POND ROAD ENTRANCE ALONG JOHNS HOPKINS ROAD COUNTY SUBMISSION

THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY IN HOWARD COUNTY, MD

DEVELOPER & ENGINEER CERTIFICATES

1) BY THE DEVELOPER:

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

James E. Loesch JER June 18, 2003
Developer Signature Date 8/6/03

James E. Loesch
Printed Name

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

Design Engineer Signature Date

Printed Name Registration Number

12750 TWINBROOK PARKWAY
ROCKVILLE, MARYLAND 20852
301.881.2545

3) CERTIFICATION BY PROFESSIONAL:

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

Professional's Signature Date

Print Name

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. Loesch 6/18/03 8/6/03 JER
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 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.
Tim Muno 8/12/03
USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE

( ) THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
John F. Robertson 8/12/03
HOWARD SOIL CONSERVATION DISTRICT DATE

Review for HOWARD SCD and meets Technical Requirements.

USDA – Natural Resources Conservation Service Date

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

Howard SCD Date

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE 8/26/03
CHIEF, DIVISION OF LAND DEVELOPMENT DATE 8/25/03
DIRECTOR DATE 8/27/03

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:

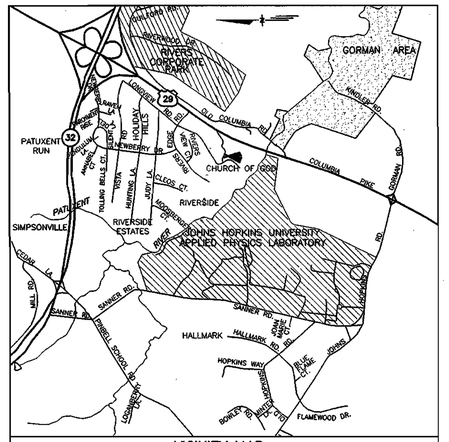
STATION	NORTH	EAST
HOPKINS	544836.5300	1340825.3542
G12	550256.5002	1342325.2642
G7	548107.0328	1341025.0830
G8	549478.7005	1341170.4345
41 EA	544825.8093	1339217.4439

A. AREA OF PARCEL/LOT = 361 ACRES
B. PRESENT ZONING = PEC
C. PARKING TABULATION: EXISTING PARKING SPACES = 3,802
PROPOSED PARKING SPACES = -56
TOTAL SPACES PROVIDED = 3,746
D. EXISTING BUILDING COVERAGE = 42.7 ACRES GROSS FLOOR AREA
COVERAGE = 19.7 ACRES, 5.5% OF TOTAL LOT AREA
E. PROPOSED BUILDING COVERAGE = 0.1 ACRES GROSS FLOOR AREA
COVERAGE = 0.1 ACRES, 0.003% OF TOTAL LOT AREA
F. TOTAL PROPOSED BUILDING COVERAGE = 19.8 ACRES, 5.53% OF TOTAL LOT AREA
G. PROPOSED BUILDINGS DISTURBED AREA = 2.8 ACRES
H. PROPOSED USE = EDUCATION/RESEARCH
I. FLOOR SPACE USE = EDUCATION/RESEARCH
J. MAXIMUM NUMBER OF EMPLOYEES = 3,937
K. NO LOT SUBDIVISION IS ANTICIPATED
L. CASE NUMBERS APPLICABLE: SDP 88-06 LOT L
SDP 86-106 WATER SYSTEM CONNECTION
SDP 99-11 CREDIT UNION
SDP 86-149 RED LINE TO WATER SYSTEM IMPROVEMENTS.
F02-40 SWM BASIN A
M. SANITARY SEWER/WATER SERVICE SEE GENERAL NOTES
N. EXISTING OPEN SPACE AREA (LOT AREA MINUS PARKING & BUILDINGS)=300 ACRES, 83.8% OF TOTAL LOT AREA
O. PROPOSED OPEN SPACE AREA = 300 ACRES, 83.8% OF TOTAL LOT (NO CHANGE AS EXISTING PAVEMENT REMOVED).

GENERAL NOTES

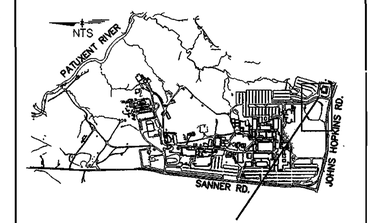
1. THE TOPOGRAPHIC AND UTILITY INFORMATION SHOWN IN THIS DEVELOPMENT PLAN WERE OBTAINED FROM FIELD SURVEYS PERFORMED BY A. MORTON THOMAS AND ASSOCIATES (TOPOGRAPHY) AND APPLIED PHYSICS LABORATORY (UTILITIES) CONSULTANTS IN NOVEMBER 1998, AND FROM REPORTS PROVIDED BY JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LAB (JHU/APL). SINCE NOT ALL INFORMATION SHOWN MAY REFLECT CURRENT CONDITIONS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION TO HIS OWN SATISFACTION.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY AND MSHA SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, UNLESS OTHERWISE NOTED.
3. 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 JHU/APL.
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 FACILITIES OFFICE (443) 778-0167.
6. SECURITY MUST BE MAINTAINED WITHIN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL COORDINATE ANY REQUIRED FENCE CONSTRUCTION AND RELOCATION WITH JHU/APL WITH NOTIFICATIONS OF ALL SCHEDULES AND REQUIREMENTS.
7. THE CONTRACTOR SHALL CONTACT MR. RUSTY OBER (443) 778-0167 AT LEAST FIVE DAYS BEFORE STARTING WORK OR DISRUPTION OF ANY UTILITIES.
8. ALL "TIE-INS" TO EXISTING UTILITIES MAY ONLY BE DONE AFTER NORMAL WORKING HOURS AT JHU-APL. WORK MUST BE SCHEDULED ACCORDINGLY THRU JHU/APL. NORMAL WORKING HOURS ARE 8:00 A.M. TO 5:00 P.M., MONDAY THROUGH FRIDAY.
9. THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION 24 HOURS IN ADVANCE OF COMMENCING WORK AT (410) 313-1880.
10. ALL UTILITIES SHALL HAVE A MINIMUM CLEARANCE OF 6". ALL POLES AND FOUNDATIONS SHALL HAVE A MINIMUM CLEARANCE OF 2'-0", OR TUNNEL AS REQUIRED.
11. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEMS. COORDINATE WITH THE OWNER FOR OPERATING WATER MAIN VALVES.
12. THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL STORM DRAINS WITHIN 2'-0" OF EXTERIOR MANHOLE WALL.
13. THE CONTRACTOR SHALL PERMANENTLY SEED AND STABILIZE ALL DISTURBED AREAS THAT ARE NOT TO BE PAVED.
14. ALL DRIVEWAYS ARE PRIVATELY OWNED AND MAINTAINED BY JHU/APL.
15. THE AREA SHOWN IS LOCATED ON TAX MAP #41.
16. THE INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION BY DIGGING TEST PITS BY HAND AT ALL CROSSINGS WELL IN ADVANCE OF CONSTRUCTION.
17. ALL SITE UTILITIES ARE THE PROPERTY OF JHU/APL WHO WILL HORIZONTALLY LOCATE ALL ACTIVE UTILITIES FOR THE CONTRACTOR.
18. 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. ALL PAVEMENT SHALL BE REPLACED OUTSIDE THE LIMIT OF REMOVAL.
19. SEE DETAIL SHEETS FOR OTHER ITEMS THAT APPLY TO THIS PROJECT. CONTRACTOR SHALL FOLLOW THE SEQUENCE AND PHASING OF CONSTRUCTION SHOWN ON SHEETS C1.9 AND C2.6.
20. THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO AVOID DAMAGE TO EXISTING ADJACENT FACILITIES AND STRUCTURES. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION OR BETTER UNLESS NOTED OTHERWISE.
21. DUE TO THE PROXIMITY OF LIVE UNDERGROUND UTILITIES, THE JHU/APL 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 JHU/APL OF ANY DEVIATION FROM THESE PLANS PRIOR TO ANY CHANGE BEING MADE. ANY DEVIATION FROM THESE PLANS WITHOUT WRITTEN AUTHORIZATION BY THE JHU/APL WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR THUS RELIEVING RESPONSIBILITY FROM THE JHU/APL, A. MORTON THOMAS & ASSOC., HOWARD COUNTY DPZ, & SCD.
24. SURFACED STREETS AND PARKING AREAS SHALL BE MAINTAINED IN A CLEAN CONDITION, MUD AND DUST FREE AT ALL TIMES. ADEQUATE MEANS SHALL BE PROVIDED TO CLEAN TRUCKS AND OTHER EQUIPMENT USING EXISTING SURFACED STREETS AND PARKING AREAS.
25. THE CONTRACTOR SHALL MAKE EVERY ATTEMPT TO MINIMIZE DAMAGE TO EXISTING TREES DURING CONSTRUCTION.
26. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL MEET CURRENT HOWARD COUNTY DEPARTMENT OF PERMITTING SERVICES STANDARDS AND DIRECTIVES.
27. EXISTING SIGNS, GUARDRAILS, AND OTHER MINOR SITE FEATURES IN THE WAY OF PROPOSED CONSTRUCTION, WHETHER OR NOT SHOWN ON THESE PLANS, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE JHU/APL.
28. CONTRACTOR SHALL CONTACT JHU/APL PLANT FACILITIES OFFICE (443) 778-0167 AND "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO START OF EXCAVATION. CONTRACTOR MUST NOTIFY AND COORDINATE 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 RESTRCTED FOREST CONSERVATION AREAS, WETLANDS, STREAMS, OR THEIR BUFFERS AS NOT PERMITTED BY MDE, U.S. ARMY CORPS OF ENGINEERS, AND HOWARD COUNTY.
31. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION ARE PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT. THE FOREST CONSERVATION OBLIGATION HAS BEEN ADDRESSED WITH F-02-40, JHU/APL SWM BASIN A.
32. THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED AS DESCRIBED IN GENERAL NOTE #1.
33. WATER IS PUBLIC (HOWARD COUNTY)
34. SEWER IS PUBLIC (HOWARD COUNTY)
35. THE FLOODPLAIN LIMITS FOR THIS PROJECT WAS TAKEN FROM HOWARD COUNTY STUDY.
36. DIMENSION TO NEW STRUCTURES ARE PERPENDICULAR TO PROPERTY LINE.
37. THE FINAL PLAN AREA AND THE LOD OF THE JHU/APL ARE NOT LOCATED IN THE 100 YEAR FLOOD PLAIN
38. SOIL MAP USED SHEET NO. 29, SOIL SURVEY JULY 1968 HOWARD COUNTY, MARYLAND, USDA.

INDEX OF DRAWINGS



VICINITY MAP
SCALE: 1"=2000'

KEY LEGEND
SCALE: NTS



POND ROAD ENTRANCE

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

ADDRESS CHART

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

PERMIT INFORMATION CHART

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

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

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL: (301) 881-3565 FAX (301) 881-0814
AMT FILE # 102-440

DES: RAW
DRN: RL
CHK: PCF
DATE: 08/06/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

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

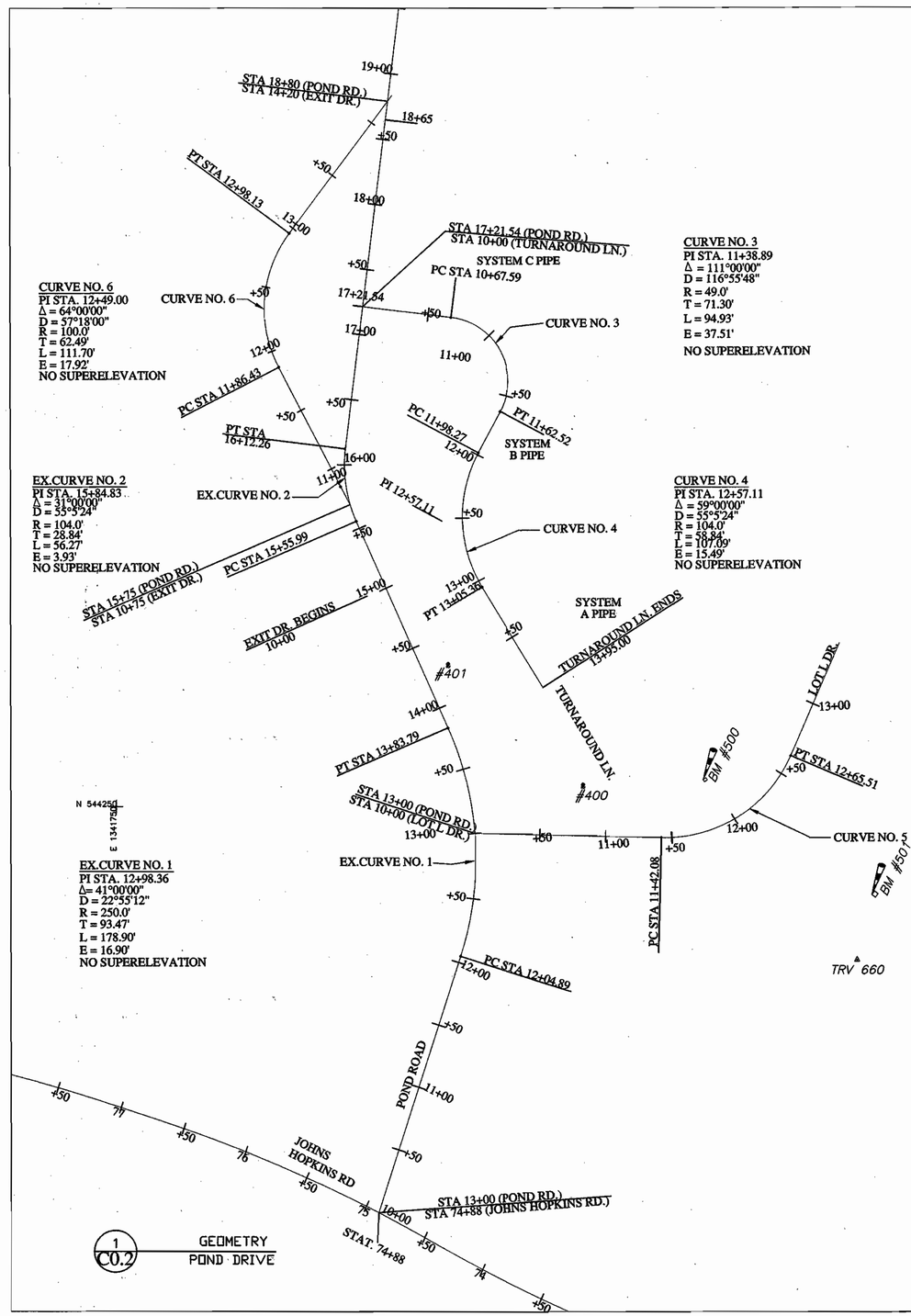
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

COVER SHEET

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

SCALE AS SHOWN
SHEET C0.1
SHEET 1 OF 23

SDP-03-174



1 C0.2 GEOMETRY POND DRIVE

COORDINATE TABLE					
LOCATION	POINT	STATION	NORTHING	EASTING	BEARING
POND ROAD	POT	10+00	543940.42	1341948.49	N17°36' 14"E
	PC	12+04.89	544135.72	1342010.46	
	PI	12+98.36	544224.81	1342038.72	
	PT	13+83.79	544310.40	1342001.15	N23°42' 8"W
	PC	15+55.99	544468.16	1341931.89	
	PI	15+84.83	544448.34	1341914.64	
	PT	16+12.26	544523.20	1341923.80	N6°58' 33"E
EXIT DRIVE	POC	10+75.00	544480.66	1341927.41	N27°16' 59"W
	PC	11+86.43	544585.23	1341873.48	
	PI	12+49.00	544639.20	1341845.67	
	PT	12+98.13	544687.67	1341881.67	N36°34' 54"E
TURNAROUND DRIVE	POT	10+00.00	544631.66	1341937.07	S83°1' 27"E
	PC	10+67.59	544623.47	1342003.99	
	PI	11+38.89	544614.79	1342074.94	
	PT	11+62.52	544551.74	1342041.27	S28°5' 46"W
	PC	11+98.27	544520.32	1342024.50	
	PI	12+57.11	544468.41	1341996.79	
	PT	13+05.36	544418.01	1342027.15	S31°3' 41"E
L LOT DRIVE	POT	10+00.00	544229.72	1342020.93	S88°36' 8"E
	PC	11+42.08	544623.47	1342003.99	
	PI	12+12.23	544224.54	1342233.14	
	PT	12+65.51	544289.01	1342260.79	N23°12' 56"E

CURVE NO. 5
PI STA. 12+12.23
Δ= 68°00'00"
D = 55°5'24"
R = 104.0'
T = 70.15'
L = 123.43'
E = 21.45'
NO SUPERELEVATION

TRAVERSE CONTROL TABLE				
NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
400	544266.8941	1342103.7448	-	FLY
401	544359.2632	1342001.2858	-	FLY
660	544132.9341	1342311.1318	413.93	REBAR & CAP
661	544646.2965	1342405.8312	388.48	REBAR & CAP

BENCH MARK TABULATION		
NO.	ELEVATION	DESCRIPTION
500	395.74	SQUARE CUT ON W. CORNER L.P. BASE
501	399.64	SQUARE CUT ON W. CORNER OF CATCH BASIN

NORTH

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE	8/10/03
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE	8/25/03
DIRECTOR	DATE	8/25/03

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
13750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL (301) 881-2545 FAX (301) 881-0814
AMT FILE # 102-440

DES: JK							
DRN: JK							
CHK: RAW							
DATE: 08/06/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP	

POND ROAD ENTRANCE

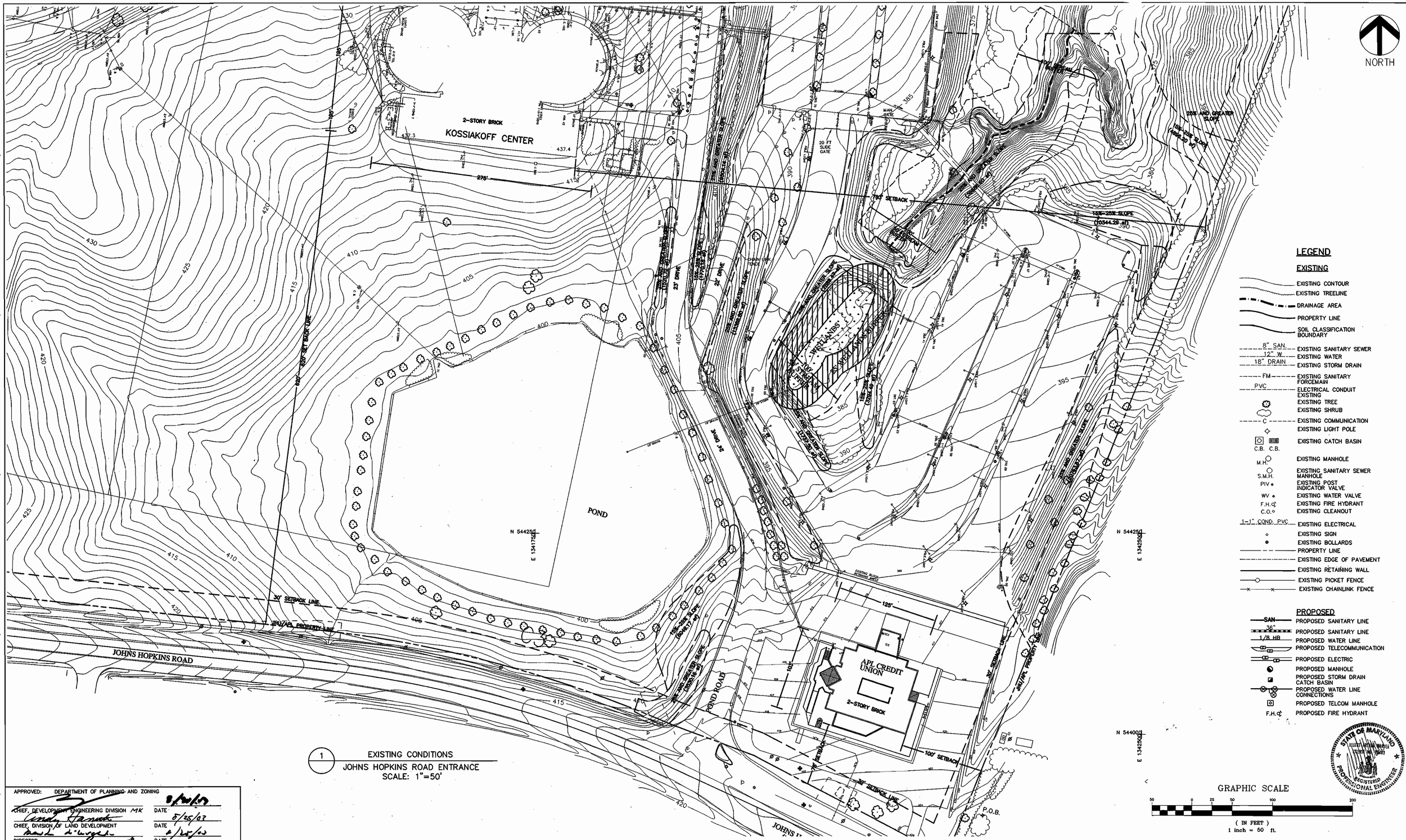
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

CENTER LINE GEOMETRY

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

SCALE AS SHOWN
SHEET C0.2
SHEET 2 OF 23

SDP-03-174



1 EXISTING CONDITIONS
JOHNS HOPKINS ROAD ENTRANCE
SCALE: 1"=50'

LEGEND

EXISTING

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

PROPOSED

- SAN — PROPOSED SANITARY LINE
- 36" — PROPOSED SANITARY LINE
- 1/8 HB — PROPOSED WATER LINE
- PROPOSED TELECOMMUNICATION
- PROPOSED ELECTRIC
- PROPOSED MANHOLE
- PROPOSED STORM DRAIN CATCH BASIN
- PROPOSED WATER LINE CONNECTIONS
- PROPOSED TELCOM MANHOLE
- F.H. — PROPOSED FIRE HYDRANT

STATE OF MARYLAND — ROBERT ARTHUR MORRIS — REG. NO. 19983 — REGISTERED PROFESSIONAL ENGINEER

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	MK	DATE 8/25/03
CHIEF, DIVISION OF LAND DEVELOPMENT		DATE 8/26/03
DIRECTOR		DATE

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL (301) 881-2565 FAX (301) 881-4014
AMT FILE # 102-449

DES: JK
DRN: JK
CHK: RAW
DATE: 08/06/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

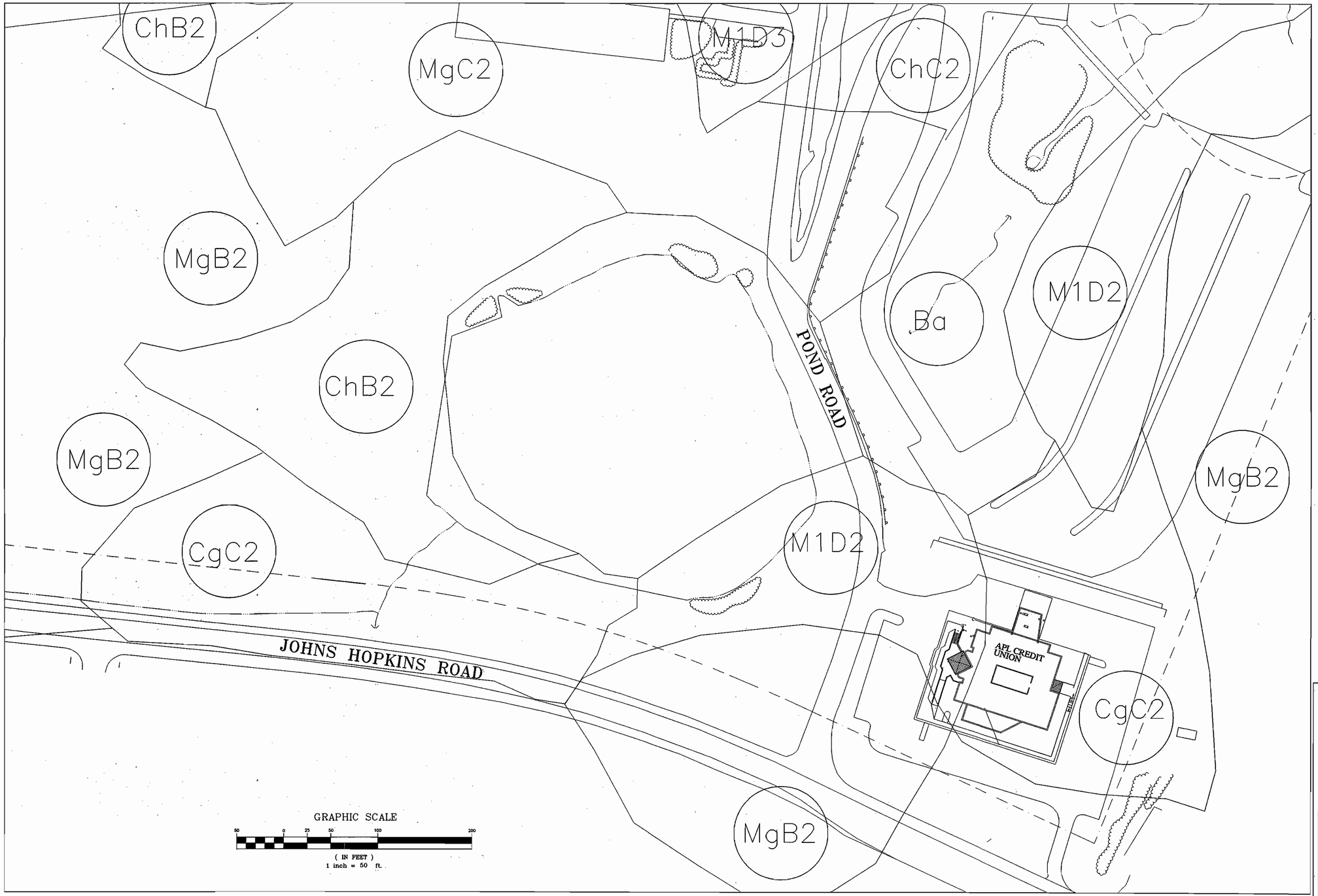
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

EXISTING CONDITIONS

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

SCALE AS SHOWN
SHEET C1.0
SHEET 3 OF 23

SDP-03-134



SOURCE: HOWARD COUNTY SOIL SURVEY, MARYLAND

SOILS MAP LEGEND:

Ba	BAILE SILT LOAM (HYDRIC SOIL)
CgC2	CHESTER GRAVELLY SILT LOAM
ChB2 ChC2	CHESTER SILT LOAM
MgB2 MgC2	MANOR GRAVELLY LOAM
MID2 MID3	MANOR LOAM

STATE OF MARYLAND — ROBERT ALTON WAGNER — No. 13401 — 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."

James E. Loesch — 6/18/03
SIGNATURE OF DEVELOPER — DATE
PRINT NAME BELOW SIGNATURE JEL — 8/6/03

( ) 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.

Tom Myers — 8/12/03
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

John C. Robertson — 8/12/03
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 8/26/03
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03
DIRECTOR — DATE 8/25/03

1 PROJECT AREA SOIL MAP

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL (301) 881-2545 FAX (301) 881-4814
AMT FILE # 102-440

DES: JK
DRN: JK
CHK: RW
DATE: 08/06/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

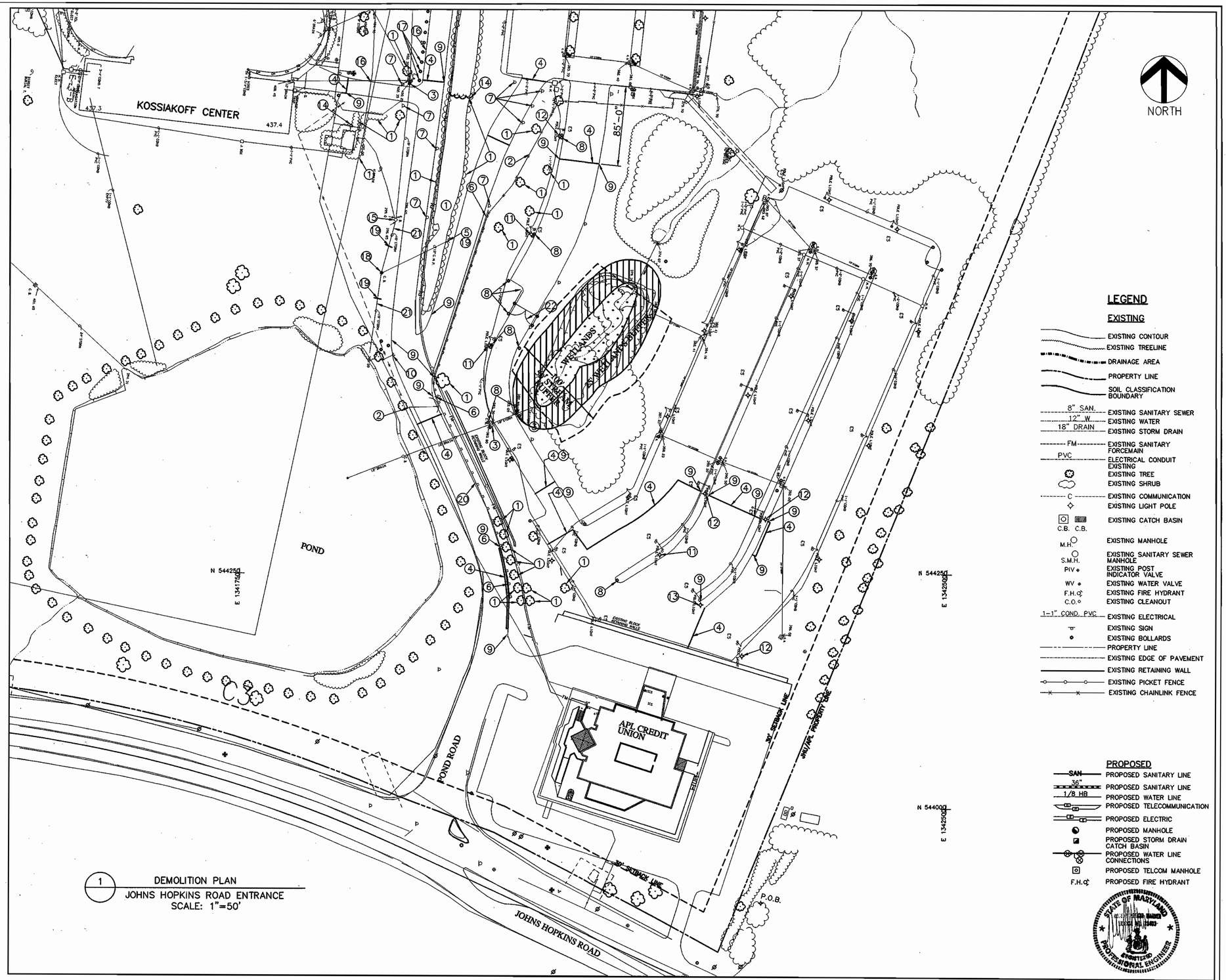
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
PROJECT AREA
SOIL MAP
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C1.1
SHEET 4 OF 23

SDP-03-174

KEYED NOTES

1. EXISTING TREES, SHRUBS AND STUMPS TO BE REMOVED.
2. EXISTING CHAIN LINK FENCE WITH 2' WIDE WITH REINFORCED CONCRETE MOWING STRIP AND GATE LIMIT TO BE REMOVED, REMOVE CONCRETE FENCE POST FOUNDATION (4' DEEP AND 36" DIAMETER).
3. EXISTING INLET TO BE RESTRUCTURED (SEE DETAILS SHT# C2.4).
4. EXISTING ASPHALT PAVEMENT LIMIT OF REMOVAL (SAW CUT EDGE).
5. EXISTING STORM DRAINAGE HEADWALL TO BE REMOVED.
6. EXISTING STEEL "W" BEAM AND POSTS TRAFFIC BARRIERS LIMIT OF REMOVAL.
7. EXISTING SIGNS AND SIGN POSTS TO BE REMOVED.
8. EXISTING STEEL POST BOLLARD AND CONCRETE FOUNDATION (APPROXIMATELY 4' DEEP AND 36" DIAMETER) TO BE REMOVED.
9. EXISTING REINFORCED CONCRETE CURB AND GUTTER (APPROXIMATELY 12" THICK) LIMIT TO BE REMOVED.
10. EXISTING FIRE HYDRANT AND 6" DUCTILE IRON PIPE TO BE REMOVED BACK TO 5' OF NEW CURB (SEE SHT. C1.4)
11. EXISTING STREET LIGHT POLES AND FOUNDATION (54" SQUARE 6' DEEP REINFORCED CONCRETE) TO BE REMOVED SPLICE ELECTRICAL SERVICE AT POLE LOCATION IN NEW HANDHOLE SET AT NEW GRADE WITH AN EXTENSION OF THE EXISTING CONDUIT TO NEW POLE LOCATION. REMOVE AND SALVAGE FOR REINSTALLATION POLE AND FIXTURE.
12. EXISTING STREET LIGHT WITH BOLLARDS TO REMAIN.
13. EXISTING STREET LIGHT POLE AND FIXTURE TO BE REMOVED, SALVAGE AND REINSTALL ON EXTENDED FOUNDATION TO MEET NEW GRADES. REPLACE EXISTING STEEL BOLLARDS (6" CONCRETE FILLED STEEL PIPE BURIED IN 12" DIA CONCRETE FOOTER 4' DEEP) IN KIND.
14. LIMIT OF REMOVAL.
15. EXISTING STORM DRAINAGE STRUCTURES FRAME AND COVERS TO BE REMOVED.
16. EXISTING CONCRETE CURB AND GUTTER TO REMAIN. SAW CUT ASPHALT PAVEMENT AND REMOVE TO 4' FROM EDGE OF GUTTER AND GRIND OFF 1 1/2" OF ASPHALT SURFACE OF PAVEMENT TO REMAIN NEXT TO EXISTING CONCRETE GUTTER.
17. EXISTING WOOD POSTS AND CABLE TO REMAIN.
18. EXISTING STORM DRAINAGE STRUCTURE TO BE REMOVED, ALSO REMOVE EXISTING PIPE TO NEW STRUCTURES CMH-2 AND CI-5 (SEE SHT. C1.8).
19. LIMIT OF EXISTING STORM DRAINAGE PIPE REMOVAL.
20. EXISTING BARRIER TO REMAIN
21. EXISTING PIPE TO REMAIN
22. EXISTING STEEL PIPE GATE, POST AND CONCRETE FOUNDATION TO BE REMOVED. SALVAGE GATE AND POST. CLEAN AND TRANSPORT TO STORAGE LOCATION AS DIRECTED BY APL ON JHU/APL PROPERTY.



1 DEMOLITION PLAN
JOHNS HOPKINS ROAD ENTRANCE
SCALE: 1"=50'

LEGEND

EXISTING

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

PROPOSED

- SAN — PROPOSED SANITARY LINE
- 36" — PROPOSED SANITARY LINE
- 1/8 HB — PROPOSED WATER LINE
- PROPOSED TELECOMMUNICATION
- PROPOSED ELECTRIC
- PROPOSED MANHOLE
- PROPOSED STORM DRAIN CATCH BASIN
- PROPOSED WATER LINE CONNECTIONS
- PROPOSED TELCOM MANHOLE
- F.H. — PROPOSED FIRE HYDRANT

GRAPHIC SCALE

50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 8/25/03
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8/25/03
DIRECTOR	DATE 8/27/03

STATE OF MARYLAND — PAUL C. FOSTER — LICENSE NO. 21403 — REGISTERED PROFESSIONAL ENGINEER

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DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

DEMOLITION PLAN

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

SCALE AS SHOWN
SHEET C1.2
SHEET 5 OF 23

SDP-03-174

CENTERLINE STATIONS AND OFFSET LOCATION / LAYOUT GEOMETRY

JHU APL Perimeter Roads and Entrances
AMT File No. 102-440

POND ROAD - CURB FACE

STA	15+00	9 '	RT	TO	STA	15+20	9 '	RT	
STA	15+20	9 '	RT	TO	STA	15+88	28 '	RT	
STA	15+88	28 '	RT	TO	STA	16+25	48 '	RT	
STA	16+25	48 '	RT	TO	STA	16+71	48 '	RT	
STA	16+71	48 '	RT	TO	STA	17+00	66 '	RT	34' Radius
STA	16+55	28 '	RT	TO	STA	17+13	28 '	RT	
STA	17+13	36 '	RT	TO	STA	17+13	36 '	RT	4' Radius
STA	16+55	36 '	RT	TO	STA	16+55	36 '	RT	4' Radius
~~STA~~	~~16+55~~	~~28 '~~	~~RT~~	~~TO~~	~~STA~~	~~17+13~~	~~28 '~~	~~RT~~	NIC
~~STA~~	~~16+90~~	~~16 '~~	~~RT~~	~~TO~~	~~STA~~	~~17+13~~	~~16 '~~	~~RT~~	NIC
~~STA~~	~~17+13~~	~~16 '~~	~~RT~~	~~TO~~	~~STA~~	~~17+13~~	~~8 '~~	~~RT~~	~~4' Radius~~
~~STA~~	~~16+90~~	~~8 '~~	~~RT~~	~~TO~~	~~STA~~	~~16+90~~	~~16 '~~	~~RT~~	~~4' Radius~~
~~STA~~	~~16+90~~	~~8 '~~	~~RT~~	~~TO~~	~~STA~~	~~17+13~~	~~9 '~~	~~RT~~	NIC
STA	16+90	4 '	LT	TO	STA	17+13	4 '	LT	
~~STA~~	~~17+13~~	~~4 '~~	~~LT~~	~~TO~~	~~STA~~	~~17+13~~	~~12 '~~	~~LT~~	~~4' Radius~~
~~STA~~	~~16+90~~	~~4 '~~	~~LT~~	~~TO~~	~~STA~~	~~16+90~~	~~12 '~~	~~LT~~	~~4' Radius~~
~~STA~~	~~16+90~~	~~12 '~~	~~LT~~	~~TO~~	~~STA~~	~~17+13~~	~~12 '~~	~~LT~~	NIC
STA	16+53	33 '	LT	TO	STA	16+55	24 '	LT	5' Radius
STA	16+55	24 '	LT	TO	STA	17+13	24 '	LT	
STA	17+30	51 '	RT	TO	STA	17+61	15 '	RT	
STA	17+61	15 '	RT	TO	STA	17+69	12 '	RT	10' Radius
STA	17+69	12 '	RT	TO	STA	18+88	12 '	RT	
STA	17+13	24 '	LT	TO	STA	17+95	12 '	LT	
STA	17+95	12 '	LT	TO	STA	18+00	31 '	LT	10' Radius

EXIT DRIVE - CURB FACE

STA	10+00	13 '	LT	TO	STA	11+00	16 '	LT	
STA	11+00	16 '	LT	TO	STA	11+75	12 '	LT	
STA	11+75	12 '	LT	TO	STA	13+14	12 '	LT	
STA	13+14	12 '	LT	TO	STA	13+40	57 '	LT	30' Radius
STA	11+61	12 '	RT	TO	STA	12+45	12 '	RT	
STA	12+45	12 '	RT	TO	STA	12+50	17 '	RT	5' Radius
STA	12+50	17 '	RT	TO	STA	12+50	32 '	RT	
STA	12+50	32 '	RT	TO	STA	12+80	32 '	RT	
STA	12+80	32 '	RT	TO	STA	12+80	17 '	RT	
STA	12+80	17 '	RT	TO	STA	12+85	12 '	RT	5' Radius
STA	12+85	12 '	RT	TO	STA	13+37	12 '	RT	

TURN AROUNDLANE - CURB FACE

STA	10+66	21 '	RT	TO	STA	10+72	21 '	RT	
STA	10+72	21 '	RT	TO	STA	11+34	17 '	RT	30' Radius
STA	11+34	17 '	RT	TO	STA	11+49	14.5 '	RT	
STA	11+49	14.5 '	RT	TO	STA	11+74	9 '	RT	34' Radius
STA	11+74	9 '	RT	TO	STA	13+00	9 '	RT	
STA	13+00	9 '	RT	TO	STA	13+50	12 '	RT	
STA	13+50	12 '	RT	TO	STA	14+00	12 '	RT	
STA	10+47	11 '	LT	TO	STA	10+54	9 '	LT	10' Radius
STA	10+54	9 '	LT	TO	STA	13+00	9 '	LT	
STA	13+00	9 '	LT	TO	STA	13+50	12 '	LT	
STA	13+50	12 '	LT	TO	STA	14+00	12 '	LT	

LOT L DRIVE - CURB FACE

STA	10+01	57 '	LT	TO	STA	10+58	12 '	LT	60' Radius
STA	10+58	12 '	LT	TO	STA	12+31	12 '	LT	
STA	12+31	12 '	LT	TO	STA	12+66	32 '	LT	25' Radius
STA	12+66	32 '	LT	TO	STA	12+43	40 '	LT	
STA	12+43	35 '	LT	TO	STA	11+40	27 '	LT	
STA	11+40	27 '	LT	TO	STA	11+33	36 '	LT	
STA	11+33	33 '	LT	TO	STA	11+26	36 '	LT	5' Radius
STA	11+26	36 '	LT	TO	STA	11+18	31 '	LT	
STA	11+18	31 '	LT	TO	STA	10+58	44 '	LT	45' Radius
STA	10+58	44 '	LT	TO	STA	10+54	51 '	LT	
STA	10+15	42 '	RT	TO	STA	10+59	12 '	RT	60' Radius
STA	10+59	12 '	RT	TO	STA	12+50	12 '	RT	
STA	12+50	12 '	RT	TO	STA	12+68	36 '	RT	
STA	12+68	36 '	RT	TO	STA	12+68	40 '	RT	

EXIT DRIVE - CATCH BASINS (CENTER FACE OF CURB)

STA	11+69	12 '	RT	C1-11

TURN AROUND LANE - CATCH BASINS (CENTER FACE OF CURB)

STA	11+23	17.5 '	RT	C1-7
STA	13+42	12 '	RT	A1-7

TURN AROUND LANE - MANHOLES (CENTER OF STRUCTURE)

STA	10+55	37 '	RT	CMH-7
STA	10+89	35 '	RT	CMH-8
STA	12+16	31 '	RT	CMH-9
STA	13+62	18 '	LT	AMH-1

LOT L - MANHOLES (CENTER OF STRUCTURE)

STA	10+88	82 '	LT	AMH-2
STA	12+05	120 '	LT	AMH-3
STA	12+90	122 '	LT	AMH-4
STA	13+56	122 '	LT	AMH-5

LOT L DRIVE - CATCH BASIN (CENTER FACE OF CURB)

STA	12+40	12 '	RT	A1-2
STA	12+40	12 '	LT	A1-3

LOT L DRIVE - CURB FACE

STA	10+20	52 '	LT	TO	STA	10+33	30 '	LT	
STA	10+04	20 '	LT	TO	STA	10+65	14 '	LT	57' Radius
STA	10+65	14 '	LT	TO	STA	11+37	14 '	LT	*

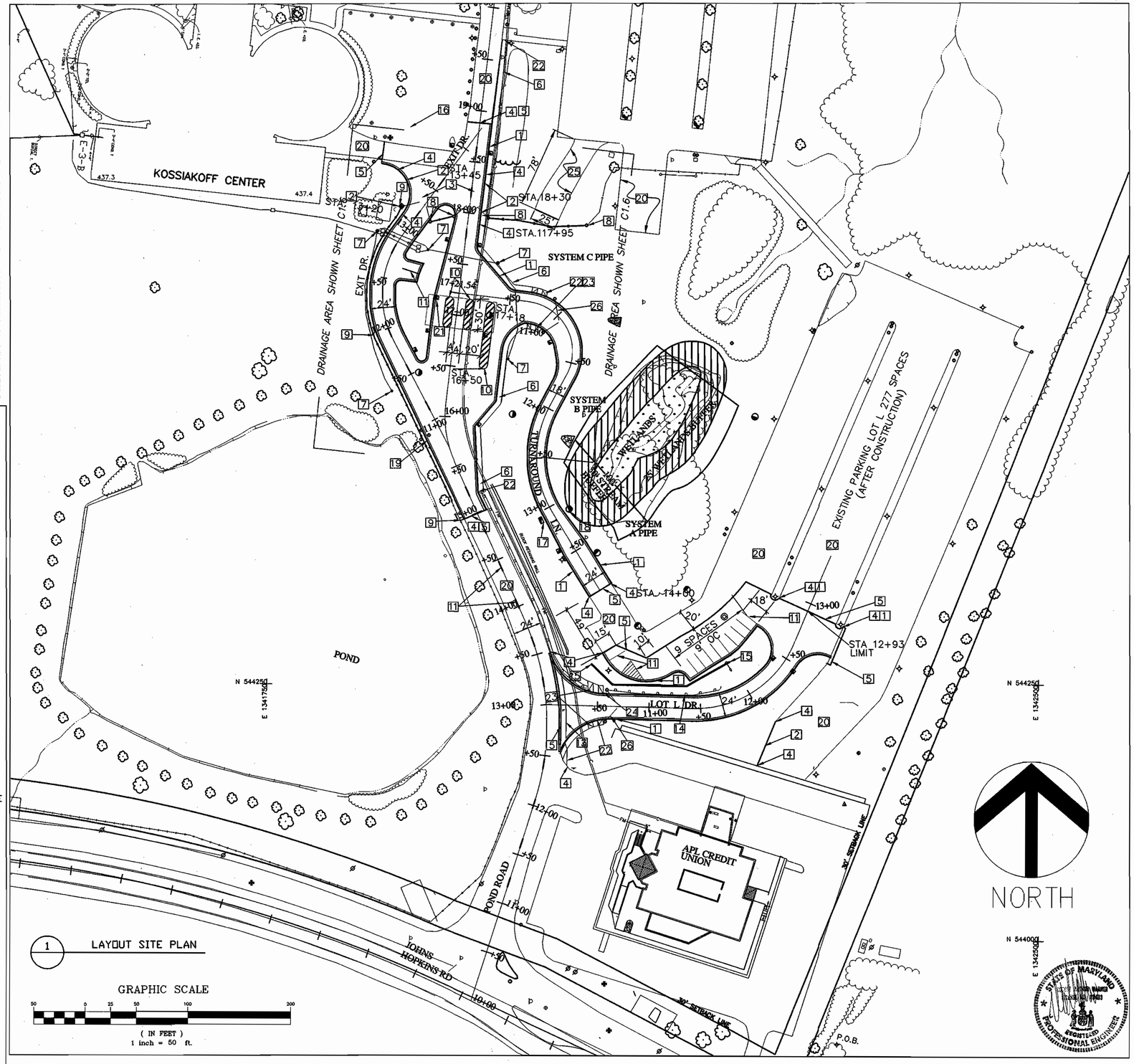
* Start type B traffic barrier and treatment

KEYED NOTES

1 NEW 7" CONCRETE CURB AND GUTTER (HOWARD COUNTY NO. R3.01.
2 NEW 4" ROLLED CURB (SEE TYP. SECTION SHT# C2.2).
3 NEW 34' OPENING SWING GATE, AEGIS II CLASSIC TYPE, STATION 18+18 EXIT DRIVE AND 17+95 POND ROAD. (SEE DETAIL SHT #C-202).
4 LIMIT OF NEW CURB TYPE, TRANSITION FROM ROLLED TO COUNTY STANDARD OR EXISTING ON 5' BEFORE LIMIT.
5 LIMIT OF NEW HOT MIX ASPHALT PAVEMENT, MEET EXISTING FLUSH.
6 NEW 6' WIDE, 5" THICK CONCRETE WALK WITH 6"X6" W1.4XW1.4 WELDED WIRE FABRIC, BROOM FINISH, WHEN WALK ADJOINS CONCRETE CURB SET TOP TO TOP OF CURB AND SLOPE TOWARD CURB (2%), JOINTS: CONTRACTION 5' O.C., EXPANSION 30' O.C.
7 NEW POLE LIGHT ON NEW CONCRETE FOUNDATION (SEE DETAIL SHT# C2.2).
8 NEW AEGIS II CLASSIC FENCE (SEE DETAIL SHEET.#C-201).
9 NEW AEGIS II CLASSIC FENCE.
10 NEW 4" WHITE PAINT STRIPING OUTLINE OF ISLAND AREA (8' WIDE WITH 4' RADIUS ENDS) WITH DIAGONAL STRIPES 2' OC
11 NEW 4" WHITE PAINT STRIPING.10' LONG AND 30' APART ON CENTER LINE OF DRIVE AND 18" LONG AT PARKING SPACES.
12 NOT USED
13 NEW CONCRETE APRON (SEE DETAIL SHT #2.1).
14 NEW TRAFFIC BARRIER SHA TYPE W BEAM (MD#660.03). WITH TYPE B TRAFFIC BARRIER END TREATMENT (EAST END) (MD # 605.02). SET BACK FROM BACK OF CURB TO ACCOMODATE NEW GATE.
15 NEW PRECAST CONCRETE MODULAR RETAINING WALL WITH 4' HIGH CHAINLINK FENCE AT TOP OF WALL (SEE DETAIL SHT. #C1.5).
16 EXISTING CONCRETE CURB TO REMAIN, OVERLAY ASPHALT PAVEMENT (SURFACE 1 1/2" REMOVED) WITH SUPERPAVED SURFACE TO MEET EXISTING CONCRETE GUTTER PAN FLUSH.
17 EXISTING CURB/GUTTER INLET, REMOVE TOP SLAB, INSTALL NEW BRICK STRUCTURE ON TOP OF EXISTING AND INSTALL NEW FRAME AND GRATE (SEE DETAIL SHT. C2.4)
18 EXISTING CURB/GUTTER INLET, REMOVE GUTTER PAN, BRICK OVER OPENING, REMOVE CAST IRON COVER, INSTALL BRICK ON TOP OF EXISTING TOP SLAB TO SUPPORT NEW CAST IRON FRAME AND COVER (MATCH EXISTING).
19 ADJUST ALIGNMENT OF FENCE TO ALLOW FOR 5' OF CLEARANCE AROUND NEW FIRE HYDRANT (SEE SHT. C1.4 FOR LOCATION)
20 EXISTING PAVEMENT TO REMAIN.
21 NEW CAST IRON FRAME AND COVER ON EXISTING MANHOLE. SET TOP FLUSH WITH NEW PAVEMENT. ADJUST CONCRETE CURB AND GUTTER TO ACCOMODATE NEW FRAME AND COVER.
22 LIMIT OF WALK ADJOINING CONC. CURB
23 SIDEWALK RAMP HOWARD COUNTY STANDARD TYPE A ON CURB CURVE SECTION.
24 TRAFFIC BARRIER OPENED TO ACCOMODATE RAMP, 8' WIDE. CURVE SECTION.
25 "GEOBLOCK POROUS PAVEMENT SYSTEM", PRESTO PRODUCTS CO. (920-738-1336) INSTALL AS PER MANUFACTURER'S SPECIFICATION AND INSTALL SOD ON TOP OF SYSTEM.
26 NEW STANDARD ACCESS ROAD GATE (SEE DETAIL SHT.# C2.5).

NOTE

1. DRIVE CROSS SECTIONS SHOWN ON SHT. C2.2.



1 LAYOUT SITE PLAN

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 8/20/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/27/03

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AMT FILE # 102-440

DES: PCF					
DRN: PCF					
CHK: JK					
DATE: 08/06/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

LAYOUT SITE PLAN

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

SCALE AS SHOWN

SHEET C1.3

SHEET 6 OF 23

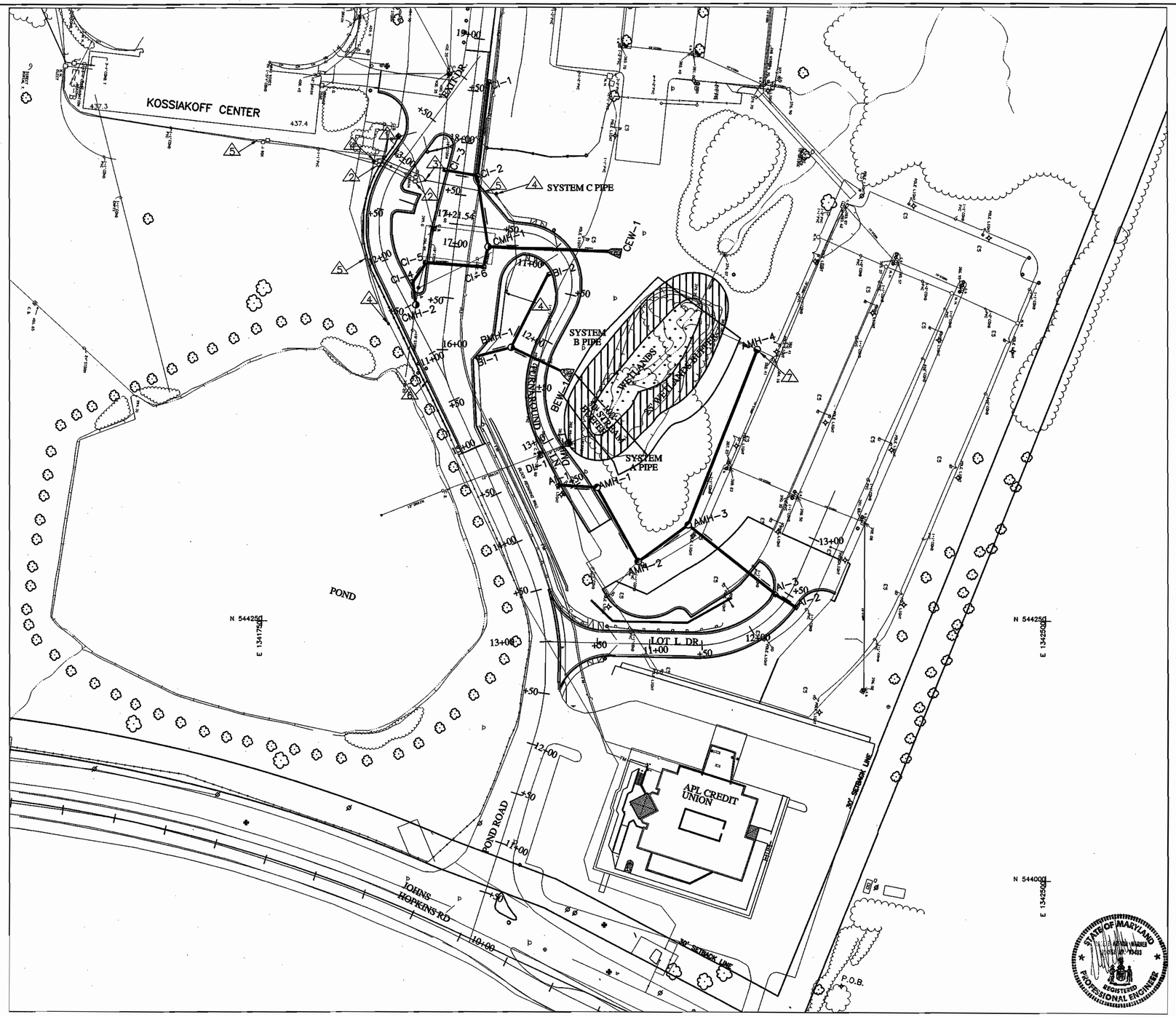
SDP-03-174

KEYED NOTES

1. NEW 8-WAY (4" PVC CONDUIT ENCASED IN CONCRETE) COMMUNICATIONS DUCT BANK WITH 2-4' X 4' X 4' HAND HOLES (SEE ELECTRICAL SHEETS).
2. NEW 4-WAY (4" PVC CONDUIT ENCASED IN CONCRETE) ELECTRICAL DUCT BANK WITH 2-4' X 4' X 4' HAND HOLES (SEE ELECTRICAL SHEETS).
3. NEW POWER /LIGHT POLE WITH FOUR CONNECTION PLUGS TO PROVIDE OVERHEAD ELECTRICAL SERVICE TO PORTABLE BOOTHS, AND WITH PAD MOUNTED TRANSFORMER, CURCUIT PANEL (SEE ELECTRICAL SHEETS).
4. NEW LIGHT POLES WITH 1" PVC CONDUIT FROM POWER POLE TO LIGHT POLES.
5. NEW 1" PVC CONDUIT FOR ELECTRICAL SERVICE.
6. NEW FIRE HYDRANT ON EXISTING 6" DUCTILE IRON PIPE 2' BACK FROM THE FACE OF THE NEW CURB INSTALL TO HOWARD CONTY STANDARDS (STD. #W2.11).
7. CONNECT NEW STORM DRAIN PIPE TO NEW MANHOLE SET ON CUT SECTION OF EXISTING PIPE. SEAL EXISTING CONNECT AROUND THE OUTSIDE OF THE NEW PIPE WITH NON-SHRINK EPOXY GROUTE. CONTRACTOR SHALL VARIFY PIPE ELEVATION WITH A TEST PIT BEFORE ORDERING MANHOLE.

GENERAL NOTES

1. SEED AND ESTABLISH TURF IN ALL DISTURBED TURF AREAS INCLUDING PIPE TRENCHES.
2. SYSTEMS A, B, AND C PIPE PROFILES SHOWN ON SHEET C2.0.
3. PATCH PAVEMENT IN AREA OF TRENCH EXCAVATION AS PER TRENCH RESTORATION DETAIL (SEE SHEET C2.2).



NORTH

1 SITE UTILITY PLAN

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/25/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03

DIRECTOR — DATE

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
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DRN: PCF
CHK: JK
DATE: 08/06/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

SITE UTILITY PLAN

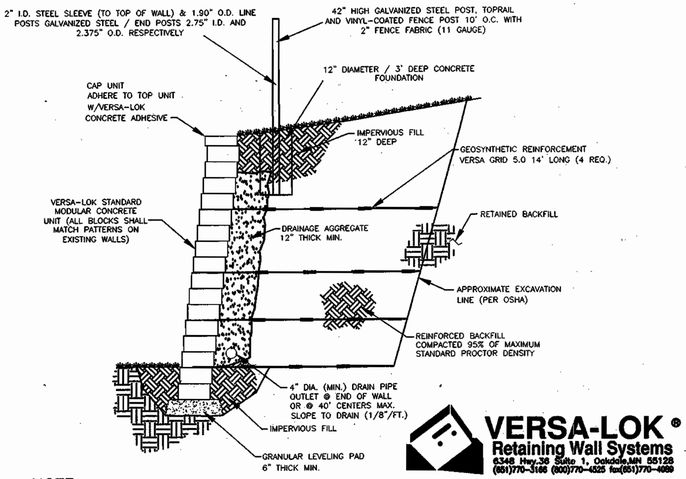
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET C1.4

SHEET 7 OF 23

SDP-03-174



VERSA-LOK ®
Retaining Wall Systems
4348 Hwy 36 Suite 1, Oakdale MN 55128
(651)770-3166 (800)770-4525 fax(651)770-4699

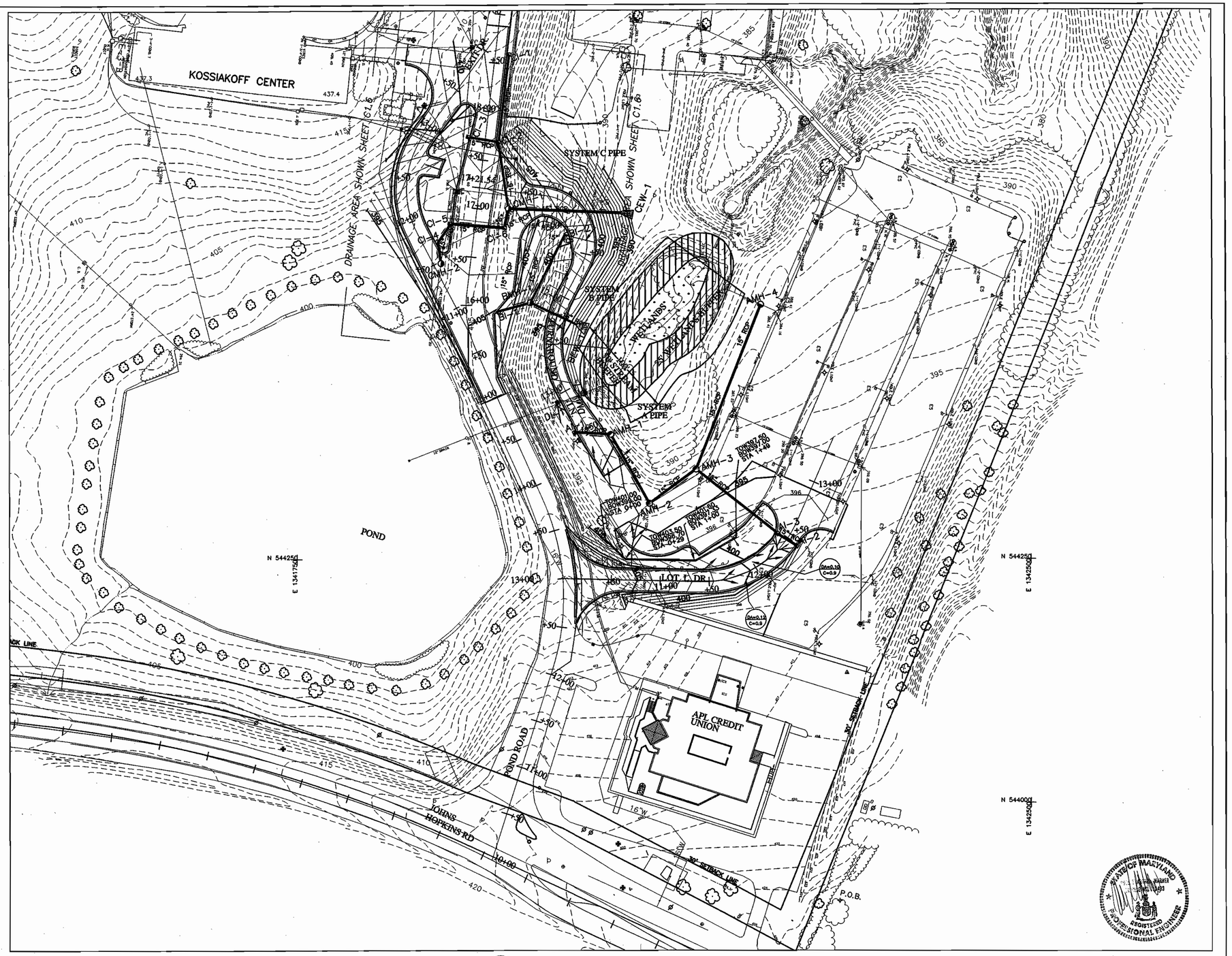
NOTE

1. STYLE AND FINISH SHALL MATCH EXISTING RETAINING WALL PATTERN.
2. WALL SHALL BE INSTALLED AS SPECIFIED BY THE MANUFACTURER OR APPROVED EQUALS.
3. FOUNDATION FILL SHALL BE 6" MINIMUM BASE MATERIAL.
4. SECTION PROVIDED BY VERSA-LOK RETAINING WALL SYSTEMS.

1 TYPICAL RETAINING WALL SECTION
SCALE: NTS

2 RETAINING WALL ELEVATION VIEW
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

NOTE:
1. BOW: BOTTOM OF WALL
2. TOW: TOP OF WALL
3. ELEV: ELEVATION



1 SITE GRADING AND STORM DRAINAGE PLAN
SCALE: 1"=50'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/25/03
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03
DIRECTOR — DATE

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DATE: 08/06/03

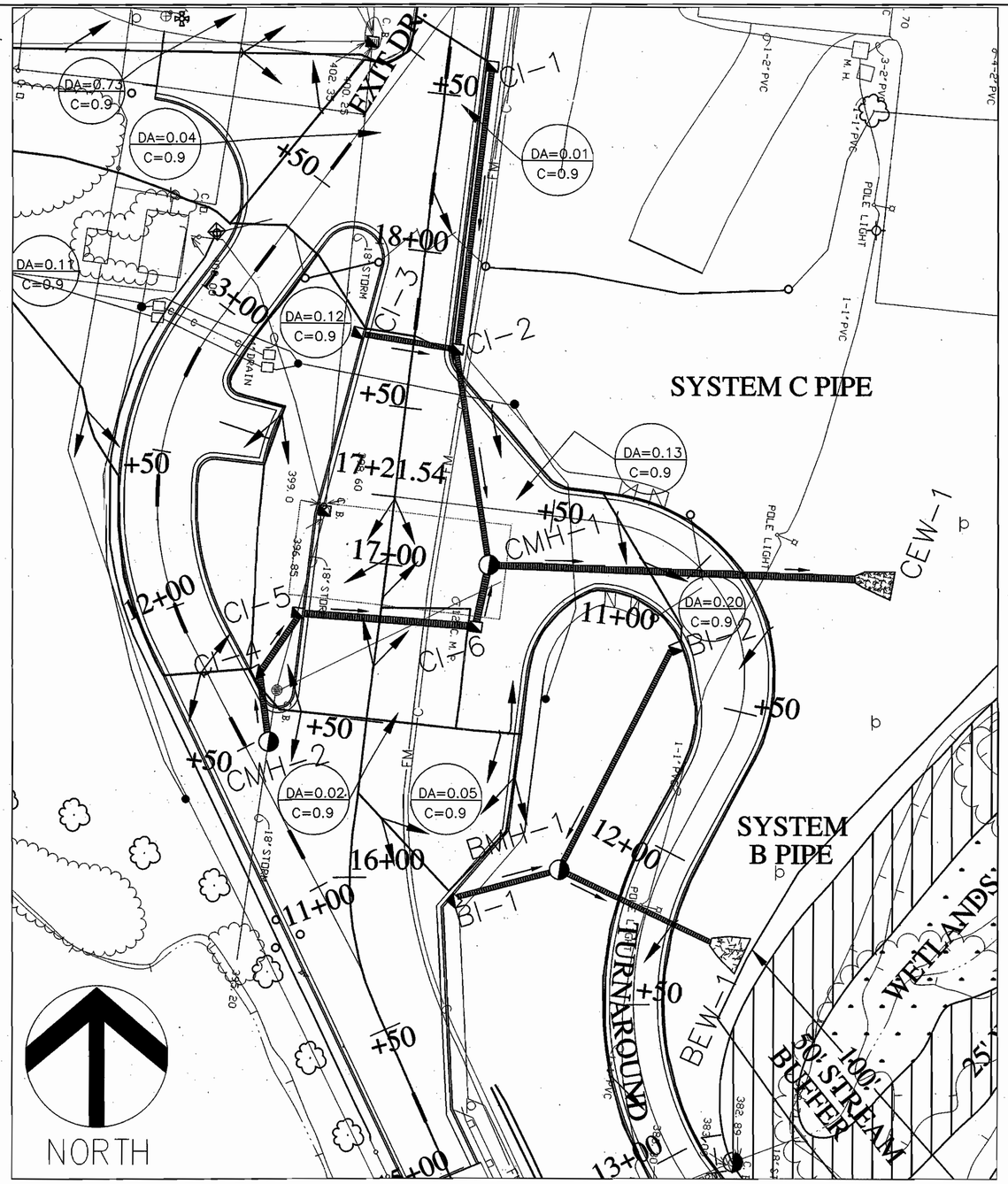
DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
SITE GRADING AND STORM DRAIN PLAN
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C1.5
SHEET 8 OF 23

SDP-08-174

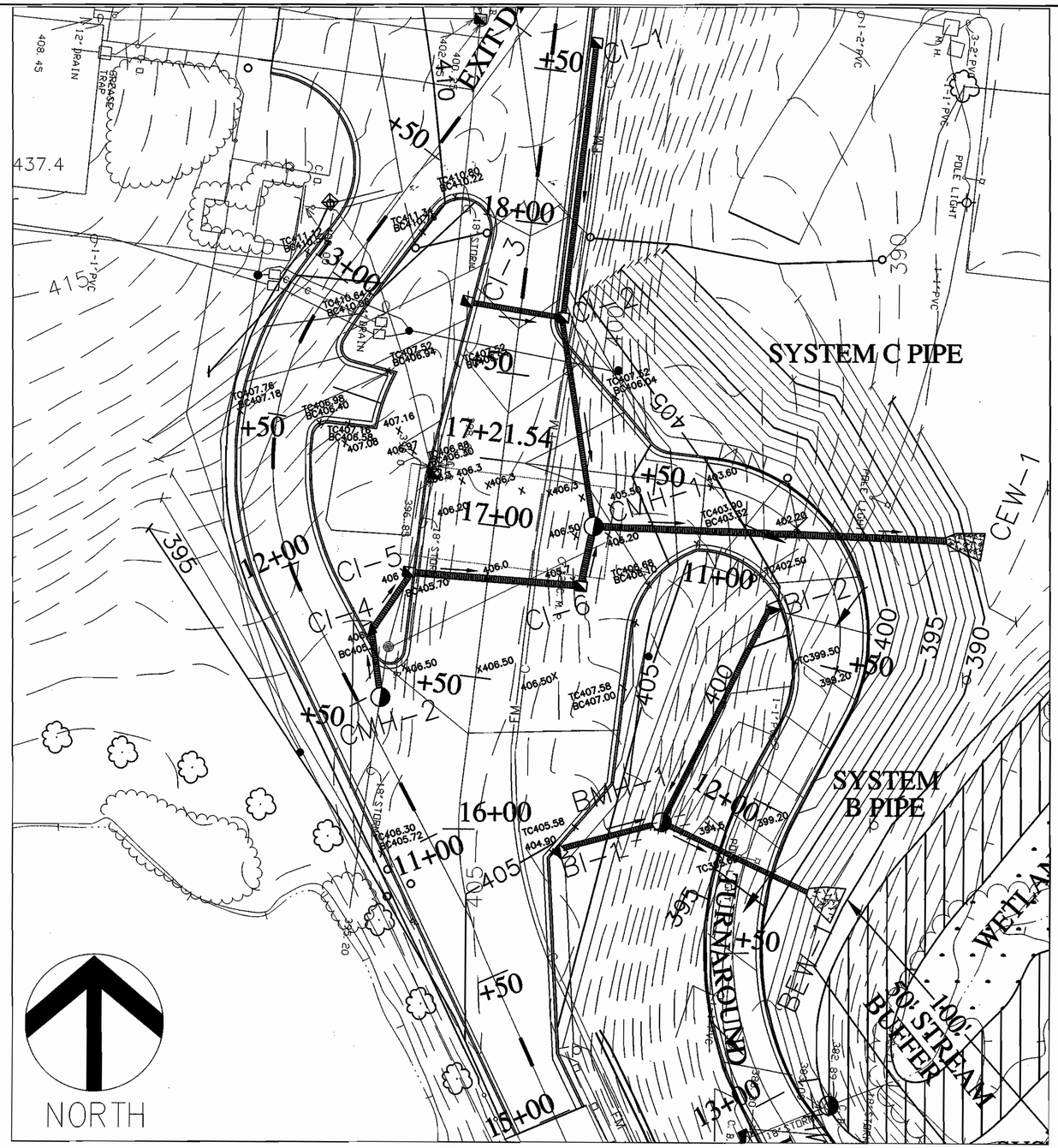


1 C1.6 BOOTH AREA DRAINAGE AREA PLAN

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.



2 C1.6 BOOTH AREA GRADING

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/25/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03

DIRECTOR — DATE

STATE OF MARYLAND — PAUL CHRISTOPHER FISHER — REGISTERED PROFESSIONAL ENGINEER

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DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

BOOTH AREA

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

SCALE AS SHOWN

SHEET C1.6

SHEET 9 OF 23

SDP-03-174

LEGEND

- EXISTING CONTOUR
- TREELINE
- DRAINAGE AREA
- 100 YEAR FLOODPLAIN
- STREAM SYSTEM
- WETLANDS
- STREAMS
- DRAINAGE DITCH
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- 8" SAN. EXISTING SANITARY SEWER
- 8" SAN. PROPOSED SANITARY SEWER
- 12" W EXISTING WATER
- 12" W PROPOSED WATER
- 18" RCP EXISTING STORM DRAIN
- 18" SD PROPOSED STORM DRAIN
- SOILS CLASSIFICATION
- CATCH BASIN
- EXISTING MANHOLE
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED MANHOLE
- EXISTING POST INDICATOR VALVE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING CLEANOUT
- PROPOSED STORM DRAIN CATCH BASIN
- DRAINAGE AREA DISCHARGE POINT

NORTH

E 1343800
N 500250

RIVERSIDE ESTATES RESIDENTIAL DEVELOPMENT

VILLAGE OF CEDAR RIDGE RESIDENTIAL DEVELOPMENT

HALLMARK RESIDENTIAL AREA

MONTPELIER RESEARCH PARK

DRAINAGE AREA D

POND ROAD ENTRANCE DRAINAGE AREA

BASIN 'A' EXISTING BASIN RESTRUCTURED F-02-49

BASIN 'B'

SDP# 80-214

SDP# 82-118

SDP# 87-03

SDP# 82-116

PROJECT AREA

DA 0.73 AC EX INLET

JOHNS HOPKINS ROAD

SANNER ROAD

WESTVACO CORPORATION BUILDING SITE 8

SEE DETAIL B

100 YEAR FLOOD PLAIN AND DRAINAGE EASEMENT

100 YEAR FLOOD PLAIN

PARK AREA

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
AREA = 15,681,600 SQ.FT. OR 360.00 AC.

0 200' 400' 600'

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. Loesch — 6/18/03 — 8/6/03
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 DISTRICT."

SIGNATURE OF ENGINEER / PRINT NAME BELOW SIGNATURE / DATE

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

Jim Mayer — 9/12/03
USDA-NATURAL RESOURCES CONSERVATION SERVICE / DATE

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

John R. Robertson — 9/12/03
HOWARD SOIL CONSERVATION DISTRICT / DATE

VICINITY MAP
SCALE: 1"=2000'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/10/03
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03
DIRECTOR — DATE 8/25/03

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL. (301) 881-2565 FAX (301) 881-0864
AMT FILE # 102-449

DES: PCF
DRN: PCF
CHK: RAW
DATE: 08/06/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

OVERALL DRAINAGE AREA MAP

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

SCALE AS SHOWN

SHEET C1.7

SHEET 10 OF 23

SDP-03-174

EROSION CONTROL LEGEND

SCE	STABILIZED CONSTRUCTION ENTRANCE
SSF	SILT FENCE
LOD	LIMIT OF DISTURBANCE
CIP	CURB INLET PROTECTION
TP	TREE PROTECTION

NORTH

NOTE:

1. CONSTRUCTION PHASING SEE SHT. C1.9
2. SEQUENCE OF CONSTRUCTION SEE SHT. C2.6

SEDIMENT CONTROL

( ) BY THE DEVELOPER:
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James E. Loesch — 6/18/03
SIGNATURE OF DEVELOPER — DATE
James E. Loesch JEL — 8/6/03
PRINT NAME BELOW SIGNATURE

( ) BY THE ENGINEER:
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SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE

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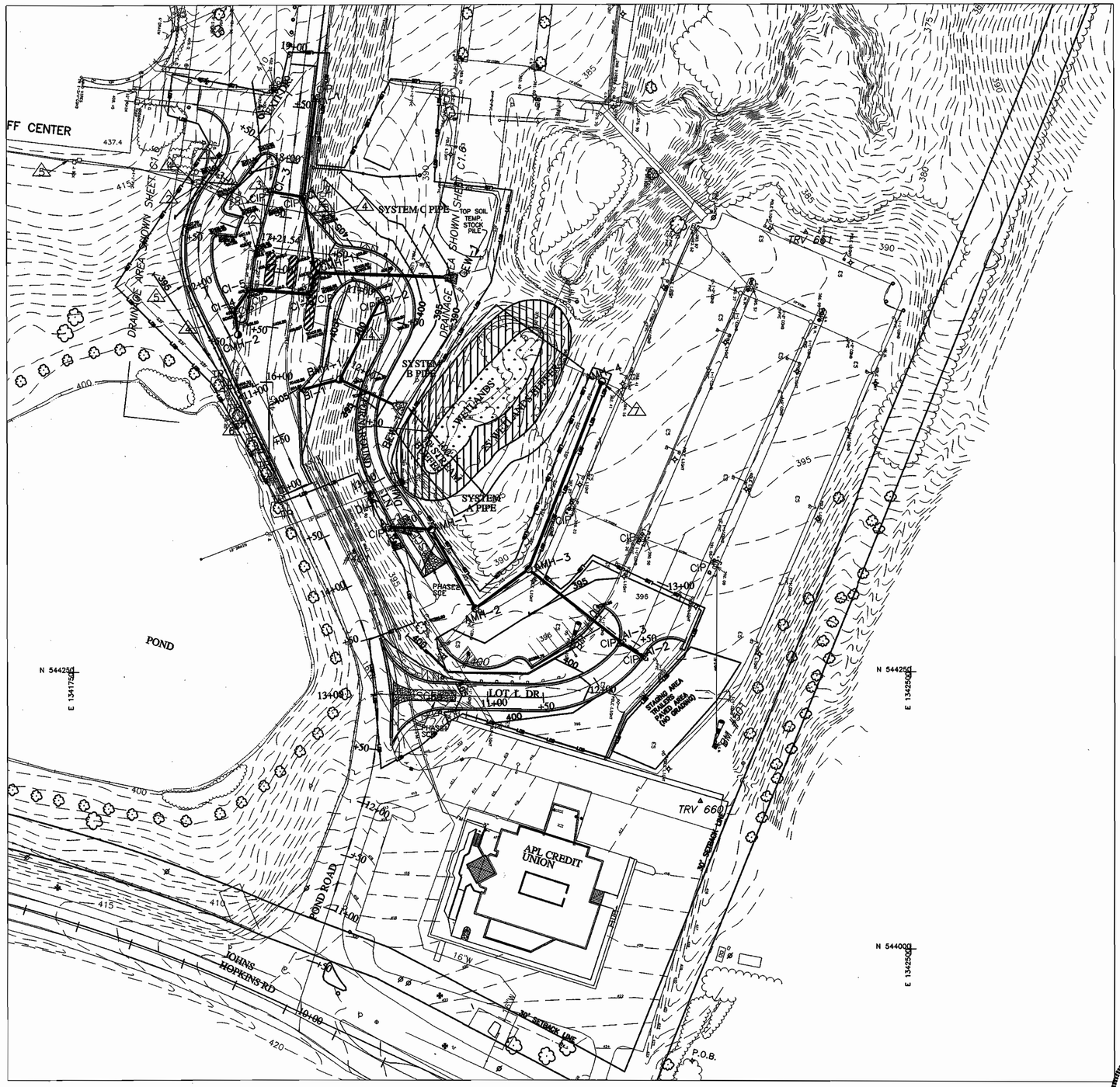
Lisa Myers — 8/12/03
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

John R. Robertson — 8/12/03
HOWARD SOIL CONSERVATION DISTRICT — DATE



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

1 SEDIMENT CONTROL PLAN

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 8/20/03
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8/25/03
DIRECTOR	DATE 8/27/03

STATE OF MARYLAND — ROBERT NATHAN WARNER — No. 19433 — REGISTERED PROFESSIONAL ENGINEER

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL (301) 881-2565 FAX (301) 881-4014
AMT FILE # 102-449

DES: JK
DRN: JK
CHK: PCF
DATE: 08/06/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

SEDIMENT CONTROL PLAN

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

SCALE AS SHOWN
SHEET C1.8
SHEET 11 OF 23

SDP-03-174

LEGEND

SCE — STABILIZED CONSTRUCTION ENTRANCE

CONSTRUCTION AREA

SEQUENCE OF CONSTRUCTION / MAINTENANCE OF TWO-WAY TRAFFIC

1. ONCE NOTICE TO PROCEED IS OBTAINED, CONTRACTOR SHALL FOLLOW SEQUENCE OF CONSTRUCTION AS DESCRIBED ON SHEET C2.6.
2. ALL PHASE I WORK SHALL BE COMPLETELY INSPECTED AND APPROVED BY JHU/APL BEFORE THE START OF PHASE II. ALLOW FOR A 30-DAY GRACE PERIOD IN BETWEEN PHASE I AND II TO COMPLETE ALL PUNCH-LIST ITEMS.
3. INSTALL MANHOLE CMH-2 ON EXISTING PIPE AND MAINTAIN FLOW TO EXISTING CATCH BASIN.
4. AFTER RECEIVING NOTICE TO PROCEED FOR ALL PHASE II WORK, CONTRACTOR SHALL FOLLOW THE SEQUENCE OF CONSTRUCTION AS DESCRIBED ON SHEET C2.6.
5. ALL TRAFFIC MAY BE ROUTED THROUGH THE EXIT DRIVE DURING PHASE II WORK. CONTRACTOR SHALL MAINTAIN 2-WAY TRAFFIC MONDAY-FRIDAY. DURING PHASE II WORK, POND ROAD MAY BE CLOSED ON WEEKENDS ONLY WITH WRITTEN APPROVAL FROM JHU/APL. ALLOW 30 DAYS FOR WRITTEN APPROVAL.
6. PHASE II WORK SHALL BE COMPLETED AS SHOWN. COMPLY WITH CLOSURE REQUIREMENTS SPECIFIED IN THE SEQUENCE OF CONSTRUCTION SHEET C2.6.

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 Loesch — 6/18/03
SIGNATURE OF DEVELOPER — DATE
James E Loesch JEL — 8/6/03
PRINT NAME BELOW SIGNATURE

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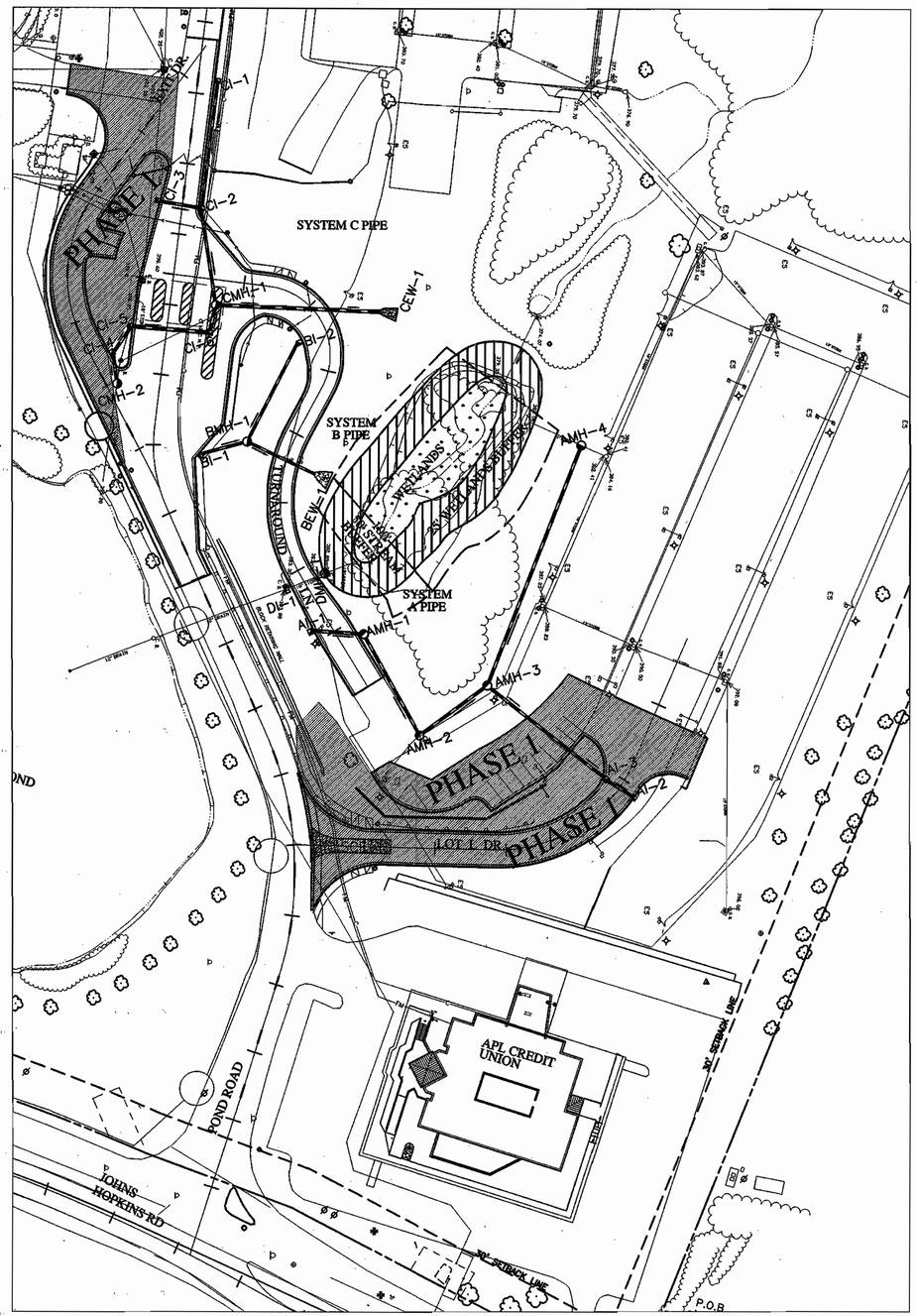
SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE

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

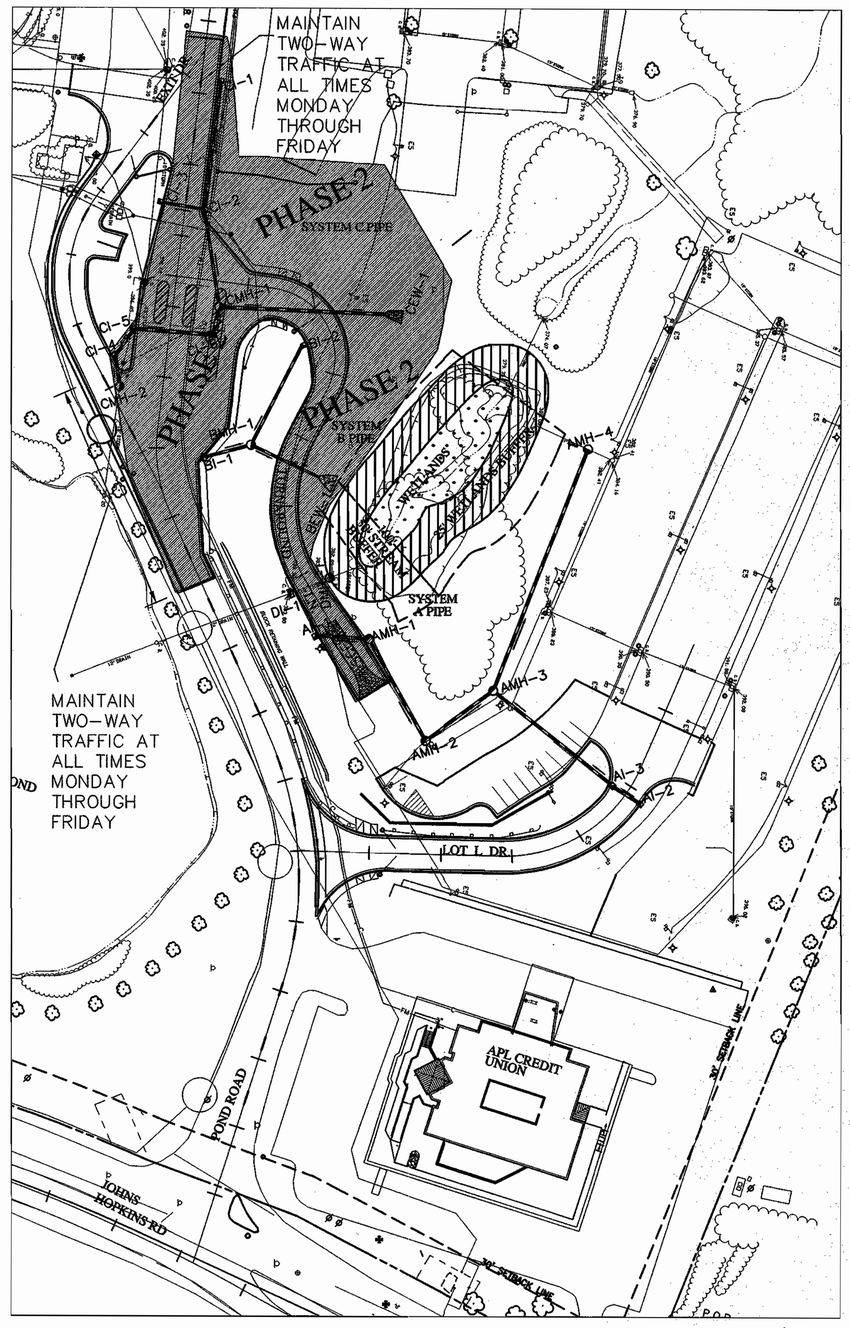
Jim Mayer — 8/12/03
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

John L Robertson — 8/14/03
HOWARD SOIL CONSERVATION DISTRICT — DATE



1 PHASE 1 CONSTRUCTION AREA PLAN
SCALE: 1"=50'



2 PHASE 2 CONSTRUCTION AREA PLAN
SCALE: 1"=50'

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/25/03
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03
DIRECTOR — DATE

NORTH

STATE OF MARYLAND — FOREST ARTHUR WARNER — LICENSE NO. 21301 — REGISTERED PROFESSIONAL ENGINEER

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 100, ROCKVILLE MD 20852
TEL (301) 881-2565 FAX (301) 881-0814
AMT FILE # 102-440

DES: P. FRIAS						
DRN: P. FRIAS						
CHK: J. KASPA						
DATE: 08/06/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

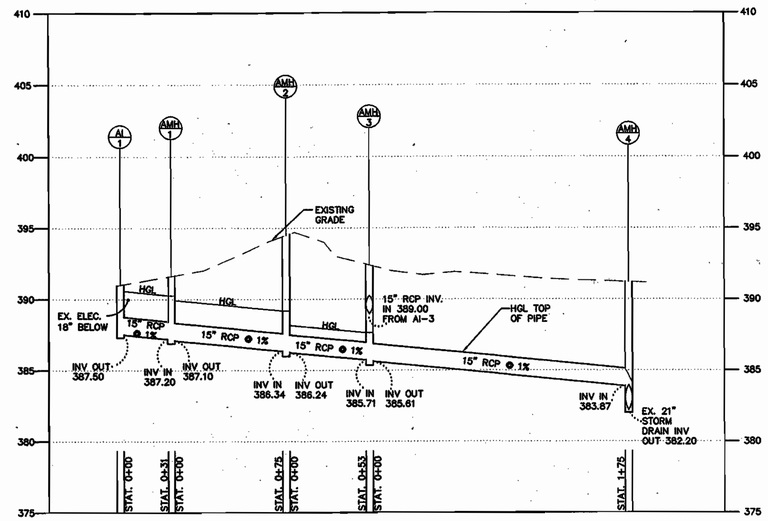
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
CONSTRUCTION PHASING PLAN
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

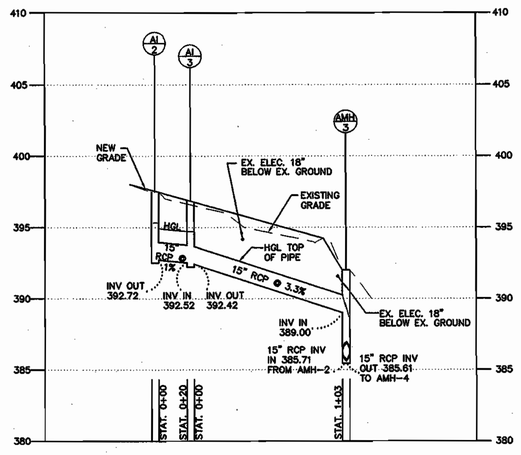
SHEET C1.9

SHEET 12 OF 23

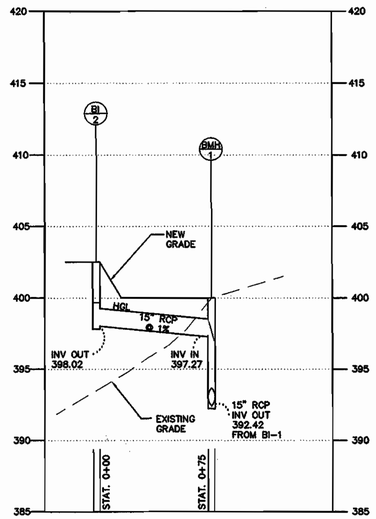
SDP-03-174



1 SYSTEM A PIPE PROFILE A ALONG PARKING LOT
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'



2 SYSTEM A PIPE PROFILE B ALONG PARKING LOT
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'



3 SYSTEM B PIPE PROFILE C
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

SEDIMENT CONTROL

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

James E. Loesch — 6/18/03
SIGNATURE OF DEVELOPER — DATE
James E. Loesch
PRINT NAME BELOW SIGNATURE

( ) BY THE ENGINEER:
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8/6/03
SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE

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Jim Myers — 8/12/03
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

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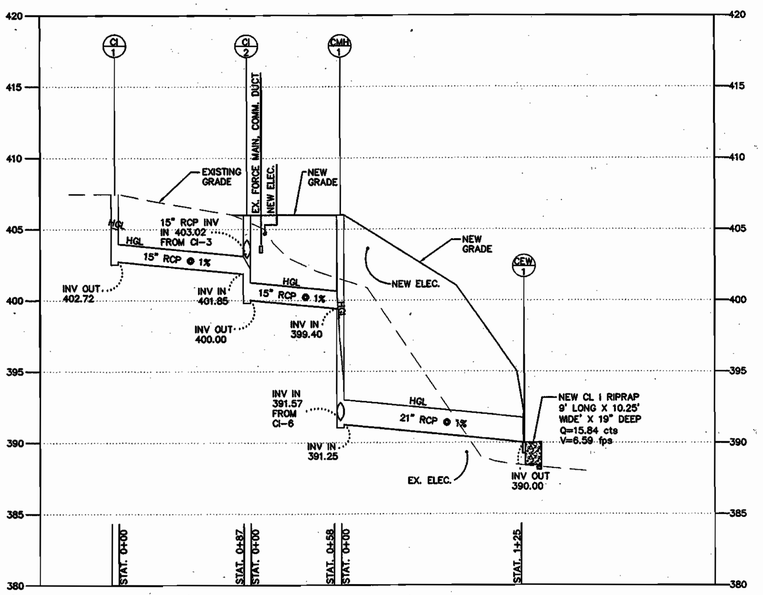
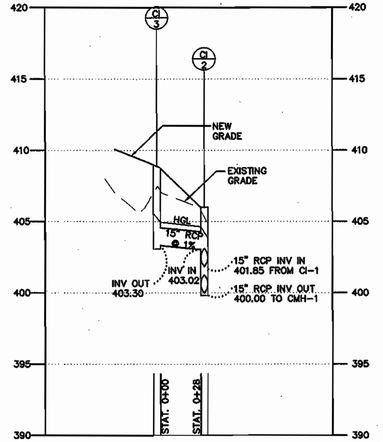
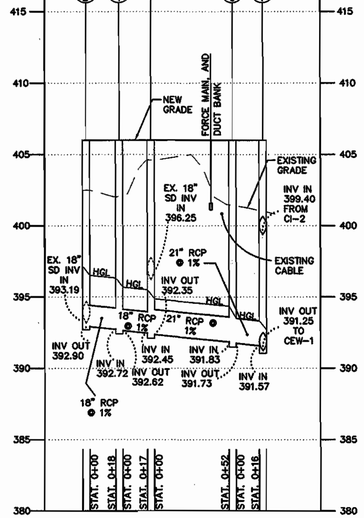
8/12/03
HOWARD SOIL CONSERVATION DISTRICT — DATE



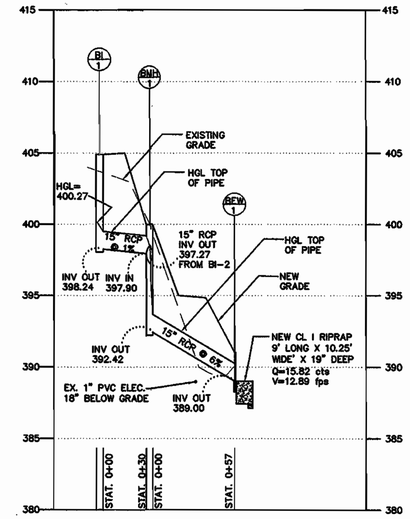
4 SYSTEM C PIPE PROFILE E
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'



5 SYSTEM C PIPE PROFILE F
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'



6 SYSTEM C PIPE PROFILE G
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'



7 STSTEM B PIPE PROFILE D
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

NOTES:
1. ALL RCP PIPE SHALL BE CLASS V

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/25/03
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03
DIRECTOR — DATE 8/27/03

STATE OF MARYLAND — PAUL ANTHONY FRIAS — 21663 — REGISTERED PROFESSIONAL ENGINEER

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 320, ROCKVILLE MD 20852
TEL (301) 881-2565 FAX (301) 881-0814
AMT FILE # 102-440

DES: P. FRIAS
DRN: P. FRIAS
CHK: J. KASPA
DATE: 08/06/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
STORM DRAINAGE PIPE PROFILES
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C2.0
SHEET 13 OF 23

SDP-03-174

STORM DRAIN PIPE SCHEDULE

SYSTEM A

FROM	TO	SIZE	LENGTH	SLOPE	FLOW	10-YR	VELOCITY	PIPE
		(inches)	(feet)	%	CAP.(cfs)	Q (cfs)	(fps)	type
AI-1	AMH-1	15"	31	1%	6.46	1.56	5.26	RCP
AMH-1	AMH-2	15"	75	1%	6.46	1.56	5.26	RCP
AMH-2	AMH-3	15"	53	1%	6.46	1.56	5.26	RCP
AMH-3	AMH-4	15"	175	1%	6.46	3.27	5.26	RCP
AMH-3	AI-3	15"	103	3.3%	6.46	1.71	9.56	RCP
AI-3	AI-2	15"	20	1%	6.46	0.92	5.26	RCP

SYSTEM B

FROM	TO	SIZE	LENGTH	SLOPE	FLOW	10-YR	VELOCITY	PIPE
		(inches)	(feet)	%	CAP.(cfs)	Q (cfs)	(fps)	type
BI-1	BMH-1	15"	30	1%	0.38	6.46	5.26	RCP
BMH-1	BEW-1	15"	57	6%	1.38	15.82	12.89	RCP
BMH-1	BI-2	15"	75	1%	0.99	6.46	5.26	RCP

SYSTEM C

FROM	TO	SIZE	LENGTH	SLOPE	FLOW	10-YR	VELOCITY	PIPE
		(inches)	(feet)	%	CAP.(cfs)	Q (cfs)	(fps)	type
CI-1	CI-2	15"	87	1%	6.46	1.61	5.26	RCP
CI-2	CMH-1	15"	58	1%	6.46	1.68	5.26	RCP
CMH-1	CEW-1	21"	125	1%	6.59	12.07	6.59	RCP
CMH-2	CI-4	18"	18	1%	10.50	3.83	5.94	RCP
CI-4	CI-5	18"	17	1%	10.50	4.67	5.94	RCP
CI-5	CI-6	21"	52	1%	15.84	10.24	6.59	RCP
CI-6	CMH-1	21"	16	1%	15.84	10.39	6.59	RCP
CI-3	CI-2	15"	28	1%	6.46	0.31	5.26	RCP

NOTE:

1. ALL RCP SHALL BE CLASS V, ASTM C76

STORM DRAIN STRUCTURE SCHEDULE

SYSTEM A

STRUC. NO.	TYPE	STANDARD NO.	TOP ELEVATION	SIZE (ft)	INV. IN	INV. OUT	COMMENT
AI-1	INLET	HOWARD CO. DPW TYPE "A-10' INLET / SD-4.02	392.42	--	--	387.50	PRECAST CONCRETE INLET
AI-2	INLET	HOWARD CO. DPW TYPE "A-10' INLET / SD-4.02	398.26	--	--	392.72	PRECAST CONCRETE INLET
AI-3	INLET	HOWARD CO. DPW TYPE "A-10' INLET / SD-4.02	398.26	--	392.52	392.42	PRECAST CONCRETE INLET
AMH-1	MANHOLE	SHA #MD-384.01	392.00	--	387.20	387.10	PRECAST MANHOLE
AMH-2	MANHOLE	SHA #MD-384.01	395.00	--	386.34	386.24	PRECAST MANHOLE
AMH-3	MANHOLE	SHA #MD-384.01	393.00	--	389.00 385.71	385.61	PRECAST MANHOLE
AMH-4	MANHOLE	SHA #MD-384.01	391.49	--	383.87	382.20	PRECAST MANHOLE

SYSTEM B

STRUC. NO.	TYPE	STANDARD NO.	TOP ELEVATION	SIZE (ft)	INV. IN	INV. OUT	COMMENT
BI-1	INLET	HOWARD CO. DPW TYPE "A-10' INLET / SD-4.02	405.40	--	--	398.24	PRECAST CONCRETE INLET
BMH-1	MANHOLE	SHA #MD-384.01	400.00	--	397.90 397.27	392.42	PRECAST MANHOLE
BI-2	INLET	HOWARD CO. DPW TYPE "A-10' INLET / SD-4.02	400.50	--	--	398.02	PRECAST CONCRETE INLET
BEW-1	ENDWALL	HOWARD CO. DPW TYPE "C" ENDWALL / SD-5.21	396.00	--	--	389.00	STANDARD TYPE C ENDWALL

SYSTEM C

STRUC. NO.	TYPE	STANDARD NO.	TOP ELEVATION	SIZE (ft)	INV. IN	INV. OUT	COMMENT
CI-1	INLET	HOWARD CO. DPW TYPE "A-10' INLET / SD-4.02	408.20	--	--	402.72	PRECAST CONCRETE INLET
CI-2	INLET	HOWARD CO. DPW TYPE "A-10' INLET / SD-4.02	408.46	--	403.02 401.85	400.00	PRECAST CONCRETE INLET
CI-3	INLET	HOWARD CO. DPW TYPE "A-10' INLET / SD-4.02	408.46	--	--	403.30	PRECAST CONCRETE INLET
CI-4	INLET	HOWARD CO. DPW TYPE "A-10' INLET / SD-4.02	406.00	--	392.72	392.62	PRECAST CONCRETE INLET
CI-5	INLET	HOWARD CO. DPW TYPE "A-10' INLET / SD-4.02	406.00	--	396.25 392.45	392.35	PRECAST CONCRETE INLET
CI-6	INLET	HOWARD CO. DPW TYPE "I" INLET / SD-4.22	405.70	--	391.83	391.73	PRECAST CONCRETE INLET
CMH-1	MANHOLE	SHA #MD-384.01	406.40	--	399.40 391.57	391.25	PRECAST MANHOLE
CMH-2	MANHOLE	SHA #MD-384.01	405.70	--	EX. 393.19	392.90	PRECAST MANHOLE
CEW-1	ENDWALL	HOWARD CO. DPW TYPE "C" ENDWALL / SD-5.21	392.00	--	--	390.00	STANDARD TYPE C ENDWALL

NOTE:

1. TOP ELEVATION IS TOP OF SLAB AT CURB FACE FOR CURB INLETS AND TOP OF GRATE FOR TYPE "I" INLETS.

STORM DRAIN COMPUTATION SHEET

COMPUTED BY: PCF DATE: 03/03 PROJECT: APL-JHU PERIMETER ROAD

CHECKED BY: JK DATE: 03/03 STORM FREQUENCY: 10-YEAR

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

PIPE STRUCTURE		DRAINAGE AREA		RUNOFF COEFF.	"AREA"X"C"		TIME OF CONC.	RAINFALL INTENSITY	RUNOFF "Q"	PIPE DIAMETER	PIPE LENGTH	MIN. PIPE	ACTUAL PIPE	VELOCITY	TIME IN PIPE	PIPE "Q" CAPACITY
FROM	TO	INC (AC)	TOTAL (AC)	"C"	INC (AC)	TOTAL (AC)	SYSTEM (MIN)	"I" (IN/HR)	(CFS)	(IN)	(ft)	SLOPE (1/f)	SLOPE (1/f)	(FPS)	(MIN)	(CFS)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
AI-1	AMH-1	0.20	0.20	0.9	0.18	0.18	5.00	8.50	1.56	15	31	0.001	0.010	5.26	0.10	6.46
AMH-1	AMH-2	0.00	0.20	0.9	0.00	0.18	5.00	8.50	1.56	15	75	0.001	0.010	5.26	0.24	6.46
AMH-2	AMH-3	0.00	0.20	0.9	0.00	0.18	5.00	8.50	1.56	15	53	0.001	0.010	5.26	0.17	6.46
AMH-3	AMH-4	0.00	0.43	0.9	0.00	0.38	5.00	8.50	3.27	15	175	0.003	0.010	5.26	0.55	6.46
AI-2	AI-3	0.12	0.12	0.9	0.11	0.11	5.00	8.50	0.92	15	20	0.000	0.010	5.26	0.06	6.46
AI-3	AMH-3	0.10	0.22	0.9	0.09	0.20	5.00	8.50	1.71	15	103	0.001	0.033	9.56	0.18	11.73
BI-1	BMH-1	0.05	0.05	0.9	0.05	0.05	5.00	8.50	0.38	15	30	0.000	0.010	5.26	0.10	6.46
BMH-1	BEW-1	0.00	0.18	0.9	0.00	0.16	5.00	8.50	1.38	15	57	0.000	0.060	12.89	0.07	15.82
BI-2	BMH-1	0.13	0.13	0.9	0.12	0.12	5.00	8.50	0.99	15	75	0.000	0.010	5.26	0.24	6.46
CI-1	CI-2	0.21	0.21	0.9	0.19	0.19	5.00	8.50	1.61	15	87	0.001	0.010	5.26	0.28	6.46
CI-2	CMH-1	0.01	0.26	0.9	0.01	0.20	5.00	8.50	1.68	15	58	0.001	0.010	5.26	0.18	6.46
CMH-1	CEW-1	0.00	1.74	0.9	0.00	1.42	5.00	8.50	12.07	21	125	0.006	0.010	6.59	0.32	15.84
CI-3	CI-2	0.04	0.04	0.9	0.04	0.04	5.00	8.50	0.31	15	28	0.000	0.010	5.26	0.09	6.46
CMH-2	CI-4	0.00	0.50	0.9	0.00	0.45	5.00	8.50	3.83	18	18	0.001	0.010	5.94	0.05	10.50
CI-4	CI-5	0.11	0.61	0.9	0.10	0.55	5.00	8.50	4.67	18	17	0.002	0.010	5.94	0.05	10.50
CI-5	CI-6	0.12	1.46	0.9	0.11	1.20	5.00	8.50	10.24	21	52	0.004	0.010	6.59	0.13	15.84
CI-6	CMH-1	0.02	1.48	0.9	0.02	1.22	5.00	8.50	10.39	21	16	0.004	0.010	6.59	0.04	15.84
EX. 18"SD	CI-5	0.73	0.73	0.75	0.02	0.55	0.55									

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 Loesch 6/18/03
SIGNATURE OF DEVELOPER DATE
PRINT NAME BELOW SIGNATURE JEL 6/6/03

( ) 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 8/12/03 DATE

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

HOWARD SOIL CONSERVATION DISTRICT 8/12/03 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE 8/20/03

CHIEF, DIVISION OF LAND DEVELOPMENT DATE 8/25/03

DIRECTOR DATE 8/27/03

STATE OF MARYLAND — PROFESSIONAL ENGINEER — REGISTERED

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 # 102-440

DES: P. FRIAS
DRN: P. FRIAS
CHK: J. KASPA
DATE: 08/06/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

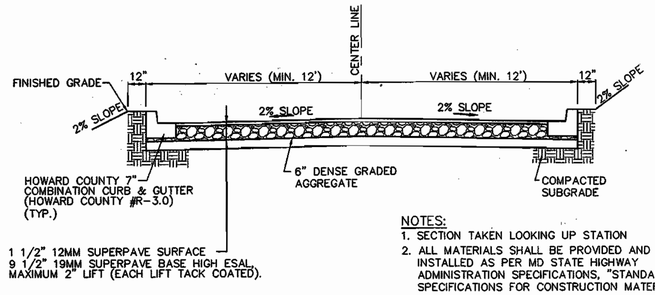
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
STORM DRAINAGE SCHEDULES
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET C2.1

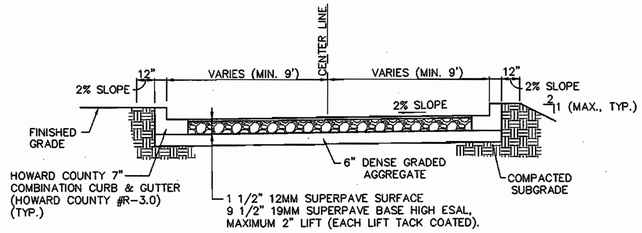
SHEET 14 OF 23

SDP-03-174



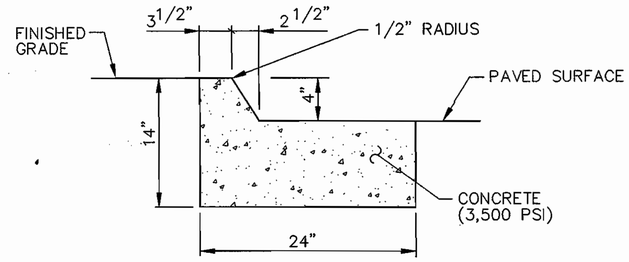
NOTES:
1. SECTION TAKEN LOOKING UP STATION
2. ALL MATERIALS SHALL BE PROVIDED AND INSTALLED AS PER MD STATE HIGHWAY ADMINISTRATION SPECIFICATIONS, "STANDARD SPECIFICATIONS FOR CONSTRUCTION MATERIALS"
3. SEED AND ESTABLISH TURF ON ALL DISTURBED AREAS.

TYPICAL DRIVE SECTION
STATION 15+00 TO 15+75 POND ROAD
STATION 17+50 19+00 POND ROAD
STATION 11+00 TO 13+00 EXIT DRIVE
STATION 10+15 TO 12+75 LOT L DRIVE
1 / C2.2 — SCALE: 1/4"=1'-0"

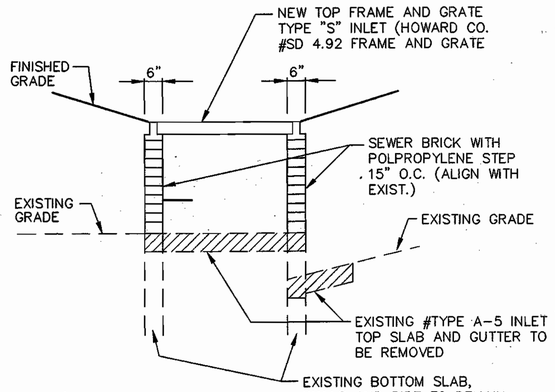


NOTES:
1. SECTION TAKEN LOOKING UP STATION
2. ALL MATERIALS SHALL BE PROVIDED AND INSTALLED AS PER MD STATE HIGHWAY ADMINISTRATION SPECIFICATIONS, "STANDARD SPECIFICATIONS FOR CONSTRUCTION MATERIALS"
3. SEED AND ESTABLISH TURF ON ALL DISTURBED AREAS.

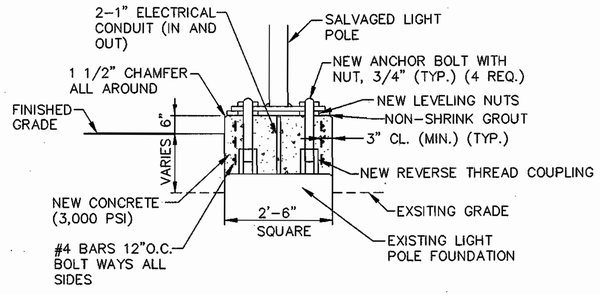
2 / C2.2 — TYPICAL DRIVE SECTION
STATION 10+50 TO 14+00 TURN-AROUND LANE
SCALE: 1/4"=1'-0"



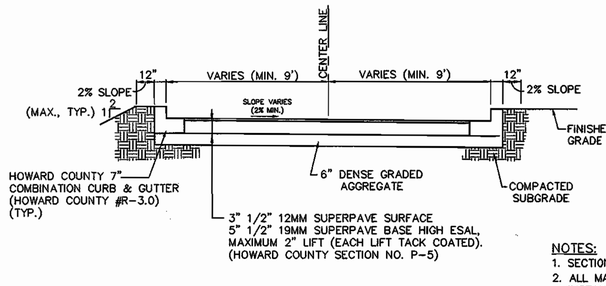
3 / C2.2 — TYPICAL SECTION APL
ROLLED CURB AND GUTTER
SCALE: 1/4"=1'-0"



4 / C2.5 — TYPICAL SECTION RAISER
TOP STORM DRAIN INLET
SCALE: 1/2"=1'-0"



5 / C2.2 — TYPICAL SECTION TO RAISE
LIGHT POLE FOUNDATION
SCALE: 1/2"=1'-0"



NOTES:
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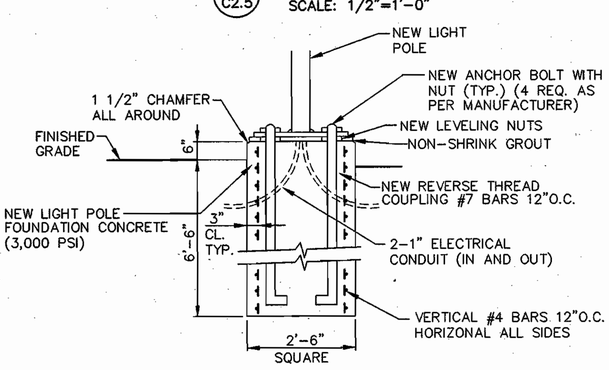
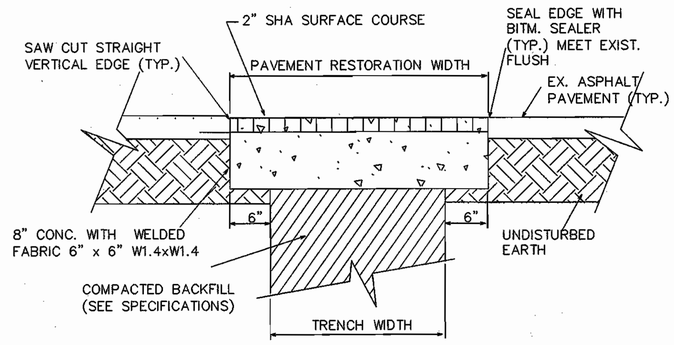
3. SEED AND ESTABLISH TURF ON ALL DISTURBED AREAS.

6 / C2.2 — TYPICAL DRIVE SECTION
STATION 11+00 TO STATION
13+00 EXIT DRIVE
SCALE: 1/4"=1'-0"



7 / C2.2 — TYPICAL SECTION NEW
LIGHT POLE FOUNDATION
SCALE: 1/2"=1'-0"



NOTES:
1. WHEN PATCHING PAVEMENT WITH ASPHALT, A NEAT, CLEAN JOINT BETWEEN OLD AND NEW PAVEMENT SHALL BE PROVIDED FOR PAVEMENT RESTORATION.
2. WHEN THE UTILITY TRENCH REQUIRES SHEETING AND SHORING, A WIDER WIDTH SHALL BE PROVIDED BY THE CONTRACTOR TO ACCOMMODATE A TRENCH BOX.
3. PROVIDE AND INSTALL ALL MATERIALS AS PER LATEST EDITION OF MARYLAND DEPT. OF TRANSPORTATION SHA SPECIFICATIONS FOR HIGHWAY STRUCTURES.
4. ALL EXPOSED EDGES OF EXISTING BITUMINOUS SURFACE COURSE AND BASE COURSE SHALL BE TACK COATED BEFORE THE BITUMINOUS MIXTURE IS PLACED.

8 / C2.2 — PAVEMENT RESTORATION DETAIL
SCALE: 3/4"=1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/26/03
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03
DIRECTOR — DATE 8/25/03

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL (301) 881-2565 FAX (301) 881-4814
AMT FILE # 102-446

DES: PCF
DRN: PCF
CHK: PCF
DATE: 08/06/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

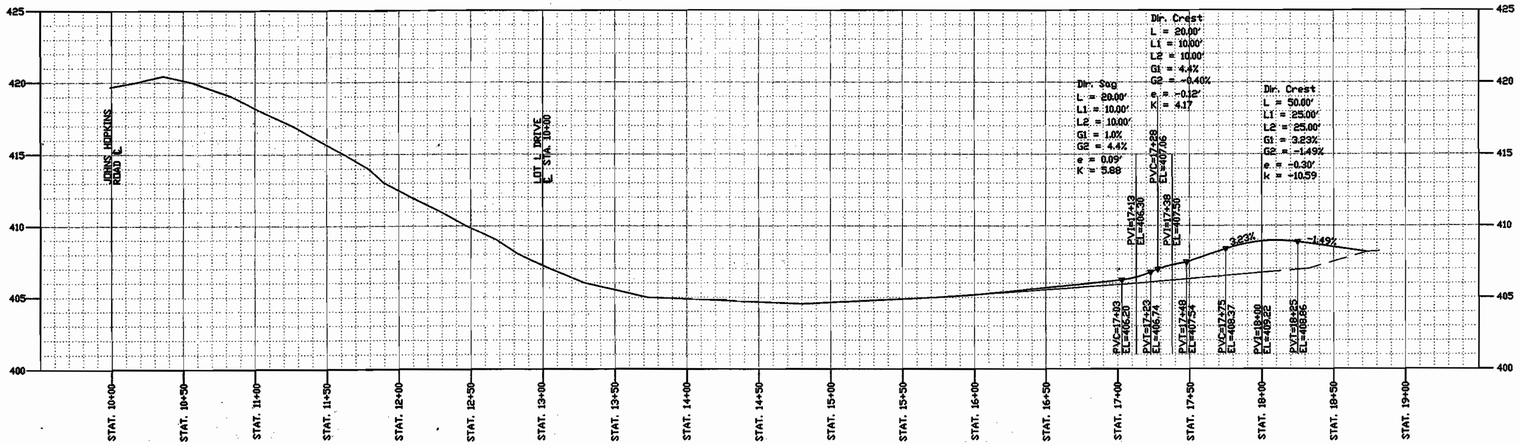
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

TYPICAL DRIVE SECTIONS

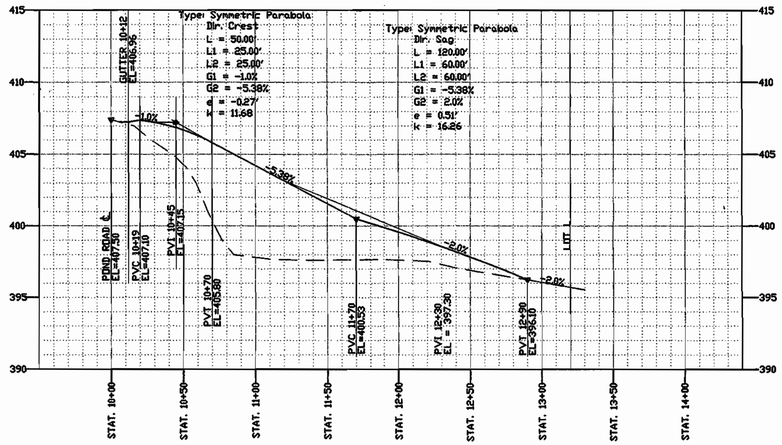
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C2.2
SHEET 15 OF 23

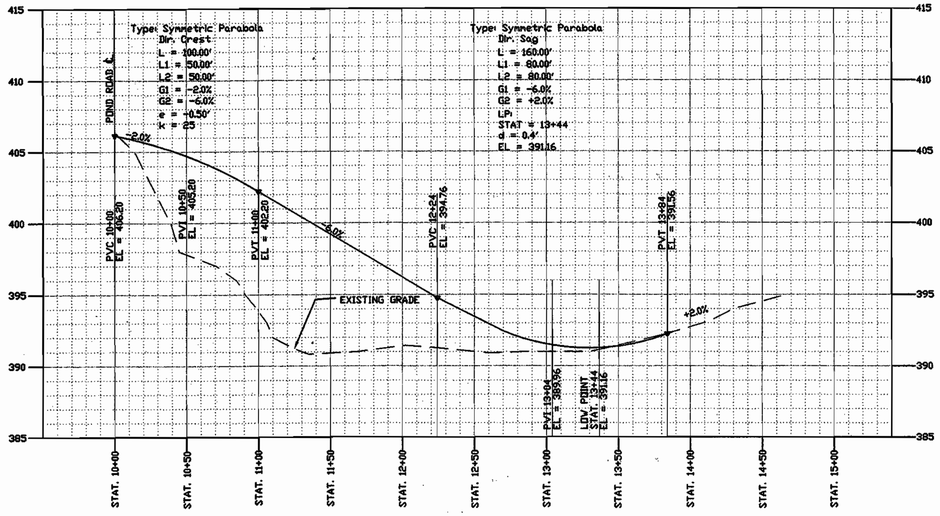
SDP-03-174



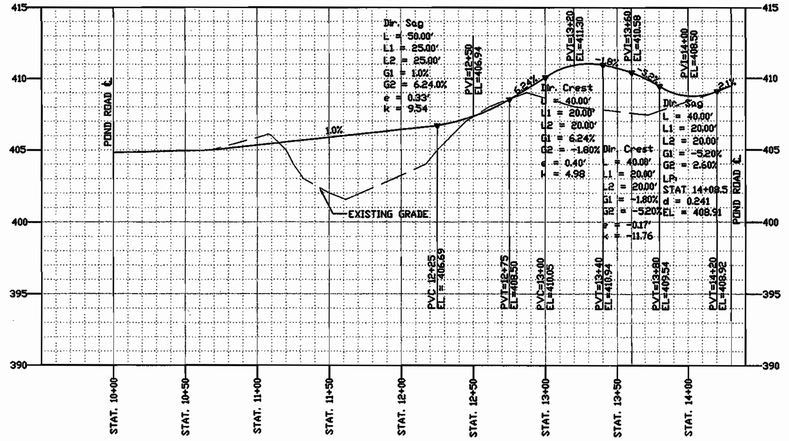
1 POND ROAD PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'



3 LOT L DRIVE PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'



2 TURNAROUND DRIVE PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'



3 EXIT DRIVE PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/20/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03

DIRECTOR — DATE 8/27/03

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

STATE OF MARYLAND — JAMES R. WARNER — REG. NO. 13403 — REGISTERED PROFESSIONAL ENGINEER

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
12750 TWINBROOK PARKWAY, SUITE 200, ROCKVILLE MD 20852
TEL: (301) 881-5545 FAX: (301) 881-5014
AMT FILE # 102-440

DES: JK
DRN: JK
CHK: RAW
DATE: 08/06/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

DRIVE PROFILES

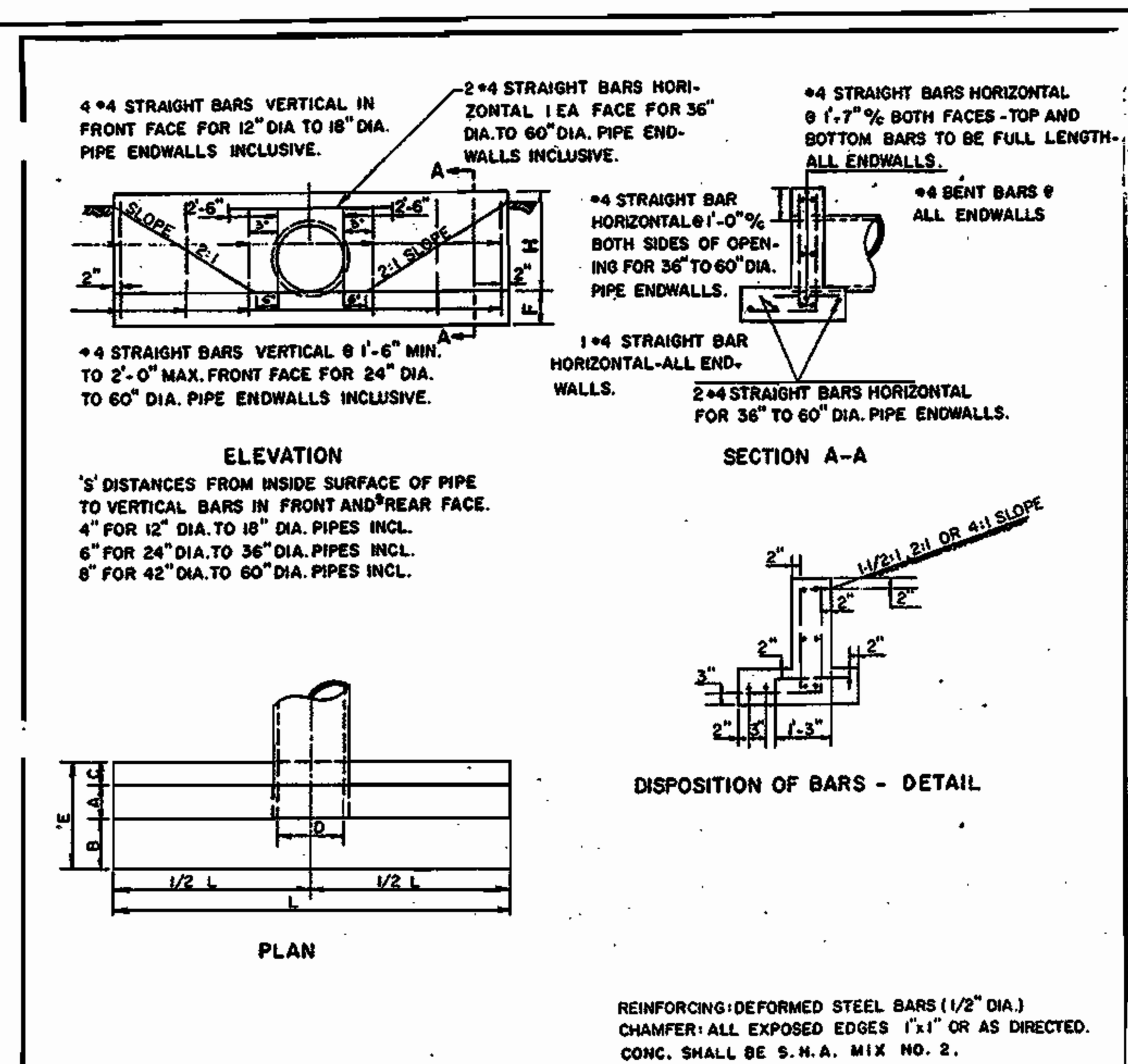
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET C2.3

SHEET 16 OF 23

SDP-03-174

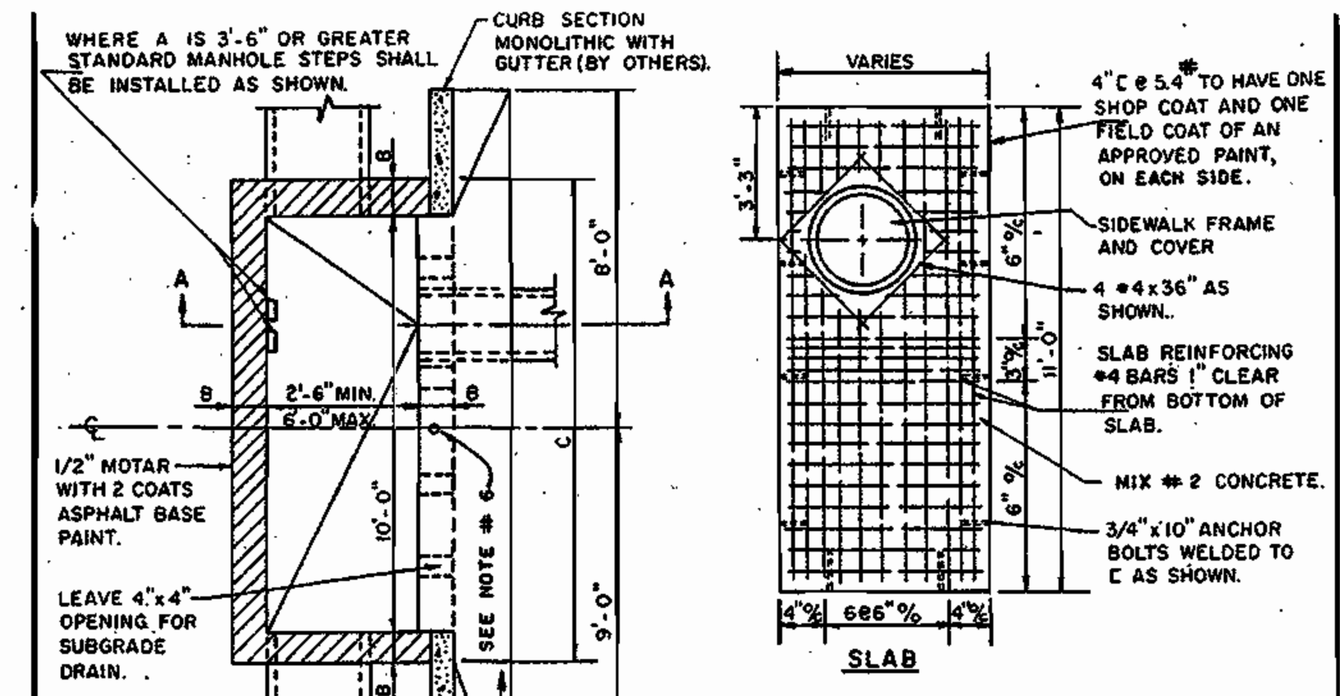


OPENINGS		DIMENSIONS							VOLUME	STEEL
D IN.	AREA SQ.FT.	A	B	C	E	F	H	L	CONC. C.Y.	LBS.
12	0.79	9"	6"	6"	1'-9"	9"	1'-9"	6'-6"	0.61	38
15	1.23	9"	6"	6"	1'-9"	9"	2'-0"	7'-9"	0.78	55
18	1.78	9"	6"	6"	1'-9"	9"	2'-3"	9'-0"	0.95	62
24	3.14	9"	14"	6"	2'-6"	9"	2'-9"	11'-6"	1.56	91
30	4.91	9"	14"	6"	2'-6"	12"	3'-6"	14'-2"	2.19	136
36	7.07	12"	16"	10"	3'-2"	12"	4'-0"	16'-8"	4.18	222
42	9.62	12"	16"	10"	3'-2"	12"	4'-0"	19'-2"	5.13	265

REV. MAR. 1986

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved _______ Chief - Bureau of Engineering

TYPE "C" ENDWALL
CIRCULAR PIPE
SD-5.21



NOTES:
1. INVERTS SHALL BE BRICK, GRADE SM (ASTM C-32)
2. BASE SHALL BE MIX #3 CONCRETE.
3. WALLS SHALL BE GRADE MS ASTM C-32 BRICK, PLAIN CONCRETE (P.C.), OR REINFORCED CONCRETE (R.C.) SEE TABLE FOR DIMENSIONS
4. *REINFORCING = #4 @ 10" o/c E.W. IN ℄ OF WALLS, REINFORCING CONTINUOUS AT CORNERS. ALL LAPS 1'-4".
5. TOP 4" OF WALLS SHALL BE BRICK MASONRY.
6. PROVIDE 3" Ø RUST PROOF STEEL PIPE, PAINTED GRAY, AT MID POINT OF THROAT, FILL WITH CONCRETE.

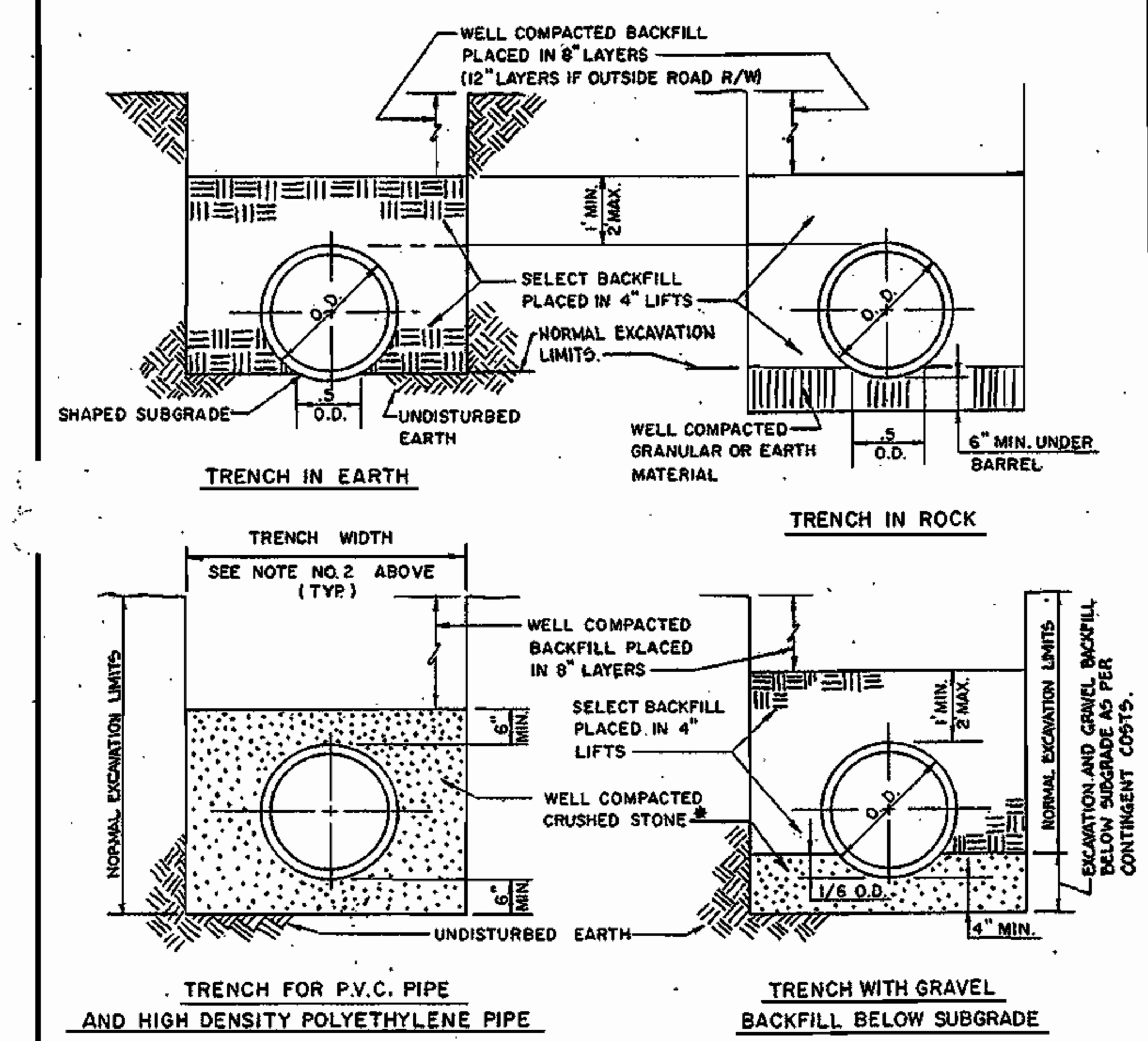
A	B†	C	WALLS
≤5'	8"	11'-4"	BR.OR P.C.
5' TO 8'	12"	12'-0"	BR. OR P.C.
5' TO 10'	8"	11'-4"	R.C. *

† WALL THICKNESS (B) MAY BE STEPPED AT DEPTHS SHOWN

REV. OCT. 1990
REV. JAN. 1989
REV. MAR. 1986
REV. OCT. 1986

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved _______ Chief - Bureau of Engineering

TYPE 'A-10' INLET
SD 4.02

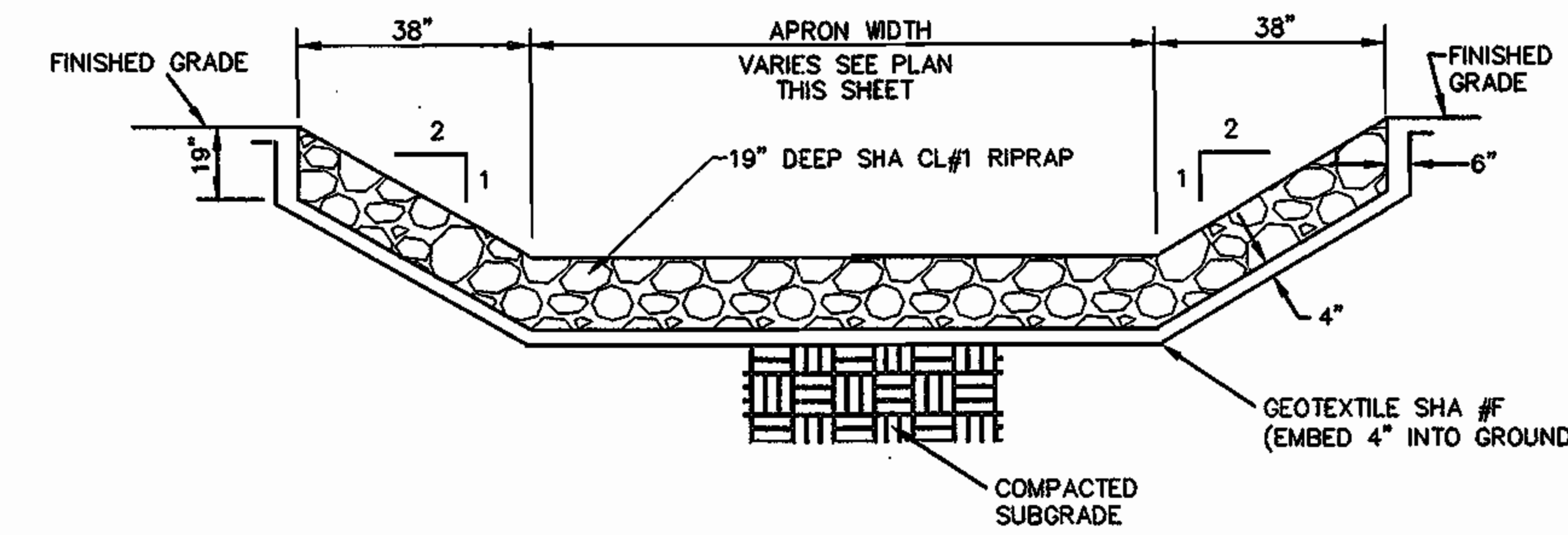


NOTES:
1. WITHIN ROAD RIGHT-OF-WAY, TRENCH COMPACTION DENSITY SHALL BE 95% AS DETERMINED BY A.A.S.H.T.O. T-180-A
2. FOR PAY WIDTHS SEE DETAIL G 2.02-A

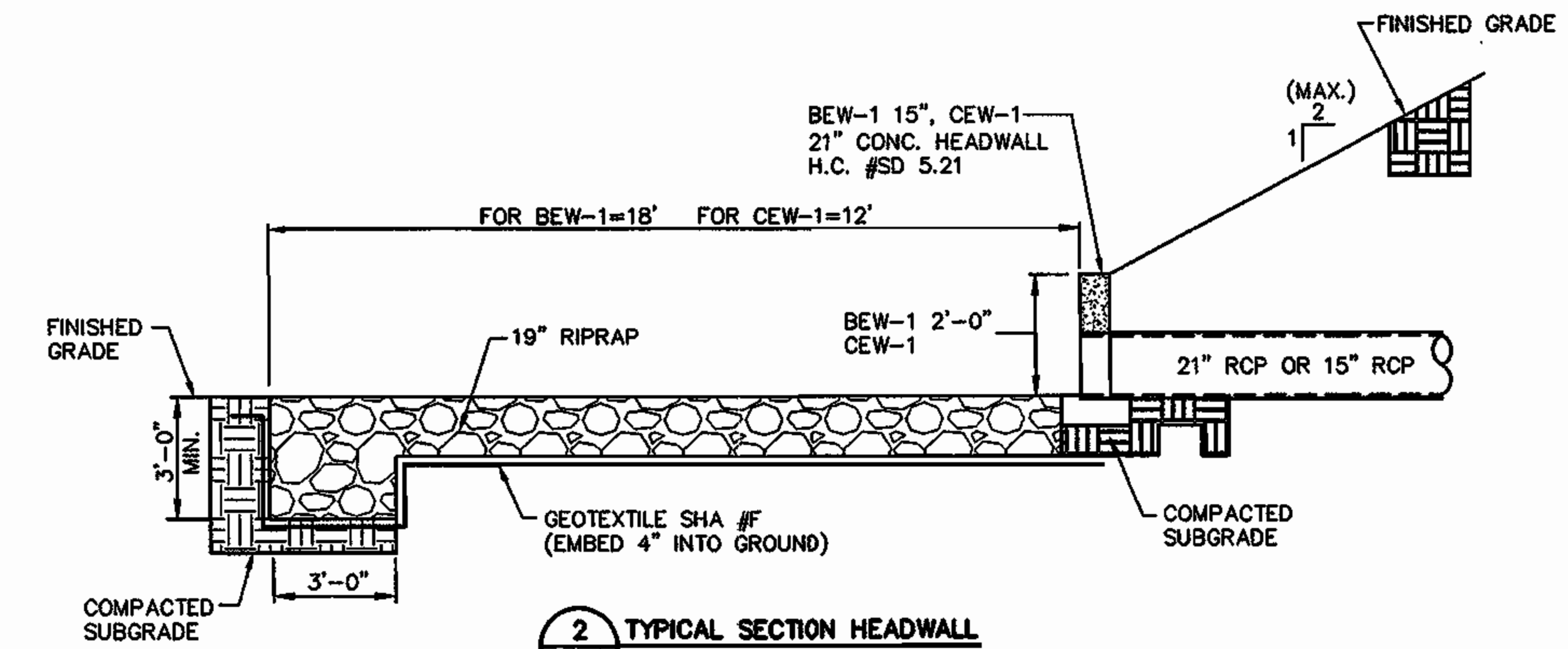
* MIN. 1/4" TO 1-1/2" MAX. DIAMETER

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved _______ Chief - Bureau of Engineering

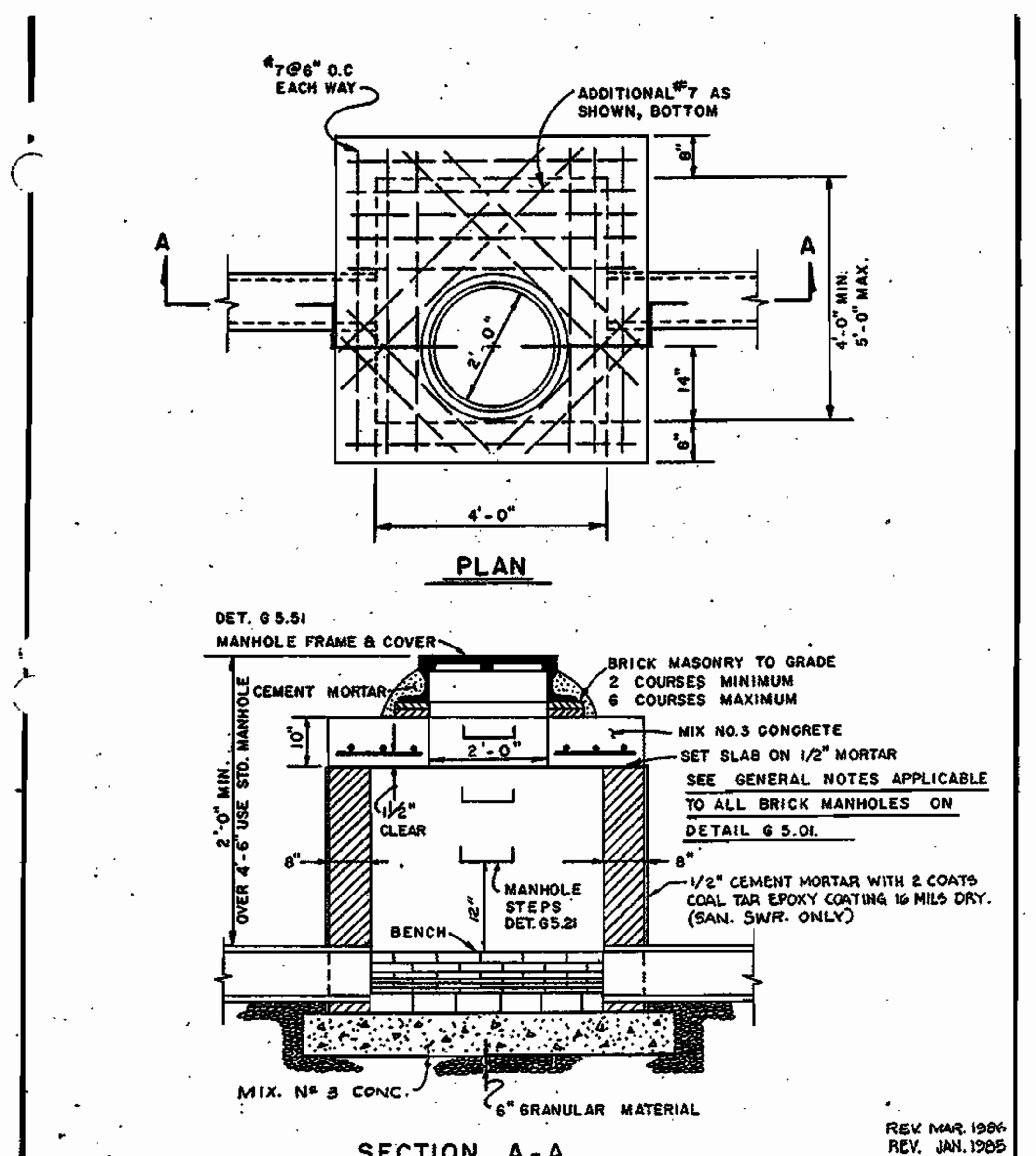
TRENCH BEDDING DETAILS
G 2.01



1 / C2.4 TYPICAL SECTION HEADWALL RIP-RAP SWALE AT OUTFALL
SCALE: 1/4"=1'-0"



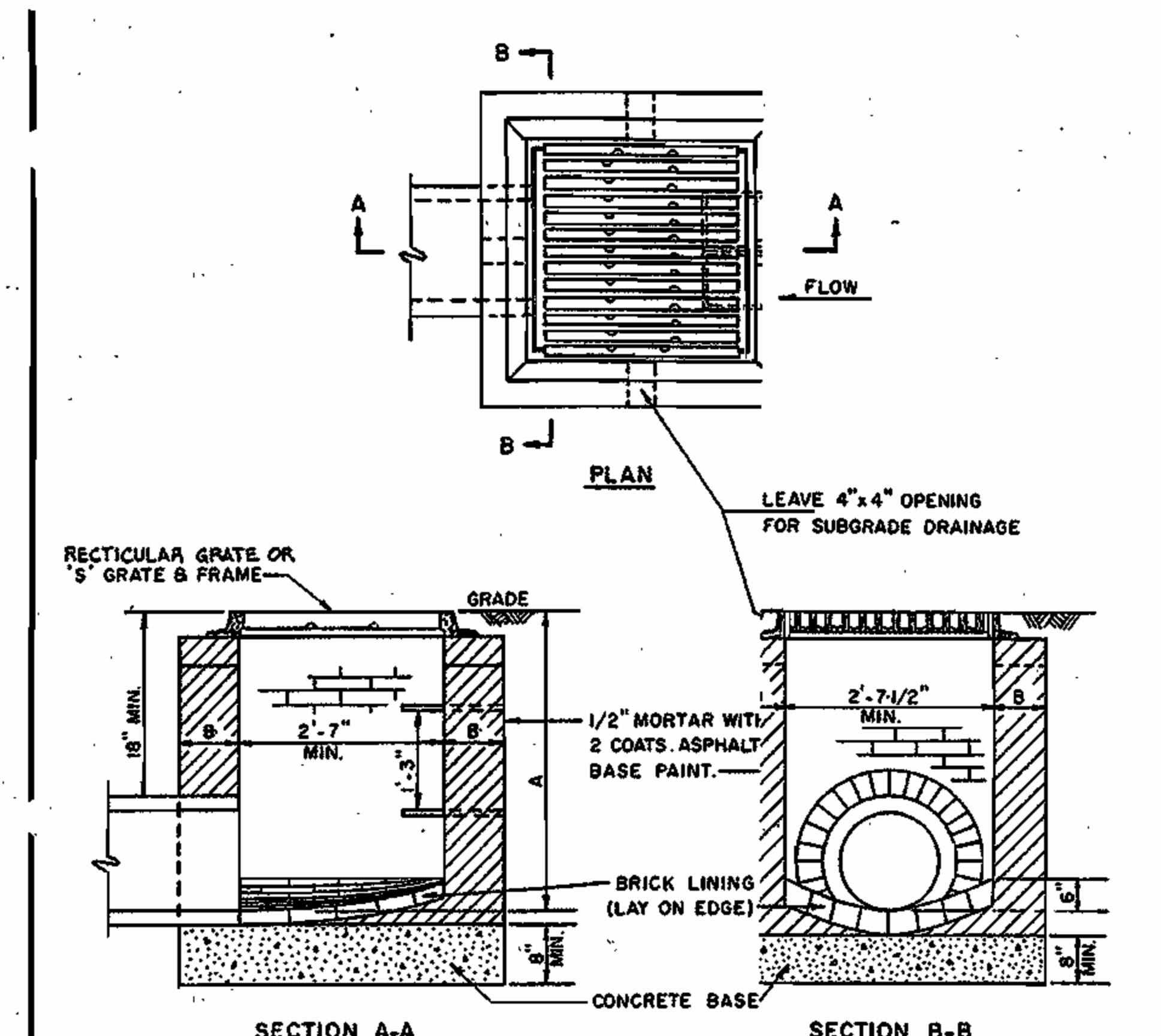
2 / C2.4 TYPICAL SECTION HEADWALL
SCALE: 1/4"=1'-0"



REV. MAR. 1986
REV. JAN. 1985
REV. JAN. 1984
REV. JAN. 1982

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved _______ Chief - Bureau of Engineering

SHALLOW BRICK MANHOLE
G5.05

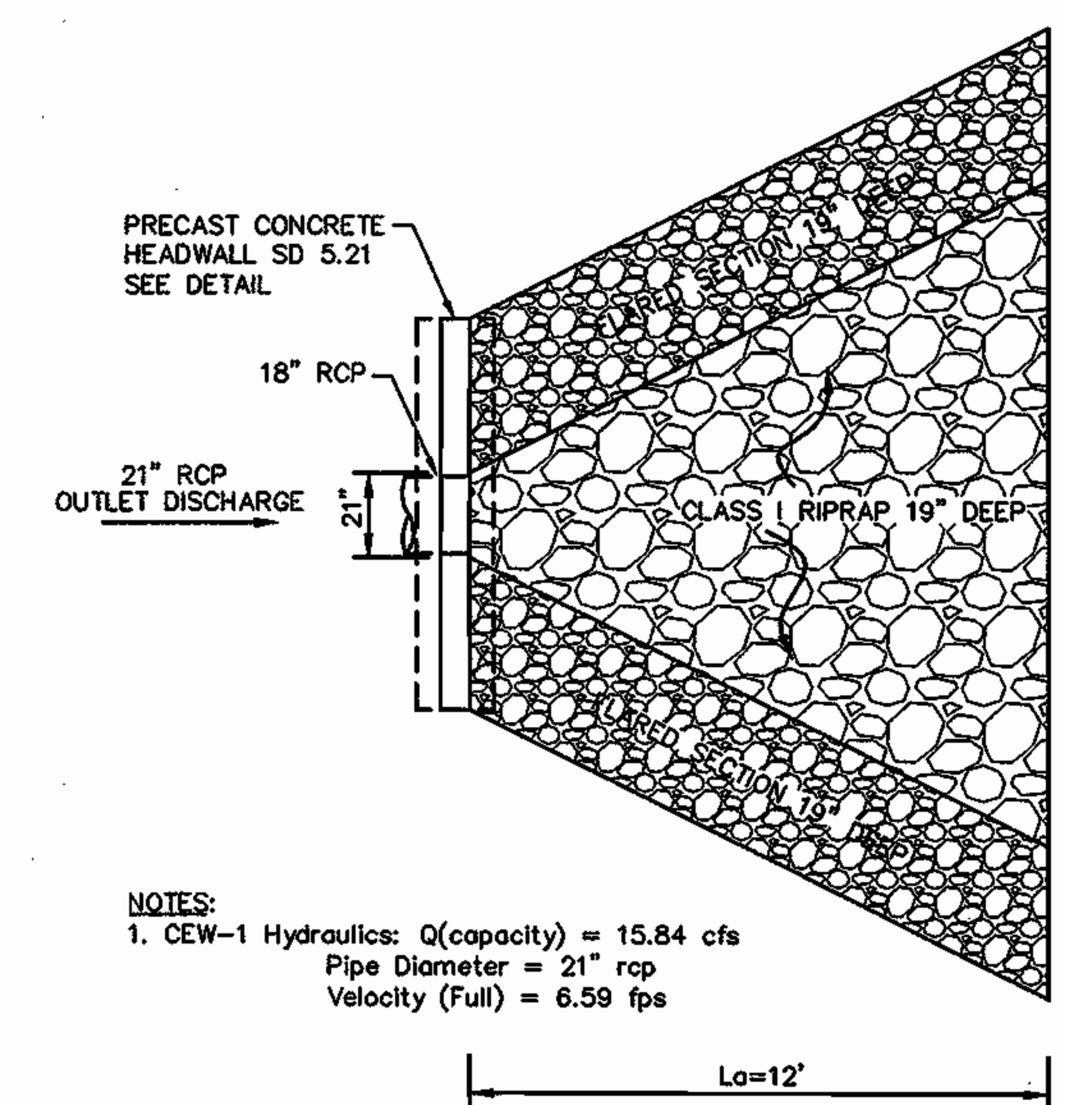


NOTES:
1. BOTTOM SHALL BE MIX NO.3 CONCRETE.
2. WALLS CAN BE BRICK OR MIX NO. 3 CONCRETE.
3. B=8" WHERE A IS LESS THAN 8' B=12" WHERE A IS 8' TO 14'.
4. TOP 4" OF WALLS SHALL BE BRICK MASONRY. ADDITIONAL BRICK SHALL BE USED TO BRING THE GRATE TO EXISTING GRADE IF REQUIRED.
5. INVERTS SHALL BE BRICK, GRADE SM (ASTM C32)
6. WHERE A IS 3'-6" OR GREATER STANDARD MANHOLE STEPS SHALL BE INSTALLED AS SHOWN.

REV. JAN. 1989
REV. OCT. 1982
REV. JAN. 1982

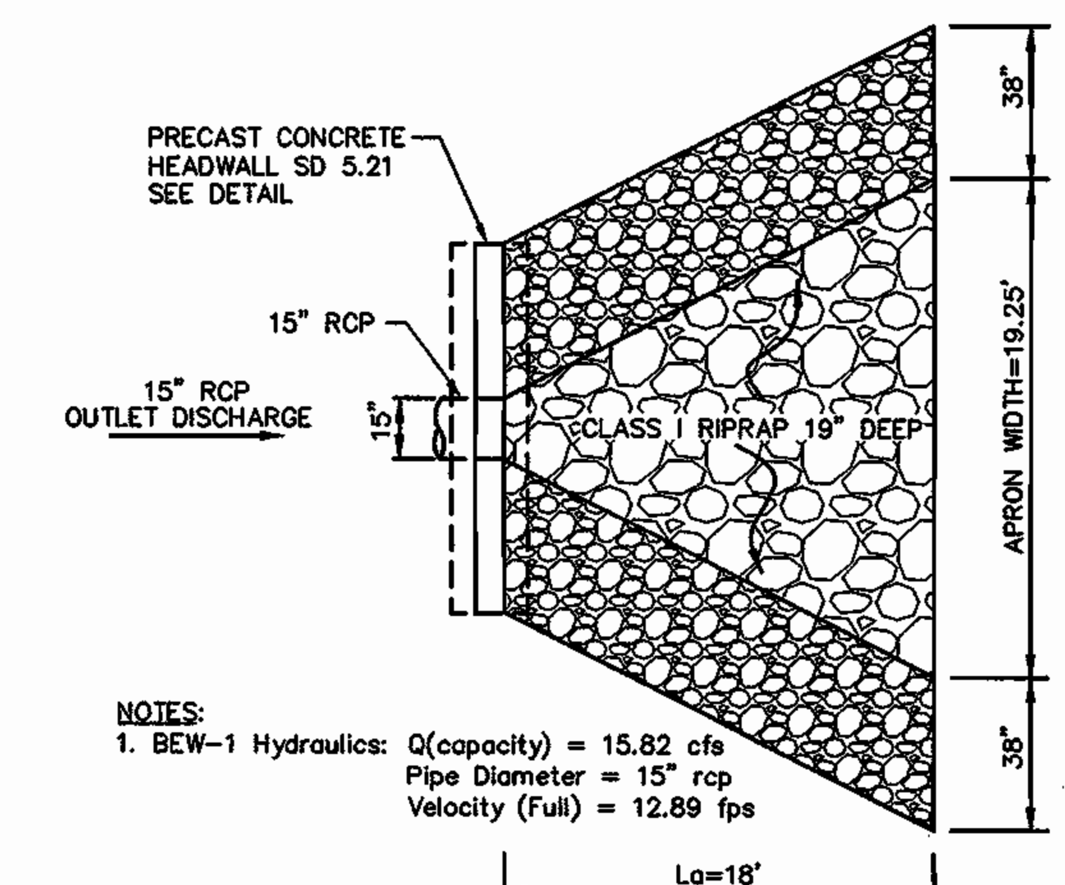
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved _______ Chief - Bureau of Engineering

T INLET
SD-4.22



NOTES:
1. CEW-1 Hydraulics: Q(capacity) = 15.84 cfs
Pipe Diameter = 21" rcp
Velocity (Full) = 6.59 fps

3 / C2.4 PLAN VIEW HEAD WALL #CEW-1
SCALE: 1/4"=1'-0"



NOTES:
1. BEW-1 Hydraulics: Q(capacity) = 15.82 cfs
Pipe Diameter = 15" rcp
Velocity (Full) = 12.89 fps

4 / C2.4 PLAN VIEW HEAD WALL #BEW-1
SCALE: NTS

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. Loesch — 6/18/03 — 8/6/03
SIGNATURE OF DEVELOPER / PRINT NAME BELOW SIGNATURE — DATE

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SIGNATURE OF ENGINEER / PRINT NAME BELOW SIGNATURE — 8/5/03 — DATE

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

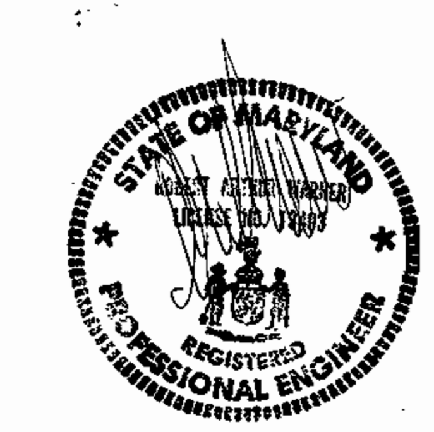
USDA-NATURAL RESOURCES CONSERVATION SERVICE — 8/12/03 — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 8/12/03 — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 8/20/03
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8/25/03
DIRECTOR	DATE 8/25/03



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 # 192-440

DES: R. LEE						
DRN: R. LEE						
CHK: J. KASPA						
DATE: 08/06/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

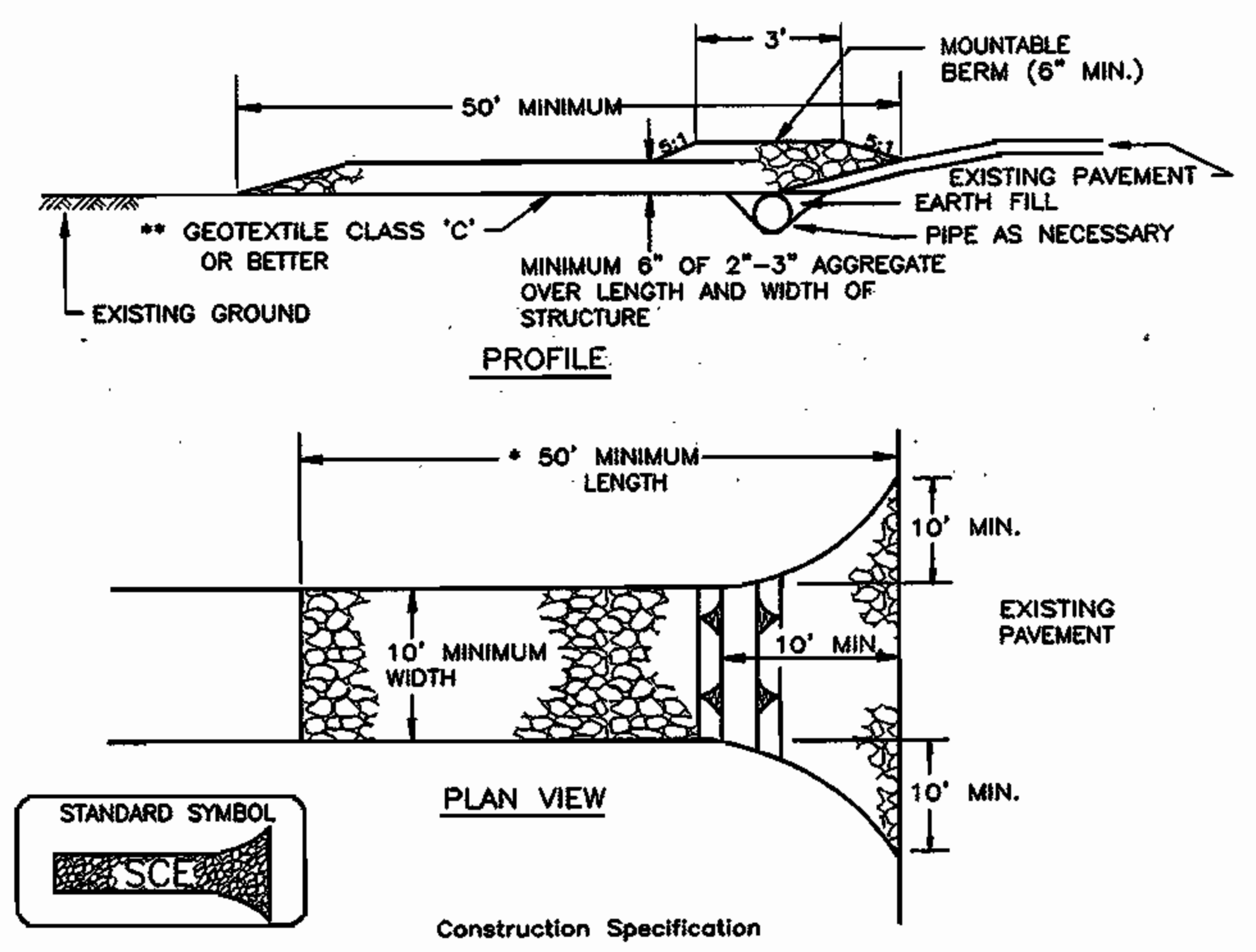
DETAILS

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

SCALE AS SHOWN
SHEET C2.4
SHEET 17 OF 23

SDP-03-174

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE

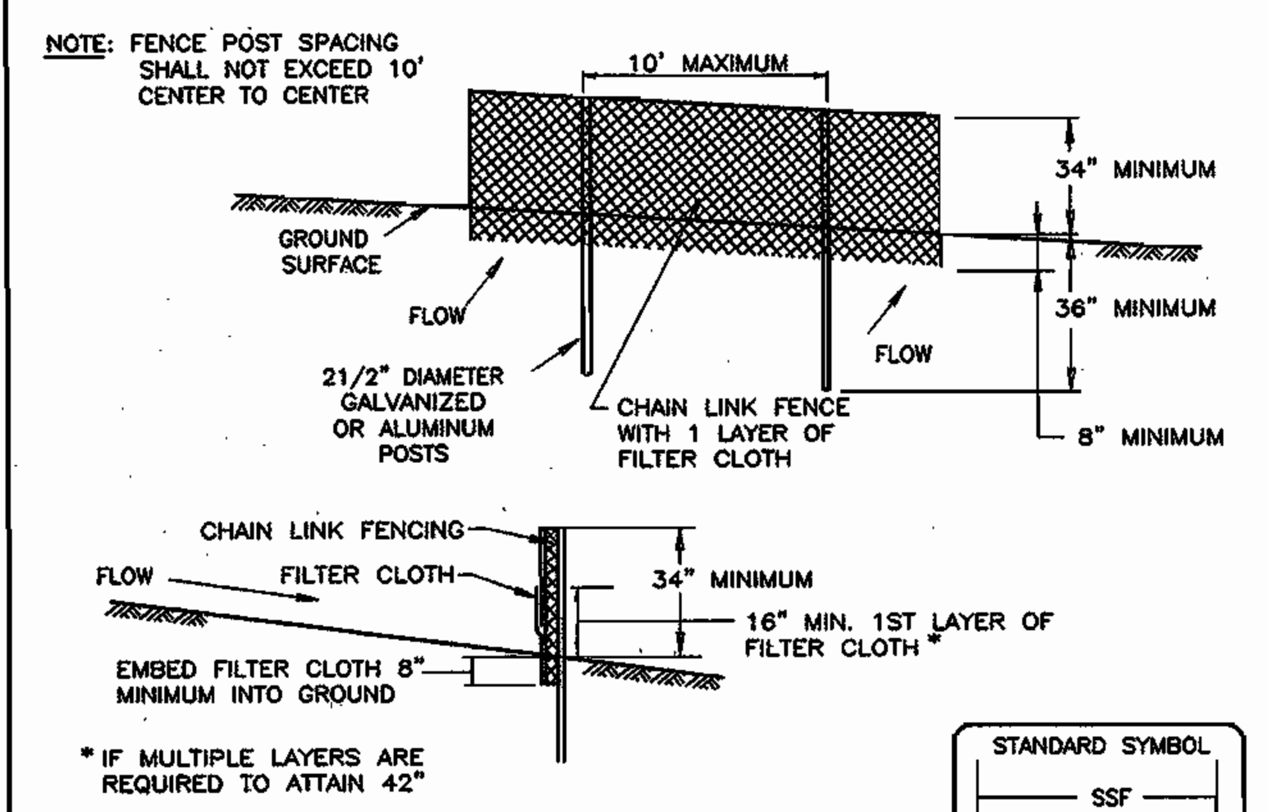


Construction Specification

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

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

DETAIL 33 – SUPER SILT FENCE



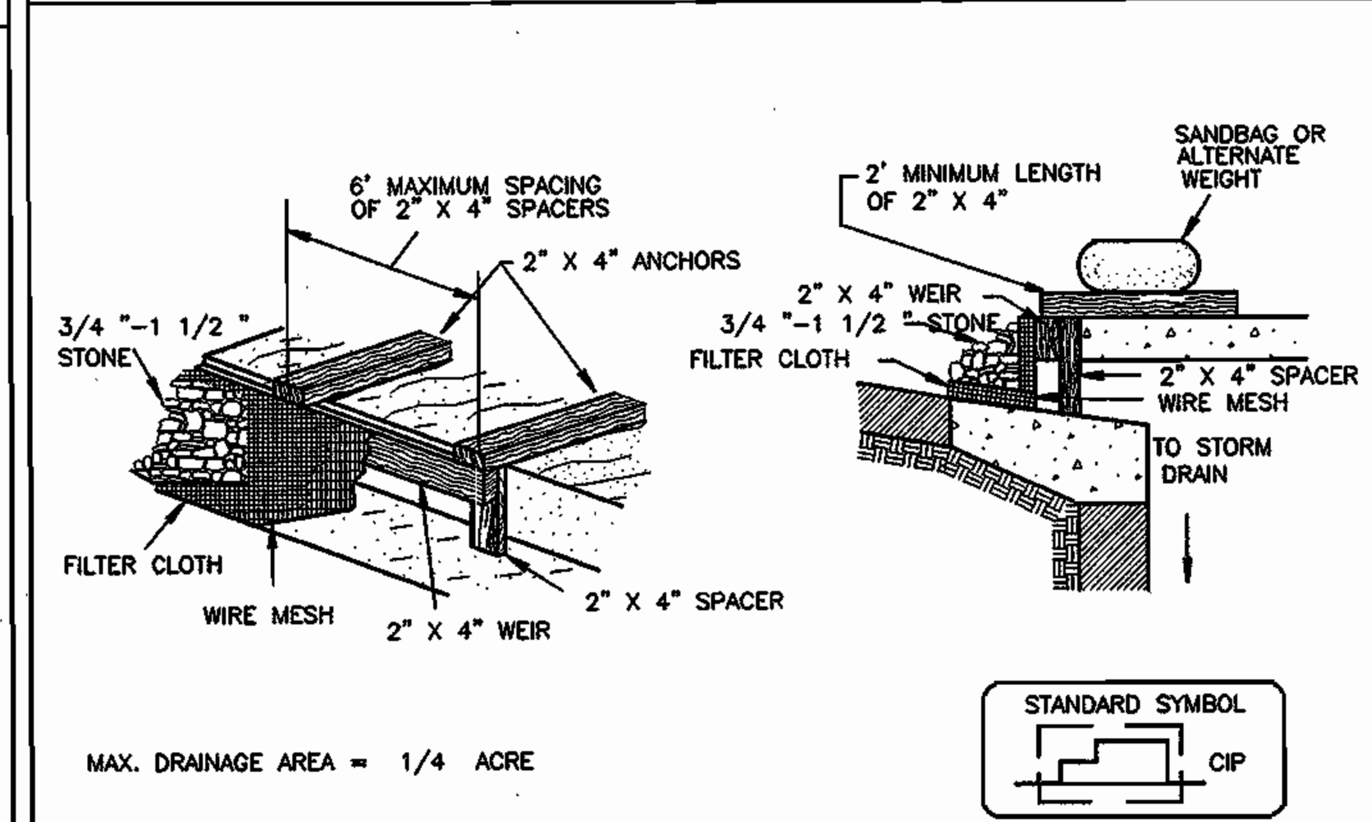
Construction Specifications

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

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

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

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



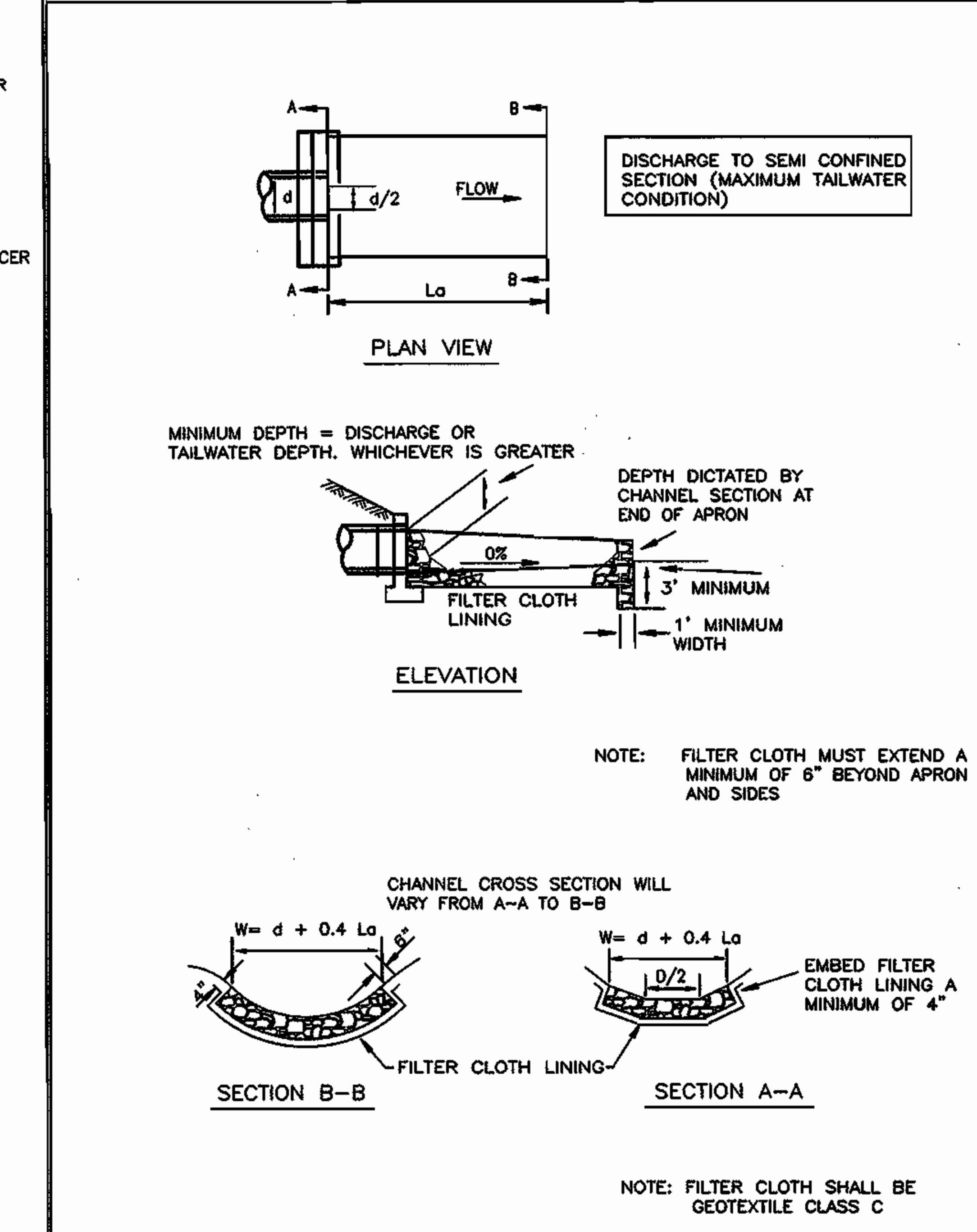
MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

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

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

DETAIL 25 – ROCK OUTLET PROTECTION I



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

ROCK OUTLET PROTECTION

Construction Specifications

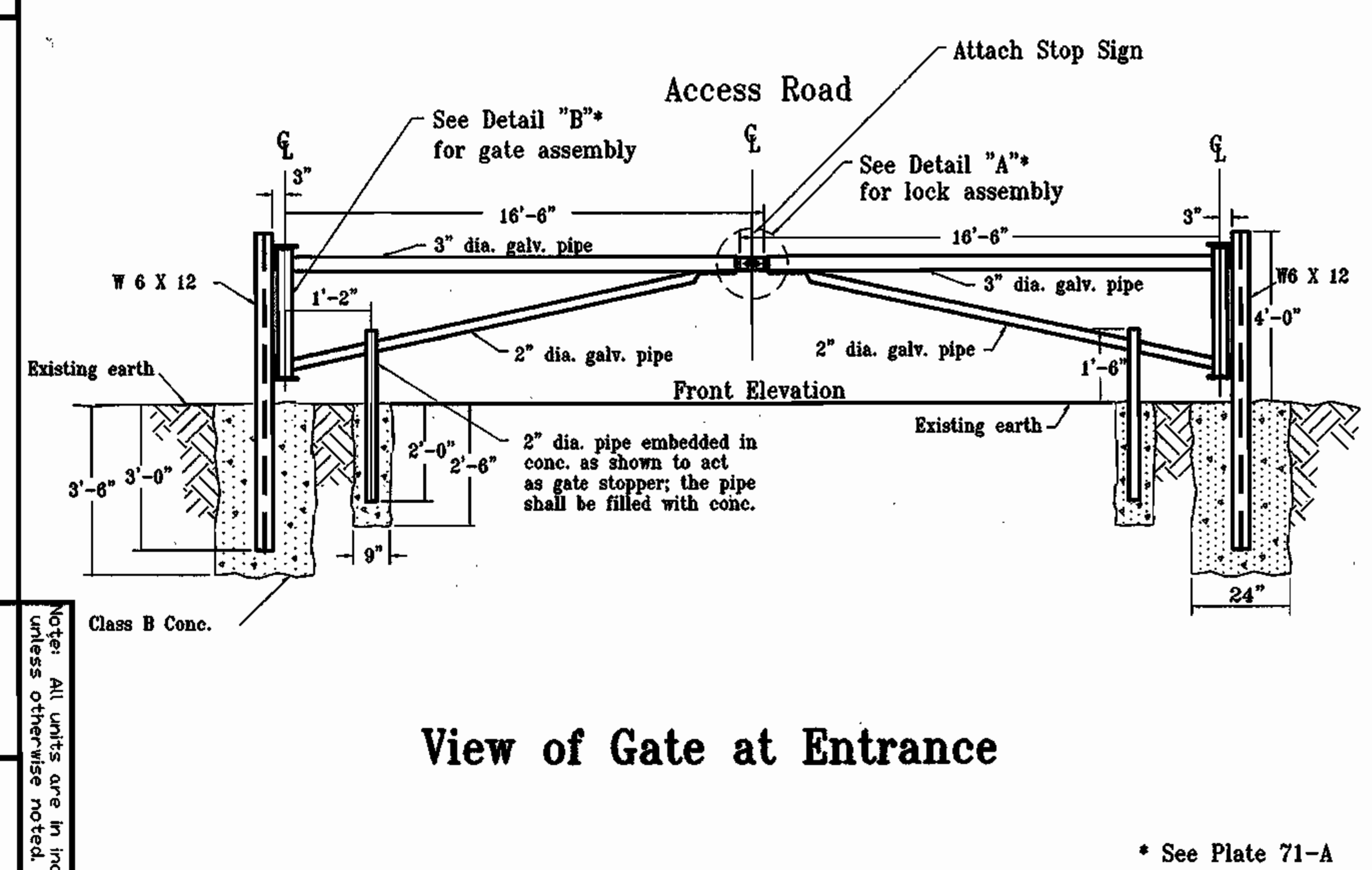
1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

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

STANDARD ACCESS ROAD GATE DESIGN

Ref Sec 6-1606.2G
Plate 71-6
Rev. 11-30-96

Note: W6 X 12, A36
all exposed surfaces, lock assembly, gate hinges, & stopper, shall not be painted as per SHA Spec. Sect. 912

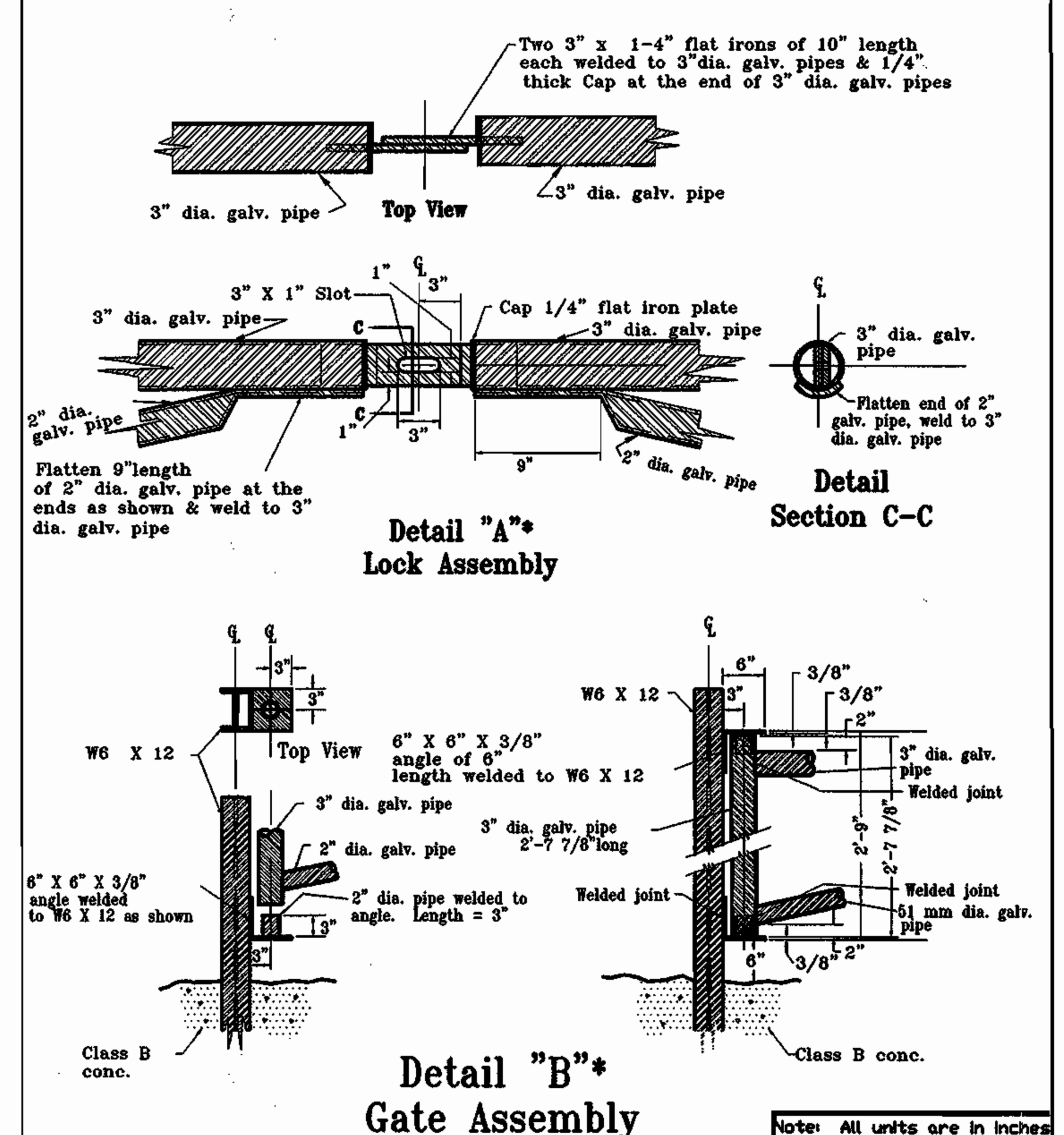


View of Gate at Entrance

* See Plate 71-A

STANDARD ACCESS ROAD GATE DESIGN | PLATE NO 71-6 | STD NO

Note: All units are in inches unless otherwise noted.



Note: All units are in inches unless otherwise noted.

Ref Sec 6-1606.2G Plate 71-6 Rev. 11-30-96	STANDARD ACCESS ROAD GATE DESIGN * See Plate 71-6	PLATE NO 71A-6	STD NO

EROSION CONTROL LEGEND

SCE	STABILIZED CONSTRUCTION ENTRANCE
SSF	SUPER SILT FENCE
LOD	LIMIT OF DISTURBANCE
TP	TREE PROTECTION
CIP	CURB INLET PROTECTION (COG OR COS INLETS)

NOTES:

1. PAINT SHALL BE SHOP-APPLIED: MICACEOUS IRON OXIDE FILLED MOISTURE CURED URETHANE PRIME COAT. INTERMEDIATE COAT WITH AN ALIPHATIC URETHANE. FINISH COAT WITH WHITE COLOR (SHA SPEC. #912).
2. ATTACH STOP SIGN TO CENTER POINT OF RIGHT LEAF OF GATE FACING OUT OF FENCED AREA (SHA#G95-I).
3. SUBMIT SHOP DRAWING SEALED BY A STRUCTURAL ENGINEER TO HAVE MAXIMUM SAG AT LOCK ASSEMBLY FROM HORIZONTAL.

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."

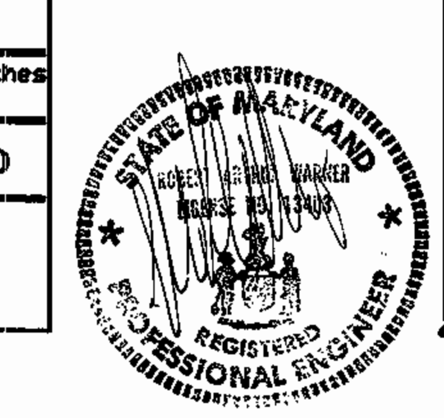
James E. Loesch 6/18/03 8/6/03
SIGNATURE OF DEVELOPER — DATE
PRINT NAME BELOW SIGNATURE

( ) 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 OF ENGINEER — DATE 8/6/03
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 8/12/03

( ) THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT — DATE 8/12/03



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 8/20/03
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8/25/03
DIRECTOR	DATE 8/25/03

A. MORTON THOMAS AND ASSOCIATES, INC.
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AMT FILE # 102-440

DES: P. FRIAS						
DRN: R. LEE						
CHK: J. KASPA						
DATE: 08/06/03	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

EROSION & SEDIMENT CONTROL DETAILS

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

SCALE AS SHOWN
SHEET C2.5

SDP-03-174

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

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

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

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

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

7) *SITE ANALYSIS:

TOTAL AREA OF SITE	361	ACRES	
AREA DISTURBED	2.8	ACRES	
AREA TO BE ROOFED OR PAVED	1.31	ACRES	
AREA TO BE VEGETATIVELY STABILIZED	ELIMINATE -0.41	ACRES	(REMAIN PAVED 1.31 ACRES EXISTING PAVED 1.72 ACRES)
TOTAL CUT	0.0	CU.YDS.	
TOTAL FILL	5,200	CU.YDS.	
OFF SITE WASTE/BORROW AREA LOCATION	5,200	CU. YDS.	

*NOTE: THESE QUANTITIES ARE A GROSS ESTIMATE AND SHALL NOT BE USED BY THE CONTRACTOR FOR BIDDING PURPOSES. CONTRACTOR IS RESPONSIBLE FOR ALL QUANTITIES OF CONSTRUCTION AS REPRESENTED BY THE GRADING PLAN.

8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED 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, COUNTY SEDIMENT CONTROL INSPECTOR, AT LEAST 14 DAYS PRIOR TO BEGINNING WORK TO ARRANGE FOR A PRE-CONSTRUCTION MEETING.
3. PERFORM CLEARING ONLY AS NECESSARY TO INSTALL TREE PROTECTION, STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE AND ALL OTHER SEDIMENT CONTROL FACILITIES WITHIN THE PROJECT LIMIT. INSTALL PHASE 1 STABALIZED CONSTRUCTION ENTRANCE LOT L DRIVE.
4. ESTABLISH STAGING AREA FOR CONSTRUCTION. TEMPORARY SITE GRADING SHALL ALLOW FOR ALL RUNOFF TO DRAIN DIRECTLY INTO EXISTING DRAINS. DIVERT SURFACE RUNOFF OUTSIDE THE LOD AWAY FROM THE CONSTRUCTION SITE DURING ENTIRE CONSTRUCTION PERIOD.
5. ROUGH GRADE SITE PHASE 1 AREA, LOT L DRIVE AND EXIT DRIVE (SEE SHT. #C1.9)
6. INSTALL NEW STORM DRAINAGE SYSTEM PHASE 1.
7. PROVIDE AND INSTALL REMAINDER OF CONSTRUCTION AS SHOWN FOR PHASE 1.
8. PERFORM FINE GRADING AND PERMANENT STABILIZATION OF THE SITE INCLUDING RIP-RAP AND VEGETATIVE STABILIZATION FOR PHASE 1.
9. CONTRACTOR SHALL REQUEST FINAL INSPECTION OF PHASE 1 FROM COUNTY SEDIMENT CONTROL INSPECTOR TO ALLOW FOR REMOVAL OF THE PHASE 1 STABILIZED CONSTRUCTION ENTRANCE.
10. PERFORM CLEARING ONLY AS NECESSARY TO INSTALL STABILIZED CONSTRUCTION ENTRANCE, PHASE 2 STABALIZED CONSTRUCTION ENTRANCE TURN AROUND LANE.
11. TEMPORARY SITE GRADING SHALL ALLOW FOR ALL RUNOFF TO DRAIN DIRECTLY INTO EXISTING DRAINS. DIVERT SURFACE RUNOFF OUTSIDE THE LOD AWAY FROM THE CONSTRUCTION SITE DURING ENTIRE CONSTRUCTION PERIOD.
12. ROUGH GRADE SITE PHASE 2 AREA, POND ROAD AND TURN AROUND LANE (SEE SHT. #C1.9).
13. INSTALL NEW STORM DRAINAGE SYSTEM PHASE 2.
14. PROVIDE AND INSTALL REMAINDER OF CONSTRUCTION AS SHOWN FOR PHASE 2.
15. PERFORM FINE GRADING AND PERMANENT STABILIZATION OF THE SITE INCLUDING RIP-RAP AND VEGETATIVE STABILIZATION FOR PHASE 2 WHILE MAINTAINING TWO LANES OF TRAFFIC.
16. CONTRACTOR SHALL REQUEST FINAL INSPECTION OF PHASE 1 AND 2 FROM COUNTY SEDIMENT CONTROL INSPECTOR.
17. WITH THE COUNTY SEDIMENT CONTROL INSPECTOR'S APPROVAL OF SITE CONDITIONS, REMOVE SEDIMENT CONTROL FACILITIES AND ESTABLISH VEGETATION ON ALL DEWATERED AREAS.

APL PROCEDURAL NOTES:

1. CONTRACTOR, UPON WRITTEN JHU/APL APPROVAL OF AMOUNT AND LOCATION, WILL BE ALLOWED BY JHU/APL TO DUMP EXCESS SOIL MATERIAL AT THE EXISTING JHU/APL STOCKPILE SITE. CONTRACTOR IS RESPONSIBLE FOR ALL SEDIMENT CONTROLS AND SITE RESTORATION/STABILIZATION TO HOWARD COUNTY SCD STANDARD AND OBTAIN APPROVAL OF SEDIMENT CONTROLS BY HOWARD COUNTY SCD.

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 STRAW 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 AREA (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 10-20-20 FERTILIZER (14 LBS/1,000 SQ.FT) BEFORE SEEDING HARROW OR DISCING. INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 38-0-0 UREAFORM FERTILIZER (9 LBS/1,000 SQ. FT.) AND 500 LBS PER ACRE (11.5 LBS/1,000 SQ. FT.) OF 10-20-20 FERTILIZER.

SOIL AMENDMENTS:

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

MULCHING:

APPLY 1-1/2 TO 2 TONS PER ACRE (10 TO 90 LBS/1,000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING 218 GALLONS PER ACRE (5 GAL/1,000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT ACRES. ON SLOPES 8 FEET OR HIGHER USE 348 GALLONS PER ACRE (8 GAL/1,000 SQ.FT.) FOR ANCHORING.

MAINTENANCE:

INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.
FOR PUBLIC PONDS SUBSTITUTE CHEMUNG CROWN VETCH AT 15 LBS/ACRE AND KENTUCKY 31 TALL FESCUE AT 40 LBS/ACRE AS THE SEEDING REQUIREMENT.
OPTIMUM SEEDING DATE FOR THIS MOISTURE 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, TRASH, 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/1,000 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.

ALTERATIVE 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.

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. Loesch — 6/18/03 8/6/03
SIGNATURE OF DEVELOPER — DATE
PRINT NAME BELOW SIGNATURE JEL

( ) 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 — 8/5/03 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 — 8/12/03
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

8/12/03
HOWARD SOIL CONSERVATION DISTRICT — DATE

FOR EROSION AND SEDIMENT CONTROL ONLY

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE 8/26/03
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8/25/03
DIRECTOR	DATE 8/25/03

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

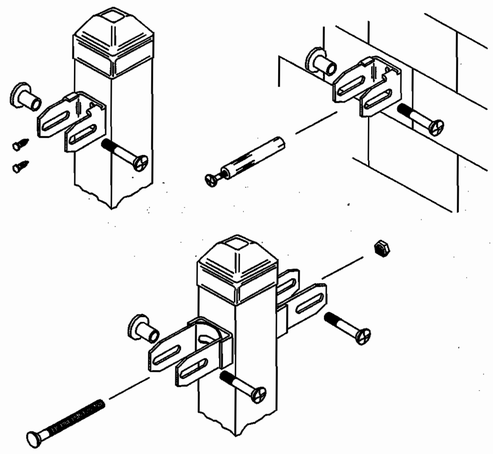
	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
DES: P. FRIAS						
DRN: P. FRIAS						
CHK: J. KASPA						
DATE: 08/06/03						

POND ROAD ENTRANCE

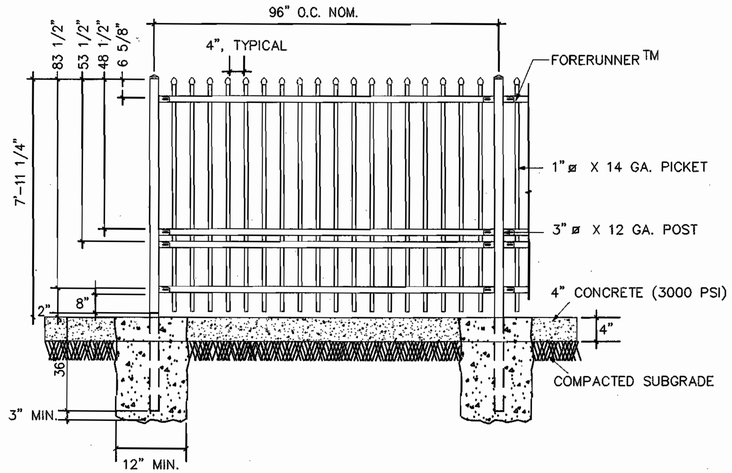
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
EROSION & SEDIMENT CONTROL NOTES
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C2.6
SHEET 19 OF 23

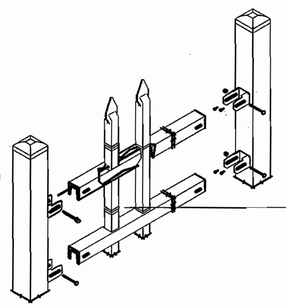
SDP-03-174



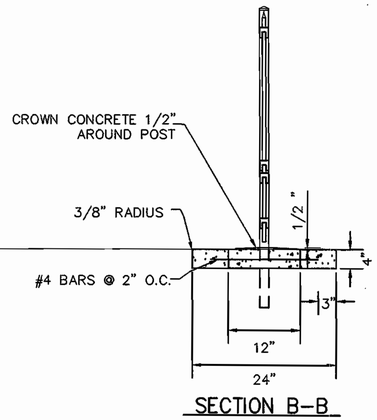
1 C-201 TYPICAL POST CONNECTIONS
NOT TO SCALE



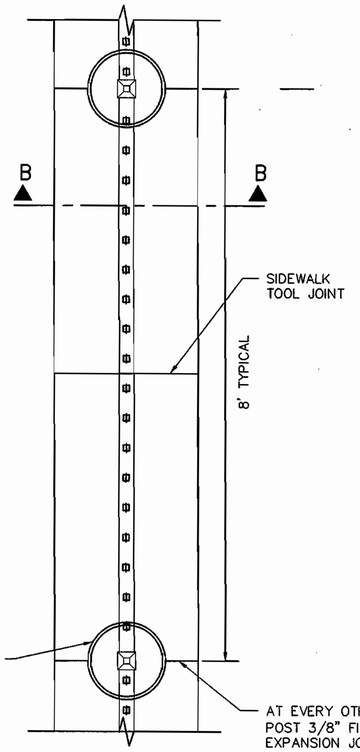
2 C-201 AEGIS II CLASSIC FENCE PANNEL
NOT TO SCALE

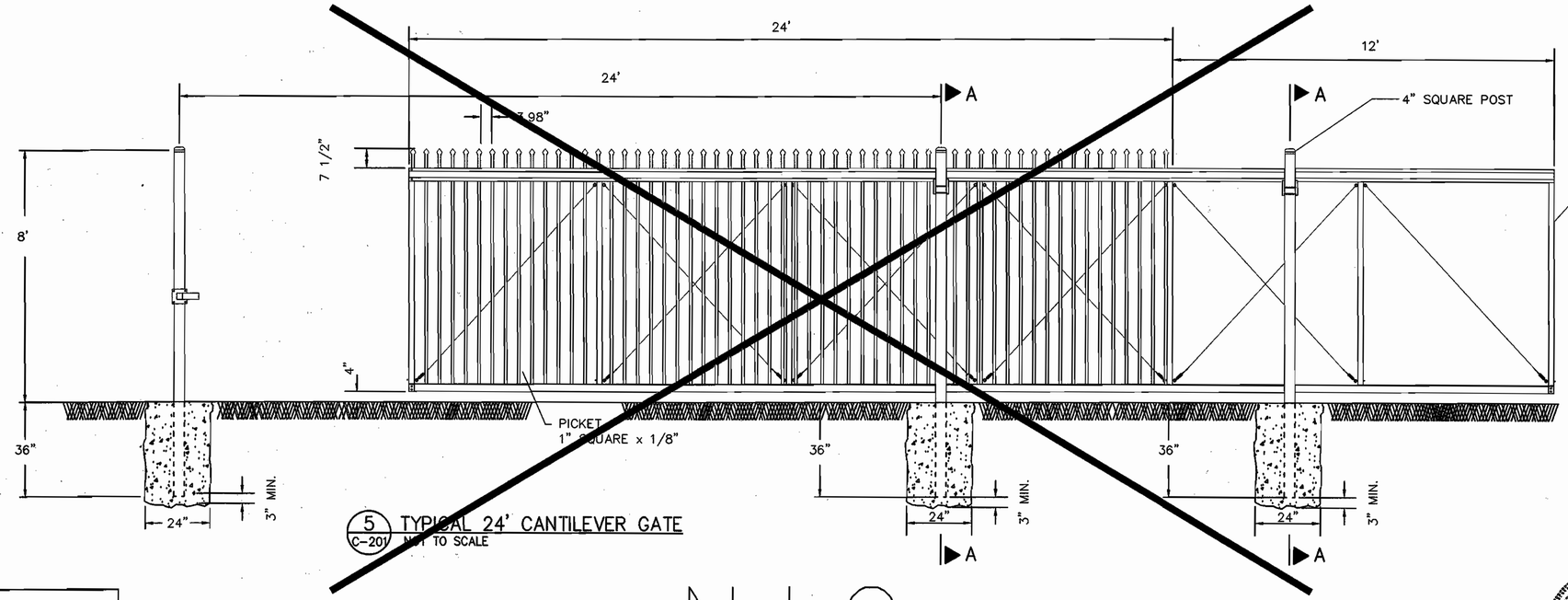


4 C-201 AEGIS II CLASSIC ISOMETRIC
NOT TO SCALE



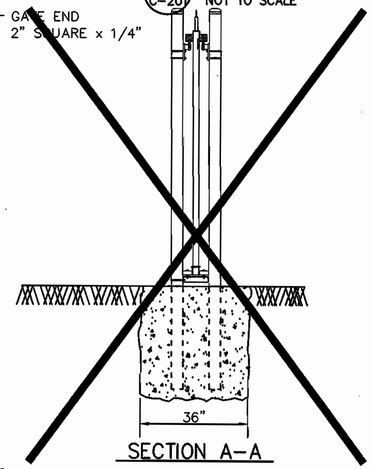
SECTION B-B





5 C-201 TYPICAL 24' CANTILEVER GATE
NOT TO SCALE

N.I.C.



3 C-201 CONCRETE MOW STRIP
NOT TO SCALE

SECTION A-A

N.I.C.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/28/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03

DIRECTOR — DATE 8/25/03

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www.rtkl.com

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AMT FILE # 102-540

CERVANTES & ASSOCIATES, P.C.
ENGINEERS • PLANNERS • SURVEYORS
3541 CHAIN BRIDGE ROAD, SUITE 7
FAIRFAX, VA. 22030
(703) 691-4114

DES:
DRN:
CHK:
DATE: 08/06/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY

FRONT FENCE AND GATE DETAILS

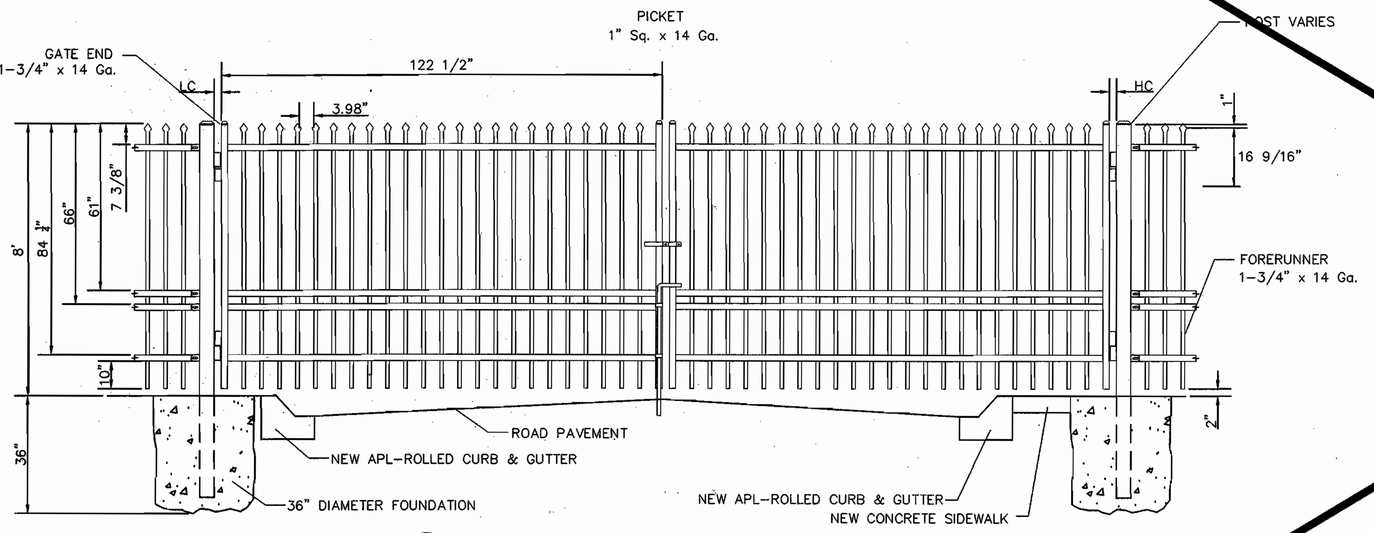
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

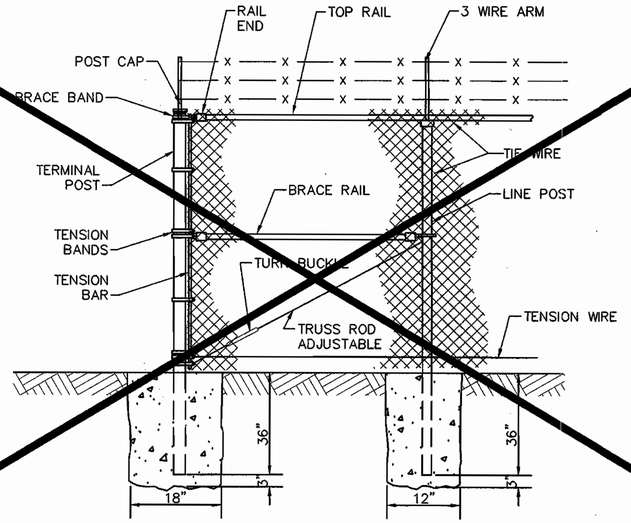
SHEET C-201

SHEET 20 OF 23

SDP-03-174



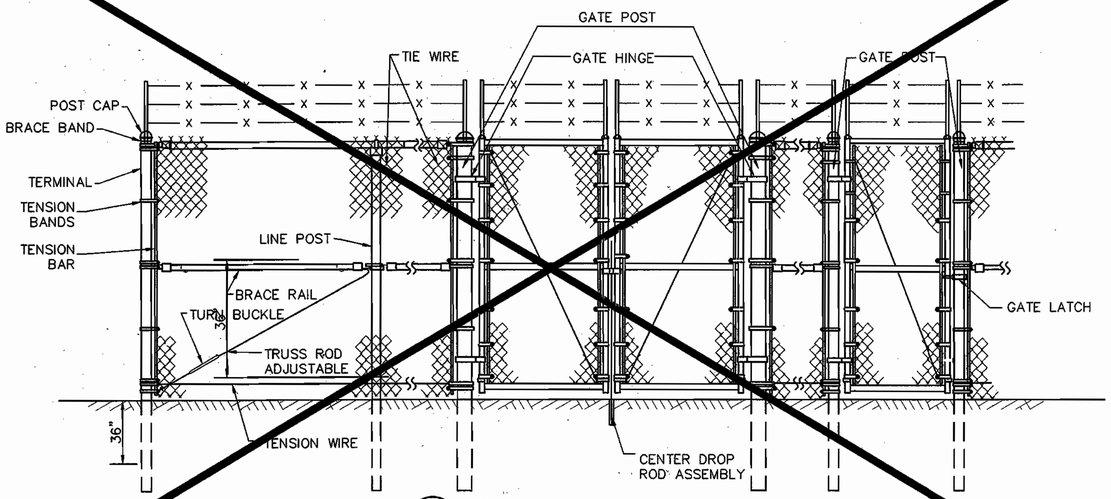
1 C-202 TYPICAL 20' DOUBLE LEAF SWING GATE
NOT TO SCALE



N.I.C.

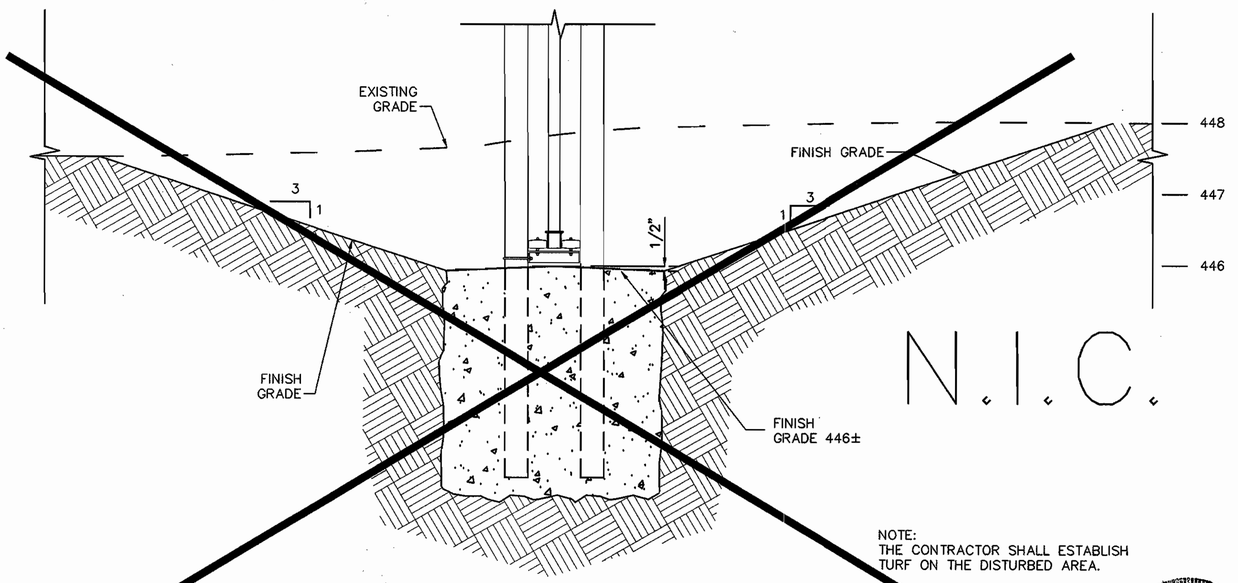
NOTE:
ALL CHAIN LINK FENCE WILL HAVE THREE STRANDS OF BARBED WIRE ON TOP.

2 C-202 8' CHAIN LINK BACKFENCE
NOT TO SCALE



3 C-202 8' CHAIN LINK WITH GATE
NOT TO SCALE

N.I.C.



N.I.C.

NOTE:
THE CONTRACTOR SHALL ESTABLISH TURF ON THE DISTURBED AREA.

4 C-202 SECTION A-A
NOT TO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/25/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03

DIRECTOR — DATE 8/25/03

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(703) 691-4114

DES:
DRN:
CHK:
DATE: 08/06/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

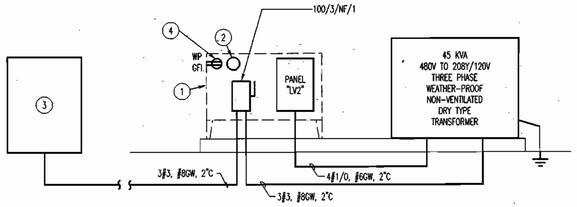
APPLIED PHYSICS LABORATORY
THE JOHNS HOPKINS UNIVERSITY
BACK FENCE
AND GATE DETAILS
TAX MAP 41 PARCEL 1
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET C-202
SHEET 21 OF 23

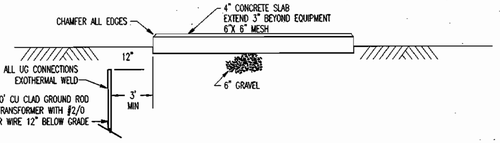
SDP-03-174

ONELINE NOTES

1. PAD-MOUNTED NEMA 3R ENCLOSURE; 36"H x 36"W x 12"D, B-LINE MODEL 363612RHC, WITH SELF SUPPORTING 12" LEGS, B-LINE MODEL MFR8, AND BACK PANEL, B-LINE MODEL N3636P. ENCLOSURE SHALL HAVE HINGED LOCKABLE DOORS. REFER TO TRANSFORMER PAD DETAIL 2/E1.0.
2. SURFACE MOUNTED INCANDESCENT LIGHT FIXTURE, KILLARK MODEL NVX150G WITH VCG-100 GLASS GLOBE AND NVG GUARD. SEE DETAIL 3/E1.0. TIE TO CIRCUIT 23(POND.ROAD.GUARD.BOOTH).
3. X SWITCHBOARD "SWBD.X.CTR.109" – REMOVE X 50A/3P BREAKER FROM SPACE #9 & PROVIDE 70A/3P BREAKER TO SERVE TRANSFORMER. PROVIDE UPDATED TYPEWRITTEN SCHEDULE.
4. PROVIDE NEMA 5-20 WEATHERPROOF GFI-RATED DEVICE IN SURFACE J.BOX. TIE TO CIRCUIT 21(POND.ROAD.GUARD.BOOTH).



1 E1.0 ONE LINE DIAGRAM
NOT TO SCALE



2 E1.0 PAD MOUNTED TRANSFORMER DETAIL
NOT TO SCALE

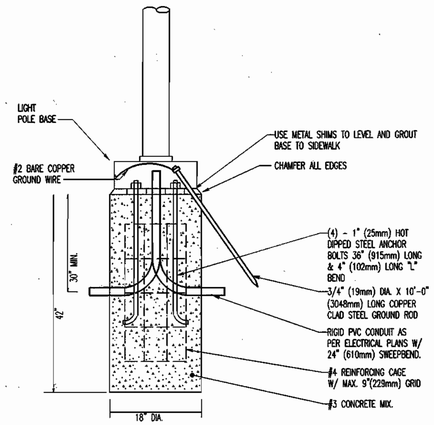
FEATURES

LAMP TYPE: 100W – 130 VOLT LONG SERVICE
PROFILE: 1 LAMP
SHIELDING: CLEAR GLASS GLOBE
NOMINAL DIMENSIONS (4 3/8"DIA x 9 7/8"H)

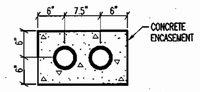
GENERAL DESCRIPTION

HOUSING: 30 PERCENT GLASS-FILLED THERMOPLASTIC POLYESTER
ELECTRICAL: 120 VOLT
FINISH: MOLDED IN NON-GRAYING FINISH

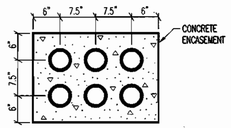
3 E1.0 SURFACE MOUNTED INCANDESCENT VAPOR TIGHT JELLY JAR WITH WIRE GUARD
NOT TO SCALE



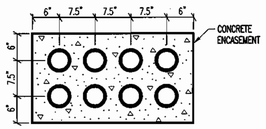
4 E1.0 CONCRETE BASE
NOT TO SCALE



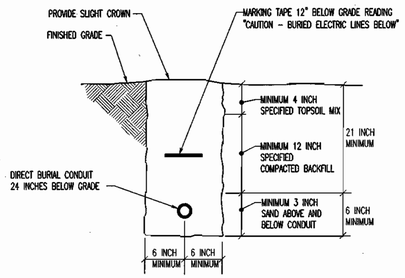
5 E1.0 DUCT BANK DETAIL – 2 WAY
NOT TO SCALE



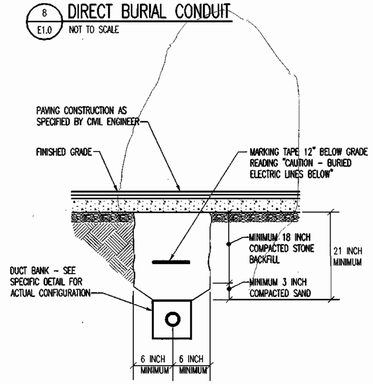
6 E1.0 DUCT BANK DETAIL – 6 WAY
NOT TO SCALE



7 E1.0 DUCT BANK DETAIL – 8 WAY
NOT TO SCALE



8 E1.0 DIRECT BURIAL CONDUIT
NOT TO SCALE



9 E1.0 DUCT BANK BENEATH PAVING
NOT TO SCALE

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	MOUNTING HEIGHT
◎	LUMINAIRE – SEE SCHEDULE FOR TYPE (BOLLARD OR POST TOP SITE LIGHT)	– –
⇒	RECEPTACLE – NEMA CONFIGURATION 5-20R DUPLEX	18"
□ˢ	SAFETY SWITCH	48"

NOTES: (APPLICABLE TO ELECTRICAL LEGEND ONLY)

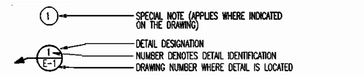
1. THE MOUNTING HEIGHTS GIVEN ON THIS SHEET IN THE ELECTRICAL LEGEND ARE GENERAL AND SHALL BE USED ONLY WHEN MOUNTING HEIGHTS CANNOT BE ESTABLISHED BY REFERENCE TO DETAILS, ELEVATIONS, AND NOTES ON THE DRAWINGS.
2. ALL MOUNTING HEIGHTS, UNLESS OTHERWISE NOTED, SHALL BE MEASURED FROM THE FINISHED FLOOR TO THE CENTERLINE OF THE OUTLET OR DEVICE.
3. HEIGHTS OF ALL ITEMS NOT COVERED BY THE ELECTRICAL LEGEND AND NOT SHOWN ON THE DRAWINGS SHALL BE AS DIRECTED BY THE ARCHITECT OR ENGINEER.
4. WHERE PLACING ANY ITEM AT THE HEIGHTS LISTED OR NOTED WILL CAUSE INTERFERENCE WITH THE WORK OF OTHER TRADES, OR IS NOT PHYSICALLY POSSIBLE OR DESIRABLE FOR ONE REASON OR ANOTHER, THE ITEM SHALL BE MOVED TO A LOCATION APPROVED BY THE ARCHITECT OR ENGINEER.

ELECTRICAL ABBREVIATIONS

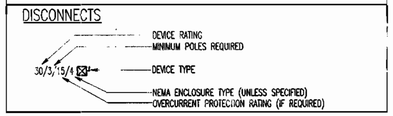
A	AMPERE	MCB	MAIN CIRCUIT BREAKER
AFF	ABOVE FINISHED FLOOR	NTS	NOT TO SCALE
AFG	ABOVE FINISHED GRADE	OCP	OVERCURRENT PROTECTION
AIC	AMPERE INTERRUPTING CAPACITY	PH	PHASE
ASYM	ASYMMETRICAL	PVC	POLYVINYL CHLORIDE
C	CONDUIT	SYM	SYMMETRICAL
CB	CIRCUIT BREAKER	TYP	TYPICAL
CKT	CIRCUIT	UG	UNDERGROUND
DWG	DRAWING	UON	UNLESS OTHERWISE NOTED
ETR	EXISTING TO REMAIN	V	VOLTS
EX	EXISTING	W	WIRE
GFI	GROUND FAULT INTERRUPTER	WP	WEATHER PROOF
GW	GROUND WIRE	XFMR	TRANSFORMER
KCMIL	THOUSAND CIRCULAR MILS		
KVA	KILO-VOLT-AMPERE		

ELECTRICAL CONVENTIONS

REFERENCE



DISCONNECTS



PANELBOARD POND.ROAD.GUARD.BOOTH

SECTION NUMBER: 1 OF 1 | MOUNTING: SURFACE | ☐ INTEGRAL SPD | ☐ 200% NEUTRAL | ■ GROUND BUS | ☐ ISOLATED GROUND BUS

LOCATION: ENCLOSURE AT POND ROAD GUARD BOOTH | MAIN: 150A | BUS: 225A | VOLTS: 208Y/120

PROTECTIVE DEVICES: 14,000 RMS SYMMETRICAL AIC MINIMUM | FEEDER: 4#1/0, #6GW, 2"C | PHASE: 3

DESCRIPTION	NEC	VOLT-AMP PH A	VOLT-AMP PH B	VOLT-AMP PH C	BREAKER AMP	BREAKER POLE	CIRC/POLE NUMBER	A	B	C	CIRC/POLE NUMBER	BREAKER POLE	VOLT-AMP PH A	VOLT-AMP PH B	VOLT-AMP PH C	NEC	DESCRIPTION
POLE LIGHTS		350			30	/	1/1				2/2	60 /	2500				GUARD BOOTH
–			350		/	2	3/3				4/4	/ 2		2500			–
SPACE				–	–	–	5/5				6/6	60 /			2500		GUARD BOOTH
SPACE		–			–	–	7/7				8/8	/ 2	2500				–
SPACE			–		–	–	9/9				10/10	60 /		2500			GUARD BOOTH
SPACE				–	–	–	11/11				12/12	/ 2			2500		–
SPACE		–			–	–	13/13				14/14	60 /	2500				GUARD BOOTH
SPACE			–		–	–	15/15				16/16	/ 2		2500			–
SPACE				–	–	–	17/17				18/18	– –			–		SPACE
SPARE		–			20	1	19/19				20/20	– –	–				SPACE
RECEPTACLE			500		20	1	21/21				22/22	– –		–			SPACE
* CABINET LIGHT				100	20	1	23/23				24/24	– 1			–		SPACE

VOLT-AMPERES:	BUS A	BUS B	BUS C	
TOTAL	350	350	0	(ODD)
	7500	7500	5000	(EVEN)
SUBTOTALS	7850 +	7850 +	5000	= TOTAL OF 20.7 KVA (CONNECTED)

DEMAND KVA = 25.9
DEMAND AMPS TOTAL = 71.9

* PROVIDE SWITCH-RATED BREAKER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 8/24/03
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03
DIRECTOR — DATE 8/25/03

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Consulting Engineers
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Baltimore, MD 21204-4079
410.296.6500
Fax 410.296.3156

STATE OF MARYLAND — DAVID M. VON BEHREN — No. 27331 — PROFESSIONAL ENGINEER

DES:	D.M. von Behren
DRN:	D.M. von Behren
CHK:	J.D. Tebera
DATE:	04/08/03

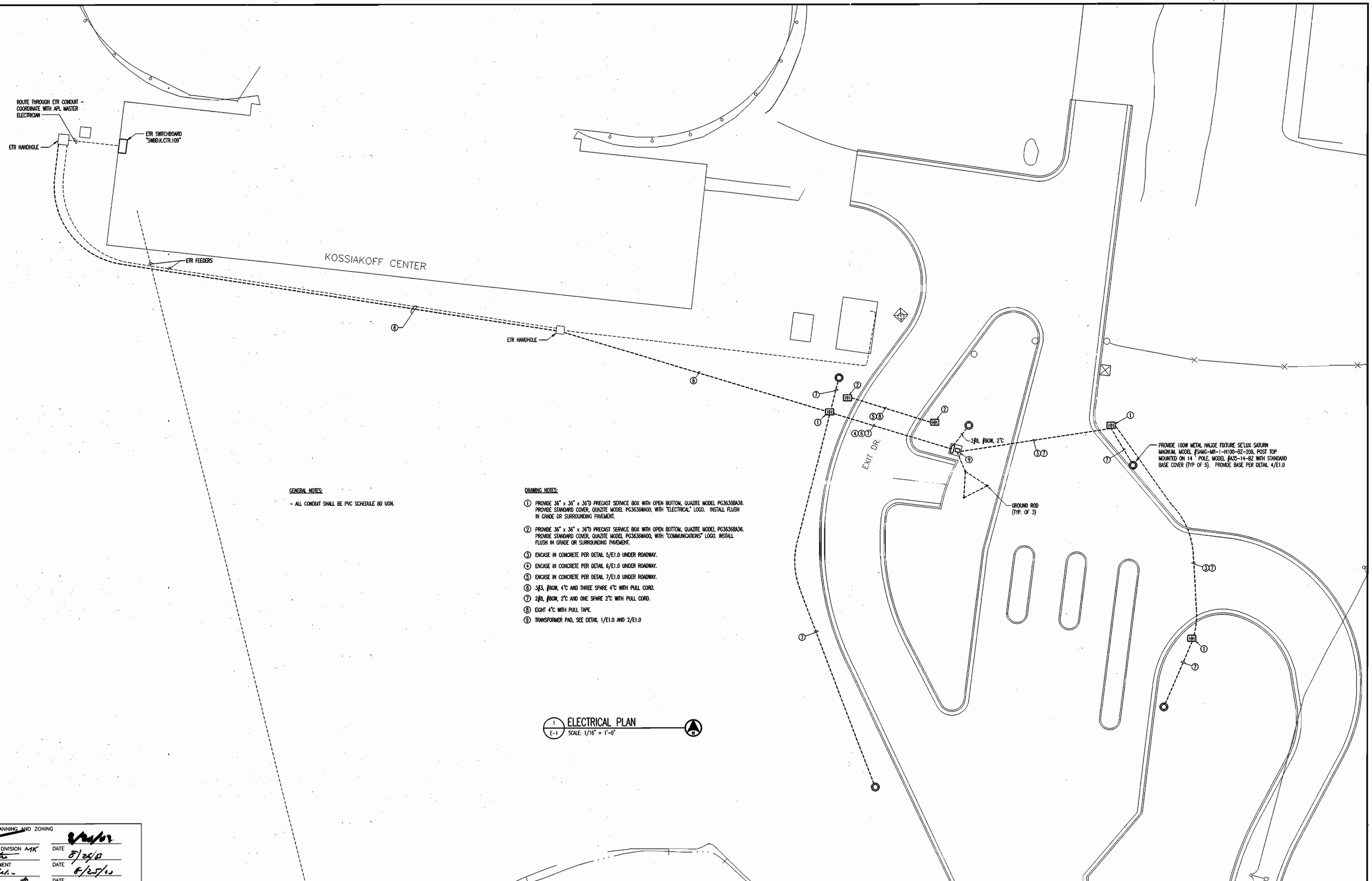
DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

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

SCALE AS SHOWN
SHEET E1.0
SHEET 22 OF 23

SDP-03-174



GENERAL NOTES:

- ALL CONDUIT SHALL BE PVC SCHEDULE 80 UON.

DRAWING NOTES:

1. PROVIDE 36" x 36" x 36"D PRECAST SERVICE BOX WITH OPEN BOTTOM, QUAZITE MODEL PG3636BA36. PROVIDE STANDARD COVER, QUAZITE MODEL PG3636MA00, WITH "ELECTRICAL" LOGO. INSTALL FLUSH IN GRADE OR SURROUNDING PAVEMENT.
2. PROVIDE 36" x 36" x 36"D PRECAST SERVICE BOX WITH OPEN BOTTOM, QUAZITE MODEL PG3636BA36. PROVIDE STANDARD COVER, QUAZITE MODEL PG3636MA00, WITH "COMMUNICATIONS" LOGO. INSTALL FLUSH IN GRADE OR SURROUNDING PAVEMENT.
3. ENCASE IN CONCRETE PER DETAIL 5/E1.0 UNDER ROADWAY.
4. ENCASE IN CONCRETE PER DETAIL 6/E1.0 UNDER ROADWAY.
5. ENCASE IN CONCRETE PER DETAIL 7/E1.0 UNDER ROADWAY.
6. 3#3, #8GW, 4"C AND THREE SPARE 4"C WITH PULL CORD.
7. 2#8, #8GW, 2"C AND ONE SPARE 2"C WITH PULL CORD.
8. EIGHT 4"C WITH PULL TAPE.
9. TRANSFORMER PAD, SEE DETAIL 1/E1.0 AND 2/E1.0

1 / E-1 ELECTRICAL PLAN
SCALE: 1/16" = 1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/25/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/25/03

DIRECTOR — DATE

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Consulting Engineers
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DES:	D.M. von Behren
DRN:	D.M. von Behren
CHK:	J.D. Tebera
DATE:	04/08/03

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

POND ROAD ENTRANCE

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

SCALE AS SHOWN

SHEET E1.1

SHEET 23 OF 23

SDP-03-174