ROADWAYS, STORM DRAINS AND STORMWATER MANAGEMENT

VILLAGE OF RIVER HILL

SECTION 2 AREA 1

5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

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3	PLAN AND PROFILE SUMMER SUNRISE DRIVE FROM STA 17+00 TO END
4	PLAN AND PROFILE ENCHANTED SOLITUDE PLACE AND RIVER RUN FROM STA 0+00 TO CUL-DE-SAC
5	PLAN AND PROFILE RIVER RUN FROM STA 0+00 TO STA 10+50
6	PLAN AND PROFILE EMPTY SONG ROAD AND VELVET PATH
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GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS.
2. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECCESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
3. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
4. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF CONSTRUCTION INSPECTION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
5. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AY LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.

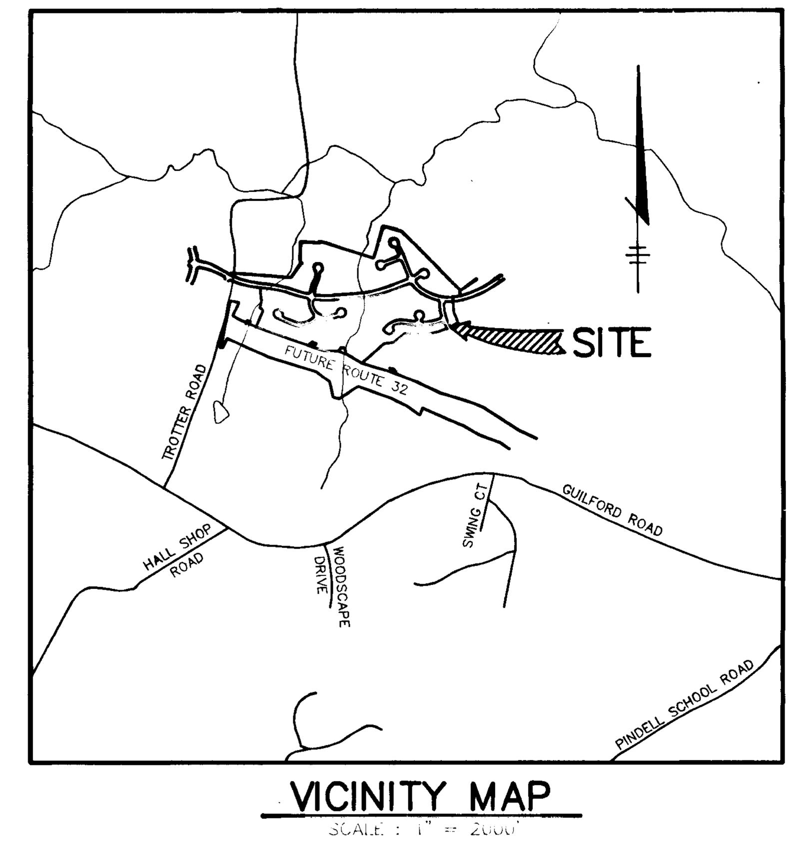
BELL TELEPHONE SYSTEM	393-3649
LONG DISTANCE CABLE DIVISION	393-3553 OR 3554
BALTIMORE GAS AND ELECTRIC CO.	539-8000
HOWARD COUNTY BUREAU OF UTILITIES	313-4900
COLONIAL PIPELINE	795-1390

6. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
5. ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
6. ALL STREET CURB RETURNS SHALL HAVE 25' RADII UNLESS OTHERWISE NOTED.
7. STORM DRAIN TRENCHES WITHIN ROAD RIGHT OF WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, I.e., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, 1990 AMENDMENTS.
9. PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.
10. DESIGNED TRAFFIC SPEED IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIAL STANDARD:

ALL 50' RIGHT OF WAYS	25 AND 30 M.P.H.
ALL 60' RIGHT OF WAYS	35 M.P.H.

11. ALL ELEVATIONS SHOWN ARE BASED ON THE U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929.
12. ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION.
13. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
14. PROFILES STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
15. SUBJECT PROPERTY ZONED NT PER 8-20-85 COMPREHENSIVE ZONING PLAN.
17. NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
18. ALL STORM DRAIN PIPE BEDDING SHALL BE CLASS 'C' AS SHOWN IN FIG. 11.4, VOLUME 1 OF HOWARD COUNTY DESIGN MANUAL UNLESS OTHERWISE NOTED.
19. SEE DEPT. OF PLANNING AND ZONING FILE NO'S. S-91-03, P-92-13 AND WP-92-13.
20. LIGHT POLES AND FIXTURES FOR STREET LIGHTS SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME III – ROAD AND BRIDGES, PAGE 4A-26.
21. THE STORMWATER MANAGEMENT FACILITY PROPOSED FOR THIS SITE ARE CLASS 'A' HAZARD FACILITIES. IN THE EVENT OF A FAILURE OF THE EMBANKMENT, DAMAGE WILL BE LIMITED TO FLOODPLAINS AND COUNTY ROADS.
22. THE PAVEMENT DETAILS SHOWN ON THESE PLANS REFLECT THE HOWARD COUNTY MINIMUM STANDARD PAVEMENT SECTIONS AND ARE NOT BASED ON SITE SPECIFIC CONDITIONS. ~~PRIOR TO PAVING, THE FINAL PAVEMENT SECTIONS SHALL BE DETERMINED BY A QUALIFIED GEOTECHNICAL ENGINEER BASED ON IN-SITU TESTING OF THE FINISHED SUBGRADE. ANY PAVEMENT SECTIONS DETERMINED BY THE GEOTECHNICAL ENGINEER THAT IS LESS THAN THE HOWARD COUNTY MINIMUM STANDARD, SHALL FIRST BE APPROVED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS. THE TESTING AND GEOTECHNICAL ENGINEER SHALL BE FURNISHED BY THE OWNER.~~
23. WP-92-13 IS A WAIVER TO ALLOW CUL-DE-SAC STREETS TO EXCEED 1200 FEET IN LENGTH AND EXCEED 1000 ADT'S.
24. AN APPROXIMATELY SEVEN FOOT HIGH EARTH BERM IS LOCATED ALONG THE ROUTE 32 RIGHT OF WAY TO THE SOUTH OF LOTS 111 – 114.
25. AT A MEETING WITH THE DIRECTOR OF THE DEPARTMENT OF PUBLIC WORKS, WAIVERS TO PERMIT A 200' RADIUS ON ANGEL ROSE COURT AND A 500' RADIUS ON EMPTY SONG ROAD WERE APPROVED ON JUNE 18, 1992.
26. A WAIVER TO ALLOW WATER QUALITY BASIN #9 TO IMPACT EXISTING WETLANDS AND WETLAND BUFFERS WAS APPROVED BY THE DIRECTOR OF THE DEPARTMENT OF PUBLIC WORKS ON JUNE 8, 1992.
27. STREET TREES (500 TOTAL) THE LOCATION OF TREES SHOWN ON THIS PLAN ARE TENTATIVE AND ARE USED FOR BOND PURPOSES ONLY. THE FINAL LOCATION AND VARIETY OF TREES MAY VARY TO ACCOMODATE FIELD CONDITIONS AND BUILDERS LANDSCAPE PROGRAM. BOND RELEASE IS CONTINGENT UPON SECTION 15.131 OF THE HOWARD COUNTY SUBDIVISION REGULATIONS, AS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.
28. ALL STREET LIGHTS WILL CONSIST OF A 14' BRONZE FIBERGLASS POLE WITH 150 WATT MODERN HP SODIUM FIXTURE EXCEPT STREET LIGHTS ALONG SUMMER SUNRISE DRIVE WHICH WILL CONSIST OF A 30' BRONZE ALUMINUM POLE WITH 250 WATT MODERN HP SODIUM FIXTURE.
29. TOPOGRAPHY SHOWN HEREON IS FROM AERIAL MAPS FLOWN IN 1989 BY MAPPING ASSOCIATES, INC.
30. PUBLIC WATER AND SEWER SYSTEMS (CONTRACT NO'S 34-3204-D AND 34-3206-D) ARE TO BE UTILIZED FOR THIS SITE.
31. STORMWATER MANAGEMENT FOR THIS DEVELOPMENT WILL BE DETENTION FACILITIES CREATED BY ROAD FILLS. WATER QUALITY IS PROVIDED BY EXTENDED DETENTION BASINS.
32. THE 100- YEAR FLOODPLAIN STUDY HAS BEEN PREPARED BY WHITMAN REQUARDT AND ASSOCIATES.
33. WETLANDS DELINEATION IS PROVIDED BY GEO-TECHNOLOGY ASSOC., INC.
34. TRAFFIC STUDY WAS PREPARED BY GOROVE/SLADE ASSOCIATES.
35. NOISE STUDY WAS PREPARED BY STAIANO ENGINEERING, INC.
36. GEOTECHNICAL STUDY FOR STORMWATER MANAGEMENT IS PROVIDED BY THE ROBERT BALTER COMPANY.
37. BOUNDARY SURVEY WAS PREPARED BY KCI, INC.
38. A WAIVER OF SECTION 10.2.6.6 OF DESIGN MANUAL VOLUME I FOR THE SUMMER SUNRISE DRIVE ROAD CROSSING WAS APPROVED BY THE DIRECTOR OF PUBLIC WORKS ON OCTOBER 22, 1992. THE WAIVED SECTION PERTAINS TO MAXIMUM SIDE SLOPES ALLOWED IN PONDS. THE DIRECTOR ALSO APPROVED A WAIVER OF SECTIONS 10.2.6.5a AND 10.2.6.6 FOR WATER QUALITY BASINS #9 AND #21 TO ALLOW LESS THAN TWELVE FEET WIDE LEVEL AREA AROUND POND AND ALLOW THE MAXIMUM SIDE SLOPE TO BE EXCEEDED.
39. LOW MAINTENANCE GROUND COVER (e.g. CROWN VETCH) TO BE PROVIDED IN ALL S.W.M. BASINS FOR SLOPES STEEPER THAN 4:1.
40. WETLAND WORK TO BE AS PER MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER QUALITY CERTIFICATION # 92-WQ-0089 AND DEPARTMENT OF NATURAL RESOURCES # 92-03010.

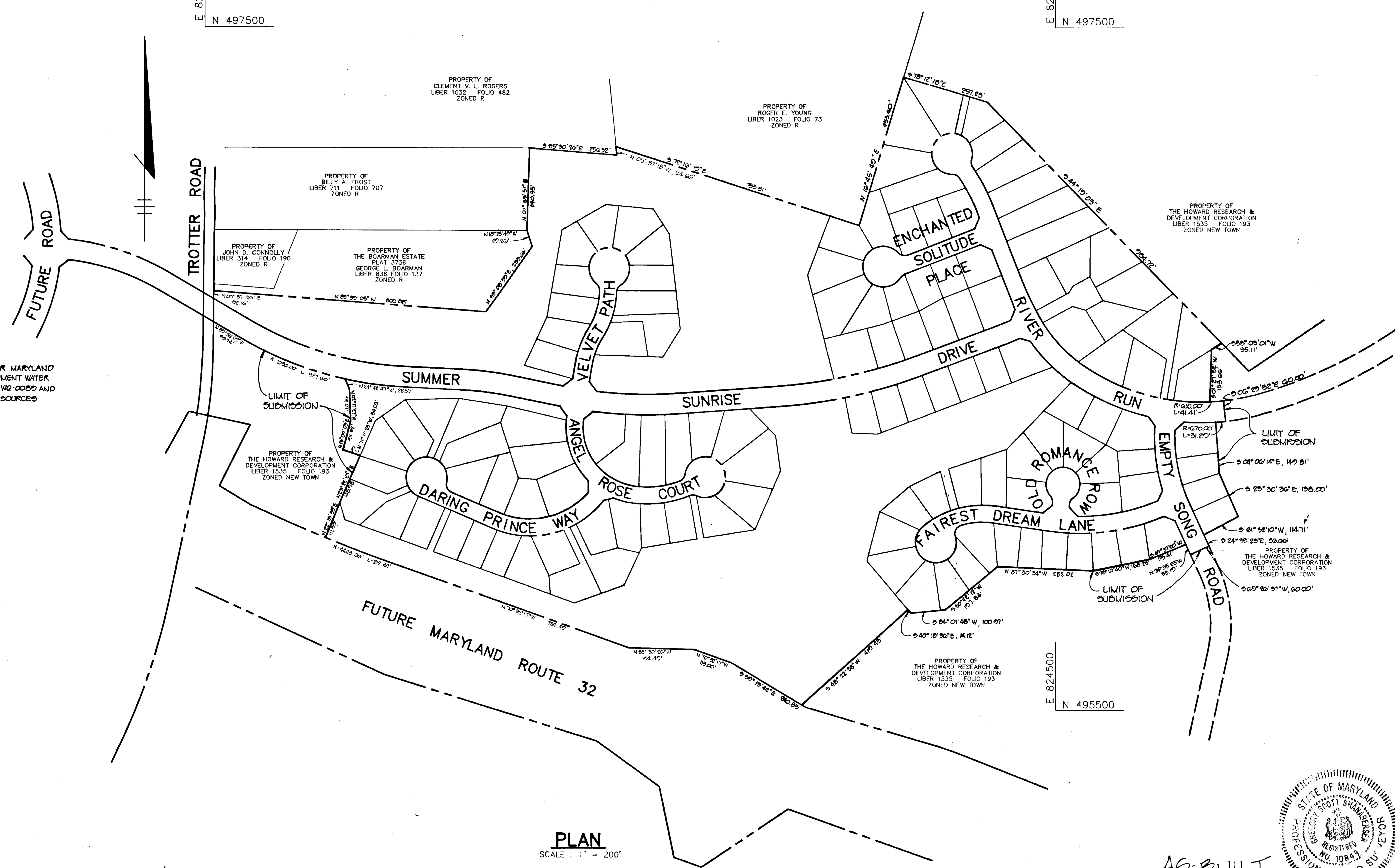
1487



VICINITY MAP
SCALE : 1" = 2000'

BENCHMARKS

BM #1 RAILROAD SPIKE IN POLE # 525680 (TROTTER ROAD) ELEV. 393.27
N 496697.02
E 822026.81



PLAN
SCALE : 1" = 200'

AS-BUILT
G. SCOTT SHANABERGER DATE 11/30/95
PROF. L.S. #10849

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

STATE OF MARYLAND — GREGORY SCOTT SHANABERGER — REGISTERED NO. 10849 — PROFESSIONAL LAND SURVEYOR

AS BUILT CERTIFICATE

DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 4/27/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 1/19/93

CHIEF, BUREAU OF HIGHWAYS — DATE 1/6/93

CHIEF, BUREAU OF ENGINEERING — DATE 1-20-93

DATE	NO.	REVISION

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT **VILLAGE OF RIVER HILL**
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 35 ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE
TITLE SHEET

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-92
DATE

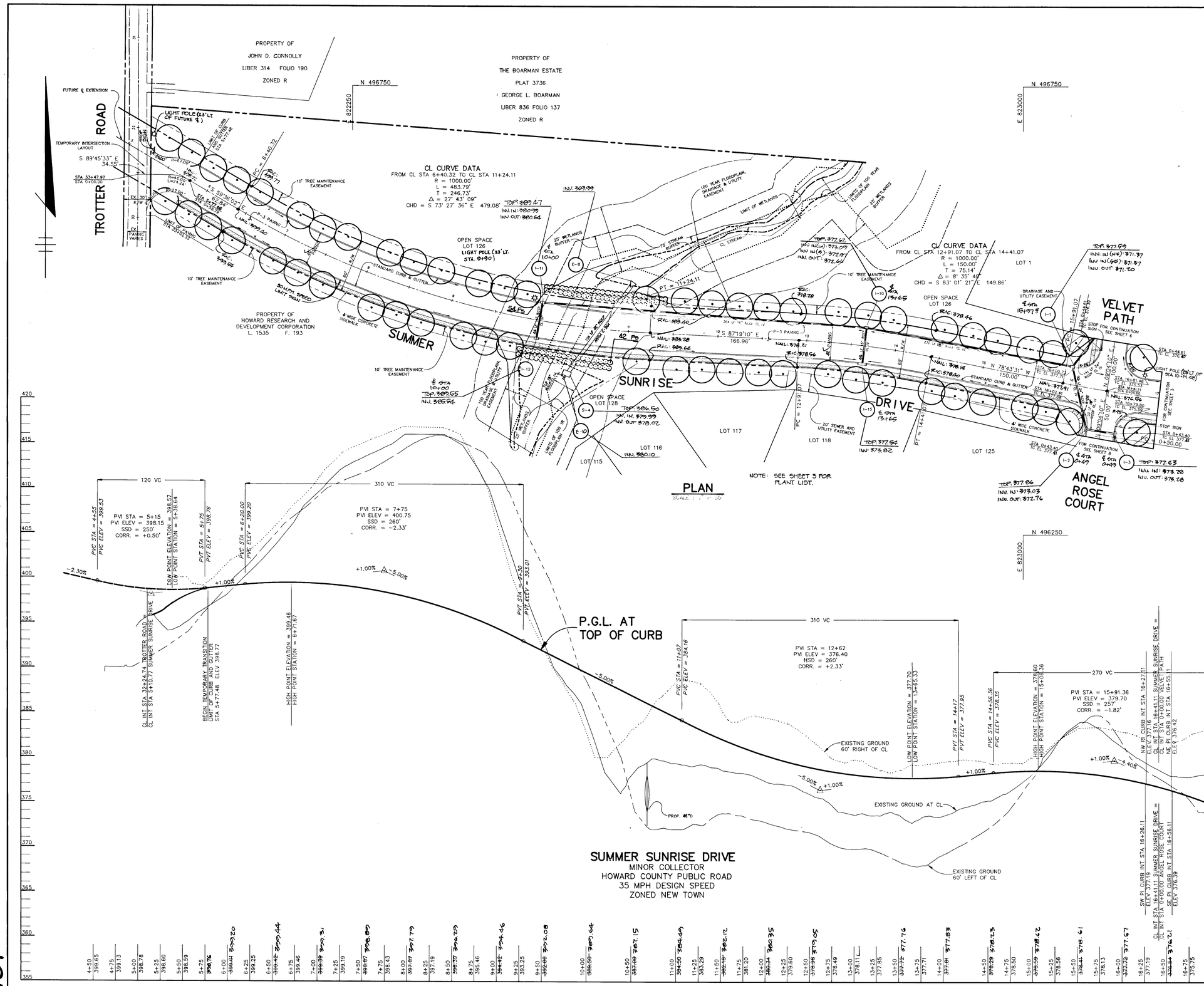
STATE OF MARYLAND — ARTHUR E. MUEGGE III — NO. 8707 — REGISTERED PROFESSIONAL ENGINEER

ARTHUR E. MUEGGE #8707

S-91-03 P-92-13 WP-92-13

DESIGNED BY : C.J.R.	
DRAWN BY : DAM	
PROJECT NO : 80804	
DATE : DECEMBER 21, 1992	
SCALE : AS SHOWN	
DRAWING NO. 1 OF 21	

F-93-18



AS BUILT CERTIFICATE

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

G. GARY SHANABERGER, REG. No. 10889 — 11/3/05 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — 1/27/93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — 1/19/93 DATE

CHIEF, BUREAU OF HIGHWAYS — 1/6/93 DATE

CHIEF, BUREAU OF ENGINEERING — 1-20-93 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT **VILLAGE OF RIVER HILL**
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 35 ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE **PLAN AND PROFILE**
SUMMER SUNRISE DRIVE
FROM TROTTER ROAD TO STA 17+00

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-02
DATE

ARTHUR E. MUEGGE #8707

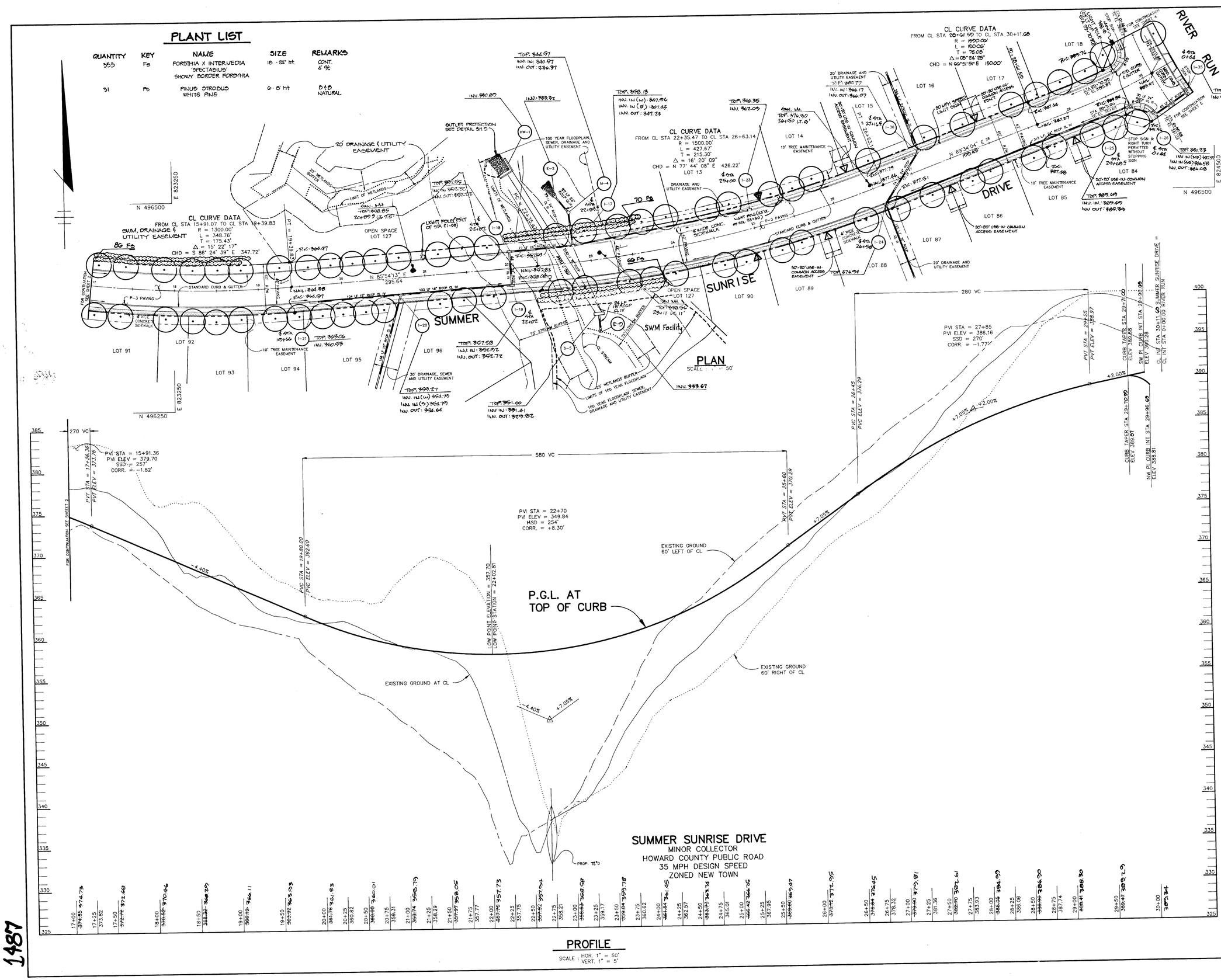
DESIGNED BY : C.J.R.
DRAWN BY : DAM
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 2 OF 21

F-03-18

1487

PLANT LIST

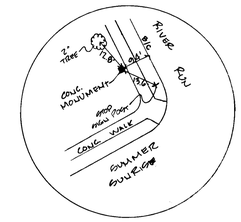
QUANTITY	KEY	NAME	SIZE	REMARKS
353	Fs	FORSYTHIA X INTERMEDIA 'SPECTABILIS' SHOWY BORDER FORSYTHIA	18 - 24" ht.	CONT. & B&B
31	Pb	PINUS STROBUS WHITE PINE	6 - 8' ht	B&B NATURAL



NOTE: LOT 18 WILL BE DEVELOPED WITH DRIVEWAY ACCESS ON TO RIVER RUN. LOTS 14–17 AND 84–89 WILL UTILIZE SHARED DRIVEWAYS EACH SERVING A GROUP OF TWO ADJACENT LOTS. LOTS 13 AND 90 WILL HAVE INDIVIDUAL DRIVEWAYS.

△ PROPOSED LOCATION OF SHARED DRIVEWAYS

▲ PROPOSED LOCATION OF SINGLE DRIVEWAYS



MONUMENT RECOVERY SKETCH
N.T.S.

SUMMER SUNRISE DRIVE

MINOR COLLECTOR
HOWARD COUNTY PUBLIC ROAD
35 MPH DESIGN SPEED
ZONED NEW TOWN

PROFILE

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

AS BUILT CERTIFICATE

SHANABERGER & LANE
8726 TOWN & COUNTY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

ELLICOTT SHANABERGER, PGLS. L.S. # 10449 — DATE 11/20/95

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 1/27/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 1/19/93

CHIEF, BUREAU OF HIGHWAYS — DATE 1/6/93

CHIEF, BUREAU OF ENGINEERING — DATE 1-20-93

DATE	NO.	REVISION

OWNER / DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT **VILLAGE OF RIVER HILL**
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 35 ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE **PLAN AND PROFILE SUMMER SUNRISE DRIVE FROM STA 17+00 TO END**

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

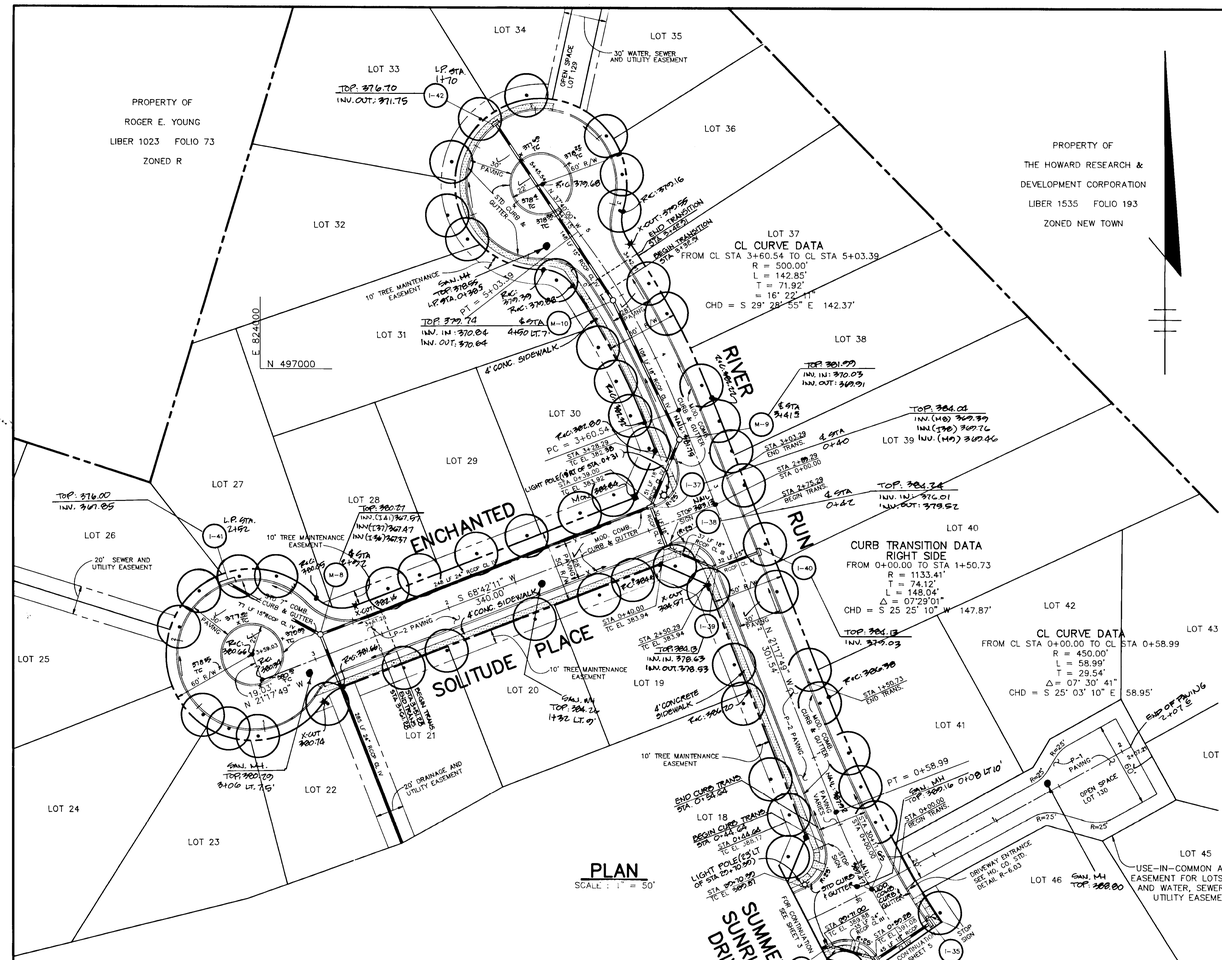
12 - 21 - 92

ARTHUR E. MUEGGE No. 8707

DESIGNED BY : C.J.R.
DRAWN BY : DAM
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 3 OF 21

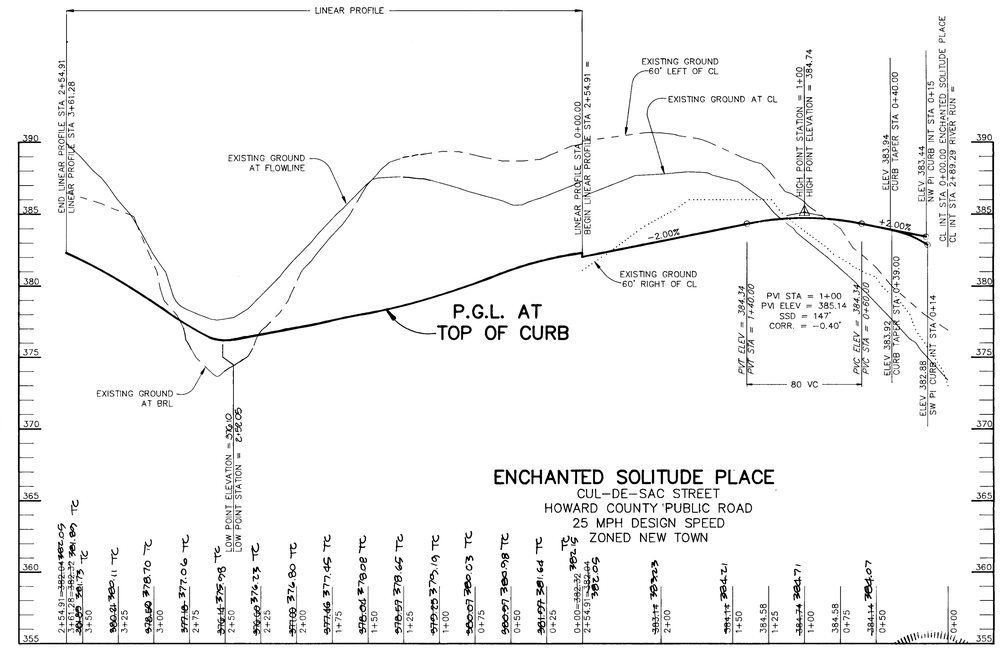
1487

F-93-18



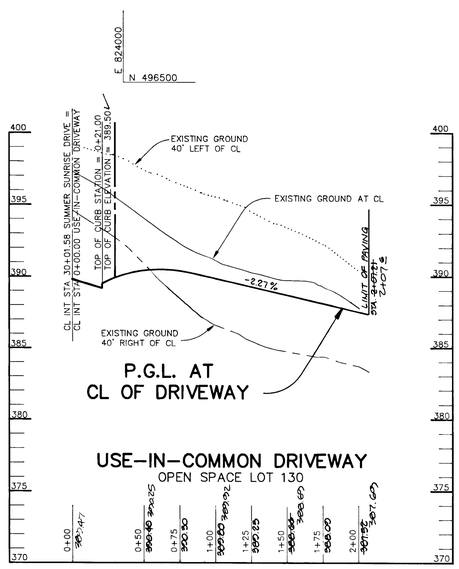
PLAN

SCALE : 1" = 50'



PROFILE

HOR. 1" = 50', SCALE :
VERT. 1" = 5'



PROFILE

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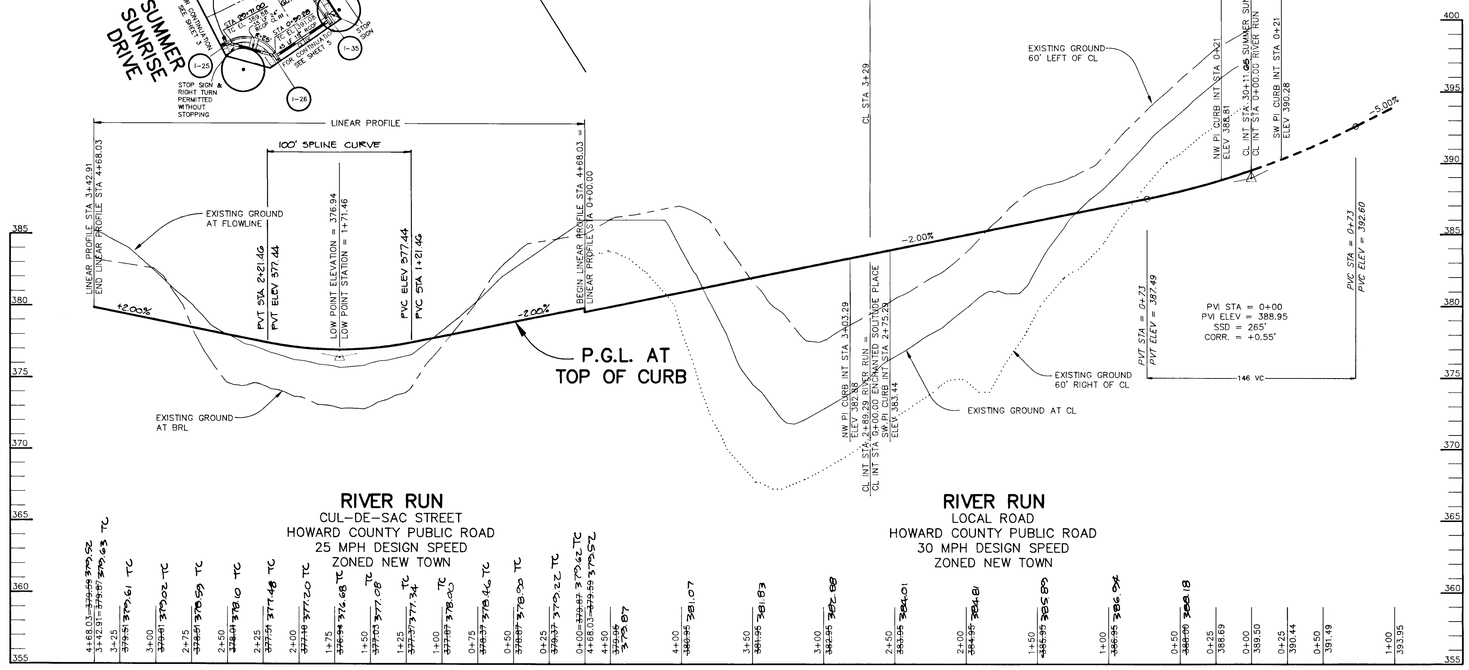
VERT. 1" = 5'



PROFILE

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

AS BUILT CERTIFICATE
SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043
G. SCOTT SHANABERGER, PROF. L.S. # 10840
11/30/05
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — 1/27/93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, LAND DEVELOPMENT DIVISION — 1/19/93 DATE
CHIEF, BUREAU OF HIGHWAYS — 1/6/93 DATE
CHIEF, BUREAU OF ENGINEERING — 1-20-93 DATE

DATE	NO.	REVISION
8-9-93	1	REV. LOT LINE BETWEEN LOTS 18 & 19, LOCATION OF I-41 & SWMP STA. & ELEV. OF ENCHANTED SOLITUDE PLACE

OWNER / DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT **VILLAGE OF RIVER HILL**
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 35 ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE **PLAN AND PROFILE**
ENCHANTED SOLITUDE PLACE & RIVER RUN
FROM STA 0+00 TO CUL-DE-SAC

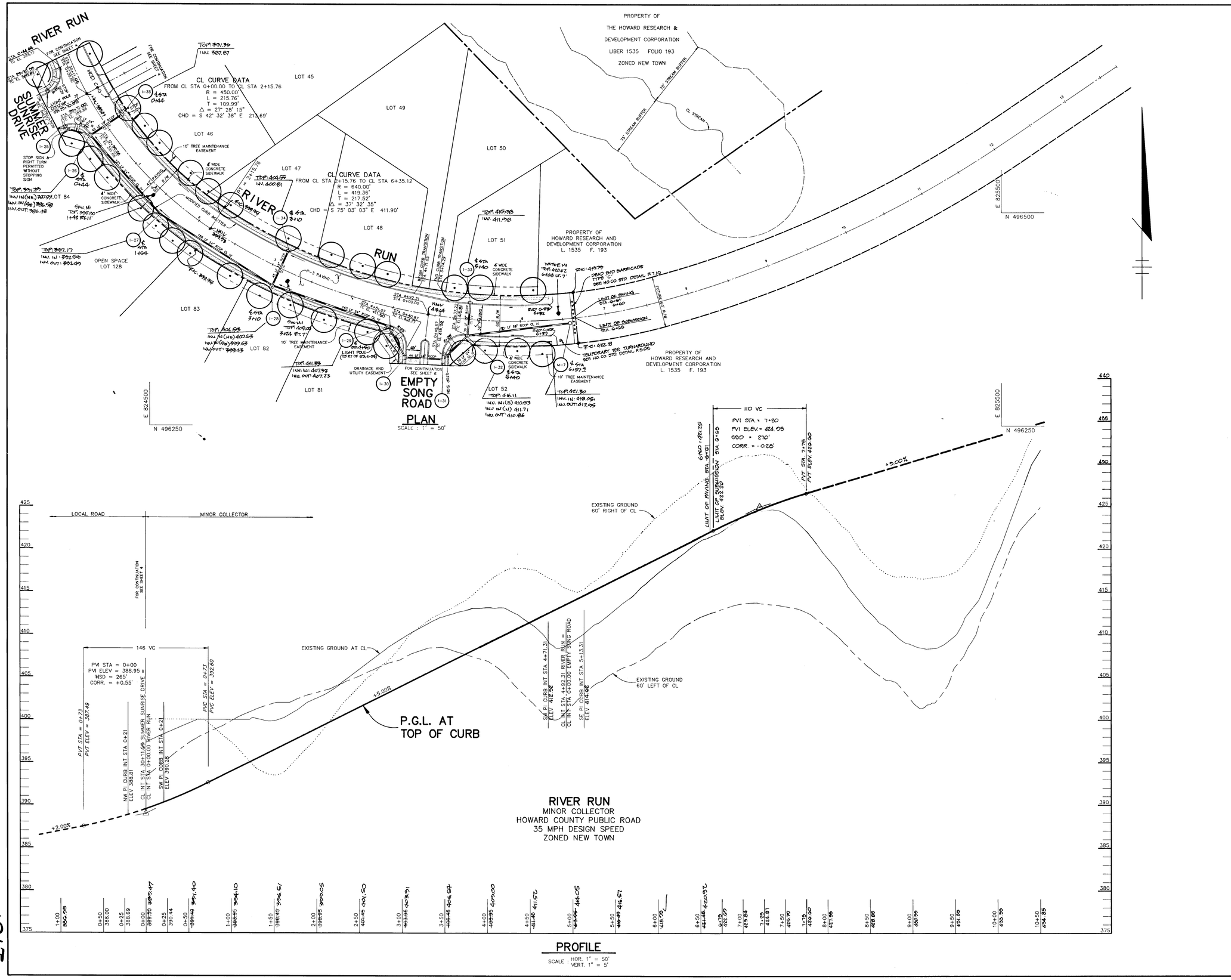
RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-92
DATE
ARTHUR E. MUEGGE #8707

DESIGNED BY : C.J.R.
DRAWN BY : DAM
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 4 OF 21

1487

F-93-18



AS BUILT CERTIFICATE

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

Scott Shanaberger 11/30/95
SCOTT SHANABERGER, PROF. LS. # 10849 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Emma Hollonath 1/27/93
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chad Damm 1/19/93
CHIEF, LAND DEVELOPMENT DIVISION DATE

Ch M Tengam 1/6/93
CHIEF, BUREAU OF HIGHWAYS DATE

William E Riley 1-20-93
CHIEF, BUREAU OF ENGINEERING DATE

DATE	NO.	REVISION

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT **VILLAGE OF RIVER HILL**
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 35 ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE **PLAN AND PROFILE**
RIVER RUN
FROM STA 0+00 TO STA 10+50

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-92
DATE

STATE OF MARYLAND
ARTHUR E. MUEGGE III
NO. 8707
REGISTERED PROFESSIONAL ENGINEER

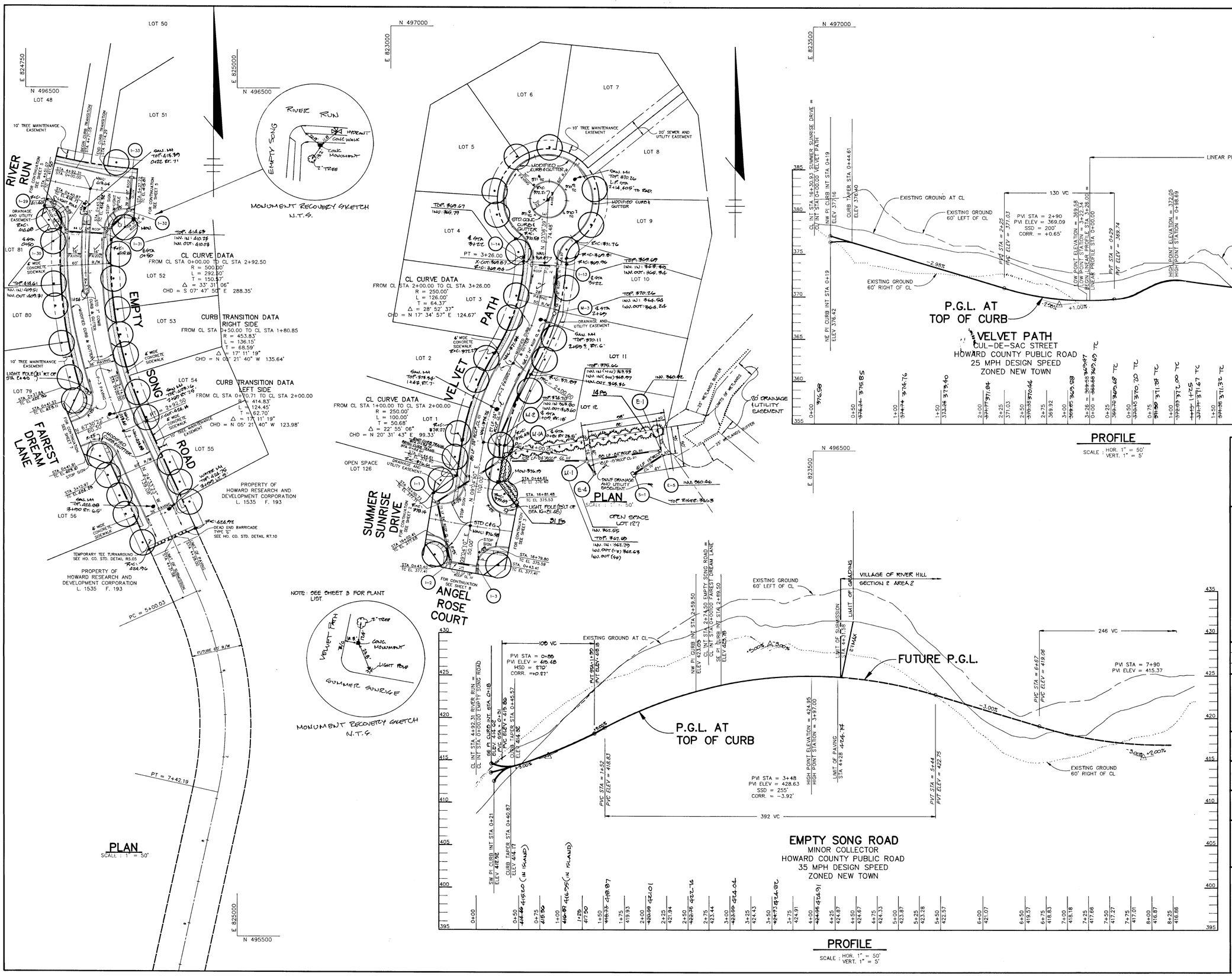
ARTHUR E. MUEGGE 8707

S-91-03 P-92-13 WP-92-13

DESIGNED BY : C.J.R.
DRAWN BY : DAM
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 5 OF 21

F-93-18

1487



AS BUILT CERTIFICATE

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

G. SCOTT SHANABERGER, PROF. LAND SURVEYOR — 1/3/95 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — 1/27/93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — 1/19/93 DATE

CHIEF, BUREAU OF HIGHWAYS — 1/6/93 DATE

CHIEF, BUREAU OF ENGINEERING — 1-20-93 DATE

DATE	NO.	REVISION
6-18-93	1	REV. STORM DRAIN & LOT LAYOUT - VELVET PATH

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT: VILLAGE OF RIVER HILL
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA: TAX MAP NO. 35 — ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: PLAN AND PROFILE EMPTY SONG ROAD AND VELVET PATH

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

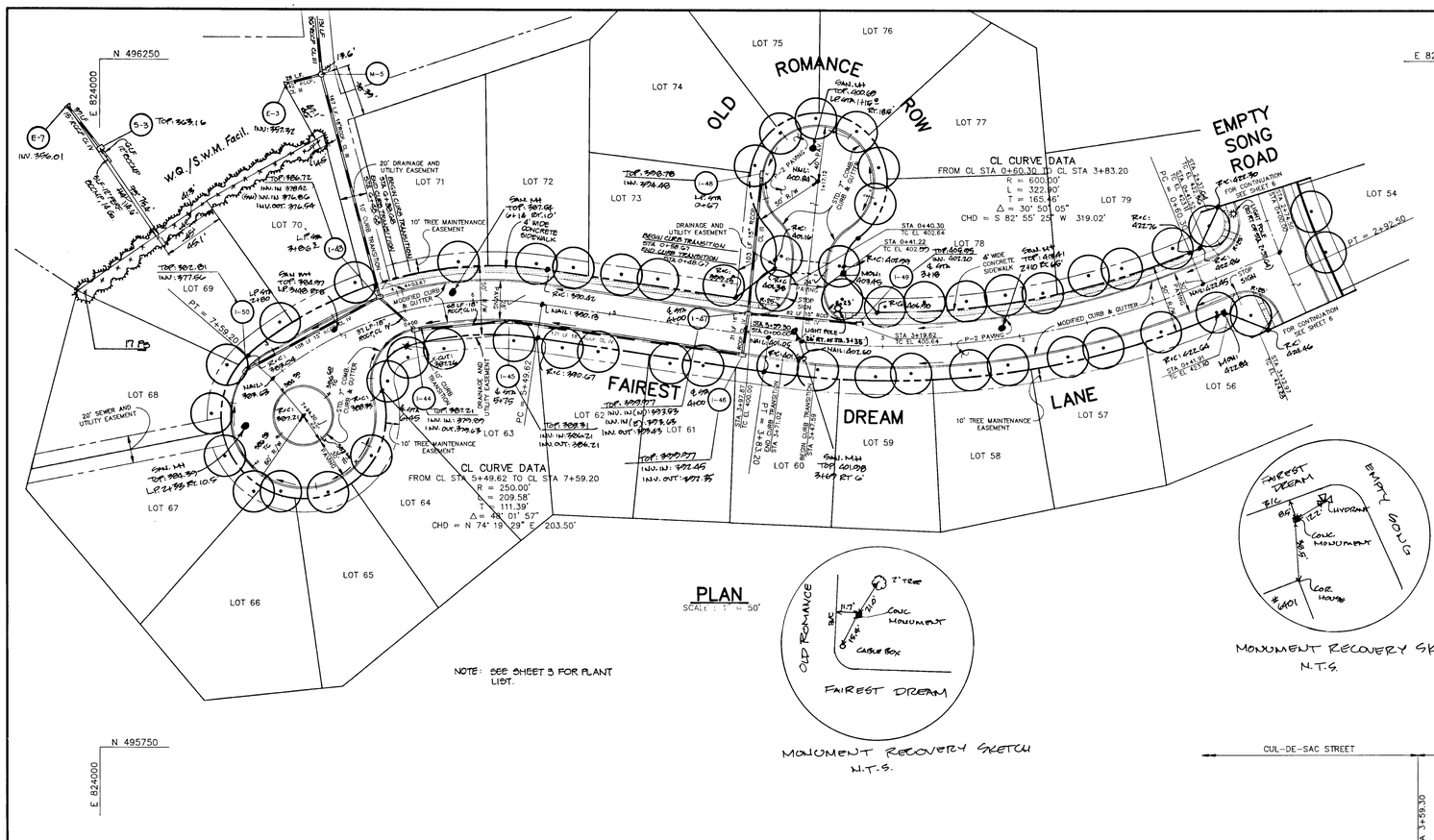
12-21-92

ARTHUR E. MUEGGE #8707

DESIGNED BY : C.J.R.
DRAWN BY : DAM
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 6 OF 21

F-93-18

1487



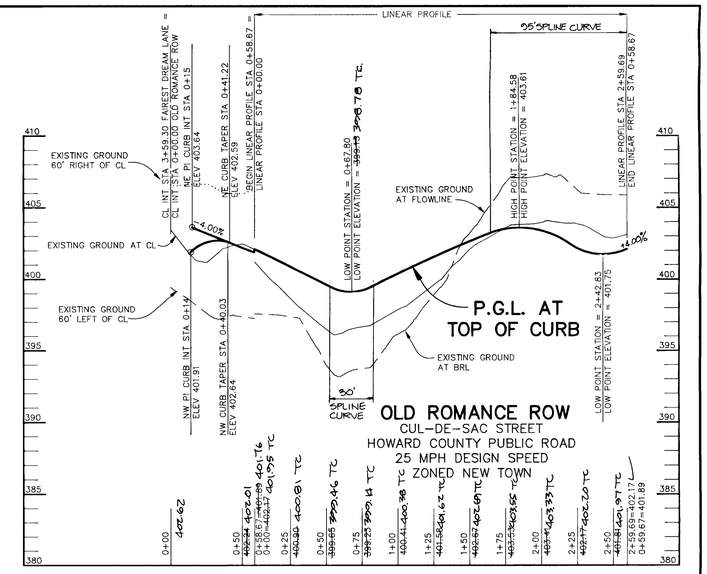
PLAN

SCALE : 1" = 50'

NOTE: SEE SHEET 3 FOR PLANT LIST.

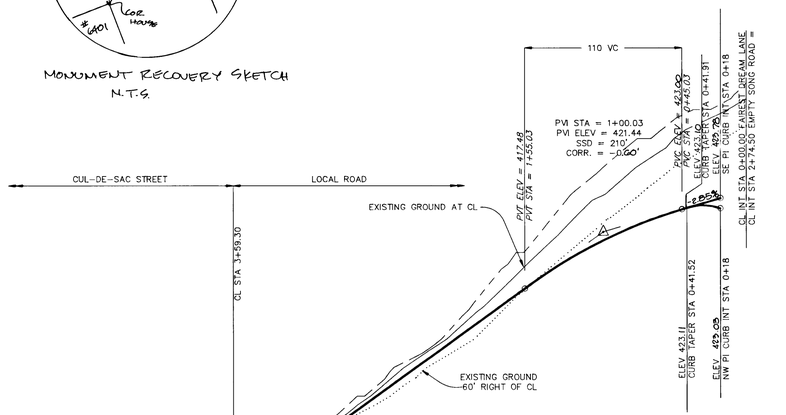
MONUMENT RECOVERY SKETCH
N.T.S.

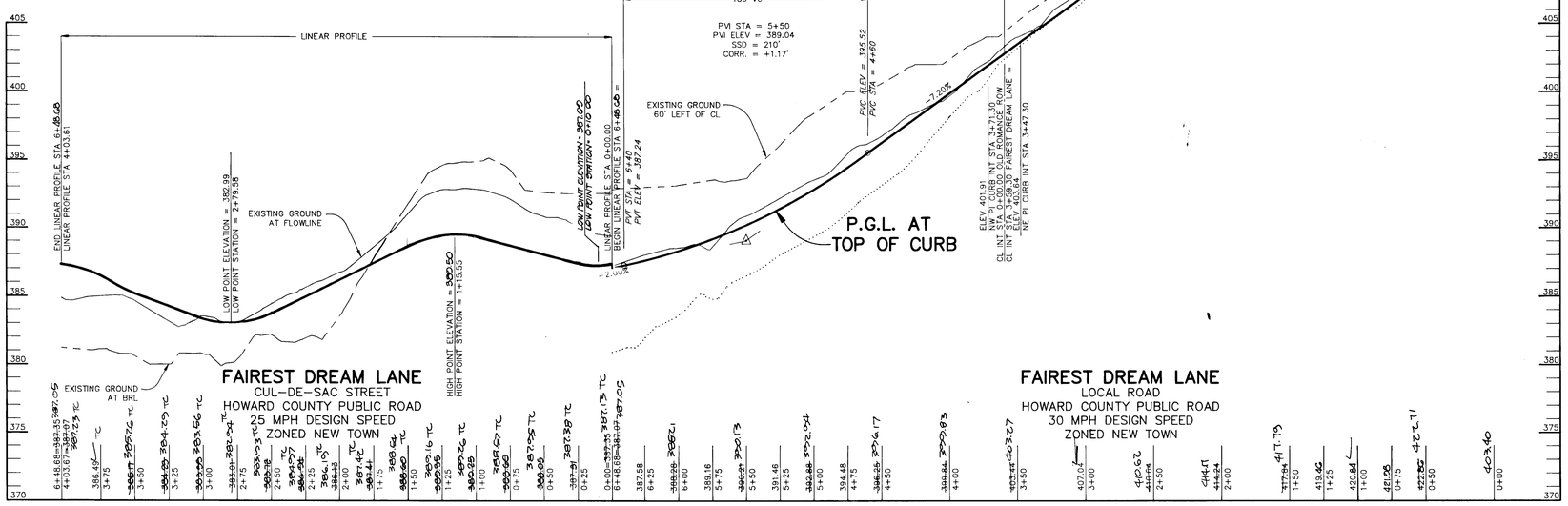
MONUMENT RECOVERY SKETCH
N.T.S.



PROFILE

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





PROFILE

SCALE HOR. 1" = 50'
VERT. 1" = 5'

AS BUILT CERTIFICATE

SHANAEERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

G. SCOTT SHANAEERGER PROF. LS. # 10849 — 11/30/94 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — 1/27/93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — 1/19/93 DATE

CHIEF, BUREAU OF HIGHWAYS — 1/6/93 DATE

CHIEF, BUREAU OF ENGINEERING — 1-20-93 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT **VILLAGE OF RIVER HILL**
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 35 ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE **PLAN AND PROFILE OF OLD ROMANCE ROW AND FAIREST DREAM LANE**

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-92 DATE

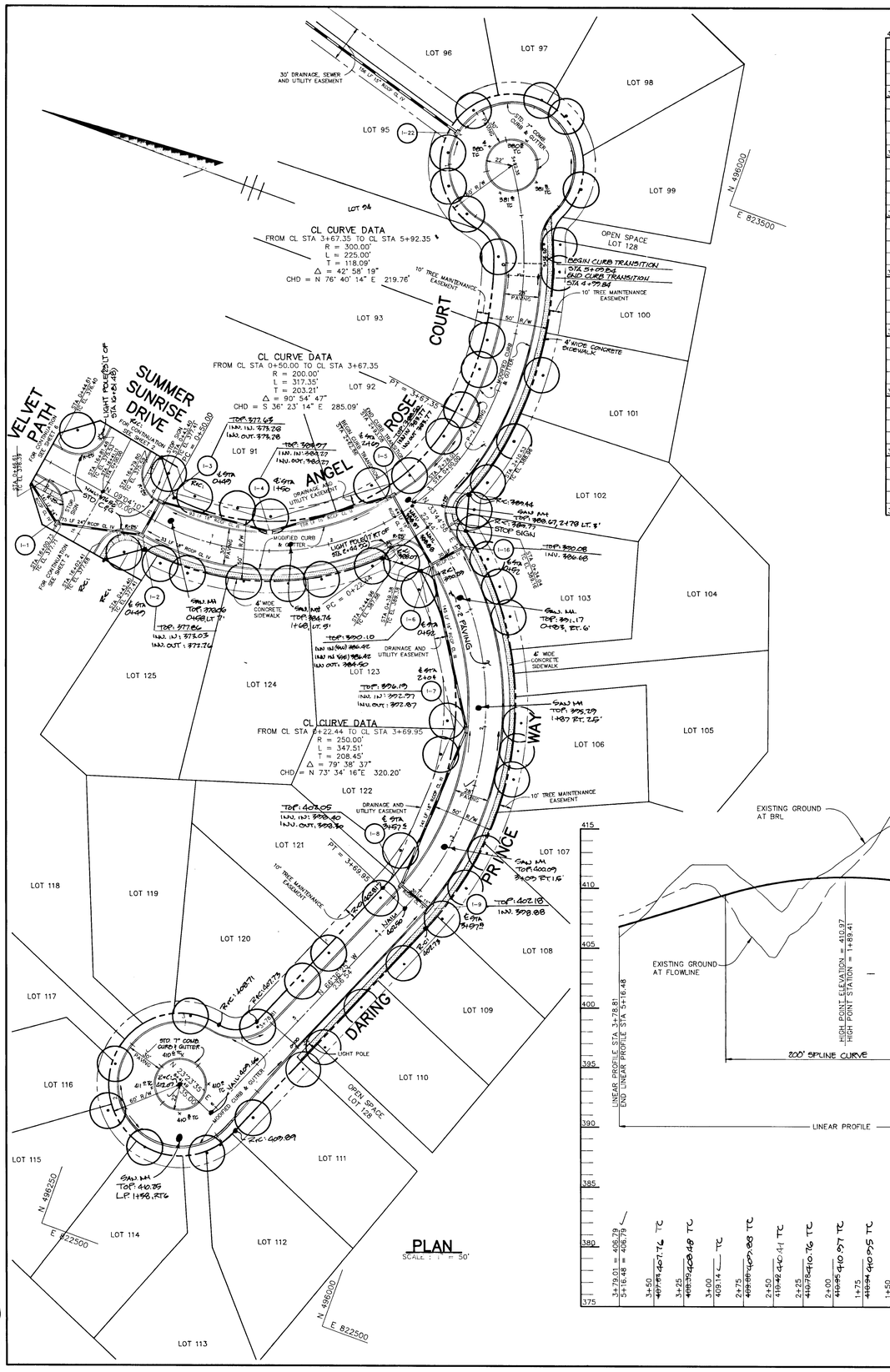
ARTHUR E. MUEGGE No. 8707

S-91-03 F-92-13 WP-92-13

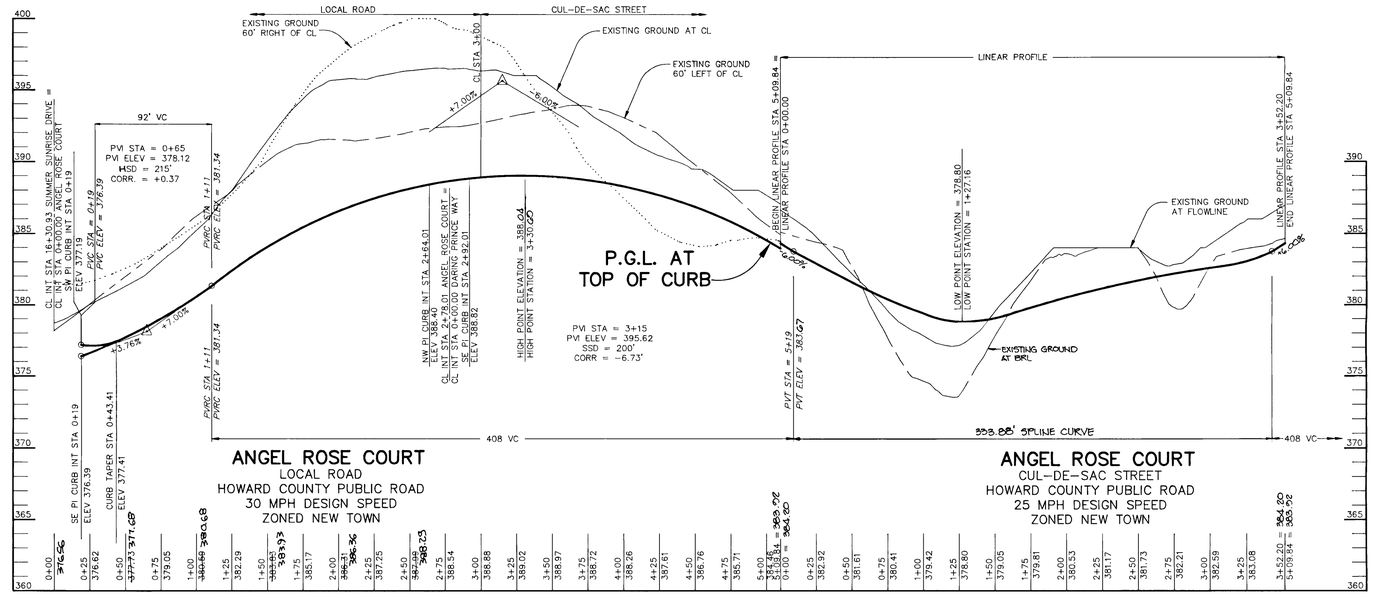
DESIGNED BY : C.J.R.
DRAWN BY : DAM
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 7 OF 21

1487

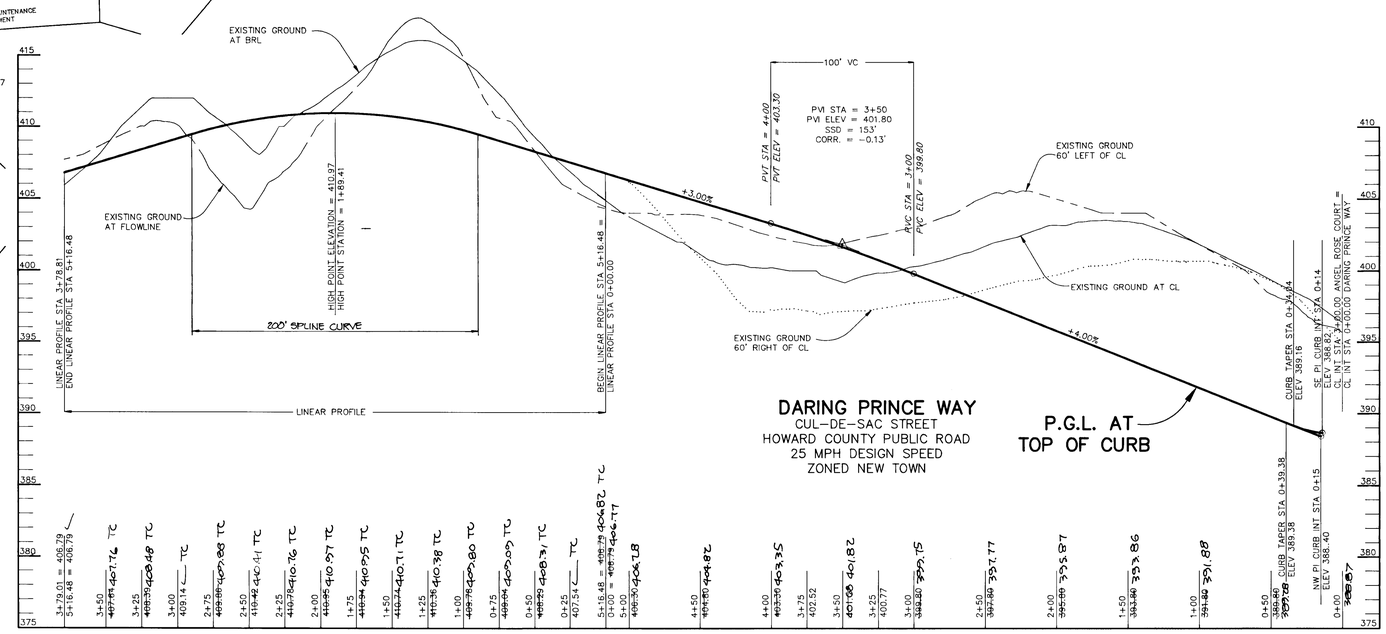
F-93-18



PLAN
SCALE : 1" = 50'



PROFILE
SCALE : HOR. 1" = 50'
VERT. 1" = 5'



PROFILE
SCALE : HOR. 1" = 50'
VERT. 1" = 5'

AS BUILT CERTIFICATE

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

11/30/95
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — 1/27/93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — 1/19/93 DATE

CHIEF, BUREAU OF HIGHWAYS — 1/6/93 DATE

CHIEF, BUREAU OF ENGINEERING — 1-20-93 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT **VILLAGE OF RIVER HILL**
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 35 ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE **PLAN AND PROFILE ANGEL ROSE COURT AND DARING PRINCE COURT**

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

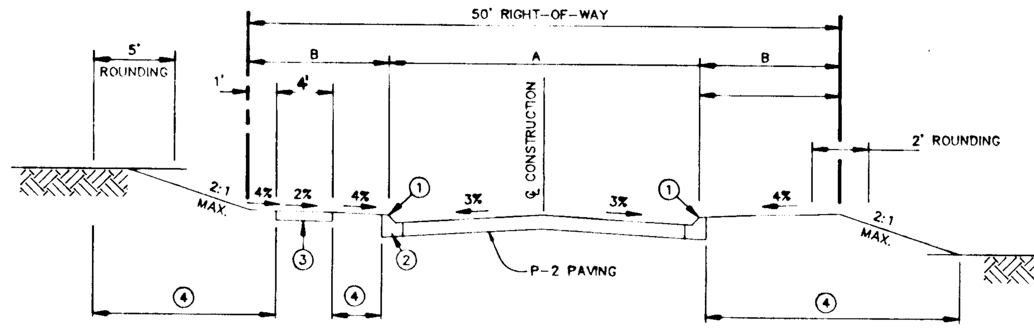
12-21-92
DATE

ARTHUR E. MUEGGE #8707

DESIGNED BY : C.J.R.
DRAWN BY : DAM
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 8 OF 21

1487

F-93-18



CLOSED SECTION

1. PROFILE GRADE LINE (PGL), SEE DESIGN MANUAL.
2. TYPE OF CURB VARIES (BITUMINOUS CURB OR MOD. COMB. CURB & GUTTER OR STANDARD COMB. CURB & GUTTER - SEE ROAD PLAN).
3. 4" CONCRETE SIDEWALK AS REQUIRED BY SUBDIVISION REGULATIONS.
4. INDICATES 2" TOPSOIL, SEED AND MULCH.
5. DESIGN SPEED = 25 M.P.H.

TYPICAL SECTION CUL-DE-SAC STREET

NO SCALE

VELVET PATH
FROM CL STA 0+46.61 TO CL STA 3+26.00
A = 28' B = 11'

ENCHANTED SOLITUDE PLACE
FROM CL STA 0+40.00 TO CL STA 2+54.91
A = 28' B = 11'

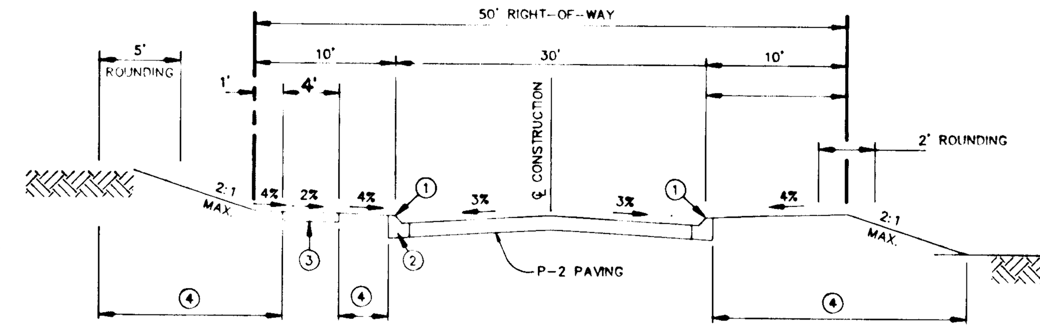
RIVER RUN
FROM CL STA 3+28.29 TO CL STA 4+68.03
A = 28' B = 11'

FAIREST DREAM LANE
FROM CL STA 3+97.87 TO CL STA 6+88.85
A = 28' B = 11'

OLD ROMANCE ROW
FROM CL STA 0+41.22 TO 0+58.67
A = 24' B = 13'

ANGEL ROSE COURT
FROM CL STA 3+10.53 TO CL STA 5+09.84
A = 28' B = 11'

DARING PRINCE WAY
FROM CL STA 0+39.38 TO CL STA 5+16.48
A = 28' B = 11'



CLOSED SECTION

1. PROFILE GRADE LINE (PGL), SEE DESIGN MANUAL.
2. TYPE OF CURB VARIES (BITUMINOUS CURB OR MOD. COMB. CURB & GUTTER OR STANDARD COMB. CURB & GUTTER - SEE DESIGN MANUAL).
3. 4" CONCRETE SIDEWALK AS REQUIRED BY SUBDIVISION REGULATIONS.(ONE SIDE ONLY)
4. INDICATES 2" TOPSOIL, SEED AND MULCH.
5. DESIGN SPEED = 30 M.P.H.

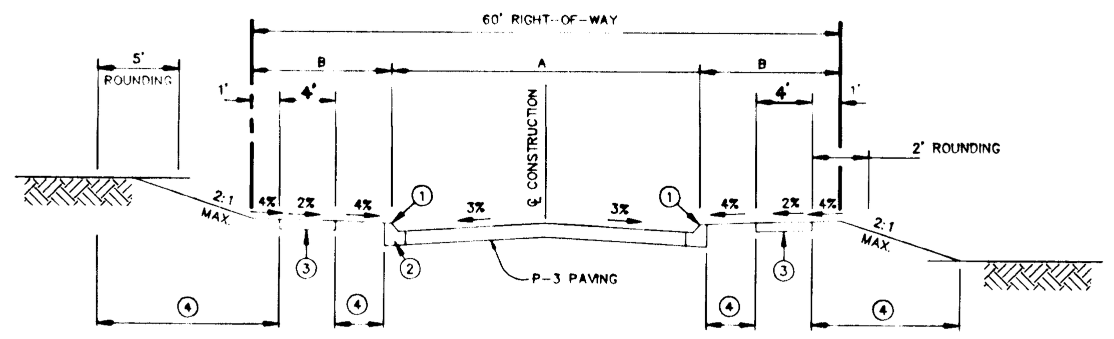
TYPICAL SECTION LOCAL ROAD

NO SCALE

RIVER RUN
FROM CL STA 1+50.73 TO CL STA 2+50.29

FAIREST DREAM LANE
FROM CL STA 0+41.91 TO CL STA 3+19.62

ANGEL ROSE COURT
FROM CL STA 0+43.40 TO CL STA 2+44.96



CLOSED SECTION

1. PROFILE GRADE LINE (PGL), SEE DESIGN MANUAL.
2. TYPE OF CURB VARIES (BITUMINOUS CURB OR MOD. COMB. CURB & GUTTER OR STANDARD COMB. CURB & GUTTER - SEE DESIGN MANUAL).
3. 4" CONCRETE SIDEWALK AS REQUIRED BY SUBDIVISION REGULATIONS.
4. INDICATES 2" TOPSOIL, SEED AND MULCH.
5. DESIGN SPEED = 35 M.P.H.

TYPICAL SECTION MINOR COLLECTOR

NO SCALE

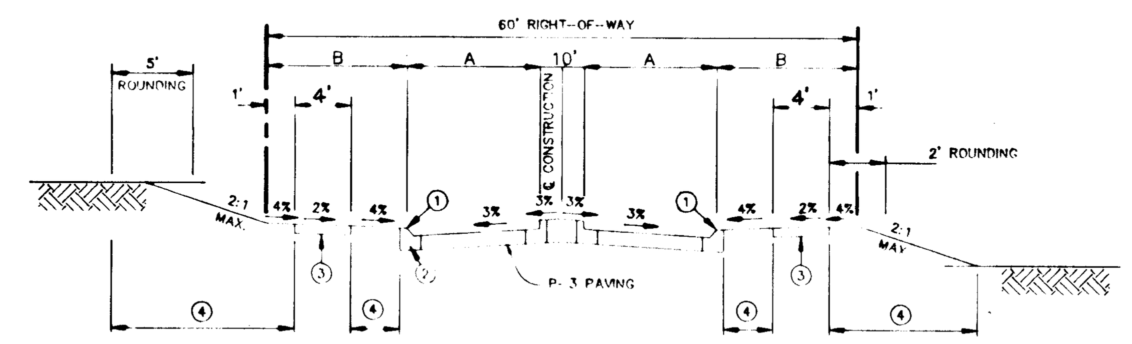
SUMMER SUNRISE DRIVE
SIDEWALK ON ONE SIDE ONLY
FROM CL STA 5+77.48 TO CL STA 24+07.82

SUMMER SUNRISE DRIVE
FROM CL STA 5+77.48 TO CL STA 29+70.50
A = 42' B = 9'

RIVER RUN
FROM CL STA 0+40.44 TO CL STA 4+51.07
A = 38' B = 9'

RIVER RUN
FROM CL STA 5+37.22 TO CL STA 6+32.00
A = 36' B = 12'

EMPTY SONG ROAD
FROM CL STA 2+00.00 TO CL STA 4+03.00
A = 36' B = 9'

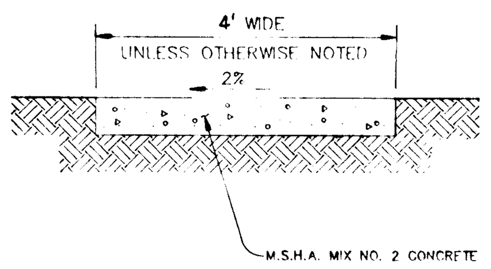


CLOSED SECTION

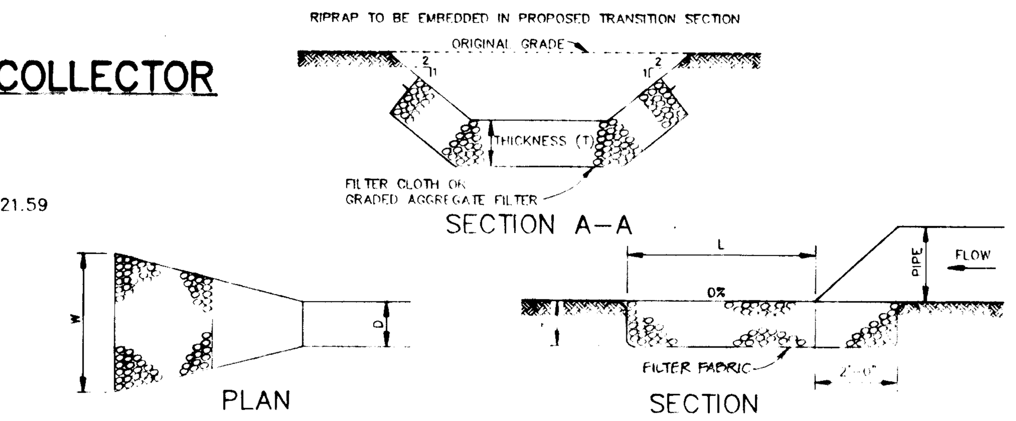
1. PROFILE GRADE LINE (PGL), SEE DESIGN MANUAL.
2. TYPE OF CURB VARIES (BITUMINOUS CURB OR MOD. COMB.CURB & GUTTER OR STANDARD COMB. CURB & GUTTER - SEE DESIGN MANUAL).
3. 4" CONCRETE SIDEWALK AS REQUIRED BY SUBDIVISION REGULATIONS.
4. INDICATES 2" TOPSOIL, SEED AND MULCH.
5. DESIGN SPEED = 35 M.P.H.

TYPICAL SECTION MINOR COLLECTOR WITH MEDIAN

EMPTY SONG ROAD
FROM CL STA 0+45.57 TO CL STA 1+21.59
A = 16' B = VARIES

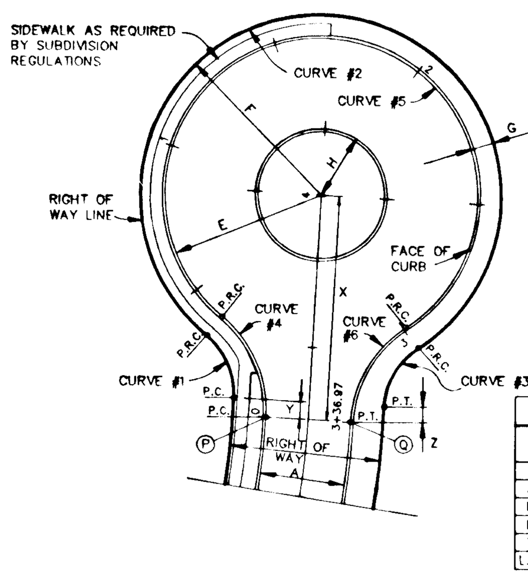


SIDEWALK DETAIL



STRUCTURE	MEDIUM STONE DIA.	LENGTH (L)	WIDTH (W)	THICKNESS (T)
E-1	6"	12'	18'	14"
E-2	6"	22'	13'	14"
E-3	9"	40'	26.5'	20"
E-4	6"	10'	12'	14"
E-5	9"	12'	13.25'	20"
E-6	9"	10'	7.25'	20"
E-7	6"	20'	20'	14"
E-8	9"	27'	17'	20"
HW-1	15"	40'	17'	32"

RIPRAP OUTLET PROTECTION DETAIL



NOTES:
1. STANDARD CONC. COMB. CURB & GUTTER SHALL BE USED ON DOWNGRADE CUL-DE-SACS.
2. THE MAXIMUM GRADE OF THE CIRCULAR AREA IN ANY DIRECTION SHALL NOT EXCEED 6%.
3. A PROFILE SHALL BE PROVIDED ALONG THE TOP OF CURB FROM POINT P TO POINT Q.

ZONING DISTRICTS	E	F	G	H	R/W	A
RESIDENTIAL	52'	60'	8'	22'	50'	28'•

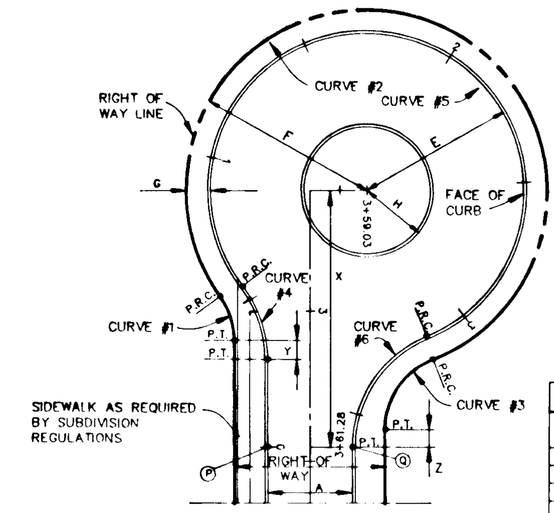
• SEE STD. NO. R-1.01

CURVE DATA
RESIDENTIAL (28'APPROACH)
X=74.48', Y=5.75', Z=5.70', L.P.=336.97'

	1	2	3	4	5	6
Δ	53°58'05"	287°56'10"	53°58'05"	54°03'31"	288°07'02"	54°03'31"
R	25.00'	60.00'	25.00'	40.00'	52.00'	40.00'
L	23.55'	301.53'	23.55'	37.74'	261.49'	37.74'
T	12.73'	--	12.73'	20.41'	--	20.41'
L.C.	22.69'	--	22.69'	36.36'	--	36.36'

VELVET PATH CUL-DE-SAC DETAIL

NO SCALE



NOTES:
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3. A PROFILE SHALL BE PROVIDED ALONG THE TOP OF CURB FROM POINT P TO POINT Q.

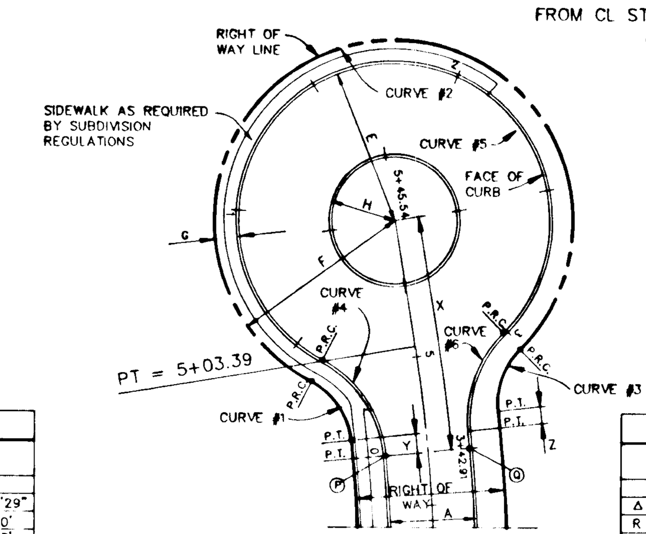
ZONING DISTRICTS	E	F	G	H	R/W	A
RESIDENTIAL	52'	60'	8'	22'	50'	28'•

• SEE STD. NO. R-1.01

CURVE DATA
RESIDENTIAL (28'APPROACH)
X=85.16', Y=6.23', Z=5.94', L.P.=361.28'

	1	2	3	4	5	6
Δ	35°41'58"	284°19'48"	68°37'50"	37°27'36"	285°07'05"	67°39'29"
R	25.00'	60.00'	25.00'	40.00'	52.00'	40.00'
L	15.58'	297.75'	29.95'	26.15'	258.76'	47.23'
T	8.05'	--	17.06'	13.56'	39.82'	26.81'
L.C.	15.33	--	28.19	25.69'	63.23'	44.54'

ENCHANTED SOLITUDE COURT CUL-DE-SAC DETAIL



NOTES:
1. STANDARD CONC. COMB. CURB & GUTTER SHALL BE USED ON DOWNGRADE CUL-DE-SACS.
2. THE MAXIMUM GRADE OF THE CIRCULAR AREA IN ANY DIRECTION SHALL NOT EXCEED 6%.
3. A PROFILE SHALL BE PROVIDED ALONG THE TOP OF CURB FROM POINT P TO POINT Q.

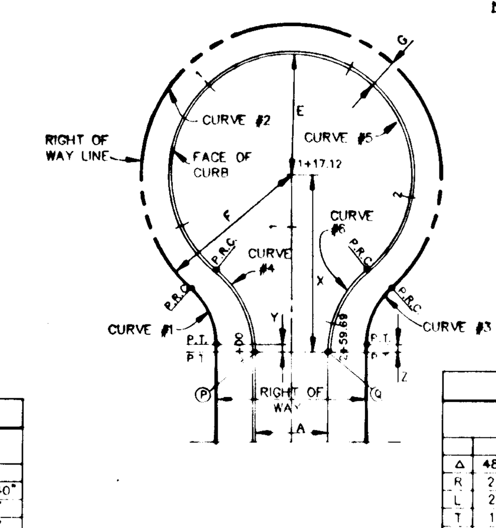
ZONING DISTRICTS	E	F	G	H	R/W	A
RESIDENTIAL	52'	60'	8'	22'	50'	28'•

• SEE STD. NO. R-1.01

CURVE DATA
RESIDENTIAL (28'APPROACH)
X=35.36', Y=6.42', Z=10.74', L.P.=342.91'

	1	2	3	4	5	6
Δ	56°39'15"	287°51'33"	51°42'02"	57°14'54"	144°00'18"	51°23'40"
R	25.00'	60.00'	25.00'	40.00'	52.00'	40.00'
L	24.72'	301.45'	22.56'	39.97'	130.69'	35.88'
T	13.48'	--	12.11'	21.83'	--	14.25'
L.C.	23.73'	--	21.80'	38.33'	--	34.69'

RIVER RUN CUL-DE-SAC DETAIL



NOTES:
1. STANDARD CONC. COMB. CURB & GUTTER SHALL BE USED ON DOWNGRADE CUL-DE-SACS.
2. THE MAXIMUM GRADE OF THE CIRCULAR AREA IN ANY DIRECTION SHALL NOT EXCEED 6%.
3. A PROFILE SHALL BE PROVIDED ALONG THE TOP OF CURB FROM POINT P TO POINT Q.

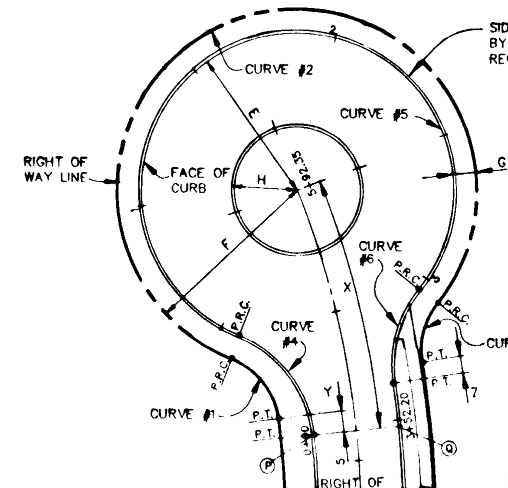
ZONING DISTRICTS	E	F	G	H	R/W	A
RESIDENTIAL	40'	50'	10'	--	50'	24'•

• SEE STD. NO. R-1.01

CURVE DATA
RESIDENTIAL (28'APPROACH)
X=58.45', Y=2.55', Z=2.55', L.P.=259.69'

	1	2	3	4	5	6
Δ	48°11'23"	276°22'46"	48°11'23"	51°11'43"	282°23'27"	51°11'43"
R	25.00'	50.00'	25.00'	35.00'	40.00'	35.00'
L	21.03'	241.19'	21.03'	31.27'	197.15'	31.27'
T	11.18'	--	11.18'	16.77'	--	16.77'
L.C.	20.41'	--	20.41'	30.24'	--	30.24'

OLD ROMANCE ROW CUL-DE-SAC DETAIL



NOTES:
1. STANDARD CONC. COMB. CURB & GUTTER SHALL BE USED ON DOWNGRADE CUL-DE-SACS.
2. THE MAXIMUM GRADE OF THE CIRCULAR AREA IN ANY DIRECTION SHALL NOT EXCEED 6%.
3. A PROFILE SHALL BE PROVIDED ALONG THE TOP OF CURB FROM POINT P TO POINT Q.

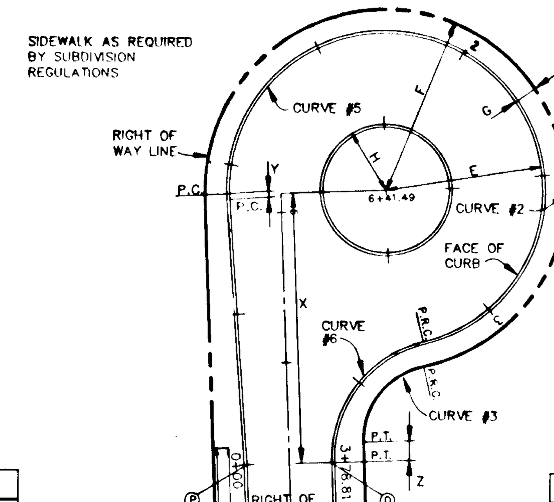
ZONING DISTRICTS	E	F	G	H	R/W	A
RESIDENTIAL	52'	60'	8'	22'	50'	28'•

• SEE STD. NO. R-1.01

CURVE DATA
RESIDENTIAL (28'APPROACH)
X=82.52', Y=7.02', Z=4.96', L.P.=352.20'

	1	2	3	4	5	6
Δ	61°30'23"	287°22'44"	48°06'51"	62°19'46"	143°43'53"	47°46'05"
R	25.00'	60.00'	25.00'	40.00'	52.00	40.00'
L	26.84'	300.94'	20.99'	43.51'	130.45'	33.35'
T	14.88'	--	11.16'	24.19'	--	17.71'
L.C.	25.57'	--	20.38'	41.40'	--	32.39'

ANGEL ROSE COURT CUL-DE-SAC DETAIL



NOTES:
1. STANDARD CONC. COMB. CURB & GUTTER SHALL BE USED ON DOWNGRADE CUL-DE-SACS.
2. THE MAXIMUM GRADE OF THE CIRCULAR AREA IN ANY DIRECTION SHALL NOT EXCEED 6%.
3. A PROFILE SHALL BE PROVIDED ALONG THE TOP OF CURB FROM POINT P TO POINT Q.

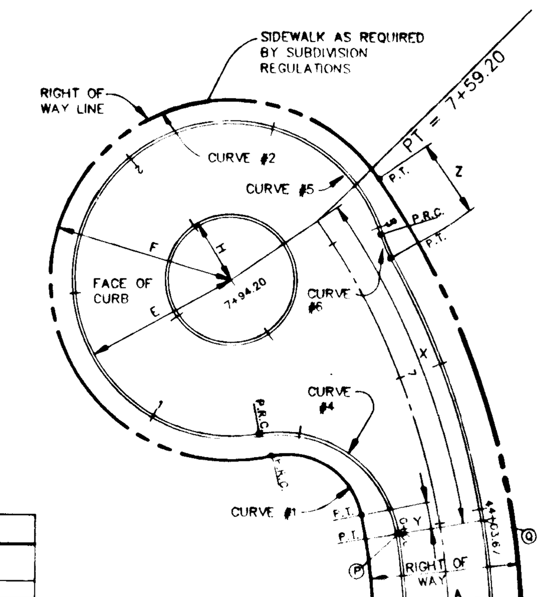
ZONING DISTRICTS	E	F	G	H	R/W	A
RESIDENTIAL	52'	60'	8'	22'	50'	28'•

• SEE STD. NO. R-1.01

CURVE DATA
RESIDENTIAL (28'APPROACH)
X=90.01', Y=1.75', Z=6.35', L.P.=378.81'

	1	2	3	4	5	6
Δ	--	259°50'20"	79°49'42"	--	136°22'36"	78°04'53"
R	--	60.00'	25.00'	--	52.00'	40.00'
L	--	272.10'	34.83'	--	123.77'	54.51'
T	--	--	20.91'	--	--	32.44'
L.C.	--	--	32.08'	--	--	50.39'

DARING PRINCE WAY CUL-DE-SAC DETAIL



NOTES:
1. STANDARD CONC. COMB. CURB & GUTTER SHALL BE USED ON DOWNGRADE CUL-DE-SACS.
2. THE MAXIMUM GRADE OF THE CIRCULAR AREA IN ANY DIRECTION SHALL NOT EXCEED 6%.
3. A PROFILE SHALL BE PROVIDED ALONG THE TOP OF CURB FROM POINT P TO POINT Q.

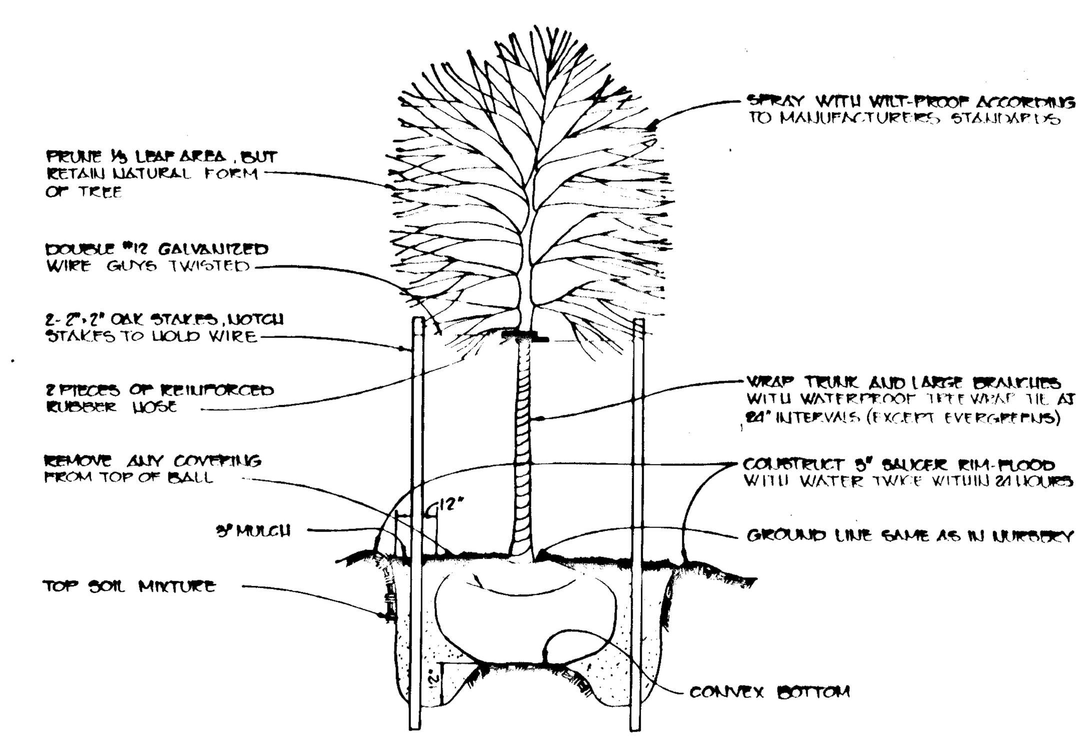
ZONING DISTRICTS	E	F	G	H	R/W	A
RESIDENTIAL	52'	60'	8'	22'	50'	28'•

• SEE STD. NO. R-1.01

CURVE DATA
RESIDENTIAL (28'APPROACH)
X=110.53', Y=8.96', Z=22.80', L.P.=403.67'

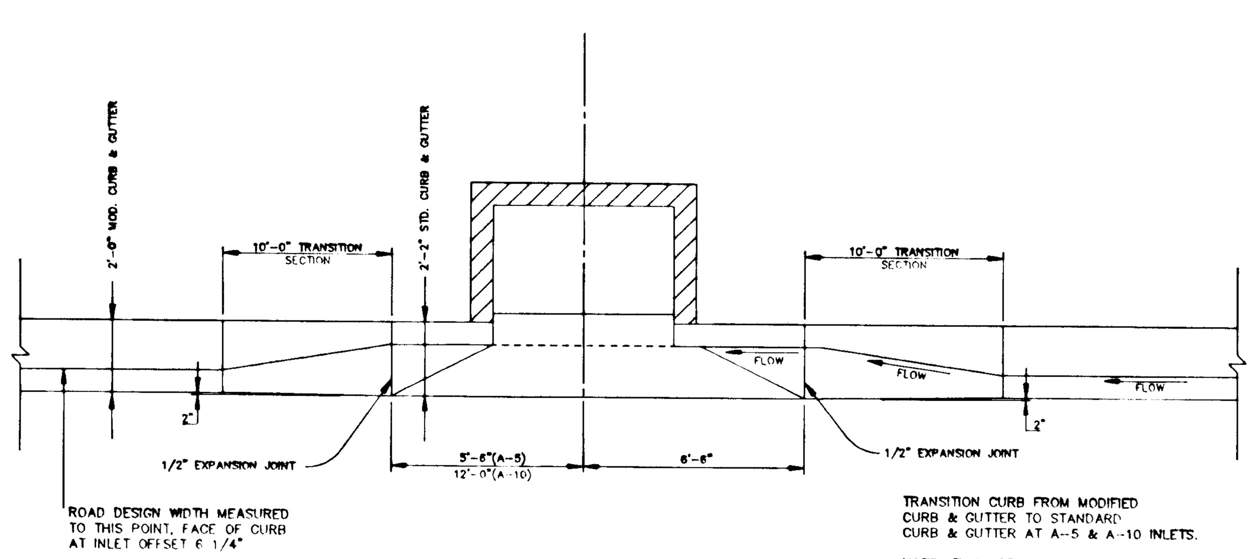
	1	2	3	4	5	6
Δ	91°41'07"	248°24'30"	--	91°02'26"	263°13'13"	12°17'08"
R	25.00'	60.00'	--	40.00'	52.00'	40.00'
L	40.01'	260.13'	--	63.56'	238.89'	8.58'
T	25.75'	--	--	40.73'	58.55'	4.31'
L.C.	35.87'	--	--	57.08'	77.76'	8.56'

FAIREST DREAM LANE CUL-DE-SAC DETAIL



TREE PLANTING DETAIL

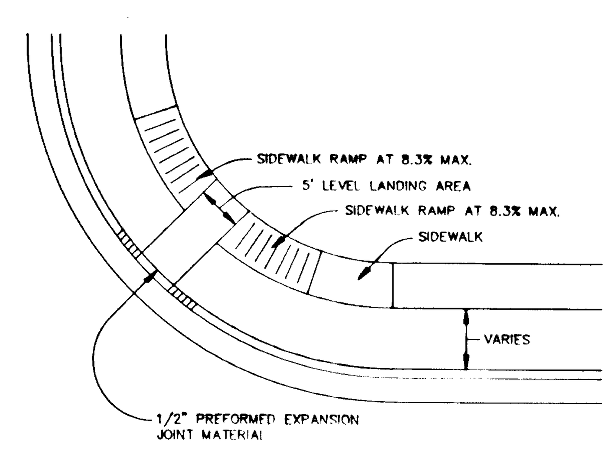
NO SCALE



TRANSITION CURB FROM MODIFIED CURB & GUTTER TO STANDARD CURB & GUTTER AT A-5 & A-10 INLETS.

NOTE: THIS DETAIL TO BE USED FOR MODIFIED CURB & GUTTER HAVING AN OVERALL HEIGHT OF 11 1/2" AT THE BACK OF CURB SECTION.

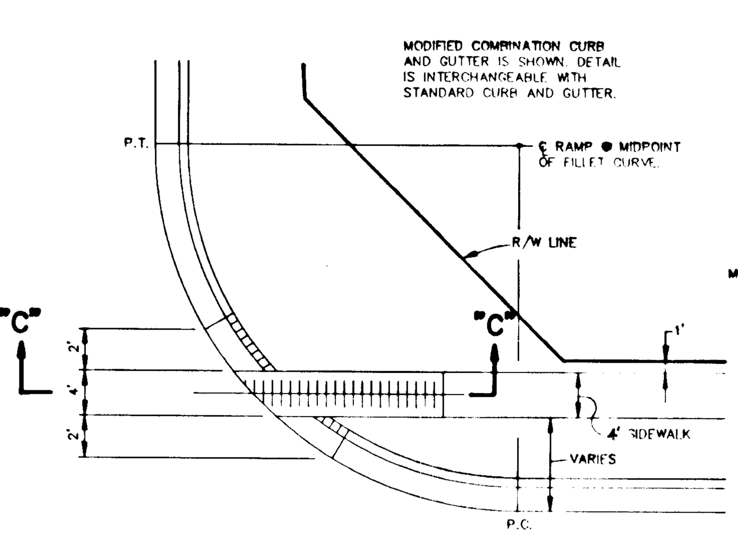
MODIFIED COMBINATION CURB AND GUTTER TRANSITION CURB SECTION AT "A" TYPE INLETS



HANDICAP RAMP DETAIL *

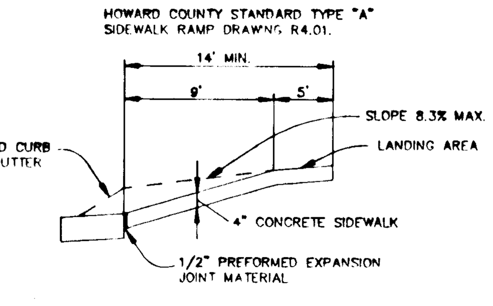
NO SCALE

MODIFIED COMBINATION CURB AND GUTTER IS SHOWN. DETAIL IS INTERCHANGEABLE WITH STANDARD CURB AND GUTTER.



PLAN

HOWARD COUNTY STANDARD TYPE "A" SIDEWALK RAMP DRAWING R4.01.



SECTION "C"-"C"

HANDICAP RAMP DETAIL *

*(Per A.D.A. - 28 CFR Part 36)

AS BUILT CERTIFICATE

DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[signature] 1/27/93
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 1/19/93
[signature] 1/6/93
CHIEF, BUREAU OF HIGHWAYS
[signature] 1-20-93
CHIEF, BUREAU OF ENGINEERING DATE

DATE	NO.	REVISION
6-18-93	1	REV. OUTLET PROTECTION DETAIL E-1 & E-4

OWNER / DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT VILLAGE OF RIVER HILL
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE
DETAIL SHEET

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

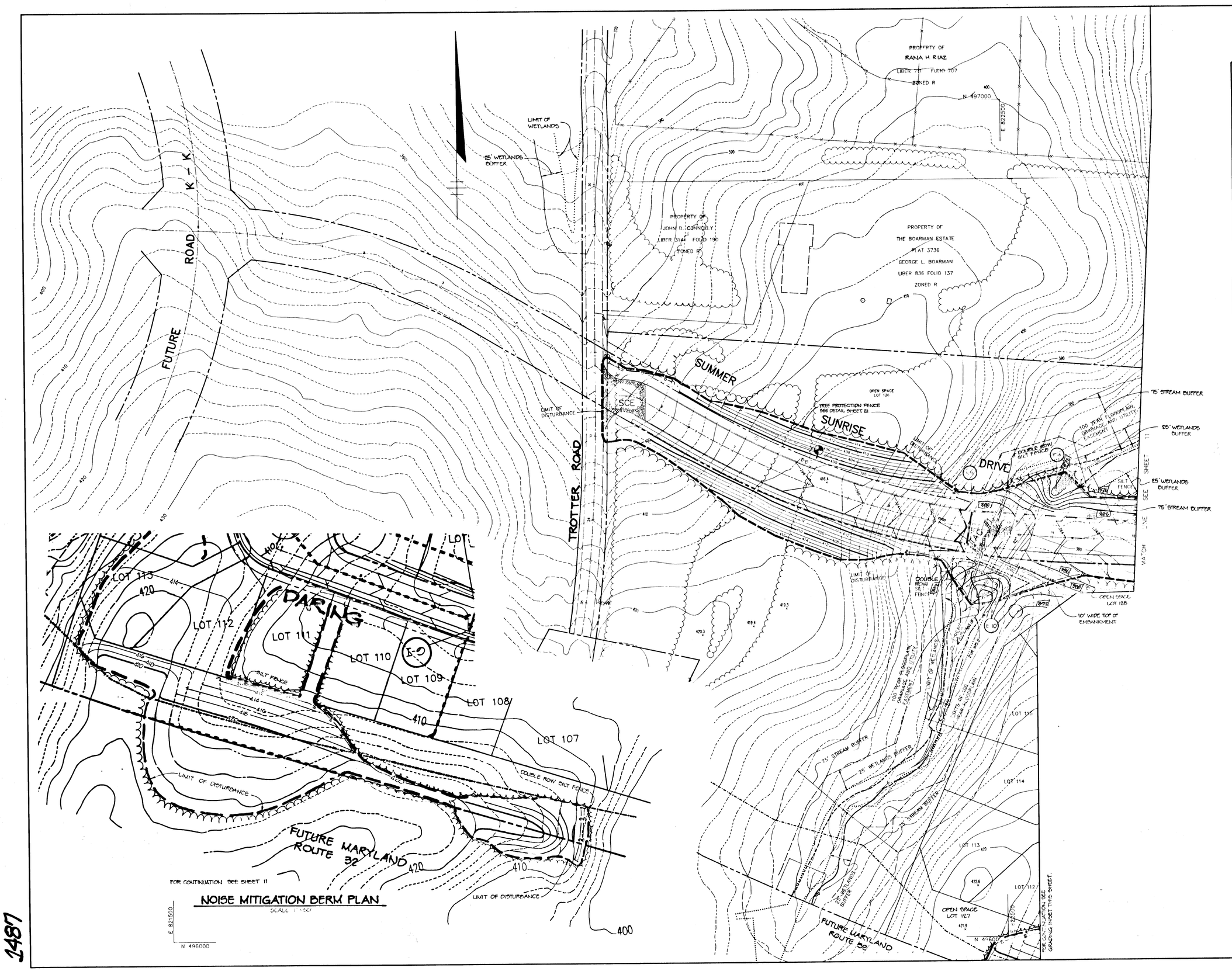
12-21-92
DATE

ARTHUR E. MUEGGE III #8707

DESIGNED BY : C.J.R.
DRAWN BY : DAM
PROJECT NO : 89804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 9 OF 21

F-93-18

1487



NOISE MITIGATION BERM PLAN

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.

DEVELOPER — DATE 12-21-92

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.

ENGINEER — DATE 12-21-92

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

SOIL CONSERVATION SERVICE — DATE 12/28/92

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 12/28/92

AS BUILT CERTIFICATE

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

R. SCOTT SHANABERGER, PROF. L.S. # 10849 — DATE 11/30/92

DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 1/27/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, DIVISION — DATE 1/19/93

CHIEF, BUREAU OF HIGHWAYS — DATE 1/6/93

CHIEF, BUREAU OF ENGINEERING — DATE 1-20-93

DATE	NO.	REVISION

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT: VILLAGE OF RIVER HILL
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA: TAX MAP NO. 38 — LONEL NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: GRADING AND SEDIMENT CONTROL PLAN

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-92
DATE

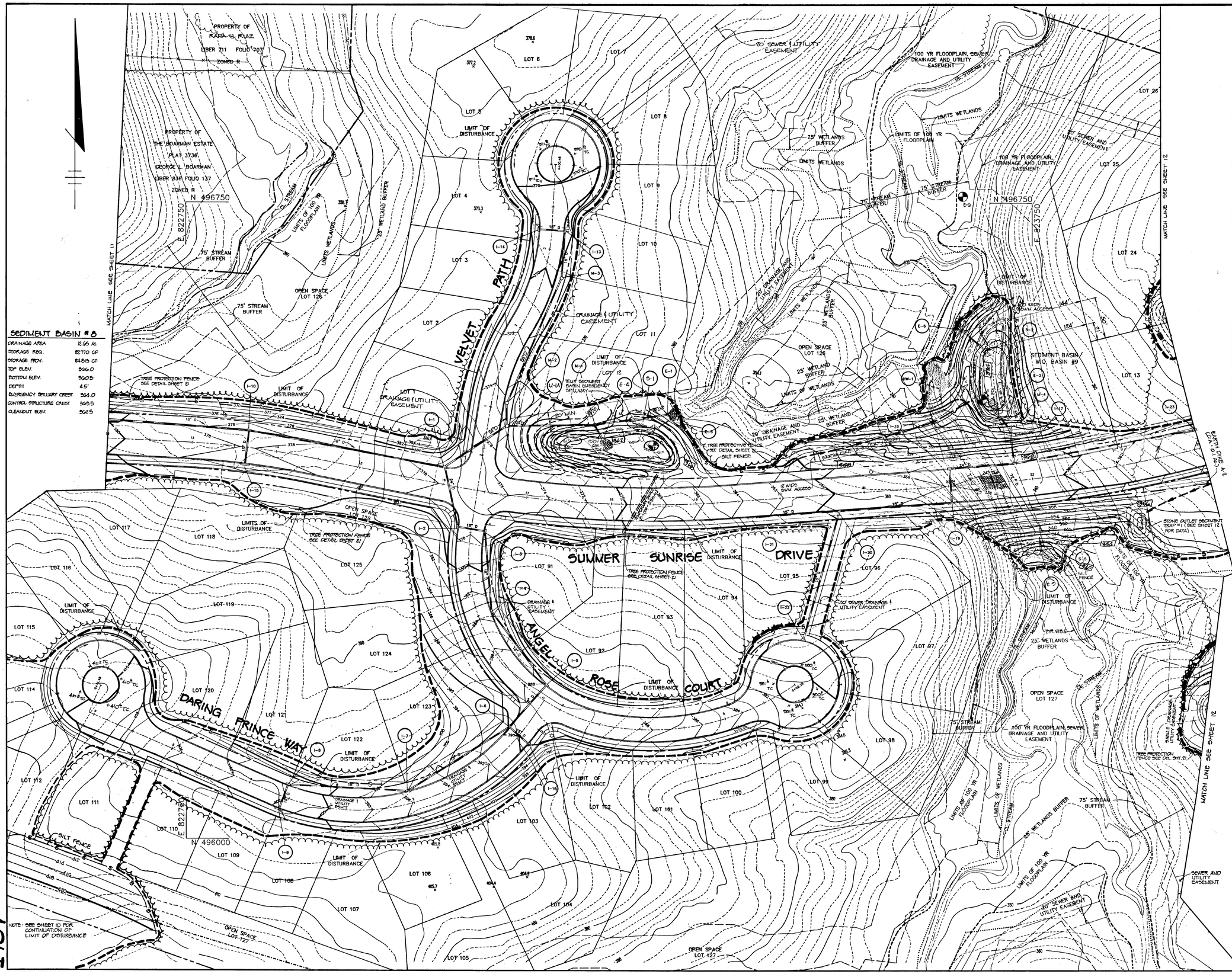
STATE OF MARYLAND — ARTHUR E. MUEGGE, JR. — NO. 8707 — REGISTERED PROFESSIONAL ENGINEER

ARTHUR E. MUEGGE, JR. 8707

DESIGNED BY : C.J.R.
DRAWN BY : DAM
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : 1" = 50'
DRAWING NO. 10 OF 21

F-93-18

1487



SEDIMENT BASIN #8

DRAINAGE AREA	12.65 AC.
STORAGE REQ.	82770 CF
STORAGE PROV.	83815 CF
TOP ELEV.	396.0
BOTTOM ELEV.	392.5
DEPTH	4.5'
EMERGENCY SPILLWAY CREST	394.0
CONTROL STRUCTURE CREST	392.5
CLEANOUT ELEV.	392.5

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.

DEVELOPER — DATE 12-21-92

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.

ENGINEER — DATE 12-21-92

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

U.S. SOIL CONSERVATION SERVICE — DATE 12/29/92

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 12/29/92

AS BUILT CERTIFICATE

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

G. SCOTT SHANABERGER, PROF. LS # 10840 — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 1/27/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 1/19/93

CHIEF, BUREAU OF HIGHWAYS — DATE 1/6/93

CHIEF, BUREAU OF ENGINEERING — DATE 1-20-93

DATE	NO.	REVISION
7-27-93	2	REV. W.Q. BASIN #8 GRADING
6-18-93	1	REV. SED. BASIN/W.Q. BASIN #8, STORM DRAIN LAYOUT & LOT LINES

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT: VILLAGE OF RIVER HILL
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA: TAX MAP NO. 35 — ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: GRADING AND SEDIMENT CONTROL PLAN

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12 - 21 - 92
DATE

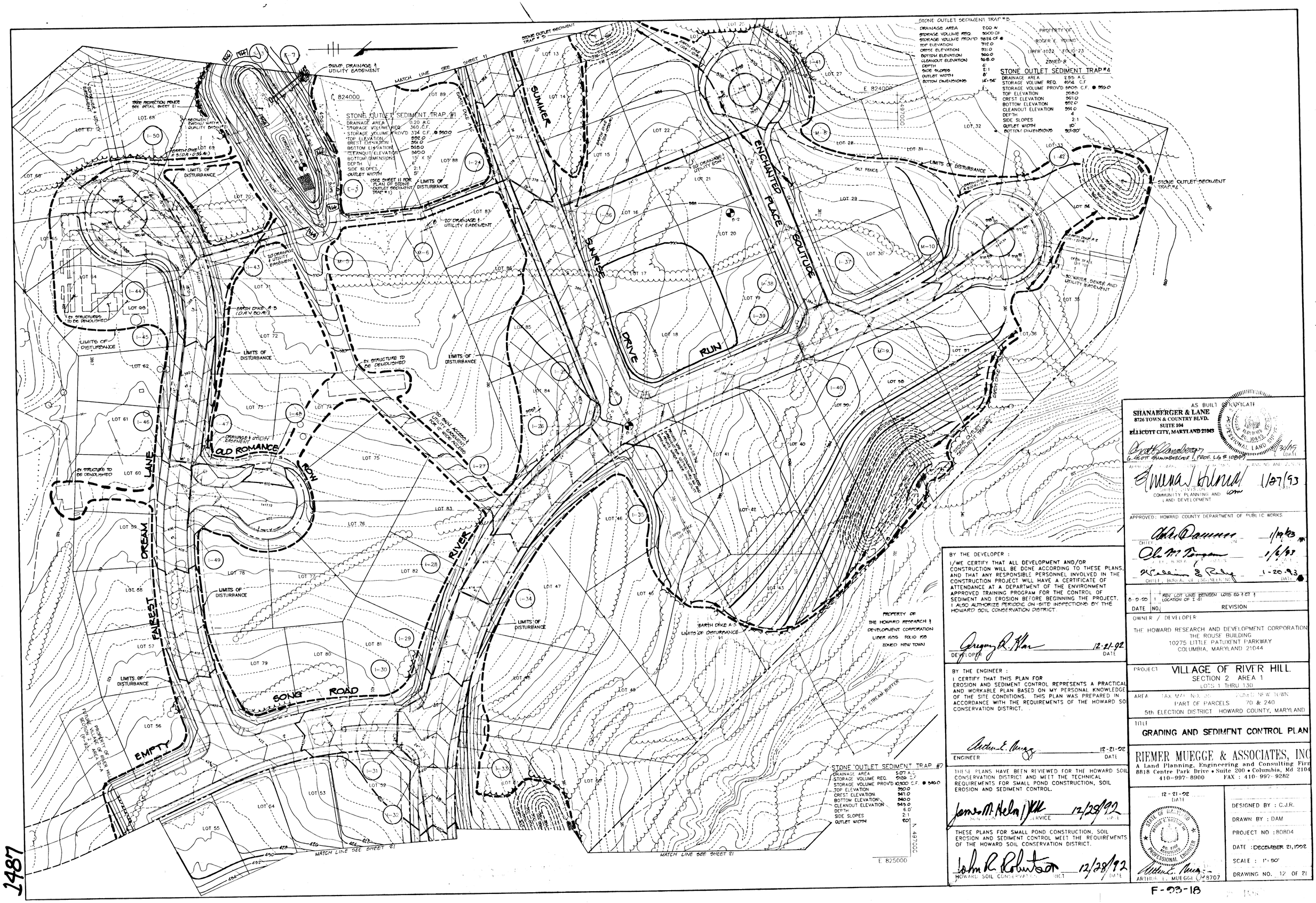
ARTHUR E. MUEGGE #8707

S-91-03 P-92-13 WP-92-13

DESIGNED BY : C.J.R.
DRAWN BY : DAM
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 11 OF 21

1487

F-93-18



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.

Gregory R. Klar — 12-21-92
DEVELOPER — 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.

Arthur E. Muegge — 12-21-02
ENGINEER — DATE

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

James M. Helm — 12/28/92
DATE — SERVICE — DATE

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

John R. Robertson — 12/28/92
HOWARD SOIL CONSERVATION DISTRICT — DATE

AS BUILT DUPLICATE
SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

G. Scott Shanaberger — 3/4/93
G. SCOTT SHANABERGER, PROF. L.S. # 10847 — DATE

AS BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE ACCESS, ROADWAY, DRAINAGE, AND UTILITIES SHOWN HEREON ARE THE AS BUILT CONDITIONS.

Edward W. Stirland — 1/27/93
COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, DIVISION OF ENGINEERING — 1/4/93
CHIEF, BUREAU OF ENGINEERING — 1/6/93
CHIEF, BUREAU OF ENGINEERING — 1-20-93 — DATE

DATE	NO.	REVISION
8-9-93	1	REV. LOT LINE BETWEEN LOTS 20 & 27 & LOCATION OF E 41

OWNER / DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT: VILLAGE OF RIVER HILL
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA: TAX MAP NO. 35 ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: GRADING AND SEDIMENT CONTROL PLAN

RIEMER MUEGGE & ASSOCIATES, INC
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-02
DATE

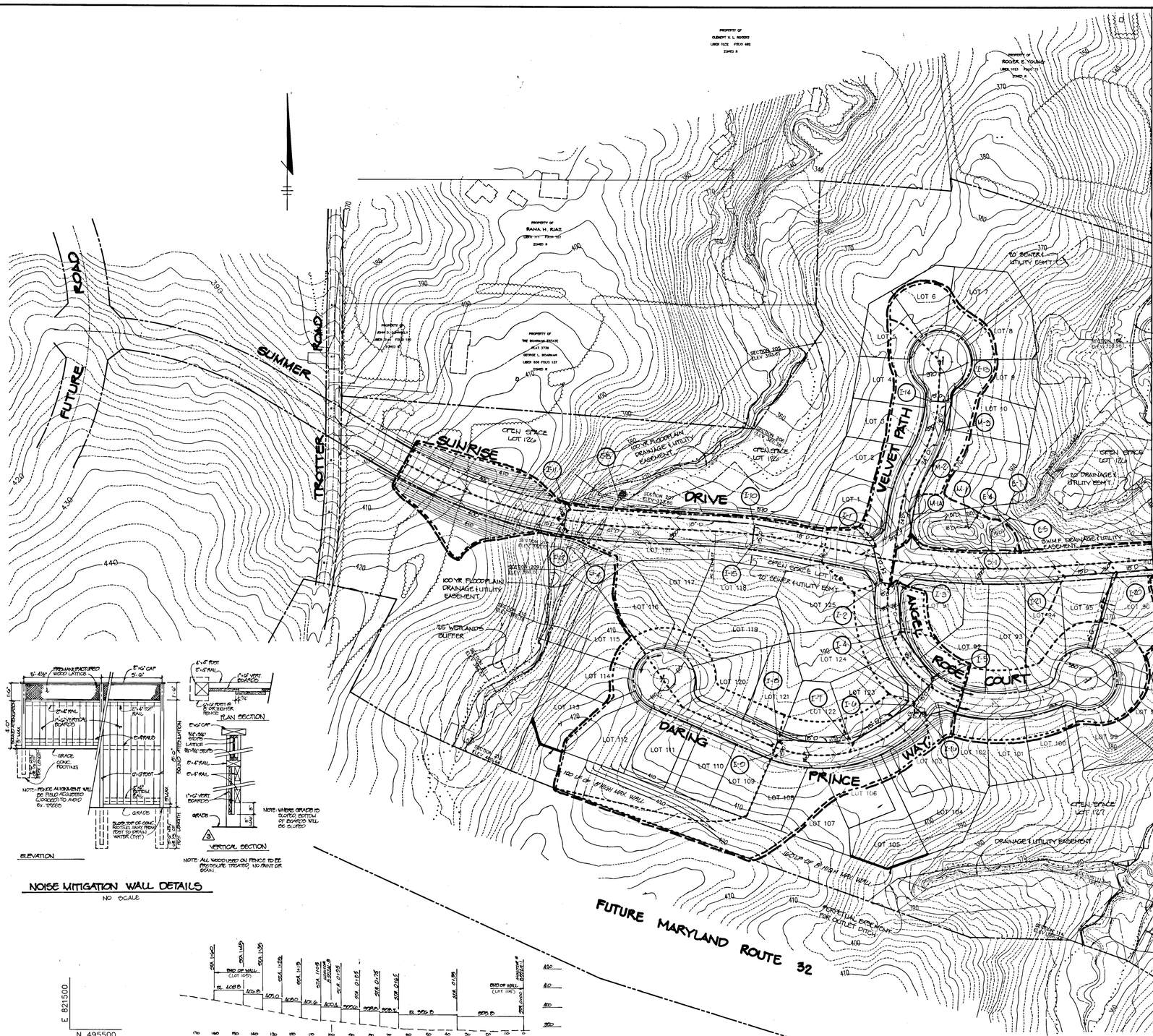
STATE OF MARYLAND — ARTHUR E. MUEGGE — No. 8707 — REGISTERED PROFESSIONAL ENGINEER

Arthur E. Muegge
ARTHUR E. MUEGGE, CPE 8707

DESIGNED BY : C.J.R.
DRAWN BY : DAM
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : 1" = 50'
DRAWING NO. 12 OF 21

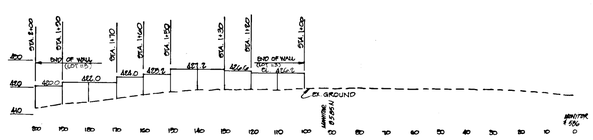
F-93-18

1987



PLAN
SCALE: 1"=100'

NOISE MITIGATION WALL DETAILS
NO SCALE



NOISE MITIGATION WALLS
NO SCALE

LEGEND

- DRAINAGE AREAS TO WATER QUALITY BASINS
- DRAINAGE AREAS TO INLETS

DRAINAGE AREA DATA

NO.	DRAINAGE AREA (Ac.)	% IMPERVIOUS	'C' FACTOR
I-1	0.085	45	0.50
I-2	0.406	54	0.56
I-3	0.152	48	0.53
I-4	0.165	47	0.52
I-5	0.069	54	0.56
I-6	0.200	46	0.51
I-7	0.193	48	0.52
I-8	1.813	30	0.41
I-9	0.574	49	0.53
I-10	0.351	70	0.67
I-11	0.595	31	0.41
I-12	0.769	50	0.54
I-13	0.964	48	0.53
I-14	0.758	52	0.55
I-15	2.822	34	0.43
I-16	0.792	40	0.47
I-20	0.356	41	0.48
I-21	1.217	42	0.51
I-22	1.309	48	0.53
BASIN #8	14.0	T_c = 0.22 hrs.	RCN = 73

DATE	NO.	REVISION
8-12-93	2	ADDED NOISE MITIGATION WALLS
6-18-93	1	REV. STORM DRAIN & LOT LAYOUT - VELVET PATH

4 DELETED REFERENCE TO BITUMINOUS COATING FROM NOISE MITIGATION WALL DETAIL.

AS BUILT CERTIFICATE

DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 1/27/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 1/19/93

CHIEF, BUREAU OF HIGHWAYS — DATE 1/6/93

CHIEF, BUREAU OF ENGINEERING — DATE 1-20-93

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT **VILLAGE OF RIVER HILL**
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 35 ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE
DRAINAGE AREA MAP

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-92

STATE OF MARYLAND — ARTHUR E. MUEGGE — No. 8707 — REGISTERED PROFESSIONAL ENGINEER

ARTHUR E. MUEGGE

DESIGNED BY : C.J.R.
DRAWN BY : DAM
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 13 OF 21

1487

F-93-18

PLAN
SCALE: 1" = 100'

DRAINAGE AREA DATA

NO.	DRAINAGE AREA (Ac.)	% IMPERVIOUS	'C' FACTOR
I-17	0.236	66	0.64
I-18	0.479	83	0.75
I-19	0.634	67	0.65
I-23	0.709	39	0.46
I-24	0.615	50	0.54
I-25	0.046	89	0.79
I-26	0.124	69	0.66
I-27	0.243	56	0.59
I-28	0.335	47	0.52
I-29	0.108	77	0.71
I-30	0.347	52	0.55
I-31	2.080	27	0.39
I-32	0.528	44	0.50
I-33	0.298	54	0.56
I-34	0.396	53	0.56
I-35	0.507	50	0.54
I-36	0.757	46	0.51
I-37	0.051	57	0.58
I-38	0.092	49	0.53
I-39	0.551	46	0.51
I-40	0.335	53	0.55
I-41	1.894	41	0.48
I-42	1.267	50	0.54
I-43	0.466	49	0.53
I-44	0.464	44	0.50
I-45	0.293	43	0.49
I-46	0.735	53	0.56
I-47	0.073	82	0.75
I-48	1.375	39	0.47
I-49	0.427	53	0.56
I-50	0.572	51	0.54
BASIN #9	[illegible]	Tc = 0.27 hrs.	RCN = 75
BASIN #21	[illegible]	Tc = 0.34 hrs.	RCN = 75

[illegible] AS' BUILT CERTIFICATE

DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Amena Johnson — CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — 1/27/93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — 1/19/93 DATE

CHIEF, BUREAU OF HIGHWAYS — 1/6/93 DATE

CHIEF, BUREAU OF ENGINEERING — 1-20-93 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT **VILLAGE OF RIVER HILL**
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 35 ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE
DRAINAGE AREA MAP

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-92
DATE

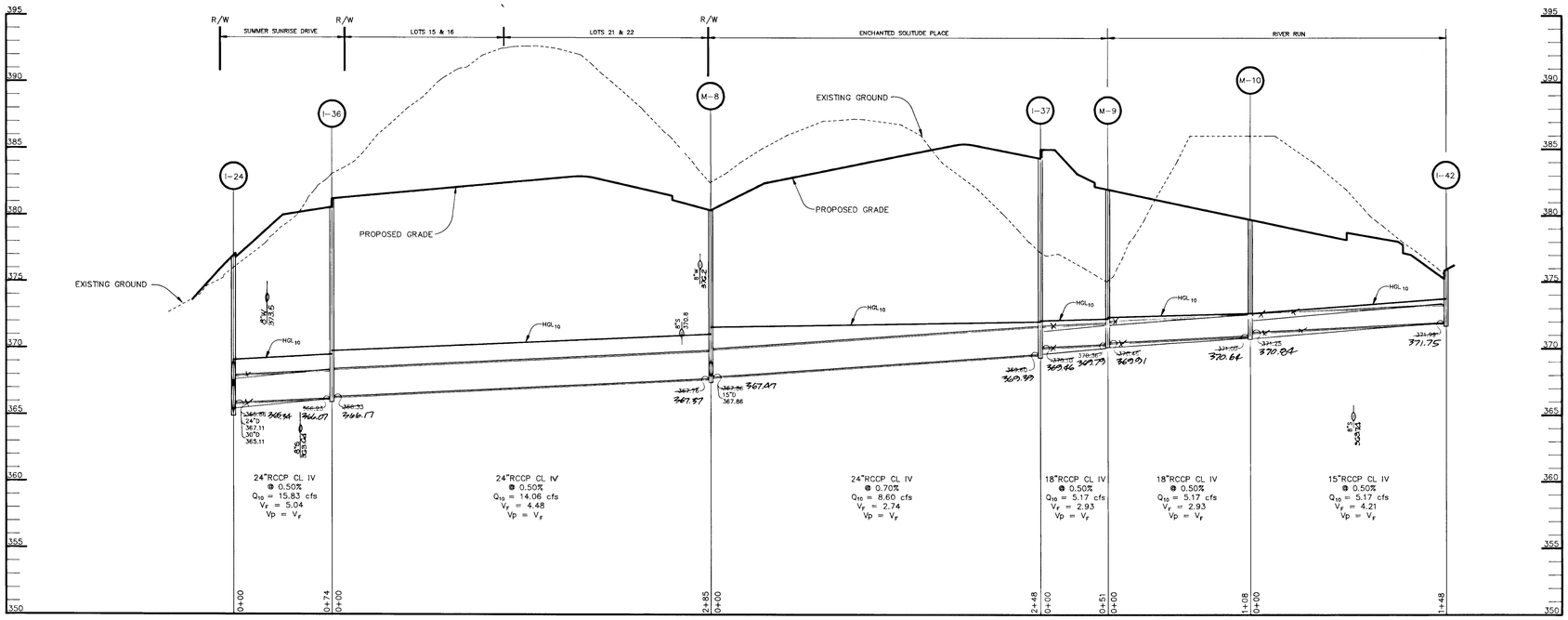
STATE OF MARYLAND — ARTHUR E. MUEGGE — No. 8707 — REGISTERED PROFESSIONAL ENGINEER

ARTHUR E. MUEGGE #8707

DESIGNED BY : C.J.R.
DRAWN BY : DAM
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 14 OF 21

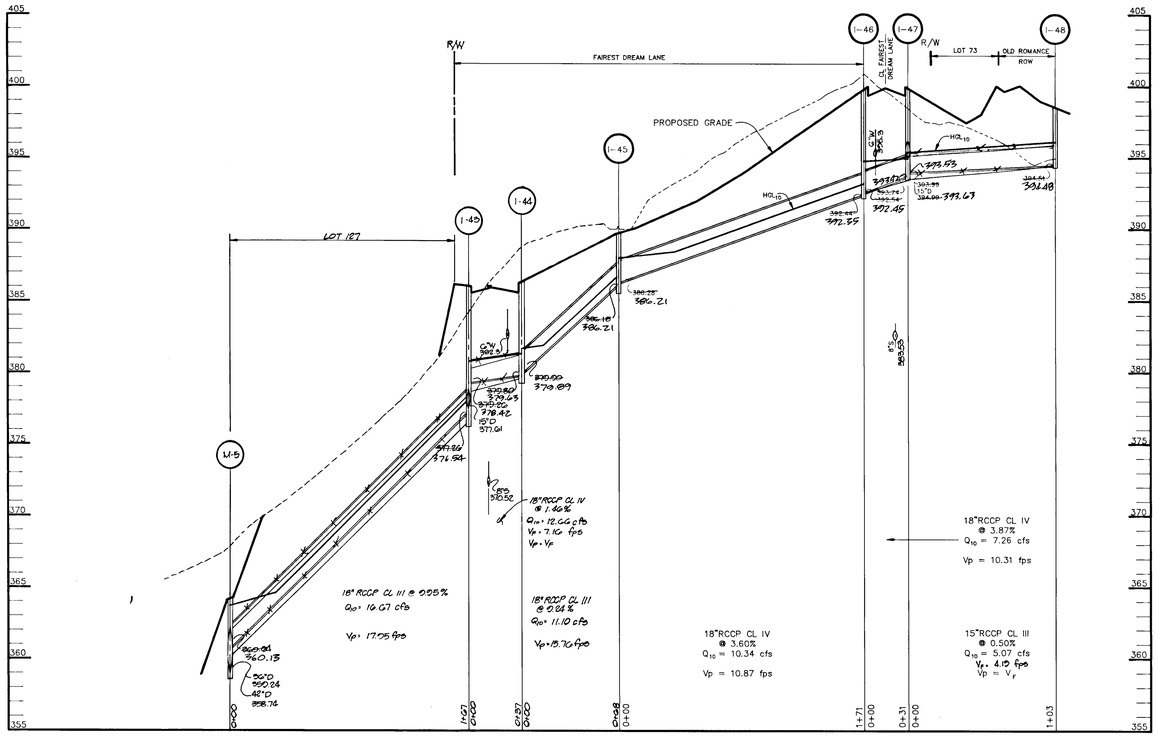
1487

F-93-18



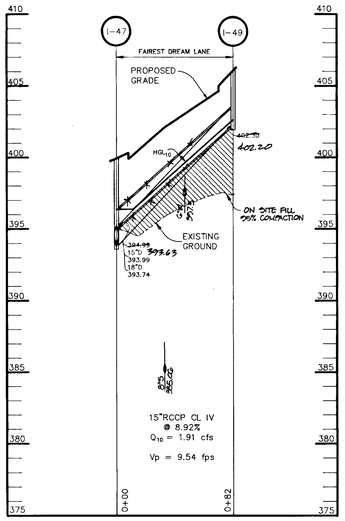
PROFILE

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



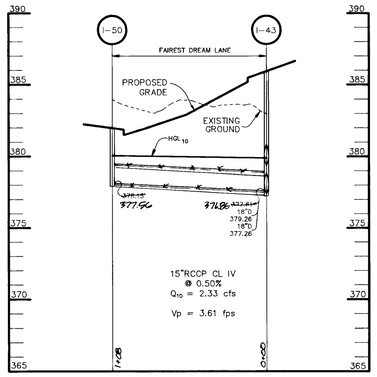
PROFILE

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



PROFILE

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



PROFILE

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

SHANABERGER AS-BUILT CERTIFICATE
SHANABERGER & LANE,
8726 TOWN & COUNTRY BLVD.
ELLICOTT SUITE 104
ELLICOTT CITY, MARYLAND 21043

SCOTT SHANABERGER, REG. No. 10849 — 11/30/95

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — 1/27/93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — 1/19/93 DATE

CHIEF, BUREAU OF HIGHWAYS — 1/6/93 DATE

CHIEF, BUREAU OF ENGINEERING — 1-20-93 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT **VILLAGE OF RIVER HILL**
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 35 ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE
STORM DRAIN PROFILES

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-92
DATE

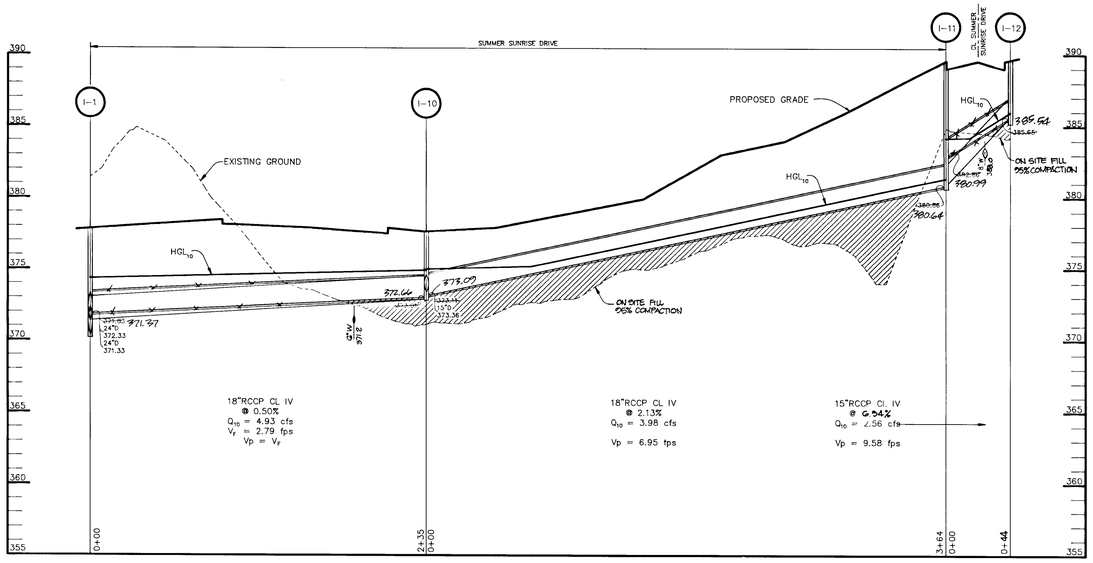
ARTHUR E. MUEGGE No. 8707

S- 91-03 , P- 92-13, W- 92-13

DESIGNED BY : WCW
DRAWN BY : CAD
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 15 OF 21

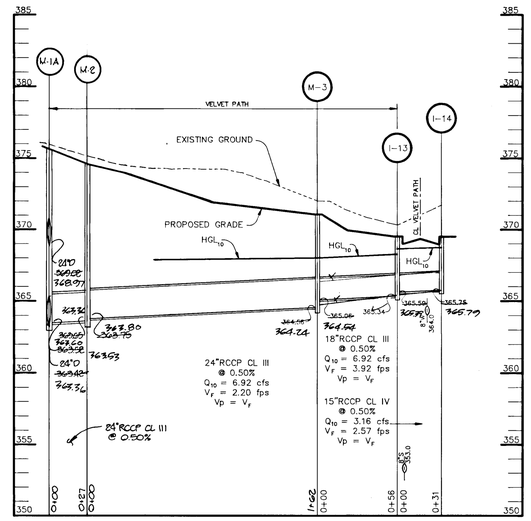
2487

F-93-18



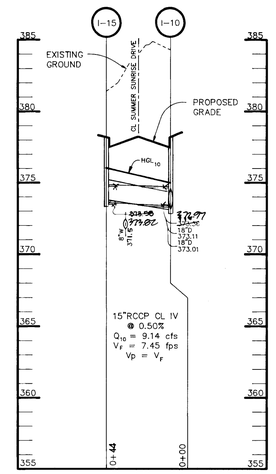
PROFILE

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



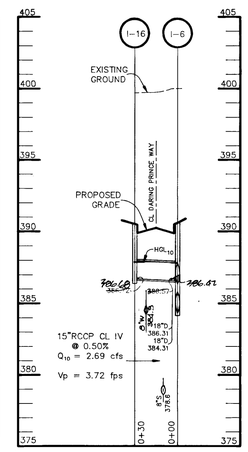
PROFILE

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



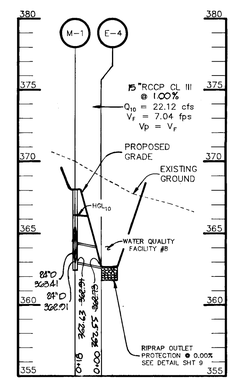
PROFILE

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



PROFILE

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



PROFILE

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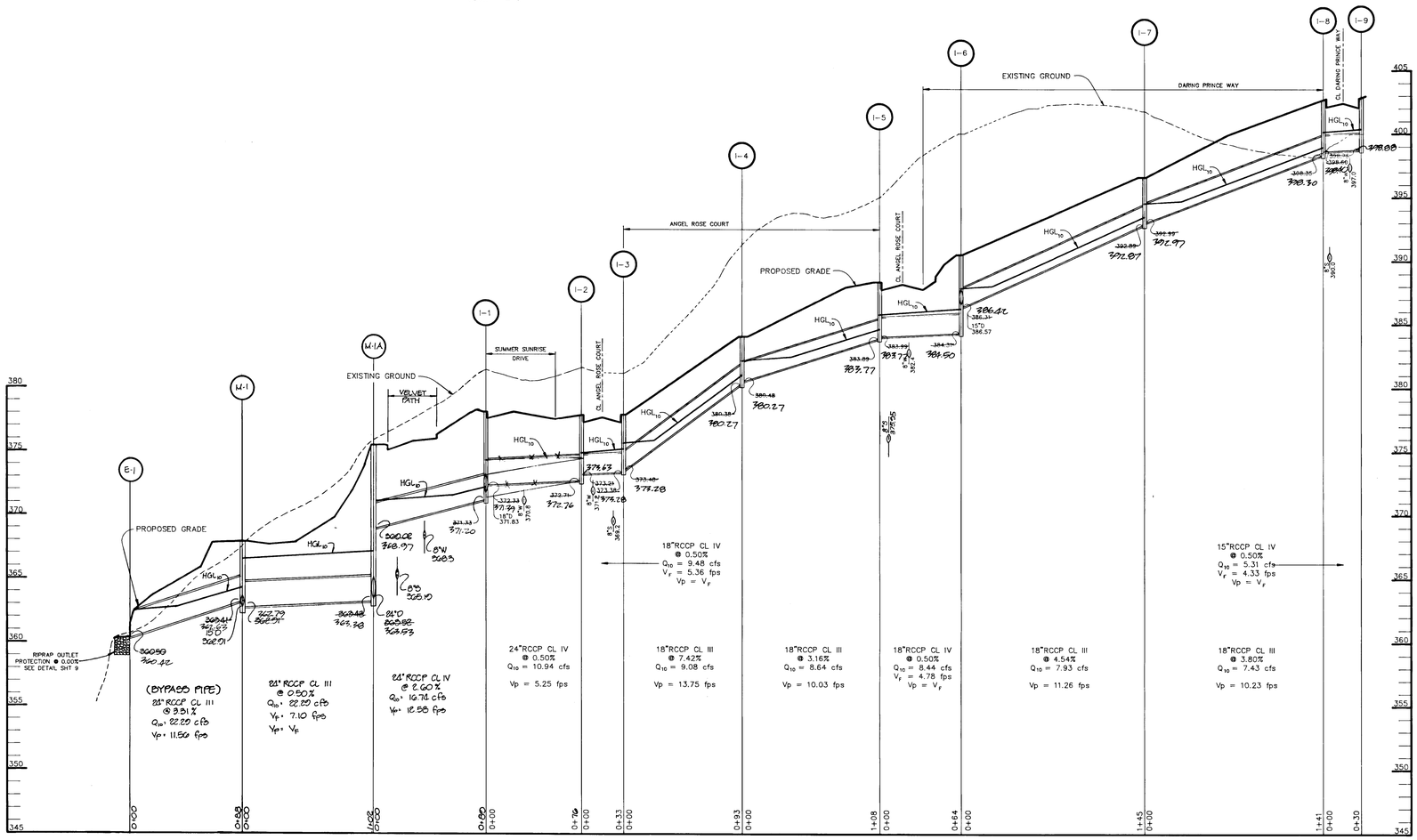

PROFILE

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1487

AS BUILT CERTIFICATE

SHANABERGER & LANE
10276 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

G. SCOTT SHANABERGER, REG. LS # 10849 — 11/3/96

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 1/27/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 1/19/93

CHIEF, BUREAU OF HIGHWAYS — DATE 1/6/93

CHIEF, BUREAU OF ENGINEERING — DATE 1-20-93

DATE	NO.	REVISION
6-18-03	1	REV. STORM DRAIN PROFILES E-1 - I-1, M-1A - M-3 & E-6 - M-1

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT **VILLAGE OF RIVER HILL**
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 35 ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE
STORM DRAIN PROFILES

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

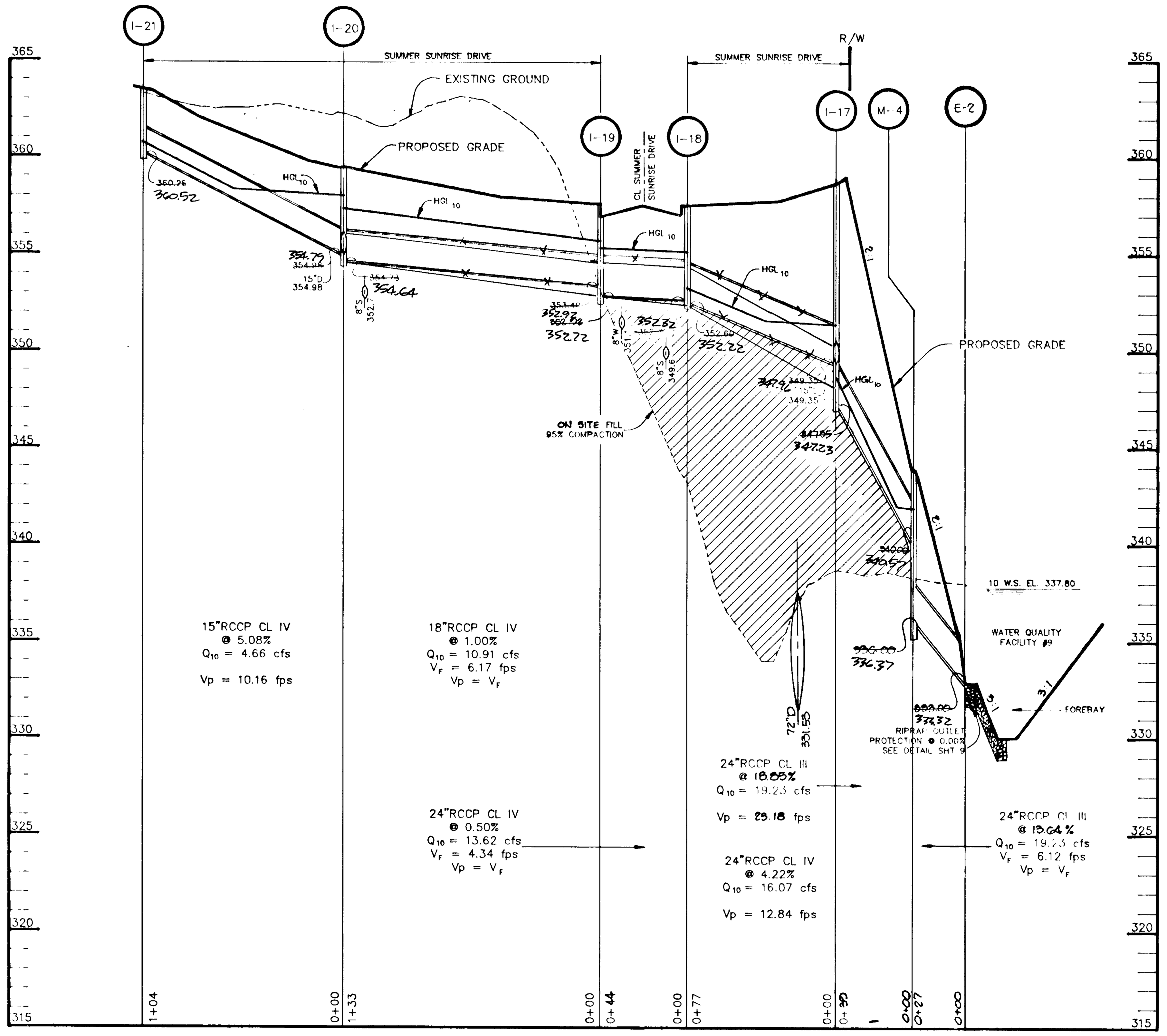
12-21-02
DATE

ARTHUR E. MUEGGE #8707

S-91-03, P-92-13, WP-92-13

DESIGNED BY : WCW
DRAWN BY : CAD
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 16 OF 21

F-93-18



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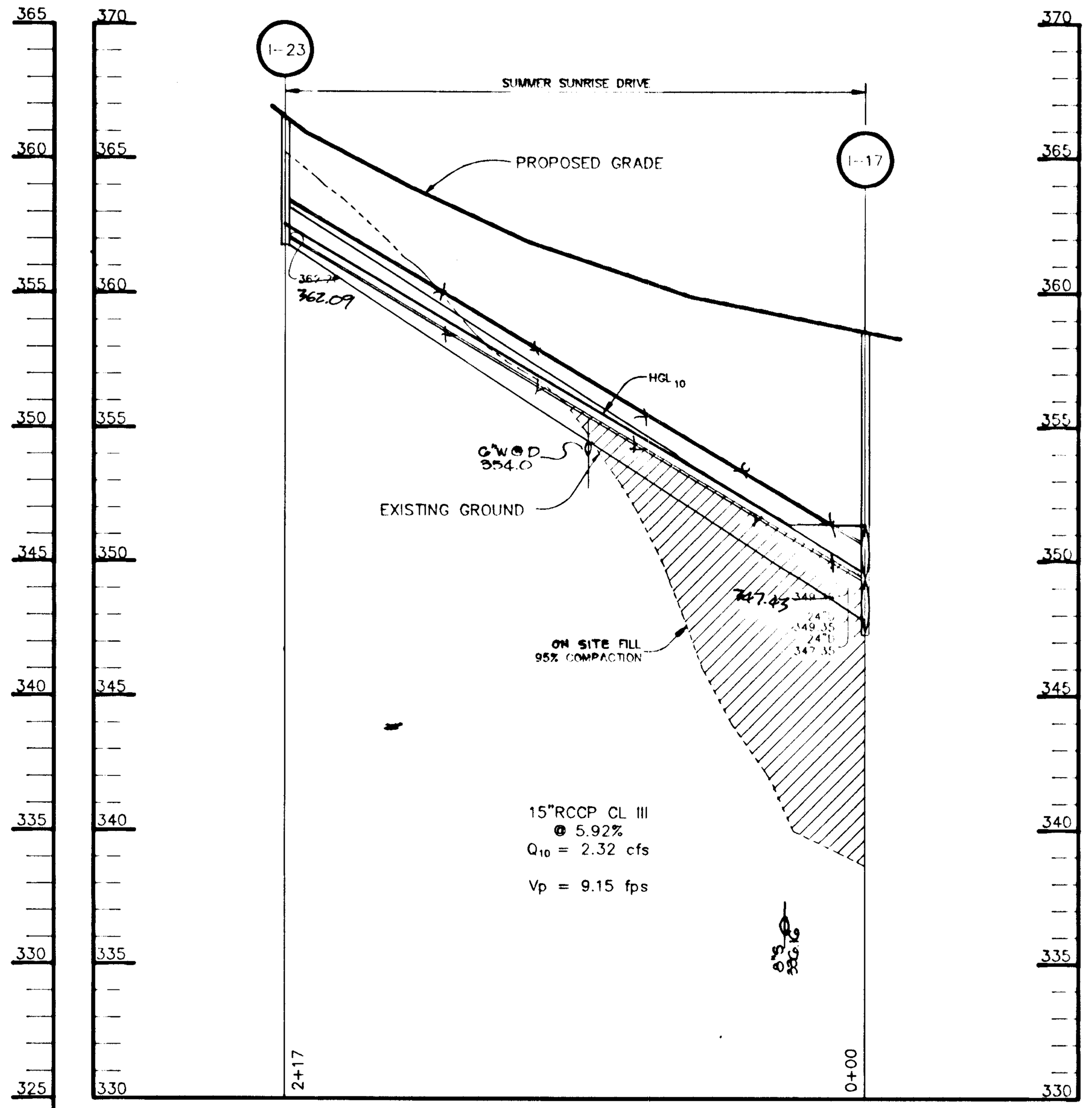

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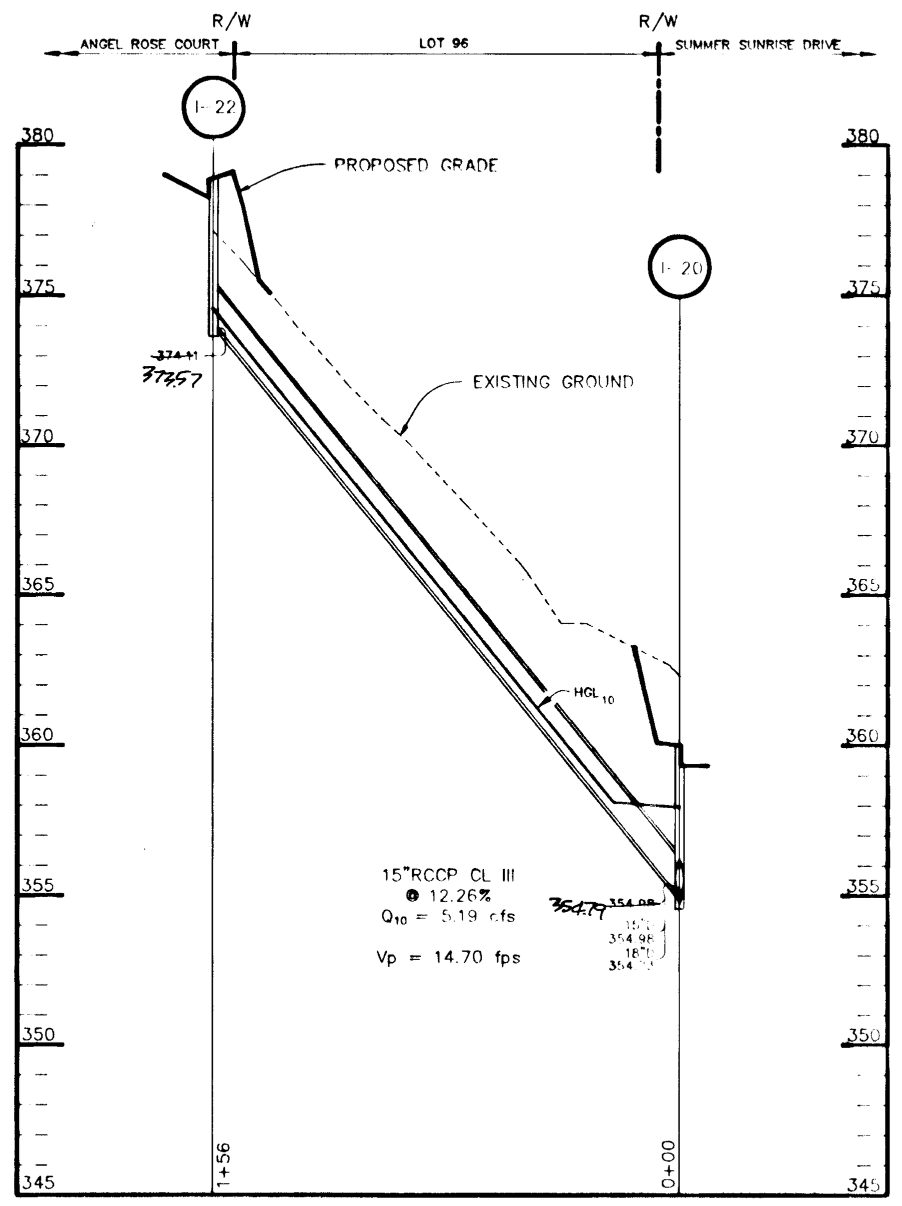


PROFILE

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

STRUCTURE SCHEDULE *FOR AS-BUILT STRUCTURE LOCATION SEE PLAN VIEW SHEET*

NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP ELEV.	REMARKS
I-1	A-5	21' LEFT OF C_L STA 15+98 SUMMER SUNRISE DRIVE	18"-371.83	371.33	377.74	SEE HO CO STD DETAIL SD 4.01
			24"-372.33			
I-2	A-5 W/DEFLECTORS	15' RIGHT OF C_L STA 0+46 ANGEL ROSE COURT	373.21	372.71	377.41	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-3	A-5 W/DEFLECTORS	15' LEFT OF C_L STA 0+46 ANGEL ROSE COURT	373.48	373.38	377.41	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-4	A-5	15.52' LEFT OF C_L STA 1+50 ANGEL ROSE COURT	380.48	380.38	383.25	SEE HO CO STD DETAIL SD 4.01
I-5	A-5	15.52' LEFT OF C_L STA 2+69 ANGEL ROSE COURT	383.99	383.89	388.42	SEE HO CO STD DETAIL SD 4.01
I-6	A-5 W/DEFLECTORS	14.52' RIGHT OF C_L STA 0+52 DARING PRINCE WAY	15"-386.57	384.31	389.88	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
			18"-386.31			
I-7	A-5 W/DEFLECTORS	14.52' RIGHT OF C_L STA 2+03 DARING PRINCE WAY	392.99	392.89	395.92	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-8	A-5 W/DEFLECTORS	14.52 RIGHT OF C_L STA 3+57 DARING PRINCE WAY	398.60	398.35	401.02	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-9	A-10 W/DEFLECTORS	14.52' LEFT OF C_L STA 3+57 DARING PRINCE WAY	----------	398.75	401.02	SEE HO CO STD DETAIL SD 4.02 & SD 4.83
I-10	A-5	21' LEFT OF C_L STA 13+65.33 SUMMER SUNRISE DRIVE	15"-373.36	373.01	377.70	SEE HO CO STD DETAIL SD 4.01
			18"-373.11			
I-11	A-5 W/DEFLECTORS	21' LEFT OF C_L STA 10+00 SUMMER SUNRISE DRIVE	382.86	380.86	389.50	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-12	A-5 W/DEFLECTORS	21' RIGHT OF C_L STA 10+00 SUMMER SUNRISE DRIVE	----------	385.65	389.50	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-13	A-5	14.52' RIGHT OF C_L STA 3+22.34 VELVET PATH	365.59	365.34	369.58	SEE HO CO STD DETAIL SD 4.01
I-14	A-5	14.52' LEFT OF C_L STA 3+22.34 VELVET PATH	----------	365.75	369.58	SEE HO CO STD DETAIL SD 4.01
I-15	A-10	21' RIGHT OF C_L STA 13+65.33 SUMMER SUNRISE DRIVE	----------	373.56	377.70	SEE HO CO STD DETAIL SD 4.02
I-16	A-5 W/DEFLECTORS	14.52' LEFT OF C_L STA 0+52 DARING PRINCE WAY	----------	386.72	389.88	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-17	A-5	21' LEFT OF C_L STA 22+80 SUMMER SUNRISE DRIVE	15"-349.35	347.35	358.28	SEE HO CO STD DETAIL SD 4.01
			24"-349.35			
I-18	A-5	21' LEFT OF C_L STA 22+02.81 SUMMER SUNRISE DRIVE	352.7	352.6	357.70	SEE HO CO STD DETAIL SD 4.01
I-19	A-5	21' RIGHT OF C_L STA 22+02.81 SUMMER SUNRISE DRIVE	353.40	352.92	357.70	SEE HO CO STD DETAIL SD 4.01
I-20	A-5	21' RIGHT OF C_L STA 20+70 SUMMER SUNRISE DRIVE	15"-354.98	354.73	359.44	SEE HO CO STD DETAIL SD 4.01
			15"-354.98			
I-21	A-10 W/DEFLECTORS	21' RIGHT OF C_L STA 19+66 SUMMER SUNRISE DRIVE	----------	360.26	363.22	SEE HO CO STD DETAIL SD 4.02 & SD 4.83
I-22	A-5	LP STA 1+27.16 ANGEL ROSE COURT	----------	374.11	378.80	SEE HO CO STD DETAIL SD 4.01
I-23	A-5 W/DEFLECTORS	21' LEFT OF C_L STA 25+00 SUMMER SUNRISE DRIVE	----------	362.20	366.42	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-24	A-5 W/DEFLECTORS	21' RIGHT OF C_L STA 26+57 SUMMER SUNRISE DRIVE	24"-367.11	365.11	377.12	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
			24"-365.86			
I-25	A-5	21' RIGHT OF C_L STA 29+68 SUMMER SUNRISE DRIVE	385.74	385.64	389.83	SEE HO CO STD DETAIL SD 4.01
I-26	A-5 W/DEFLECTORS	21' RIGHT OF C_L STA 0+43 RIVER RUN	15"-387.54	386.69	391.19	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
			24"-386.79			
I-27	A-5	21.52' RIGHT OF C_L STA 1+62 RIVER RUN	392.56	392.46	397.05	SEE HO CO STD DETAIL SD 4.01
I-28	A-5 W/DEFLECTORS	21.52' RIGHT OF C_L STA 3+10 RIVER RUN	15"-400.45	399.60	404.45	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
			24"-399.70			
I-29	A-5	21.52' RIGHT OF C_L STA 4+48.57 RIVER RUN	407.39	407.29	411.38	SEE HO CO STD DETAIL SD 4.01
I-30	A-5 W/DEFLECTORS	21.52' RIGHT OF C_L STA 0+50.57 EMPTY SONG ROAD	409.55	409.45	414.48	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-31	A-10 W/DEFLECTORS	21.52 LEFT OF C_L STA 0+50.57 EMPTY SONG ROAD	409.87	409.77	414.48	SEE HO CO STD DETAIL SD 4.02 & SD 4.83
I-32	A-5 W/DEFLECTORS	18.52' RIGHT OF C_L STA 5+40 RIVER RUN	15"-411.75	411.00	415.05	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
			18"-411.50			
I-33	A-5 W/DEFLECTORS	18.52' LEFT OF C_L STA 5+40 RIVER RUN	----------	411.05	415.05	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-34	A-5 W/DEFLECTORS	21.52' LEFT OF C_L STA 3+10 RIVER RUN	----------	400.68	404.45	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-35	A-5 W/DEFLECTORS	21.52' LEFT OF C_L STA 0+43 RIVER RUN	----------	387.77	391.19	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-36	A-5 W/DEFLECTORS	21' LEFT OF C_L STA 27+17 SUMMER SUNRISE DRIVE	366.33	366.23	380.90	SEE HO CO STD DETAIL SD 4.01 & SD 4.83

STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP ELEV.	REMARKS
I-37	A-5	14.52' RIGHT OF C_L STA 0+41.50 ENCHANTED SOLITUDE PLACE	18"-371.6	369.6	383.97	SEE HO CO STD DETAIL SD 4.01
			18"-370.1			
I-38	A-5	14.52' LEFT OF C_L STA 0+42.50 ENCHANTED SOLITUDE PLACE	378.39	376.39	383.99	SEE HO CO STD DETAIL SD 4.01
I-39	A-5 W/DEFLECTORS	15.52' LEFT OF C_L STA 2+48 RIVER RUN	378.83	378.58	383.99	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-40	A-5 W/DEFLECTORS	15.52' RIGHT OF C_L STA 2+48 RIVER RUN	----------	378.99	383.99	SEE HO CO STD DETAIL SD 4.02 & SD 4.83
I-41	A-10	LP STA 2+54.05 ENCHANTED SOLITUDE PLACE	----------	368.25	376.10	SEE HO CO STD DETAIL SD 4.02
I-42	A-5	LP STA 1+71.46 RIVER RUN	----------	371.99	376.94	SEE HO CO STD DETAIL SD 4.01
I-43	A-5 W/DEFLECTORS	LP STA 3+87 FAIREST DREAM LANE	15"-377.61	377.26	387.00	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
			18"-379.26			
I-44	A-5	14.52' LEFT OF C_L STA 6+40 FAIREST DREAM LANE	379.90	379.80	387.12	SEE HO CO STD DETAIL SD 4.01
I-45	A-5 W/DEFLECTORS	14.52' LEFT OF C_L STA 5+74 FAIREST DREAM LANE	386.28	386.18	390.10	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-46	A-5 W/DEFLECTORS	14.52' LEFT OF C_L STA 4+00 FAIREST DREAM LANE	392.54	392.44	399.84	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-47	A-5	14.52' RIGHT OF C_L STA 4+00 FAIREST DREAM LANE	15"-393.99	393.74	399.84	SEE HO CO STD DETAIL SD 4.01
			15"-394.99			
I-48	A-5	LP STA 0+67.80 OLD ROMANCE ROW	----------	394.51	399.13	SEE HO CO STD DETAIL SD 4.01
I-49	A-5 W/DEFLECTORS	15.52' RIGHT OF C_L STA 3+17.12 FAIREST DREAM LANE	----------	402.30	405.81	SEE HO CO STD DETAIL SD 4.01 & SD 4.83
I-50	A-5	LP STA 2+79.58 FAIREST DREAM LANE	----------	378.15	382.99	SEE HO CO STD DETAIL SD 4.01
M-1	4'-0" DIAMETER STD PRECAST MANHOLE	SEE PLAN SHEET 6	362.91	24" 363.41	368.00	SEE HO CO STD DETAIL G 5.12
				15" 362.91		
M-2	4'-0" DIAMETER STD PRECAST MANHOLE	17' RIGHT OF C_L STA 1+00 VELVET PATH		369.65	374.60	SEE HO CO STD DETAIL G 5.12
			24" 363.75			
M-3	4'-0" DIAMETER STD PRECAST MANHOLE	21' RIGHT OF C_L STA 2+71 VELVET PATH	365.06	364.56	370.26	SEE HO CO STD DETAIL G 5.12
M-4	4'-0" DIAMETER STD PRECAST MANHOLE	60.5' LEFT OF C_L STA 22+80 SUMMER SUNRISE DRIVE	340.00	336.00	344.50	SEE HO CO STD DETAIL G 5.12
M-5	5'-0" DIAMETER STD PRECAST MANHOLE	SEE PLAN SHEET 7	18"-360.64	358.74	364.00	SEE HO CO STD DETAIL G 5.13
			36"-359.24			
M-6	5'-0" DIAMETER STD PRECAST MANHOLE	SEE PLAN SHEET 12	360.40	359.90	369.50	SEE HO CO STD DETAIL G 5.13
M-7	4'-0" DIAMETER STD PRECAST MANHOLE	5' RIGHT OF C_L STA 6+58 RIVER RUN	----------	418.28	421.92	SEE HO CO STD DETAIL G 5.12
M-8	4'-0" DIAMETER STD PRECAST MANHOLE	13' RIGHT OF LP STA 3+32 ENCHANTED SOLITUDE PLACE	15"-367.86	367.76	380.00	SEE HO CO STD DETAIL G 5.12
			24"-367.86			
M-9	4'-0" DIAMETER STD PRECAST MANHOLE	7' LEFT OF C_L STA 3+41 RIVER RUN	370.46	370.36	382.02	SEE HO CO STD DETAIL G 5.12
M-10	4'-0" DIAMETER STD PRECAST MANHOLE	7' LEFT OF C_L STA 4+50 RIVER RUN	371.25	371.00	379.84	SEE HO CO STD DETAIL G 5.12
E-1	24" CONCRETE END SECTION	SEE PLAN SHEET 6	360.50	----------	------	SEE HO CO STD DETAIL SD 5.51
E-2	24" CONCRETE END SECTION	78' LEFT OF C_L STA 22+68 SUMMER SUNRISE DRIVE	333.00	----------	------	SEE HO CO STD DETAIL SD 5.51
E-3	42" CONCRETE END SECTION	SEE PLAN SHEET 7	357.00	----------	------	SEE HO CO STD DETAIL SD 5.51
E-4	15" CONCRETE END SECTION	SEE PLAN SHEET 6	362.91	----------	------	SEE HO CO STD DETAIL SD 5.51
E-5	15" CONC. END SECTION TEMPORARY	SEE PLAN SHEET 6	360.40	----------	------	SEE HO CO STD DETAIL SD 5.51
E-6	15" CONC. END SECTION	SEE PLAN SHEET 11	331.00	----------	------	SEE HO CO STD DETAIL SD 5.51
E-7	15" CONC. END SECTION	SEE PLAN SHEET 7	356.00	----------	------	SEE HO CO STD DETAIL SD 5.51
E-8	42" CONC. END SECTION	55' LEFT OF C_L STA 11+02 SUMMER SUNRISE DRIVE	370.00	----------	------	SEE HO CO STD DETAIL SD 5.51
HW-1	TYPE 'E' HEADWALL	115' LEFT OF C_L STA 22+15 SUMMER SUNRISE DRIVE	331.00	----------	------	SEE MSHA STD DETAIL MD 350.01
S-1	MODIFIED A-5 INLET TEMPORARY	SEE PLAN SHEET 6	362.00	361.50	366.95	SEE DETAIL SHEET 20
S-2	MODIFIED A-5 INLET	SEE PLAN SHEET 11	333.00	332.50	338.35	SEE DETAIL SHEET 20
S-3	MODIFIED A-5 INLET	SEE PLAN SHEET 7	358.00	357.50	363.35	SEE DETAIL SHEET 20
S-4	MODIFIED A-10 INLET	54' RIGHT OF C_L STA 10+38 SUMMER SUNRISE DRIVE	378.0	377.80	386.50	SEE DETAIL SHEET 20 & SD 4.02
S-5	MODIFIED A-10 INLET	66' RIGHT OF C_L STA 23+00 SUMMER SUNRISE DRIVE	332.00	332.00	351.00	SEE DETAIL SHEET 20 & SD 4.02
E-9	18" CONC END SECTION	85' RIGHT OF C_L STA 25+00 SUMMER SUNRISE DRIVE	354.00	-	-	SEE HO CO STD DETAIL 5.51
E-10	18" CONC END SECTION	60' RIGHT OF C_L STA 10+36 SUMMER SUNRISE DRIVE	380.00	-	-	SEE HO CO STD DETAIL 5.51

NOTE: TOP OF STD CURB & GUTTER ELEVATION PROVIDED FOR INLETS.

NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP ELEV.	REMARKS
M-1A	4'-0" DIA. STD. PRECAST MANHOLE	22' RIGHT OF C_L STA. 0+81 VELVET PATH	24"-369.02	368.42	375.04	SEE HO. CO. STD. DETAIL G 5.12
			24"-368.52			

1487

AS BUILT CERTIFICATE

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

G. SCOTT SHANABERGER, PROF. LS.# 10849 — 11/30/95

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

COMMUNITY PLANNING AND LAND DEVELOPMENT — 1/27/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF — 1/19/93

CHIEF, BUREAU OF ... — 1/6/93

CHIEF, BUREAU OF ENGINEERING — 1.20.93 (DATE)

DATE	NO.	REVISION
8-9-93	2	REV. STRUC. SCHED. - I-41, HW-1, E-10
6-18-93	1	REV. STRUC. SCHED.

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT: VILLAGE OF RIVER HILL
SECTION 2 AREA 1
LOTS 1 THRU 150

AREA: TAX MAP NO. ...
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN PROFILES AND STRUCTURE SCHEDULE

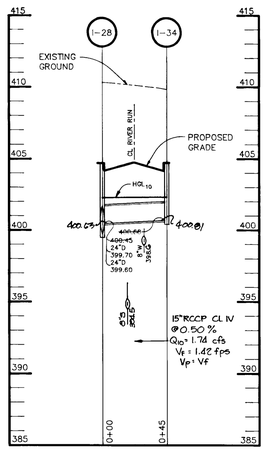
RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-92
DATE

ARTHUR E. MUEGGE 8707

DESIGNED BY : WCW
DRAWN BY : CAD
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 17 OF 21

F-93-18



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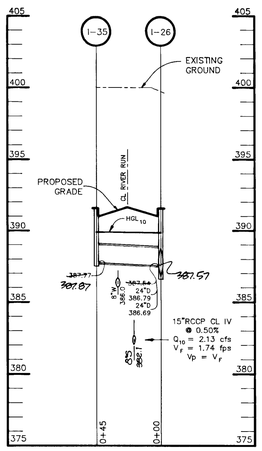

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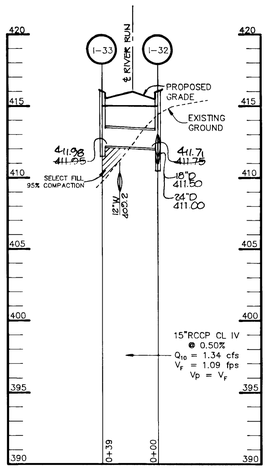

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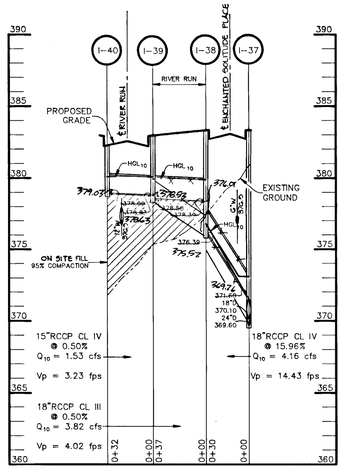

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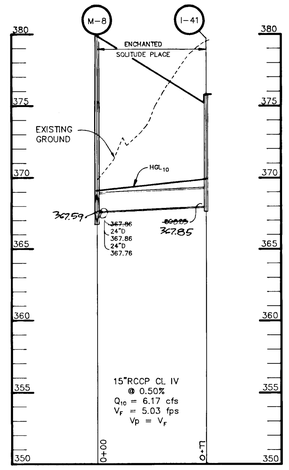

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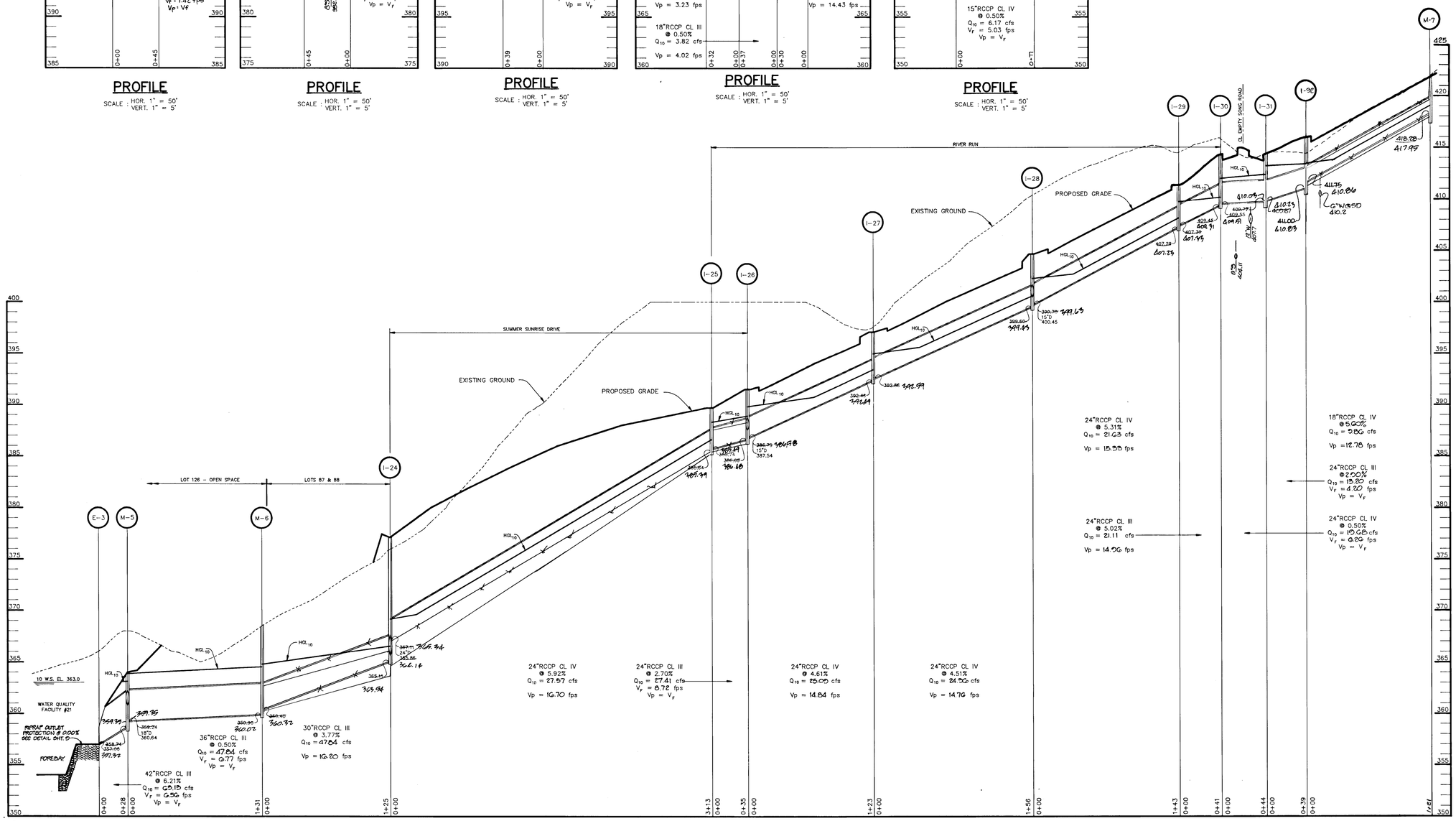

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STATE OF MARYLAND
ARTHUR E. MUEGGE
No. 8707
REGISTERED PROFESSIONAL ENGINEER

AS BUILT CERTIFICATE

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

G. SCOTT SHANABERGER, REG. L.S. #10847 — 11/21/95

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — 1/27/93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — 1/19/93 DATE

CHIEF, BUREAU OF HIGHWAYS — 1/6/93 DATE

CHIEF, BUREAU OF ENGINEERING — 1-20-93 DATE

DATE	NO.	REVISION
6-5-08	1	REV. STORM DRAIN PROFILE I-41 - M-8

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT **VILLAGE OF RIVER HILL**
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 35 ZONED NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE **STORM DRAIN PROFILES**

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-92
DATE

S-91-03, P-92-13, WP-92-13

DESIGNED BY : WCW	
DRAWN BY : CAD	
PROJECT NO : 80804	
DATE : DECEMBER 21, 1992	
SCALE : AS SHOWN	
DRAWING NO. 18 OF 21	

F-93-18

AS-BUILT

1487

SPECIFICATIONS

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

SITE PREPARATION

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 50 foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

EARTH FILL

Material – The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable material. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

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

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

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

Cutoff Trench – The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter.

The back fill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

STRUCTURE BACKFILL

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

PIPE CONDUITS

All pipes shall be circular in cross section.

Corrugated Metal Pipe – All of the following criteria shall apply for corrugated metal pipe:

1. Materials – (Steel Pipe) – This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings or an approved equal may be used: Nexon, Plasti-Cote, Bloc-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.
2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.
3. Connections – All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

   All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 48" in diameter; flanges on both ends of the pipe, a 12" wide standard lap type band with 12" wide by 3/8" thick closed cell circular neoprene gasket; and a 12" wide hugger type band with O-ring gaskets having a minimum diameter of 1/2" greater than the corrugation depth. Pipes 48" in diameter and larger shall be connected by a 24" long annular corrugated band using rods and lugs. A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24". Helically corrugated pipe shall have either continuously welded seams or have lock seams.
4. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
5. Backfilling shall conform to "Structure Backfill."
6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete Pipe – All of the following criteria shall apply for reinforced concrete pipe:

1. Materials – Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361. An approved equivalent is AWWA Specification C-302.
2. Bedding – All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the side of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
3. Laying pipe – Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.
4. Backfilling shall conform to Structure Backfill.
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Polyvinyl Chloride (PVC) Pipe – All of the following criteria shall apply for polyvinyl chloride (PVC) pipe:

1. Materials – PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.
2. Joints and connections to anti-seep collars shall be completely watertight.
3. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
4. Backfilling shall conform to Structure "Backfill".
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

CONCRETE

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 608, Mix No. 3.

ROCK RIPRAP

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

The rock shall have the following properties:

1. Bulk specific gravity (saturated surface-dry basis) not less than 2.5.
2. Absorption not more than three percent.
3. Soundness: Weight loss in five cycles not more than 20 percent when sodium sulfate is used.

Bulk specific gravity and absorption shall be determined according to ASTM C 127. The test for soundness shall be performed according to ASTM C 88.

The riprap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 919.12.

CARE OF WATER DURING CONSTRUCTION

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

STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

EROSION AND SEDIMENT CONTROL

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

PERMANENT SEEDING

Seedbed Preparation: Flat areas and slopes up to 3:1 slope shall be loose and friable to a depth of at least 3 inches. The top layer of soil shall be loosened by raking, discing or other acceptable means before seeding. Slopes steeper than 3:1 shall have the top 1 to 3 inches of soil loose and friable before seeding.

Soil Amendments: Use one of the following schedules.

Lime and fertilize according to soil tests. Lime and fertilizer needs can be determined by a soil testing laboratory, such as the University of Maryland's Soil Testing Laboratory.

In lieu of soil test results, use one of the following schedules:

1) Preferred – Apply 2 tons per acre dolomitic limestone (92 LBS/1000 SF) and 600 LBS per acre 10-10-10 fertilizer (14 LBS/1000 SF) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 LBS per acre 30-0-0 ureaform fertilizer (01 LBS/1000 SF)
2) Acceptable – Apply 2 tons per acre dolomitic limestone (92 LBS/1000 SF) and 1000 LBS per acre 10-10-10 fertilizer (23 LBS/1000 SF) before seeding. Harrow or disc into upper three inches of soil.

On slopes steeper than 3:1 slope, the lime and fertilizer shall be worked the best way possible. On sloping land, the final harrowing or discing operation should be on the contour wherever feasible. No attempt should be made to drag any disced area to make the soil surface smooth after discing.

Seeding:

For the periods March 1 thru April 30, and August 1 thru October 15. Seed with 60 LBS per acre (1.4) LBS/1000 SF) of Kentucky 31 Tall Fescue.

For the period May 1 thru July 31.
Seed with 60 LBS Kentucky 31 Tall Fescue per acre and 2 LBS per acre (.05 LBS/1000 SF) of Weeping Lovegrass.

For the period October 16 thru February 28, protect site by:
Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring.
Option (2) Use sod.
Option (3) Seed with 60 LBS/acre (1.4 LBS/1000 SF) Kentucky 31 Tall Fescue and mulch with 2 tons per acre well-anchored straw.

Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder or hydroseeder (slurry includes seed and fertilizer) on a firm, moist seedbed. Maximum seeding depth should be 1/4 inch on clayey soils and 1/2 inch on sandy soils, when using other than hydroseeder method of application. Note: If hydroseeding is used and the seed and fertilizer is mixed, they shall be mixed on site and the seeding shall be immediate without interruption.

Mulching: See Mulching Specification.

Irrigation:

If soil moisture is deficient, supply new seedings with adequate water for plant growth until they are firmly established, if feasible. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Maintenance:

Irrigation – If soil moisture becomes deficient, irrigate to prevent loss of stand of protective vegetation, if feasible.
Repairs – Inspect all seeded areas for failures and make necessary repairs, replacements, and reseeding within the planting season, if possible.
1) If stand is inadequate for erosion control, overseed and fertilize using half of the rates originally applied.
2) If stand is over 60% damaged, reestablish following original lime, fertilizer, seedbed preparation and seeding recommendations.

TEMPORARY SEEDING

Seedbed Preparation:

When the area to be seeded has been recently loosened to the extent that an adequate seedbed exists, no additional treatment is required. However, when the area to be seeded is packed, crusted, and hard, the top 3 inches of soil shall be loosened by discing, raking or other acceptable means before seeding.

Soil Amendments:

For temporary seedings, fertilizer shall be applied at the rate of 600 LBS per acre (15 LBS/1000 SF), using 10-10-10 or equivalent. Soils which are highly acid should be limed.

Seeding:

For periods March 1 thru April 30 and August 15 thru November 15. Seed with 2 1/2 BU per acre (3.2 LBS/1000 SF) of annual rye.

For the period May 1 thru August 14. Seed with 3 LBS per acre (.07 LBS/1000 SF) of Weeping Lovegrass.

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.

Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder or hydroseeder (slurry includes seed and fertilizer).

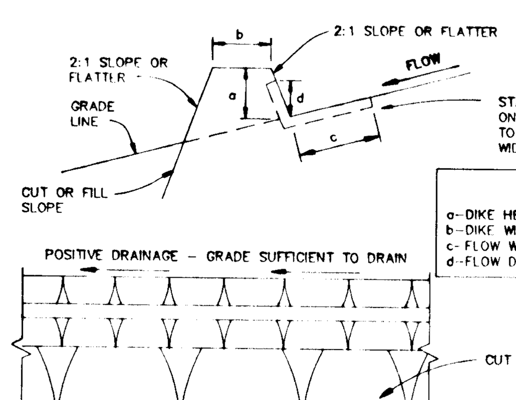
Mulching: See Mulching Specification.

SEDIMENT CONTROL NOTES

1. A minimum of 24 hours notice must be given to the Howard County Office of Inspections and Permits prior to the start of any construction (992-2437).
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 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within : a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be 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 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL for permanent seedings (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	71.309	acres
Area Disturbed	29.56	acres
Area to be roofed or paved	6.69	acres
Area to be vegetatively stabilized	23.27	acres
Total Cut	75000	cu.yds.
Total Fill	75000	cu.yds.

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 Department of Public Works Sediment Control Inspector.
10. Site grading will begin only after all perimeter sediment control measures have been installed and are in a functioning condition.
11. Sediment will be removed form traps when its depth reaches clean out elevation shown on the plans.
12. Cut and fill quantities provided under site analysis do not represent bid quantities. These quantities do not distinguish between topsoil, structural fill or embankment material, nor do they reflect consideration of undercutting or removal of unsuitable material. The contractor shall familiarize himself with site conditions which may affect the work.



	DIKE A (5 Ac OR LESS)	DIKE B (5–10 Ac)
a–DIKE HEIGHT	18"	36"
b–DIKE WIDTH	24"	36"
c–FLOW WIDTH	4'	6'
d–FLOW DEPTH	8"	15"

CONSTRUCTION SPECIFICATIONS

1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON, (B) FLOW CHANNEL AS PER THE CHART BELOW:

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	0.5–3.0%	SEED & STRAW MULCH	SEED & STRAW MULCH
2	3.1–5.0%	SEED & STRAW MULCH	SEED USING JUTE, OR EXCELSIOR; SOD; 2" STONE
3	5.1–8.0%	SEED WITH JUTE, OR SOD; 2" STONE	LINED RIPRAP 4–8"
4	8.1–20%	LINED RIPRAP 4–8"	ENGINEERED DESIGN

A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.

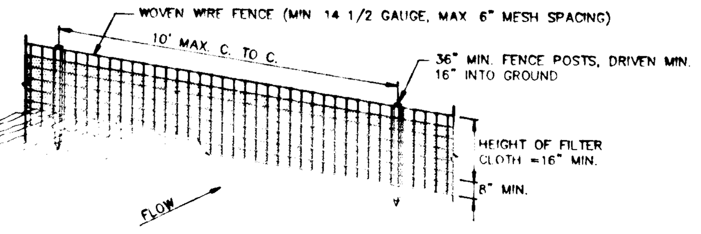
B. RIPRAP TO BE 4–8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.

C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.

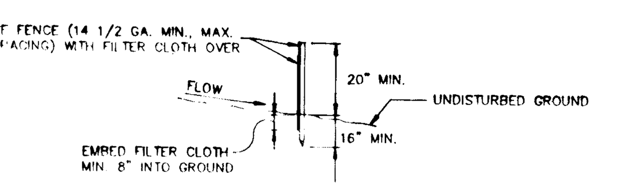
7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

EARTH DIKE

NO SCALE



PERSPECTIVE VIEW



SECTION

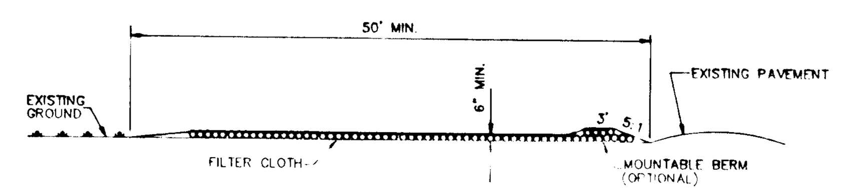
CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. Woven wire fence to be fastened securely to fence posts with wire ties or staples.
2. Filter cloth to be fastened securely to woven wire fence with ties spaced every 24" at top and mid section.
3. When two sections of filter cloth adjoin each other they shall be overlapped by six inches and folded.
4. Maintenance shall be perfomed as needed and material removed when "bulges" develop in the silt fence.

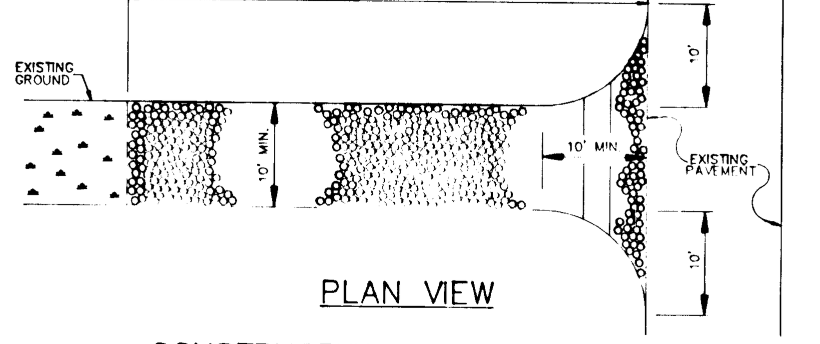
POSTS : Steel, either T or U type or 2" hardwood.
FENCE : Woven wire, 14 Ga., 6" max. mesh opening.
FILTER CLOTH : Filter X, Mirafi 100X, Stabilinka T140N or approved equal.
PREFABRICATED UNIT : Geofab, Envirofence or approved equal.

SILT FENCE DETAIL

NO SCALE



PROFILE



PLAN VIEW

CONSTRUCTION SPECIFICATIONS

1. Stone Size – Use 2" stone, or reclaimed or recycled concrete equivalent.
2. Length – As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum would apply).
3. Thickness – Not less than six (6) inches.
4. Width – Ten (10) foot minimum, but not less than the full width at points where ingress and egress occurs.
5. Filter Cloth – Will be placed over the entire area prior to placing of stone. Filter cloth will not be required on a single family residence lot.
6. Surface Water – All surface water flowing or diverted toward construction entrance shall be piped across the entrance. If piping is impracical, a mountable berm with 5:1 slopes will be permitted.
7. Maintenance – The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
8. Washing – Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
9. Periodic inspection and needed maintenance shall be provided after each rain.

STABILIZED CONSTRUCTION ENTRANCE

NO SCALE

NONTIDAL WETLANDS CONDITIONS AND MANAGEMENT PRACTICES

a) Construct the road crossings with one culvert or cell depressed to allow for passage of fish and aquatic organisms. Any other potential blockage must be constructed to allow fish passage during normal stream flows.

b) For utility line installation, strip, stockpile and maintain separately the top 6" of soil material, to be replaced as the top layer of the backfilled material.

c) Remove excess fill or construction material or debris to an upland disposal area, outside the buffer;

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

e) Use previously excavated material as backfill, unless it contains waste metal products, unsightly debris, toxic material or any other deleterious substance. Use clean borrow material when excavated material is not suitable for use as backfill;

f) Rectify any nontidal wetlands and buffers temporarily impacted by any proposed repair and maintenance activity or installation of the utility line. All stabilization in the wetland and buffer shall be of the following recommended species: Annual Ryegrass (Lolium multiflorum), Millet (Setaria italica), Oats (Uniola sp.), and/or Rye (Secale cereale). Other non-persistent vegetation may be acceptable, but must be approved by the Nontidal Wetlands Division. Kentucky 31 fescue shall not be utilized in the wetland or buffer. All temporary fills shall be removed in their entirety on or before the completion of construction;

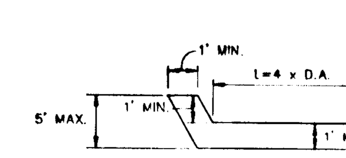
g) After installation of the utility line has been completed, make post construction grades and elevations of nontidal wetlands the same as the original grades and elevations;

h) Conduct the activity so as not to cause or contribute to a degradation of water quality, in accordance with the conditions of the Water Quality Certification issued by the Maryland Department of the Environment.

i) Place heavy equipment on mats or suitably operate the equipment to prevent damage to the nontidal wetlands;

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

1) The Little Patuxent River and it's tributaries are Class I Waterways. In-stream work may not be conducted during the period March 1 through June 15, inclusive, during any year.



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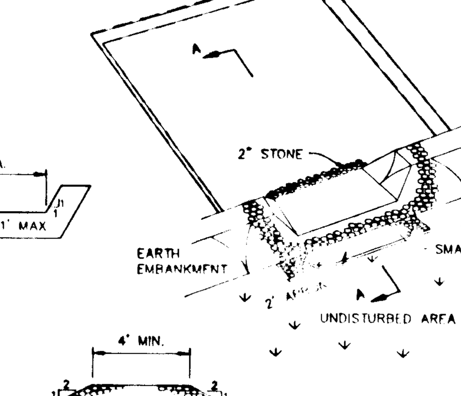
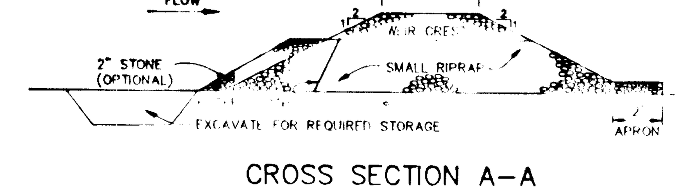




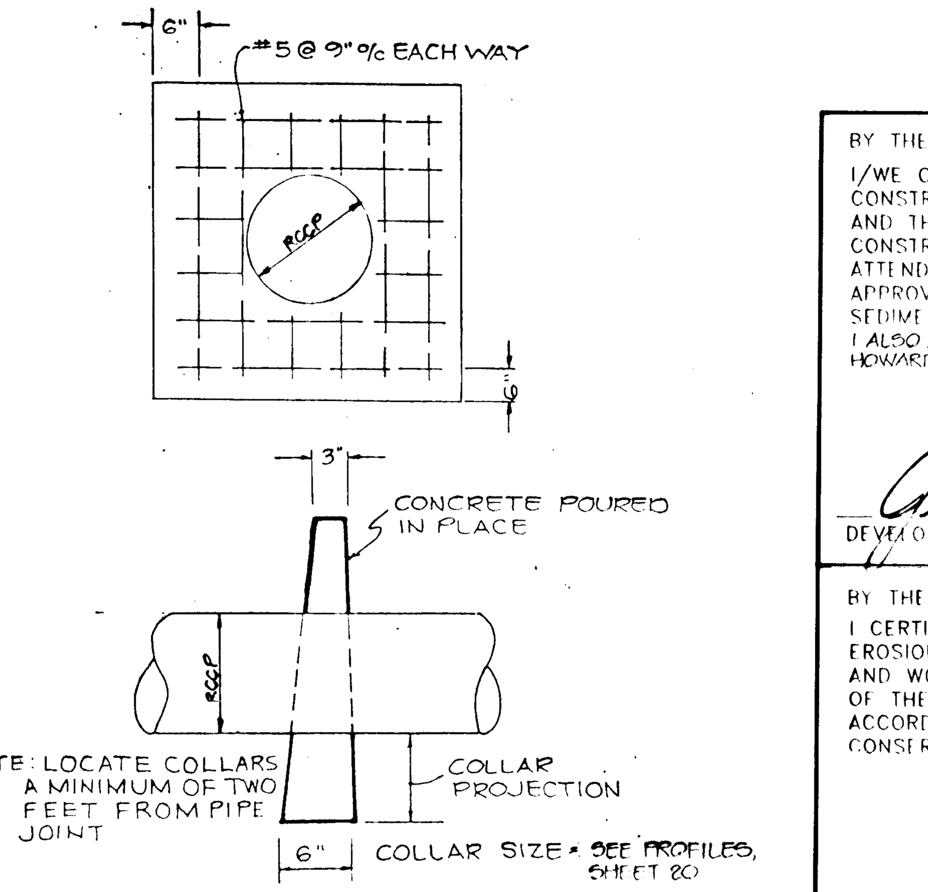
CROSS SECTION A–A

OPTION: A ONE FOOT LAYER OF 2" STONE MAY BE PLACED ON THE UPSTREAM SIDE OF THE RIPRAP IN PLACE OF THE EMBEDDED FILTER CLOTH.

CONSTRUCTION SPECIFICATIONS

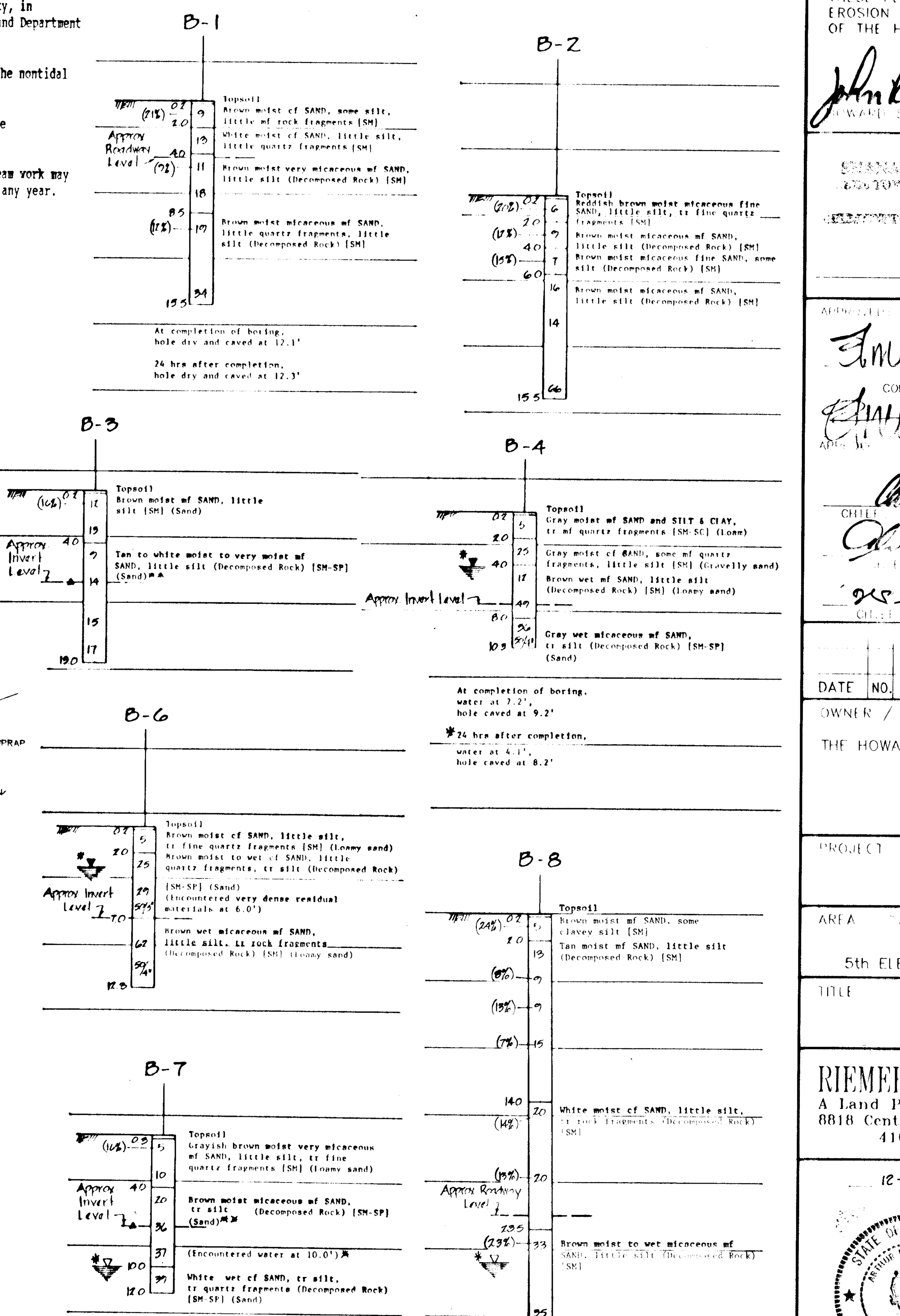
1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
4. THE STONE USED IN THE OUTLET SHALL BE SMALL RIPRAP 4"–8" ALONG WITH A 1' THICKNESS OF 2" AGGREGATE PLACED ON THE UP-GRADE SIDE ON THE SMALL RIPRAP OR EMBEDDED FILTER CLOTH IN THE RIPRAP.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAN EROSION AND WATER POLLUTION IS MINIMIZED.
8. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

STONE OUTLET SEDIMENT TRAP



CONCRETE ANTI-SEEP COLLAR

NO SCALE



BORING LOGS

NO SCALE

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.

DEVELOPER — 12-21-92 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.

ENGINEER — 12-21-92 DATE

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

U.S. SOIL CONSERVATION SERVICE — 12/28/92 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 12/28/92

AS BUILT CERTIFICATE

DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — 1/27/93 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF — 1/19/93

CHIEF, BUREAU OF HIGHWAYS — 1/6/93

CHIEF, BUREAU OF ENGINEERING — 1-20-93 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

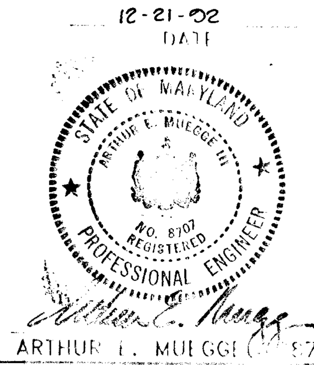
PROJECT VILLAGE OF RIVER HILL
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 34 ZONE: NEW TOWN
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE SWM/SEDIMENT CONTROL NOTES AND DETAILS

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-92 DATE

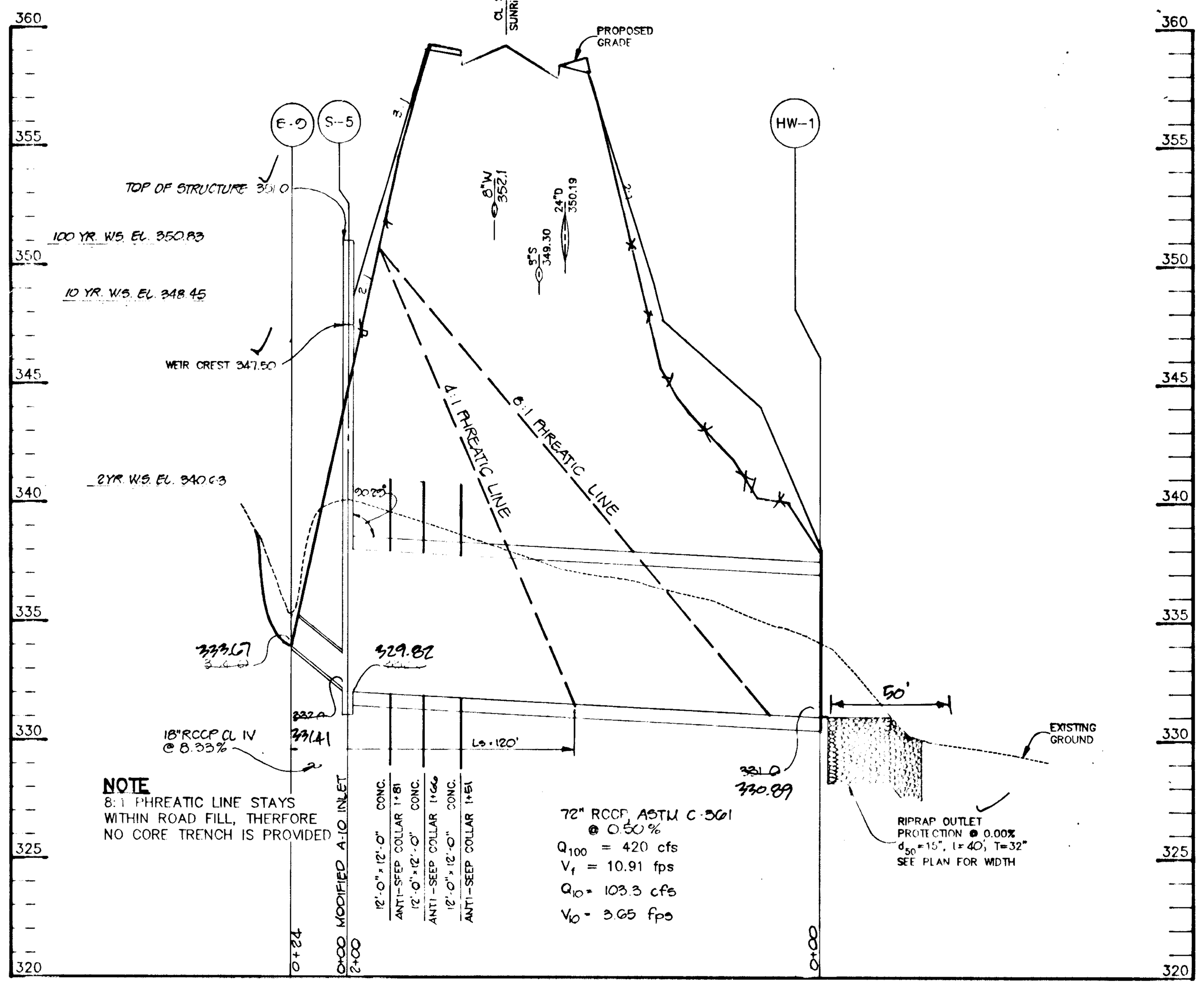


ARTHUR E. MUEGGE III 8707

DESIGNED BY	C.J.R.
DRAWN BY	DAM
PROJECT NO	80804
DATE	DECEMBER 21, 1992
SCALE	AS SHOWN
DRAWING NO.	19 OF 21

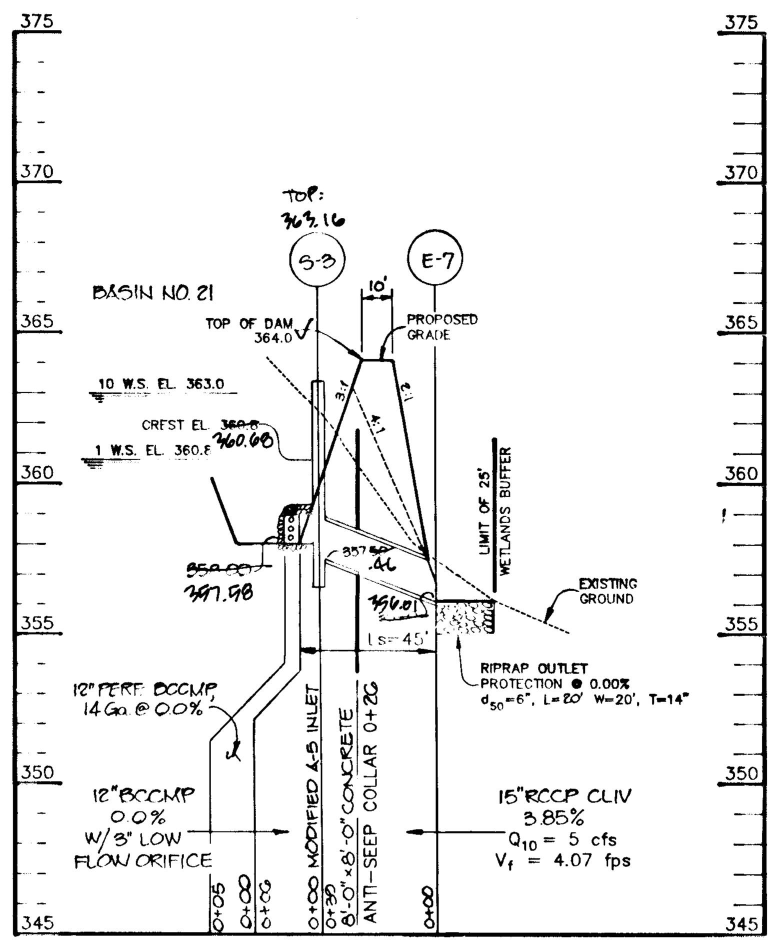
F-93-18

1487



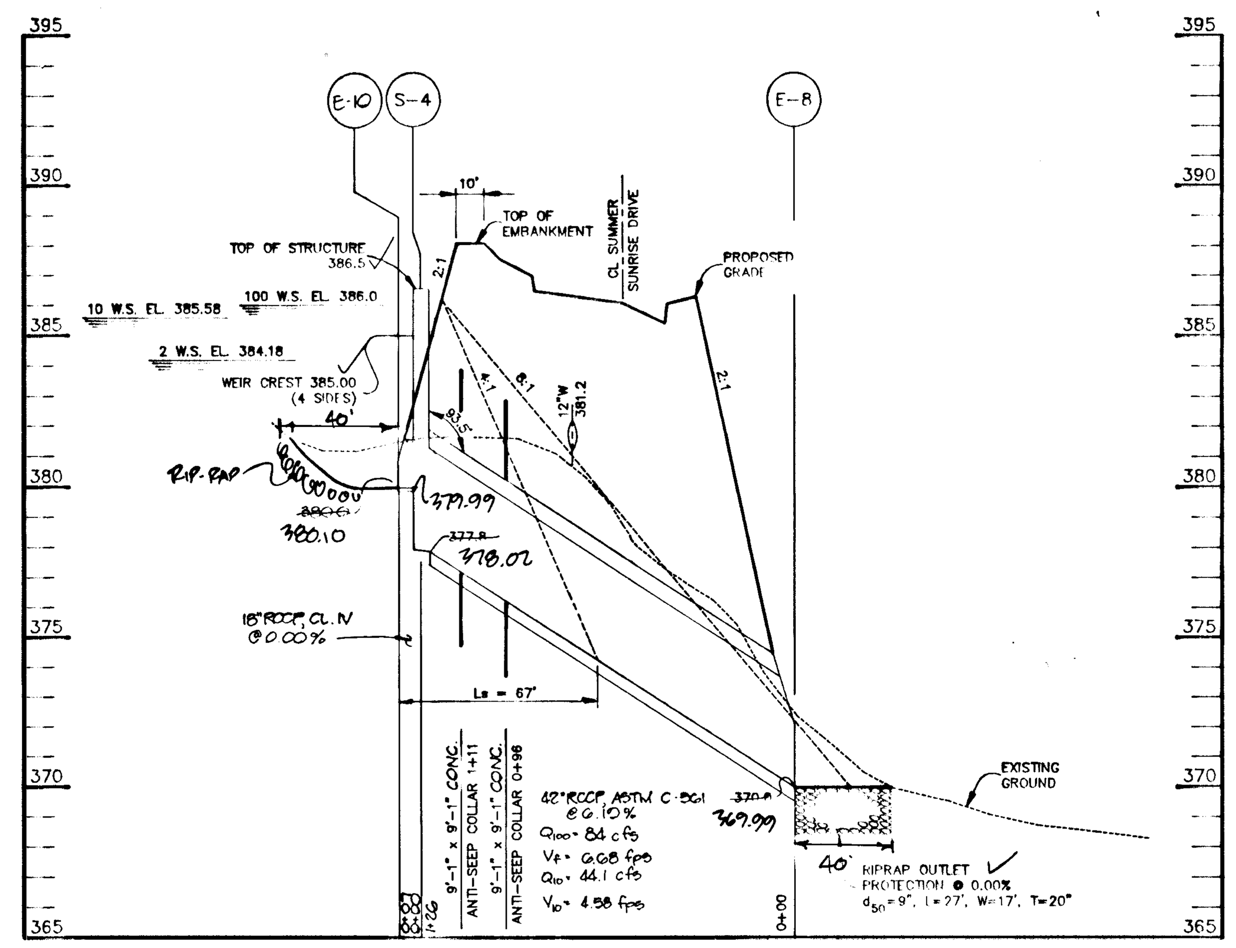
PRINCIPAL SPILLWAY PROFILE – S.W.M.F. #3

SCALE:
HOR.– 1"=50'
VERT.– 1"=5'



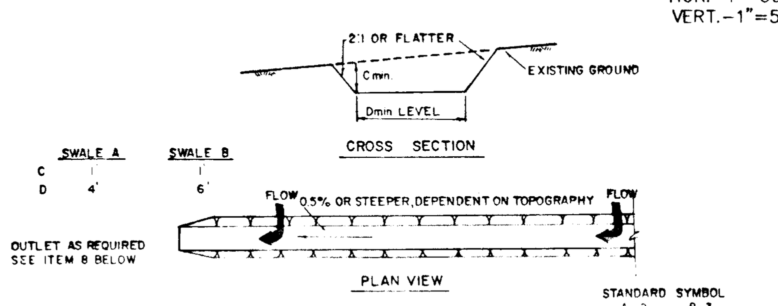
PRINCIPAL SPILLWAY PROFILE – W.Q. FACILITY #21

SCALE:
HOR.– 1"=50'
VERT.– 1"=5'



PRINCIPAL SPILLWAY PROFILE – S.W.M.F. #13

SCALE:
HOR.– 1"=50'
VERT.– 1"=5'



CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED ON CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. STABILIZATION SHALL BE AS PER THE CHART BELOW:

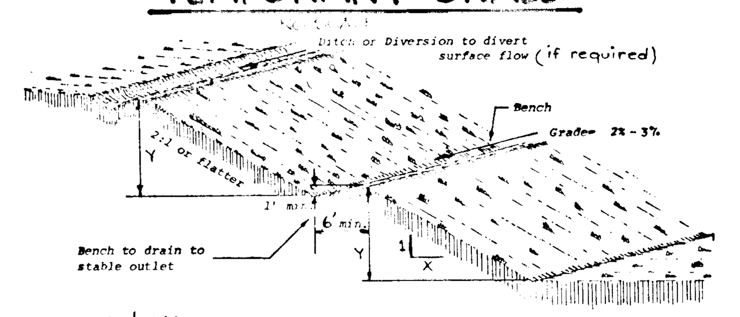
FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	A (5 AC OR LESS)	B (5 AC - 10 AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE OR EXCELSIOR
3	5.1-8.0%	SEED WITH JUTE OR EXCELSIOR; SOD	LINED RIP-RAP 4-8" RECYCLED CONCRETE EQUIVALENT
4	8.1-20%	LINED 4-8" RIP-RAP	ENGINEERED DESIGN

9. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

TEMPORARY SWALE

NO SCALE



X	Y (MAX)
2	20'
3	30'
4	40'

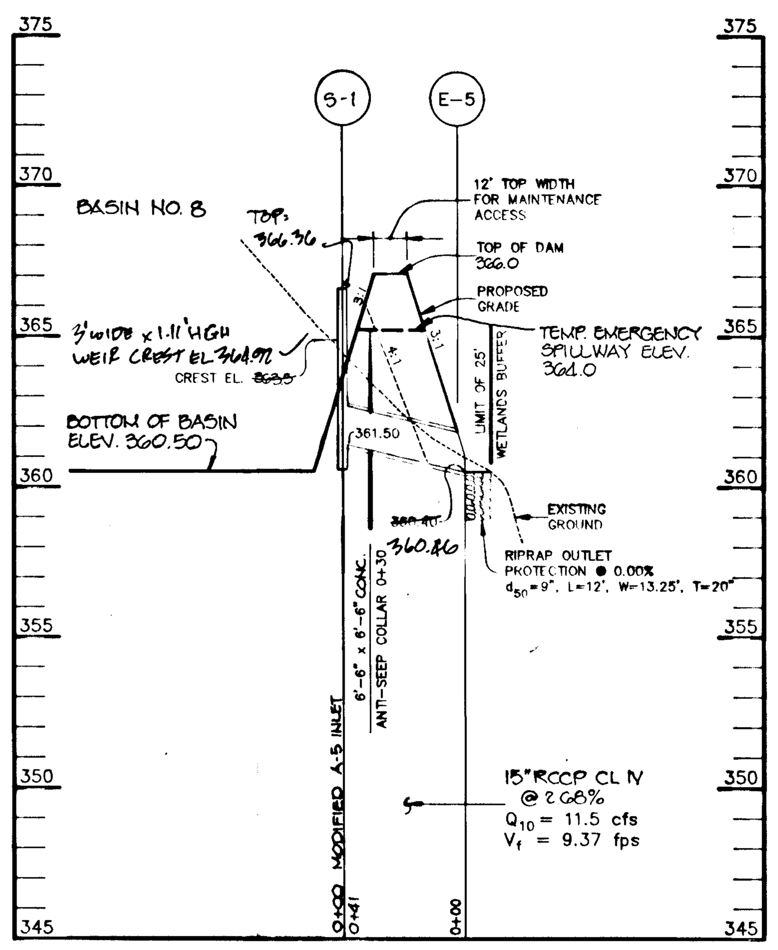
SLOPE DETAIL (WITH BENCH)

Construction Specifications

1. All graded or disturbed areas including slopes shall be protected during clearing and construction in accordance with the approved sediment control plan until they are permanently stabilized.
2. All sediment control practices and measures shall be constructed, applied and maintained in accordance with the approved sediment control plan and the "Standards and Specifications for Soil Erosion and Sediment Control in Developing Areas".
3. Topsoil required for the establishment of vegetation shall be stockpiled in amount necessary to complete finished grading of all exposed areas.
4. Areas to be filled shall be cleared, grubbed and stripped of topsoil to remove trees, vegetation, roots or other objectionable material.
5. Areas which are to be topsoiled shall be scarified to a minimum depth of three inches prior to placement of topsoil.
6. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Fill intended to support buildings, structures and conduits, etc., shall be compacted in accordance with local requirements or codes.
7. All fill to be placed and compacted in layers not to exceed 8 inches in thickness.
8. Except for approved landfills, fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris and other objectionable materials that would interfere with or prevent construction of satisfactory fills.
9. Frozen materials or soft, mucky or highly compressible materials shall not be incorporated into fills.
10. Fill shall not be placed on a frozen foundation.
11. All benches shall be kept free of sediment during all phases of development.
12. Seeps or springs encountered during construction shall be handled in accordance with the Standard and Specifications for Subsurface Drain or other approved method.
13. All graded areas shall be permanently stabilized immediately following finished grading.
14. Stockpiles, borrow areas and spoil areas shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.

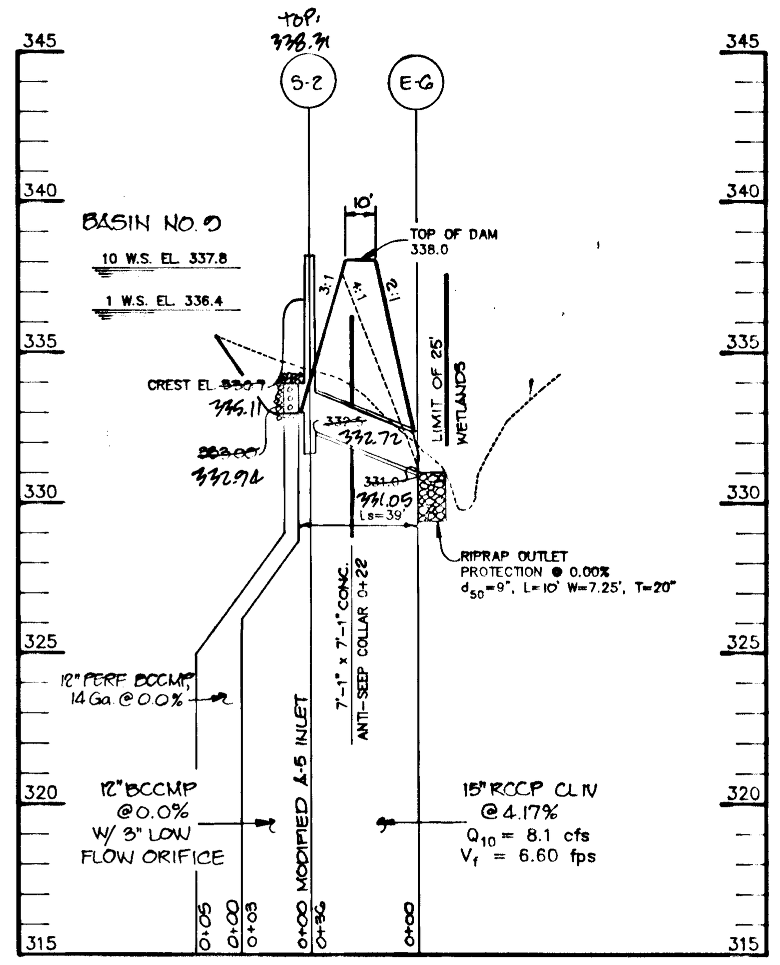
SLOPE DETAIL WITH BENCH

NO SCALE



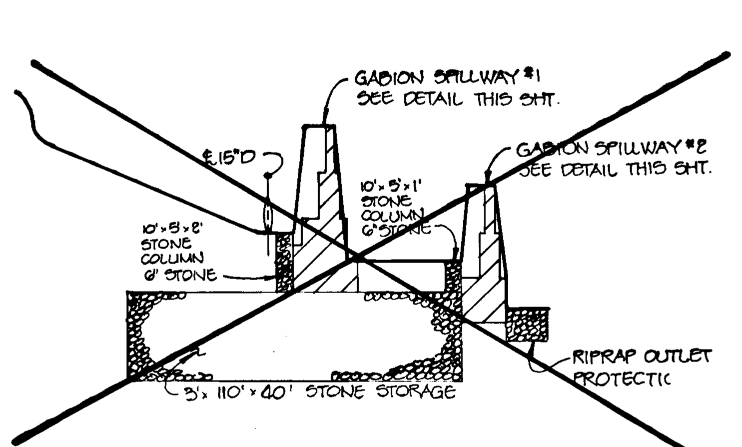
PRINCIPAL SPILLWAY PROFILE – SEDIMENT BASIN # 8

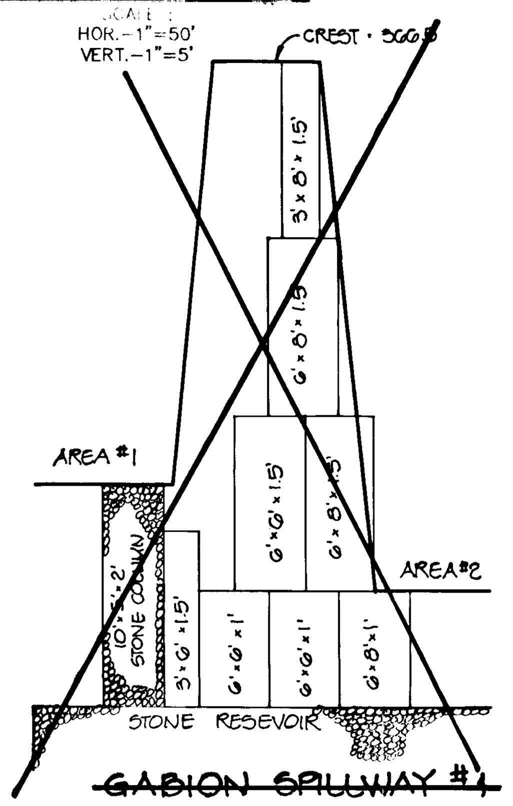
SCALE:
HOR.– 1"=50'
VERT.– 1"=5'



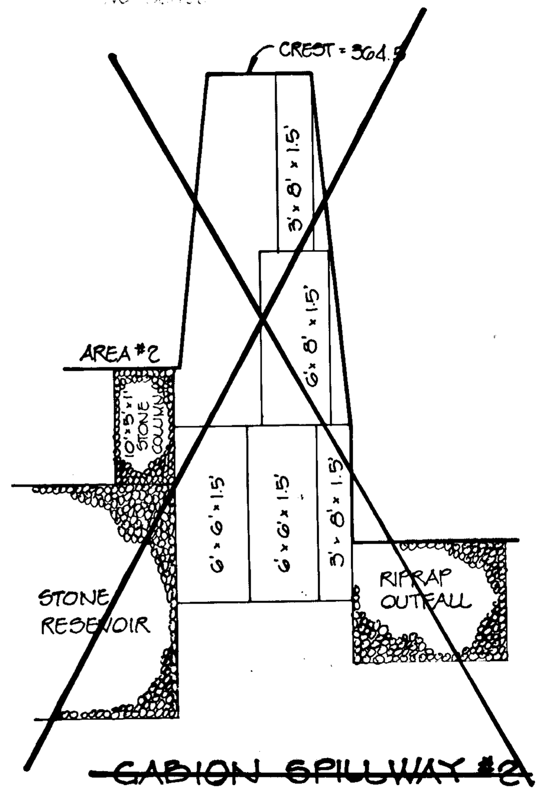
PRINCIPAL SPILLWAY PROFILE – W.Q. FACILITY #9

SCALE:
HOR.– 1"=50'
VERT.– 1"=5'

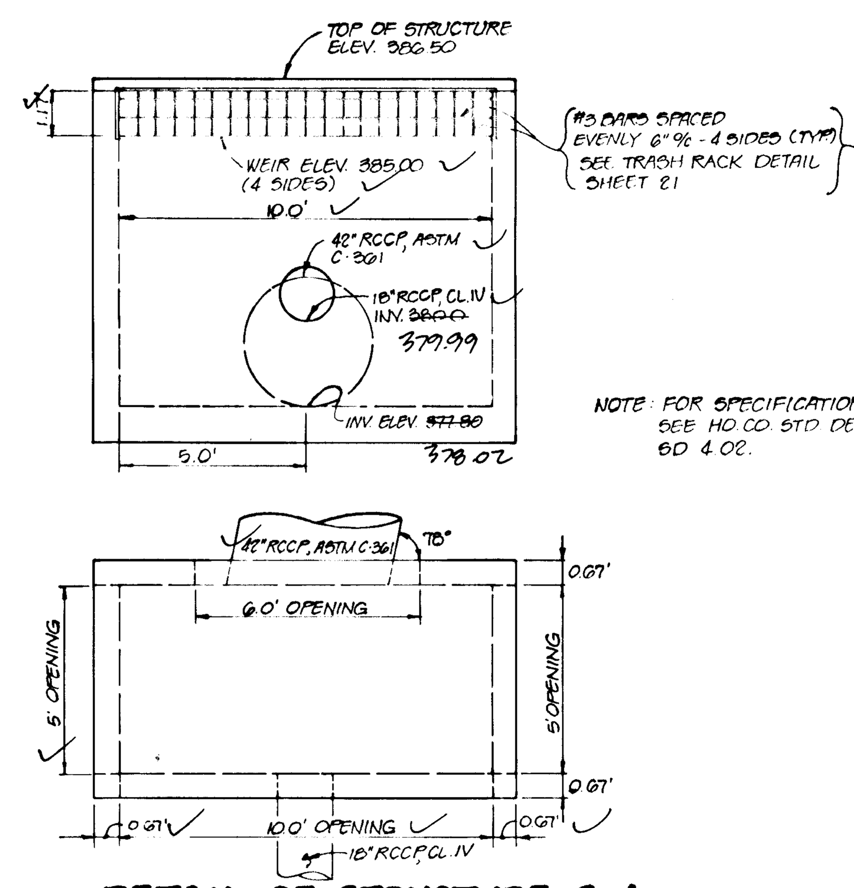




~~GABION SPILLWAY #1~~



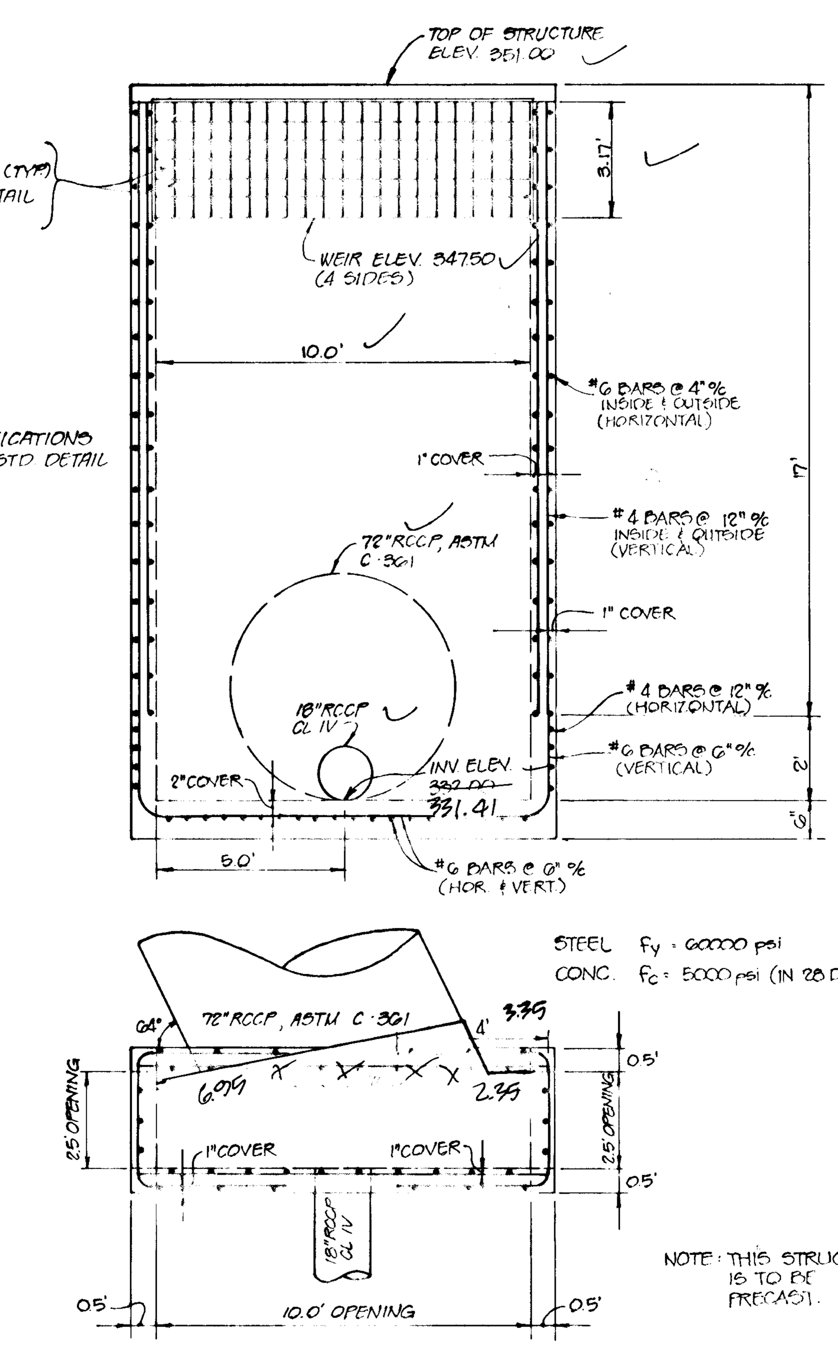
~~GABION SPILLWAY #2~~



NOTE: FOR SPECIFICATIONS SEE HO.CO. STD DETAIL SD 4.02.

DETAIL OF STRUCTURE S-4

NO SCALE



STEEL F_y = 60000 psi
CONC. F_c = 5000 psi (IN 28 DAYS)

NOTE: THIS STRUCTURE IS TO BE PRECAST.

DETAIL OF STRUCTURE S-5

NO SCALE

NOTE: *This sheet supercedes the previously approved plan (Dwg. No. 20 of 21) under F-93-18.*

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.

Gregory R. Klar 12/21/92
DEVELOPER 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 SOIL CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Arthur E. Muegge 12.21.92
ENGINEER DATE

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

James M. Helm / JWM 2/23/93

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

Robert W. Ziehm / JWM 2/23/93

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

G. Scott Shanaberger, PROF. L.S. #10849 11/30/95

APPROVED:
Emma J. Holonash 3/12/93
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

3/8/93
3/3/93
3.9.93

DATE	NO.	REVISION
7-27-95	2	REMOVED GABION DETAILS
6-18-93	1	ADDED GABION DETAILS & REV. PROFILE OF BASIN #8

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT VILLAGE OF RIVER HILL
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA TAX MAP NO. 35
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE
SWM PROFILES AND DETAILS

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

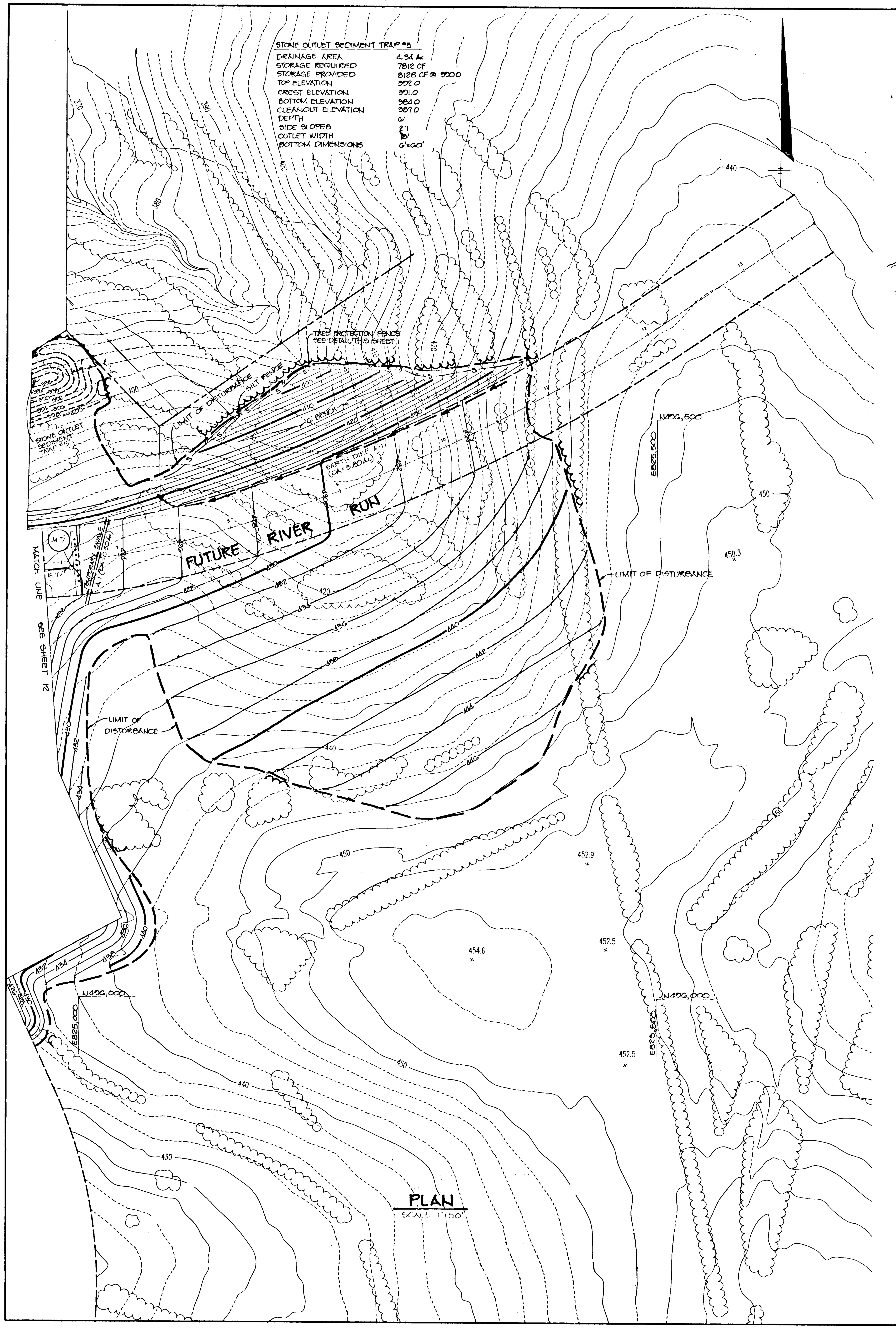
12.21.92
DATE

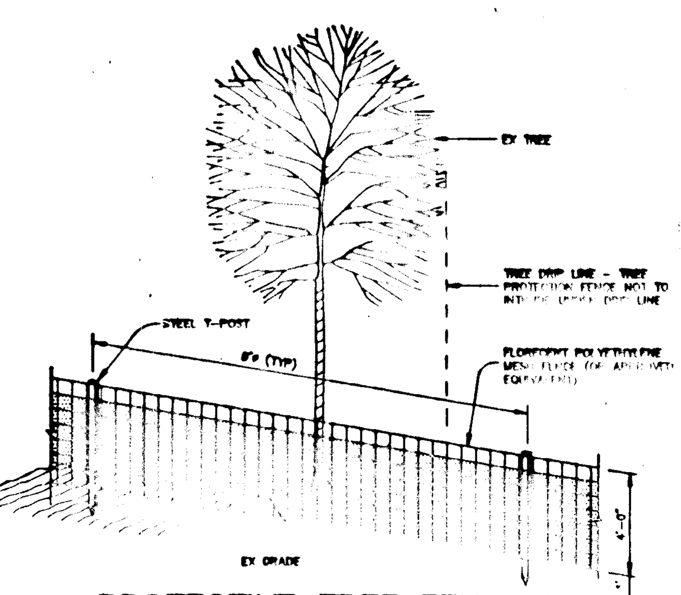
STATE OF MARYLAND
ARTHUR E. MUEGGE III
NO. 8707 REGISTERED
PROFESSIONAL ENGINEER

DESIGNED BY : CJK
DRAWN BY : CAD
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 20 OF 21

F-93-18 AS-BUILT Replacement sheet

1487

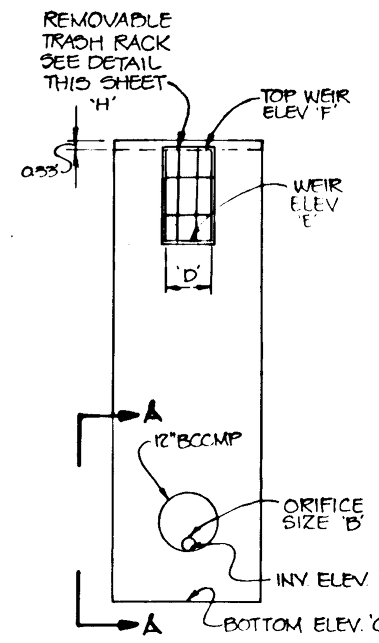




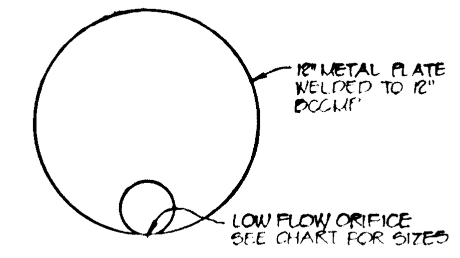
PROTECTIVE TREE FENCING
ELEVATION DETAIL
NO SCALE

TREE PRESERVATION PROCEDURES

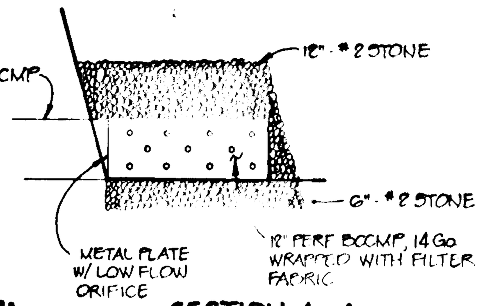
1. THE EDGE OF WOODS TO BE PROTECTED WILL BE MARKED IN THE FIELD PER THE APPROVED SITE DEVELOPMENT PLAN PRIOR TO THE START OF CONSTRUCTION ACTIVITY.
2. PROTECTIVE FENCING SHALL BE INSTALLED AT THE DRIP LINE OF THE EDGE OF WOODS. ALL AREAS WITHIN PROTECTIVE FENCES ARE TO BE CONSIDERED OFF LIMITS FOR ANY CONSTRUCTION ACTIVITIES.
3. PROTECTIVE FENCING WILL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR WILL AFFIX SIGNS TO THE FENCING INDICATING THAT THESE AREAS ARE TREE PRESERVATION AREAS. THE GENERAL CONTRACTOR SHALL TAKE UTMOST CARE TO PROTECT TREE ROOT SYSTEMS DURING THE CONSTRUCTION CYCLE. TREE ROOT SYSTEMS SHALL BE PROTECTED FROM SMOTHERING, FLOODING, EXCESSIVE WETTING FROM DE-WATERING OPERATIONS, OFF SITE RUN OFF, SPILLAGE, AND DRAINAGE OF SOLUTIONS CONTAINING MATERIALS HAZARDOUS TO TREE ROOTS.
4. REMOVAL OF TOPSOIL OR ROOT MAT WITHIN THE TREE PRESERVATION AREA SHALL BE PROHIBITED. THE GENERAL CONTRACTOR SHALL BE PROHIBITED FROM PARKING ANY CONSTRUCTION EQUIPMENT OR FROM STORING ANY [illegible] OF EARTH STOCKPILES WITHIN THE TREE PRESERVATION AREAS.
5. FOOT TRAFFIC, AS WELL AS VEHICULAR TRAFFIC, IN THE TREE PRESERVATION AREAS SHALL BE KEPT TO A MINIMUM. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY TREE DAMAGED OR DESTROYED WITHIN THE TREE PRESERVATION AREAS, WHETHER CAUSED BY THE CONTRACTOR, HIS AGENTS, EMPLOYEES, SUB CONTRACTORS, OR LICENSES.
6. CONSTRUCTION ACTIVITIES EXPRESSLY RESTRICTED WITHIN THE TREE PRESERVATION AREAS: PLACING BACKFILL IN PROTECTED AREAS, FELLING TREES INTO PROTECTED AREAS, DRIVING CONSTRUCTION EQUIPMENT INTO OR THROUGH PROTECTED AREAS, BURNING IN OR IN CLOSE PROXIMITY TO PROTECTED AREAS, [illegible] SUPPLIES IN PROTECTED AREAS, [illegible] AREAS, GRADING BEYOND THE LIMITS OF [illegible]
7. THE GENERAL CONTRACTOR SHALL PROVIDE A WASH OUT AREA FOR CONCRETE TRUCKS ON SITE, WHICH WILL NOT DRAIN TOWARDS A PROTECTED AREA.
8. ALL TREES WHICH ARE NOT TO BE PRESERVED WITHIN FIFTY FEET OF ANY TREE PRESERVATION AREAS ARE TO BE REMOVED IN A MANNER THAT WILL NOT DAMAGE THOSE TREES THAT ARE DESIGNATED FOR PRESERVATION. IT IS HIGHLY RECOMMENDED THAT TREE STUMPS WITHIN THIS FIFTY FOOT AREA BE GROUND OUT WITH A STUMP GRINDING MACHINE TO MINIMIZE DAMAGE.



PLAN



METAL PLATE
NO SCALE



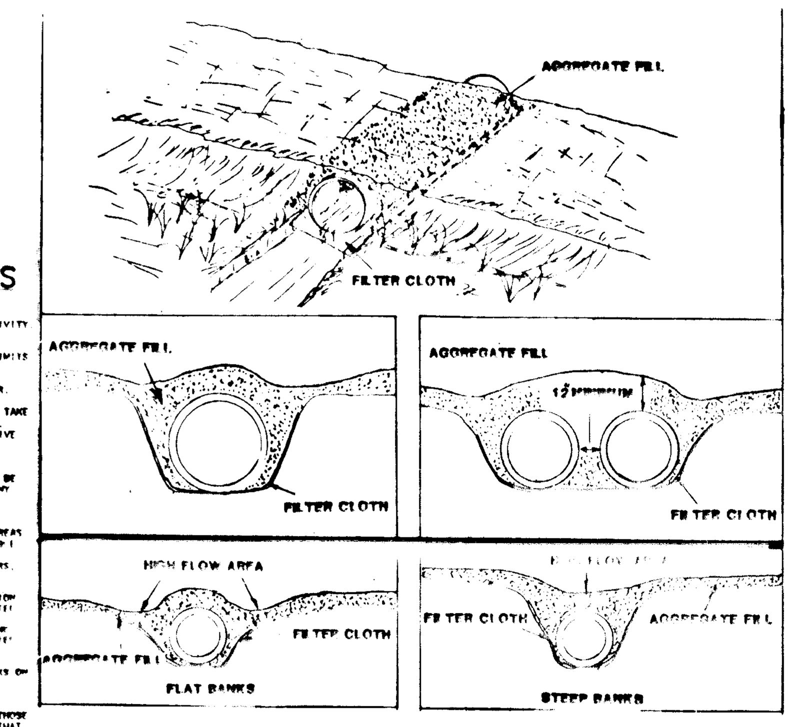
SECTION A-A

RISER DETAIL
NO SCALE

	BASIN NO	RISER DIA. 'A'	ORIFICE DIA. 'B'	ORIFICE ELEV 'C'	WEIR WIDTH 'D'	WEIR ELEV 'E'	TOP WEIR ELEV 'F'	BOTTOM ELEV 'G'	TRASH RACK 'H'
S-2	9	MODIFIED A-5 INLET	2.30"	~~332.94~~	7'0.67'	~~330.11~~ ~~334.77~~	~~337.93~~	~~332.72~~	#4 BAR @ 3.5%
S-3	21	MODIFIED A-5 INLET	3.00"	~~358.0~~ 357.98	5'0.5'	~~360.80~~ 360.68	~~363.00~~ 362.86	~~357.50~~ 357.46	#4 BAR @ 2.5%

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT AND ALL OTHER NECESSARY PERMITS. CONTRACTOR TO FOLLOW NONTIDAL WETLANDS CONDITIONS AND MANAGEMENT PRACTICES AS SHOWN ON SHEET 19, DURING CONSTRUCTION.
2. CLEAR FOR AND INSTALL SCE. INSTALL SILT FENCE, EARTH DIKES, TEMPORARY SWALES, TEMPORARY ACCESS CULVERTS #1 AND #2 (TAC), STONE OUTLET TRAPS 1 THRU 5, SEDIMENT BASINS #8, #9, AND #21, AND TREE PROTECTIVE FENCE AS SHOWN ON GRADING PLANS.
3. CLEAR TREES FOR ROADWAY CONSTRUCTION.
4. CONSTRUCT CULVERT CROSSINGS S-4 TO E-8 AND S-5 TO HW-1.
5. UPON COMPLETION OF CULVERTS DIVERT STREAMS INTO CONTROL STRUCTURES.
6. BEGIN GRADING FOR ROADWAY CONSTRUCTION. REMOVE TAC #1 AND #2 AS NECESSARY.
7. INSTALL UTILITIES AS SUBGRADE IS ESTABLISHED.
8. INSTALL CURB AND GUTTER AND BEGIN PAVING.
9. COMPLETE GRADING AND PAVING AND STABILIZE DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES.
10. INSTALL STREET TREES AND STREET LIGHTS.
11. COMPLETE ALL CONSTRUCTION ACTIVITIES.
12. UPON APPROVAL OF DEPARTMENT OF LICENSES, INSPECTIONS AND PERMITS REMOVE ALL SEDIMENT CONTROL DEVICES INCLUDING CONVERTING SEDIMENT BASINS TO WATER QUALITY BASINS THROUGH THE FOLLOWING PROCEDURE:
    - A) FLUSH STORM DRAIN SYSTEMS OF SEDIMENT
    - B) PUMP OUT WATER FROM BASINS
    - C) REMOVE SEDIMENT FROM BASINS AND DEPOSIT AS DIRECTED BY SEDIMENT CONTROL INSPECTOR
    - D) GRADE BOTTOM OF BASINS TO FINAL ELEVATIONS AS SHOWN ON THE GRADING AND SEDIMENT CONTROL PLANS
13. STABILIZE ALL REMAINING DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES.



2. **Temporary Access Culvert** - (STANDARD DRAWING TAC-1)

A temporary access culvert is a structure consisting of a section(s) of circular pipe, pipe arches, or oval pipes of reinforced concrete, corrugated metal, or structural plate, which is used to convey flowing water through the crossing.

Considerations

a. **Temporary culverts are used where (1) the channel is too wide for** normal bridge construction, (2) anticipated loading may prove unsafe for single span bridges, or (3) access is not needed from bank to bank.

b. **This temporary waterway crossing method is normally preferred over** a ford type of crossing, since disturbance to the waterway is only during construction and removal of the culvert.

c. **Temporary culverts can be salvaged and reused.**

Construction Specifications

a. **Restrictions** - No Construction or removal of a temporary access culvert will be permitted between October 1 through April 30 for all Class III and Class IV Trout Waters or between March 15 through June 15 for non-trout waterways.

b. **Culvert Strength** - All culverts shall be strong enough to support their cross sectional area under maximum expected loads.

c. **Culvert Size** - The size of the culvert pipe shall be the largest pipe diameter that will fit into the existing channel without major excavation of the waterway channel or without major approach fills. If a channel width exceeds 3 feet, additional pipes may be used until the cross sectional area of the pipes is greater than 60 percent of the cross sectional area of the existing channel. The minimum size culvert that may be used is a 12" diameter pipe.

d. **Culvert Length** - The culvert(s) shall extend a minimum of one foot beyond the upstream and downstream toe of the aggregate placed around the culvert. In no case shall the culvert exceed 40 feet in length.

e. **Filter Cloth** - Filter cloth shall be placed on the streambed and streambanks prior to placement of the pipe culvert(s) and aggregate. The filter cloth shall cover the streambed and extend a minimum six inches and a maximum one foot beyond the end of the culvert and bedding material. Filter cloth reduces settlement and improves crossing stability.

f. **Culvert Placement** - The invert elevation of the culvert shall be installed on the natural streambed grade to minimize interference with fish migration (free passage of fish).

g. **Culvert Protection** - The culvert(s) shall be covered with a minimum of one foot of aggregate. If multiple culverts are used they shall be separated by at least 12" of compacted aggregate fill. At a minimum, the bedding and fill material used in the construction of the temporary access culvert crossings shall conform with the aggregate requirements cited in Section 1.H. 1. above.

h. **Stabilization** - All areas disturbed during culvert installation shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for "Critical Area Stabilization With Permanent Seeding."

Culvert Maintenance Requirements

a. **Inspection** - Periodic inspection shall be performed to ensure that the culverts, streambed, and streambanks are not damaged, and that sediment is not entering the stream or blocking fish passage or migration.

b. **Maintenance** - Maintenance shall be performed, as needed in a timely manner to ensure that structures are in compliance with this standard and specification. This shall include removal and disposal of any trapped sediment or debris. Sediment shall be disposed of and stabilized outside the waterway flood plain.

Culvert Removal and Clean-Up Requirements

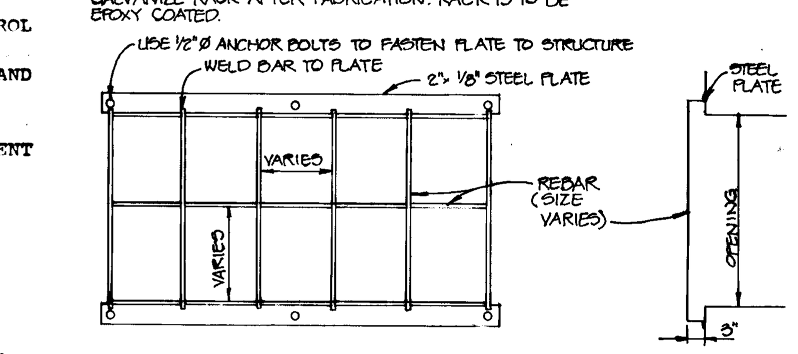
a. **Removal** - When the crossing has served its purpose, all structures including culverts, bedding and filter cloth materials shall be removed within 14 calendar days. In all cases, the culvert materials shall be removed within one year of installation. No structure shall be removed during the spawning season (March 15 through June 15).

b. **Final Clean-up** - Final clean-up shall consist of removal of the temporary structure from the waterway, removal of all construction materials, restoration of original stream channel cross section, and protection of the stream banks from erosion. Removed material shall be stored outside of the waterway flood plain.

c. **Method** - Removal of the structure and clean up of the area shall be accomplished without construction equipment working in the waterway channel.

d. **Final Stabilization** - All areas disturbed during culvert removal shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for "Critical Area Stabilization With Permanent Seeding."

GALVANIZE RACK AFTER FABRICATION. RACK IS TO BE EPOXY COATED.



TRASH RACK DETAIL
NO SCALE

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.

DEVELOPER 12-21-92 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.

ENGINEER 12-21-92 DATE

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

SOIL CONSERVATION SERVICE 12/28/92 DATE

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

HOWARD SOIL CONSERVATION DISTRICT 12/28/92

AS BUILT CERTIFICATE

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21043

G. SCOTT SHANABERGER, PROF. L.S.# 10845 11/30/94

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT 1/27/93

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF 1/11/93
CHIEF, BUREAU OF HIGHWAYS 1/6/93
CHIEF, BUREAU OF ENGINEERING 1-20-93

DATE	NO.	REVISION
6-18-93	1	REMOVED BASIN #8 FROM RISER DETAIL

OWNER / DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT VILLAGE OF RIVER HILL
SECTION 2 AREA 1
LOTS 1 THRU 130

AREA
PART OF PARCELS 70 & 240
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE GRADING AND SEDIMENT CONTROL PLAN AND DETAILS

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
410-997-8900 FAX : 410-997-9282

12-21-92
DATE

STATE OF MARYLAND — ARTHUR E. MUEGGE III — NO. 8707 REGISTERED PROFESSIONAL ENGINEER

ARTHUR E. MUEGGE III 8707

DESIGNED BY : CJR
DRAWN BY : DAM
PROJECT NO : 80804
DATE : DECEMBER 21, 1992
SCALE : AS SHOWN
DRAWING NO. 21 OF 21

F-93-18

1487