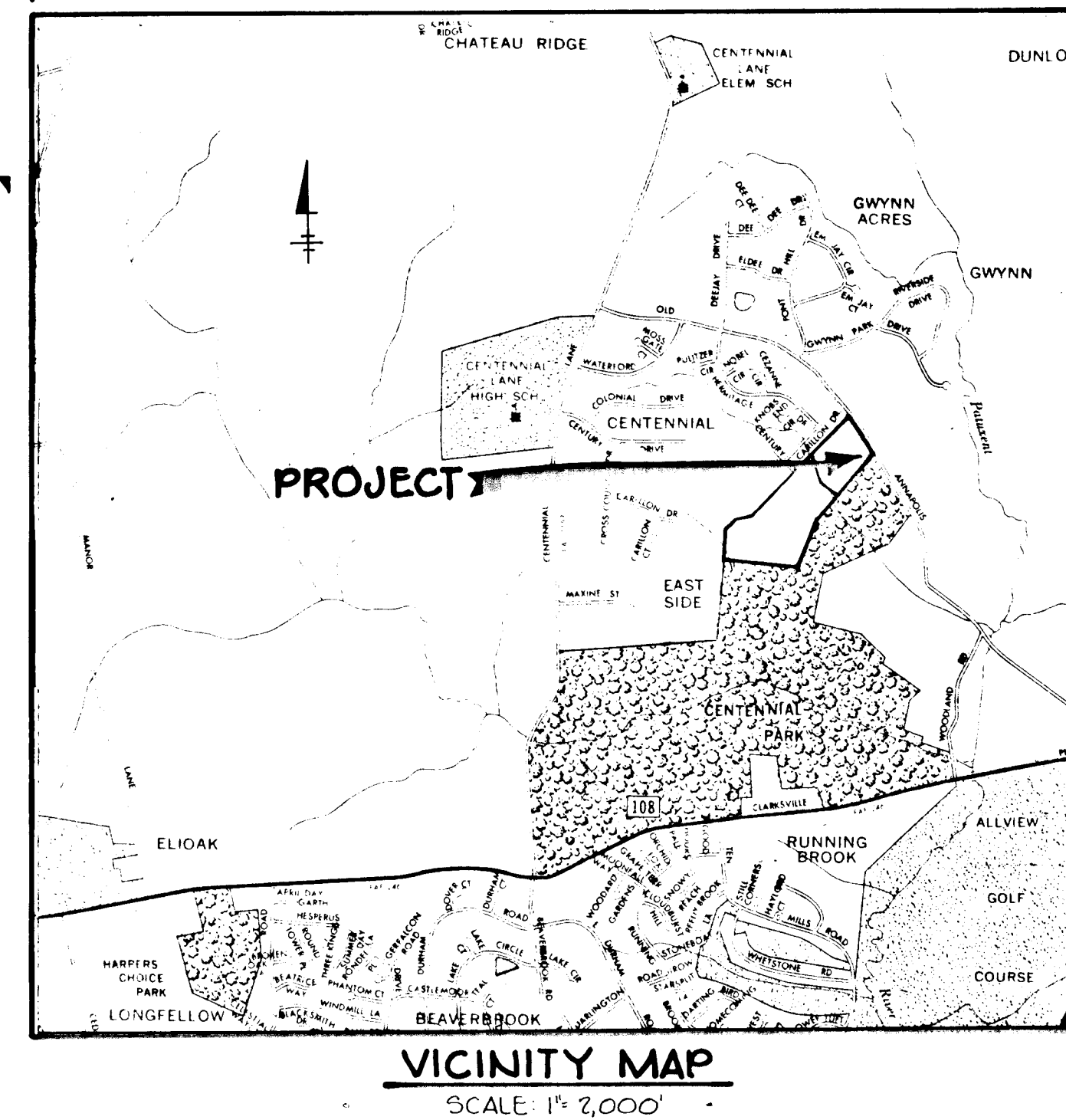


SHEET INDEX	
NO.	DESCRIPTION
1	TITLE SHEET
2	PLAN AND PROFILES OF ROADWAYS
3	PLAN AND PROFILE OF ROADWAY AND DETAILS
4	STORM DRAIN PROFILES AND DETAILS
5	DRAINAGE AREA MAP, SEDIMENT CONTROL & SWM PLAN
6	SEDIMENT CONTROL DETAILS

ROADWAY, STORM DRAIN & STORM WATER MANAGEMENT

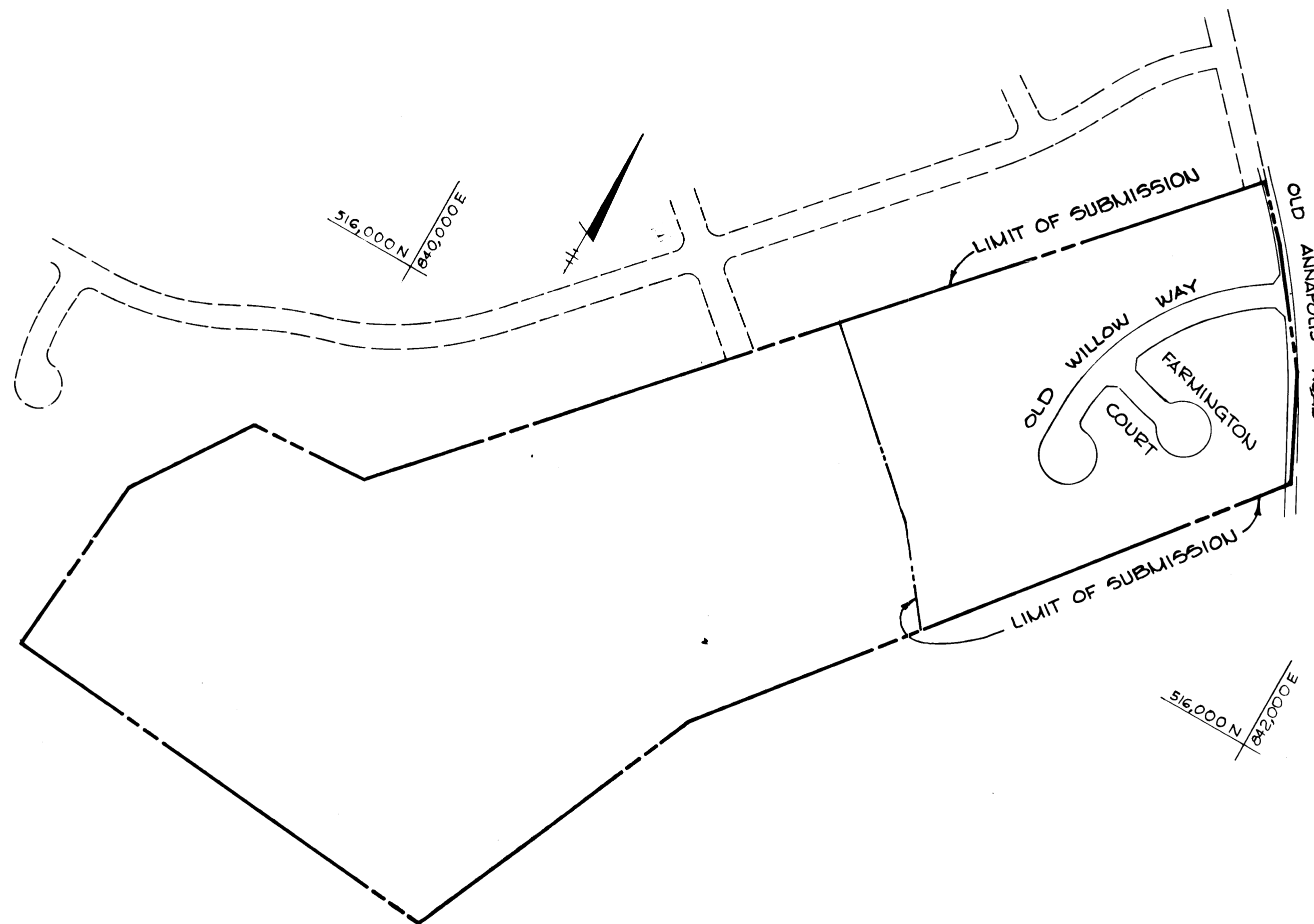
THE WILLOWS SECTION 1, AREA 1 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND



- GENERAL NOTES**
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOL. IV, I.E., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
 - APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. 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 FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
 - CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK ON THESE DRAWINGS:

MISS UTILITY	559-0100
BELL TELEPHONE SYSTEM	393-3649
LONG DISTANCE CABLE DIVISION	393-3553 or 3554
BALTIMORE GAS AND ELECTRIC COMPANY	539-8000, ext. 691
HOWARD COUNTY BUREAU OF UTILITIES	992-2366
HOWARD COUNTY CONSTRUCTION/INSPECTION SURVEY DIVISION (24 HOURS NOTICE PRIOR TO COMMENCEMENT OF WORK)	792-7272
 - ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
 - ALL STREET CURB RETURNS SHALL HAVE 35.0' RADIUS UNLESS OTHERWISE NOTED.
 - STORM DRAIN TRENCHES WITHIN ROAD RIGHT-OF-WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL, VOLUME IV, I.E., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
 - INSTALLATION OF TRAFFIC CONTROL DEVICES, MARKING, AND SIGNING SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES 1978 EDITION.
 - 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.
 - DESIGNED TRAFFIC SPEED IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIAL STANDARDS:

ALL 50' RIGHT-OF-WAYS	25 M.P.H.
-----------------------	-----------
 - ALL ELEVATIONS SHOWN ARE BASED ON U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929.
 - ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION.
 - ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
 - PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
 - SUBJECT PROPERTY ZONED R-20 PER 8-2-85 COMPREHENSIVE ZONING PLAN.
 - TOPO TAKEN FROM FIELD RUN SURVEY DATED SEPT, 1980
 - NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
 - ALL STORM DRAIN PIPE BEDDING SHALL BE CLASS 'C' AS SHOWN IN FIG. 11.4, VOLUME I OF HOWARD COUNTY DESIGN MANUAL UNLESS OTHERWISE NOTED.
 - REFERENCE TO OFFICE OF PLANNING AND ZONING FILES 5-80-18, P.60-28, P.85-27 & F-81-23



PLAN
Scale: 1" = 200'

- BENCH MARKS**
- B.M. HOWARD COUNTY MON. 3041002 EL. 424.520
CONCRETE MONUMENT AS SHOWN ON PLAN
 - B.M. HOWARD COUNTY MON. 3041005 EL. 417.165
CONCRETE MONUMENT AS SHOWN ON PLAN

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING
John W. Muegge 1-9-86
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Arthur E. Muegge 1-10-86
 CHIEF, BUREAU OF ENGINEERING

OWNER/DEVELOPER
 CHATEAU BUILDERS, INC.
 8100 WOODED GLEN CT.
 ELLICOTT CITY, MD 21043

PROJECT: **THE WILLOWS**
 SECTION 1, AREA 1 LOTS 1 THRU 22
 AREA TAX MAP NOS. 24 & 30
 2ND ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: TITLE SHEET

THE RIEMER GROUP, INC.
 A LAND PLANNING, DESIGN & CIVIL ENGINEERING FIRM
 3105 HEALTH PARK DRIVE, ELLICOTT CITY, MD. 21043 301 461-2690

DATE: 1-6-86
 PARCEL 160
 DESIGNED BY: L.J.D.
 DRAWN BY: L.S.T.
 PROJECT NO: 15803
 DATE: JANUARY 2, 1986
 SCALE: AS SHOWN
 DRAWING NO. 1 OF 6

AS-BUILT SURVEY CERTIFIED BY
 ARTHUR E. MUEGGE, MD. P.E.
 No. 8707, ON 5-19-87

TABULATION FOR DRY LANDS

1. OPEN SPACE REQUIRED	1.65 Ac.
2. TOTAL AREA OF FLOODPLAIN	1.76 Ac.
3. FLOODPLAIN CREDITED TO OPEN SPACE	.58 Ac.
4. TOTAL AREA OF STORM WATER MANAGEMENT	0.24 Ac.
5. STORM WATER MANAGEMENT AREA CREDITED TO OPEN SPACE	.12 Ac.
∴ TOTAL FLOODPLAIN = 0.70 Ac. < HALF OF 1.69 Ac. 0.85 REQ.	

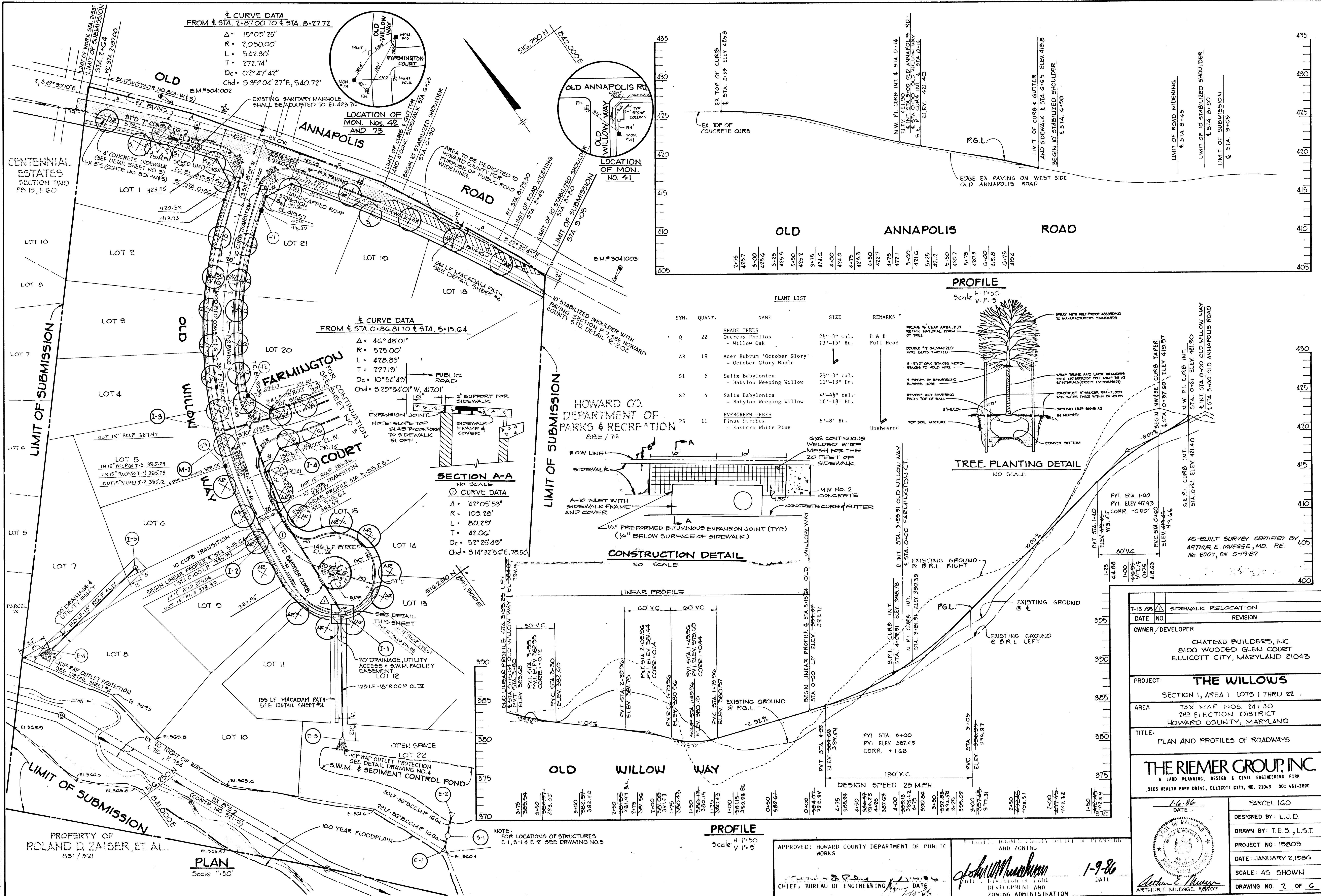
OPEN SPACE TABULATION

LOT SIZE #	NO. OF LOTS	ACRES	MANDATORY OS	ACRES
20,000 OR LARGER	3	1.634	0%	0.000
18,000 TO 19,999	3	1.307	10%	0.131
16,000 TO 17,999	4	1.567	20%	0.313
14,000 TO 15,999	11	3.827	30%	1.148
TOTALS	21	8.335		1.690

OPEN SPACE PROVIDED LOT 22: 2.785 ACRES

DENSITY TABULATION

O.S. REQ'D	O.S. PROVIDED	GROSS AREA	FLOODPLAIN STEEP SLOPES	NET AREA	NO. OF DWELLING UNITS ALLOWED	FLOODPLAIN LOT ADJUSTMENT	TOTAL NO. OF D.U. ALLOWED	TOTAL NO. OF D.U. PROPOSED	DENSITY PER ACRE
1.690 Ac.	2.785 Ac.	19.017 Ac.	1.164 Ac.	11.853 Ac.	N/A	0	N/A	21	1.77



CURVE DATA
 FROM STA. 2+87.00 TO STA. 8+27.72
 $\Delta = 15^\circ 05' 25''$
 $R = 2,050.00'$
 $L = 547.30'$
 $T = 272.74'$
 $D_c = 07^\circ 47' 42''$
 $Chd = 535^\circ 04' 27'' E, 540.72'$

CURVE DATA
 FROM STA. 0+36.81 TO STA. 5+15.64
 $\Delta = 46^\circ 48' 01''$
 $R = 575.00'$
 $L = 478.83'$
 $T = 227.19'$
 $D_c = 10^\circ 54' 49''$
 $Chd = 529^\circ 54' 01'' W, 417.01'$

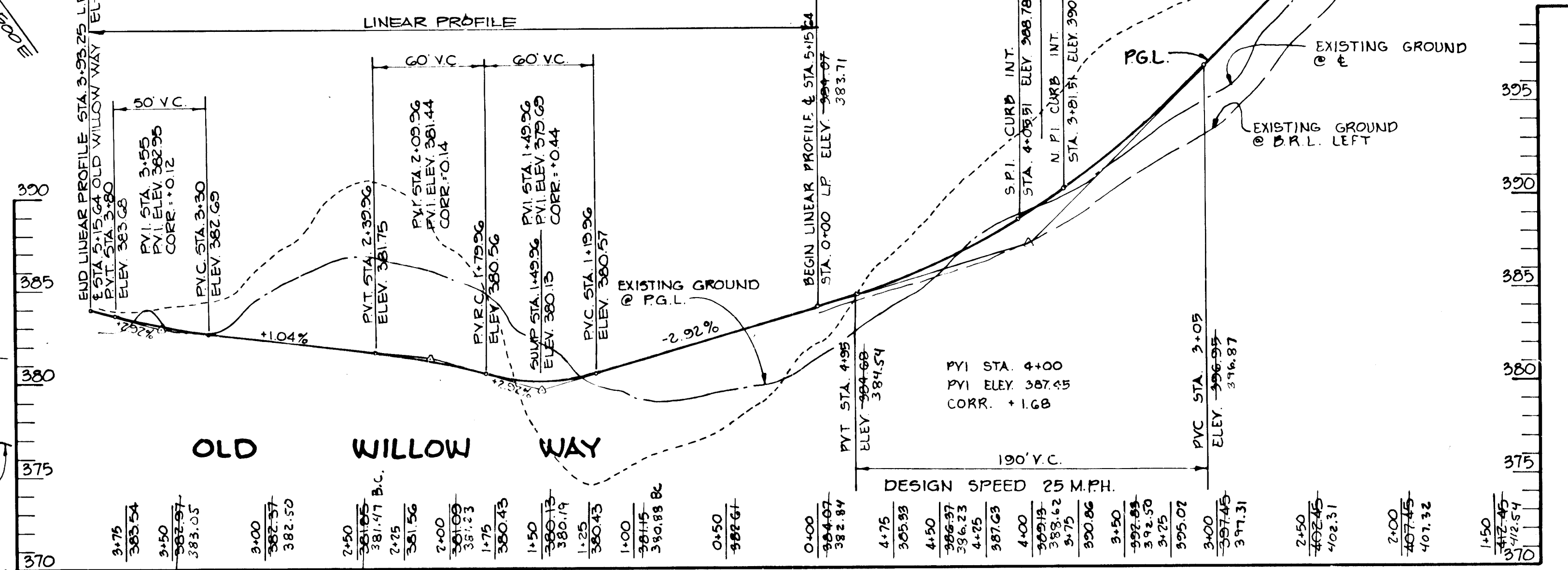
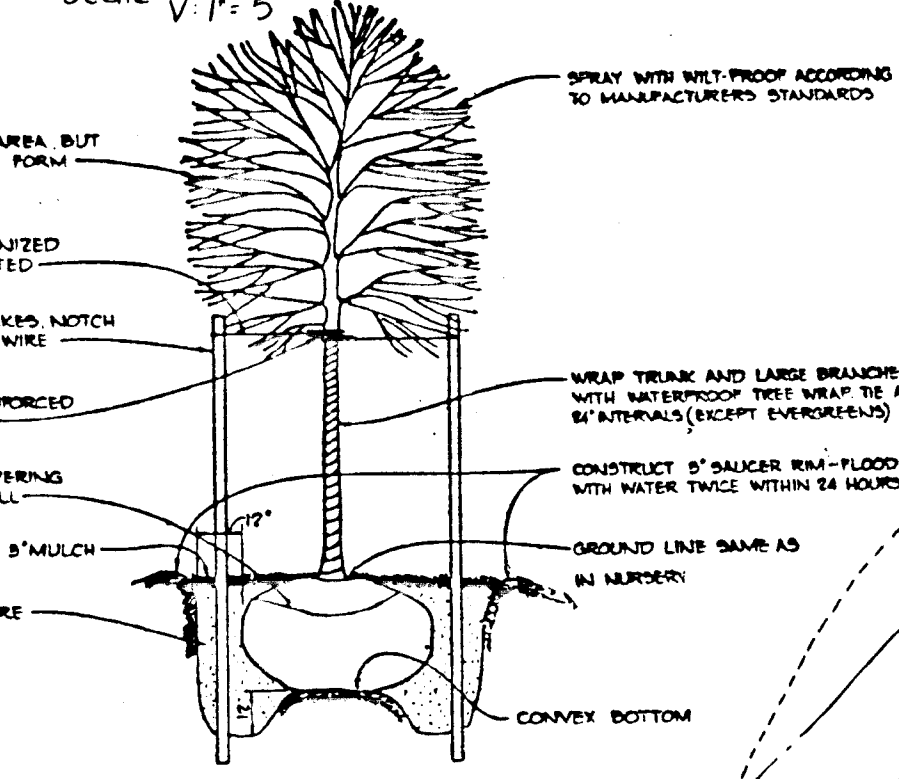
SECTION A-A
 NO SCALE
① CURVE DATA
 $\Delta = 47^\circ 05' 53''$
 $R = 103.28'$
 $L = 80.22'$
 $T = 42.06'$
 $D_c = 52^\circ 25' 49''$
 $Chd = 514^\circ 32' 56'' E, 73.50'$

CONSTRUCTION DETAIL
 NO SCALE

PLANT LIST

SYM.	QUANT.	NAME	SIZE	REMARKS
Q	22	SHADE TREES Quercus Phellos - Willow Oak	2 1/2" - 3" cal. 13'-15' Ht.	B & B Full Head
AR	19	Acer Rubrum 'October Glory' - October Glory Maple		
S1	5	Salix Babylonica - Babylon Weeping Willow	2 1/2" - 3" cal. 11'-13' Ht.	
S2	4	Salix Babylonica - Babylon Weeping Willow	4" - 4 1/2" cal. 16'-18' Ht.	
PS	11	EVERGREEN TREES Pinus Strobus - Eastern White Pine	6' - 8' Ht.	Unsheared

PROFILE
 Scale: H: 1"=50'
 V: 1"=5'

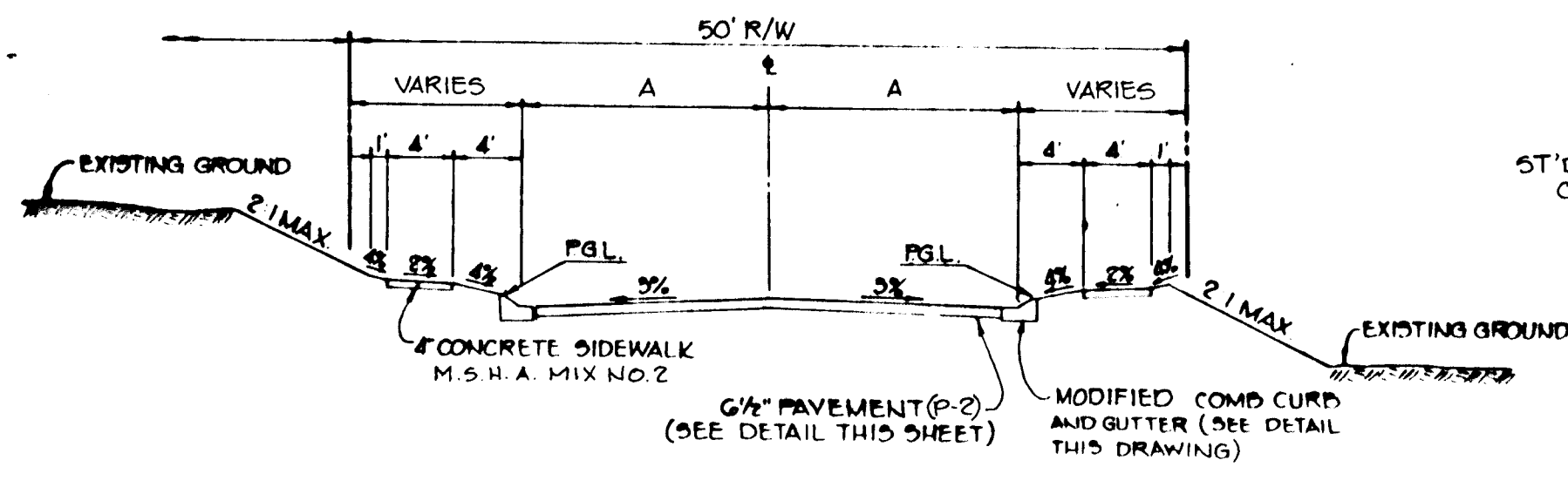
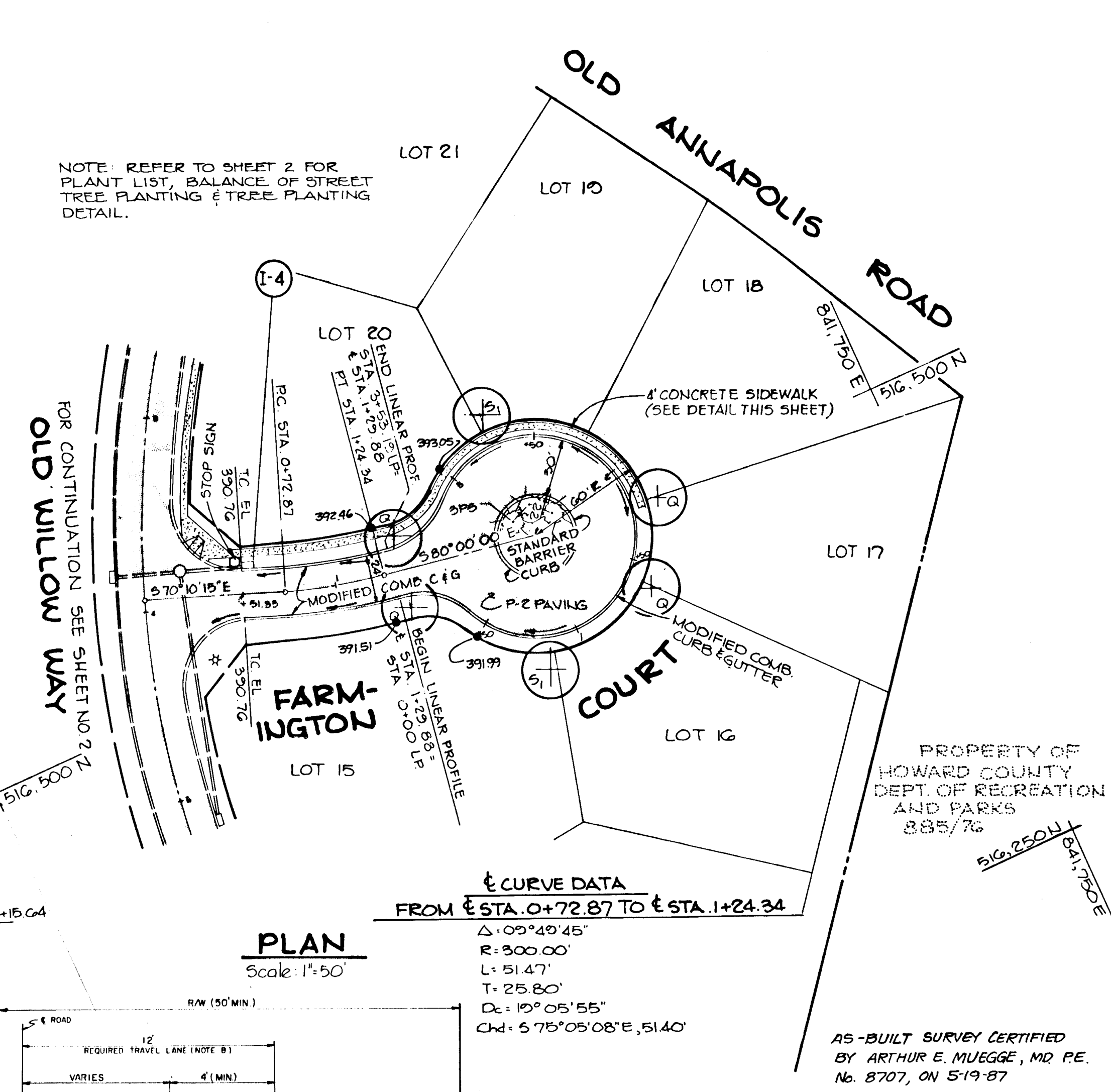
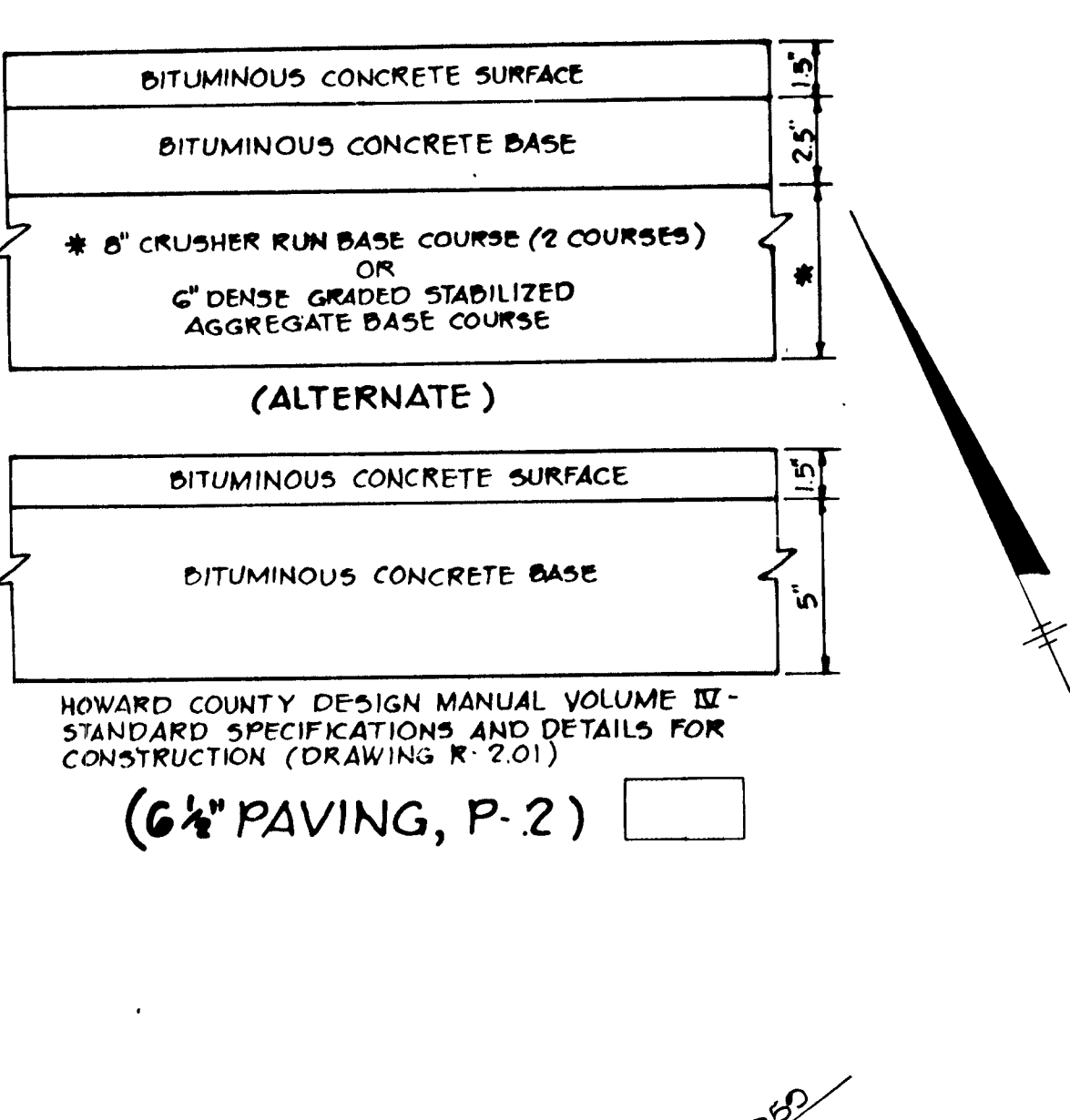
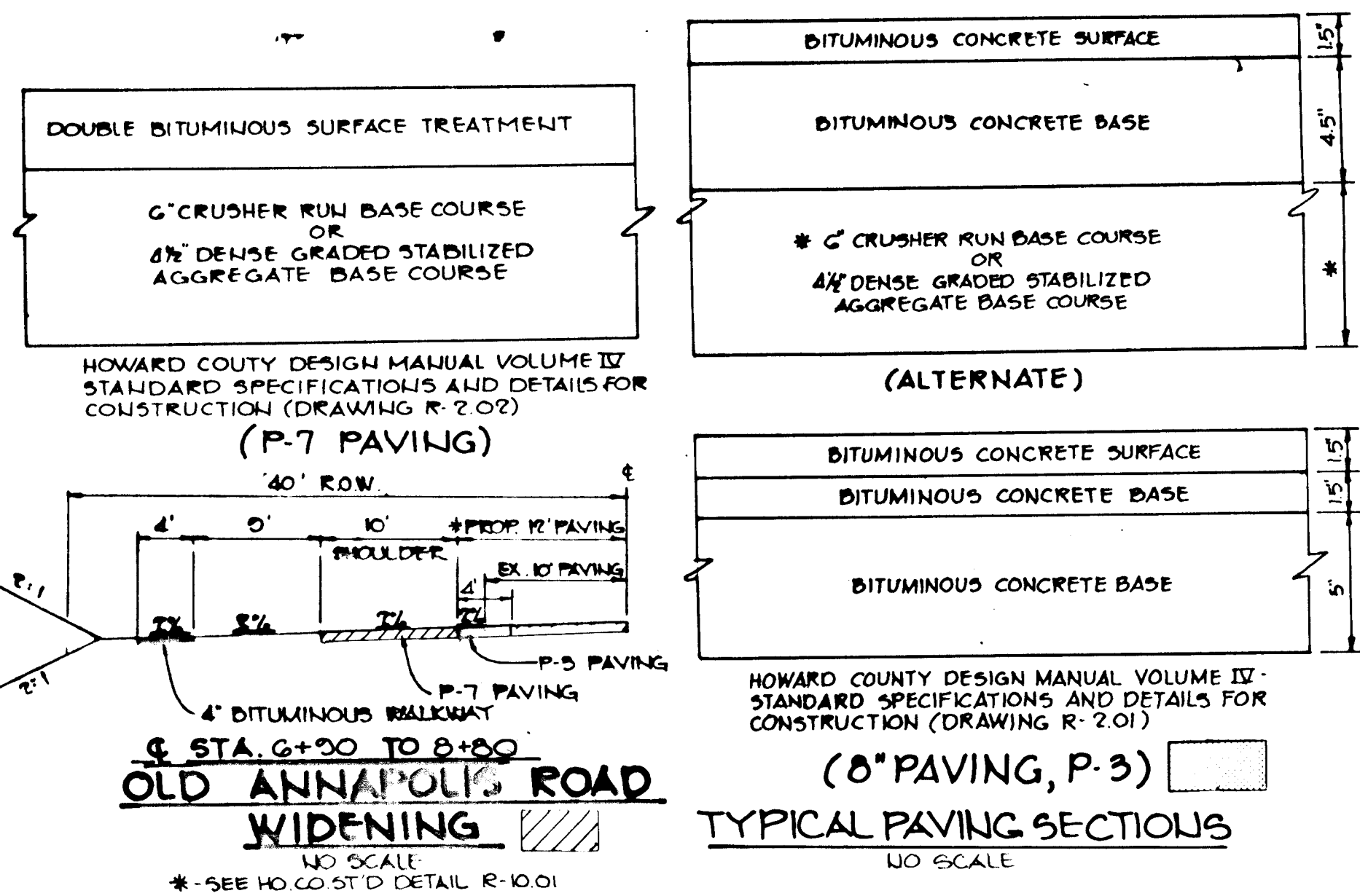
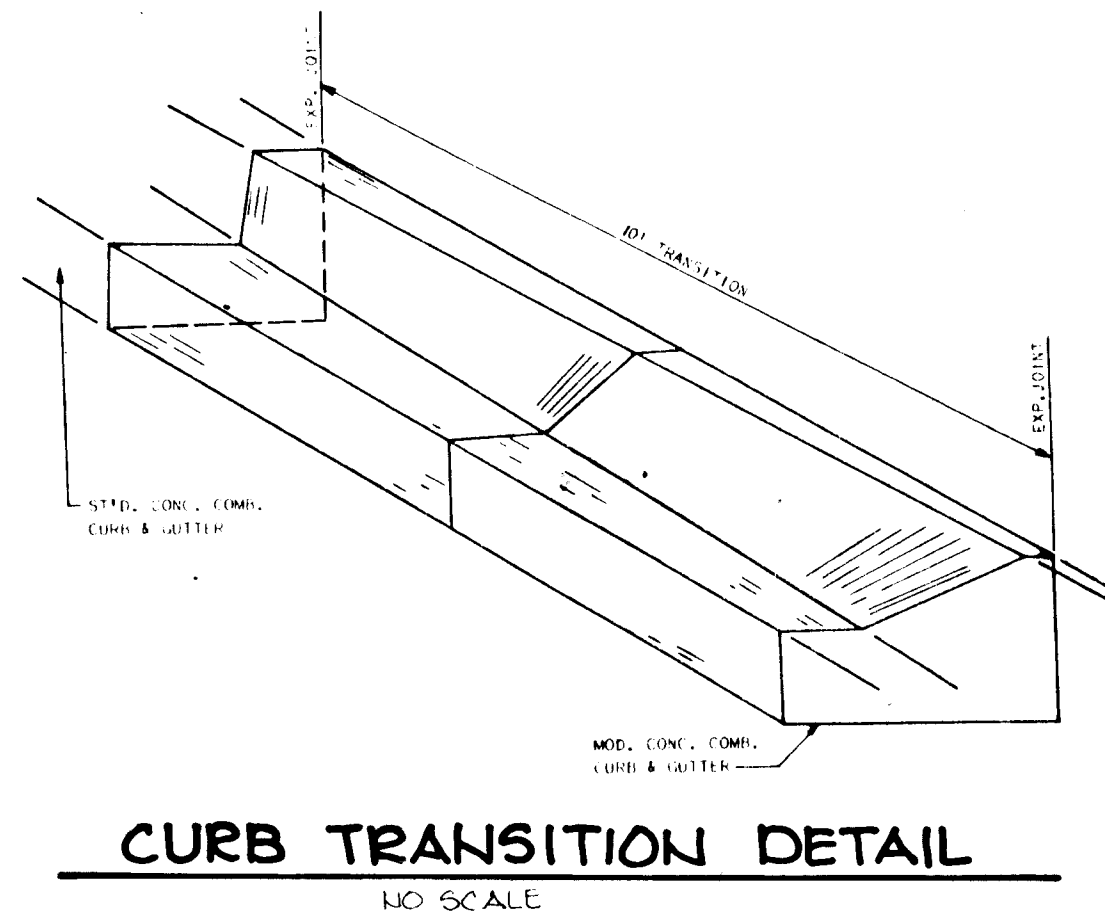


7-13-88	1	SIDEWALK RELOCATION
DATE	NO.	REVISION
OWNER/DEVELOPER CHATEAU BUILDERS, INC. 8100 WOODED GLEN COURT ELLICOTT CITY, MARYLAND 21043		
PROJECT: THE WILLOWS		
SECTION 1, AREA 1 LOTS 1 THRU 22		
AREA TAX MAP NOS. 24130 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
TITLE: PLAN AND PROFILES OF ROADWAYS		
THE RIEMER GROUP, INC. A LAND PLANNING, DESIGN & CIVIL ENGINEERING FIRM 3105 HEALTH PARK DRIVE, ELLICOTT CITY, MD. 21043 301-481-2890		
1-6-86	DATE	PARCEL 160
		DESIGNED BY: L.J.D.
		DRAWN BY: T.E.S., L.S.T.
		PROJECT NO: 15803
		DATE: JANUARY 2, 1986
		SCALE: AS SHOWN
		DRAWING NO. 2 OF 6

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF ENGINEERING

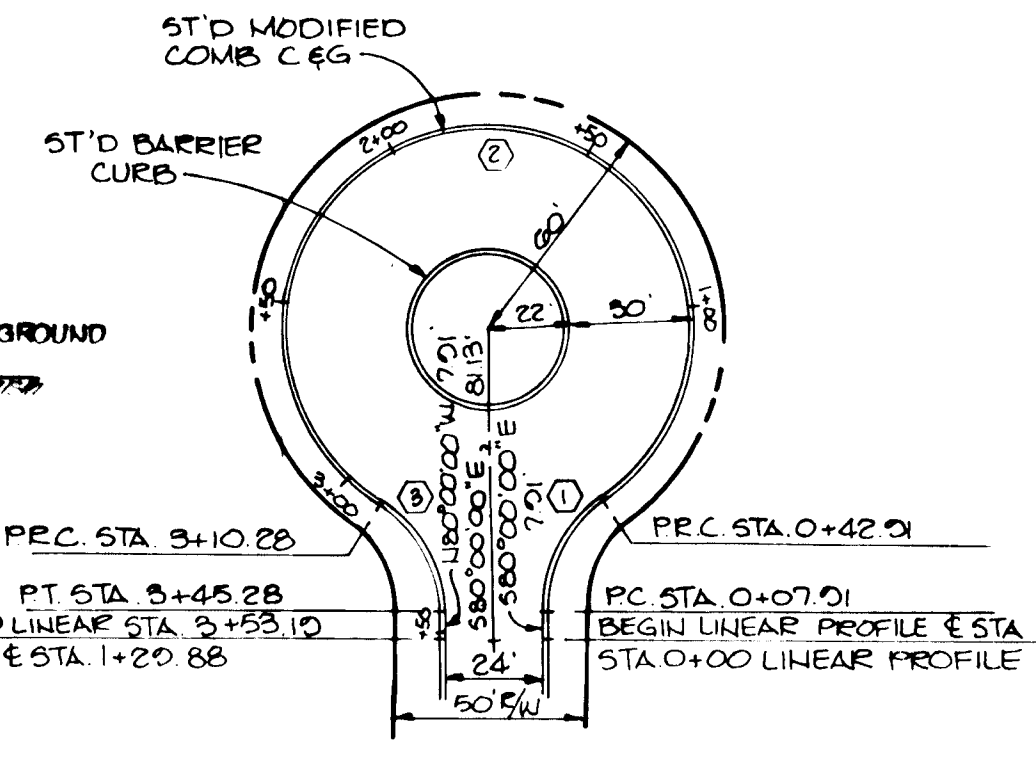
APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING
 DATE: 1-9-86



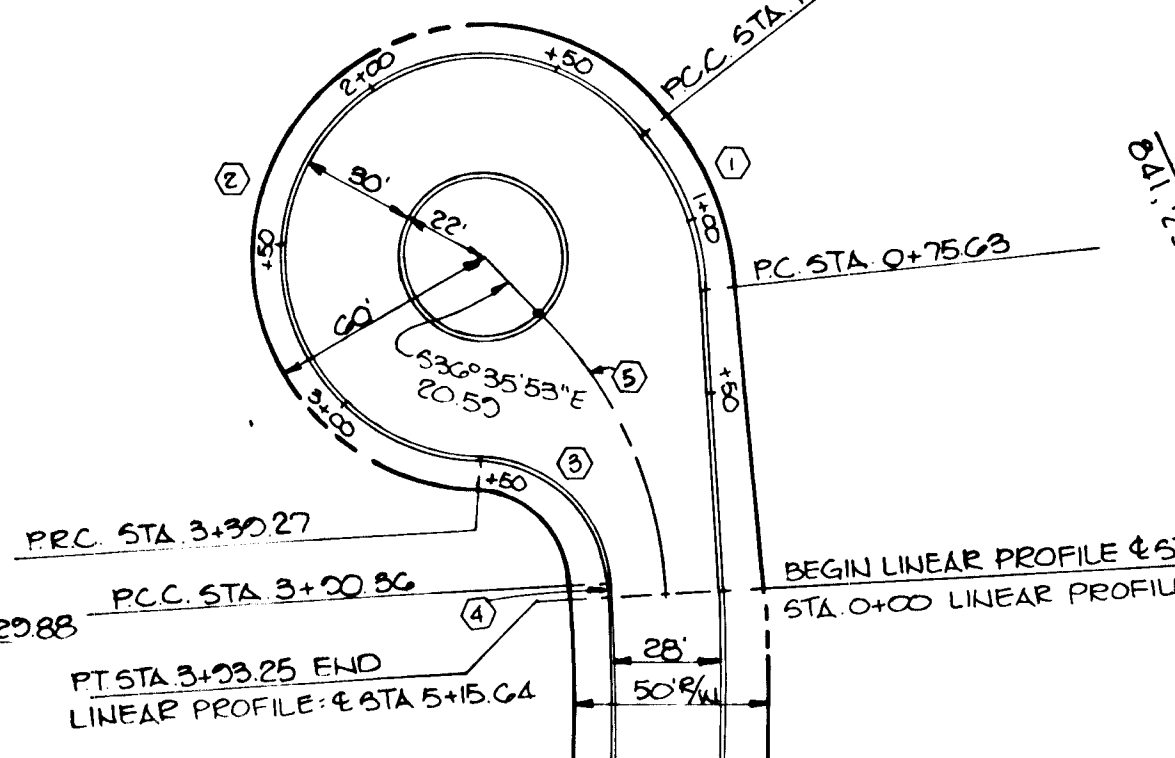


ROAD	A	STA TO STA
OLD WILLOW WAY	14'	0+00 - 5+15.64
FARMINGTON COURT	12'	0+00 - 1+29.88

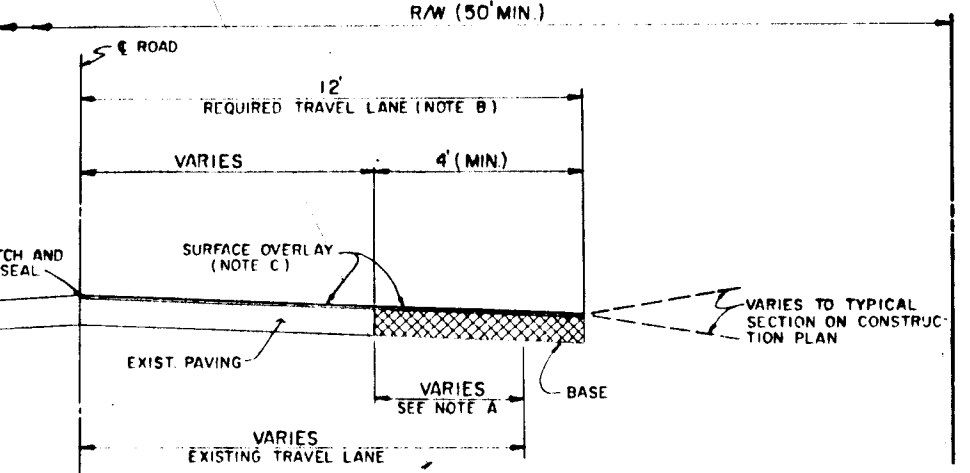
DESIGN SPEED - 25 MPH
ZONING - R20
TRAFFIC WAY - "CUL-DE-SAC"



NO	Δ	RAD.	LENGTH	TAN	CHD.	L.C.B.
1	57°18'03"	35.00'	35.00'	12.12'	33.66'	51°20'50"E
2	204°30'00"	52.00'	20.75'	-	52.18'	140°10'00"E
3	57°18'03"	35.00'	35.00'	10.12'	33.56'	57°18'50"W



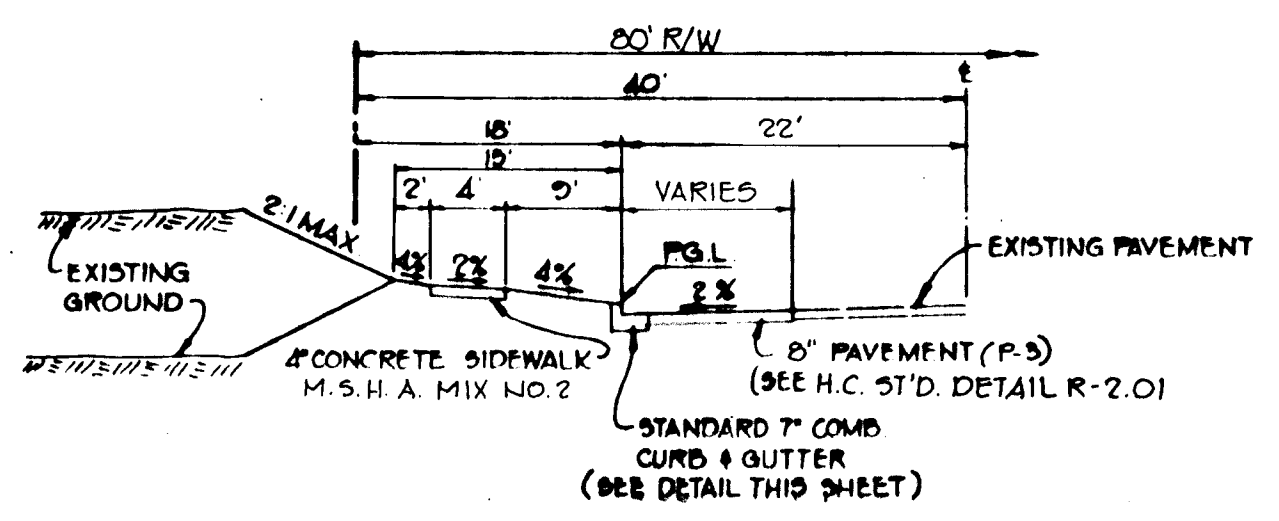
NO	Δ	RAD.	LENGTH	TAN	CHD.	L.C.B.
1	34°24'41"	74.86'	44.00'	23.18'	44.20'	51°42'21"E
2	204°57'18"	52.00'	21.66'	-	52.80'	142°30'40"E
3	88°57'25"	35.00'	51.00'	31.31'	46.67'	137°03'07"W
4	01°44'14"	95.21'	2.80'	1.44'	2.80'	140°37'17"E
5	42°05'58"	109.28'	80.90'	42.06'	78.50'	514°32'50"E



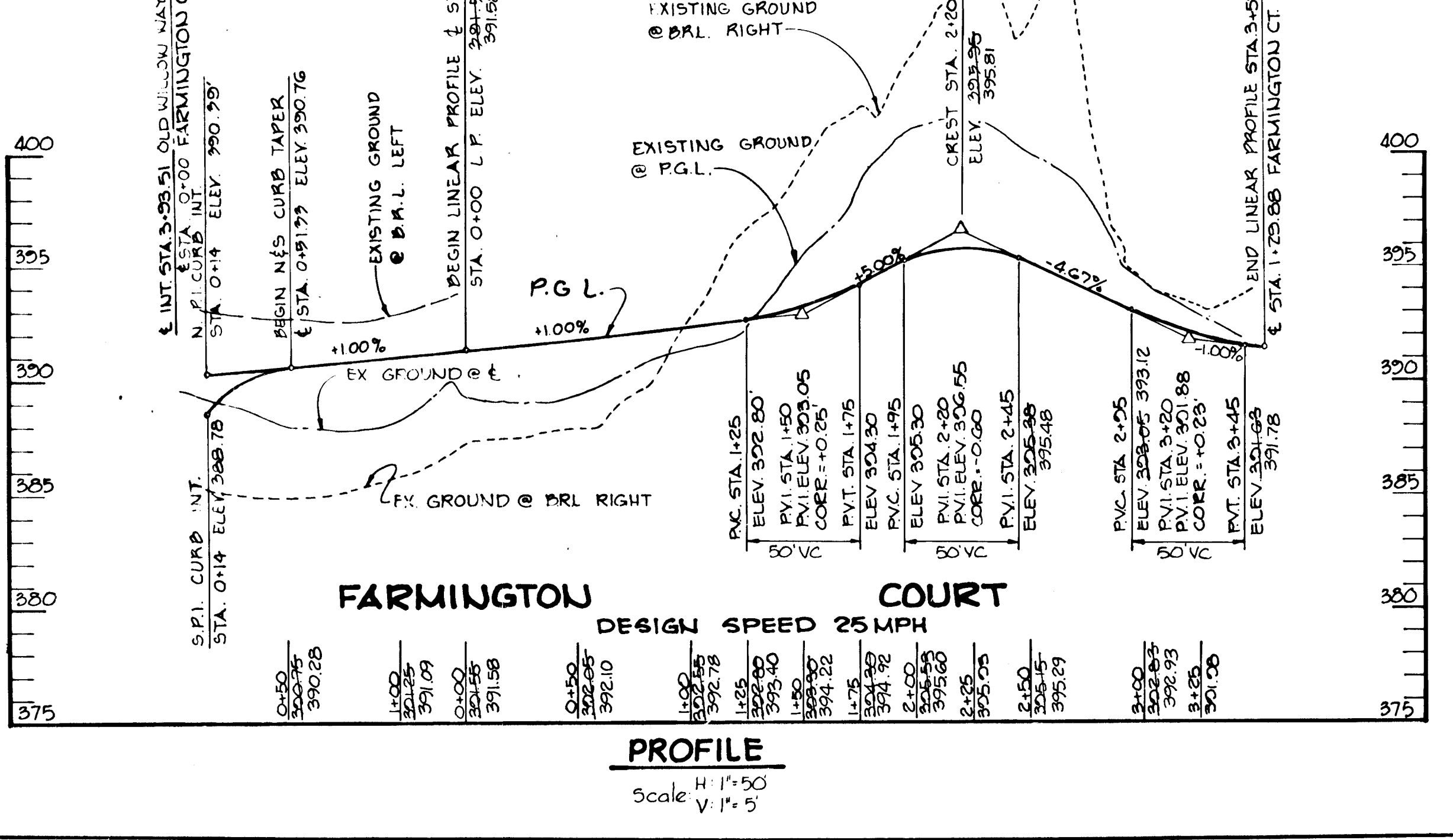
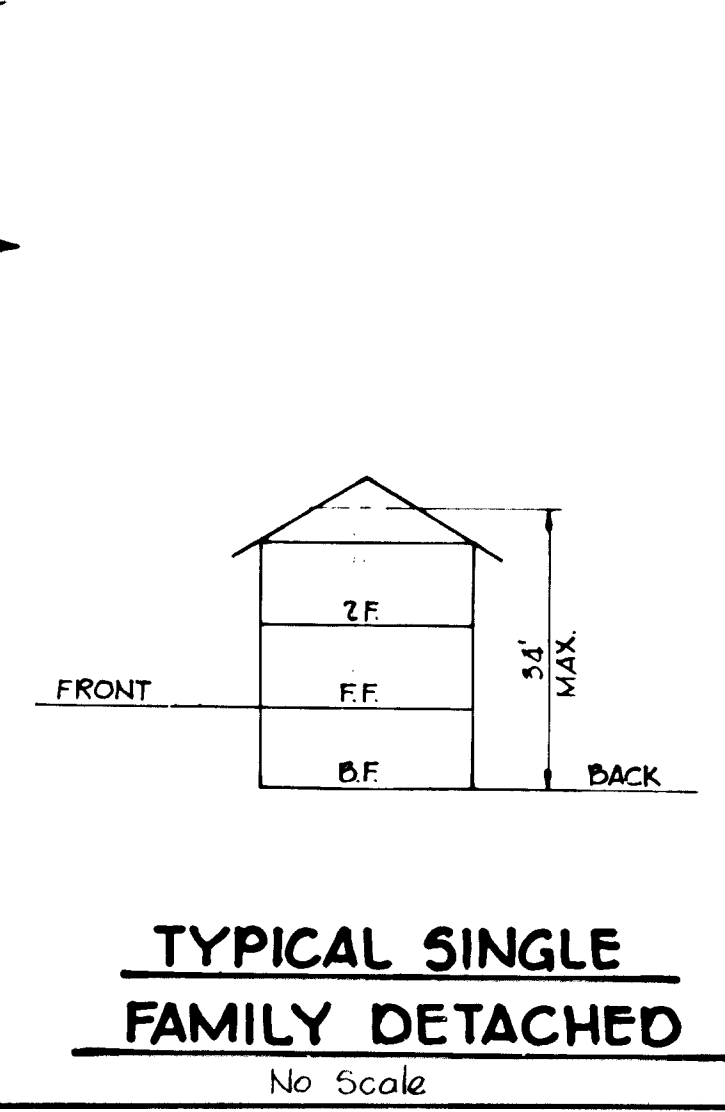
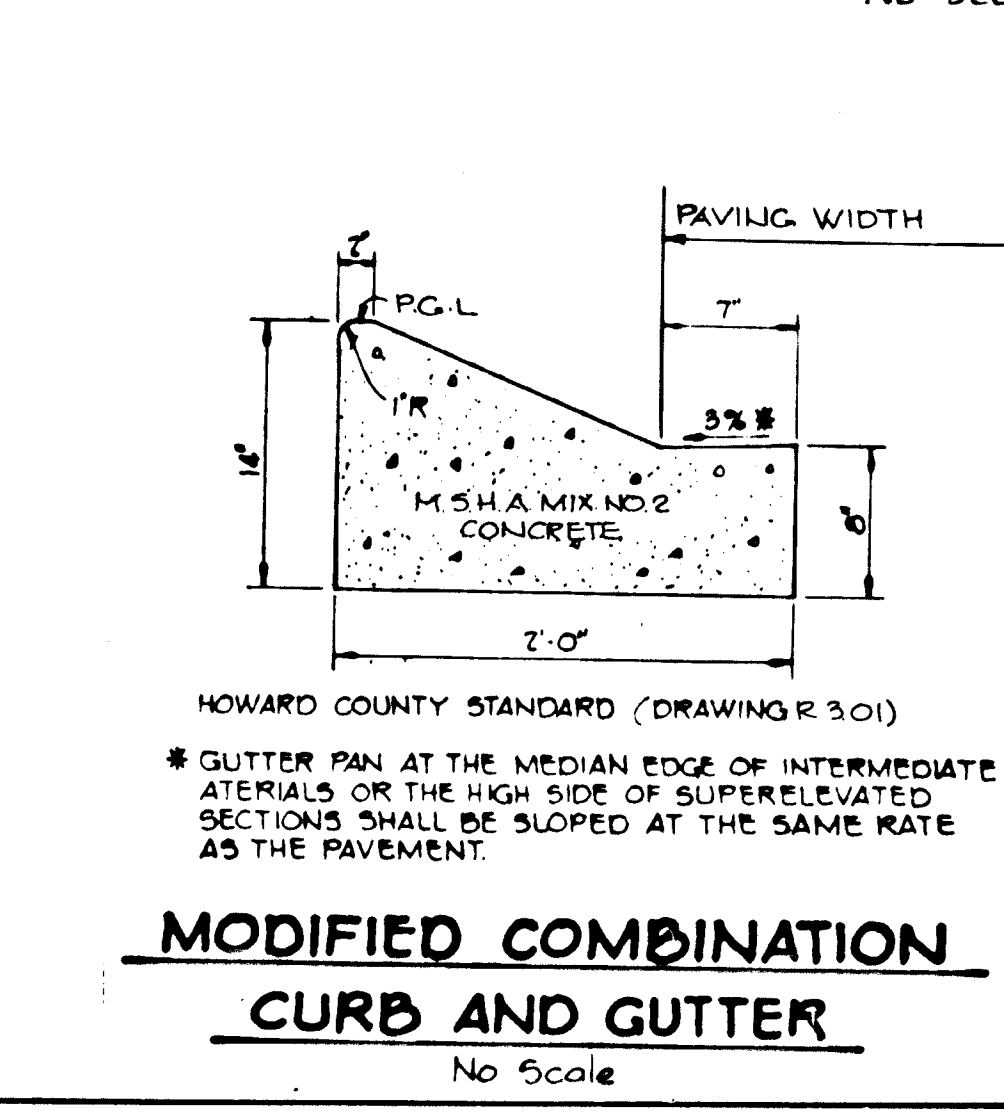
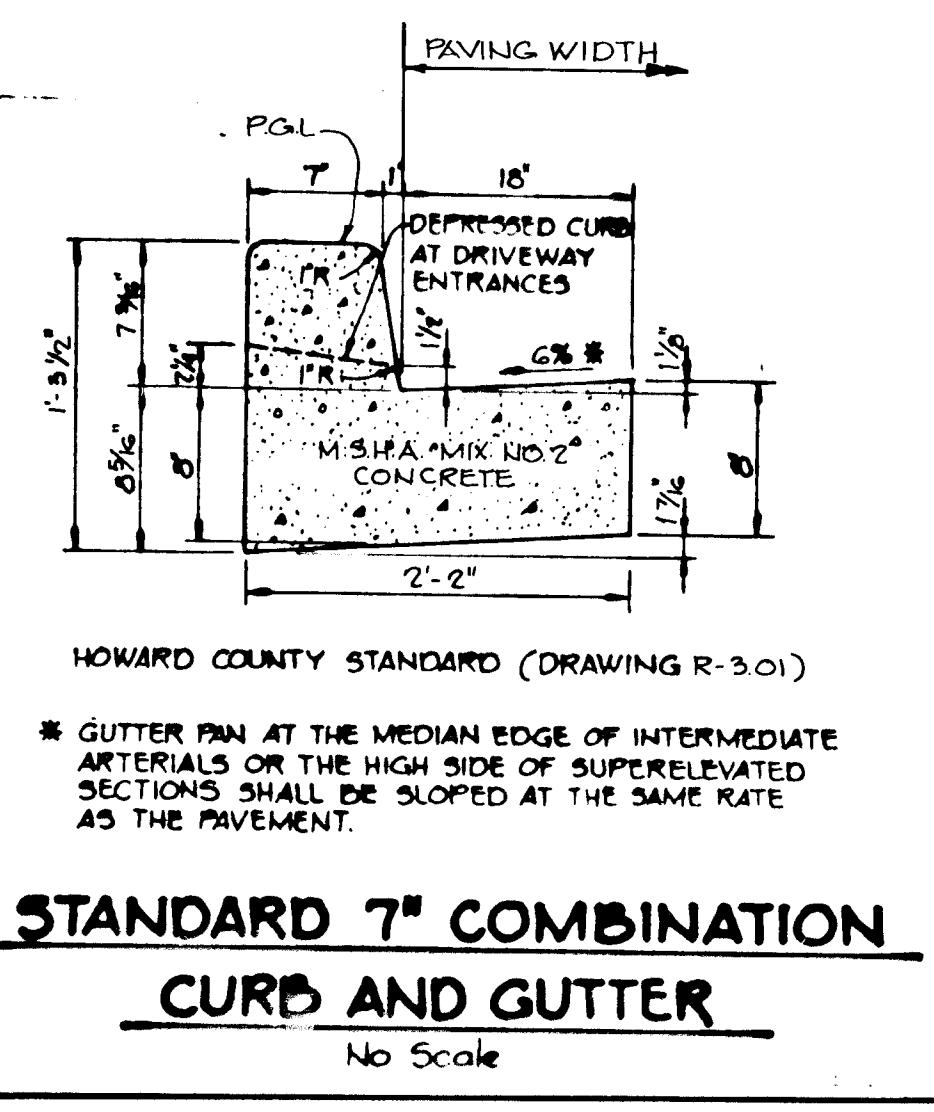
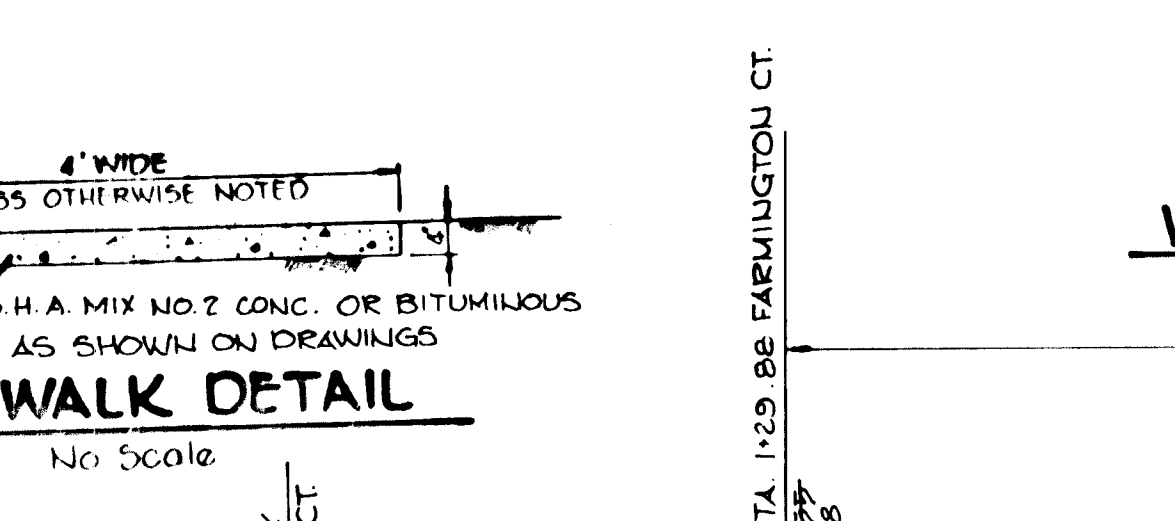
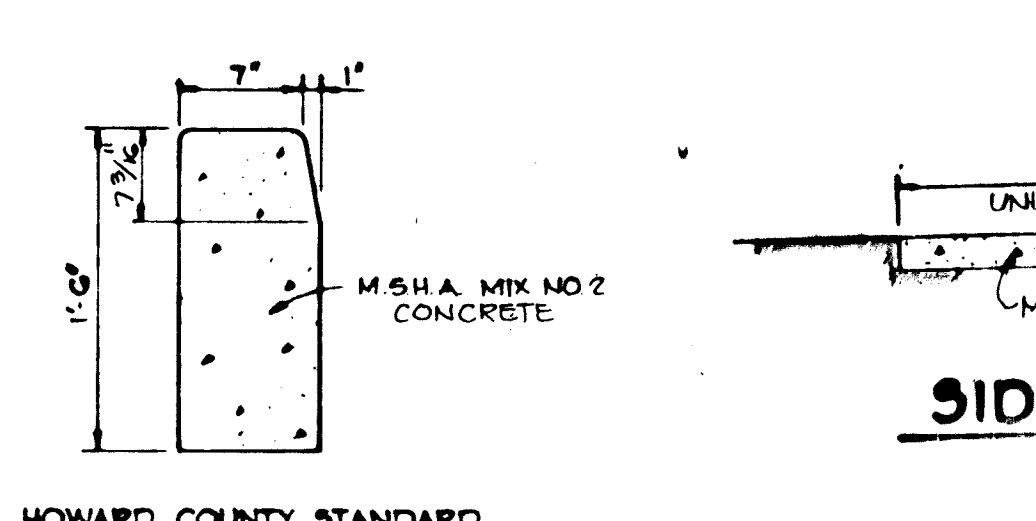
NOTE A - WHEN EXISTING TRAVEL LANE IS LESS THAN THE REQUIRED 12' LANE, CONTRACTOR SHALL REMOVE PORTION OF THE EXISTING ROAD BED TO PROVIDE A MINIMUM BASE WIDENING OF 4'

NOTE B - THE SURFACE OVERLAY SHALL BE CARRIED TO THE E OF THE ROAD AND NOTCHED AND SEALED

NOTE C - SURFACE OVERLAY COURSE TO BE EQUAL TO SURFACE COURSE OF TYPICAL PAVING SECTION OF SUBDIVISION



ZONING - R20
TRAFFIC WAY - "MAJOR COLLECTOR"
STA 2+53 TO STA. 6+65



APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

John M. ... 1-9-86 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

... 2-2-86 DATE

CHIEF, BUREAU OF ENGINEERING

DATE	NO.	REVISION

OWNER/DEVELOPER
CHATEAU BUILDERS, INC.
8100 WOODED GLEN COURT
ELLCOTT CITY, MARYLAND 21043

PROJECT: **THE WILLOWS**

AREA: SECTION 1, AREA 1 LOTS 1 THRU 22

TITLE: PLAN AND PROFILE OF ROADWAY AND DETAILS

THE RIEMER GROUP, INC.
A LAND PLANNING, DESIGN & CIVIL ENGINEERING FIRM
3105 HEALTH PARK DRIVE, ELLCOTT CITY, MD. 21043 301 461-2890

DATE: 1-6-86

PARCEL 160

DESIGNED BY: L.J.D.

DRAWN BY: T.E.S.

PROJECT NO. 15608

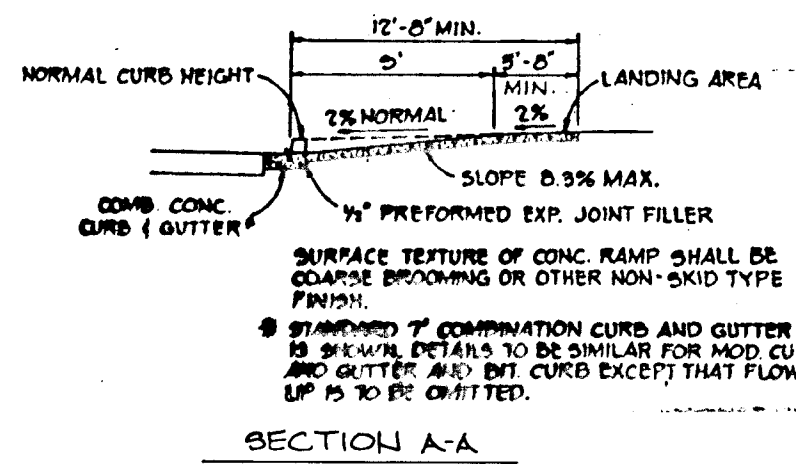
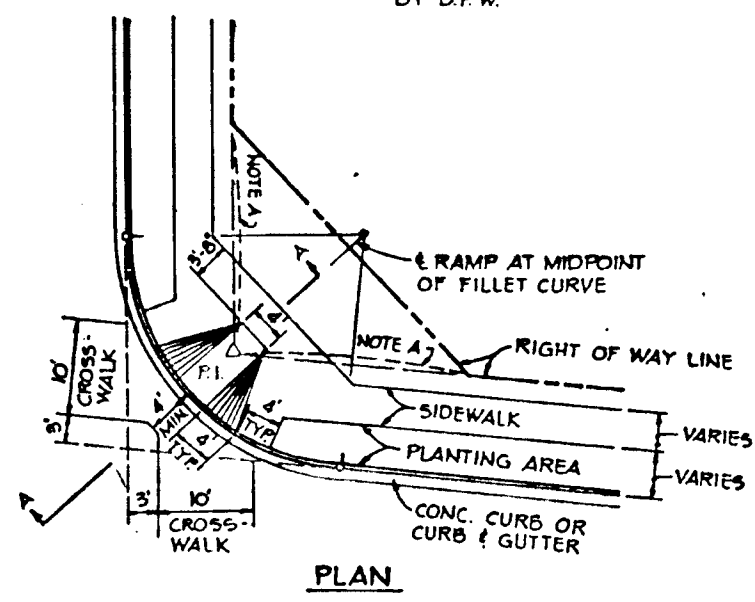
DATE: JANUARY 2, 1986

SCALE: AS SHOWN

DRAWING NO. 3 OF 6

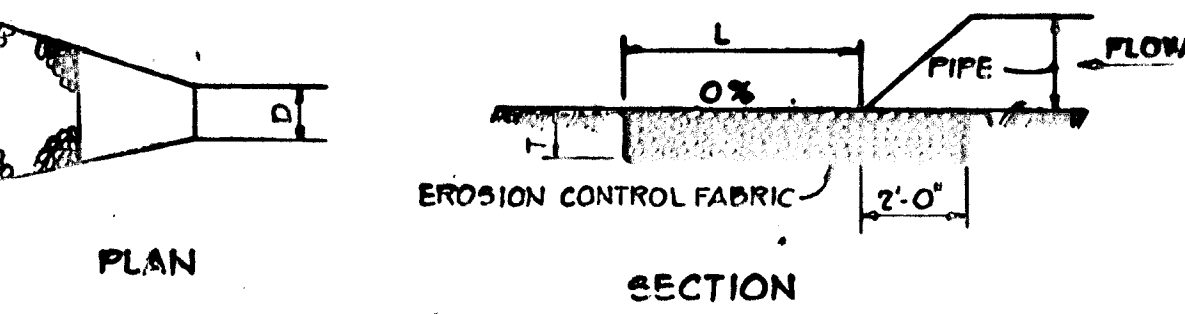
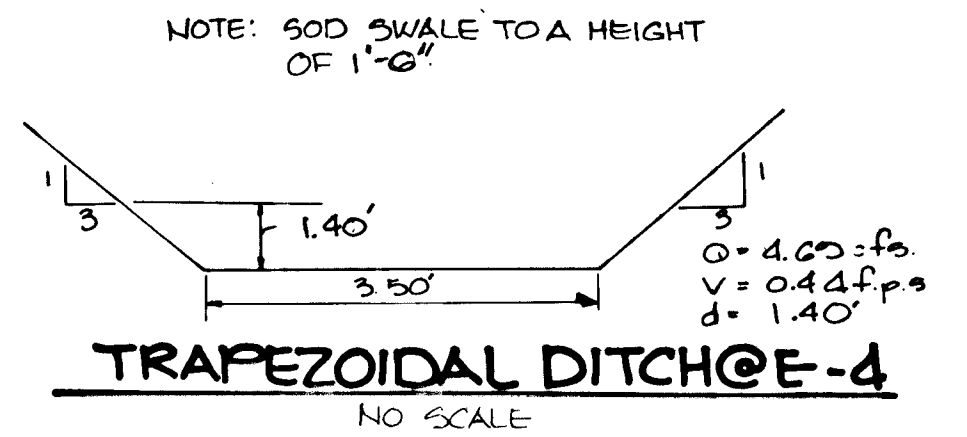
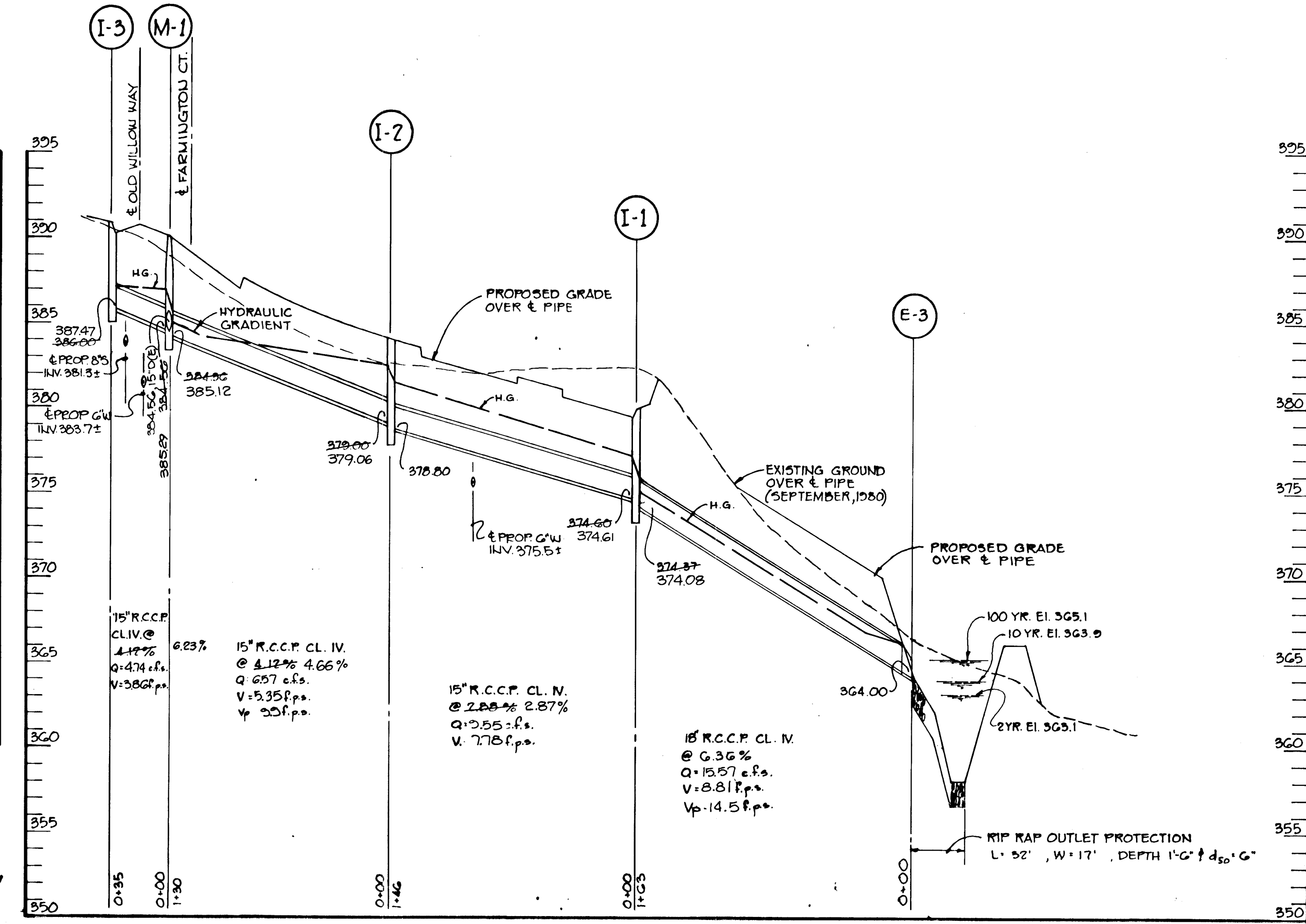
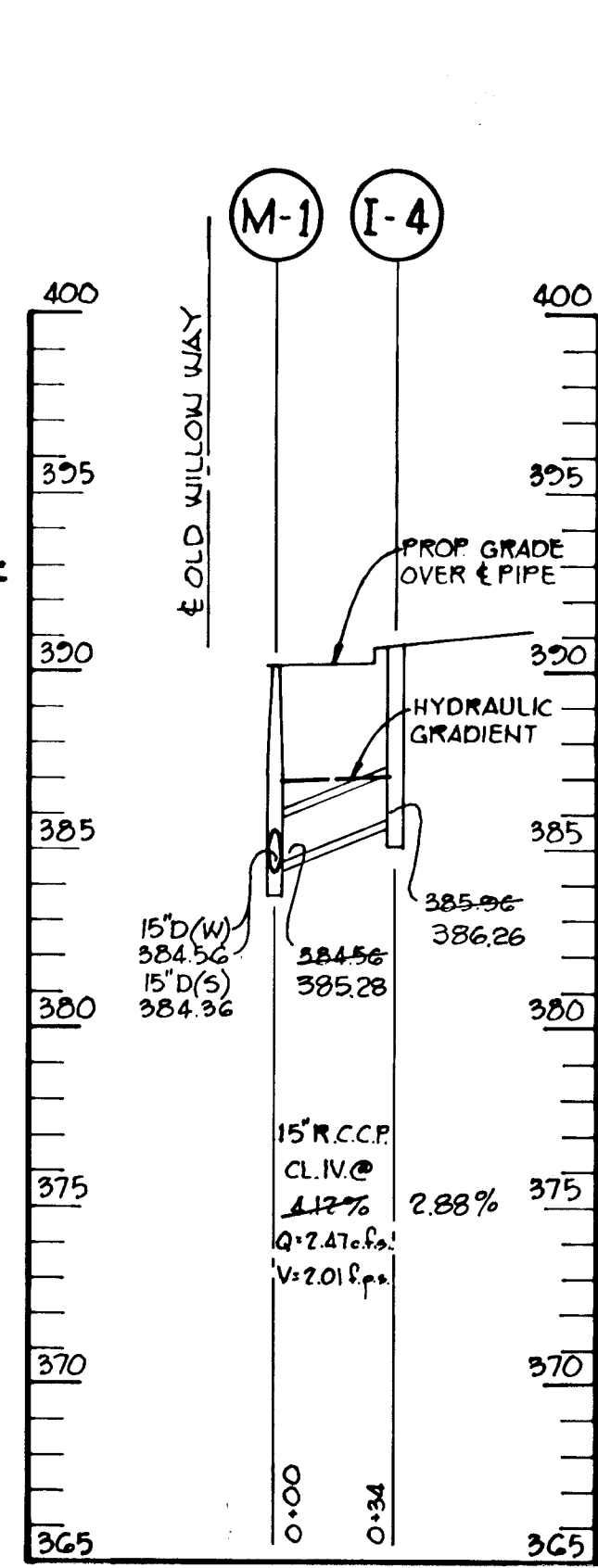
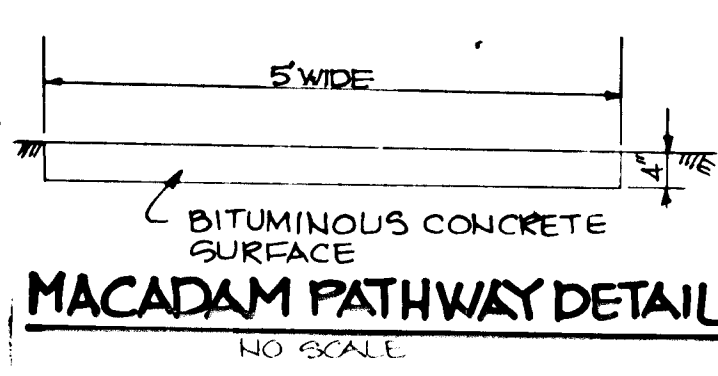
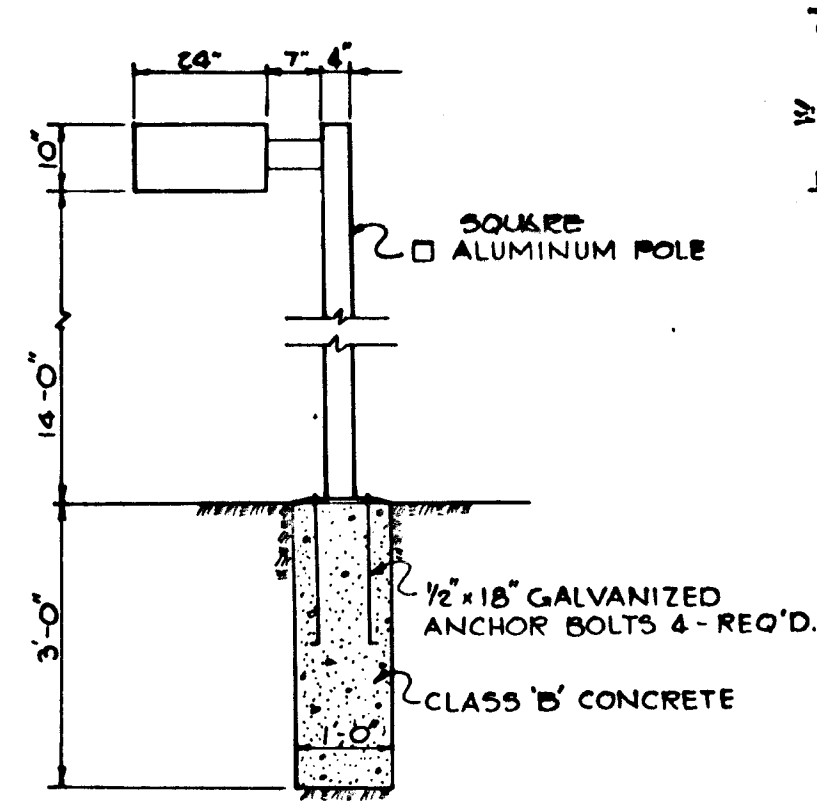
ARTHUR E. MUEGGEL, P.E. No. 8707

- NOTES:
- RIGHT OF WAY LINE TRUNCATION TO BE SET 25' FROM P.I. ALONG EACH OF THE INTERSECTING LINES AND SET FORTH IN SECTION 10-119. PARTS OF SUBDIVISION REGULATIONS, MINIMUM DISTANCE BETWEEN BACK OF SIDEWALK AND RIGHT OF WAY LINE TO BE 1 FOOT.
 - TYPE 'A' RAMP TO BE USED FOR ALL NEW CONSTRUCTION WHERE APPLICABLE UNLESS OTHERWISE DIRECTED BY D.W.

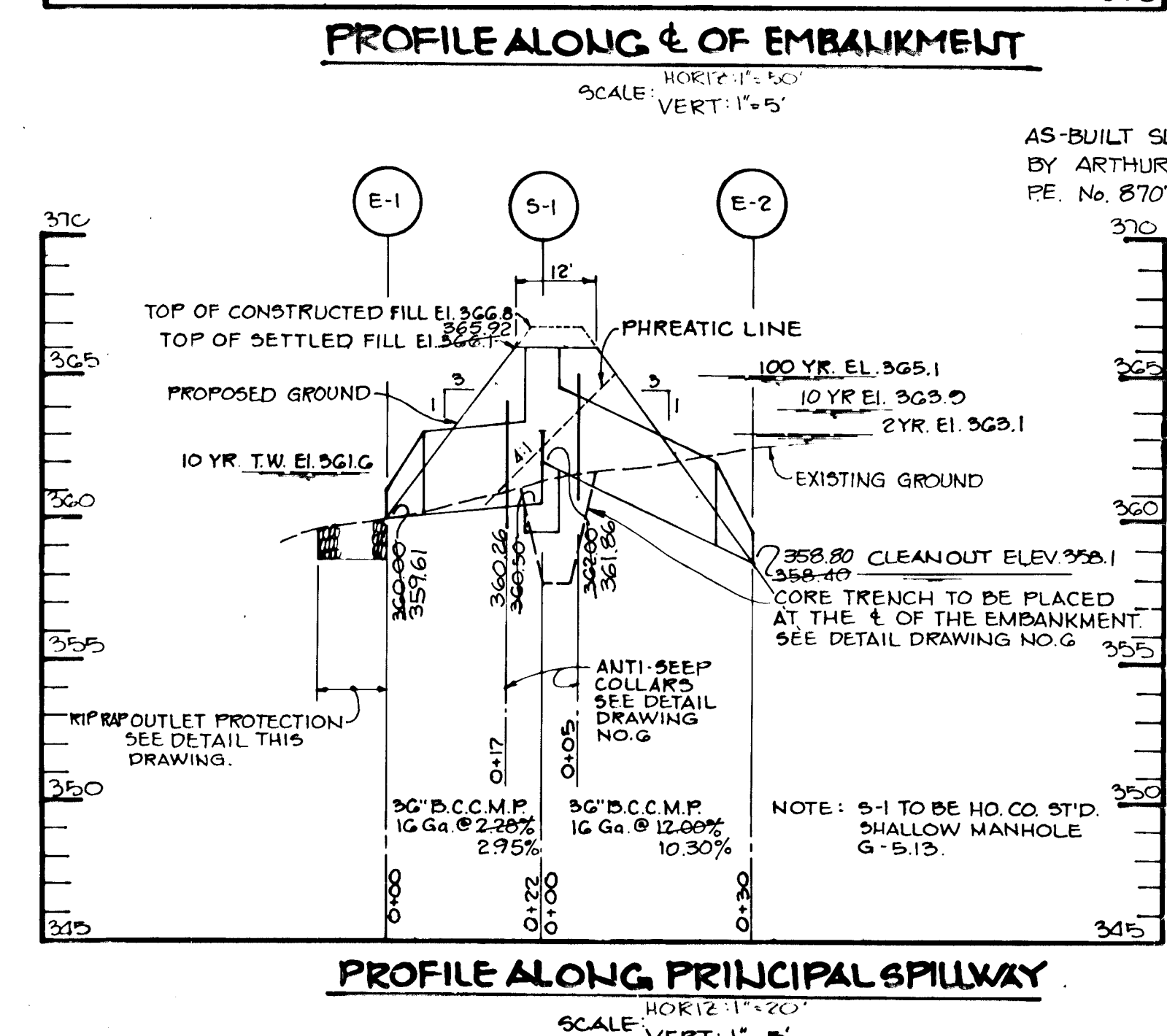
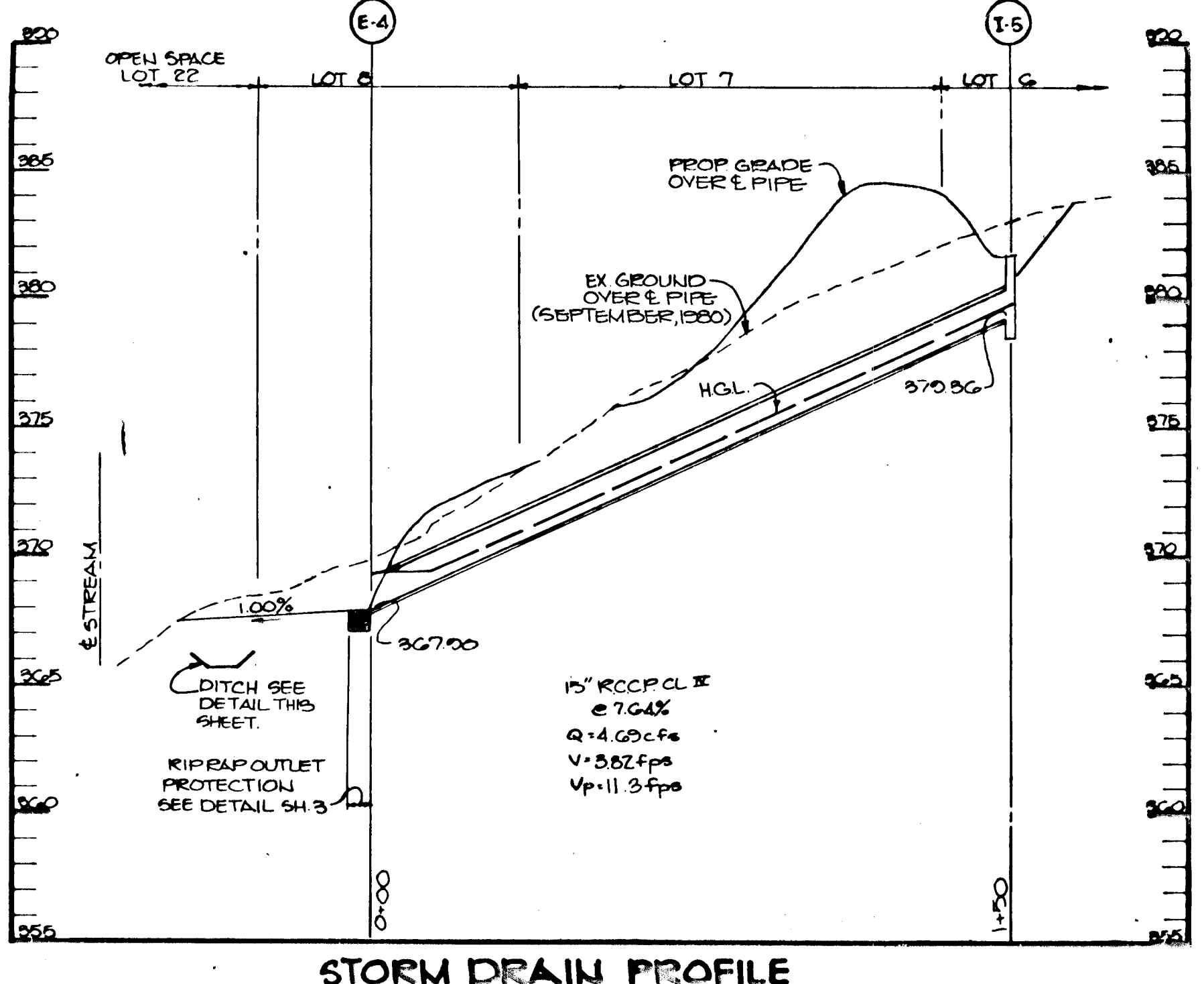
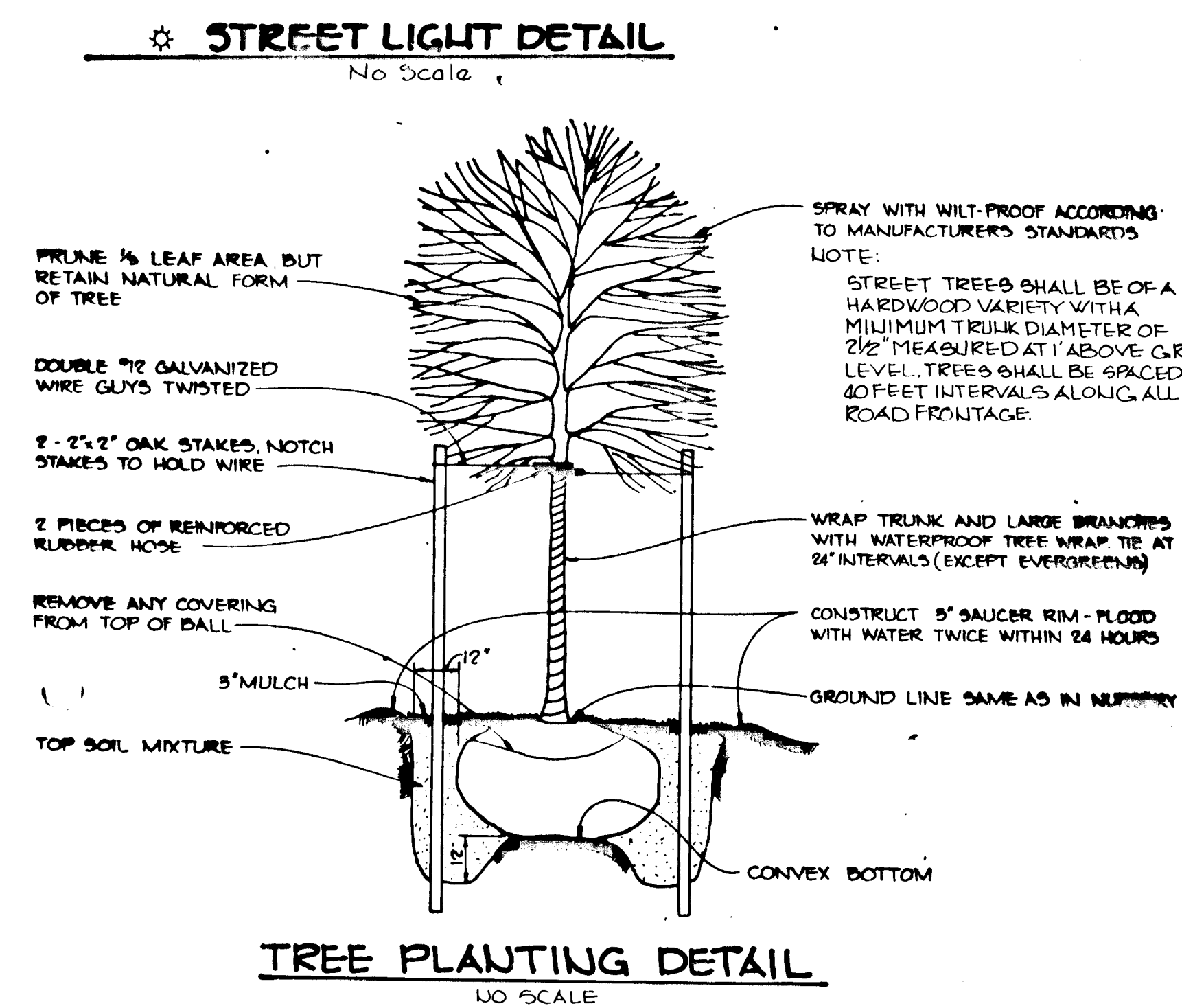
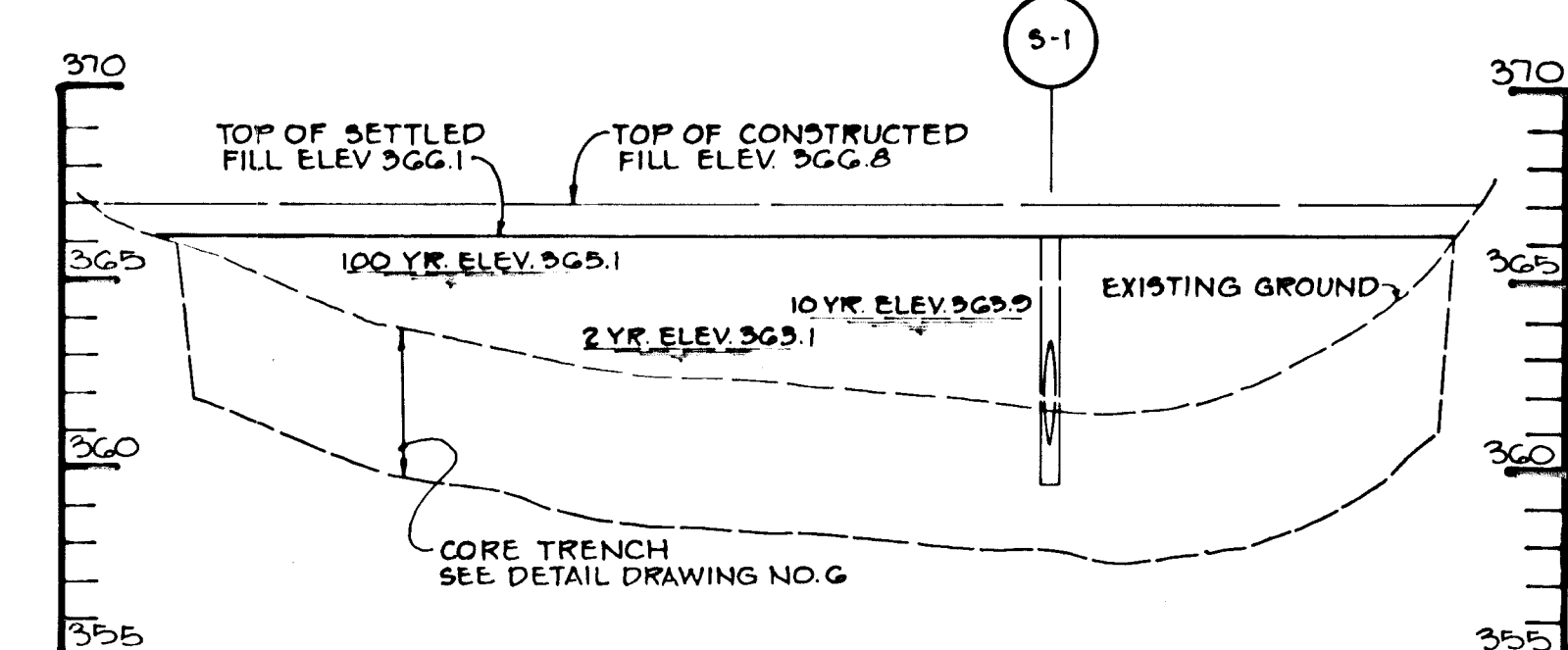
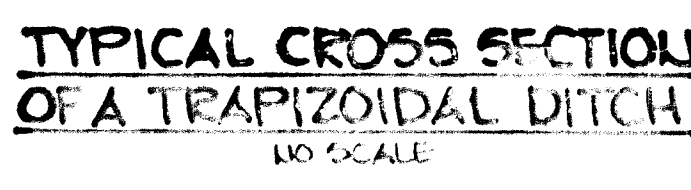


TYPICAL HANDICAP RAMP
NO SCALE

- NOTES:
- ALL LIGHT FIXTURES TO BE SINGLE LUMINAIRE 200 WATT MERCURY TYPE 1/2" HIGH WITH METAL POLES AND DIRECTED DOWNWARD.
 - LOCATIONS OF LIGHT FIXTURES ARE ON THE PLAN AND ARE SHOWN THUS #.
 - LIGHTS TO BE MODULE II TYPE AS MANUFACTURED BY MOLDCAST OR APPROVED EQUAL.
 - POLE AND FIXTURE TO HAVE BRONZE POLYESTER ENAMEL FINISH.
 - POLE TO BE LOCATED 3' BACK FROM BACK OF CURB.



STRUCTURE	MEDIUM STONE DIA.	LENGTH (L)	WIDTH (W)	THICKNESS (T)
E-1	6"	10'	15"	15"
E-3	2"	15'	17"	18"
E-4	2.5"	4'	5"	6"



BY THE DEVELOPER:

"I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Richard Azrael 1/6/86
DEVELOPER RICHARD AZRAEL DATE

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Arthur E. Muegge 1-6-86
ENGINEER ARTHUR E. MUEGGE #8707 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 1-9-86
U.S. SOIL CONSERVATION SERVICE DATE

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

APPROVED: *Richard W. Zickel* 1-9-86
HOWARD S.C.D. DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

John W. Marshman 1-9-86
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

William S. R. ... 1-9-86
CHIEF, BUREAU OF ENGINEERING DATE

REVISIONS:

DATE	NO.	REVISION
1-20-86	1	REVISED QTY'S IN PROFILES AND THE TRAPEZOIDAL DITCH @ E-4

OWNER/DEVELOPER: CHATEAU BUILDERS, INC. 8100 WOODED GLEN COURT ELLICOTT CITY, MARYLAND 21043

PROJECT: THE WILLOWS
SECTION 1, AREA 1 LOTS 1 THRU 22

AREA: TAX MAP NOS 24 & 30
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN PROFILES AND DETAILS

THE RIEMER GROUP, INC.
A LAND PLANNING, DESIGN & CIVIL ENGINEERING FIRM
13105 HEALTH PARK DRIVE, ELLICOTT CITY, MD. 21043 301 461-2650

DATE: 1-6-86
PARCEL 100

DESIGNED BY: L.J.D.
DRAWN BY: T.E.S.
PROJECT NO: 15023
DATE: JANUARY 2, 1986
SCALE: AS SHOWN
DRAWING NO. 4 OF 6

SEDIMENT TRAP NO. 1 - 308T ST W
 DRAINAGE AREA 2.05 AC.
 DISTURBED AREA 2.05 AC.
 STORAGE REQUIRED 36,300 CU. FT.
 STORAGE PROVIDED 37,200 CU. FT.
 CREST ELEV. 362.00
 CLEANOUT ELEV. 366.50
 BOTTOM DIMENSIONS 14' x 56'
 LENGTH 8'

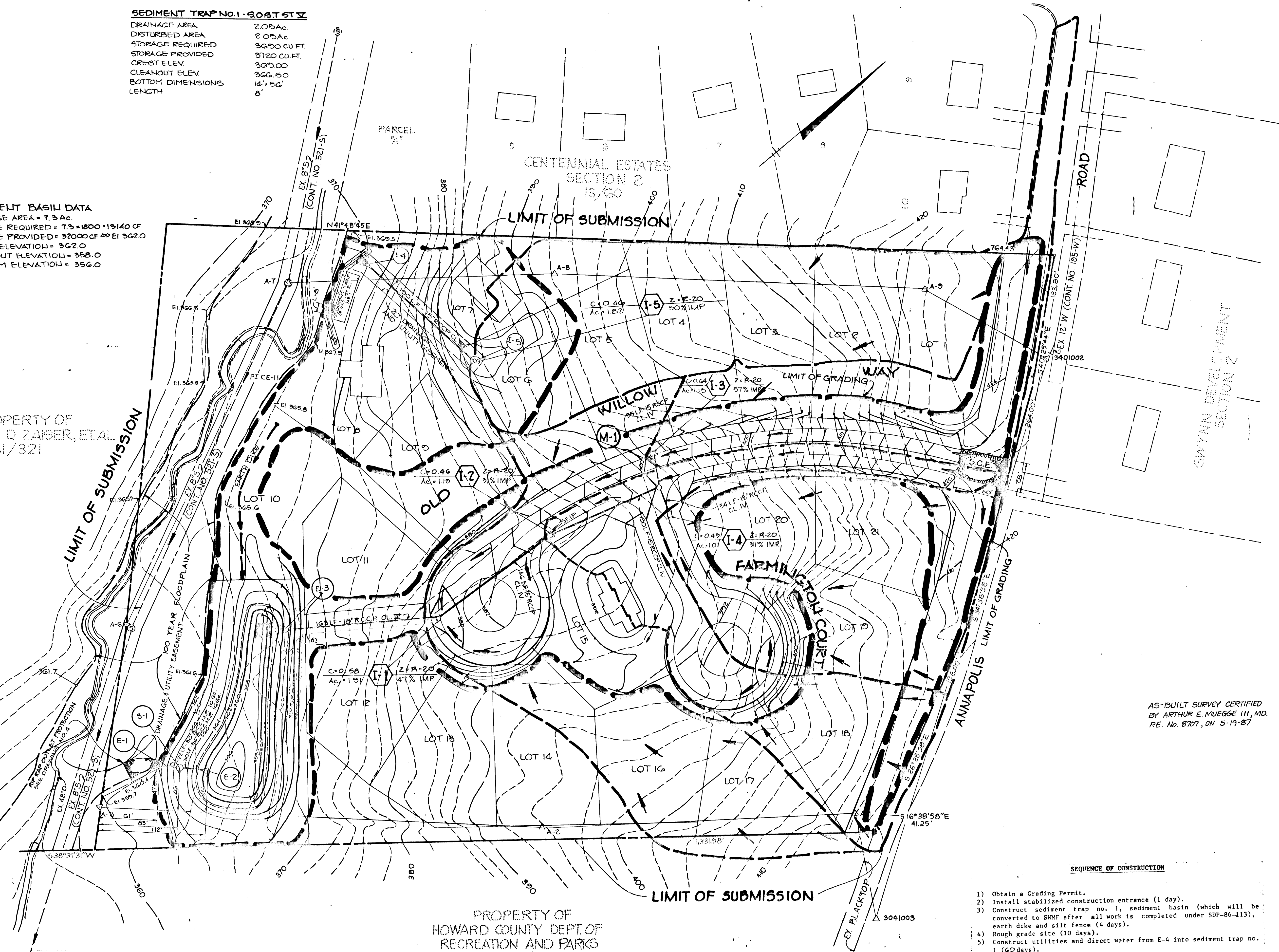
SEDIMENT BASIN DATA
 DRAINAGE AREA = 7.3 AC.
 VOLUME REQUIRED = 7.3 x 1800 = 13140 CF
 VOLUME PROVIDED = 32000 CF @ EL. 362.0
 CREST ELEVATION = 362.0
 CLEANOUT ELEVATION = 358.0
 BOTTOM ELEVATION = 356.0

PROPERTY OF
 ROLAND D ZABER, ETAL
 B31/321

PROPERTY OF
 HOWARD COUNTY DEPT. OF
 RECREATION AND PARKS
 B85/76

STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	INV IN	INV OUT	TOP ELEVATION	DESCRIPTION
I-1	A-10	Sta. 14+00 L.P.	374.60	374.37	379.91	H.C. 618 600 402
I-2	A-5 w/Defl.	Sta. 34+31 14'R	379.00	378.80	384.14	H.C. 618 600 402
I-3	A-10 w/Defl.	Sta. 34+79 14'R	-	386.00	390.57	H.C. 618 600 402
I-4	A-5	Sta. 04+54 12'R	-	385.96	390.78	H.C. 618 600 402
M-1	Shallow M.I.	Sta. 04+70 16'L	384.56	384.36	389.91	H.C. 618 600 402
E-1	8" CONC. L.S.	SEE PLAN	362.00	360.50	366.10	H.C. 618 600 402
E-2	36" CONC. L.S.	SEE PLAN	360.00	-	-	H.C. 618 600 402
E-3	36" CONC. L.S.	SEE PLAN	360.00	-	-	H.C. 618 600 402
E-4	18" CONC. L.S.	SEE PLAN	362.00	-	-	H.C. 618 600 402
E-5	36" CONC. L.S.	SEE PLAN	360.00	-	-	H.C. 618 600 402

** THROAT OPENING
 * RIM ELEVATION



AS-BUILT SURVEY CERTIFIED
 BY ARTHUR E. MUEGGE III, MD.
 P.E. No. 8707, ON 5-19-87

- 1) Obtain a Grading Permit.
- 2) Install stabilized construction entrance (1 day).
- 3) Construct sediment basin (which will be converted to SWMF after all work is completed under SDP-86-113), earth dike and silt fence (4 days).
- 4) Rough grade site (10 days).
- 5) Construct utilities and direct water from E-4 into sediment trap no. 1 (60 days).
- 6) Complete construction and stabilize in accordance with permanent seeding notes (10 days).
- 7) The developer shall maintain all sediment control devices until all site work for SDP-86-113 has been completed and stabilized in accordance with the permanent seeding notes.
- 8) Upon approval of the Department of Public Works Sediment Control Inspector, remove all sediment control devices and convert sediment basin to storm water management facility as follows:
 - a) Pump out impounded water
 - b) Remove sediment and place as directed by the Department of Public Works Sediment Control Inspector
 - c) Restore basin to original dimensions as shown on the grading and sediment control plan
 - d) Stabilize all disturbed areas as per the permanent seeding notes.

BY THE DEVELOPER:
 "I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
 Richard Azrael 1-6-86
 DEVELOPER DATE
 RICHARD AZRAEL

BY THE ENGINEER:
 "I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
 Arthur E. Muegge 1-6-86
 ENGINEER DATE
 ARTHUR E. MUEGGE

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. Helms 1-9-86
 U.S. SOIL CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 Howard S. Johns 1-9-86
 HOWARD S. J.D. DATE

APPROVED: Howard County Department of Planning and Zoning
 John W. Muehlman 1-9-86
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Arthur E. Muegge 1-10-86
 CHIEF, BUREAU OF ENGINEERING DATE

DATE	NO.	REVISION

OWNER/DEVELOPER
 CHATEAU BUILDERS, INC.
 8100 WOODEN GLEN COURT
 ELLICOTT CITY, MARYLAND 21043

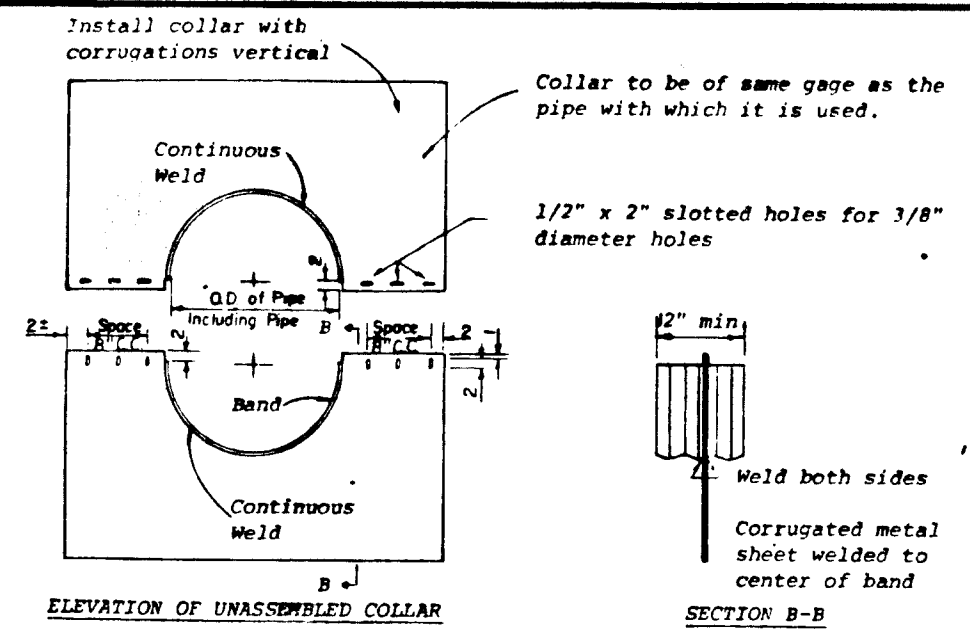
PROJECT: THE WILLOWS
 SECTION 1, AREA 1 LOTS 1 THRU 22

AREA TAX MAP NOS. 24130
 2ND ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: DRAINAGE AREA MAP, SEDIMENT CONTROL AND STORM WATER MANAGEMENT PLAN

THE RIEMER GROUP, INC.
 The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
 3105 Health Park Drive, Ellicott City, Maryland 21043 (301) 481-2000

1-6-86 DATE
 PARCEL 160
 DESIGNED BY: L.J.D.
 DRAWN BY: L.S.T.
 PROJECT NO. 15803
 DATE: JANUARY 2, 1986
 SCALE: 1"=50'
 DRAWING NO. 5 OF 6



NOTES FOR COLLARS:

- All materials to be in accordance with construction and construction material specifications.
- When specified on the plans, coating of collars shall be in accordance with construction and construction material specifications.
- Unassembled collars shall be marked by painting or tagging to identify matching pairs.
- The lap between the two half sections and between the pipe and connecting band shall be caulked with asphalt mastic at time of installation.
- Each collar shall be furnished with two 1/2" diameter rods with standard tank lugs for connecting collars to pipe.

ANTI-SEEP COLLAR
NO SCALE

SEDIMENT CONTROL NOTES

- 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)
- 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 EROSION AND SEDIMENT CONTROL.
- Following initial soil disturbance or redistribution, 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 all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT 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.
- 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.
- Site Analysis:

Total Area of Site	12.28 acres
Area Disturbed	2.4 acres
Area to be roofed or paved	1.0 acres
Total Cut	2.4 cu. yds.
Total Fill	1067 Cu. yds.
	2300 Cu. yds.
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment controls must be provided, if deemed necessary by the Howard County DPW sediment control inspector.
- Site grading will begin only after all perimeter sediment control measures have been installed and are in a functioning condition.
- Sediment will be removed from traps when its depth reaches the clean out elevation shown on the plans.

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

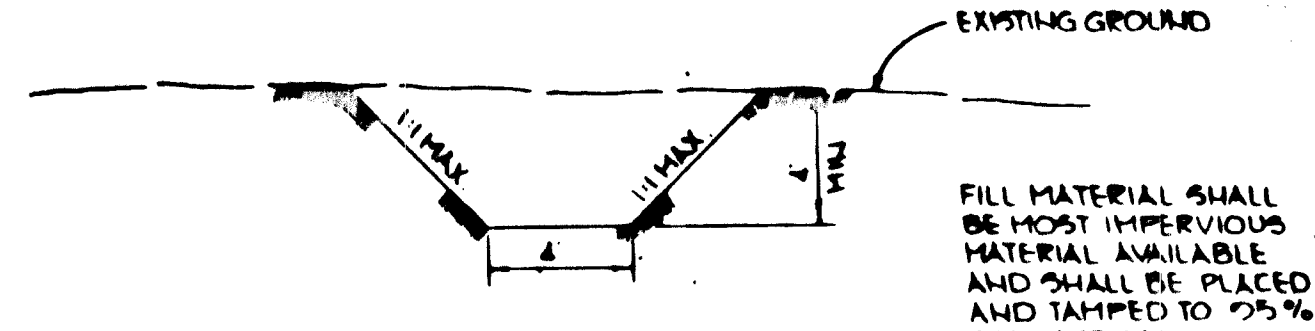
Seeded Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding.

Soil Amendments: Apply 0-20-20 fertilizer at the rate of 600 lbs. per acre. Harrow or disc lime and 0-20-20 fertilizer into the soil to a minimum depth of 3". Lawns or high maintenance areas will be dragged and leveled with a York rake. At the time of seeding, apply 400 lbs. of 30-0-0 ureaform fertilizer and 500 lbs. of 10-20-20 or equivalent fertilizer per acre.

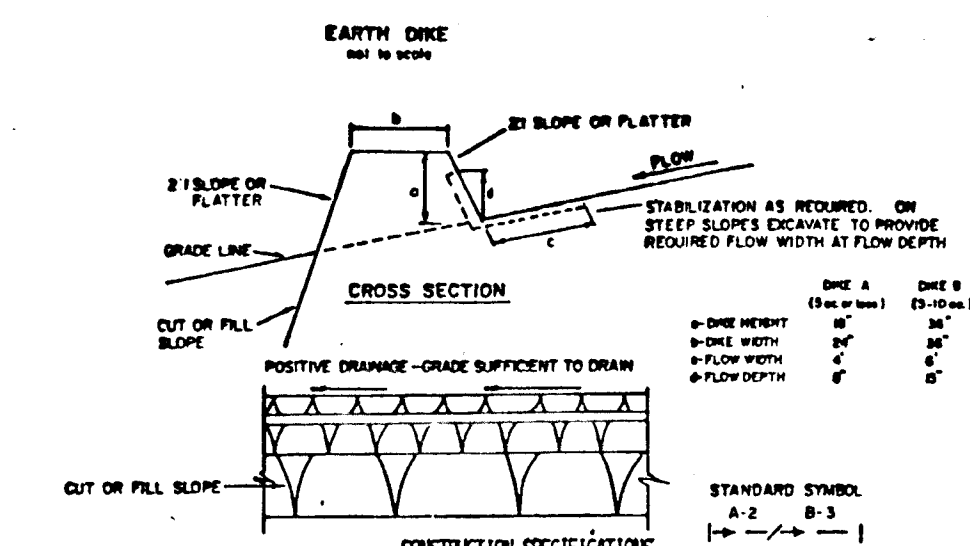
Seeding: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 40 lbs. per acre (1 lb/1000 sq.ft.) of a mixture of certified 'Merion' Kentucky bluegrass; common Kentucky bluegrass @ 40 lbs. per acre (1 lb./1000 sq.ft.) and Red Fescue, Pennlawn or Jamestown @ 20 lbs. per acre (0.5 lb./1000 sq.ft.) for the period May 1 thru July 31, seed with 40-40-20 mix as specified above and 2 lbs. per acre (0.05 lbs./1000 sq.ft.) of weeping lovegrass. During the period of 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 40-40-20 mix specified above and mulch with 2 tons/acre well-anchored straw.

Mulching: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs./1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq.ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal./1000 sq.ft.) for anchoring.

Maintenance: Inspect all seeded areas and make needed repairs, replacements and reseedings.

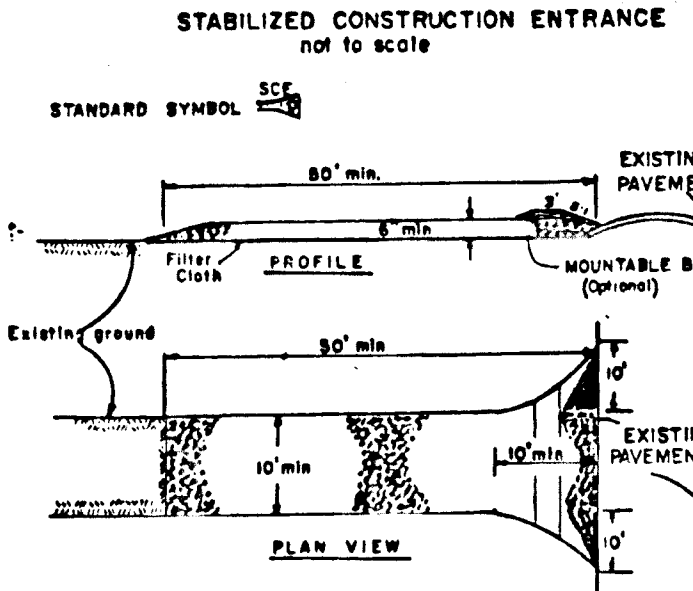


COPE TRENCH TYP. SECTION
NO SCALE



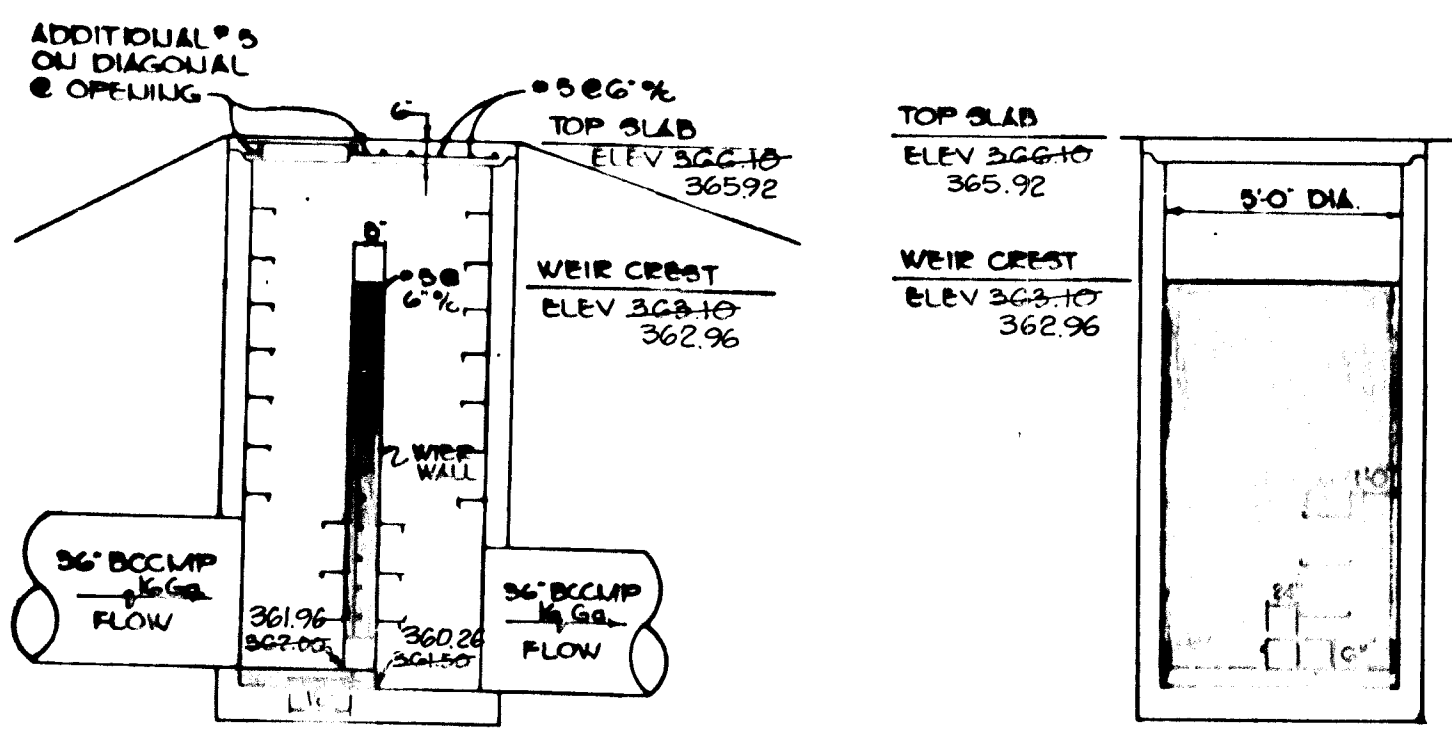
- All dikes shall be compacted by earth-moving equipment.
 - All dikes shall have positive drainage to an outlet.
 - Top width may be wider and side slopes may be flatter if desired to facilitate crossing by construction traffic.
 - FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
 - EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. DIKES SHALL BE COVERED 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 REGULARLY 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 CHANNEL AS PER THE OWNER'S DESIGN.
- | TYPE OF TREATMENT | CHANNEL GAGE | DIKE A | DIKE B |
|-------------------|--------------|-----------------------------------|---|
| 1 | 5-3.00 | SEED AND STRAW MULCH | SEED AND STRAW MULCH |
| 2 | 3.1-5.00 | SEED AND STRAW MULCH | SEED USING JUTE, OR EXCELISUR, SOOT, 2" STONE |
| 3 | 5.1-8.00 | SEED WITH JUTE, OR SOOT, 2" STONE | LINED RIP-RAP 4-8" |
| 4 | 8.1-200 | LINED RIP-RAP 4-8" | ENGINEERING 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. RETURN 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
NOT TO SCALE

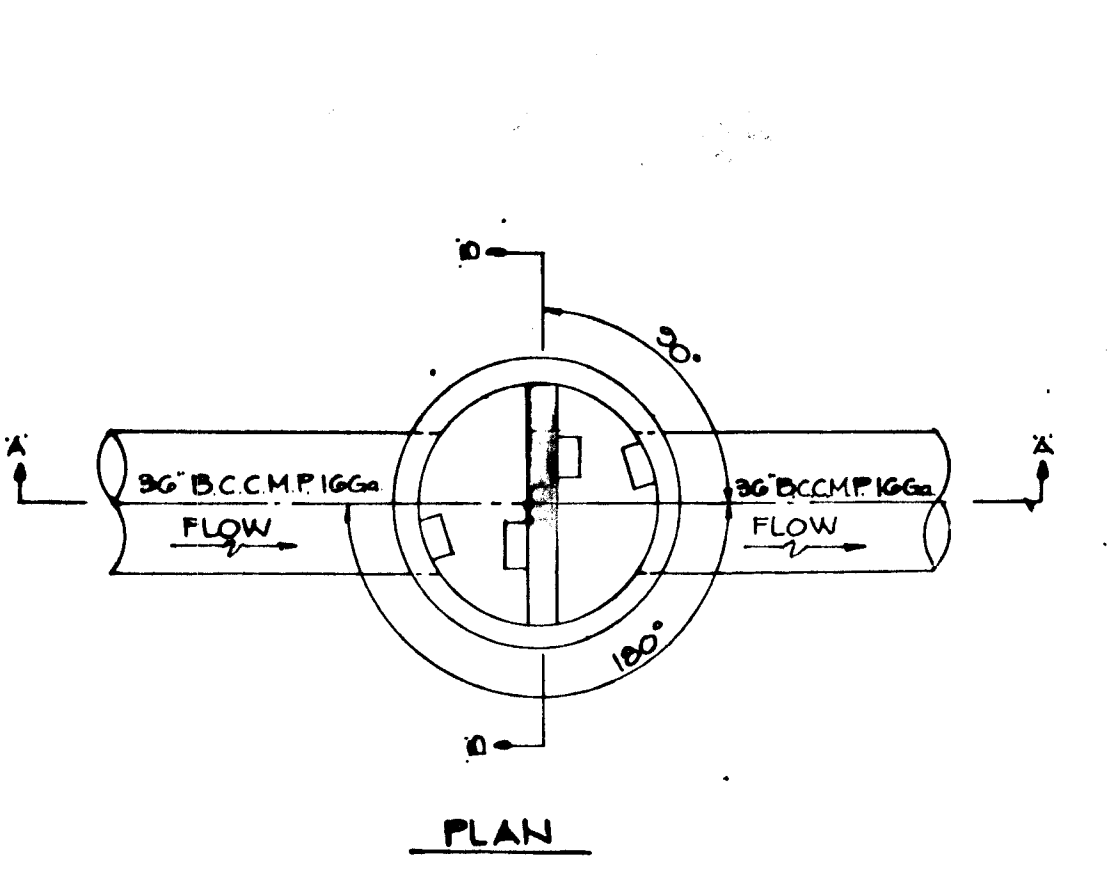


- Stone Size - One (1) stone, or recycled or recycled concrete equivalent.
- Length - As required, but not less than 50 feet (except on a single real-estate lot where a 20 foot minimum length would apply).
- Thickness - Not less than six (6) inches.
- Width - Two (2) foot minimum, but not less than the full width at points where ingress or egress occurs.
- Filter Cloth - Will be placed over the entire area just to the construction entrance shall be piped across the entrance, if piping is impractical, a screenable berm with 3/4" slopes will be provided.
- Maintenance - The entrance shall be maintained in a condition which will prevent tracking of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or closures of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
- Warning - Shields shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When warning is required, it shall be done on an area stabilized with stone and which is into an approved sediment trapping device.
- Periodic inspection and needed maintenance shall be provided after each rain event.

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



S.W.M. CONTROL STRUCTURE FOR S-1
NO SCALE



- ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH NO. CO. STANDARD DETAIL G-13 IS 8" DIA. STANDARD PRECAST MANHOLE EXCEPT FOR MODIFICATIONS TO TOP OLD MANHOLE STEPS AND WEIR WALL.
- ALL REBAR SHALL HAVE A 2" MIN. CLEARCOVER.
- MANHOLE OPENINGS SHALL BE A SIDE-WALK FRAME AND COVER PER NO. CO. STD DETAIL SD-3-D1
- COVER EVERY OTHER HORIZONTAL REBAR IN WEIR WALL & INTO MANHOLE WALLS GROUT HOLDS WITH LOW-SHrink GROUT PRIOR TO POURING WEIR WALL.

- SITE PREPARATION**
Areas under the borrow areas, embankment, and structural works shall be cleared, grubbed and the topsoil stripped to remove all trees, vegetation, roots or other objectionable material. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.
Areas covered by the pond or 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.
All cleared and grubbed material shall be disposed of outside the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be accepted 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 area or areas. It shall be free of roots, stumps, wood, rubbish, curbside stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including freeboard) as shown on the plans.
Placement:
Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in 8 inch maximum thickness (unless compacted) layers which are to be compacted over the entire length of the fill. The most porous borrow material shall be placed in the downstream portions of 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 tired or vibratory roller. Fill material shall contain sufficient moisture to obtain the required degree of compaction can be obtained with the equipment used.
Cutoff Trench:
Where specified, a cutoff trench shall be excavated 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 minimum width required for excavation, with the minimum width being four feet. The depth shall be at least four feet or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill material for the cutoff trench shall be the most impervious material available and shall be compacted with equipment or rollers to assure maximum density and minimum permeability.
- STRUCTURAL BACKFILL**
Backfill material shall be of the type and quality conforming to that specified for the adjoining fill material. The backfill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other 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 one foot, measured horizontally, to any part of a structure. Under no circumstances shall any part of a structure, under any part of a concrete structure or pipe unless there is a compacted fill of twenty-four inches or greater over the structure or pipe.
- CORRUGATED METAL PIPE**
Material:
(Steel Pipe)-This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of ASTM Specification A500 Type A with watertight coupling bands. Any bituminous coating damaged or scratched removed shall be replaced with cold applied bituminous coating compound.
Connections:
All connections with pipes must be completely watertight. The drain pipe or barrier shall be completely watertight. Weirlight coupling bands shall be used at all joints. Antiseep collars shall be connected to the pipe in such a manner as to be completely watertight.
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 soil shall be removed and replaced with suitable earth compacted to provide adequate support.
CONCRETE
Material:
1. Cement - Normal Portland cement shall conform to the latest ASTM Specification C-150.
2. Water - The water used in concrete shall be clean, free from oil, acid, alkali, scales, organic matter or other objectionable substances.
3. Sand - The sand used in concrete shall be clean, hard, strong and durable, and shall be well graded with 100 percent passing a one-quarter inch sieve. Limestone sand shall not be used.
4. Course Aggregate - The coarse aggregate shall be clean, hard, strong and durable, and free from clay or dirt. It shall be well graded with a maximum size of one and one-half (1-1/2) inches.
5. Reinforcing Steel - The reinforcing steel shall be deformed bars of intermediate grade billet steel or rail steel conforming to ASTM Specification A-615.
Mixing:
The concrete ingredients shall be mixed in the following proportions, measured by weight: The water-cement ratio shall be 3.5 to 4.0; 60 gallons of water per 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:3. The combination of aggregate may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honeycombing in the structure.
Placing:
The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicated on proper control of the moisture, including water in the mixer. Water shall be added prior to, during, and following the mixer-charging operations. The concrete shall be placed in the forms in a continuous manner. The required concrete consistency shall not be operated. Truck discharging shall be maintained during the placing of concrete to cause no violation of any applicable provisions of the specifications given here.
Forms:
The forms shall have sufficient strength and rigidity to hold the concrete in place until the necessary pressure is removed, and vibration without deflection from the prescribed lines. They shall be mortar-tight and constructed so that they can be removed without hammering or prying against the concrete.
The inside of forms shall be oiled with a non-staining mineral oil or thoroughly wetted before concrete is placed.
Forms may be removed 24 hours after the placement of concrete. All wire ties and other devices used shall be present from the surface of the concrete.
Reinforcing Steel:
All reinforcing material shall be free of dirt, rust, scale, oil, paint or other coatings. The steel shall be accurately placed and securely tied and blocked into position so that no movement of the steel will occur during placement of concrete.
Consolidation:
Concrete shall be consolidated with internal type mechanical vibrator. Vibration shall be supplemented by spading and hand tamping as necessary to insure smooth and dense concrete along form surfaces, in corners, and around embedded items.
Finishing:
Defective concrete, honeycombed areas, voids left by the removal of the rods, riffs on all concrete surfaces previously exposed to view or exposed to water on the finished structure, shall be repaired immediately after the concrete has set. All voids shall be reamed and completely filled with dry-packing mortar.
Protection and Curing:
Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by spraying or sprinkling as necessary to prevent the concrete from drying. Concrete shall not be exposed to freezing during the curing period. Curing compounds may also be used.
Placing Temperature:
Concrete may not be placed at temperatures below 37° F with the temperature falling, or 34° with the temperature rising.
- STABILIZATION**
All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, apron and berm shall be stabilized by seeding, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications shown on or accompanying the drawings.

BY THE DEVELOPER:

"I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Richard Azrael 1/6/86
DEVELOPER
RICHARD AZRAEL DATE

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Arthur E. Muegge 1-6-86
ENGINEER
ARTHUR E. MUEGGE 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 McDaniel 1-9-86
U.S. SOIL CONSERVATION SERVICE DATE

APPROVED *Robert J. Jahn* 1-9-86
HOWARD S.F.D. DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

John W. Hurdman 1-9-86
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Robert E. R. Smith 1-10-86
CHIEF, BUREAU OF ENGINEERING DATE

DATE	NO	REVISION

OWNER/DEVELOPER
CHATEAU BUILDERS, INC.
8100 WOODED GLEN COURT
ELLCOTT CITY, MARYLAND 21043

PROJECT: **THE WILLOWS**
SECTION I, AREA 1, LOTS 1 THRU 22

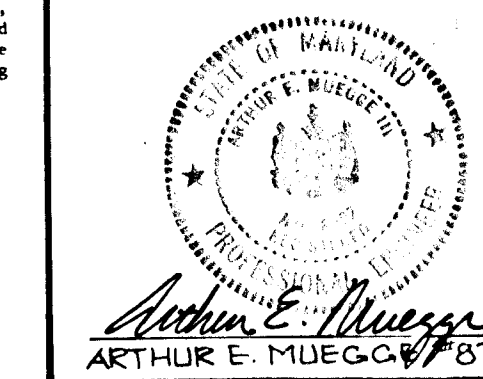
AREA: TAX MAP 12'S 24 & 30
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: **SEDIMENT CONTROL DETAILS**

THE RIEMER GROUP, INC.
A LAND PLANNING, DESIGN & CIVIL ENGINEERING FIRM
3105 HEALTH PARK DRIVE, ELLCOTT CITY, MD. 21043 301 461-2690

1-6-86
DATE

DESIGNED BY: LJD
DRAWN BY: JCU
PROJECT NO: 15003
DATE: JANUARY 2, 1986
SCALE: AS SHOWN
DRAWING NO. C OF C



AS-BUILT SURVEY CERTIFIED BY
ARTHUR E. MUEGGE III, MD P.E.
No. 8707, ON 5-19-87