

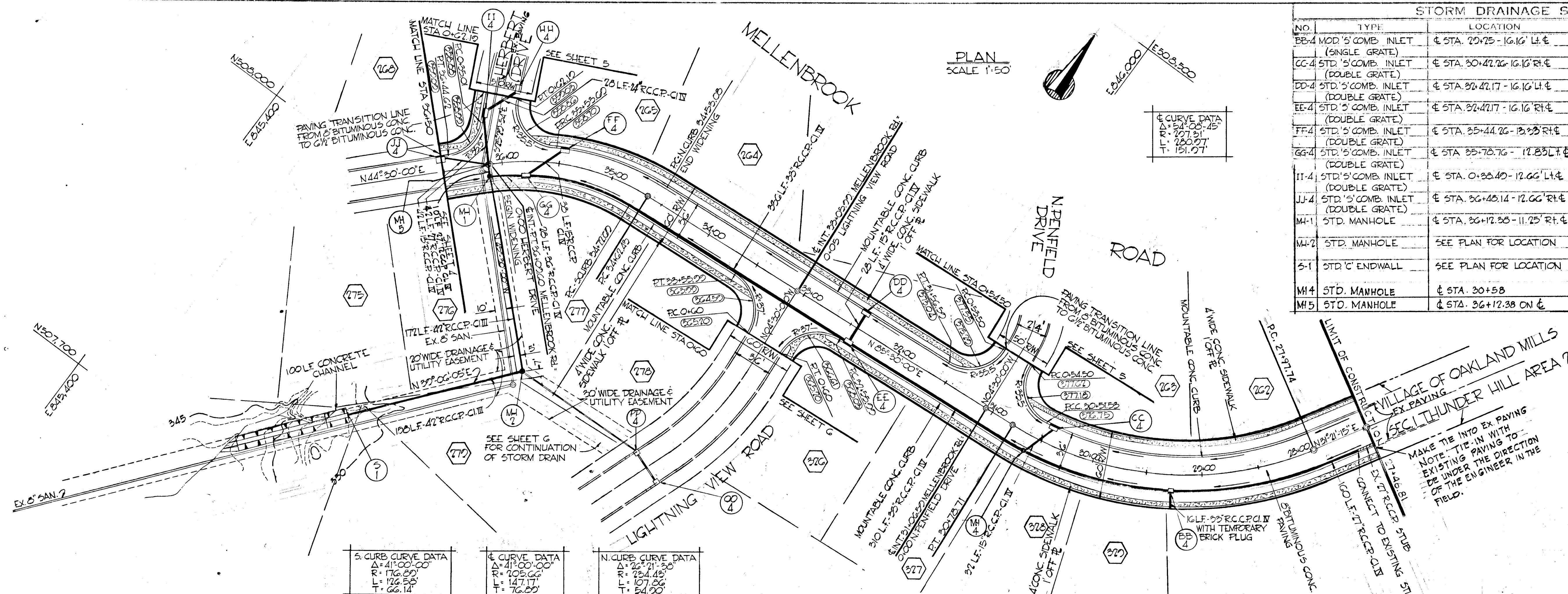
APPROVED  
 PLANNING COMMISSION  
 OF HOWARD COUNTY  
 DATE \_\_\_\_\_

BROWNE-PANDULLO & ASSOCIATES ENGINEERS COLUMBIA, MARYLAND		
Rev Date	Rev No	Revision Description
<b>COLUMBIA</b> M <sup>TH</sup> 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 5		
PROJECT TITLE DRAINAGE AREA MAP		
Des By T.S.	Scale 1"=100'	Dwg No 2 of 15
Drn By F.T. & J.B.	Date AUG 23, 1960	C.C.F. No
Chk By	Approved	



*Richard Browne*

F-68-65 JOB # 1925



STORM DRAINAGE STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	INV. IN	INV. OUT	I.C. ELEV.	REMARKS
BB-4	MOD. 5' COMB. INLET (SINGLE GRATE)	± STA. 20+75 - 16.16' L.F. ±	377.70	376.20	383.41	SEE DETAIL SHEET
CC-4	STD. 5' COMB. INLET (DOUBLE GRATE)	± STA. 30+42.76 - 16.16' L.F. ±		372.80	377.95	HOWARD COUNTY STD. DWG. D-22 PAGE 154
DD-4	STD. 5' COMB. INLET (DOUBLE GRATE)	± STA. 35+42.17 - 16.16' L.F. ±		364.85	368.92	HOWARD COUNTY STD. DWG. D-22 PAGE 154
EE-4	STD. 5' COMB. INLET (DOUBLE GRATE)	± STA. 32+47.17 - 16.16' L.F. ±	353.45 353.70	350.80	368.92	HOWARD COUNTY STD. DWG. D-22 PAGE 154
FF-4	STD. 5' COMB. INLET (DOUBLE GRATE)	± STA. 35+44.26 - 13.33' L.F. ±		354.56	359.06	HOWARD COUNTY STD. DWG. D-22 PAGE 154
GG-4	STD. 5' COMB. INLET (DOUBLE GRATE)	± STA. 35+78.76 - 12.83' L.F. ±	353.80 353.65	351.40	358.93	HOWARD COUNTY STD. DWG. D-22 PAGE 154
HH-4	STD. 5' COMB. INLET (DOUBLE GRATE)	± STA. 0+38.40 - 12.66' L.F. ±	353.77	353.52	358.68	HOWARD COUNTY STD. DWG. D-22 PAGE 154
JJ-4	STD. 5' COMB. INLET (DOUBLE GRATE)	± STA. 36+48.14 - 12.66' L.F. ±		354.00	359.48	HOWARD COUNTY STD. DWG. D-22 PAGE 154
MM-1	STD. MANHOLE	± STA. 36+12.38 - 11.25' L.F. ±	357.48 357.08	350.78		HOWARD COUNTY STD. DWG. D-108 PAGE 158
MM-2	STD. MANHOLE	SEE PLAN FOR LOCATION	357.95 357.90	347.70		HOWARD COUNTY STD. DWG. D-108 PAGE 158
5-1	STD. 'C' ENDWALL	SEE PLAN FOR LOCATION		343.08		HOWARD COUNTY STD. DWG. D-52 PAGE 107
MH-4	STD. MANHOLE	± STA. 30+58	371.20	369.70	-	HO. CO. STD. D 103 Pg. 158
MH-5	STD. MANHOLE	± STA. 36+12.38 ON ±	352.93	352.18	-	" " " " " "

**BROWNE, PARDULLO & ASSOCIATES**  
ENGINEERS  
COLUMBIA, MARYLAND

Rev. Date	Rev. No.	Revision Description

**COLUMBIA**  
M A R Y L A N D  
1<sup>ST</sup> ELECTION DISTRICT - HOWARD COUNTY  
HOWARD RESEARCH AND DEVELOPMENT CORP.  
THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210

PROJECT: VILLAGE OF OAKLAND MILLS SECT. 1 THUNDER HILL AREA 5  
MELLENBROOK ROAD  
PLAN & PROFILE

Des. By: T.S.      Scale: AS SHOWN      Dwg. No: 3 OF 15  
 Dir. By: F.T.      Date: AUG 23, 1968      C.C.F. No.  
 Ck. By:      Approved:      C.C.F. No.

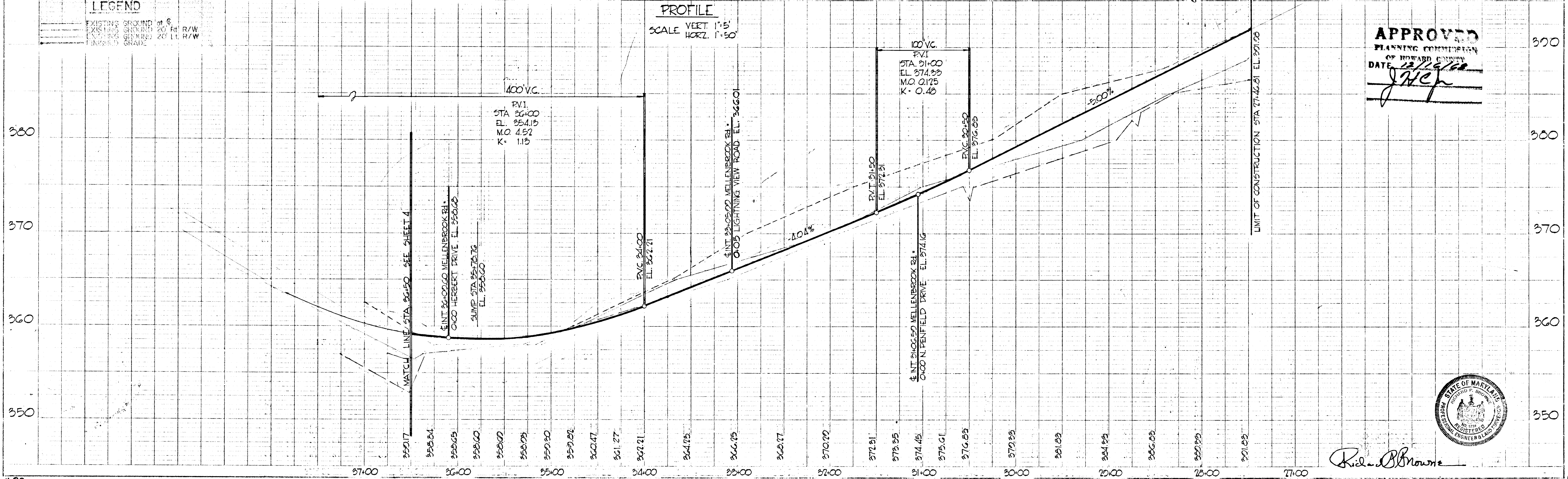
MAKE THE INTO EX PAVING  
NOTE: TIE-IN WITH  
EXISTING PAVING TO  
BE UNDER THE DIRECTION  
OF THE ENGINEER IN THE  
FIELD.

S. CURVE CURVE DATA	E. CURVE CURVE DATA	N. CURVE CURVE DATA
Δ = 41°00'00"	Δ = 41°00'00"	Δ = 26°21'36"
R = 176.89	R = 203.66	R = 78.48
T = 66.14	T = 107.98	T = 54.90

**LEGEND**

(Symbol)	EXISTING GROUND
(Symbol)	PROPOSED GROUND
(Symbol)	EXISTING SHOULDER 20' FT. R/W
(Symbol)	PROPOSED SHOULDER 20' FT. R/W
(Symbol)	UNPAVED SHADE

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



**APPROVED**  
PLANNING COMMISSION  
OF HOWARD COUNTY  
DATE: 12/19/68  
*J.W.P.*

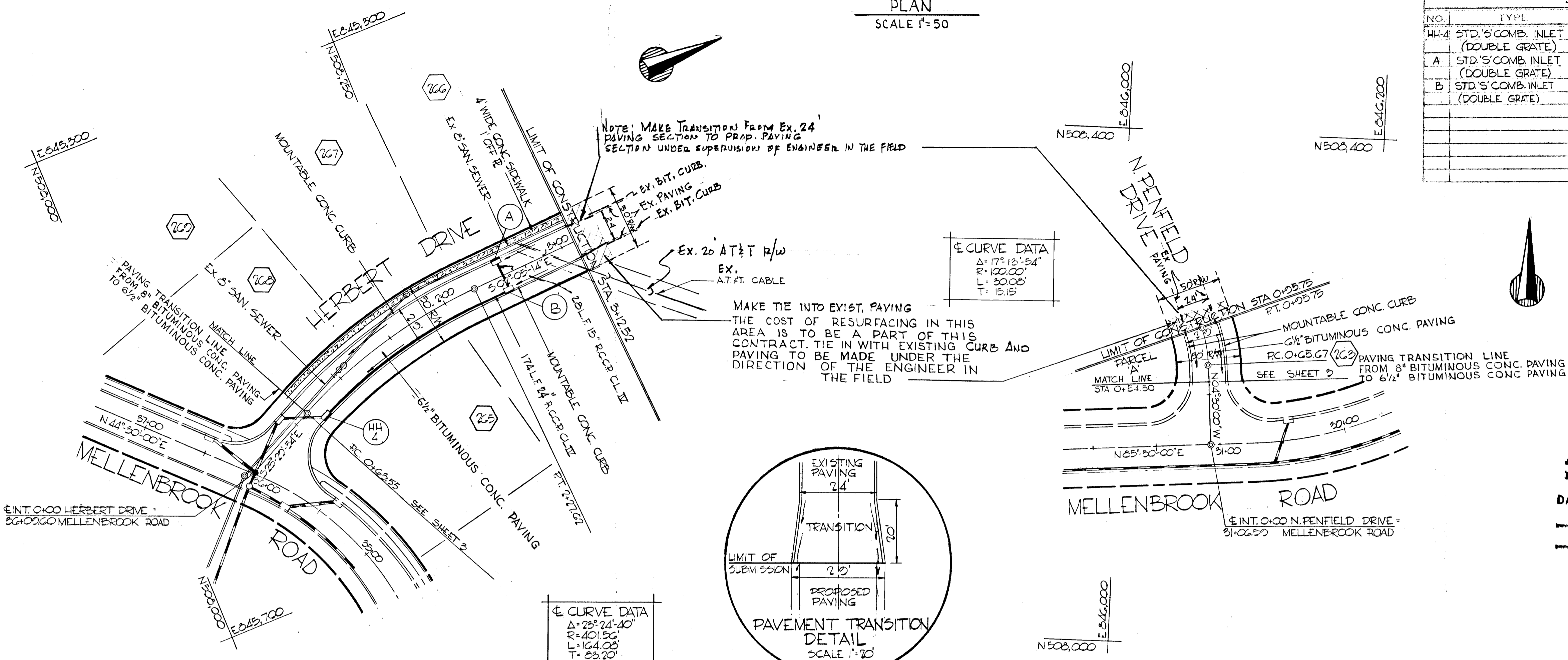


*Richard Browne*

FCB-65 JOB # 10223



PLAN  
SCALE 1"=50'



STORM DRAINAGE STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	INV. IN	INV. OUT	C.P. ELEV.	REMARKS
HH-4	STD. S' COMB. INLET (DOUBLE GRATE)	E STA. 0+70.57 - 12.66' RT. E	353.89	353.64	350.41	HOWARD COUNTY STD. DWG. D-99 PAGE 154
A	STD. S' COMB. INLET (DOUBLE GRATE)	E STA. 2+50 - 12.66' LT. E		356.94	361.51	HOWARD COUNTY STD. DWG. D-99 PAGE 154
B	STD. S' COMB. INLET (DOUBLE GRATE)	E STA. 2+50 - 12.66' RT. E	356.38	355.63	361.51	HOWARD COUNTY STD. DWG. D-99 PAGE 154

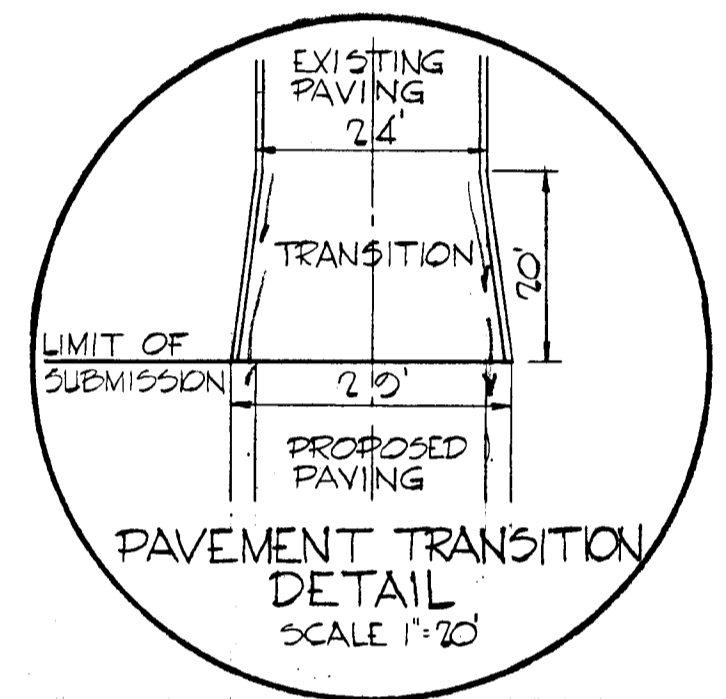
APPROVED  
 PLANNING COMMISSION  
 OF HOWARD COUNTY  
 DATE 7/16/68  
 J.H.C.

10/14/68  
 Rev. Date Rev. No. Gradient Herbert Dr.  
 Revision Description

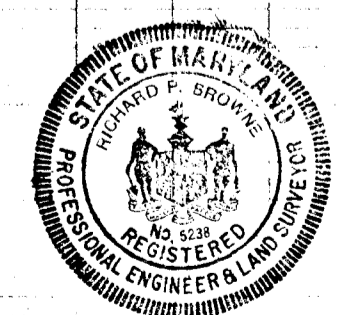
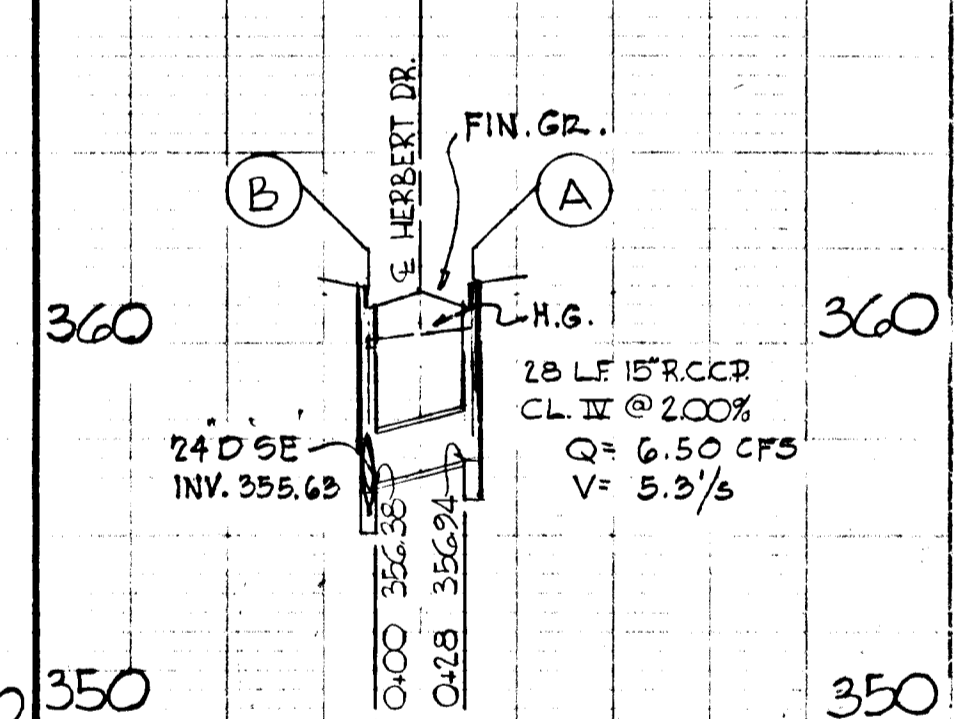
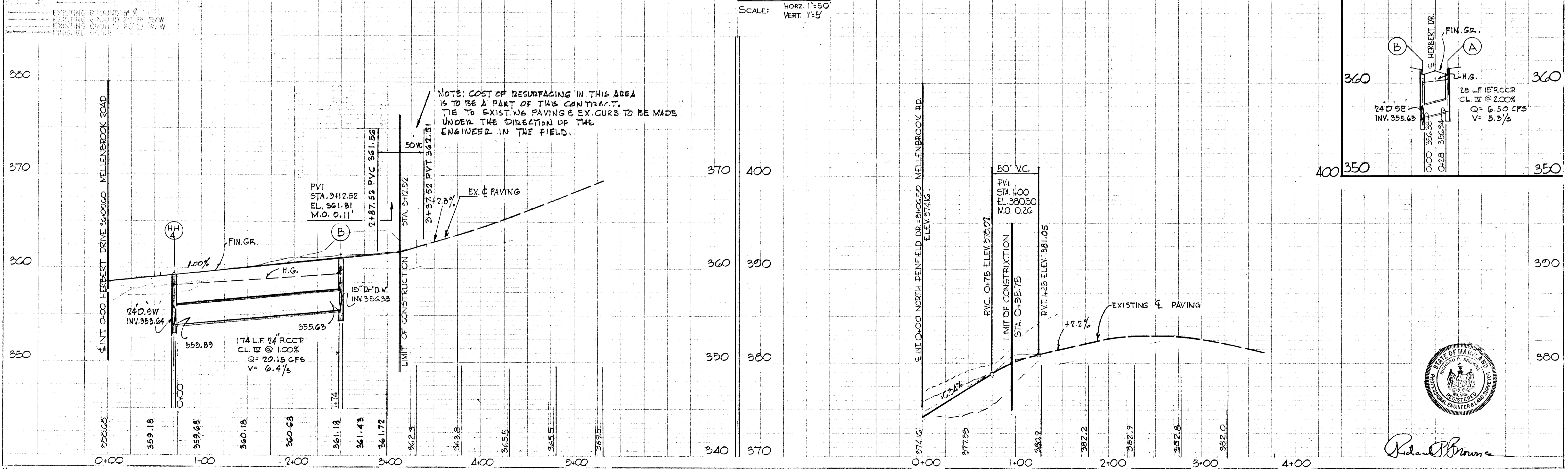
**COLUMBIA**  
 MARYLAND  
 6TH ELECTION DISTRICT - HOWARD COUNTY  
 HOWARD RESEARCH AND DEVELOPMENT CORP.  
 THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21270

PROJECT AREA:  
 VILLAGE OF OAKLAND MILLS - SECTION 1  
 THUNDER HILL - AREA 5  
 NORTH DENFIELD DRIVE  
 HERBERT DRIVE  
 PLAN & PROFILE

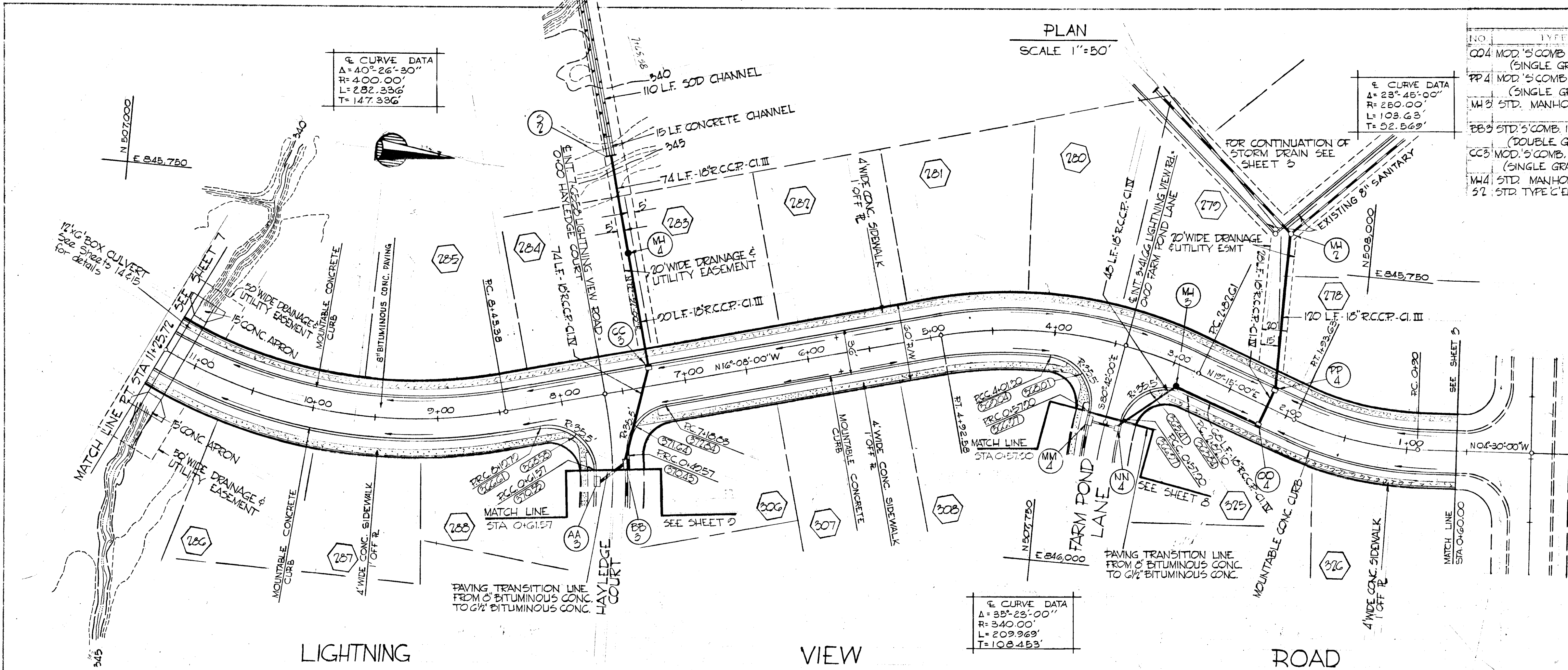
Des. By T.S. Scale AS SHOWN Univ. No. B OF 15  
 Dra. By F.T. Date AUG 25, 1968 C.C.F. No.  
 App. By Approved



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



Richard Brown



NO	TYPE	LOCATION	ELEV. IN	ELEV. OUT	ELEV. AT	REMARKS
004	MOD. S COMB INLET (SINGLE GRATE)	STATION 2+17.25 - 16.16' RT. E	358.53	358.98	363.43	SEE DETAIL SHEET
PP4	MOD. S COMB INLET (SINGLE GRATE)	STATION 2+17.25 - 16.16' RT. E	358.00	357.27	363.43	SEE DETAIL SHEET
MM3	STD. MANHOLE	STATION 2+20 - 14.75' RT. E	359.46	359.21		HOWARD COUNTY DWG D-105 PAGE 158
BB3	STD. S COMB INLET (DOUBLE GRATE)	STATION 0+53 - 12.66' LT. E	365.77	365.74	370.84	HOWARD COUNTY DWG D-20 PAGE 154
CC3	MOD. S COMB INLET (SINGLE GRATE)	STATION 7+30 - 16.16' RT. E	365.00	364.80	372.43	SEE DETAIL SHEET
MM4	STD. MANHOLE	STATION 7+30 - 108.00' RT. E	347.43	347.28		HoCo. DWG. 103 P. 158
52	STD. TYPE C ENDWALL	STATION 7+30 - 108.00' RT. E		359.05		HoCo. DWG. 52 P. 107

ENGINEERS  
COLUMBIA, MARYLAND

Rev. Date:    Rev. No:    Revision Description:

**COLUMBIA**  
M 6<sup>TH</sup> ELECTION DISTRICT - HOWARD COUNTY, D

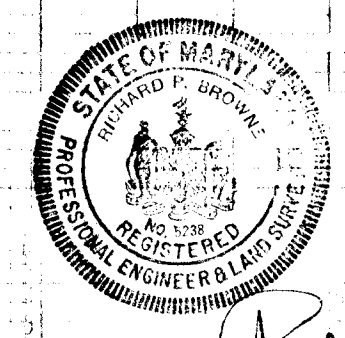
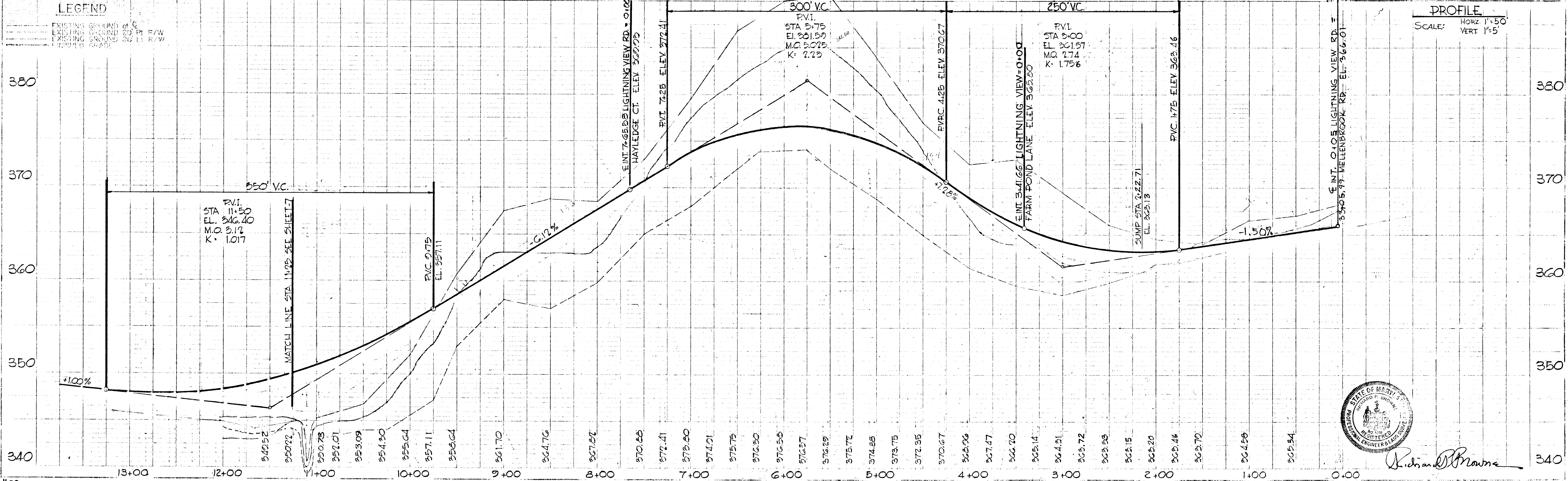
HOWARD RESEARCH AND DEVELOPMENT CORP.  
THE VILLAGE OF CHASE FERRY - BALTIMORE, MARYLAND 21210

VILLAGE OF OAKLAND MILLS - SECT. 1  
THUNDER HILL AREA 5

**LIGHTNING VIEW ROAD**  
PLAN & PROFILE

TS.  
By: J.B. & F.T.    Date: AUG 23, 1968    C.C.E. No.    Assessor:

**APPROVED**  
PLANNING COMMISSION  
OF HOWARD COUNTY  
DATE 12/15/68  
*J. J. [Signature]*



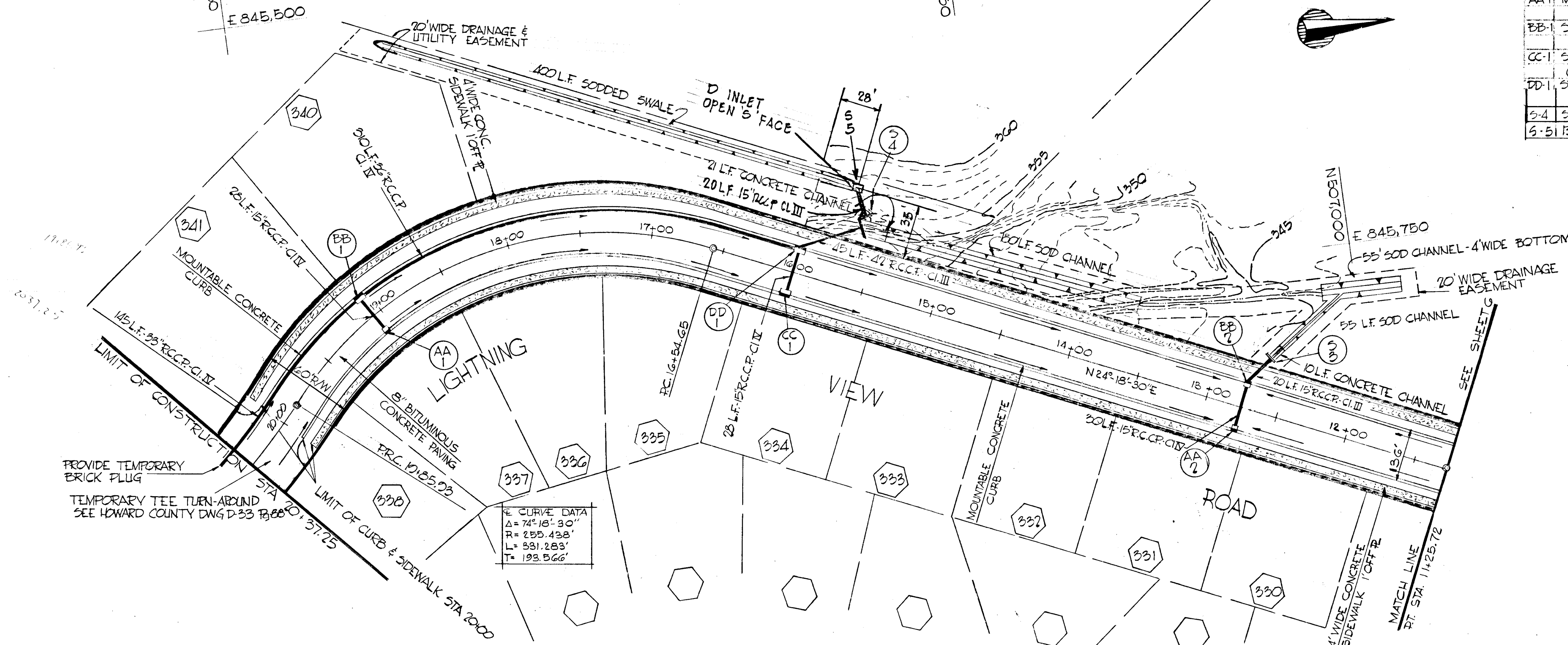
*Richard D. Brown*

JOB # 1023  
F-68-65

PLAN  
SCALE: 1"=50'

STORM DRAINAGE STRUCTURE SCHEDULE							
NO.	TYPE	LOCATION	INV. IN	INV. OUT	T.C. PILE	REMARKS	
AA	MOD. 'S' COMB. INLET (SINGLE GRATE)	ST. STA. 12+75.84 - 16+26' RT. &	343.65	343.10	343.22	SEE DETAIL SHEET	
BB	MOD. 'S' COMB. INLET (SINGLE GRATE)	ST. STA. 12+75.84 - 16+26' RT. &	343.35	343.10	343.22	" " "	
5-2	STD. TYPE 'C' ENDWALL	ST. STA. 12+65 - 27' RT. &	343.00			HoCo Std. Dwg. D-57, Pg. 107	
AA	MOD. 'S' COMB. INLET (SINGLE GRATE)	ST. STA. 10+10 - 16+26' LT. &	355.37	361.41		SEE DETAIL SHEET	
BB	STD. 'S' COMB. INLET (DOUBLE GRATE)	ST. STA. 10+10 - 16+26' RT. &	15+354.81 35-353.31	353.06	361.41	HOWARD COUNTY STD. DWG. D-102 PAGE 154	
CC	STD. 'S' COMB. INLET (DOUBLE GRATE)	ST. STA. 16+00 - 16+26' LT. &		348.89	353.50	" " "	
DD	STD. 'S' COMB. INLET (DOUBLE GRATE)	ST. STA. 16+00 - 16+26' RT. &	15+348.61 36-346.66	346.36	353.50	" " "	
5-4	STD. TYPE ENDWALL	ST. STA. 15+65 - 45' RT. &	246.00			HoCo DWG. 54-Pg. 109	
5-5	BALTO. CO. STD. 'D' INLET	As Shown	348.90	-			

CURVE DATA  
Δ = 112° 20' 40"  
R = 255.44'  
L = 51.32'  
T = 25.62'



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

BROWNE-PANDULLO & ASSOCIATES  
ENGINEERS  
COLUMBIA, MARYLAND

Rev. Date:    Rev. No:    Revision Description:

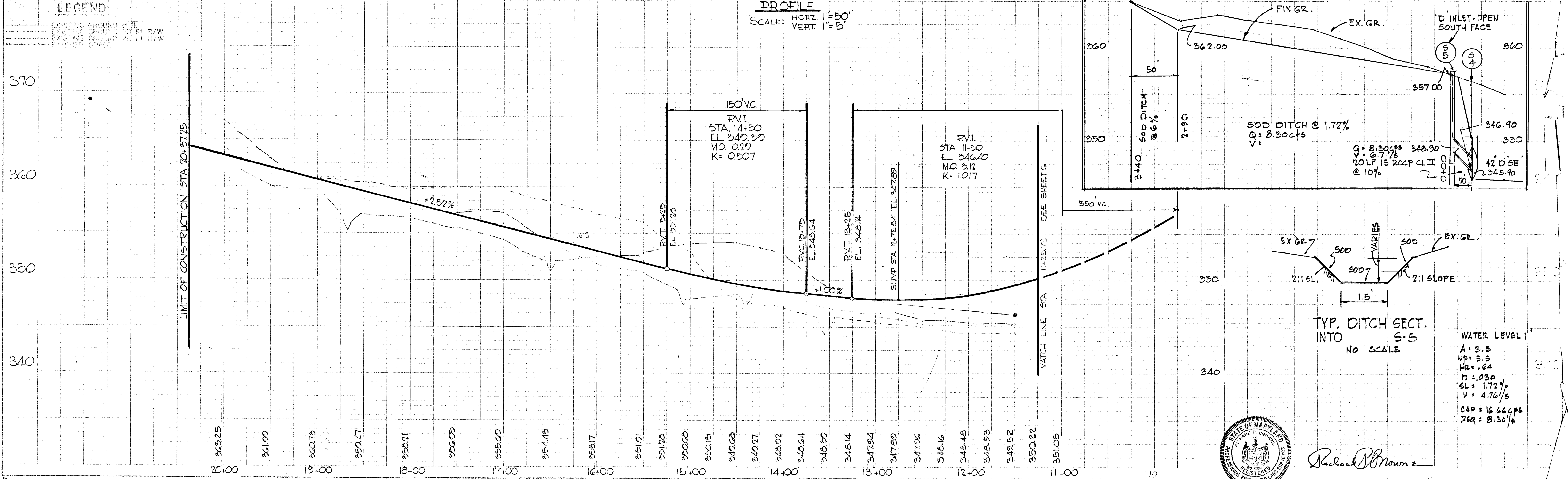
**COLUMBIA**  
M.A.R.V. DISTRICT - HOWARD COUNTY  
HOWARD RESEARCH AND DEVELOPMENT CORP.  
THE VILLAGE OF OAKLAND MILLS - BALTIMORE, MARYLAND 21103

PROJECT AREA:  
VILLAGE OF OAKLAND MILLS  
SECTION-1 THUNDER HILL AREA-5

PROJECT TITLE:  
LIGHTNING VIEW ROAD  
PLAN & PROFILE

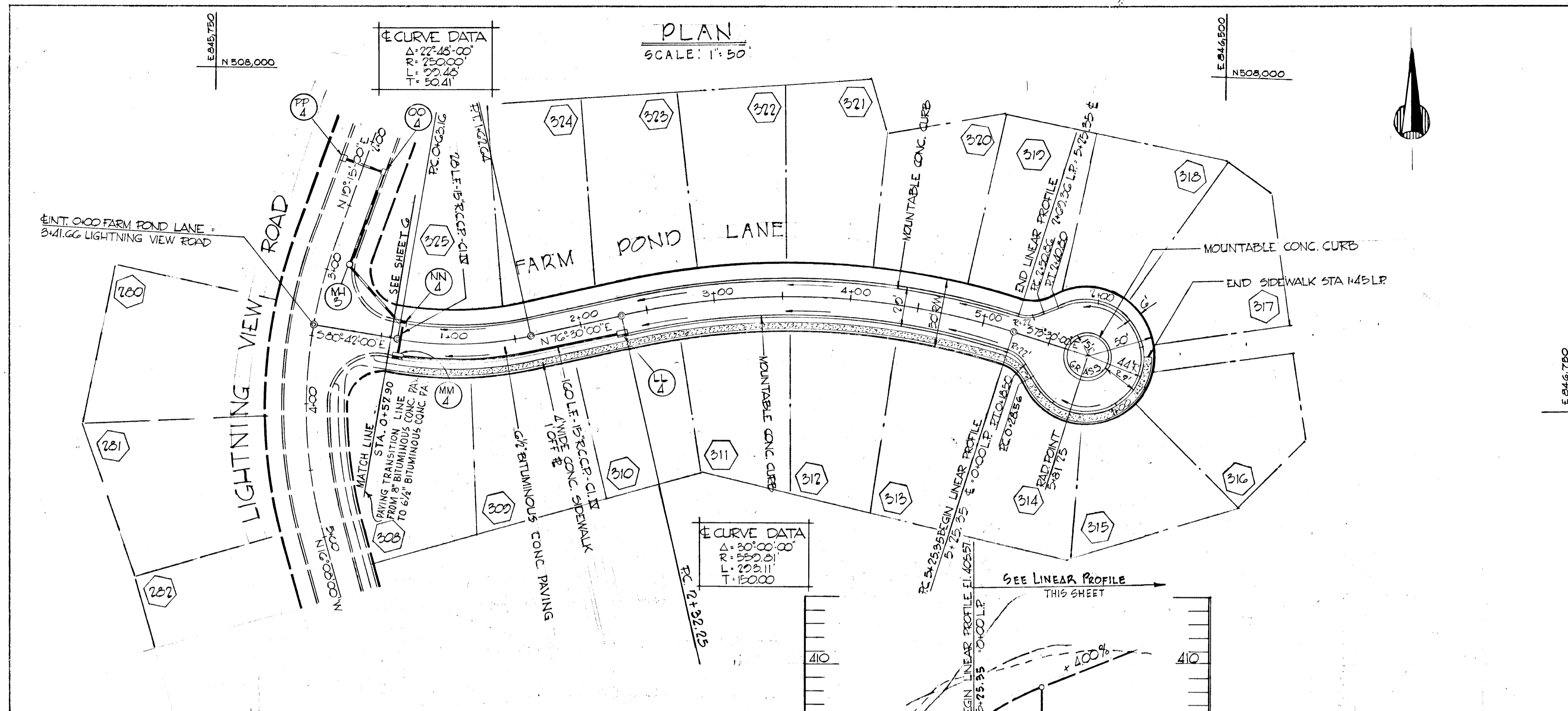
Des. By: T.S.    Scale: AS SHOWN    Draw. No: 7 OF 15  
Dir. By: FT. & J.B.    Date: AUG 23, 1968    C.C.F. No:  
Chk. By:    Approved:

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



Richard P. Brown

F-68-65 JOB#10223



**STORM DRAINAGE STRUCTURE SCHEDULE**

NO.	TYPE	LOCATION	INV. IN	INV. OUT	I.C. ELEV.	REMARKS
NN4	MOD. 5' COMB. INLET (SINGLE GRATE)	STATION 0+65 - 12.66' R.I. E.	361.05	360.78	367.43	SEE DETAIL SHEET
MM4	5' STD. 5' COMB. INLET (DOUBLE GRATE)	STATION 0+65 - 12.66' R.I. E.	361.60	361.43	367.43	HOWARD COUNTY STD. DWG. D-20, PAGE 154
LL4	5' STD. 5' COMB. INLET (DOUBLE GRATE)	STATION 2+30 - 12.66' R.I. E.	369.68	377.13	367.43	HOWARD COUNTY STD. DWG. D-20, PAGE 154

**APPROVED**  
 PLANNING COMMISSION  
 OF HOWARD COUNTY  
 DATE 12/16/68  
*J. H. C.*

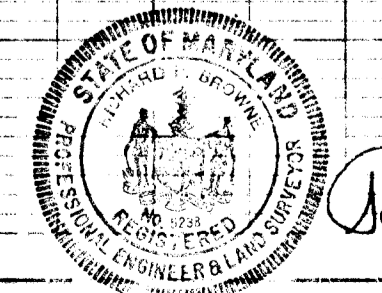
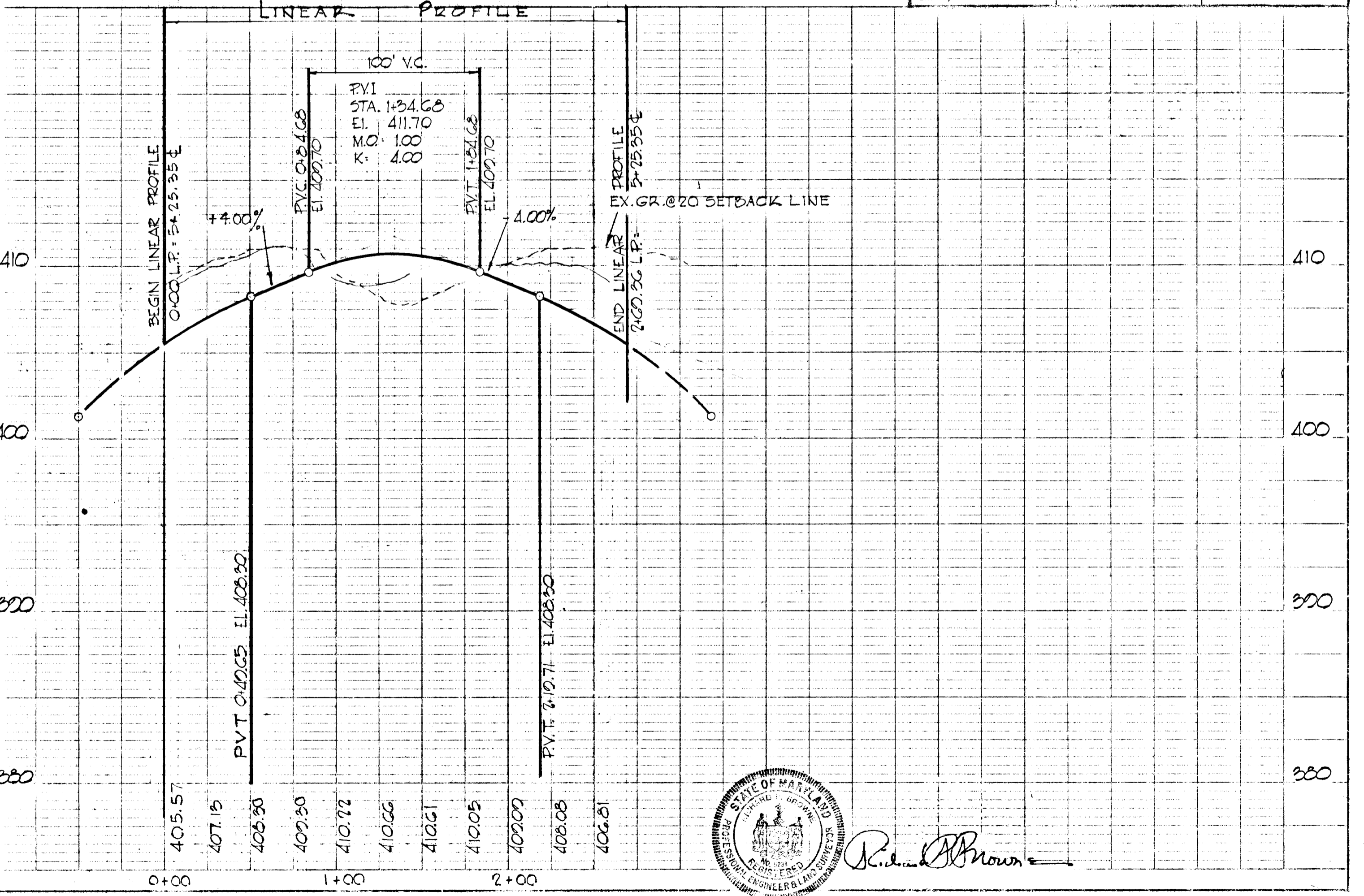
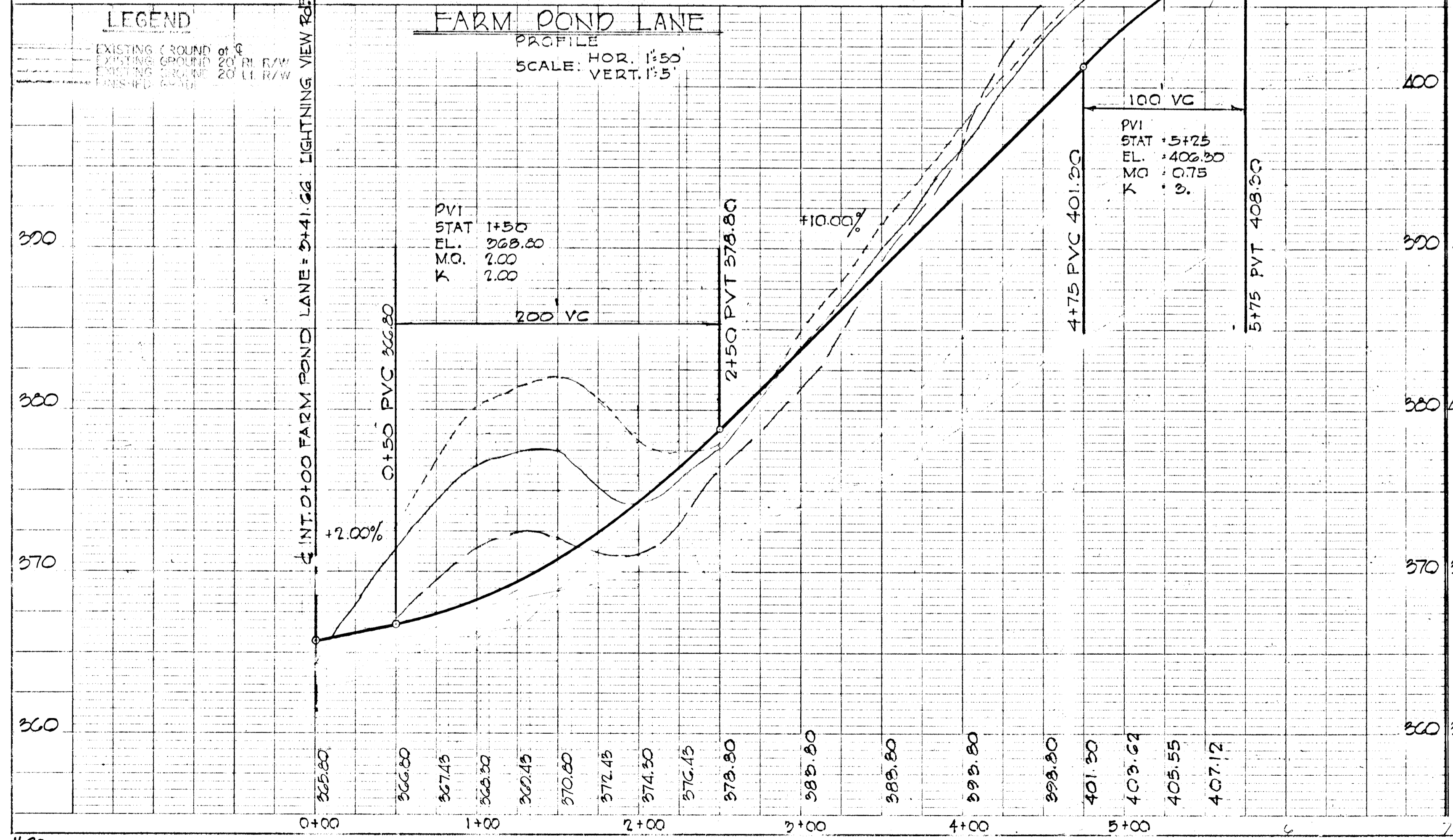
COLUMBIA ENGINEERS  
 COLUMBIA, MARYLAND

Rev. Date:    Rev. No:    Revision Description:

**COLUMBIA**  
 MARYLAND  
 2<sup>ND</sup> 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 5  
 PROJECT TITLE: PLAN & PROFILE FARM POND LANE

Des. By: T.S.    Scale: AS SHOWN    Dwg. No. 8 OF 15  
 Dwn. By: F.T. & J.B.    Date: AUG 28, 1968    C.C.F. No.  
 Chk. By: Approved



*Richard B. Brown*

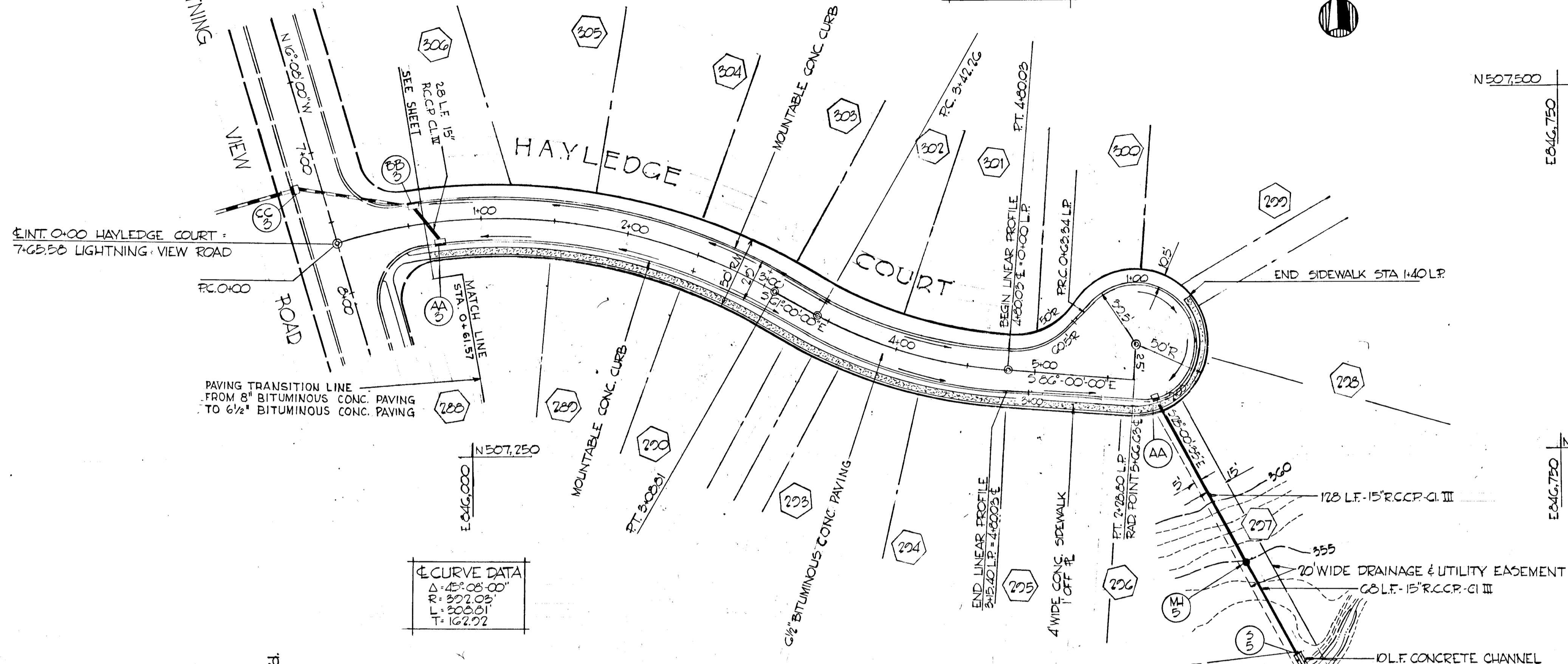


LIGHTNING VIEW

### PLAN SCALE: 1"=50'

Δ	24°00'00"
R	919.75'
L	137.77'
T	70.00'

STORM DRAINAGE STRUCTURE SCHEDULE					
NO.	TYPE	LOCATION	INV. IN	INV. OUT	REMARKS
AA	3' STD. 5' COMB. INLET (DOUBLE GRATE)	ST. 0+70-17.66' RT & E	366.55	370.03	HOWARD CO. STD. DWG. D-99 Page 154
AA	MOD. 5' COMB. INLET (SINGLE GRATE)	L.P. STA 2+12.75 - 174' RT L.P.	365.23	367.58	SEE DETAIL SHEET
MA	5' STD. MANHOLE	L.P. STA 2+12.75 120' LT L.P.	350.43	350.18	Ho.Co. Std. Dwg. D103 Pg 158
55	5' STD. TYPE 'C' ENDWALL	L.P. STA 2+12.75 120' LT L.P.	349.50		Ho.Co. Std. Dwg. D52 Pg 107



APPROVED  
PLANNING COMMISSION  
OF HOWARD COUNTY  
DATE 12/16/08  
*[Signature]*

ENGINEERS  
COLUMBIA, MARYLAND

Rev. Date: \_\_\_\_\_ Res. No.: \_\_\_\_\_ Revision Description: \_\_\_\_\_

**COLUMBIA**  
14<sup>TH</sup> ELECTION DISTRICT - HOWARD COUNTY  
HOWARD RESEARCH AND DEVELOPMENT CORP.  
THE VILLAGE OF CONFER KEYS - EASTON, MARYLAND 21820

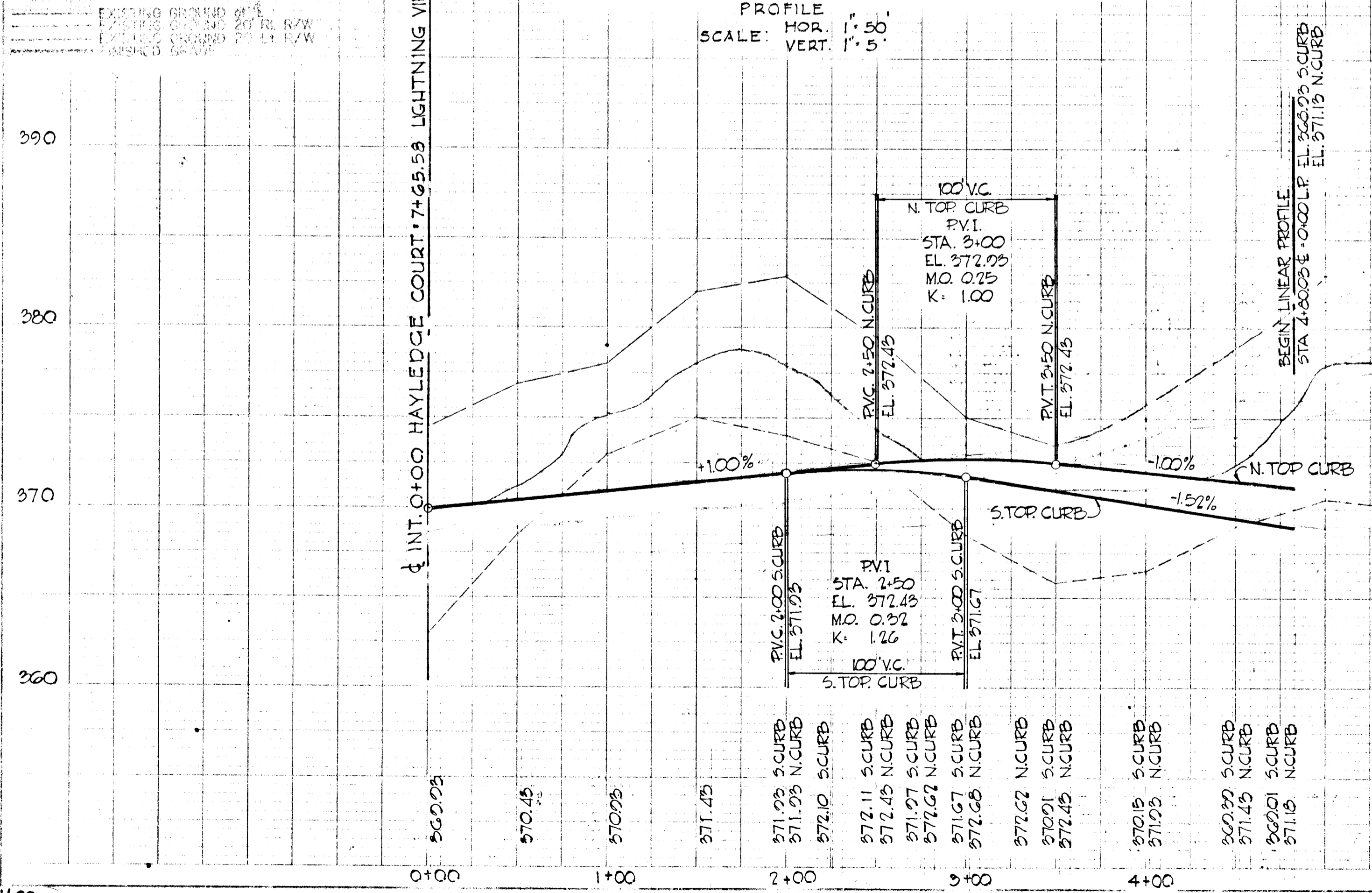
PROJECT AREA:  
VILLAGE OF OAKLAND MILLS SEC. 1  
THUNDER HILL AREA 5

FROM THE PLAN & PROFILE  
**HAYLEDGE COURT**

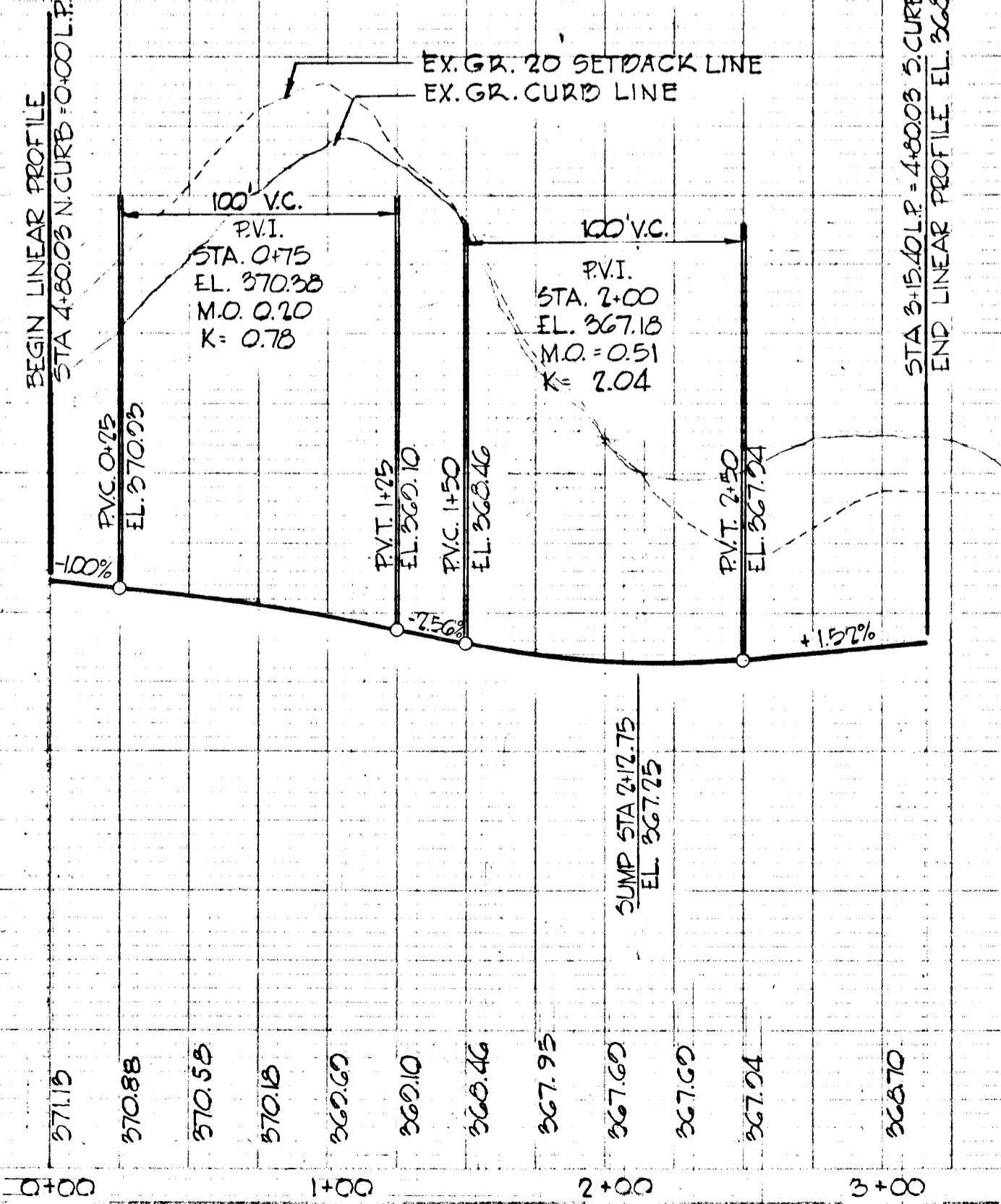
Des. By: T.S. Scale: AS SHOWN Draw No. 9 OF 15  
Dir. By: F.T. Date: AUG 23, 1968 C.C.E. No.  
Chk. By: \_\_\_\_\_

### LEGEND

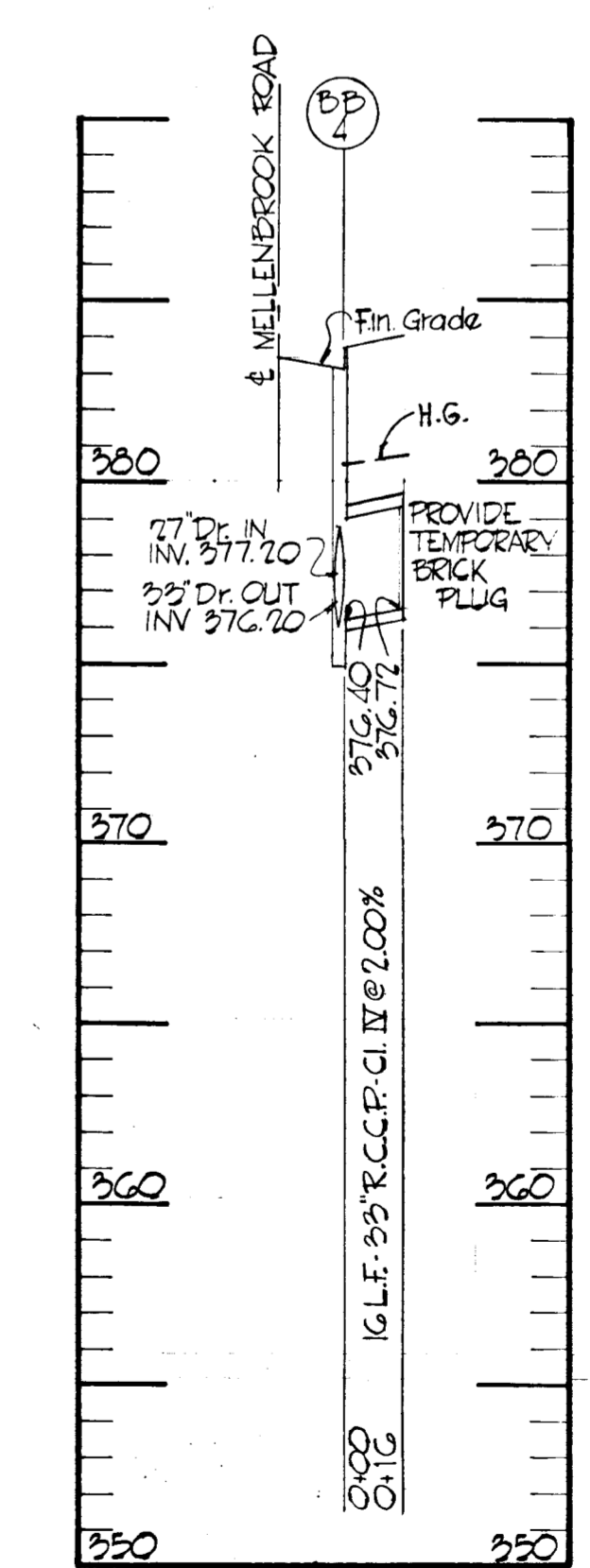
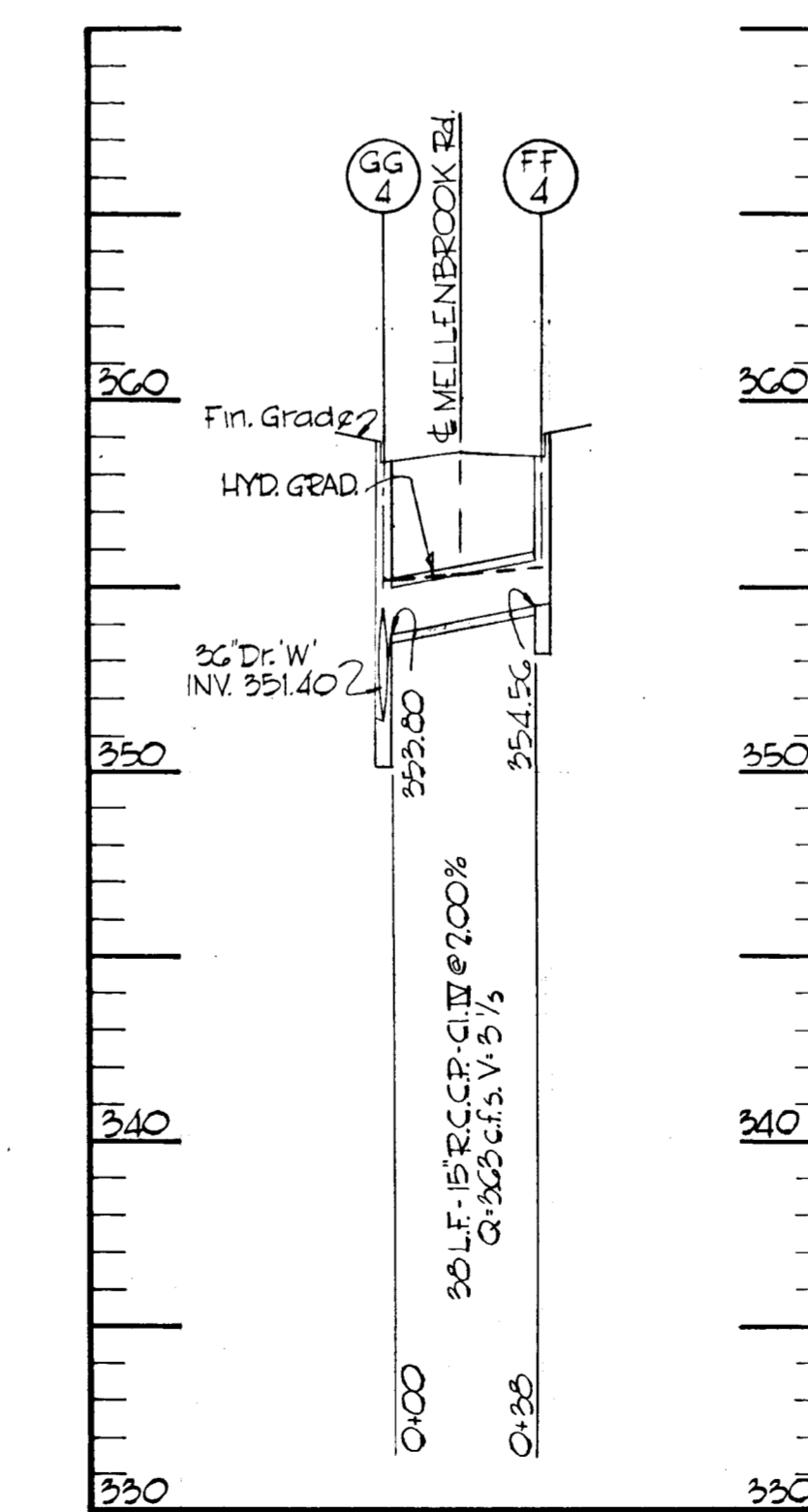
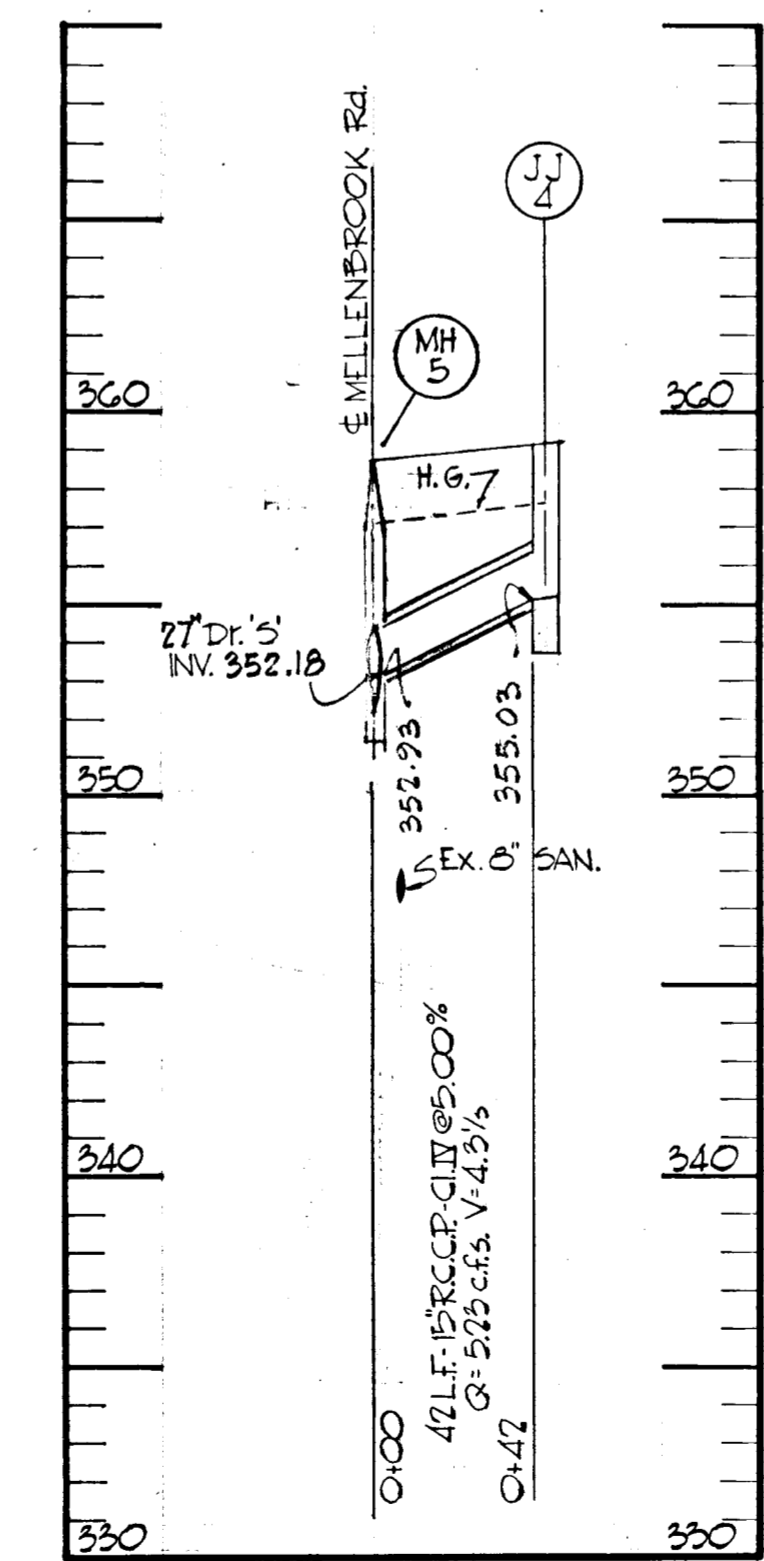
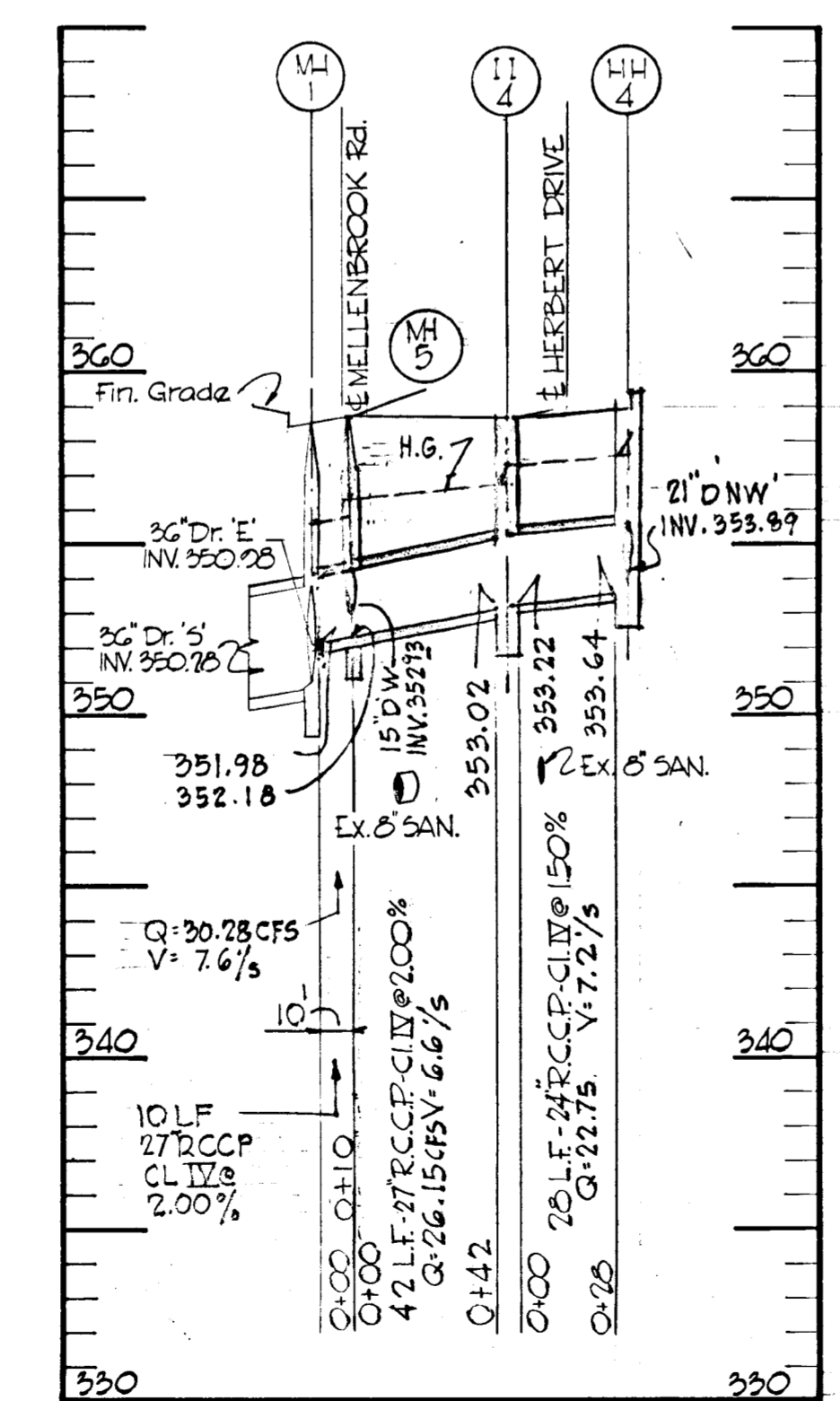
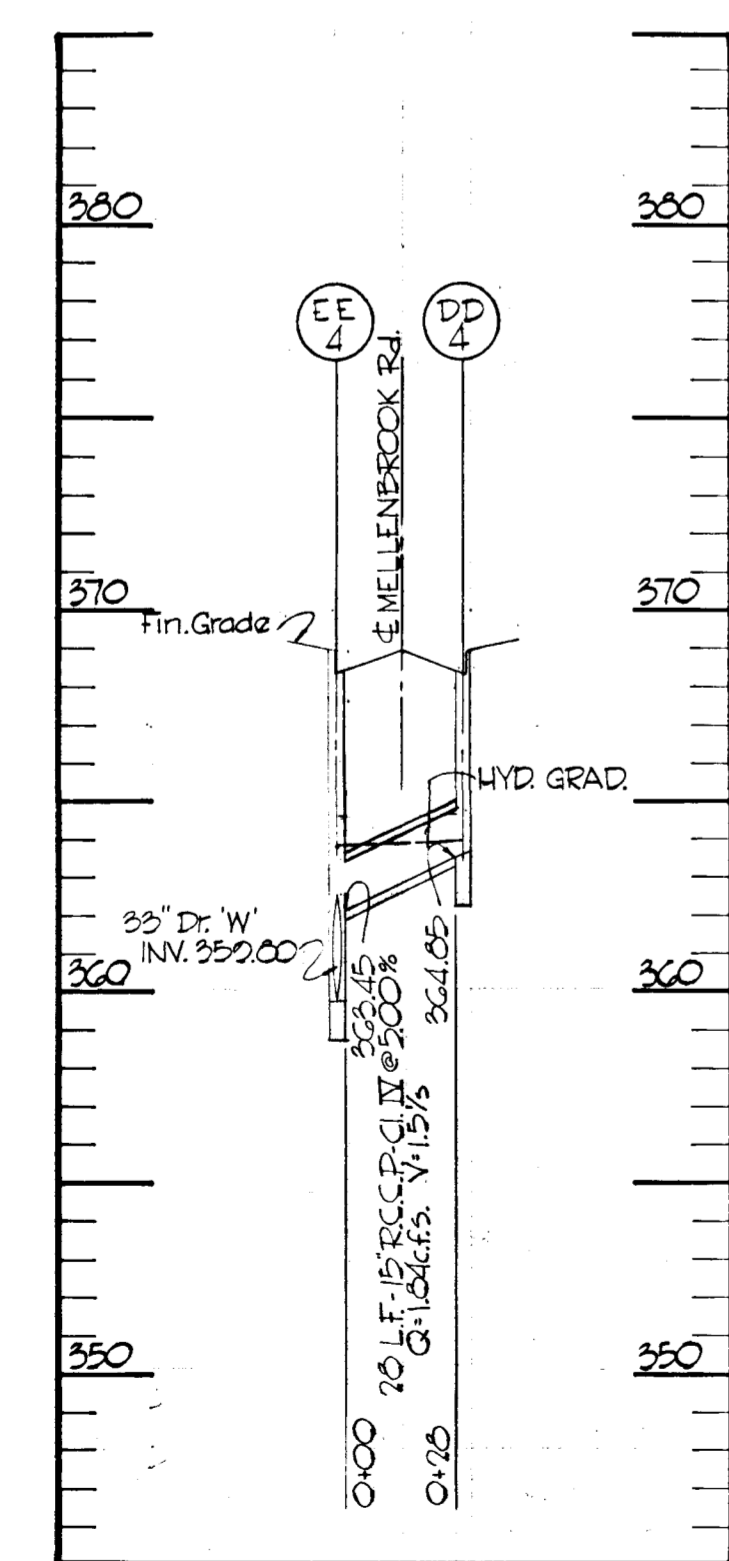
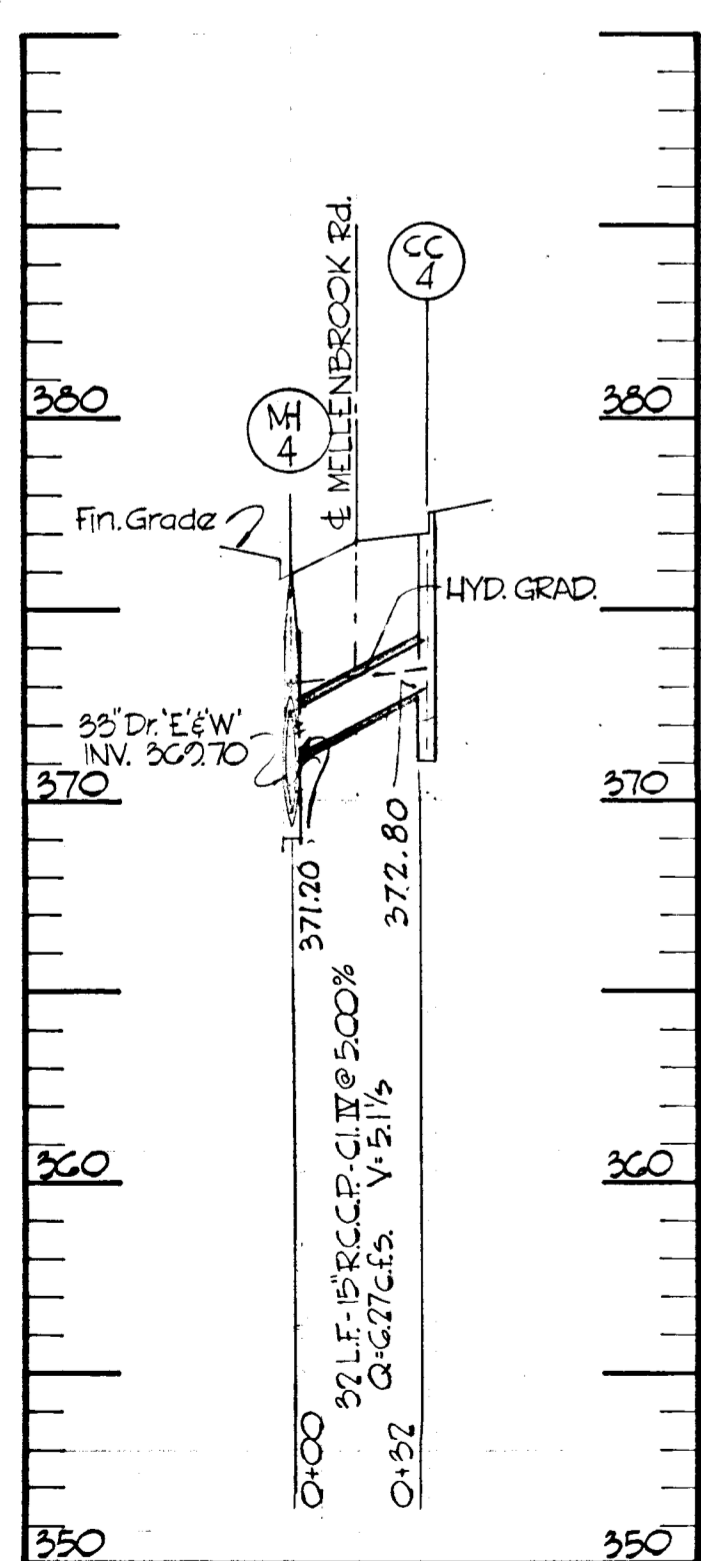
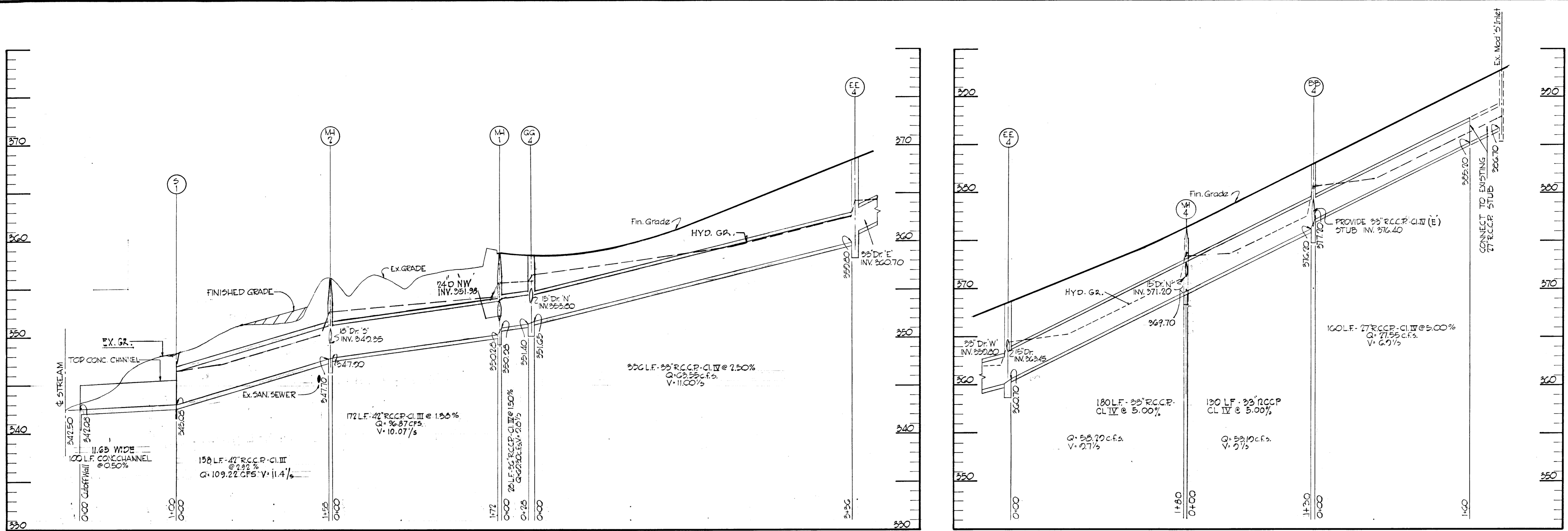
### HAYLEDGE COURT PROFILE SCALE: HOR. 1"=50' VERT. 1"=5'



### LINEAR PROFILE

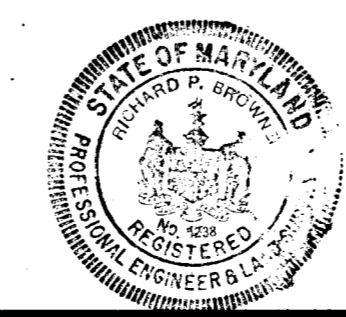


*[Signature]*



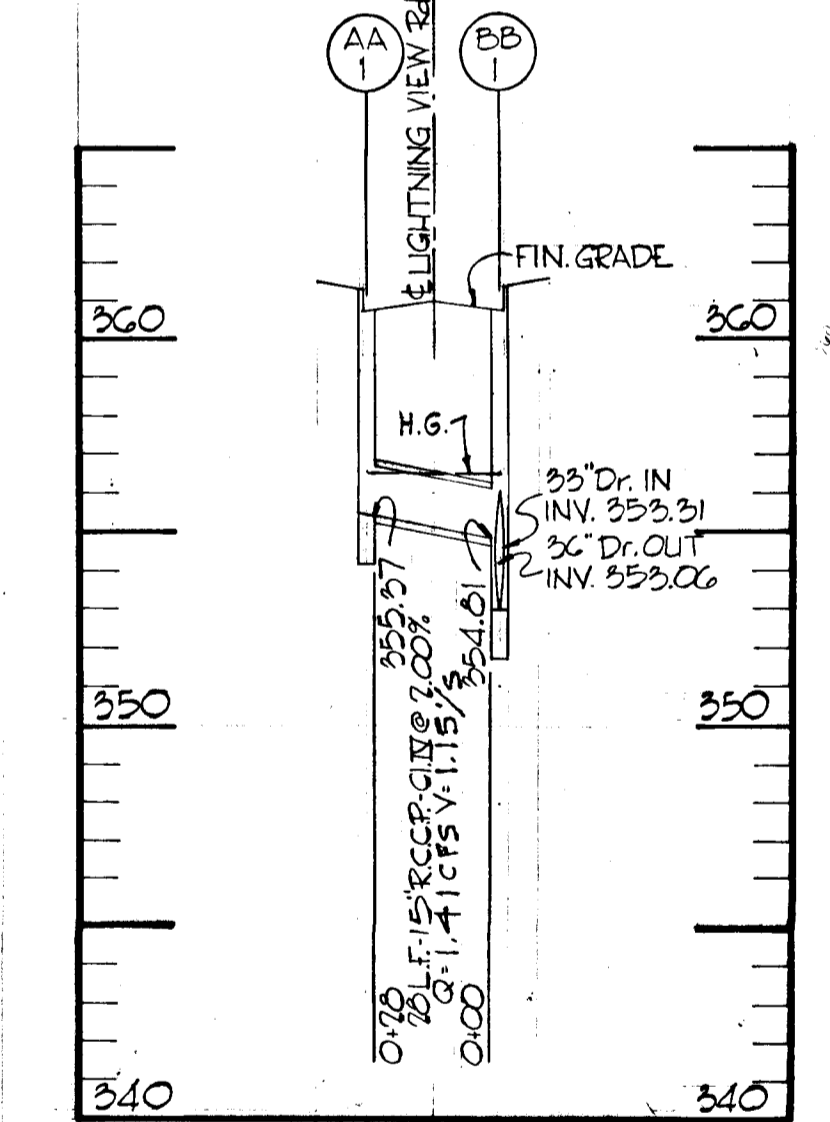
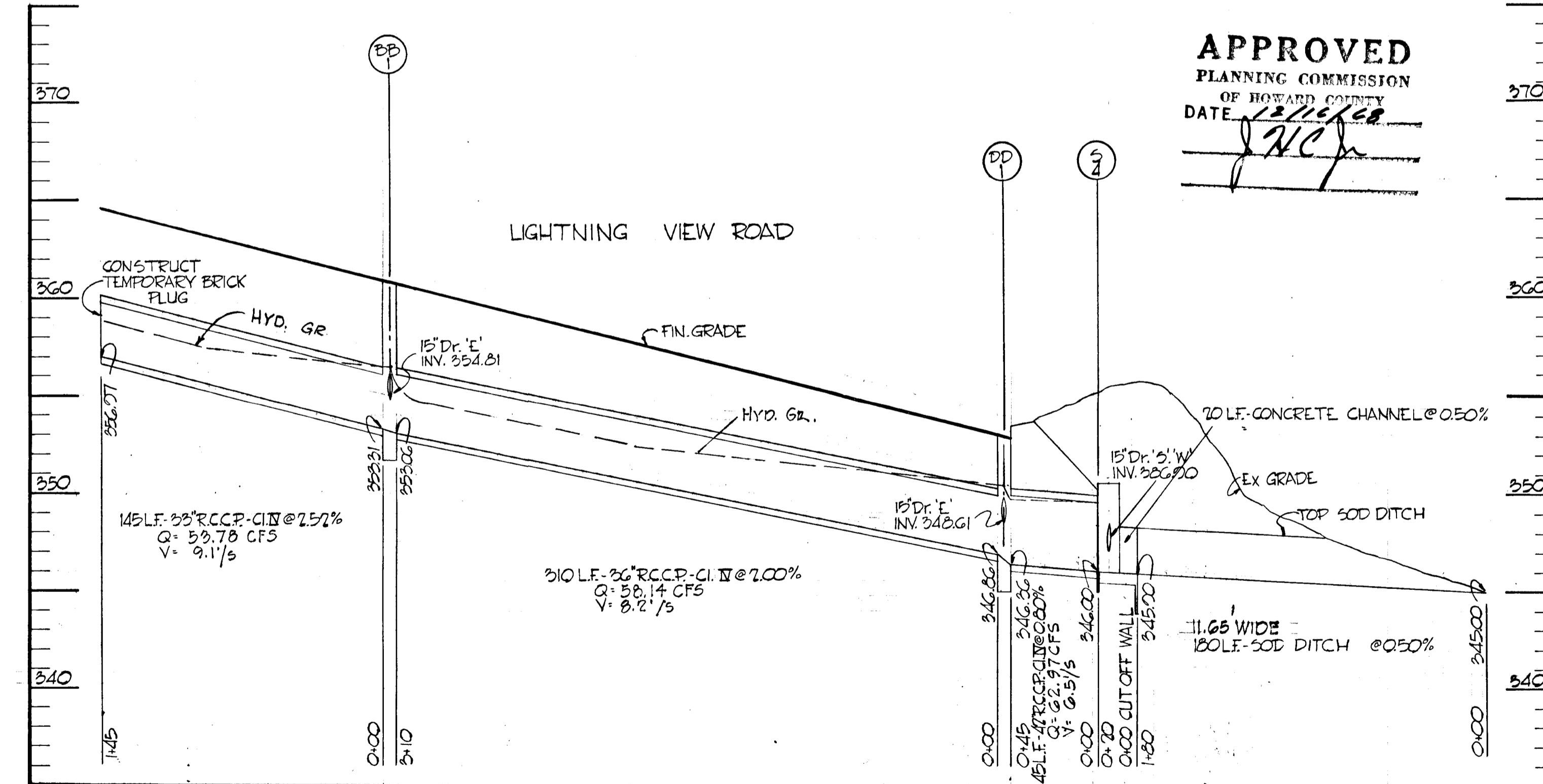
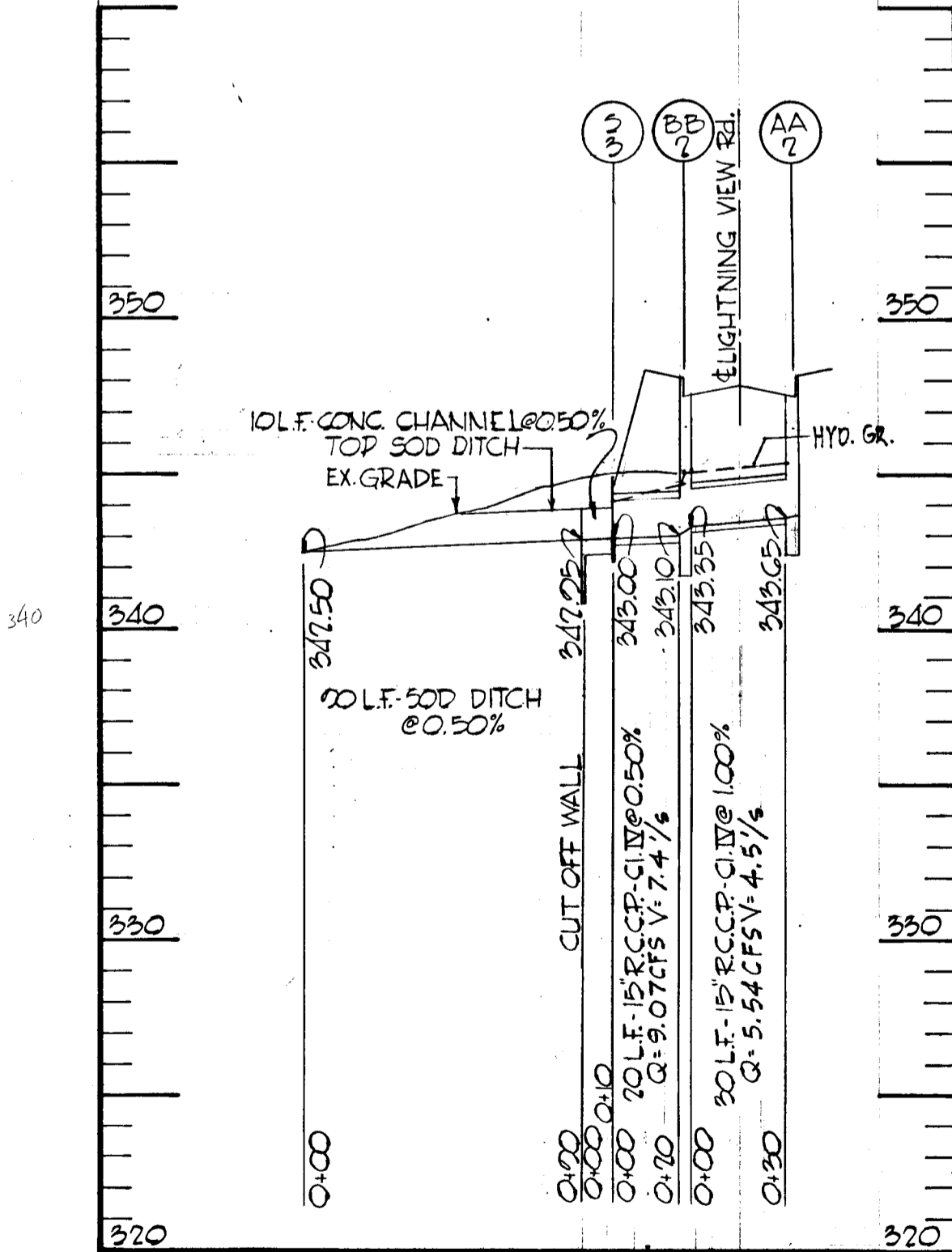
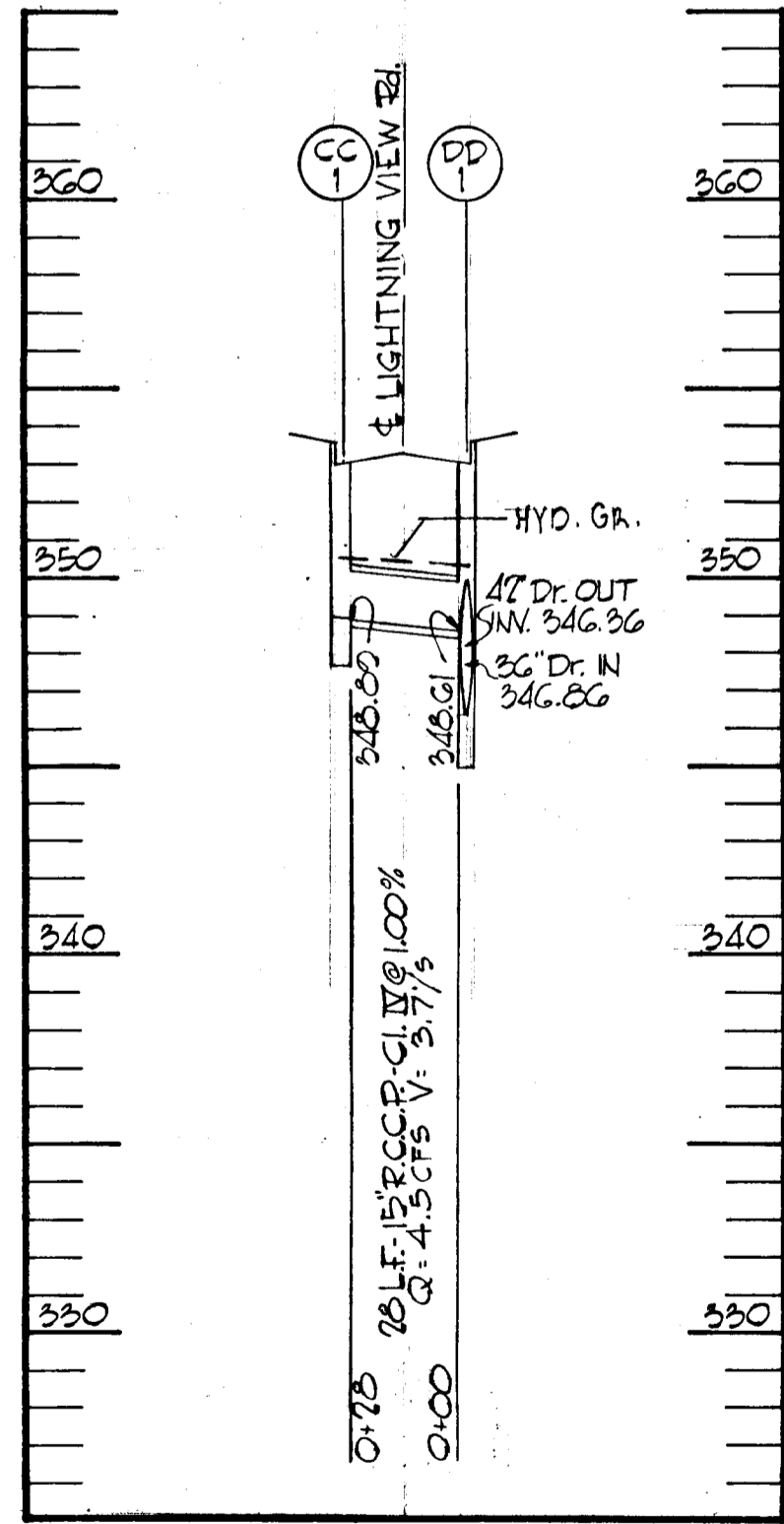
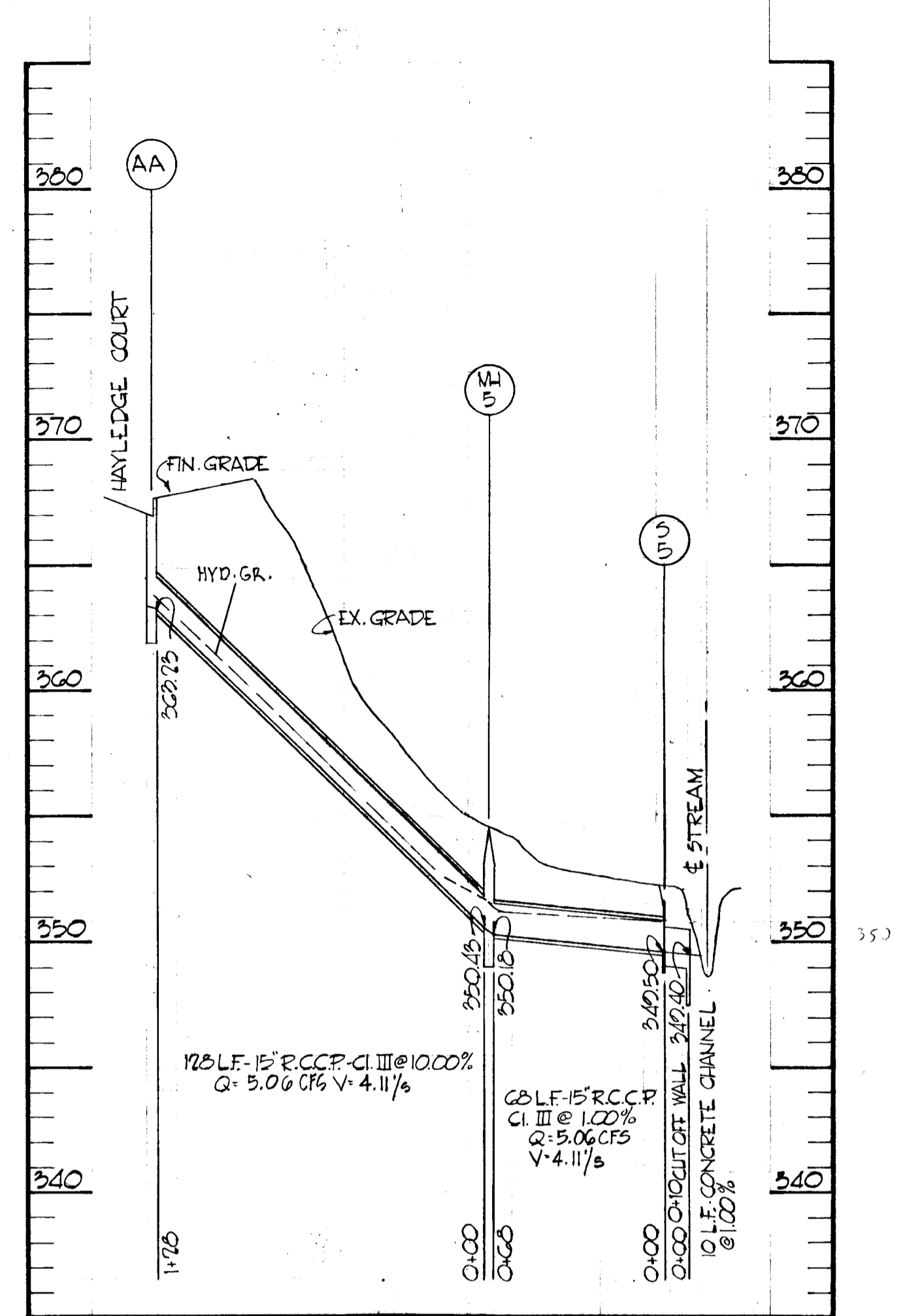
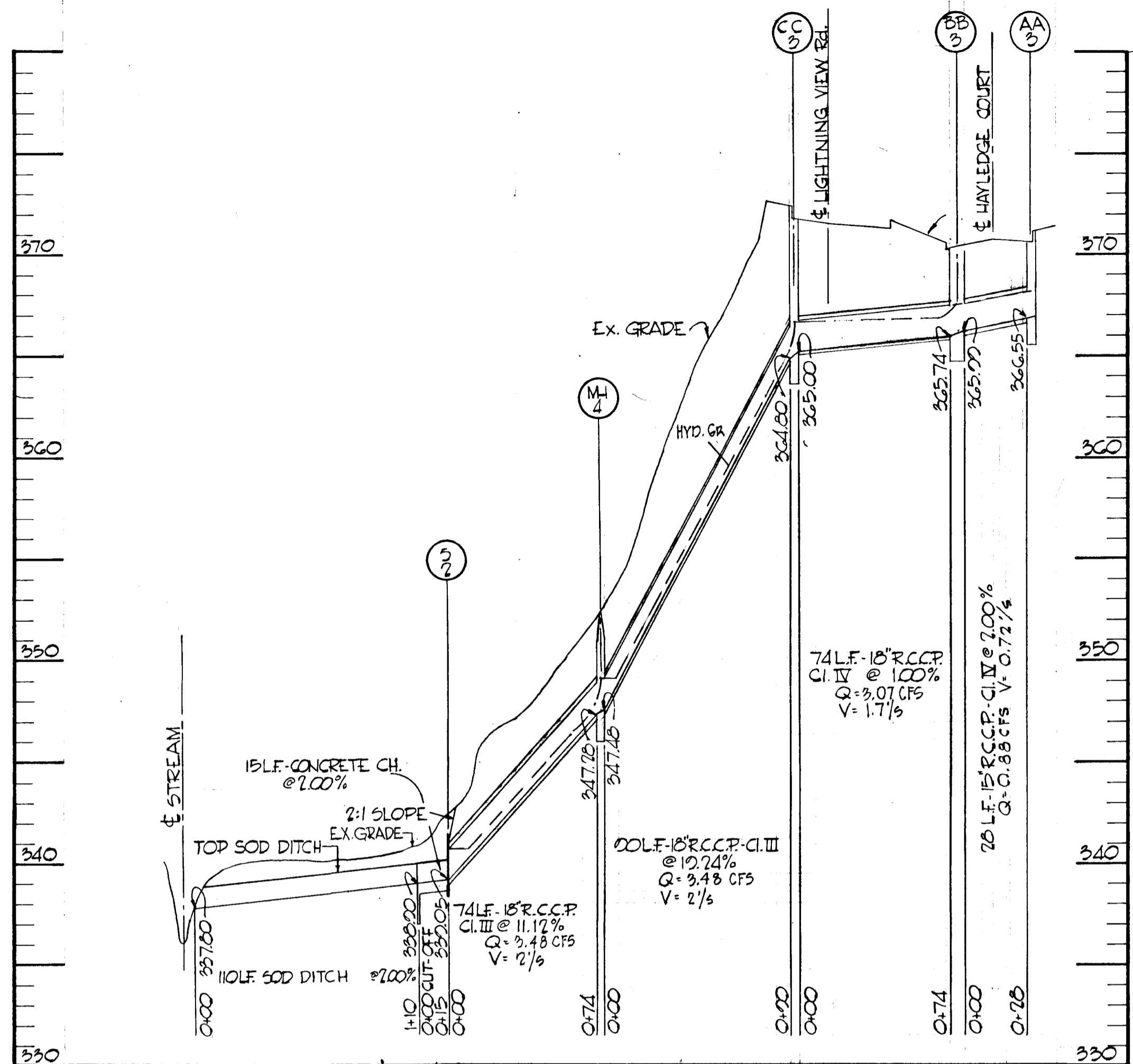
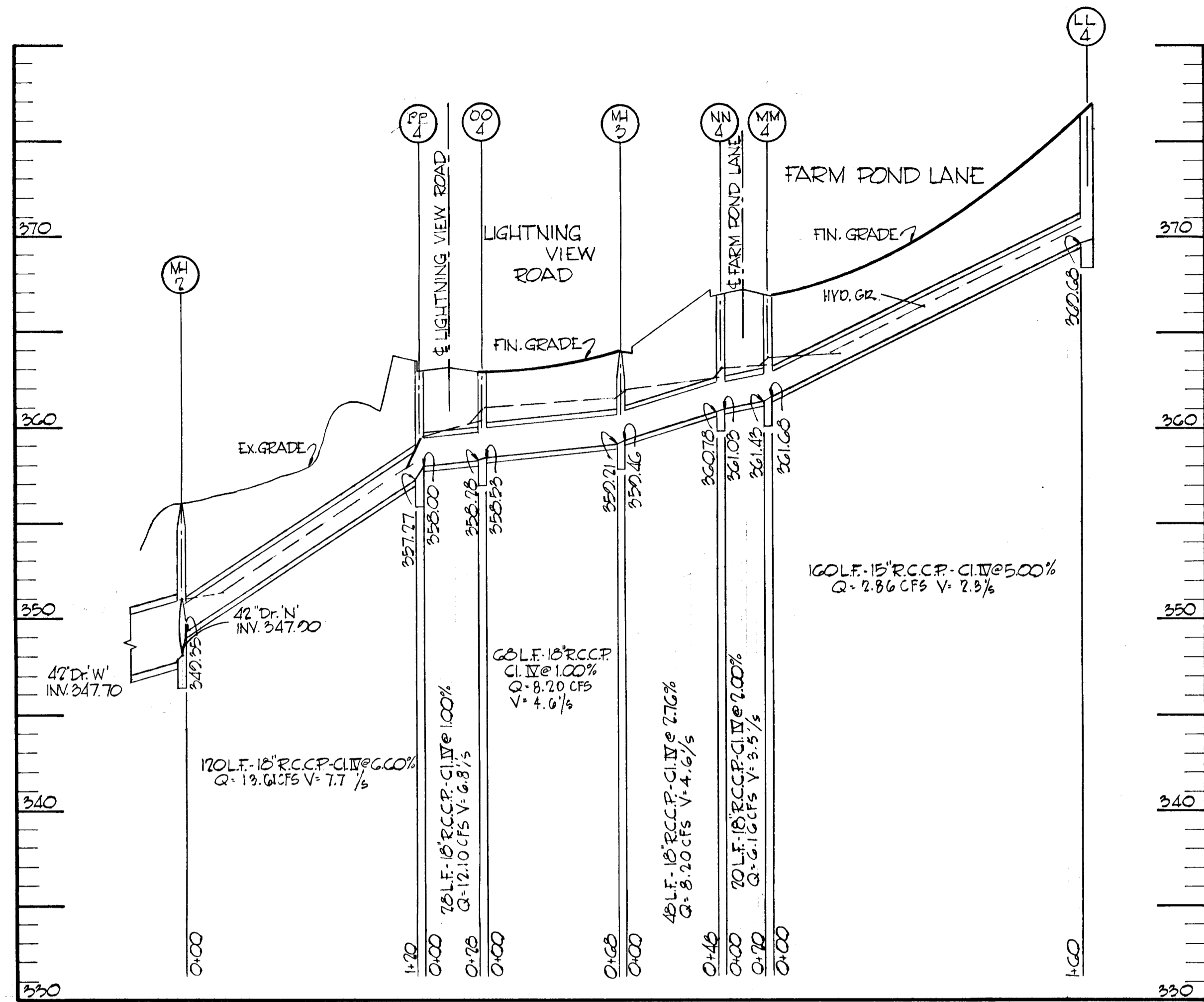
APPROVED  
 PLANNING COMMISSION  
 OF HOWARD COUNTY  
 DATE 12/16/68  
*J. H. [Signature]*

BROWNE-PANDULLO & ASSOCIATES ENGINEERS COLUMBIA, MARYLAND		
Rev Date	Rev No	Revision Description
<b>COLUMBIA</b>		
M A R Y L A N D		
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 5		
PROJECT TITLE STORM DRAIN PROFILES		
Des By	T.S.	Scale AS SHOWN
Drn By	F.T.	Date AUG 23, 1968
Chk By	Approved	Dwg No 10 of 15 C.C.F. No



*Richard Browne*

SCALE: Vert. 1"=5'  
 Horiz. 1"=50'



**APPROVED**  
 PLANNING COMMISSION  
 OF HOWARD COUNTY  
 DATE 8/23/65  
*J. H. Harris*

SCALE Vert 1"=5'  
 Horz. 1"=50'



ENGINEERS-PLANNERS & ASSOCIATES  
 ENGINEERS  
 COLUMBIA, MARYLAND

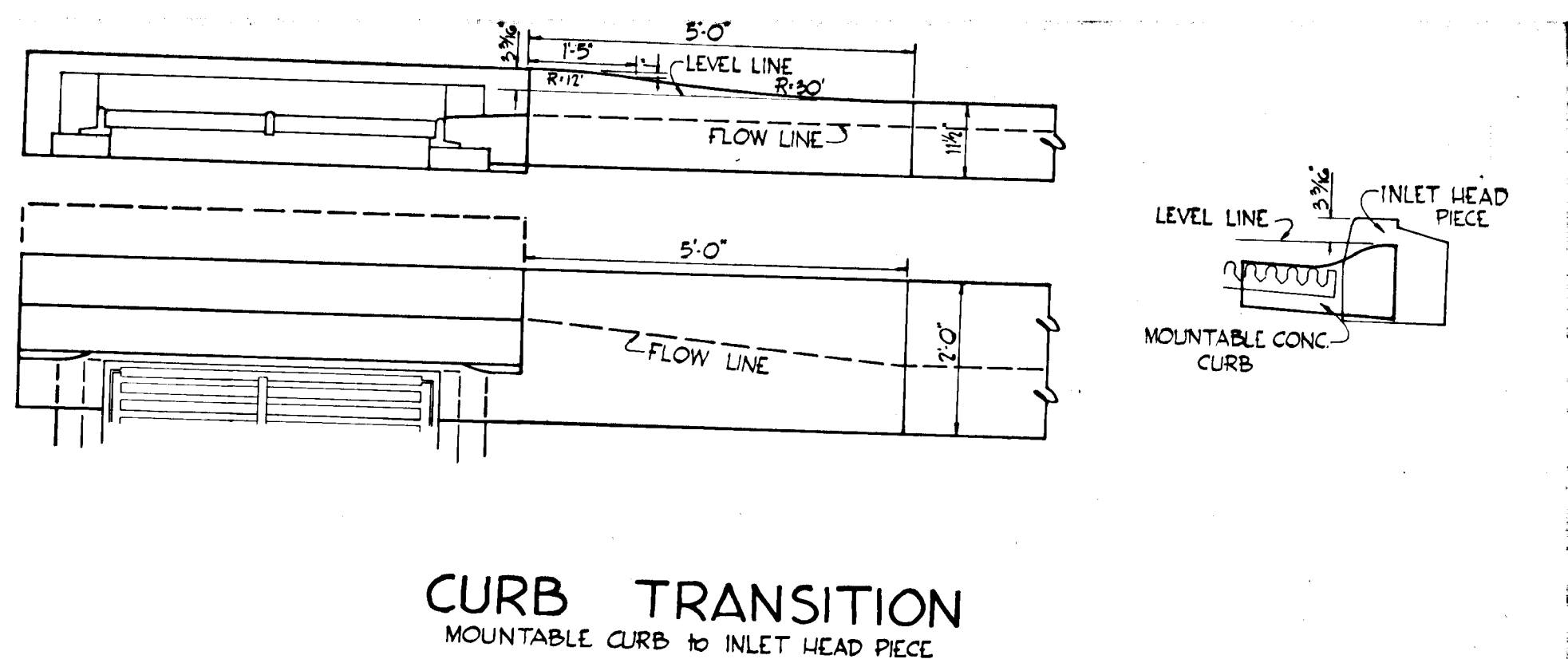
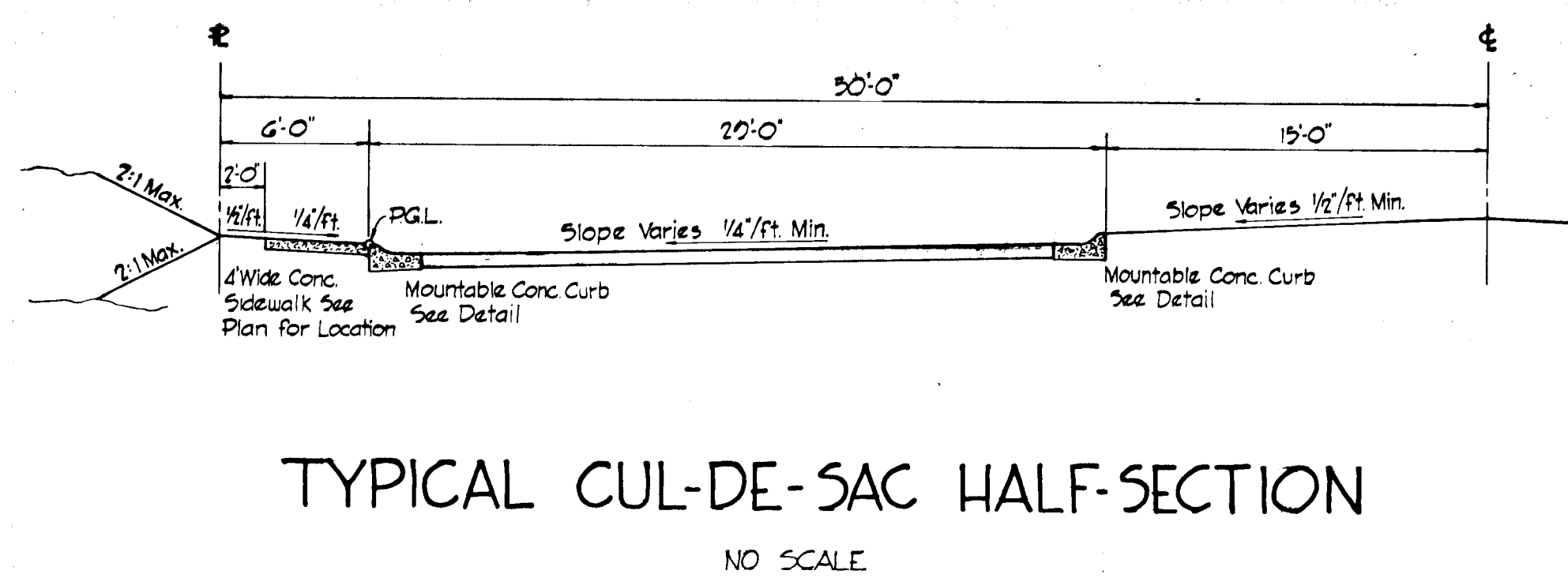
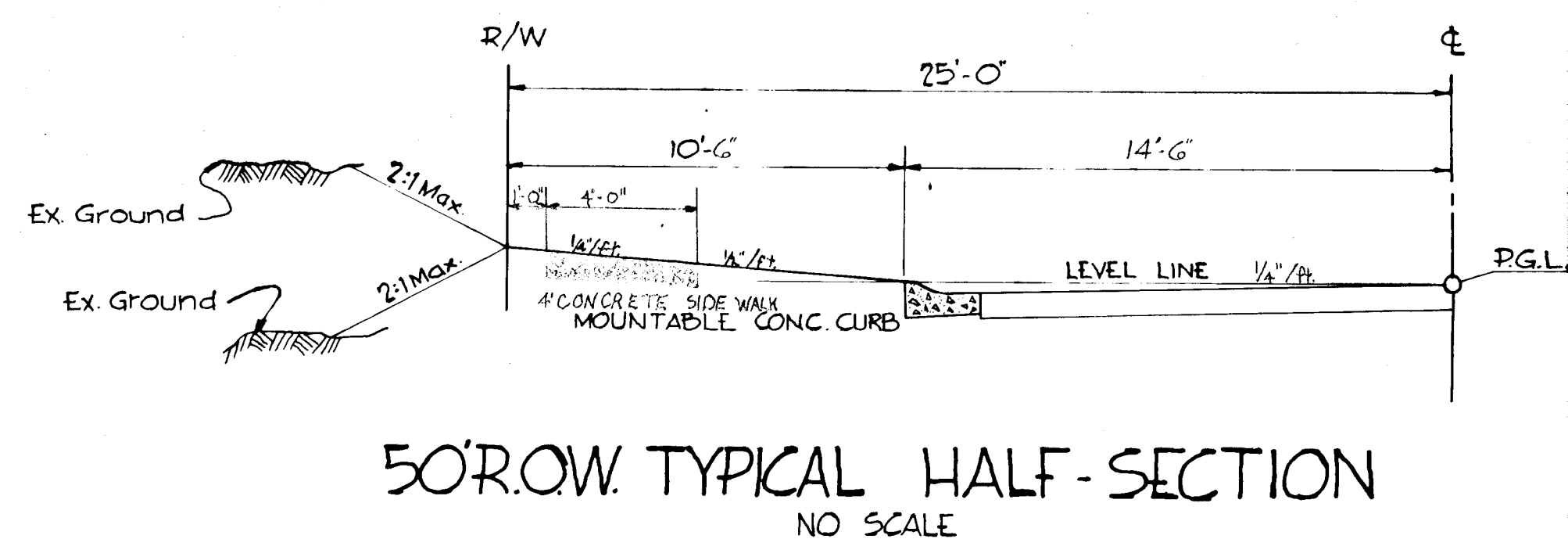
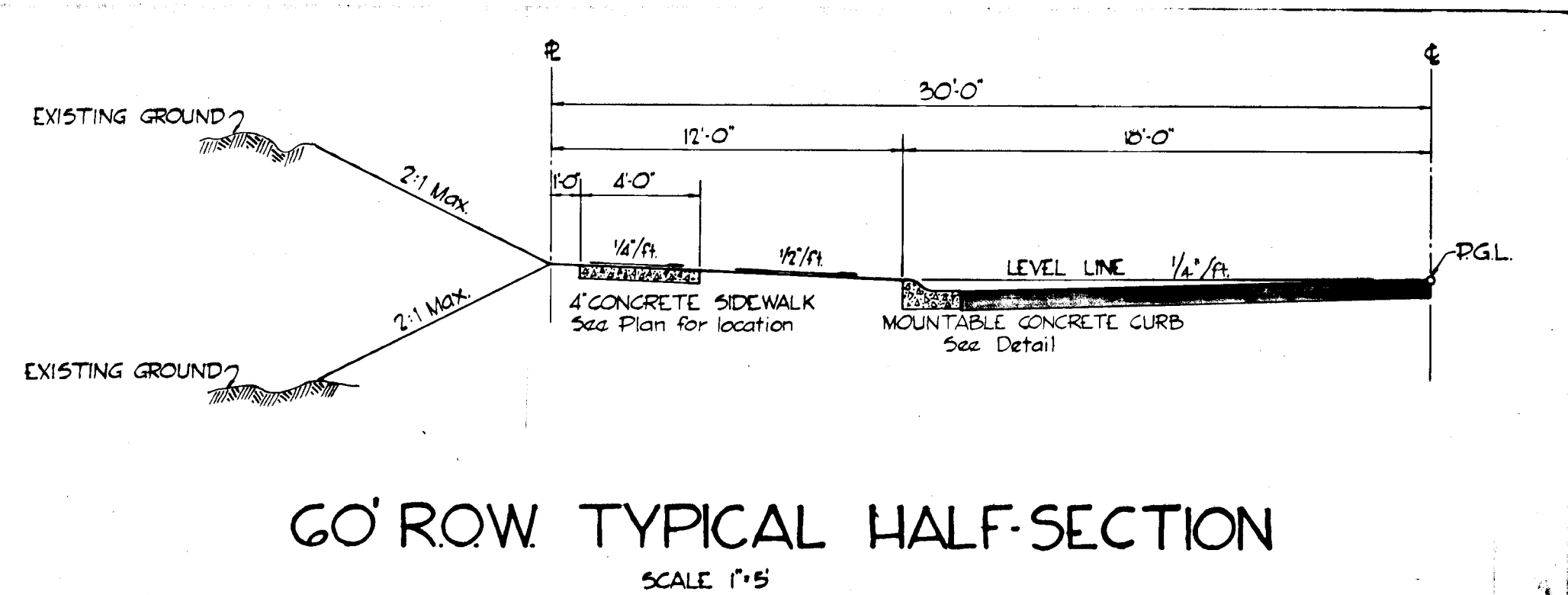
Rev Date	Rev No	Revision Description

**COLUMBIA**  
 MARYLAND  
 5TH 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 5

PROJECT TITLE  
**STORM DRAIN PROFILES**

Des By T.S.	Scale AS SHOWN	Dwg No 11 OF 15
Drn By F.T.	Date AUG 23, 1965	C.C.F. No
Chk By	Approved	



BITUMINOUS CONCRETE SURFACE	1 1/2"	BAND C-3	FINAL PHASE
BITUMINOUS CONCRETE BINDER	1 1/2"	BAND A-3	
BITUMINOUS CONCRETE BASE PLACED IN ONE COURSE	5"	BAND C-2 OR G-3	FIRST PHASE

CLEARING AND GRADING ARTICLE C-1  
SUBGRADE ARTICLE C-2  
BASE COURSE ARTICLE C-31 OR C-35  
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

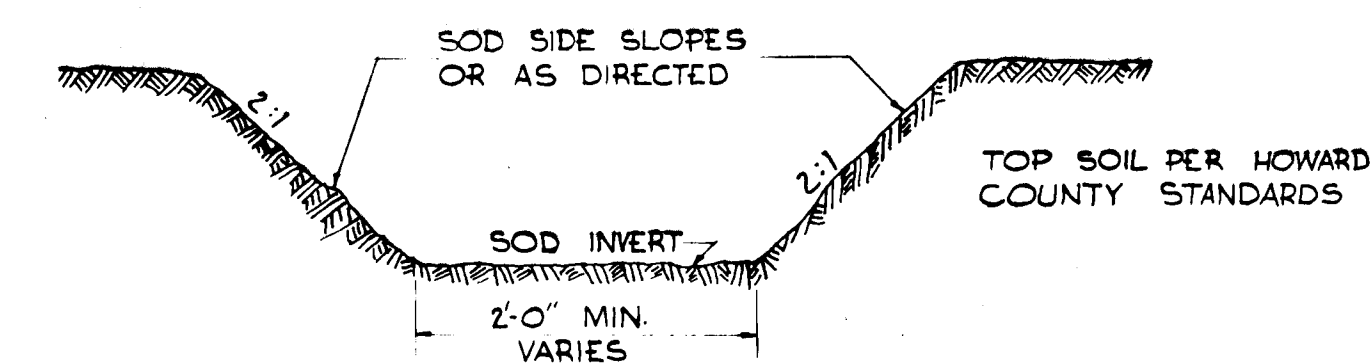
**8" PAVEMENT DETAIL**  
NO SCALE

BITUMINOUS CONCRETE SURFACE	1 1/2"	BAND C-3	FINAL PHASE
BITUMINOUS CONCRETE BASE PLACED IN ONE COURSE	5"	BAND C-2 OR G-3	FIRST PHASE

CLEARING AND GRADING ARTICLE C-1  
SUBGRADE ARTICLE C-2  
BASE COURSE ARTICLE C-31 OR C-35  
SURFACE COURSE ARTICLE C-31

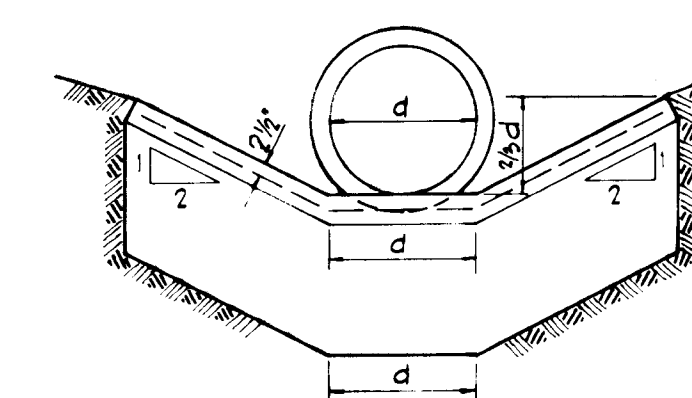
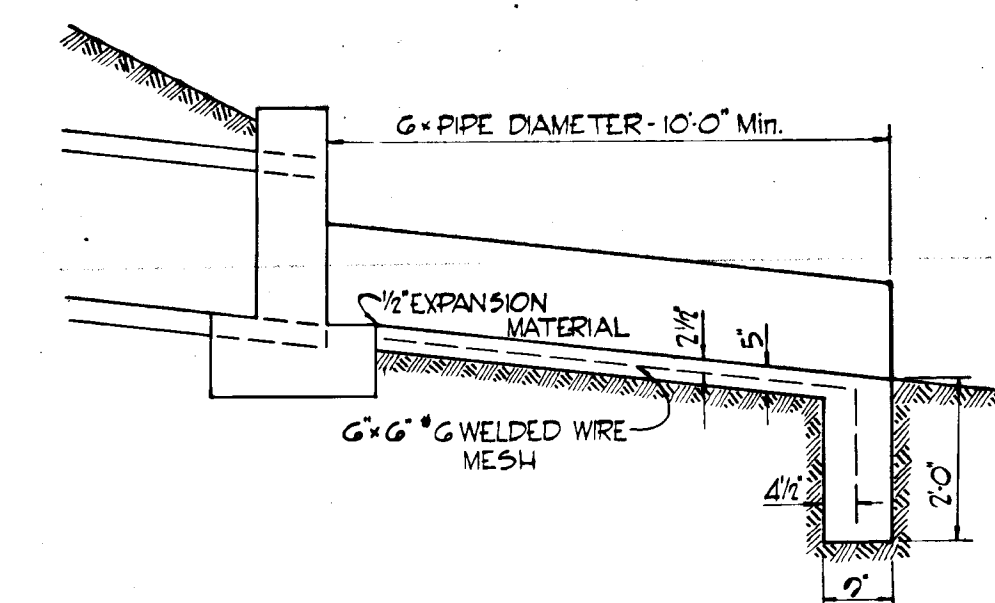
NOTE:  
PAVEMENT TO BE CONSTRUCTED IN ACCORDANCE  
WITH THE HOWARD COUNTY ROAD CONSTRUCTION  
CODE AND SPECIFICATIONS DWG D-113 PG 165

**6 1/2" PAVEMENT DETAIL**  
NO SCALE



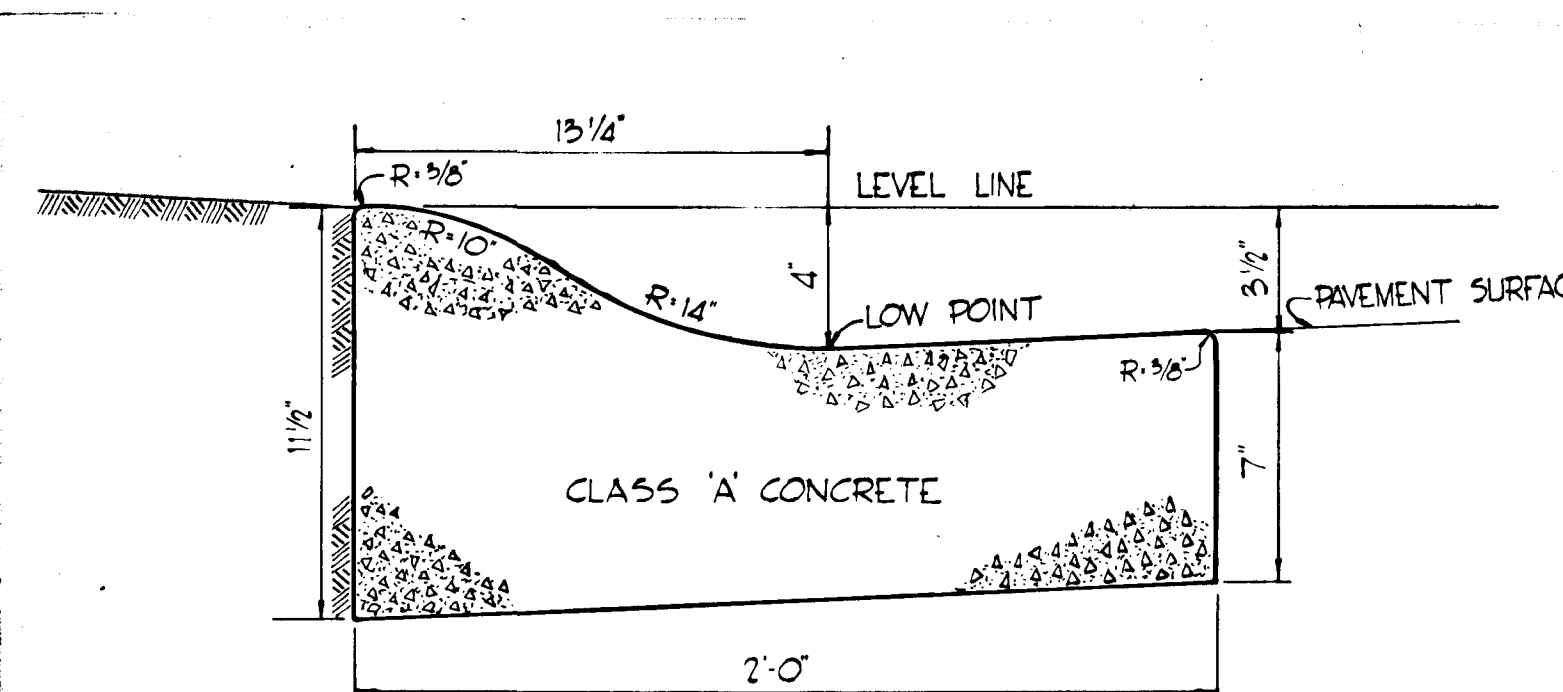
NOTE: ALL EXISTING DITCHES APPROACHING PROPOSED  
ENDWALLS SHALL BE TRIMMED IN ACCORDANCE  
WITH ARTICLE C-6 OF THE HOWARD COUNTY  
ROAD CONSTRUCTION CODE AND STANDARD  
SPECIFICATIONS.

**TYPICAL DRAINAGE DITCH**  
NO SCALE

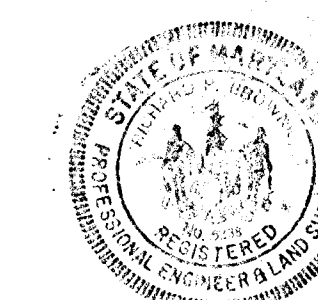


**TYPICAL CONCRETE CHANNEL  
AND  
CUTOFF WALL**  
NO SCALE

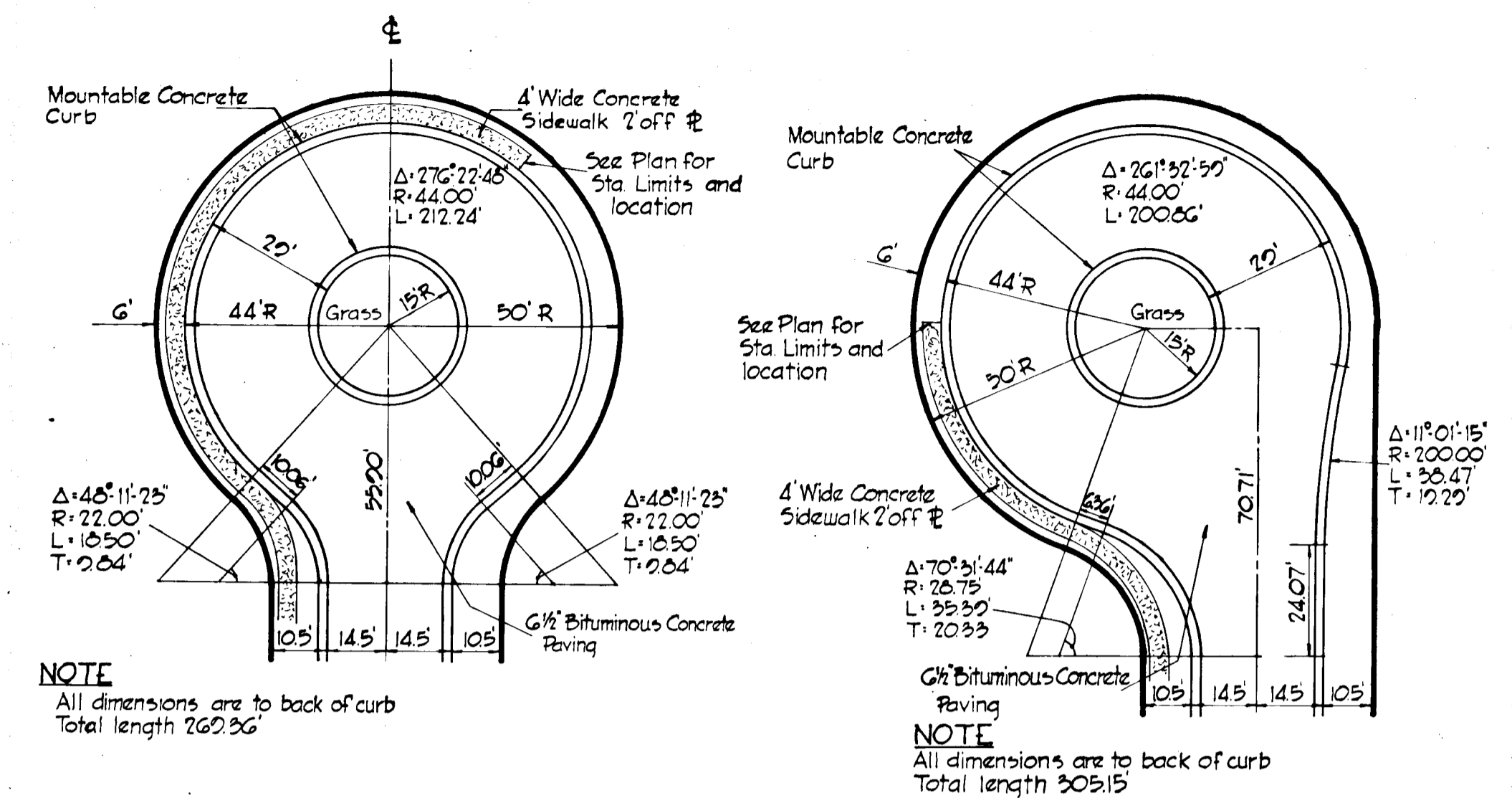
APPROVED  
PLANNING COMMISSION  
OF HOWARD COUNTY  
DATE: 12/18/68  
*[Signature]*



<b>BROWNE-PANDULLO &amp; ASSOCIATES</b> ENGINEERS COLUMBIA, MARYLAND		
Rev Date	Rev No	Revision Description
<b>COLUMBIA</b> M. A. ELECTION DISTRICT L. HOWARD COUNTY D OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP. THE VILLAGE OF CROSS KEYS, BETHESDA, MARYLAND 21104		
PROJECT AREA VILLAGE OF OAKLAND MILLS SECTION I THUNDER HILL AREA 5		
PROJECT TITLE <b>ROADWAY DETAILS</b>		
Des By I.S.	Scale AS SHOWN	Dwg No 12 OF 19
Drn By J.B. # FT	Date Aug 25, 1968	C.C.F. No
Chk By J.B.	Approved	



*[Signature]*

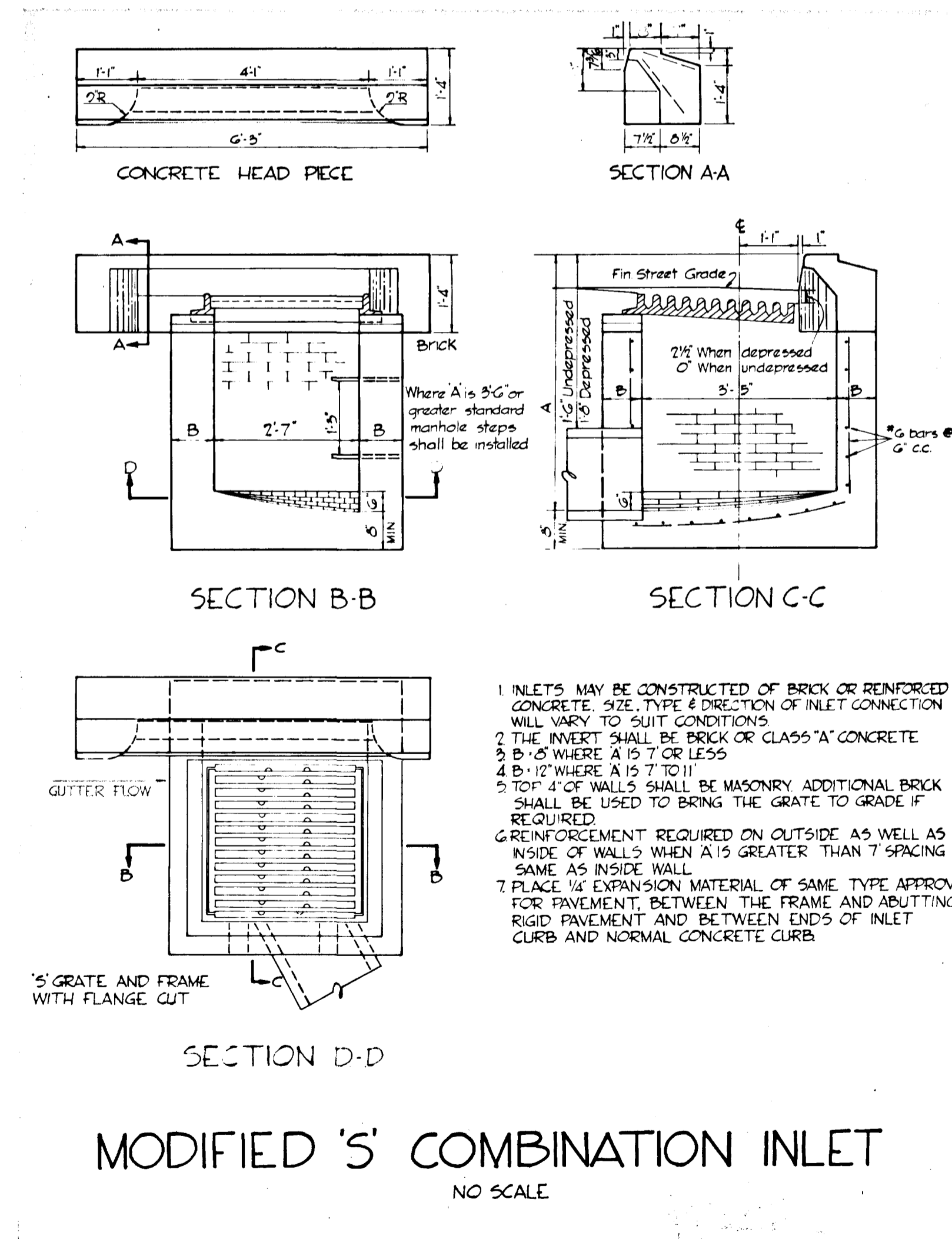


DETAIL 'A'

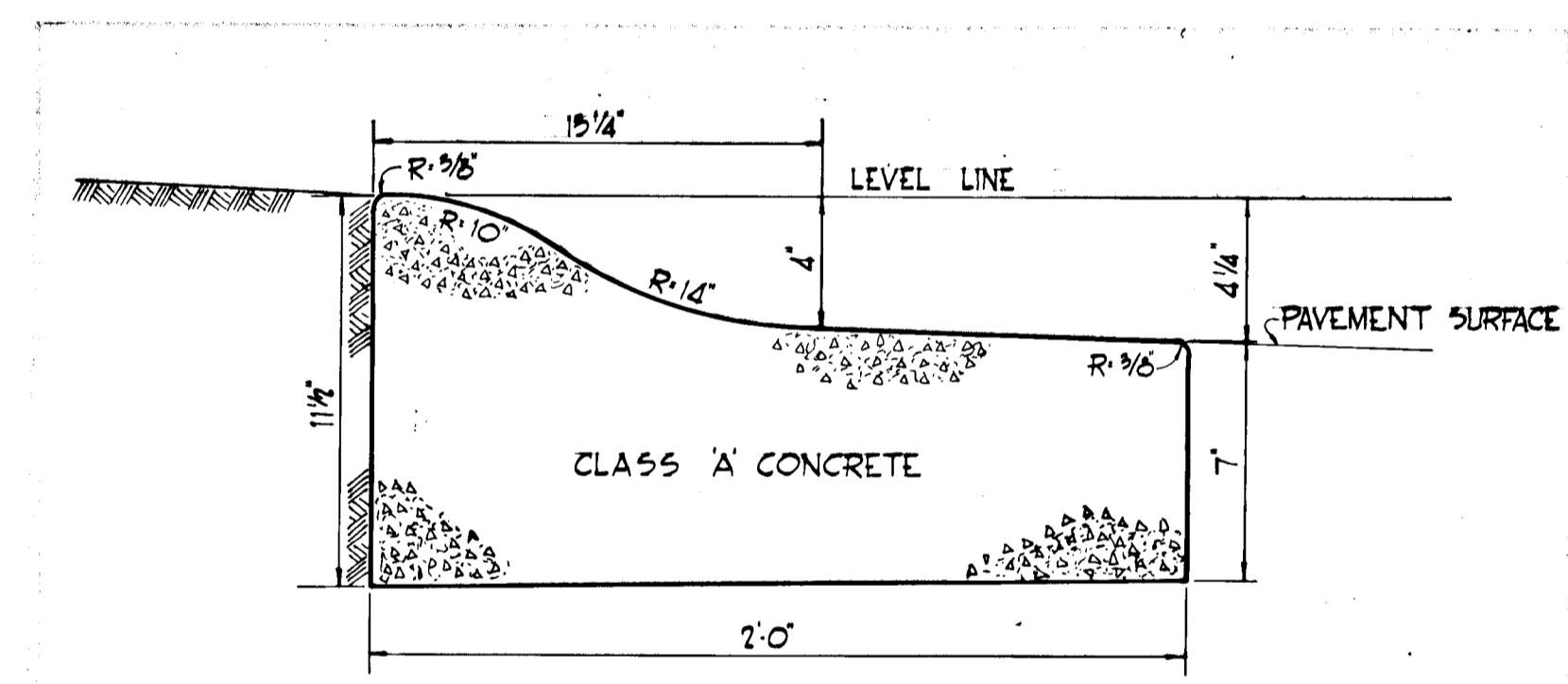
DETAIL 'B'

TYPICAL CUL-DE-SAC DETAILS

SCALE 1"=50'

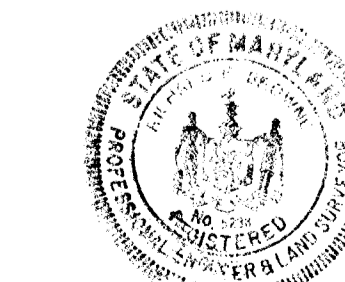


MODIFIED 'S' COMBINATION INLET  
NO SCALE



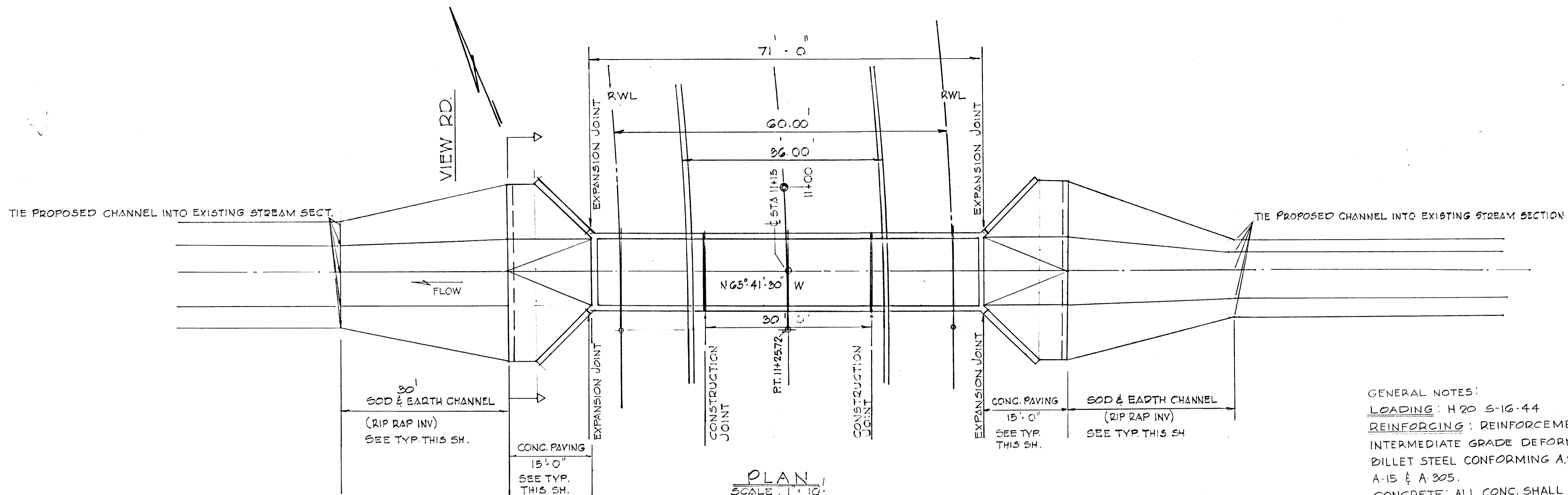
MOUNTABLE CONCRETE CURB FOR CUL-DE-SAC ISLANDS  
NO SCALE

BROWNE-PANDULLO & ASSOCIATES		
ENGINEERS COLUMBIA, MARYLAND		
Rev Date	Rev No	Revision Description
<b>COLUMBIA</b>		
M A R Y L A N D 16 <sup>TH</sup> 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 5		
PROJECT TITLE <b>ROADWAY DETAILS</b>		
Des By J.S.	Scale AS SHOWN	Dwg No 12 OF 15
Drn By J.B. #ET	Date Aug 25, 1960	C.C.F. No
Chk By J.B.	Approved	



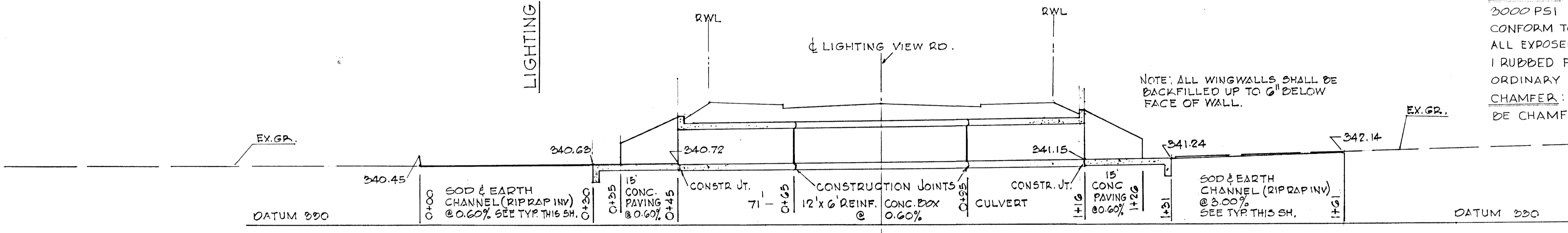
*Richard B. Brown*

F-68-63 JOB# 10225

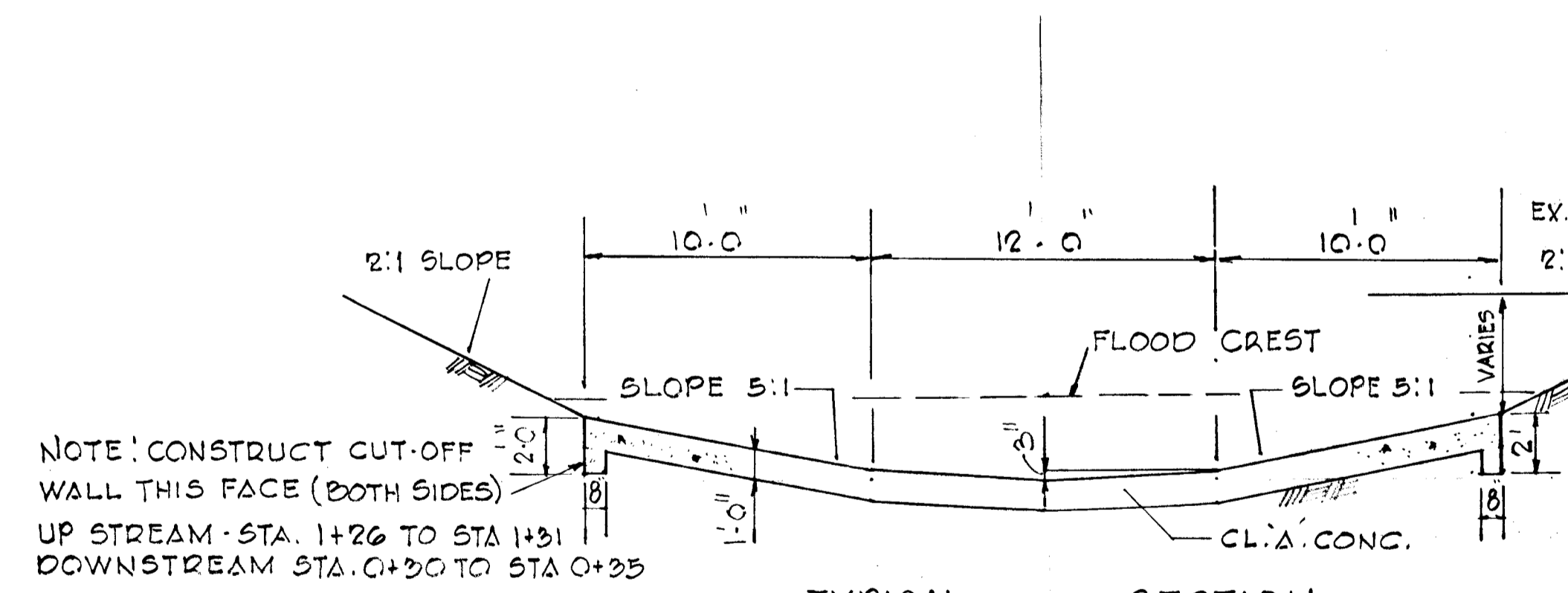


PLAN  
SCALE: 1" = 10'

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-203-GIT, & 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".



SECTION AT CHANNEL  
SCALE: 1" = 10'

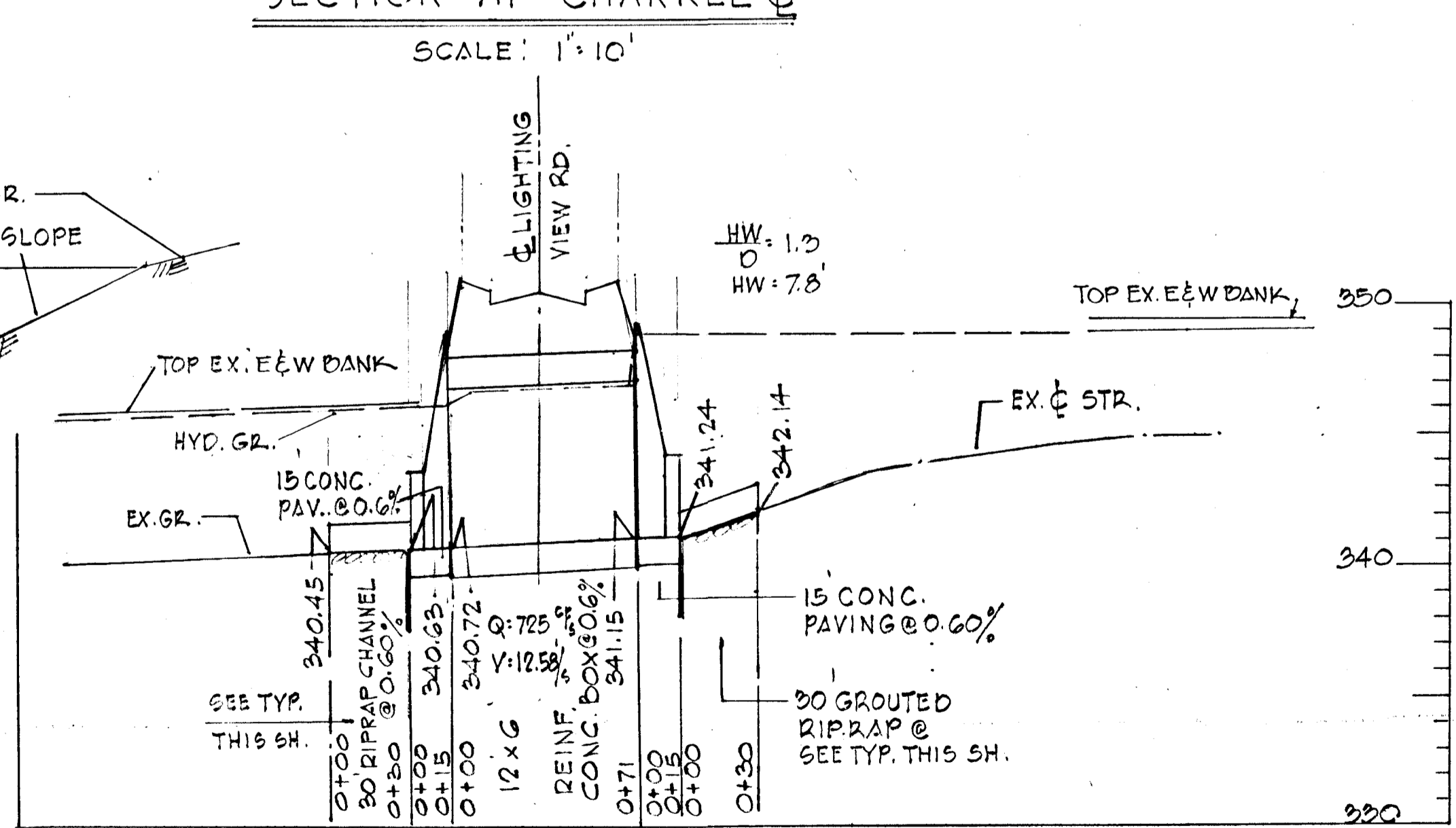


TYPICAL SECTION  
UPSTREAM & DOWNSTREAM  
PAVED CHANNEL  
SCALE: 1" = 5'

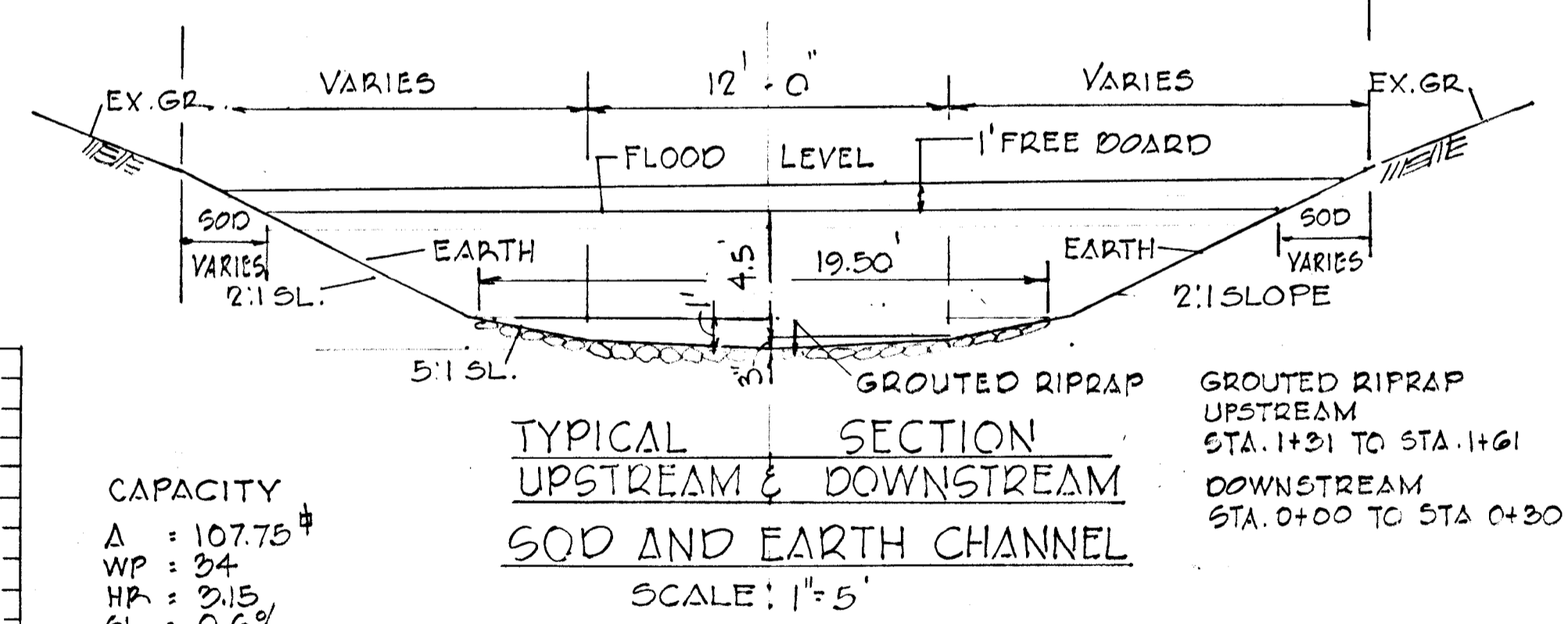
NOTE: CONSTRUCT CUT-OFF WALL THIS FACE (BOTH SIDES)  
 UP STREAM - STA. 1+26 TO STA 1+31  
 DOWNSTREAM STA. 0+30 TO STA 0+35

CAPACITY DOWNSTR.

A	= 71.25
WP	= 34
HR	= 2.095
SL	= 0.6%
V	= 0.13
V	= 13.99/5
Q	= 996.79 CFS



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

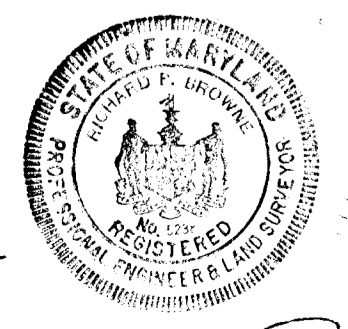


TYPICAL SECTION  
UPSTREAM & DOWNSTREAM  
SOD AND EARTH CHANNEL  
SCALE: 1" = 5'

CAPACITY

A	= 107.75 #
WP	= 34
HR	= 2.15
SL	= 0.6%
V	= 0.20
V	= 8.17
Q	= 880.22 CFS

12' x 6' REINFORCED CONCRETE BOX CULVERT

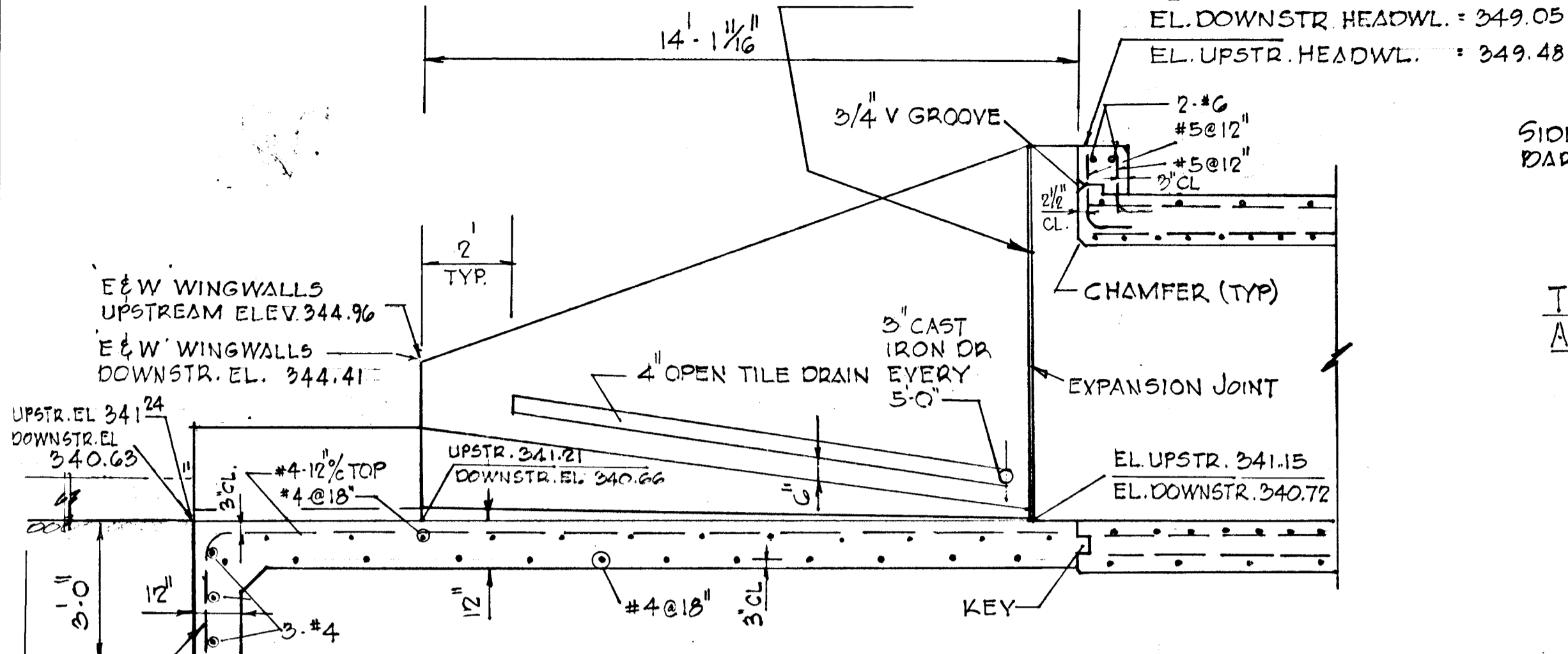


APPROVED  
 PLANNING COMMISSION  
 OF HOWARD COUNTY  
 DATE 12/16/68  
*[Signature]*

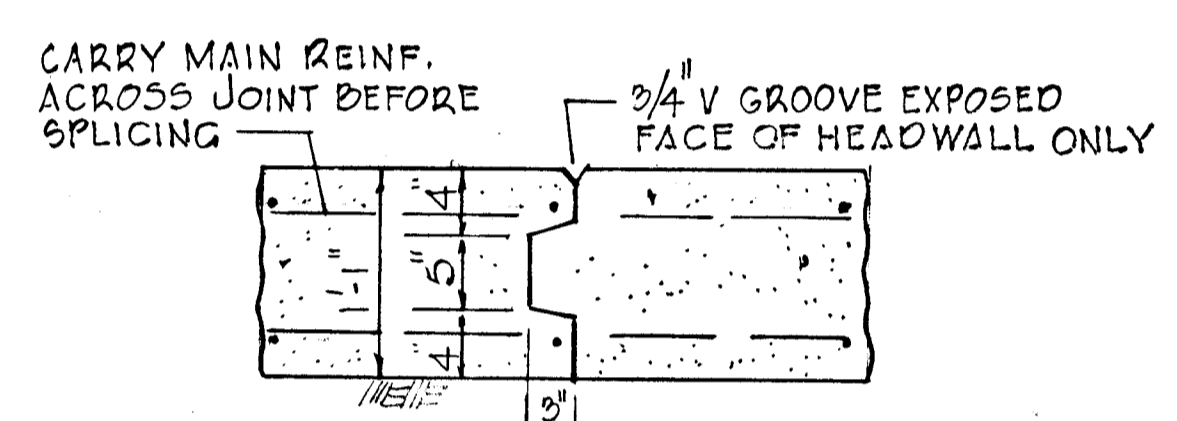
Rev Date	Rev No	Revision Description
<b>COLUMBIA</b> MARYLAND		
OWNER AND DEVELOPER <b>HOWARD RESEARCH AND DEVELOPMENT CORP.</b> THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210		
PROJECT AREA VILLAGE OF OAKLAND MILLS SECTION 1 AREA 5		
PROJECT TITLE <b>12' x 6' REINF. CONC. BOX CULVERT</b>		
Des By TKS	Scale AS SHOWN	Dwg No 14 of 15
Drn By TKS	Date AUG 23, 1968	C.C.F. No
Chk By S	Approved	

*[Signatures]*  
 8/19/1968  
 OK. *[Signature]*

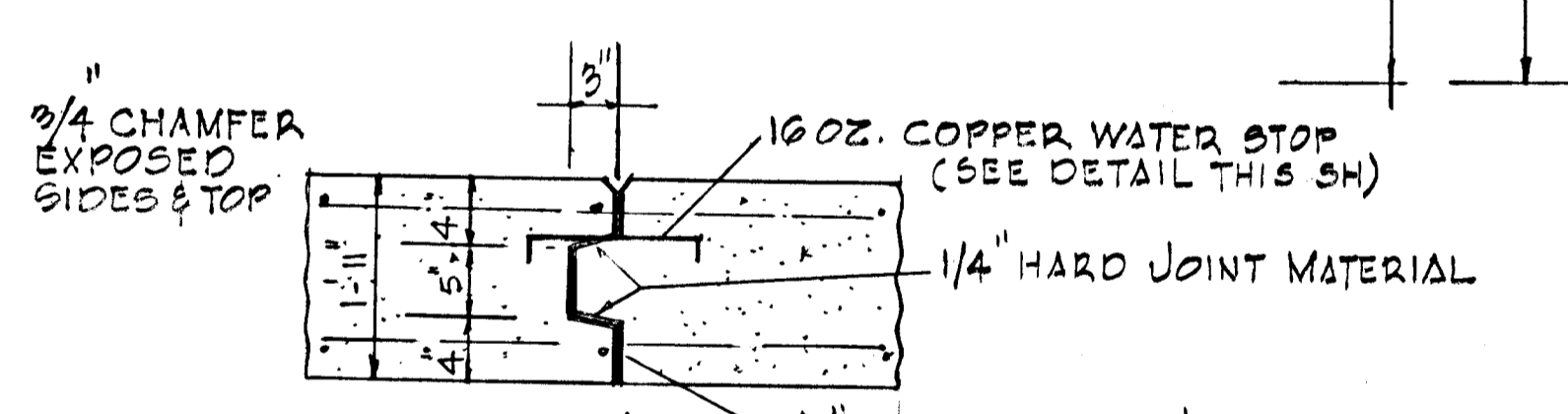
NOTE: CHAMFER FOR EXPANSION JOINT SHALL BE CARRIED FROM AT LEAST 6" BELOW GROUND ON FILL SIDE ACROSS TOP AND DOWN EXPOSED FACE OF WINGWALL.



**HEADWALL & APRON SECTION DD**  
SCALE: 3/8"=1'-0"

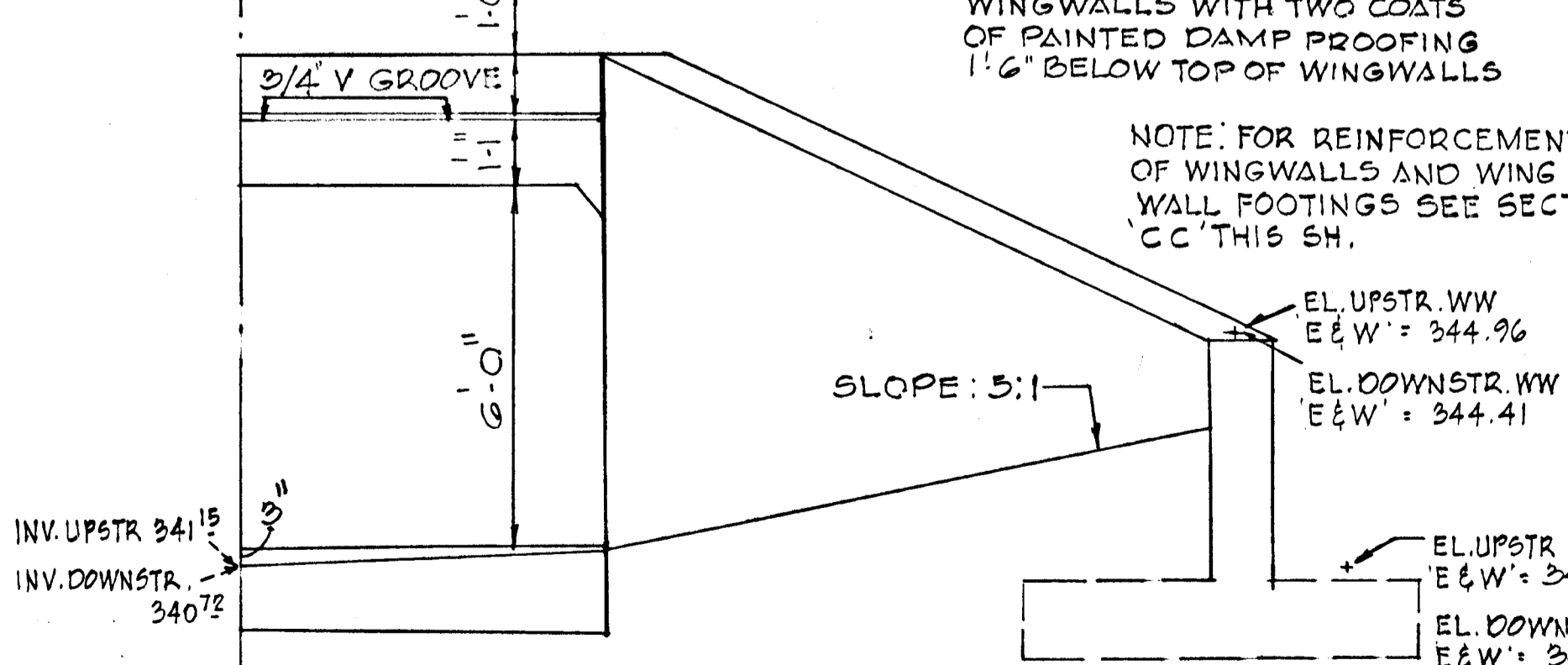


**CONSTRUCTION JOINT DETAIL**  
SCALE: 1"=1'-0"

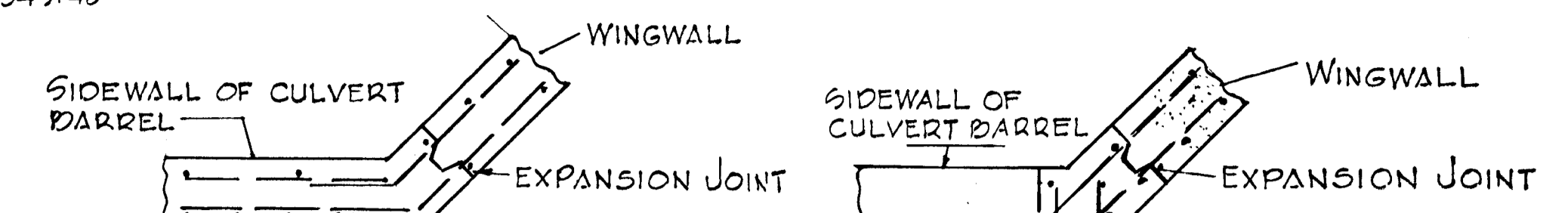


**EXPANSION JOINT DETAIL**  
SCALE: 1"=1'-0"  
NOTE: STOP KEY & WATERSTOP 6" BELOW TOP OF WALL.

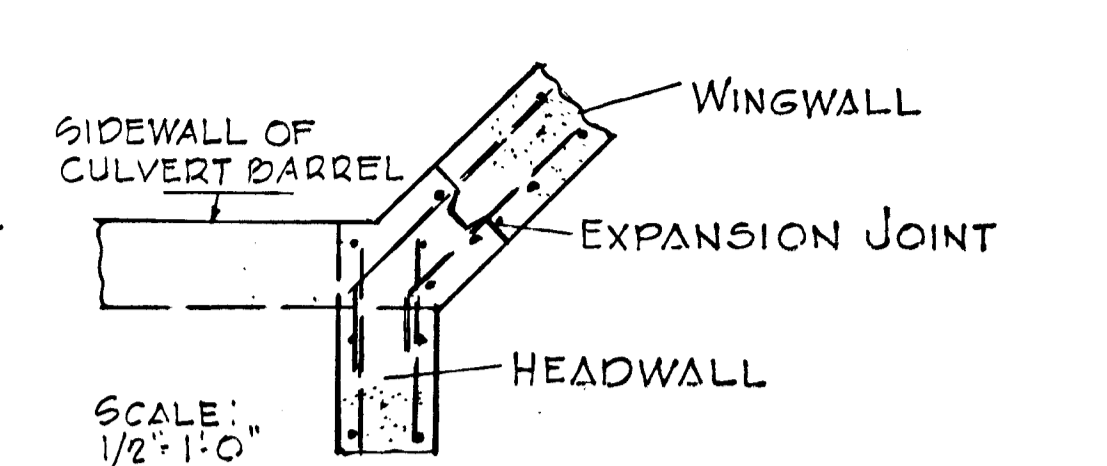
SYMMETRICAL ABOUT C



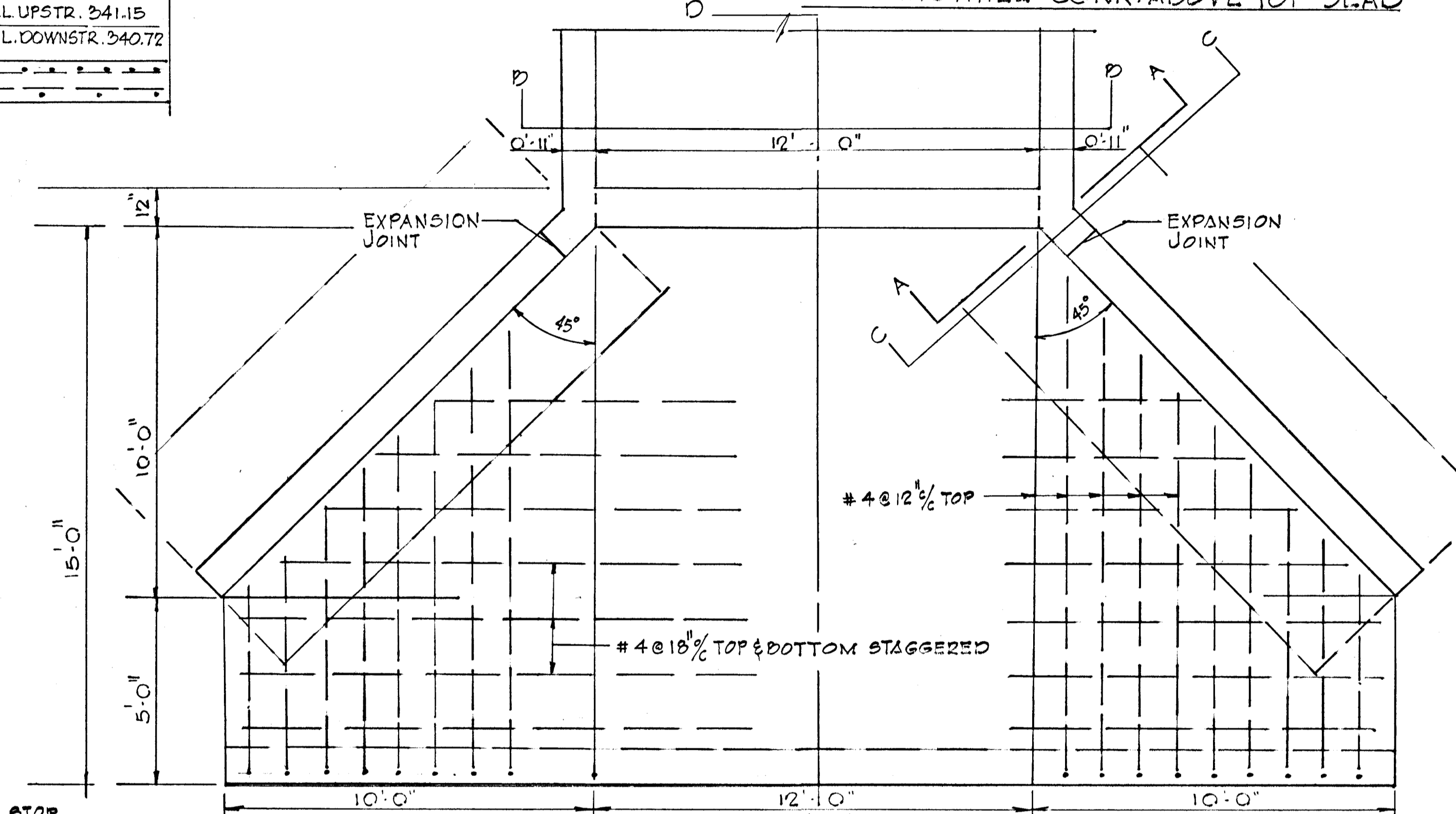
**ELEVATION UPSTREAM & DOWNSTREAM**  
SCALE: 3/8"=1'-0"



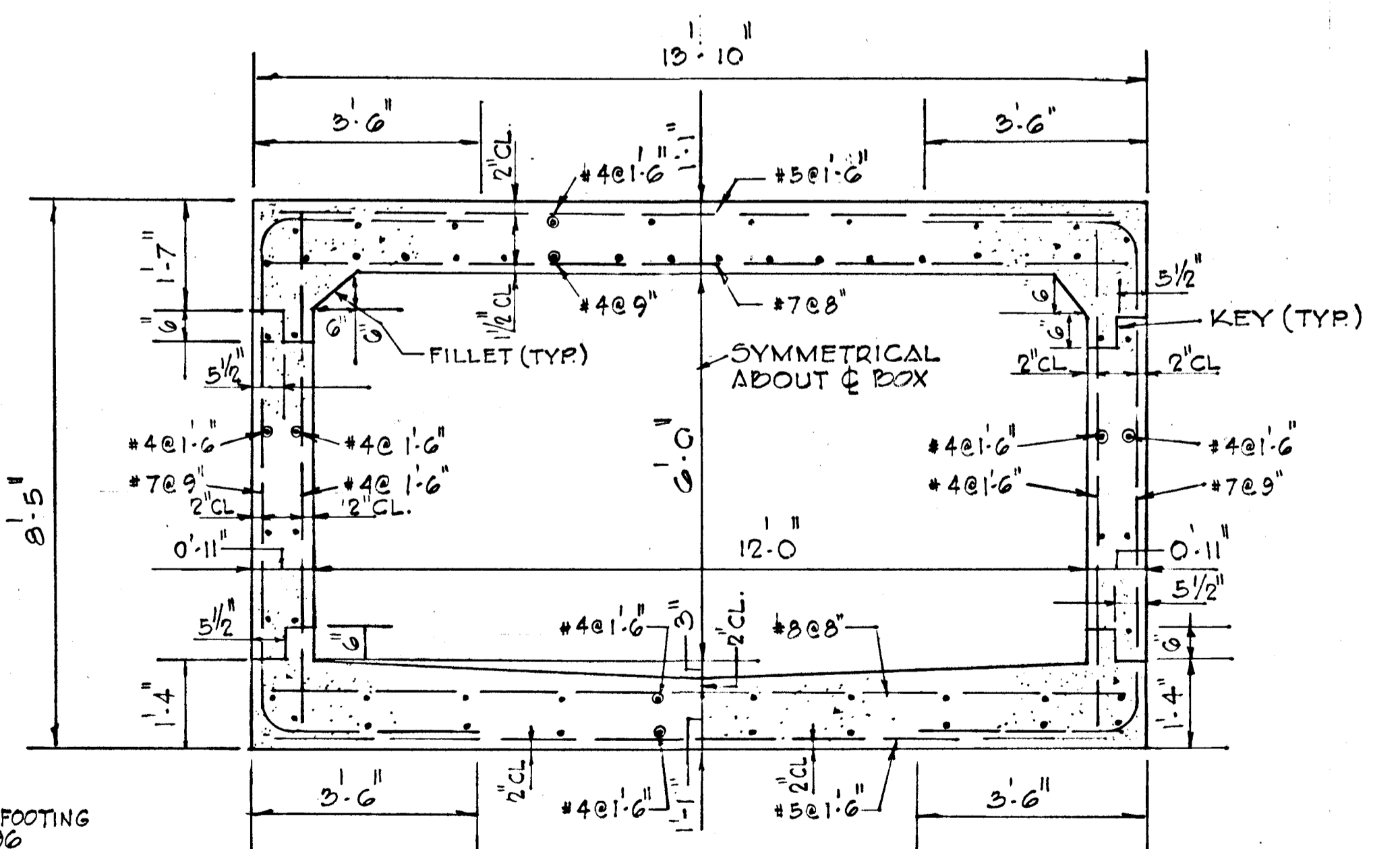
**TYPICAL DETAIL OF HEADWALL AND WINGWALL CONNECTION BELOW TOP SLAB**  
SCALE: 1/2"=1'-0"



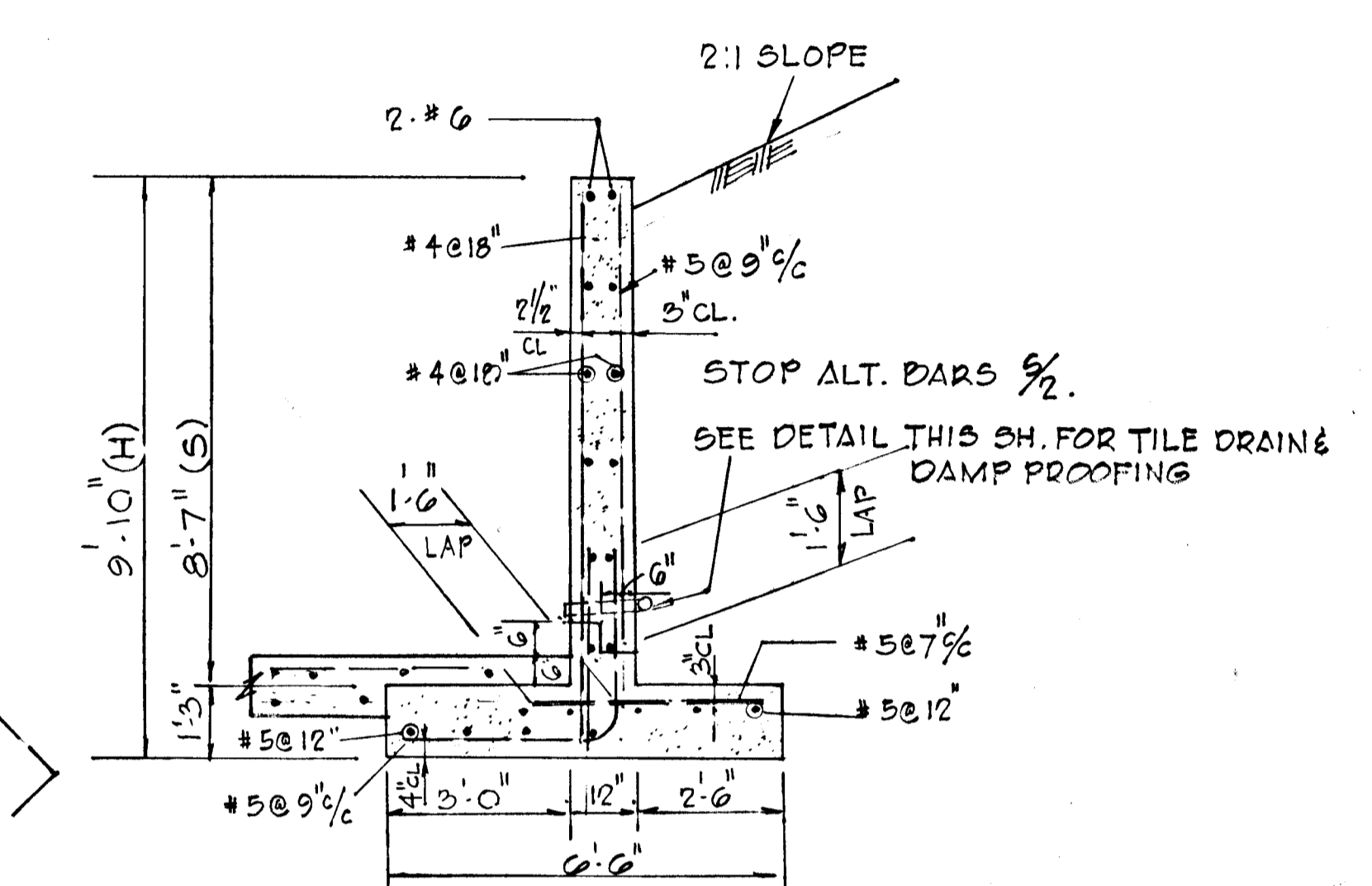
**TYPICAL DETAIL OF CULVERT BARREL AND WINGWALL CONN. ABOVE TOP SLAB**  
SCALE: 1/2"=1'-0"



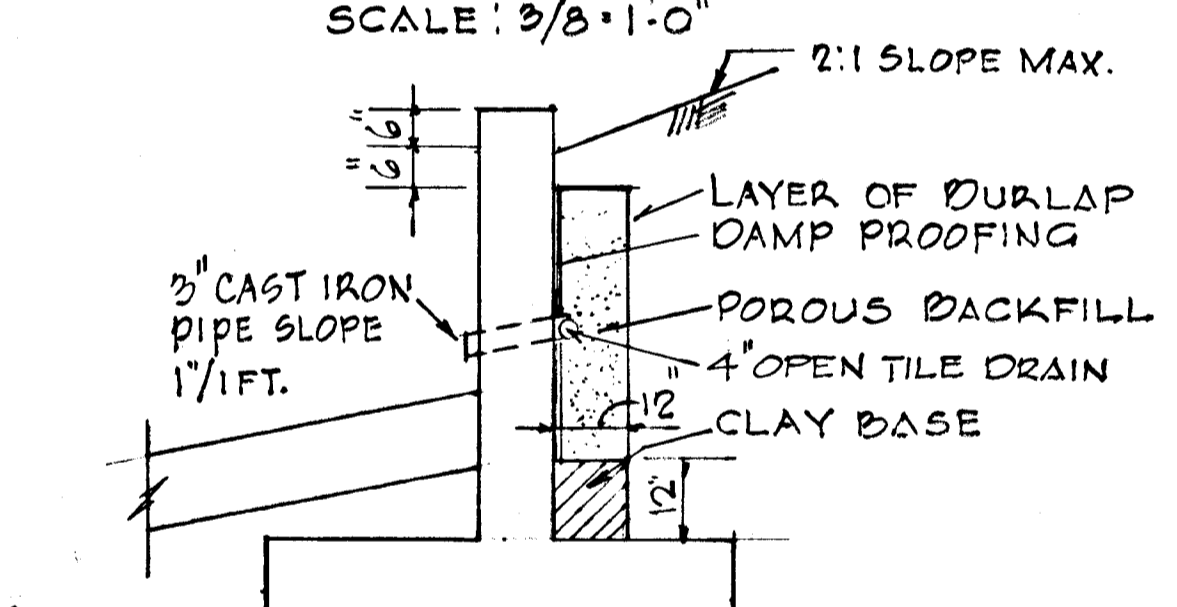
**PLAN OF WINGWALL AND APRON**  
SCALE: 3/8"=1'-0"



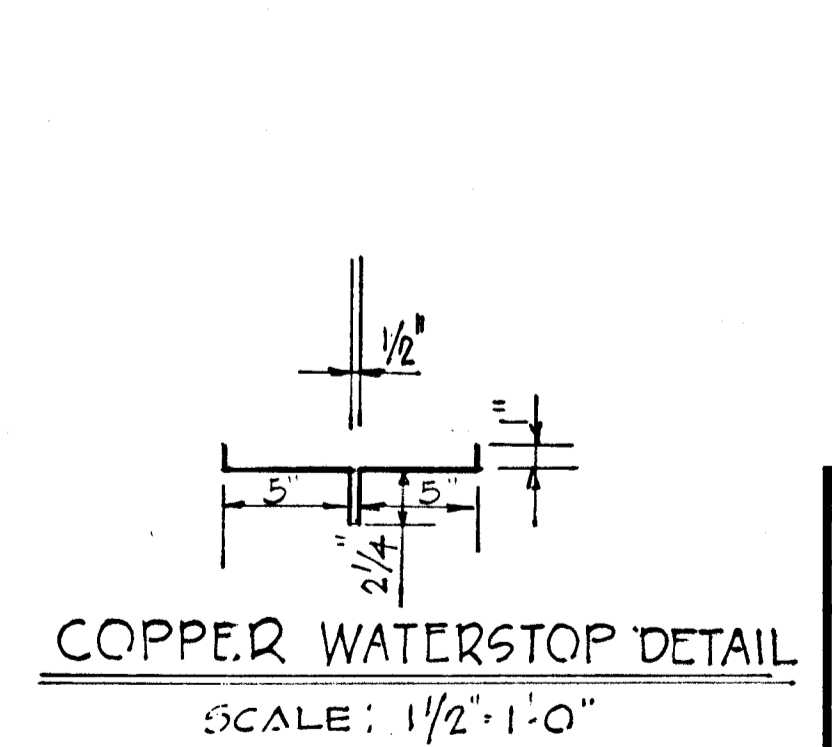
**SECTION BB**  
12'0" x 6'0" CONCRETE BOX CULVERT REINFORCEMENT  
SCALE: 1/2"=1'-0"



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



**TYPICAL WINGWALL BACKFILL SECTION**  
SCALE: 3/8"=1'-0"



**COPPER WATERSTOP DETAIL**  
SCALE: 1/2"=1'-0"

**APPROVED**  
PLANNING COMMISSION  
OF HOWARD COUNTY  
DATE 12/16/68  
J. W. F.

Rev Date	Rev No	Revision Description
<p><b>COLUMBIA MARYLAND</b> OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP. THE VILLAGE OF CROSS KEYS - BALTIMORE, MARYLAND 21210</p>		
<p>PROJECT AREA VILLAGE OF OAKLAND MILLS SECTION 1 AREA 5</p>		
<p>PROJECT TITLE 12' x 6' REINFORCED CONCRETE BOX CULVERT</p>		
Des By TKS	Scale AS SHOWN	Dwg No 1501 15
Drn By TKS	Date Aug 28, 1968	C.C.F. No
Chk By S	Approved	

F-68-65 JOB # 1020