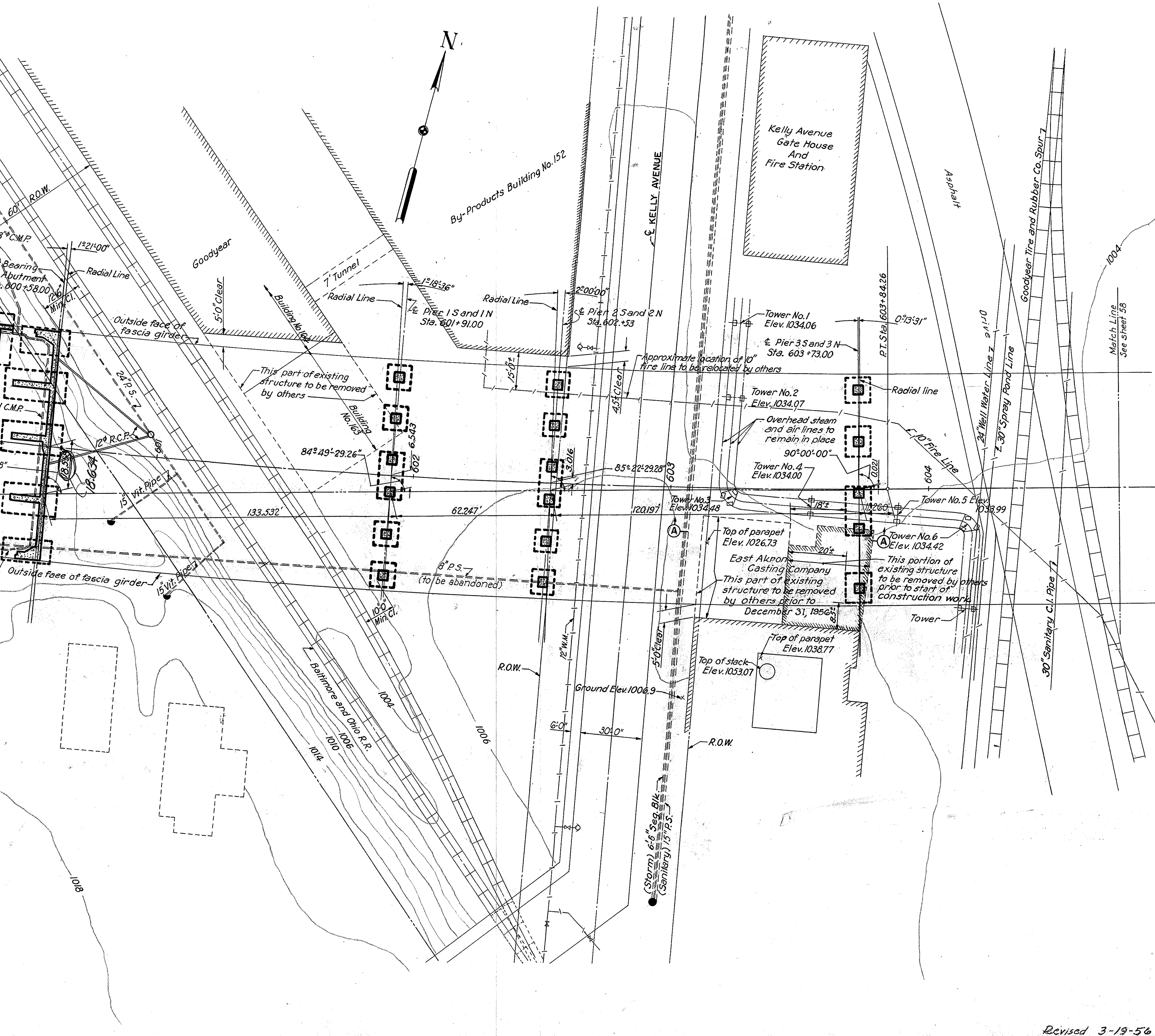
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	57/123
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 7
SUM - 18R - 12.90

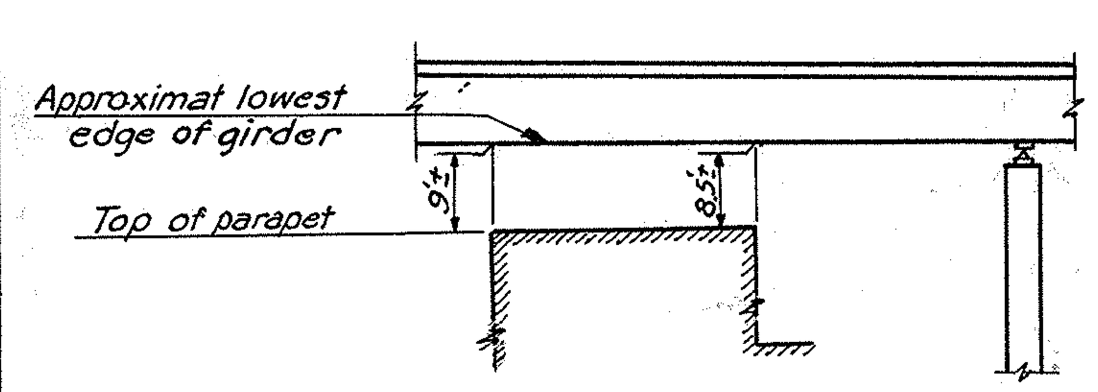


N
By-Products Building No. 152
Kelly Avenue Gate House And Fire Station
℄ KELLY AVENUE
Goodyear
Asphalt
60' R.O.W.
8"⌀ C.M.P.
Provide galvanized cap on end of pipe
8"⌀ Perforated C.M.P.
℄ Bearing West Abutment Sta. 600+58.00
1°21'00"
Radial Line
12'0" Min. Cl.
Outside face of fascia girder
5'0" Clear
7' Tunnel
Building No. 164
Radial Line
1°18'36"
℄ Pier 1S and 1N Sta. 601+91.00
Radial Line
2°00'00"
℄ Pier 2S and 2N Sta. 602+53
Tower No. 1 Elev. 1034.06
℄ Pier 3S and 3N Sta. 603+73.00
P.T. Sta. 603+84.26
0°13'31"
Approximate location of 10" fire line to be relocated by others
This part of existing structure to be removed by others
15'0"
4'5" Clear
Tower No. 2 Elev. 1034.07
Overhead steam and air lines to remain in place
Radial line
10" Fire Line
90°00'00"
Tower No. 4 Elev. 1034.00
24" Well Water Line
30" Spray Pond Line
Goodyear Tire and Rubber Co. Spur 7
Drive
Match Line See sheet 58
℄ Expressway
8"⌀ Perforated C.M.P.
24" P.S.
12"⌀ R.C.P.
84°49'29.28"
Tangent Line to curve at Sta. 603+84.26
84°49'29.26"
6.543
3.016
85°22'29.28"
18.634
15" Vit. Pipe
133.532'
62.247'
120.197
Tower No. 3 Elev. 1034.48
18'±
11.260
Tower No. 5 Elev. 1033.99
Tower No. 6 Elev. 1034.42
Top of parapet Elev. 1026.73
20'±
East Akron Casting Company
This part of existing structure to be removed by others prior to December 31, 1956
This portion of existing structure to be removed by others prior to start of construction work
Tower
8" P.S.
Provide galvanized cap on end of pipe
8"⌀ Perforated C.M.P.
Outside face of fascia girder
8" P.S. (to be abandoned)
15" Vit. Pipe
10'0" Min. Cl.
Baltimore and Ohio R.R.
12" W.M.
5'0" Clear
R.O.W.
Top of parapet Elev. 1038.77
Top of stack Elev. 1053.07
Ground Elev. 1006.9
6'0"
30'0"
R.O.W.
(Storm) 6'6" Seg. Blk.
(Sanitary) 15" P.S.
30" Sanitary C.I. Pipe
1016
1010
1018
1014
1006
1004
1008
600
601
602
603
604

LEGEND

- Existing Water Main
- Existing Sewer
- New Sewer
- Existing Sewer Manhole
- Existing Sewer Inlet
- Water Valve
- Water Hydrant
- New Sewer Manhole

Notes:
Existing buildings on the viaduct right-of-way will be removed, as indicated on the site plan, by others, to existing ground level, and basements shall be filled by the contractor with compacted embankment material.
Payment for filling of basements will be made under Items E-2.
Elevations shown for towers carrying overhead steam and air lines are top of tower elevations.



SECTION A-A

Revised 3-19-56

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
SITE PLAN

AKRON SUMMIT COUNTY, OHIO

SCALE 1" = 20'0"
MADE S.M.A. DATE 8-3-55
TRCD. C.T.H. DATE 8-5-55
CKD. L.W.L. DATE 9-19-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

901 SHEET 57

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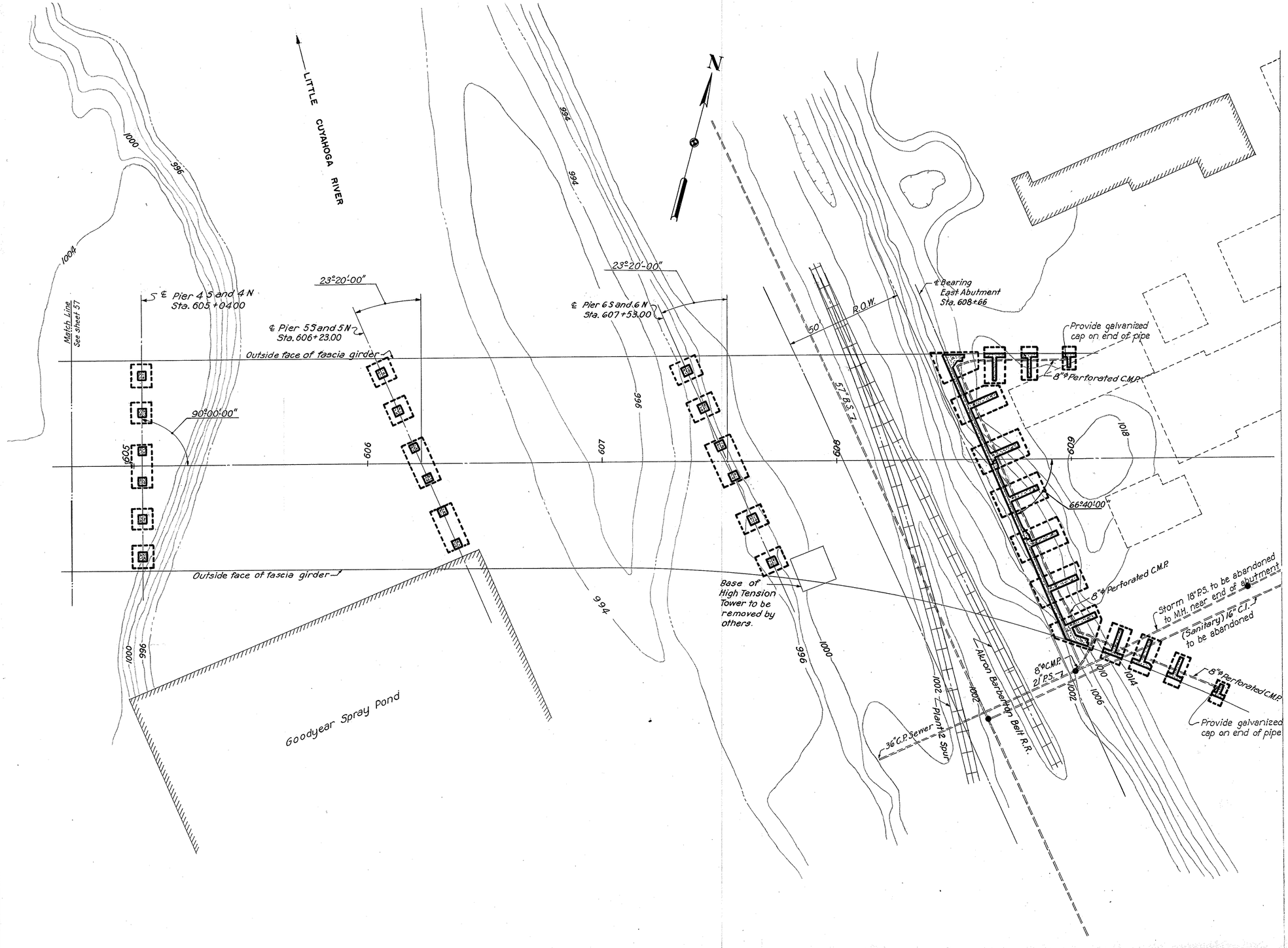
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

58
123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 7
SUM-18R-12.90



LEGEND

- Existing Water Main
- Existing Sewer
- New Sewer
- Existing Sewer Manhole
- Existing Sewer Inlet
- Water Valve
- Water Hydrant
- New Sewer Manhole

PART 7

AKRON EXPRESSWAY SYSTEM

WEST VIADUCT

BR. NO. SU-18R-135

SITE PLAN

AKRON SUMMIT COUNTY. OHIO

SCALE 1"= 20'-0"
MADE S.M.A. DATE 8-3-55
TRCD. C.T.H. DATE 8-6-55
CKD. L.L. DATE 9-20-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

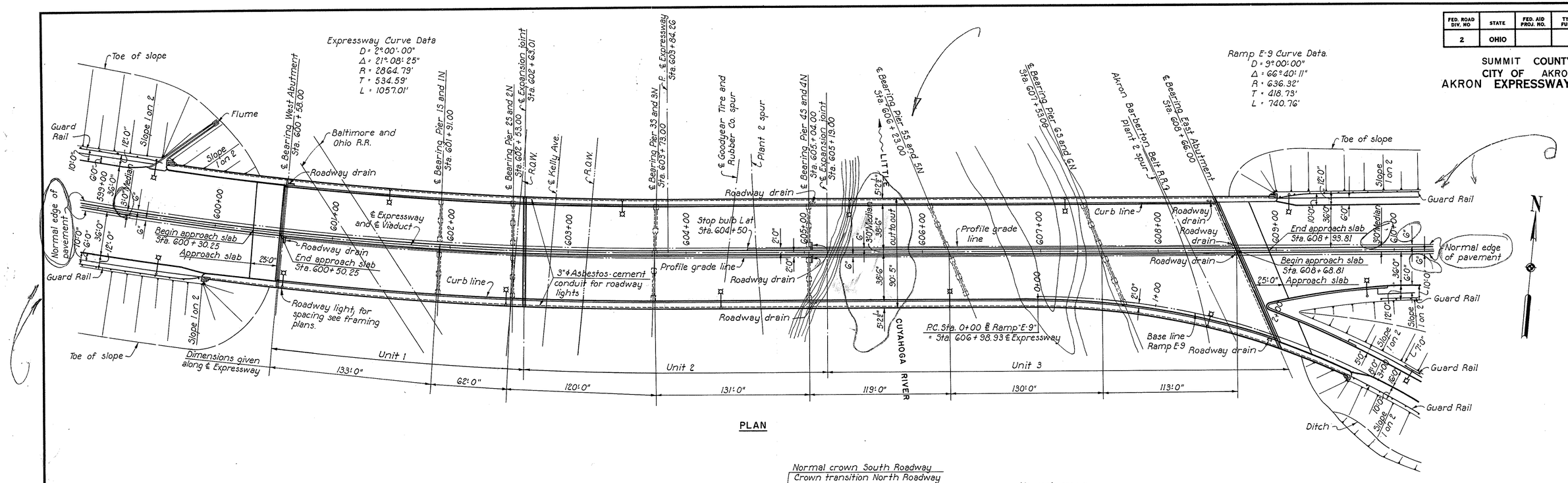
901 SHEET- 58

132

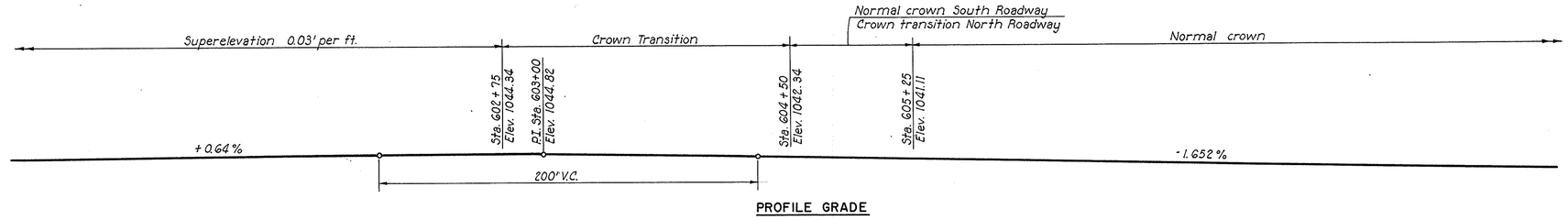
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

59
123

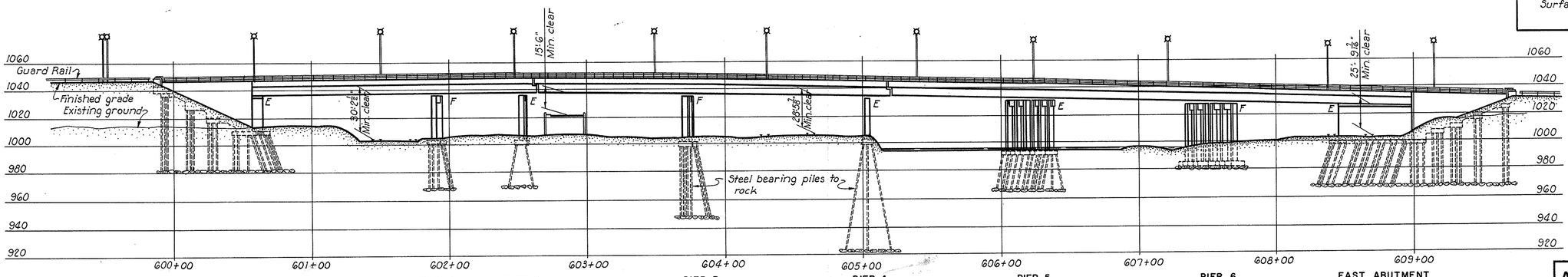
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



PLAN



PROFILE GRADE



ELEVATION

PROPOSED STRUCTURE

Type: 7-span continuous steel girder with concrete deck and sub-structure.
Spans: 133'0", 62'0", 120'0", 131'0", 119'0", 130'0" and 113'0" ℄ to ℄ bearing.
Roadway: 2 @ 38'0" each with 4'0" median, 3'0" sidewalk.
Loading: CF 2000
Skew: Varies
Surface Course: 2½" Asphaltic concrete

Note:
Minimum clearance of Baltimore and Ohio R.R. is at top of west rail of west track and ℄ north exterior girder.
Minimum clearance of Kelly Avenue is at ℄ of Kelly Avenue and ℄ south exterior girder.
Minimum clearance of Goodyear Tire and Rubber Co. spur is at top of east rail of east track and ℄ south exterior girder.
Minimum clearance of Akron Barberton Belt R.R. is at top of east rail of east track and ℄ south exterior girder.

Note:
Approximate rock lines shown are determined by interpolation of borings and are approximate only.

Changes or additions are rung up.

Revised 12-19-55

PART 7

AKRON EXPRESSWAY SYSTEM

WEST VIADUCT

BR. NO. SU-18R-135

GENERAL PLAN AND ELEVATION

AKRON SUMMIT COUNTY. OHIO

SCALE 1"=40'
MADE SMA DATE 8-9-55
TRCD CAL DATE 10-25-55
CKD LWL DATE 10-4-55

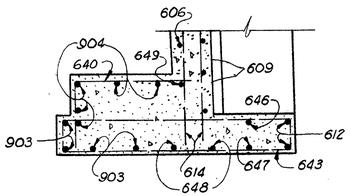
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET- 59

133

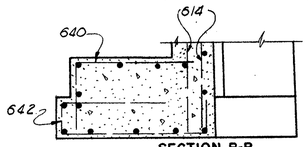
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

60
123

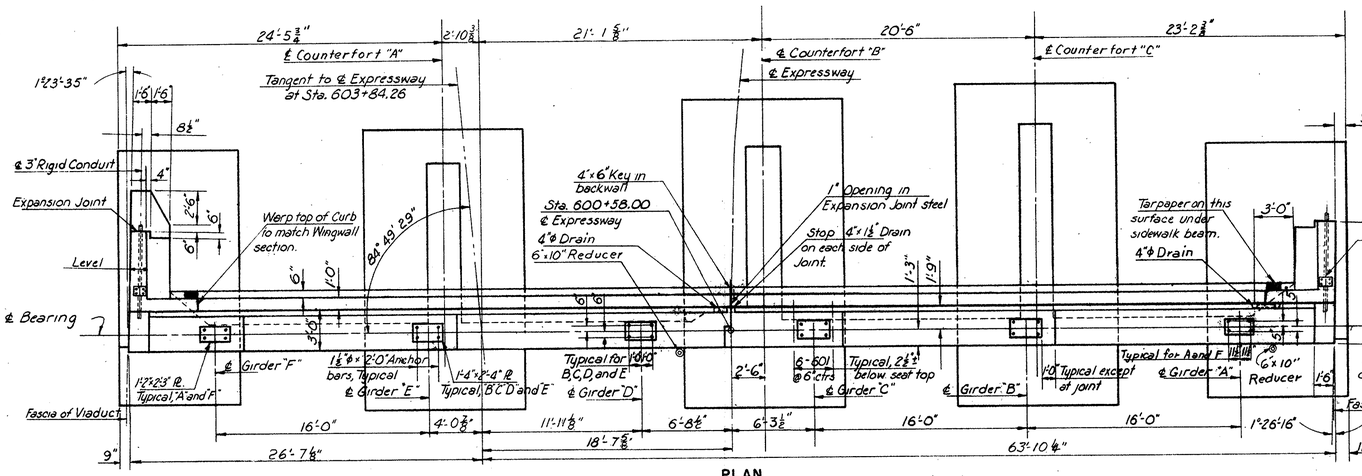
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

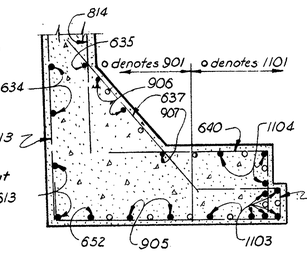


SECTION C-C
Scale: 3/8"=1'-0



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



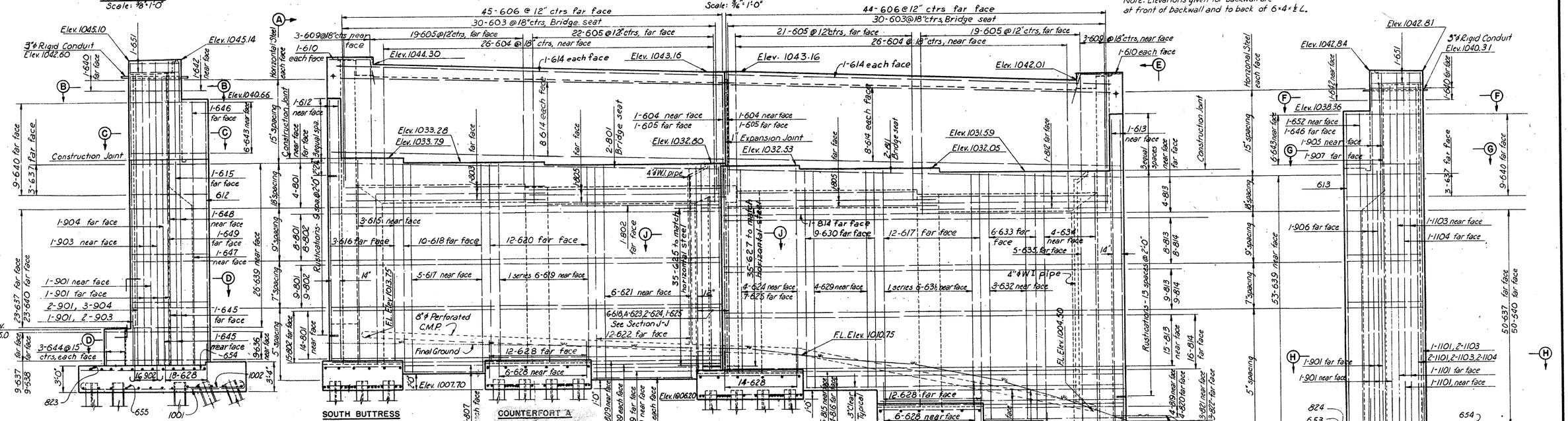


SECTION H-H
Scale: 3/8"=1'-0"

Note: For downspout detail see sheet 95. 613

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

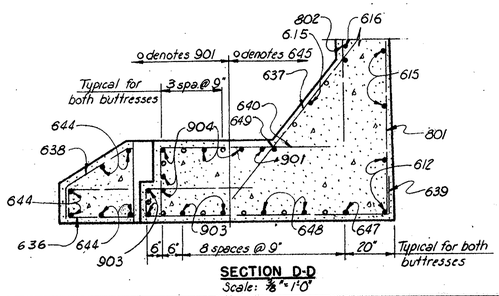
Note: Elevations given for backwall are at front of backwall and to back of 6"x4"℄ L.



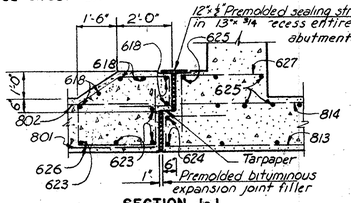
VIEW A-A
Scale: 3/16"=1'-0"

Notes: All vertical reinforcing steel in breastwall shall be placed thus: at 12" ctrs in far face and at 2'-0" in near face, except as shown in elevation.
All piles to be 14 BP 73. Battered piles are battered 4 in 12.
Average vertical pile length = 28 feet
For pile details see sheet 61.

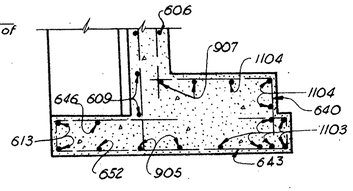
ELEVATION
Scale: 3/16"=1'-0"



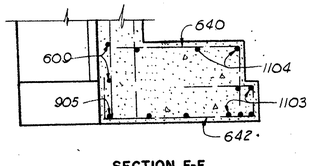
SECTION D-D
Scale: 3/8"=1'-0"



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



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



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

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
WEST ABUTMENT
AKRON SUMMIT COUNTY, OHIO

SCALE As Shown
MADE DLL DATE 7-29-55
TRCD. DATE
CKD. D.F.B. DATE 10-17-55

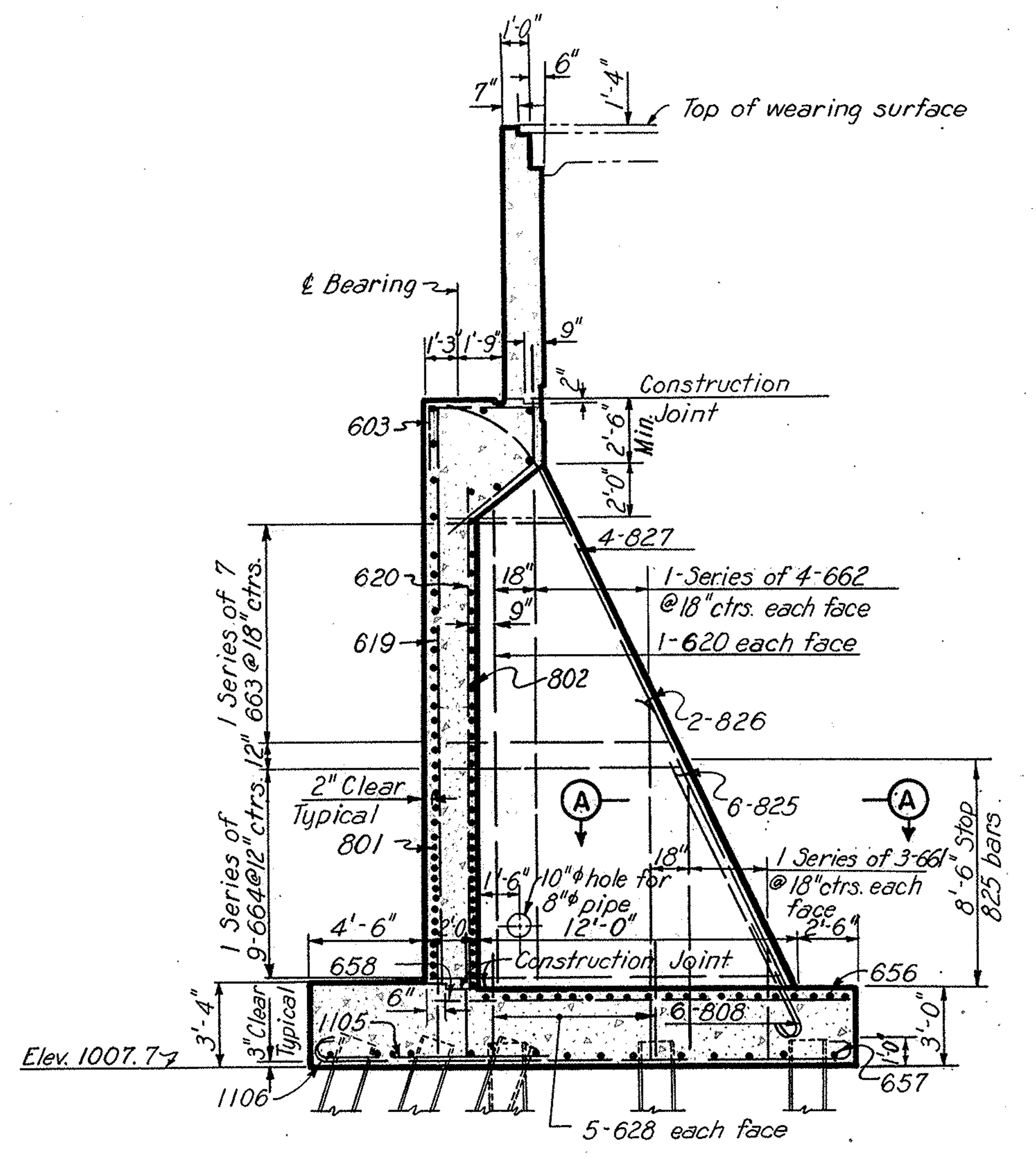
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SHEET 901 60

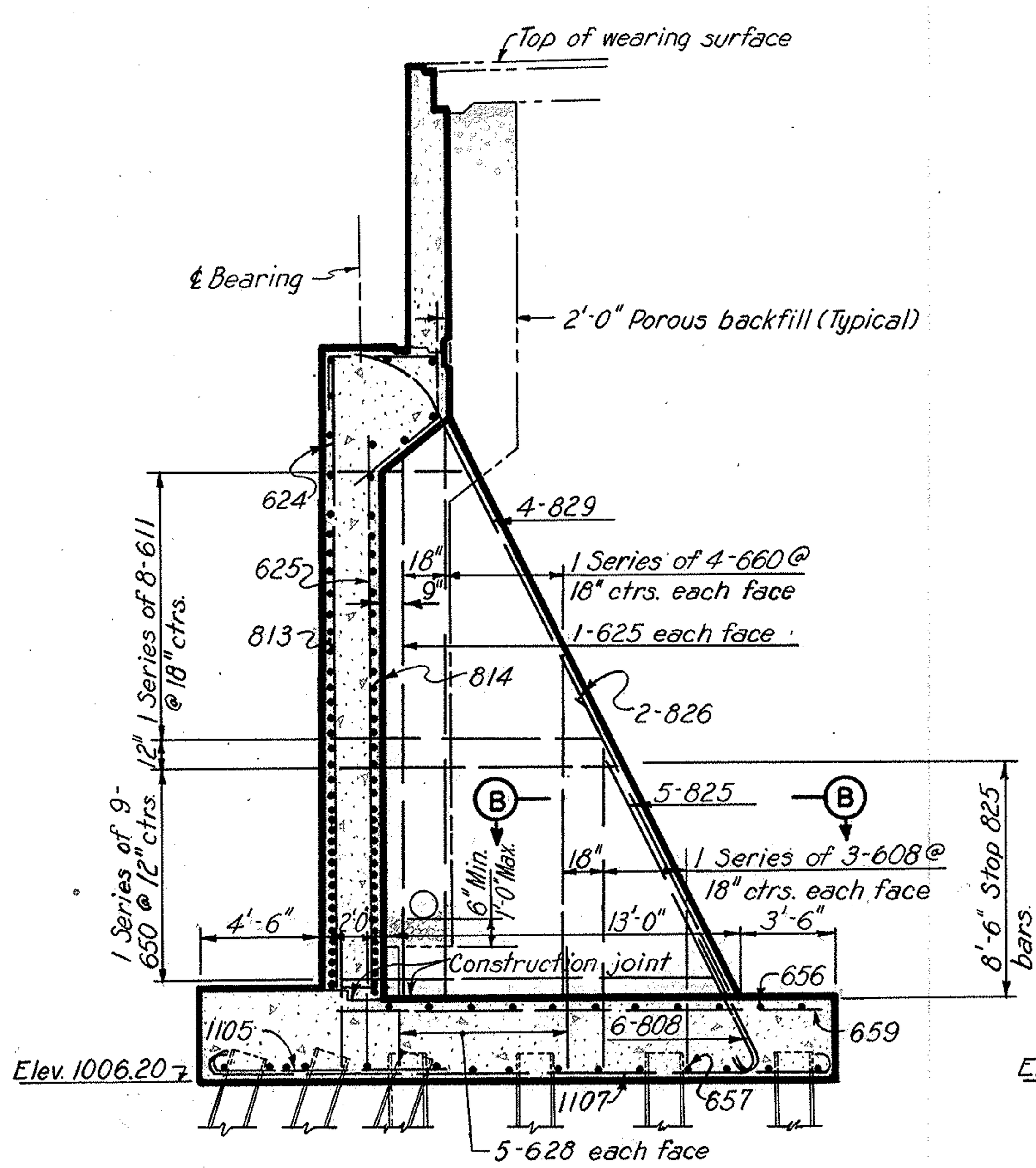
134

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

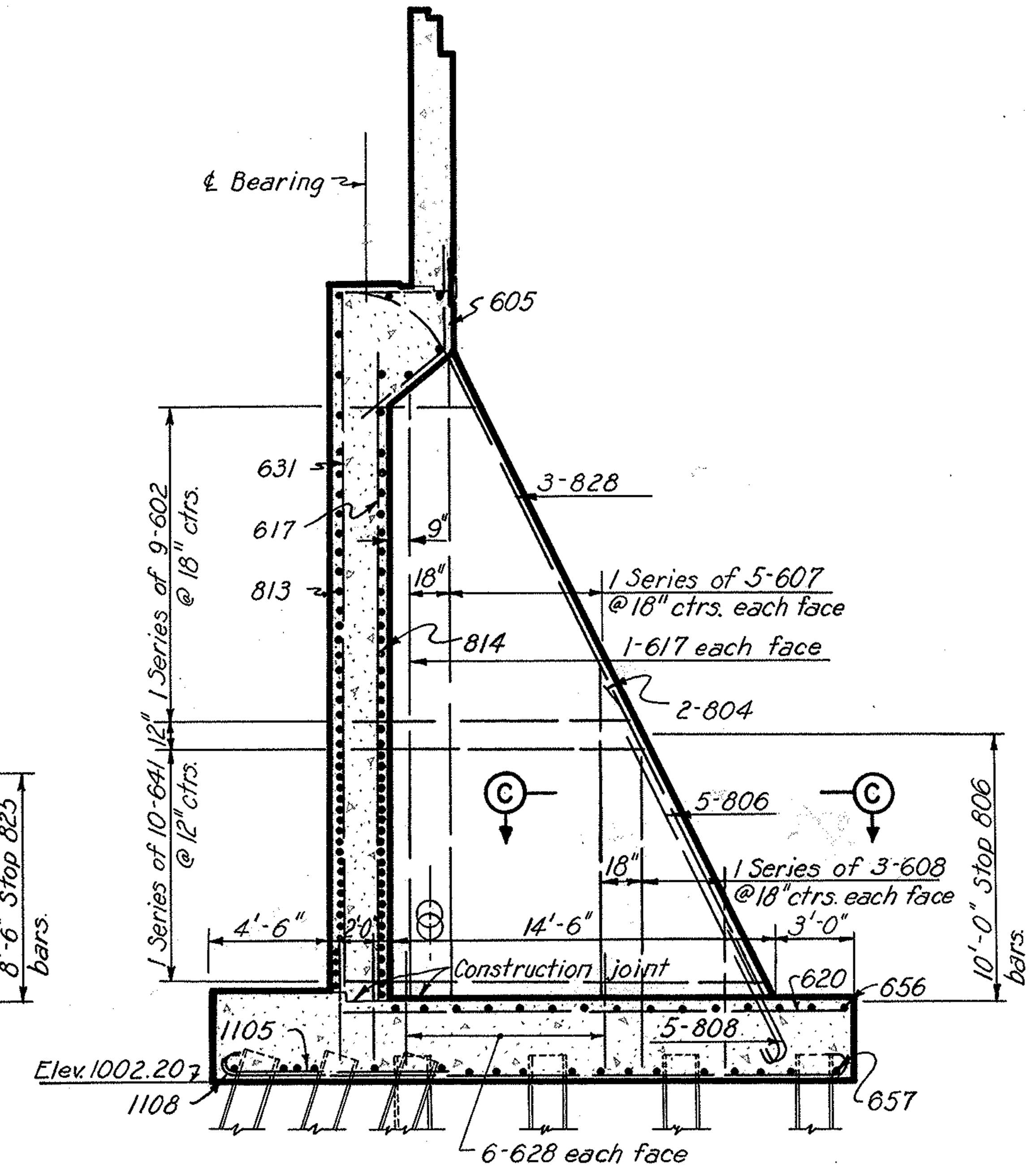
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



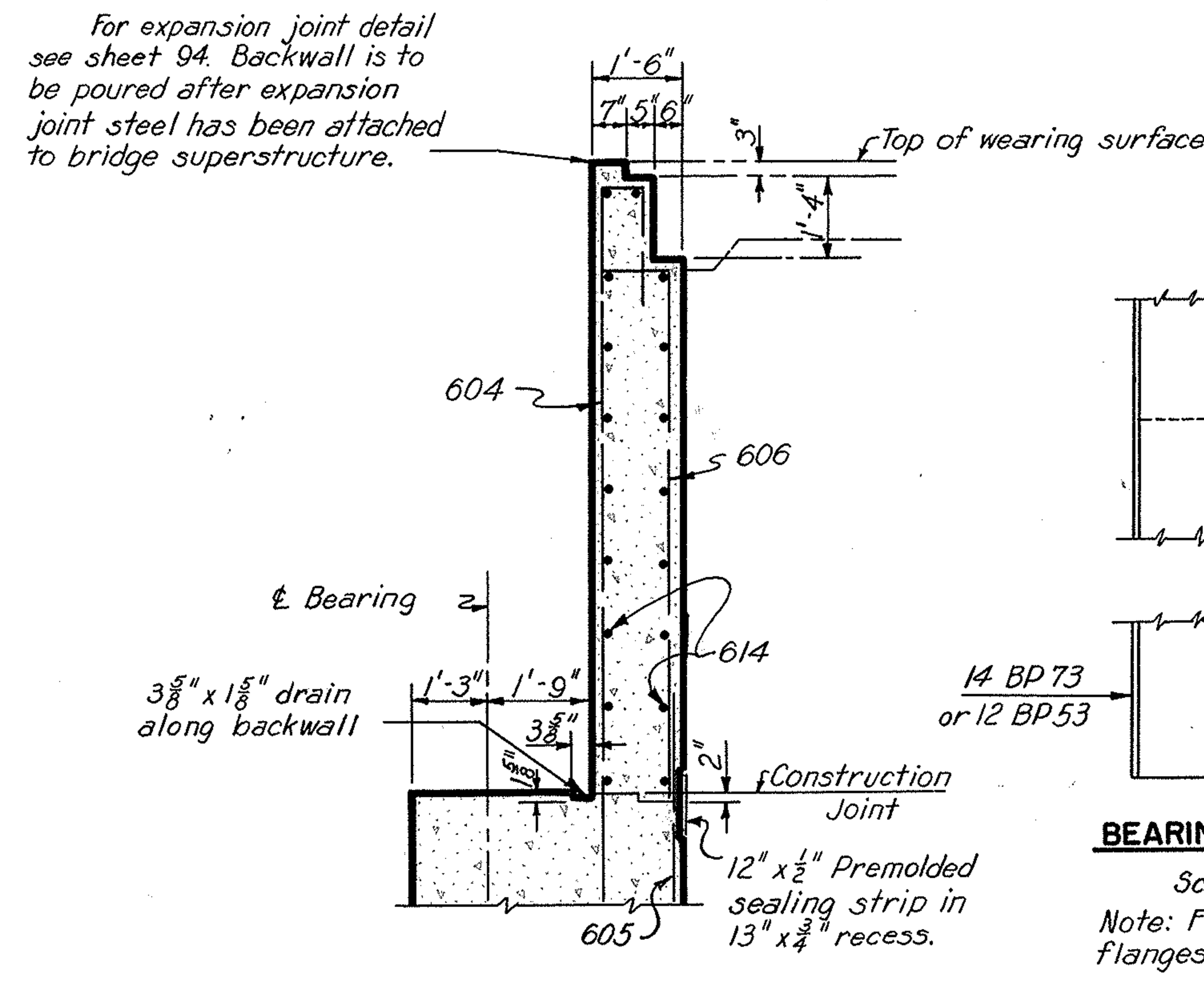
COUNTERFORT A
Scale: 3/16" = 1'-0"



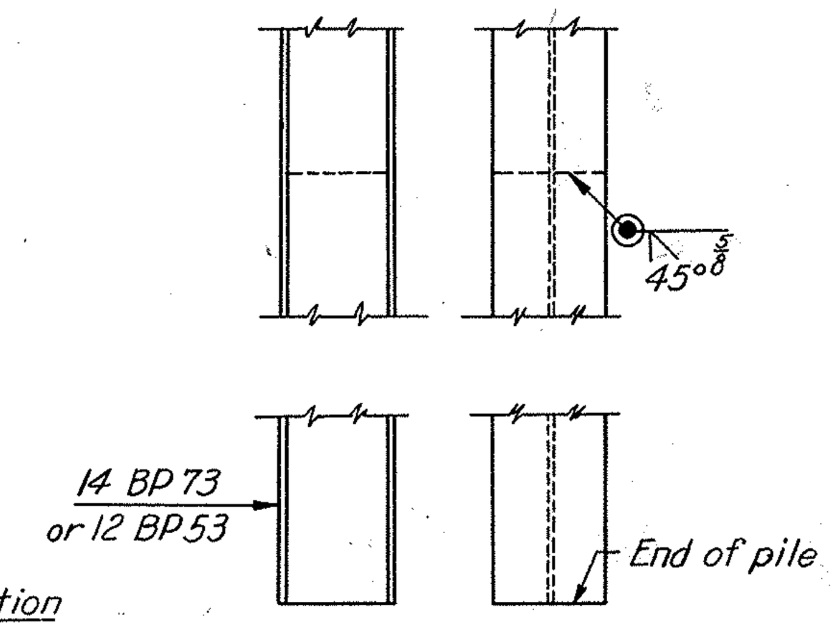
COUNTERFORT B
Scale: 3/16" = 1'-0"



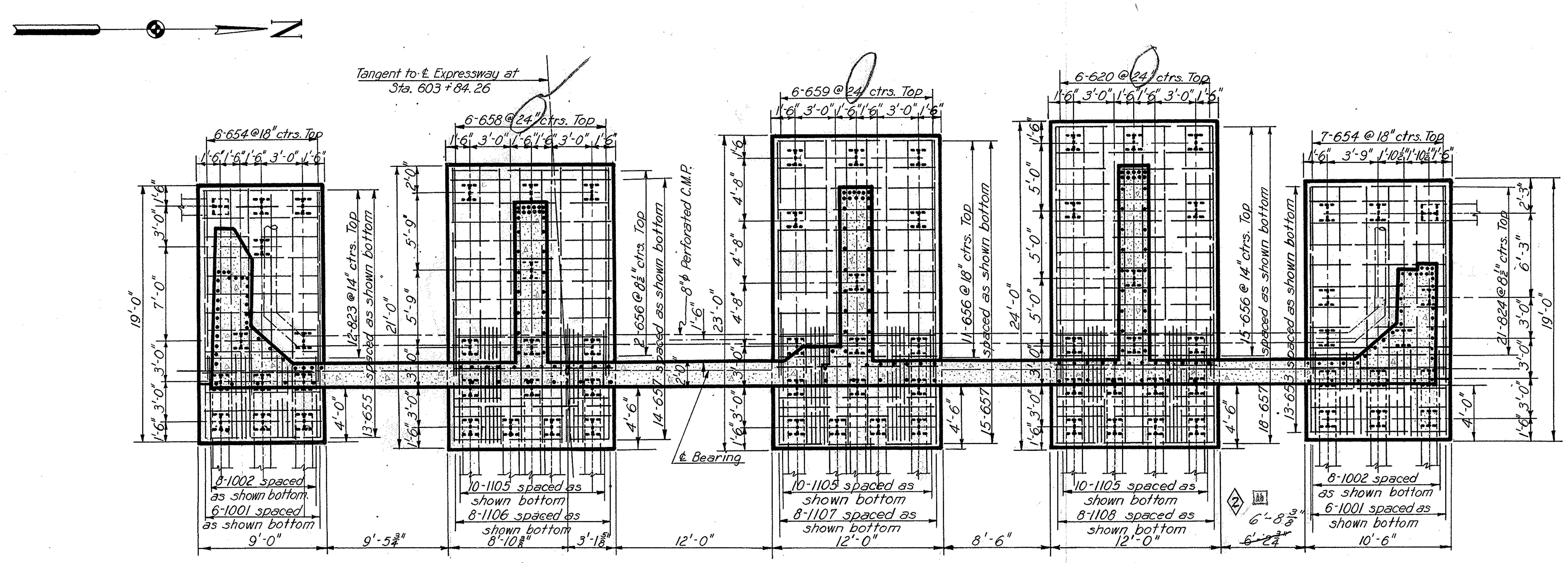
COUNTERFORT C
Scale: 3/16" = 1'-0"



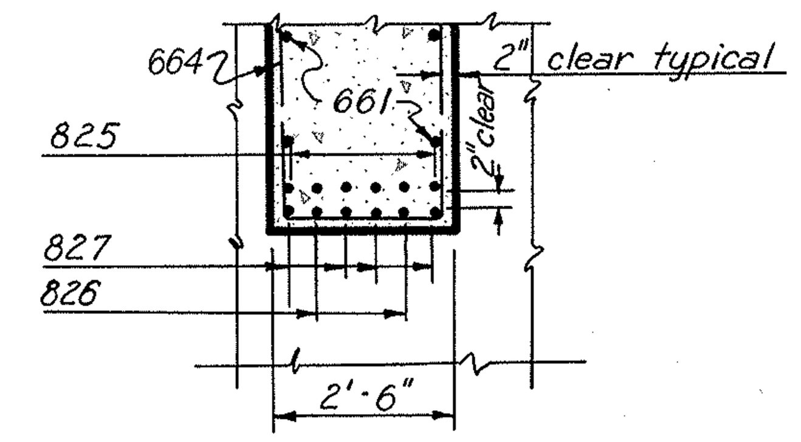
DETAIL A
Scale: 3/8" = 1'-0"



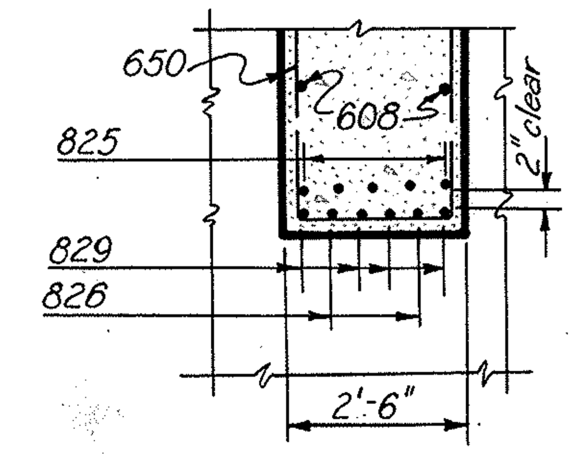
BEARING PILE DETAIL
Scale: 1/2" = 1'-0"
Note: Flame scarf web and flanges of upper section.



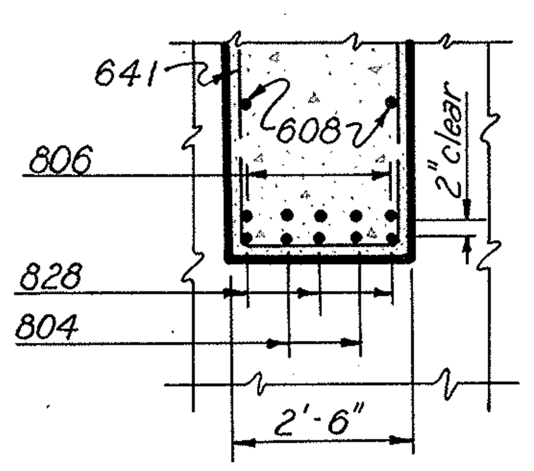
FOOTING PLAN
Scale: 3/16" = 1'-0"



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



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



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

Notes:
For reinforcement schedule see sheet 62.
All piles to be 14 BP73.
For dimensions not shown see West Abutment plan and elevation, sheet 60.
Dimensions shown on counterfort A are typical for counterforts B and C, except as noted.
For rustication detail see sheet 78.
All battered piles are battered 4 in 12.
Average vertical length of piles is 26'.
Pile spacings are given along bottom of footings.

Revised 3-3-56
Revised 12-19-55

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
WEST ABUTMENT DETAILS

AKRON SUMMIT COUNTY, OHIO

SCALE as shown
MADE J.WL. DATE 8-6-55
TRCD G.J.K. DATE 10-24-55
CKD D.F.B. DATE 9-8-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET 61

Revised As-Built 1-17-58 JVP

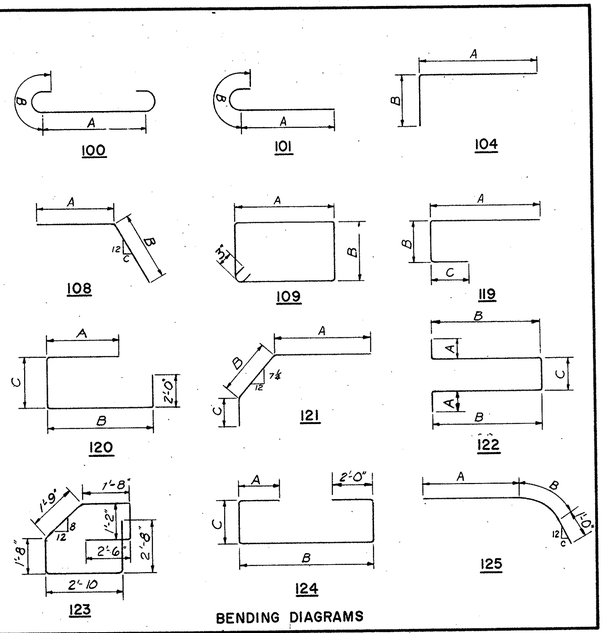
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

62
123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT POUNDS
			WEST ABUTMENT						
601	36	3'-9"	Str.						203
602	1 Ser. of 9	13'-8" to 25'-8"	122	1'-0	4'-9" to 10'-9"	2'-2"		9"@3"	265
603	60	6'-2"	104	4'-2"	2'-0"				556
604	54	16'-4"	119	12'-6"	0'-8"	3'-2"			1330
605	83	12'-0"	108	7'-6"	4'-6"	9 5/8			1495
606	89	9'-8"	104	8'-6"	1'-2"				1314
607	2 ser. of 5	12'-6 to 24'-0"	Str.					6"@3"	273
608	4 ser. of 3	5'-6" to 11'-6"	Str.					3'-0"	153
609	6	16'-10"	119	13'-0"	0'-8"	3'-2"			151
610	4	7'-2"	108	4'-8"	2'-6"	1			43
611	1 ser. of 8	13'-2" to 23'-2"	122	1'-0"	4'-6" to 9'-6"	2'-2"		8½"	218
612	2	29'-6"	Str.						89
613	2	35'-9"	Str.						107
614	36	44'-9"	Str.						2420
615	4	22'-6"	Str.						135
616	3	20'-3"	Str.						91
617	19	23'-3"	Str.						664
618	16	21'-0"	Str.						505
619	1 Ser. of 6	21'-6" to 22'-0"	Str.					1 3/16"	196
620	20	19'-3"	Str.						578
621	6	23'-9"	Str.						214
622	12	21'-3"	Str.						383
623	4	23'-0"	Str.						138
624	6	22'-9"	Str.						204
625	10	20'-6"	Str.						308
626	35	14'-3"	123						750
627	35	5'-6"	104	2'-6"	3'-0"				288
628	112	4'-0"	Str.						675
629	4	24'-6"	Str.						147
630	9	22'-0"	Str.						296
631	1 Ser. of 6	25'-9" to 26'-3"	Str.					1 3/16	236
632	3	27'-9"	Str.						125
633	6	25'-0"	Str.						225
634	4	29'-0"	Str.						174
635	5	27'-0"	Str.						202
636	9	16'-10"	120	2'-0"	11'-8"	1'-2"			227
637	88	9'-0"	Str.						1190
638	9	10'-6"	121	6'-5"	2'-11"	1'-2"			142
639	79	14'-4"	120	2'-0"	8'-8"	1'-2"			1700
640	95	7'-8"	104	5'-0"	2'-8"				1090
641	1 Ser. of 10	26'-8" to 35'-8"	122	1'-0"	11'-3" to 15'-9"	2'-2"		6"	468
642	4	11'-4"	120	2'-6"	5'-8"	1'-2"			68
643	12	16'-10"	124	5'-0"	8'-8"	1'-2"			303
644	6	4'-3"	Str.						38
645	5	10'-0"	Str.						75
646	2	8'-9"	Str.						26
647	1	29'-9"	Str.						45
648	2	34'-3"	104	34'-3"	1'-6"				102
649	1	38'-3"	Str.						48
650	1 Ser. of 9	24'-2" to 32'-8"	122	1'-0"	10'-0" to 14'-3"	2'-2"		6⅜"	384
651	4	13'-6"	109	10"	5'-8"				81
652	1	36'-0"	Str.						54
653	13	11'-4"	100	9'-6"	0'-11"				221
654	13	14'-6"	Str.						283
655	13	9'-10"	100	8'-0"	0'-11"				191
656	47	11'-6"	Str.						812
657	47	12'-10"	100	11'-0"	0'-11"				905
658	6	16'-6"	Str.						148
659	6	18'-6"	Str.						167
660	2 Ser. of 4	12'-0" to 21'-0"	Str.					3'-0"	200
661	2 Ser. of 3	4'-0" to 10'-0"	Str.					3'-0"	63
662	2 Ser. of 4	10'-9" to 19'-9"	Str.					3'-0"	185
663	1 Ser. of 7	13'-8" to 22'-2"	122	1'-0"	4'-9" to 9'-0"	2'-2"		8½"	189
664	1 Ser. of 9	22'-8" to 30'-8"	122	1'-0"	9'-3" to 13'-3"	2'-2"		6"	359

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT POUNDS
801	37	44'-3"	Str.						4371
802	33	42'-3"	Str.						3723
803	3	23'-0"	Str.						184
804	2	13'-0"	Str						70
805	6	22'-3"	Str.						357
806	5	14'-6"	101	13'-0"	1'-6"				194
807	4	9'-0"	Str.						96
808	17	6'-0"	101	4'-6"	1'-6"				272
809	6	14'-6"	Str.						232
810	3	11'-6"	Str.						92
811	2	44'-9"	Str.						239
812	3	21'-6"	Str.						172
813	36	48'-11"	119	45'-3"	1'-2"	2'-6"			4702
814	34	43'-3"	Str.						3930
815	5	36'-0"	Str.						480
816	4	34'-0"	Str.						365
817	5	28'-0"	Str.						374
818	5	26'-0"	Str.						348
819	4	15'-9"	Str.						168
820	4	13'-9"	Str.						147
821	3	8'-9"	Str.						70
822	3	6'-9"	Str.						54
823	12	8'-6"	Str.						273
824	21	10'-0"	Str.						561
825	11	12'-6"	101	11'-0"	1'-6"				367
826	4	12'-0"	Str.						128
827	4	25'-6"	125	21'-6"	3'-0"	5¾			282
828	3	30'-9"	125	26'-9"	3'-0"	6			247
829	4	26'-9"	125	22'-9"	3'-0"	6¾			287
901	12	10'-0"	Str.						408
902	26	6'-0"	101	4'-5"	1'-7"				530
903	4	34'-0"	Str.						462
904	5	33'-6"	Str.						571
905	2	40'-6"	Str.						276
906	2	29'-0"	Str.						197
907	1	40'-0"	Str.						136
1001	12	21'-0"	100	17'-6"	1'-9"				1084
1002	16	7'-9"	101	6'-0"	1'-9"				534
1101	6	10'-0"	Str.						319
1102	15	7'-0"	101	5'-1"	1'-11"				558
1103	6	40'-6"	Str.						1290
1104	3	40'-0"	Str.						638
1105	30	10'-3"	101	8'-4"	1'-11"				1631
1106	8	23'-4"	100	19'-6"	1'-11"				992
1107	8	25'-4"	100	21'-6"	1'-11"				1078
1108	8	26'-4"	100	22'-6"	1'-11"				1123
								TOTAL	58,935



BENDING DIAGRAMS

Note: Bar dimensions are given out to out.

REPLACEMENT BAR REINFORCEMENT SCHEDULE

SIZE	NUMBER	LENGTH	TYPE	WEIGHT
4	1	5'-3"	Str.	4
5	7	5'-7"	Str.	41
6	19	5'-11"	Str.	169
7	11	6'-3"	Str.	141
8	4	6'-6"	Str.	69
9	1	6'-10"	Str.	23
10	1	7'-2"	Str.	31
11	10	7'-6"	Str.	399
		Total		877

Replacement bars are listed for entire structure

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
WEST ABUTMENT
REINFORCEMENT SCHEDULE
AKRON. SUMMIT COUNTY. OHIO

SCALE None
MADE LWL DATE 7-30-55
TRCD. DATE
CKD. DFB DATE 9-8-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET 62

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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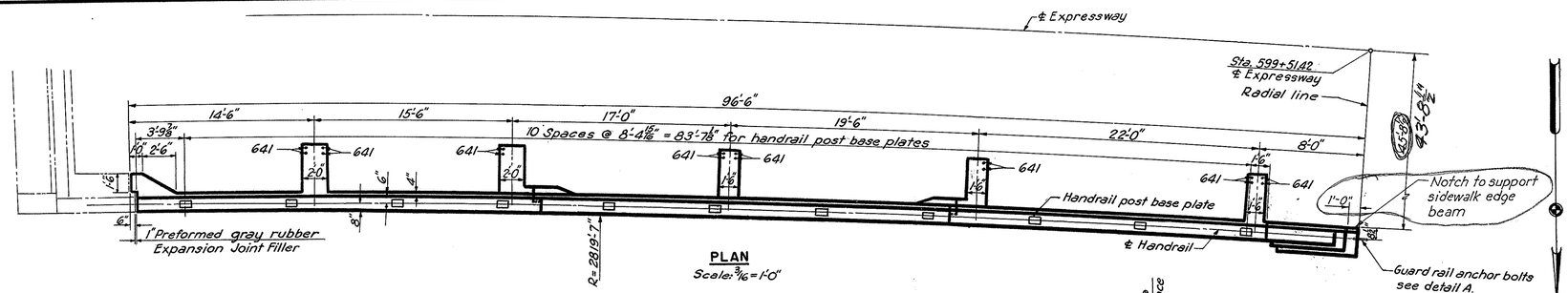
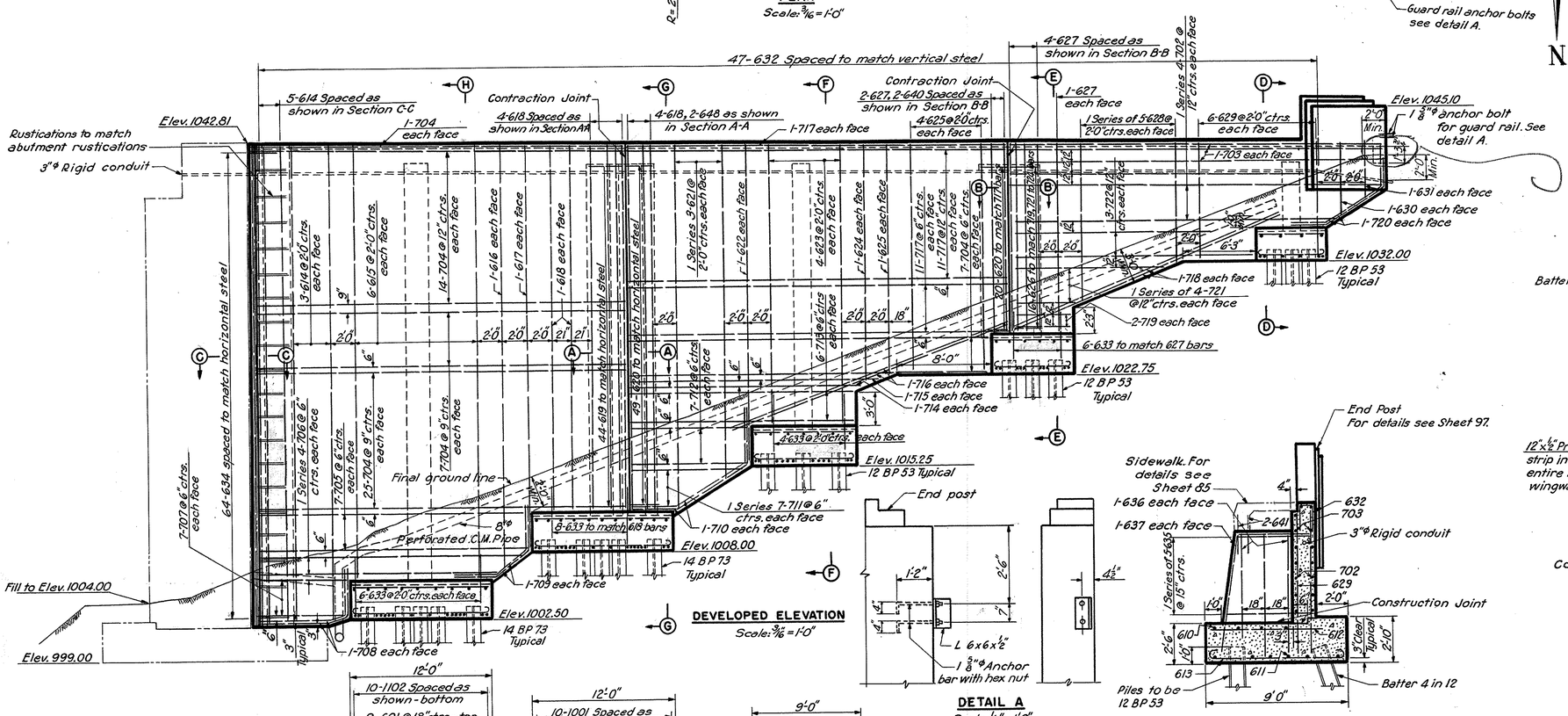
SUMMIT COUNTY
CITY OF AKRON
ARKON EXPRESSWAY SYSTEM



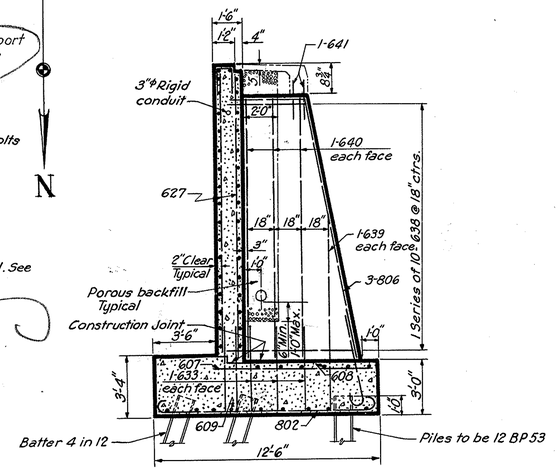
PLAN
Scale: 3/16 = 1'-0"



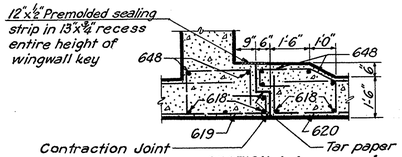
DEVELOPED ELEVATION
Scale: 3/16 = 1'-0"

DETAIL A
Scale: 1/2" = 1'-0"

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

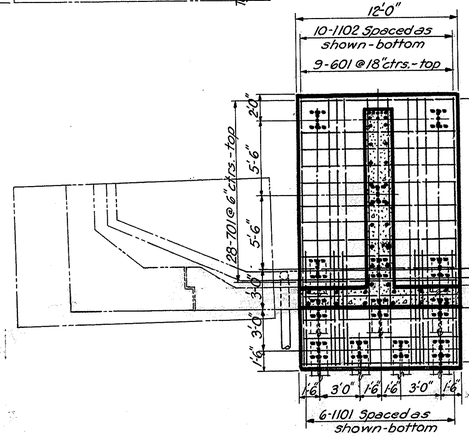


SECTION E-E
Scale: 1/4" = 1'-0"

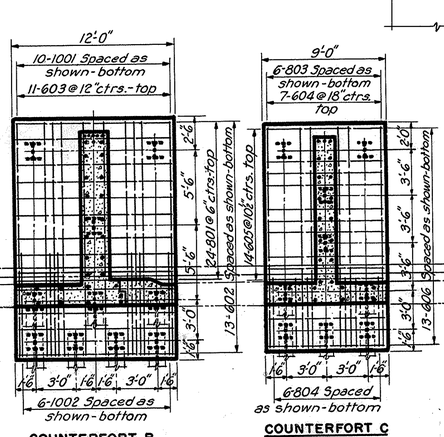


SECTION A-A
Scale: 3/16 = 1'-0"

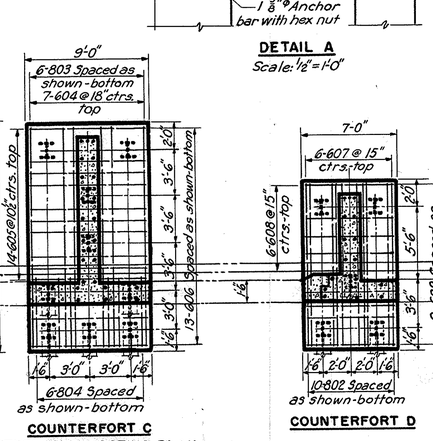
Note:
Section B-B similar but opposite hand except for mark numbers.



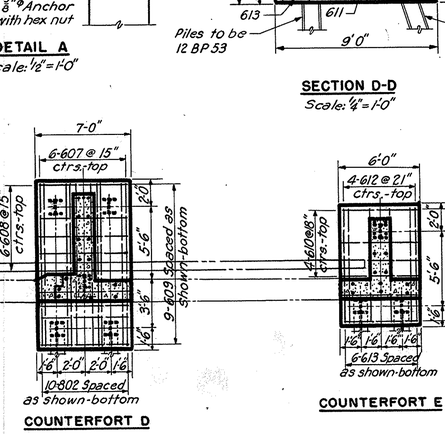
COUNTERFORT A



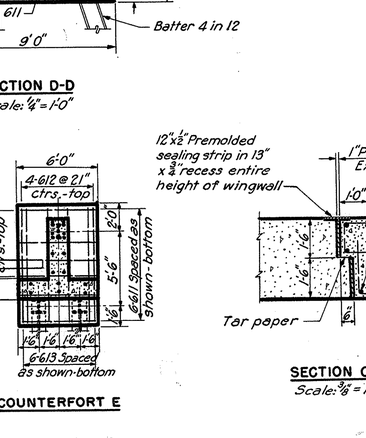
COUNTERFORT B



COUNTERFORT C
DEVELOPED FOOTING PLAN
Scale: 3/16 = 1'-0"



COUNTERFORT D



COUNTERFORT E

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

Notes:
For rustication details see Sheet 78.
For handrail details see Sheet 97.
For reinforcement schedule see Sheet 64.
For Sections F-F, G G and H-H see Sheet 64.
Pile spacing is measured along bottom of footing.
For porous backfill see Section E-E.
Average vertical pile length = 39 feet.
For bearing pile splice details see Sheet 61.
A horizontal construction joint will be permitted in a rustication groove if a joint is required.

Revised 3-19-56
Revised 12-19-55

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
NORTHWEST WINGWALL

AKRON SUMMIT COUNTY. OHIO

SCALE As Shown
MADE E.W.L. DATE 7-19-55
TRCD C.T.H. DATE 11-23-55
CKD. D.F.B. DATE 9-13-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET- 63

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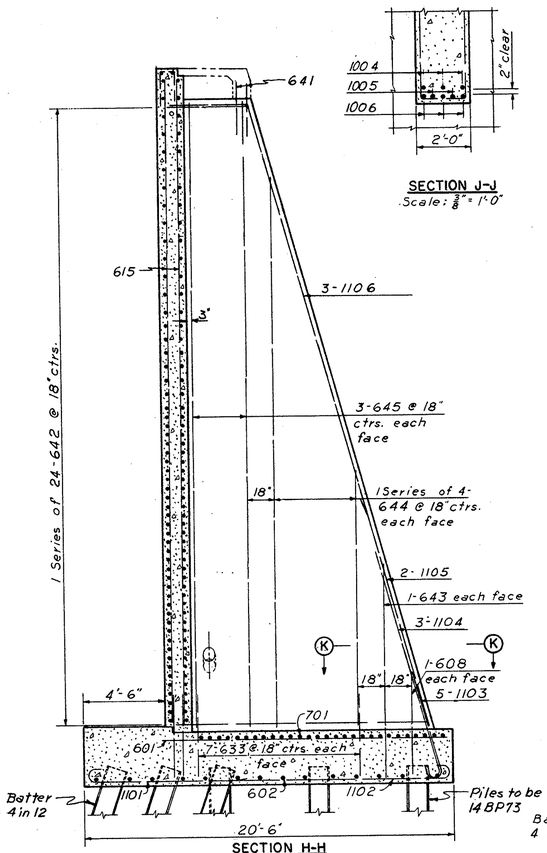
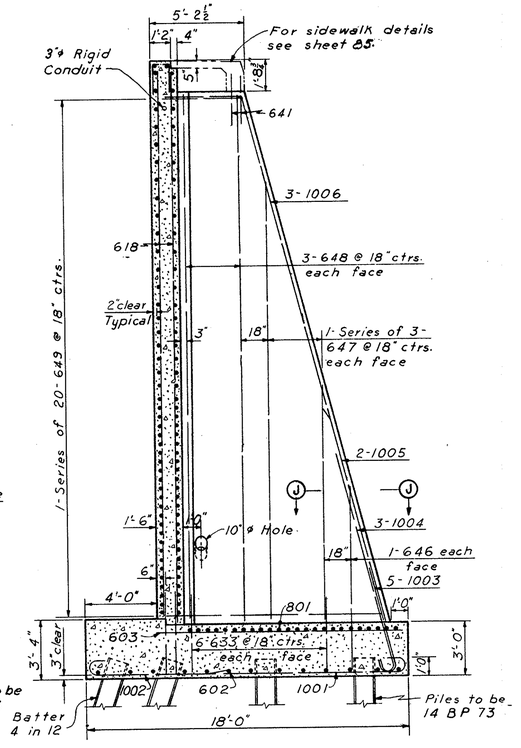
Note: Section K-K similar to section J-J except for mark numbers.

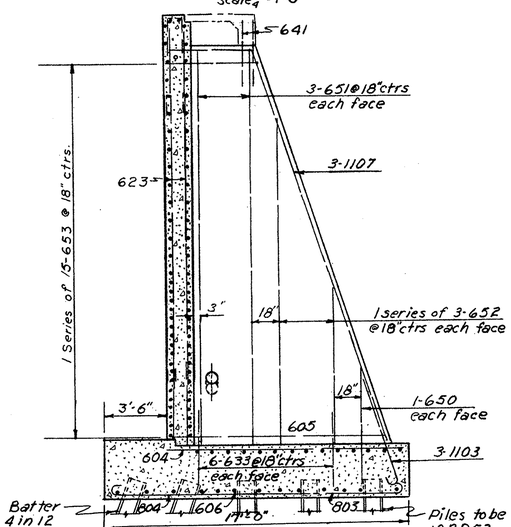


SECTION J-J
Scale: $\frac{3}{8}$" = 1'-0"

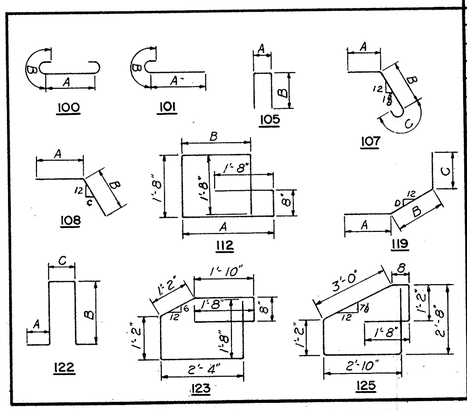
SECTION H-H
Scale $\frac{3}{8}$" = 1'-0"



SECTION G-G
Scale $\frac{1}{4}$" = 1'-0"



SECTION F-F
Scale $\frac{1}{4}$" = 1'-0"



MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT POUNDS
NORTHWEST WINGWALL									
601	9	16'-0"	Str.						216
602	27	12'-10"	100	11'-0"	0'-11"				520
603	11	14'-0"	Str.						231
604	7	13'-6"	Str.						142
605	14	8'-6"	Str.						179
606	13	9'-10"	100	8'-0"	0'-11"				192
607	6	9'-0"	Str.						81
608	8	6'-6"	Str.						78
609	9	7'-10"	100	6'-0"	0'-11"				106
610	4	5'-6"	Str.						33
611	6	6'-10"	100	5'-0"	0'-11"				62
612	4	8'-0"	Str.						48
613	6	9'-10"	100	8'-0"	0'-11"				89
614	11	40'-0"	Str.						661
615	12	36'-6"	Str.						656
616	2	35'-6"	Str.						107
617	2	34'-0"	Str.						102
618	12	30'-9"	Str.						554
619	44	11'-0"	112	2'-11"	2'-5"				727
620	69	10'-6"	123						1088
621	2 Ser. of 3	27'-9" to 30'-6"	Str.					1'-4½"	264
622	2	26'-6"	Str.						80
623	8	23'-6"	Str.						282
624	2	19'-9"	Str.						60
625	10	19' 0"	Str.						285
626	16	10'-7"	112	2'-5"	1'-11"				240
627	8	16'-0"	Str.						192
628	2 Ser. of 5	9'-6" to 12'-9"	Str.					0'-9¾"	169
629	12	9'-3"	Str.						167
630	2	5'-9"	Str.						17
631	2	5'-0"	Str.						15
632	47	5'-10"	105	0'-10"	2'-6"				412
633	78	4'-9"	Str.						556
634	64	13'2"	125						1266
635	1 Ser. of 5	12'-10" to 14-2"	122	1'-0"	4'-10" to 5'-6"	1'-2"		2" on B	101
636	6	7'-6"	Str.						68
637	2	12'-11"	107	4'-6"	7'-6"	0'-11"			39
638	1 Ser. of 10	12'-8" to 18'-2"	12	1'-0"	4'-9" to 7'-6"	1'-2"		3⅛"	232
639	2	10'-6"	Str.						31
640	8	14'-6"	Str.						174
641	16	3'-6"	Str.						89
642	1 Ser. of -24	13'-2" to 32'-8"	122	1'-0"	4'-9" to 14'-6"	1'-8"		5⅛"	826
643	2	11'-6"	Str.						35
644	2 Ser. of 4	14'-6" to 31'-0"	Str.					5'-6"	273
645	6	35'-0"	Str.						315
646	2	10'-0	Str.						30
647	2 Ser. of 3	13'-6" to 25'-0"	Str.					5'-9"	173
648	8	29'-3"	Str.						351
649	1 Ser. of 20	13'-2" to 28'-8"	122	1'-0"	4'-9 to 12'-6	1'-8"		4⅜"	63
650	2	7'-6"	Str.						23
651	6	22'-3"	Str.						200
652	2 Ser. of 3	9'-0 to 18'-0"	Str.					4'-6"	122
653	1 Ser. of 15	12'-8" to 27'-2"	122	1'-0"	4'-9" to 12'-0"	1'-2"		1'-4⅝"	449
701	28	11'-6"	Str.						658
702	2 Ser. of 4	27'-6" to 31'-0"	Str.					1'-2"	479
703	8	28'-0"	Str.						458
704	108	30'-6"	Str.						6733
705	14	22'-6"	Str.						644
706	2 Ser. of 4	20'-0" to 22'-3"	Str.					0'-9"	346
707	14	7'-6"	Str.						215
708	4	11'-0"	119	5'-6"	1'-6"	4'-0"	3		90
709	4	11'-3"	119	3'-6"	3'-9"	4'-0"	8½		92
710	4	14'-6"	119	3'-0"	7'-0"	4'-6"	7⅞		118
711	2 Ser. of 7	4'-6" to 9'-3"	Str.					0'-9½"	195
712	14	9'-9"	Str.						279
713	12	17'-9"	Str.						435
714	2	18'-6"	Str.						75
715	2	19'-9"	Str.						81
716	4	24'-9"	Str.						202
717	46	32'-0"	Str.						3009
718	4	25'-0"	Str.						204

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT POUNDS
719	4	4'-9"	Str.						39
720	4	11'-6"	119	2'-6"	6'-0"	3'-0"	9½		94
721	2 Ser. of 4	5'-9" to 13'-0"	Str.					2'-5"	153
722	6	20'-3"	Str.						298
801	24	11'-6"	Str.						737
802	10	14'-2"	100	11'-2"	1'-6"				378
803	6	18'-8"	100	15'-8"	1'-6"				299
804	6	6'-6"	101	5'-0"	1'-6"				104
805	3	6'-3"	101	4'-9"	1'-6"				50
806	3	19'-3"	108	4'-6"	14'-9"	2⅜"			154
1001	10	20'-0"	100	16'-6"	1'-9"				861
1002	6	9'-0"	101	7'-3"	1'-9"				232
1003	5	7'-3"	101	5'-6"	1'-9"				151
1004	3	13'-9"	101	12'-0"	1'-9"				177
1005	2	12'-6"	Str.						108
1006	3	35'-0"	108	4'-6"	30'-6"	2⅝			452
1101	6	10'-2"	101	8'-3"	1'-11"				324
1102	10	22'-10"	100	19'-0"	1'-11"				1213
1103	8	7'-11"	101	6'-0"	1'-11"				336
1104	3	14'-5"	101	12'-6"	1'-11"				230
1105	2	13'-3"	Str.						141
1106	3	41'-0"	108	4'-6"	36'-6"	3⅜			653
1107	3	27'-6"	108	4'-6"	23'-0"	3⅛			438
END POST									
686	7	7'-6"	Str.						79
687	3	7'-3"	Str.						33
688	10	6'-9"	Str.						101
689	2	5'-0"	Str.						15
690	8	6'-0"	Str.						72
691	1	5'-6"	Str.						8
692	1	5'-9"	Str.						9
								Total	35,674

Notes:
For location of sections see elevation sheet 63.
For dimensions not shown see sheet 63.
Dimensions shown for section G-G are typical except as noted.
For porous backfill details see sheet 63.
For replacement bars see Sheet 62.

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135

NORTHWEST WINGWALL DETAILS

AKRON SUMMIT COUNTY, OHIO

SCALE As Shown MADE LWL DATE 7-24-55
TRCD. DATE
CKD. D.F.B. DATE 9-13-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET 64

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FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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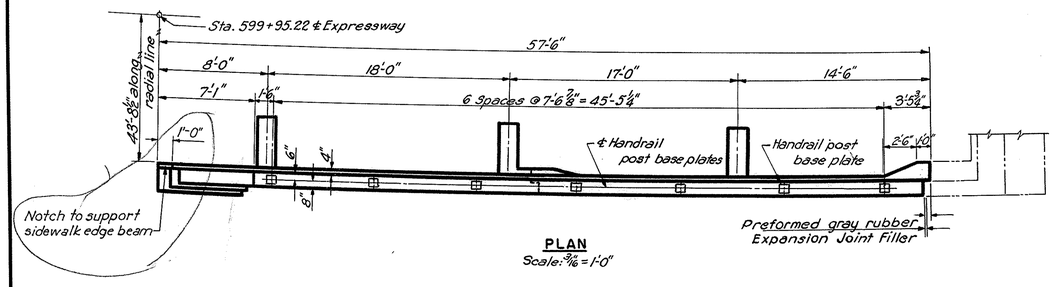
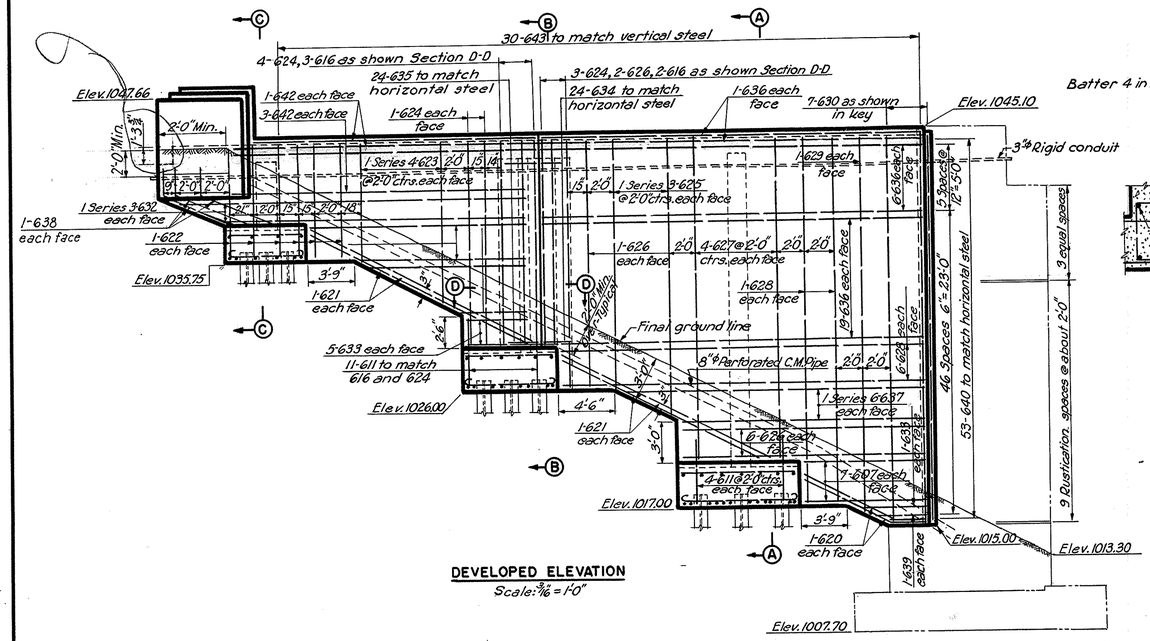
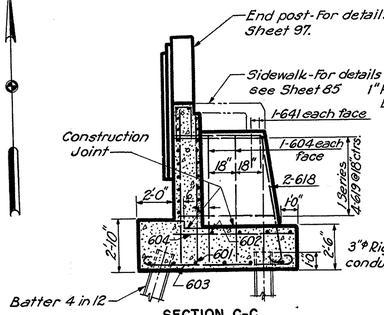
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



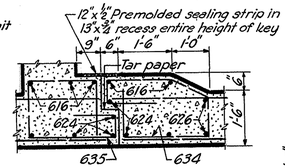
PLAN
Scale: 3/16" = 1'-0"



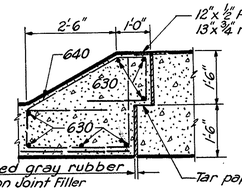
DEVELOPED ELEVATION
Scale: 3/16" = 1'-0"



SECTION C-C
Scale: 1½" = 1'-0"

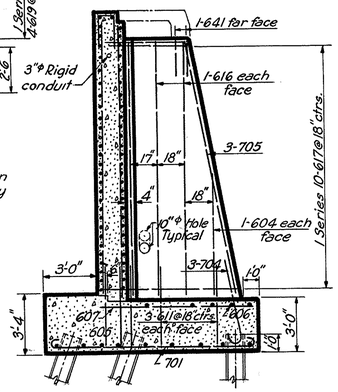


SECTION D-D
Scale: 1½" = 1'-0"

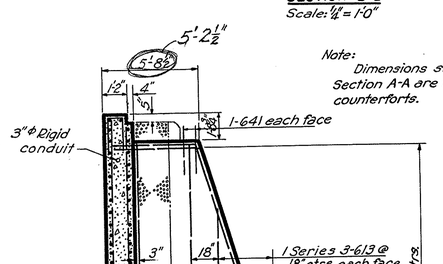


DETAIL OF KEY AT BUTTRESS
Scale: 1½" = 1'-0"

1" Preformed gray rubber Expansion Joint Filler

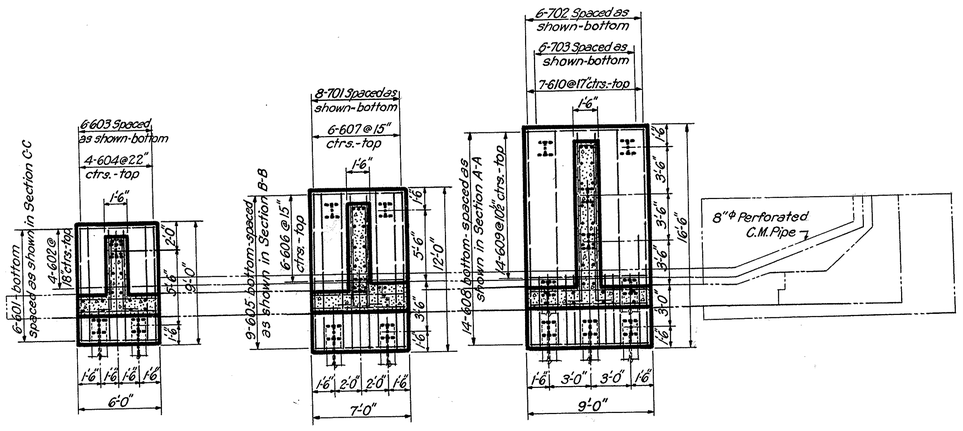


SECTION B-B
Scale: 1½" = 1'-0"



SECTION A-A
Scale: 1½" = 1'-0"

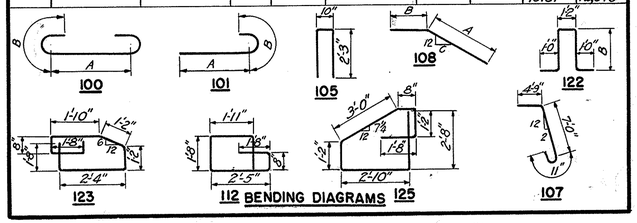
Note:
Dimensions shown top of wall Section A-A are typical for all counterforts.



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

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT POUNDS
601	6	6'-10"	100	5'0"	0'-11"				62
602	4	5'-6"	Str.						33
603	6	9'-10"	100	8'0"	0'-11"				89
604	12	7'-0"	Str.						126
605	9	7'-10"	100	6'0"	0'-11"				105
606	6	6'-6"	Str.						59
607	20	9'-0"	Str.						270
608	14	9'-10"	100	8'0"	0'-11"				205
609	14	8'-6"	Str.						179
610	7	13'-6"	Str.						145
611	38	5'-0"	Str.						285
612	2	7'-3"	Str.						21
613	2 Series of 3	9'-9" to 19'-9"	Str.					5'0"	134
614	6	7'-3"	Str.						210
615	1 Series of 16	12'-8" to 27'-2"	122		4'-9" to 12'-0"			5⅜"	479
616	9	14'-0"	Str.						190
617	1 Series of 10	12'-8" to 18'-2"	122		4'-9" to 7'-6"			3⅛"	232
618	2	12'-8"	107						38
619	1 Series of 4	12'-8" to 14'-2"	122		4'-9" to 5'-6"			3"	82
620	4	9'-10"	108	7'-0"	2'-10"	16½"			59
621	20	16'-0"	Str.						481
622	12	8'-3"	Str.						150
623	2 Series of 4	8'-6" to 11'-6"	Str.					1'-0"	120
624	11	15'-0"	Str.						249
625	2 Series of 3	18'-0" to 20'-6"	Str.					1'-3"	174
626	16	18'-0"	Str.						434
627	8	23-9	Str.						288
628	4	27'-0"	Str.						162
629	2	27'-6"	Str.						83
630	7	29'-0"	Str.						306
631	2 Series of 8	4'-9" to 12'-0"	Str.					1'-0⅜"	201
632	2 Series of 3	22'-6" to 26'-6"	Str.					2'0"	221
633	12	4'-9"	Str.						86
634	24	10'-6"	123						379
635	24	10'-0"	112						361
636	54	28'-3"	Str.						2300
637	2 Series of 6	18'-0" to 22'-6"	Str.					10-3⅜"	370
638	6	7'-6"	108	5'-6"	2'-0"	16½"			68
639	2	3'-9"	Str.						12
640	53	13'-2"	Str.						1055
641	10	3'-0"	Str.						45
642	10	22'-6"	Str.						338
643	30	5'-4"	105						241
701	8	13'-2"	100	10'-0"	1'-2"				214
702	6	17'-8"	100	15'-4"	1'-2"				215
703	6	7'-2"	101	6'0"	1'-2"				88
704	3	5'-8"	101	4'-6"	1'-2"				35
705	3	19'-0"	108	14'-3"	4'-9"	2⅜"			116
1001	3	26'-9"	108	24'-0"	4'-9"	2⅜"			370
1002	3	7'-9"	101	5'-6"	1'-9"				35
END POST									
686	7	7'-6"	Str.						80
687	3	7'-3"	Str.						33
688	10	6'-9"	Str.						100
689	2	3'-0"	Str.						15
690	8	6'-0"	Str.						76
691	1	5'-6"	Str.						8
692	1	5'-9"	Str.						9
								Total	12,575



Note:
For handrail details see Sheet 97.
For rustication detail see Sheet 78.
All piles to be 12 BP 53.
For replacemet bars see Sheet 62.
Average vertical pile length = 47 feet.
For bearing pile splice details see Sheet 61.
Bar dimensions are given out to out.

Revised 3-19-58
Revised 12-19-55

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18 R-135
SOUTHWEST WINGWALL

AKRON SUMMIT COUNTY, OHIO

SCALE As Shown
MADE B.S.S. DATE 8-12-55
TRCD C.T.H. DATE 11-29-55
CKD D.F.B. DATE 9-15-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET 65

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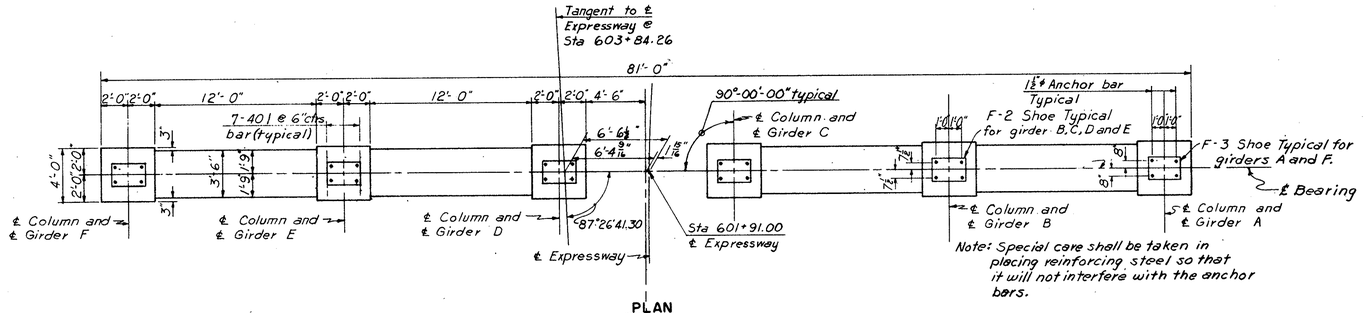
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

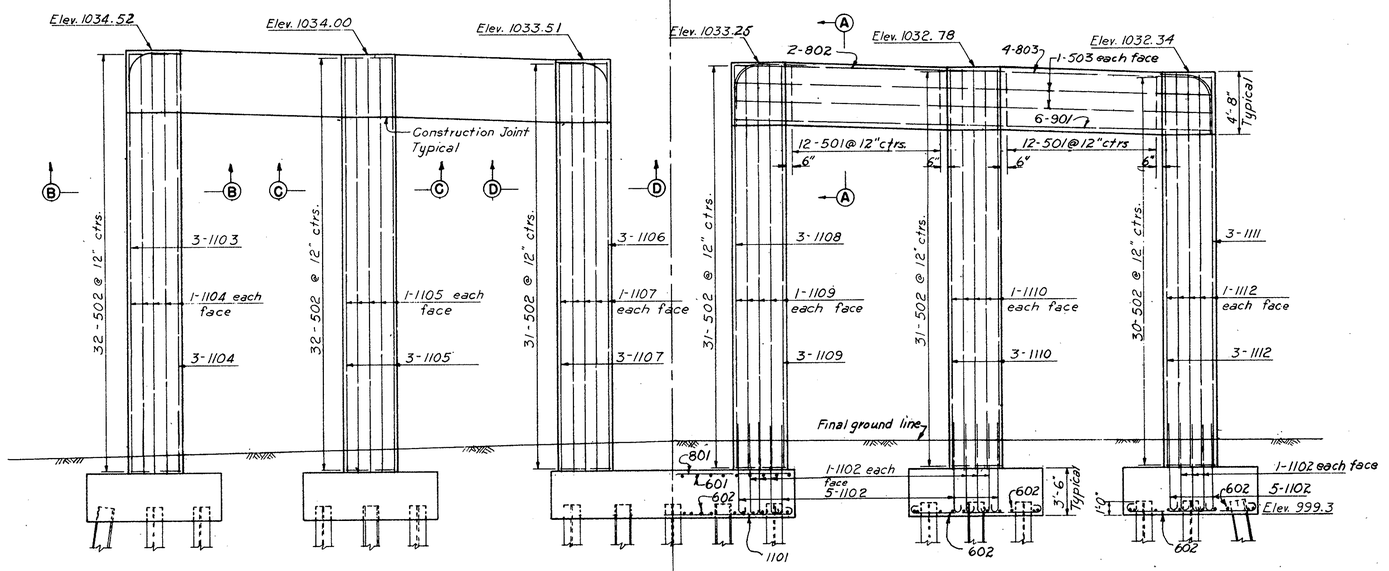
66
123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

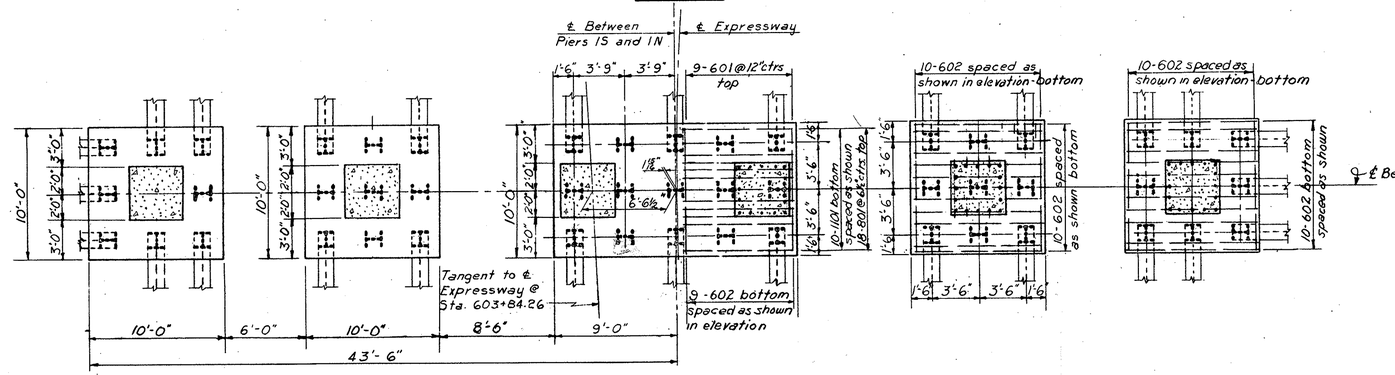


PLAN

Symmetrical about ℄ between Piers 13 and 1N except as shown



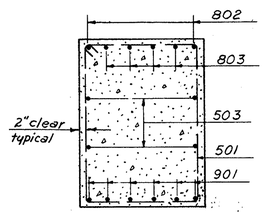
ELEVATION



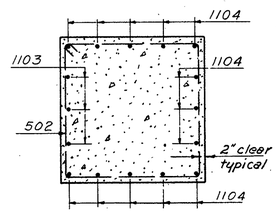
PIER 1 SOUTH

FOOTING PLAN

PIER 1 NORTH



SECTION A-A
Scale 1/2" = 1'-0"



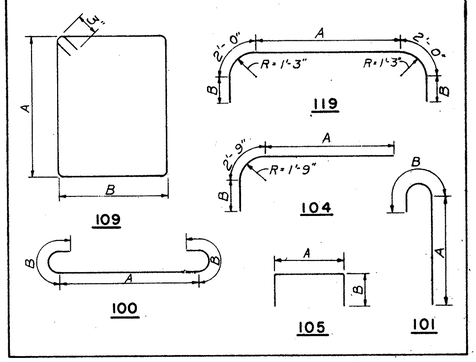
SECTION B-B
Scale 1/2" = 1'-0"

Sections C-C and D-D are similar to section B-B except for bar markings

Notes:
All piles to be 14 BP 73.
For shoe details and details of anchor bars see sheet 79.
All battered piles battered 2 in 12.
For pile splice details see sheet 61.
Average vertical pile length = 35 feet

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
401	42	5'-2"	105	3'-2"	1'-0"	145
501	48	15'-6"	109	4'-4"	3'-2	776
502	187	15'-2"	109	3'-8"	3'-8	2958
503	8	35'-6"	Str.			296
601	18	9'-6"	Str.			257
602	100	10'-10"	100	9'-0"	0'-11"	1627
801	18	17'-6"	Str.			841
802	4	42'-2"	119	33'-2"	2'-6"	450
803	8	35'-6"	Str.			738
901	12	35'-6"	Str.			1448
1101	10	20'-4"	100	16'-6"	1'-11"	1080
1102	96	8'-2"	101	6'-3"	1'-11"	4166
1103	3	36'-1"	104	29'-10"	3'-6"	575
1104	13	31'-6"	Str.			2176
1105	16	31'-0"	Str.			2635
1106	3	35'-1"	104	28'-10"	3'-6"	559
1107	13	30'-6"	Str.			2107
1108	3	34'-9"	104	28'-6"	3'-6"	554
1109	13	30'-3"	Str.			2089
1110	16	29'-9"	Str.			2529
1111	3	33'-9"	104	27'-6"	3'-6"	539
1112	13	29'-3"	Str.			2020
					Total	30,585



PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
PIERS 1S AND 1N
AKRON SUMMIT COUNTY, OHIO

SCALE 1/2" = 1'-0" MADE LWL DATE 7-27-55 TRCD DATE CKD SMA DATE 9-9-55
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET 66

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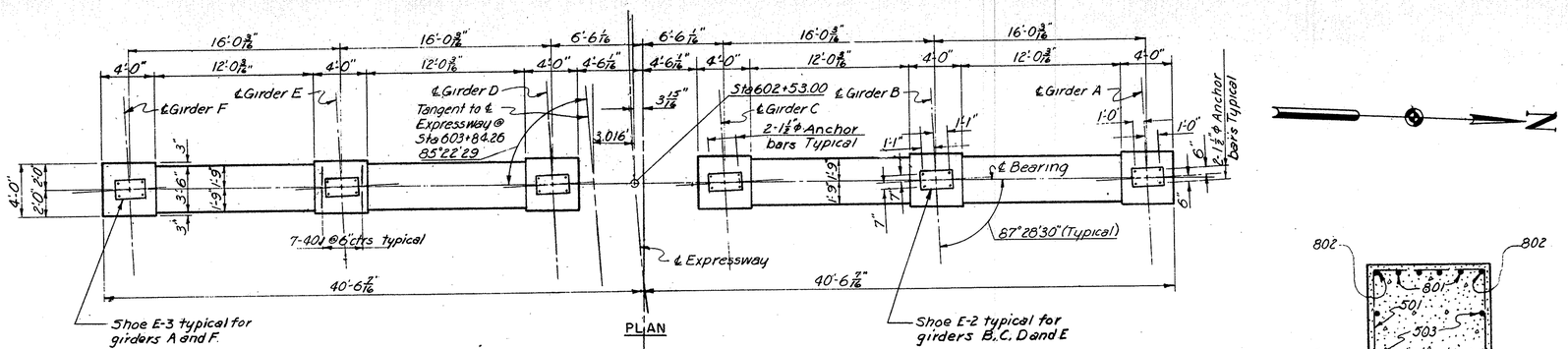
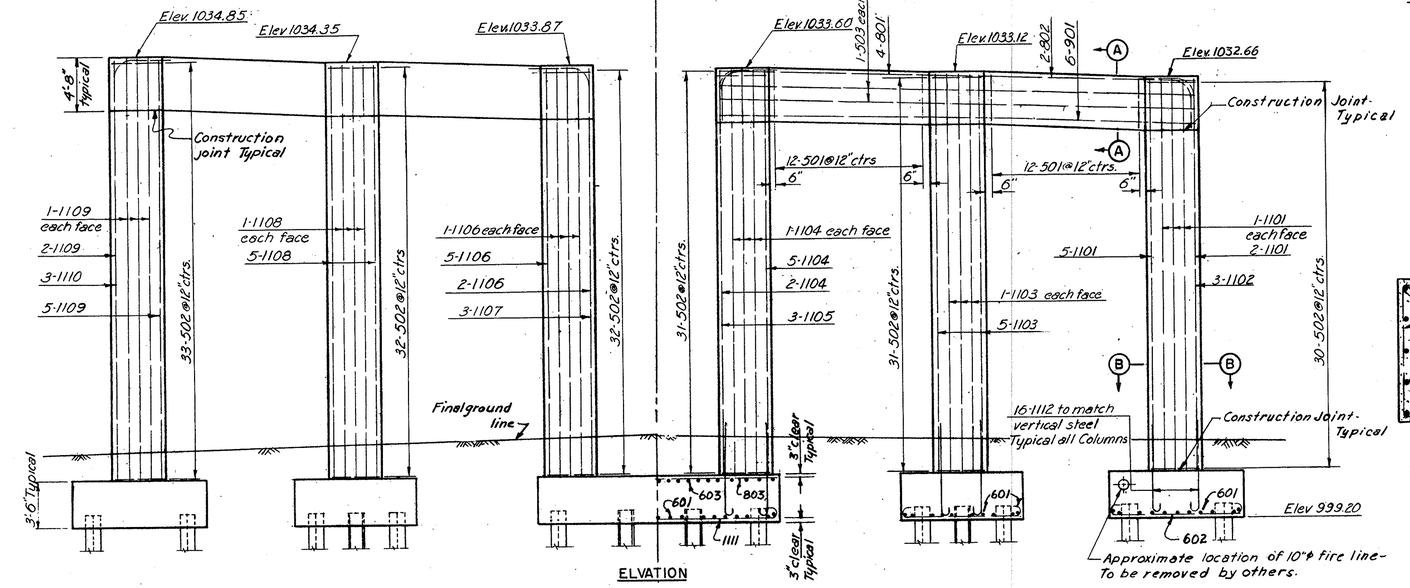
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

67
123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



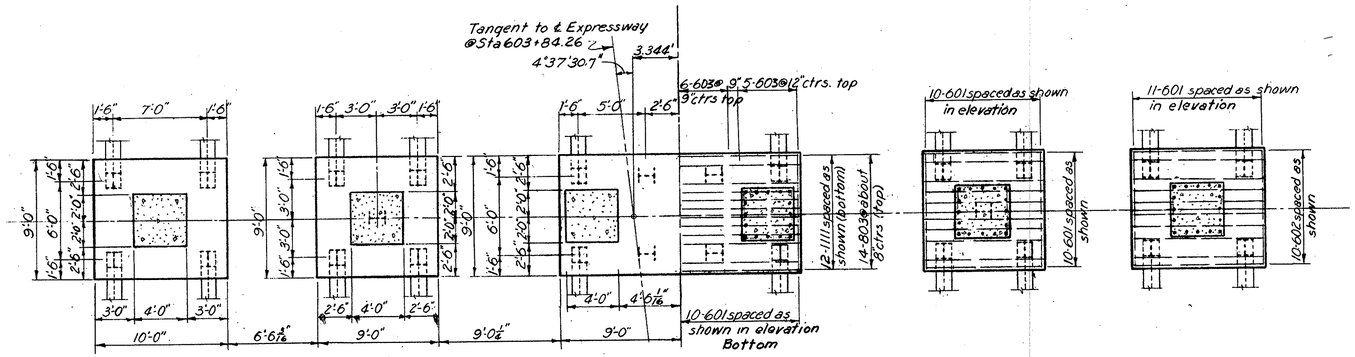
SECTION A-A
Scale 1/2"=1'-0"



ELVATION

SECTION B-B
Scale 1/2"=1'-0"

Note: Section B-B is typical for all column except for bar marks.



PIER 2 S

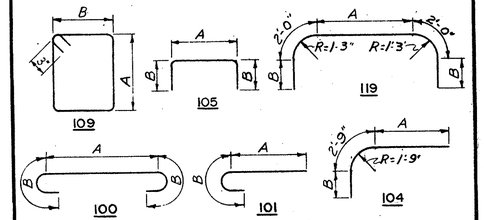
PIER 2 N

FOOTING PLAN

Note: All piles are 14 BP 73.
All battered piles are battered 2 in 12
For shoe and anchor bar details see sheet 79
For pile splice details see sheet 61
For replacement bars see Sheet 62.
Average vertical pile length = 30 feet

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH		DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
401	42	5'-2"	105	3'-2"	1'-0"	145
501	48	14'-2"	109	3'-8"	3'-2"	709
502	189	15'-2"	109	3'-8"	3'-8"	2990
503	8	35'-6"	Str			296
601	81	9'-10"	100	8'-0"	11"	1196
602	20	10'-10"	100	9'-0"	11"	325
603	21	8'-6"	Str			268
801	8	35'-6"	Str			758
802	4	42'-2"	119	33'-2"	2'-6"	450
803	14	19'-8"	100	16'-8"	1'-6"	735
901	12	35'-6"	Str			1448
1101	13	29'-9"	Str			2055
1102	3	34'-3"	104	28'-0"	3'-6"	546
1103	16	30'-3"	Str			2571
1104	13	30'-9"	Str			2124
1105	3	35'-3"	104	29'-0"	3'-6"	562
1106	13	31'-0"	Str			2141
1107	3	35'-6"	104	29'-3"	3'-6"	566
1108	16	31'-6"	Str			2678
1109	13	32'-0"	Str			2210
1110	3	36'-6"	104	30'-3"	3'-6"	582
1111	12	20'-4"	100	16'-6"	1'-11"	1295
1112	96	8'-2"	101	6'-3"	1'-11"	4166
					Total	30816



BENDING DIAGRAMS

Note: For replacement bars see sheet 62

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
PIERS 2S AND 2N
AKRON SUMMIT COUNTY, OHIO

SCALE 3/32"=1'-0" unless noted
MADE D.F.B. DATE 7-27-55
TRCD. DATE
CKD. S.M.A. DATE 9-12-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET: 67

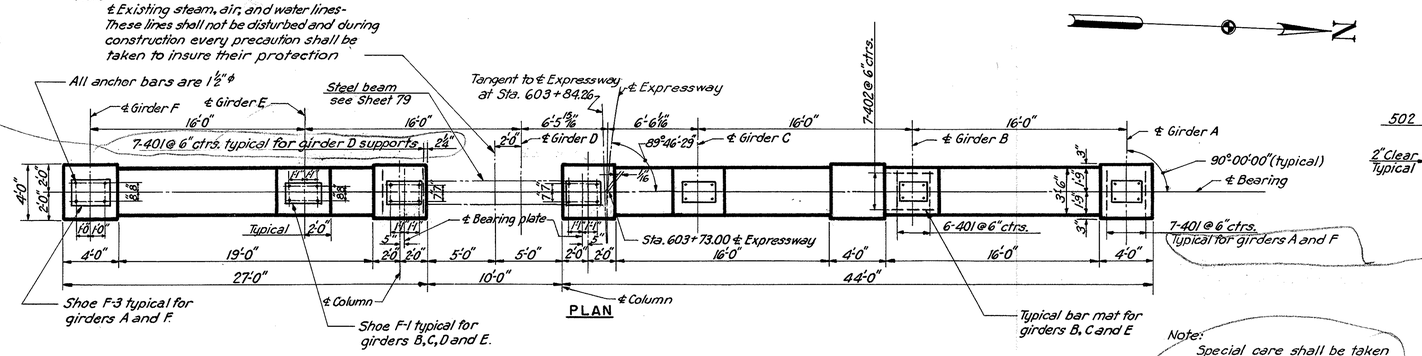
139

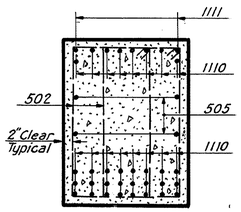
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

68
123

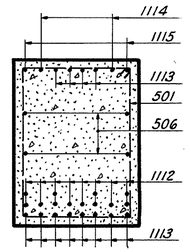
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

Note:
℄ Existing steam, air, and water lines-
These lines shall not be disturbed and during construction every precaution shall be taken to insure their protection

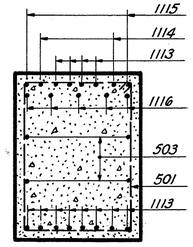




SECTION C-C
Scale: ½" = 1'-0"

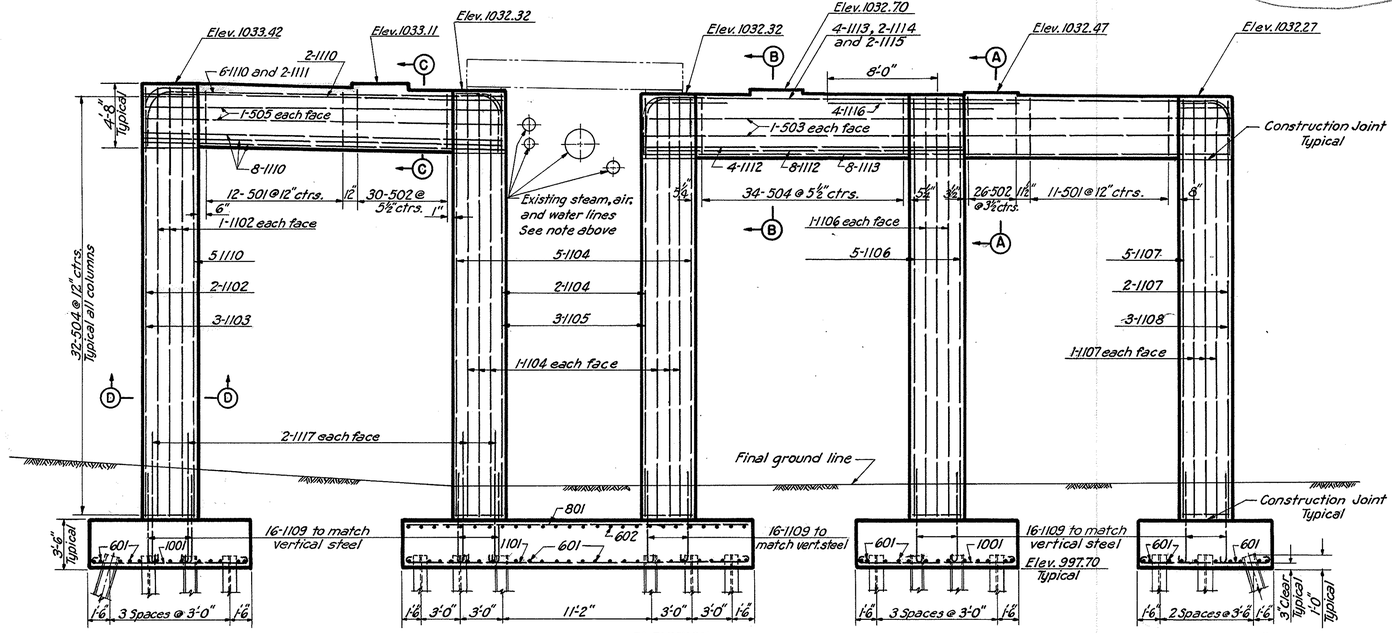


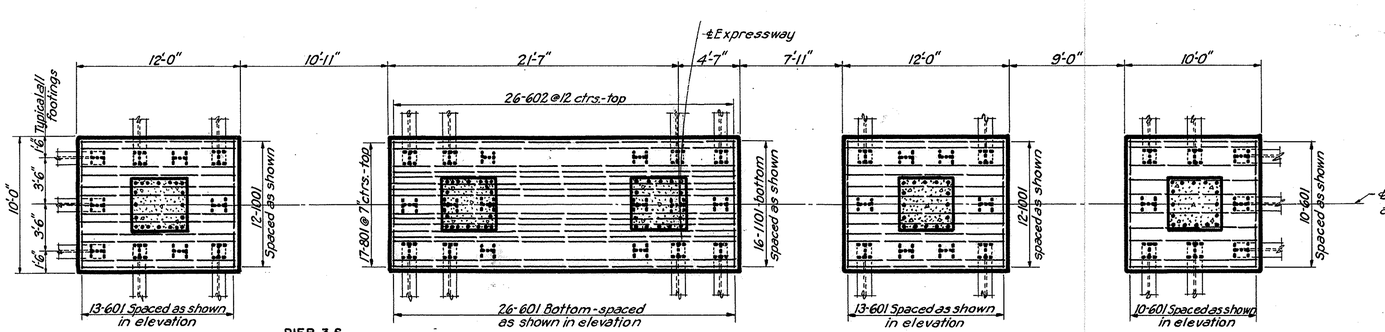
SECTION B-B
Scale: ½" = 1'-0"

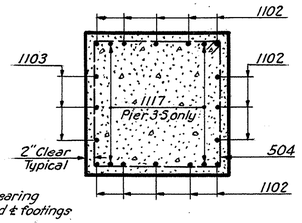


SECTION A-A
Scale: ½" = 1'-0"

Note:
Special care shall be taken in placing reinforcing steel so that it will not interfere with anchor bars.





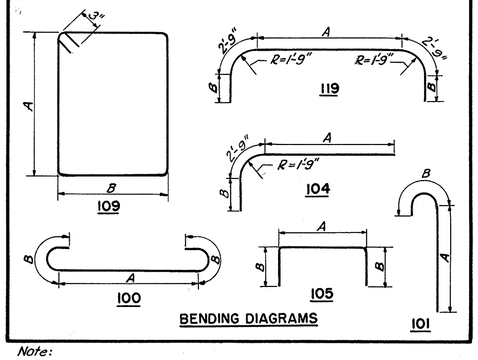


SECTION D-D
Scale: ½" = 1'-0"

Revised 12-19-55

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
401	46	5'-2"	105	3'-2"	1'-0"	159
402	21	3'-6"	Str.			49
501	57	15'-6"	109	4'-4"	3'-2"	923
502	56	13'-6"	109	4'-4"	2'-2"	793
503	4	43'-6"	Str.			182
504	160	15'-2"	109	3'-8"	3'-8"	2531
505	4	26'-6"	Str.			111
601	72	10'-10"	100	9'-0"	0'-11"	1172
602	22	9'-6"	Str.			314
801	17	25'-9"	Str.			1169
1001	24	14'-0"	100	10'-6"	1'-9"	1446
1101	16	28'-6"	100	24'-8"	1'-1"	2242
1102	13	32'-0"	Str.			2210
1103	3	36'-6"	104	30'-3"	3'-6"	585
1104	26	31'-0"	Str.			4290
1105	6	35'-7"	104	29'-4"	3'-6"	1135
1106	16	31'-0"	Str.			2635
1107	13	30'-9"	Str.			2124
1108	3	35'-3"	104	29'-0"	3'-6"	562
1109	80	8'-2"	101	6'-3"	1'-11"	3473
1110	32	26'-6"	Str.			4505
1111	2	33'-10"	119	23'-0"	2'-8"	360
1112	12	24'-0"	Str.			1530
1113	12	43'-6"	Str.			2774
1114	2	35'-5	104	30'-0"	2'-8"	377
1115	2	50'-10"	119	40'-0"	2'-8"	540
1116	4	14'-0"	Str.			298
1117	8	11'-8"	101	9'-9"	1'-11	497
						38982



BENDING DIAGRAMS

Note:
Bar dimensions are given out to out.

PART 7

Notes:
Average vertical pile length=48 feet.
All piles are 14 B.P. 73.
All battered piles battered 2 in 12.
Section D-D is a typical column section, except for bar marks.
All girders are parallel and normal to ℄ Pier.
For anchor bars and shoes see Sheet 79.
For pile details see Sheet 61.
For replacement bars see Sheet 62.
All pile spacings are given along bottom of footings.

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
PIER 3 S AND 3 N
AKRON SUMMIT COUNTY, OHIO

SCALE 3/16" = 1'-0" Unless shown
MADE T.D.D. DATE 7-27-55
TRCD. C.T.H. DATE 11-9-55
CKD. B.S.S. DATE 9-29-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET- 68

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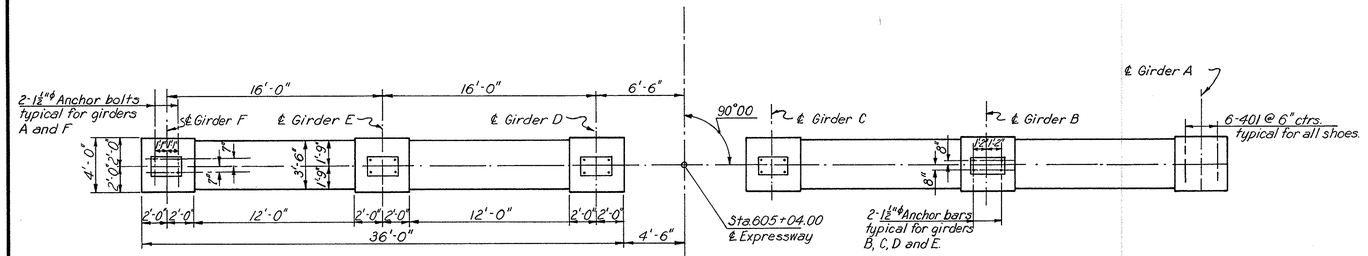
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

69
123

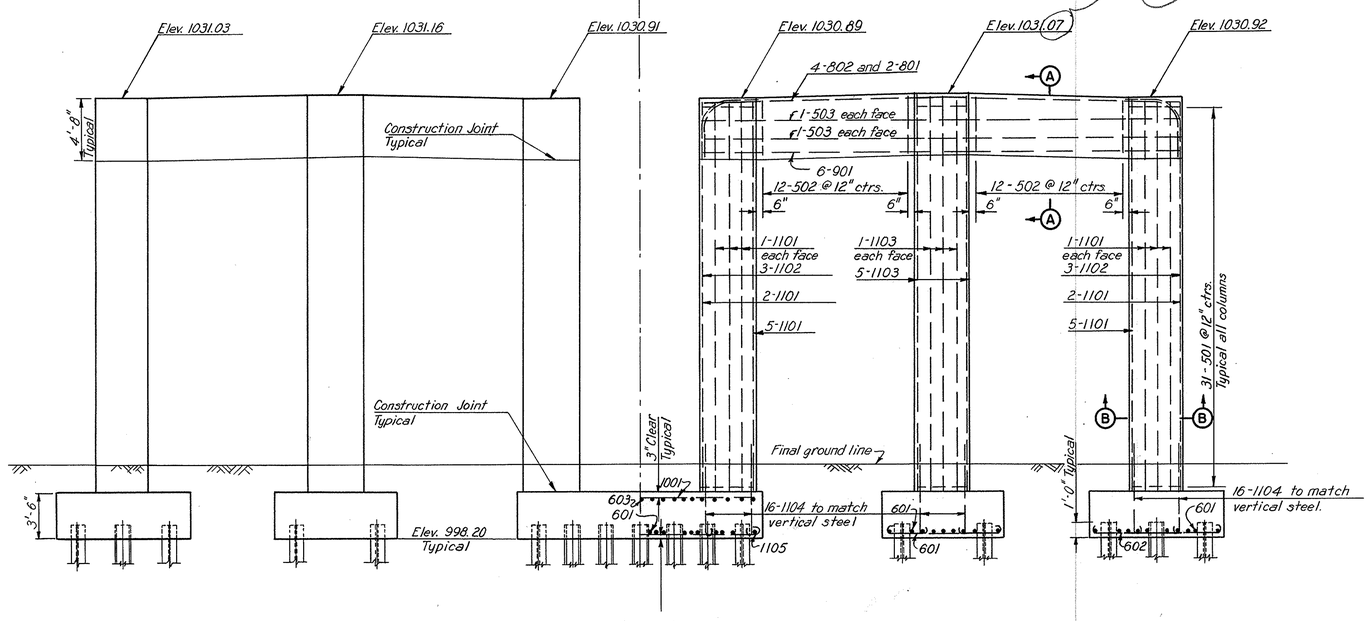
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



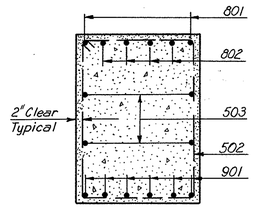
PLAN

Symmetrical about ℄ Expressway and ℄ between Piers 4S and 4N except as shown.

Note: Special care shall be taken in placing reinforcing steel so that it will not interfere with the anchor bolts.

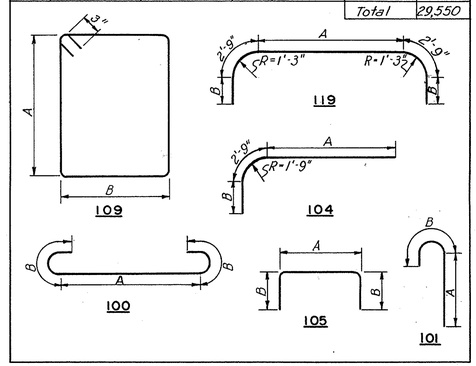


ELEVATION



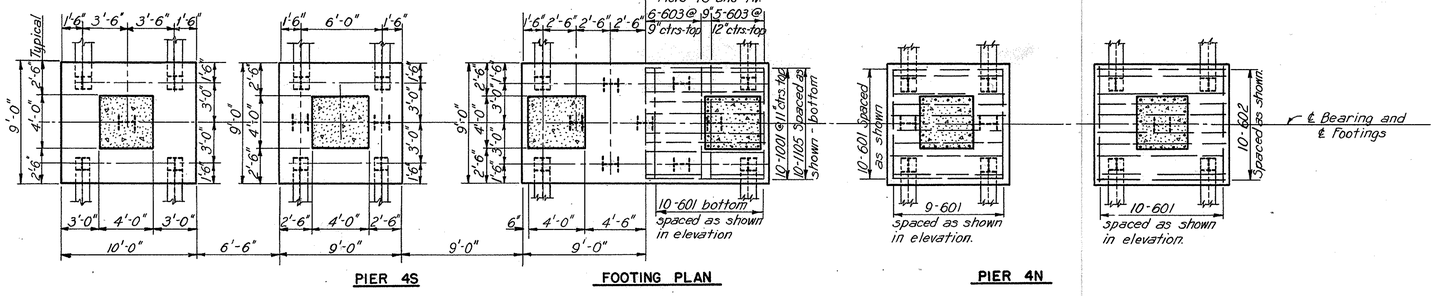
SECTION A-A
Scale 1/2" = 1'-0"

SECTION B-B
Scale 1/2" = 1'-0"
Typical for all columns except for bar marks.



REINFORCEMENT SCHEDULE						
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
401	36	5'-2"	105	3'-2"	1'-0"	124
501	186	14'-10"	109	3'-7"	3'-7"	2878
502	48	15'-2"	109	4'-3"	3'-1"	760
503	8	35'-6"	Str.			296
601	78	9'-10"	100	8'-0"	0'-11"	1151
602	20	10'-10"	100	9'-0"	0'-11"	325
603	21	8'-6"	Str.			268
801	4	43'-8"	119	33'-2"	2'-6"	466
802	8	35'-6"	Str.			756
901	12	35'-6"	Str.			1450
1001	10	17'-6"	Str.			753
1101	52	29'-0"	Str.			8012
1102	12	33'-6"	104	27'-3"	3'-6"	2136
1103	32	29'-0"	Str.			4930
1104	96	8'-2"	101	6'-3"	1'-11"	4165
1105	10	20'-4"	100	16'-6"	1'-11"	1080
					Total	29,550

Note: For replacement bars see sheet 62.
Bar dimensions are given out to out.



PIER 4S — FOOTING PLAN — PIER 4N

Notes:
All piles are 14 BP 73. All battered piles are battered 2 in 12.
For anchor bars and shoe details see sheet 79.
For pile splice details see sheet 61.
Average vertical pile length = 70 feet.
All pile spacings are given along bottom of footings.

Revised 12-19-55

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
PIER 4S AND PIER 4N

AKRON SUMMIT COUNTY, OHIO

SCALE 3/16" = 1'-0" except where shown
MADE TDO DATE 7-26-55
TRCD. GJK DATE 10-28-55
CKD. JRK DATE 9-12-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

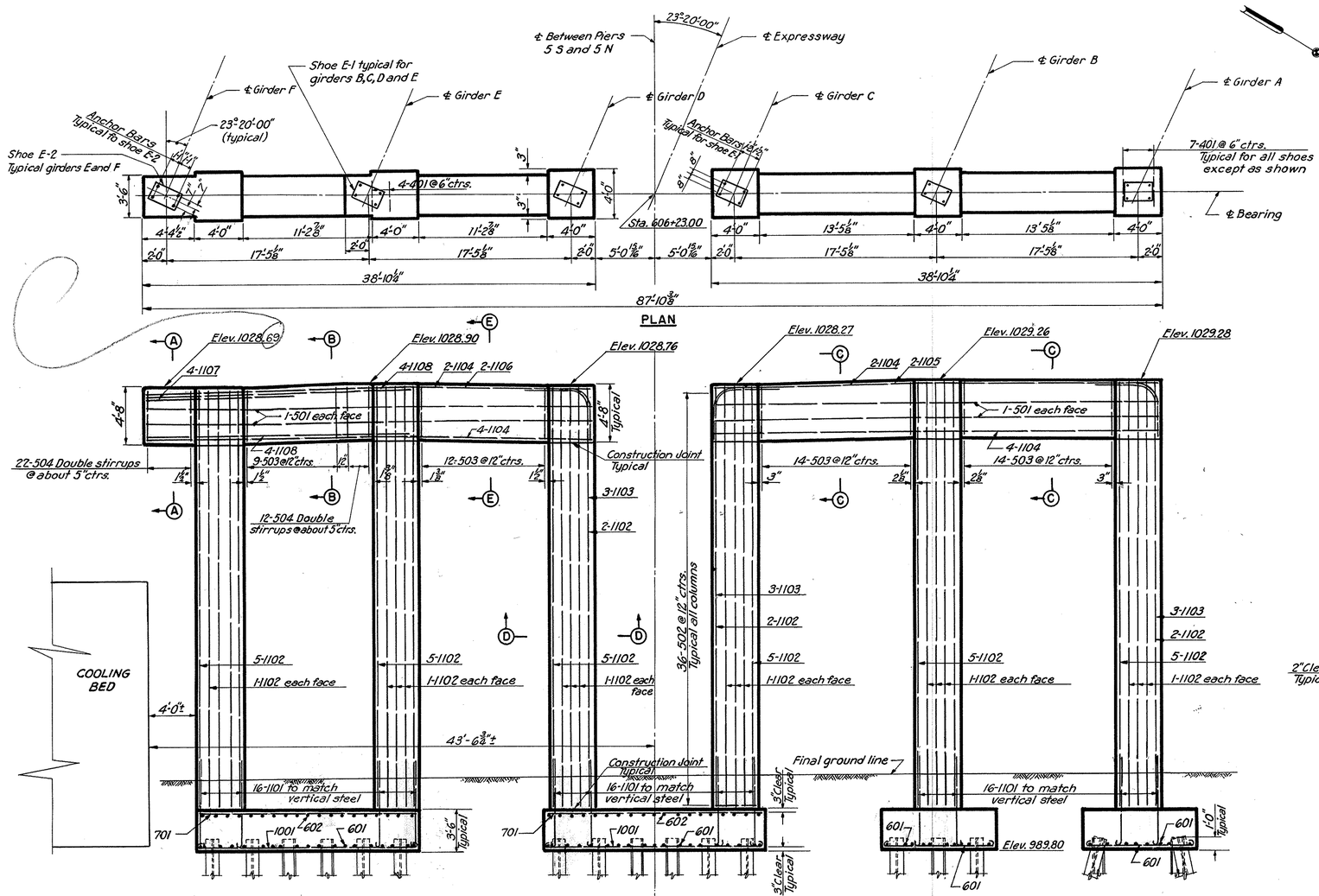
901 SHEET- 69

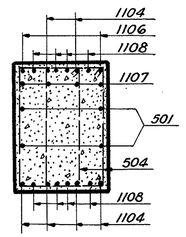
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

70
123

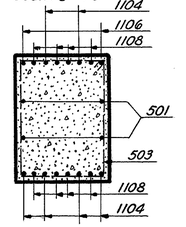
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

Note:
Special care shall be taken in placing reforcing steel so that it will not interfere with the anchor bars.

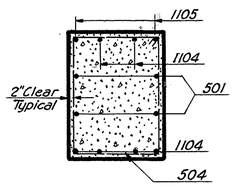




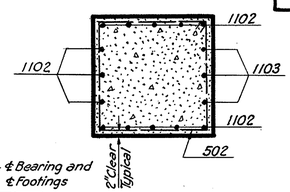
SECTION A-A
Scale: ⅜" = 1'-0"



SECTION B-B
Scale: ⅜" = 1'-0"

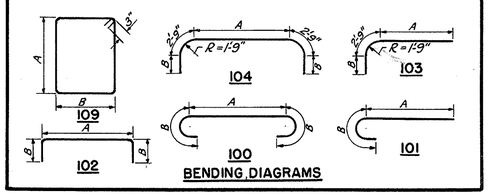


SECTION C-C
Scale: ⅜" = 1'-0"
Section E-E similar except for bar marks



SECTION D-D
Scale: ⅜" = 1'-0"
Typical for all columns except for bar marks

REINFORCEMENT SCHEDULE						
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
401	39	3'-2"	102	3'-2"	1'-0"	134
501	8	38'-6"	Str.			321
502	216	15'-2"	109	3'-8"	3'-8"	3417
503	49	15'-6"	109	4'-4"	3'-2"	792
504	34	13'-2"	109	4'-4	2'-1	467
601	78	10'-10"	100	9'-0"	0'-11"	1269
602	38	9'-6"	Str.			543
701	30	18'-9"	Str.			1150
1001	22	21'-3"	100	17'-9"	1'-9"	2012
1101	96	8'-2"	101	6'-3"	1'-11"	4170
1102	87	35'-6"	Str.			16,409
1103	9	40'-7"	103	34'-3"	3'-7"	1941
1104	12	38'-6"	Str.			2455
1105	2	47'-4"	104	35'-0"	3'-5"	503
1106	2	43'-0"	103	36'-10"	3'-5"	456
1107	4	12'-9"	Str.			271
1108	8	23'-6"	Str.			999
					Total =	37,309



Note:
Bar dimensions are given out to out.

Note:
For anchor bar and shoe details see Sheet 79.
All piles are 14 BP 73.
All battered piles are battered 2 in 12.
For pile splice details see Sheet 61.
For replacement bars see Sheet 62.
Average vertical pile length = 25 feet.
Pile spacings are given along bottom of footings.

Revised 12-19-55

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
PIER 5 S AND 5 N

AKRON SUMMIT COUNTY. OHIO

SCALE 3/8"=1'-0" Except as noted
MADE Y.P.C. DATE 7-27-55
TRCD. C.T.H. DATE 11-11-55
CKD. J.R.K. DATE 7-12-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

901 SHEET- 70

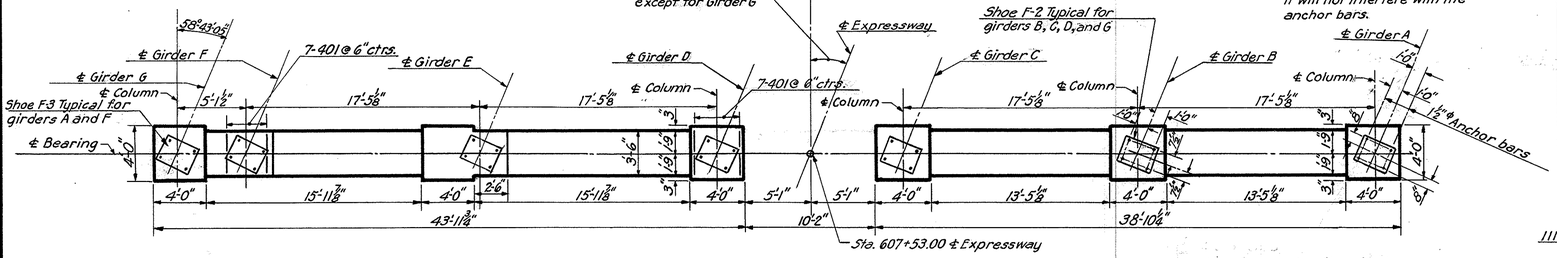
142

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

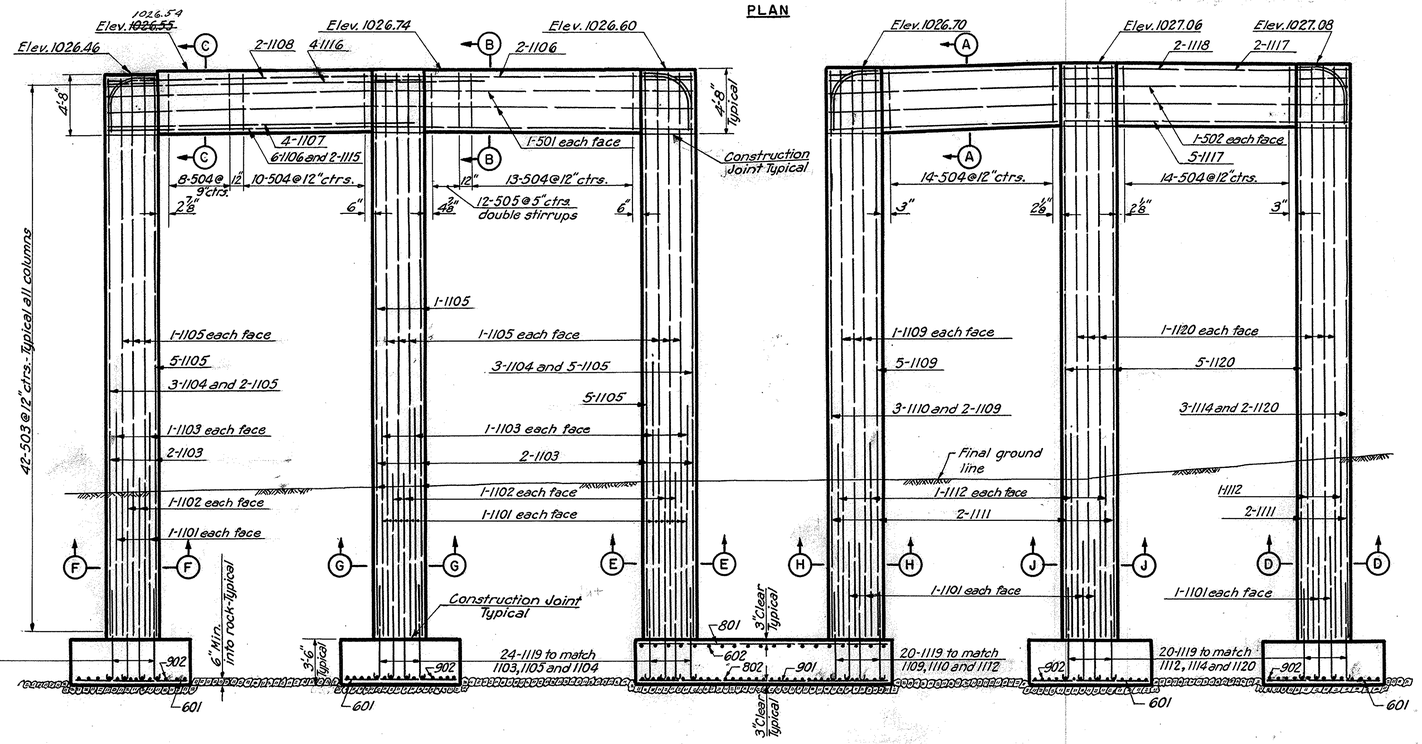
71
123

EXPRESSWAY PART 7 SUMMIT COUNTY
SUM-18R-12.90 CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

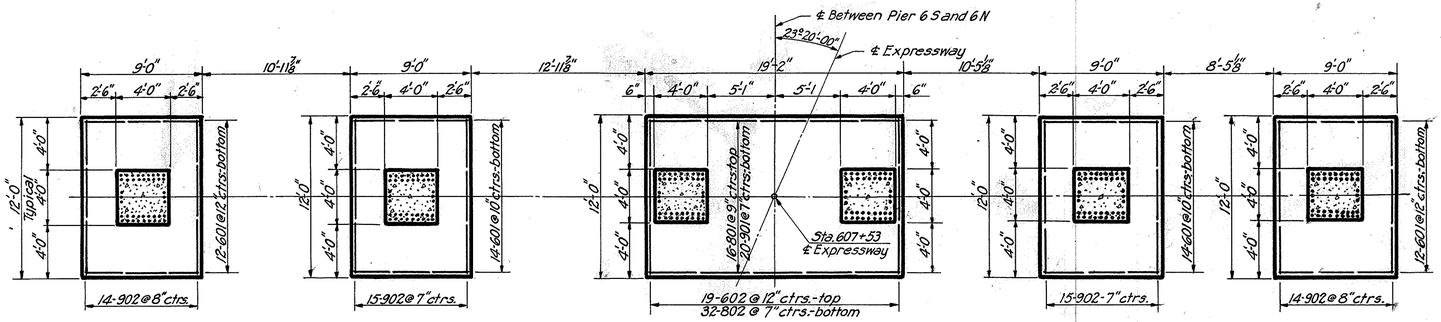
Note:
Special care shall be taken in placing reinforcing steel so that it will not interfere with the anchor bars.



PLAN



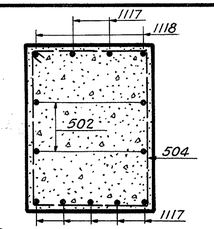
ELEVATION



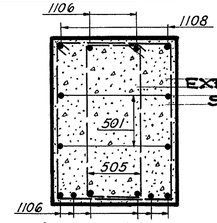
PIER 6 S

FOOTING PLAN

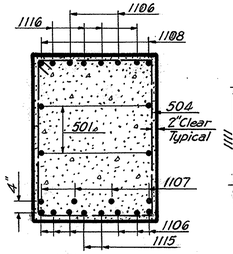
PIER 6 N



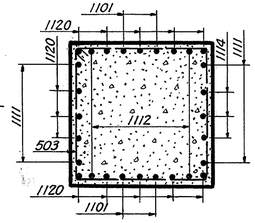
SECTION A-A
Scale: ½" = 1'-0"



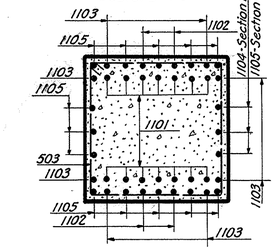
SECTION B-B
Scale: ½" = 1'-0"



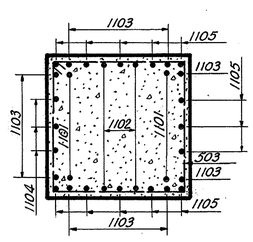
SECTION C-C
Scale: ½" = 1'-0"



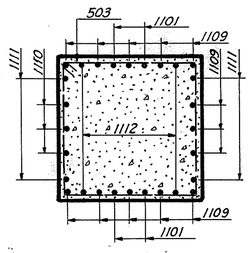
SECTION D-D
Scale: ½" = 1'-0"



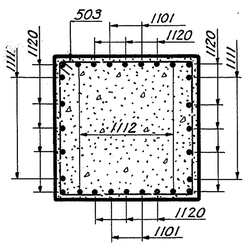
SECTION E-E AND G-G
Scale: ½" = 1'-0"



SECTION F-F
Scale: ½" = 1'-0"

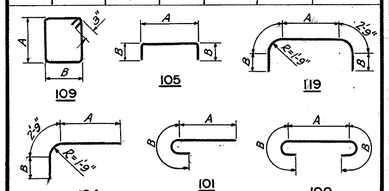


SECTION H-H
Scale: ½" = 1'-0"



SECTION J-J
Scale: ½" = 1'-0"

REINFORCEMENT SCHEDULE						
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
401	49	5'-2"	105	3'-2"	1'-0"	169
501	4	43'-6"	Str.			181
502	4	38'-6"	Str.			161
503	252	14'-6"	109	3'-6"	3'-6"	3,811
504	59	15'-6"	109	4'-4"	3'-2"	954
505	12	13'-10"	109	4'-4"	2'-4"	173
601	52	8'-6"	Str.			664
602	19	11'-6"	Str.			328
801	16	18'-9"	Str.			801
802	32	11'-6"	Str.			983
901	20	8'-9"	Str.			1,275
902	60	11'-6"	Str.			2,346
1101	44	1'-8"	101	9'-9"	1'-11"	2,727
1102	12	16'-8"	101	14'-9"	1'11"	1,063
1103	24	17'-0"	Str.			2,168
1104	6	45'-3"	104	40'0"	3'-6"	1,474
1105	42	41'-9"	Str.			9,316
1106	8	43'-6"	Str.			1,849
1107	4	24'0"	Str.			510
1108	2	51'-6"	119	40'0"	3'-0"	547
1109	13	42'-0"	Str.			2,901
1110	3	46'-6"	104	40'3"	3'-6"	741
1111	12	15'-2"	101	13'3"	1'-11"	967
1112	12	14'-0"	Str.			893
1113						
1114	3	46'10"	104	40'-7"	3'-6"	746
1115	2	23'-0"	Str.			244
1116	4	27'-0"	Str.			574
1117	7	38'-6"	Str.			1,432
1118	2	46'-6"	119	35'-0"	3'-6"	494
1119	132	7'-11"	101	5'-10"	1'-11"	3,554
1120	29	42'-3"	Str.			6,510
					Total	52,656



BENDING DIAGRAMS

Notes:
Footings shall extend a minimum of 6" into solid rock or to the elevation shown, which ever is lower.
Bottom of footing elevations are subject to change when excavations are made and actual elevations of top of sound rock are determined.
For anchor bars and shoes, see Sheet 79.
For replacement bars, see Sheet 62.
Bar dimensions are given out to out.

Footing design superseded by footing details shown on sheet No. 71A.
8-27-56

Revised 12-19-55

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
PIER 6 S AND 6 N
AKRON SUMMIT COUNTY, OHIO

SCALE 3/16" = 1'-0" Unless otherwise shown
MADE D.J.H. DATE 8-4-55
TRCD. C.T.H. DATE 10-13-55
CKD. J.R.K. DATE 9-13-55
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET- 71

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

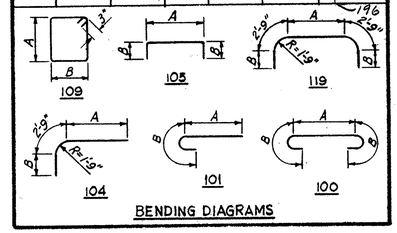
71A

SUMMIT **COUNTY**
CITY OF AKRON
AKRON **EXPRESSWAY SYSTEM**

REINFORCEMENT SCHEDULE

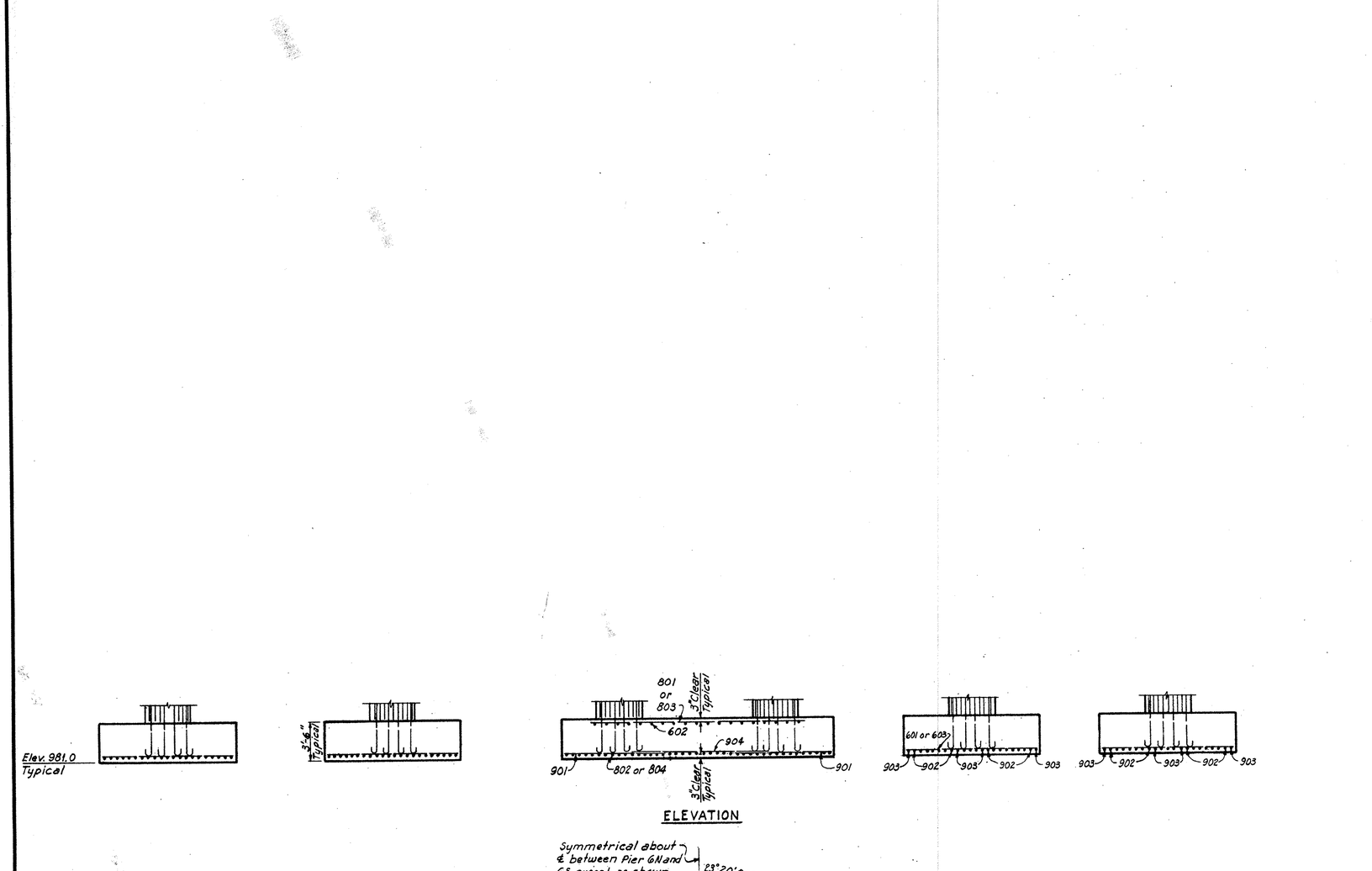
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
401	49	5'-2"	105	3'-2"	1'-0"	169
501	4	43'-6"	Str.			181
502	4	38'-6"	Str.			161
503	252	14'-6"	109	3'-6"	3'-6"	3811
504	59	15'-6"	109	4'-4"	3'-2"	954
505	12	13'-10"	109	4'-4"	2'-4"	173
601	52	8'-6"	Str.			664
602	19	11'-6"	Str.			328
*603	92	11'-6"	Str.			1589
801	16	18'-9"	Str.			801
802	32	11'-6"	Str.			983
*803	3	18'-9"	Str.			150
*804	9	11'-6"	Str.			276
901	20	8'-9"	Str.			1275
902	60	11'-6"	Str.			2346
*903	28	13'-6"	Str.	10'-0"		1288
*904	10	10'-0"	Str.		340	340
1101	44	11'-8"	101	9'-9"	1'-11"	2,727
1102	12	16'-8"	101	14'-9"	1'-11"	1,063
1103	24	17'-0"	Str.			2,168
1104	6	45'-9"	104	40'-0"	3'-6"	1,474
1105	42	41'-9"	Str.			9,316
1106	8	43'-6"	Str.			1,849
1107	4	24'-0"	Str.			510
1108	2	51'-6"	119	40'-0"	3'-0"	547
1109	13	42'-0"	Str.			2,901
1110	3	46'-6"	104	40'-3"	3'-6"	741
1111	12	15'-2"	101	13'-3"	1'-11"	967
1112	12	14'-0"	Str.			893
1114	3	46'-10"	104	40'-7"	3'-6"	746
1115	2	23'-0"	Str.			244
1116	4	27'-0"	Str.			574
1117	7	38'-6"	Str.			1,432
1118	2	46'-6"	119	35'-0"	3'-6"	494
1119	132	7'-11"	101	5'-10"	1'-11"	3,554
1120	29	42'-3"	Str.			6,510
					Total	56,196

196



BENDING DIAGRAMS

Bars shown thus * are additional reinforcement bars resulting from revision of footings. For replacement bars see sheet 62.



Revised As-Built
NOTE: This sheet supplements and partly supersedes Sheet No. 71.

Note:
Footing details and reinforcement schedule supersedes footing details and reinforcement schedule on sheet 71. All other details for Piers 6N and 6S shall be as shown on sheet 71.

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
REVISED FOOTING PLAN AND BAR LIST FOR PIER 6N AND 6S
AKRON SUMMIT COUNTY, OHIO

SCALE 3/16" = 1'-0"
MADE G.D. DATE 8-20-56
TRCD. DATE
CKD. L.L. DATE 8-21-56

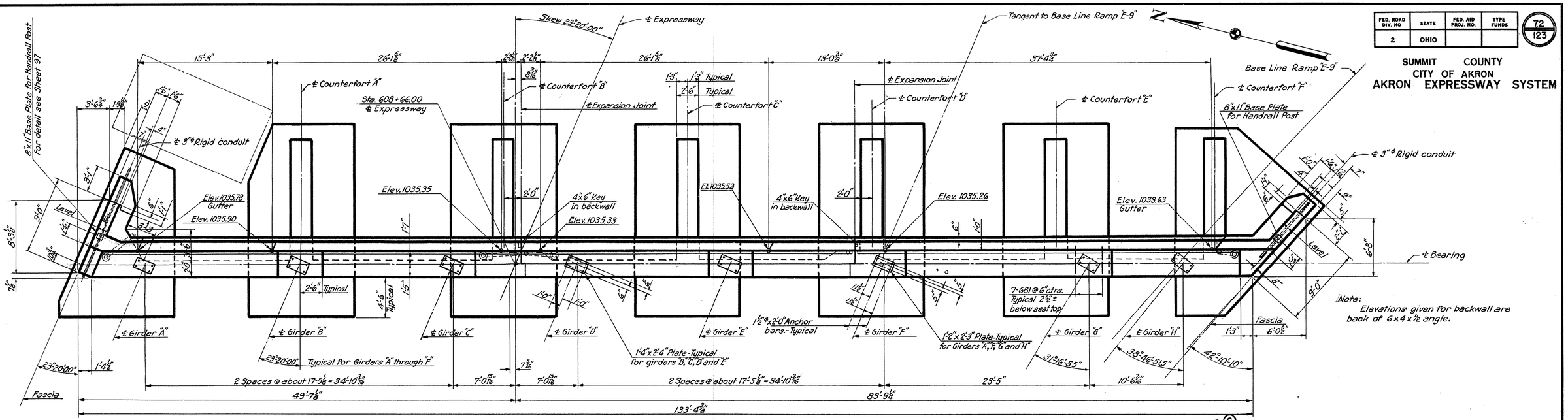
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

901 SHEET- 71A

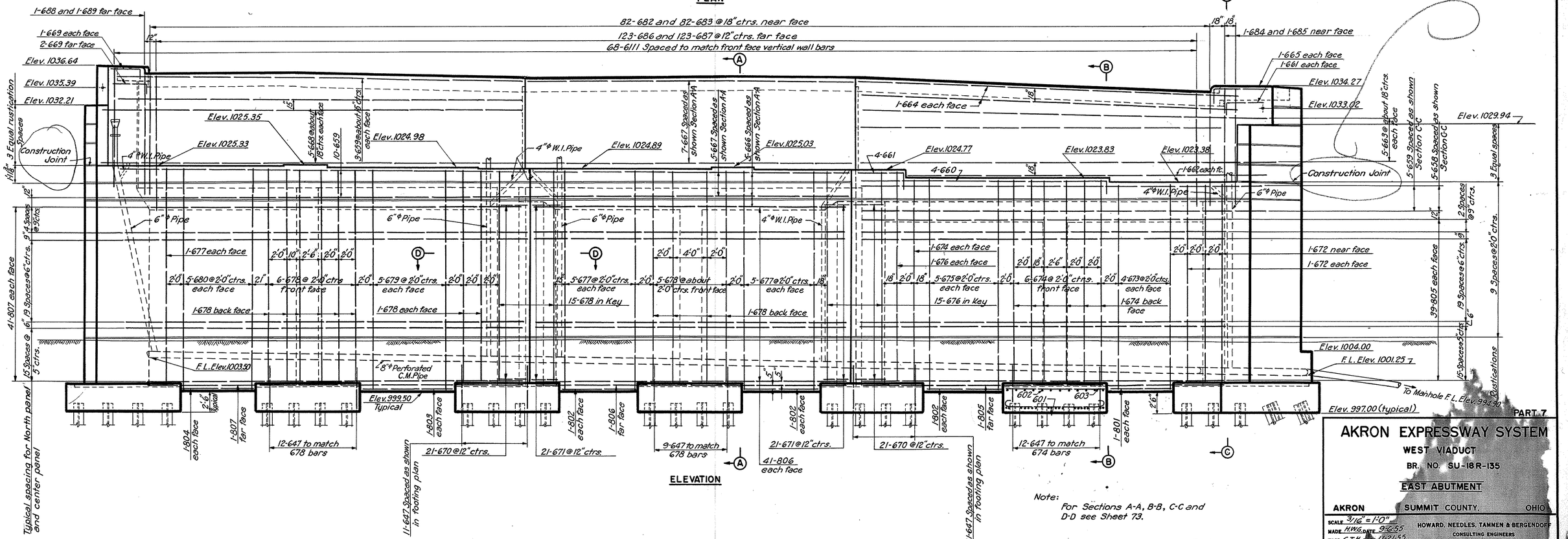
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

72
123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



PLAN



ELEVATION

Note: For Sections A-A, B-B, C-C and D-D see Sheet 73.

Revised 12-19-55

PART 7

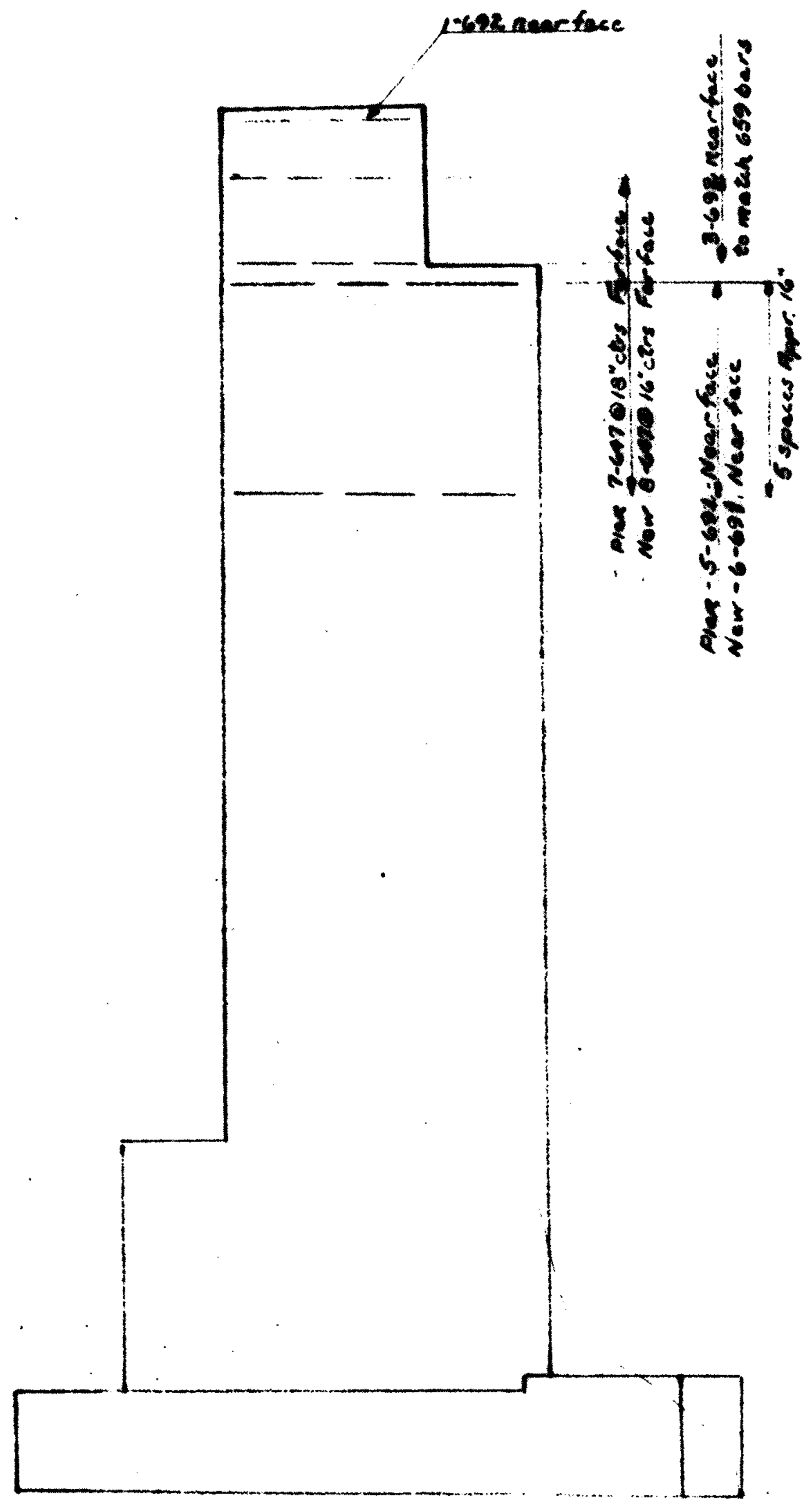
AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
EAST ABUTMENT
AKRON SUMMIT COUNTY, OHIO

SCALE 3/16" = 1'-0"
MADE H.W.G. DATE 9-6-55
TRCD. C.T.H. DATE 11-21-55
CKD. G.O. DATE 9-14-55

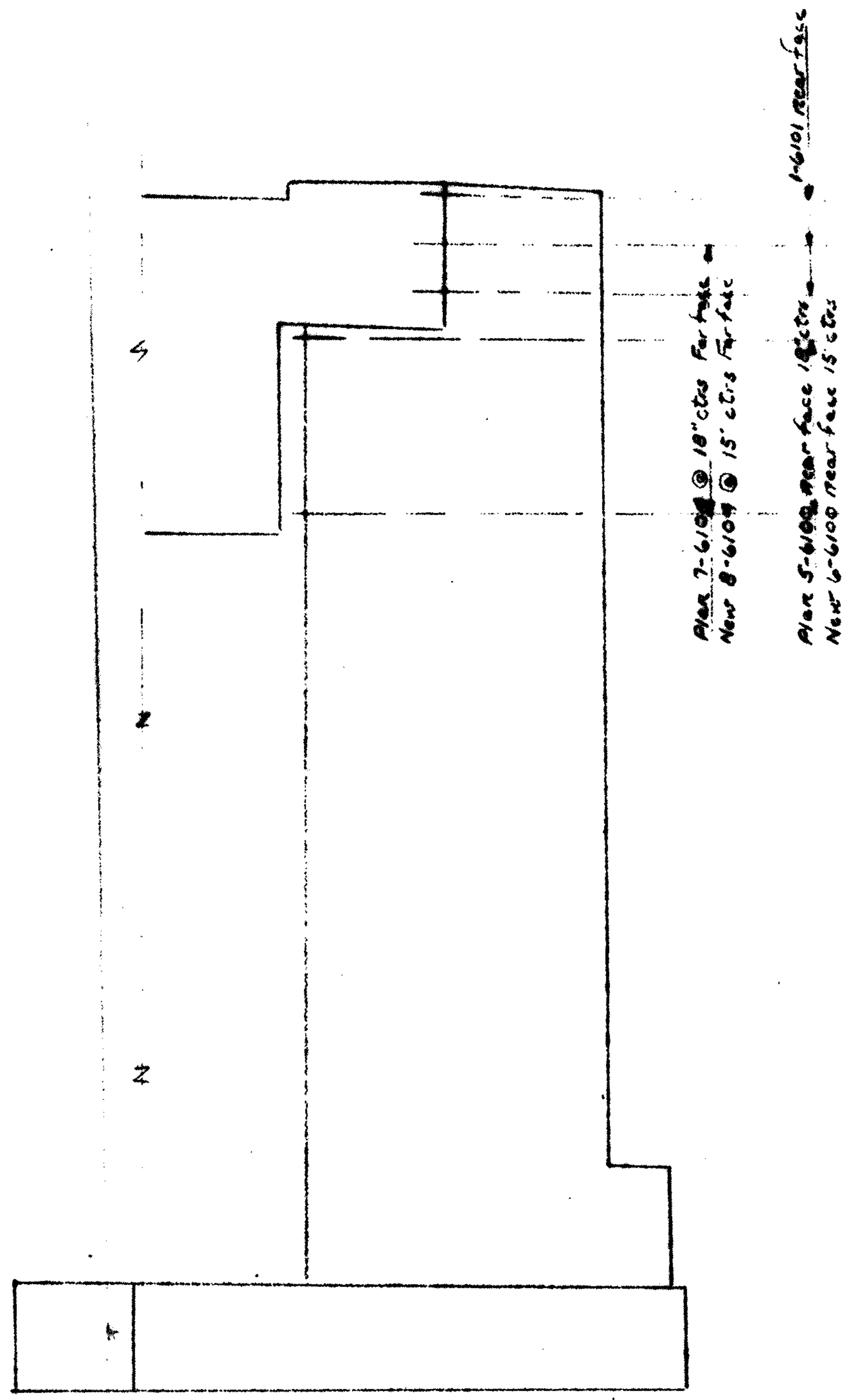
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
SHEET 72

144

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
PART #7



END ELEVATION NORTH BUTTRESS



END ELEVATION SOUTH BUTTRESS

BARS TO BE PLACED

Mark	Length	PLAN NO	PLAN WEIGHT	NEW NO	NEW WEIGHT	Weight Change
647	5'-0"	7	53	8	60	7
659	46'-6"	6	419	6	419	0
661	7'-6"	2	23	2	23	0
662	41'-3"	2	124	2	124	0
663	47'-0"	10	706	12	847	141
664	44'-0"	4	264	4	264	0
665	9'-0"	2	27	2	27	0
667	37'-6"	14	788	16	901	113
668	48'-3"	10	725	12	870	145
669	6'-0"	4	36	4	36	0
682	12'-11"	82	1591	89	1727	136
684	12'-8"	2	38	2	38	0
685	4'-6"	2	14	2	14	0
686	9'-5"	123	1740	133	1881	141
688	10'-2"	1	15	1	15	0
689	11'-0"	1	17	1	17	0
691	18'-6"	5	139	6	167	28
692	13'-7"	4	81	4	81	0
6100	17'-4"	5	130	6	156	26
6101	11'-3"	3	51	3	51	0
6104	9'-0"	7	95	8	109	14
TOTALS			7,076		7,827	751

SKETCH "A"

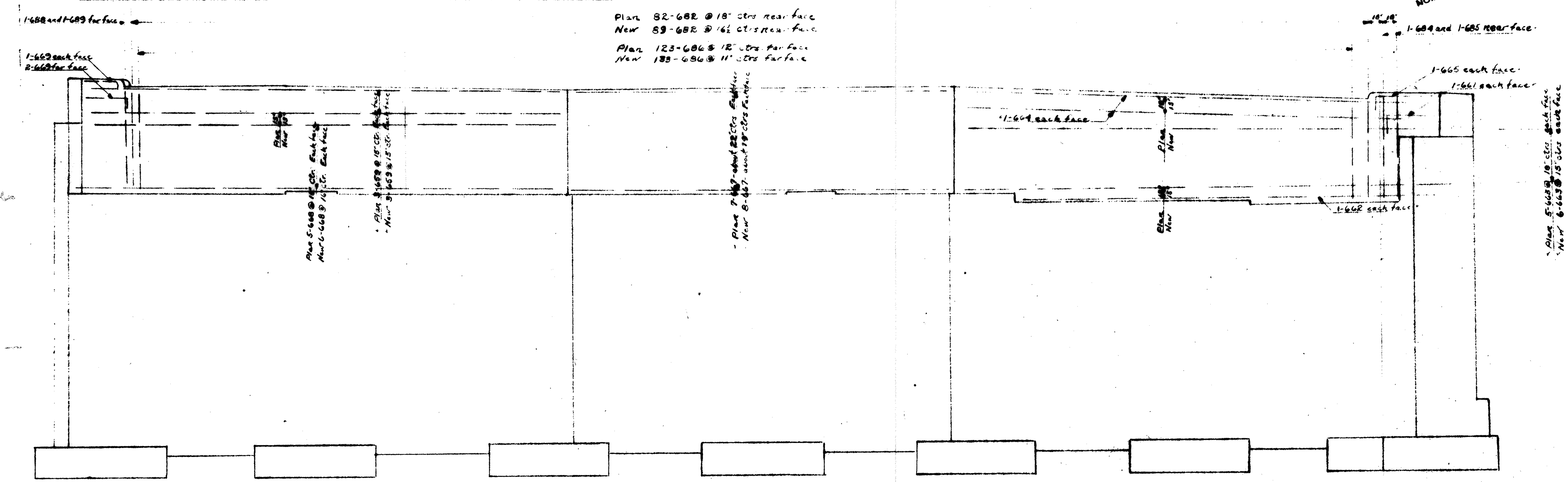
	PLAN	Deficiency	NEW	Change
#6 Bars in Place	30,443	-7.9%	28,038	-2,405
#6 Bars to be Placed	7,076		7,827	751

Note: #6 Bars to be placed "751-lb." at no cost to State.
#6 Bars in place "2,405 lb." deduct from plan wt. for 79% deficiency in deformations.

(1)

CONSTRUCTION BUREAU JAN 21 1957

Plan 82-682 @ 18" ctrs rear face
New 89-682 @ 16½ ctrs rear face
Plan 123-686 @ 12" ctrs far face
New 133-686 @ 11" ctrs far face



ELEVATION

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
EAST ABUTMENT

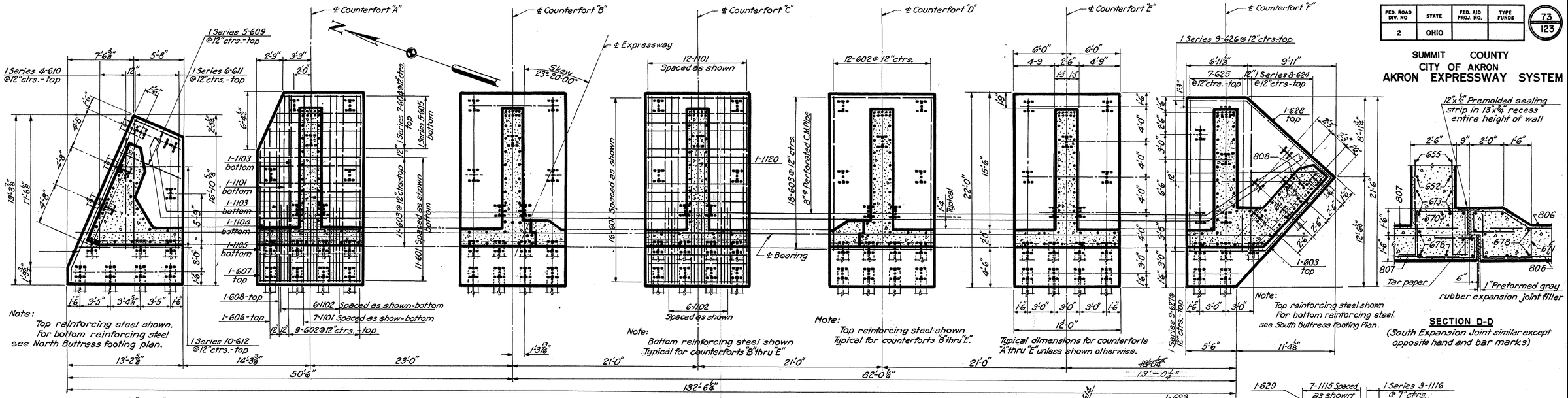
Rienforcing Deficiency Change

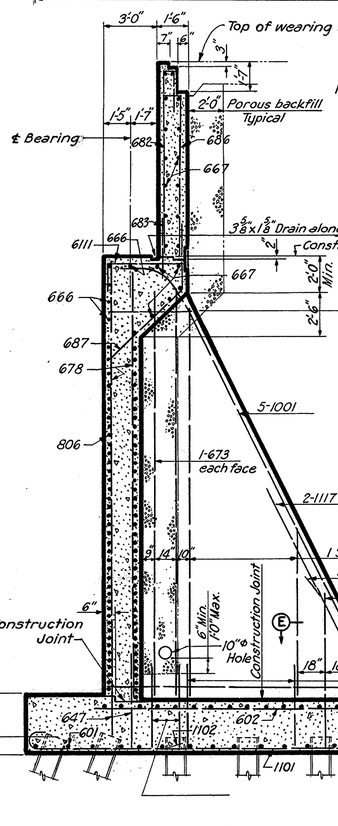
R.L.T. - P.E.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

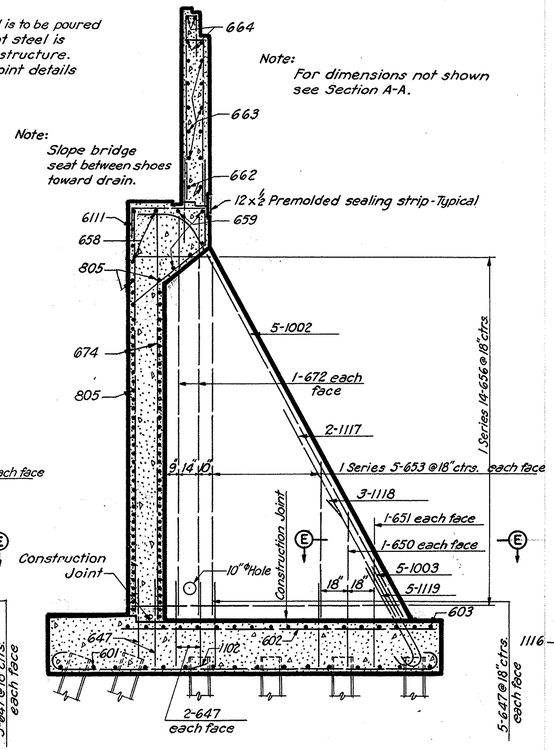
73
123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

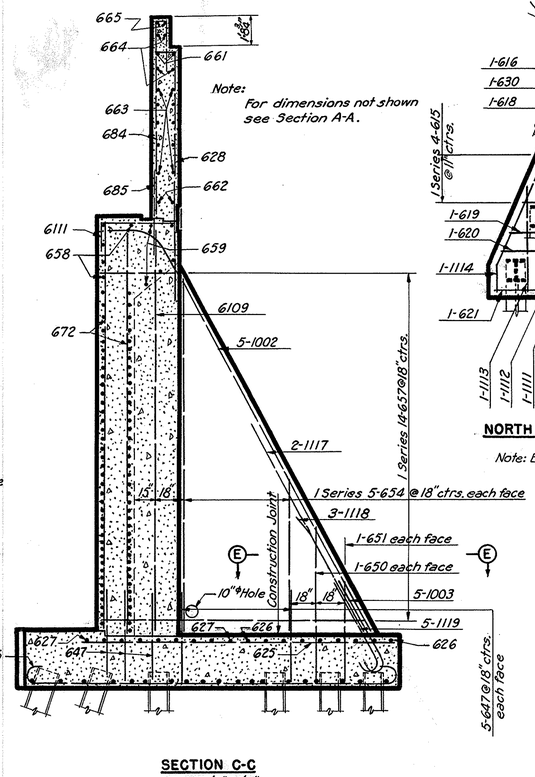


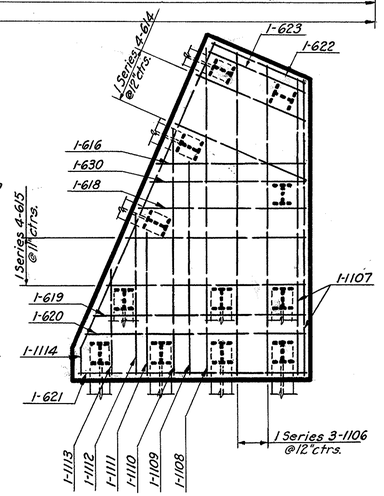


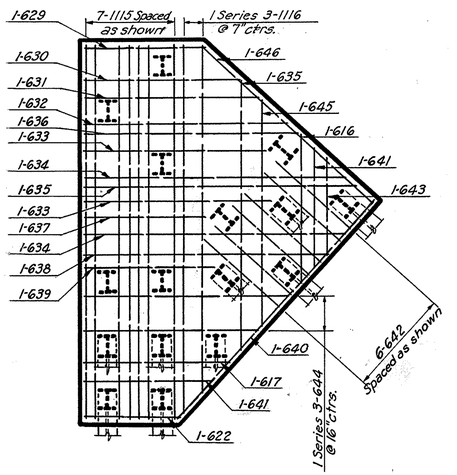
Note: Abutment backwall is to be poured after expansion joint steel is attached to the superstructure. For expansion joint details see Sheet 94.



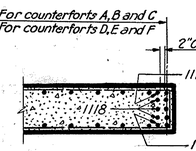
FOOTING PLAN
Scale: 3/16"=1'-0"







1001 For counterforts A, B and C
1002 For counterforts D, E and F



Notes:
All piles shall be 14 BP 73.
All battered piles shall be battered 4 in 12.
Average vertical pile length = 34 feet.
For location of Sections A-A, B-B, C-C and see Sheet 72.

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
EAST ABUTMENT
FOOTING PLAN AND DETAILS

AKRON SUMMIT COUNTY. OHIO

SCALE As Shown
MADE H.M.G. DATE 9-6-55
TRCD G.T.M. DATE 11-17-55
CKD. G.D. DATE 9-1957

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET- 73

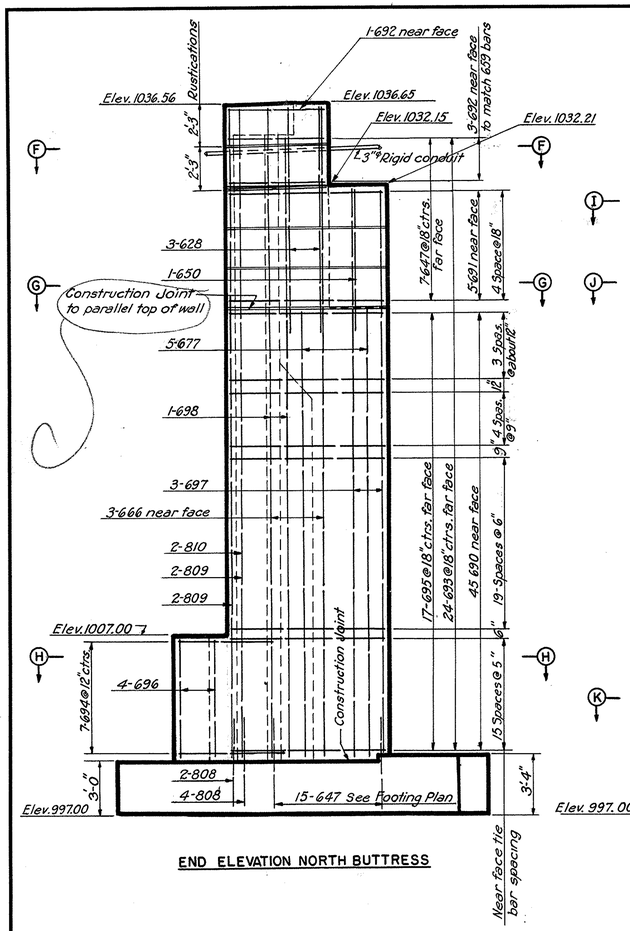
Revised 3-3-56

Revised As-Built 1-17-58 JVP

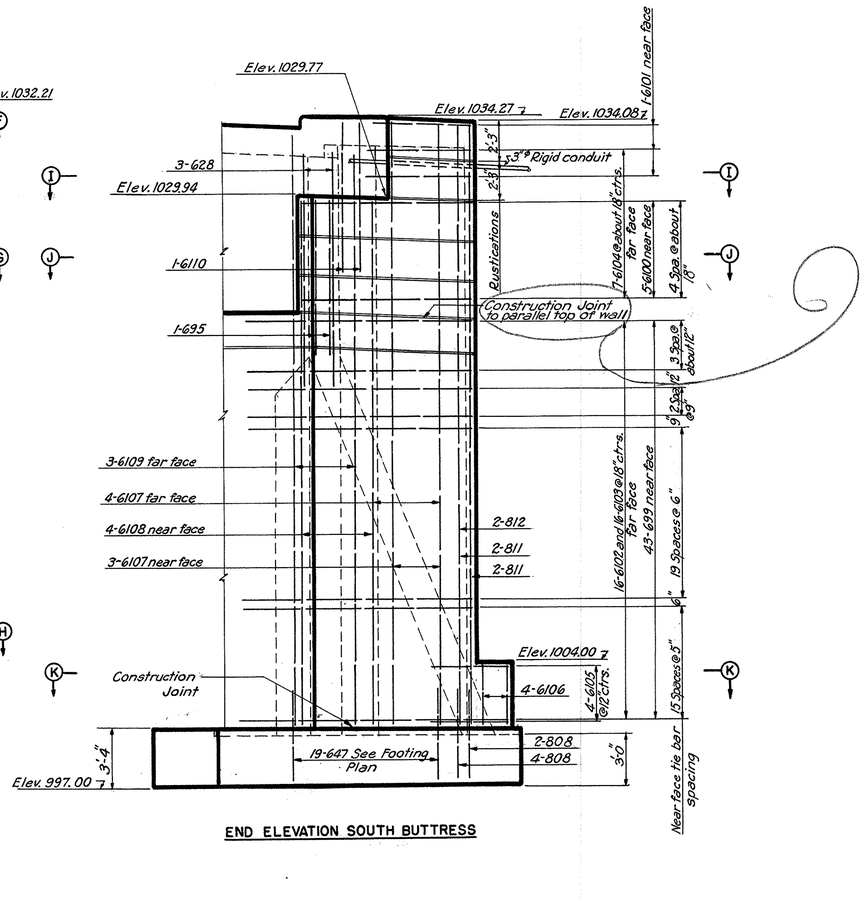
145

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	74 / 123
2	OHIO			

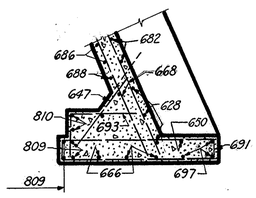
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



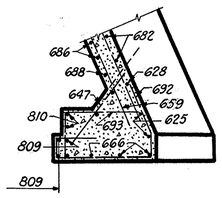
END ELEVATION NORTH BUTTRESS



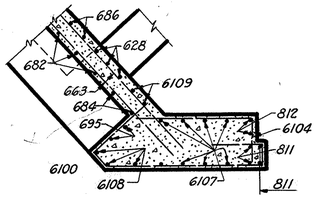
END ELEVATION SOUTH BUTTRESS



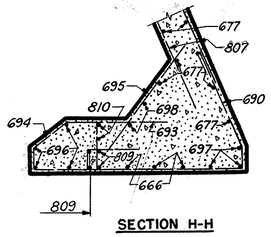
SECTION G-G



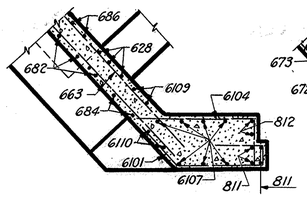
SECTION F-F



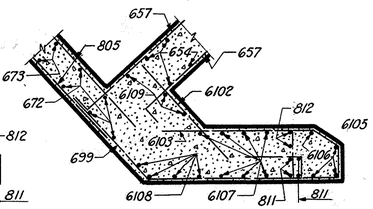
SECTION J-J



SECTION H-H



SECTION I-I



SECTION K-K

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
EAST ABUTMENT DETAILS

AKRON SUMMIT COUNTY, OHIO

SCALE 1/4" = 1'-0"
MADE HWG. DATE 9-2-55
TRCD CTH DATE 11-14-55
CKD G.O. DATE 9-20-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET- 74

Revised 12-19-55

145 A

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT POUNDS
EAST ABUTMENT									
601	75	12'-10"	100	11'-0"					1446
602	57	18'-0"	Str.						1541
603	84	11'-6"	Str.						1451
604	1-Series of 7		Str.					5"	105
605	1-Series of 5		100		X			6 3/4"	86
606	1	14'-6"	Str.						22
607	1	17'-6"	108	11'-0"	6'-6"	5			26
608	1	17'-0"	Str.						25
609	1-Series of 5	5'-6" to 7'-6"	Str.					6"	49
610	1-Series of 4	5'-6" to 12'-6"	Str.					2'-4"	54
611	1-Series of 6	12'-6" to 15'-0"	Str					6"	124
612	1-Series of 10	7'-6" to 11'-3"	Str.					5"	141
613	1	20'-0"	108	1'-6"	18'-6"	5			30
614	1-Series of 4	7'-4" to 8'-10"	100	5'-6" to 7'-0"				6"	49
615	1-Series of 4		100	9'-3" to 10'-6"				5"	70
616	2	9'-7"	100	7'-9"					29
617	X	9'-4"	100	7'-6"					14
618	1	10'-5"	100		X				16
619	1	13'-1"	100	11'-3"					20
620	1	13'-7"	100	11'-9"					20
621	1	14'-1"	100	12'-3"					21
622	2	6'-7"	100	4'-9"					20
623	1	7'-4"	100	5'-6"					11
624	1-Series of 8	4'-6" to 17'-0"	Str.					1'-9 3/16"	129
625	7	17'-6"	Str.						184
626	1-Series of 9		Str.					1'-1 1/8"	147
627	1-Series of 9	8'-9" to 16'-0"	Str.					10 7/8"	167
628	7	13'-0"	Str.						137
629	1	8'-1"	100	6'-3"					12
630	2	9'-10"	100	8'-0"					30
631	1	11'-1"	100	9'-3"					17
632	1	12'-7"	100	10'-9"					19
633	2	10'-8"	101	9'-9"					32
634	2	15'-10"	100	14'-0"					48
635	2	16'-6"	100	14'-8"					50
636	1	13'-3"	100	11'-5"					20
637	1	7'-2"	101	6'-3"					11
638	1	14'-10"	100	13'-0"					22
639	1	7'-8"	101	6'-9"					12
640	1	17'-10"	100	16'-0"					27
641	2	8'-4"	100	6'-6"					25
642	6	6'-5"	101	5'-6"					58
643	1	10'-[illegible]	100	5'-0"					10
644	1 Series of 3	10'-11" to 12'-8	100	[illegible]	X				53
645	1	13'-10"	100	12'-0"					21
646	1	4'-7"	100	12'-0"					22
647	176	5'-0"	Str.						1321
648	6	9'-0"	Str.						81
649	6	6'-0"	Str.						54
650	7	8'-6"	Str.						89
651	6	5'-9"	Str.						52
652	6 Series of 5	9'-6" to 21'-6"	Str.					3'-0"	698
653	4 Series of 5	8'-9" to 20'-3	Str.					2'-10 1/2"	435
654	2 Series of 5	8'-9" to 20'-3	Str.					2'-10 1/2"	218
655	8 Series of 15	13'-2 to 33'-10"	122	4'-6" to 14'-10	2'-2"	4'-6" to 14'-10		9"	1588
656	2 Series of 14	13'-4 to 33'-10"	122	4'-7" to 14'-10	2'-2"	4'-7" to 14'-10		9 1/2"	992
657	1 Series of 14	11'-4" to 31'-10"	122	4'-7" to 14'-10	2'-2"	2'-7" to 12'-10		9 1/2"	454
658	5	42'-0"	Str.						315
659	21	46'-6"	Str.						1467
660	4	30'-6"	104	28'-6"	2'-0"				183
661	6	7'-6"	104	5'-0"	2'-6"				68
662	2	41'-3"	Str.						124
663	10	47'-0"	Str.						706
664	4	44'-0"	Str.						264
665	2	9'-0	104	6'-6"	2'-6"				27
666	8	36'-3"	Str.						435
667	19	37'-6"	Str.						1070
668	10	48'-3"	Str.						725
669	4	6'-0"	104	3'-6"	2'-6"				36
670	42	14'-7"	131						920
671	42	13'-8"	123						862
672	9	22'-6"	Str.						304
673	14	23'-3"	Str.						489
674	13	23'-0"	Str.						450
675	10	23'-9"	Str.						357
676	17	24'-0"	Str.						649
677	27	24'-9"	Str.						1004
678	40	24'-3"	Str.						1457

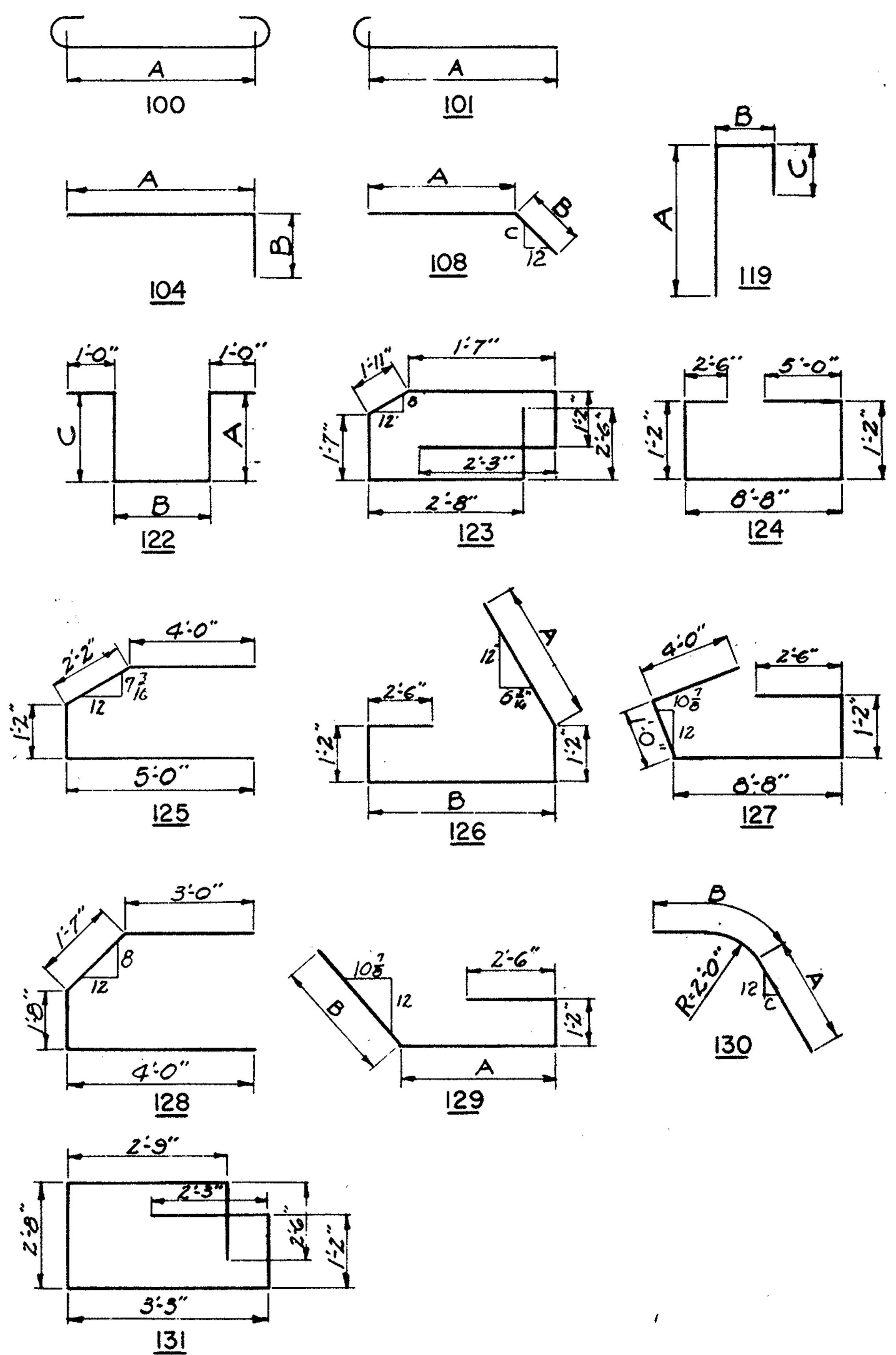
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT POUNDS
679	10	25'-0"	Str.						376
680	10	25'-6"	Str.						383
681	56	2'-3"	Str.						189
682	82	12'-11"	119	9'-9"	8"	2'-6"			1591
683	82	5'-6"	Str.						677
684	2	12'-8"	119	9'-0"	8"	3'-0"			38
685	2	4'-6"	Str.						14
686	123	9'-5"	104	8'-3"	1'-2"				1740
687	123	11'-6"	108	5'-9"	5'-9"				2125
688	1	10'-2"	104	9'-0"	1'-2"				15
689	1	11'-0"	108	5'-3"	5'-9"				17
690	45	20'-0"	126	6'-6"	8'-8"				1352
691	5	18'-6"	124						139
692	4	13'-7"	126	3'-6"	5'-3"				81
693	24	6'-6"	104	4'-0"	2'-6"				234
694	7	12'-4"	125						130
695	19	8'-3"	Str.						235
696	4	6'-9"	Str.						41
697	3	31'-6"	Str.						142
698	2	34'-6"	Str.						104
699	43	18'-10"	128	8'-8"	6'-6"				1216
6100	5	17'-4"	127						130
6101	3	11'-3"	12	4'-7"	3'-0"				51
6102	16	7'-6"	Str.						180
6103	16	9'-9"	104	7'-3"	2'-6"				234
6104	7	9'-0"	104	6'-6"	2'-6"				95
6105	4	10'-3"							62
6106	4	3'-6"	Str.						23
6107	7	33'-6"	Str.						352
6108	4	29'-3"	Str.						176
6109	3	31'-9"	Str.						143
6110	2	6'-3"	Str.						19
6111	68		104	4'-0"	2'-0"				698

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT POUNDS
801	2	7'-6"	Str.						40
802	6	8'-6"	Str.						136
803	2	10'-6"	Str.						56
804	2	7'-9"	Str.						41
805	79	42'-0"	Str.						8859
806	83	36'-0"	Str.						7978
807	83	46'-0"	Str.						10194
808	12	5'-9"	Str.						184
809	4	36'-3"	Str.						387
810	2	34'-6"	Str.						184
811	4	33'-9"	Str.						360
812	2	32'-0"	Str.						171
1001	15	29'-0"	130	25'-9"	3'-3"	6			1872
1002	15	27'-9"	130	24'-6"	3'-3"	6 1/4			1791
1003	30	7'-3"	101	5'-6"					936
1101	56	24'-4"	100	20'-6"					724
1102	30	9'-8"	101	7'-9"					1541
1103	2	22'-1"	100	18'-3"					235
1104	1	19'-1"	100	15'-3"					101
1105	1	22'-0"	108	15'-3"	6'-9"	5			117
1106	1-Series of 3	20'-0" to 20'-10"	100	16'-2" to 17'-0"				5"	325
1107	2	19'-4"	100	15'-6"					205
1108	1	21'-0"	100	17'-2"					112
1109	1	13'-2"	101	11'-3"					70
1110	1	16'-7"	100	12'-9"					88
1111	1	9'-2"	101	7'-3"					49
1112	1	11'-10"	100	8'-0"					63
1113	1	8'-7"	100	4'-9"					46
1114	1	20'-0"	108	1'-6"	18'-6"	5			106
1115	7	23'-10"	100	20'-0"					886
1116	1-Series of 3	22'-4" to 23'-4"	100	18'-6" to 19'-6"				6"	364
1117	12	13'-6"	Str.						861
1118	18	7'-9"	Str.						741
1119	30	7'-8"	101	5'-9"					1223
1120	5	17'-0"	101	15'-1'					452
								Total.	78,933

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

75 / 123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



BENDING DIAGRAMS

Note:
For replacement bars see Sheet 62.

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135

EAST ABUTMENT
REINFORCEMENT SCHEDULE

AKRON SUMMIT COUNTY. OHIO

SCALE None
MADE J.R.K. DATE 9-6-55
TRCD. DATE
CKD. G.D. DATE 9-21-55

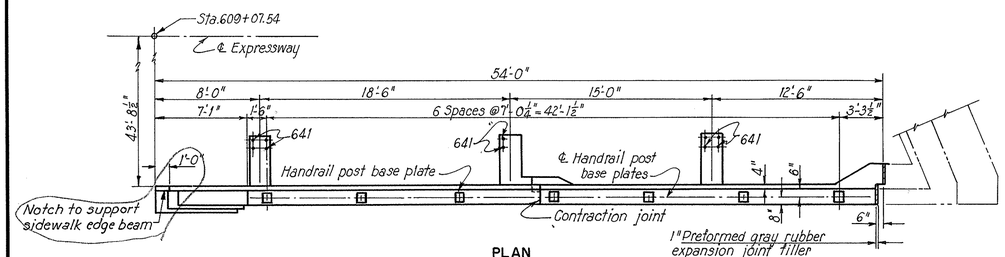
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET 75

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

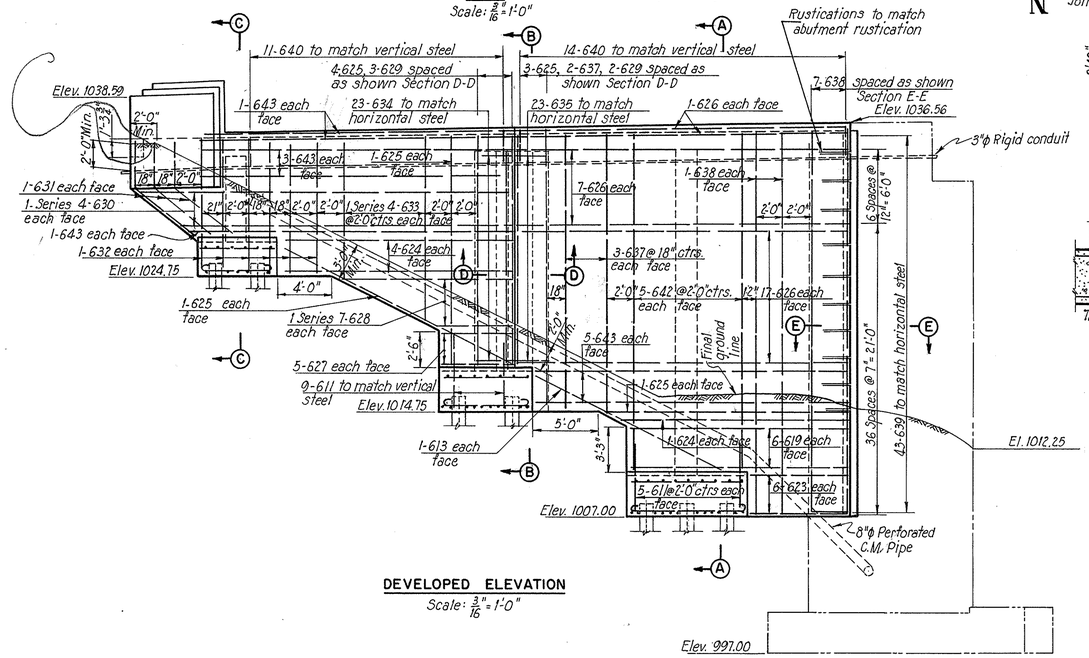
76
123

SUMMIT COUNTY
CITY OF AKRON

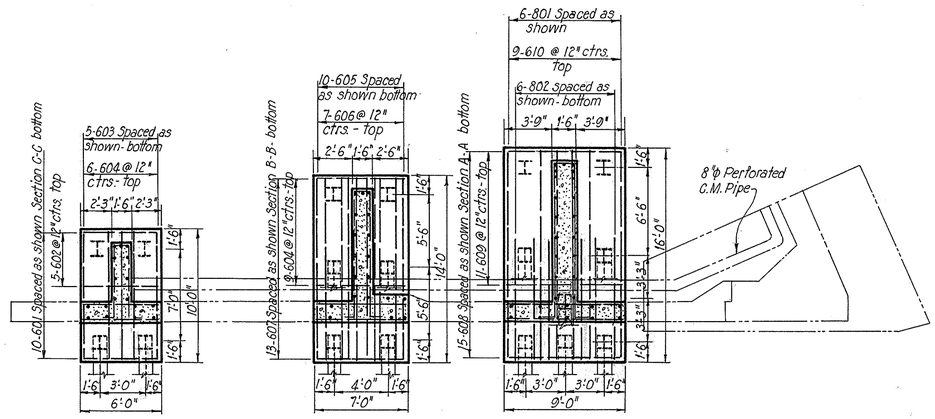
AKRON EXPRESSWAY SYSTEM



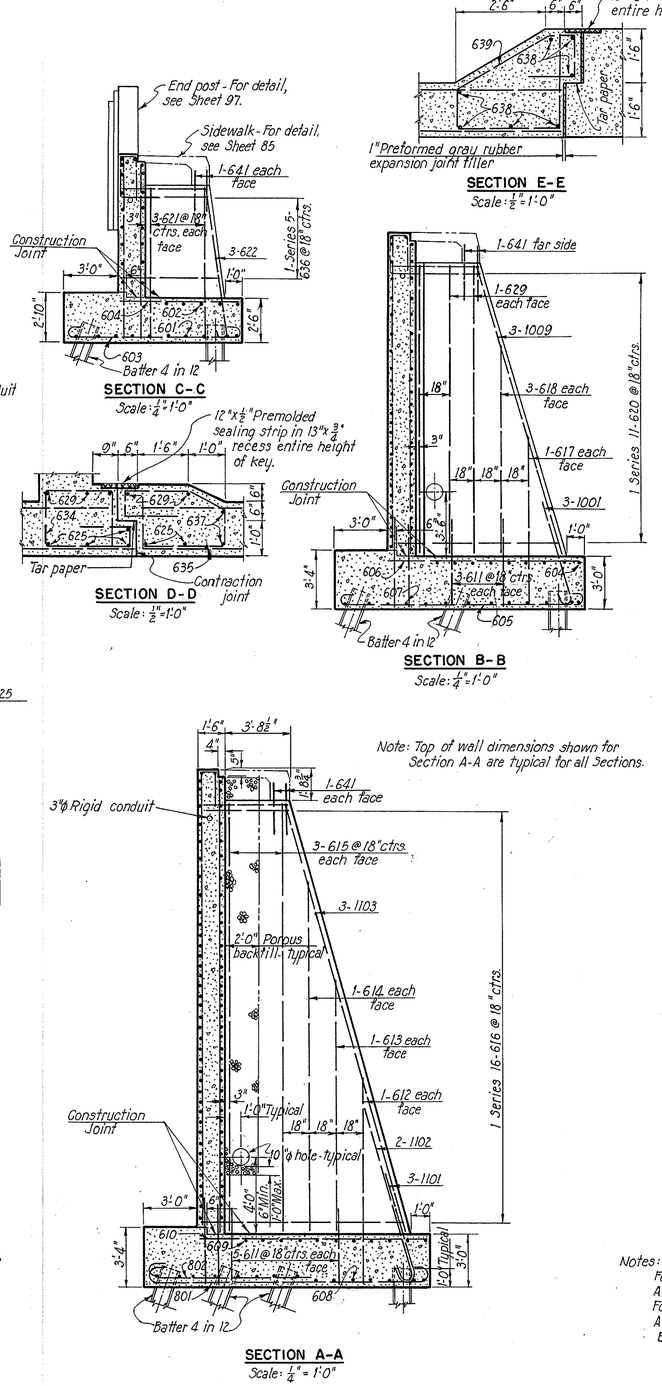
PLAN
Scale: 3/16" = 1'-0"



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



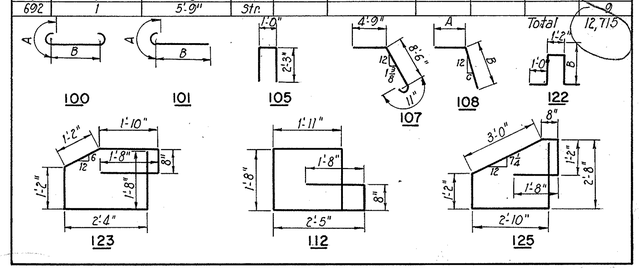
FOOTING PLAN
Scale: 3/16" = 1'-0"



Note: Top of wall dimensions shown for Section A-A are typical for all Sections.

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT
601	10	6'-10"	100	11"	5'-0"				102
602	5	5'-6"	Str.						42
603	5	10'-10"	100	11"	9'-0"				81
604	15	6'-6"	Str.						147
605	10	14'-10"	100	11"	13'-0"				213
606	7	11'-0"	Str.						115
607	13	7'-10"	100	11"	6'-0"				153
608	15	9'-10"	100	11"	8'-0"				221
609	11	8'-6"	Str.						141
610	9	13'-0"	Str.						175
611	35	5'-0"	Str.						263
612	2	11'-3"	Str.						34
613	4	14'-9"	Str.						80
614	2	19'-9"	Str.						60
615	6	24'-3"	Str.						219
616	1 Series of 16	26'-2" to 12'-8"	122		11'-6" to 4'-9"			5/8"	467
617	2	9'-6"	Str.						20
618	2	12'-0"	Str.						35
619	12	16'-0"	Str.						288
620	1 Series of 11	22'-2" to 12'-8"	122		9'-6" to 4'-9"			5 1/16"	288
621	6	8'-9"	Str.						80
622	3	14'-2"	107						65
623	12	7'-3"	Str.						131
624	10	16'-6"	Str.						248
625	13	17'-9"	Str.						336
626	52	24'-6"	Str.						1915
627	10	4'-6"	Str.						68
628	2 Series of 7	12'-0" to 5'-0"	Str.					1'-2"	179
629	9	16'-3"	Str.						212
630	2 Series of 4	28'-6" to 24'-6"	Str.					1'-4"	320
631	6	8'-0"	108	3'-0"	5'-0"	10			72
632	12	10'-3"	Str.						185
633	2 Series of 4	13'-9" to 10'-9"	Str.					1'-0"	147
634	23	10'-0"	112						345
635	23	10'-6"	123						363
636	1 Series of 5	14'-2" to 12'-8"	122		5'-6" to 4'-9"			2 1/4"	100
637	8	20'-6"	Str.						246
638	11	28'-9"	Str.						414
639	43	13'-2"	125						864
640	25	5'-6"	105						207
641	10	3'-0"	Str.						45
642	10	26'-9"	Str.						388
643	20	23'-3"	Str.						700
801	6	17'-8"	100	1'-6"	14'-8"				286
802	6	10'-6"	101	1'-6"	9'-0"				168
1001	3	7'-3"	101	1'-9"	5'-6"				95
1002	3	21'-6"	108	4'-9"	16'-9"	3 1/2"			280
1101	3	7'-8"	101	1'-11"	5'-9"				122
1102	2	11'-5"	101	1'-11"	9'-6"				122
1103	3	29'-6"	108	4'-9"	24'-9"	3 3/8"			472
END POST									
686	7	7'-6"	Str.						80
687	3	7'-3"	Str.						33
688	10	6'-9"	Str.						101
689	2	5'-0"	Str.						15
690	8	6'-0"	Str.						72
691	1	5'-6"	Str.						8
692	1	5'-9"	Str.						9
								Total	12,715



Notes:
For handrail details, see Sheet 97.
All piles 12 BP 53. For detail, see Sheet 61.
For replacement bars, see Sheet 62.
Average vertical pile length = 58 feet.
Bar dimensions are given out to out.

PART 7

AKRON EXPRESSWAY SYSTEM

WEST VIADUCT

BR. NO. SU-18R-135

NORTHEAST WINGWALL

AKRON SUMMIT COUNTY. OHIO

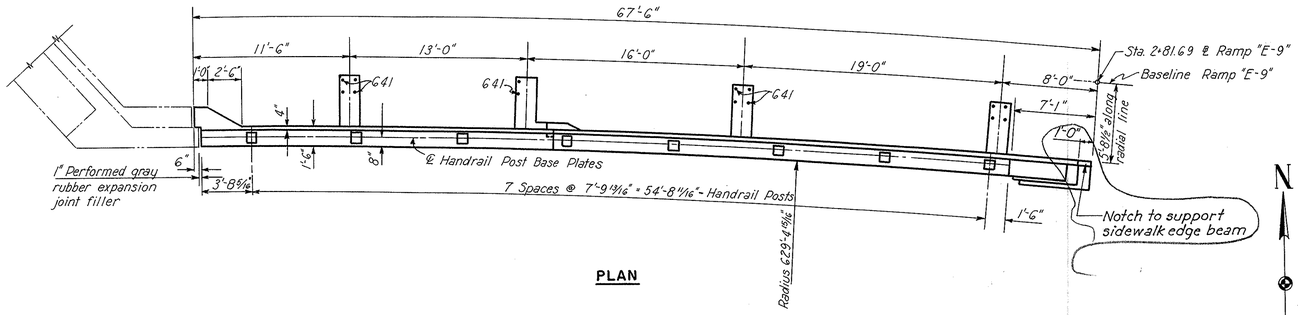
SCALE As Shown
MADE B.S.S. DATE 7-22-55
TRCD. R.R. DATE 11-16-55
CKD D.F.B. DATE 10-4-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET- 76

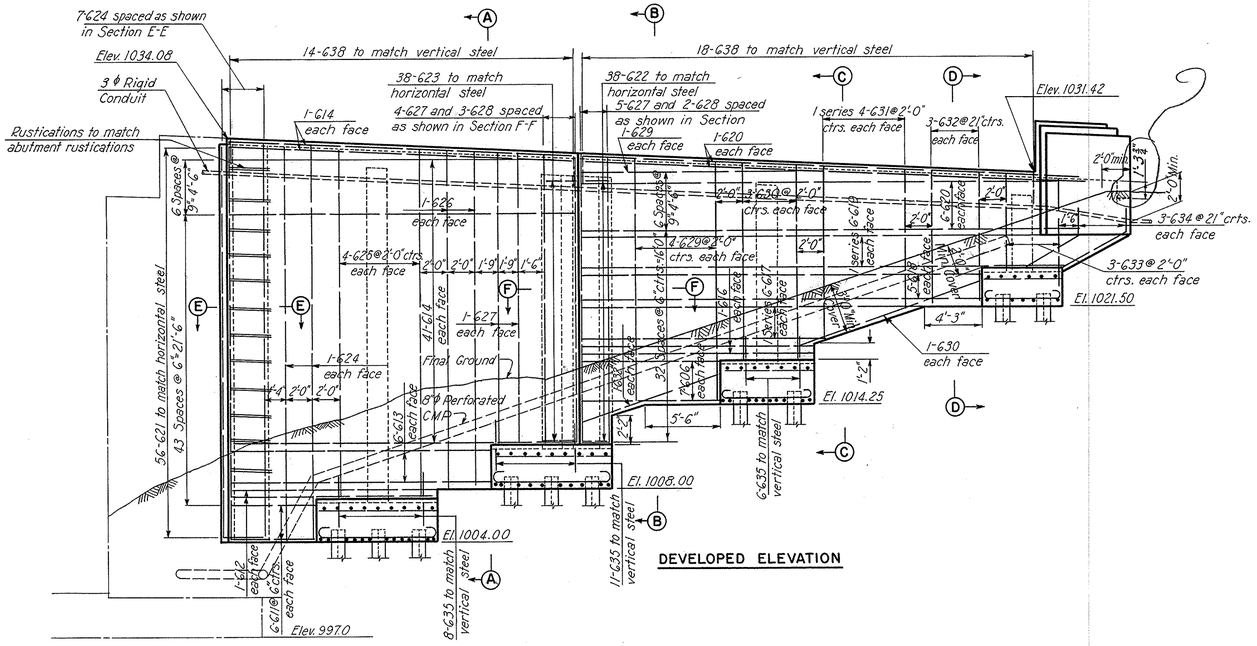
Revised 12-19-55

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	77
2	OHIO			123

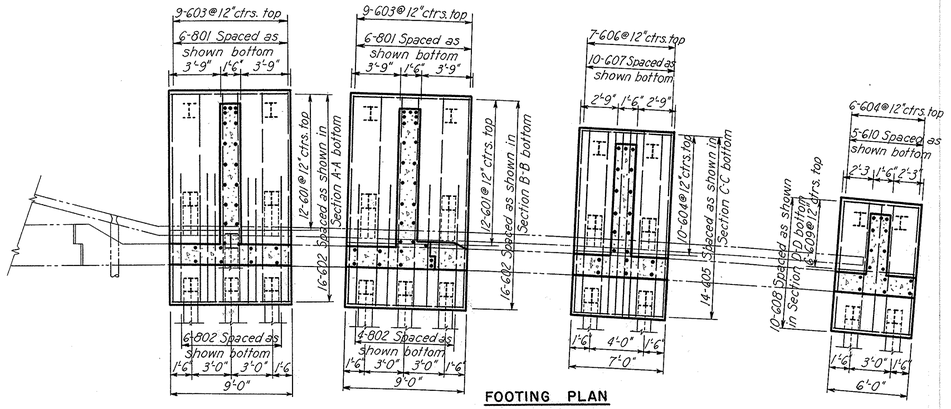
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



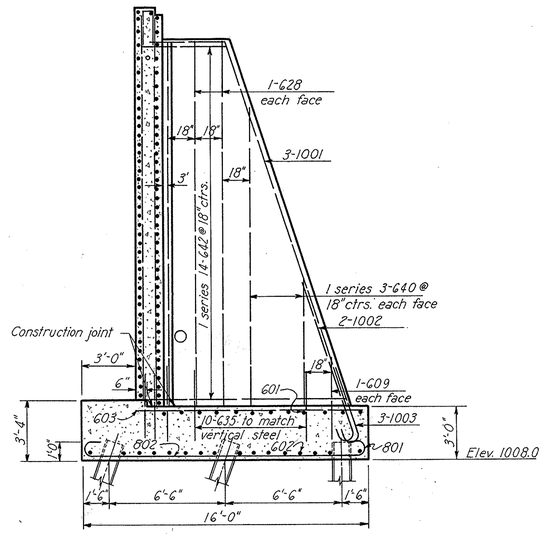
PLAN



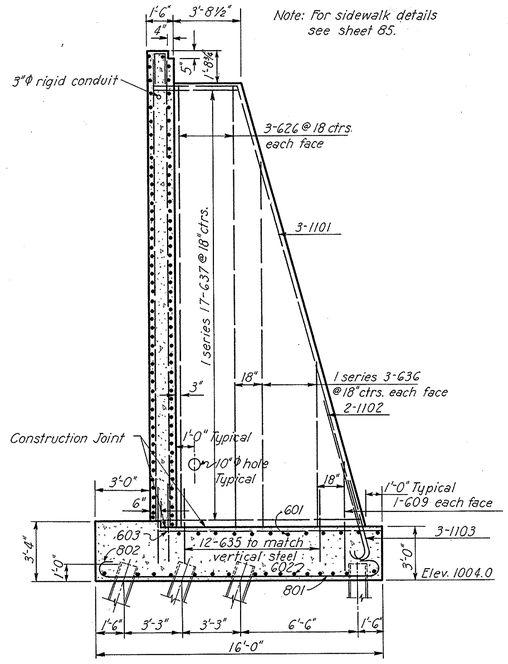
DEVELOPED ELEVATION



FOOTING PLAN



SECTION B-B
Scale 1/4"=1'-0"



SECTION A-A
Scale 1/4"=1'-0"

Note: For sidewalk details see sheet 85.

Notes: All piles shall be 12BP53.
All battered piles are battered 4 in 12.
For pile detail see sheet 61.
For reinforcing schedule and Sections CC, D-D, E-E and F-F see sheet 76.
For handrail post details see sheet 97.
For rustication detail see sheet 78.
Pile spacing is measured along the bottom of footing.
For porous backfill see sheet 78.
Average vertical pile length 45 feet.

Revised 12-19-55

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU 18R-135
SOUTHEAST WINGWALL

AKRON SUMMIT COUNTY. OHIO

SCALE 3/16"=1'-0" Unless Noted
MADE D.F.B. DATE 7-23-55
TRCD. H.J.D. DATE 11-18-55
CKD. B.S.S. DATE 9-15-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET. 77

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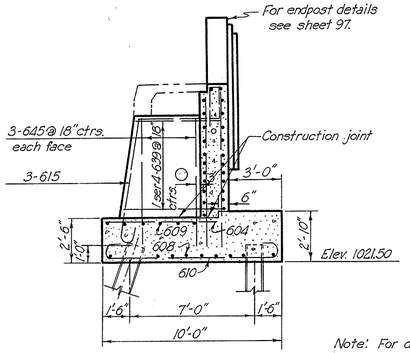
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

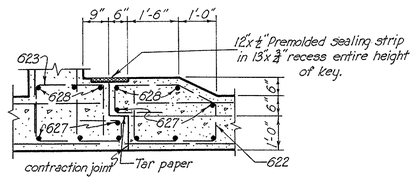
78
123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

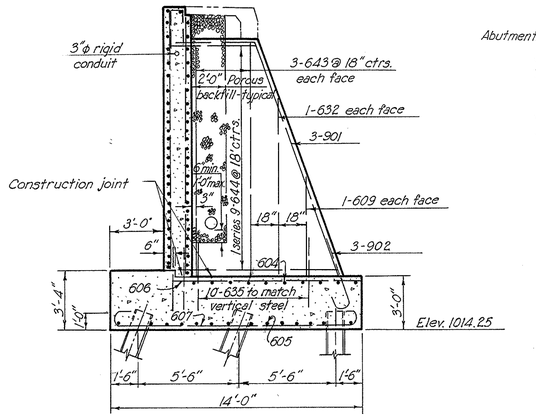


SECTION D-D
Scale: 1/4"=1'-0"

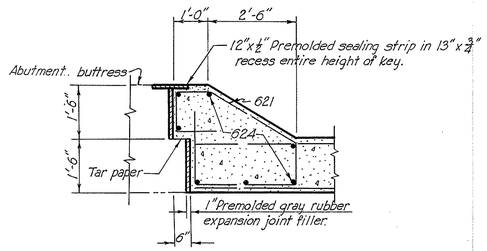
Note: For dimensions not shown in Section CC and DD see Section AA sheet 77.



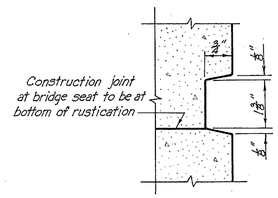
SECTION F-F
Scale: 1/4"=1'-0"



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



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



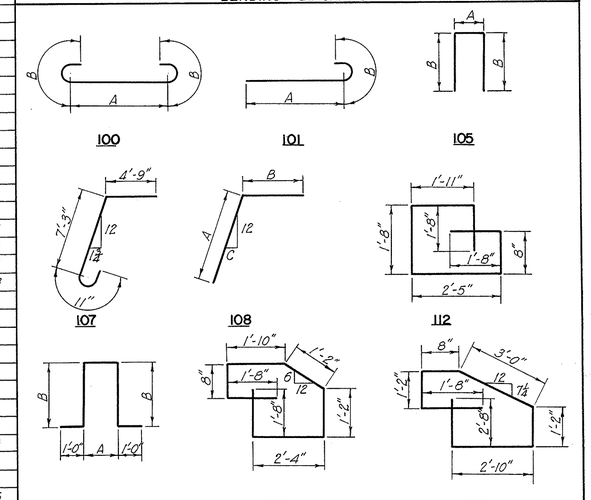
Construction joint at bridge seat to be at bottom of rustication

RUSTICATION DETAIL
Scale: 6"=1'-0"

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCRE-MENT	WEIGHT POUNDS
601	24	8'-6"	Str.						306
602	32	9'-10"	100	8'-0"	11"				472
603	18	12'-0"	Str.						324
604	16	6'-6"	Str						156
605	14	7'-10"	100	6'-0"	11"				164
606	21	10'-0"	Str.						315
607	10	14'-10"	100	13'-0"	11"				223
608	10	6"-10"	100	5'-0"	11"				103
609	12	5'-6"	Str						99
610	5	10'-10"	100	9'-0"	11"				81
611	12	6'-0"	Str.						108
612	4	15'-0"	Str.						90
613	12	19'-0"	Str.						342
614	86	25'-3"	Str.						3261
615	3	12'-11"	107						58
616	4	17'-0"	Str.						102
617	2 ser. of 6	18'-0" to 25'-6"	Str					1'-6"	392
618	10	29'-6"	Str.						443
619	2 ser. of 6	36'-3" to 40'-6"	Str.					10 3/16"	691
620	16	36'-0"	Str.						864
621	56	13'-2"	125						1108
622	38	10'-6"	123						600
623	38	10'-10"	112						570
624	11	29'-3"	Str.						483
625	8	25'-9"	Str.						357
626	10	24'-6"	Str.						368
627	13	21'-0"	Str.						410
628	9	20'-0"	Str.						270
629	10	17'-6"	Str.						263
630	8	14'-0"	Str.						168
631	2 ser. of 4	10'-0" to 13'-0"	Str.					1'-0"	198
632	10	9'-6"	Str.						143
633	6	9'-0"	Str.						81
634	6	7'-0"	108	5'-0"	2'-0"	4			63
635	57	5'-0"	Str.						428
636	2 ser. of 3	9'-6" to 20'-6"	Str.					5'-6"	135
637	1 ser. of 17	12'-10" to 26'-6"	122	1'-2"	4'-10" to 11'-8"			5 5/8"	502
638	32	5'-4"	105	10"	2'-3"				256
639	1 ser. of 4	12'-10" to 14'-2"	122	1'-2"	4'-10" to 5'-6"			2 7/16"	81
640	2 ser. of 3	7'-6" to 16'-6"	Str.					4'-6"	108
641	14	3'-0"	Str.						63
642	1 ser. of 14	12'-10" to 26'-6"	122	1'-2"	4'-10" to 11'-8"			6 5/16"	413
643	6	13'-0"	Str.						117
644	1 ser. of 9	12'-10" to 22'-2"	122	1'-2"	4'-10" to 9'-6"			7"	227
645	6	7'-0"	Str.						63
801	12	17'-8"	100	14'-8"	1'-6"				565
802	10	10'-6"	101	9'-0"	1'-6"				280
901	3	18'-3"	108	13'-6"	4'-9"	5 1/4"			186
902	3	6'-3"	101	4'-8"	1'-7"				64
1001	3	26'-0"	108	21'-3"	4'-9"	4			336
1002	2	10'-6"	101	8'-9"	1'-9"				90
1003	3	7'-0"	101	5'-3"	1'-9"				90
1101	3	30'-0"	108	25'-3"	4'-9"	3 3/8"			478
1102	2	10'-6"	101	8'-7"	1'-11"				112
1103	3	7'-0"	101	5'-1"	1'-11"				112
			END POST						
686	7	7'-6"	Str.						80
687	3	7'-3"	Str.						33
688	10	6'-9"	Str.						101
689	2	5'-0"	Str.						15
690	8	6'-0"	Str.						72
691	1	5'-6"	Str.						8
692	1	5'-9"	Str.						9
								Total	18,640

BENDING DIAGRAMS



Note: Bar dimensions are given out to out.

Note: For location of Sections C-C, D-D, E-E and F-F see Sheet 77. For replacement bars see Sheet 62.

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU 18R 135
SOUTHEAST WINGWALL DETAILS
AKRON SUMMIT COUNTY. OHIO

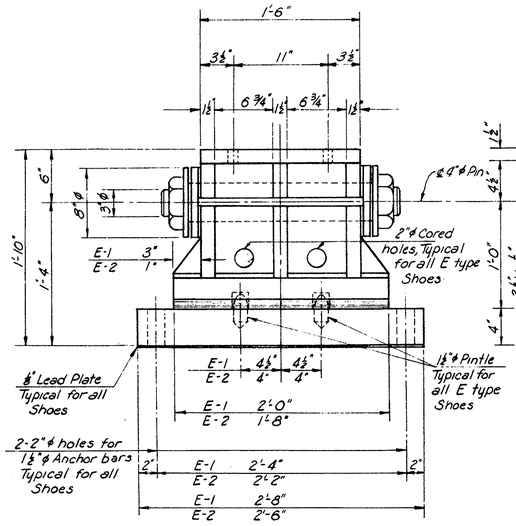
SCALE As shown
MADE DFB DATE 7-24-55
TRCD BMO DATE 11-17-55
CKD BSS DATE 10-15-55

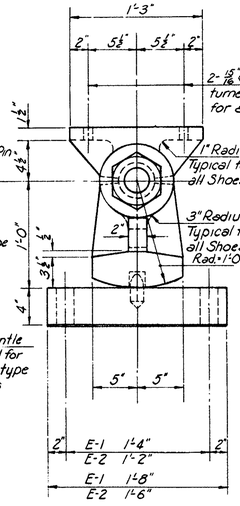
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET- 78

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

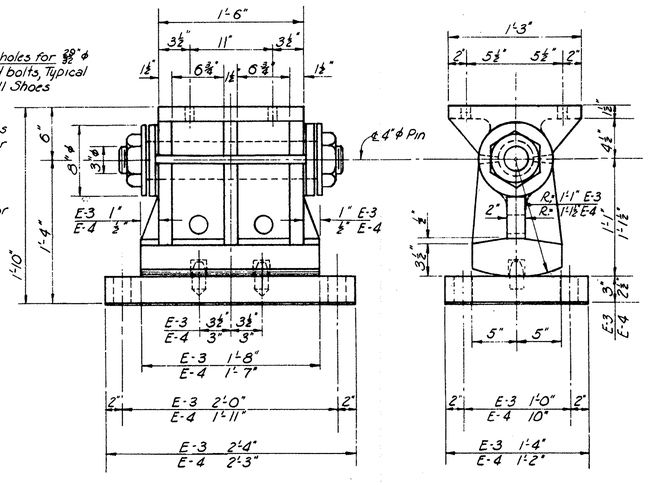
79
123

SUMMIT COUNTY
CITY OF AKRON
AKRON **EXPRESSWAY SYSTEM**

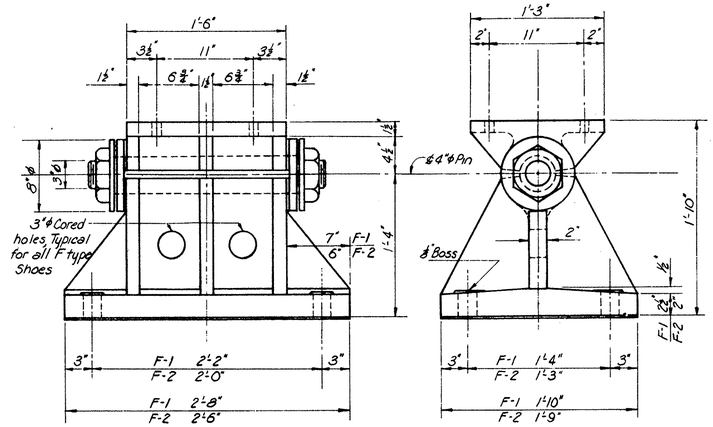




SHOES E-1 AND E-2
Shoes E-1 and E-2 are similar except as shown
Scale: 1½"=1'0"
8 E-1 Required
8 E-2 Required



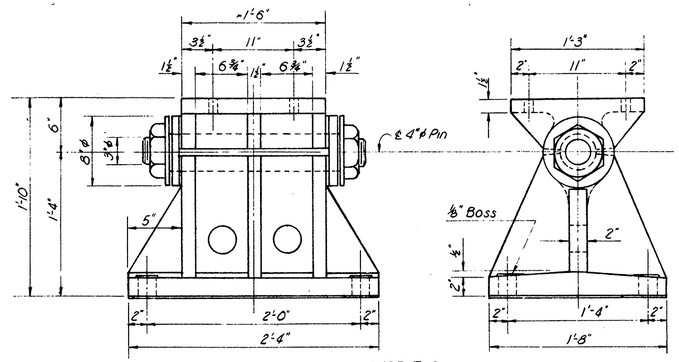
SHOES E-3 AND E-4
Shoes E-3 and E-4 are similar except as shown
Scale: 1½"=1'0"
10 E-3 Required
6 E-4 Required



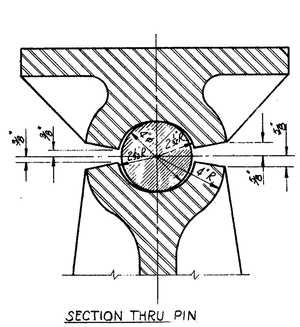
SHOES F-1 AND F-2
Shoes F-1 and F-2 are similar except as shown
Scale: 1½"=1'0"
F-1 Required
F-2 Required

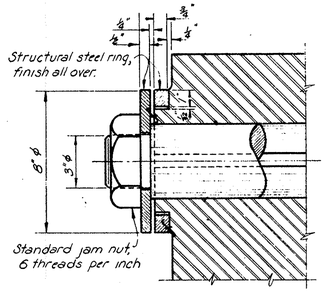
SCHEDULE OF SHOES								
Location	Type Shoe under Girder							
	"A"	"B"	"C"	"D"	"E"	"F"		
West Abutment	E-4	E-3	E-3	E-3	E-3	E-4		
Pier 1	F-3	F-2	F-2	F-2	F-2	F-3		
Pier 2	E-3	E-2	E-2	E-2	E-2	E-3		
Pier 3	F-3	F-1	F-1	*S.B	F-1	F-3		
Pier 4	E-2	E-1	E-1	E-1	E-1	E-2		
Pier 5	E-2	E-1	E-1	E-1	E-1	E-2	"G"	
Pier 6	F-3	F-2	F-2	F-2	F-2	F-3	"H"	
East Abutment	E-4	E-3	E-3	E-3	E-3	E-4	E-4	E-4

* Steel beam, See detail.

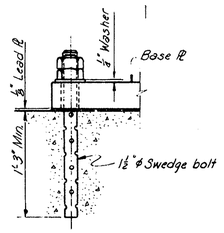


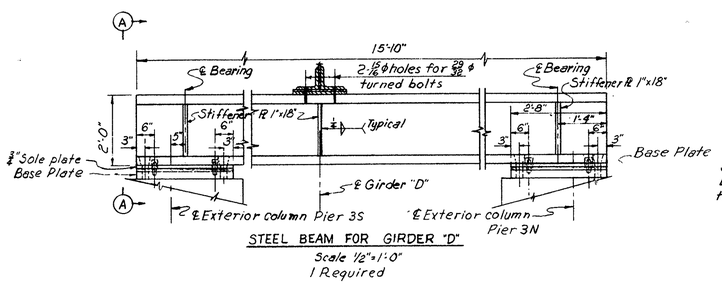
SHOE F-3
Scale: 1½"=1'0"
7 Required

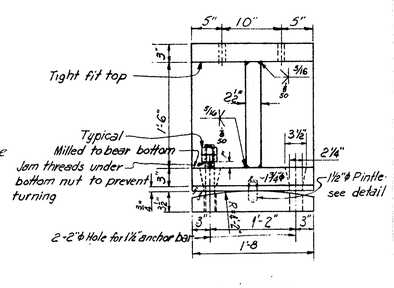


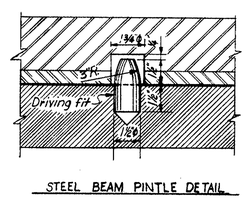


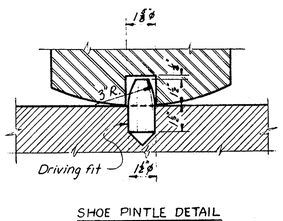
PIN DETAILS
Scale: 3"=1'0"











NOTES:

Shoes E-4, F-1, F-2, F-3, and also top castings of E-1, E-2, and E-3 shall be carbon steel castings A.S.T.M. A27- Grade 65-35.

Base Plate for shoe E-4 may be carbon steel casting A.S.T.M. A27-52T Grade 65-35 or structural steel plate.

Lower casting and base plate of shoes E-1, E-2 and E-3 shall be high strength steel castings. A.S.T.M. A148-50T Grade 90-60, or an equivalent material having a minimum yield point of 55,000 psi.

All pins, nuts, washers, and rings shall be structural carbon steel.

Bolts to girder flanges shall have hex heads and self-locking nuts equal to "Anco" by Automatic Nut Co. of Lebanon, Pa. Provide washers under heads and nuts.

Machined surfaces of rockers which bear on base plates and other exposed surfaces shall be painted.

All contact surfaces between metal parts shall be finished.

Lower castings of all shoes shall be centered in both directions under top castings for a temperature of 60°F. All base plates and shoe castings shall be scribed with center lines in both directions.

All fillets shall be ¾" radius unless otherwise noted.

Spaces around anchor bolts in base plates shall be filled with an approved metallic filler before setting nuts.

Threaded ends of the pins shall be upset, battered, or welded after assembly in field to prevent loosening of the jam nuts.

PART 7

AKRON **EXPRESSWAY SYSTEM**

WEST VIADUCT
BR. NO. SU-18R-135

SHOES

AKRON SUMMIT **COUNTY.** OHIO

SCALE As Noted
MADE DLL DATE 7-7-55
TRCD. DATE
CKD. H.W.G. DATE 10-13-55

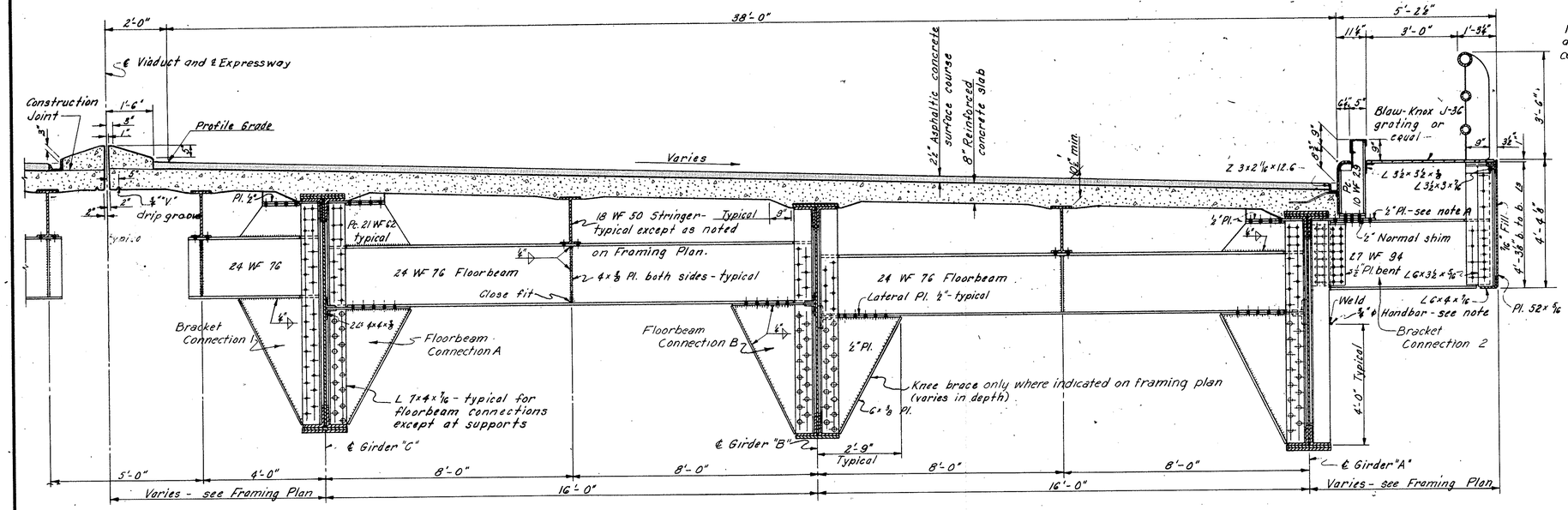
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

901 SHEET: 79

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

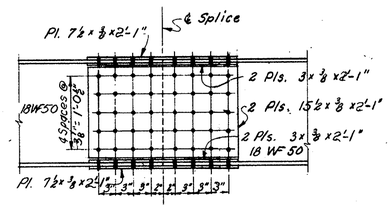
80
123

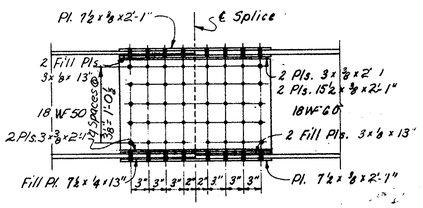
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

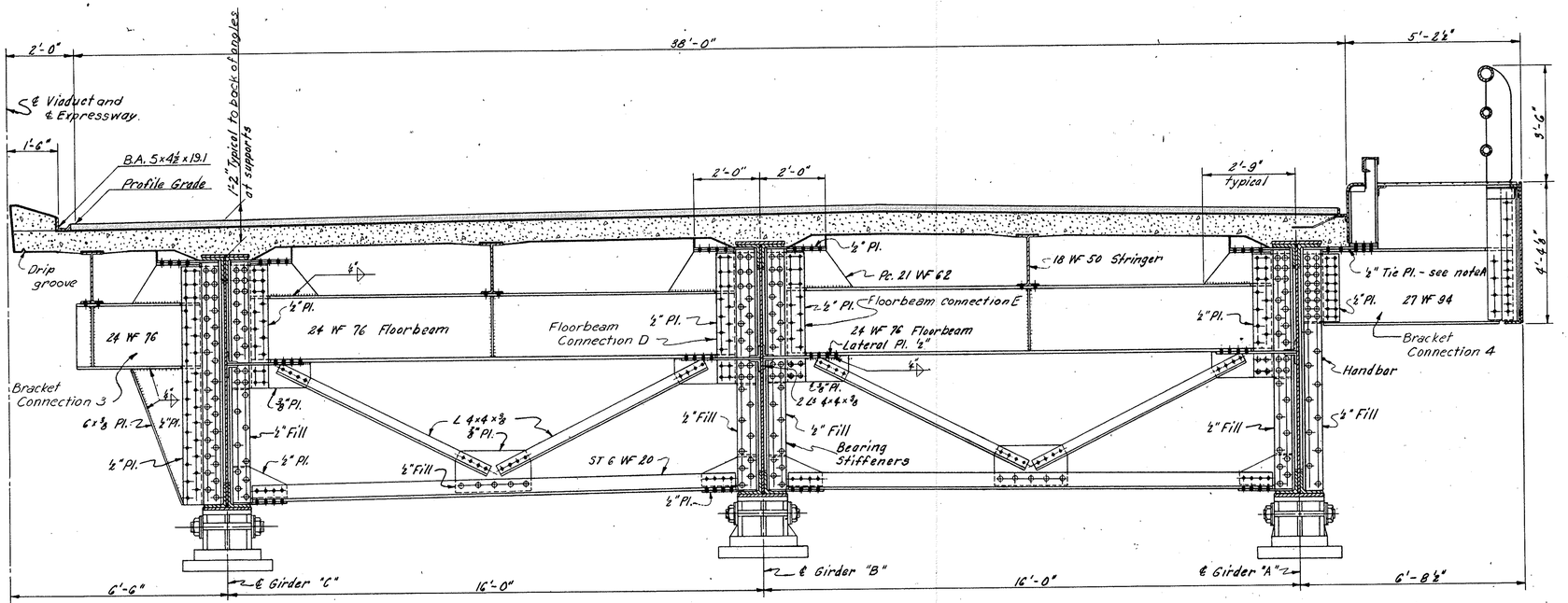


HALF CROSS SECTION AT PANEL POINT ⑧

Note A: Extend ½" plate as required to accomodate a minimum of 10 rivets connecting bracket to tie plate.







HALF CROSS SECTION AT PIER 4

Sections at Pier 1 and Pier 3 similar except as noted on Framing Plan. Pier 2 similar except connection plates are to be bent. West abutment similar except for connections of Girders A and F which are similar to floorbeam connection J.

NOTES:

For location of knee braces see Framing Plan, Sheet 86.
For detail of handrail and curb see Sheet 91.
For Roadway Slope see Sheet 84.
Provide ¾" ø handbars on both sides of all girders, 4'-0" above bottom flange. Shop weld bars to outstanding legs of girder stiffener angles. Provide breaks in bars when required for knee braces, floor beams, built-up diaphragms and field splices. Bend bar 90° and weld to girder web when break occurs between stiffener angles.

PART 7

AKRON EXPRESSWAY SYSTEM

WEST VIADUCT
BR. NO. SU-18 R-135

ROADWAY CROSS SECTIONS

AKRON SUMMIT COUNTY. OHIO

SCALE 2" = 1'-0"
MADE JFB DATE 7-27-55
TRCD. DATE
CKD. D.F.B. DATE 9-19-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

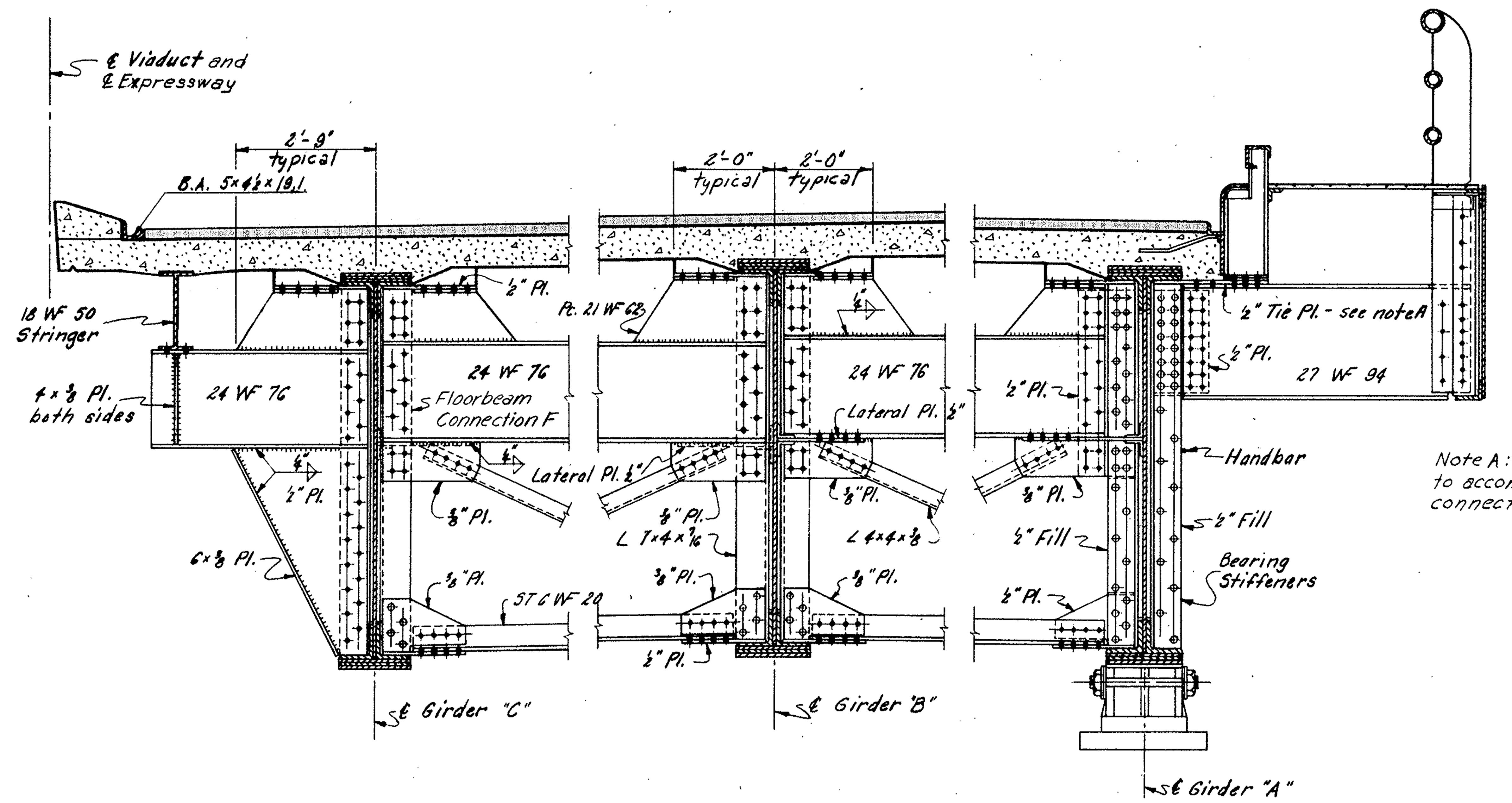
901 SHEET 80

149

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

81 / 123

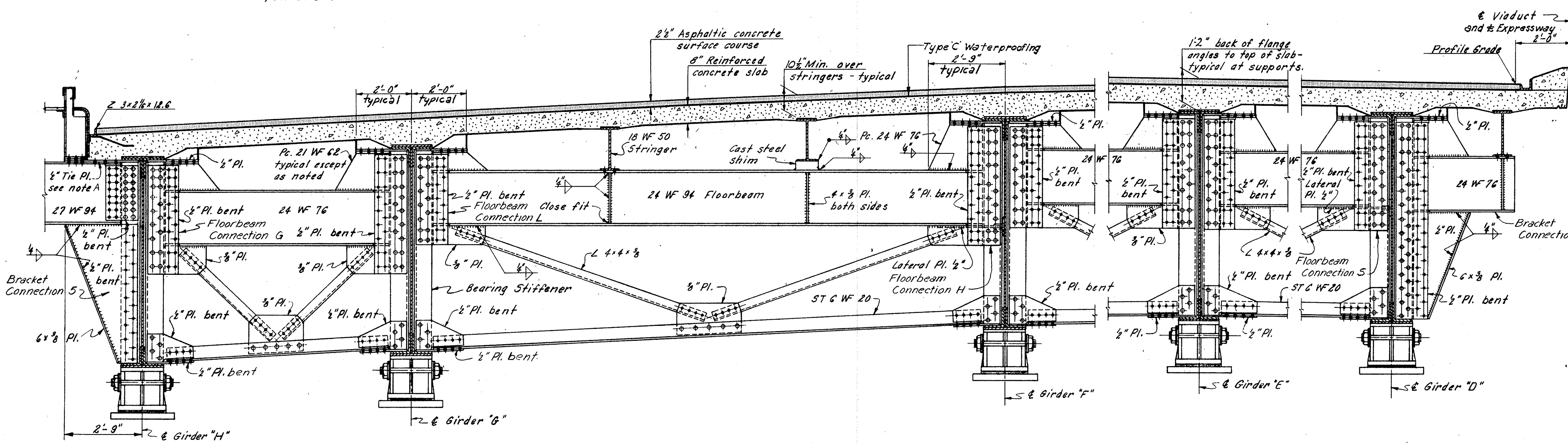
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



Note A: Extend ½" plate as required to accomodate a minimun of 10 rivets connecting bracket to tie plate.

PART CROSS SECTION AT PANEL POINT (91)

Note: Above Section shows right angle floorbeam connections to double angle bearing stiffeners and single angle stiffeners. These connections to be used for floorbeams adjacent to Piers 5 and 6. For knee brace connection to double angle bearing stiffeners at Panel Points (42) and (91) see bracket connection 3, Sheet 80.



PART CROSS SECTION AT EAST ABUTMENT

Note: Connections at Girders "A", "B" and "C" similar except as noted on Framing Plan.

Note: For additional Cross Section Notes see Sheet 80.

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
ROADWAY CROSS SECTIONS

AKRON SUMMIT COUNTY. OHIO

SCALE ¾" = 1'-0"
MADE JFZ DATE 7-27-55
TRCD. DATE
CKD. DEB DATE 9-30-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET 81

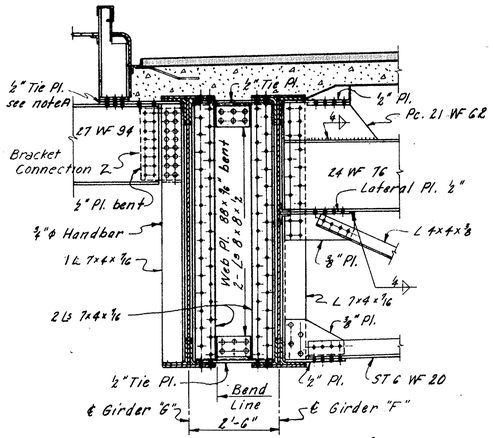
150

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE, FUNDS
2	OHIO		

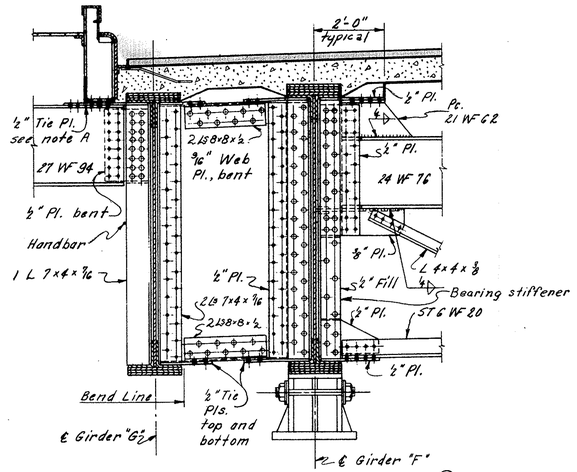
82
123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

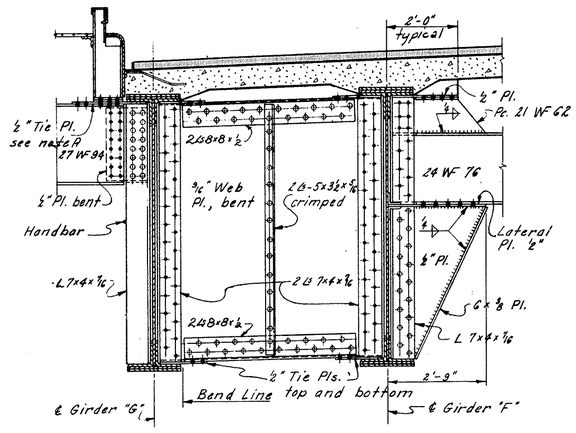
Note A: Extend ½" plate as required to accomodate a minimum of 10 rivets connecting bracket to tie.



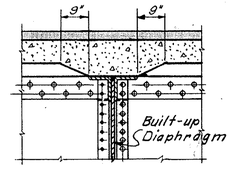
PART CROSS SECTION AT PANEL POINT (51)



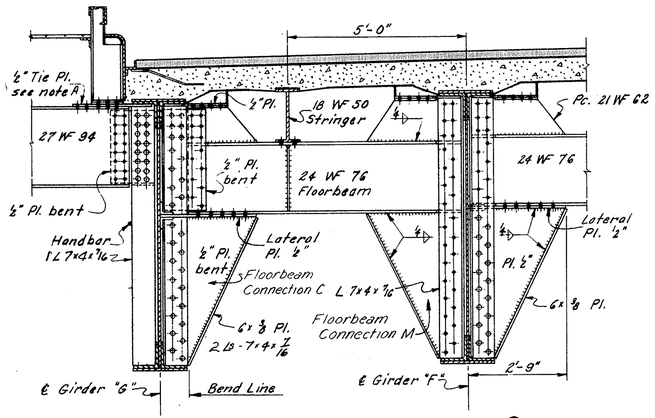
PART CROSS SECTION AT PANEL POINT (52)



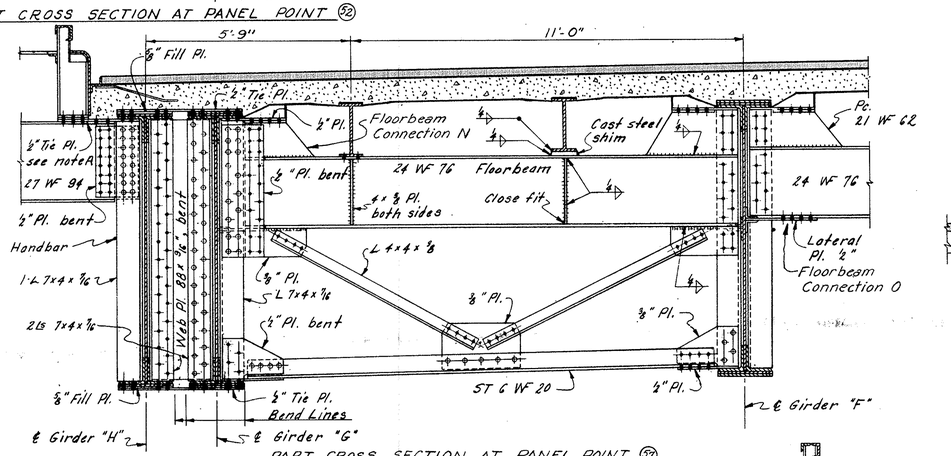
PART CROSS SECTION AT PANEL POINT (53)



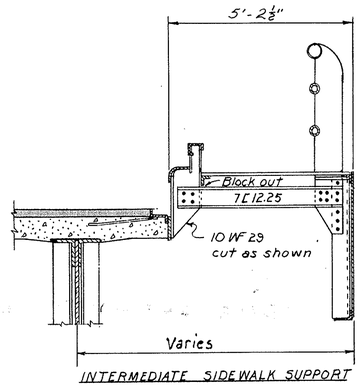
SECTION THROUGH HAUNCH OVER BUILT-UP DIAPHRAGM



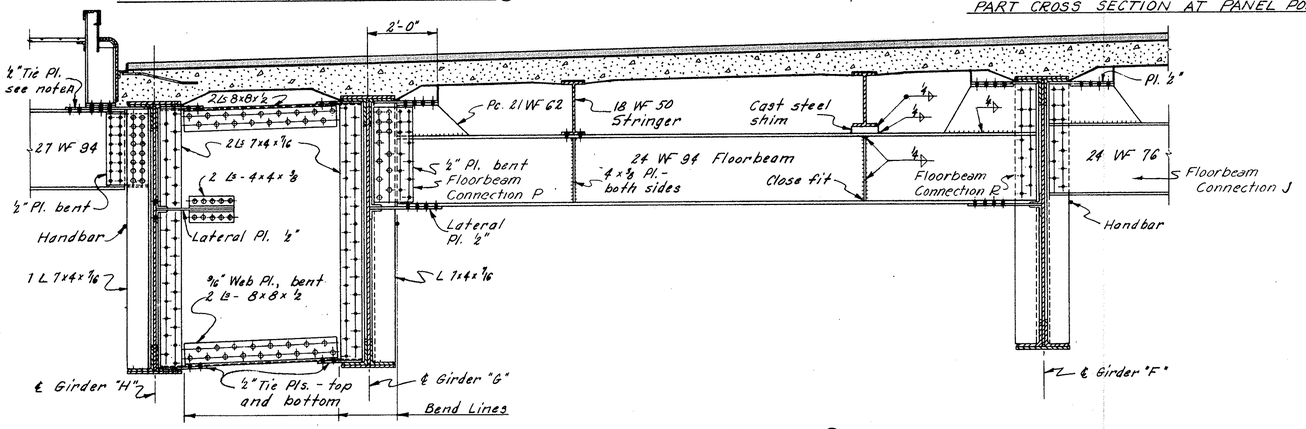
PART CROSS SECTION AT PANEL POINT (54)



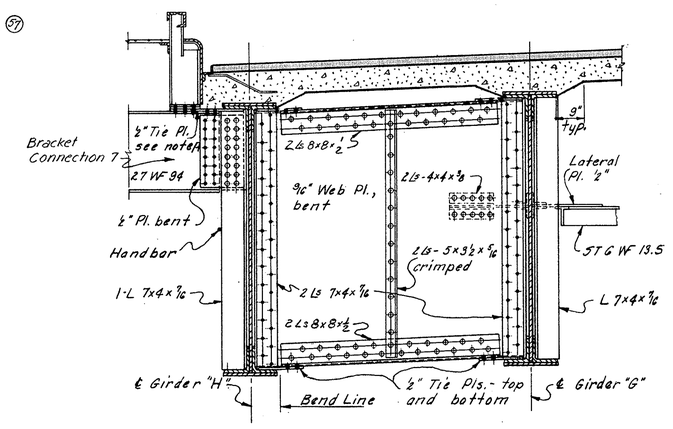
PART CROSS SECTION AT PANEL POINT (57)



INTERMEDIATE SIDEWALK SUPPORT
Scale ½" = 1'-0"



PART CROSS SECTION AT PANEL POINT (58)



PART CROSS SECTION AT PANEL POINT (60)

NOTES:

Part Cross Sections at Panel Points (55) and (56) similar to Panel Point (54) except as shown on Framing Plan, Sheet 86

Part Cross Section at Panel Point (59) similar to Panel Point (58) except as shown on Framing Plan, Sheet 86.

For additional Cross Section Notes see Sheet 80.

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT

BR. NO. SU-18R-135

ROADWAY CROSS SECTIONS

AKRON SUMMIT COUNTY. OHIO

SCALE ½" = 1'-0"
MADE JFG DATE 7-26-55
TRCD. DATE
CKD. DFB DATE 9-30-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

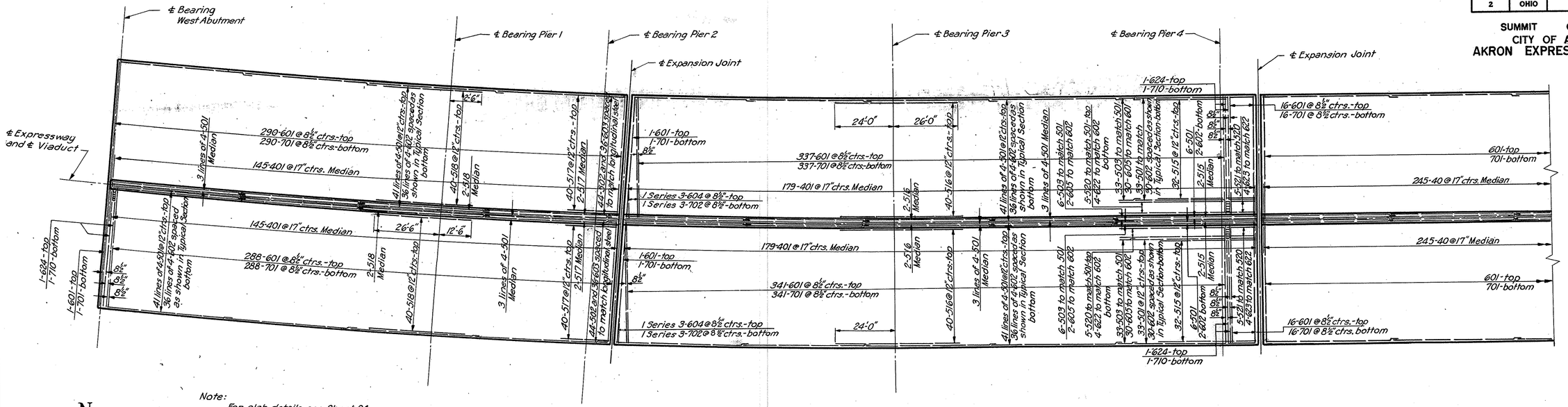
SHEET 82

154

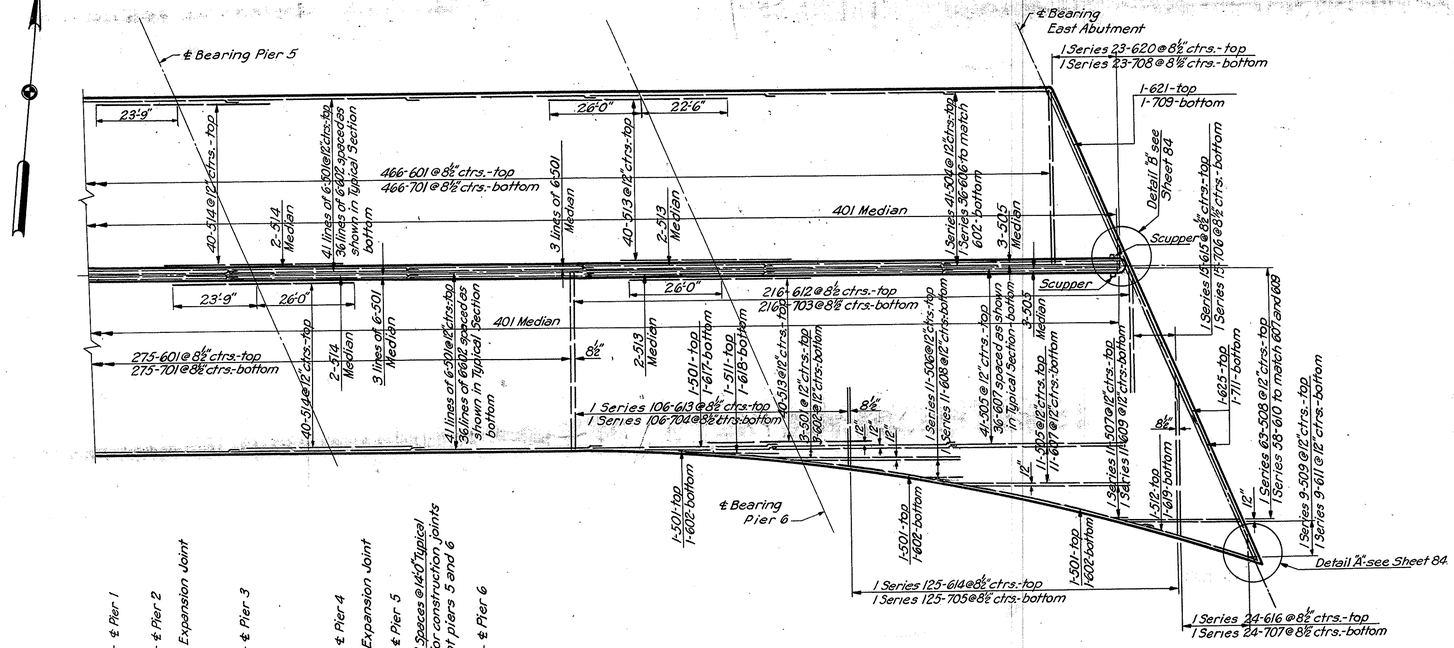
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

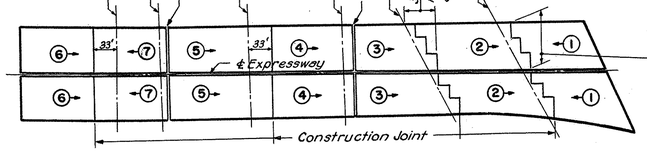
83
123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



Note:
For slab details see Sheet 84.





POURING SEQUENCE

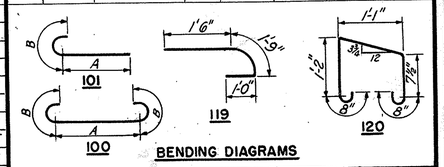
3 Equal spaces Typical for construction Joints at Piers 5 and 6

Note:
The contractor may submit for approval by the engineer, alternate schemes of placing slab. The sequence of slab construction does not apply to the median.

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SERIES INCREMENT	WEIGHT POUNDS
401	1150	4'-0"	120				3,072
501	1,313	52'-0"	Str.				7,1212
502	88	6'-6"	Str.				597
503	78	7'-6"	Str.				610
504	1 Series 41	29'-9" to 47'-0"	Str.			5 3/16"	1,595
505	58	48'-0"	Str.				290
506	1 Series 8	6'-0" to 48'-0"	Str.			6'-0"	225
507	1 Series 11	4'-0" to 48'-0"	Str.			4'-4 8/16"	298
508	1 Series 63	4'-0" to 29'-0"	Str.			4 8/16"	1,084
509	1 Series 9	4'-0" to 28'-0"	Str.			3'-0"	1,502
510	1	30'-0"	Str.				31
511	1	20'-0"	Str.				21
512	1	31'-6"	Str.				33
513	84	48'-6"	Str.				4,249
514	84	49'-9"	Str.				4,359
515	68	46'-9"	101	46'0"	9"		3,315
516	84	50'-0"	Str.				4,381
517	84	23'-3"	101	22'-6"	9"		2,026
518	84	39'-0"	Str.				3,417
519	4	4'-3"	119				17
520	10	41'-0"	Str.				428
521	10	10'-6"	Str.				109
601	2032	40'-8"	100	38'10"	11"		124,118
602	1078	52'-0"	Str.				84,196
603	72	6'-6"	Str.				703
604	2 Series 3	18'-0" to 38'-0"	101	17'4" to 37'4"	11"	10'-0"	252
605	64	7'-6"	Str.				721
606	1 Series 36	29'-9" to 47'-0"	Str.			5 3/16"	2,075
607	47	48'-0"	Str.				3,388
608	1 Series 8	6'-0" to 48'-0"	Str.			6'-0"	324
609	1 Series 11	4'-0" to 48'-0"	Str.			4'-4 8/16"	429
610	1 Series 58	4'-0" to 29'-0"	Str.			5 1/16"	1,437
611	1 Series 9	4'-0" to 28'-0"	Str.			3'-0"	216
612	216	26'-0"	101	25'-1"	11"		8435
613	1 Ser. 106	18'-0" to 24'-6"	101	17'4" to 23'7"	11"	3/4"	3,383
614	1 Ser. 125	24'6" to 40'6"	101	23'7" to 39'7"	11"		6,102
615	1 Ser. 15	4'-0" to 25'0"	Str.			1'-6"	3,267
616	1 Ser. 24	7'-5" to 40'6"	101	6'6" to 39'7"	11"	1'-4 11/16"	864
617	1	30'-0"	Str.				45
618	1	20'-0"	Str.				30
619	1	31'-6"	Str.				47
620	1 Series 23	5'-11" to 38'-5"	101	5'0" to 37'6"	11"	1'-5 3/4"	766
621	1	43'-4"	100	41'-6"	11"		65
622	8	41'-0"	Str.				492
623	8	10'-6"	Str.				126
624	6	35'-4"	100	33'6"	11"		318
625	2	40'-11"	101	40'0"	11"		125
626	7	6'-0"	101	5'-1"	11		63
701	2032	39'-3"	Str.				163021
702	2 Series 3	17'6" to 37'6"	Str.			10'-0"	337
703	216	30'-3"	Str.				13,355
704	1 Ser. 106	12'-3" to 18'-9"	Str.			3/4"	3,358
705	1 Ser. 125	18'9" to 35'-9"	Str.			1 3/16"	6,899
706	1 Series 15	9'-0" to 30'-3"	Str.			1'-6 3/16"	602
707	1 Series 24	6'9" to 39'6"	Str.			1'-4 11/16"	1134
708	1 Series 23	5'6" to 38'0"	Str.			1'-5 3/8"	1,023
709	1	41'-6"	Str.				86
710	6	33'9"	Str.				414
711	2	40'0"	Str.				164
712	7	5'-6"	Str.				79
						Total =	535,330

Note:
For replacement bars see Sheet 62.
Bar dimensions are given out to out.



BENDING DIAGRAMS

PART 7

AKRON EXPRESSWAY SYSTEM

WEST VIADUCT
BR. NO. SU-18R-135

SLAB PLAN

AKRON SUMMIT COUNTY. OHIO

SCALE No Scale
MADE D.F.B. DATE 7-8-55
TRCD. C.T.H. DATE 12-1-55
CKD. B.S.S. DATE 9-8-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET 83

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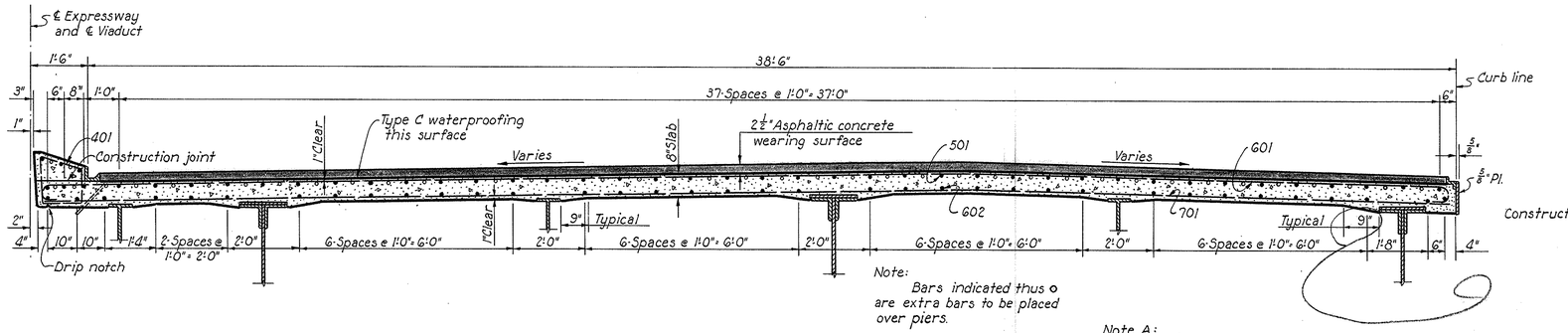
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	84 / 123
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



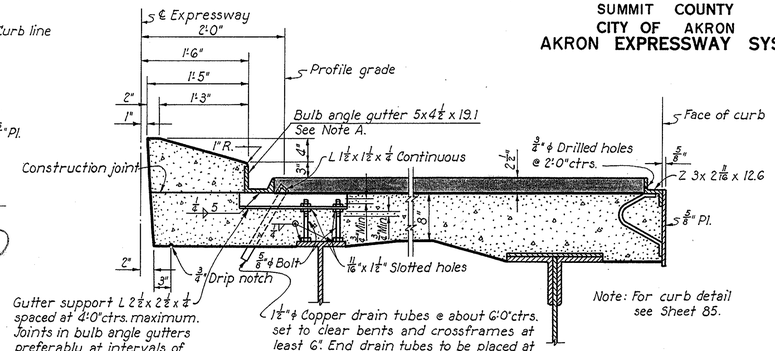
Note:
Bars indicated thus o are extra bars to be placed over piers.

TYPICAL SECTION THROUGH SLAB

Scale: ½" = 1'-0"

North roadway shown. South roadway similar but opposite hand to Sta. 607 + 98.93.

Note A:
5x4½ x 19.1 bulb angle gutter along median on the North roadway, shall begin at Sta. 604 + 50 and extend to end of superstructure at East Abutment. On South roadway, bulb angle gutter shall extend full length of superstructure.

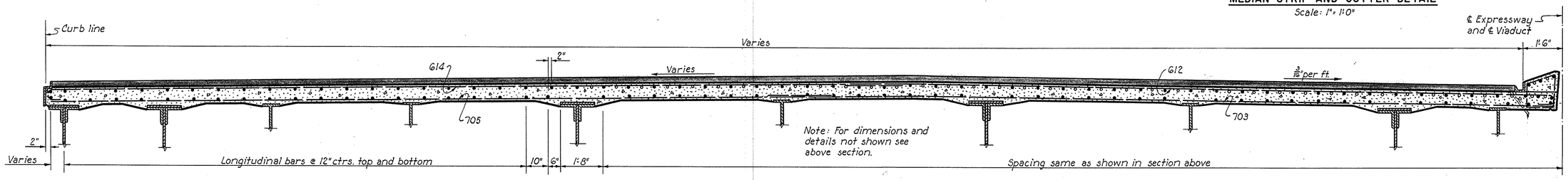


Gutter support L 2½ x 2½ x ¼ spaced at 4'-0" ctrs. maximum. Joints in bulb angle gutters preferably at intervals of not less than 25 feet are to be butt joints with milled ends. Support angles shall be placed 6" to 9" on each side of joint.

Note: For curb detail see Sheet 85.

MEDIAN STRIP AND GUTTER DETAIL

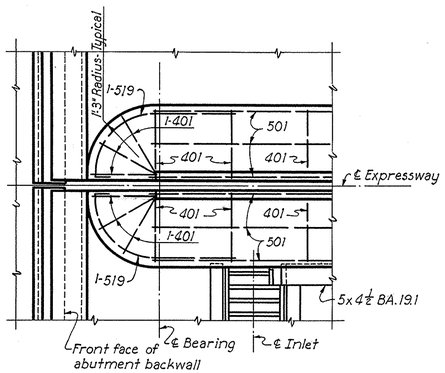
Scale: 1" = 1'-0"



Note: For dimensions and details not shown see above section.

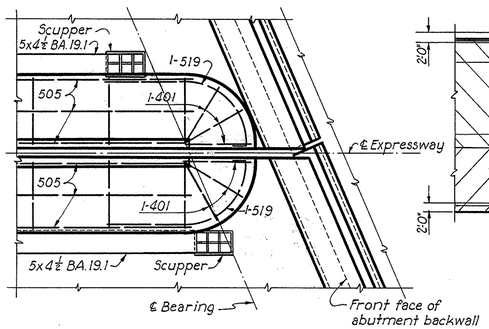
TYPICAL SECTION THROUGH SOUTH ROADWAY FORWARD OF STA. 607 + 98.93

Scale: ½" = 1'-0"



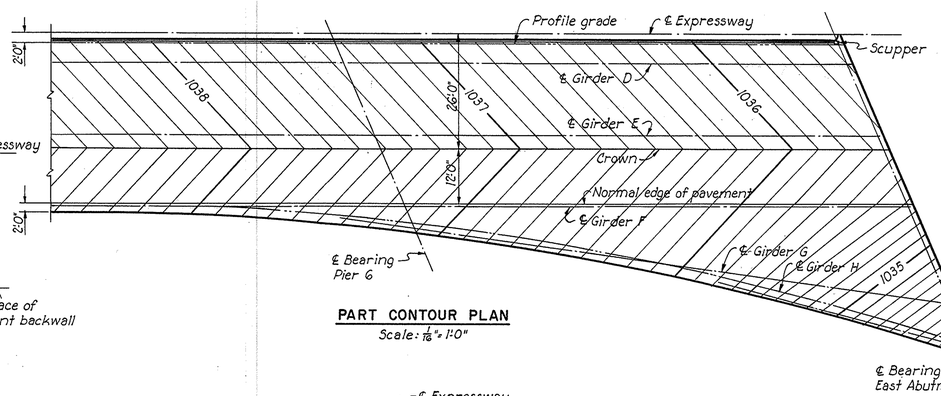
DETAIL AT WEST END OF MEDIAN

Scale: ¾" = 1'-0"



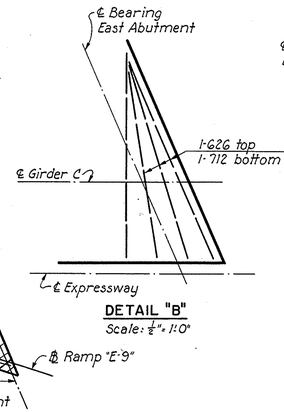
DETAIL AT EAST END OF MEDIAN

Scale: ¾" = 1'-0"



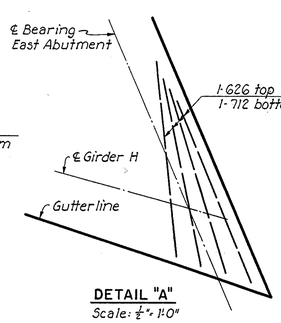
PART CONTOUR PLAN

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



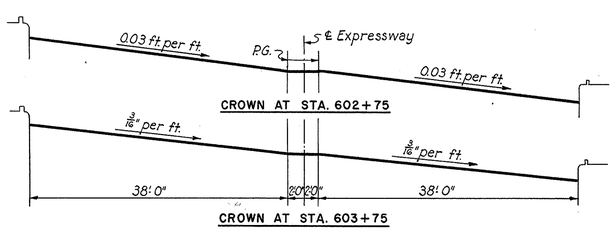
DETAIL "B"

Scale: ½" = 1'-0"



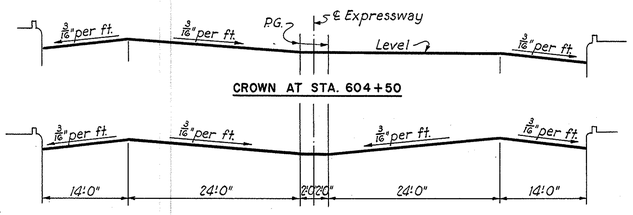
DETAIL "A"

Scale: ½" = 1'-0"



CROWN AT STA. 602 + 75

CROWN AT STA. 603 + 75



CROWN AT STA. 604 + 50

CROWN AT STA. 605 + 25

Note: See General Plan and Elevation for limits of crown sections.

ROADWAY CROWNS

Scale: None

Note:
For Slab Plan see Sheet 83.
For drainage details see Sheet 95.
For location of Detail "A" and Detail "B" see Sheet 83.

Revised 12-19-55

PART 7

AKRON EXPRESSWAY SYSTEM

WEST VIADUCT
BR. NO. SU-18R-135

SLAB DETAILS

AKRON SUMMIT COUNTY. OHIO

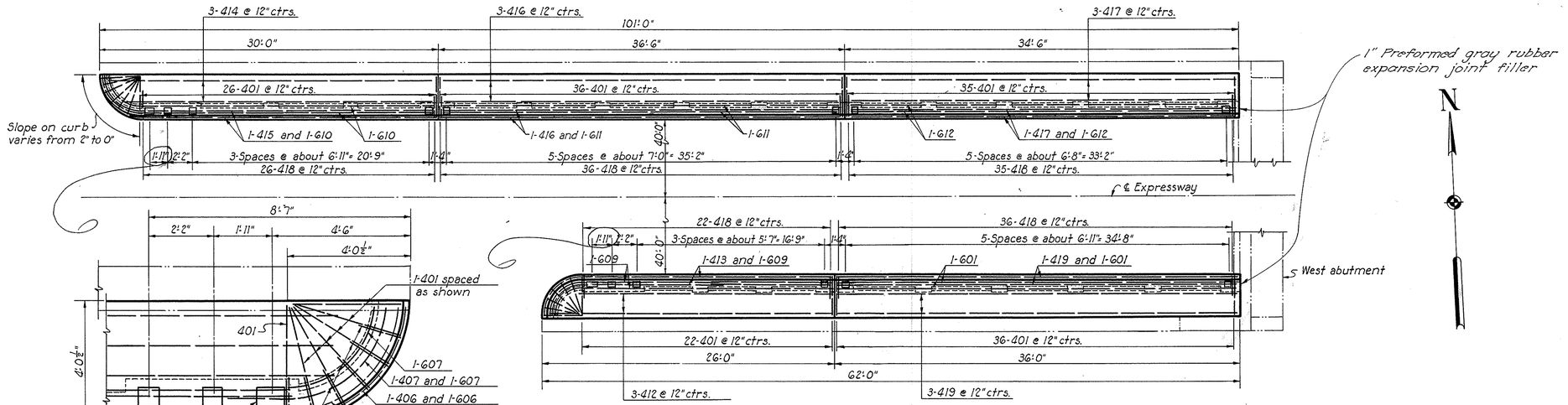
SCALE As shown
MADE DFB DATE 7-14-55
TRCD. CAL DATE 12-7-55
CKD. B.S.S. DATE 9-8-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

901 SHEET- 84

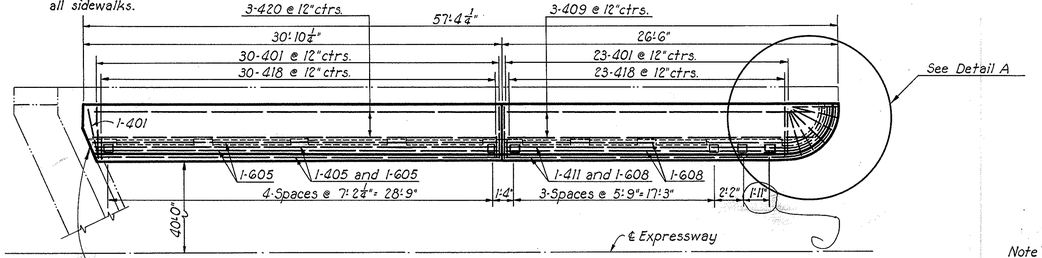
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	85 / 123
2	OHIO			

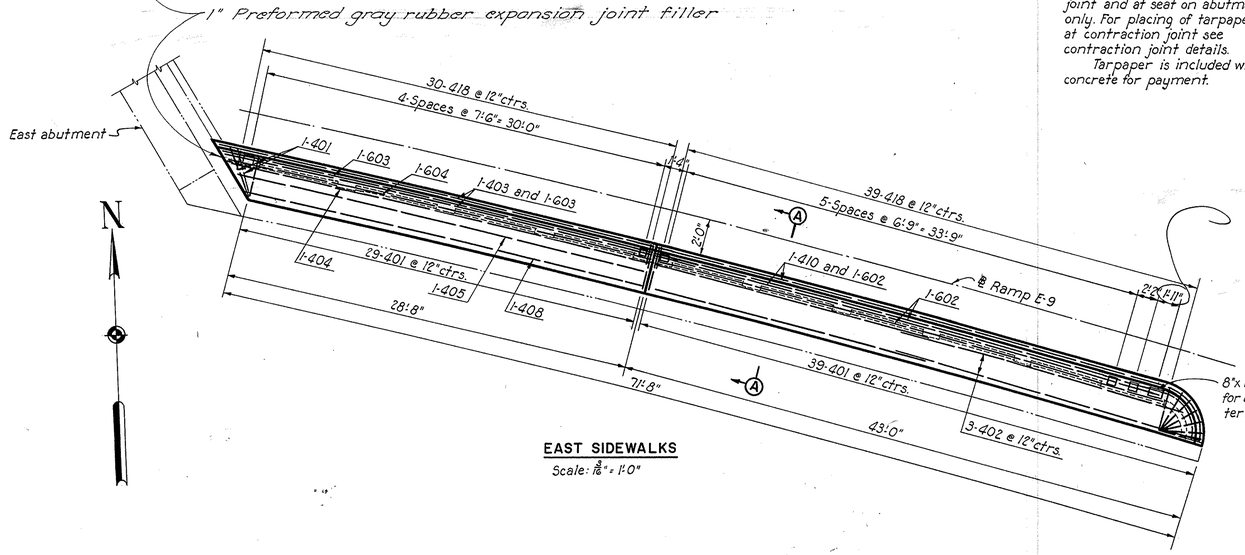
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



DETAIL A
Scale: ½" = 1'-0"
Reinforcing steel typical for all sidewalks.

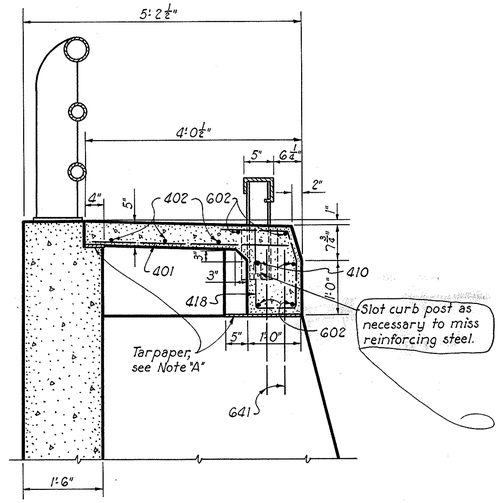
WEST SIDEWALKS
Scale: 1/16" = 1'-0"



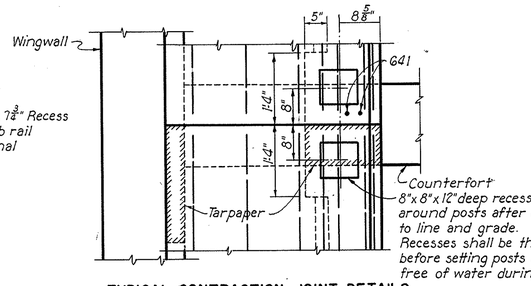


EAST SIDEWALKS
Scale: 1/16" = 1'-0"

Note "A":
Tarpaper at contraction joint and at seat on abutment only. For placing of tarpaper at contraction joint see contraction joint details.
Tarpaper is included with concrete for payment.

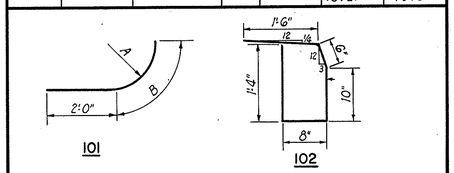


SECTION A-A
Scale: ¾" = 1'-0"
Typical section at contraction joint except for bar marks.



TYPICAL CONTRACTION JOINT DETAILS
Scale: ¾" = 1'-0"

REINFORCEMENT SCHEDULE						
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
401	303	3'-9"	Str.			751
402	3	41'-0"	Str.			82
403	2	31'-9"	Str.			42
404	1	30'-6"	Str.			21
405	3	29'-6"	Str.			59
406	4	7'-10"	101	3'-10"	5'-10"	21
407	4	6'-9"	101	3'-2"	4'-9"	18
408	1	28'-9"	Str.			19
409	3	24'-3"	Str.			49
410	2	38'-9"	Str.			52
411	2	22'-3"	Str.			30
412	3	23'-9"	Str.			48
413	2	21'-9"	Str.			29
414	3	27'-9"	Str.			56
415	2	25'-9"	Str.			34
416	5	36'-0"	Str.			120
417	5	34'-0"	Str.			114
418	297	4'-10"	102			959
419	5	35'-6"	Str.			119
420	3	30'-0"	Str.			60
601	4	35'-6"	Str.			213
602	4	38'-9"	Str.			233
603	3	31'-9"	Str.			143
604	1	30'-9"	Str.			46
605	4	29'-6"	Str.			177
606	8	7'-10"	101	3'-10"	5'-10"	94
607	8	6'-9"	101	3'-2"	4'-9"	81
608	4	22'-3"	Str.			134
609	4	21'-9"	Str.			131
610	4	25'-9"	Str.			155
611	4	36'-0"	Str.			216
612	4	34'-0"	Str.			204
					Total =	4510



BENDING DIAGRAMS

Note:
Bar dimensions are given out to out.

Revised 3-27-56
Revised 12-19-55

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
APPROACH SIDEWALKS AND CURBS

AKRON SUMMIT COUNTY, OHIO

SCALE As shown
MADE DJH DATE 8-17-55
TRCD CAL DATE 12-3-55
CKD GD DATE 10-14-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET 85

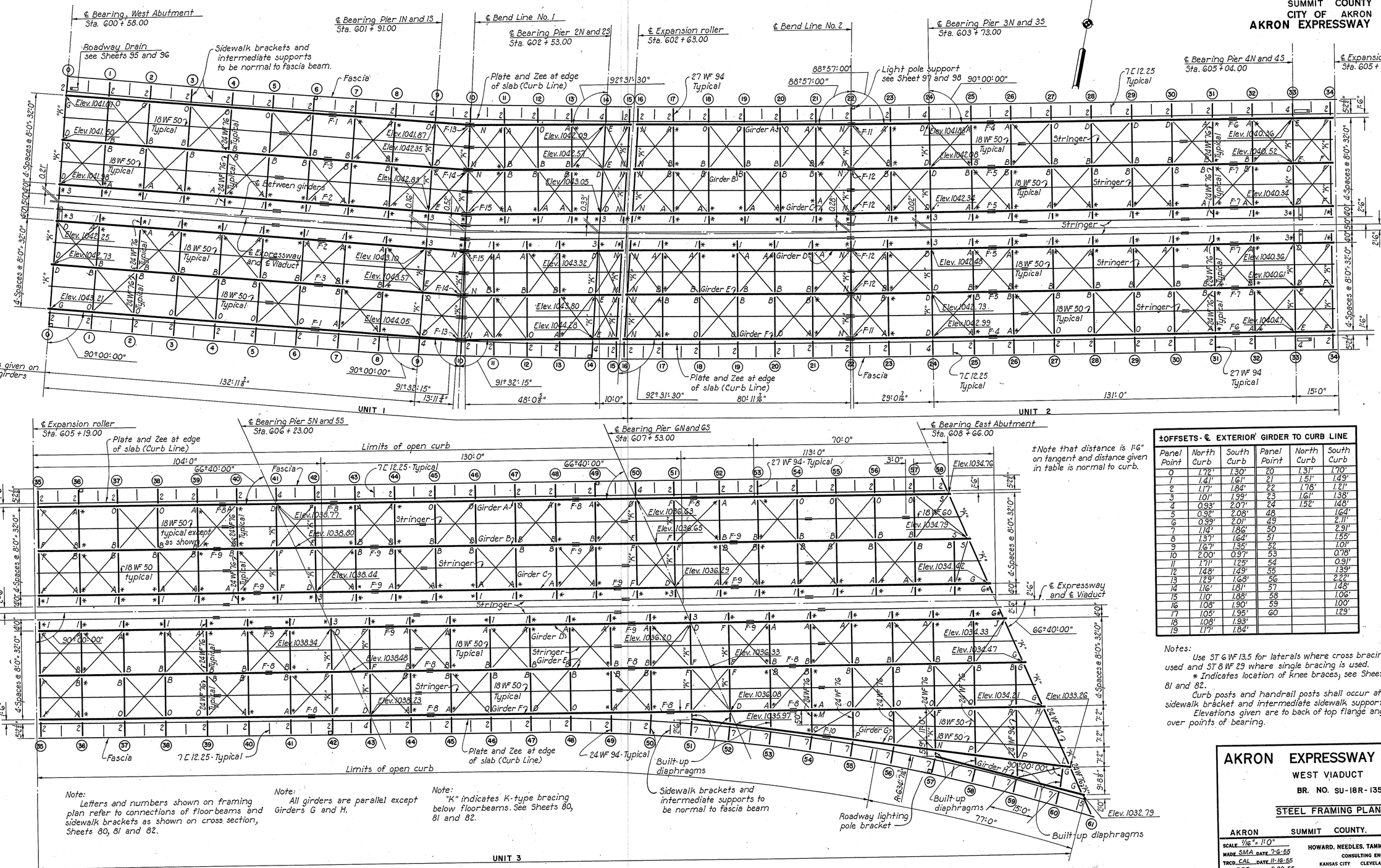
Revised As-Built 1-17-58 JVP

166

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

86
123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



±Note that distance is 1'-6" on tangent and distance given in table is normal to curb.

±OFFSETS - ℄ EXTERIOR GIRDER TO CURB LINE

Panel Point	North Curb	South Curb	Panel Point	North Curb	South Curb
0	1.72'	1.30'	20	1.31'	1.70'
1	1.41'	1.61'	21	1.51'	1.49'
2	1.17'	1.84'	22	1.78'	1.21'
3	1.01'	1.99'	23	1.61'	1.38'
4	0.93'	2.07'	24	1.52'	1.48'
5	0.92'	2.08'	48		1.64'
6	0.99'	2.01'	49		2.11'
7	1.14'	1.86'	50		2.91'
8	1.37'	1.64'	51		1.55'
9	1.67'	1.35'	52		1.01'
10	2.00'	0.97'	53		0.78'
11	1.71'	1.25'	54		0.91'
12	1.48'	1.49'	55		1.39'
13	1.29'	1.68'	56		2.22'
14	1.16'	1.81'	57		1.48'
15	1.10'	1.88'	58		1.06'
16	1.08'	1.90'	59		1.00'
17	1.05'	1.95'	60		1.29'
18	1.08'	1.93'			
19	1.17'	1.84'			

Notes:
Use ST 6 WF 13.5 for laterals where cross bracing is used and ST 8 WF 29 where single bracing is used.
* Indicates location of knee braces; see Sheets 80, 81 and 82.
Curb posts and handrail posts shall occur at every sidewalk bracket and intermediate sidewalk support.
Elevations given are to back of top flange angles over points of bearing.

Note:
Letters and numbers shown on framing plan refer to connections of floorbeams and sidewalk brackets as shown on cross section, Sheets 80, 81 and 82.

Note:
All girders are parallel except Girders G and H.

Note:
"K" indicates K-type bracing below floorbeams. See Sheets 80, 81 and 82.

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135

STEEL FRAMING PLAN

AKRON SUMMIT COUNTY, OHIO

SCALE 1/16" = 1'-0"
MADE SMA DATE 7-6-55
TRCD CAL DATE 11-16-55
CKD DFB DATE 9-29-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET- 86

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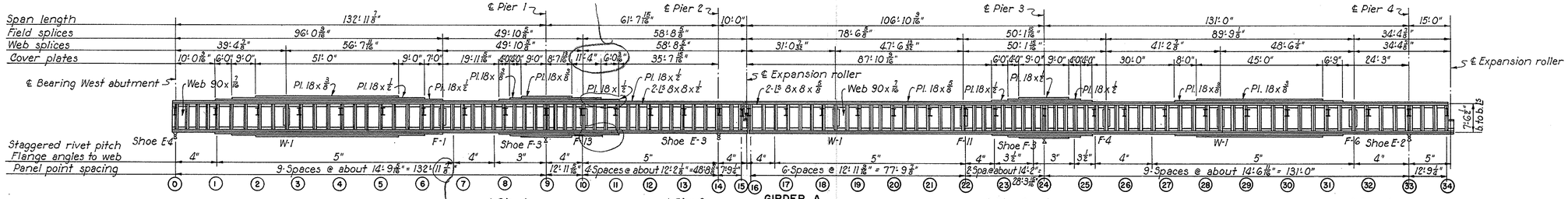
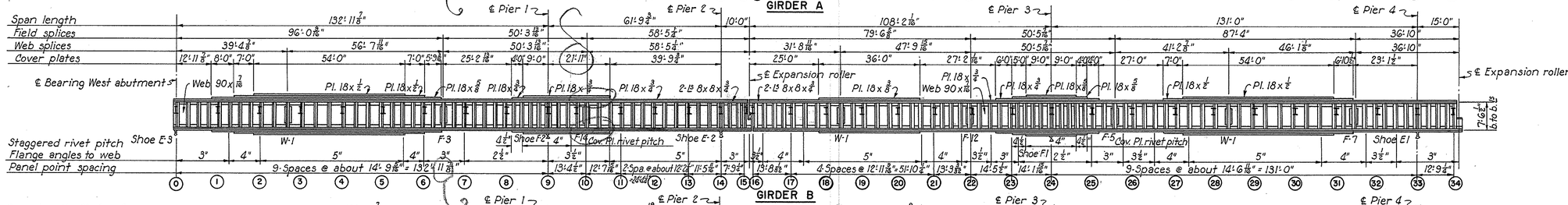
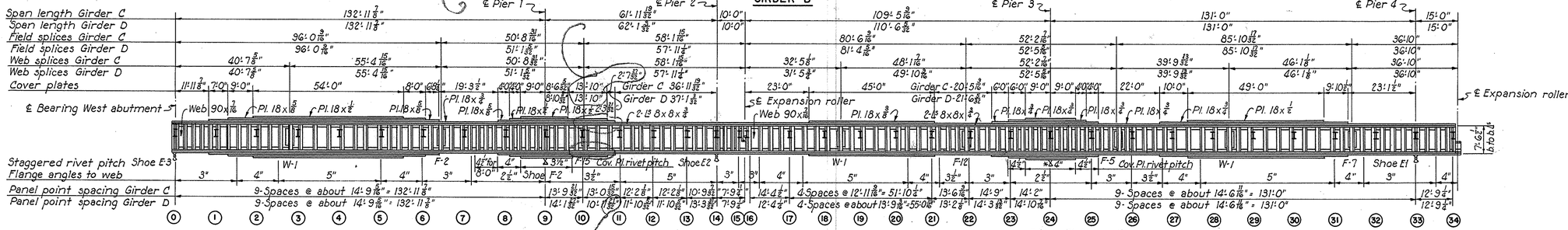
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

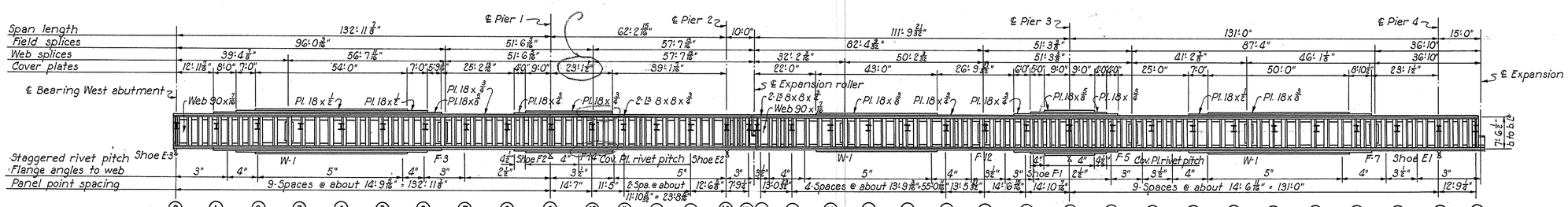
87 / 123

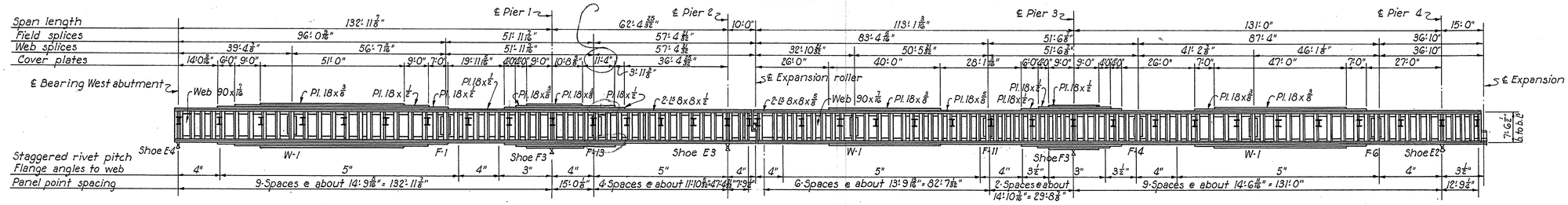
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM











Notes:

Intermediate stiffener angles are 2-L 5 x 3½ x 7/16 crimped for all girders.

For number and size of bearing stiffener angles see Sheet 91.

Intermediate floorbeam connection angles are 2-L 7x4x7/16 on fill for all girders.

Material, dimensions and rivet pitch shown are common to top and bottom of girder.

Staggered rivet pitch flange angles to cover plates to be 5" except ends of cover plates or where noted on girder elevations. For developed ends of cover plates see Sheet 89.

Numbers encircled thus ○ refer to panel points as indicated on framing plan.

Girders shall be fabricated with camber to compensate for deflections due to dead load weight of steel and slab and for vertical curvature.

For tabulation of deflections see Sheet 99.

Revised 12-19-55

PART 7

AKRON EXPRESSWAY SYSTEM

WEST VIADUCT
BR. NO. SU-18R-135

GIRDER ELEVATIONS UNITS 1 AND 2

AKRON SUMMIT COUNTY, OHIO

SCALE 1" = 20'
MADE JRK DATE 8-22-55
TRCD CAL DATE 10-28-55
CKD GD DATE 10-12-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

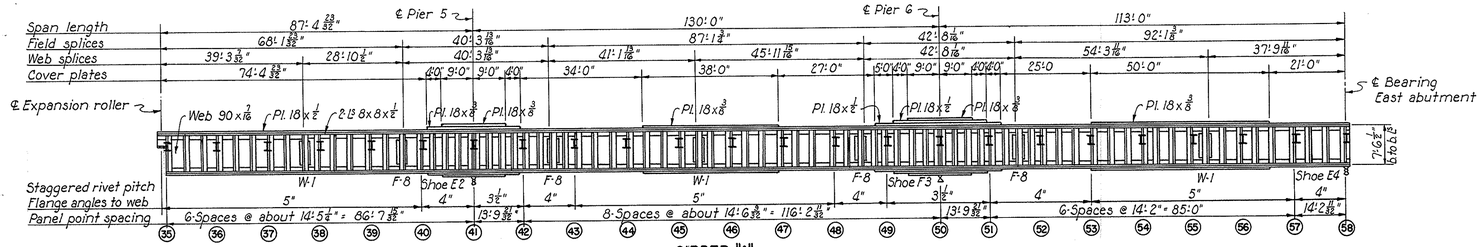
901 SHEET 87

155

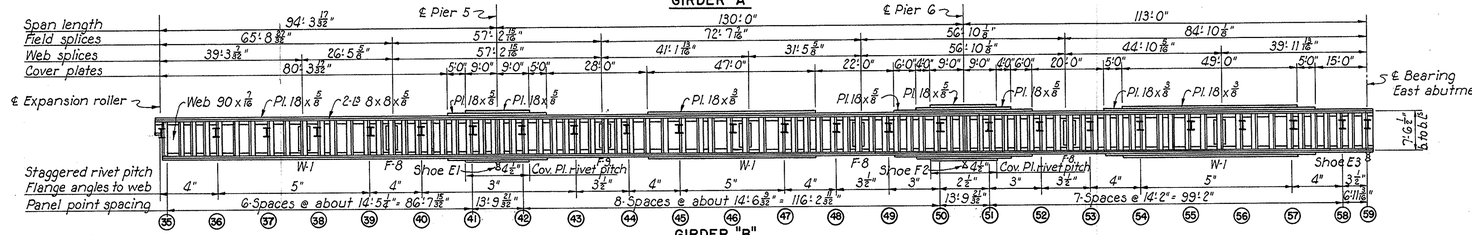
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

88
123

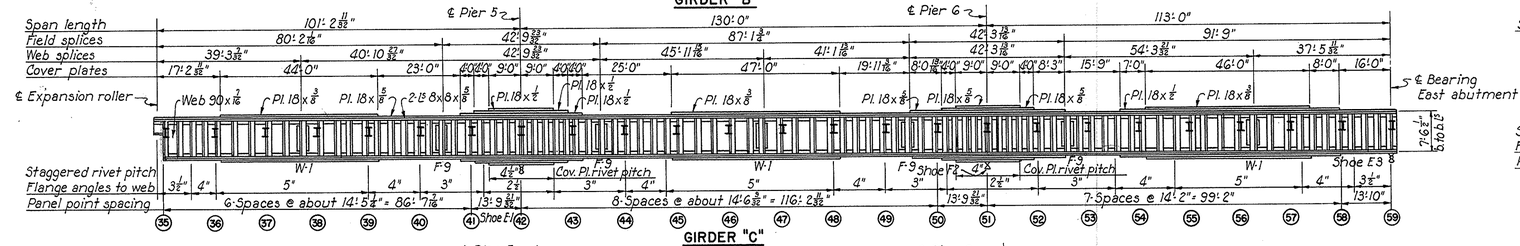
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



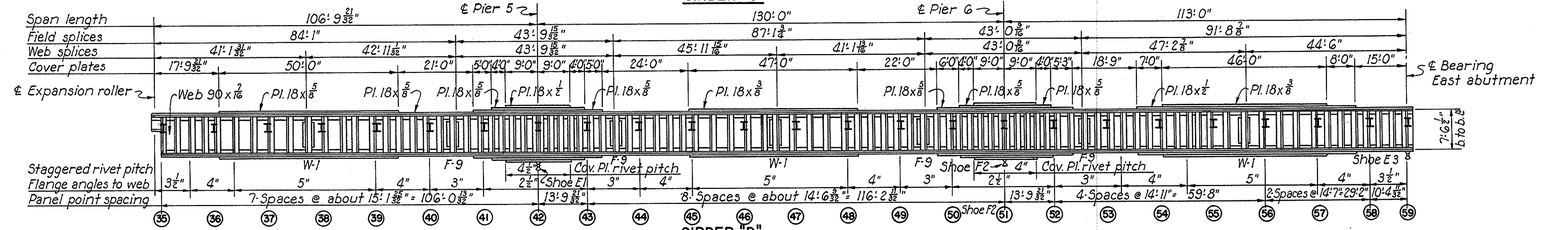
GIRDER "A"



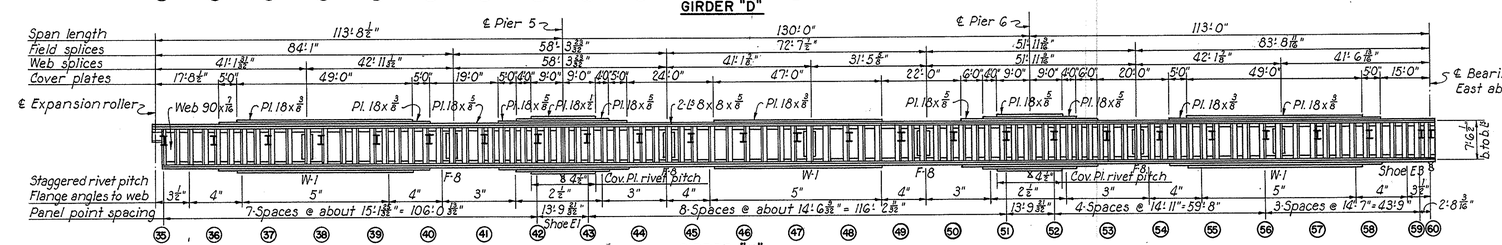
GIRDER "B"



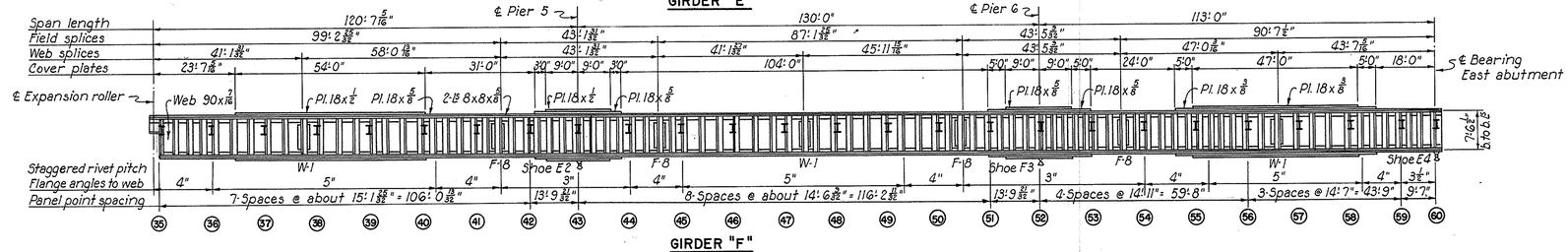
GIRDER "C"



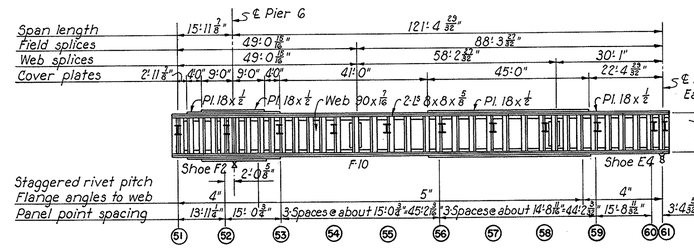
GIRDER "D"



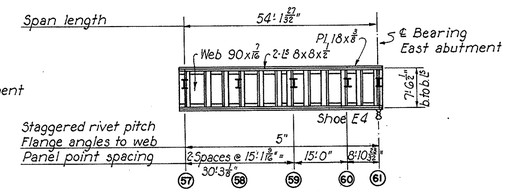
GIRDER "E"



GIRDER "F"



GIRDER "G"



GIRDER "H"

Notes:

Intermediate stiffener angles are 2-L 5 x 3 1/2 x 7/16 crimped for all girders.

For number and size of bearing stiffener angles see Sheet 91.

Intermediate floorbeam connection angles are 2-L 7 x 4 x 7/16 on fill for all girders.

Material, dimensions and rivet pitch shown are common to top and bottom of girder.

Staggered rivet pitch flange angles to cover plates to be 5" except ends of cover plates or where noted on girder elevations. For developed ends of Cover Pl. see Sheet 89.

For additional notes see Sheet 87.

PART 7

AKRON EXPRESSWAY SYSTEM

WEST VIADUCT

BR. NO. SU-18R-135

GIRDER ELEVATIONS - UNIT 3

AKRON SUMMIT COUNTY, OHIO

SCALE 1" = 20'-0"
MADE J.R.K. DATE 8-29-56
TRCD. C.A.L. DATE 11-14-56
CKD. G.D. DATE 10-12-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

901 SHEET- 88

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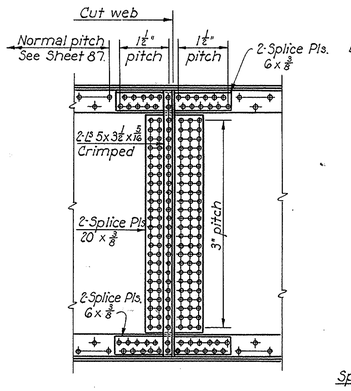
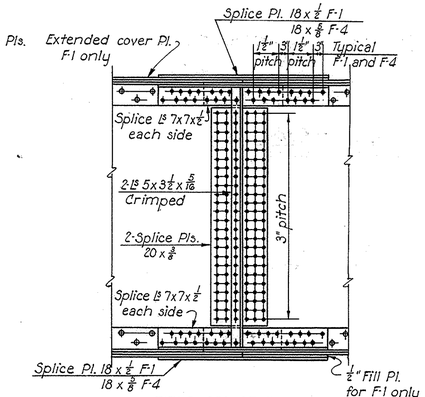
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

89
123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY - PART 7
SUM - 18R - 12.90

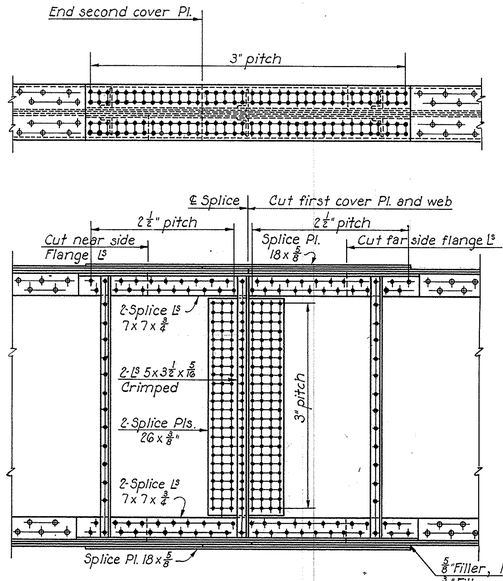


WEB SPLICE W-1



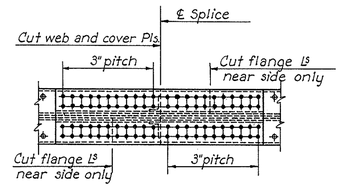
FIELD SPLICE F-1 AND F-4

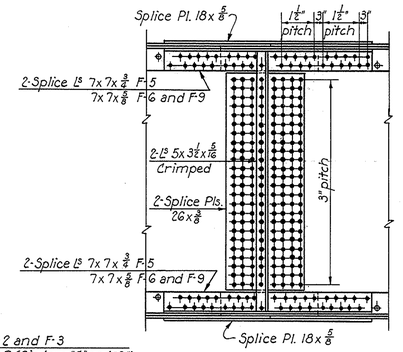
F-1 shown, F-4 similar except as noted.



FIELD SPLICE F-2 F-3 AND F-7

F-2 shown, F-3 and F-7 similar except as noted.

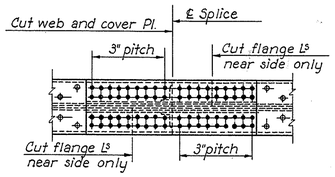


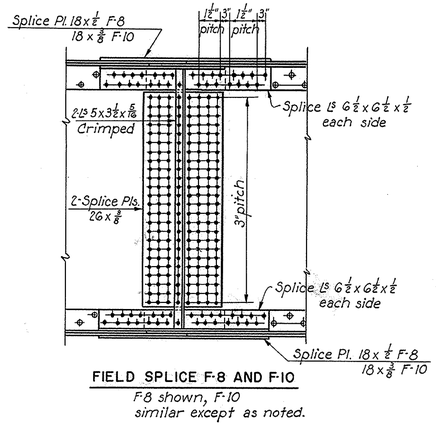


FIELD SPLICE F-5, F-6 AND F-9

F-6 shown, F-5 and F-9 similar except as noted.

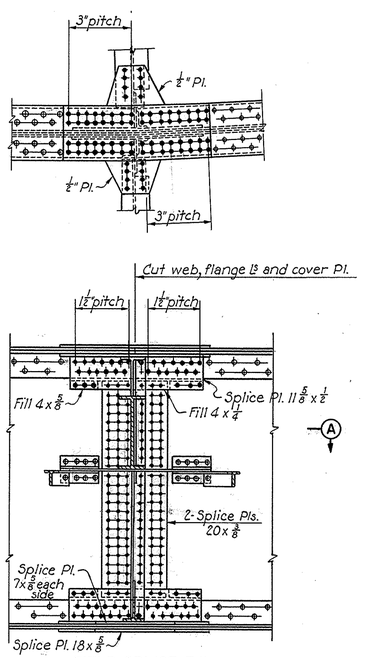
Note: In some cases for F-9 it will be necessary to provide an an additional fill Pl. under splice Pl. 18 x 5/8. Second cover Pl. will be extended to ℄ splice.





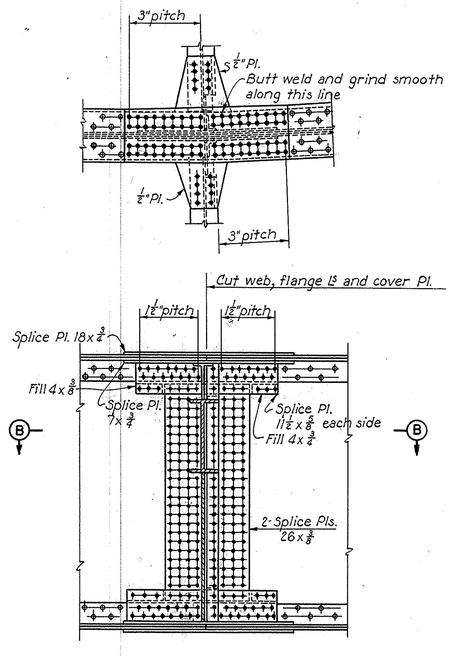
FIELD SPLICE F-8 AND F-10

F-8 shown, F-10 similar except as noted.



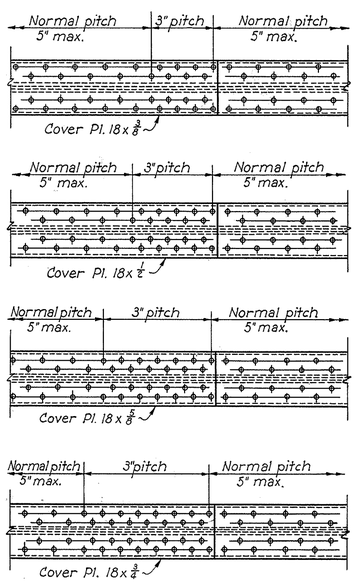
FIELD SPLICE F-11

Unit 2 Bend Point
Girder "A" shown, Girder "F" similar.



FIELD SPLICE F-12

Girder "C" shown, Girders "B", "D" and "E" similar.



DETAIL AT END OF COVER PLATES

Note: For normal cover plate rivet pitch see Girder Details, Sheet 87.

Note:
Section A-A similar to Section A-A on Sheet 90.
Section B-B similar to Section E-E on Sheet 90.

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
GIRDER DETAILS
AKRON SUMMIT COUNTY. OHIO

SCALE 1/2" = 1'-0"
MADE DLL DATE 8-20-55
TRCD CAL DATE 10-14-55
CKD HWG DATE 10-7-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

901 SHEET- 89

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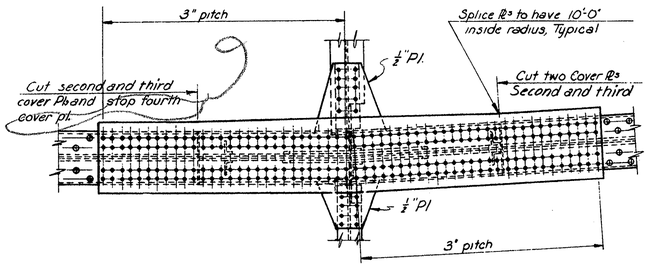
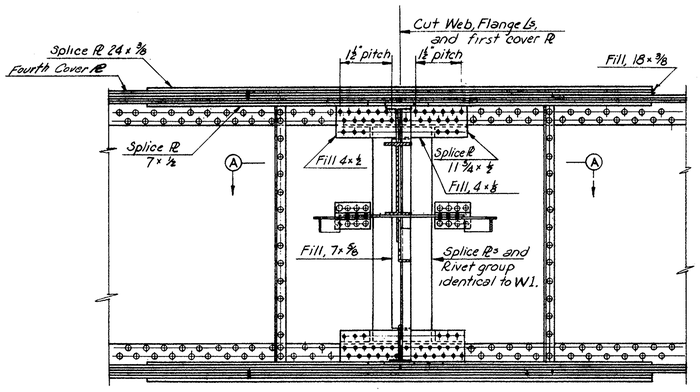
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

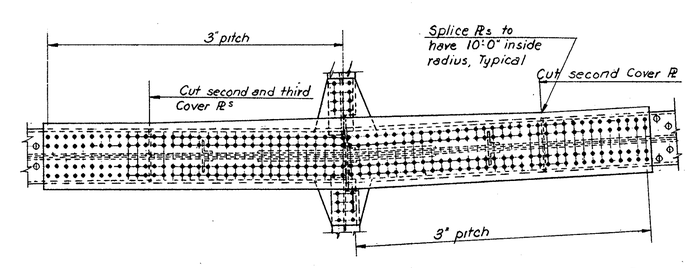
20
123

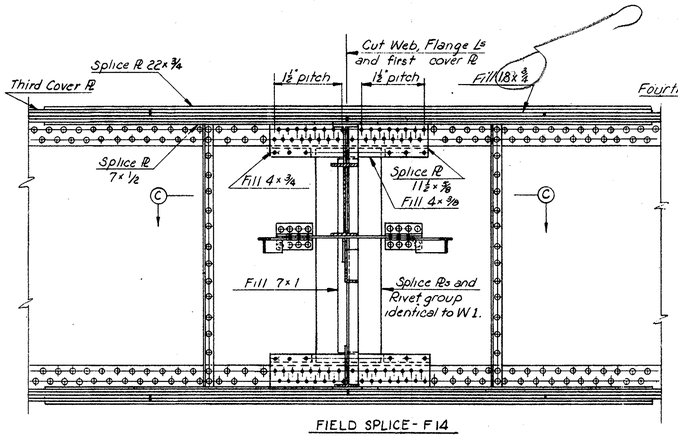
SUMMIT COUNTY
CITY OF AKRON
AKRON **EXPRESSWAY SYSTEM**



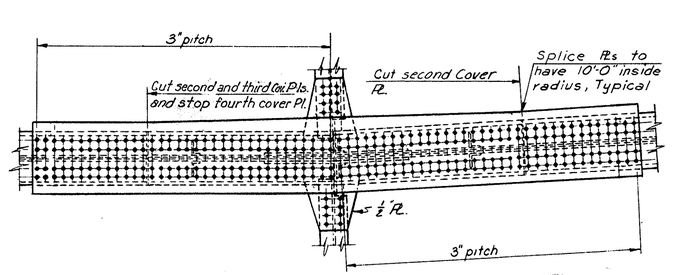


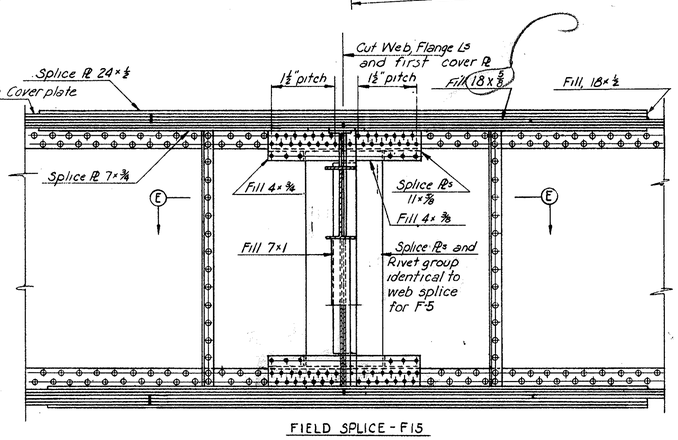
FIELD SPLICE - F13
Unit 1 Bend Point
Girder "A" shown, Girder "F" similar



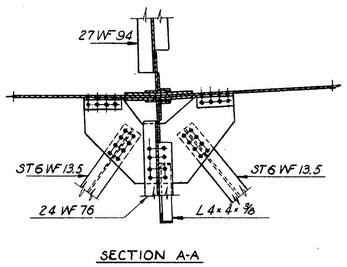


FIELD SPLICE - F14
Unit 1 Bend Point
Girder "B" shown, Girder "E" similar

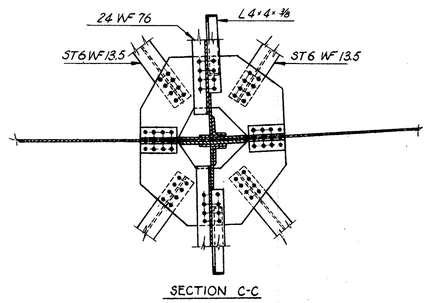




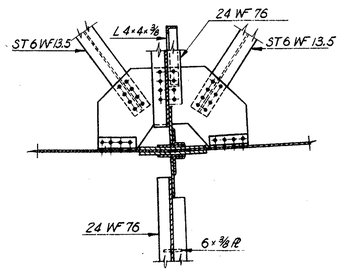
FIELD SPLICE - F15
Unit 1 Bend Point
Girder "C" shown, Girder "D" similar



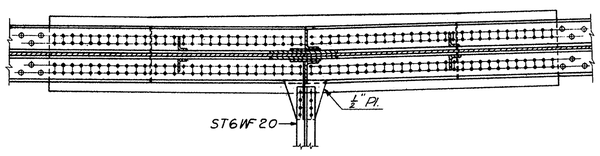
SECTION A-A

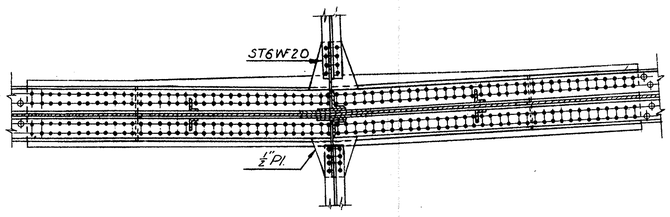


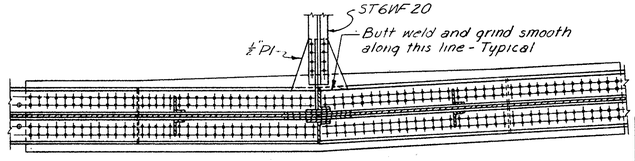
SECTION C-C



SECTION E-E







Revised 12-19-55

PART 7

AKRON **EXPRESSWAY SYSTEM**
WEST VIADUCT
BR. NO. SU-18R-13.5

GIRDER DETAILS

AKRON SUMMIT **COUNTY,** **OHIO**

SCALE 1/2" = 1'-0"
MADE DLL DATE 8-25-55
TRCD DATE
CKD HWG DATE 9-26-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET-80

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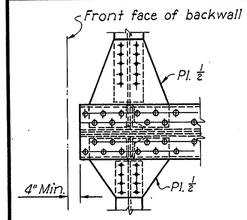
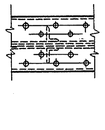
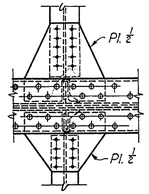
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

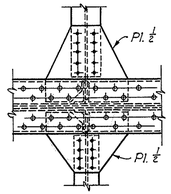
91 / 123

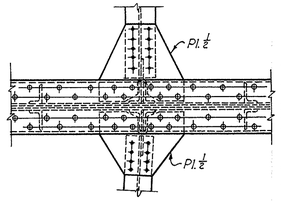
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

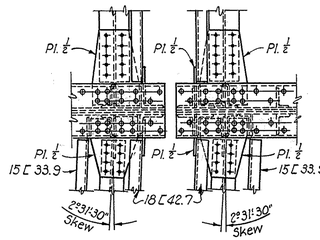


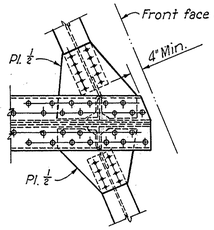


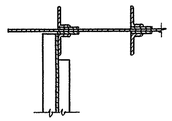




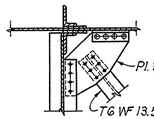






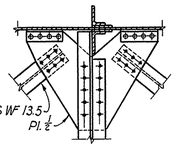


SECTION A-A



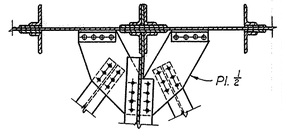
SECTION B-B

Typical for one lateral where knee brace is not required. Where knee brace is required see Section L-L, Sheet 90.

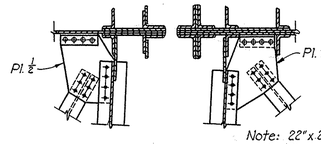


SECTION C-C

Typical for two intersecting laterals where knee brace is required. Where knee brace is not required, see Section M-M, Sheet 90.

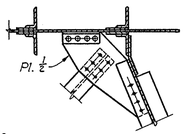


SECTION D-D



SECTION E-E

Note: 22" x 2" Plate and roller details not shown.



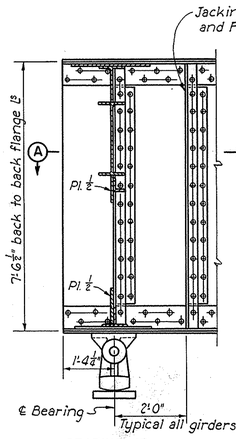
SECTION J-J

TABLE OF BEARING STIFFENERS AND FILL PLATES

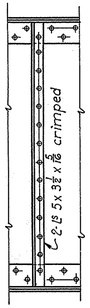
Location	Girder "A"		Girders "B","C","D" and "E"		Girder "F"		Girder "G"		Girder "H"	
	Brg. Stiff.	Fill Pl.	Brg. Stiff.	Fill Pl.	Brg. Stiff.	Fill Pl.	Brg. Stiff.	Fill Pl.	Brg. Stiff.	Fill Pl.
West abutment	2-L8 7x4x$\frac{3}{4}$	$\frac{1}{2}$	4-L8 7x4x$\frac{5}{8}$	$\frac{3}{4}$	2-L8 7x4x$\frac{3}{4}$	$\frac{1}{2}$				
Pier 1	4-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$	4-L8 8x4x1	$\frac{3}{4}$	4-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$				
Pier 2	4-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$	4-L8 7x4x$\frac{7}{8}$	$\frac{3}{4}$	4-L8 7x4x$\frac{15}{16}$	$\frac{1}{2}$				
Exp. joint Unit 1	4-L8 8xGx$\frac{7}{16}$	$\frac{1}{2}$	4-L8 8xGx$\frac{7}{16}$	$\frac{3}{4}$	4-L8 8xGx$\frac{7}{16}$	$\frac{1}{2}$				
Exp. joint Unit 2	4-L8 8xGx$\frac{7}{16}$	$\frac{7}{8}$	4-L8 8xGx$\frac{7}{16}$	$\frac{7}{8}$	4-L8 8xGx$\frac{7}{16}$	$\frac{5}{8}$				
Pier 3	4-L8 7x4x$\frac{7}{8}$	$\frac{7}{8}$	4-L8 7x4x$\frac{7}{8}$	$\frac{7}{8}$	4-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$				
Pier 4	4-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	4-L8 7x4x$\frac{7}{8}$	$\frac{7}{8}$	4-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$				
Exp. joint Unit 2	4-L8 8xGx$\frac{7}{16}$	$\frac{5}{8}$	4-L8 8xGx$\frac{7}{16}$	$\frac{7}{8}$	4-L8 8xGx$\frac{7}{16}$	$\frac{5}{8}$				
Exp. joint Unit 3	4-L8 8xGx$\frac{7}{16}$	$\frac{1}{2}$	4-L8 8xGx$\frac{7}{16}$	$\frac{5}{8}$	4-L8 8xGx$\frac{7}{16}$	$\frac{5}{8}$				
Pier 5	4-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$	4-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	4-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$				
Pier 6	4-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$	4-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	4-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	4-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$		
East Abutment	2-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$	2-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	2-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	2-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	2-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$

TABLE OF JACKING STIFFENERS AND FILL PLATES

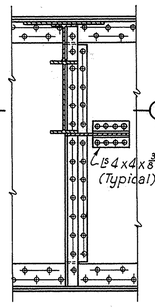
Location	Girder "A"		Girders "B","C","D" and "E"		Girder "F"		Girder "G"		Girder "H"	
	Jacking Stiff.	Fill Pl.	Jacking Stiff.	Fill Pl.	Jacking Stiff.	Fill Pl.	Jacking Stiff.	Fill Pl.	Jacking Stiff.	Fill Pl.
West Abutment	1-Set of 2-L8 7x4x$\frac{3}{4}$	$\frac{1}{2}$	1-Set of 2-L8 7x4x$\frac{7}{8}$	$\frac{3}{4}$	1-Set of 2-L8 7x4x$\frac{3}{4}$	$\frac{1}{2}$				
Pier 1	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$	2-Sets of 4-L8 7x4x$\frac{7}{8}$	$\frac{3}{4}$	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$				
Pier 2	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{3}{4}$	2-Sets of 2-L8 7x4x$\frac{15}{16}$	$\frac{1}{2}$				
Pier 3	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	2-Sets of 4-L8 7x4x$\frac{7}{8}$	$\frac{3}{4}$	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$				
Pier 4	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{3}{4}$	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$				
Pier 5	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$	2-Sets of 4-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$				
Pier 6	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$	2-Sets of 4-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	2-Sets of 2-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$		
East Abutment	1-Set of 2-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$	1-Set of 2-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	1-Set of 2-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	1-Set of 2-L8 7x4x$\frac{7}{8}$	$\frac{5}{8}$	1-Set of 2-L8 7x4x$\frac{7}{8}$	$\frac{1}{2}$



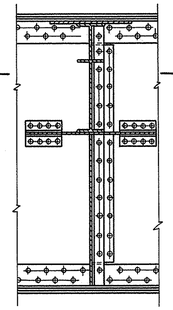
BEARING AT WEST ABUTMENT



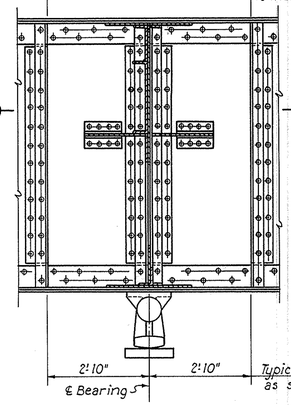
INTERMEDIATE STIFFENERS



TYPICAL PANEL POINT
With one lateral

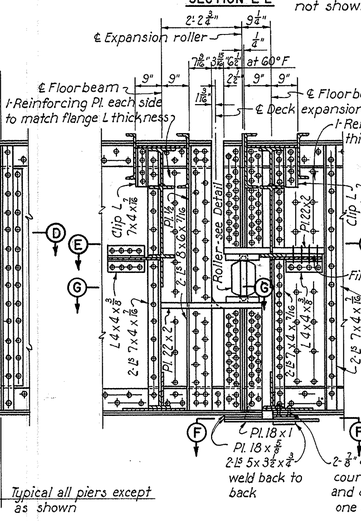


TYPICAL PANEL POINT
With two intersecting laterals.

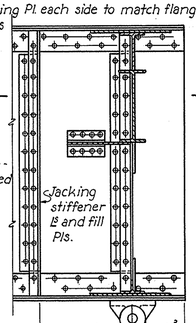


BEARING AT PIERS

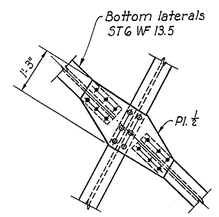
Typical for Piers 1, 2, 3, 4 and 6 on Girder "A". Typical for Piers 1, 2, 3 and 4 on Girder "F." For Girders "A" and "F" on Pier 5 see Sheet 92. For Girder "F" on Pier 6 see Sheet 92.



EXPANSION JOINT
Expansion joint between panel points 34 and 35 similar.



BEARING AT EAST ABUTMENT



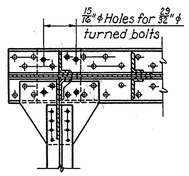
TYPICAL CONNECTION AT LATERAL INTERSECTIONS

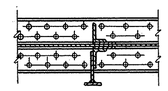
Notes:

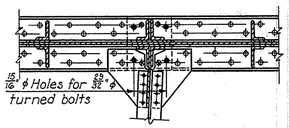
For furnishing and placing of high strength bolts see Supplemental Ohio Specification S-207.

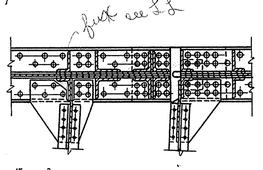
Jacking shall be done from the ground at all supports except Pier 5 where jacking shall be done from top of pier.

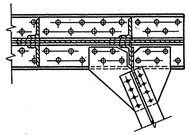
Roller, bars and top and bottom plates shall be alloy steel forgings conforming to A.S.T.M. A-237-54 (Class B) or shall be an equivalent material having a minimum yield point of 55,000 lbs. per square inch.





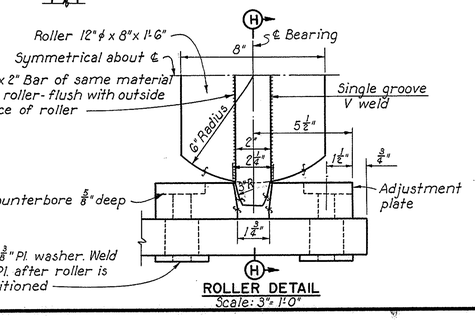




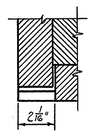


GIRDER A AND GIRDER F DETAILS
Girder A shown, Girder F similar except as shown.

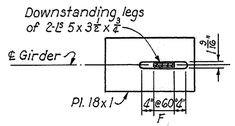
Joint	Correction "C" (inches)
1	0.131
2	0.274



ROLLER DETAIL
Scale: 3"= 1'-0"

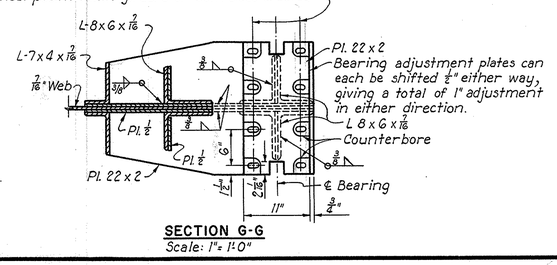


SECTION H-H
Scale: 3"= 1'-0"

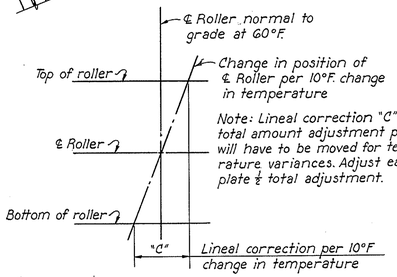


SECTION F-F

⅞" ϕ High strength bolts in 15/16" x 1⅜" slotted holes to be tightened after roller is adjusted to normal vertical position with girders on both sides erected



SECTION G-G
Scale: 1"= 1'-0"



CORRECTION FOR POSITIONING OF ROLLERS

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135

GIRDER DETAILS

AKRON SUMMIT COUNTY, OHIO

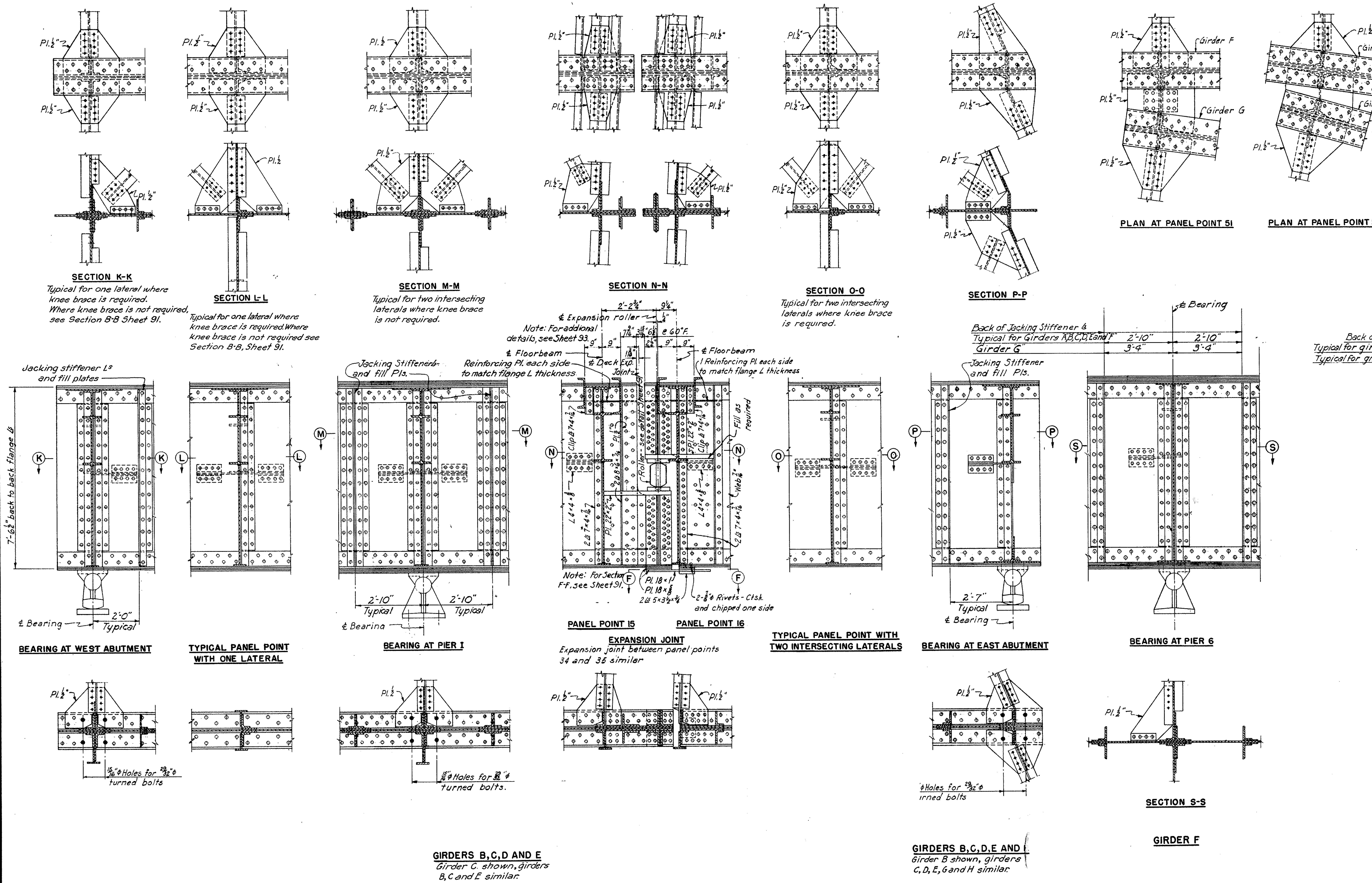
SCALE ½"= 1'-0"
MADE G.D. DATE 8-26-55
TRCD. C.A.L. DATE 11-9-55
CKD. H.W.G. DATE 9-15-55

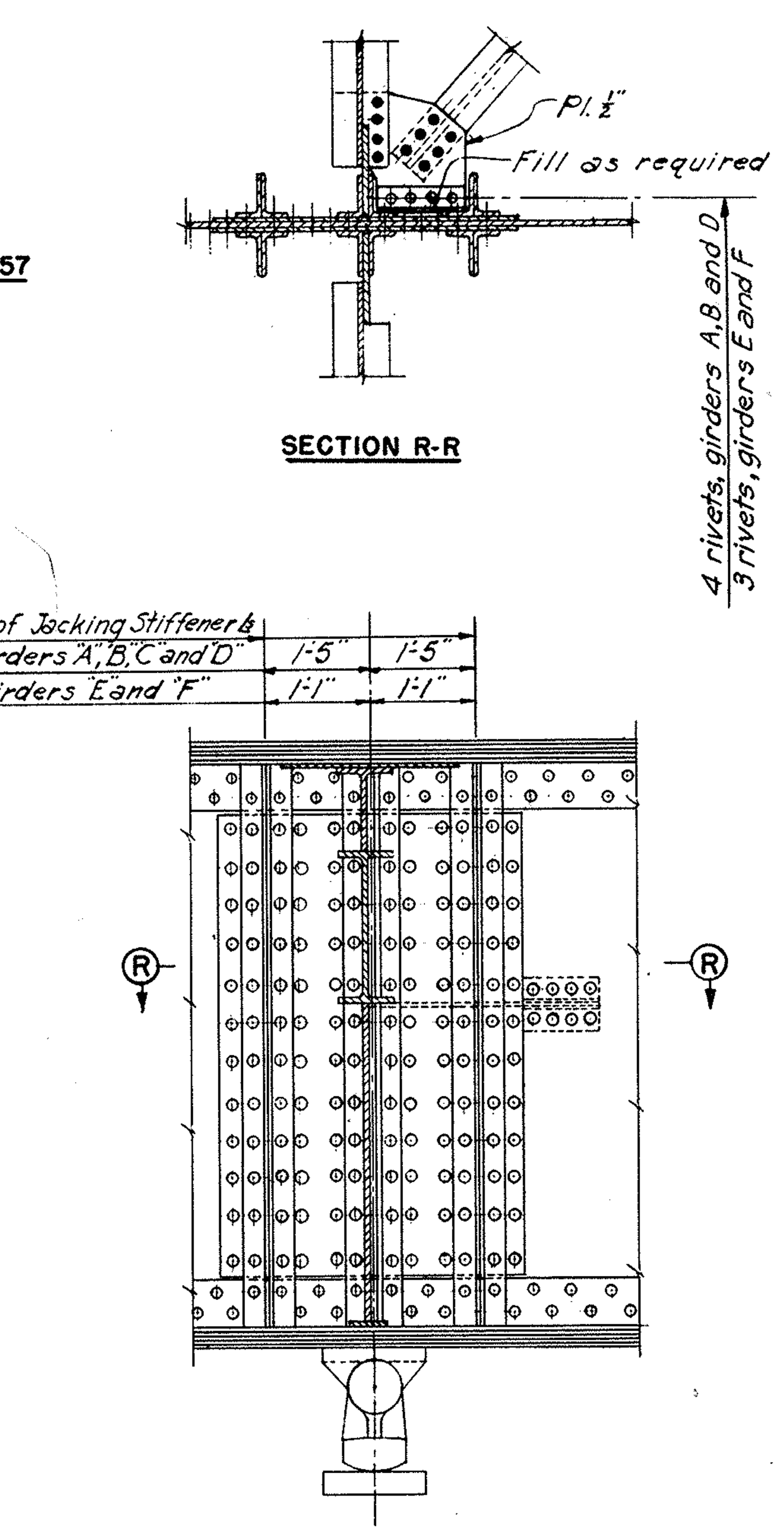
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

90.1 SHEET- 91

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	
2	OHIO			92/123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM





GIRDER B,C,D,E AND F
Girder C shown, Girders A, B,C,D,E and F similar except as shown.

Notes: For additional details, see Sheet 91.
For Roadway Cross Sections, see Sheets 80, 81 and 82.
For jacking stiffeners and fill plates, see Sheet 91.
For bearing stiffeners and fill plates see Sheet 91.
For typical lateral intersection connection see Sheet 91.

PART 7

AKRON EXPRESSWAY SYSTEM

WEST VIADUCT

BR. NO. SU-18R-135

GIRDER DETAILS

AKRON SUMMIT COUNTY, OHIO

SCALE ½" = 1'-0"
MADE G.D. DATE 9-6-55
TRCD. DATE
CKD. H.W.G. DATE 9-20-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

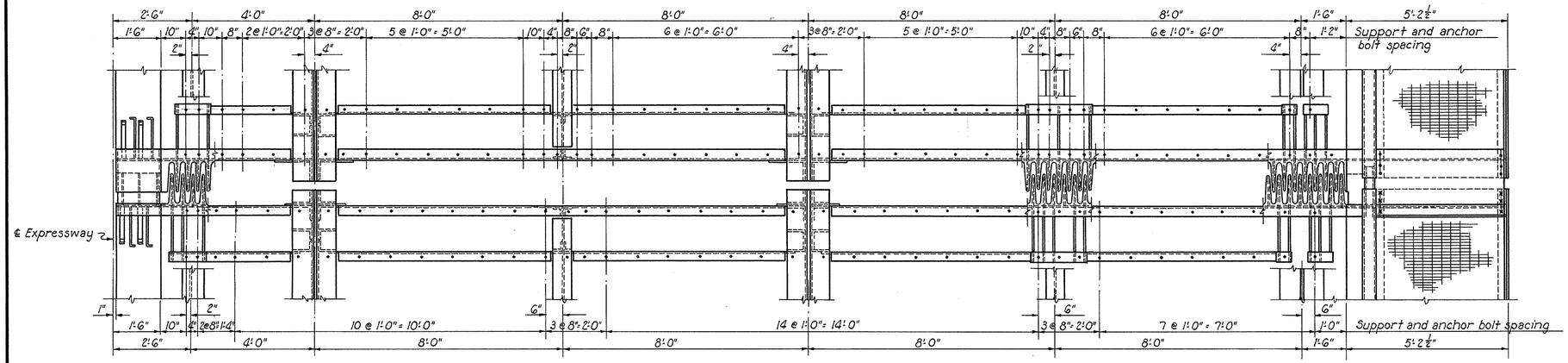
901 SHEET 92

159-A

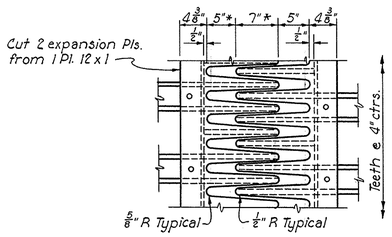
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

93
123

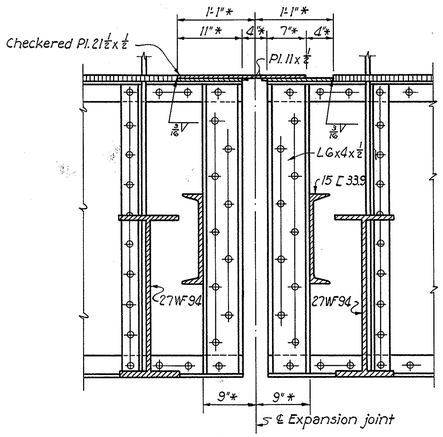
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



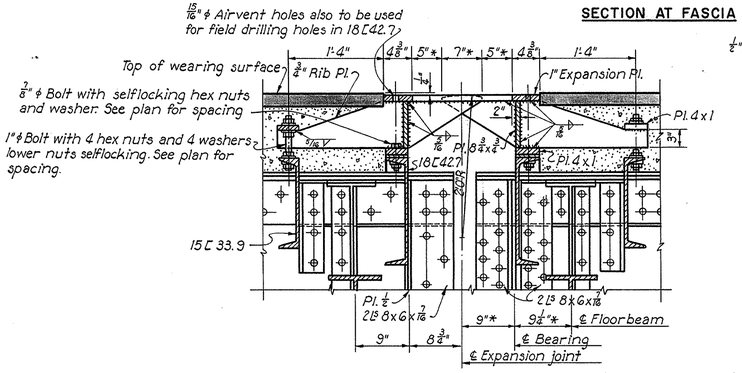
HALF PLAN
Scale: ½" = 1'-0"
South expansion joint shown. North expansion joint similar but opposite hand.



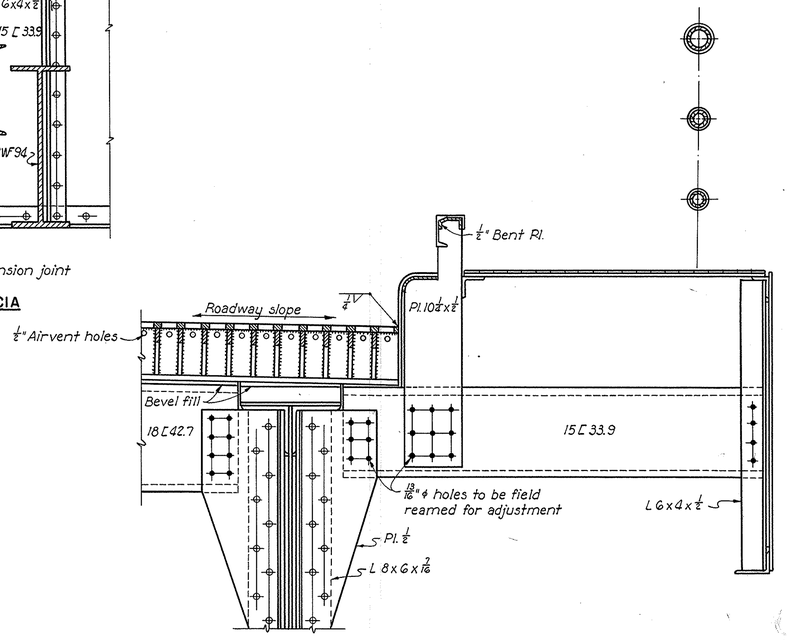
EXPANSION PLATE DETAIL



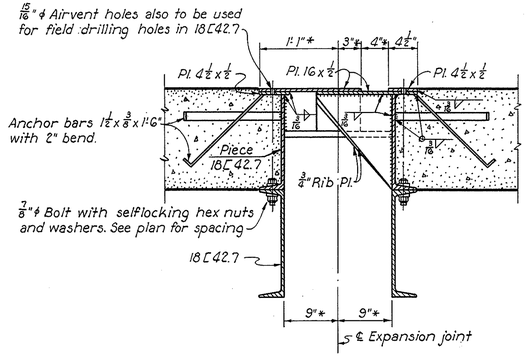
SECTION AT FASCIA



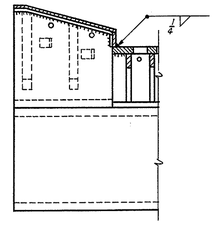
SECTION THRU ROADWAY
Bend ½" connection Pl. for expansion joint near Pier 2.



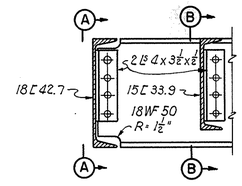
SECTION AT EXTERIOR GIRDER
Bend ½" connection Pl. and connection L 6 x 4 x ½ for expansion joint near Pier 2.



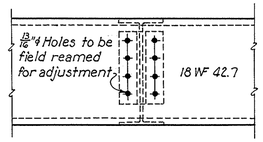
SECTION THRU MEDIAN



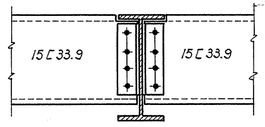
SECTION AT MEDIAN



ELEVATION



VIEW A-A



SECTION B-B

STRINGER CONNECTION
Bend angles for expansion joint near Pier 2.

Note:
Selflocking nuts shall be equal to Anco nuts as made by Automatic Nut Co. of Lebanon, Pa.
For expansion joint in handrail and curb see Sheet 97.
For girder details see Sheets 91 and 92.
For roller details see Sheet 91.
Sections are similar for expansion joint near Pier 2 except as noted.
Dimensions marked thus * are for 60°F only.
For additional sections and notes see Sheet 94.

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
EXPANSION JOINT NEAR PIER 4
AKRON SUMMIT COUNTY, OHIO

SCALE 1" = 10" except as shown
MADE BSS DATE 7-15-55
TRCD. CAL DATE 11-23-55
CKD. HWG DATE 9-7-55

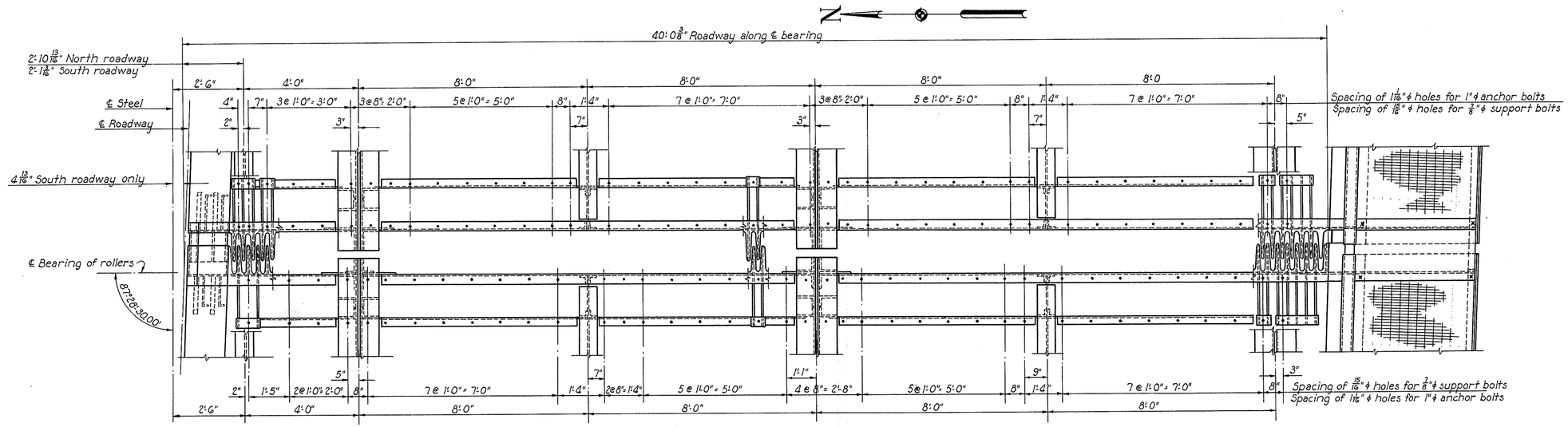
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET- 93

160

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

94
123

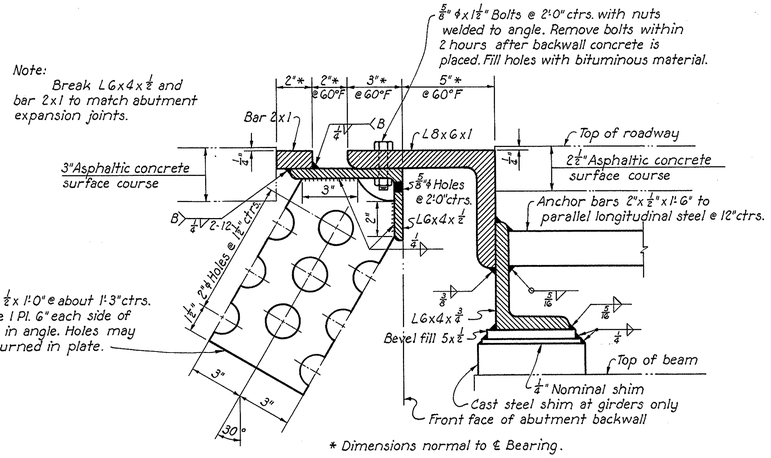
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



HALF PLAN EXPANSION JOINT NEAR PIER 2

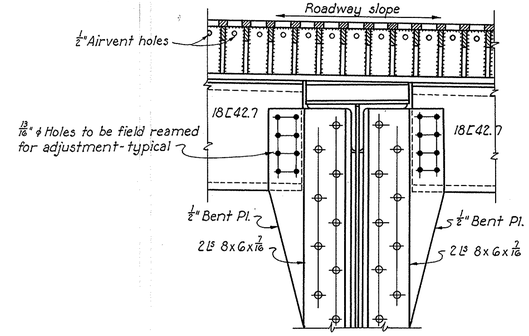
Scale: 1/2" = 1'-0"

South roadway shown, North roadway similar except as noted and opposite hand.



ROADWAY EXPANSION JOINTS AT ABUTMENTS

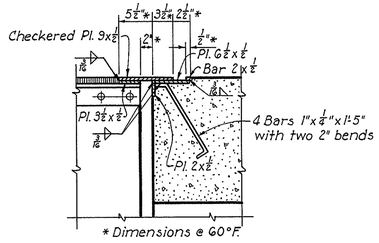
Scale: 3" = 1'-0"



SECTION AT INTERIOR GIRDER

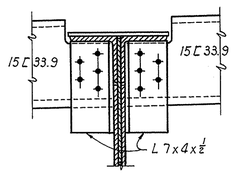
Scale: 1" = 1'-0"

Section looking east. Expansion joint near Pier 4 similar except do not bend connection plates and angles.



SIDEWALK EXPANSION JOINT AT ABUTMENTS

Scale: 1" = 1'-0"



EXPANSION JOINT SUPPORT TO GIRDER CONNECTION

Scale: 1" = 1'-0"

Notes:

Shape all roadway expansion material to the cross section of the roadway; see Sheet 84. All sections for both sides of roadway expansion joints near Pier 2 and Pier 4 shall be shop assembled allowing for normal clearance of 3/4 inch between ends and roots of mating projections. While thus assembled the joint shall be checked and corrected to provide not less than 1/8 inch clearance between sides of projections and not less than 3/16 inch clearance between ends and roots of projections. All expansion joint devices so assembled shall be matchmarked, and expansion joint devices shall be erected according to the shop matchmarking and shall be set to the longitudinal clearance required for the temperature at the time of setting, to the required grade and crown of roadway, and to provide equal side clearance between mating projections. The holes in the supporting steel shall be drilled in the field after the devices are adjusted in final position.

Roadway abutment joint devices shall be shop assembled, corrected to provide uniform close contact between the two mating parts of each joint, matchmarked and erected to the required grade and crown. Such devices shall be set to the longitudinal clearance required for temperature at time of erection.

Sidewalk and curb expansion joint devices shall be shop assembled, corrected to provide uniform contact between mating parts, matchmarked and erected to the required grade and lines.

Selflocking nuts shall be equal to "Anco" nuts as made by Automatic Nut Co. of Lebanon, Pa.

For curb and handrail details see Sheet 97.
For girder details see Sheet 91.
For expansion roller details see Sheet 91.
Additional notes are on Sheet 93.

PART 7

AKRON EXPRESSWAY SYSTEM

WEST VIADUCT
BR. NO. SU-18R-135

EXPANSION JOINT DETAILS

AKRON SUMMIT COUNTY. OHIO

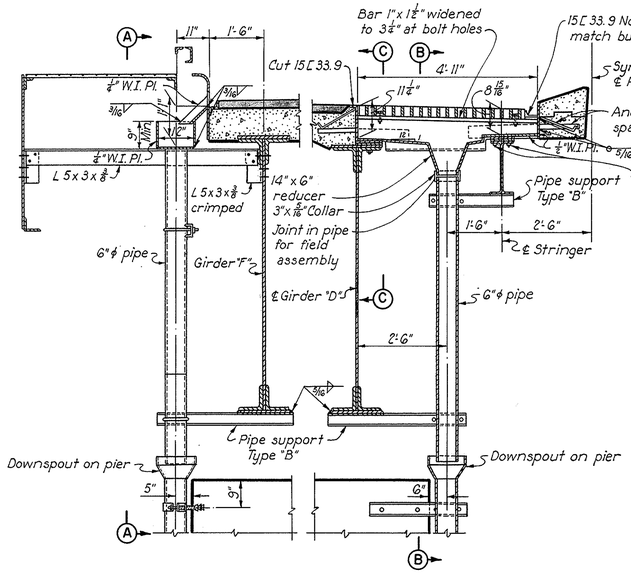
SCALE As shown
MADE BSS DATE 7-22-55
TRCD. CAL DATE 11-29-55
CKD. DFB DATE 10-6-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET- 94

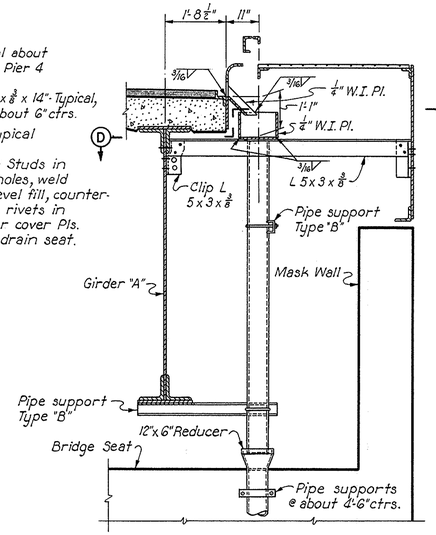
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

95
123

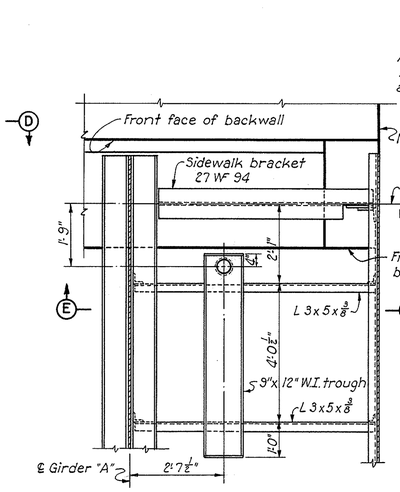
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY PART 7
SUM-18R-12.90



PART ROADWAY CROSS-SECTION THRU DRAINAGE INLETS
Scale: ½"=1'0"

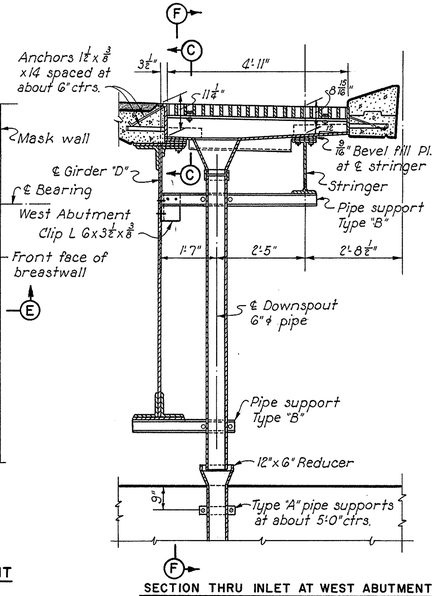


SECTION E-E

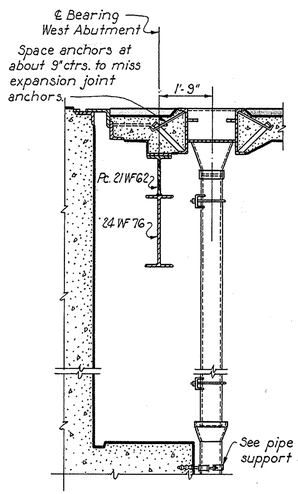


SECTION D-D

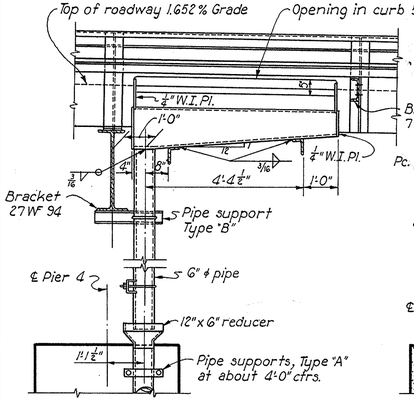
DRAINAGE AT WEST ABUTMENT
Scale: ½"=1'0"



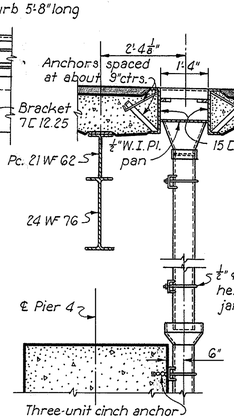
SECTION THRU INLET AT WEST ABUTMENT



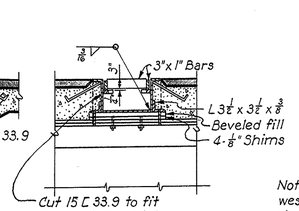
SECTION F-F



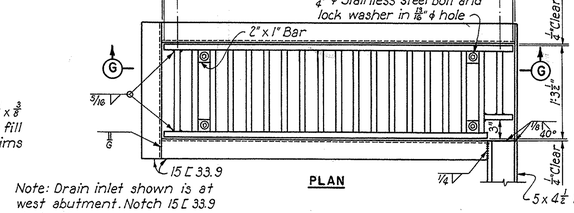
SECTION A-A
Scale: ½"=1'0"



SECTION B-B
Scale: ½"=1'0"

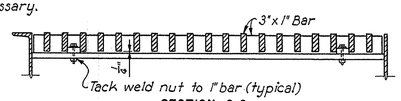


SECTION C-C
Scale: ½"=1'0"



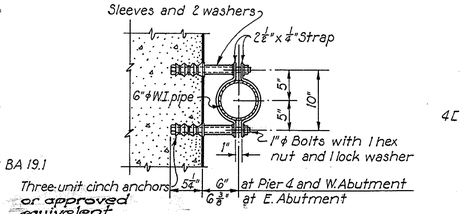
PLAN

Note: Drain inlet shown is at west abutment. Notch 15 C 33.9 at pier 4 as necessary.

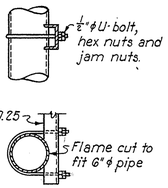


SECTION G-G

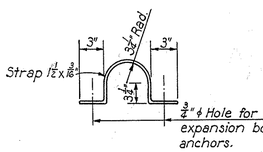
DRAIN INLET
Scale: 1"=1'0"



TYPE "A"

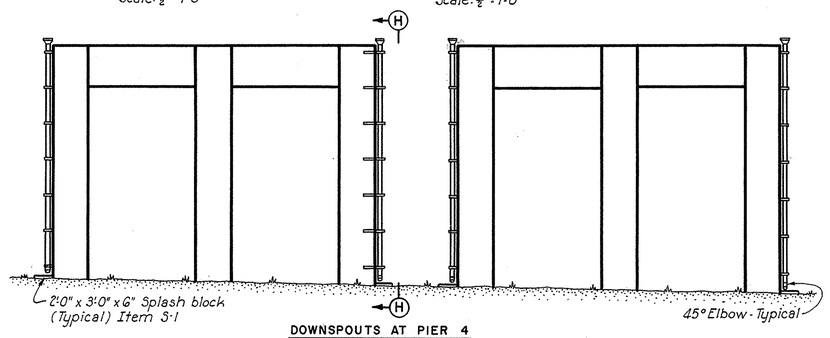


TYPE "B"

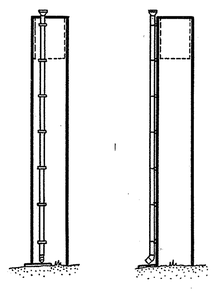


STRAP PIPE HANGER
Scale: 1½"=1'0"

PIPE SUPPORT DETAILS
Scale: 1"=1'0"



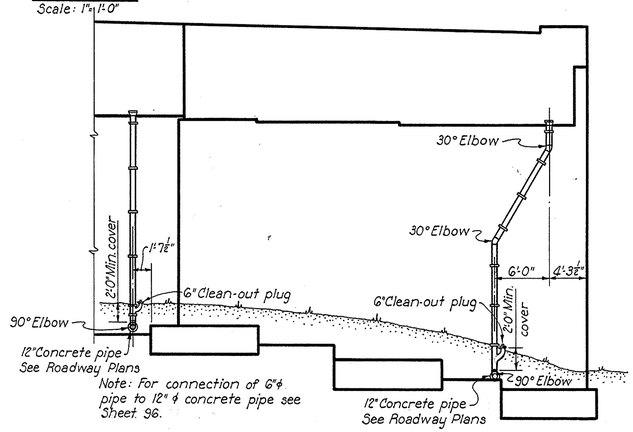
DOWNSPOUTS AT PIER 4
Scale: ⅜"=1'0"



END VIEW

SECTION H-H

DRAINAGE AT PIER 4



Note: For connection of 6" ϕ pipe to 12" ϕ concrete pipe see Sheet 96.

DOWNSPOUTS AT WEST ABUTMENT
Scale: ⅜"=1'0"

Notes:

All downspout pipes shall be standard weight wrought iron or hot dipped galvanized steel with weld type (before galvanizing) extra strong seamless steel fittings or Victualic couplings or equal.

Downspout to be attached to bottom of W.I. trough with continuous ¼6" fillet weld.

All pipe attached to substructure including fittings, supports and accessories will be included in Item 5-29 for payment. All other metalwork of the drainage system will be included in Item 5-7.

All welds on drainage fittings shall be ⅜" fillet welds except as shown.

Joints in downspouts shall be made by welding before galvanizing or by Victualic coupling or by an approved equivalent method.

For details not shown see Sheet 96.

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
DRAINAGE

AKRON SUMMIT COUNTY. OHIO

SCALE As shown
MADE GD DATE 6-6-55
TRCD. CAL DATE 10-5-55
CKD. LWL DATE 9-22-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

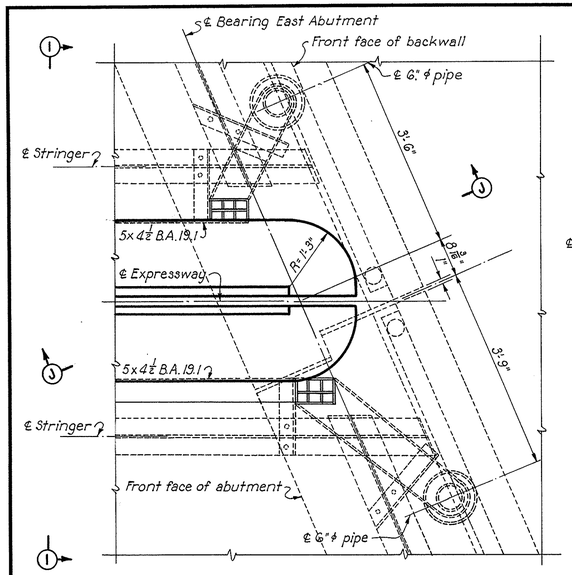
901 SHEET- 95

102

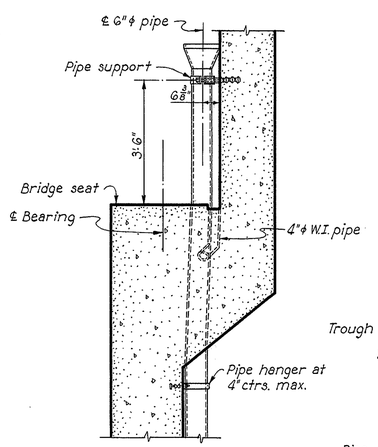
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

96
123

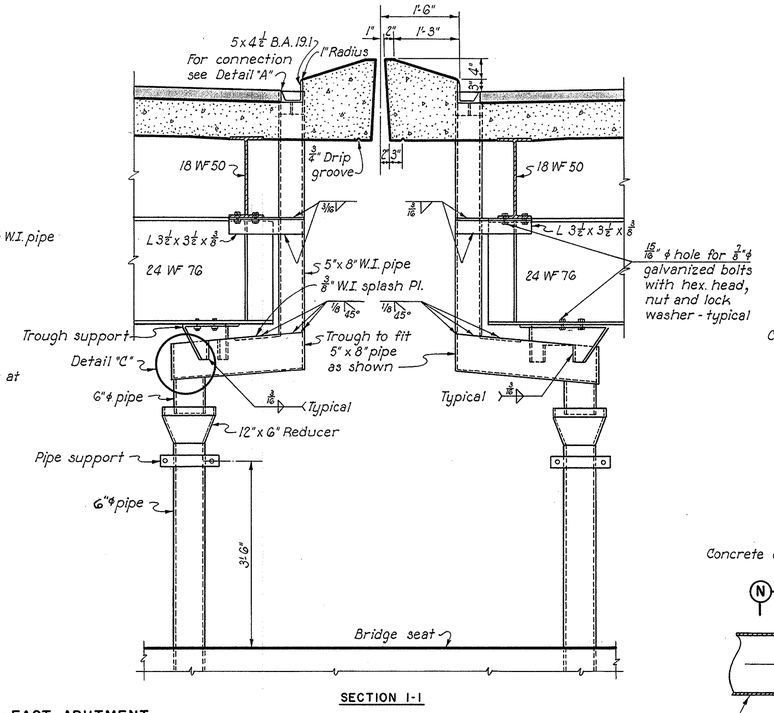
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY PART 7
SUM-18R-12.90



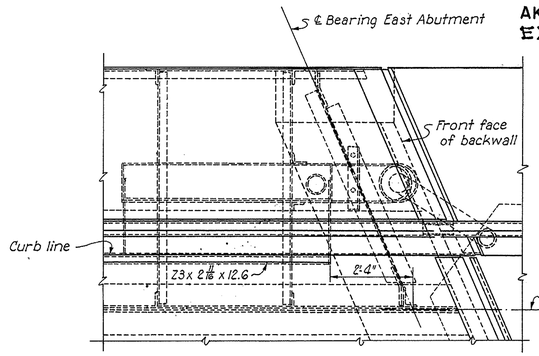
PLAN



SECTION J-J

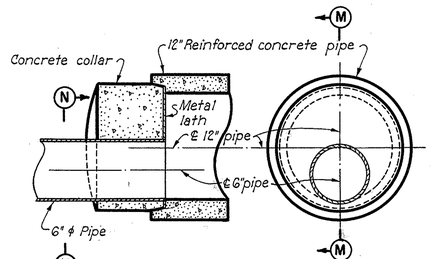


SECTION I-I



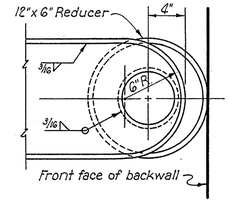
DETAILS AT NORTH CURB-EAST ABUTMENT
Scale: ½" = 1'-0"

Note:
North curb drainage similar to South curb drainage except as shown.
For details of trough see Sheet 95.

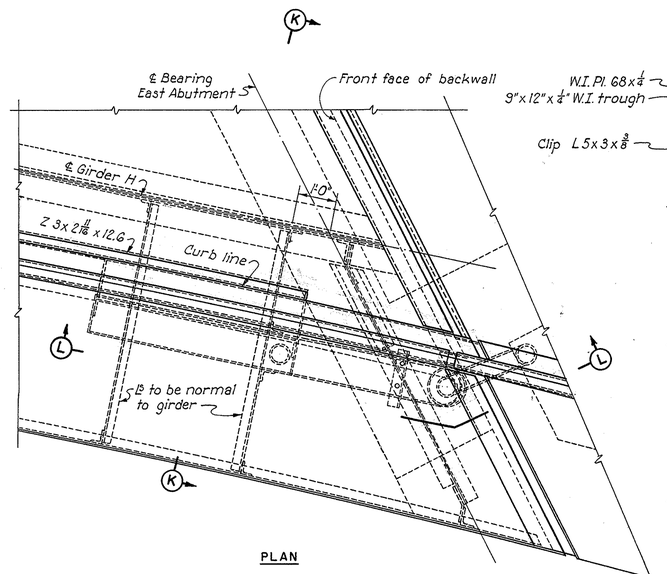


SECTION M-M SECTION N-N

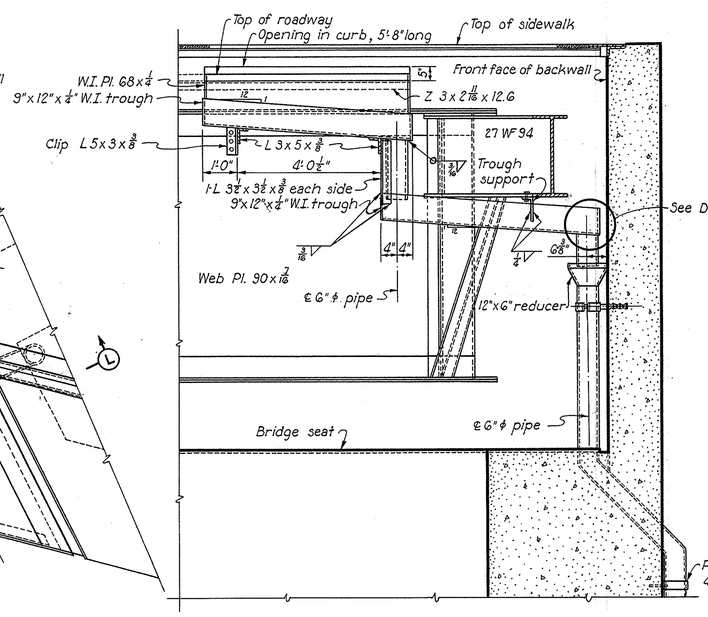
CONNECTION OF 6" ø W.I. PIPE TO 12" ø CONCRETE PIPE
Scale: 1½" = 1'-0"



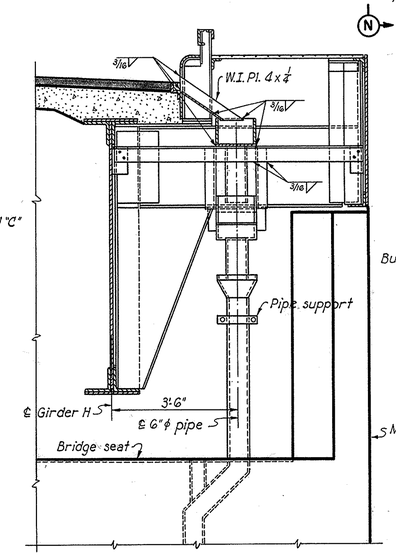
DETAIL "C"
Scale: 1½" = 1'-0"



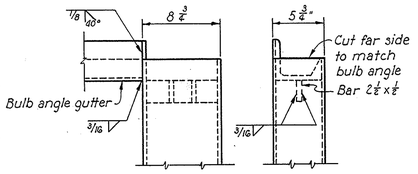
PLAN



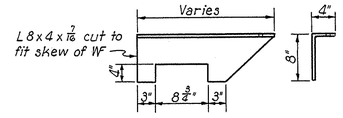
SECTION L-L



SECTION K-K



DETAIL "A"
Scale: 1½" = 1'-0"



TROUGH SUPPORT
Scale: 1" = 1'-0"

Notes:
For details not shown see Sheet 95.
For additional notes see Sheet 95.

DRAINAGE DETAILS AT END OF MEDIAN - EAST ABUTMENT
Scale: ¾" = 1'-0"

DRAINAGE DETAILS AT SOUTH CURB - EAST ABUTMENT
Scale: ½" = 1'-0"

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135
DRAINAGE
AKRON SUMMIT COUNTY. OHIO

SCALE As shown
MADE G.D. DATE 8-4-55
TRCD. CAL DATE 10-7-55
CKD. LWL DATE 9-22-55

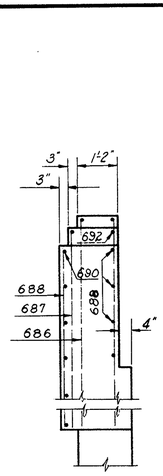
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET 96

102 A

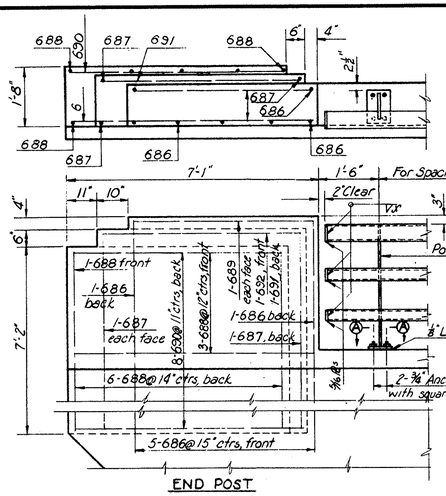
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

97
123

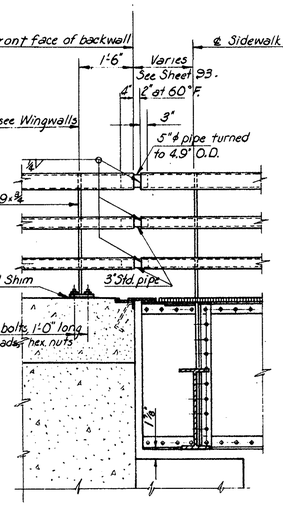
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



END VIEW

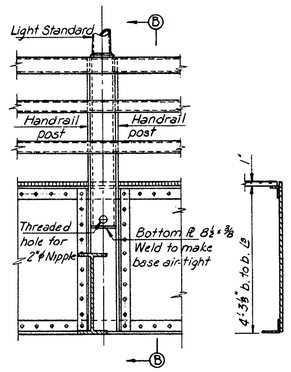


END POST
Scale ½"=1'-0"

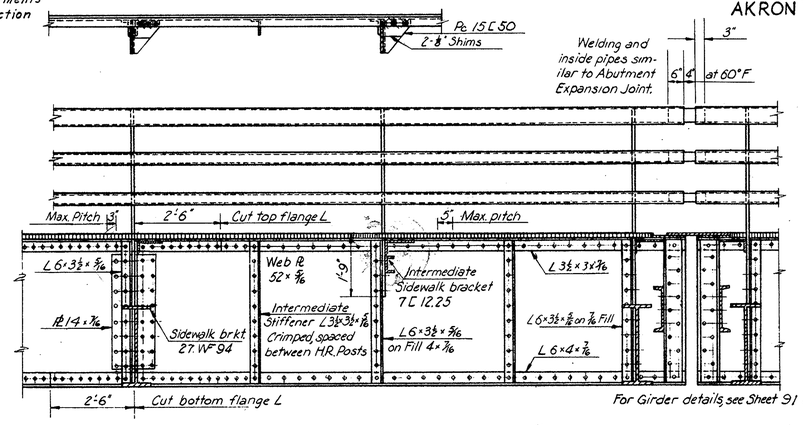


EXPANSION JOINT AT ABUTMENT

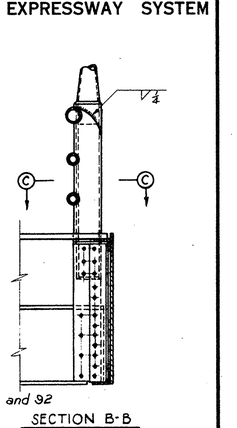
Note:
The fascia girders supported at the ends of the sidewalk brackets shall be adjusted, after the roadway slab and wearing surface are in place, so as to depart not more than ½" from the required line and grade shown on the plans, and shall show no abrupt kinks. Adjustments shall be made by reaming the connection holes.



LIGHT POLE SPLICE



INTERMEDIATE STIFFENERS AND BRACKETS

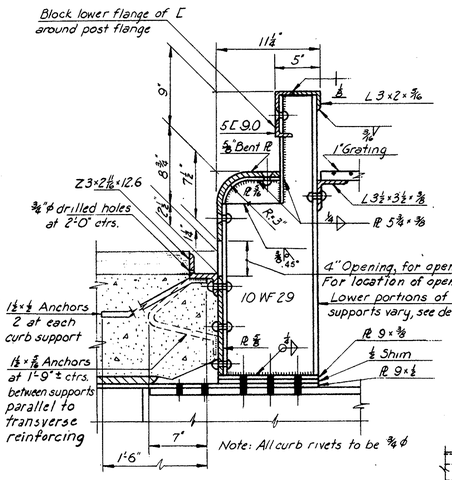


For Girder details see Sheet 91 and 92

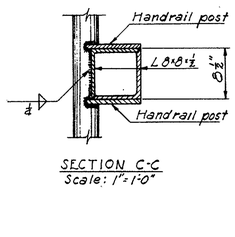
SECTION B-B

EXPANSION JOINT

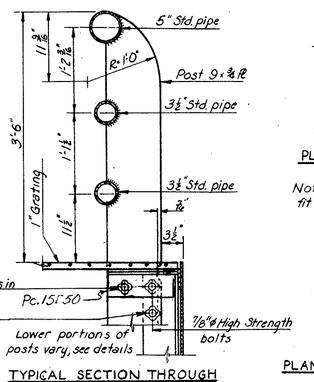
TYPE "B" HANDRAIL AND FASCIA BEAM DETAILS
Scale: ½"=1'-0"



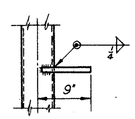
TYPICAL CURB CROSS-SECTION
Scale: 1½"=1'-0"



SECTION C-C
Scale: 1"=1'-0"



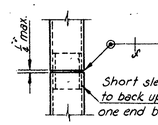
TYPICAL SECTION THROUGH HANDRAIL
Scale: 1"=1'-0"



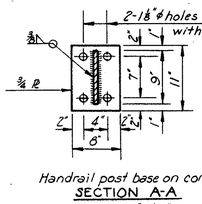
PLAN OF TOP RAIL

Note: Notch post to fit around pipes

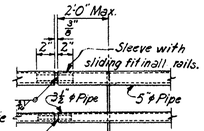
PLAN OF LOWER RAILS



TYPICAL HANDRAIL SPLICE
Scale: 1"=1'-0"

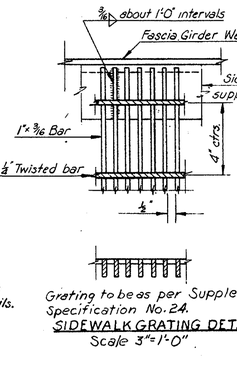


Handrail post base on concrete
SECTION A-A
Scale: 1"=1'-0"



TYPICAL RAIL EXPANSION JOINT
No Scale

Expansion joints shall be provided in handrail at about 30'-0" intervals. Joints shall be as close to posts as practical. Rail expansion joints on wingwalls shall be provided at wall contraction joints.



Grating to be as per Supplemental Specification No. 24.

SIDEWALK GRATING DETAIL
Scale 3"=1'-0"

Notes:

The curb shall be assembled in the shop in lengths suitable for shipping. The curb units thus formed shall be erected so that after the spans have deflected under the dead load of slab and steel, the curbs shall depart not more than ½" from the required line and grade shown on the plans and shall show no abrupt kinks. Vertical adjustment of the curb posts will be accomplished by shim packs under the posts. The holes for rivets attaching the posts to the brackets shall be reamed in the field to provide lateral adjustment. Curbs shall be fabricated in lengths of not less than three panels and may be spliced at any intermediate support. Provide ¼" clear between abutting members.

After the roadway slab and wearing surface is in place and the curbs and fascia have been adjusted and riveted, the handrail posts shall be adjusted to line and grade so that with the pipe rails in place, they shall conform to a line parallel to or concentric with the curbs as shown on the plans. The high strength connection bolts shall then be tightened. After erection of the posts the pipe rails shall be placed, adjusted to line and grade and field welded to the posts. Pipe rails shall be erected with proper clearance in the rail expansion joints to suit the temperature at the time of erection. The adjustment of the handrail shall be such that the top rail shall not depart more than ½" from correct line or grade. The completed handrail shall be free of burrs, sharp corners and rough surfaces.

Handrail posts on the wingwalls shall be adjusted to line and grade by shimming, as required, under the post base plates.

Pipe for the railings shall conform to Sec. M-6.9 of the Specs, and shall be standard weight, seamless pipe, Grade B, with plain ends.

Splice fascia as shown on Framing Plan, Sheet 86.

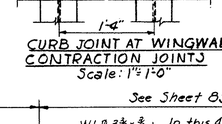
For additional views of handrail and curb, see roadway cross-sections.

For additional details at expansion joints, see Sheets 93 and 94.

For additional light pole details, see Sheet 98.

Field adjustment of Zee to serve as screed shall be accomplished by shim packs under the curb posts. Each post shall be so set that after the slab and wearing surface are placed, the top of the Zee serving as the screed will conform to the grades given on the plans.

For notes on High Strength Bolts, see Sheet 91.



CURB JOINT AT WINGWALL CONTRACTION JOINTS
Scale: 1½"=1'-0"

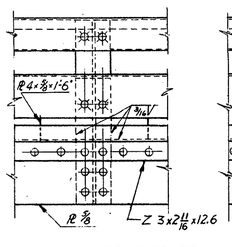
AT END POST

Note:
Recesses shall be thoroughly cleaned before setting posts and should be kept free of water during freezing weather. Recesses shall be filled with grout after curb has been adjusted to line and grade.

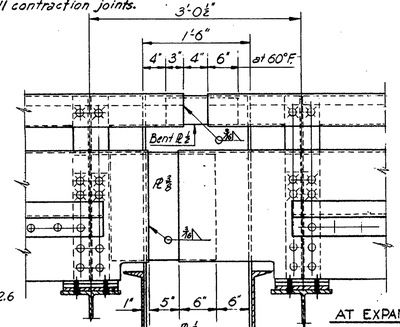
Note:
Web of curb post to be slotted as necessary to miss reinforcing bar.

EXPANSION JOINT AT ABUTMENT

CURB DETAILS
Scale 1"=1'-0"



INTERMEDIATE SUPPORT
(Showing protection PL in Open Curb area)



AT EXPANSION JOINT

Revised 12-19-55

* Dimensions at 60°F

PART 7

AKRON EXPRESSWAY SYSTEM

WEST VIADUCT
BR. NO. SU-18R-13.5

HANDRAIL AND CURB

AKRON SUMMIT COUNTY, OHIO

SCALE As Noted
MADE DLL DATE 7-15-55
TRCD. DATE
CKD. H.W.G. DATE 10-13-55

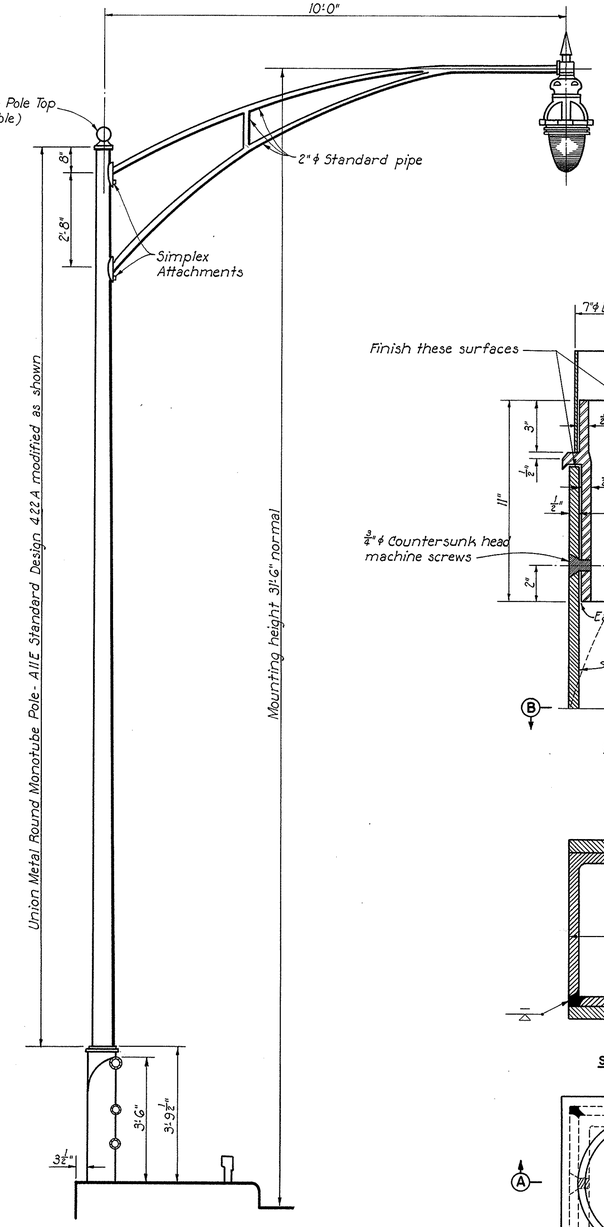
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET: 97

163

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

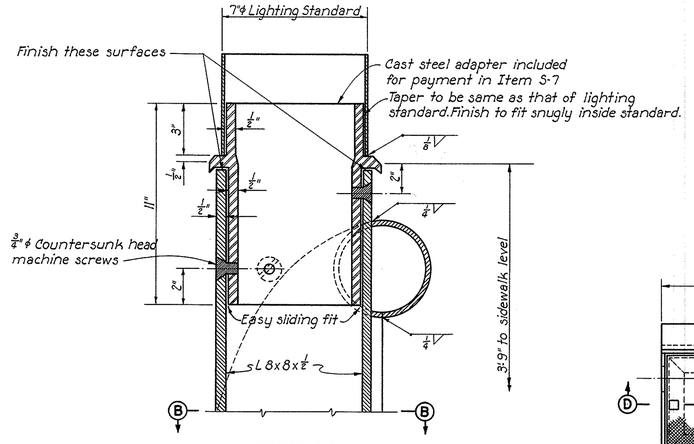
98
123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

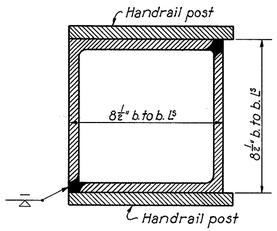


LIGHTING STANDARD
Scale: ½" = 1'0"
9 Required

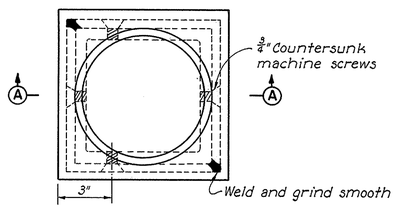
Note:
Luminaire shall be similar to Westinghouse AK-15 or General Electric Form 101AR of Type IV distribution with 15,000 lumen 20-Amp. incandescent series street lamp.
The cable ends of the luminaire shall be reinforced back 6 inches from the ends by wrapping glass tape and covering with clear insulating lacquer.
The series cable shall consist of two #6 conductors equal to G.E. Coronal-Geoprene for direct burial insulated for 5Kv.



SECTION A-A

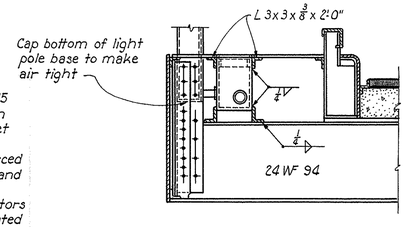


SECTION B-B

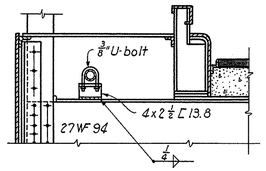


PLAN

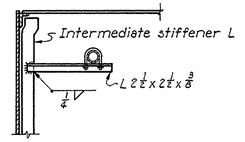
LIGHT POLE ADAPTER
Scale: 3" = 1'0"
9 Required



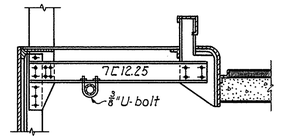
JUNCTION BOX SUPPORTS



AT FLOORBEAMS



CONDUIT SUPPORTS
BETWEEN HANDRAIL POSTS

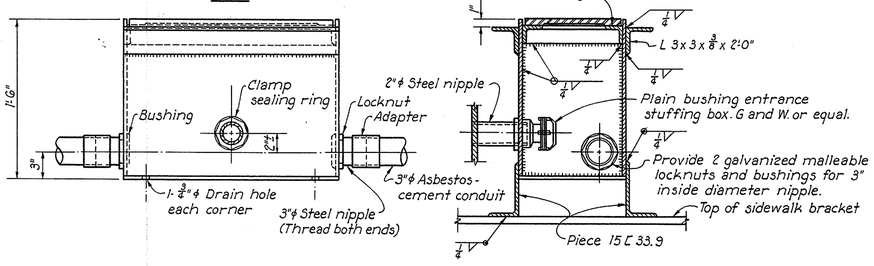


BETWEEN FLOORBEAMS

CONDUIT SUPPORTS
Scale: ½" = 1'0"

PLAN

SECTION D-D
Scale: 3" = 1'0"



ELEVATION

SECTION C-C

JUNCTION BOX DETAILS
Scale: ½" = 1'0"
9 Required

Notes:
The alignment of the asbestos-cement conduit shall change gradually from the last junction boxes at each end of the superstructure to match the 3"ϕ rigid conduit on the abutments.
Junction boxes shall be galvanized.
One junction box shall be used for each light pole.
For location of light poles on viaduct see framing plan, Sheet 86.
Conduit shall be supported at each sidewalk support and midway between.
Conduit expansion couplings shall be located not more than 40'ft. apart.
For details of light pole support see Sheet 97.
At roadway expansion joints provide expansion couplings in conduit which will allow 5 inches of total movement.
The lighting standards shall be made air-tight between junction box and luminaire. Finial cap, bracket attachments, base, etc., shall be provided with a gasket or otherwise sealed.
Bridge Item 5-25, Electrical Equipment, shall include the asbestos-cement conduit on both sides of the viaduct between abutments, complete with expansion joints, supports and connections to boxes, all junction boxes and fittings, stuffing box and other items necessary to complete the system exclusive only of the poles, luminaire brackets, luminaires, lamps and wiring.

PART 7

AKRON EXPRESSWAY SYSTEM
WEST VIADUCT
BR. NO. SU-18R-135

LIGHTING DETAILS

AKRON SUMMIT COUNTY, OHIO

SCALE as shown
MADE DJH DATE 9-10-55
TRCD CAL DATE 11-18-55
CKD. BSS DATE 9-29-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET- 98

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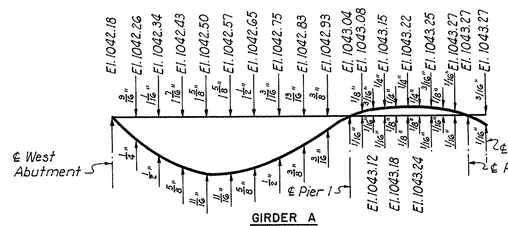
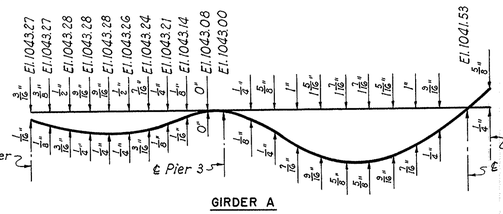
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

99
123

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM



GIRDER A



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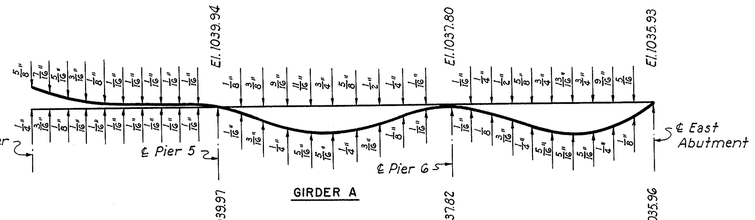

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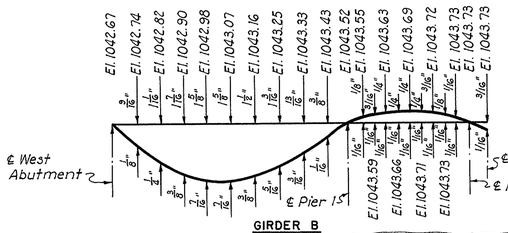
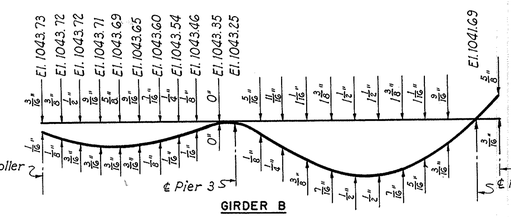


GIRDER B



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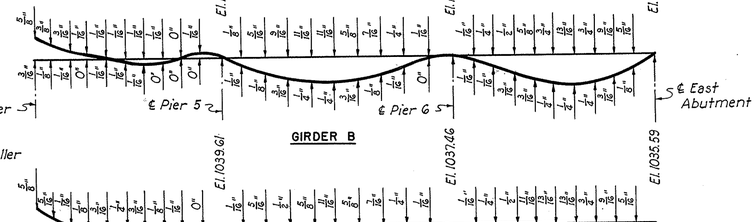

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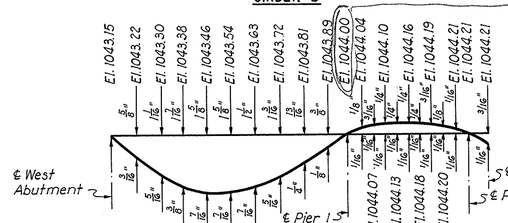
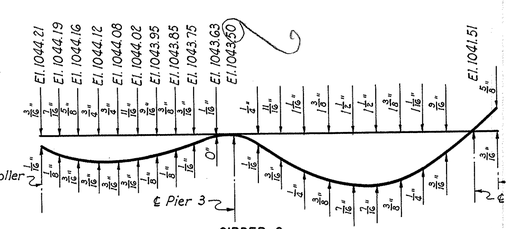


GIRDER C



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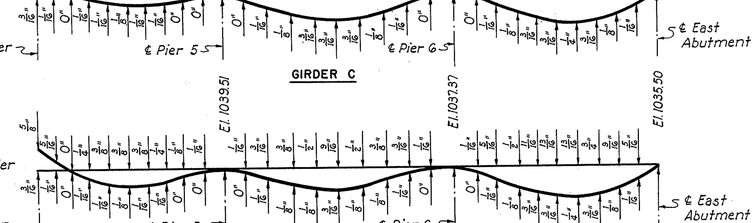
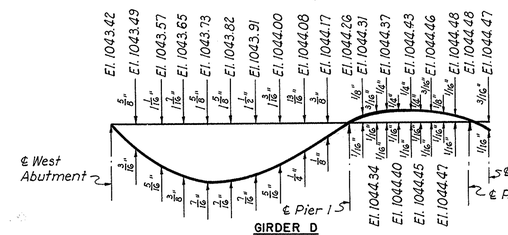


GIRDER D



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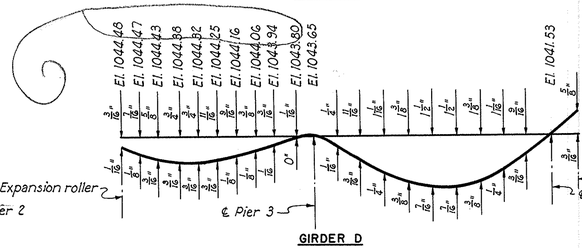

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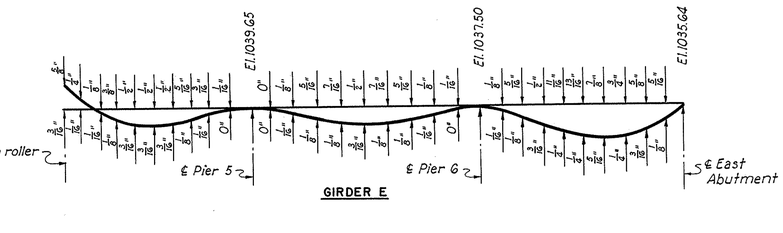

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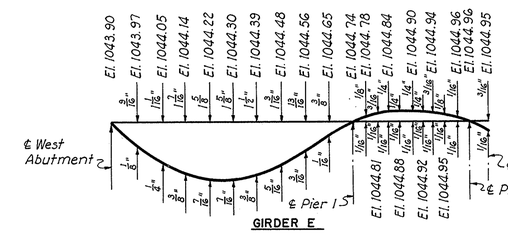

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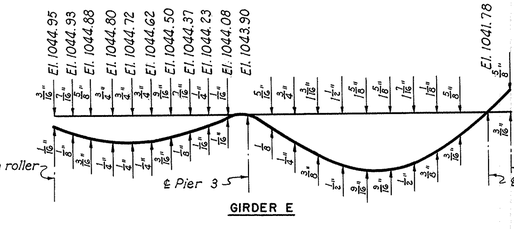

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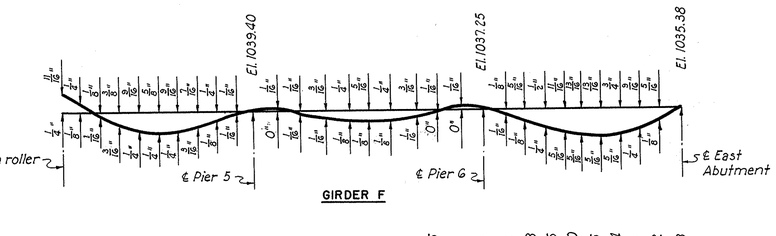
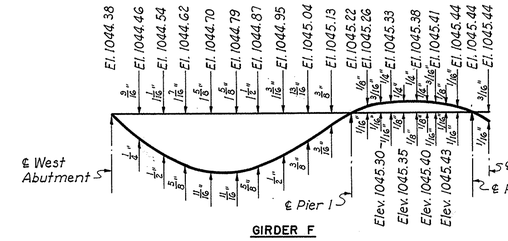
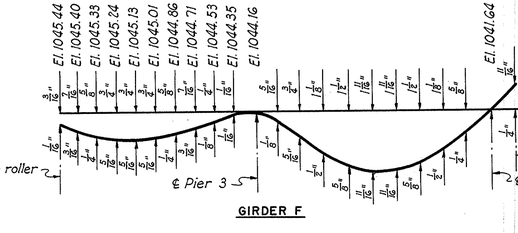


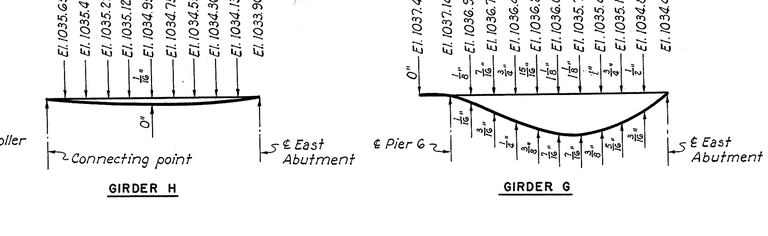
GIRDER F



GIRDER F



GIRDER F



GIRDER H

GIRDER G

Note:

All girders, except Girder H, shall be fully cambered to compensate for dead load deflections and vertical curvature. The elevations given in the deflection diagrams are top of finished wearing surface along ℄ girders.

The girders under full dead load shall parallel these elevations by being fabricated to lines parallel to profiles formed by the given elevations plus additional camber equal to the amounts of anticipated dead load deflections.

Elevations are given at one-tenth span points over girders between bearings throughout the lengths of vertical and horizontal curves.

Deflections given above the base line are the deflections due to the dead load of the steel, concrete and wearing surface. Deflections given below the diagrams are the deflections due to the dead load of the steel.

The allowances to be made in screed settings to compensate for the deflections due to the dead load of concrete and wearing surface are to be made above the elevation shown for finished pavement surfaces. Screeds may require further adjustments due to irregularities in the fabricated steel. At the edge of roadway slabs the steel zee section or bulb angles, where provided, will serve as screed.

UNIT 1

UNIT 2

UNIT 3

Revised 12-19-55

PART 7

AKRON EXPRESSWAY SYSTEM

WEST VIADUCT

BR. NO. SU-18R-135

DEAD LOAD DEFLECTIONS

AKRON SUMMIT COUNTY. OHIO

SCALE None
MADE DJH DATE 8-26-56
TRCD. CAL DATE 12-5-55
CKD. JRK DATE 9-6-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
901 SHEET- 99

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FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	100 / 123
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM

Girder and Load		UNIT 1										UNIT 2										UNIT 3													
		Reactions and Shears in Kips							Moments in Foot-Kips				Reactions and Shears in Kips						Moments in Foot-Kips				Reactions and Shears in Kips								Moments in Foot-Kips					
		W.Abut.	Pier 1			Pier 2			Span 1	Pier 1	Span 2	Pier 2	Pier 3			Pier 4			Span 3	Pier 3	Span 4	Pier 4	Pier 5			Pier 6			E.Abut.	Span 5	Pier 5	Span 6	Pier 6	Span 7		
		R	Vw	Ve	R	Vw	Ve	R	+M	-M	+M	-M	Vw	Ve	R	Vw	Ve	R	+M	-M	+M	-M	Vw	Ve	R	Vw	Ve	R	R	+M	-M	+M	-M	+M		
Girder A	D.L.	130	184	116	300	31	110	140	3549	3608	-954	978	164	174	338	131	99	230	1527	4160	2340	1522	131	141	272	157	163	320	95	1014	2716	1585	3795	1990		
	U.L.L.	28	39	29	68	14	28	48	771	720	195	262	30	37	72	28	31	55	540	923	784	348	24	33	62	32	32	69	24	366	692	577	844	591		
	C.L.L.	31	36	28	36	24	33	29	547	487	244	247	33	35	31	31	31	30	421	437	554	340	30	33	30	33	33	28	30	331	363	412	410	452		
	Imp.	11	14	9	16	10	13	13	2 6	234	117	105	14	14	14	12	14	12	206	280	261	170	13	13	14	13	14	13	11	164	154	194	170	219		
	Total Rdwy. L.L.+I	70	89	64	119	48	74	90	1574	1441	556	614	77	86	117	71	76	97	1167	1640	1599	858	67	79	106	78	79	110	65	861	1209	1183	1424	1262		
	Sdwk. L.L.	13	18	13	30	7	13	22	354	361	87	121	14	17	34	13	12	26	242	436	352	155	11	15	26	14	14	28	11	160	320	260	400	270		
	1.66 Rdwy. L.L.+I	117	147	106	193	79	123	158	2615	2395	922	1020	128	143	194	118	126	161	1935	2722	2654	1424	111	131	176	129	131	183	108	1430	2010	1960	2360	2090		
	0.8 D.L.	104	148	93	240	24	88	112	2840	2890	-763	782	131	139	270	105	79	184	1220	3330	1870	1057	105	113	218	126	130	256	76	810	2170	1270	3040	1590		
	Modified Total	234	313	212	463	110	224	283	5809	5646	246	1923	273	299	498	236	217	371	3397	6488	4876	2636	227	259	420	269	275	467	195	2400	4500	3490	5800	3950		
Girder B	D.L.	169	237	147	384	42	146	189	4636	4567	-1219	1315	205	216	421	164	142	306	2060	5230	2920	7090	179	184	363	200	209	409	125	1650	3780	1940	4800	2600		
	U.L.L.	41	57	41	99	21	43	72	1142	1045	285	395	46	55	105	41	48	83	809	1383	1153	543	39	48	94	47	47	101	36	620	1070	840	1240	880		
	C.L.L.	46	52	28	52	35	48	44	807	705	358	366	49	52	45	46	44	44	621	638	818	516	46	49	43	49	49	42	44	520	550	600	600	670		
	Imp.	17	21	11	24	15	19	20	378	340	172	158	20	21	21	17	28	18	307	414	384	262	19	19	20	19	20	19	17	260	230	280	250	330		
	Total L.L. + I	104	130	78	170	71	110	142	2327	2090	815	919	115	127	171	105	119	145	1737	2435	2355	1321	104	116	157	115	116	162	97	1400	1850	1720	2090	1880		
	1.66 L.L. + I.	173	216	130	282	117	183	235	3860	3470	1352	1522	191	211	284	174	198	241	2880	4040	3910	2190	173	193	261	191	193	269	161	2320	3070	2860	3470	3120		
	0.8 D.L.	135	190	117	308	34	117	151	3709	3654	-975	1052	164	172	336	131	114	244	1650	4180	2340	1430	143	147	290	160	167	327	100	1320	3020	1550	3840	2080		
	Modified Total	308	406	247	590	151	300	386	7569	7124	377	2574	355	383	620	305	312	485	4530	8220	6250	3620	316	340	551	351	360	596	261	3640	6090	4410	7310	5200		
Girder C	D.L.	179	253	162	415	39	154	194	4875	5013	-1363	1388	221	230	451	182	161	343	2340	5690	3090	1823	199	197	396	207	219	426	131	2100	4270	1940	4950	2770		
	U.L.L.	42	58	42	102	22	8	77	1155	1080	292	393	48	56	107	42	50	87	844	1422	1178	586	43	49	98	49	48	103	37	720	1150	850	1270	900		
	C.L.L.	55	62	34	62	42	58	53	820	731	366	371	50	47	46	47	44	44	646	657	837	540	49	50	43	50	50	43	45	570	560	610	610	690		
	Imp.	19	24	12	26	17	21	22	384	351	175	158	21	20	21	17	28	18	317	425	393	278	20	19	20	19	21	20	17	290	240	290	260	330		
	Total L.L.+ I.	116	144	85	185	80	123	154	2359	2162	833	922	119	123	174	106	122	149	1807	2504	2408	1404	112	118	161	118	119	166	99	1580	1970	1750	2140	1920		
	1.66 L.L. + I.	192	240	141	308	132	204	256	3910	3590	1380	1530	198	204	289	176	203	247	3000	4160	4000	1460	186	196	268	196	198	275	164	2620	3270	2910	3550	3190		
	0.8 D.L.	144	203	130	332	31	124	155	3900	4010	-1090	1110	177	184	361	146	129	275	1870	4550	2460	2330	159	158	317	166	175	341	105	1680	3420	1550	3960	2220		
	Modified Total	336	443	271	640	163	328	411	7810	7600	290	2640	375	388	650	320	332	522	4870	8710	6460	3790	345	354	585	362	373	616	269	4300	6690	4460	7510	5410		
Girder D	D.L.	179	253	162	415	39	154	194	4875	5013	-1363	1388	222	229	451	183	170	353	2422	5695	3010	2206	209	199	408	205	218	423	132	2440	4550	1770	4890	2790		
	U.L.L.	42	58	42	102	22	8	77	1155	1080	292	393	48	56	105	42	50	89	859	1430	1178	610	45	49	101	49	48	103	37	810	1210	850	1270	900		
	C.L.L.	55	62	34	62	42	58	53	820	731	366	371	50	47	45	47	44	45	646	656	837	540	50	50	43	50	50	43	45	620	600	610	610	690		
	Imp.	19	24	12	26	17	21	22	384	351	175	158	21	20	21	17	28	18	320	425	393	284	21	19	20	19	21	20	17	310	250	290	260	340		
	Total L.L. + I	116	144	85	185	80	123	154	2359	2162	833	922	119	123	171	106	122	152	1825	2511	2408	1434	116	118	164	118	119	166	99	1740	2060	1750	2140	1930		
	1.66 L.L.+ I	192	240	141	308	132	204	256	3910	3590	1380	1530	198	204	284	176	203	252	3030	4556	4000	2380	193	196	272	196	198	276	164	2890	3420	2910	3550	3200		
	0.8 D.L.	144	203	130	332	31	124	155	3900	4010	-1090	1110	178	183	361	146	136	282	1938	4168	2410	1770	167	159	327	164	174	338	106	1950	3640	1420	3910	2230		
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Girder E	D.L.	169	237	147	384	42	146	189	4636	4567	-1219	1315	214	220	434	174	171	345	2338	5246	2720	2290	209	193	402	191	208	399	126	2710	4690	1610	4590	2700		
	U.L.L.	41	57	41	99	21	43	72	1142	1045	285	395	46	55	106	41	48	89	858	1359	1163	632	47	48	101	48	47	101	36	890	1250	830	1240	880		
	C.L.L.	46	52	28	52	35	48	44	807	705	358	366	49	52	45	46	44	43	654	633	826	552	49	49	42	49	49	42	44	680	600	590	600	670		
	Imp.	17	21	11	24	15	19	20	378	340	172	158	20	21	21	17	28	18	321	408	388	293	20	19	19	19	20	19	17	330	250	280	250	320		
	Total L.L. + I	104	130	78	170	71	110	142	2327	2090	815	919	115	128	172	104	120	150	1833	2400	2377	1477	116	116	162	116	116	162	97	1900	2100	1700	2090	1870		
	1.66 L.L.+ I	173	216	130	282	117	183	235	3860	3470	1352	1522	191	211	285	174	198	249	3040	3980	3940	2450	193	193	269	193	193	269	161	3150	3490	2820	3470	3100		
	0.8 D.L.	135	190	117	308	34	117	151	3709	3654	-975	1052	171	176	347	139	137	276	1870	4200	2180	1830	167	154	321	153	166	319	101	2170	3750	1290	3670	2160		
	Modified Total	308	406	247	590	151	300	386	7569	7124	377	2574	362	387	632	313	335	525	4910	8180	6120	4280	360	347	590	346	359	568	262	5320	7240	4110	7140	5160		
Girder F	D.L.	130	184	116	300	31	110	140	3549	3608	-954	978	168	170	338	136	142	278	1896	4060	2025	1860	165	139	304	6	159	165	132	2593	3420	844	2840	2868		
	U.L.L.	28	39	29	68	14	28	48	771	720	195	262	32	37	72	28	34	62	601	962	787	450	34	32	70	33	41	76	37	684	880	576	980	845		
	C.L.L.	31	36	28	36	24	33	29	547	487	244	247	34	35	31	31	31	29	453	439	566	387	34	33	28	33	39	32	48	504	410	408	470	646		
	Imp.	11	14	9	16	10	13	13	256	234	117	105	14	17	14	12	17	12	221	285	264	208	14	13	13	13	17	15	18	241	171	193	197	313		
	Total Rdwy. L.L.+ I.	70	89	64	119	48	74	90	1574	1441	556	614	80	89	117	71	85	103	1275	1686	1617	1045	82	78	111	79	97	125	103	1429	1461	1177	1647	1804		
	Sdwk L.L. + I	13	18	13	30	7	13	22	354	361	87	121	14	17	34	13	15	30	270	460	350	200	15	15	34	15		17		310	420	260	220			
	1.66 Rdwy. L.L.+ I	117	147	106	193	79	123	158	2615	2395	922	1020	133	148	194	118	141	171	2120	2800	2680	1740	136	130	185	131	161	208	171	2370	2430	1950	2730	2990		
	0.8 D.L.	104	148	93	240	24	88	112	2840	2890	-763	782	134	136	270	109	114	223	1520	3240	1620	1490	132	111	243	5	127	132	106	2070	2740	680	2270	2290		
	Modified Total	234	313	212	463	110	224	283	5809	5646	246	1923	281	301	498	240	270	424	3910	6500	4650	3430	283	256	462	151	288	357	277	4750	5590	2890	5220	5280		

Revised by completing table

Revised 12-19-55

PART 7

AKRON EXPRESSWAY SYSTEM

WEST VIADUCT

BR. NO. SU-18R-135

STRESS SHEET

AKRON SUMMIT COUNTY, OHIO

SCALE None
MADE DJH DATE 8-29-55
TRCD CAL DATE 11-3-55
CKD WB DATE 10-20-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

901 SHEET- 100