REVISIONS

COLUMBIA

HOWARD COUNTY, MARYLAND

6TH ELECTION DISTRICT

ROAD CONSTRUCTION PLANS

VILLAGE OF OAKLAND MILLS SEC. I
THUNDER HILL AREA 4

NOTES

1. ALL DETAILS ARE FROM THE ROAD CONSTRUCTION CODE AND STANDARD SPECIFICATATIONS ISSUED OR APPROVED BY THE COUNTY COMMISSIONERS AND THE HOWARD COUNTY ROAD DEPARTMENT.

2. ALL ROADS ARE DESIGNED FOR 25mph. TRAFFIC SPEED IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIAL STANDARDS.

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3.	LIGHTNING VIEW ROAD AND WEATHERSIDE RUN
4.	RACEGATE RUN
5.	MARSH HAWK WAY
6.	MARSH HAWK WAY
7.	SPINDRIFT PLACE AND CROWFLOCK COURT
8.	WOLF RIVER LANE
9.	DELPHINIUM COURT
10.	LIME BANKS WAY
11.	THUNDER HILL ROAD
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19.	SOARING HILL ROAD
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23.	PATRIOT LANE
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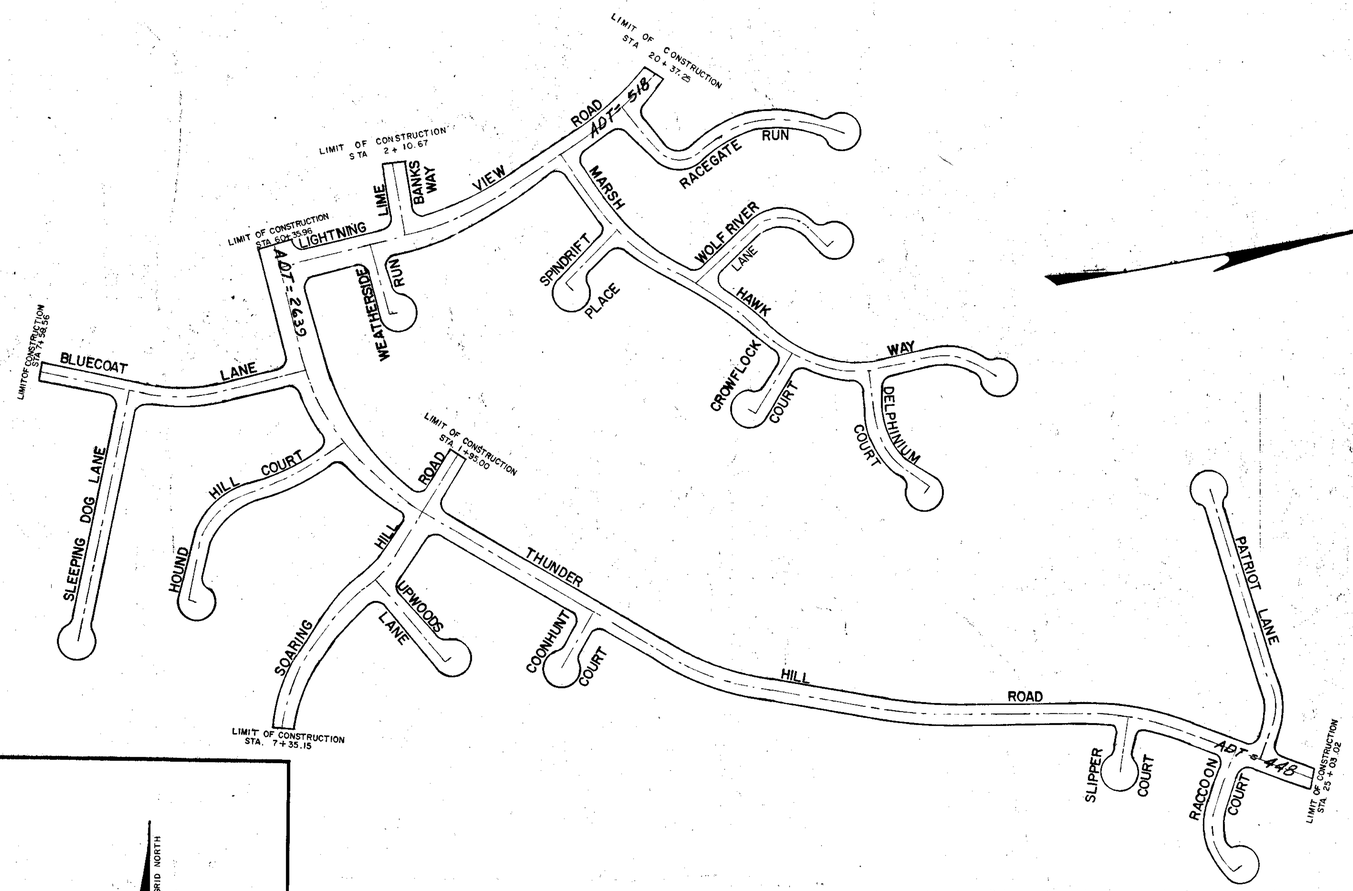
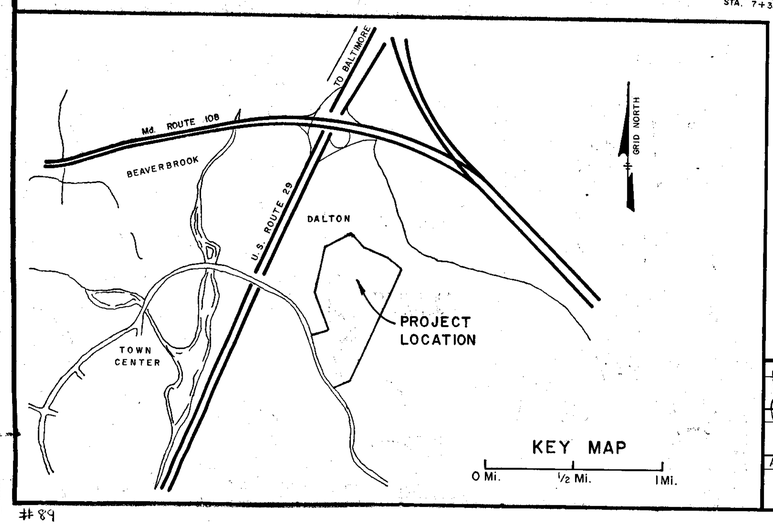




APPROVED HOWARD COUNTY PLANNING COMM.	
CHIEF ENGINEER	3-13-69 DATE
APPROVED HOWARD COUNTY ROADS DEPT.	
ROADS SUPERINTENDENT	3-13-69 DATE
APPROVED HOWARD COUNTY METROPOLITAN COMM.	
CHIEF ENGINEER	3-13-69 DATE

OWNER AND DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS
BALTIMORE, MARYLAND

BROWNE-PANTELLO & ASSOCIATES
ENGINEERS
COLUMBIA MARYLAND

Richard P. Browne 5238

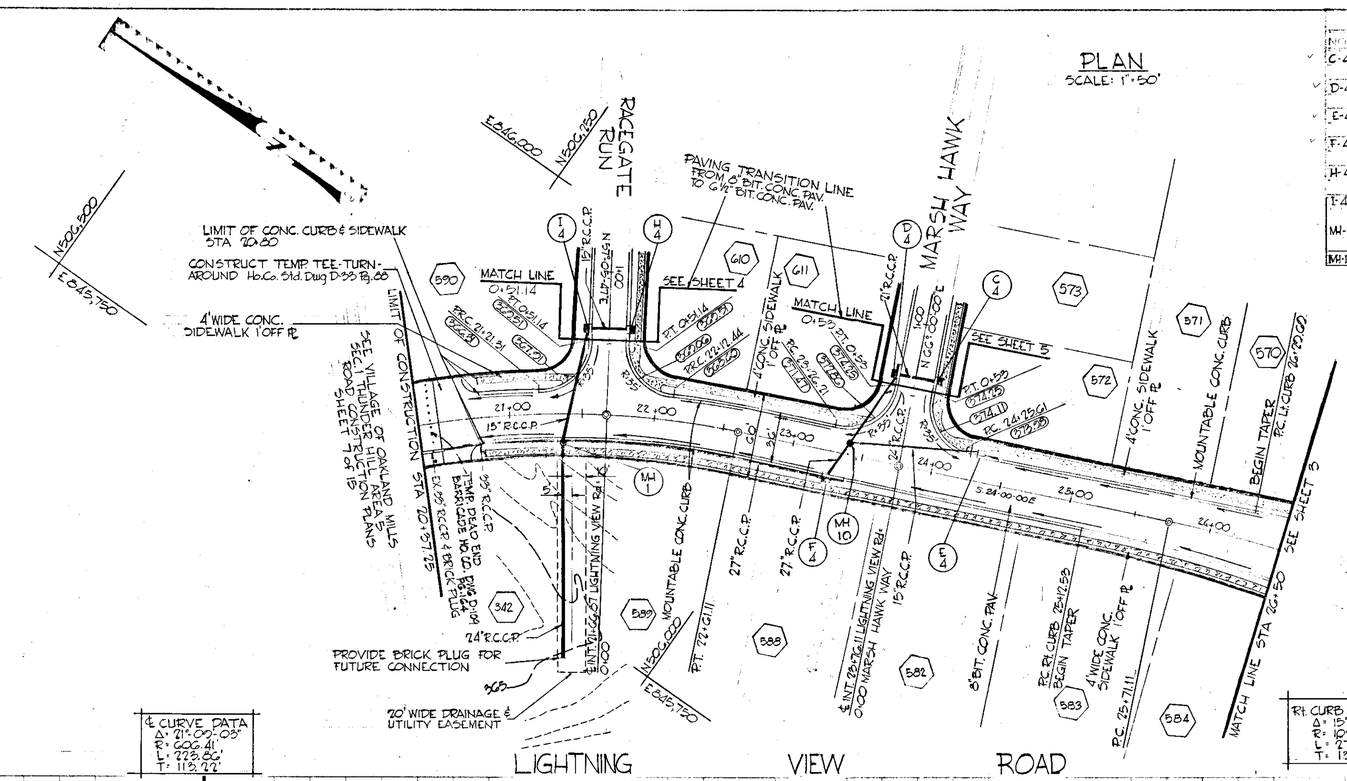
STATE OF MARYLAND RICHARD P. BROWNE REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR

#89

F-68-93

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	TOP	INV. OUT	GRATE	REMARKS
C-4	A-5 INLET	℄ Sta. 0+60.5 Rt. MARSH HAWK WAY (℄ INLET)	368.58	368.88	374.72	SEE DETAIL
D-4	B-10 INLET	UP: ℄ Sta. 0+60.55 Lt. MARSH HAWK WAY	367.96	367.71	374.80	" "
		DOWN: ℄ Sta. 0+55 Lt. " "			374.56	
E-4	B-15 INLET	UP: ℄ Sta. 24+17.88 LIGHTNING VIEW		370.24	374.60	" "
		DOWN: ℄ Sta. 24+51 Lt. ROAD			374.28	
F-4	B-15 INLET	UP: ℄ Sta. 23+41.88 Rt. LIGHTNING	366.60	365.23	372.02	" "
		DOWN: ℄ Sta. 23+25 Rt. VIEW ROAD			371.61	
H-4	A-5 INLET	℄ Sta. 0+60 RACEGATE RUN (℄ INLET)		366.00	370.03	" "
T-4	A-5 INLET	℄ Sta. 0+60 RACEGATE RUN (℄ INLET)	364.00	364.40	370.03	
MH-1	STD MANHOLE	℄ Sta. 21+40 - 21.28 Rt. ℄ LIGHTNING VIEW ROAD	15" - 360.54 24" - 359.70 27" - 359.54	350.04	-	Ho. Co. Std. DWG D-103 Pg. 158
MH-10	STD. MANHOLE	℄ STA. 23+38 - 7' LT. ℄	24" - 367.7 15" - 367.97	366.97	-	HO. CO. STD. DWG D-103 Pg. 158



℄ CURVE DATA
Δ: 21°-00'-03"
R: 600.41'
L: 223.56'
T: 113.22'

Rt. CURB CURVE DATA
Δ: 15°-55'-20"
R: 1027.39'
L: 276.25'
T: 138.98'

℄ CURVE DATA
Δ: 19°-22'-26"
R: 575.74'
L: 207.14'
T: 150.00

Lt. CURB CURVE DATA
Δ: 19°-22'-26"
R: 730.15'
L: 246.00'
T: 124.64'

APPROVED
PLANNING COMMISSION
DATE 3/13/69

RICHARD P. BROWNE 5238

THE RICHARD P. BROWNE ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

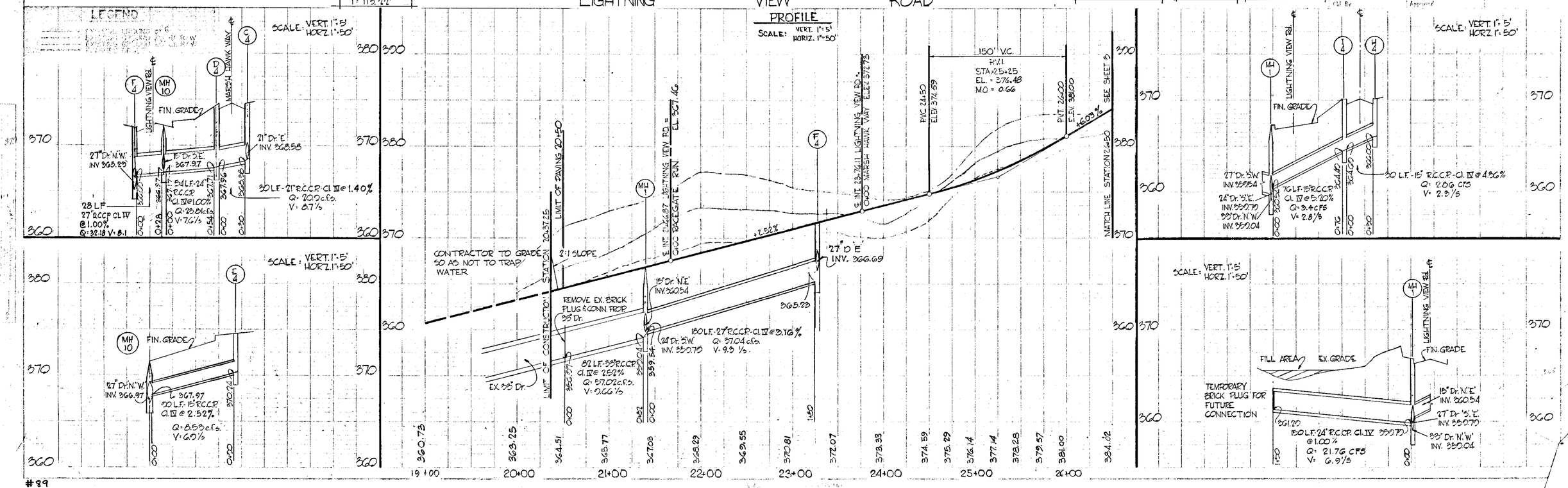
Date	No.	Revision
10-31-68	1	CHANGE OFFSET Rt MH-1

COLUMBIA
M. A. R. Y. L. A. N. D
6TH ELECTION DISTRICT HOWARD COUNTY
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF OAKLAND MILLS, SECTION 1, THUNDER HILL, COLUMBIA, MARYLAND

VILLAGE OF OAKLAND MILLS SECTION 1
THUNDER HILL AREA 4

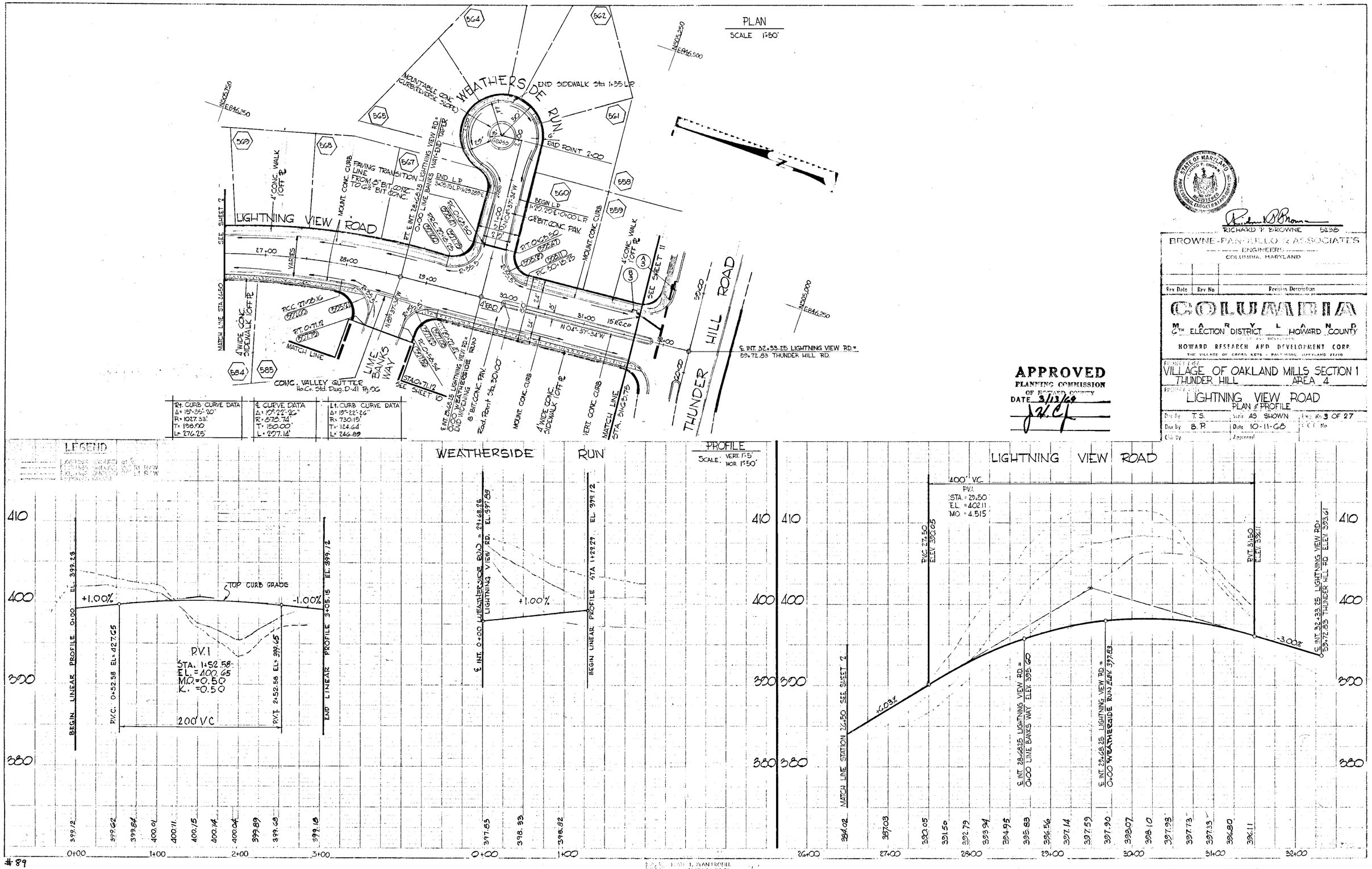
LIGHTNING VIEW ROAD
PLAN & PROFILE

Des. By T.S. | Scale AS SHOWN | Sheet 2 OF 27
Dwn. By B.P. | Date 10-11-68
Ck'd By | Approved



#89

F-68-93



APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

RICHARD P. BROWNE 5238

BROWNE-PANGULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT HOWARD COUNTY
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

PROJECT AREA
VILLAGE OF OAKLAND MILLS SECTION 1
THUNDER HILL AREA 4

PROJECT TITLE
LIGHTNING VIEW ROAD
PLAN & PROFILE

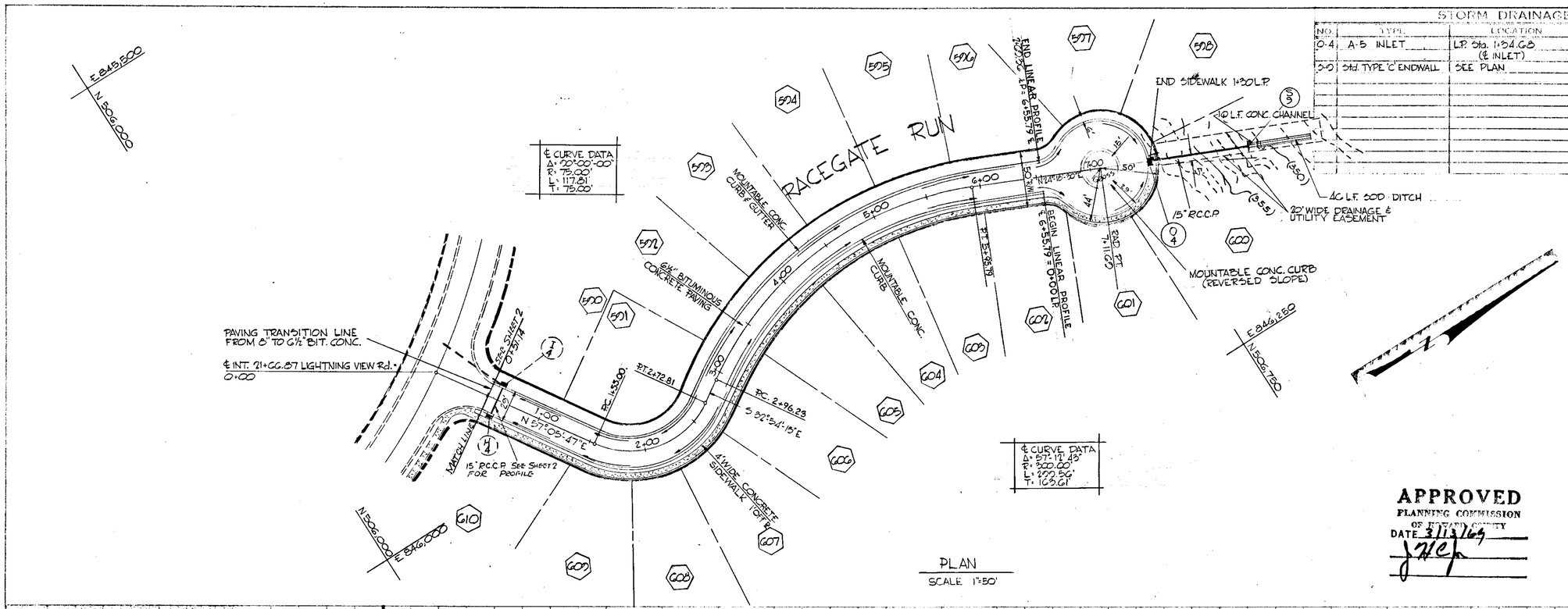
Dwg By T.S.	Scale AS SHOWN	Dwg No 3 OF 27
Drn By B.P.	Date 10-11-68	C.C.F. No
Chk By	Approved	

#89

F-68-93

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	G.E. (EL.)	REMARKS
0-4	A-5 INLET	L.P. Sta. 1+54.68 (℄ INLET)		354.50	360.01	SEE DETAIL SHEET
3-0	Std. TYPE 'C' ENDWALL	SEE PLAN		348.56		Ho.Co. Std Dwg. D-52 Pg. 107



PLAN

SCALE 1"=50'

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/11/69

STATE OF MARYLAND — RICHARD P. BROWNE — REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR

RICHARD P. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev. Date	Rev. No.	Revision Description

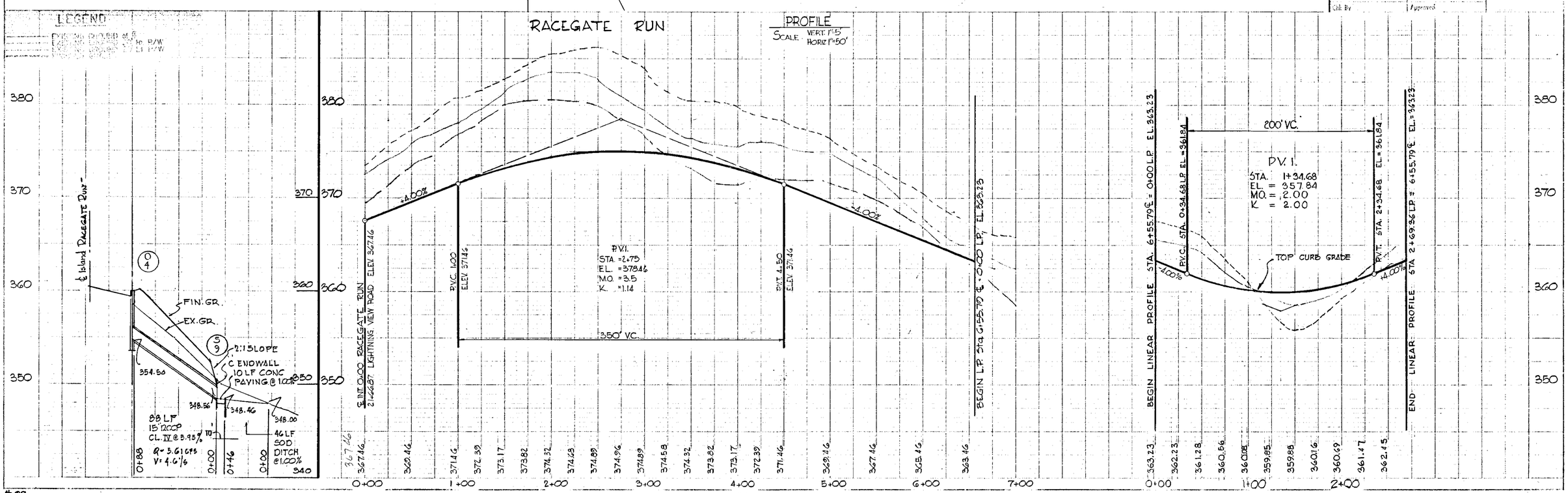
COLUMBIA
MARYLAND
6TH ELECTION DISTRICT — HOWARD COUNTY
OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS · BALTIMORE, MARYLAND 21210

PROJECT AREA
VILLAGE OF OAKLAND MILLS SECT.
THUNDER HILL AREA 4

PROJECT TITLE
RACEGATE RUN
PLAN & PROFILE

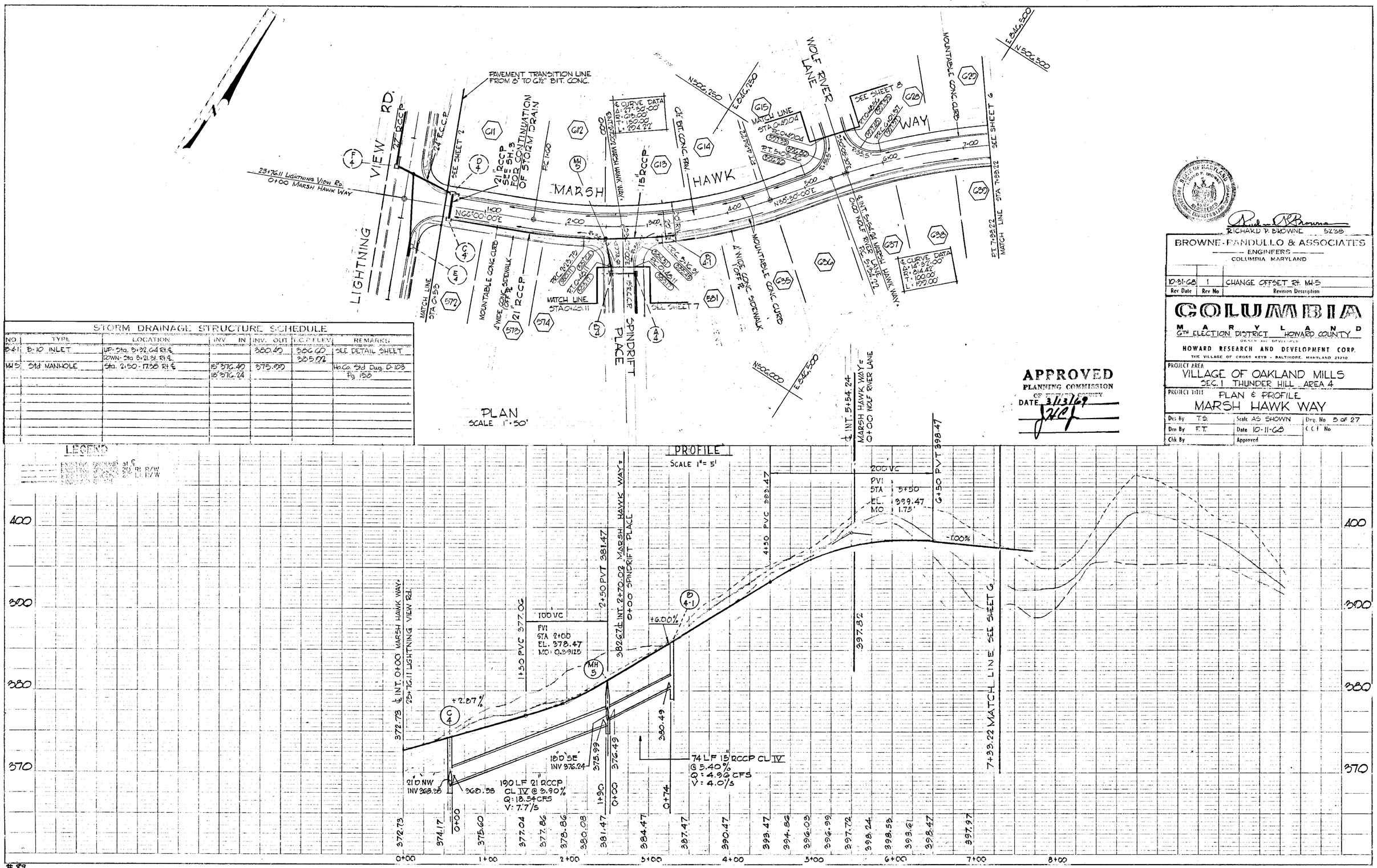
Des. By: T.S.	Scale: AS SHOWN	Dwg. No. 4 OF 27
Drn. By: B.P.	Date: 10-11-68	C.E.R. No.
Ckd. By:	Approved:	

LEGEND
EXISTING PROPERTY LINE
EXISTING CURB & G/W
EXISTING CURB & G/W



#89

F-68-93



STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	T.C.P. ELEV.	REMARKS
B-4-1	B-10 INLET	UP- Sta. 3+32.64 Rt.℄		380.49	386.60	SEE DETAIL SHEET
		DOWN- Sta. 3+21.31 Rt.℄			385.92	
MH 5	Std MANHOLE	Sta. 2+50-17.38 Rt.℄	15" 376.49	375.99		Ho.Co. Std Dwg. D-103
			18" 376.24			Pg 158

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

RICHARD P. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA MARYLAND

Rev Date	Rev No	Revision Description
10-31-68	1	CHANGE OFFSET Rt. MH-5

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT HOWARD COUNTY
OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

PROJECT AREA
VILLAGE OF OAKLAND MILLS
SEC. 1 THUNDER HILL AREA 4

PROJECT TITLE
PLAN & PROFILE
MARSH HAWK WAY

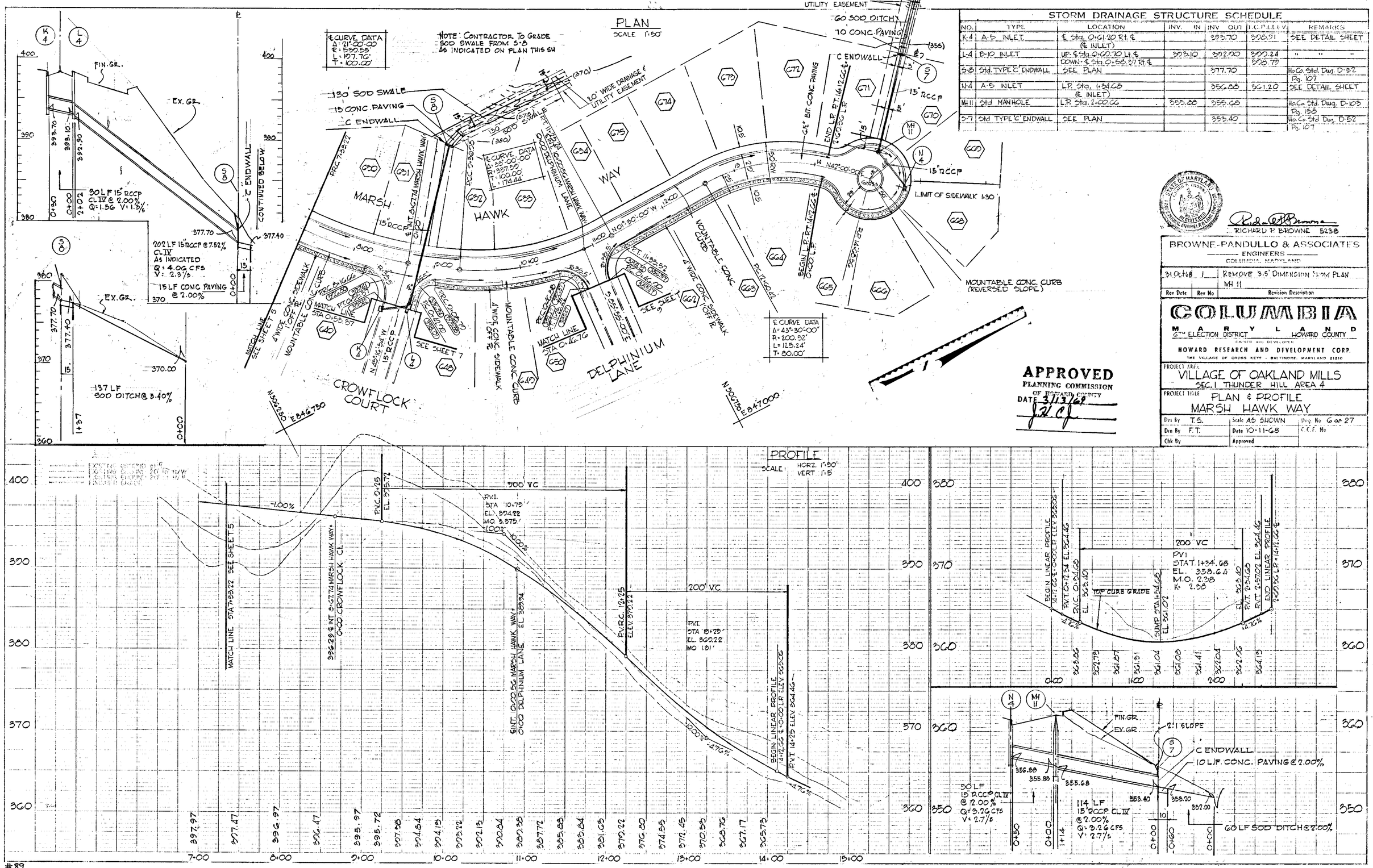
Des By T.S.	Scale AS SHOWN	Dwg. No 5 of 27	
Drn By F.T.	Date 10-11-68	C.C.F. No	
Chk By	Approved		

PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.

F-68-93

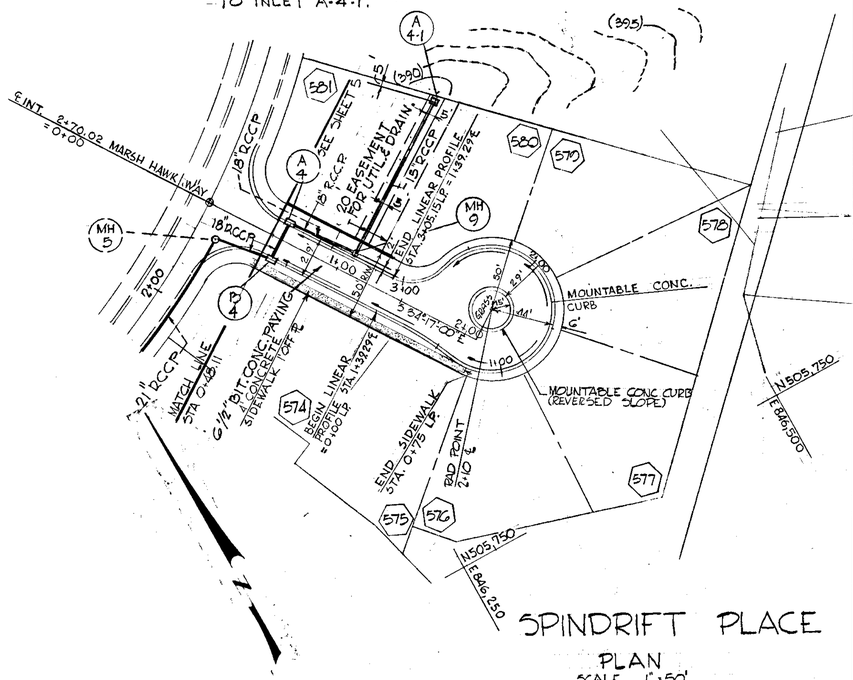
STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV OUT	T.G. ELEV.	REMARKS
K-4	A-5 INLET	℄ Sta. 0+61.20 Rt. ℄ (℄ INLET)		393.70	398.91	SEE DETAIL SHEET
L-4	B-10 INLET	UP: ℄ Sta. 0+60.70 Lt. ℄ DOWN: ℄ Sta. 0+58.37 Rt. ℄	393.10	392.00	397.24	" " "
S-8	Std. TYPE 'C' ENDWALL	SEE PLAN		377.70		Ho. Co. Std. Dwg. D-52 Pg. 107
N-4	A-5 INLET	L.P. Sta. 1+34.68 (℄ INLET)		356.88	361.20	SEE DETAIL SHEET
MH 11	Std MANHOLE	L.P. Sta. 2+00.06	355.88	355.68		Ho. Co. Std. Dwg. D-103 Pg. 156
S-7	Std TYPE 'C' ENDWALL	SEE PLAN		353.40		Ho. Co. Std. Dwg. D-52 Pg. 107



NOTE. CONTRACTOR TO GRADE TO INSURE POSITIVE DRAINAGE TO INLET A-4-1.

NOTE: OPENINGS ON N.E. & E. SIDES 'D' INLET A-4-1

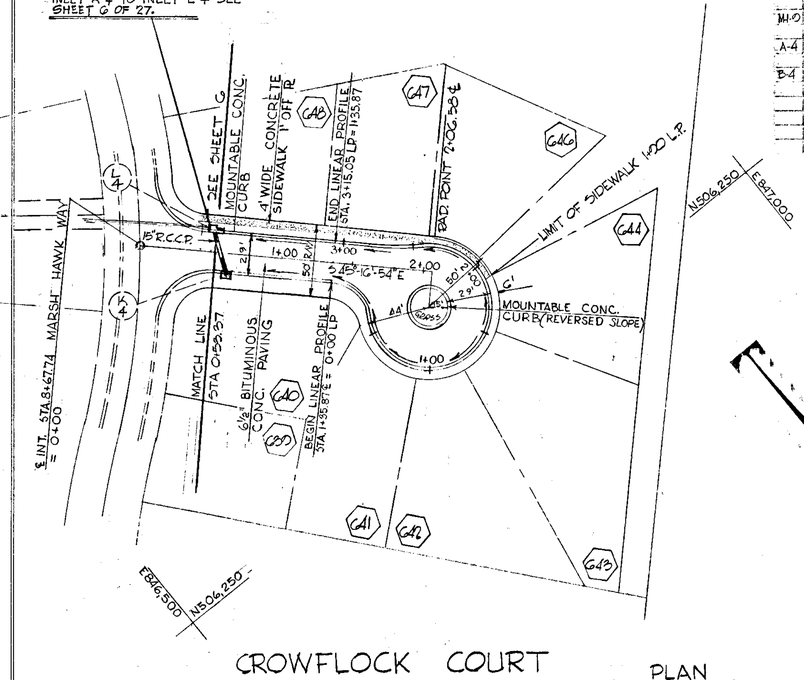


SPINDRIFT PLACE

PLAN

SCALE 1"=50'

NOTE: FOR DRAINAGE PROFILE INLET K-4 TO INLET L-4 SEE SHEET 6 OF 27.



CROWFLOCK COURT

PLAN

SCALE 1"=50'

STORM DRAINAGE STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	INV. IN	INV. OUT	T.C. PER ft.	REMARKS
A-4-1	HOWARD Co. TYPE 'D'	SEE PLAN		384.08		Ho. Co. Std. Dwg. D-65 Pg. 120
MH-9	Std. MANHOLE	℄ Sta. 1+08.11 - 17.25' Lt. ℄	380.63	380.43		Ho. Co. Std. Dwg. D-103 Pg. 158
A-4	A-5 INLET	℄ Sta. 0+55.94 - Lt. ℄ (℄ INLET)	379.45	379.20	383.82	SEE DETAIL SHEET
B-4	A-5 INLET	℄ Sta. 0+55.94 - Rt. ℄ (℄ INLET)	378.00	377.80	383.82	" " "

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

RICHARD P. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA MARYLAND

Rev. Date	Rev. No	Revision Description
10-31-68	1	CHANGE OFFSET Lt. MH-9

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT HOWARD COUNTY

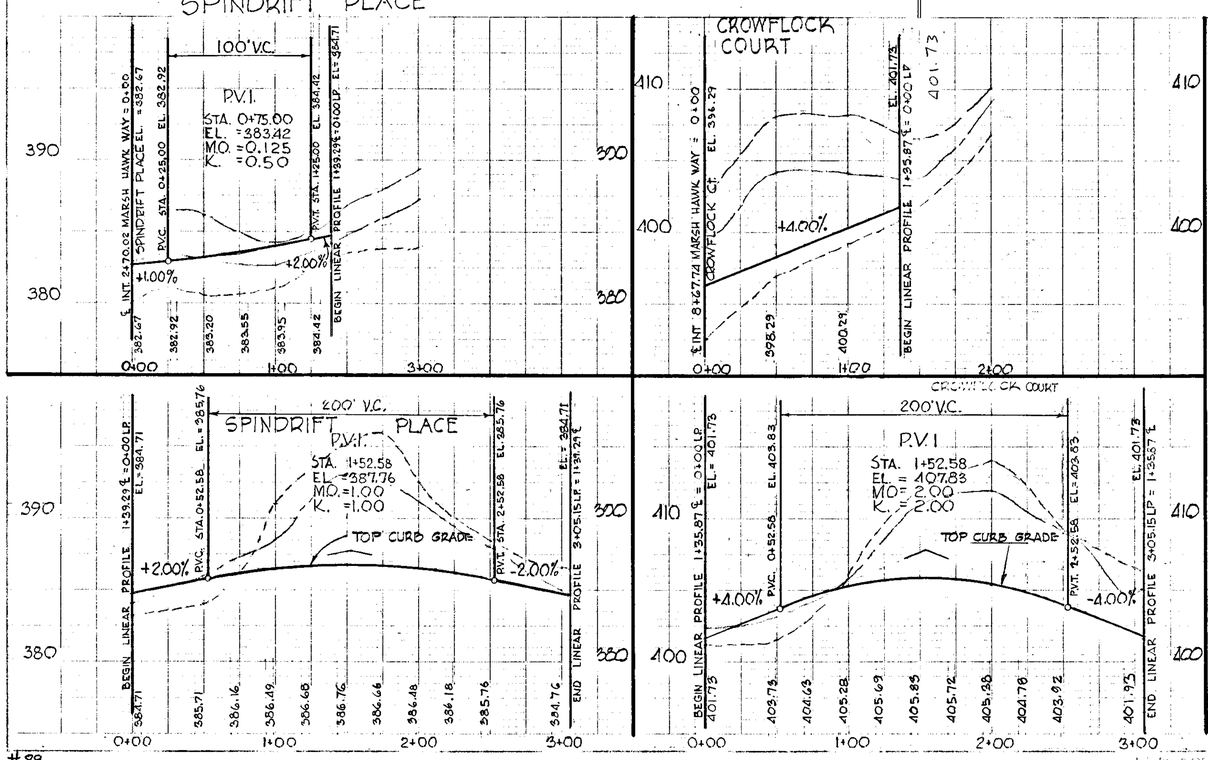
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS · BALTIMORE, MARYLAND 21210

VILLAGE OF OAKLAND MILLS SECT. 1
THUNDER HILL AREA 4

SPINDRIFT Pl. & CROWFLOCK Ct.
PLAN & PROFILE

Des. By T.S.	Scale AS SHOWN	Dwg. No 7 of 27	
Drn. By B.P.	Date 10-11-68	C.F.S. No	
Ckd. By	Approved		

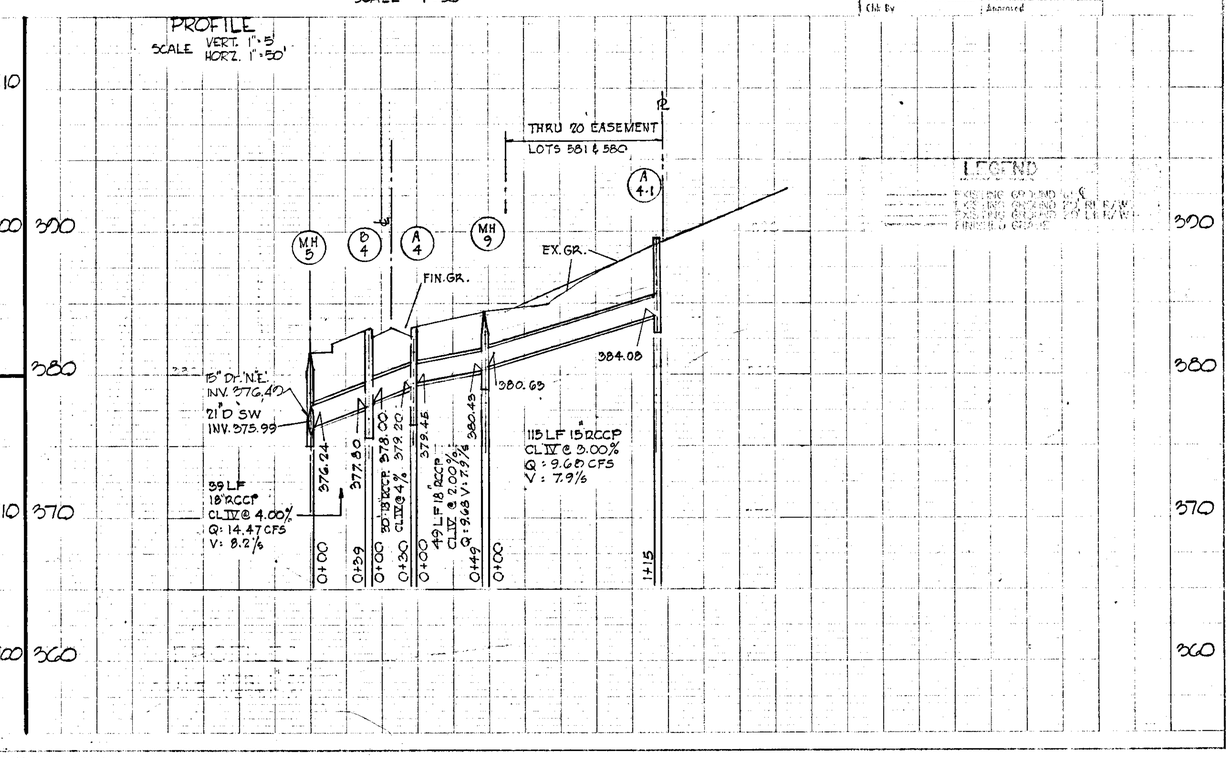
SPINDRIFT PLACE



CROWFLOCK COURT

PROFILE

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



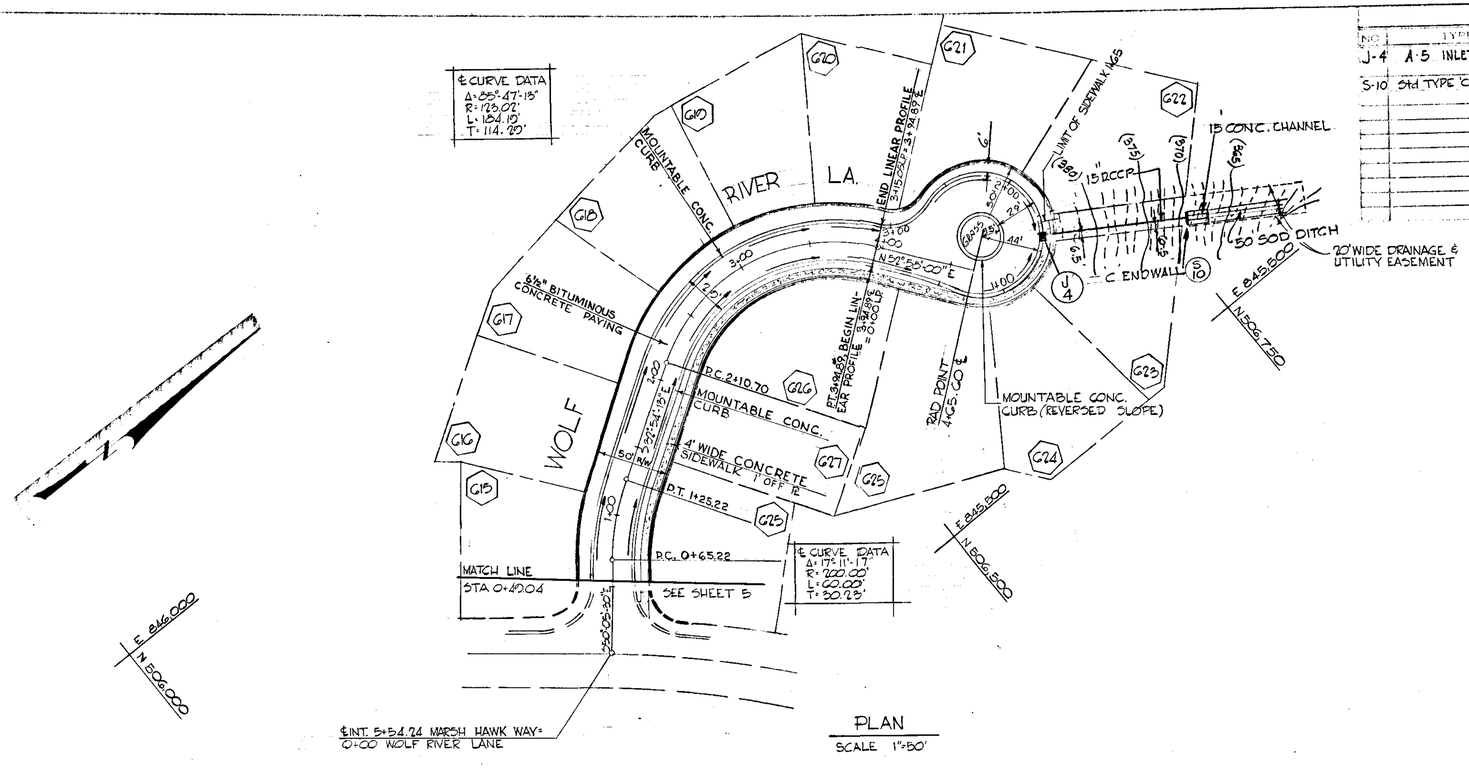
LEGEND

#89

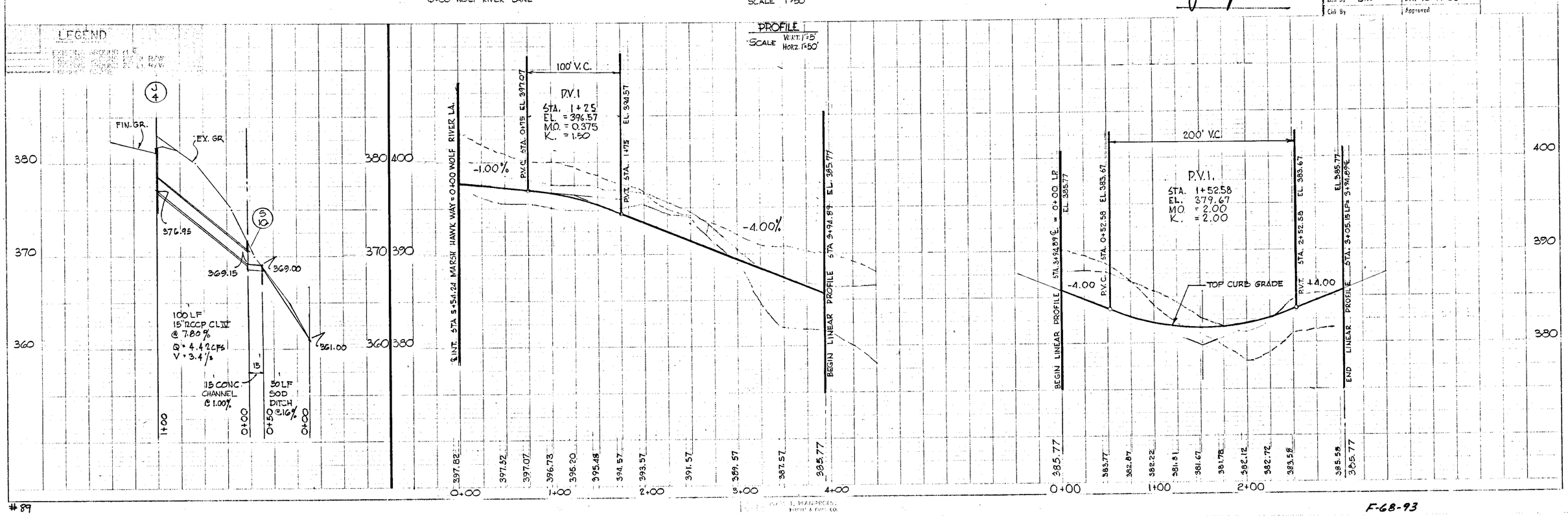
F-68-93

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	R.C.P. SIZE	REMARKS
J-4	A-5 INLET	1+52.58 L.P. (℄ INLET)		376.95	381.84	SEE DETAIL SHEET
S-10	Std. TYPE 'C' ENDWALL	SEE PLAN		369.15		Ho. Co. Std. Dwg. D-52 Pg. 107



PLAN
SCALE 1"=50'



APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY, MD.
DATE 3/13/69

STATE OF MARYLAND — RICHARD P. BROWNE — No. 5238 — REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR

RICHARD P. BROWNE 5238

BROWNE-PANDELLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev. Date	Rev. No.	Reason Description

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT - HOWARD COUNTY
OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

PROJECT TITLE: VILLAGE OF OAKLAND MILLS SECT. 1
THUNDER HILL AREA 4

PROJECT TITLE: WOLF RIVER LANE
PLAN & PROFILE

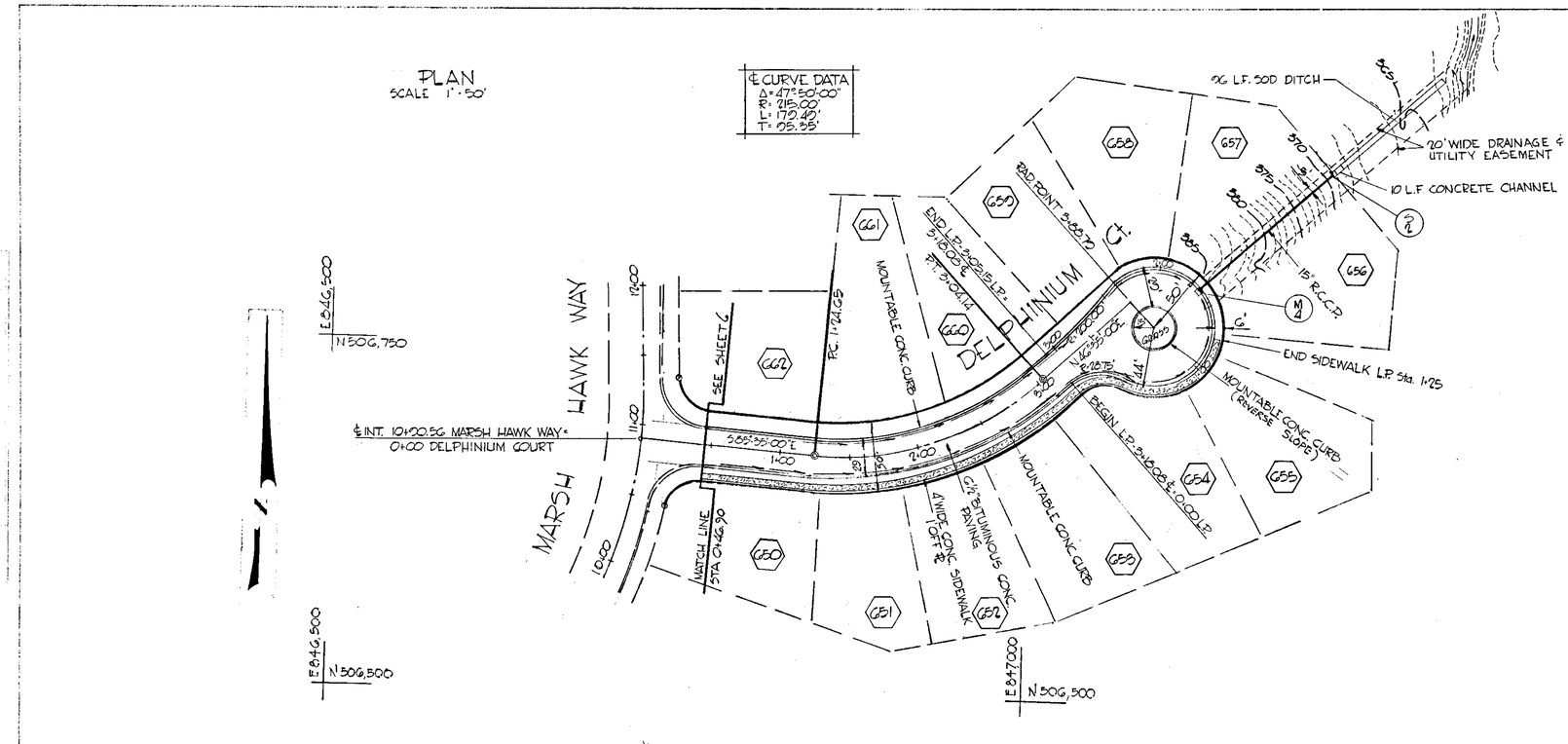
Des. By T.S.	Scale AS SHOWN	Dwg. No. 8 OF 27
Dir. By B.P.	Date 10-11-68	C.C.F. No.
Chk. By	Approved	

#89

F-68-93

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	F.G. ELEV.	REMARKS
M-4	A-5 INLET	L.P. Sta. 1+64.06 (℄ INLET)		380.51	385.34	SEE DETAIL SHEET
S-2	Std. TYPE 'C' ENDWALL	SEE PLAN		364.16		Ho. Co. Std. Dwg D-52 Pg. 107



APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

RICHARD H. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev. Date	Rev. No.	Revision Description

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT HOWARD COUNTY
OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS · BALTIMORE, MARYLAND 21210

PROJECT NAME
VILLAGE OF OAKLAND MILLS SEC 1.
THUNDER HILL AREA 4

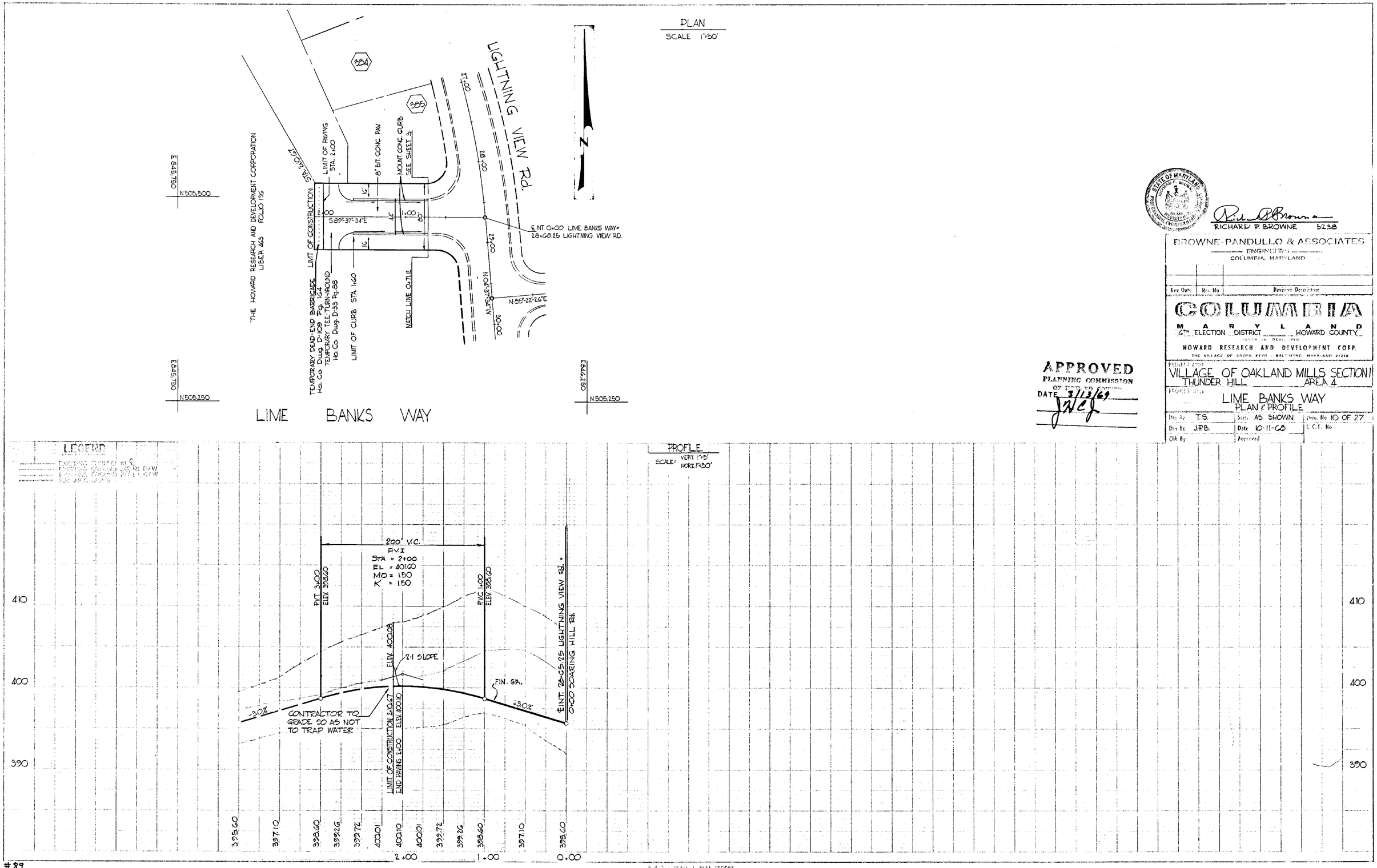
PROJECT TITLE
PLAN & PROFILE
DELPHINIUM COURT

Des. By	T.S.	Scale AS SHOWN	Dwg. No. 9 of 27
Drn. By	B.P.	Date 10-11-68	C.F. No.
Chk. By		Approved	

#89

PAUL T. FRANKSDALE
BLUE & GOLD CO.

F-68-93



APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

RICHARD P. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description

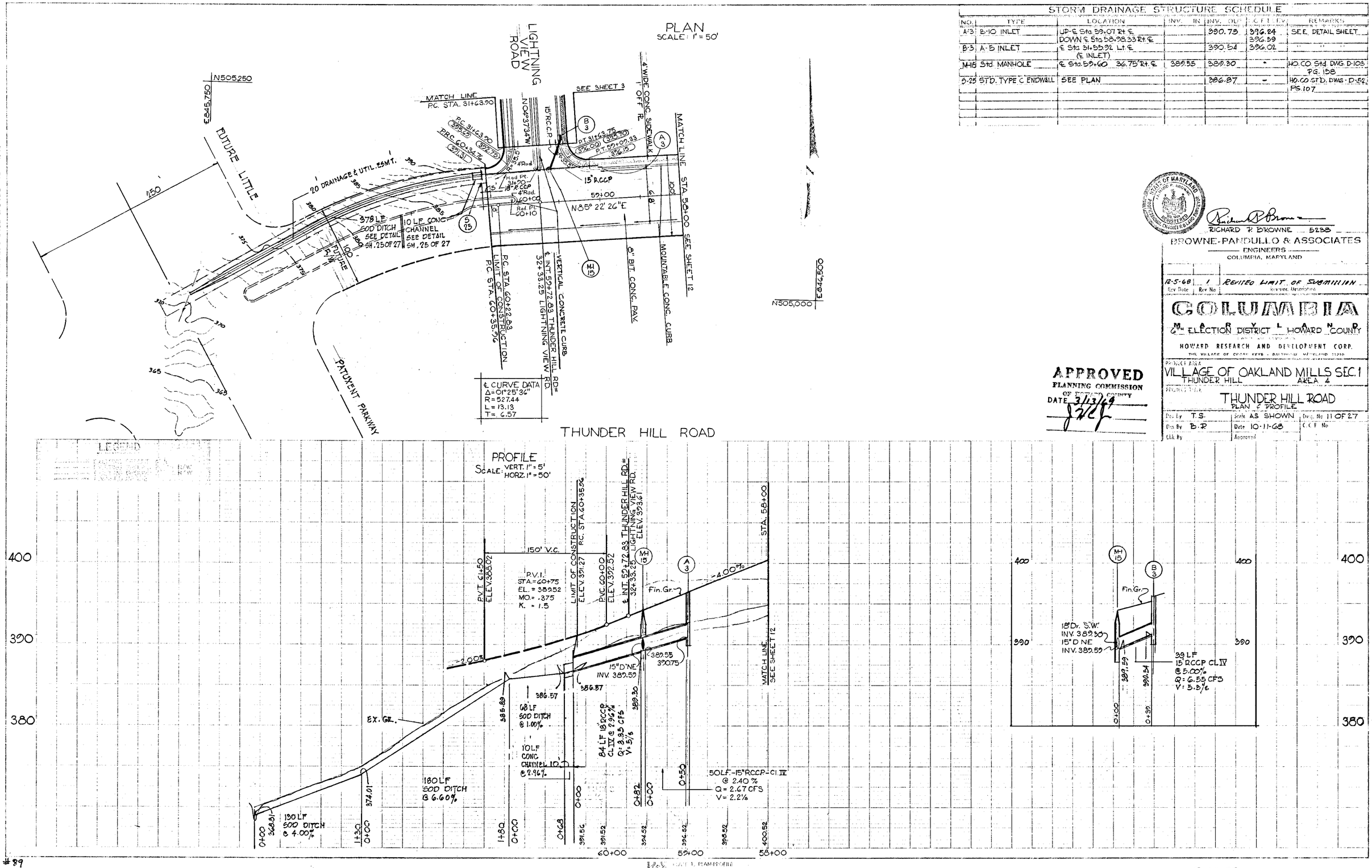
COLUMBIA
MARYLAND
6TH ELECTION DISTRICT HOWARD COUNTY
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

PROJECT TITLE
VILLAGE OF OAKLAND MILLS SECTION 1
THUNDER HILL AREA 4

PROJECT TITLE
LIME BANKS WAY
PLAN & PROFILE

Des By T.S.	Scale AS SHOWN	Dwg. No 10 OF 27
Drn By J.P.B.	Date 10-11-68	C.C.E. No
Chk By	Approved	

F-68-93



STORM DRAINAGE STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	INV. IN	INV. OUT	C.F.I. EV.	REMARKS
A-3	B-10 INLET	UP-℄ Sta. 59+07 Rt. ℄ DOWN ℄ Sta. 58+98.33 Rt. ℄		390.75	396.24 396.59	SEE DETAIL SHEET
B-3	A-5 INLET	℄ Sta. 31+55.92 Lt. ℄ (℄ INLET)		390.54	396.02	" " "
MH15	Std. MANHOLE	℄ Sta. 59+60 36.75' Rt. ℄	389.55	389.30	-	HO. CO. Std. DWG. D-103 PG. 158
S-25	STD. TYPE C ENDWALL	SEE PLAN		386.87	-	HO. CO. STD. DWG. D-52 PG. 107

RICHARD P. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description
12-5-68	1	REVISED LIMIT OF SUBMISSION

COLUMBIA
6TH ELECTION DISTRICT HOWARD COUNTY
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

PROJECT AREA
VILLAGE OF OAKLAND MILLS SEC. 1
THUNDER HILL AREA 4

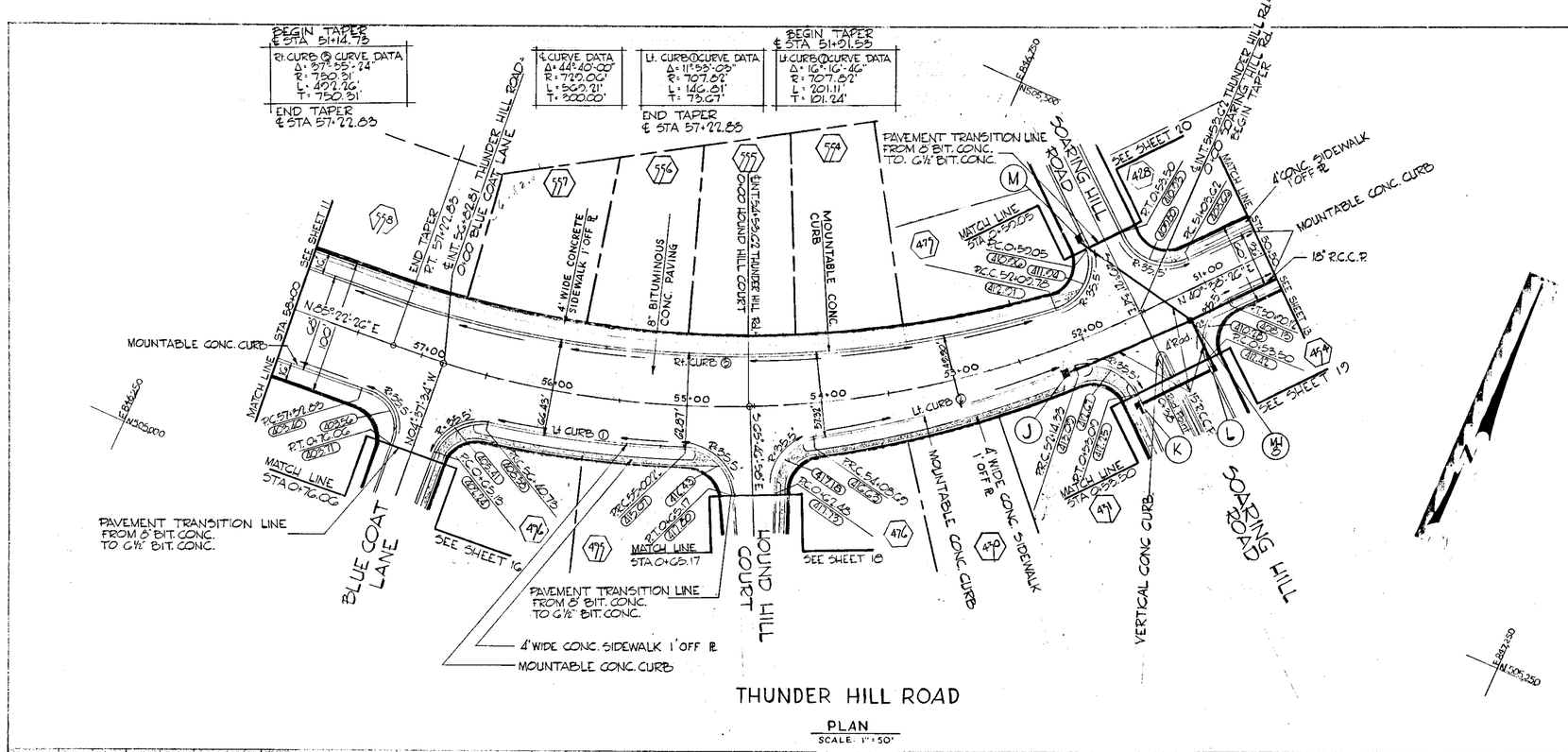
PROJECT TITLE
THUNDER HILL ROAD
PLAN & PROFILE

Des. By T.S.	Scale AS SHOWN	Dwg. No 11 OF 27
Drn By B.P.	Date 10-11-68	C.C.F. No
Chk By	Approved	

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

#89

F-68-93



THUNDER HILL ROAD

PLAN

SCALE: 1" = 50'

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	RIM ELEV.	REMARKS
J	A-5 INLET	Sta. 52+22.20 20.00' Lt. ℄ (℄ INLET)		408.75	414.50	SEE DETAIL SHEET
K	B-10 INLET	UP: Sta. 0+60.42 Rt. ℄		408.04	412.91	" " "
		DOWN: Sta. 0+58.00 Rt. ℄			412.57	
L	A-5 INLET	Sta. 0+61.26 Lt. ℄ (℄ INLET)	406.92	406.72	412.67	" " "
M	A-5 INLET	Sta. 0+67.22 Lt. ℄ (℄ INLET)		406.45	411.17	" " "
MH-8	Std. MANHOLE	Sta. 51+20 20.75' Lt. ℄	2-18" 404.99	404.74		Ho. Co. Std. Dwg. D-103 Pg. 158

STATE OF MARYLAND — RICHARD P. BROWNE — No. 5238 — PROFESSIONAL ENGINEER

Richard P. Browne

RICHARD P. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev. Date	Rev. No.	Revision Description
11-26-68	2	CHANGE - BEGIN TAPER STATIONS
10-31-68	1	CHANGE OFFSET MH-8

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT - HOWARD COUNTY
STATE OF MARYLAND
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

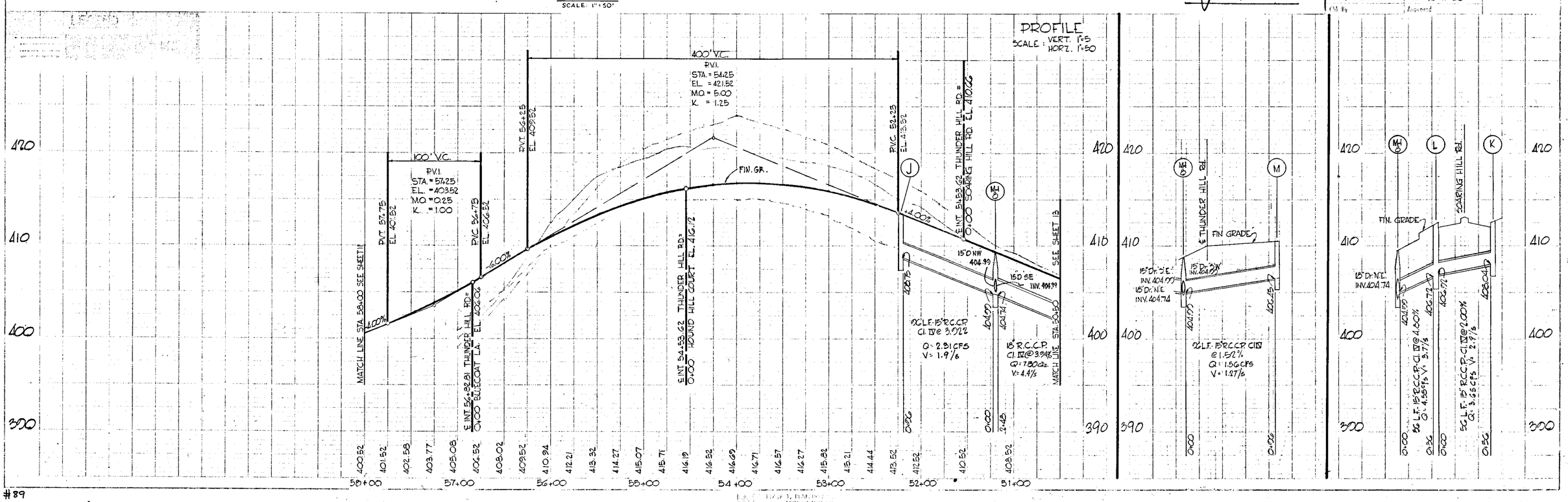
PROJECT: VILLAGE OF OAKLAND MILLS SECT. I
THUNDER HILL AREA 4

TITLE: THUNDER HILL ROAD
PLAN & PROFILE

Dsn. By: T.S.	Scale: AS SHOWN	Dwg. No. 12 OF 27
Dtn. By: B.R.	Date: 10-11-68	C.C.F. No.
Ckd. By:	Approved:	

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

PROFILE
SCALE: VERT. 1" = 5
HORZ. 1" = 50

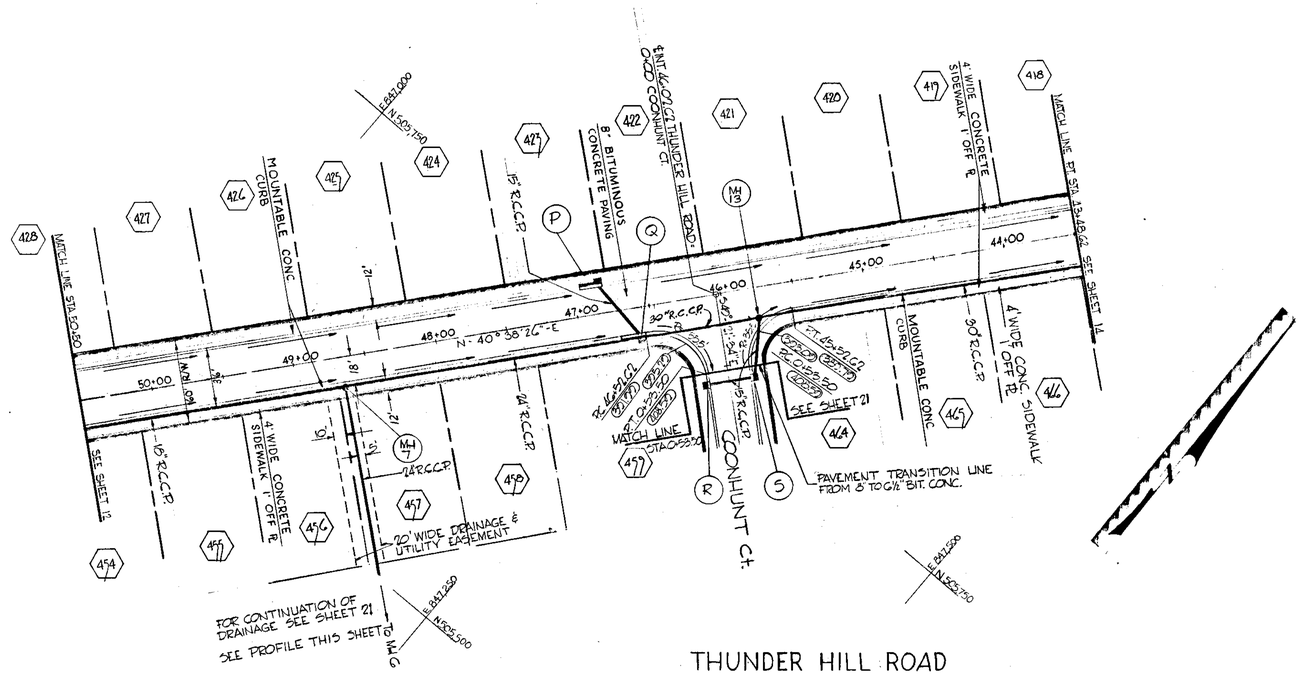


#89

F-68-93

STORM DRAINAGE STRUCTURE SCHEDULE

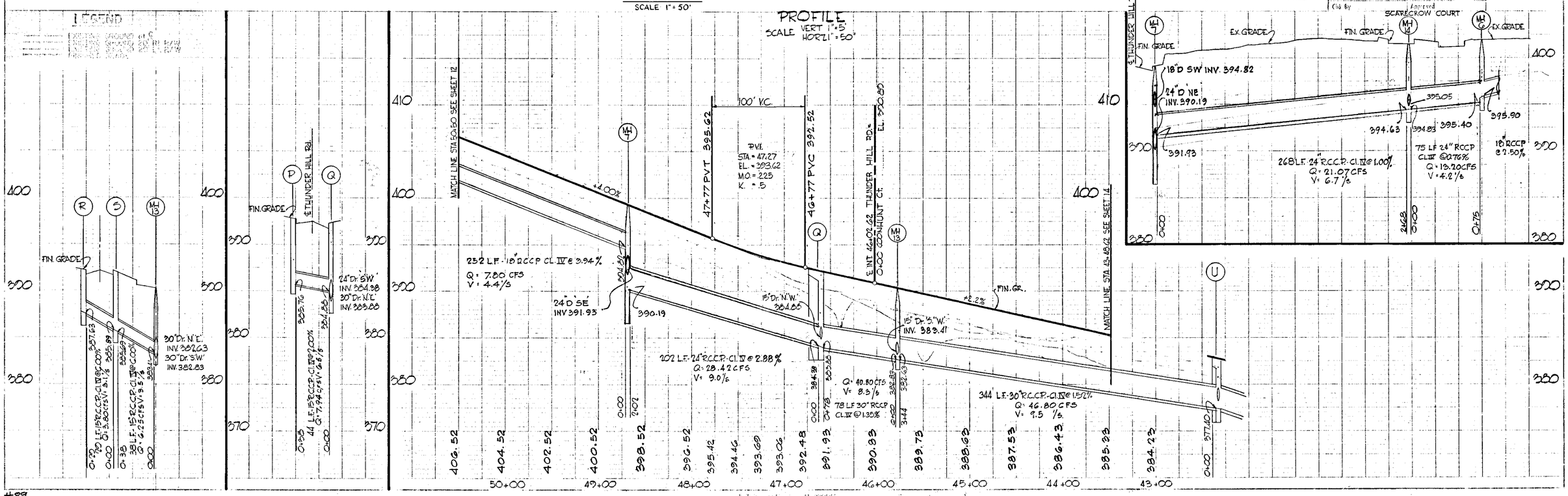
NO	TYPE	LOCATION	INV. IN	INV. OUT	L.C. FLOW	REMARKS
P	B-15 INLET	UP-℄ Sta. 46+96.33-Rt.℄		385.76	393.14	SEE DETAIL SHEET
		DOWN-℄ Sta. 46+80-Rt.℄			392.76	
MH-7	STD. DROP MANHOLE	℄ Sta 48+67.62-21' Lt.℄	18" 394.82	390.19		Ho.Co. Std. Dwg. D104
			24" 391.93			Pg. 150
Q	B-15 INLET	UP-℄ Sta 46+73.05-Lt.℄	24" 384.38	383.88	392.63	SEE DETAIL SHEET
		DOWN-℄ Sta. 46+57.62-Lt.℄	15" 384.88		392.27	
R	A-5 INLET	Sta. 0+61.33 Rt.℄ (℄ INLET)		387.63	392.28	" " "
S	A-5 INLET	Sta. 0+61.33 Lt.℄ (℄ INLET)	385.80	385.60	392.28	" " "
MH-13	STD. MANHOLE	℄ STA. 45+75 21.25' Lt.℄	15" 383.41			HO.CO. STD. DWG
			30" 382.83	382.63		D103 PAGE 158



THUNDER HILL ROAD

PLAN

SCALE 1" = 50'



APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

RICHARD P. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description
10-31-68	1	CHANGE OFFSET MH-7, MH-13

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT - HOWARD COUNTY
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF GROSS KEYS - BALTIMORE, MARYLAND 21210

PROJECT TITLE: VILLAGE OF OAKLAND MILLS SECT I
THUNDER HILL AREA 4

PROJECT TITLE: THUNDER HILL ROAD
PLAN & PROFILE

Des By T.S.	Scale AS SHOWN	Dwg. No 13 OF 27	
Drn By B.P.	Date 10-11-68	C.C.I. No	
Chk By	Approved		

#89

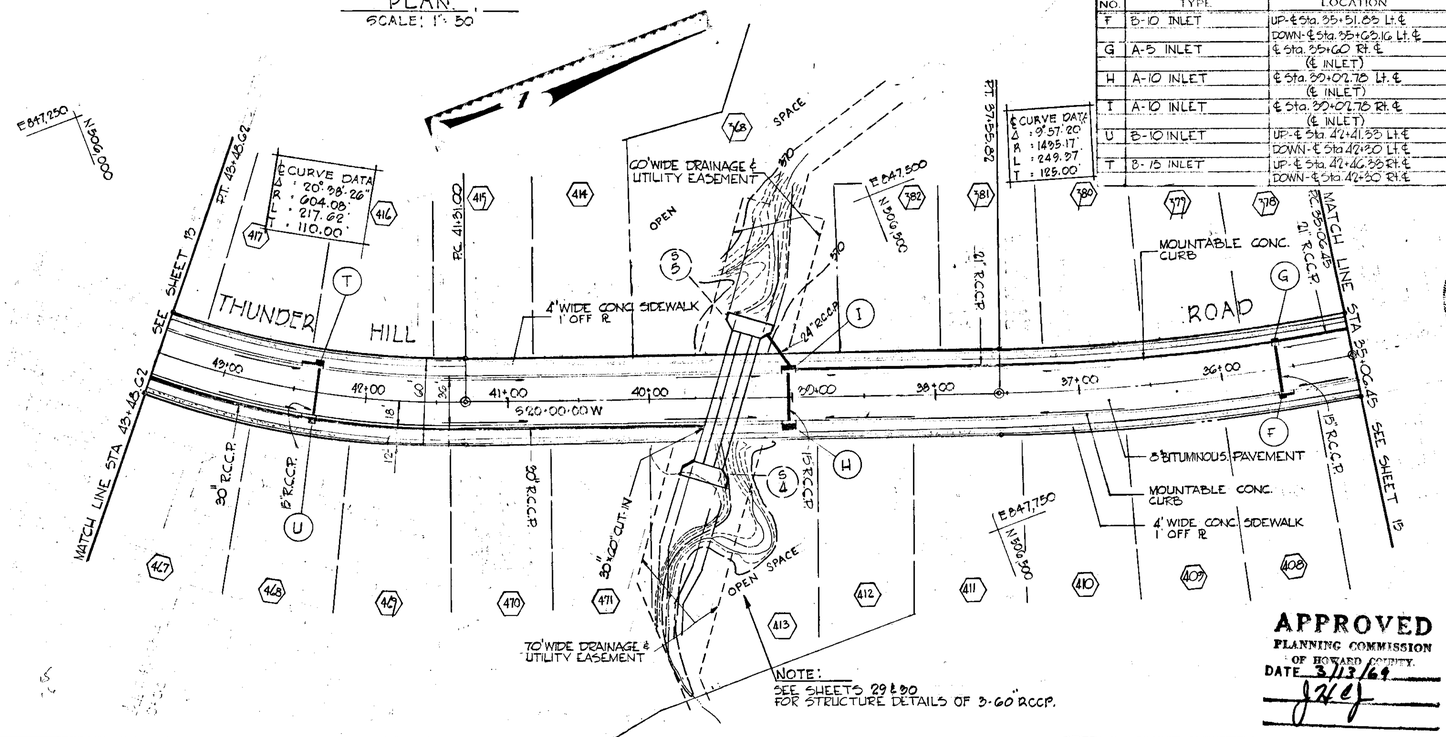
F-68-93

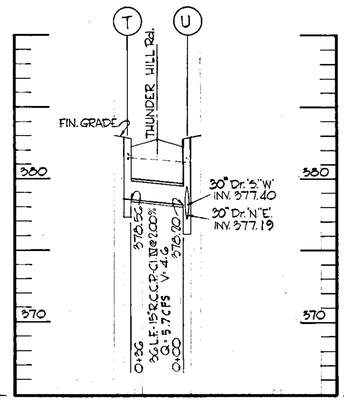
STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	H.G.P. ELEV.	REMARKS
F	B-10 INLET	UP-℄ Sta. 35+51.83 Lt. ℄		380.02	387.64	SEE DETAIL SHEET
		DOWN-℄ Sta. 35+63.16 Lt. ℄			387.04	
G	A-5 INLET	℄ Sta. 35+60 Rt. ℄	15" 380.70	370.70	387.90	" " "
		(℄ INLET)	18" 380.02			
H	A-10 INLET	℄ Sta. 39+02.78 Lt. ℄		370.72	377.00	" " "
		(℄ INLET)				
I	A-10 INLET	℄ Sta. 39+02.78 Rt. ℄	15" 370.00	368.72	377.00	" " "
		(℄ INLET)	21" 360.74			
U	B-10 INLET	UP-℄ Sta. 42+41.83 Lt. ℄	15" 378.20	377.10	388.11	" " "
		DOWN-℄ Sta. 42+53.20 Lt. ℄	30" 377.40		387.86	
T	B-15 INLET	UP-℄ Sta. 42+46.38 Rt. ℄		378.86	388.22	" " "
		DOWN-℄ Sta. 42+53.20 Rt. ℄			387.86	

PLAN

SCALE: 1" = 50'





APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY.
DATE 3/13/69

STATE OF MARYLAND — RICHARD P. BROWNE — 5238

RICHARD P. BROWNE
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description

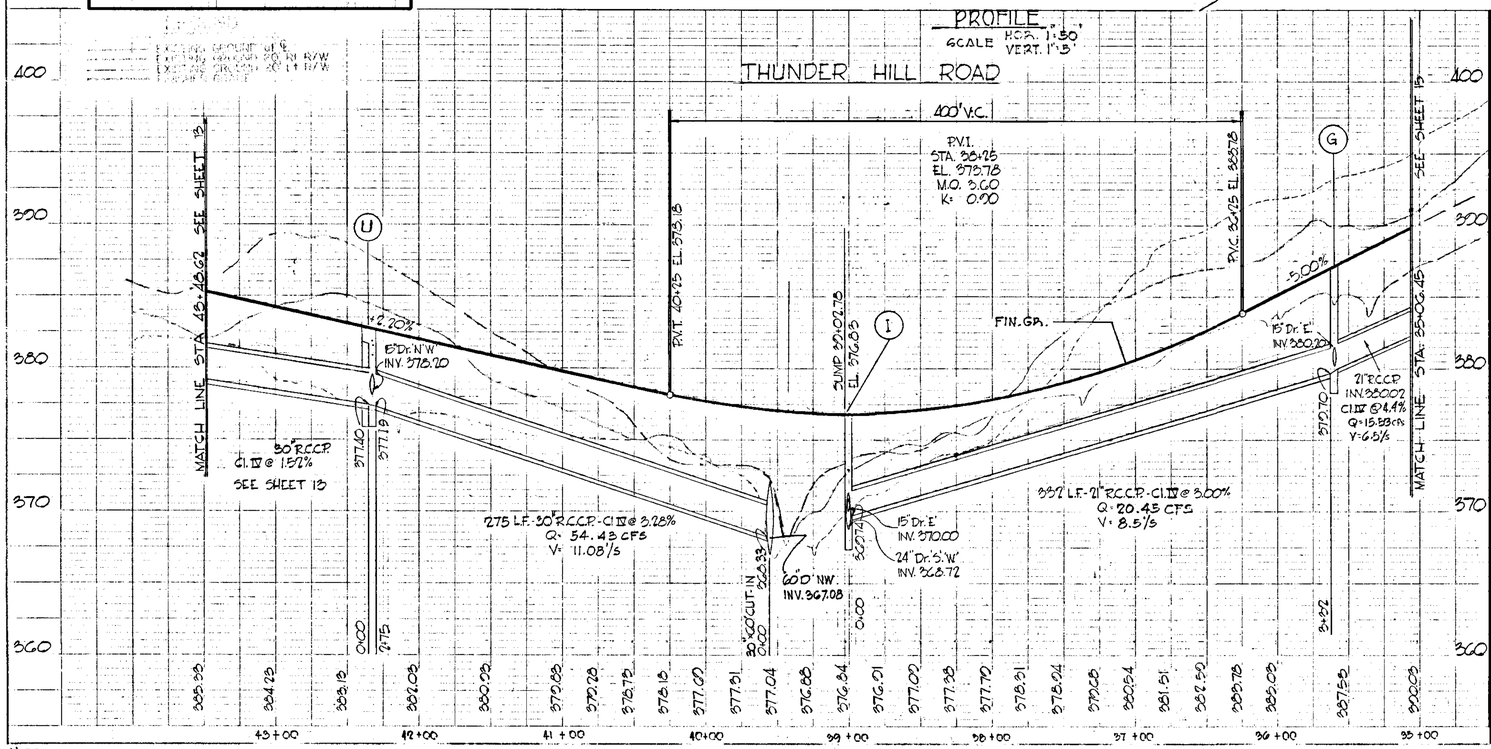
COLUMBIA
MARYLAND
6TH ELECTION DISTRICT HOWARD COUNTY
OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS · BALTIMORE MARYLAND 21210

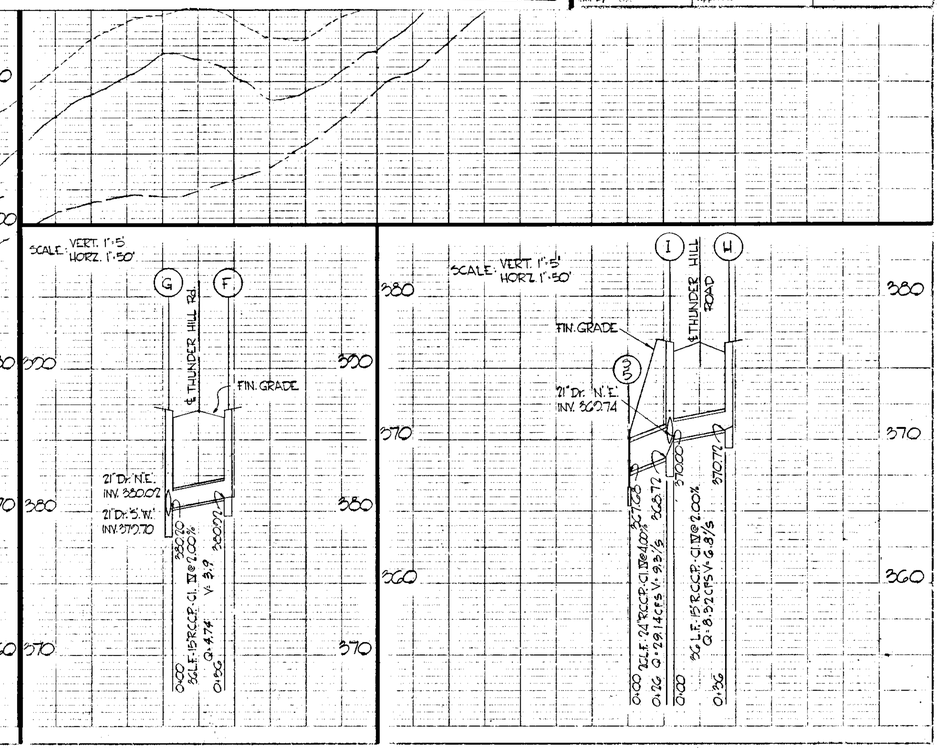
PROJECT AREA
VILLAGE OF OAKLAND MILLS SECT 1
THUNDER HILL AREA 4
PROJECT TITLE
PLAN & PROFILE
THUNDER HILL ROAD

Dsn By TG	Scale AS SHOWN	Dwg No 14 of 27
Drn By TG	Date 10-11-68	C.C.F. No
Chk By	Approved	

PROFILE

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





#89

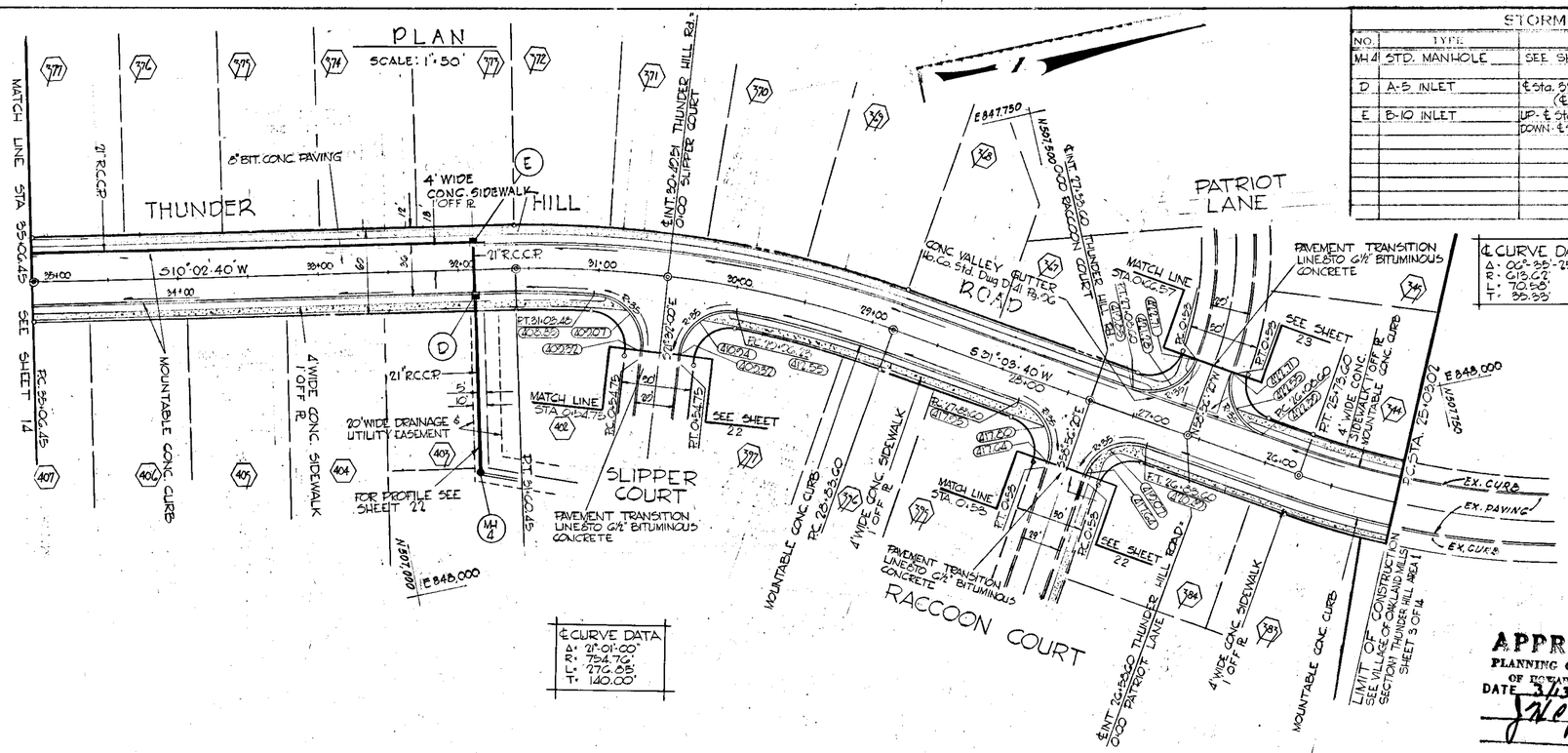
A = .98 A = .7
B = .75 B = -
C = .72 C = .42
D = .24 D = .20 - .22
.132

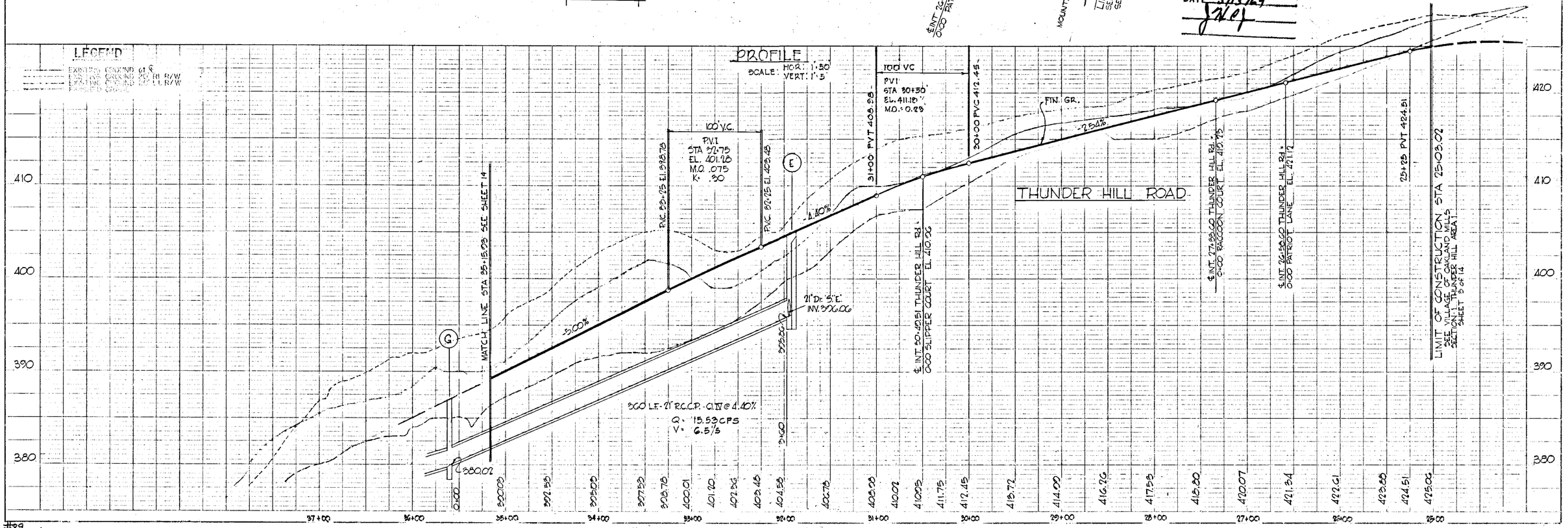
FLAD & FLAD/POLHEMUS HORTON & ASSOC. CO.

F-68-93

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	T.G.P. ELEV	REMARKS
MH 4	STD. MANHOLE	SEE SHEET 25				Ho.Co. Std. Dwg D 103 Pg. 158
D	A-5 INLET	℄ Sta. 31+20.45 Lt. ℄ (℄ INLET)	397.03	396.78	405.17	SEE DETAIL SHEET
E	B-10 INLET	UP- ℄ Sta. 31+82.20 Rt ℄ DOWN- ℄ Sta. 31+03.67 Rt ℄	396.06	395.86	405.03	" — "





APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

RICHARD T. BROWNE 5/23/68

BROWNE-CONDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description
31 OCT 68	1	REVISED TCP INLET 'D'

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT HOWARD COUNTY
OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE & MARYLAND 21210

PROJECT AREA: VILLAGE OF OAKLAND MILLS SECT 1 THUNDER HILL AREA 4

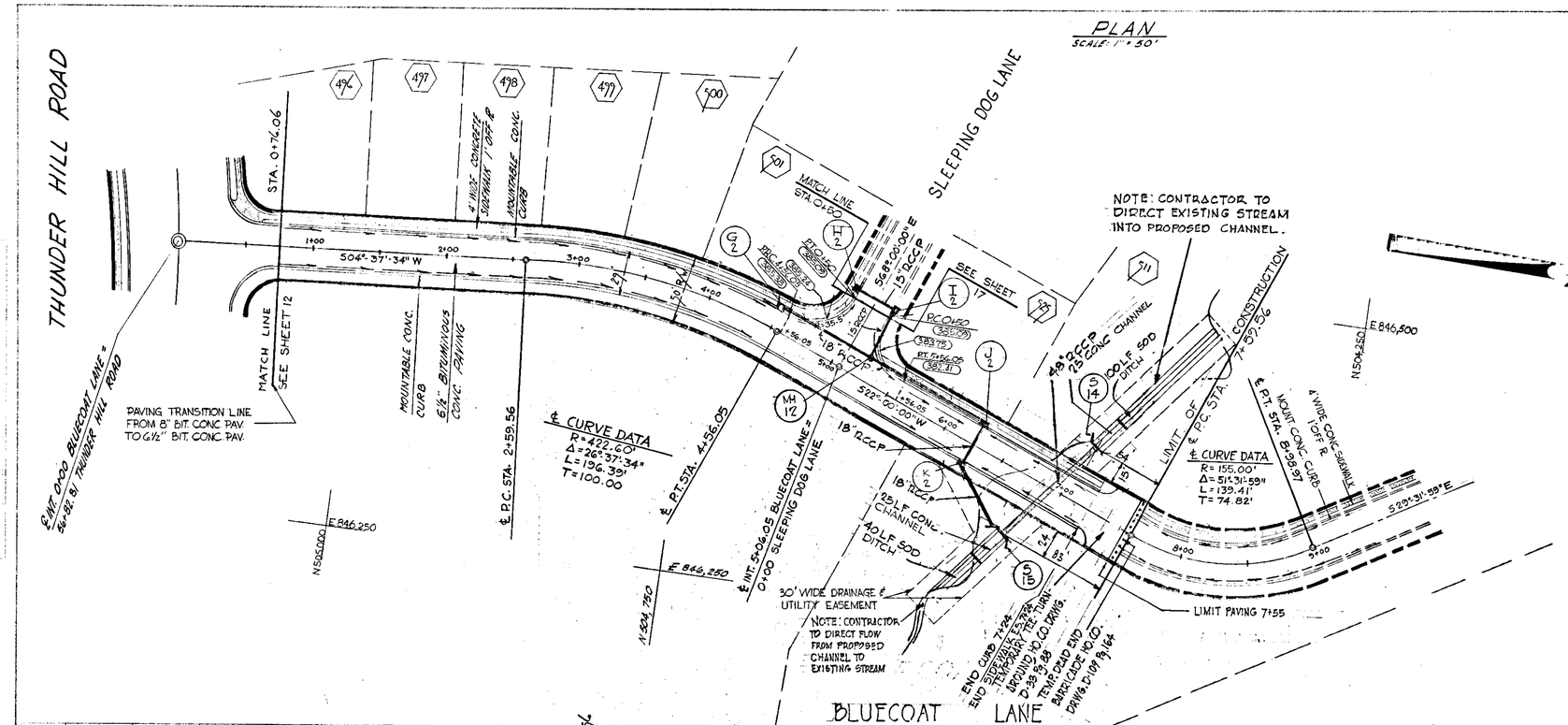
PROJECT TITLE: PLAN & PROFILE THUNDER HILL ROAD

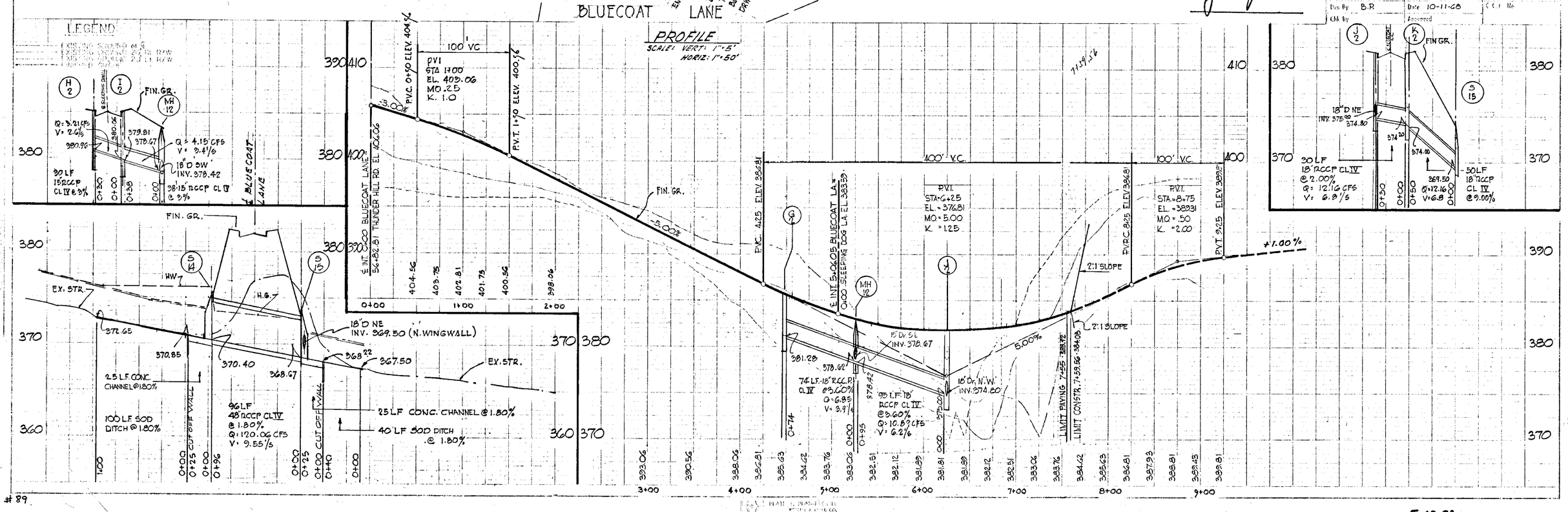
Des By TG	Scale AS SHOWN	Dwg. No 15 of 27
Drn By TG	Date 10-11-68	C.C.F. No
Chk By	Approved	

F-68-93

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	D.C.F.E.F.	REMARKS
I-2	A-5 INLET	℄ STA. 0+58 RT. ℄ (℄ INLET)	379.51	379.31	385.50	SEE DETAIL
H-2	A-5 INLET	℄ STA. 0+58 LT. ℄ (℄ INLET)		380.41	385.50	SEE DETAIL
J-2	A-5 INLET	℄ STA. 6+25 LT. ℄ (℄ INLET)	375.00	374.80	381.98	SEE DETAIL
K-2	A-5 INLET	℄ STA. 6+25 RT. ℄ (℄ INLET)	374.20	374.00	381.98	SEE DETAIL
G-2	B-15 INLET	℄ STA. 4+33.67 UP		380.90	386.04	SEE DETAIL
		℄ STA. 4+50 DOWN			385.80	
S-15	STD. B-48 HEADWALL	AS SHOWN		368.67		HO. CO. STD. DRWG D-48 PAGE 103
S-14	STD. B-48 HEADWALL	AS SHOWN	370.40			HO. CO. STD. DRWG. D-48 PAGE 103
MH-12	STD. MANHOLE	℄ STA. 5+20.55 17.25' LT. ℄	378.62	378.42		HO. CO. STD. DRWG D103 PAGE 158





LEGEND

EXISTING SIGNIFICANT CONTOUR
EXISTING MINOR CONTOUR
EXISTING EDGE OF PAVEMENT
EXISTING R/W
PROPOSED R/W

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

RICHARD R. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description
12-5-68	2	REVISED LIMIT OF SUBMISSION
10-31-68	1	CHANGE OFFSET MH-12

COLUMBIA
MARYLAND
4TH ELECTION DISTRICT HOWARD COUNTY

HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

VILLAGE OF OAKLAND MILLS SECT 1
THUNDER HILL AREA 4

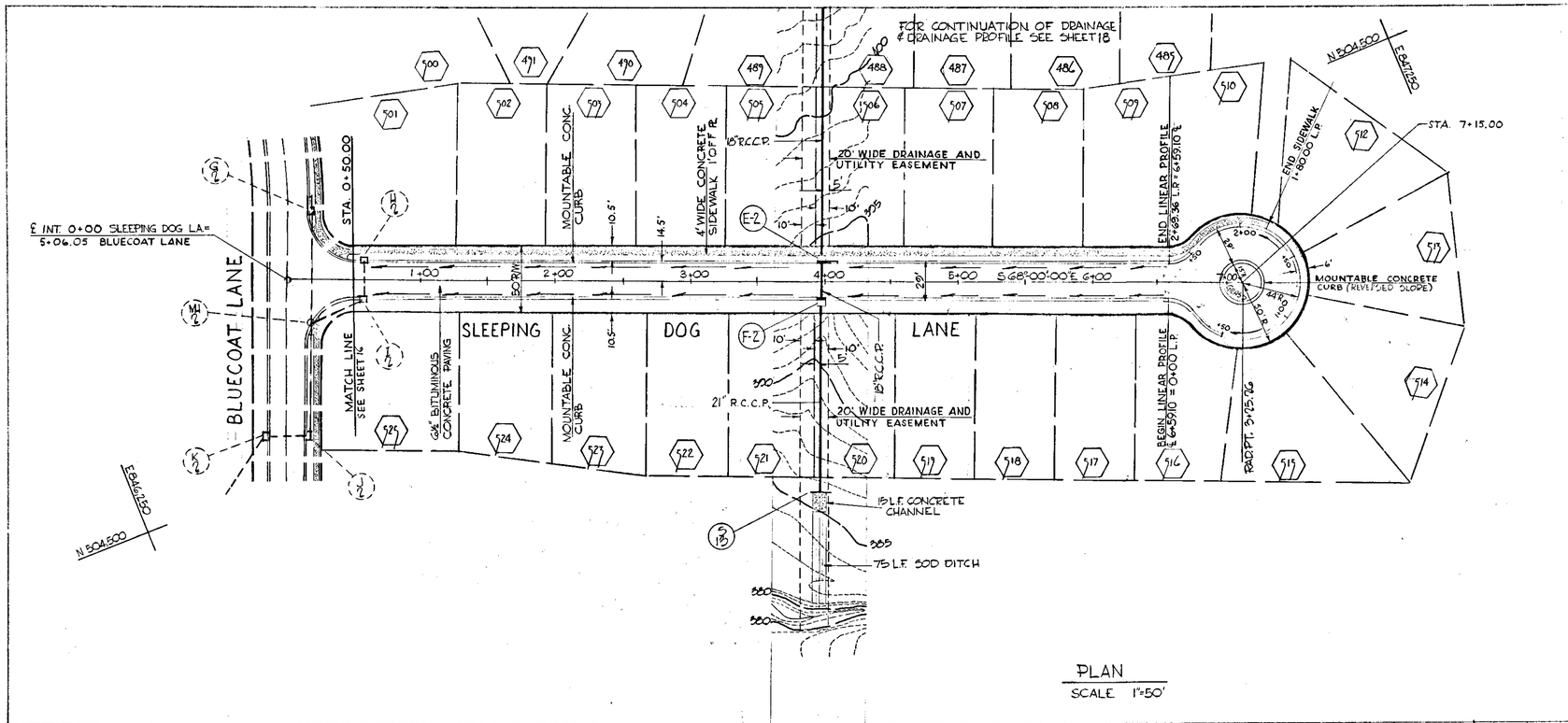
BLUECOAT LANE
PLAN & PROFILE

Des By T.S.	Scale AS SHOWN	Drwg. No. 16 OF 27
Drn By B.R.	Date 10-11-68	C.C.F. No.
Chk By	Approved	

F-68-93

STORM DRAINAGE STRUCTURE SCHEDULE

No.	Type	Location	Inv. In	Inv. Out	R.C.P. Elev.	Remarks
E-2	B-15 INLET	UP - Sta. 4+06.26 Lt. ℄	388.96	388.76	395.95	SEE DETAIL SHEET
		DOWN - Sta. 3+94.73 Lt. ℄				
F-2	A-5 INLET	℄ STA. 3+98.10 (℄ OF INLET)	387.89	387.64	395.01	SEE DETAIL SHEET
S-13	Std TYPE 'C' ENDWALL	Sta 3+08.10 - 15' Rt. ℄		381.11		Ho. Co. Std. Dwg. D-52 Pg. 107



PLAN

SCALE 1"=50'

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

STATE OF MARYLAND
RICHARD K. BROWNE
No. 2248

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev. Date	Rev. No.	Revision Description

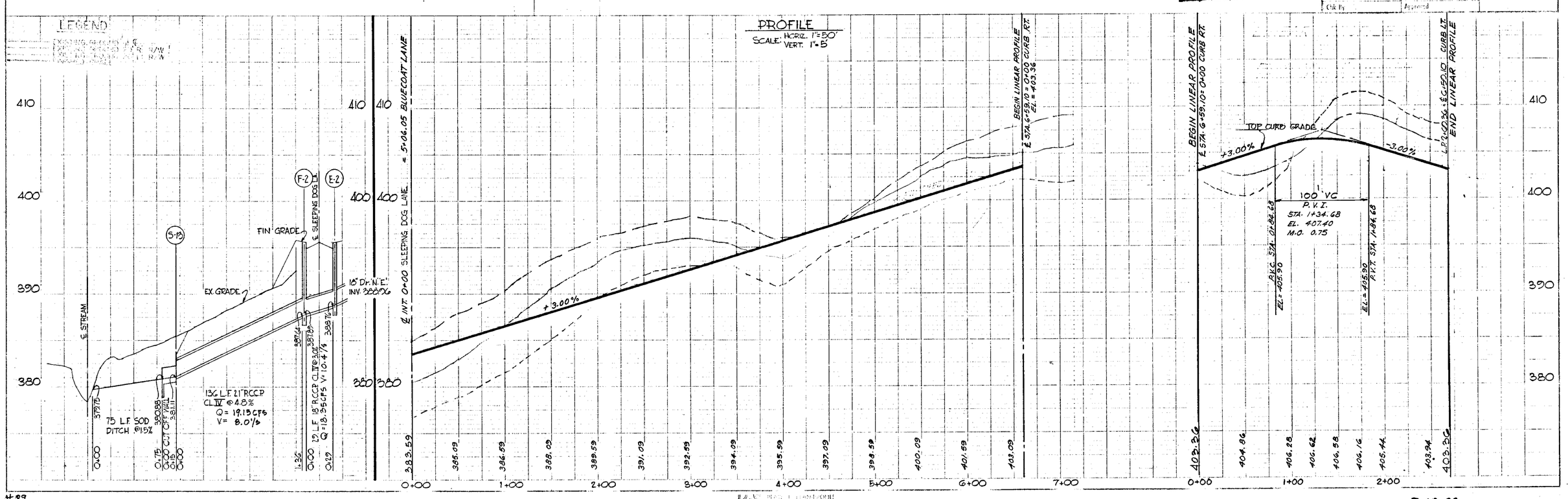
COLUMBIA
MARYLAND
6TH ELECTION DISTRICT HOWARD COUNTY

HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

PROJECT AREA: VILLAGE OF OAKLAND MILLS SECT. 1
THUNDER HILL AREA 4

PROJECT TITLE: SLEEPING DOG LANE
PLAN & PROFILE

Des. By T.S.	Scale AS SHOWN	Dwg. No. 17 OF 27
Dra. By B.P.	Date 10-11-68	C.C.F. No.
Chk. By	Approved	

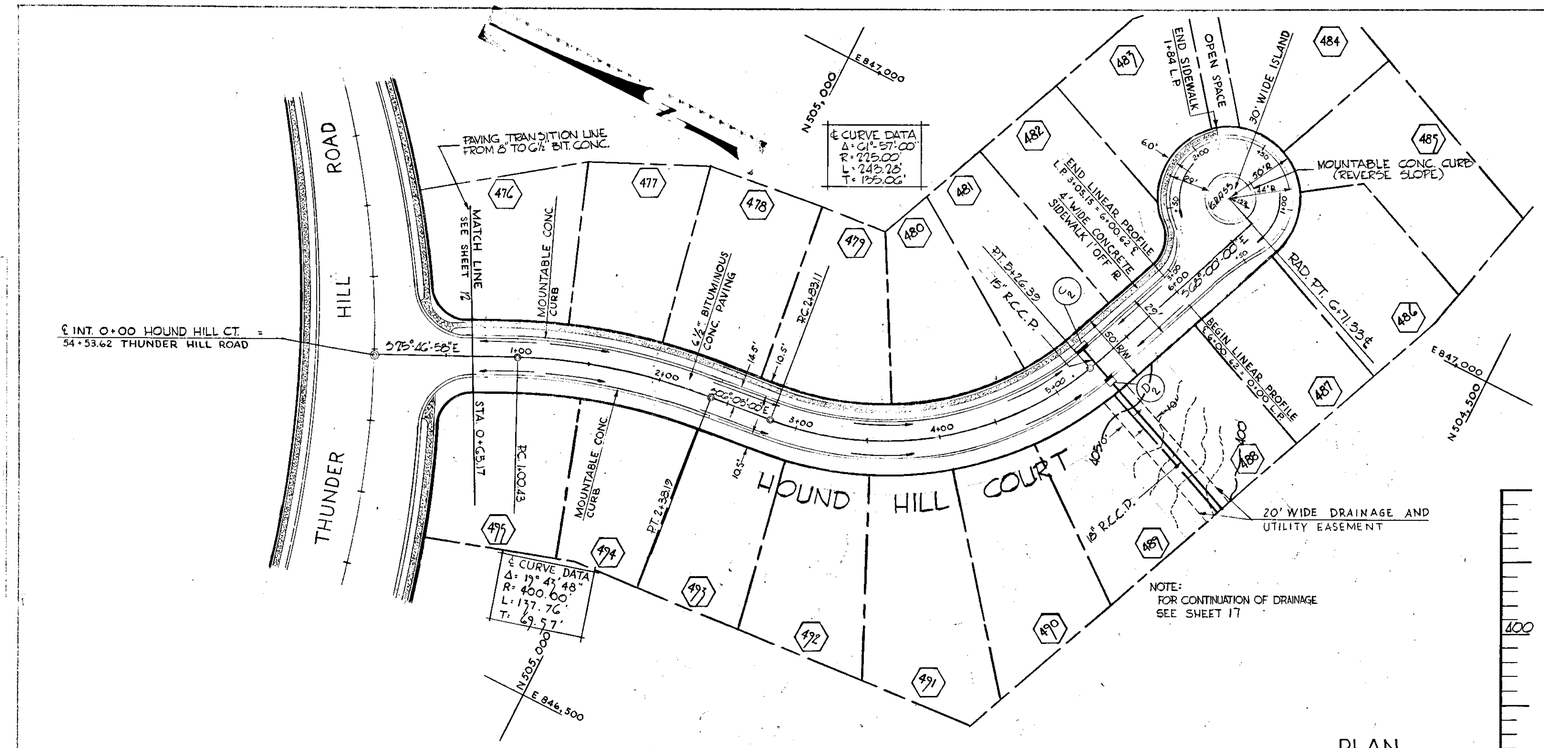


#89

F-68-93

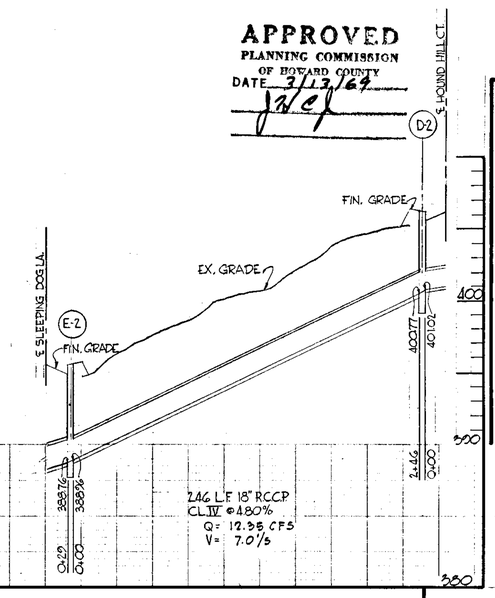
STORM DRAINAGE STRUCTURE SCHEDULE

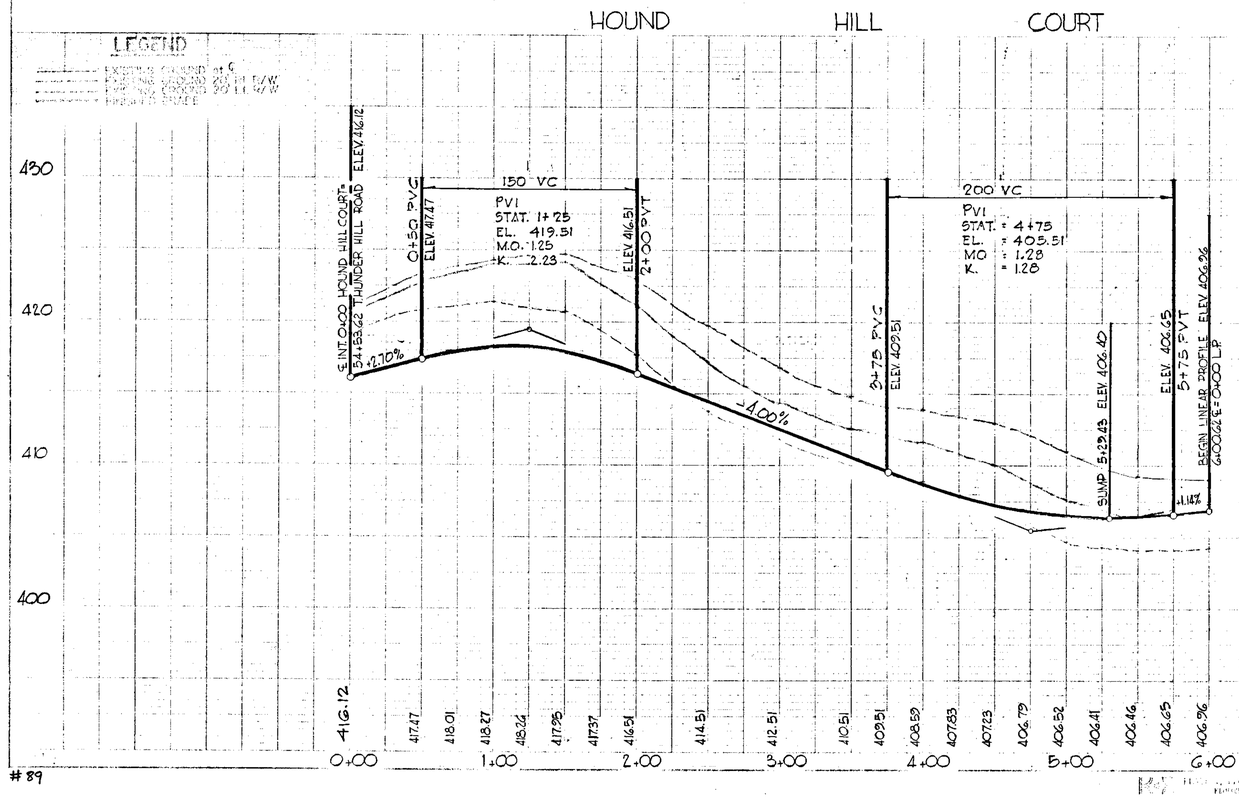
NO.	TYPE	LOCATION	INV. IN	INV. OUT	G.P. ELEV.	REMARKS
C-2	A-10 INLET	℄ STA. 5+29.43 (℄ OF INLET)		401.46	406.58	SEE DETAIL SHEET
D-2	A-5 INLET	℄ STA. 5+29.43 (℄ OF INLET)	401.02	400.77	406.58	SEE DETAIL SHEET

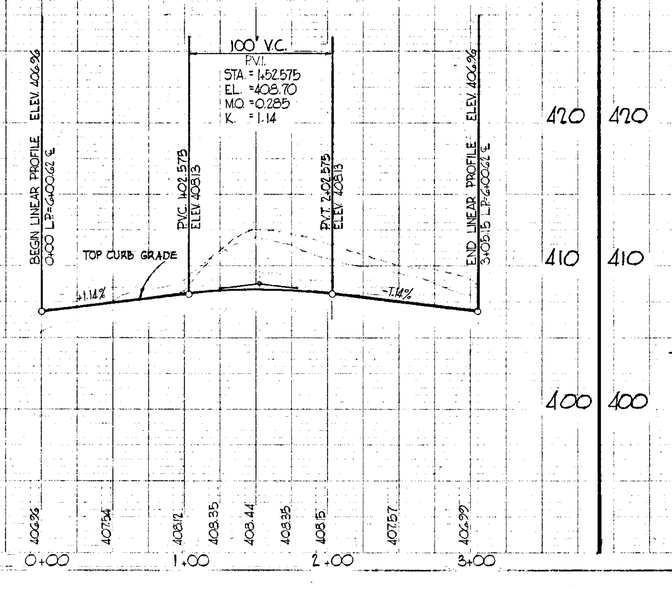


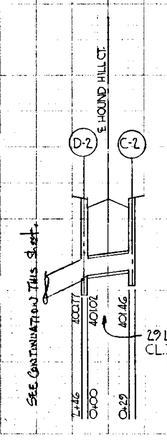
PLAN
SCALE: 1" = 50'

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









APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

STATE OF MARYLAND
RICHARD P. BROWNE
REGISTERED PROFESSIONAL ENGINEER
RICHARD P. BROWNE 5238

ENGINEERS
COLUMBIA, MARYLAND

Rev. Date	Rev. No.	Revision Description

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT - HOWARD COUNTY
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

VILLAGE OF OAKLAND MILLS SECT. I
THUNDER HILL AREA 4

HOUND HILL COURT
PLAN & PROFILE

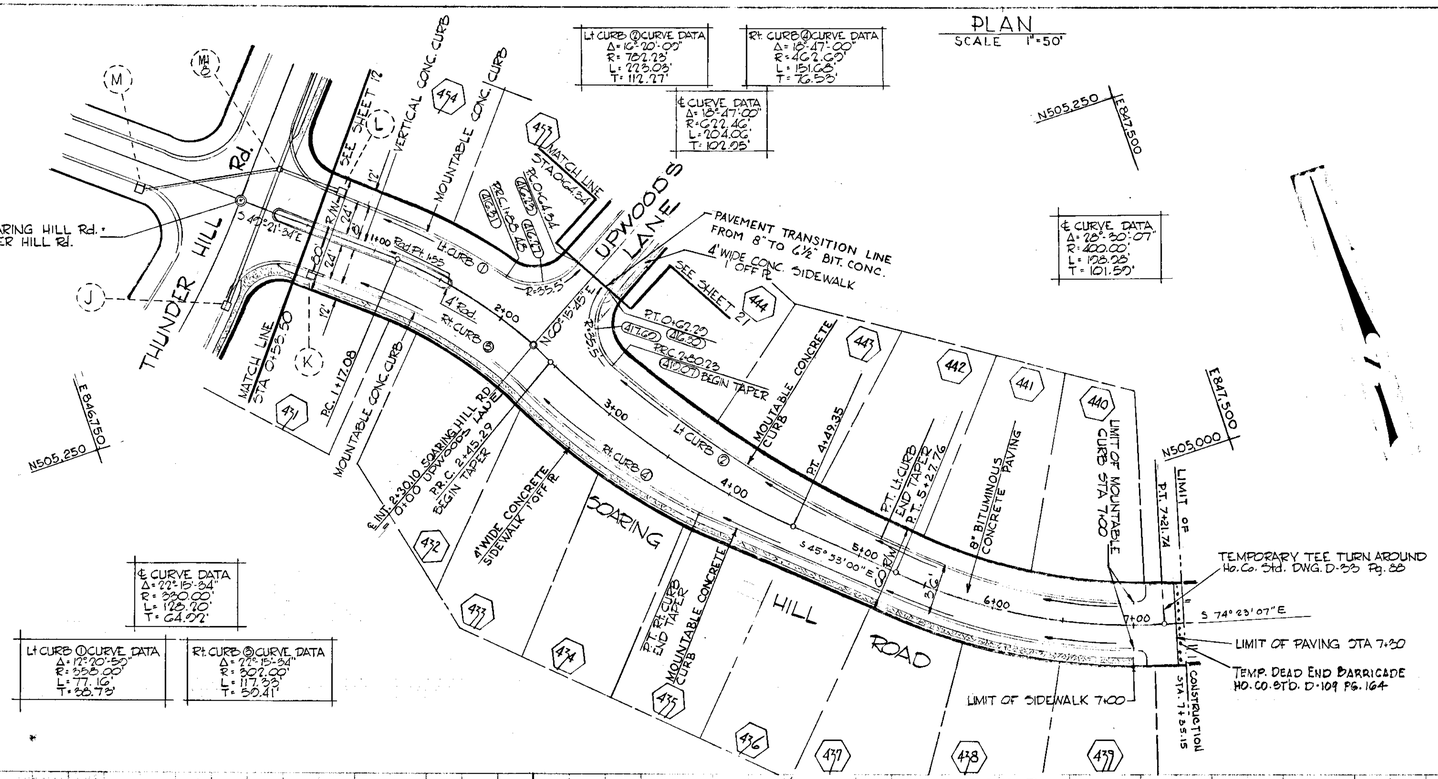
Des. By: T.S.	Scale: AS SHOWN	Dwg. No. 18 OF 27	
Dwn. By: B.P.	Date: 10-11-68	C.E.F. No.	
Ck. By:	Approved		

#89

F-68-93

PLAN

SCALE 1"=50'

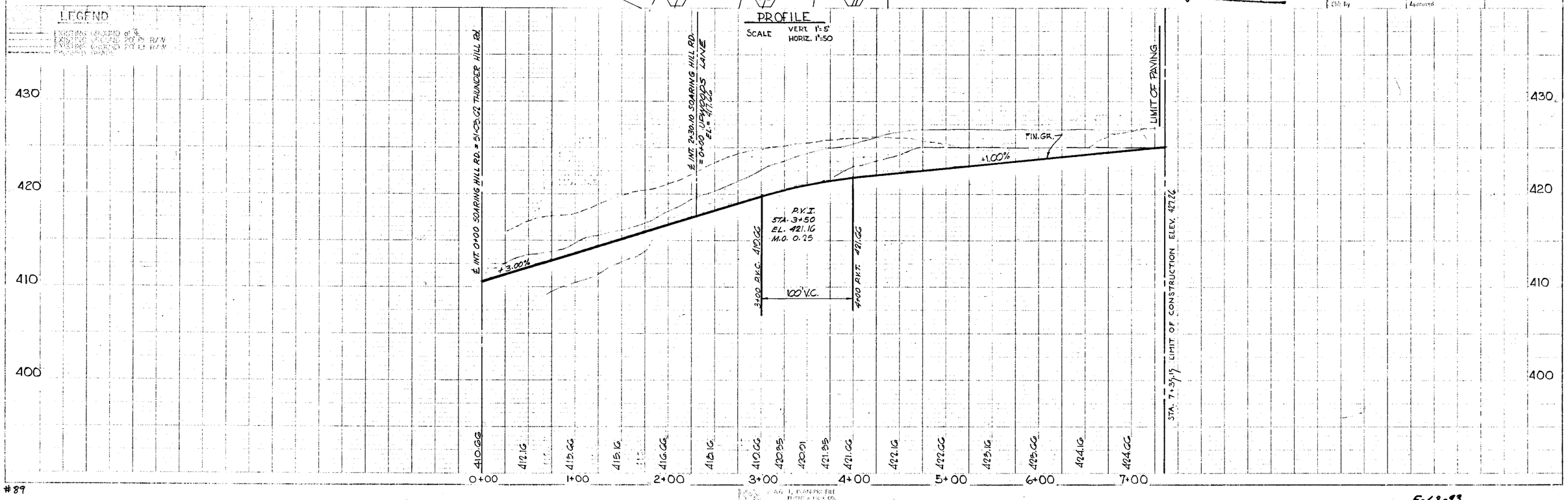


STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	CAPACITY	REMARKS

PROFILE

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



APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

RICHARD P. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev. Date	Rev. No	
NOV. 5 '68	1	REVISE GRADE - SOARING HILL ROAD

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT — HOWARD COUNTY

HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

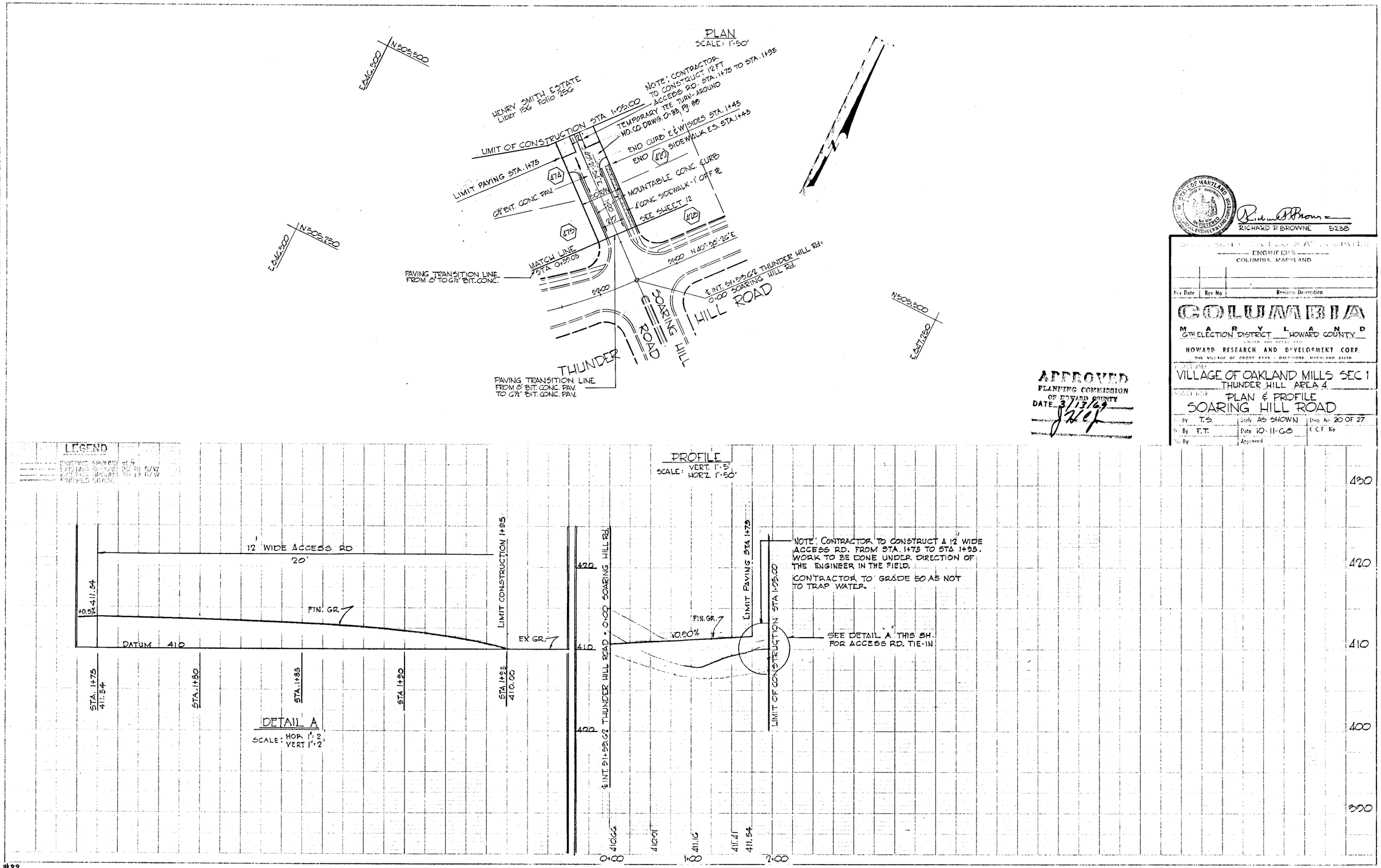
VILLAGE OF OAKLAND MILLS SECT. 1
THUNDER HILL AREA 4

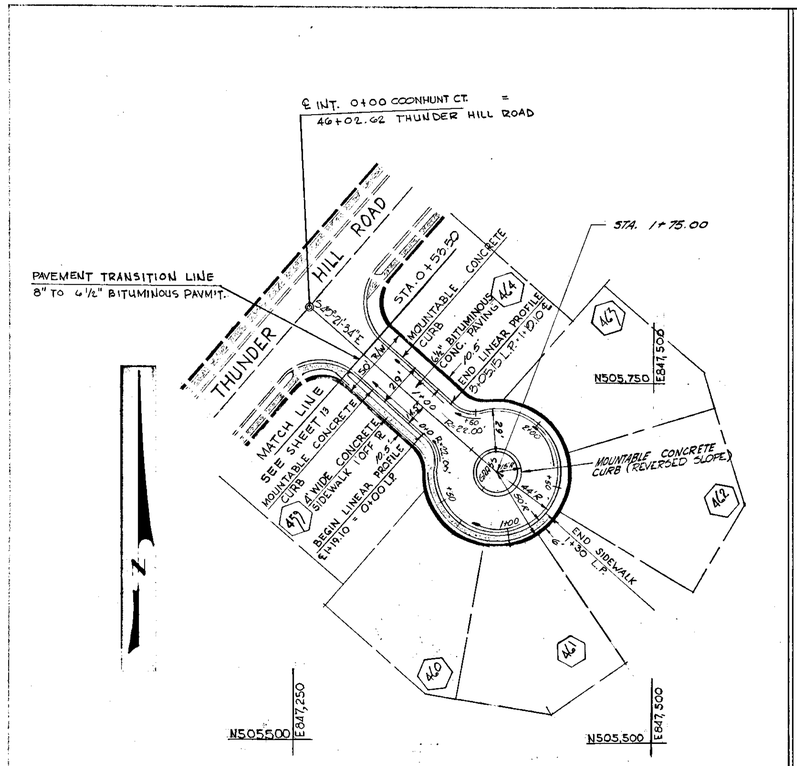
SOARING HILL ROAD
PLAN & PROFILE

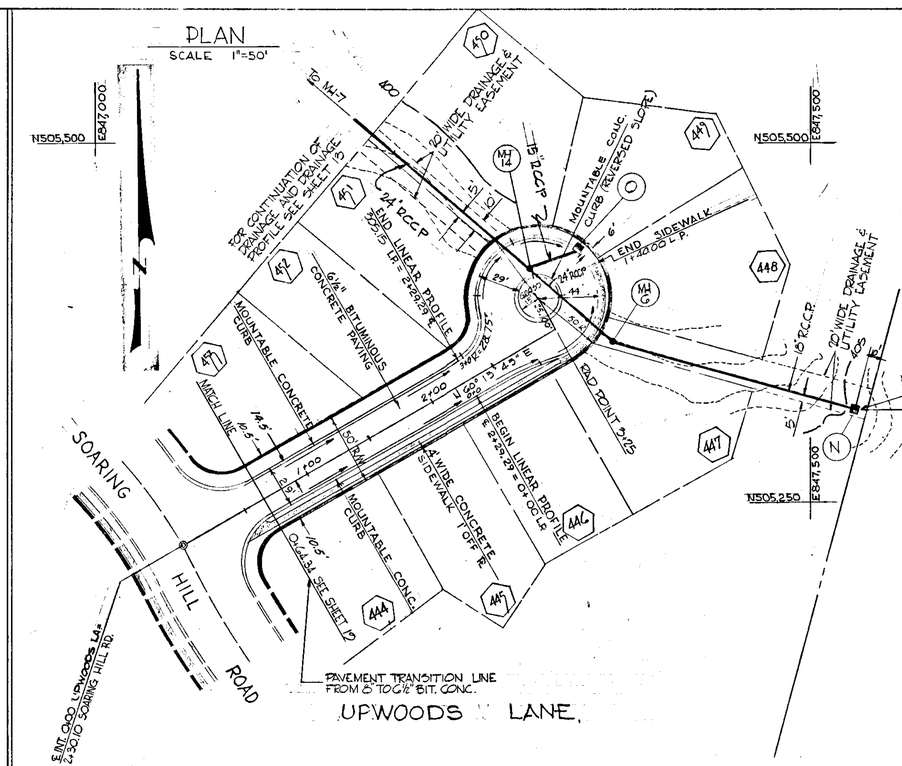
Des. By T.S.	Scale AS SHOWN	Dwg. No. 19 OF 27	
Dwn. By B.P.	Date 10-11-68	C.C.F. No	
Chk. By	Approved		

#89

F-68-93


PLAN
SCALE: 1"=50'
HENRY SMITH ESTATE
Liber 156 Folio 256
LIMIT OF CONSTRUCTION STA 1+95.00
NOTE: CONTRACTOR TO CONSTRUCT 12 FT ACCESS RD. STA. 1+75 TO STA. 1+95
TEMPORARY TEE TURN-AROUND
HO. CO. DRWG. D-33, Pg. 88
END CURB E & W SIDES STA. 1+45
END SIDEWALK E.S. STA. 1+45
LIMIT PAVING STA. 1+75
6½" BIT. CONC. PAV.
MOUNTABLE CONC. CURB
4' CONC. SIDEWALK - 1' OFF PL
SEE SHEET 12
MATCH LINE STA 0+59.05
PAVING TRANSITION LINE FROM 8" TO 6½" BIT. CONC.
℄ INT. 51+53.62 THUNDER HILL Rd. = 0+00 SOARING HILL Rd.
SOARING HILL ROAD
THUNDER HILL ROAD
PAVING TRANSITION LINE FROM 8" BIT. CONC. PAV. TO 6½" BIT. CONC. PAV.
N 505,500
E 846,500
N 505,250
E 847,250
APPROVED
PLANNING COMMISSION OF HOWARD COUNTY
DATE 3/13/69
RICHARD P. BROWNE 5238
ENGINEERS
COLUMBIA, MARYLAND
Rev Date
Rev No
Revision Description
COLUMBIA
MARYLAND
6TH ELECTION DISTRICT HOWARD COUNTY
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210
VILLAGE OF OAKLAND MILLS SEC 1
THUNDER HILL AREA 4
PLAN & PROFILE
SOARING HILL ROAD
By T.S.
By F.T.
Scale AS SHOWN
Date 10-11-68
Dwg No 20 OF 27
C.C.F. No
Approved
LEGEND
PROFILE
SCALE: VERT. 1"=5' HORZ. 1"=50'
12' WIDE ACCESS RD
20'
411.54
+0.5%
FIN. GR.
DATUM 410
EX GR.
LIMIT CONSTRUCTION 1+95
STA. 1+75 411.54
STA. 1+80
STA. 1+85
STA. 1+90
STA. 1+95 410.00
DETAIL A
SCALE: HOR 1"=2' VERT 1"=2'
℄ INT. 51+53.62 THUNDER HILL ROAD = 0+00 SOARING HILL Rd.
+0.50%
LIMIT PAVING STA 1+75
LIMIT OF CONSTRUCTION STA 1+95.00
NOTE: CONTRACTOR TO CONSTRUCT A 12' WIDE ACCESS RD. FROM STA. 1+75 TO STA 1+95. WORK TO BE DONE UNDER DIRECTION OF THE ENGINEER IN THE FIELD.
CONTRACTOR TO GRADE SO AS NOT TO TRAP WATER.
SEE DETAIL 'A' THIS SH. FOR ACCESS RD. TIE-IN
420
410
400
430
410.66
410.91
411.16
411.41
411.54
0+00
1+00
2+00
#89
F-68-95





STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	RIM ELEV.	REMARKS
O	A-10 INLET	L.P. STA. 1+52.575 (℄ INLET)		395.73	401.12	SEE DETAIL SHEET
N	CLASS 'C' INLET	SEE PLAN		400.20		Ho.Co.Std. Dwg. D6Ac Pg 110-C
MHG	STD. MANHOLE	SEE PLAN	18" 395.90	24" 395.40		HO.CO STD. DRWG. D103 PAGE 158
MH14	STD. MANHOLE		24" 394.83 15" 395.08	24" 394.63		HO. CO. STD. DRWG. D103 PAGE 158

NOTES

CONTRACTOR TO GRADE TO INSURE POSITIVE DRAINAGE TO INLET N

OPENINGS ON N.E., S.E. & S.W. SIDES OF INLET 'N'

RICHARD P. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev. Date	Rev. No.	Revision Description
NOV. 5 '68	1	REVISE GRADE - UPWOODS LANE

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT - HOWARD COUNTY

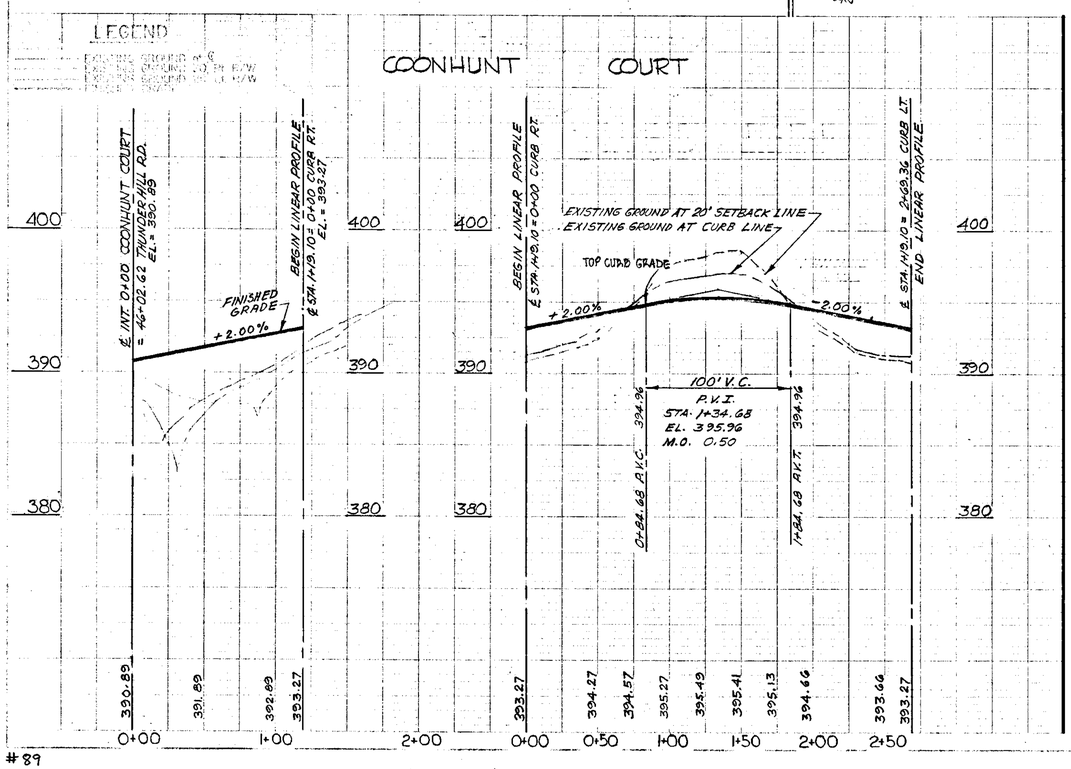
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

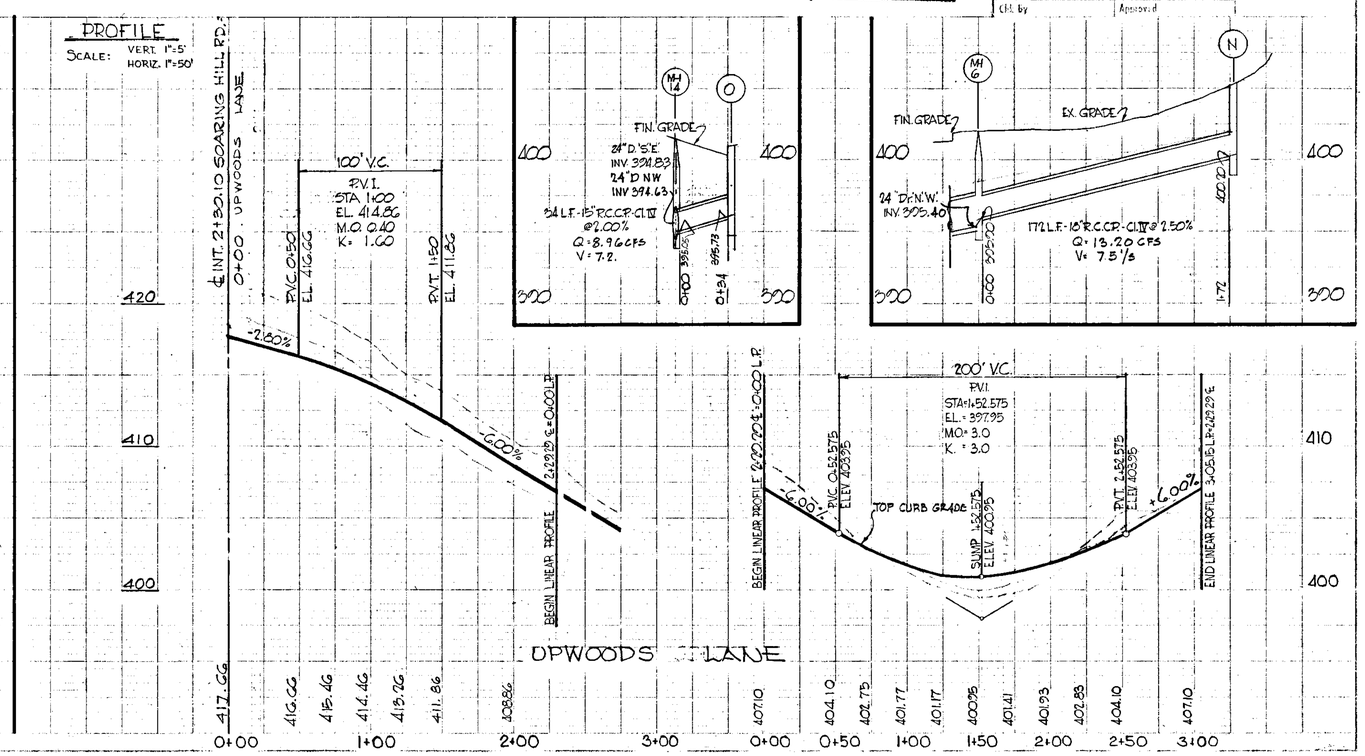
VILLAGE OF OAKLAND MILLS SECT. I
THUNDER HILL AREA 4

COONHUNT COURT & UPWOODS LANE
PLAN & PROFILE

Des. By T.S.	Scale AS SHOWN	Dwg. No. 21 OF 27
Dr. By B.P.	Date 10-11-68	C.C.F. No.
Ck'd. by	Approved	

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69



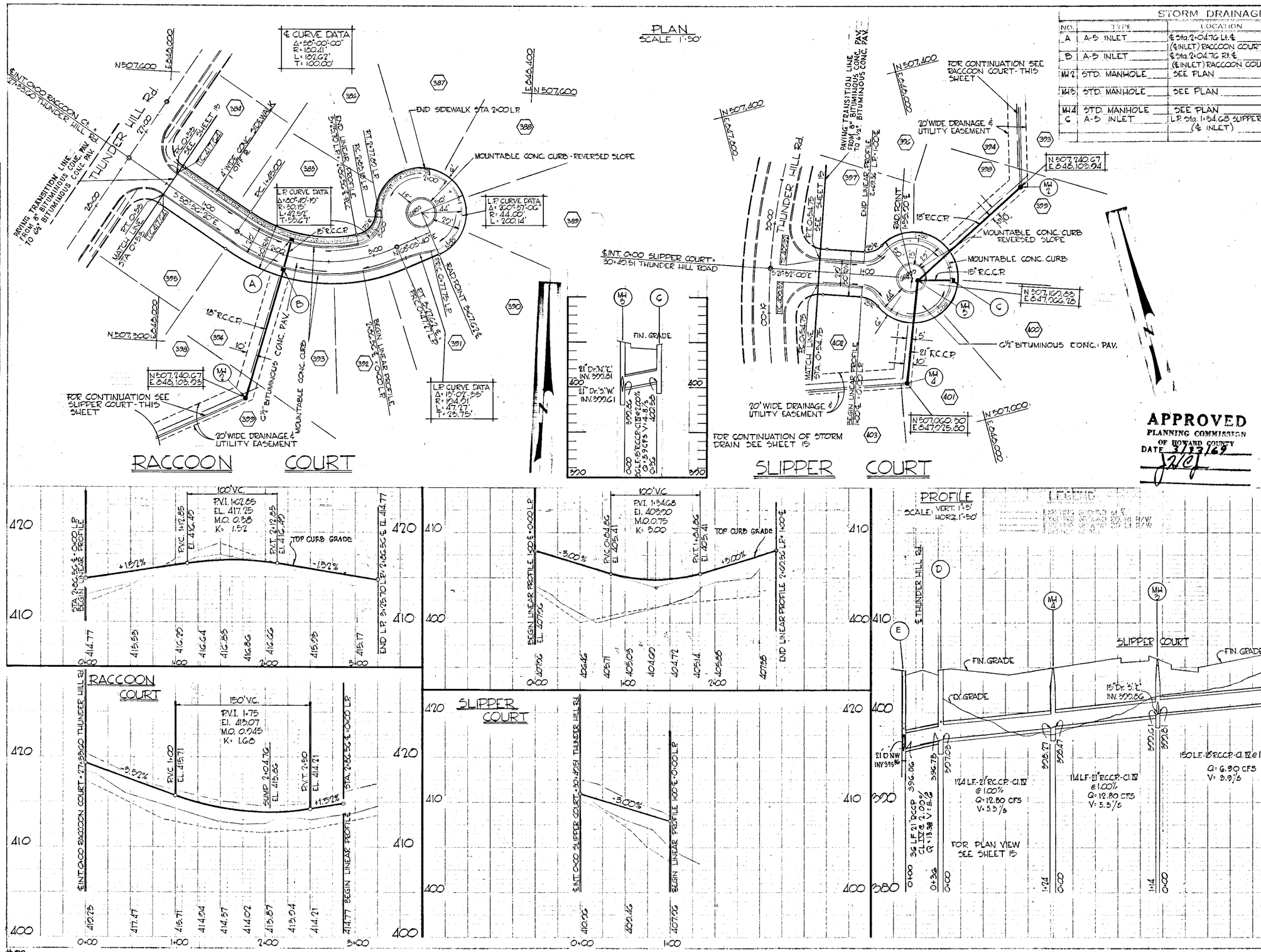


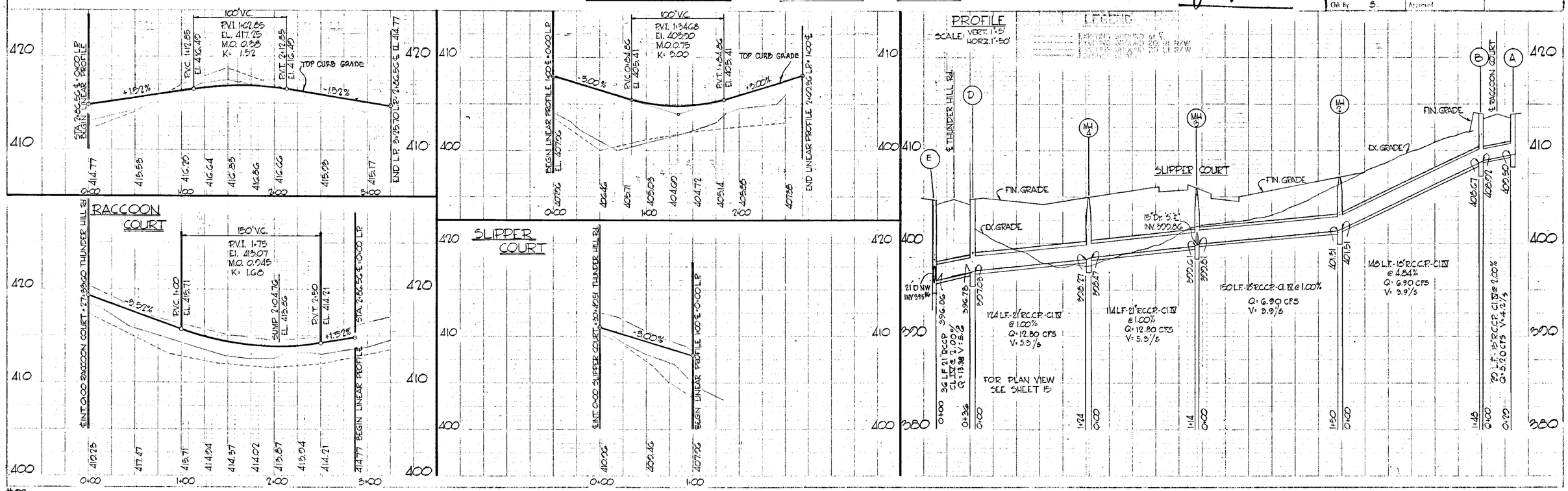
#89

F-68-93

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	R.C.P. (I.D.)	REMARKS
A	A-5 INLET	℄ Sta. 2+04.76 Lt. ℄ (℄ INLET) RACCOON COURT		409.50	414.03	SEE DETAIL SHEET
B	A-5 INLET	℄ Sta. 2+04.76 Rt. ℄ (℄ INLET) RACCOON COURT	408.97	408.97	414.03	" " "
MH2	STD. MANHOLE	SEE PLAN	401.51	401.51		Ho. Co. Std. Dwg. D-103 Pg. 158
MH3	STD. MANHOLE	SEE PLAN	15" 399.86 15" 399.81	399.61		Ho. Co. STD DWG D-103 Pg. 158
MH4	STD. MANHOLE	SEE PLAN	398.47	398.77		Ho. Co. Std. Dwg. D-103 & 158
C	A-5 INLET	L.P. Sta. 1+34.68 SLIPPER Ct. (℄ INLET)		400.58	404.87	SEE DETAIL SHEET





STATE OF MARYLAND — RICHARD P. BROWNE — No. 5238

RICHARD P BROWNE 5238

ENGINEERS
COLUMBIA, MARYLAND

Rev. Date	Rev. No	Revision Description

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT - HOWARD COUNTY
HOWARD RESEARCH AND DEVELOPMENT CORP
THE VILLAGE OF GRAMS KEYS - BALTIMORE, MARYLAND 21210

PROJECT: VILLAGE OF OAKLAND MILLS - SECT 1
THUNDER HILL AREA 4

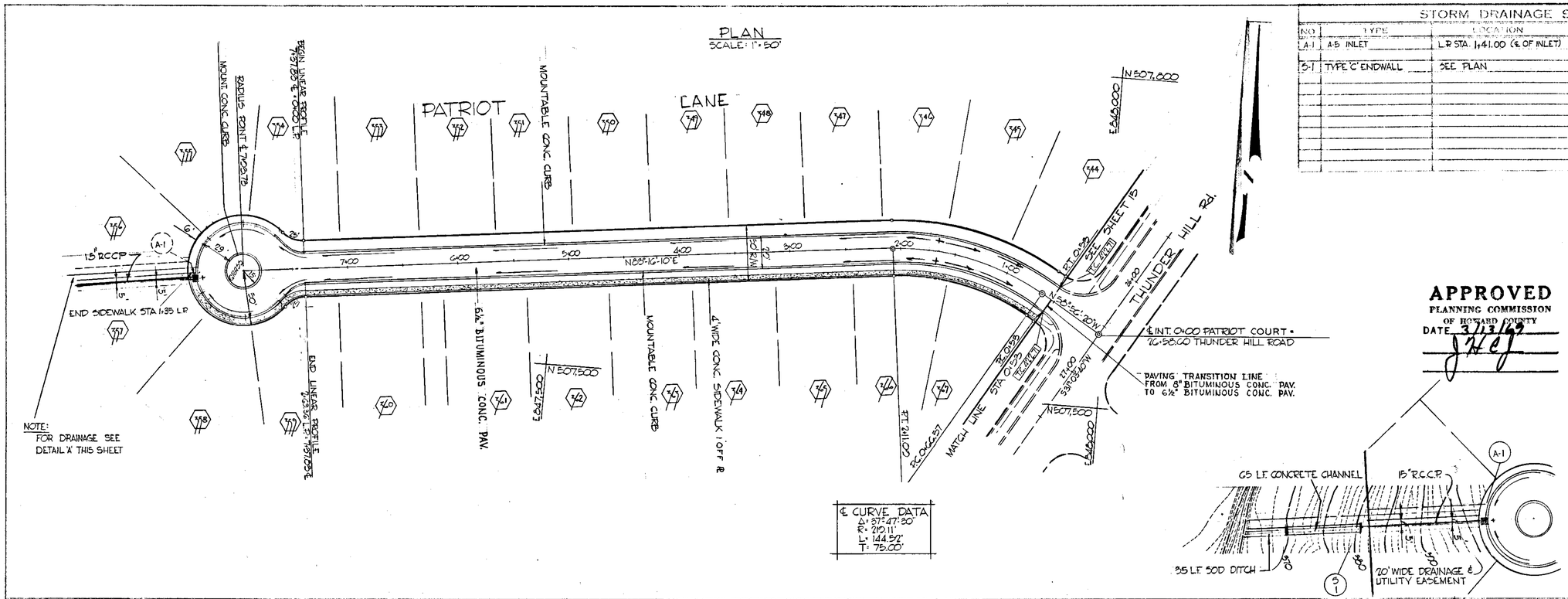
TITLE: PLAN & PROFILE
RACCOON Ct. AND SLIPPER Ct.

Des By T.S.	Scale AS SHOWN	Dwg. No. 22 OF 27	
Dra By F.T.	Date 10-11-68	C.C.L. No	
Chk By S.	Approved		

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

#89

F-68-93



STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	F.C. PELLET	REMARKS
A-1	A-5 INLET	L.P. STA. 1+41.00 (℄ OF INLET)		393.00	399.64	SEE DETAIL SHEET
S-1	TYPE 'C' ENDWALL	SEE PLAN		376.50		Ho. Co. Std Dwg. D-52 Pg. 107

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69
JHCJ

RICHARD P. BROWNE 5238

ENGINEERS
COLUMBIA, MARYLAND

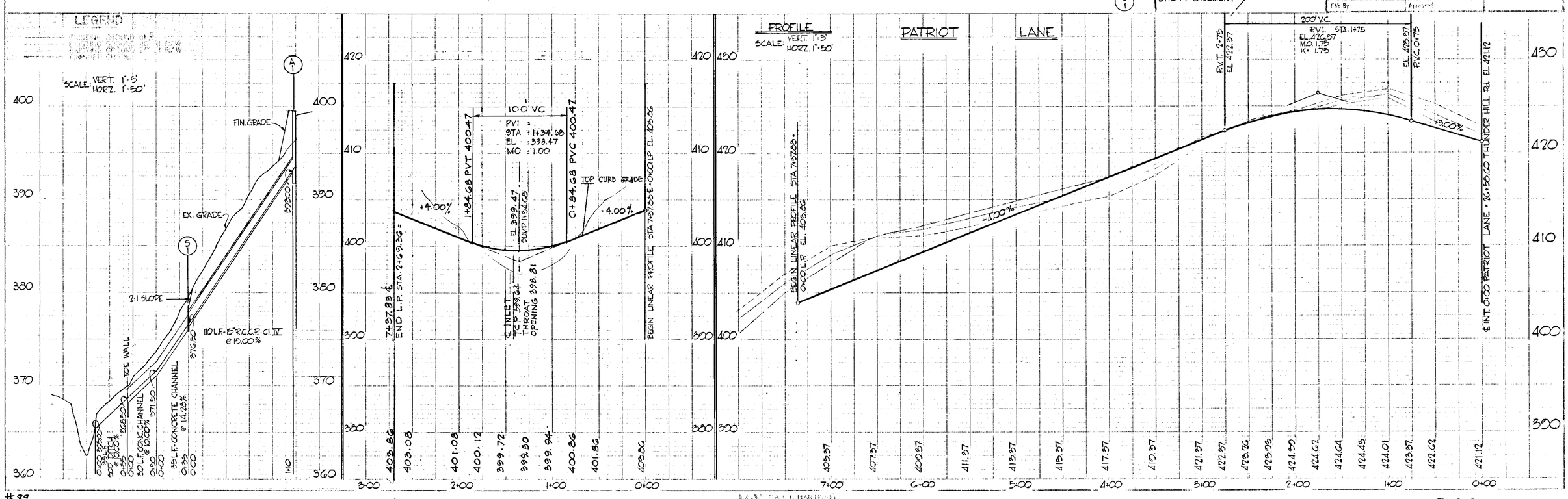
Rev Date	Rev No	Revision Description

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT - HOWARD COUNTY
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF GROSS KEYS - BALTIMORE, MARYLAND 21210

PROJECT NO.
VILLAGE OF OAKLAND MILLS-SECT. 1
THUNDER HILL AREA 4

PROJECT TITLE
PATRIOT LANE
PLAN & PROFILE

Dsg By T.S.	Scale AS SHOWN	Dwg. No. 23 OF 27	
Drn By F.T.	Date 10-11-68		
Chk By	Approved		



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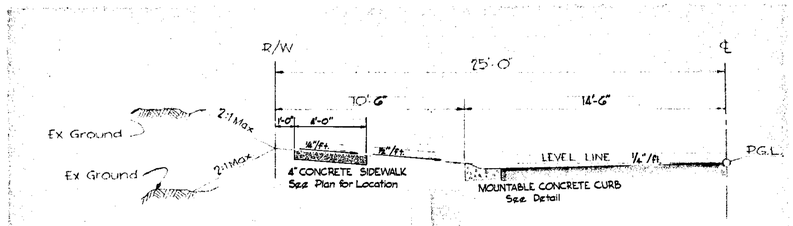
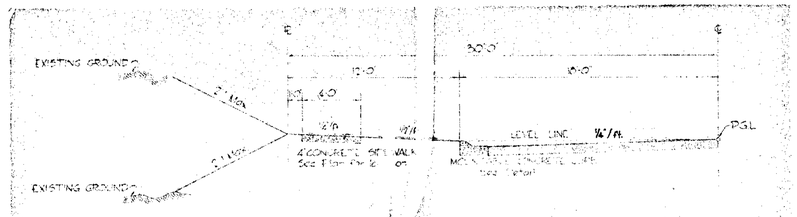
F-68-93



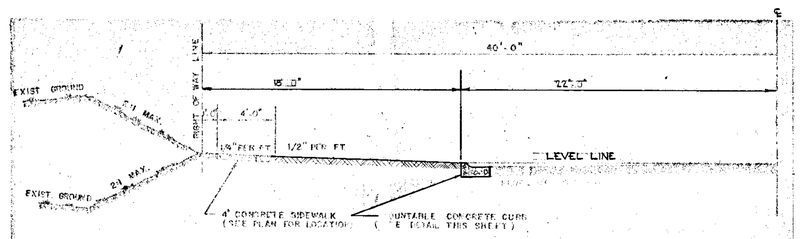
50' R.O.W. TYPICAL HALF-SECTION

SCALE



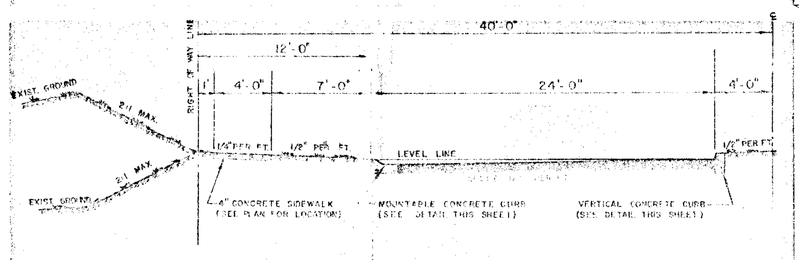
60' R.O.W. TYPICAL HALF-SECTION

SCALE 1" = 5'



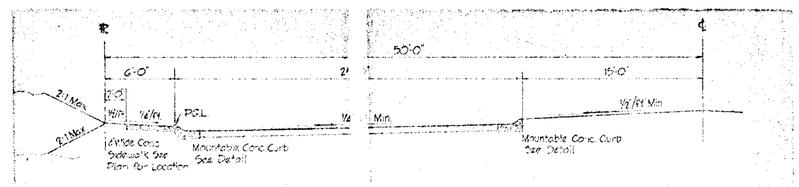
80' R.O.W. TYPICAL HALF-SECTION

SCALE 1" = 5'



80' R.O.W. TYPICAL HALF-SECTION

SCALE 1" = 5'



TYPICAL CUL-DE-SAC HALF-SECTION

NO SCALE

BITUMINOUS CONCRETE SURFACE	1½"	BAND C-3	FINAL PHASE
BITUMINOUS CONCRETE BINDER	3½"	BAND A-3	
BITUMINOUS CONCRETE BASE PLACED IN ONE COURSE	10"	BAND C-2 OR C-3	FIRST PHASE

CLEARING AND GRADING	ARTICLE C-1
SUBGRADE	ARTICLE C-2
BASE COURSE	ARTICLE C-3 (or C-3S)
BINDER COURSE	ARTICLE C-3
SURFACE COURSE	ARTICLE C-3

NOTE:
PAVEMENT TO BE CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY ROAD CONSTRUCTION CODE AND SPECIFICATIONS DWG D-1.15, R6.165

8" PAVEMENT DETAIL

NO SCALE

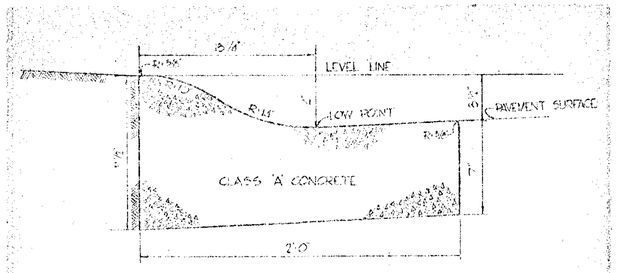
BITUMINOUS CONCRETE SURFACE	1½"	BAND C-3	FINAL PHASE
BITUMINOUS CONCRETE BASE PLACED IN ONE COURSE	10"	BAND C-2 OR C-3	FIRST PHASE

CLEARING AND GRADING	ARTICLE C-1
SUBGRADE	ARTICLE C-2
BASE COURSE	ARTICLE C-3 (or C-3S)
SURFACE COURSE	ARTICLE C-3

NOTE:
PAVEMENT TO BE CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY ROAD CONSTRUCTION CODE AND SPECIFICATIONS DWG D-1.15, R6.165

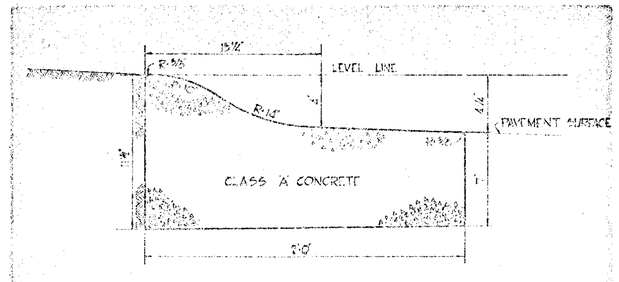
6½" PAVEMENT DETAIL

NO SCALE



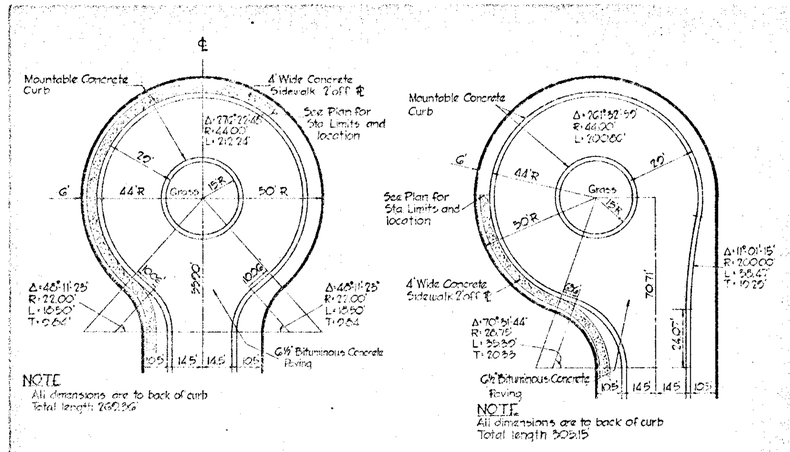
MOUNTABLE CONCRETE CURB

NO SCALE



MOUNTABLE CONCRETE CURB FOR CUL-DE-SAC ISLANDS

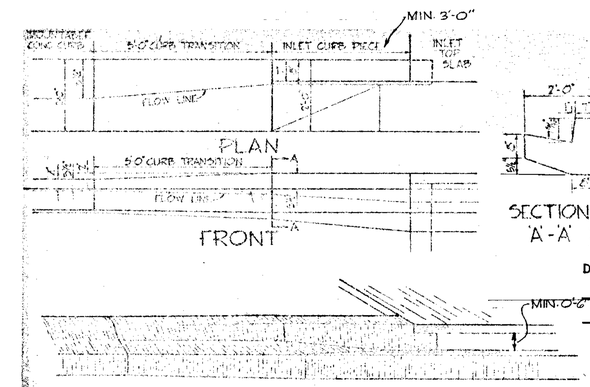
NO SCALE

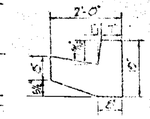


DETAIL 'A' DETAIL 'B'

TYPICAL CUL-DE-SAC DETAILS

SCALE 1" = 30'



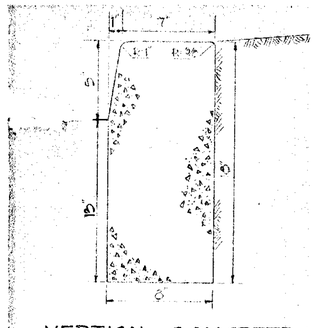


SECTION 'A-A'

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

5' CURB TRANSITION

(TO BE PRECAST)



VERTICAL CONCRETE CURB

NO SCALE

STATE OF MARYLAND
RICHARD P. BROWNE
No. 5238
PROFESSIONAL ENGINEER & LAND SURVEYOR

RICHARD P. BROWNE 5238

BROWNE-PANDJILLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description

COLUMBIA
6TH ELECTION DISTRICT HOWARD COUNTY
MARYLAND

OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

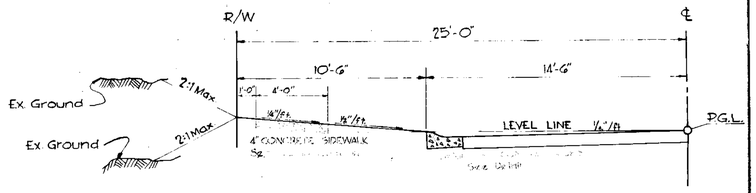
PROJECT AREA
VILLAGE OF OAKLAND MILLS SEC. 1
THUNDER HILL AREA 4

PROJECT TITLE
DETAILS

Des By B.P.	Scale AS SHOWN	Dwg No 24 of 27
Drn By F.T. & J.B.	Date 10-11-60	C.C.F. No
Chk By	Approved	

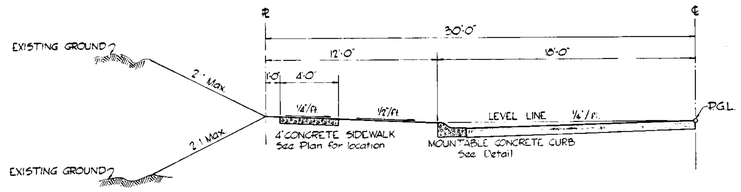
#89

F-68-93



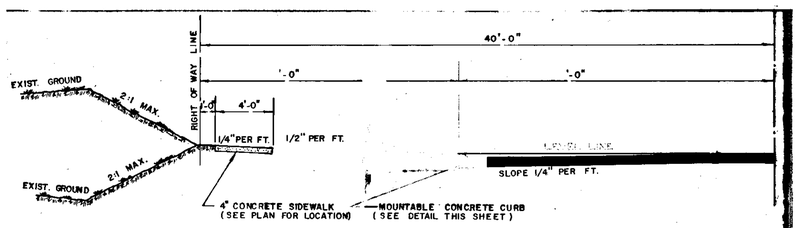
50' R.O.W. TYPICAL HALF-SECTION

NO SCALE



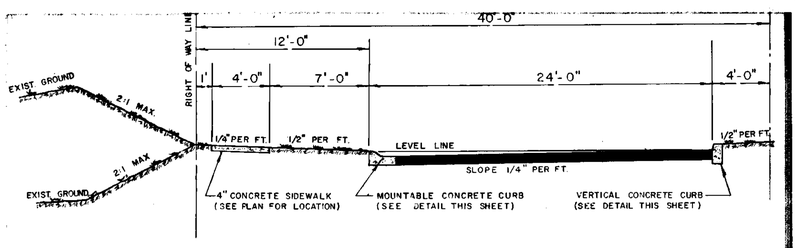
60' R.O.W. TYPICAL HALF-SECTION

SCALE 1"=5'



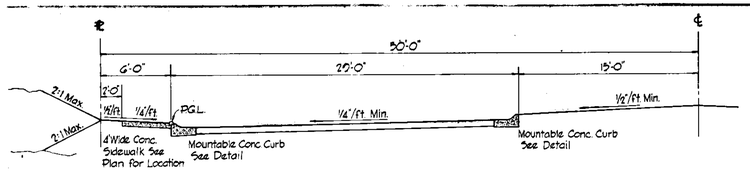
80' R.O.W. TYPICAL HALF-SECTION

SCALE: 1" = 5'



80' R.O.W. TYPICAL HALF- SECTION

SCALE: 1" = 5'



TYPICAL CUL-DE-SAC HALF-SECTION

NO SCALE

BITUMINOUS CONCRETE SURFACE	1½"	BAND C-3	FINAL PHASE
BITUMINOUS CONCRETE BINDER	1½"	BAND A-3	
BITUMINOUS CONCRETE BASE PLACED IN ONE COURSE	5"	BAND C-2 OR C-3	FIRST PHASE

CLEARING AND GRADING	ARTICLE C-1
SUBGRADE	ARTICLE C-2
BASE COURSE	ARTICLE C-31 or C-33
BINDER COURSE	ARTICLE C-31
SURFACE COURSE	ARTICLE C-31

NOTE:
PAVEMENT TO BE CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY ROAD CONSTRUCTION CODE AND SPECIFICATIONS DWG. D-113 PG. 165

8" PAVEMENT DETAIL

NO SCALE

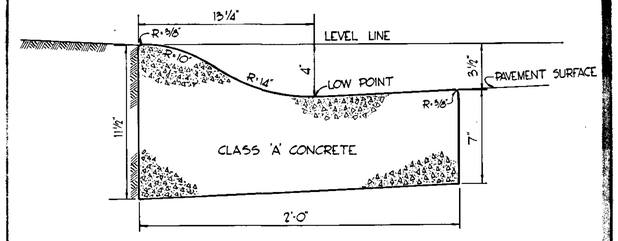
BITUMINOUS CONCRETE SURFACE	1½"	BAND C-3	FINAL PHASE
BITUMINOUS CONCRETE BASE PLACED IN ONE COURSE	5"	BAND C-2 OR C-3	FIRST PHASE

CLEARING AND GRADING	ARTICLE C-1
SUBGRADE	ARTICLE C-2
BASE COURSE	ARTICLE C-31 or C-33
SURFACE COURSE	ARTICLE C-31

NOTE:
PAVEMENT TO BE CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY ROAD CONSTRUCTION CODE AND SPECIFICATIONS DWG. D-113 PG. 165

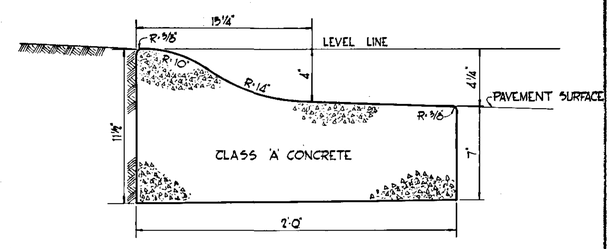
6½" PAVEMENT DETAIL

NO SCALE



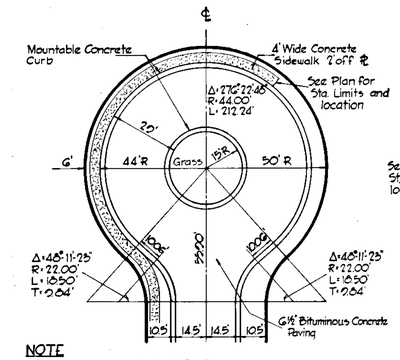
MOUNTABLE CONCRETE CURB

NO SCALE



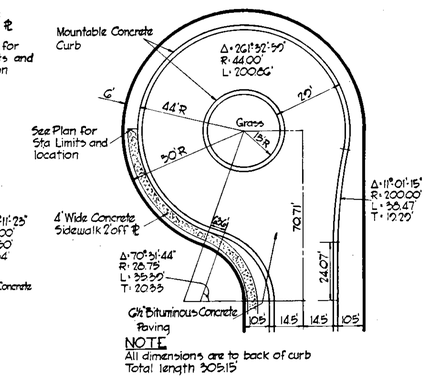
MOUNTABLE CONCRETE CURB FOR CUL-DE-SAC ISLANDS

NO SCALE



NOTE
All dimensions are to back of curb
Total length 260.96'

DETAIL 'A'

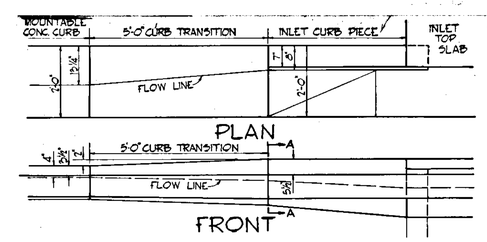


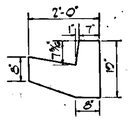
NOTE
All dimensions are to back of curb
Total length 309.15'

DETAIL 'B'

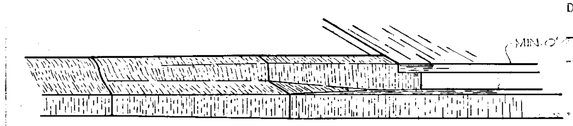
TYPICAL CUL-DE-SAC DETAILS

SCALE 1"=30'



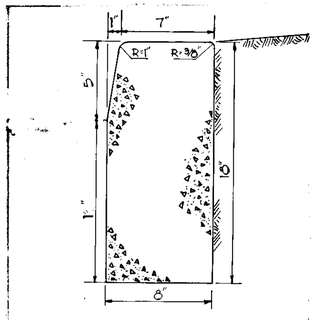


SECTION 'A'-'A'



5' CURB TRANSITION

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69



VERTICAL CONCRETE CURB

NO SCALE

RICHARD E. BROWNE 5138

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description

COLUMBIA
5TH ELECTION DISTRICT HOWARD COUNTY
MARYLAND

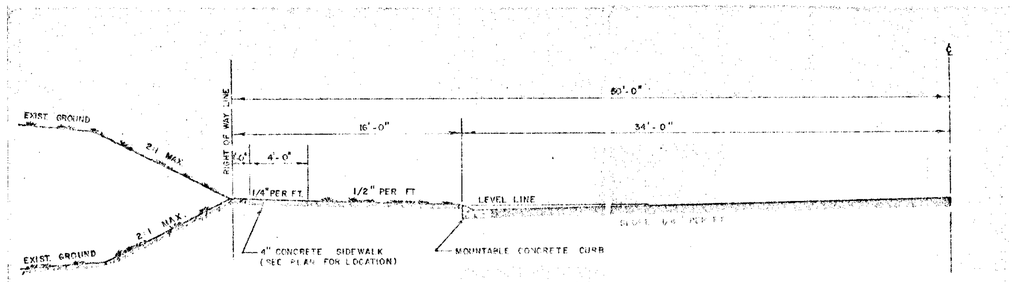
OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

PROJECT AREA
VILLAGE OF OAKLAND MILLS SEC. 1
THUNDER HILL AREA 4

PROJECT TITLE
DETAILS

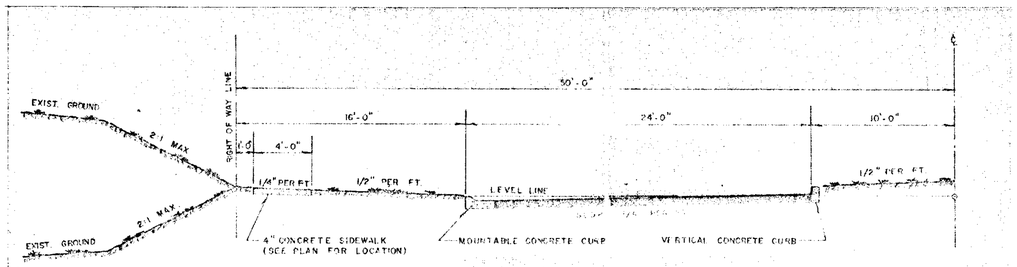
Des By B.R.	Scale AS SHOWN	Dwg No 24 of 27
Drn By F.T. & J.B.	Date 10-11-68	C.C.F. No
Chk By	Approved	

#89



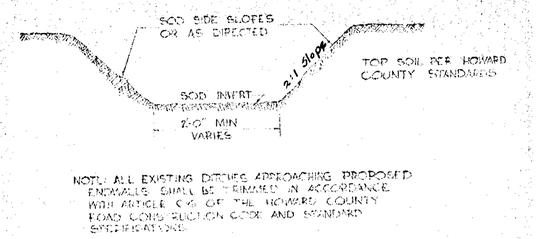
100' R.O.W. TYPICAL HALF - SECTION

SCALE: 1" = 5'



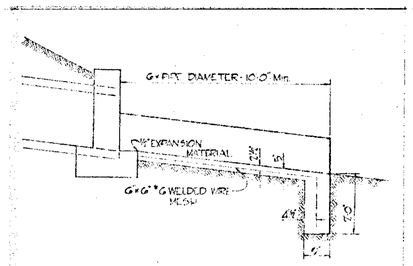
100' R.O.W. TYPICAL HALF - SECTION

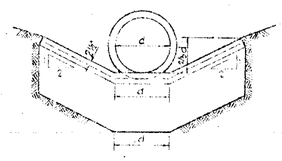
SCALE: 1" = 5'



TYPICAL DRAINAGE DITCH

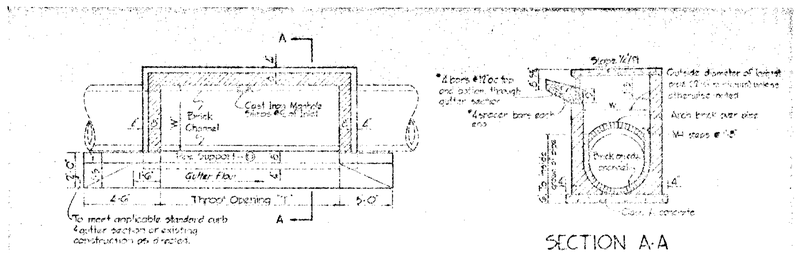
NO SCALE





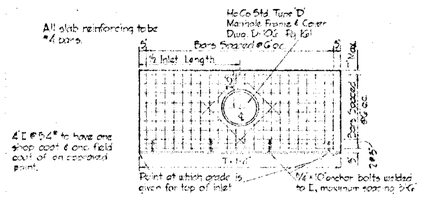
TYPICAL CONCRETE CHANNEL AND CUTOFF WALL

NO SCALE

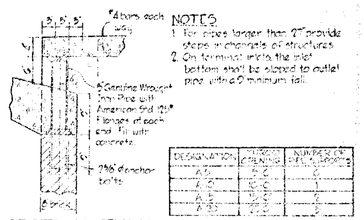


PLAN BELOW SLAB

SECTION A-A

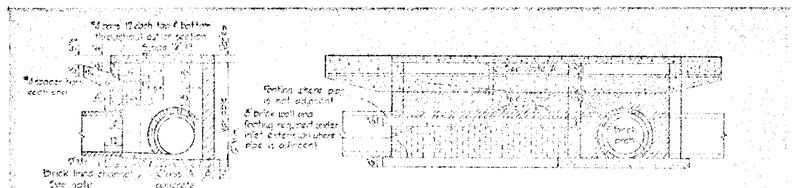


SLAB



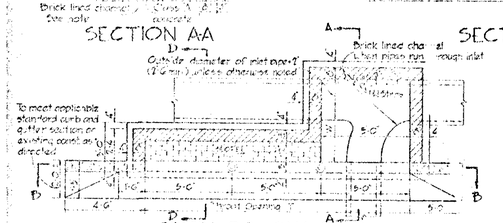
SECTION THRU PIPE SUPPORT

'A' INLET DETAIL

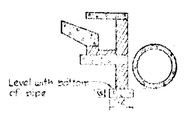


SECTION A-A

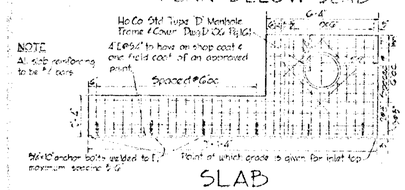
SECTION B-B



PLAN BELOW SLAB



SECTION D-D



SLAB

NOTES

A. 3 Gen... Wrought Iron Pipe with ... Flange ... at each end. Fill pipe with c... rete.

B. Where ... inlets ... form drains run through ... inlets, the inlet bottom shall be ... with brick lined channels ... for Manholes on ... inlets, the inlet bottom ... sloped to outlet pipe ... minimum fall.

C. For pipes larger than 12" provide steps in channels of structures.

DESIGNATION	TYPE OF COVER	NUMBER OF PIPE SUPPORTS
B-10	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

'B' INLET DETAIL

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

RICHARD P. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT HOWARD COUNTY
OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

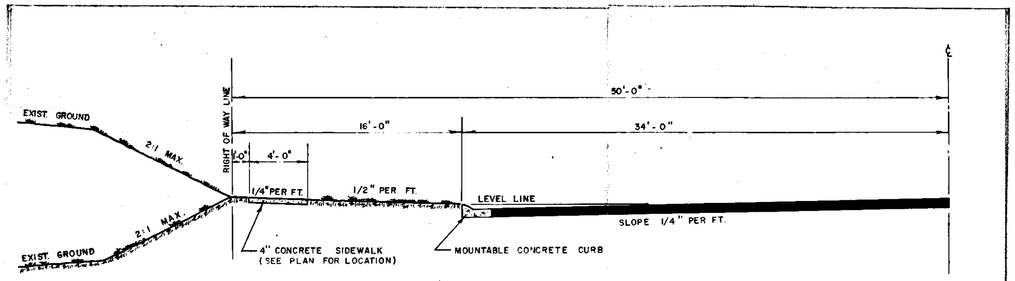
PROJECT AREA
VILLAGE OF OAKLAND MILLS SEC. 1
THUNDER HILL AREA 4

PROJECT TITLE
DETAILS

Des By B.P.	Scale AS SHOWN	Dwg No 25 of 27
Drn By F.T. & J.B.	Date 10-11-68	C.C.F. No
Chk By	Approved	

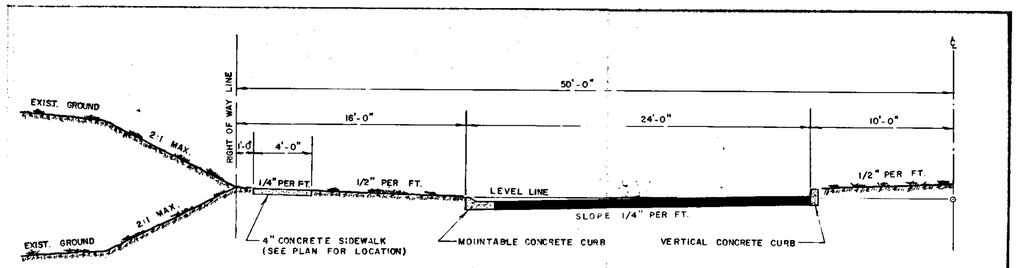
#89

F-68-93



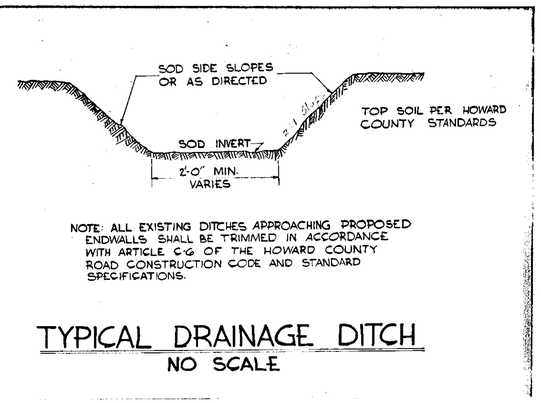
100' R.O.W. TYPICAL HALF - SECTION

SCALE: 1" = 5'



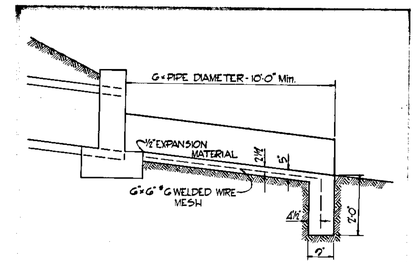
100' R.O.W. TYPICAL HALF - SECTION

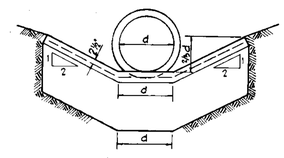
SCALE: 1" = 5'



TYPICAL DRAINAGE DITCH

NO SCALE



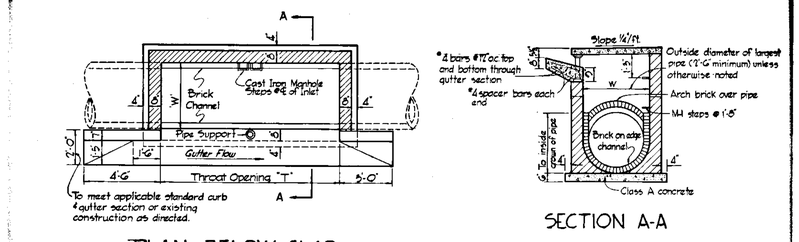


TYPICAL CONCRETE CHANNEL AND CUTOFF WALL

NO SCALE

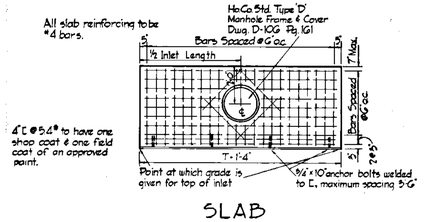
APPROVED
PLANNING BOARD
HOWARD COUNTY
DATE 3/13/69

RICHARD P. BROWNE 5238

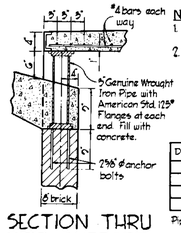


PLAN BELOW SLAB

SECTION A-A



SLAB



SECTION THRU PIPE SUPPORT

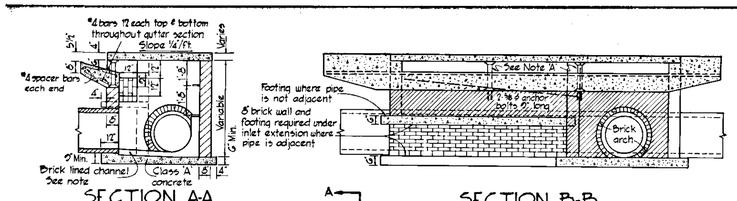
NOTES

1. For pipes larger than 27" provide steps in channels of structures
2. On terminal inlets, the inlet bottom shall be sloped to outlet pipe with a 0' minimum fall.

DESIGNATION	THROAT OPENING	NUMBER OF PIPE SUPPORTS
A-5	5'-0"	0
A-10	10'-0"	1
A-15	15'-0"	2
A-20	20'-0"	3

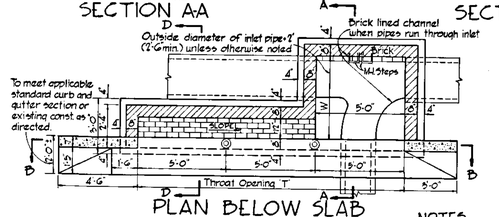
Pipe supports to be placed 5'-0" o.c.

'A' INLET DETAIL

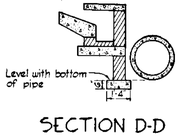


SECTION A-A

SECTION B-B



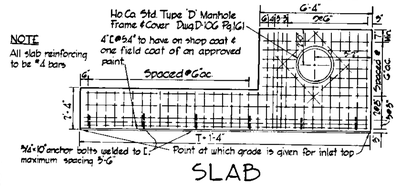
PLAN BELOW SLAB



SECTION D-D

NOTE

All slab reinforcing to be #4 bars



SLAB

NOTES

A. 5" Genuine Wrought Iron Pipe with American Standard 125# Flanges at each end. Fill pipe with concrete.

B. Where storm drains run through inlets, the inlet bottom shall be formed with brick lined channels as shown for Manholes on terminal inlets, the inlet bottom shall be sloped to outlet pipe with a 0' minimum fall.

C. For pipes larger than 27" provide steps in channels of structures.

DESIGNATION	THROAT OPENING	NUMBER OF PIPE SUPPORTS
B-10	10'-0"	1
B-15	15'-0"	2
B-20	20'-0"	3

'B' INLET DETAIL

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description

COLUMBIA
MARYLAND
6TH ELECTION DISTRICT HOWARD COUNTY
OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

PROJECT AREA
VILLAGE OF OAKLAND MILLS SEC. 1
THUNDER HILL AREA 4

PROJECT TITLE
DETAILS

Des By B.R.	Scale AS SHOWN	Dwg No 25 of 27
Drn By F.T. & J.B.	Date 10-11-68	C.C.F. No
Chk By	Approved	

#89

F-68-92

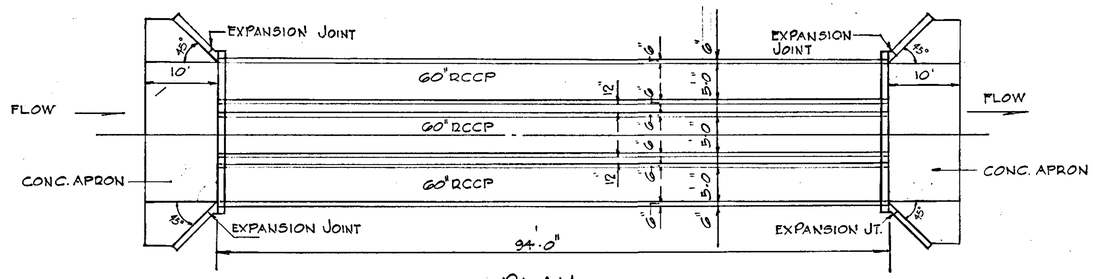
GENERAL NOTES:

LOADING: H 20 S-16-44

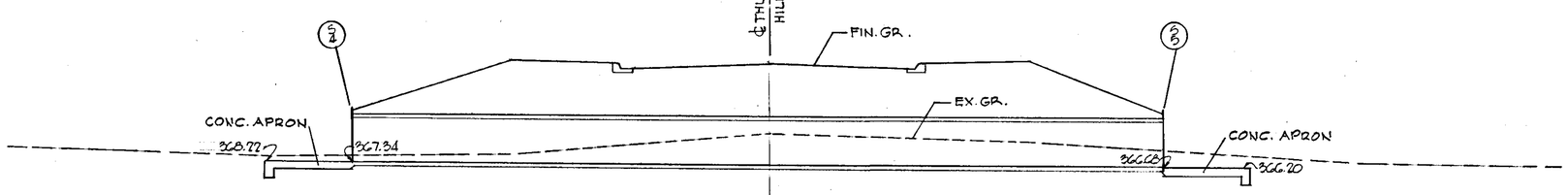
REINFORCING: REINFORCEMENT SHALL BE INTERMEDIATE GRADE DEFORMED BARS OF BILLET STEEL CONFORMING A.S.T.M. SPECS. A-15 & A-305.

CONCRETE: ALL CONC. SHALL BE CLASS 'A' 3000 PSI 28 DAY STRENGTH. CONC. SHALL CONFORM TO ASTM SPECS. C-33-61T, & C-175 ALL EXPOSED SURFACES SHALL HAVE A CLASS 1 RUBBED FINISH, OTHER SURFACES SHALL BE AN ORDINARY SURFACE FINISH.

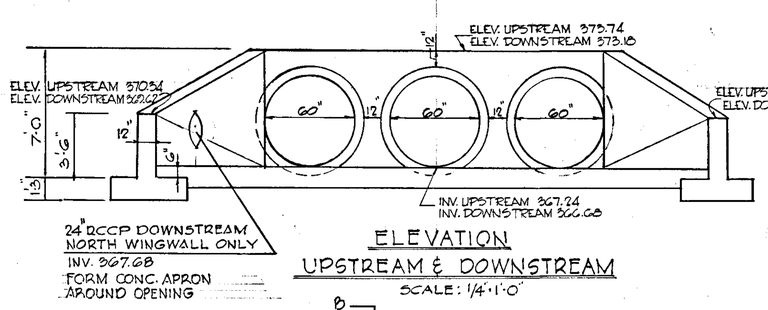
CHAMFER: ALL EXPOSED SURFACES SHALL BE CHAMFERED 3/4" x 3/4".



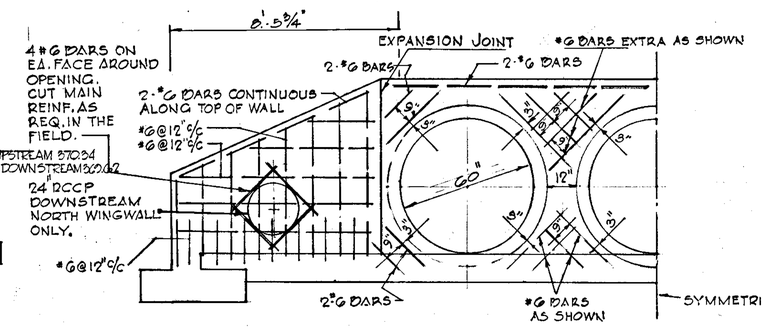
PLAN
SCALE: 1" = 1'-0"



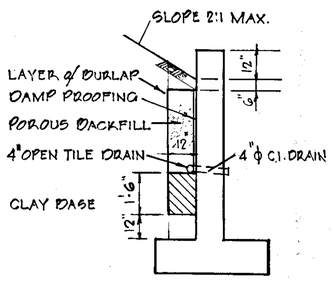
SECTION AT CHANNEL ℄
SCALE: 1/8" = 1'-0"



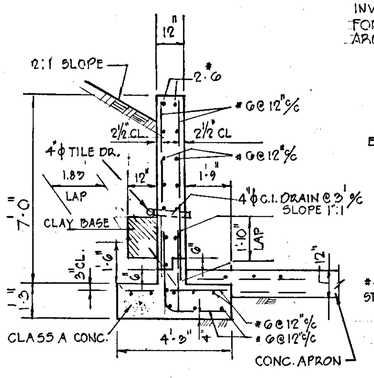
ELEVATION
UPSTREAM & DOWNSTREAM
SCALE: 1/4" = 1'-0"



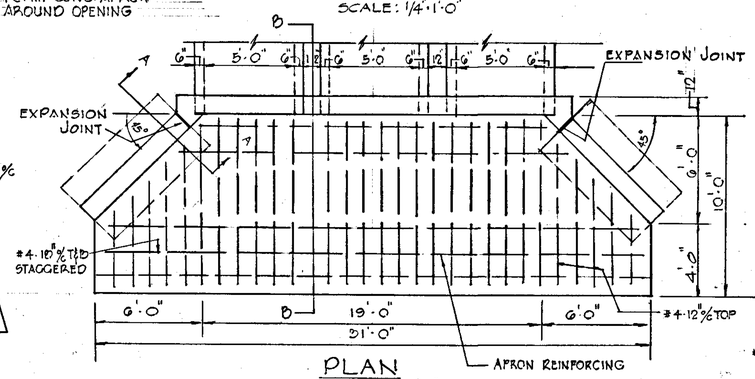
1/2 SECTION
WINGWALL & HEADWALL
UPSTREAM & DOWNSTREAM
SCALE: 3/8" = 1'-0"



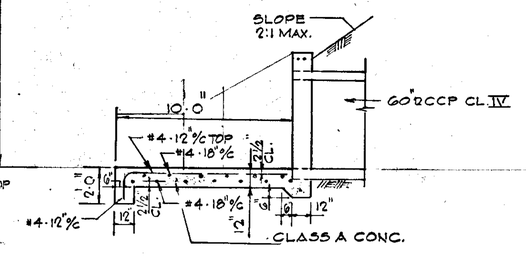
TYPICAL WALL
BACKFILL SECT.
SCALE: 3/8" = 1'-0"



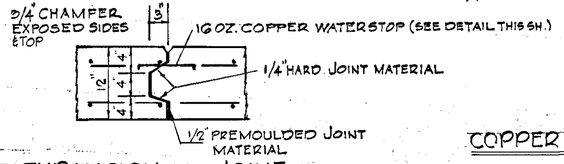
SECTION A-A
SCALE: 3/8" = 1'-0"



PLAN
SCALE: 1/4" = 1'-0"



SECTION B-B
SCALE: 1/4" = 1'-0"



EXPANSION JOINT
DETAIL
SCALE: 1" = 1'-0"

NOTE: STOP KEY & WATERSTOP 6" BELOW TOP OF WALL

COPPER WATERSTOP DETAIL
SCALE: 1" = 1'-0"

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

RICHARD P. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description

COLUMBIA
MARYLAND
OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

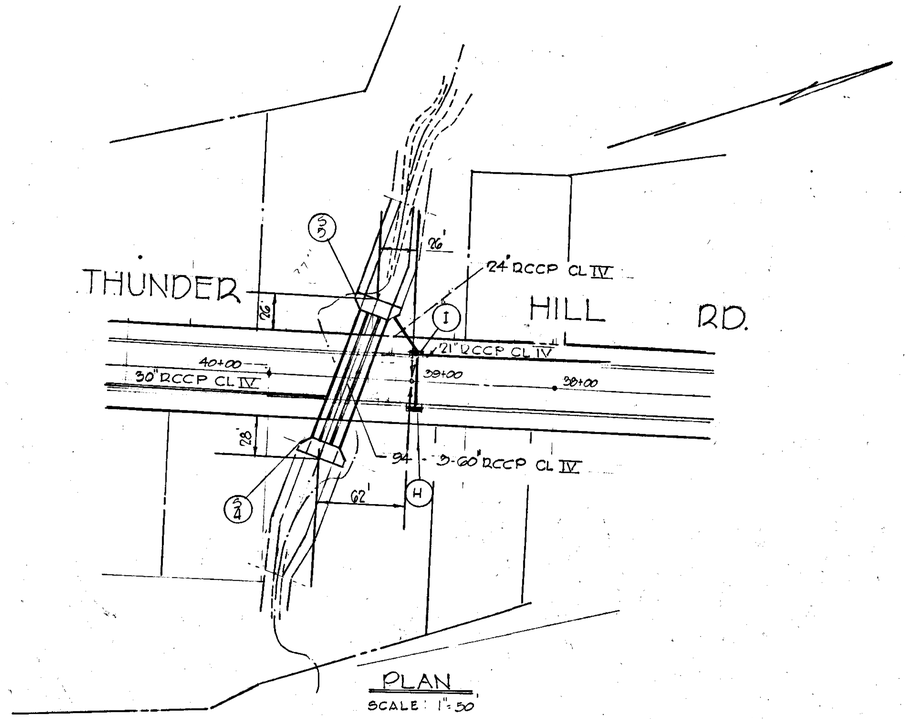
PROJECT AREA VILLAGE OF OAKLAND MILLS
SECTION 1 AREA 4

PROJECT TITLE STRUCTURAL DETAILS
3-60" RCCP THUNDER HILL RD.

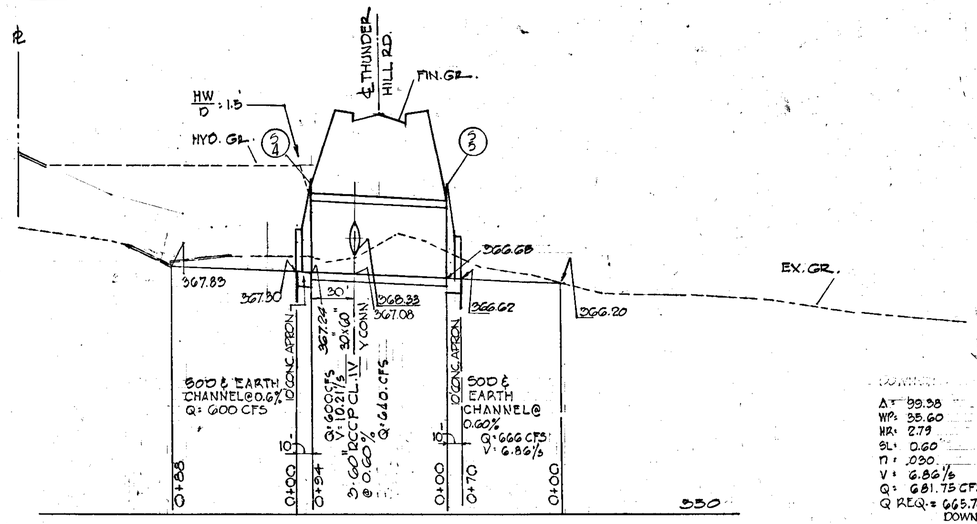
Des By TKS	Scale AS SHOWN	Dwg No 26 of 27
Drn By TKS	Date 10-11-68	C.C.F. No
Chk By S	Approved	

89

F-68-93

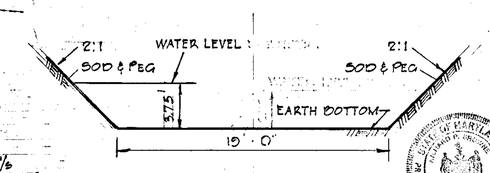


PLAN
SCALE: 1"=50'



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

TYPICAL PAVED SECTION
UPSTREAM & DOWNSTR.



A = 99.38
WP = 35.60
HR = 2.79
SL = 0.60
n = .030
V = 6.86'/s
Q = 681.75 CFS
Q REQ = 665.76 CFS DOWNSTR.
Q REQ = 600 CFS UPSTREAM

TYPICAL SODDED SECTION
UPSTREAM & DOWNSTR.
SCALE: 1"=5'

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 3/13/69

RICHARD P. BROWNE 5238

BROWNE-PANDULLO & ASSOCIATES
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PROJECT AREA VILLAGE OF OAKLAND MILLS
SECTION 1 AREA 4

PROJECT TITLE PLAN & PROFILE
3-60" RCCP · THUNDER HILL RD.

Des By TKS	Scale AS SHOWN	Dwg No 27 of 27
Drn By TKS	Date 10-11-68	C.C.F. No
Chk By S	Approved	

#89

F-68-93