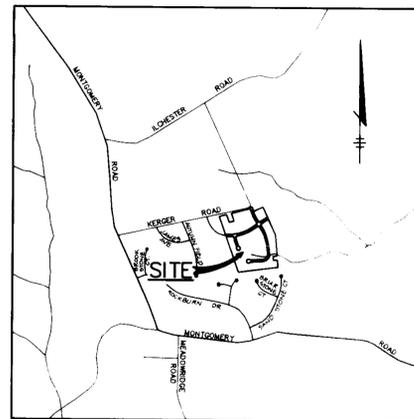


SHEET INDEX	
NO.	DESCRIPTION
1	TITLE SHEET
2	SITE DEVELOPMENT PLAN
3	SITE DEVELOPMENT PLAN
4	GRADING AND SEDIMENT CONTROL PLAN
5	GRADING AND SEDIMENT CONTROL PLAN
6	WETLANDS MITIGATION GRADING PLAN
7	DETAIL SHEET
8	FINAL WETLAND MITIGATION PLAN
9	FINAL WETLAND MITIGATION PLAN

SITE DEVELOPMENT PLAN SUNNY FIELD ESTATES SECTION ONE LOTS 1-23 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND



VICINITY MAP
SCALE: 1"=200'

GENERAL NOTES

- THE WETLAND/STREAM BUFFERS SHOWN ON THESE PLANS DOES NOT AFFECT THE INITIAL CONSTRUCTION OF A RESIDENTIAL UNIT ON ANY LOT. IT DOES PROHIBIT SUBSEQUENT CLEARING, GRADING, OR CONSTRUCTION IN THE BUFFER AREA, MAINTENANCE OF RESIDENCES, LANDSCAPING AND UTILITIES IS PERMITTED.
- ALL WATER LINES SHALL BE CONSTRUCTED A MINIMUM OF 42" COVER BELOW FINISHED GRADE.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, I.B., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, 1980 AMENDMENTS.
- APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FROM BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL TAKE ALL NECESSARY 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.
- THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST (5) DAY BEFORE STARTING WORK. SHOWN ON THESE DRAWINGS TO VERIFY THEIR LOCATION AND ELEVATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF LOCATION OF UTILITIES IS OTHER THAN SHOWN.
- CONTRACTOR TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS:
 CAP TELEPHONE COMPANY 725-9976+
 HOWARD COUNTY BUREAU OF UTILITIES 313-4900
 AT&T CABLE LOCATION DIVISION 393-3553
 BALTIMORE GAS & ELECTRIC COMPANY 685-0123
 STATE HIGHWAY ADMINISTRATION 531-5533
 HOWARD COUNTY BUREAU OF CONSTRUCTION INSPECTION 792-7272
 DIVISION (24 HOURS NOTICE PRIOR TO COMMENCEMENT OF WORK)
 THE CONTRACTOR TO NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- EX. TOPO IS PROPOSED GRADING TAKEN FROM F-89-232 PREPARED BY AMERICAN ENGINEERING, INC. AND IS AT 2 FOOT INTERVALS.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- THE DEVELOPER IS RESPONSIBLE FOR THE ACQUISITION OF ALL EASEMENTS, RIGHTS AND/OR RIGHTS-OF-WAY THAT MAY BE REQUIRED FOR THE SEDIMENT AND EROSION CONTROL PRACTICES, STORM WATER MANAGEMENT PRACTICES AND THE DISCHARGE OF STORM WATER ONTO OR ACROSS ADJACENT OR DOWNSTREAM PROPERTIES INCLUDED IN THIS PLAN. HE IS ALSO RESPONSIBLE FOR THE ACQUISITION OF ALL EASEMENTS, RIGHTS AND/OR WORK ON ADJACENT PROPERTIES INCLUDED IN THIS PLAN.
- SEE DEPARTMENT OF PLANNING AND ZONING FILE No. WP-89-184, S-89-06, P-89-52, F-89-232 AND WP-91-159.
- F-89-232 WAS APPROVED BY THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING ON FEBRUARY 15, 1991.
- STORMWATER MANAGEMENT IS PROVIDED FOR THIS DEVELOPMENT UNDER F-89-232 AND IT IS A RETENTION FACILITY.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- PUBLIC WATER AND SEWER FOR THESE LOTS IS PROVIDED UNDER CONTRACT DRAWINGS No. 14-1975-D, WHICH WERE APPROVED ON NOVEMBER 12, 1991.
- WP-89-184 IS A WAIVER FOR EXCEEDING THE ALLOWABLE 1200 FEET LENGTH FOR A CUL-DE-SAC STREET. WAIVER WAS APPROVED FOR SUNNY FIELD COURT.
- WP-91-159 IS A WAIVER TO EXTEND APPROVAL OF THE FINAL PLANS AND IT WAS APPROVED ON MAY 16, 1991.
- STATE OF MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER QUALITY CERTIFICATION NO. 80-WQ-0203

ADDRESS CHART

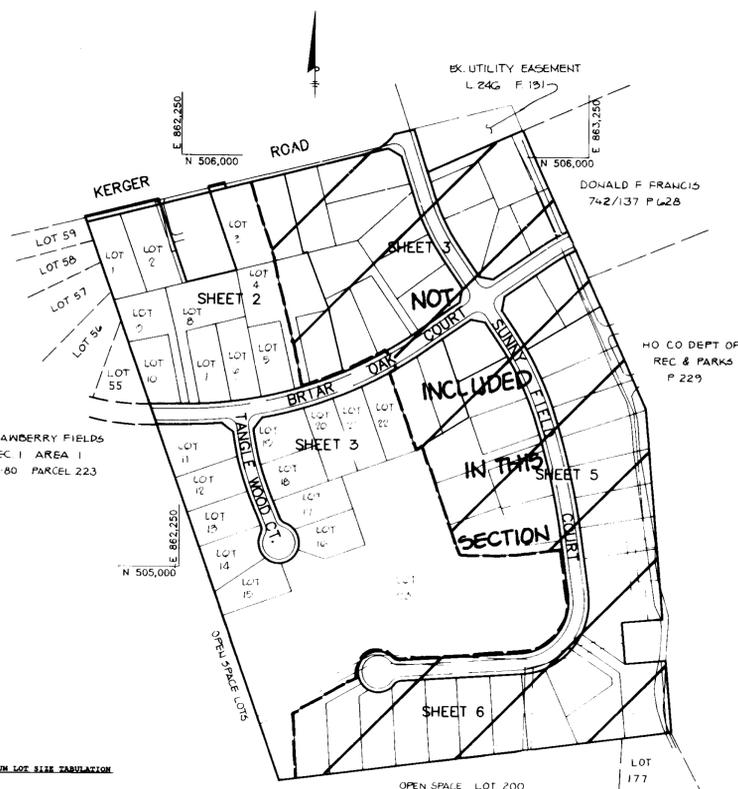
LOT NO.	STREET ADDRESS
1	5065 KERGER ROAD
2	5075 KERGER ROAD
3	5085 KERGER ROAD
4	5090 BRIAR OAK COURT
5	5095 BRIAR OAK COURT
6	5097 BRIAR OAK COURT
7	5097 BRIAR OAK COURT
8	5095 BRIAR OAK COURT
9	5090 BRIAR OAK COURT
10	5090 BRIAR OAK COURT
11	5090 TANGLE WOOD COURT
12	5090 TANGLE WOOD COURT
13	5090 TANGLE WOOD COURT
14	5090 TANGLE WOOD COURT
15	5090 TANGLE WOOD COURT
16	5090 TANGLE WOOD COURT
17	5090 TANGLE WOOD COURT
18	5090 TANGLE WOOD COURT
19	5090 TANGLE WOOD COURT
20	5094 BRIAR OAK COURT
21	5090 BRIAR OAK COURT
22	5094 BRIAR OAK COURT
23	OPEN SPACE

* PER CONTRACT NO. 14-1975-D

WATER AND SEWER HOUSE CONNECTION CHART

LOT NO.	MIN. CELLAR ELEV. #	CELLAR ELEV. AT PROPERTY LINE	WHC SIZE
1	379.00	382.7	3/4"
2	377.80	383.3	3/4"
3	373.48	378.8	3/4"
4	367.5	367.7	3/4"
5	399.00	369.2	3/4"
6	399.00	364.7	3/4"
7**	366.00	366.2	3/4"
8	365.00	368.9	3/4"
9	365.00	373.1	3/4"
10	366.00	367.0	3/4"
11	369.00	364.1	3/4"
12	368.00	361.0	3/4"
13	365.00	364.1	3/4"
14	364.00	365.1	3/4"
15	364.00	365.1	3/4"
16	364.00	364.4	3/4"
17	361.00	361.4	3/4"
18	364.00	364.4	3/4"
19	364.00	360.0	3/4"
20	365.00	361.7	3/4"
21	365.00	365.8	3/4"
22	365.00	365.9	3/4"
23	OPEN SP		3/4"

** WHEELER LEGG INCLUDE CONNECTION ELEVATION AT PROPERTY LINE PRIOR TO CONSTRUCTION FOR LOT 1



MINIMUM LOT SIZE PARAVOLATION

Lot Number	Gross Area	Less Paved Area	Minimum Lot Area
1	504	17	487
2	24,056	3,450	20,606
3	17,100	3,450	13,650

PLAN

SCALE: 1"=200'
F 88-273
ROCKBURN TOWNSHIP
SUBDIVISION
MURRAY SILVERMAN, ET AL
P 781 443/486 LOT 2

SITE ANALYSIS

TOTAL AREA OF PARCEL	36.14 Ac.
TOTAL AREA OF SECTION ONE	29.211 Ac.
EXISTING ZONING	R-20
PROPOSED USE	SINGLE FAMILY DETACHED HOMES
NO. OF DWELLING UNITS ALLOWED	70 TOTAL
NO. OF DWELLING UNITS PROPOSED	69 TOTAL (22 IN SECTION ONE)
DENSITY PER ACRE	1.91 UNITS/AC.
LOT COVERAGE PERMITTED	30%
AREA OF TRACT WITHIN 100 YEAR FLOODPLAIN AND STEEP SLOPES	3.57 Ac.
AREA OF TRACT WITHIN WETLANDS AND STORMWATER MANAGEMENT	0.40 Ac.
NET AREA	32.17 Ac.
OPEN SPACE REQUIRED	6.31 Ac.
OPEN SPACE PROVIDED	7.22 Ac.
DRY GROUND RECREATION REQUIRED	3.15 Ac. (50%)
DRY GROUND RECREATION PROVIDED	3.25 Ac. (51.5%)

SUBDIVISION NAME	SECT./AREA	PARCEL #
SUNNY FIELD ESTATES	1	81, 82, 83 & 789
PLAT # OR L.P.P. BLOCK #	ZONE	TAX/ZONE MAP
10504-10500	R-20	51
ELEC. DIST.	CENSUS TR	
19	6011 01	
WATER CODE	SEWER CODE	
0 03	7:95000	

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT.

Joseph J. Blum 10-27-92
COUNTY HEALTH OFFICER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

James M. Smith 11/16/92
DIRECTOR DATE
Richard Blood 11/16/92
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED: FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS.

James M. Smith 10/16/92
DIRECTOR DATE
James M. Smith 10/16/92
CHIEF, BUREAU OF ENGINEERING M.K. DATE

DATE NO. REVISION

OWNER / DEVELOPER

RGM DEVELOPMENT CORPORATION
C/O KOREN DEVELOPMENT CORPORATION
8808 CENTRE PARK DRIVE
COLUMBIA, MARYLAND 21044
(410) 740-1010

PROJECT

SUNNY FIELD ESTATES
SECTION ONE LOTS 1-23

AREA SECTION ONE LOTS 1-23
TAX MAP 31 PARCELS 57, 58, 52B & 757
1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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

8-25-92
DATE

DESIGNED BY: CJR

DRAWN BY: CADD/CH

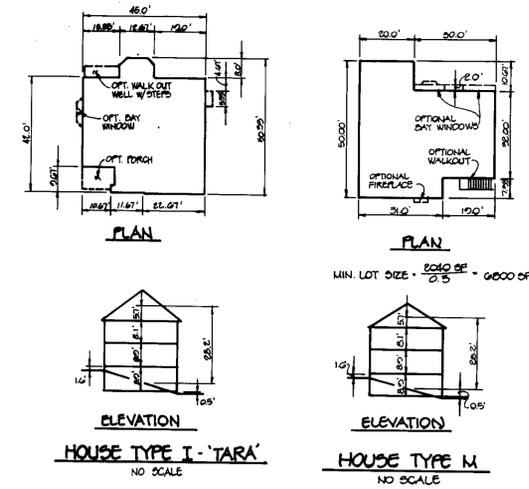
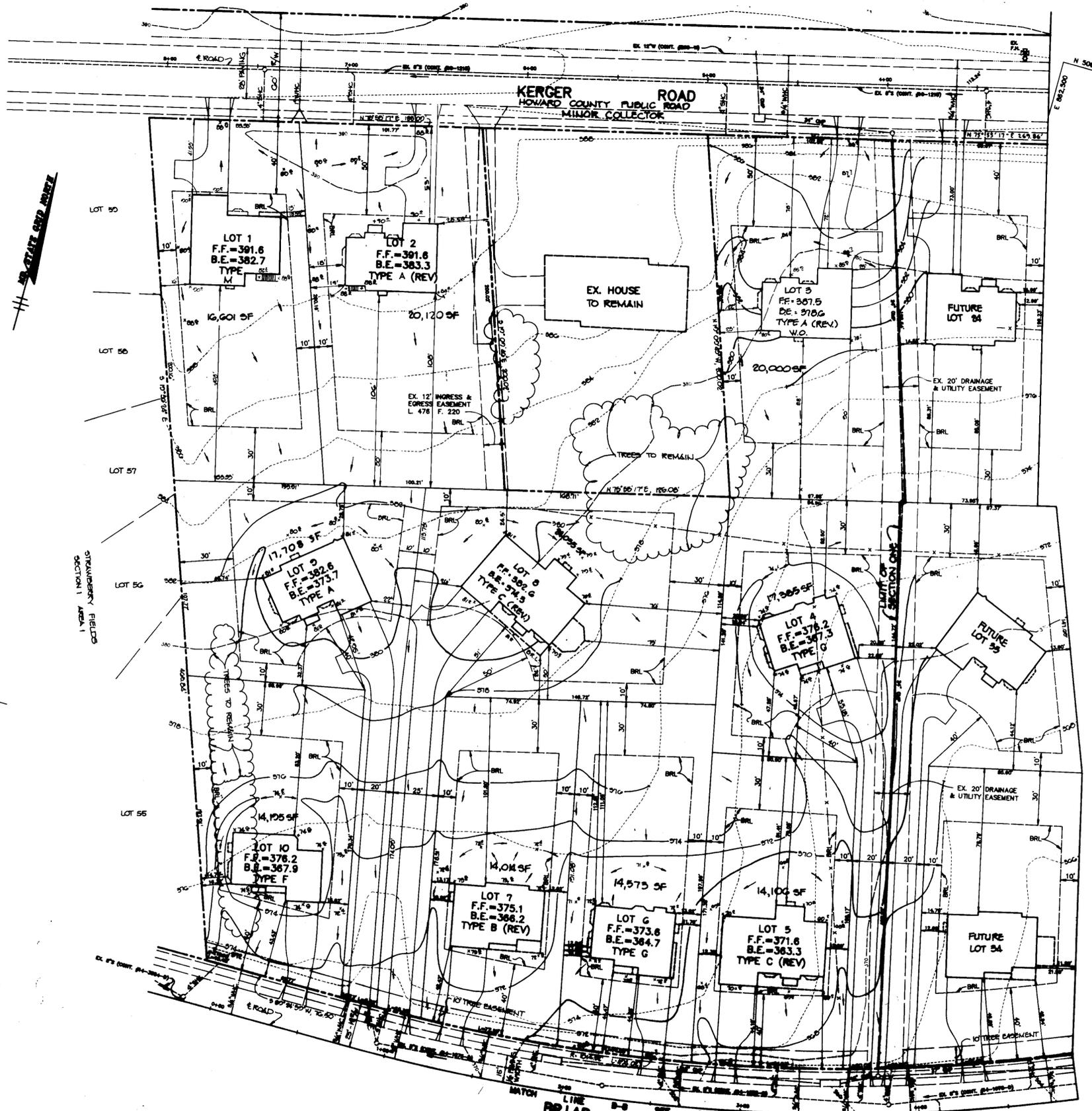
PROJECT NO: 79701

DATE: AUGUST 25, 1992

SCALE: AS SHOWN

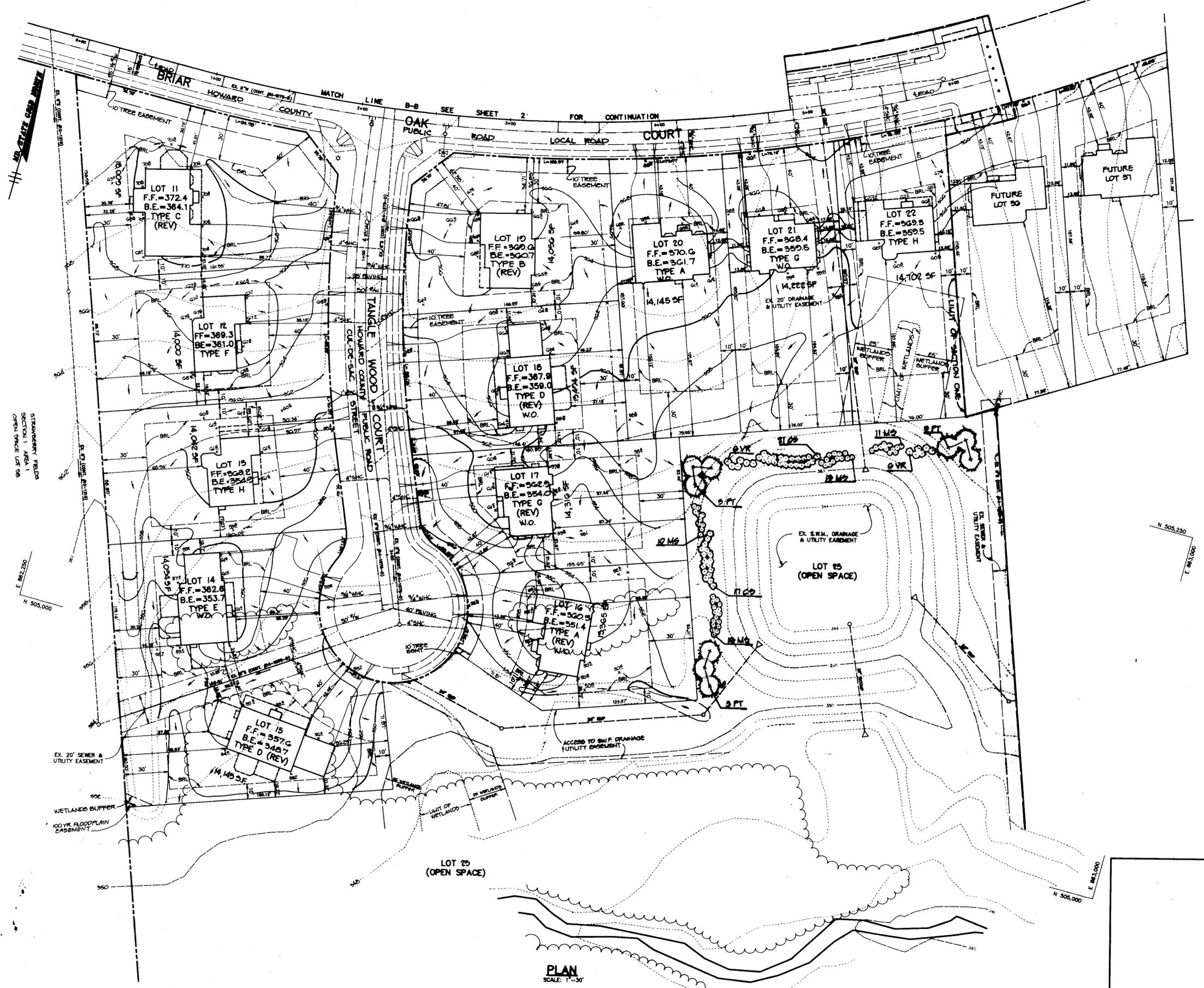
DRAWING NO. 1 OF 1

ARTHUR E. MUEGGE, P.E. 795000



- NOTES:
- B.R.L. - DENOTES BUILDING RESTRICTION LINE
 - FOR HOUSE DIMENSIONS AND ELEVATIONS SEE SHEET 7.
 - W.O. - DENOTES WALK OUT
 - THE WETLAND/STREAM BUFFER INDICATED ON THIS PLAN DOES NOT APPLICABLE THE INITIAL CONSTRUCTION OF A RESIDENTIAL UNIT ON ANY LOT. IT DOES PROHIBIT SUBSEQUENT CLEARING, GRADING OR CONSTRUCTION IN THE BUFFER AREA. MAINTENANCE OF RESIDENCES, LANDSCAPING AND UTILITIES IS PERMITTED.

0-15-92 REV. HOUSE TYPE FOR LOT 1	
APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT.	
<i>Joseph M. Popper</i>	10-22-92
COUNTY HEALTH OFFICER	DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
<i>James R. Kline</i>	11/16/92
DIRECTOR	DATE
<i>Richard Blood</i>	11/16/92
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	DATE
APPROVED: FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS.	
<i>James J. Lane</i>	10/16/92
DIRECTOR	DATE
<i>Richard E. Quinn</i>	10-22-92
CHIEF, BUREAU OF ENGINEERING	DATE
5-28-92	REV. LOCATION OF HOUSE ON LOT 2
8-17-92	REVISED HOUSE TYPES FOR LOTS 1, 2 & 5
DATE	NO. REVISION
OWNER / DEVELOPER R.G.M. DEVELOPMENT CORPORATION 16 KOREN DEVELOPMENT CORPORATION 8800 CENTRE PARK DRIVE COLUMBIA, MARYLAND 21046 (410) 740-1010	
PROJECT SUNNY FIELD ESTATES SECTION ONE LOTS 1-10	
AREA SECTION ONE ZONED R-30 TAX MAP 31 PARCELS 57, 58, 52B & 757 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND	
TITLE SITE DEVELOPMENT PLAN LOTS 1-10	
RIEMER MUEGGE & ASSOCIATES, INC. A Land Planning, Engineering and Consulting Firm 8818 Centre Park Drive • Suite 300 • Columbia, Md 21046 410-997-8900 FAX: 410-997-9282	
8-25-92	DATE
DESIGNED BY: CJR	
DRAWN BY: CADD/CB	
PROJECT NO: 79701	
DATE: AUGUST 23, 1992	
SCALE: AS SHOWN	
DRAWING NO. 2 OF 2	



- NOTES
1. BRL - DENOTES BUILDING RESTRICTION LINE.
 2. FOR HOUSE DIMENSIONS AND ELEVATIONS SEE SHEET 7.
 3. W.O. - DENOTES WALK OUT.
 4. THE WETLAND/STREAM BUFFER INDICATED ON THIS PLAN DOES NOT AFFECT THE INITIAL CONSTRUCTION OF A RESIDENTIAL UNIT ON ANY LOT. IT DOES PROHIBIT SUBSEQUENT CLEARING, GRADING OR CONSTRUCTION IN THE BUFFER AREA. MAINTENANCE OF RESIDENCES, LANDSCAPING AND UTILITIES IS PERMITTED.

PLANT LIST

QUANTITY	KEY	NAME	SIZE	REMARKS
20	CD	CORNUS SERICEA REDBERRY DOGWOOD	30" - 36" HT	CONT.
50	MS	MISCANTHUS SINENSIS "SLIVER REED"	3 GAL	
9	PT	PIND THUNDERGRASS JAPANESE BLACK PINE	5' - 6' HT	P&P
12	VR	VIBURNUM BENTONOPHYLLUM "WILLOWOOD"	30" - 36" HT	P&P OR CONT.
		LEATHERLEAF VIBURNUM		

APPROVED : FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT.

[Signature] 10-22-92
COUNTY HEALTH OFFICER DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

[Signature] 11/16/92
DIRECTOR DATE

[Signature] 1/10/92
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED : FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS.

[Signature] 10/18/92
DIRECTOR DATE

[Signature] 10-17-92
CHIEF, BUREAU OF ENGINEERING DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
RGM DEVELOPMENT CORPORATION
c/o KOREN DEVELOPMENT CORPORATION
8808 CENTRE PARK DRIVE
COLUMBIA, MARYLAND 21045
(410) 740-1010

PROJECT
SUNNY FIELD ESTATES
SECTION ONE
LOTS 11-25

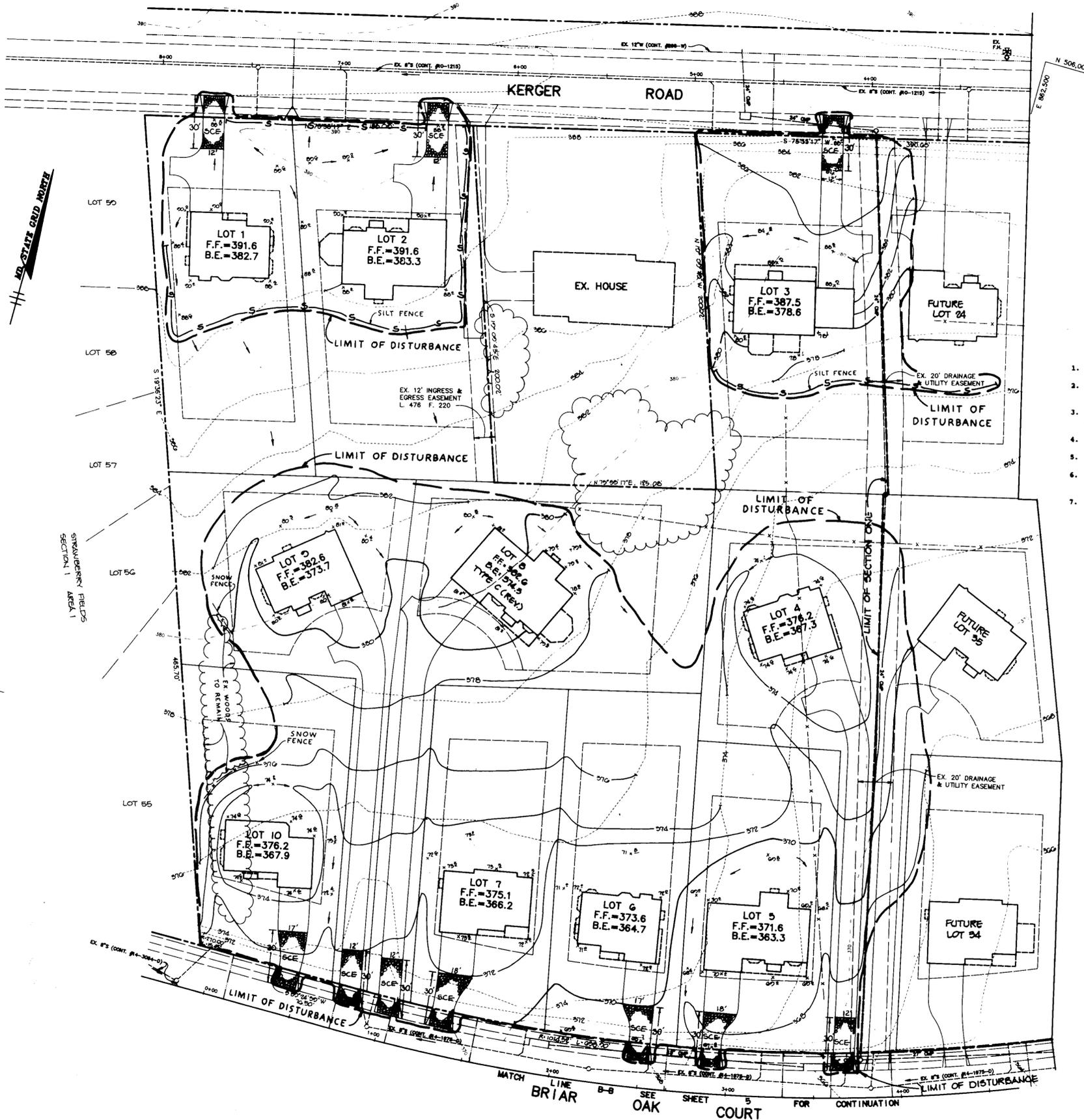
AREA SECTION ONE ZONED R-20
TAX MAP 31 PARCELS 57, 58, 528 & 757
1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE
SITE DEVELOPMENT PLAN
LOTS 11-25

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

DATE 8-25-92
DESIGNED BY : C.J.R.
DRAWN BY : CADD/CB
PROJECT NO : 79701
DATE : AUGUST 25, 1992
SCALE : AS SHOWN
DRAWING NO. 3 OF 3

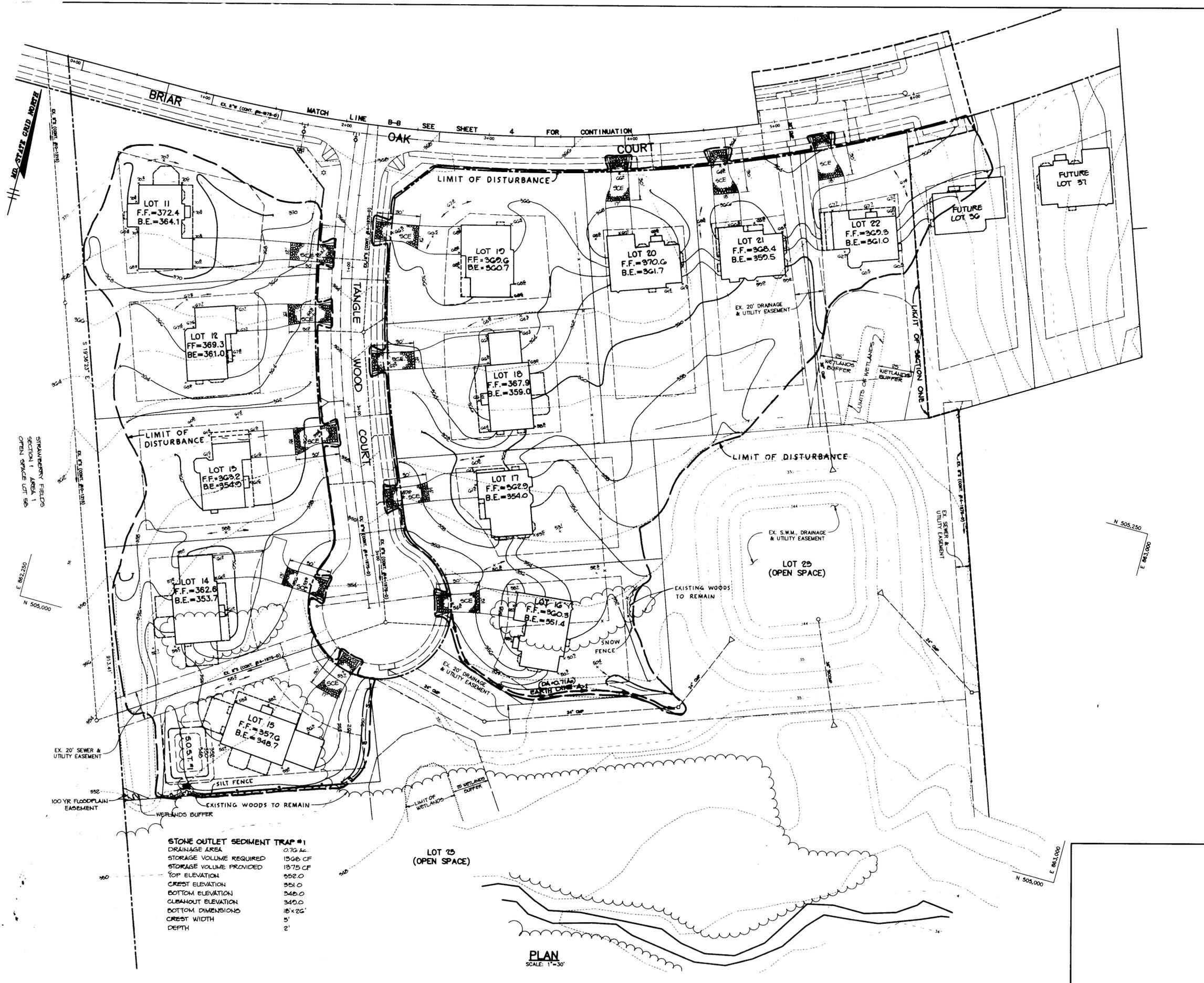
PLAN
SCALE: 1"=30'



PLAN
SCALE: 1"=30'

- SEQUENCE OF CONSTRUCTION**
1. Obtain a grading permit and a letter of permission to grade onto Section Two.
 2. Install stabilized construction entrances, silt fence, earth dike and stone culvert sediment trap #1.
 3. Perform rough grading and then stabilize disturbed areas in accordance with the temporary seeding notes.
 4. Begin house construction and fine grading.
 5. Complete house construction including utility installation.
 6. Finish fine grading and stabilize disturbed areas in accordance with the permanent seeding notes.
 7. Upon approval of the Howard County Department of Licenses & Permits Sediment Control Inspector remove all sediment control devices and stabilize in accordance with the permanent seeding notes.

BY THE DEVELOPER : I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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. <i>S. Wayne Carter</i> 8/27/92 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 AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. <i>Arthur E. Muegge</i> 8/25/92 ENGINEER DATE	
THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL. <i>James M. Helton</i> 10/5/92 U.S. SOIL CONSERVATION SERVICE DATE	
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. <i>Paul Robinson</i> 10/5/92 HOWARD SOIL CONSERVATION DISTRICT DATE	
APPROVED : FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT. <i>Steven Fogelino</i> 10-22-92 COUNTY HEALTH OFFICER DATE	
APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. <i>Joseph B. Smith</i> 11/16/92 DIRECTOR DATE	
<i>Richard Blood</i> 11/16/92 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE	
APPROVED : FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS. <i>James G. Brown</i> 10/15/92 DIRECTOR DATE	
<i>W.C. Adams</i> 10/25/92 CHIEF, BUREAU OF ENGINEERING & C.A.K. DATE	
DATE NO.	REVISION
OWNER / DEVELOPER R.G.M. DEVELOPMENT CORPORATION 96 KOREN DEVELOPMENT CORPORATION 8808 CENTRE PARK DRIVE COLUMBIA, MARYLAND 21045 (410) 740-1010	
PROJECT SUNNY FIELD ESTATES SECTION ONE LOTS 1-10	
AREA SECTION ONE ZONED R-20 TAX MAP 31 PARCELS 57, 58, 52B & 757 1st 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	
8/25/92 DATE	5:00:00 WP 00104 WP-01105 P-00:50 F-00:202
DESIGNED BY : C.J.R.	
DRAWN BY : CADD/CB	
PROJECT NO : 79701	
DATE : AUGUST 25, 1992	
SCALE : AS SHOWN	
DRAWING NO. 4 OF 9	
ARTHUR E. MUEGGE 8707	



STONE OUTLET SEDIMENT TRAP #1
 DRAINAGE AREA 0.76 Ac.
 STORAGE VOLUME REQUIRED 1368 CF
 STORAGE VOLUME PROVIDED 1375 CF
 TOP ELEVATION 952.0
 CREST ELEVATION 951.0
 BOTTOM ELEVATION 948.0
 CLEAFOOT ELEVATION 949.0
 BOTTOM DIMENSIONS 18' x 26'
 CREST WIDTH 5'
 DEPTH 2'

PLAN
 SCALE: 1"=30'

BY THE DEVELOPER :
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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.

John M. Hester
 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 AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Arthur E. Muegge
 ENGINEER DATE

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

John M. Hester 10/5/92
 U.S. SOIL CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John P. Robinson 10/5/92
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED : FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT.

James G. ... 10/2/92
 COUNTY HEALTH OFFICER DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

James G. ... 11/6/92
 DIRECTOR DATE

Richard Blood 11/2/92
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED : FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS.

James G. ... 10/5/92
 DIRECTOR DATE

James G. ... 10/5/92
 CHIEF, BUREAU OF ENGINEERING DATE

DATE NO.	REVISION

OWNER / DEVELOPER
 R.G.H. DEVELOPMENT CORPORATION
 % KOREN DEVELOPMENT CORPORATION
 8808 CENTRE PARK DRIVE
 COLUMBIA, MARYLAND 21045
 (410) 740-0100

PROJECT
SUNNY FIELD ESTATES
SECTION ONE
LOTS 1 - 25

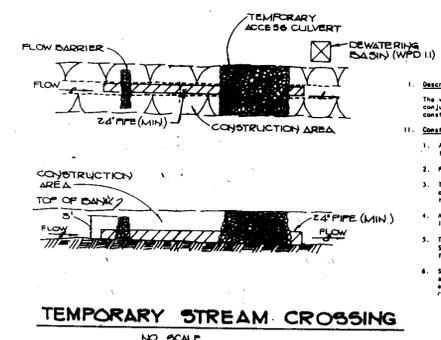
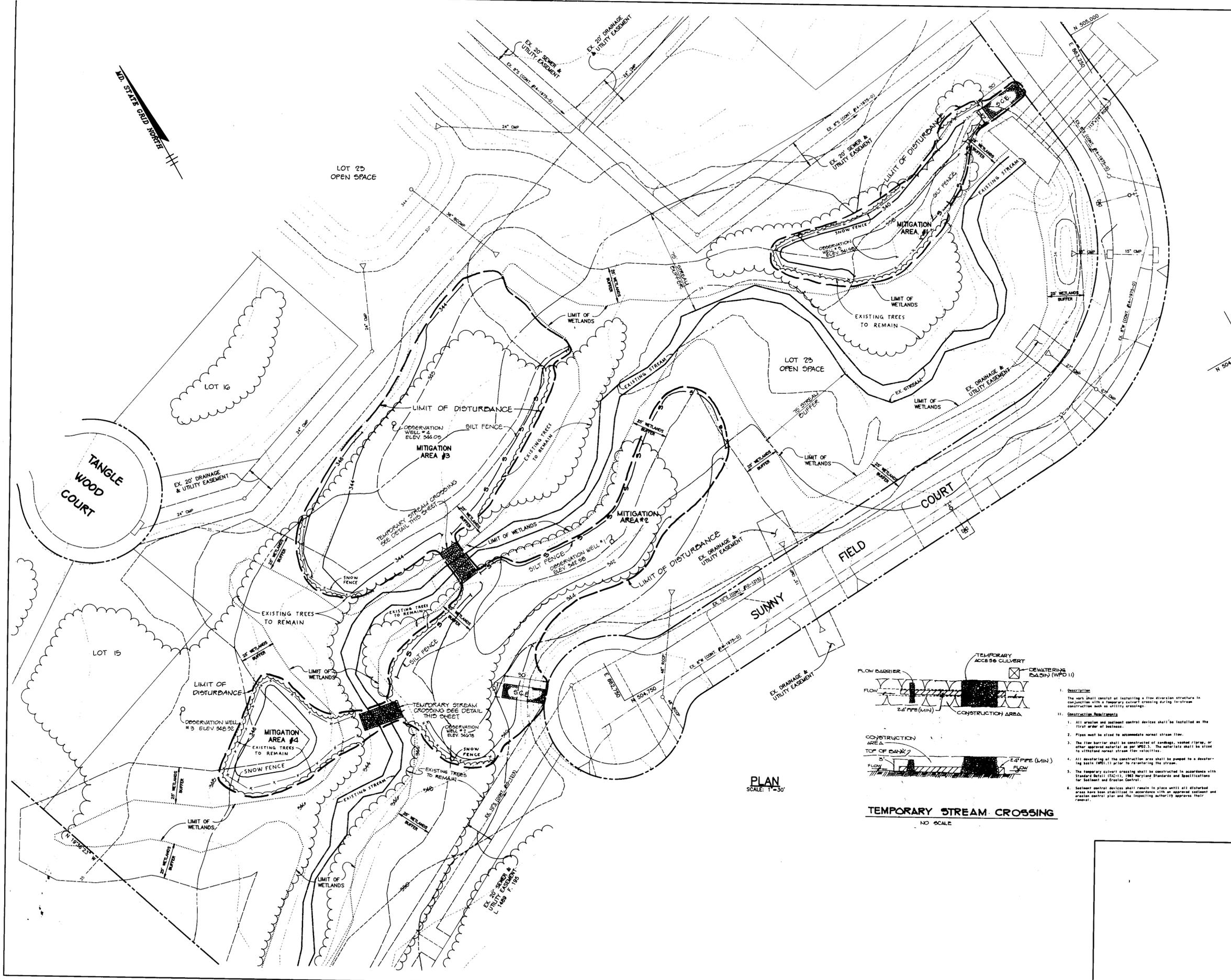
AREA SECTION ONE
 TAX MAP 31 PARCELS 57, 58, 52B & 757
 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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 : 410-997-8282

8/25/92
 DATE

DESIGNED BY : C.J.R.
 DRAWN BY : CADD/CB
 PROJECT NO : 79701
 DATE : AUGUST 25, 1992
 SCALE : AS SHOWN
 DRAWING NO. 5 OF 9



- 1. Description**
The work shall consist of installing a flow diversion structure in conjunction with a temporary culvert crossing during in-stream construction such as utility crossing.
- 11. Construction Requirements**
- All erosion and sediment control devices shall be installed on the first order of business.
 - Pipes must be sized to accommodate normal stream flow.
 - The flow barrier shall be constructed of sandbags, wooden cribs, or other approved material as per WPD 10. The materials shall be sized to withstand normal stream flow velocities.
 - All dewatering of the construction area shall be pumped to a dewatering basin (WPD 10) prior to reentering the stream.
 - The temporary stream crossing shall be constructed in accordance with Standard Detail (SDC) 1003, Maryland Standards and Specifications for Sediment and Erosion Control.
 - Sediment control devices shall remain in place until all disturbed areas have been stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

BY THE DEVELOPER :
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 _____

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 AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER *Arthur E. Muegge* DATE *8/25/92*

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

James M. Hahn *10/15/92*
U.S. SOIL CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Robertson *10/15/92*
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED : FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT.

James Bradley *10-22-92*
COUNTY HEALTH OFFICER DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

James S. Smith *11/16/92*
DIRECTOR DATE

Richard Blalock *11/24/92*
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED : FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS.

James J. Hahn *10/16/92*
DIRECTOR DATE

Richard Blalock *10/16/92*
CHIEF, BUREAU OF ENGINEERING MRS. DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
RGM DEVELOPMENT CORPORATION
c/o KOREN DEVELOPMENT CORPORATION
8808 CENTRE PARK DRIVE
COLUMBIA, MARYLAND 21045
(410) 740-1010

PROJECT
SUNNY FIELD ESTATES

AREA
SECTION 1 AREA 1 ZONED R-20
TAX MAP 31 PARCELS 57, 58, 52B & 757
1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE
WETLANDS MITIGATION GRADING PLAN

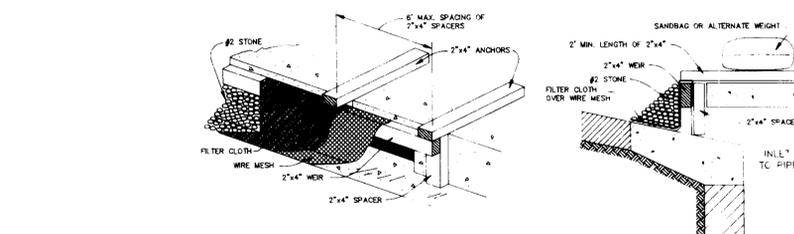
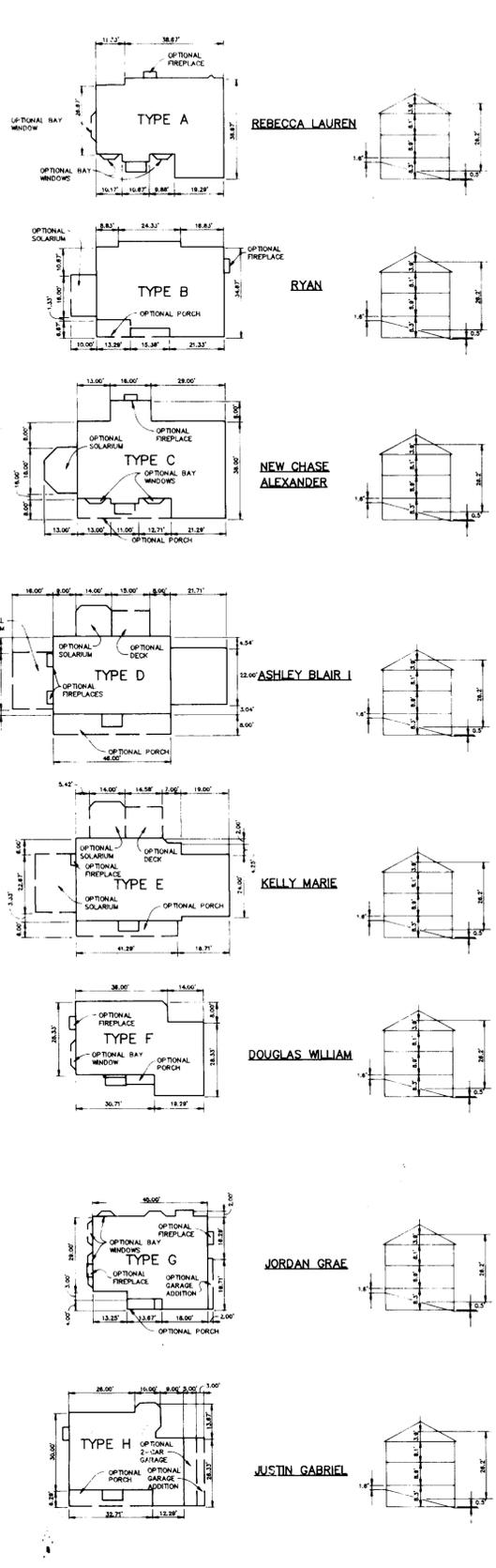
RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Md 21045
301-997-8800 FAX : 301-997-9282

DATE *8-25-92*
S 00 00 W 00 100 WPD 10 150
P 00 52 F 00 258

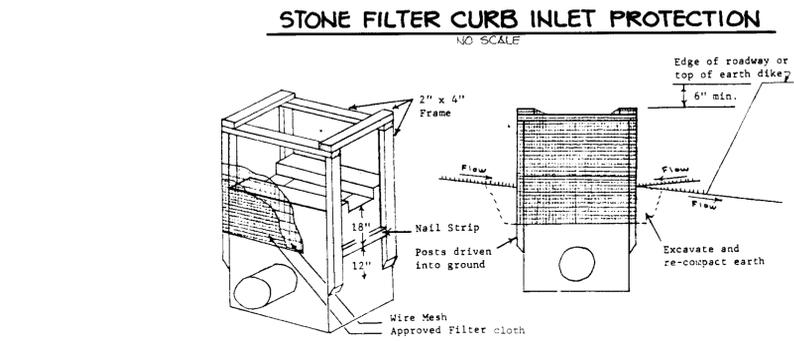
DESIGNED BY :
DRAWN BY :
PROJECT NO : 79701
DATE : AUGUST 25, 1992
SCALE : AS SHOWN
DRAWING NO. 6 OF 7



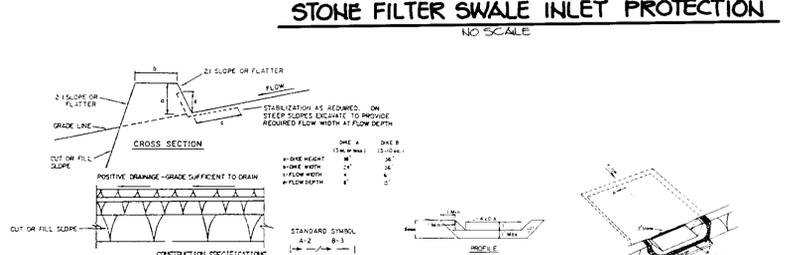
ARTHUR E. MUEGGE 19870



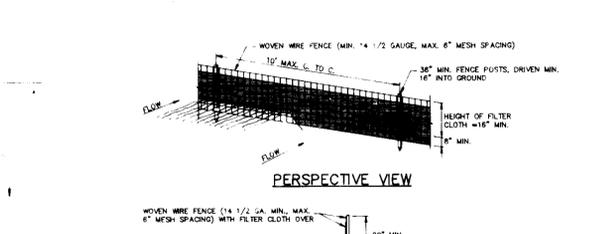
- CONSTRUCTION SPECIFICATIONS**
- MATERIALS**
 - WOODEN FRAME IS TO BE CONSTRUCTED OF 2"x4" CONSTRUCTION GRADE LUMBER.
 - WIRE MESH MUST BE OF SUFFICIENT STRENGTH TO SUPPORT FILTER FABRIC, AND STONE, WITH WATER FULLY IMPOUNDED AGAINST IT.
 - FILTER CLOTH MUST BE OF A TYPE APPROVED FOR THIS PURPOSE, RESISTANT TO SUNLIGHT WITH A SEW SIZE, LOS 40-85, TO ALLOW SUFFICIENT PASSAGE OF WATER AND REMOVAL OF SEDIMENT.
 - STONE IS TO BE 2" IN SIZE AND CLEAN, SINCE FINES WOULD CLOG THE CLOTH.
 - PROCEDURE (FOR CURB INLET PROTECTION)**
 - ATTACH A CONTINUOUS PIECE OF WIRE MESH (30" MIN. WIDTH BY THROAT LENGTH PLUS 4") TO THE 2"x4" WEIR (MEASURING THROAT LENGTH PLUS 2") AS SHOWN ON THE STANDARD DRAWING.
 - PLACE A PIECE OF APPROVED FILTER CLOTH (40-85 SEVE) OF THE SAME DIMENSIONS AS THE WIRE MESH AND SECURELY ATTACH TO THE 2"x4" WEIR.



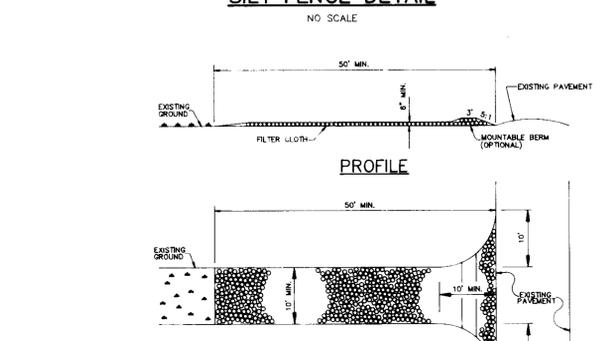
- II. Procedure**
- A swale, ditchline or yard inlet protection.
 - Excavate completely around inlet to a depth of 18" below notch elevation.
 - Drive 2 x 4 post 1' into ground at four corners of inlet. Place nail strips between posts on ends of inlet. Assemble top portion of 2 x 4 frame using overlap joint shown. Top of frame (weir) must be 6" below edge of roadway adjacent to inlet.
 - Stretch wire mesh tightly around frame and fasten securely. Ends must meet at post.
 - Stretch filter cloth tightly over wire mesh, the cloth must extend from top of frame to 18" below inlet notch elev. Fasten securely to frame. Ends must meet at post, be overlapped and folded, then fastened down.
 - Backfill around inlet in compacted 6" layers until layer of earth is even with notch elevation on ends and top elevation on sides.
 - If the inlet is not in a low point, construct a compacted earth dike in the ditchline below it. The top of this dike is to be at least 6" higher than the top of frame (weir).
 - This structure must be inspected frequently and the filter fabric replaced when clogged.



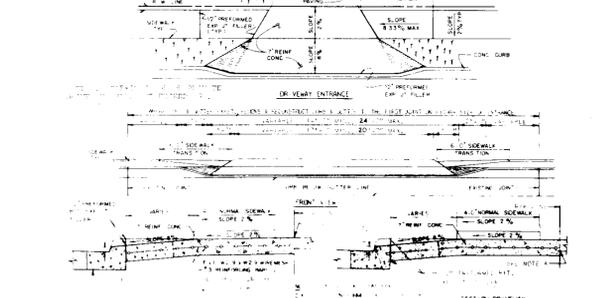
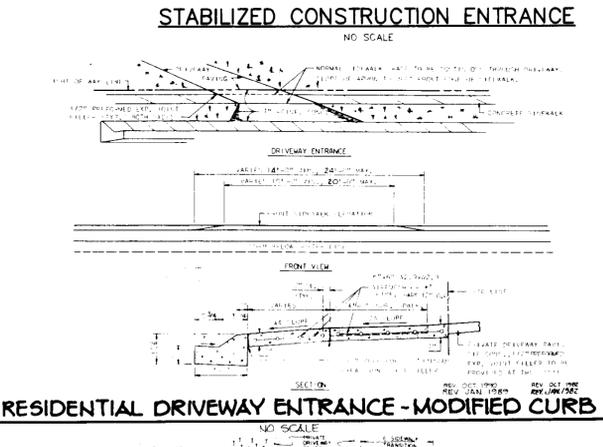
- CONSTRUCTION SPECIFICATIONS**
- All dikes shall be compacted by earth-moving equipment.
 - All dikes shall have positive drainage to an outlet.
 - TOP WIDTH MAY BE NARROW AND SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE PASSING BY CONSTRUCTION TRAFFIC.
 - OUTLET LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. CHANNELS SHALL BE CONSTRUCTED TO A SEDIMENT TRAPPING DEVICE SUCH AS A "COMB" TRAP OR "S" BATH WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT COMPLETELY STABILIZED.
 - STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON; (B) FLOW CHANNELS SHALL BE THE CHART BELOW.
- | TOP OF DIKE | CHANNEL | DIKE A | DIKE B |
|-------------|---------|------------------------|---|
| 1 | 5-3-0-0 | SEED AND STRAW MULCH | SEED AND STRAW MULCH |
| 2 | 3-1-5-0 | SEED AND STRAW MULCH | SEED USING LIME OR SKELETONS; 500:1 STONE |
| 3 | 5-1-8-0 | SEED WITH LIME OR SOIL | LIME STRIP 4-8" |
| 4 | 8-1-0-0 | LIME STRIP 4-8" | ENGINEERING DESIGN |



- CONSTRUCTION NOTES FOR FABRICATED SILT FENCE**
- Woven wire fence to be fastened securely to fence posts with wire ties or staples.
 - Filter cloth to be fastened securely to woven wire fence with line applied every 24" at top and mid section.
 - When two sections of filter cloth adjoin each other they shall be overlapped by an inch and folded.
 - Maintenance shall be performed as needed and material removed when "bulging" develops in the silt fence.



- CONSTRUCTION SPECIFICATIONS**
- Stone Size - Use 2" stone, or recycled or recycled concrete equipment.
 - Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum would apply).
 - Thickness - Not less than (6") inches.
 - Width - Ten (10) foot minimum, but not less than the full width of points where ingress and egress occurs.
 - Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter cloth will not be required on a slope forty percent or less.
 - Surface Water - All surface water flowing or diverted toward construction entrance shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
 - Maintenance - The entrance shall be maintained in a condition which will prevent tracking of silt or sediment onto public right-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanup of any measures used to trap sediment. All sediment applied, dropped, washed or tracked onto public right-of-way must be removed immediately.
 - Washing - Washing shall be cleaned to remove sediment prior to entrance onto public right-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.
 - Periodic inspection and required maintenance shall be provided after each rain.



PERMANENT SEEDING

Seedbed Preparation: First 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, disking 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.

Line and fertilizer 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.

- 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. All time of seeding, apply 400 LBS per acre 30-0-0 ureaform fertilizer (01 LBS/1000 SF).
- 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 steeper slopes, the final harrowing or disking operation should be on the contour wherever possible. No attempt should be made to drag any disc area to make the soil surface smooth after disking.

Seeding: For the period March 1 thru April 30 and August 1 thru October 15. Seed with 80 LBS per acre (14 LBS/1000 SF) of Kentucky 31 Tall Fescue.

For the period May 1 thru July 31. Seed with 80 LBS per acre (14 LBS/1000 SF) of Kentucky 31 Tall Fescue per acre and 2 LBS per acre (0.5 LBS/1000 SF) of Weeping Lovegrass.

For the period October 1 thru February 28, protect site by: Applying (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring of the spring.

Option (2) Use soil.

Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder or hydroseeder (larry 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 seedlings with adequate water for plant growth until they are firmly established, if feasible. However, water is especially true when seedlings 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 seedlings. Inspect all seeded areas for failure and make necessary repairs, reseedings, and reseedings within the planting season, if possible.

- If stand is inadequate for erosion control, overseed and fertilize using half of the rates originally applied.
- If stand is over 60% damaged, reestablish following original time, fertilizer, seedbed preparation and seeding recommendations.

TEMPORARY SEEDING

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 eroded, or the soil is hard, the top layer of soil shall be loosened by raking, disking or other acceptable means before seeding.

Soil Amendments: For temporary seedings, fertilizer shall be applied at the rate of 600 LBS per acre (12 LBS/1000 SF) of ureaform or equivalent. Soil which is highly acidic should be limed.

Seeding: For the period March 1 thru April 30 and August 1 thru November 15. Seed with 2 1/2 TONS per acre (50 LBS/1000 SF) of Kentucky 31 Tall Fescue.

For the period May 1 thru August 14. Seed with 3 LBS per acre (0.7 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 of the year.

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

Mulching: See Mulching Specification.

SEDIMENT CONTROL NOTES

- A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permit prior to the start of any construction (982-2477).
- All negative and structure practices are to be installed according to the provisions of this plan and are to be in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL.
- Following initial site disturbance or re-disturbance, permanent or temporary stabilization shall be completed within (a) 7 calendar days for perimeter sediment control structures, dikes, perimeter berms and ditches greater than 3:1 by 14 days or to other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around the perimeter in accordance with Vol. 1, Chapter 12 of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- 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. 10) and (Sec. 54) temporary seedings (Sec. 10) and (Sec. 52) temporary stabilization with mulch alone can only be done when recommended seeding rates do not allow for proper germination and establishment of grasses.
- 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 Section One	65.00	acres
Area of Disturbance	10.00	acres
Area to be seeded or planted	10.00	acres
Area to be vegetatively stabilized	10.00	acres
Total Cut	10.00	cu. yds.
Total Fill	10.00	cu. yds.
Total Tonnes	10.00	tonnes

BY THE DEVELOPER:

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION OF THIS PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE 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 COUNTY CONSERVATION DISTRICT.

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 AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY CONSERVATION DISTRICT.

ENGINEER: _____ DATE: _____

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

John H. Hester 10/5/92 DATE
U.S. SOIL CONSERVATION SERVICE

John R. Roberts 10/1/92 DATE
HOWARD COUNTY CONSERVATION DISTRICT

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT.
John W. Johnson 10-22-92 DATE
COUNTY HEALTH OFFICER

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
James Hester 11/16/92 DATE
DIRECTOR

Richard Blood 11/12/92 DATE
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS.
James Hester 10/6/92 DATE
DIRECTOR

Michael E. Kelly 10-15-92 DATE
CHIEF, BUREAU OF ENGINEERING M.K.

DATE NO. _____ REVISION _____

OWNER / DEVELOPER: RGM DEVELOPMENT COMPANY, 100 KOREN DRIVE, P.O. BOX 100, 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROJECT: SUNNY FIELD ESTATES

AREA: SECTION 1, AREA 1, SHEET 1 & 2, TAX MAP 31, PARCELS 1, 2, 3 & 4, 1ST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

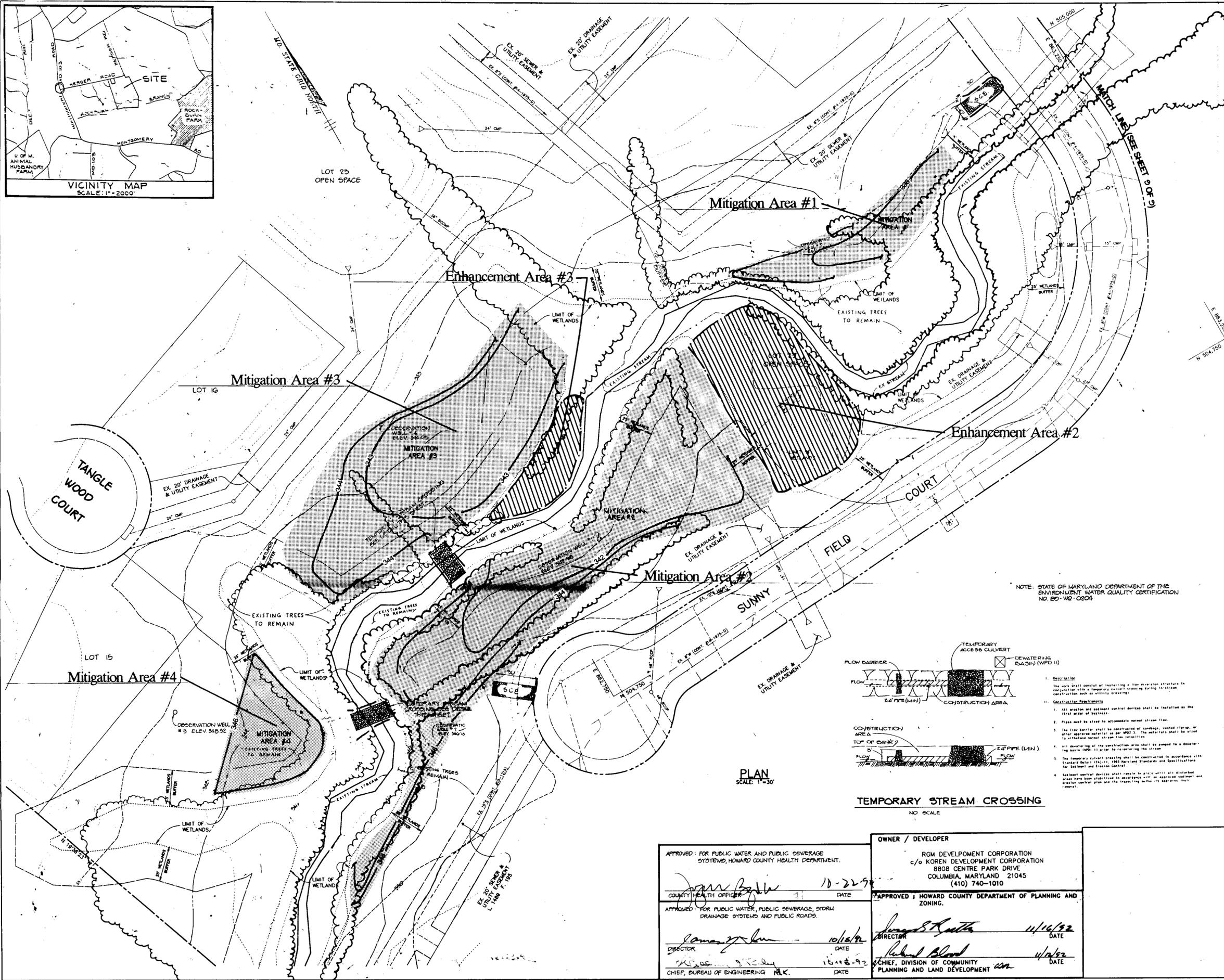
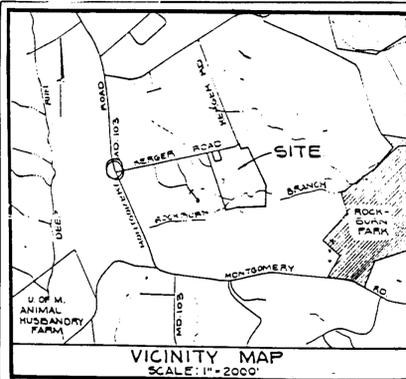
TITLE: DETAIL SHEET

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

DATE: 8-25-94

DESIGNED BY: J.M.K.
DRAWN BY: J.M.K./J.C.
PROJECT NO.: 1977
DATE: AUGUST 25, 1994
SCALE: AS SHOWN
DRAWING NO.: 101

STATE OF MARYLAND
ARTHUR E. MUEGGE #8707
SDP - 92 - 59



Project No: 91034
 DESIGNED BY: DJG
 DRAFTED BY: DJG
 CHECKED BY: MASH

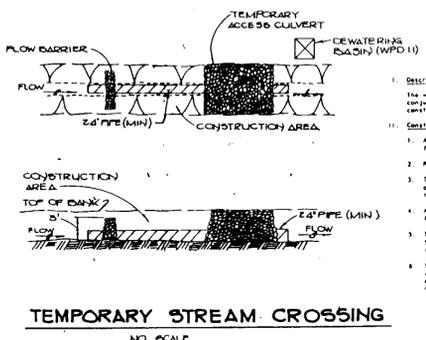
Date: 7/8/92
 Revisions:
 SHEET 6 OF 9



FINAL WETLAND MITIGATION PLAN

Sunnyfield Estates
 Howard County, Maryland

NOTE: STATE OF MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER QUALITY CERTIFICATION NO. BD-WQ-0204

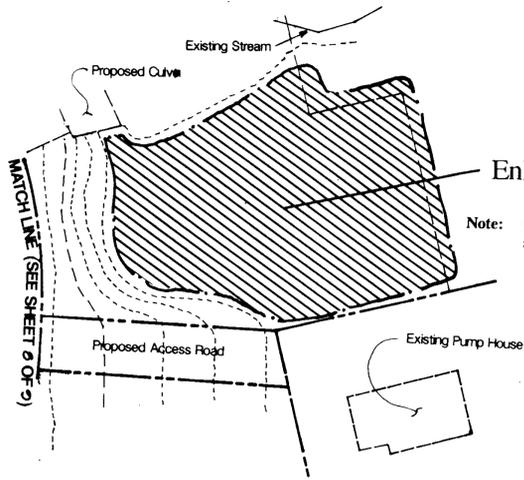


APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT. <i>[Signature]</i> 10-22-92 COUNTY HEALTH OFFICER DATE	OWNER / DEVELOPER RGM DEVELOPMENT CORPORATION c/o KOREN DEVELOPMENT CORPORATION 8808 CENTRE PARK DRIVE COLUMBIA, MARYLAND 21045 (410) 740-1010
APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS. <i>[Signature]</i> 10/16/92 DIRECTOR DATE	APPROVED BY HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. <i>[Signature]</i> 11/16/92 DIRECTOR DATE
<i>[Signature]</i> 10-16-92 CHIEF, BUREAU OF ENGINEERING DATE	<i>[Signature]</i> 11/16/92 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

ENVIRENS, INC.
 ENVIRONMENTAL PLANNING
 MANAGEMENT and
 RESTORATION

- wetlands
- forests
- riparian floodplains
- wildlife habitats
- rivers and streams
- abandoned mines

10000
 P.O. Box 299
 Frederick, MD 21703



SCALE: 1" = 30'

ENHANCEMENT PLANT LISTS

Enhancement Area 1 - Forested Wetland

Area to be planted - approximately 9,450 sq. ft. (0.22 acres)
Existing elevation to remain

Plant list	Species	Size	Quantity
Trees	Acer rubrum	3-4' cont.	13
	Carpinus caroliniana	2-3' cont.	10
	Platanus occidentalis	3-4' cont.	10
	Quercus palustris	3-4' cont.	13
Shrubs	Alnus serrulata	2-3' cont.	30
	Ilex verticillata	2-3' cont.	12
	Viburnum dentatum	2-3' cont.	24
Herbs	Envirens Wetmix II	seed @ 20lbs/acre	4.4 lbs

Enhancement Area 2 - Forested Wetland

Area to be planted - approximately 12,600 sq. ft. (0.3 acres)
Existing elevation to remain

Plant list	Species	Size	Quantity
Trees	Acer rubrum	3-4' cont.	20
	Fraxinus pennsylvanica	3-4' cont.	15
	Nyssa sylvatica	3-4' cont.	10
	Quercus palustris	3-4' cont.	15
Shrubs	Betula nigra	2-3' cont.	25
	Cornus amomum	2-3' cont.	37
	Viburnum dentatum	2-3' cont.	30
Herbs	Envirens Wetmix II	seed @ 20lbs/acre	6 lbs

Enhancement Area 3 - Forested Wetland

Area to be planted - approximately 1,700 sq. ft. (0.04 acres)
Existing elevation to remain

Plant list	Species	Size	Quantity
Trees	Acer rubrum	3-4' cont.	4
	Platanus occidentalis	3-4' cont.	4
Shrubs	Ilex virginica	2-3' cont.	6
	Viburnum dentatum	2-3' cont.	6
Herbs	Envirens Wetmix II	seed @ 20lbs/acre	1 lb

Enhancement Area #1

Note: Grading in this area to remove existing road bed and support slope.

MITIGATION PLANT LISTS

Mitigation Area 1 - Forested Wetland

Area to be planted - approximately 6,400 sq. ft. (0.15 acres)
Elevation: 338 - 340

Plant list	Species	Size	Quantity
Trees	Acer rubrum	3-4' cont.	12
	Fraxinus pennsylvanica	3-4' cont.	10
	Quercus palustris	3-4' cont.	8
Shrubs	Cornus amomum	2-3' cont.	8
	Lindera benzoin	2-3' cont.	18
	Viburnum dentatum	2-3' cont.	18
Herbs	Agrostis alba	seed @ 10lbs/acre	1.5lbs

Mitigation Area 2 - Forested Wetland

Area to be planted - approximately 27,007 sq. ft. (0.62 acres)
Elevation: 342 - 346 ft.

Plant list	Species	Size	Quantity
Trees	Acer rubrum	3-4' cont.	35
	Fraxinus pennsylvanica	3-4' cont.	30
	Nyssa sylvatica	3-4' cont.	20
	Quercus palustris	3-4' cont.	25
Shrubs	Betula nigra	2-3' cont.	30
	Viburnum prunifolium	2-3' cont.	90
	Viburnum dentatum	2-3' cont.	70
Herbs	Envirens Wetmix	seed @ 20lbs/acre	12.4lbs

Mitigation Area 3 - Forested Wetland

Area to be planted - approximately 20,000 sq. ft. (0.5 acres)
Elevation: 343 - 346 ft.

Plant list	Species	Size	Quantity
Trees	Acer rubrum	3-4' cont.	25
	Carpinus caroliniana	2-3' cont.	15
	Fraxinus pennsylvanica	3-4' cont.	20
	Platanus occidentalis	3-4' cont.	28
Shrubs	Ilex verticillata	2-3' cont.	30
	Viburnum nudum	2-3' cont.	50
	Viburnum dentatum	2-3' cont.	60
Herbs	Envirens Wetmix	seed @ 20lbs/acre	9 lbs

Mitigation Area 4 - Forested Wetland

Area to be planted - approximately 6,000 sq. ft. (0.14 acres)
Elevation: 346 ft.

Plant list	Species	Size	Quantity
Trees	Acer rubrum	3-4' cont.	10
	Fraxinus pennsylvanica	3-4' cont.	8
	Platanus occidentalis	3-4' cont.	8
Shrubs	Ilex verticillata	2-3' cont.	10
	Lindera benzoin	2-3' cont.	20
	Viburnum dentatum	2-3' cont.	12
Herbs	Envirens Wetmix	seed @ 20lbs/acre	2.75lbs

Guarantee

- The contractor will guarantee an eighty (80) percent survival rate of plants after two (2) years. If, at this time, the total number of plants has fallen below the eighty (80) percent threshold, the contractor will make a one-time replacement to bring plant numbers up to the eighty (80) percent level.
- The contractor will not be responsible for losses due to theft, fire, vandalism, or some unusual circumstance beyond his control.

Sunnyfield Estates WETLAND MITIGATION ANALYSIS

Impact Area:	Acres	Cover Type	Hydrologic Regime
Creation Areas:			
Site #1	.15	PF01	E
Site #2	.62	PF01	E
Site #3	.50	PF01	E
Site #4	.14	PF01	E
Total Creation Mitigation	1.41		
Enhancement Areas:			
Site #1	.22	PF01	E
Site #2	.30	PF01	C
Site #3	.04	PF01	E
Total Enhancement Mitigation	.56		
Total Wetland Mitigation	1.97		

*Cover type and hydrologic regimes from Cowardin et al. 1979.

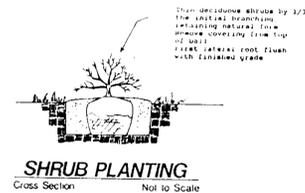
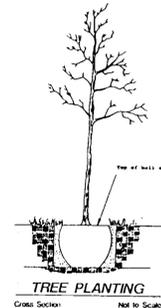
Planting Specifications

- Plantings will be made between April and June 15, or September 1 to October 30.
- Plantings will be randomly spaced at the following distances in groupings, according to appropriate respective water regimes:
Trees - 15 feet on center
Shrubs - 12 feet on center
- All plants are to be planted with the crown or top of soil ball approximately 1" above grade of planting substrate.
- Backfill in the planting pits is to be of the same material as planting substrate and is to be firmed around root system, not excessively compacted.
- Root stock of the plant material shall be kept moist during transport from the source to the job site until planted. Plants shall be container grown.
- Plants are to be covered with a tarpaulin during transit if transported in an open truck.
- Wetland plants shall be wet cultured, a minimum of three (3) months and supplied by a recognized wetland nursery.
- The contractor shall be responsible for the cleanup of any nonorganic debris associated with the planting operation.

Sequence of Construction

Mitigation Sites 1 - 4 and Enhancement Areas 1 - 3

- Stake out wetland mitigation limits.
- Sediment and erosion control shall be installed as per plan.
- Mitigation areas shall be cleared of any debris.
- No clearing or grading shall be done in Enhancement Areas except as noted on plan.
- Excavated wetland soils are to be stockpiled for later use as substrate at proposed mitigation areas. Stockpile to be placed within footprint of mitigation areas.
- Excess upland spoil from grading activities are to be stockpiled and stabilized in upland areas and used for where appropriate for development construction.
- Subgrades shall be set six (6) inches below final grade indicated on the Grading Plan.
- A six (6) inch layer of stripped topsoil (or excavated wetland soil) shall be installed to establish the final grade indicated on the Grading Plan.
- All plantings shall be installed as per Planting Plan and Planting Specifications.
- All debris associated with the planting and grading operation shall be removed from the site.



Note: Source of hydrology for wetland mitigation sites is groundwater (seasonal saturated regime).

Note: Tree line not surveyed or plotted photogrammetrically - estimated from field visits.

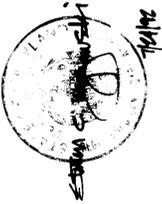
Note: Envirens, Inc. will have representative onsite during grading activities to make any adjustments necessary for the protection of existing stream systems and to insure proper placement of material to be planted.

Project No: 91034

DESIGNED BY: DJG
DRAFTED BY: DJG
CHECKED BY: DSJH

Date: 7/15/92
Revisions:

SHEET 0 OF 0



FINAL WETLAND MITIGATION PLAN

Sunnyfield Estates
Howard County, Maryland

