

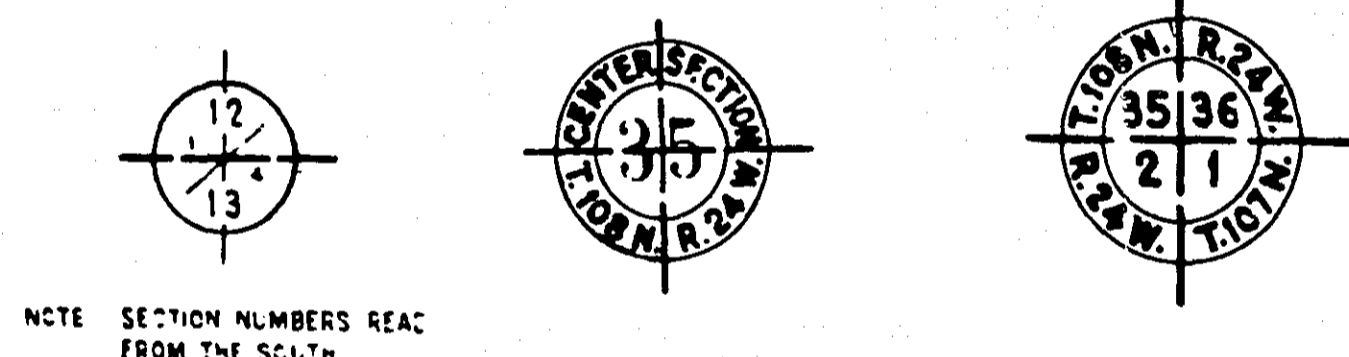
33-39150

**PLANS SYMBOLS**

STATE LINE	SPRINGS
COUNTY LINE	MARSH
TOWNSHIP OR RANGE LINE	TIMBER
SECTION LINE	ORCHARD
QUARTER LINE	BRUSH
SIXTEENTH LINE	NURSERY
RIGHT-OF-WAY LINE	CATCH BASIN
PRESENT RIGHT-OF-WAY LINE	FIRE HYDRANT
CONTROL OF ACCESS LINE	CATTLE GUARD
PROPERTY LINE (Except Land Lines)	OVERPASS (Highway Over)
VACATED PLATED PROPERTY	UNDERPASS (Highway Under)
CORPORATE OR CITY LIMITS	BRIDGE
TRUNK HIGHWAY CENTER LINE	BUILDING (One Story Frame)
RETAINING WALL	F-FRAME C-CONCRETE
RAILROAD	S-STONE T-TILE
RAILROAD RIGHT-OF-WAY LINE	B-BRICK ST-STUCCO
RIVER OR CREEK	IRON PIPE OR ROD
DRY RUN	MONUMENT (STONE, CONCRETE, OR METAL)
DRAINAGE DITCH	WOODEN HUB
DRAIN TILE	GRAVEL PIT
CULVERT	SAND PIT
DROP INLET	BORROW PIT
GUARD RAIL	ROCK QUARRY
BARBED WIRE FENCE	
WOVEN WIRE FENCE	
CHAIN LINK FENCE	
RAILROAD SNOW FENCE	
STONE WALL OR FENCE	
HEDGE	
RAILROAD CROSSING SIGN	
RAILROAD CROSSING BELL	
ELECTRIC WARNING SIGN	
CROSSING GATE	
MEANDER CORNER	

**UTILITIES SYMBOLS**

POWER POLE LINE	CONDUIT
TELEPHONE OR TELEGRAPH POLE LINE	TELEPHONE CABLE IN CONDUIT
JOINT TELEPHONE AND POWER ON TELEPHONE POLES	ELECTRIC CABLE IN CONDUIT
ANCHOR	TELEPHONE-MANHOLE
STEEL TOWER	ELECTRIC MANHOLE
STREET LIGHT	BURIED TELEPHONE CABLE
PEDESTAL TELEPHONE CABLE TERMINAL	BURIED ELECTRIC CABLE
GAS MAIN	AERIAL TELEPHONE CABLE
WATER MAIN	SEWER, (SANITARY OR STORM)
	SEWER MANHOLE



NOTE: SECTION NUMBERS READ FROM THE SOUTH.

**PIT DATA**

PIT NO. _____	Located in Dead Haul
PIT NO. _____	Located in Dead Haul
PIT NO. _____	Located in Dead Haul
PIT NO. _____	Located in Dead Haul

**SPECIFICATIONS**

THE "SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" DATED JANUARY 1, 1968 SHALL GOVERN.

**OFFICE OF COUNTY ENGINEER  
RAMSEY COUNTY  
CONSTRUCTION PLAN FOR GRADING AND BITUMINOUS SURFACING  
MCKNIGHT ROAD**

BETWEEN: HIGHWOOD AVE. AND MAILAND RD.  
FROM: A POINT 50 FEET SOUTH OF THE WEST 1/4 OF SECTION 13, T. 28N., R. 22 W. TO: A POINT 35 FEET NORTH OF THE WEST 1/4 OF SECTION 12, T. 28N., R. 22 W.

GROSS LENGTH	5338 FEET	1.01 MILES
BRIDGES-LENGTH	0 FEET	0 MILES
EXCEPTIONS-LENGTH	0 FEET	0 MILES
NET LENGTH	5338 FEET	1.01 MILES

SCALES

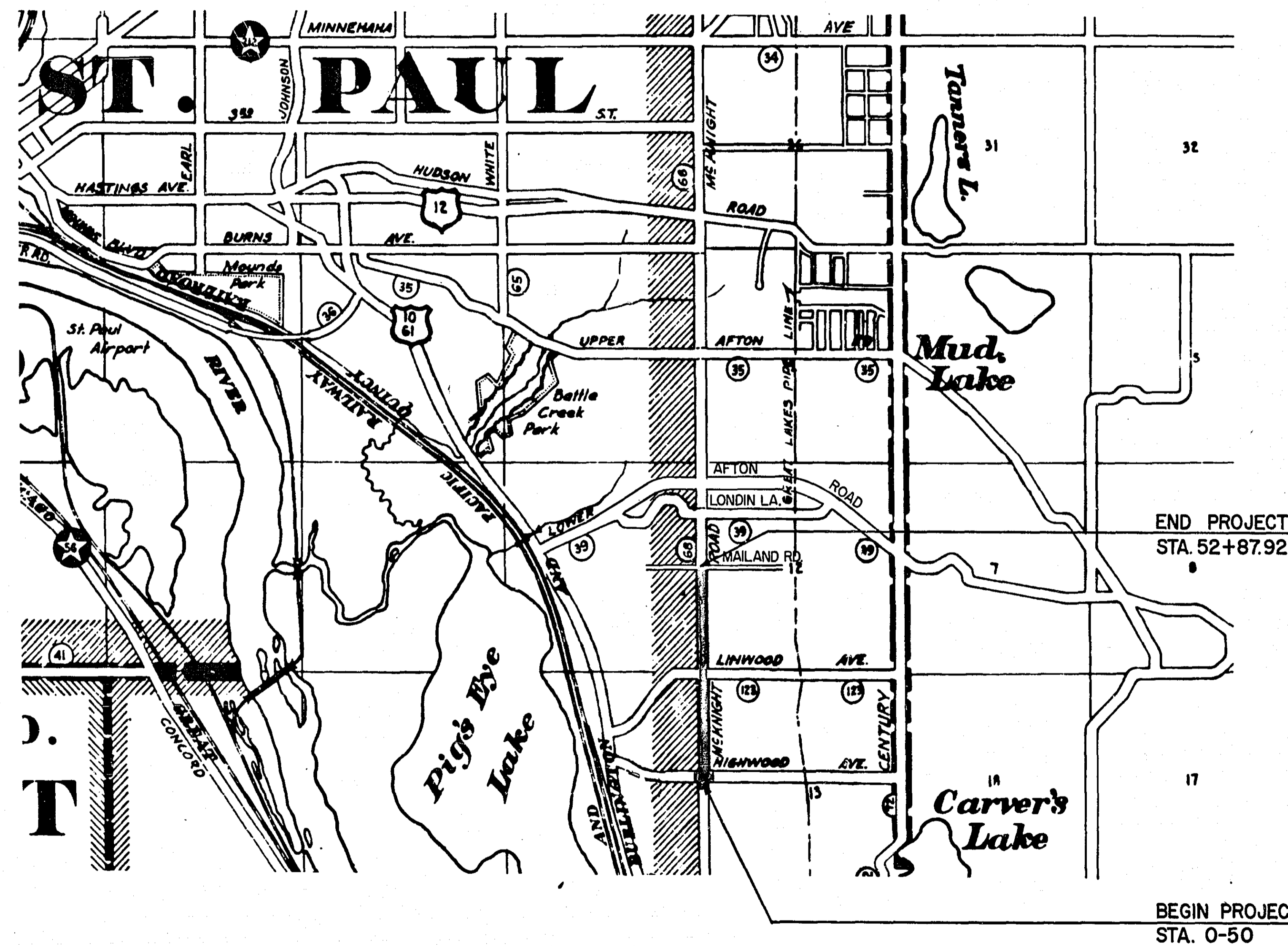
PLAN, 1 inch = 100 Feet
PROFILE, Horiz. 1 inch = 50 Feet Vert. 1 inch = 5 Feet
WORKING PLANS { Horiz. 1 inch = 100 Feet Vert. 1 inch = 10 Feet Cross-Sections 1 inch = 10 Feet
LAYOUT, 1 inch = 2640 Feet

**DESIGN DESIGNATION**

A.D.T. 1967	= 200
A.D.T. 1985	= 4000
DHV	=
D(DIRECTIONAL DISTRIBUTION)	= 50-50
T(HEAVY COMMERCIAL) 1985	= LESS THAN 200 A.D.T.
DESIGN SPEED	= 35 M.P.H. STA. 8+00 TO STA. 52+50
DESIGN LOAD	= 30 M.P.H. STA. 0+00 TO STA. 8+00
SOIL FACTOR	= 7 TON 9 TON ULTIMATE = 100 %

**INDEX**

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTIONS & ESTIMATED QUANTITIES
3	DRAINAGE CHART
4	DETAIL SHEET
586	PLAN PROFILES & CONSTRUCTION PLAN
7-17	CROSS SECTIONS



I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*Wm. J. Coker* ENGINEER REG. NO. 2042 DATE 6-24-68

RECOMMENDED FOR APPROVAL *Dean L. Orvola* COUNTY ENGINEER DATE 6-24-68

APPROVAL *John Daubney* VICE-CHAIRMAN OF THE RAMSEY COUNTY BOARD DATE 7-1-68

APPROVAL *Thomas R. Bysse* MAYOR, CITY OF ST. PAUL DATE 7-22-68

APPROVAL *Leslie Gladwell* MAYOR, VILLAGE OF MAPLEWOOD DATE 7-11-68

MINNESOTA STATE HIGHWAY DEPARTMENT  
RECOMMENDED FOR APPROVAL *C.E. Weickert* DATE 7-18-68

RECOMMENDED FOR APPROVAL *J.F. Anderson* DISTRICT STATE AID ENGINEER DATE 7-15-68

APPROVAL *William M. Gray* STATE AID ENGINEER DATE 7/18/68

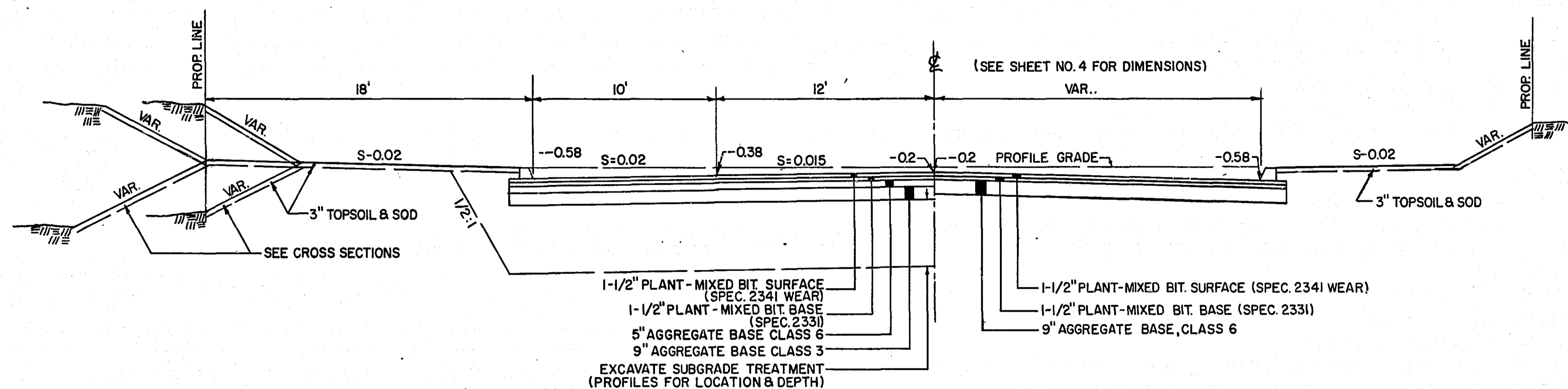
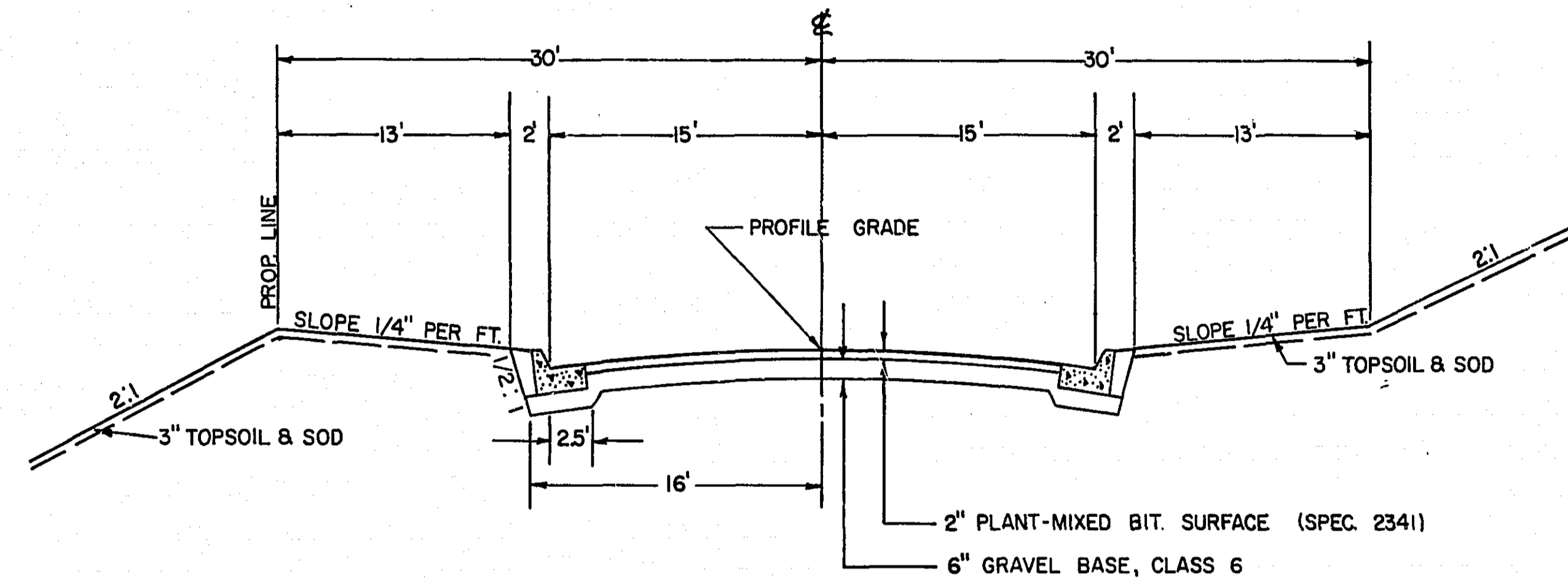
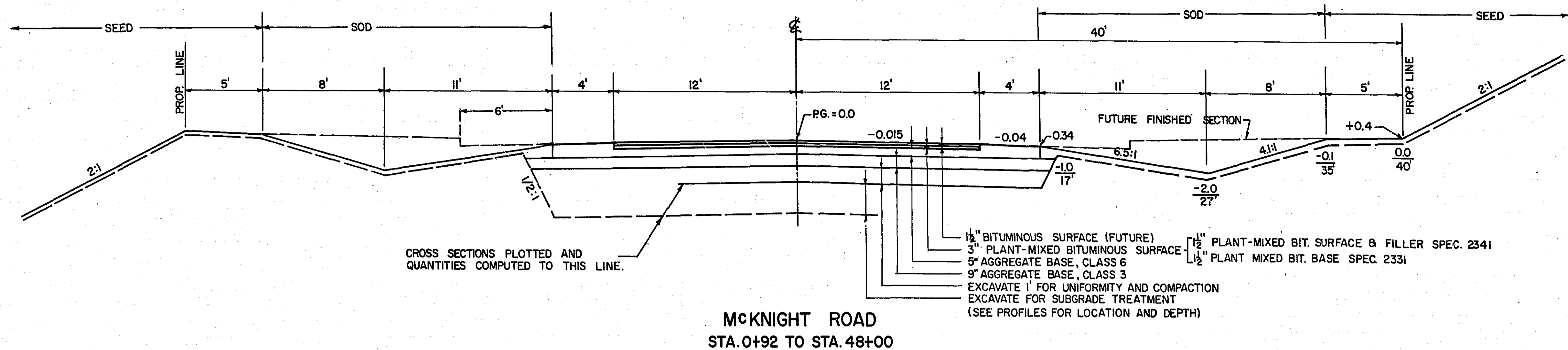
**STATEMENT OF ESTIMATED QUANTITIES**

ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED QUANTITIES
	NON-PARTICIPATING VALLEY VIEW PL.		
2101.511	CLEAR AND GRUB ROADWAYS	LUMP SUM	1
2104.510	REMOVE FENCE (BARB WIRE, WOOD POSTS)	L.F.	2457
2104.520	REMOVE CONCRETE HEADWALL	STRUCTURE	1
2105.501	COMMON EXCAVATION	CU. YD.	79,186
2105.531	SALVAGED BITUMINOUS MIXTURE	CU. YD.	1054
2130.501	WATER	(M) GAL.	100
2104.510	REMOVE FENCE (WOVEN WIRE)	L.F.	256
2211.501	AGGREGATE BASE, CLASS 3	TON	8026
2211.501	AGGREGATE BASE, CLASS 6	TON	6816
2331.504	BIT. MATERIAL FOR MIXTURE	TON	39
2331.514	BASE COURSE MIXTURE	TON	1117
2341.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	93
2341.509	WEARING COURSE MIXTURE + FILLER	TON	1428
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL.	744
2358.501	BITUMINOUS MATERIAL FOR PRIME COAT	GAL.	4771
2451.503	GRANULAR BACKFILL	CU. YD.	975
2501.511	15" METAL PIPE CULVERT	L.F.	218
2503.502	12" REINFORCED CONCRETE SEWER, CLASS IV	L.F.	659
2503.502	15" REINFORCED CONCRETE SEWER, CLASS II	L.F.	1505
2503.502	18" REINFORCED CONCRETE SEWER, CLASS II	L.F.	608
2503.502	21" REINFORCED CONCRETE SEWER, CLASS II	L.F.	186
2503.502	24" REINFORCED CONCRETE SEWER, CLASS II	L.F.	6
2503.502	36" REINFORCED CONCRETE SEWER, CLASS II	L.F.	28
2506.506	CONSTRUCT MANHOLES, DESIGN C	L.F.	54.6
2506.506	CONSTRUCT MANHOLES, DESIGN AORF	L.F.	16.6
2506.509	CONSTRUCT CATCH BASINS, DESIGN IA	STRUCTURE	2
2506.511	RECONSTRUCT MANHOLES	L.F.	9.6
2506.516	CASTING ASSEMBLIES	ASSEMBLY	15
2506.521	INSTALL CASTINGS	ASSEMBLY	2
2531.501	CONCRETE CURB & GUTTER, DESIGN B6 24	L.F.	176
2535.501	BITUMINOUS CURB	L.F.	2078
2575.501	ROADSIDE SEEDING	ACRE	4.7
2575.502	SEED, MIXTURE 6	POUND	353
2575.505	SODDING	S. Y.	25,355
2575.531	COMMERCIAL FERTILIZER, ANALYSIS 12-12-12	TON	30
(1) 557.604	INSTALL FENCE	L.F.	247
(2) 557.604	INSTALL FENCE	L.F.	245
2501.536	18" CONCRETE APRON	APRON	1
2501.536	21" CONCRETE APRON	APRON	1
2501.536	36" CONCRETE APRON	APRON	1
2554.501	TRAFFIC BARRIER, DESIGN SINGLE CABLE	L.F.	252

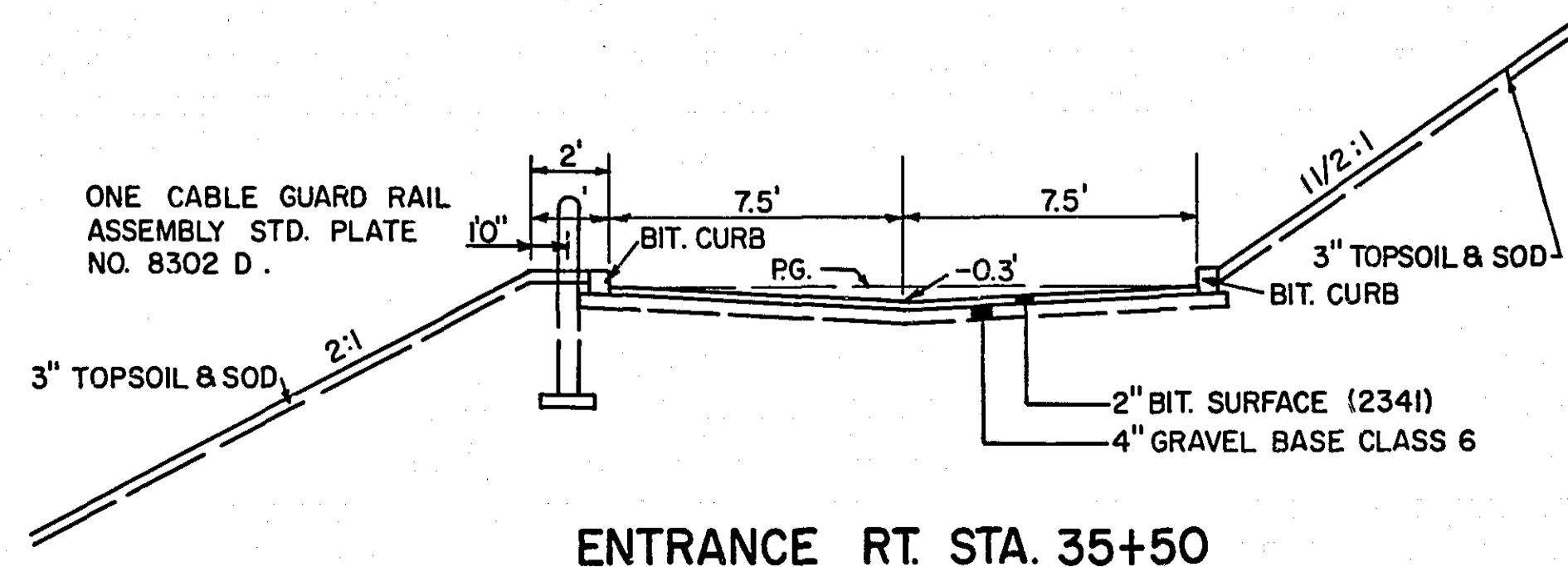
(1) BARBED WIRE FENCE, 3 WIRE, WOOD POSTS  
 (2) WOVEN WIRE FENCE, STEEL POSTS

**STANDARD DETAIL PLATES**

ITEM NO.	SPECIFICATION REFERENCE TO STANDARD PLATES
0001 A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000 F	REINFORCED CONCRETE PIPE
3100 E	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
4000 G	MANHOLE OR CATCH BASIN
4002 D	MANHOLE OR CATCH BASIN
4005 H	MANHOLE OR CATCH BASIN
4101 B	RING CASTING FOR MANHOLE OR CATCH BASIN
4110 D	COVER CASTING FOR MANHOLE
4129 A	CATCH BASIN FRAME CASTING
4142 D	BEEHIVE GRATE CASTING FOR CATCH BASIN
4151 B	GRATE CASTING FOR CATCH BASIN
4160 B	CURB BOX CASTING FOR CATCH BASIN
4180 F	MANHOLE STEP CASTING
7065 C	BITUMINOUS CURB
7102 C	CONCRETE CURB AND GUTTER
8000 C	STANDARD BARRICADES
8008 C	CONTRACTORS SIGN
8302 D	CABLE GUARDRAIL ASSEMBLY



**HIGHWOOD AVE.  
STA. 1+00 TO STA. 3+90**



NOTE. BITUMINOUS MATERIAL SHALL BE:  
 2331 Base A.C.-1 (120-150 Penetration) 3151  
 2341 Wearing A.C.-1 (85-100 Penetration) 3151  
 2357 Tack Coat M.C.-250 or M.C.-800 3151  
 2358 Prime Coat M.C.-70 3151

MICROFILM  
 RAMSEY CO. ENGR.

# DRAINAGE

# CHART

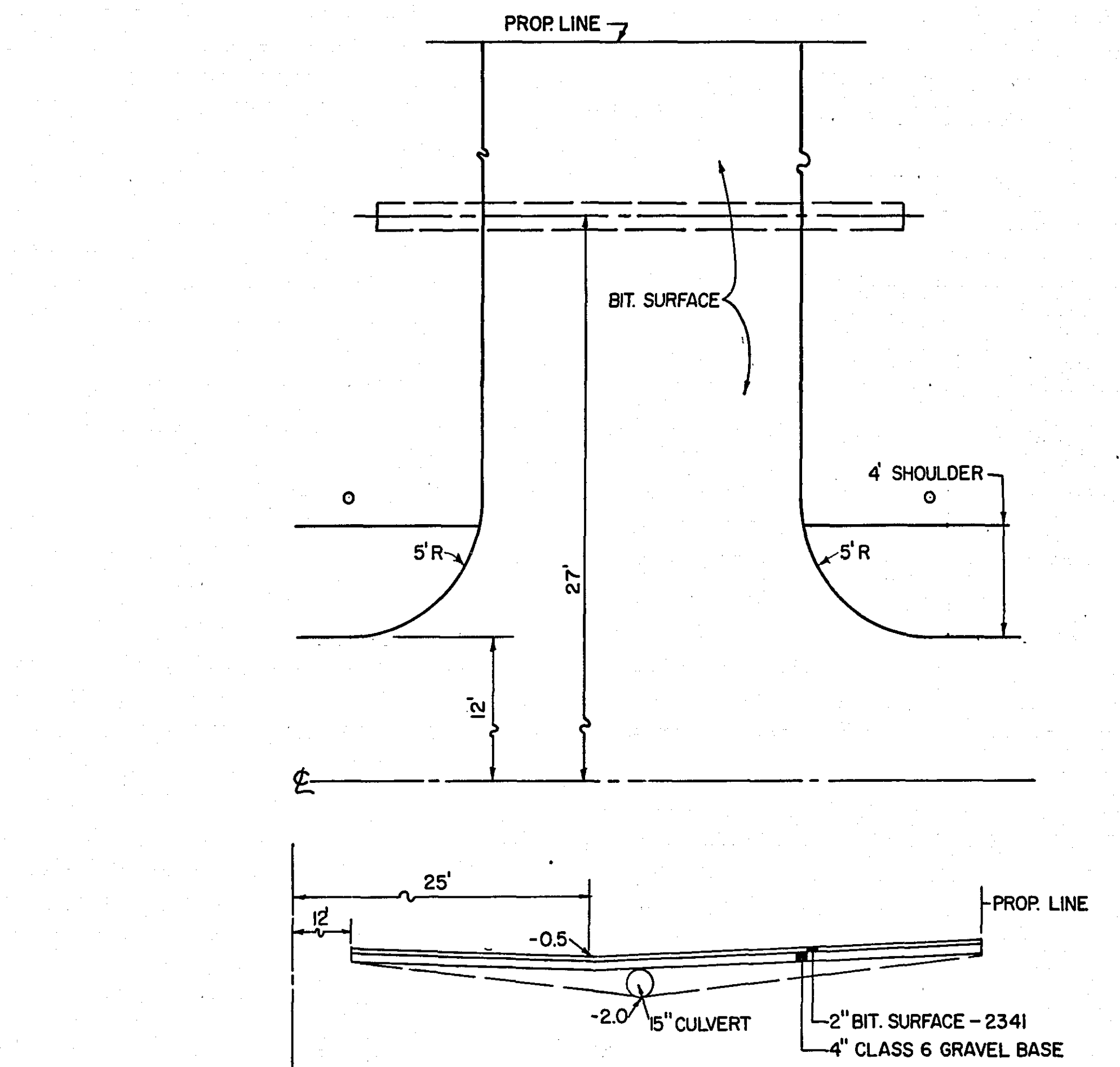
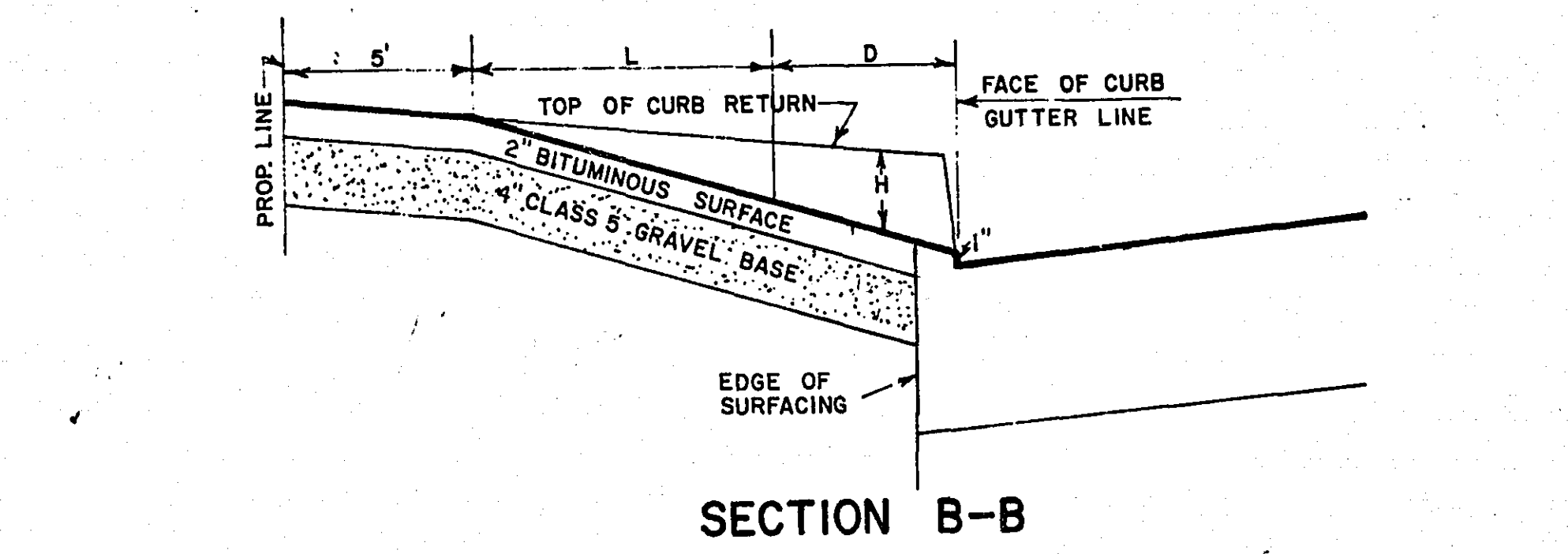
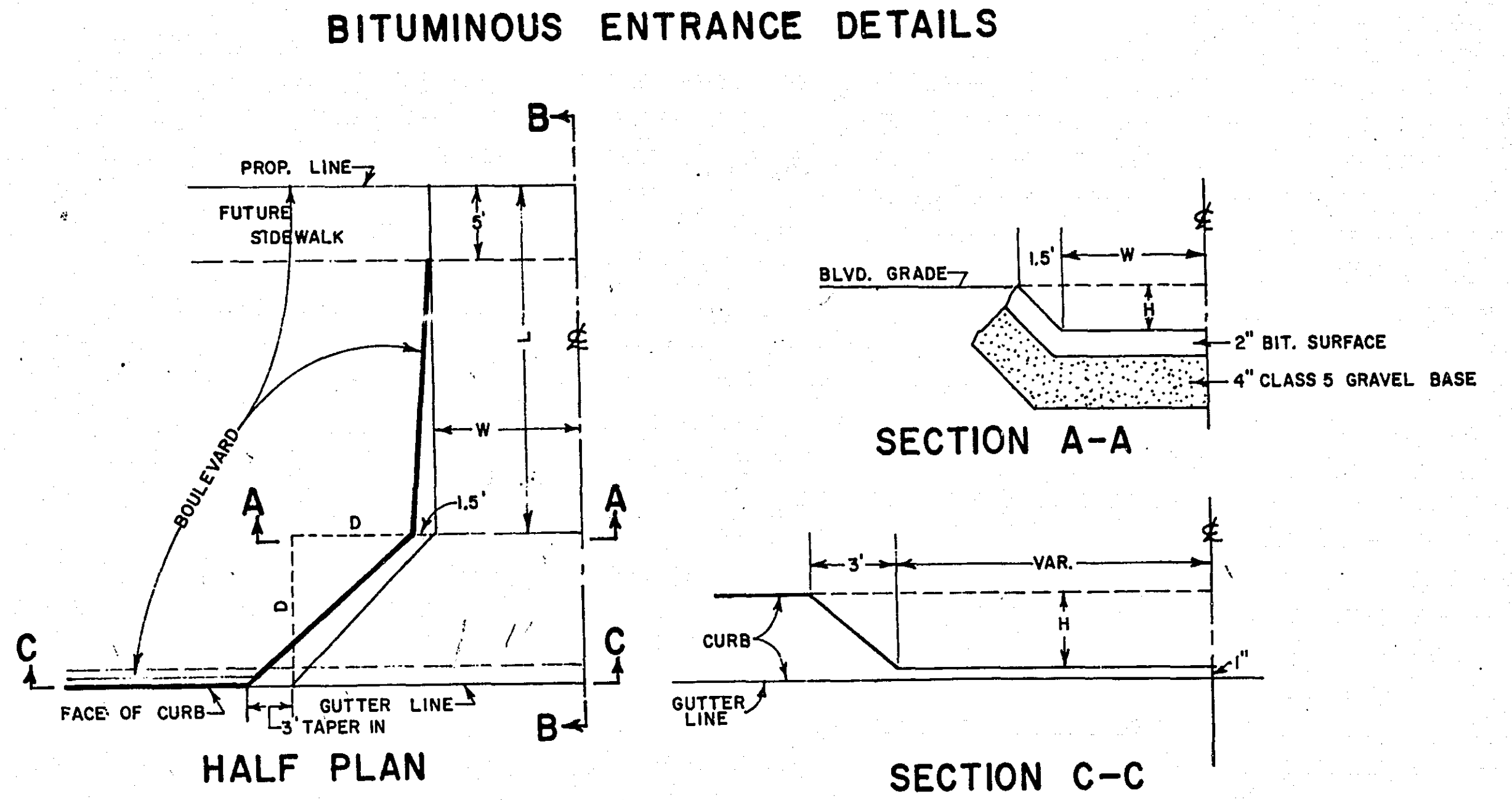
STATION	LOCATION	NO.	TYPE	DESIGN	CONST. HEIGHT LIN. FT.	F. & I. CASTING ASSEMBLY	ELEVATION				ADJUST CASTING ASSEMBLY	RECONSTRUCT C.B. OR M.H. LIN. FT.	INSTALL CASTING ASSEMBLY	INSTALL CONCRETE PIPE SEWER LINEAR FEET						REMOVE PIPE SEWER LIN. FT.	APRON	CLASS	DRAINS TO		REMARK																				
							PROFILE	ORIGINAL GRATE OR RING	NEW GRATE OR RING	C.B. OR M.H. INVERT				12"	15"	18"	21"	24"	36"				STRUCTURE NO.	INV. EL.																					
<b>HIGHWOOD AVE.</b>																																													
3+90	LT. 22'	1	S.D.	C	5.08	A																			IV	5	875.3	8'x12" TO CONC. FLUME																	
4+20	RT. 22'	2	S.D.	C	5.58	A																			IV	1	885.5																		
<b>MCKNIGHT ROAD</b>																																													
0-21	RT. 44'	3	C.B.	C	4.18	D																			IV	5	875.3																		
0+00	LT. 10'	4	M.H.																																										
0+21	RT. 44'	5	C.B.	C	4.68	D																			II	6	874.5																		
0+30	RT. 20'	6	M.H.	C	4.98	B																			I	II	7	873.0																	
0+30	LT. 21'	7	M.H.	AORF	9.28	B																			II	8	864.2																		
0+28	LT. 103'	8	S.D.	C	3.77	E																			II			DRAIN TO EXISTING X-DRAIN																	
2+83	LT. 11'	9	M.H.				898.48	900.92	898.31			5.50	I												II	7	970.5																		
3+00	LT. 21'	10	M.H.	C	3.41	B	900.05		898.32	895.5															II	10	895.5																		
5+38	LT. 21'	11	M.H.	C	4.0	B	920.05		919.7±	915.8															II	17	942.0																		
5+38	LT. 80'	12	C.B.	1A	5.47				922.8	918.0															IV	11	915.5																		
5+56	LT. 12'	13	M.H.				921.32	925.0	921.14			4.14	I												II	12	918.0																		
5+74	LT. 80'	14	C	1A	5.57				923.4	918.5															IV	11	915.8																		
9+50	LT. 21'	15	M.H.	C	3.39	B	934.63		933.31	930.1															II	17	942.0																		
28+59	LT. 21'	16	M.H.	C	4.28	B	948.72		947.50	943.3															II	17	942.0																		
29+87	LT. 21'	17	M.H.	AORF	7.36	B			949.28	942.0															2	II	17	945.95																	
32+30	LT. 21'	18	M.H.	C	3.96	B	961.50		960.28	956.40															II	18	956.40																		
35+00	LT. 21'	19	M.H.	C	4.10	B	973.24		972.02	968.0															II	19	968.00																		
39+50	LT. 21'	20	M.H.	C	3.21	B	976.35		975.13	972.0															II																				
TOTAL																																													
TOTAL												964'	559'	1505'	608'	186'	6'	28'																											

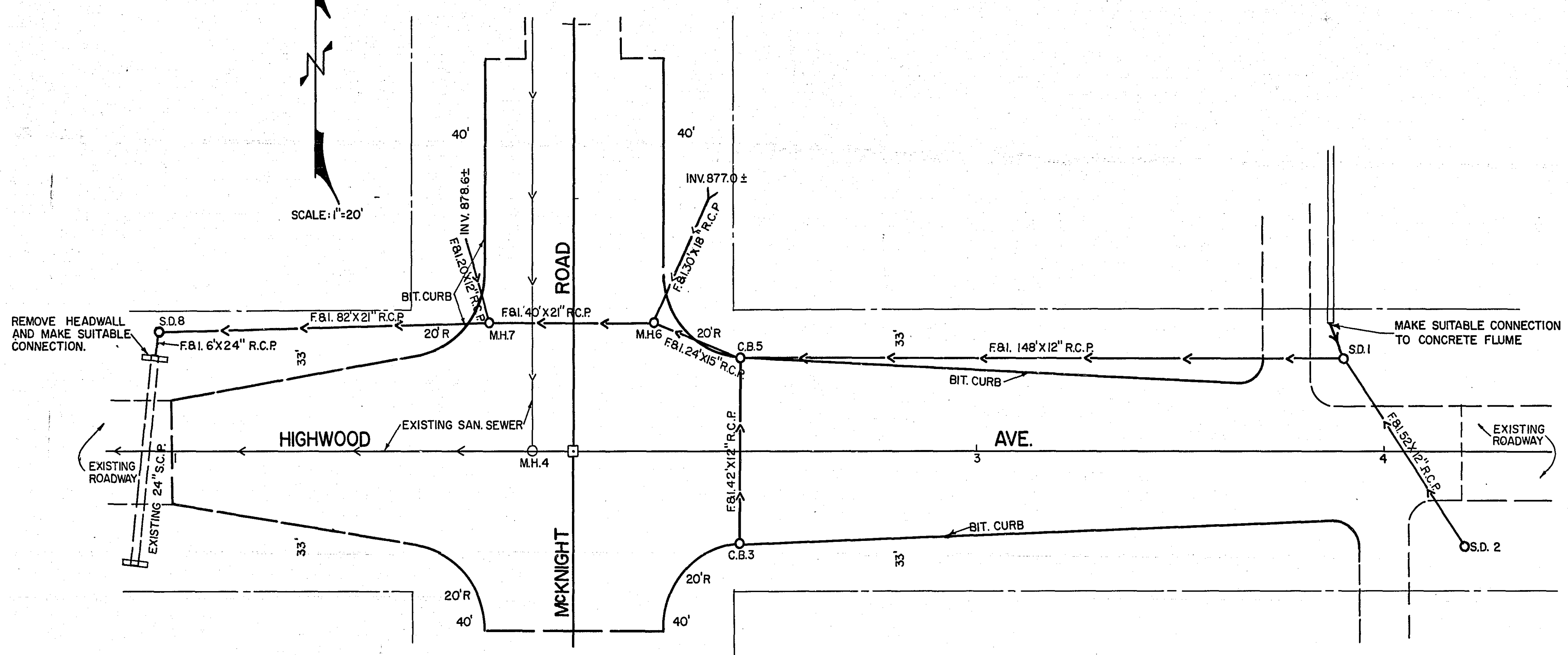
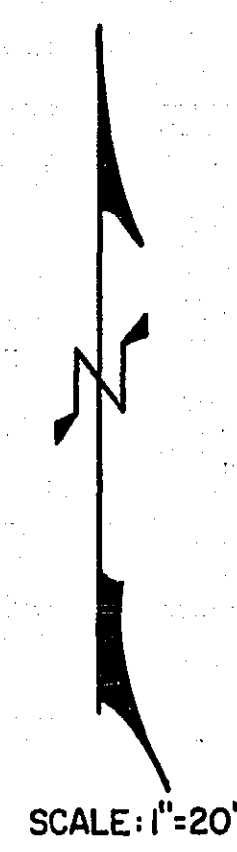
(1) F.B.I. 30"x18" R.C.P. TO 0+60 RT.34 @ 877.0 + APRON  
 (2) F.B.I. 20"x12" R.C.P. TO 0+50 LT.27 @ 878.6  
 (3) SEE SHEET NO. 11  
 (4) SEE SHEET NO. 12  
 (5) SEE SHEET NO. 12  
 (6) SEE SHEET NO. 13  
 (7) SEE SHEET NO. 13  
 (8) SEE SHEET NO. 7  
 (9) SEE SHEET NO. 8

C = M.H.D. ST. PLATE NO. 4002 D  
 DESIGNS = A OR F = M.H.D. ST. PLATE NO. 4000 G OR 4005 H  
 IA = CITY OF ST. PAUL ST. PLATE NO. 2001  
 SEE DETAIL IN SPECIFICATIONS

CASTING ASSEMBLIES  
 A = M.H.D. CASTING NO. 700-7, BEEHIVE GRATE CASTING NO. 4142 D  
 B = M.H.D. CASTING NO. 700-7, COVER CASTING NO. 712  
 D = M.H.D. GRATE FRAME CASTING NO. 802, GRATE CASTING NO. 811, CURB BOX NO. 823  
 E = NEENAH DITCH GRATE NO. R-4341-A OR EQUAL

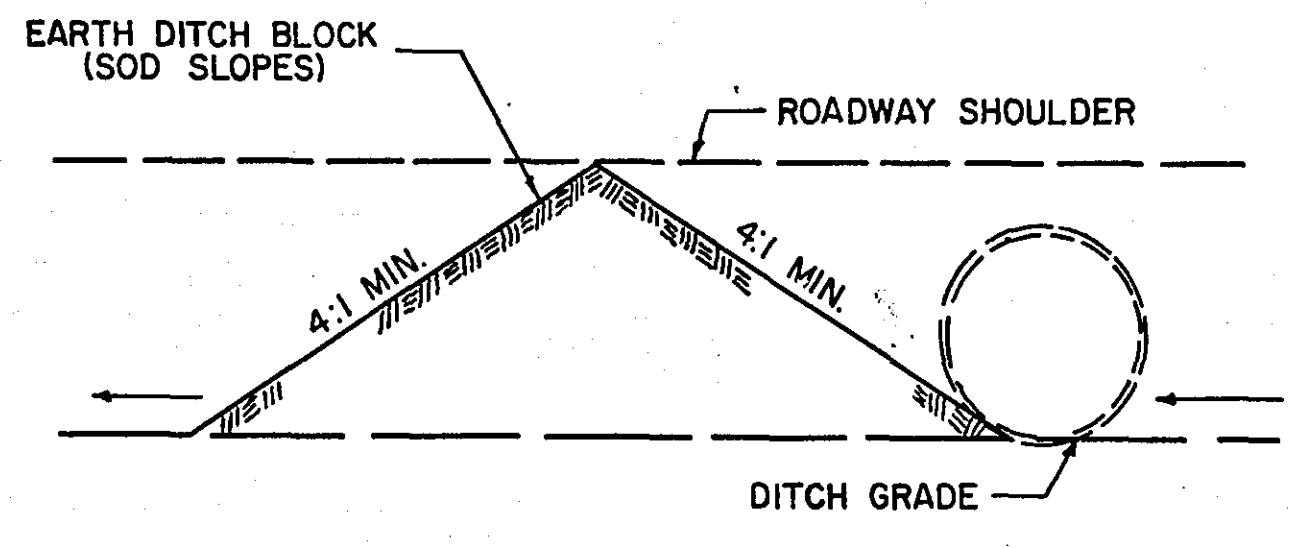
NOTE: ALL MANHOLES SHALL HAVE A MINIMUM OF TWO ADJUSTMENT RINGS.





CULVERT		CHART
STATION	LOCATION	SIZE
10+78	LT.	24' X 15"
11+09	RT.	24' X 15"
13+67	LT.	24' X 15"
20+27	LT.	24' X 15"
23+10	RT.	24' X 15"
23+20	LT.	24' X 15"
35+49	LT.	24' X 15"
35+50	RT.	26' X 15"
46+30	RT.	24' X 15"
TOTAL		218' X 15"

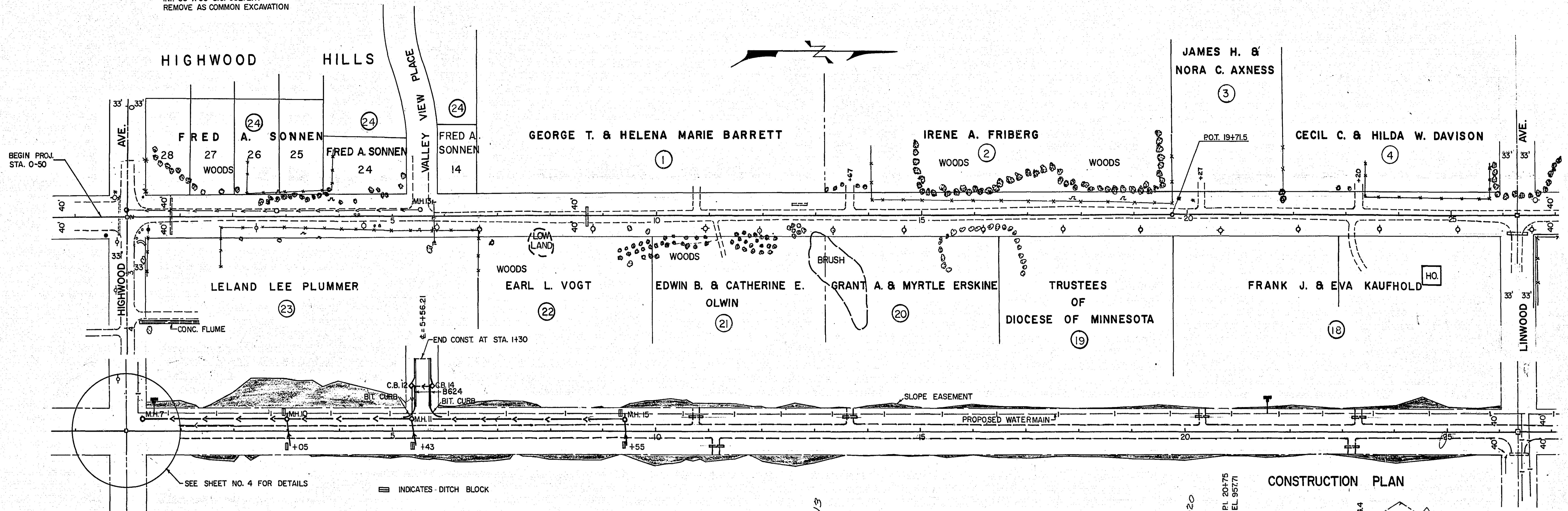
FENCE		REMOVAL	
STAT. & LOCATION	REMOVE	REPLACE	
1+76 RT. 18' FE. COR.	36'		
1+76 RT. 18' TO 6+64 RT. 24'	488'		
6+64 RT. 24' FE. COR.	30'		
26+68 RT. 36' FE. COR.	8'		
26+68 RT. 36' TO 33+26 RT. 36'	658'		
33+26 RT. 36' FE. COR.	10'		
2+28 LT. 42' FE. COR.	54'		
2+28 LT. 42' TO 3+81 LT. 49'	153'		
3+81 LT. 49' FE. COR.	36'		
14+05 LT. 28' FE. COR.	20'		
14+05 LT. 28' TO 19+72 LT. 21'	567'		
19+72 LT. 21' FE. COR.	27'		
23+34 LT. 34' FE. COR.	10'		4'
23+34 LT. 34' TO 25+75 LT. 34'	241'	W-WIRE	241'
25+75 LT. 34' FE. COR.	5'		
32+84 LT. 31' FE. COR.	15'		6'
32+84 LT. 31' TO 35+25 LT. 31'	241'	3-B-WIRE	241'
35+25 LT. 31' FE. COR.	9'		
48+39 LT. 33' TO 48+95 LT. 33'	56'		
49+14 LT. 33' TO 49+63 LT. 33'	49'		
TOTAL	2713'		492'



DITCH BLOCK

MICROFILMED  
RAMSEY CO. ENGR.

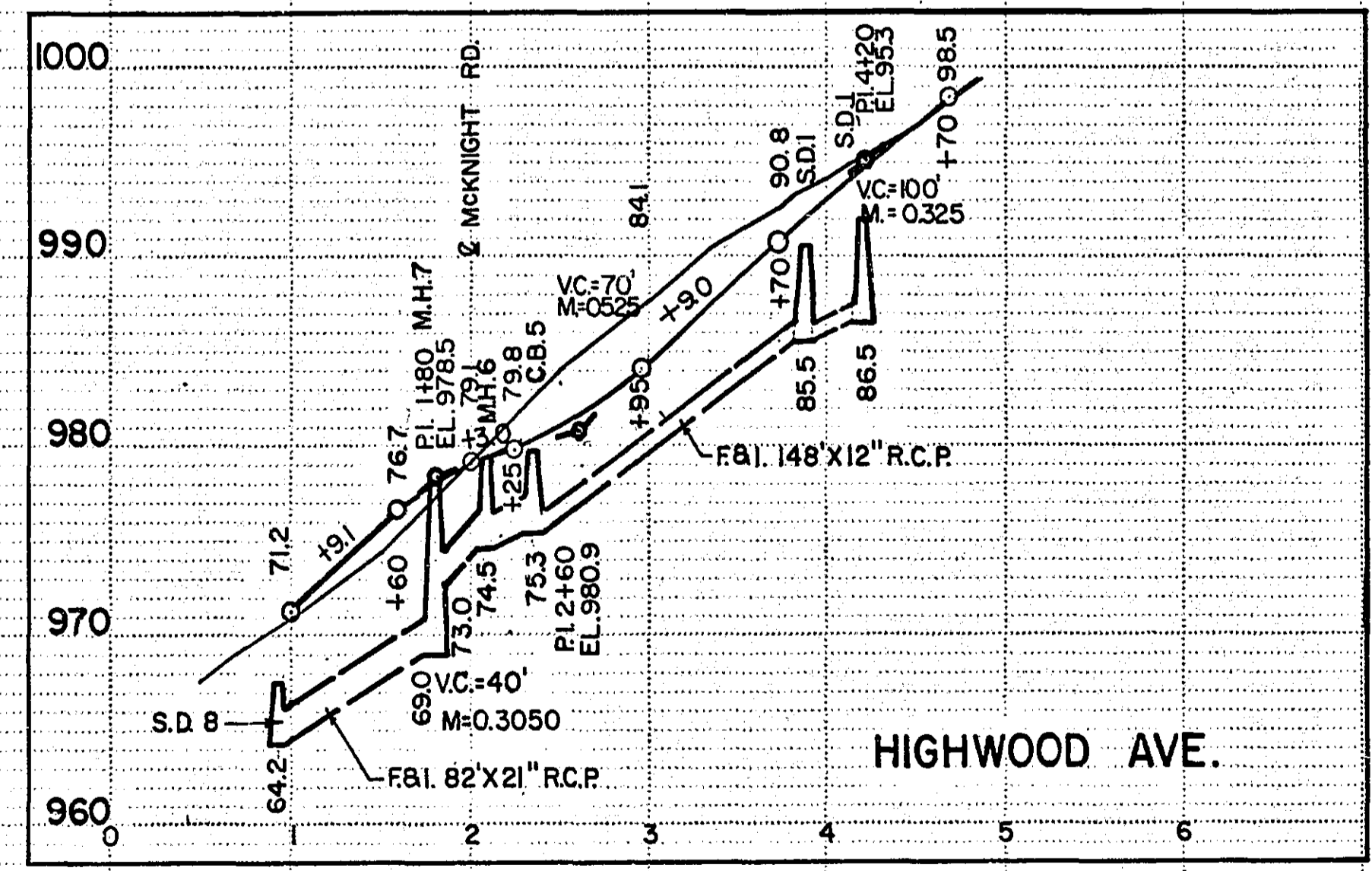
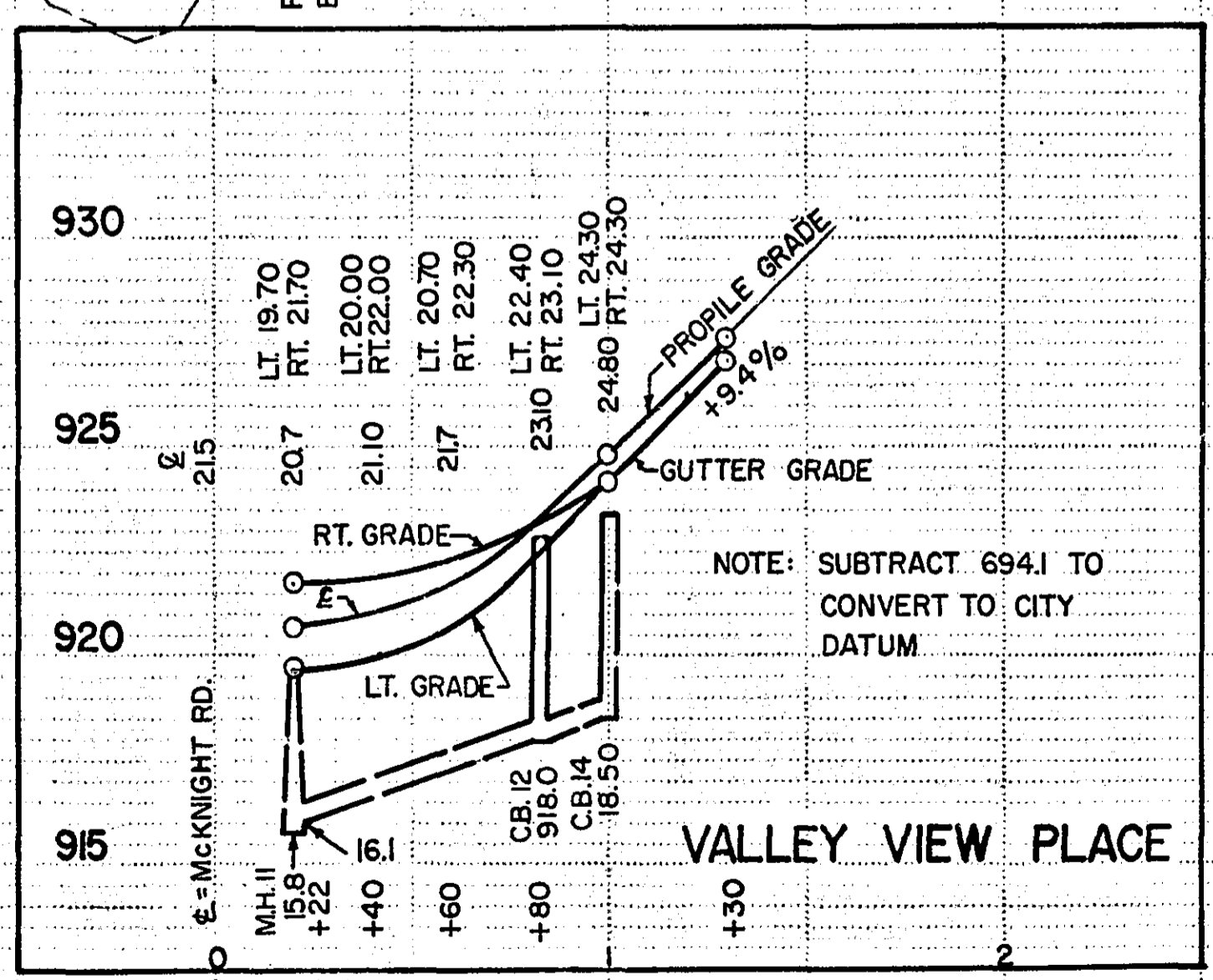
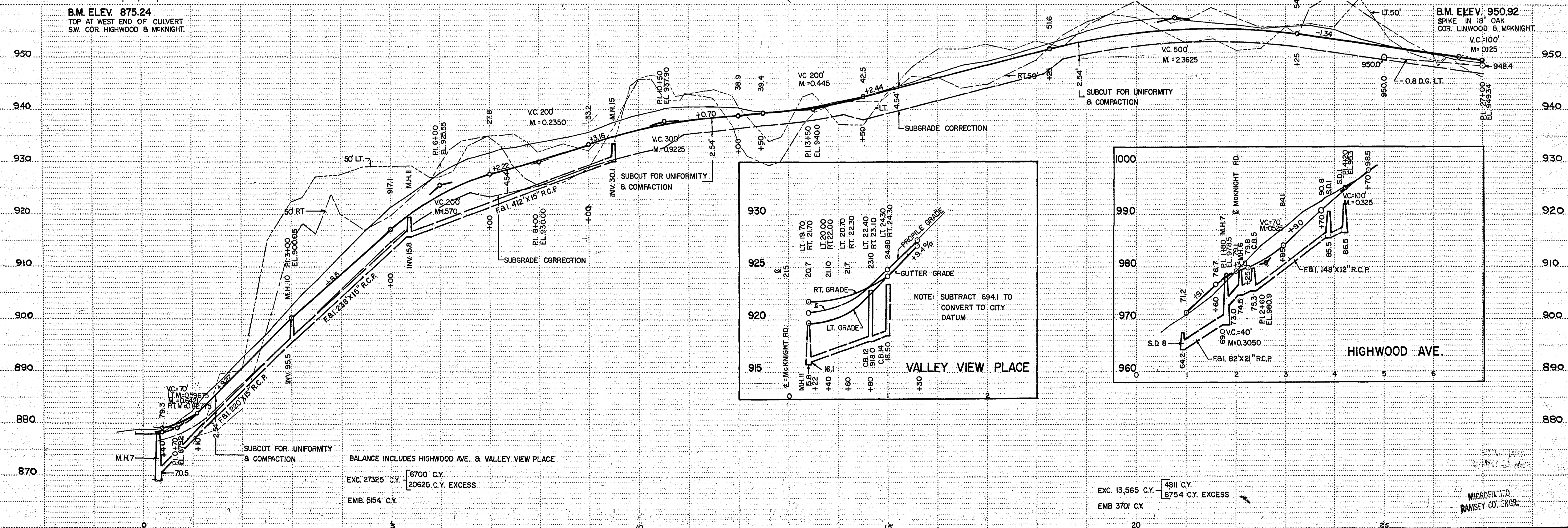
0+83 X-DRAIN  
 INP. 36" X 66" S.C. CULVERT  
 REMOVE AS COMMON EXCAVATION



CONSTRUCTION PLAN

B.M. ELEV. 875.24  
 TOP AT WEST END OF CULVERT  
 S.W. COR. HIGHWOOD & MCKNIGHT.

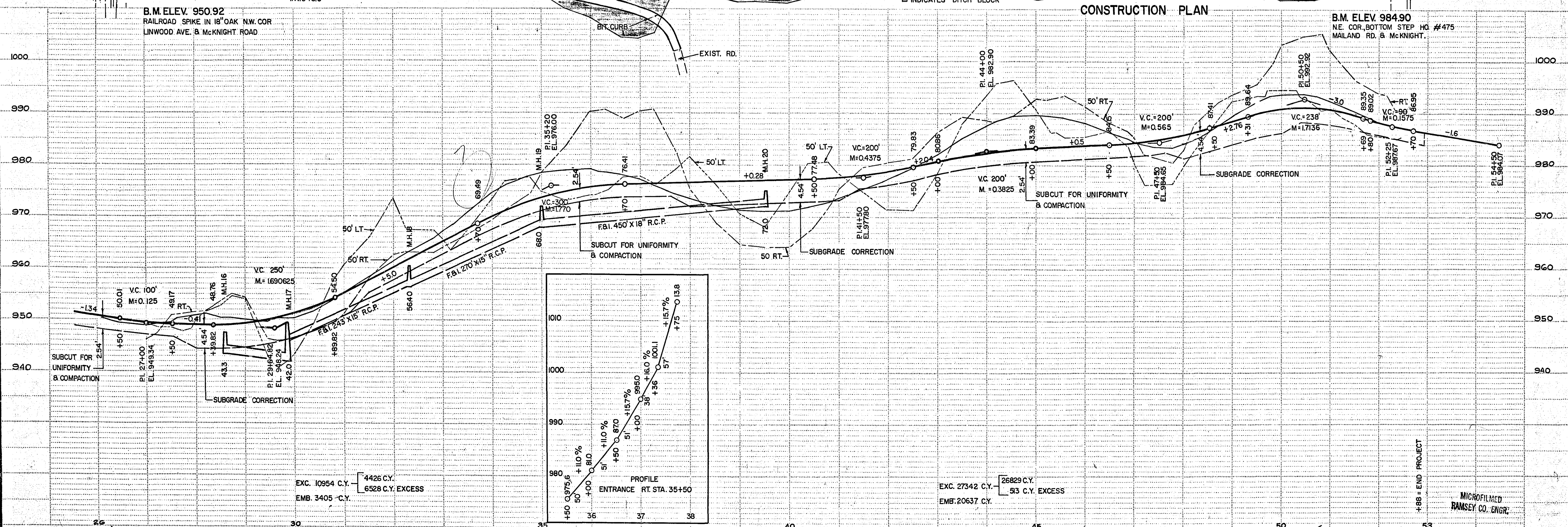
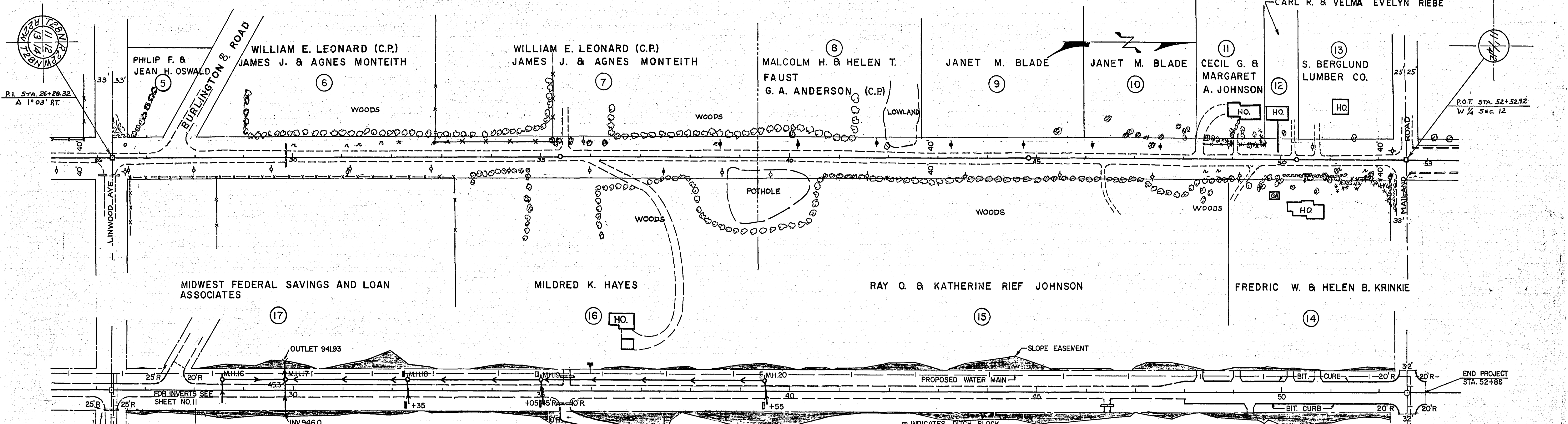
B.M. ELEV. 950.92  
 SPIKE IN 18" OAK  
 COR. LINWOOD & MCKNIGHT.



BALANCE INCLUDES HIGHWOOD AVE. & VALLEY VIEW PLACE  
 EXC. 27325 C.Y. [6700 C.Y.]  
 EMB. 5154 C.Y. [20625 C.Y. EXCESS]

EXC. 13,565 C.Y. [4811 C.Y.]  
 EMB. 3701 C.Y. [8754 C.Y. EXCESS]

MICROFILM D.D.  
 RAMSEY CO. ENGR.



6882