

# COUNTY OF ANOKA DEPARTMENT OF HIGHWAYS

CONSTRUCTION PLANS FOR C.S.A.H. NO. 1 (EAST RIVER ROAD AT I-694) IN FRIDLEY  
GRADING, PAVING, STORM SEWER & SIGNALIZATION

PROJECT NO. S.A.P. 02-601-21 (C.P. 74-21-01)

### SPECIFICATIONS

STATE OF MINNESOTA, DEPARTMENT OF HIGHWAYS "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" DATED JANUARY 1, 1972 SHALL GOVERN AS AMENDED BY "SUPPLEMENTAL SPECIFICATIONS" DATED JANUARY 1, 1974.

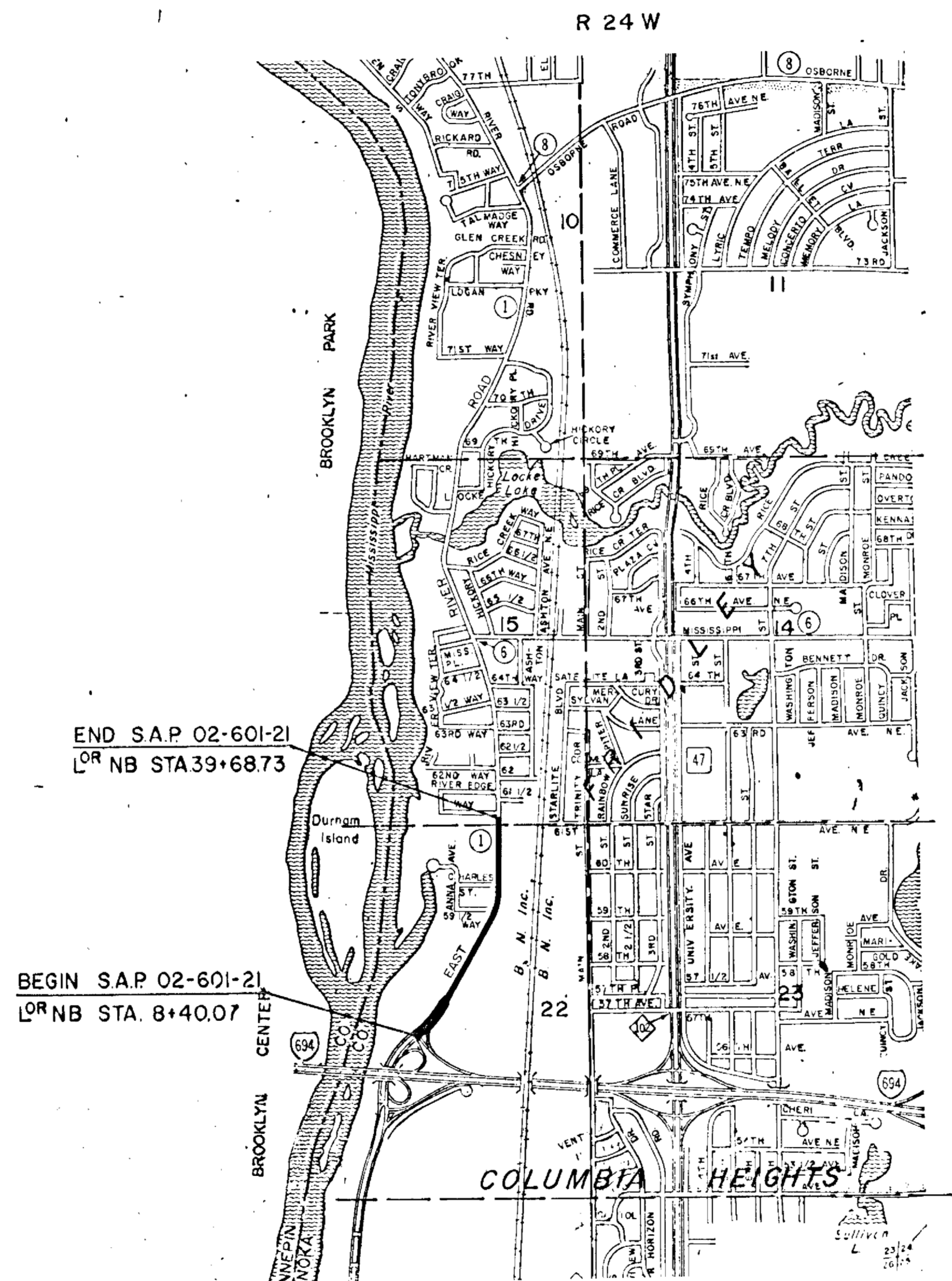
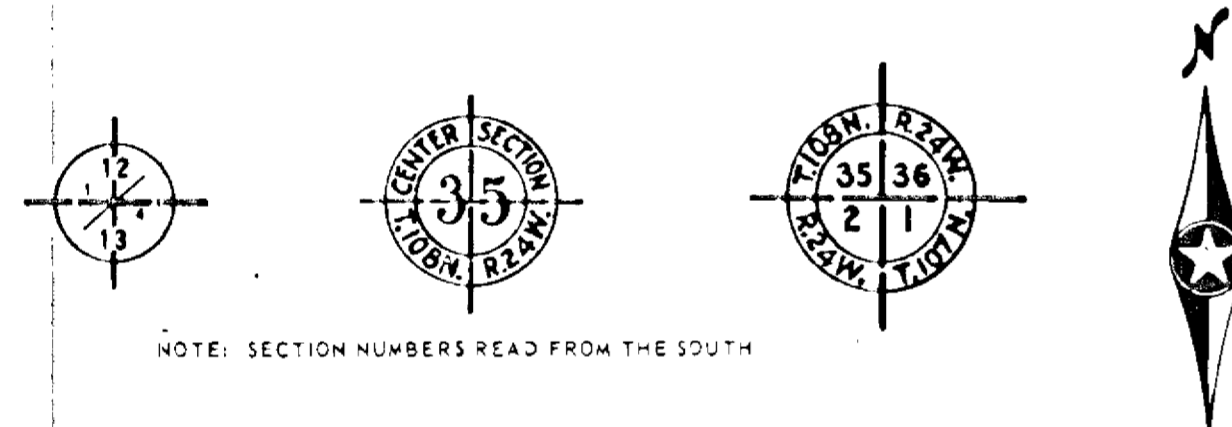
SCALES  
PLAN 1" = 50'  
PROFILE 1" = 5'  
CROSS SECTION 1" = 5'

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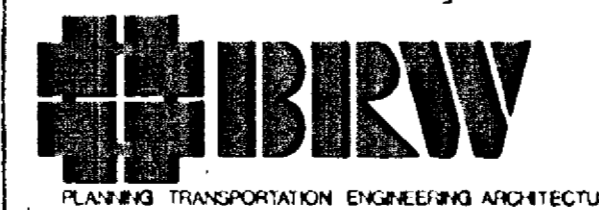
### CONVENTIONAL SIGNS

STATE LINE	SPRINGS	CATCH BASIN	C.B. □
COUNTY LINE	MARSH	MANHOLE	M.H. ○
TOWNSHIP OR RANGE LINE	TIMBER	FIRE HYDRANT	○
SECTION LINE	ORCHARD	STREET LIGHT	○
QUARTER LINE	BRUSH	RAILROAD CROSSING SIGN	○
SIXTEENTH LINE	NURSERY	RAILROAD CROSSING BELL	○
RIGHT OF WAY LINE		ELECTRIC WARNING SIGN	○
PRESENT RIGHT OF WAY LINE		CROSSING GATE	○
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	○
RAILROAD		C CONCRETE	○
RAILROAD RIGHT OF WAY LINE		S STONE	○
RIVER OR CREEK		T TILE	○
DRY RUN		B BRICK	○
DRAINAGE DITCH		ST STUCCO	○
ELECTRIC POWER LINE		IRON PIPE OR ROD	○
TELEPHONE OR TELEGRAPH LINE		MONUMENT (STONE, CONCRETE, OR METAL)	○
JOINT TELEPHONE AND POWER		WOODEN HUB	○
CONDUIT		GRAVEL PIT	○
TELEPHONE CABLE - AERIAL		SAND PIT	○
TELEPHONE CABLE - UNDERGROUND		BORROW PIT	○
POWER CABLE UNDERGROUND		ROCK QUARRY	○
GAS MAIN		MEANDER CORNER	○
CULVERT			
DROP INLET			
GUARD RAIL			
BARBED WIRE FENCE			
WOVEN WIRE FENCE			
CHAIN LINK FENCE			
RAILROAD SNOW FENCE			
STONE WALL OR FENCE			
WEDGE			
WATER PIPE			
SEWER PIPE			
DRAIN TILE			



FROM LOR NB STATION 8+40.07			
TO LOR NB STATION 39+68.73			
GROSS LENGTH	3128.66	FEET	0.593 MILES
BRIDGES LENGTH	0	FEET	0 MILES
EXCEPTIONS LENGTH	0	FEET	0 MILES
NET LENGTH	3128.66	FEET	0.593 MILES

DESIGN: 9 TON - A-3 SOIL  
ANTICIPATED A.D.T. 24,000  
" HC.ADT. 600 - 1,000  
DESIGN SPEED 45 MPH.



BATHER, RINGROSE, WOLSFELD, INC. 612 831-2300  
7101 YORK AVENUE SOUTH EDINA, MINNESOTA 55438

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.  
*Paul K. Lund*  
DATE 11/17/74 REG. NO. 19216

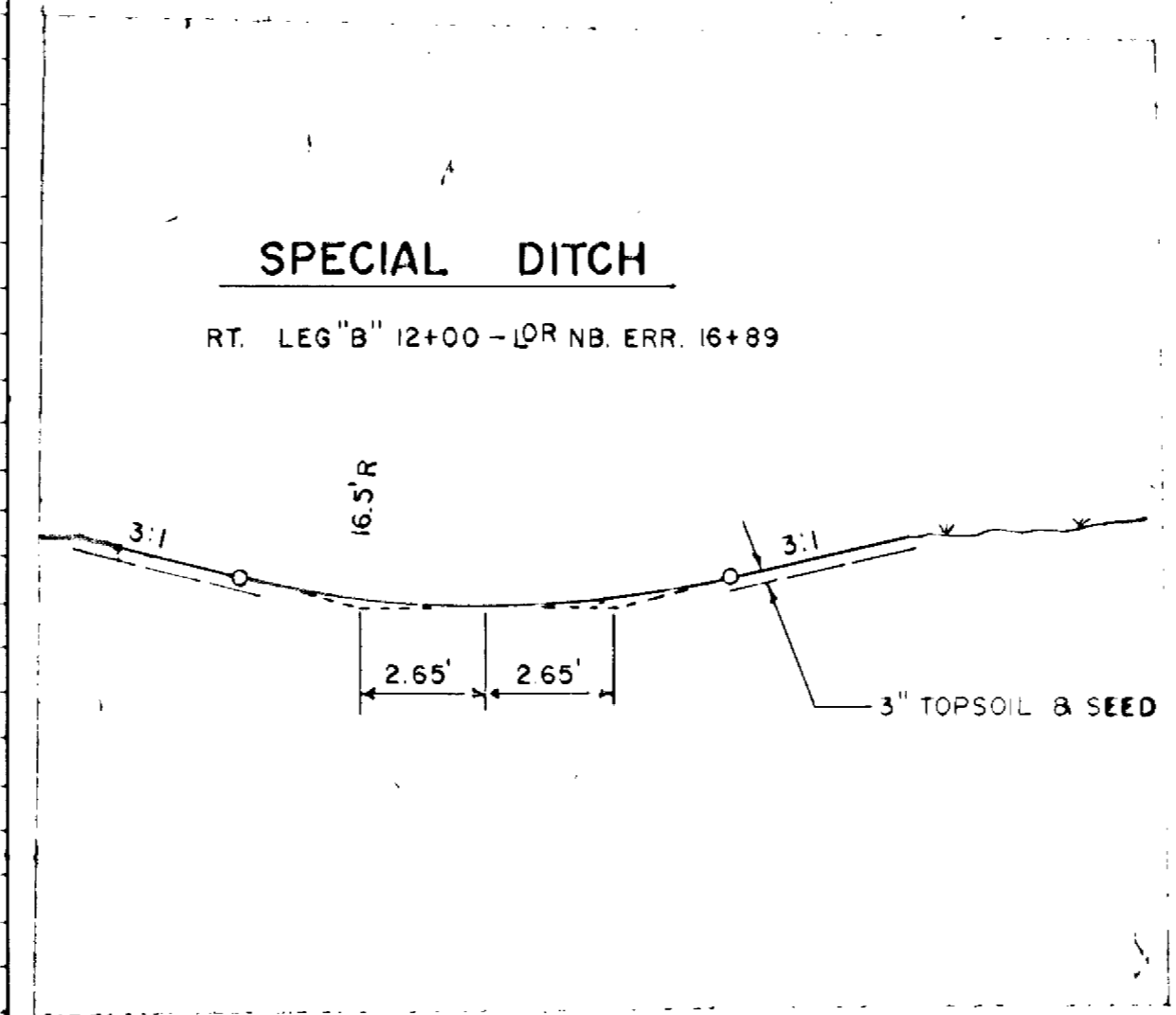
Recommended for Approval *Paul K. Lund* COUNTY ENGINEER Date 2/11/75  
Recommended for Approval *Paul K. Lund* DIST. STATE AID ENGINEER Date 3/1/75  
Recommended for Approval *Ang J. Solon* Date 6-25-75  
Recommended for Approval *Paul K. Lund* STATE AID ENGINEER Date 3/1/75  
Recommended for Approval \_\_\_\_\_ Date \_\_\_\_\_

REVISIONS		
SHEET NO.	REVISED BY	DATE
1, 10, 12 & 13	S.M.	4-1-75
ADDED 14, 26 & 27	S.M.	4-1-75
3, 3, 4, 5, 7, 12 & 11 (C.P. only)	M.S.	1-7-75

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	S.A.P. 02-601-21		C.P. 74-21-01	
			ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES
2031.501	FIELD OFFICE, TYPE D	EACH	1			
2104.501	Remove Curb and Gutter	Lin. Ft.	1643			
2104.501	Remove Integrant Curb	Lin. Ft.	241			
2104.501	Remove Culvert Pipe	Lin. Ft.	311			
2104.501	Remove Storm Sewer	Lin. Ft.	123			
2104.505	Remove Concrete Pavement	Sq. Yd.	1526		264	
2104.505	Remove Concrete Walk	Sq. Yd.	422			
2104.509	Remove Manholes or Catch Basins	Each	6			
2104.509	Remove Brick Sign Post	Each	2			
2104.521	Salvage Chain Link Fence	Lin. Ft.	1001		600	
2104.523	Salvage Hydrant and Valve	Each	4			
2104.523	Salvage Light Standard	Each	7			
2105.501	Common Excavation	Cu. Yd.	15460		1933	
2105.525	Tonsill Borrow (LV)	Cu. Yd.	1400		280	
2211.503	Aggregate Base Placed, Class 5	Cu. Yd.	5896		1145	
2301.501	8" Non-Reinforced Concrete Pavement	Sq. Yd.			345	
2301.541	Integrant CURB Design B6	Lin. Ft.	120			
2341.504	Bituminous Material for Mixture	Ton	319		46	
2341.508	Wearing Course Mixture	Ton	2589		453	
2341.510	Binder Course Mixture	Ton	3859		453	
2341.518	Bituminous Mixture for Medians ①	Ton	334			
2357.502	Bituminous Material for tack Coat	Gal.	1632		256	
2501.515	12" RC Pipe Aprons	Each	2			
2501.515	15" RC Pipe Aprons	Each	1			
2501.525	22" Span RC Pipe Arch Aprons	Each	1			
2501.525	36" Span RC Pipe Arch Aprons	Each	1			
2503.511	12" RC Pipe Sewer	Lin. Ft.	982		22	
2503.511	15" RC Pipe Sewer	Lin. Ft.	753		153	
2503.511	21" RC Pipe Sewer	Lin. Ft.	278			
2503.511	24" RC Pipe Sewer	Lin. Ft.	339			
2503.511	30" RC Pipe Sewer	Lin. Ft.	400			
2503.521	22" Span RC Pipe - Arch Sewer	Lin. Ft.	98			
2503.521	36" Span RC Pipe - Arch Sewer	Lin. Ft.	372			
2506.506	Construct Manholes Design A or F	Lin. Ft.	24.1			
2506.506	Construct Manholes Design C or G	Lin. Ft.	4.3			
2506.507	Construct Catch Basins Design A or F	Lin. Ft.	5.9			
2506.507	Construct Catch Basins Design C or G	Lin. Ft.	35.4		5.8	
2506.507	Construct Catch Basins Design H	Lin. Ft.	40.0		12.2	
2506.511	Reconstruct Manholes	Lin. Ft.	28.1			
2506.516	Castling Assemblies	Each	29		5	
2506.522	Adjust Frame and Ring Castings	Each	1		1	
2511.501	Random Riprap, Class A	Cu. Yd.	15.1			
2511.504	Filter Blanket, Type 1	Cu. Yd.	7.8			
2521.501	4" Concrete Walk	Sq. Ft.	1900			
2531.501	Concrete Curb and Gutter Design B 612	Lin. Ft.	3725			
2531.501	Concrete Curb and Gutter Design B 618	Lin. Ft.	6045		2060	
2531.503	Concrete Median	Sq. Yd.	6			
2531.507	6" Concrete Driveway Pavement	Sq. Yd.	3		13	
2535.501	Bituminous Curb	Lin. Ft.	1468			
2545.521	1 1/2" Rigid Steel Conduit	Lin. Ft.	955			
2545.553	Pull Box	Each	6			
2554.501	TRAFFIC Barrier, Design B-8307	Lin. Ft.	600			
2554.521	Anchorage Assemblies	Each	2			
2564.531	Furnish and Install Sign Panels	Sq. Ft.	212			
2565.501	Full TRAFFIC Actuated TRAFFIC CONTROL SYSTEM	Each	1			
2575.501	Roadside Seeding (P)	Acre	2.6			
2575.502	Seed, Mixture 5	Pound	130			
2575.505	Sodding	Sq. Yd.	7545		1333	
2575.511	Mulch Material TYPE 1 (3)	Ton	5.2			
2575.512	Mulch Material TYPE 2 (3)	Gal.	520			
2575.531	COMMERCIAL FERTILIZER, ANALYSIS 12-18-18 ②	TON	0.52			
504.666	Install Hydrant and Valve	Each	4			
557.604	Install Chain Link Fence	Lin. Ft.	448			
545.638	Install Light Standard ③	Each	4			
569.621	Delineation Treatment	Sq. Yd.	433			
2503.511	8" E.S.V.C.P. SANITARY SEWER	LIN. FT.			50	
504.601	8" D.I.P. WATERMAIN	LIN. FT.			60	
504.672	8" TAPPING VALVE M.J.	EACH			1	
504.620	CAST IRON FITTINGS	POUND			850	

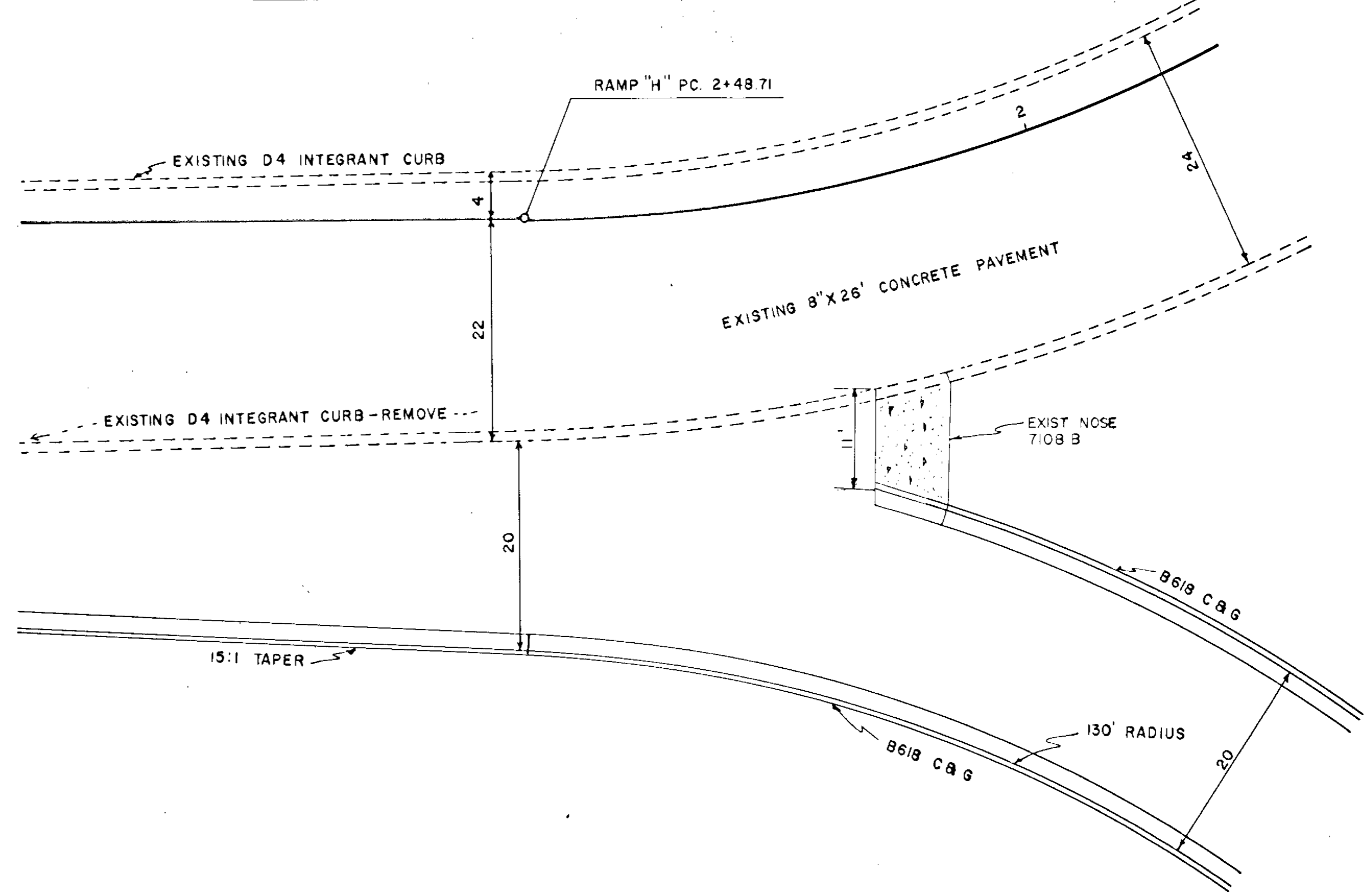
- ① INCLUDES BITUMINOUS MATERIAL
- ② APPLIED AT 400 LBS. PER ACRE
- ③ INCLUDES THE BASE



MISCELLANEOUS REMOVAL						
STATION (TO STATION)	LOC	DESCRIPTION	UNIT			
			LIN. FT.	SQ. YD.	CU. YD.	STRUCT. EACH
L <sup>or</sup> NB 8+00 - 12+36	RT	B624 Curb & Gutter	436			
L <sup>or</sup> NB 8+40 - 17+12	LT	B624 Curb & Gutter	872			
L <sup>or</sup> SB 14+00 - 17+35	RT	B624 Crub & Gutter	335			
Ramp "H" 2+19 - 4+53	LT	D 4 Integrant Curb	234			
LEG "B" 7+37 - 15+00		8" Concrete Pavement		1526		
LEG "B" 9+05	RT	12" C. M. P.	17			1
LEG "B" 12+08	RT	12" C. M. P.	17			1
L <sup>or</sup> NB 7+37	RT	18" RCP & APR	12			
L <sup>or</sup> NB 8+91	RT	12" RCP & APR	51			2
L <sup>or</sup> SB 15+17	RT	12" RCP & APR	60			2
L <sup>or</sup> SB 9+00 - 18+80	LT	60' Chain Link Fence	980			
L <sup>or</sup> NB 12+35 - 18+56	RT	60' Chain Link Fence	621			
L <sup>or</sup> SB 19+50	LT	18" C. M. P.	108			
L <sup>or</sup> NB 19+15	RT	18" C. M. P.	76			
L <sup>or</sup> NB 20+10	RT	18" C. M. P.	46			
L <sup>or</sup> NB 22+45	RT	18" C. M. P.	47			
L <sup>or</sup> SB 20+10	LT	Concrete Walk		36		
L <sup>or</sup> SB 20+30	LT	Brick Sign Post				2
L <sup>or</sup> 3+43	RT	Hydrant & Valve				1
L <sup>or</sup> NB 23+35	RT	Hydrant & Valve				1
L <sup>or</sup> NB 26+20	RT	Hydrant & Valve				1
L <sup>or</sup> NB 33+10	RT	Hydrant & Valve				1
Ramp "H" 2+98	LT	Light Standard				1
LEG "B" 10+38	RT	Light Standard				1
LEG "B" 12+18	RT	Light Standard				1
LEG "B" 13+98	RT	Light Standard				1
L <sup>or</sup> NB 9+30	RT	Light Standard				1
L <sup>or</sup> NB 10+98	RT	Light Standard				1
L <sup>or</sup> NB 14+50	RT	Light Standard				1
L <sup>or</sup> 3+30	LT	8" Concrete Pavement ③		264		
L <sup>or</sup> NB 10+50 - 17+95	LT	Concrete Walk		386		

③ C.P. 74-21-01

RAMP "H" EXIT NOSE



STRUCT. NO.	STATION	LOCATION	CONSTRUCTION		TOP OF CASTING OR INLET	OUTLET	F & I CASTING ASSY	ADJUST.	RECONST.	FURNISH AND INSTALL PIPE SEWER								APRONS		DRAINS TO			SODDING	CLASS A RANDOM RIPRAP	TYPE I FILTER BLANKET				
			DESIGN	PAY HEIGHT						ELEV.	ELEV.	TYPE	12"	15"	21"	24"	30"	13x22	22x36	R.C.P. C.M.	STR. NO.	GRADE %				INL. EL.	SQ. YD.	CU. YD.	CU. YD.
													RCP	RCP	RCP	RCP	RCP	RCP-A	RCP-A										
1	NB. ERR. 31+10	20.87 RT	H	2.83	43.56	40.73	A			108								2	0.50	40.19									
2	NB. ERR. 30+02	20.87 RT	Cor G	3.93	43.93	40.00	A			330								5A	0.50	38.33									
3	NB. ERR. 30+00	23.87 LT	H	2.83	43.05	40.22	A			45								2	0.50	40.00									
4	SB. ERR. 28+25	24.37 LT	H	2.83	41.78	38.95	A			137								5	0.50	38.27									
5	SB. ERR. 26+88	22.87 LT	Cor G	4.25	42.52	38.27	A			77								5A	0.40	37.89									
6	NB. ERR. 24+50	12 RT	Aor F	7.58	44.36	36.78	B											7A	0.40	35.29									
7	NB. ERR. 20+77	20.87 RT	H	3.00	41.91	38.91	A			9								7A	37.4	35.54									
8	NB. ERR. 20+77	11.87 LT	Cor G	3.29	42.29	39.00	A			24								7A	12.5	36.00									
9	SB. ERR. 21+00	20.87 LT	H	2.83	42.09	39.26	A			45								10	0.50	39.04									
10	SB. ERR. 21+00	23.87 LT	Cor G	3.01	42.05	39.04	A			6								8	0.67	39.00									
11	L <sup>2</sup> 1+00	14.37 LT	H	2.83	39.16	36.33	A			29								12	0.50	36.19									
12	L <sup>2</sup> 1+00.6	14.37 RT	H	2.97	39.16	36.19	A			50								13	0.50	35.94									
13	SB. ERR. 18+39.4	42 LT	Aor F	8.35	41.5	33.15	B											21	0.40	31.79									
14	L <sup>4</sup> 1+86.3	10.87 RT	H	2.77	40.84	38.07	A			22								15	0.50	37.96									
15	L <sup>4</sup> 1+86.3	10.87 LT	H	3.13	40.84	37.71	A											16	0.40	37.24									
16	L <sup>4</sup> 2+31.6	24.37 LT	Cor G	4.85	42.09	37.24	A											17	0.50	36.89									
17	NB. ERR. 17+16.9	38 RT	Cor G	4.97	41.86	36.89	A											32											
18	SB. ERR. 15+00	11.87 RT	H	3.00	41.49	38.49	A			6								1	DITCH	0.73	36.60	2.3	1.2						
19	NB. ERR. 14+77	23.87 LT	H	3.00	41.25	38.25	A			48								19	4.00	38.25									
20	NB. ERR. 14+77	24.37 RT	Cor G	3.72	41.22	37.50	A			18								20	1.56	37.50									
21	SB. ERR. 15+00	42 LT	Cor G	5.71	37.0	31.29	C											1	DITCH	6.25	36.0	1.7	0.9						
22	NB. ERR. 10+77	82 LT	Aor F	5.93	35.5	30.57	C						165					30	0.18	30.99									
23	NB. ERR. 8+00	110 LT	Cor G	3.50	33.50	30.00	C											23	0.22	30.00									
24	NB. ERR. 8+91	11.87 LT	H	3.00	39.05	36.05	A											1	DITCH	0.22	29.75	6.5	3.3						
25	NB. ERR. 8+91	33.87 RT	H	3.00	38.60	35.60	A			33								25	1.00	35.60									
APR	Ramp "H" 2+48.7	56.2 LT				33.00												1	DITCH	7.00	34.0	1.7	0.9						
26	Ramp "H" 2+48.7	40.87 LT	H	2.83	35.24	32.41	A						10					1	DITCH	3.69	32.41	2.9	1.5						
27	Ramp "H" 1+75	35 LT	Cor G	4.31	36.50	32.19	B						88					27	0.25	32.19									
5A	NB. ERR. 26+73	12 RT	Aor F	8.51	46.14	37.64	B											EX. CB											
MH	NB. ERR. 12+85	71 RT							4.0									6	0.40	36.78									
1	MH NB. ERR. 20+69	71 RT							1																				
1	MH NB. ERR. 20+90	24 RT							1																				
MH	L <sup>2</sup> 3+35	7 RT							1																				
MH	NB. ERR. 23+82	24 RT							6.1																				
MH	NP. ERR. 30+55	9 RT							6.3																				
MH	NB. ERR. 33+17	12 RT							6.4																				
7A	NB. ERR. 20+77	12 RT	Aor F	7.66	42.45	34.79	B												13	0.05	33.40								
28	L <sup>3</sup> 4+53.3	14.37 RT	H	3.00	37.73	34.73	A												29	1.0	34.44								
29	L <sup>3</sup> 4+53.3	14.37 LT	H	3.29	37.73	34.44	A												30	1.0	34.37								
30	SB. ERR. 16+65	42 LT	Cor G	5.80	36.38	30.99	C												22	0.18	30.57								
6A	NB. ERR. 24+50	37 RT	H	3.00	42.50	39.50	C												5A	1.0	39.25								
5B	NB. ERR. 26+75	40 RT	H	3.00	43.40	40.40	C												6	1.0	40.12								

CASTING SCHEDULE

NO.	QUANT.	TYPE
A	23(2)	NEENAH R 3250-1 OR EQUAL
B	5	NEENAH R1733 OR EQUAL
C	6(3)	NEENAH R 2560-E5 OR EQUAL
2	19	S.A.P. 02-601-21
4	4	C.P. 74-21-01
3	5	S.A.P. 02-601-21
1	1	C.P. 74-21-01

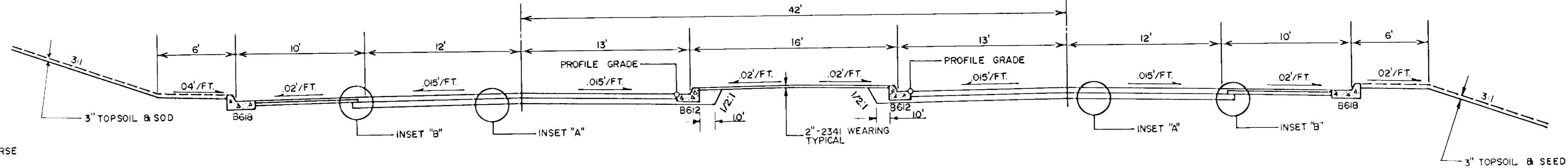
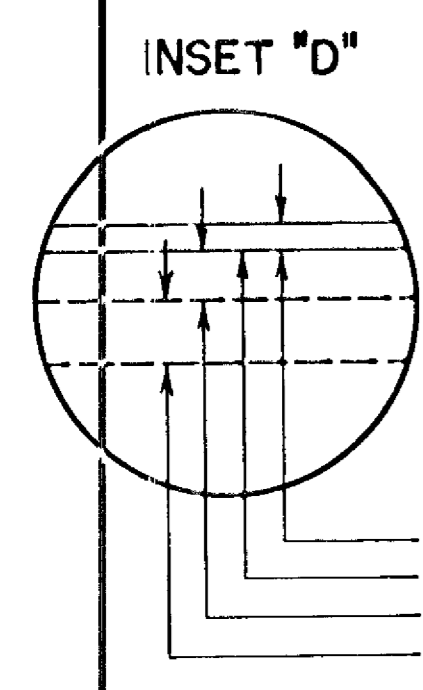
1 C.P. 74-21-01

STANDARD PLATES	
0002A	Specification Reference to Standard Plates
3000 F	Reinforced Concrete Pipe
3014 F	Reinforced Concrete Pipe Arch
3100 F	Concrete Apron For Reinforced Concrete Pipe
3110 D	Concrete Apron For Reinforced Concrete Pipe - Arch
3133 A	Riprap at RCP Outlets
3145 A	Concrete Pipe Joint Ties
4000 G	Manhole or Catch Basin Design A
4002 D	Manhole or Catch Basin Design C
4005 I	Manhole or Catch Basin Design F
4006 H	Manhole or Catch Basin Design G & H
4010 D	Concrete Short Cone and Adjusting Ring
4011 C	Precast Concrete Base
4180 F	Manhole Step Casting
7000 E	Integrant Curbs (Design B)
7035 H	Concrete Walk and Curb Returns at Entrances
7036 A	Pedestrian Curb Ramp
7065 C	Bituminous Curb
7100 D	Concrete Curb and Gutters (Design B)
7108 B	Exit Nose
7110 E	Curb and Gutter Construction at Catch Basins
7111 E	Installation of Catch Basin Castings
8307 K	Structural Plate Beam Guardrail
8319 C	Twisted End Treatment
9322 F	Chain Link Fence
1120 N	Contraction Joint
4181 A	Aluminum Manhole Step
8000 F	Standard Barricades

SIGN TABULATION							
NO.	TYPE	SIZE	LOCATION	NO.	TYPE	SIZE	LOCATION
1	R1-2	36 X 36 X 30	RAMP "H" 2+48.7 LT.	1	R4-7P	24 X 18	NB. ERR. 30 + 10 LT.
1	R3-X2	30 X 30	SB. ERR. 12 + 39 LT.	1	R4-7	24 X 30	NB. ERR. 31 + 10 LT.
1	R3-X1	30 X 30	NB. ERR. 15 + 85 RT.	1	R4-7P	24 X 18	NB. ERR. 31 + 10 LT.
1	R3-X2	30 X 30	NB. ERR. 14 + 10 LT.	1	R3-SR	30 X 30	SB. ERR. 31 + 12 LT.
1	R3-SR	30 X 30	NB. ERR. 16 + 85 RT.	1	R3-X1	30 X 30	SB. ERR. 32 + 62 LT.
1	R3-SL	30 X 30	NB. ERR. 17 + 10 LT.	1	R3-X1	30 X 30	SB. ERR. 34 + 42 LT.
1	R3-SL	30 X 30	SB. ERR. 18 + 24 RT.	1	W6-2	30 X 36	NB. ERR. 35 + 00 RT.
1	R3-SR	30 X 30	NB. ERR. 18 + 40 LT.	1	W6-2P	24 X 36	NB. ERR. 35 + 00 RT.
1	R3-X1	30 X 30	SB. ERR. 20 + 50 LT.	1	R4-7	24 X 18	NB. ERR. 35 + 00 RT.
1	R3-X2	30 X 30	SB. ERR. 21 + 24 RT.	1	R4-7P	24 X 18	NB. ERR. 37 + 20 LT.
1	R6-1R	36 X 12	NB. ERR. 27 + 50 LT.	1	W6-1	36 X 36	ERR. 40 + 45 LT.
1	R1-1	36 X 36	NB. ERR. 23 + 28 RT.	1	W6-1P	24 X 18	ERR. 40 + 45 LT.
1	R3-X2	30 X 30	SB. ERR. 23 + 04 RT.	1	R1-1	30 X 30	L <sup>3</sup> 0 + 38 RT.
1	R3-X2	30 X 30	NB. ERR. 25 + 30 LT.	1	R1-1	30 X 30	L <sup>2</sup> 0 + 60 LT.
1	R6-1R	36 X 12	NB. ERR. 27 + 60 LT.	1	R1-1	36 X 36	L <sup>3</sup> 0 + 28 LT.
1	R3-X2	30 X 30	NB. ERR. 28 + 60 LT.	1	R1-1	36 X 36	L <sup>2</sup> 0 + 39 LT.
1	R3-SL	30 X 30	NB. ERR. 30 + 10 LT.	1	R1-1	30 X 30	L <sup>1</sup> 3 + 55 RT.
1	R4-7	24 X 30	NB. ERR. 30 + 10 LT.	1	R4-7A	24 X 30	L <sup>1</sup> 0 + 45 E
1				1	R4-7A	24 X 30	L <sup>1</sup> 0 + 89 E

L<sup>OR</sup> SB. ERR.  
14+00 - 31+82.47

L<sup>OR</sup> NB. ERR.  
8+40.07 - 31+81.94

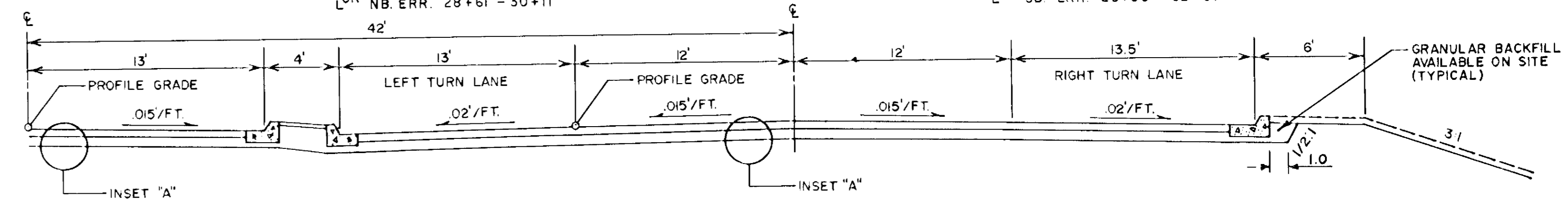


1 1/2" - 2341 WEARING COURSE  
2357 - TACK  
EXISTING 3" BITUMINOUS MAT - 48' WIDTH  
EXISTING 4" STABILIZED SAND - 52' WIDTH

3" TOPSOIL & SEED

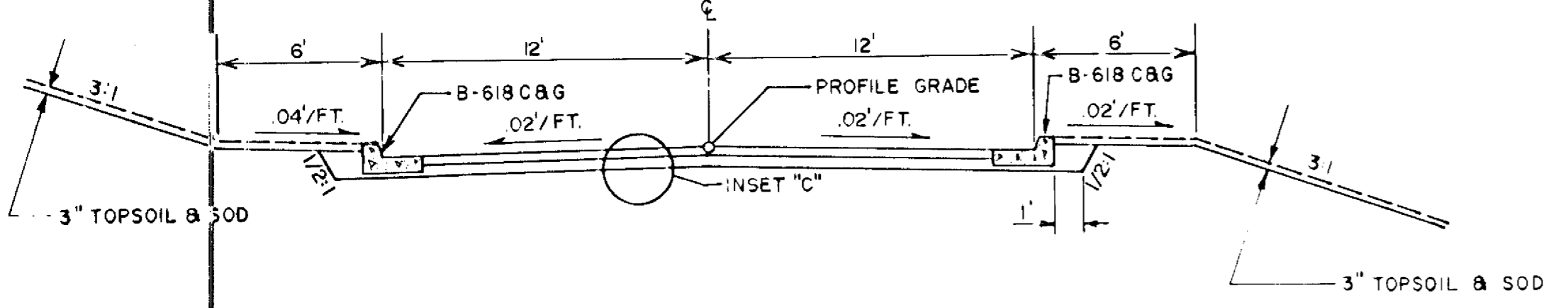
LEFT TURN LANE  
L<sup>OR</sup> NB. ERR. 14+09.92 - 17+09.92  
L<sup>OR</sup> SB. ERR. 18+23.19 - 19+73.19  
L<sup>OR</sup> NB. ERR. 28+61 - 30+11

RIGHT TURN LANE  
L<sup>OR</sup> NB. ERR. 13+83.8 - 16+83.8  
L<sup>OR</sup> SB. ERR. 18+39.4 - 19+89.4  
L<sup>OR</sup> SB. ERR. 28+05 - 32+61

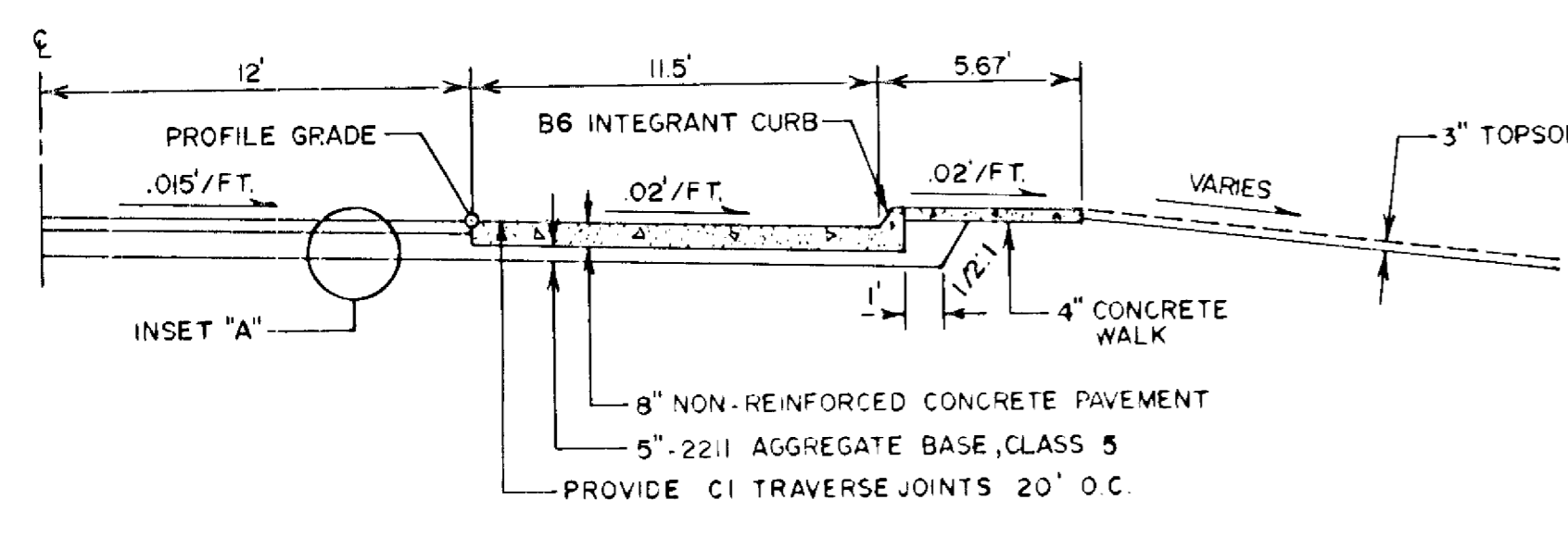


GRANULAR BACKFILL AVAILABLE ON SITE (TYPICAL)

L<sup>4</sup>  
0+78.65 - 5+34



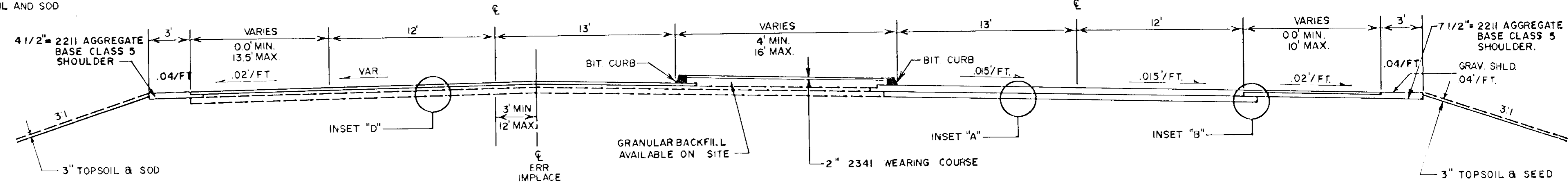
CONCRETE BUS PAD  
L<sup>OR</sup> SB 16+57.0 - 17+17.0 LT.  
L<sup>OR</sup> NB 18+26.1 - 18+86.1 RT.



8" NON-REINFORCED CONCRETE PAVEMENT  
5" 2211 AGGREGATE BASE, CLASS 5  
PROVIDE CI TRAVERSE JOINTS 20' O.C.

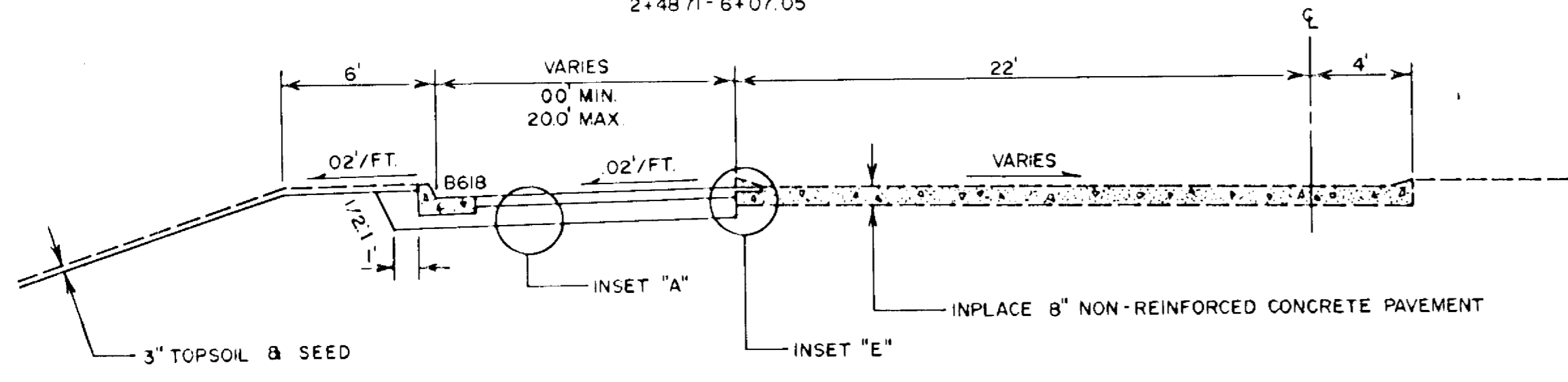
L<sup>OR</sup> SB. ERR.  
31+82.47 - 38+24.78

L<sup>OR</sup> NB. ERR.  
31+81.94 - 39+68.73

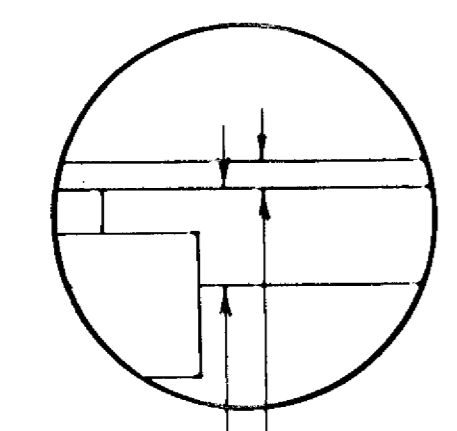


NOTE: SEED AND MULCH ALL DISTURBED AREAS NOT TO BE SODDED.

RAMP "H"  
2+48.71 - 6+07.05

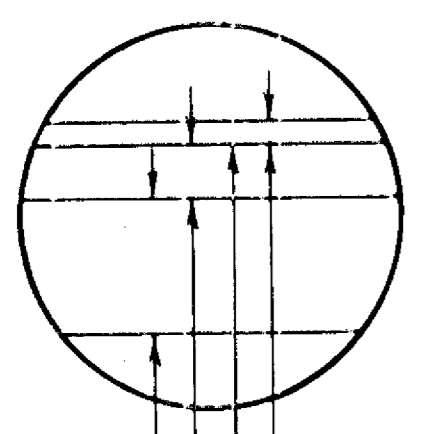


INSET "B"



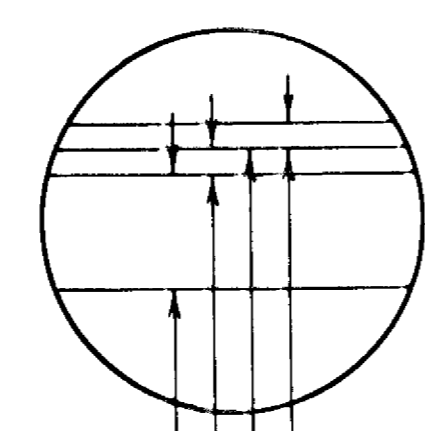
1 1/2" - 2341 WEARING COURSE  
6" - 2211 AGGREGATE BASE, CLASS 5

INSET "A"



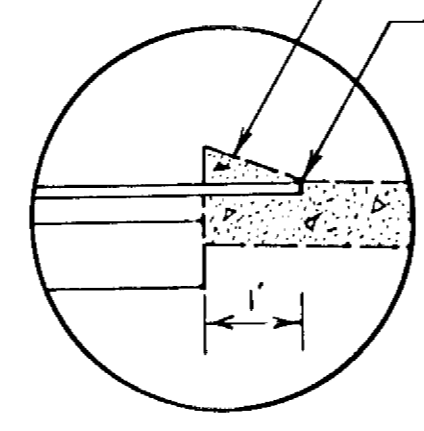
1 1/2" - 2341 WEARING COURSE  
2357 - TACK  
3" - 2341 BINDER COURSE  
9" - 2211 AGGREGATE BASE, CLASS 5

INSET "C"



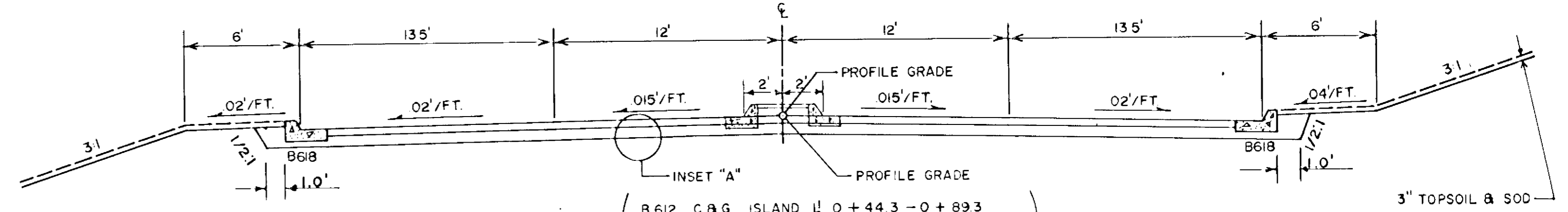
1 1/2" - 2341 WEARING COURSE  
2357 - TACK  
1 1/2" - 2341 BINDER COURSE  
7 1/2" - 2211 AGGREGATE BASE, CLASS 5

REMOVE D4 INTEGRANT CURB TO 1 1/2" BELOW GUTTER GRADE



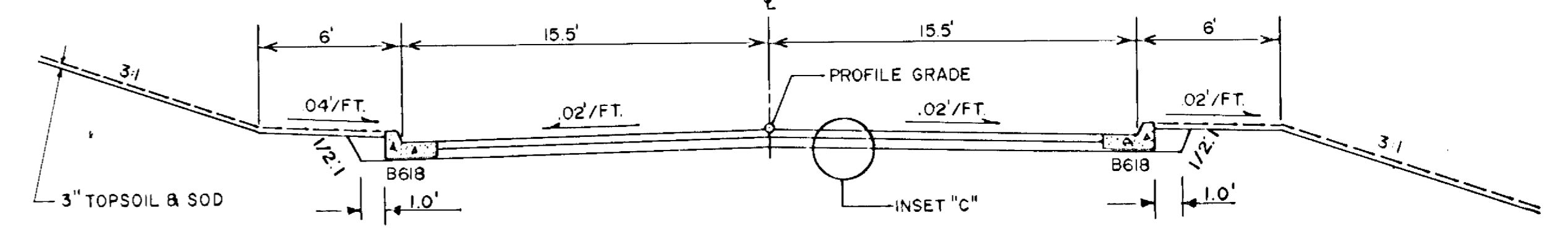
INSET "E"

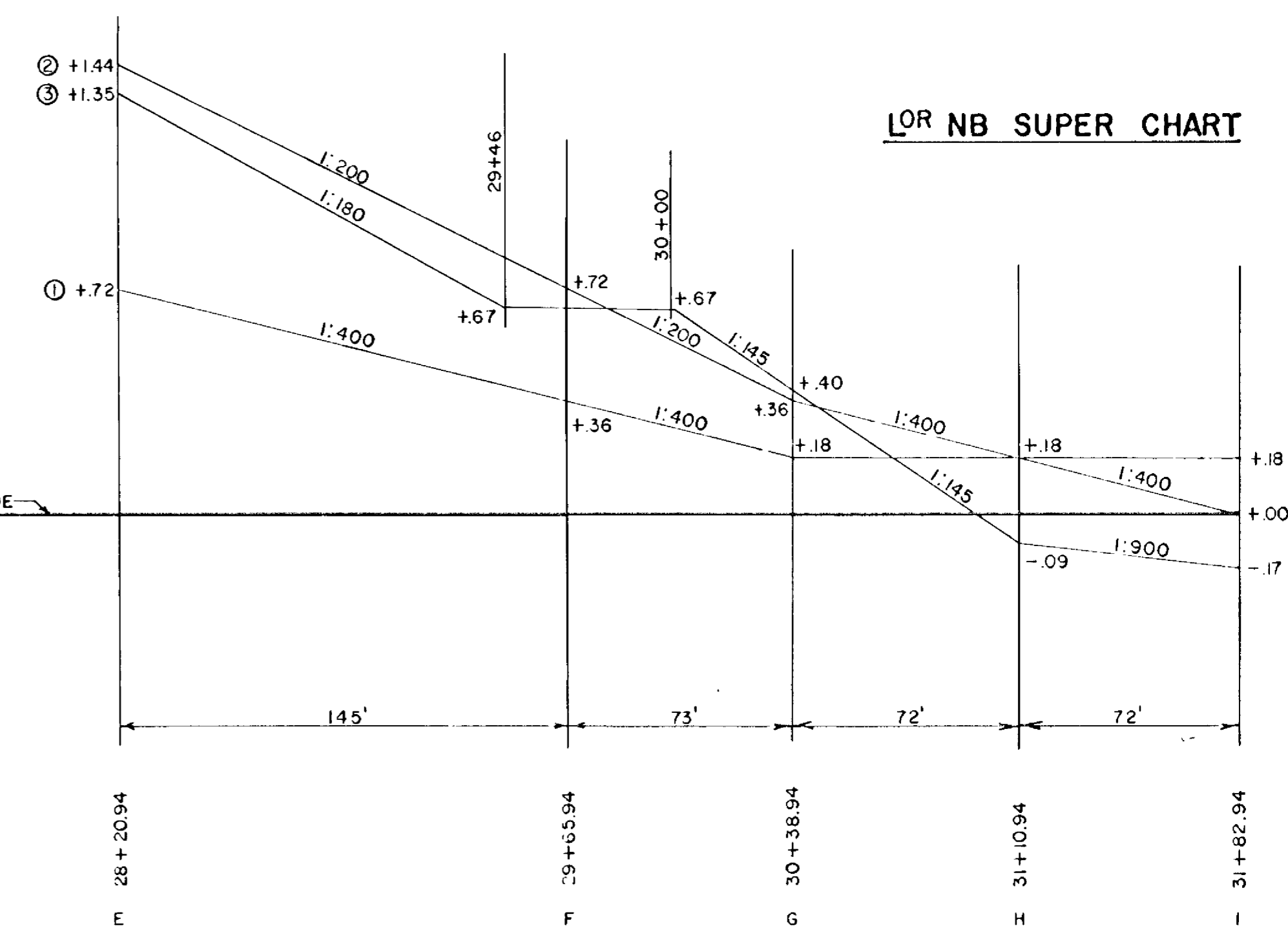
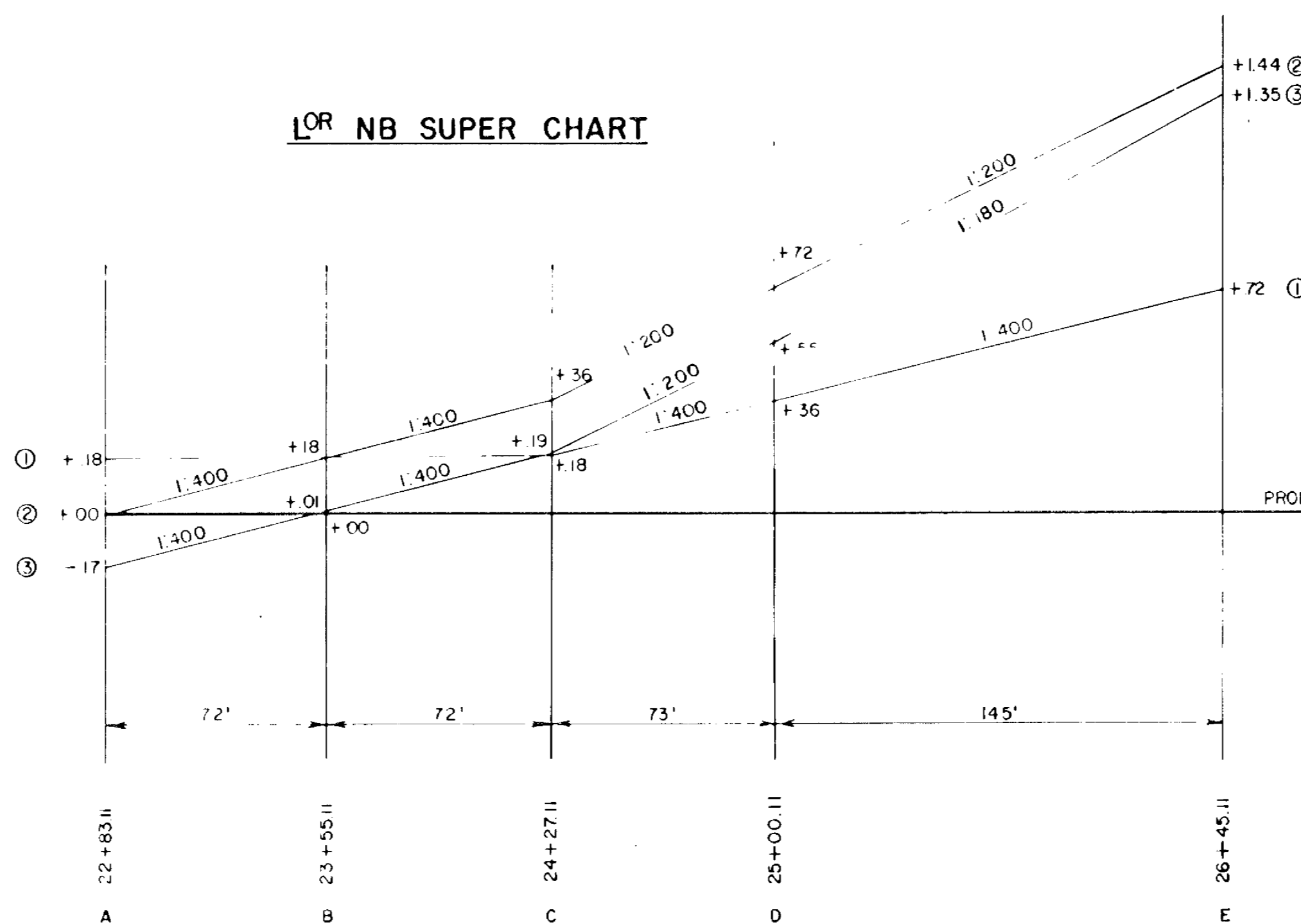
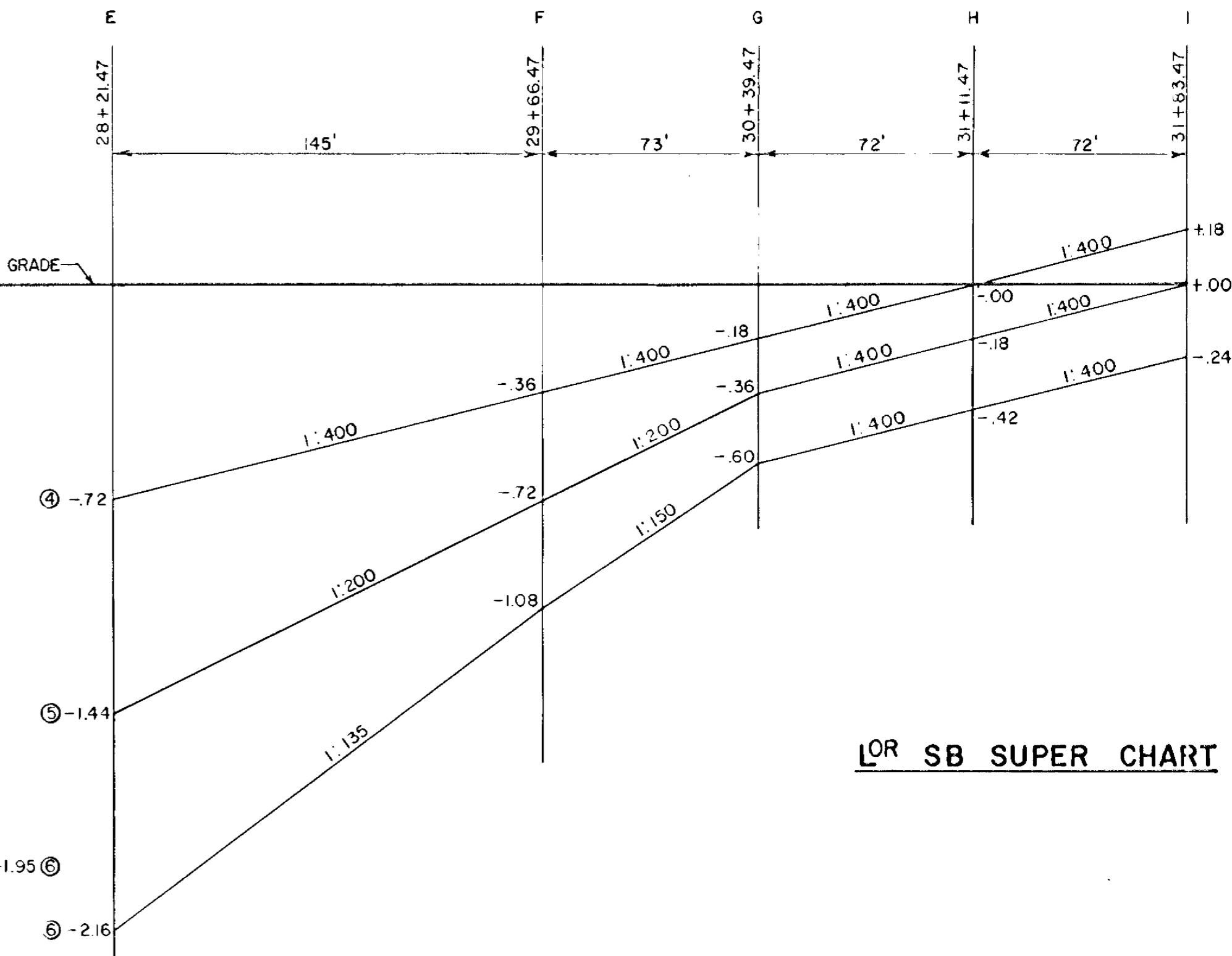
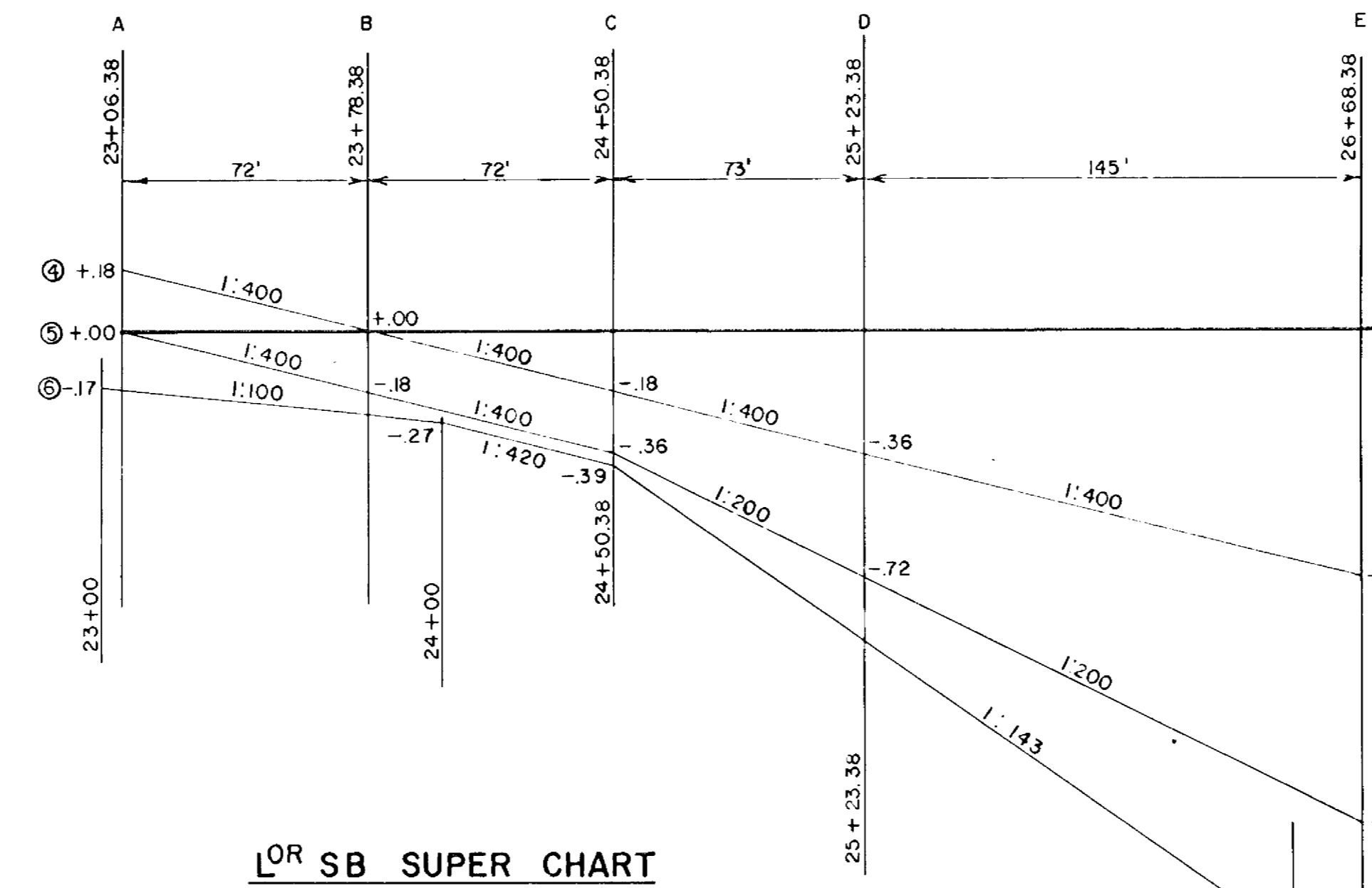
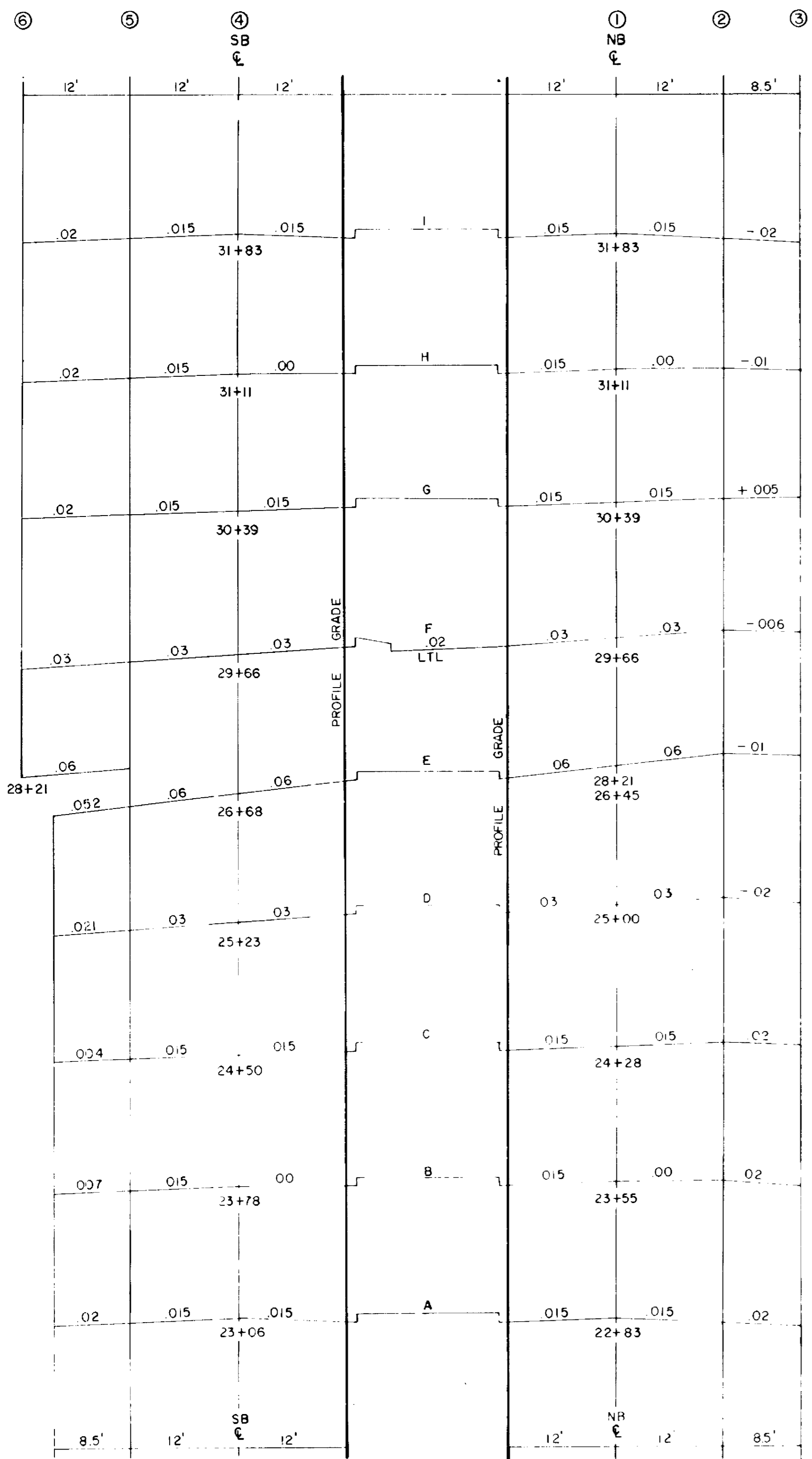
L<sup>1</sup>  
0+00 - 3+40.46



B612 C&G ISLAND 1' 0" + 44.3 - 0 + 89.3  
SLOPE GUTTER SAME AS ADJACENT ROADWAY  
2" - 2341 WEARING BITUMINOUS MEDIAN

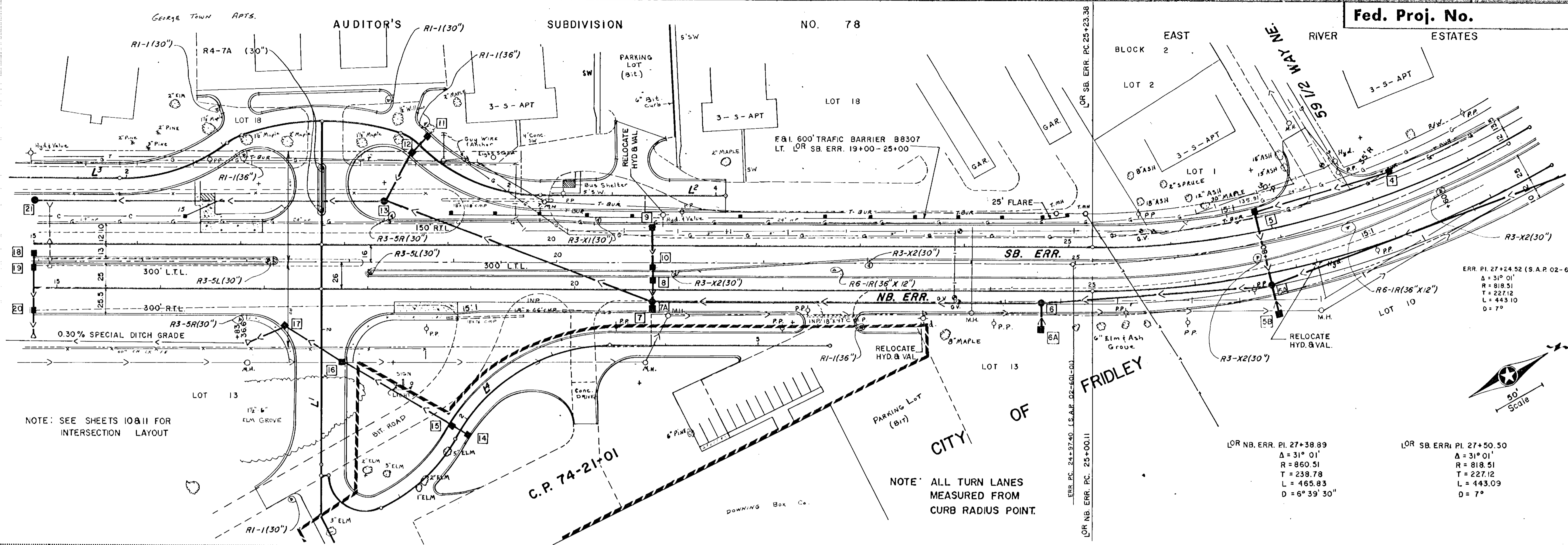
L<sup>2</sup> 0+00 - 4+10  
L<sup>3</sup> 0+00 - 8+51.43





**SUPERELEVATION CHART**  
 AXIS ROTATION AT TOP EDGE OF GUTTER, RAISED MEDIAN.





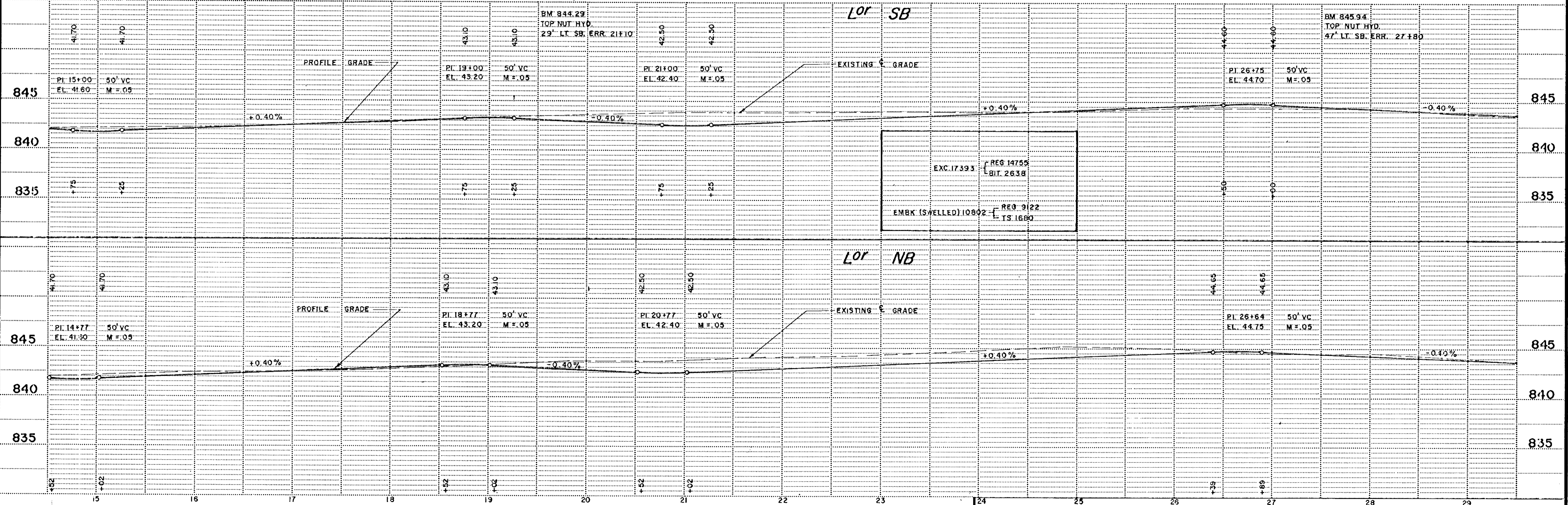
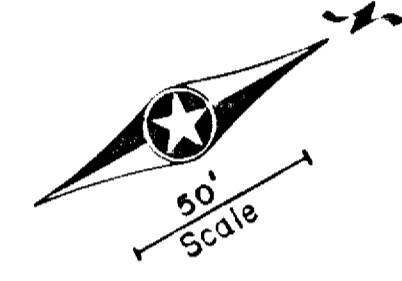
NOTE: SEE SHEETS 10&11 FOR INTERSECTION LAYOUT

NOTE: ALL TURN LANES MEASURED FROM CURB RADIUS POINT.

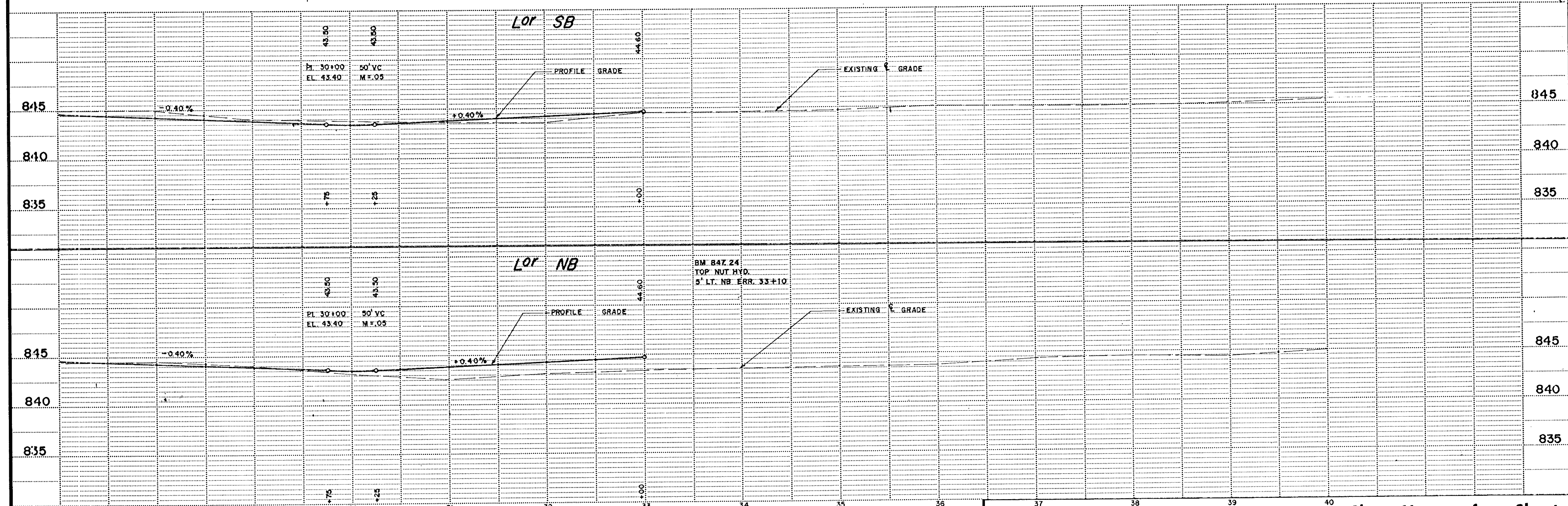
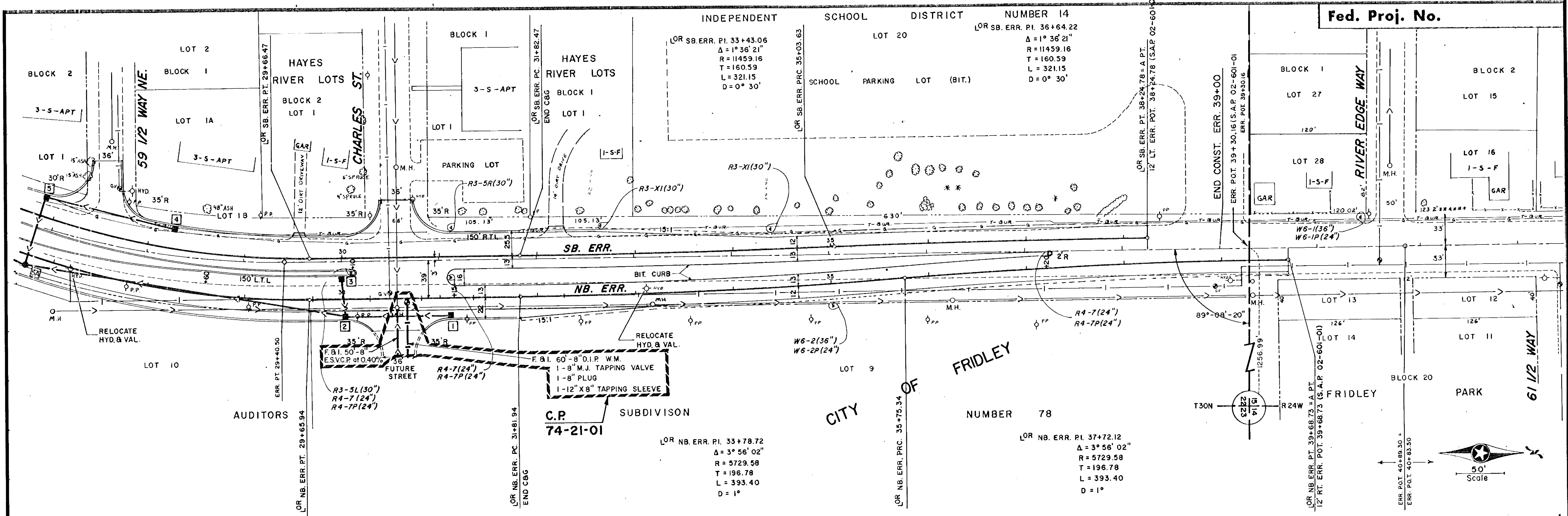
ERR. PI. 27+24.52 (S.A.P. 02-601-01)  
 $\Delta = 31^\circ 01'$   
 $R = 819.51$   
 $T = 227.12$   
 $L = 443.10$   
 $D = 7^\circ$

LOR NB. ERR. PI. 27+38.89  
 $\Delta = 31^\circ 01'$   
 $R = 860.51$   
 $T = 239.78$   
 $L = 465.83$   
 $D = 6^\circ 39' 30''$

LOR SB. ERR. PI. 27+50.50  
 $\Delta = 31^\circ 01'$   
 $R = 818.51$   
 $T = 227.12$   
 $L = 443.09$   
 $D = 7^\circ$



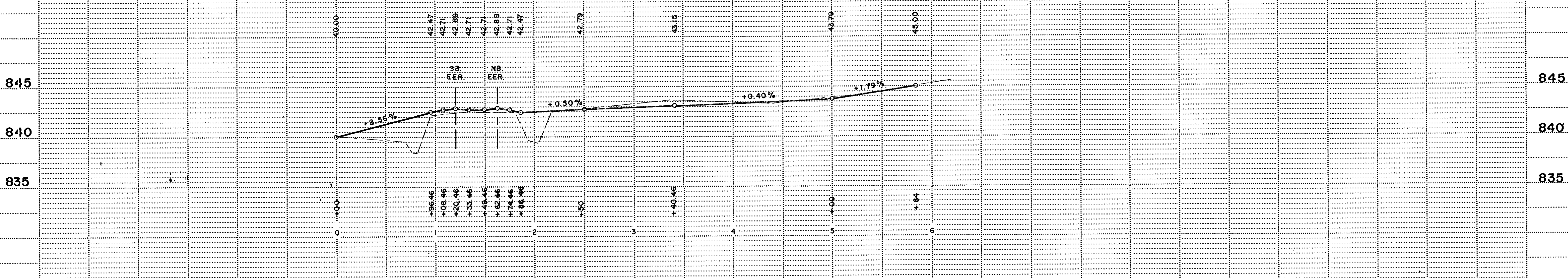
SINGLE PLAN, DOTTED  
 H. A. ROBERT CO., MINNEAPOLIS, ST. PAUL



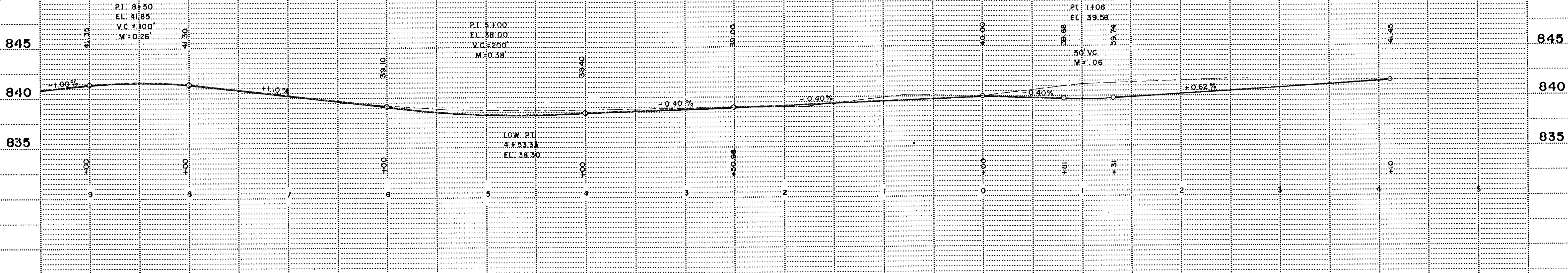
SINGLE PLAN, DOTTED  
H. A. ROGERS CO., MINNEAPOLIS, ST. PAUL



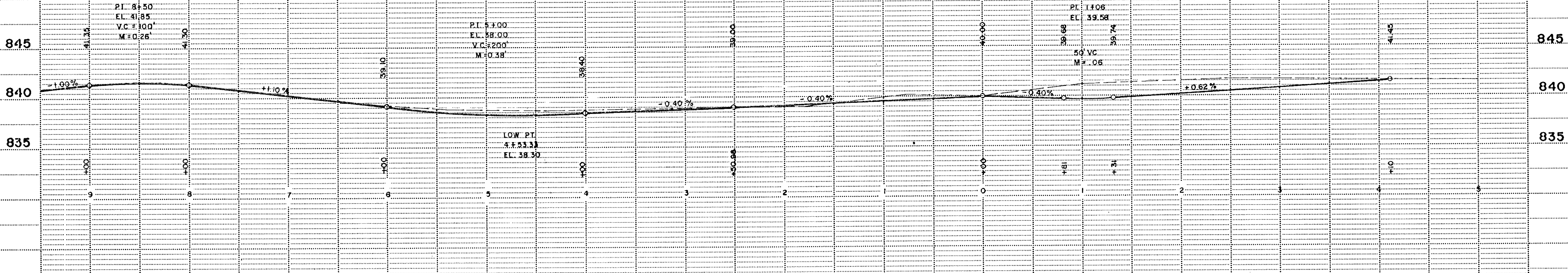
L<sup>1</sup> PROFILE GRADE



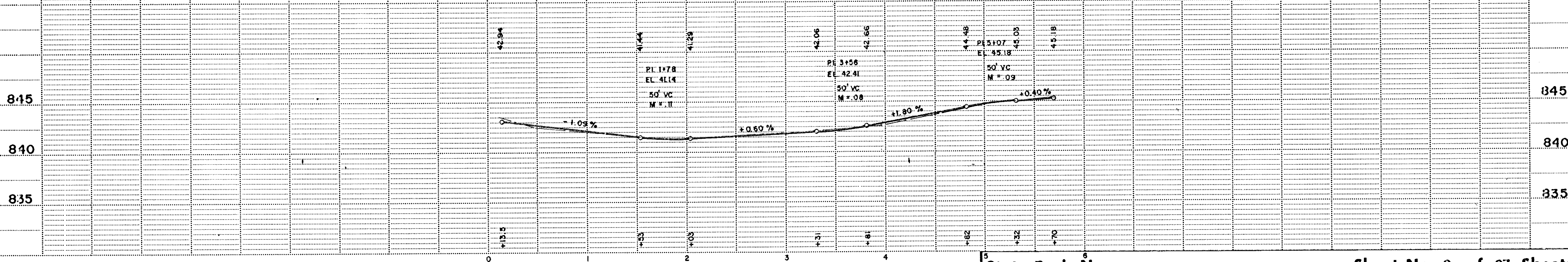
L<sup>3</sup> PROFILE GRADE

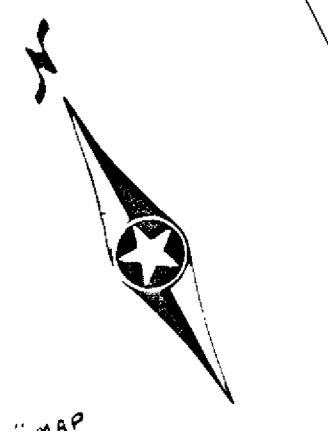


L<sup>2</sup> PROFILE GRADE

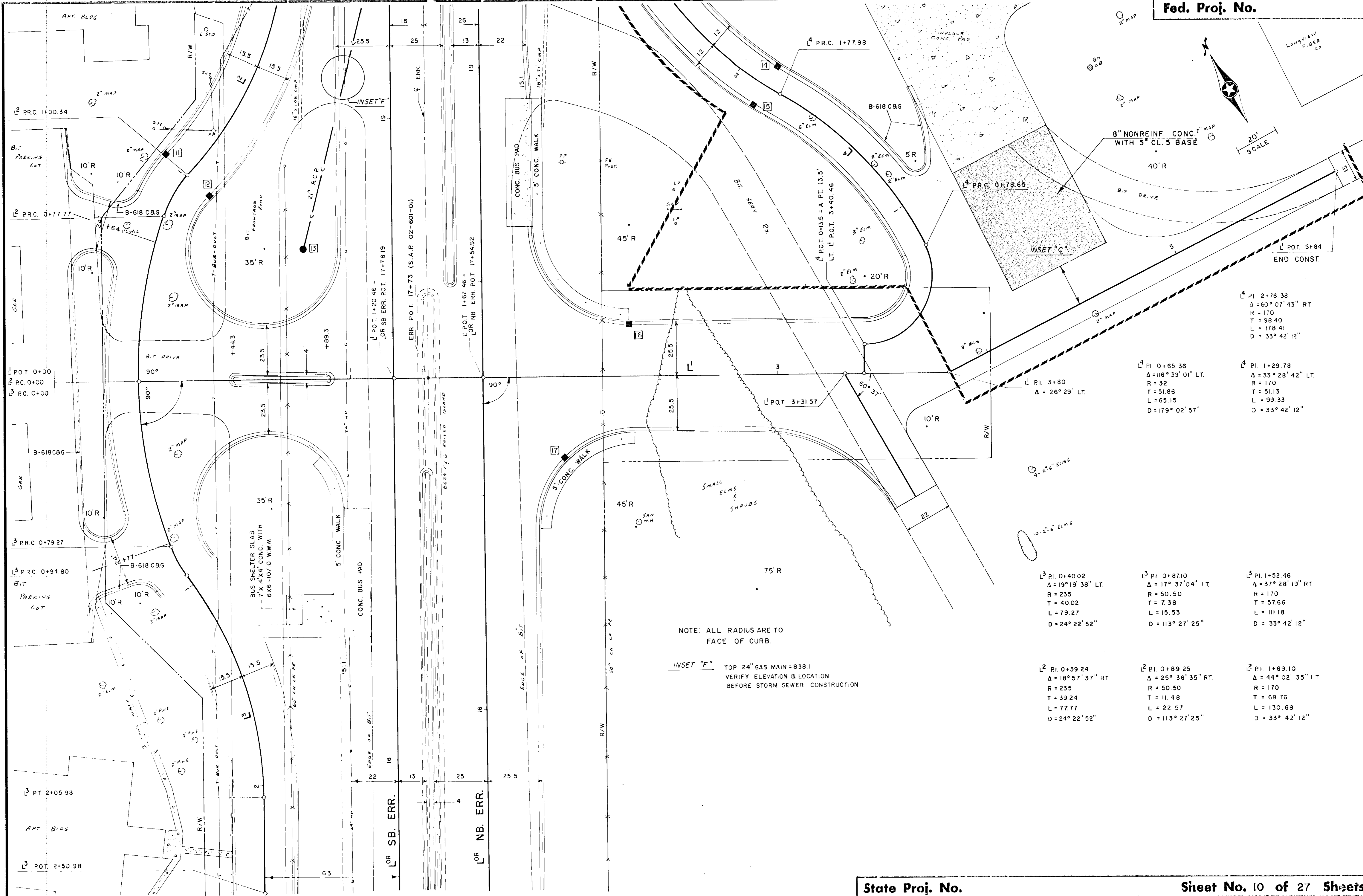


L<sup>1</sup> PROFILE GRADE





20' SCALE



$\Delta = 60^\circ 07' 43''$  RT.  
 $R = 170$   
 $T = 98.40$   
 $L = 178.41$   
 $D = 33^\circ 42' 12''$

$\Delta = 116^\circ 39' 01''$  LT.  
 $R = 32$   
 $T = 51.86$   
 $L = 65.15$   
 $D = 179^\circ 02' 57''$

$\Delta = 33^\circ 28' 42''$  LT.  
 $R = 170$   
 $T = 51.13$   
 $L = 99.33$   
 $D = 33^\circ 42' 12''$

$\Delta = 19^\circ 19' 38''$  LT.  
 $R = 235$   
 $T = 40.02$   
 $L = 79.27$   
 $D = 24^\circ 22' 52''$

$\Delta = 17^\circ 37' 04''$  LT.  
 $R = 50.50$   
 $T = 7.38$   
 $L = 15.53$   
 $D = 113^\circ 27' 25''$

$\Delta = 37^\circ 28' 19''$  RT.  
 $R = 170$   
 $T = 57.66$   
 $L = 111.18$   
 $D = 33^\circ 42' 12''$

$\Delta = 18^\circ 57' 37''$  RT.  
 $R = 235$   
 $T = 39.24$   
 $L = 77.77$   
 $D = 24^\circ 22' 52''$

$\Delta = 25^\circ 36' 35''$  RT.  
 $R = 50.50$   
 $T = 11.48$   
 $L = 22.57$   
 $D = 113^\circ 27' 25''$

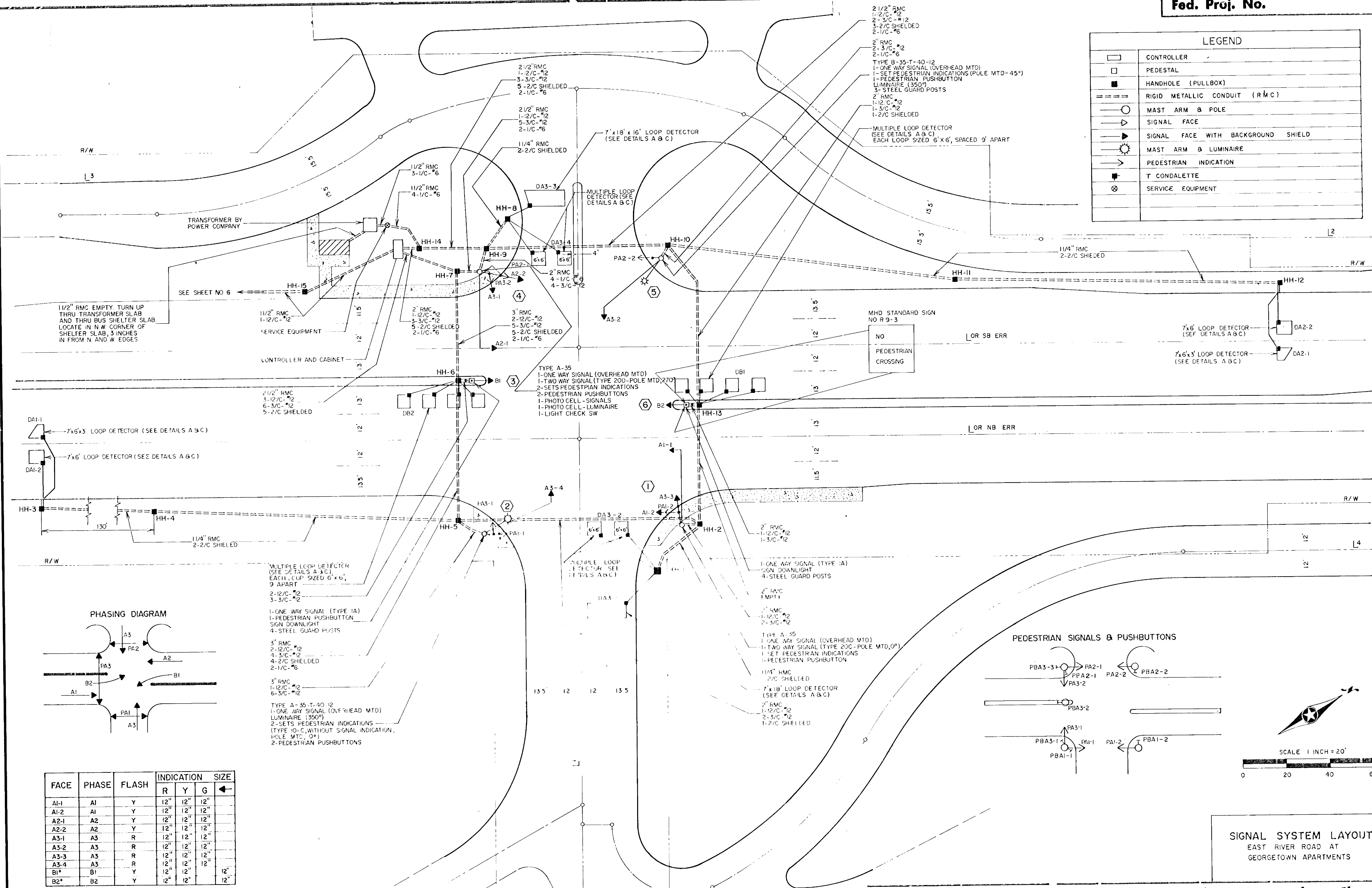
$\Delta = 44^\circ 02' 35''$  LT.  
 $R = 170$   
 $T = 68.76$   
 $L = 130.68$   
 $D = 33^\circ 42' 12''$

NOTE: ALL RADIUS ARE TO FACE OF CURB.

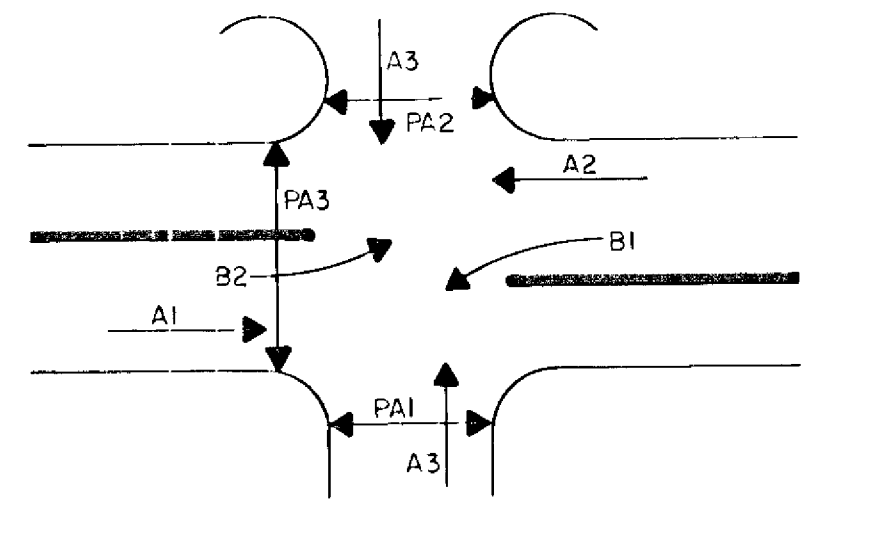
INSET "F" TOP 24" GAS MAIN = 838.1 VERIFY ELEVATION & LOCATION BEFORE STORM SEWER CONSTRUCTION



LEGEND	
	CONTROLLER
	PEDESTAL
	HANDHOLE (PULLBOX)
	RIGID METALLIC CONDUIT (RMC)
	MAST ARM & POLE
	SIGNAL FACE
	SIGNAL FACE WITH BACKGROUND SHIELD
	MAST ARM & LUMINAIRE
	PEDESTRIAN INDICATION
	T CONDALETTE
	SERVICE EQUIPMENT

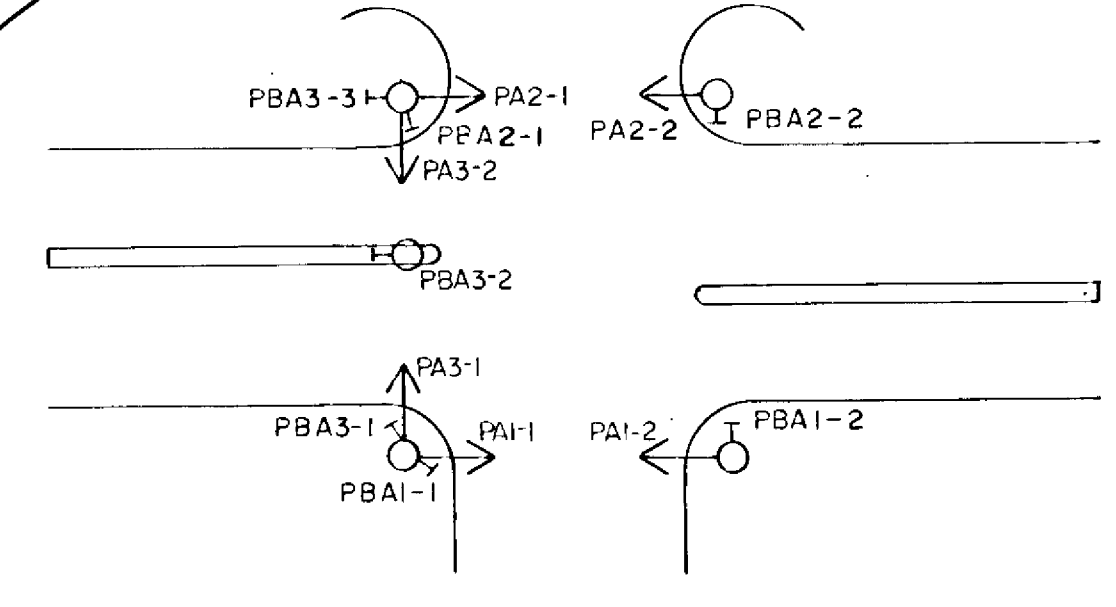


PHASING DIAGRAM



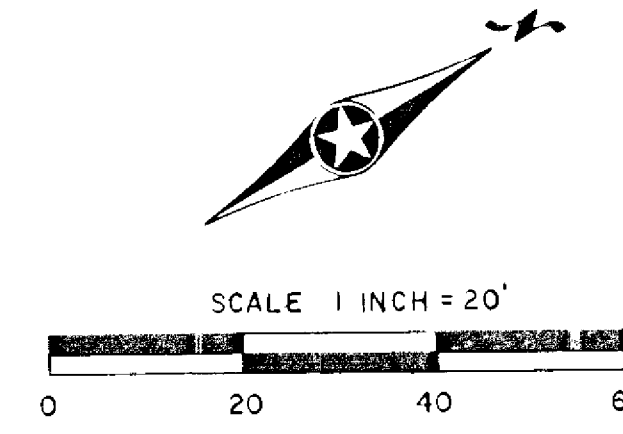
- MULTIPLE LOOP DETECTOR (SEE DETAILS A & C) EACH LOOP SIZED 6' x 6', 9' APART  
2-12/C-#12  
3-3/C-#12
- 1-ONE WAY SIGNAL (TYPE 1A)  
1-PEDESTRIAN PUSHBUTTON  
SIGN DOWNLIGHT  
4-STEEL GUARD POSTS  
3' RMC  
2-12/C-#12  
1-3/C-#12  
4-2/C SHIELDED  
2-1/C-#6
- 3' RMC  
1-12/C-#12  
6-3/C-#12
- TYPE A-35-T-40-12  
1-ONE WAY SIGNAL (OVERHEAD MTD)  
LUMINAIRE (350°)  
2-SETS PEDESTRIAN INDICATIONS (TYPE 10-C, WITHOUT SIGNAL INDICATION, POLE MTD, 0°)  
2-PEDESTRIAN PUSHBUTTONS

PEDESTRIAN SIGNALS & PUSHBUTTONS

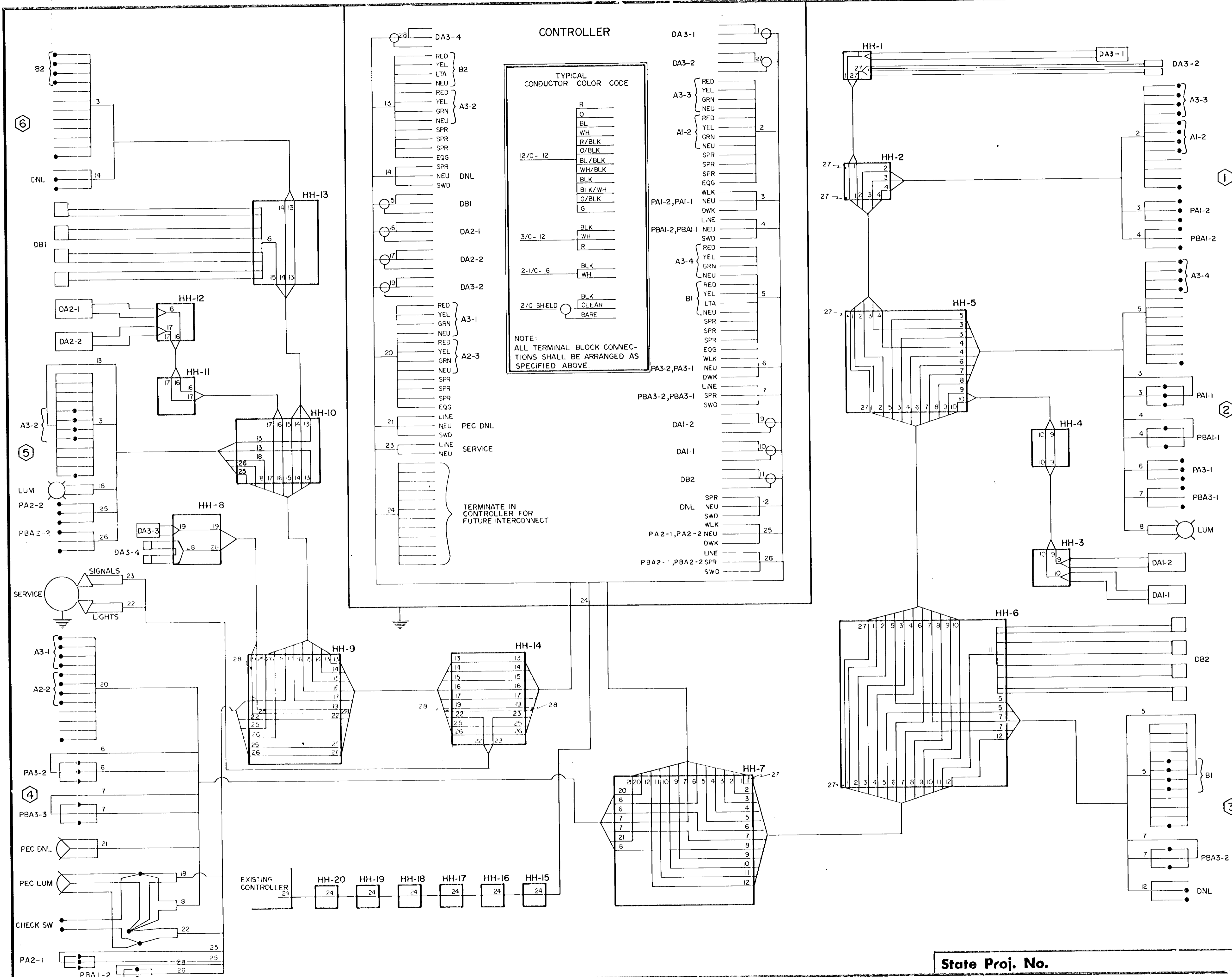


FACE	PHASE	FLASH	INDICATION			SIZE
			R	Y	G	
A1-1	A1	Y	12"	12"	12"	12"
A1-2	A1	Y	12"	12"	12"	12"
A2-1	A2	Y	12"	12"	12"	12"
A2-2	A2	Y	12"	12"	12"	12"
A3-1	A3	R	12"	12"	12"	12"
A3-2	A3	R	12"	12"	12"	12"
A3-3	A3	R	12"	12"	12"	12"
A3-4	A3	R	12"	12"	12"	12"
B1*	B1	Y	12"	12"	12"	12"
B2*	B2	Y	12"	12"	12"	12"

\*OPTICALLY PROGRAMMED SIGNAL FACE



SIGNAL SYSTEM LAYOUT  
EAST RIVER ROAD AT  
GEORGETOWN APARTMENTS



- 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 HANDHOLES EXCEPT FOR DETECTOR CONNECTIONS
  3. PROVIDE IN-LINE FUSES IN BASE OF EACH STANDARD FOR STREET LIGHTS
  4. GROUND CONDUCTORS ARE NOT SHOWN. INSTALL GROUNDING AS SPECIFIED

EQUIPMENT AND INDICATIONS

RED-RED	B3(eg)- SIGNAL HEAD - PHASE 'B'
YEL-YELLOW	DA-4(eg)- DETECTOR - PHASE 'A'
GRN-GREEN	HH - HANDHOLE
LTA - LEFT TURN ARROW	GR-R - 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	● - SPLICE
SWD - SWITCHED	PEC - PHOTOELECTRIC CELL
DNL - DOWNLIGHT	EQG - EQUIPMENT GROUND

CONDUCTOR COLOR CODE

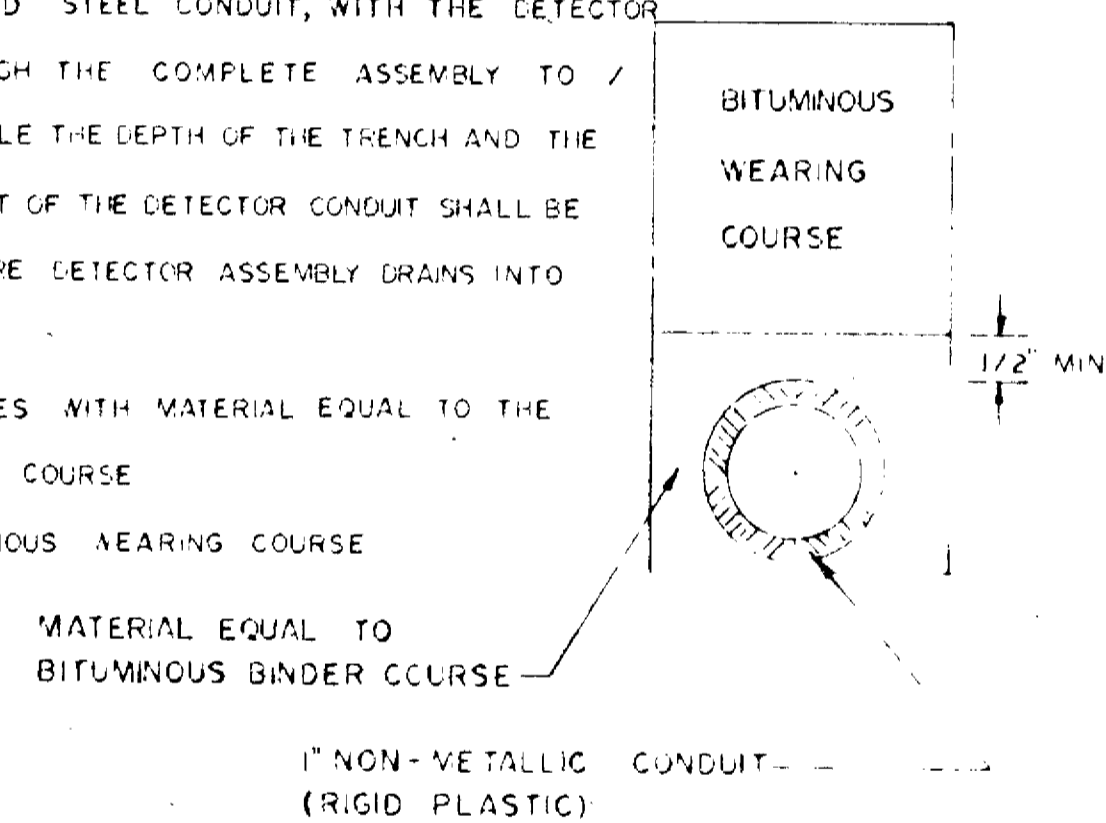
R-RED
O-ORANGE
BL-BLUE
WH-WHITE
R/BLK - RED WITH BLACK TRACER
O/BLK - ORANGE WITH BLACK TRACER
BL/BLK - BLUE WITH BLACK TRACER
WH/BLK - WHITE WITH BLACK TRACER
BLK - BLACK
BLK/WH - BLACK WITH WHITE TRACER
G/BLK - GREEN WITH BLACK TRACER
G-GREEN

SIGNAL WIRING DIAGRAM  
EAST RIVER ROAD AT  
GEORGETOWN APARTMENTS

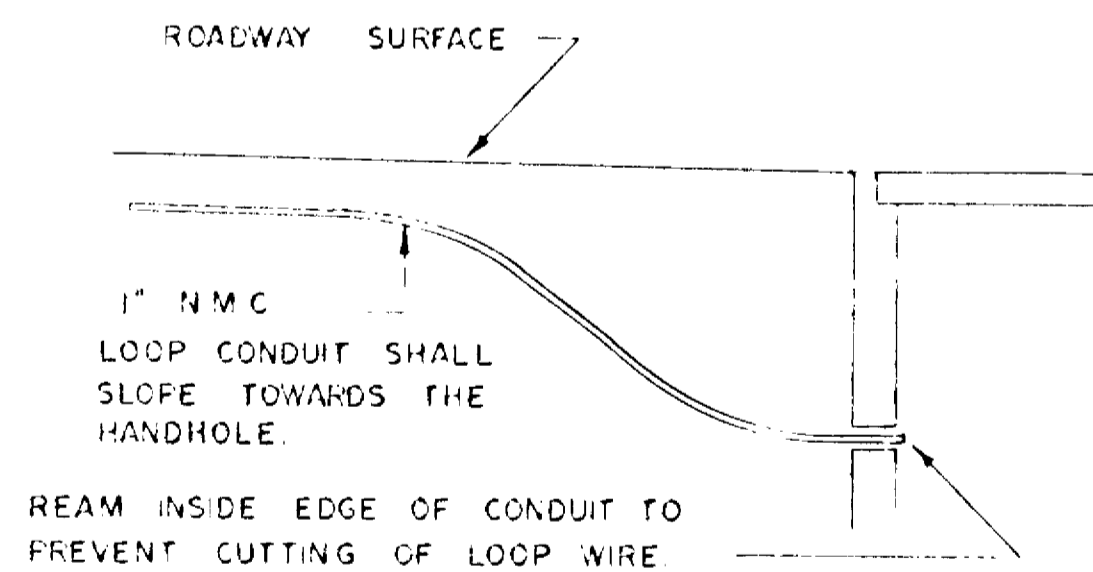
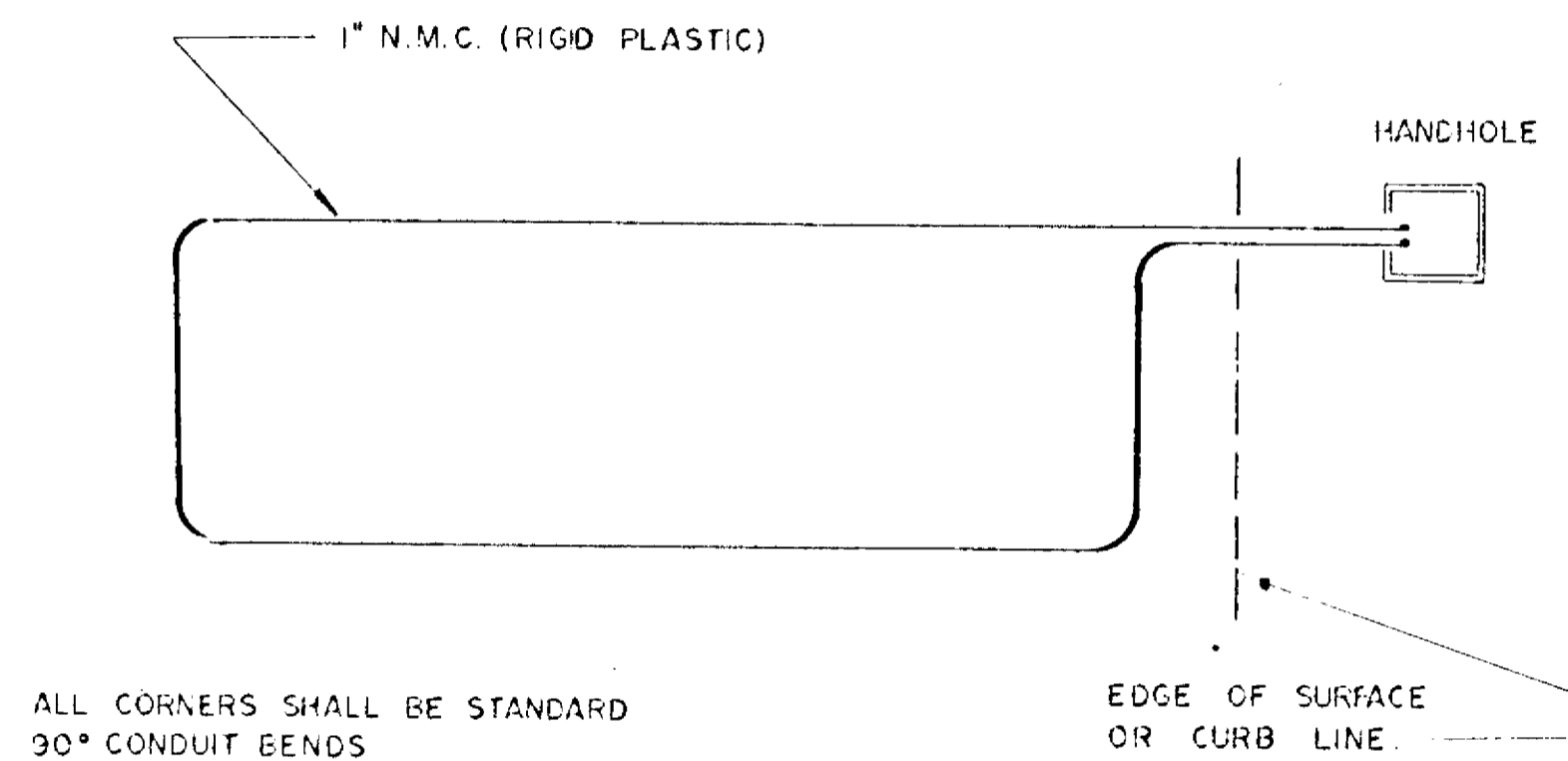
**CONDUIT INSTALLATION DETAIL "A"**  
**FOR LOOP DETECTOR**  
 SCALE NONE

LOOP DETECTOR CONDUITS ARE TO BE INSTALLED AS FOLLOWS:

- 1) INSTALL THE BITUMINOUS BINDER COURSE.
- 2) CUT TRENCHES FOR ALL DETECTORS AND INSTALL EACH COMPLETE DETECTOR ASSEMBLY, INCLUDING WHERE SHOWN PLASTIC CONDUIT, "T" CONDULET, AND STEEL CONDUIT, WITH THE DETECTOR WIRE PULLED THROUGH THE COMPLETE ASSEMBLY TO / FROM THE HANDHOLE THE DEPTH OF THE TRENCH AND THE RESULTANT PLACEMENT OF THE DETECTOR CONDUIT SHALL BE SUCH THAT THE ENTIRE DETECTOR ASSEMBLY DRAINS INTO THE HANDHOLE.
- 3) REFILL THE TRENCHES WITH MATERIAL EQUAL TO THE BITUMINOUS BINDER COURSE
- 4) INSTALL THE BITUMINOUS WEARING COURSE

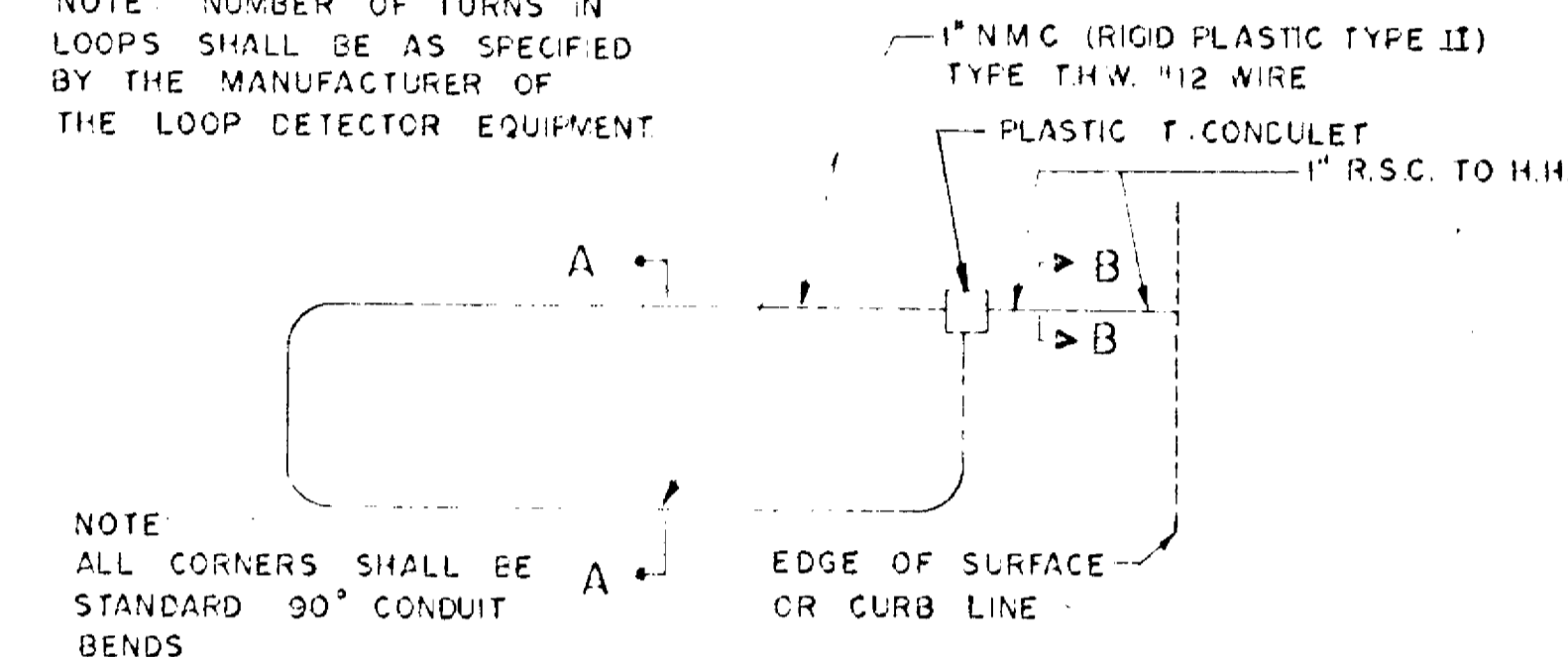


**LOOP DETECTOR DETAIL "B"**  
 SCALE NONE

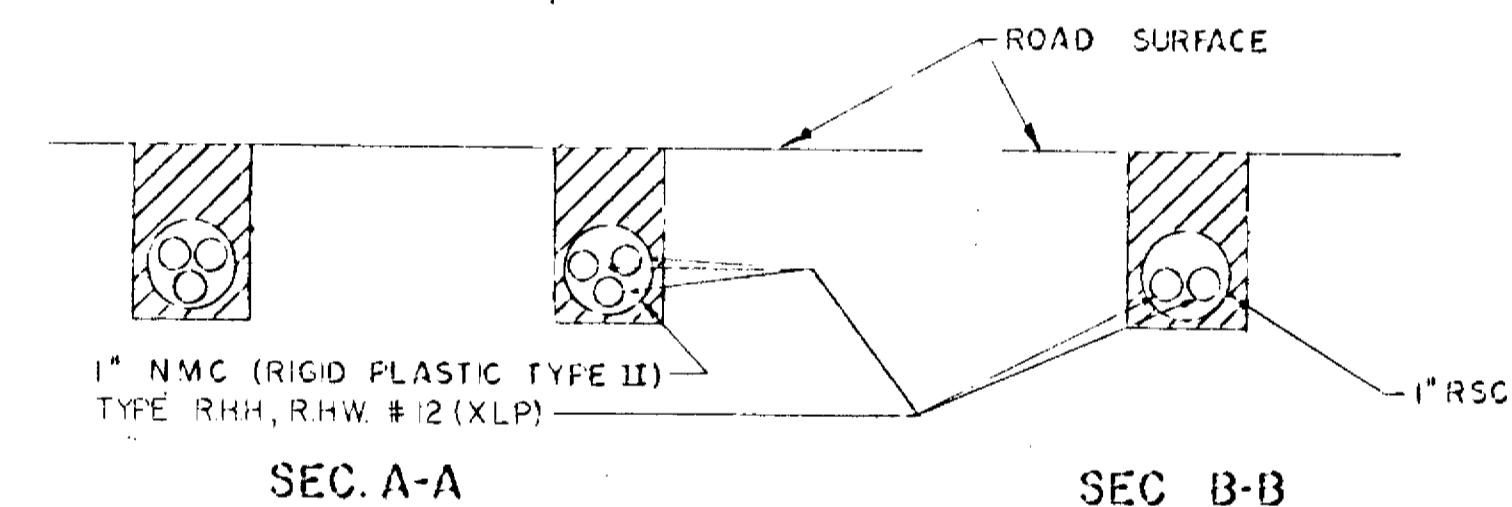


**LOOP DETECTOR DETAIL "C"**

NOTE: NUMBER OF TURNS IN LOOPS SHALL BE AS SPECIFIED BY THE MANUFACTURER OF THE LOOP DETECTOR EQUIPMENT



NOTE: ALL CORNERS SHALL BE STANDARD 90° CONDUIT BENDS



NO SPLICES TO BE MADE IN "T" CONDULET

1" R.S.C. TO H.H. LOOP WIRES SHALL BE TWISTED A MINIMUM OF 3 TURNS PER FOOT

NOTE: LOOP CONDUIT SHALL SLOPE TOWARDS "T" CONDULET AND STEEL CONDUIT SHALL SLOPE TOWARDS HANDHOLE SUCH THAT ENTIRE DETECTOR INSTALLATION DRAINS INTO HANDHOLE.

LOOP DETECTOR DETAILS  
 EAST RIVER ROAD AT  
 GEORGETOWN APARTMENTS