

# STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS

## CONSTRUCTION PLANS FOR GRADING , BITUMINOUS SURFACING DRAINAGE & SIGNALS

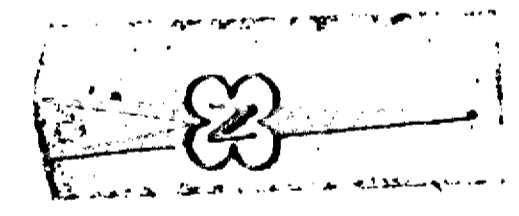
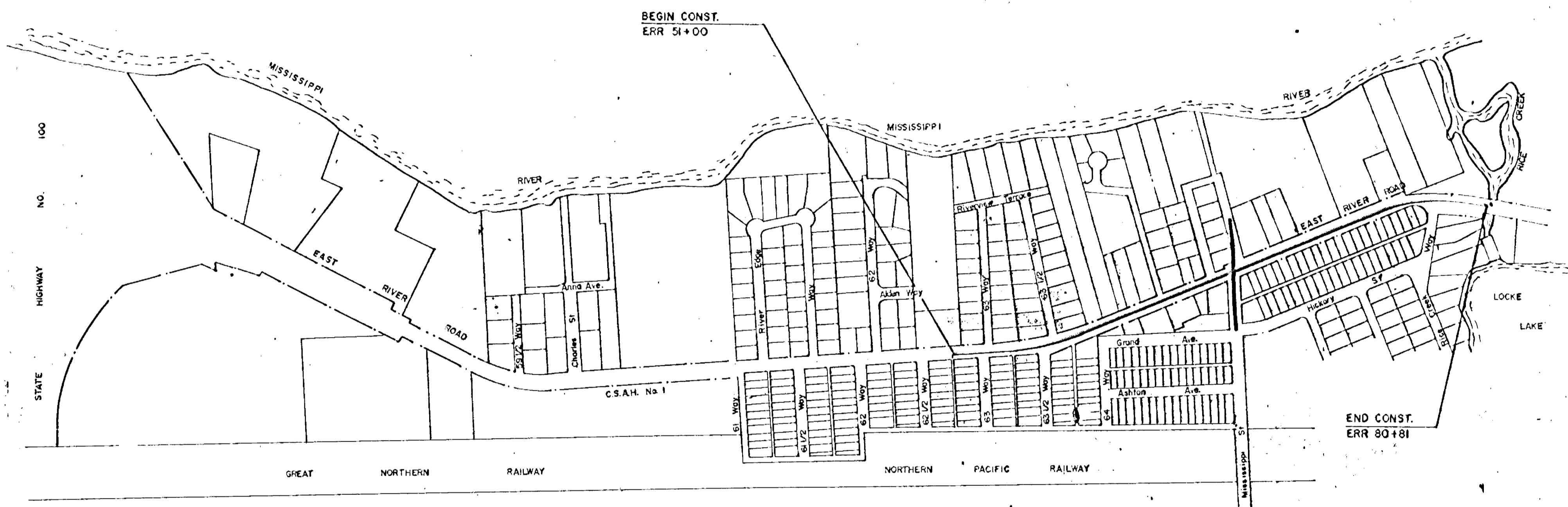
STATE PROJECT NO. 02-601-16  
MINNESOTA FEDERAL PROJECT NO. T-5003(002)

**SPECIFICATIONS.**

STATE OF MINNESOTA, DEPARTMENT OF HIGHWAYS "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" DATED JANUARY 1, 1972 SHALL GOVERN.

**INDEX**

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12	SIGNAL SYSTEM LAYOUT
13	WIRING DIAGRAM
14	MAST/ARM DETAIL
15-22	CROSS-SECTIONS

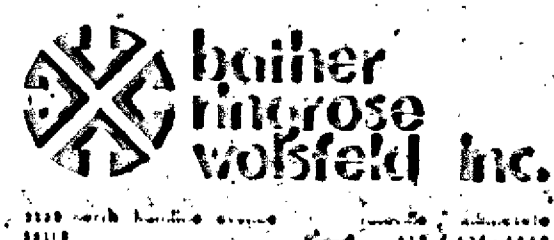


REVISIONS		
DATE	SHEET NO.	REVISED BY

FROM 200' NORTH OF 62 1/2 WAY  
TO RICE CREEK  
GROSS LENGTH 2981 FEET 0.565 MILES  
BRIDGES LENGTH FEET MILES  
EXCEPTIONS LENGTH FEET MILES  
NET LENGTH 2981 FEET 0.565 MILES

DESIGN: 9 TON — A-3 SOIL  
PROJECTED HCADT, 950  
DESIGN SPEED, 40 MPH.

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.  
*Thomas A. Anderson*  
DATE 4/14/72 REG. NO. 2015



Recommended for Approval *E. J. Lundberg* COUNTY ENGINEER Date 3-15-72  
Recommended for Approval *C. C. Wachelbaum* DIST. STATE AID ENGINEER Date 5-2-72  
Recommended for Approval *B. J. Brandy* STATE AID PLANS ENGINEER Date 8-11-72  
Approved *W. M. M. [Signature]* STATE AID ENGINEER Date 8/14/72

The following Standard Plates, approved by the Bureau of Public Roads, shall apply on this project.

STANDARD PLATES	
PLATE NO.	DESCRIPTION
3000 F	Reinforced Concrete Pipe
3006 A	Gasket Joint for R. C. P.
4002 D	Manhole or Catch Basin Design C
4006 H	Manhole or Catch Basin Design G
4010 D	Concrete Short Cone and Adjusting Ring
4011 C	Precast Concrete Base
4101 B	Ring Casting for Manhole or Catch Basin
4142 D	Beehive Grate Castings for Catch Basin
7065 C	Bituminous Curb
7100 D	Concrete Curb and Gutters
7110 E	Curb and Gutter Construction at Catch Basin
7111 D	Installation of Catch Basin Casting
8000 C	Standard Barricades
8008 D	CONTRACTORS' SIGNS
8110 B	Traffic Signal Bracketing Pole Mounted
8117 C	Precast Concrete Handhole
8118 B	Service Equipment and Pole Traffic Control Signals
8119 B	Ground Mounted Cabinet Foundation
8123 A	Pole and Mast Arm
8124 B	Signal Head Mounts
8125 A	Swing-Away Hinge
8130 B	Saw Cut Loop Detectors

SIGN PLACEMENT CHART		
Station	Location	Type ②
NBC 2 + 00	RT	W6-1
SB 59 + 00	LT	W6-3
NB 60 + 10	LT	R4-7
SB 61 + 00	LT	R2-1 (40 mph)
SB 62 + 00	LT	W6-2
NB 62 + 30	RT	R3-7 (right)
NB 63 + 00	LT	R3-7 (left)
NB 65 + 00	RT	R3-7 (right)
NB 65 + 50	RT	R1-2
NB 65 + 90	LT	R3-7 (left)
NB 66 + 80	LT	R3-7 (left)
SB 67 + 30	LT	R1-2
SB 67 + 70	LT	R3-7 (right)
SB 69 + 50	RT	R3-7 (left)
NB 70 + 50	RT	R2-1 (40 mph)
SB 70 + 60	LT	R3-7 (right)
NB 73 + 00	RT	W6-2
NB 76 + 00	RT	W6-3
NB 75 + 95	LT	R4-7
SB 80 + 50	LT	W6-1

① - Mounting Height - Single 7' - Double 6'

② - Sign Type - Manual on Uniform Traffic Control Devices (D61-1971)

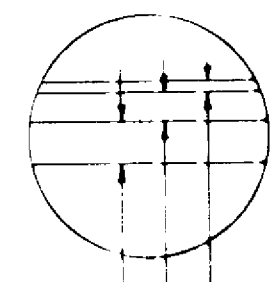
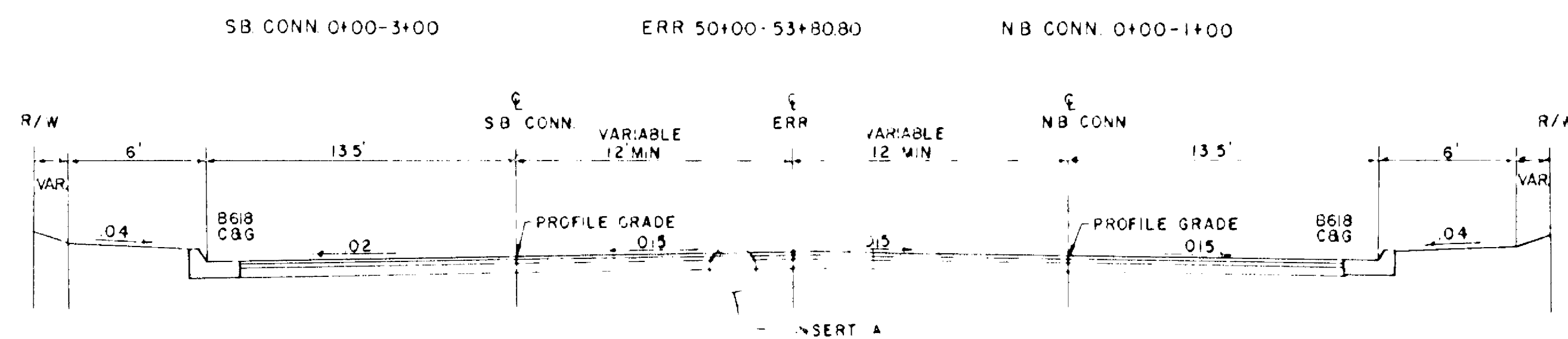
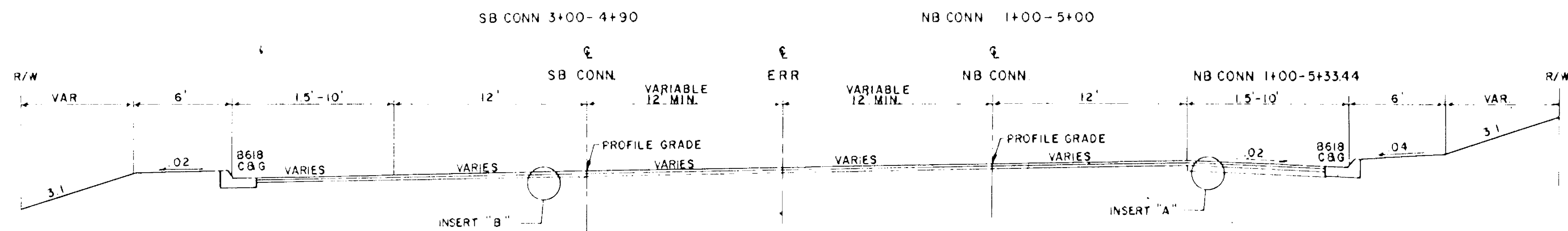
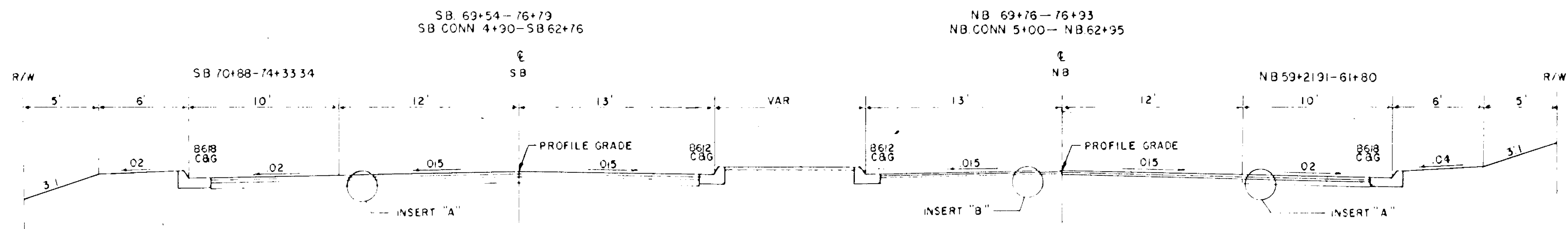
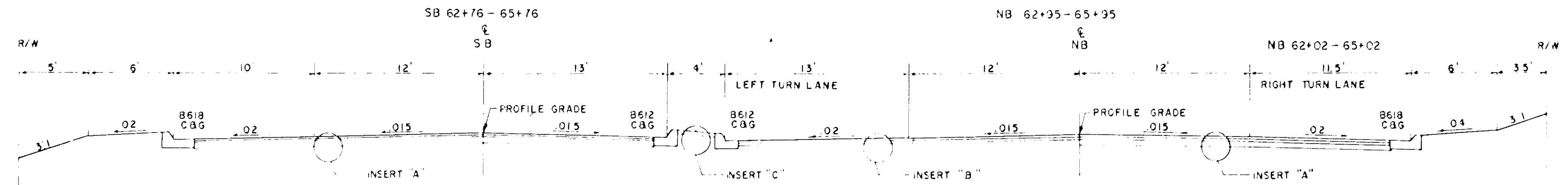
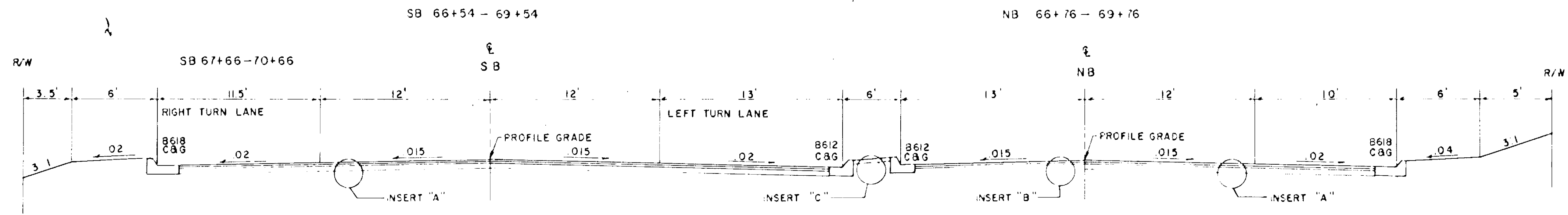
③ - Sign Clearance from Curb - Minimum 2' lateral

STATEMENT OF ESTIMATED QUANTITIES

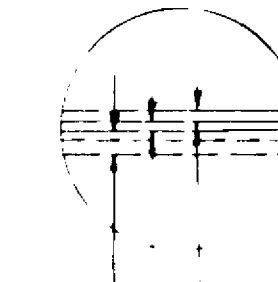
ITEM NO.	ITEM	UNIT	S. P. 02-601-16 QUANTITIES		NON PARTICIPATING QUANTITIES		TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES
			EST.	FINAL	EST.	FINAL		
2101.502	Clearing	Tree	27				27	
2101.507	Grubbing	Tree	27				27	
2104.523	Salvage Hydrant and Valve	Each	4				4	
2103.501	Building Removal	Lump Sum	1				1	
① 2104.601	Remove Miscellaneous Structures	Lump Sum	1				1	
2104.523	Salvage Curb Box	Each	4				4	
② 2105.501	Common Excavation	Cu. Yd.	2615 (P)				2615 (P)	
2105.525	Topsoil Borrow - (LV)	Cu. Yd.	605				605	
2105.531	Salvaged Bituminous Mixture	Cu. Yd.	587 (P)				587 (P)	
2207.503	Bituminous Material for Mixture	Gal.	6973				6973	
2207.512	Bituminous Stabilized Subgrade 6" Thick	Sq. Yd.	16608				16608	
2331.504	Bituminous Material for Mixture (Medians)	Ton	9				9	
2331.518	Bituminous Mixture For Medians	Ton	153				153	
2341.504	Bituminous Material for Mixture	Ton	266				266	
2341.508	Wearing Course with Filler Mixture	Ton	2084				2084	
2341.510	Binder Course Mixture	Ton	3570				3570	
2357.502	Bituminous Material for Tack Coat	Gal.	1247				1247	
2358.501	Bituminous Material for Prime Coat	Gal.	48				48	
2501.573	Install (Existing Driveway) Culvert	Each	2				2	
2503.511	12" Reinforced Concrete Sewer Pipe	Lin. Ft.	390				390	
2503.511	15" Reinforced Concrete Sewer Pipe	Lin. Ft.	757				757	
2503.511	18" Reinforced Concrete Sewer Pipe	Lin. Ft.	75				75	
2506.507	Construct Catch Basins, Design C or G	Lin. Ft.	62				62	
2506.511	Reconstruct Manholes	Lin. Ft.	6				6	
2506.512	Reconstruct Catch Basins	Lin. Ft.	8				8	
2506.516	Casting Assemblies	Each	20				20	
2506.522	Adjust Frame and Ring Castings	Each	9				9	
2531.501	Concrete Curb and Gutter Design B612	Lin. Ft.	3749				3749	
2531.501	Concrete Curb and Gutter Design B618	Lin. Ft.	5681				5681	
2531.503	Concrete Median	Sq. Yd.	30				30	
2531.507	6" Concrete Driveway Pavement	Sq. Yd.	120				120	
2531.501	Concrete Curb and Gutter Design Special I (V Gutter)	Lin. Ft.	30				30	
2535.501	Bituminous Curb	Lin. Ft.	329				329	
2565.501	Full Traffic - Actuated Traffic Control System	Signal Syst.	1				1	
2575.505	Sodding	Sq. Yd.	5185				5185	
564.626	Sign Type W6-2, with Post	Each	2				2	
564.626	Sign Type R1-2, with Post	Each	2				2	
564.626	Sign Type R201 (40 mph), with Post	Each	2				2	
564.626	Sign Type R3-7 (left), with Post	Each	4				4	
564.626	Sign Type R3-7 (right), with Post	Each	4				4	
564.626	Sign Type R4-7, with Post	Each	2				2	
564.626	Sign Type W6-1, with Post	Each	2				2	
564.626	Sign Type W6-3, with Post	Each	2				2	
569.621	Delineation Treatment	Sq. Yd.	750				750	
0411.608	Stone Retaining Wall	Sq. Ft.	481				481	
504.666	Install Hydrant and Valve	Each	4				4	
504.666	Install Curb Box	Each	4				4	
504.601	6" Cast Iron Watermain	Lin. Ft.	0		150		150	
504.622	6" Water Gate Valve	Valve	0		2		2	
504.620	Cast Iron Fittings	Pound	0		845		845	
2503.511	6" E. S. V. C. P. Sewer Service	Lin. Ft.	0		384		384	
2503.511	8" E. S. V. C. P. Sewer Service	Lin. Ft.	0		55		55	
503.624	8" x 6" Wye	Each	0		5		5	
2506.508	Construct Manhole (Design Special I)	Each	0		1		1	
504.630	3/4" Corporation Cock	Each	0		2		2	
504.634	1" Water Valve and Box	ASSEMBLY	0		2		2	
504.610	1" Copper Water Pipe	Lin. Ft.	0		30		30	

① SEE SHEET NO. 7  
 ② (COMMON 2615) (REG 1902) EXCESS-1300  
 EXC (SAL BIT 587 EMBK) (TS BCR 605)

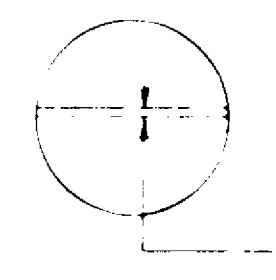
③ TYPE NO. DESIGN  
 A 19 MHD 801,810,821-B  
 B 1 MHD 700-7,730-6



INSERT "A"  
 1 1/2" 2341 WEARING & FILLER  
 3" 2341 BINDER  
 6" 2207 STABILIZED SUBGRADE

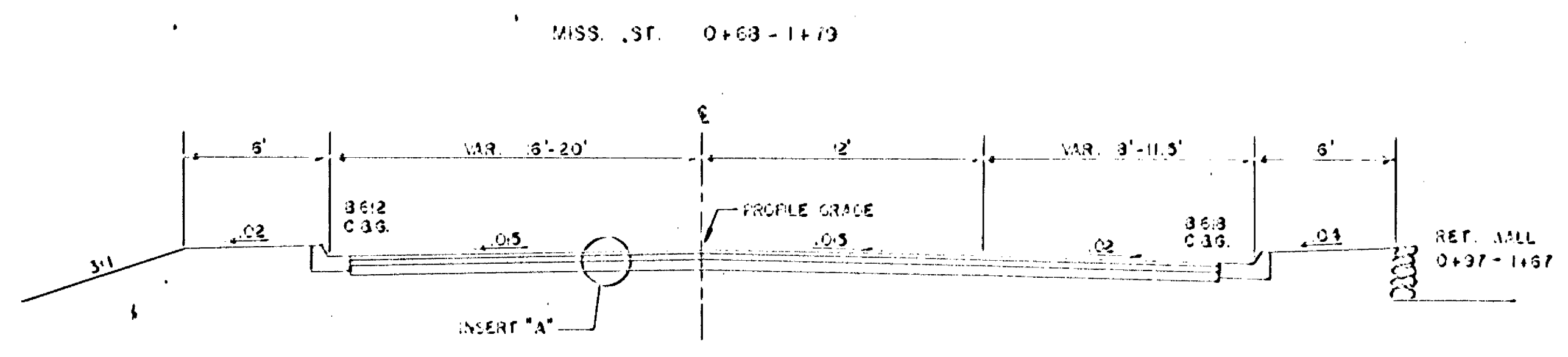
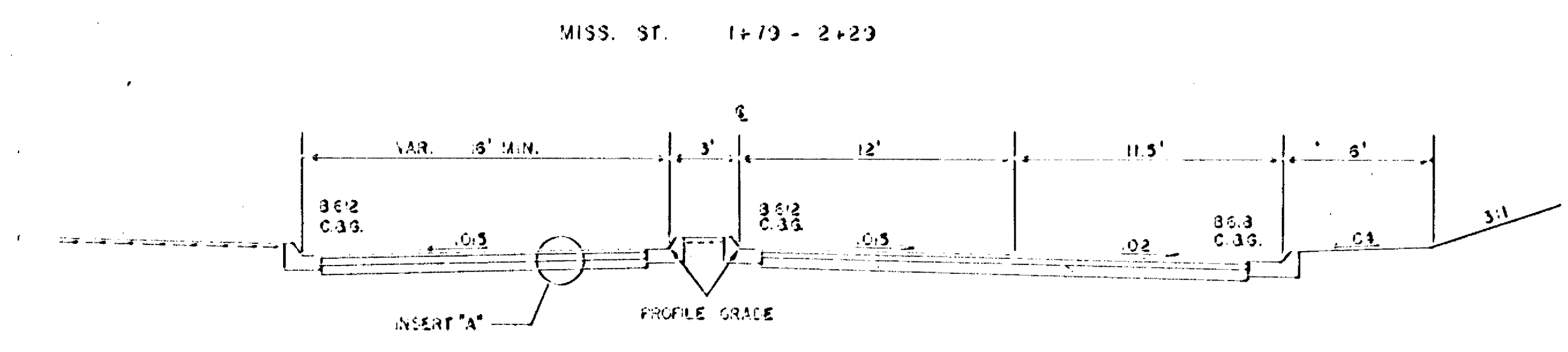
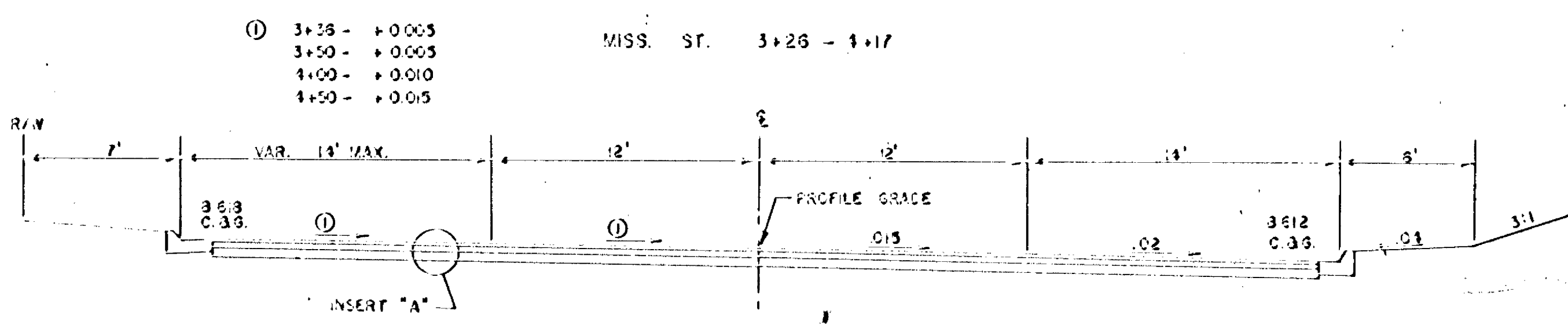
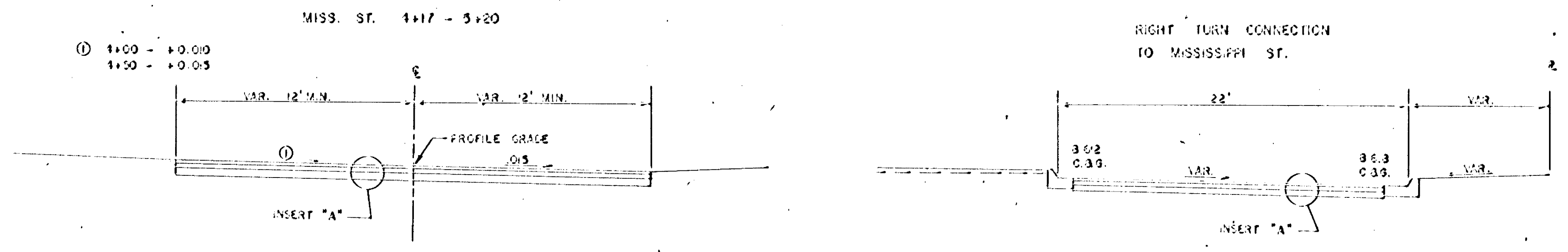


INSERT "B"  
 OVERLAY  
 (3" MINIMUM)  
 1 1/2" 2341 WEARING & FILLER  
 1 1/2" 2341 BINDER-LEVELING  
 EXISTING 1 1/2" 2341 WEARING  
 1 1/2" 2331 BASE  
 4" 2207 STABILIZED BASE

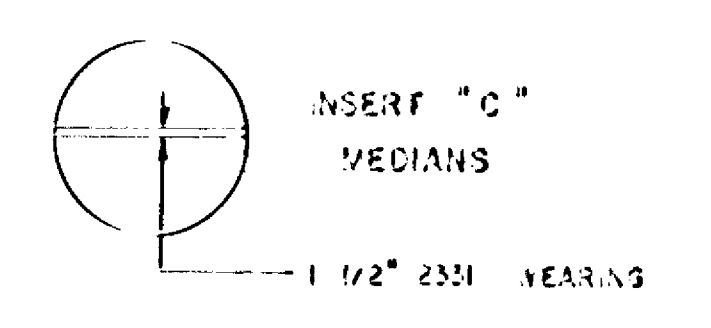
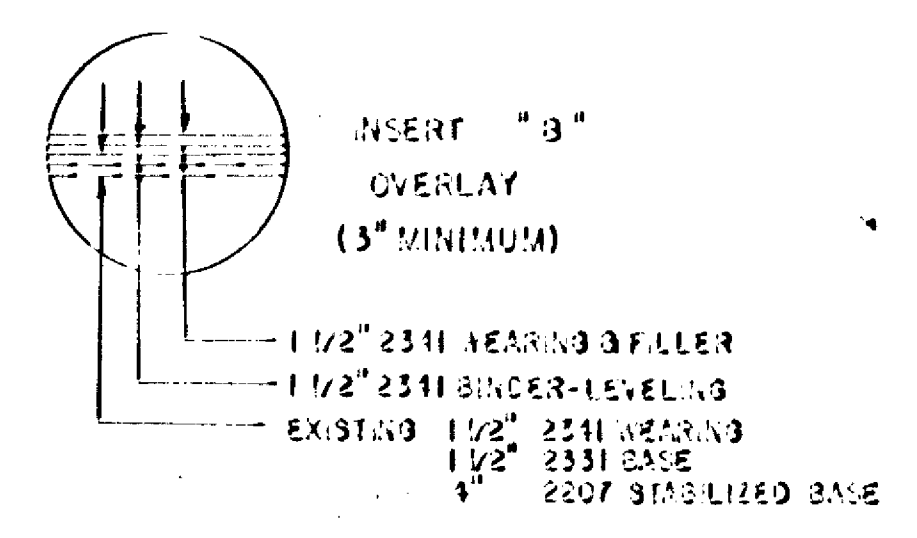
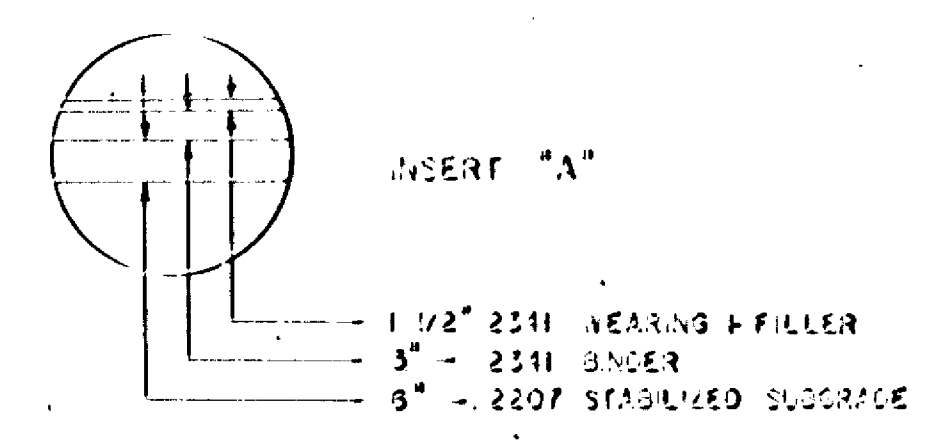
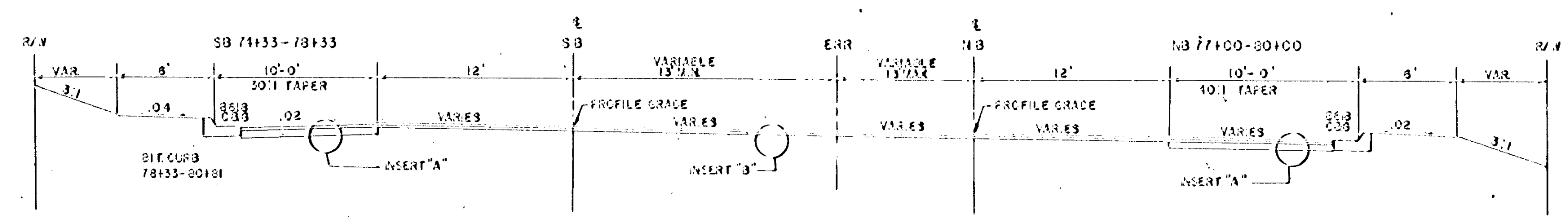


INSERT "C"  
 MEDIANS  
 1 1/2" 2331 WEARING

NOTE: 3" OF TOPSOIL & SOD  
 ALL DISTURBED AREAS.  
 REFER TO SUPER CHARTS  
 FOR ALL CROSS SLOPES.  
 REFER TO PLAN & PROFILE  
 SHEETS FOR OVERLAY AREAS.



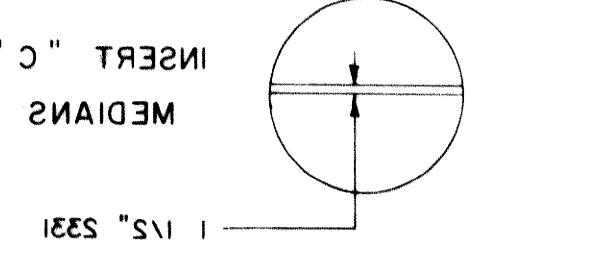
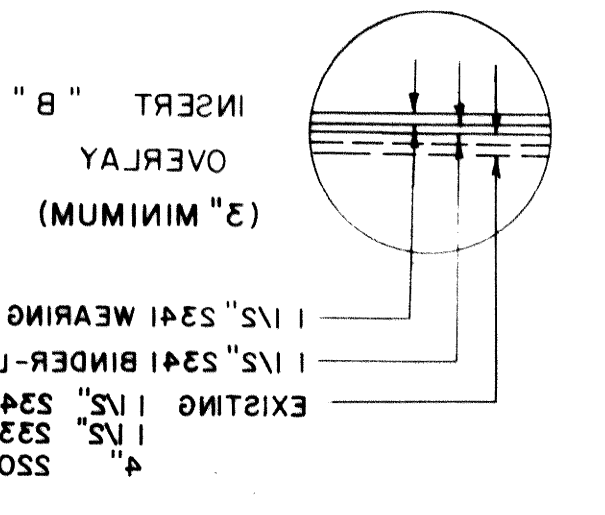
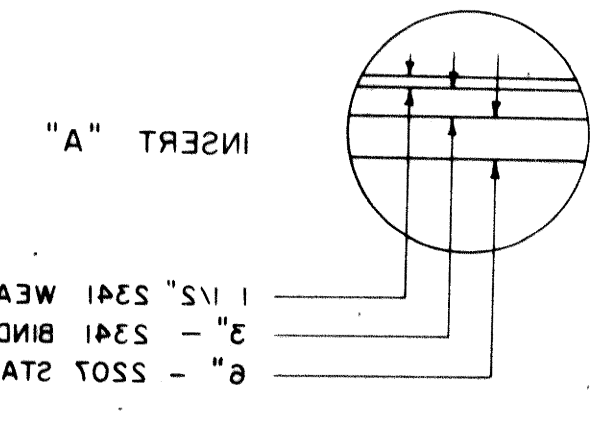
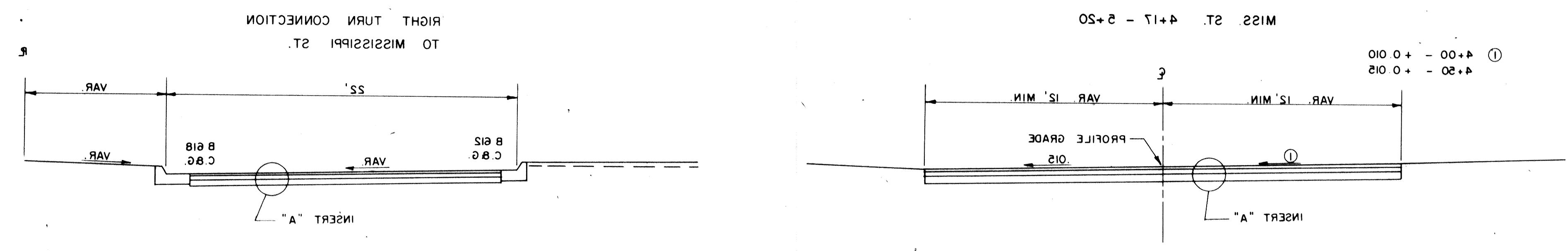
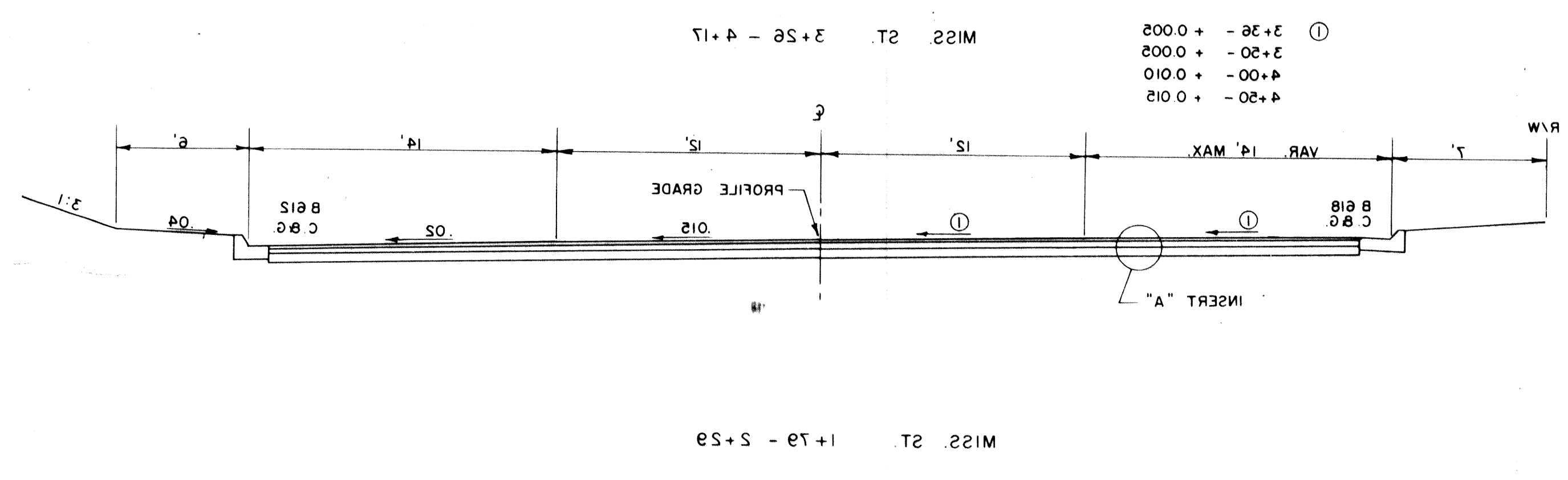
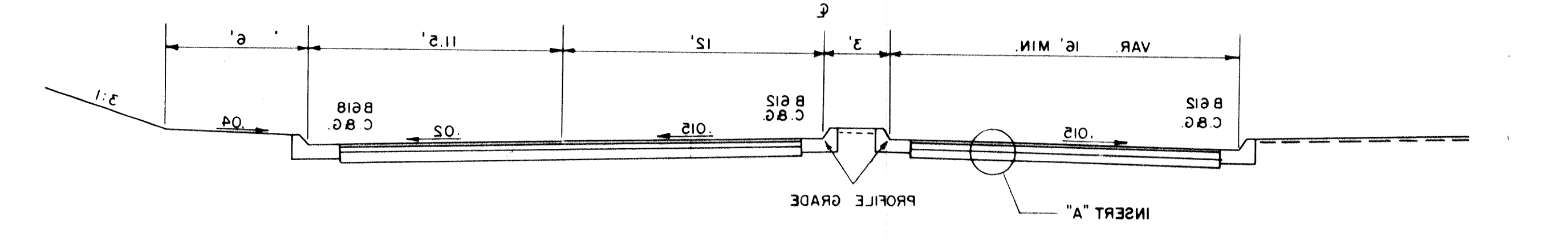
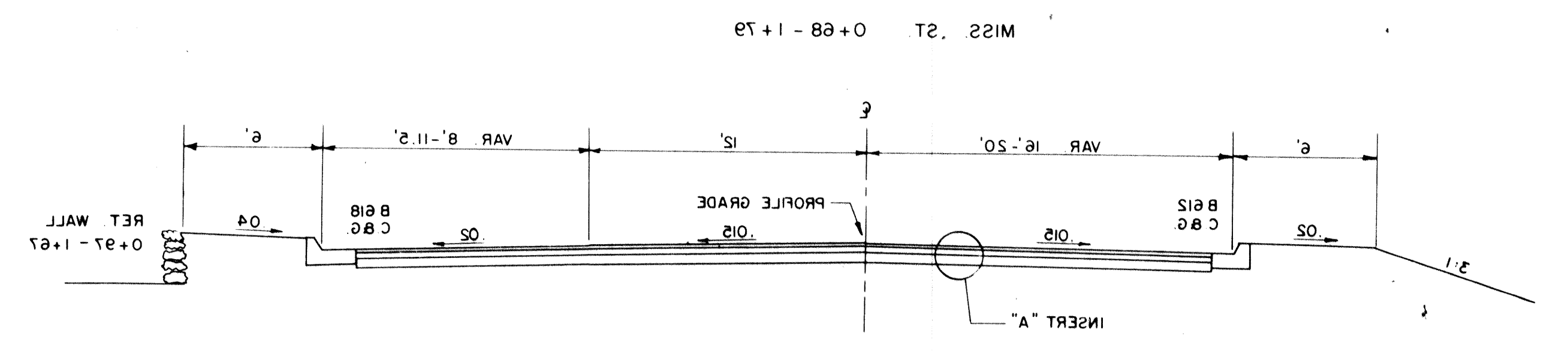
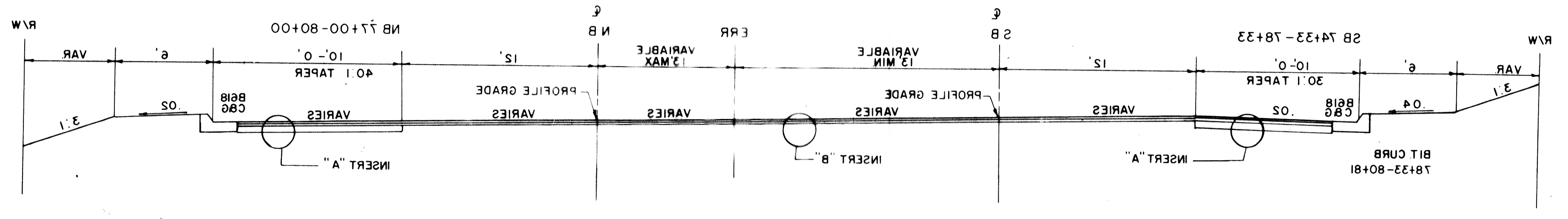
NB 76+33 - 80+00  
SB 76+30 - 80+31



NOTE: 3" OF TOPSOIL & SOD  
ALL DISTURBED AREAS.  
REFER TO SUPER CHARTS  
FOR ALL CROSS SLOPES.  
REFER TO PLAN & PROFILE  
SHEETS FOR OVERLAY AREAS.



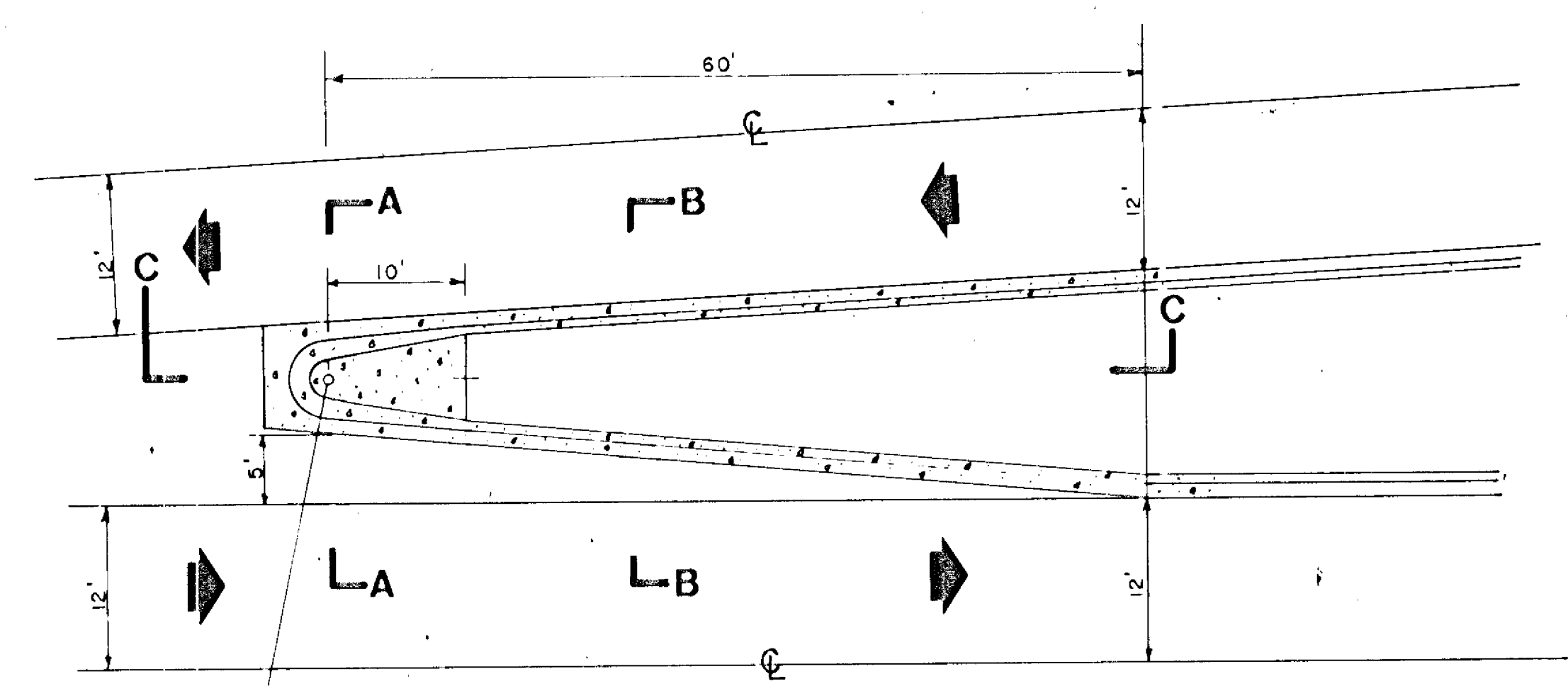
NOTE: 3" OF TOPSOIL & SOD  
ALL DISTURBED AREAS  
REFER TO SUPER CHARTS  
FOR ALL CROSS SLOPES  
REFER TO PLAN & PROFILE  
SHEETS FOR OVERLAY AREAS



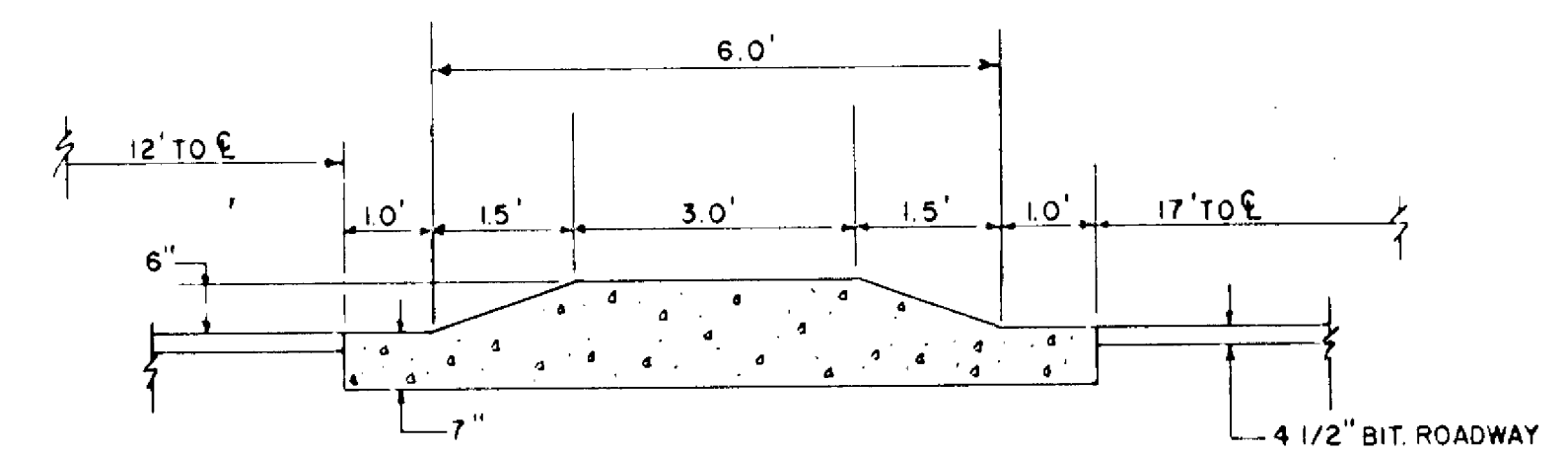
1. 1/2" S241 WEARING & FILLER  
2. 3" S241 BINDER  
3. 3" S241 BINDER  
4. S207 STABILIZED SUBGRADE

1. 1/2" S241 WEARING & FILLER  
2. 3" S241 BINDER-LEVELING  
3. 3" S241 BINDER-LEVELING  
4. S207 STABILIZED BASE  
5. 3" S241 WEARING & FILLER

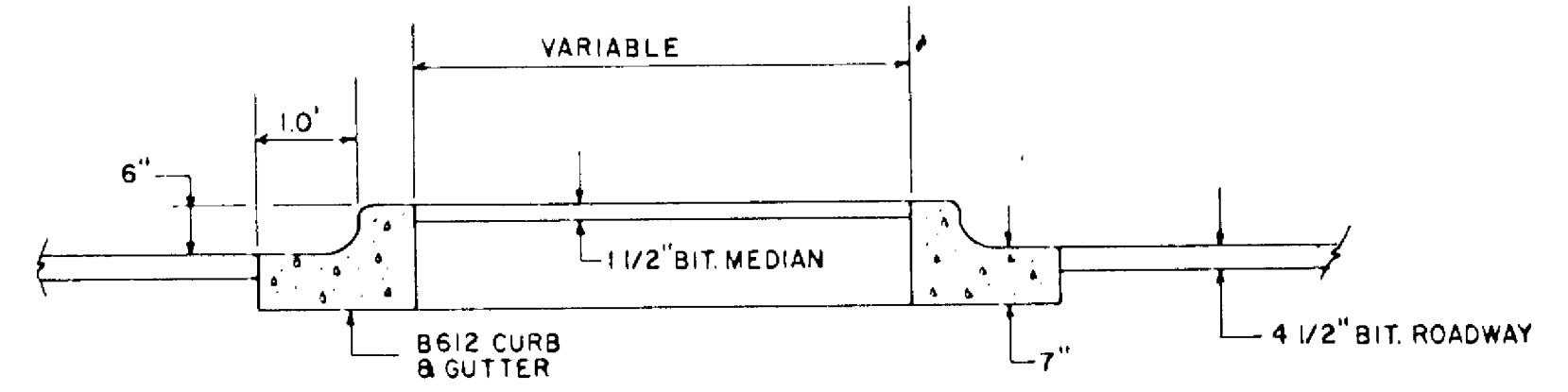
1. 1/2" S241 WEARING  
2. 3" S241 WEARING



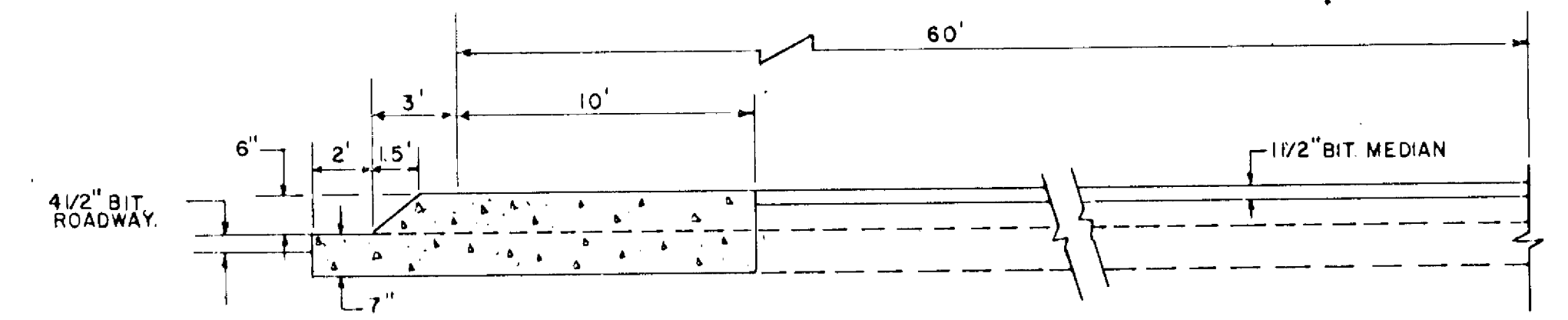
**MEDIAN NOSE**  
(UNDIVIDED TO DIVIDED ROADWAY)  
1" = 10'



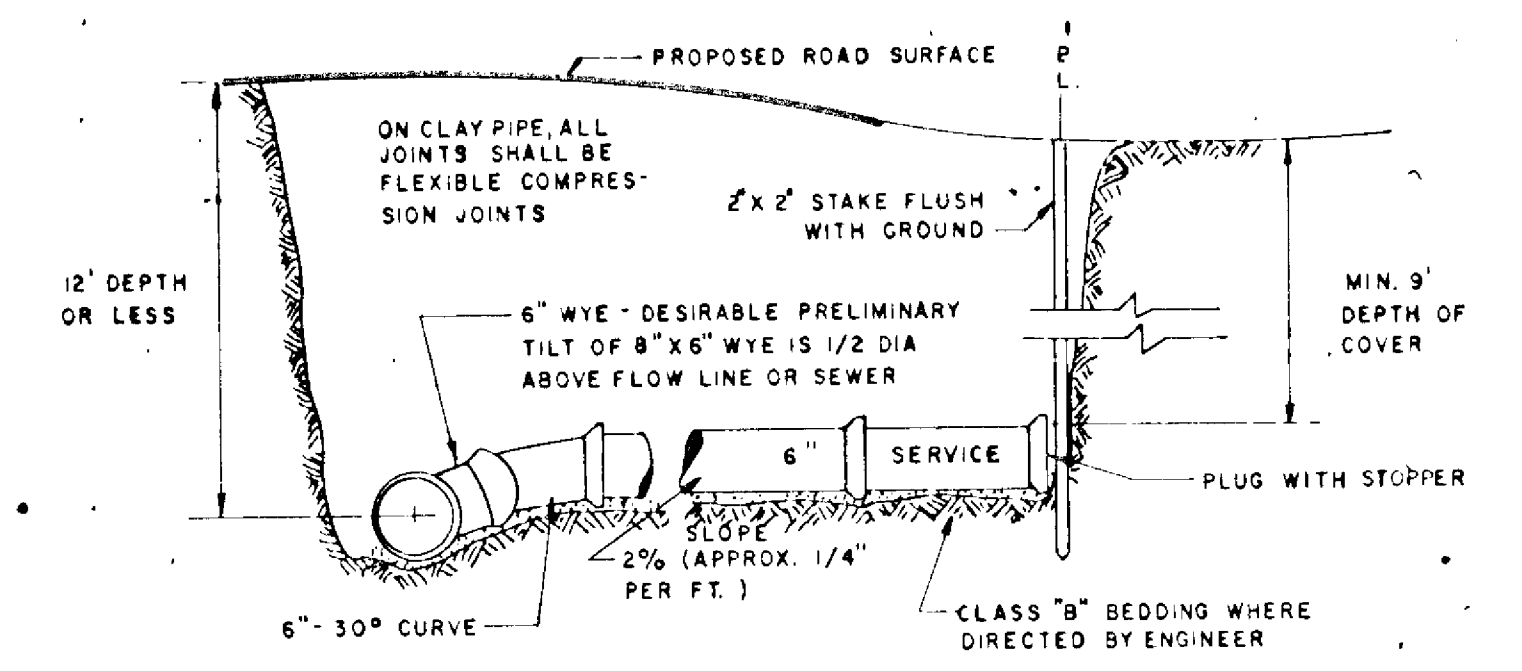
**SECTION A-A**  
1" = 2'



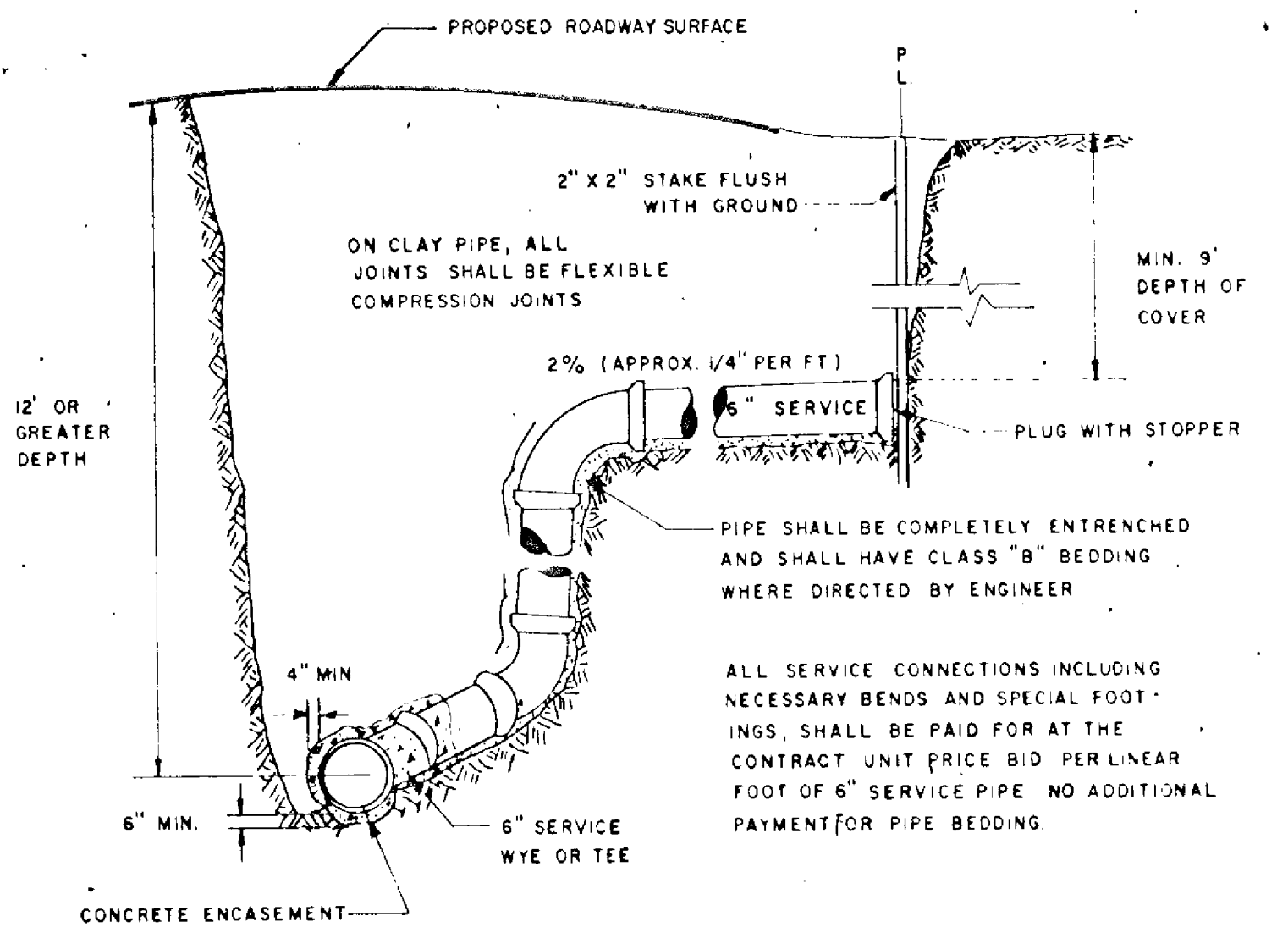
**SECTION B-B**  
1" = 2'



**SECTION C-C**  
1" = 2' VERT.  
1" = 5' HORIZ.

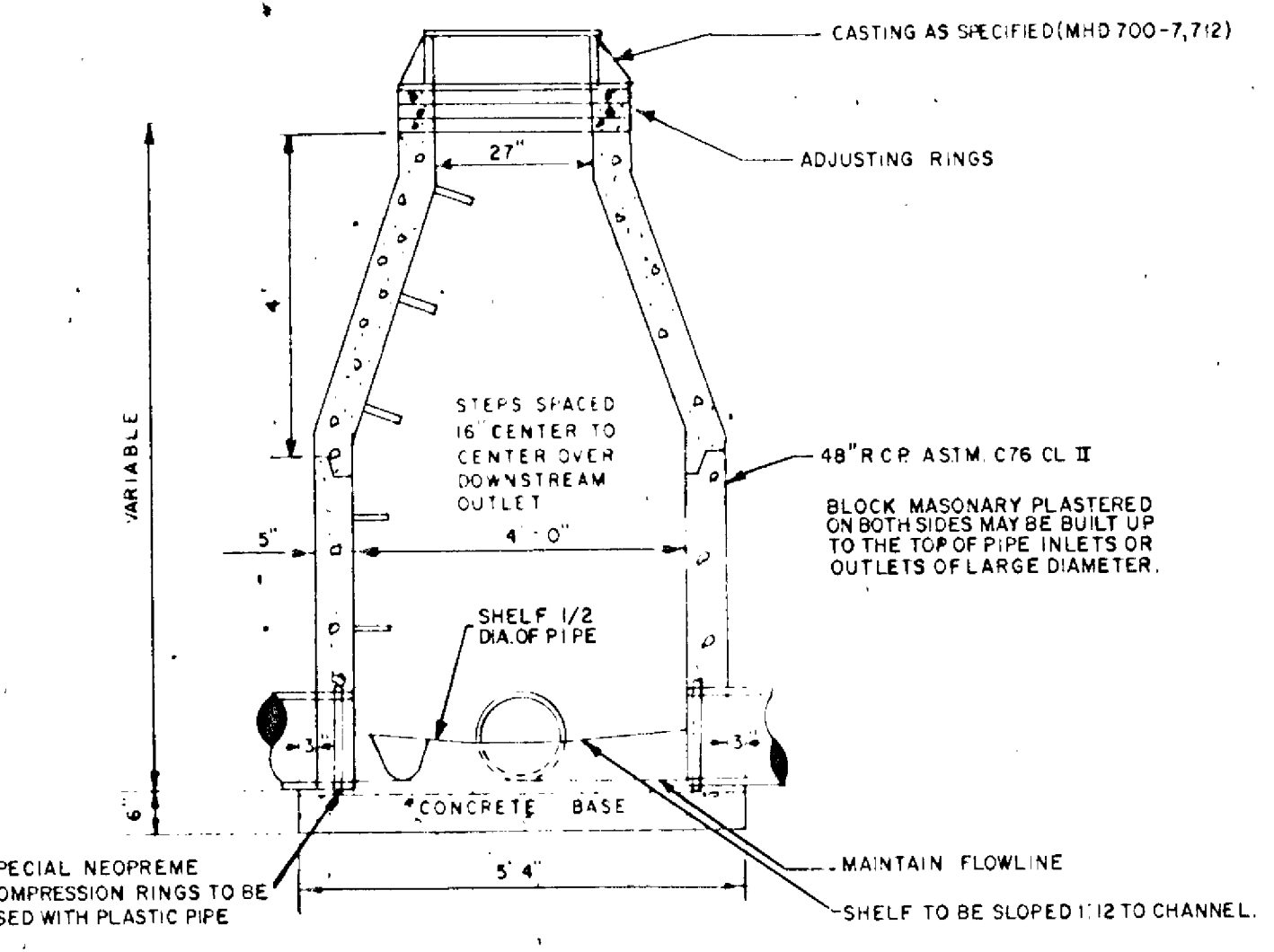


**SANITARY SEWER SERVICE**  
(DEPTH 12' OR LESS)

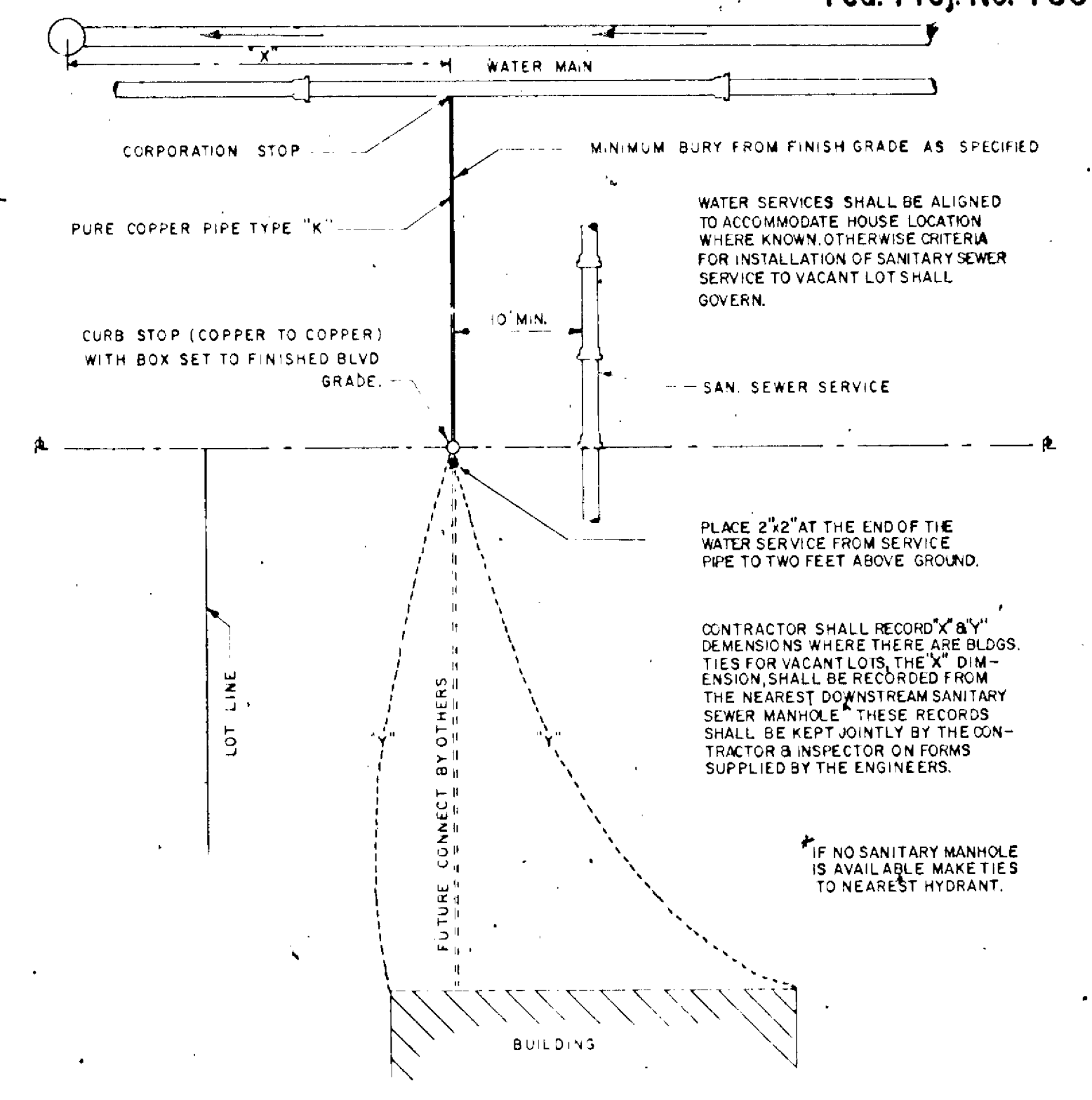


**SANITARY SEWER SERVICE**  
(DEPTH 12' OR MORE)

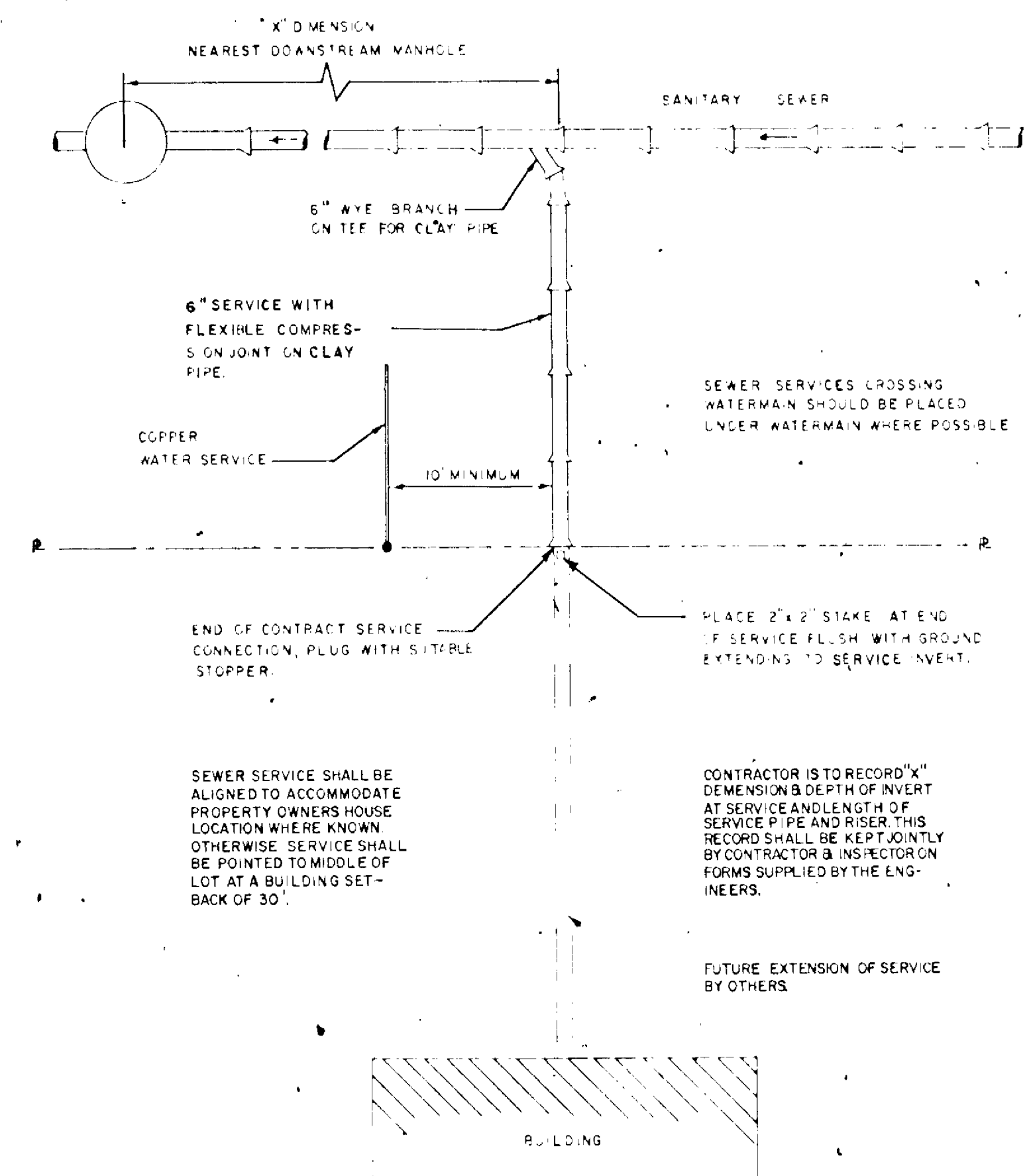
REV. 2-5-71



**SANITARY SEWER MANHOLE**  
DESIGN SPECIAL I



**TYPICAL WATER SERVICE LOCATION**

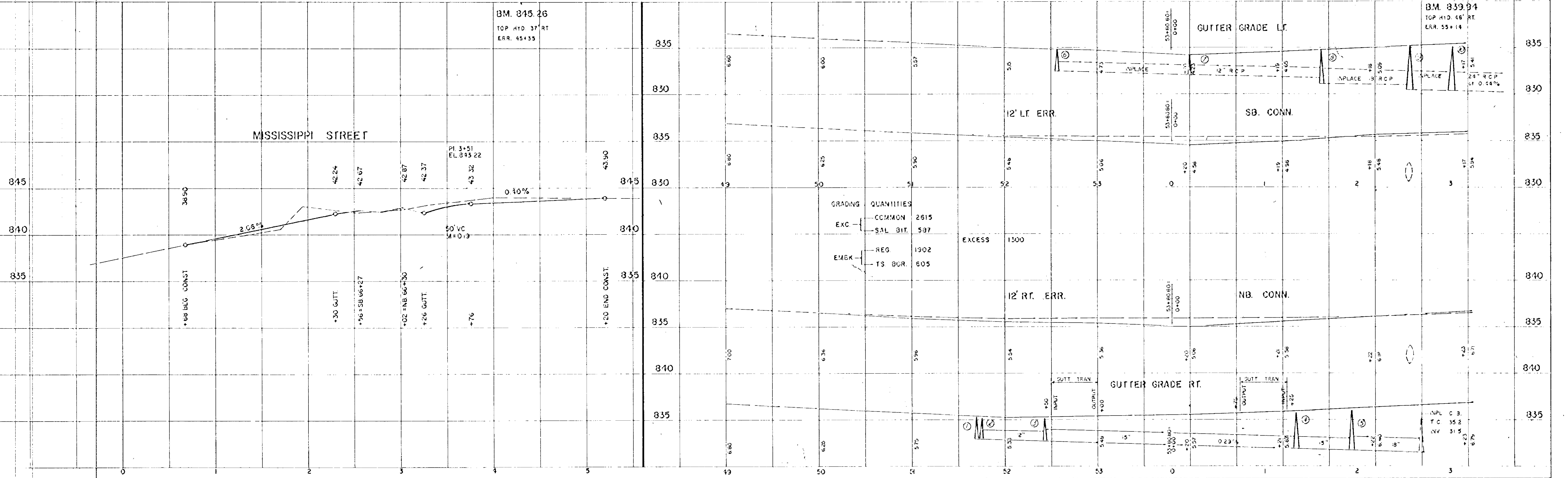
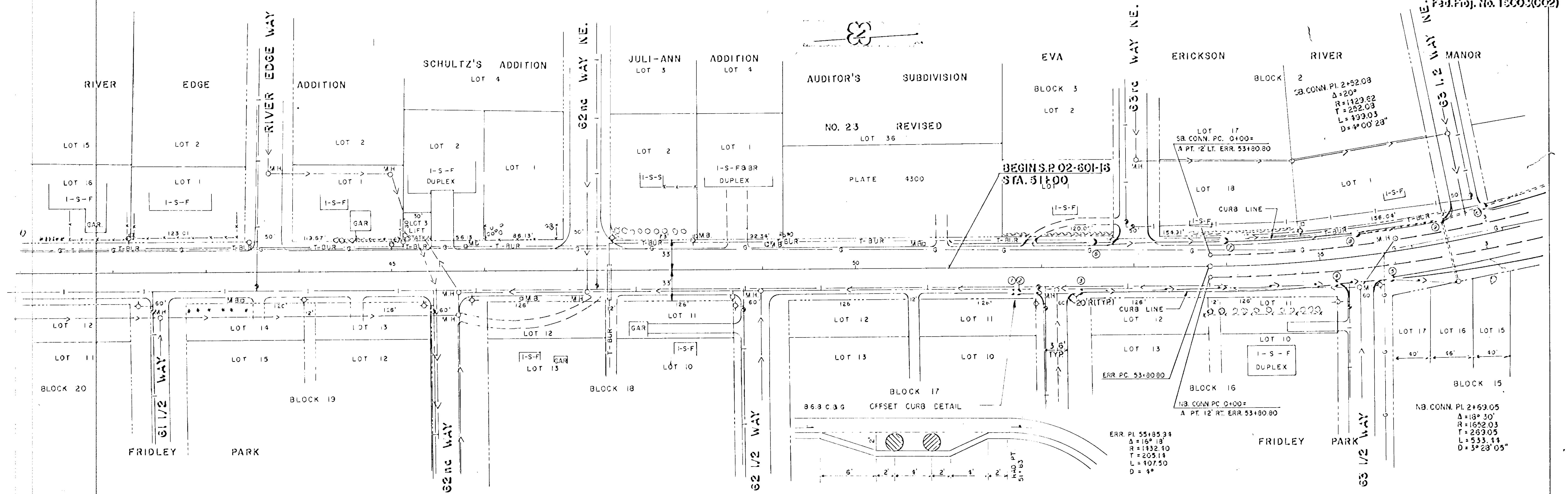


**TYPICAL SEWER SERVICE LOCATION**

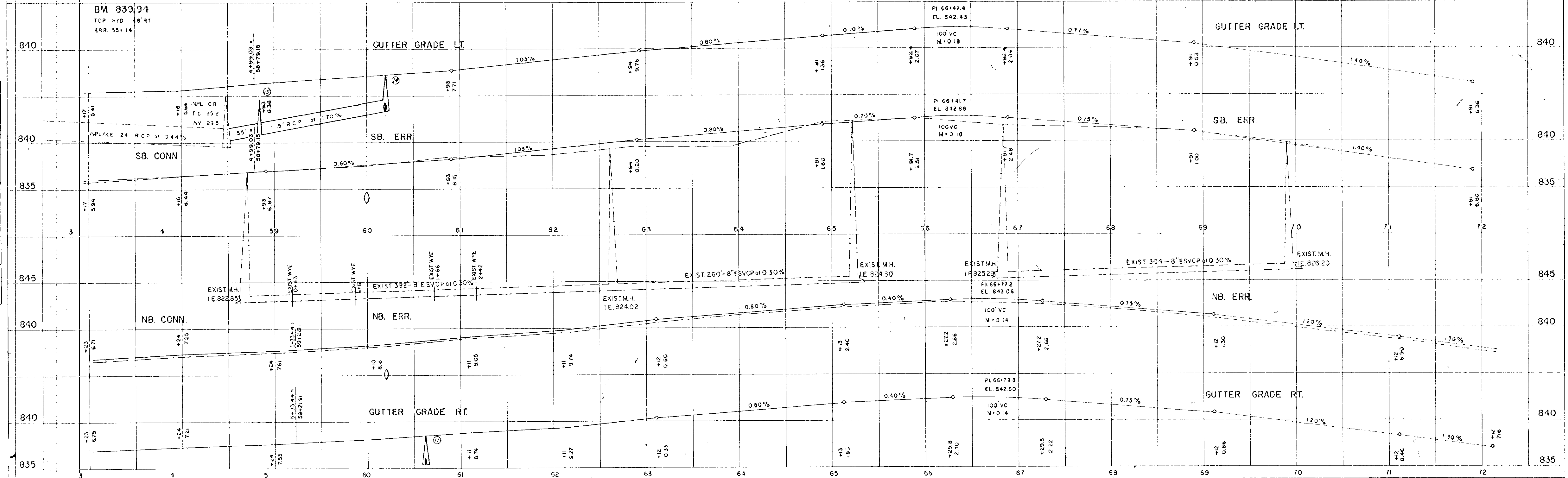
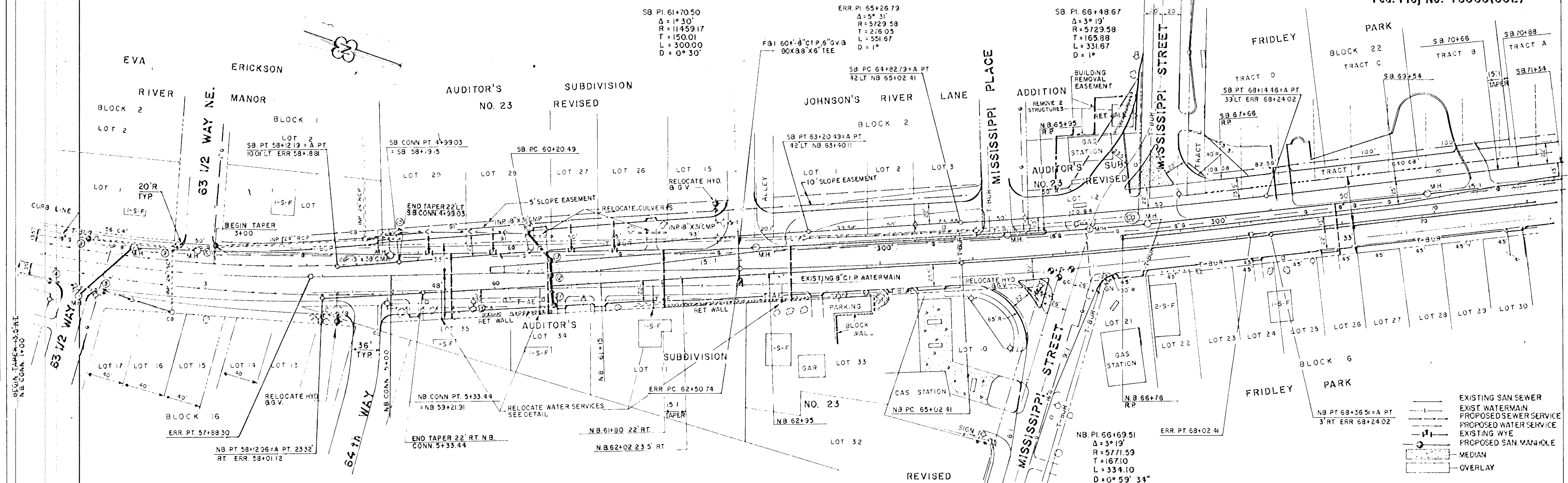
REV. 2-5-71



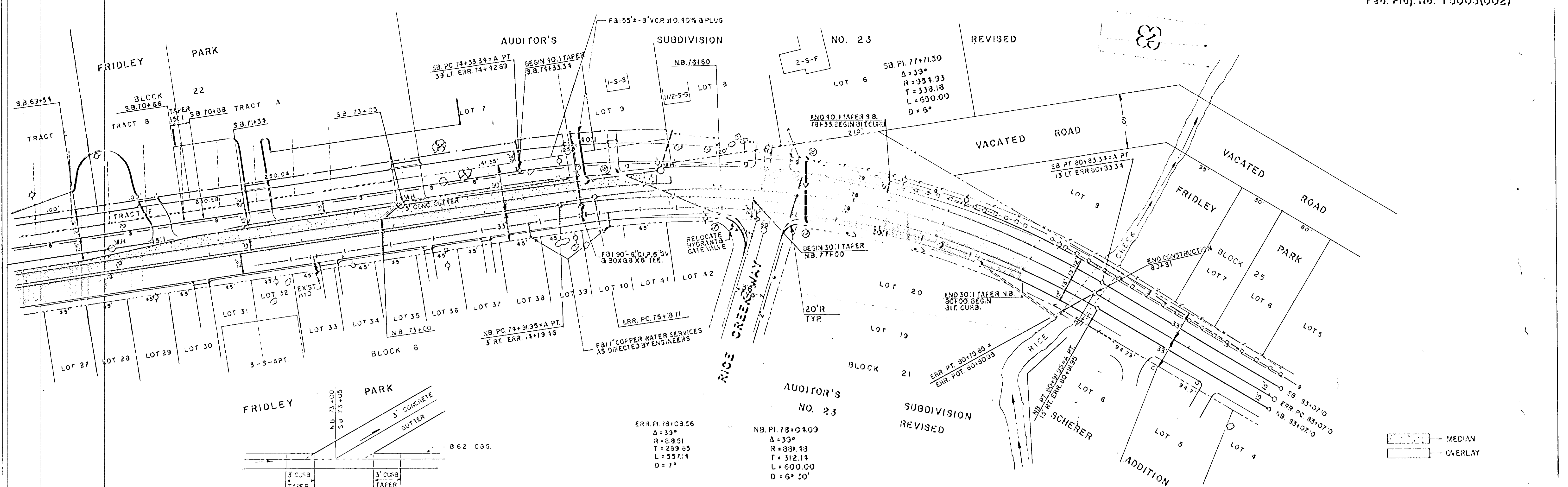




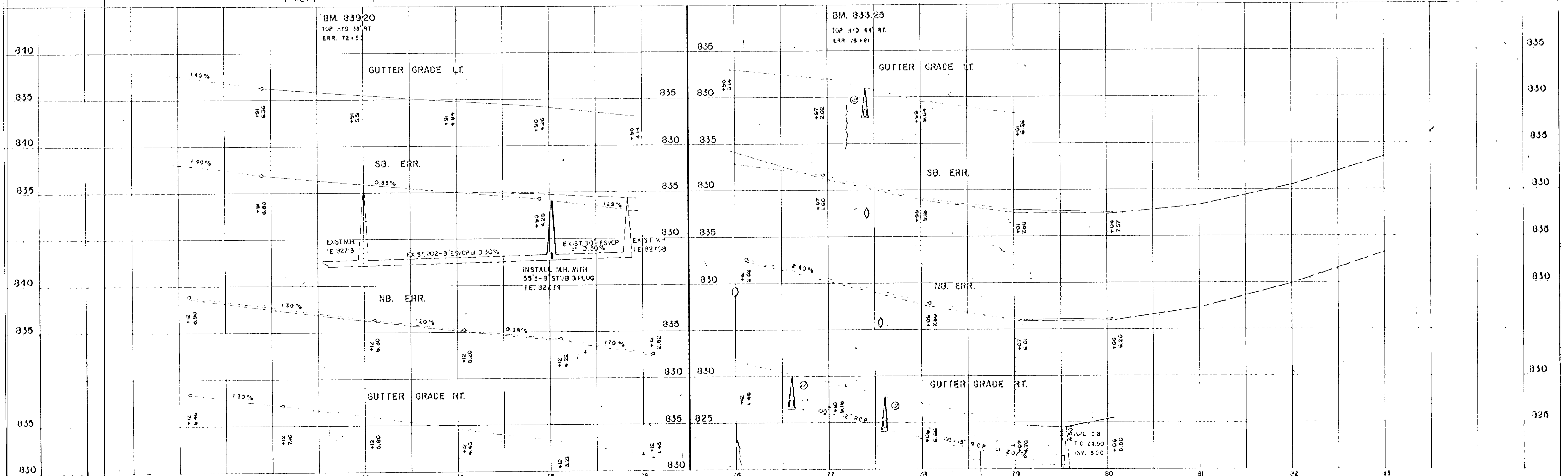




SINGLE PLAN AND PROFILE - DOTTED



--- MEDIAN  
 --- OVERLAY



1. SEE PLAN A. & FIGURE - 20115  
 2. A. POLYMER 10' MANHOLES AT 14'



AUDITOR'S  
NO 23  
SUBDIVISION  
REVISED

JOHNSON'S RIVER

LANE ADDITION

S.B. PC 64+32.79

MISSISSIPPI PLACE

MISSISSIPPI STREET

EAST

RIVER

ROAD

GAS STATION

FRIDLEY PARK

BLOCK 22  
TRACT D  
FRIDLEY PARK

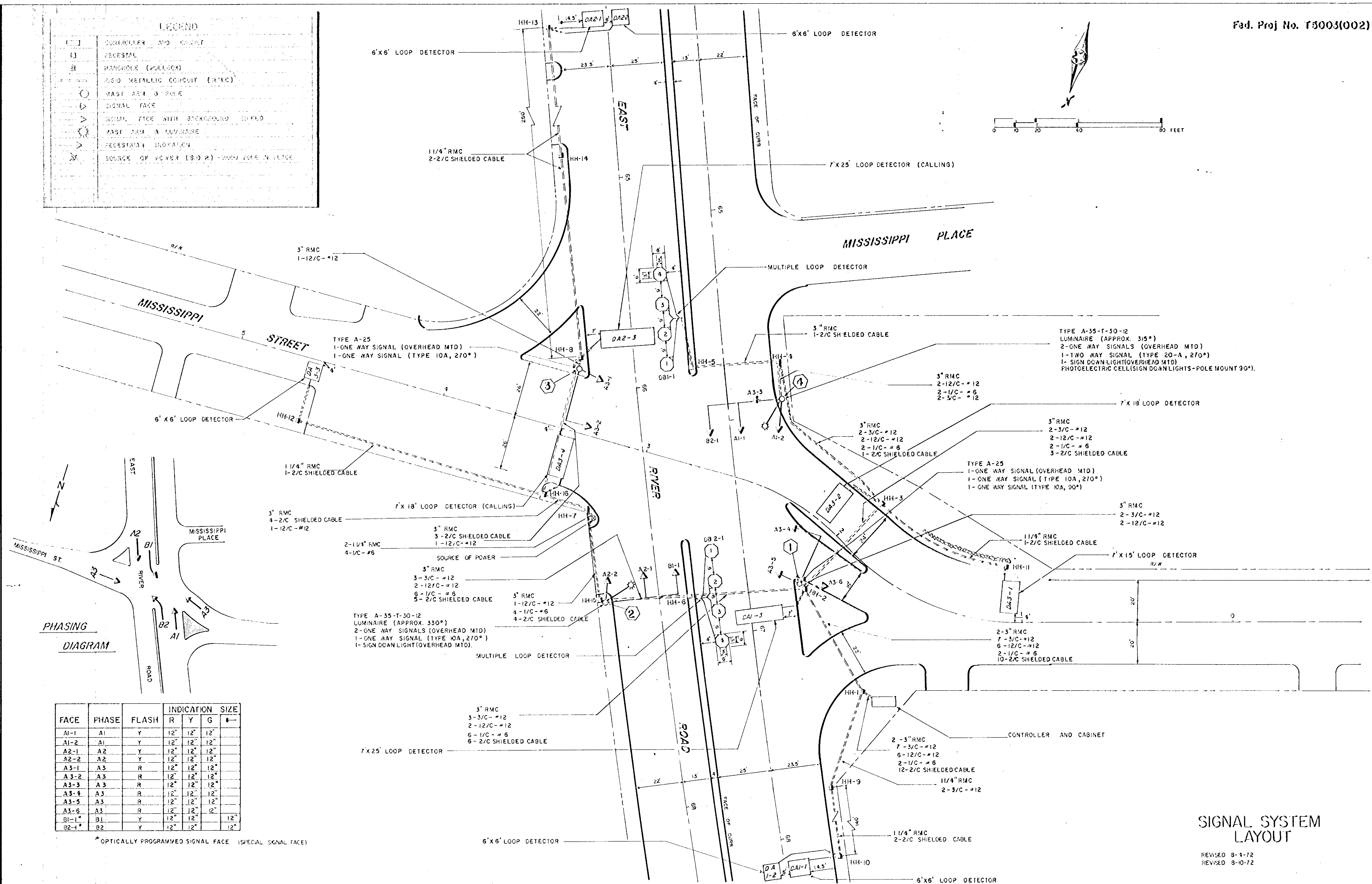
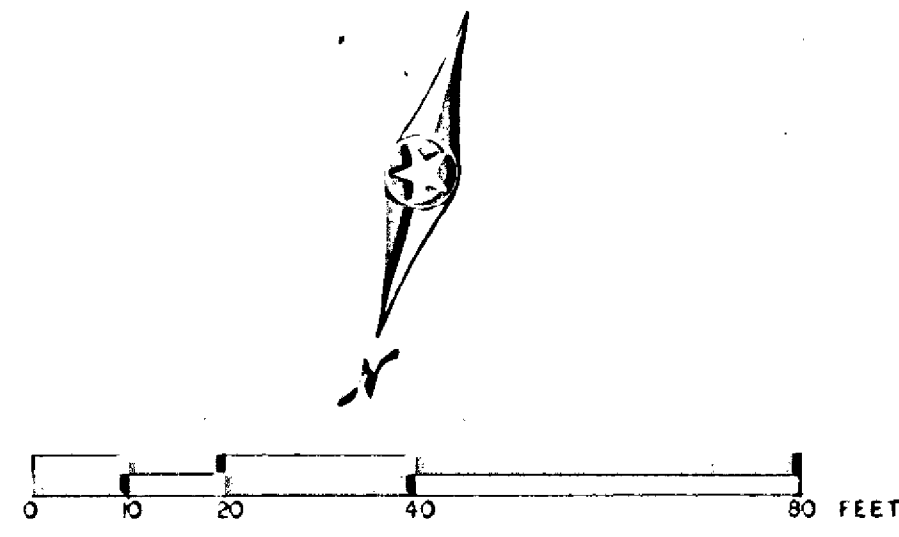
MISS PI 1+49.83  
Δ = 17°  
R = 114.53  
T = 49.83  
L = 34.00  
D = 50°

NOTE: SEE SHEET No. 8 FOR  
MISSISSIPPI ST. PROFILE.



**LEGEND**

[ ]	CONTROLLER AND CABINET
[ ]	RECESTAL
[ ]	HANDPOLE (PULLBOX)
[ ]	RIGID METALLIC CONDUIT (RMC)
[ ]	MAST ARM & POLE
[ ]	SIGNAL FACE
[ ]	SIGNAL FACE WITH BACKGROUND SHIELD
[ ]	MAST ARM & LUMINAIRE
[ ]	PEDESTRIAN INDICATION
[ ]	SOURCE OF POWER (S.O.P.) - WOOD POLE IN PLACE



PHASING  
DIAGRAM

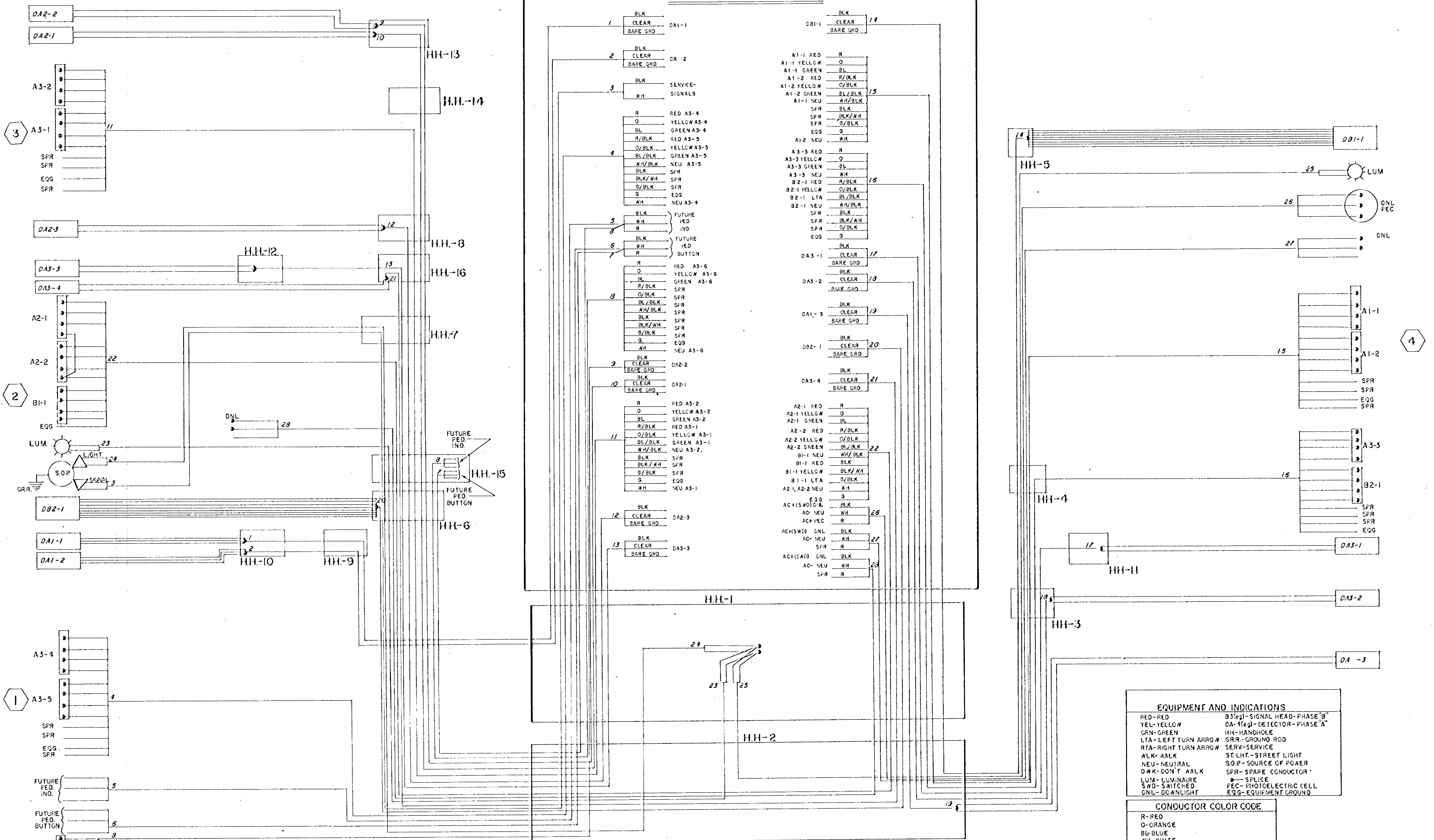
FACE	PHASE	FLASH	INDICATION			SIZE
			R	Y	G	
A1-1	A1	Y	12"	12"	12"	12"
A1-2	A1	Y	12"	12"	12"	12"
A2-1	A2	Y	12"	12"	12"	12"
A2-2	A2	Y	12"	12"	12"	12"
A3-1	A3	R	12"	12"	12"	12"
A3-2	A3	R	12"	12"	12"	12"
A3-3	A3	R	12"	12"	12"	12"
A3-4	A3	R	12"	12"	12"	12"
A3-5	A3	R	12"	12"	12"	12"
A3-6	A3	R	12"	12"	12"	12"
B1-1	B1	Y	12"	12"	12"	12"
B2-1	B2	Y	12"	12"	12"	12"

\* OPTICALLY PROGRAMMED SIGNAL FACE (SPECIAL SIGNAL FACE)

**SIGNAL SYSTEM LAYOUT**

REVISED 8-4-72  
REVISED 8-10-72





**NOTES:**

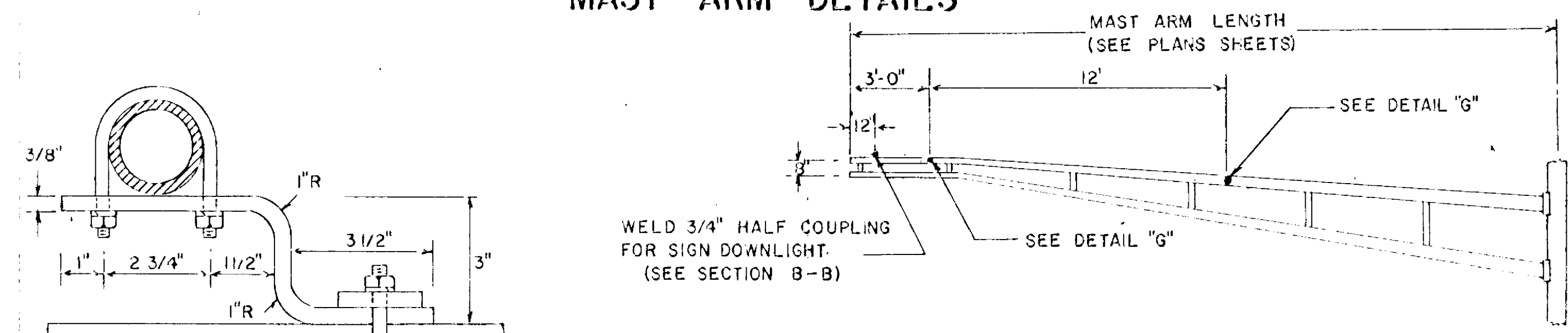
1. Provide terminal strips in the base of all standards with terminals for all conductors in standard with exception of conductors for street lights.
2. No splices are to be made in hand holes except for detector connections and street light circuits.
3. Provide in-line fuses in base of each standard for street lights.
4. Ground conductors and all wires. Install grounding as specified or required.

EQUIPMENT AND INDICATIONS	
RED-RED	B3(eg)-SIGNAL HEAD-PHASE "B"
YEL-YELLOW	DA-1(eg)-DETECTOR-PHASE "A"
GRN-GREEN	HH-HANDHOLE
LTA-LEFT TURN ARROW	GRR-GROUND ROD
RTA-RIGHT TURN ARROW	SERV-SERVICE
WLK-WALK	ST LHT-STREET LIGHT
NEU-NEUTRAL	S.O.P.-SOURCE OF POWER
DWK-DON'T WALK	SPR-SPARE CONDUCTOR
LUM-LUMINAIRE	SP-LSPICE
SWD-SWITCHED	PEC-PHOTOELECTRIC CELL
DNL-DOWNLIGHT	EGG-EQUIPMENT GROUND

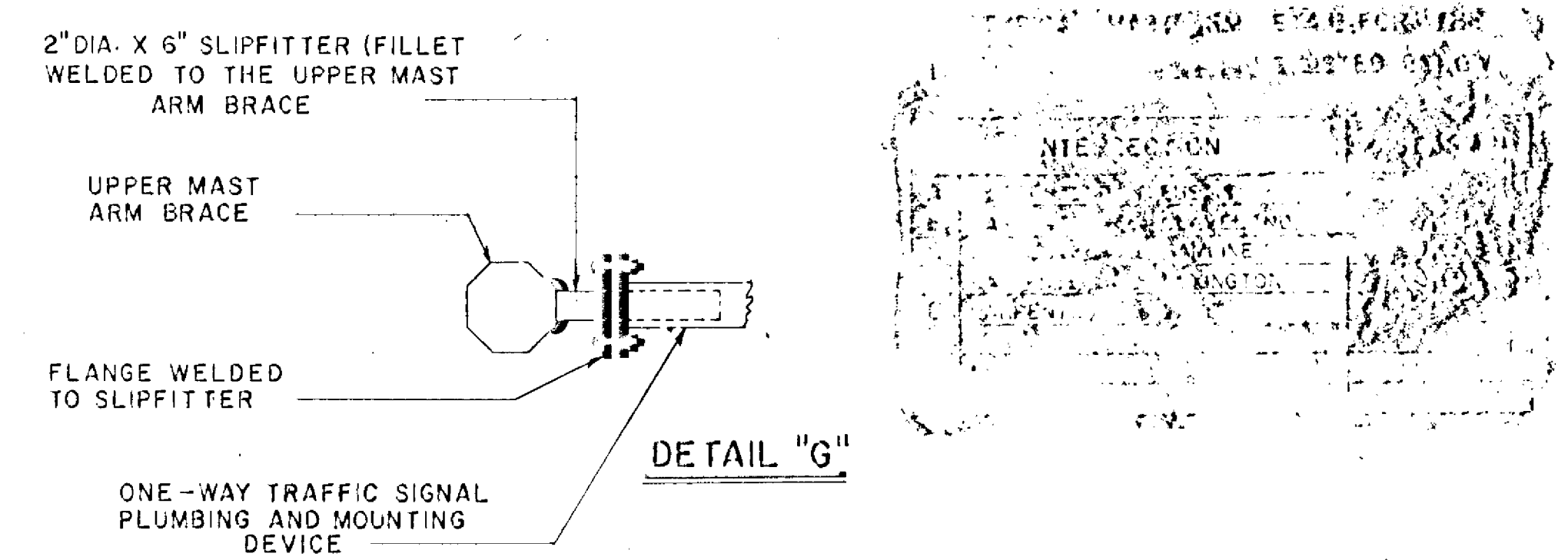
CONDUCTOR COLOR CODE	
R-RED	
O-ORANGE	
BL-BLUE	
WH-WHITE	
R/BLK-RED WITH BLACK TRACER	
O/BLK-ORANGE WITH BLACK TRACER	
BL/BLK-BLUE WITH BLACK TRACER	
WH/BLK-WHITE WITH BLACK TRACER	
BLK-BLACK	
BLK/WH-BLACK WITH WHITE TRACER	
G/BLK-GREEN WITH BLACK TRACER	
G-GREEN	

REVISED 8-4-72  
REVISED 8-10-72

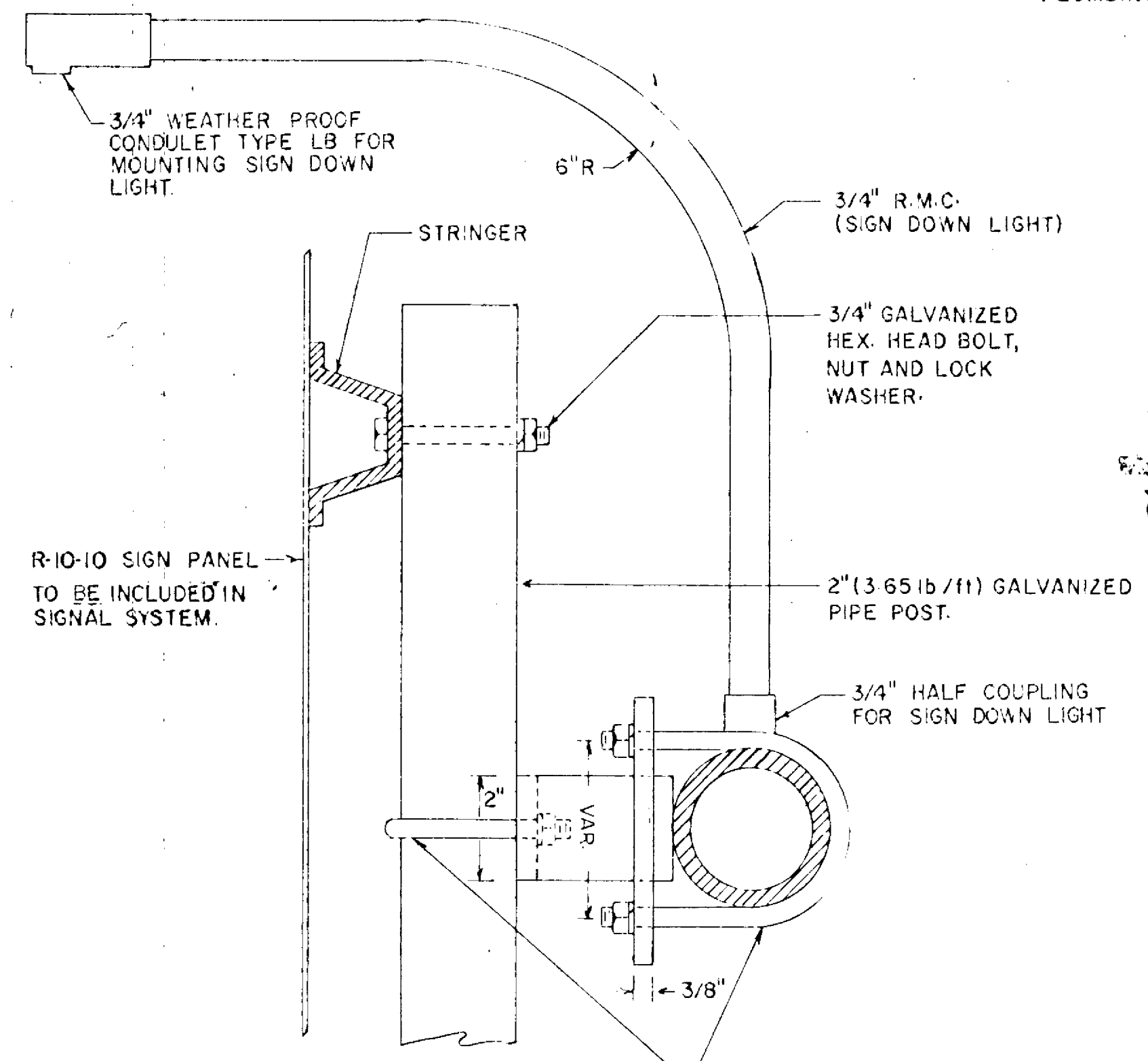
**MAST ARM DETAILS**



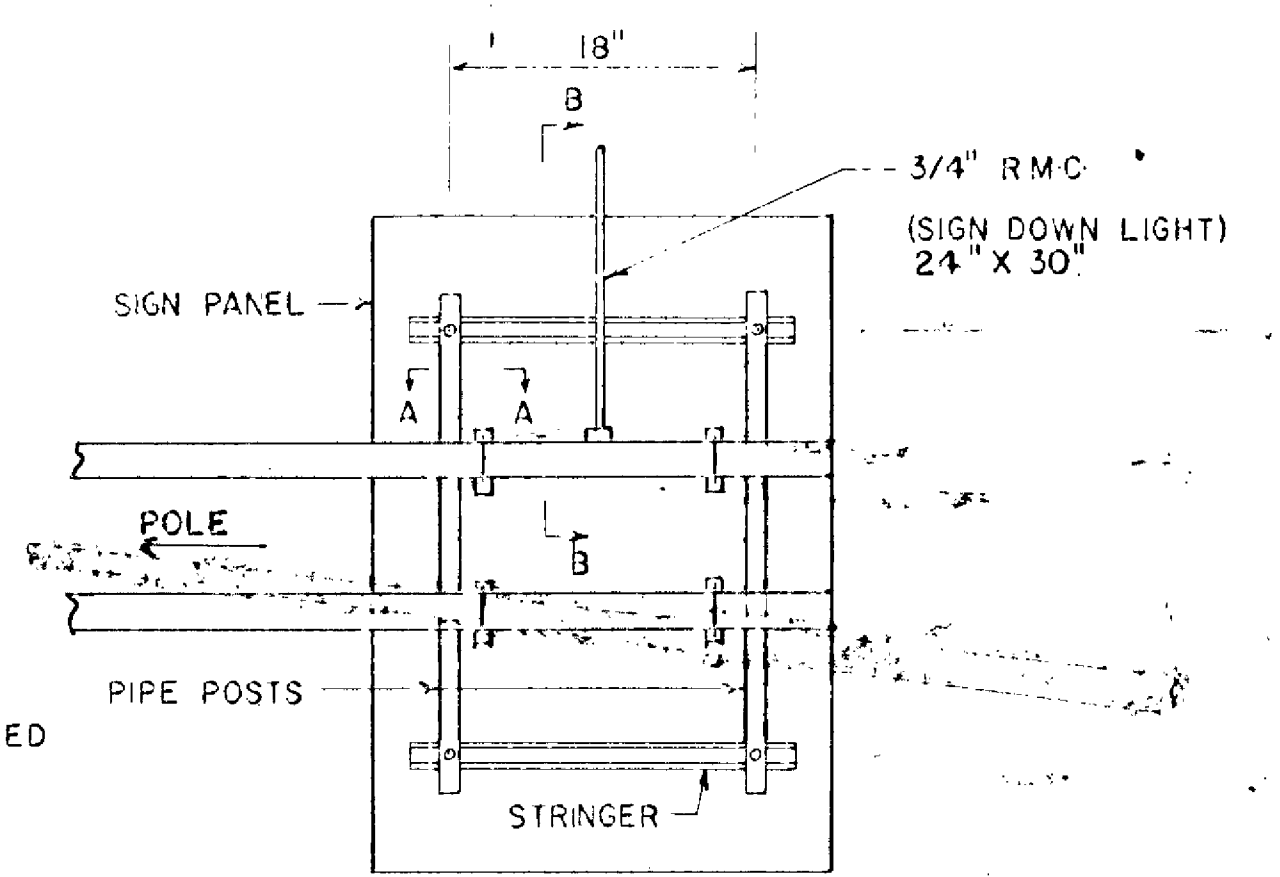
**SECTION A-A**



**DETAIL "G"**



**SECTION B-B**



**TYPICAL MOUNTING**

- NOTES:**
1. PIPE MATERIAL SHALL CONFORM TO A.S.T.M. DESIGNATION A53, SCHEDULE 40.
  2. STRUCTURAL STEEL SHALL CONFORM TO M.H.D. 3306.
  3. GALVANIZING SHALL CONFORM TO M.H.D. 3392 AND M.H.D. 3394.

**SIGNAL DETAILS**