FINAL PLAN STORMWATER MANAGEMENT FACILITIES DRAINAGE AREA B

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

INDEX OF DRAWINGS

CONTACT PERSON FOR OWNER: JEFF ANDERSON
TELEPHONE: 443.778.5960 FAX: 443.778.5960

ADDRESS CHART

LOT/PARCEL #	STREET ADDRESS
P # 123/129	11100 JOHNS HOPKINS ROAD LAUREL, MD 20723 CONTACT: MR. JEFF ANDERSON

PERMIT INFORMATION CHART

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

Review for HOWARD SCD and meets Technical Requirements.

USDA – Natural Resources Conservation Service Date

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

Howard SCD Date

APPROVED: DEPARTMENT OF PUBLIC WORKS

N/A No Public Facilities.

CHIEF, BUREAU OF HIGHWAYS Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division MK Date 11/15/02

Chief, Division of Land Development Date 11/21/02

GENERAL NOTES

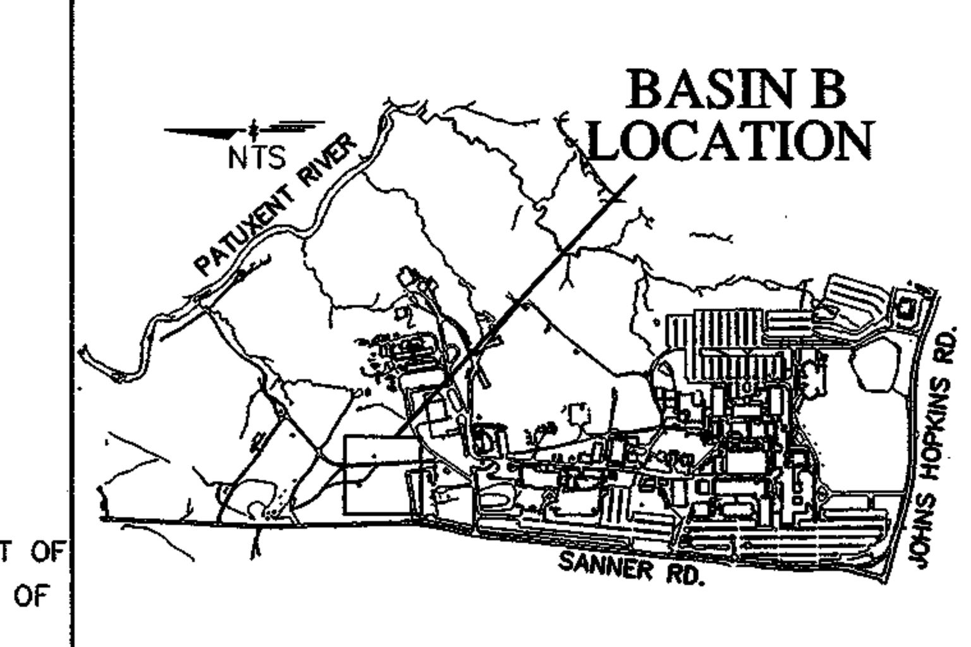
1. THE TOPOGRAPHIC AND UTILITY INFORMATION SHOWN IN THIS DEVELOPMENT PLAN WERE OBTAINED FROM FIELD SURVEYS PERFORMED BY WHITMAN, REQUARDT, AND ASSOCIATES (TOPOGRAPHY), APPLIED PHYSICS LABORATORY (UTILITIES) CONSULTANTS IN NOVEMBER 1998, AND FROM REPORTS PROVIDED BY JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LAB (APL). SINCE NOT ALL INFORMATION SHOWN MAY REFLECT CURRENT CONDITIONS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION TO HIS OWN SATISFACTION.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY AND MSHA SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, UNLESS OTHERWISE NOTED.
3. 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 EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE OWNER.
5. ACCESS TO THE CONSTRUCTION AREA THROUGH THE SECURED 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 SHALL COORDINATE ANY REQUIRED FENCE CONSTRUCTION AND RELOCATION WITH APL–JHU , WITH NOTIFICATIONS OF ALL SCHEDULES AND REQUIREMENTS.
7. THE CONTRACTOR SHALL CONTACT MR. JIM LOESCH (PLANT ENGINEER 443.778.5134) AT LEAST FIVE DAYS BEFORE STARTING WORK OR DISRUPTION OF ANY UTILITIES.
8. ALL "TIE–INS" TO EXISTING UTILITIES MAY ONLY BE DONE 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 COMMENCING WORK AT 410.313.1880.
10. ALL UTILITIES SHALL HAVE A MINIMUM CLEARANCE OF 6". ALL POLES AND FOUNDATIONS SHALL HAVE A MINIMUM CLEARANCE OF 2'–0", OR TUNNEL AS REQUIRED.
11. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEMS. COORDINATE WITH THE OWNER FOR OPERATING WATER MAIN VALVES.
12. THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL STORM DRAINS WITHIN 2'–0" OF EXTERIOR MANHOLE WALL.
13. THE CONTRACTOR SHALL PERMANENTLY SEED AND STABILIZE ALL DISTURBED AREAS THAT ARE NOT TO BE PAVED.
14. ALL DRIVEWAYS ARE PRIVATELY OWNED AND MAINTAINED.
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 APL–JHU WHO WILL HORIZONTALLY LOCATE ALL ACTIVE UTILITIES FOR THE CONTRACTOR.
18. EXISTING PAVEMENT, (ROADWAY SIDEWALKS ETC.) TO BE REMOVED AND REPLACED BY NEW PAVEMENT 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 TO AVOID DAMAGE TO EXISTING ADJACENT FACILITIES AND STRUCTURES. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION OR BETTER UNLESS NOTED OTHERWISE.
21. DUE TO THE PROXIMITY OF LIVE UNDERGROUND UTILITIES, THE 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 DEVIATION FROM THESE PLANS WITHOUT WRITTEN AUTHORIZATION BY THE OWNER WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR THUS RELIEVING RESPONSIBILITY FROM THE OWNER, A. MORTON THOMAS & ASSOC., HOWARD COUNTY DPZ, & SCD.
24. SURFACED STREETS AND PARKING AREAS SHALL BE MAINTAINED IN A CLEAN CONDITION, MUD AND DUST FREE AT ALL TIMES. ADEQUATE MEANS SHALL BE PROVIDED TO CLEAN TRUCKS AND OTHER EQUIPMENT USING EXISTING SURFACED STREETS AND PARKING AREAS.
25. THE CONTRACTOR SHALL MAKE EVERY ATTEMPT TO MINIMIZE DAMAGE TO EXISTING TREES DURING CONSTRUCTION.
26. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL MEET CURRENT HOWARD COUNTY DEPARTMENT OF PERMITTING SERVICES STANDARDS AND DIRECTIVES.
27. EXISTING SIGNS, GUARDRAILS, AND OTHER MINOR SITE FEATURES IN THE WAY OF PROPOSED CONSTRUCTION, WHETHER OR NOT SHOWN ON THESE PLANS, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.
28. CONTRACTOR SHALL CONTACT JHU–APPLIED PHYSICS LAB PLANT FACILITIES OFFICE (240) 228–5134 AND "MISS UTILITY" AT 1–800–257–7777, 48 HOURS PRIOR START OF THE EXCAVATION AND MUST NOTIFY ALL PUBLIC UTILITY COMPANIES AND THE OWNER OF UNDERGROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION.
29. THE SUBJECT PROPERTY IS ZONED PEC PER THE OCTOBER 1993 COMPREHENSIVE ZONING PLAN.
30. NO CLEARING, GRADING, OR CONSTRUCTION ARE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAMS, OR THEIR BUFFERS WHERE NOT PERMITTED BY MDE, U.S. U.S. ARMY CORPS OF ENGINEERS, AND HOWARD COUNTY; AND WITHIN THE FOREST CONSERVATION AREAS.
31. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION ARE PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT. THE FOREST CONSERVATION OBLIGATION HAS BEEN ADDRESSED WITH F–02–40, JHU–APL SWM BASIN A.
32. THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED AS DESCRIBED IN GENERAL NOTE #1.
33. WATER IS PUBLIC (HOWARD COUNTY)
34. SEWER IS PUBLIC (HOWARD COUNTY)
35. THE FLOODPLAIN LIMITS FOR THIS PROJECT WAS TAKEN FROM HOWARD COUNTY STUDY.
36. DIMENSION TO NEW STRUCTURES ARE PERPENDICULAR TO PROPERTY LINE.
37. THE FINAL PLAN AREA AND THE LOD OF THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY ARE NOT LOCATED IN THE 100 YEAR FLOOD PLAIN
38. ALL EXISTING UTILITIES WITHIN THE FOOTPRINT OF NEW PARKING FACILITIES WILL BE RELOCATED OUTSIDE THE AREA AS SHOWN.
39. SOIL MAP USED SHEET NO. 29, SOIL SURVEY JULY 1968 HOWARD COUNTY, MARYLAND, USDA.
40. THE STORMWATER MANAGEMENT POND WILL BE PRIVATELY OWNED AND MAINTAINED.
41. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $12,150.00 FOR 25 SHADE TREES, 31 EVERGREEN TREES, AND 0 SHRUBS.

HOWARD COUNTY RELATED FILE NUMBERS FOR ADJOINING PROJECTS AT JHU–APL AREAS FOLLOWS AND ARE LISTED ON SHEET C–2

SDP NO.	DESCRIPTION	DATE
S–01–12		–
F–02–40	JHU–APL SWM	12/01
Wp–01–80	BASIN A	–
82–118	BUILDINGS 23 LOT NO. F	4/82
87–07	LOT NO. F–1	–
90–218*	ARRAY TEST FACILITY BUILDING NO. 49	12/90

* RED LINE REVISION

KEY LEGEND



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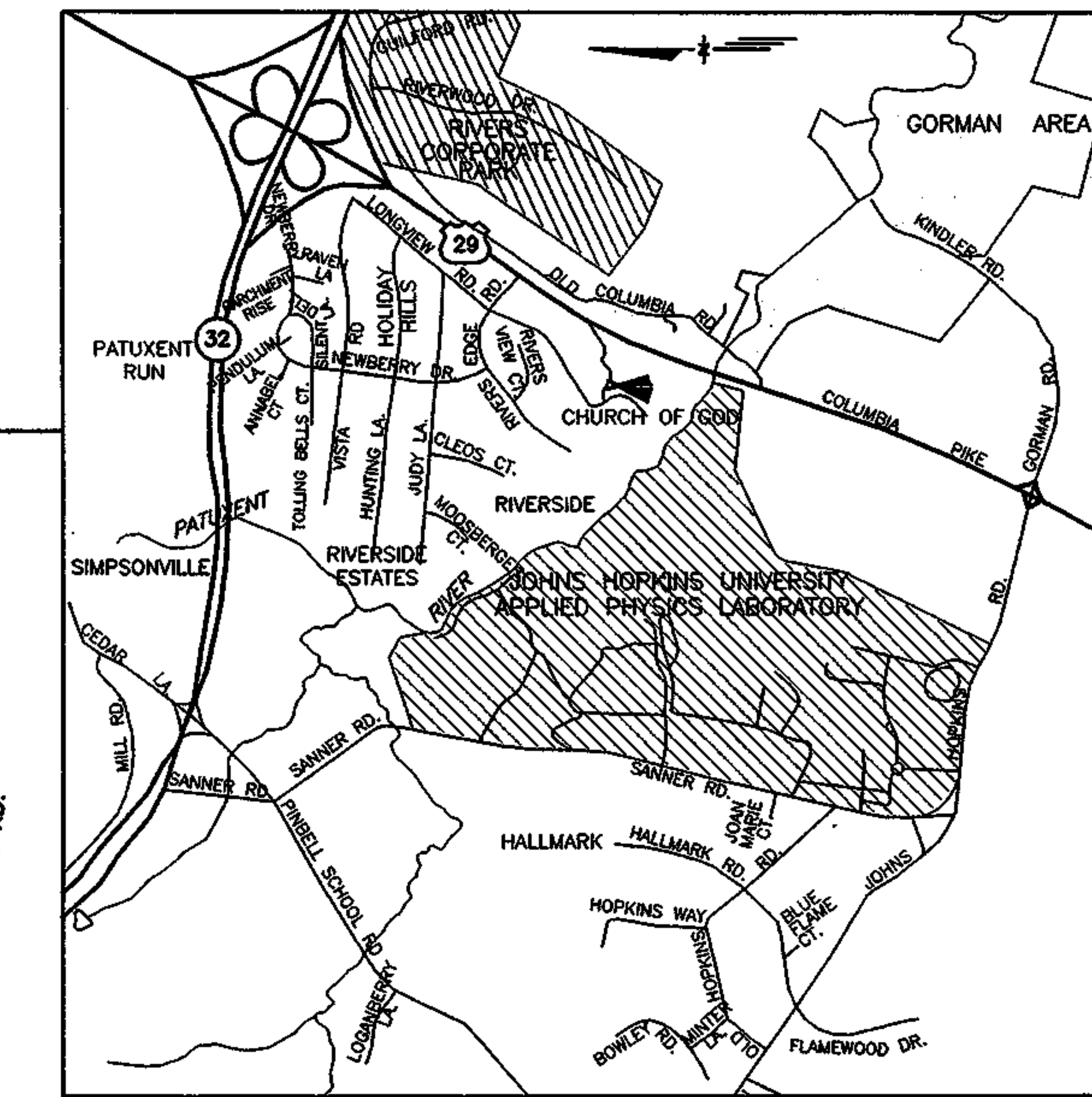

VICINITY MAP
SCALE: 1"=2000'

SITE ANALYSIS TOTAL APL PROPERTY:

PROPERTY NOTES

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

STATION	NORTH	EAST
HOPKINS	544836.5300	1340825.3542
G12	550256.5002	1342325.2642
G7	548107.0328	1341025.0830
G8	549478.7005	1341170.4345

A. AREA OF PARCEL/LOT = 358 ACRES
B. PRESENT ZONING = PEC
C. PARKING TABULATION: EXISTING PARKING SPACES = 3,780
PROPOSED PARKING SPACES = 398 (NET)
TOTAL SPACES PROVIDED = 4,178
D. EXISTING BUILDING COVERAGE = 36.2 ACRES GROSS FLOOR AREA, COVERAGE = 18.1 ACRES, 5% OF TOTAL LOT AREA
E. PROPOSED BUILDING COVERAGE = 6.5 ACRES GROSS FLOOR AREA COVERAGE = 1.6 ACRES, 0.45% OF TOTAL LOT AREA
F. 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 PRELIMINARY PLAN, #WP–01–80
M. SANITARY SEWER / WATER SERVICE SEE GENERAL NOTES.
N. EXISTING OPEN SPACE AREA (LOT AREA MINUS PARKING AND BUILDINGS) = 305 ACRES, 85.2% OF TOTAL LOT AREA.
O. PROPOSED OPEN SPACE AREA = 300 ACRES, 83.8% OF TOTAL LOT (PROPOSED BUILDINGS AND PARKING = 5 ACRES)

BASIN B AREA DRAINAGE NOTES

A. DRAINAGE AREA TO BASIN B = 28.8 ACRES.
B. DESIGN IMPERVIOUS SURFACES;
EXISTING 16% IMPERVIOUS SURFACES 4.6 ACRES
FUTURE BASIN DESIGN 89.2% IMPERVIOUS SURFACES 25.7 ACRES.
C. HYDRAULIC CALCULATION CAN BE FOUND IN THE MDE APPROVED "STORMWATER MANAGEMENT FINAL PLAN AREA B REPORT" (AUGUST 2002).

SEDIMENT CONTROL

(X) 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 ALSO AUTHORIZE PERIODIC ON–SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

James E. Loesch, PE, CFM 9/18/01 JEL 10/7/02
SIGNATURE OF DEVELOPER DATE
PRINT NAME BELOW SIGNATURE

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

10/3/02
SIGNATURE OF ENGINEER DATE
PRINT NAME BELOW SIGNATURE

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

10/24/02
USDA NATURAL RESOURCES CONSERVATION SERVICE DATE

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

10/24/02
HOWARD SOIL CONSERVATION DISTRICT DATE

DEVELOPER & ENGINEER CERTIFICATES

1) 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 10/03/02

Robert A. Warner
Printed Name Registration Number 13403

12750 TWINBROOK PARKWAY
ROCKVILLE, MARYLAND 20852
301.881.2545

2) BY THE DEVELOPER:

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personal 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."

James E Loesch, PE, CFM 9/18/01
Signature of developer Date

STATE OF MARYLAND
ROBERT ARTHUR WARNER
REGISTERED PROFESSIONAL ENGINEER

3) CERTIFICATION BY PROFESSIONAL:

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

Professional's Signature Date 10/03/02

Robert A. Warner
Print Name

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 # 98153.01

Einhorn Yaffee Prescott

DES: B. WARNER
DRN: P. FRIAS
CHK: S. ITANI
DATE: 08/23/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

PROPERTY OWNER: JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MD 20723
CONTACT: MR. JEFFREY ANDERSON
443.778.5960

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND B
PARCEL 1

COVER SHEET - AREA B

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

SCALE AS SHOWN
SHEET C1

F-02-77

MDE SUBMISSION

SEDIMENT CONTROL

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James E. Lusk, PE, CEM 9/18/01 JEL 10/7/02

SIGNATURE OF DEVELOPER — DATE
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10/3/02

SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE

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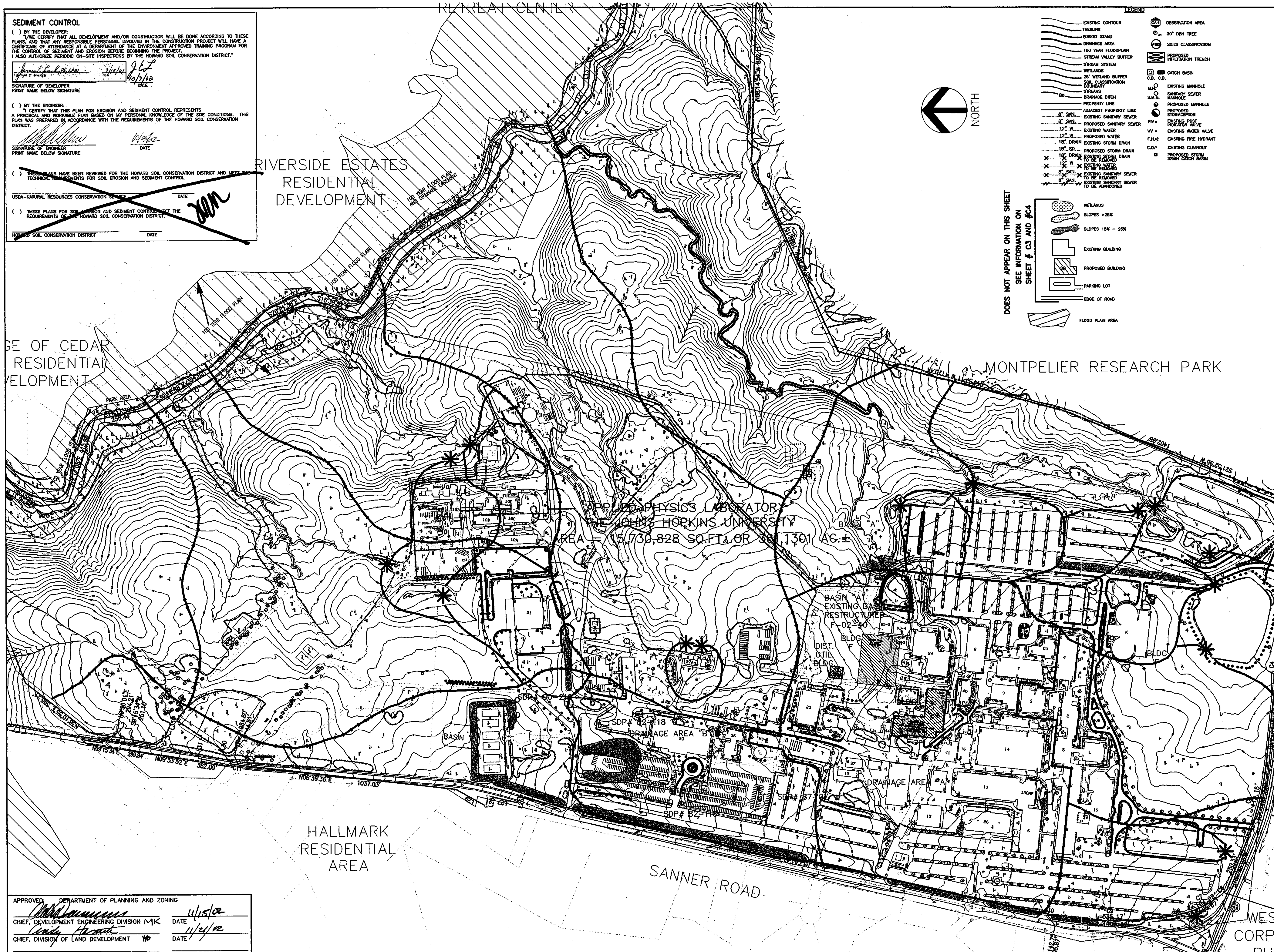
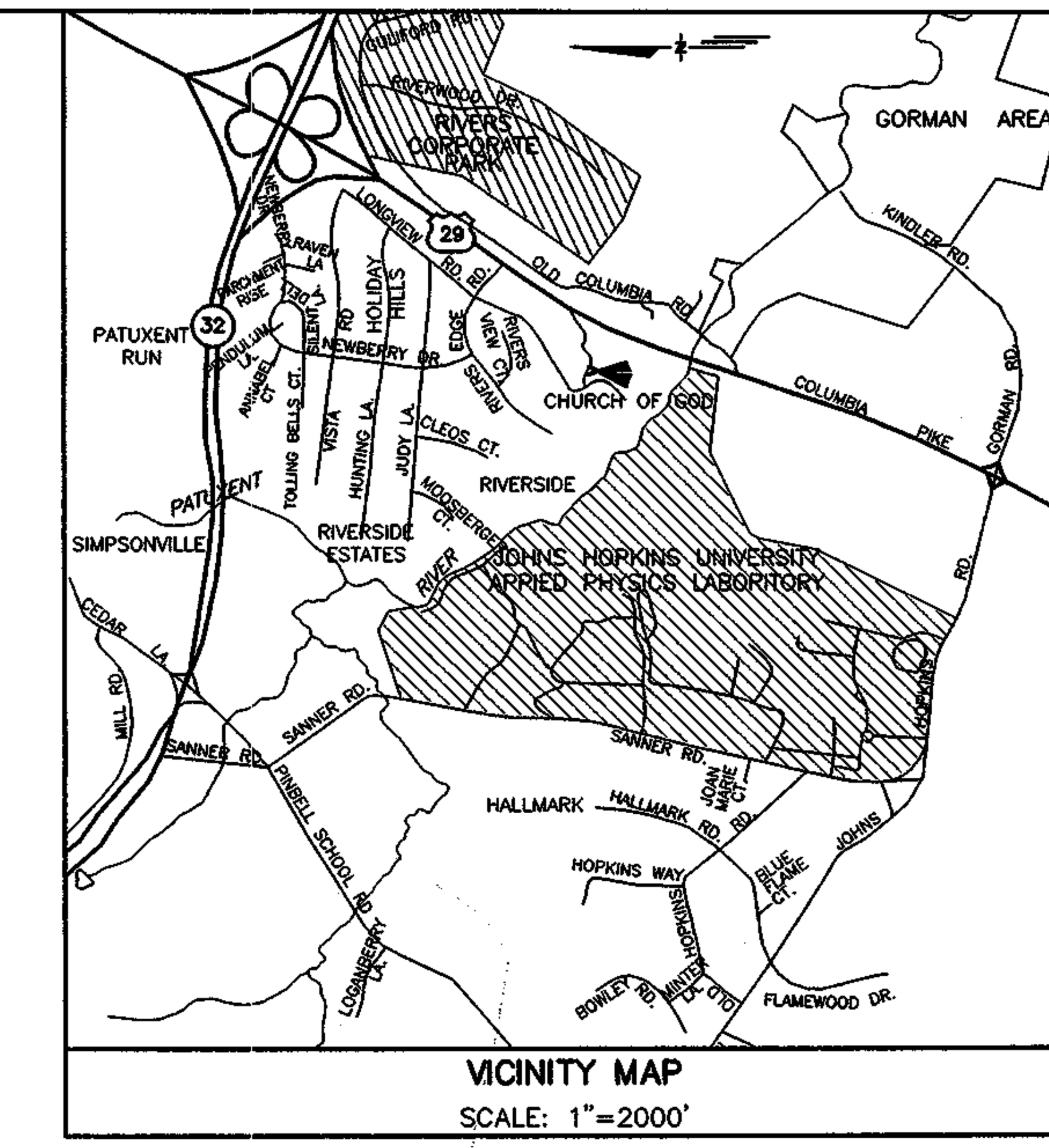
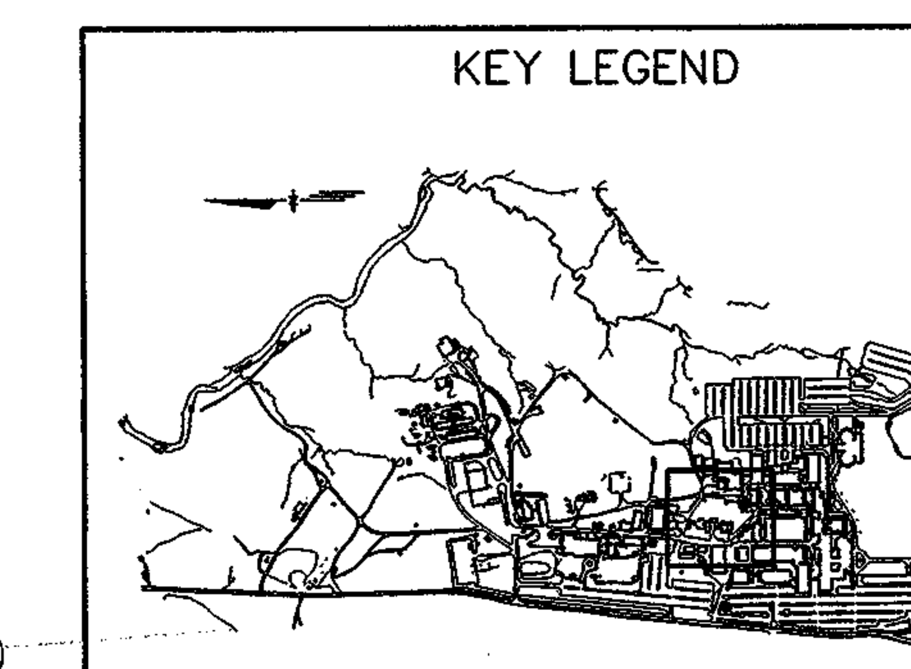
~~HOWARD SOIL CONSERVATION DISTRICT — DATE~~







APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/15/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/21/02

[redacted] [redacted]

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

Einhorn Yaffee Prescott

DES: B. WARNER						
DRN: P. FRIAS						
CHK: S. ITANI						
DATE: 06/21/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
PARCEL 1

OVERALL DRAINAGE AREA

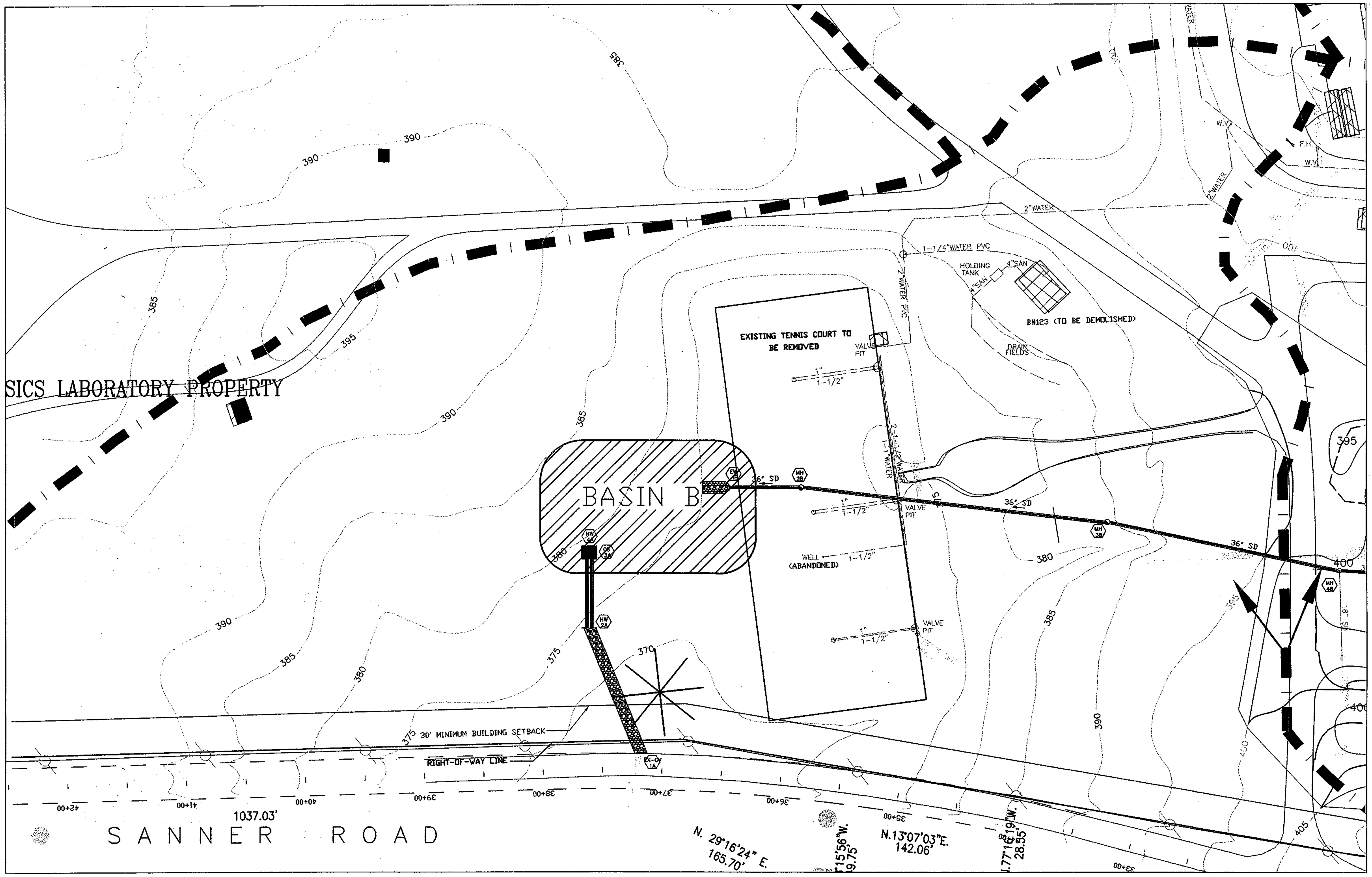
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

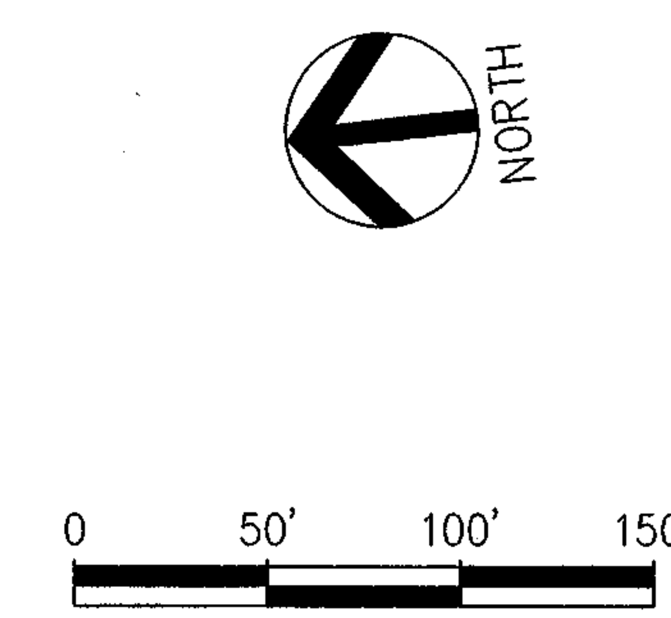
SCALE AS

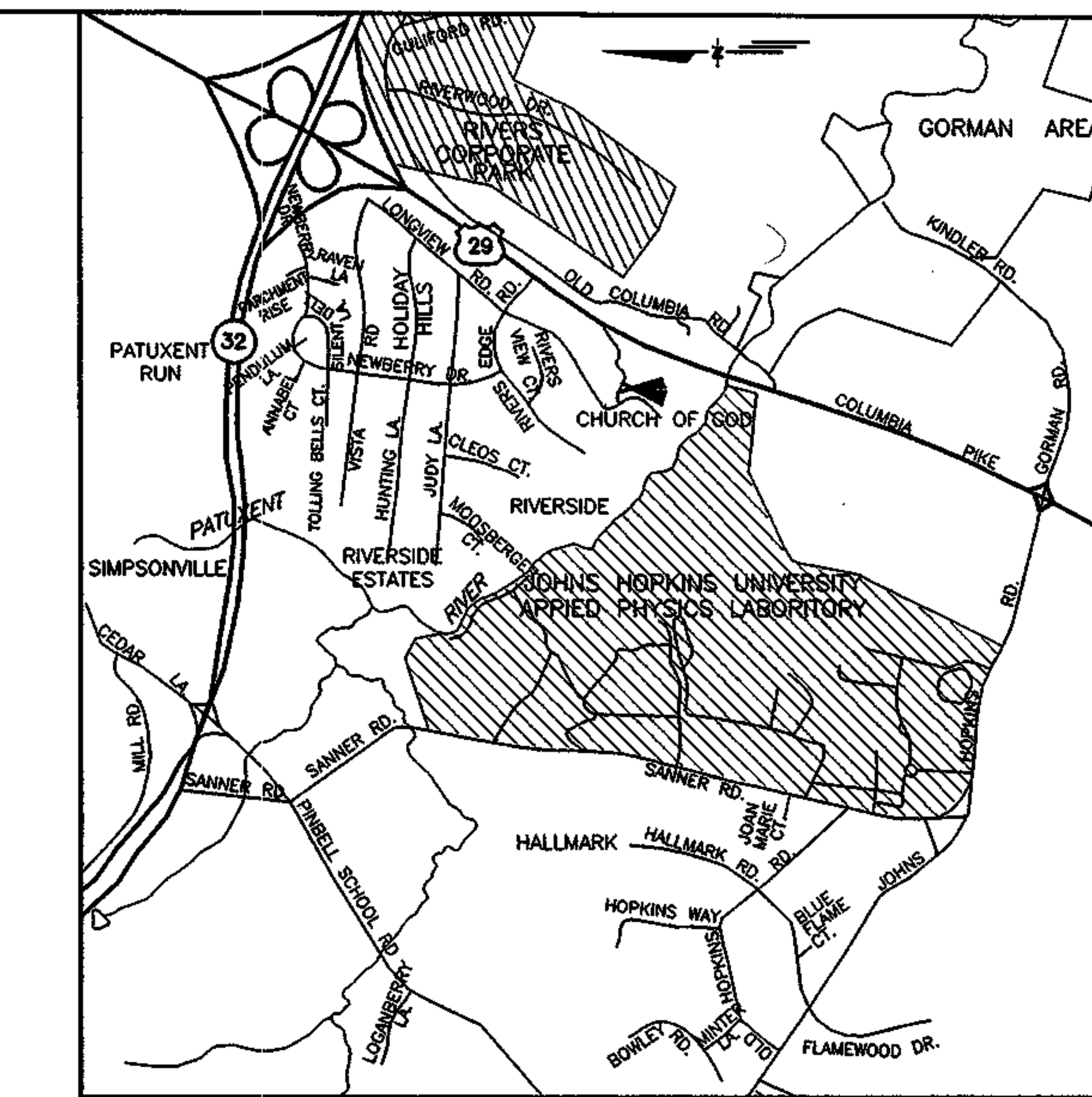
SHEET C2

SHEET 2 OF 20

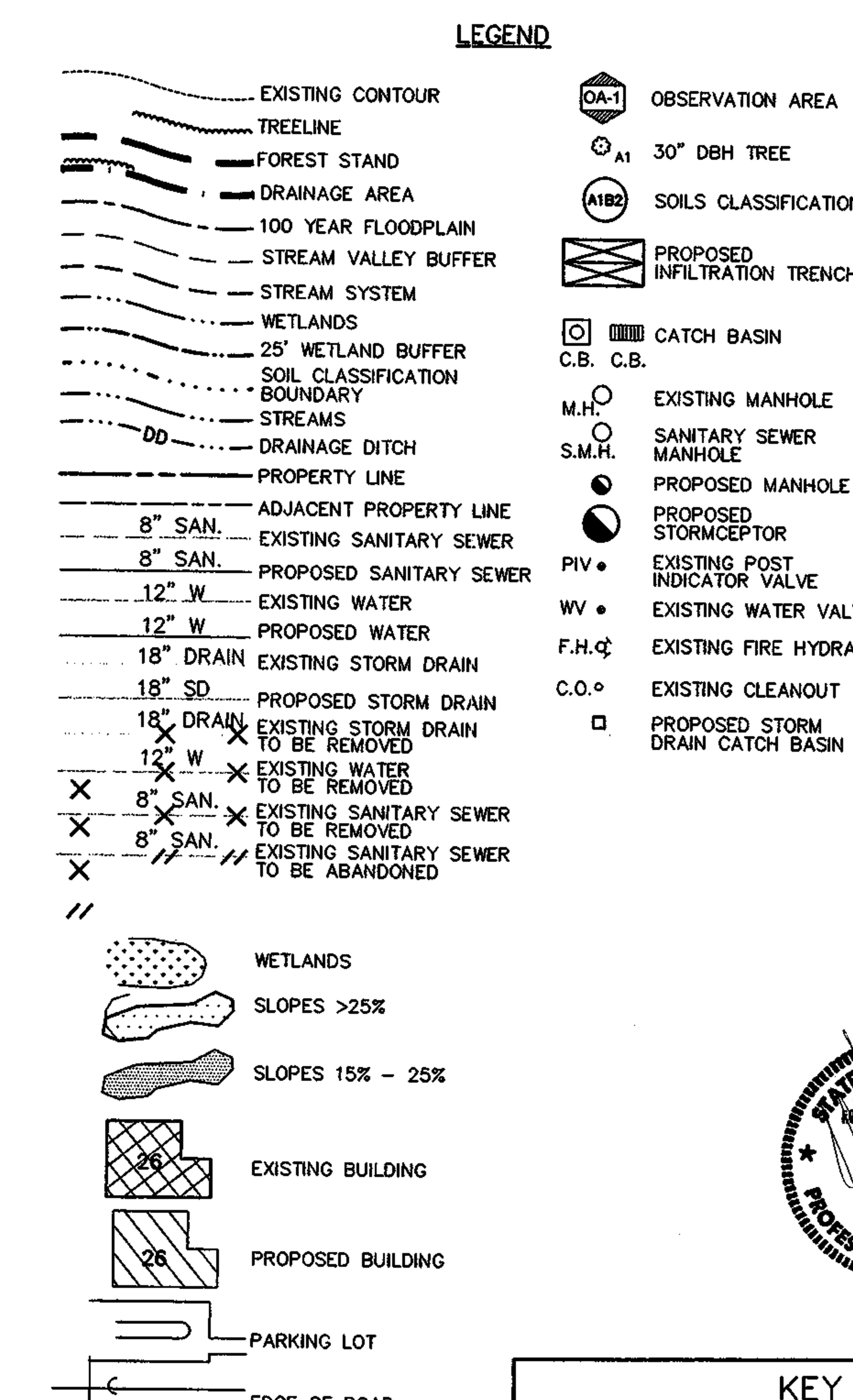
F-02-77

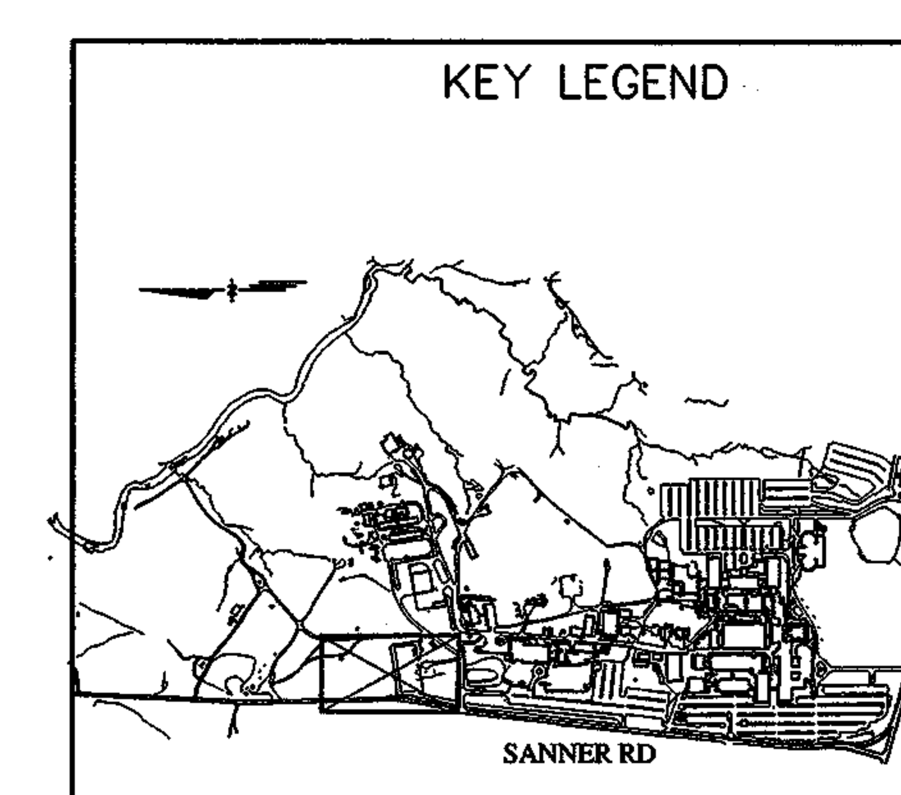






VICINITY MAP
SCALE: 1"=2000'





SEDIMENT CONTROL

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9/18/01 10/7/02
SIGNATURE OF DEVELOPER — DATE
PRINT NAME BELOW SIGNATURE

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10/3/02
SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE

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USDA–NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 11/15/02
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 11/21/02
[redacted]	[redacted]

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
BALTIMORE, MARYLAND 21218

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

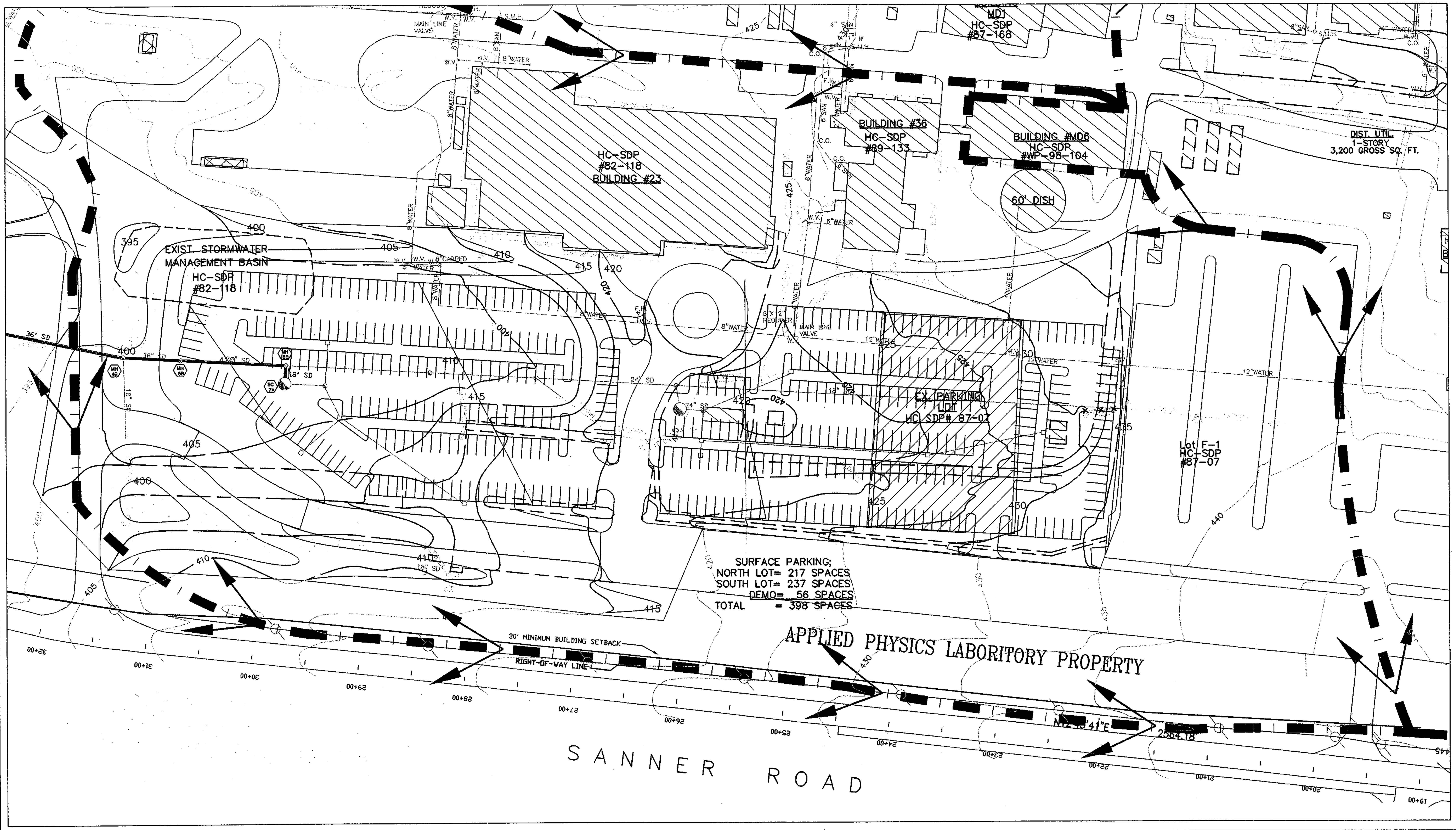
DES: B. WARNER
DRN: P. FRIAS
CHK: S. ITANI
DATE: 06/21/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
PARCEL 1
DRAINAGE AREA "B"
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C3

F-02-77



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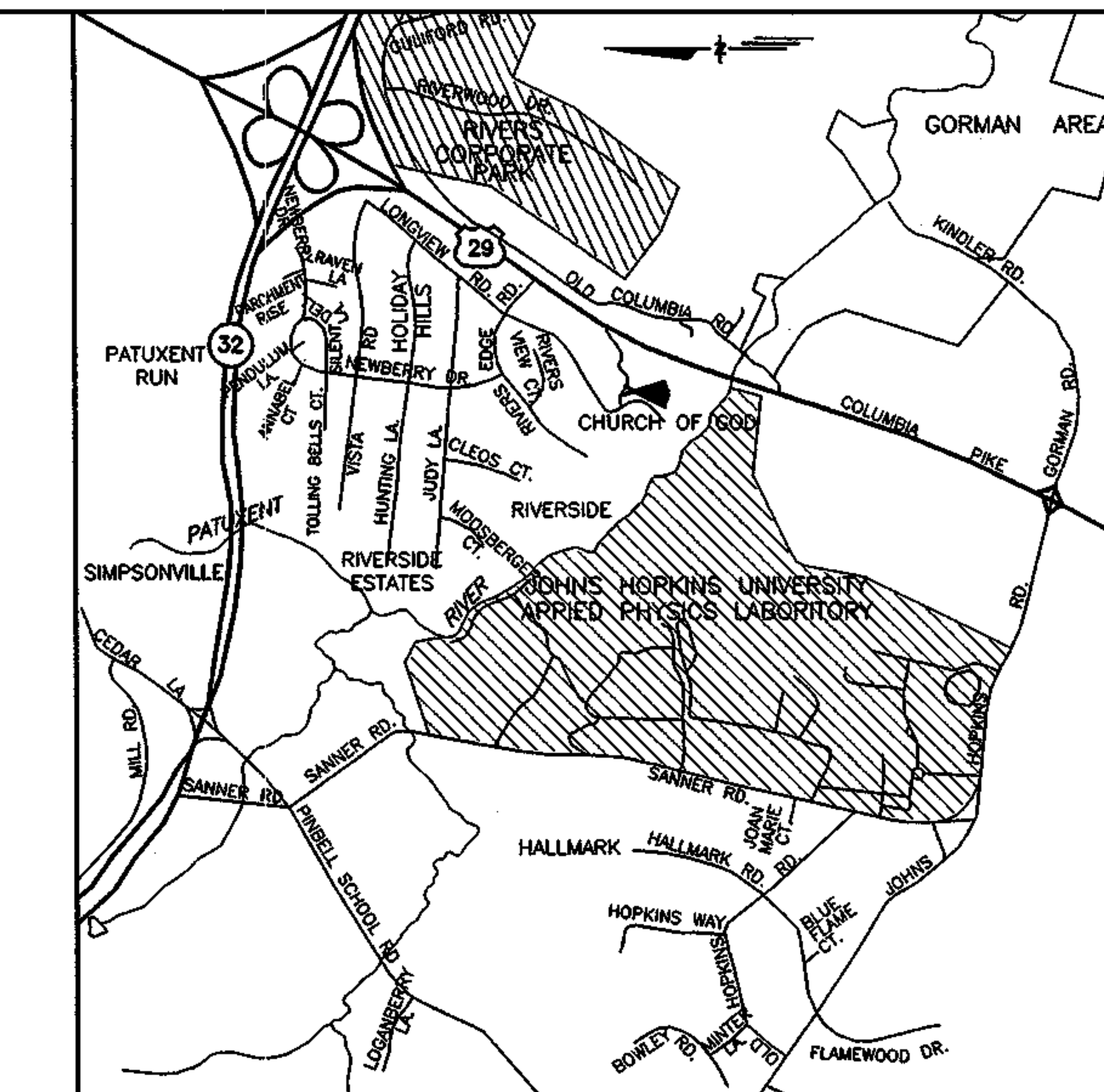


VICINITY MAP
SCALE: 1"=2000'

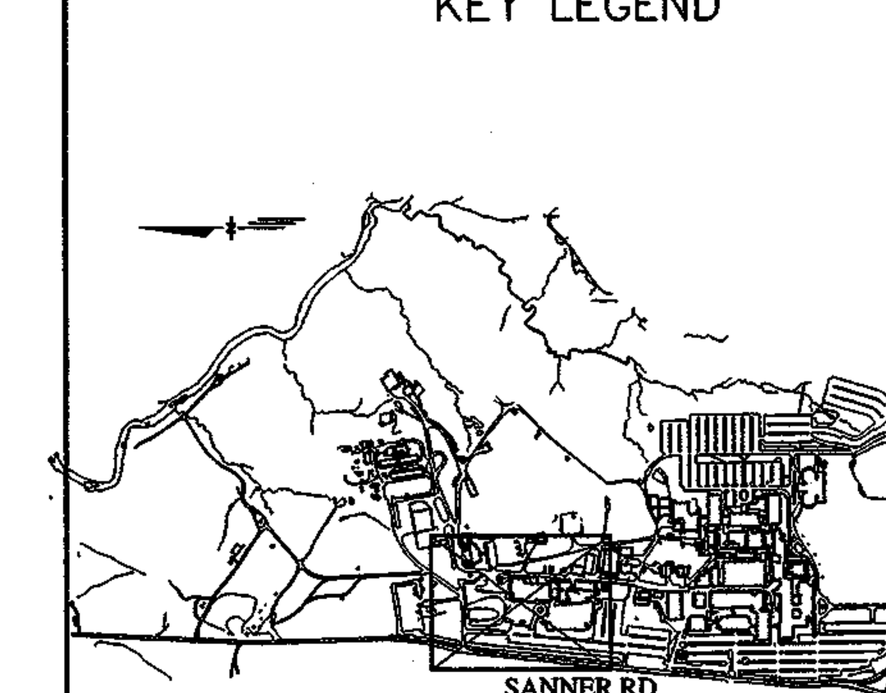
LEGEND

- EXISTING CONTOUR
- TREELINE
- FOREST STAND
- DRAINAGE AREA
- 100 YEAR FLOODPLAIN
- STREAM VALLEY BUFFER
- STREAM SYSTEM
- WETLANDS
- 25' WETLAND BUFFER
- SOIL CLASSIFICATION BOUNDARY
- STREAMS
- 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
- EXISTING STORM WATER MANAGEMENT POND
- WETLANDS
- SLOPES >25%
- SLOPES 15% – 25%
- EXISTING BUILDING
- PROPOSED BUILDING
- PARKING LOT
- EDGE OF ROAD
- 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

NORTH

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER

KEY LEGEND



SEDIMENT CONTROL

( ) 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

9/18/01 10/7/02
SIGNATURE OF DEVELOPER — DATE
PRINT NAME BELOW SIGNATURE

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

10/3/02
SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/15/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/21/02

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
BALTIMORE, MARYLAND 21218

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

Einhorn Yaffee Prescott

DES: B. WARNER
DRN: P. FRIAS
CHK: S. ITANI
DATE: 06/21/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
PARCEL 1

DRAINAGE AREA "B"

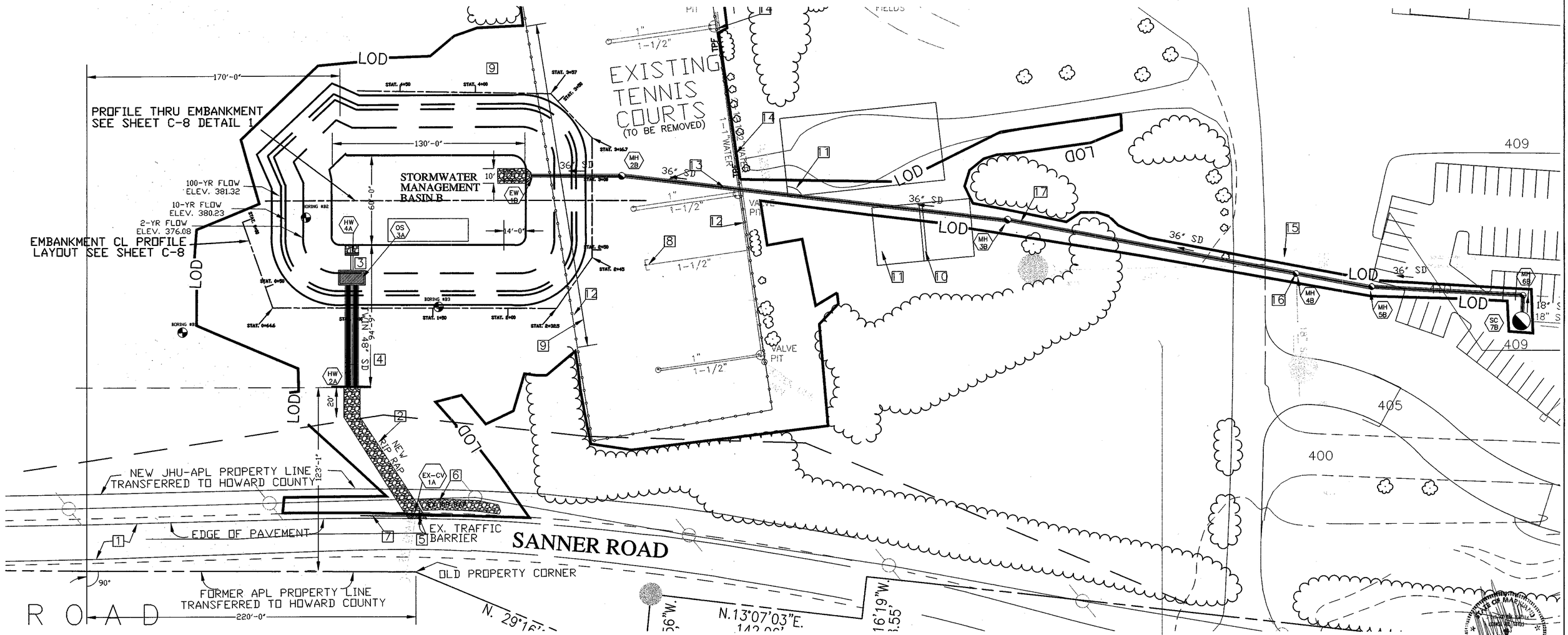
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET C4

SHEET 4 OF 20

F-02-77



KEY NOTES:

1. EXISTING ROADWAY ASPHALT PAVEMENT
2. NEW RIP-RAP TRAPEZOIDAL, TYPE CHANNEL (SEE DETAIL)
3. NEW BASIN CONCRETE OUTLET STRUCTURE (SEE DETAIL).
4. 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).
5. EXISTING 24" CMP CULVERT IN RIP-RAP INLET PROTECTION TO TO REMAIN.
6. EXISTING RIP-RAP LINED DRAINAGE DITCH, NEW RIP-RAP MEETING EXISTING FLUSH.
7. EXISTING TRAFFIC BARRIER TO REMAIN.
8. EXISTING PIPE CAPPED
9. EXISTING TREES TO BE REMOVED
10. EXISTING 10' HIGH X 28' LONG X 8' THICK REINFORCED CONC. WALL WITH 4' DEEP CONC. FOUNDATION TO BE REMOVED
11. EXISTING 6" THICK ASPHALT PAVEMENT TO BE REMOVED
12. EXISTING 10' HIGH X 930' LONG CHAIN LINK FENCE WITH CONC. FOUNDATIONS AT THE POSTS TO BE REMOVED
13. EXISTING CLAY/SAND TENNIS COURT COMPOSITION MATERIAL 12" THICK, REMOVE AS REQUIRED TO INSTALL NEW STORM DRAIN, BACKFILL WITH FILL SOIL, TOP SOIL, AND SEED.
14. EXISTING 2" WATER PIPE DISCONNECT AND CAP AT VALVE BOX AT TENNIS COURTS AS DIRECTED BY APL. REMOVE ANY EXISTING PIPE IN THE WAY OF STORM DRAIN PIPE CONSTRUCTION.
15. REMOVE EXISTING 24" SD LOCATED BENEATH PROPOSED 36" SD
16. CONNECT EXISTING 18" SD PIPE TO NEW MANHOLE
17. LIMIT OF INITIAL WORK - STUB UP PIPE FOR FUTURE CONNECTION

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/15/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/21/02

SEDIMENT CONTROL

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SIGNATURE OF DEVELOPER — DATE 10/7/02
PRINT NAME BELOW SIGNATURE

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USDA—NATURAL RESOURCES CONSERVATION SERVICE — DATE 10/24/02

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 10/24/02

GRAPHIC SCALE
(IN FEET)
1 inch = 80 ft.

NORTH
NTS
SANNER RD
JOHNS HOPKINS RD
SCALE: NTS

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL (301) 881-2565 FAX (301) 881-0814
AMT FILE # 90-153

Einhorn Yaffee Prescott

DES: B. WARNER
DRN: S. ITANI
CHK: B. WARNER
DATE: 06/21/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
PARCEL 1
SITE LAYOUT
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C5
SHEET 5 OF 20

F-02-77

NORTH

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

SEDIMENT CONTROL

( ) BY THE DEVELOPER:

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SIGNATURE OF ENGINEER — DATE 10/03/02
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APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 11/15/02

CHIEF, DIVISION OF LAND DEVELOPMENT — 11/21/02

[redacted] [redacted]

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DES: B. WARNER						
DRN: S. ITANI						
CHK: B. WARNER						
DATE: 06/21/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
PARCEL 1

POND GRADING AND DRAINAGE PLAN

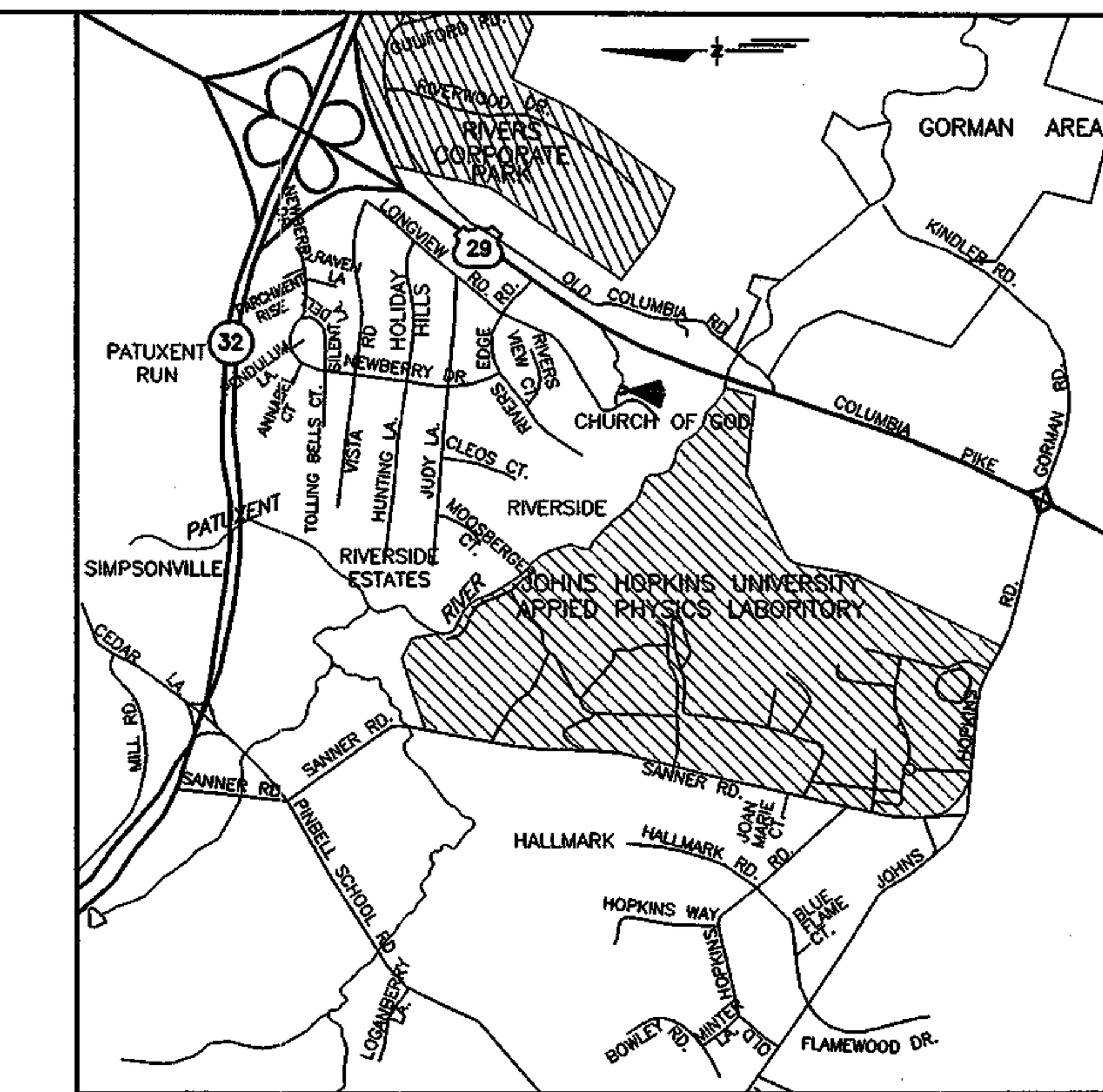
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

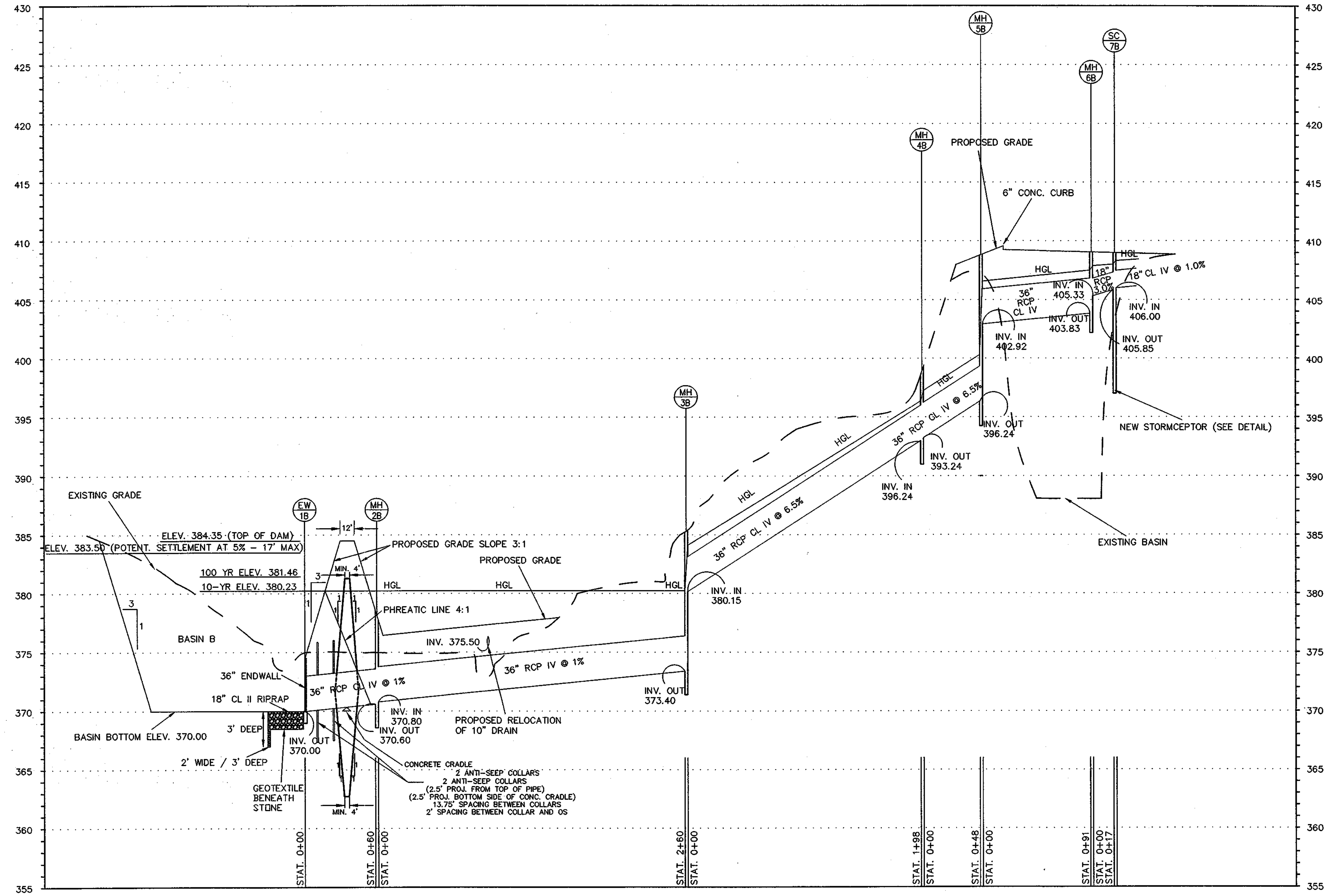
SHEET C6

SHEET 6 OF 20

F-02-77



VICINITY MAP
SCALE: 1"=2000'



1 PIPE PROFILE THRU 36" RCP

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

SEDIMENT CONTROL

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HOWARD SOIL CONSERVATION DISTRICT — DATE

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER

KEY LEGEND

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/15/02
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Einhorn Yaffee Prescott

DES: B. WARNER
DRN: P. FRIAS
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DATE: 06/21/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
PARCEL 1

PIPE PROFILE

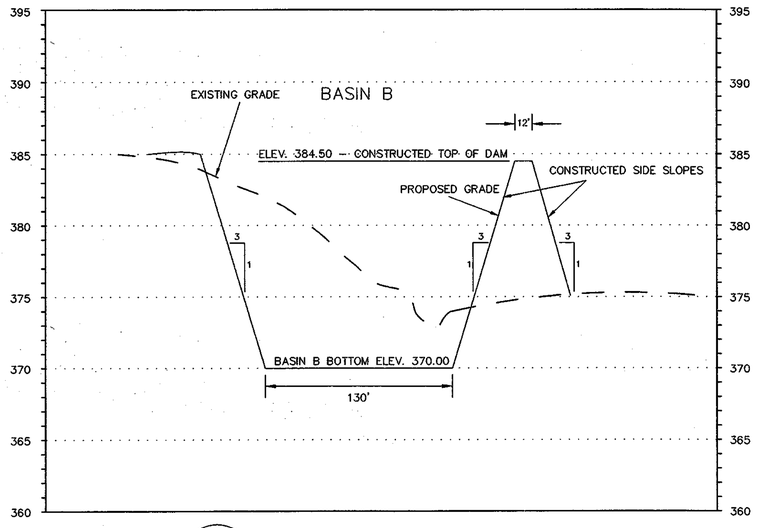
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET C7

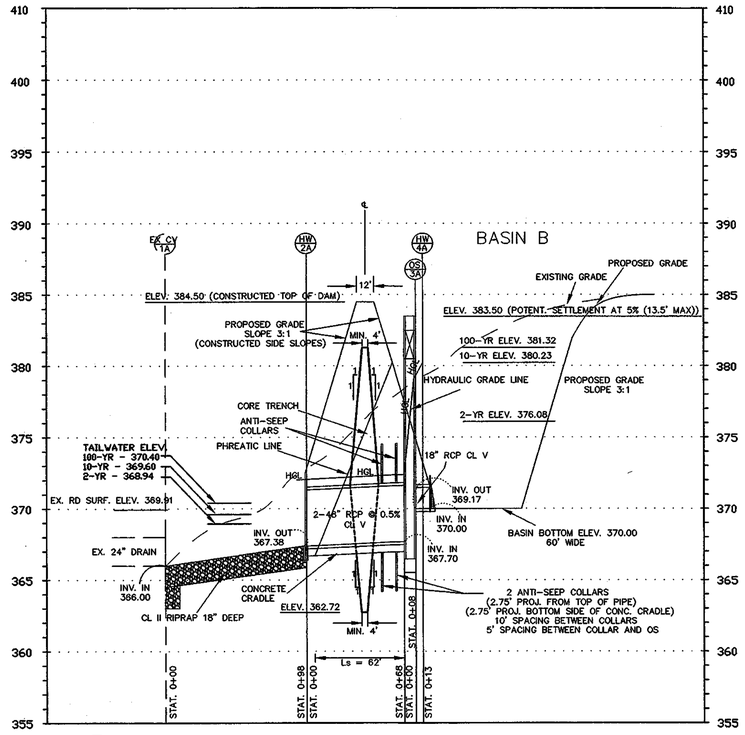
SHEET 7 OF 20

F-03-44



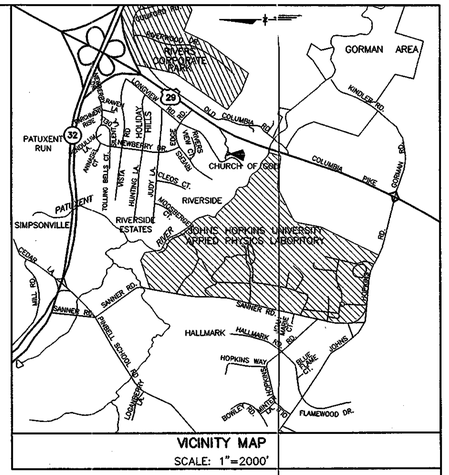
1 **PROFILE THRU EMBANKMENT**

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



3 **PIPE PROFILE THRU TWIN 48" RCP / OUTLET STRUCTURE**

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



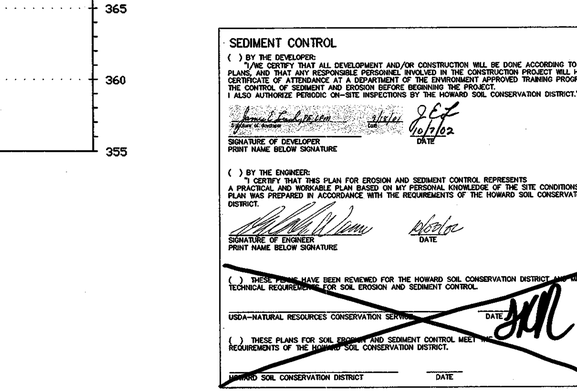
VICINITY MAP
SCALE: 1"=2000'

STORM DRAIN PIPE SCHEDULE

FROM	TO	SIZE	LENGTH	SLOPE	FLOW	10-YRS	VELOCITY	PIPE
		(INCH)	(FEET)	%	CAP.(cfs)	Q (cfs)	(fps)	TYPE
EW-1	MH-2	36	60	1%	61.93	13.97	8.76	RCP
MH-2	MH-3	36	260	1%	61.93	13.97	8.76	RCP
MH-3	MH-4	36	198	6.5%	157.90	13.97	22.34	RCP
MH-4	MH-5	36	48	6.5%	157.90	13.97	22.34	RCP
MH-5	MH-6	36	91	1%	61.93	13.97	8.76	RCP
MH-6	SC-7	18	17	3%	16.89	13.97	9.56	RCP
HW-4	OS-3	18	5	17%	133.40	105.97	10.62	RCP
OS-3	HW-2	48	68	0.5%		55.56	5.52	RCP

STORM DRAIN STRUCTURE SCHEDULE

STRUC. No	TYPE	STANDARD No.	TOP ELEVATION	SIZE(in)	INV. IN	INV. OUT	COMMENT
EW-1	EW	SHA # MD-354.01	374.50	–	–	370.00	TYPE C ENDWALL
MH-2	MH	SHA # MD-384.05	376.81	–	370.80	370.60	MANHOLE PRECAST
MH-3	MH	SHA # MD-384.05	385.31	–	380.15	373.40	MANHOLE PRECAST
MH-4	MH	SHA # MD-384.03	398.94	–	393.24	396.24	MANHOLE PRECAST
MH-5	MH	SHA # MD-384.03	408.83	–	402.92	396.24	MANHOLE PRECAST
MH-6	MH	SHA # MD-384.03	409.05	–	405.33	403.83	MANHOLE PRECAST
SC-7	SC	STC 3600	409.00	–	406.00	405.85	PRECAST CONCRETE SC
HW-2	HW	SHA # MD-354.01	372.53	–	389.76	384.99	MANHOLE PRECAST
OS-3	OS	–	383.50	–	405.68	391.25	MANHOLE PRECAST
HW-4	HW	SHA # MD-354.01	371.70	–	406.00	405.85	PRECAST CONCRETE SC



2 **PROFILE ALONG TOP OF EMBANKMENT B**

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

STATE OF MARYLAND
ROBERT ARTHUR WARNER
LICENSE NO. 21903
REGISTERED PROFESSIONAL ENGINEER

NOTES:
ALL RCP PIPES SHALL HAVE RUBBER GASKETS

SEDIMENT CONTROL

( ) BY THE DEVELOPER:
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HOWARD SOIL CONSERVATION DISTRICT — DATE

STORM DRAIN COMPUTATION SHEET

COMPUTED BY: PCF DATE: 11/01 PROJECT: APL-JHU
CHECKED BY: RAW DATE: 11/01 STORM FREQUENCY: 10-YEAR

MANNING'S "N" (RCP) = 0.013

PIPE STRUCTURE		DRAINAGE AREA		RUN-OFF COEFF.	"AREA"X"C"		TIME OF CONC.	RAINFALL INTENSITY	RUNOFF "Q"	PIPE DIAMETER	PIPE LENGTH	MIN. PIPE	ACTUAL PIPE	VELOCITY	TIME IN PIPE	PIPE "Q" CAPAC.
FROM	TO	INC (AC)	TOTAL (AC)	"C"	INC (AC)	TOTAL (AC)	SYSTEM (MIN)	"I" (IN/HR)	(CFS)	(IN)	(ft)	SLOPE (f/f)	SLOPE (f/f)	(FPS)	(MIN)	(CFS)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
SC-7	MH6	–	1.73	.95		1.64	5	8.50	13.97	18	17	0.001	0.010	5.52	0.05	9.75
MH6	MH5	–	1.73	.95		1.64	5	8.50	13.97	36	91	0.001	0.010	8.76	0.17	61.93
MH5	MH4	–	1.73	.95		1.64	5	8.50	13.97	36	48	0.001	0.065	22.34	0.04	157.90
MH4	MH3	–	1.73	.95		1.64	5	8.50	13.97	36	198	0.001	0.065	22.34	0.15	157.90
MH3	MH2	–	1.73	.95		1.64	5	8.50	13.97	36	260	0.001	0.010	8.76	0.49	61.93
MH2	EW1	–	1.73	.95		1.64	5	8.50	13.97	36	60	0.001	0.010	8.76	0.11	61.93
HW4	OS3	–	32	.75		24	5	8.50	204	18	60	4.391	0.010	5.52	0.18	9.75
OS3	HW2	–	32	.75		24	5	8.50	204	48	60	0.024	0.010	10.62	0.09	133.40

KEY LEGEND

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/15/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/21/02

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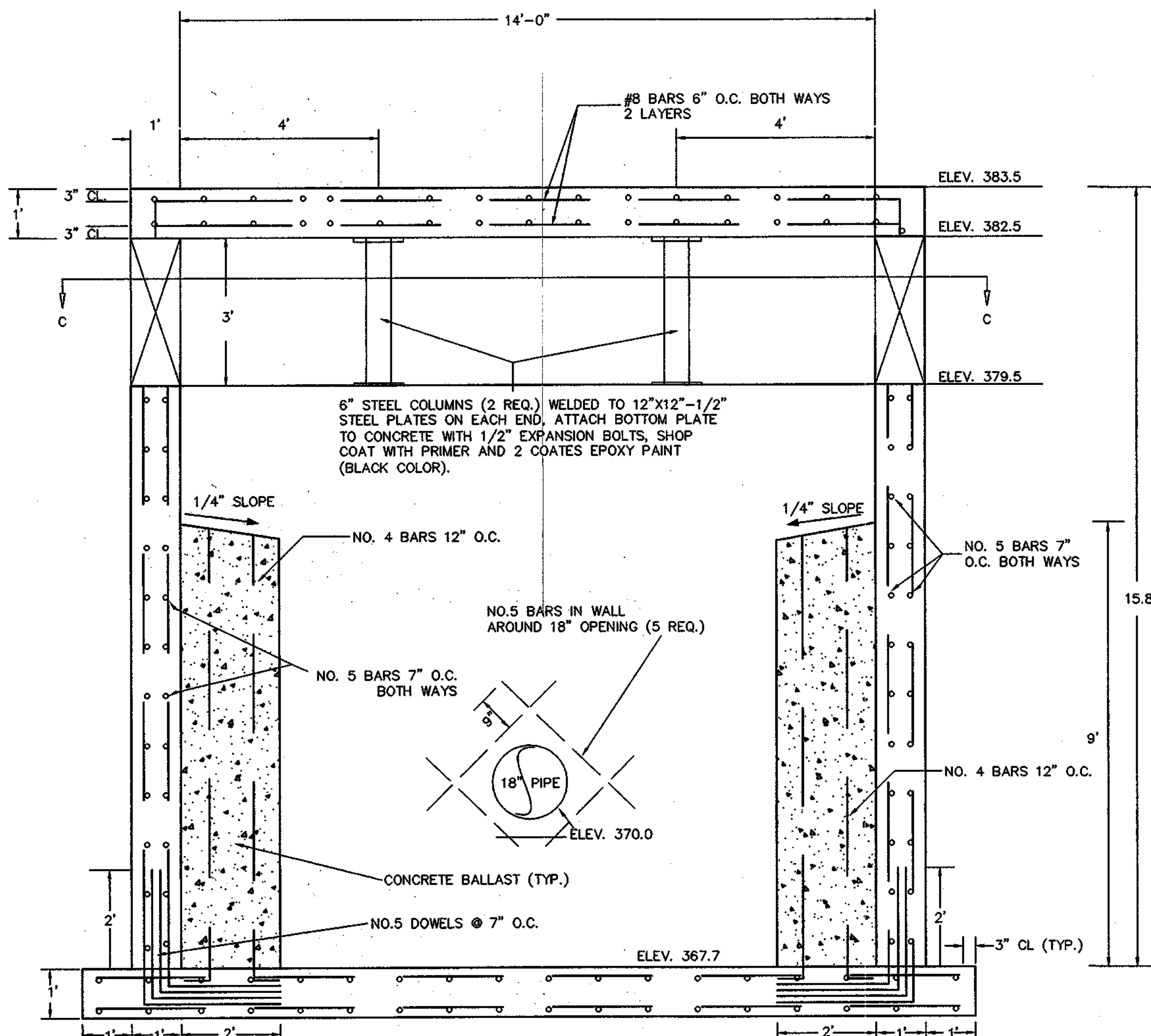
DRN: P. FRIAS
CHK: S. ITANI
DATE: 06/21/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

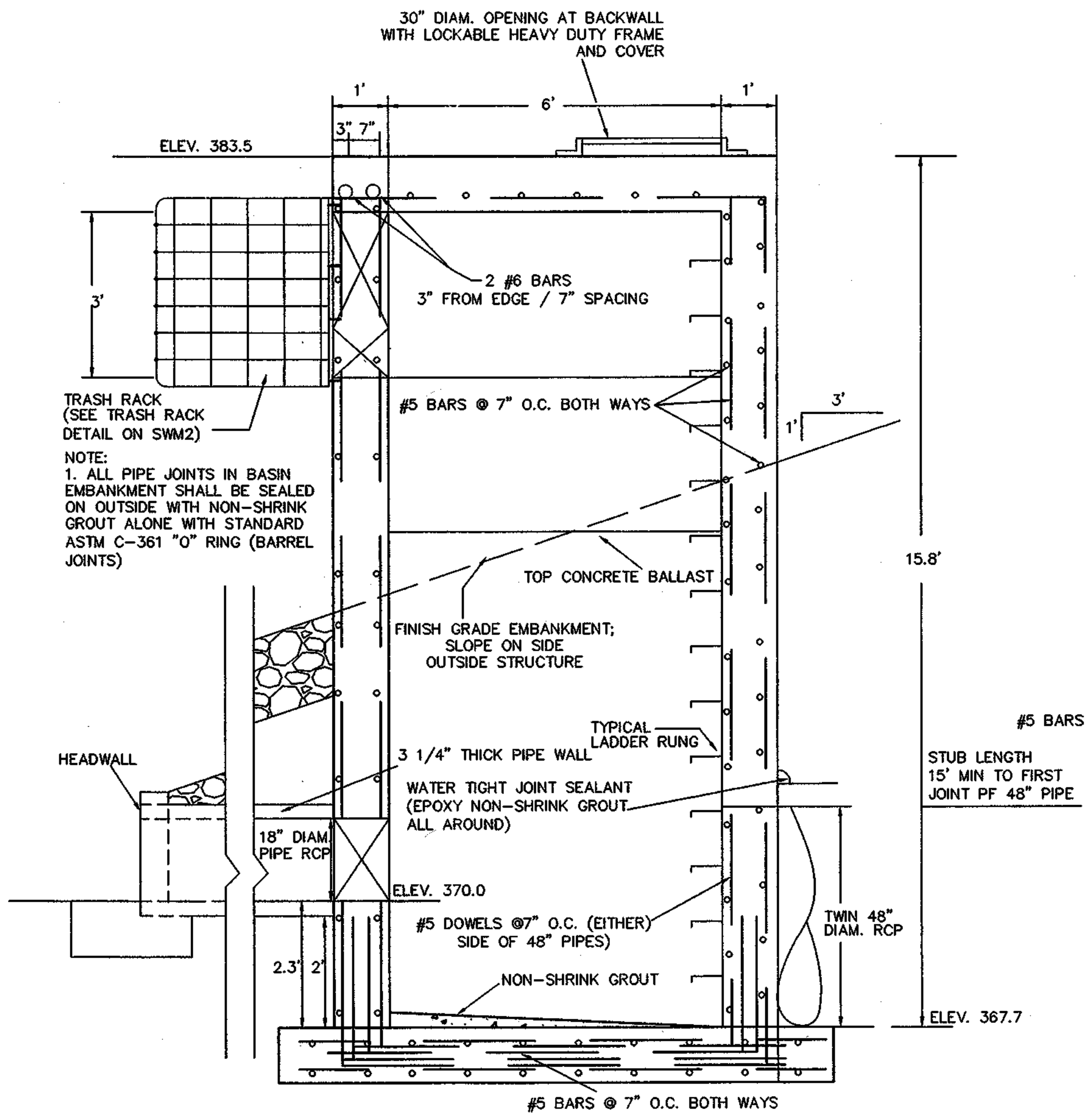
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
PARCEL 1
EMBANKMENT B PROFILE AND PIPE PROFILE
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C8
SHEET 8 OF 20

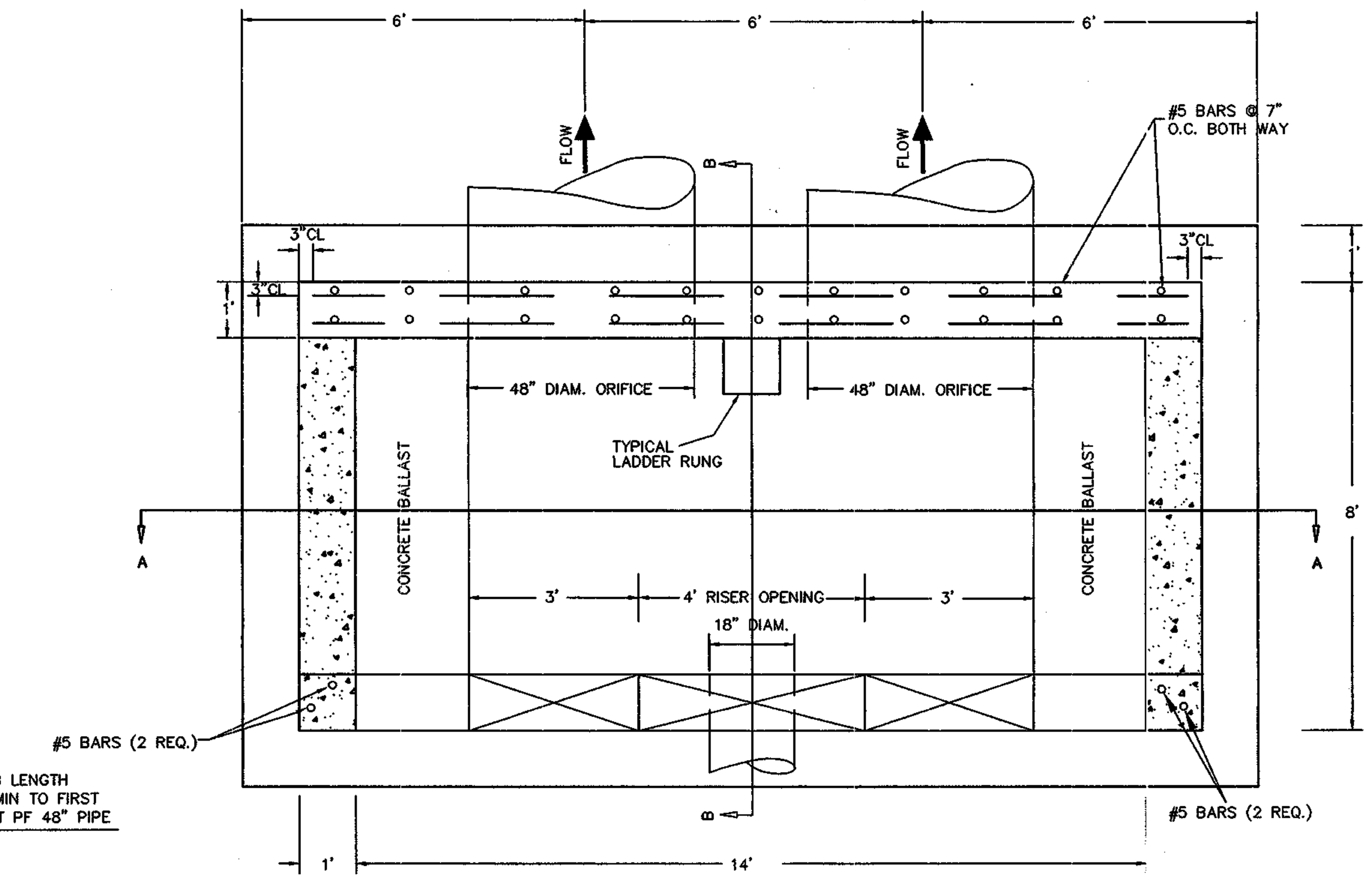
F-02-87



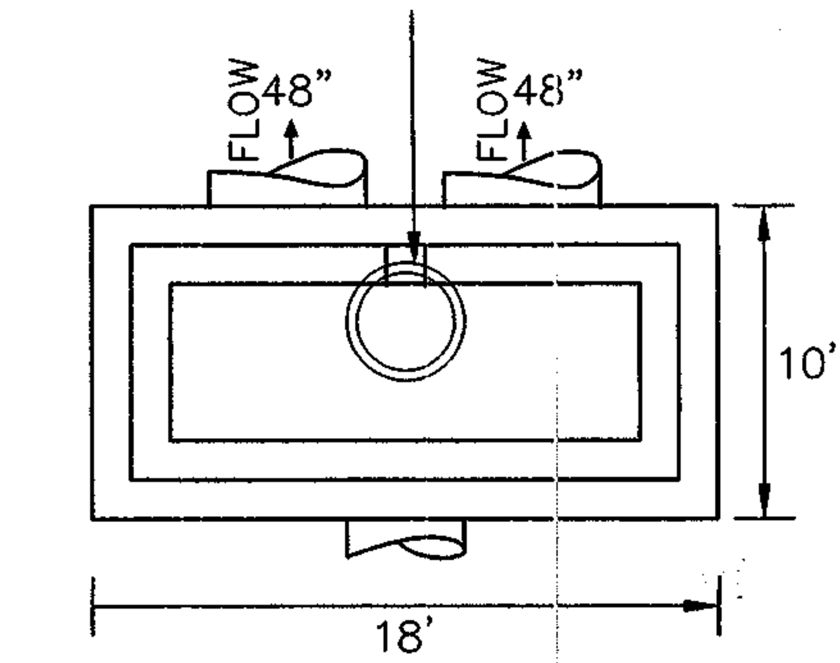
1 SECTION A-A
SCALE: 1"=2'



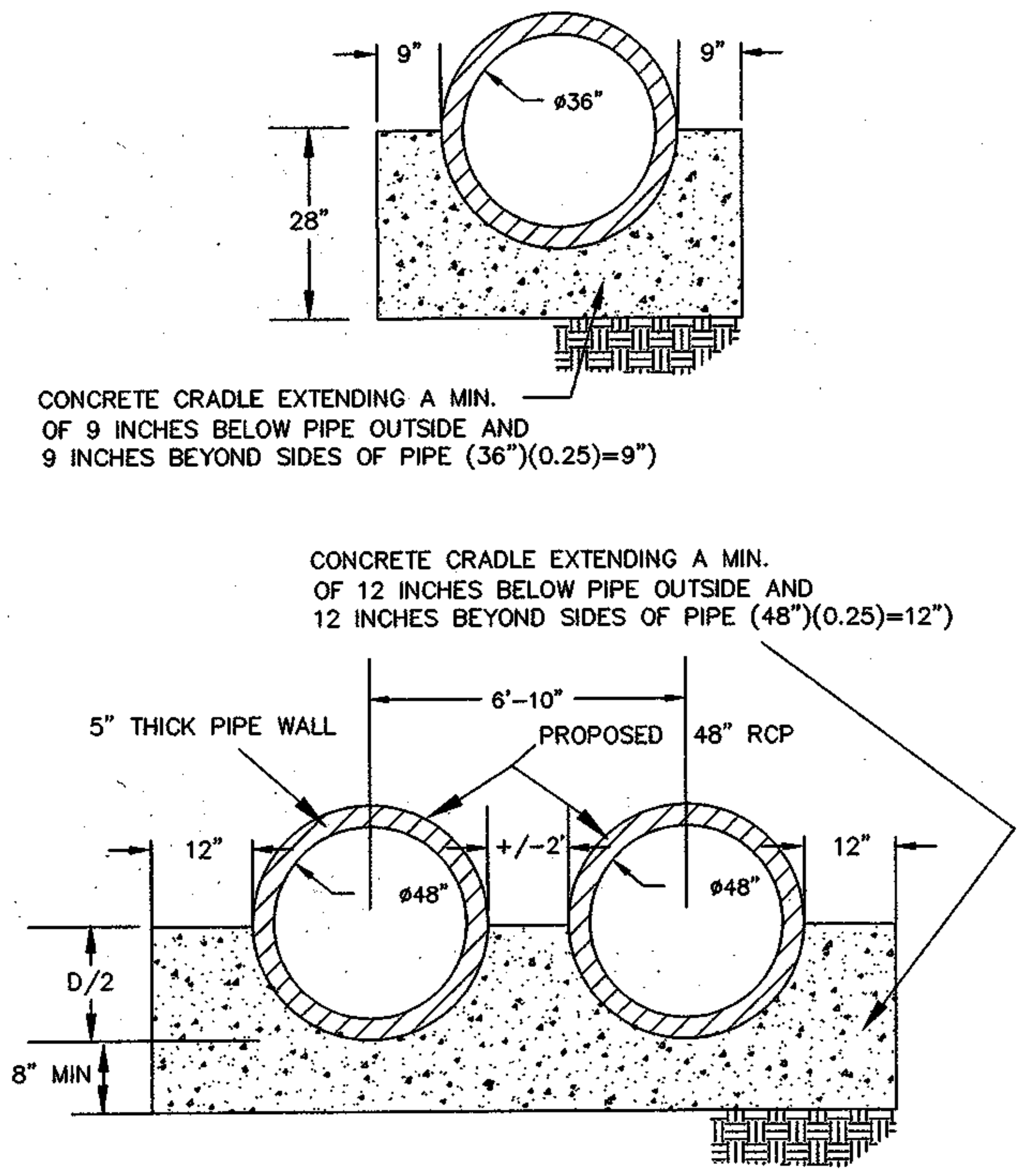
2 SECTION B-B
SCALE: 1"=2'

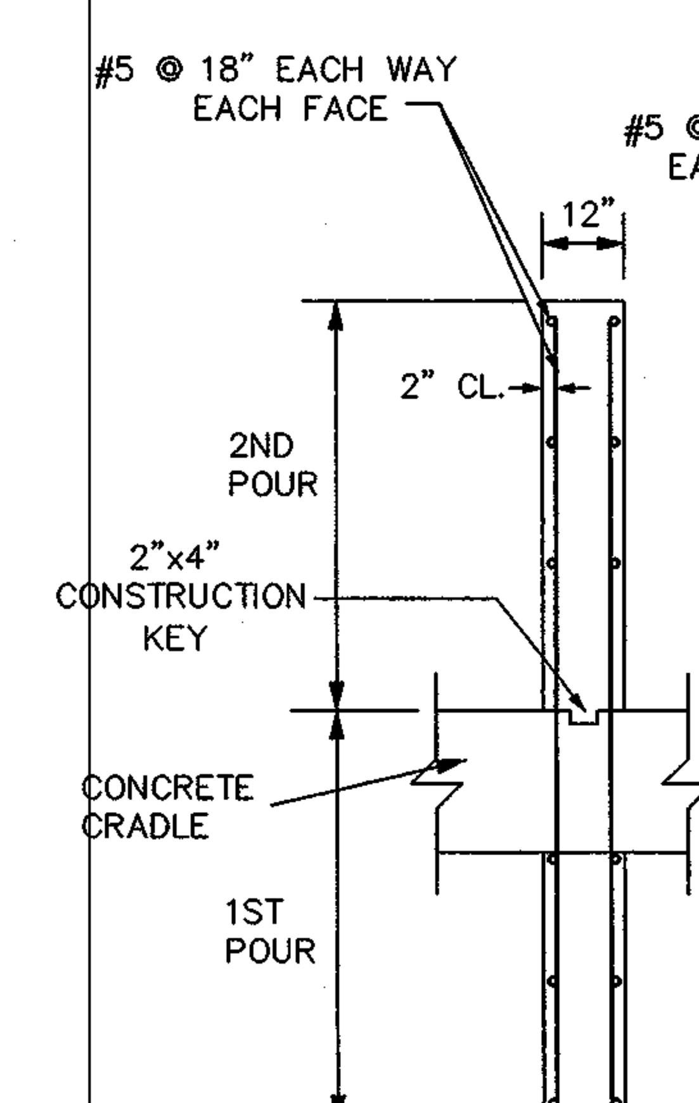


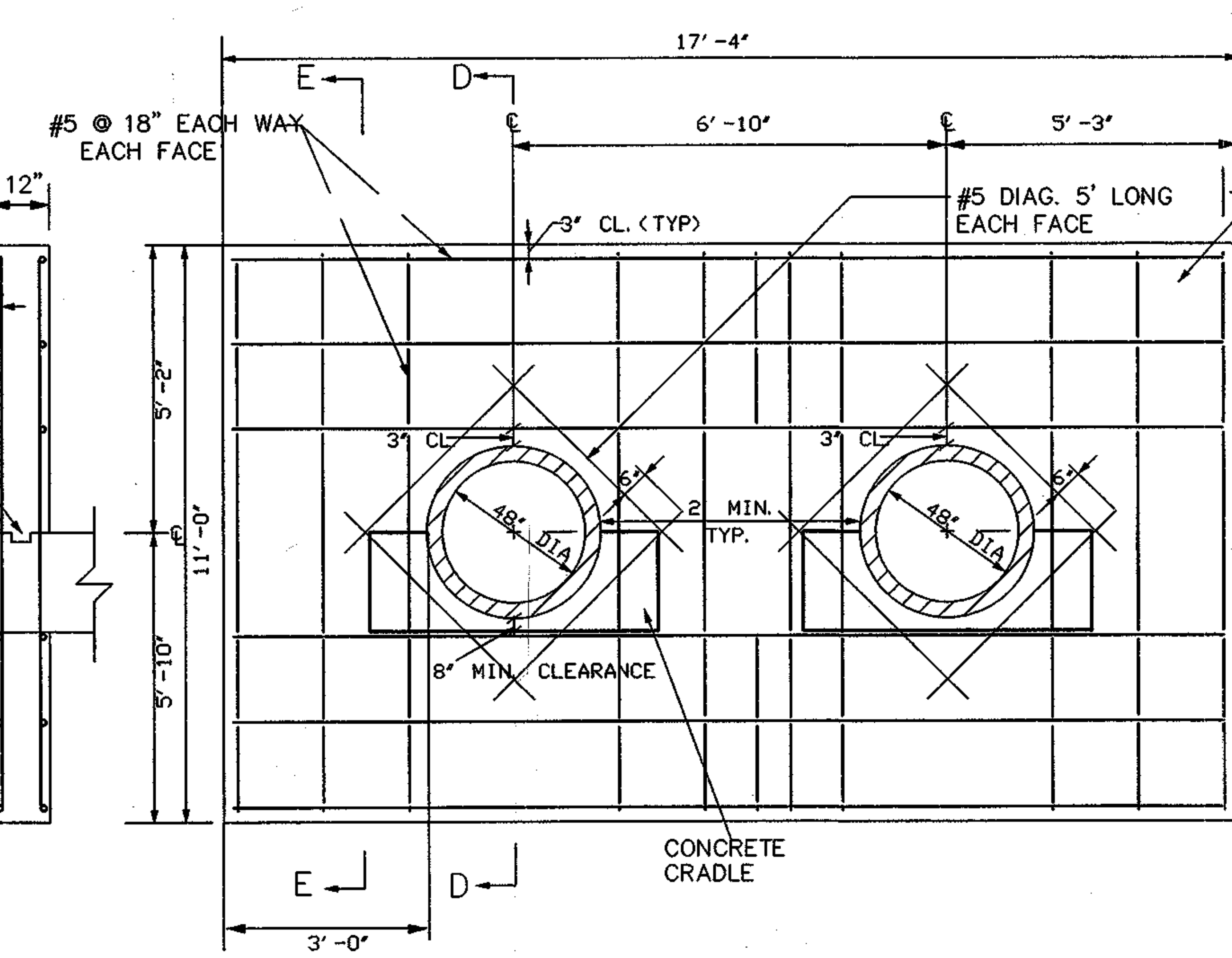
3 RISER-PLAN VIEW
SCALE: 1"=2'

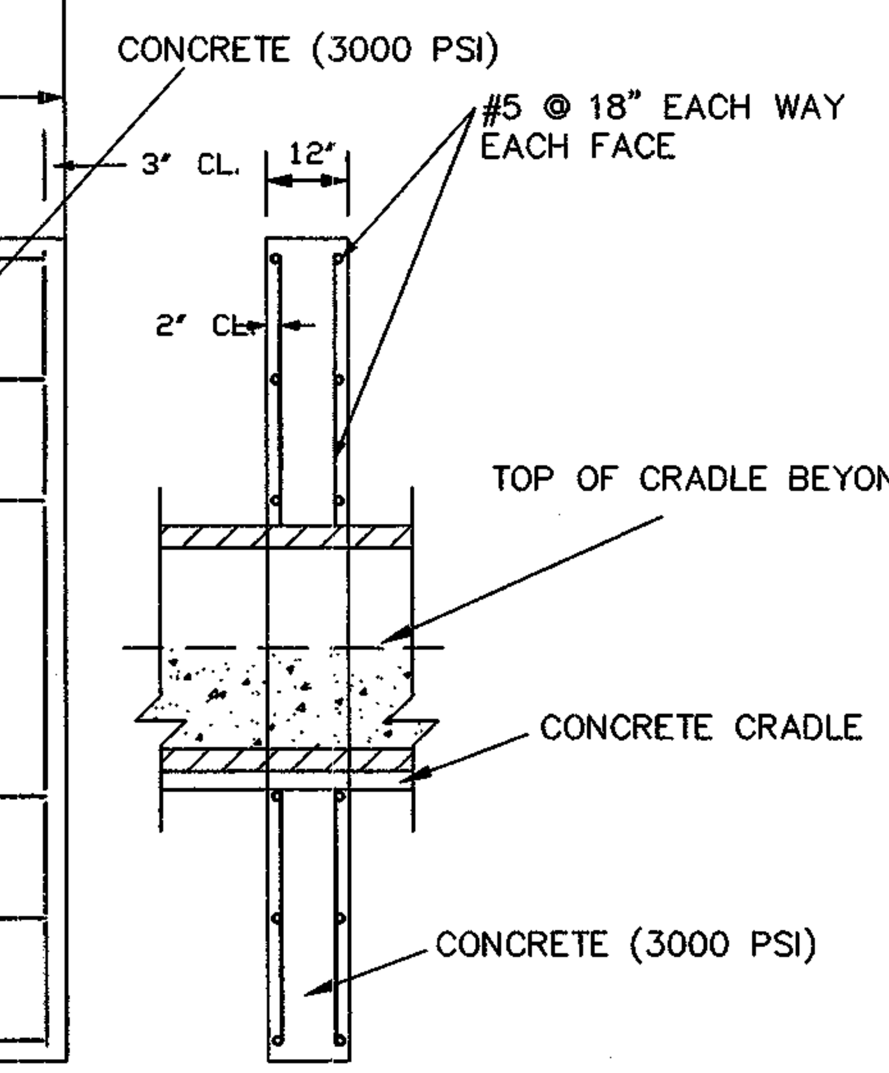


8 TOP VIEW
SCALE: NTS









4 CONCRETE CRADLE DETAILS
SCALE: NTS

5 SECTION E-E
SCALE: NTS

6 ELEVATION ANTI-SEEP COLLAR
SCALE: NTS

7 SECTION D-D
SCALE: NTS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE 11/15/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE 11/21/02
[redacted]

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:						
CHK: B. WARNER						
DATE: 06/21/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

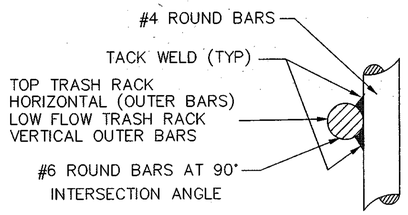
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY - POND B
PARCEL 1

SWM DETAILS

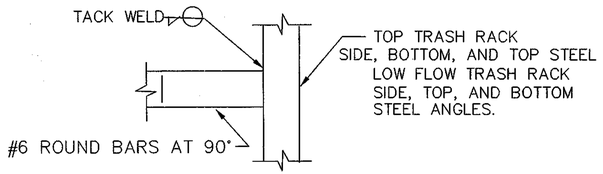
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C9
SHEET 9 OF 20

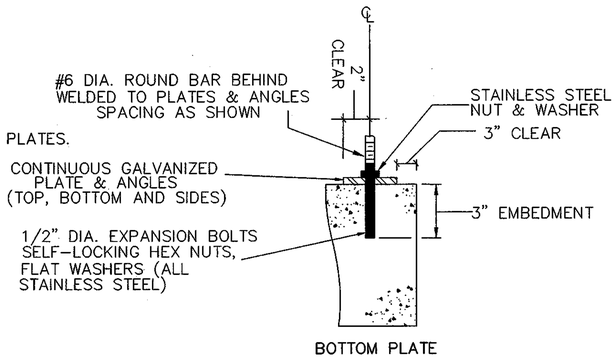
F-02-77

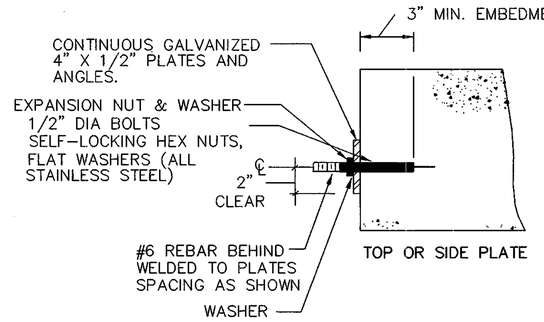


BAR TO BAR
NOT TO SCALE



BAR TO SIDE, TOP AND BOTTOM SUPPORTS
NOT TO SCALE



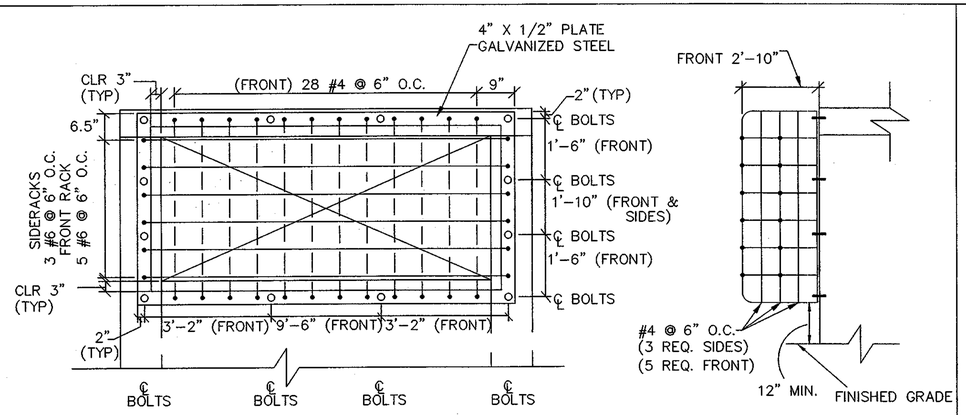


1 DEBRIS RACK WELD DETAIL
NOT TO SCALE

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

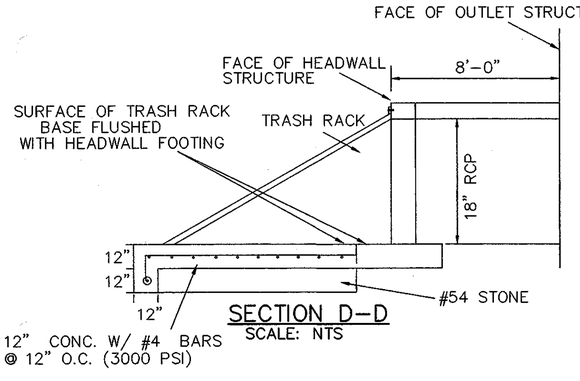
SIDE VIEW

NOTES:

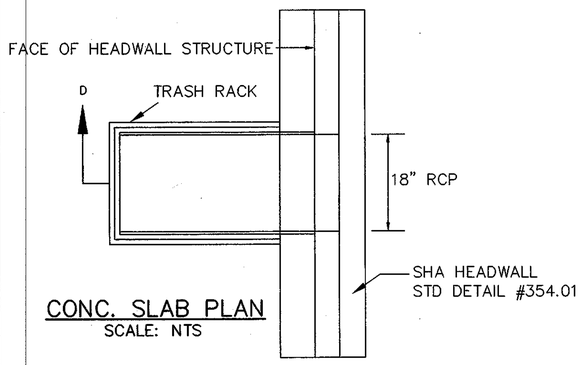
1. GRATE UNDER-FLOW OR FEED-FROM-TRASHRACK BOTTOM:
   WEIR AREA: FRONT 34 SQ. FT.
   SIDE 24 SQ. FT.

   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



SECTION D-D
SCALE: NTS

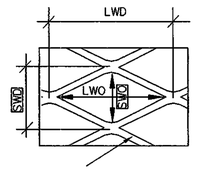


CONC. SLAB PLAN
SCALE: NTS

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.

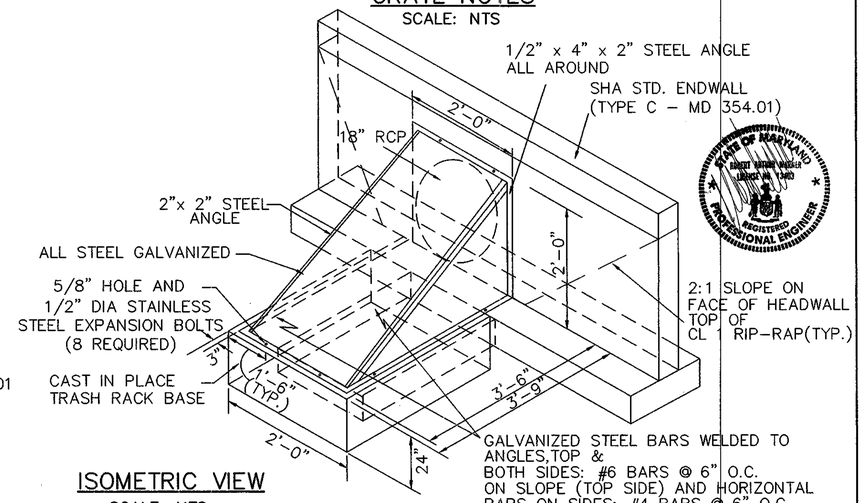


LWD... LONG WAY OF DESIGN DIMENSION (ins)
SWD... SHORT WAY OF DESIGN DIMENSION (ins)
LWO... LONG WAY OF OPENING DIMENSION (ins)
SWO... SHORT WAY OF OPENING DIMENSION (ins)

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:

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

4 LOW FLOW EXPANDED METAL TRASH RACK
SCALE: NTS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/15/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/21/02

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL.(301) 881-2565 FAX (301) 881-8814
AMT FILE # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER
DRN: P. FRIAS
CHK: S. ITANI
DATE: 06/21/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

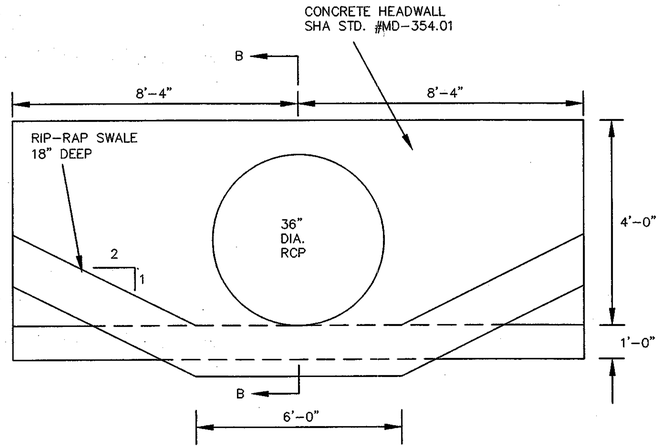
APPLIED PHYSICS LABORATORY - POND B
THE JOHNS HOPKINS UNIVERSITY
PARCEL 1

SWM2 DETAILS

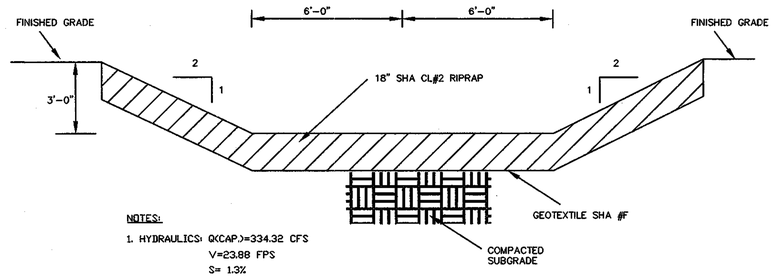
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C10
SHEET 10 OF 20

F-02-77



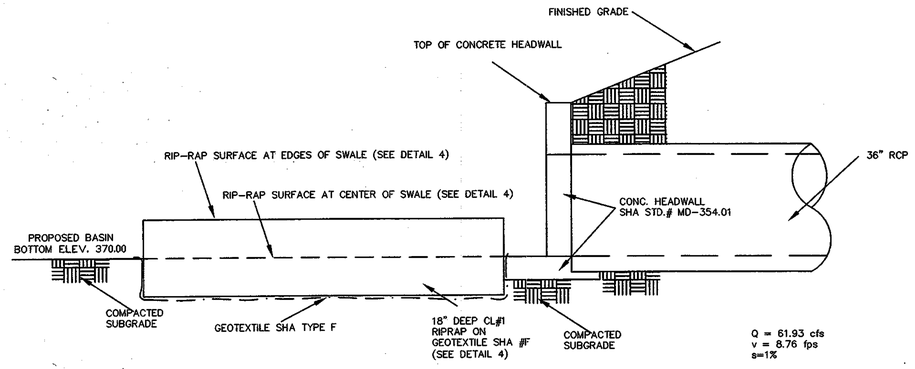
1 HEADWALL ELEVATION 36" PIPE
SCALE: NTS



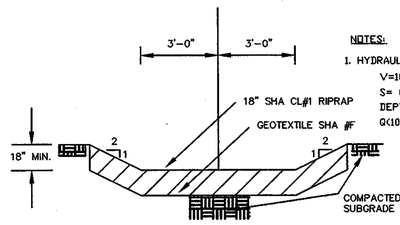
NOTES:

1. HYDRAULICS: Q(CAP.)=334.32 CFS
   V=23.88 FPS
   S= 1.3%
   DEPTH = 1'
   Q(100)=138.53 CFS

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



3 HEADWALL SECTION B-B
SCALE: NTS



NOTES:

1. HYDRAULICS: Q(CAP.)=86.9 CFS
   V=10.86 FPS
   S= 0.5%
   DEPTH = 1'
   Q(10)= 66.06 CFS

4 RIPRAP SWALE AT 36" OUTFALL
SCALE: NTS

STATE OF MARYLAND
ROBERT ARTHUR WARNER
LICENSE NO. 19403
REGISTERED
PROFESSIONAL ENGINEER

SEDIMENT CONTROL

( ) 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 6/07/02
PRINT NAME BELOW SIGNATURE

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

SIGNATURE OF ENGINEER — DATE 6/07/02
PRINT NAME BELOW SIGNATURE

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/15/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/21/02

A. MORTON THOMAS AND ASSOCIATES, INC.
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11750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL (301) 881-2565 FAX (301) 881-4814
AMT FILE # 98-153

Einhorn Yaffee Prescott

DES: B. WARNER
DRN: P. FRIAS
CHK: B. WARNER
DATE: 06/21/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY - POND B
PARCEL 1

DETAILS

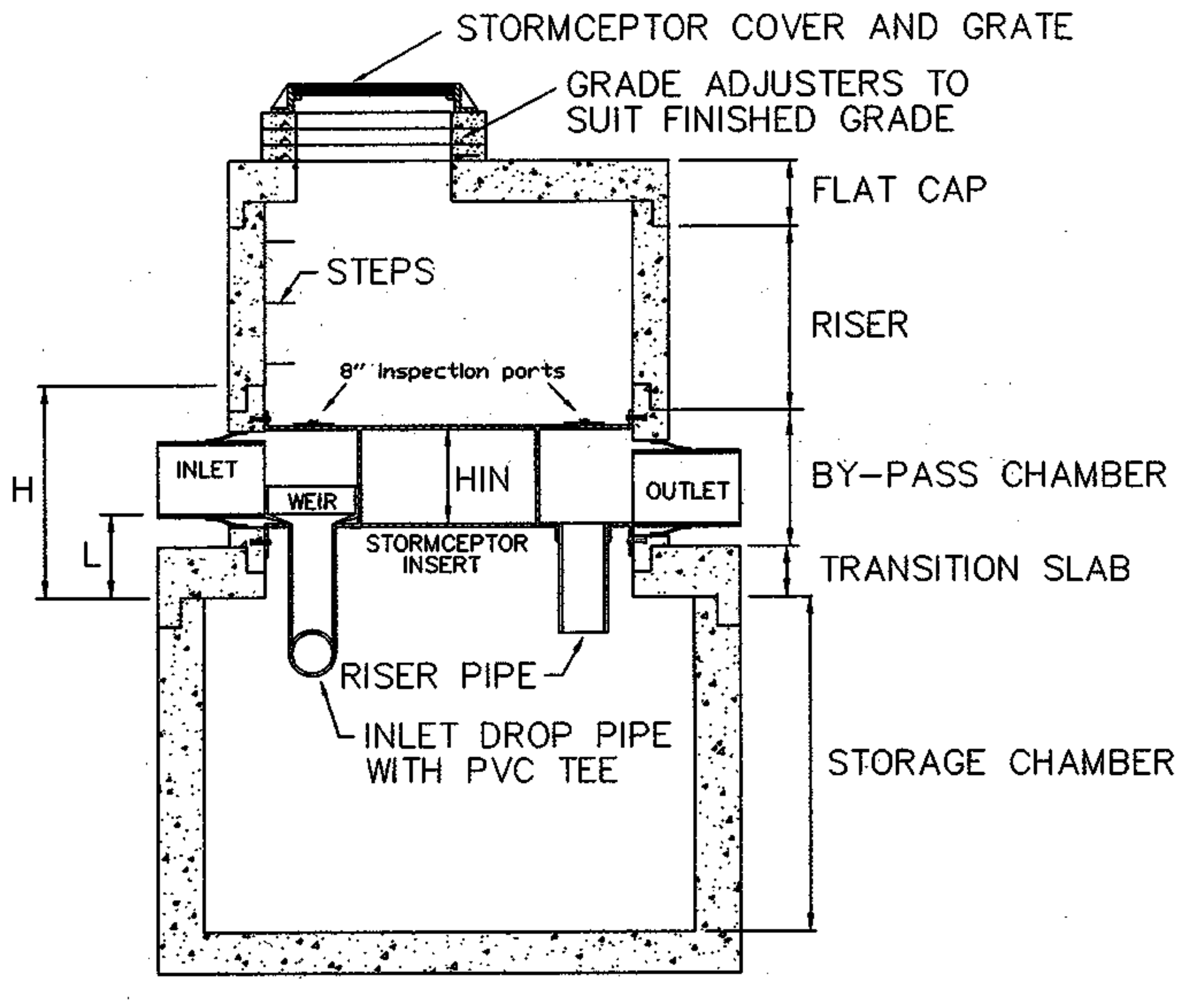
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET C11

SHEET 11 OF 20

F-02-77



PIPING AND INSERT DIMENSIONS					
STRUCTURE No.	PIPE DIAM. (in)	PIPE MATERIAL	HIN (in)	H (in)	L (in)
SC-7	18"	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.

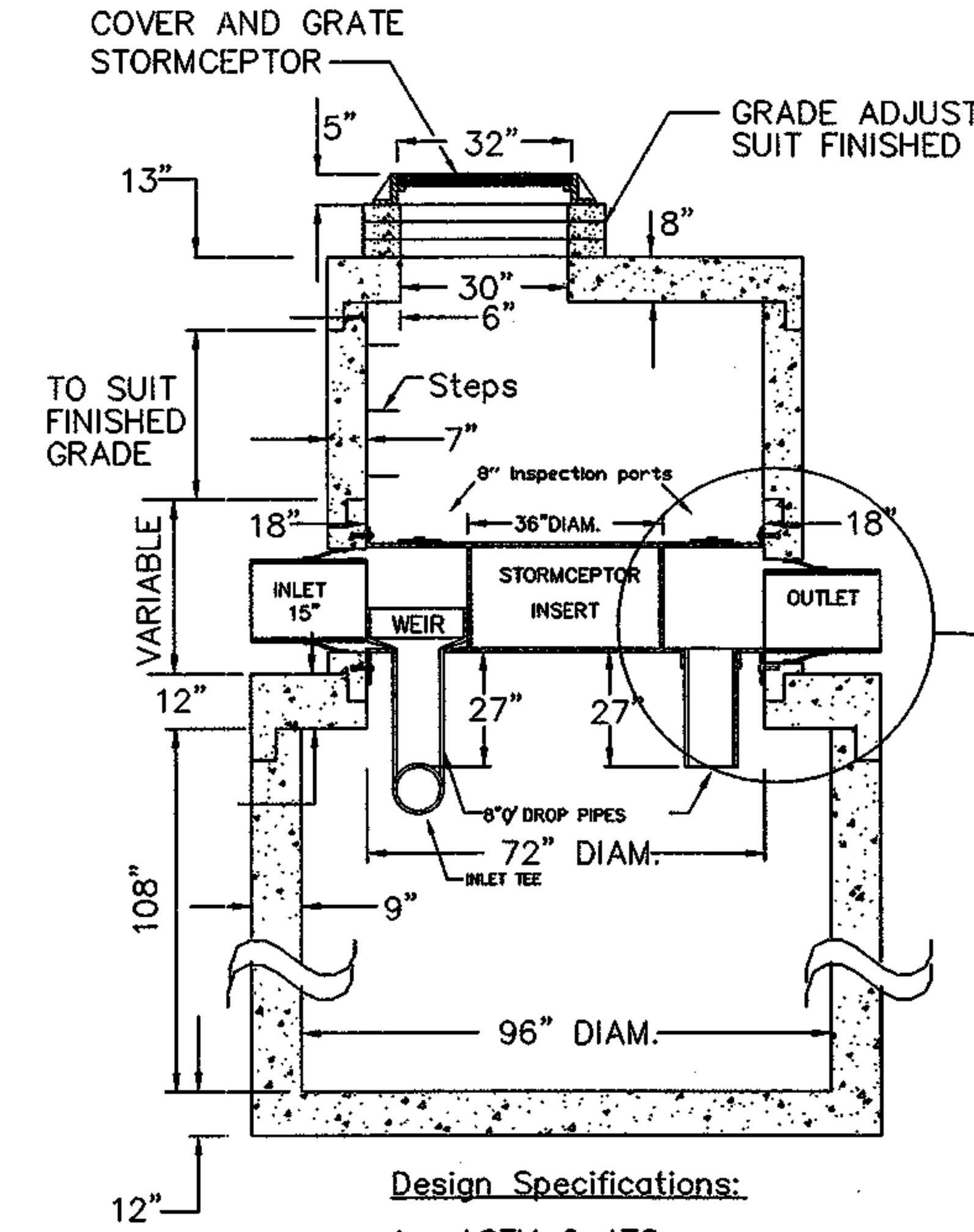
2) Install the drop pipe and riser pipe while inside the Storage Chamber via a ladder placed down the Stormceptor access hole

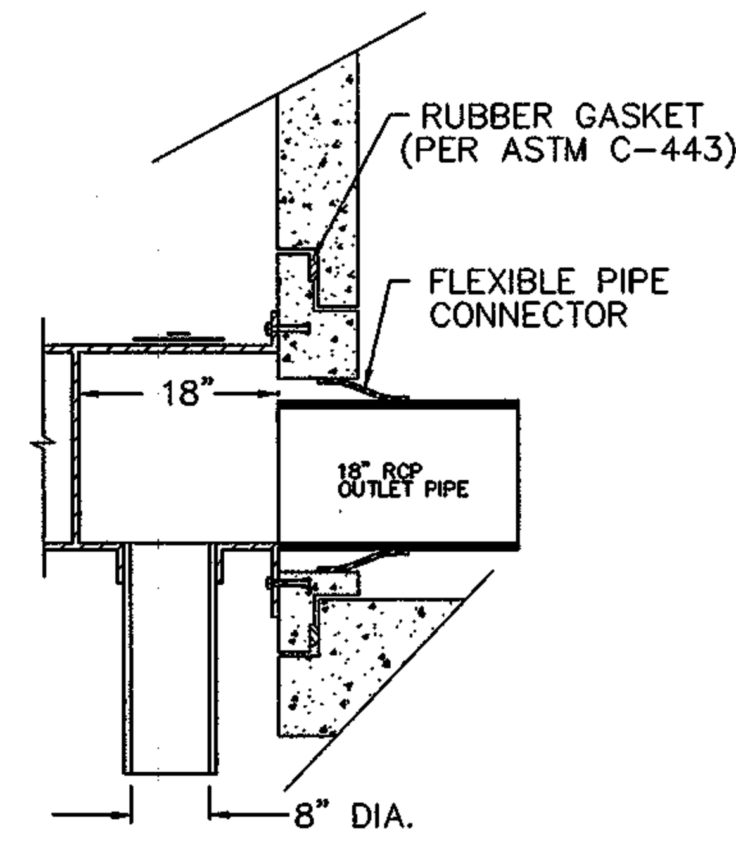
3) The drop pipe with the T-section MUST be connected to the INLET gasketed coupling using the supplied PVC lubricant. Make certain that the orientation of the Tee is correct. (see diagrams)

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" O 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.
1.73	409.00	18" HDCPP	406.00	405.85	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.

STATE OF MARYLAND
ROBERT ARTHUR WARNER
LICENSE NO. 13403
REGISTERED PROFESSIONAL ENGINEER

Concrete Stormceptor® Order Request Form*

Contractor Information
NAME ____
ADDRESS ____
CITY ____
STATE ____
ZIP CODE ____
CONTACT ____
PHONE ____
FAX ____

Office Use Only
Order # ____
Date ____
Internal Sale ____

90°
180° 0°
270°

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

( ) 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER
PRINT NAME BELOW SIGNATURE
9/18/01
10/7/02
DATE

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

SIGNATURE OF ENGINEER
PRINT NAME BELOW SIGNATURE
10/03/02
DATE

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE

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

HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK 11/15/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE 11/21/02
[redacted] [redacted]

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

Einhorn Yaffee Prescott

DES: B. WARNER
DRN: S. ITANI
CHK: B. WARNER
DATE: 06/21/02

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND B
PARCEL 1

STORMCEPTOR DETAILS

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

SCALE AS SHOWN

SHEET C12

F-02-77

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 414, Mix No. 3.

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

Care of Water during Construction

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

Stabilization

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

Erosion and Sediment Control

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

NRCS - MARYLAND JANUARY 2000

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 than 95% 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 30% of its outside diameter with its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying Pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all the spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

NRCS - MARYLAND JANUARY 2000

STATE OF MARYLAND — ROBERT LOUTHER WARNER — REGISTERED PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/15/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/21/02

[redacted]

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: 06/21/02

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE

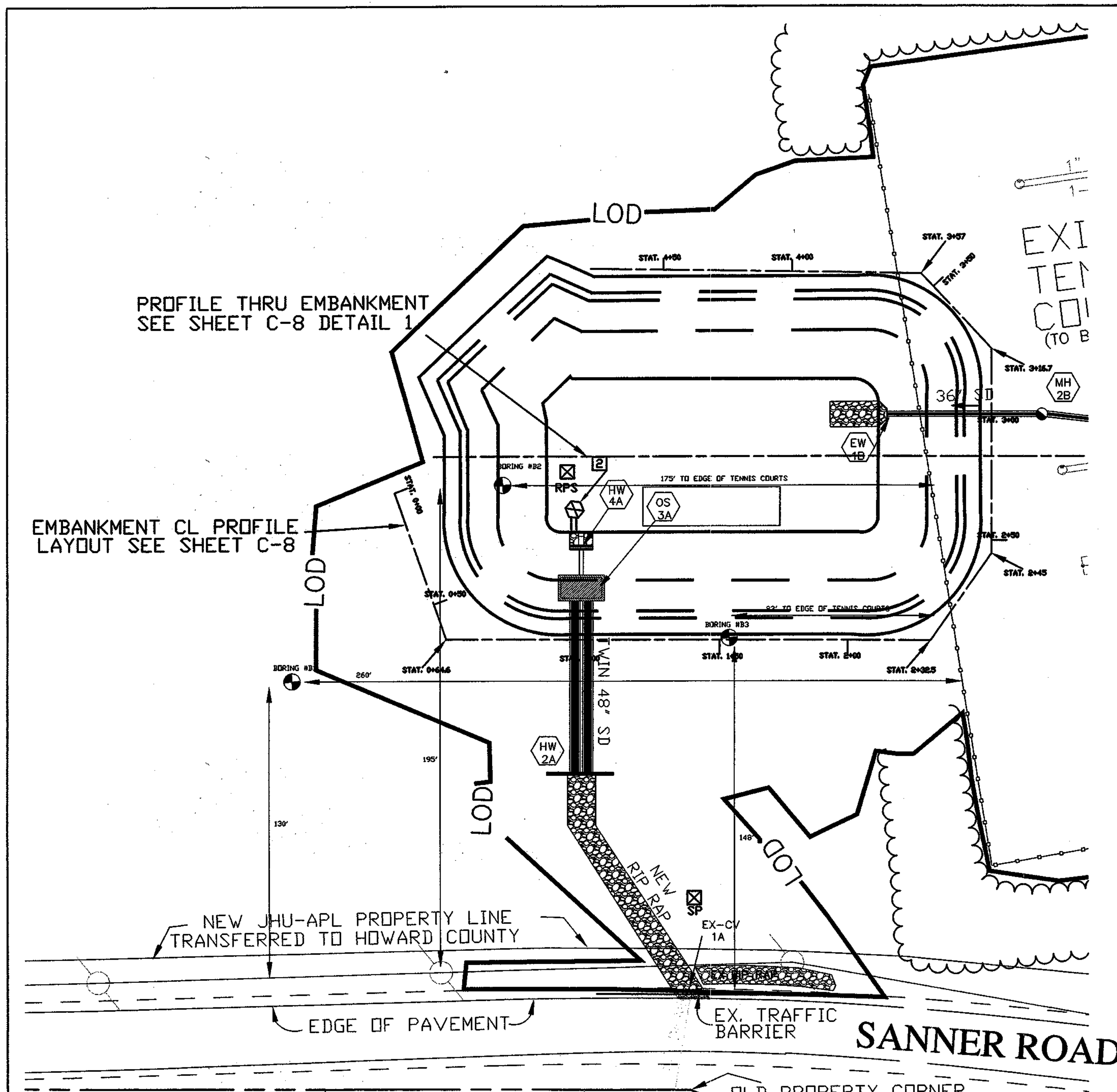
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND B
PARCEL 1

POND SPECS

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

SCALE AS SHOWN
SHEET C13
SHEET 13 OF 20

F-02-77



GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

1 PLAN VIEW
SCALE: 1"=30'

SEDIMENT CONTROL

( ) 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

James E. Lusk, PE, CFM 9/18/01 10/7/02

SIGNATURE OF DEVELOPER — DATE
PRINT NAME BELOW SIGNATURE

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

10/03/02

SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/15/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/21/02
[redacted] [redacted]

Schnabel TEST BORING LOG — SWM B-B1

Project: John Hopkins Applied Physics Lab, Storm Water Management Basin - B, Laurel, Maryland
Boring Number: SWM B-B1 — Contract Number: 01121293 — Sheet: 1 of 1

Boring Contractor: Connelly and Associates, Inc.
Boring Foreman: Eric Benco
Drilling Method: 2-1/4" I.D. Hollow Stem Auger
Drilling Equipment: Truck-Mounted
SEA Representative: Eric Henmueller
Dates Started: 11/8/01 Finished: 11/8/01
Location: See Boring Location Plan
Ground Surface Elevation: 381.0± (feet)

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	11/8	—	NONE	—	—
Completion	11/8	—	NONE	—	—
Casing Pulled	11/8	—	NONE	—	8.0'

DEPTH (ft)	STRATA DESCRIPTION	CLASS.	ELEV. (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	topsoil		380.6			3+3+3		
	sandy SILT, trace mica, moist, brown	ML		B		3+4+5		
					5	4+4+6		
						5+8+8		
10.0	BOTTOM OF BORING @ 10.0 FT.				10			

Comments:

Schnabel TEST BORING LOG — SWM B-B2

Project: John Hopkins Applied Physics Lab, Storm Water Management Basin - B, Laurel, Maryland
Boring Number: SWM B-B2 — Contract Number: 01121293 — Sheet: 1 of 1

Boring Contractor: Connelly and Associates, Inc.
Boring Foreman: Eric Benco
Drilling Method: 2-1/4" I.D. Hollow Stem Auger
Drilling Equipment: Truck-Mounted
SEA Representative: Eric Henmueller
Dates Started: 11/8/01 Finished: 11/8/01
Location: See Boring Location Plan
Ground Surface Elevation: 381.0± (feet)

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	11/8	—	NONE	—	—
Completion	11/8	—	NONE	—	—
Casing Pulled	11/8	—	NONE	—	11.0'

DEPTH (ft)	STRATA DESCRIPTION	CLASS.	ELEV. (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	topsoil		380.6			4+5+5		
	SILT with fine sand, trace mica, moist, yellowish-brown	ML		B		11+26+33		
					5	13+23+32		
						7+27+31		
					10			
14.0	DISINTEGRATED ROCK, trace mica, moist, whitish-gray		367.0	C		11+75+50/2"		
					15			
18.7	BOTTOM OF BORING @ 18.7 FT.		362.3			100/0.1"		

Comments:
Infiltration pipe installed to a depth of 13 feet below surface grade. Infiltration test performed at about El 33± feet.

Schnabel TEST BORING LOG — SWM B-B3

Project: John Hopkins Applied Physics Lab, Storm Water Management Basin - B, Laurel, Maryland
Boring Number: SWM B-B3 — Contract Number: 01121293 — Sheet: 1 of 1

Boring Contractor: Connelly and Associates, Inc.
Boring Foreman: Eric Benco
Drilling Method: 2-1/4" I.D. Hollow Stem Auger
Drilling Equipment: Truck-Mounted
SEA Representative: Eric Henmueller
Dates Started: 11/8/01 Finished: 11/8/01
Location: See Boring Location Plan
Ground Surface Elevation: 374.0± (feet)

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	11/8	—	NONE	—	—
Completion	11/8	—	NONE	—	—
Casing Pulled	11/8	—	NONE	—	4.0'

DEPTH (ft)	STRATA DESCRIPTION	CLASS.	ELEV. (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	topsoil		373.6			3+4+6		
	sandy SILT, trace mica, moist, brown	ML		B		3+6+8		
					5	4+6+10		
	trace rock fragments @ 8.5 feet					6+10+10		
10.0	BOTTOM OF BORING @ 10.0 FT.		364.0		10			

Comments:

2 BORING DATA

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			APPLIED PHYSICS LABORATORY THE JOHNS HOPKINS UNIVERSITY – POND B PARCEL 1	SCALE AS SHOWN	
		DRN: P. FRIAS			**BORING LOCATION & DATA**	SHEET C14	
		CHK: B. WARNER			TAX MAP 41 PARCEL 123, ELECTION DISTRICT NO. 5, HOWARD COUNTY, MARYLAND		
		DATE: 06/21/02	DATE	REVISIONS AND RECORD OF ISSUE — NO. BY CK APP		SHEET 14 OF 20	

F-02-77

NOTES:

1. INSTALL SANDBAGS/STONE DIVERSION AROUND STORMWATER MANAGEMENT STRUCTURE OUTLET. AFTER EACH RAINSTORM DEWATER BASIN BY BY MEANS OF A MECHANICAL PUMP THROUGH A "PST" WHICH DISCHARGE TO THE "SP" STRUCTURE
2. VERTICAL DRAW-DOWN DEVICE (SEE DETAIL ON SHEET ES-3)

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

NORTH

FOR EROSION AND SEDIMENT CONTROL ONLY

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/15/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/21/02

SEDIMENT CONTROL

( ) BY THE DEVELOPER:
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SIGNATURE OF DEVELOPER — DATE 10/7/02
PRINT NAME BELOW SIGNATURE

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

SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 10/24/02

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 10/24/02

STATE OF MARYLAND — ROBERT ARTHUR WARNER — LICENSE NO. 13403 — REGISTERED PROFESSIONAL ENGINEER

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: 06/21/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
PARCEL 1

EROSION & SEDIMENT CONTROL PLAN

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

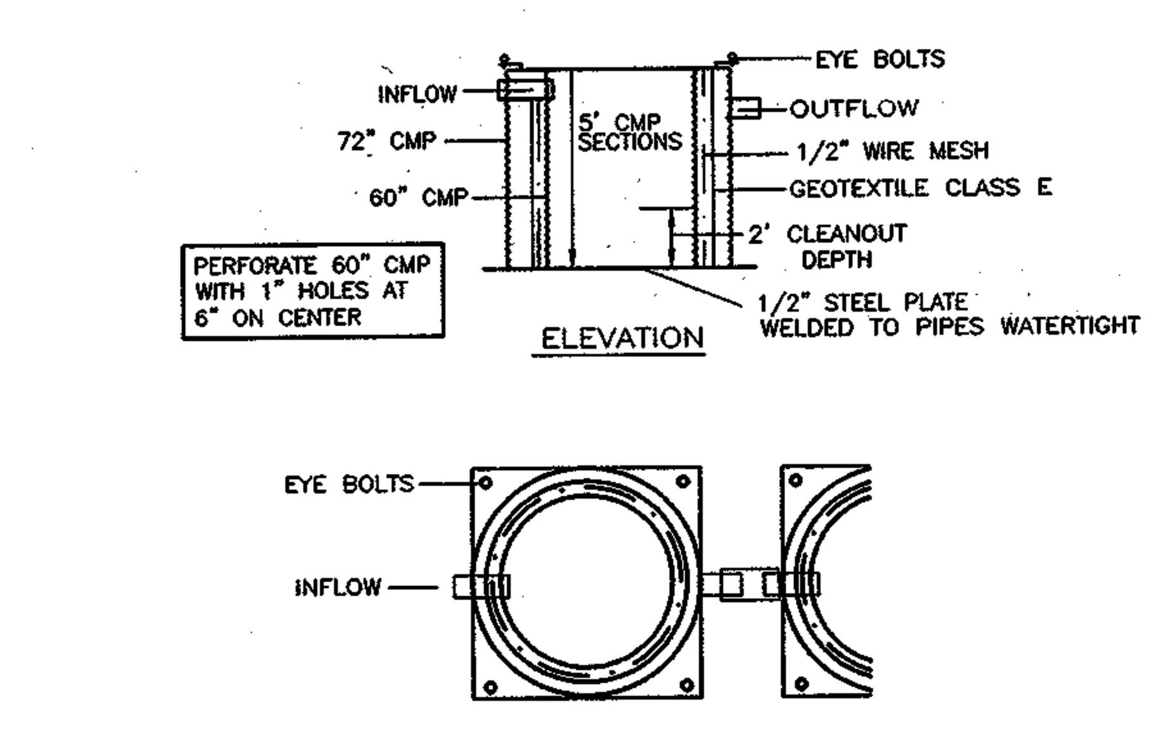
SCALE AS SHOWN

SHEET ES-1

SHEET 15 OF 20

F-02-77

DETAIL 21 – PORTABLE SEDIMENT TANK



STANDARD SYMBOL
PST

Construction Specifications

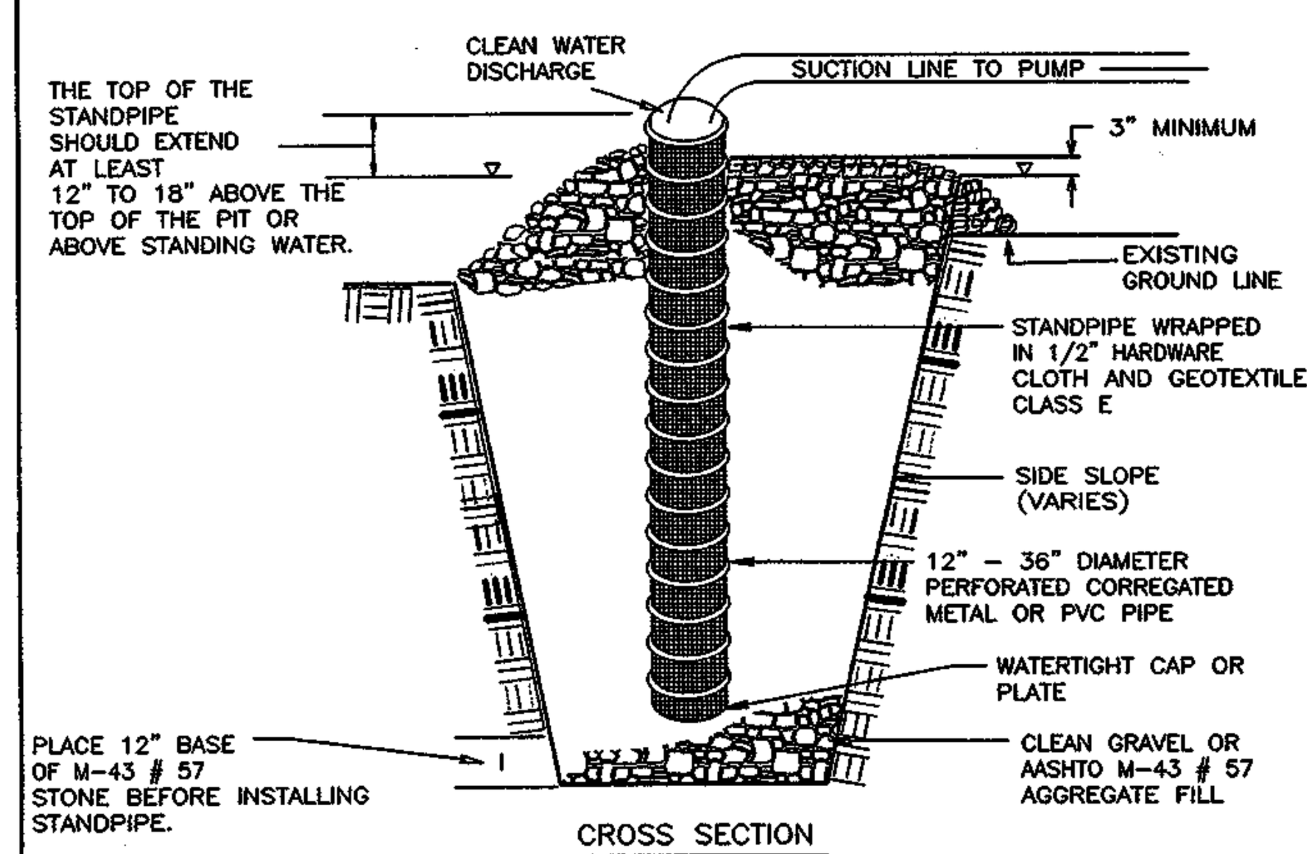
1. The following formula should be used in determining the storage volume of the sediment tank: 1 cubic foot of storage for each gallon per minute of pump discharge capacity.

2. An example of a typical sediment tank is shown above. Other container designs can be used if the storage volume is adequate and approval is obtained from the local approving agency.

3. Tanks may be connected in series.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D – 14 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 20B – SUMP PIT



STANDARD SYMBOL
SP

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.

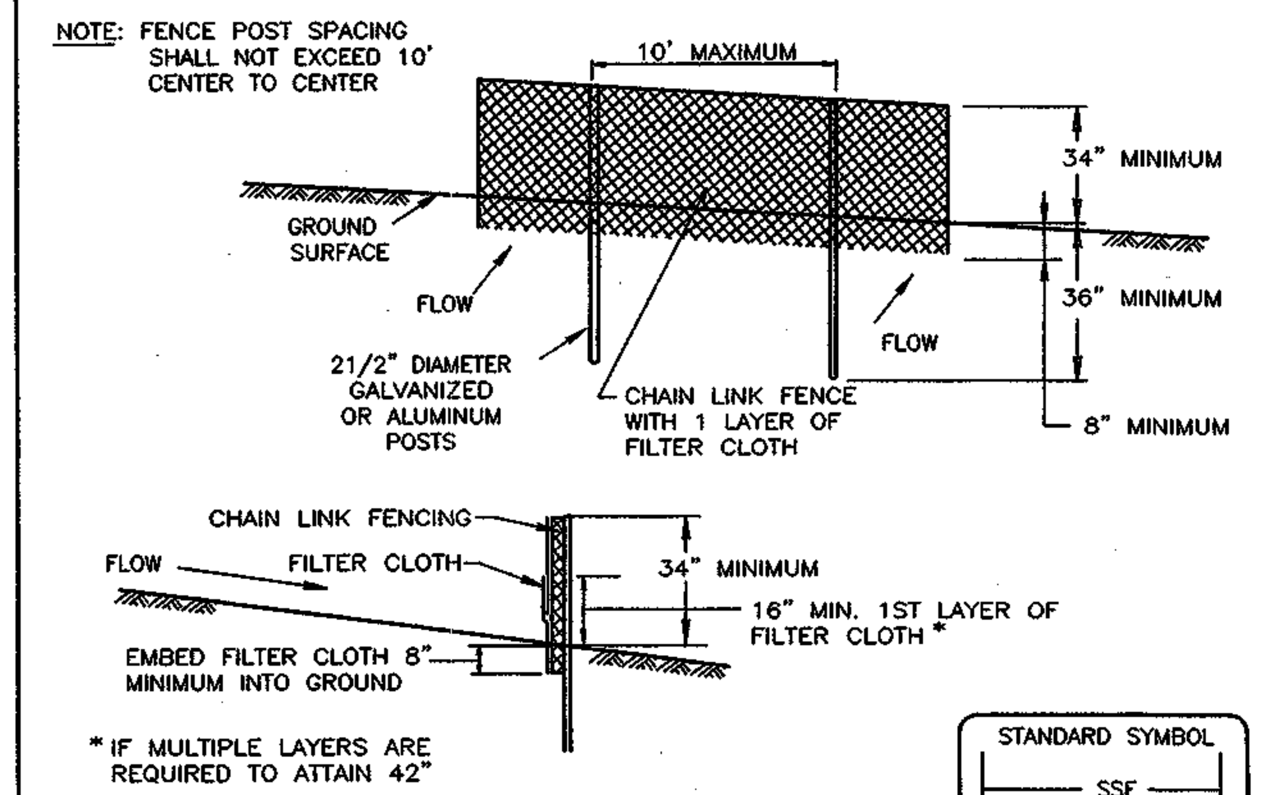
3. A base of filter material consisting of clean gravel or #57 stone should be placed in the pit to a depth of 12". After installing the standpipe, the pit surrounding the standpipe should then be backfilled with the same filter material.

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

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



STANDARD SYMBOL
SSF

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

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

SEDIMENT CONTROL

( ) 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 9/18/01 — 10/7/02
SIGNATURE OF DEVELOPER — DATE
PRINT NAME BELOW SIGNATURE

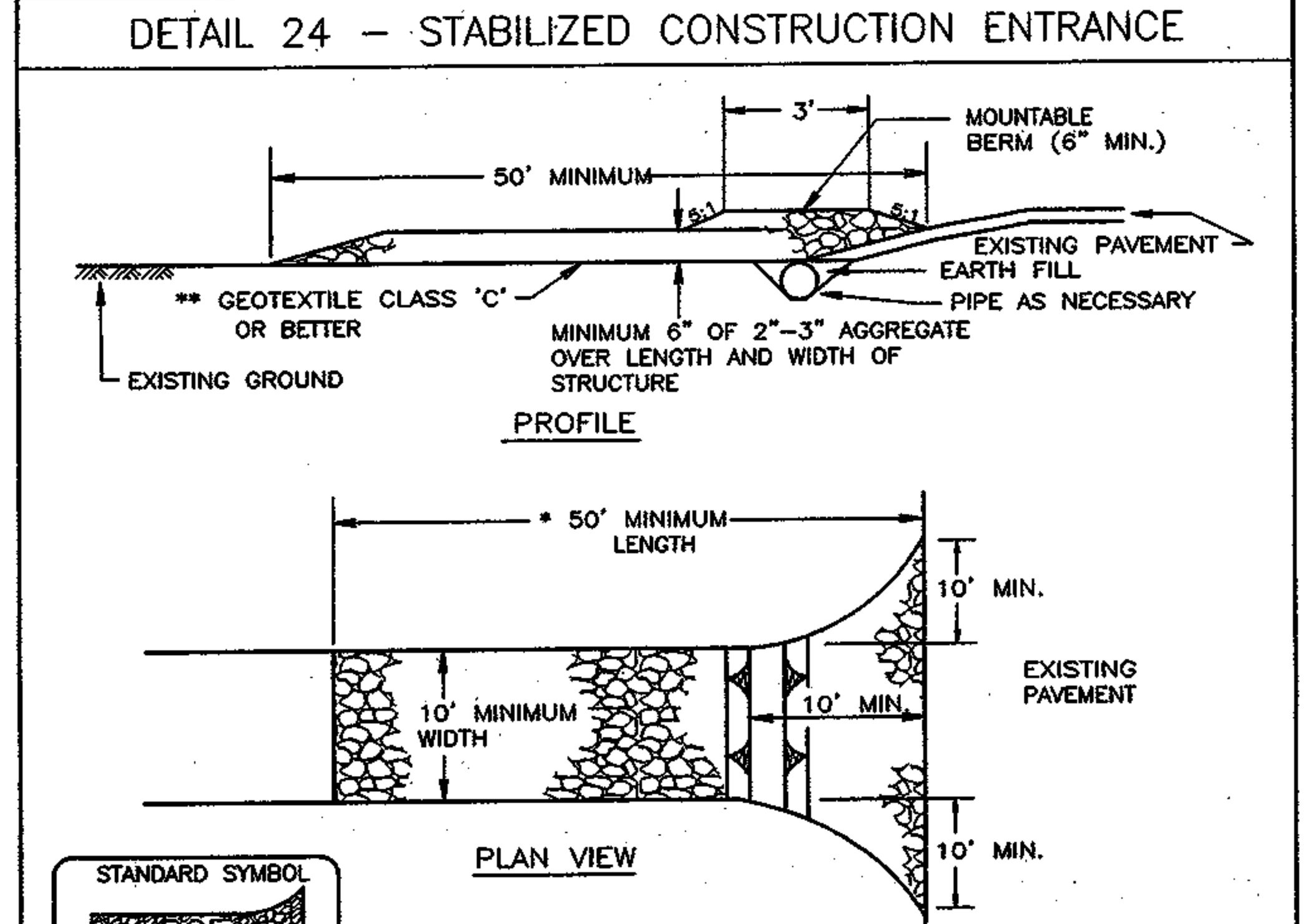
( ) BY THE ENGINEER:
"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

[signature] — 10/3/02
SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE

( ) THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
Jim Myers — 10/24/02
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

( ) THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
[signature] — 10/24/02
HOWARD SOIL CONSERVATION DISTRICT — DATE

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



STANDARD SYMBOL
SCE

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

SILT FENCE

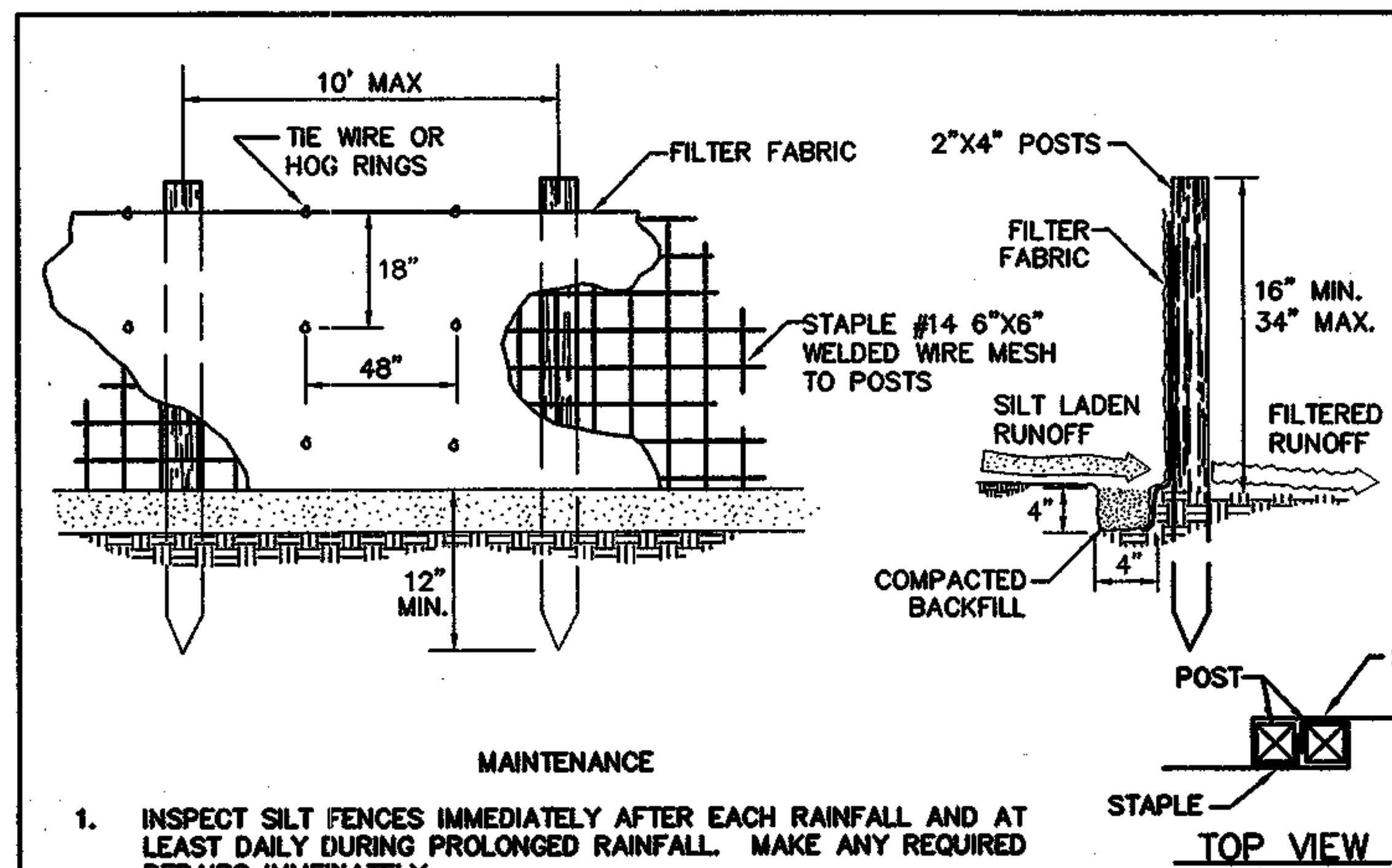
Silt Fence Design Criteria

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

SF CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT) INSTALLATION



MAINTENANCE

1. INSPECT SILT FENCES IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. PAY CLOSE ATTENTION TO THE REPAIR OF DAMAGED SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING.
3. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, REPLACE THE FABRIC PROMPTLY.
4. REMOVE SEDIMENT DEPOSITS AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
5. AFTER THE SILT FENCE IS NO LONGER REQUIRED, DRESS ANY SEDIMENT DEPOSITS THAT REMAIN IN PLACE TO CONFORM WITH THE EXISTING GRADE. PREPARE AND SEED THESE SEDIMENT DEPOSITS.

INSTALLATION

1. THE HEIGHT OF A SILT FENCE SHALL BE A MINIMUM OF 16 INCHES ABOVE THE ORIGINAL GROUND SURFACE AND SHALL NOT EXCEED 34 INCHES ABOVE GROUND ELEVATION.
2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE UNAVOIDABLE, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED.
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4-INCHES WIDE AND 4-INCHES DEEP ON THE UPSLOPE SIDE OF THE PROPOSED LOCATION OF THE MEASURE.
4. WHEN WIRE SUPPORT IS USED, STANDARD-STRENGTH FILTER CLOTH MAY BE USED. POSTS FOR THIS TYPE OF INSTALLATION SHALL BE PLACED A MAXIMUM OF 10-FEET APART. THE WIRE MESH FENCE MUST BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST ONE INCH LONG, TIE WIRES, OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF TWO INCHES AND SHALL NOT EXTEND MORE THAN 34 INCHES ABOVE THE ORIGINAL GROUND SURFACE. THE STANDARD STRENGTH FABRIC SHALL BE STAPLED OR WIRED TO THE WIRE FENCE, AND 8 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
5. WHEN WIRE SUPPORT IS NOT USED, EXTRA-STRENGTH FILTER CLOTH SHALL BE USED. POSTS FOR THIS TYPE OF FABRIC SHALL BE PLACED A MAXIMUM OF 6-FEET APART. THE FILTER FABRIC SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING ONE INCH LONG (MINIMUM) HEAVY-DUTY WIRE STAPLES OR TIE WIRES AND 8-INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
6. IF A SILT FENCE IS TO BE CONSTRUCTED ACROSS A DITCH LINE OR SWALE, THE MEASURE MUST BE OR SUFFICIENT LENGTH TO ELIMINATE ENDFLOW. THE CONFIGURATION FLOW SHALL RESEMBLE AN ARC OR HORSESHOE WITH THE ENDS ORIENTED UPSLOPE. EXTRA-STRENGTH FILTER FABRIC SHALL BE USED FOR THIS APPLICATION WITH A MAXIMUM 3-FOOT SPACING OF POSTS. ALL OTHER REQUIREMENTS OF NOTE #5 APPLY.
7. THE 4-INCH BY 4-INCH TRENCH SHALL BE BACKFILLED WITH THE SOIL COMPACTED OVER THE FILTER FABRIC.
8. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

FOR EROSION AND SEDIMENT CONTROL ONLY

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] — 11/15/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE

[signature] — 11/8/02
CHIEF, DIVISION OF LAND DEVELOPMENT — 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: S. ITANI						
CHK: B. WARNER						
DATE: 06/21/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY – POND B
PARCEL 1
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 20

F-02-77

Figure 2 Temporary Sediment Basin Design Data Sheet

Computed by: RCF Date: 06-21-02 Checked by: ____ Date: ____
Project name: APPLIED PHYSICS LAB Basin #: BASIN B
Location: 11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723

Total area draining to basin: 0.67 acres (ac)

Basin Volume Design

Note: 1. Also see Surface Area Design #30, this form.
2. To convert ft^3 to yd^3, divide ft^3 by 27. To convert ft^2 to yd^2, divide ft^2 by 9.

1. Min. required vol. = 3600 ft^3/ac x 0.67 ac. drainage = 2412 ft^3
2. Actual Volume of basin = 2.54×10^5 ft^3
3. Excavate 0 ft^3 (0 yd^3) to obtain required capacity.
4. Vol. at dewatering elev. = 1800 ft^3/ac x 0.67 ac. = 1206 ft^3
5. Vol. of basin at cleanout = 900 ft^3/ac x 0.67 ac. = 603 ft^3
6. Elevation corresponding to min. required volume of basin (riser crest elevation) 379.5 ft.
7. Permanent pool elevation 370 ft.
8. Distance from riser crest elevation to permanent pool elevation 9.5 ft.
9. Basin cleanout elevation 372.50 ft.
10. Distance from riser crest elevation to cleanout elevation 7.0 ft.

Design Elevations

23. Riser Crest = 379.5 ft.
24. Design High Water (10 YR) = 380.23 ft.
25. Emergency Spillway Crest = 379.5 ft.
26. Min. settled top of dam = 383.50 ft.
27. Permanent pool = 370.0 ft.
28. Bottom of Basin = 370.0 ft.
29. Draw-down orifice invert = 370.0 ft.

Surface Area Design

30. Min. basin surface area; SA $\geq$ 0.0035 x Q_{10} = 0.0035 x 57 cfs $\leq$ 0.2 ac. 8712 ft^2

Draw-down Device

31. Draw-down device orifice diameter = 4" in. (From Table 11)
32. A_t = Total area of perforations $\geq 4A_o$
A_t = (# of perforation/foot)(perforation area ft^2)(perforated section length ft.)
A_t = 0.87 ft^2
A_o = Internal orifice area (from Table 11 or computed)

SEDIMENT CONTROL

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9/18/01 10/7/02
SIGNATURE OF DEVELOPER DATE
PRINT NAME BELOW SIGNATURE

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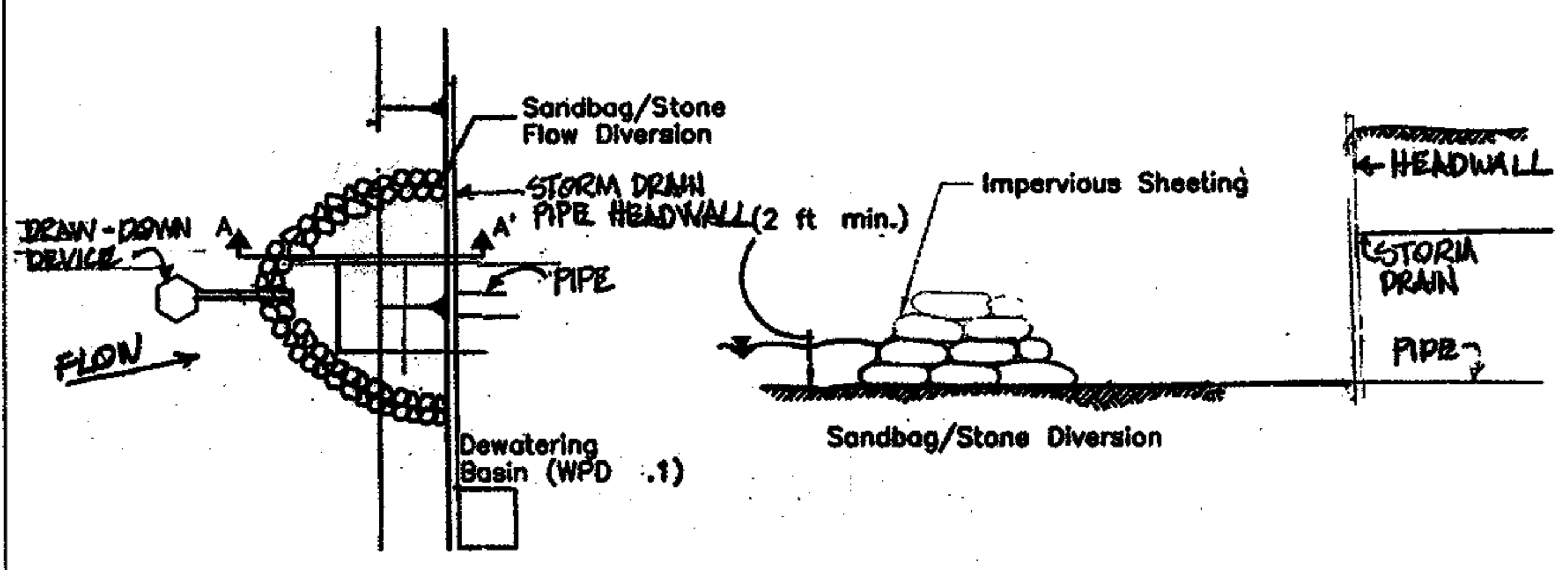
USDA-NATURAL RESOURCES CONSERVATION SERVICE 10/24/02 DATE

( ) THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT 10/24/02 DATE

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



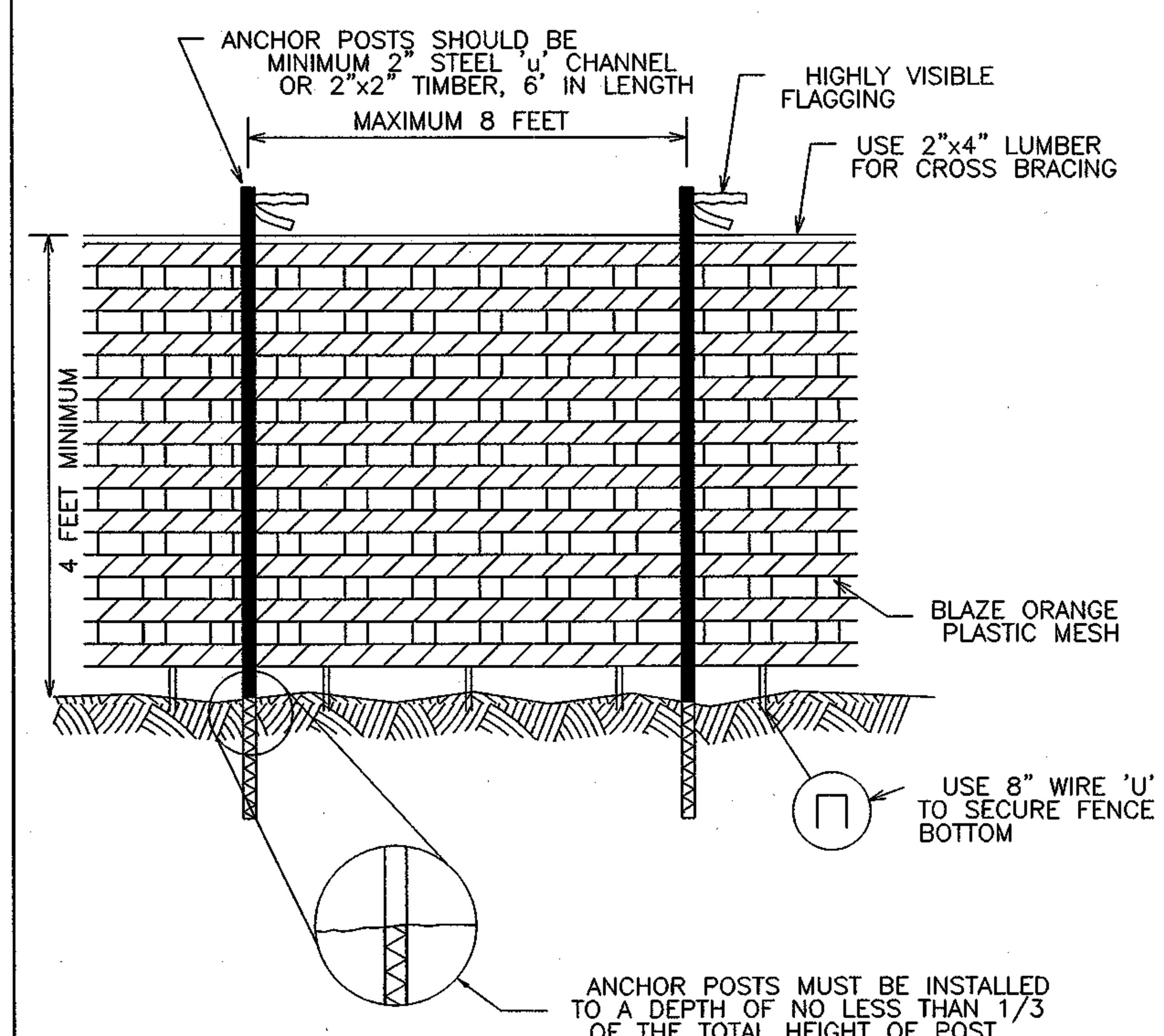
SECTION A-A'

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.

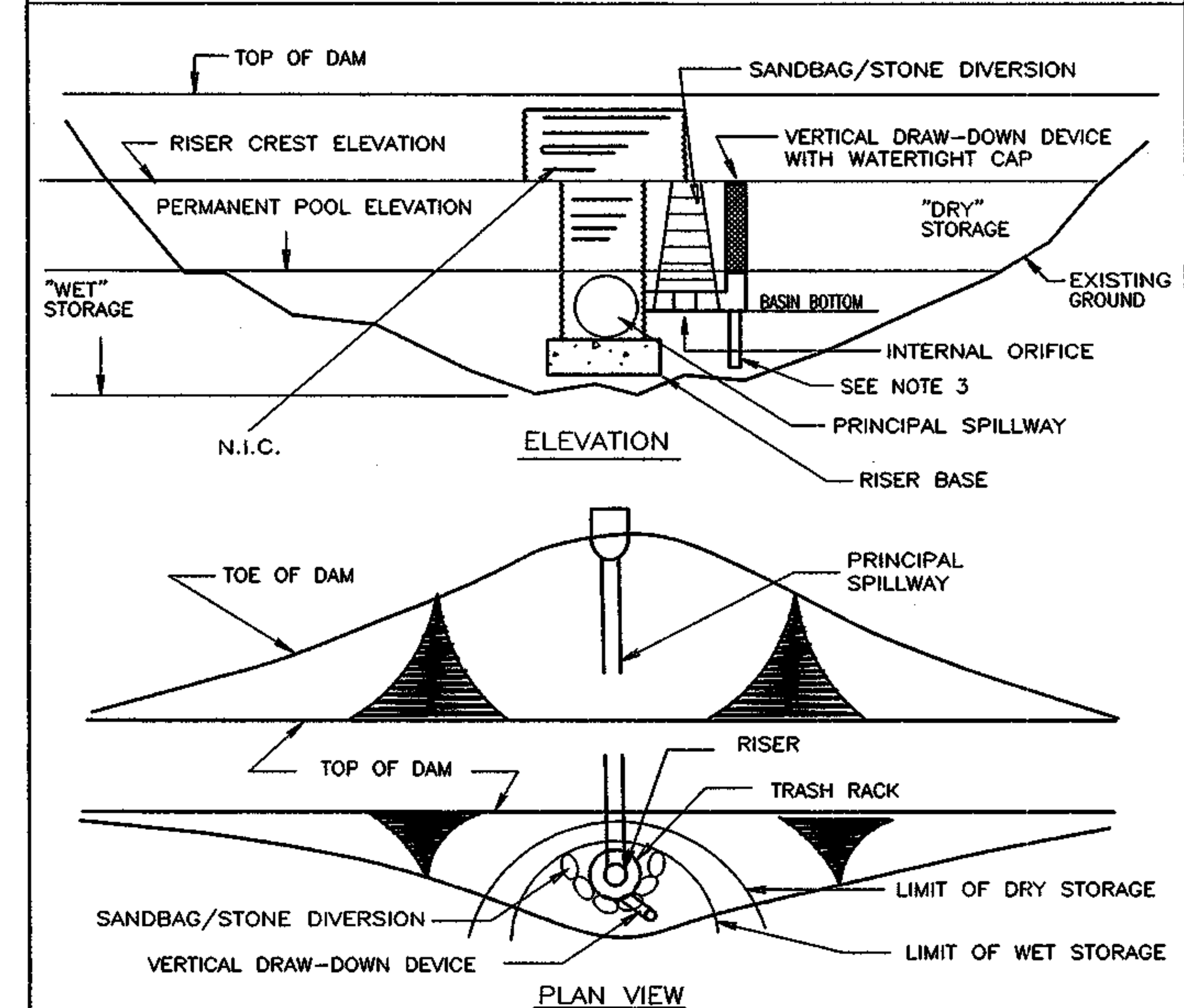
WATER RESOURCES ADMINISTRATION	Sandbag/Stone Diversion	Approved On 1/24/91 Chief, Waterway Permits	WPD 2.3



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

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE 11/15/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE 11/21/02

FOR EROSION AND SEDIMENT CONTROL ONLY

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER

AMT
A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 300, ROCKVILLE MD 20852
TEL (301) 881-2545 FAX (301) 881-0814
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Einhorn Yaffee Prescott

DES: B. WARNER
DRN: S. ITANI
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DATE: 06/21/02

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TAX MAP 41 PARCEL 123
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HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET ES-3
SHEET 17 OF 20

F-02-77

SEDIMENT CONTROL

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SIGNATURE OF DEVELOPER — DATE 10/7/02
PRINT NAME BELOW SIGNATURE

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SIGNATURE OF ENGINEER — DATE 10/03/02
PRINT NAME BELOW SIGNATURE

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USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

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HOWARD SOIL CONSERVATION DISTRICT — DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION & SEDIMENT CONTROL.

USDA-NATURAL RESOURCES CONSERVATION SERVICE — 10/24/02 Date

THESE PLANS FOR SOIL EROSION & SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — 10/24/02 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 DIVERSION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).

2) ALL VEGETATIVE AND STRUCTURAL PRACTICES AE 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	28.8	ACRES
AREA DISTURBED	2.0	ACRES
AREA TO BE ROOFED OR PAVED	0.0	ACRES
AREA TO BE VEGITATIVELY STABILIZED	28.8	ACRES
TOTAL CUT	8,540	CU.YDS.
TOTAL FILL	2,020	CU.YDS.
OFF SITE WASTE/BORROW AREA LOCATION	6,520	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.

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.

12) EXCAVATION AND FILL QUANTITIES SHOWN ARE FOR THE USE OF THE SEDIMENT AND EROSION CONTROL REVIEW ONLY. THE CONTRACTOR SHALL NOT ESTIMATE ESTIMATE THEIR CONSTRUCTION COSTS BASED ON THESE QUANTITIES AS THEY ARE APPROXIMATE AND ARE SUBJECT TO UNKNOWN SITE CONDITIONS.

SEQUENCE OF CONSTRUCTION:

1. CONTRACTOR SHALL OBTAIN A GRADING PERMIT.
2. NOTIFY APL AND COUNTY SEDIMENT CONTROL INSPECTOR AT LEAST 14 DAYS PRIOR TO BEGINNING WORK TO ARRANGE FOR A PRE-CONSTRUCTION MEETING.
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.
5. ESTABLISH STAGING AREA FOR CONSTRUCTION.
6. ROUGH GRADE SITE AND EXCAVATE TRENCH FOR CONSTRUCTION OF EMBANKMENT CORE TRENCH.
7. INSTALL BACKFILL AND COMPACT EMBANKMENT AND CORE TRENCH TO THE TOP ELEVATION OF THE OUTLET PIPE. INSTALL INLET PROTECTION ON NEW STRUCTURE.
8. EXCAVATE THE TRENCH TO ALLOW FOR THE INSTALLATION OF THE BASIN OUTLET PIPE AND ANTISEEP COLLAR AND INSTALL SAME.
9. INSTALL BACKFILL AND COMPACT REMAINDER OF EMBANKMENT AND CORE TRENCH.
10. PROVIDE AND INSTALL REMAINDER OF CONSTRUCTION AS SHOWN.
11. PERFORM FINE GRADING AND PERMANENT STABILIZATION OF THE SITE INCLUDING RIP-RAP AND VEGETATIVE STABILIZATION.
12. REQUEST FINAL INSPECTION FROM COUNTY SEDIMENT CONTROL INSPECTOR.
13. WITH COUNTY SEDIMENT CONTROL INSPECTOR'S APPROVAL OF SITE CONDITIONS REMOVE SEDIMENT CONTROL FACILITIES AND ESTABLISH VEGETATION ON ALL DEWATERED AREAS.

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 SRAW 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 STRW 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 EMISIFIED 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/A,000 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/A,000 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.

FOR EROSION AND SEDIMENT CONTROL ONLY

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/15/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/21/02
[redacted] — [redacted]

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

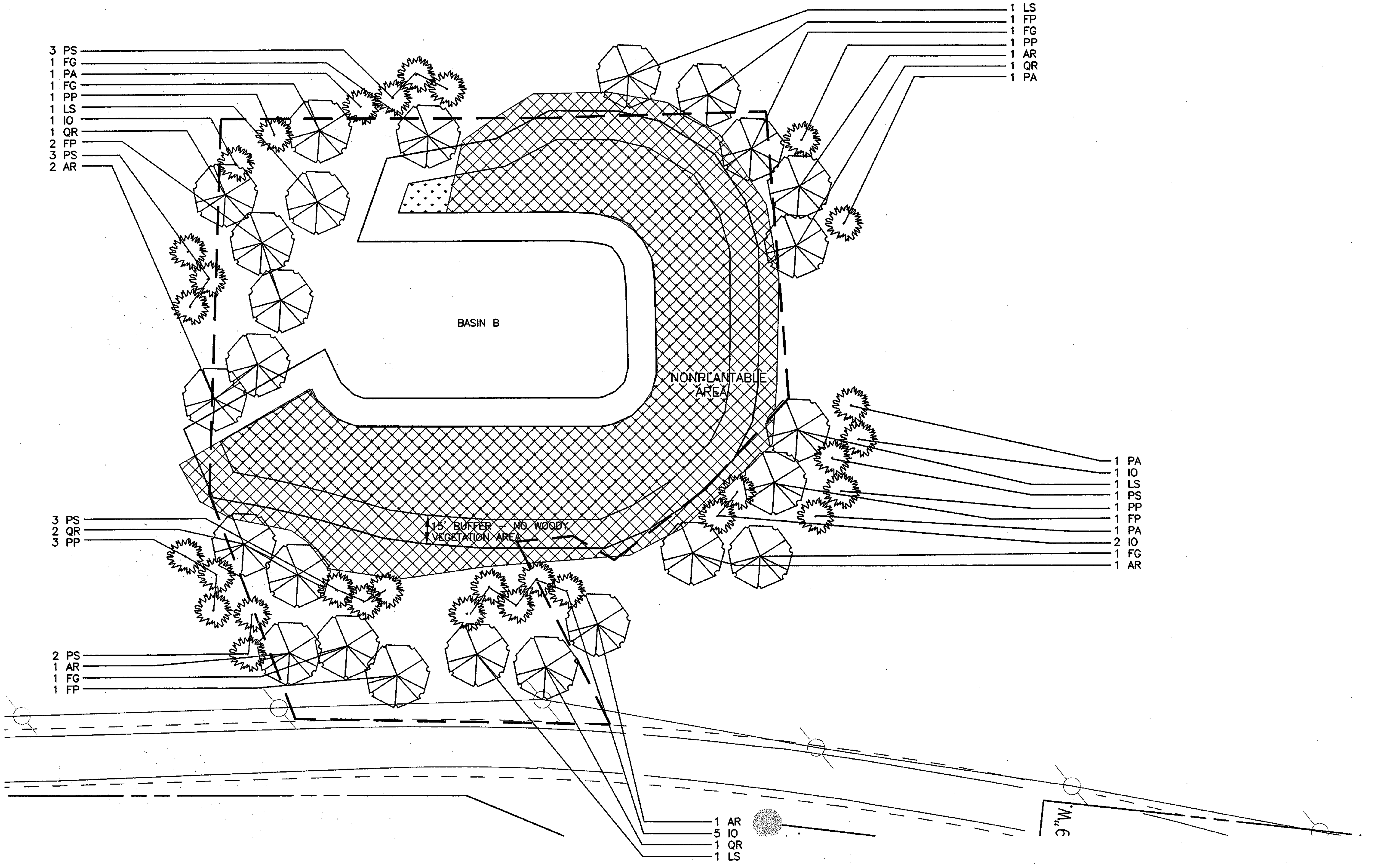
Einhorn Yaffee Prescott

DES: B. WARNER						
DRN: S. ITANI						
CHK: B. WARNER						
DATE: 06/21/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY - POND B
PARCEL 1
EROSION & SEDIMENT NOTES AND DETAILS
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET ES-4

F-02-77



SEDIMENT CONTROL

( ) 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

9/18/01 10/7/02

SIGNATURE OF DEVELOPER
PRINT NAME BELOW SIGNATURE

DATE

( ) BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION

10/03/02

SIGNATURE OF ENGINEER

DATE

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE

DATE

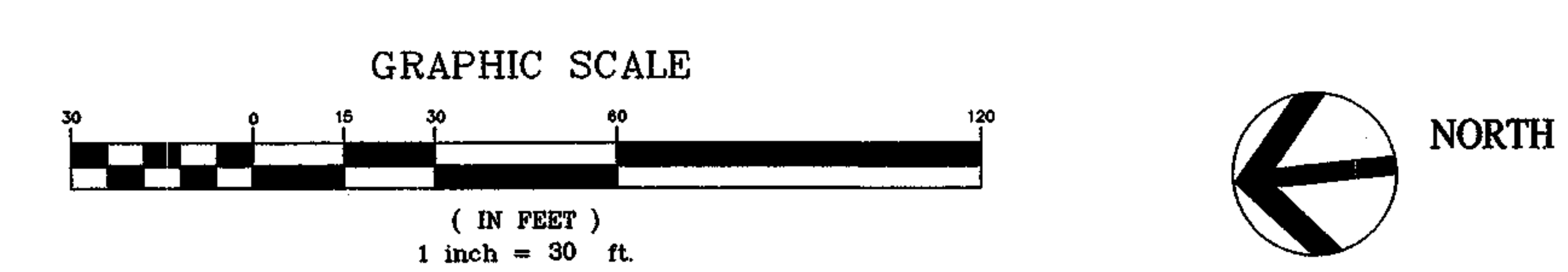
( ) THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT

DATE

LEGEND

- NON-PLANTABLE AREA
- LIMITS OF SWM AREA
- PROP. SOD AREA
- PROP. SHADED TREE
- PROP. EVERGREEN TREE



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/15/02

CHIEF, DIVISION OF LAND DEVELOPMENT HB — DATE 11/21/02

[redacted] [redacted]

AMT
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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: 06/21/02	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
PARCEL 1

LANDSCAPE PLAN

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

SCALE AS SHOWN

SHEET L-1

F-02-77

LANDSCAPING NOTES

1. This plan is for landscaping measures only.

2. All contractors performing work on this site shall notify "Miss Utility" 48 hours prior to any construction or grading by calling 1-800-257-7777 for the location of all utilities.

3. The contractors performing work on the site are responsible for protecting existing plantings during construction.

4. The landscape contractor shall perform work and the plantings shall conform with the "Landscape Specification Guidelines For The Baltimore-Washington Metropolitan Areas", latest edition.

5. The landscape contractor is to verify all plant quantities and availability and notify landscape architect or owner if there are any problems prior to bidding.

6. Sod or seed areas as directed by owner for all disturbed areas to be stabilized that are not landscaped or covered.

7. For tree pruning and care methods please refer to the National Arborist Standards, latest edition.

8. The owner, A. Morton Thomas & Associates, Howard Co. DPZ, and Howard Co. SCD are not responsible for any consequences resulting from any deviations or substitutions to these plans.

9. Financial surety for the required landscaping has been posted as part of the DPW developer's agreement in the amount of $12,150.00. for 25 shade trees, 31 evergreen trees, and 0 shrubs.

SEQUENCE OF CONSTRUCTION FOR LANDSCAPING

1. Flag limits of construction and stake out sediment control measures.

2. Arrange pre-construction meeting with the owner, Inspector, and landscape architect at (301)881-2545.

3. Call "Miss Utility" at 1-800-257-7777 prior to any work for the location of all utilities.

4. Adjust existing sediment control measures for landscape construction as required.

5. After site construction has been completed implement site landscaping as shown on plan.

6. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $12,150.00 FOR 25 SHADE TREES, 31 EVERGREEN TREES, AND 0 SHRUBS.

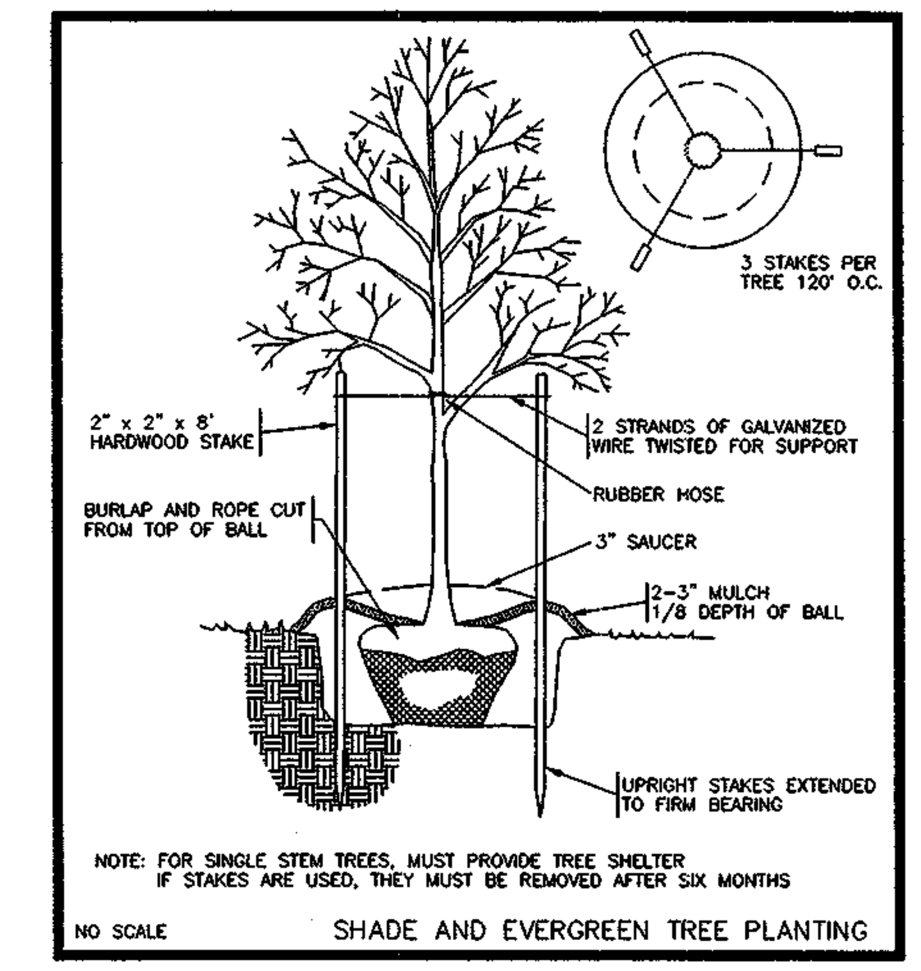
7. After site has been stabilized and all construction has been completed, remove sediment control measures upon inspectors approval.

PROPOSED PLANT MATERIALS

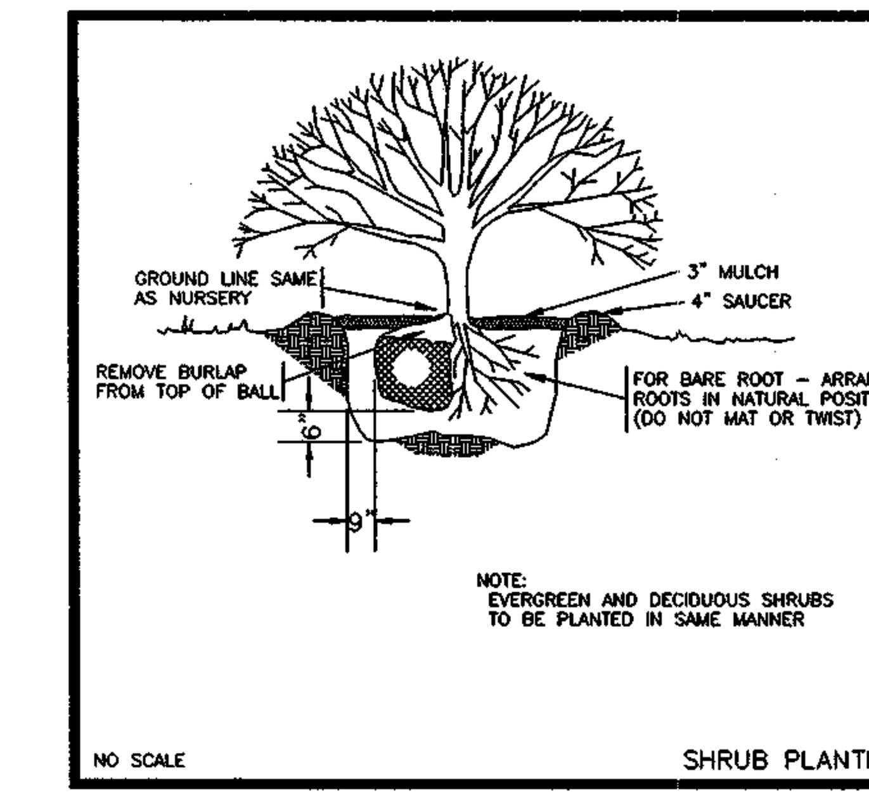
KEY	BOTANICAL NAME	COMMON NAME	SIZE	FORM	SPACING	QUANTITY	
SHADE TREES							
AR	ACER RUBRUM	RED MAPLE	2.5"CAL.	B&B	SHOWN	6	
FG	FAGUS GRANDIFOLIA	AMERICAN BEECH	2.5"CAL.	B&B	SHOWN	5	
FP	FRAXINUS PENNSYLVANICA	GREEN ASH	2.5"CAL.	B&B	SHOWN	5	
LS	LIQUIDAMBER STYRACIFLUA	SWEETGUM	2.5"CAL.	B&B	SHOWN	4	
QR	QUERCUS RUBRA	RED OAK	2.5"CAL.	B&B	SHOWN	5	
EVERGREEN TREES							
IO	ILEX OPACA	AMERICAN HOLLY	7' HGT.	B&B	SHOWN	9	
PA	PICEA ABIES	NORWAY SPRUCE	7' HGT.	B&B	SHOWN	4	
PP	PICEA PUNGENS	COLORADO SPRUCE	7' HGT.	B&B	SHOWN	6	
PS	PINUS STROBUS	WHITE PINE	2"CAL.	B&B	SHOWN	12	
STABILIZATION							
SEED		MDSHA CERTIFIED K31 SEED	–	40LBS./ ACRE	SHOWN	104	STABILIZE L.O.D.
SOD		MDSHA CERTIFIED SOD	–	SY	SHOWN	2,165	

SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	1,210
NUMBER OF TREES REQUIRED SHADE TREES EVERGREEN TREES	 25 31
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION)	 25 31 0



SHADE AND EVERGREEN TREE PLANTING



SHRUB PLANTING

SEDIMENT CONTROL

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I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

James E. Lesky, PE, LEM 9/18/02 — 10/7/02

SIGNATURE OF DEVELOPER
PRINT NAME BELOW SIGNATURE — DATE

( ) BY THE ENGINEER:
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10/03/02

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 11/15/02

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/21/02

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LANDSCAPE NOTES & DETAILS PLAN

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

SCALE AS SHOWN

SHEET L-2

F-02-77