
- K. NO LOT SUBDIVISION IS ANTICIPATED
- L. CASE NUMBERS APPLICABLE: F02-40 FOREST CONSERVATION AND APFO
 SDP # 90-218 - BUILDING #31
 SDP # 99-63 - BUILDING #52
 F # 02-77 SWM BASIN B
 SDP # 03-174 - POND ENTRANCE ROAD
 WP # 04-86 - Reactivate F-02-77
- M. SANITARY SEWER/WATER SERVICE SEE GENERAL NOTES
- N. EXISTING OPEN SPACE AREA (LOT AREA MINUS PARKING & BUILDINGS) = 300 ACRES, 83.8% OF TOTAL LOT AREA
- O. PROPOSED OPEN SPACE AREA = 300 ACRES, 83.8% OF TOTAL LOT

DRAINAGE AREA G BASIN NOTES

- A. DRAINAGE AREA 25.8 ACRES 20.2 78%
- B. DESIGN IMPERVIOUS SURFACE 19.5 ACRES (76%)
- C. HYDRAULIC CALCULATIONS FOUND SDP-90-218 (BUILDING #31) AND SDP-04-35 (BASIN EXPANSION)

GENERAL NOTES

1. THE TOPOGRAPHIC AND UTILITY INFORMATION SHOWN IN THIS DEVELOPMENT PLAN WERE OBTAINED FROM FIELD SURVEYS PERFORMED BY A. MORTON THOMAS AND ASSOCIATES (TOPOGRAPHY) AND APPLIED PHYSICS LABORATORY (UTILITIES) CONSULTANTS IN NOVEMBER 1998, AND FROM REPORTS PROVIDED BY JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LAB (JHU/APL). SINCE NOT ALL INFORMATION SHOWN MAY REFLECT CURRENT CONDITIONS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION TO HIS OWN SATISFACTION.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY AND MSHA SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, UNLESS OTHERWISE NOTED.
3. ALL WORK ON THESE PLANS SHALL BE COORDINATED WITH TRADES CONTRACT BASIN B AND NORTH PARKING.
4. APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE JHU/APL.
5. NO LANDSCAPING IS REQUIRED FOR THE PROPOSED STORMWATER MANAGEMENT FACILITY DUE TO ITS INTERNAL LOCATION AWAY FROM PUBLIC RIGHT-OF-WAY.
6. SECURITY MUST BE MAINTAINED WITHIN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL COORDINATE ANY REQUIRED FENCE CONSTRUCTION AND RELOCATION WITH JHU/APL WITH NOTIFICATIONS OF ALL SCHEDULES AND REQUIREMENTS.
7. THE CONTRACTOR SHALL CONTACT MR. RUSTY OBER (443) 778-0167 AT LEAST FIVE DAYS BEFORE STARTING WORK OR DISRUPTION OF ANY UTILITIES.
8. ALL "TIE-INS" TO EXISTING STORM DRAIN UTILITIES MAY BE DONE DURING NORMAL WORKING HOURS AT JHU-APL. WORK MUST BE SCHEDULED THRU JHU/APL. NORMAL WORKING HOURS ARE 8:00 A.M. TO 5:00 P.M., MONDAY THROUGH FRIDAY.
9. THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION 24 HOURS IN ADVANCE OF COMMENCING WORK AT (410) 313-1880.
10. ALL UTILITIES SHALL HAVE A MINIMUM CLEARANCE OF 6". ALL POLES AND FOUNDATIONS SHALL HAVE A MINIMUM CLEARANCE OF 2'-0" OR TUNNEL AS REQUIRED.
11. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEMS. COORDINATE WITH THE OWNER FOR OPERATING WATER MAIN VALVES.
12. THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL STORM DRAINS WITHIN 2'-0" OF EXTERIOR MANHOLE WALL.
13. THE CONTRACTOR SHALL PERMANENTLY SEED AND STABILIZE ALL DISTURBED AREAS THAT ARE NOT TO BE PAVED.
14. ALL DRIVEWAYS ARE PRIVATELY OWNED AND MAINTAINED BY JHU/APL.
15. THE AREA SHOWN IS LOCATED ON TAX MAP #41.
16. THE INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION BY DIGGING TEST PITS BY HAND AT ALL CROSSINGS WELL IN ADVANCE OF CONSTRUCTION.
17. ALL SITE UTILITIES ARE THE PROPERTY OF JHU/APL WHO WILL HORIZONTALLY LOCATE ALL ACTIVE UTILITIES FOR THE CONTRACTOR.
18. TRAFFIC SHALL BE MAINTAINED BY THE CONTRACTOR ALONG EXISTING ROADWAYS DURING PROPOSED WORK AT ALL TIMES.
19. SEE DETAIL SHEETS FOR OTHER ITEMS THAT APPLY TO THIS PROJECT.
20. THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO AVOID DAMAGE TO EXISTING ADJACENT FACILITIES AND STRUCTURES. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION OR BETTER UNLESS NOTED OTHERWISE.

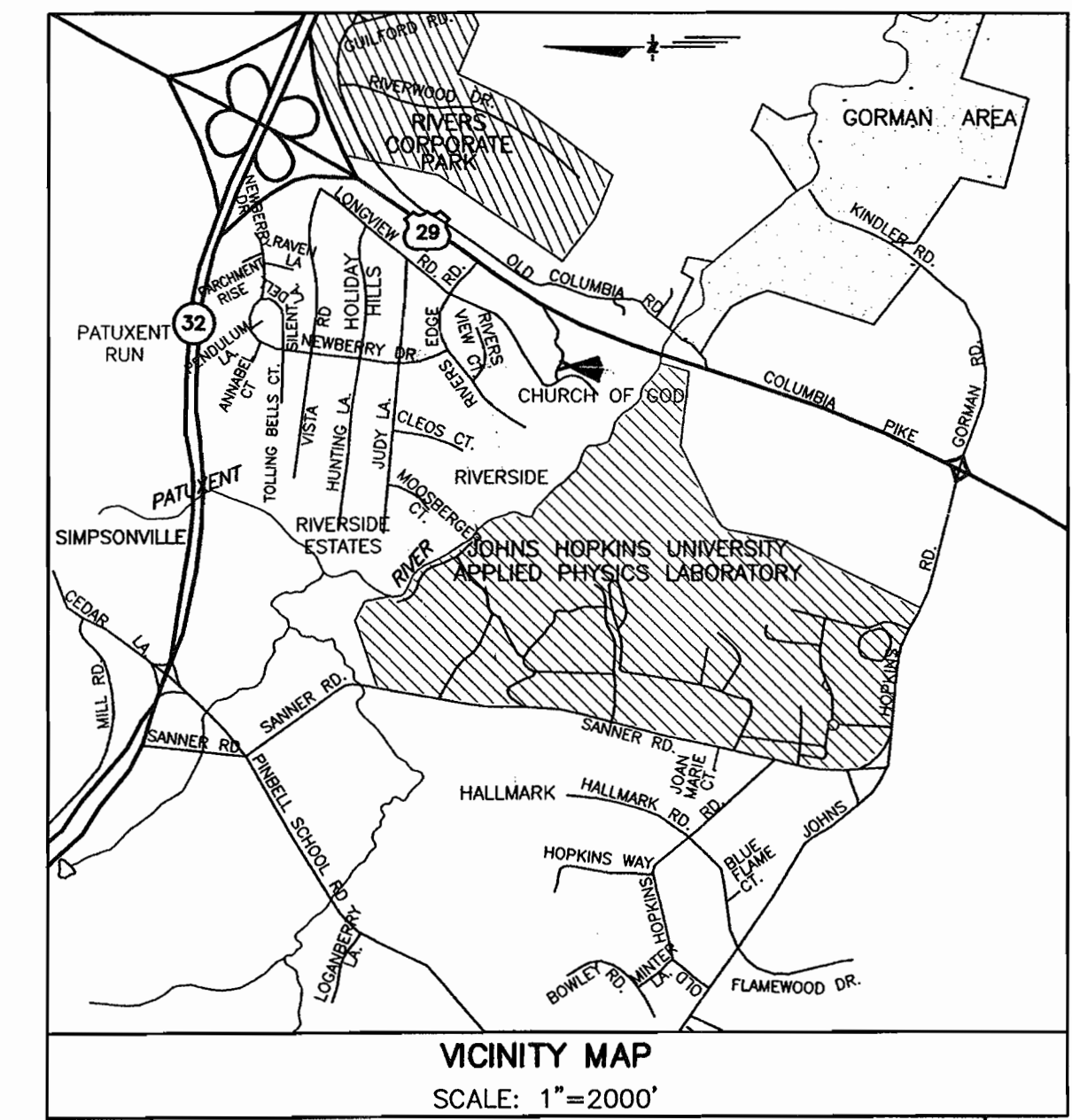
41. WP-04-82 was approved to reactivate F-02-77, SWM Basin "B", which had expired.

INDEX OF DRAWINGS

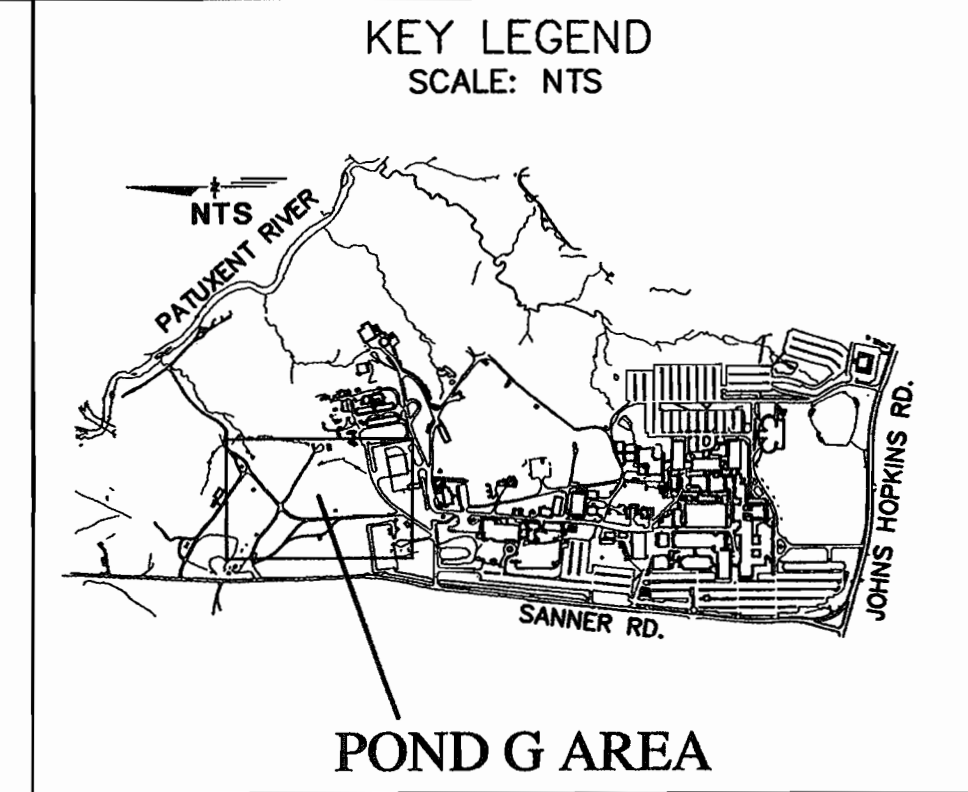
SHT. NO.	SHEET TITLE
1	C0.1 - COVER SHEET
2	C0.2 - OVERALL DRAINAGE AREA MAP
3	C0.3 - PROPOSED DRAINAGE AREA G
4	C1.0 - EXISTING CONDITIONS
5	C1.1 - PROJECT AREA SOILS MAP
6	C1.2 - SITE LAYOUT / DEMOLITION PLAN
7	C1.3 - SITE GRADING AND DRAINAGE PLAN
8	C1.4 - PIPE PROFILE AND STRUCTURE SCHEDULES
9	C1.5 - EXISTING AS-BUILT PROFILE - BASIN G
10	C1.6 - DETAILS
11	C1.7 - POCKET SANDFILTER PLAN AND DETAILS
12	C1.8 - SWM BASIN SPECIFICATIONS
13	C1.9 - BORING LOCATION AND LOGS
14	ES1 - EROSION AND SEDIMENT CONTROL PLAN
15	ES2 - EROSION AND SEDIMENT CONTROL DETAILS
16	ES3 - EROSION AND SEDIMENT CONTROL NOTES
17	C1.2A - LAYOUT PLAN ATHLETIC AREA
18	C1.3A - GRADING PLAN ATHLETIC AREA
19	ES-1A - SEDIMENT AND EROSION CONTROL PLAN



RED-LINE REVISION ADD TO SDP
 ATHLETIC AREA DRAINAGE AREA G



VICINITY MAP
 SCALE: 1"=2000'



POND G AREA

CONTACT PERSON FOR OWNER: RUSTY OBER
 TELEPHONE: (443) 778-0167 FAX: (443) 778-6122

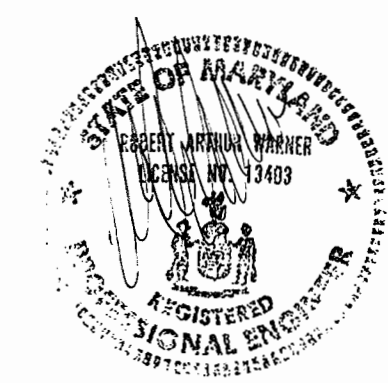
ADDRESS CHART

LOT/PARCEL #1	STREET ADDRESS
	11100 JOHNS HOPKINS ROAD LAUREL, MD 20723 CONTACT: MR. RUSTY OBER

PERMIT INFORMATION CHART

SUBDIVISION NAME		SECTION / AREA		PARCEL NO	
JHU APPLIED PHYSICS LAB		N/A		1	
PLAT# OR L/F	GRID#	ZONING	TAX MAP NO.	ELEC. DISTRICT	CENSUS TRACT
15429-15433	16	PEC	41	5	6051
WATER CODE		SEWER CODE			
E-21		6480000			

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS. THIS IS BASED ON INFORMATION PROVIDED BY APL AND VISUAL OBSERVATIONS.



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 12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE, MD 20852
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 AMT FILE # 110-440

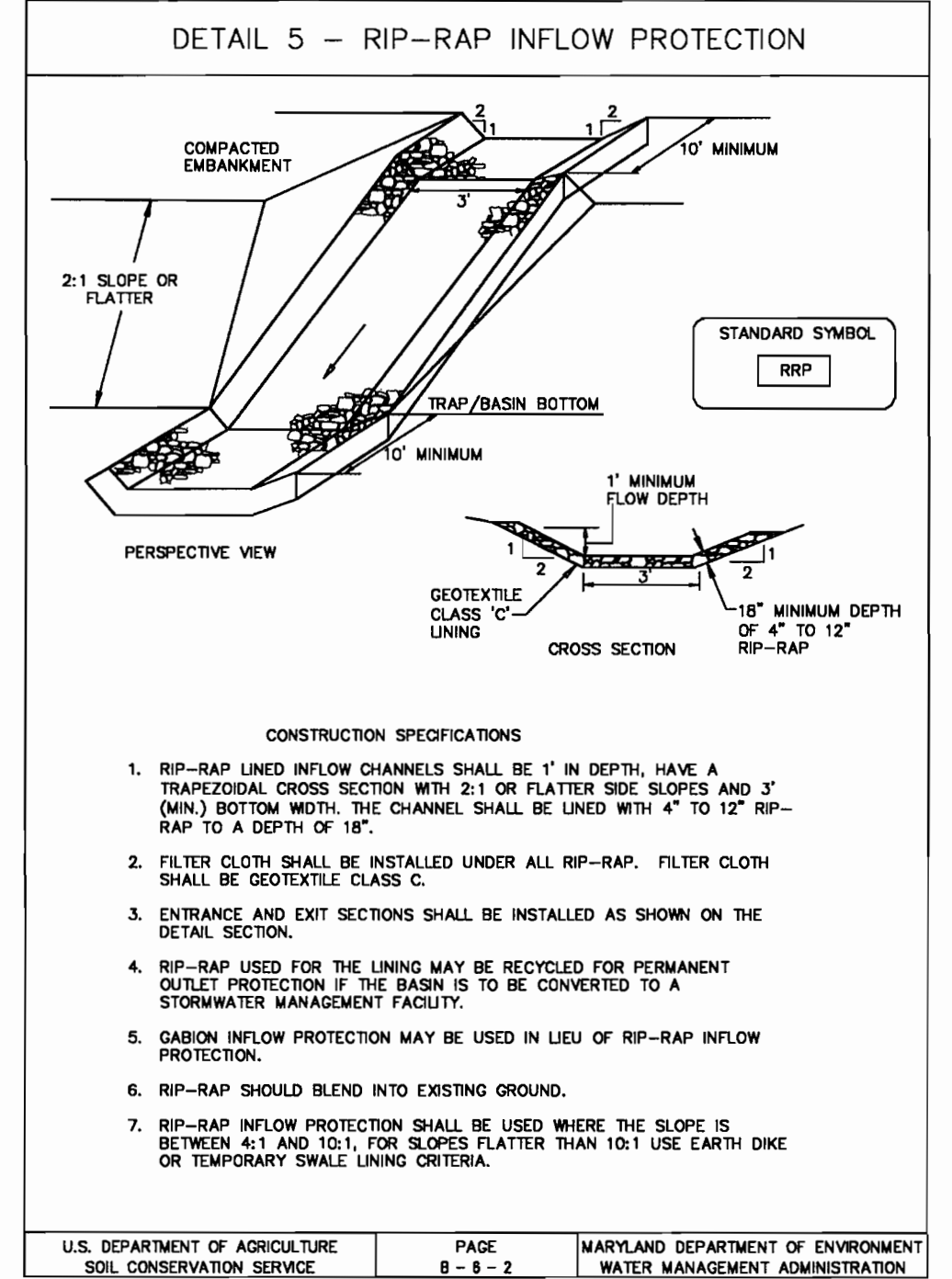
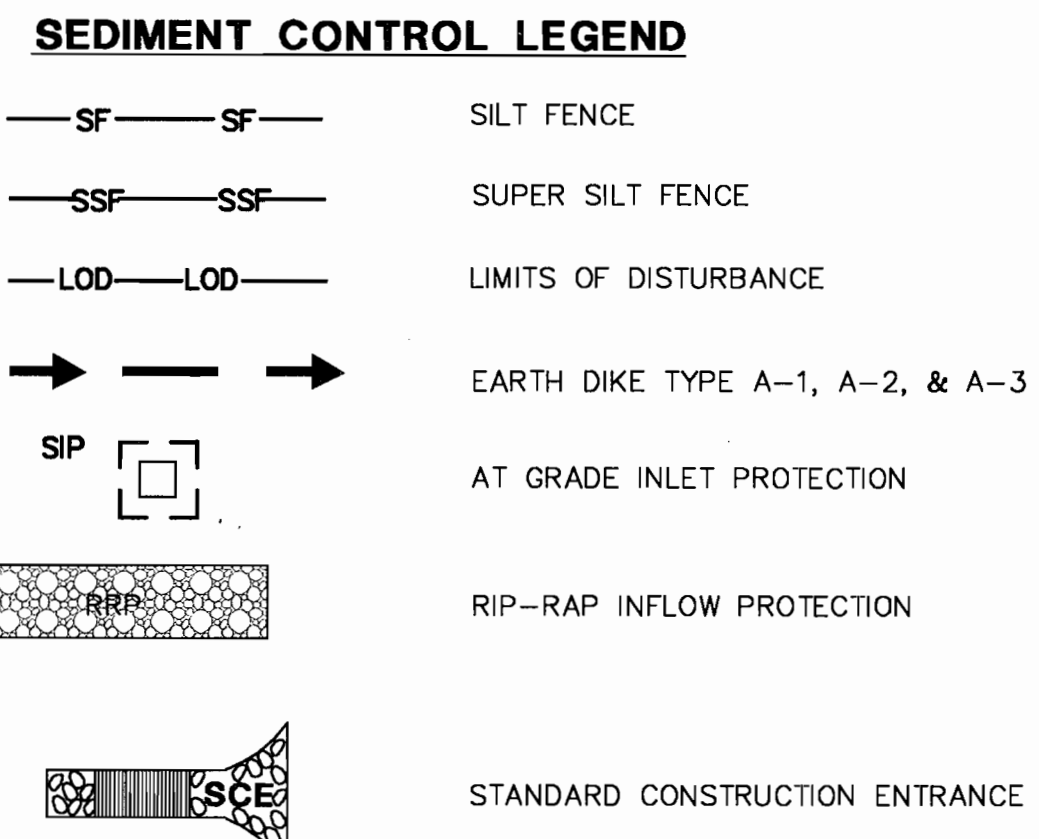
JHU/APL INTERNAL USE
 This data shall not be disclosed to a third party and shall not be duplicated, used, or disclosed in whole or in part for any purpose other than to evaluate this RFP or, in the case of a contract award, to perform the work required hereunder, without the express written consent of JHU/APL.

DES:	DRN:	CHK:	DATE:	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
J. KASPA	P. FRIAS	R. WARNER	10/09/03	10/06/03 RED-LINE SUBMISSION				

DRAINAGE BASIN G
 PROPERTY OWNER: JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY
 11100 JOHNS HOPKINS ROAD
 LAUREL, MD 20723
 CONTACT: MR. RUSTY OBER
 (443) 778-0167

AS-BUILT PLAN

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
 COVER SHEET
 TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND
 SCALE AS SHOWN
 SHEET C0.1
 SHEET 1 OF 16



6. STANDARDS AND SPECIFICATIONS

RIP-RAP INFLOW PROTECTION

Default

A temporary or permanent, basic designery installed to convey concentrated runoff into sediment traps and basins or down steep slopes as applicable. Rip-rap Inflow Protection consists of the installation of rock or recycled concrete equivalent in a flow channel for stabilization.

Purpose

The purpose of Rip-rap Inflow Protection is to provide stable conveyance of concentrated runoff down steep slopes, (i.e. into temporary sediment traps and basins) thereby preventing erosion of the flow channel.

Condition Where Practice Applies

Rip-rap Inflow Protection is required where the slope of a drainage way contributing to a sediment trap or basin exceeds 10:1 but is less than 4:1. Runoff may be directed to the inflow device by means of dikes or swales.

Design Criteria

Rip-rap Inflow protection shall be 4" - 12" rip-rap (min.), underlain with Geotextile Class C and placed from the ditch overall elevation to the bottom of the trap or basin when the inflow slope is between 4:1 and 10:1. Slopes flatter than 10:1 shall be stabilized in accordance with Temporary Swale or Earth Dike criteria as applicable. For slopes steeper than 4:1, see Gabion Inflow Protection.

Construction Specifications

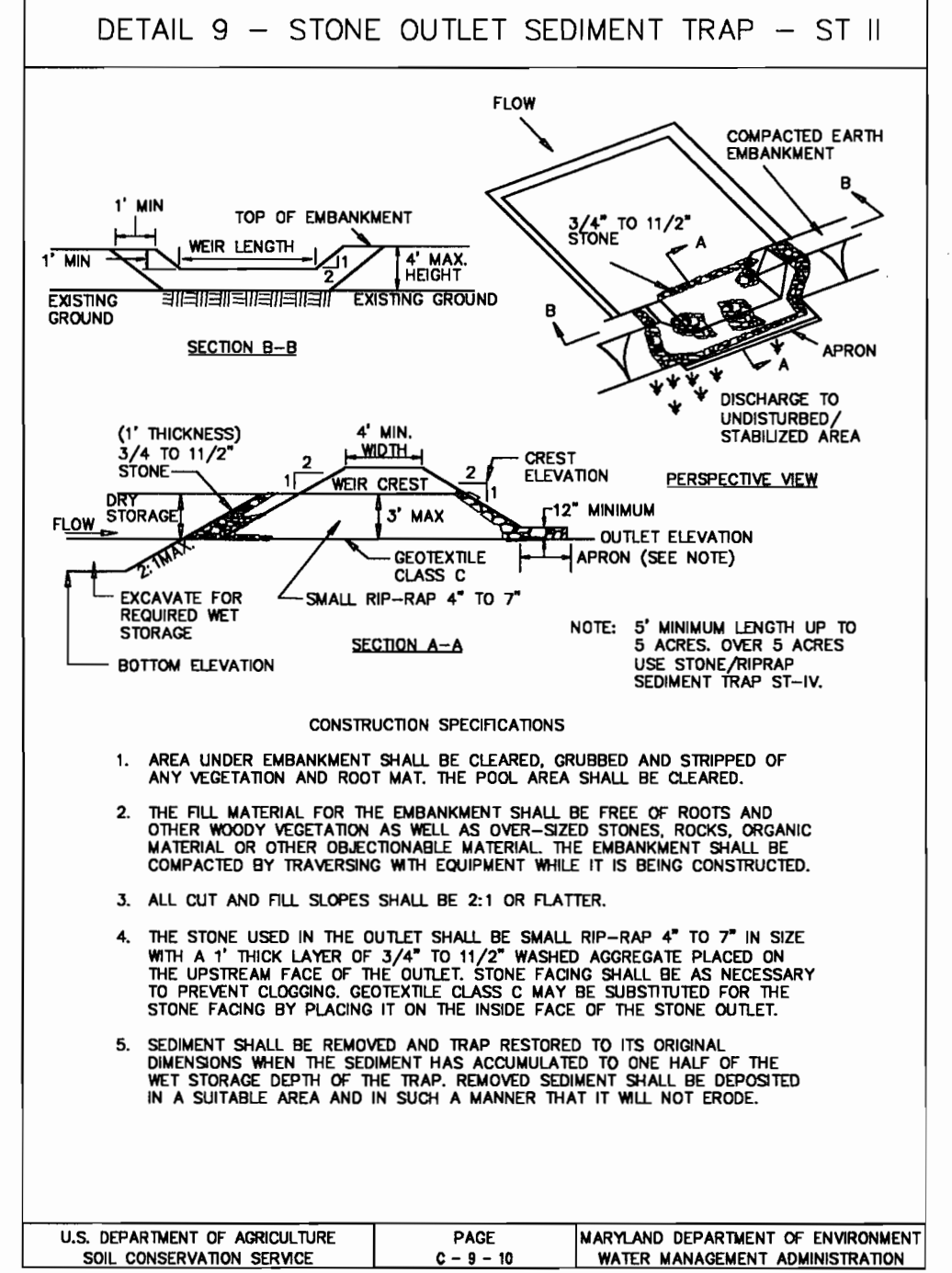
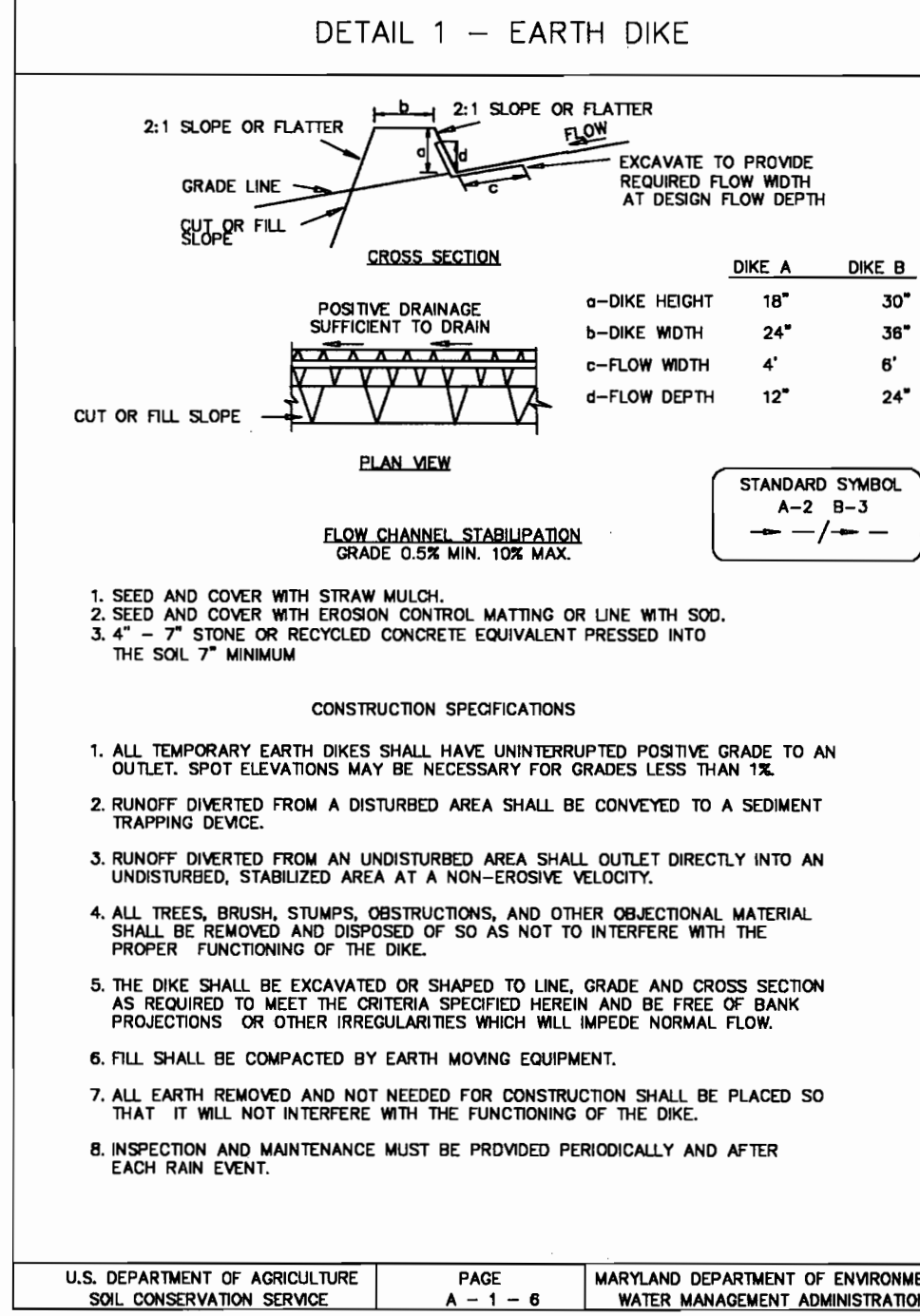
- Rip-rap Inflow Protection shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and a 3" minimum bottom width. The channel shall be lined with 4" - 12" rip-rap or S1A Class P to a depth of 18".
- Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
- Entrance and exit sections shall be installed as shown on the detail section.
- Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
- Gabion Inflow Protection may be substituted for Rip-rap Inflow Protection.
- Rip-rap should blend into existing ground.
- Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1. For slopes flatter than 10:1 use Earth Dike or Temporary Swale.

B-6-1

Refer to Table 27

Refer to Table 28

1994



STONE OUTLET SEDIMENT TRAP - ST II

- THE STRUCTURE SHALL BE INSPECTED PERIODICALLY AND AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
- CONSTRUCTION OF TRAPS SHALL BE CARRIED OUT IN SUCH A MANNER THAT SEDIMENT POLLUTION IS AVOIDED. ONCE CONSTRUCTED, THE TOP AND OUTSIDE FACE OF THE EMBANKMENT SHALL BE STABILIZED WITH SEED AND MULCH. POINTS OF CONCENTRATION INFLOW SHALL BE PROTECTED IN ACCORDANCE WITH GRADE STABILIZATION CRITERIA. THE REMAINDER OF THE INTERIOR SLOPES SHOULD BE STABILIZED (ONE TIME) WITH SEED AND MULCH UPON TRAP COMPLETION AND MONITORED AND MAINTAINED EROSION FREE DURING THE LIFE OF THE TRAP.
- THE STRUCTURE SHALL BE DETAILED BY APPROVED METHOD, REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
- REFER TO SECTION D FOR SPECIFICATIONS CONCERNING TRAP DETAILING.
- MINIMUM TRAP DEPTH SHALL BE MEASURED FROM THE WEIR ELEVATION.
- THE ELEVATION OF THE TOP OF ANY DIKE DIRECTING WATER INTO THE TRAP MUST EQUAL OR EXCEED THE ELEVATION OF THE TRAP EMBANKMENT.
- GEOTEXTILE CLASS C SHALL BE PLACED OVER THE BOTTOM AND SIDES OF THE OUTLET CHANNEL PRIOR TO THE PLACEMENT OF STONE. SECTIONS OF FILTER CLOTH MUST OVERLAP AT LEAST 1' WITH THE SECTION NEAREST THE ENTRANCE PLACED ON TOP. THE FILTER CLOTH SHALL BE EMBEDDED AT LEAST 6" INTO EXISTING GROUND AT THE ENTRANCE OF THE OUTLET CHANNEL.
- OUTLET - AN OUTLET SHALL BE PROVIDED, INCLUDING A MEANS OF CONVEYING THE DISCHARGE IN AN EROSION FREE MANNER TO AN EXISTING STABLE CHANNEL.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-9-10A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

STONE OUTLET SEDIMENT TRAP # 1 ST-II
 EXISTING D.A.=2.8 AC
 PROPOSED D.A.=2.8 AC
 VOLUME REQUIRED=3600x2.8=10,080 CF
 VOLUME PROVIDED=29,925 CF
 WEIR LENGTH=11.2' MINIMUM REQ. 16' PROVIDED
 BOTTOM ELEVATION=353.50
 DRY VOLUME ELEVATION=356.50
 WET VOLUME ELEVATION=355.00
 TOP OF DAM ELEVATION=357.50
 WEIR CREST ELEVATION 356.50
 CLEAN OUT ELEVATION = 354.25

SEDIMENT CONTROL

I, THE DEVELOPER, CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

James E. Loesch 6/20/06
 SIGNATURE OF DEVELOPER DATE
 PRINT NAME BELOW SIGNATURE
 James E. Loesch

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

Robert A. Warner 6/20/06
 SIGNATURE OF ENGINEER DATE

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

Jim Myers 6/20/06
 SIGNATURE OF HOWARD SOIL CONSERVATION DISTRICT DATE

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

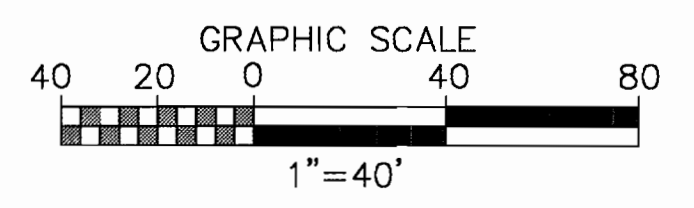
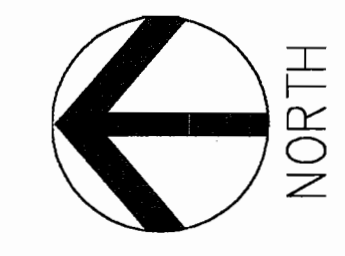
John S. ... 6/20/06
 SIGNATURE OF HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2/11/06
 CHIEF, DEVELOPING ENGINEERING DIVISION MKC DATE

[Signature] 2/11/06
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 2/14/06
 DIRECTOR DATE



1 SEDIMENT AND EROSION CONTROL PLAN

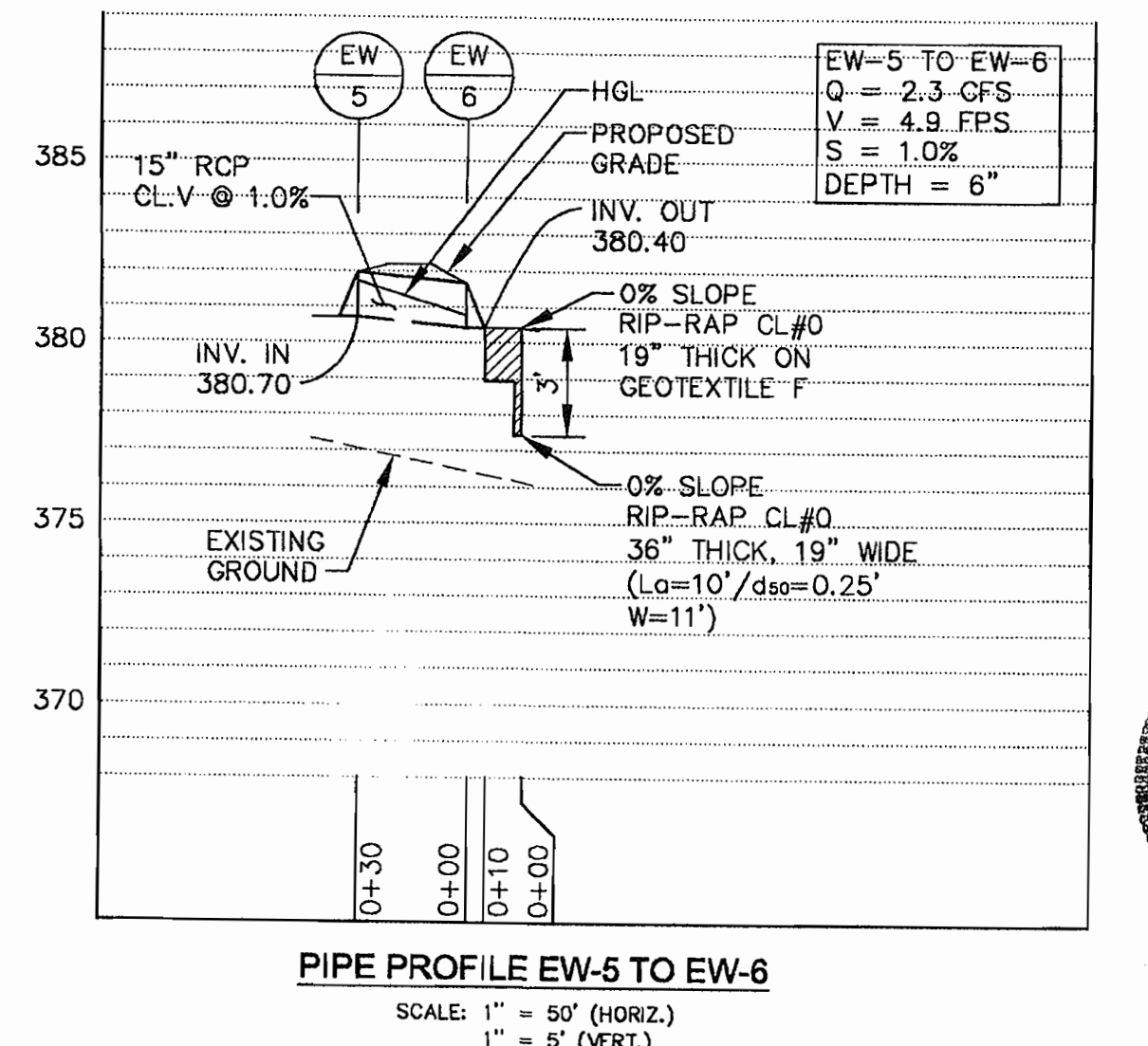
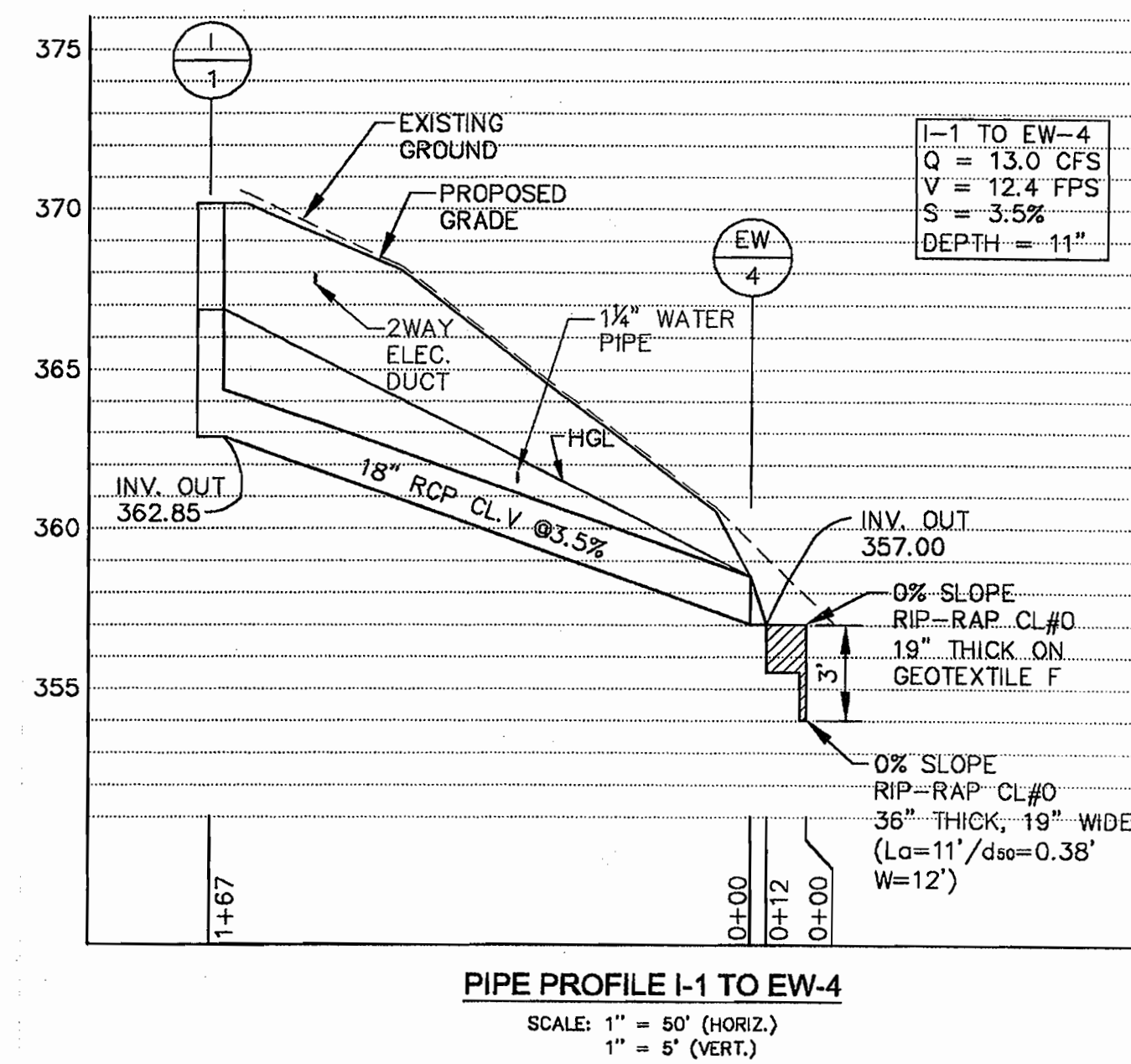
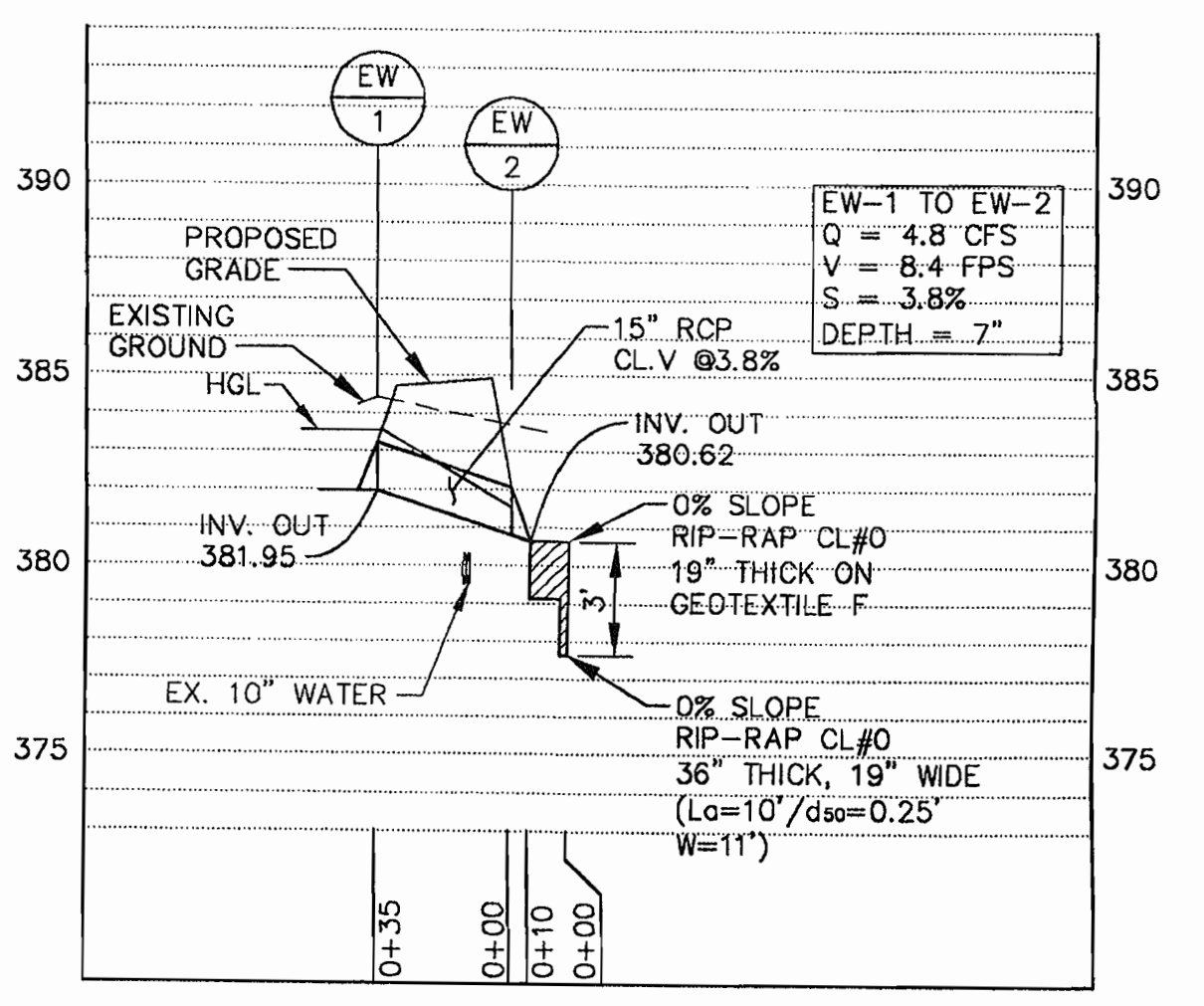
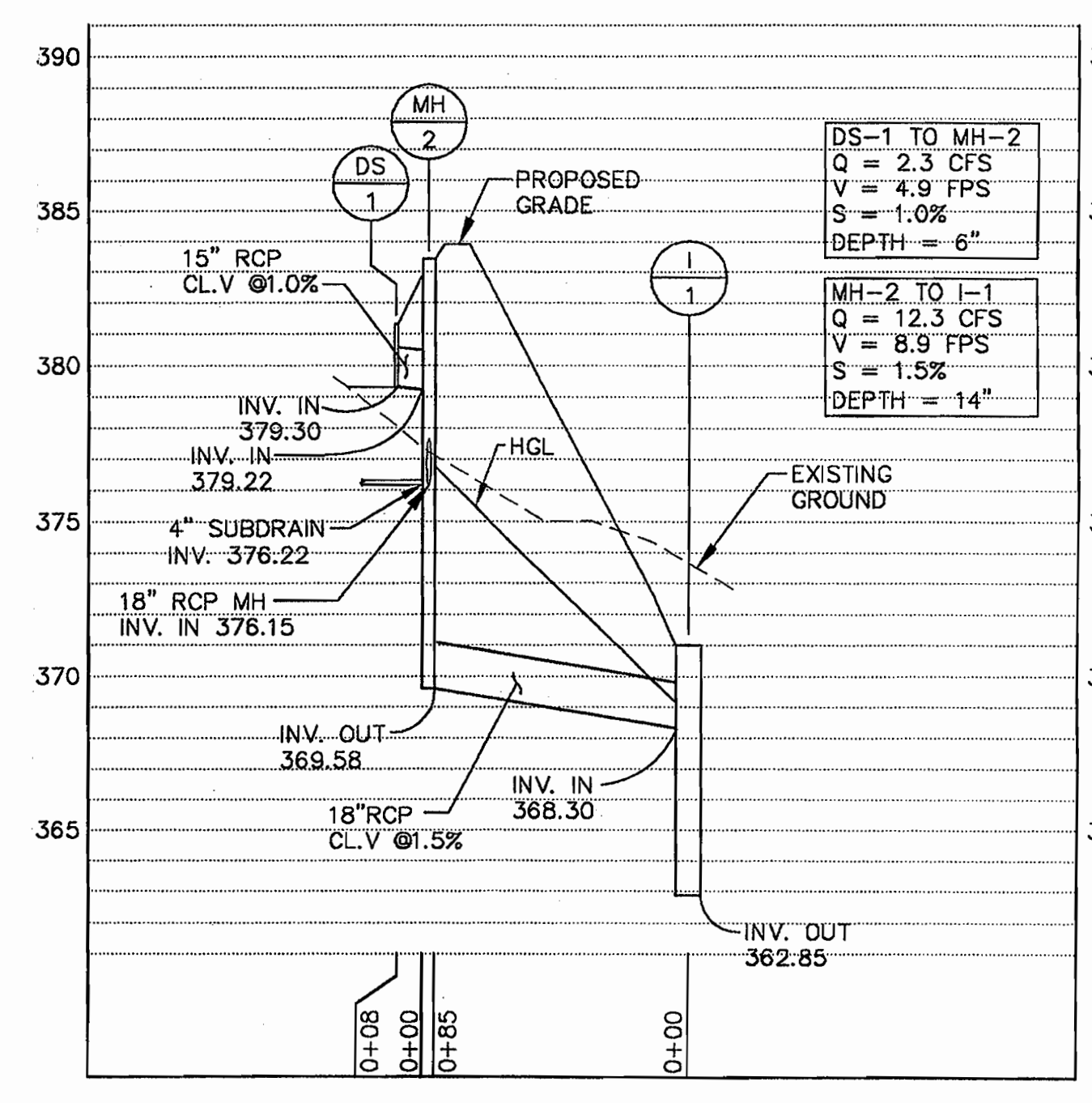
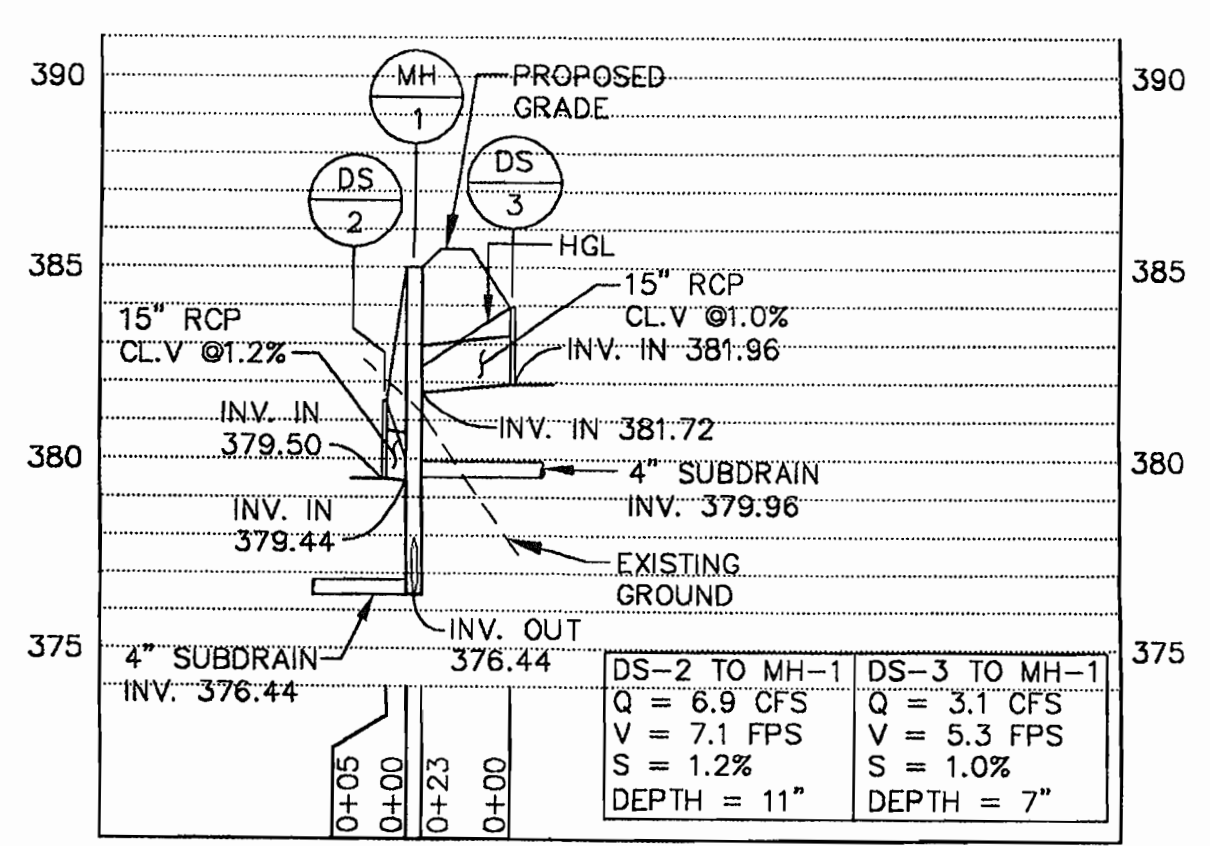
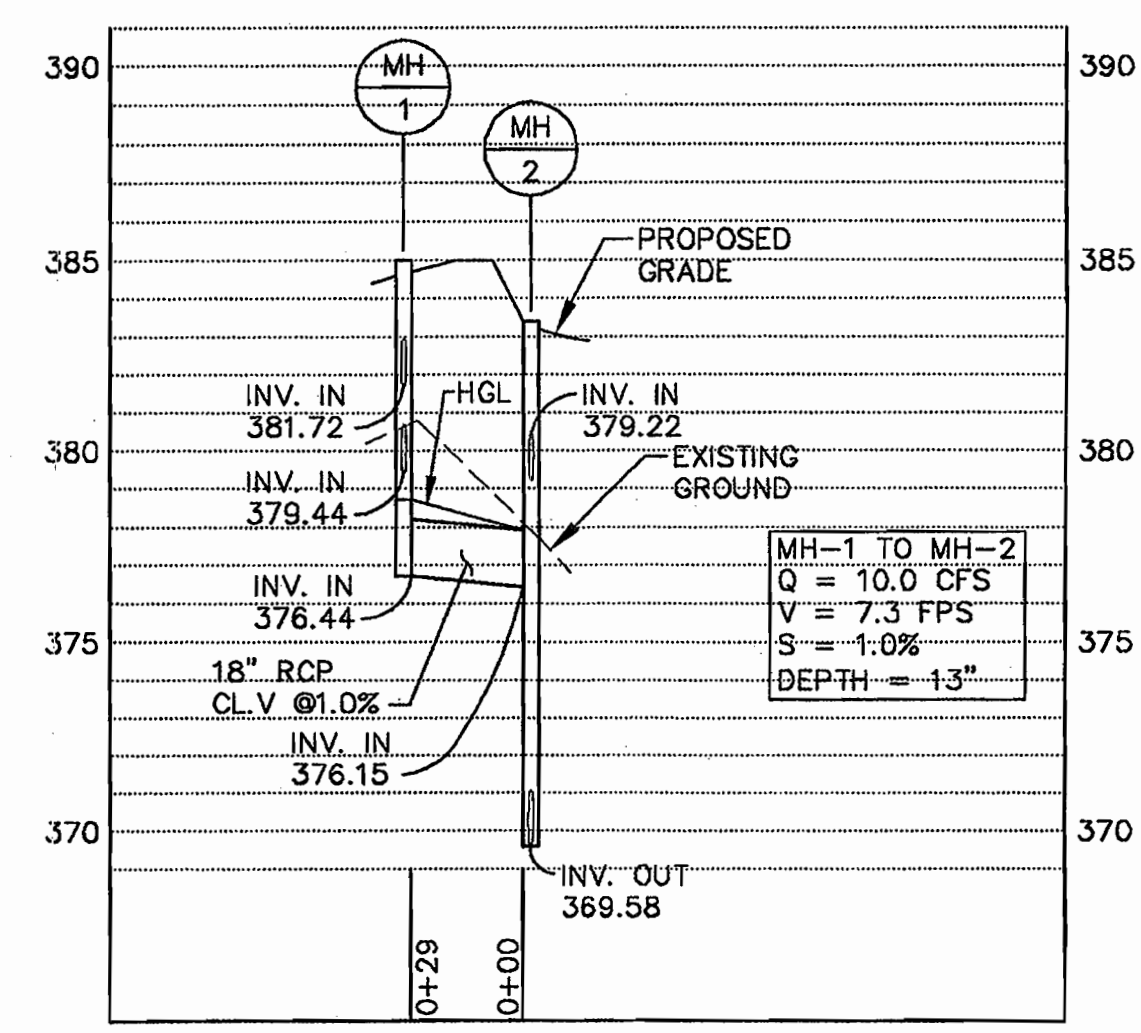


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DATE:	09/12/05	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP		

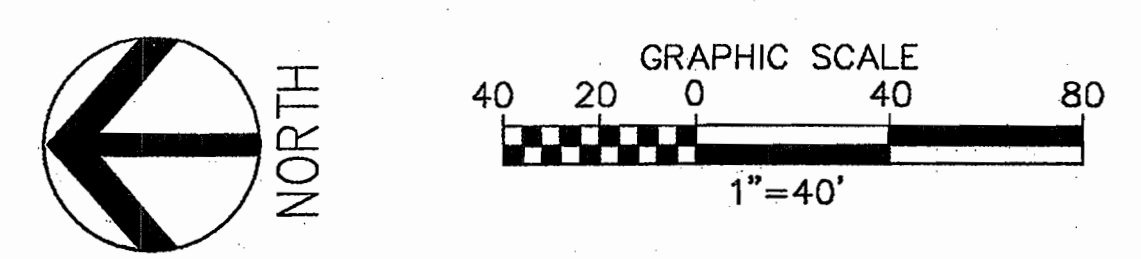
REVISED SITE DEVELOPMENT PLAN
 ATHLETIC AREA - SDP 04 035

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
 SEDIMENT AND EROSION
 CONTROL PLAN
 TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET ES-1A
 SHEET 19 OF 19



APPROVED: *[Signature]* DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE 7/11/06
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 2/14/06
 DIRECTOR DATE



GRADING PLAN

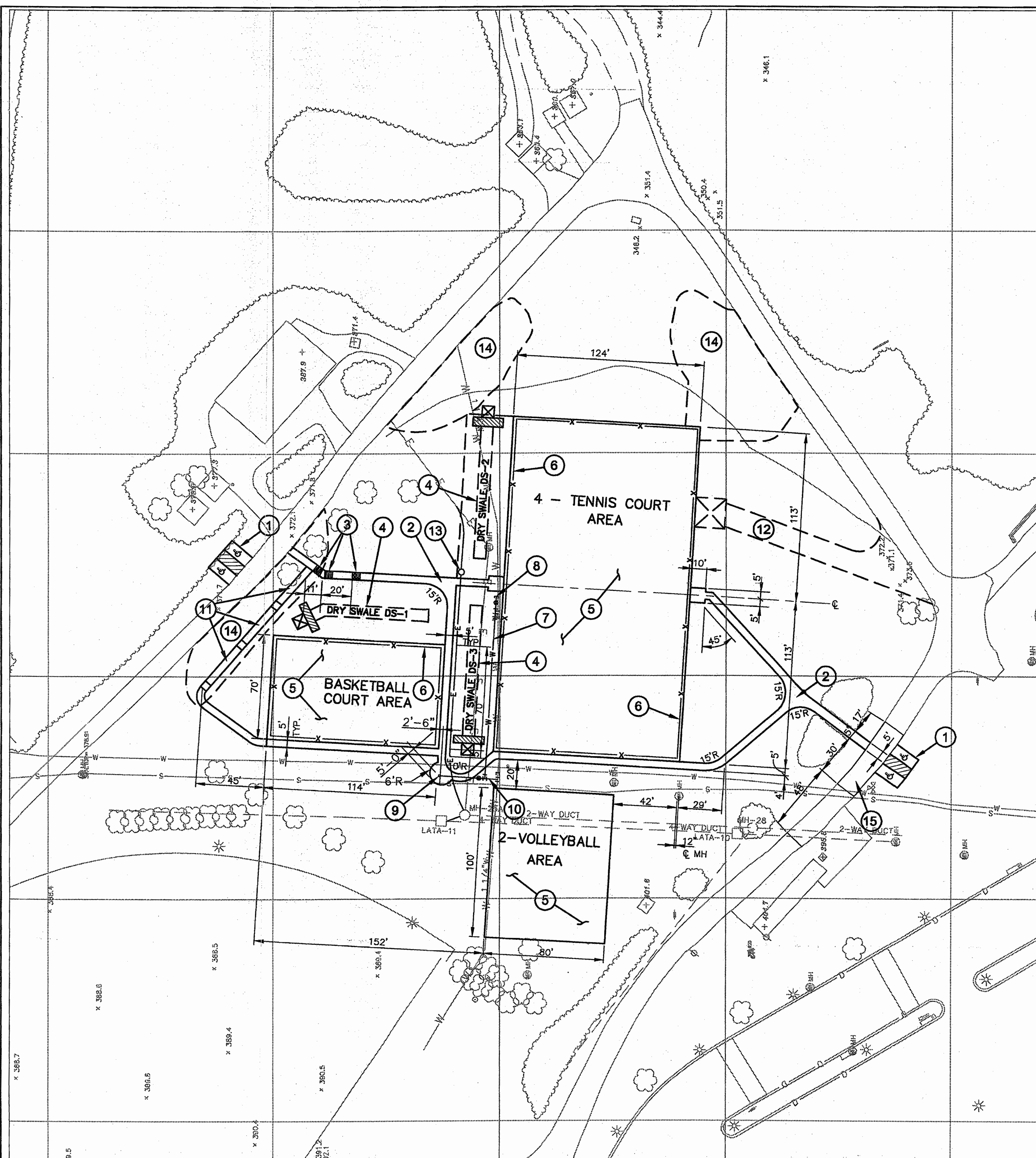
AMT
 A. MORTON THOMAS AND ASSOCIATES, INC.
 CONSULTING ENGINEERS
 12750 TWINBROOK PARKWAY, SUITE 300, ROCKVILLE, MD 20852
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REVISED SITE DEVELOPMENT PLAN
ATHLETIC AREA - SDP 04 035

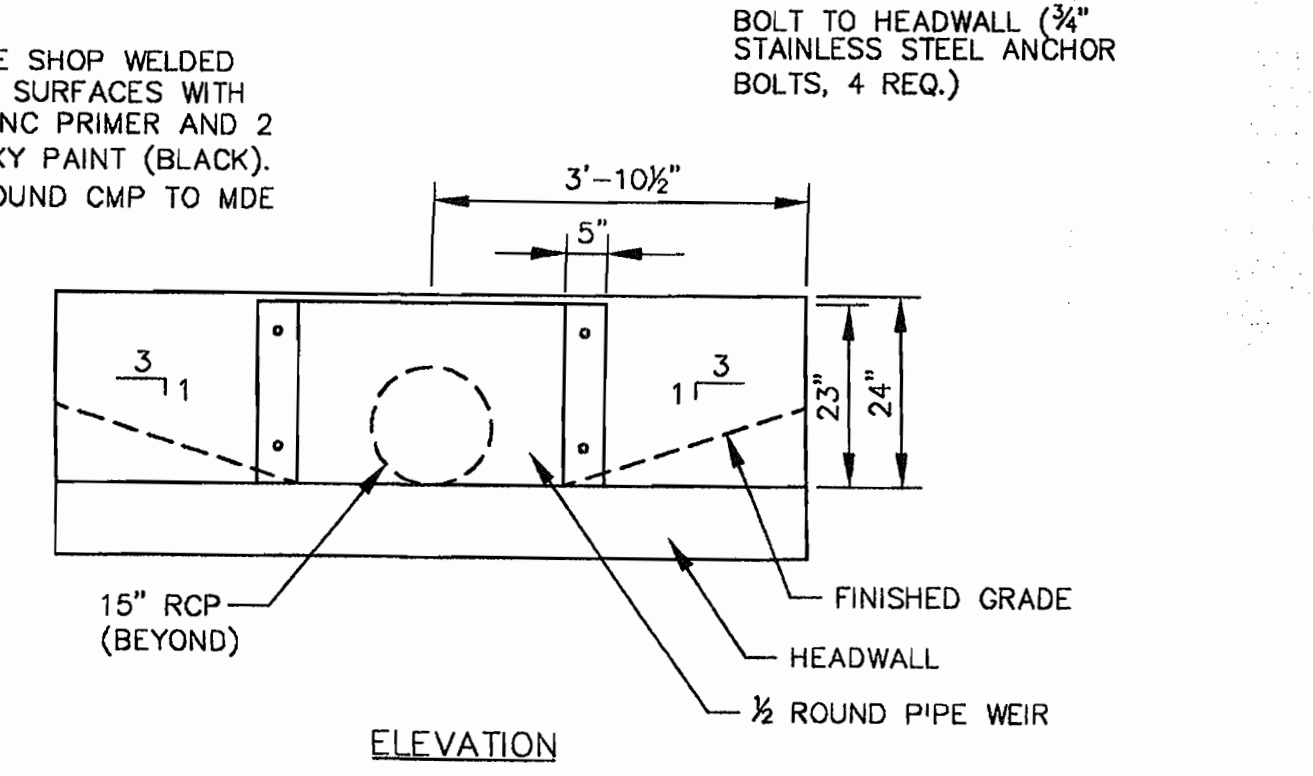
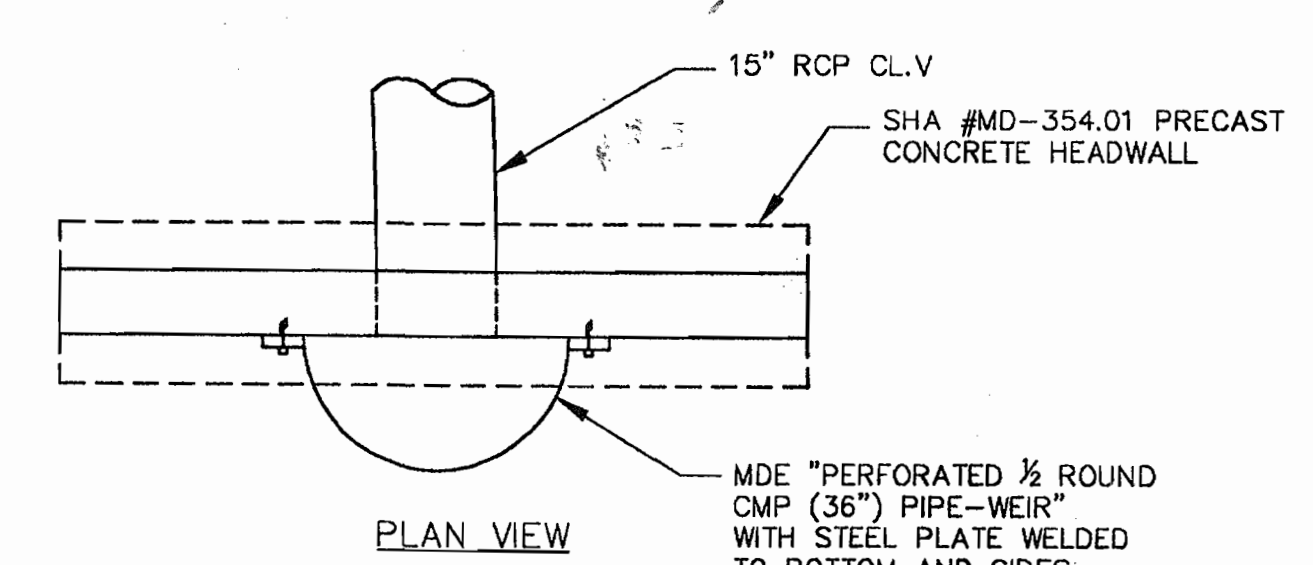
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
GRADING PLAN ATHLETIC AREA
 TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET C1-3A
 SHEET 18 OF 19



KEY NOTES

- 1 HANDICAP PARKING SPACE 8'x20' (4 REQ.) ACCESS LANE BETWEEN SPACES 8'x20', PAVEMENT POROUS CONCRETE 12" THICK ON 6" #57 STONE, BROOM FINISH, WITH CONTRACTION JOINTS 5' O.C. BOTH WAYS. PROVIDE AND INSTALL HANDICAP SIGN AT EACH SPACE (4 REQ.) WITH WHITE PAINTED SYMBOL ON SPACE AND DIAGONAL 4" STRIPING (2" O.C.) ON ACCESS LANE. POROUS CONCRETE DETAIL ON SHEET #ES-2 (15) RED-LINE SUBMISSION.
- 2 POROUS CONCRETE SIDEWALK, SEE DETAIL ON SHEET #ES-2 (15) RED-LINE SUBMISSION.
- 3 CONCRETE STAIRS 5-6" HIGH RISERS WITH 12" TREADS, PROVIDE AND INSTALL 2" PIPE HANDRAIL ON BOTH SIDES WITH 18" EXTENSION AT THE TOP AND BOTTOM OF THE STAIRS.
- 4 DRY-SWALE STORMWATER MANAGEMENT, SEE DETAIL ON SHEET #C1.4 (8) RED-LINE SUBMISSION, PROVIDE AND INSTALL TO MDE STANDARDS
- 5 BASKETBALL, TENNIS, AND VOLLEYBALL COURTS SUBMIT SHOP DRAWING TO APL FOR APPROVAL.
- 6 NEW 10' HIGH CHAIN LINK FENCE, SEE DETAIL ON SHEET #C1.7 (11) RED-LINE SUBMISSION, SUBMIT SHOP DRAWINGS FOR DETAILS AND LAYOUT AROUND BASKET BALL AND TENNIS COURTS TO APL FOR APPROVAL.
- 7 NEW 1 1/2" COPPER PIPE CONNECTED TO EXISTING 1 1/2" PIPE. REMOVE AND CAP SECTION OF EXISTING PIPE BY-PASSED BY NEW PIPE.
- 8 NEW 1 1/2" COPPER PIPE FROM TEE ON NEW PIPE WITH A GATE VALVE AND BOX, CAPPED FOR FUTURE CONNECTION.
- 9 NEW FROST PROTECTION (AUTOMATIC DRAIN) HANDICAP ACCESSIBLE DRINKING FOUNTAIN WITH HOSE BIB CONNECTION.
- 10 NEW 3/4" COPPER PIPE FOUNTAIN SERVICE OFF TEE ON NEW PIPE WITH A GATE VALVE AND BOX.
- 11 NEW POROUS CONCRETE HANDICAP RAMPS (30' LONG, 1:12 SLOPE) WITH 5' LANDINGS AND 12" CONCRETE CURB ON UPHILL SIDE. PROVIDE STEEL TUBULAR HANDRAIL EACH SIDE OF RAMP TO ADA STANDARDS. SUBMIT SHOP DRAWINGS OF HANDRAIL SYSTEM FOR APL APPROVAL BEFORE ACQUIRING THE HANDRAILS. POROUS CONCRETE FOR RAMP, SEE SIDEWALK DETAIL ON SHEET #ES-2 (15) RED-LINE SUBMISSION.
- 12 STORAGE SHED AND POROUS GRASS REINFORCED ACCESS WAY. BY OTHERS (ALTERNATE).
- 13 NEW CONCRETE ENCASED 2-WAY DUCTS AND HANDHOLE, MATCH EXISTING. 3" ALL AROUND CONDUIT (4" MIN.) PROVIDE AND INSTALL NEW CONDUCTORS AND TELECOMMUNICATION WIRES AND CONNECT TO EXISTING.
- 14 VEGETATIVE SLOPE PROTECTION 2:1 SLOPE AREAS
- 15 REMOVE EXISTING PAVEMENT (SAW CUT ENDS). PROVIDE AND INSTALL NEW BITUMINOUS CONCRETE PAVEMENT (SURFACE COURSE 1 1/2" SHA #12MM SUPERPAVE SURFACE, TACK COAT, 6 1/2" 19MM SUPERPAVE BASE ON 6" DENSE GRADE AGGREGATE). MEET EXISTING PAVEMENT FLUSH.



NOTES:
 1. ALL STEEL TO BE SHOP WELDED
 2. COAT ALL STEEL SURFACES WITH 2-COATES OF ZINC PRIMER AND 2 COATES OF EPOXY PAINT (BLACK).
 3. PERFORATE 1/2 ROUND CMP TO MDE STANDARD.

2 END WALL AT DRY SWALE
 SCALE: 1/2"=1'-0"

STORM DRAIN COMPUTATION SHEET

COMPUTED BY: PCF DATE: 10/03 PROJECT: APL-JHU BASIN G
 CHECKED BY: JK DATE: 10/03 STORM FREQUENCY: 10-YEAR

MANNING'S "N" (RCP) = 0.013
 MANNING'S "N" (PVC) = 0.011

PIPE STRUCTURE	DRAINAGE AREA	RUNOFF COEFF.	"AREA"x"C"	TIME OF CONC.	RAINFALL INTENSITY	RUNOFF "Q"	PIPE DIAMETER	PIPE LENGTH	MIN. PIPE SLOPE	ACTUAL PIPE SLOPE	VELOCITY	TIME IN PIPE	PIPE "Q" CAPACITY			
FROM (1)	TO (2)	INC (AC) (3)	TOTAL (AC) (4)	"C" (5)	INC (AC) (6)	TOTAL (AC) (7)	SYSTEM (MIN) (8)	"T" (IN/HR) (9)	(CFS) (10)	(IN) (11)	(H) (12)	SLOPE (1/100) (13)	SLOPE (1/100) (14)	(FPS) (15)	(MIN) (16)	(CFS) (17)
DS-1	MH-2	0.3	0.3	0.9	0.27	0.27	5.00	8.5	2.3	15	8	0.001	0.01	1.8	0.07	6.5
DS-2	MH-1	0.1	0.9	0.9	0.09	0.81	5.00	8.5	6.9	15	5	0.011	0.01	5.4	0.02	7.2
DS-3	MH-1	0.4	0.4	0.9	0.36	0.36	5.00	8.5	3.1	15	23	0.002	0.01	2.4	0.16	6.5
MH-1	MH-2	1.3	1.3	-	-	-	5.00	-	10.0	18	29	0.009	0.01	5.4	0.09	10.8
MH-2	I-1	1.6	1.6	-	-	-	5.00	-	12.3	18	85	0.013	0.01	6.6	0.18	13.0
I-1	EW-4	0.1	1.7	0.9	0.09	1.53	5.00	8.5	13.0	18	167	0.015	0.08	7.0	0.36	20.0
EW-1	EW-2	0.8	0.8	0.7	0.56	0.56	5.00	8.5	4.8	15	35	0.005	0.04	3.8	0.15	10.3
EW-5	EW-6	0.3	0.3	0.9	0.27	0.27	5.00	8.5	2.3	15	30	0.001	0.01	1.8	0.07	6.5

STORM DRAIN STRUCTURE SCHEDULE

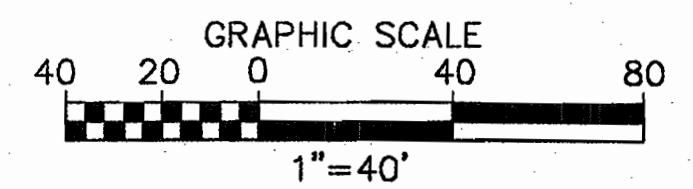
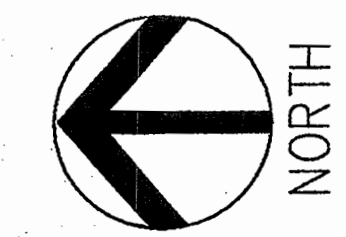
STRUC. NO.	TYPE	STANDARD NO.	TOP ELEVATION	SIZE (ft)	INV. IN	INV. OUT	COMMENT
DS-1	ENDWALL	SHA #MD-354.01	-	1.25	379.30	-	PRECAST ENDWALL WITH 1/2" ROUND CMP
DS-2	ENDWALL	SHA #MD-354.01	-	1.25	379.50	-	PRECAST ENDWALL WITH 1/2" ROUND CMP
DS-3	ENDWALL	SHA #MD-354.01	-	1.25	381.96	-	PRECAST ENDWALL WITH 1/2" ROUND CMP
MH-1	MANHOLE	SHA #MD-384.03	385.00	4.0	379.44 381.72	376.44	PRECAST MANHOLE
MH-2	MANHOLE	SHA #MD-384.03	383.50	4.0	379.22 377.20	369.58	PRECAST MANHOLE
EW-1	END SECTION	HOWARD CO #SD-5.51	-	1.25	381.95	-	RCP FLAIRED END SECTION
EW-2	END SECTION	HOWARD CO #SD-5.51	-	1.25	-	380.62	RCP FLAIRED END SECTION
EW-3	NOT USED	-	-	-	-	-	-
I-1	INLET	SHA #MD 374.04	370.80	1.50	368.30	362.85	PRECAST INLET DOUBLE GRATE
EW-4	END SECTION	HOWARD CO #SD-5.51	-	1.50	-	357.00	RCP FLAIRED END SECTION
EW-5	END SECTION	HOWARD CO #SD-5.51	-	1.25	380.70	-	RCP FLAIRED END SECTION
EW-6	END SECTION	HOWARD CO #SD-5.51	-	1.25	-	380.40	RCP FLAIRED END SECTION

STORM DRAIN PIPE SCHEDULE

FROM	TO	SIZE (Inches)	LENGTH (feet)	SLOPE %	FLOW CAP.(cfs)	10-YR Q (cfs)	VELOCITY (fps)	PIPE type	PARTIAL FLOW depth (in.)	velocity (fps)
DS-1	MH-2	15	8	1.0	6.5	2.3	5.3	RCP CL.V	6	4.9
DS-2	MH-1	15	5	1.2	7.2	6.9	5.9	RCP CL.V	11	7.1
DS-3	MH-1	15	23	1.0	6.5	3.1	5.3	RCP CL.V	7	5.3
MH-1	MH-2	18	29	1.0	10.8	10.0	6.1	RCP CL.V	13	7.3
MH-2	I-1	18	85	1.5	13.0	12.3	7.4	RCP CL.V	14	8.9
I-1	EW-4	18	167	3.5	20.0	13.0	11.3	RCP CL.V	11	12.4
EW-1	EW-2	15	35	3.8	10.3	4.8	8.4	RCP CL.V	7	8.4
EW-5	EW-6	15	30	1.0	6.5	2.3	5.3	RCP CL.V	6	4.9



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MKC DATE: 7/11/06
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 7/17/06
 DIRECTOR DATE:



1 LAYOUT PLAN

AMT
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 AMT FILE # 102-440

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**REVISED SITE DEVELOPMENT PLAN
 ATHLETIC AREA - SDP 04 035**

APPLIED PHYSICS LABORATORY
 THE JOHNS HOPKINS UNIVERSITY
**LAYOUT PLAN
 ATHLETIC AREA**
 TAX MAP 41 PARCEL 1
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET C1-2A
 SHEET 17 OF 19

SDP-04-35