REVISIONS

COLUMBIA

HOWARD COUNTY, MARYLAND

6 th. ELECTION DISTRICT

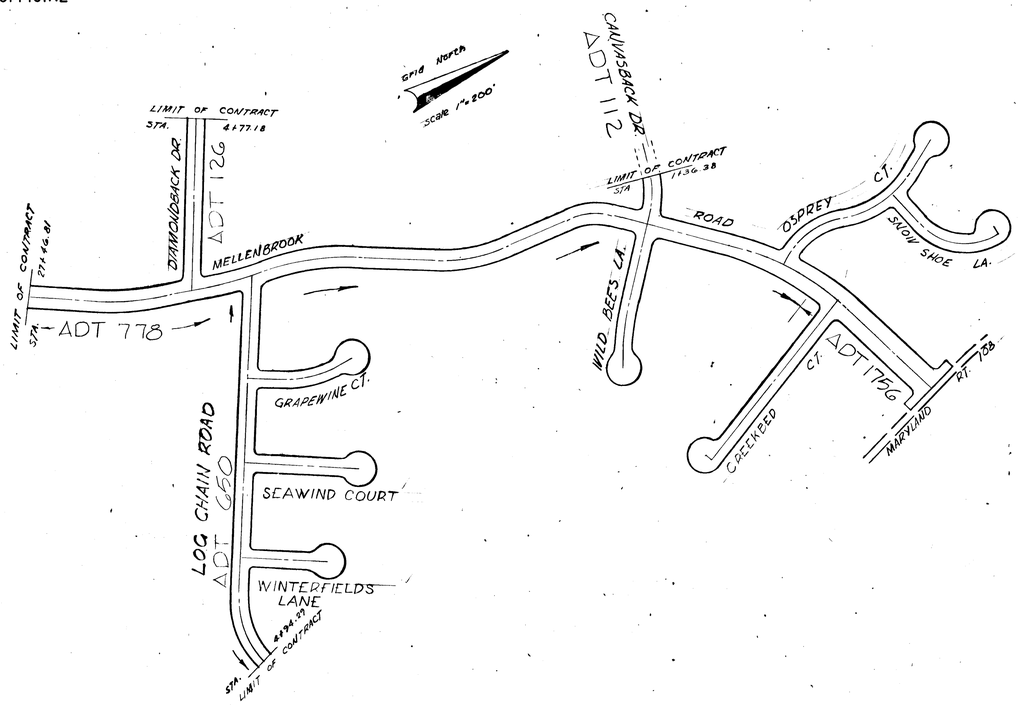
CONSTRUCTION PLANS

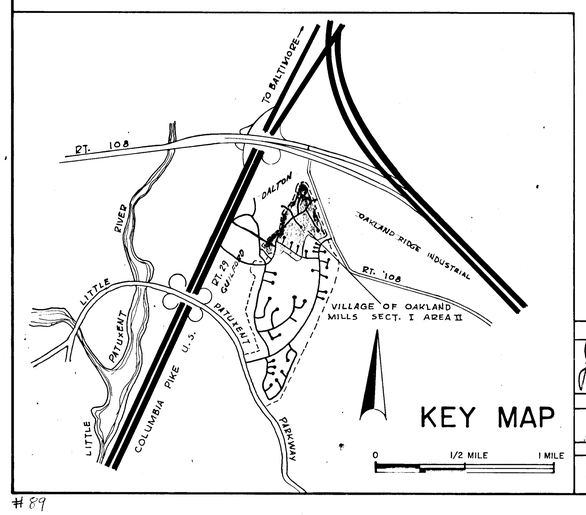
VILLAGE OF OAKLAND MILLS SECTION 1

THUNDER HILL AREA 2

NOTE:

1. ALL DETAILS ARE FROM "ROAD CONSTRUCTION CODE AND STANDARD SPECIFICATIONS" ISSUED OR APPROVED BY THE COUNTY COMMISSIONERS OR THE HOWARD COUNTY ROADS DEPARTMENT.
2. CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES, AT LEAST 48 HOURS BEFORE CONSTRUCTION.
3. ALL ROADS ARE DESIGNED FOR 25 M.P.H. TRAFFIC SPEED IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF THE STATE HIGHWAY OFFICIAL STANDARDS.





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6	CREEKBED COURT
7	OSPREY COURT
8	CANVASBACK DR. & GRAPEWINE CT.
9	DIAMONDBACK DR & LOG CHAIN RD.
10	LOG CHAIN ROAD
11	WINTERFIELDS LANE & SEAWIND COURT
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15	ROAD CONSTRUCTION DETAILS
16	ROAD CONSTRUCTION DETAILS
13	MELLENBROOK DRAINAGE DISCHARGE

ESTIMATE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY

OWNER & DEVELOPER

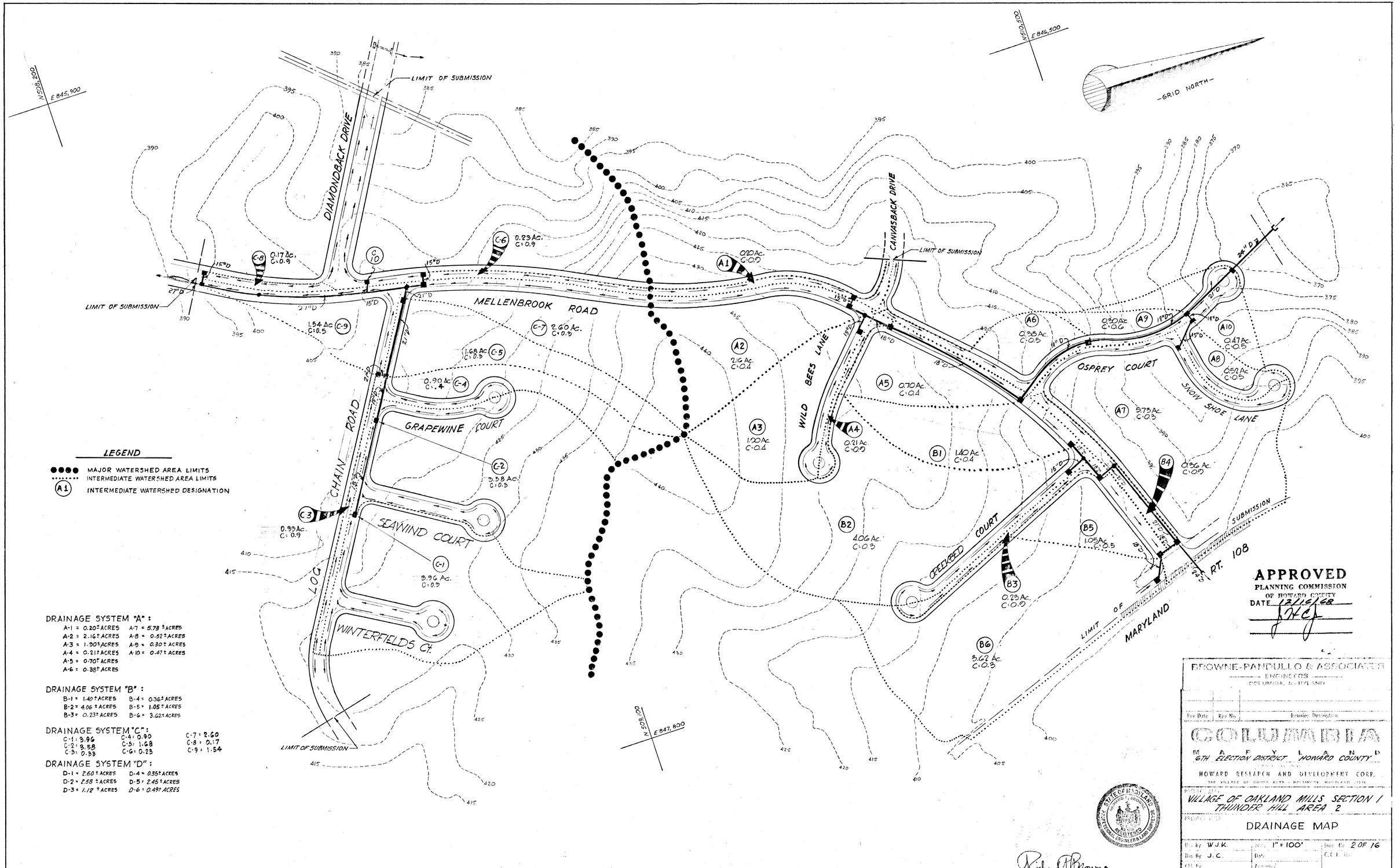
THE HOWARD RESEARCH AND DEVELOPMENT CORP.
THE VILLAGE OF CROSS KEYS
BALTIMORE, MARYLAND

APPROVED HOWARD COUNTY PLANNING COMM.	
J. H. Clawson — CHIEF ENGINEER	12-16-68 DATE
APPROVED HOWARD COUNTY ROADS DEPT	
Granville H. Nickland — ROADS SUPERINTENDENT	12-11-68 DATE
APPROVED HOWARD COUNTY METROPOLITAN COMM	
CHIEF ENGINEER	12-11-68 DATE

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

RICHARD P. BROWNE, P.E. & L.S.
LIC. NO. 5238 STATE MD.

#89



LEGEND

- MAJOR WATERSHED AREA LIMITS
- INTERMEDIATE WATERSHED AREA LIMITS
- (A1) INTERMEDIATE WATERSHED DESIGNATION

DRAINAGE SYSTEM "A" :

A-1 = 0.20± ACRES	A-7 = 5.73 ± ACRES
A-2 = 2.16± ACRES	A-8 = 0.52± ACRES
A-3 = 1.90± ACRES	A-9 = 0.30 ± ACRES
A-4 = 0.21± ACRES	A-10 = 0.47 ± ACRES
A-5 = 0.70± ACRES	
A-6 = 0.38± ACRES	

DRAINAGE SYSTEM "B" :

B-1 = 1.40 ± ACRES	B-4 = 0.36± ACRES
B-2 = 4.06 ± ACRES	B-5 = 1.05 ± ACRES
B-3 = 0.23± ACRES	B-6 = 3.62± ACRES

DRAINAGE SYSTEM "C" :

C-1 = 3.96	C-4 = 0.90	C-7 = 2.60
C-2 = 3.58	C-5 = 1.68	C-8 = 0.17
C-3 = 0.33	C-6 = 0.23	C-9 = 1.54

DRAINAGE SYSTEM "D" :

D-1 = 2.60 ± ACRES	D-4 = 0.35± ACRES
D-2 = 2.58 ± ACRES	D-5 = 2.45 ± ACRES
D-3 = 1.12 ± ACRES	D-6 = 0.49± ACRES

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 12/16/68

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description

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

PROJECT
VILLAGE OF OAKLAND MILLS SECTION 1
THUNDER HILL AREA 2

SUBJECT
DRAINAGE MAP

Des. by W.J.K.	Scale 1" = 100'	Sheet No 2 OF 16
Dft. By J.C.	Date	C.C.F. No
Ck'd By	Approved	

STATE OF MARYLAND — RICHARD B. BROWNE — REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR

#89

F-68-96 FILE NO. 1923

NOTE: LOCATION OF OUTFALL DITCH, ENDWALL & PORTION OF PIPE IS TEMPORARY PENDING FUTURE DESIGN OF ROUTE NO. 108 (BY OTHERS)

CONSTRUCT 78 L.F. 18" R.C.C.P. CL. III @ 0.60 %

PLAN
SCALE: 1" = 50'

CONSTRUCT 4' WIDE CONCRETE SIDEWALK 1' OFF ℄

CONSTRUCT 8" BITUMINOUS PAVEMENT

CONSTRUCT 200 L.F. 21" R.C.C.P. CL. II @ 0.60 %

CONSTRUCT 4' WIDE CONCRETE SIDEWALK 1' OFF ℄

CONSTRUCT 342 L.F. 18" R.C.C.P. CL. II @ 3.86 %

GRID NORTH

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
W.H.H. 463-196

N 510,448.01
E 841,897.72

℄ INT. MARYLAND RT. 108 = STA. 0+00 MELLENBROOK RD.

ROUTE No. 108

CONSTRUCT 160 L.F. 24" R.C.C.P. CL. III & CL. IV AS INDICATED

EW-8

PAVEMENT SHALL CONSIST OF: (4) 9" COMPACTED MD. S.R.C. SPEC. "B" BITUMINOUS CONCRETE (6" BASE - 3" SURFACE). OR 12" COMPACTED "PLANT MIX STABILIZED STONE AGGREGATE" PLUS 3½" COMPACTED MD. SPEC. B BIT. CONC. (2" BASE - 1½" SURFACE)

PROP. 10.00 DRAINAGE ESMT.

175' TEMP. SODDED DITCH @ 15 CONC. CHANNEL

EX. 16.5 A.E.T. R/W

R.O.W.

MD. LIMIT OF CONSTRUCTION

ULTIMATE R.O.W.

OPEN SPACE

STATION 0+55.00 PAVEMENT TRANSITION LINE TO 8" (SEE DETAIL SHEET)

END OF SIDEWALK STA. 1+25.00

SEE SECTION DETAIL

B-1 B-2 B-3 B-4 B-5 B-6 B-7 B-8

48 L.F. 15" R.C.C.P. CL. III @ 4.46 % DRAINAGE PROFILE ON SHEET NO. 6 OF 16

MATCH LINE SEE SHEET

CREEKBED

S 23° 47' 40" E

PAVEMENT TRANSITION LINE FROM 8" TO 6½" BITUMINOUS PAVEMENT

0+00 OSPREY COURT = 5+64.99 MELLENBROOK ROAD

℄ CURVE DATA
Δ = 29° 25' 10"
R = 761.828'
T = 200.00'
L = 391.179'

CURVE DATA CURB LT.
Δ = 29° 25' 10"
R = 811.37'
T = 416.61'
L = 213.01'

CONSTRUCT 44 L.F. 15" R.C.C.P. CL. III @ 1.00 %

PT. CURB LT. ℄ STA. 7+40.29

END OF 60' TYPICAL R/W SEC.

MATCH LINE SEE SHEET

S 42° 49' 20" W

STA. 8+00 SEE SHEET NO. 4 OF 16

PT. CURB RT. ℄ STA. 6+73.99'

CONSTRUCT MOUNTABLE CONCRETE CURB & GUTTER

CONSTRUCT MD. S.R.C. TYPE "A" COMB. CURB & GUTTER

CONSTRUCT 48 L.F. 21" R.C.C.P. CL. III @ 1.30 %

CONSTRUCT 68 L.F. 18" R.C.C.P. CL. III @ 1.00 %

CONSTRUCT 260 L.F. 18" R.C.C.P. CL. III @ 5.00 %

CONSTRUCT 4' WIDE CONCRETE SIDEWALK 1' OFF ℄

℄ CURVE DATA
Δ = 59° 44' 00"
R = 182.840'
T = 104.996'
L = 190.619'

CURVE DATA RT.
Δ = 29° 25' 10"
R = 765.78'
T = 365.99'
L = 786.99'

PAVEMENT TRANSITION LINE FROM 8" TO 6½" BITUMINOUS PAVEMENT

CONSTRUCT 3'-2'-0 CONC. CURB & GUTTER

CONSTRUCT MOUNTABLE CONC. CURB & GUTTER

3'-2'-0 CONC. CURB & GUTTER

CROSSING NO. 1

CROSSING NO. 2

CONSTRUCT 48 L.F. 18" R.C.C.P. CL. III @ 1.46 % (SEE DRAINAGE PROFILE)

CONSTRUCT 68 L.F. 18" R.C.C.P. CL. III @ 1.00 %

NOTE: TEST PITS REQUIRED AT GAS CROSSINGS No. 1 & No. 2

EXISTING 12" COLONIAL GAS PIPELINE

EXISTING 6" COLONIAL GAS PIPELINE

COLONIAL GAS PIPELINE R.O.W.

MELLENBROOK ROAD

OSPREY COURT

STOCKO CREEKBED COURT

MH-1

MH 10

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	G.F. ELEV.	REMARKS
B-1	MOD. CL'S' COMB. (SINGLE GR.)	STA. 4+10.00, 27.54' LT. OF ℄		399.82	404.66	SEE DETAIL SH. 14 OF 16
MH 9	STD. MANHOLE	STA. 3+63.00, 26.00' LT. OF ℄	399.98	399.13	—	HO. CO. STD. DRWG. D 108 & 158
B-3	MOD. CL'S' COMB. (SINGLE GR.)	STA. 2+90.00, 28.00' LT. OF ℄	398.45	398.12	403.22	SEE DETAIL SH 14 OF 16
B-4	MOD. CL'S' COMB. (SINGLE GR.)	STA. 0+86.54, 28.00' RT. OF ℄	396.30	394.17	400.75	" "
B-5	MOD. CL'S' COMB. (SINGLE GR.)	STA. 0+86.54, 28.00' LT. OF ℄	395.25	395.05	400.75	" "
B-6	STAND CL'S' COMB. (DOUBLE GR.)	STA. 0+25.00, 70.00' LT. OF ℄		395.72	400.12	DEPRESSED - SEE DETAIL SH 14 OF 16
EW-8	STANDARD TYPE C ENDWALL	AS SHOWN		391.80	—	HO. CO. STD. DRWG D-62 & 107
A-5	MOD. CL'S' COMB. (SINGLE GR.)	STA. 5+80.00, 25.00' LT. OF ℄	406.80	405.00	411.42	SEE DETAIL SH 14 OF 16
MH-1	STANDARD MANHOLE	STA. 2+90.00, 24.00' LT. OF ℄	397.70	397.50		HO. CO. STD. DRWG D-108 & 158

VEHICULAR INGRESS AND EGRESS TO MARYLAND ROUTE 108 IS RESTRICTED EXCEPT AT POINTS OF ACCESS APPROVED BY THE HOWARD COUNTY PLANNING COMMISSION

APPROVED
PLANNING COMMISSION OF HOWARD COUNTY
DATE 12/16/68

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: VILLAGE OF OAKLAND MILLS SECTION 1 THUNDER HILL AREA 2

PLAN & PROFILE
MELLENBROOK ROAD 0+00 - 8+00

Des. by WJK	Scale AS SHOWN	Dwg. No. 3 OF 16	
Dr. by J.V.M.	Date JUNE 15, 1968	C.C.I. No.	
Ck'd. By	Approved		

# PROFILES
SCALES = HORIZ: 1" = 50'
VERT: 1" = 5'

MELLENBROOK ROAD ℄ PROFILE

STA. 5+64.99 MELLENBROOK RD. = STA. 0+00 OSPREY CT. EL. = 408.17

STA. 3+50.30 MELLENBROOK RD. = STA. 0+00 STOCKO CREEKBED COURT EL. = 403.64

CONSTR. MH 13

P.V.C. STA. 4+00 EL. = 404.23

200' V.C.
P.V.I. STA. = 5+00
EL. = 405.45
M.O. = 1.44

P.V.T. STA. 6+00 EL. = 412.45

+1.00 %

P.V.C. STA. 6+50 EL. = 405.95

200' V.C.
P.V.I. STA. = 7+50
EL. = 422.95
M.O. = 1.50

P.V.T. STA. 8+50 EL. = 423.95

GRADE

FINISHED

HYDRAULIC GRADIENT

CONSTRUCT INLET "B-6"

CONSTRUCT INLETS "B-4" "B-5"

CONSTRUCT INLET "B-3"

CONSTRUCT INLET 4.3' & MH-7

CONSTRUCT INLET "MH-1"

EXISTING 6" COLONIAL GAS PIPELINE CROSSING #1

EXISTING 12" COLONIAL GAS PIPELINE CROSSING #2

CONSTRUCT 342 L.F. 18" R.C.C.P. CL. III @ 3.86 %
Q = 10.75 CFS
V = 6.1'/s

CONSTRUCT 44 L.F. 15" CL. III @ 1.00 %
Q = 3.02 cfs
V = 2.5'/s

CONSTRUCT 68 L.F. 18" R.C.C.P. CL. III @ 1.00 %
Q = 3.61 cfs
V = 5.4 fps
S MIN = 0.0110
n = 0.015

CONSTRUCT 200 L.F. 21" R.C.C.P. CL. III @ 0.60 %
Q = 10.74 cfs
V = 4.5 fps
S MIN = 0.0060
n = 0.015

CONSTRUCT 160 LF 24" R.C.C.P. CL. III & IV @ 1.48 %
Q = 20.78 CFS
V = 6.6'/s

175 LF TEMPORARY OUTFALL DITCH @ 0.95 % (SODDED)
SEE DETAIL SH 13 OF 15
15 L.F. CONC. CHANNEL @ 0.95 %
SEE DETAIL SH 10F

6'x15' CONC. CHANNEL

EX. A.T.&T. CABLES 2" DIA. (FIELD LOCATED)

EW-10

EX. GR.

2:1

INV. 18" (IN) 406.80

INV. 18" (OUT) 405.00

MATCH LINE STA. 8+00 SEE SHEET NO. 4 OF 16

LEGEND
- EXISTING GROUND 25' RT. R.O.W.
- EXISTING GROUND 25' LT. R.O.W.
- EXISTING GROUND ON ℄
- FINISHED GRADE

DRAINAGE PROFILE "B-3" TO "MH-1"
SCALES: HORIZ: 1"=50'
VERT: 1"=5'

CONSTRUCT INLET "B-3"

CONSTRUCT MH-1

HYDRAULIC GRADIENT

18"D W INV. 398.45

21"D E INV. 397.50

398.12

397.70

CONSTRUCT 48 L.F. 21" R.C.C.P. CL. III @ 1.30 %
Q = 10.74 c.f.s.
V = 4.5 fps
S MIN = 0.0062
n = 0.015

DRAINAGE PROFILE "B-4" TO "B-5"
SCALES = HORIZ: 1" = 50'
VERT: 1" = 5'

CONSTRUCT INLET "B-5"

CONSTRUCT INLET "B-4"

HYDRAULIC GRADIENT

21"D W INV. 396.30

24"D E INV. 394.17

18"D E INV. 395.25

395.05

394.67

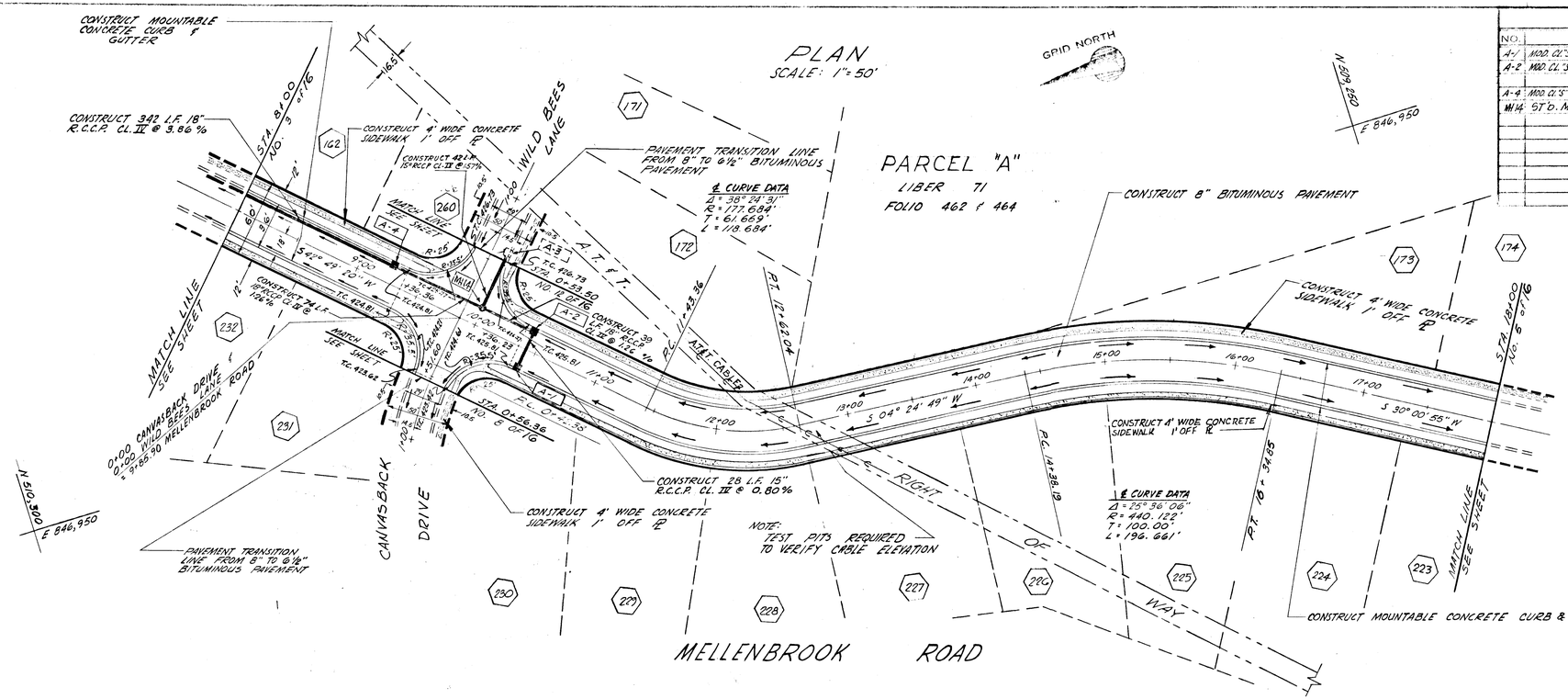
CONSTRUCT 48 L.F. 18" R.C.C.P. CL. III @ 0.8 %
Q = 8.69 cfs
V = 4.9 fps

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

#89

F-68-96 FILE NO. 1923

PLAN
SCALE: 1"=50'



STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	G.P. ELEV.	REMARKS
A-1	MOD. CI. S" COMB. (SINGLE GR.)	STA. 10+49.00, 18.00' RT. OF ℄	—	422.13	426.19	SEE DETAIL SH 14 OF 16
A-2	MOD. CI. S" COMB. (SINGLE GR.)	STA. 10+43.00, 18.00' LT. OF ℄	421.91	421.66	426.19	" "
A-4	MOD. CI. S" COMB. (SINGLE GR.)	STA. 9+24.00, 18.00' LT. OF ℄	420.15	420.00	425.00	SEE DETAIL SH 14 OF 16
MH 14	STD. MANHOLE	STA. 10+00.00, 12.50' LT. OF ℄	421.53	421.08	—	HO. CO. STD DRWG. D108 & D158

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 12/16/68

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev. Date	Rev. No.	Revision Description

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

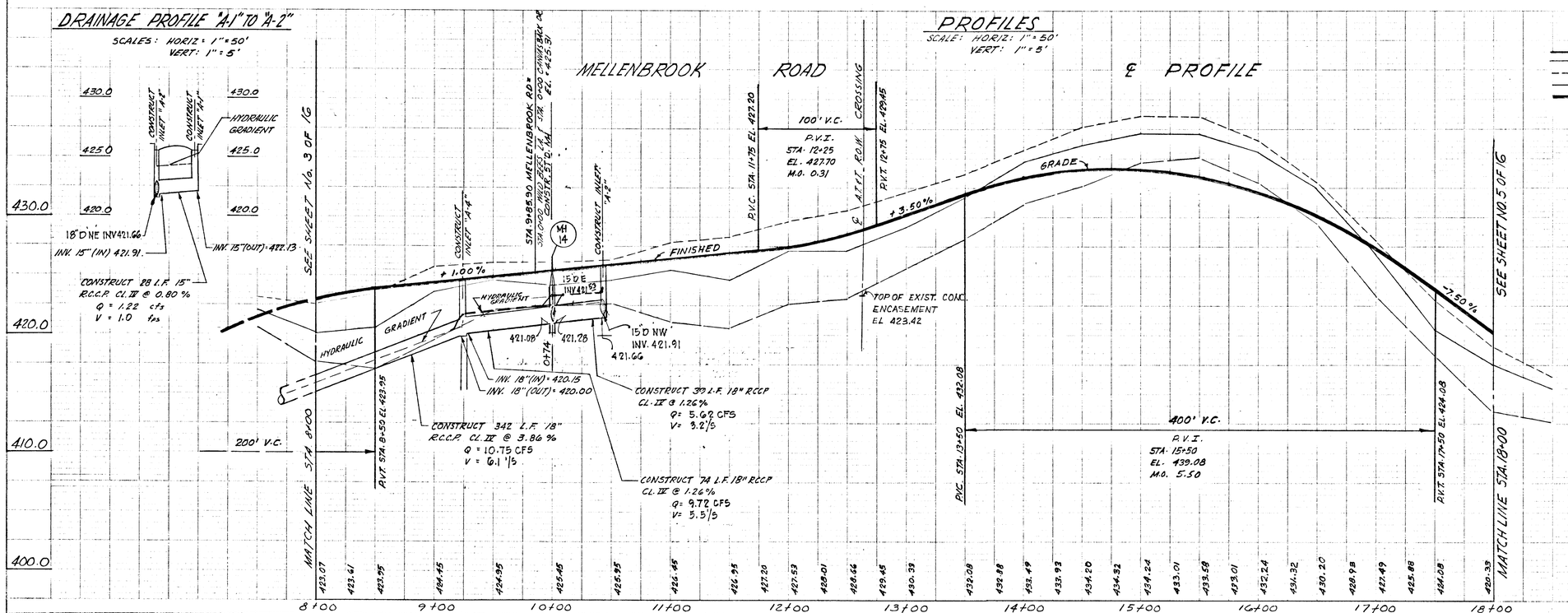
PROJECT TITLE
VILLAGE OF OAKLAND MILLS SECTION 1
THUNDER HILL AREA 2

SHEET TITLE
PLAN & PROFILE
MELLENBROOK ROAD 8+00 - 18+00

Des. By CWK	Scale AS SHOWN	Drwg. No. 4 OF 16
Drn. By J.K.M.	Date JUNE 15, 1968	C.C.F. No.
Chk. By	Approved	

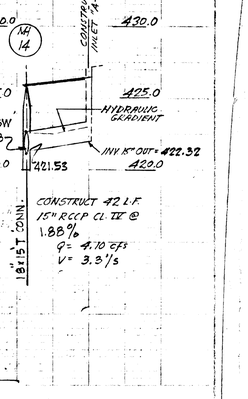
DRAINAGE PROFILE "A-1" TO "A-2"
SCALES: HORIZ: 1"=50'
VERT: 1"=5'

PROFILES
SCALE: HORIZ: 1"=50'
VERT: 1"=5'



LEGEND
- EXISTING GROUND 25' RT. R.O.W.
- EXISTING GROUND 25' LT. R.O.W.
- EXISTING GROUND ON ℄
- FINISHED GRADE

DRAINAGE PROFILE "A-3" TO "T-1"
SCALES: HORIZ: 1"=50'
VERT: 1"=5'



STATE OF MARYLAND
DONALD E. BROWNE
No. 1178
REGISTERED
PROFESSIONAL ENGINEER & LAND SURVEYOR

#89

F-68-46 FILE NO. 1923

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	T.C.P.E.L.V.	REMARKS
C-6	MOD. CL 'S' COMB.(SINGLE GR.)	STA. 21+06.88, 18.0' RT OF ℄	—	399.50	404.61	SEE DETAIL SH 14 of 16
C-7	MOD. CL 'S' COMB.(SINGLE GR.)	STA. 21+06.88, 18.0' LT OF ℄	399.00	398.75	404.61	DEPRESSED "
MH-2	STANDARD MANHOLE	STA. 21+50.88, 14.0' LT OF ℄	24" 399.56 18" 399.47	397.82	—	HO CO STD. Drwg D-105 & 153
MH-3	STANDARD MANHOLE	STA. 25+50.00, 14.0' LT OF ℄	394.30	394.10	—	" " " " " "
C-8	MOD. CL'S" COMB. (SINGLE GRATE)	STA. 27+30.00, 18.0' RT OF ℄	—	388.04	393.14	SEE DETAIL SH 14 of 16
C-9	MOD. CL'S" COMB. (SINGLE GRATE)	STA. 27+30.00, 18.0' LT OF ℄	12" 392.65 15" 392.50	386.70	393.14	DEPRESSED "
	27"X15" WYE FITTING	STA. 22+50	397.37	396.87	—	
C-7A	MOD. CL S COMB(S.G.)	STA. 22+44 18.0' RT OF ℄		398.57	403.22	SEE DETAIL SH 14 of 16

PLAN

SCALE: 1" = 50'

N 509,690 E 846,900

N 509,200 E 846,500

N 509,200 E 846,150

GRID NORTH

PAVEMENT TRANSITION LINE FROM 8" TO 6½" BITUMINOUS PAVEMENT

HOWARD COUNTY BOARD OF EDUCATION
LIBER W.H.H. 392
FOLIO 732

CONSTRUCT 4' WIDE CONCRETE SIDEWALK 1' OFF ℄

CONSTRUCT 4' WIDE CONCRETE SIDEWALK 1' OFF ℄

15"X27" WYE FITTING

CONSTRUCT 30 L.F. 15" RCCP CL III

CONSTRUCT 396 L.F. 27" R.C.C.P. CL III @ 0.89 %

0+00 DIAMONDBACK DRIVE

+23+25.47 MELLENBROOK ROAD

CONSTRUCT MOUNTABLE CONCRETE CURB & GUTTER

CONSTRUCT 30 L.F. 27" R.C.C.P. CL III STUB @ 5.00 %

TEMPORARY DRAINAGE DITCH

TEMPORARY TEE TURNAROUND STA. 27+32.50

CONSTRUCT 24 L.F. 15" R.C.C.P. CL III @ 1.00 %

CONSTRUCT 176 L.F. 27" R.C.C.P. CL III @ 4.15%

CONSTRUCT 8" BITUMINOUS PAVEMENT

CONSTRUCT 4' WIDE CONCRETE SIDEWALK 1' OFF ℄

LIMIT OF CONTRACT

CONSTRUCT 40 L.F. 18" R.C.C.P. CL III @ 0.70 %

CONSTRUCT 24 L.F. 15" R.C.C.P. CL III @ 2.08 %

MATCH LINE SEE SHEET C-5

MATCH LINE SEE SHEET C-7A

MATCH LINE SEE SHEET

STA 18+00 SEE SHEET No. 4 of 16

15+70.09 LOG CHAIN ROAD
=21+56.87 MELLENBROOK ROAD

STA 14+96.36 NO 9 OF 16

STA 0+71.96 NO 9 OF 16

STA 27+46.81

℄ CURVE DATA
Δ = 19°19'20"
R = 810.622'
T = 137.996'
L = 273.371'

℄ CURVE DATA
Δ = 04°00'00"
R = 2381.792'
T = 83.174'
L = 166.280'

℄ CURVE DATA
Δ = 16°39'40"
R = 702.096'
T = 102.807'
L = 204.163'

S 30° 00' 55" W

S 31° 21' 15" W

S 59° 51' 32" W

3.58° 35° 31' E LOG CHAIN RD.

DIAMONDBACK DRIVE

MELLENBROOK ROAD

C-5 C-6 C-7 C-7A C-8 C-9 D-4 MH-2 MH-3

174 175 176 209 210 211 212 219 220 221 222 223

PROFILES

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

MELLENBROOK RD. ℄ PROFILE

MATCH LINE STA 18+00 SEE SHEET No. 4 of 16

-7.50%

P.V.C. STA. 18+75 EL. 414.70

250' V.C.
P.V.I.
STA. 20+00
EL. 405.93
M.O. 2.03

P.V.T. STA. 21+25 EL. 404.08

CONSTRUCT INLETS C-6 & C-7

STA. 21+56.87 MELLENBROOK RD. = STA. 15+70.09 LOG CRAIN RD. EL. = 403.76

STA. 23+25.48 MELLENBROOK RD. = STA. 0+00 DIAMONDBACK DR. EL. = 402.09

-1.00%

HYDRAULIC GRADIENT

INV. 15" IN 399.0
INV. 18" OUT 398.75

INV. 18" IN 398.47

CONSTRUCT 40 L.F 18" RCCP CL III @ 0.70%
Q = 5.35 CFS
V = 3.0 f/s

INV. 21" IN= 398.30

INV. 27" OUT 397.82

397.47
396.97

Q = 29.97 CFS
V = 5.9 f/s

CONSTRUCT 396 L.F. 27" RCCP CL III @ 0.89%
Q = 23.85 CFS
V = 5.6 f/s

27"x15" WYE FITT. 3+00

CONSTRUCT MH-3

INV 27" IN 394.90

INV 27" OUT 394.10

CONSTRUCT 176 L.F. 27" RCCP CL III @ 4.15%

Q = 23.85 CFS
V = 5.6 f/s

INV 15" IN 397.90

INV 27" IN 396.80

INV 27" OUT = 396.70

CONSTRUCTING INLETS C-8 & C-9

P.V.C. STA. 25+00 EL. = 400.33

200' V.C.
P.V.I.
STA 26+00
EL. 399.33
M.O. 1.00

P.V.T. STA. 27+00 EL. = 394.33

-5.00%

CONTRACT

LIMIT OF

STA. 27+46.81

FUTURE FINISHED GRADE OF MELLENBROOK RD. EXTENSION

CONSTR. 3:1 Temp. Slope

MEET EXIST. GROUND ELEV. 382.50

INV 27" STUB OUT 385.20

CONSTRUCT 30 L.F. 27" RCCP CL III STUB @ 5.00% FOR FUTURE EXTENSION
Q = 28.18 CFS
V = 7.09 f/s

CONSTRUCT 135 L.F. TEMPORARY DRAINAGE DITCH @ 2.00% (CONFORM TO TYP. DETAIL)
Q = 27.55 cfs
V = 6.2
S = 0.0200
n = 0.0225

415.0 405.0 395.0 385.0 375.0

480.33 416.58 414.70 412.91 411.25 409.81 408.50 407.36 406.38 405.56 404.91 404.41 404.08 403.83 403.33 402.83 402.33 401.83 401.33 400.83 400.33 400.02 399.58 399.08 398.33 397.92 396.58 395.52 394.33 391.98

18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00

LEGEND

- EXISTING GROUND 25' RT. R.O.W.
- EXISTING GROUND 25' LT. R.O.W.
- EXISTING GROUND ON ℄
- FINISHED GRADE

DRAINAGE PROFILE "C-6" TO "C-7"

SCALES: HORIZ: 1"=50'
VERT: 1"=5'

CONSTRUCT INLET C-7

CONSTRUCT INLET C-6

HYDRAULIC GRADIENT

INV 18" OUT 398.75

INV 15" IN= 399.0

INV 15" OUT 399.50

CONSTRUCT 24 L.F 15" RCCP CL III @ 2.08%
Q = 1.13 cfs
V = 1.16 f/s

DRAINAGE PROFILE "C8" TO "C9"

SCALES = HORIZ: 1"=50'
VERT: 1" = 5'

CONSTRUCT INLET "C-9"

CONSTRUCT INLET "C-8"

HYDRAULIC GRADIENT

INV. 27" (IN) 386.80

INV. 27" (OUT) 386.70

INV. 15" (OUT) 388.04

INV. 15" (IN) 387.80

CONSTRUCT 24 L.F 15" R.C.C.P. CL III @ 1.00 %
Q = 1.02 cfs
V = 0.8 f/s

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 12/16/68

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev. Date	Rev. No	Revision Description

COLUMBIA
MARYLAND
6TH. ELECTION DISTRICT HOWARD COUNTY

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

PROJECT
VILLAGE OF OAKLAND MILLS SECTION 1
THUNDER HILL AREA 2

TITLE
PLAN & PROFILE
MELLENBROOK ROAD 18+00 - 27+46.81

Des. By GHK	Scale AS SHOWN Dwg. No. 5 of 16
Drn. By J.C.	Date JUNE 15, 1968 C.C.F. No.
Chk. By	Approved

STATE OF MARYLAND
REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR

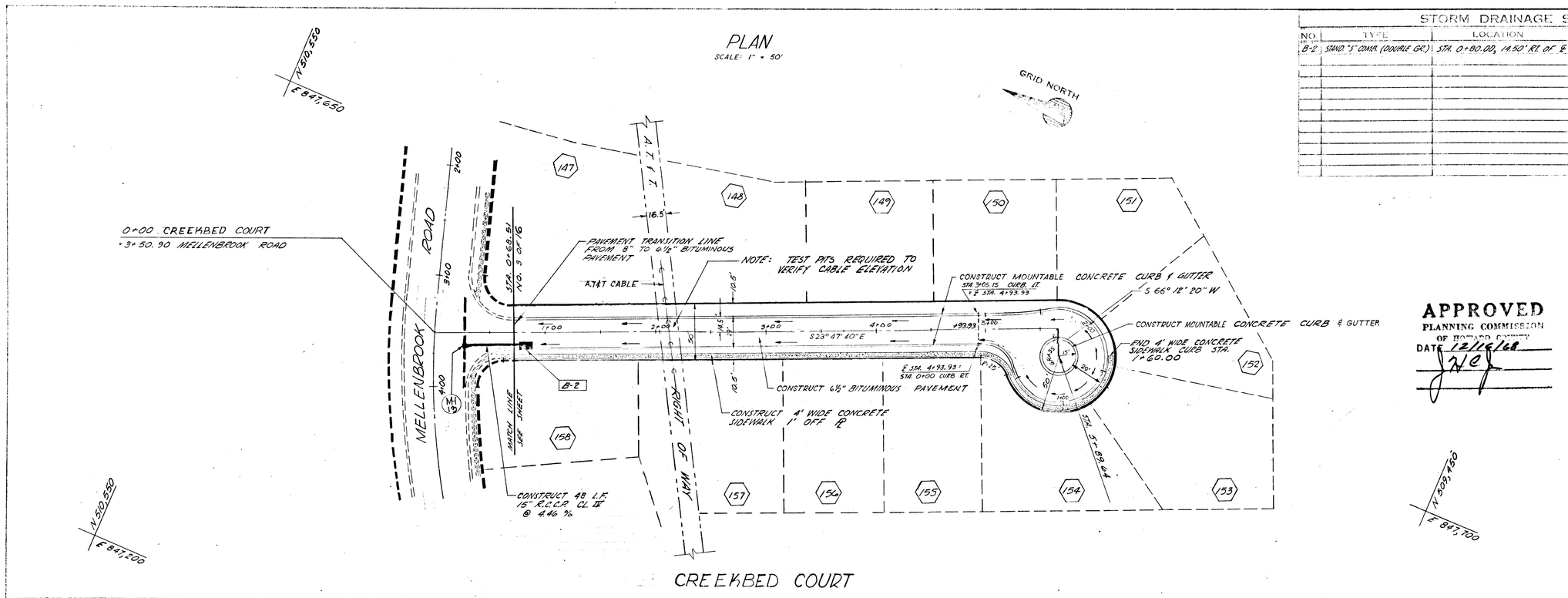
Robert P. Browne

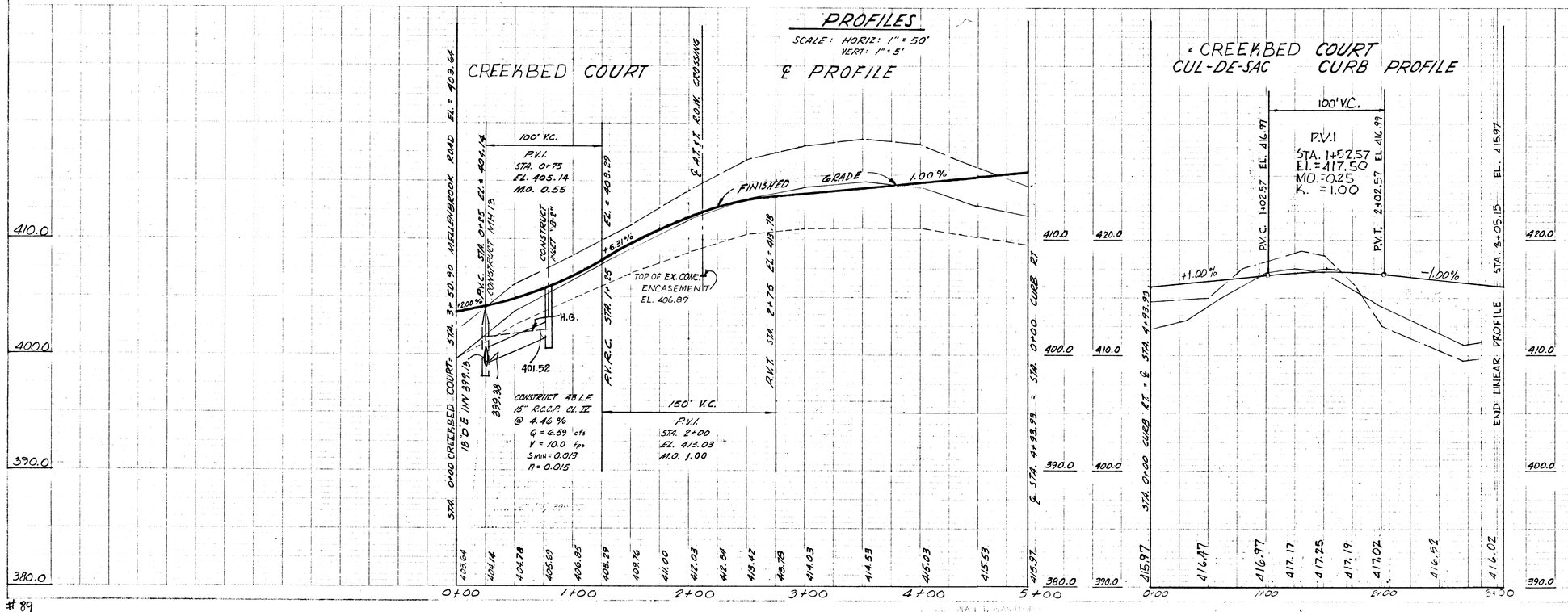
#89

F-68-96 FILE No. 1923

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	T.C.P. ELEV.	REMARKS
B-2	STAND. "S" COMB. (DOUBLE GR.)	STA. 0+80.00, 14.50' RT. OF ℄	-	401.52	406.21	DEPRESSED
					—	SEE SH 14 OF 16





LEGEND

- EXISTING GROUND 25' RT. R.O.W.
- EXISTING GROUND 25' LT. R.O.W.
- EXISTING GROUND ON ℄
- FINISHED GRADE

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 12/16/68

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 SECTION 1
THUNDER HILL AREA 2

PROJECT TITLE
PLAN & PROFILE
CREEKBED COURT

Des By GJK	Scale AS SHOWN	Dwg. No. 6 of 16	
Drn By J.C.	Date JUNE 15, 1968	C.C.F. No	
Chk By	Approved		

STATE OF MARYLAND
HOWARD P. BROWNE
NO. 3728
REGISTERED
PROFESSIONAL ENGINEER & LAND SURVEYOR

Richard P. Browne

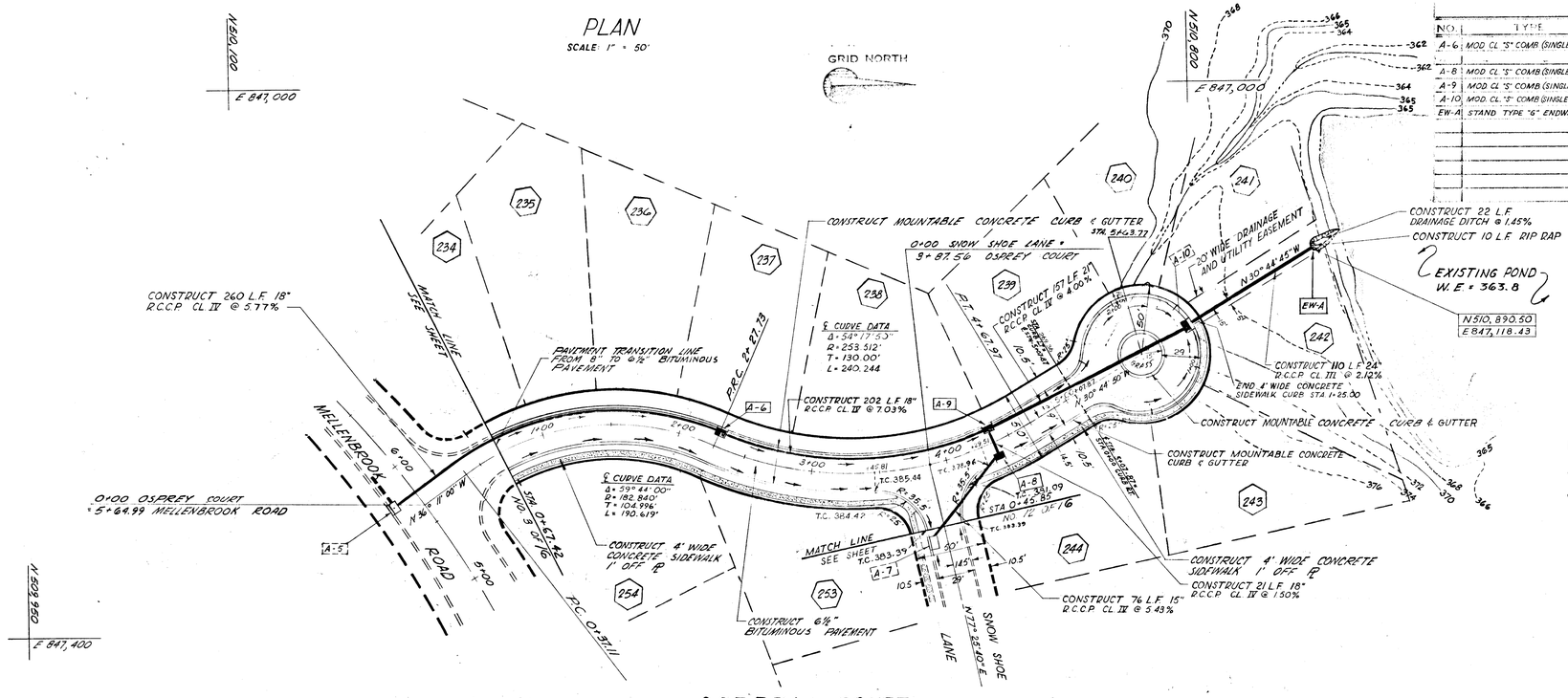
FILE No. 1923

F-68-46

#89

PLAN

SCALE: 1" = 50'



STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	T.C.P.E.L.E.	REMARKS
A-6	MOD. CL "S" COMB (SINGLE GRATE)	STA 2+27.73, 14.5' LT. OF ℄	390.00	387.80	395.01	SEE DETAIL SH. 14 OF 16
A-8	MOD. CL "S" COMB (SINGLE GRATE)	STA 4+37.00, 14.5' RT. OF ℄	373.87	373.62	379.01	SEE DETAIL SH 14 OF 16
A-9	MOD. CL "S" COMB (SINGLE GRATE)	STA 4+37.00, 14.5' LT. OF ℄	378.31	373.06	379.01	" " "
A-10	MOD. CL "S" COMB (SINGLE GRATE)	STA 1+34.68 CURB STA.	366.78	366.45	373.28	" " "
EW-A	STAND. TYPE "G" ENDWALL	AS SHOWN				" " "

APPROVED

PLANNING COMMISSION OF HOWARD COUNTY

DATE 12/16/68

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description

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

PROJECT NAME
VILLAGE OF OAKLAND MILLS SECTION 1
THUNDER HILL AREA 2

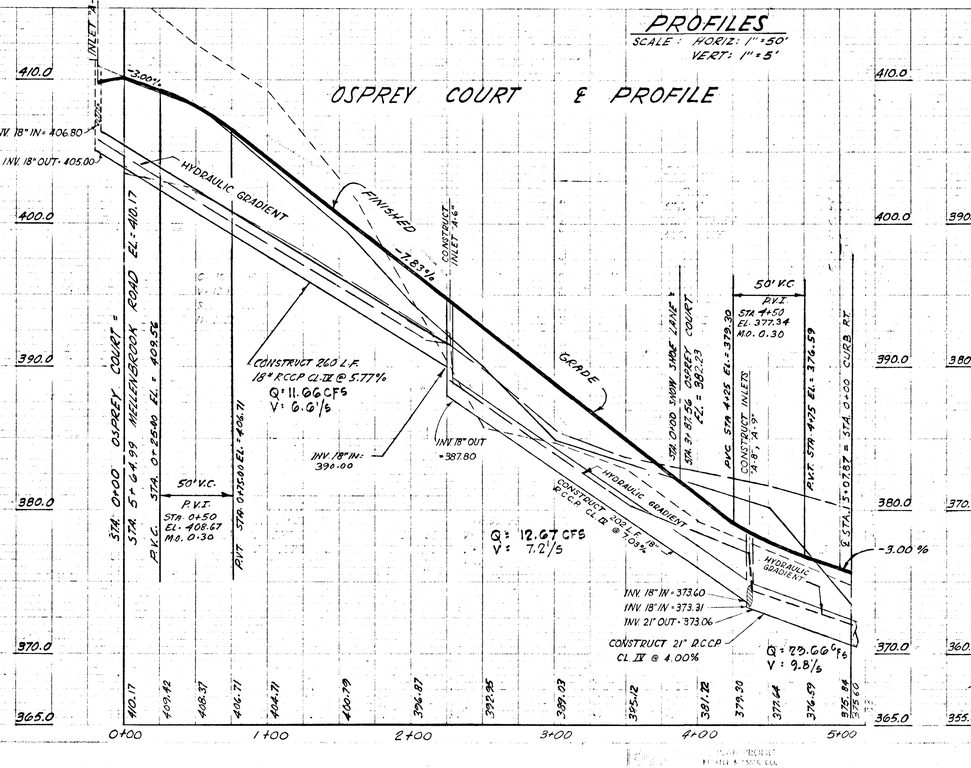
PLAN & PROFILE
OSPREY COURT

Des By	Lyk	Scale: AS SHOWN	Dwg No 7 of 16
Dm By	J.C.	Date JUNE 15, 1968	C.F. No
Chk By		Approved	

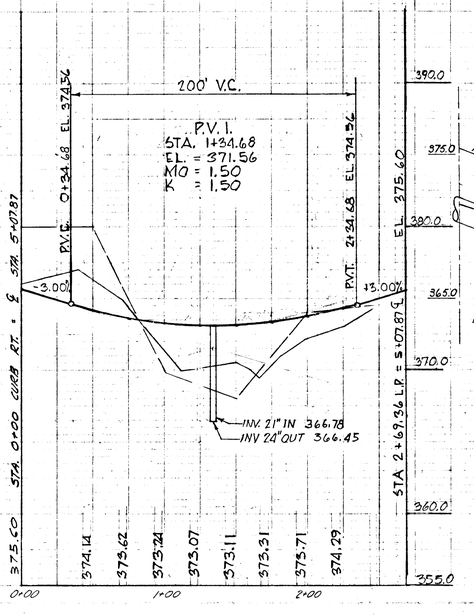
PROFILES

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

OSPREY COURT & PROFILE

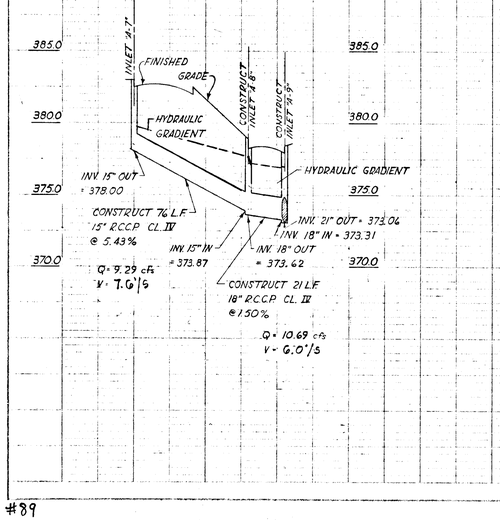


OSPREY COURT CUL-DE-SAC CURB PROFILE



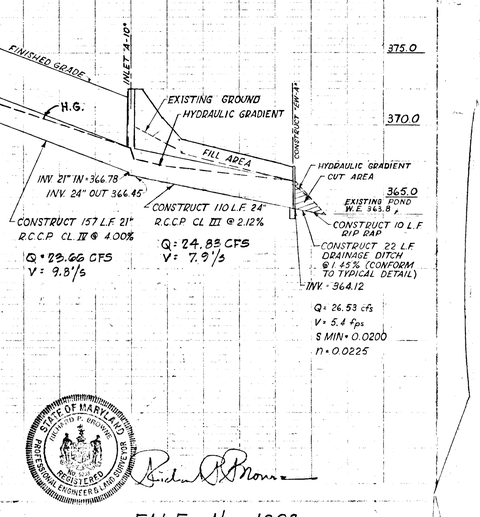
DRAINAGE PROFILE "A-7" TO "A-8" TO "A-9"

SCALES: HORIZ: 1" = 50'
VERT: 1" = 5'



DRAINAGE PROFILE "A-10" TO "EW-A"

SCALES: HORIZ 1" = 50'
VERT 1" = 5'



LEGEND

- EXISTING GROUND 25' RT. R.O.W.
- EXISTING GROUND 25' LT. R.O.W.
- EXISTING GROUND ON ℄
- FINISHED GRADE

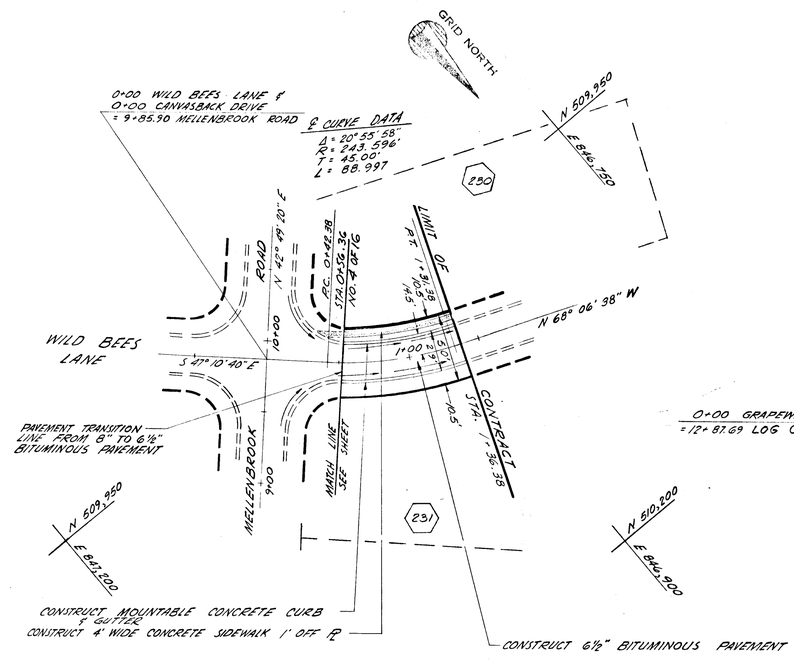
STATE OF MARYLAND
REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR

#89

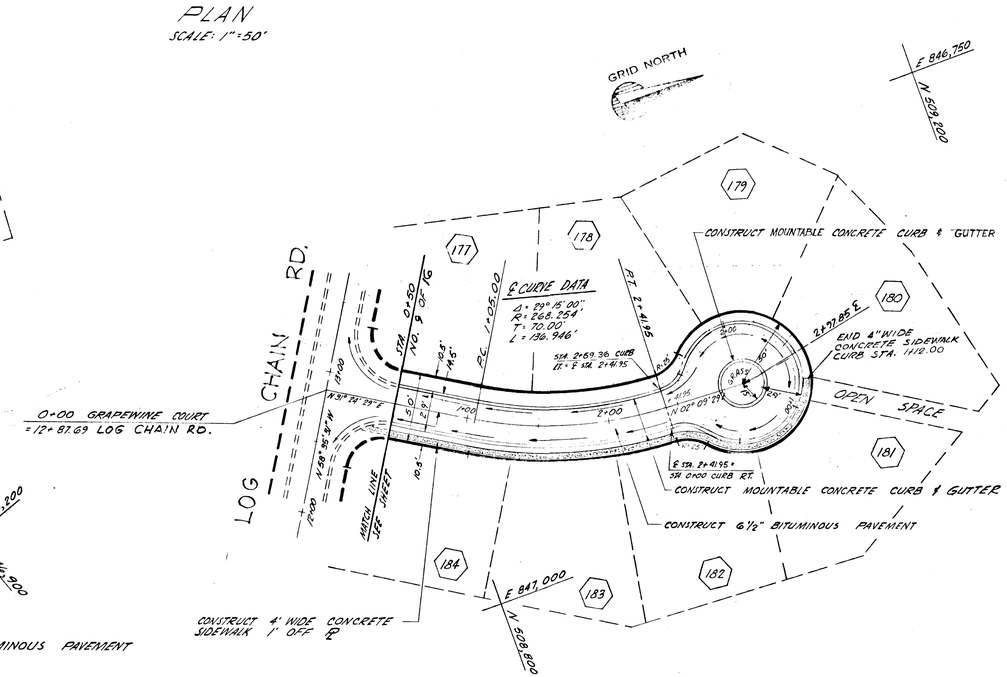
FILE No. 1923

F-68-46

PLAN
SCALE: 1"=50'



CANVASBACK DRIVE



GRAPEWINE COURT

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	C.P.E.E.V.	REMARKS

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 12/16/68

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

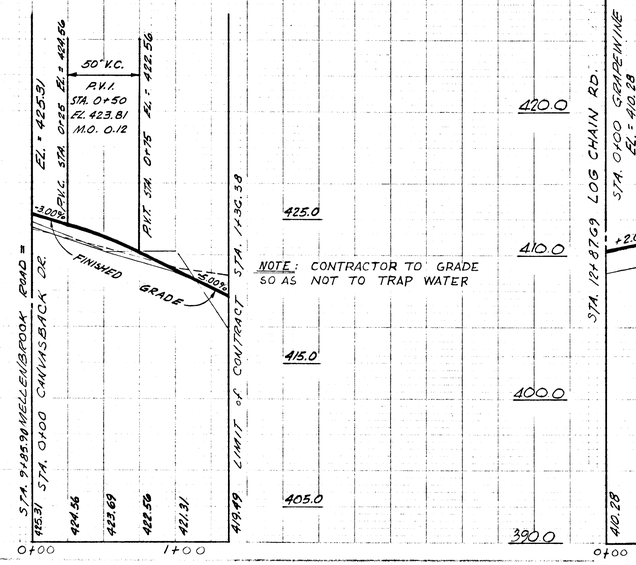
PROJECT NAME
VILLAGE OF OAKLAND MILLS SECTION 1
THUNDER HILL AREA 2

PROJECT TITLE
PLAN & PROFILE
CANVASBACK DRIVE & GRAPEWINE CT.

Des. By U.J.K.	Scale AS SHOWN	Dwg. No. 8 OF 16
Drn. By J.K.M.	Date JUNE 15, 1968	C.C.T. No.
Ckd. By	Approved	

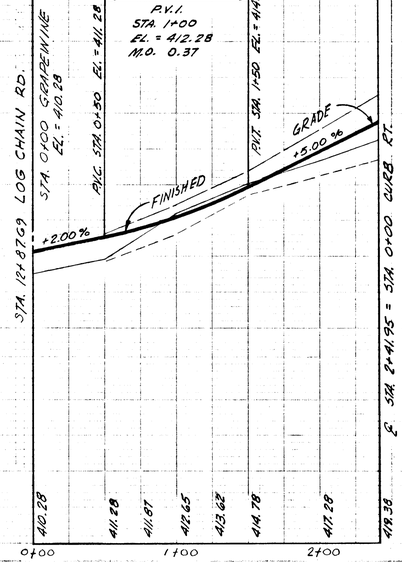
PROFILES
SCALE: HORIZ: 1"=50'
VERT: 1"=5'

CANVASBACK DRIVE & PROFILE

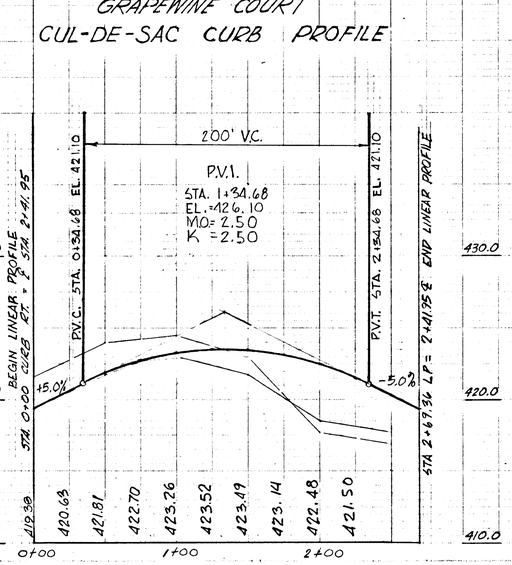


NOTE: CONTRACTOR TO GRADE SO AS NOT TO TRAP WATER

GRAPEWINE COURT & PROFILE



GRAPEWINE COURT CUL-DE-SAC CURB PROFILE



LEGEND

- EXISTING GROUND 25' RT R.O.W.
- EXISTING GROUND 25' LT. R.O.W.
- EXISTING GROUND ON ℄
- FINISHED GRADE

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR

#89

FILE NO. 1923

F-68-46

PLAN

SCALE: 1" = 50'

GRID NORTH

E 847,000 N 508,400

E 847,000 N 508,100

E 846,000 N 509,250

23+25.47 MELLENBROOK ROAD
+0.00 DIAMONDBACK DRIVE

CONSTRUCT 4' WIDE CONCRETE SIDEWALK 1' OFF ℄

CONSTRUCT 113 L.F. 18" R.C.C.P. CL III @ 2.17%

15" R.C.C.P. CL IV @ 1.44%

STA 12+00 NO. 10 OF 16

PAVEMENT TRANSITION LINE FROM 8" TO 6½" BITUMINOUS PAVEMENT

CONSTRUCT 6½" BITUMINOUS PAVEMENT

CONSTRUCT 21 L.F. 15" R.C.C.P. CL III @ 5.95%

C-3

C-2

C-4

MATCH LINE SEE SHEET

STA 0+50 NO. 8 OF 16

0+00 GRAPEWINE COURT
12+87.69 LOG CHAIN ROAD

CONSTRUCT MOUNTABLE CONCRETE CURB & GUTTER

CONSTRUCT 173 L.F. 21" R.C.C.P. CL III @ 1.59%

C-5

C-7

C-6

CONSTRUCT 38 L.F. 21" R.C.C.P. CL III @ 2.37%

STA 14+56.86 NO. 5 OF 16

MELLENBROOK ROAD 22.00

21+56.87 MELLENBROOK ROAD
+15+70.09 LOG CHAIN RD.

MH-2

STA 0+71.96 NO. 5 OF 16

CONSTRUCT 4' WIDE CONCRETE SIDEWALK 1' OFF ℄

CONSTRUCT MOUNTABLE CONCRETE CURB & GUTTER

CONSTRUCT 8" BITUMINOUS PAVEMENT

N 59° 51' 32" W

STA 4+77.18

16.5'

EXISTING PAVEMENT

EXISTING RETAINING WALL

EXISTING STONE HEADWALL INV 376.23

EXISTING 18" C.M.P.

EXISTING STONE ENDWALL INV 375.63

EXISTING 3' SWALE DITCH

COST OF RESURFACING IN THIS AREA TO BE PART OF THIS CONTRACT. WORK TO BE DONE UNDER THE SUPERVISION OF THE ENGINEER IN THE FIELD

D-6 SEE DETAIL

A.T.&T. RIGHT-OF-WAY

LIMIT OF ROADWAY CONSTRUCTION

S 43° 09' 11" W

DALTON
SECTION 1
LIBER 6 FOLIO 36

LOG CHAIN ROAD

DIAMONDBACK DRIVE

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	E.G.P.E.L.EV.	REMARKS
C-2	MOD. CL "S" COMB (SINGLE GRATE)	STA. 12+90.69 14.5' RT. OF ℄	406.30	406.05	411.16	DEPRESSED - SEE DETAIL
C-3	MOD. CL "S" COMB (SINGLE GRATE)	STA. 13+45.00, 14.5'	–	405.00	409.85	DEPRESSED - SH 14 of 16
C-4	MOD. CL "S" COMB (SINGLE GRATE)	STA. 13+45.00, 14.5'	½ 403.50	403.35	409.85	" "
C-5	MOD. CL "S" COMB (SINGLE GRATE)	STA. 15+20.00 14.5' RT. OF ℄	400.60	400.40	405.91	" "

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 12/16/68

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 NAME
VILLAGE OF OAKLAND MILLS SECTION 1
THUNDER HILL AREA 2

TITLE
PLAN & PROFILE
LOG CHAIN RD. & DIAMONDBACK DR.

Des. By	WJK	Scale AS SHOWN	Dwg. No. 9 of 16
Drn. By	J.C.	Date JUNE 15, 1968	C.C.F. No.
Chk. By		Approved	

PROFILES

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

℄ PROFILE LOG CHAIN RD.

SEE SHEET NO. 10 OF 16

CONSTRUCT INLET "C-2"

STA 12+87.69 LOG CHAIN ROAD
STA 0+00 GRAPEWINE CT.
EL. = 410.28
P.V.C. STA 13+00
EL. = 410.16

100' V.C.
P.V.I.
STA. 13+50
EL. 409.66
M.O. 0.21

CONSTRUCT INLETS "C-3" & "C-4"

P.V.T. STA. 14+00 EL. = 408.32

CONSTRUCT INLET "C-5"

CONSTRUCT "MH-2"

STA. 15+70.09 LOG CHAIN ROAD EL. = 403.76

STA. 21+56.87 MELLENBROOK ROAD EL. = 403.76

-1.00%

FINISHED GRADE

-2.68%

HYDRAULIC GRADIENT

15" R.C.C.P. CL III @ 1.44%
Q = 6.43 CFS
V = 5.2 f/s

INV. 15" OUT = 406.05
INV. 15" IN = 406.30

INV. 18" IN 403.50

CONSTRUCT 113 L.F. 18" R.C.C.P. CL III @ 2.17%
Q = 12.20 cfs
V = 6.9 fps

INV. 21" OUT 403.35
INV. 15" IN 403.75

CONSTRUCT 173 L.F. 21" RCCP CL. III @ 1.59%
Q = 15.77 cfs
V = 6.57 f/s

INV 21" IN = 406.60
INV 21" OUT = 406.40

CONSTRUCT 38 L.F. 21" RCCP CL. III @ 2.37%
Q = 18.18 CFS
V = 7.55 f/s

INV 18" IN = 398.47
INV 21" OUT = 397.72
INV 21" IN = 397.50

MATCH LINE STA. 12+00

420.0 / 410.0 / 400.0 / 390.0

411.16 | 410.66 | 410.16 | 409.86 | 409.45 | 408.94 | 408.32 | 406.98 | 405.64 | 404.30 | 403.76

12+00 | 13+00 | 14+00 | 15+00

PROFILES

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

℄ PROFILE DIAMONDBACK DRIVE

STA 0+00 DIAMONDBACK DRIVE
STA 23+25.47 MELLENBROOK ROAD
EL. = 402.08

P.V.C. STA 0+80 EL. = 401.36

100' V.C.
P.V.I.
STA. 1+00
EL. 400.64
M.O. 0.34

P.V.T. STA 1+50 EL. = 398.08

-1.44%

FINISHED GRADE

-5.13%

MATCH LINE ℄ STA. 3+50.00

410.0 / 400.0 / 390.0 / 380.0

402.08 | 401.36 | 400.92 | 400.80 | 399.28 | 398.08 | 395.51 | 392.95 | 390.38 | 387.82

0+00 | 1+00 | 2+00 | 3+00

℄ PROFILE DIAMONDBACK DRIVE

STA 4+77.18

-5.13%

℄ OF EXISTING PAVEMENT

EXISTING STONE ENDWALL

EXISTING 18" C.M.P. INV. 375.63

LIMIT OF CONSTRUCTION

MATCH LINE ℄ STA. 3+50.00

380.0 / 370.0 / 365.0

387.82 | 386.25 | 382.69 | 381.59

3+50.00 | 4+00 | 5+00

LEGEND

- EXISTING GROUND 25' RT. R.O.W.
- EXISTING GROUND 25' LT. R.O.W.
- EXISTING GROUND ON ℄
- FINISHED GRADE

DRAINAGE PROFILE "C-3" TO "C-4"

SCALES: HORIZ: 1"=50'
VERT: 1"=5'

CONSTRUCT INLET "C-3"

CONSTRUCT INLET "C-4"

410.0 / 405.0 / 400.0

HYDRAULIC GRADIENT

INV. 15" OUT 405.00
INV. 15" IN 403.75

INV. 18" IN 403.50
INV 21" OUT 403.25

CONSTRUCT 21 L.F. 15" RCCP CL. III @ 5.95% Q = 2.04 cfs. V = 1.7 f/s

STATE OF MARYLAND
RICHARD D. BROWN
REGISTERED
PROFESSIONAL ENGINEER & LAND SURVEYOR

#89

FILE No 1923

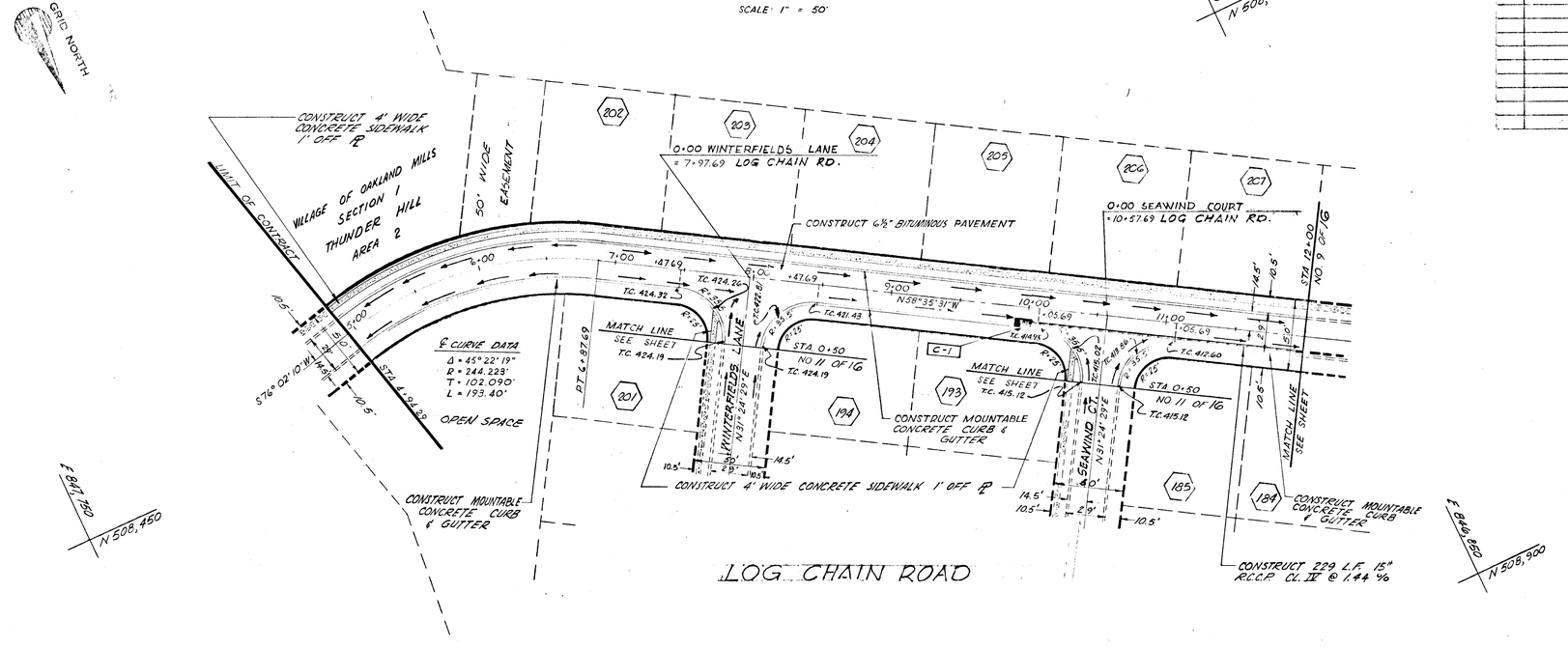
F-68-96

STORM DRAINAGE STRUCTURE SCHEDULE

NO	TYPE	LOCATION	INV. IN	INV. OUT	G.C.P. ELEV.	REMARKS
C-1	STAND. CL'S' COMB. (DOUBLE GR)	STA. 9+99.00, 14.50' RT. OF ℄		409.60	415.39	SEE DETAIL SH. 14 OF 16

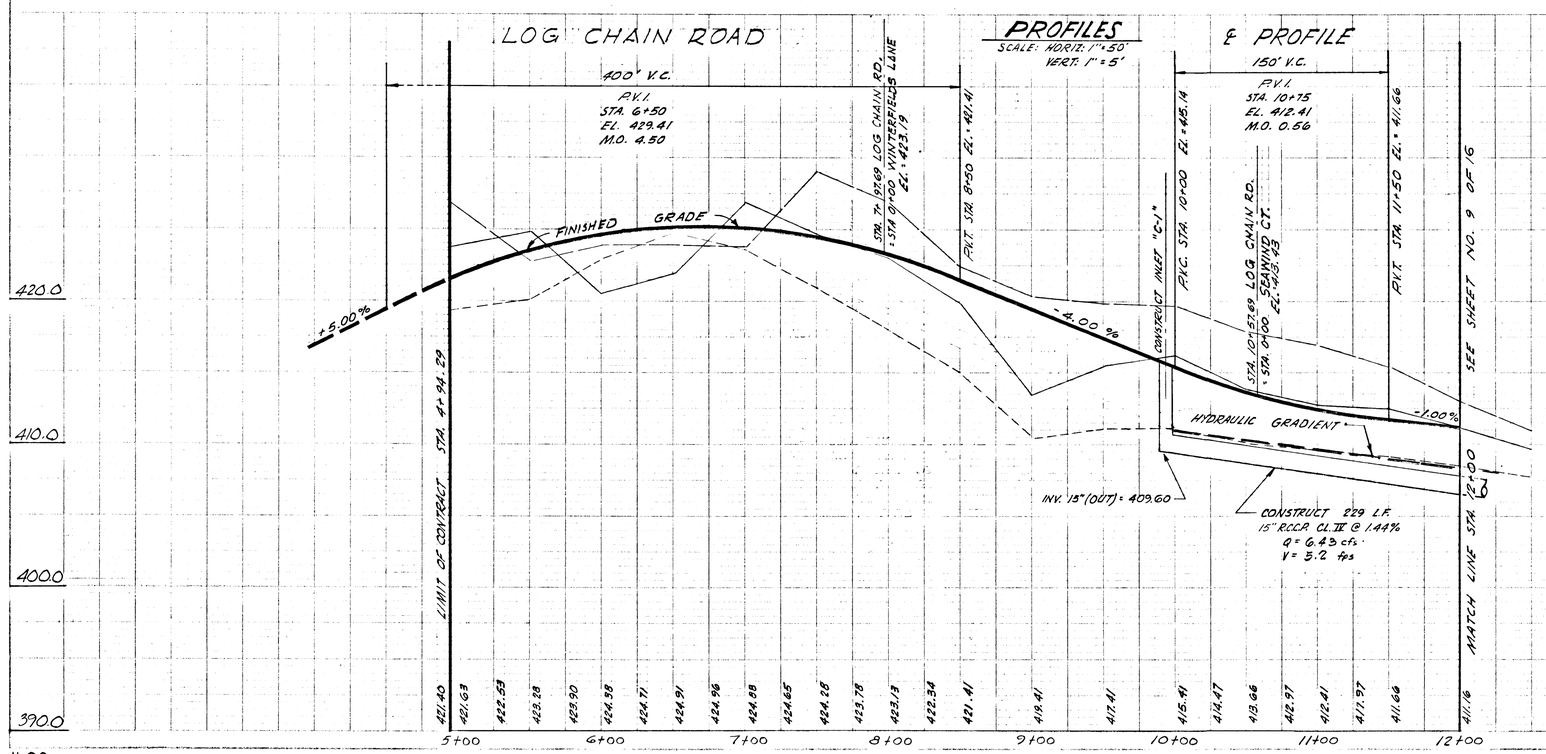
PLAN

SCALE: 1" = 50'



PROFILES

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



LEGEND

- EXISTING GROUND 25' RT. R.O.W.
- EXISTING GROUND 25' LT. R.O.W.
- EXISTING GROUND ON ℄
- FINISHED GRADE

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 12/12/68

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

Rev Date	Rev No	Revision Description

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

PROJECT VILLAGE OF OAKLAND MILLS SECTION 1 THUNDER HILL AREA 2

PROJECT PLAN & PROFILE LOG CHAIN ROAD 4+94.29 - 12+00

Des By	WJK	Scale AS SHOWN	Dwg No 10 of 16
Drn By	J.C.	Date JUNE 15, 1968	C.C.F. No
Chk By		Approved	

STATE OF MARYLAND
RICHARD J. BROWNE
REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR

Richard J. Browne

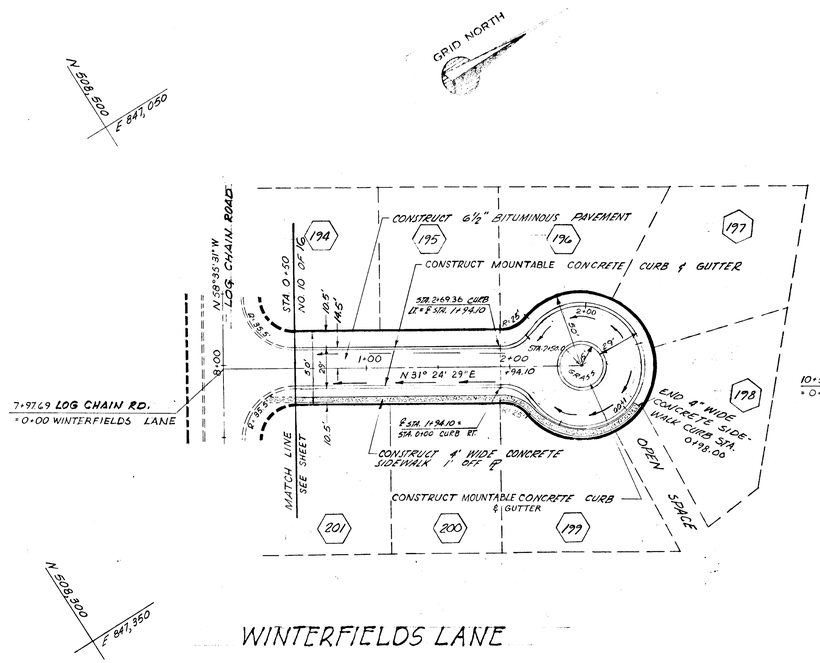
#89

KEUFFEL & ESSER CO.
48-2008 ALBANENE

FILE No 1923
F-68-96

STORM DRAINAGE STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	INV. IN	INV. OUT	PIPE SIZE	REMARKS

PLAN
SCALE: 1" = 50'



APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 12/16/69

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 2

PROJECT TITLE
PLAN & PROFILE
WINTERSFIELDS LANE SEAWIND COURT

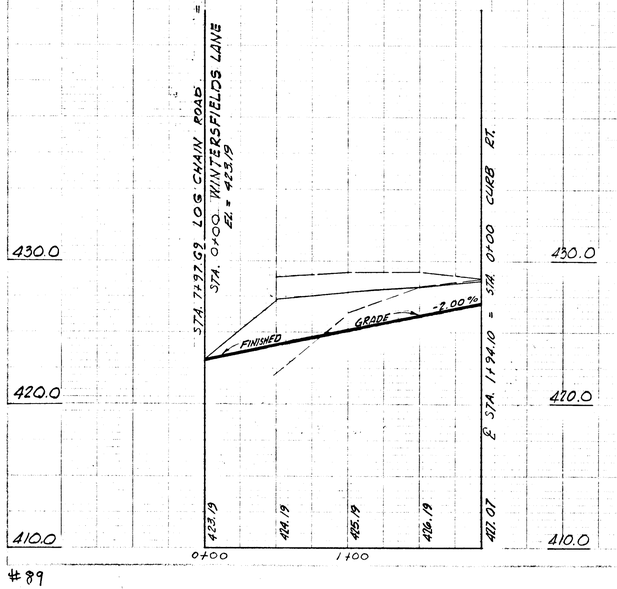
Des By	WJK	Scale	AS SHOWN
Dwn By	J.C.	Date	JUNE 15, 1968
Ck'd By		Approved	

Sht No 11 of 16
C.C.F. No

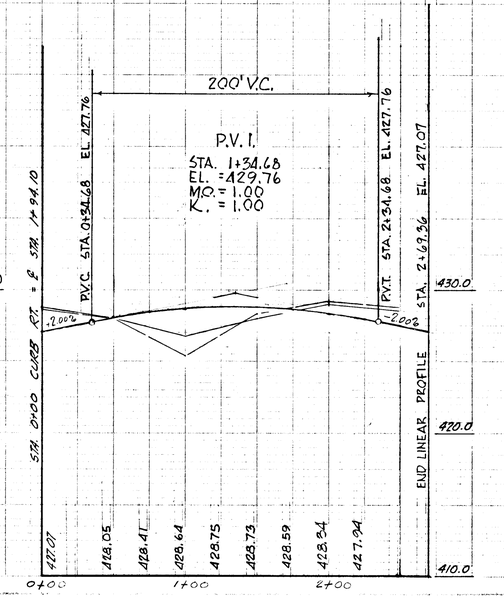
PROFILES
SCALE HORIZ: 1" = 50'
VERT: 1" = 5'

LEGEND
- EXISTING GROUND 25' RT. R.O.W.
- EXISTING GROUND 25' LT. R.O.W.
- EXISTING GROUND ON ℄
- FINISHED GRADE

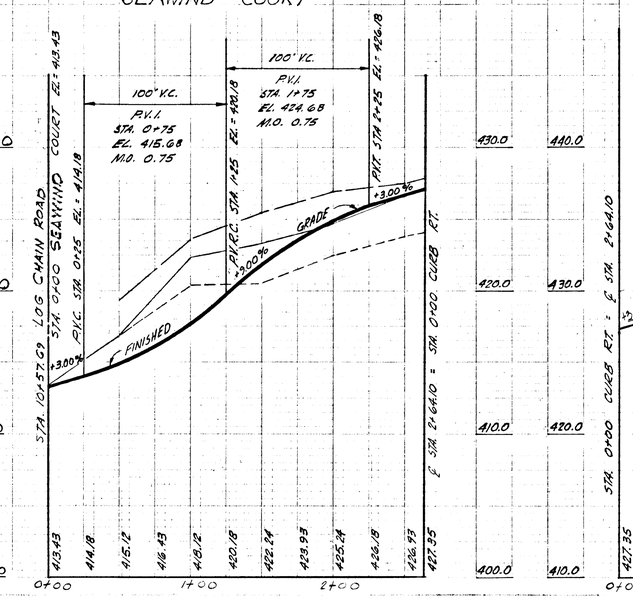
℄ PROFILE WINTERFIELDS LANE



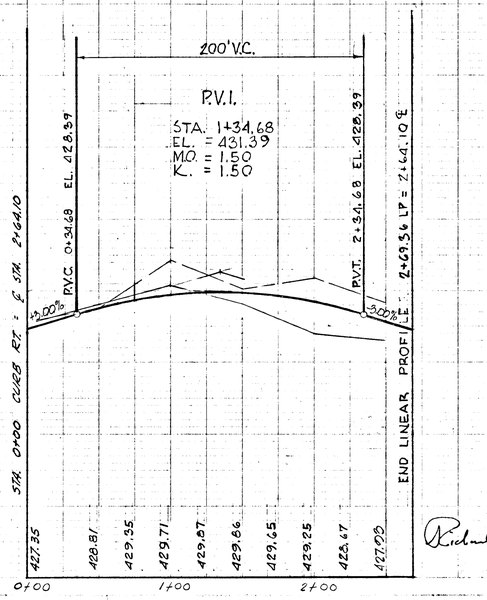
CUL-DE-SAC CURB PROFILE WINTERFIELDS LANE



℄ PROFILE SEAWIND COURT



CUL-DE-SAC CURB PROFILE SEAWIND COURT



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

#89

FILE No. 1923
F-68-96

STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	I.C.P. ELEV.	REMARKS
A-7	STAND. CI'S COMB. (DOUBLE GRATE)	STA. 0+55.00, 14.50' RT. OF ℄	—	378.00	383.94	Ho. Co. STD. DRWG. D-109, Pg. 158
A-3	MOD. CI'S COMB. (SINGLE GRATE)	STA. 0+60.00, 14.50' RT. OF ℄	—	422.00	427.22	DEPRESSED
						SEE DETAIL SH. 14 of 16

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 12/16/68

PLAN
SCALE: 1"=50'

3+87.56 OSPREY COURT = 0+00 SNOW SHOE LANE

OSPREY COURT — STA. 0+45.85 — NO. 7 OF 16 — ℄ CURVE DATA: Δ = 85° 11' 05", R = 157.734', T = 145.005', L = 234.511' — PC. 1+04.22 — ET. 3+38.73 — STA. 2+44.04 = STA. 0+00 CURB RT. — N 82° 41' 34" E RADIAL — R = 25' — 10.5 — 8.6' — 4.00 — 7.00 — L = 4.01

MATCH LINE SEE SHEET #1

Δ = 85-11-05, R = 171.813, L = 255.445

Δ = 254-14-06, R = 44.00, L = 179.879

Δ = 88-37-48, R = 51.00, L = 47.165

Δ = 55-19-14, R = 171.813, L = 165.916

CONSTRUCT MOUNTABLE CONCRETE CURB & GUTTER

CONSTRUCT 6½" BITUMINOUS PAVEMENT

CONSTRUCT MOUNTABLE CONCRETE CURB & GUTTER

CONSTRUCT 4' WIDE CONCRETE SIDEWALK 1' OFF ℄

END 4' WIDE CONCRETE SIDEWALK STA. 1+15.00

E 847,250 N 510,350

E 847,250 N 510,950

E 847,450 N 510,950

GRID NORTH

9+85.90 MELLENBROOK ROAD = 0+00 WILD BEES LANE & 0+00 CANVASBACK DRIVE

PAVEMENT TRANSITION LINE FROM 8" TO 6½" BITUMINOUS PAVEMENT

MELLENBROOK ROAD — N 42° 49' 07" E — 9.00 — 10.00

STA. 0+55.50 — NO. 4 OF 16 — 10.5 — 4.0 — 1.00

MATCH LINE SEE SHEET #1

A-3 — A.T. & T. CABLE

A.T. & T. R.O.W. — OPEN SPACE — RIGHT OF WAY

℄ CURVE DATA: Δ = 101° 30' 50", R = 696.647', T = 64.098', L = 127.836'

P.C. 2+10.00 — P.T. 3+38.04 — R = 25' — S 41° 10' 40" E — 2+00 — 3+00

STA. 3+40.36 = STA. 0+00 CURB RT. = ℄ STA. 3+38.04

CONSTRUCT 6½" BITUMINOUS PAVEMENT

CONSTRUCT MOUNTABLE CONCRETE CURB & GUTTER

END 4" WIDE CONCRETE SIDEWALK CURB STA. 1+30.00

OPEN SPACE

S 57° 41' 30" W — Δ = 90° 43' 52" — R = 25' — 50' — 10.5

CONSTRUCT MOUNTABLE CONCRETE CURB & GUTTER

CONSTRUCT 4' WIDE CONCRETE SIDEWALK 1' OFF ℄

A-3 STA. 3+38.04 = STA. 0+00 CURB RT.

E 846,850 N 509,800

E 847,400 N 509,950

E 847,400 N 509,450

163 164 165 166 167 168 169 170 171 172 244 245 246 247 248 249 250 251 252 253 260

SNOW SHOE LANE

WILD BEES LANE

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

VILLAGE OF OAKLAND MILLS SECTION 1
THUNDER HILL AREA 2

PLAN & PROFILE
SNOW SHOE LANE & WILD BEES LANE

Des. By	G.J.E.	Scale	AS SHOWN	Dwg. No.	12 OF 16
Drn. By	J.D.L.	Date	JUNE 15, 1968	C.C.F. No.	
Chk. By		Approved			

LEGEND
- EXISTING GROUND 25' RT. R.O.W.
- EXISTING GROUND 25' LT. R.O.W.
- EXISTING GROUND ON ℄
- FINISHED GRADE

PROFILES
SCALE: HORIZ: 1"=50'
VERT: 1"=5'

SNOW SHOE LANE & PROFILE

STA. 3+87.56 OSPREY CT. = STA. 0+00 SNOW SHOE LANE EL. = 382.23

100' V.C. — P.V.I. STA. 1+75 EL. = 385.40 — P.V.C. STA. 1+25 EL. = 385.40 — P.V.I. STA. 1+75 EL. = 386.67 M.O. 0.19 — P.V.T. STA. 2+25 EL. = 381.17

FINISHED GRADE +2.54% — -1.00% — CONSTRUCT INLET A-3 — INV. 15" OUT = 378.00

STA. 2+44.04 = STA. 0+00 CURB RT. ℄

0+00	1+00	2+00
382.23	383.10	384.17	385.10	385.98	386.49	386.87	387.17	387.36

390.0 / 380.0 / 370.0

SNOW SHOE LANE CUL-DE-SAC CURB PROFILE

STA. 0+00 CURB RT. = STA. 2+44.04 ℄

200' V.C. — P.V.I. STA. 1+66.88 EL. = 389.03 M.O. = 0.50 K = 0.50 — P.V.C. STA. 0+66.88 EL. 388.03 — P.V.T. 2+66.88 EL. 388.03 — +1.00% — -1.00%

END LINEAR PROFILE 2,133.75' LP = 21.44.04 ℄ EL. 387.36

0+00	1+00	2+00	3+00
387.36	387.86	388.11	388.31	388.44	388.52	388.53	388.48	388.36	388.19	387.71

390.0 / 380.0 / 370.0 — 430.0 / 420.0 / 410.0 / 400.0

WILD BEES LANE & PROFILE

STA. 0+00 WILD BEES LA. = STA. 9+85.90 MELLENBROOK RD. EL. = 425.31

E. A.T. & T. R.O.W. CROSSING — CONSTRUCT INLET A-3 — +2.67% — +1.00% — FINISHED GRADE — TOP OF EXISTING CONC. ENCASEMENT 422.59 EL. — INV. 15" OUT 422.0

100' V.C. — P.V.I. STA. 1+50 EL. 429.31 M.O. 0.21 — P.V.C. STA. 1+00 EL. = 427.98 — P.V.T. STA. 2+00 EL. = 429.81

E STA. 3+38.04 = STA. 0+00 CURB RT.

0+00	1+00	2+00	3+00
425.31	426.65	427.98	428.60	429.10	429.51	429.81	430.37	430.81	431.19

430.0 / 425.0 / 420.0 / 415.0 / 410.0 / 400.0

WILD BEES LANE CUL-DE-SAC CURB PROFILE

100' V.C. — P.V.I. STA. 1+34.36 EL. = 432.54 M.O. = 0.25 K = 1.00 — P.V.C. STA. 0+84.36 EL. 432.03 — P.V.T. STA. 1+84.36 EL. 432.03 — +1.00% — -1.00%

END LINEAR PROFILE 2,169.86' LP = 21.38.04 ℄ EL. 431.19

STA. 0+00 CURB RT. = ℄ STA. 3+38.04

0+00	1+00	2+00
431.19	431.69	432.17	432.27	432.26	432.12	431.88	431.38

435.0 / 425.0 / 415.0

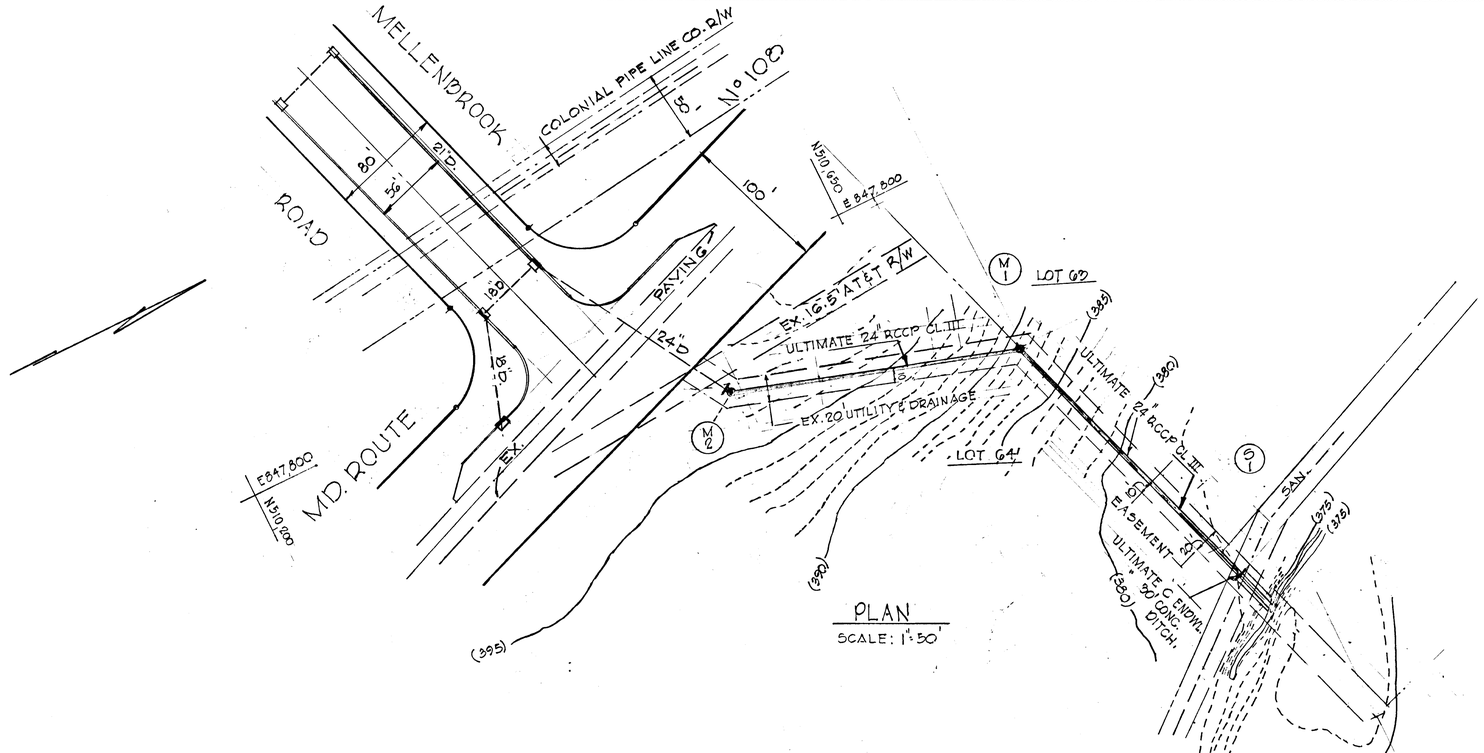
STATE OF MARYLAND — RICHARD P. BROWNE — REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR

Richard P. Browne

#89

F-68-46 FILE NO. 1923

STORM DRAINAGE STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	INV. IN	INV. OUT	F.C.P.E. EV.	REMARKS
S-1	C. ENDWALL	AS SHOWN		375.10	-	HO.CO. ST'D. DETAIL DRWG. D-51 PG. 106
M-1	DROP MANHOLE	" "	383.54	379.02	-	HO.CO. ST'D. DETAIL DRWG. D-104 PG. 159
M-2	ST'D. MANHOLE	" "	391.74	391.54	-	HO.CO. ST'D. DETAIL DRWG. D-102 PAGE 158



PLAN
SCALE: 1" = 50'

APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY
DATE 12/16/68

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA MARYLAND

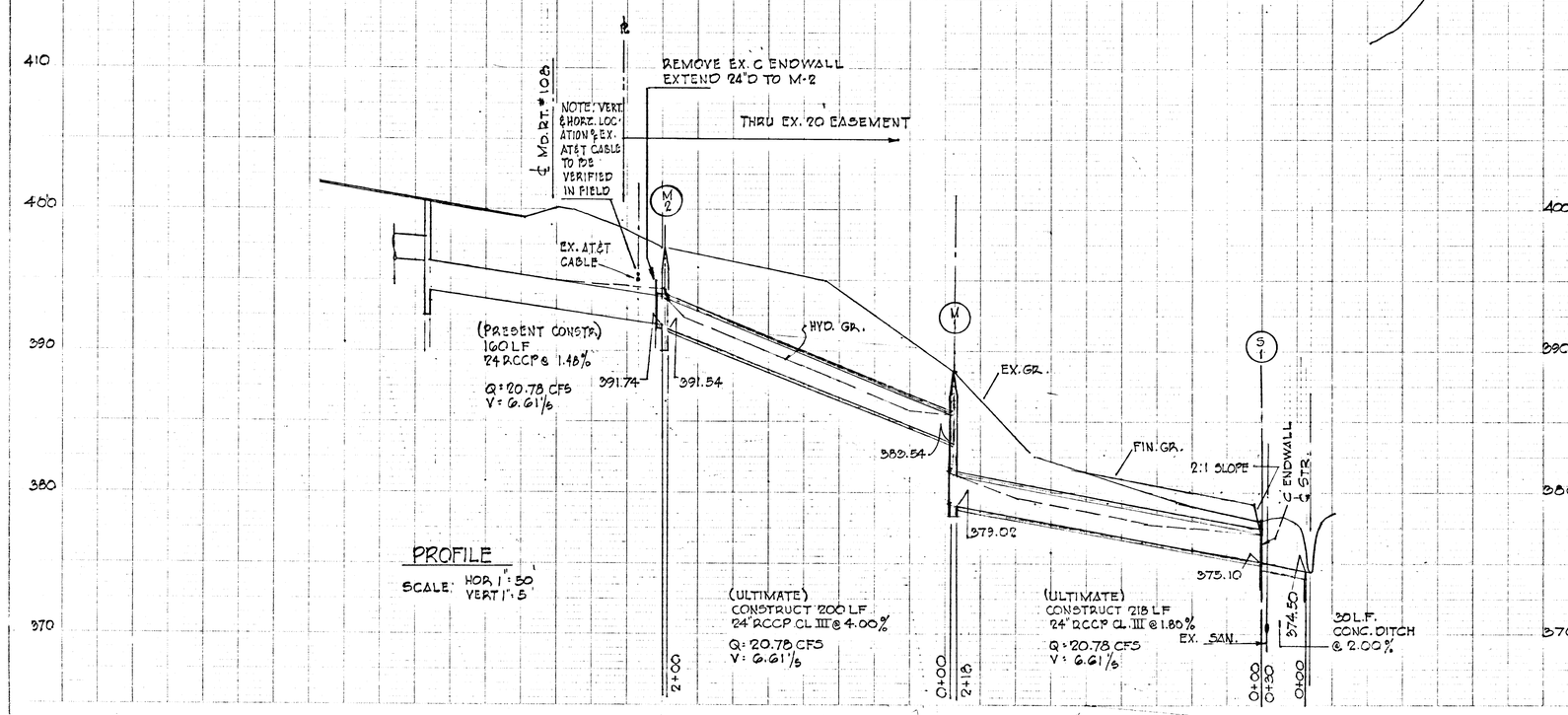
Rev. Date	Rev. No.	Revision Description

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

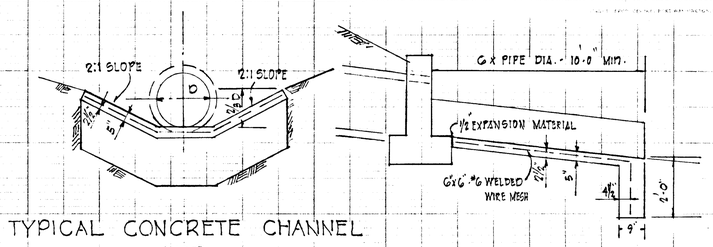
PROJECT AREA
VILLAGE OF OAKLAND MILLS - SECTION 1
THUNDER HILL AREA 2

PROJECT TITLE PLAN & PROFILE
ULTIMATE STORM DRAIN OUTFALL - MELLENBROOK ROAD THRU EXISTING 20' UTILITY AND DRAINAGE EASEMENT

Des. By T.S.	Scale As Shown	Dwg. No. 13 of 16
Drn. By T.S.	Date 24 SEPT 68	C.E.F. No.
Chk. By S	Approved	



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



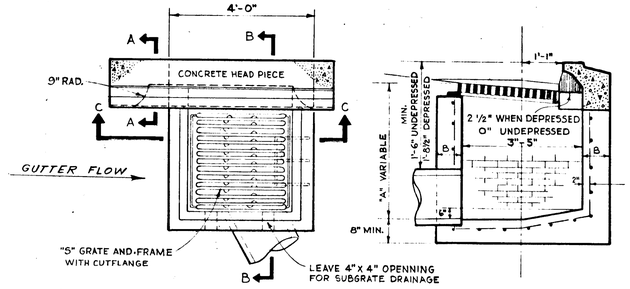
TYPICAL CONCRETE CHANNEL
AND
CUTOFF WALL
NO SCALE

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

Richard P. Browne

#89

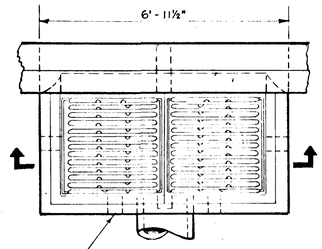
F-68-46



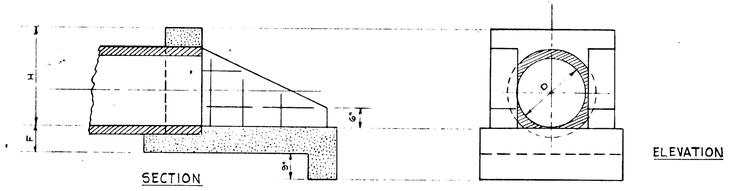
PLAN

SECTION "B-B"

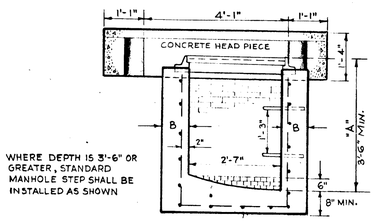
NOTES:
1. INLETS MAY BE CONSTRUCTED OF REINFORCED CONCRETE OR BRICK. SIZE, TYPE & DIRECTION OF INLET CONNECTION WILL VARY TO SUIT CONDITIONS
2. THE INVERT SHALL BE BRICK OR PLAIN CLASS "A" CONCRETE.
3. B = 8" WHERE A IS 7' OR LESS
4. B = 12" WHERE A IS 7' TO 11'
5. TOP 4" OF WALLS SHALL BE MASONRY. ADDITIONAL BRICK SHALL BE USED TO BRING THE GRATE TO EXISTING GRADE IF REQUIRED
6. REINFORCEMENT REQUIRED ON OUTSIDE, AS WELL AS ON INSIDE, OF WALLS BELOW 7'-0" WHEN A IS GREATER THAN 7'-0". SPACING, SAME AS FOR INSIDE OF WALL.
7. PLACE ¼" EXPANSION MATERIAL OF THE SAME TYPE APPROVED FOR PAVEMENT BETWEEN THE FRAME AND ABUTTING RIGID PAVEMENT, & BETWEEN ENDS OF INLET CURB & NORMAL CURB.



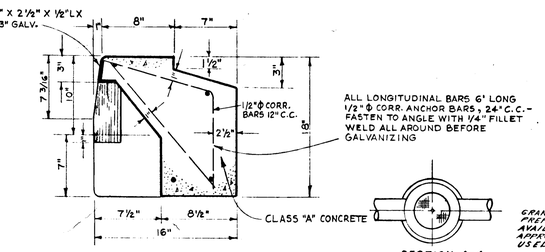
PLAN



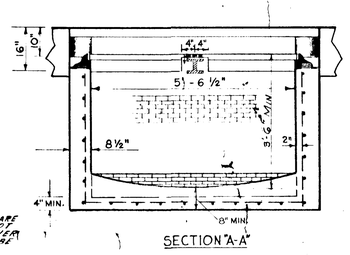
NOTE:
(STEEL IN WINGS) VERT: ¾" BARS 12" C.C., HORIZ: ½" BARS 12" C.C. HOOKED ON ONE END.
NOTE:
CHAMFER ALL EXPOSED EDGES 1"x 1" OR AS DIRECTED.



SECTION "C-C"



SECTION "A-A"

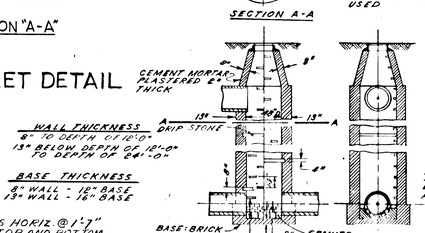


SECTION "A-A"

MODIFIED CLASS "S" COMBINATION INLET DETAIL (SINGLE GRATE)

NO SCALE

GRANITE DRIP STONES ARE PREFERABLE BUT IF NOT AVAILABLE SOME OTHER APPROVED TYPE MAY BE USED

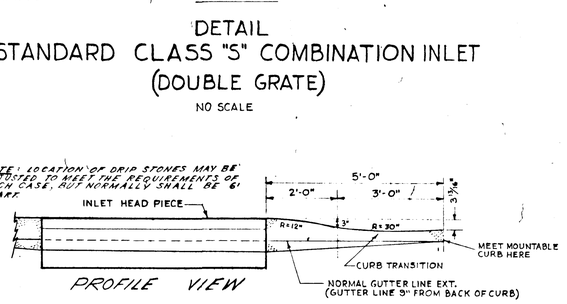


STANDARD DROP MANHOLE

NO SCALE

DETAIL STANDARD CLASS "S" COMBINATION INLET (DOUBLE GRATE)

NO SCALE

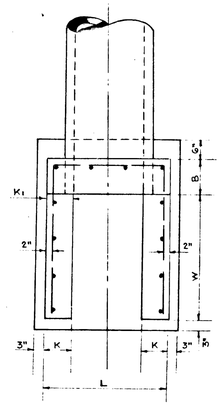


PROFILE VIEW

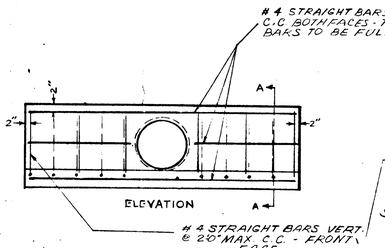
SLOPE 2:1											
OPENING		DIMENSIONS FOR CONCRETE							QUANTITIES	
PIPE DIA. D	AREA SQ.FT.	ENDWALL L	B	F	H	WINGS W	K	K1	1- ENDWALL 2- WINGS	CONC. CU.YDS.	STEEL LBS.
12"	0.79	2'-0"	9"	5"	1'-7"	1'-4"	6"	6"		0.36	34
15"	1.23	2'-3"	9"	9"	1'-11"	1'-11"	6"	6"		0.47	37
16"	1.39	2'-4"	9"	9"	1'-11"	2'-0"	6"	6"		0.50	38
18"	1.78	2'-6"	9"	9"	2'-2"	2'-6"	6"	6"		0.61	53
24"	3.14	3'-0"	12"	9"	2'-5"	3'-0"	9"	9"		1.17	71
30"	4.91	4'-0"	12"	9"	3'-4"	4'-1"	9"	9"		1.62	91
36"	7.07	4'-6"	12"	9"	3'-10"	5'-8"	9"	9"		2.12	116
42"	9.62	5'-0"	12"	9"	4'-5"	6'-9"	9"	12"		3.15	141
48"	12.57	6'-0"	12"	9"	4'-11"	7'-10"	9"	12"		3.88	174

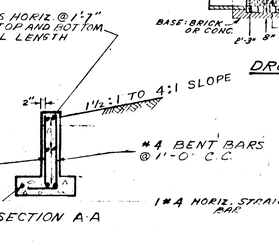
STANDARD TYPE "G" ENDWALL

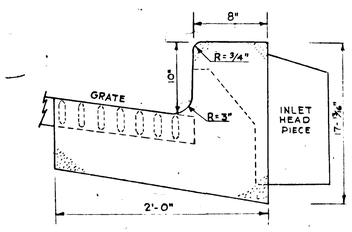
NO SCALE



PLAN



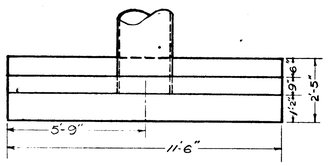




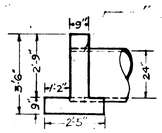
SECTION VIEW

DETAIL OF MOUNTABLE CURB TRANSITION TO INLET CURB PIECE

NO SCALE



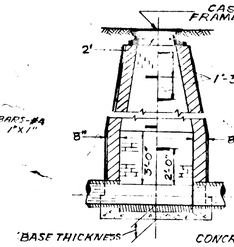
PLAN



GENERAL NOTES

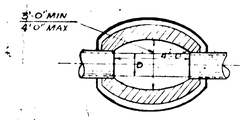
SPECIFICATIONS	:	LATEST S.R.C.
CONCRETE	:	SEE S.R.C. SPECS.
REINFORCING	:	DEFORMED STEEL PER SPEC. #4
CHAMFER	:	ALL EXPOSED EDGES 1"x1"

STANDARD TYPE "C" ENDWALL



STANDARD MANHOLE DETAIL

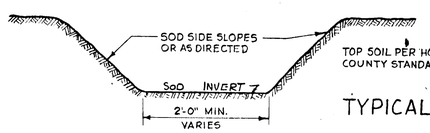
NO SCALE



MANHOLE BASE THICKNESS
6" WALL - 12" BASE
12" WALL - 15" BASE

MANHOLE WALL THICKNESS
8" TO A DEPTH OF 12'
12" BELOW DEPTH OF 12' TO DEPTH OF 24'

BENCH HEIGHT ABOVE OUTGOING PIPE INVERT STORM WATER 0.5 D

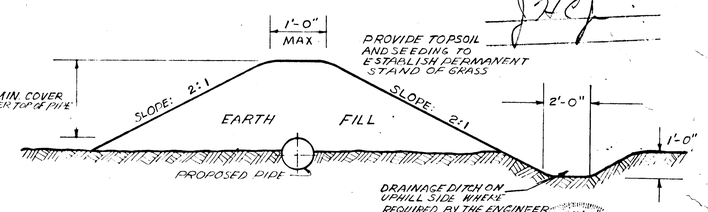


TYPICAL DRAINAGE DITCH

NO SCALE

NOTE: ALL EXISTING DITCHES APPROACHING PROPOSED ENDWALLS SHALL BE TRIMMED IN ACCORDANCE WITH ARTICLE C-6 OF THE HOWARD COUNTY ROAD CONSTRUCTION CODE AND STANDARD SPECIFICATIONS.

APPROVED
PLANNING COMMISSION OF HOWARD COUNTY, MARYLAND
DATE 6/16/69



TYPICAL EARTH FILL BERM OVER PIPE

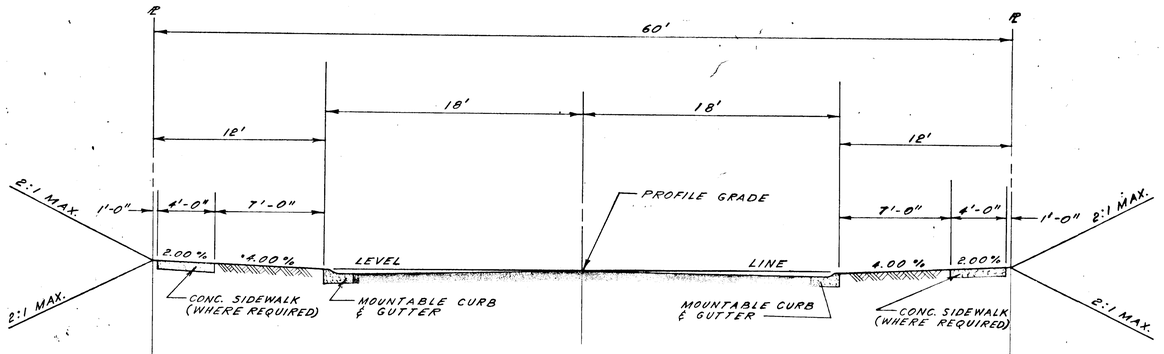
NO SCALE

REGISTERED PROFESSIONAL ENGINEER

BROWNE-PANDULLO & ASSOCIATES ENGINEERS COLUMBIA, MARYLAND	PROJECT AREA	VILLAGE of OAKLAND MILLS SECT. I THUNDER HILL AREA 2
	PROJECT TITLE	DRAINAGE DETAILS
Rev Date / Rev No / Revision Description	Des By W.J.K. / Drn By W.J.K. / Chk By W.J.K.	Scale AS SHOWN / Date JUNE 15, 1968 / Approved
COLUMBIA MARYLAND 6TH ELECTION DISTRICT HOWARD COUNTY OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP. THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210		Dwg. No 14 of 16 / C.C.F. No

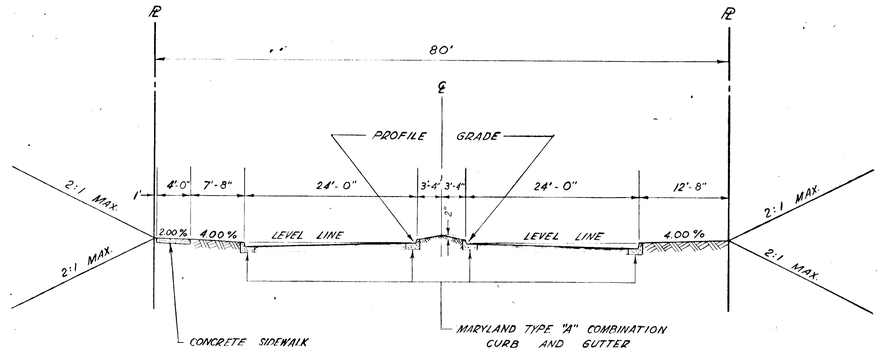
#89

FILE No. 1913



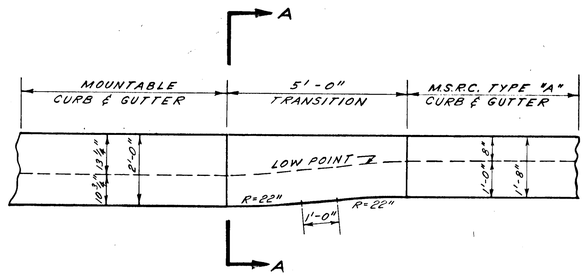
60' R.O.W. TYPICAL SECTION

NO SCALE

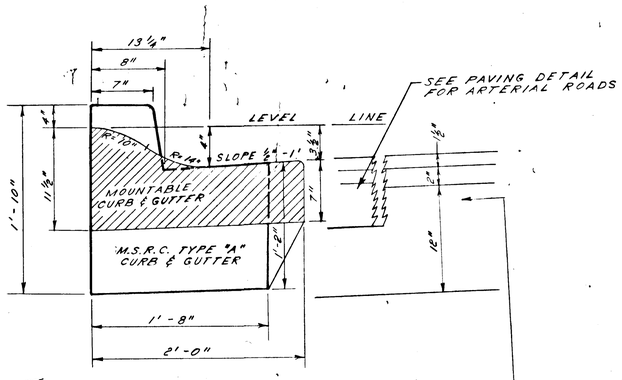


80' R.O.W. SECTION

NO SCALE

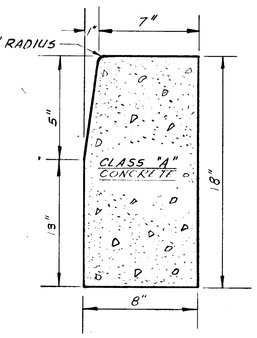


PLAN



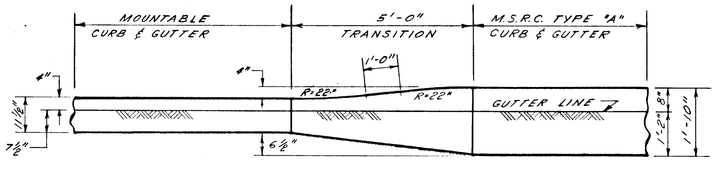
SECTION A-A

12" COMPACTED PLANT MIX STABILIZED STONE AGGREGATE PLUS 3 1/2" COMPACTED MD. SPEC. "B" BITUMINOUS CONCRETE (2" BASE - 1 1/2" SURFACE) (TO BE PLACED WHEN USING MARYLAND TYPE "A" CURB OR WHERE DIRECTED ON PLANS)

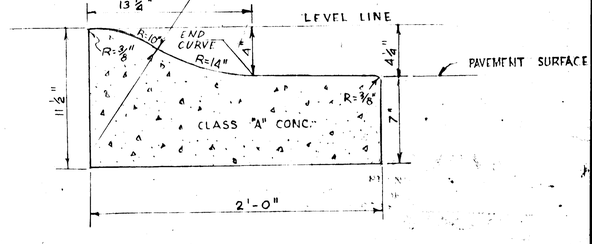


VERTICAL CURB

NO SCALE



ELEVATION



MOUNTABLE CURB & GUTTER FOR CUL-DE-SAC ISLANDS

NO SCALE

APPROVED
PLANNING COMMISSION
OF HOWARD
DATE 12/16/68
JHCJr

MOUNTABLE CONCRETE CURB & GUTTER
TRANSITION TO MARYLAND STATE ROADS
COMMISSION TYPE "A" CONCRETE CURB
& GUTTER

NO SCALE

Richard P. Browne

#89

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

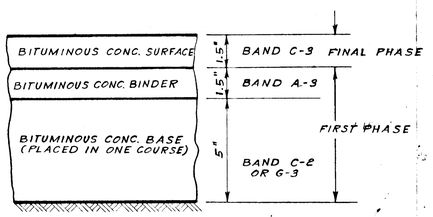
PROJECT AREA
VILLAGE of OAKLAND MILLS SECT. 1
THUNDER HILL AREA 2

PROJECT TITLE
ROADWAY DETAILS

Des By W.J.K.	Scale AS SHOWN	Dwg. No 15 of 16
Drn By F.A.S.	Date JUNE 15, 1968	C.C.F. No
Chk By WJK	Approved	

FILE No. 1923

F-68-96



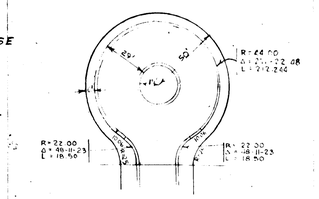
CLEARING & GRADING	ARTICLE	C-1
SUBGRADE	ARTICLE	C-2
BASE COURSE	ARTICLE	C-31 OR C-33
BINDER COURSE	ARTICLE	C-31
SURFACE COURSE	ARTICLE	C-31

NOTE: PAVEMENT TO BE CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY ROAD CONSTRUCTION CODE & SPECIFICATIONS

ARTERIAL RESIDENTIAL STREET

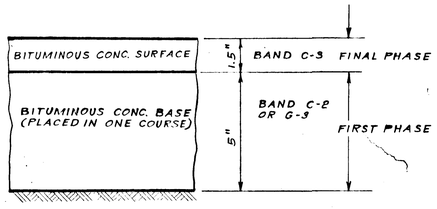
NO SCALE

D-113 PAGE 165C



CUL-DE-SAC "B"

NO SCALE



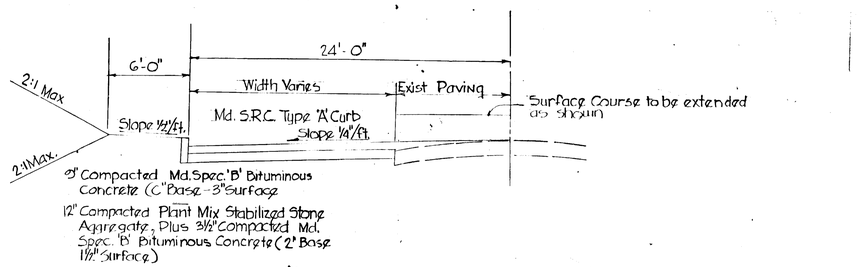
CLEARING & GRADING	ARTICLE	C-1
SUBGRADE	ARTICLE	C-2
BASE COURSE	ARTICLE	C-31 OR C-33
SURFACE COURSE	ARTICLE	C-31

NOTE: PAVEMENT TO BE CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY ROAD CONSTRUCTION CODE & SPECIFICATIONS.

LOCAL RESIDENTIAL STREET

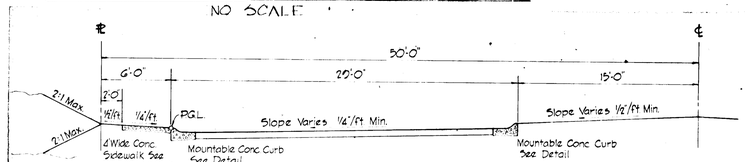
NO SCALE

D-114 PAGE 165D



TYPICAL ½ SECTION Rte. 108

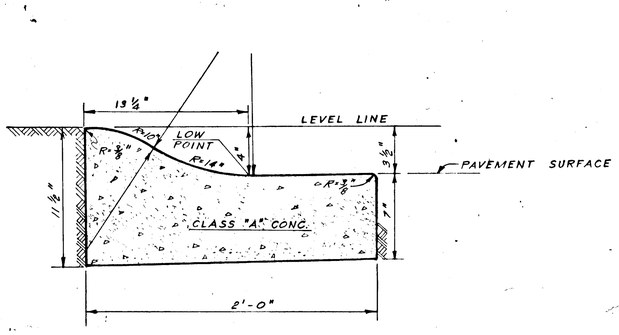
NO SCALE



TYPICAL CUL-DE-SAC HALF-SECTION

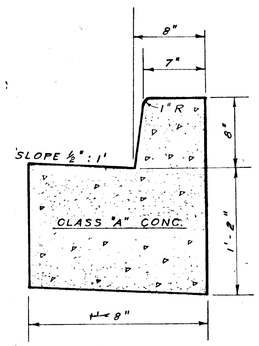
NO SCALE

PAVEMENT SECTION



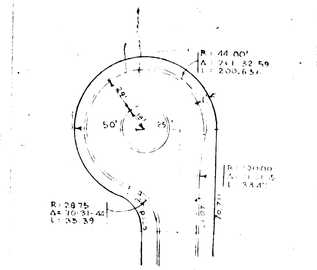
MOUNTABLE CURB & GUTTER

NO SCALE



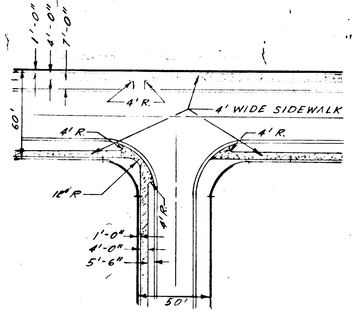
MARYLAND STATE ROADS COMMISSION TYPE "A" COMBINATION CONCRETE CURB & GUTTER

NO SCALE



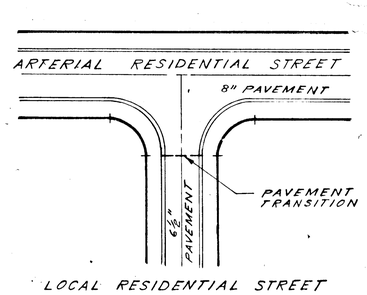
CUL-DE-SAC "A"

NO SCALE



TYPICAL SIDEWALK DETAIL AT INTERSECTIONS

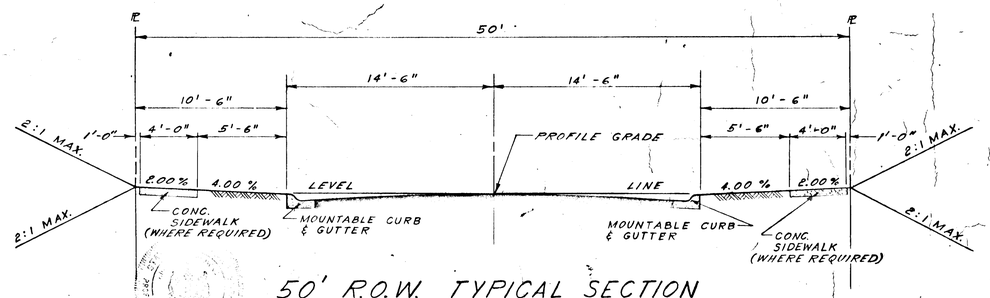
NO SCALE



LOCAL RESIDENTIAL STREET

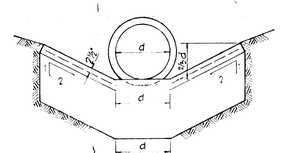
TYPICAL PAVEMENT TRANSITION DETAIL

NO SCALE



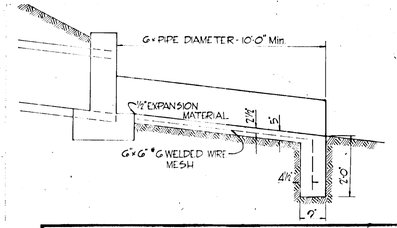
50' R.O.W. TYPICAL SECTION

NO SCALE



TYPICAL CONCRETE CHANNEL AND CUTOFF WALL

NO SCALE



APPROVED
PLANNING COMMISSION
OF HOWARD COUNTY, MARYLAND
DATE 12/16/68

BROWNE-PANDULLO & ASSOCIATES
ENGINEERS
COLUMBIA, MARYLAND

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PROJECT AREA	VILLAGE OF OAKLAND MILLS SECTION 1 THUNDER HILL AREA 2		
PROJECT TITLE	ROADWAY DETAILS		
Des By W.J.K.	Scale AS SHOWN	Dwg No 10 OF 10	
Drn By F.A.S.	Date JUNE 13, 1968	C.C.F. No	
Chk By W.J.K.	Approved		

FILE No. 19C3

#89

Richard P. Browne