INDEX OF SHEETS

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20	CABLE GUARD RAIL DETAIL
21-25	REWORK NOSES - ROCKINGHAM PARK BLVD. AND PELHAM RD. - 50 SCALE
26-27	REWORK RAMPS ROUTE 111 - 20 SCALE
28	REWORK DRAINAGE STA. 468± S
29-31	REWORK SHOULDERS AND NOSES - ROUTE 102, ASH ST. AND ROUTE 28 - 50 SCALE
32	MEDIAN CROSSOVER - STA. 194 IN MANCHESTER & LIST OF STANDARDS
33	RELOCATION OF NOSE AT N.B. AND E.B.N. JUNCTION AT ISLAND POND RD. AREA.
34	REGRADING BETWEEN S.B.W. AND S.B. - STA. 320± S
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43	CONSTRUCTION SIGNS AND WARNING DEVICES

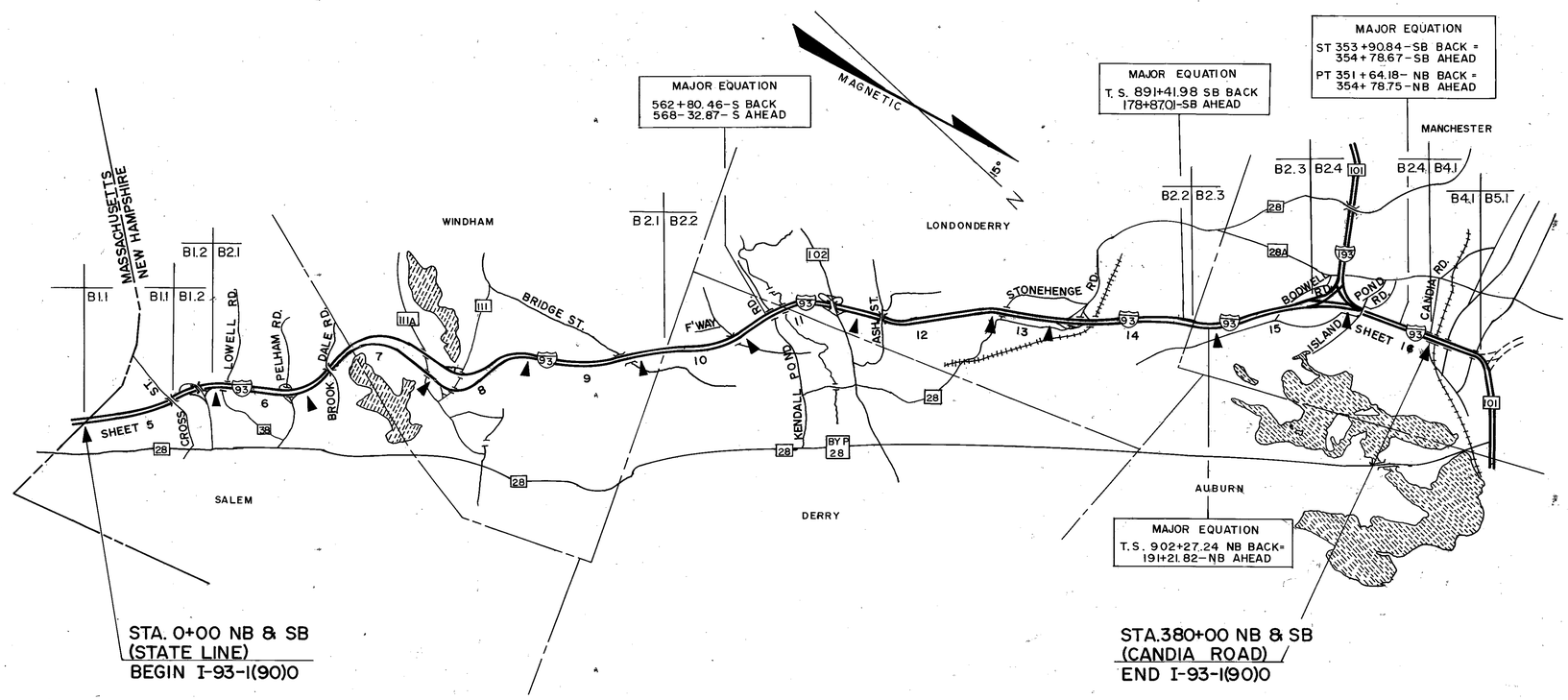
STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PLANS OF PROPOSED
FEDERAL AID PROJECT
I-93-1(90)0

N.H. PROJECT NO. P-1187

INTERSTATE SAFETY IMPROVEMENTS

THIS PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS DATED NOVEMBER 1, 1960 AND CURRENT STANDARD SHEETS AND SPECIAL PROVISIONS ATTACHED TO PROPOSAL.



RECOMMENDED FOR APPROVAL: DATE 12-19-69

DEPUTY COMMISSIONER AND CHIEF ENGINEER

APPROVED:

COMMISSIONER

CONVENTIONAL SIGNS

STATE LINE
TOWN LINE
FENCE
STONE WALL
UNFENCED PROPERTY
TRAVELED WAY
RAILROAD
RETAINING WALL
SEWER MANHOLE
HYDRANT
LEDGE
BRUSH LINE
SWAMP
PROPERTY PARCEL NO.
COVERAGE OF SHT. NO. 6
R O W LINE
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TELEGRAPH POLE
JOINT POWER & TEL. POLE
GROUND ELEVATION (LEFT)
GRADE ELEVATION (RIGHT)
SLOPE LINE
CATCH BASIN
DROP INLET
BOUND
CLEARING & GRUBBING AREA
1968 - 104(b)5 SECTION B1.1 B1.2

SALEM, NEW HAMPSHIRE TO MANCHESTER, NEW HAMPSHIRE
COUNTIES OF ROCKINGHAM AND HILLSBOROUGH

SCALE 0 1 2 3 MILES

THIS PLAN HAS BEEN REDRAWN FROM THE ORIGINAL BROWNLINE
DRAWN BY D. BUNTON DATE 5-8-85
CHECKED BY M. FINN DATE 5·9·85

DEPARTMENT OF TRANSPORTATION
BUREAU OF PUBLIC ROADS
APPROVED:
DIVISION ENGINEER DATE

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	P-1187	1	43

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS

BOOK	PAGE	
BOOK	PAGE	
BOOK	PAGE	

EXISTING DETAIL	DATE	
PROPOSED DESIGN	DATE	
SHEET CHECKED	DATE	
AS BUILT DETAILS	DATE	

BRUNING 58839-2

NOTE: STATIONS SHOWN ARE APPROXIMATE; LOCATION BY OVERALL LENGTHS RELATIVE TO FEATURES WILL GOVERN. IF EXACT STATIONING IS NEEDED FOR SOME SPECIAL APPLICATION, IT SHOULD BE REQUESTED FROM "ROAD DESIGN, STATE OFFICE BUILDING". STATIONS ARE SHOWN TO THE NEAREST FOOT IN MANY CASES, BUT THIS DOES NOT MEAN THEY ARE THAT ACCURATE; IT IS DONE TO FACILITATE CROSS REFERENCE BY PERPETUATING THE STATIONS USED IN EARLIER WORK.

SUMMARY OF QUANTITIES (ESTIMATED)

THIS INFORMATION IS FOR BIDDING PURPOSES ONLY

GUARD RAIL
NORTHBOUND

ITEM NO. →	606.143	606.81	606.821 606.822	606.91	REMARKS	BRIDGE NO.
ITEM DESCRIP →	BEAM G.R. INCL. TERM. SECT.	ANCHORAGES FOR CABLE GD. RAIL	ANCHORAGES FOR BEAM G.R. FILL-(.821) CUT-(.822)	RESETTING GUARD RAIL		
STANDARD NO. →	GR-1D3					
UNIT →	LIN. FT.	EA.	EA.	LIN. FT.		
NORTHBOUND						
65+19 — 68+19-N RT	300		2			1
73+80 — 75+30-N LT&RT	300		4		AT OVERHEAD SIGN	
90+75 — 93+75-N RT	350		2		2' MIN. FACE OF GR TO FACE OF COLUMNS	2
91+05 — 93+55-N LT	250		2			2
99+80 — 108+05-N RT	825		1			3
101+04 — 108+29-N LT	725		1			3
125+50 — 126+50-N LT	150		2		AT 60" RCP CULVERT	
125+55 — 127+05-N RT	150		2		" " " "	
141+50 — 143+00-N LT	150		2			
141+00 — 143+00-N RT	200		2			5
150+71 — 157+46-N LT	675		1			
154+05 — 157+55-N RT	350		1			5
179+72 — 180+50-Nsw LT		1		78		
181+93 — 183+99-Nsw RT		1		206		
193+80 — 195+55 Nsw LT	175		2			
205+15 — 205+93-Nsw RT		1		78		
232+94 — 235+00-Nsw RT		1		206		
233+94 — 236+00-Nsw LT		1		206		
280+22 — 283+97-Nsw LT	375		1			7
278+41 — 284+16-Nsw RT	575		1			7
294+74 — 296+00-Nsw RT		1		126		
303+60 — 305+85-Nsw RT	225		1		THESE STATIONS ARE IN SALEM & WINDHAM-SAME STATIONING RANGE OCCURS ALSO IN MANCHESTER	8
305+13 — 306+38-Nsw LT	150		1			8
320+90 — 322+00-Nsw LT		1		110		
324+50 — 325+50-Nsw LT		1		142	CLOSING 100' GAP: SPRING ANCHOR SO. END, SPLICE NO. END (SEE STD GR-3A; PRINT IS WITH JOB)	
325+60 — 326+70-Nsw RT		1		110		
334+95 — 335+91-Nsw RT		1		46		
370+34 — 371+44-Nsw LT		1		110		
378+32 — 379+58-Nsw RT		1		126		
401+16 — 401+94-N LT		1		78		
404+81 — 406+94-N LT		1		254	CLOSING 213' GAP: SPLICE SO. END, SPRING ANCHOR NO. END	
428+43 — 447+68-N RT	1925		1			9
430+29 — 447+29-N LT	1725		1			9
454+22 — 455+00-N RT		1		78		
454+53 — 455+31-N LT		1		78		
478+90 — 479+68-N RT		1		78		
482+06 — 483+92-N RT		1		238	CLOSING 186' GAP: SPRING ANCHOR SO. END, SPLICE NO. END	
482+79 — 483+57-N LT		1		78		
507+57 — 508+35-N RT		1		78		
508+48 — 508+94-N LT		1		46		
524+09 — 533+34-N RT	925		1			10
525+76 — 533+01-N LT	725		1			10
550+26 — 551+52-N LT		1		126		
550+31 — 551+41-N RT		1		110		

ITEM NO. →	606.143	606.81	606.821 606.822	606.91	REMARKS	BRIDGE NO.
ITEM DESCRIP →	BEAM G.R. INCL. TERM. SECT.	ANCHORAGES FOR CABLE GD. RAIL	ANCHORAGES FOR BEAM G.R. FILL-(.821) CUT-(.822)	RESETTING GUARD RAIL		
STANDARD NO. →	GR-1D3					
UNIT →	LIN. FT.	EA.	EA.	LIN. FT.		
567+55 — 570+30-N RT	275		1			11
567+15 — 570+40-N LT	225		1			11
576+82 — 579+25-N LT		1		286	CLOSING 243' GAP: SPRING ANCHOR SO. END, SPLICE NO. END	
578+15 — 579+25-N RT		1		110		
606+54 — 607+00-N RT		1		46		
615+10 — 616+85-N RT	175		1		NORTH END OF G.R. TO CONNECT TO BRIDGE ABUTMENT	13
616+30 — 618+05-N LT	175		2			
631+50 — 631+96-N RT		1		46		
654+02 — 657+02-N RT	300		2			14
679+72 — 680+50-N LT		1		78		
679+87 — 680+65-N RT		1		78		
700+40 — 701+50-N LT		1		110		
736+58 — 738+00-N RT		1		142		
740+43 — 741+53-N LT		1		110		
749+38 — 752+63-N LT	325		2			15
750+25 — 752+50-N RT	225		2			15
768+88 — 770+94-N LT		1		206		
770+07 — 771+49-N RT		1		142		
781+92 — 783+02-N RT		1		110		
13+04 — 13+50-C RT		1		46	AT BEGIN. OF NB-OFF RAMP, RT. SIDE	
802+45 — 806+15-N RT	370		2			16
804+05 — 806+35-N LT	230		2			16
813+90 — 816+15-N LT	225		2			17
814+30 — 815+55-N RT	125		2		REPLACING CABLE W BEAM AT BRIDGE OVER RR	17
883+19 — 886+25-N RT		1		306		
884+69 — 886+75-N LT		1		206		
193+22 — 194+00-NM RT		1		78		
205+87 — 207+29-NM LT		1		142	BRIDGE OVER COHAS BROOK;	18
205+86 — 207+44-NM RT		1		158	NO END POSTS ∴ NO BEAM GR	18
244+33 — 257+58-NM RT	1325		1			19
247+03 — 257+28-NM LT	1025		1			19
258+57 — 260+64-NM LT	207				FILLING GAP BETW. BRIDGES	20
258+86 — 260+26-NM RT	140				THESE STATIONS ARE IN MANCHESTER-SAME STATIONING RANGE OCCURS ALSO IN SALEM & WINDHAM	
261+52 — 264+77-NM RT	325		1		FILLING GAP BETW. BRIDGES	20
261+88 — 264+88-NM LT	300		1		REMOVE EXIST. BGR & CONST. NEW BGR	
272+55 — 274+05-NM LT&RT	300		4		AT OVERHEAD SIGN	
278+44 — 281+55-NM RT		1		206		
278+44 — 281+50-NBWM LT		1		206		
283+50 — 284+60-NBM RT		1		110		
319+01 — 321+01-NM RT	200		2			
319+26 — 321+01-EBNM LT	175		2			
337+03 — 337+49-NM RT		1		46		
368+05 — 369+55-NM LT&RT	300		4		AT OVERHEAD SIGN	
SHEET TOTALS	18,172	45	67	5,754		

PROJ. No.	SHEET No.	TOTAL SH'TS
I-93-1(90)0	2	43

NOTE BOOKS — BOOK NO. — PAGE NO.

REVISIONS — DATE — STATION — DESCRIPTION

COMPILED BY TOSCO — DATE 1/8
CHECKED BY BORDEN — DATE 1/8
INKED BY HONG — DATE MAR 68
CHECKED BY HONG E. BORDEN — DATE APR 68

1M 1 68 BRUNING 40-21 50500

SUMMARY OF QUANTITIES (ESTIMATED)

THIS INFORMATION IS FOR BIDDING PURPOSES ONLY

GUARD RAIL
SOUTHBOUND

ITEM NO. →	606.143	606.81	606.821 606.822	606.91	REMARKS	BRIDGE NO.
ITEM DESCRIP →	BEAM G.R. INCL. TERM. SECT.	ANCHORAGES FOR CABLE GUARD RAIL	ANCHORAGES FOR BEAM GUARD RAIL FILL-(.821) CUT-(.822)	RESETTING GUARD RAIL		
STANDARD NO. →	GR-1D3					
UNIT →	LIN. FT.	EA.	EA.	LIN. FT.		
SOUTHBOUND						
18+17 — 18+63-S LT *		1		46		
65+40 — 67+15-S LT	175		2			1
91+36 — 93+61-S LT	225		2		2' MIN. FACE OF GR TO FACE OF COLUMNS	2
91+69 — 94+44-S RT	275		2		" " "	2
112+47 — 120+72-S LT	825		1			3
112+25 — 121+50-S RT	925		1			3
132+00 — 133+10-S LT&RT		2		220	OVER BROOK : NO END POSTS ∴ CABLE GR	4
145+50 — 147+00-S LT&RT	300		4			
159+34 — 163+59-S LT	425		1			5
159+40 — 167+65-S RT	825		1			5
182+05 — 183+63-Ssw LT		1		158		
184+45 — 185+71-Ssw RT		1		126		
194+60 — 196+35-Ssw RT	175		2			
210+00 — 211+10-Ssw LT		1		110		
222+50 — 224+56-Ssw LT		1		206		
251+51 — 253+09-Ssw LT		1		158		
252+05 — 253+15-Ssw RT		1		110		
280+51 — 291+76-Ssw LT	1125		1		THESE STATIONS ARE IN SALEM & WINDHAM - SAME STATIONING RANGE OCCURS ALSO IN MANCHESTER	7
280+87 — 292+12-Ssw RT	1125		1			7
314+78 — 329+03-Ssw RT	1425		1			8
315+04 — 326+29-Ssw LT	1125		1			8
347+40 — 348+50-Ssw LT		1		110		
347+54 — 348+64-Ssw RT		1		110		
369+45 — 371+03-Ssw RT		1		158		
369+80 — 371+38-Ssw LT		1		158		
378+70 — 379+80-S RT		1		110		
391+70 — 392+80-S LT		1		110		
436+31 — 440+80-S RT		1		494	CLOSING 449' GAP : SPRING ANCHOR SO. END, SPLICE NO. END	(9)
436+61 — 437+71-S LT		1		110		(9)
441+92 — 445+17-S LT	325		1			9
442+34 — 445+25-S RT	300		1			9
462+73 — 463+99-S LT		1		126		
462+80 — 463+26-S RT		1		46		
481+23 — 485+21-S LT		1		398		
487+52 — 488+62-S RT		1		110		
495+05 — 496+15-S LT		1		110		
496+57 — 497+35-S RT		1		78		
508+29 — 508+75-S RT		1		46		
528+55 — 529+80-S LT	125		1			10
528+71 — 530+96-S RT	225		1			10
557+76 — 558+82-S LT		1		106		

ITEM NO. →	606.143	606.81	606.821 606.822	606.91	REMARKS	BRIDGE NO.
ITEM DESCRIP →	BEAM G.R. INCL. TERM. SECT.	ANCHORAGES FOR CABLE GUARD RAIL	ANCHORAGES FOR BEAM GUARD RAIL FILL-(.821) CUT-(.822)	RESETTING GUARD RAIL		
STANDARD NO. →	GR-1D3					
UNIT →	LIN. FT.	EA.	EA.	LIN. FT.		
557+53 — 557+99-S RT		1		46		
572+01 — 576+26-S RT	425		1			11
572+08 — 576+83-S LT	475		1			11
581+25 — 581+71-S RT		1		46		
581+50 — 583+00-S LT		1		150		
618+74 — 619+74-S LT	175		1		SOUTH END CONNECTED TO BRIDGE ABUTMENT	13
618+80 — 620+55-N RT	175		2			
622+92 — 624+50-S RT		1		158		
629+41 — 631+45-S RT		1		256	CLOSING 204' GAP: SPLICE SO. END; SPRING ANCHOR NO. END	
639+07 — 640+33-S LT		1		126		
640+55 — 641+01-S RT		1		46		
657+89 — 661+14-S LT	325		2			14
684+05 — 685+15-S LT		1		110		
746+23 — 746+69-S RT		1		46		
755+69 — 759+69-S RT	400		1			15
755+73 — 759+48-S LT	375		1			15
774+78 — 776+36-S LT		1		158		
777+08 — 778+18-S RT		1		110		
784+90 — 786+48-S RT		1		158		
794+55 — 796+13-S RT		1		158		
810+10 — 812+85-S RT	275		2			16
810+10 — 815+60-S LT	350		2			16
820+35 — 822+35-S RT	200		2			17
820+80 — 837+05-S LT	1625		2			17
181+50 — 182+60-Sm LT		1		110	THESE STATIONS ARE IN MANCHESTER-SAME STATIONING RANGE OCCURS ALSO IN SALEM & WINDHAM	
181+50 — 183+08-Sm RT		1		158		
221+45 — 223+51-Sm RT		1		206		
262+97 — 265+47-Sm RT	250		2			20
263+39 — 265+39-Sm LT	200		2			20
289+90 — 291+90-Sm RT	200		1			21
290+19 — 292+44-Sm LT	225		1			21
315+40 — 320+65-Sm LT	525		1			22
315+92 — 319+69-Sm RT	375		1			22
322+53 — 328+53-SBWm LT	600		2		∴ AT OVERHEAD SIGN	
322+60 — 328+60-Sm RT	600		2			
339+45 — 340+95-Sm LT&RT	300		4		AT OVERHEAD SIGN	
SHEET TOTALS	18,000	41	57	5,556		

* NOTE THAT LT & RT ARE ASSOCIATED WITH DIRECTION OF INCREASING STATIONS, NOT WITH DIRECTION OF TRAFFIC FLOW

PROJ. No.	SHEET No.	TOTAL SHTS
I-93-1(90)0	3	43

NOTE BOOKS — BOOK NO. / PAGE NO.

DESCRIPTION

AFTER PROPOSAL — STATION

REVISIONS — DATE / STATION

COMPILED BY TUCCO DATE 1/68
CHECKED BY BORZENY DATE 1/68
INKED BY HONG DATE MAR 67
CHECKED BY HONG DATE APR 67

1M 1 68 BRUNING 40-21 50500

SUMMARY OF QUANTITIES (ESTIMATED)

THIS INFORMATION IS FOR BIDDING PURPOSES ONLY

GUARD RAIL CROSS ROADS

BRIDGE NO.	ITEM NO. →	606.143 BEAM GUARD RAIL INCL. TERMINAL SECTIONS	606.821 606.822 ANCHORAGES FOR BEAM G.R. FILL-(.821) CUT-(.822)	PROJECTION BEYOND COLUMN (PBC*) QUADRANT⊕ I	II	III	IV	REMARKS
	ITEM DESCRIP →							
	STANDARD NO. →	GR-1D3						
	UNIT →	LIN. FT.	EA.	FT	FT	FT	FT	
	CROSS ROADS							
1	CROSS STREET (OVER I-93)							
	FROM END POST OF QUAD III CORNER	175	1					CONNECT EXIST. BGR TO END POST AT QUAD I & QUAD IV CORNERS
	" " " " " II "	175	1					
2	"B" RAMP (OVER I-93)							
	"S" BRIDGE: FROM END POST OF QUAD III COR	125	1					
	" " " " " " IV "	150	1					
	RUN BETWEEN S & N BRIDGES, BACK‡ SIDE	131						RAIL MUST BE CUT TO FIT —SOME "TOLERANCE" IS AVAILABLE BY SLIDING END SHOE ALONG FACE OF END POST
	" " " " " , AHEAD‡ "	133						
	SPUR LINE (OVER I-93)							
	RUN BETWEEN S & N BRIDGES, BACK‡ SIDE	134						
	" " " " " AHEAD‡ "	135						
	"N" BRIDGE: FROM END POST OF QUAD II COR.	175	1					6' SPACING THRUOUT BEC. 16' OFFSET
	" " " " I "	425	1					
3	RTE. 38 (UNDER I-93)							
	BACK SIDE	650	2		75	125		
	AHEAD "	675	2	100			125	
5	PELHAM RD. (UNDER I-93)							
	BACK SIDE	350	2		75	100		
	AHEAD "	350	2	100			75	
6	BROOKDALE RD. (OVER I-93)							
	125' FROM EACH END POST	500	4					
7	RTE 111-A (UNDER I-93)							
	BACK SIDE UNDER S	275	2		125	100		
	AHEAD " " "	225	2	100			75	
	BACK SIDE " N	250	2		75	125		
	AHEAD " " "	250	2	75			125	
8	RTE 111 (UNDER I-93)							
	BACK SIDE UNDER S	225	2		75	100		
	AHEAD " " "	300	2	175			75	
	BACK " " N	100	2		75			
	AHEAD " " "	275	4	75			200	
9	BRIDGE ST. (UNDER I-93)							
	BACK SIDE	625	2		100	150		
	AHEAD "	575	2	150			75	
10	FORDWAY EXTENSION (UNDER I-93)							
	BACK SIDE	500	2		150	150		
	AHEAD "	400	2	100			100	
11	KENDALL POND RD. (UNDER I-93)							
	BACK SIDE	400	2		100	100		
	AHEAD "	500	2	125			125	
13	RTE 102 (OVER I-93)							
	FROM END POST OF QUAD III CORNER	225	1					
	" " " " " IV "	175	1					
	" " " " " II "	175	1					
	" " " " " I "	225	1					

BRIDGE NO.	ITEM NO. →	606.143 BEAM GUARD RAIL INCL. TERMINAL SECTIONS	606.821 606.822 ANCHORAGES FOR BEAM G.R. FILL-(.821) CUT-(.822)	PROJECTION BEYOND COLUMN (PBC*) QUADRANT⊕ I	II	III	IV	REMARKS
	ITEM DESCRIP →							
	STANDARD NO. →	GR-1D3						
	UNIT →	LIN. FT.	EA.	FT	FT	FT	FT	
14	ASH ST. (OVER I-93)							
	125' FROM EACH END POST	500	4					
15	STONE HENGE RD. (UNDER I-93)							
	BACK SIDE	400	2		75	125		
	AHEAD "	450	2	125			125	
16	RTE. 28 (UNDER I-93)							
	BACK SIDE	475	2					
	AHEAD "	425	2					
20	BODWELL RD. (UNDER I-93)							
	BACK SIDE	475	2		150	125		
	AHEAD "	500	2	175			100	
21	NBW (UNDER S)							
	QUAD II CORNER	175	2					
	" I "	175	2					
22	EBN (UNDER S)							
	QUAD III CORNER	150	2					
	QUAD IV "	200	2					
23	ISLAND POND RD (OVER I-93)							
	125' FROM EACH END POST	500	4					

GUARD RAIL SUMMARY FOR N.B. S.B. AND CROSSROADS

ITEM NO.	606.143	606.81	606.821/606.822	606.91
UNIT	LIN. FT.	EA.	EA.	LIN. FT.
CROSSROAD TOTALS	14,408		80	
N'BOUND TOTALS From Sht 2	18,172	45	67	5,754
S'BOUND TOTALS From Sht. 3	18,000	41	57	5,556
SUB TOTALS	50,580	86	204‡	11,310
ESTIMATED	3420	9	26	1190
TOTAL	54,000	95	160/70	12,500

GENERAL SUMMARY FOR ALL ITEMS EXCEPT GUARD RAIL AND ANCHORAGE ITEMS

ITEM NO	DESCRIPT.	ROCKING HAM PARK	PELHAM ROAD	RAMPS A,B,C,D	STILLING BASIN	RTE. 28 RTE 102 ASH ST.	MED. X-OVER	G.R. S/GN.	S&W S.B. N.B. & EBN	EST.	TOTAL	U
201.1	CL. AND GR.				0.1		0.1			0 AC	0.2 AC.	
202.41	REM. PIPE			5						7 LF	12 LF	
202.5	REM. C.B. DI.									1 EA	1 EA	
203.1	COM. EXC.	160	792	2000	170	178	17		334	1349 C.Y.	5000 C.Y.	
203.2	ROCK EXC.									100 C.Y.	100 C.Y.	
203.5	BORROW	950	6000	200	250	4000	653		1600	8470 C.Y.	14000 C.Y.	
206.1	COM. STR. EX.							120		0	120 C.Y.	
206.2	ROCK STRU. EX.							5		0	5 C.Y.	
214.	FINE GRAD.										1 U	
304.1	SAND			2100					102	38 C.Y.	2,300 C.Y.	
304.2	GRAVEL			817					102	31 C.Y.	950 C.Y.	
304.3	CR. GRAVEL			260			177		122	41 C.Y.	600 C.Y.	
403.11	HOT BIT. PAVE.			480					71	49 TON	600 TON	
403.12	HOT BIT PAV(1")								39	6 TON	45 TON	
410.31	ASPH. SUR. TR.			9					32	2.8 TON	15 TON	
412.11	CONTR. SH. TR.								1	1 TON	2 TON	
412.2	GRITS, SH. TR.								6	4 TON	10 TON	
520.1	CONC. CL. A							30		0	30 C.Y.	
544.	REINF. ST.							1500		0	1,500 LB	
585.1	STONE FILL X				30					30 C.Y.	30 C.Y.	
603.00815	18" RCP P 2000 INCL. SPEC. EXC.		180	122						8 L.F.	310 L.F.	
603.00824	24" RCP P 2000 INCL. SPEC. EXC.			56						4 L.F.	60 L.F.	
603.07424	24" RCCS PIPE 14 GCC				48					12 L.F.	60 L.F.	
603.07430	30" RCCS PIPE 14 GCC						54			6 L.F.	60 L.F.	
603.33024	STEEL END SECT. 24" F				1					1 EA	2 EA	
603.33030	STEEL END SECT. 30" F						2			1 EA	3 EA	
604.11	C.B. TY. A		1	6		1				2 U	10 U	
604.13	SPECIAL C.B. S				1					1 U	2 U.	
604.3	M. H.		1							1 U	2 U	
604.4	RECONST C.B.			8						2 U	10 U	
605.212	12" B.C.P.S.P					270				30 L.F.	300 L.F.	
605.206	6" B.C.P.S.P								150	50 L.F.	200 L.F.	
609.26	ST. GRAN. CURB			50						0 L.F.	50 L.F.	
609.5	RESET GRAN. CURB			1410					345	45 L.F.	1800 L.F.	

ITEM NO	DESCRIPT.	ROCKING HAM PARK	PELHAM ROAD	RAMPS A,B,C,D	STILLING BASIN	RTE. 28 RTE 102 ASH ST.	MED. X-OVER	G.R. S/GN.	S&W S.B. N.B. & EBN	EST.	TOTAL	U
614.161	4" CONC. CONC. EXC.				75					45	1261 F.	
618.	UNC. EFF.	40	80	750		240	3000	40	144	246	4500 HR.	
619.1	MAINT. OF TRAF.			1						—	1 U	
619.2	CONST. SIGNS									1 U		
620	CALC. CMOR.									2	2	8 TON
623.1	CURB BOARD									10	1,000 LF	
641.04	LOAM 4" DEEP	950	5000	5500		2700			520	1330	16,000 SY	
642.	LIMESTONE			2.5					0.41	0.41	3 TON	
643.1	FERTILIZER	255	1300	1800		1150			160	330	5,000 LB	
644.1	PARK SEED II	25	170	130		36			183	6	450 LB	
644.2	SLOPE SEED 21				5			14		6	25 LB	
645.1	MULCH	1	3	4	1	2.5		1	26	7	22 TON	
645.2	MULCH FOR SEED CONT.			120						30	150 SY	
647.1	HUMUS				15			40		5	60 CY	
698.1	FIELD OFFICE									1	1 U	
627.11	STEEL BW POSTS						14,222			—	14,222 LB	
627.2	ALUM S. POSTS						912.			—	912. LB	

* "PBC" = SUGGESTED APPROXIMATE MINIMUM LENGTH OF PROPOSED BEAM GUARD RAIL PROTECTION BEYOND COLUMN AT END OF A PIER (SEE SKETCH ON SHT. NO. 6) "PBC" LENGTHS ARE INCLUDED IN LENGTHS = UNDER = ITEM = 606.143

⊕ QUADRANT SETUP IS DETAILED ON SHT. 5

‡ "BACK" & "AHEAD" ARE USED IN TERMS OF INTERSTATE STATIONING

‡ ASSUME 70% ITEM 606.821, 30% ITEM 606.822

PROJ. No.	SHEET No.	TOTAL SH'TS.
I-93-1(90)0	4	43

NOTE BOOKS — BOOK NO. / PAGE NO.

REVISIONS — DATE / STATION

AFTER PROPOSAL — STATION / DESCRIPTION

COMPILED BY TOLCO — DATE 1/68
CHECKED BY BORDEN — DATE 6/68
INKED BY HOWE — DATE MAR 69
CHECKED BY JORDAN — DATE APR 69

1M 1 68 BRUNING 40-21 50500

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		

KEY

- EXISTING CABLE GUARD RAIL
- " BEAM " "
- 175 PROPOSED ADDITIONAL CABLE GUARD RAIL, 175' LONG
- 250 " (RECONSTRUCTED) BEAM G.R., 250' LONG
- EXISTING SIGN TO BE RELOCATED &/OR MODIFIED
- EXISTING SIGN

INTERSTATE UNDER CROSS ROAD

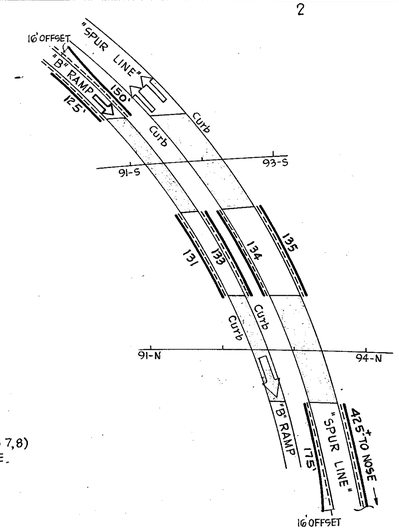
INTERSTATE OVER CROSSROAD

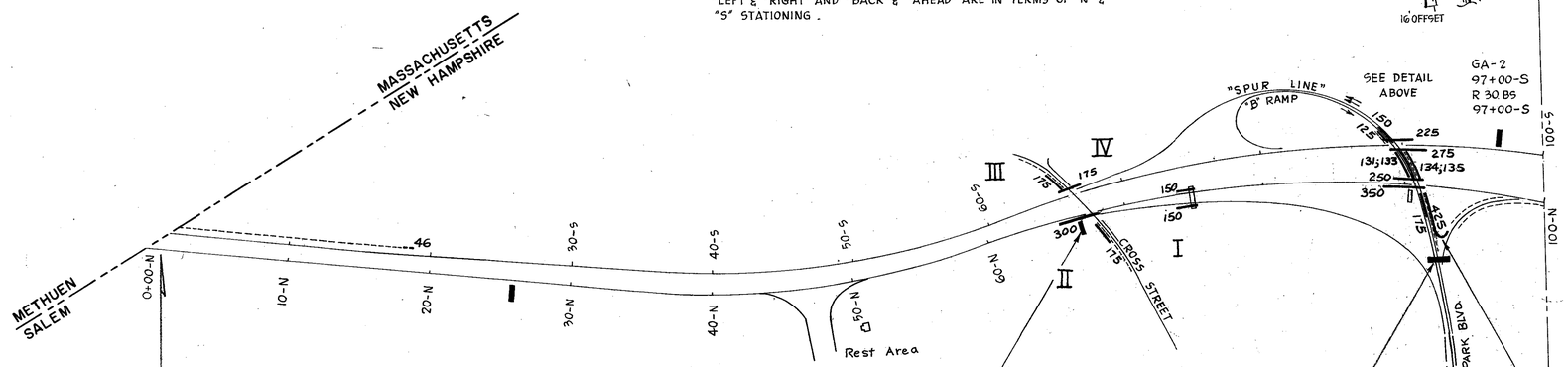
QUADRANTS FOR CROSS ROADS BRIDGE CORNER DESIGNATION

QUAD. I RIGHT‡ of "N" LINE & AHEAD‡ of the CROSS ROAD
II RIGHT‡ " " " & BACK‡ " " " "
III LEFT‡ " "S" " & BACK‡ " " " "
IV LEFT‡ " " " & AHEAD‡ " " " "

WHERE "N" & "S" LINES ARE WIDELY SEPARATED (BRIDGES 7,8) ALL 4 QUADRANTS APPLY AT "N" LINE AND ALL 4 AT "S" LINE.

‡ "LEFT" & "RIGHT" AND "BACK" & "AHEAD" ARE IN TERMS OF "N" & "S" STATIONING.





NOT TO SCALE

BEAM GUARD RAIL LAYOUT ON INTERSTATE UNDER

APPLICABLE AT BRIDGES 1,2,14,23.

NOTES:

ALIGNMENT IS APPROXIMATELY TO SCALE UNLESS NOTED OTHERWISE, BUT SYMBOLS FOR GUARD RAIL, SIGNS, ETC. ARE SCHEMATIC AND NOT TO SCALE. STATIONS SHOWN ON PLANS ARE APPROXIMATE. IF EXACT STATIONING IS NEEDED FOR SOME SPECIAL APPLICATION, IT SHOULD BE REQUESTED FROM "ROAD DESIGN, STATE OFFICE BUILDING".

STA. 178 — 380 SB & NB: THIS STATIONING OCCURS TWICE: ONCE IN SALEM-WINDHAM AND AGAIN IN MANCHESTER; SUBSCRIPTS "SW" AND "M" ARE USED TO DIFFERENTIATE IN SOME CASES.

GUARD RAIL LENGTHS INDICATED ARE APPROXIMATE. THE ACTUAL LENGTH REQUIRED MAY BE AS MUCH AS SEVERAL PANELS LONGER OR SHORTER THAN INDICATED, ESPECIALLY ON CROSS ROADS BETWEEN A BRIDGE ON "S" AND A BRIDGE ON "N" LINE. OVERALL LENGTHS OF BEAM GUARD RAIL RUNS GENERALLY INCLUDE 25' OR 50' OF TRANSITIONAL RAIL WHICH ANCHORS THE SYSTEM AND MINIMIZES BEGINNING-OF-RAIL HAZARDS. THIS 25' OR 50' IS NOT CONSIDERED EFFECTIVE AS A GUIDE OR BARRIER. SIMLARLY, OVERALL LENGTHS OF CABLE GUARD RAIL RUNS GENERALLY INCLUDE 42' OR 84' OF TERMINAL ANCHORAGE SECTION, OF WHICH LESS THEN HALF IS CONSIDERED EFFECTIVE.

THE FINAL DETERMINATION OF GUARD RAIL LENGTHS AND LOCATION WILL BE MADE IN THE FIELD AT THE TIME OF CONSTRUCTION BY DESIGN DIVISION PERSONNEL WORKING WITH OTHERS, UTILIZING STAKES SET ON LOCATION BY THE CONTRACTOR.

THE LOCATION OF BEAM GUARD RAIL AT OVERHEAD SIGNS IS TO BE CONFIRMED AT THE TIME OF CONSTRUCTION BY REFERENCE TO THE PLANES AND FIELD LAYOUT OF CONTRACT II.

EXISTING GRANITE CURB INLETS (GCIs) WHICH ARE SO EXPOSED AS TO BE HAZARDOUS ARE TO BE MATCHED TO THE SLOPE WITH ADDITIONAL EMBANKMENT MATERIAL, HUMUS, ETC. AT THE DISCRETION OF THE ENGINEER — *WORK TO BE PAID FOR UNDER APPROPRIATE ITEMS OF THE CONTRACT.*

EXISTING CABLE ANCHORAGES WILL BE ABANDONED AS DIRECTED BY THE ENGINEER, SUBSIDIARY TO THE ITEMS OF THE CONTRACT.

BEAM GUARD RAIL INSTALLATIONS WILL INCLUDE AS A PART OF THE ITEM THE REMOVAL OF EXISTING CABLE GUARD RAIL TO BE REPLACED BY BEAM. THIS REMOVAL IS TO BE DONE IN A WORKMANLIKE MANNER AND THE MATERIALS ARE TO BE SUITABLY STOCKPILED FOR REUSE UNDER ITEM 606.91 OR FOR SUBSEQUENT USE BY THE STATE.

I 93-1(25)0	I 93-1(68)1	I 93-1(31)1
P-3688-A	P-7252	P-3688-B

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	5	43

(USE BOTTOM LINES F125T)

REVISIONS AFTER PROPOSAL

NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS

BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.

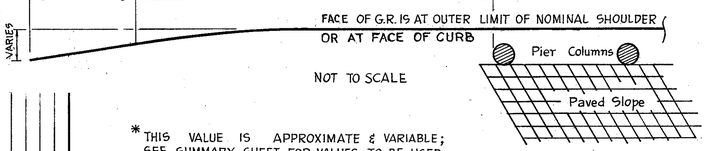
		DATE
PLAN TRACED	THOMAS	7/8/68
PLAN CHECKED	TOSCO-BORDEN	FEB 69
PROFILE TRACED		
PROFILE CHECKED		
INDEXED		DATE
CHECKED		

1560-11-67

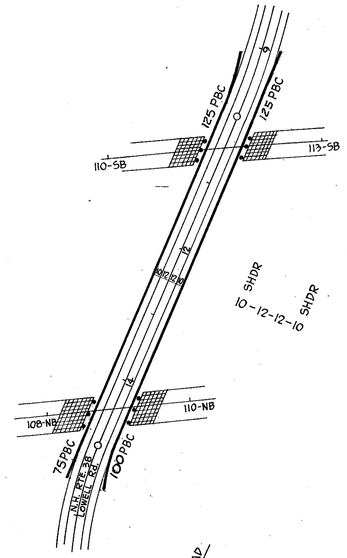
STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		

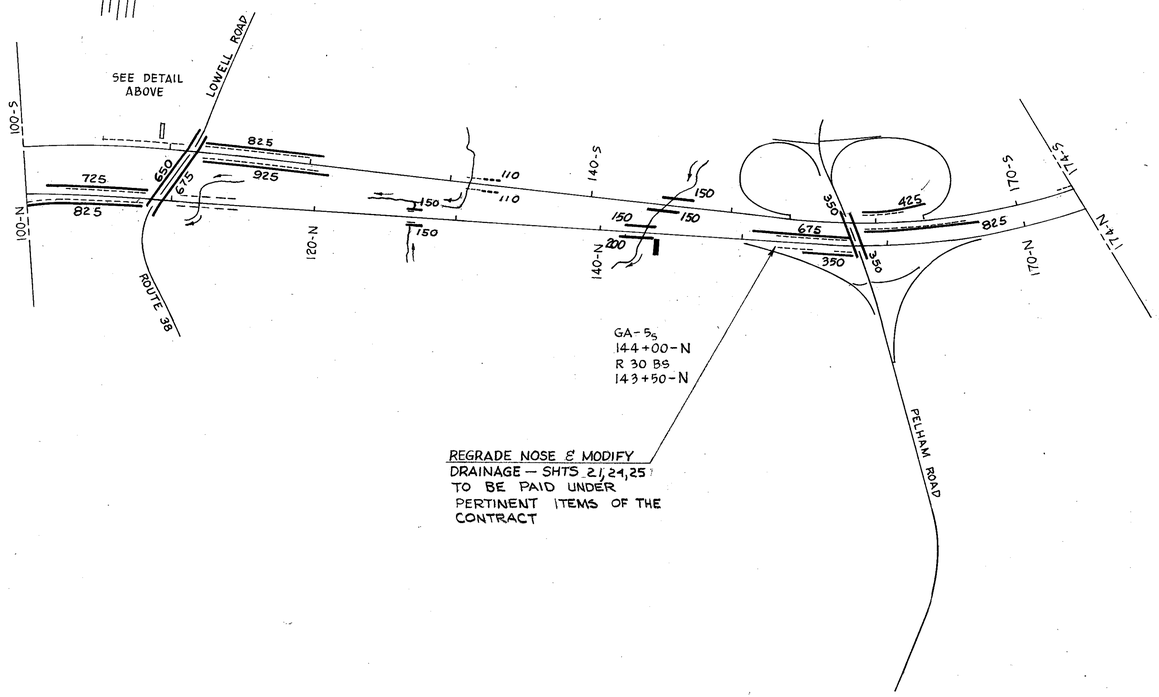
BEAM GUARD RAIL LAYOUT ON CROSS ROADS UNDER

APPLICABLE AT BRIDGES 3,5,7,8,9,10,11,15,16,20



* THIS VALUE IS APPROXIMATE & VARIABLE; SEE SUMMARY SHEET FOR VALUES TO BE USED.





I 93-1(26)2	I 93-1(32)3
P-3688-C	P-3688-D

(USE BOTTOM LINES FIRST)

REVISIONS AFTER PROPOSAL			
NO.	DATE	STATION	STATION

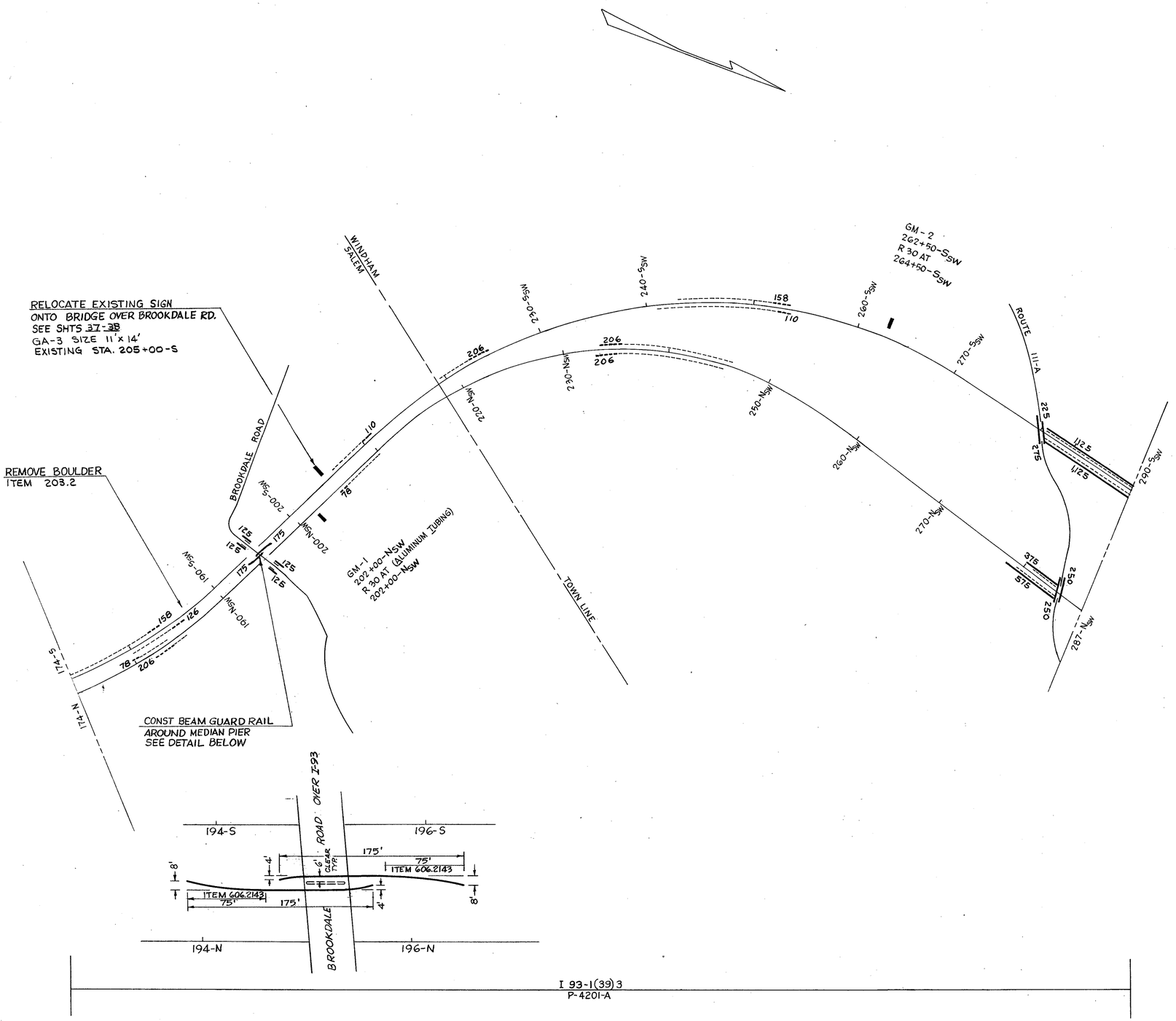
NOTEBOOKS			
BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.

PLAN TRACED	THOMAS	DATE 7/8/68	
PLAN CHECKED	TOSCO-BORDEN	" FEB 69	
PROFILE TRACED		"	
PROFILE CHECKED		"	
INKED		"	
CHECKED		DATE	

1500-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	6	43

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		



REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)				
NO.	DATE	STATION	STATION	DESCRIPTION

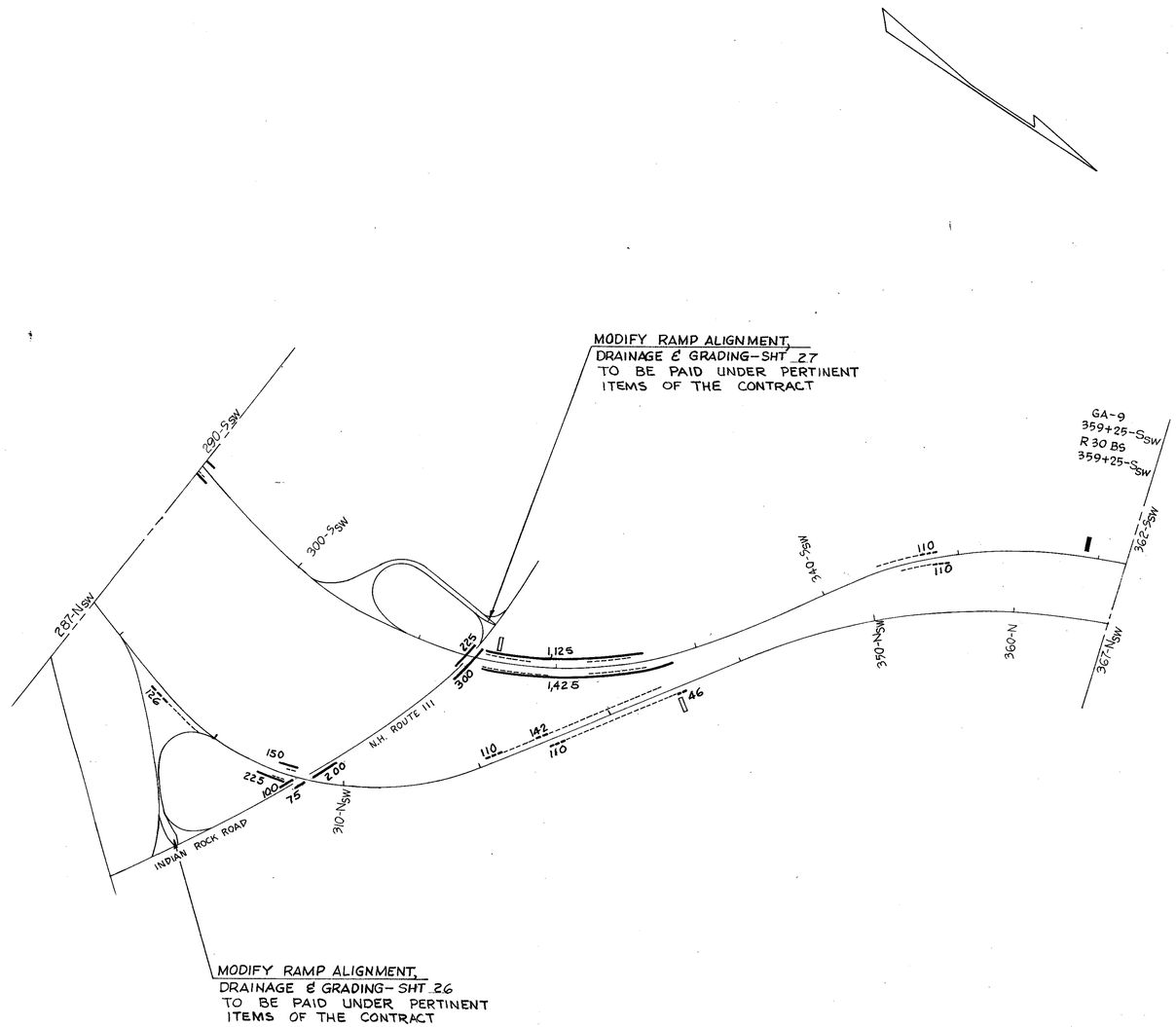
NOTEBOOKS		
BOOK NO.	PAGE NO.	
" "	" "	
" "	" "	
BOOK NO.	PAGE NO.	

PLAN TRACED	THOMAS	DATE 7/8/68
PLAN CHECKED	TOSCO-BORDEN	" FEB. 69
PROFILE TRACED		"
PROFILE CHECKED		"
INKED		"
CHECKED		DATE

1560-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	7	43

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		



I 93-1(41)5
P-4201-B

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)			
NO.	DATE	STATION	STATION	DESCRIPTION

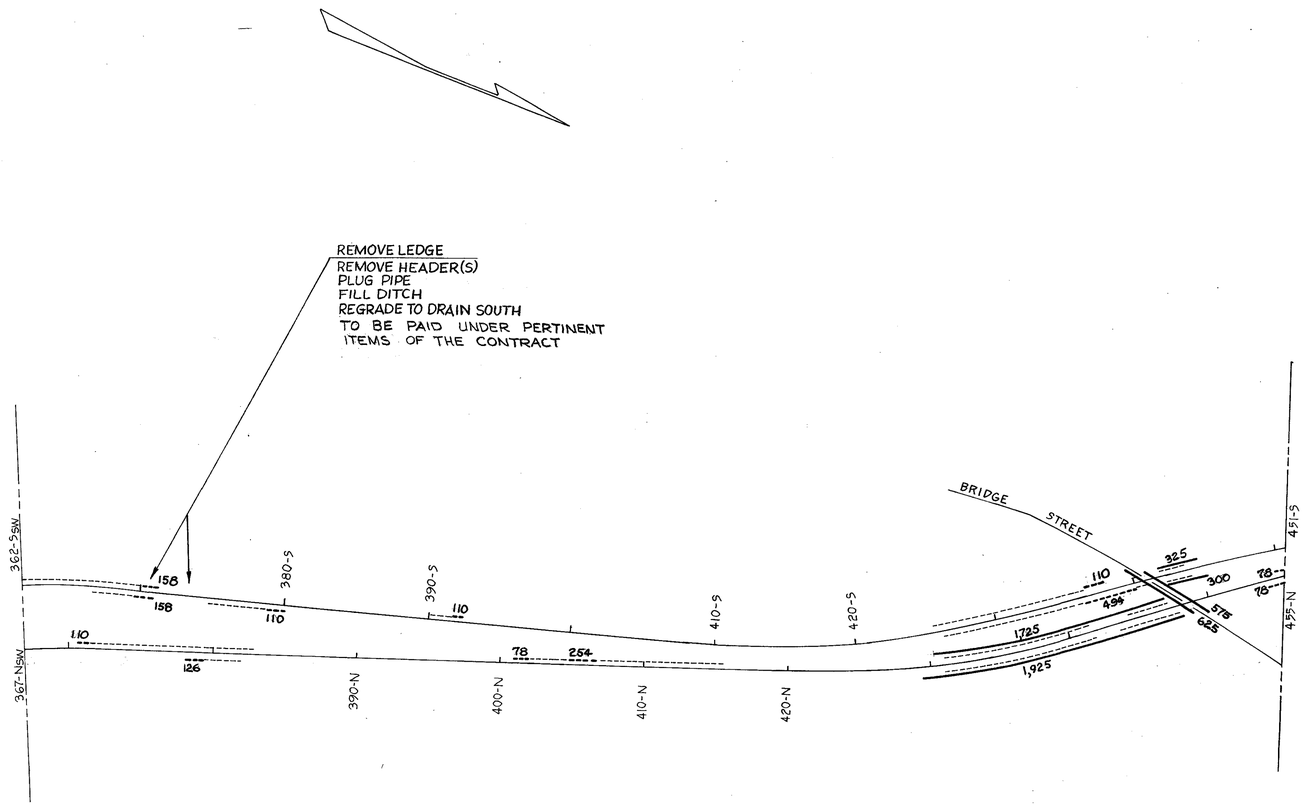
NOTEBOOKS			
BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.

PLAN TRACED	THOMAS	DATE 7/8/68	
PLAN CHECKED	TOSCO-BORDEN	" FEB 69	
PROFILE TRACED		"	
PROFILE CHECKED		"	
INXED		"	
CHECKED		DATE	

1500-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	8	43

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		



I 93-1(43)7
P-4201-C

(USE BOTTOM LINES FIRST)

REVISIONS AFTER PROPOSAL

NO.	DATE	STATION	STATION	DESCRIPTION

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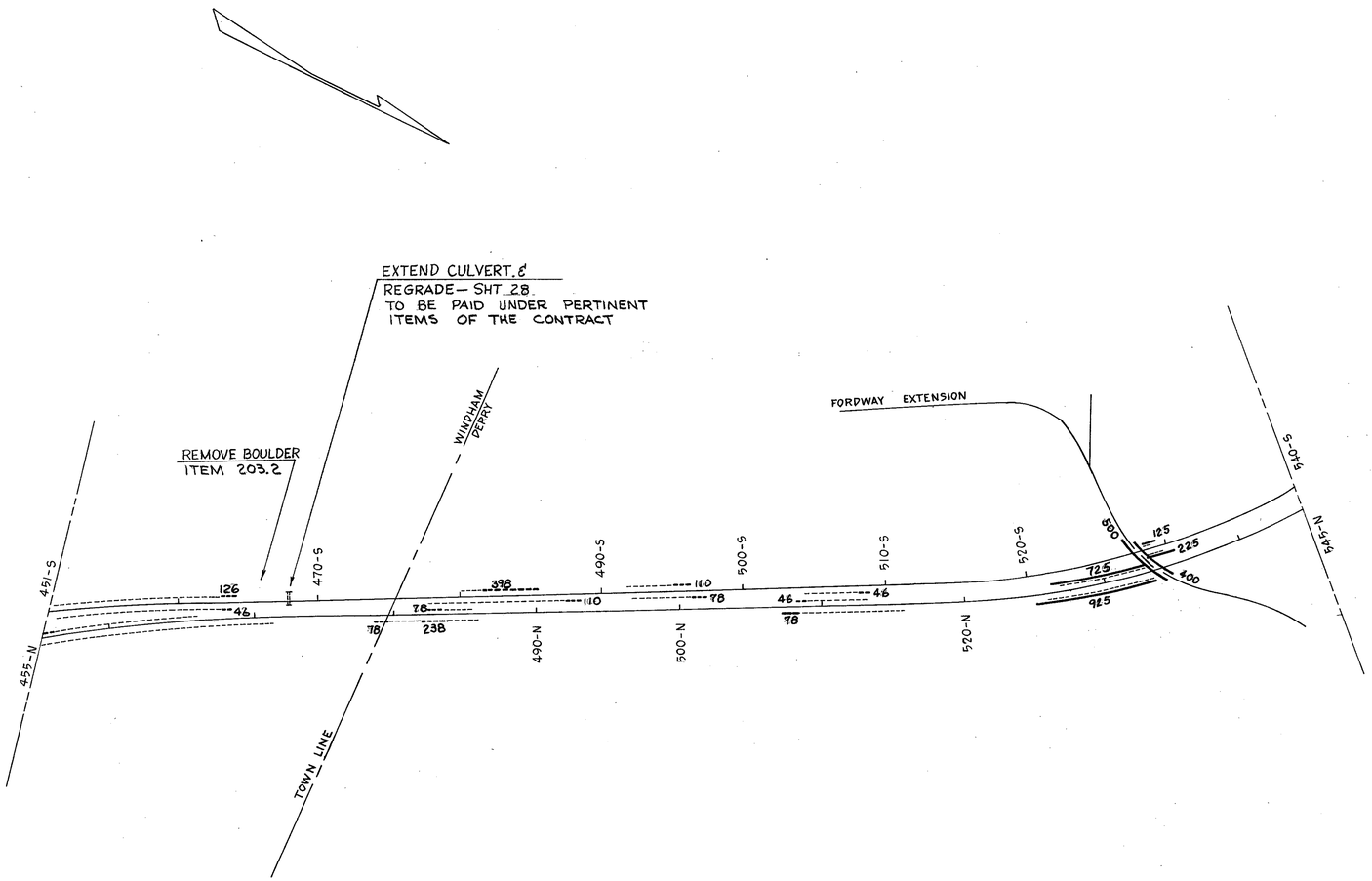
PLAN CHECKED	TOSCO-BORDEN	" FEB 69	BOOK NO. PAGE NO.
PROFILE TRACED		"	" " "
PROFILE CHECKED		"	" " "
INKED		"	" " "
CHECKED		DATE	BOOK NO. PAGE NO.

1500-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	9	43

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		



I 93-1(45) 9
P-4201-D

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)			
NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS	
BOOK NO.	PAGE NO.
" "	" "
" "	" "
BOOK NO.	PAGE NO.

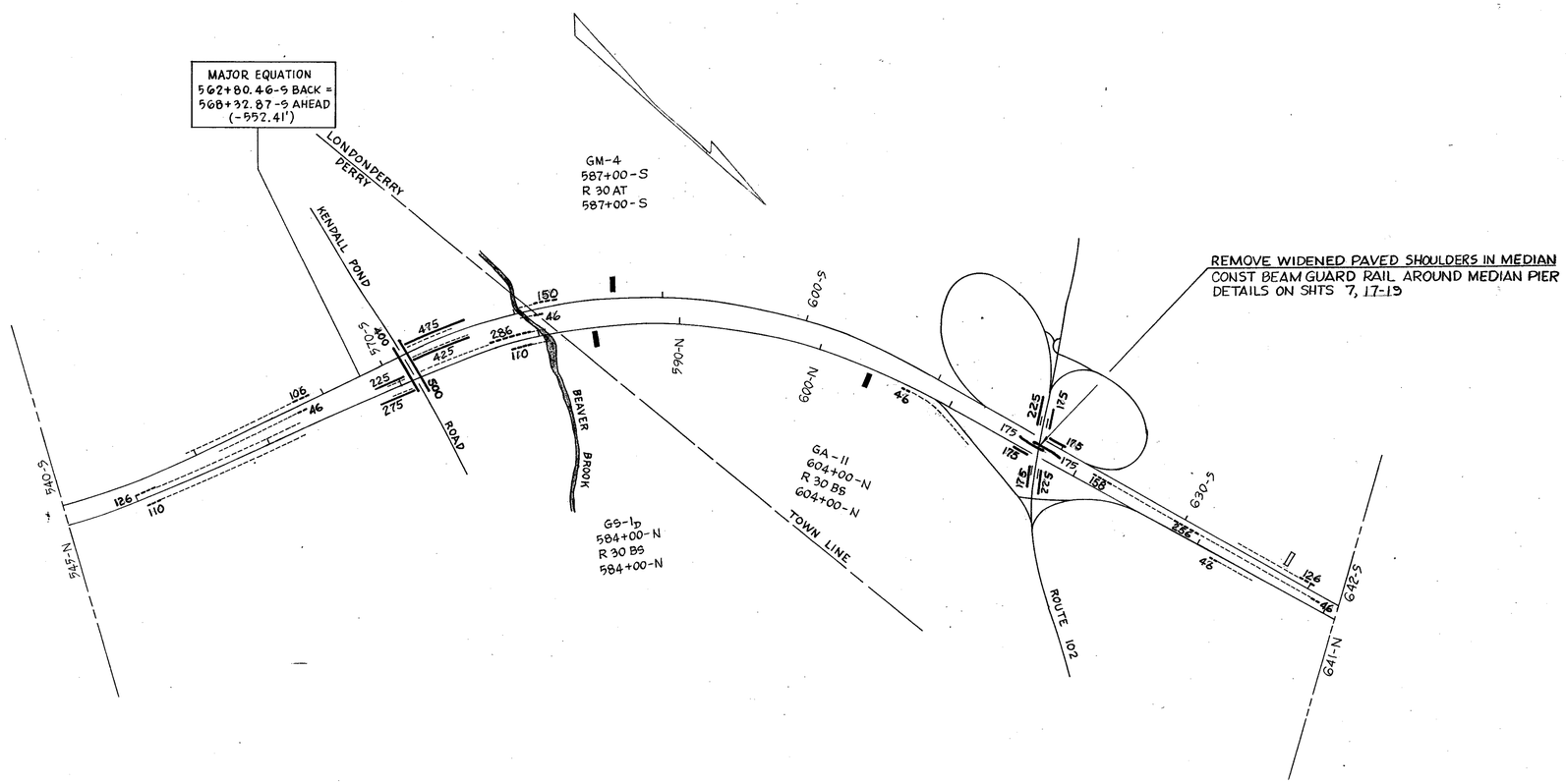
PLAN TRACED	THOMAS	DATE 7/8/68
PLAN CHECKED	TOSCO-BORDEN	" FEB 69
PROFILE TRACED		"
PROFILE CHECKED		"
INKED		"
CHECKED		DATE

1560-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	10	43

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		

11 12 13



I 93-1(47)10
P-4201-E

I 93-1(49)11
P-4201-F

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)

NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS

BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.
" "	" "	" "	" "

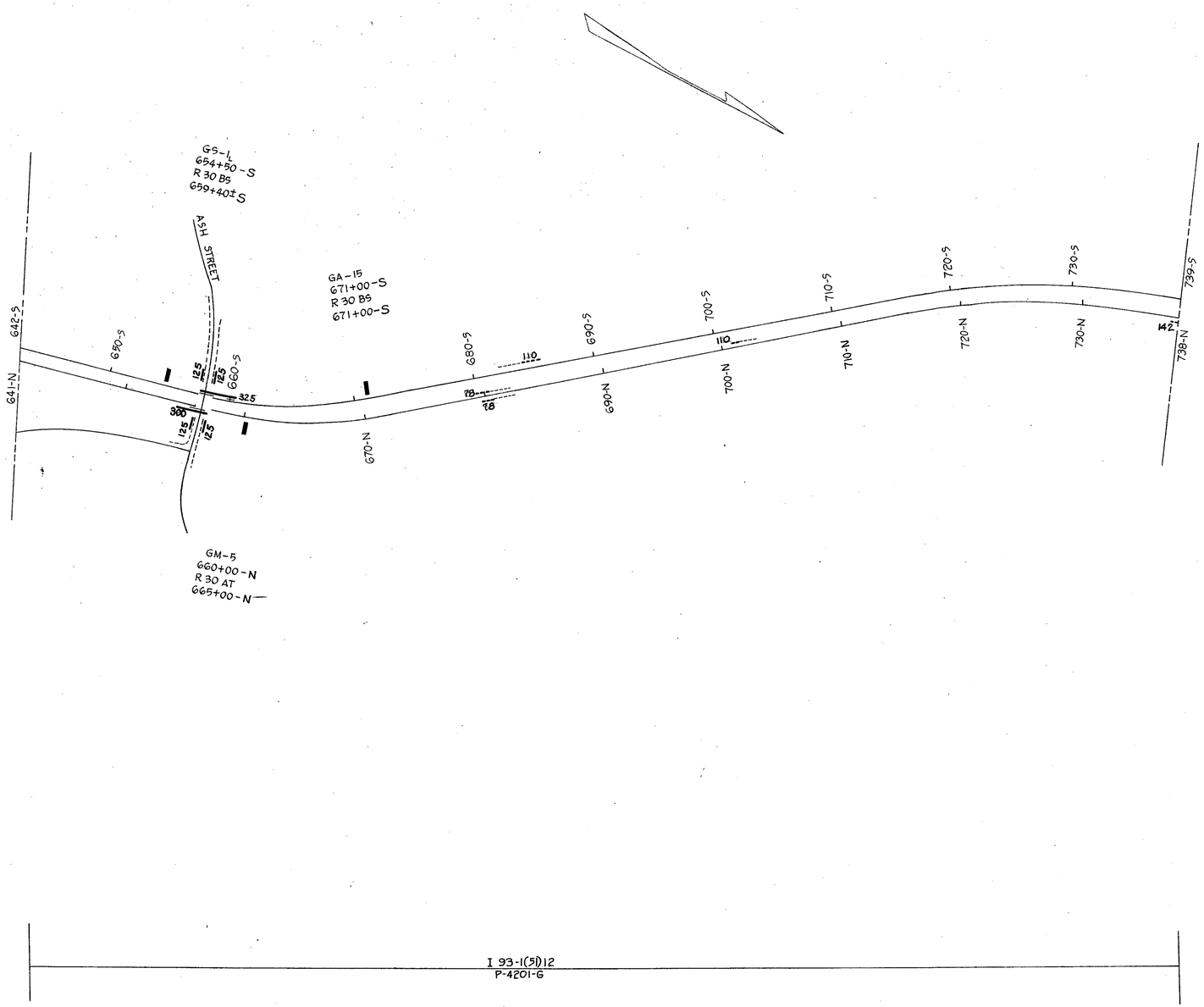
		DATE
PLAN TRACED	THOMAS	7/8/68
PLAN CHECKED	TOSCO-BORDEN	" FEB 69
PROFILE TRACED		"
PROFILE CHECKED		"
INKED		"
CHECKED		

1500-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	11	43

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		

FOR THE G.R. LAYOUT ON INTERSTATE UNDER BRIDGE 14
SEE SKETCH ON SHT. No. 5



REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)

NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS

BOOK NO.	PAGE NO.
" "	" "
" "	" "

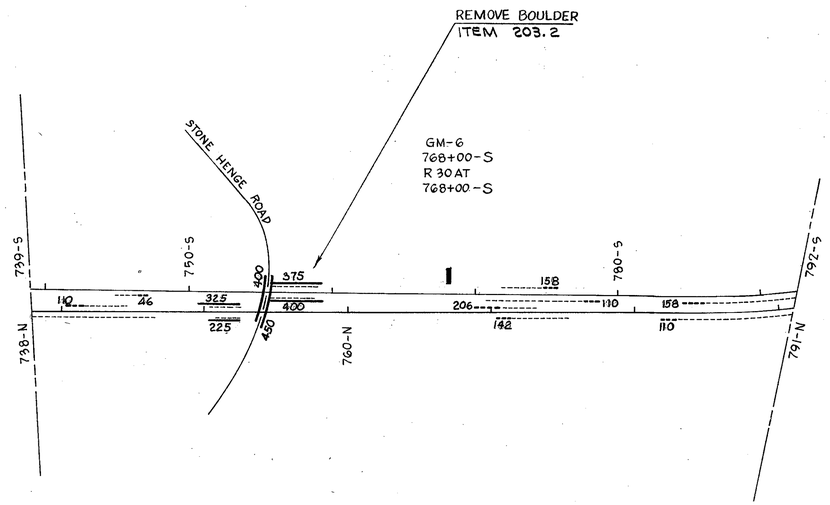
BOOK NO.	PAGE NO.
" "	" "
" "	" "

PLAN TRACED THOMAS DATE 7/8/68
PLAN CHECKED TOSCO-BORDEN " FEB 69
PROFILE TRACED " "
PROFILE CHECKED " "
INKED " "
CHECKED DATE

1500-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	12	43

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		



I 93-1(53)14
P-4201-H

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)			
NO.	DATE	STATION	STATION
			DESCRIPTION

		NOTEBOOKS	
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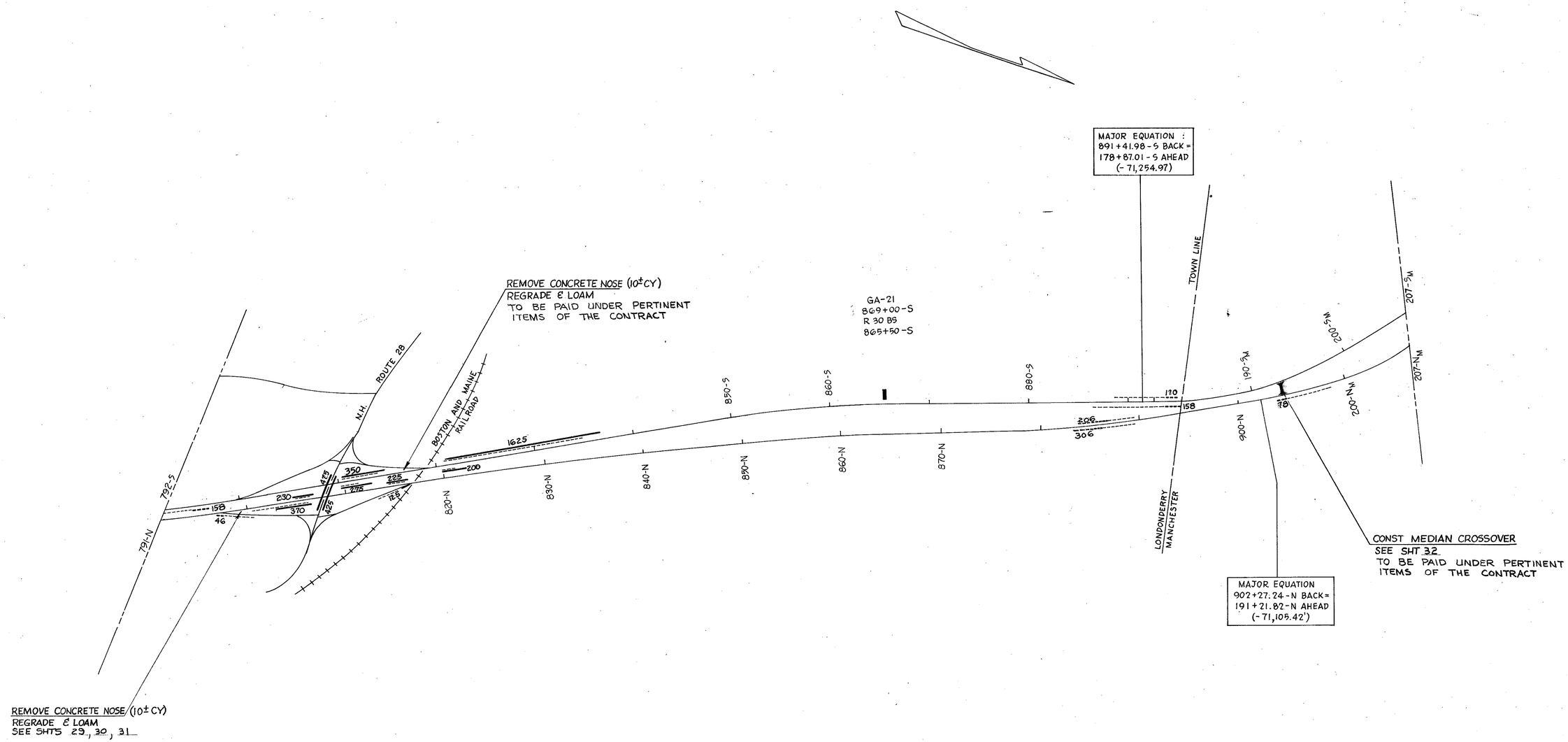
PLAN CHECKED	TOSCO-BORDELI	" FEB 69	
PROFILE TRACED		"	BOOK NO. / PAGE NO.
PROFILE CHECKED		"	" / "
INKED		"	" / "
CHECKED		DATE	BOOK NO. / PAGE NO.

1560-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	13	43

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		



I 93-1(55)15
P-4201-I

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)				
NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS			
BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.

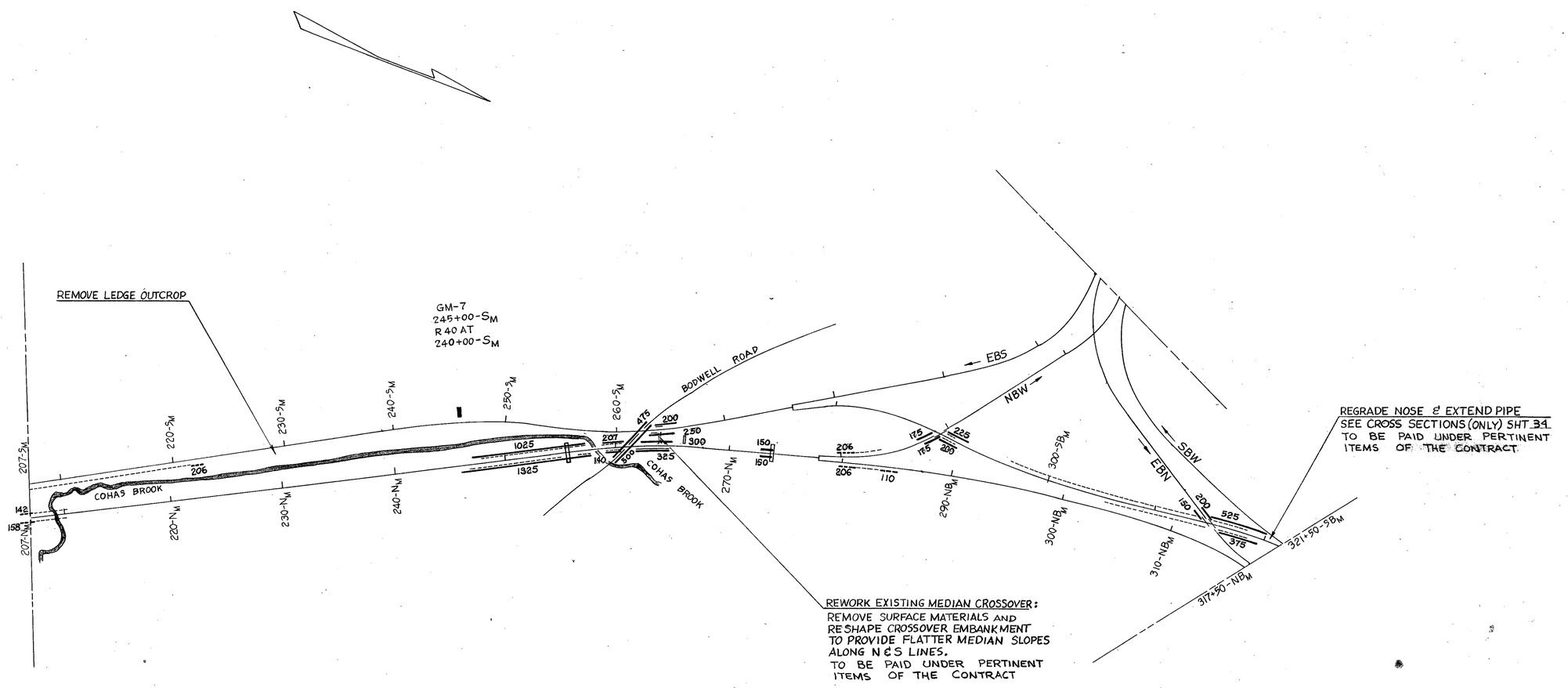
PLAN TRACED	THOMAS	DATE 7/8/68	
PLAN CHECKED	TOSCO-BORDEN	" FEB. 69	
PROFILE TRACED		"	
PROFILE CHECKED		"	
INDEXED		"	
CHECKED		DATE	

1500-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	14	43

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		

18 (N only) 19 (N only) 20 21 22



I 93-1(57)17
P-3374-E

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)

NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS

BOOK NO.	PAGE NO.
" "	" "
" "	" "
BOOK NO.	PAGE NO.

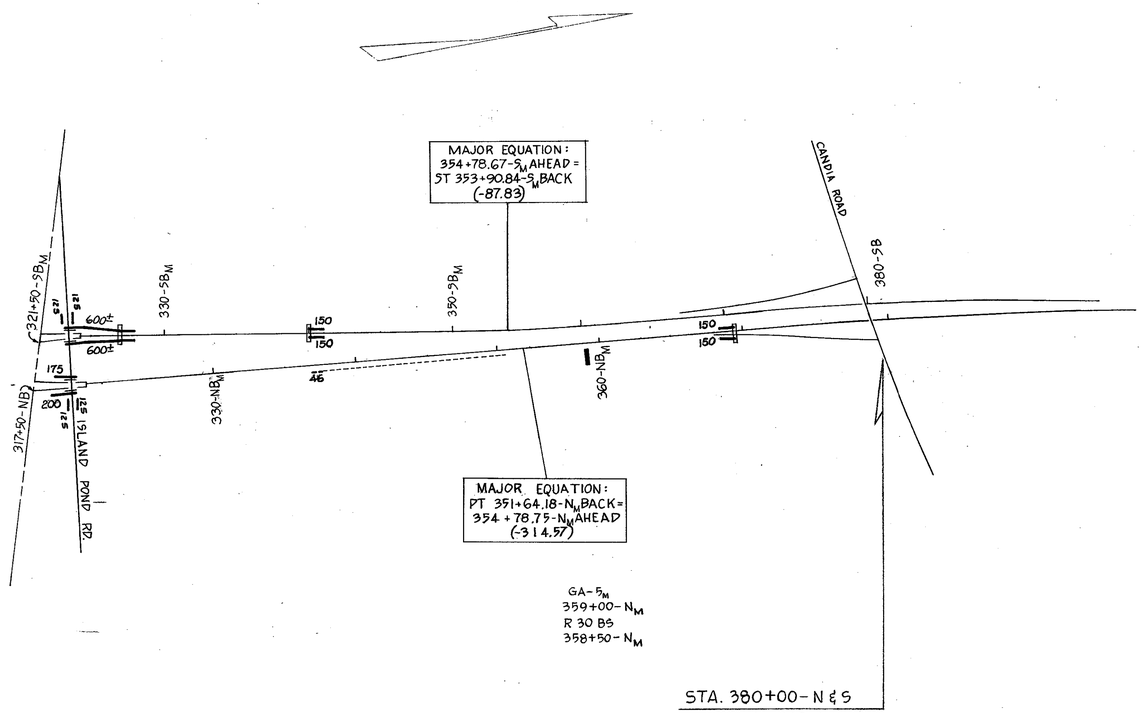
		DATE
PLAN TRACED	THOMAS	7/8/68
PLAN CHECKED	TOSCO-BORDEN	" FEB 69
PROFILE TRACED		"
PROFILE CHECKED		"
INKED		"
CHECKED		"

1500-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	15	43

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. Hr	P-1187		

FOR THE G.R. LAYOUT ON INTERSTATE UNDER BRIDGE 23
SEE SKETCH ON SHT. No. 5



I-93-1(18)19
P-3374-C

I-93-1(20)20
P-3374-A

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)				
NO.	DATE	STATION	STATION	DESCRIPTION

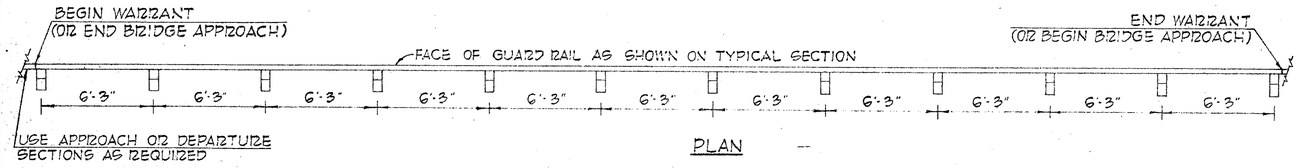
NOTEBOOKS			
BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.

PLAN TRACED	THOMAS-TOSCO	DATE	1968
PLAN CHECKED	TOSCO-BORDEN	" FEB	69
PROFILE TRACED		"	
PROFILE CHECKED		"	
INKED			
CHECKED		DATE	

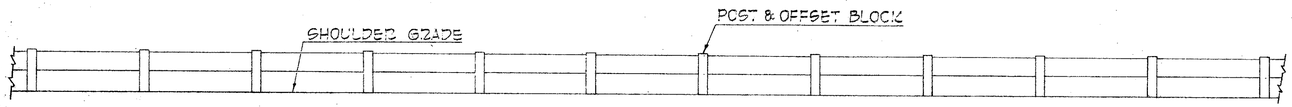
1500-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	16	43

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N.H.	P-1187		



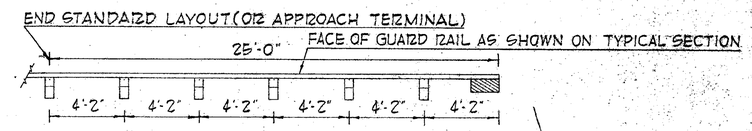
PLAN



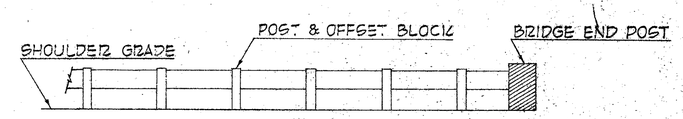
ELEVATION

STANDARD LAYOUT

Scale: 1/4" = 1'-0"



PLAN

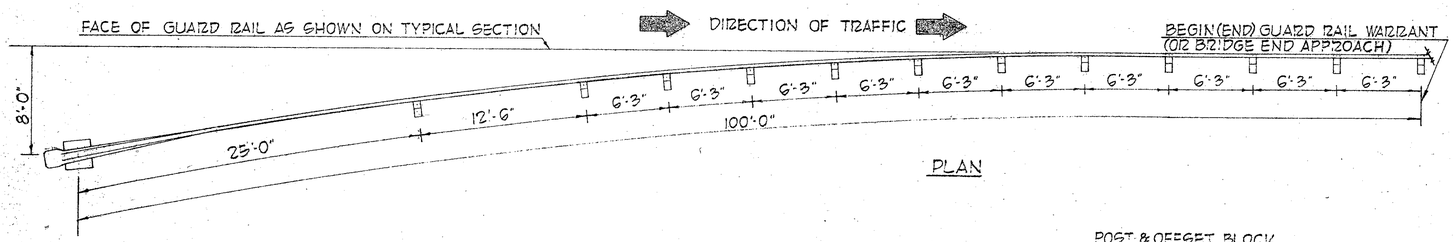


ELEVATION

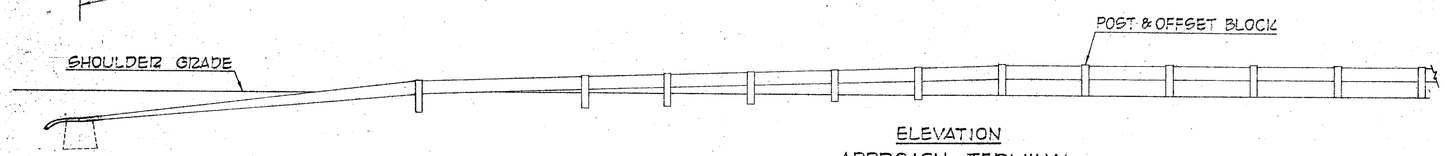
BRIDGE APPROACH SECTION

Scale: 1/4" = 1'-0"

NOTE: ON TWO LANE ROADWAYS USE THIS SECTION SYMMETRICALLY ON STRUCTURE. ON FOUR LANE ROADWAYS USE "STANDARD LAYOUT" OR "DEPARTURE TERMINAL FOR DIVIDED HIGHWAYS" AT "DEPARTURE END" OF STRUCTURE.



PLAN



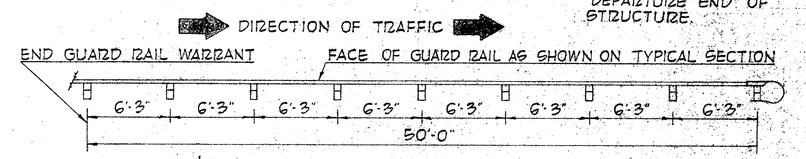
ELEVATION

APPROACH TERMINAL

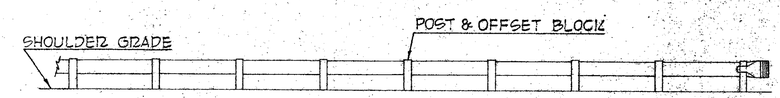
(FILL SECTIONS)

Scale: 3/16" = 1'-0"

NOTE: USE FOR DEPARTURE TERMINAL ON TWO LANE ROADS



PLAN

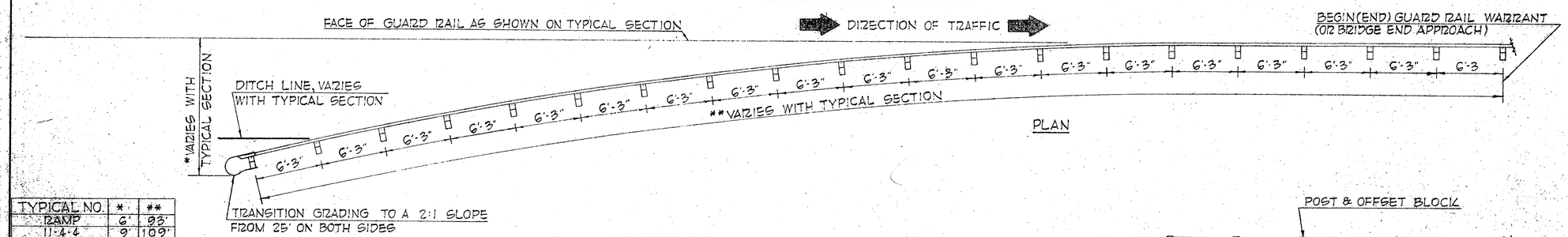


ELEVATION

DEPARTURE TERMINAL

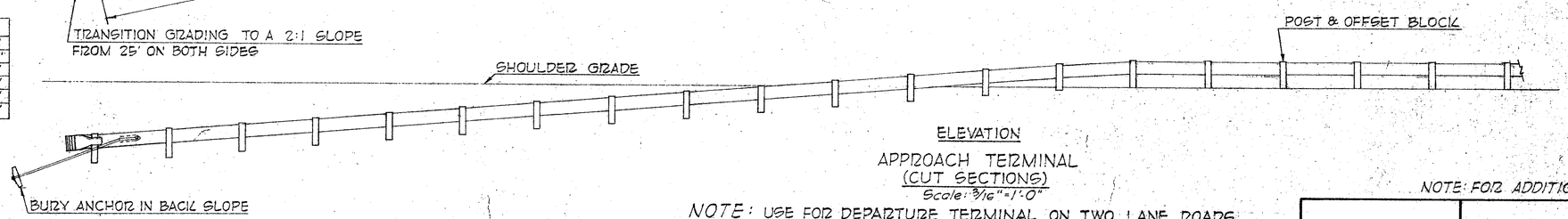
(TO BE USED ON DIVIDED HIGHWAYS ONLY)

Scale: 3/16" = 1'-0"



PLAN

TYPICAL NO.	*	**
RAMP	6'	93'
11-4-4	9'	109'
12-8-10	13'	127'
12-10-10	15'	134'
4 LANE, 12-10-10	17½'	143'
12-10-12	17½'	143'



ELEVATION

APPROACH TERMINAL

(CUT SECTIONS)

Scale: 3/16" = 1'-0"

NOTE: USE FOR DEPARTURE TERMINAL ON TWO LANE ROADS

NOTE: FOR ADDITIONAL DETAILS SEE SHT. 2 of 3 & 3 of 3

BEAM GUARD RAIL

I-93-1(90)0 | Sheet 17 of 43

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STATE	PROJ. NO.	SHEET NO	TOTAL SHEETS
N.H.	P-1187		

FOR DOUBLE FACE BEAM GUARD RAIL
USE ADDITIONAL OFFSET BLOCKS AND LONGER BOLTS (22 1/2")
USE TERMINAL SECTION DETAILED BELOW.

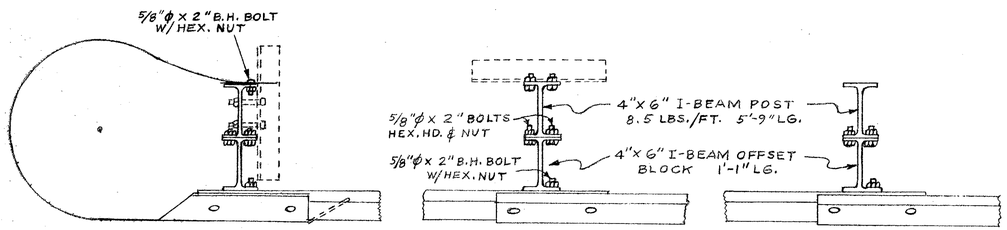
NOTES

STEEL POSTS, OFFSET BLOCKS, ANCHORS, PLATES AND ALL FITTINGS TO BE GALVANIZED.

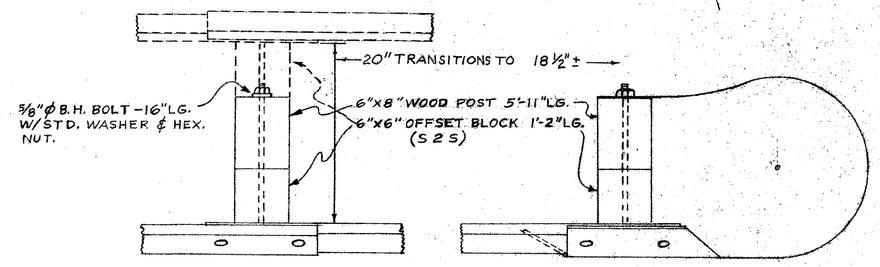
ALL DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES.

RAIL PANELS AND TERMINAL SECTIONS TO BE 12 GAGE STEEL.

ANY METAL CUT, DRILLED, WELDED OR OTHERWISE REWORKED IN THE FIELD OR AFTER GALVANIZING SHALL BE PAINTED AFTERWARD WITH TWO COATS OF ZINC RICH PRIMER YIELDING A DRIED FILM OF AT LEAST 85% ZINC AS APPROVED BY THE ENGINEER.

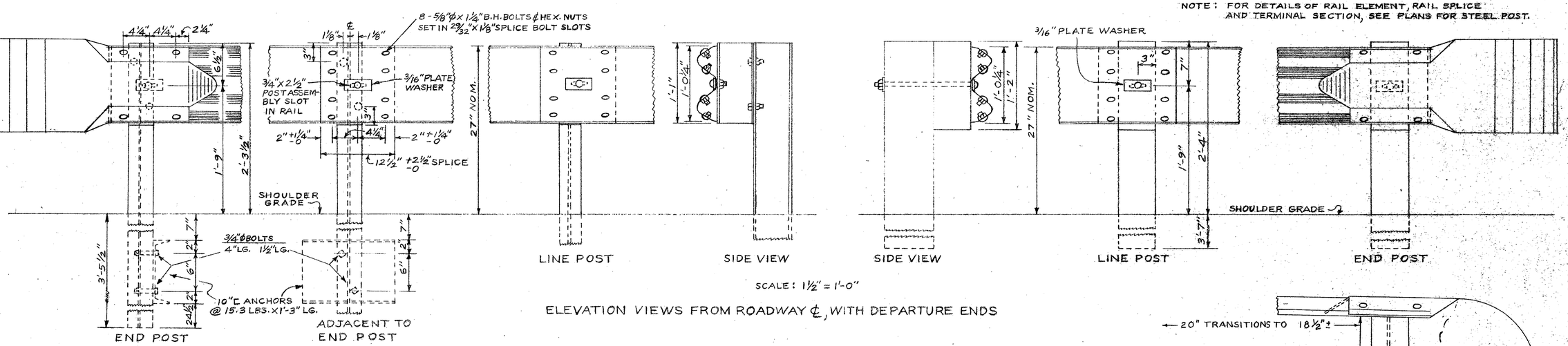


PLAN FOR STEEL POST & OFFSET BLOCK



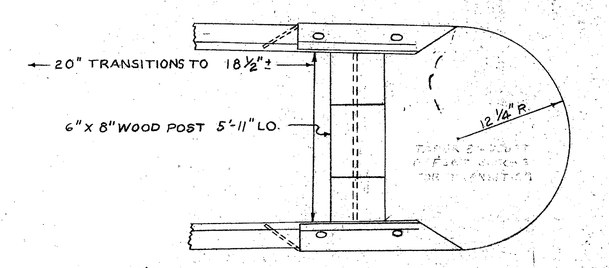
PLAN FOR WOOD POST & OFFSET BLOCK

NOTE: FOR DETAILS OF RAIL ELEMENT, RAIL SPLICE AND TERMINAL SECTION, SEE PLANS FOR STEEL POST.

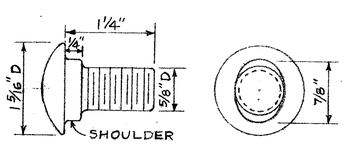


SCALE: 1 1/2" = 1'-0"

ELEVATION VIEWS FROM ROADWAY ℄, WITH DEPARTURE ENDS

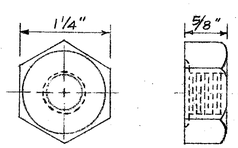


DOUBLE FACE RAIL TERMINAL

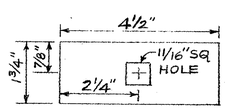


SPLICE BOLT (8 REQ'D PER SPLICE)
FULL SCALE

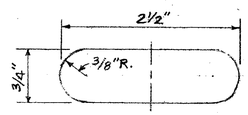
POST BOLT
SAME EXCEPT LENGTH AND NO SHOULDER
1 REQUIRED PER POST
STD LENGTHS - 2", 5", 8", 10 1/2" & 16"



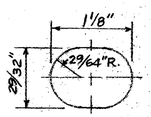
NUT (9 REQ'D PER RAIL ELEMENT)
FULL SCALE



3/16" PLATE WASHER
HALF SCALE



POST ASSEMBLY SLOT
FULL SCALE



SPLICE BOLT SLOT
FULL SCALE

NOTE: FOR ADDITIONAL DETAILS, SEE SHT. NO. 1 OF 3 & 3 OF 3

BEAM GUARD RAIL

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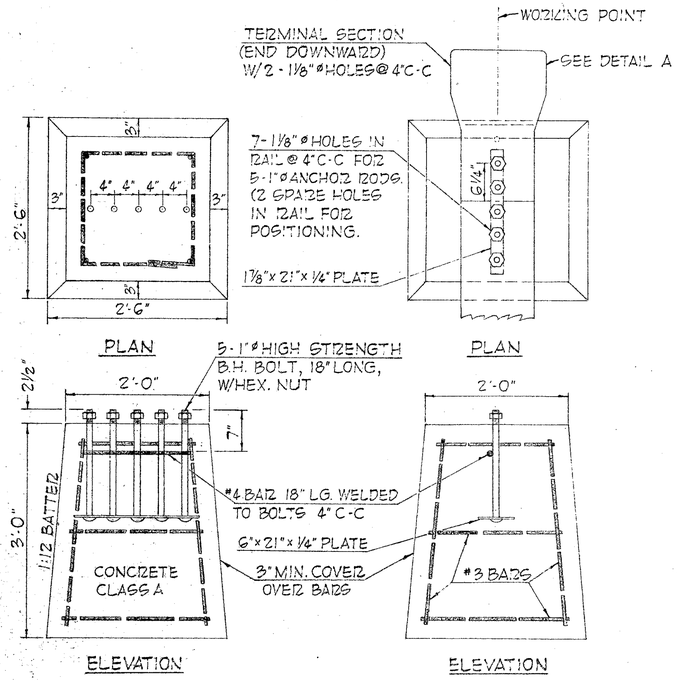
E.H.R. 11/25/69

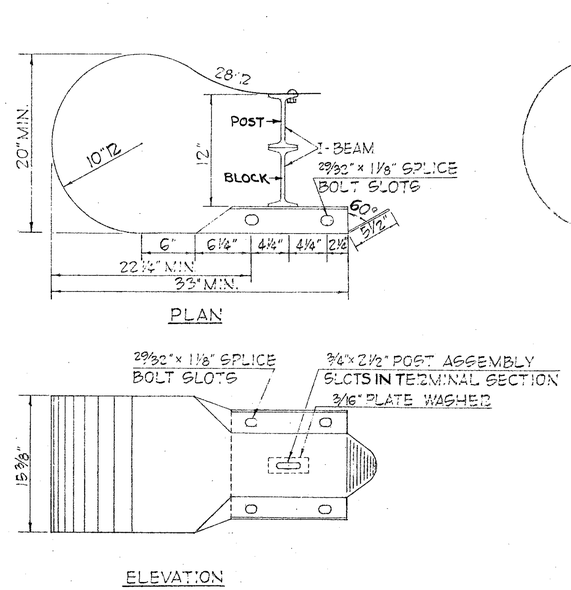
STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N.H.	P-1187		



ITEM 606.821 ANCHORAGES FOR BEAM GUARD RAIL

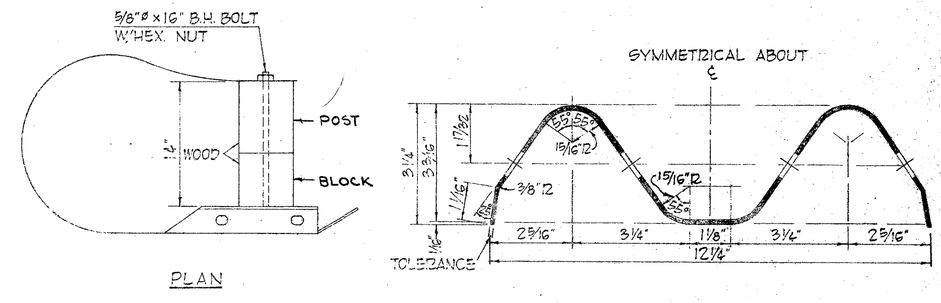
ANCHOR DETAIL FOR APPROACH TERMINAL IN FILL SECTIONS

Scale: 1" = 1'-0"



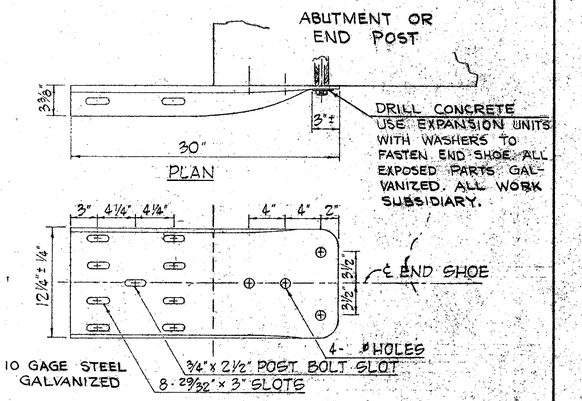
TERMINAL SECTION

Scale: 1½" = 1'-0"



SECTION THRU RAIL ELEMENT

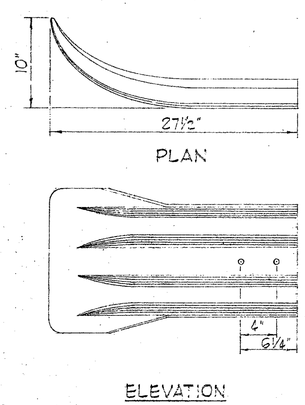
Half Scale



ELEVATION

END SHOE FOR CONNECTION TO BRIDGE ABUTMENT / BRIDGE END POST

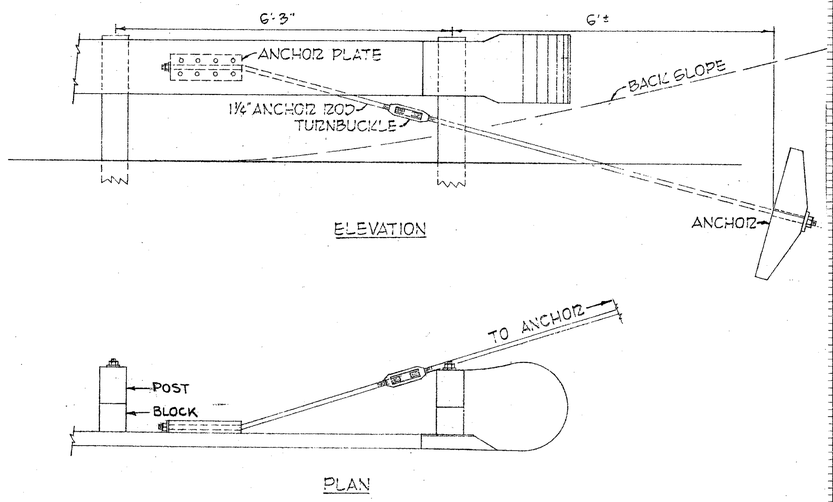
Scale: 1½" = 1'-0"



DETAIL A

(APPROACH TERMINAL - FILL SECTIONS)

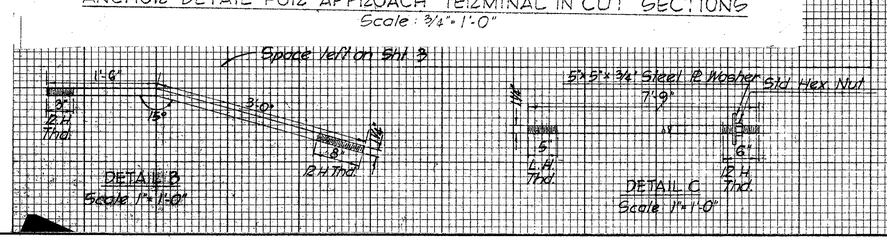
Scale: 1½" = 1'-0"

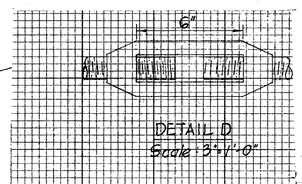


ITEM 606.822 ANCHORAGES FOR BEAM GUARD RAIL

ANCHOR DETAIL FOR APPROACH TERMINAL IN CUT SECTIONS

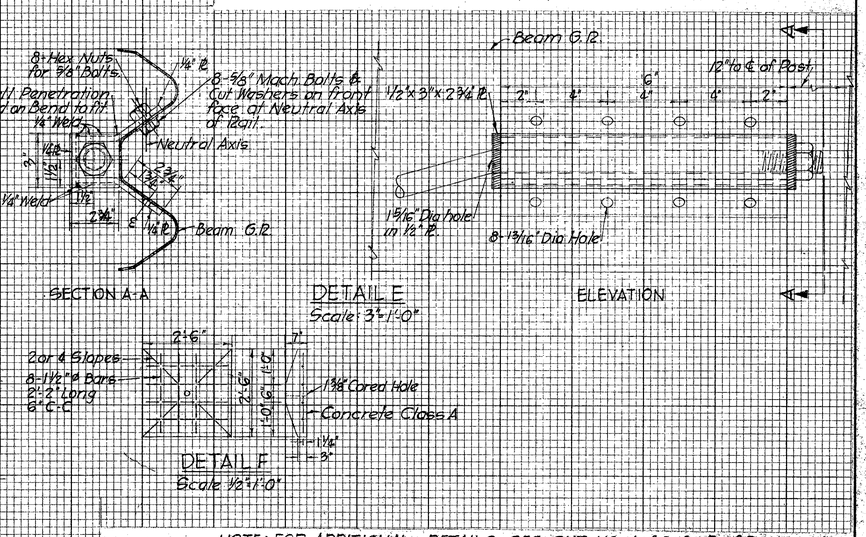
Scale: ¾" = 1'-0"





DETAIL D

Scale 3" = 1'-0"



NOTE: FOR ADDITIONAL DETAILS SEE SHT. NO. 1 of 3 & 2 of 3

BEAM GUARD RAIL

SHEET 3 OF 3

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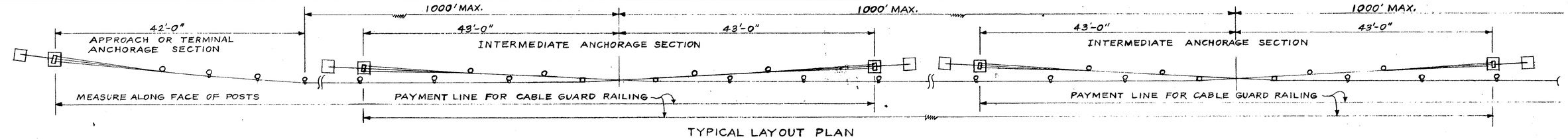
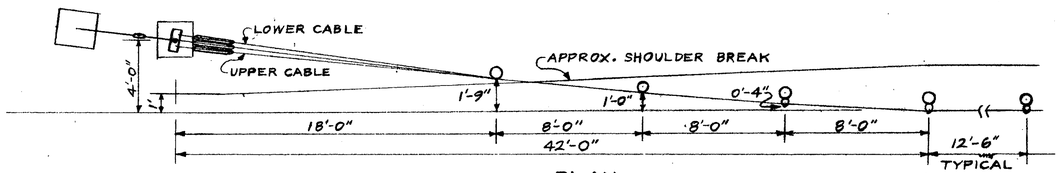
W.O.P. 19 NOV. 69



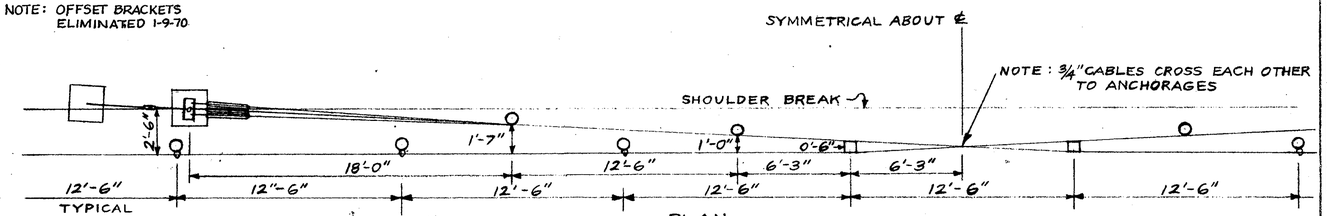
TYPICAL LAYOUT PLAN

NOTE: OFFSET BRACKETS ELIMINATED 1-9-70

REVISION DATE
OCT. 14, 1968
DEC. 12, 1968
OCT 30, 1969

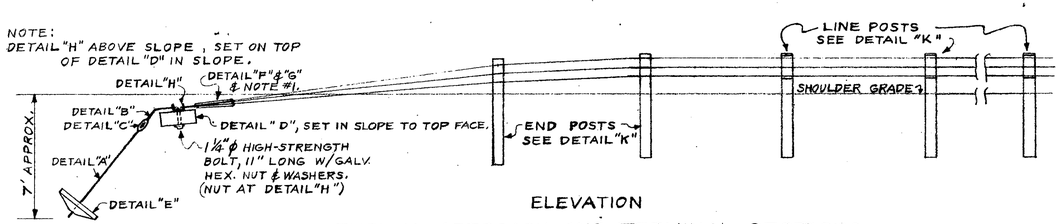


PLAN



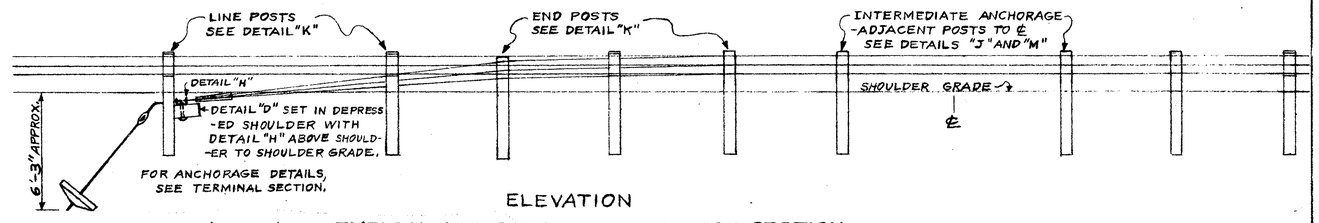
PLAN

ITEM 606.81 ANCHORAGES FOR CABLE GUARD RAIL



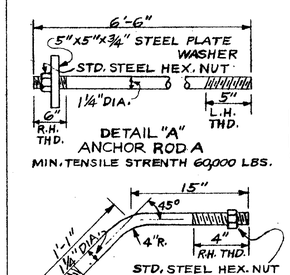
ELEVATION

TYPICAL APPROACH AND TERMINAL SECTIONS

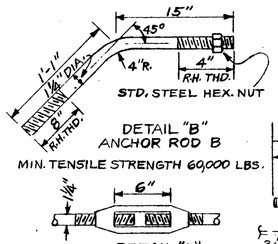


ELEVATION

TYPICAL INTERMEDIATE ANCHORAGE SECTION

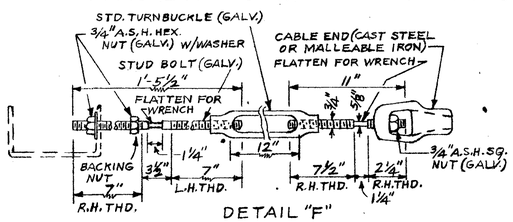


DETAIL "A"
ANCHOR ROD A
MIN. TENSILE STRENTH 60,000 LBS.



DETAIL "B"
ANCHOR ROD B
MIN. TENSILE STRENGTH 60,000 LBS.

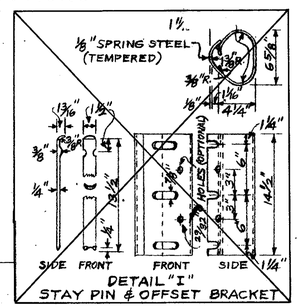
DETAIL "C"
TURNBUCKLE



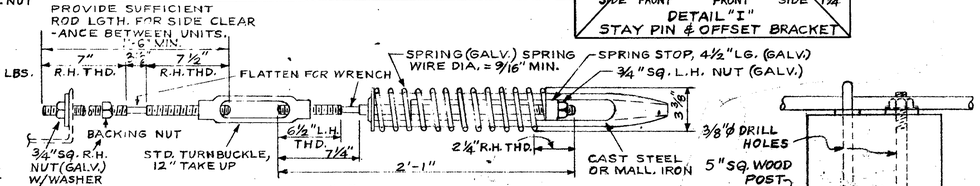
DETAIL "F"

STEEL TURNBUCKLE CABLE END ASSEMBLY

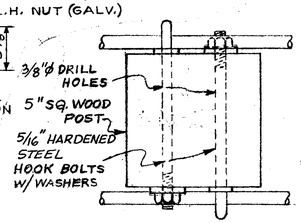
MINIMUM TENSILE STRENGTH 25,000 LBS.



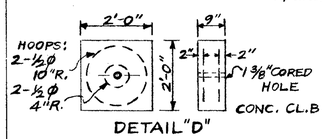
DETAIL "I"
STAY PIN & OFFSET BRACKET



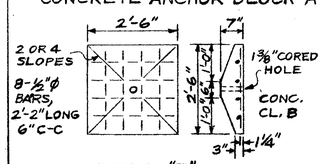
DETAIL "G"
SPRING CABLE END ASSEMBLY
(COMPENSATING DEVICE)



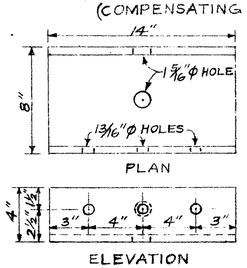
PLAN



DETAIL "D"
CONCRETE ANCHOR BLOCK A

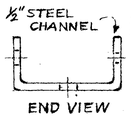


DETAIL "E"
CONCRETE ANCHOR BLOCK B



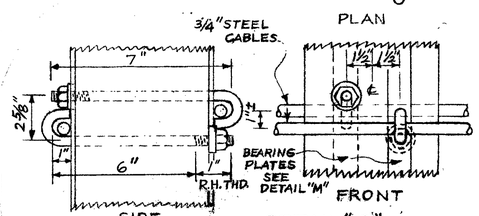
PLAN

ELEVATION

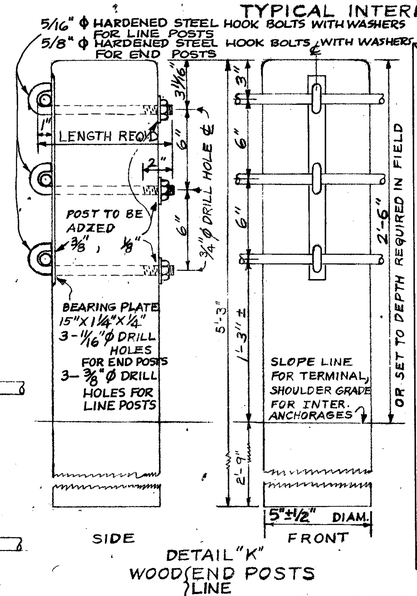


END VIEW

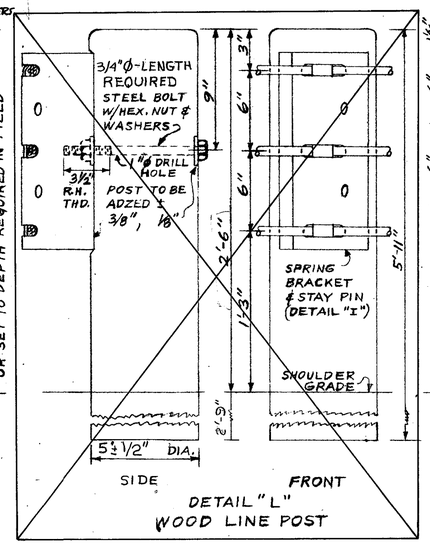
DETAIL "H"
ANCHOR CHANNEL



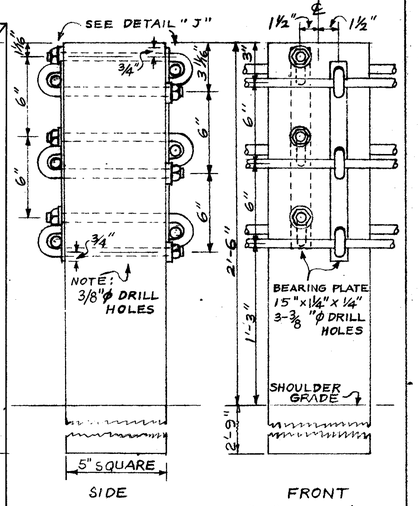
DETAIL "J"
INTERMEDIATE ANCHORAGE
-ADJACENT POSTS TO ℄



DETAIL "K"
WOOD END POSTS
LINE



DETAIL "L"
WOOD LINE POST



DETAIL "M"
INTER. ANCHORAGE –
ADJACENT POST TO ℄ (WOOD)

GENERAL NOTES

1. LENGTH OF CABLE RUNS:
   TO 500' – USE DETAIL "F" ON ONE END & DETAIL "G" ON THE OTHER.
   OVER 500' TO 1000' – USE DETAIL "G" ON EACH END.
   OVER 1000' – SEE "TYPICAL LAYOUT PLAN".
2. FITTINGS: SINGLE 3/4" CABLE ASSEMBLY – MIN. TENSILE STRENGTH = 25,000#.
   THREE 3/4" " " – " " " = 100,000#.
   ALL FITTINGS SHALL BE GALV. – SEE SPECS. BOOK.
3. POST SPACING:
   12'-6" C-C ON TANGENTS AND CURVES WITH RADII GREATER THAN 300'.
   8'-0" C-C FOR CURVES WITH RADII LESS THAN 300'.

NOT TO SCALE

REVISED JAN 9, 1970

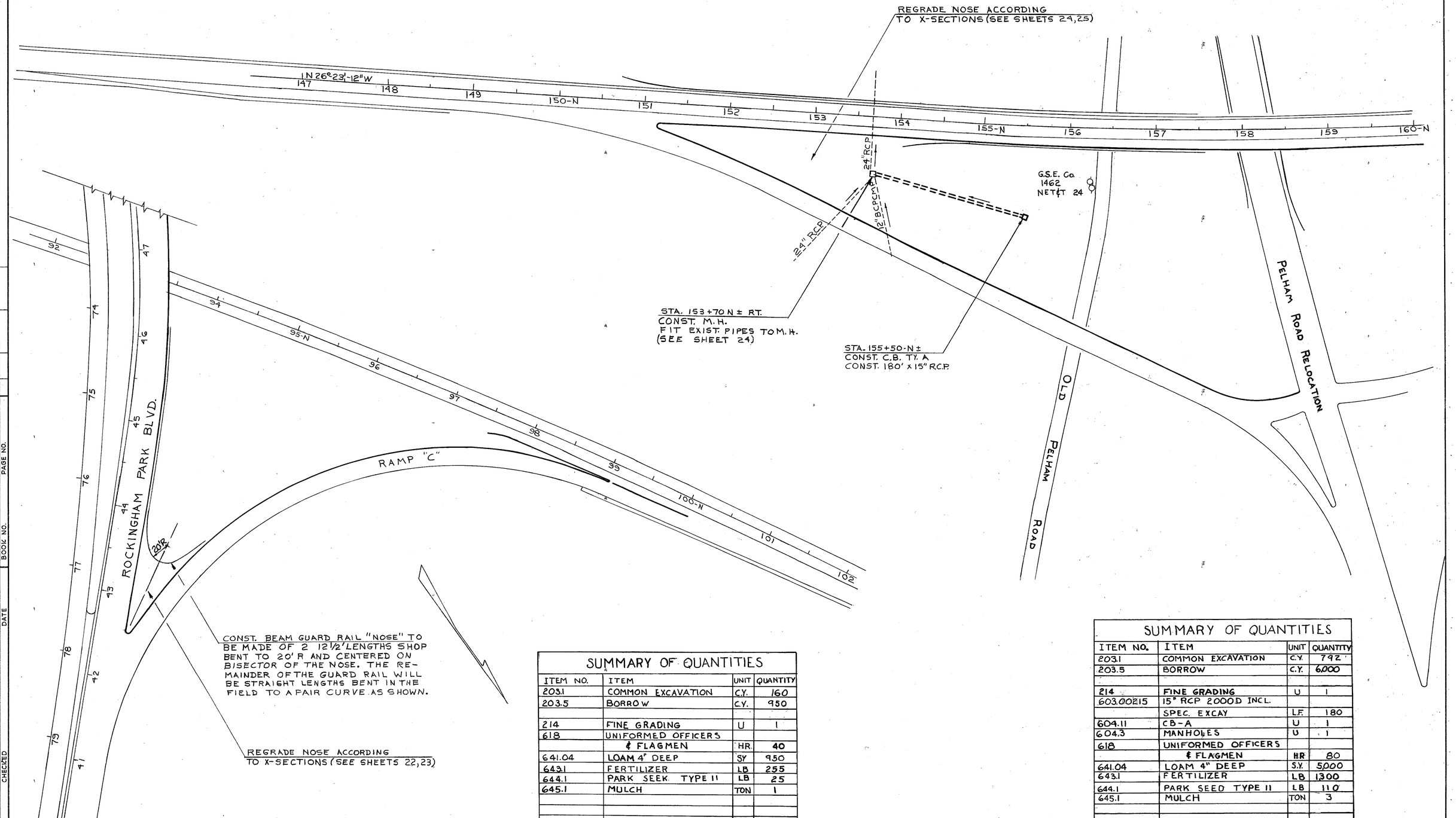
APPROVED: MAR. 1, 1968
R. G. Gunnel
DESIGN ENGINEER

3-CABLE GUARD RAIL WITH WOOD POST
NO. GR-338

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	20	43

E.H.R.

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		



SUMMARY OF QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
203.1	COMMON EXCAVATION	C.Y.	160
203.5	BORROW	C.Y.	950
214	FINE GRADING	U	1
618	UNIFORMED OFFICERS		
	& FLAGMEN	HR.	40
641.04	LOAM 4" DEEP	SY	950
643.1	FERTILIZER	LB	255
644.1	PARK SEEK. TYPE II	LB	25
645.1	MULCH	TON	1

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
203.1	COMMON EXCAVATION	C.Y.	792
203.5	BORROW	C.Y.	6,000
214	FINE GRADING	U	1
603.00215	15" RCP 2000D INCL.		
	SPEC. EXCAV	L.F.	180
604.11	CB-A	U	1
604.3	MANHOLES	U	1
618	UNIFORMED OFFICERS		
	& FLAGMEN	HR	80
641.04	LOAM 4" DEEP	S.Y.	5,000
643.1	FERTILIZER	LB	1,300
644.1	PARK SEED TYPE II	LB	110
645.1	MULCH	TON	3

REVISIONS AFTER PROPOSAL					
NO.	DATE	STATION	STATION	DESCRIPTION	

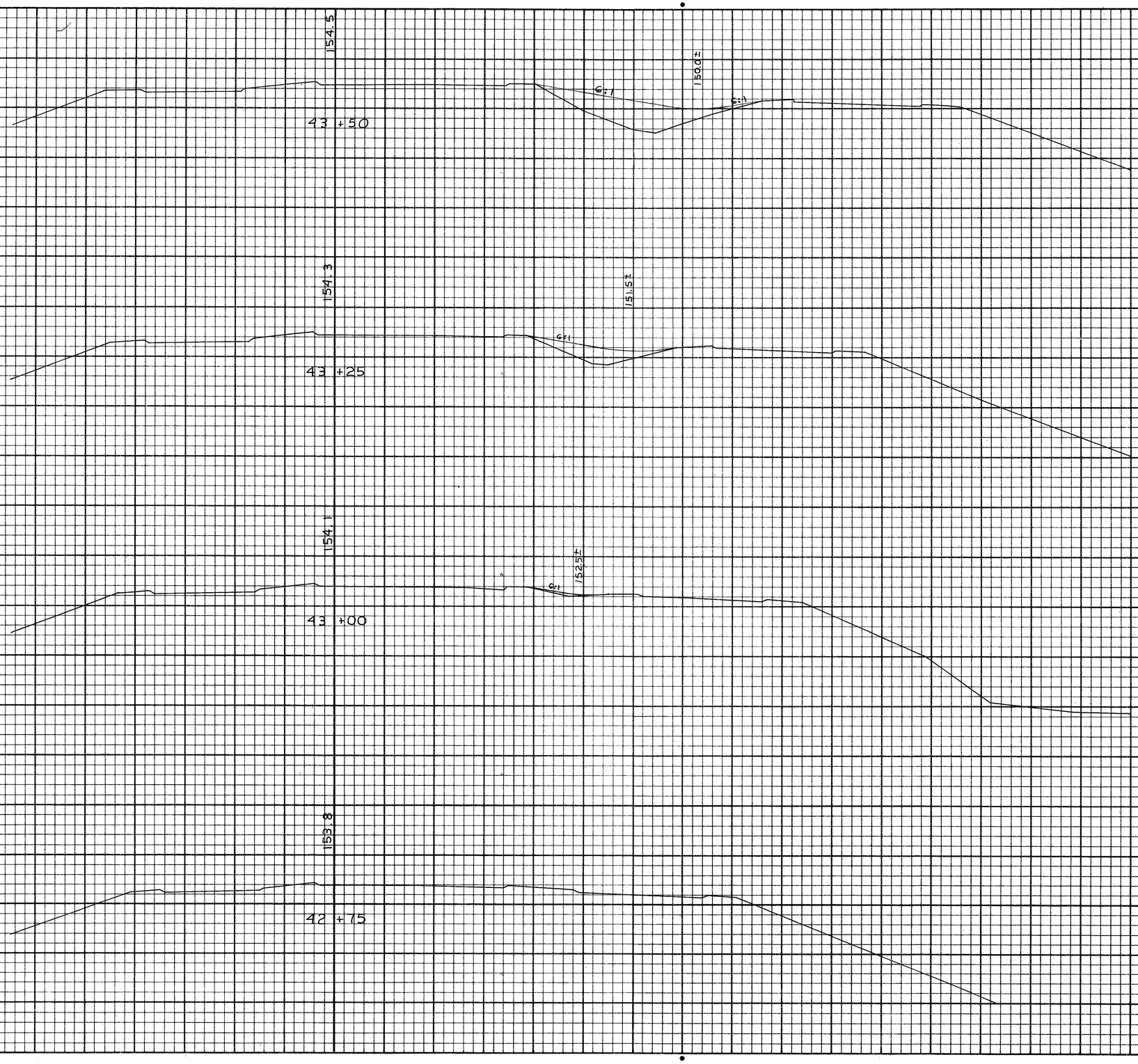
(USE BOTTOM LINES FIRST)

NOTEBOOKS			
BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.
" "	" "	" "	" "

PLAN TRACED L. FINCH	DATE 11 DEC. 67		
PLAN CHECKED	"		
PROFILE TRACED	"		
PROFILE CHECKED	"		
INKED	"		
CHECKED	"	DATE	

1560-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	21	43



SHEET TOTALS

EARTH EXC.	CU. YDS.	
FILL	"	"
LEDGE EXC.	"	"
MUCK	"	"
	"	"

STA. 42+75 - STA. 44+50
CONST. FILL AND GRADE
SLOPES AS SHOWN

ROCKINGHAM PARK BLVD.
ENTRANCE TO I-93 - N.

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	22	43

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)

NO.	DATE	STATION	STATION	DESCRIPTION

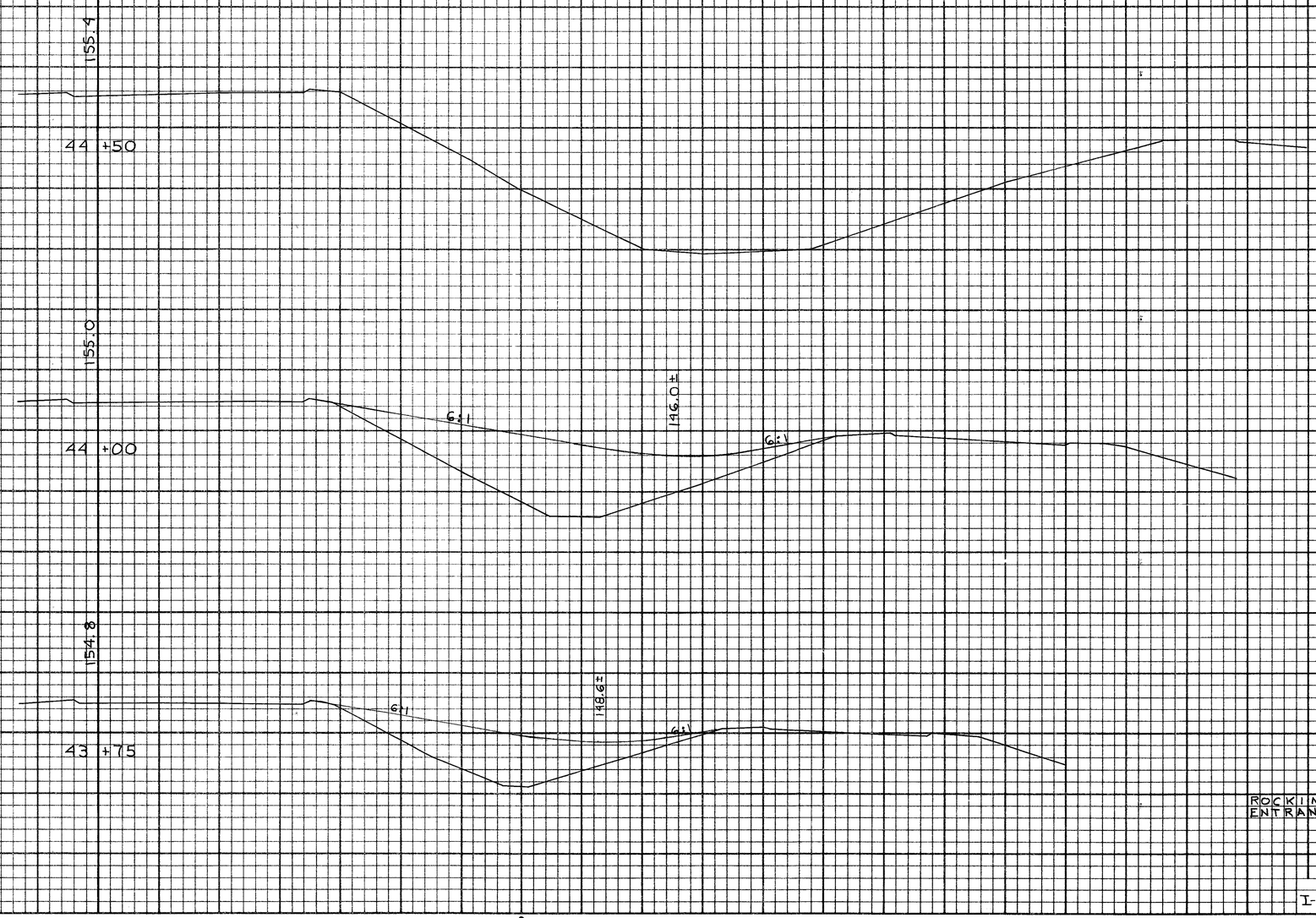
NOTEBOOKS

BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"

		DATE
SECTIONS PLOTTED	Swans	DATE 12-10-69
SECTIONS CHECKED	"	
TEMPLATE PLOTTED	"	
TEMPLATE CHECKED	"	
PLANIMETERED	"	
PLANIM. CHECKED	"	
INKED	"	
CHECKED	"	
SHEET APPROVED		DATE

11/63 198 M Ageproof Vellum

SHEET TOTALS		
EARTH EXC.	CU. YDS.	
FILL	"	"
LEDGE EXC.	"	"
MUCK	"	"
	"	"



REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)

NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS

BOOK NO.	PAGE NO.
"	"
"	"
"	"
"	"
"	"
"	"
"	"
"	"

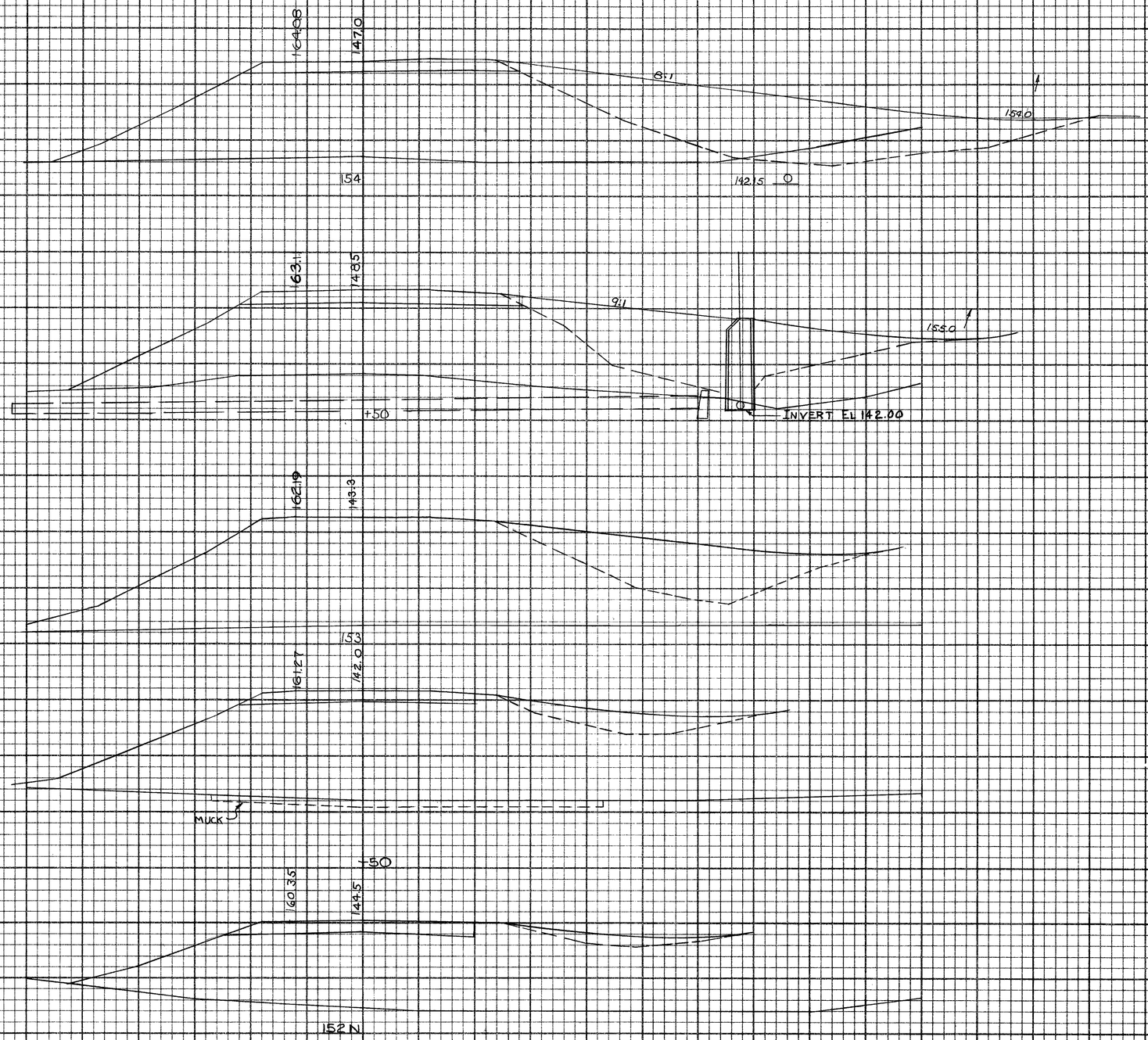
		DATE
SECTIONS PLOTTED	Sweeney	12-10-69
SECTIONS CHECKED		
TEMPLATE PLOTTED		
TEMPLATE CHECKED		
PLANIMETERED		
PLANIM. CHECKED		
INKED		
CHECKED		
SHEET APPROVED		

ROCKINGHAM PARK BLVD
ENTRANCE TO I-93-N

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	23	43

11/63 198 M Ageproof Vellum

SHEET TOTALS	
EARTH EXC.	CU. YDS.
FILL	" "
LEDGE EXC.	" "
MUCK	" "
	" "



STA. 153+70± RT - STA. 155+50 - N RT
CONST. 180' x 15" RCP

STA. 153+70± RT
CONST. M.H.

STA. 151+50 RT - STA. 156+00 - N RT
CONST. FILL AND GRADE SLOPES
AS SHOWN.

I-93 - N EXIT TO
PELHAM ROAD RELOC.

REVISIONS AFTER PROPOSAL
(USE BOTTOM LINES FIRST)

NO.	DATE	STATION	STATION	DESCRIPTION

NOTE BOOKS

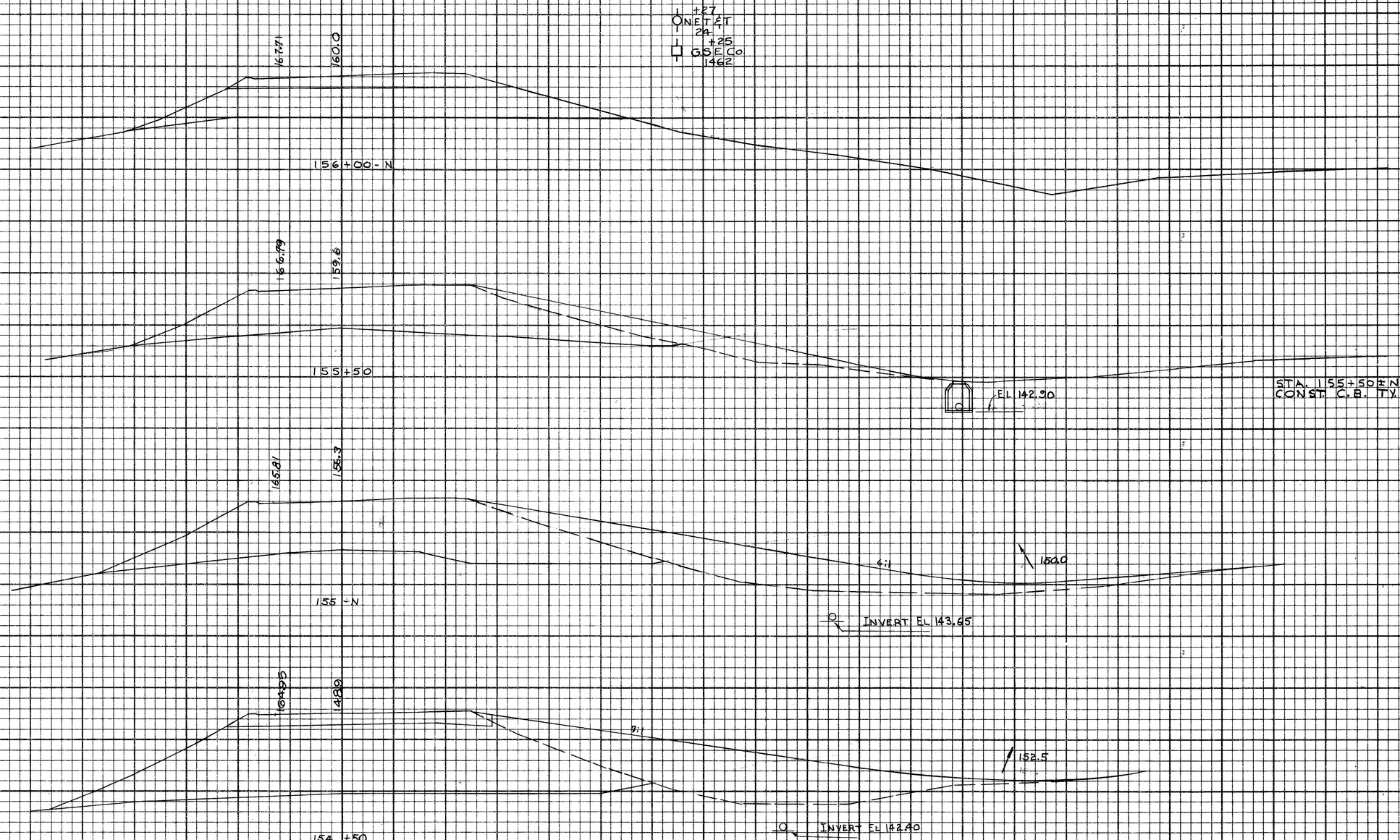
BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"

SECTIONS ~~PLOTTED~~ TRACED L. FINCH DATE 11-13-63
SECTIONS CHECKED " "
TEMPLATE PLOTTED " "
TEMPLATE CHECKED " "
PLANIMETERED " "
PLANIM. CHECKED " "
INKED " "
CHECKED " "
SHEET APPROVED " DATE

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	29	43

11/63 198 M Ageproof Vellum

SHEET TOTALS	
EARTH EXC.	CU. YDS.
FILL	" "
LEDGE EXC.	" "
MUCK	" "
	" "



REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)

NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS

BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"

		DATE
SECTIONS PLOTTED	L. FINCH	11-13-63
SECTIONS CHECKED		"
TEMPLATE PLOTTED		"
TEMPLATE CHECKED		"
PLANIMETERED		"
PLANIM. CHECKED		"
INKED		"
CHECKED		"
SHEET APPROVED		DATE

I-93-N EXIT TO
PELHAM ROAD RELOC.

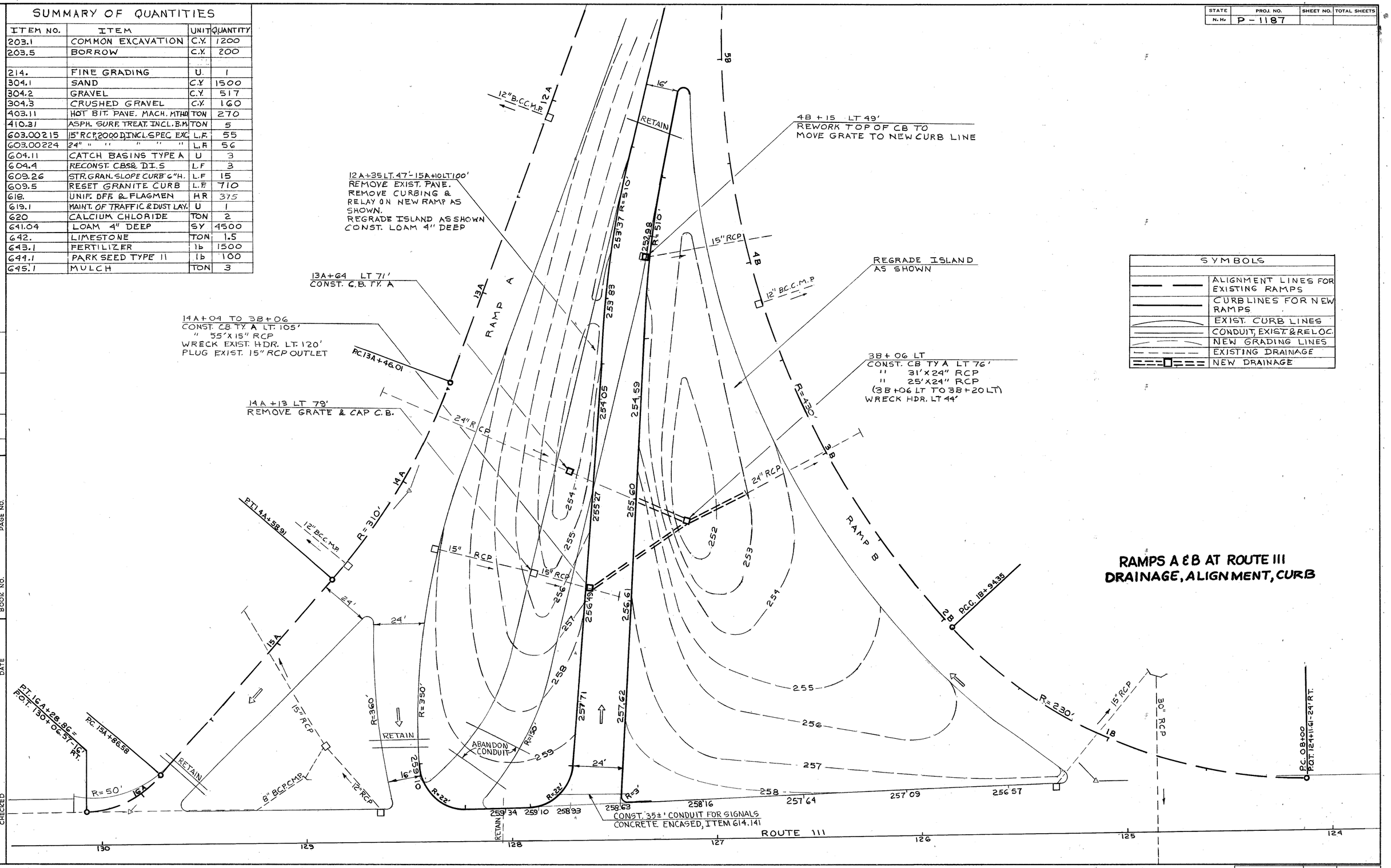
PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	25	43

11/63 198 M Ageproof Vellum

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
203.1	COMMON EXCAVATION	C.Y.	1200
203.5	BORROW	C.Y.	200
214.	FINE GRADING	U.	1
304.1	SAND	C.Y.	1500
304.2	GRAVEL	C.Y.	517
304.3	CRUSHED GRAVEL	C.Y.	160
403.11	HOT BIT. PAVE. MACH. MTHD	TON	270
410.31	ASPH. SURF. TREAT. INCL. B.M.	TON	5
603.00215	15" RCP, 2000D INCL. SPEC. EXC.	L.F.	55
603.00224	24" " " " " "	L.F.	56
604.11	CATCH BASINS TYPE A	U	3
604.4	RECONST. C.B.S & D.I.S	L.F	3
609.26	STR. GRAN. SLOPE CURB 6"H.	L.F	15
609.5	RESET GRANITE CURB	L.F	710
618.	UNIF. OFF. & FLAGMEN	HR	375
619.1	MAINT. OF TRAFFIC & DUST LAY.	U	1
620	CALCIUM CHLORIDE	TON	2
641.04	LOAM 4" DEEP	SY	4500
642.	LIMESTONE	TON	1.5
643.1	FERTILIZER	lb	1500
644.1	PARK SEED TYPE 11	lb	100
645.1	MULCH	TON	3



SYMBOLS

	ALIGNMENT LINES FOR EXISTING RAMPS
	CURB LINES FOR NEW RAMPS
	EXIST. CURB LINES
	CONDUIT, EXIST. & RELOC.
	NEW GRADING LINES
	EXISTING DRAINAGE
	NEW DRAINAGE

RAMPS A & B AT ROUTE 111
DRAINAGE, ALIGNMENT, CURB

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	26	43

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)				
NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS		
BOOK NO.	PAGE NO.	
" "	" "	
" "	" "	
BOOK NO.	PAGE NO.	

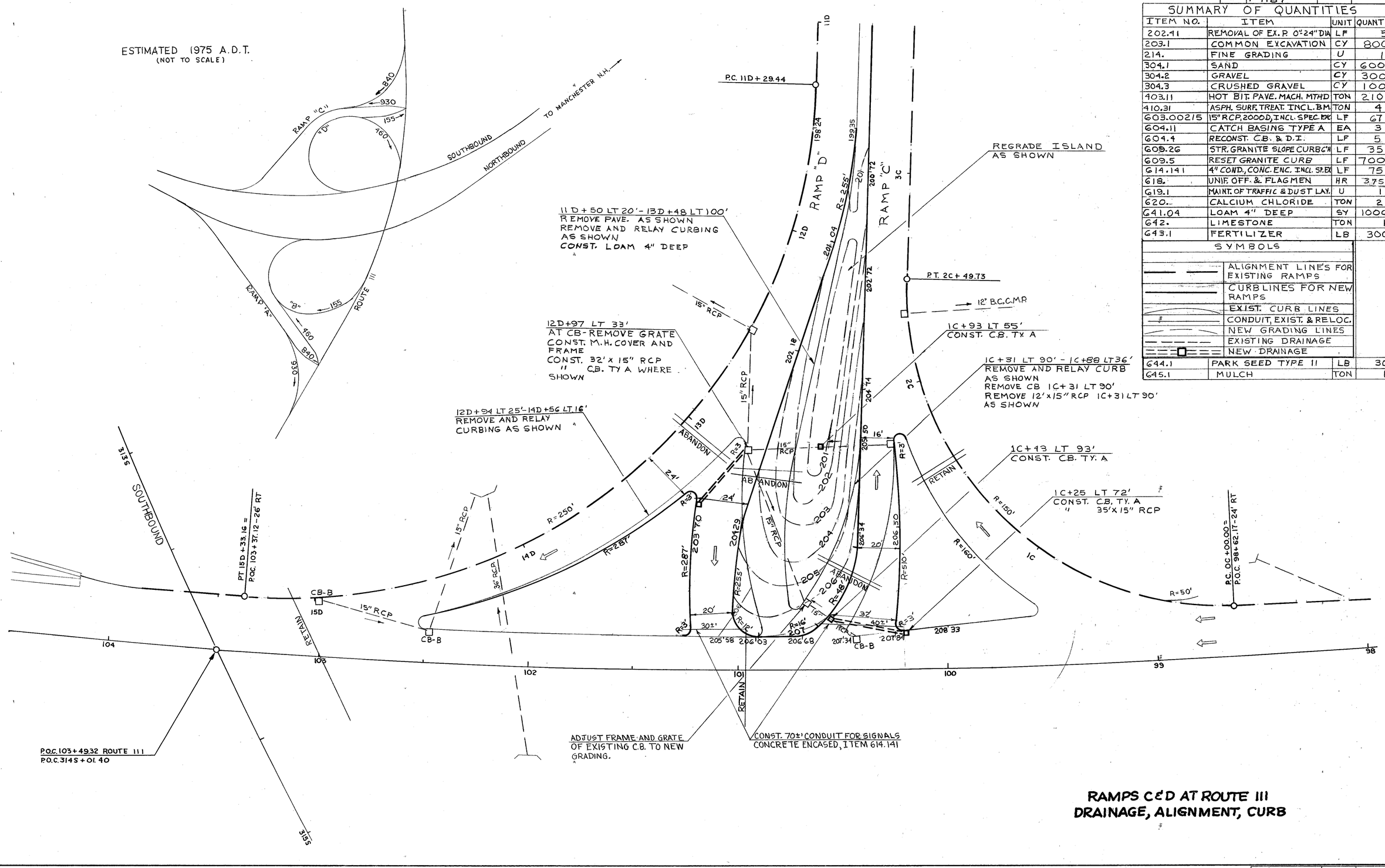
		DATE 11-28-62
PLAN TRACED	Sweeney	
PLAN CHECKED		
PROFILE TRACED		
PROFILE CHECKED		
INKED		
CHECKED		DATE

1500-11-67

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N.H.	P-1187		

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
202.41	REMOVAL OF EX. P. 0"-24" DIA	LF	5
203.1	COMMON EXCAVATION	CY	800
214.	FINE GRADING	U	1
304.1	SAND	CY	600
304.2	GRAVEL	CY	300
304.3	CRUSHED GRAVEL	CY	100
403.11	HOT BIT. PAVE. MACH. MTH'D	TON	210
410.31	ASPH. SURF. TREAT. INCL. BM.	TON	4
603.00215	15" RCP, 2000D, INCL. SPEC. EX.	LF	67
604.11	CATCH BASINS TYPE A	EA	3
604.4	RECONST. C.B. & D.I.	LF	5
609.26	STR. GRANITE SLOPE CURB 6"H	LF	35
609.5	RESET GRANITE CURB	LF	700
614.141	4" COND., CONC. ENC. INCL. SP. EX.	LF	75
618.	UNIF. OFF. & FLAGMEN	HR	3.75
619.1	MAINT. OF TRAFFIC & DUST LAY.	U	1
620.	CALCIUM CHLORIDE	TON	2
641.04	LOAM 4" DEEP	SY	1000
642.	LIMESTONE	TON	1
643.1	FERTILIZER	LB	300
	SYMBOLS		
	ALIGNMENT LINES FOR EXISTING RAMPS		
	CURBLINES FOR NEW RAMPS		
	EXIST. CURB LINES		
	CONDUIT, EXIST. & RELOC.		
	NEW GRADING LINES		
	EXISTING DRAINAGE		
	NEW DRAINAGE		
644.1	PARK SEED TYPE II	LB	30
645.1	MULCH	TON	1



RAMPS C & D AT ROUTE 111
DRAINAGE, ALIGNMENT, CURB

PLAN TRACED	Sweeney		
PLAN CHECKED			
PROFILE TRACED			
PROFILE CHECKED			
INKED			
CHECKED			

(USE BOTTOM LINES FIRST)

NO.	DATE	STATION	STATION	DESCRIPTION

REVISIONS AFTER PROPOSAL

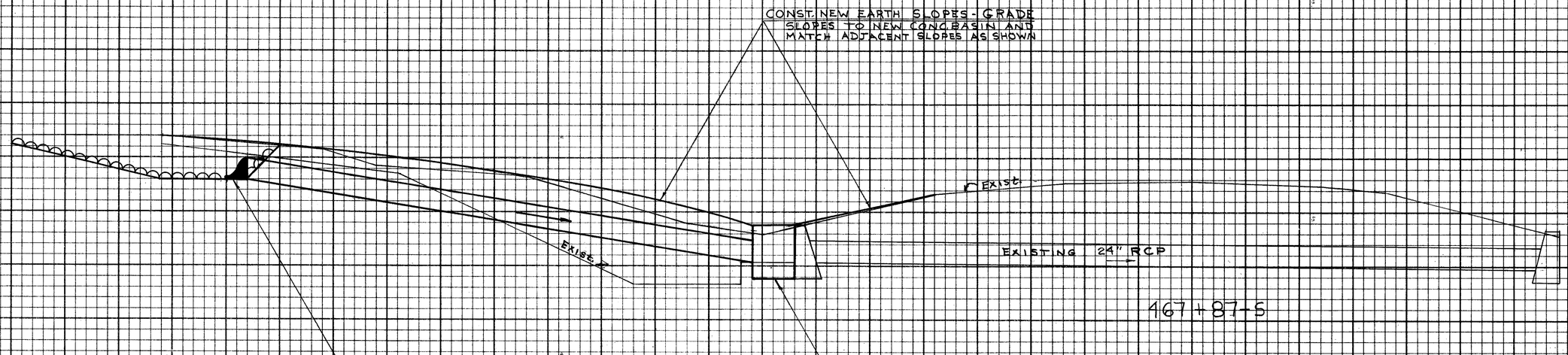
NOTEBOOKS			
BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.

DATE	
11-28-69	

1500-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	27	43

SHEET TOTALS		
EARTH EXC.		CU. YDS.
FILL		" "
LEDGE EXC.		" "
MUCK		" "
		" "



SUMMARY OF QUANTITIES

ITEM NO.	ITEM	UN	QUAN.
201.1	CLEARING & GRUBB. A.		0.10
203.1	COMMON EXCAV.	CY	170
203.5	BORROW	CY	250
214.	FINE GRADING	U	1
585.1	STONE FILL CL. A	CY	30
603.0742424	24" BCCSP 14GA. INCL. SFELF		48
603.3302 4	END SECT. FOR 24" BCCSP	EA	1
604.19	SPECIAL C. B. 15	EA	1
618.	UNIF. OFF. & FLAGMEN	HR	60
6442	SLOPE SEED TY. 2	LB	5
645.1	MULCH		1
647.1	HUMUS	CY	15

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I93-1(90)0	28	43

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)

NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS

BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"

~~SECTIONS PLOTTED~~ TRACED BY: Sweeney DATE 12-9-69

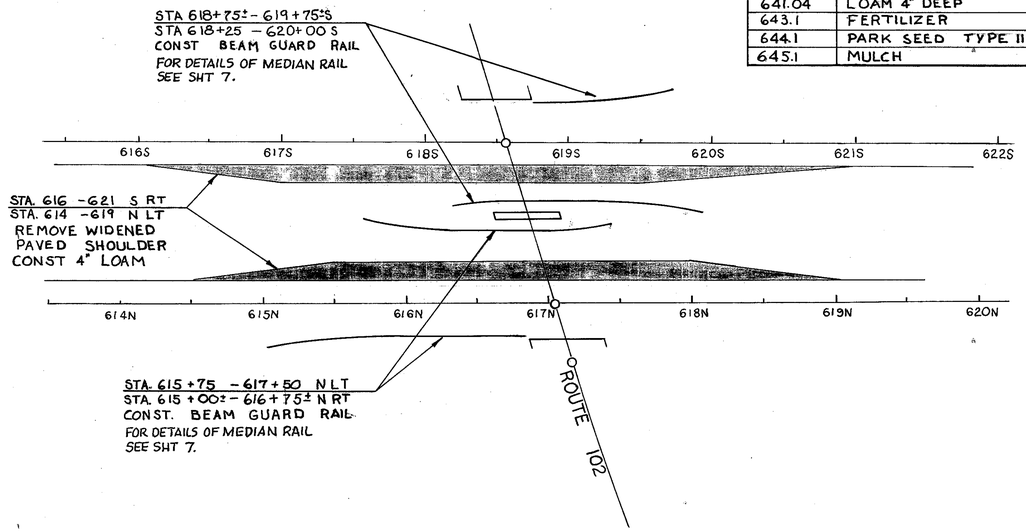
		DATE
SECTIONS CHECKED	"	
TEMPLATE PLOTTED	"	
TEMPLATE CHECKED	"	
PLANIMETERED	"	
PLANIM. CHECKED	"	
INKED	"	
CHECKED	"	
SHEET APPROVED		

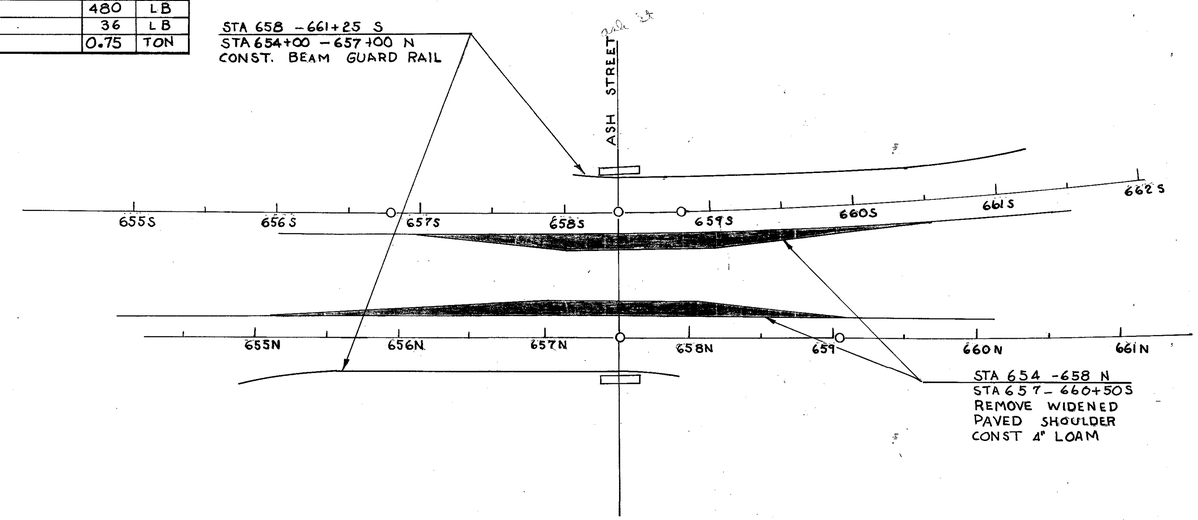
11/63 198 M Ageproof Vellum

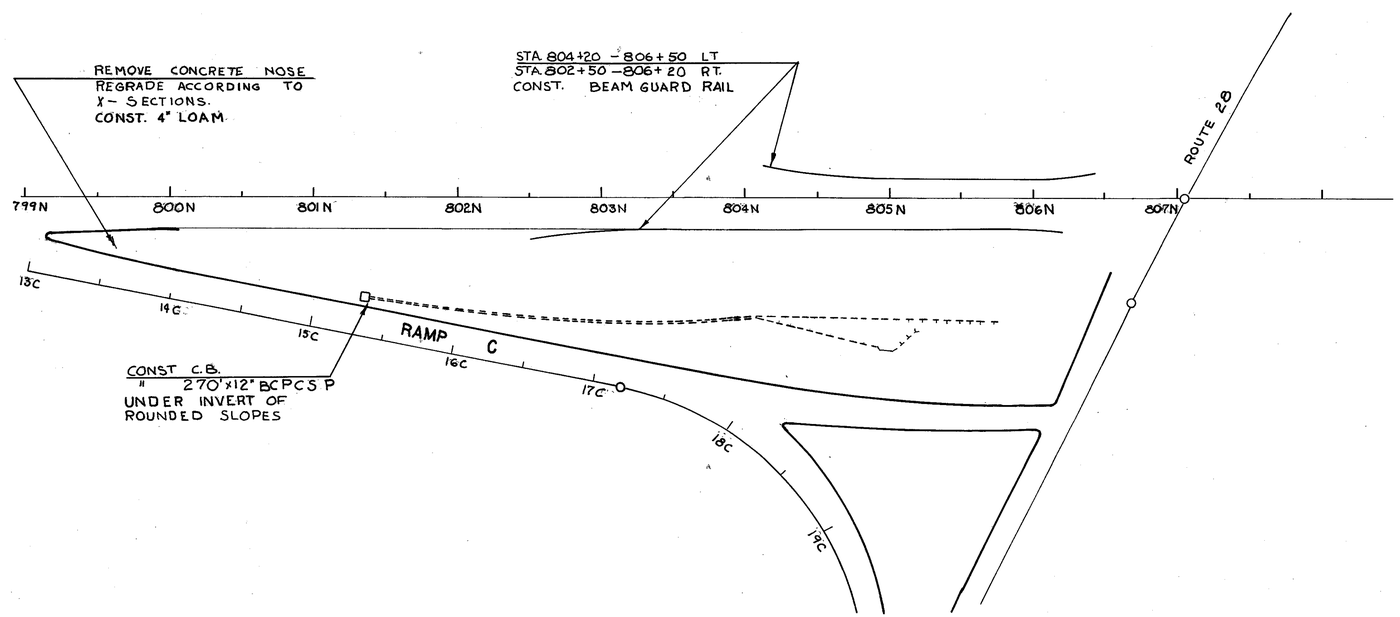
STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.	I-93-1(90)0		

ROUTE 102 & ASH STREET

ITEM NO.	DESCRIPTION	QUANT.	UNIT
203.1	COMMON EXCAVATION	178	C.Y.
618	UNIFORMED OFFICERS & FLAGMEN	192	HR.
641.04	LOAM 4" DEEP	1,700	S.Y.
643.1	FERTILIZER	480	LB
644.1	PARK SEED TYPE II	36	LB
645.1	MULCH	0.75	TON







NOSE AT ROUTE 28

ITEM NO.	DESCRIPTION	QUANT.	UNIT
203.5	BORROW	4000	CY
214.11	FINE GRADING	500	L.F.
604.11	CB-A	1	UNITE
605.212	12"- BCPCSP	270	L.F.
618	UNIFORMED OFFICER	48	HR
641.04	LOAM 4" DEEP	2,500	SY
643.1	FERTILIZER	675	LB
644.1	PARK SEED TYPE II	60	LB
645.1	MULCH	1.60	TON

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	29	43

(USE BOTTOM LINES FIRST)

REVISIONS AFTER PROPOSAL

NO.	DATE	STATION	STATION	DESCRIPTION
1				

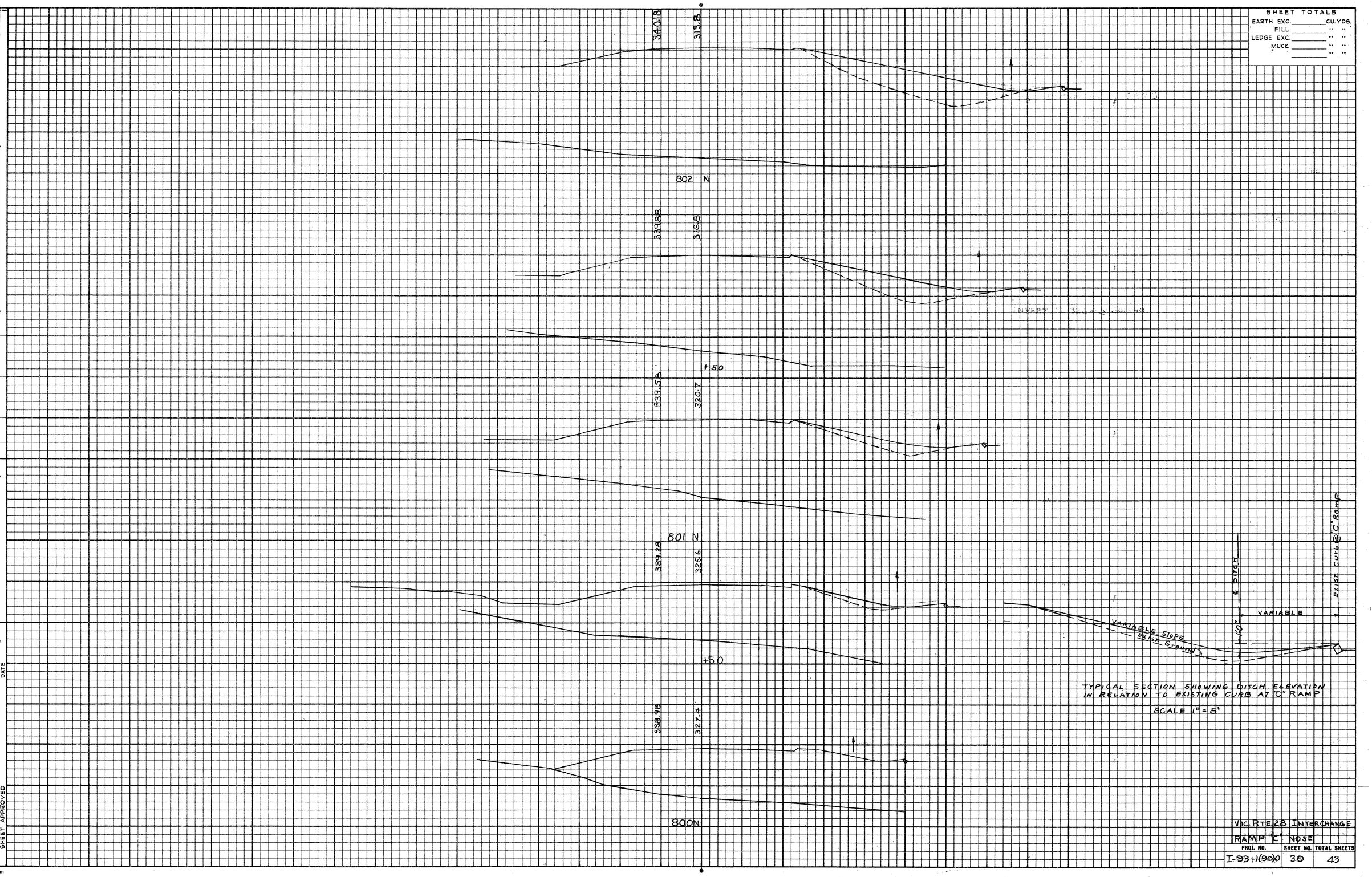
NOTEBOOKS

BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.
"	"	"	"
"	"	"	"

		DATE
PLAN TRACED	L.FINCH	12-15-69
PLAN CHECKED		"
PROFILE TRACED		"
PROFILE CHECKED		"
INKED		"
CHECKED		

1500-11-67

SHEET TOTALS	
EARTH EXC.	CU. YDS.
FILL	" "
LEDGE EXC.	" "
MUCK	" "
	" "



TYPICAL SECTION SHOWING DITCH ELEVATION IN RELATION TO EXISTING CURB AT "C" RAMP

SCALE 1" = 5'

VIC. RTE 28 INTERCHANGE

RAMP "C" NOSE

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93+(90)0	30	43

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)

NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS

BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.
" "	" "	" "	" "
" "	" "	" "	" "
" "	" "	" "	" "

	DATE
SECTIONS PLOTTED	"
SECTIONS CHECKED	"
TEMPLATE PLOTTED	"
TEMPLATE CHECKED	"
PLANIMETERED	"
PLANIM. CHECKED	"
INKED	"
CHECKED	"
SHEET APPROVED	"

11/63 198 M Ageproof Vellum

SHEET TOTALS	
EARTH EXC.	CU. YDS.
FILL	" "
LEDGE EXC.	" "
MUCK	" "
	" "

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)

NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS

	BOOK NO.	PAGE NO.
	" "	" "
	" "	" "
	" "	" "
	" "	" "
	" "	" "

	DATE
SECTIONS PLOTTED	"
SECTIONS CHECKED	"
TEMPLATE PLOTTED	"
TEMPLATE CHECKED	"
PLANIMETERED	"
PLANIM. CHECKED	"
INKED	"
CHECKED	"
SHEET APPROVED	DATE

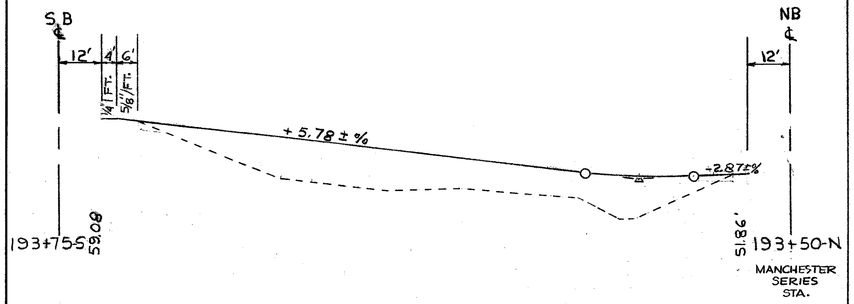
VIC. RTE 23 INTERCHANGE

RAMP "C" NOSE

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	31	43

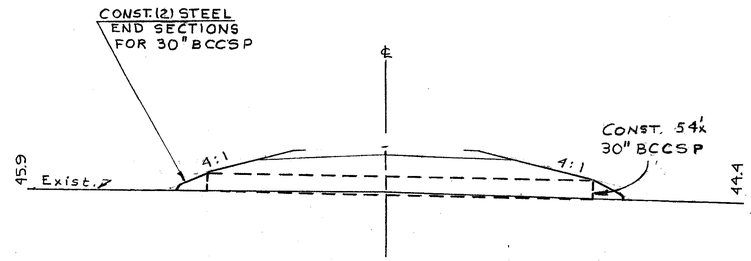
11/63 198 M Ageproof Vellum

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N.H.	P-1187		



PROFILE

SCALE: 1" = 20' HOR.
1" = 10' VERT.

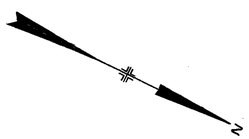


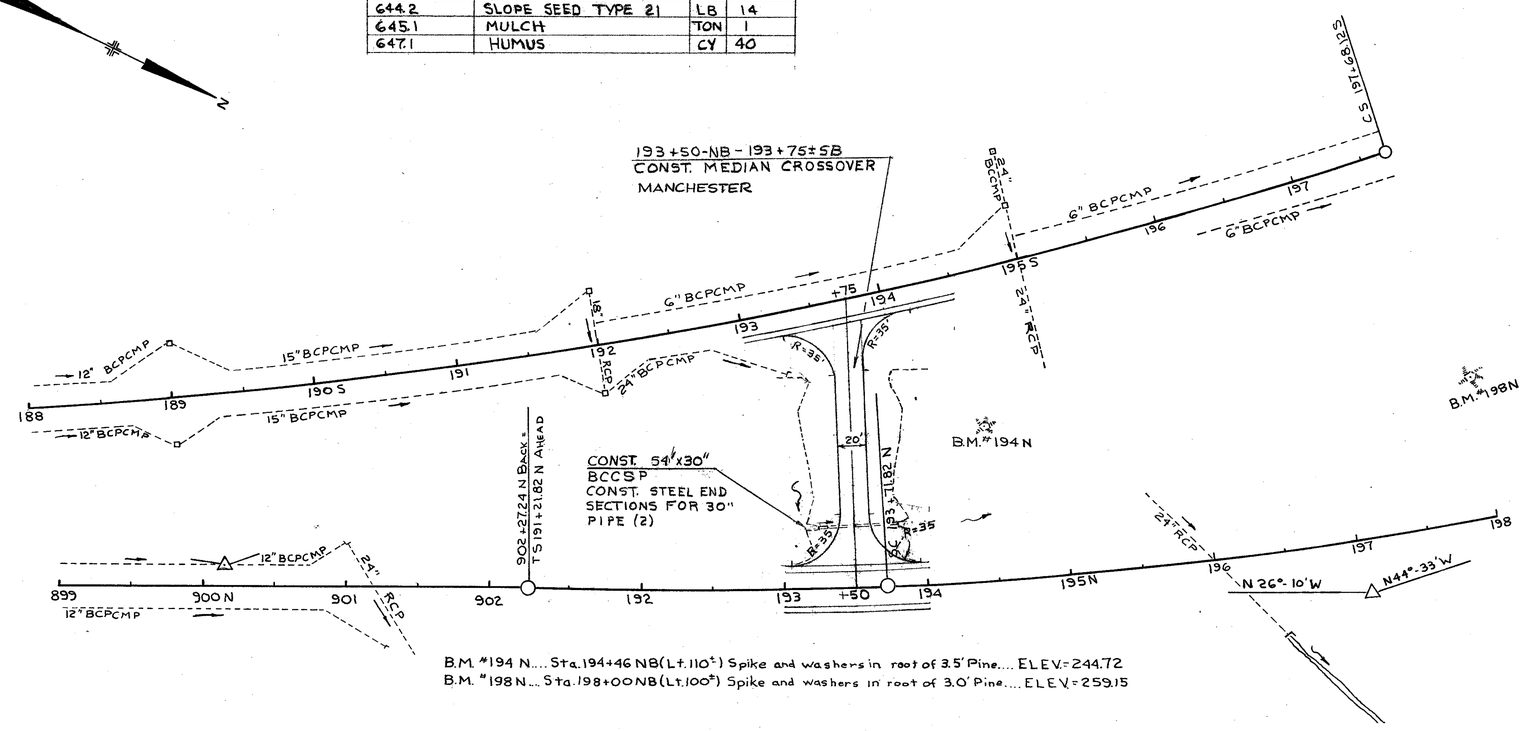
CROSS SECTION AT PIPE

SCALE: 1" = 10' HOR.
1" = 10' VERT.

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
201.1	CLEARING & GRUBBING	ACRES	0.10
203.1	COMMON EXCAVATION	CY	17
203.5	BORROW	CY	653
214	FINE GRADING	U	1
304.3	CRUSHED GRAVEL	CY.	177
603.07430	30" B.C.C. STEEL PIPE.		
	14 GA. INCL. SPEC. EXCAV.	LF.	54
603.33030	B.C.C. STEEL END SECT.		
	FOR 30" BCC. STEEL PIPE	U	2
618	UNIFORMED OFFICERS		
	& FLAGMEN	M.HR	40
644.2	SLOPE SEED TYPE 21	LB	14
645.1	MULCH	TON	1
647.1	HUMUS	CY	40





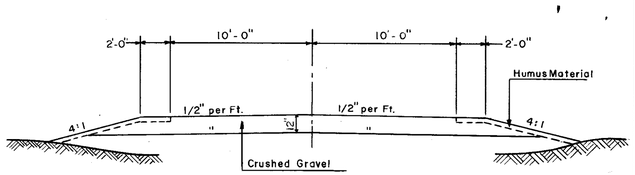
B.M. #194 N.... Sta. 194+46 NB (Lt. 110±) Spike and washers in root of 3.5' Pine.... ELEV. = 244.72
B.M. #198 N.... Sta. 198+00 NB (Lt. 100±) Spike and washers in root of 3.0' Pine.... ELEV. = 259.15

STANDARD SHEETS

STANDARD NO. 3	REVISED	AUGUST 1, 1969
STANDARD NO. 3-A	REVISED	AUGUST 1, 1969
STANDARD NO. 4	REVISED	AUGUST 1, 1969
STANDARD NO. 5	REVISED	AUGUST 1, 1969
STANDARD NO. 10	REVISED	AUGUST 1, 1969
STANDARD NO. 11	REVISED	AUGUST 1, 1969
STANDARD NO. 13	REVISED	AUGUST 1, 1969

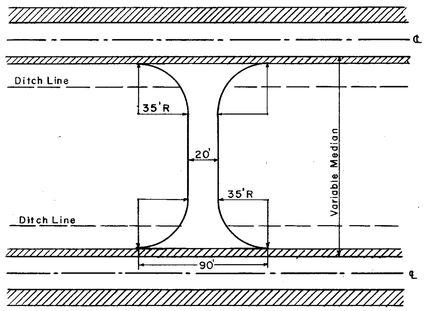
CONSTRUCTION SIGN STANDARDS

STANDARD NO. CS-1	REVISED	APRIL 5, 1963
STANDARD NO. CS-2	NEW SHEET	JUNE 1, 1962
STANDARD NO. CS-3	REVISED (NOTE ADDED)	JANUARY 23, 1967
STANDARD NO. CS-4	REVISED	OCTOBER 25, 1962



VIEW OF TYPICAL CROSS SECTION

MEDIAN CROSSOVER



PLAN VIEW

REVISIONS AFTER PROPOSAL			
NO.	DATE	STATION	STATION

NOTEBOOKS

BOOK NO.	PAGE NO.

BOOK NO.	PAGE NO.

(USE BOTTOM LINES FIRST)

DESCRIPTION

		DATE
PLAN TRACED	Sweeney	12-8-69
PLAN CHECKED		
PROFILE TRACED		
PROFILE CHECKED		
INKED		
CHECKED		

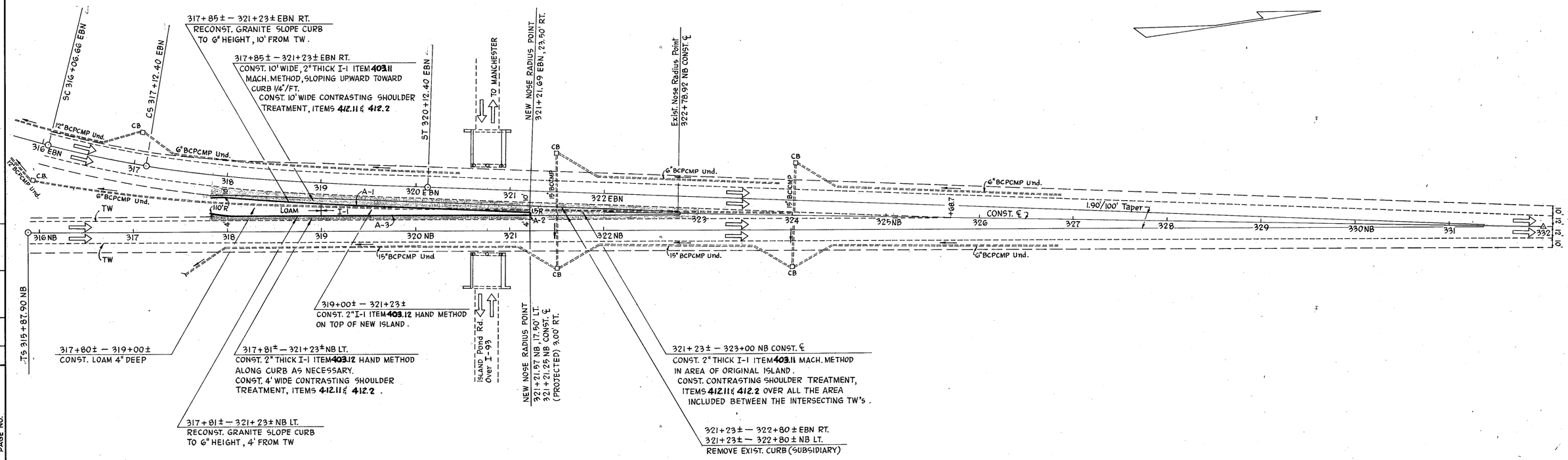
1500 1-66

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	32	43

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N.H.	P-1187		

INTERSTATE 93 UNDER ISLAND POND RD., MANCHESTER

RELOCATION OF NOSE AT NB & EBN JUNCTION



NOTES:

1) ALL EXISTING DRAINAGE TO BE RETAINED.

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
203.1	COMMON EXCAVATION	C.Y.	334
214.	FINE GRADING	U	1
304.1	SAND	C.Y.	102
304.2	GRAVEL	C.Y.	102
304.3	CRUSHED GRAVEL	C.Y.	122
403.11	HOT BIT. PAVE. (MACH. MTHD)	TON	71
403.12	HOT BIT. PAVE. (HAND MTHD)	TON	39
410.31	ASPH. SURF. TREAT. INCL. B.M.	TON	4
412.11	ASPH. CUTBACK FOR CON. SH. T.	TON	1
412.2	GRITS FOR CONTR. SH. DR. TR.	TON	6
609.5	RESET GRANITE CURB	L.F.	345
618.	UNIF. OFF. & FLAGMEN	HR.	120
619.1	MAINT. OF TRAFFIC & DUST LAY	U	1
620.	CALCIUM CHLORIDE	TON	2
641.04	LOAM 4" DEEP	S.Y.	220
642.	LIMESTONE	TON	0.1
643.1	FERTILIZER	LB.	60
644.1	PARK SEED TYPE II	LB.	23
645.1	MULCH	TON	0.15

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	33	43

(USE BOTTOM LINES FIRST)

REVISIONS AFTER PROPOSAL				
NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS			
BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"

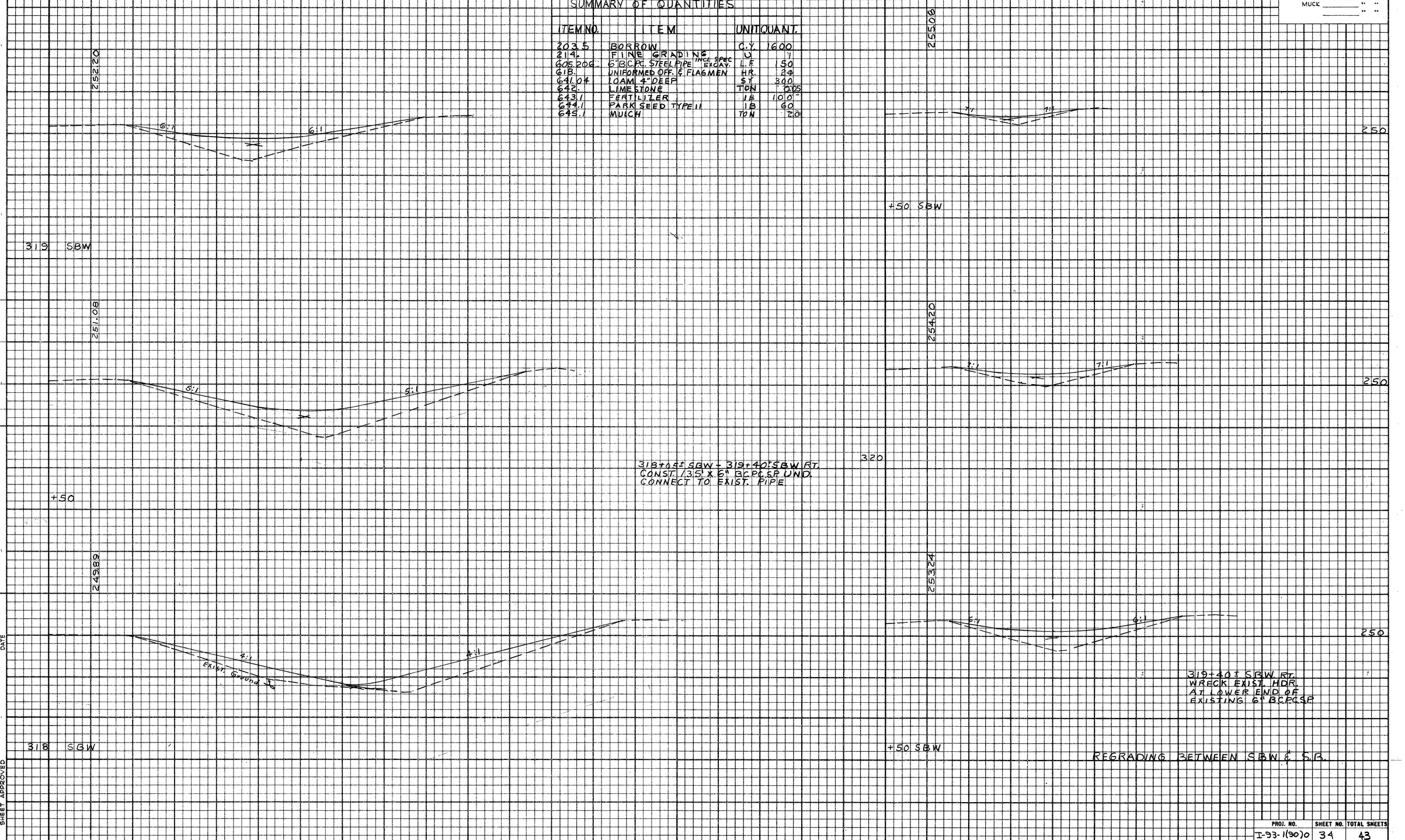
PLAN TRACED	TOSCO	DATE JAN. 30-69	
PLAN CHECKED	BORDEN	" FEB. 69	
PROFILE TRACED		"	
PROFILE CHECKED		"	
INKED		"	
CHECKED		DATE	

500 8-67

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	UNIT	QUANT.
203.5	BORROW	C.Y.	1600
214.	FINE GRADING	U	1
605.206	6" B.C.P.C. STEEL PIPE INCL. SPEC EXCAV.	L.F.	150
618.	UNIFORMED OFF. & FLAGMEN	HR.	24
641.04	LOAM 4" DEEP	S.Y.	300
642.	LIMESTONE	TON	0.05
643.1	FERTILIZER	LB	100
644.1	PARK SEED TYPE II	LB	60
645.1	MULCH	TON	2.0

SHEET TOTALS
EARTH EXC. _____ CU. YDS.
FILL _____ " "
LEDGE EXC. _____ " "
MUCK _____ " "
_____ " "



PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	34	43

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)

NO.	DATE	STATION	STATION	DESCRIPTION

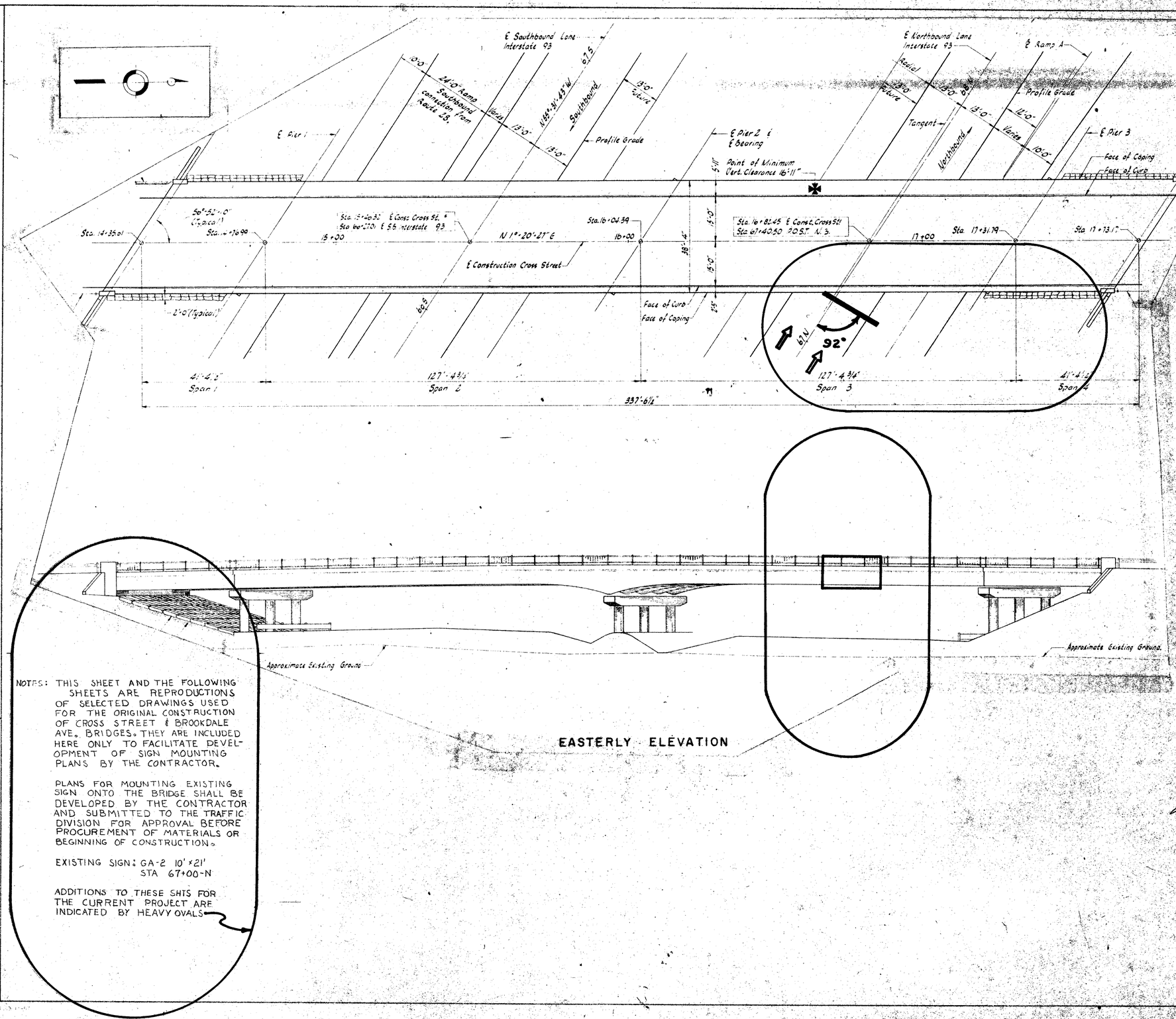
NOTEBOOKS

BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"

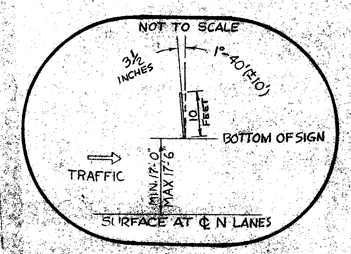
		DATE
SECTIONS PLOTTED	R. WINN	DATE 12-16-69
SECTIONS CHECKED	"	"
TEMPLATE PLOTTED	"	"
TEMPLATE CHECKED	"	"
PLANIMETERED	"	"
PLANIM. CHECKED	"	"
INKED	"	"
CHECKED	"	"
SHEET APPROVED		DATE

11/63 198 M Ageproof Vellum

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.			



EASTERLY ELEVATION



NOTES: THIS SHEET AND THE FOLLOWING SHEETS ARE REPRODUCTIONS OF SELECTED DRAWINGS USED FOR THE ORIGINAL CONSTRUCTION OF CROSS STREET & BROOKDALE AVE. BRIDGES. THEY ARE INCLUDED HERE ONLY TO FACILITATE DEVELOPMENT OF SIGN MOUNTING PLANS BY THE CONTRACTOR.

PLANS FOR MOUNTING EXISTING SIGN ONTO THE BRIDGE SHALL BE DEVELOPED BY THE CONTRACTOR AND SUBMITTED TO THE TRAFFIC DIVISION FOR APPROVAL BEFORE PROCUREMENT OF MATERIALS OR BEGINNING OF CONSTRUCTION.

EXISTING SIGN: GA-2 10' × 21'
STA 67+00-N

ADDITIONS TO THESE SHTS FOR THE CURRENT PROJECT ARE INDICATED BY HEAVY OVALS

SHEETS 32 THRU 38 WORK TRANSFERRED FROM P-1187 TO P-1187A BROWN LINED (ORIGINALS) ARE WITH P-1187A.

CROSS STREET BRIDGE

SALEM-MANCHESTER I-93-1(970) P-1187-A
[redacted] 1971

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	35	43

(USE BOTTOM LINES FIRST)

REVISIONS AFTER PROPOSAL			
NO.	DATE	STATION	STATION

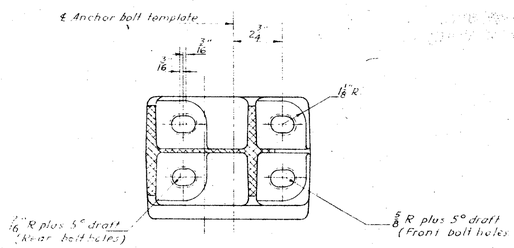
NOTEBOOKS		
BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.

PLAN TRACED	L. FINCH	DATE DEC. 17, 1969	DESCRIPTION
PLAN CHECKED			
PROFILE TRACED			
PROFILE CHECKED			
INKED		DATE	
CHECKED			

FED. ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	N.H.	P-1187			

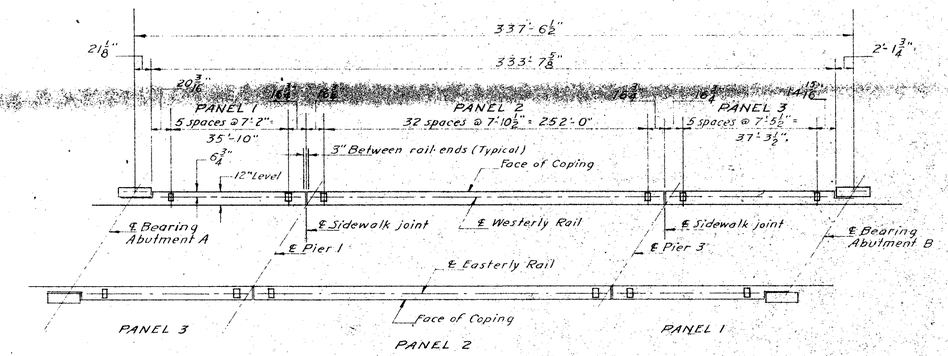
SALEM-MANCHESTER I-93-1(90)0 P-1187

DEC 10 '69



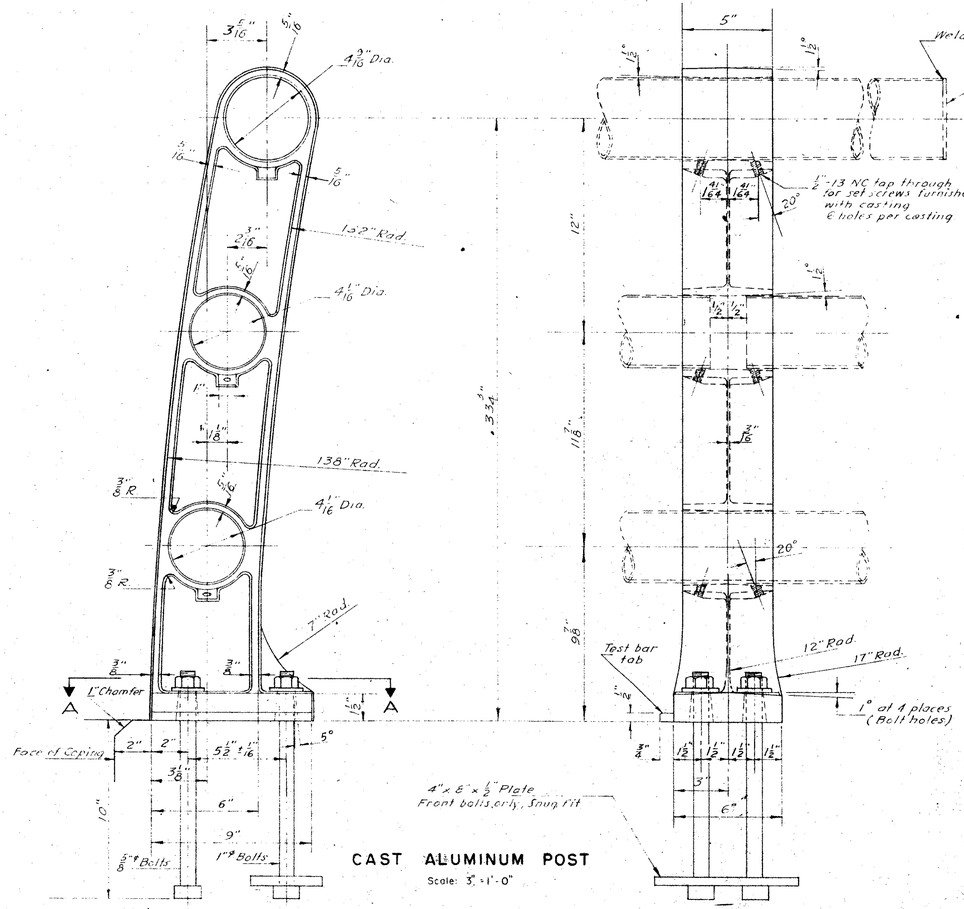
SECTION A-A

Scale. 3" = 1'-0"



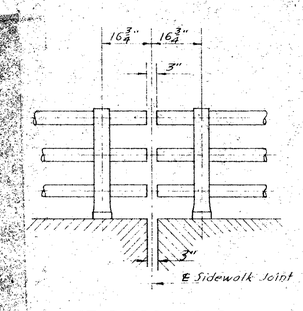
PLAN RAILING POST SPACING

NOT TO SCALE



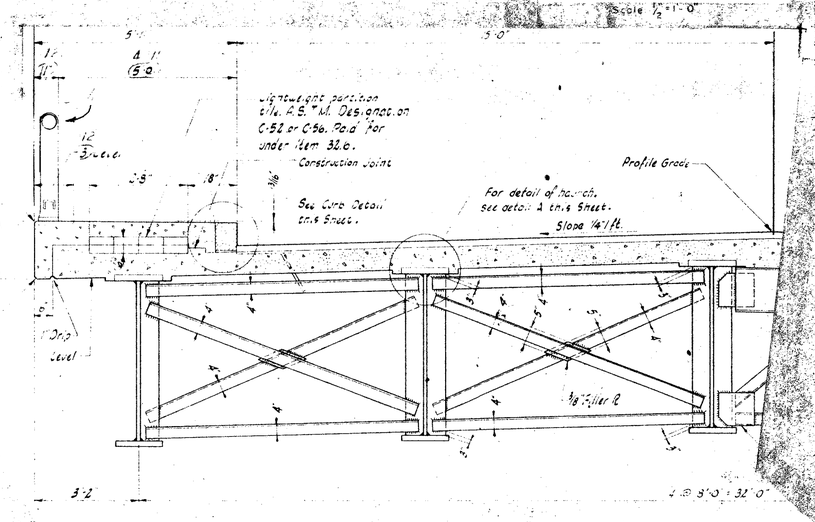
CAST ALUMINUM POST

Scale: 3" = 1'-0"



AT PIERS 1 & 3

Scale 1/2" = 1'-0"



HALF SECTION AT MIDSPAN

△ Note: Type GR Railing ~~changed~~ See Detail At Left

All Ls to be 4" x 3" x 1/8" welded as shown.

All welds as shown to be 5/16" fillets

NOTES

1. All railing posts shall be normal to finish grade.
2. All aluminum to be placed in contact with concrete surfaces shall be throughly coated with an approved aluminum impregnated caulking compound.
3. Anchor bolts to be set in concrete by means of templates. Anchor bolts to be 1" ⌀ in front and 5/8" ⌀ in rear, made of galvanized steel. Cost to be included in Item 44.
4. All railings to be fabricated and erected so that the railings are parallel to each other and top of coping.
5. For additional notes see Special Provisions.
6. Rails to be continuous for three panels. Joints to be staggered. One joint per post.

SEE SHEET 35

SALEM-MANCHESTER I-93-1(87)0 P-1187-A

JAN 5 1971

CROSS STREET BRIDGE

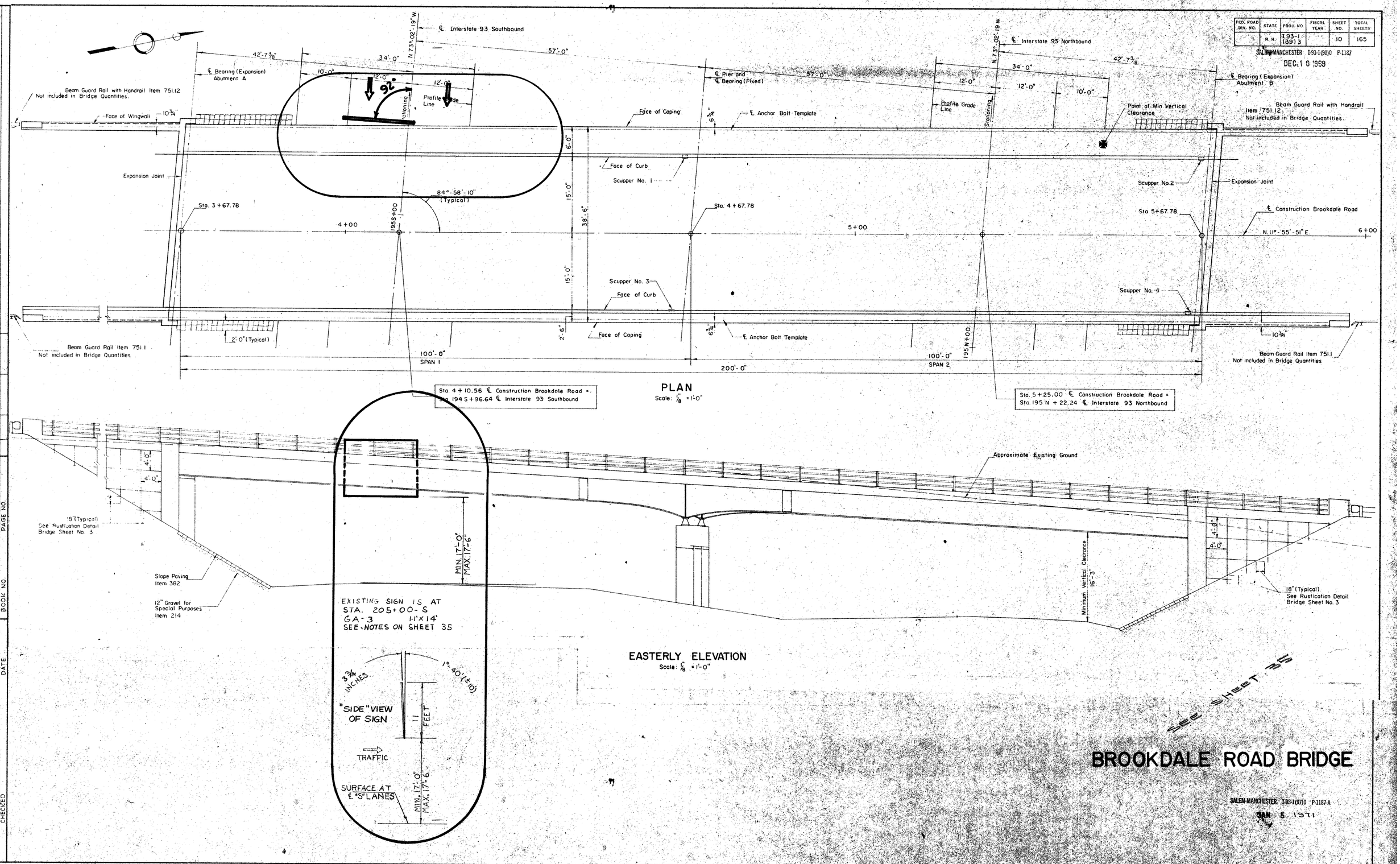
TYPICAL CROSS SECTIONS SPAN 2 OR 3

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	36	43

FED. ROAD DIV. NO.	STATE	PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	N. H.	I-93-1 (3913)		10	165

SALEM-MANCHESTER I-93-1(90)0 P-1187

DEC 1 0 1969



BROOKDALE ROAD BRIDGE

SALEM-MANCHESTER I-93-1(97)0 P-1187-A

JAN 5 1971

NOTEBOOKS			
BOOK NO.	PAGE NO.	BOOK NO.	PAGE NO.
"	"	"	"
"	"	"	"

REVISIONS AFTER PROPOSAL			
NO.	DATE	STATION	STATION

(USE BOTTOM LINES FIRST)

PLAN TRACED	L. FINCH	DATE 18 DEC. 1969	DESCRIPTION
PLAN CHECKED	"	"	
PROFILE TRACED	"	"	
PROFILE CHECKED	"	"	
INKED		"	
CHECKED		DATE	

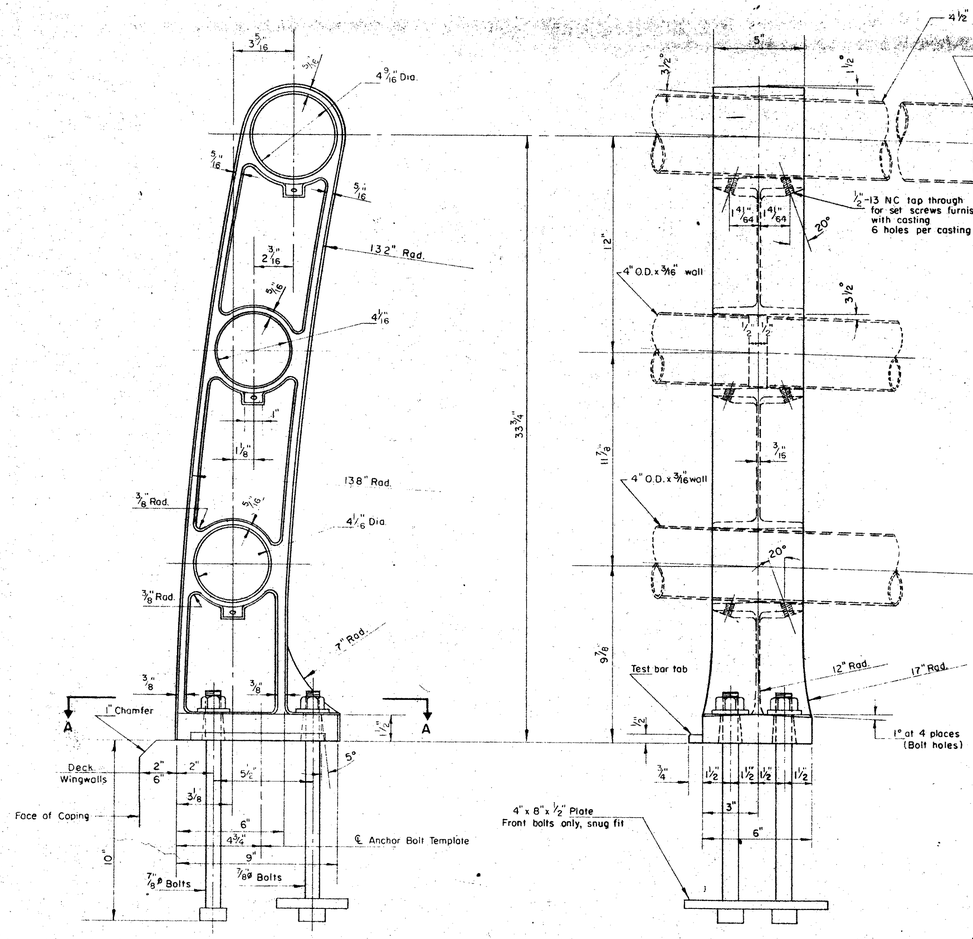
1560-11-67

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	37	43

FED. ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	N. H.	I 93-1(39)3		22	165

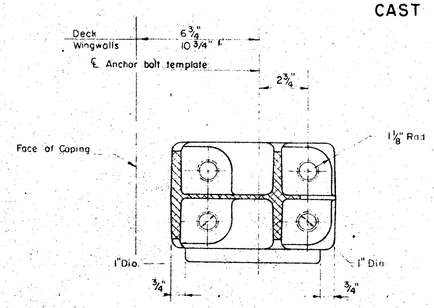
SALEM-MANCHESTER I-93-1(39)3 P-1157

DEC 10 1969



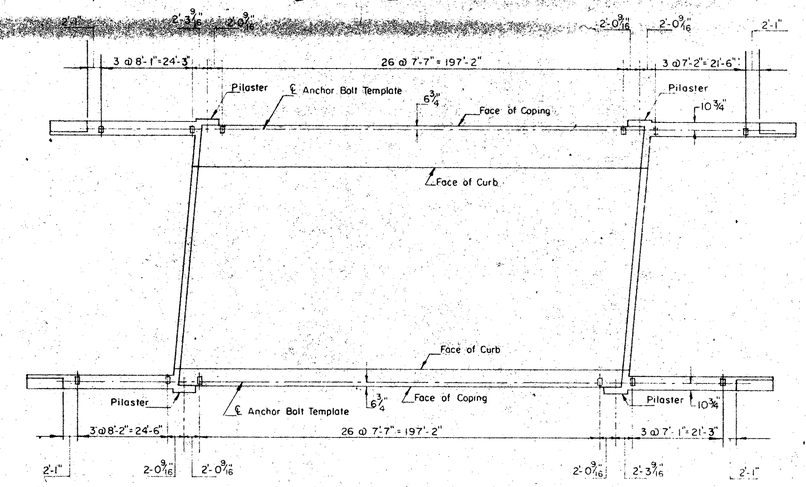
CAST ALUMINUM POST

Scale: 3" = 1'-0"



SECTION A-A

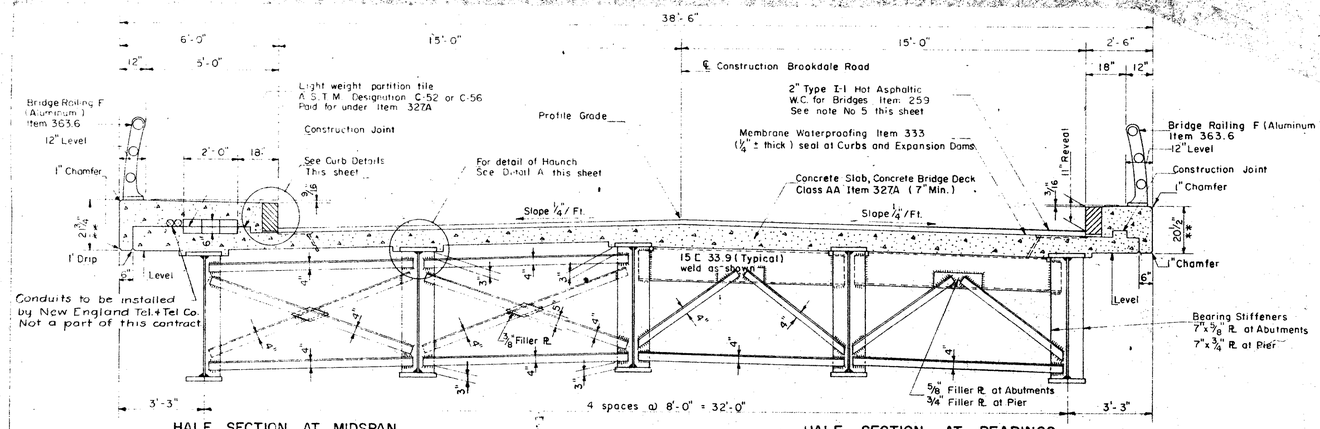
Scale. 3" = 1'-0"



PLAN RAILING POST SPACING

NO SCALE

Notes: 1. All Railing dimensions are along ℄ Anchor Bolt Template
2. All dimensions are horizontal.



HALF SECTION AT MIDSPAN

HALF SECTION AT BEARINGS

TYPICAL CROSS SECTIONS

SEE SHEET No.

SALEM-MANCHESTER I-93-1(39)3 P-1157-A

JAN 5 1971

BROOKDALE ROAD BRIDGE

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)				
NO.	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS		
BOOK NO.	PAGE NO.	
BOOK NO.	PAGE NO.	

DATE 18 Dec. 1967

PLAN TRACED L. FINCH
PLAN CHECKED
PROFILE TRACED
PROFILE CHECKED
INKED
CHECKED

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I 93-1(39)3	38	43

STEEL SCHEDULE

SIGN POSTS FOR ITEM NO. 627.1

IDENT. NUMBER	SIZE	NUMBER REQ'D.	LENGTHS L	C	R	SPACING ON CENTER

ALL POSTS ITEM 627.1 NOTED ABOVE SHALL BE ERECTED A MINIMUM OF 6' BEYOND THE EDGE OF THE BREAK OF SHOULDER TO THE NEAREST EDGE OF SIGN.

SEE TABLE STANDARD SHEET NO. 3 FOR FOOTING DEPTHS.

BREAKAWAY STEEL SCHEDULE

SIGN POSTS FOR ITEM NO. 627.11

PROPOSED STATION	IDENT. NUMBER	SIZE	NUMBER REQ'D	* LENGTHS L	C	R	SPACING ON CENTER
26+00-N	GA-1	10WF25	2	24'		25'-6"	12'-8"
97+00-S	GA-2	10WF25	2	25'		23'	12'-8"
143+50-N	GA-5$_S$	10WF25	2	25'		26'-6"	8'-4"
359+25-S$_{SW}$	GA-9	10WF25	2	26'-6"		23'-6"	10'-2"
584+00-N	GS-1$_D$	8WF20	2	21'-6"		21'-6"	10'-2"
604+00-N	GA-11	10WF25	2	24'		22'	9'-8"
659+40±S	GS-1$_L$	8WF20	2	22'		21'-6"	10'-2"
671+00-S	GA-15	10WF25	2	27'-6"		25'-6"	9'-8"
865+50-S	GA-21	10WF21	2	14'		19'	11'-4"
358+50-N$_M$	GA-5$_M$	6WF15.5	2	14'		12'	8'-4"

* ESTIMATED SIGN POST LENGTHS ABOVE GROUND.

ALL POSTS ITEM 627.11 NOTED ABOVE SHALL BE ERECTED A MINIMUM OF 7' ABOVE EDGE OF PAVEMENT TO BOTTOM OF SIGN AND THE INSIDE EDGE OF SIGN POSITIONED A MINIMUM OF 30' BEYOND THE TRAVELLED WAY (T.W.) UNLESS OTHERWISE NOTED.

SEE SIGN STANDARD SHEET NO. 3A, FOOTING DEPTHS AND STUB PROJECTION.

ITEM NO. 627.2
** ALUMINUM TUBING SUMMARY

PROPOSED STATION	IDENT.	NO. POSTS	DIA.	DIA.	DIA.
202+00-N$_{SW}$	GM-1	3		4"	
264+50-S$_{SW}$	GM-2	3		4"	
587+00-S	GM-4	3		4"	
665+00-N	GM-5	3			5"
768+00-S	GM-6	3		4"	
245+00-S$_M$	GM-7	3			5"
RTE. MARKER ASSEMBLIES	1 PER. ASSEMBLY			4"	
			3" DIA.	4" DIA.	5" DIA.
TOTAL LIN. FT.				264	132

NOTE:

3" DIA. = 1/8" WALL THICKNESS
4" DIA. = 1/8" " "
5" DIA. = 3/16" " "

TUBING SHALL BE ALUM. A.S.T.M. B221, ALLOY 6061-T6 OR 6063-T6.

** SEE SIGN STANDARD SHEET NO. 3 FOR INSTALLATION DETAILS FOR ALUMINUM POSTS. EXISTING SIGNS TO BE MOUNTED ON NEW TUBING ARE 4' HIGH.

DELINEATOR SUMMARY

ITEM NO.	510.1	510.2
DELINEATOR W/ POST	QUANT.	QUANT.
CRYSTAL 3"		
AMBER 3"		

ROCK STRUCTURE EXCAVATION *

ITEM NO.	ESTIMATED CU. YDS.
206.2	5

* FOR ITEMS 627.1 THRU 627.2

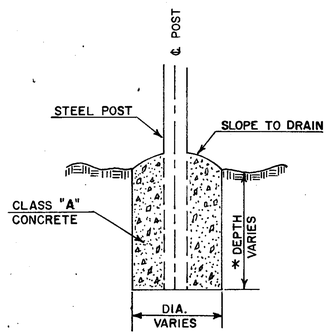
SIGN COVERS (APPLIED)

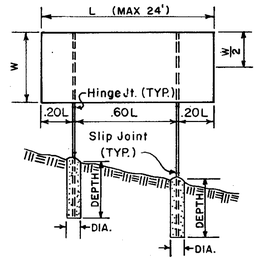
ITEM NO.	SQ. FT.	NO. COVERS
515		

PROTECTION FOR OVERHEAD STRUCTURES

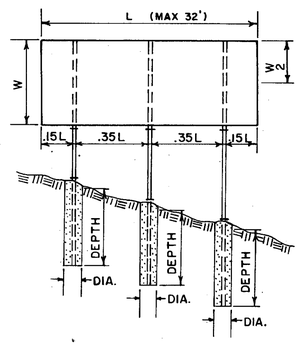
	ITEM NO.	751.2		751.4	
	ITEM	BEAM G'RD. RAIL INCL. TERMINAL SECTIONS		BOX BEAM GUARD RAIL	
	STANDARD NO.	GR-1B		SEE STD. SHT.	
	UNIT	LIN. FT.		LIN. FT.	
IDENT. NO.	LOCATION	LT.	RT.	LT.	RT.

POSTS		USE FOOTING	
NUMBER	SIZE	DEPTH (FT.)	DIA. (IN'S.)
2	6B8.5	6	18
2	6B12	6	18
2	6WF15.5	7-1/2	18
2	8WF17	7-1/2	24
2	8WF20	8-1/2	24
2	10WF21	9	24
2	10WF25	8	36
3	10WF21	8½	30





2 POST SIGN



3 POST SIGN

NOTE: Unless otherwise specified, all flange faces shall be perpendicular to the travelled way and lie in the same plane.

Post length to be dictated by sign size and location and shall be determined by the Engineer.

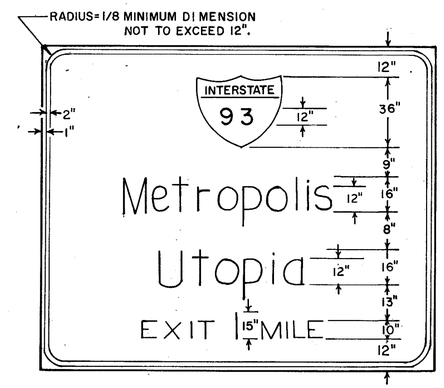
Top elevation of steel posts shall be the same for each sign and flush with sign top.

Concrete shall be Class A and shall be poured into the excavation in which no form work shall be present. No earth backfill should be required nor will be allowed after concrete is in place.

All signs mounted on steel posts shall be erected at a minimum height of 7' above edge of pavement to bottom of sign and the inside edge of the sign positioned a minimum of 16' beyond the traveled way (TW)

* Depth in ledge shall be determined by the Engineer.

ITEM 627.1 STEEL POSTS AND FOOTINGS



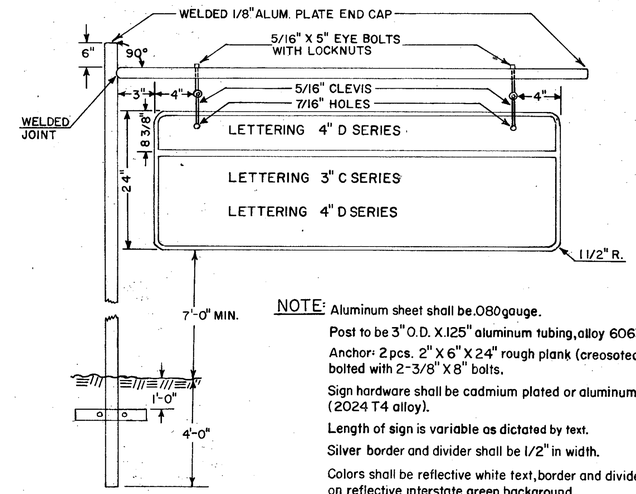
SHEET ALUMINUM GAUGES
Up to 9 sq. ft. of sign area, USE .080
All larger sign areas----USE .100

NOTE: Reflectorized background sheeting shall extend to the extreme edges of the sign.

Colors shall be white reflective text on reflective interstate green background.

For border and radii Item No. 503, refer to manual mentioned in Item 501-205(B) of the Standard Specifications and the Manual of Uniform Traffic Control Devices dated June, 1961 or as shown on the plans.

TYPICAL LAYOUT FOR TRAFFIC SIGNS
ITEMS 501 and 502



NOTE: Aluminum sheet shall be .080 gauge.

Post to be 3" O.D. X .125" aluminum tubing, alloy 6063-T6.

Anchor: 2 pcs. 2" X 6" X 24" rough plank (creosoted) bolted with 2-3/8" X 8" bolts.

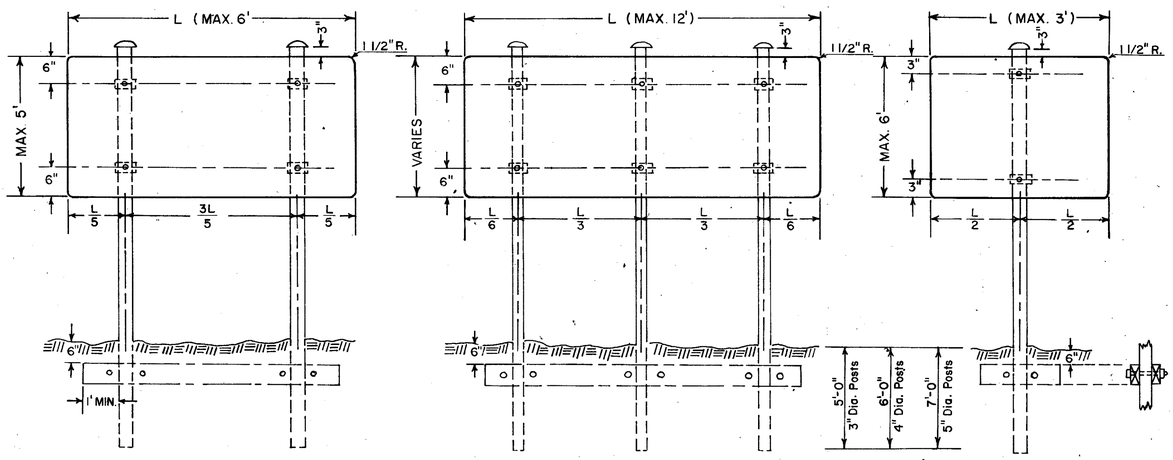
Sign hardware shall be cadmium plated or aluminum (2024 T4 alloy).

Length of sign is variable as dictated by text.

Silver border and divider shall be 1/2" in width.

Colors shall be reflective white text, border and divider on reflective interstate green background.

TOWN LINE SIGN
ITEM 505



NOTE: All signs to be fastened with brackets as per detail.

When sign size exceeds 4'-0" in height, use 3 brackets per post.

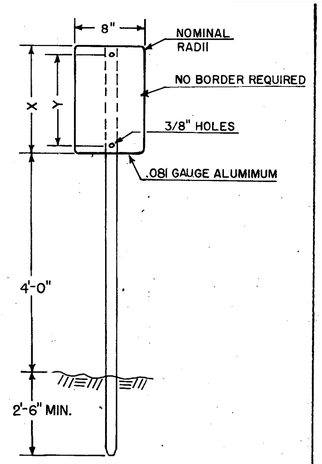
Posts to be equipped with cast aluminum caps as per detail.

ANCHORS: Use 2 pieces of 2" X 12" rough plank (creosoted) clamped post to post with a minimum of 1' overhang; to be parallel to sign face. Top edge of anchor shall be approximately parallel to the ground line.

All signs mounted on aluminum posts shall be erected at a minimum height of 7' above the level of the pavement edge excepting Route Markers and Regulatory and Warning signs within an interchange area. The latter signing may be mounted at a minimum of 6' above the level of the pavement edge.

The mininum horizontal clearance to any ground mounted sign shall be ' beyond the shoulder break or at least ' beyond the face of unmountable curb.

ALUMINUM POSTS AND FOOTINGS
ITEM 627.2

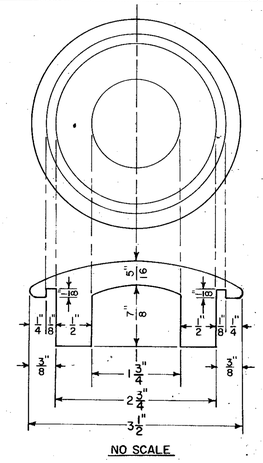


1 DIGIT	X=12", Y=10"
2 DIGIT	X=21", Y=19"
3 DIGIT	X=30", Y=28"

NOTE: Post to be 7/16" X .125 GALV. "U" Channel Steel Post set 2' from curb or 2' beyond break in shoulder.

Use 6" white reflectorized digits on green reflectorized background.

MILEAGE MARKER
ITEM 504



CAST ALUMINUM CAP FOR SIGN POSTS (ALLOY 319)

Dimensions shown are for 3" O.D. X 2 3/4" I.D. ± commercial tolerances. Caps designed for drive fit. Dimensions are proportional for larger diameter tubing.

ROUTE MARKER OVERLAYS

93 202 101

NOTE: All Interstate and U.S. shields and N.H route markers shall be fabricated from .064 aluminum sheet stock.

U.S. shield and N.H. route markers shall have a silver reflectorized background with black cutout digits. No border will be required. Detail drawings are available on Standard Sheet No. 6.

When used as an overlay, the state name shall not appear on the Interstate shield.

CARDINAL DIRECTION MARKER

WEST

NOTE: For 9"X21", use 3/8" white border.
For 15"X30", use 1/2" white border.
Extend border to edge of marker.

SIGN BRACKET FOR ALUMINUM POST
(ALLOY 6062-T6 ALCOA)

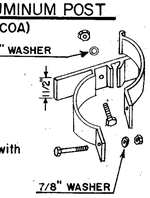
SECTION NO'S. FOR BRACKETS

84617 } 3" O.D. POST
84618 }

92010 } 4" O.D. POST
92011 }

137451 } 5" O.D. POST
137461 }

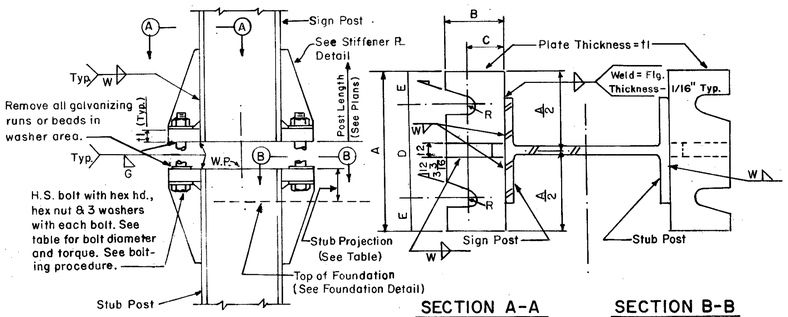
Use 2-5/16" stainless steel cap screw with 7/8" O.D. washer and locknuts.



DESIGN AND INSTALLATION DETAILS

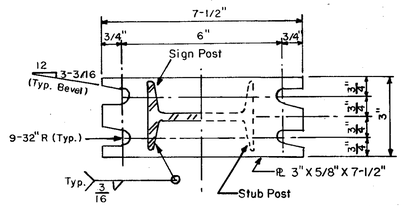
SHT 41 · SIGN STANDARD SHEET NO. 3

1500-8-58 MODERN BLUE PRINT CO. 33230



SIGN POST AND STUB POST
ELEVATION
(For WF and B Shapes)

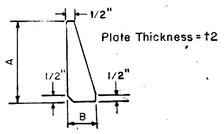
SECTION A-A SECTION B-B
(See Table for Dimensions)
Sections shown are for installations on right shoulder and in gore.
Plate slot bevels are opposite hand for installations on left shoulder.



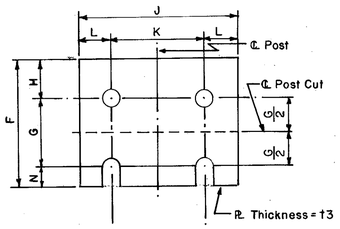
SECTION C-C SECTION D-D
See installation under Section A-A & B-B.

POST SIZE	BOLT SIZE & TORQUE	A	B	C	D	E	t1	t2	W	R
6B 8.5	5/8" ϕ X 2-3/4" Torque=450#	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	11/32
6B 12										
6WF15.5										
8WF17										
8WF20	3/4" ϕ X 3-1/2" Torque=750#	6"	2 1/4"	1 3/8"	3 1/4"	1 1/4"	1"	3/4"	5/16"	13/32
10WF21										
10WF25										
12WF27										
3I5.7	1/2" ϕ X 2-1/2" Torque=200#	SEE DETAIL								
4I7.7										

POST SIZE	FUSE PLATE DATA TABLE F	G	H	J	K	L	N		d1	t3	BOLT DIA.	WT. OF EA. FUSE ℞	FOUNDATION DATA STUB LENGTH	STUB PROJ.	SHAFT DIA.
6B 8.5	3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"		9/16"	1/4"	1/2"ϕ	0.94#		3"	
6B 12	3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"		9/16"	1/4"	1/2"ϕ	0.94#		3"	
6WF15.5	4 3/8"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	5/8"		11/16"	3/8"	5/8"ϕ	2.58#	6'-9"	3"	18"
8WF17	4 3/8"	2 1/2"	1 1/4"	5 1/4"	2 3/4"	1 1/4"	5/8"		11/16"	3/8"	5/8"ϕ	2.24#		3"	
8WF20	4 3/4"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	3/4"		13/16"	1/2"	3/4"ϕ	2.95#	8'-2 1/2"	2 1/2"	24"
10WF21	5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"		13/16"	1/2"	3/4"ϕ	3.88#	9'-2 1/2"	2 1/2"	24"
10WF25	5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"		13/16"	1/2"	3/4"ϕ	3.88#	8'-2 1/2"	2 1/2"	36"
12WF27	5 1/4"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	3/4"		13/16"	1/2"	3/4"ϕ	4.44#		2 1/2"	
3I5.7	3 1/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"		9/16"	1/4"	1/2"ϕ	0.49#		3 1/2"	
4I7.7	3 1/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"		9/16"	1/4"	1/2"ϕ	0.49#		3 1/2"	

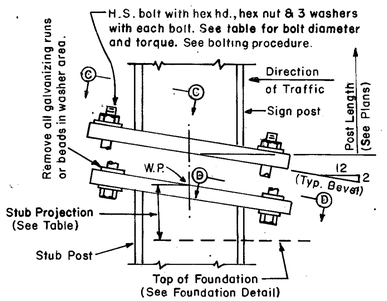


STIFFENER PLATE
(See Table for Dimensions)

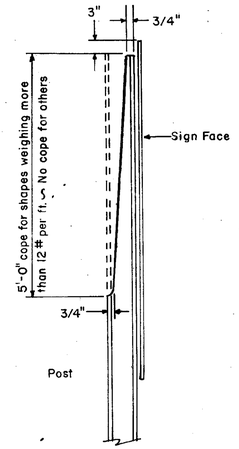


Hole diameter = d1
Use H.S. bolts whex hd., & hex nuts, one flat washer under each bolt head, and bevel or flat washer (where required) under nut.

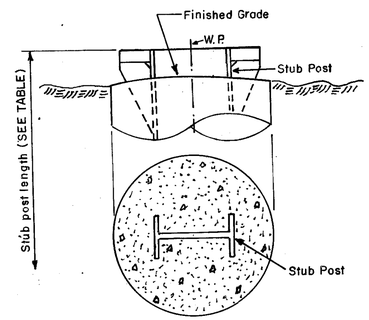
FUSE PLATE
(See Table for Dimensions and Weight)



SIGN POST AND STUB POST
ELEVATION
(For 4I7.7 and 3I5.7)



COPE DETAIL
SIDE VIEW



FOUNDATION DETAIL

GENERAL NOTES

Design conforms with AASHO Specifications for the design and construction of Structural Supports for Highway Sign.

Material and Fabrication shall conform to the requirements of New Hampshire Public Works and Highways Department Standard Sheets and Specifications.

All structural steel shall conform to ASTM A441.

All structural steel, bolts, nuts, and washers shall be galvanized as per ASTM A 123 except as noted.

Flange holes for fuse bolts shall be drilled.

All high strength bolts, nuts, and washers shall be galvanized as per ASTM A123.

Notched steel fuse plates shall conform to the requirements of ASTM A441. All holes shall be drilled. All plate cuts shall preferably be sawcuts; however flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be tolerated.

All bolts other than high strength shall conform to ASTM-A307, Class A.

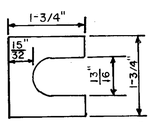
Tighten the high strength bolts in the base connection only to the torque shown. *DO NOT OVERTIGHTEN*

See Sign Standard Sheet No. 1 for sign fastening detail.

See Sign Standard Sheet No. 3 for post spacing detail.

NO SCALE ON DRAWINGS.

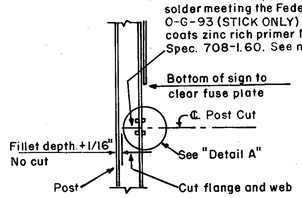
All signs mounted on steel posts shall be erected a minimum of 7' above edge of pavement to bottom of sign and the inside edge of the sign positioned a minimum of 30' beyond the traveled way (TW).



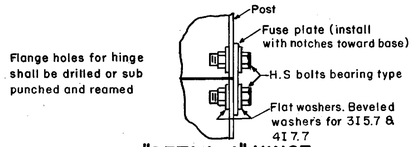
Furnish 2 .012" ± thick and 2 .032" ± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to A.S.T.M.-B36.

SHIM DETAIL

‡ Post shall be sawcut after galvanizing and the cut surface treated with an approved zinc solder meeting the Federal Spec. O-G-93 (STICK ONLY) or 2 coats zinc rich primer N.H. Spec. 708-1.60. See note.



FRICTION FUSE PLATE



"DETAIL A" HINGE
(See Fabricator Note)

‡ NOTE: Cut surfaces will not be treated until plate is installed and all bolts fully tightened.

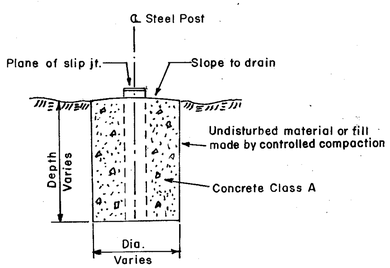
PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

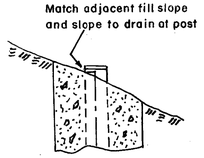
1. Assemble post to stub with bolts and with ONE flat washer on each bolt *BETWEEN* plates.
2. Shim as required to plumb post.
3. Tighten all bolts the maximum possible with 12" to 15" wrench to bed washers and shims and to clean bolt threads, then loosen each bolt in turn and re-tighten in a systematic order to the prescribed torque. (SEE TABLE)
4. Burr threads at junction with nut using a center punch to prevent nut loosening.

FABRICATOR NOTE: *IMPORTANT*

All friction fuse bolts shall be tightened in the shop following a method approved by the Engineer. Tighting shall be to such a degree as to obtain the following minimum residual tension in each bolt.

Bolt Size	Min. Residual Bolt Tension
1/2" ϕ	12050 Lbs.
5/8" ϕ	19200 Lbs.
3/4" ϕ	28400 Lbs.
7/8" ϕ	36050 Lbs.





FOOTING DETAILS

ITEM 627.11 BREAKAWAY SIGN MOUNTS

STATE	PROJ NO	SHEET NO.	TOTAL SHEETS
N. H.	P-1187		

8'

3' CONSTRUCTION ZONES
NEXT 20 MILES

8" CAPS
8" "
SERIES "C"

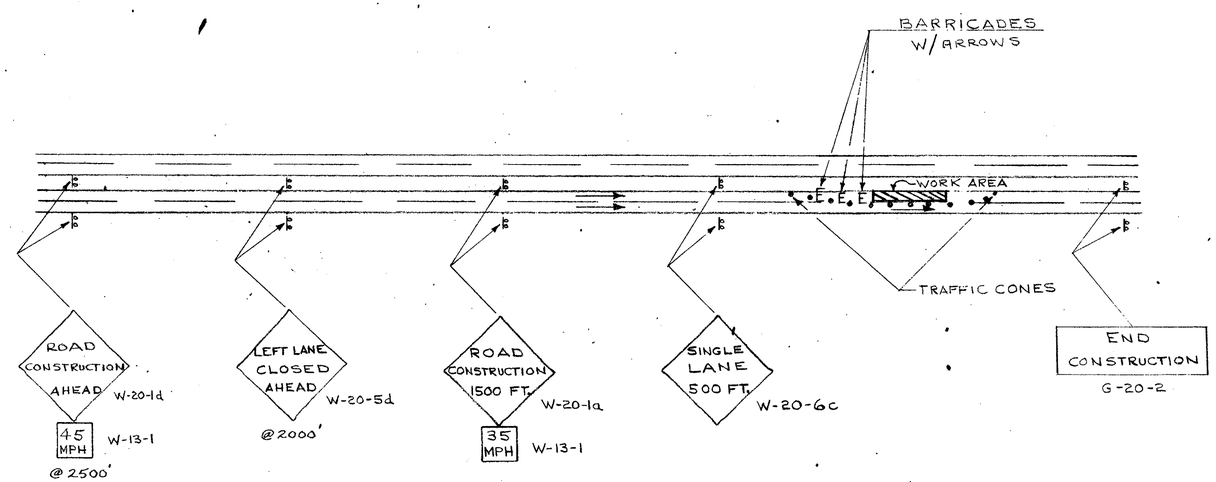
G-20-1a

BLACK ON WHITE

MATERIALS AND FABRICATION SHALL CONFORM TO NOTES ON SIGN STD. SHEET CS-1 AND SECTION 619 OF THE STANDARD SPECIFICATIONS.

CONSTRUCTION SIGNING PROJECT REQUIREMENTS

ITEM 619.2	TYPE	CODE	NO. REQ'D	NOTES
	PERMANENT SIGNS — SIGNS	W-20-1a	6	
		W-20-1d	16	
		G-20-1	4	
		G-20-2	6	
	OPERATIONAL CONTROLS — SIGNS	W-20-5d	12	6LT, 6RT
		W-20-6c	6	
		W-20-7	4	
		W-1-6	9	
		W-11-1	4	
		W-13-1	12	6=35MPH 6=45MPH
		G-20-1a	4	
		EASELS	46	
		BARRICADES CL-I (ALT)	9	8' SECTS
		CL-II	4	
		TRAFFIC CONES-BLAZE ORANGE-30"	100	
		DELINEATORS OM-1	25	
		D-100	100	
		HAZARD MARKERS 18" CLUSTER	18	



SIGNING FOR CLOSING ONE LANE OF A 4 LANE DIVIDED HIGHWAY

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-93-1(90)0	43	43