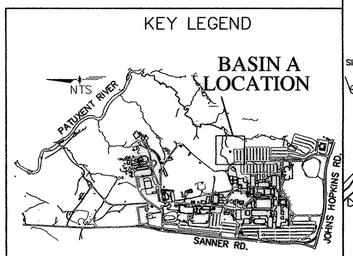
FINAL PLAN STORMWATER MANAGEMENT FACILITIES DRAINAGE AREA A

THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY LOCATED SOUTHEAST INTERSECTION OFF ROUTES 29 & 32 IN HOWARD COUNTY, MD

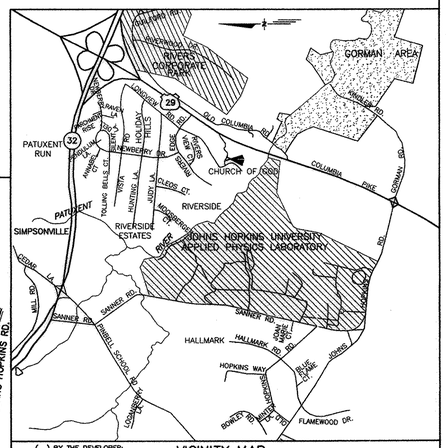
INDEX OF DRAWINGS

GENERAL NOTES

1. THE TOPOGRAPHIC AND UTILITY INFORMATION SHOWN IN THIS DEVELOPMENT PLAN WERE OBTAINED FROM FIELD SURVEYS PERFORMED BY WHITMAN, REQUARDT, AND ASSOCIATES (TOPOGRAPHY) AND APPLIED PHYSICS LABORATORY (UTILITIES) CONSULTANTS ON NOVEMBER 1998 AND FROM REPORTS PROVIDED BY JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LAB (APL). THESE MAY NOT 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 HOWARD COUNTY AND MSHA SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, UNLESS OTHERWISE NOTED.
3. ELEVATIONS SHOWN ARE BASED ON AN ASSUMED DATUM PROVIDED BY WHITMAN, REQUARDT, AND ASSOCIATES.
4. APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE OWNER.
5. ACCESS TO THE CONSTRUCTION AREA THROUGH THE SECURE AREA OF THE APPLIED PHYSICS LABORATORY (WITHIN THE FENCED ENCLOSURE) MUST BE ARRANGED IN ADVANCE BY CONTACTING THE PLANT ENGINEERING OFFICE (443) 778–5134.
6. SECURITY MUST BE MAINTAINED WITHIN THE CONSTRUCTION AREA. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH JHU–APL ALL NECESSARY FENCE CONSTRUCTION AND RELOCATION.
7. THE CONTRACTOR SHALL CONTACT MR. JIM LOESCH (PLANT ENGINEER) (443) 778–5134 AT LEAST FIVE DAYS BEFORE STARTING WORK OR SHUTTING DOWN ANY UTILITIES.
8. THE CONTRACTOR SHALL TIE–IN TO THE EXISTING UTILITIES ONLY AFTER NORMAL WORKING HOURS AT JHU–APL. WORK MUST BE SCHEDULED ACCORDINGLY THRU JHU–APL. NORMAL WORKING HOURS ARE 8:30 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 COMMENCEMENT OF WORK, AT (410) 313–1880.
10. CLEAR ALL UTILITIES BY MINIMUM OF 6". CLEAR ALL POLES AND FOUNDATIONS BY 2'–0" MINIMUM, 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 WATERMAIN 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.
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. EXISTING PAVEMENT, (ROADWAY, SIDEWALKS, ETC.) REMOVED TO INSTALL PROPOSED UTILITIES, SHALL BE REPLACED "IN–KIND". 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 SO AS NOT TO DAMAGE 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 OWNER AND 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 OWNER OF ANY DEVIATION FROM THESE PLANS PRIOR TO ANY CHANGE BEING MADE. ANY VIATION FROM THESE PLANS WITHOUT WRITTEN AUTHORIZATION BY THE OWNER WILL THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
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 OWNER.
28. CONTRACTOR SHALL CONTACT JHU–APL PLANT FACILITIES OFFICE (240) 228–5134 AND "MISS UTILITY" AT 1–800–257–7777, 48 HOURS PRIOR TO 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 OCTOBER 1993 COMPREHENSIVE ZONING PLAN.
30. NO CLEARING, GRADING, OR CONSTRUCTION ARE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM, FOREST CONSERVATION AREAS, AND THEIR BUFFERS WHERE 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 RETENTION FOR AN AREA OF 87.34 ACRES OF THE 361 AC (24%).
32. LAND DEDICATED TO HOWARD COUNTY MARYLAND, FOR PURPOSES OF A PUBLIC ROAD (2.5/ACRES), WILL WIDEN SANNER ROAD.
33. ALL STORM DRAIN AND PAVEMENT WITHIN THE DEVELOPMENT ARE PRIVATELY MAINTAINED.
34. THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED FOR THE APPLIED PHYSICS LABORATORY–THE JOHNS HOPKINS UNIVERSITY BY WHITMAN, REQUARDT, AND ASSOCIATES
35. WATER AND SEWER ARE PUBLIC (HOWARD COUNTY).
36. THE FLOODPLAIN LIMITS FOR THIS PROJECT WERE TAKEN FROM HOWARD COUNTY STUDY.
37. DIMENSIONS TO NEW STRUCTURES ARE PERPENDICULAR TO PROPERTY LINE.
38. THE PURPOSE OF THIS FINAL PLAN IS TO ESTABLISH A STORMWATER MANAGEMENT FACILITY WILL SUPPORT A CERTAIN AMOUNT OF FUTURE DEVELOPMENT FOR BUILDINGS AND OTHER IMPERVIOUS AREA ON FUTURE SITE DEVELOPMENT PLANS. BUILDINGS OR PARKING AREAS SHOWN ON THESE PLANS ARE FOR REFERENCE ONLY.
39. THE PURPOSE OF THIS ~~ONEFOR~~ PLAN IS TO REPRESENT NEW BUILDINGS AND STORMWATER MANAGEMENT FACILITIES ASSOCIATED WITH THE LABORATORY OPERATION AND RESEARCH.
40. THE FINAL PLAN AREA OF THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY IS NOT LOCATED IN THE 100 YEAR FLOOD PLAIN
41. ALL EXISTING UTILITIES WITHIN THE FOOTPRINT OF NEW BUILDINGS WILL BE RELOCATED OUTSIDE THE BUILDING AREA AS SHOWN.
42. SOIL MAP USED SHEET NO. 29, SOIL SURVEY JULY 1968 HOWARD COUNTY, MARYLAND, USDA.
43. NO SWM PERIMETER LANDSCAPING IS REQUIRED BECAUSE BASIN "A" IS INTERNAL TO THE SITE AND PLANTINGS ARE PROVIDED IN THE FACILITY.
44. FOREST CONSERVATION AREAS ARE BEING ESTABLISHED AS PRESERVATION EASEMENTS, FOREST CONSERVATION AREAS "A", "B", "C", AS PER PLAT TO ACCOMPANY WAIVER PETITION.
45. STORMWATER MANAGEMENT POND WILL BE PRIVATELY OWNED AND MAINTAINED.
46. THE PURPOSE OF THIS FINAL PLAN IS TO ESTABLISH A STORMWATER MANAGEMENT FACILITY WHICH WILL SUPPORT A CERTAIN AMOUNT OF FUTURE DEVELOPMENT FOR BUILDINGS AND OTHER IMPERVIOUS AREAS ON FUTURE SITE DEVELOPMENT PLANS. BUILDINGS OR PARKING AREAS SHOWN ON THESE PLANS ARE FOR REFERENCE ONLY.
47. ON APRIL 10, 2002, HOWARD COUNTY APPROVED THE WAVIER OF SECTION 16.116. (c) TO ALLOW GRADING AND/OR CLEARING IN A STREAM BUFFER AND WETLAND BUFFER (WP–02–81). THIS APPROVAL WAS GRANTED SUBJECT TO PROVIDING A RETAINING WALL TO KEEP THE GRADING FOR THE DAM AND SERVICE ROAD OUT OF THE BUFFERS. THIS WORK IS DEPICTED ON THE CONSTRUCTION PLANS FOR F–02–40.
48. Forest Conservation surety in the amount of $ 760,906.00, for 87.34 acres of retention, has been posted with the F.C. Developer Agreement.



SCALE: NTS



( ) BY THE DEVELOPER:

VICINITY MAP
SCALE: 1"=2000'

SITE ANALYSIS TOTAL APL PROPERTY:

A. AREA OF PARCEL/LOT = 361 ACRES
B. PRESENT ZONING = PEC
C. PARKING TABULATION: EXISTING PARKING SPACES = 3,780
FUTURE/PROPOSED PARKING SPACES = 476 (NET)
FUTURE AND EXISTING – TOTAL SPACES PROVIDED = 4,256
D. EXISTING BUILDING COVERAGE = 36.2 ACRES GROSS FLOOR AREA, COVERAGE = 18.1 ACRES, 5% OF TOTAL LOT AREA
E. (FUTURE) PROPOSED BUILDING COVERAGE = 6.5 ACRES GROSS FLOOR AREA COVERAGE = 1.6 ACRES, 0.45% OF TOTAL LOT AREA
F. (FUTURE) TOTAL PROPOSED BUILDING COVERAGE = 19.7 ACRES, 5.45% OF TOTAL LOT AREA
G. PROPOSED BUILDINGS DISTURBED AREA = 2.4 ACRES
H. PROPOSED USE = EDUCATION/RESEARCH
I. FLOOR SPACE USE = EDUCATION/RESEARCH
J. MAXIMUM NUMBER OF EMPLOYEES = 3,900
K. NO LOT SUBDIVISION IS ANTICIPATED.
L. CASE NUMBERS APPLICABLE: WAIVER APPROVED, #WP–01–80 #S–01–12
M. SANITARY SEWER / WATER SERVICE SEE GENERAL NOTES.
N. EXISTING OPEN SPACE AREA (LOT AREA MINUS PARKING AND BUILDINGS) = 308 ACRES, 85.3% OF TOTAL LOT AREA.
O. PROPOSED OPEN SPACE AREA = 303 ACRES, 83.9% OF TOTAL LOT (PROPOSED BUILDINGS AND PARKING = 5 ACRES)

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 — 4/25/2002 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."

SIGNATURE OF ENGINEER — 4/22/02 DATE
PRINT NAME BELOW SIGNATURE — Robert A Warner

( ) 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 — 5/6/02 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 — 5/6/02 DATE

Review for HOWARD SCD and meets Technical Requirements.

USDA – Natural Resources Conservation Service — Date 5/8/02

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

Howard SCD — Date 5/8/02

APPROVED: ~~DEPARTMENT OF PUBLIC WORKS~~

CHIEF, BUREAU OF HIGHWAYS — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division MK — Date 5/17/02

Chief, Division of Land Development MP — Date 5/20/02

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 pond construction an provides 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: James E Loesch, PE, CFM — Date 9/18/01
James E Loesch — Date 4/25/2002

2) BY THE ENGINEER:

"I certify that the plan for pond construction, erosion and sediment 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 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."

Design Engineer Signature — Date 4/22/02
Robert A. Warner — Registration Number 13403
Printed Name

3) CERTIFICATION BY PROFESSIONAL:

There are wetlands on the site that will be disturbed, and these plans are under review for a 401 and 404 wetland permit from the state of Maryland and Corp of Engineers with tracking #CENAB–OP–RMS; #01–NT–0362/200165565 (JHU/APL/SWM POND–HOWARD COUNTY, Contact Person: MDE David Boellner (410.631.4179) & Corp of Engineers Ms. Marian Gaul (410.962.4500). Alternative analysis of the project is under review, verbal approval of concept from MDE.

Professional's Signature — Date 4/22/02
Robert A. Warner
Print Name

OWNER BLOCK
DEVELOPER
MR. JAMES E. LOESCH, PE, CFM
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20707

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200 ROCKVILLE MD 20852
TEL (301) 881–2545 FAX (301) 881–3814
AMT FILE # 98–15

Einhorn Yaffee Prescott

DES: B. WARNER					
DRN: S. ITANI					
CHK: S. ITANI					
DATE: 04/19/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND A

COVER SHEET

TAX MAP 41 PARCEL 23
ELECTION DISTRICT 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C1
SHEET 1 OF 24

F–02–40

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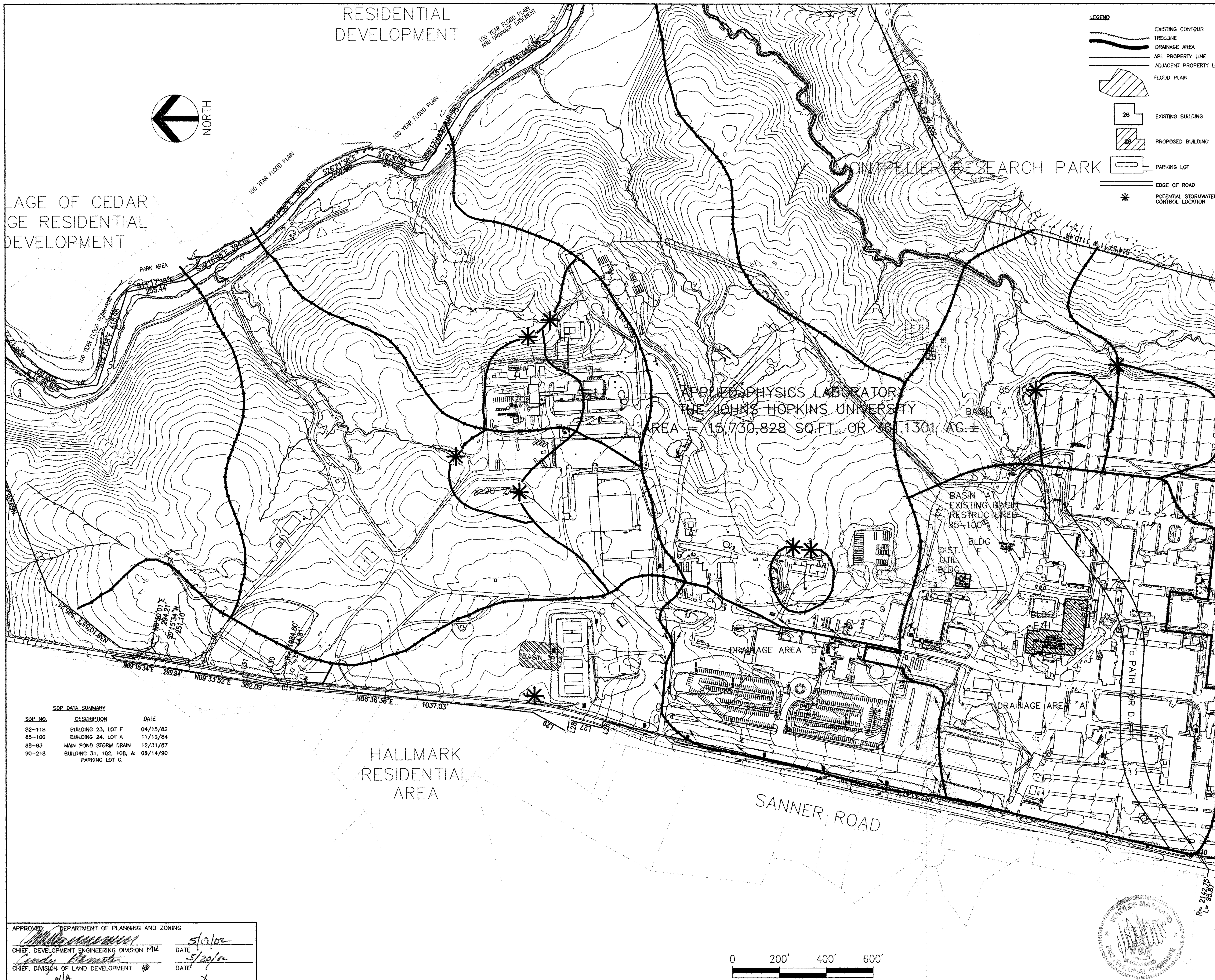


SEDIMENT CONTROL & POND CONSTRUCTION

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

James E. Busch — 4/25/2002
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."

4/22/02
SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE
Robert A. Warner

( ) 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.

5/8/02
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.

5/8/02
HOWARD SOIL CONSERVATION DISTRICT — DATE

SDP DATA SUMMARY

SDP NO.	DESCRIPTION	DATE
82-118	BUILDING 23, LOT F	04/15/82
85-100	BUILDING 24, LOT A	11/19/84
88-83	MAIN POND STORM DRAIN	12/31/87
90-218	BUILDING 31, 102, 108, & PARKING LOT G	08/14/90

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT HB	DATE 5/20/02
DIRECTOR N/A	DATE X

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 # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER
DRN: S. ITANI
CHK: B. WARNER
DATE: 04/19/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND A

OVERALL DRAINAGE AREA

TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET C2

F-02-40

LEGEND

- EXISTING CONTOUR
- TREELINE
- FOREST STAND
- DRAINAGE AREA
- 100 YEAR FLOODPLAIN
- STREAM VALLEY BUFFER
- STREAM SYSTEM
- WETLANDS
- 25' WETLAND BUFFER
- SOIL CLASSIFICATION BOUNDARY
- STREAMS
- DD — DRAINAGE DITCH
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- 8" SAN. — EXISTING SANITARY SEWER
- 8" SAN. — PROPOSED SANITARY SEWER
- 12" W — EXISTING WATER
- 12" W — PROPOSED WATER
- 18" DRAIN — EXISTING STORM DRAIN
- 18" SD — PROPOSED STORM DRAIN
- 18" DRAIN — EXISTING STORM DRAIN TO BE REMOVED
- 12" W — EXISTING WATER TO BE REMOVED
- 8" SAN. — EXISTING SANITARY SEWER TO BE REMOVED
- 8" SAN. — EXISTING SANITARY SEWER TO BE ABANDONED
- OA-1 — OBSERVATION AREA
- A1 — 30" DBH TREE
- A1B2 — SOILS CLASSIFICATION
- PROPOSED INFILTRATION TRENCH
- C.B. C.B. — CATCH BASIN
- M.H. — EXISTING MANHOLE
- S.M.H. — SANITARY SEWER MANHOLE
- PROPOSED MANHOLE
- PROPOSED STORMCEPTOR
- PIV — EXISTING POST INDICATOR VALVE
- WV — EXISTING WATER VALVE
- F.H. — EXISTING FIRE HYDRANT
- C.O. — EXISTING CLEANOUT
- PROPOSED STORM DRAIN CATCH BASIN
- 26 — EXISTING BUILDING
- PROPOSED BUILDING
- PARKING LOT
- EDGE OF ROAD

NORTH

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

2. OWNERSHIP: JOHNS HOPKINS UNIVERSITY (SEE BELOW)

3. THE INFORMATION PROVIDED AND OBTAINED INDICATES THAT TITLE TO THE SUBJECT PROPERTY IS VESTED IN THE FOLLOWING DEEDS:

BEING ALL OF THE FOLLOWING DEEDS:

DEED DATED OCTOBER 9, 1952 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND IN LIBER M.W.B.237, FOLIO 451, WHICH WAS CONVEYED BY GEORGE WOLFF, EVA WOLFF AND M. JEAN DAVIDSON TO THE JOHNS HOPKINS UNIVERSITY.

BEING PART OF THE FOLLOWING DEEDS:

DEED DATED JULY 30, 1952 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND IN LIBER M.W.B. 234, FOLIO 304, WHICH WAS CONVEYED BY RAYMOND D. MOORE AND ELIZABETH A. MOORE TO THE JOHNS HOPKINS UNIVERSITY.

DEED DATED JULY 31, 1952 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND IN LIBER M.W.B.234, FOLIO 336, WHICH WAS CONVEYED BY HOWARD E. WESSEL, DOROTHY L. WESSEL, ROLAND F. WESSEL AND DOROTHY E. WESSEL TO THE JOHNS HOPKINS UNIVERSITY.

DEED DATED NOVEMBER 24, 1953 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND IN LIBER M.W.B. 250, FOLIO 283, WHICH WAS CONVEYED BY JEAN M. DAVIDSON, GEORGE WOLFF AND EVA WOLFF TO THE JOHNS HOPKINS UNIVERSITY.

DEED DATED APRIL 8, 1963 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND IN LIBER 398, FOLIO 244, WHICH WAS CONVEYED BY MILDRED B. PRICE, JAMES N. PRICE AND MILDRED B. PRICE, EXECUTRIX OF THE ESTATE OF SCOTT F. BROWN TO THE JOHNS HOPKINS UNIVERSITY.

DEED DATED MAY 31, 1963 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND IN LIBER 400, FOLIO 625, WHICH WAS CONVEYED BY HERBERT W. WESSEL AND GERTRUDE L. WESSEL TO JOHNS HOPKINS UNIVERSITY.

4. STORMWATER MANAGEMENT POND WILL BE PRIVATELY OWNED AND MAINTAINED.

SEDIMENT CONTROL & POND CONSTRUCTION

( ) BY THE DEVELOPER:

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

[signature] 4/25/2002

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."

[signature] 4/22/02

SIGNATURE OF ENGINEER — DATE

PRINT NAME BELOW SIGNATURE

Robert A. Warner

( ) 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.

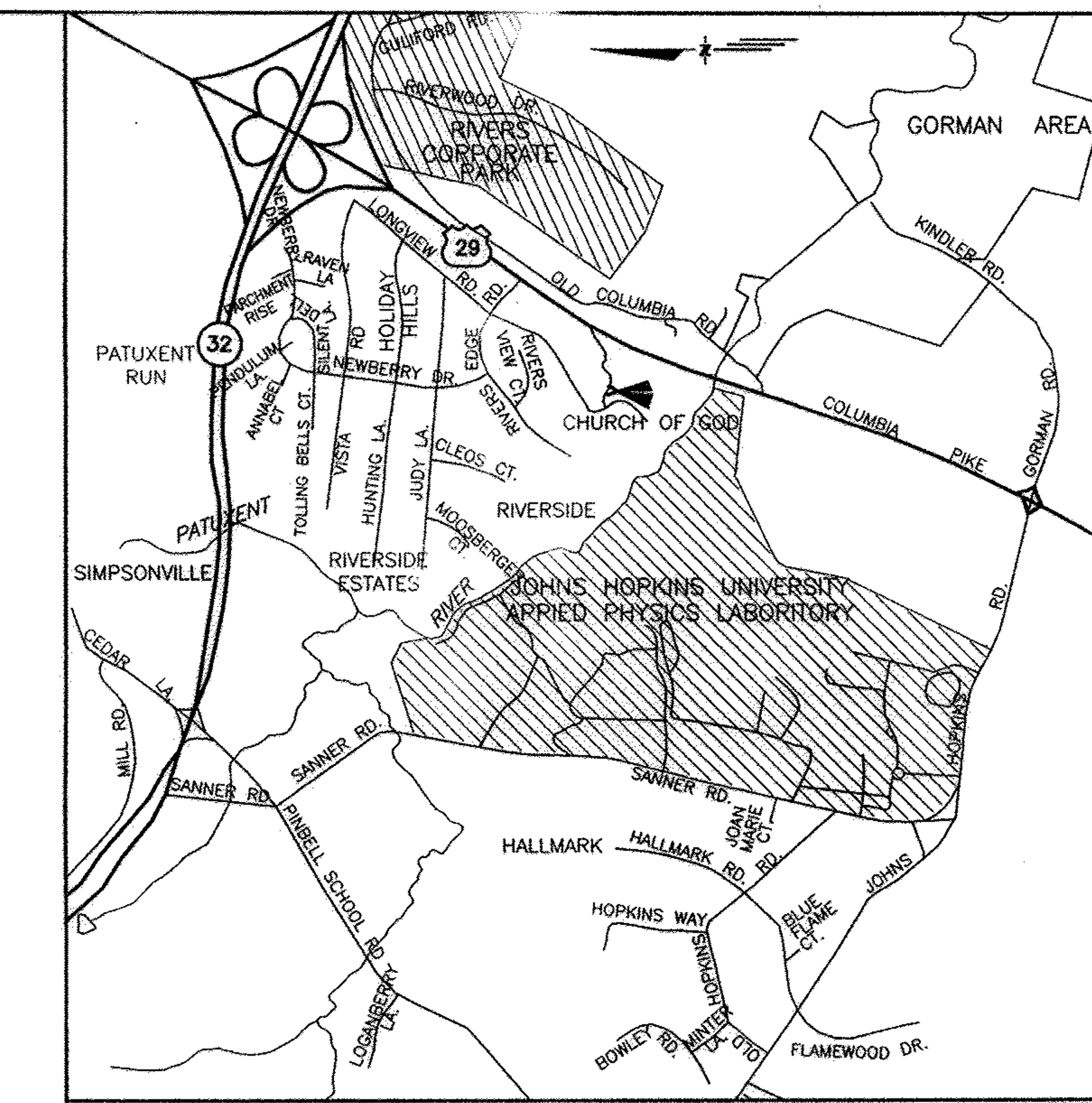
[signature] 5/8/02

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] 5/8/02

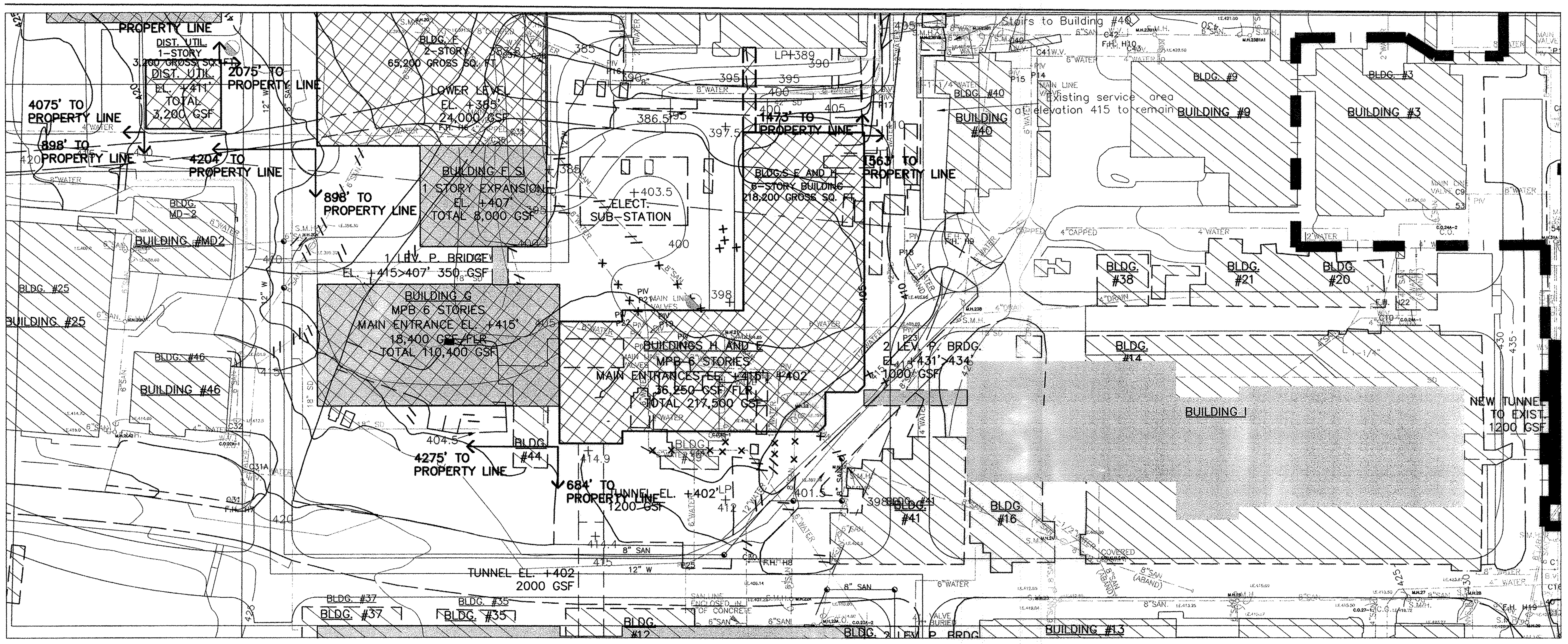
HOWARD SOIL CONSERVATION DISTRICT — DATE



VICINITY MAP

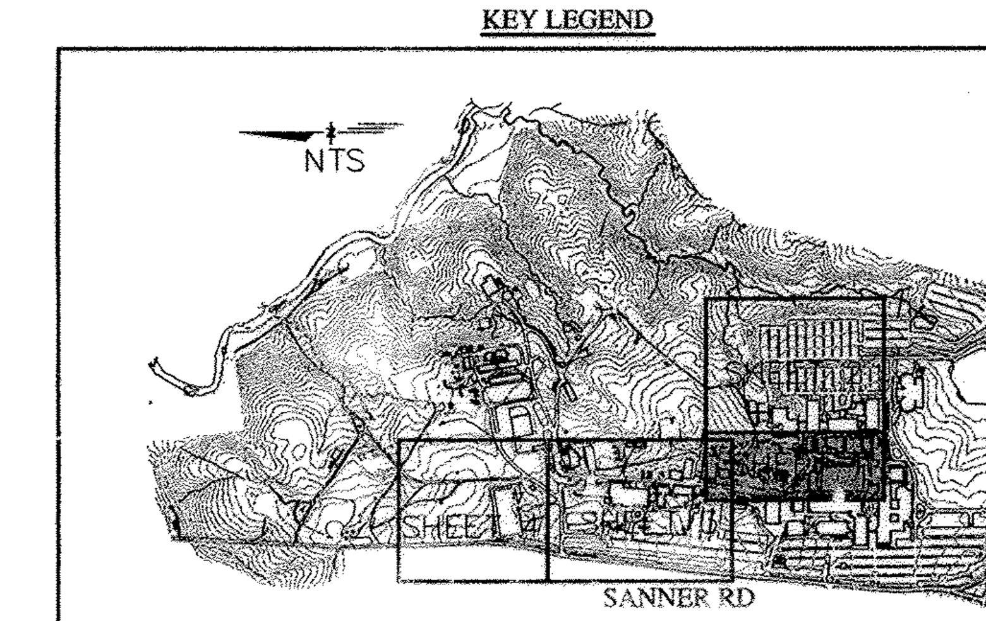
SCALE: 1"=2000'

MATCHLINE A–A



STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER [seal]

KEY LEGEND



APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	5/17/02 DATE
[signature] CHIEF, DIVISION OF LAND DEVELOPMENT	5/20/02 DATE
N/A DIRECTOR	X DATE

OWNER/DEVELOPER

APPLIED PHYSICS LABORATORY–THE JOHNS HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20707

SURVEYOR

WHITMAN, REQUARDT, AND ASSOCIATES
2315 SAINT PAUL STREET
BALTIMORE, MARYLAND 21218

0 50' 100' 150'

AMT
A. MORTONTHOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL (301) 881-2545 FAX (301) 881-0814
AMT FILE # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER						
DRN: S. ITANI						
CHK: B. WARNER						
DATE: 04/19/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND A

DRAINAGE AREA "A"

TAX MAP 41 PARCEL 3
ELECTION DISTRICT 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET C3

F-02-40

SEDIMENT CONTROL & POND CONSTRUCTION

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

Stephen E. Besch — 4/25/2002
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 — 4/22/02
SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE
Robert A. Warner

( ) 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 5/16/02

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

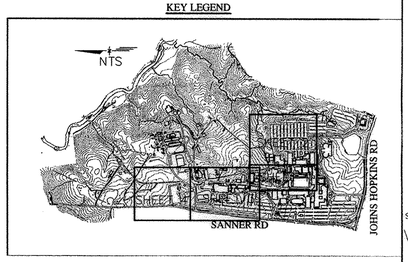
HOWARD SOIL CONSERVATION DISTRICT — DATE 5/17/02

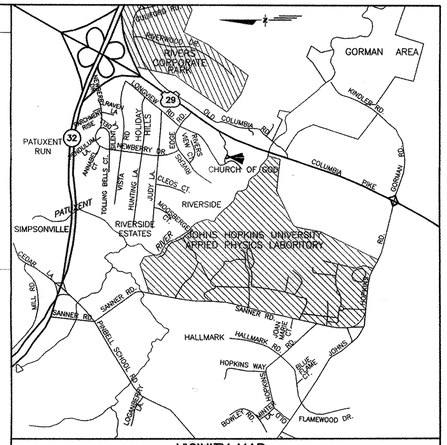
NORTH

NOTE:

1. NO SWM PERIMETER LANDSCAPING IS REQUIRED BECAUSE BASIN "A" IS INTERNAL TO THE SITE AND PLANTINGS ARE PROVIDED IN THE FACILITY.

KEY LEGEND

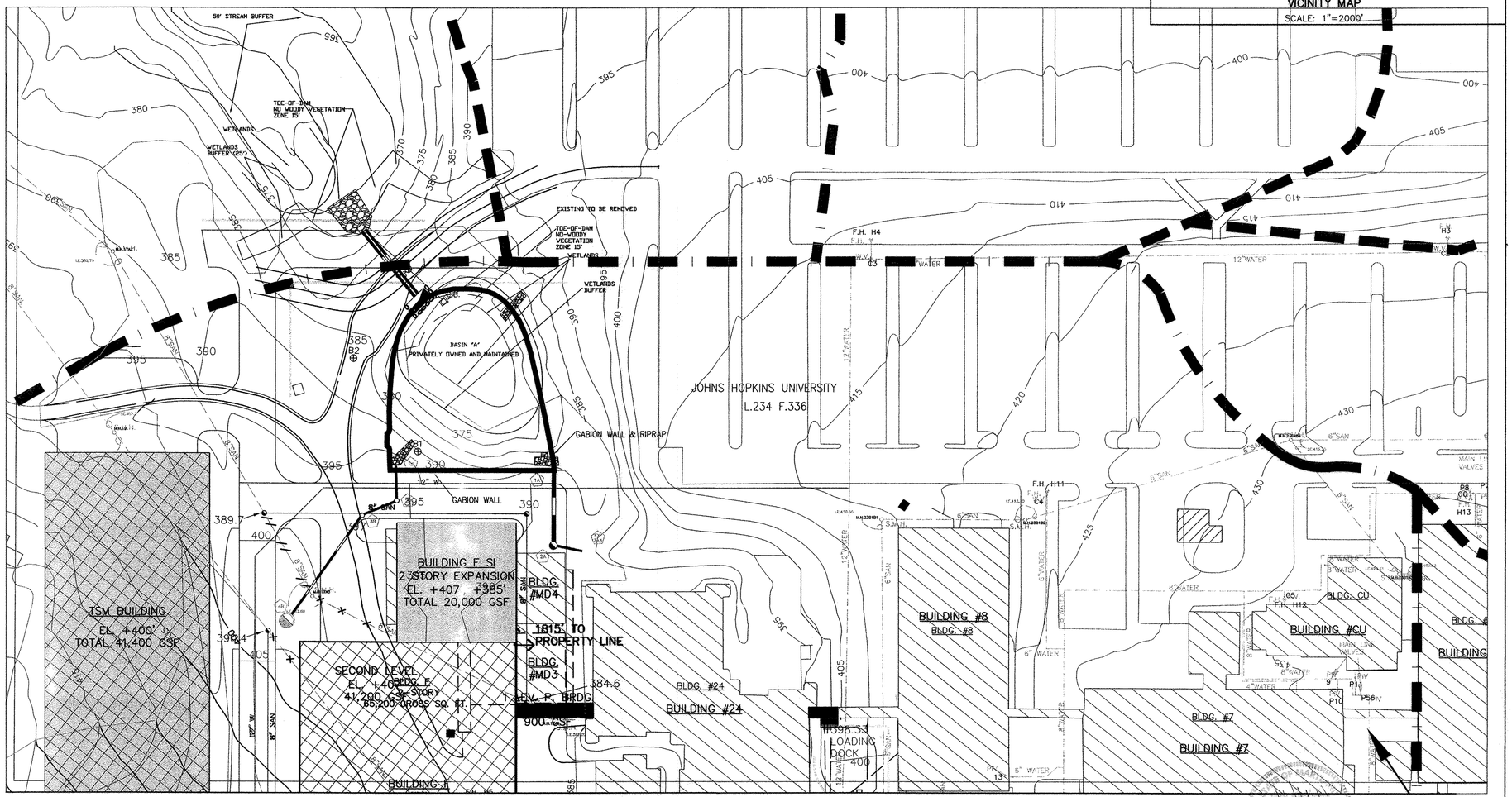




VICINITY MAP
SCALE: 1"=2000'

LEGEND

- EXISTING CONTOUR
- TREELINE
- FOREST STAND
- DRAINAGE AREA
- 100 YEAR FLOODPLAIN
- STREAM VALLEY BUFFER
- STREAM SYSTEM
- WETLANDS
- 25' WETLAND BUFFER
- SOIL CLASSIFICATION BOUNDARY
- STREAMS
- DRAINAGE DITCH
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- 8" SAN. EXISTING SANITARY SEWER
- 8" SAN. PROPOSED SANITARY SEWER
- 12" W EXISTING WATER
- 12" W PROPOSED WATER
- 18" DRAIN EXISTING STORM DRAIN
- 18" SD PROPOSED STORM DRAIN
- 18" DRAIN EXISTING STORM DRAIN TO BE REMOVED
- 12" W EXISTING WATER TO BE REMOVED
- 8" SAN. EXISTING SANITARY SEWER TO BE REMOVED
- 8" SAN. EXISTING SANITARY SEWER TO BE ABANDONED
- OA-1 OBSERVATION AREA
- A1 30" DBH TREE
- A1B2 SOILS CLASSIFICATION
- PROPOSED INFILTRATION TRENCH
- C.B. C.B. CATCH BASIN
- M.H. EXISTING MANHOLE
- S.M.H. SANITARY SEWER MANHOLE
- PROPOSED MANHOLE
- PROPOSED STORMCEPTOR
- PIV EXISTING POST INDICATOR VALVE
- WV EXISTING WATER VALVE
- F.H. EXISTING FIRE HYDRANT
- C.O. EXISTING CLEANOUT
- PROPOSED STORM DRAIN CATCH BASIN
- 26 EXISTING BUILDING
- PROPOSED BUILDING
- PARKING LOT
- EDGE OF ROAD



MATCHLINE A-A

0 50' 100' 150'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/20/02
DIRECTOR N/A — DATE

OWNER/DEVELOPER
APPLIED PHYSICS LABORATORY-
THE JOHNS HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20707

SURVEYOR
WHITMAN, REQUART AND ASSOCIATES
2315 SAINT PAUL STREET
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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 # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER
DRN: S. ITANI
CHK: B. WARNER
DATE: 04/19/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

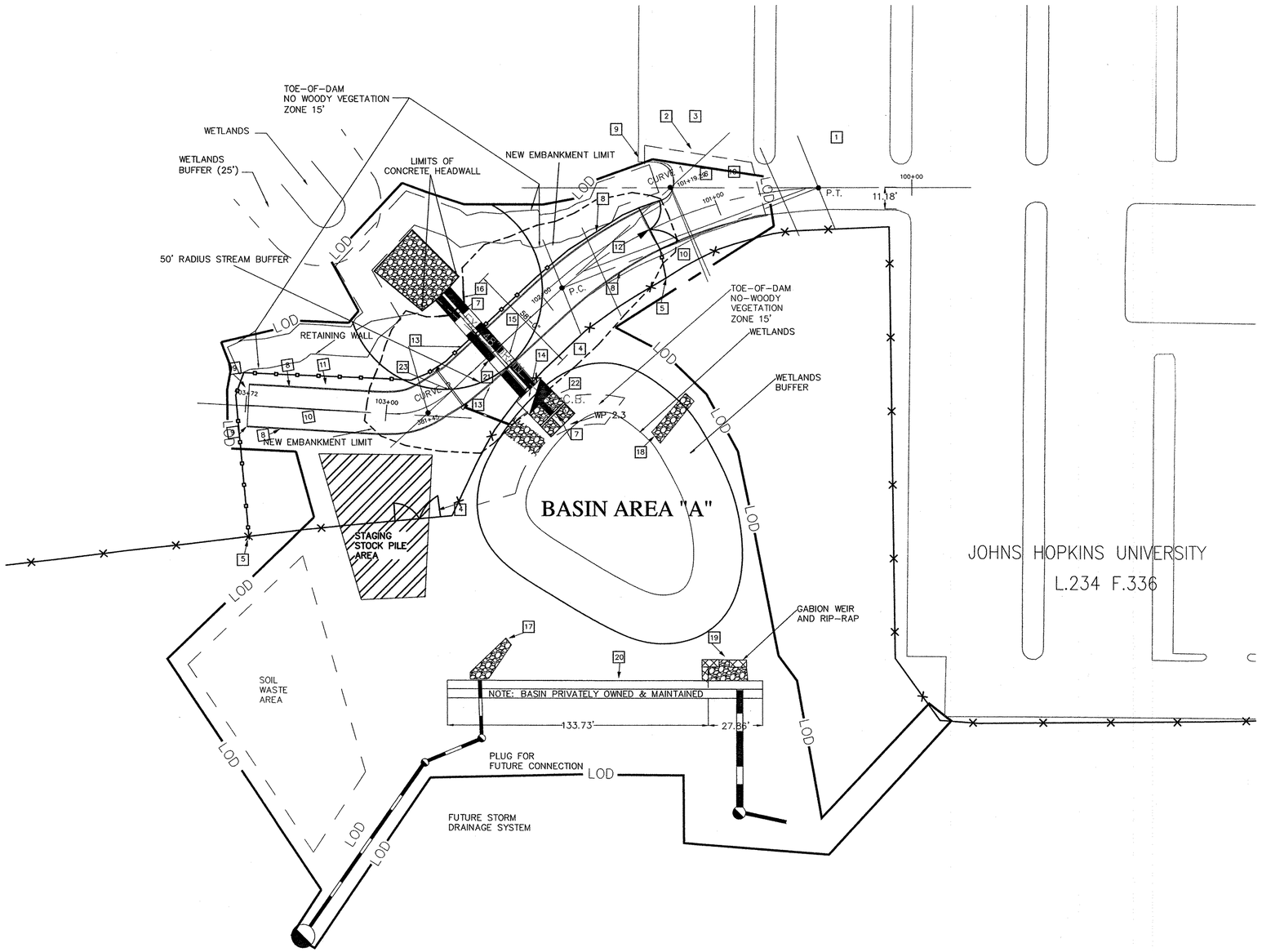
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND A

DRAINAGE AREA "A"

TAX MAP 41 PARCEL 125
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C4
SHEET 4 OF 24

F-02-40



1. EXISTING ASPHALT PAVEMENT
2. LIMIT OF EXISTING ASPHALT PAVEMENT REMOVAL
3. SAWCUT EDGE OF PAVEMENT
4. REMOVE EXISTING SECURITY CHAIN LINK FENCE, FENCE POST, GATE, AND CONCRETE POST FOUNDATIONS (2' DIA. X 5' DEEP).
5. LIMIT OF FENCE REMOVAL
6. REMOVE EXISTING ASPHALT PAVEMENT (6" DEEP)
7. REMOVE EXISTING BASIN OUTLET STRUCTURE (5' X 8' X 13' DEEP) AND 48" OUTLET PIPE (90' LONG).
8. NEW CONCRETE CURB & GUTTER (SEE DETAIL ON DRIVEWAY SECTION)
9. LIMIT OF NEW CURB & GUTTER
10. NEW HOT MIX ASPHALT PAVEMENT (SEE DRIVEWAY SECTION DETAIL).
11. NEW SECURITY CHAINLINK FENCE (SEE DETAIL) SET 2' BEHIND CURB WHERE IT ADJOINS CURB.
12. NEW SECURITY CHAINLINK FENCE GATE: 26' OPENING, 2-LEAF 180° SWING (SEE DETAIL).
13. NEW INLET SHA STANDARD NO. MD-374.61 AND MD-374.67 (5' LONG OPENINGS)
14. NEW BASIN CONCRETE OUTLET STRUCTURE (SEE DETAIL).
15. STATION 102+34 AND 102+40.5 CENTER LINES OF NEW 2-48" RCP BASIN OUTLET PIPES, PIPES ALIGNMENT IS PERPENDICULAR TO DRIVEWAY CENTER LINE.
16. NEW CONCRETE HEADWALL MD SHA STD. #B-48" MD 352.01 MODIFIED FOR TWO PIPES WITH CL. #2 RIP-RAP (SEE PROFILE AND DETAIL SECTION).
17. NEW CONCRETE HEADWALL MD SHA STD. TYPE C#MD354.01 FOR 18" RCP WITH CL. #1 RIP-RAP (SEE PROFILE AND DETAIL SECTION).
18. NEW CL. #1 RIP-RAP "V" TYPE CHANNEL - SLOPE PROTECTION 7' X 27' X 1.5' DEEP WITH 2:1 SIDE SLOPES ON MD SHA TYPE #F GEOTEXTILE.
19. NEW CONCRETE HEADWALL MD SHA STD TYPE C#MD 354.01 FOR 60" RCP WITH CL. #1 RIP-RAP / GABION OUTLET PROTECTION (SEE DETAIL AND PROFILE).
20. NEW 6' HIGH GABION WALL (SEE DETAIL).
21. STATION 102+66 CENTERLINE OF NEW 12" RCP INLET #3D AND #2D STORM DRAIN PIPES
22. NEW RIP-RAP CL #1 18" DEEP
23. INLET PIPE LOCATED AT STATION 102+66

SEDIMENT CONTROL & POND CONSTRUCTION

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

SIGNATURE OF DEVELOPER — DATE 4/25/2002
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."

SIGNATURE OF ENGINEER — DATE 4/24/02
PRINT NAME BELOW SIGNATURE
Robert A. Warner

( ) 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 5/6/02

( ) 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 5/8/02

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/29/02
DIRECTOR N/A — DATE X

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER

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 # 98-153.01

Einhorn Yaffee Prescott

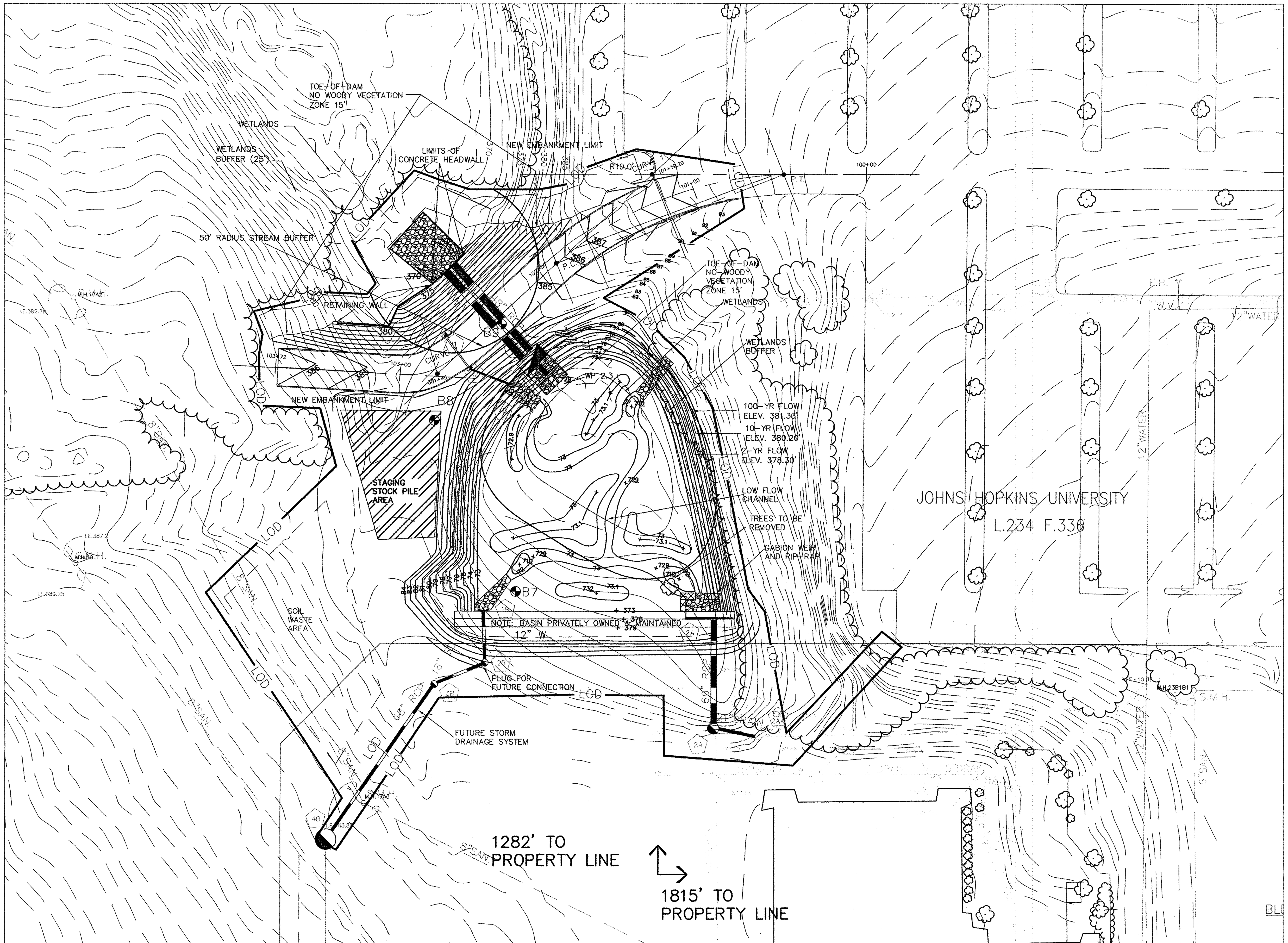
DES: B. WARNER
DRN: S. ITANI
CHK: B. WARNER
DATE: 04/24/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY - POND A
SITE LAYOUT
PLAN
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS 1" = 30'
SHEET C5
SHEET 5 OF 24

F-02-40



NOTE:

1. AREA "C" VALUE: 0.85
2. AREA "A" IMPERVIOUS PERCENTAGE: 63%
3. AREA "A" BASIN HAZARD CLASSIFICATION: "A"
4. AREA "A" BASIN HYDRAULICS FOR 43.2 ACRE AREA:

YEAR	INFLOW (CFS)	RELEASE / DISCHARGE (CFS)	STORAGE VOLUME (ACRE-FT)
2 YEAR	69.66	61.47	1.92
10 YEAR	162.75	127.33	2.90
100 YEAR	234.83	225.61	3.50

SEDIMENT CONTROL & POND CONSTRUCTION

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SIGNATURE OF DEVELOPER — DATE 4/25/2002
PRINT NAME BELOW SIGNATURE

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SIGNATURE OF ENGINEER — DATE 4/22/02
PRINT NAME BELOW SIGNATURE
Robert A. Warner

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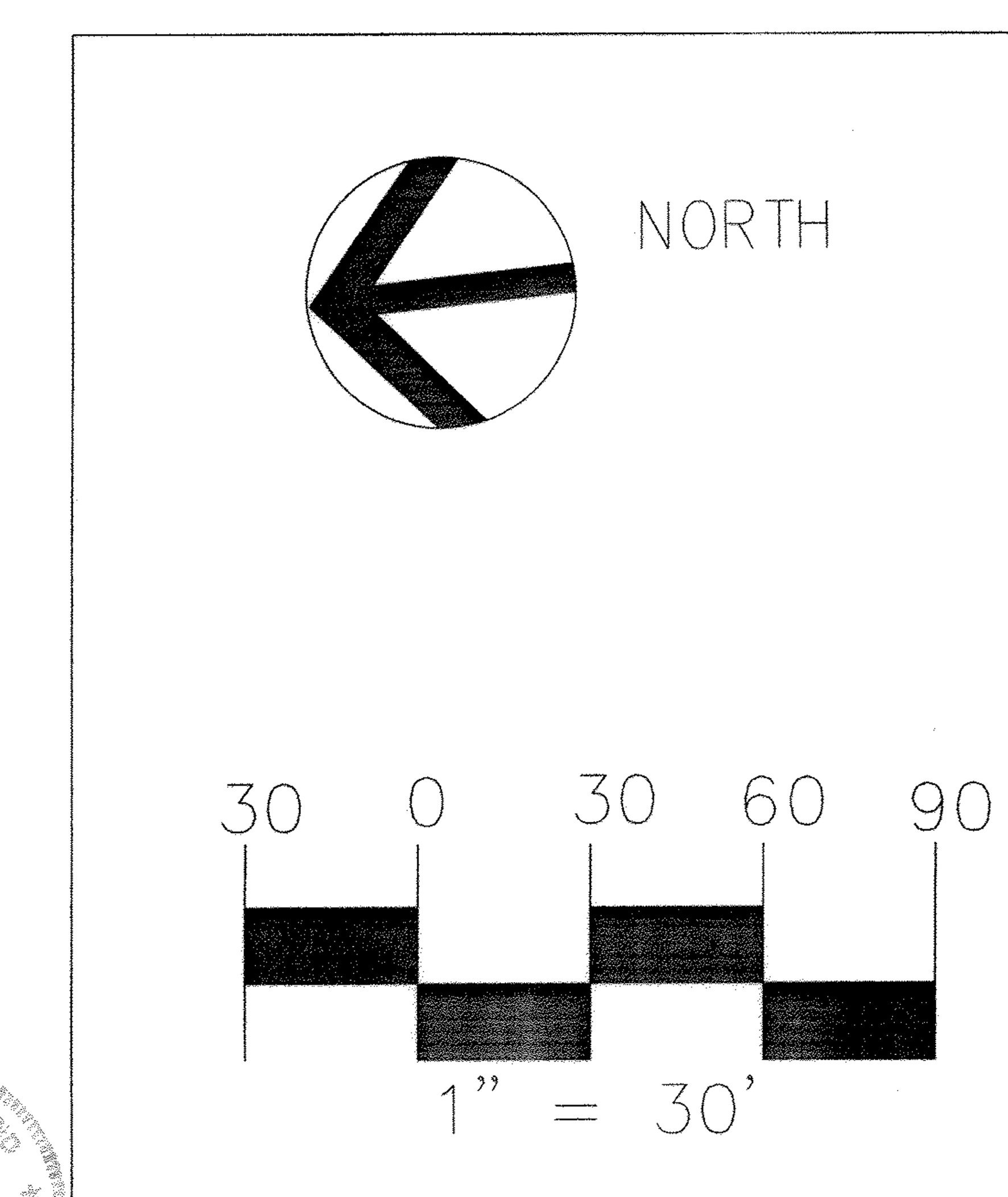
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 5/8/02

( ) 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 5/8/02



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT HB	DATE 5/20/02
DIRECTOR N/A	DATE X

AMT
A. MORTONTHOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
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AMT FILE # 98-153

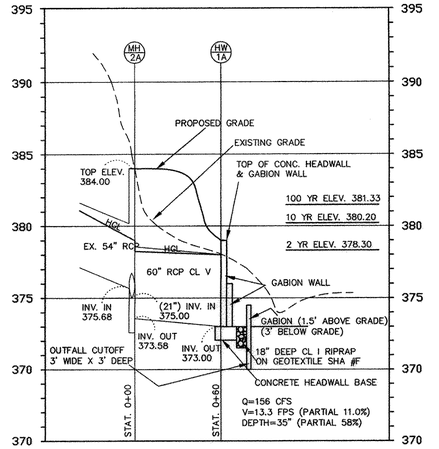
Einhorn Yaffee Prescott

DES: B. WARNER						
DRN: S. ITANI						
CHK: B. WARNER						
DATE: 04/24/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

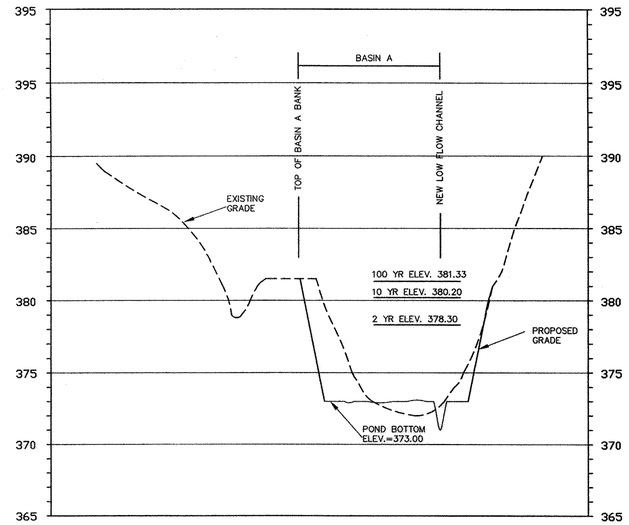
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND A
POND GRADING/DRAINAGE PLAN
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS 1" = 30'
SHEET C6
SHEET 6 OF 24

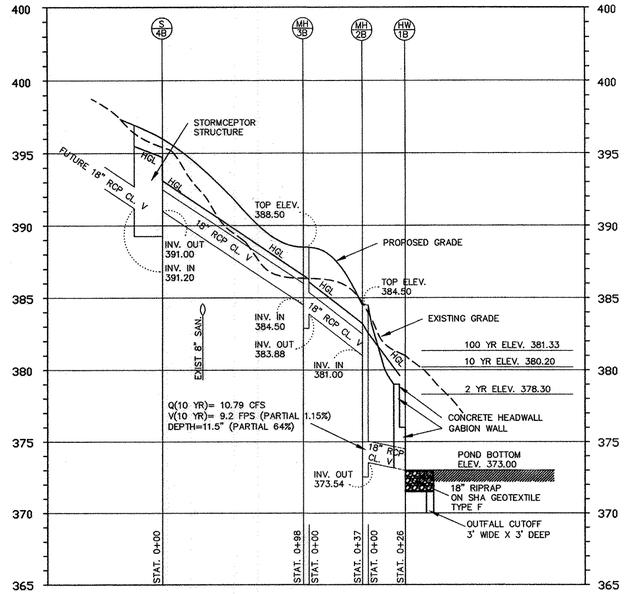
F-02-40



1 PIPE PROFILE THRU 54" & 60" RCP
SCALE: HORIZ. 1"=50'
VERT. 1"=5'



2 POND SECTION A-A
SCALE: HORIZ. 1"=50'
VERT. 1"=5'



5 PIPE PROFILE – 18" RCP
SCALE: HORIZ. 1"=50'
VERT. 1"=5'

SEDIMENT CONTROL & POND CONSTRUCTION

( ) BY THE DEVELOPER:
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SIGNATURE OF DEVELOPER
PRINT NAME BELOW SIGNATURE
4/25/2002 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
PRINT NAME BELOW SIGNATURE
Robert A. Warner
4/26/02 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
5/6/02 DATE

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

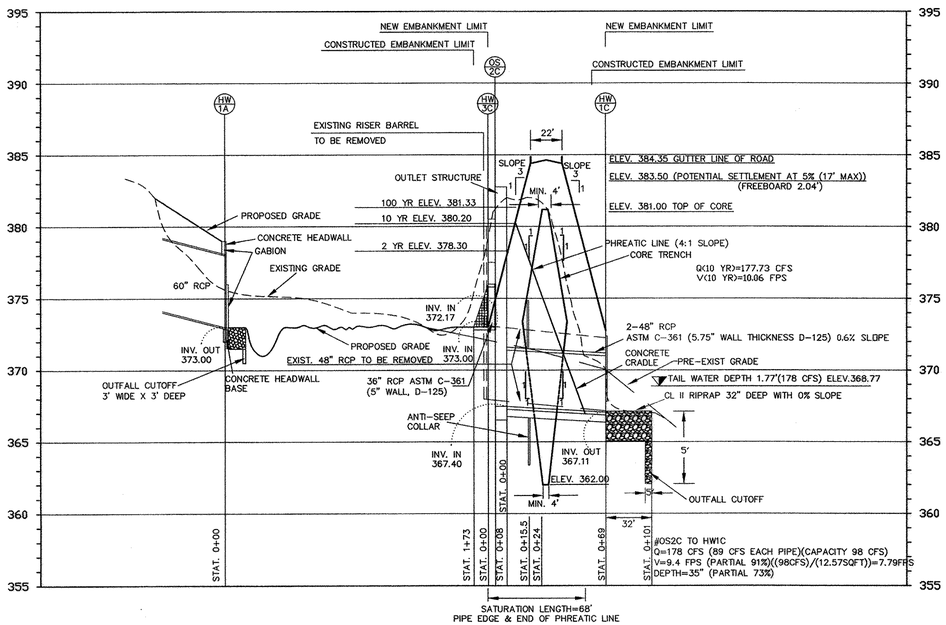
HOWARD SOIL CONSERVATION DISTRICT
5/6/02 DATE

STORM DRAIN PIPE SCHEDULE

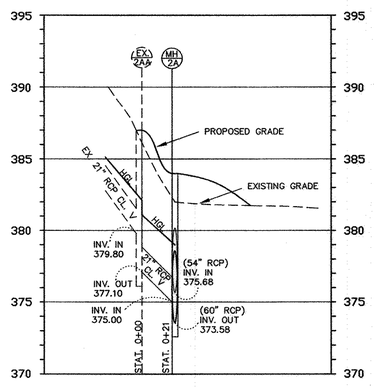
FROM	TO	SIZE (INCH)	LENGTH (FEET)	SLOPE %	FLOW CAP.(cfs)	10-YRS Q (cfs)	VELOCITY (fps)	PIPE TYPE
MH2A	HW1A	60	60	1%	237.00	155.98	12.07	RCP
MH2AA	MH2A	21	21	10%	46.52	13.16	19.34	RCP
S4B	MH3B	18	98	6.6%	25.05	10.79	14.18	RCP
MH3B	MH2B	18	37	7.8%	27.24	10.79	15.41	RCP
MH2B	HW1B	18	26	2.1%	14.13	10.79	8	RCP
OS-2C	HW1C	48	69	0.6%	240	127	11.6	RCP
I-3D	I-2D	12	22	9%	9	0.7	4.5	RCP
I-2D	HW-1D	12	18	9%	9	1.8	4.5	RCP

STORM DRAIN STRUCTURE SCHEDULE

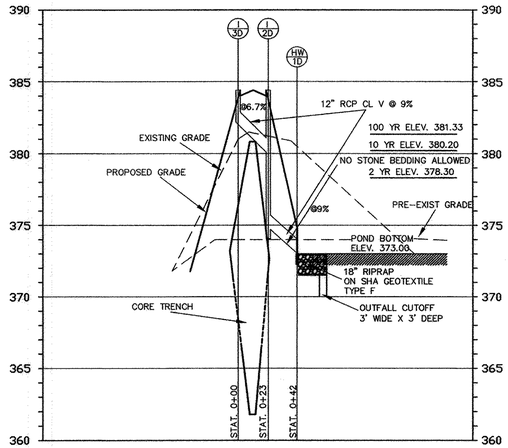
STRUC. No	TYPE	STANDARD No.	TOP ELEVATION	SIZE(ft)	INV. IN	INV. OUT	COMMENT
EX.MH-2AA	MH	–	387.00	–	379.80	377.10	EXIST. MANHOLE
MH-2A	MH	SHA # MD-384.01	384.00	–	375.68 375.00	373.58	MANHOLE PRECAST
HW-1A	HW	SHA # MD-354.01	379.00	–	373.00	–	HEADWALL CONC. SEE SHEET C11
S-4B	STORM-CEPTOR	–	396.00	–	391.20	391.00	SEE DETAIL SHEET C12
MH-3B	MH	SHA # MD-384.01	388.50	–	384.50	383.88	MANHOLE PRECAST
MH-2B	MH	SHA # MD-384.01	384.50	–	381.00	373.54	MANHOLE PRECAST
HW-1B	HW	SHA # MD-354.01	379.00	–	–	373.00	HEADWALL CONC. SEE SHEET C11
HW-1C	HW	SHA # MD-352.01	372.00	–	–	369.09	HEADWALL CONC. W/ 2 PIPES (SEE SHEET C11)
OS-2C	OUTLET STRUCTURE	–	381.50	–	–	–	–
HW-3C	HW	SHA # MD-354.01	376.00	–	–		HEADWALL CONC. SEE SHEET C11
HW-1D	HW	SHA #MD-354.01	378.00 GUTTER	–	–	373.00	HEADWALL CONC.
I-2D	INLET	SHA # MD-374.61	384.03	5' WIDE	380.50	374.62	INLET CONC.
I-3D	INLET	SHA # MD-374.67	384.03	5' WIDE	–	381.97	INLET CONC.



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



3 PIPE PROFILE – 21" RCP
SCALE: HORIZ. 1"=50'
VERT. 1"=5'



3 PIPE PROFILE – 12" SD PIPE
SCALE: HORIZ. 1"=50'
VERT. 1"=5'

STORM DRAIN COMPUTATION SHEET

COMPUTED BY: PCF DATE: 09/01 PROJECT: APL-JHU
CHECKED BY: RAW DATE: 09/01 STORM FREQUENCY: 10YEARS

MANNING'S "N" (RCP) = 0.012

PIPE STRUCTURE FROM (1)	TO (2)	DRAINAGE AREA INC (AC) (3)	TOTAL (AC) (4)	RUN OFF COEFF "C" (5)	"AREA"X"C" INC (AC) (6)	TOTAL (AC) (7)	TIME OF CONC. SYSTEM (MIN) (8)	RAINFALL INTENSITY "I" (IN/HR) (9)	RUNOFF "Q" (CFS) (10)	PIPE DIAMETER (IN) (11)	PIPE LENGTH (ft) (12)	MIN. PIPE SLOPE (1/f) (13)	ACTUAL PIPE SLOPE (1/f) (14)	VELOCITY (FPS) (15)	TIME IN PIPE (MIN) (16)	PIPE "Q" CAPAC. (CFS) (17)
S4B	MH3B	–	2.99	0.87	2.60	2.60	25.20	4.15	10.79	18	98	0.012	0.066	14.18	0.12	25.05
MH3B	MH2B	–	2.99	0.87	2.60	2.60	25.20	4.15	10.79	18	37	0.012	0.078	15.41	0.04	27.24
MH2B	HW1B	–	2.99	0.87	2.60	2.60	25.20	4.15	10.79	18	26	0.012	0.021	8.00	0.05	14.13
EX2AA	MH2A	–	2.70	0.87	2.35	2.35	13.80	5.60	13.16	21	21	0.008	0.100	19.34	0.02	46.52
MH2A	HW1A	–	43.20	0.87	37.58	37.58	25.20	4.15	155.96	60	60	0.004	0.010	12.07	0.08	237.00
OS2C	HW1C	–	44.80	(SEE BASIN A COMPUTATIONS)					178	2 (48")	69	0.0017	0.006	9.4 *	0.12	240
I-3D	I-2D	"	0.11	0.95	0.10	0.10	5.0	7.0	0.7	12	22	0.0005	0.09	4.5*	0.08	9
I-2D	HW1D	0.16	0.27	0.95	0.15	0.25	5.0	7.0	1.8	12	18	0.0035	0.09	4.5*	0.07	9

* PARTIAL FLOW VELOCITY

NOTES:
ALL RCP PIPES SHALL HAVE RUBBER GASKETS
ASTM C-361

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/20/02
DIRECTOR N/A — DATE X

STATE OF MARYLAND — ROBERT A. WARNER — REGISTERED PROFESSIONAL ENGINEER

A. MORTONTHOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL (301) 881-2565 FAX (301) 881-0815
AMT FILE # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER
DRN: P. FRIAS
CHK: B. WARNER
DATE: 04/19/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
SWM PROFILES / STRUCTURE SCHEDULE
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C7
SHEET 7 OF 24

F-02-40

SEDIMENT CONTROL & POND CONSTRUCTION

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

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."

SIGNATURE OF ENGINEER DATE 4/22/02
PRINT NAME BELOW SIGNATURE
Robert A. Warner

( ) 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 5/8/02

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

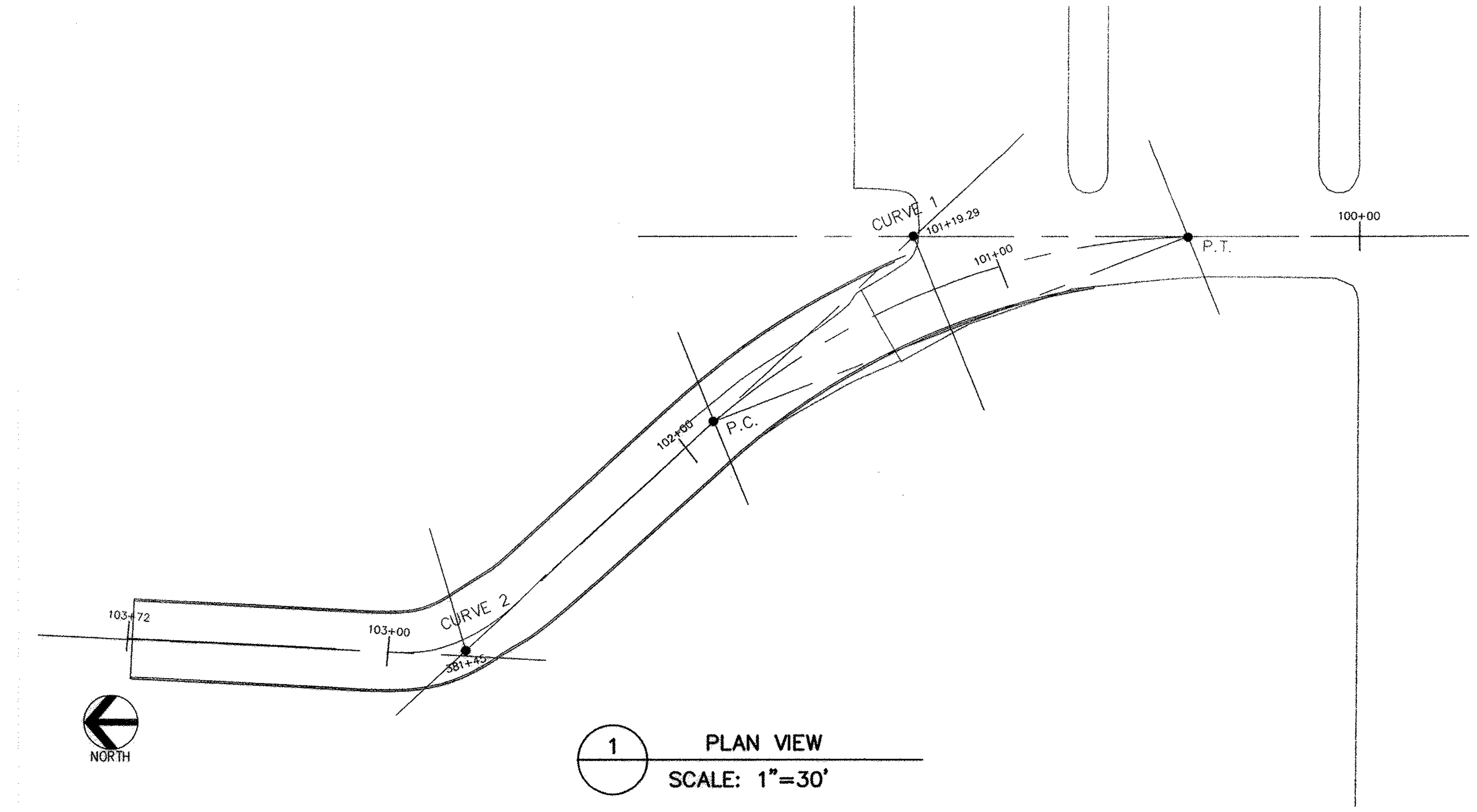
HOWARD SOIL CONSERVATION DISTRICT DATE 5/8/02

CURVE #2

PI STA. 102+80.98
Δ = 60.63'
D = 124.56'
R = 46.00'
T = 26.90'
L = 48.68
E = 7.29'
PC = 102+54.08
PT = 103+2.76

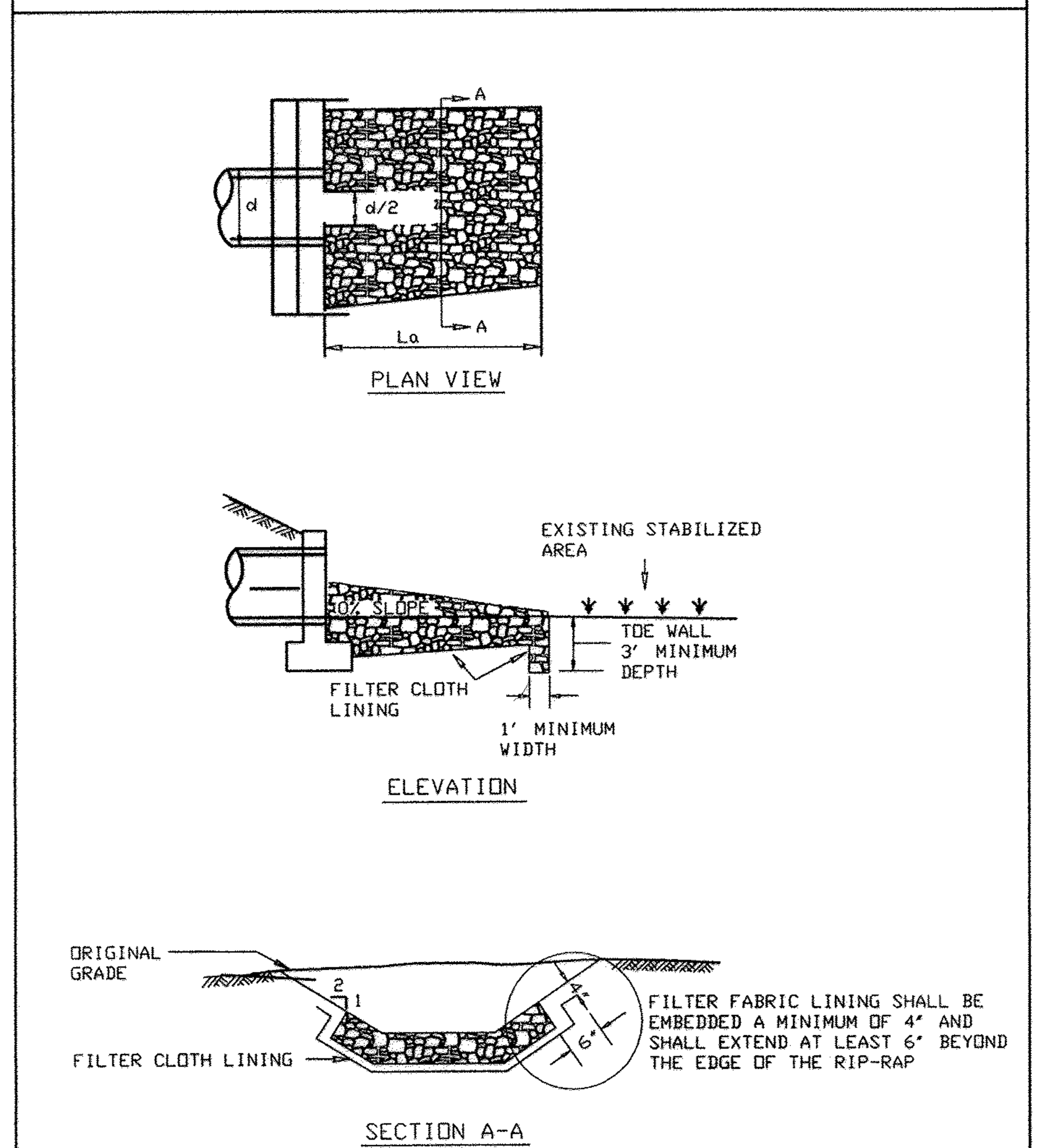
CURVE #1

PI STA. 101+19.14
Δ = 39.11'
D = 27.28'
R = 210'
T = 74.60'
L = 143.36
E = 12.86'
PC = 100+44.54
PT = 101+87.90



1 PLAN VIEW
SCALE: 1"=30'

DETAIL 27 - ROCK OUTLET PROTECTION III



NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 18 - 10	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ROCK OUTLET PROTECTION

Construction Specifications

1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.

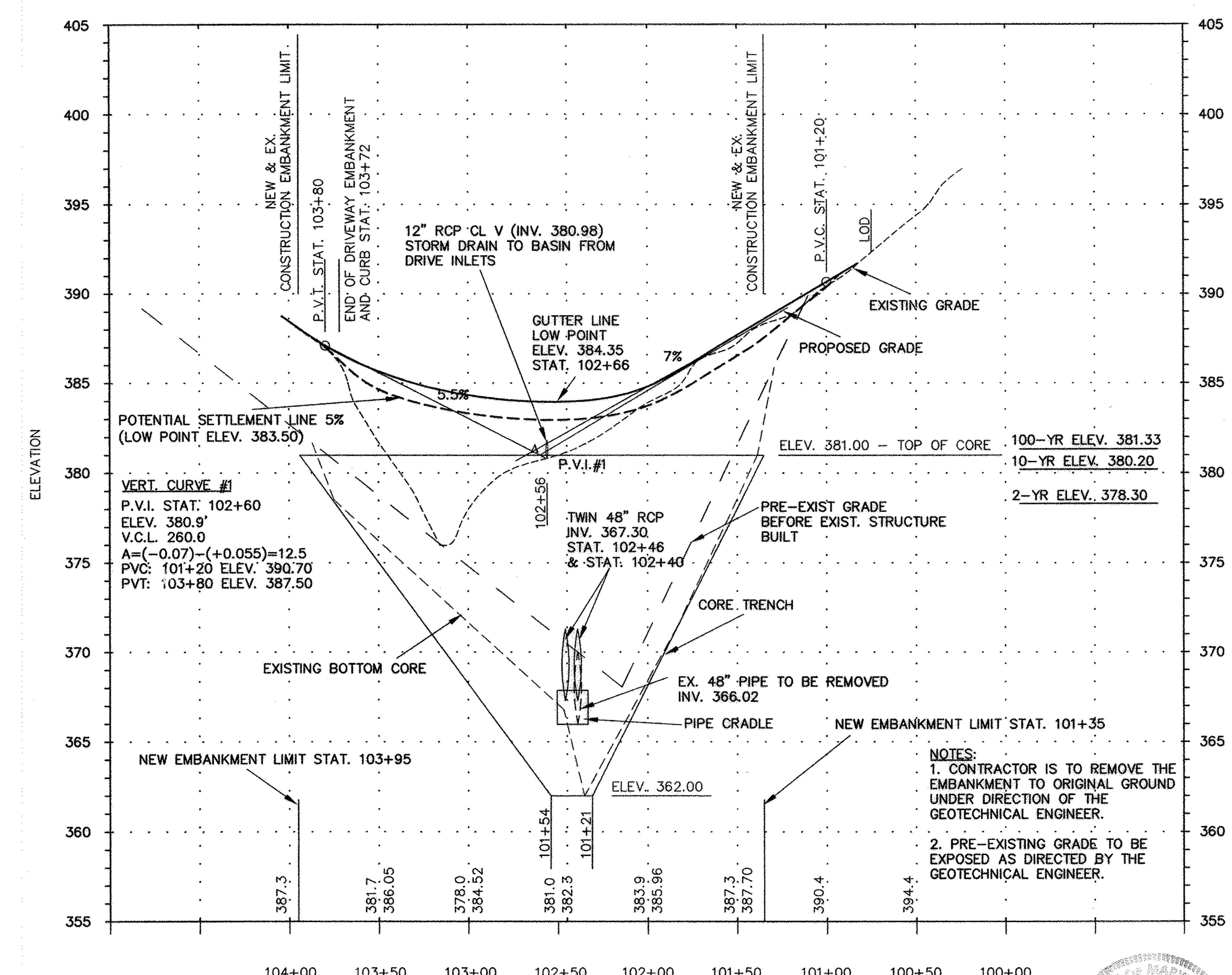
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.

3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.

4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 18 - 8A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



2 PROFILE OF TOP OF DAM AND DRIVEWAY CENTERLINE
SCALE: VERT. 1"=5'
HORIZ. 1"=50'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/20/02
DIRECTOR N/A	DATE X

A. MORTON THOMAS AND ASSOCIATES, INC.
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12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
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AMT FILE # 98-153

Einhorn Yaffee Prescott

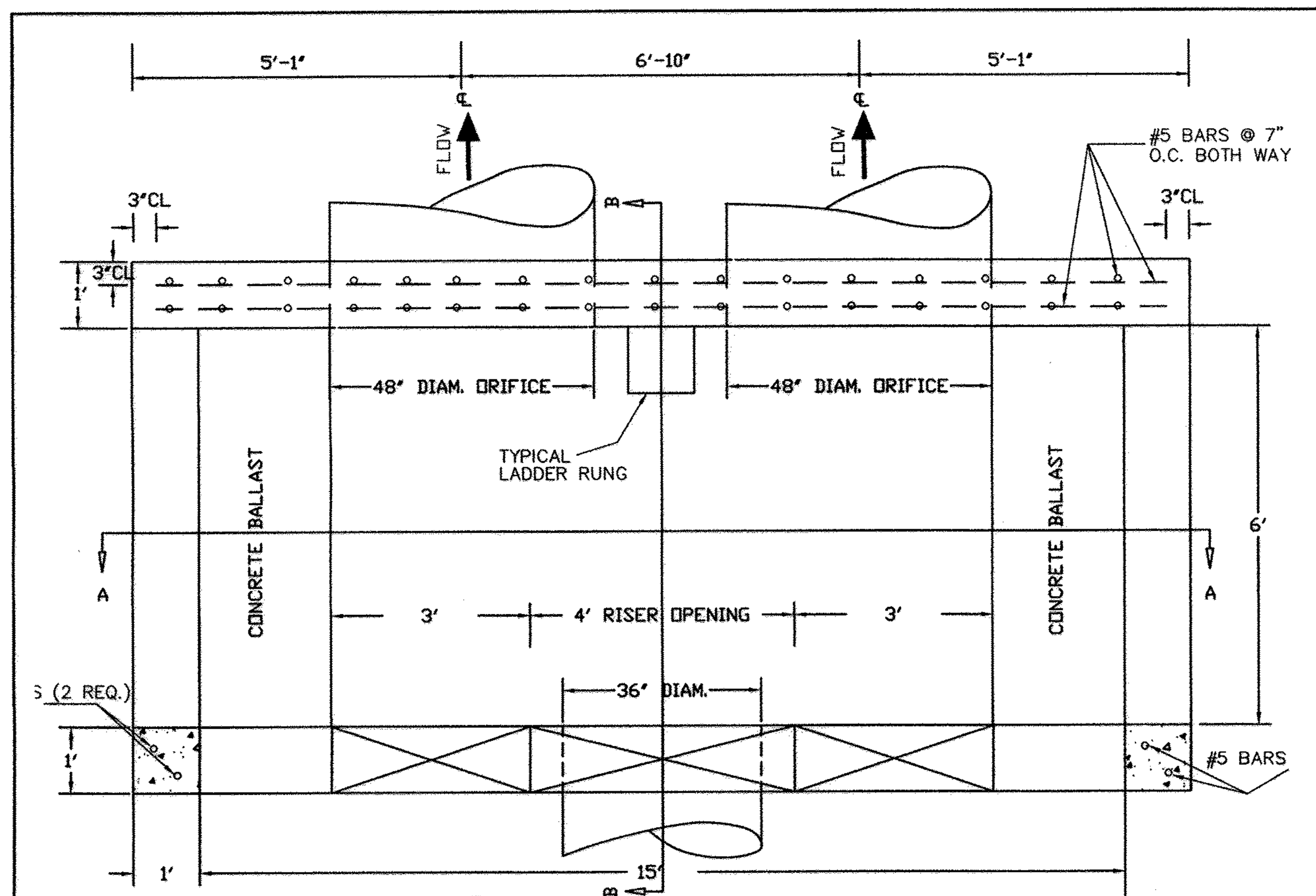
DES: B. WARNER						
DRN: S. ITANI						
CHK: B. WARNER						
DATE: 04/19/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY - POND A
EMBANKMENT/PERIMETER ROAD PROFILE
TAX MAP 41 PARCEL 23
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

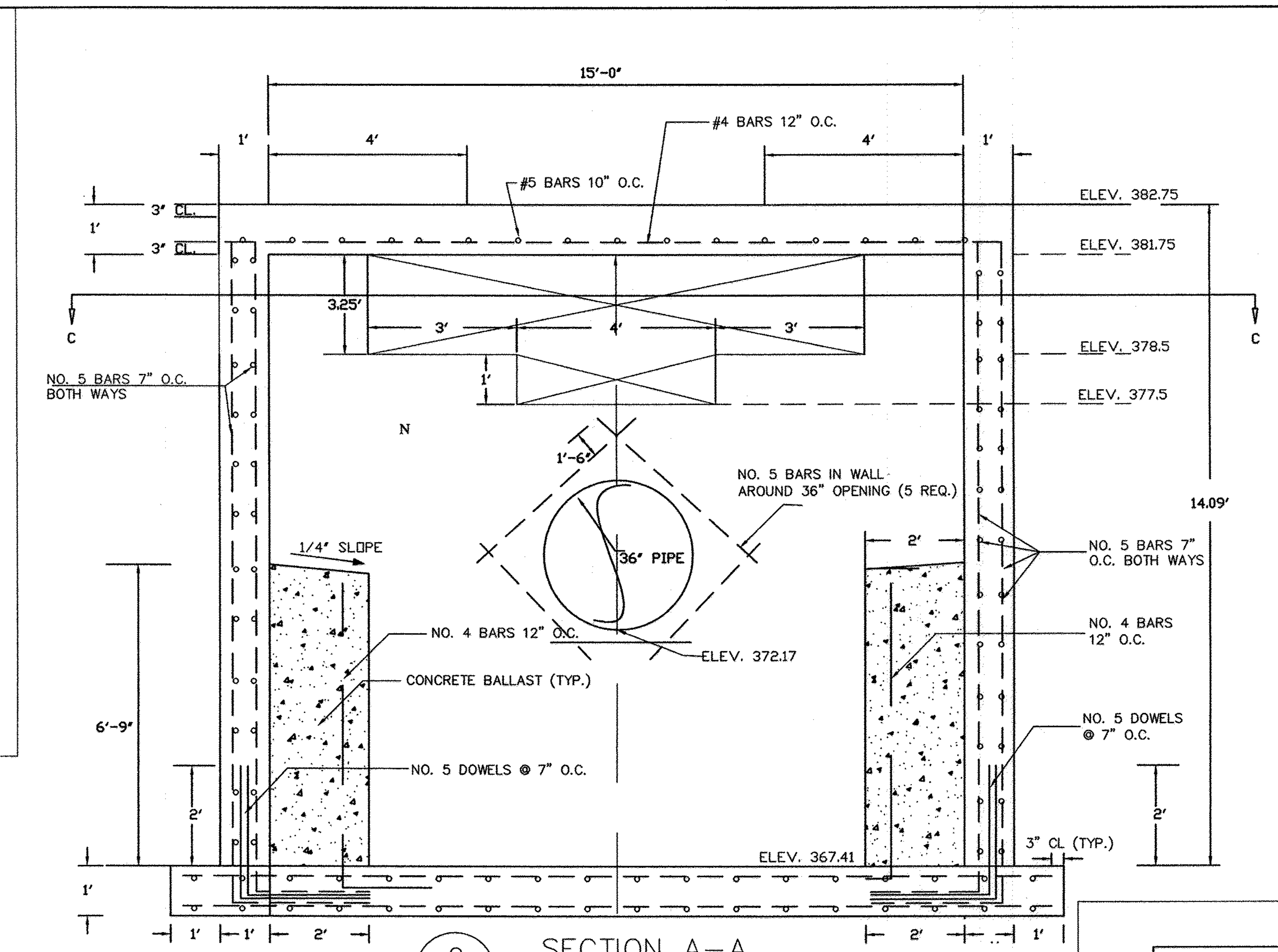
SCALE AS SHOWN

SHEET C8

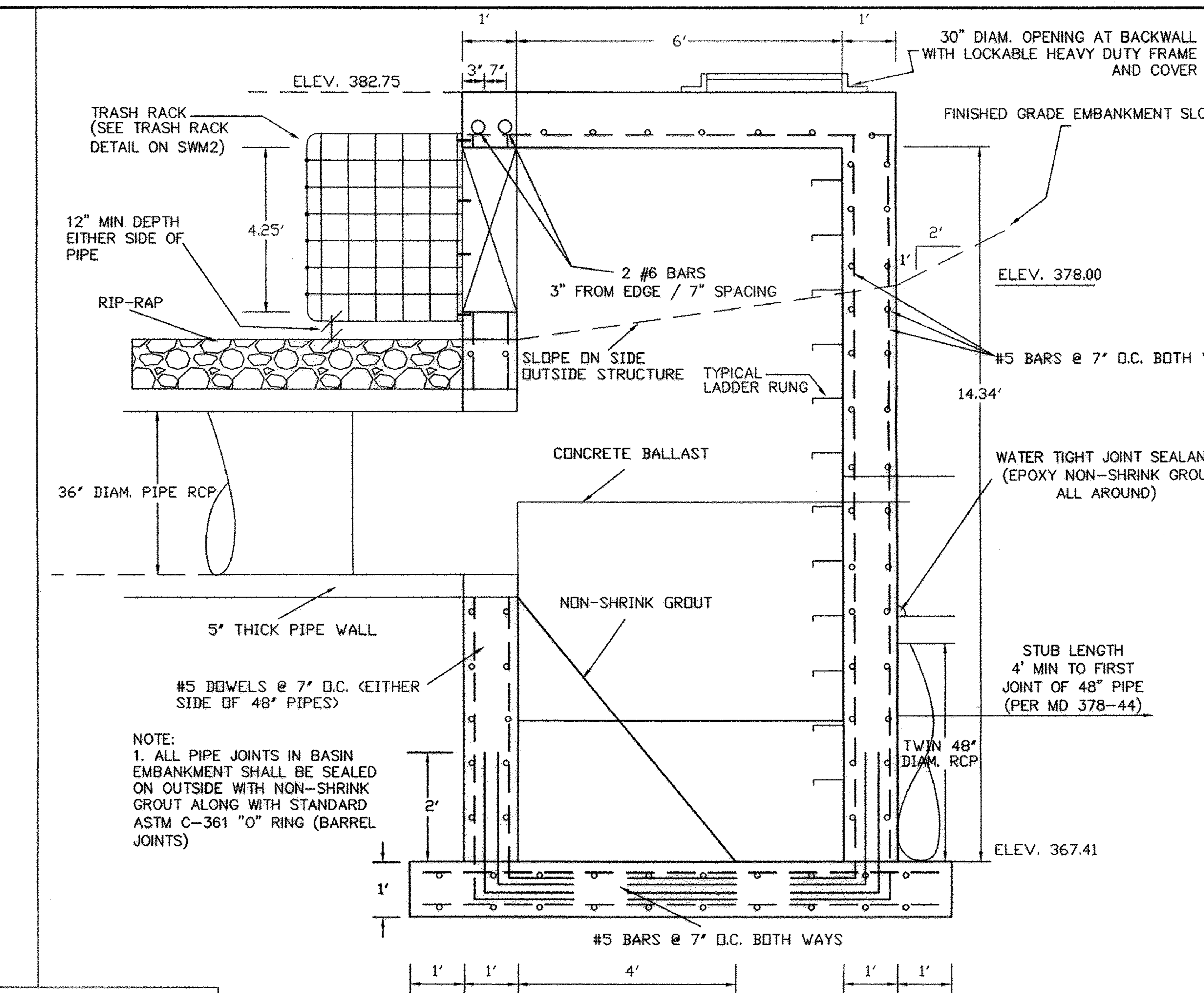
F-02-40



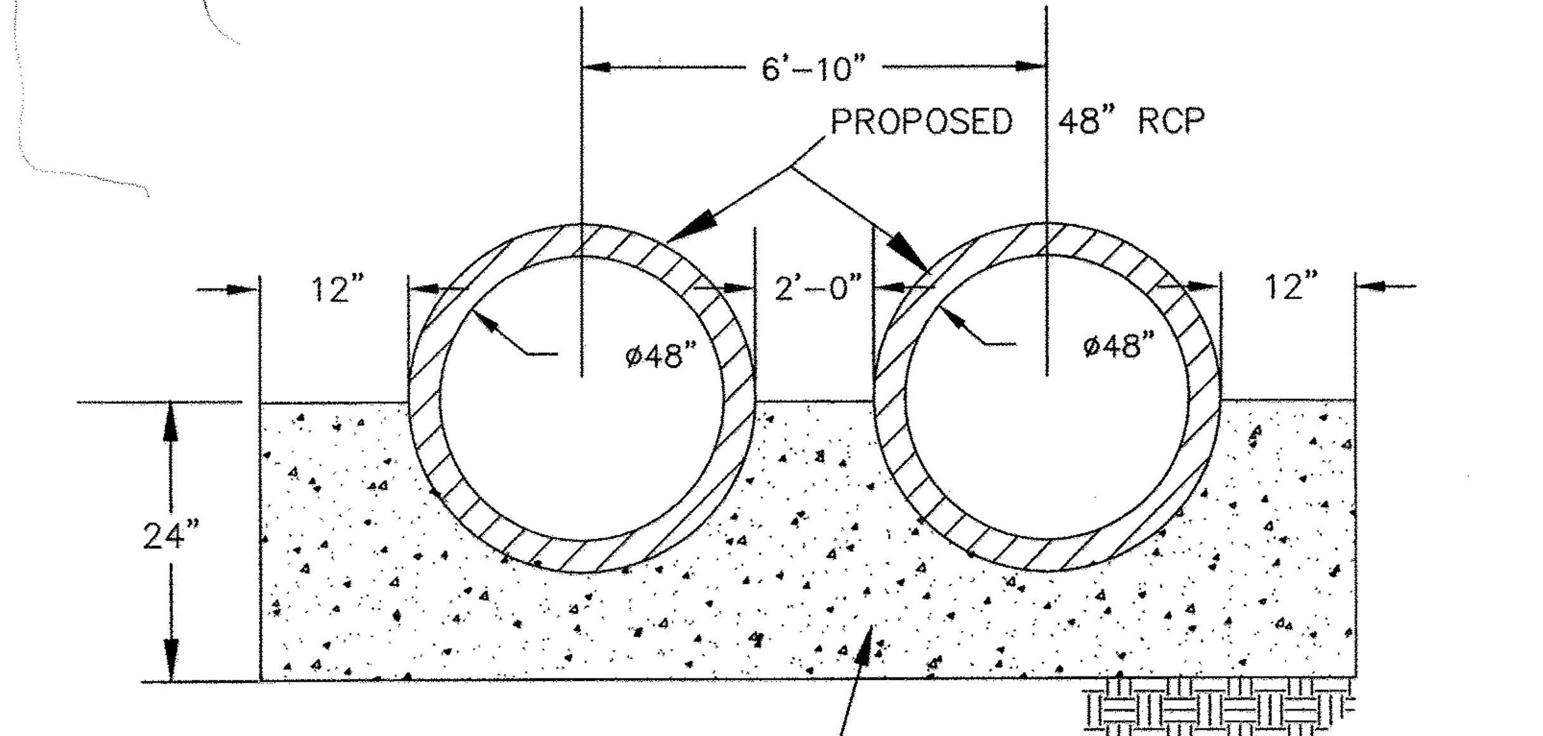
1 RISER-PLAN VIEW
SCALE: NTS



2 SECTION A-A
SCALE: NTS



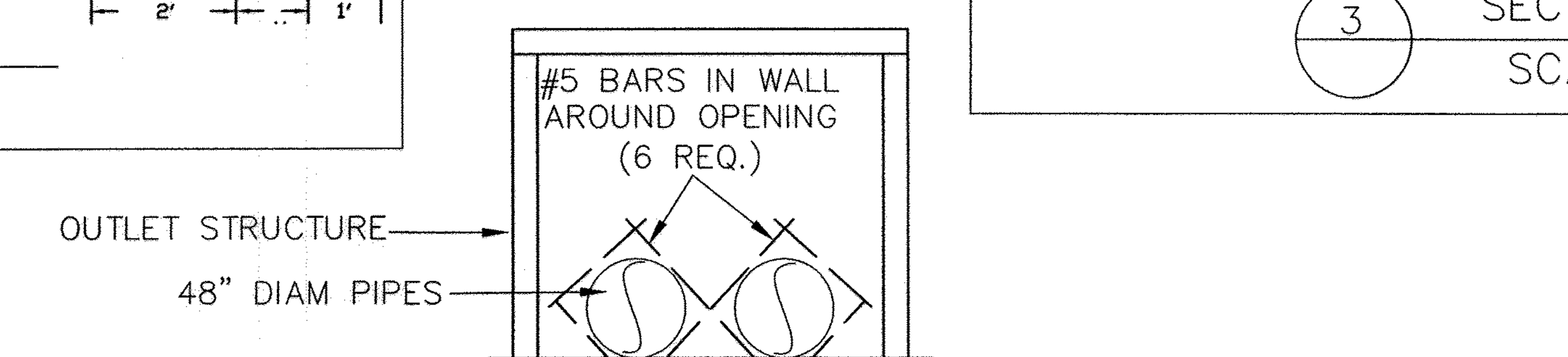
3 SECTION B-B
SCALE: NTS



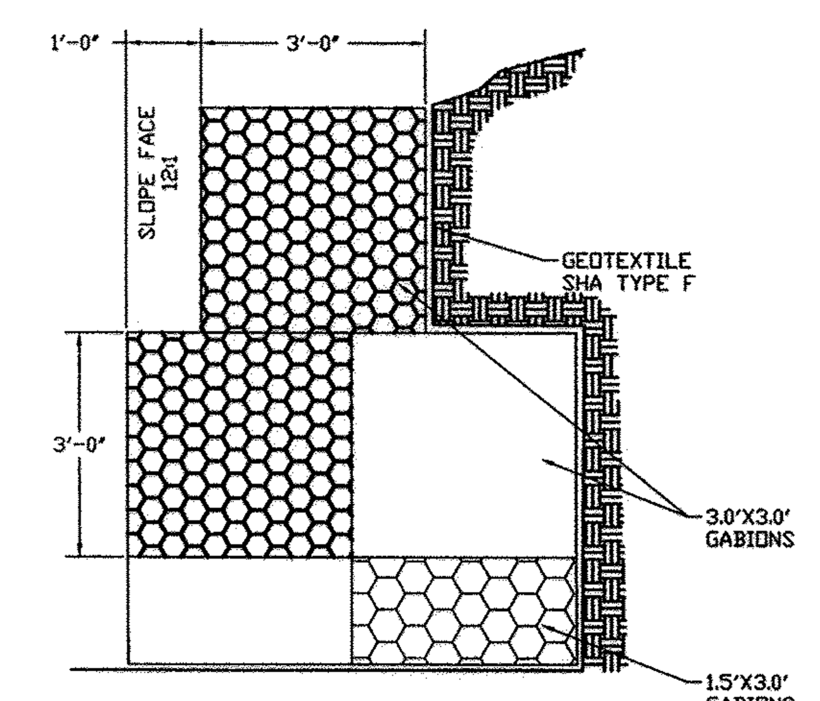
CONCRETE CRADLE EXTENDING A MIN. OF 12 INCHES BELOW PIPE OUTSIDE AND 12 INCHES BEYOND SIDES OF PIPE (48")(0.25)=12")

NOTE:
1. ALL CONCRETE MIN. 3000 PSI TO ASTM C-361 STANDARD

4 CONCRETE CRADLE DETAIL
SCALE: NTS

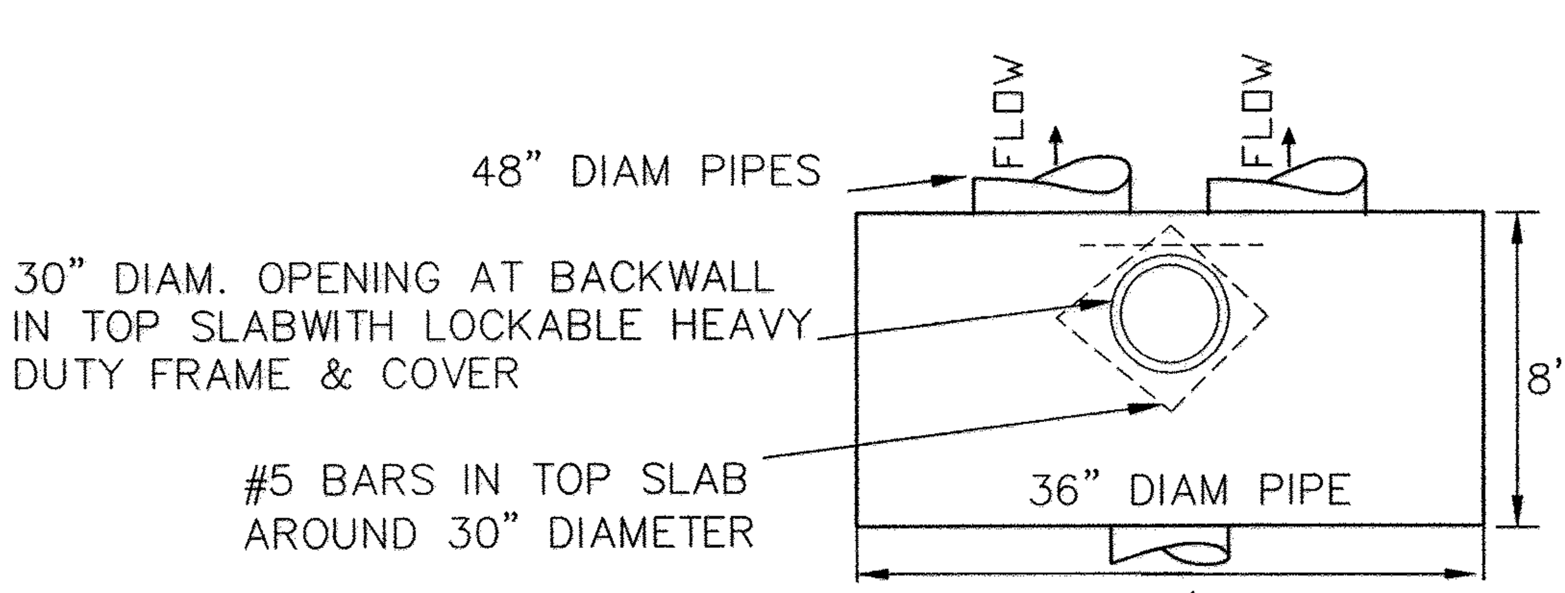


5 48" PIPE WALL PENETRATION
SCALE: NTS



1. Counterforts shall be used on gabion at slope 12:1.
2. Gabions shall be vinyl coated on galvanized steel mesh, color black.

7 TYPICAL GABION WALL SECTION
SCALE: NTS



6 TOP VIEW
SCALE: NTS

SEDIMENT CONTROL & POND CONSTRUCTION

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

4/25/2002
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."

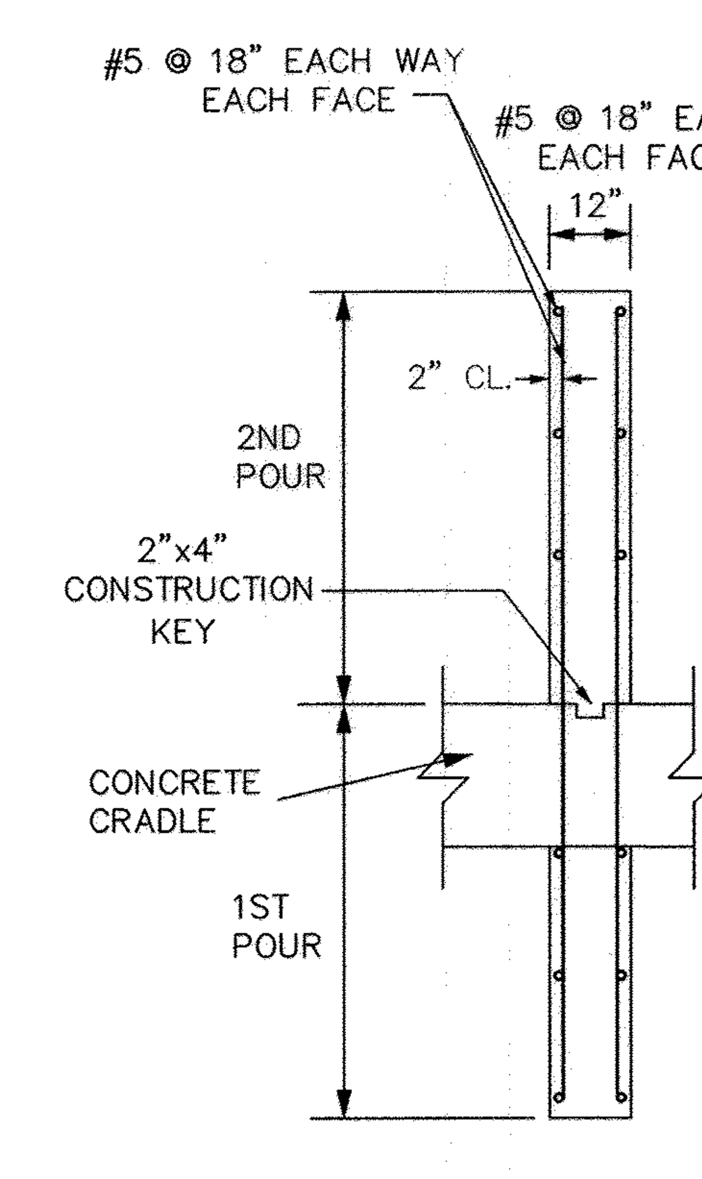
4/22/02
SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE
Robert A. Warner

< > 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.

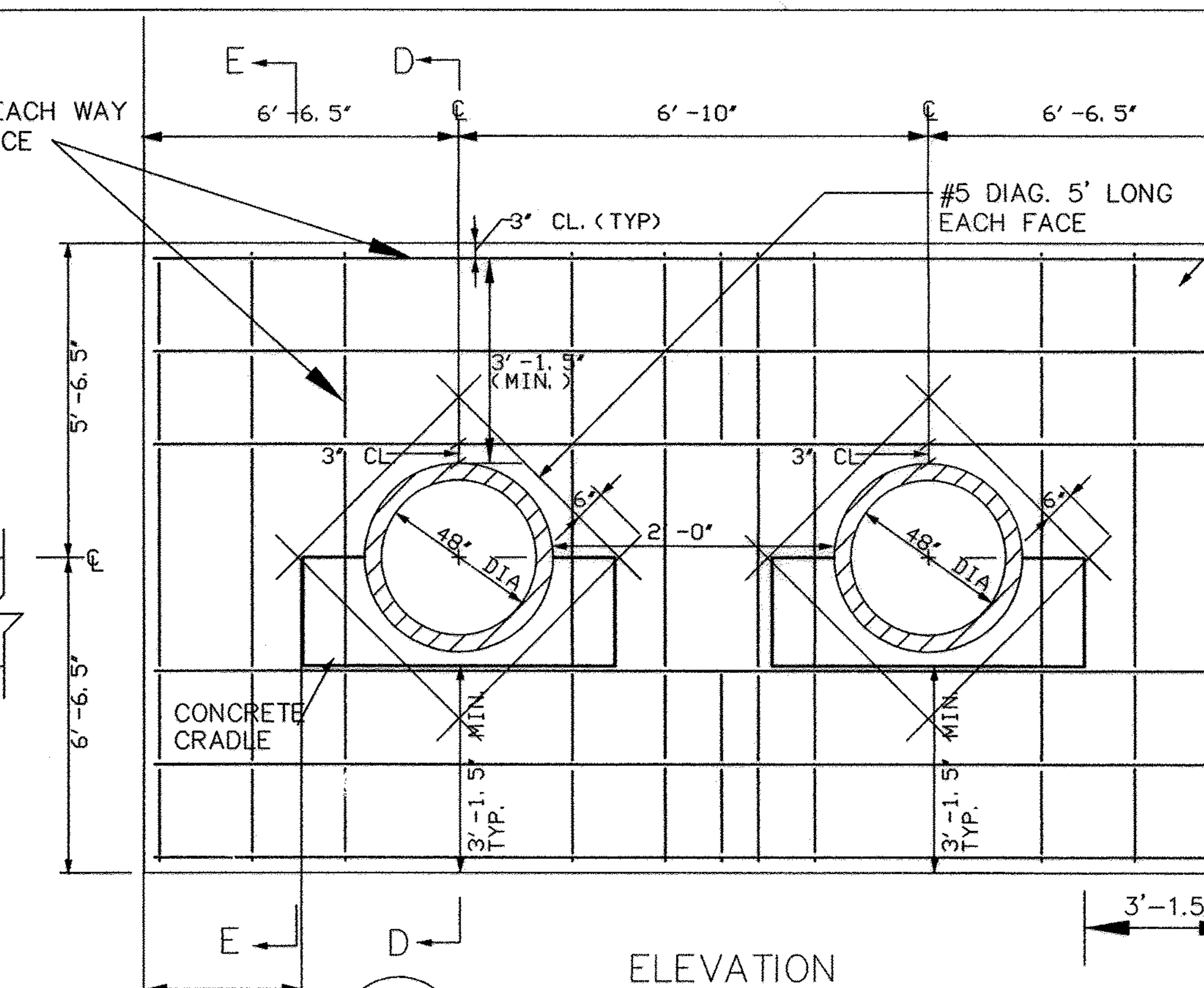
5/8/02
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

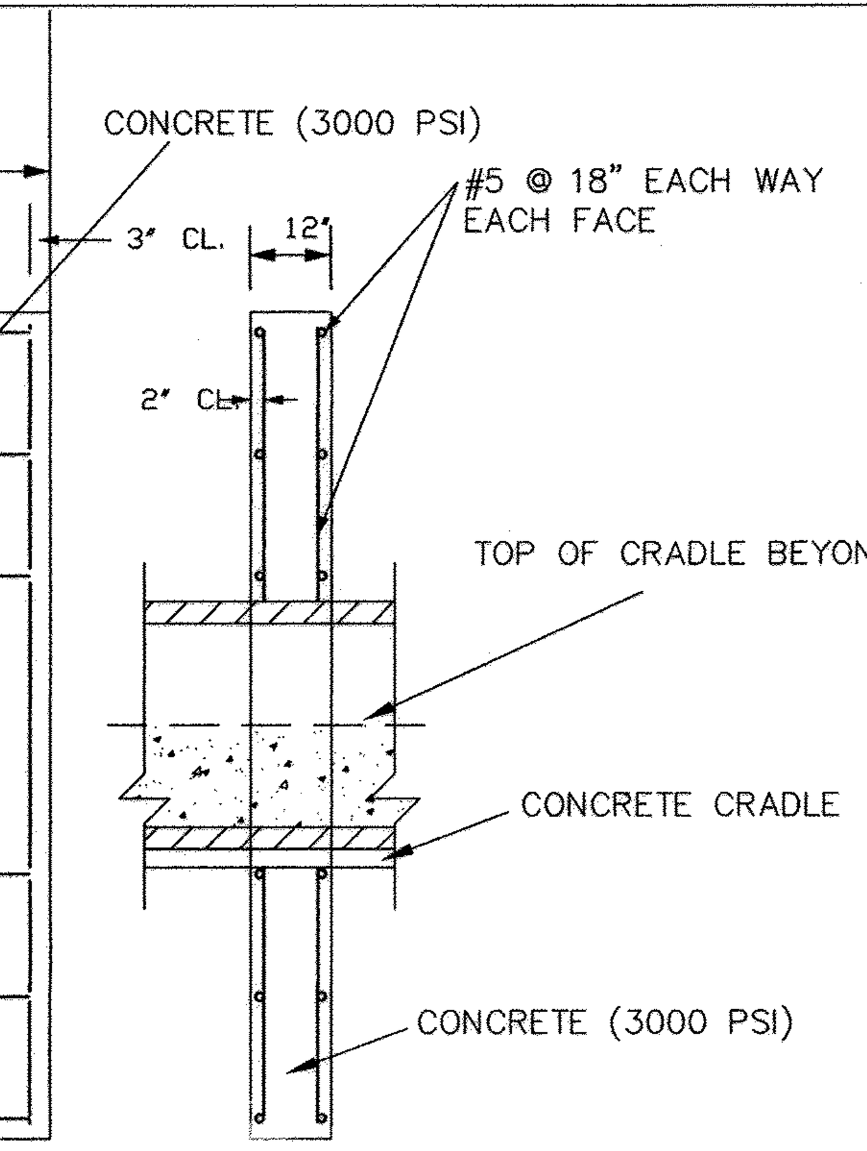
5/8/02
HOWARD SOIL CONSERVATION DISTRICT — DATE



8 SECTION E-E
SCALE: NTS



9 ELEVATION
ANTI-SEEP COLLAR
SCALE: NTS



10 SECTION D-D
SCALE: NTS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/20/02
DIRECTOR N/A	DATE

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 # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER						
DRN: P. FRIAS						
CHK: B. WARNER						
DATE: 04/19/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

SWM DETAILS

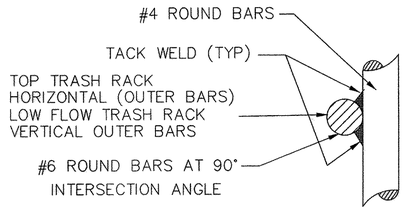
TAX MAP 41 PAR[illegible] 23
ELECTION DISTRIC[illegible] 5
HOWARD COUNTY, MA[illegible]AND

SCALE AS SHOWN

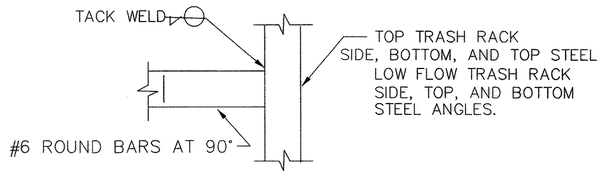
SHEET C9

SHEET 9 OF 24

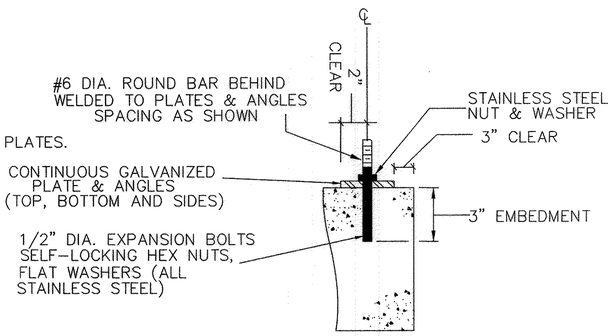
F-02-40

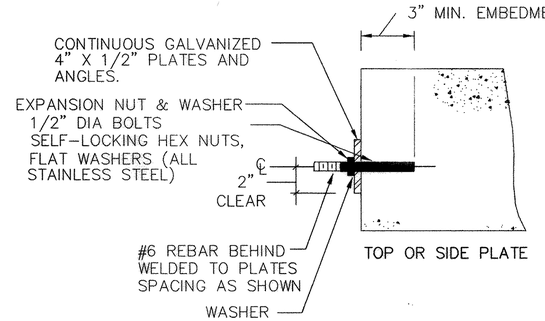


BAR TO BAR
NOT TO SCALE



BAR TO SIDE, TOP AND BOTTOM SUPPORTS
NOT TO SCALE



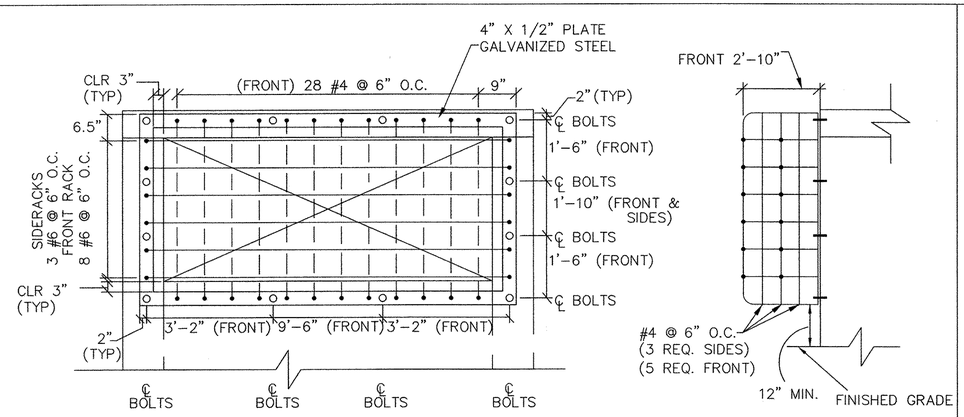


1 DEBRIS RACK WELD DETAIL
NOT TO SCALE

NOTES:

1. TRASH RACK TO BE CENTERED OVER ORIFICE
2. ALL SURFACES TO BE COATED WITH 2 COATS OF ZRC COLD GALVANIZING COMPONENT AFTER WELDING, COATED WITH SHOP APPLIED PRIME COAT AND 2-COATS OF EPOXY PAINT (9 MIL, MIN THICKNESS)

3 DEBRIS RACK BOLT DETAIL
USE TOP CONNECTION WHERE APPLICABLE
NOT TO SCALE



FRONT VIEW

SIDE VIEW

NOTES:

1. GRATE UNDER-FLOW OR FEED-FROM-TRASHRACK BOTTOM:
   WEIR AREA: FRONT 34 SQ. FT.
   SIDE 24 SQ. FT.

   TRASHRACK
   BOTTOM AREA: FRONT BOTTOM AREA 34 SQ. FT.
   (15'-4")-(3' FOR 36" PIPE)
   = 12'-4" OF LENGTH)
   SIDE BOTTOM AREA 25.3 SQ. FT.

2 TOP TRASH RACK DETAIL
NOT TO SCALE

SEDIMENT CONTROL & POND CONSTRUCTION

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

SIGNATURE OF DEVELOPER — DATE 4/25/2002
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."

SIGNATURE OF ENGINEER — DATE 4/25/02
PRINT NAME BELOW SIGNATURE

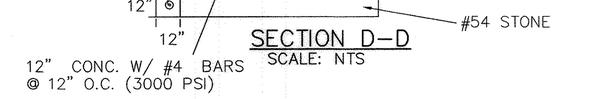
( ) THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA-NATURAL RESOURCES/CONSERVATION SERVICE — DATE 5/8/02

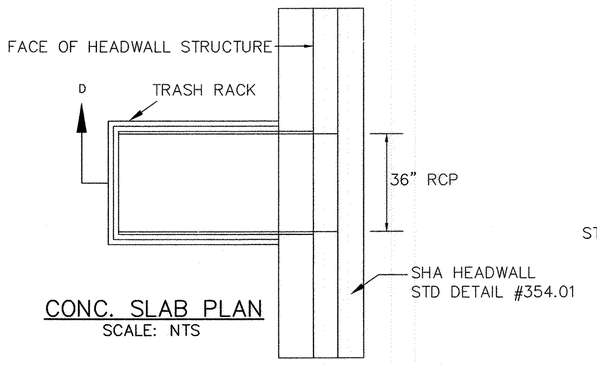
( ) THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 5/8/02

APPROVED: DEPARTMENT OF PLANNING AND ZONING		
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE	5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE	5/20/02
DIRECTOR N/A	DATE	X



SECTION D-D
SCALE: NTS

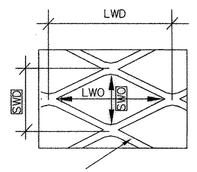


CONC. SLAB PLAN
SCALE: NTS

NOTE: STEEL TO CONFORM TO A.ST.M. SPECIFICATION A-36 McNICHOLS Co. OR EQUAL.

NOTES:

1. TRASH RACK TO BE CENTERED OVER OPENING
2. ALL SURFACES TO BE COATED WITH 2 COATS OF ZRC COLD GALVANIZING COMPOUND AFTER WELDING
3. TRASH RACK TO BE CONNECTED TO HEADWALL WITH 1/2" STAINLESS STEEL ANCHOR EXPANSION BOLTS.

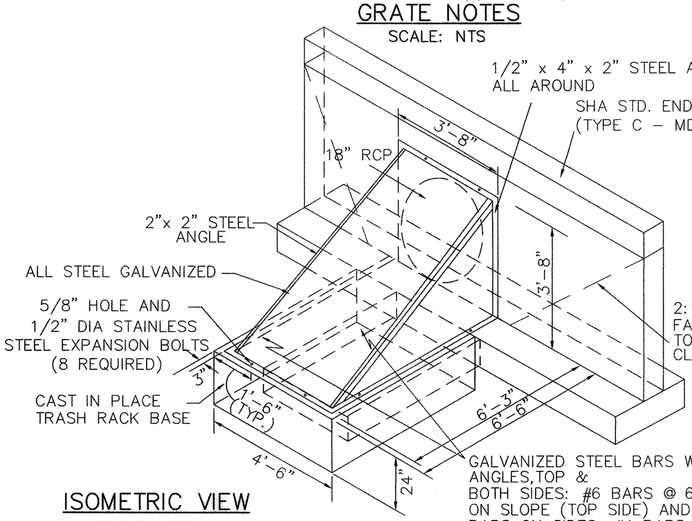


LWD... LONG WAY OF DESIGN DIMENSION (ins)
SWD... SHORT WAY OF DESIGN DIMENSION (ins)
LWO... LONG WAY OF OPENING DIMENSION (ins)
SWO... SHORT WAY OF OPENING DIMENSION (ins)

LWD (inches)	LWO (inches)	SWD (inches)	SWO (inches)
8.00	4.00	1.33	0.81

EXPANDED STEEL GRATE (1/4" THICK)

GRATE NOTES
SCALE: NTS



ISOMETRIC VIEW
SCALE: NTS

NOTE:

4 LOW FLOW EXPANDED METAL TRASH RACK
SCALE: NTS

1. GRATE SIDE-FLOW AS FEED-FROM-TRASHRACK BOTTOM:
   36" OPENING=7.1 SQ.FT.; SIDE AREA AT 34 SQ. FT./SIDE

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 # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER
DRN: P. FRIAS
CHK: S. ITANI
DATE: 04/19/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

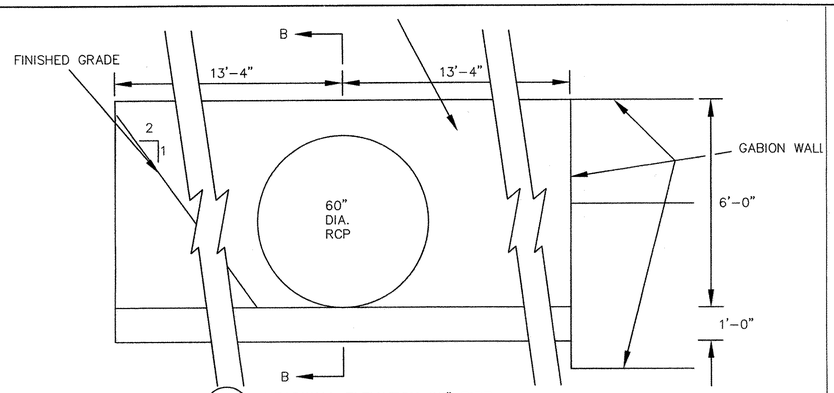
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY - POND A

SWM2 DETAILS

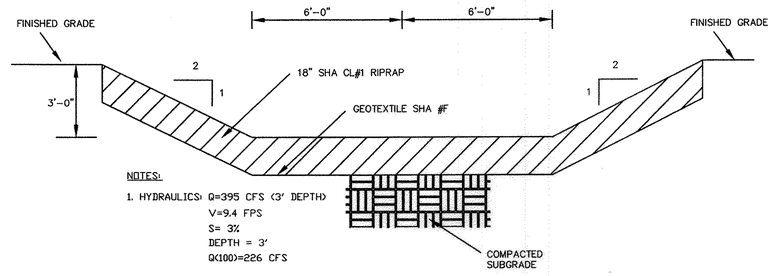
TAX MAP 41 PARCEL
ELECTION DISTRICT NO.
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C10
SHEET 10 OF 24

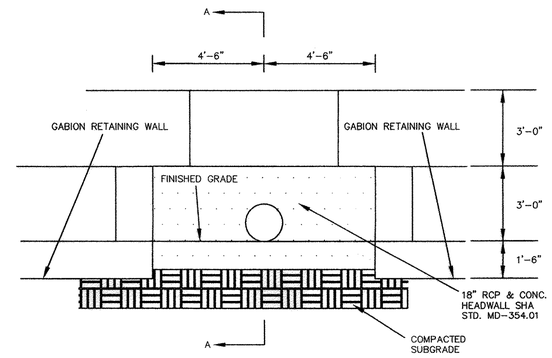
F-02-40



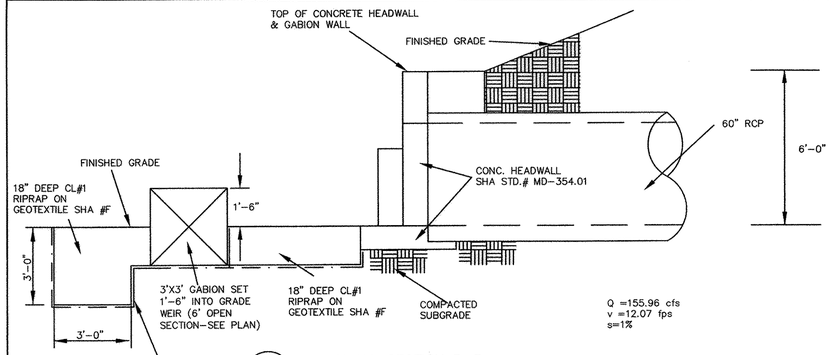
1 HEADWALL ELEVATION 60" PIPE
SCALE: NTS



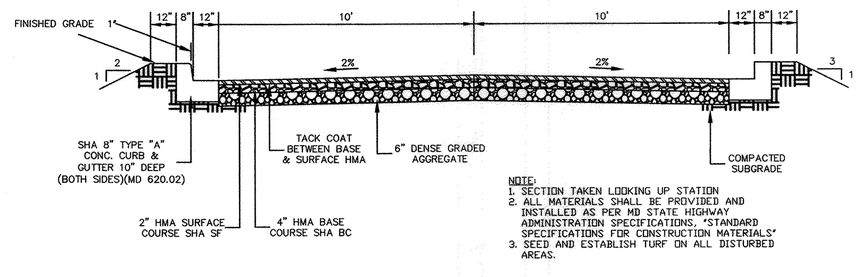
2 RIPRAP SWALE AT OUTFALL 2-48" SD PIPES
SCALE: NTS



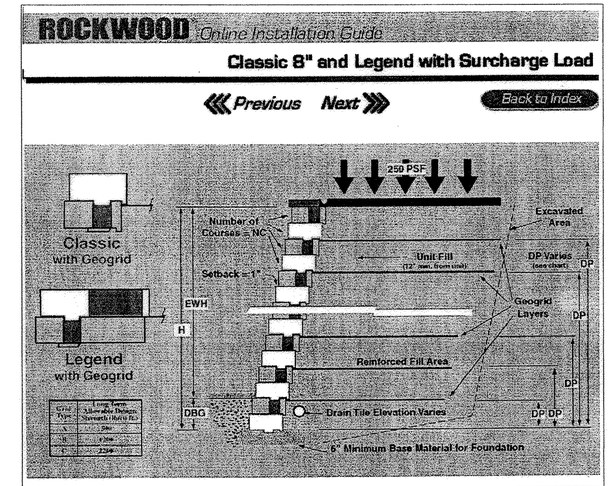
3 HEADWALL ELEVATION 18" STORM DRAIN PIPE
SCALE: NTS



4 HEADWALL SECTION B-B
SCALE: NTS



5 TYPICAL DRIVEWAY SECTION
SCALE: NTS



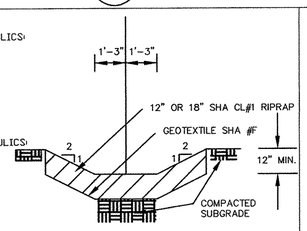
Total Wall Height H	Exposed Wall Height EWH	Depth Below Grade DBG	Total # of Courses NC	Type of Geogrid	Length of Geogrid LG	GEOGRID PLACEMENT Distance up from Foundation or Leveling Pad DP					Total Geogrid Layers NL
4'-8"	4'	0'-8"	7	A	5'-0"	1'-4"	3'-4"				2
6'-8"	6'	0'-8"	10	B	5'-6"	0 - 8"	2'-8"	4'-8"			3
9'-4"	8'	1'-4"	14	B	6'-6"	0 - 8"	2'-0"	3'-4"	5'-4"	7'-4"	5
11'-4"	10'	1'-4"	17	B	8'-0"	0 - 8"	2'-0"	3'-4"	5'-4"	7'-4"	6
13'-4"	12'	1'-4"	20	B	9'-0"	0 - 8"	2'-0"	3'-4"	5'-4"	7'-4"	7

Total Wall Height H	Exposed Wall Height EWH	Depth Below Grade DBG	Total # of Courses NC	Type of Geogrid	Length of Geogrid LG	GEOGRID PLACEMENT Distance up from Foundation or Leveling Pad DP					Total Geogrid Layers NL
4'-8"	4'	0'-8"	7	B	5'-0"	1'-4"	3'-4"				2
6'-8"	6'	0'-8"	10	B	6'-0"	0 - 8"	2'-0"	3'-4"	4'-8"		4
9'-4"	8'	1'-4"	14	B	7'-0"	0 - 8"	2'-0"	3'-4"	5'-4"	7'-4"	5
11'-4"	10'	1'-4"	17	B	8'-6"	0 - 8"	2'-0"	3'-4"	5'-4"	7'-4"	6
13'-4"	12'	1'-4"	20	B	10'-0"	0 - 8"	2'-0"	3'-4"	5'-4"	7'-4"	7

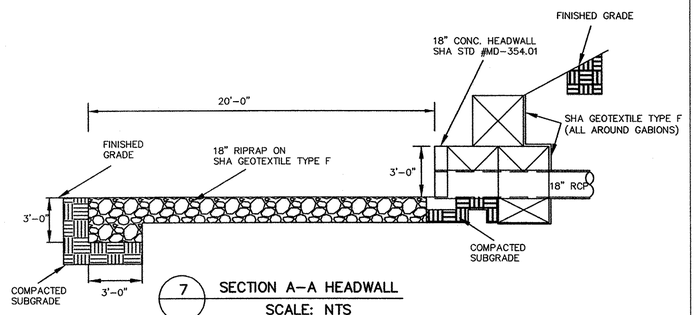
Total Wall Height H	Exposed Wall Height EWH	Depth Below Grade DBG	Total # of Courses NC	Type of Geogrid	Length of Geogrid LG	GEOGRID PLACEMENT Distance up from Foundation or Leveling Pad DP					Total Geogrid Layers NL
4'-8"	4'	0'-8"	7	B	6'-0"	1'-4"	3'-4"				2
6'-8"	6'	0'-8"	10	B	7'-0"	0 - 8"	2'-0"	3'-4"	4'-8"		4
9'-4"	8'	1'-4"	14	B	9'-0"	0 - 8"	2'-0"	3'-4"	5'-4"	7'-4"	5
11'-4"	10'	1'-4"	17	B	10'-0"	0 - 8"	2'-0"	3'-4"	5'-4"	7'-4"	6
13'-4"	12'	1'-4"	20	B	12'-0"	0 - 8"	2'-0"	3'-4"	5'-4"	7'-4"	7

9 RETAINING WALL - CLASSIC 8" BLOCK WITH SURCHARGE LOAD
SCALE: NTS

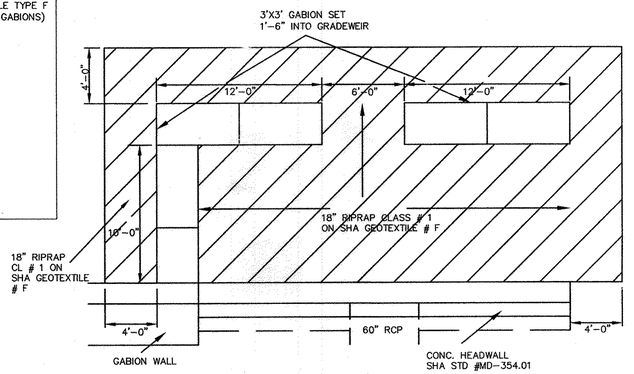
NOTES:
1. 18" PIPE (HW-1B) HYDRAULICS:
Q=35.6 CFS
V=7.9 FPS
S= 10%
DEPTH = 1'
Q(10)= 10.8 CFS
2. 12" PIPE (HW-1D) HYDRAULICS:
Q=11.6 CFS
V=2.6 FPS
S= 1%
DEPTH = 1'
Q(10)= 1.8 CFS



6 RIPRAP SWALE AT OUTFALL 12" & 18" SD PIPE
SCALE: NTS



7 SECTION A-A HEADWALL
SCALE: NTS



8 RIPRAP & GABION OUTLET
60" RCP SD PIPE PLAN
SCALE: NTS

SEDIMENT CONTROL & POND CONSTRUCTION

( ) BY THE DEVELOPER:
"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."
SIGNATURE OF DEVELOPER — DATE 4/25/2002
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."
SIGNATURE OF ENGINEER — DATE 4/26/02
PRINT NAME BELOW SIGNATURE
Robert A. Warner

( ) 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 5/18/02

( ) 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 5/10/02

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/20/02
DIRECTOR N/A	DATE X

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL (301) 881-1545 FAX (301) 881-0814
AMT FILE # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER						
DRN: P. FRIAS						
CHK: B. WARNER						
DATE: 04/19/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

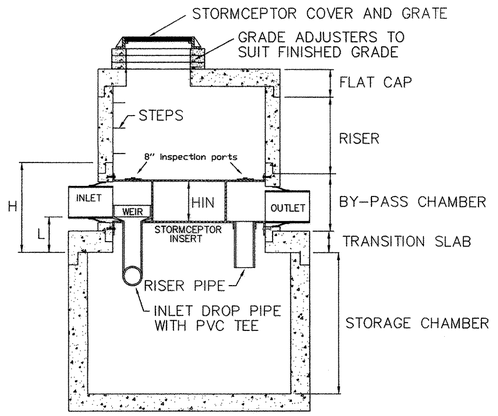
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

DETAILS

TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C11
SHEET 11 OF 24

F-02-40



PIPING AND INSERT DIMENSIONS					
STRUCTURE No.	PIPE DIAM. (in.)	PIPE MATERIAL	HIN (in)	H (in)	L (in)
1	15	HDCPP	22	42	9.5

DROP PIPE INSTALLATION

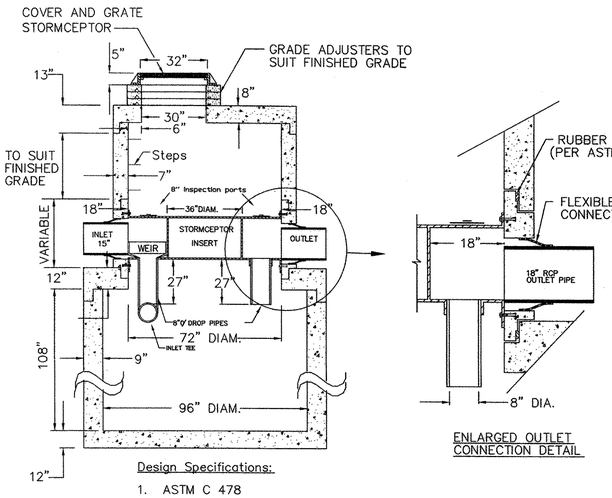
1) The drop pipe and the riser pipe MUST NOT be attached to Stormceptor couplings until the BY-PASS CHAMBER section has been connected to the installed TRANSITION SLAB.

2) Install the drop pipe and riser pipe while inside the Storage Chamber via a ladder placed down the Stormceptor access hole

3) The drop pipe with the T-section MUST be connected to the INLET gasketed coupling using the supplied PVC lubricant. Make certain that the orientation of the tee is correct. (see diagrams)

4) The riser pipe MUST be connected to the OUTLET gasketed coupling using the supplied PVC pipe lubricant.

1 STC PIPE INSTALLATION PROCEDURE
NOT TO SCALE



ENLARGED OUTLET CONNECTION DETAIL

Design Specifications:

1. ASTM C 478

NOTES : 1. NON-SMOOTH OUTSIDE WALL PIPE TO BE GROUTED IN PLACE (NO KOR-N-SEAL BOOTS).
2. RISER SECTION ABOVE THE INSERT TO BE 72" Ø FOR A MINIMUM OF 60" OR TO THE GRADE (WHICHEVER IS LESSER).
3. COVER TO BE LOCATED ADJACENT TO INLET INSPECTION PORT.
4. PROVIDE TWO OPEN PICK HOLES ON STORMCEPTOR COVER OFFSET 6" FROM THE STRUCTURE EDGE.
5. NO JOINT SHALL BE PERMITTED AT FLOOR AND WALL.

2 PRECAST CONCRETE STORMCEPTOR (STC 3600)
NOT TO SCALE

CONCRETE STORMCEPTOR DATA - STRUCTURE No. 1					
DRAINAGE AREA (ACRES)	TOP ELEVATION	PIPE SIZE & TYPE	INVERT IN	INVERT OUT	MATERIAL/ MODEL NO.
2.99	396.00	18" HDCPP	391.20	391.00	CONC/STC3600

CONTRACTOR INSTALLATION INSTRUCTIONS
PRECAST CONCRETE STORMCEPTOR

1. STAKE-OUT THE LOCATION OF THE STORMCEPTOR AND EXCAVATE HOLE. EXCAVATE ADEQUATE SPACE TO CONNECT INLET AND OUTLET PIPES TO UNIT. INSTALL A 12" DEEP (OR AS REQUIRED) LAYER OF COMPACTED AGGREGATE SUBBASE AT BOTTOM OF EXCAVATION. INSTALL MULE OR SHORING, AS NEEDED.
2. CHECK ELEVATION OF UNIT BY MEASURING ITS SECTIONS FROM BASE OF THE STORAGE CHAMBER (BOTTOM OF UNIT'S SLAB) TO THE INVERT OF STORMCEPTOR BYPASS CHAMBER INLET ELEVATION (FIBERGLASS INSERT). SUBTRACT THIS DISTANCE FROM DESIGN INVERT ELEVATION TO DETERMINE TOP OF SUBBASE ELEVATION. CHECK ELEVATION OF INSTALLED SUBBASE AND ADJUST AS NEEDED.
3. SECURE INSPECTOR APPROVAL OF SUBGRADE AND SUBBASE.
4. INSTALL STORAGE CHAMBER. INSTALL SCREW INSERTS INTO BASE OF STORAGE CHAMBER. ATTACH CABLES OR CHAINS TO ALL 3 LIFTING LUGS ON THE BASE SLAB. USING LARGE EQUIPMENT OR CRANE LIFT, PLACE THE BASE SECTION OF THE STORAGE CHAMBER IN THE EXCAVATED HOLE ON THE SUBBASE. MAKE SURE THAT THE BASE IS LEVEL. SPECIFIC ALIGNMENT OF THIS PART IS NOT REQUIRED. INSTALL RUBBER GASKET ON BASE UNIT AND COAT WITH LUBRICATING GREASE (PROVIDED IN SHIPMENT). IF NOT PRELUBRICATED.INSTALL ADDITIONAL STORAGE CHAMBER SECTIONS, AS REQUIRED (PROCEDURE IS SAME AS STEP 6).
5. INSTALL REDUCING SLAB (STORMCEPTOR MODELS STC-2400, STC-3600, STC-4800, STC-6000 AND STC-7200) CHECK THAT SECTION IS SET FLUSH, LEVEL, AND IS AT THE PROPER ELEVATION. INSTALL RUBBER GASKET ON THE TRANSITION SLAB SPIGOT AND COAT WITH LUBRICATING GREASE (PROVIDED IN SHIPMENT).
6. INSTALL BYPASS CHAMBER OF STORMCEPTOR WITH FACTORY INSTALLED STORMCEPTOR INSERT. LIFT BYPASS SECTION AND INSTALL, WHILE CHECKING ALIGNMENT AND GRADE OF INLET AND OUTLET DRAINAGE PIPES. CHECK TO MAKE SURE THE BYPASS CHAMBER IS SET FLUSH, LEVEL AND IS AT THE PROPER ELEVATION. THE BYPASS CHAMBER MUST BE ORIENTED SUCH THAT THE INLET PIPE DISCHARGES INTO THE V-SHAPED FIBERGLASS WEIRS (INSIDE INSERT). INSTALL RUBBER GASKET ON TOP OF BYPASS SECTION AND COAT WITH LUBRICATING GREASE, IF NOT LUBRICATED.
7. INSTALL STORMCEPTOR DROP PIPES ACCORDING TO STC PIPE INSTALLATION PROCEDURE AS SHOWN ON THIS SHEET.
8. INSTALL RISER SECTION. LIFT RISER SECTION AND INSTALL, WHILE CHECKING THAT SECTION IS SET FLUSH AND IS AT PROPER ELEVATION AND THAT UNIT IS LEVEL. SPECIFIC ALIGNMENT OF THIS PART IS REQUIRED IF STEP(S) ARE INCLUDED. ALIGN STEPS ABOVE INLET INSPECTION PORT. NOTE, FOR SHALLOW INSTALLATIONS THIS SECTION MAY NOT BE REQUIRED.
9. INSTALL TOP CAP WITH OPENING FOR STORMCEPTOR COVER. IF OPENING IS OFFSET(NOT CENTERED), THE TOP CAP OPENING SHOULD BE ORIENTED ABOVE THE STORMCEPTOR INLET INSPECTION PORT(PLUG).
10. BACKFILL STORMCEPTOR WITH APPROVED BACKFILL MATERIAL (NO ORGANIC OR TOPSOIL IS TO BE USED FOR BACKFILL). BACKFILL AND COMPACT IN 8 INCH LIFTS. BACKFILL SHOULD BE COMPACTED TO LOCAL/STATE REQUIREMENTS.
11. INSTALL AND SET GRADE ADJUSTING RINGS AS NEEDED.
12. INSTALL AND SET STORMCEPTOR FRAME AND COVER.
13. INSTALL INLET AND OUTLET STORM DRAIN PIPES. CONNECT INLET AND OUTLET STORM DRAIN PIPES WITH FLEXIBLE BOOTS (WHEN PROVIDED) AND WITH NON-SHRINK GROUT WHEN NO FLEXIBLE BOOTS ARE PROVIDED. THE INVERT OF THE INLET AND OUTLET PIPE IS TO MATCH WITH THE INVERT OF THE STORMCEPTOR INSERT. FLEXIBLE BOOT INSTALLATION PROCEDURES: CENTER THE PIPE IN THE BOOT OPENING, LUBRICATE THE OUTSIDE OF THE PIPE AND/OR THE INSIDE OF THE BOOT IF THE PIPE OUTSIDE DIAMETER IS THE SAME AS THE INSIDE DIAMETER OF THE BOOT. POSITION THE PIPE CLAMP IN THE GROOVE OF THE BOOT WITH THE SCREW AT THE TOP. TIGHTEN THE PIPE CLAMP SCREW TO 60 INCH POUNDS. IF THE PIPE IS MUCH SMALLER THAN THE BOOT LIFT THE BOOT SUCH THAT IT CONTACTS THE BOTTOM OF THE PIPE WHILE TIGHTENING THE CLAMP TO ENSURE EVEN CONTRACTION OF THE RUBBER. MOVE THE PIPE HORIZONTALLY AND/OR VERTICALLY TO BRING IT TO GRADE.
14. THE STORMCEPTOR SHOULD BE PUMPED OUT WHEN THE SEDIMENT CONTROL MEASURES ARE REMOVED (SITE PERMANENTLY STABILIZED).
15. FINAL INSPECTION

FOR TECHNICAL INFORMATION CALL STORMCEPTOR AT 1-800-762-4703

AS MANUFACTURED BY CSR-HYDRO CONDUIT AND STORMCEPTOR CORPORATION. MODEL STC-3600, PRECAST CONCRETE. FOR TECHNICAL INFORMATION CALL STORMCEPTOR AT 301-762-8361. TO ORDER CONTACT CSR-HYDRO CONDUIT, VIRGINIA PRECAST AT 1-800-999-2278 AT LEAST 3 WEEKS PRIOR TO NEEDED DELIVERY.

NOTES :

1. THE STORMCEPTOR ® IS PROTECTED BY U.S. PATENT NO. 4,985,148.
2. CAST IRON FRAME & COVER TO BE APPROVED BY STORMCEPTOR CORPORATION. "STORMCEPTOR" TO BE EMBOSSED ON COVER
3. BEDDING, BACKFILL AND GENERAL INSTALLATION REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER AND A PROFESSIONAL ENGINEER BASED ON SITE SPECIFIC SOILS CONDITIONS, SUBJECT TO THE APPROVAL OF THE REGULATORY AGENCIES.
4. SIZING OF THE STORMCEPTOR ® SHALL BE IN ACCORDANCE WITH THE GUIDELINES PROVIDED BY STORMCEPTOR CORPORATION, SUBJECT TO THE APPROVAL OF THE REGULATORY AGENCIES.
5. THE STORMCEPTOR ® SHOULD BE MAINTAINED ANNUALLY AND/OR IMMEDIATELY FOLLOWING ANY KNOWN SPILLS.
6. THE STORMCEPTOR ® CONFORMS TO ASTM C 478 DESIGN SPECIFICATIONS / STANDARDS.
7. A MINIMUM OF 1 STEP IS TO BE USED IN THE ACCESS WAY.
8. COVER TO BE OFFSET 6" FROM ACCESS WALL ADJACENT TO INLET INSPECTION PORT.
9. NON-SMOOTH WALL O.D. PIPE TO BE GROUTED IN PLACE
10. FURTHER TECHNICAL INFORMATION IS AVAILABLE FROM STORMCEPTOR CORPORATION 1 (800) 762-4703.

CONSTRUCTION NOTES

1. SILT AND DEBRIS SHALL NOT BE ALLOWED TO ENTER THE STORMCEPTOR UNTIL THE CONTRIBUTING DRAINAGE AREAS HAVE BEEN PERMANENTLY STABILIZED. SILT MAY BE ALLOWED TO ENTER STORMCEPTOR IF IT IS BEING USED AS A FINAL SEDIMENT CONTROL FILTERING DEVICE.
2. ALL OPENINGS TO STRUCTURES SHALL BE PROTECTED WITH THE APPROPRIATE SEDIMENT CONTROL MEASURES.
3. THE STORMCEPTOR MUST BE PUMPED OUT AND CLEANED AT THE END OF THE CONSTRUCTION OF THE PROJECT.

FLOWS AND CAPACITIES*

MODEL	MAX. TREATED FLOW RATE (gpm)**	SEDIMENT CAPACITY (ft3)	OIL CAPACITY (US gal)	TOTAL CAPACITY (US gal)
STC 3600	475	345	880	3750

* APPROXIMATE
** WITHOUT BY-PASSING

INSPECTION NOTES: PRECAST CONCRETE STORMCEPTOR

1. PRIOR TO THE START OF INSTALLING THE STORMCEPTOR, THE INSPECTOR MUST BE CALLED 48 HOURS IN ADVANCE (PRE-CONSTRUCTION MEETING).
2. THE APL INSPECTOR MUST BE NOTIFIED AT EACH OF THE FOLLOWING STAGES:
   A. APPROVAL OF SUBGRADE; PREPARE A COMPACTED GRAVEL BED AT THE BOTTOM OF THE EXCAVATION. ENSURE COMPACTION TO 95% DENSITY.
   B. PLACE STORMCEPTOR IN EXCAVATION AT CORRECT ELEVATION AND AT CORRECT ALIGNMENT AND GRADE FOR INLET AND OUTLET STORM DRAINS. LEVEL UNIT INSTALL BASE AND LOWER TANK, MIDDLE SECTION WITH STORMCEPTOR INSERT, RISER SECTION, TOP SLAB WITH PERSONWAY, LEVELING RINGS AND MANHOLE FRAME AND COVER.
   C. BACKFILL STORMCEPTOR WITH SUITABLE NATIVE SOIL (NO ORGANIC OR TOPSOIL IS TO BE USED FOR BACKFILL). BACKFILL AND COMPACT IN 8" LIFTS. BACKFILL SHOULD BE AT 95% OF DENSITY.
   D. WHEN SITE IS PERMANENTLY STABILIZED AND SEDIMENT CONTROL MEASURES HAVE BEEN REMOVED AND STABILIZED, THEN THE STORMCEPTOR WILL BE PUMPED OUT AND CLEANED AND PLACED IN STORMWATER MANAGEMENT OPERATION.
   E. FINAL INSPECTION
3. ALL GEOTECHNICAL REPORTS, SOIL COMPACTION, BEARING CAPACITY, AND CONCRETE TESTING DATA & RESULTS SHALL BE PROVIDED TO THE INSPECTOR AND COPIED TO THE OWNER.

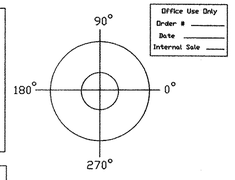
MAINTENANCE NOTES: WATER QUALITY STRUCTURE

1. WATER QUALITY STRUCTURES WILL REQUIRE PERIODIC CLEANING. OWNERS OF THESE FACILITIES WILL HAVE TO CLEAN THEM AS NEEDED.
2. MAINTENANCE OF THESE FACILITIES WILL CONSIST OF CLEANING OUT THE STORMCEPTOR AND DISPOSAL OF THE WASTE AND REPAIR OF THE FACILITY AS NEEDED. PERIODIC INSPECTIONS OF THESE FACILITIES WILL BE MADE BY THE OWNER.
3. THE DISPOSAL OF THE LIQUID AND SOLID MATTER SHALL BE AS FOLLOWS:
   A. ALL LIQUID MATERIAL IN THE STORMCEPTOR SHALL BE PUMPED INTO A SUITABLE TANK TRUCK AND DISPOSED OF AT AN APPROVED SANITARY DISTRICT DISCHARGE MANHOLE OR TO BE TAKEN TO AN APPROVED SEWAGE TREATMENT PLANT FOR DISCHARGE.
   B. THE SOLID MATERIAL SHALL BE LANDFILLED IN AN APPROVED SANITARY LANDFILL.
4. THE INLET PIPES AND STRUCTURAL PARTS SHALL BE REPAIRED AS NEEDED.
5. STORMCEPTOR INLET AND OUTLET ASSEMBLY SHALL BE PERIODICALLY INSPECTED. BLOCKAGES SHALL BE REMOVED AND DISPOSED OF AS REQUIRED IN 3B ABOVE.

Concrete Stormceptor® Order Request Form *

Contractor Information
NAME
ADDRESS
CITY
STATE
ZIP CODE
CONTACT
PHONE
FAX

Office Use Only
Order #
Rate
Internal Sale



Owner Information
NAME
PHONE
FAX

Please draw orientation of inlet and outlet pipes on diagram along with pipe inside diameter (in.) and invert elevation (ft.) Clearly mark inlet pipes with an O and outlet pipes with an and provide the inlet/outlet pipe angle in degrees.

Stormceptor® Model: 900 [X] 3600 [ ] | 1200 [X] 4800 [ ] | 1800 [ ] 6000 [ ] | 2400 [ ] 7200 [ ]

Insert Size: 22" [X] | 32" [ ] | 44" [ ] | Custom ____

Manhole Number
Top Elevation (ft)
Inlet Pipe Invert (ft)
Outlet Pipe Invert (ft)
Pipe Type:
Pipe Inside Diameter (in) [ID]
Pipe Outside Diameter (in) [OD]

Project Name
Approximate time frame until required delivery (weeks)
Delivery Address: Street
City State Zip Code
Designer Company
Designer Contact Phone Fax

Please fax this sheet back to Hydro Conduit/Virginia Precast at (804) 798-3426
Attn: Dave Brinser / Ed O'Malley (Phone: 1-800-999-2278)

For credit information/applications contact Carole Broadus at (804) 798-6068
For Technical Assistance Please Call Stormceptor Corporation at (301) 762-8361 or toll free at 1 (800) 762-4703

*TO BE INCLUDED ON SWM PLAN BY DESIGNER 11/13/95

*CONTRACTOR SHALL FIELD VERIFY ALIGNMENT AND ELEVATION DATA PRIOR TO ORDERING STORMCEPTOR.

NOTE:

1. THE STORMCEPTOR SHOWN RELATES TO THE DEVELOPMENT OF BUILDING P, WHICH HAS NOT BEEN DESIGNED. THIS IS INTENDED AS AN EXAMPLE OF TH E SIZE AND TYPE OF STORMCEPTOR THAT WILL BE USED AT THIS BUILDING AND ALL FUTURE BUILDINGS IN AREA "A".

SEDIMENT CONTROL & POND CONSTRUCTION

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

SIGNATURE OF DEVELOPER — DATE 4/25/2002
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."

SIGNATURE OF ENGINEER — DATE 4/22/02
PRINT NAME BELOW SIGNATURE
Robert A. Warner

( ) 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 5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/20/02
DIRECTOR N/A — DATE X

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 # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER						
DRN: S. ITANI						
CHK: B. WARNER						
DATE: 04/19/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY - POND A

STORMCEPTOR DETAILS

TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C12
SHEET 12 OF 24

F-02-40

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 he following: 4" - 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" shall meet the requirements of AASHTOM294 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 311, Geotextile shall be placed under all rip-rap and shall meet the requirements of MD Department of Transportation SHA Standard Specifications for Construction and Materials Section No. 921.01 Class C.

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 sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and specifications for critical area planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

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

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 geotechical 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 be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less that 95% of maximum dry density with a moisture content within ± 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction as to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench-The cutoff trench shall be excavated into impervious material along or parallel to 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 slider 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 if 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 drives equipment be allowed to operate closer than four feet, measured horizontals, to any part if 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 50% 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.
see sheet ES-4 (18 of 23) for continuation of specification

NRCS - MARYLAND JANUARY 2000

SEDIMENT CONTROL & POND CONSTRUCTION

( ) BY THE DEVELOPER:
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SIGNATURE OF DEVELOPER — DATE 12/21/01 2/22/02
PRINT NAME BELOW SIGNATURE
James Loesch JEL 4/25/2002

( ) BY THE ENGINEER:
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SIGNATURE OF ENGINEER — DATE 12/21/01 2/22/02
PRINT NAME BELOW SIGNATURE
Robert A. Warner RAW 4/22/02

( ) 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 5/8/02

( ) 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 5/8/02

Engineering Firm & Address: A. Morton Thomas and Associates, Inc., 12750 Twinbrook Parkway, Rockville, MD 20852-1709

Project Name: JHU - Applied Physics Laboratory

Plan Number: F-02-40 SWM Basin A

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 stage orifices or drain pipes.
				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."

INC = Incomplete N/A = Non Applicable

Method
1. The minimum information shall be shown in red on a clear print of the signature-approved plans.
2. A check mark (✓) may be made beside planned values if they were the actually constructed values. For changed values, line out the planned value and enter the actual value and redraft. Significant differences may require a re-routing based on as-built hydraulics and storage.
3. Elevations recorded to the nearest 0.1' are sufficient.

Note that before the Howard SCD approves an "As-Built," a spot check of the pond may be performed as per the SCS-378 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.

COMMENTS:

Revised: September 27, 2000 Prepared By:
C:\MyFiles\corel docs\as-built checklist.wpd Howard Soil Conservation District (410) 489-7987

OPERATION, MAINTENANCE AND INSPECTION

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

(Rev. 2-93) Reference: SCS-MD-378

Natural Resources Conservation Service
POND SUMMARY SHEET

Note: this form to be used for SCS Class "a" ponds only. Other ponds require permit from MD DNR, Water Resources Administration, Dam Safety Division.

PROJECT INFORMATION

Project Name: JHU - Applied Physics Laboratory
SCD File No: F-02-40 SWM Basin A
Pond No: ______

Maryland Coordinates (to nearest 1000 ft)
East 830,000
North 486,000
County Howard
ADC Map/grid 19 / B2

OWNER INFORMATION

Name: JHU - Applied Physics Laboratory
Address: 11100 Johns Hopkins Road
Attn: Mr. James Loesch
City: Laurel
State: MD Zip: 20723

TYPE OF POND: O Excavated O Embankment ■ Both

Drainage Area: 43.2 acres
(10 yr. flow) Surface Area: 0.5 acres(pe...
Normal Depth: N/A feet
Design Storm Frequency: 100 years
Storage at Design High Water (DHW): 3.5 ac-ft(p...

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

EMBANKMENT
Top Elevation: 384.35 ft. Max Fill Height: 11 ft
Normal Pool Elevation: N/A ft. Top Width: 22 ft
DHW Water Elevation: 381.46 ft. Side Slopes: U.S. 2 :1, D.S. 3 :1

Will embankment serve as a public roadway? O Yes O No

PRINCIPAL SPILLWAY AND EMERGENCY SPILLWAY
Barrel Size: 2-48 inches Design Capacity at DHW: ~~226~~ 344.7 cfs
O BCCMP O Alum ● RCP O PVC O Cast-in-Place Box Culvert
O Weir O Channel O Other: ______

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

DISTANCES BELOW POND TO Property Line: 3,300 ft
Public Road: 4,300 ft

Soil Conservation District (Name): ______

District Manager Signature: ______ Date: ______

(The following line to be completed and form re-submitted after As-Built certification has been accepted by the District)

Date As-Builts Accepted: ______ ______ District Representative Signature

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/20/02
DIRECTOR N/A — DATE X

AMT
A. MORTON THOMAS AND ASSOCIATES, INC.
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AMT FILE # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER
DRN:
CHK: B. WARNER
DATE: 04/19/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY - POND A

POND SPECS

TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET C13

F-02-40

SEDIMENT CONTROL & POND CONSTRUCTION

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[signature] 4/25/2002
SIGNATURE OF DEVELOPER DATE
PRINT NAME BELOW SIGNATURE

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[signature] 4/22/02
SIGNATURE OF ENGINEER DATE
PRINT NAME BELOW SIGNATURE
Robert A. Warner

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USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE

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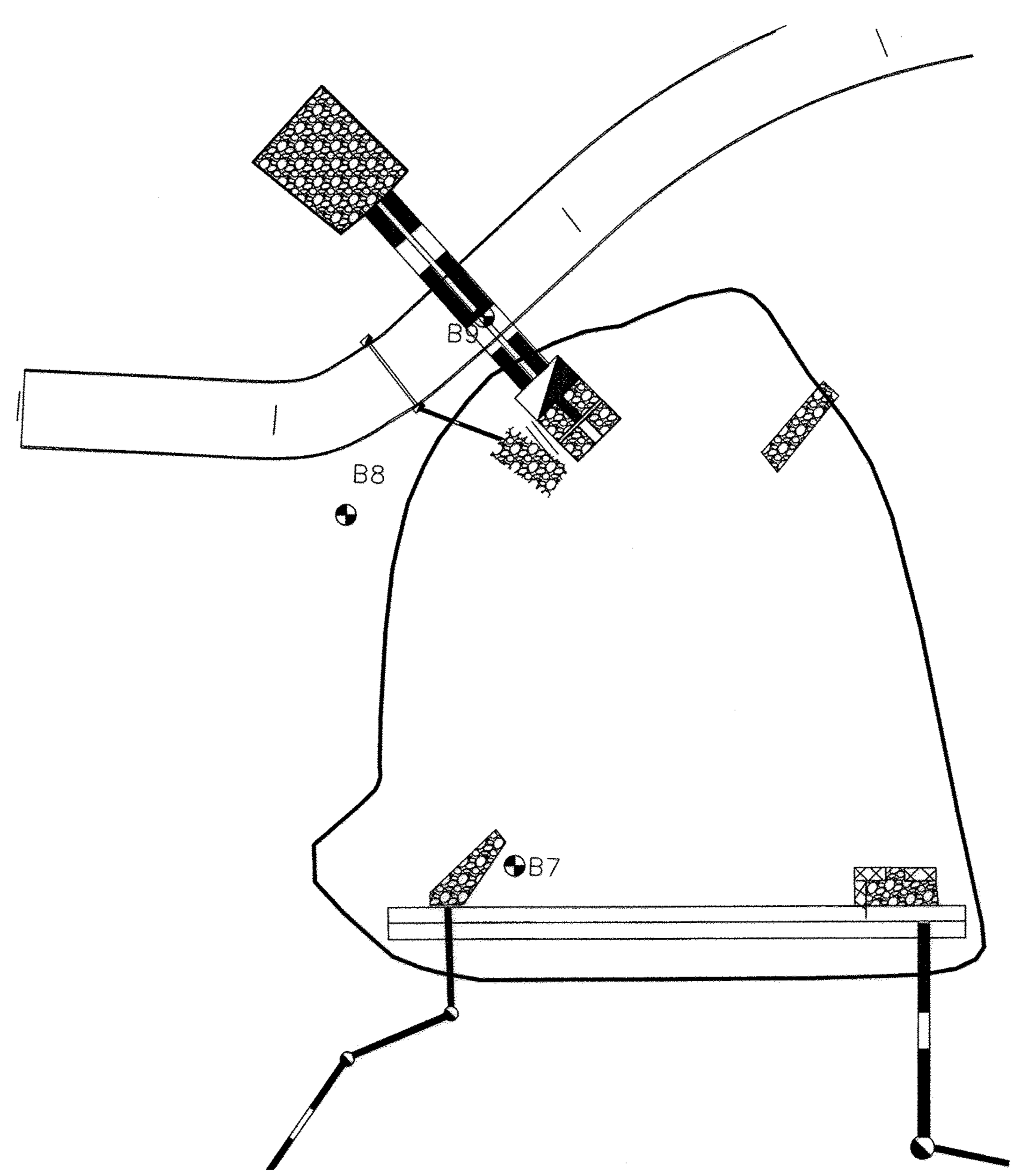
HOWARD SOIL CONSERVATION DISTRICT DATE



Schnabel TEST BORING LOG — B-7

Schnabel Engineering Associates, Inc.

Project: John Hopkins Applied Physics Lab, Storm Water Management Basin - A, Laurel, Maryland
Boring Number: B-7
Contract Number: 01121283
Sheet: 1 of 1

Boring Contractor: Stevens Drilling
Boring Foreman: Cave
Drilling Method: 2-1/4 I.D. Hollow Stem Auger
Drilling Equipment: ATV-Mounted
SEA Representative: Eric Henmueller
Dates Started: 8/15/01 Finished: 8/15/01
Location: See Boring Location Plan
Ground Surface Elevation: 380.0± (feet)

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	8/15	—	10.0'	—	—
Completion	8/15	—	7.0'	—	—
Casing Pulled	8/15	—	4.5'	—	9.5'
24 hours	8/16	—	2.0'	—	7.0'

DEPTH (ft)	STRATA DESCRIPTION	CLASS.	ELEV. (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Topsoil		379.8			12+22+40		
	DISINTEGRATED ROCK, micaceous, moist, reddish-brown to yellowish-brown			C		100/3"		
					5	100/6"	w=9.5%	
8.5	sandy SILT, micaceous, moist, reddish-brown	ML	371.5	B	10	6+8+17	w=20.1%	
13.5	DISINTEGRATED ROCK, micaceous, moist, reddish-brown		366.5	C		100/4"		
13.9	BOTTOM OF BORING @ 13.9 FT.		366.1					

Comments:

Schnabel TEST BORING LOG — B-8

Schnabel Engineering Associates, Inc.

Project: John Hopkins Applied Physics Lab, Storm Water Management Basin - A, Laurel, Maryland
Boring Number: B-8
Contract Number: 01121283
Sheet: 1 of 1

Boring Contractor: Stevens Drilling
Boring Foreman: Cave
Drilling Method: 2-1/4 I.D. Hollow Stem Auger
Drilling Equipment: ATV-Mounted
SEA Representative: Eric Henmueller
Dates Started: 8/15/01 Finished: 8/15/01
Location: See Boring Location Plan
Ground Surface Elevation: 383.0± (feet)

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	8/15	—	13.0'	—	
Completion	8/15	—	13.0'		
Casing Pulled	8/15	—	12.0'	—	13.0'
24 hours	8/16	7:05	10.0'	—	12.0'

DEPTH (ft)	STRATA DESCRIPTION	CLASS.	ELEV. (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	stone and gravel		382.7			6+13+12		
	silty sand FILL, micaceous, moist, reddish-brown							
2.5	silty sand FILL, micaceous, trace organics, moist, gray/brown		380.5	A		13+6+10	w=16.0%	
5.0	sandy SILT, micaceous, moist, yellowish-brown	ML	378.0	B	5	3+5+7	w=18.6%	
9.0	DISINTEGRATED ROCK, micaceous, moist, yellowish-brown		374.0	C	10	10+30+70	w=9.2%	
						35+50+50		
15.0	BOTTOM OF BORING @ 15.0 FT.		368.0		15			

Comments:
6" Pipe installed for infiltration test
Infiltration test performed at a depth of 5.2 feet below grade

Schnabel TEST BORING LOG — B-9

Schnabel Engineering Associates, Inc.

Project: John Hopkins Applied Physics Lab, Storm Water Management Basin - A, Laurel, Maryland
Boring Number: B-9
Contract Number: 01121283
Sheet: 1 of 1

Boring Contractor: Stevens Drilling
Boring Foreman: Cave
Drilling Method: 2-1/4 I.D. Hollow Stem Auger
Drilling Equipment: ATV-Mounted
SEA Representative: Eric Henmueller
Dates Started: 8/15/01 Finished: 8/15/01
Location: See Boring Location Plan
Ground Surface Elevation: 382.5± (feet)

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	8/15	—	13.0'	—	—
Completion	8/15	—	13.0'	—	—
Casing Pulled	8/15	—	12.0'	—	12.5'
24 hours	8/16	7:00	11.0'	—	12.0'

DEPTH (ft)	STRATA DESCRIPTION	CLASS.	ELEV. (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Topsoil		382.2			3+3+8	w=14.2%	
	sandy silt FILL, micaceous, moist, reddish-brown					6+11+14		
				A	5	5+8+10	w=21.3%	
						3+3+20	w=23.8%	
9.5	silty SAND, micaceous, moist, reddish-brown	SM	373.0	B	10			
14.0	DISINTEGRATED ROCK, micaceous, moist, reddish, brown		368.5	C		9+28+55		
15.0	BOTTOM OF BORING @ 15.0 FT.		367.5		15			

Comments:

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 5/17/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
[signature] 5/20/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
N/A X
DIRECTOR DATE

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 # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER
DRN:
CHK: B. WARNER
DATE: 04/19/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

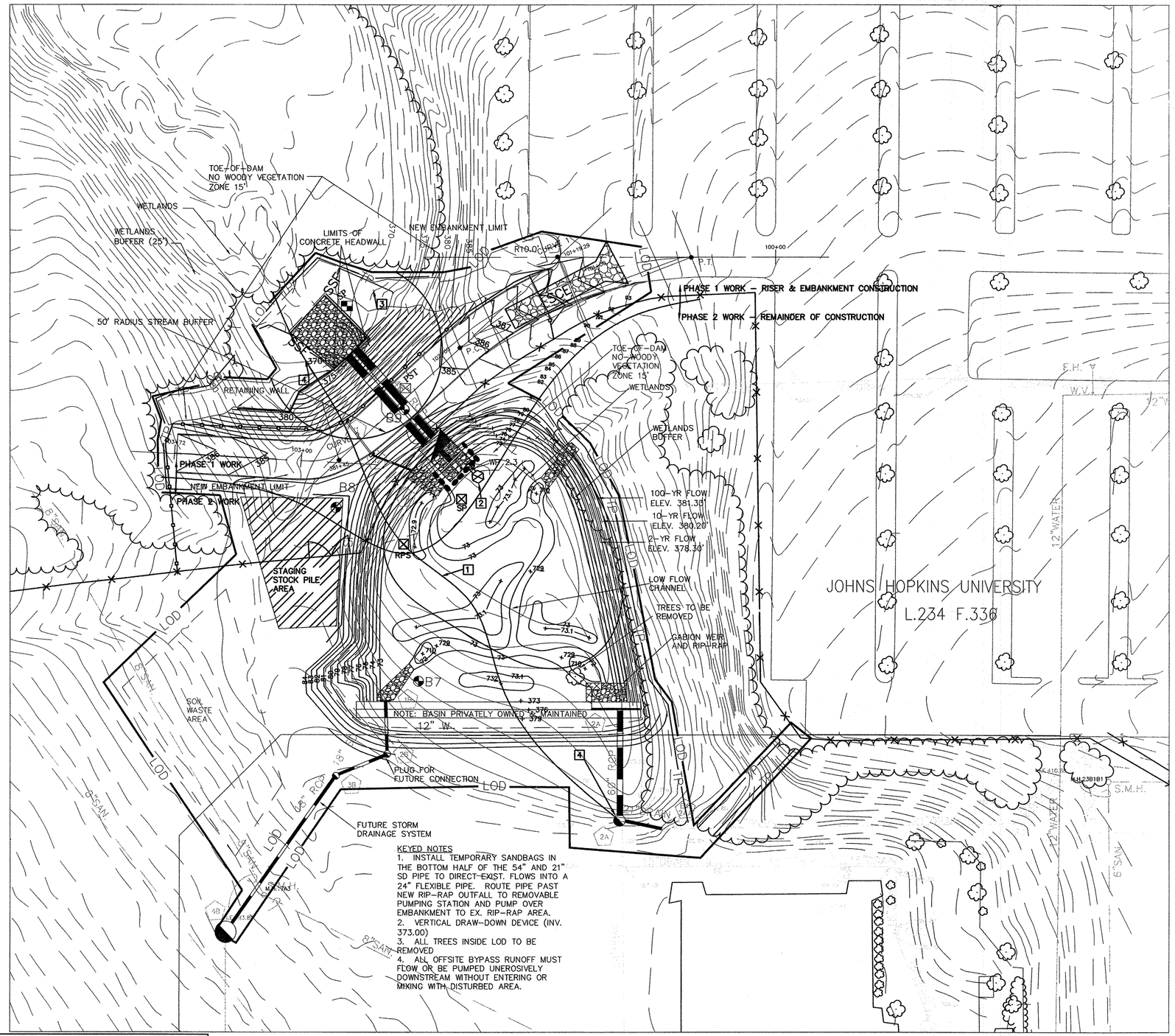
BORING LOCATION & DATA

TAX MAP 41 PARCEL 123
ELECTION DISTRICT 5
HOWARD COUNTY ND

SCALE AS SHOWN

SHEET C14

F-02-40



KEYED NOTES

1. INSTALL TEMPORARY SANDBAGS IN THE BOTTOM HALF OF THE 54" AND 21" SD PIPE TO DIRECT EXIST. FLOWS INTO A 24" FLEXIBLE PIPE. ROUTE PIPE PAST NEW RIP-RAP OUTFALL TO REMOVABLE PUMPING STATION AND PUMP OVER EMBANKMENT TO EX. RIP-RAP AREA.
2. VERTICAL DRAW-DOWN DEVICE (INV. 373.00)
3. ALL TREES INSIDE LOD TO BE REMOVED
4. ALL OFFSITE BYPASS RUNOFF MUST FLOW OR BE PUMPED UNEROSIVELY DOWNSTREAM WITHOUT ENTERING OR MIXING WITH DISTURBED AREA.

SEDIMENT CONTROL & POND CONSTRUCTION

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

SIGNATURE OF DEVELOPER — DATE 4/25/2002
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."

SIGNATURE OF ENGINEER — DATE 4/22/02
PRINT NAME BELOW SIGNATURE
Robert A. Warner

( ) 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 5/6/02

( ) 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 5/6/02

NORTH

30 0 30 60 90
1" = 30'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/20/02
DIRECTOR — N/A — DATE

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER

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 # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER
DRN: P. FRIAS
CHK: B. WARNER
DATE: 04/24/02

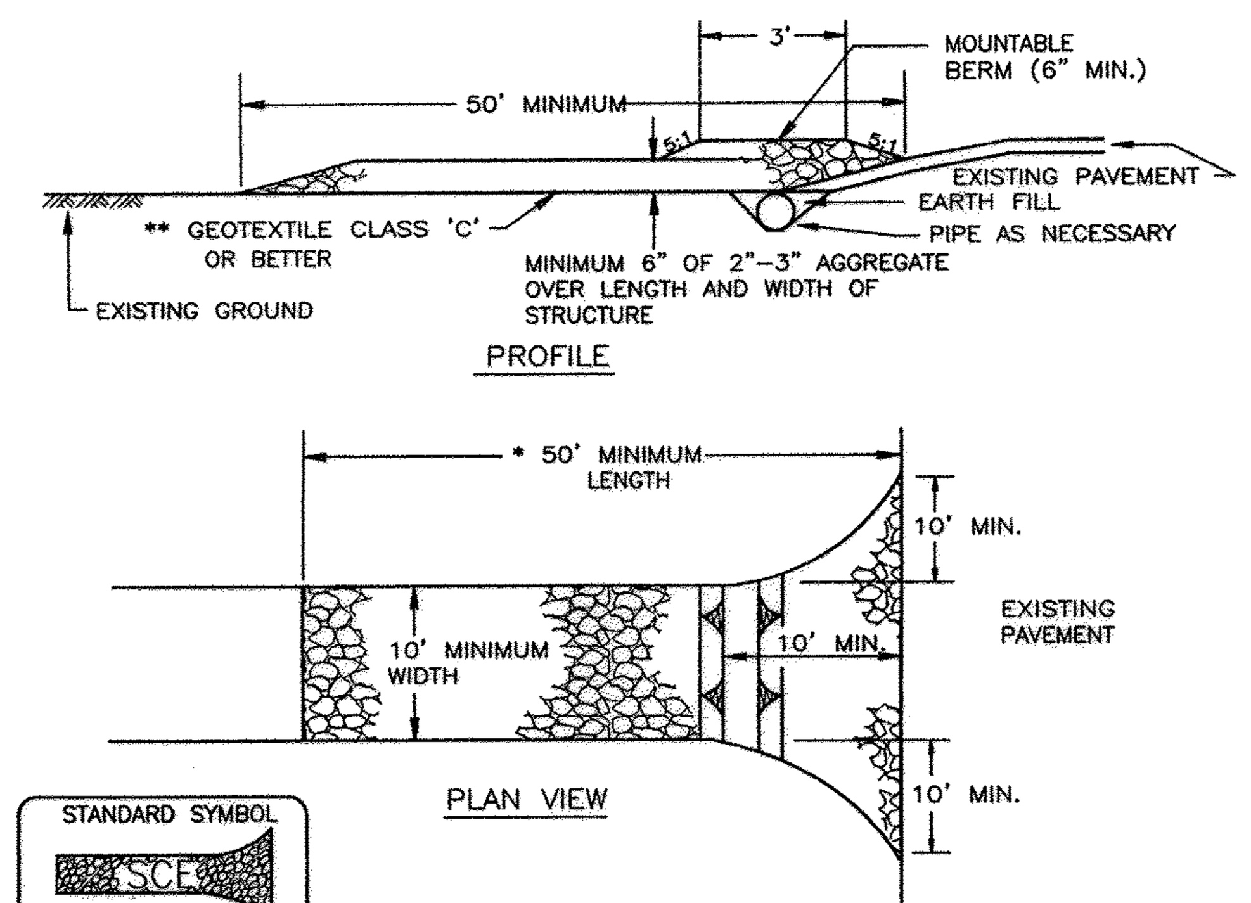
DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND A
EROSION & SEDIMENT CONTROL PLAN
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS 1" = 30'
SHEET ES-1
SHEET 15 OF 24

F-02-40

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE

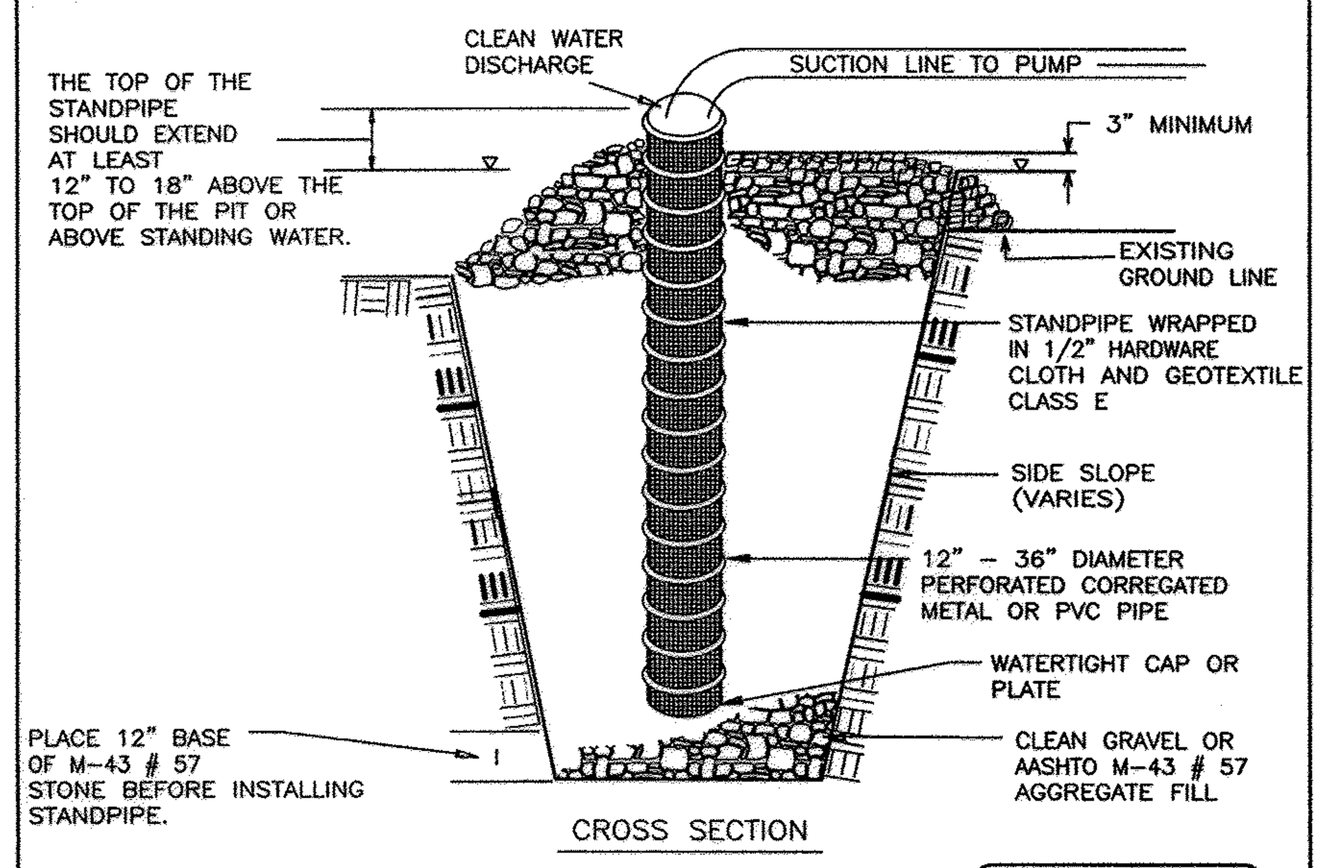


Construction Specification

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

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

DETAIL 20B – SUMP PIT

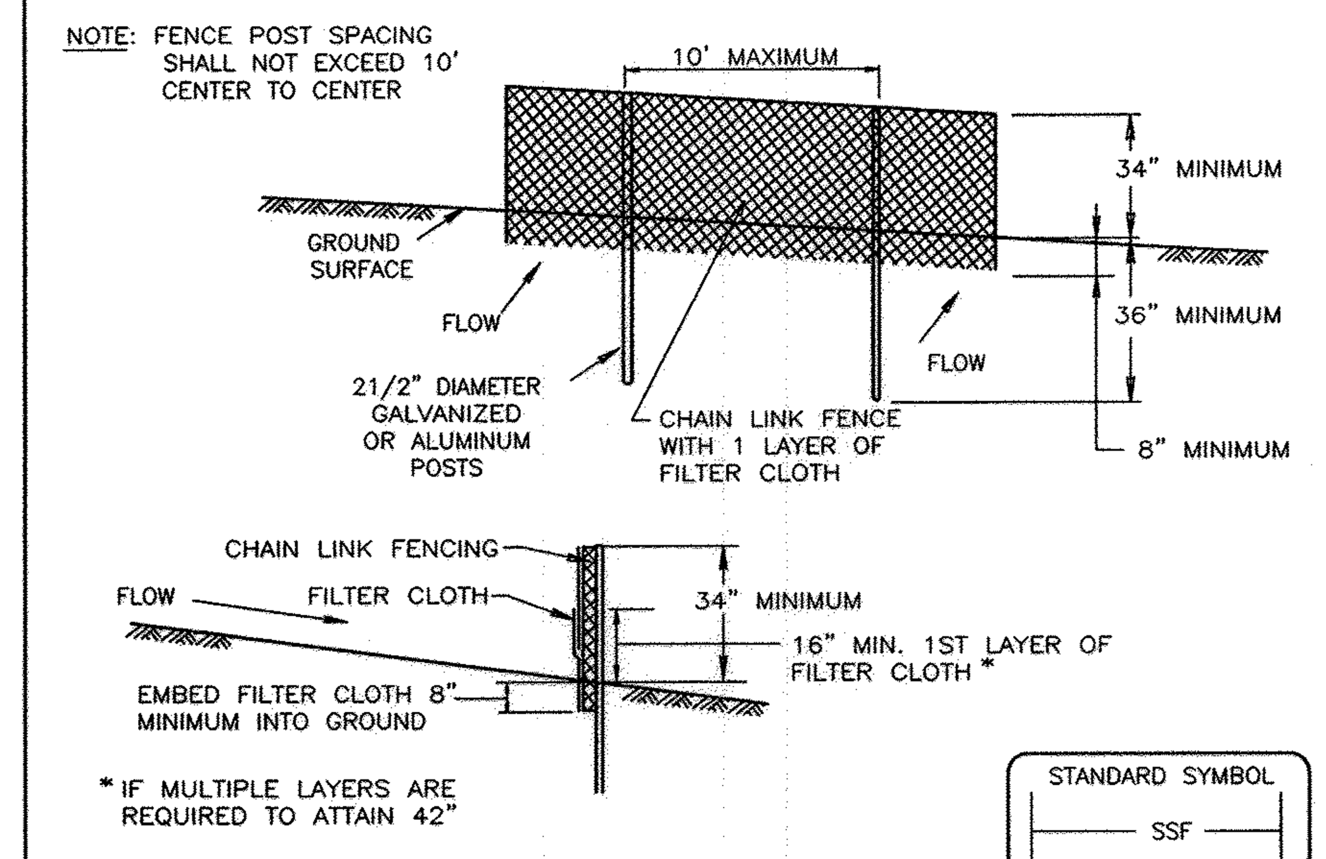


Construction Specifications

1. Pit dimensions are variable, with the minimum diameter being 2 times the standpipe diameter.
2. 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.
3. 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.
4. 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

DETAIL 33 – SUPER SILT FENCE



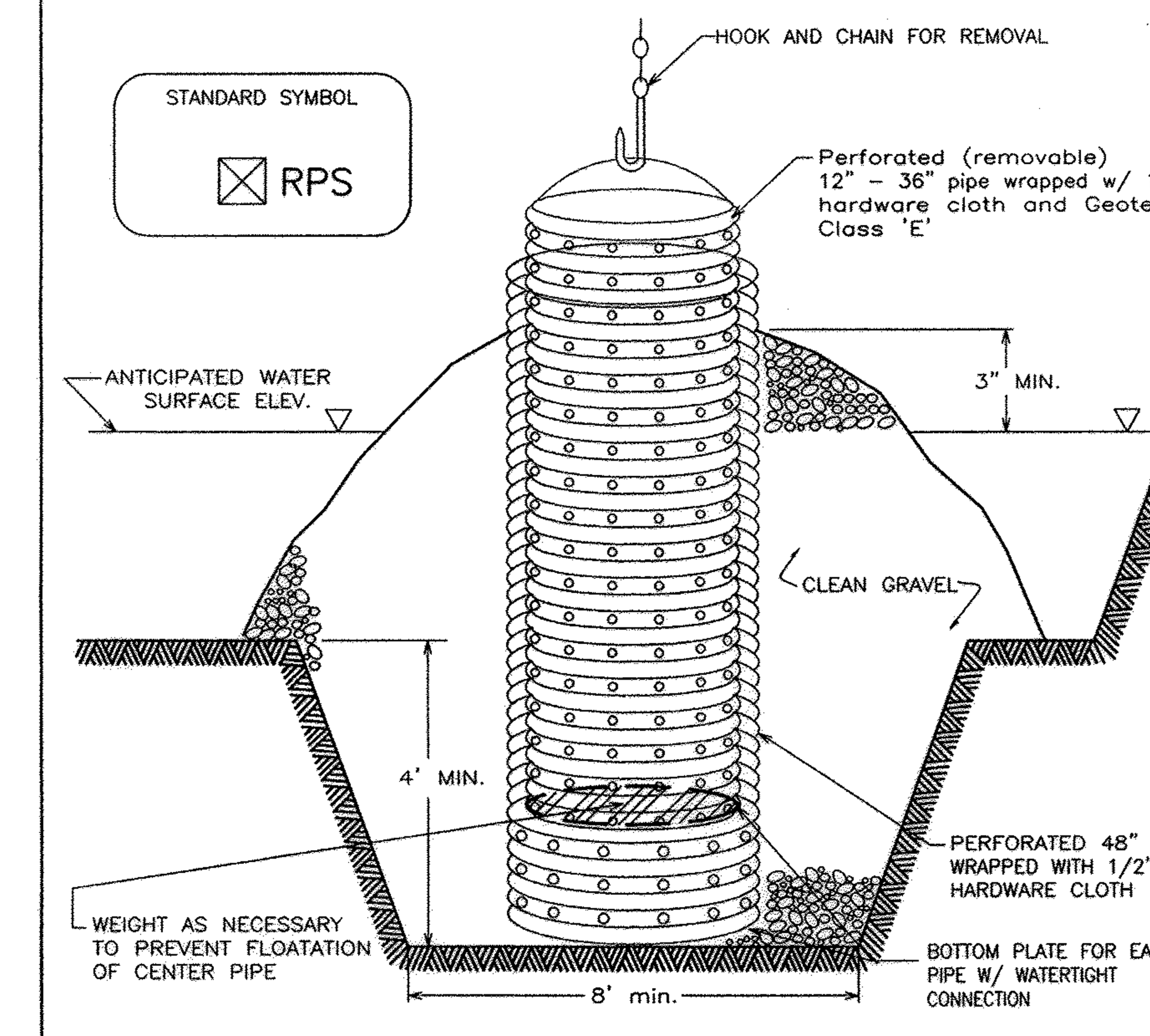
Construction Specifications

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

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

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

DETAIL 20A – REMOVABLE PUMPING STATION



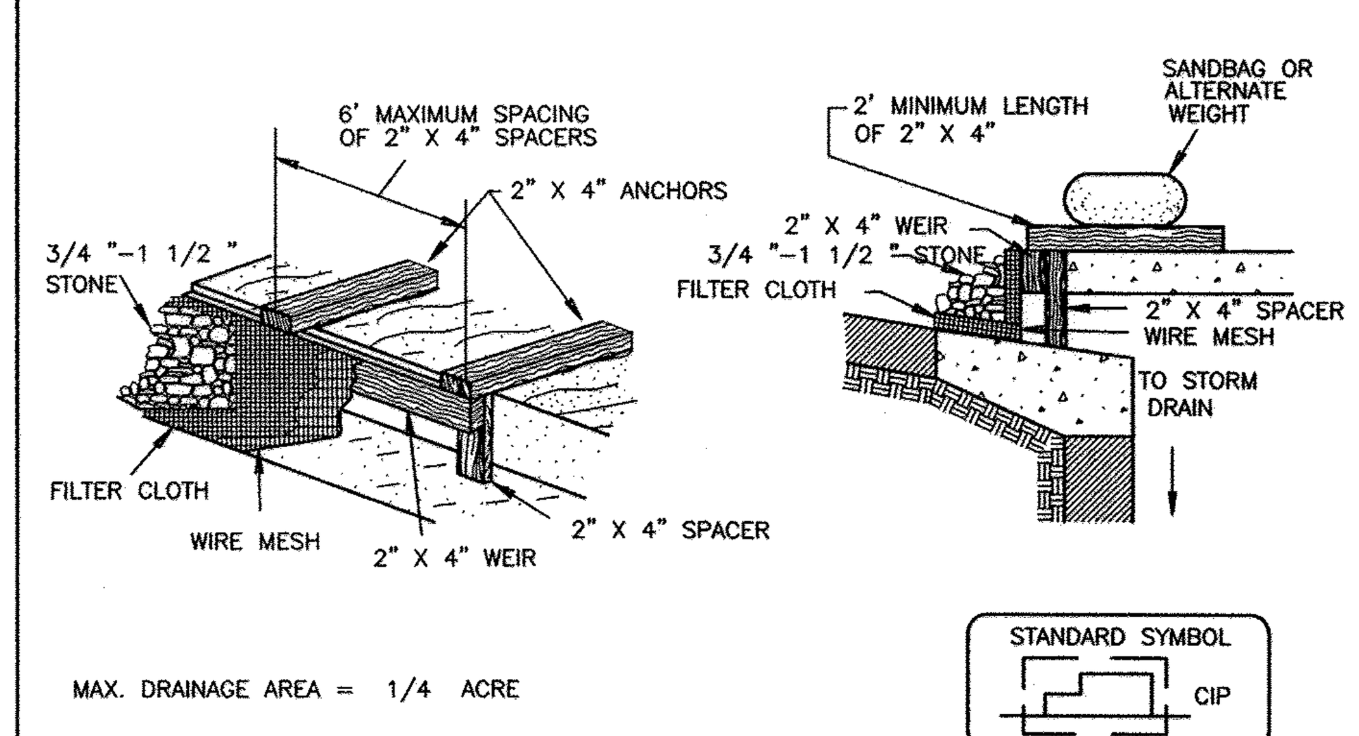
ELEVATION (CUT AWAY)

Construction Specifications

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

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

DETAIL 23C – CURB INLET PROTECTION (COG OR COS INLETS)



MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.
2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.
3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).
4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
6. Form the 1/2 " x 1/2 " wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4 " x 1 1/2 " stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 16 - 5B	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SILT FENCE

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

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

EROSION CONTROL LEGEND

Symbol	Description
SCE	STABILIZED CONSTRUCTION ENTRANCE
SSF	SUPER SILT FENCE
LOD	LIMIT OF DISTURBANCE
TP	TREE PROTECTION
SP	SUMP PIT
PST	PORTABLE SEDIMENT TANK
●●●●●●●●	TEMPORARY SANDBAG DIVERSION
	RIPRAP
RPS	REMOVABLE PUMPING STATION

SEDIMENT CONTROL & POND CONSTRUCTION

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

[signature] 4/25/2002
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."

[signature] 4/22/02
SIGNATURE OF ENGINEER DATE
PRINT NAME BELOW SIGNATURE
Robert A. Warner

( ) 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] 5/8/02
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] 5/8/02
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] DATE 5/17/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION
[signature] DATE 5/20/02
CHIEF, DIVISION OF LAND DEVELOPMENT
N/A DATE
DIRECTOR

FOR EROSION AND SEDIMENT CONTROL ONLY

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 # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER
DRN: S. ITANI
CHK: B. WARNER
DATE: 04/19/02

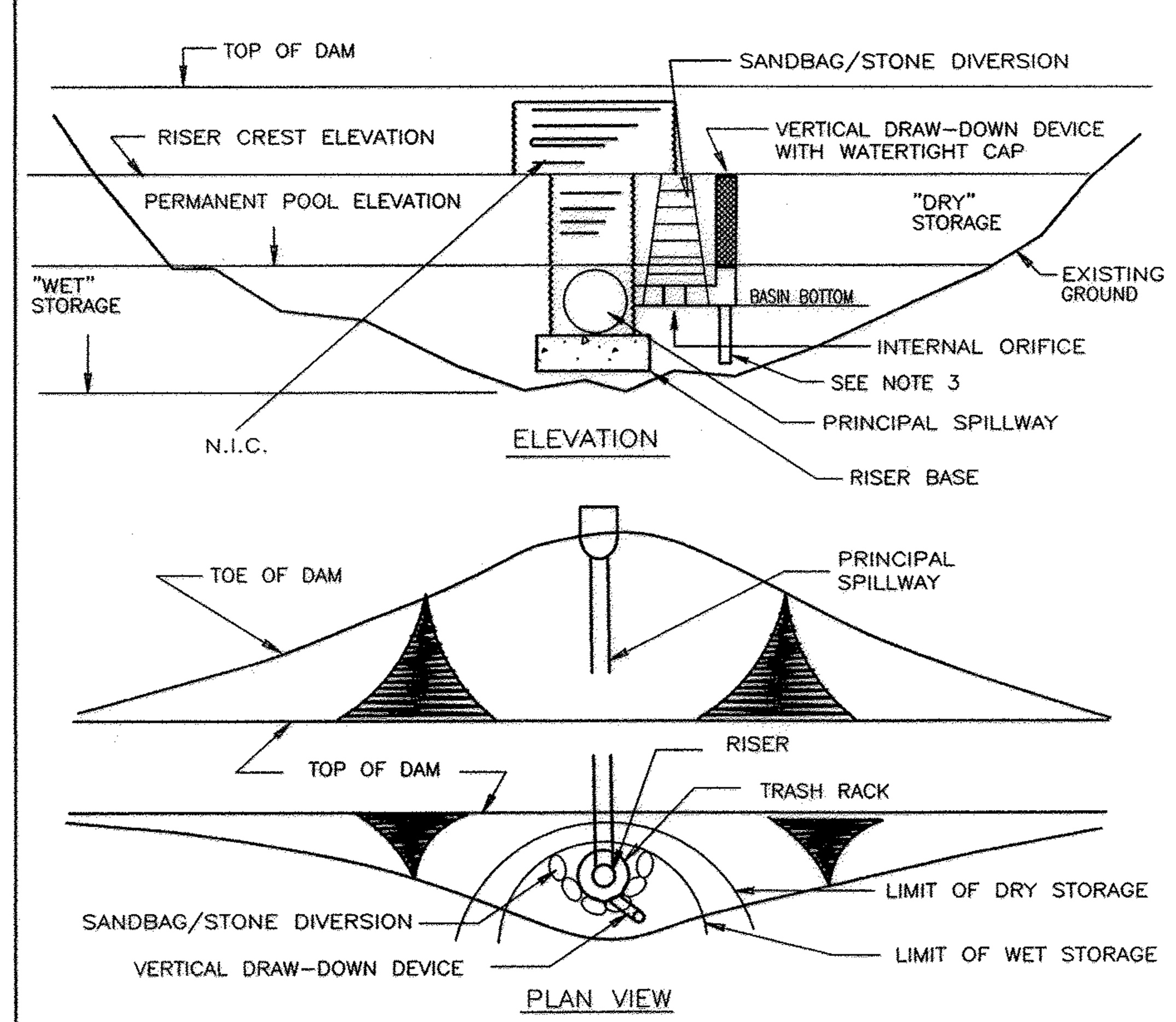
DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND A
EROSION & SEDIMENT NOTES AND DETAILS
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET ES-2
SHEET 16 OF 24

F-02-40

BASIN DRAWDOWN SCHEMATIC
VERTICAL DRAW-DOWN DEVICE



Construction Specifications

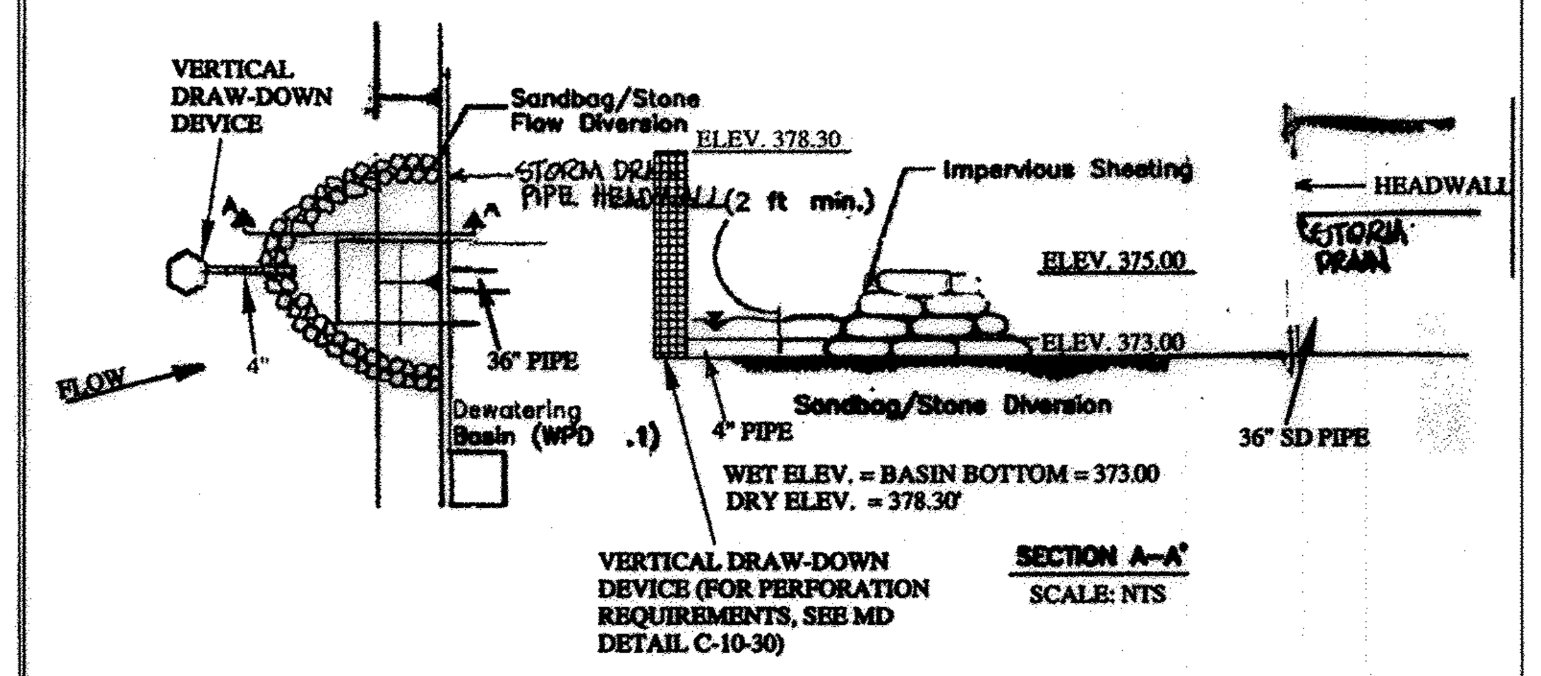
1. Perforations in the draw-down device may not extend into the wet storage.

2. The total area of the perforations must be greater than 2 times the area of the internal orifice.

3. 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.

4. 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 guage minimum wire.

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



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.

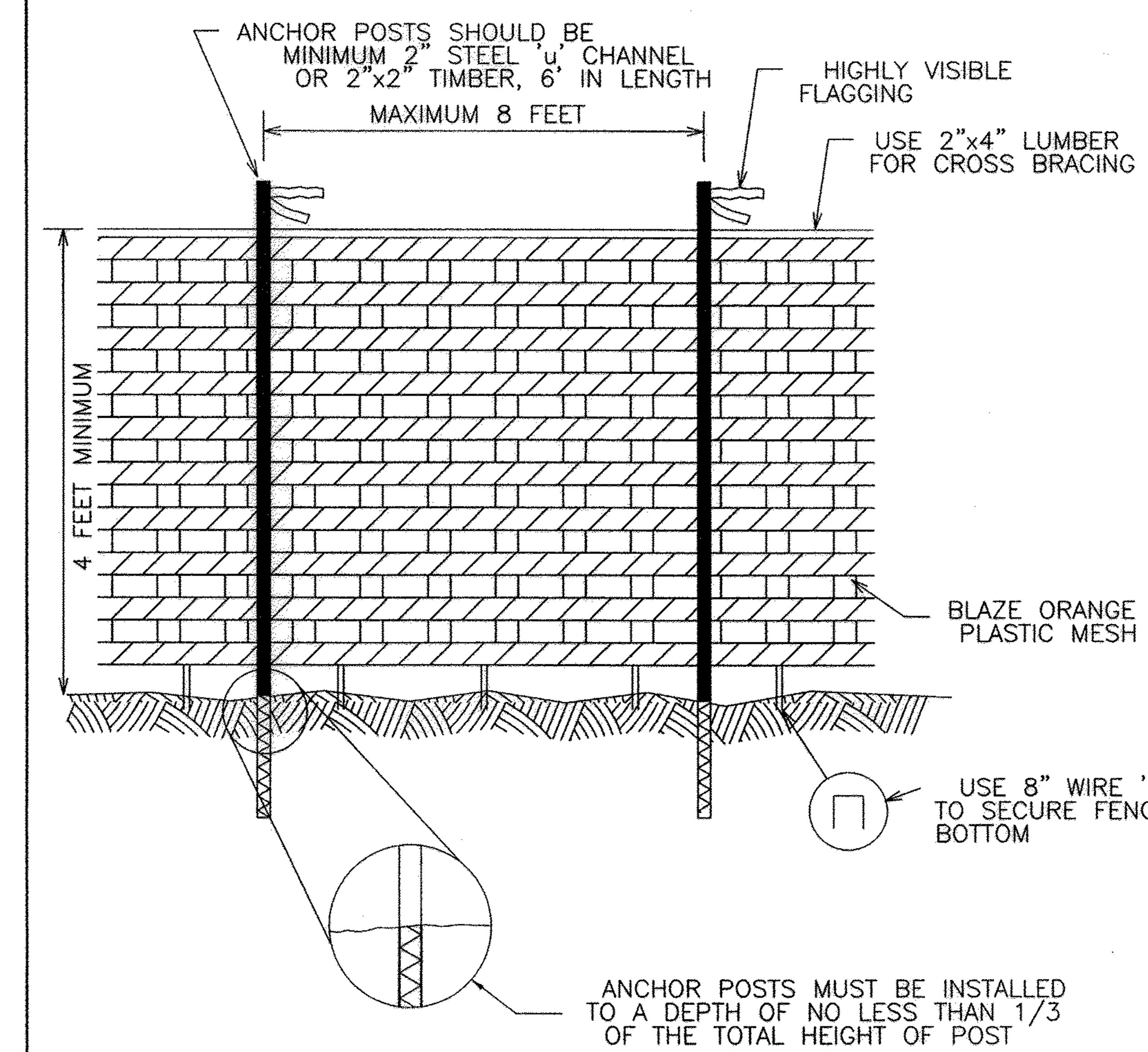
II. Material Specifications

1. 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.)
2. 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.

III. Construction Requirements

1. All erosion and sediment control devices shall be installed as the first order of work.
2. The diversion structure shall be installed from upstream to downstream.
3. 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.
4. 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 WRA.
5. All dewatering of the construction area shall be pumped to a dewatering basin prior to re-entering the stream.
6. Sheeting shall be overlapped such that the upstream portion covers the downstream portion with at least an 18-inch overlap.
7. 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 1/4/84 [signature] Chief, Waterway Permits	WPD 2.3



NOTES:
1. Forest protection device only.
2. Retention Area will be set as part of the review process.
3. Boundaries of retention Area should be staked and flagged prior to installation device.
4. Root damage should be avoided.
5. Protective signage is required.
6. Device should be maintained throughout construction

TREE PROTECTION DEVICE
NOT TO SCALE

INSPECTION CHECK LIST - BASIN

DAM ____ DATE ____
OWNER ____ WEATHER ____
INSPECTED BY ____ POOL LEVEL ____

Item	Comments	Y/N	MONITOR	REPAIR	INVESTIGATE
1. CREST					
a. Visual settlement?					
b. Misalignment?					
c. Cracking?					
2. UPSTREAM SLOPE					
a. Erosion?					
b. Ground cover in good condition?					
c. Trees, shrubs, or other woody vegetation?					
d. Longitudinal/Vertical cracks?					
e. Adequate riprap protection?					
f. Stone deterioration?					
g. Settlements, depressions, or bulges?					
3. DOWNSTREAM SLOPE					
a. Erosion?					
b. Ground cover in good condition?					
c. Trees, shrubs, or other woody vegetation?					
d. Longitudinal/Vertical cracks?					
e. Riprap protection adequate?					
f. Settlements, depressions, or bulges?					
g. Soft spots or boggy areas?					
h. Movement at or beyond toe?					
i. Boils at toe?					
4. DRAINAGE-SEEPAGE CONTROL					
a. Internal drains flowing?	Est. Left ____ gpm Est. Right ____ gpm				
b. Seepage at toe?	Estimated ____ gpm				
c. Does seepage contain fines?					
5. ABUTMENT CONTACTS					
a. Erosion?					
b. Differential movement?					
c. Cracks?					
d. Seepage?	Estimated ____ gpm				
e. Adequate erosion protection for ditches?					
6. INLET STRUCTURE	Concrete or Metal Pipe (circle one)				
a. Seepage into structure?					
b. Debris or obstructions?					
c. If concrete, do surfaces show:					
1. Spalling?					
2. Cracking?					
3. Erosion?					
4. Scaling?					
5. Exposed reinforcement?					
6. Other?					
d. If metal, do surfaces show:					
1. Corrosion?					
2. Protective Coating deficient?					
3. Misalignment or split seams?					
e. Do the joints show:					
1. Displacement or offset?					
2. Loss of joint material?					
3. Leakage?					

INSPECTION CHECKLIST - PAGE 3

INSPECTED BY ____ DATE ____

Item	Comments	Y/N	MONITOR	REPAIR	INVESTIGATE
f. Are the trash racks:					
1. Broken or bent?					
2. Corroded or rusted?					
3. Obstructed?					
4. Operational?					
g. Sluice/Drain gates:					
1. Broken or bent?					
2. Corroded or rusted?					
3. Leaking?					
4. Not seated correctly?					
4. Periodically maintained?					
5. Operational?					
7. PRINCIPAL SPILLWAY PIPE	Concrete or Metal Pipe (circle one)				
a. Seepage into conduit?					
b. Debris present?					
c. Do concrete surfaces show:					
1. Spalling?					
2. Cracking?					
3. Erosion?					
4. Scaling?					
5. Exposed reinforcement?					
6. Other?					
d. Do the joints show:					
1. Displacement or offset?					
2. Loss of joint material?					
3. Leakage?					
8. STILLING BASIN/POOL	Riprap or Concrete (circle one)				
a. If concrete, condition of surfaces?					
b. Deterioration or displacement of joints?					
c. Outlet channel obstructed?					
d. Is released water:					
1. Undercutting the outlet?					
2. Eroding the embankment?					
3. Displacing riprap?					
4. Scouring the plunge pool?					
e. Tailwater elevation and flow condition:					
9. EMERGENCY SPILLWAY					
a. Is the channel:					
1. Eroding or backcutting?					
2. Obstructed?					
b. Trees or shrubs in the channel?					
c. Seepage present?					
d. Soft spots or boggy areas?					
e. Channel slopes eroding or sloughing?					
10. RESERVOIR					
a. High water marks?					
b. Erosion/Slides into pool area?					
c. Sediment accumulation?					
d. Floating debris present?					
e. Adequate riprap protection for ditches?					

OPERATION AND MAINTENANCE SCHEDULE
OWNER SHALL INSPECT AND COMPLETE
INSPECTION CHECK LIST - BASIN ANNUALLY.
REPAIRS AND MAINTENANCE SHALL BE PERFORMED
ANNUALLY AND WHEN NEEDED.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 5/17/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION MAK DATE

[signature] 5/20/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

N/A
DIRECTOR DATE

SANDBAG/STONE DIVERSION TO BE INSTALLED TO BLOCK INLET OF BASIN OUTLET STRUCTURE. BASIN TO BE DEWATERED BY MECHANICAL PUMP THROUGH "PST".

Figure 2 Temporary Sediment Basin Design Data Sheet

...puted by: RW Date: 3/10/02 Checked by: ____ Date: ____
...ect name: JHU APL SWM BASIN Basin #: A
...tion: JHU APL, LAUREL, HOWARD COUNTY

...area draining to basin: 43.2 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 ft² to yd², divide ft² by 9.

1. Min. required vol. = 3600 ft³/ac x 1.1 ac. drainage = 3960 ft³
2. Actual Volume of basin = 31,252 ft³
3. Excavate 0 ft³ (0 yd³) to obtain required capacity.
4. Vol. at dewatering 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) 375.00 ft. (TOP OF DIVERSION)
7. Permanent pool elevation 374.0 ft.
8. Distance from riser crest elevation to permanent pool elevation 1.0 ft.
9. Basin cleanout elevation 373.5 ft. (AREA (125)² = 780 ft²)
10. Distance from riser crest elevation to cleanout elevation 1.0 ft.

Spillway Design

11. Q_{10} = 182 cfs (peak discharge from 10-yr, 24-hr storm event, attach computations)
(SANDBAG DIVERSION: 30' LONG, FLOW HEIGHT: (3.1)(30')(1.565)^1.5 = 182 cfs

Principal Spillway (Qpa) (See Detail 11)
- SEE SWM BASIN A REPORT BASIN OUTLET -

Design Elevations

23. Riser Crest - Diversion = 375 ft.
24. Design High Water (10 yr) = 376.565 ft.
25. Emergency Spillway Crest = 375 ft.
26. Min. settled top of dam = 383.50 ft.
27. Permanent pool = 374 ft.
28. Bottom of Basin = 373.00 ft.
29. Draw-down orifice invert = 373 ft.

Surface Area Design

30. Min. basin surface area; SA ≥ 0.0035 x Q_{10} = 0.0035 x 182 cfs ≤ 0.64 ac. = 27,748 ft²

Draw-down Device

31. Draw-down device orifice diameter = 4" in. (From Table 11)
32. A_t = Total area of perforations ≥ 4A_o
A_t = (# of perforations/foot)(perforation area ft²)(perforated section length ft.)
A_t = 0.87 ft²
A_o = Internal orifice area (from Table 11 or computed)

SEDIMENT CONTROL & POND CONSTRUCTION

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

[signature] 4/25/2002
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."

[signature] 4/22/02
SIGNATURE OF ENGINEER DATE
PRINT NAME BELOW SIGNATURE
Robert A. Warner

( ) 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] 5/8/02
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] 5/8/02
HOWARD SOIL CONSERVATION DISTRICT DATE

FOR EROSION AND SEDIMENT CONTROL ONLY

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 # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER					
DRN: P. FRIAS					
CHK: S. ITANI					
DATE: 04/19/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND A
EROSION & SEDIMENT DETAILS AND NOTES
TAX MAP 41 PARC... 123
ELECTION DISTRICT ... 5
HOWARD COUNTY, M... ND

SCALE AS SHOWN
SHEET ES-3
SHEET 17 OF 24

F-02-40

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 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 Leach 4/25/2002

SIGNATURE OF DEVELOPER — Date

PRINT NAME BELOW SIGNATURE

BY THE ENGINEER:

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4/22/02

SIGNATURE OF ENGINEER — Date

PRINT NAME BELOW SIGNATURE

Robert A. Warner

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5/8/02

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.

5/8/02

HOWARD SOIL CONSERVATION DISTRICT — Date

SEDIMENT CONTROL NOTES

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

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

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

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

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

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

7) SITE ANALYSIS:

TOTAL AREA OF SITE	361.0	ACRES
AREA DISTURBED	1.5	ACRES
AREA TO BE ROOFED OR PAVED	0.1	ACRES
AREA TO BE VEGITATIVELY STABILIZED	1.5	ACRES
TOTAL CUT	2,200	CU.YDS.*
TOTAL FILL	2,200	CU.YDS.
OFF SITE WASTE/BORROW AREA LOCATION	0	CU. YDS.*

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

* ALL SOILS TO REMAIN ONSITE

DURATION (WEEKS):		SEQUENCE OF CONSTRUCTION (S.O.C.):
4	PHASE 1 WORK ONLY - RISER AND EMBANKMENT CONSTRUCTION	1. CONTRACTOR SHALL OBTAIN A GRADING PERMIT. CONTRACTOR SHALL PREPARE A SEQUENCE FOR RISER AND EMBANKMENT CONSTRUCTION ONLY WITH DEWATERING DEVICE ADDED PER MDE STANDARD WHEN COMPLETE, THEN GRADE INSIDE AND AROUND POND. THE OWNER SHALL REVIEW AND APPROVE THE WRITTEN SEQUENCE PERFORMING S.O.C. #2
3		2. NOTIFY APL AND COUNTY SEDIMENT CONTROL INSPECTOR AT LEAST 14 DAYS PRIOR TO BEGINNING WORK TO ARRANGE FOR A PRE-CONSTRUCTION MEETING.
2		3. INSTALL TEMPORARY SECURITY FENCE OUTSIDE CONSTRUCTION AREA AND GAIN APPROVAL OF FENCE INSTALLATION.
1		4. PERFORM CLEARING ONLY AS NECESSARY TO INSTALL TREE PROTECTION, STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE AND ALL OTHER SEDIMENT CONTROL FACILITIES WITHIN THE PROJECT LIMIT.
1		5. ESTABLISH STAGING AREA FOR CONSTRUCTION. DO NOT START S.O.C. #6 UNTIL FIRST RECEIVING PERMISSION FROM THE INSPECTOR TO PROCEED.
1		6. WITH A 5-DAY CLEAR (NO PRECIPITATION) WEATHER FORECAST FROM NATIONAL WEATHER CENTER, ROUGH GRADE SITE AND EXCAVATE TRENCH FOR CONSTRUCTION OF EMBANKMENT CORE TRENCH. CONTRACTOR SHALL PROVIDE MEANS OF MAINTAINING CONDENSATE FLOW FROM THE STORM DRAINS THROUGH THE CONSTRUCTION OF THE BASIN OUTLET WORKS. WASTE SOIL ON SITE AND STABILIZE WITH VEGETATION. SEE PLAN FOR METHOD OF MAINTAINING CONDENSATE FLOW.
1		7. INSTALL OUTLET STRUCTURE, PIPE, ANTI-SEEP COLLAR; BACKFILL AND COMPACT EMBANKMENT ELEVATION OF THE OUTLET PIPE. FILL MATERIAL SHALL BE COMPACTED IN LIFTS NOT EXCEEDING 8" LOOSE THICKNESS TO ATLEAST 95% MAXIMUM DRY DENSITY (ASTM D698) FILL PLACE ALONG EXISTING SLOPES SHALL BE BENCHED INTO THE EXISTING HILLSLIDE.
2		8. INSTALL BACKFILL AND COMPACT DRIVE BASE AND CURB ON EMBANKEMENT.
1	PHASE 2 WORK - REMAINDER OF CONSTRUCTION	9. UPON PERMISSION FROM THE COUNTY INSPECTOR, PROVIDE AND INSTALL REMAINDER OF CONSTRUCTION AS SHOWN.
1		10. PERFORM FINE GRADING AND PERMANENT STABILIZATION OF THE SITE INCLUDING SOD, RIP-RAP, LANDSCAPE PLANTING, GABIONS, AND VEGETATIVE STABILIZATION.
1		11. REQUEST FINAL INSPECTION FROM COUNTY SEDIMENT CONTROL INSPECTOR.
1		12. WITH COUNTY SEDIMENT CONTROL INSPECTOR'S APPROVAL TO REMOVE CONTROLS BASED ON SITE CONDITIONS, REMOVE SEDIMENT CONTROL FACILITIES.
1		13. PROVIDE AND INSTALL PERMANENT SECURITY FENCE ALONG THE NEW ROAD AND GATE WHERE EXISTING GATE WAS LOCATED AT THE START OF CONSTRUCTION.
1		14. AFTER APPROVAL OF NEW FENCE BY APL, REMOVE TEMPORARY SECURITY FENCE AND RESTORE FENCE AREA DISTURBED BY THIS OPERATION.
21	TOTAL TIME	

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

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

11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

TEMPORARY SEEDING NOTES:

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDED PREPARATION:

LOOSEN UPPER THREE INCHES OF SOIL BY RAKING DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS:

APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ. FT.) ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SEEDING:

FOR THE PERIOD MARCH 1 THROUGH APRIL 30, AND AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 1-1/2 BUSHEL PER ANNUAL RYE (3.2 LBS/1,000 SQ. FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS/ACRE OF WEEPING LOVE GRASS (0.07 LBS/1000 SQ. FT.). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28. PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED RAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OR USE SOD.

MULCHING:

APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1,000 SQ.FT) OR UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER CARE (5 GAL/ 1,000 SQ.FT) OF EMULSIFIED ASPHALT ON FLAT ACRES. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1,000 SQ.FT.) FOR ANCHORING.

REFER TO THE 1988 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

PERMANENT SEEDING NOTES:

ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:

SEEDBED PREPARATION:

LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.

SOIL AMENDMENTS:

APPLY TWO TONS PER ACRE DOLOMITIC LIME STONE (92 LBS/1,000 SQ.FT) AND 600 LBS PER ACRE 0-20-20 FERTILIZER (14 LBS/1,000 SQ.FT) BEFORE SEEDING HARROW OR DISCING. INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LNS PER ACRE 38-0-0 UREAFORM FERTILIZER (9 LBS/1,000 SQ. FT.) AND 500 LBS PER ACRE (11.5 LBS/1,000 SQ. FT.) OF 10-20-20 FERTILIZER.

SOIL AMENDMENTS:

FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 100 LBS PER ACRE (2.3 LBS/1,000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE, FOR THE PERIOD MAY 1 THROUGH JULY 21, SEED WITH 60 LBS/ACRE (1.4 LBS/1,000 SQ.FT.) KENTUCKY 31 TALL FESCUE AND 2 LBS PER ACRE (0.05 LBS/1,000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28. PROJECT SITE BY: OPTION (1) - TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRINGS OPTION (2) - USE 500, OPTION (3) - SEED WITH 100 LBS/ACRE KENTUCKY 21 TALL FESCUE AND MULCH WITH TWO TONS/ACRE WELL ANCHORED STAW. ALL SLOPES SHOULD BE HYDROSEEDED.

MULCHING:

APPLY 1-1/2 TO 2 TONS PER ACRE (10 TO 90 LBS/1,000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING 200 GALLONS PER ACRE (5 GAL/1,000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT ACRES. ON SLOPES 8 FEET OR HIGHER USE 348 GALLONS PER ACRE (8 GAL/1,000 SQ.FT.) FOR ANCHORING.

MAINTENANCE:

INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.
FOR PUBLIC PONDS SUBSTITUTE CHEMUNG CROWN VETCH AT 15 LBS/ACRE AND KENTUCKY 31 TALL FESCUE AT 40 LBS/ACRE AS THE SEEDING REQUIREMENT.
OPTIMUM SEEDING DATE FOR THIS MISTURE IS MARCH 1 TO APRIL 30.

TOP SOIL SPECIFICATIONS - SOIL TO BE USED AS TOP SOIL MUST MEET THE FOLLOWING: S
TOPSOIL SHALL BE A LOAM SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IT RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURE SUBSOIL AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS TASH, OR OTHER MATERIALS LARGER THAN 1-1/2" IN DIAMETER.

TOPSOIL MUST BE FREE OF PLANTS, PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

WHERE THE TOPSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS/1000 SQ.FT.) PRIOR TO THE PLACEMENT OF TOPSOIL LIME SHALL BE DISTURBED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

WHERE THE TOPSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS SQ.FT.) PRIOR TO THE PLACEMENT OF TOPSOIL LIME SHALL BE DISTURBED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

FOR SITE HAVING DISTURBED AREAS UNDER 5 ACRES:
PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

ALLITERATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZERS, COMPOSED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:

COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

A.) COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.

B.) COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE:

C.) COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQ.FT. PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE:

COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LBS/1,000 SQ. FT. AND 1/3 THE NORMAL LIME APPLICATION RATE.

EMBANKMENT GEOTECHNICAL SPECIFICATION:

THE FIRM NATURAL SOILS INDICATED BY TEST BORINGS SHOULD PROVIDE AN ACCEPTABLE FOUNDATION FOR THE PROPOSED POND EMBANKMENT. THE AREAS TO BE FILLED SHALL BE CLEARED AND GRUBBED PRIOR TO PLACING FILL. SOFT OR LOOSE NATURAL SOILS AND ORGANIC MATERIAL SHALL BE SUBCUT TO AN APPROVED SUBGRADE AS DETERMINED BY THE GEOTECHNICAL ENGINEER. MATERIALS USED FOR EMBANKMENT FILL FOR THE POND SHOULD CONSIST OF SOILS CLASSIFYING SC, SM, OR GC PER ASTM D-2487. THE FILL SOIL EXCAVATED FROM THE EXISTING EMBANKMENT MAY GENERALLY BE REUSED TO FORM THE PROPOSED EMBANKMENT; HOWEVER, THE EXISTING FILL SOILS DO NOT MEET THE REQUIREMENTS FOR REUSE WITHIN THE PROPOSED CUT-OFF TRENCH (CORE TRENCH), MATERIAL USED TO BACKFILL THE CUT-OFF TRENCH SHOULD CONSIST OF SOIL CLASSIFIED CL OR CH.

DRYING OF ONSITE SOILS BY SPREADING AND AERATING MAY BE NECESSARY TO OBTAIN PROPER COMPACTION. THIS, HOWEVER, MAY NOT BE PRACTICAL DURING WET PERIODS OF THE YEAR. EARTHWORK OPERATIONS SHOULD BE PLANNED FOR EARLY SPRING THROUGH LATE FALL WHEN DRY WEATHER CONDITIONS ARE MOST LIKELY. INDIVIDUAL BORROW AREAS, BOTH FROM ONSITE AND OFFSITE SOURCES, SHALL BE SAMPLED AND TESTED TO VERIFY CLASSIFICATION OF MATERIALS PRIOR TO THEIR USE AS FILL. FILL MATERIALS SHALL BE COMPACTED IN LIFTS NOT EXCEEDING 8 INCHES LOOSE THICKNESS TO ATLEAST 95% OF THE MAXIMUM DRY DENSITY PER ASTM D-698. FILL PLACED ALONG EXISTING SLOPES SHALL BE BENCHED INTO THE EXISTING HILLSIDE. THIS BENCH SHOULD CONSIST OF A MINIMUM 8 FEET WIDE LEVEL CUT, AND ONE BENCH SHOULD BE USED FOR EACH 3 FEET OF VERTICAL RISE OF FILL PLACED.

SEE SHEET #C13 (13 OF 23) FOR CONTINUATION OF SPECIFICATIONS.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/17/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/20/02

DIRECTOR N/A — DATE X

FOR EROSION AND SEDIMENT CONTROL ONLY

A. MORTONTHOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL (301) 881-2565 FAX (301) 881-0814
AMT FILE # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER
DRN: S. ITANI
CHK: B. WARNER
DATE: 04/19/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY - POND A

EROSION & SEDIMENT NOTES AND DETAILS

TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET ES-4

SHEET 18 OF 24

F-02-40

SITE NARRATIVE

The 1.33 acre Storm Water Management (SWM) Pond Retrofit and improvement site are within an existing open space off of the Johns Hopkins University, Applied Physics Laboratory grounds. The existing SWM pond serves a portion of the developed area of the grounds and is located in the Middle Patuxent River watershed.

The SWM site is bounded by a sloped forested edge on the southern side, buildings and parking areas on the eastern and western edges, and the pond dam and lower forested area to the north. The site is located within the major drainage basin of the laboratory grounds. Portions of the SWM Pond maintenance project and associated grading will impact 5,277 square feet of emergent wetlands predominately containing exotic Phragmites australis and broad-leaved cattails (Typha latifolia) . Some edges of the emergent area contain Black Willow and Smooth Rush. No specimen trees are located within the proposed SWM site construction area.

The site contains a perennial stream. The stream flows are primarily a direct result of the storm drainage on the site. The storm drainage system drains the surface water from the site and conveys the water from the condensate drains of the existing air handling equipment on the site. The condensate drain flows appear to provide a 12-15 gallon per minute base flow in the summer months. This condensate flow is greatly reduced during the heating season.

The original storm water management pond was originally designed as an infiltration basin. The creation of the wetlands on the site within the existing basin is a result of the summer base flow of the condensate drain and storm flows.

Preliminary soils information obtained from the Howard County Soil Survey Manual dated: July, 1995 indicates that the site contains the following soils:

Ba-Baile silt loam, 0 to 3 percent slopes. This soil is very deep and poorly drained. It is in upland depressions and along drainage ways. The baile soils are on the hydric soils list. The potential adaptability of wetland plants is good. The potential for wetland wildlife is Fair.

The surface drainage and hydrology within the site have been modified by the previous SWM pond grading activities and adjacent development. Substantial re-grading has occurred on-site for the original SWM pond construction. Generally the soils within the basin did not exhibit the characteristics of a hydric soil.

The stream within the SWM site and the culvert replacement are perennial and designated as class I waters. The stream is tributary to the Middle Patuxent River within the Patuxent River Watershed. Flowing water was evident both above and below the pond area. No other intermittent, natural springs, or seeps were found on-site.

The site primarily consists of exotic emergent wetland plants adjacent to the stream and mowed turf type fescue and rye grasses on the basin bottom and side slopes to the north and west. There is forest on-site to the south of the site. The site area has been labeled on the plan and shows free standing trees, vacant cleared land, woods, emergent wetlands, and the wetland buffer. No threatened, endangered species or critical habitats were evident on the site at the time of the investigation.

SEDIMENT CONTROL & POND CONSTRUCTION

( ) BY THE DEVELOPER:
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SIGNATURE OF DEVELOPER — DATE 4/25/2002
PRINT NAME BELOW SIGNATURE

( ) BY THE ENGINEER:
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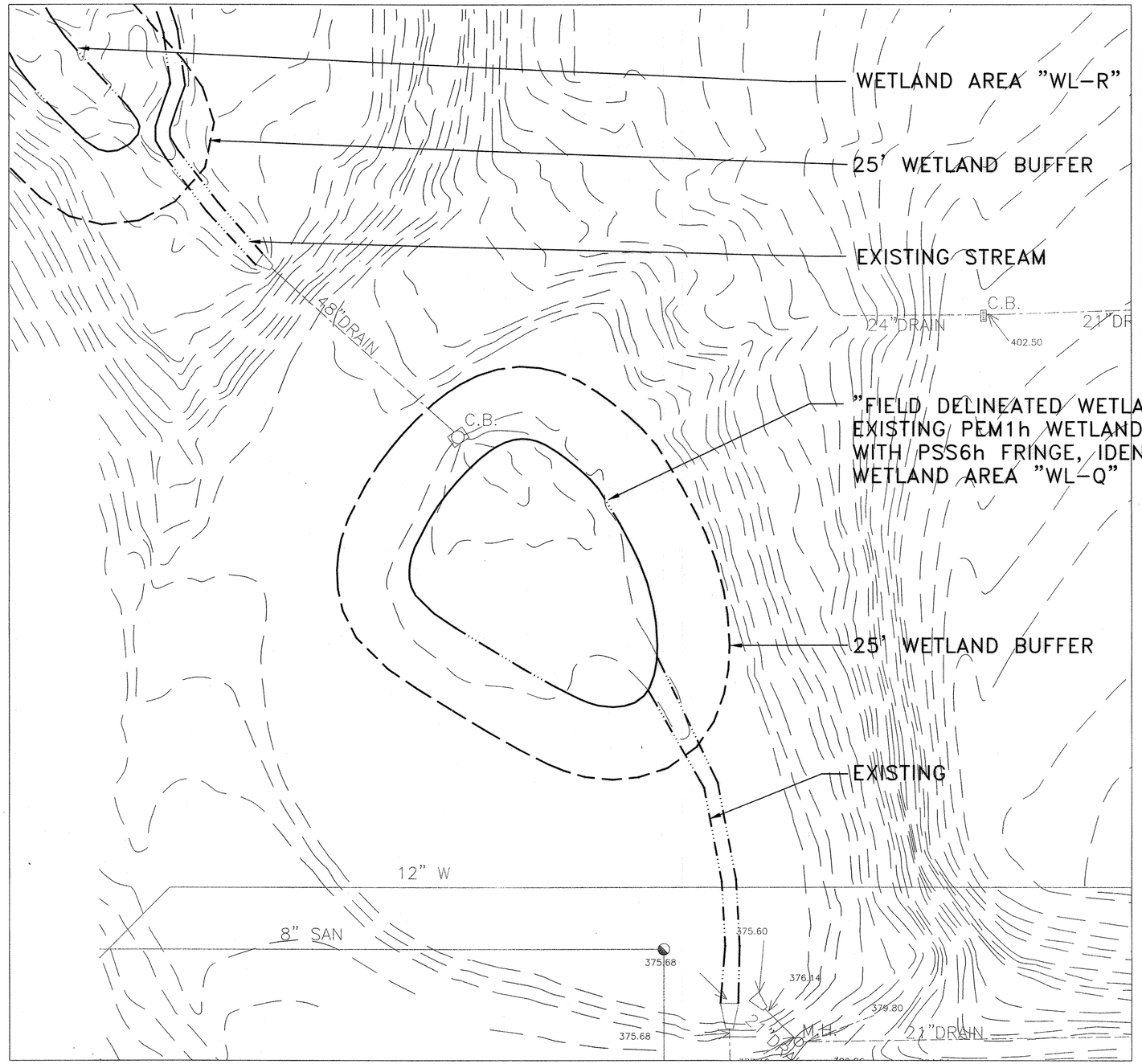
SIGNATURE OF ENGINEER — DATE 4/26/02
PRINT NAME BELOW SIGNATURE
Robert A. Warner

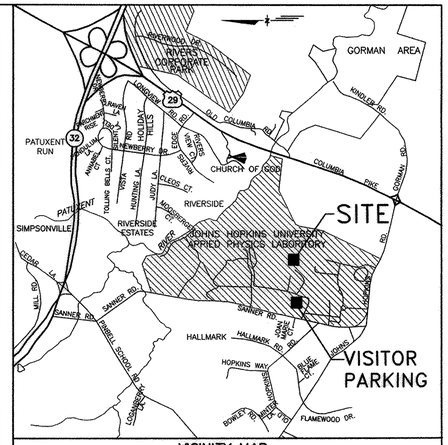
( ) THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

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





VICINITY MAP
SCALE: 1"=2000'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/7/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/30/02
DIRECTOR N/A — DATE X

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

A. MORTONTHOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL (301) 881-2545 FAX (301) 881-0814
AMT FILE # 98-153

Einhorn Yaffee Prescott

DES: N. HAINES
DRN: M. NORTON
CHK: N. HAINES
DATE: 04/19/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

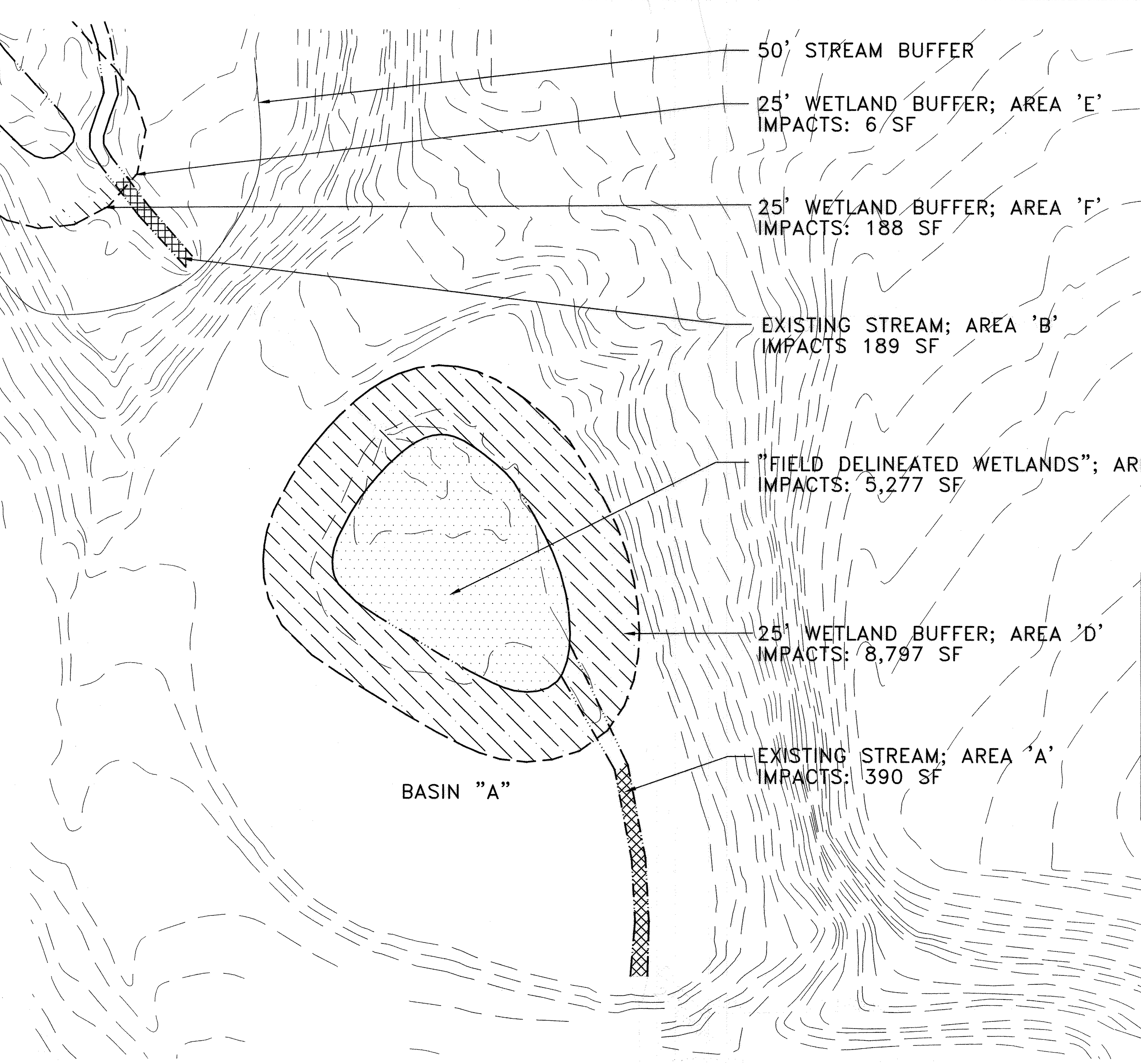
SWM BASIN 'A'

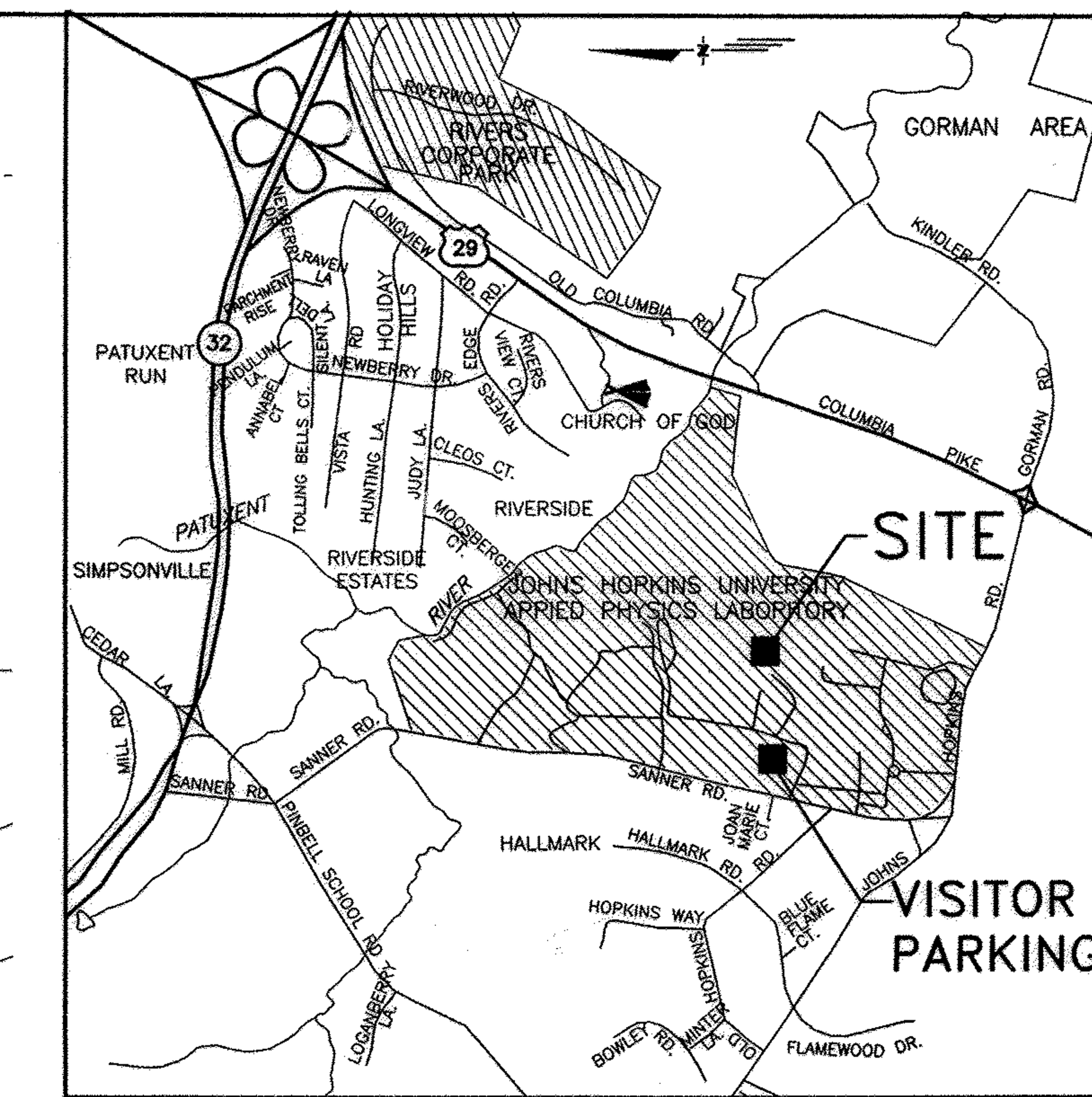
SWM POND RETROFIT PROJECT

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND A
MAPPING OF WETLANDS PLAN
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET L-1
SHEET 19 OF 24

F-02-40





VICINITY MAP
SCALE: 1"=2000'

JOHNS HOPKINS UNIVERSITY,
APPLIED PHYSICS LABORATORY

SWM RETROFIT WATERWAY, WETLANDS & 25' BUFFER
IMPACT AREA SUMMARY

"WATERS OF THE U.S." AREAS

AREA	TYPE OF IMPACT	WATERWAY TYPE	S.F.
A. Stream Channel	Grading for pond & culvert	Intermittent Stream	390
B. Stream Channel	Grading for pond outfall & core trench construction	Intermittent Stream	189
		Impacts Total =	579

WETLANDS

AREA	TYPE OF IMPACT	WETLAND TYPE	S.F.
C. Emergent Pond (area of emergents vegetation) &	Temporary, Grading	PEM	5,226
Scrub/Shrub edge areas	Temporary, Grading	PSS	51
		Temporary Impacts Total =	5,277
		Total =	5,277

25' WETLAND BUFFERS

AREA	TYPE OF IMPACT	WETLAND TYPE	S.F.
D. Open Lawn & woodland edge	Temporary, Grading	N/A	8,797
E. Woodland edge	Temporary, Grading	N/A	6
E. Woodland edge	Temporary, Grading	N/A	188
		Temporary buffer Impacts Total =	8,991
		Total =	14,268

TOTALS

"Waters of the U.S."		S.F.	Wetlands		S.F.
Temporary Impacts Total	40 lf =	189	Temporary Impacts	=	5,277
Permanent Impacts Total	75 lf =	390	Permanent Impacts	=	0

REPLACEMENT & RESTORATION REQUIREMENTS
Restore PEM Wetlands Temporary Impacts @ 1:1 = 5,226 x 1 = 5,226 S.F.
Restore PSS Wetlands Temporary Impacts @ 2:1 = 51 x 2 = 102 S.F.
Proposed restoration of 12,188 S.F. of emergent and scrub/shrub wetland areas.

SEDIMENT CONTROL & POND CONSTRUCTION

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

[signature] 4/25/2002
SIGNATURE OF DEVELOPER — DATE
PRINT NAME BELOW SIGNATURE

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[signature] 4/22/02
SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE
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USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

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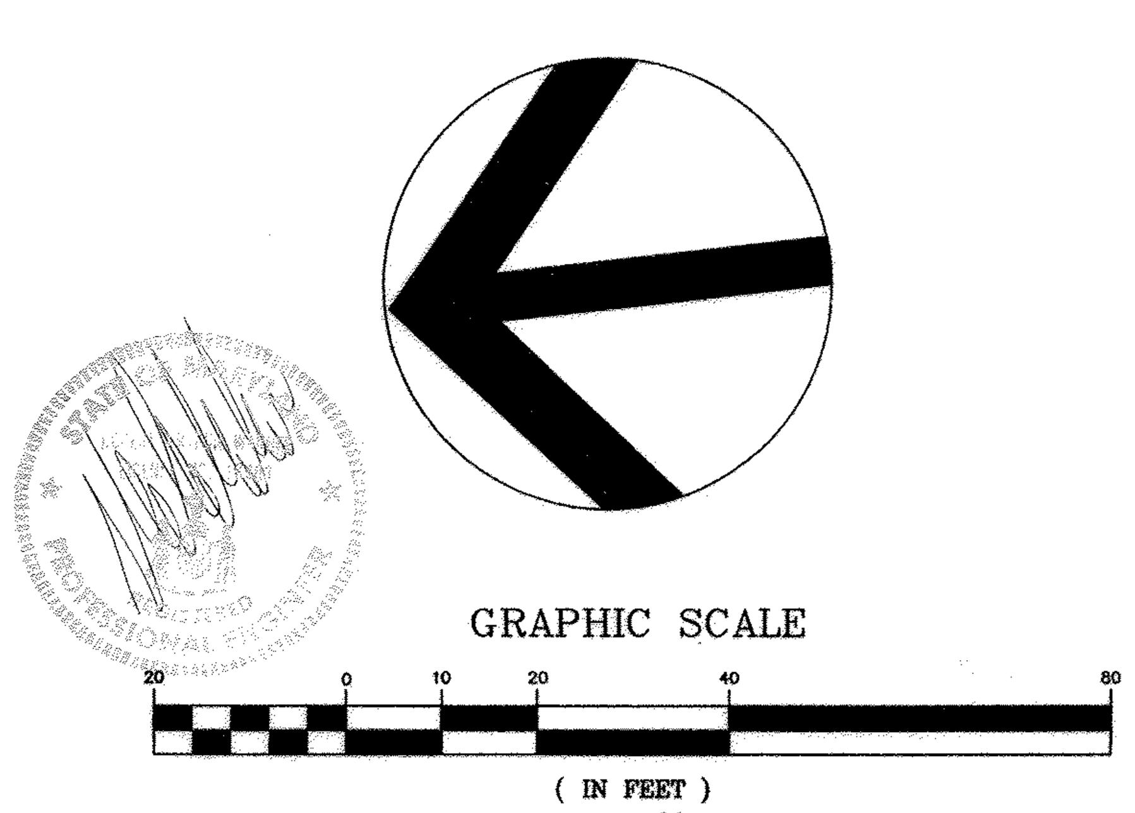
HOWARD SOIL CONSERVATION DISTRICT — DATE



APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] CHIEF, DEVELOPMENT ENGINEERING DIVISION	5/17/02 DATE
[signature] CHIEF, DIVISION OF LAND DEVELOPMENT	5/20/02 DATE
N/A DIRECTOR	X DATE

AMT
A. MORTON THOMAS AND ASSOCIATES, INC.
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Einhorn Yaffee Prescott

DES: N. HAINES						
DRN: M. NORTON						
CHK: N. HAINES						
DATE: 04/19/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

SWM BASIN 'A'

SWM POND RETROFIT PROJECT

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND A

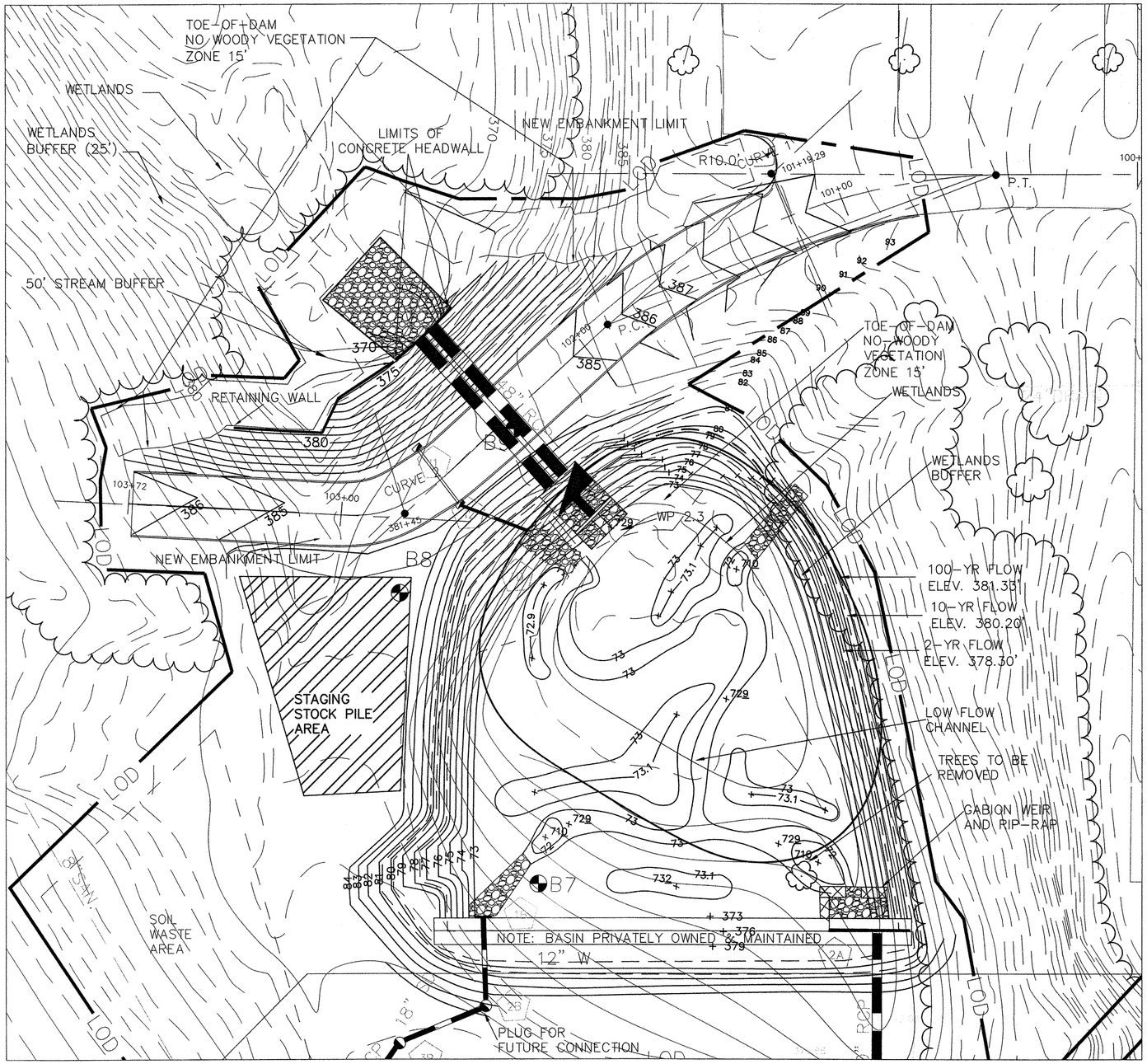
WETLAND IMPACTS PLAN

TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET L-2

F-02-40



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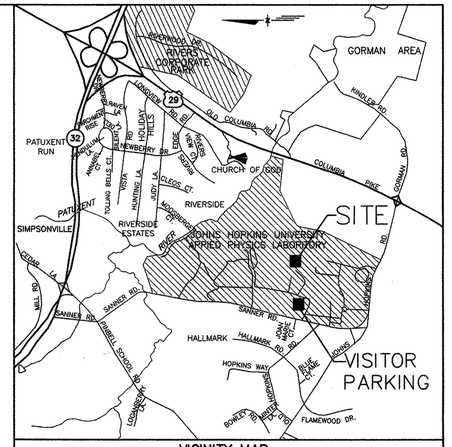

VICINITY MAP
SCALE: 1"=2000'

NONTIDAL WETLANDS / WATERWAY CONDITIONS

a) The following conditions shall be listed on the site plans under the heading of "Conditions and Management Practices for Working in Nontidal Wetlands and Buffers" and must be followed:

b) No excess fill, construction material or debris are to be stockpiled or stored in the wetlands or buffers.

c) Place materials in a location and manner which doesn't adversely impact surface or subsurface water flow into or out of the nontidal wetland or buffer.

d) Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material or any other deleterious substances. If additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic material or any other deleterious substance.

e) Place heavy equipment on mats or suitably operate the equipment to prevent damage to the nontidal wetland or buffer.

f) Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetland and buffer in excess of nontidal wetland and buffer lost under the original structure or fill;

g) Conduct the activity so as not to cause or contribute to a degradation of water quality as determined by the Maryland Department of the Environment.

h) To protect important aquatic species, in-stream work is prohibited as determined by the classification of the stream as follows:

1. Class I Waters. In-stream work may not be conducted during the period March 15 through June 15, inclusive, during any year.

All stabilization in the wetland and buffer shall be of the following recommended species: Annual Ryegrass (Lolium multiflorum), Millet (Setaria italica), Barley(Hordeum sp.) Oats (Unionia and /or Rye (Secale cereale). These species will allow for the stabilization of the site while also allowing for the voluntaryre-vegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Division. Kentucky 31 fescue shall not be utilized in the wetland or buffer areas. The area should be seeded and mulched to reduce erosion after construction activities have been completed.

GRAPHIC SCALE
20 0 10 20 40 60
(IN FEET)
1 inch = 20 ft.

GENERAL NOTES

1. All operations pertinent to the soil preparation, planting and seeding of the areas within the SWM Pond and adjacent to the stream shall be accomplished in accordance with the plan and specifications.
2. Planting and seeding operations shall follow final grading and necessary soil preparation in successive order as nearly as possible pending critical seasons for planting and seeding and weather conditions.
3. The Contractor shall notify MISS UTILITY (1-800-257-7777) and the local county jurisdictions at least 48 hours (three full working days) in advance of beginning any work pertinent to planting or seeding, for verification of the depth and horizontal location of all underground utilities within the limits of work.
4. The Contractor shall verify the quantities of plant materials shown on the plan and plant list and shall be prepared to furnish the quantities as shown. No changes in plant material, quantity, quality, variety or size shall be made without the permission of the Johns Hopkins University, Applied Physics Laboratory, Attn.: Mr. James E. Loesch, P.E., CFM at (240) 228-5134.
5. Should the Contractor discover any discrepancies or have any questions concerning data on the drawings, he/she shall contact the Johns Hopkins University, Applied Physics Laboratory, Attn.: Mr. James E. Loesch, P.E., CFM at (240) 228-5134 immediately, prior to beginning or continuing any work, and shall not proceed any further until the particular item is clarified.

WETLAND CONSERVATION NOTES

For this project, gross tract area is equal to the limit of disturbance.

Gross Tract Area = 1.33 Acres or 58,047 s.f.
Tree area to be Cleared = 0 acres
Reforestation Required = 0 acres
Proposed = 0 acres.
Wetlands Disturbed = 5,277 s.f.
Emergent Wetland Reestablishment Area = 12,188 s.f.

WETLAND RESTORATION PROPOSED

Emergent wetlands = 12,188 S.F.

SEEDING SCHEDULE

Seeding shall take place during the following periods: March 15 through June 15, and September 15 through October 15, or as directed by the owner. In the event that the contractor is out of this season by the time he/she is ready for planting, the contractor shall be responsible, at their own expense, to do the planting during the next season.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/20/02
DIRECTOR — N/A — DATE

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AMT FILE # 98-153

Einhorn Yaffee Prescott

DES: N. HAINES
DRN: M. NORTON
CHK: N. HAINES
DATE: 04/19/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

SWM BASIN 'A'

SWM POND RETROFIT PROJECT

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY - POND A
GRADING & IMPROVEMENTS PLAN
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET L-3
SHEET 21 OF 24

F-02-40

SEDIMENT CONTROL & POND CONSTRUCTION

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[redacted] 4/25/2002 James E Loesch
SIGNATURE OF DEVELOPER — DATE
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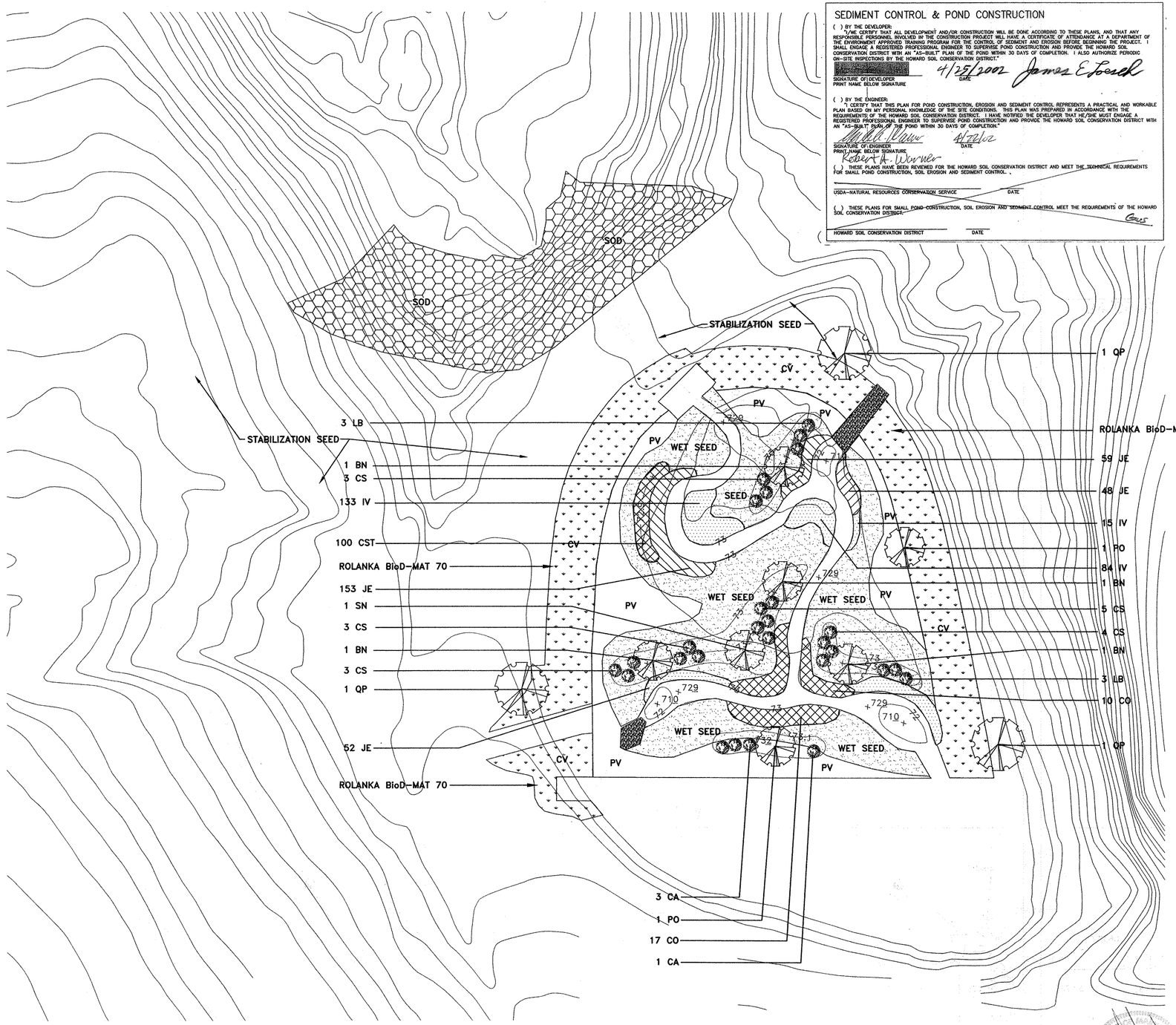
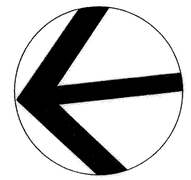
HOWARD SOIL CONSERVATION DISTRICT — DATE

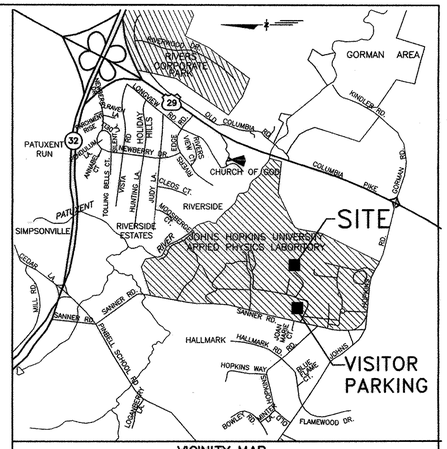




GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



VICINITY MAP
SCALE: 1"=2000'

PROPOSED PLANT MATERIALS

AQUATIC & WETLAND PLANTS

KEY	BOTANICAL NAME	COMMON NAME	SIZE	FORM	SPACING	QUANTITY	REMARKS
CST	CAREX STRICTA	TUSSOCK SEDGE	BARE ROOT	PLUG	18" O.C.	100	ADAPTS TO DRY CONDITIONS
IV	IRIS VERSICOLOR	BLUE FLAG	2" PLUG	FLAT	18" O.C.	232	
JE	JUNCUS EFFUSUS	SOFT RUSH	2" PLUG	FLAT	18" O.C.	312	Emergent Aquatic

STABILIZATION GRASSES & SEED MIXES

KEY	BOTANICAL NAME	COMMON NAME	SIZE	FORM	SPACING	QUANTITY	REMARKS
CV**	CORONILLA VARIA	CROWN VETCH		SEED	7 LBS/ 1,000SF	49 LBS.	SIDE SLOPE STABILIZATION
PV	PANICUM VIRGATUM	SWITCH GRASS		SEED	5 LBS/ 1,000SF	35 LBS.	BOTTOM STABILIZATION
WET SEED*		RETENTION BASIN FLOOR SEEDING		SEED	3 LBS/ 1,000SF	6 LBS.	BOTTOM STABILIZATION
SOD		SOD		SOD	SY	636 SY	DAM STABILIZATION
STABILIZATION SEED*		NATIVE UPLAND WILDLIFE FORAGE AND COVER MEADOW MIX		SEED	3 LBS/ 1,000SF	6 LBS.	TOP OF DAM STABILIZATION

* OVERSEED WITH ANNUAL RYE GRASS AS A COMPANION CROP AND EROSION CONTROL AT 0.5 LB./1000SF.
**INSTALL ROLANKA BioD-MAT 70 OR APPROVED EQUAL ON ALL 2:1 SIDE SLOPES

SHRUBS

KEY	BOTANICAL NAME	COMMON NAME	SIZE	FORM	SPACING	QUANTITY	REMARKS
CA	CORNUS AMOMUM	SILKY DOGWOOD	3'	Cont.	SHOWN	4	
CO	CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	18"-24"	Cont.	4' O.C.	27	
CS	CORNUS STOLONIFERA	Redosier Dogwood	18"-24"	Cont.	SHOWN	18	ADAPTIVE WETLAND SHRUB
LB	LINDERA BENZOIN	SPICEBUSH	18"-24"	Cont.	SHOWN	6	

DECIDUOUS TREES

KEY	BOTANICAL NAME	COMMON NAME	SIZE	FORM	SPACING	QUANTITY	REMARKS
BN	BETULA NIGRA	River Birch	6'	CONT.	Shown	4	
PO	PLATANUS OCCIDENTALIS	SYCAMORE	5'	CONT.	Shown	2	
QP	QUERCUS PHELLOS	WILLOW OAK	6'	CONT.	Shown	3	
SN	SALIX NIGRA	Black Willow	6'	CONT.	Shown	1	

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/17/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/20/02

DIRECTOR N/A — DATE X

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DRN: M. NORTON
CHK: N. HAINES
DATE: 04/19/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

SWM BASIN 'A'

SWM POND RETROFIT PROJECT

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
WETLAND PLANTING PLAN
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET L-4

SHEET 22 OF 24

F-02-40

WETLAND PLANTING SPECIFICATIONS

A. SITE PREPARATION

1. Construct sediment control features and clean water diversion as shown on sediment control plan. Contractor is to conform to sediment control plan and notes, until site is stabilized and has been approved by Howard County. Notify Howard County DEP inspector, Owner and Landscape Architect prior to commencement of work.
2. Excavate site to grades shown on plan. Care should be taken to preclude sediments, or sediment–laden runoff from entering stream.
3. Remove and dispose of excess soil in approved on–site spoil area. Contractor is to obtain approval from Owner of haul route on site. Following final grading, the substrate shall consist of a minimum one foot in depth of clean, inorganic/organic material, of which 80–90% by weight, pass a No. 10 sieve. Construction rubble, rocks, trash and sediments coarser than sand are excluded by this specification.
4. If boulders or a rock outcropping are encountered during excavation or substrate preparation, the Contractor shall notify the Landscape Architect for possible incorporate on site.
5. After excavation and use of heavy equipment, the graded planting area shall be tilled/plowed to a depth of one foot for a loose, friable planting soil condition.

B. PLANTING

1. During planting operations and excavations for planting pits, exercise care to maintain even sheet flow of drainage across site, as shown on grading plan. Avoid depressions or mounding as a result of planting.
2. Planting will be done between April 1 and June 30; or September 1 and November 30. Exception: Oaks must be planted in Spring.
3. Exact location of plants shall be determined in the field by the planting Contractor based on hydraulic tolerances. Any major changes to the planting scheme are to be approved by the landscape architect.
4. Fertilizer shall be placed in each planting pit and consist of Osmocote 19–6–12, 12–14 month release, at a rate of 1 oz. per herbaceous plant; 4 oz. per shrub. Trees use Agriform 20–10–5, two–year release, 10 gram tablets at the manufacturer's recommended rate. Seeded areas use standard 10–10–10 fertilizer at a rate of 600 lb./acre. Also see Note 10.
5. All container grown plants are to be planted with crown or top of soil ball approximately 1" above grade of planting substrate.
6. Backfill in planting pits is to be of same material as planting substrate and is to be firmed around root system, not excessively compacted.
7. Root stock of the plant material shall be kept moist during transport from the source to the job site and until planted. Substitutions of balled and burlapped for container grown stock must be approved by landscape architect.
8. Wetland plants must be wet cultured for a minimum of 3 months and supplied by a recognized wetland nursery which will provide certification of the culture process. Upland plants can be supplied from standard upland grown nursery operations. See list for wetland planting sources.
9. Upland seed mixes shall be broadcast or hydroseeded in upper areas. Mulch shall consist of straw and be anchored by a fibertack. Asphalt emulsion will not be acceptable. The seed mix shall be a blend of 90% Rebel II Tall Fescue and 10% Red Top or approved equal.
10. Lowland (flood prone) seed mixes shall be cultivated to a depth of 0 to 1/4–inch, followed by dragging, then packing or rolling. In graded areas, fertilizing of these areas shall be deferred until seedlings are 2 inches tall.
11. Wetland reestablishment in the channel shall broadcast seeded. Fertilizing of these areas shall be deferred until seedlings are 2 inches tall.

C. GUARANTEE

The Contractor will guarantee an 85% survival rate of plants (each species) after one year. If at this time the total number of plants has fallen below this threshold, the Contractor will make a one–time replacement to bring plant numbers to the 85% levels for each species. Care shall be taken such that the activities involved in replacement planting do not cause damage or detrimental effect to the surviving flora. Any plants damaged by these activities will also be replaced by the Contractor to the 85% threshold.

D. MAINTENANCE

The Contractor shall conduct monthly inspections of the site during the first year after planting for a full growing season: April – October, and the months of April, May and June of the following season. During these monthly inspections, the Contractor shall:

1. Remove all litter and debris throughout the site.
2. Replant or reseed all erosion control stabilizing grasses, rushes, sedges or ground covers, as required to prevent erosion.
3. Conduct fertilizations as may be required or requested.
4. Take appropriate measures to exclude wildlife, if destructive depredation occurs.
5. Conduct soils tests for pH, substrate salinity and moisture content, and notify Landscape Architect of conditions that may cause plant mortality. Correct conditions that are unsatisfactory, to insure plant success. Note: salinity may fluctuate, especially in early Spring, due to uphill runoff from roads treated with de–icing salts.
6. Maintain planted and seeded areas by watering, mowing, rolling, or regrading, replanting and implementing erosion controls as required to establish vegetation, free of bare or eroded areas.

E. CLEANUP AND PROTECTION

1. During landscape work, store materials and equipment where directed. Keep pavements clean and work areas and adjoining areas in an orderly condition.
2. Protect landscape work and materials from damage due to landscape operations, operations by other trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged landscape work as directed by landscape architect.

F. INSPECTION AND ACCEPTANCE

1. The Landscape Architect reserves the right to inspect seeds and plant materials, either at place of growth or at site before planting, for compliance with requirements for name, variety, size, quantity, quality and mix proportion.
2. Supply written affidavit certifying composition of seed mixtures and integrity of plant materials with respect to species, variety and source.
3. Notify the Landscape Architect within 5 days after completing initial and/or supplemental plantings in wetland areas.
4. When the landscape work is completed, including maintenance, the Landscape Architect will, upon request, make a final inspection to determine acceptability. After final acceptance, the Owner will be responsible for maintenance.
5. The Contractor shall be responsible for the satisfactory growth of trees, shrubs grasses, forbs and sedge species on all areas seeded and/or planted under the contract until final acceptance of the work. Acceptance of the work will be determined using a time meander search. The Landscape Architect shall conduct a time meander search at the site. The search shall be conducted at the end of the first full growing season after seeding and/or planting (not to exceed 12 months). The search will randomly sample 20% of the area for each area that was seeded and/or planted. If 85% of the species seeded and/or planted are alive and apparent, and the sample area has 80% ground cover of acceptable species, the work will be accepted.
6. Where inspected landscape work does not comply with the requirements, replace rejected work and continue specified maintenance until reinspected by the Landscape Architect and found to be acceptable. Remove rejected plants and materials promptly from the project site. Resow or replant deficient areas.

G. PUBLIC UTILITIES

1. Care shall be exercised in excavation near utilities. If at any time Contractor damages the utilities in place through negligence or carelessness, Contractor shall pay for the full cost of repairing such damages. Contractor shall notify the appropriate person in the office of any utility whose lines may be affected.
2. The locations of utilities shown on the plans are approximates only and do not necessarily indicate all the utilities that may be encountered during construction. The failure of a utility to be shown on the plans does not relieve Contractor of the responsibility for any injuries he may inflict on the utility, and in case of injury, it shall be repaired at the expense of the Contractor.
3. Whenever other utilities are encountered whose present grade would conflict with the new construction, Contractor shall notify landscape architect, who shall arrange revisions without unreasonable delay. Trenching or tunneling under existing utilities, culverts, etc., and providing temporary support shall be done at no additional expense to Owner.

H. PROTECTION OF PRIVATE PROPERTY

Contractor shall repair or replace all fences, concrete walls, concrete curbs, gravel and asphalt driveways, signs, culverts, and all other miscellaneous improvements, at no additional expense to owner, damaged by Contractor due to his operations on the project, to a condition equal to or better than their condition before construction.

I. JOB CONDITIONS

1. Examine and evaluate grades, soils and water levels, observe the conditions under which work is to be performed, and notify the Landscape Architect of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.
2. Utilities: Review underground utilities location maps and plans provided by owner; demonstrate an awareness of utility locations, and certify acceptance of liability for the protection of utilities during course of work. Contractor shall be responsible for any damage to utilities or property.
3. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Landscape Architect before planting.

WETLAND PLANT SUPPLIERS LIST:

Environmental Concern, Inc.
P.O. Box P
210 West Chew Avenue
St. Michaels, Maryland 21663
Tel: (301) 745–9620
Fax: (301) 745–3517

Wicklein's Water Gardens
1820 Cromwell Bridge Road
Baltimore, Maryland 21234
Tel: (301) 823–1335

Environmental Consultants, Inc.
P.O. Box 3198
Suffolk, Virginia 23434
Tel: (804) 539–4833

Octuraro Wetland Nurseries
P.O. Box 24
Oxford, PA 19363
Tel: (215) 932–3762 or
Elkton, MD (410) 392–8175

SEEDING SCHEDULE

Seeding shall take place during the following periods: March 15 through June 15, and September 15 through October 15, or as directed by the owner. In the event that the contractor is our of this season by the time he/she is ready for planting, the contractor shall be responsible, at his own expense, to do the planting during the next season.

NONTIDAL WETLANDS / WATERWAY CONDITIONS

The following conditions shall be listed on the site plans under the heading of "Conditions and Management Practices for Working in Nontidal Wetlands and Buffers" and must be followed:

a) No excess fill, construction material or debris are to be stockpiled or stored in the wetlands or buffers.

b) Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of the nontidal wetland or buffer.

c) Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material or any other deleterious substances. If additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic material or any other deleterious substance.

d) Place heavy equipment on mats or suitably operate the equipment to prevent damage to the nontidal wetland or buffer.

e) Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetland and buffer in excess of nontidal wetland and buffer lost under the original structure or fill;

f) Conduct the activity so as not to cause or contribute to a degradation of water quality as determined by the Maryland Department of the Environment.

g) To protect important aquatic species, in–stream work is prohibited as determined by the classification of the stream as follows:

1. Class I Waters. In–stream work may not be conducted during the period March 1 through June 15, inclusive, during any year.

h) All stabilization in the wetland and buffer shall be of the following recommended species: Annual Ryegrass (Lolium multiflorum), Millet (Setaria italica), Barley (Hordeum sp.) Oats (Unionia sp.), and /or Rye (Secale cereale). These species will allow for the stabilization of the site while also allowing for the voluntary re–vegetation of natural wetland species. Other non–persistent vegetation may be acceptable, but must be approved by the Division. Kentucky 31 fescue shall not be utilized in the wetland or buffer areas. The area should be seeded and mulched to reduce erosion after construction activities have been completed.

NOTES

PROPOSAL: Reestablish PEM wetland of 5,226 square feet with 11,668 square feet of PEM wetland.
Reestablish PSS wetland of 51 square feet with 520 square feet of PSS wetland.

Soil saturation and ground water levels vary from 0" to 18" of depth, depending on precipitation recharge and location on site. Grading shall be as shown on the plan and/or as directed by the Landscape Architect in the field during construction; to achieve proper hydric conditions for wetland restoration.

The Landscape Contractor is to verify all plant quantities and availability and notify Landscape Architect or Owner if there are problems prior to bidding.

The Landscape Contractor is responsible for the location of all utilities prior to planting.

The Landscape Contractor is to notify "MISS UTILITY" 48 hours prior to construction at 1–800–257–7777.

The Landscape Contractor is responsible for protecting existing plant materials during construction.

SEED MIXES

RETENTION FLOOR SEEDING – FOR WILDLIFE PLANT DIVERSITY

CREEPING BENTGRASS	25%
MEADOW FOXTAIL	25%
PURPLE STEMMED ASTER	1%
TICKSEED SUNFLOWER	3%
VIRGINIA WILD RYE	25%
RATTLE SNAKE GRASS	2%
FOWL MANNAGRASS	2%
RICE CUT–GRASS	4%
SQUARE STEM MONKEYFLOWER	1%
GREEN BULRUSH	2%
WOOL GRASS	1%
SMALL SEEDED BULRUSH	1%
MANY–LEAVED BULRUSH	1%
ROUGH–LEAVED GOLDENROD	1%
GIANT BUR–REED	4%
BLUE VERVAIN	2%

NATIVE UPLAND WILDLIFE FORAGE AND COVER MEADOW MIX

BIG BLUE STEM	10%
LITTLE BLUE STEM	10%
FOX SEDGE	10%
CANADIAN WILD RYE	10%
SWITCHGRASS	10%
COASTAL PANICGRASS	10%
CUP PLANT	10%
INDIAN GRASS	10%
EASTERN GAMAGRASS	20%

SEDIMENT CONTROL & POND CONSTRUCTION

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

[redacted] 4/25/2002 James E Leach
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."

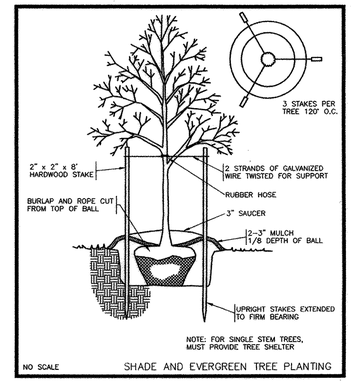
4/22/02
SIGNATURE OF ENGINEER DATE
PRINT NAME BELOW SIGNATURE
Robert A. Warner

( ) 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.

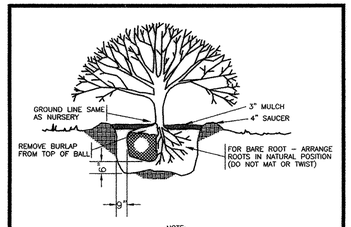
USDA–NATURAL RESOURCES CONSERVATION SERVICE DATE

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

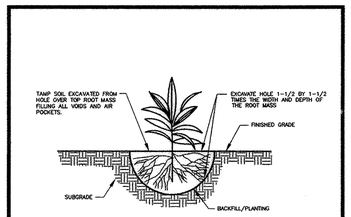
HOWARD SOIL CONSERVATION DISTRICT DATE



NO SCALE — SHADE AND EVERGREEN TREE PLANTING



NO SCALE — SHRUB PLANTING



NO SCALE — HERBACEOUS PLANTING

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT Cindy Hamilton	DATE 5/20/02
DIRECTOR N/A	DATE X

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 # 98-153

Einhorn Yaffee Prescott

DES: N. HAINES
DRN: M. NORTON
CHK: N. HAINES
DATE: 04/19/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

SWM BASIN 'A'

SWM POND RETROFIT PROJECT

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
WETLAND PLANTING NOTES & DETAILS
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET L-5
SHEET 23 OF 24

F-02-40

GENERAL NOTES

1. COURSES AND COORDINATES ARE BASED ON THE MARYLAND STATE COORDINATE SYSTEM (NAD 83/91) AND ARE DERIVED FROM THE FOLLOWING JOHNS HOPKINS UNIVERSITY CONTROL STATIONS:

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

2. THE BOUNDARY SHOWN HEREON IS BASED ON A FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED ON OR ABOUT MAY 1, 2000 BY GREGORY KING, WHITMAN REQUARDT AND ASSOCIATES, LLP WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT. INFORMATION SHOWN ON THE SURVEY IS BASED ON AVAILABLE PUBLIC INFORMATION AND INFORMATION PROVIDED BY JOHNS HOPKINS UNIVERSITY.

3. OWNERSHIP: JOHNS HOPKINS UNIVERSITY (SEE BELOW)

4. THE INFORMATION PROVIDED AND OBTAINED INDICATES THAT TITLE TO THE SUBJECT PROPERTY IS VESTED IN THE FOLLOWING DEEDS:

   BEING ALL OF THE FOLLOWING DEEDS:

   DEED DATED OCTOBER 9, 1952 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND IN LIBER M.W.B.237, FOLIO 451, WHICH WAS CONVEYED BY GEORGE WOLFF, EVA WOLFF AND M. JEAN DAVIDSON TO THE JOHNS HOPKINS UNIVERSITY.

   BEING PART OF THE FOLLOWING DEEDS:

   DEED DATED JULY 30, 1952 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND IN LIBER M.W.B. 234, FOLIO 304, WHICH WAS CONVEYED BY RAYMOND D. MOORE AND ELIZABETH A. MOORE TO THE JOHNS HOPKINS UNIVERSITY.

   DEED DATED JULY 31, 1952 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND IN LIBER M.W.B.234, FOLIO 336, WHICH WAS CONVEYED BY HOWARD E. WESSEL, DOROTHY L. WESSEL, ROLAND F. WESSEL AND DOROTHY E. WESSEL TO THE JOHNS HOPKINS UNIVERSITY.

   DEED DATED NOVEMBER 24, 1953 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND IN LIBER M.W.B. 250, FOLIO 283, WHICH WAS CONVEYED BY JEAN M. DAVIDSON, GEORGE WOLFF AND EVA WOLFF TO THE JOHNS HOPKINS UNIVERSITY.

   DEED DATED APRIL 8, 1963 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND IN LIBER 398, FOLIO 244, WHICH WAS CONVEYED BY MILDRED B. PRICE, JAMES N. PRICE AND MILDRED B. PRICE, EXECUTRIX OF THE ESTATE OF SCOTT F. BROWN TO THE JOHNS HOPKINS UNIVERSITY.

   DEED DATED MAY 31, 1963 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND IN LIBER 400, FOLIO 625, WHICH WAS CONVEYED BY HERBERT W. WESSEL AND GERTRUDE L. WESSEL TO JOHNS HOPKINS UNIVERSITY.

5. SUBJECT PROPERTY IS ZONED PEC. (PLANNED EMPLOYMENT CENTER)

6. ALL AREAS SHOWN ON THIS PLAT ARE +/-, MORE OR LESS.

7. THE FLOODPLAIN RESERVATION SHOWN HEREON IS BASED ON THE NATIONAL FLOOD INSURANCE, FLOOD INSURANCE RATE MAP FOR HOWARD COUNTY, MARYLAND COMMUNITY-PANEL NUMBER 240044 0038 B, REVISED DECEMBER 4, 1986.

8. THE FOREST CONSERVATION EASEMENT AREA HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION: 6.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT: HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

9. FOREST CONSERVATION OBLIGATIONS ASSOCIATED WITH THIS PROJECT HAVE BEEN FULFILLED BY RETENTION OF 86.922 ACRES, MORE OR LESS, OF FOREST IN FIVE FOREST CONSERVATION EASEMENTS.

10. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT AREAS EXCEPT FOR THE WORK ASSOCIATED WITH APPROVED CONSTRUCTION PLANS. ALL FOREST TO REMAIN WITHIN THE AREAS SHOWN AS "FOREST CONSERVATION EASEMENT AREA" MEET THE MINIMUM REQUIREMENTS OF THE FOREST CONSERVATION ACT.

11. A WETLAND STUDY WAS PROVIDED BY RICHARD PIAS & ASSOCIATES, INC. IN JUNE 1999 AND APPROVED BY THE CORPS OF ENGINEERS SEPTEMBER 10, 1999.

12. JOHNS HOPKINS UNIVERSITY (THE OWNER) RESERVES UNTO ITSELF, ITS SUCCESSORS AND ASSIGNS, THE FOREST CONSERVATION EASEMENT AS SHOWN ON THIS EXHIBIT AS "FOREST CONSERVATION EASEMENT AREA". ANY AND ALL CONVEYANCES OF THE PROPERTY AS SHOWN ON THIS PLAT SHALL BE SUBJECT TO THE EASEMENT HEREIN RESERVED, WHETHER OR NOT EXPRESSLY STATED IN THE DEED(S) CONVEYING SAID LOT(S). THE OWNER SHALL EXECUTE AND DELIVER A DEED OF FOREST CONSERVATION EASEMENT TO HOWARD COUNTY WITH A METES AND BOUNDS DESCRIPTION OF THE FOREST CONSERVATION AREA. UPON COMPLETION OF THE OWNERS OBLIGATIONS UNDER THE FOREST CONSERVATION AND MAINTENANCE AGREEMENT EXECUTED BY THE OWNER AND THE COUNTY, AND THE RELEASE OF THE OWNERS SURETY POSTED WITH SAID AGREEMENT, THE COUNTY SHALL ACCEPT THE EASEMENT AND RECORD THE DEED OF FOREST CONSERVATION EASEMENT IN THE LAND RECORDS OF HOWARD COUNTY, MARYLAND.

13. THIS EXHIBIT IS INTENDED TO SUPPLEMENT INFORMATION PROVIDED ON A PREVIOUSLY SUBMITTED FOREST STAND DELINEATION PLAN. THIS EXHIBIT REFLECTS THE GEOGRAPHIC RELATIONSHIP BETWEEN THE FOREST CONSERVATION EASEMENT AREAS INTENDED TO BE RECORDED WITH THE LIMITS OF DISTURBANCE ASSOCIATED WITH EXISTING DEVELOPMENT. THE PLANIMETRICS SHOWN HEREON ARE BASED UPON AN AERIAL SURVEY AND IS INTENDED AS REFERENCE ONLY.

14. FOREST CONSERVATION SURETY IN THE AMOUNT OF 760,906 DOLLARS HAS BEEN POSTED FOR THE 87.340 ACRES OF FOREST CONSERVATION RETENTION EASEMENT.

TABULATION

A. Total tract area .... ~~360.587~~ 357.967
B. Area within 100 year floodplain 21.406
C. Net tract area .... ~~339.181~~ 336.561

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)

Input the number "1" under the appropriate land use zoning, and limit to only one entry.

ARA	MDR	IDA	HDR	MPD	CIA
0	0	1	0	0	0

D. Afforestation Threshold .... 15% x D = ~~50.877~~ 50.484
E. Conservation Threshold .... 20% x D = ~~67.836~~ 67.312

EXISTING FOREST COVER:

F. Existing forest cover 165.350
G. Area of forest above afforestation threshold .... ~~114.473~~ 114.866
H. Area of forest above conservation threshold .... ~~97.514~~ 98.038

BREAK EVEN POINT:

I. Forest retention above threshold with no mitigation .... ~~87.340~~ 86.920
J. Clearing permitted without mitigation .... ~~78.010~~ 78.430

PROPOSED FOREST CLEARING:

K. Total area of forest to be cleared .... ~~78.010~~ 75.946
L. Total area of forest to be retained .... ~~87.340~~ 89.404

PLANTING REQUIREMENTS:

M. Reforestation for clearing above conservation threshold .... ~~19.503~~ 18.99
N. Reforestation for clearing below conservation threshold 0.00
O. Credit for retention above conservation threshold .... ~~19.504~~ 22.09
P. Total reforestation required 0.00
Q. Total afforestation required 0.00
R. Total reforestation and afforestation required 0.00

LEGEND

FOREST CONSERVATION EASEMENT

BASIN 'A' - LIMIT OF DISTURBANCE

SITE UTILITIES - LIMIT OF DISTURBANCE

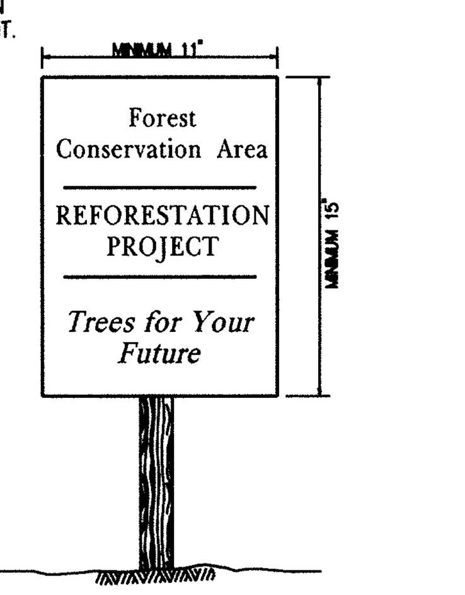
EXISTING STREAM

EXISTING WOODS/FOREST

▲ APPROXIMATE LOCATION OF FOREST CONSERVATION SIGN

WETLANDS (TYP.)

WETLAND BUFFER (TYP. 25')



NOTES:
1. SIGNS TO BE PLACED APPROXIMATELY 150' APART.
2. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

FOREST CONSERVATION SIGN

NO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 5/17/02

CHIEF, DIVISION OF LAND DEVELOPMENT HB — DATE 5/20/02

DIRECTOR N/A — DATE X

HERBERT PALM — DATE 26 April 02
MARYLAND REGISTERED LANDSCAPE ARCHITECT NO. 2036
WHITMAN, REQUARDT & ASSOCIATES, LLP

GRAPHIC SCALE
300 200 100 0 300 600
SCALE: 1" = 300'

WR&A
Whitman, Requardt and Associates, LLP
Engineers and Planners
801 South Caroline Street
Baltimore, Maryland 21231
(410) 235-3450

DES: N/A	2/20/07	FCE ADJUSTED TO REFLECT CHANGES TO F-02-40	1	MGB	CK	
DRN: C. RUZICKA						
CHK: H. PALM						
DATE: 4/26/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

FOREST STAND PLAT

TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET FS-1

F-02-40