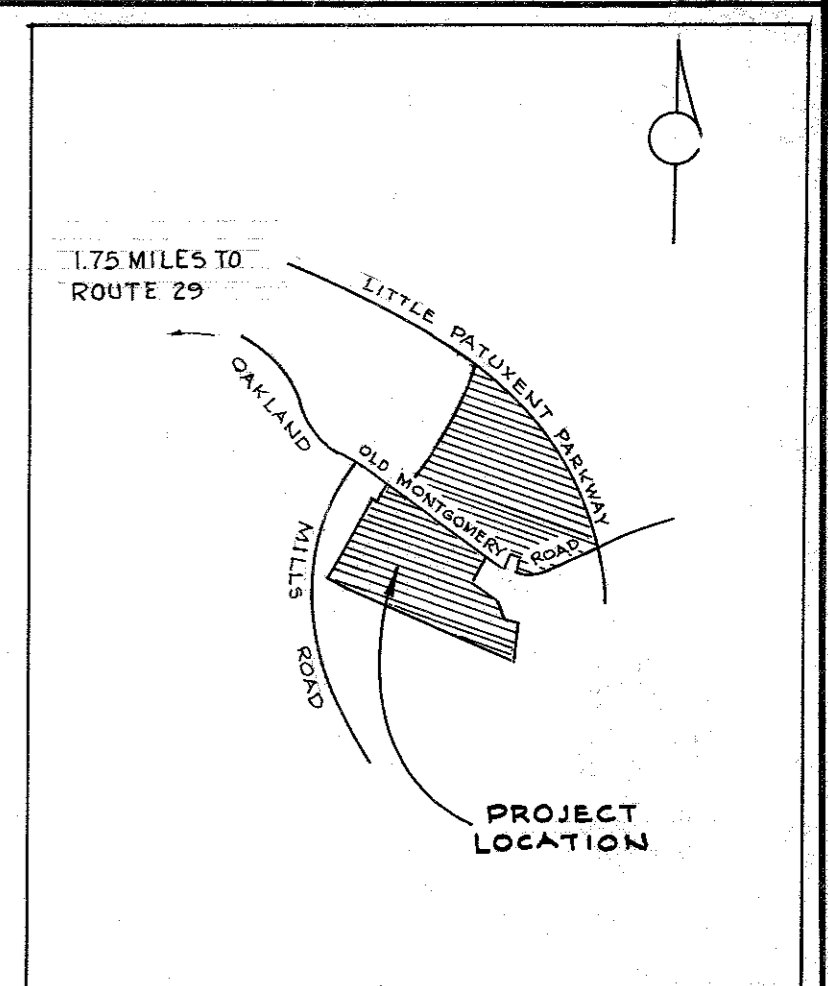
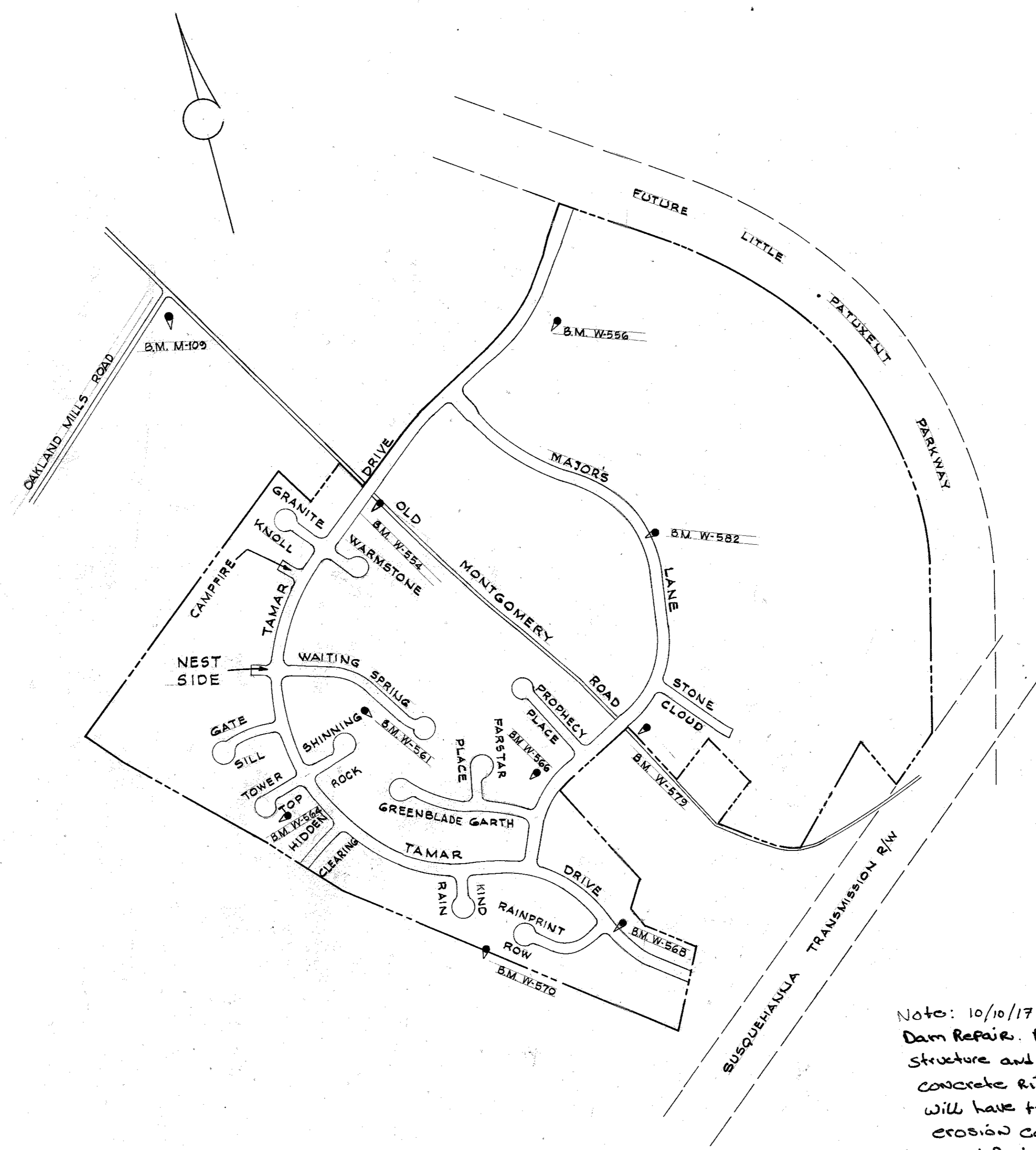


SHEET INDEX	
SHEET No	DESCRIPTION
1	Title Sheet
2	Tamar Drive; Sta. 0+00 to 8+60 and Old Montgomery Road
3	Tamar Drive; Sta. 8+60 to 15+60
4	Tamar Drive; Sta. 15+60 to 22+60; Granite Knoll and Warmstone
5	Tamar Drive; Sta. 22+60 to 31+10; Gate Sill
6	Tamar Drive; Sta. 31+10 to 42+60 and Kind Rain
7	Tamar Drive; Sta. 42+60 to 54+03.33; Rainprint Row
8	Nest Side and Waiting Spring
9	Tower Top and Shinning Rock and Hidden Clearing
10	Greenblade Garth and Farstar Place
11	Major's Lane; Sta. 0+00 to 12+00
12	Major's Lane; Sta. 12+00 to 18+00; Campfire
13	Major's Lane; Sta. 18+00 to 29+38.17
14	Prophecy Place and Stone Cloud
15	Roadway Details
16	Storm Drain Profiles Tamar Drive, Stone Cloud, Waiting Spring, Tower Top & Hidden Clearing
17	Storm Drain Profiles Tamar Drive, Nest Side & Open Space Lot 3
18	Storm Drain Profiles Tamar Drive, Major's Lane, Greenblade Garth & Prophecy Place
19	Storm Drain Profiles Tamar Drive, Major's Lane and Gate Sill
20	Storm Drain Details
21	Storm Drain Details
22	Drainage Area Map
23	Drainage Area Map
24	Storm Drain Details



VICINITY MAP  
Scale: 1" = 2,000'



LOCATION PLAN  
Scale: 1" = 400'

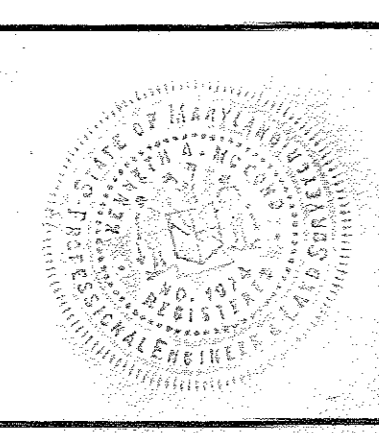
- Bench Mark W-570 Elev. 369.29  
Iron pipe 380' Right of centerline station  
42+86 on Tamar Drive
- Bench Mark W-568 Elev. 348.81  
Iron pipe 70' Left of centerline station  
49+83 on Tamar Drive
- Bench Mark W-566 Elev. 366.80  
Iron pipe 109' Left of centerline station  
4+05 on Major's Lane
- Bench Mark W-579 Elev. 370.07  
Iron pipe 92' Right of centerline station  
9+14 on Major's Lane
- Bench Mark M-109 Elev. 416.42  
41.0 Feet south east of the centerline of  
Oakland Mills Road, 17.0 Feet west of the  
centerline of Old Montgomery Road, 3.0  
Feet south of pole # 24148, 2.0 Feet north  
east of a metal witness post, set in a  
concrete post projecting 2 inches.
- Bench Mark W-556 Elev. 405.08  
Iron pipe 145' Left of centerline station  
6+05 on Tamar Drive.
- Bench Mark W-582 Elev. 409.66  
Iron pipe 43' Right of centerline station  
19+92 on Major's Lane
- Bench Mark W-554 Elev. 410.65  
Iron pipe 103' Left of centerline station  
18+05 on Tamar Drive
- Bench Mark W-561 Elev. 397.55  
Iron pipe 123' Right of centerline station  
4+85 on Waiting Spring.
- Bench Mark W-564 Elev. 390.24  
Iron pipe 112' Left of centerline station  
1+65 on Tower Top.

GENERAL NOTES

1. All work shall be performed in accordance with the Howard County Road Construction Code and Standard Specifications.
2. All utility companies shall be notified 24 hours in advance of construction.
3. Primary residential streets are designed for 35 M.P.H. traffic speed. Secondary residential streets are designed for 25 M.P.H. traffic speed in accordance with AASHO standards.
4. Brick bulkhead shall be installed in all storm drain stubs.
5. All inlets shall be Howard County standards unless otherwise shown.
6. All street curb returns shall have 35.5' radii unless otherwise noted.
7. For stakeout details of standard cul-de-sacs see Howard County Standard D-33A, page 88 a.
8. Temporary Tee Turn Around and Temporary Barricade shall be constructed in accordance with Howard County Standards D-33, Page 88 and D-109, Page 164 respectively.

Note: 10/10/17 Capital Project D-1160 Waiting Spring Pond Dam Repair. Project replaces existing corrugated metal riser structure and 8-inch corrugated metal spillway pipe with concrete riser and 12-inch RCP spillway pipe. Riser will have trash rack; riprap placed at out fall for erosion control and downstream storm drain inlet modified.

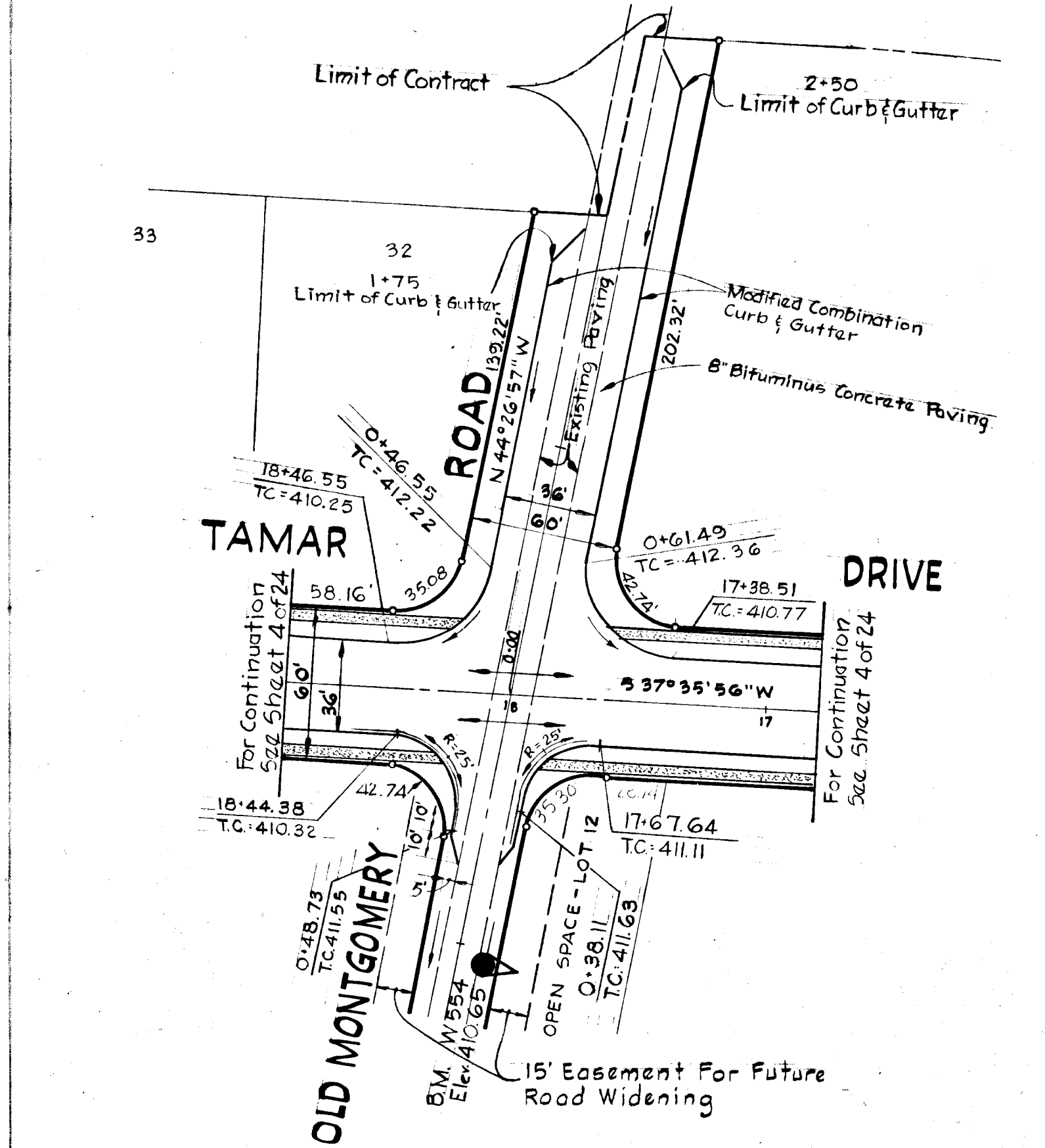
WHITMAN, REQUARDT & ASSOCIATES  
ENGINEERS  
BALTIMORE, MARYLAND 21202  
*Kenneth A. McCord*  
KENNETH A. McCORD  
Registered Engineer  
No. 1974



DEPARTMENT OF PUBLIC WORKS  
*B. W. McNeal* 12/22/70  
CHIEF, BUREAU OF HIGHWAYS DATE  
OFFICE OF PLANNING AND ZONING  
*J. H. Clawson, Jr.* DEC 28 1970  
CHIEF ENGINEER, DIVISION OF LAND DEVELOPMENT DATE

OWNER AND DEVELOPER  
THE HOWARD RESEARCH AND DEVELOPMENT CORP.  
COLUMBIA, MARYLAND

AS BUILT SURVEY JULY 3, 1973  
SECTION I AREA 2  
COLUMBIA  
VILLAGE OF LONGREACH  
HOWARD COUNTY, MARYLAND  
6TH ELECTION DISTRICT  
Date: June 25, 1970 Scale: As Shown



Note: See sheet 16 of 24 for Storm Drain Profile

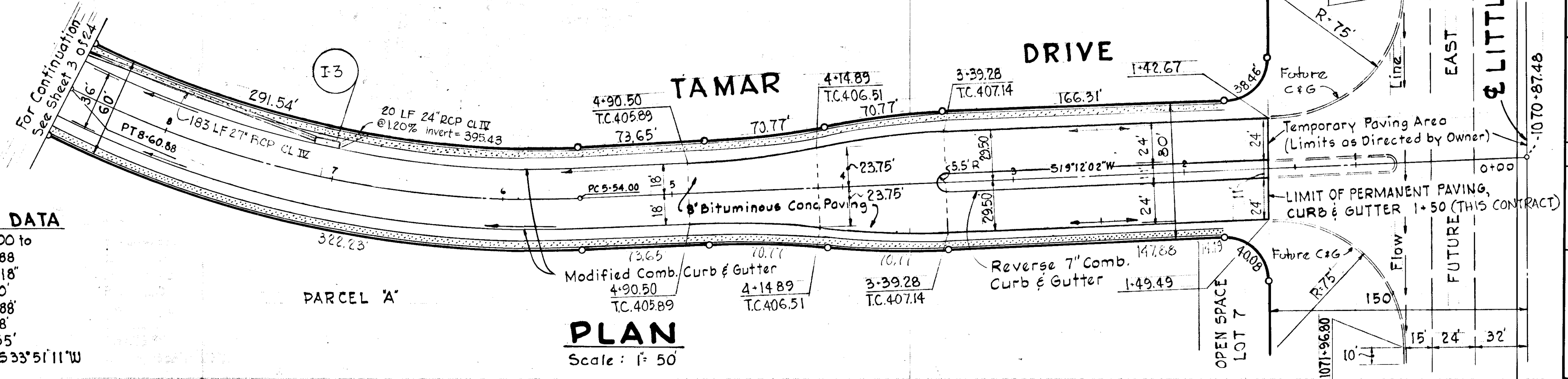
WEST CURB TRANSITION		EAST CURB TRANSITION	
CURVE	DATA	CURVE	DATA
4+14.89	3+39.28	4-14.89	3+39.28
TO	TO	TO	TO
4+90.50	4-14.89	4-90.50	4-14.89
$\Delta = 08^{\circ}41'52''$	$\Delta = 08^{\circ}41'52''$	$\Delta = 08^{\circ}41'52''$	$\Delta = 08^{\circ}41'52''$
R = 500.00	R = 500.00	R = 500.00	R = 500.00
Arc = 75.90'	Arc = 75.90'	Arc = 75.90'	Arc = 75.90'
T = 38.02'	T = 38.02'	T = 38.02'	T = 38.02'
Ch = 75.83'	Ch = 75.83'	Ch = 75.83'	Ch = 75.83'
Ch.Brg = 514°51'06"W	Ch.Brg = 514°51'06"W	Ch.Brg = 523°32'58"W	Ch.Brg = 523°32'58"W

**CURVE DATA**

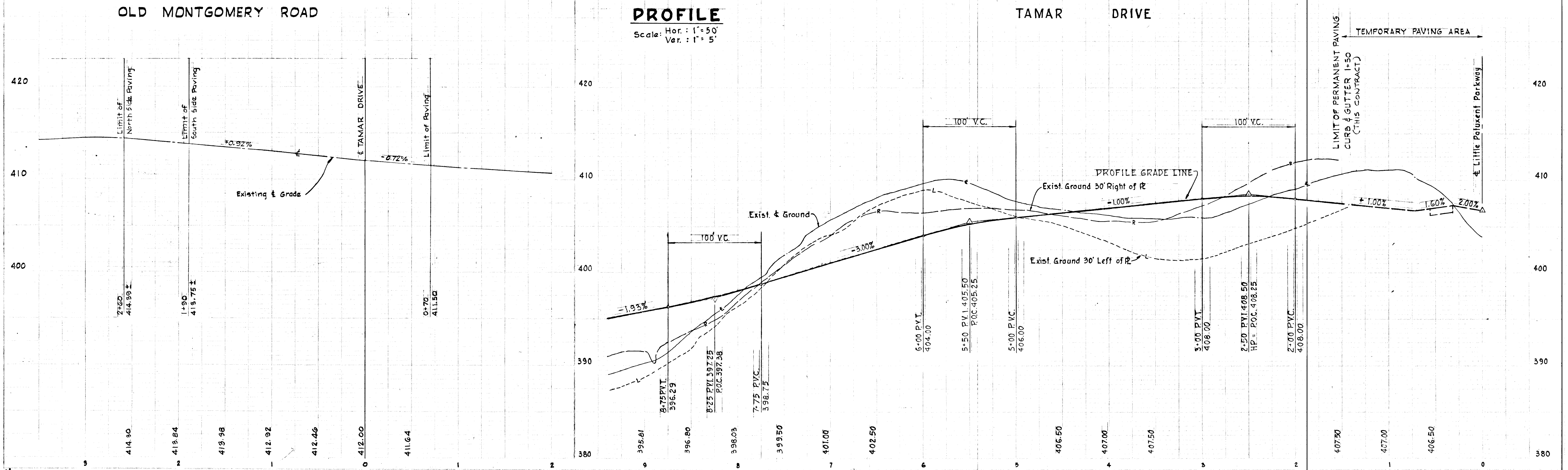
PC 5+54.00 to PT 8+60.88  
 $\Delta = 29^{\circ}18'18''$   
 R = 600.00  
 Arc = 306.88'  
 T = 156.88'  
 Ch = 303.55'  
 Ch.Brg = 533°51'11"W

STOP DRAIN STRUCTURE SCHEDULE

Loc.	Type	Top EL. Inlet	Top EL. Outlet	Location
I-3	A-15 Width = 3'0"	400.79	394.94	4' Inlet - 12.61' Right of & Elevation 7+07



**PLAN**  
Scale: 1" = 50'



**PROFILE**  
Scale: Hor. 1" = 50'  
Var. 1" = 5'

Rev.	Date	Rev. No.	Revision Description

**COLUMBIA**  
 C<sup>TY</sup> ELECTION DISTRICT  
 HOWARD COUNTY MARYLAND  
 OWNER AND DEVELOPER  
 HOWARD RESEARCH AND DEVELOPMENT CORP.

PROJECT AREA - SECTION 1, AREA 2  
**VILLAGE OF LOUGREACH**

PROJECT TITLE  
 PLAN AND PROFILE  
 TAMAR DRIVE  
 OLD MONTGOMERY ROAD

SCALE: As Shown DATE: June 25, 1970

WHITLAW, REQUARDT & ASSOCIATES  
 ENGINEERS  
 BALTIMORE, MARYLAND  
 21202

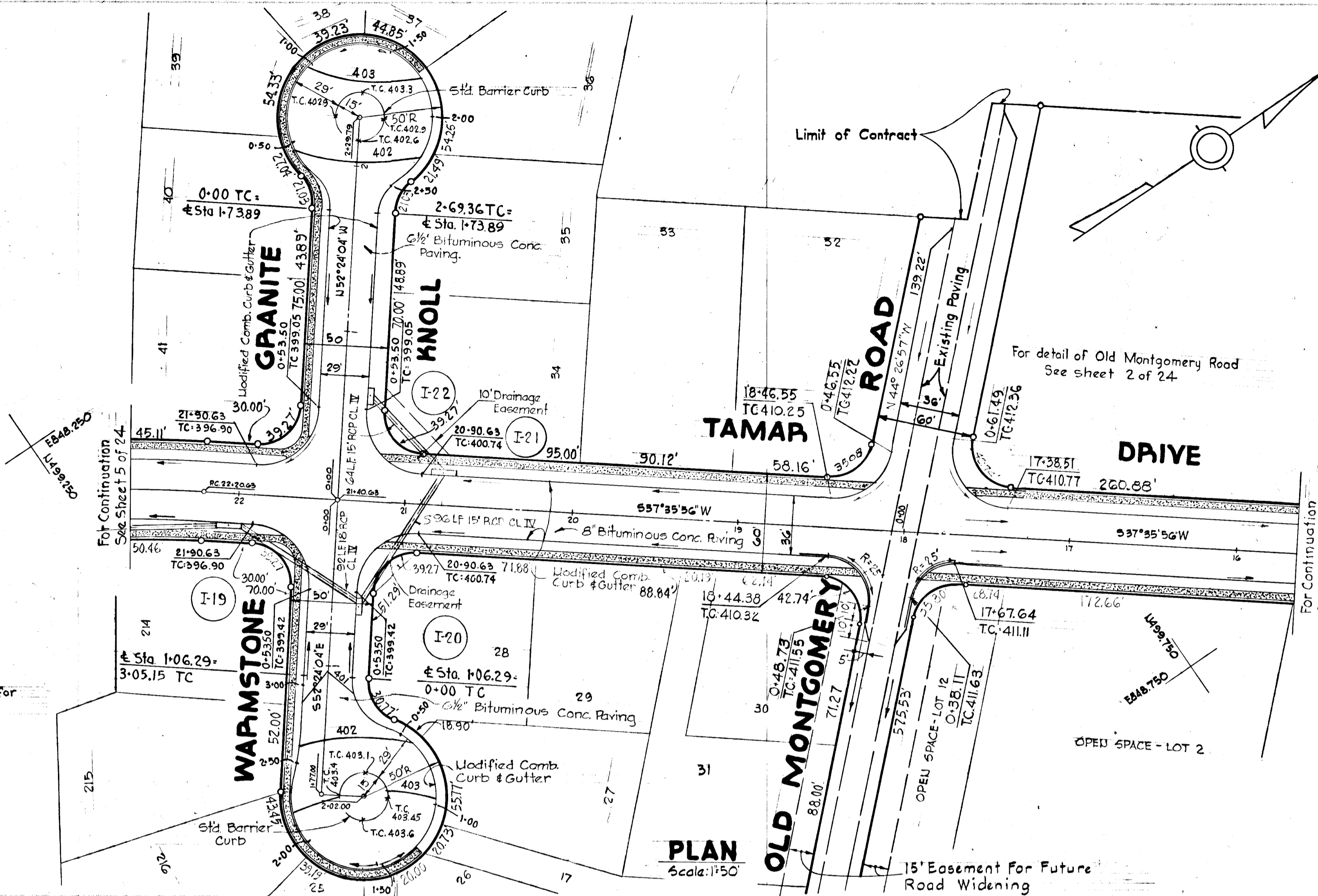
*Kenneth A. McCord*  
 KENNETH A. MCCORD  
 Registered Engineer  
 No. 1974



STORM DRAIN STRUCTURE SCHEDULE					
No.	Type	Top El.	Inv. Out.	Location	
I-19	A-15 width = 2'-6"	396.39	391.15	Inlet = 19.42 Lt. of Sta. 22+03	
I-20	A-10 width = 2'-6"	399.94	394.48	Inlet = 15.92 Lt. of Sta. 0+64	
I-21	A-15 width = 2'-6"	401.46	395.26	Inlet = 19.42 Rt. of Sta. 20+78	
I-22	A-10 width = 2'-6"	399.57	395.89	Inlet = 15.92 Rt. of Sta. 0+64	

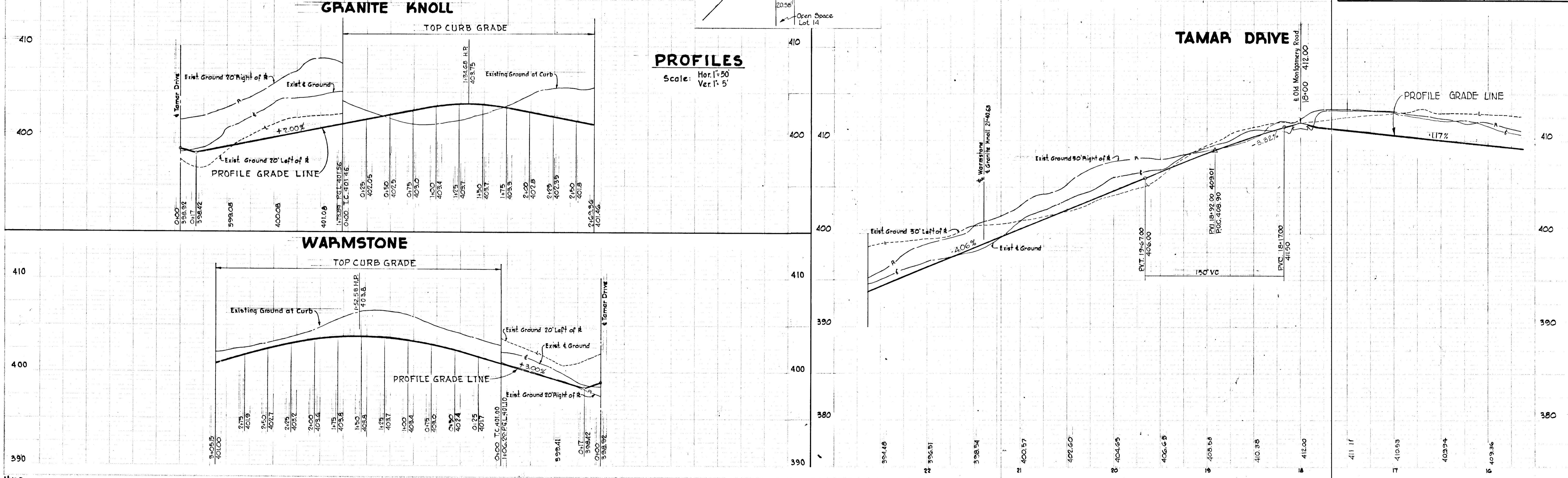
DEPARTMENT OF PUBLIC WORKS  
 CHIEF BUREAU OF HIGHWAYS  
 OFFICE OF PLANNING AND ZONING  
 CHIEF ENGINEER DIVISION OF LAND DEVELOPMENT

*S. M. Rebeard* 12/22/70  
*J. H. Dawson* 12/23/70

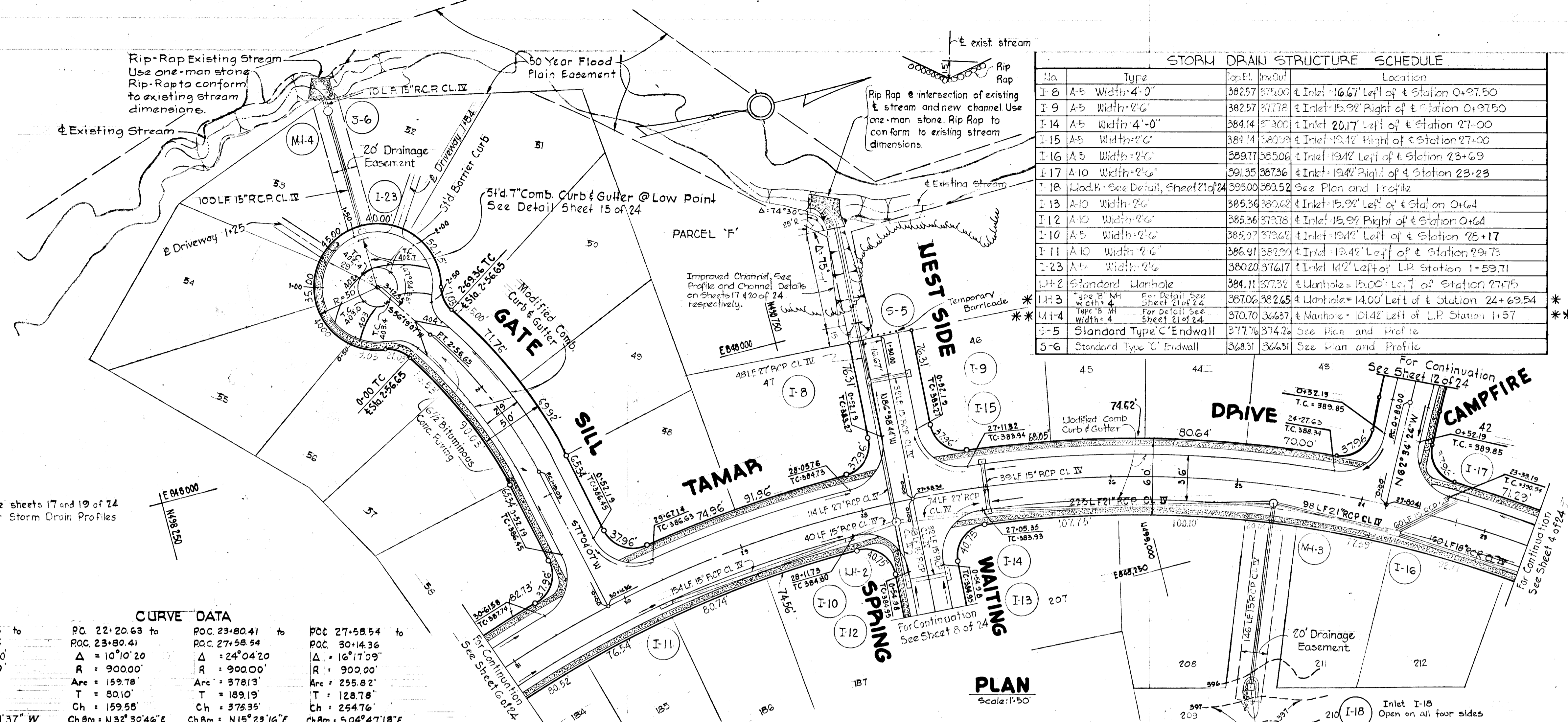


Note: See sheet 17 of 24 for Storm Drain Profile

Rev. Date	Rev. No.	Revision Description
<b>COLUMBIA</b> 6 <sup>TH</sup> ELECTIOU DISTRICT HOWARD COUNTY MARYLAND		
OWNER AND DEVELOPER <b>HOWARD RESEARCH AND DEVELOPMENT CORP.</b>		
PROJECT AREA - SECTION I, AREA 2 <b>VILLAGE OF LOUGREACH</b>		
PROJECT TITLE PLAN AND PROFILE GRANITE KNOLL WARMSTONE TAMAR DRIVE		
SCALE: As Shown		DATE: June 25, 1970
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. MCCORD Registered Engineer No. 1974		



**PROFILES**  
Scale: Hor. 1"=50  
Ver. 1"=5'



No.	Type	Top E.	Bottom E.	Location
I-8	A-5 Width 4'-0"	382.57	379.00	4 Inlet 16.67' Left of Station 0+97.50
I-9	A-5 Width 2'-6"	382.57	377.78	4 Inlet 15.92' Right of Station 0+97.50
I-14	A-5 Width 4'-0"	384.14	379.00	4 Inlet 20.17' Left of Station 27+00
I-15	A-5 Width 2'-6"	384.14	382.09	4 Inlet 15.32' Right of Station 27+00
I-16	A-5 Width 2'-6"	389.17	385.00	4 Inlet 13.42' Left of Station 23+69
I-17	A-10 Width 2'-6"	391.35	387.36	4 Inlet 19.42' Right of Station 23+23
I-18	Mod. V. See Detail, Sheet 12 of 24	395.00	383.52	See Plan and Profile
I-13	A-10 Width 2'-6"	385.36	380.68	4 Inlet 15.92' Left of Station 0+64
I-12	A-10 Width 2'-6"	385.36	379.78	4 Inlet 15.92' Right of Station 0+64
I-10	A-5 Width 2'-6"	385.37	379.62	4 Inlet 15.92' Left of Station 25+17
I-11	A-10 Width 2'-6"	386.91	382.94	4 Inlet 13.42' Left of Station 29+73
I-23	A-5 Width 2'-6"	380.20	376.17	4 Inlet 14.2' Left of L.P. Station 1+59.71
M-2	Standard Manhole	384.11	377.32	4 Manhole = 15.00' Left of Station 27+75
M-3	Type B M. For Detail See Sheet 21 of 24	387.06	382.65	4 Manhole = 14.00' Left of Station 24+69.54
M-4	Type B M. For Detail See Sheet 21 of 24	370.70	366.37	4 Manhole = 10.42' Left of L.P. Station 1+57
S-5	Standard Type C Endwall	377.76	374.4	See Plan and Profile
S-6	Standard Type C Endwall	368.31	364.31	See Plan and Profile

DEPARTMENT OF PUBLIC WORKS  
*S. H. McLeod* 12/22/70  
 CHIEF BUREAU OF HIGHWAYS DATE  
 OFFICE OF PLANNING AND ZONING  
*J. H. Clawson* 12/23/70  
 CHIEF ENGINEER DIVISION OF LAND DEVELOPMENT DATE

\* - Top Conc. Slab Elev = 385.87  
 \*\* - Top Conc. Slab Elev = 369.29

**COLUMBIA**  
 6<sup>TH</sup> ELECTION DISTRICT  
 HOWARD COUNTY MARYLAND  
 OWNER AND DEVELOPER  
 HOWARD RESEARCH AND DEVELOPMENT CORP.

PROJECT AREA - SECTION 1, AREA 2  
**VILLAGE OF LONGREACH**

PROJECT TITLE  
 PLAN AND PROFILE  
 TAMAR DRIVE  
 GATE SILL

SCALE: As Shown DATE: June 25, 1970

WHITMAN, PEQUARD & ASSOCIATES  
 ENGINEERS  
 BALTIMORE, MARYLAND 21202

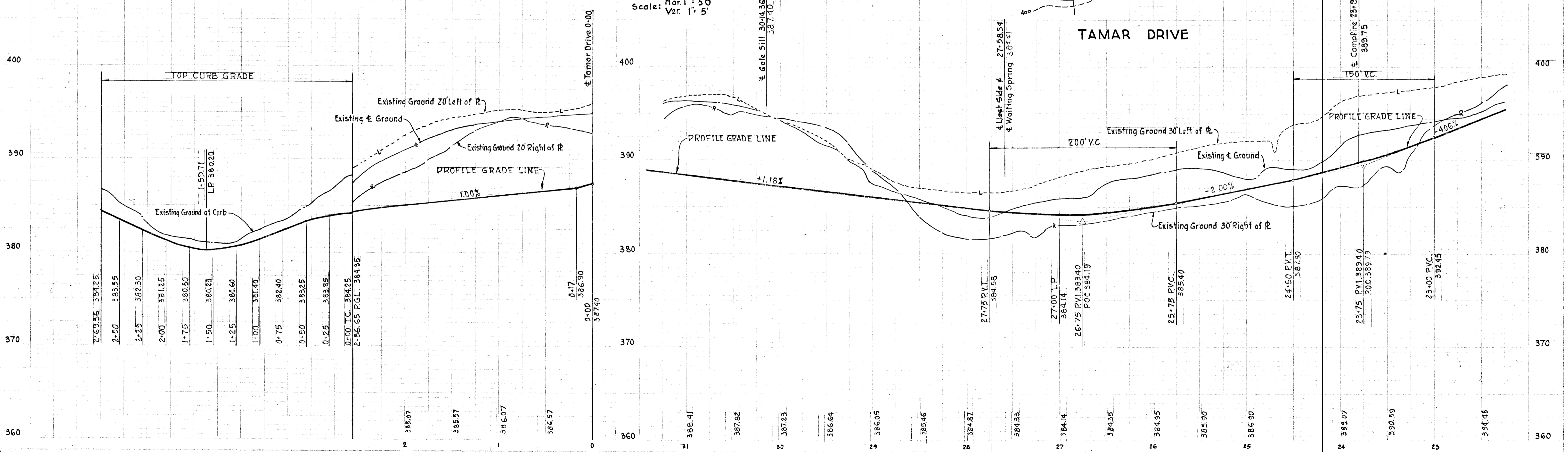
*Kenneth A. McCord*  
 KENNETH A. MCCORD  
 Registered Engineer  
 No. 1974

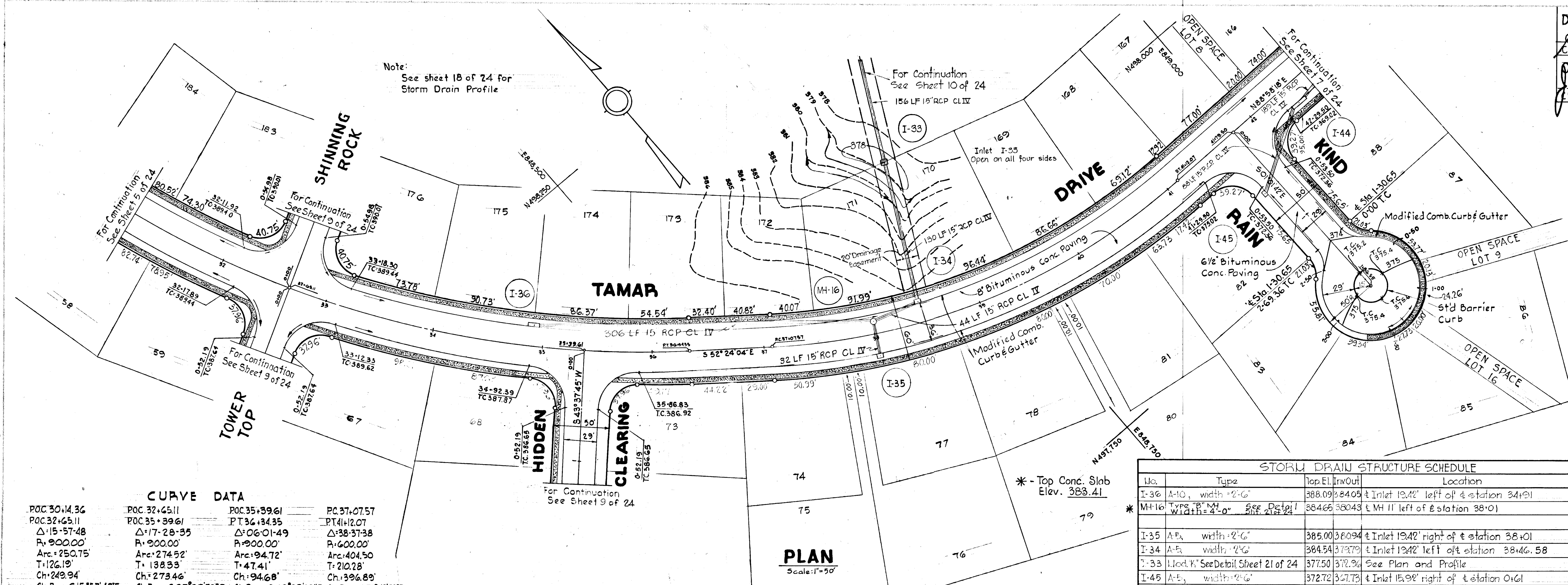
**CURVE DATA**

PC	PT	Δ	R	ARC	T	Ch	Ch Brg
1+19.03	2+56.65	10°45'00"	380.00'	137.62'	69.57'	136.87'	S 66°41'37" W
22+20.63	23+80.41	10°10'20"	900.00'	159.78'	80.10'	159.55'	N 32°30'46" E
23+80.41	27+58.54	24°04'20"	900.00'	378.13'	189.13'	372.35'	N 15°23'16" E
27+58.54	30+14.36	16°17'09"	900.00'	255.82'	128.78'	254.76'	S 04°47'18" E

**GATE SILL**

**PROFILES**





**CURVE DATA**

POC 30+4.36	POC 32+65.11	POC 35+39.61	POC 37+07.57
Δ: 15° 57' 48"	Δ: 17° 28' 35"	Δ: 06° 01' 49"	Δ: 38° 31' 38"
R: 900.00'	R: 900.00'	R: 900.00'	R: 400.00'
Arc: 250.75'	Arc: 274.52'	Arc: 94.72'	Arc: 404.50'
T: 126.19'	T: 138.33'	T: 47.41'	T: 210.28'
Ch: 249.94'	Ch: 273.46'	Ch: 94.68'	Ch: 396.89'
Ch.Brg: S15° 37' 48" E	Ch.Brg: S37° 37' 58" E	Ch.Brg: S49° 23' 10" E	Ch.Brg: S71° 42' 53" E

**STORM DRAIN STRUCTURE SCHEDULE**

No.	Type	Top El. Inlet	Location
I-36	A-10, width 2'-6"	388.09	Inlet 19.42' left of station 34+01
M-16	Type B, width 4'-0"	364.66	at MH II left of station 38+01
I-35	A-5, width 2'-6"	385.00	Inlet 19.42' right of station 38+01
I-34	A-5, width 2'-6"	384.54	Inlet 19.42' left of station 38+46.58
I-33	11' x 11' See Detail Sheet 21 of 24	377.50	See Plan and Profile
I-46	A-5, width 2'-6"	372.72	Inlet 15.98' right of station 0+01
I-44	A-15, width 2'-6"	368.51	Inlet 19.42' right of station 48+42

Rev. No.	Revision Description

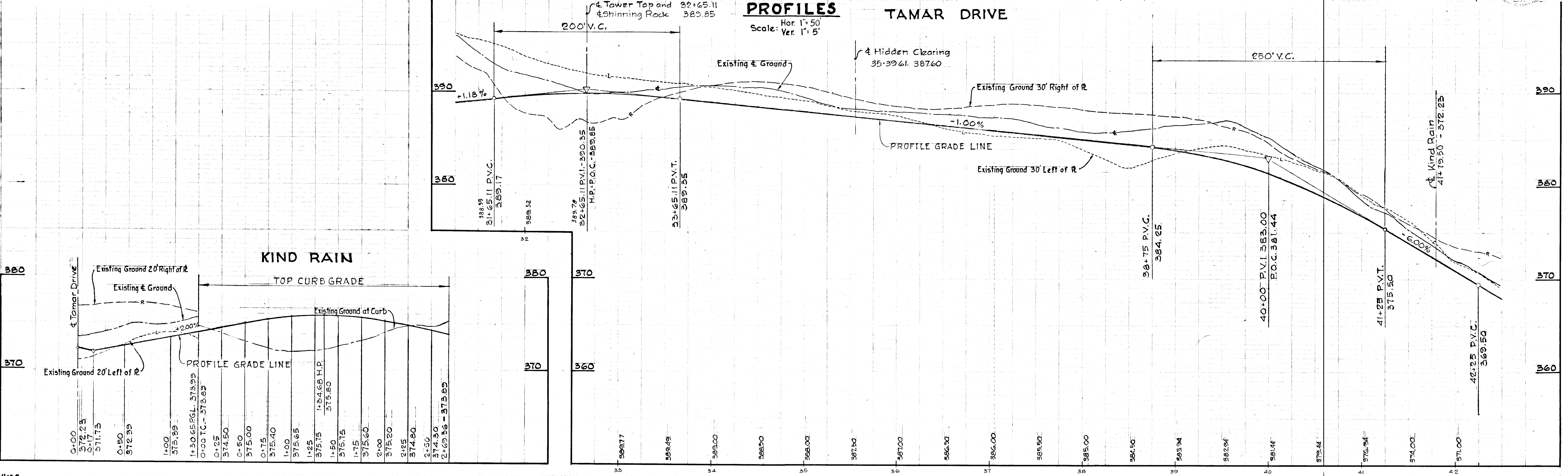
**COLUMBIA**  
 6TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 OWNER AND DEVELOPER  
 HOWARD RESEARCH AND DEVELOPMENT CORP.

PROJECT AREA - SECTION 1, AREA 2  
**VILLAGE OF LONG REACH**  
 PROJECT TITLE - PLAN AND PROFILE  
 TAMAR DRIVE  
 HIDDEN CLEARING  
 KIND RAIN

SCALE: As Shown DATE: June 25, 1970

WHITMAN, REQUARDT & ASSOCIATES  
 ENGINEERS  
 BALTIMORE, MARYLAND 21202

*Kenneth A. McCord*  
 KENNETH A. MCCORD  
 Registered Engineer  
 No. 1974

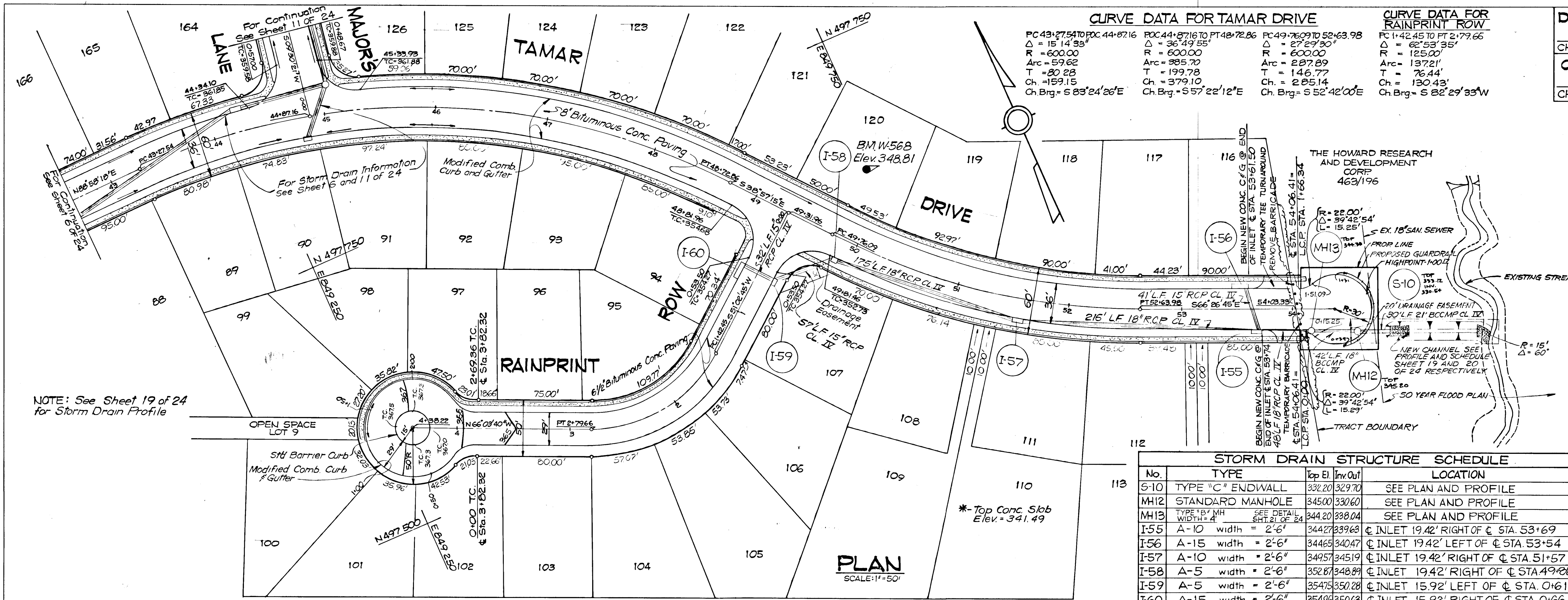


**CURVE DATA FOR TAMAR DRIVE**

PC 43+27.54 TO POC 44+87.16	POC 44+87.16 TO PT 48+72.86	PC 49+76.09 TO POC 52+63.98
$\Delta = 151.43^\circ$	$\Delta = 36.49^\circ$	$\Delta = 27.27^\circ$
R = 600.00	R = 600.00	R = 600.00
Arc = 59.62	Arc = 385.70	Arc = 287.99
T = 80.28	T = 199.78	T = 146.77
Ch. = 159.15	Ch. = 379.10	Ch. = 285.14
Ch. Brg. = S 83° 24' 26" E	Ch. Brg. = S 57° 22' 12" E	Ch. Brg. = S 52° 42' 00" E

**CURVE DATA FOR RAINPRINT ROW**

PC 1+42.45 TO PT 2+79.66
$\Delta = 62.53^\circ$
R = 125.00
Arc = 137.21
T = 76.44
Ch. = 130.43
Ch. Brg. = S 62° 29' 35" W



**STORM DRAIN STRUCTURE SCHEDULE**

No.	TYPE	Top El.	Invert	LOCATION
S-10	TYPE "C" ENDWALL	332.20	329.70	SEE PLAN AND PROFILE
MH12	STANDARD MANHOLE	345.00	330.60	SEE PLAN AND PROFILE
MH13	TYPE "B" MH	344.20	338.04	SEE PLAN AND PROFILE
I-55	A-10 width = 2'-6"	344.27	339.68	INLET 19.42' RIGHT OF STA. 53+69
I-56	A-15 width = 2'-6"	344.65	340.47	INLET 19.42' LEFT OF STA. 53+54
I-57	A-10 width = 2'-6"	349.57	345.19	INLET 19.42' RIGHT OF STA. 51+57
I-58	A-5 width = 2'-6"	352.87	348.89	INLET 19.42' RIGHT OF STA. 49+08
I-59	A-5 width = 2'-6"	354.75	350.28	INLET 15.92' LEFT OF STA. 0+61
I-60	A-15 width = 2'-6"	354.99	350.68	INLET 15.92' RIGHT OF STA. 0+66

1/6/81  
 Rev. Date: Rev. No. 1  
 ADD'D CUL-DE-SAC  
 Revision Description

**COLUMBIA**  
 6TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 OWNER AND DEVELOPER  
 HOWARD RESEARCH AND DEVELOPMENT CORP.

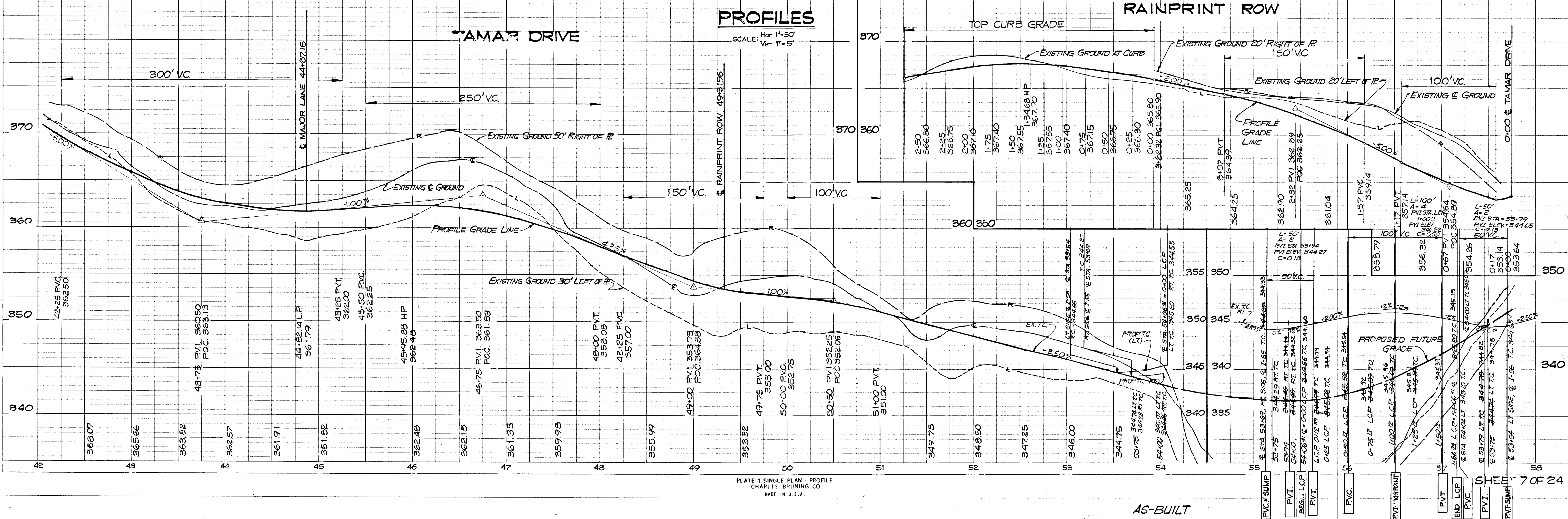
PROJECT AREA-SECTION 1, AREA 2  
**VILLAGE OF LONG REACH**

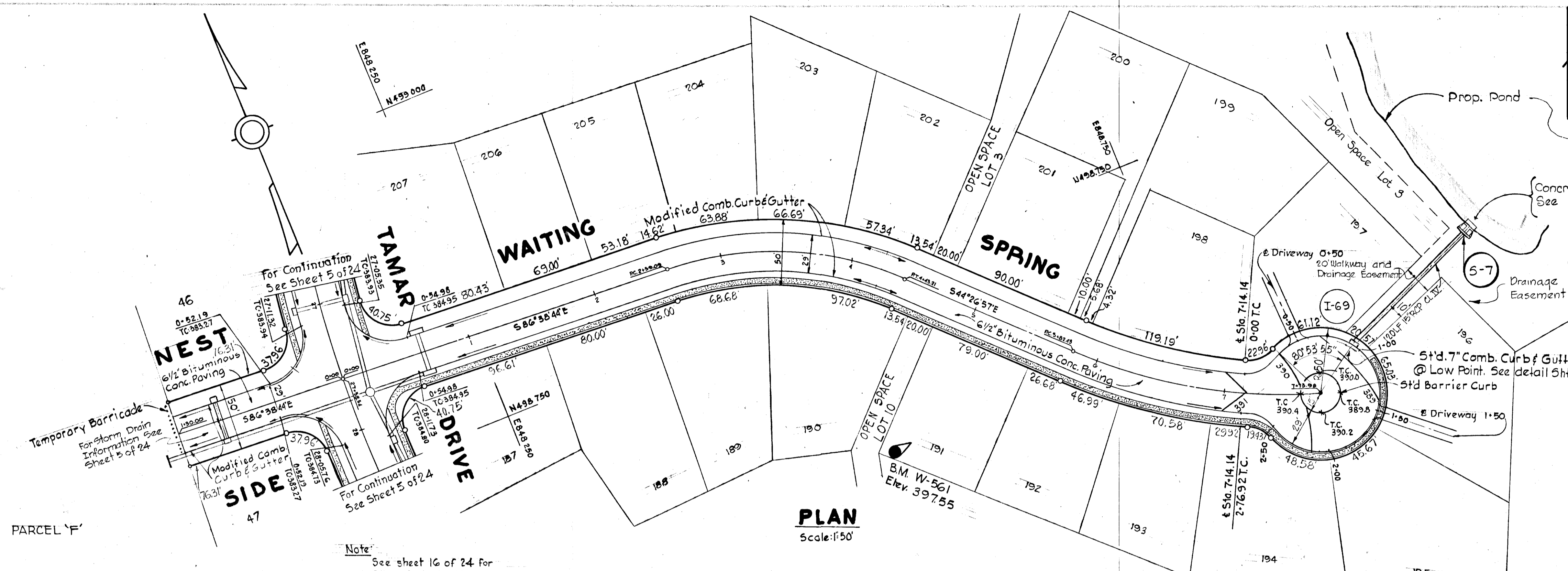
PROJECT TITLE PLAN AND PROFILE  
**TAMAR DRIVE  
 RAINPRINT ROW**

SCALE: As Shown DATE: June 25, 1970

WHITMAN REQUARDT & ASSOCIATES  
 ENGINEERS  
 BALTIMORE, MARYLAND 21202

AS-BUILT SURVEY DATA (REV #1)  
 BY WALTER PARK, MD. R.L.S.#55591  
 SIGNED, SEALED & DATED 12/9/81  
 8/14/82





Concrete Paved Channel.  
 See Detail, Sheet 21 of 24

Rev. No.	Rev. Date	Revision Description
<b>COLUMBIA</b>		
6 <sup>TH</sup> ELECTION DISTRICT HOWARD COUNTY MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA - SECTION 1, AREA 2 <b>YILLAGE OF LONGREACH</b>		
PROJECT TITLE <b>PLAN AND PROFILE NEST SIDE WAITING SPRING</b>		
SCALE: As Shown		DATE: June 25, 1970
WHITMAN, REQUARDT ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. McCORD Registered Engineer No. 1974		

Note:  
 See sheet 16 of 24 for  
 Storm Drain Profile

**WAITING SPRING CUL-DE-SAC LINEAR PROFILE DATA**

From P.C. 0+00	From P.T. 0+18.82	From P.C. 0+33.71	From P.T. 2+47.51	From P.C. 2+50.24	From P.R.C. 2+69.59	From P.C. 2+59.09	From P.C. 5+82.43
To P.T. 0+18.82	To P.C. 0+33.71	To P.T. 2+47.51	To P.C. 2+50.24	To P.R.C. 2+69.59	To P.O.C. 2+76.92	to P.T. 4+43.21	to P.T. 7-73.98
$\Delta = 49^{\circ}01'30''$		$\Delta = 278^{\circ}24'24''$		$\Delta = 50^{\circ}23'42''$	$\Delta = 01^{\circ}00'48''$	$\Delta = 42^{\circ}11'47''$	$\Delta = 27^{\circ}26'21''$
R = 22.00'	$N67^{\circ}39'17''E - 14.89'$	R = 44.00'	$N13^{\circ}56'19''W - 2.73'$	R = 22.00'	R = 414.90'	P = 250.00'	P = 400.00'
Arc = 18.82'		Arc = 213.80'		Arc = 19.35'	Arc = 7.33'	Arc = 184.12'	Arc = 191.56'
T = 10.03'				T = 10.35'	T = 3.67'	T = 96.46'	T = 97.66'
Ch = 18.26'				Ch = 18.73'	Ch = 7.33'	Ch = 179.98'	Ch = 189.74'
Ch Brg: $S87^{\circ}49'58''E$				Ch Brg: $N39^{\circ}08'10''W$	Ch Brg: $N63^{\circ}50'05''W$	Ch Brg: $S65^{\circ}32'50''E$	Ch Brg: $S58^{\circ}01'08''E$

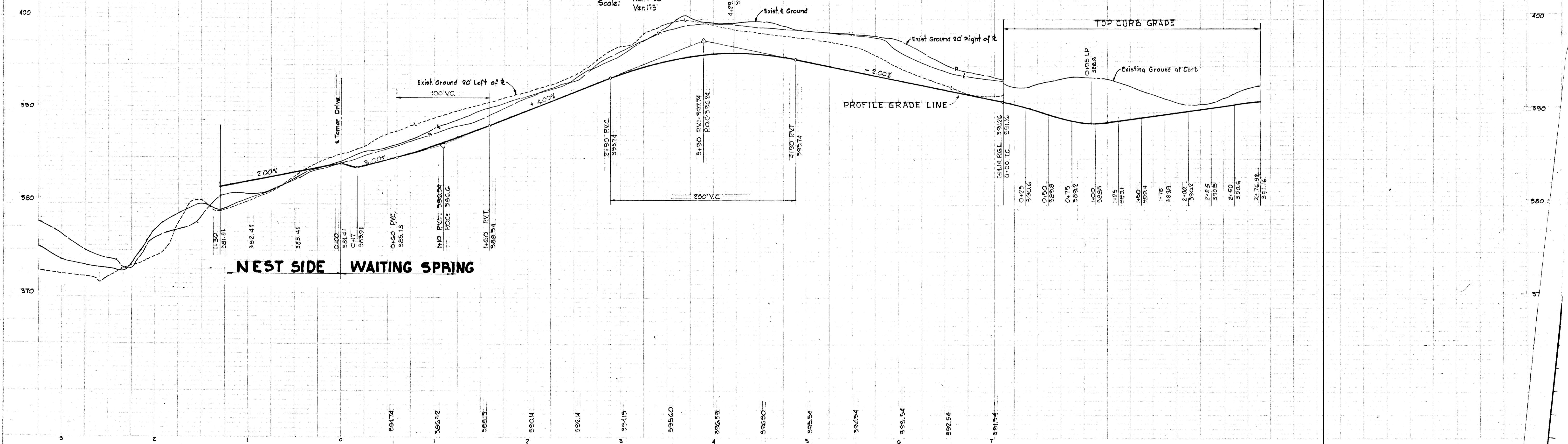
**CURVE DATA**

**STORM DRAIN STRUCTURE SCHEDULE**

No.	Type	Top El.	Inlet	Outlet	Location
I-69	A-5 Width = 2'-6"	388.80	384.36	Inlet = 142' Left of LP Station 0+93.08	
S-7	Type "C" Endwall	381.10	379.10	See Plan and Profile	

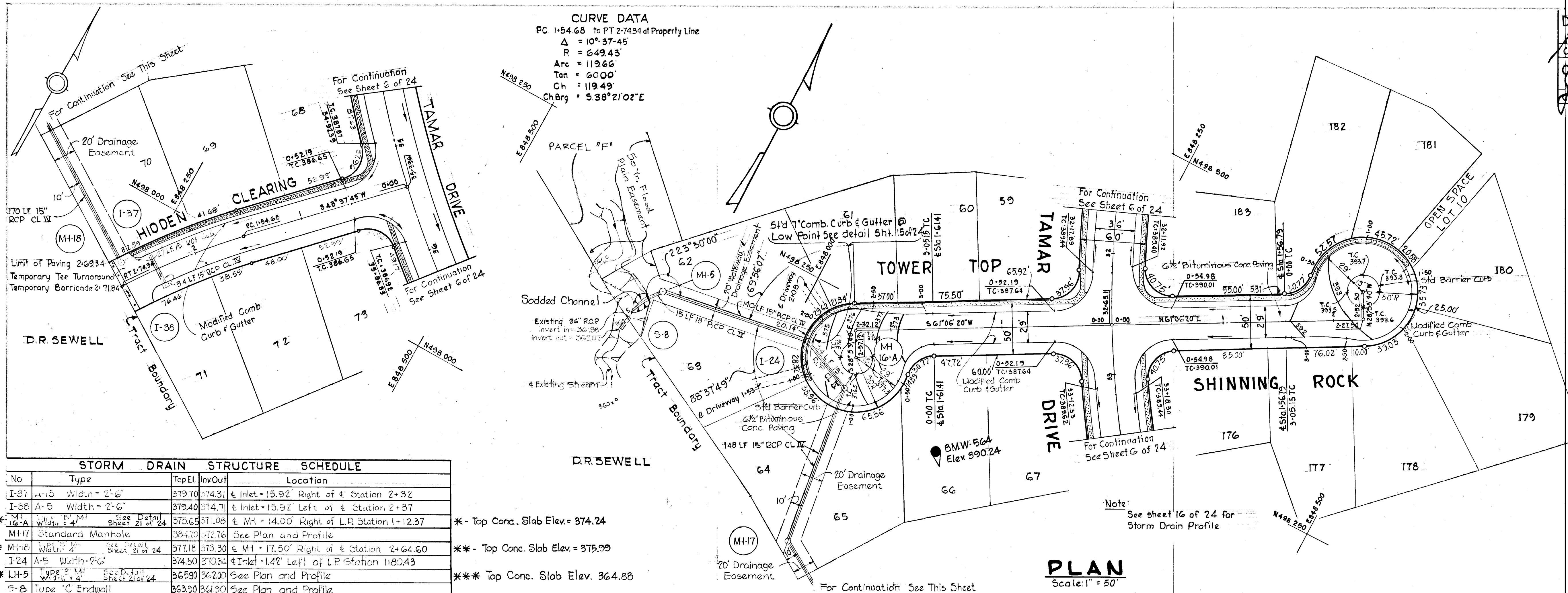
**PROFILE**

Scale: Hor: 1"=50'  
 Ver: 1"=5'





**CURVE DATA**  
 PC: 1+54.68 to PT 2+74.34 of Property Line  
 $\Delta = 10^\circ 37' 45''$   
 $R = 649.43'$   
 Arc = 119.66'  
 Tan = 60.00'  
 Ch = 119.49'  
 Ch Ang =  $538^\circ 21' 02'' E$

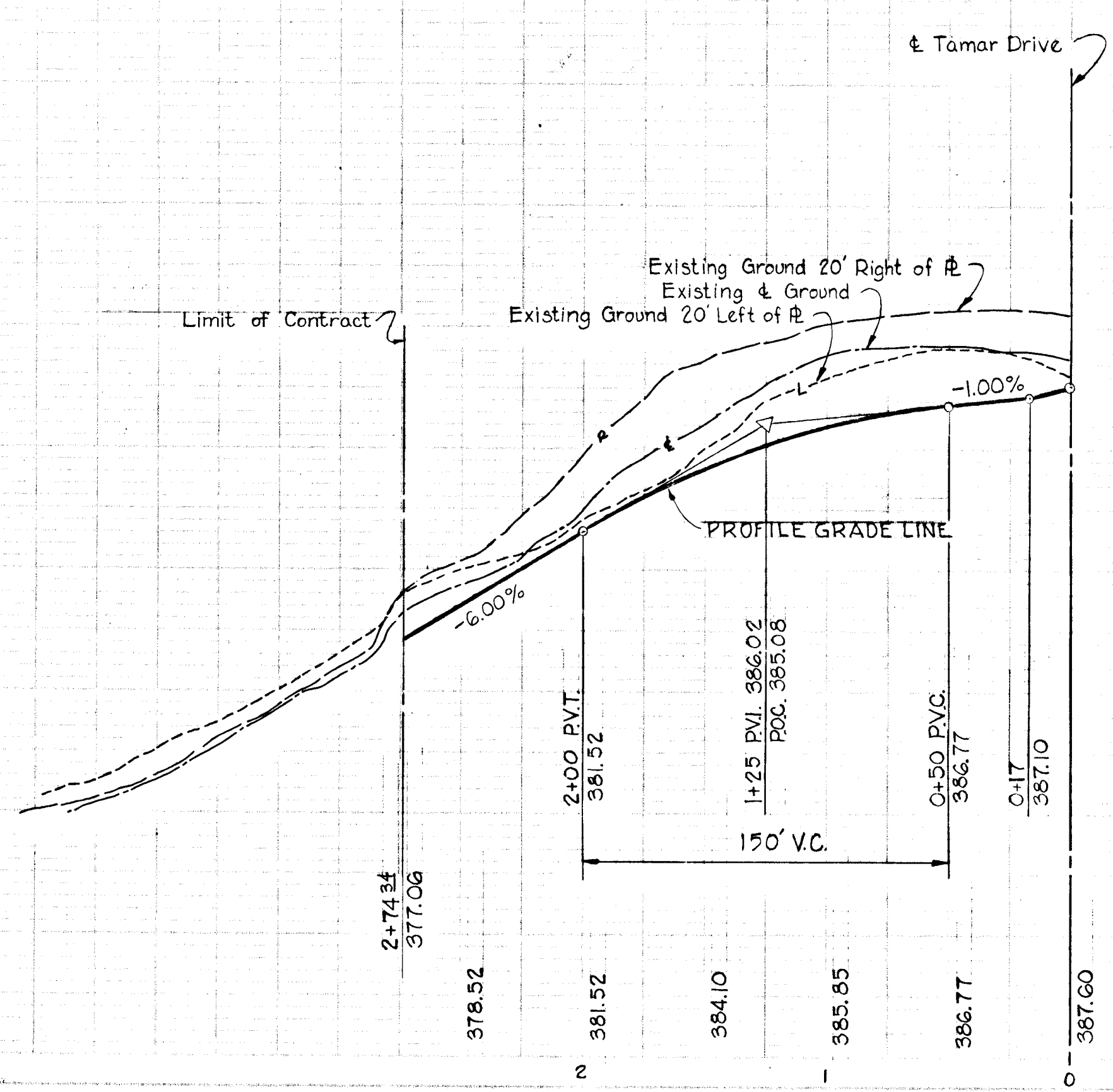


No.	Type	Top El.	In/Out	Location
I-37	A-5 Width=2'-6"	379.70	374.31	± Inlet 15.92' Right of ± Station 2+32
I-38	A-5 Width=2'-6"	379.40	374.71	± Inlet 15.92' Left of ± Station 2+37
* M-10	Standard Manhole	375.65	371.08	± MH 14.00' Right of L.P. Station 1+23.7
** M-11	Standard Manhole	374.10	372.76	See Plan and Profile
** M-12	Standard Manhole	377.18	373.30	± MH 17.50' Right of ± Station 2+64.60
I-24	A-5 Width=2'-6"	374.50	370.34	± Inlet 14.2' Left of L.P. Station 1+80.43
*** L-15	Type 'C' Endwall	365.90	362.30	See Plan and Profile
S-B	Type 'C' Endwall	363.00	361.30	See Plan and Profile

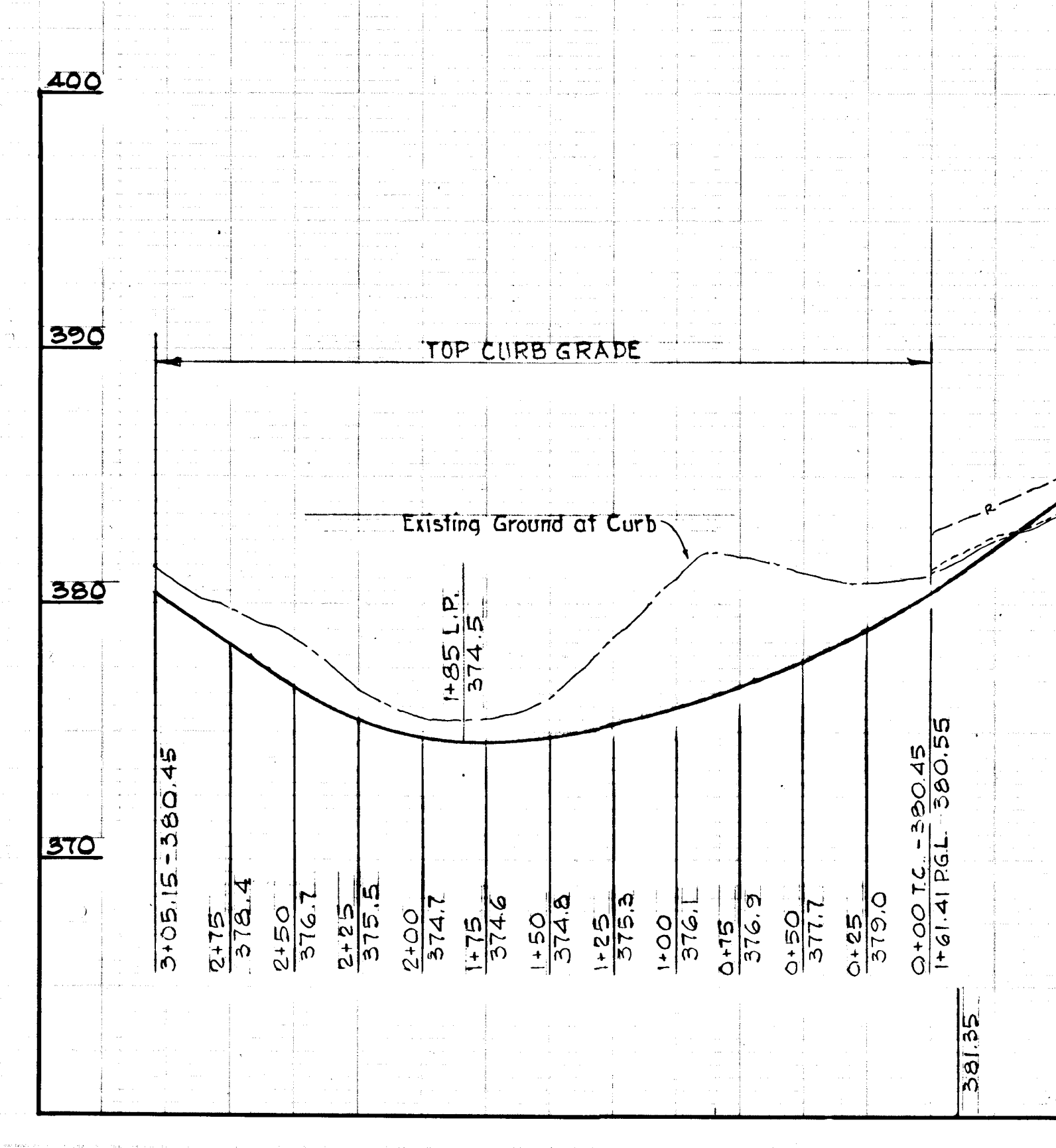
\* - Top Conc. Slab Elev. = 374.24  
 \*\* - Top Conc. Slab Elev. = 375.99  
 \*\*\* Top Conc. Slab Elev. 364.88

**PLAN**  
 Scale: 1" = 50'

**HIDDEN CLEARING**

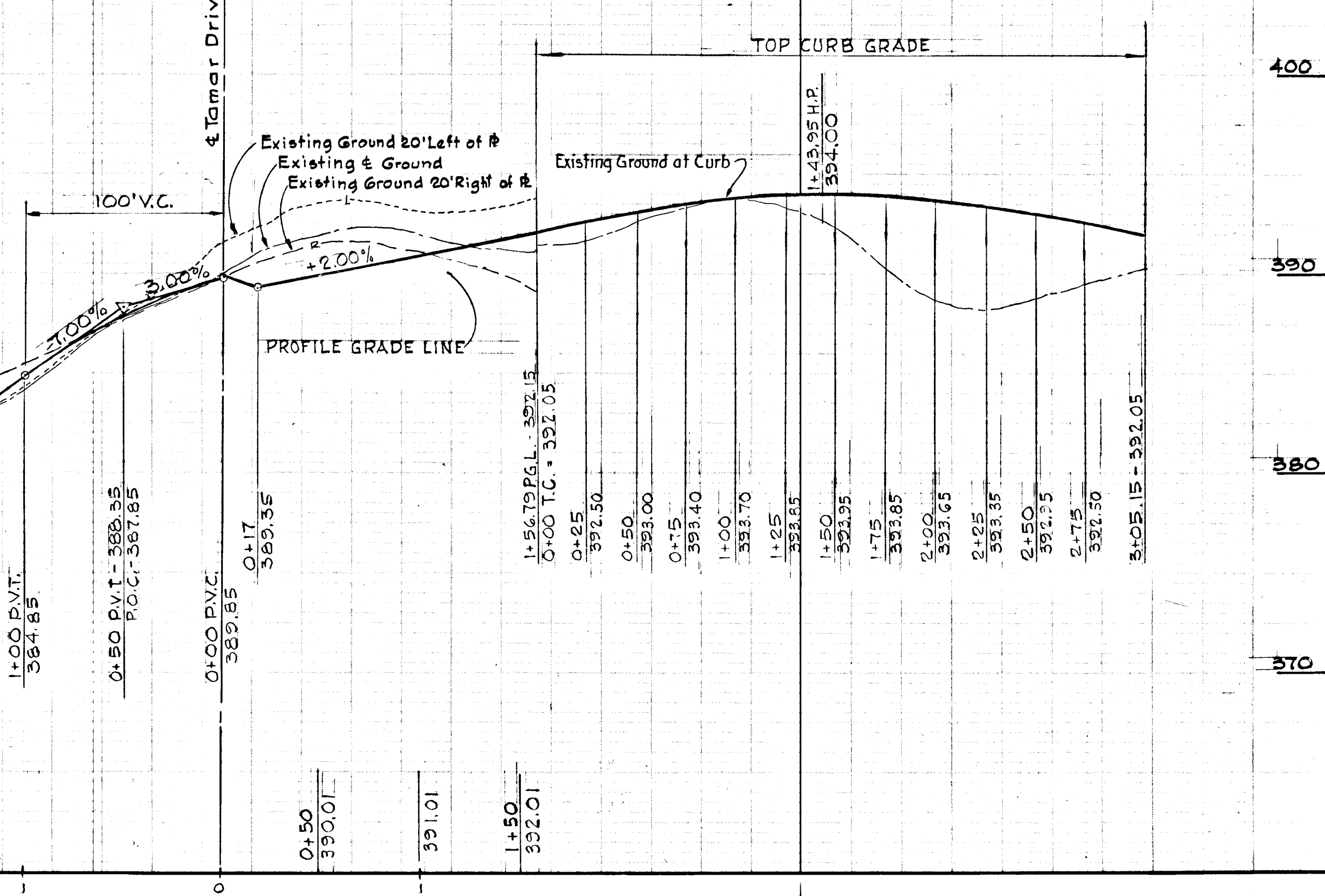


**TOWER TOP**



**PROFILE**  
 Scale: Hor. 1" = 50'  
 Ver. 1" = 5'

**SHINNING ROCK**



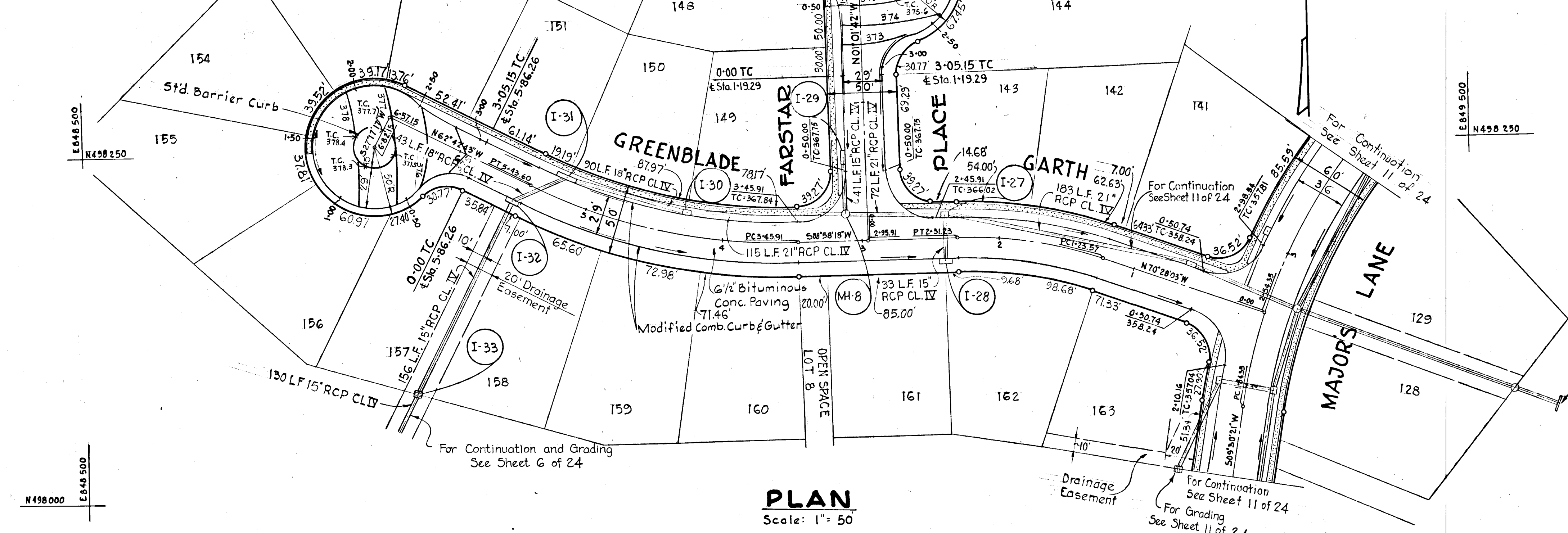
Rev. No.	Rev. Date	Revision Description
<b>COLUMBIA</b>		
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA - SECTION I, AREA 2		
<b>VILLAGE OF LONG REACH</b>		
PROJECT TITLE PLAN AND PROFILE		
TOWER TOP SHINNING ROCK		
SCALE: As Shown		DATE: June 25, 1970
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. MCCORD Registered Engineer No. 1974		

**CURVE DATA**  
 PC 3+45.91 TO PT 5+43.60  
 Δ = 28°19'00"  
 R = 400.00'  
 Arc = 197.63'  
 T = 100.91'  
 Ch. Brg = N76°52'12"W

**CURVE DATA**  
 PC 1+23.57 TO PT 2+31.23  
 Δ = 20°33'39"  
 R = 300.00'  
 Arc = 107.66'  
 T = 54.41'  
 Ch. Brg = N80°44'53"W

No.	Type	Top El.	Invt. Out	Location
I-28	A-10 width = 2'-6"	366.20	361.75	4 Inlet 15.92' left of sta. 2+40
I-27	A-5 width = 2'-6"	366.20	360.87	4 Inlet 15.92' right of sta. 2+40
I-29	A-10 width = 2'-6"	368.57	364.11	4 Inlet 15.92' left of sta. 0+60
I-30	A-5 width = 2'-6"	369.53	364.68	4 Inlet 15.92' right of sta. 4+28.50
I-31	A-15 width = 2'-6"	371.82	366.66	4 Inlet 15.92' right of sta. 5+22
I-32	A-10 width = 2'-6"	372.94	368.08	4 Inlet 15.92' left of sta. 5+50.60
MH-8	18" RCP width = 4'	367.00	362.18	4 Manhole 19.0' right of sta. 3+11.50

DEPARTMENT OF PUBLIC WORKS  
*P. H. McLeod* 12/22/70  
 CHIEF BUREAU OF HIGHWAYS DATE  
 OFFICE OF PLANNING AND ZONING  
*J. H. Lawson* 12/23/70  
 CHIEF ENGINEER DIVISION OF LAND DEVELOPMENT DATE  
 \* - Top Conc. Slab Elev. = 365.59



**PLAN**  
 Scale: 1" = 50'

Note: See sheet 18 of 24 for Storm Drain Profile

Rev. Date	Rev. No.	Revision Description

**COLUMBIA**  
 6TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 OWNER AND DEVELOPER  
 HOWARD RESEARCH AND DEVELOPMENT CORP.

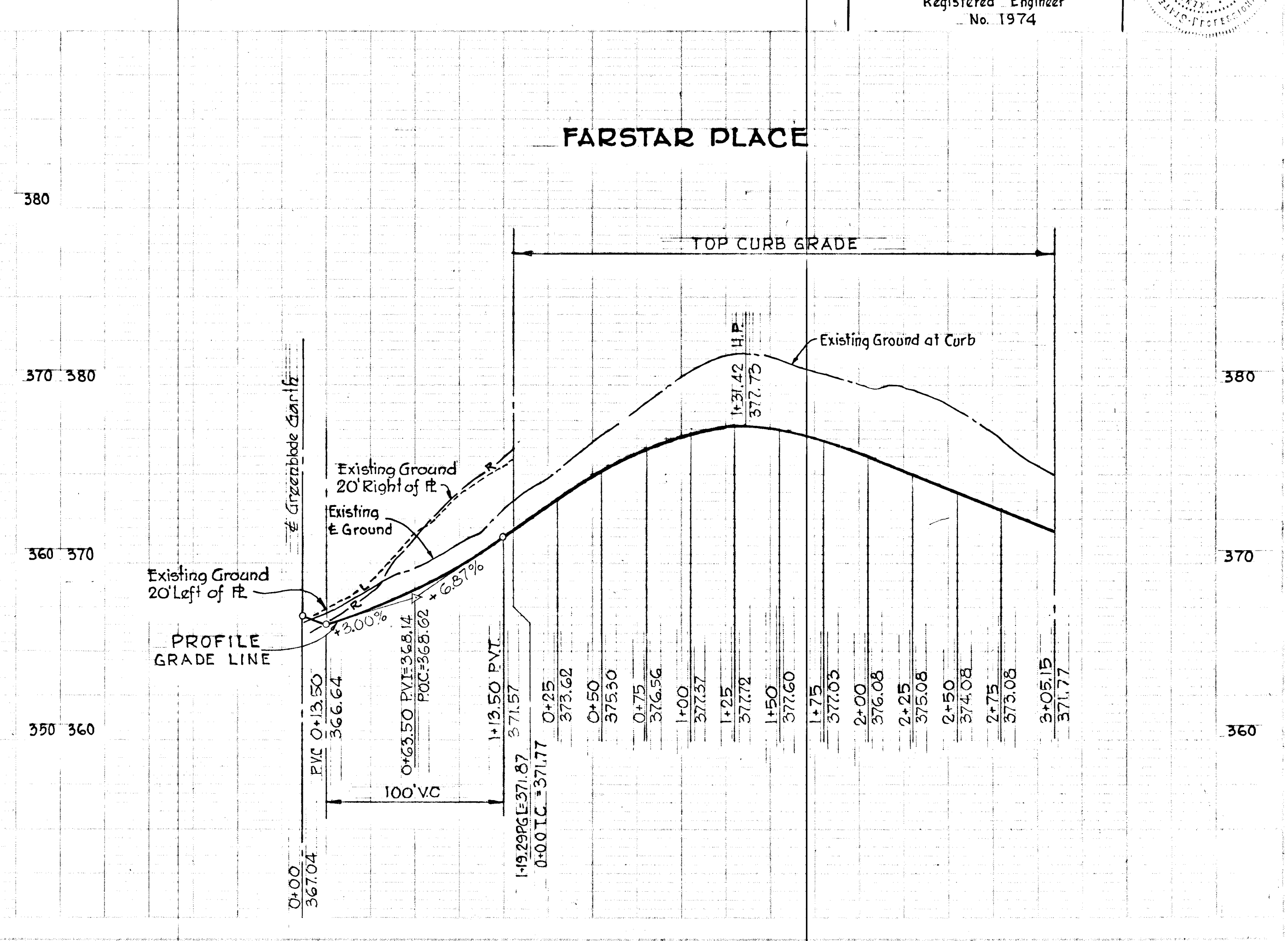
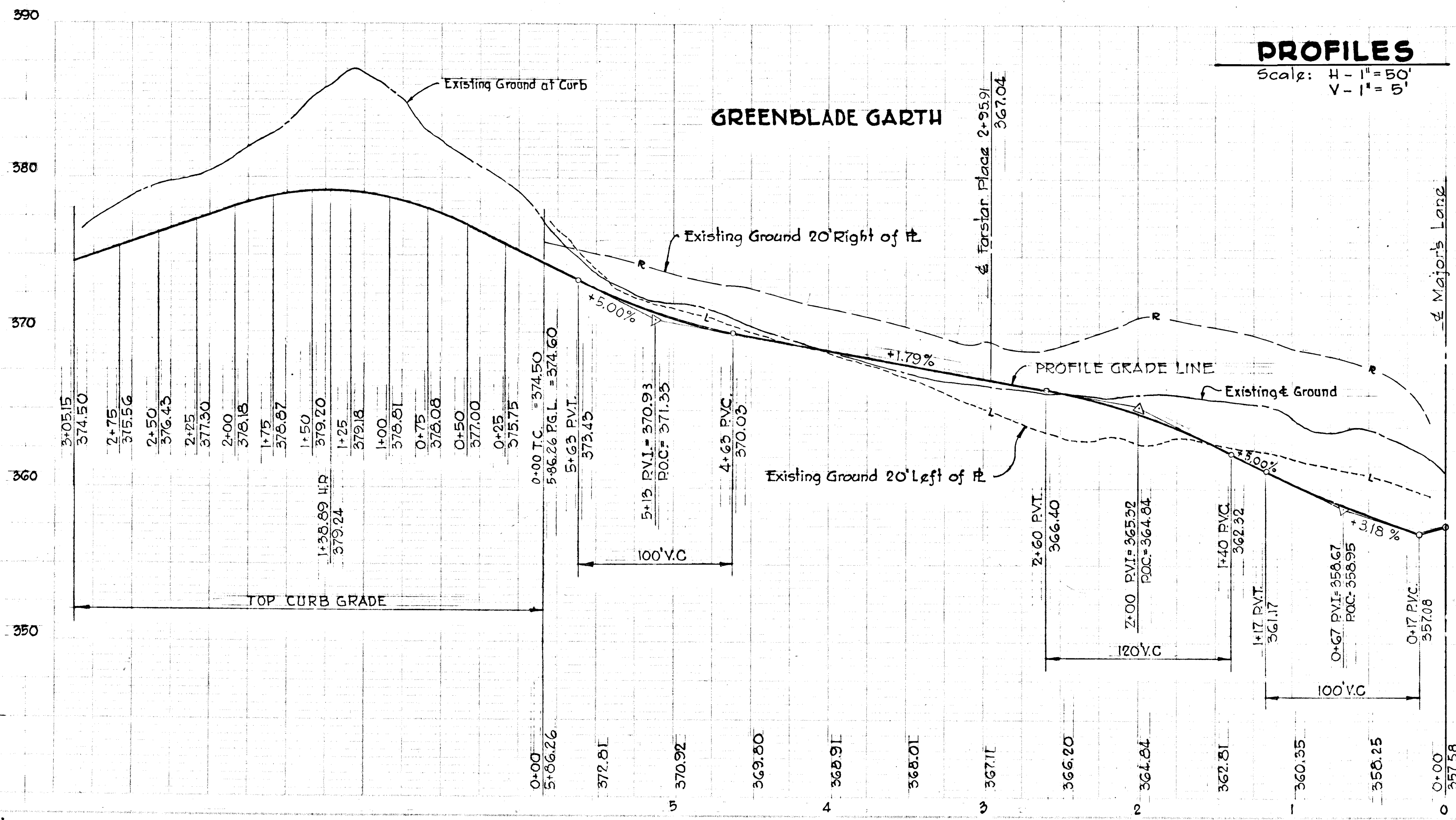
PROJECT AREA - SECTION I, AREA 2  
**VILLAGE OF LONG REACH**

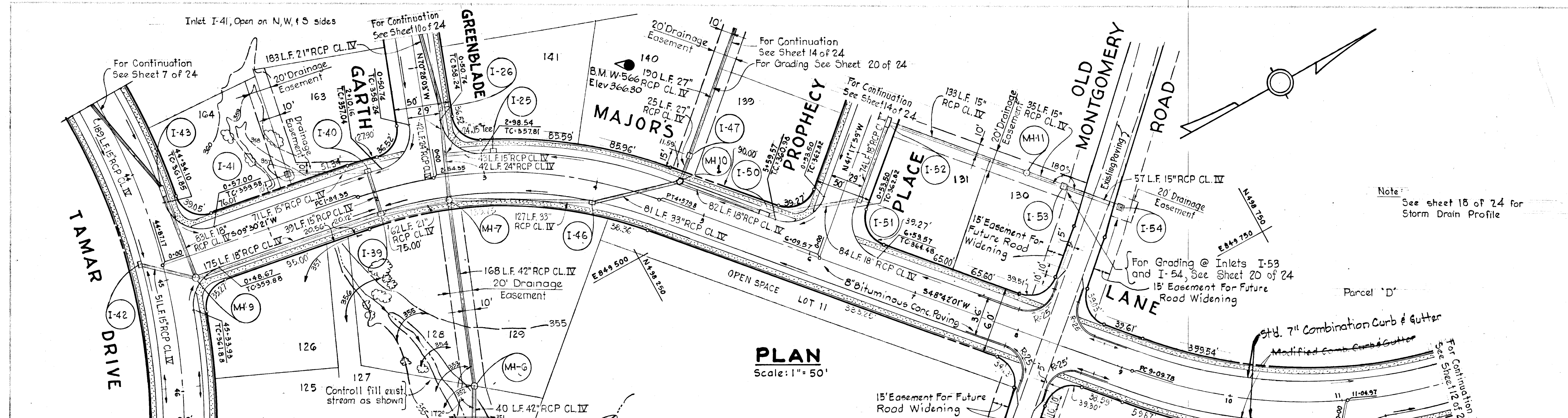
PROJECT TITLE  
 PLAN AND PROFILE  
 GREENBLADE GARTH  
 FARSTAR PLACE

SCALE: As Shown DATE: June 25, 1970  
 WHITMAN, REQUARDT & ASSOCIATES  
 ENGINEERS  
 BALTIMORE, MARYLAND 21202

*Kenneth A. McCord*  
 KENNETH A. MCCORD  
 Registered Engineer  
 No. 1974

**PROFILES**  
 Scale: H - 1" = 50'  
 V - 1" = 5'



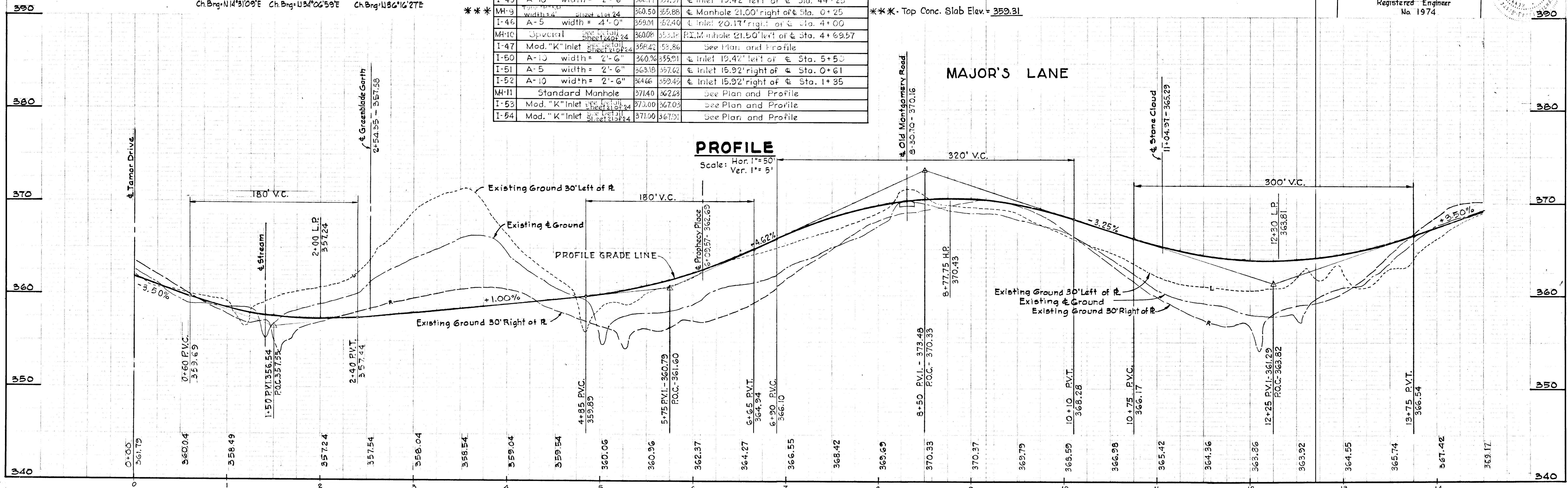


**PLAN**  
 Scale: 1" = 50'

No.	Type	Top El.	Inv. El.	Location
I-9	Type "C" Endwall	340.50	350.00	See Plan and Profile
MH-6	TYPE "M" Manhole	352.00	352.00	See Plan and Profile
MH-7	TYPE "M" Manhole	357.61	350.15	Manhole 21.50' right of Sta. 2+65.13
I-39	A-5 width = 2'-6"	357.24	357.24	Inlet 19.42' right of Sta. 2+50
I-25	A-5 width = 2'-6"	358.14	353.74	Inlet 19.42' left of Sta. 3+10
I-26	A-5 width = 2'-6"	358.81	353.71	Inlet 16.00' right of Sta. 0+61
I-40	A-5 width = 2'-6"	357.24	353.07	Inlet 19.42' left of Sta. 2+00
I-41	Mod. "K" Inlet	357.00	353.44	See Plan and Profile
I-42	A-5 width = 2'-6"	361.79	357.35	Inlet 19.42' right of Sta. 44+82.14
I-43	A-10 width = 2'-6"	362.17	357.57	Inlet 19.42' left of Sta. 44+25
MH-9	TYPE "M" Manhole	360.50	355.88	Manhole 21.00' right of Sta. 0+25
I-46	A-5 width = 4'-0"	359.04	352.40	Inlet 20.17' right of Sta. 4+00
MH-10	Special	360.04	353.37	P.I.M. Manhole 21.50' left of Sta. 4+69.57
I-47	Mod. "K" Inlet	359.42	353.86	See Plan and Profile
I-50	A-10 width = 2'-6"	360.36	355.21	Inlet 19.42' left of Sta. 5+50
I-51	A-5 width = 2'-6"	363.18	357.42	Inlet 15.92' right of Sta. 0+61
I-52	A-10 width = 2'-6"	364.66	359.45	Inlet 15.92' right of Sta. 1+35
MH-11	Standard Manhole	371.40	362.68	See Plan and Profile
I-53	Mod. "K" Inlet	371.00	367.03	See Plan and Profile
I-54	Mod. "K" Inlet	371.00	367.51	See Plan and Profile

**CURVE DATA**

PC: 1+84.35	POC: 2+54.35	PC: 9+09.78
PT: 4+57.98	PT: 11+04.98	PT: 11+04.98
Δ: 10-01-36	Δ: 29-10-04	Δ: 24-51-09
R: 400.00'	R: 450.00'	R: 450.00'
Arc: 70.00'	Arc: 203.63'	Arc: 196.19'
T: 35.09'	T: 104.07'	T: 99.16'
Ch. Brg: N14°31'09"E	Ch. Brg: N34°06'59"E	Ch. Brg: N36°16'27"E



**PROFILE**  
 Scale: Hor. 1" = 50'  
 Ver. 1" = 5'

12/9/70 / 1 MH-10 SEE SH 24 FOR DETAIL  
 Rev. Date / Rev. No. / Revision Description

**COLUMBIA**  
 6TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 OWNER AND DEVELOPER  
 HOWARD RESEARCH AND DEVELOPMENT CORP.

PROJECT AREA - SECTION 1, AREA 2  
**VILLAGE OF LONG REACH**  
 PROJECT TITLE PLAN AND PROFILE  
 MAJOR'S LANE

SCALE: As Shown DATE: June 25, 1970

WHITMAN, REQUARDT & ASSOCIATES  
 ENGINEERS  
 BALTIMORE, MARYLAND 21202

*Kenneth A. McCord*  
 KENNETH A. MCCORD  
 Registered Engineer  
 No. 1974

STORM DRAIN STRUCTURE SCHEDULE				
No.	Type	Top El.	Inn/Out	Location
I-64	A-5 Width 2'-6"	363.81	358.47	Inlet 19.42' Left of Station 12+30
I-63	A-10 Special See Detail Sht. 24 of 24	363.82	354.50	Inlet 20.08 Right of Station 12+35
I-65	A-10 Width 2'-6"	374.59	369.37	Inlet 19.42' Right of Station 14+00
I-66	A-10 Width 2'-6"	388.29	382.74	Inlet 19.42' Right of Station 18+00
LH-14	4" Type B Manhole Width 4' See Detail Sht. 24 of 24	367.52	361.92	Manhole 21.00' Left of Station 14+00
S-13	Special A Headwall See Detail Sht. 21 of 24	362.26	357.26	Headwall 38.00' Left of Station 13+03
S-12	Standard B-48 Headwall	359.34	354.34	Headwall 43.00' Right of Station 12+20

\* Top Conc. Slab Elev. = 366.11

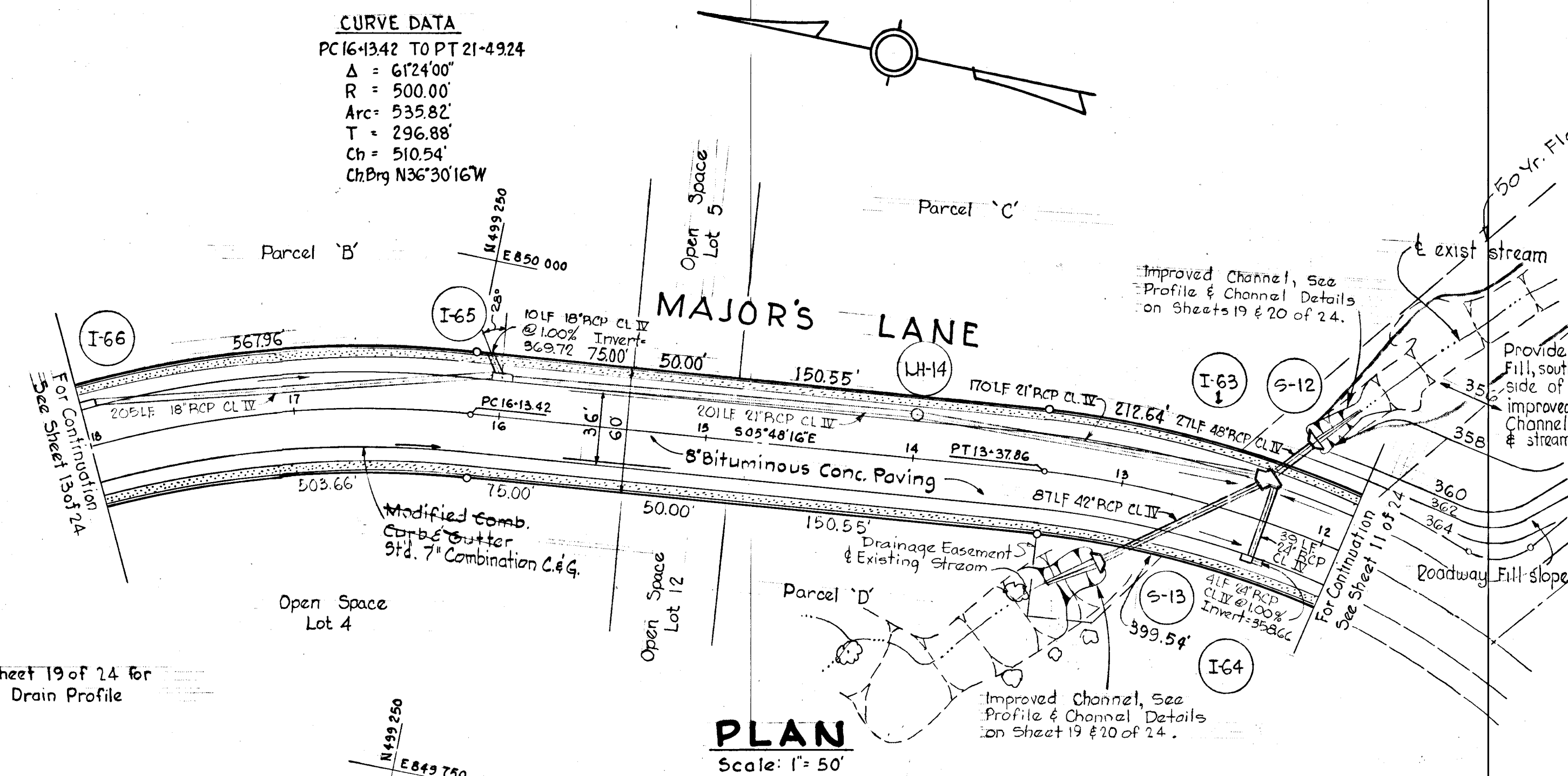
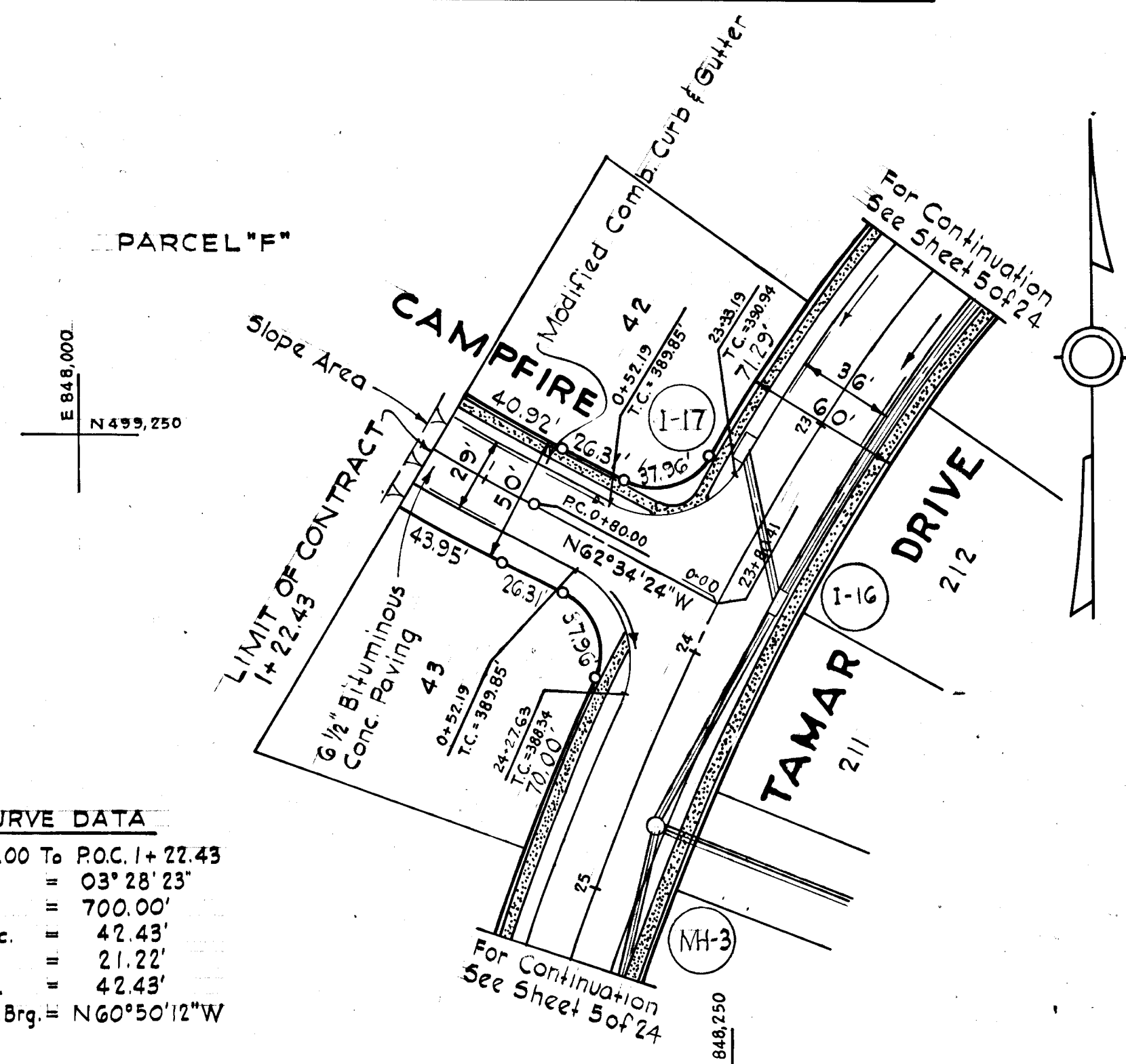
**CURVE DATA**  
 POC 11+04.97 TO PT 13+37.86  
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 $R = 450.00'$   
 $Arc = 232.89'$   
 $T = 119.11'$   
 $Ch = 230.30'$   
 $Ch Brg = N09^{\circ}01'18''E$

**CURVE DATA**  
 PC 16+34.2 TO PT 21+49.24  
 $\Delta = 61^{\circ}24'00''$   
 $R = 500.00'$   
 $Arc = 335.82'$   
 $T = 296.88'$   
 $Ch = 510.54'$   
 $Ch Brg = N36^{\circ}30'16''W$

**CURVE DATA**  
 PC 0+80.00 TO POC 1+22.43  
 $\Delta = 03^{\circ}28'23''$   
 $R = 700.00'$   
 $Arc = 42.43'$   
 $T = 21.22'$   
 $Ch = 42.43'$   
 $Ch. Brg. = N60^{\circ}50'12''W$

DEPARTMENT OF PUBLIC WORKS  
*D. W. Weiland* 12/22/70  
 CHIEF BUREAU OF HIGHWAYS DATE  
 OFFICE OF PLANNING AND ZONING  
*J. H. Clawson* 12/23/70  
 CHIEF ENGINEER DIVISION OF LAND DEVELOPMENT DATE

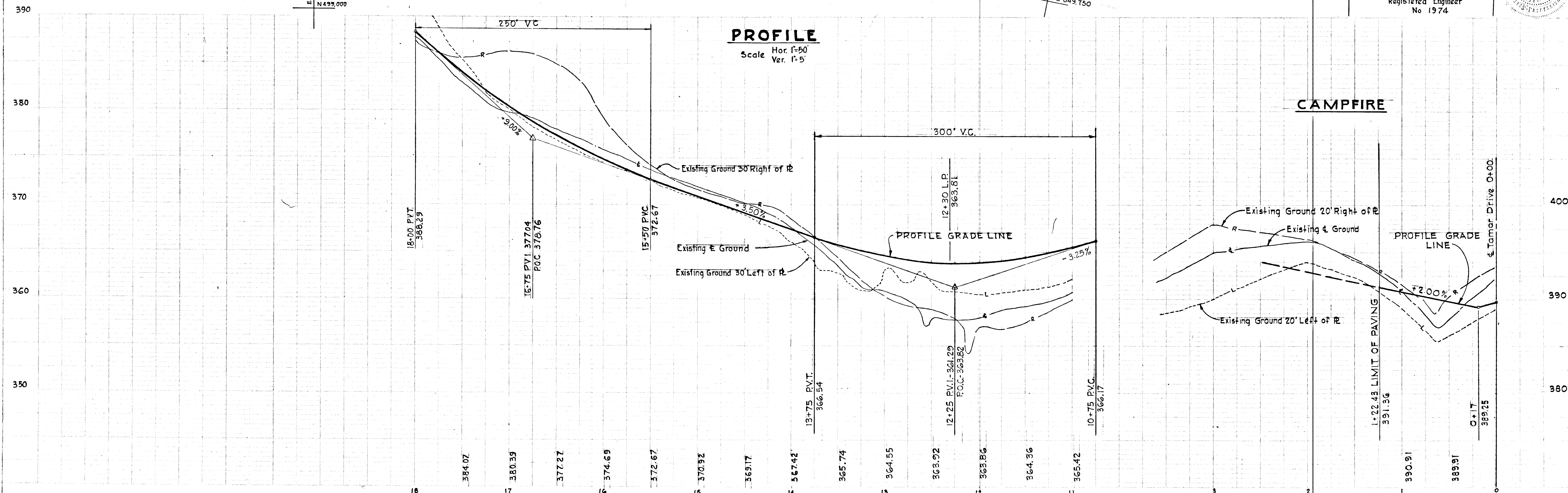
12/8/70	1	1-63 SEE SHT 24 FOR DETAIL
Rev. Date	Rev. No.	Revision Description
<b>COLUMBIA</b>		
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA - SECTION 1, AREA 2		
<b>VILLAGE OF LONG REACH</b>		
PROJECT TITLE PLAN AND PROFILE		
MAJOR'S LANE & CAMPFIRE		
SCALE: As Shown	DATE: June 25, 1970	
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i>		
KENNETH A. McCORD Registered Engineer No. 1974		



Note: See sheet 19 of 24 for Storm Drain Profile

**PLAN**  
Scale: 1" = 50'

**PROFILE**  
Scale Hor. 1" = 50'  
Ver. 1" = 5'



**CAMPFIRE**

**CURVE DATA**  
 PC 16+13.42 TO PT 21+49.24  
 Δ = 61° 24' 00"  
 R = 500.00'  
 Arc = 535.82'  
 T = 296.88'  
 Ch = 510.54'  
 Ch.Brg N 36° 16' W

**CURVE DATA**  
 PC 23+66.41 TO PT 27+25.39  
 Δ = 25° 42' 35"  
 R = 800.00'  
 Arc = 358.98'  
 T = 182.56'  
 Ch = 355.97'  
 Ch.Brg N 54° 20' 58" W

**NORTH CURB TRANSITION CURVE DATA**  
 27+66.52 TO 27+25.39  
 Δ = 15° 54' 56"  
 R = 150.00'  
 Arc = 41.67'  
 T = 20.97'  
 Ch = 41.53'  
 Ch.Brg N 33° 32' 12" W

**Reverse 7' Comb. Curb & Gutter**  
 28-07.66 TC 399.33  
 27-66.52 TC 401.68  
 27-25.39 TC 404.03

**SOUTH CURB TRANSITION CURVE DATA**  
 27+66.52 TO 27+25.39  
 Δ = 15° 54' 56"  
 R = 150.00'  
 Arc = 41.67'  
 T = 20.97'  
 Ch = 41.53'  
 Ch.Brg 49° 27' 08" W

TAMAR DRIVE

MAJOR'S Lane  
 Modified 60mb. Curb & Gutter

LANE I-67

Note: See sheet 19 of 24 for Storm Drain Profile

I-66 See Storm Drain Schedule Sheet 12 of 24

Rev. Date	Rev. No.	Revision Description
<b>COLUMBIA</b>		
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA-SECTION 1, AREA 2		
<b>VILLAGE OF LONG REACH</b>		
PROJECT TITLE PLAN AND PROFILE		
MAJOR'S LANE		
SCALE: As Shown		DATE: June 25, 1970
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS		
BALTIMORE, MARYLAND		21202

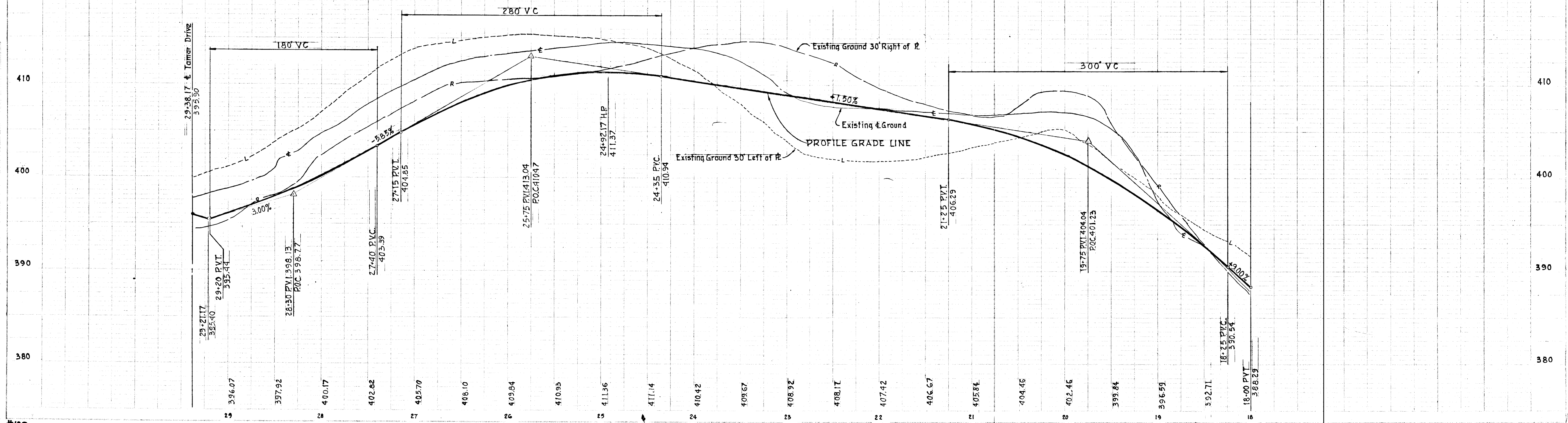
**STORM DRAIN STRUCTURE SCHEDULE**

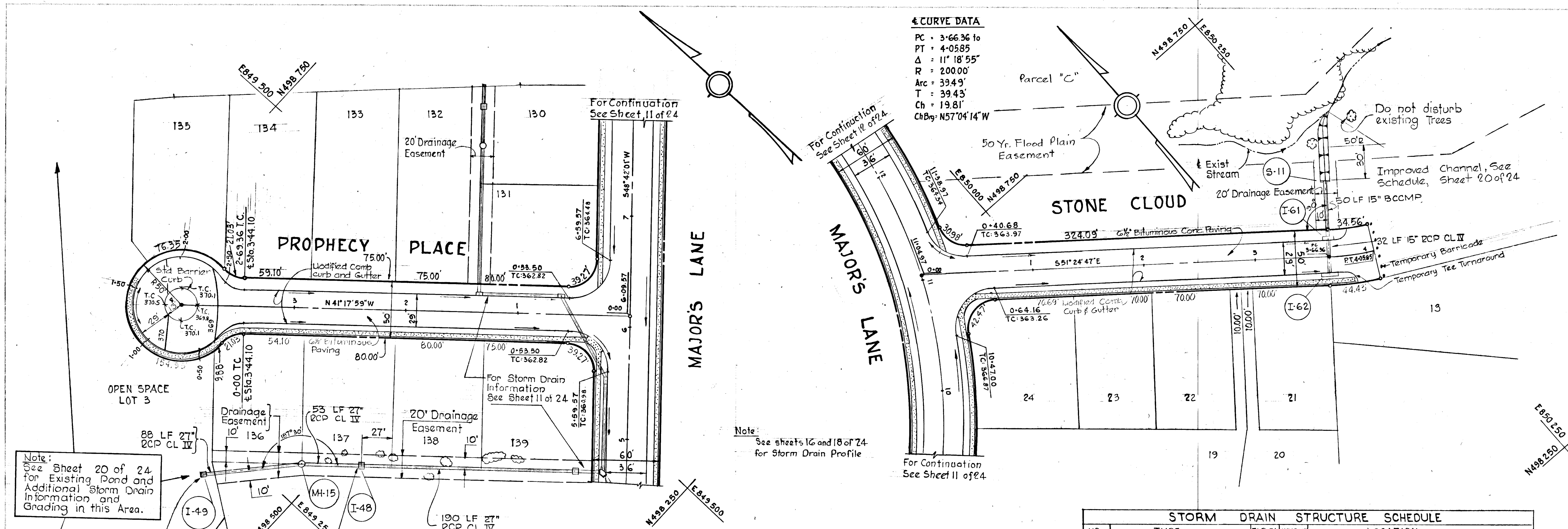
No.	Type	Top El.	Inlet/Out	Location
I-68	A-10 Width 2'6"	402.91	399.93	± Inlet 1942' Left of & Station 20+0
I-67	A-10 Width 2'6"	402.91	398.74	± Inlet 1942' Right of & Station 20+0

*Kenneth A. McCord*  
 KENNETH A. McCORD  
 Registered Engineer  
 No. 1974

**PLAN**  
 Scale: 1" = 50'

**PROFILE**  
 Hor. 1" = 50'  
 Ver. 1" = 5'





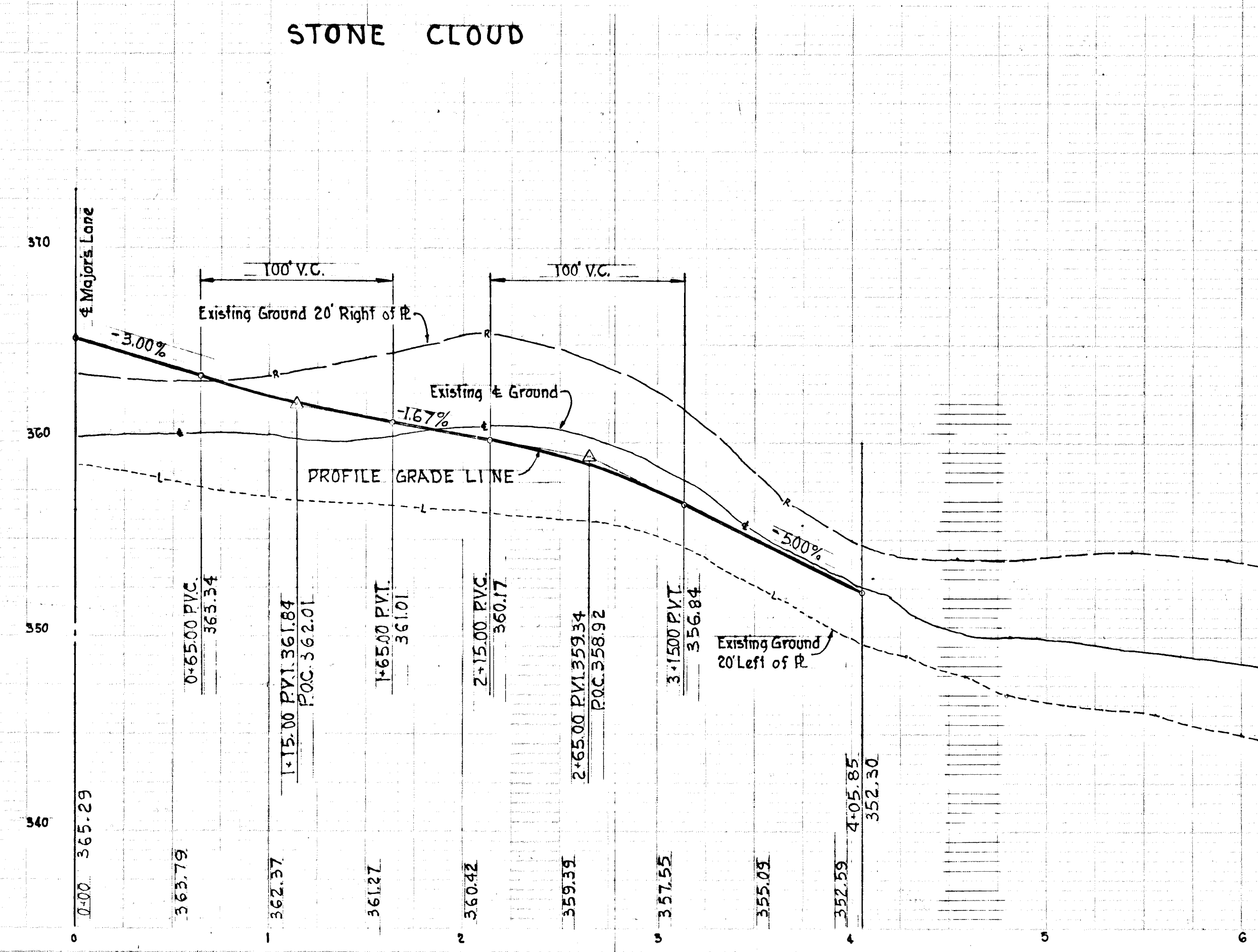
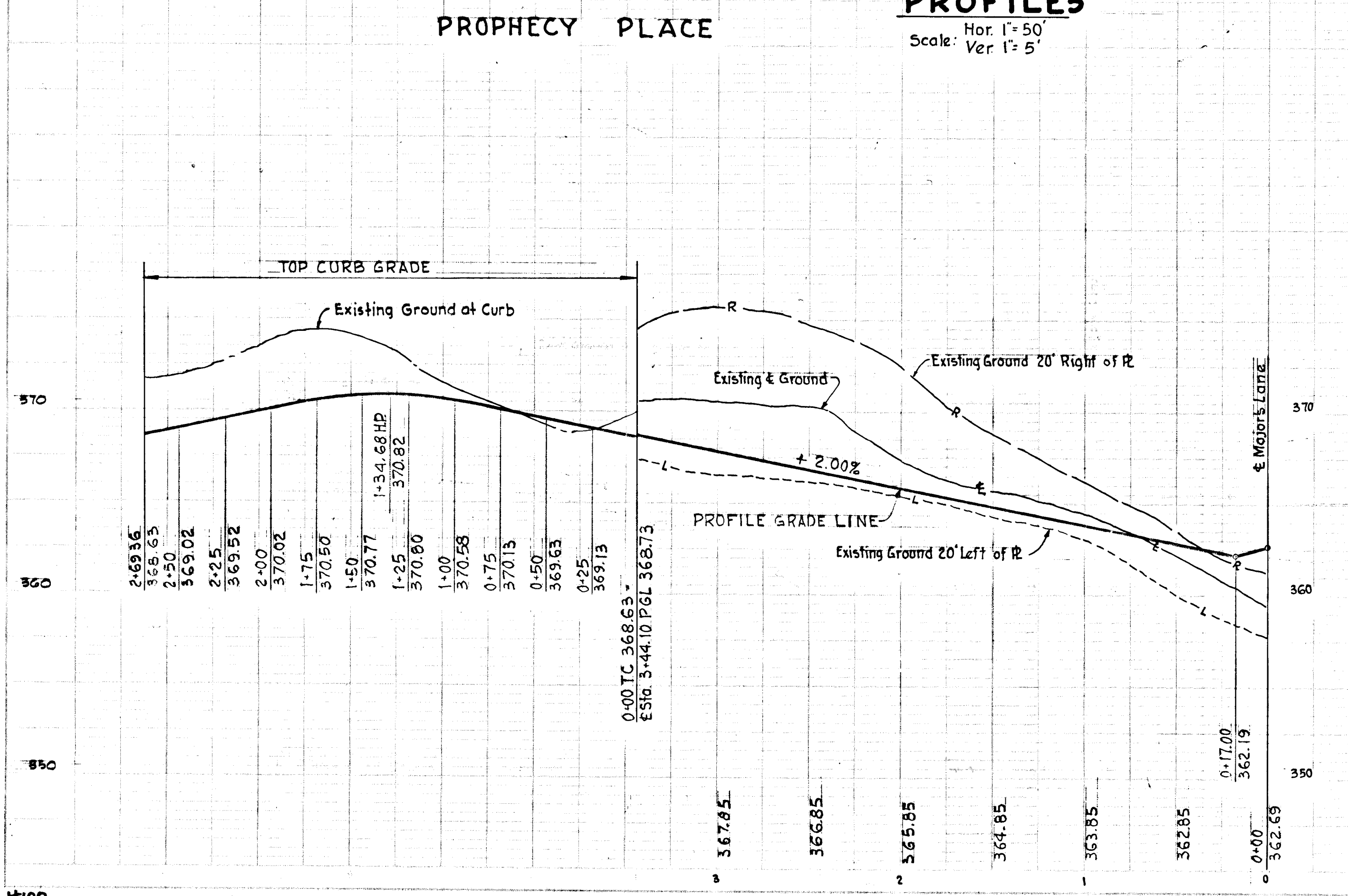
**CURVE DATA**  
 PC = 3+66.36 to  
 PT = 4+05.85  
 $\Delta = 11^\circ 18' 55''$   
 R = 200.00'  
 Arc = 39.49'  
 T = 39.43'  
 Ch = 19.81'  
 ChBis = N57°04'14" W

Note:  
 See sheets 16 and 18 of 24  
 for Storm Drain Profile

**PLAN**  
 Scale: 1" = 50'

No	TYPE	TOP EL	IN/OUT	LOCATION
S-11	Special Cutoffwall	See Detail Sheet 20 of 24	350.03/349.40	See Plan and Profile
I-61	A-10 width = 2'-6"	354.37	350.00	€ Inlet 15.92' Left of € sta. 3+66.36
I-62	A-15 width = 2'-6"	354.37	350.33	€ Inlet 15.92' Right of € sta. 3+66.36
I-49	Mod "K" Inlet	See Detail Sheet 21 of 24	364.70/359.09	See Plan and Profile
I-48	Mod "K" Inlet	See Detail Sheet 21 of 24	361.00/355.58	See Plan and Profile
MH-15	Manhole	See Detail Sheet 21 of 24	361.80/356.95	See Plan and Profile

**PROFILES**  
 Hor. 1" = 50'  
 Ver. 1" = 5'



Rev. Date	Rev. No.	Revision Description

**COLUMBIA**  
 6TH ELECTION DISTRICT  
 HOWARD COUNTY MARYLAND  
 OWNER AND DEVELOPER  
 HOWARD RESEARCH AND DEVELOPMENT CORP.

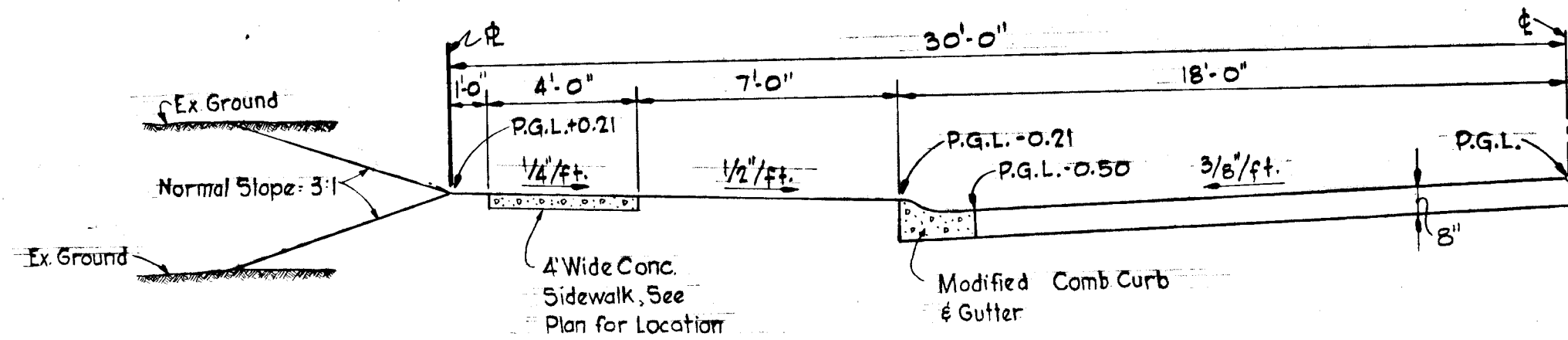
PROJECT AREA - SECTION 1, AREA 2  
**VILLAGE OF LONGREACH**

PROJECT TITLE  
 PLAN AND PROFILE  
 PROPHECY PLACE  
 STONE CLOUD

SCALE: As Shown DATE: June 25, 1970

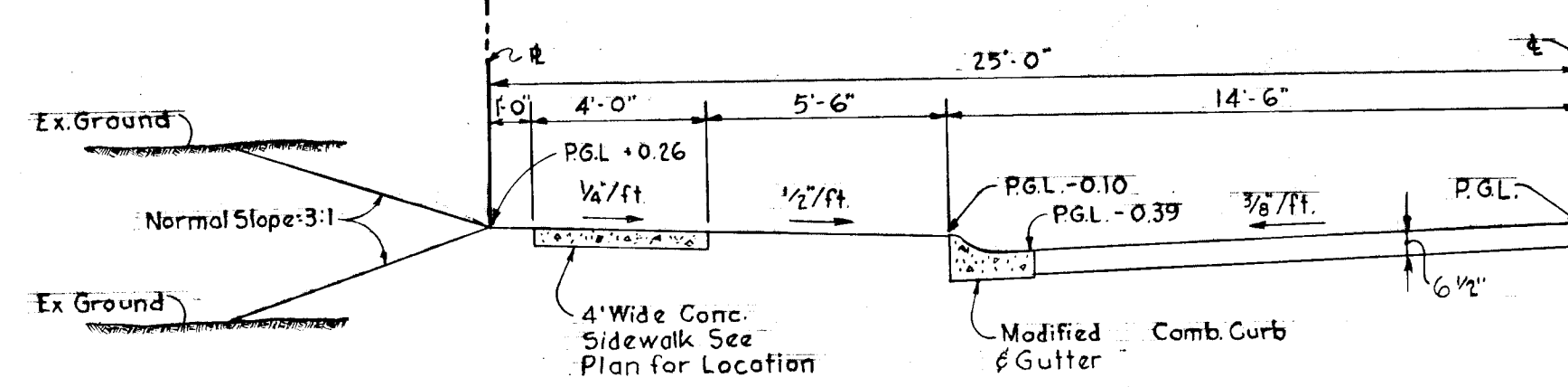
WHITMAN, REQUARDT & ASSOCIATES  
 ENGINEERS  
 BALTIMORE, MARYLAND 21202

*Kenneth A. McCord*  
 KENNETH A. McCORD  
 Registered Engineer  
 No. 1974

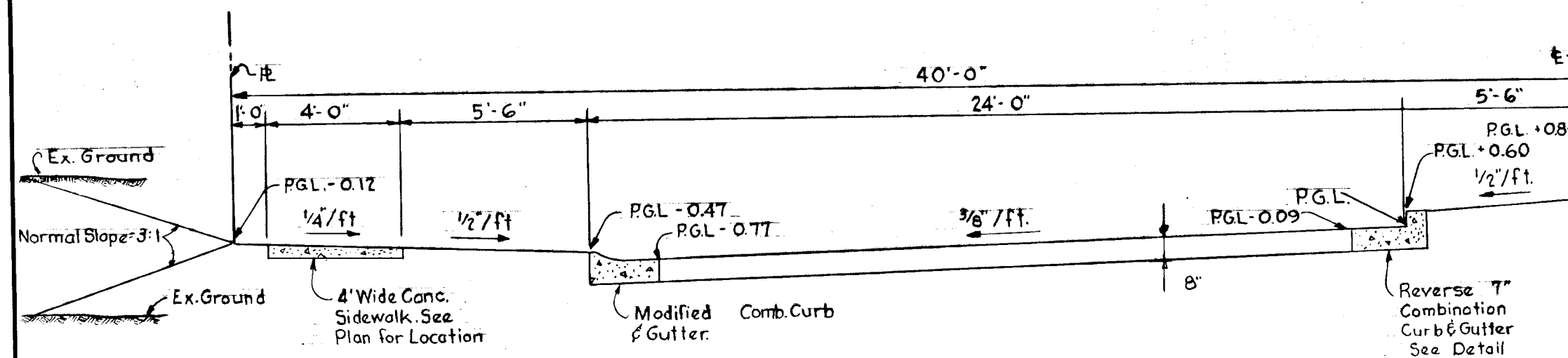


**TYPICAL HALF SECTION**  
**60' R/W - 36' ROADWAY**  
 Scale: 1/4" = 1'-0"

(OLD MONTGOMERY ROAD - TAMAR DRIVE WESTERLY)

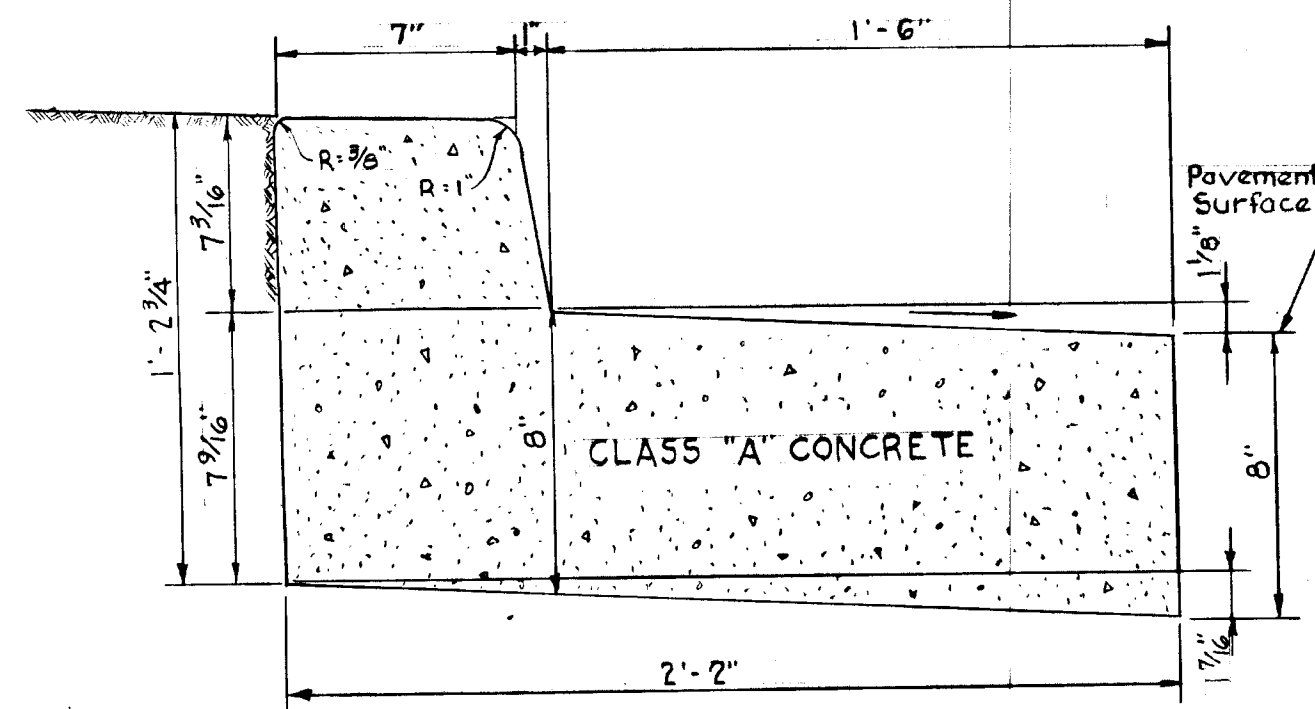


**TYPICAL HALF SECTION**  
**50' R/W - 29' ROADWAY**  
 Scale: 1/4" = 1'-0"

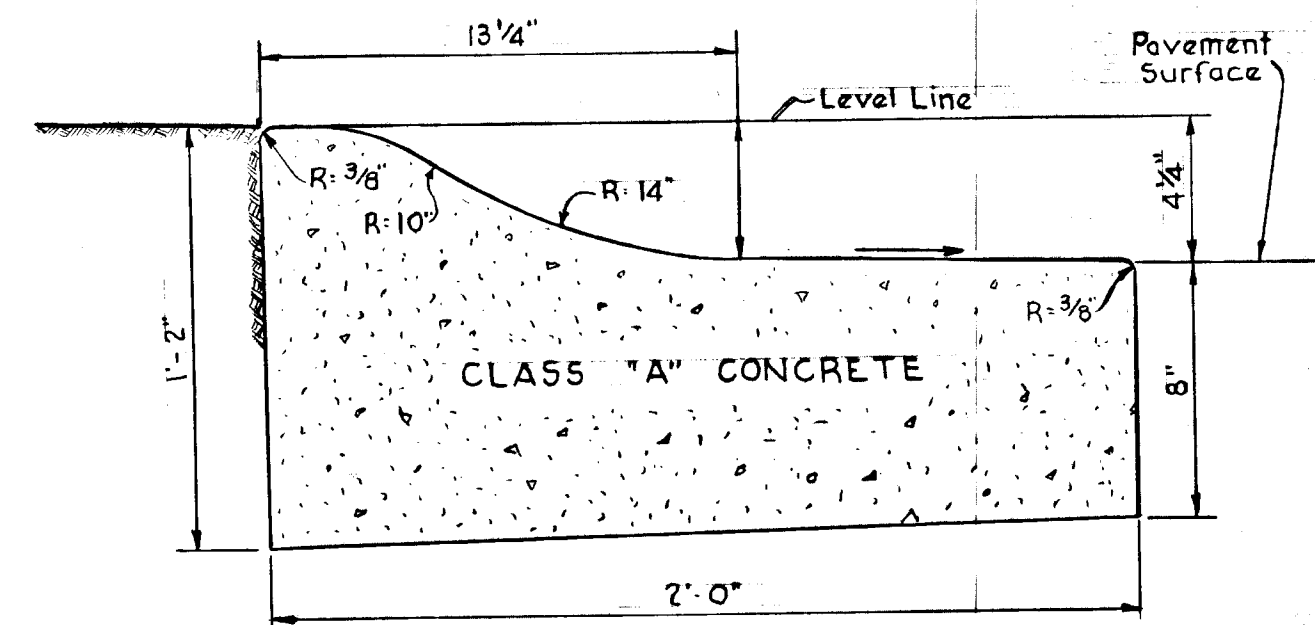


**TYPICAL HALF SECTION**  
**80' R/W - (2) 24' ROADWAY**  
 Scale: 1/4" = 1'-0"

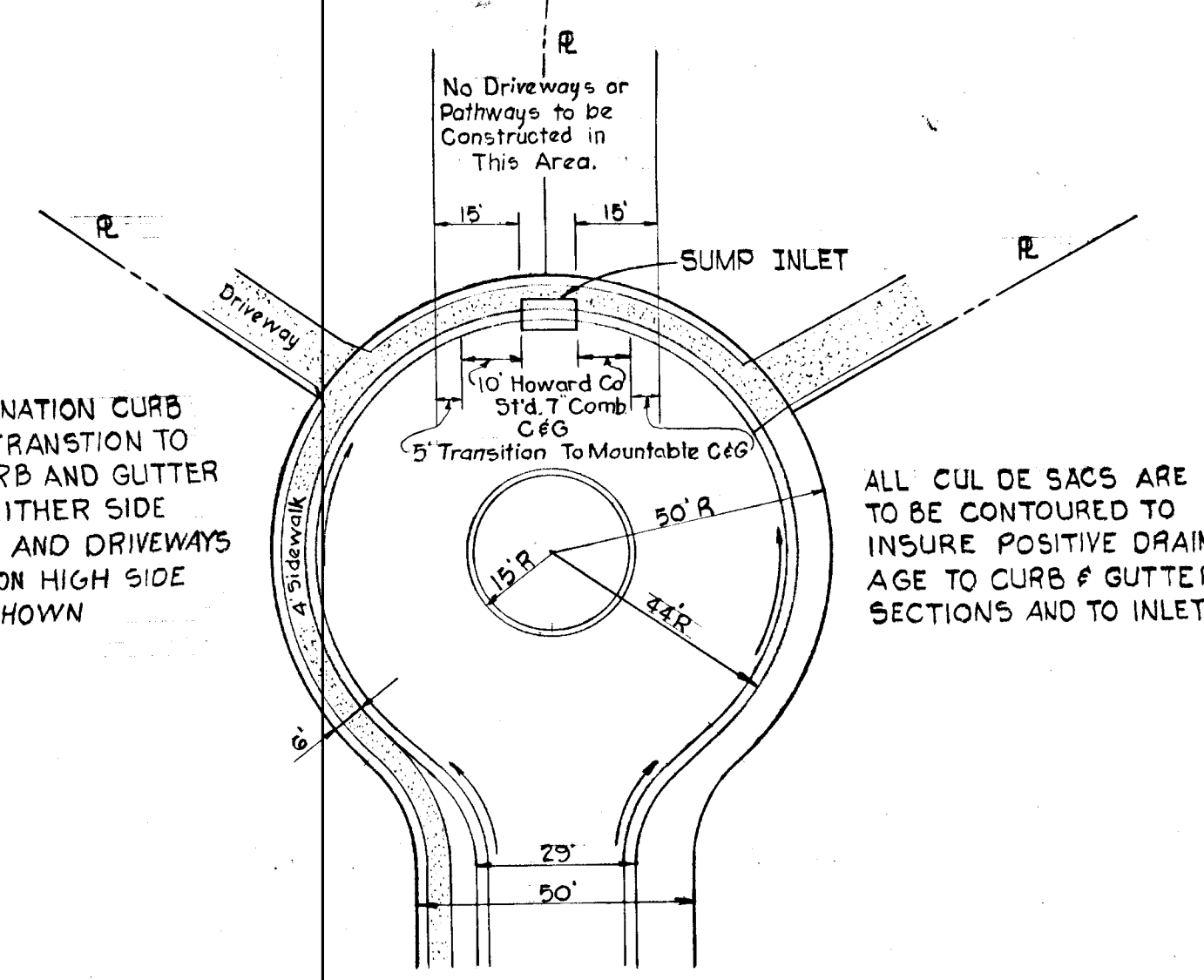
(TAMAR DRIVE - STA. 1+50 TO 5+39.28)  
 (MAJOR'S LANE - STA. 28+07.66 TO 29+10)



**REVERSE 7" COMBINATION CURB & GUTTER**  
 No Scale

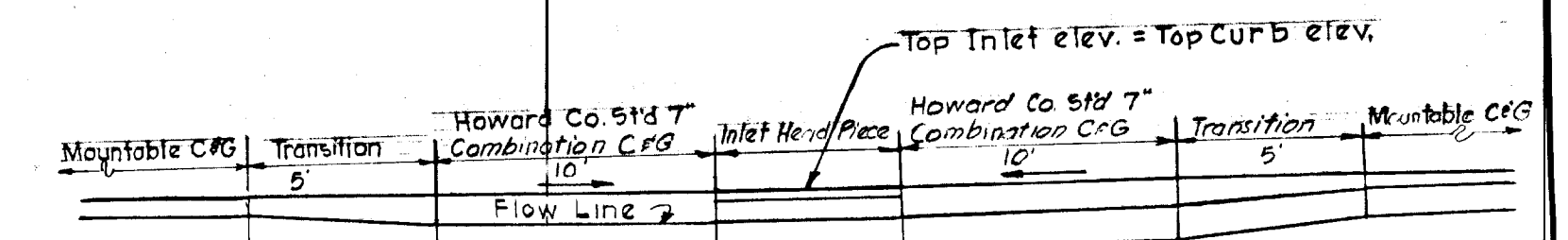


**REVERSE MODIFIED COMBINATION CURB & GUTTER**  
 No Scale



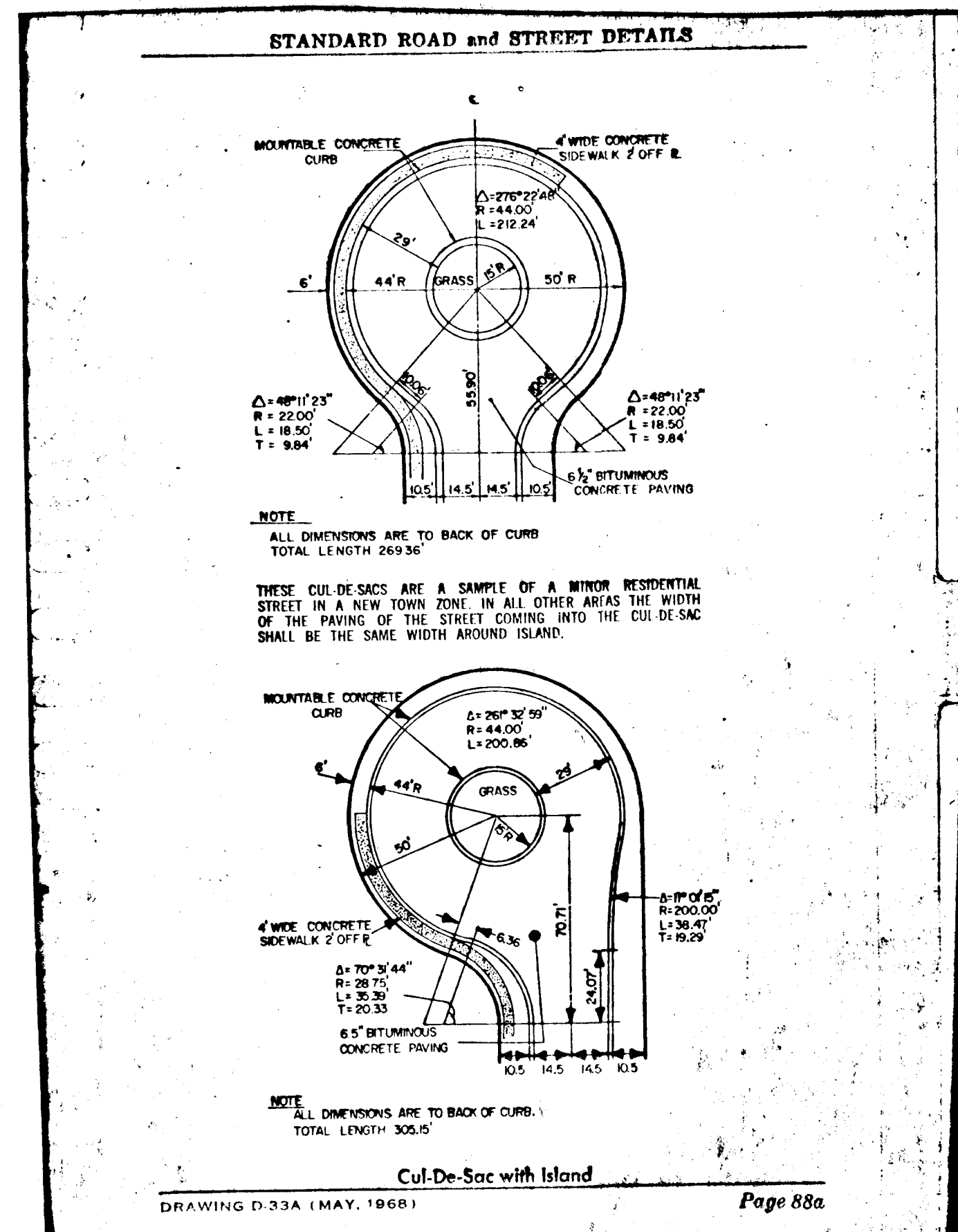
STANDARD COMBINATION CURB & GUTTER WITH TRANSITION TO MOUNTABLE CURB AND GUTTER TO EXTEND 15' EITHER SIDE OF SUMP INLET AND DRIVEWAYS TO BE PLACED ON HIGH SIDE OF LOTS AS SHOWN

ALL CUL-DE-SACS ARE TO BE CONTOURED TO INSURE POSITIVE DRAINAGE TO CURB & GUTTER SECTIONS AND TO INLETS



**CURB AND GUTTER SECTIONS AT SUMP INLET**

**TYPICAL DETAIL FOR DOWNHILL CUL-DE-SAC**  
 No Scale



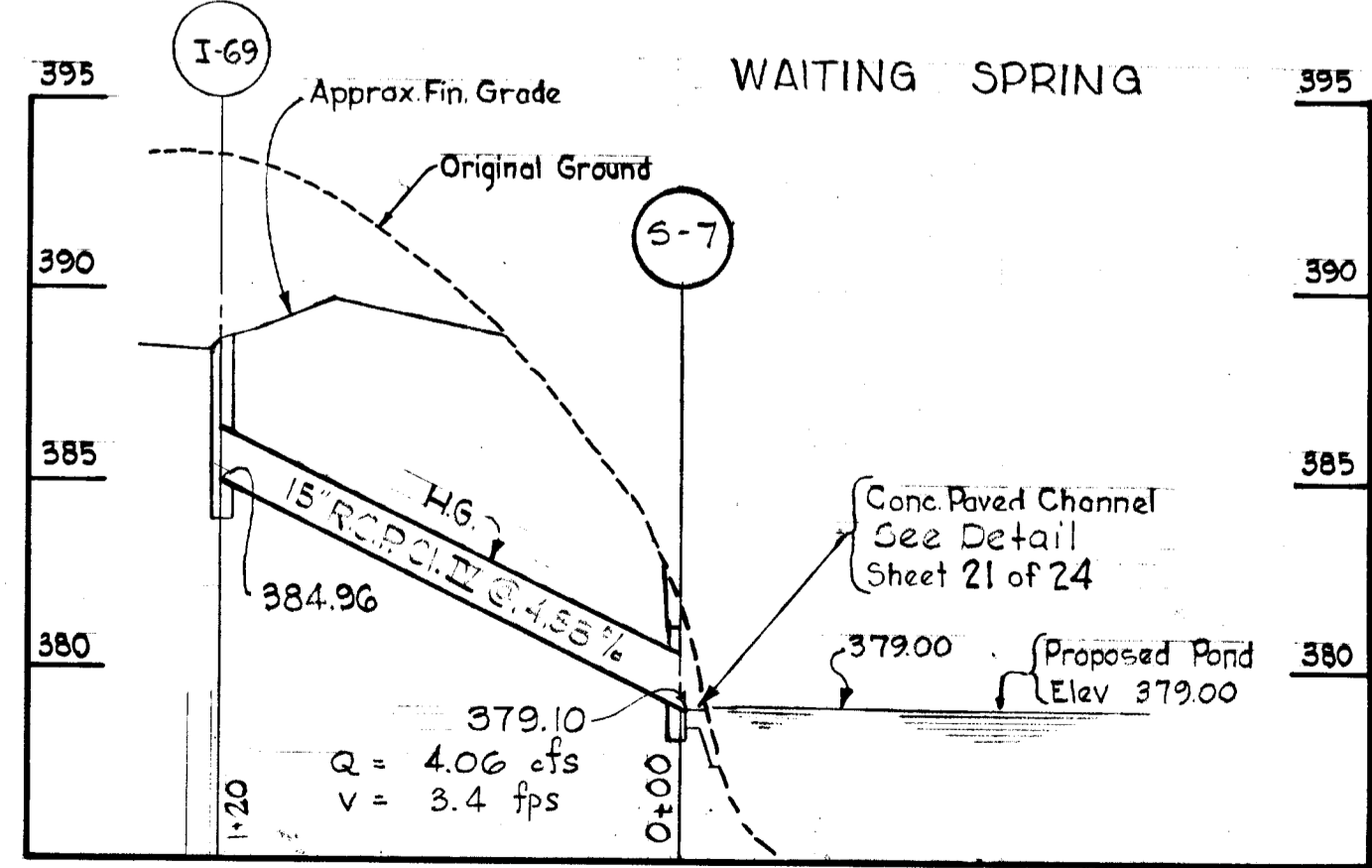
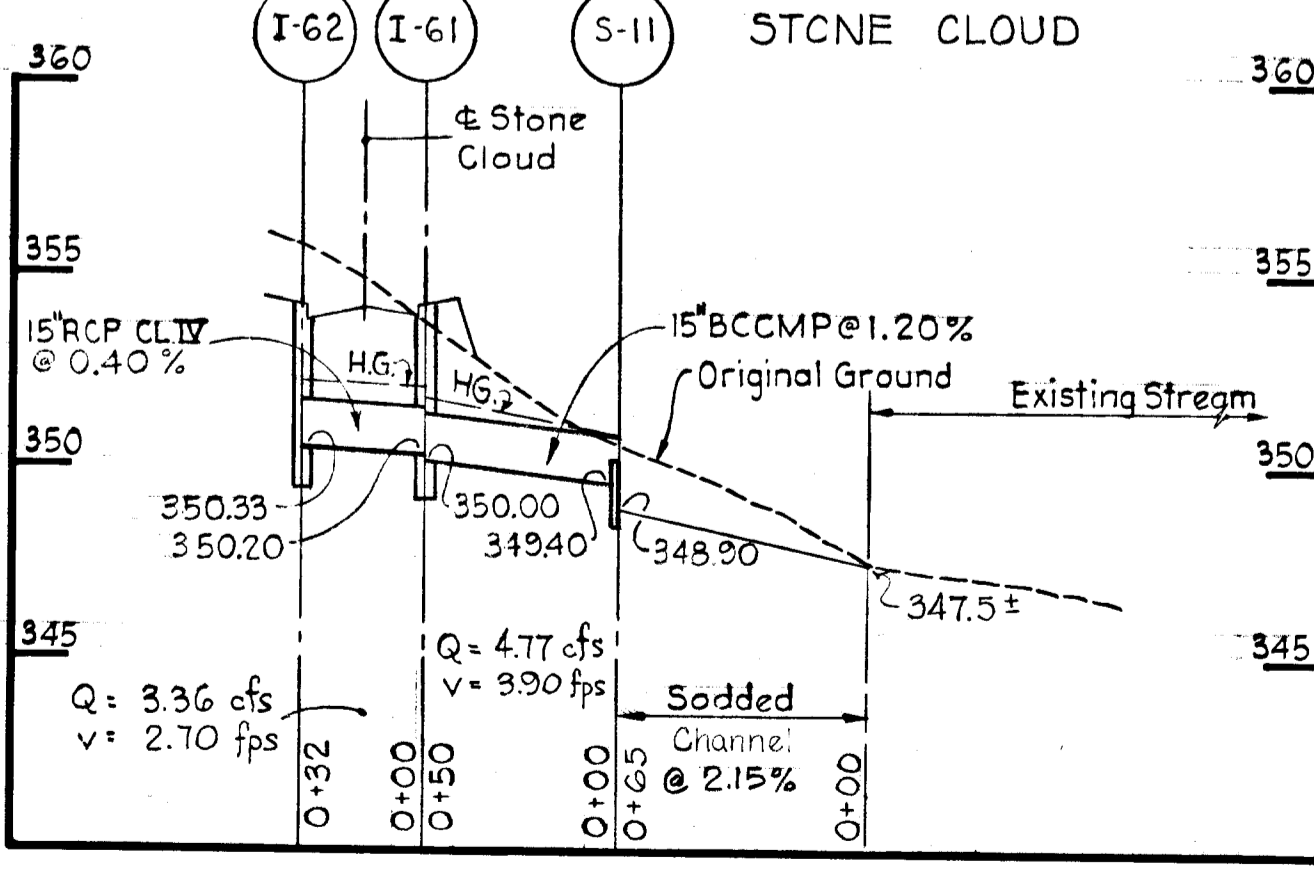
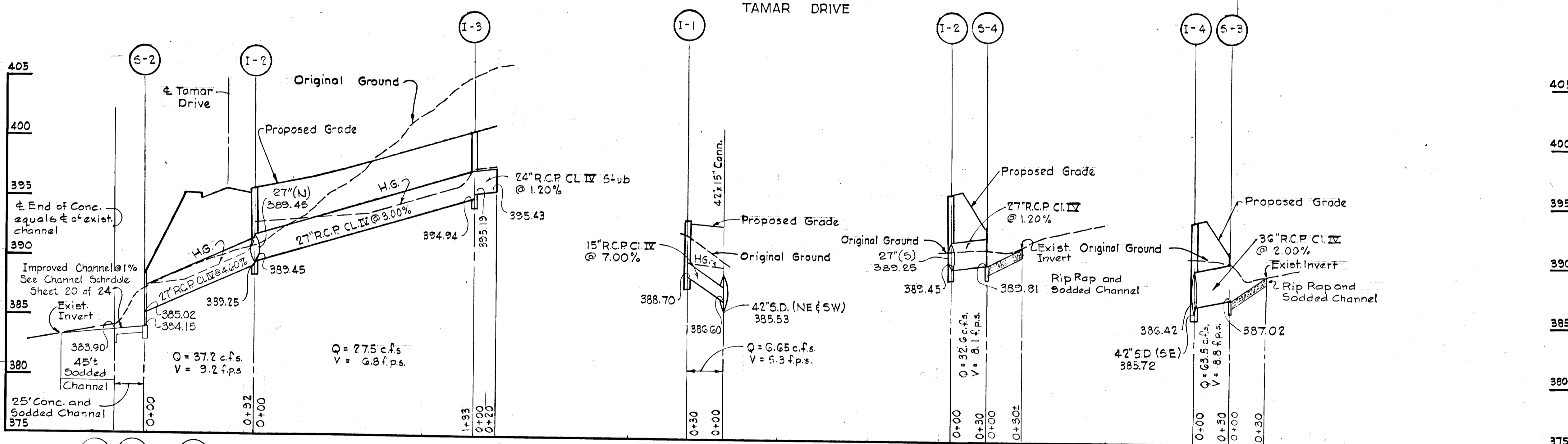
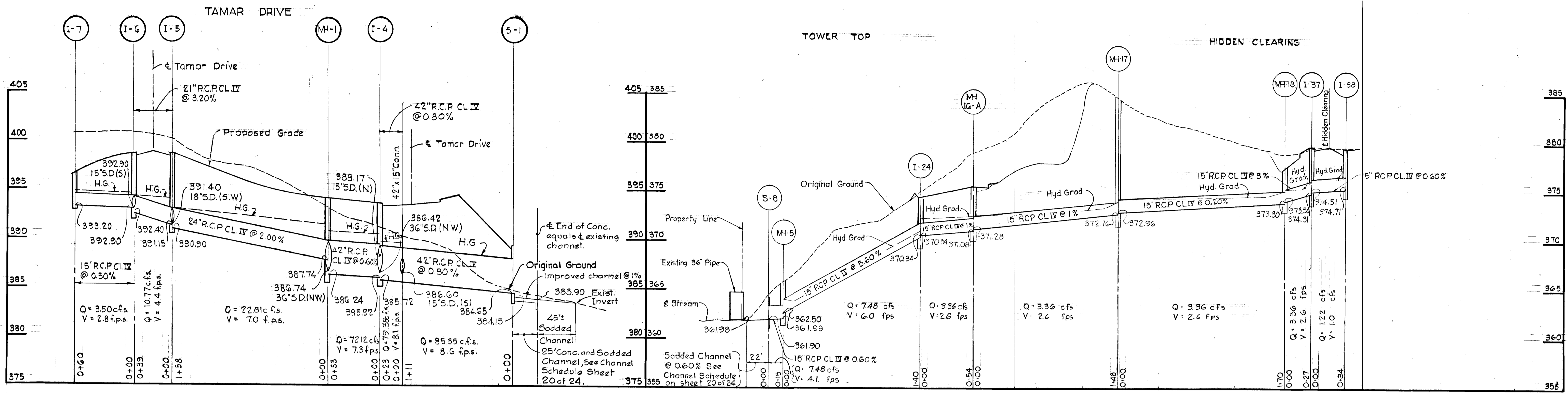
**Cul-De-Sac with Island**  
 Page 88a

- Notes:**
- Standard 7" Comb. Curb and Gutter, Modified Comb. Curb and Gutter and Standard Barrier Curb shall be in accordance with County Standard D-40, page 95.
  - Paving (8" and 6 1/2") shall be in accordance with County Standard D-10, page G5 and D-11 page G6 respectively.

DEPARTMENT OF PUBLIC WORKS  
*G. W. Newland* 12/22/70  
 CHIEF BUREAU OF HIGHWAYS DATE

OFFICE OF PLANNING AND ZONING  
*J. H. Dawson Jr.* 12/23/70  
 CHIEF ENGINEER DIVISION OF LAND DEVELOPMENT DATE

Rev. Date	Rev. No.	Revision Description
<b>COLUMBIA</b>		
6TH ELECTION DISTRICT		
HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER		
HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA SECTION 1 AREA 2		
<b>VILLAGE OF LONGREACH</b>		
PROJECT TITLE		
<b>ROADWAY DETAILS</b>		
Scale: As Shown		Date: June 25, 1970
WHITMAN, REQUARDT & ASSOCIATES		
ENGINEERS		
BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. McCORD Registered Engineer No. 1974		



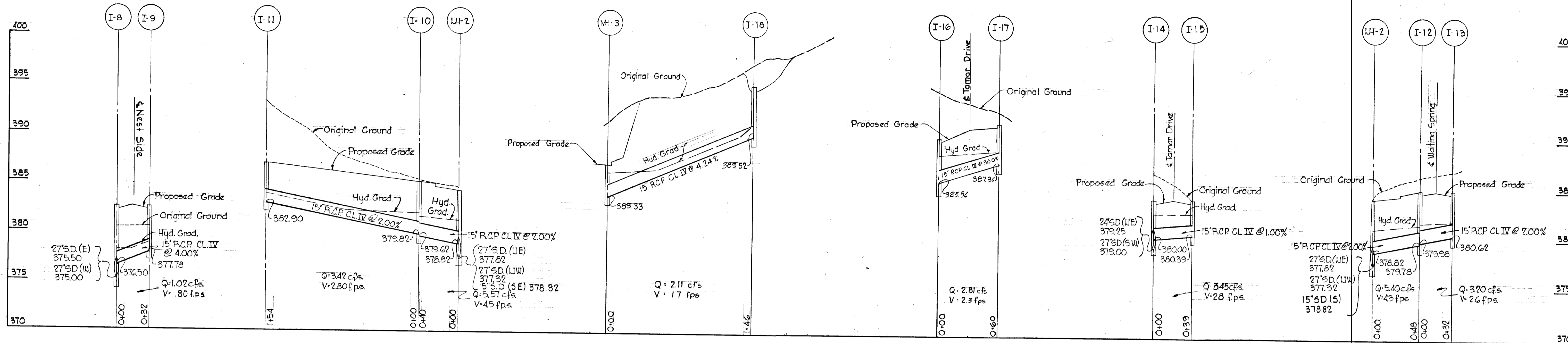
DEPARTMENT OF PUBLIC WORKS  
*G. W. McLeod* 12/22/70  
 CHIEF BUREAU OF HIGHWAYS DATE  
 OFFICE OF PLANNING AND ZONING  
*J. McLeenan* 12/23/70  
 CHIEF ENGINEER DIVISION OF LAND DEVELOPMENT DATE

Rev. Date	Rev. No.	Revision	Description
<b>COLUMBIA</b>			
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.			
PROJECT AREA: SECTION 1, AREA 2			
<b>VILLAGE OF LONG REACH</b>			
PROJECT TITLE			
STORM DRAIN PROFILE TAMAR DRIVE, STONE CLOUD WAITING SPRING, TOWER TOP & HIDDEN CLEARING			
Scale: Hor. 1"=50', Ver. 1"=5' Date: June 25, 1970			
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202			
<i>Kenneth A. McCord</i> KENNETH A. McCORD Registered Engineer No 1974			

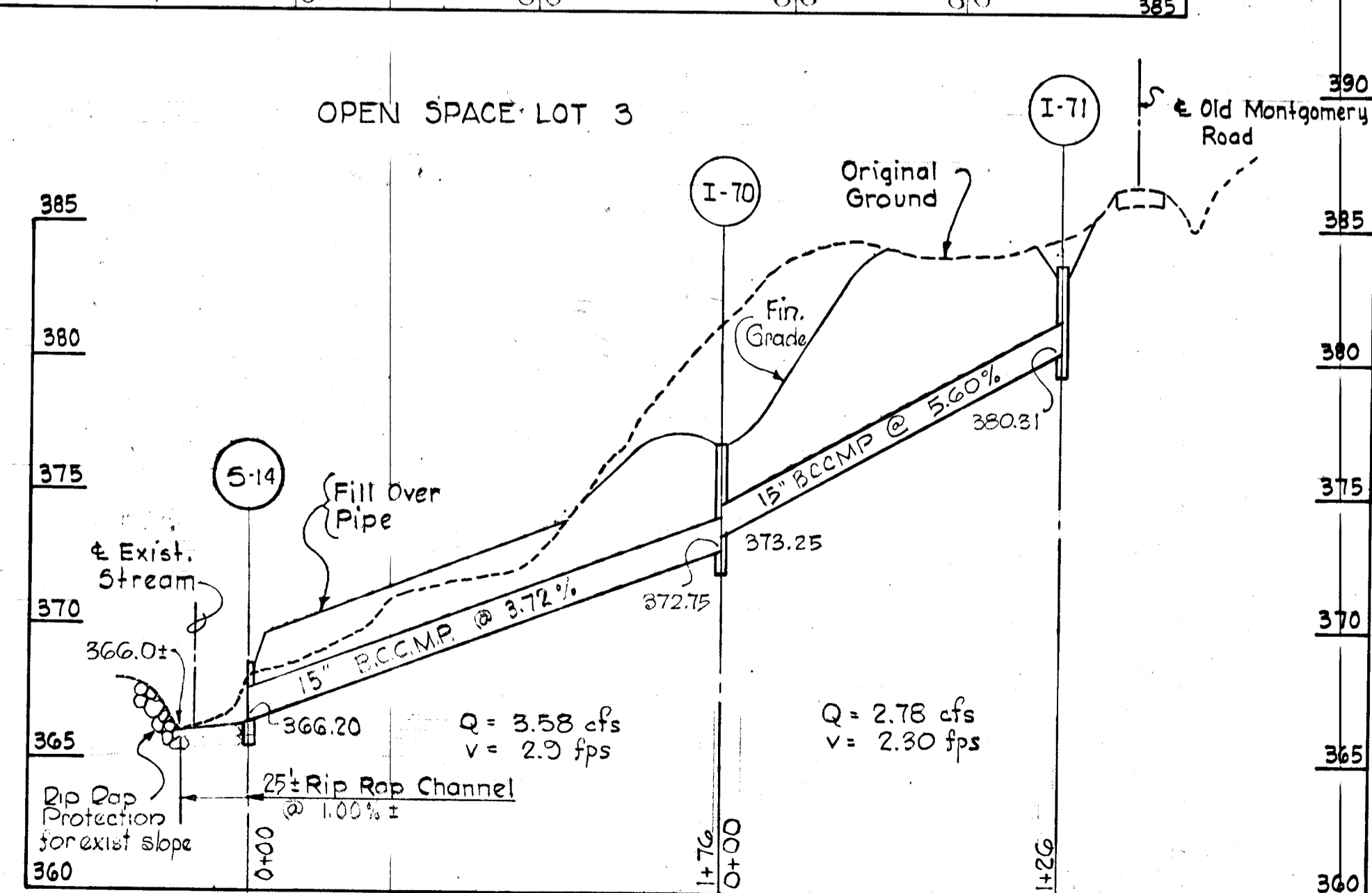
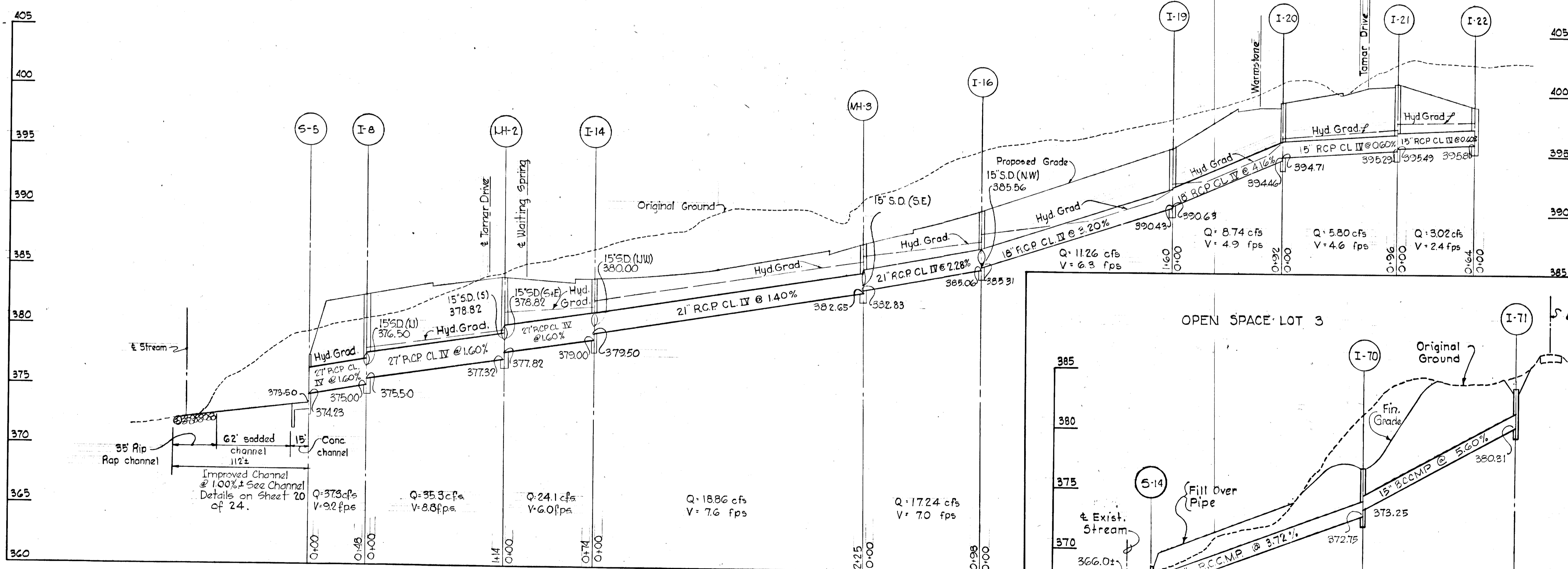


NEST SIDE

TAMAR DRIVE



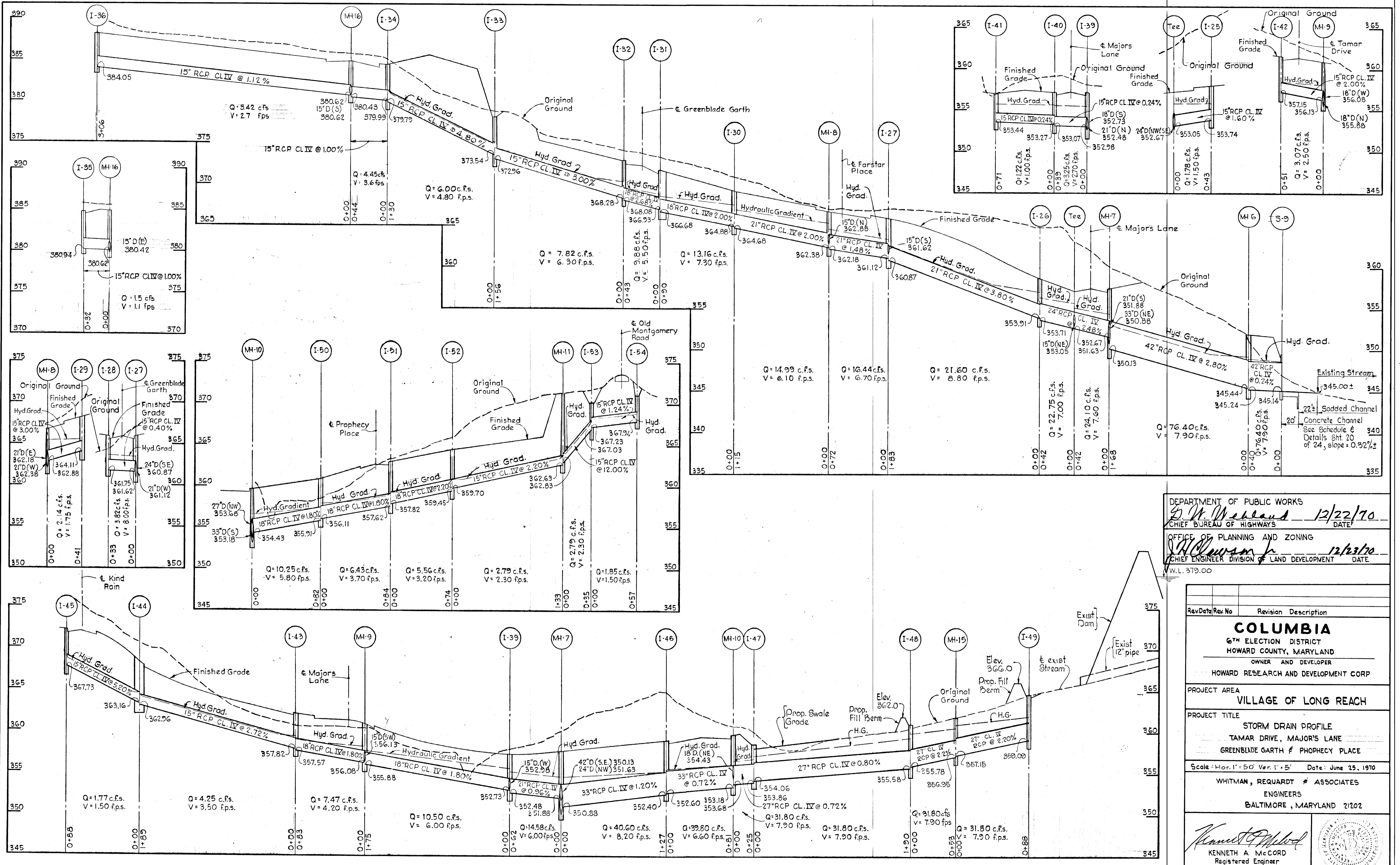
TAMAR DRIVE



DEPARTMENT OF PUBLIC WORKS  
*D. N. McCreand* 12/22/70  
 CHIEF BUREAU OF HIGHWAYS DATE

OFFICE OF PLANNING AND ZONING  
*J. H. Clawson* 12/23/70  
 CHIEF ENGINEER DIVISION OF LAND DEVELOPMENT DATE

Rev. Date	Rev. No.	Revision Description
<b>COLUMBIA</b>		
6TH ELECTION DISTRICT HOWARD COUNTY MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP		
PROJECT AREA: SECTION 1, AREA 2 <b>VILLAGE OF LONG REACH</b>		
PROJECT TITLE STORM DRAIN PROFILE TAMAR DRIVE, NEST SIDE & OPEN SPACE LOT 3		
Scale: Hor. 1"=50', Ver. 1"=5' Date: June 25, 1970		
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. McCORD Registered Engineer No. 1974		

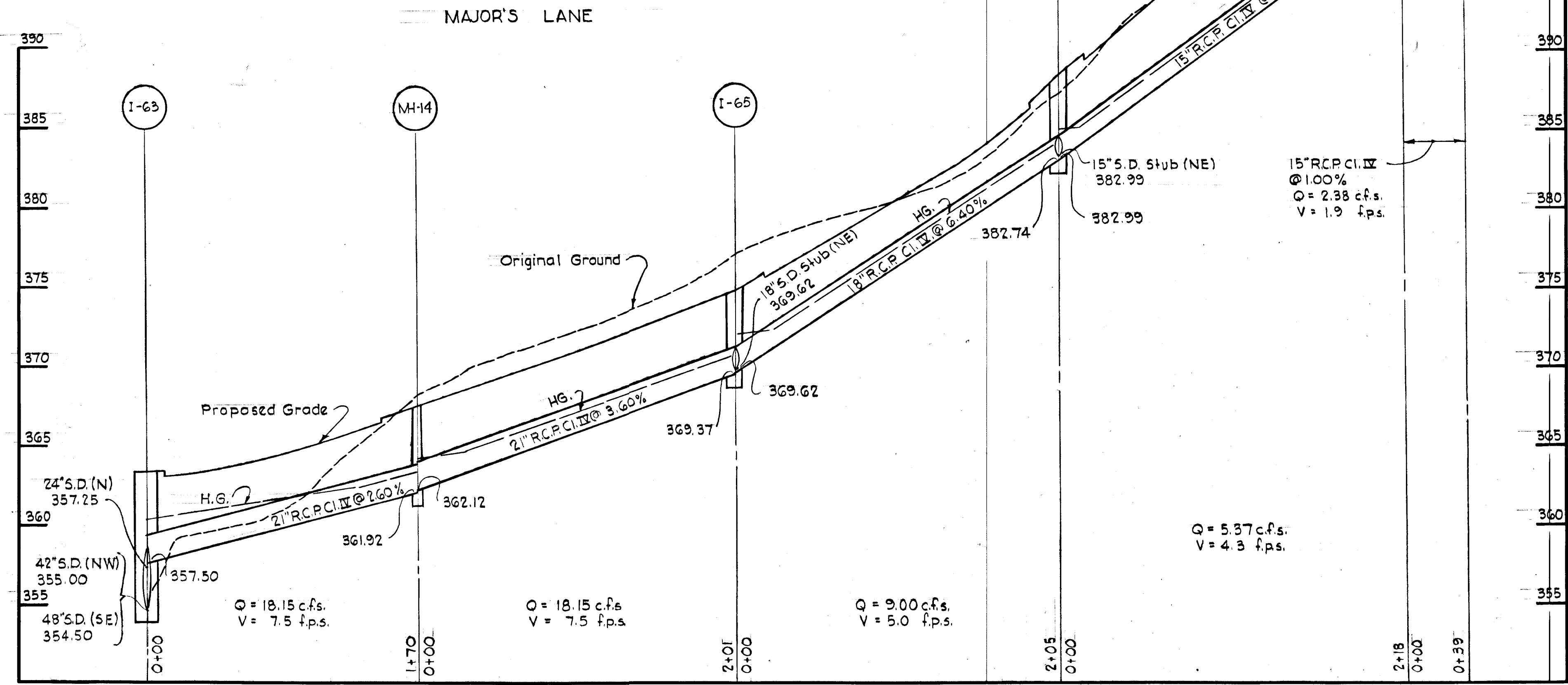
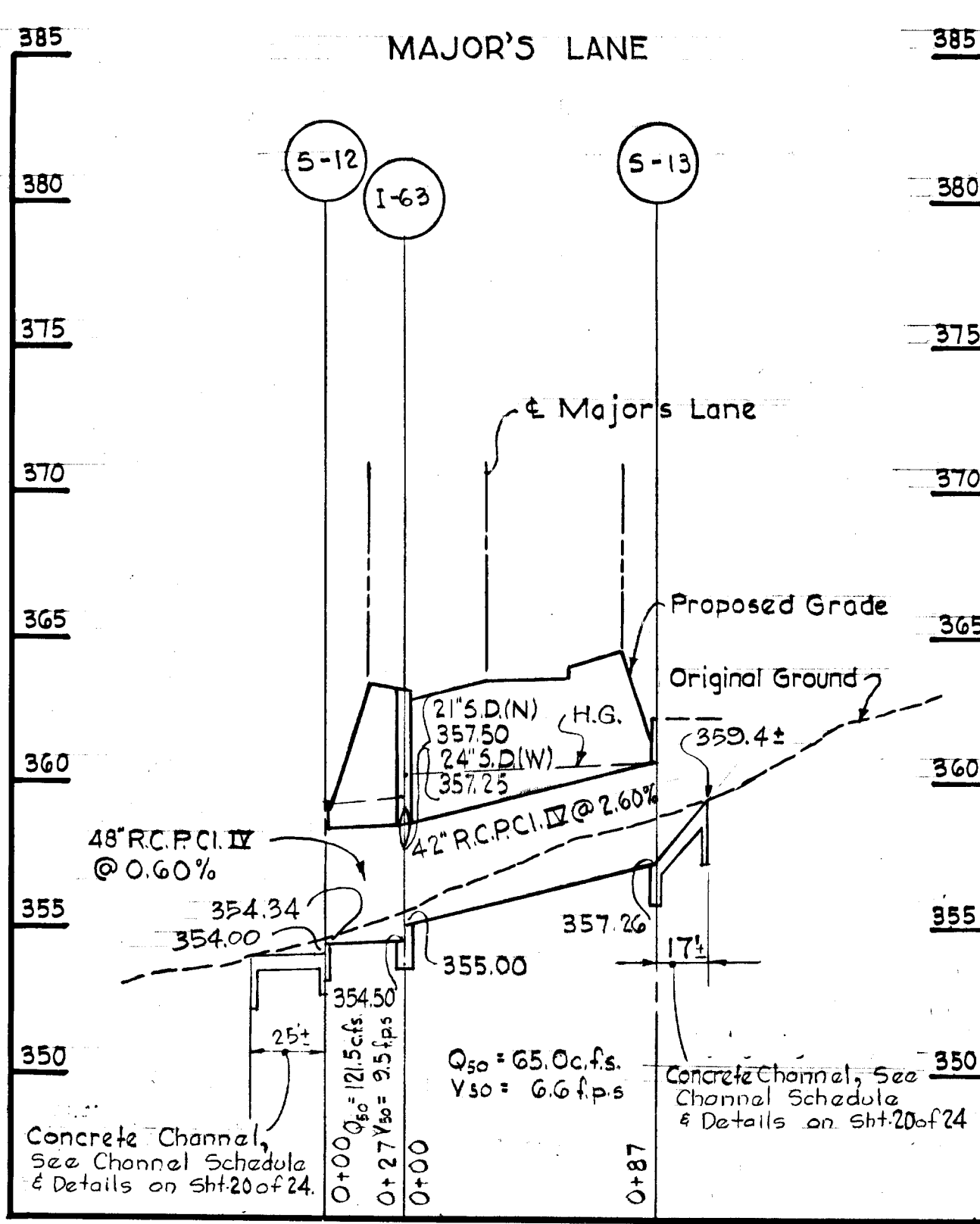
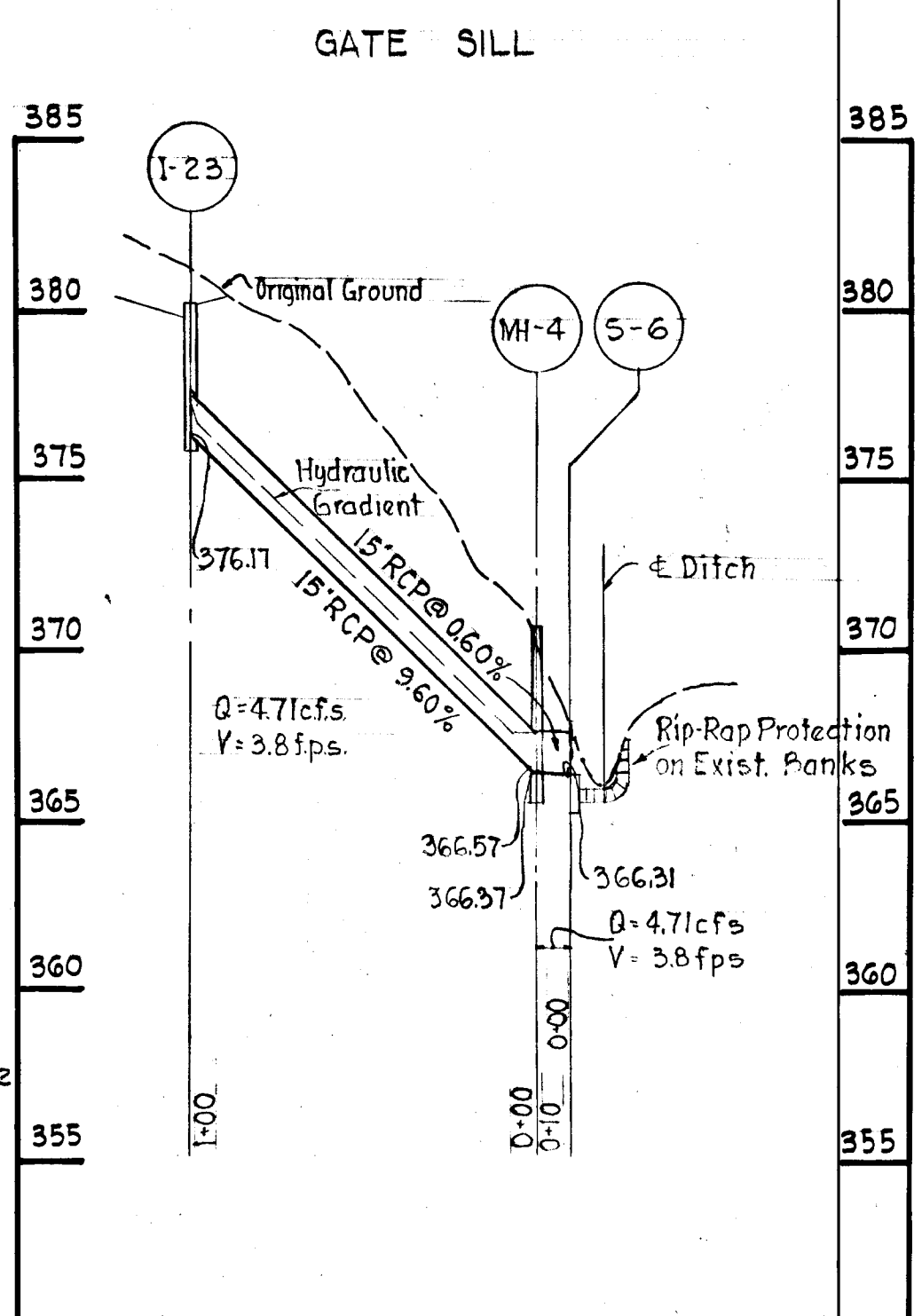
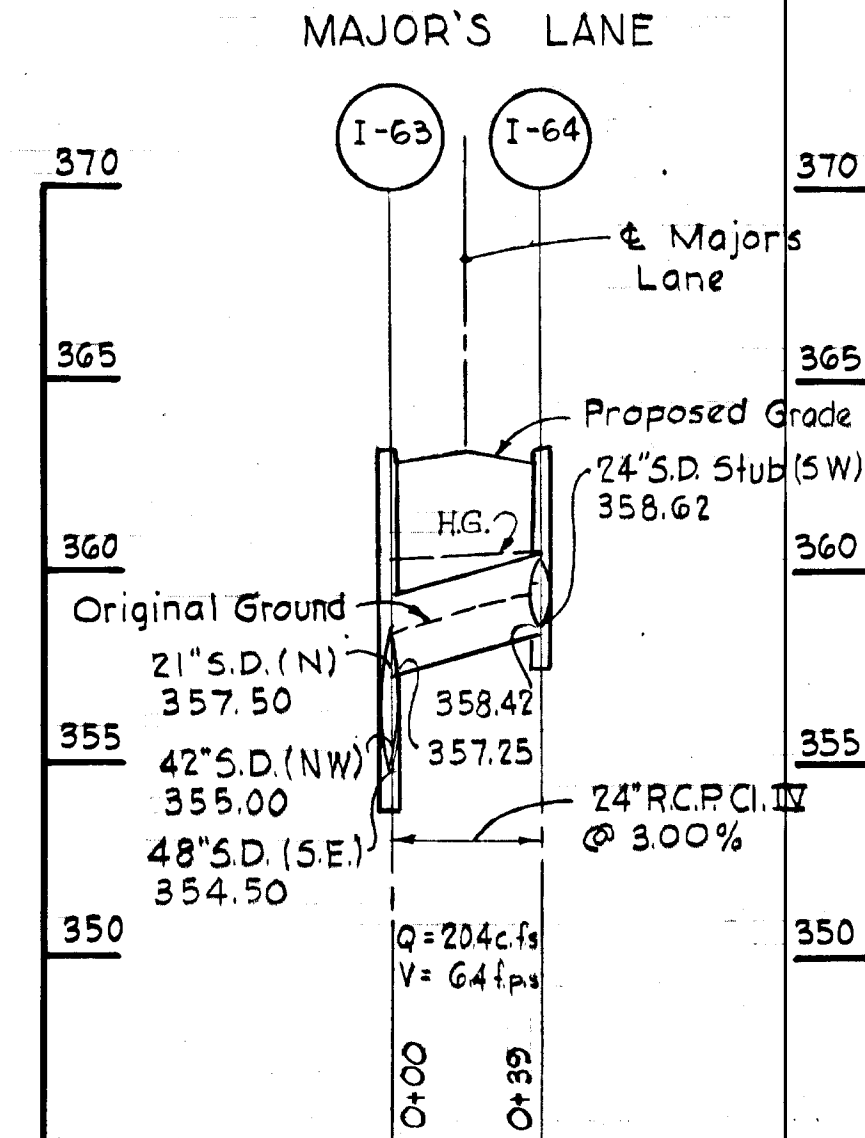
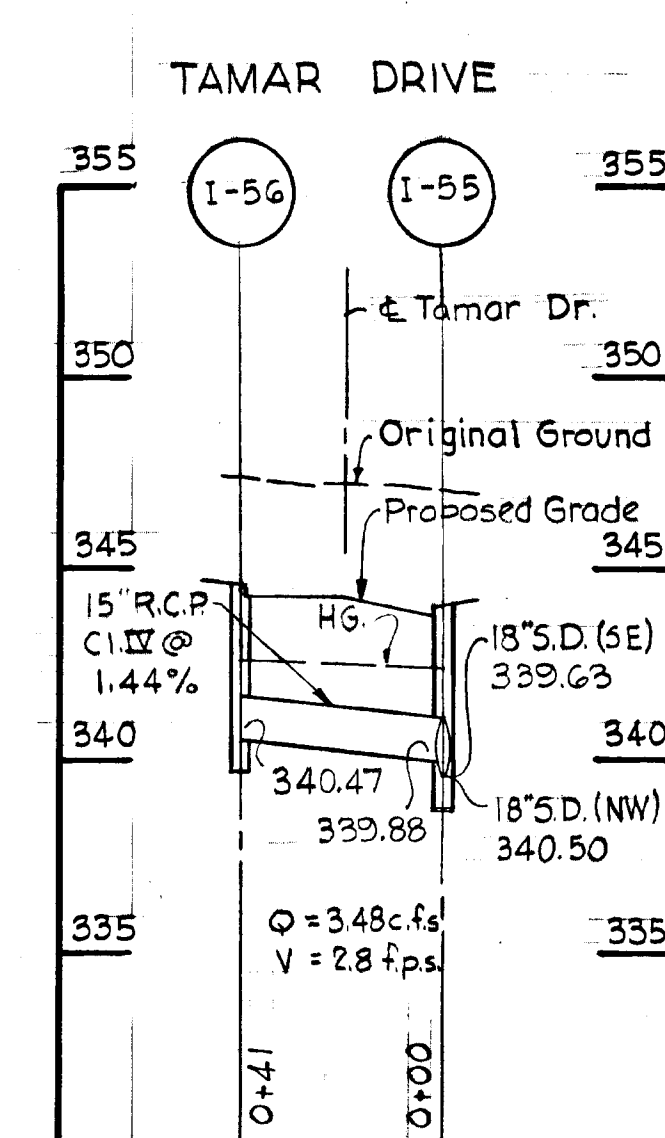
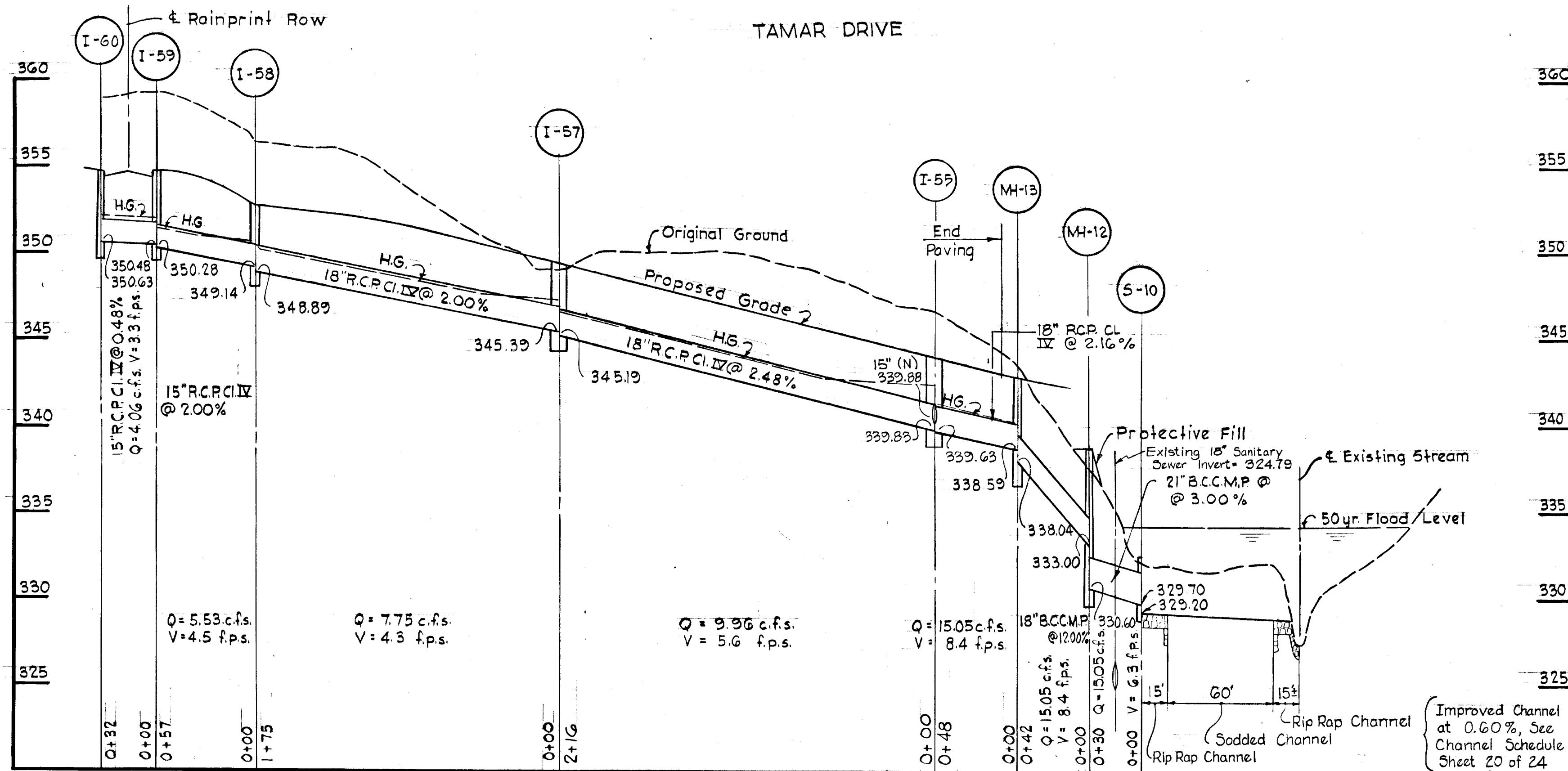


DEPARTMENT OF PUBLIC WORKS  
*G. W. Weiland* 12/22/70  
 CHIEF BUREAU OF HIGHWAYS DATE

OFFICE OF PLANNING AND ZONING  
*R. Lawson* 12/23/70  
 CHIEF ENGINEER DIVISION OF LAND DEVELOPMENT DATE

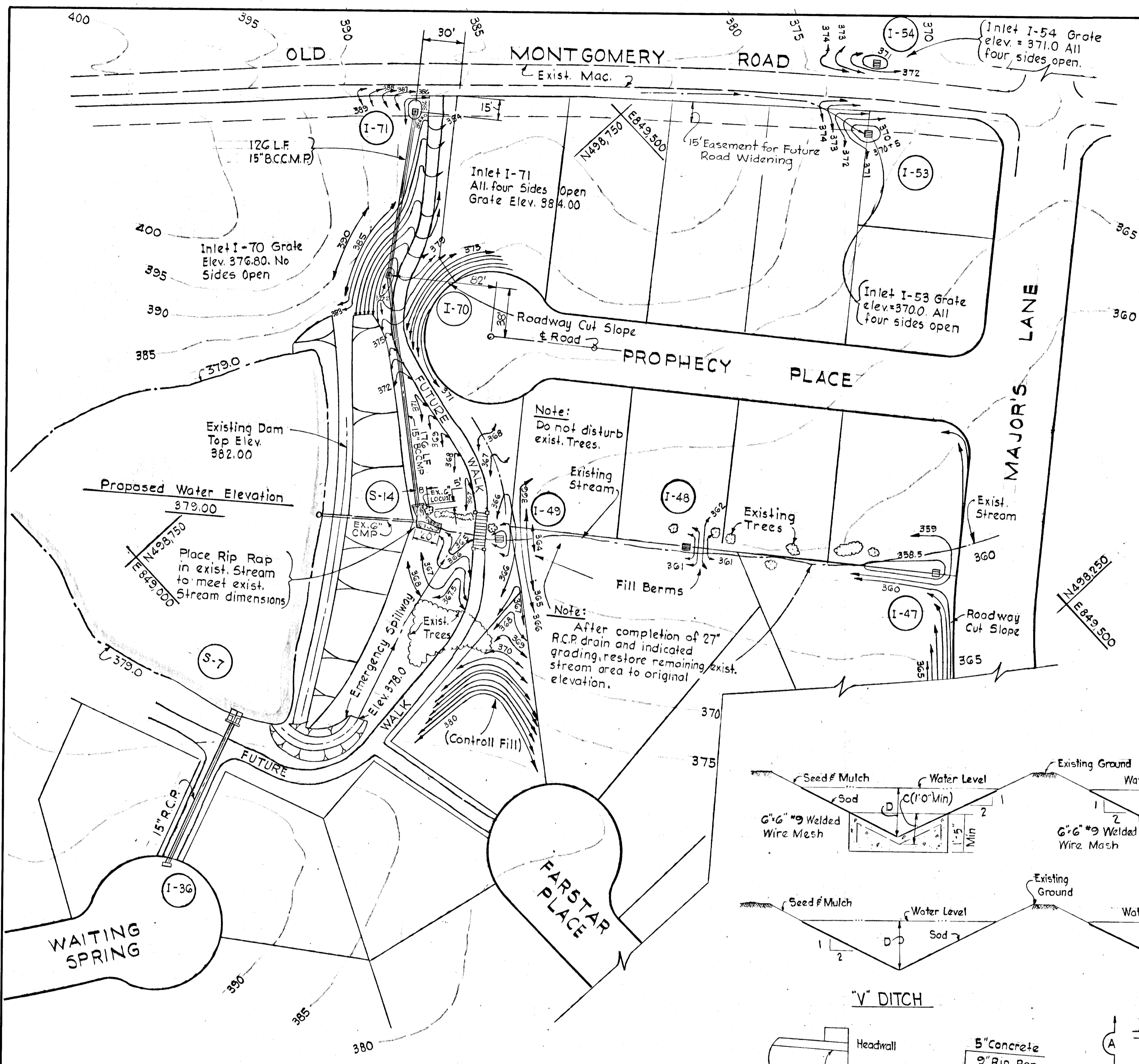
W.L. 379.00

Rev	Date	Rev No	Revision	Description
<b>COLUMBIA</b> 6 <sup>TH</sup> ELECTION DISTRICT HOWARD COUNTY, MARYLAND OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP				
PROJECT AREA <b>VILLAGE OF LONG REACH</b>				
PROJECT TITLE STORM DRAIN PROFILE TAMAR DRIVE, MAJOR'S LANE GREENBLADE GARTH & PHOPHECY PLACE				
Scale: Hor. 1" = 50' Ver. 1" = 5' Date: June 25, 1970				
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202				
<i>Kenneth A. McCord</i> KENNETH A. McCORD Registered Engineer No. 1974				



DEPARTMENT OF PUBLIC WORKS  
*D. W. Weiland* 12/22/70  
 CHIEF BUREAU OF HIGHWAYS DATE  
 OFFICE OF PLANNING AND ZONING  
*J. H. Clawson* 12/23/70  
 CHIEF ENGINEER DIVISION OF LAND DEVELOPMENT DATE

RevDate	RevNo	Revision Description
<b>COLUMBIA</b>		
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP		
PROJECT AREA: SECTION 1, AREA 2 <b>VILLAGE OF LONG REACH</b>		
PROJECT TITLE STORM DRAIN PROFILE MAJOR'S LANE TAMAR DRIVE GATE SILL		
Scale: Hor. 1" = 50', Ver. 1" = 5' Date: June 25, 1970		
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. McCORD Registered Engineer No. 1974		



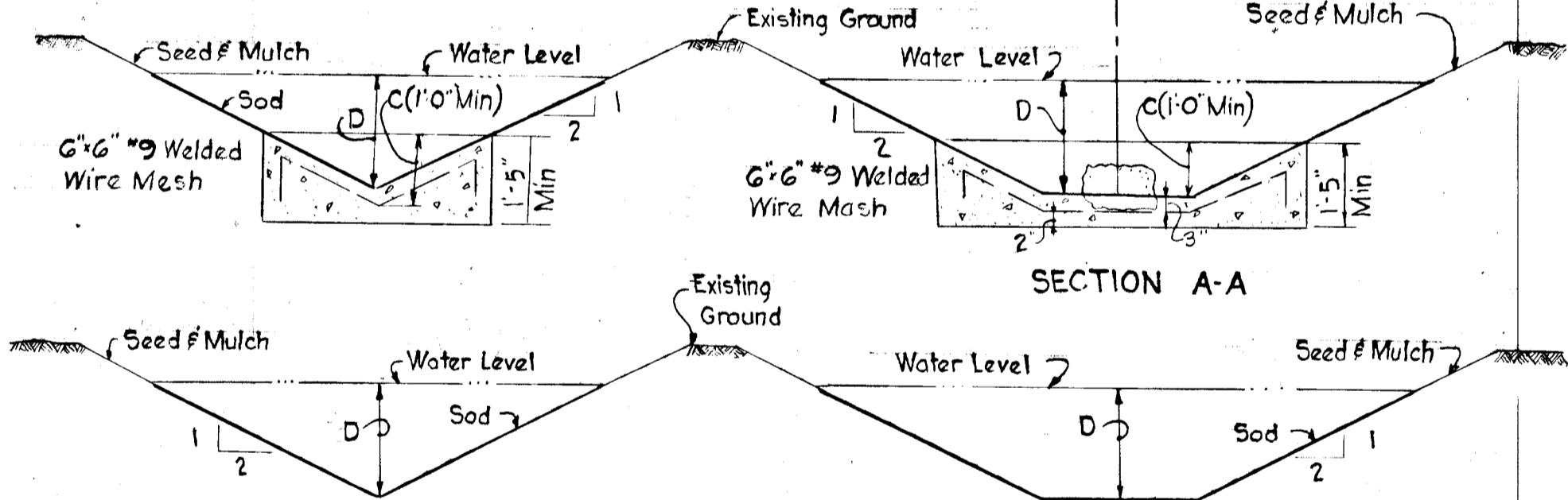
**PLAN**  
Scale 1" = 50'

Note:  
For Profile, I-71 to S-14,  
See sheet 17 of 23.

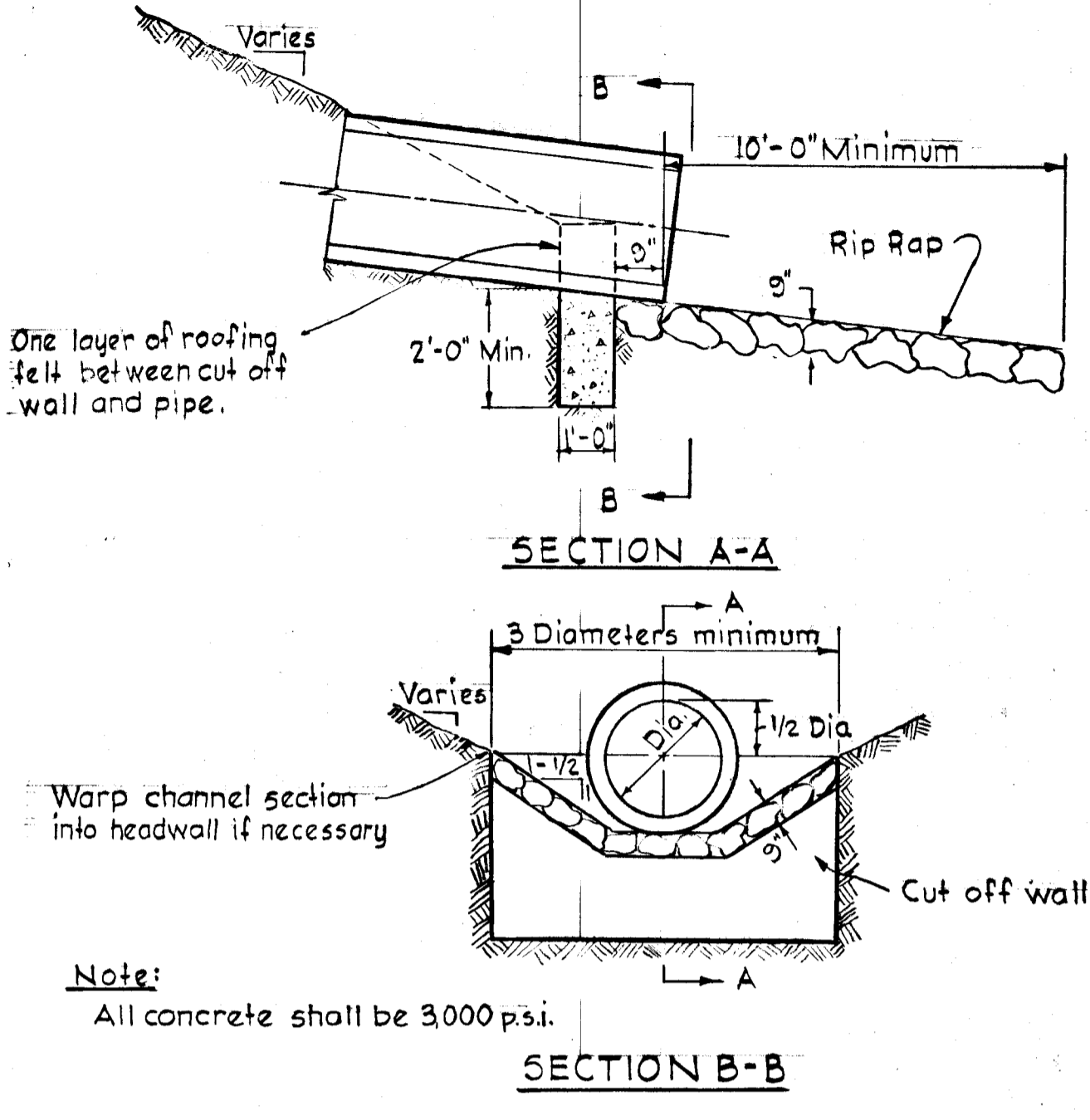
No	Type	Top El.	Invert	Location
S-14	Type 'C' Endwall	363.20	366.70	See Plan & Profile
I-70	Mod. 'K' Inlet (See Detail 5ht 21 of 24)	376.80	372.75	See Plan & Profile
I-71	Mod. 'K' Inlet (See Detail 5ht 21 of 24)	383.50	380.31	See Plan & Profile

**NOTES:**

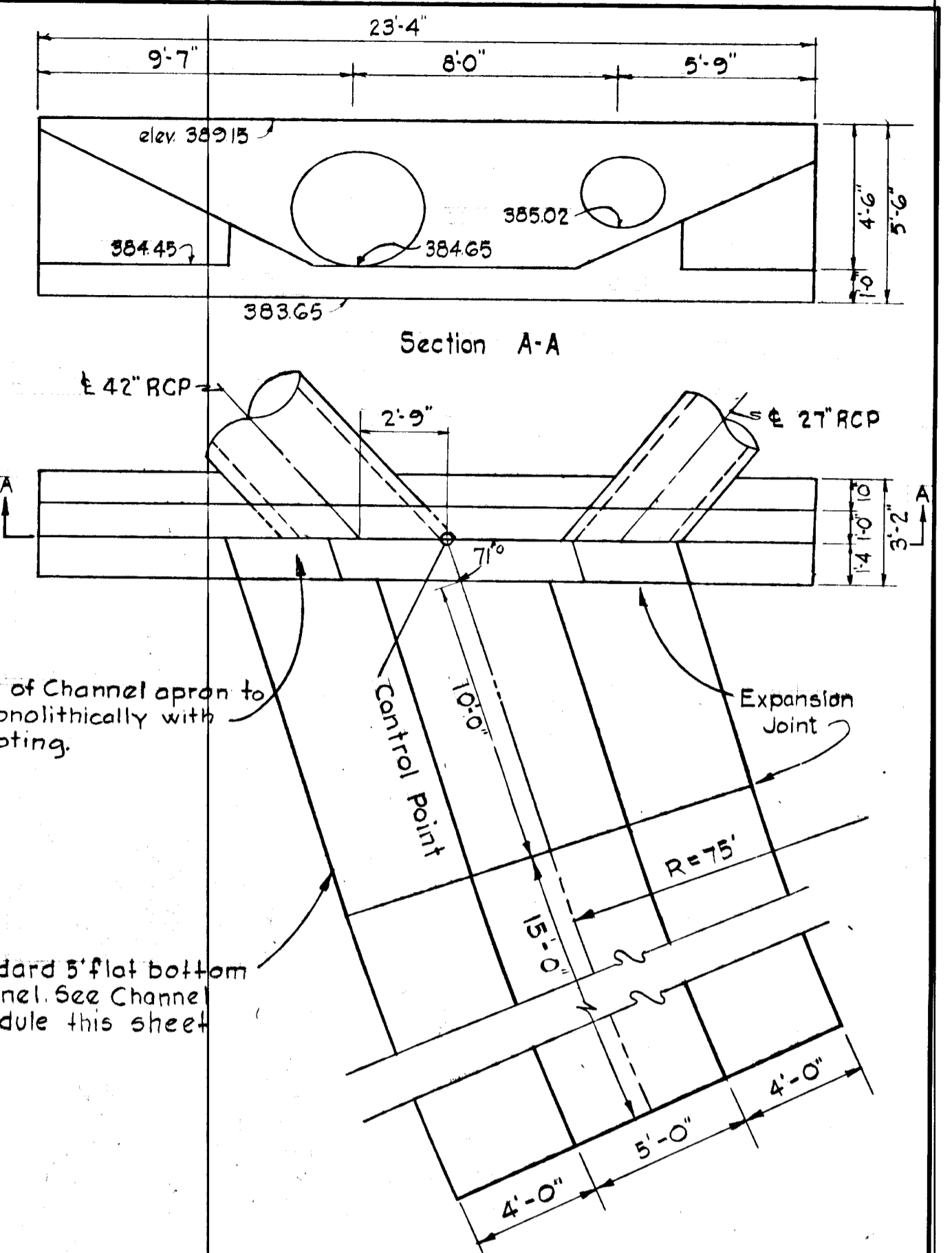
- All concrete shall be 3000 p.s.i.
- All sod to be staked with 1/2" x 12" wood stakes on 24" centers both ways.
- D = water depth (see chart this sheet)
- C = Depth of concrete paving (see chart this sheet)
- For length of concrete & sodded channels see Plan & Profile
- All Rip Rap Channels shall be grouted Rip Rap.
- Stones shall be 2-man stone Normal size shall be 12" x 12" x 8"
- First stone shall be placed 1'-6" minimum from end of headwall @ E of apron.
- No stones are to be located within 3' from end of apron.
- Detail shown is for 2' Flat Bottom Channel. For any other Flat Bottom Channel, locate stones in bottom @ end of 2' slope.



**IMPROVED CHANNEL DETAIL**  
Scale 1/2" = 1'-0"



**5-II SPECIAL CUTOFF WALL**  
No Scale



**5-1,2 SPECIAL 'C' ENDWALL**  
Scale 1/4" = 1'-0"

Note:  
See Standard detail drawing D-52 for disposition of bars and general notes.

DEPARTMENT OF PUBLIC WORKS  
*S. W. Weiland* 12/22/70  
CHIEF BUREAU OF HIGHWAYS DATE  
OFFICE OF PLANNING AND ZONING  
*J. H. Dawson* 12/23/70  
CHIEF ENGINEER DIVISION OF LAND DEVELOPMENT DATE

Structure	Type	Conc. Paving Depth C	Water Depth D	Velocity fps	Remarks
S-1	5'	2.1'	2.1'	6.0	Concrete & Sodded Channel
S-2	5'	2.1'	2.1'	6.0	Concrete & Sodded Channel
S-3	4'	1.4*	1.4'	6.6	Rip-rap & Sodded Channel
S-4	3.5'	1.0*	0.8'	7.7	Rip-rap & Sodded Channel
S-5	2'	1.5'	1.55'	4.7	Conc. Sod & Rip-Rap Channel
S-6	2'	No paving	1.1'	2.1	Sodded Channel
S-7	2'	0.5'	2.0'	—	High Water Elev. of Pond = 381.9
S-8	2'	—	1.5'	1.5	Sodded Channel
S-9	4'	2.0'	2.4'	3.6	Concrete & Sodded Channel
S-10	3'	1.1*	1.1'	3.0	Rip-Rap & Sodded Channel
S-11	3'	No paving	0.8'	3.7	Sodded Channel
S-12	5'	2.0'	3.8'	2.7	Concrete & Sodded Channel
S-13	3'	2.0'	3.5'	—	Concrete & Sodded Channel, Intake Structure
S-14	3'	—	0.8'	3.2	Rip-Rap Channel, Ex. Channel Protection

Rev. Date	Rev. No.	Revision Description
Scale As Shown		Date Sept. 21, 1970

**COLUMBIA**  
6TH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
OWNERS AND DEVELOPERS  
HOWARD RESEARCH AND DEVELOPMENT CORP

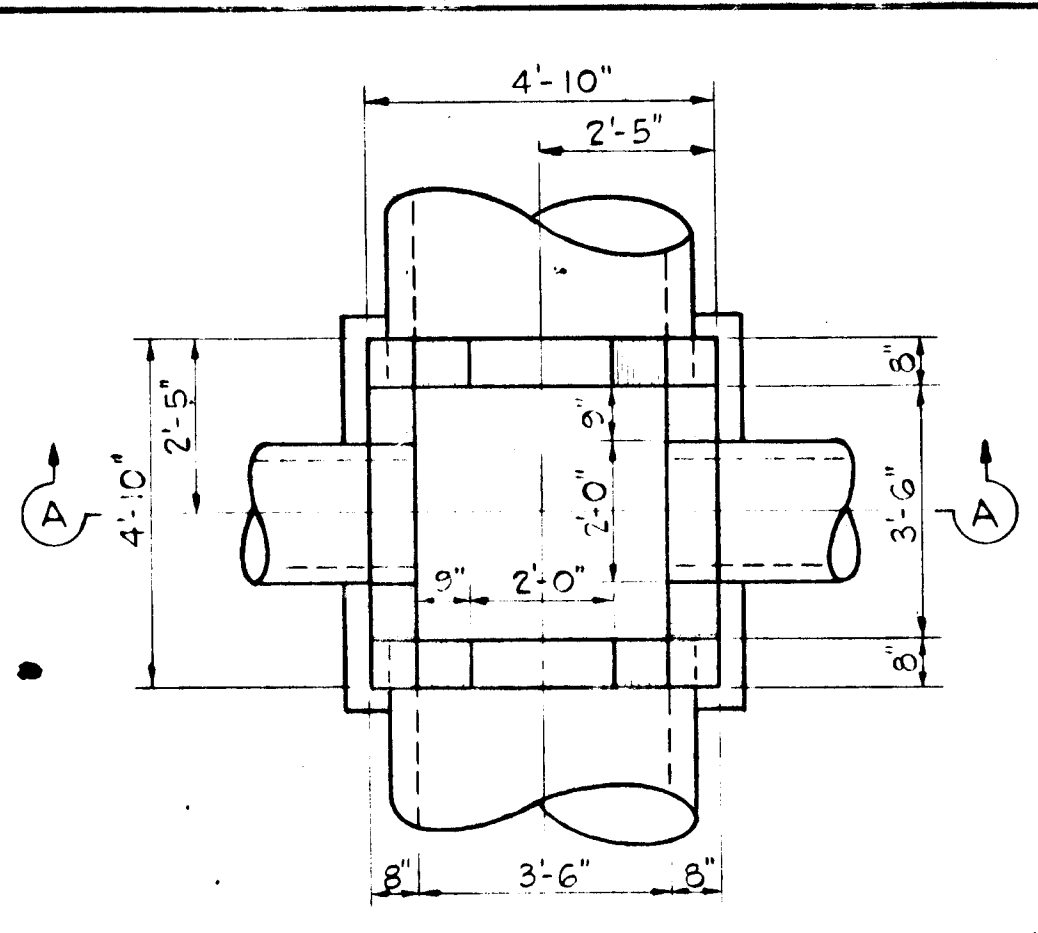
PROJECT AREA: SECTION 1, AREA 2  
**VILLAGE OF LONG REACH**

PROJECT TITLE  
STORM DRAIN DETAILS

WHITMAN, REQUARDT & ASSOCIATES  
ENGINEERS  
BALTIMORE, MARYLAND 21202

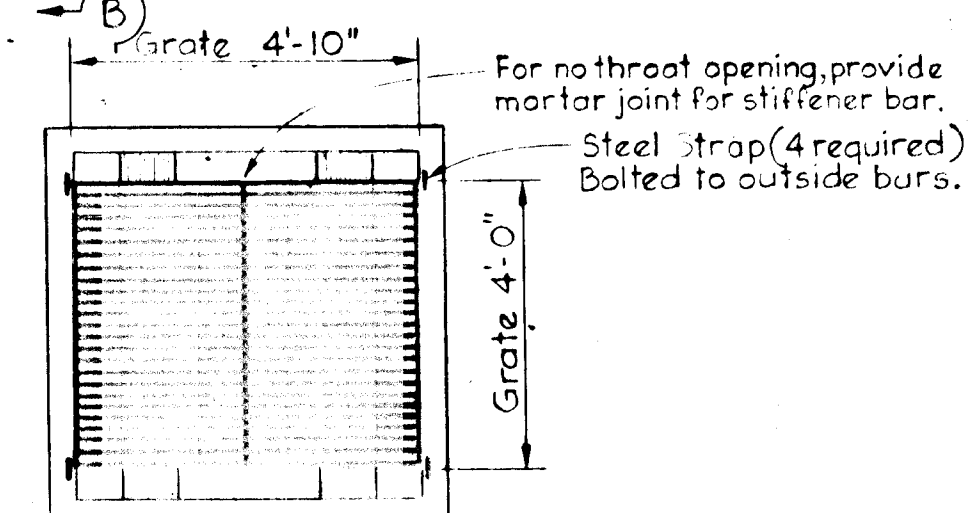
*Kenneth A. McCord*  
KENNETH A. McCORD  
Registered Engineer  
No. 1974



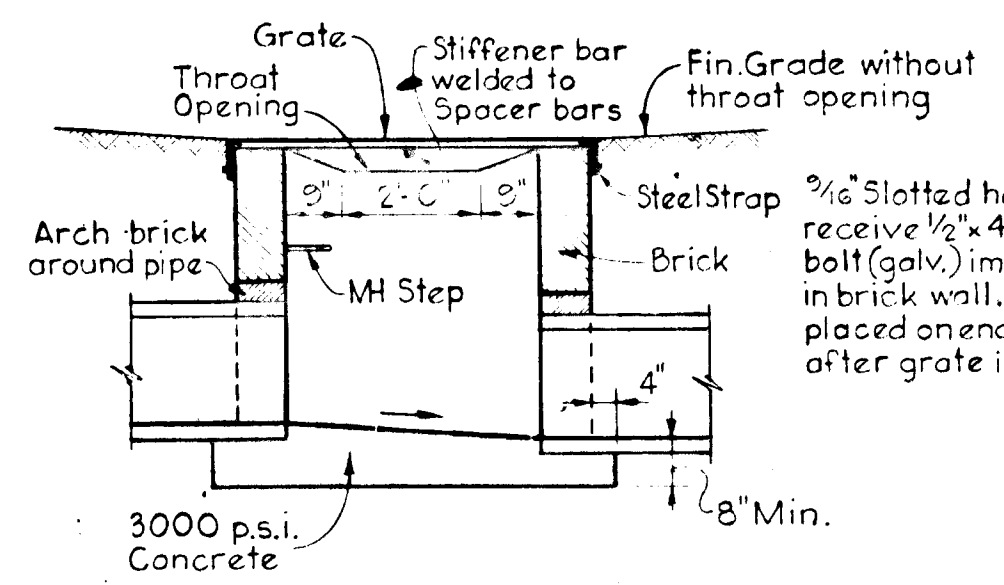


PLAN (GRATE REMOVED)

Note: The Grating shown is similar to M.S.R.C. standard "K" Grate. Grate size 58" x 48" (one piece)



PLAN (WITH GRATE)

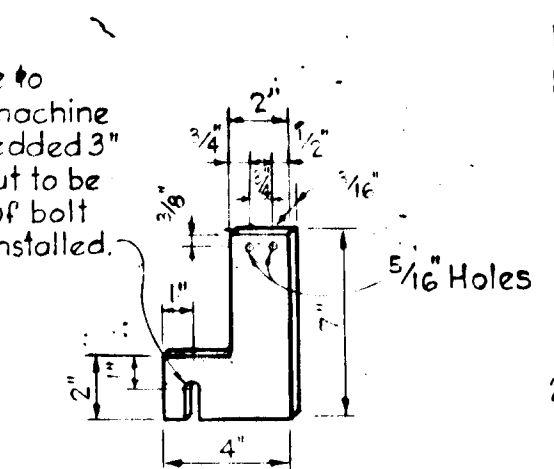


SECTION "A-A" STRAP DETAIL

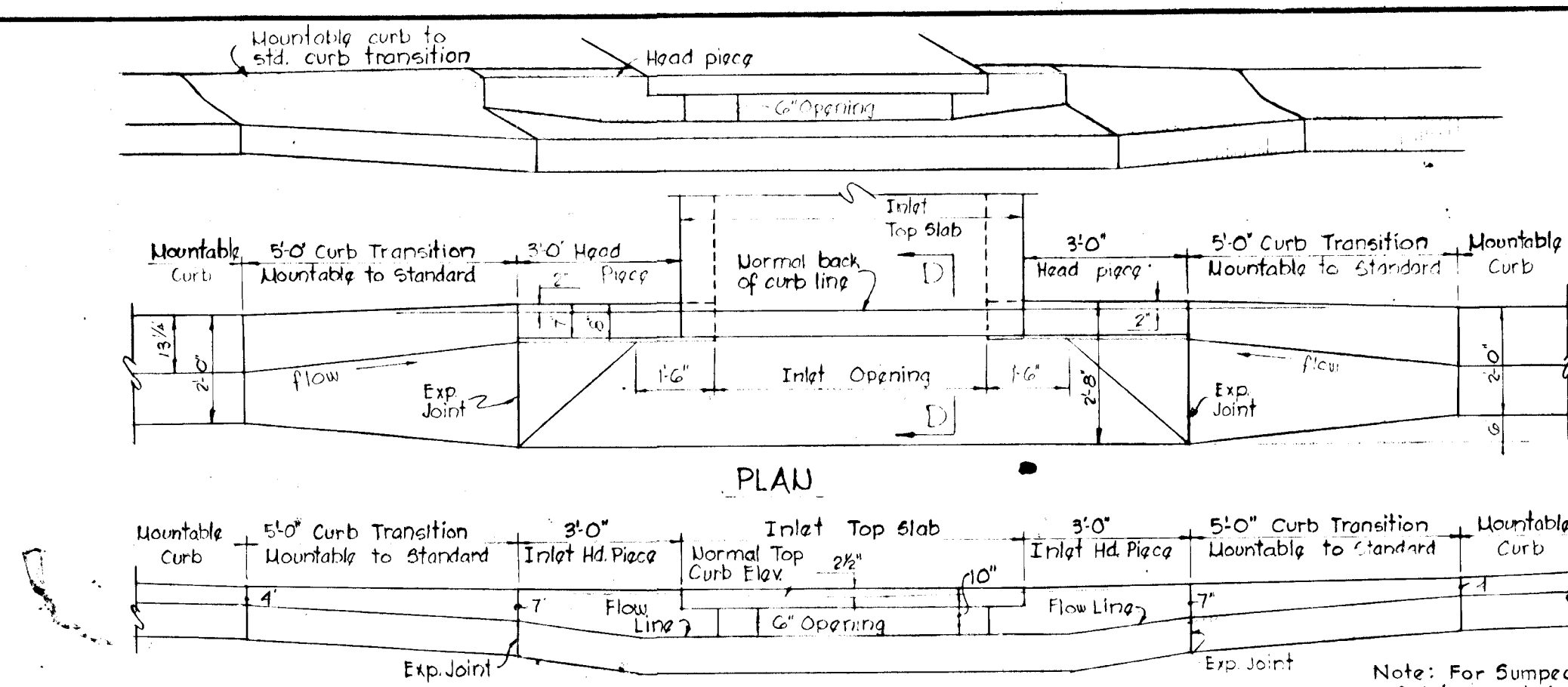
MODIFIED "K" INLET

Scale: 3/8" = 1'-0"

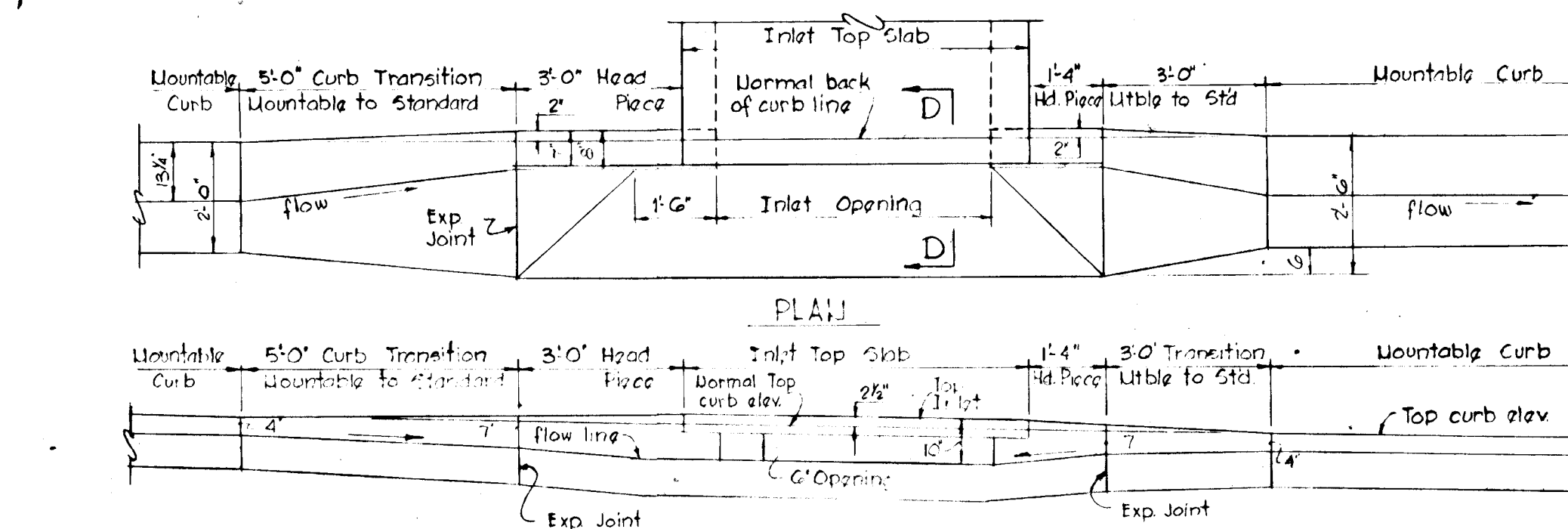
SECTION "B-B"



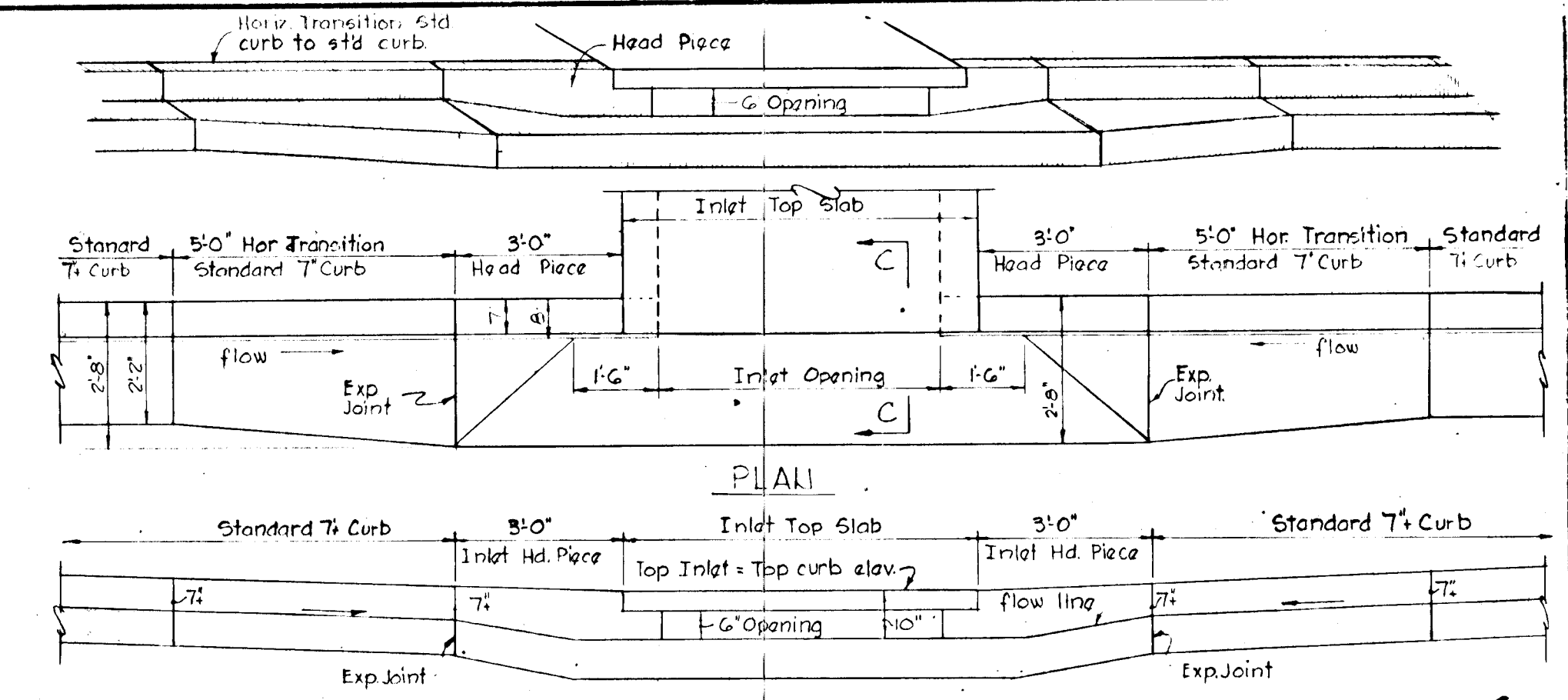
Notes:  
1. Gratings are subject to approval for each job. Any type of substantial transverse bars may be used which will support a minimum uniform load of 150 lbs./sq. ft. The transverse bars shall be held rigid by spacer bars.  
2. All material to be hot dipped galvanized.



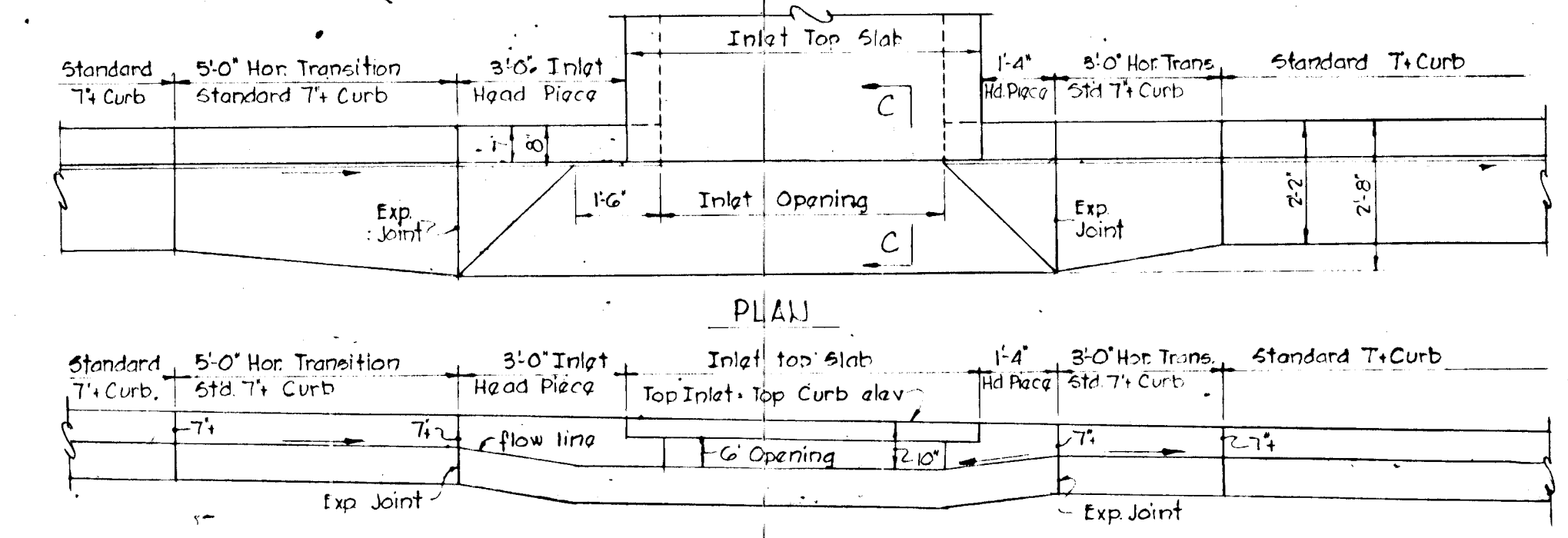
SECTION C-C 'A' INLET - MOUNTABLE CURB



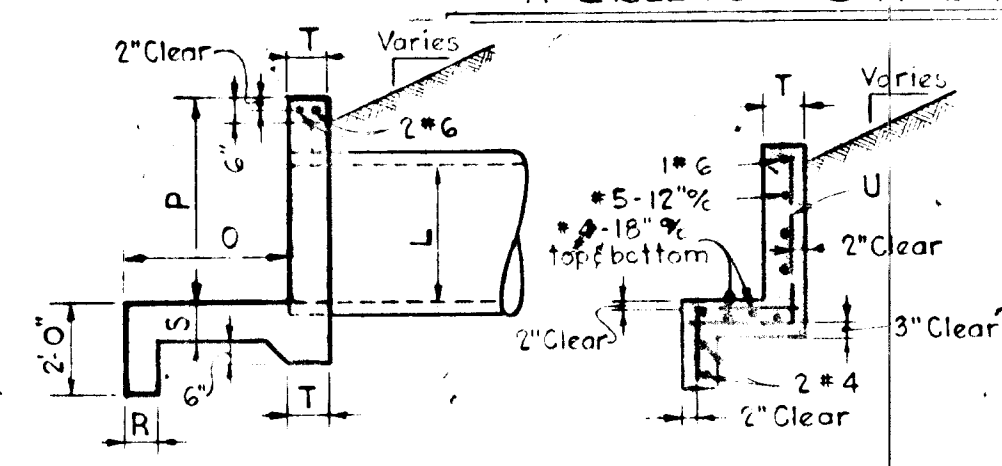
SECTION D-D 'A' INLET - MOUNTABLE CURB



SECTION C-C 'A' INLET - STANDARD CURB

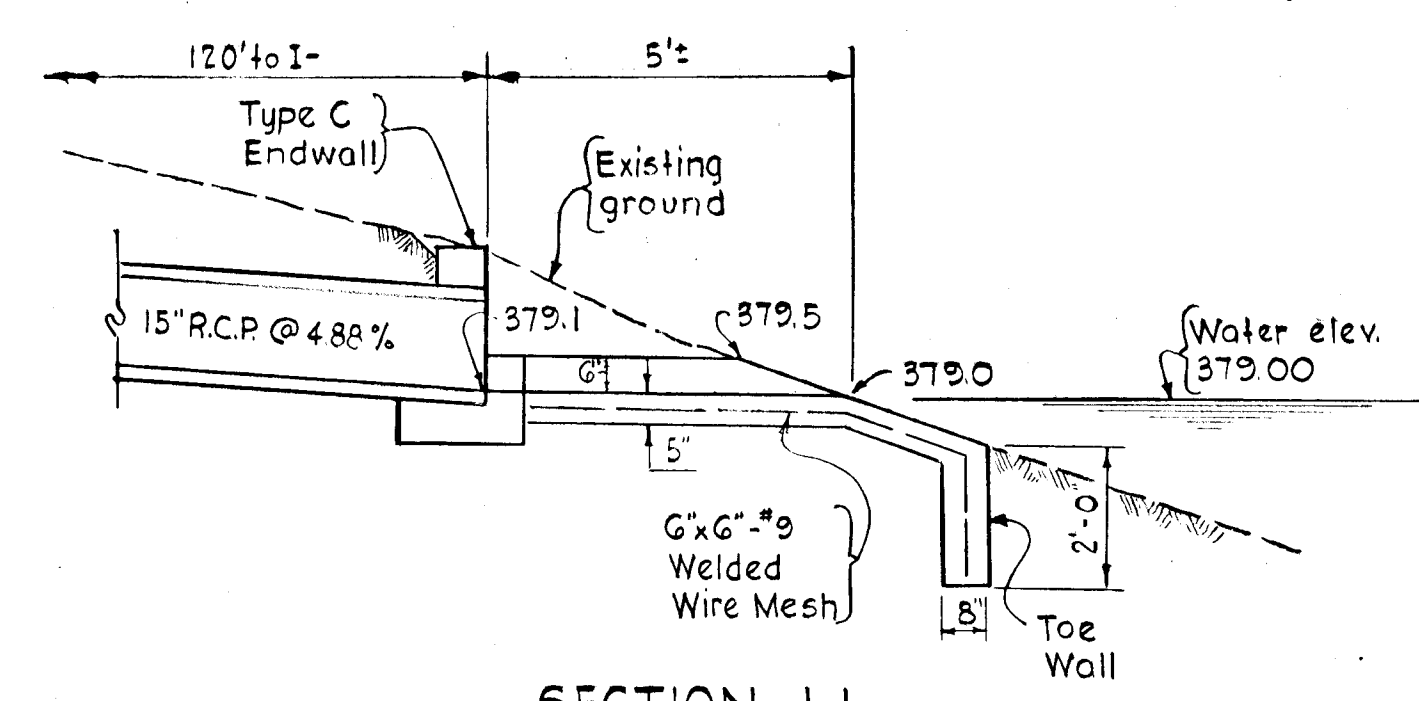


SECTION D-D 'A' INLET - STANDARD CURB

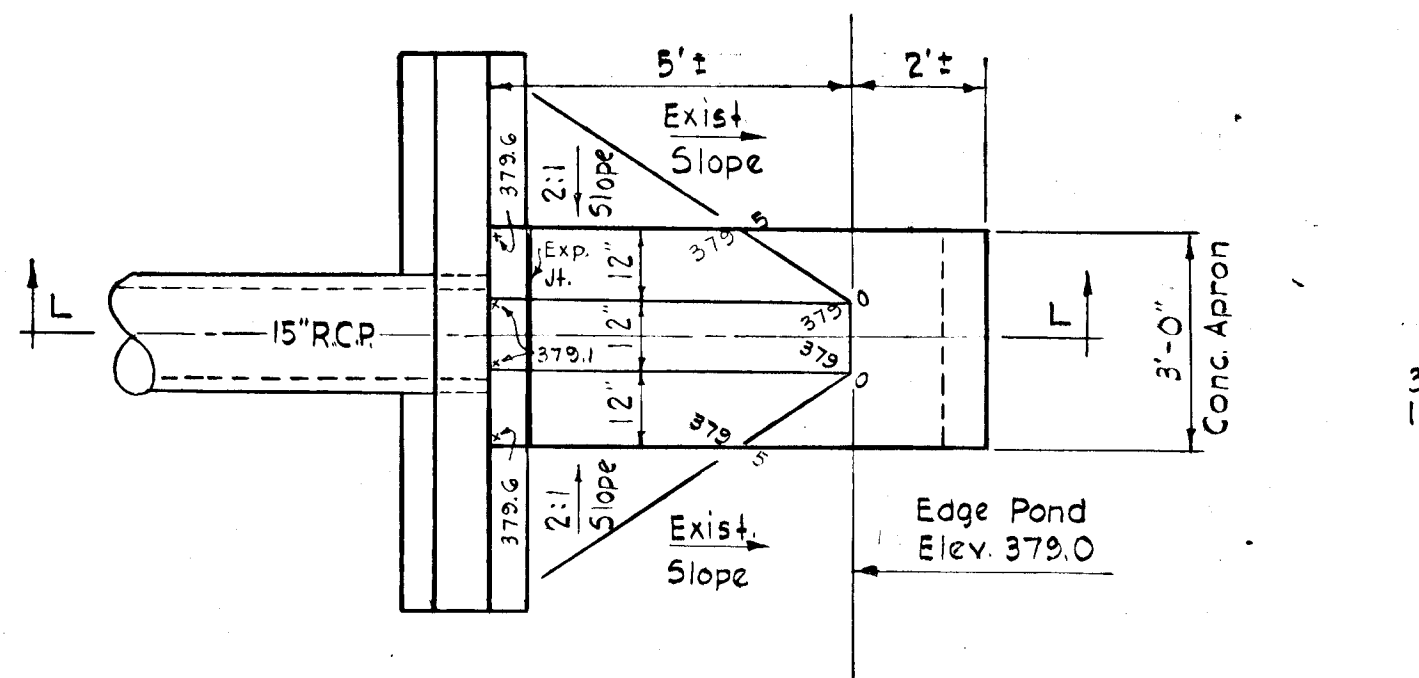


SECTION "H-H" SECTION "K-K"

L	M	N	O	P	Q	R	S	T	U
15"	18"	21"	24"	27"	30"	33"	36"	39"	42"
8"	8"	8"	8"	8"	8"	8"	8"	8"	8"
5'-12"	5'-12"	5'-12"	5'-12"	5'-12"	5'-12"	5'-12"	5'-12"	5'-12"	5'-12"

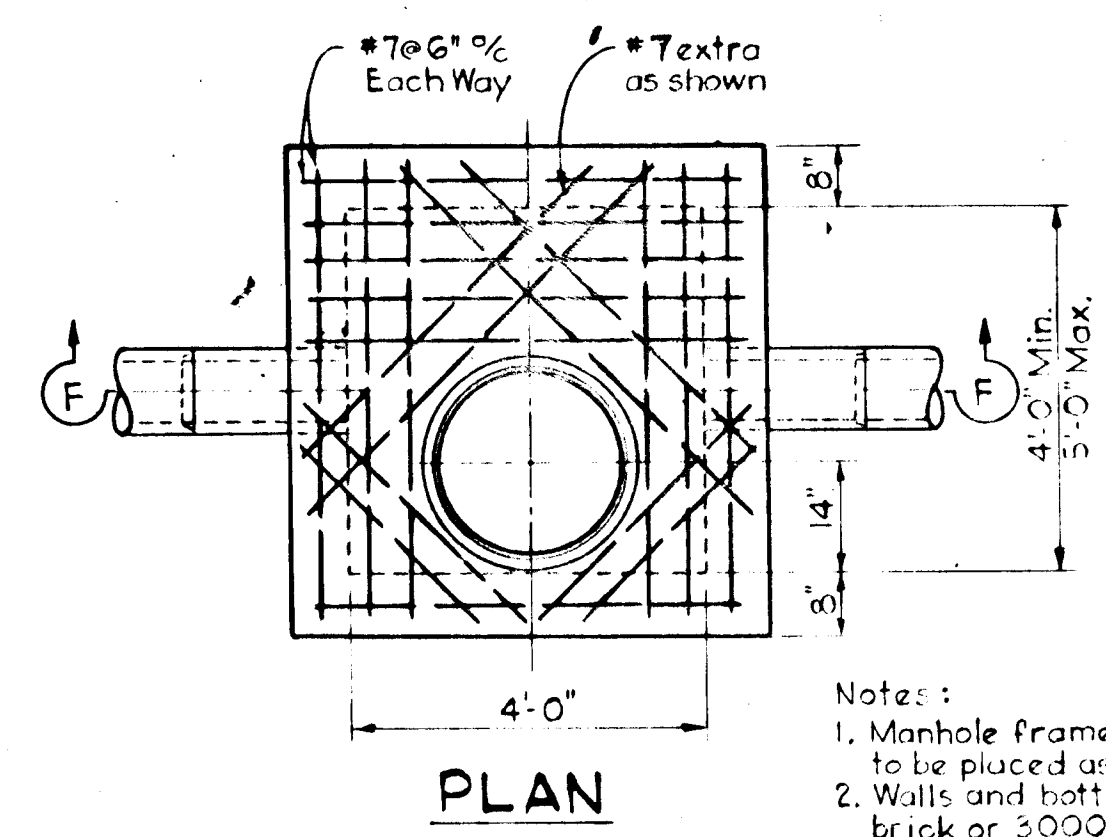


SECTION LL

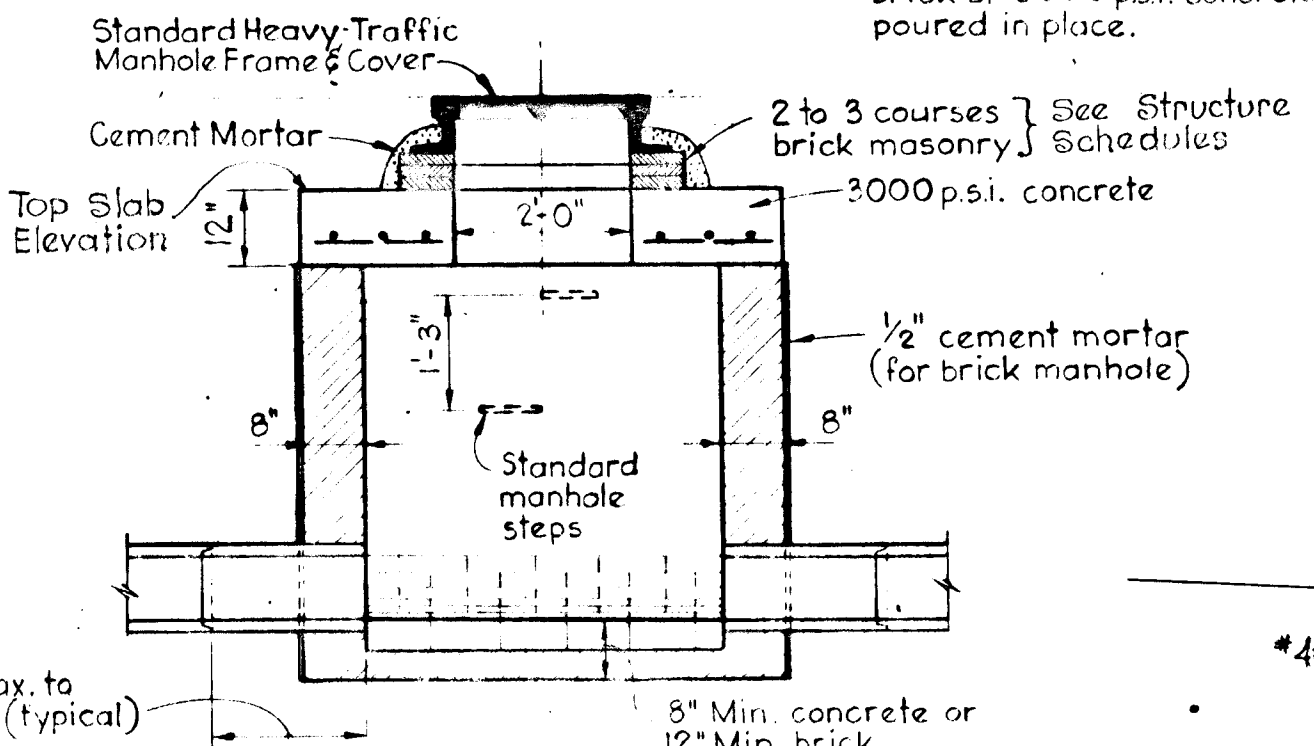


PLAN STRUCTURE 5-7

Scale: 3/8" = 1'-0"

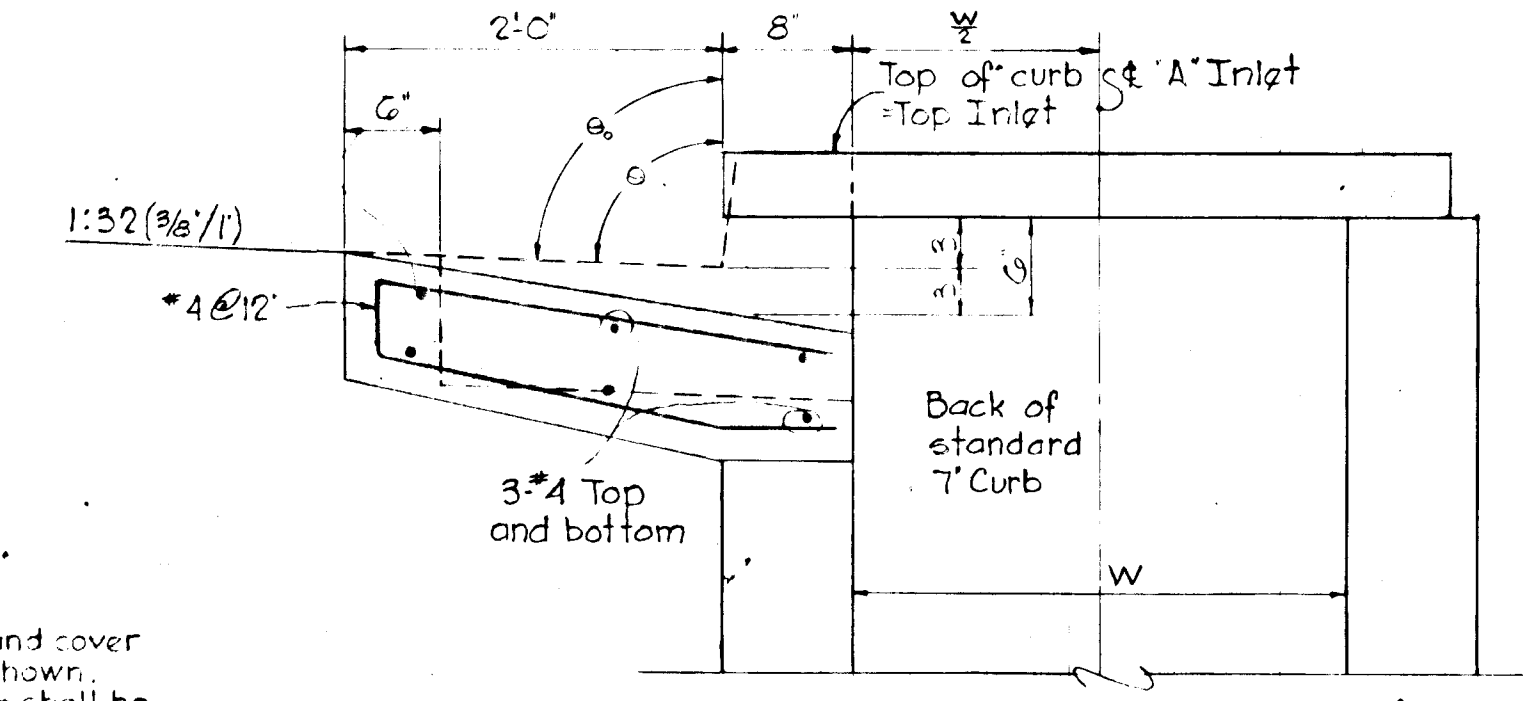


PLAN

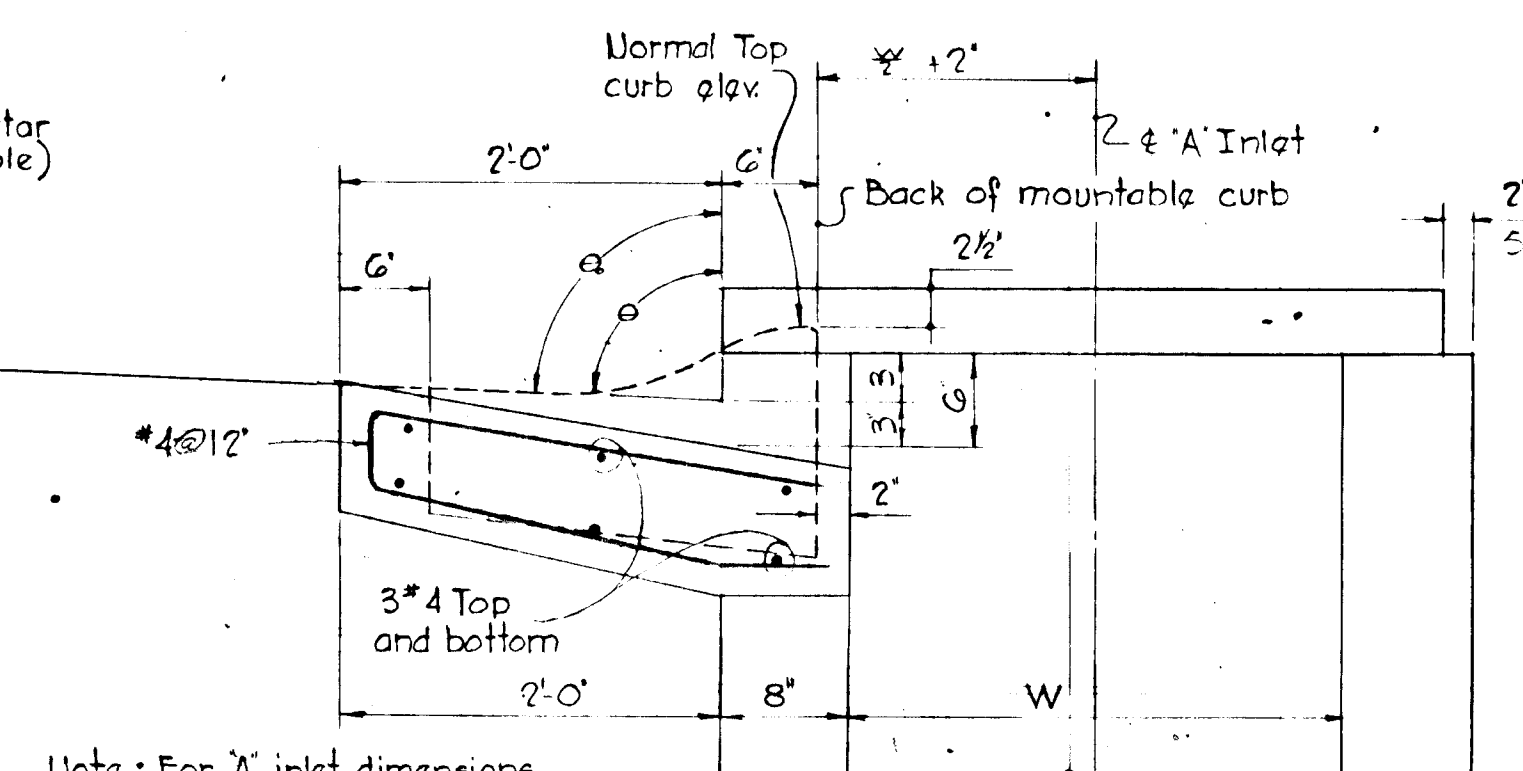


SECTION "F-F" TYPE "B" MANHOLE

No Scale

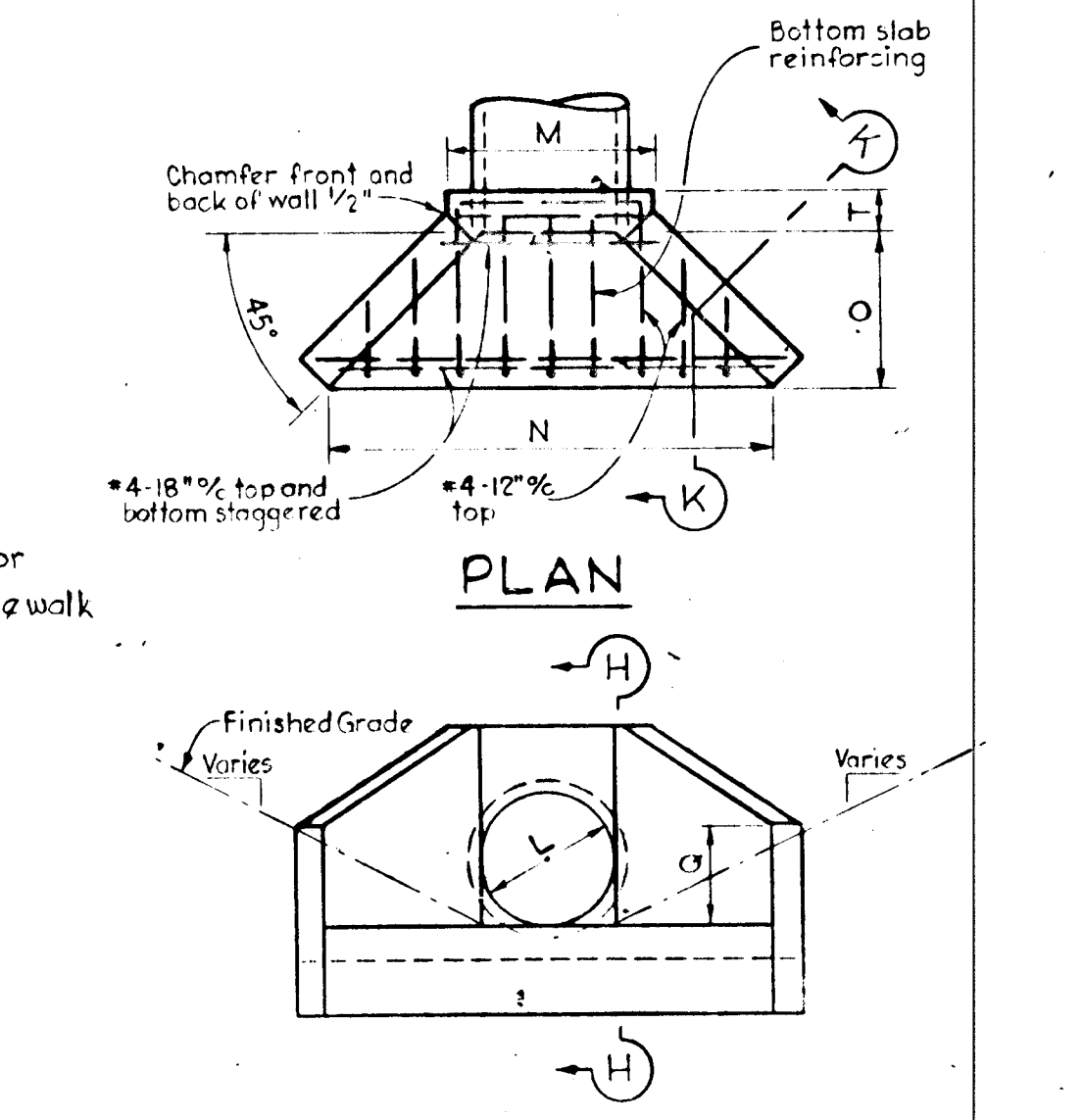


SECTION C-C 'A' INLET - STANDARD CURB



SECTION D-D 'A' INLET - MOUNTABLE CURB

Note: For 'A' inlet dimensions and structural details, see standard Howard County Drawing G4-A, page 112-A



FRONT ELEVATION SPECIAL TYPE "A" HEADWALL

No Scale

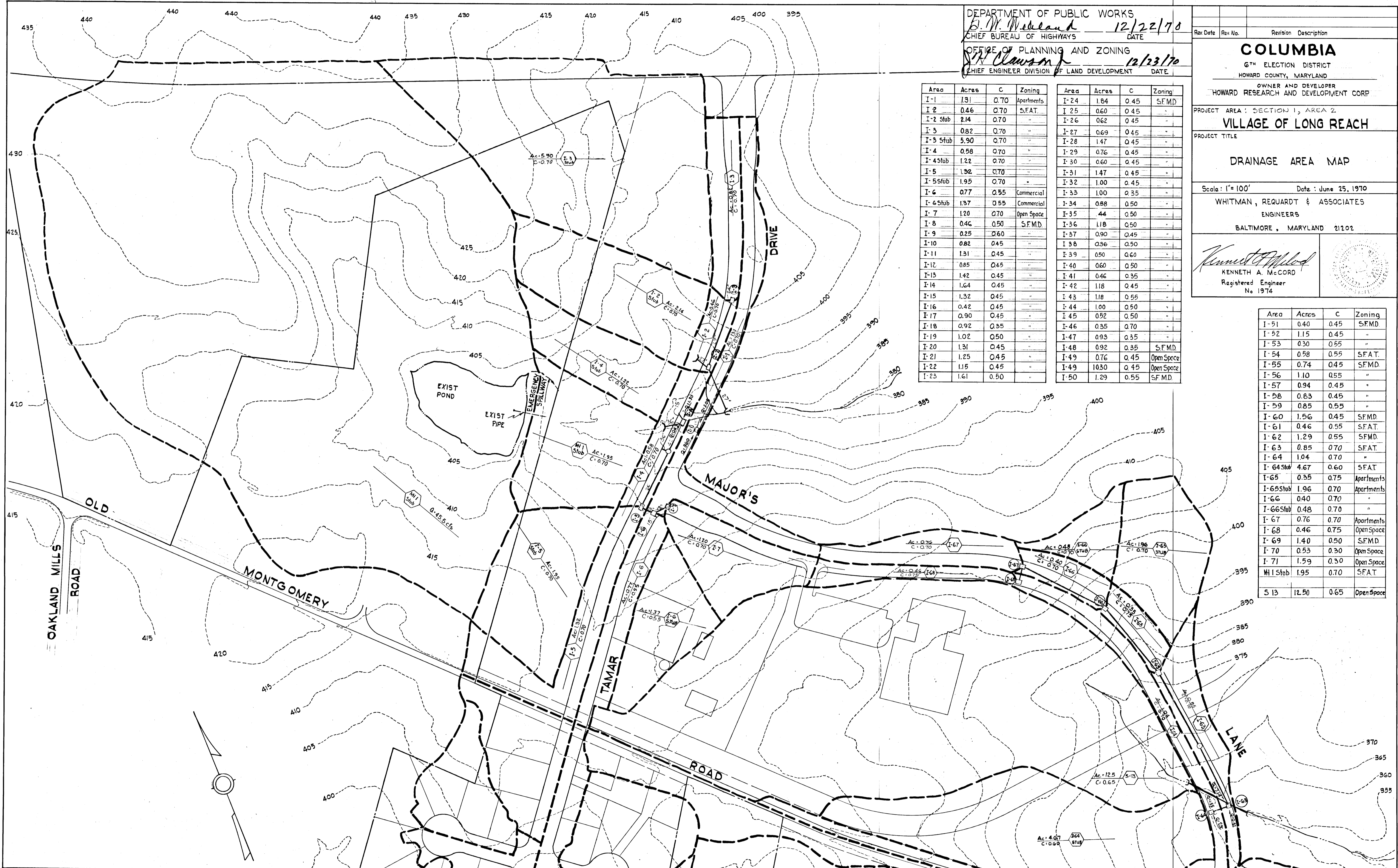
Rev. Date	Rev. No.	Revision Description

**COLUMBIA**  
6<sup>TH</sup> ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
OWNER AND DEVELOPER  
HOWARD RESEARCH AND DEVELOPMENT CORP.  
PROJECT AREA - SECTION 1, AREA 2  
**VILLAGE OF LONGREACH**  
PROJECT TITLE  
**STORM DRAIN DETAILS**

Scale: AS SHOWN Date: June 25, 1970

WHITMAN, REQUARDT & ASSOCIATES  
ENGINEERS  
BALTIMORE, MARYLAND 21202

*Kenneth A. McCord*  
KENNETH A. MCCORD  
Registered Engineer  
No. 1974



DEPARTMENT OF PUBLIC WORKS  
*B. W. Weiland* 12/22/70  
 CHIEF BUREAU OF HIGHWAYS DATE

OFFICE OF PLANNING AND ZONING  
*J. H. Clawson* 12/23/70  
 CHIEF ENGINEER DIVISION OF LAND DEVELOPMENT DATE

Rev. No.	Rev. No.	Revision	Description

**COLUMBIA**  
 6<sup>TH</sup> ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER  
 HOWARD RESEARCH AND DEVELOPMENT CORP

PROJECT AREA: SECTION 1, AREA 2  
**VILLAGE OF LONG REACH**

PROJECT TITLE  
**DRAINAGE AREA MAP**

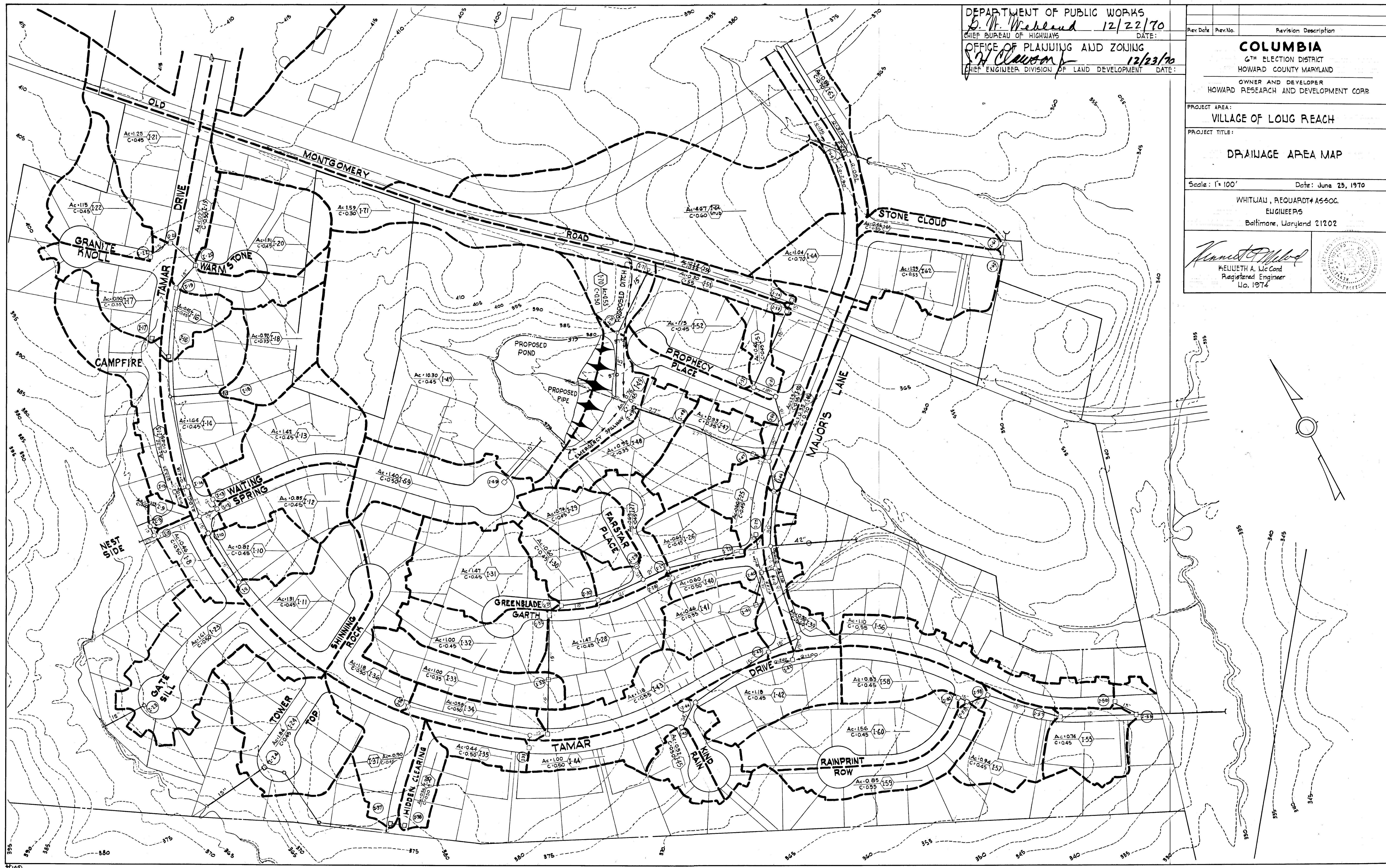
Scale: 1"=100' Date: June 25, 1970

WHITMAN, REQUARDT & ASSOCIATES  
 ENGINEERS  
 BALTIMORE, MARYLAND 21202

*Kenneth A. McCord*  
 KENNETH A. McCORD  
 Registered Engineer  
 No. 1974

Area	Acres	C	Zoning	Area	Acres	C	Zoning
I-1	1.31	0.70	Apartments	I-24	1.84	0.45	SFMD
I-2	0.46	0.70	SFAT	I-25	0.60	0.45	"
I-2 Stub	2.14	0.70	"	I-26	0.62	0.45	"
I-3	0.82	0.70	"	I-27	0.69	0.45	"
I-3 Stub	5.90	0.70	"	I-28	1.47	0.45	"
I-4	0.58	0.70	"	I-29	0.76	0.45	"
I-4 Stub	1.22	0.70	"	I-30	0.60	0.45	"
I-5	1.32	0.70	"	I-31	1.47	0.45	"
I-5 Stub	1.95	0.70	"	I-32	1.00	0.45	"
I-6	0.77	0.55	Commercial	I-33	1.00	0.35	"
I-6 Stub	1.37	0.55	Commercial	I-34	0.58	0.50	"
I-7	1.20	0.70	Open Space	I-35	.44	0.50	"
I-8	0.46	0.50	SFMD	I-36	1.18	0.50	"
I-9	0.25	0.60	"	I-37	0.90	0.45	"
I-10	0.82	0.45	"	I-38	0.36	0.50	"
I-11	1.31	0.45	"	I-39	0.50	0.60	"
I-12	0.85	0.45	"	I-40	0.60	0.50	"
I-13	1.42	0.45	"	I-41	0.46	0.35	"
I-14	1.64	0.45	"	I-42	1.18	0.45	"
I-15	1.32	0.45	"	I-43	1.18	0.55	"
I-16	0.42	0.45	"	I-44	1.00	0.50	"
I-17	0.90	0.45	"	I-45	0.52	0.50	"
I-18	0.92	0.35	"	I-46	0.35	0.70	"
I-19	1.02	0.50	"	I-47	0.93	0.35	"
I-20	1.31	0.45	"	I-48	0.92	0.35	SFMD
I-21	1.25	0.45	"	I-49	0.76	0.45	Open Space
I-22	1.15	0.45	"	I-49	10.30	0.45	Open Space
I-23	1.61	0.50	"	I-50	1.29	0.55	SFMD

Area	Acres	C	Zoning
I-51	0.40	0.45	SFMD
I-52	1.15	0.45	"
I-53	0.30	0.55	"
I-54	0.58	0.55	SFAT
I-55	0.74	0.45	SFMD
I-56	1.10	0.55	"
I-57	0.94	0.45	"
I-58	0.83	0.45	"
I-59	0.85	0.55	"
I-60	1.56	0.45	SFMD
I-61	0.46	0.55	SFAT
I-62	1.29	0.55	SFMD
I-63	0.85	0.70	SFAT
I-64	1.04	0.70	"
I-64 Stub	4.67	0.60	SFAT
I-65	0.35	0.75	Apartments
I-65 Stub	1.96	0.70	Apartments
I-66	0.40	0.70	"
I-66 Stub	0.48	0.70	"
I-67	0.76	0.70	Apartments
I-68	0.46	0.75	Open Space
I-69	1.40	0.50	SFMD
I-70	0.53	0.30	Open Space
I-71	1.59	0.30	Open Space
WI 1 Stub	1.95	0.70	SFAT
S 13	12.50	0.65	Open Space



DEPARTMENT OF PUBLIC WORKS  
*S. W. Weiland* 12/22/70  
 CHIEF BUREAU OF HIGHWAYS DATE:  
 OFFICE OF PLANNING AND ZONING  
*S. J. Clowry* 12/23/70  
 CHIEF ENGINEER DIVISION OF LAND DEVELOPMENT DATE:

Rev. No.	Rev. Date	Revision Description

**COLUMBIA**  
 6TH ELECTION DISTRICT  
 HOWARD COUNTY MARYLAND  
 OWNER AND DEVELOPER  
 HOWARD RESEARCH AND DEVELOPMENT CORP.

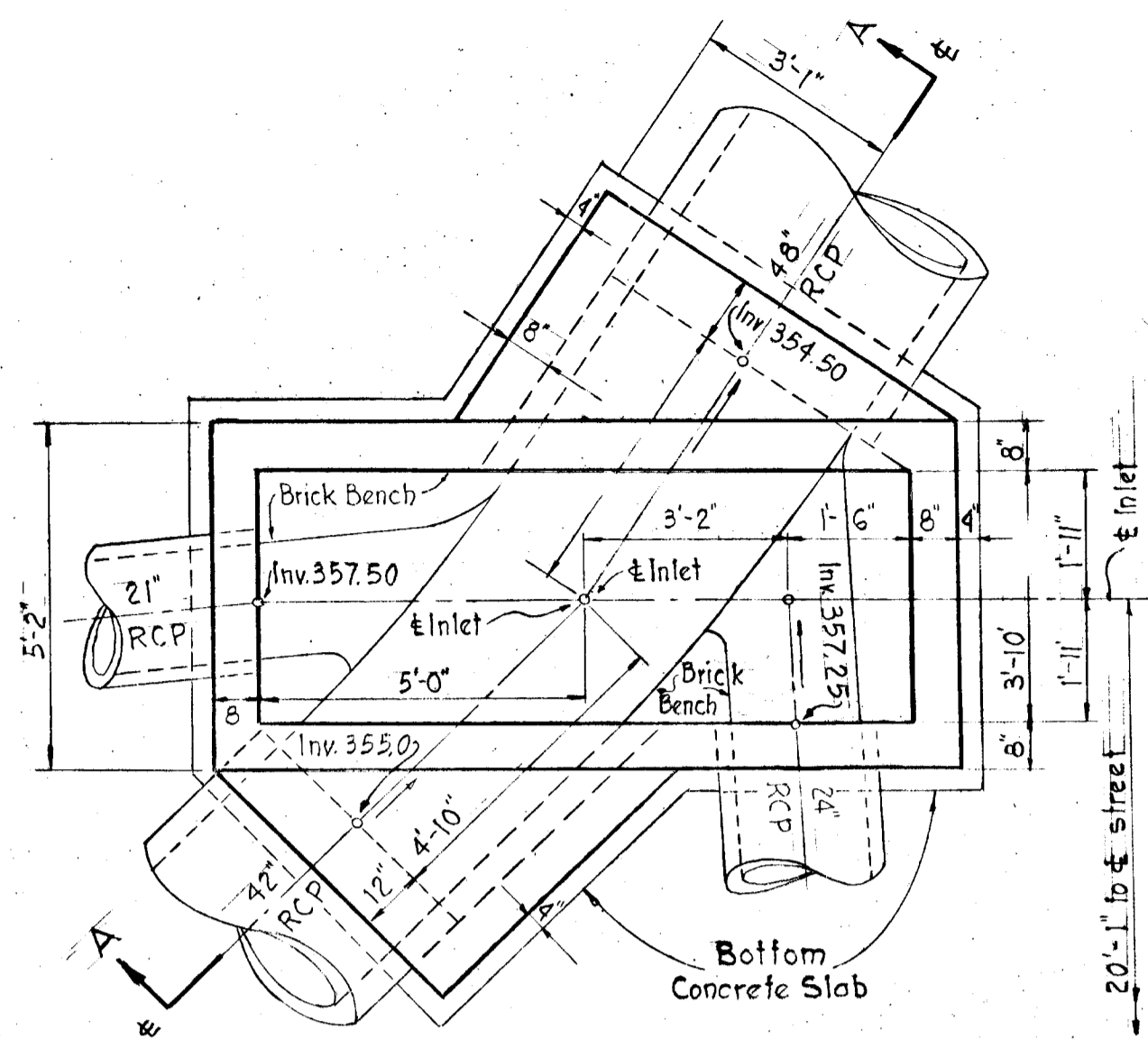
PROJECT AREA:  
**VILLAGE OF LOUG REACH**

PROJECT TITLE:  
**DRAINAGE AREA MAP**

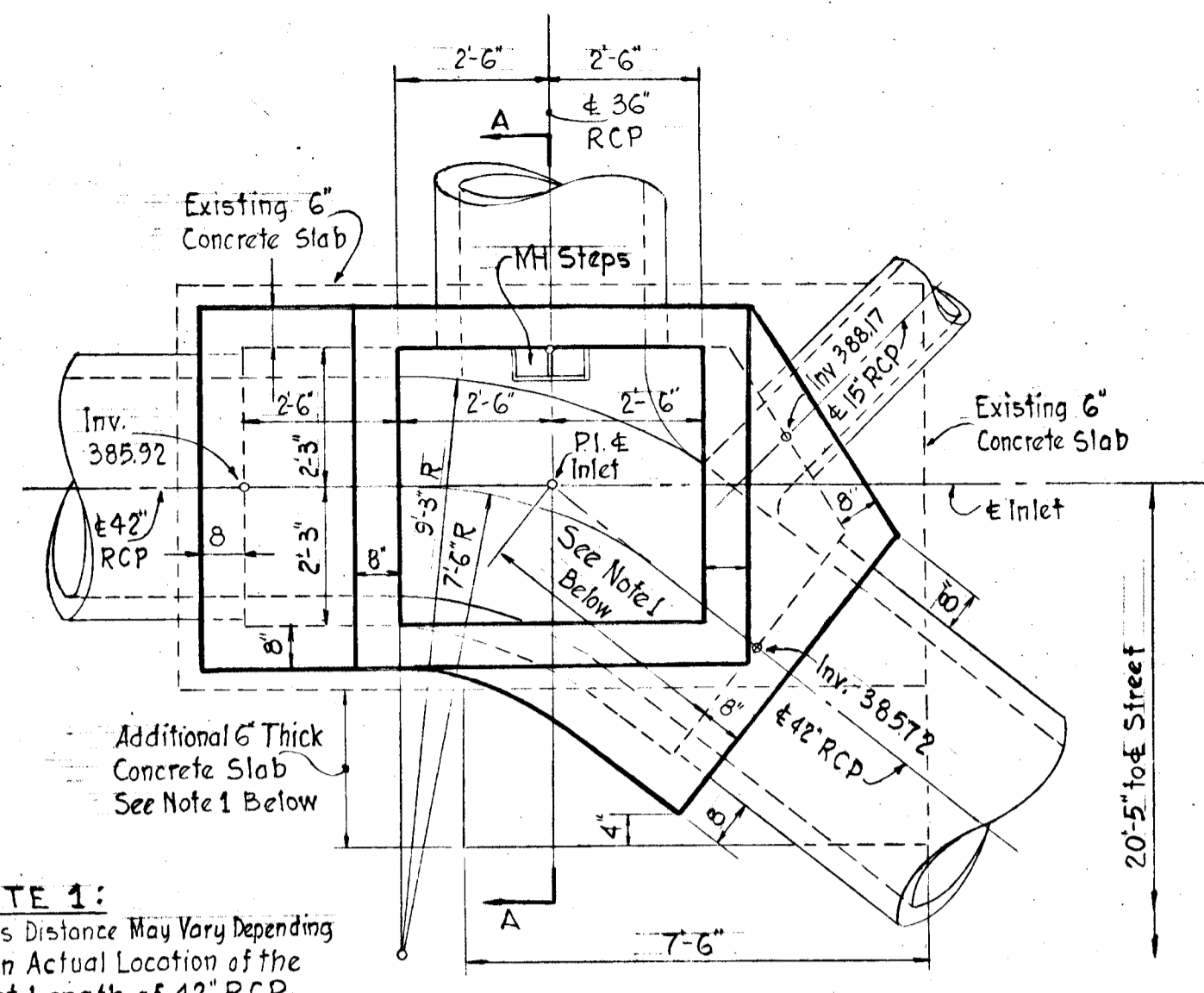
Scale: 1" = 100' Date: June 25, 1970

WHITMAN, REQUARDT & ASSOCIATES  
 ENGINEERS  
 Baltimore, Maryland 21202

*Kenneth A. McCord*  
 KENNETH A. McCord  
 Registered Engineer  
 No. 1974

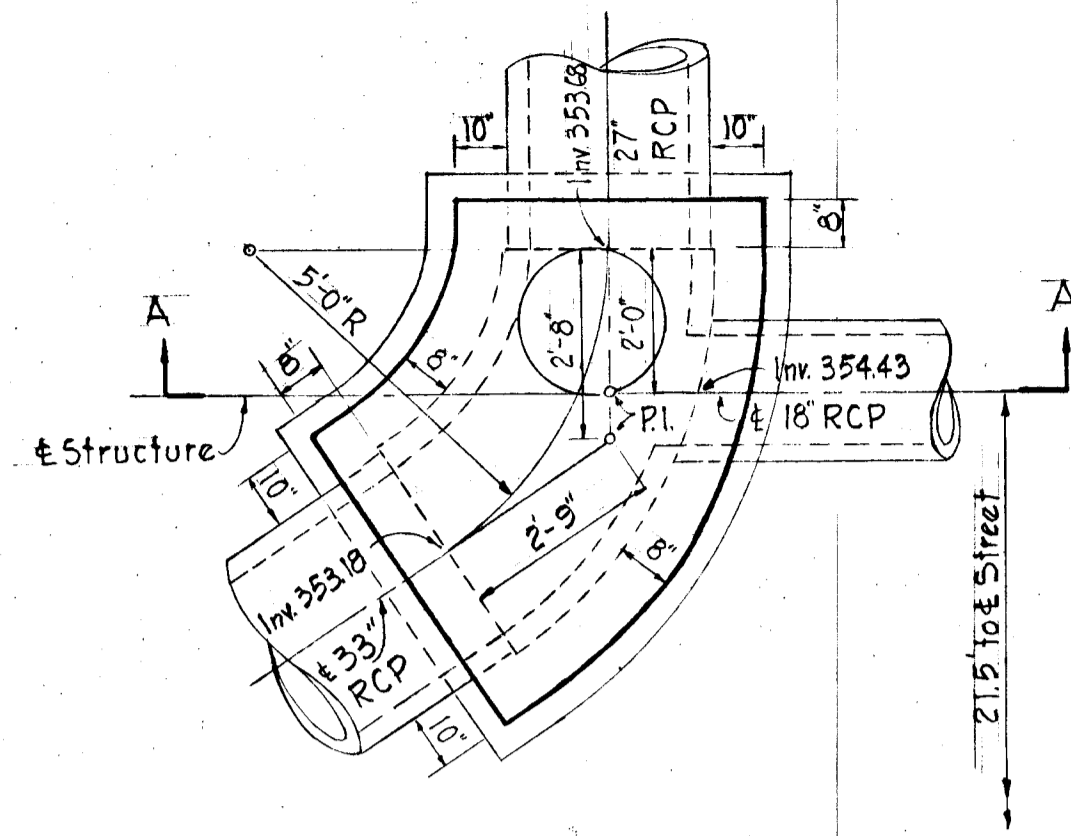


PLAN @ ELEV. 362.20

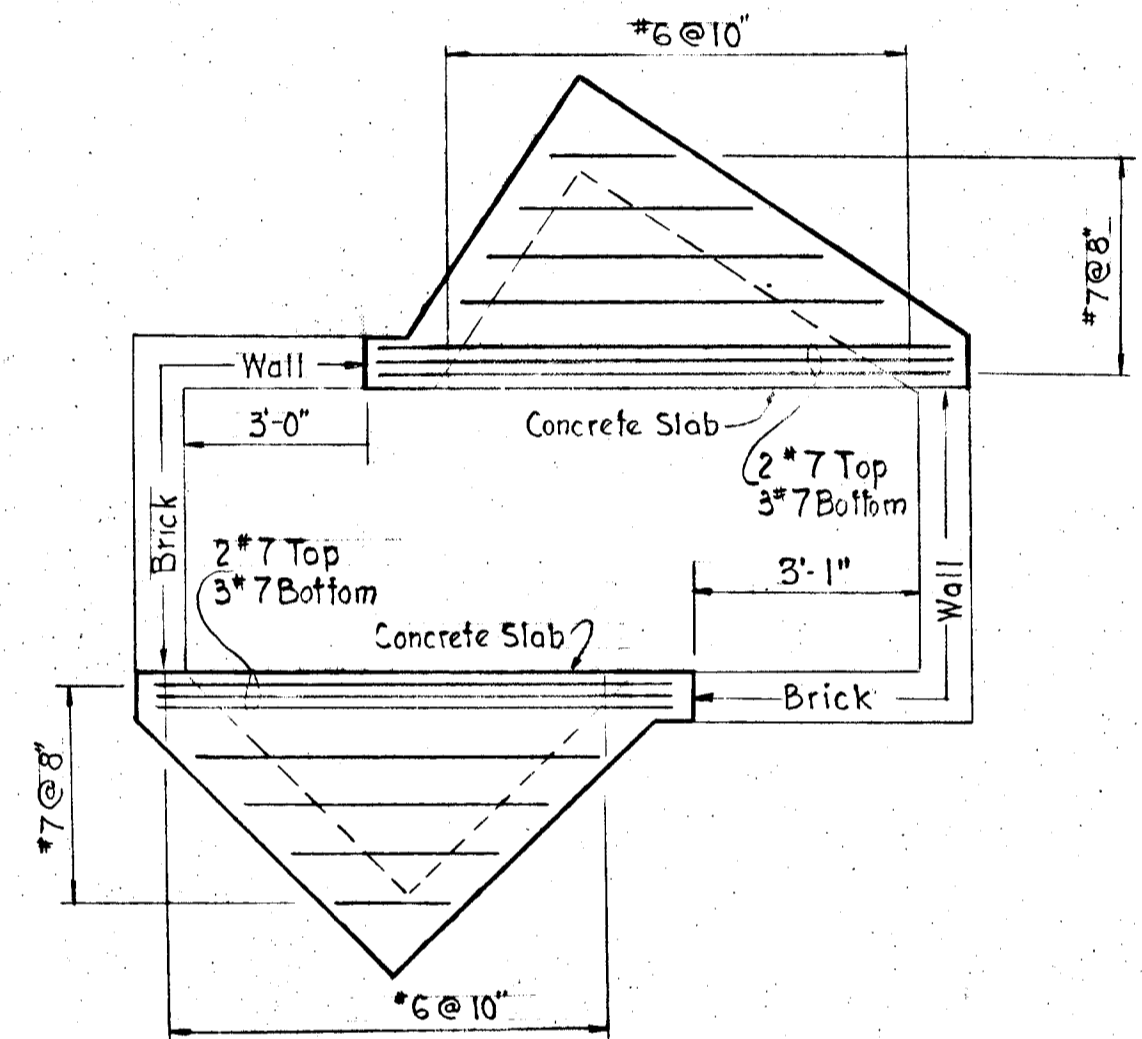


NOTE 1:  
This Distance May Vary Depending  
Upon Actual Location of the  
First Length of 42" RCP

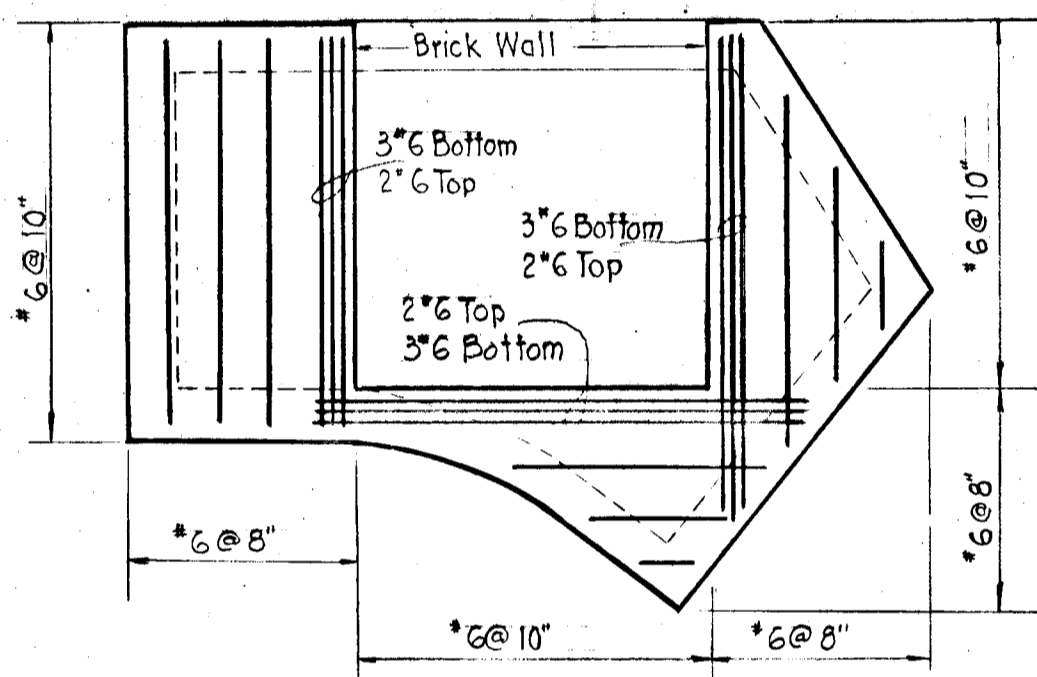
PLAN @ ELEV. 391.00



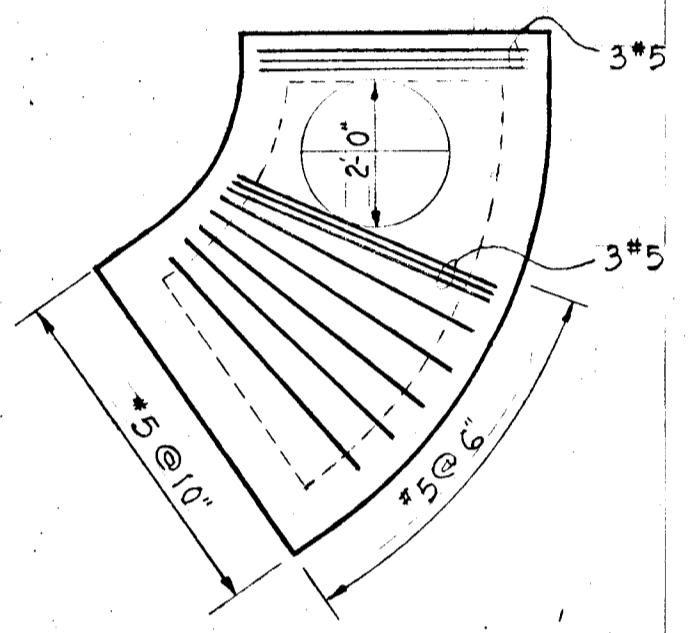
PLAN @ ELEV. 356.90



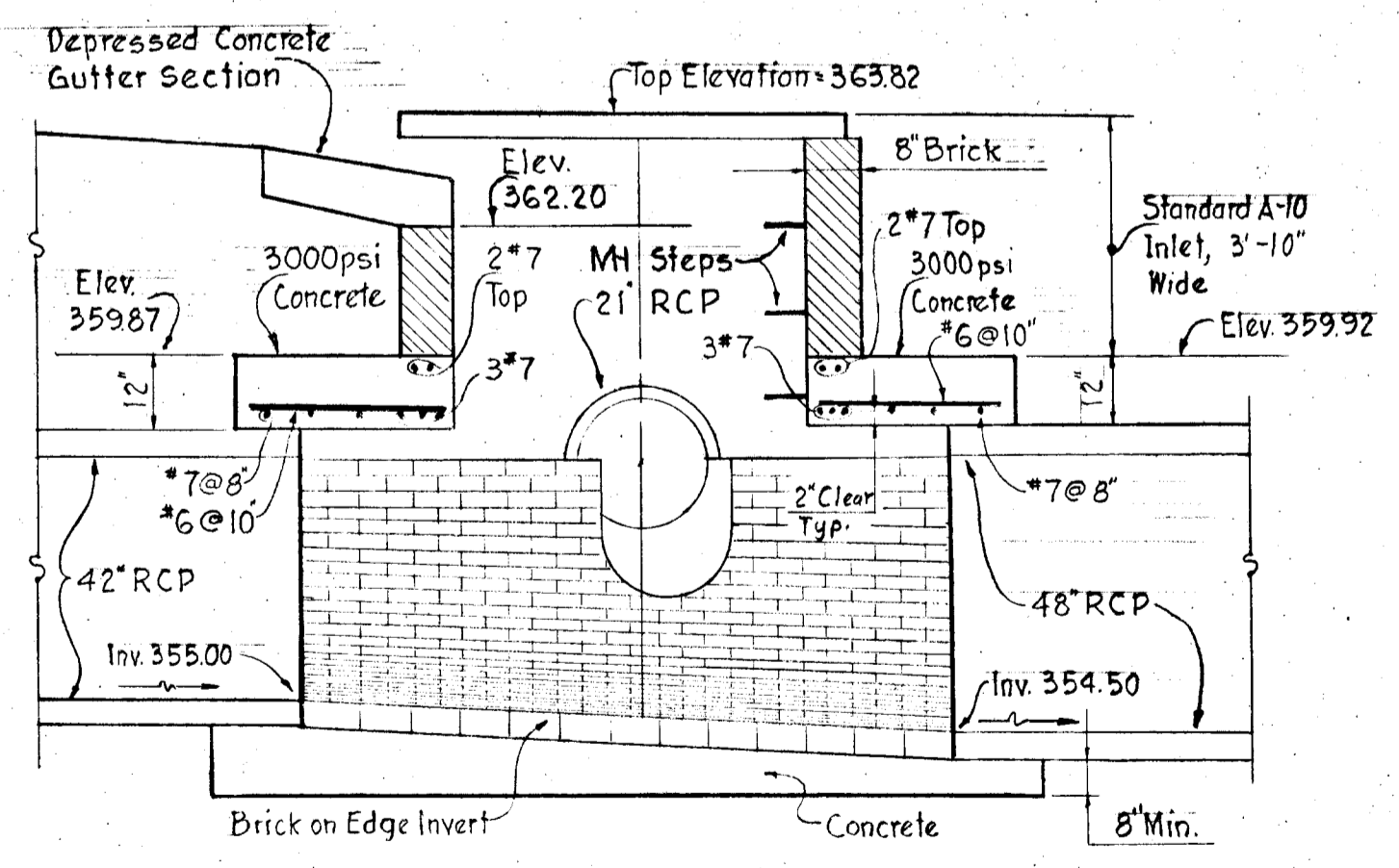
PLAN CONCRETE SLABS  
@ ELEV. 359.92, 359.87



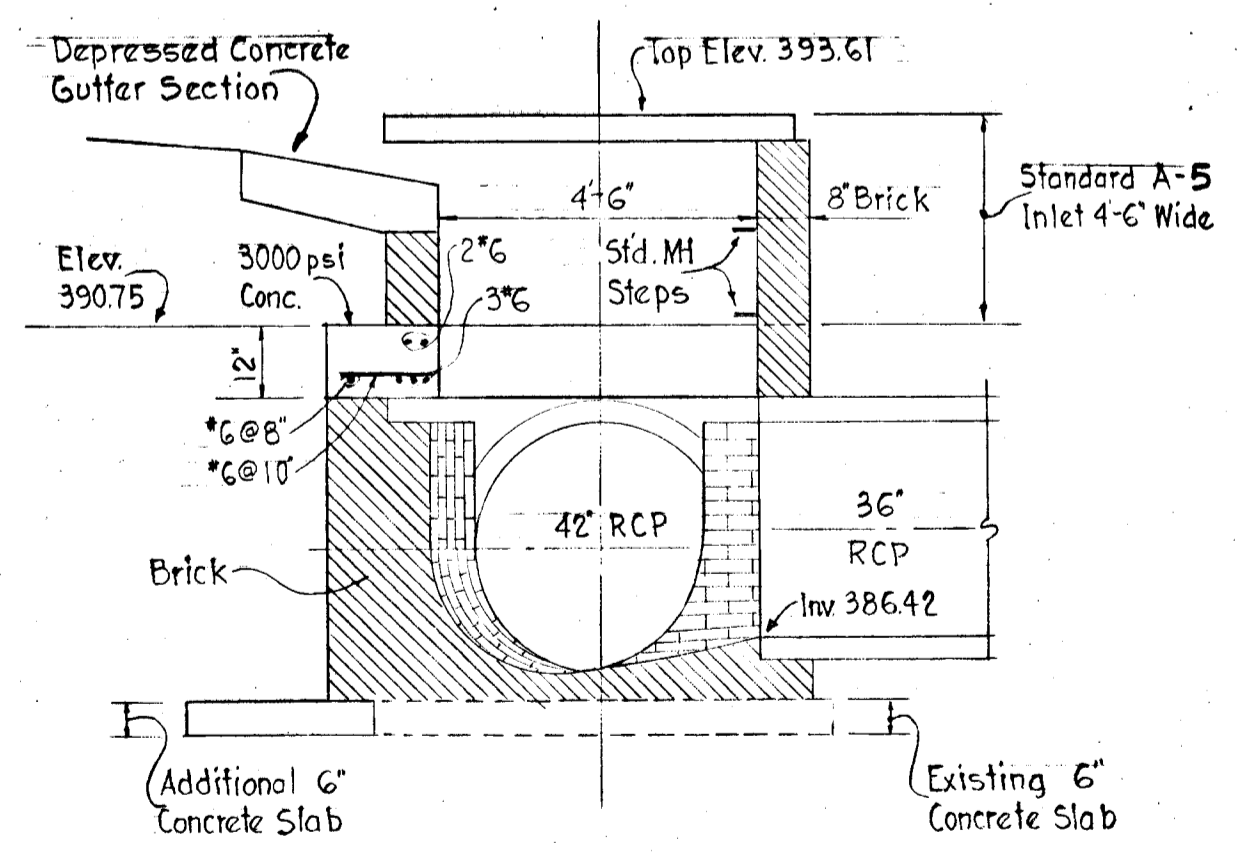
PLAN, CONCRETE SLAB  
@ ELEV. 390.75



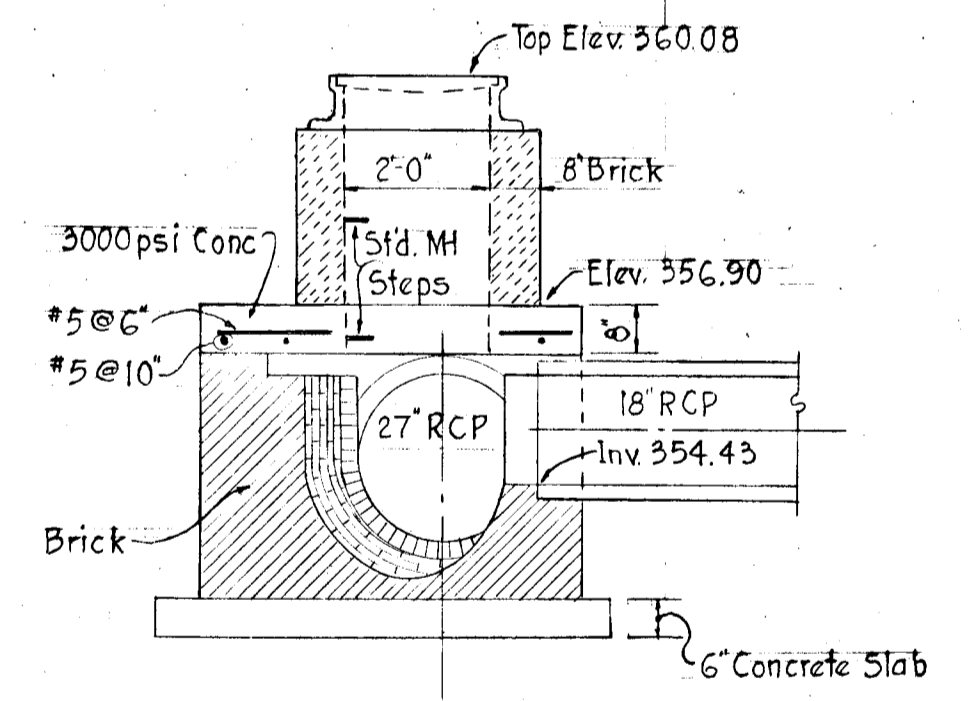
PLAN, CONCRETE SLAB  
@ ELEV. 356.90



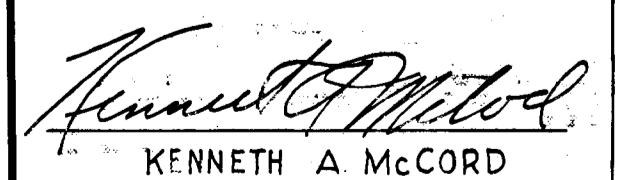
SECTION 'A-A'  
DETAIL, I-63  
SPECIAL A-10 INLET  
Scale: 3/8" = 1'-0"



SECTION 'A-A'  
DETAIL, I-4  
SPECIAL A-5 INLET  
Scale: 3/8" = 1'-0"



SECTION 'A-A'  
DETAIL MH-10  
SPECIAL STRUCTURE  
Scale: 3/8" = 1'-0"

Rev. Date	Rev. No.	Revision Description
<b>COLUMBIA</b> 6 <sup>TH</sup> ELECTION DISTRICT HOWARD COUNTY MARYLAND OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP. PROJECT AREA- SECTION 1, AREA 2 <b>VILLAGE OF LONG REACH.</b> PROJECT TITLE <b>STORM DRAIN DETAILS</b>		
Scale: AS SHOWN		Date: June 25, 1970
WHITMAN, REARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
 KENNETH A. MCCORD Registered Engineer No. 1974		