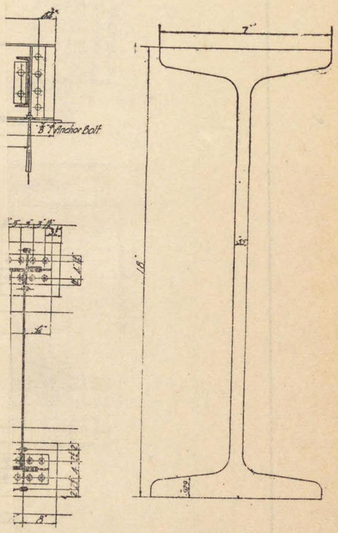
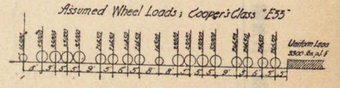
圖第二一號 (七)

909.



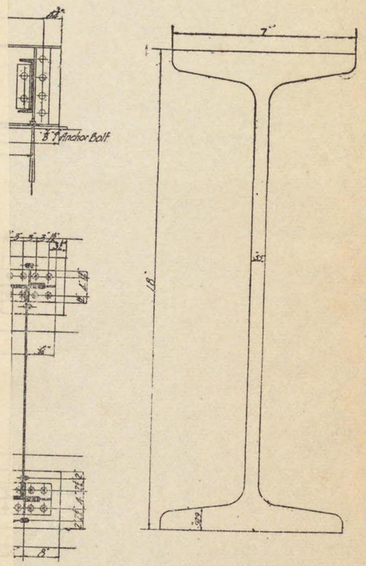
·Rivets : $\frac{7}{8}$" in diam.
Open Holes : 7/8 in diam unless otherwise noted.
⊗ Countersunk other side.
• Open Hole

Assumed Wheel Loads ; Cooper's Class "E33"

圖第二一號(七)

(六) 號一二第圖

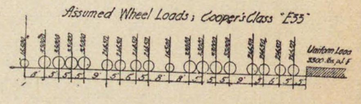
圖第二一號 (七)

909.



·Rivets : ⅞ in. diam.
Open Holes : ⅞ in diam unless otherwise noted.
⊗ Countersunk other side.
• Open Hole

Assumed Wheel Loads ; Cooper's Class "E35"

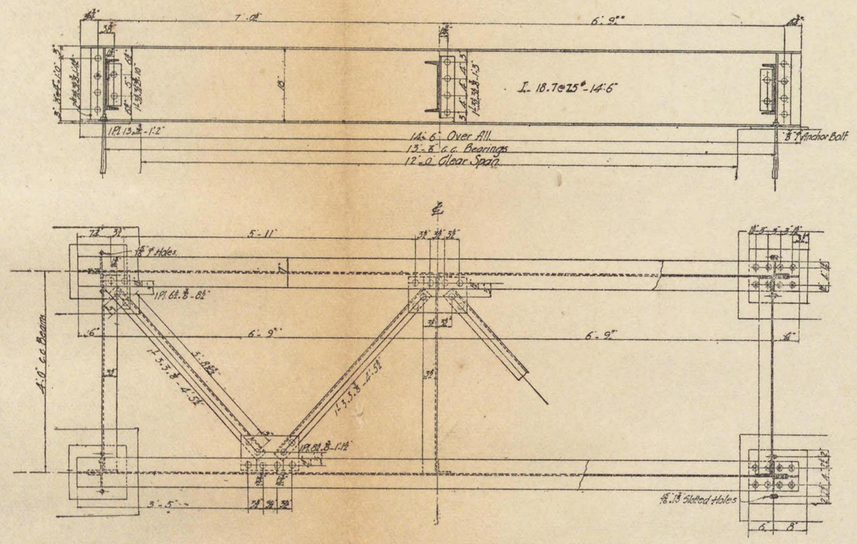


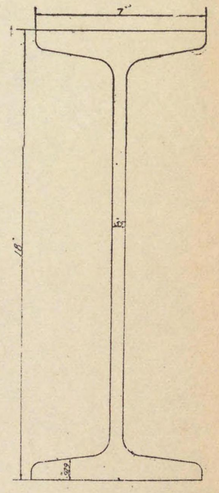
圖第二一號（七）

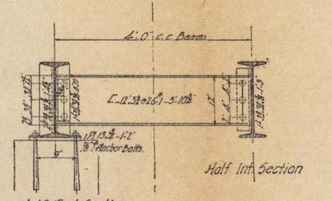
Standard Steel Rolled I Beams for 12 ft. Span 1909.

Scale 1"-1'-0"

Specifications: Am. Ry. Eng. & M. Way Associations (1906)







Half Int. Section

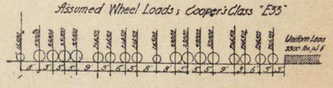
Half End Section

List of Materials

Mark	No.	Descriptions	Dimensions	Weight lbs.
2	1	Beams	18.70#25#	14'-6"	2175.00
3	4	Strut ⊥s	12.25#26#	3'-10"	305.06
4	4	Lateral ⊥s	6"x6"x7/16"	4'-7"	128.80
8	4	Stiffener ⊥s	4"x3"x5/16"	1'-11"	91.50
2	1	Bracket ⊥s	" " "	1'-5"	21.25
4	1	" " "	" " "	0'-10"	28.33
3	1	Lateral Pls.	18" x 3/8"	1'-12"	36.09
1	1	" "	6" x 3/8"	0'-18"	11.74
4	1	End Pls.	15" x 3/8"	1'-2"	156.19
196		Rivet heads	7/8" diam. Rivets		24.41
		Total Weight			2078.75

·Rivets: 7/8" in diam.
Open Holes: 7/8" in diam unless otherwise noted.
⊗ Countersunk other side
• Open Hole

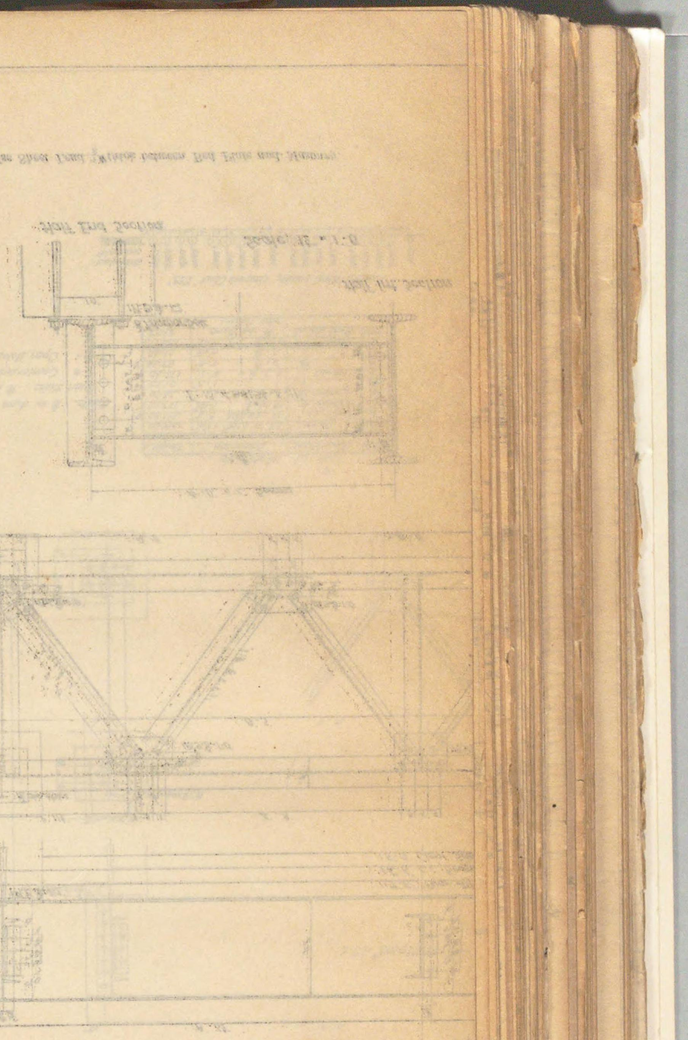
Assumed Wheel Loads; Cooper's Class "E35"



Note: Use Sheet Lead 1/8" thick between Bed Plate and Masonry.

圖第二一號（七）

圖第二一號（乙）



圖第二一號（丙）

圖第二一號（八）

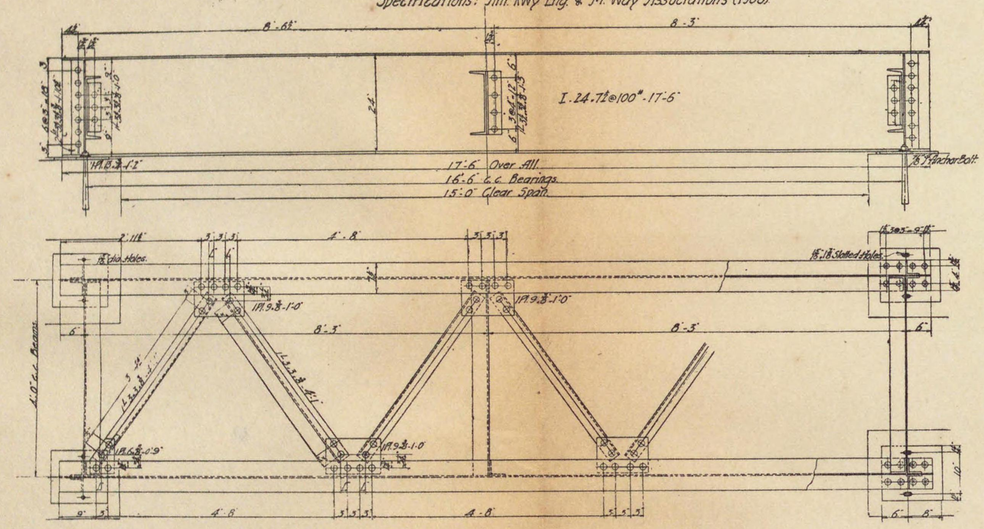
圖第二一號（八）

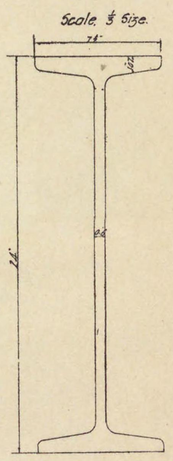
圖第二一號（八）

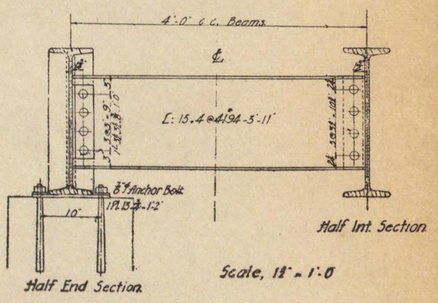
Standard Steel Rolled I Beams for 15 ft Span. 1909.

Scale 1"-1-0"

Specifications: Am. Rwy Eng. & M. Way Associations (1906).







Half Int. Section

Half End Section

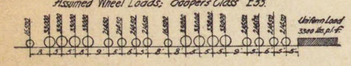
Scale, 12" = 1'-0

List of Materials

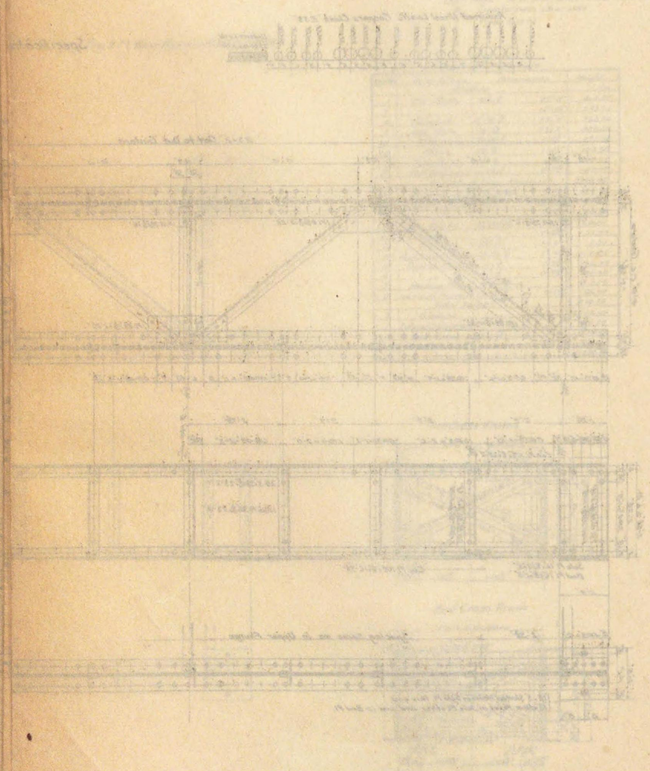
No. Pcs.	Descriptions.	Dimensions.		Weight Lbs.
2	I Beams.	24.7½@100#	17'-6"	5300.00
3	Strut Le.	15 - 4@194	5'-11"	497.80
8	Stiffener Le.	24 24 ⅜	1'-10"	127.50
4	Bracket-Le.	" " "	1'-0"	34.00
2	"	" " "	1'-5"	21.25
6	Lateral	3½ 3½ ½	4'-1"	176.40
5	" Pl.	9 ½	1'-0"	57.48
7	"	6 ½	0'-9"	11.48
4	Bed "	15 ½	1'-2"	134.77
330	Rivet heads.	¾" dia. Rivets		33.75
		Total Weight		6600.63

Rivets . ¾ in. diam.
Open holes : ⅞ in. diam. unless otherwise noted
⊗ Countersunk other side.
• Open Holes.

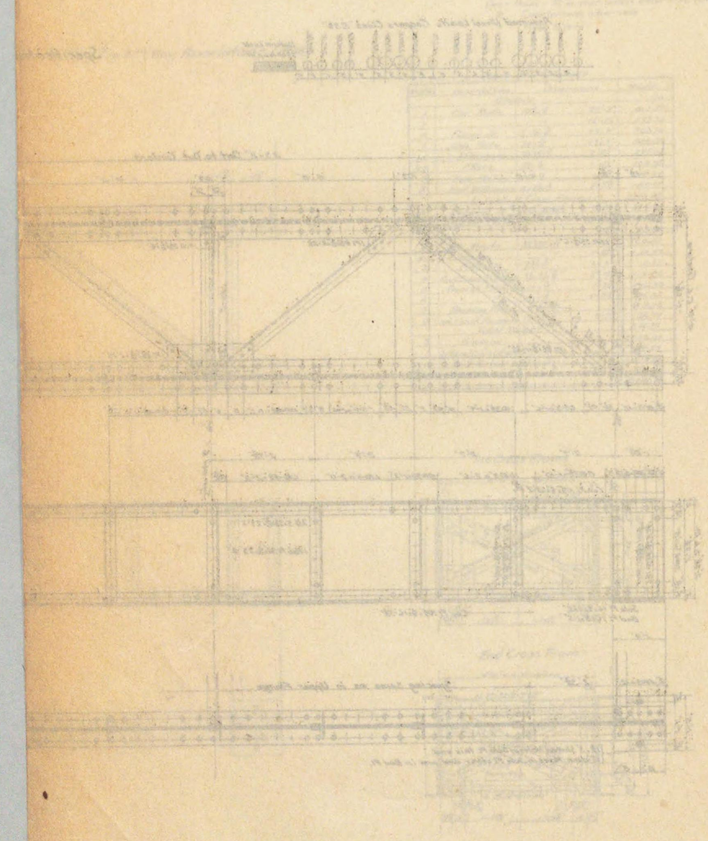
Assumed Wheel Loads; Cooper's Class "E 55."

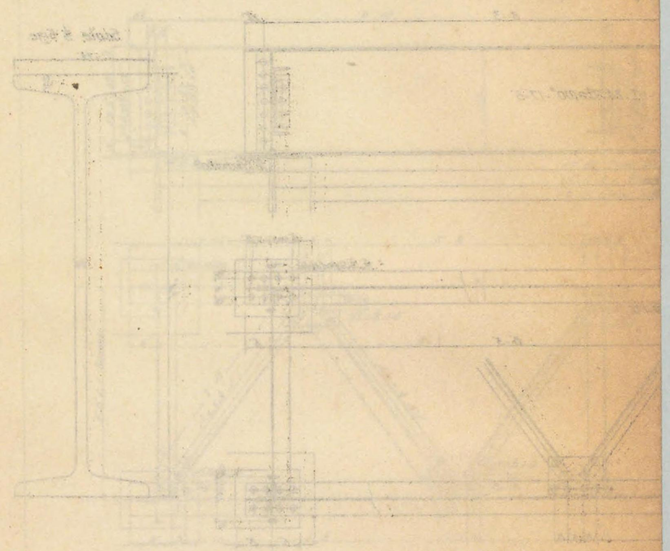


Note: Use Sheet Lead ⅛" thick between Bed Plate and Masonry.



第二十二號圖 (八)





明治四十二年八月
達第六八〇號

圖第二二二號 (一) 規定桁版鋼型「クッデ」

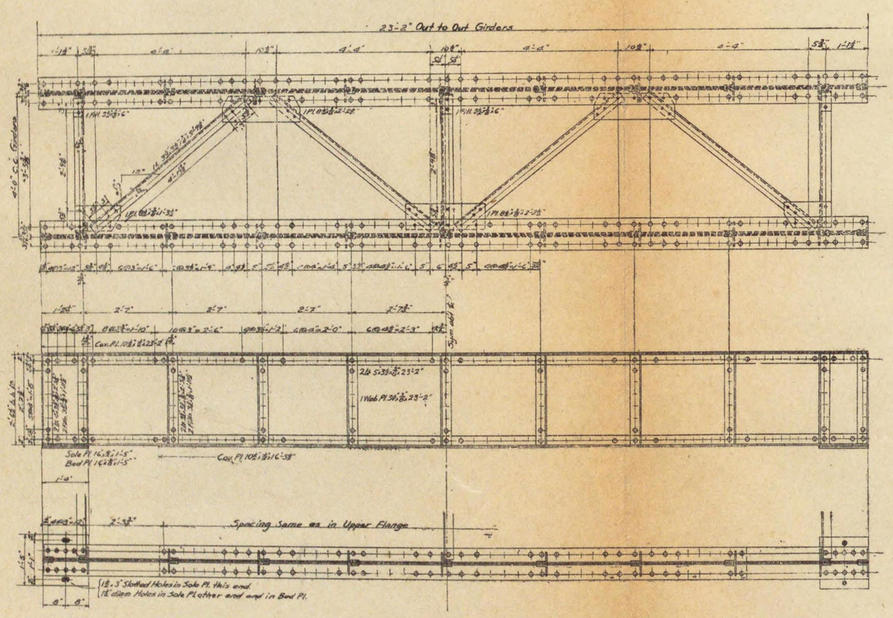
Standard Steel Deck Plate Girders for 20 ft. Span.

Assumed Wheel Loads Cooper's Class "E 39"

Uniform Load 3240 lbs. p. lin. ft.

Specifications: Am. Rwy. Eng. & M. Way Association's. (1906)

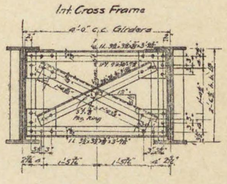
Rivets: ⅞ in. diam.
Open Holes: 1⅛ in. diam unless other wise noted
⊕ Countersunk other side
• Field Rivets



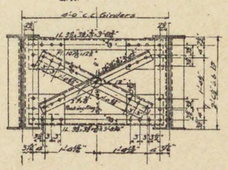
List of Materials

Mark	Description	Dimensions		Weight lbs.
	Girders			
1	Cov. Plate	108 x ⅜	23'-2"	912.33
1	"		16'-08"	653.76
4	Flange Le	5 - 3½ x ⅞	23'-2"	763.28
1	Web Plate	36 x ⅜	23'-2"	586.02
10	Stiffeners	3½ - 3½ x ⅜	2'-5"	292.02
22	Fillers	3½ x ⅜	1'-11"	19.230
2	Sole Plates	14 x ⅞	1'-5"	71.87
6	End Stiffeners 4 x 3½ x ⅜		2'-5"	180.49
	Laterals & Cross Frames			3303.03
4	Lateral Le	3½ - 3½ x ⅜	5'-9½"	196.77
3	Gusset Plates	8½ x ⅜	2'-2⅜"	71.81
2	"	"	1'-3⅜"	20.02
2	Ink. Struts	3½ - 3½ x ⅜	3'-0½"	60.81
2	End "	"	3'-6⅜"	124.79
3	Fillers	3½ x ⅜	0'-6"	5.21
4	End Cross Frame Le	3½ - 3½ x ⅜	3'-6⅜"	118.65
8	Gusset Plates	10 x ⅜	1'-0⅜"	166.25
4	"	9 x ⅜	0'-9⅜"	36.35
3	Rocking Rings	3'-7 x ⅜		223
2	Int. Cross Frame Le	3½ - 3½ x ⅜	3'-5⅜"	58.79
	Total Weight			5116.14
2	Girders			5676.00
1	Laterals & Cross Frames			2148.00
4	Bed Plates	14 x ⅞	1'-5"	370.88
2/10	Rivet Heads			191.00
				8381.90

Ink. Cross Frame

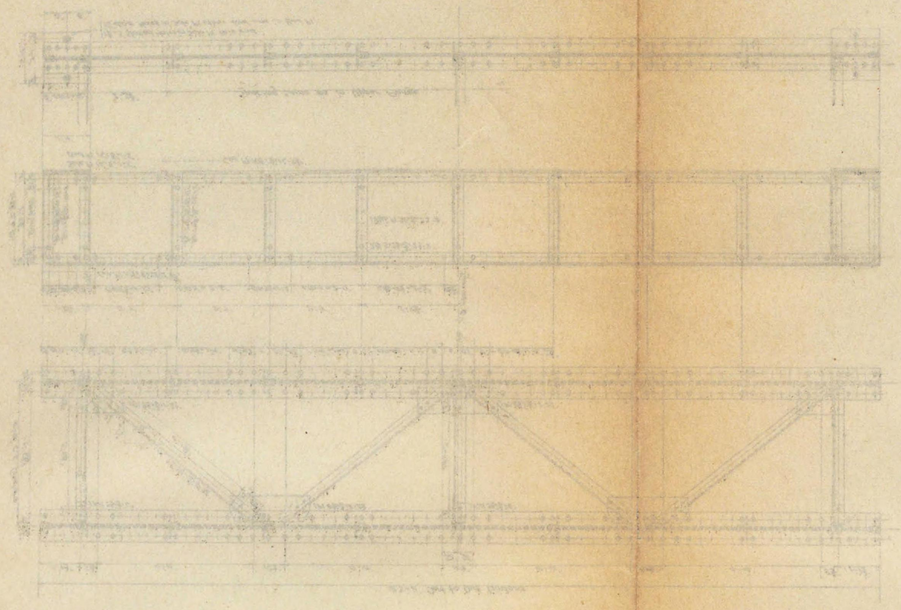


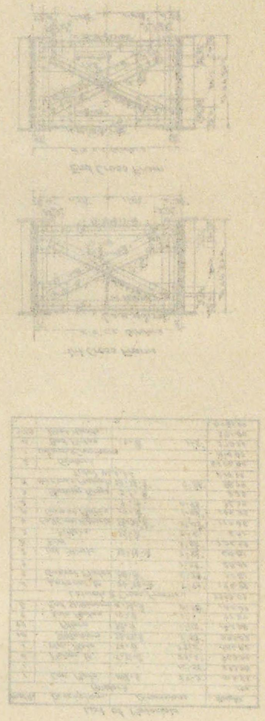
End Cross From.

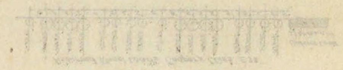


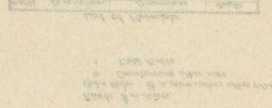
Note: Use Sheet Lead ¼" thick between Bed Plates and Masonry.

圖第二二二號(一)



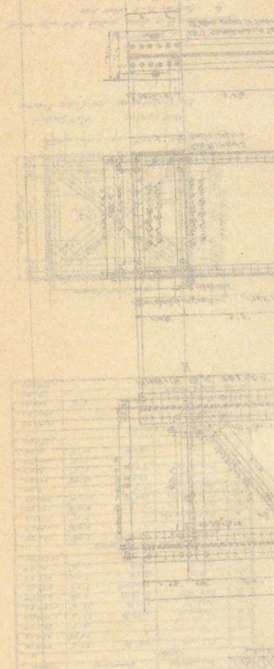






Standard Steel Roof Trusses Design for 50 ft Span

圖版(二)　鋼屋架設計標準(一)　跨度五十呎



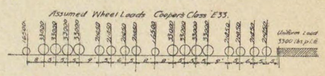
圖第二二號(一)

圖第二二號(二)

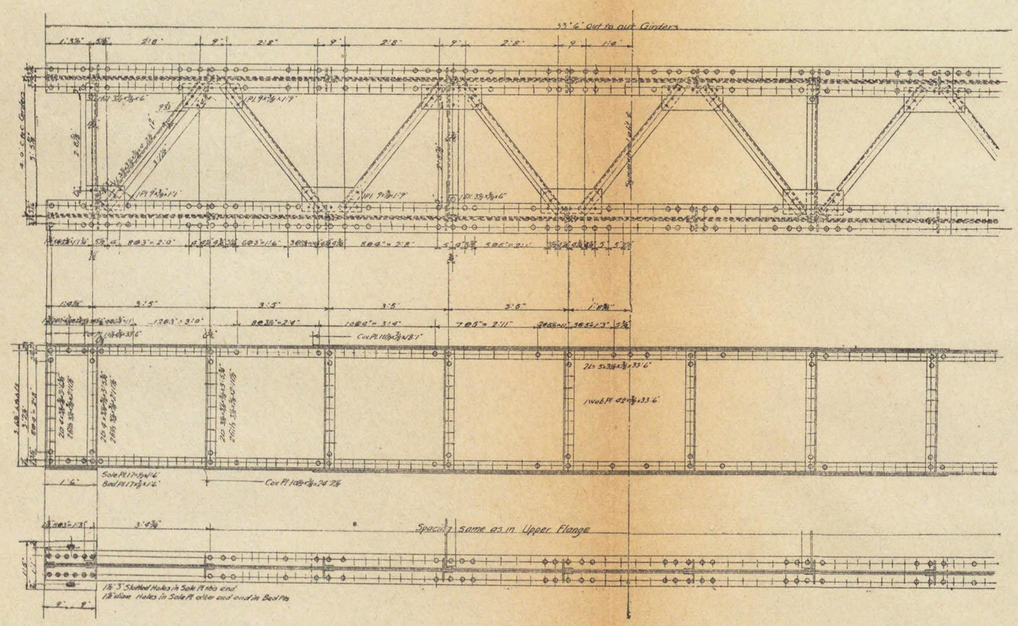
圖第二二號 (二)

Standard Steel Deck Plate Girders for 30ft. Span.

Scale ¾" = 1'-0"

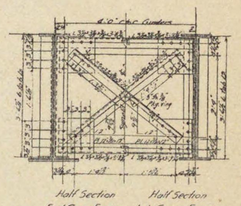


Specifications: Am. Ry. Eng. & M. Way Association's (1906)



List of Materials

Mark No.	Descriptions	Dimensions		Weight lbs.
	Girders			
1	Cov. Pl.	10⅞ x ⅜	33'-6"	448.56
1	" "	" "	24'-7½"	329.15
2	" "	" "	18'-1"	242.22
4	Flange Lk	5"x3½"x⅜	33'-6"	139.60
1	Web Pl	42 x ⅜	33'-6"	1796.26
8	End Stiff.	4"x3½"x⅜	3'-7½"	25.29
14	Int. "	3½"x3"x⅜	3'-7½"	47.37
24	Fills	3½ x ⅜	2'-11½"	9.17
2	Side Pls.	17⅞ x ⅜	1'-6"	56.67
				3231.34
	Laterals & Cross Frames			
4	End Struts	5"x3½"x⅜	3'-8½"	12.79
4	Int. "	" " "	3'-7½"	12.43
4	End Cross Frs.	" " "	2'-1"	7.31
4	Int. "	" " "	5'-11½"	20.79
16	Gusset Pls.	12 x ⅜	1'-0"	20.80
4	Plate Rings	9" x ⅜"		9.80
8	Latticeh.	3½"x3"x⅜	9'-7½"	32.81
2	Gusset Pls.	9 x ⅜	1'-1"	2.67
8	" "	" "	1'-8"	4.10
4	Fills	3½ x ⅜	0'-6"	0.24
				127.02
	Total Weight			
2	Stiffeners			1175.00
1	Intermediate Cross Frs.			190.00
4	End Pls.	17⅞	1'-6"	304.00
376	Rivet Heads			38.00
				1334.00

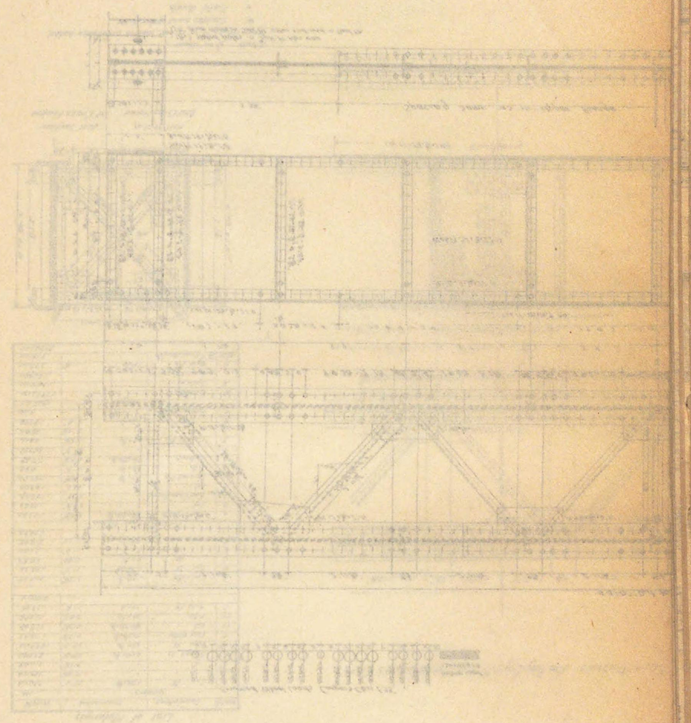


Rivets ⅞" in diam.
Open Holes ⅞" in diam. unless otherwise noted.
⊗ Counter Sunk other Side.
• Field Rivets

Note: *Use Sheet Lead ⅛" thick between Bed Plates and Masonry.*

圖第1111號(11)

圖第一一二(二)



(二) 號二二第圖

圖第二二號（三）

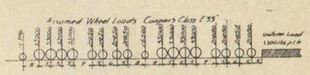
圖第二二號（三）

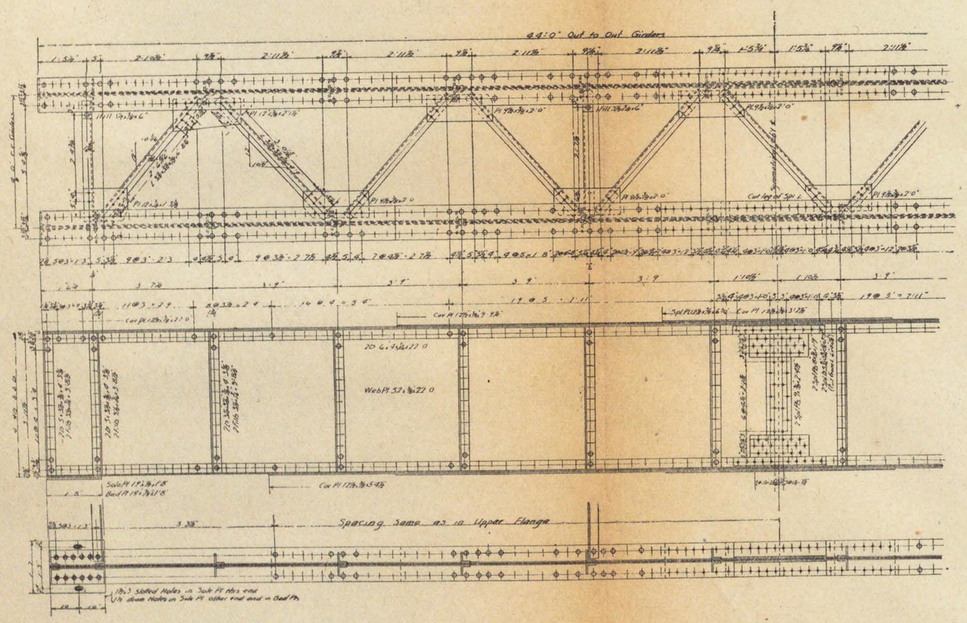
圖第二二號（二）

Standard Steel Deck Plate Girders for 40ft. Span.

Scale ½"=1'0"

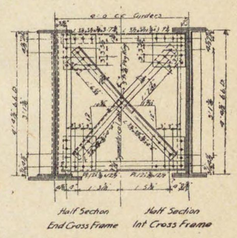
Specifications: Am. Ry. Engr. & Way Associations (1906).





List of Materials

Mark	Descriptions	Dimensions		Weight lbs.
	Girders			
1	Cov. Pl.	12"×⅝"	37'-0"	370.08
1	" "	" "	12'-6"	375.00
2	" "	" "	8'-7½"	321.88
4	Flange Ls.	6"×6"×⅝"	37'-0"	1 21880
1	Web Pl.	32"×⅜"	37'-0"	1027.00
4	End Stiffs.	5"×3½"×⅜"	3'-3½"	178.97
10	Int. "	5"×3½"×⅜"	3'-3½"	445.68
14	Fillr.	3"×⅜"	3'-2½"	74.76
1	Sole Pl.	12"×⅜"	1'-8"	13.85
				6873.15
	Splices			
2	Cov. Pls.	12"×⅜"	3'-2½"	142.38
4	Spl. Ls.	6"×6"×½"	2'-3"	138.20
2	" Pls.	9"×⅜"	2'-6½"	64.53
4	" "	8"×⅜"	1'-5"	77.60
2	" "	12"×⅜"	6'-1½"	212.85
				625.76
	Laterals & Cross Frames			
4	End Struts	8"×3½"×⅜"	3'-7½"	123.60
4	Int. "	" " "	1'-7½"	129.63
4	End Cross Frames	" " "	4'-0"	147.33
4	Int. " "	" " "	4'-6"	133.00
14	Gusset Pls.	12"×⅜"	12⅝"	255.00
6	Fillr.	8"×⅜"	0'-6"	8.96
2	Laterals	3½"×3½"×½"	41'-8"	774.00
4	"	" " "	6'-5"	142.17
2	Gusset Pls.	12"×⅜"	1'-3½"	88.16
2	"	" "	2'-1½"	65.63
8	"	18"×⅜"	2'-0"	189.92
6	Packing Rings	3"×⅜"		3.00
		Total Weight		1582.42
4	Cuirders			13213.00
2	Splices			1249.00
	Laterals & Cross Fr.			1562.00
4	Bed Pls.	19"×⅞"	1'-8"	377.00
8280	⅞" Rivet Heads			774.00
				31,964.00



Rivets ⅞" in diam.
Open Holes 1⅛" in diam. unless otherwise noted.
⊗ Counter sunk other side
• Field Rivets.

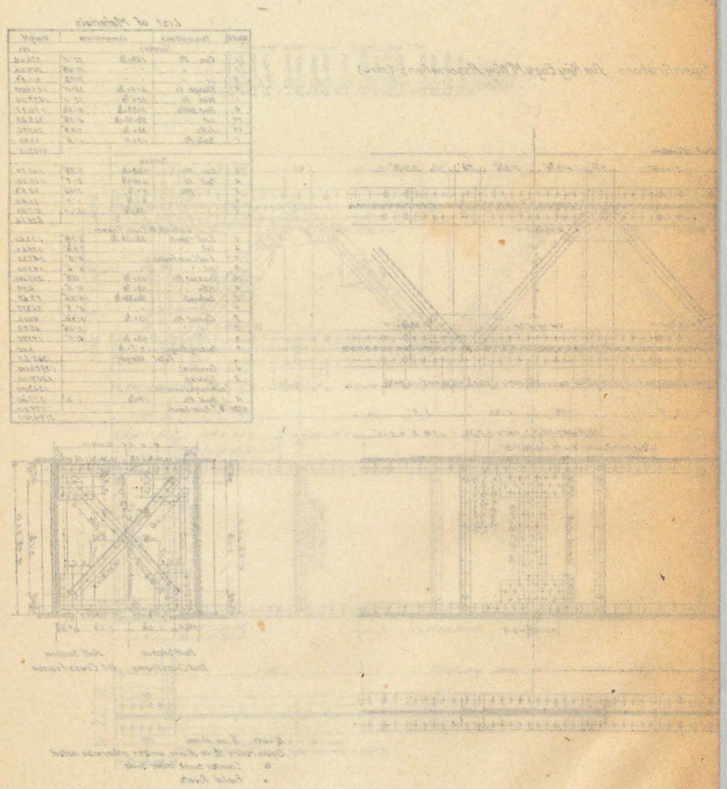
Note. Use Sheet Lead ¼" thick between Bed Plates and Masonry.

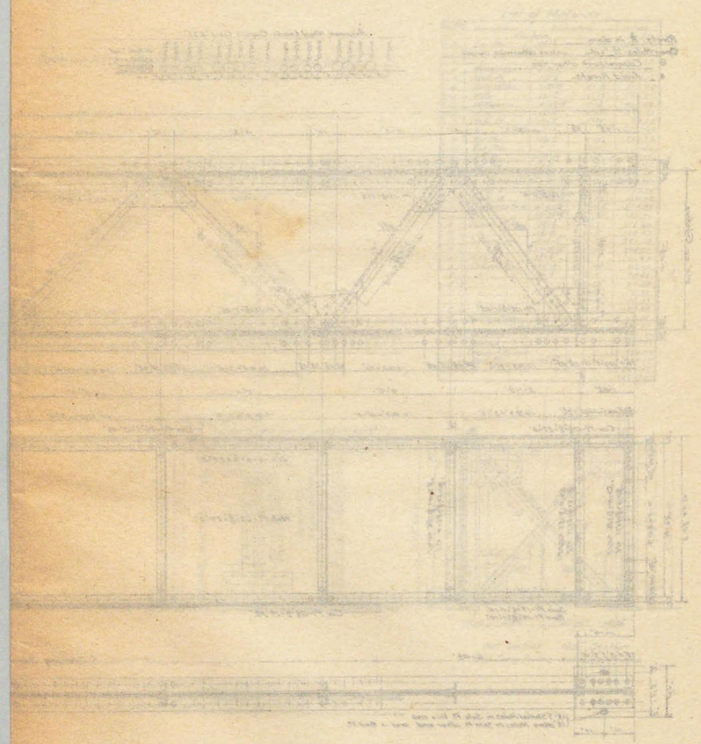
Note: Use above load for 10# Beam

Standard Steel Deck Plate Girders for 10# Beam

圖第一一二號 (三)

(三) 第二二表圖





(四) 第二三表圖

圖第二一一號 (四)

Standard Steel Deck Plate Girders for 50ft. Span.

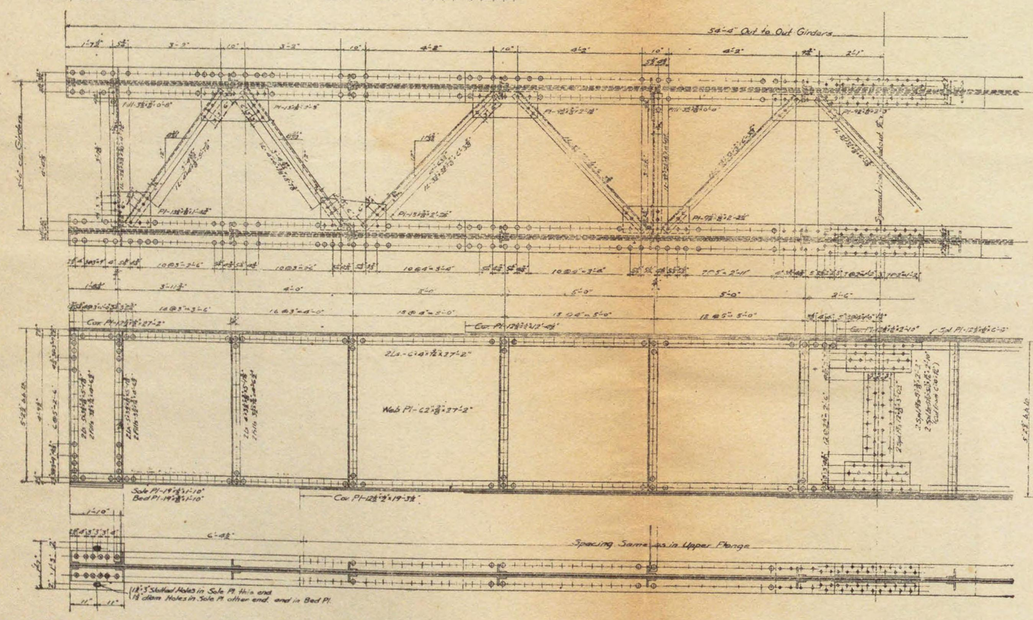
Scale: 3/4" = 1'-0"

Rivets: ⅞ in diam.
Open Holes: 15/16 in. diam. unless otherwise noted
⊗ Countersunk other side.
• Field Rivets.

Assumed Wheel Loads - Cooper's Class "E55"

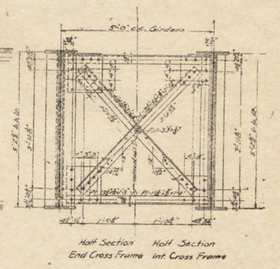
Uniform Load 3240 Lbs. per Lin. Ft.

Specifications Am. Ry. Eng. & M. Way Associations (1906).



List of Materials

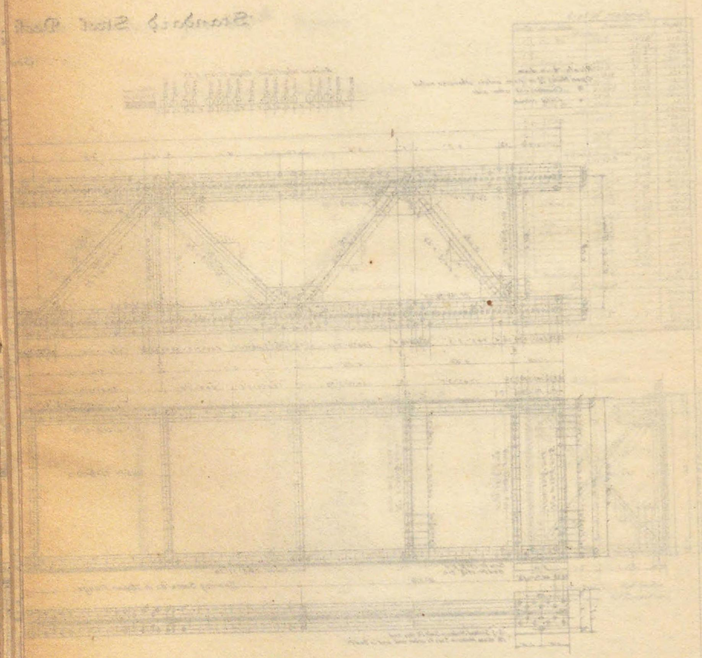
Mark	Descriptions	Dimensions	Weight lbs.
	Girders		
2	Cov Pls	12⅝"×19'-3"	928 95
1	" "	" " 17'-3"	877 29
1	" "	" " 15'-3"	829 52
8	Flange Le	6"×6"×⅞" 27'-7"	1946 87
1	Web Pl	42"×⅜" 27'-5"	2149 16
16	Rivet Stiffs	5"×3½"×⅜" 2'-1"	312 92
16	Fills	5"×3½"×⅜" 2'-1"	131 72
16	Stiffeners	4"×3½"×⅜" 2'-0"	445 68
16	Fills	3½"×3½"×⅜" 4'-5"	304 27
1	Sole Pl	14"×1⅛" 2'-1"	79 23
	Splices		6792 60
2	Sol Pls	18"×⅝" 6'-8"	283 33
2	Cov Pls	9"×⅜" 2'-6"	120 62
8	Sol Pls	6"×⅜" 2'-6"	240 64
4	Sol Pls	7"×⅜" 1'-2"	79 07
2	"	7"×⅜" 1'-2½"	93 58
	Laterals & Cross Frames		803 30
4	Strut Ls	3½"×3½"×⅜" 15'-7"	157 04
4	Strut Ls	3½"×3½"×⅜" 15'-5"	155 08
8	End Cross Fr Ls	4"×4"×⅜" 5'-6"	217 22
4	Int. "	3½"×3½"×⅜" 5'-2"	191 96
8	Gusset Pls	18"×⅜" 1'-1"	153 79
8	"	18"×⅜" 1'-2"	179 92
8	Lateral Ls	4"×4"×⅜" 17'-7"	321 72
4	"	3½"×3½"×⅜" 15'-8"	296 91
16	Fills	15"×⅜" 0'-9"	21 92
2	Lateral Pls	15"×⅜" 1'-8"	66 61
2	"	13"×⅜" 2'-3"	78 60
2	"	" 2'-1"	73 94
2	"	" 2'-2"	77 28
2	"	" 2'-3"	80 61
2	"	" 2'-1"	73 94
4	Packing Rings	7½"×⅜" 0'-3"	3 71
	Total Weight		19253 70
4	Splices		271 00
2	Splices		167 00
	Lateral System		1584 00
4	Rivet Pls	19⅝" 1'-10"	414 00
2218	Rivet heads		74 80
			22350 80



Note: Use sheet lead ¼" teick between Bed Plate & Mosonry.

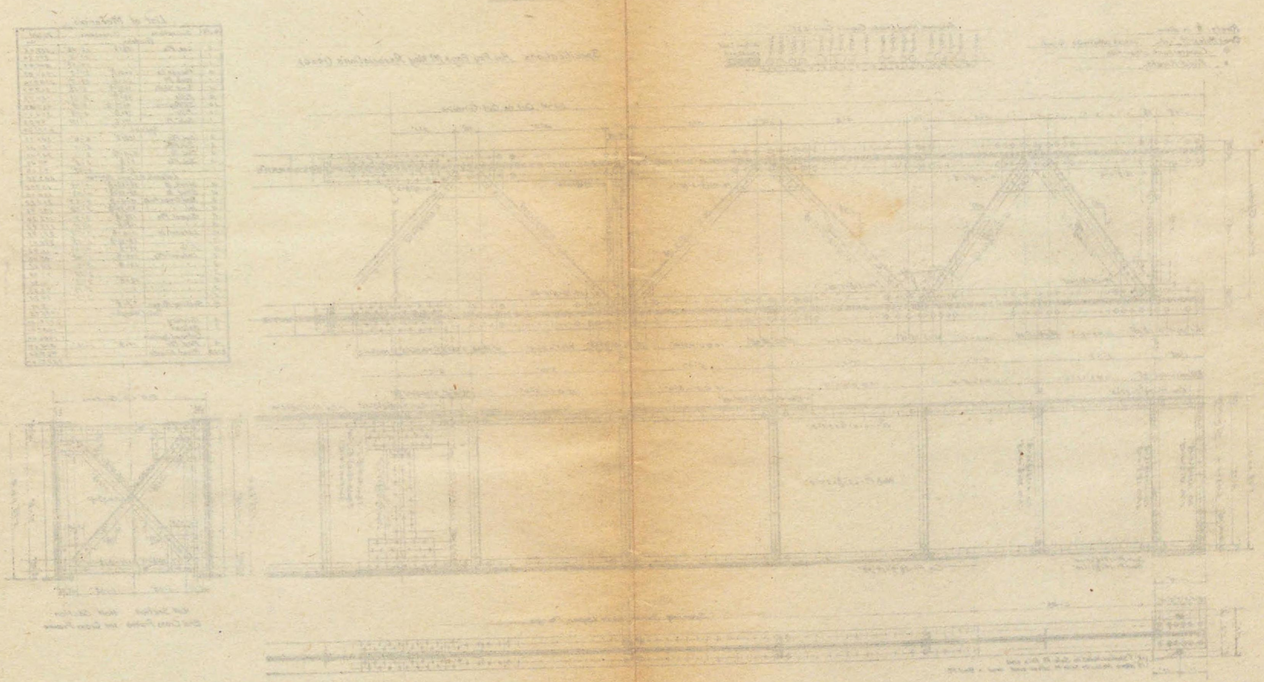
圖第一一一號(四)

圖第二二號(五)



Note: Use Sheet Lead $\frac{1}{4}$" thick between Rod Plate and Masonry.

圖第二二號(四)



Note: Use sheet lead $\frac{1}{4}$" thick between Rod Plate & Masonry.

圖第二二號（四）

圖第二二號（五）

圖第二二號（五）

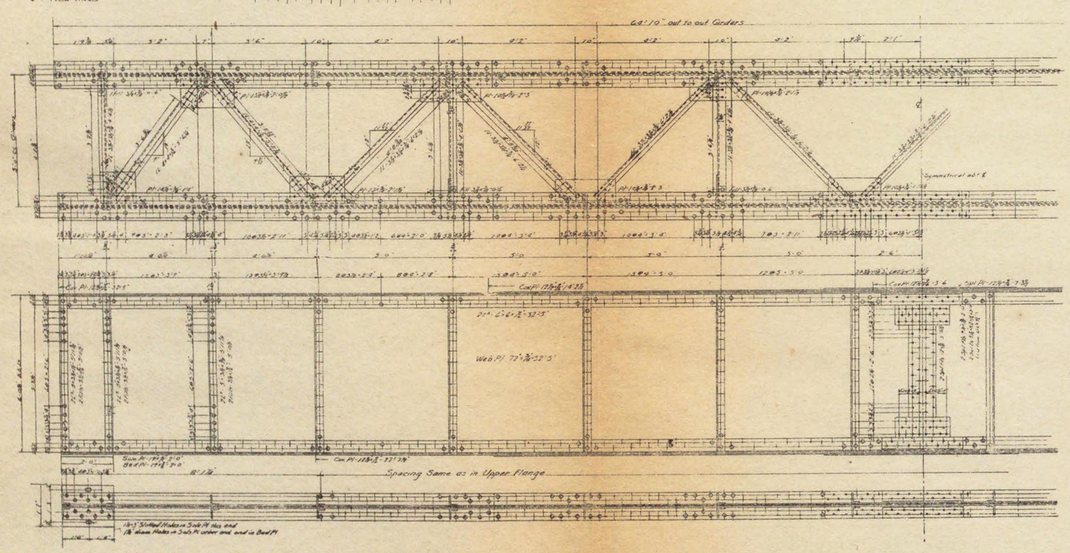
Standard Steel Deck Plate Girders for 60ft. Span.

Scale: 3/4" = 1'0

Rivets ⅞" in diam.
Open Holes ⅞ in diam. unless otherwise noted
⊕ Countersunk other side
• Field Rivets

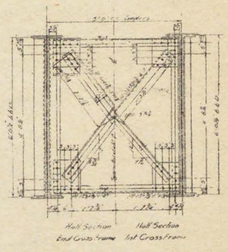
Assumed Wheel Loads: Cooper's Class E 55

Specifications Am. Ry. Engg. & Way Association's (1906)



List of Materials

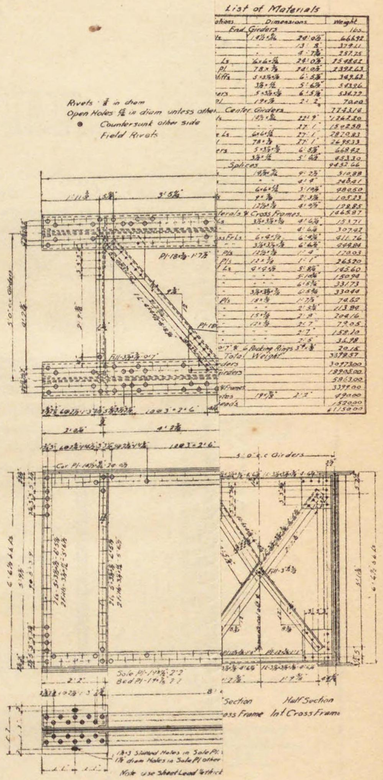
Mark	Description	Dimensions		Weight
	Chords			
1	Top Pl.	12"×⅞	16'-10	408.43
			21'-10	264.78
			31'-2	756.15
4	Flange Ls.	6"×6"×⅞	32'-5"	1834.96
7	Web Pl.	72"×⅜	32'-5"	2472.80
8	Ins. Splice	12"×8"×½	2-10"	123.16
9	"	12"×8"×½	4'-5"	130.02
10	" Batters	2-12"×½	2'-11"	123.28
11	"	12"×½	5'-10"	1866.33
	Web Pl.	⅜"	2'-0"	82.62
	Splices			7743.93
2	Splice	12"×⅞	7'-10"	328.52
3	Cov. Pl.	12"×⅜	3'-5"	168.32
4	Splice	6"×6"×⅞	3'-0"	138.06
5	Splice	12"×⅜	3'-0"	70.84
	"	12"×⅜	4'-10"	228.36
	Latticed Cross Girders			1434.12
6	Struct. Ls.	10"×6"×⅝	7'-10"	132.62
			5'-6"	93.13
4	End Constr. Ls.	6"×6"×⅞	5'-10"	274.16
8	Int.	5"×3½"×½	6'-2"	97.33
10	Gusset Pls.	⅜"	1'-8"	190.00
		5/8"	1'-0"	171.00
3	Lateral Ls.	6"×6"×⅞	5'-10"	134.77
			7'-8"	177.08
9	"	5"×3½"×½	6'-2"	97.33
8	Tie	5"×3½"×½	6'-6"	102.74
2	Lateral Pls.	12"×⅜	1'-6"	47.32
3	"	12"×⅜	1'-10"	58.31
1	"	12"×⅜	2'-0"	63.27
1	"	12"×⅜	4'-3"	134.37
1	"	12"×⅜	5'-11"	187.31
1	"	12"×⅜	7'-10"	247.83
6	Batting Rings	5"×⅜		40.1
				2764.23
	Total weight			
4	Girders			31332.00
1	Splices			2180.00
	Lateral Girders			2730.00
1	End Stiffs.	12"×⅜	2'-0"	924.00
882	Rivet Heads			1281.00
				40447.00



Note: Use Sheet Lead ¼" thick between Bed Plates and Masonry.

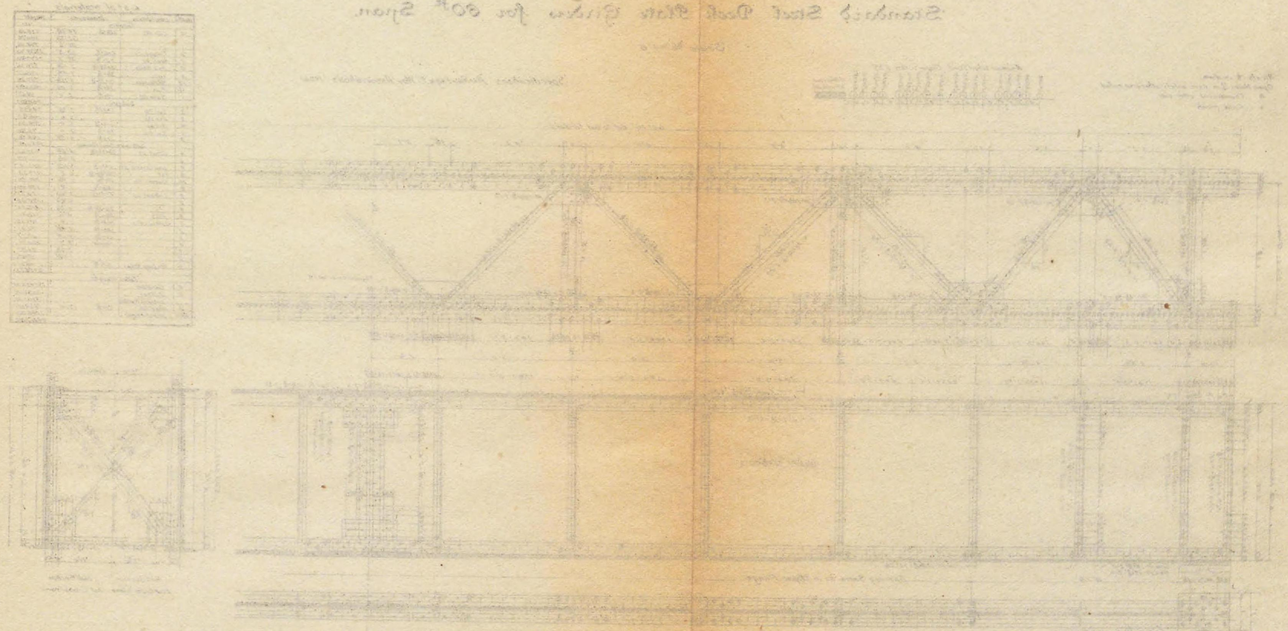
圖第一一一號（五）

第圖

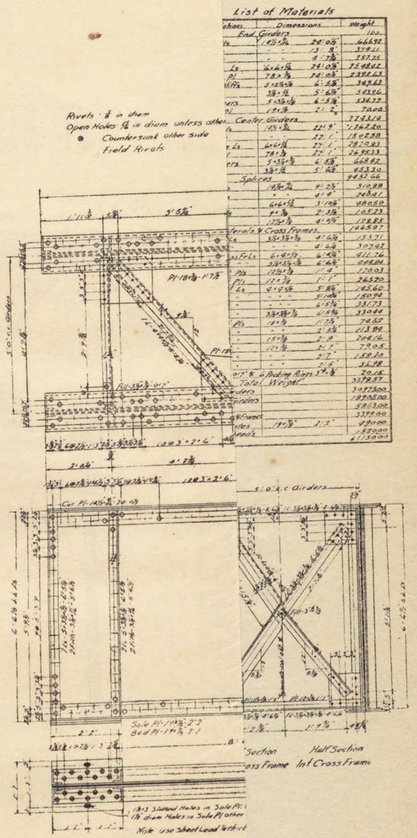


圖第二二號(丈)

(正) 號二二第圖



第圖



圖第二二號(六)

(正) 號二二第圖

圖第二二號 (六)

Standard Steel Deck Plate Girders for 70ft. Span

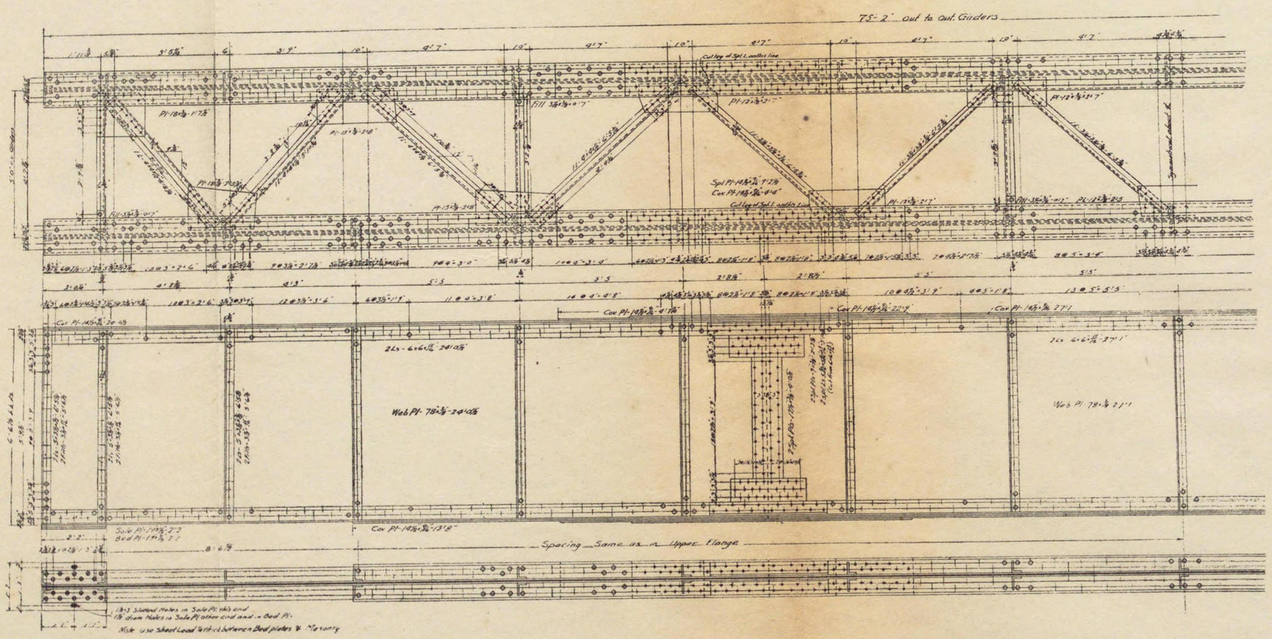
Scale 3/4" = 1'-0"

Rivets ⅞ in diam
Open Holes ⅞ in diam unless otherwise noted
● Countersunk other side
Field Rivets

Assumed Wheel Loads - Cooper's Class E 33

Specifications Am. Ry. Eng. & M. Way Associations (1906

TS-2" out to out Girders



List of Materials

Mark	Description	Dimensions		Weight lbs.
	End Girders			
1	Cov. Pls.	1'-5⅞	24'-0⅝	66492
2	"	"	8'-3⅜	22911
3	"	"	4'-1⅝	11311
4	Flange Ls.	6"x6"x⅝	71'-0⅜	75488
5	Web Pl.	78-⅜	24'-0⅝	23512
6	End Stiffs.	5"x3½"x⅝	6'-2⅝	3493
7	Fills	38-⅝	5'-6⅝	1836
8	Stiffeners	5"x3½"x⅝	6'-3⅜	3363
9	Sole Pl.	1'-3⅜	2'-1⅜	7308
	Center Girders			77313
1	Cov. Pls.	1'-5⅞	22'-9"	62647
2	"	"	12'-"	33038
4	Flange Ls.	6"x6"x⅝	72'-"	78703
5	Web Pl.	78-⅜	22'-"	24833
10	Stiffeners	5"x3½"x⅝	6'-3⅜	6685
10	Fills	38-⅝	3'-4⅜	4533
	Splices			94857
2	Spl. Pls.	1'-8⅜	9'-2⅝	31589
3	Cov. Pls.	"	4'-8"	16162
4	Spl. Ls.	6"x6"x⅝	3'-10⅜	10655
4	Spl. Pls.	1'-3⅜	2'-1⅜	7308
7	"	1'-2⅜	4'-5⅜	14285
	Laterals & Cross Frames			184397
1	Struct. Ls.	3½"x3½"x⅜	2'-6⅜	13171
11	"	"	6'-5⅜	33743
11	End Cross Pls.	6'-4⅞	6'-5⅜	611.76
13	Int.	3½"x3½"x⅜	6'-6⅜	9988
14	Gusset Pls.	1'-2⅜	4'-"	17983
14	Gusset Pls.	1'-1⅜	1'-1⅜	24370
2	Lateral Ls.	6"x3½"x⅜	5'-8⅜	19540
4	"	"	5'-8⅜	19094
4	"	"	6'-1⅜	20571
4	"	3½"x3½"x⅜	6'-1⅜	33174
2	Lateral Pls.	1'-1⅜	2'-3⅜	7457
4	"	"	2'-3⅜	14914
4	"	1'-1⅜	2'-3⅜	29828
4	"	"	2'-3"	29544
4	"	"	2'-2"	28260
4	"	"	2'-1"	27976
4	"	"	2'-"	27692
4	"	"	1'-11⅜	27408
4	"	"	1'-10⅜	27124
4	"	"	1'-9⅜	26840
4	"	"	1'-8⅜	26556
4	"	"	1'-7⅜	26272
4	"	"	1'-6⅜	25988
4	"	"	1'-5⅜	25704
4	"	"	1'-4⅜	25420
4	"	"	1'-3⅜	25136
4	"	"	1'-2⅜	24852
4	"	"	1'-1⅜	24568
4	"	"	1'-"	24284
4	"	"	11⅜	24000
4	"	"	10⅜	23716
4	"	"	9⅜	23432
4	"	"	8⅜	23148
4	"	"	7⅜	22864
4	"	"	6⅜	22580
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4	"	"	2⅜	21444
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4	"	"	⅜	20876
4	"	"	2⅜	20592
4	"	"	1⅜	20308
4	"	"	⅜	20024
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4	"	"	1⅜	19456
4	"	"	⅜	19172
4	"	"	2⅜	18888
4	"	"	1⅜	18604
4	"	"	⅜	18320
4	"	"	2⅜	18036
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4	"	"	2⅜	956
4	"	"	1⅜	672
4	"	"	⅜	388
4	"	"	2⅜	104
4	"	"	1⅜	820
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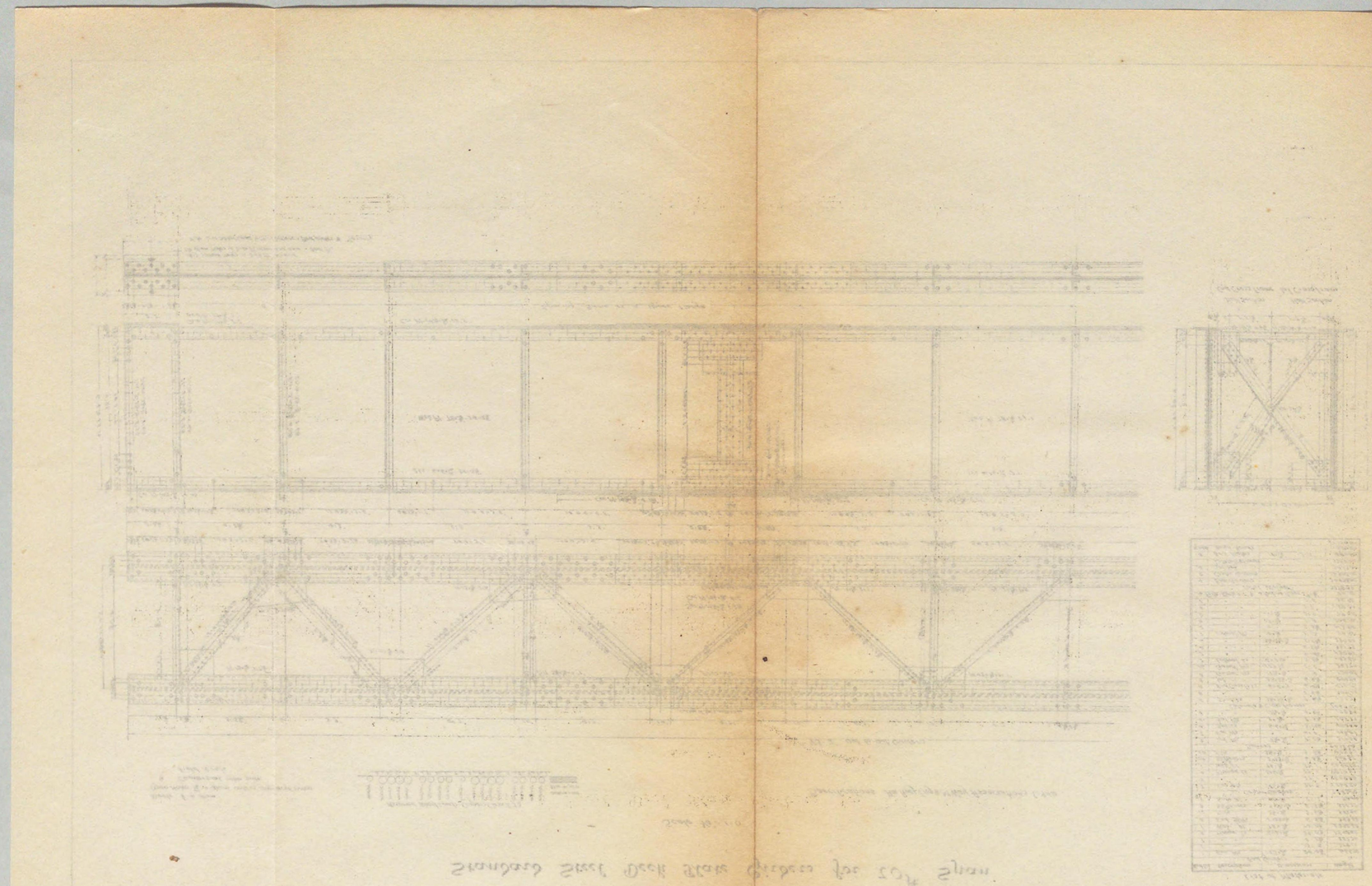
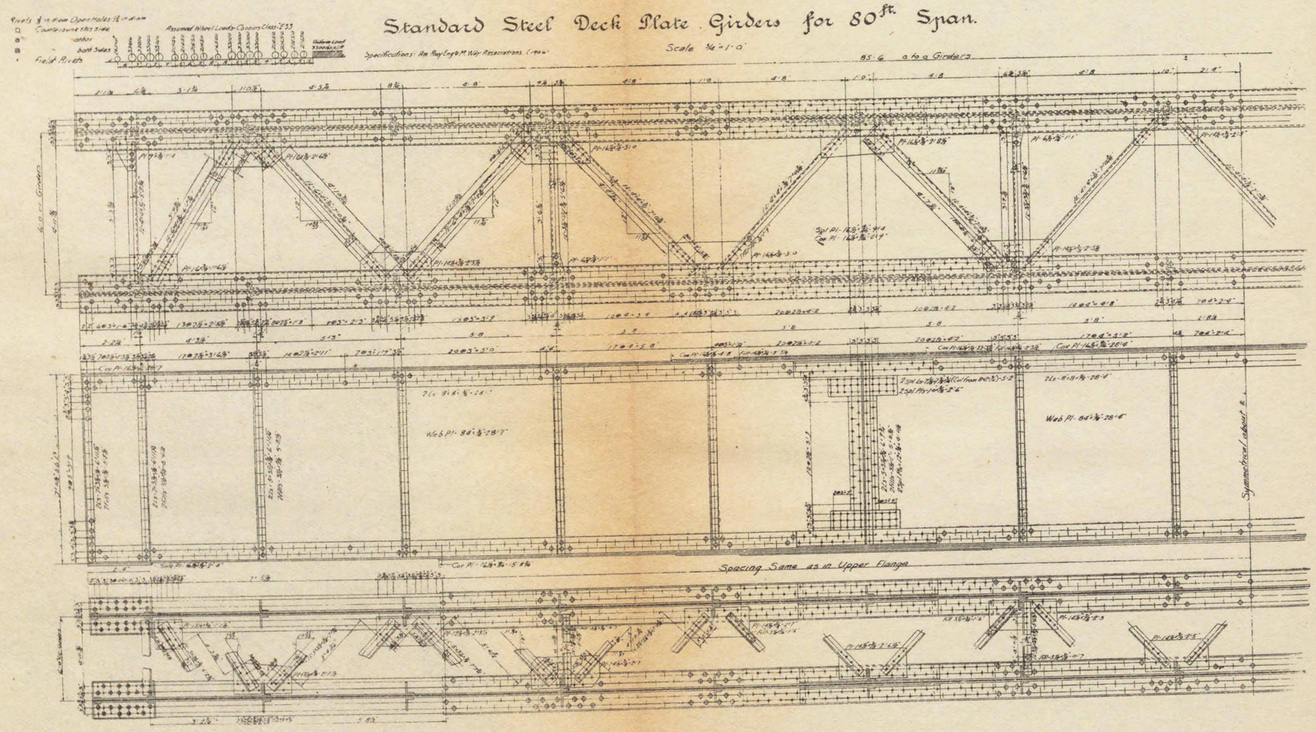


第二二號圖 (七)

第二二號圖 (六)

圖第二二號（七）



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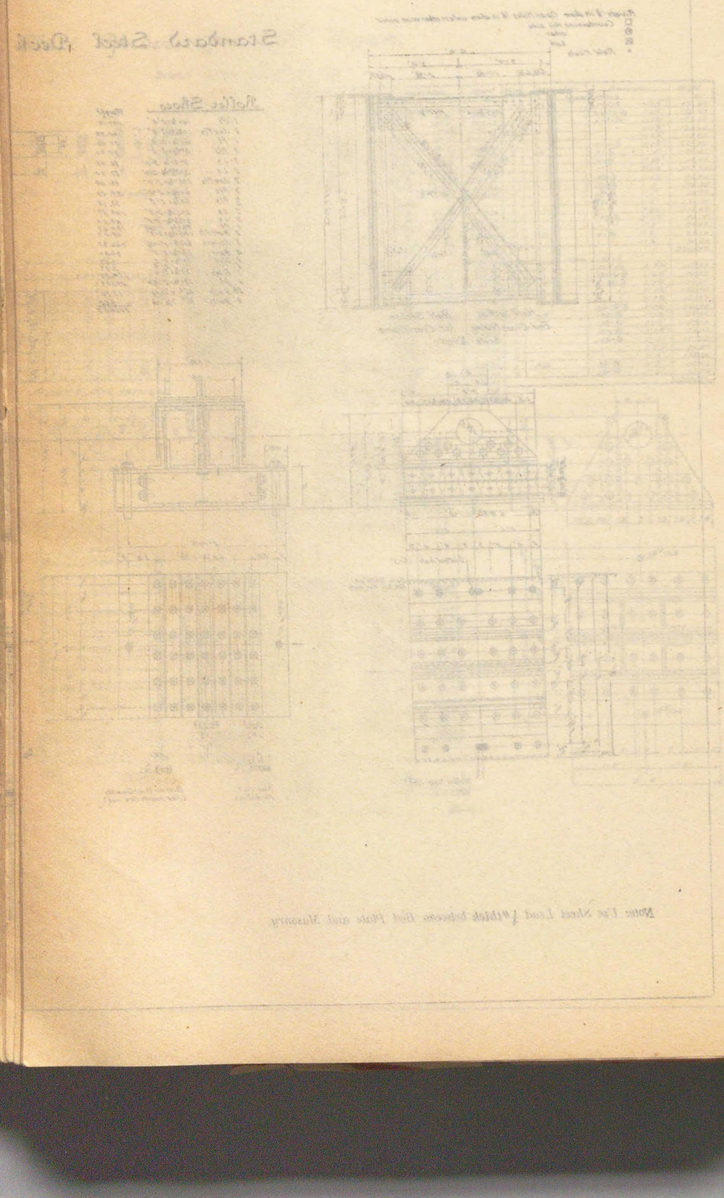

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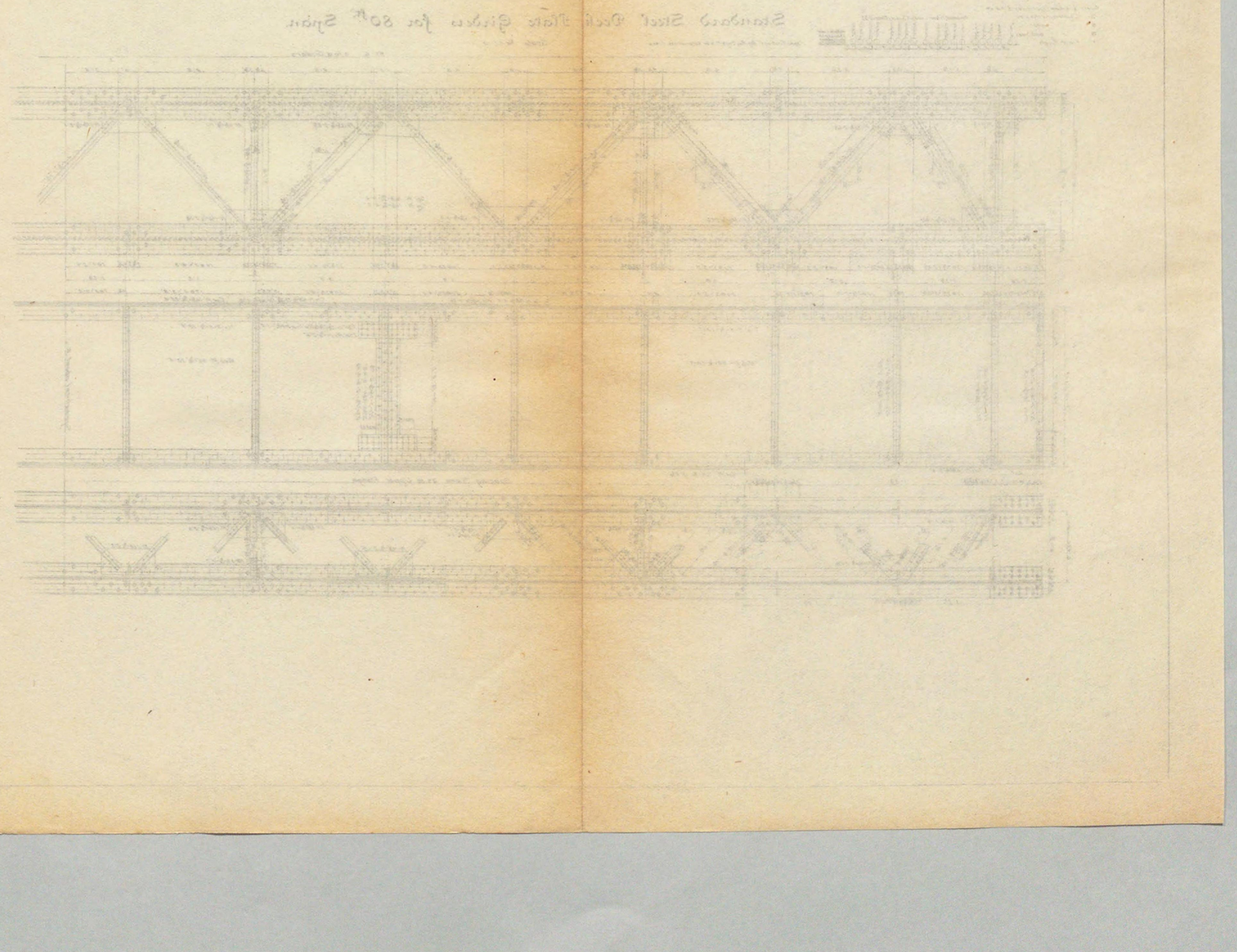

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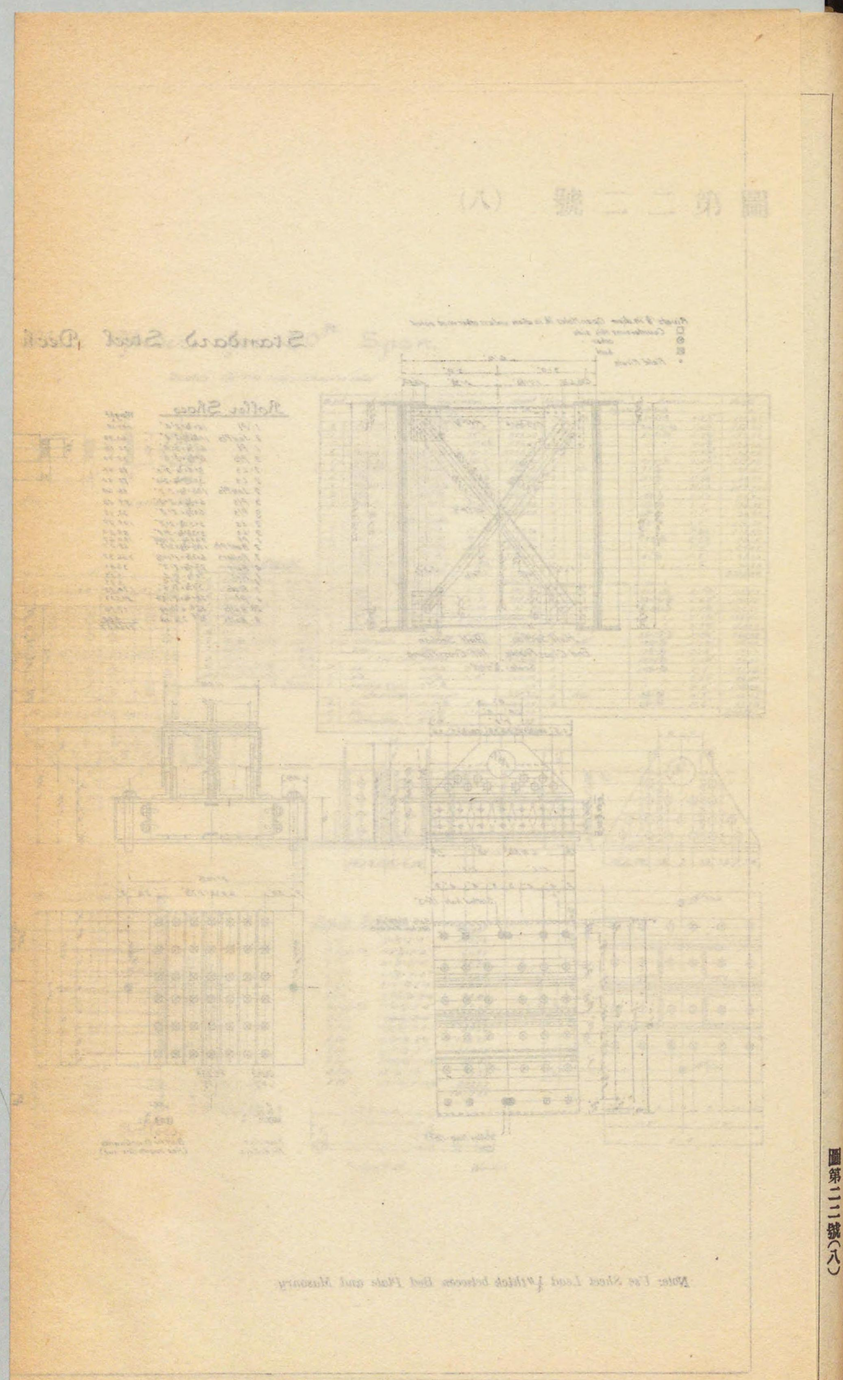

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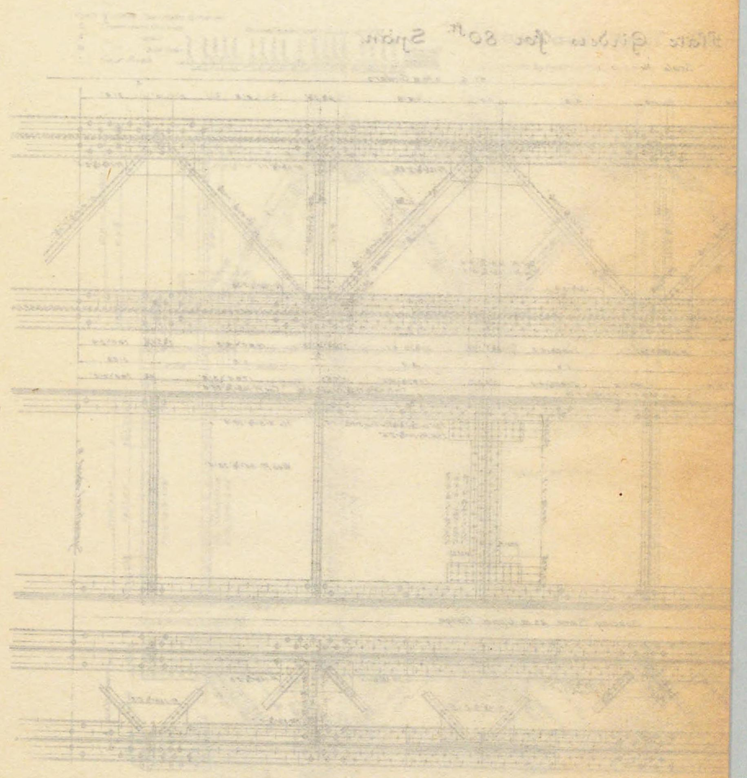
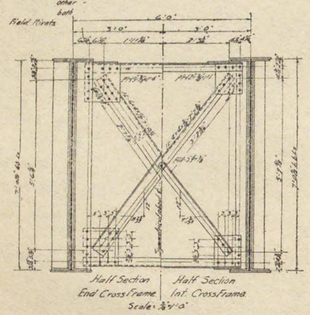


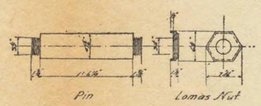
圖第二二號(七)

Standard Steel Deck Plate Girders for 80ft. Span.

Scales: 1½"-1'0" unless otherwise noted

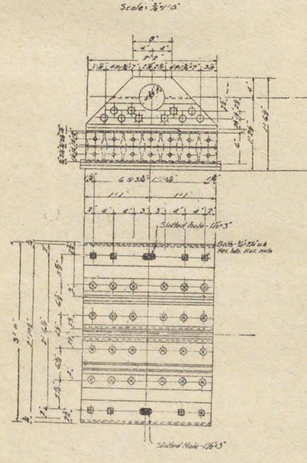
Rivets ⅞ in diam. Open Holes ¾ in diam unless otherwise noted
□ Countersunk this side
⊗ other
◦ And
• Field Rivets

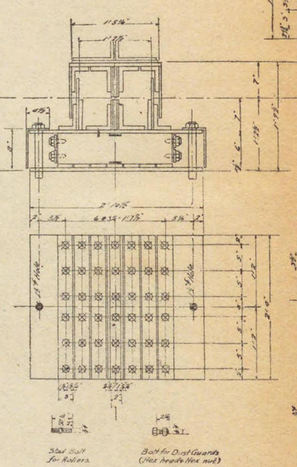


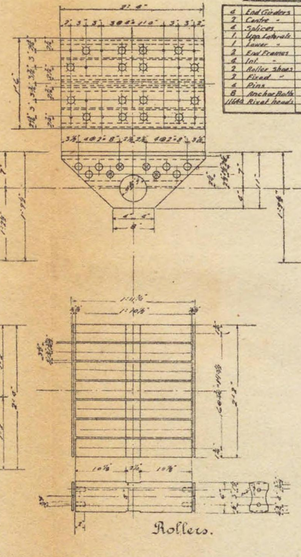


Roller Shoes

		Weight
1 Pl	18"×½"×2'-6"	191.25
2 Jaw Pls	10"-3½"×½"×1'-6"	60.99
1 Pl	6"×½"×2'-0"	35.70
2 Pls	6"×½"×1'-5"	35.70
2 Ls	5"×3½"×½"×2'-6"	72.47
2 Ls	5"×3½"×½"×2'-6"	72.47
2 Jaw Pls	10"-3½"×½"×1'-3"	55.68
3 Pls	6"×½"×1'-2"	57.78
3 Pls	6"×½"×1'-2"	33.18
2 Ls	5"×3½"×½"×1'-2"	102.37
2 Ls	5"-3½"×½"×1'-2"	84.40
1 Web Pl	7½"×⅜"-2'-0"	19.69
2 Rivet Pls	1'-8½"×½"×2'-2"	29.47
7 Rollers	6¾"×11½"	244.37
4 Bars	2¾"×⅝"×2'-3"	36.83
1 Pl	7"×⅜"×1'-5"	5.83
1 Web	5"×⅜"×2'-4"	15.93
1 Pl	12"×½"×2'-10½"	29.33
28 Rivets	¾" × 1¾long	1.79
8 Bolts	¾" × 2¾ "	4.87
		916.87





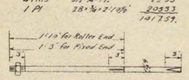


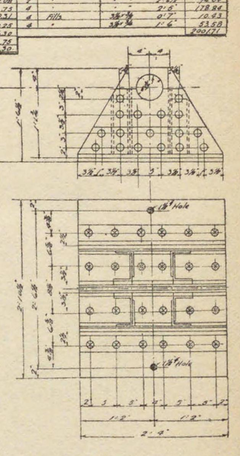
Total Weight

4	End Girders	92384
2	Centre "	21527
4	Splices	9012
1	Upp. Laterals	2384
1	Lower "	2002
2	End Posts	642
4	Int. "	864
2	Rolls Shoes	4323
2	Fixed "	2833
4	Pins	516
8	Anchor Bolts	52
1068	Rivet Heads	2088
		216697

Fixed Shoes

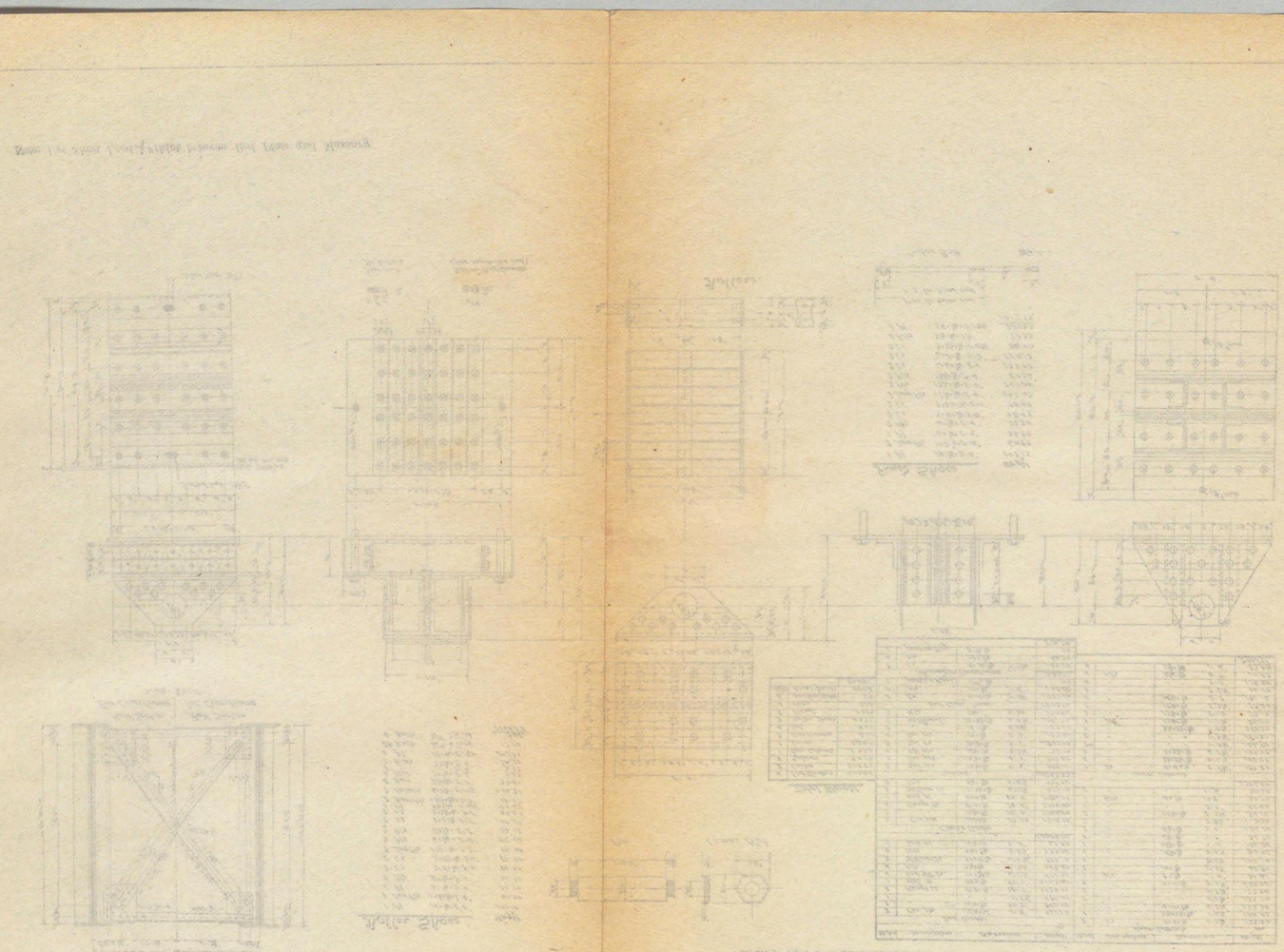
		Weight
1 Pl	18"×½"×2'-5"	192.15
2 Jaw Pls	10"-3½"×½"×2'-0"	60.99
1 Pl	6"×½"×2'-0"	35.70
2 Pls	6"×½"×2'-0"	35.70
2 Ls	5"×3½"×½"×2'-6"	98.47
2 Ls	5"×3½"×½"×2'-6"	72.40
2 Jaw Pls	17"-3½"×½"×2'-0"	105.63
3 Pls	13"-3½"×½"×2'-6"	241.04
3 Pls	13"-3½"×½"×2'-6"	80.36
2 Ls	6"×6"×¾"×2'-4"	133.94
2 Ls	6"×6"×¾"×2'-0"	114.83
8 Ls	3"×3½"×½"×0'-8"	80.40
4 Fills	3½"×6"×½"×1'-5"	27.33
1 Pl	38"×¾"×2'-10½"	200.33
		1417.37



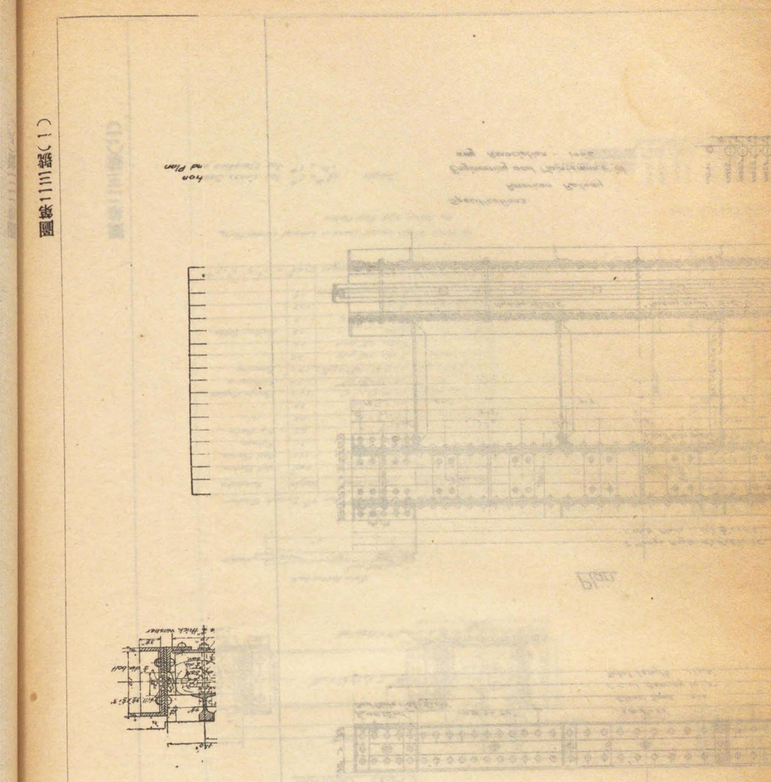


No.	Pcs	Descriptions	Dimensions	Weight lbs.
		End Girder		
2		Cov. pls	145½" 41.8"	96176
1		"	145½" 28'-5"	9923.82
1		"	" 15-3½"	6524.43
4		Flange Ls	8"-8"×½" 28'-7"	3738.24
1		Web Pl	84"×⅜" 28'-7"	3241.84
4		End Stiff Ls	3½"×3½"×½" 4'-11½"	871.25
8		Fills	3½"×⅜" 1'-6½"	169.88
8		¾"Rivets Ls	3½"×3½"×½" 4'-11½"	872.13
8		Fills	3½"×⅜" 1'-6½"	339.76
1		Stiff Pl	18"×½" 2'-8"	182.25
				126860.00
		Centre Girder		
2		Cov. pls	145½" 23.38"	11526
2		"	145½" 28'-4"	17385.60
4		Flange Ls	8"-8"×½" 28'-4"	3796.80
1		Web Pl	84"×⅜" 28'-4"	3036.20
8		¾"Rivets Ls	3"-3½"×½" 4'-11½"	871.13
8		Fills	3½"×⅜" 1'-6½"	339.76
		Splices		126860.33
2		Spl. pls	145"×⅜" 9'-6"	3826.16
4		Cov. pls	145"×⅜" 4'-8"	2974.82
1		Fill pls	145"×⅜" 5'-3½"	727.13
1		Spl. Ls	10-8"×½" 5'-2"	803.96
1		Spl. pls	14"-3½" 2'-6"	372.50
4		"	7"-3½" 8'-4½"	2342.62
2		"Fillers Ls	3"-3½"×½" 4'-3½"	591.76
2		Fills	3½"×⅜" 2'-1½"	245.81
		End Cross Frame		773526
2		Ls	6"-6"×½" 7'-0"	2724.48
4		pls	12"×½" 1'-6"	1820.08
1		packing Rings	8"×⅜"	72.61
		Intermediate Cross Frame		4630.51
2		Ls	6"-6"×½" 7'-7½"	2652.82
4		pls	12"×½" 1'-11½"	1644.30
1		packing Rings	8"×⅜"	73
				11630
2		Ls	3½"-3½"×½" 4'-11½"	1743.22
4		Fills	3½"×⅜" 1'-6½"	678.52
1		packing Rings	8"×⅜"	73
				2495.74
		Upper Laterals		
2	Ls		4"-3½"×½" 2'-7½"	103.82
1			3½"×3½"×½" 8'-4½"	82.87
1			3½"×3½"×½" 6'-2½"	122.47
1			3½"×3½"×½" 8'-4½"	146.59
1			3½"×3½"×½" 7'-2½"	126.32
4			3½"×3½"×½" 3'-0½"	242.28
2		pls	12½"×⅜" 11'-0"	72.00
1			12½"×⅜" 2'-1½"	73.43
1			12½"×⅜" 2'-3½"	77.04
1			14½"×⅜" 2'-7"	191.16
1			12½"×⅜" 2'-3½"	79.06
1			14½"×⅜" 2'-7"	96.58
1			" 2'-4½"	178.84
4		Fills	3½"×⅜" 0'-7"	10.63
4		"	3½"×⅜" 1'-6"	53.53
				2001.71

Note: Use Sheet Lead ⅛" thick between Bed Plate and Masonry.

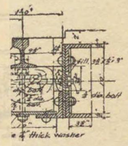


圖第二二二號 (八)



圖第二二三號 (一)

第圖



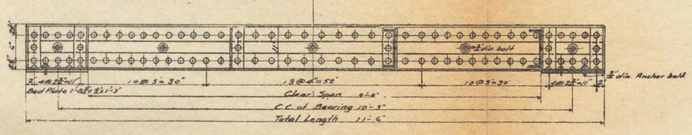
圖第一三號（一）

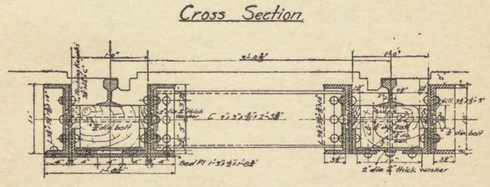
（八）號二二第圖

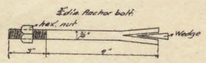
圖第二三號 (一)

明治四十二年三月
號〇六一第達　規定桁狀槽呎二十及呎九間徑

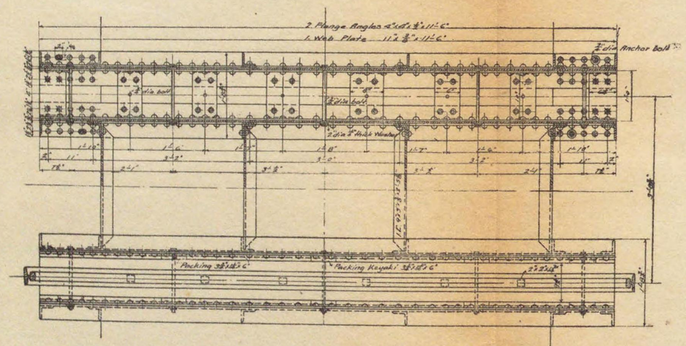
9 foot Span Trough Girder
for 9 foot Subway at Passenger Station. (Dec. 1908.)

Elevation.

Cross Section.





Plan.



Schedule of Material for 9ft Trough Girder

No	Description	Dimensions	Weight	Remarks
4	Steel Plate	11'-5⅝"x11'-6"	668	Web Plates
4	"	1'-5½"x1'-0⅝"	176	Bed Plates
24	"	38"x8"x⅜"	30	Fillers
8	"	10'-3"x8"x⅜"	69	Tie Plate
4	"	10'-3"x8"x⅝"	88	"
4	"	10'-3"x8"x⅞"	33	"
12	Steel Angles	6"x6"x⅝"x11'-6"	176	Plunge Angles
24	"	3½"x3½"x⅜"x10'	170	Stiffeners
4	Steel Channels	9"x3⅝"x13⅝"(7"x3⅜")	190	Bracing
10	Bolts	⅞"dia 13⅝" grip	22	
12	"	⅞"dia 6⅝" grip	16	
8	"	⅞"dia	13	Anchor Bolts
52	Washer	2"dia ⅜" thick	9	
720	Rivet heads	⅞"dia	133	
152	"	⅞"dia	19	
		Total Weight	3945	= 1T 9C 3Q 13lbs

All Rivet ⅞" dia except those in Lateral connections, Tie Plates and Bed Plates.

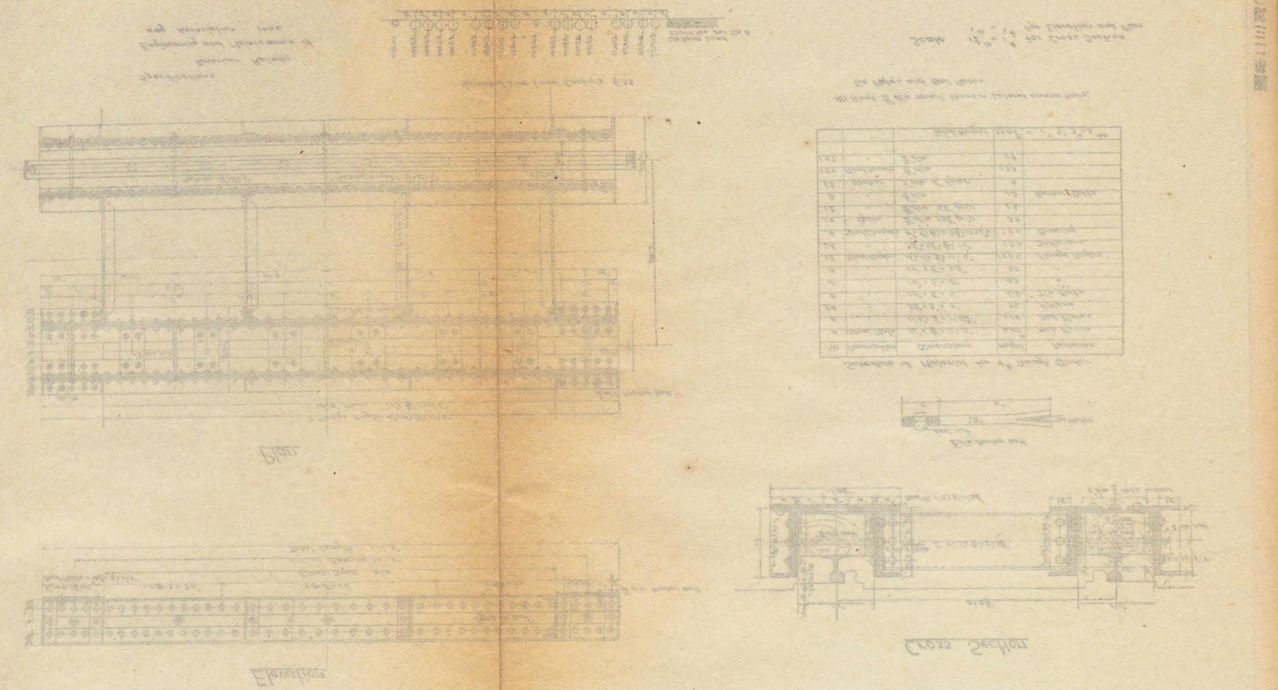
Specifications
American Railway
Engineering and Maintenance of way Association - 1906

Assumed Live Load Cooper's E33

Scale 1½"=1' for Cross Section
1"=1' for Elevation and Plan

圖第二三號（一）

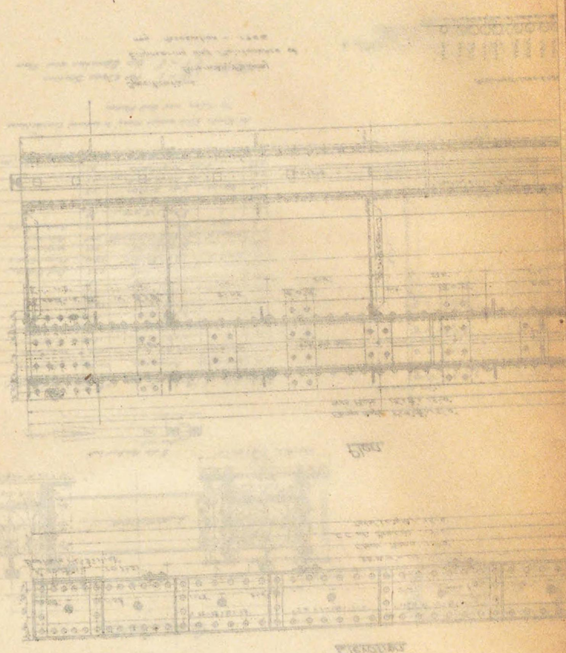
圖版二三號 (一)



Elevation

Cross Section

Elevation



Elevation

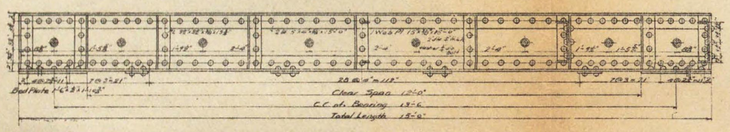
第三二號圖 (一)

第三二號圖 (二)

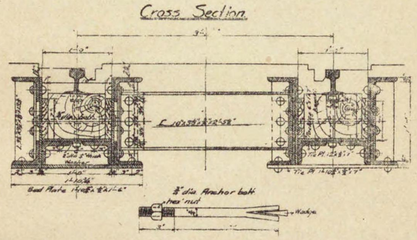
圖第二三號 (二)

12 ft. Span Trough Girder
for 12 ft. Subway at Passenger Station. (Jan. 1909)

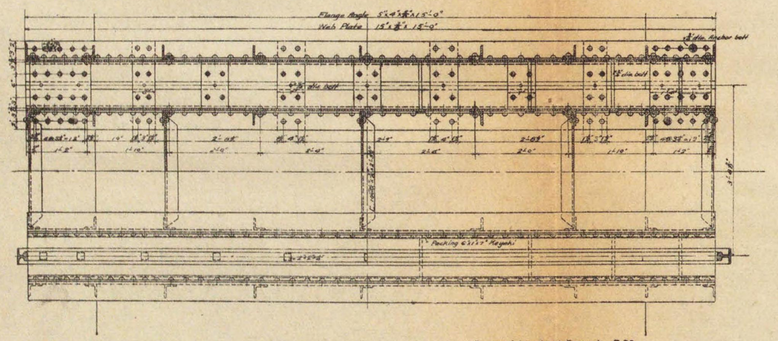
Elevation



Cross Section



Plan.



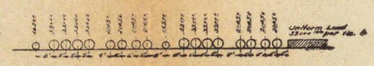
Schedule of Material for 12' Trough Girder.

No	Description	Dimensions	Weight	Remarks
2	Steel Pl.	13'-3/8" x 1'-8 1/16"	1106	Web Plates
24	"	2'-3/8" x 0'-3/8"	126	Fillers
16	"	1'-2 3/8" x 1'-0"	119	Tie Plates
8	"	6'-3 3/8" x 1'-0"	101	"
2	"	10'-3 3/8" x 1'-0"	169	"
4	"	6'-3 3/8" x 1'-10 3/8"	77	"
4	"	7'-3 3/8" x 1'-10 3/8"	90	"
2	"	12'-3 3/8" x 1'-10 3/8"	232	Bed Plates
12	Steel Ls.	5" x 3 1/2" x 15'-0"	2200	Flange Angles
24	"	20"-3 3/8" x 3/8"	350	Stiffeners
2	Steel F.	10"-3 3/8" x 3/8" x 5'-10" (Inserts)	204	Fillings
9	Bolts	7/8" dia.	15	Anchor bolts
16	"	3/4" dia. 1 3/8" grip	28	
22	"	3/4" dia. 7/8" grip	32	
104	Washers	2 dia. 3/4" thick	15	
540		3/4" dia. Rivet heads	127	
222		7/8" dia. Rivet heads	31	
		Total Weight	6121	2" to 2 1/2" thk.

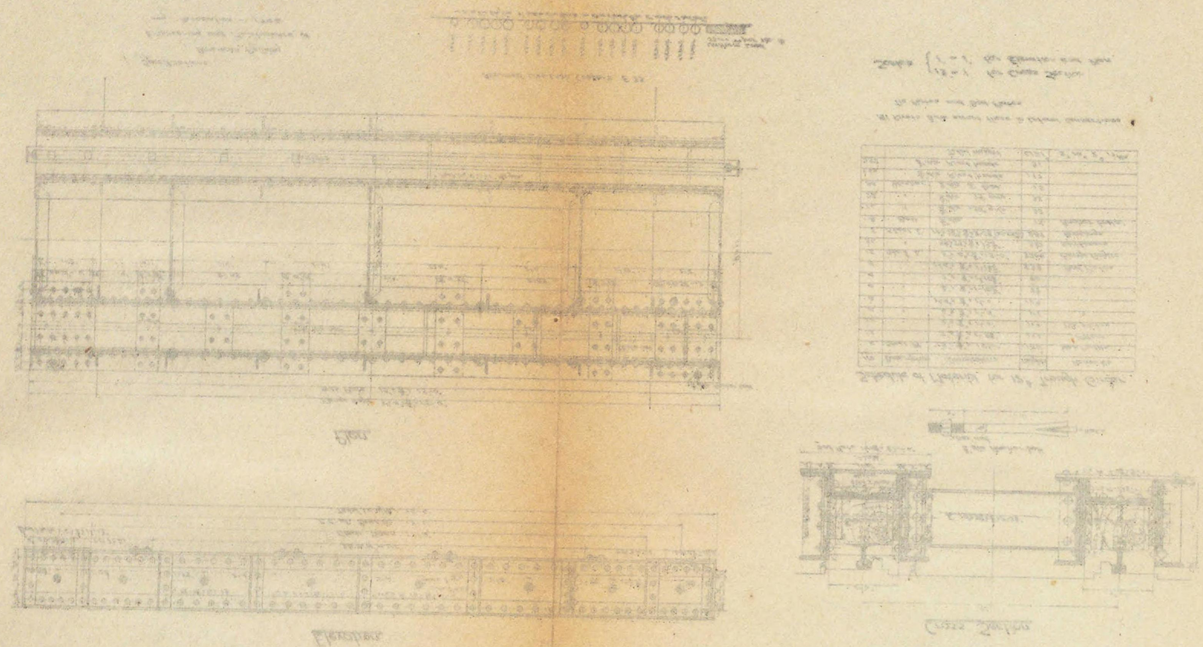
All Rivets 3/4" dia. except those in Lateral Connections Tie Plates and Bed Plates

Scales { 1" = 1' for Cross Section; 1" = 1' for Elevation and Plan

Specifications:
American Railway Engineering and Maintenance of way Association - 1906

Assumed Live Load Cooper's E 33

圖第二三號(二)

圖版十三



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圖第二四號（一）

圖第二三號（二）

圖第二四號 (一)

規定桁狀槽呎十二及呎八十、呎五十間徑

Standard Trough Girders for 15 ft. Span. 1909

Rivets: ⅞ in. diam.
Open Holes: ⅞ in diam., unless otherwise noted.
⊗ Countersunk other side.
□ Countersunk this side.
• Open Hole.

Assumed Wheel Loads: Cooper's Class E33.

Specifications: Am. Ry. Eng. & M. Way Association's (1906)

List of Materials.

Mk. No.	Description	Dimensions		Weight
A	Web	6-⅜	18'-6"	554 lbs.
B	Flange L's	6-6×4	18'-6"	2392.60
C	Inside L's	4-6×3½	18'-6"	947.80
D	Web Pls.	1-43×⅜	18'-6"	1556.96
16	End Stiffs.	2-33×⅜	1'-9⅜"	216.96
20	Int. Stiffs.	38-33×⅜	1'-3"	279.50
24	Fills	38-8	0'-8½"	151.72
4	Tie Pls.	6-⅜	2'-0½"	63.45
10	" "	7-⅜	2'-0"	88.20
8	" "	12-⅜	1'-6"	81.60
6	" "	7-⅜	2'-0½"	73.68
4	" "	6-⅜	1'-0"	38.60
2	Shoe Pl.	1-1390×335	2'-0½"	230.70
12	Anchor Bolts	1 dia.	1'-2½"	30.32
16	Nut Bolts	⅞ "	1'-8"	34.82
128	Nut Bolts	"	1'-0"	35.31
52	Washers	2¾" ⌀ thick		9.69
18	"	2¾" ⌀ thick		6.48
4	Bed Pls.	18-⅜	2'-0½"	252.45
1908	Rivet Heads	⅞" ⌀ Rivets		35203
		Total Weight		7466.36

18'-6" c.c. Girders

Web: 2 Pls. 18¾-⅜ - 18'-6"
Upper Flange: 2 Plates - 6-⅜ - 18'-6"
2 L's - 6-6×4 - 18'-6"
Lower Flange: 2 L's - 6-6×4 - 18'-6"
2 L's - 4-6×3½ - 18'-6"

8 End Stiffeners - 4-33×⅜ - 1'-9"
10 Int. " - 38-33×⅜ - 1'-3"
18 Fillers - 38-8 - 0'-8½"

Keyed Packing - 6 C.I.

Clear Span 15'-0"

Longitudinal Straps - 10"×10"

3½"×12" Bolster Sheet

Tie Pl. 7⅜-1'-0" Tie Pl. 7⅜-2'-0½" Tie Pl. 6-⅜-2'-0½" 18" to 1" Anchor Bolt

Tie Pl. 12⅜-1'-1"

Tie Pl. 7⅜-1'-0" Tie Pl. 6-⅜-1'-0"

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

Keyed Packing - 8-6×1

17'-10 3/4"-7-0⅜"

Bed Pl. 18-⅜-2'-0½"

3'-6⅜" c.c. Girders

Section A-A.

Section B-B.

Scale 1½" = 1'-0"

Nut Nut

Wedge

Anchor Bolt

Note: Use Sheet Lead ¼" thick between Bed Plate and Masonry.

圖第二四號(一)

圖第二四號 (11)

Standard Trough Girders for 18ft. Span. 1909

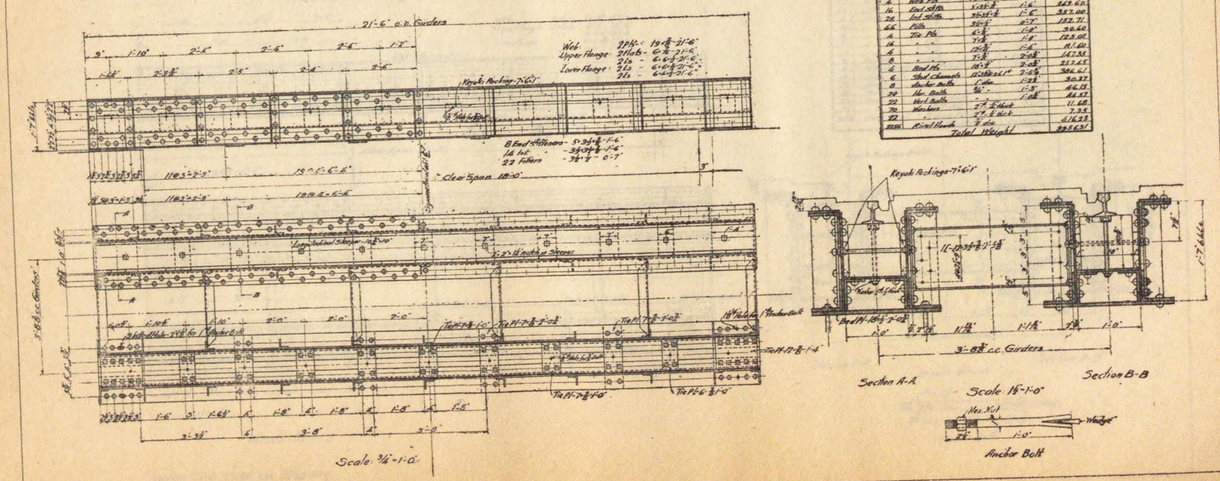
Specifications: Am. Ry. Eng. & M. Way Associations. (1906)

Rivets: ⅞ in diam.
Open Holes: ⅞ in diam. unless otherwise noted.
⊕ Countersunk other side.
⊓ Countersunk this side.
• Open Hole.

Assumed Wheel Loads: Cooper's Class E35

List of Materials

No. Pcs.	Description	Dimensions	Weight
4	Web	67/8 - 1/2 x 21'-6"	747.30
8	Flange Pls.	5 1/2 - 1/2 x 21'-6"	337.20
4	Inside Pls.	5 1/2 - 1/2 x 21'-6"	1323.20
4	Web Pls.	19 - 1/2 x 21'-6"	2068.66
16	End Stiffs.	3 1/2 - 1/2 x 1'-6"	849.60
28	Int. Stiffs.	3 1/2 - 1/2 x 1'-6"	847.00
44	Fills	3 1/2 - 1/2 x 0'-7"	152.71
4	Top Pls.	6 - 1/2 x 1'-6"	306.60
16	"	7 - 1/2 x 1'-6"	1785.60
8	"	19 - 1/2 x 1'-6"	1711.20
8	"	7 - 1/2 x 2'-6"	1477.50
4	Bed Pls.	16 - 1/2 x 2'-6"	2212.80
4	Shelf Channels	10 Lbs. per ft. x 21'-6"	344.40
8	Shelf Angles	4 x 3 - 1/2 x 21'-6"	1148.00
240	Shelf Bolts	7/8 x 2"	30.37
240	Nut Bolts	7/8	46.32
240	Nut Bolts	7/8	46.32
240	Washers	2 1/2" x 2 1/2" x 1/4"	11.28
32	Anchor Bolts	1" x 2'-0"	7.38
2000	Rivet Heads	7/8 dia.	614.28
		Total Weight	12,815.87

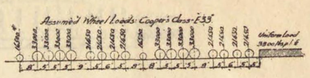


Notice Use Sheet Lead ⅛" thick between Bed Plate and Masonry

圖第十四號 (11)

Standard Trough Girders for 18ft. Span. 1909

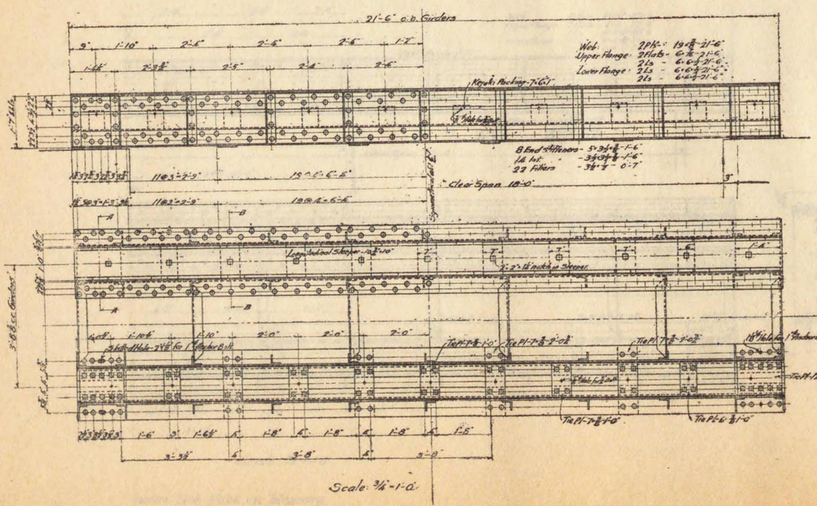
Rivets ⅞ in diam
Open Holes ⅞ in diam, unless otherwise noted
⊕ Countersunk other side.
⊓ Countersunk this side.
• Open Hole.

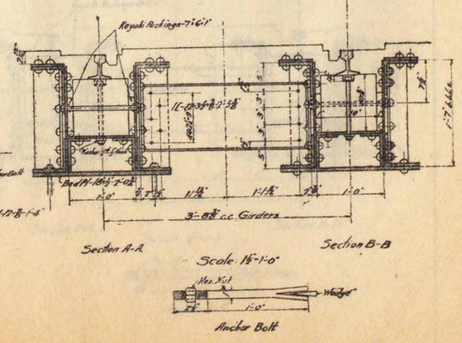


Specifications: Am. Ry. Eng. & M. Way Association's (1908)

List of Materials

No. Pcs.	Description	Dimensions	Weight
4	Web	67/16 - 7/16	76,736
8	Flange Pls	6x6½ - 7/16	33,120
4	Inside Pls	6x6½ - 7/16	13,248
4	Web Pls	78-1/8 - 7/16	28,464
14	Top Angles	3½x3½ - 7/16	9,408
28	Bot Angles	3½x3½ - 7/16	18,816
44	Plates	10x12 - 5/16	182,72
2	Top Pls	6x12 - 5/16	36,840
14	"	7x8 - 5/16	23,520
4	"	12x8 - 5/16	15,680
8	"	7x8 - 5/16	14,784
4	Bed Pls	18x8 - 5/16	22,560
4	Bed Channels	15" Wt 33	396,48
8	Anchor Bolts	1¼ dia - 1'-3"	80,32
20	Ins. Bolts	⅞ dia - 1'-3"	46,08
22	Web Bolts	⅞ dia - 1'-4"	46,32
28	Washers	2½ Plate	11,48
22	"	2½ Plate	7,33
2036	Rivet Heads	⅞ dia	6,624
		Total Weight	826,624

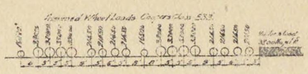




Note: Use Sheet Lead ⅛" thick between Bed Plate and Masonry

(11)

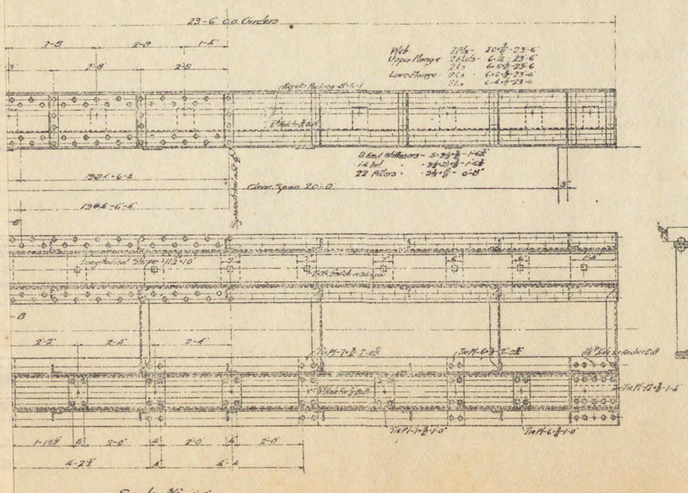
Standard Trough Girders For 20ft. Span. 1909.

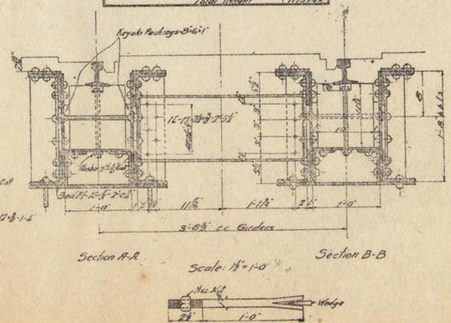


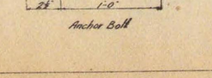
Specifications Railway Engineering Association. (1906)

List of Materials.

No. of Pcs.	Description	Dimensions	Weight
4	Web	0-5/8	23-6	1376.52
2	Flange Pl.	0-6/8	23-6	870.36
8	Angle Iron	6-0/8	23-6	1032.80
1	Web Pl.	20-3/8	23-6	2297.08
14	Rivets	2-3/8	1-0/8	260.00
20	Ins. Splice	24-3/8	1-0/8	497.00
16	Cap	0-11/8	0-8	210.24
8	Tie Pls.	0-5/8	1-0	61.26
16	"	2-5/8	1-0	83.30
6	"	10-5/8	0-8	81.60
4	"	0-5/8	2-0/8	43.11
4	"	2-5/8	2-0/8	74.67
4	Bed Pls.	10-3/8	2-0	212.40
4	Bed Channels	21.20 lbs/ft	2-0	338.87
8	Rocker Bolts	1 dia.	1-2/8	30.32
24	Nut Bolts	1"	1-0	46.8
24	Nut Bolts	1-1/8	1-0	64.32
24	Washers	2-1/8 Wid.		10.08
24	"	2-1/8 Wid.		7.20
2668	Rivet Heads	1/8 Diam. Rivets		63.140
		Total Weight		11743 lbs



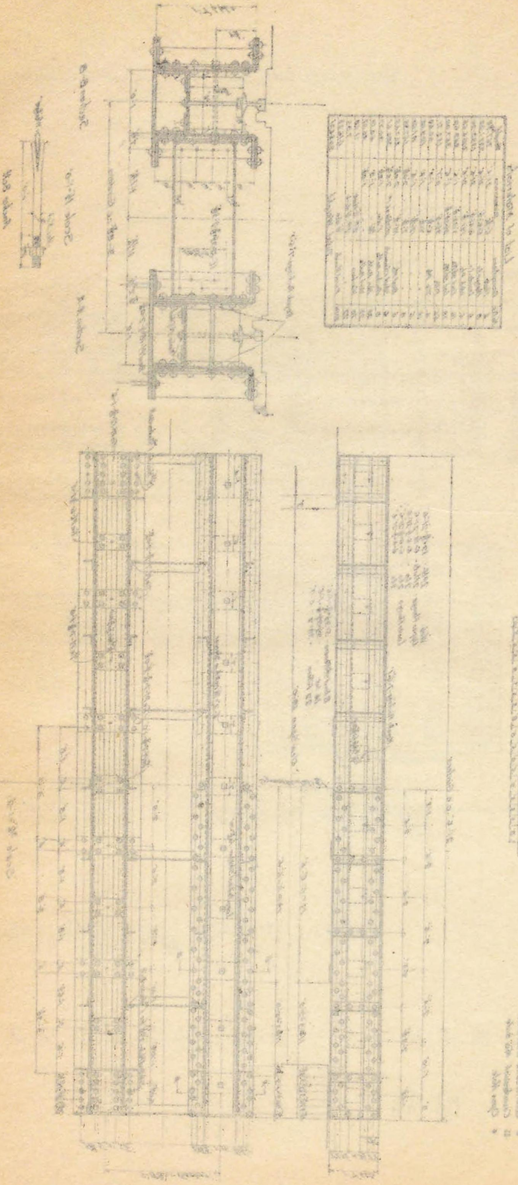




tween Bed Plate an Masonry.

圖第四十一號(一)

Standard Trough Girders for 20ft. Span. 1902.



Note: Use 1 Sheet Leading if thick between Bed Plate on Masonry.

圖第四十一號(二)

Standard Trough Girders for 18ft. Span. 1902.

Note: Use 1 Sheet Leading if thick between Bed Plate on Masonry.

Stand

Rivets ⅞" ϕ in diam except in Flanges of I Beams where ¾" ϕ in diam Rivets are to be used
ϕ of Holes: 15/16 in diam for ⅞ in Rivets. 13/16 in diam for ¾ in R
⊖ Countersunk otherside
● Open Holes

of Materials

ght	No.	Descriptions	Dimensions		Weight
lbs.					lbs.
13.53	4	Flg Angles	6"×6"×⅞"	11'-1"	54.97
63.65	1	W.B. Pl	17"×⅜"	11'-10"	267.79
63.78	4	L's	3½"×3½"×⅜"	0'-7"	12.82
96.02	4	L's		0'-7"	23.50
12.83	2	Pls	10½"×⅜"	1'-1"	30.13
13.13					877.97
49.82			Stringers		
30.37	1	I Beams	10 @ 21.6#	2'-2"	218.32
47.48	4	L's	6"-6"×½"	0'-8"	48.71
120.13					267.03
			End Stringers		
100.58	1	I Beam	10 @ 21.6#	0'-8"	28.22
99.16	2	L's	6"-6"×½"	0'-8"	99.36
					51.30
19.83			Total Weight		
3.32	2	Girders			6840.46
28.80	4	Lateral's			315.56
		Ant Pls			233.07
	5	Flg Beams			4-164.35
52.16	5	Stringers			2136.24
11.26	5	End Stringers			210.32
55.27	4	Bed Pl	15'-3"	1'-4"	232.92
39.07	1888	Rivet Heads	35¢ 33¢ 15¢ 6¢	Total	711.02
					15136.51

Assumed Wheel Load 79.65

8' 5' 5' 5' 9' 6'

T@ 5'-1·9" B@ 7½'-2·4"

5'-4½" cc FBs

T@ 2'-8½" 2'-8½"

Web Pl 38" Cols 5'-1·5" 10 @ 3½"=2'-11"

Cov Pl-10½"×⅜"×2'-3½"

12'-0" c.c. Girders

Gusset detail

A L

Sole Pl-12½"×⅜"×1'-4½"

Bed Pl-15"×⅜"×1'-4"

Cov Pl-10"×⅜"×1'-4"

2 L's 3½"×3½"×·37"

8 @ 1'-3·8"

1'-4"

2'-4½"

5-0" c.c. Stringers

1½"ϕ Slotted Holes in Sole Pl thru
¾" ϕ Holes in Sole Pl other end

r Beam

Pl-9½"×⅜"×1'-1"

cc FBs

12'-0" c.c. Girders

10'-0" c.c. Stringers

te Stringers

圖第二五號(一)

Rivets 15" $\frac{7}{8}$ in diam except in Flanges of I Beams where $\frac{3}{4}$ in diam Rivets are to be used
C.F.C.F. Holes $\frac{15}{16}$ in diam for $\frac{7}{8}$ in Rivets. $\frac{13}{16}$ in diam for $\frac{3}{4}$ in R
◎ Countersunk otherside
● Open Holes

Stand

f Materials

ight	No.	Descriptions	Dimensions		Weight
lbs.					lbs.
			Floor Beams		
13.53	4	Flg Angles	7"×7"×⅞"	11'-1"	5429.73
13.65	1	Web Pl	17"×⅜"	11'-10"	267.79
63.78	8	Ls	3½"×3½"×⅞"	0'-7"	1282
86.02	6	Ls		0'-7"	25.50
42.83	2	Pls	10½"×⅜"	1'-12"	30.13
13.75					837.97
48.82			Stringers		
30.37	1	I Beam	10"@25#	5'-2⅜"	210.32
47.48	4	Ls	6"-6"×½"	0'-8½"	48.71
120.17					267.03
			End Stringers		
	1	I Beam	12"@42#	0'-8½"	28.22
100.58	2	Ls	6"-6"×½"	0'-8½"	24.36
29.16					52.58
13.83			Total Weight		
3.32	2	Girders			6840.46
28.82	4	Laterals			315.56
		Knee Pls			239.07
	5	Flr. Beams			4164.85
52.54	8	Stringers			2136.24
31.26	4	End Stringers			210.32
33.27	4	Bond Pls	15"×⅜"	1'-4"	237.22
39.07	1888	Rivet Heads	33½ 33½ 16 for Floor		711.92
			Total		13136.99

Assumed Wheel Load

8'-5" 5" 5" 8" 7'-6"

7@3'-1·9" 8@3'-2·4"

3'-4" c.c. F.Bs.

2'-8⅜" 2'-8⅜"

6@3'-2·11" 12'-0" c.c. Girders

Cov. Pl-10⅝"×2'-2"

Sole Pl-10⅝"×1'-4" Bed Pl-15⅜"×1'-2" Cov. Pl-10

2'-4" 5'-0" c.c. Stringers

Slotted Holes in Sole Pl thus
dia. Holes in Sole Pl other end

Pl-3½"×1'-1"

c.c. F.Bs.

12'-0" c.c. Girders

5'-0" c.c. Stringers

圖第二五號(一)

規定桁版鋼型「ルース」(一)

圖第二五號

All Rivets ¾" in diam except in Hinges of I Beams where ⅞" in diam Rivets are to be used.
Open Holes ⅞" in diam for ¾" in Rivets. 1" in diam for ⅞ in Rivets, unless otherwise noted.
Countersunk other side
Open Holes

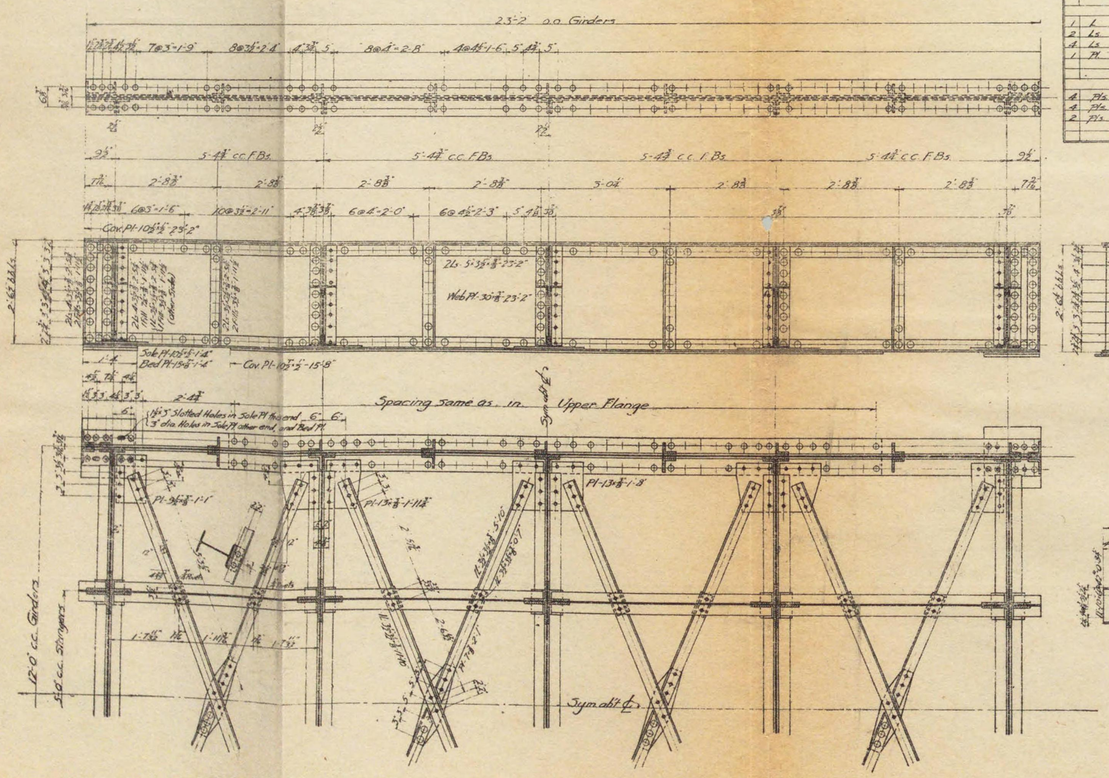
Standard Steel Through Plate Girders for 20 ft. Span. 1909

Scale ¾" = 1'-0"

Assumed Wheel Loads: Cooper's Class "E35"

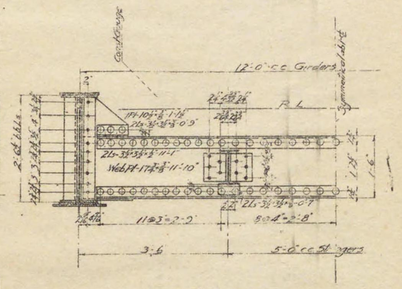
Uniform Load 3200 lbs per Ft.

Specifications: Am. Ruwy. Eng. & M. Way Associations (1906)

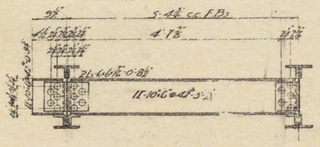


List of Materials

No.	Descriptions	Dimensions	Weight lbs.	No.	Descriptions	Dimensions	Weight lbs.
		Main Girder				Floor Beam	
1	Cov. Pl.	10½"×¾" 23'-2"	413.53	4	Rivet Heads	¾" Rivets 11'-1"	549.73
1	"	" 13'-8"	279.65	1	Web Pl.	17½"×⅜" 11'-10"	267.79
4	Flange Le	5"×3½"×⅞" 23'-2"	963.78	4	Le	3"×3"×⅜" 0'-7"	13.82
1	Web Pl.	30"×⅜" 23'-2"	836.82	4	Le	" 0'-3"	23.50
16	Stiffeners	4"×3½"×⅜" 2'-5½"	312.83	2	Pls	10½"×⅜" 1'-11"	30.13
13	"	3½"×3½"×⅜" 2'-5½"	273.75				892.97
17	Fillers	2½"×⅜" 1'-11"	148.82			Stringers	
3	"	7½"×⅜" 1'-11"	30.27	1	I Beam	10.0 lbs 5'-2½"	218.32
2	Sole Pls.	12½"×⅝" 1'-4"	47.68	4	Le	6"×6"×½" 0'-8½"	48.71
			3420.23				267.03
						End Stringers	
		Laterals		1	T Beam	10.0 lbs 5'-2½"	28.22
1	L	3½"×3½"×⅜" 11'-10"	100.58	2	Le	6"×6"×½" 0'-8½"	24.76
2	Le	" " 5'-10"	29.16				52.98
4	Le	" " 0'-7"	12.83			Total Weight	
1	Pl.	⅜"×8" 2'-1"	3.32	2	Girders		6840.46
			228.89	4	Lateral Le		315.36
		Latteral Pls			Lat. Pls.		233.07
				5	Flr. Beams		4464.85
4	Pls.	⅜"×8" 1'-1"	52.54	6	Stringers		1136.24
9	Pls.	" 1'-11"	131.26	4	End Stringers		210.32
2	Pls.	" 1'-8"	33.27	4	Rod Pl.	15"×⅞" 1'-4"	232.32
			239.07	1881	Rivet Heads	¾" Rivets in Girders	716.92
						Total	13136.77

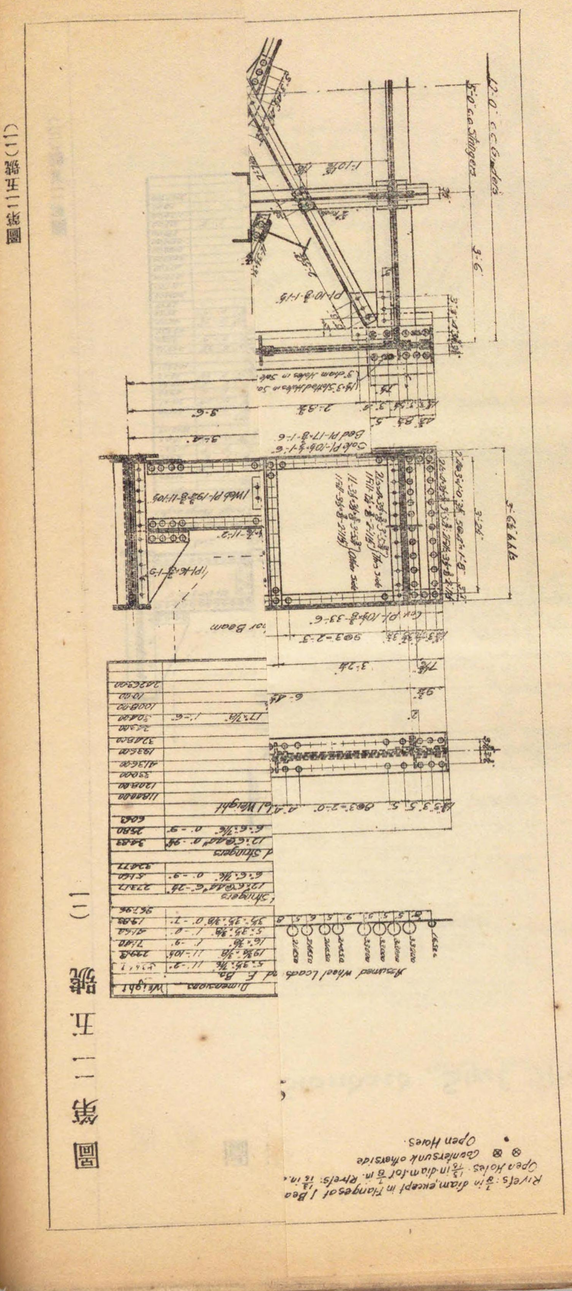


Floor Beam



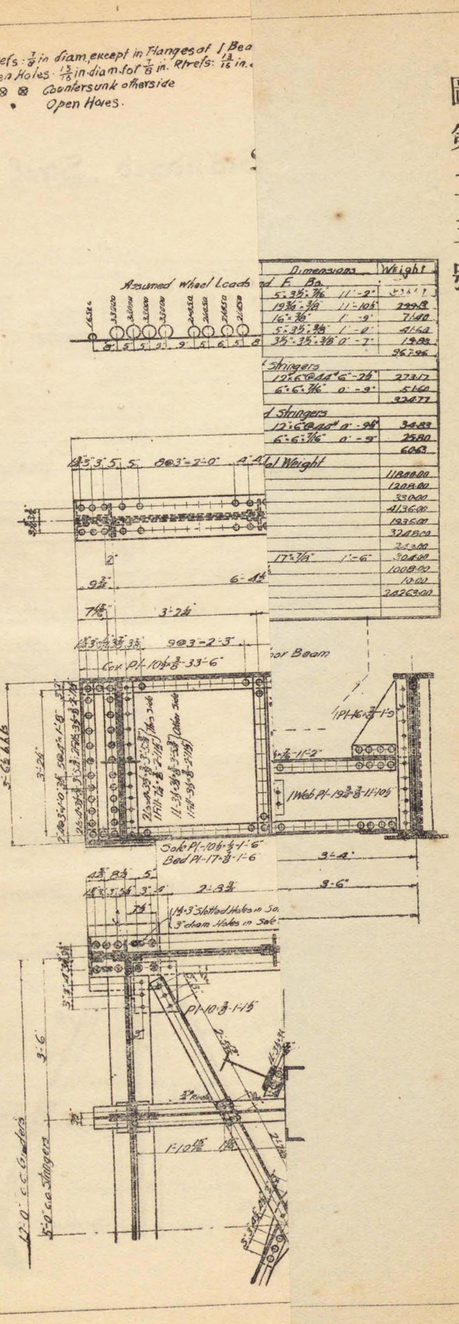
End and Intermediate Stringers

圖第二五號（二）



圖第二五號（一）

圖第二五號（二）



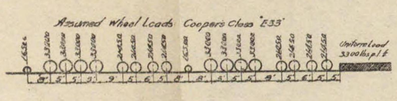
圖第二五號（二）

Rivets: $\frac{7}{8}$ in diam, except in Flanges at I Beams, where $\frac{3}{4}$ in. diam. Rivets are to be used.
Open Holes $\frac{13}{16}$ in diam for $\frac{7}{8}$ in. Rivets: $\frac{15}{16}$ in diam for $\frac{3}{4}$ in. Rivets, unless otherwise noted.
⊗ ⊗ Countersunk other side
• Open Holes.

Standard Steel Through Plate Girders for 30 ft. Span. 1909

Scale: $\frac{3}{4}$"-1'-0"

Assumed Wheel Loads Coopers Class "E35"

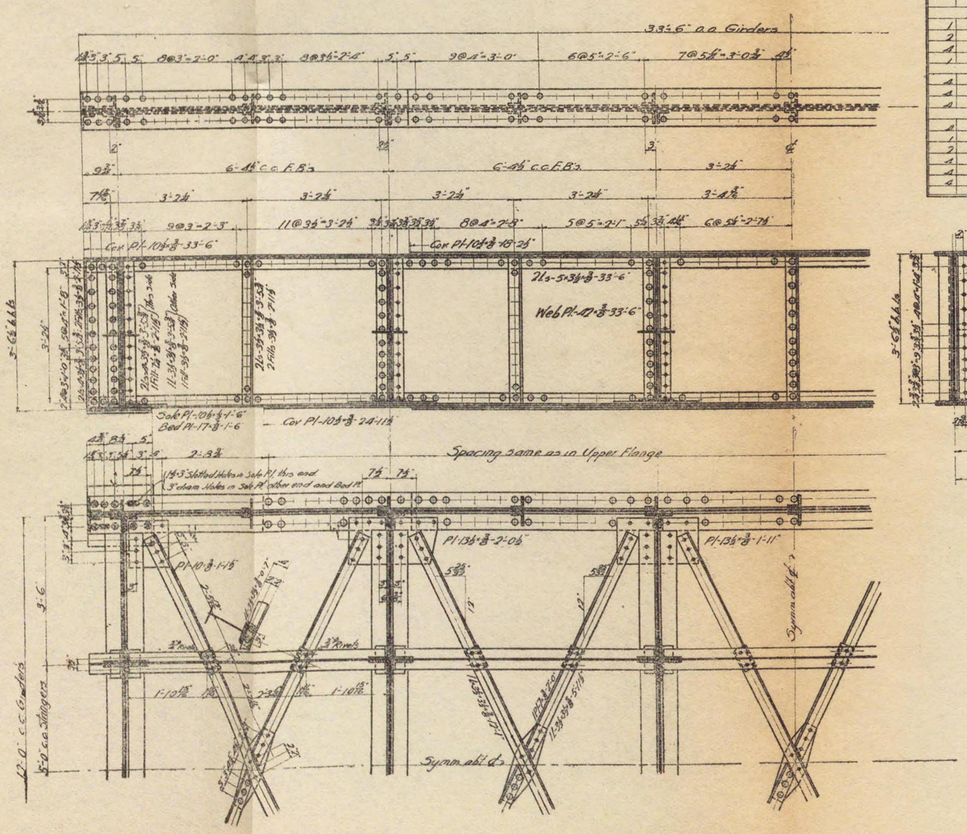


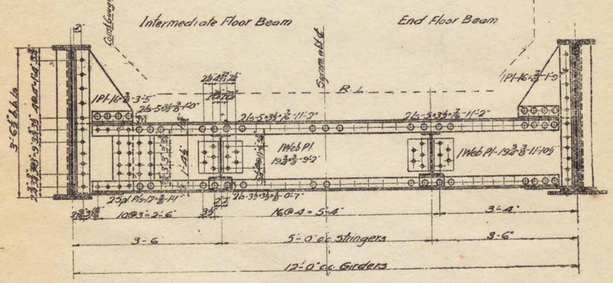
Specifications: Am. Ry. Eng. & M. Way Associations. (1906)

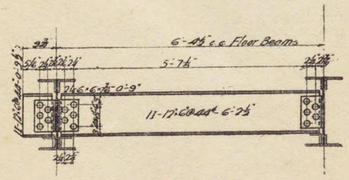
List of Materials.

Mark	Description	Dimensions		Weight
	Girders			
1	Cov. pls.	10"-5/16"	33'-6"	448.57
1	" "	10"-3/8"	24'-11½"	331.13
2	Cap. pls.	10"-3/8"	18'-2½"	187.62
4	Flange Ls.	5"-3½"-3/8"	33'-6"	1393.60
1	Web pl.	42"-3/16"	33'-6"	1774.26
16	Stiffs.	4"-3½"-3/8"	1'-5½"	106.56
16	"	3½"-3½"-3/8"	2'-2½"	473.28
20	Fills.	3½"-3/8"	2'-11½"	264.45
6	"	7½"-3/8"	2'-11½"	166.17
2	Sole pls.	10½"-½"	1'-6"	53.55
				5920.09
	Laterals			
1	L.	3½"-3½"-3/8"	12'-1"	107.71
2	Ls.	3½"-3½"-3/8"	5'-11½"	101.29
4	Ls.	3½"-3½"-3/8"	0'-2"	19.83
1	pl.	7"-3/8"	2'-0"	12.80
	Lateral pls.			241.63
2	pls.	10"-3/8"	1'-1½"	57.38
4	"	13½"-3/8"	2'-0½"	140.63
4	"	13½"-3/8"	1'-11"	137.62
	Int. F. Bs.			335.03
4	Ls.	5"-3½"-3/8"	11'-2"	53.01
1	Web pls.	10⅝"-3/8"	9'-3"	23.09
2	pls.	16"-3/8"	8'-5"	139.81
4	"	12"-3/8"	1'-1"	66.33
4	Ls.	5"-3½"-3/8"	1'-0"	41.63
4	"	3½"-3½"-3/8"	0'-7"	19.83
				103.407

Mark	Description	Dimensions		Weight
	End F. Bs.			
4	Ls.	5"-3½"-3/8"	11'-2"	53.01
1	Web pl.	13⅜"-3/8"	11'-10½"	229.8
2	pls.	16"-3/8"	1'-9"	7.48
4	Ls.	5"-3½"-3/8"	1'-0"	41.63
4	"	3½"-3½"-3/8"	0'-7"	19.83
				351.96
	Int. Stringers			
1	I-Beam	12"x6"@42.5#	6'-2½"	27.37
4	Ls.	6"-6"-7/16"	0'-9"	5.160
				32.477
	End Stringers			
1	I-Beam	12"x6"@42.5#	0'-9"	34.83
2	Ls.	6"-6"-7/16"	0'-9"	25.80
				60.63
	Total Weight			
2	Girders			11888.08
5	Laterals			1208.82
2	Lateral pls.			335.00
2	Int. F. Bs.			412.06
2	End F. Bs.			192.60
10	Int. Stringers			324.80
4	End Stringers			242.52
2	End Floor Beams	17"-7/16"	1'-6"	504.00
5664	⅞" ϕ Rivet heads			1008.00
180	¾" ϕ " "			10.02
				2482.60

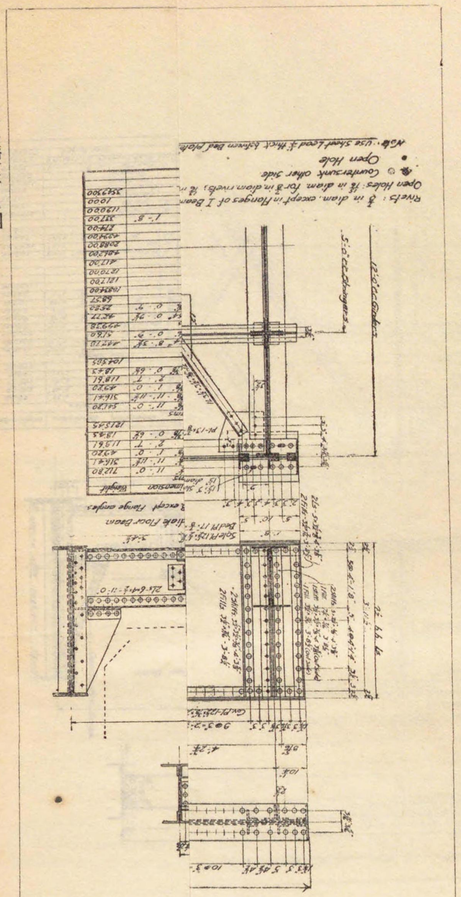




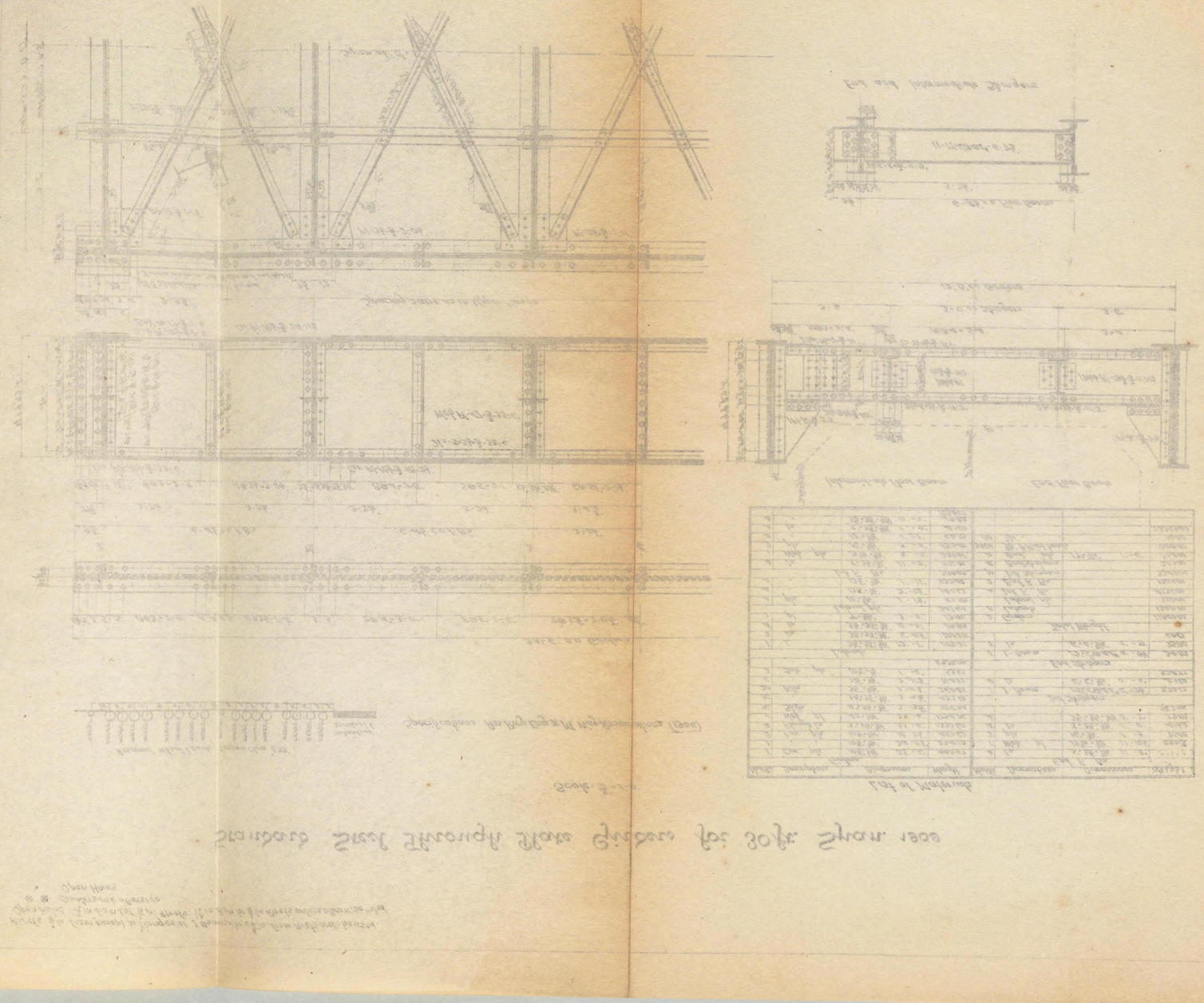


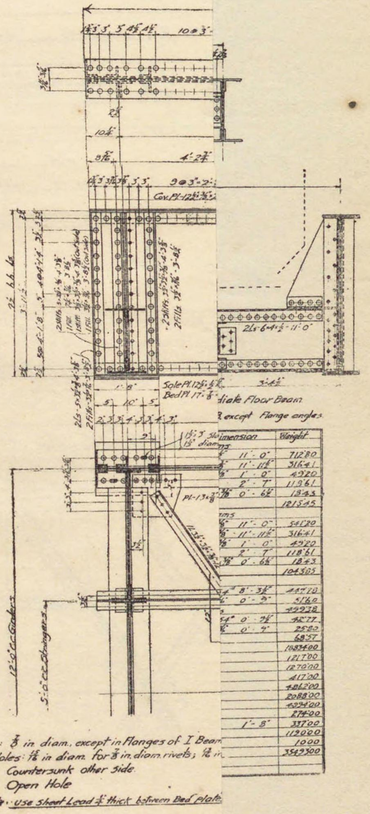
End and Intermediate Stringers

圖版拾壹(三)



圖版拾貳(三)




Rivets: ⅞ in. diam. except in flanges of I Beam
Open Holes: ⅛ in. diam. for ⅞ in. diam. rivets; ¹⁵/₁₆ in.
Countersunk other side
Open Hole
Note: Use Sheet Lead ⅛ thick between Bed Plate

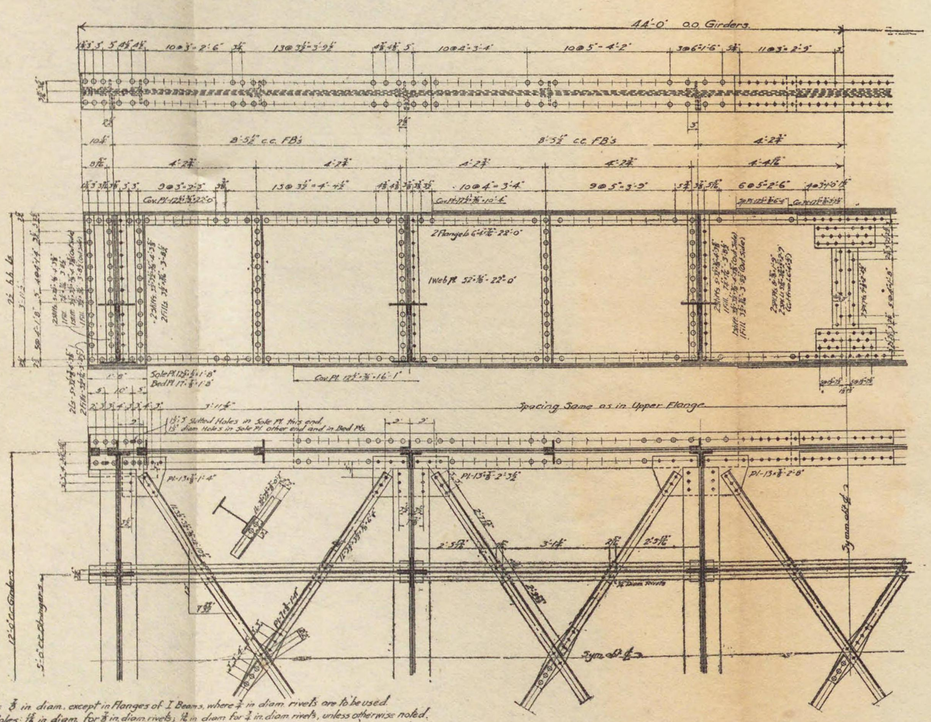
圖第二十五號(三)

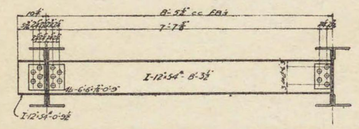
Standard Steel Through Plate Girders for 40ft Span. 1909.

Scale ⅜"-1'0

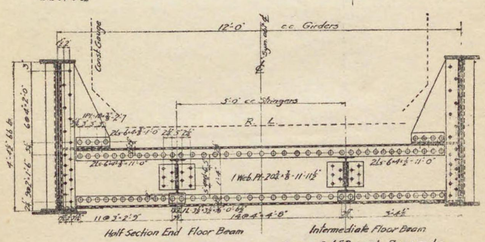
Assumed Wheel Loads - Cooper's Class "E 33"

Specifications: Am. Ry. Eng. & M. Ways Association's (1906)





Half Section End Floor Beam



Intermediate Floor Beam

Same as End F.B. except Flange angles

Rivets: ⅞" in diam., except in flanges of I Beams, where ¾" in diam rivets are to be used.
Open Holes: 1⅛" in diam. for ⅞" in diam rivets; 1" in diam for ¾" in diam rivets, unless otherwise noted.
⊕ Countersunk other Side
• Open Hole
Note: Use Sheet Lead ⅛" thick between Bed plates & Masonry

List of Materials

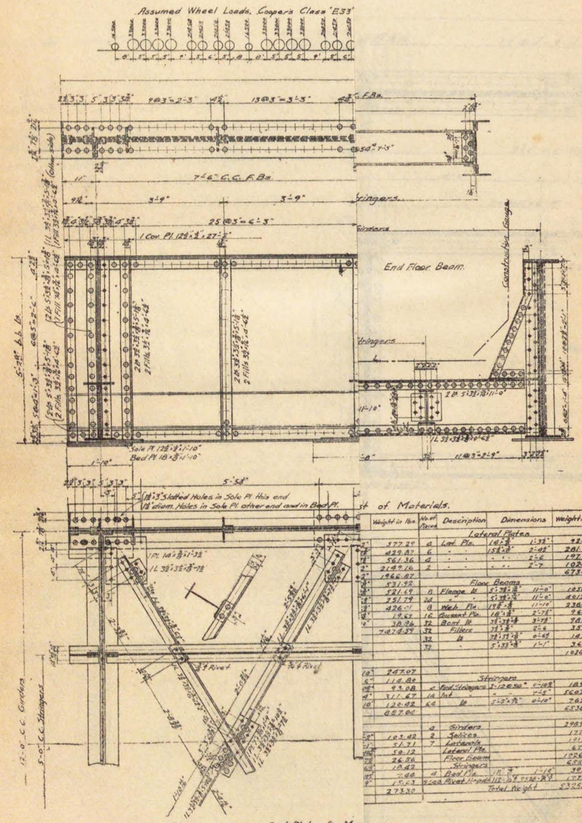
Mark	Description	Dimensions		Weight
	Girders			
1	Cov. Pl.	12½"x⅞"	27'-0"	1906 8
1	"	"	16'-1"	1136 38
2	"	"	10'-4"	727 42
4	Flange Ls.	6"x4"x⅞"	29'-0"	1228 40
1	Web Pl.	52"x⅜"	22'-0"	1457 04
18	Stiffeners	5"x3½"x⅜"	4'-3½"	35 73
9	"	3½"x3½"x⅜"	4'-3½"	32 91 0
11	Fills	7½"x⅜"	3'-8½"	212 72
3	"	7½"x⅜"	3'-8½"	77 92
1	Sole Pl.	12½"x⅝"	1'-8"	35 42
				6702 84 1
	Splices			
2	Spl. Pls.	12½"x⅜"	6'-4"	201 90
2	Cov. Pls.	12½"x⅜"	3'-2½"	100 28
4	Spl. Pls.	8"x⅜"	1'-3"	31 40
2	"	5"x⅜"	2'-4½"	44 53
4	Spl. Ls.	6"x4"x⅜"	2'-7"	178 20
				6087 31
	Laterals			
1	L	3½"x3½"x⅜"	12'-10⅝"	102 44
2	Ls.	3½"x3½"x⅜"	6'-4"	101 66
4	"	3½"x3½"x⅜"	0'-3"	19 82
1	Pl.	7"x⅜"	1'-11"	17 12
				2168 08
	Lateral Pls.			
10	pls.	15"x⅜"	1'-4"	88 40
10	"	13"x⅜"	2'-3½"	192 01
16	"	12"x⅜"	2'-8"	176 88
				4172 9

Mark	Description	Dimension		Weight
	Int. Floor Beams			
4	Ls.	6"x4"x⅞"	11'-0"	712 80
1	Web pl.	70½"x⅜"	11'-11⅝"	314 61
2	Pls.	6"x⅝"	1'-0"	40 20
2	Pls.	18"x⅝"	2'-7"	110 41
4	Ls.	3½"x3½"x⅜"	0'-6¾"	13 43
				1211 45
	End Floor Beams			
4	Ls.	6"x4"x⅞"	11'-0"	594 00
1	Web pl.	70½"x⅜"	11'-11⅝"	314 61
4	Ls.	6"x4"x⅝"	1'-0"	40 20
2	Pls.	18"x⅝"	2'-7"	118 41
4	Pls.	3½"x3½"x⅜"	0'-6¾"	18 43
				1065 85
	Int. Stringers			
1	I. Beam.	12"@54"	8'-3½"	447 10
4	Ls.	6"x4"x⅝"	0'-2"	5 26
	End Stringers			452 36
1	I. Beam.	12"@54"	0'-7½"	116 77
2	Ls.	6"x4"x⅝"	0'-7"	11 70
	Total Weight			128 47
4	Girders			1085 68
8	Splices			131 80
5	Laterals			127 00
	Lateral pls.			41 30
	Int. Fl. Bs.			401 20
2	End Fl. Bs.			208 30
10	Int. Stringers			452 00
4	End Stringers			128 00
4	Bed Pls.	17½"x⅞"	1'-8"	33 20
664	⅞" ϕ Rivet heads			173 00
80	¾" ϕ Rivet heads			13 00
				3549 00

圖第二五虎

Rivets: ⅞ in. dia. except in the flange of I-beams, where
Open Holes; 15/16 in diam. for ⅞ rivets, 1⅛ in diam. for ¼

● ⊗ Countersunk other side
• Field Rivets



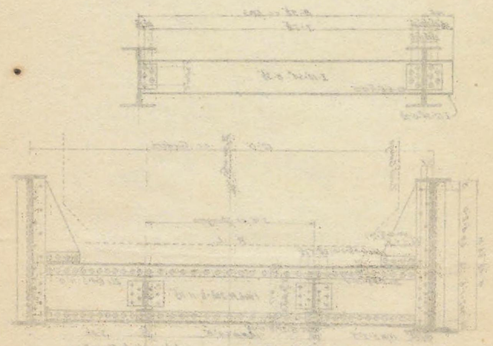
Bill of Materials.

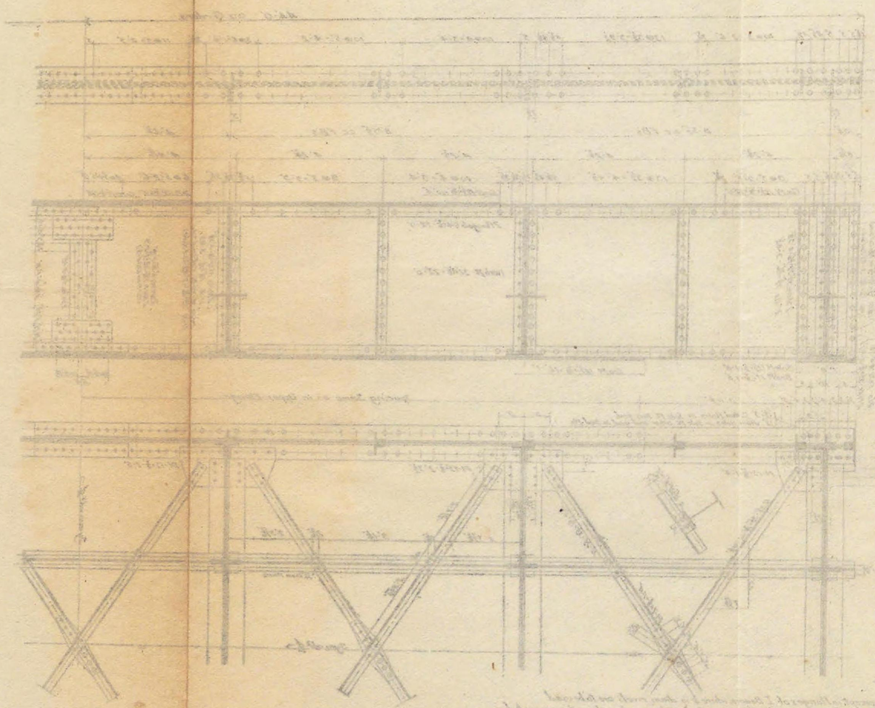
	Weight in lbs.	No. of Pieces	Description	Dimensions		Weight in lbs.
			Lateral Plates.			
A	377.27	4	Lat. Pls.	16"-0"	11'-3"	92.28
B	428.87	6	"	15"-0"	2'-0"	261.72
C	561.36	4	"	"	2'-6"	197.70
D	2149.26	2	"	"	7'-7"	1052.65
E	1366.87					673.05
	321.92		Floor Beams.			
G	321.19	2	Flange Pl.	12"-3½"	11'-3"	1036.00
H	321.19	14	"	12"-3½"	11'-3"	4612.86
I	424.41	8	Web Pls.	12"-3"	11'-7"	3368.62
J	12.43	16	Gusset Pls.	10"-0"	2'-7"	264.32
K	38.96	72	Rivet Pl.	11"-10"	3'-7"	726.00
L	742.29	32	Fillers	12"-0"	6'-6"	3276.60
		32	"	12"-11½"	6'-6"	1672.32
		72	"	5"-11½"	1'-7"	760.32
						1926.00
	767.07		Stringers			
A	114.86	4	End Stringers	1'-10.25"	6'-10"	183.00
B	93.08	4	"	"	5'-6"	1507.03
C	377.47	14	Int.	"	6'-10"	762.64
D	120.92	40	"	1'-10.75"	6'-10"	4730.67
	687.86					
		4	Strikers			2498.00
	103.42	2	Sole Pls.			1334.00
	57.11	2	Bed Pls.			1113.00
	98.12		Lateral Pls.			670.00
	24.84		Floor Beams			1026.00
	10.42		Stringers			670.00
	.68	4	Rest Pls.	1'-3"	1'-1½"	190.00
	17.3	9	268 Rivet Heads	1½" DIA. TYPE-KY		1172.00
	277.30			Total Weight		23.052.67

Note; Use Sheet Lead ¼" thick between Bed Plate & Mas

圖第二五號(四)

(三) 圖第二五虎

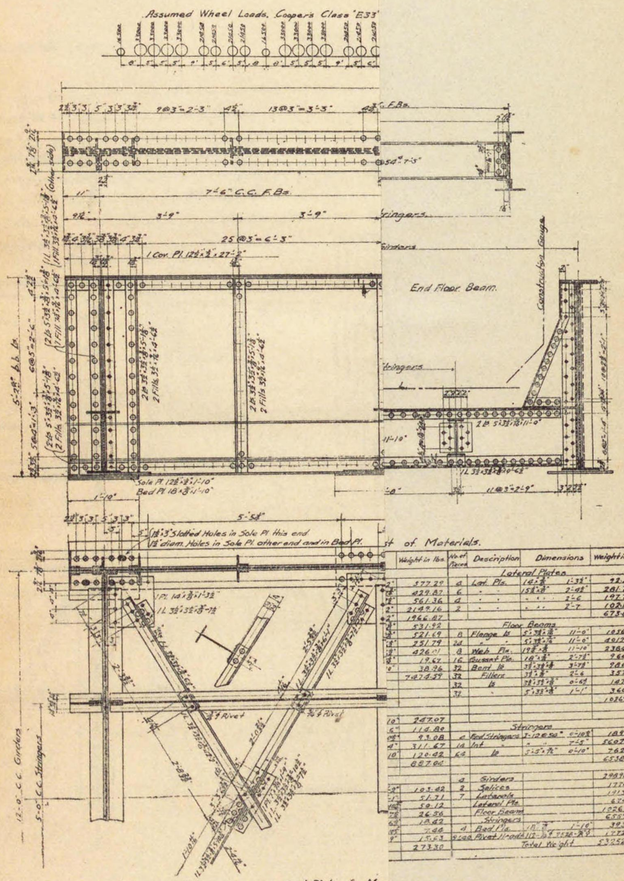




圖第二五號(四)

Rivets: ⅞ in. dia. except in the flange of I-beams, where
Open Holes; 15/16 in diam. for ⅞ rivets, 1 1/16 in diam. for ¾ r

● ⊗ Countersunk other side
• Field Rivets



Note; Use Sheet Lead ⅛" thick between Bed Plate & Mas

st of Materials.

Weight in lbs	No. of Pieces	Description	Dimensions		Weight in lbs.
			Lateral Plates		
377.20	8	Lat. Pls.	12⅞" × ⅞"	11'-3"	2210
429.82	6	"	15⅞" × ⅞"	2'-0½"	201.78
56.36	4	"	" "	2'-6"	187.75
2249.76	2	"	" "	2'-7"	1081.5
1966.87					6273.05
521.93			Floor Beams		
521.19	8	Flange Pls.	12"×⅞"	11'-0"	1076.00
251.78	12	"	12"×½"	11'-0"	4613.80
426.11	8	Web Pls.	18⅞"×⅜"	11'-6"	2366.60
12.67	12	Bracket Pls.	18"×⅜"	2'-2½"	164.32
28.74	12	Bent Pls.	19 3/16"×⅜"	3'-7"	986.62
7814.27	72	Fillers	18"×⅜"	6'-6"	3374.40
	32	"	18"×7/16"	6'-6"	1873.6
	12	"	18"×⅜"	1'-4"	360.36
					18249.80
24707			Stringers		
116.86	2	End Stringers	2"×28 lbs"	6'-10⅝"	189.00
83.08	12	Int.	"	7'-6"	1507.92
311.67	16	"	12"×⅜"	6'-10"	7422.68
122.42	44	"	12"×⅜"	6'-10"	6530.67
687.86					
	4	Struts			29838.00
102.42	2	Splices			1774.00
51.71	2	Latterals			1713.36
28.12		Lateral Pls.			6700.00
2626		Floor Beams			12969.00
15.82		Stringers			6529.00
2.46	4	Bed Pls.	18"×⅞"	1'-10"	387.00
1512		Web Rivets	1 and 11/16" × ⅞"		1773.00
27330			Total Weight		53052.00

Note: Use Sheet Lead ⅛" thick between Bed Plate & Masonry.

圖第二五號(四)

圖第二五號(三)

(三)

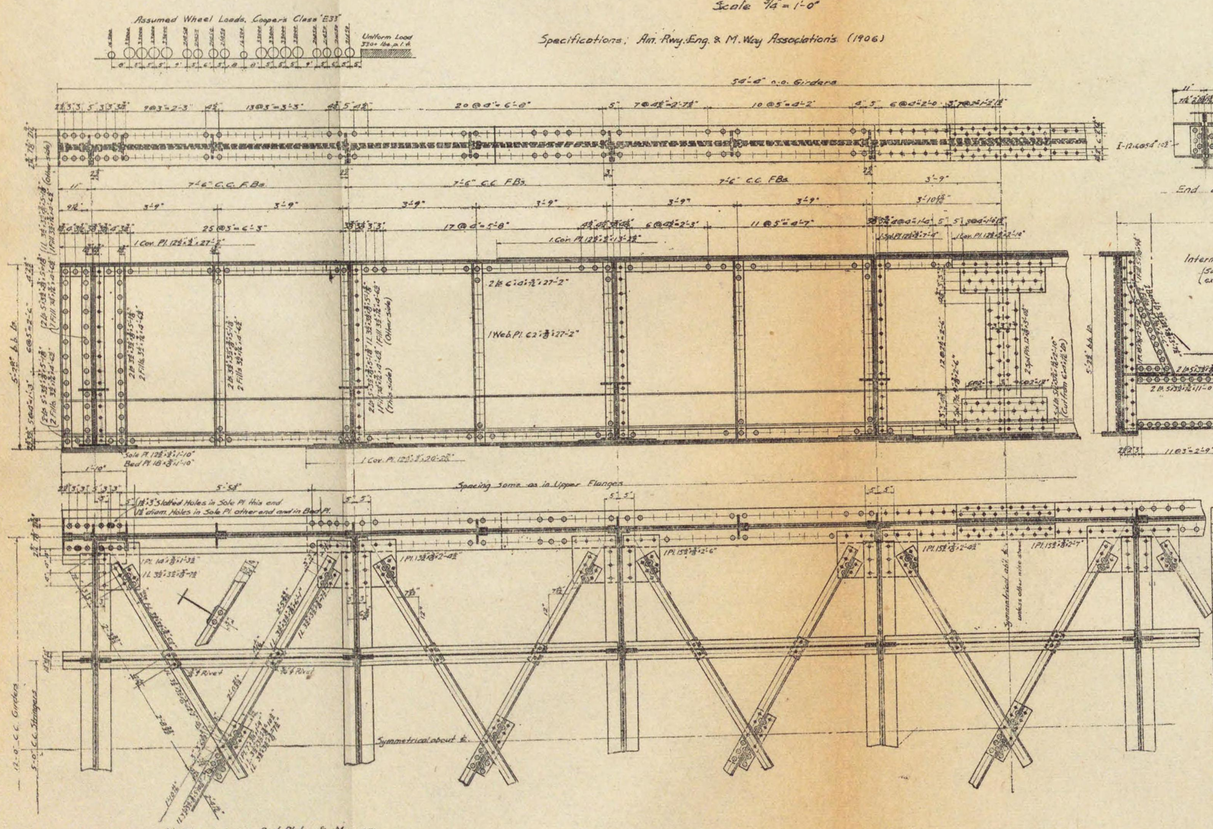
Rivets: ⅞ in. dia. except in the flange of I-beams, where ⅞ in. dia. rivets are used.
Open Holes; 15/16 in diam. for ⅞ rivets. 13/16 in diam. for ¾ rivets

● ⊗ Countersunk other side
• Field Rivets

Standard Steel Through Plate Girders for 50ft. Span. 1909

Scale ⅜" = 1'-0"

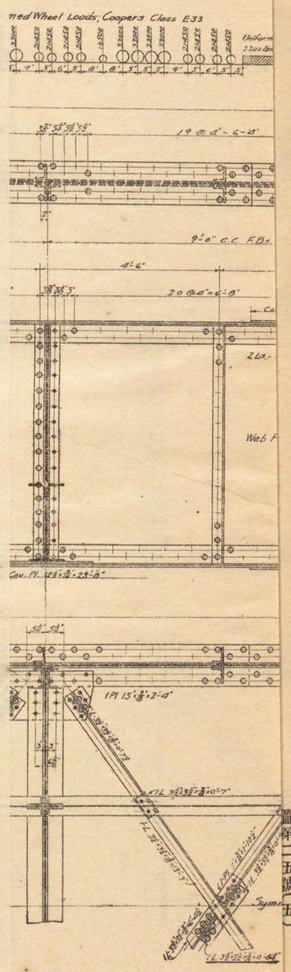
Specifications; Am. Ry. Eng. & M. Way Associations (1906)



List of Materials.

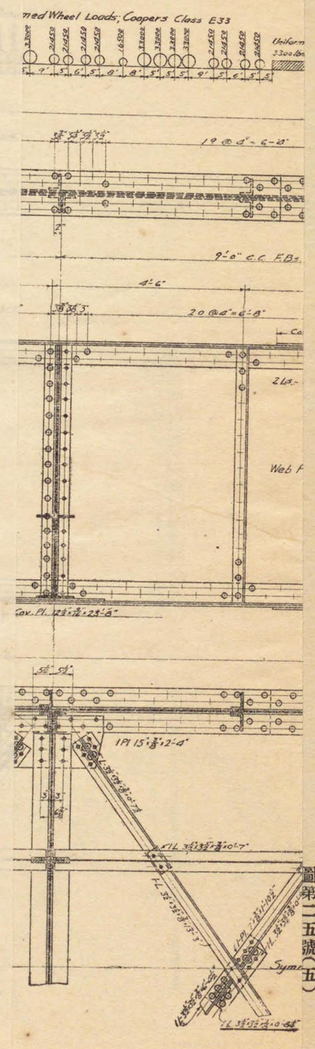
Mark Pieces	Description	Dimensions		Weight in lbs	Mark Pieces	Description	Dimensions		Weight in lbs
		Main Girders				Lateral Plates			
1	Cov. Pl.	12½"	27'-2"	1772.20	6	Lat. Pls.	16½"	1-3⅜"	92.18
1	"	"	20'-3"	829.87	6	"	12½"	2-1⅛"	281.72
2	"	"	15'-2"	581.36	6	"	"	2-¾"	197.70
1	Web Pl.	62⅛"	27'-2"	3149.16	2	"	"	2-⅞"	193.45
6	Flange Pl.	6½"	27'-2"	1566.87					673.05
10	Stiffener Ls	5"×3½"	5'-3"	431.25		Floor Beams			
		5"×3½"	5'-0"	321.69	8	Flange Pl.	12"×⅜"	11'-8"	1836.00
12	Filler Pls.	12½"	0'-6"	25.79	16	"	12"×⅜"	11'-8"	4512.80
16	"	12½"	0'-6"	426.11	8	Web Pl.	62⅛"×⅜"	2'-5"	2368.66
4	"	5"×3"	0'-6"	17.42	16	Cover Pls.	18"×⅜"	2'-5"	1648.32
	Sole Pl.	12½"	1'-1"	38.76	32	Bent Ls	3½"×3½"	2'-3"	786.61
				748.82	32	Fillers	12"×⅜"	0'-6"	57.60
					32	"	12"×⅝"	0'-6"	76.74
					32	"	12"×½"	0'-6"	61.40
									12410.10
		Splices							
12	Spl. Ls	6½"×⅜"	2'-1½"	247.07					
8	Spl. Pls.	9½"	2'-6"	114.86					
2	"	12½"	2'-10½"	93.38		Stringers			
2	"	12½"	5'-0"	311.47	16	Top Stringers	2-12.25#×5'-0"		182.00
2	Cov. Pls.	"	2'-1½"	130.92	16	Sol	"	5'-0"	1607.93
				897.80	64	Ls	3½"×3½"×⅜"	4'-0"	782.64
									6730.67
		Laterals							
1	Lat. L	3½"×3½"	12'-5"	101.02	4	Stringers			2957.00
1	"	"	6'-10½"	57.21	2	Splices			1726.00
1	"	"	4'-10½"	40.12		Laterals			113.22
1	Angles	"	0'-7½"	24.84		Lateral Pls.			670.80
6	"	"	0'-6"	10.82		Floor Beams			1747.80
1	"	"	2'-0"	6.66		Stringers			6705.00
1	Plate	7"×⅜"	1'-5"	17.03	4	Bent Pls.	16"×⅜"	1'-6"	197.44
				273.30	4	Cast Rivet Heads	1¼"-1⅝"	5'-10"-3⅝"	1772.00
						Total Re-Gt.			23,526.61

Standard



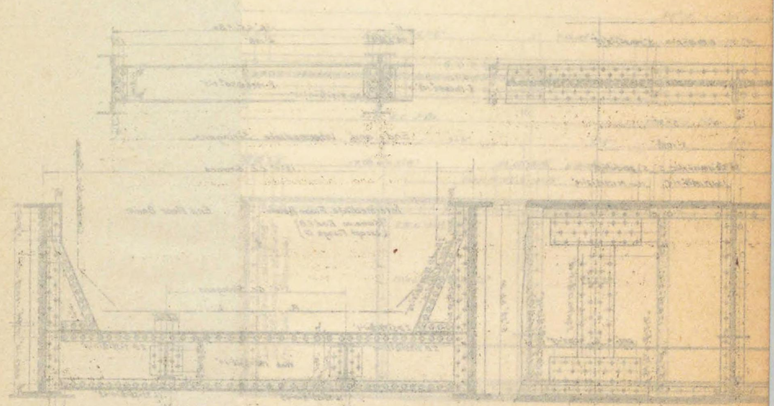
第五十二號圖(五)

Standard



圖第二五號（五）

圖第二五號（四）

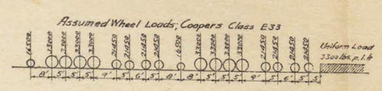


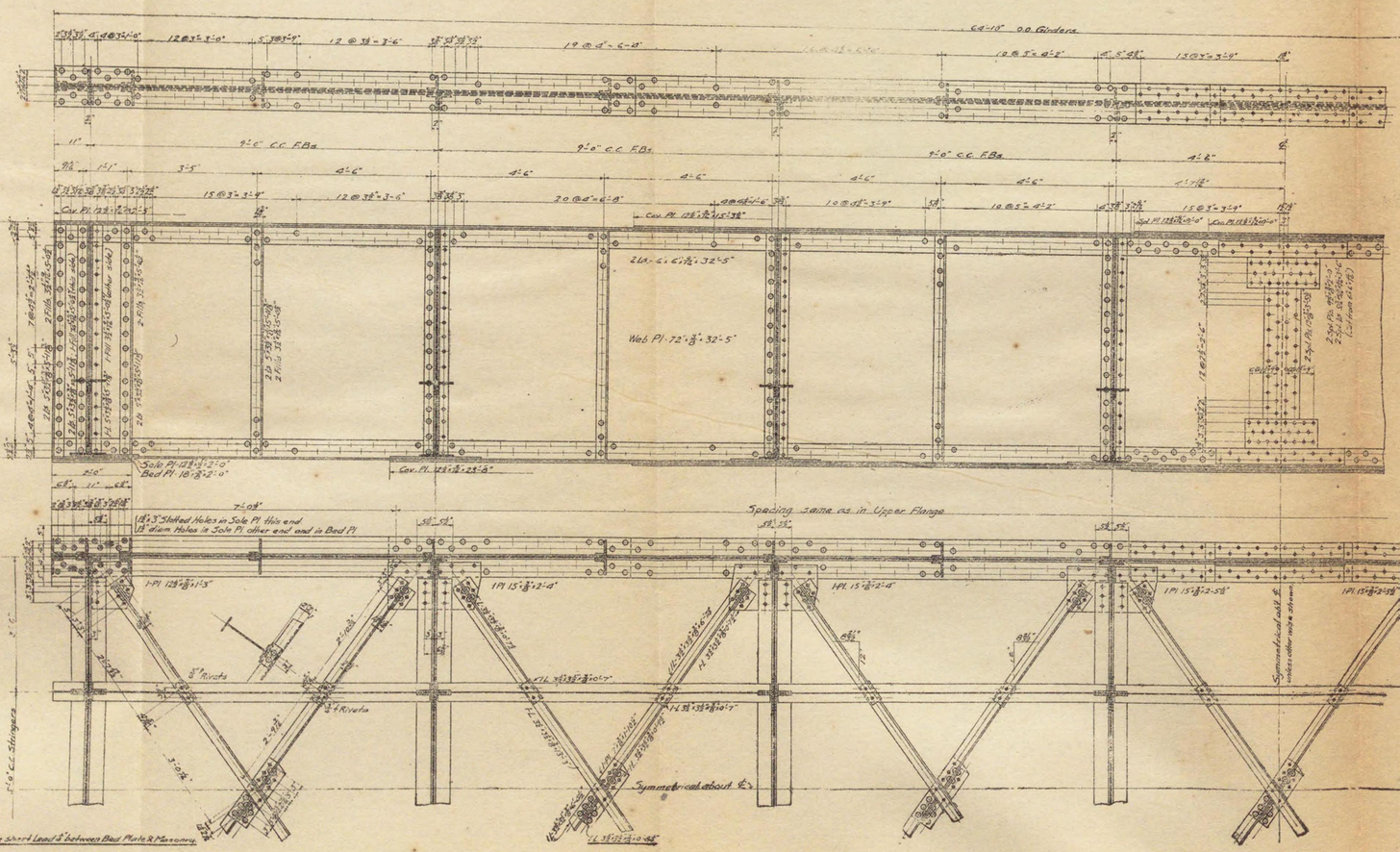
Rivets $\frac{7}{8}$ in. diam. except in Flanges of I Beams, where $\frac{3}{4}$ in. diam. Rivets are to be used.
Open Holes. $\frac{15}{16}$ in. diam. for $\frac{7}{8}$ in. Rivets; $\frac{13}{16}$ in. diam. for $\frac{3}{4}$ in. Rivets, unless otherwise noted.
⊕ Countersunk otherside
• Open Holes.

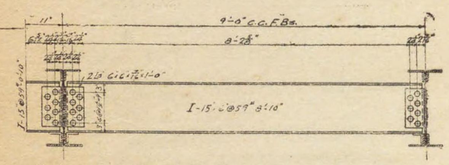
Standard Steel Through Plate Girders for 60 ft. Span. 1909

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

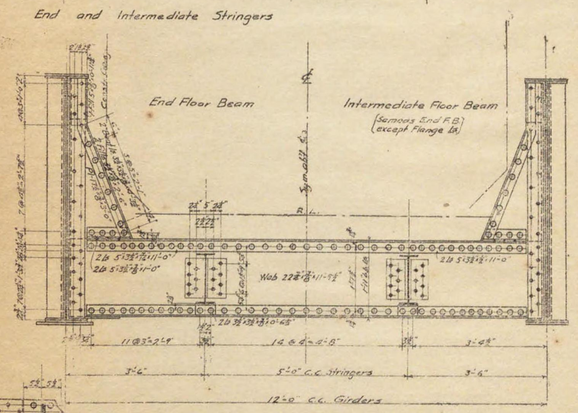
Specifications, Am. Rwy. Eng. & M. Way Associations (1906)







End and Intermediate Stringers



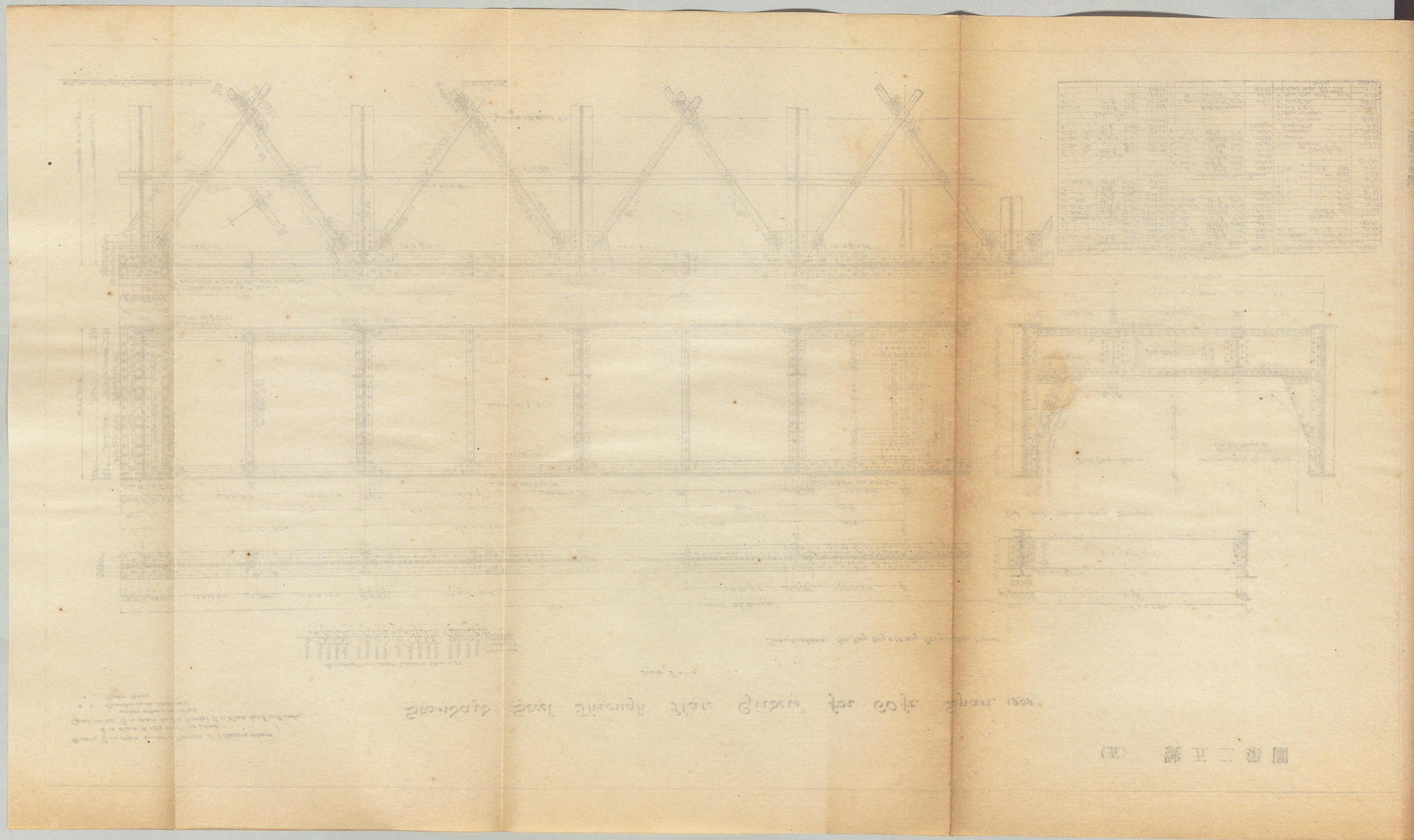
List of Materials

No.	Description	Dimensions	Weight
	Main Girders		
2	Cov. Pls	12½"×⅛" 16'-6"	738.96
1	" " "	12½"×⅛" 32'-5"	1457.52
1	" " "	12½"×⅜" 32'-5"	1746.75
4	Flange Ls	6"×6"×⅞" 32'-5"	2039.70
1	Web Pl	72"×⅜" 32'-5"	2977.20
2	Splice Ls	5"×3½"×⅜" 5'-11"	1340.70
16	Fills	12"×⅞" 5'-08"	472.90
2	"	7⅝"×⅞" 5'-08"	279.51
2	"	5"×⅜" 0'-08"	24.99
1	Sole Pl.	18"×2" 2'-0"	93.60
			12066.89
	Splices		
2	Sol. Pls	12"×⅞" 8'-0"	383.40
2	Cov. Pls	" " 8'-0"	191.28
4	Spl. Ls	6"×6"×⅞" 2'-6"	371.00
4	Spl. Pls	7⅝"×⅞" 2'-0"	96.96
2	"	12"×⅝" 3'-08"	165.83
			1407.39
	Lateral Pls		
4	Pls	12"×⅛" 1'-3"	79.70
8	"	15"×⅛" 2'-4"	377.28
4	"	" " 2'-5"	198.21
			655.19

No.	Description	Dimensions	Weight
	End Floor Beams		
2	Ls	5"×3½"×⅝" 11'-0"	580.80
1	Web Pl	22⅝"×⅜" 11'-9"	1945.71
4	Ls	3½"×3½"×⅝" 0'-08"	85.43
2	Pls	17⅝"×⅜" 3'-0"	133.92
2	Ls	5"×3½"×⅜" 11'-0"	41.66
4	Bent Ls	3½"×3½"×⅜" 6'-08"	185.92
4	Fills	12"×⅜" 2'-6"	46.70
			1259.60
	Intermediate Floor Beams		
4	Ls	5"×3½"×⅝" 11'-0"	774.40
1	Web Pl	22⅝"×⅜" 11'-09"	367.00
4	Ls	3½"×3½"×⅝" 0'-08"	18.92
2	Pls	17⅝"×⅜" 3'-0"	133.92
4	Ls	5"×3½"×⅜" 11'-0"	41.66
4	Bent Ls	3½"×3½"×⅜" 0'-08"	185.92
4	Fills	12"×⅜" 2'-6"	46.70
			1570.52

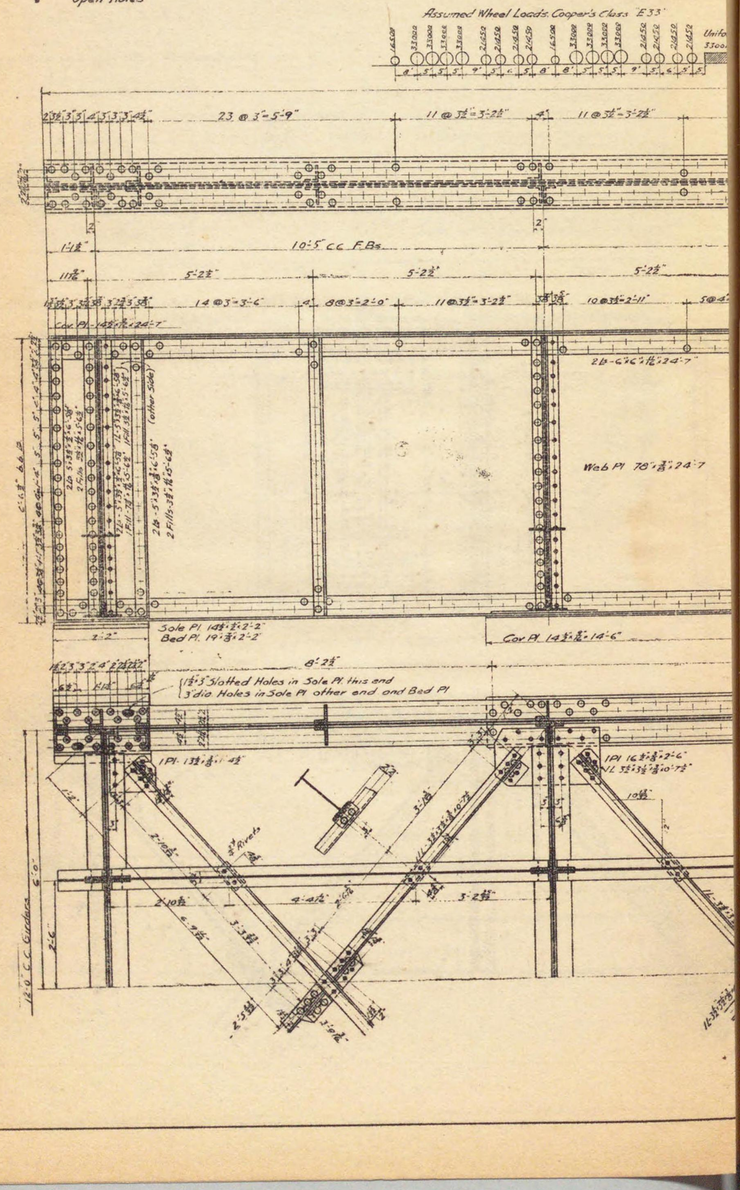
No.	Description	Dimensions	Weight
	Intermediate Stringers		
2	I Beams	15"×4.59# 64'-10"	571.16
4	Ls	6"×3½"×⅜" 7'-0"	63.00
			634.16
	Laterals		
1	L	3½"×3½"×⅜" 13'-1"	17.63
1	"	" " " 6'-08"	76.10
1	"	" " " 6'-08"	58.17
4	Ls	" " " 0'-7"	9.73
4	Ls	" " " 0'-7"	19.03
1	L	" " " 0'-7"	6.72
1	"	" " " 6'-03"	5.04
1	Pls	7⅝" 1'-08"	16.73
			249.35
	Total Weight		
2	Splices		74.72
7	Laterals		30.53
	Lateral Pls		6.25
10	Int. Stringers		634.16
4	End Stringers		33.4
6	Int. F.Bs.		249.35
2	End F.Bs.		2950
4	Rad. Pls.	18"×⅞" 2'-6"	463
	Rivet Heads	7/8"	1461
	Total		6645

We fig. Use Short Lead ⅝ between Bed Plate & Masonry.



Rivets: ⅞ in. diam. except in Flanges of L beams,
Where ¾ in. diam. Rivets are to be used.
Open Holes. 15/16 in. diam. for ⅞ in. Rivets; 13/16 in diam.
for ¾ in. Rivets, unless otherwise noted.
⊗ ⊗ Countersunk otherside.
• Open Holes

Standard Ste



(五) 鋼正二等圖

Rivets: ⅞ in. diam. except in Flanges of L Beams, Where ⅞ in. diam. Rivets are to be used.
Open Holes. 15/16 in. diam. for ⅞ in. Rivets; 1⅛ in. diam. for 1 in. Rivets, unless otherwise noted.
⊗ ⊗ Countersunk otherside.
• Open Holes

Standard Steel Through Plate Girders for 70 ft. Span. 1909

Scale: ¾" = 1'-0"

Specifications: Am. Rwy. Eng. & M. Way Associations (1906).

Assumed Wheel Loads. Cooper's Class E 33

Uniform Load 3 tons p.l.f.

75'-2" O.O. Girders.

Web Pl 78"-⅜"×24'-7"

Web Pl 78"-⅜"×26'-0"

Cut Leg of Spl L 1PL-16"-⅜"×2'-6"

Symmetrical about ℄

Spacing Same as in Upper Flange

1⅛" Slotted Holes in Sole Pl thus and 1" dia. Holes in Sole Pl other end and Bed Pl

List of Materials.

No.	Description	Dimensions	Weight
	End Girders		
1	Cov. Pl	16"-⅜"×26'-0"	664.00
1	"	" " 16'-6"	422.25
2	Cov. Pls	" " 10'-2"	237.25
1	Web Pls	78"-⅜"×26'-0"	2486.38
4	Flange Ls	6"×6"×⅝"×26'-0"	2605.83
6	Skiff Ls	5"×3½"×⅜"×5'-8"	459.22
9	" "	5"×3½"×⅜"×5'-8"	481.50
11	Fills	⅜"-⅞"×5'-6"	490.60
3	"	⅜"-⅞"×5'-6"	281.63
3	"	5"-⅜"×1'-5"	27.12
1	Sole Pls	14"-⅜"×2'-2"	39.91
			8355.93
	Centre Girders		
2	Cov. Pls	14"-⅜"×26'-0"	1447.88
2	"	" " 12'-7"	699.69
1	Web Pl	78"-⅜"×26'-0"	2589.52
4	Flange Ls	6"×6"×⅝"×26'-0"	2756.00
4	Skiff Ls	5"×3½"×⅜"×5'-8"	369.61
8	" "	5"×3½"×⅜"×5'-8"	738.73
8	Fills	⅜"-⅞"×5'-6"	362.63
2	"	⅜"-⅞"×5'-6"	187.75
2	"	5"-⅜"×1'-5"	18.98
			9437.27

No.	Description	Dimensions	Weight
	End Floor Beams		
1	Flange Ls	5"×3½"×⅜"×11'-0"	528.00
1	Web Pl	22"-⅜"×11'-0"	342.66
2	Ls	5"×3½"×⅜"×6'-9"	184.12
2	"	5"×3½"×⅜"×1'-1"	58.96
1	Bent Ls	5"×3½"×⅜"×4'-0"	137.37
2	Pls	10"-⅜"×3'-0"	139.47
2	Fills	⅜"-⅞"×2'-10"	67.43
			1458.56
	1st Floor Beams		
1	Flange Ls	5"×3½"×⅜"×11'-0"	660.00
1	Web Pl	22"-⅜"×11'-0"	342.66
4	Ls	5"×3½"×⅜"×6'-9"	184.12
4	"	5"×3½"×⅜"×4'-0"	137.37
2	Pls	10"-⅜"×3'-0"	139.47
2	Fills	⅜"-⅞"×2'-10"	67.43
			1531.05

No.	Description	Dimensions	Weight
	Lateruls		
1	angle	3½"×3½"×5/16"×8'-8"	11.93
1	"	" " " 6'-6"	58.00
1	"	" " " 16'-7½"	56.31
6	"	" " " 10'-1½"	42.56
1	"	" " " 10'-8½"	5.06
1	"	" " " 10'-7½"	5.09
1	Plate	7½"-½"×1'-10½"	16.24
			302.55
	Splices		
2	Cov. Pls	16"-⅜"×4'-0"	262.73
2	Spl. Pls	" " 10'-2½"	512.06
4	" "	9"-⅜"×2'-3½"	102.23
2	" "	12"-⅜"×6'-2½"	120.85
4	" Ls	6"×6"×⅜"×3'-10"	47.33
			1045.18
	End Stringers		
1	I-Beam	15"×59"×168"	6'-10"
2	Ls	6"×6"×⅝"×11'-0"	34.00
			95.96

No.	Description	Dimensions	Weight
	1st Stringers		
8	I-Beam	15"×59"×168"	6'-10"
8	angle	6"×6"×⅝"×11'-0"	68.00
			476.00
	Lateral Pls		
2	Pls	12"-⅜"×1'-10"	9.61
10	"	12"-⅜"×2'-6"	32.66
2	"	" " 2'-5"	7.31
			49.58
	Total Weight		
2	Centre Girders		18872
2	End Floor Beams		2639
6	1st Floor Beams		8332
7	Laterals		2118
8	Splices		5857
8	End Stringers		383
16	1st Stringers		9430
	Lateral Pls		331
8	End Pls	19"-⅜"×2'-2"	496
2672	Rivet heads	1¼"	2321
			85749

End Floor Beam.

Intermediate Floor Beam (same as End FB) (except Flange Ls)

Centre Girder

Sym. about ℄

R L

2B 5"×3½"×⅜"×11'-0"

2B 5"×3½"×⅜"×1'-1"

Web-22"-⅜"×11'-0"

2B 5"×3½"×⅜"×6'-9"

11 @ 3'-2'-9" | 14 @ 4'-0" | 11 @ 3'-2'-9"

3'-6" | 5'-0" c.c. Stringers | 3'-6"

13'-0" c.c. Girders.

End and Intermediate Stringers.

10'-5" c.c. F.Bs.

2B C 6"×3½"×14'-0"

I - 15"×6"@ 59" 10'-3"

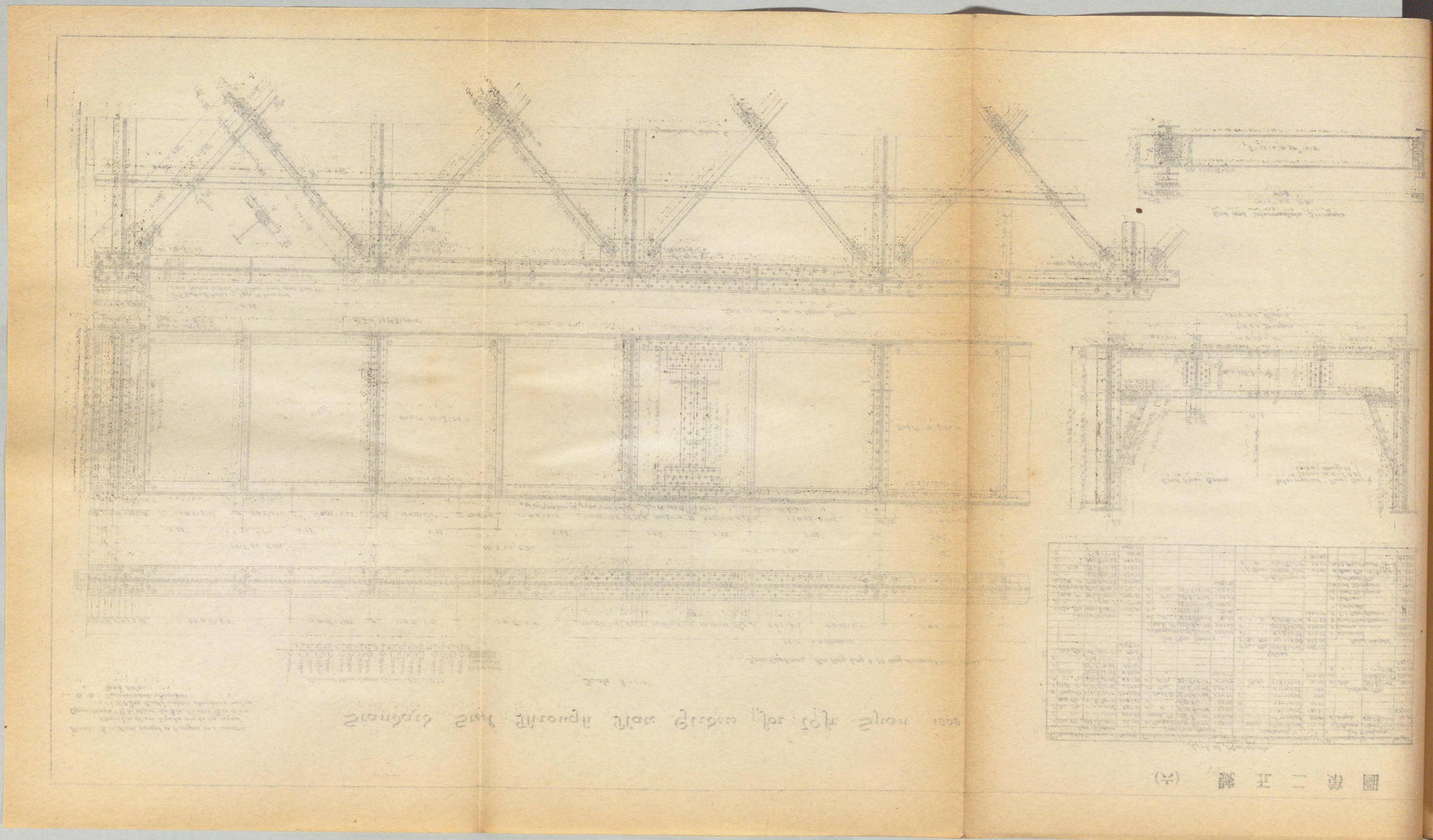
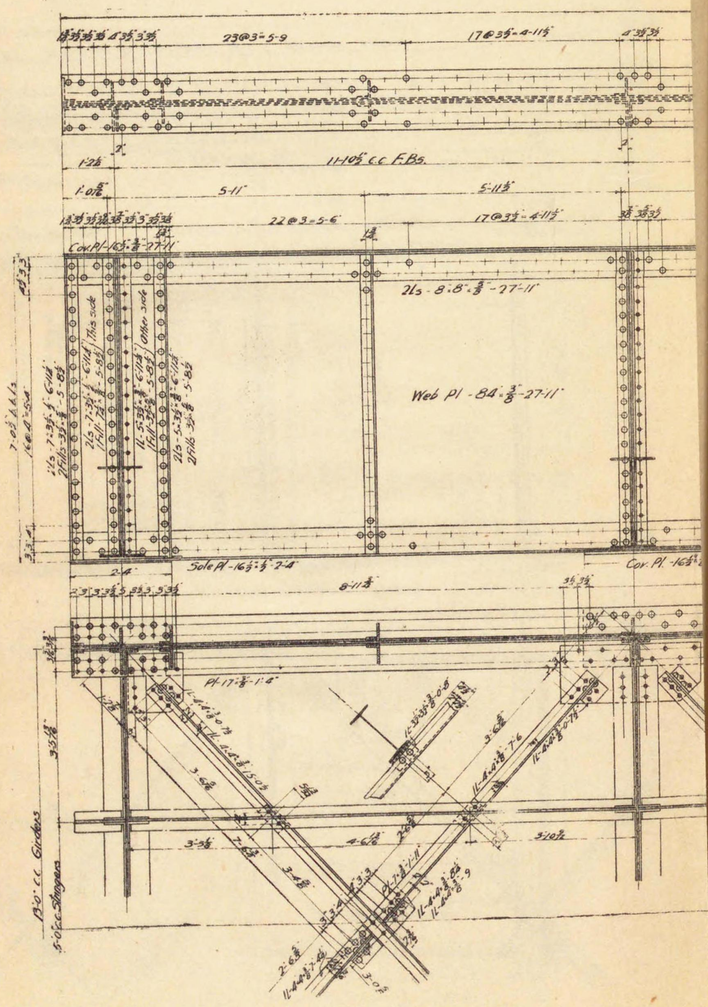


圖 番 二 五 鋼 (六)

Rivets $\frac{7}{8}$" in diam
Open Holes $\frac{15}{16}$" in diam.
unless otherwise noted
⊗ ⊗ Countersunk other side
• Open Holes

Assumed Wheel Loads Cooper's Class "E-55"

Specification



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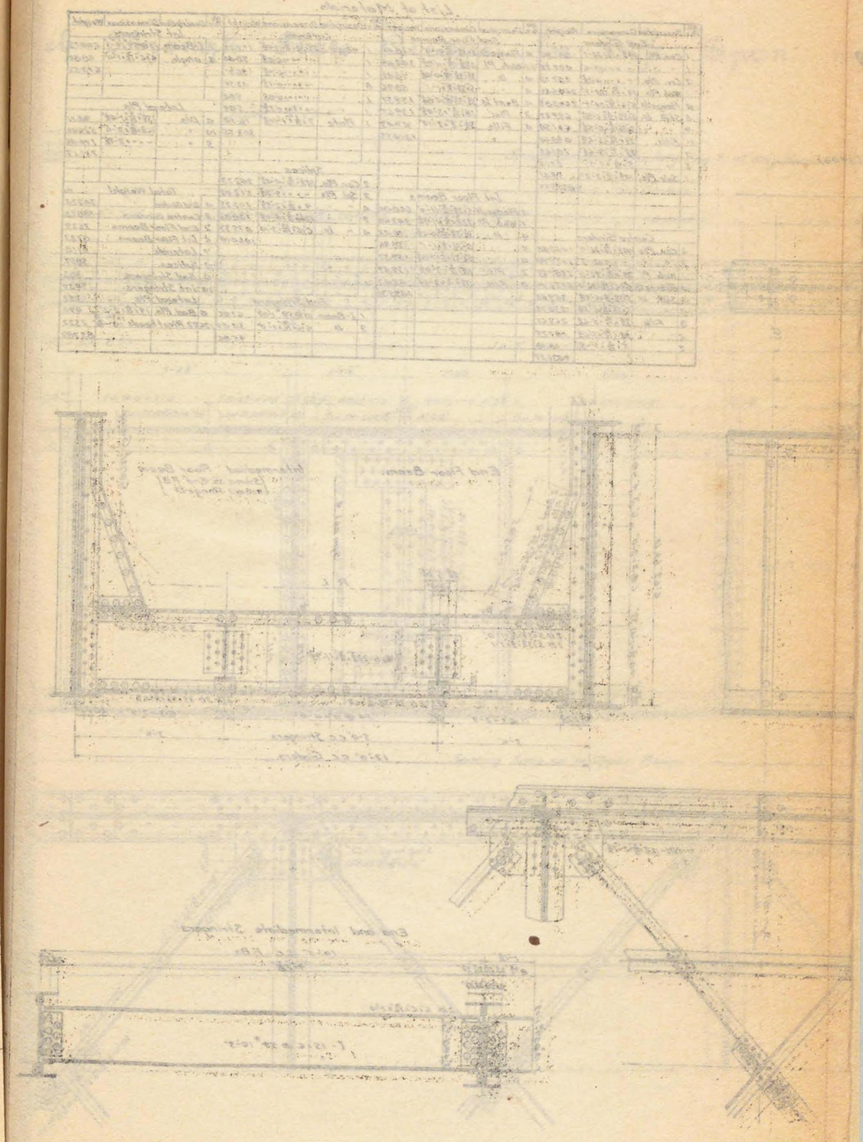


Standard Steel Through Plate Girders for 80 Ft. Span 1909

Specification Am Rwy. Eng. & M W Associations (1906)

Scale 3/4" = 1'-0"

Rivets 7/8" in diam
Open Holes 1 1/16" in diam.
unless otherwise noted.
⊗ ⊗ Countersunk other side
· Open Holes

Assumed Wheel Loads Cooper's Class "E 50"

85'-6" c.c. Girders

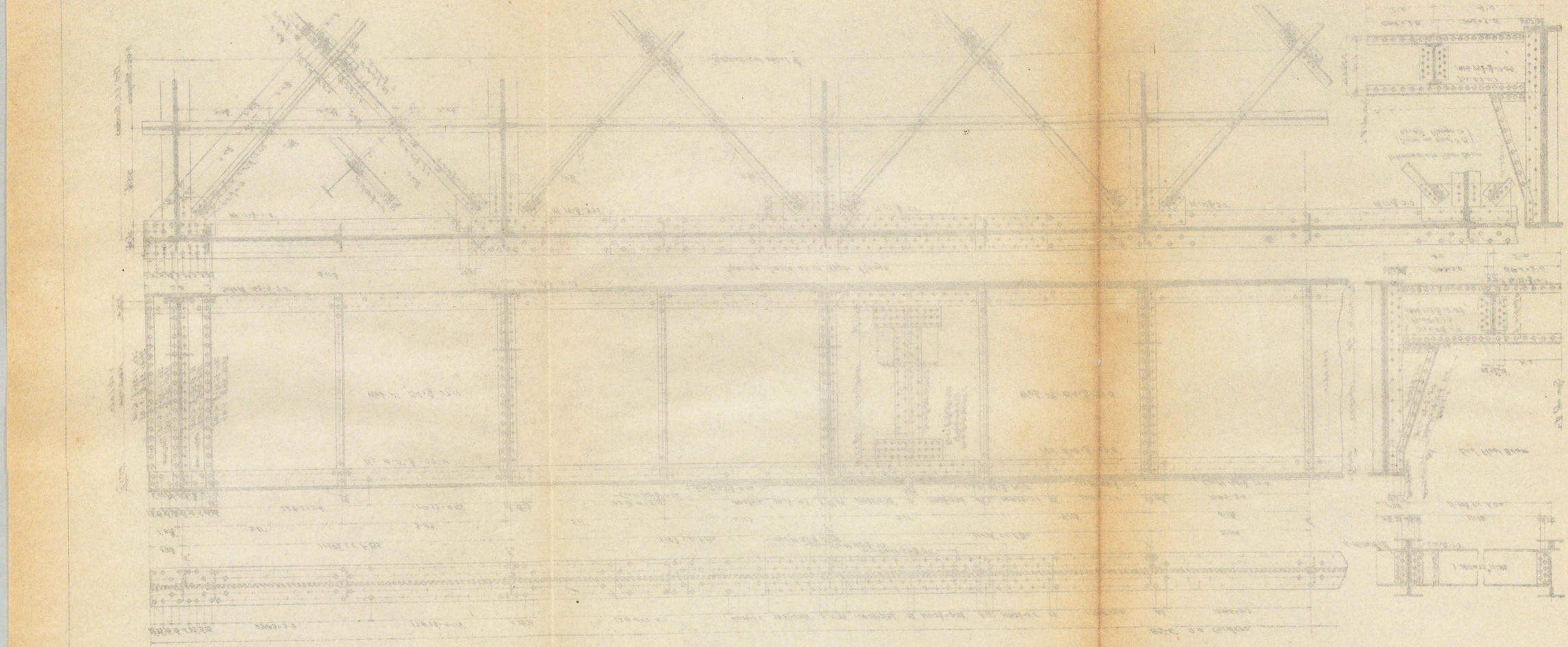
End Floor Beam

Intermediate Floor Beam
(Same as End F.B. except Flange Ls)

Symmetrical about ℄

圖第二五號(七)

圖第二五號(七)



圖第二五號 (十)

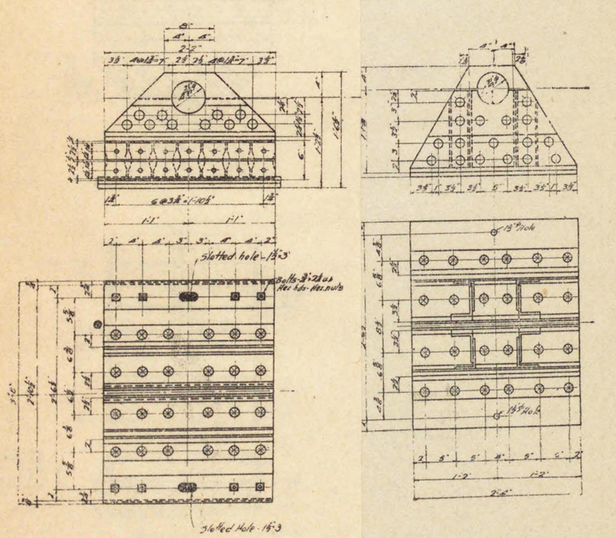
圖第二五

Rivets ⅞ in diam Open Holes 15/16 in diam unless otherwise noted
Countersunk this side
" other "
" both "
Field Rivets

Roller Shoes

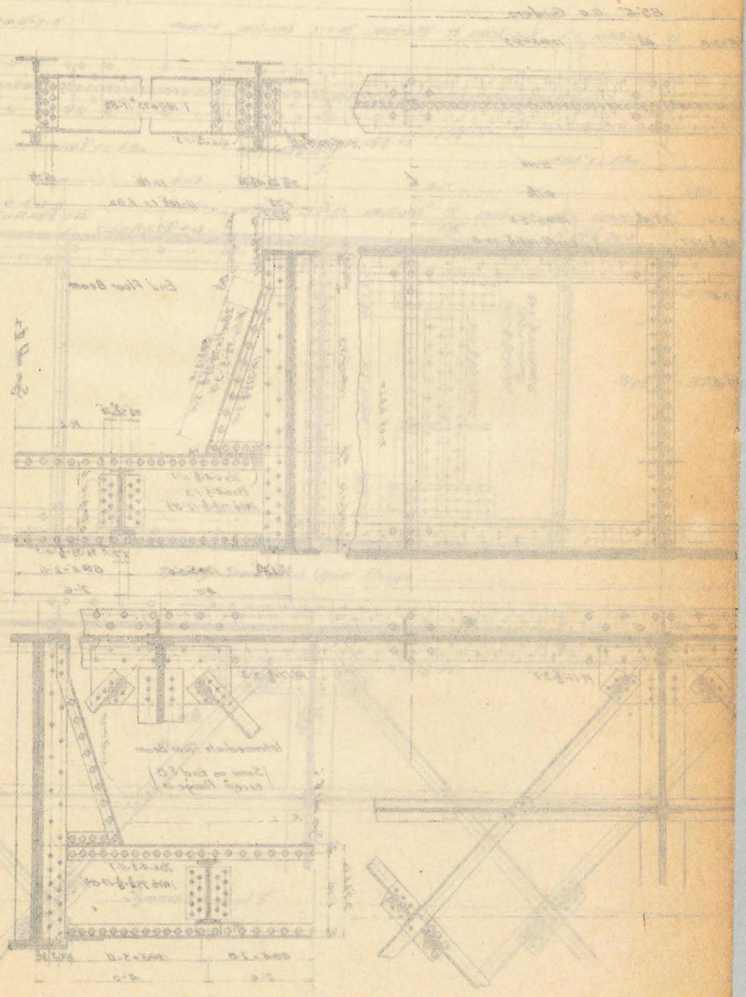
		Weight
1 Pl	18-⅜"×2'-4"	107.15
2 Jam Pls	14-⅜"×2'-4"	60.99
1 Pl	6-⅜"×2'-4"	35.70
2 Pls	6-⅜"×2'-4"	35.70
2 Ls	5'-0"×5"×⅜"×2'-4"	98.47
2 Ls	5'-3½"×5"×⅜"×2'-4"	92.46
2 Jam Pls	10-⅜"×2'-2"	56.64
3 Pls	6-⅜"×2'-3"	99.45
2 Pls	6-⅜"×2'-2"	73.15
2 Ls	5'-5"×5"×⅜"×2'-2"	102.27
2 Ls	5'-3½"×5"×⅜"×2'-2"	85.80
1 Pl	30-⅜"×2'-10½"	190.67
2 Bent Pls	17½"×⅜"×2'-2"	69.07
7 Rollers	6"×33"×1'-10½"	766.37
4 Bars	2½"×⅜"×2'-2"	36.83
1 Flat	7"×⅜"×2'-2"	5.53
1 "	"×⅜"×2'-2"	5.95
1 Flats	3"×⅜"×2'-2"	124.95
1 Pl	28-⅜"×2'-10½"	205.39
28 Bolts	⅞"ϕ - 4" long	17.70
8 Bolts	⅞"ϕ 7½" "	5.52
		2235.60

Weight	Nos.	Description	Weight
		Total Weight	
562.92	4	End Sections	2252.
417.36	2	Center Sections	2365.
198.3	4	Splices	793.
81.00	7	Intrnds	567.
17.00		Lateral Pls	34.
8.57	2	End F. Rs.	217.
2200.3	6	Int. F. Rs.	13198.
164.35	8	End Stringers	513.
	10	Int. Stringers	13498.
	2	Roller Shoes	1821.
	2	Fixed Shoes	2833.
75.68	8	Pins	606.
41.36	8	Anchor Bolts	59.
19.83	756	Rivet Heads	2679.
8.60	756	" Shanks	139.
17.00			15811.
89.75			
220.03			
784.905			
82.01			
82.20			
125.81			
87.04			
86.00			
96.18			



圖第二五號(八)

圖第二五(子)



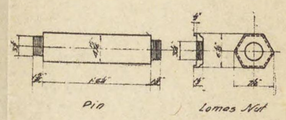
圖第二五號（八）

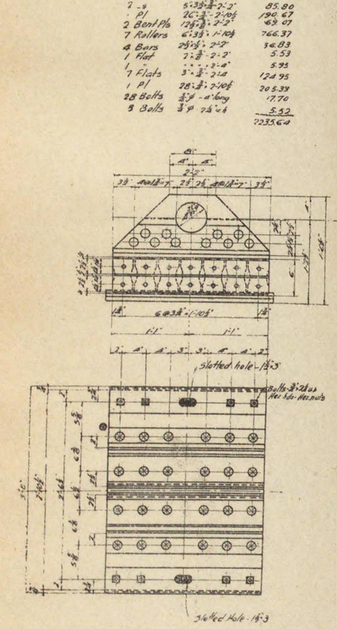
Rivets ⅞in. shown Open Holes ⅞in. diam. unless otherwise noted
□ Countersunk this side
● " other "
■ " both "
• Field Rivets

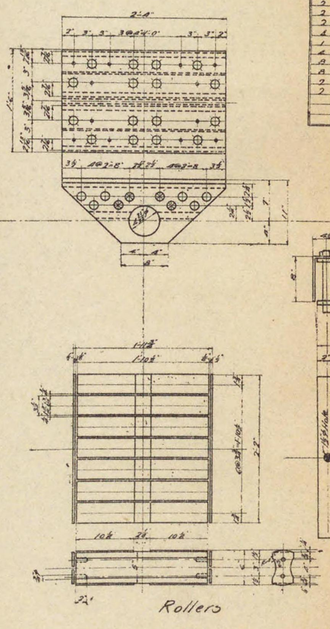
Standard Steel Through Plate Girders for 80 fr. Span. 1909

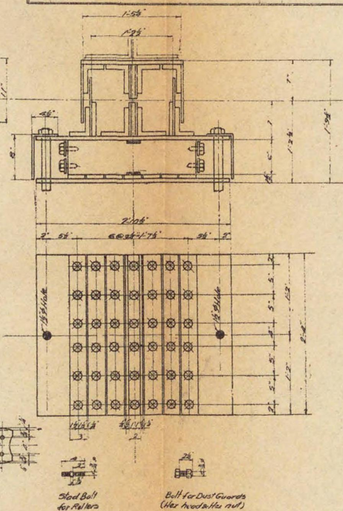
Roller Shoes

		Weight lbs
1 Pl	18⅛ × 2'-0"	107.15
2 Jam Pls	18⅛ × 2'-0"	60.99
1 Pl	6'-3" × 2'-0"	35.70
2 Pls	6'-3" × 2'-0"	35.70
2 Ls	5'-4½" × 3½" × ½"	98.47
2 Ls	5'-3⅝" × 3½" × ½"	92.46
2 Jam Pls	10⅝" × 3½"	56.64
3 Pls	6'-3" × 2'-3"	99.45
2 Pls	6'-3" × 2'-3"	66.15
2 Ls	5'-5½" × 3½" × ½"	102.27
2 "	5'-3⅝" × 3½" × ½"	85.80
2 Pl	26'-3" × 2'-0½"	190.67
2 Bent Pls	12⅝" × 2'-3"	63.07
7 Rollers	6'-3⅜" × 1'-10½"	766.37
4 Bars	2½" × 2'-3"	36.83
1 Plate	2'-3" × 2'-3"	5.53
1 "	2'-3" × 2'-0"	5.95
7 Plates	2'-3" × 2'-0"	124.95
1 Pl	28⅛" × 2'-10½"	20.539
28 Bolts	⅞" × 4" Long	1.70
9 Bolts	⅞" × 7¾" "	5.52
		1235.60









List of Materials

No.	Description	Dimensions	Weight lbs
	Floor Beams		
1	Cov. Pl	162'-7/8 × 22'-11"	5831.20
1	Cov. Pl	16'-0" × 2'-2"	337.63
2	Cov. Pls	9'-2" × 2'-2"	384.62
2	Cov. Pls	4'-6" × 2'-2"	189.24
4	Flange Ls	8"×8"×⅞" 22'-11"	3611.68
1	Web Pl	84"×⅜" 21'-11"	2356.68
16	Stiffners	7"×3½"×½" 6'-11"	943.50
9	Stiffners	5"×3½"×⅜" 6'-11"	520.92
11	Fillers	3½"×⅜" 1'-8"	42.74
3	Fillers	7"×⅜" 5'-8"	76.573
3	Fillers	6"×⅜" 0'-10½"	7.951
1	Sole Pl	16"×1⅝" 2'-8"	60.48
			10553.98
	Castle Girder		
2	Cov. Pls	16"×⅜" 29'-8"	1248.80
2	Cov. Pls	" " 24'-8"	1038.62
2	Cov. Pls	" " 22'-7"	950.32
4	Flange Ls	8"×8"×⅞" 29'-8"	3868.92
1	Web Pl	84"×⅜" 29'-8"	3177.69
4	Stiffners	7"×3½"×½" 6'-11"	837.24
8	Stiffners	5"×3½"×⅜" 6'-11"	577.10
8	Fillers	3½"×⅜" 5'-8"	339.76
2	Fillers	7"×⅜" 5'-8"	113.82
2	Fillers	6"×⅜" 0'-10½"	13.61
			11337.75

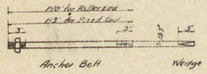
No.	Description	Dimensions	Weight lbs
	Splice		
2	Spl Pls	16⅝"×⅜" 10'-7½"	867.11
2	Cov Pls	7'-5" × 3'-6"	367.98
2	Cov Pls	3'-6" × 3'-6"	183.79
8	Spl Ls	8"×8"×⅞" 5'-1½"	792.86
4	Spl Pls	18⅛"×⅜" 2'-6½"	139.43
2	Spl Pls	12⅝"×⅜" 2'-6½"	122.01
			1934.89
	Laterals		
		4½"×3½"×⅜" 15'-0½"	147.41
		4½"×3½"×⅜" 7'-6"	73.82
		" " 7'-6½"	72.87
		" " 0'-7½"	3.470
		3½"×3½"×⅜" 2'-8½"	22.67
	Lateral Plates		
		7"×⅜" 1'-11"	17.12
		6"×6"×⅜" 0'-8½"	4.74
		" " 0'-9"	7.55
			37.36
A	Pls	12"×⅜" 1'-8"	11.563
A	Pls	12"×⅜" 2'-7½"	28.541
A	Pls	12"×⅜" 3'-1½"	26.739
2	Pls	12"×⅜" 2'-0"	17.231
2	Pls	12"×⅜" 3'-3"	14.092
			368.71

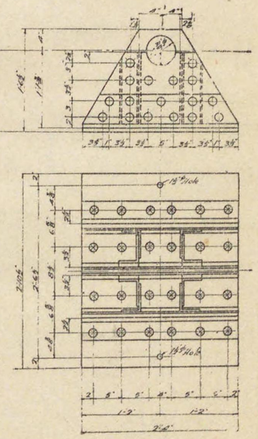
No.	Description	Dimensions	Weight lbs
	End Floor Beam		
A	Flange Ls	6"×6"×⅜" 11'-7"	562.93
1	Web Pl	25⅝"×⅜" 12'-8½"	417.34
A	Ls	3½"×3½"×⅜" 6'-7"	19.83
A	Ls	6"×6"×⅜" 1'-3"	8.07
2	Bent Ls	3½"×3½"×⅜" 5'-8"	17.00
1	Filler	3½"×⅜" 5'-8"	8.07
2	Pls	22½"×⅜" 3'-10"	32.03
			1064.35
	Intermediate Floor Beam		
A	Flange Ls	6"×6"×⅜" 11'-7"	750.68
1	Web Pl	25⅝"×⅜" 11'-8½"	417.34
A	Ls	3½"×3½"×⅜" 10'-7"	13.83
A	Ls	6"×6"×⅜" 1'-8"	11.60
A	Bent Ls	3½"×3½"×⅜" 5'-8"	17.00
2	Fillers	3½"×⅜" 5'-8"	8.075
2	Pls	22½"×⅜" 3'-10"	32.03
			1250.54
	End Stringer		
1	I Beam	15"×5.25" 1'-10"	82.91
2	Ls	6"×6"×⅜" 2'-9"	43.90
			126.81
	Intermediate Stringer		
1	I Beam	15"×5.25" 11'-8½"	87.14
A	Ls	6"×6"×⅜" 1'-8"	11.60
			98.74

No.	Description	Weight lbs
	Total Weight	
A	End Stringer	422.12
2	Castle Girders	23084
A	Splices	7868
7	Laterals	2600
	Lateral Pls	845
2	End F. Bs.	2123.
6	Int. F. Bs.	12488.
A	End Stringer	252
10	Int. Stringer	12498
7	Roller Shoes	1427.
2	Fixed Shoes	2833
A	Pins	216
A	Anchor Bolts	37
2	Pin and Link Girders	2529.
256	" Lower Nuts	179
		125611

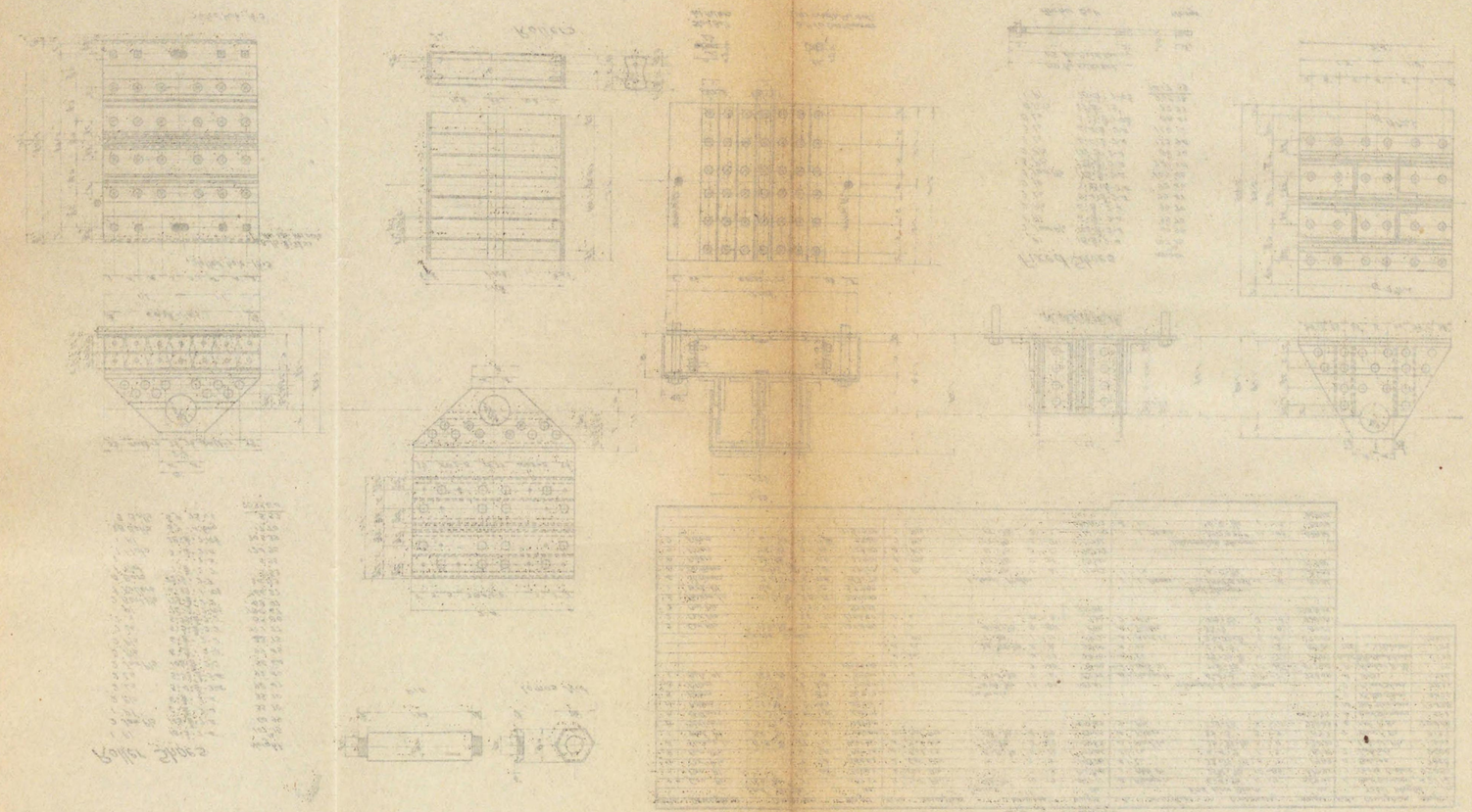
Fixed Shoes

		Weight lbs
1 Pl	18⅛ × 2'-0	107.15
2 Jam Pls	18⅛ × 2'-0	60.99
1 Pl	6'-3" × 2'-0	35.70
2 Pls	6'-3" × 2'-0	35.70
2 Ls	5'-4½" × 3½" × ½"	98.47
2 Ls	5'-3⅝" × 3½" × ½"	92.46
2 Jam Pls	17⅝" × 3½" × ½"	105.65
3 Pls	13⅝" × 2'-0"	241.04
2 Pls	13⅝" × 2'-0"	80.36
2 Ls	6'-6" × 3½" × ½"	133.94
2 Ls	6'-0" × 3½" × ½"	110.13
8 Ls	3'-3⅜" × 3½" × ½"	68.41
4 Fills	3½" × ½" × 7½"	22.33
1 Pl	28⅛" × 2'-10½"	20.539
		1417.59





圖第二五號（八）



圖第二五號　(A)

（八）　鋼正二等圖

第二種四呎六吋

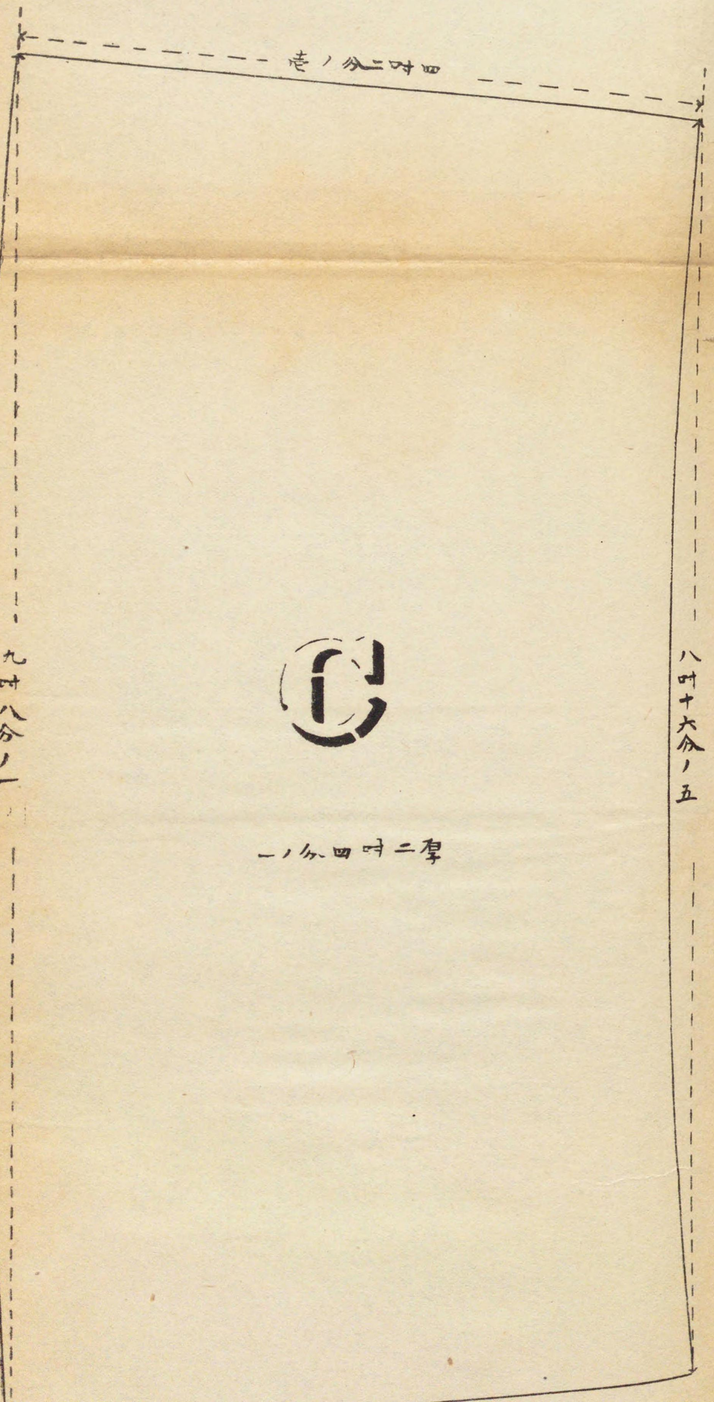
圖第二十六號　（一）「セメント」混用異形棒鉄筋溝渠（厚さ二十六糎八目盛工場一ヶ所ノ分）

圖第四　ヶ所「セメント」用異形棒鉄筋溝渠（實況）

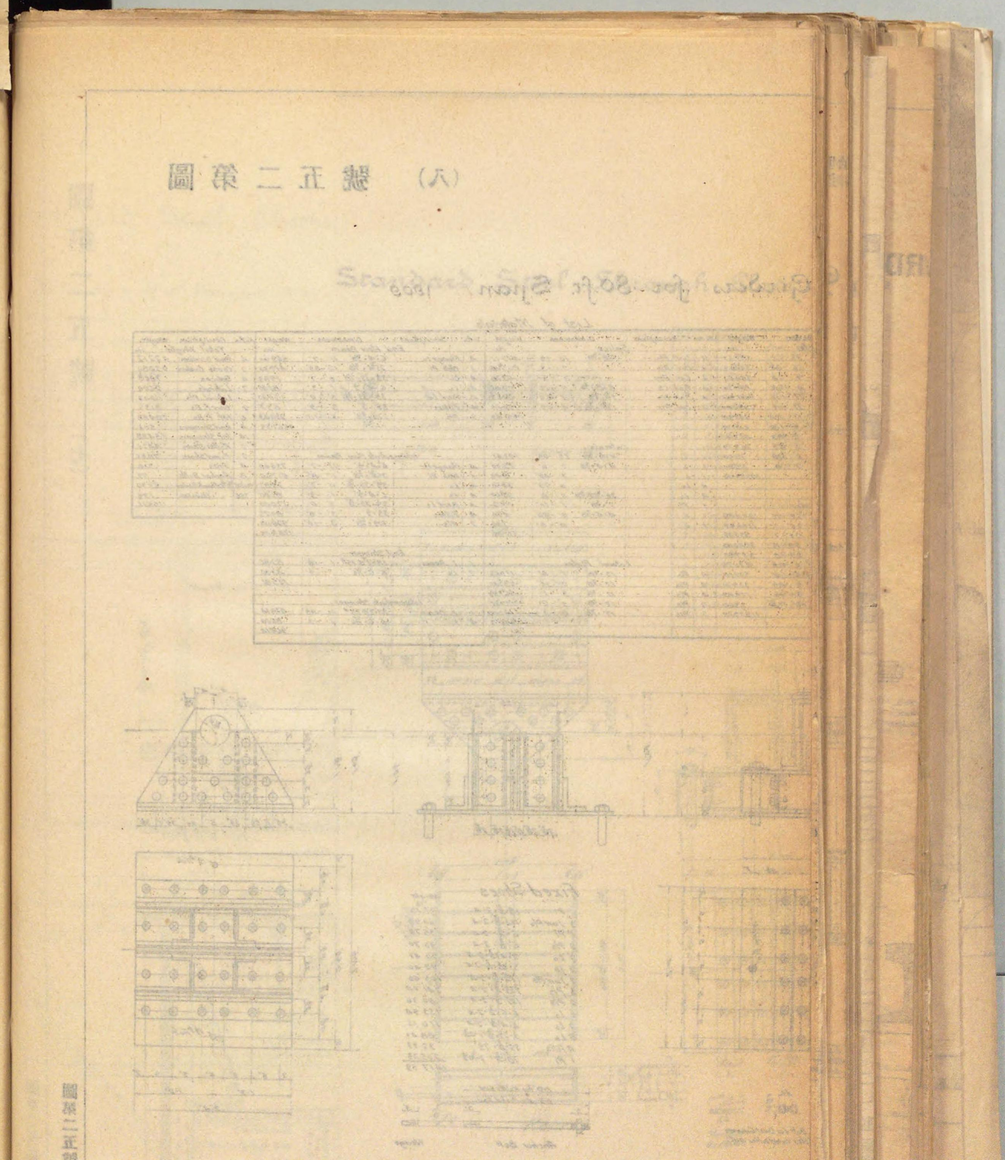
明治二十九年八月
號九四九第工鐵

圖第二六號　（一）「ウエル」使用異形煉瓦雛形

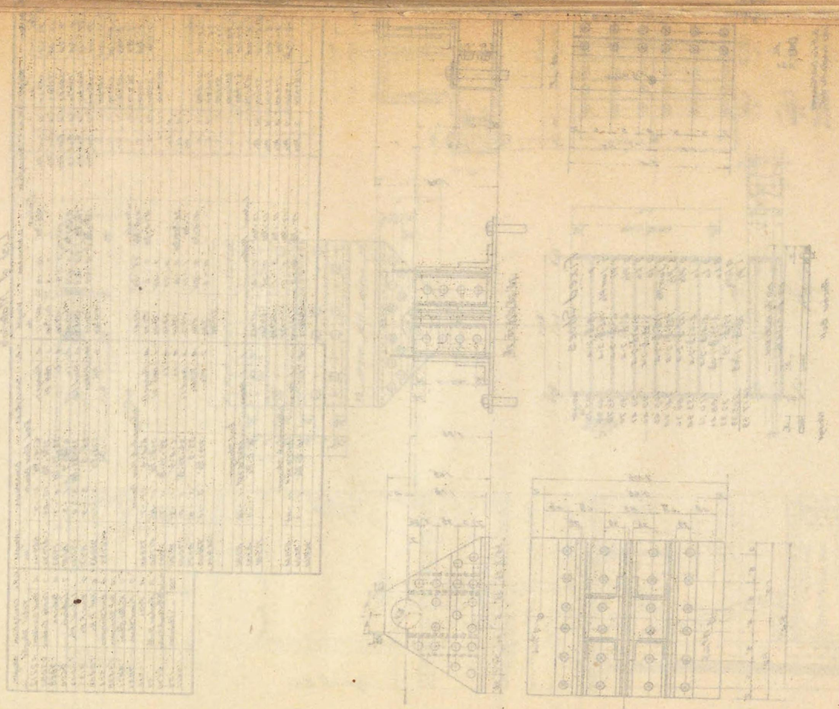
圖形徑九呎「ウエル」用異形煉瓦石雛形（實形）



（圖第二六號（一））

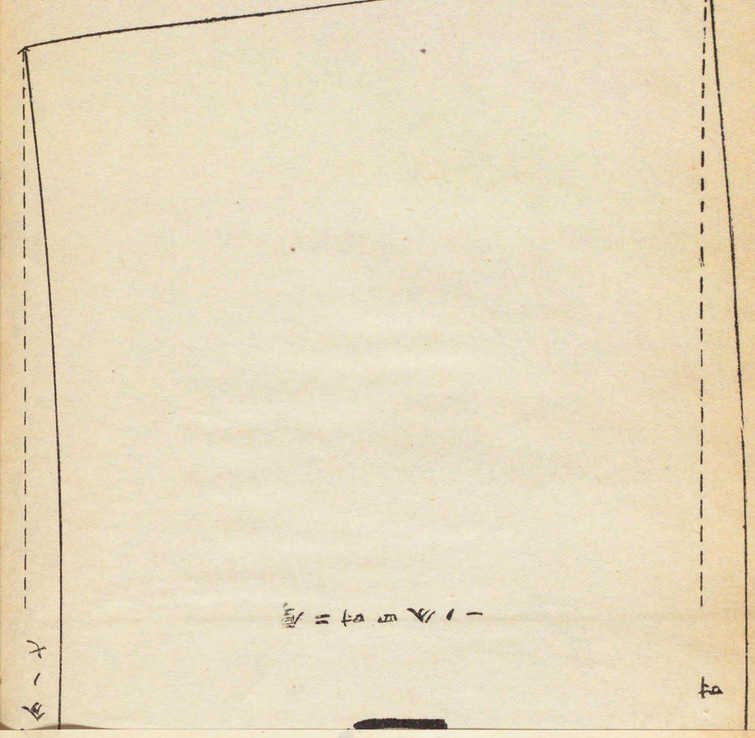


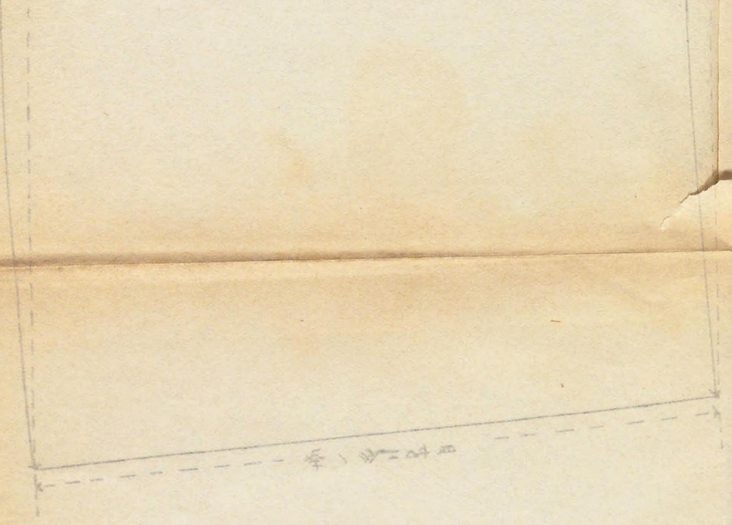
圖號二五四(六)



(二) 圖六二第圖

(形實)圖形幾何直線形著用「ルエタ」配九　種形圖

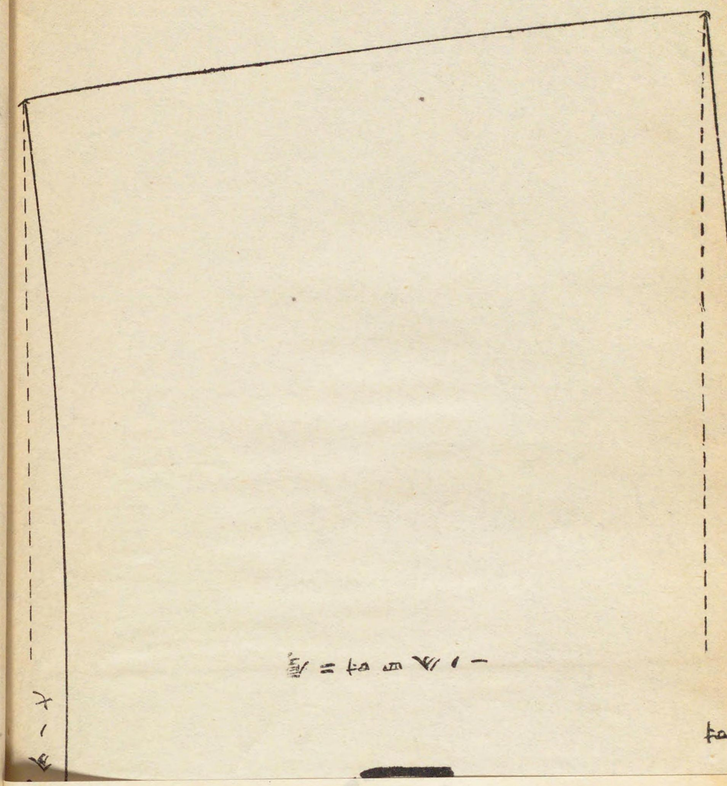




圖第六二第

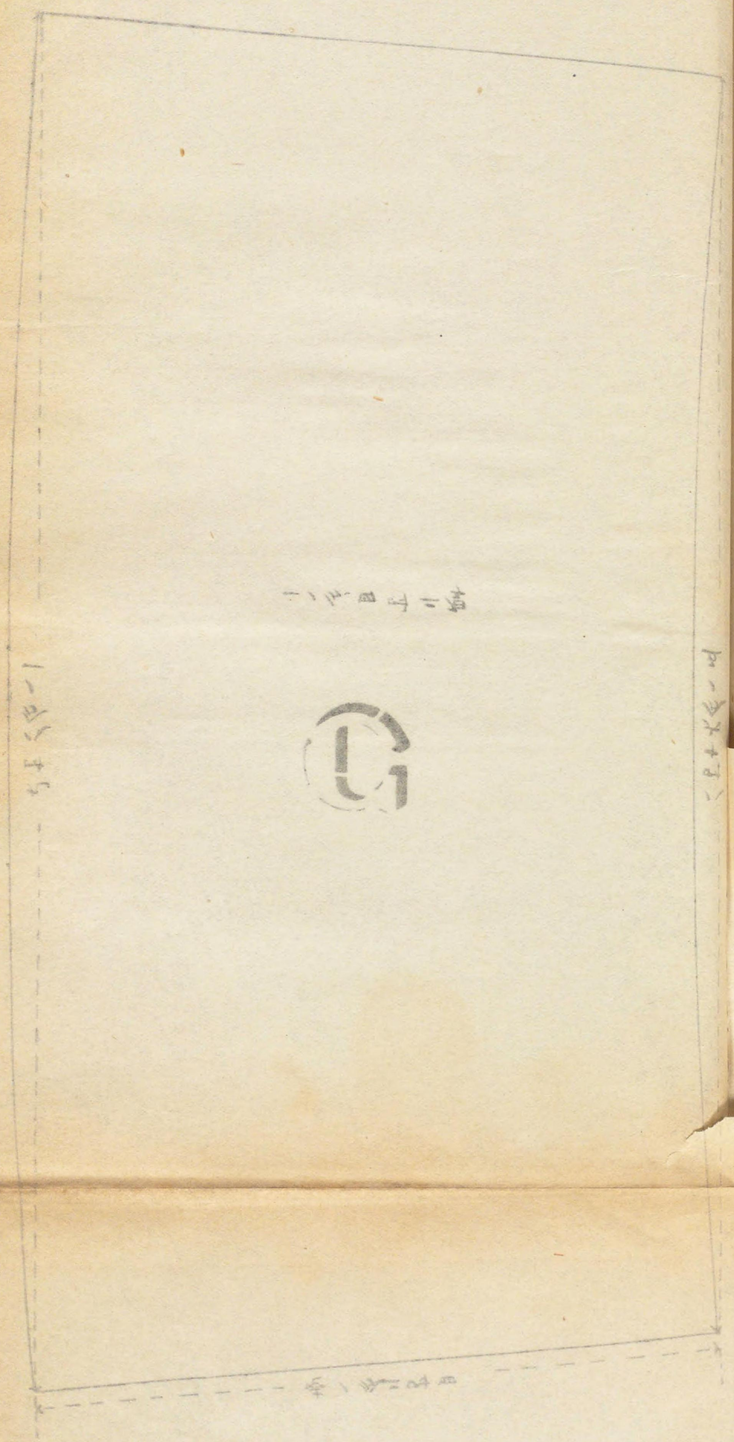
(一)　「ヒヒヘ」線用器圖及定點準(實際二十六倍大ニ製圖工場一ヶ所ノ大要)

圖法要　九項「ヒヒヘ」用器圖線及定點準(實際)



（二）　第六二號圖

（形實）圖形雛型直線形著用「ベニヤ」板　復形圖



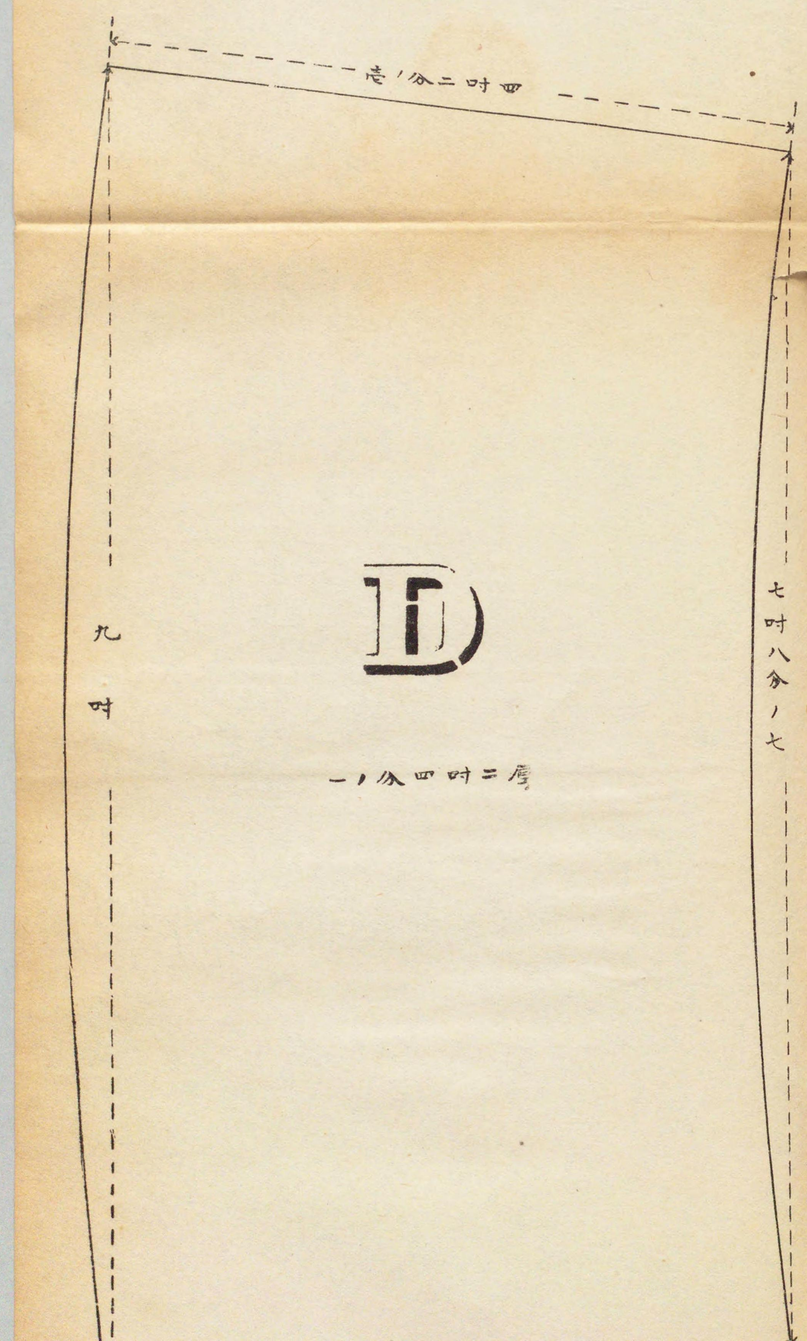
圖第二六號　（一）「ベニヤ」板用展形線及折線（實形）

圖第四　木型「ベニヤ」用展形線及折線（實形）

房二拍四分ノ一
北
東ノ七

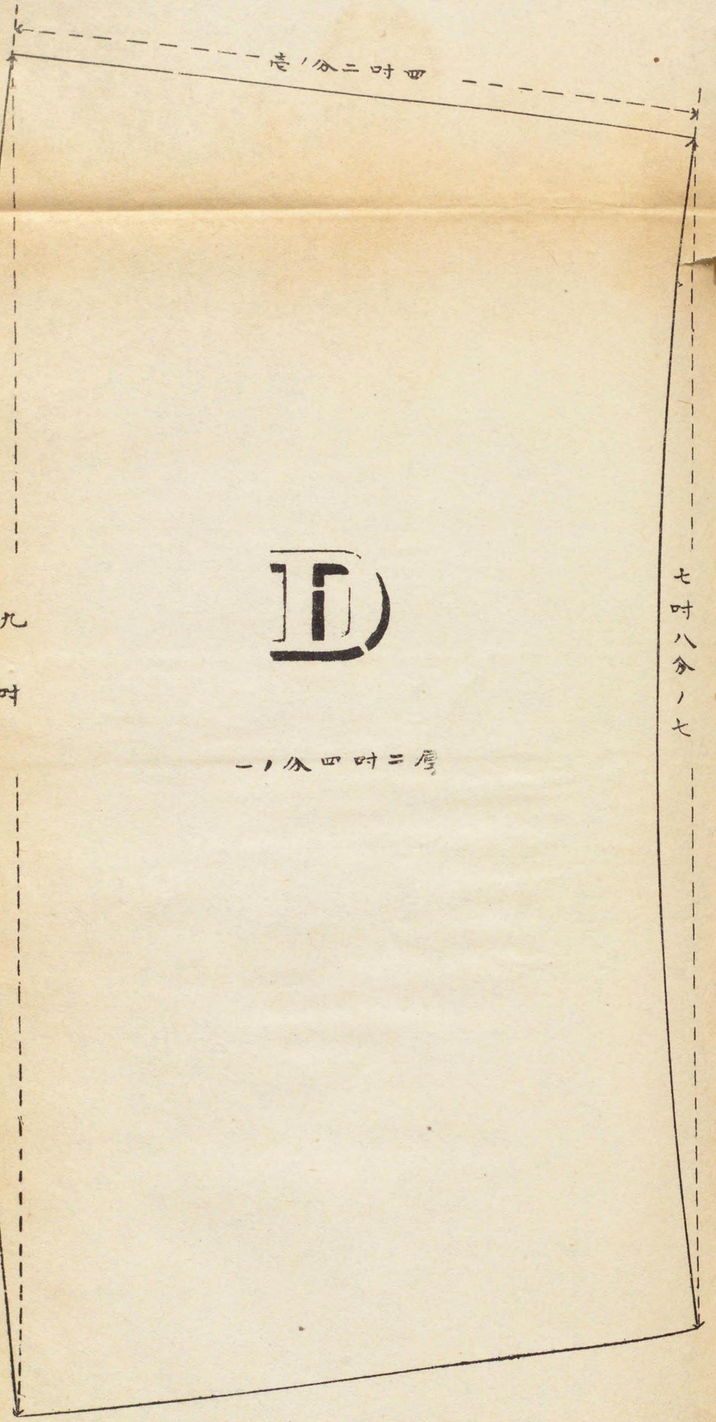
圖第二六號（二）

圓形徑　九尺「ウエル」用異形煉瓦石繼形圖（實形）



圖第二六號（二）

圓形徑　九尺「ウエル」用異形煉瓦石雛形圖（實形）



圖第二六號（二）

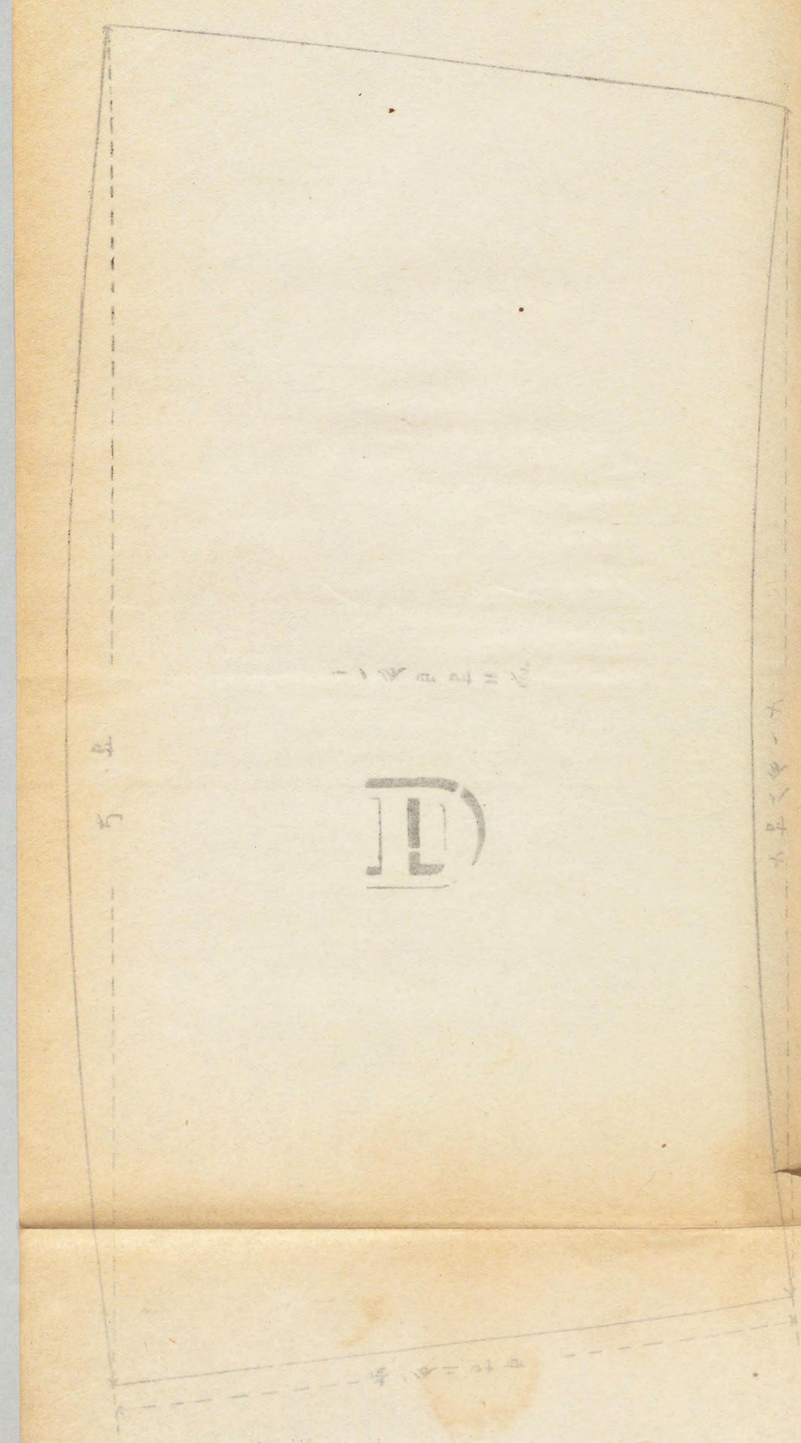
第三十一號圖

(三) 第六十二號圖

(形實)圖形幾何及練形習「ルエタ」附九　復形圖

圖第六十二號　(二)

圖形幾何　大沢「モヤ」出發法幾何解法圖(實形)



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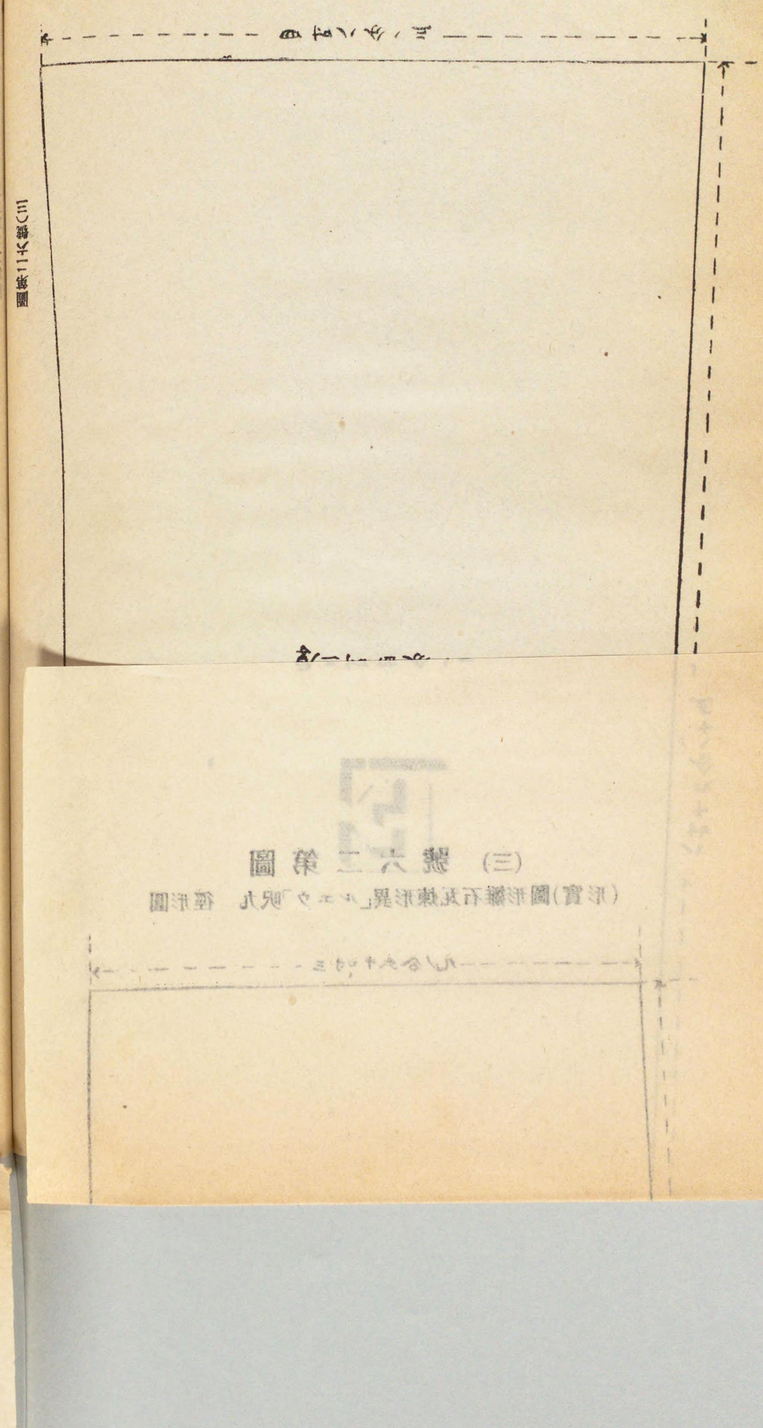


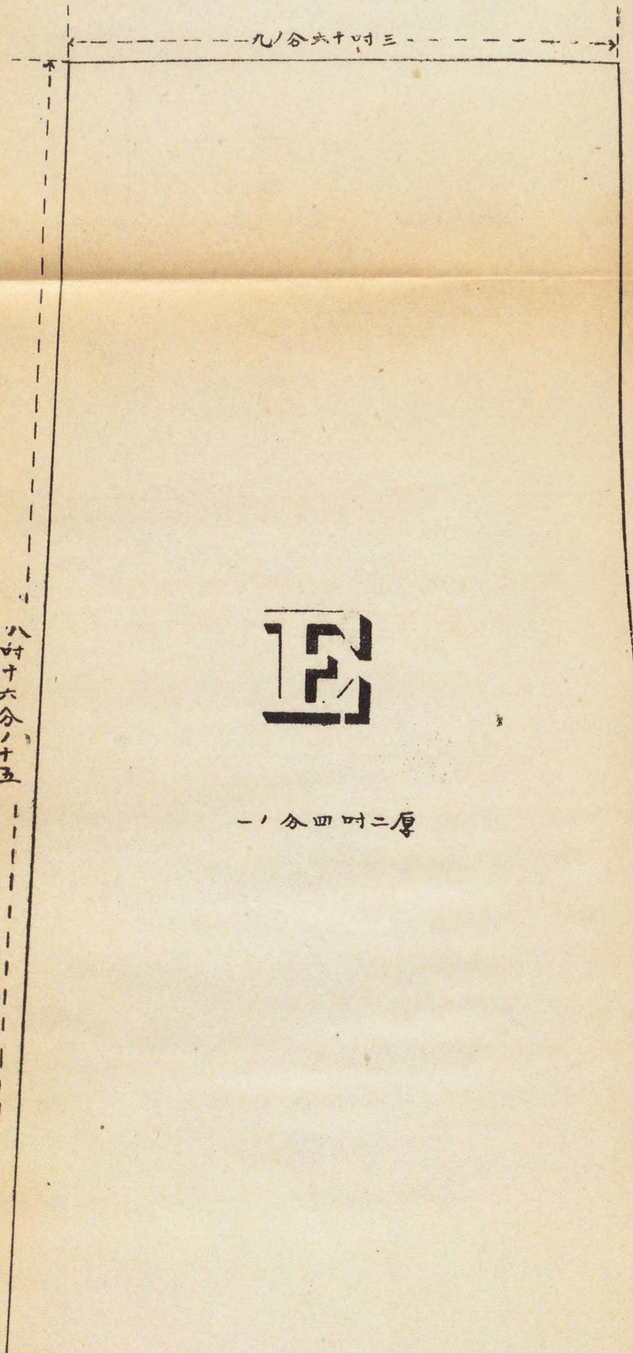
圖第二六號(三)

圖第二六號(三)

圖第二六號 (三)

圖第二六號 (三)

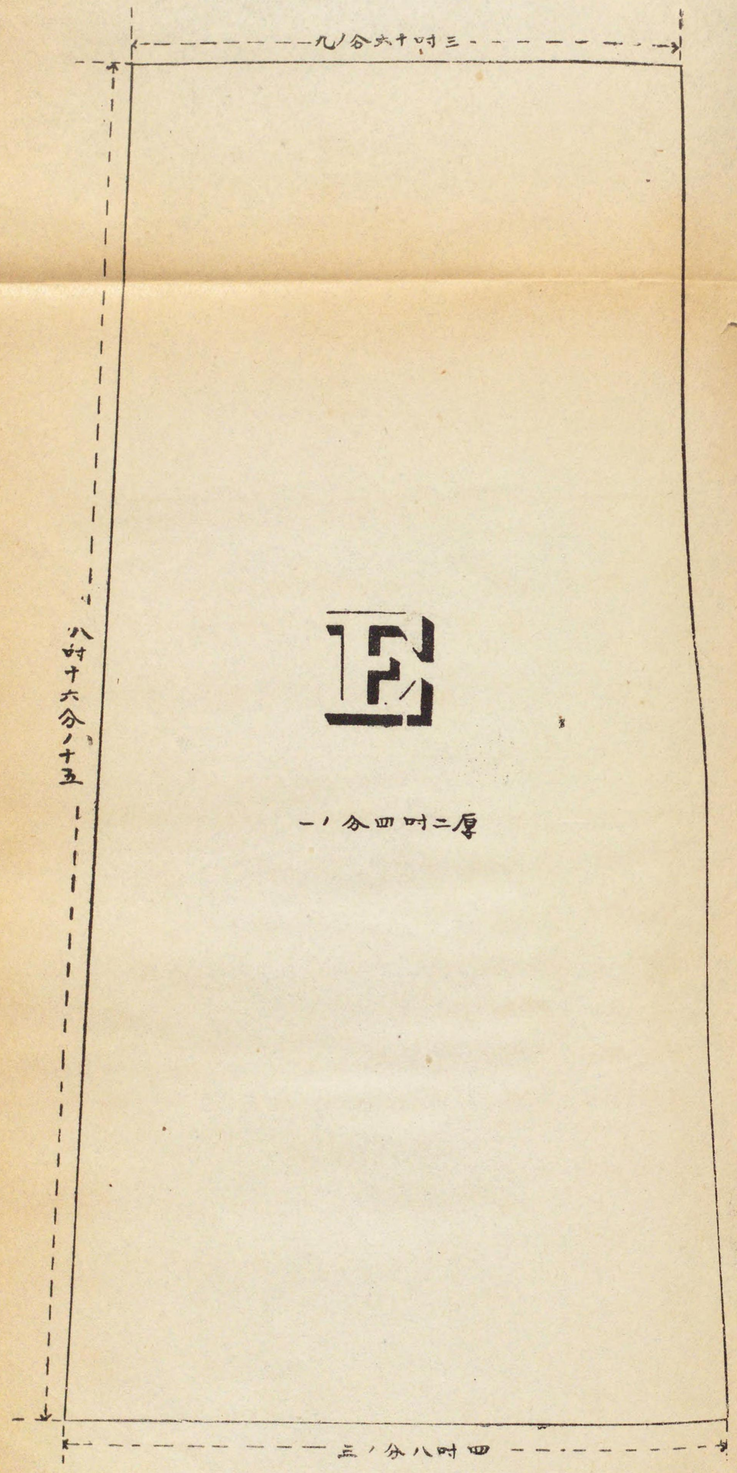
圓形徑　九呎「ウエル」異形煉瓦石雜形圖(實形)



圖第二六號(三)

圖第二六號（三）

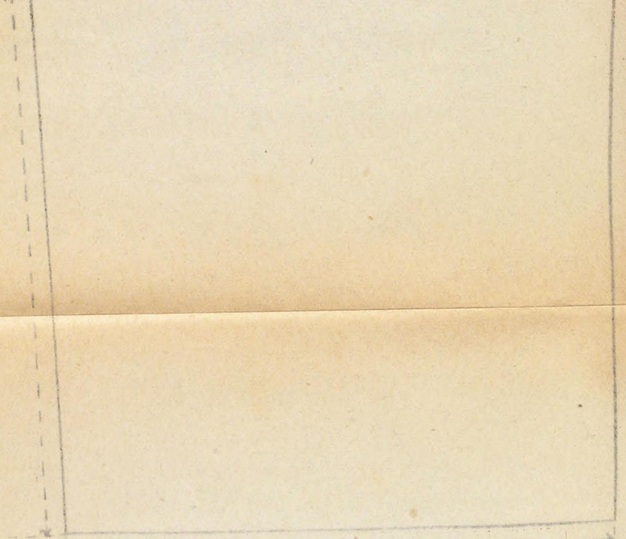
圖形徑　九呎「ウエル」異形煉瓦石雜形圖（實形）



圖第二六號（三）

圖第二六號（四）

（求實）圖形圖形五種形質用「ベクター」的二十　種形圖

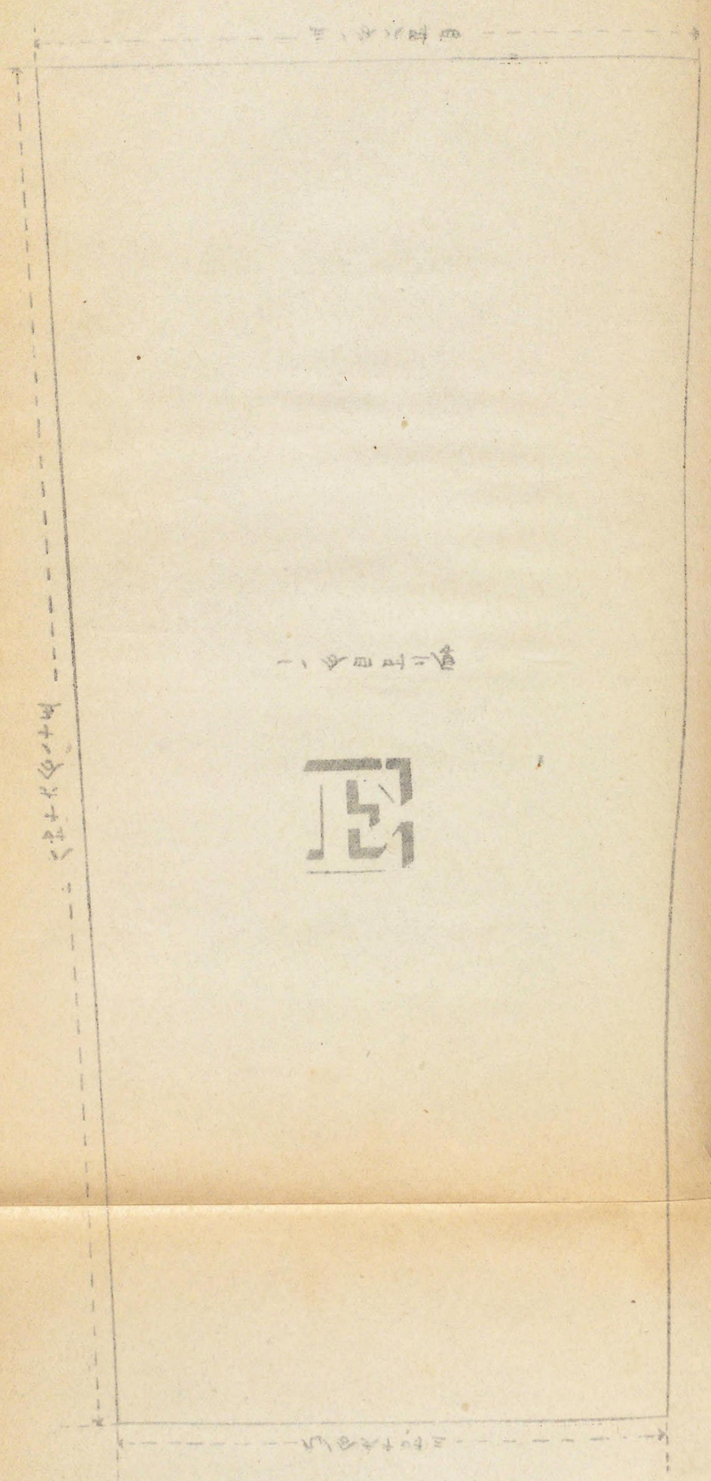


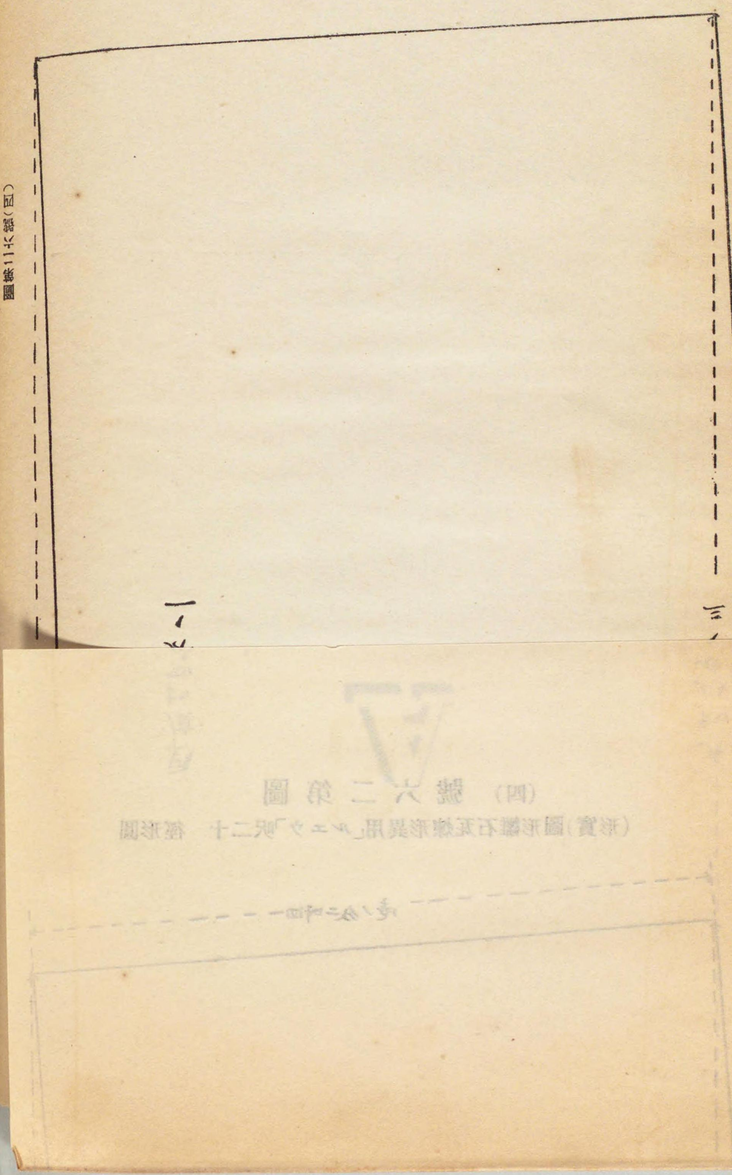
圖第二六號（三）

圖形第　人間「ベクター」異形與及合成形圖（實形）

圖第二六號（三）

圖半部　北京「モンゴル」民主勢及古蹟半圖（實半）





圖第二六號（四）

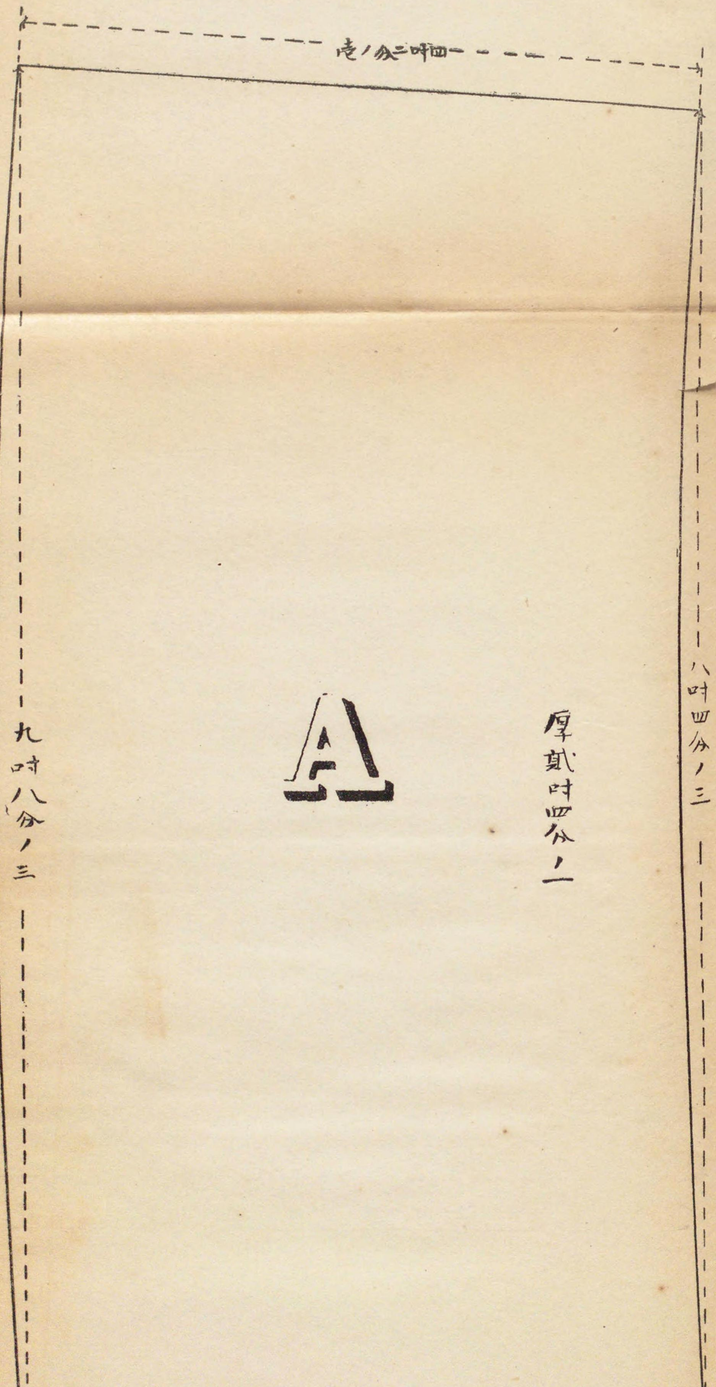
（非賣）圖正圖石瓦塗彩混用「ルニタ」院二十　縮率圖

圖第二六號（四）

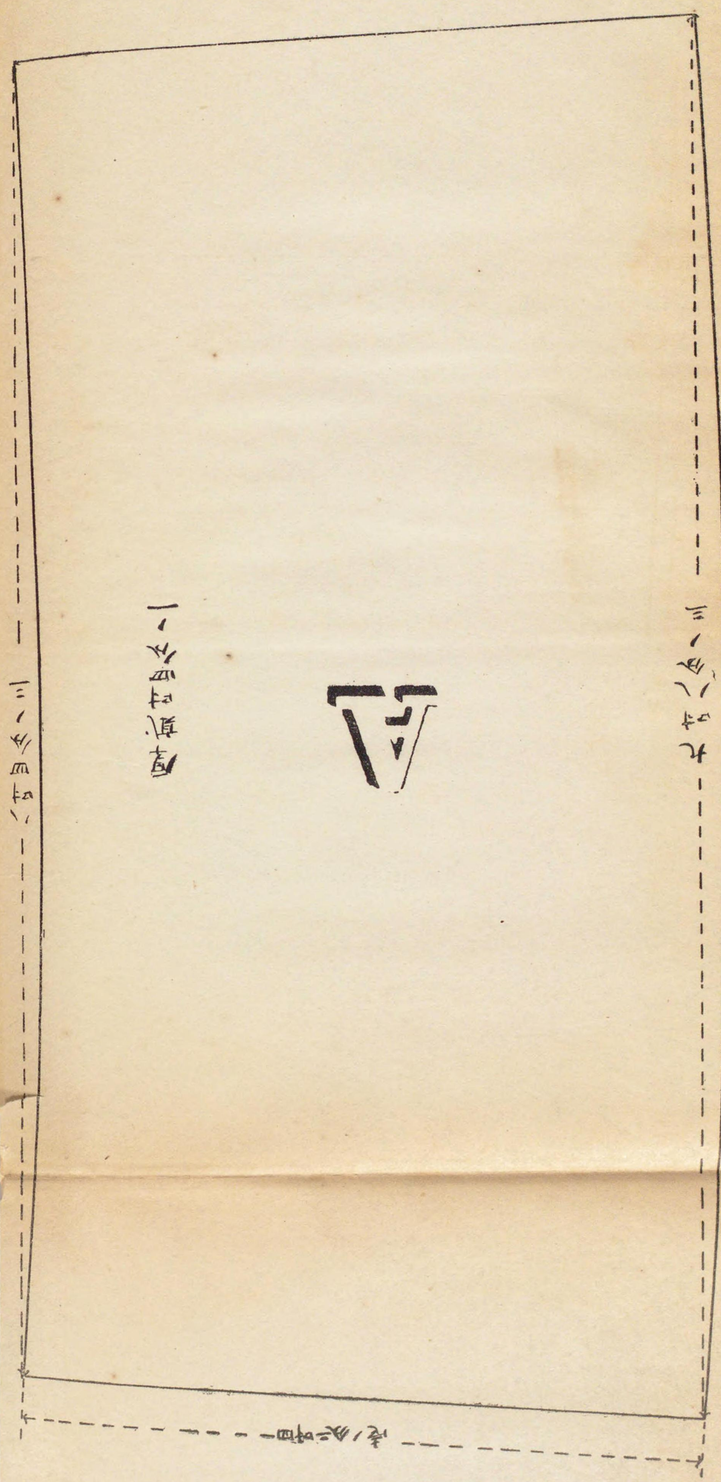
圖第二六號（四）

圖第二六號（四）

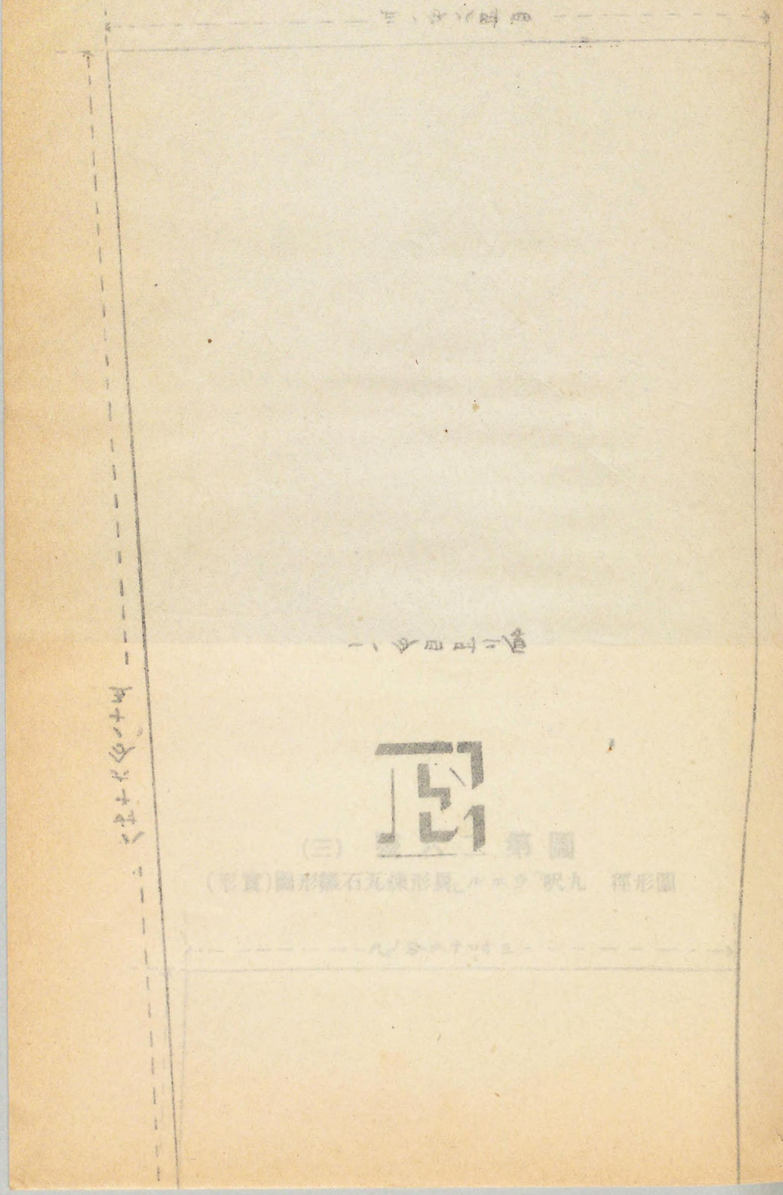
圓形徑　十二呎「ウエル」用異形煉瓦石雜形圖（實形）



圖版十六號(四)

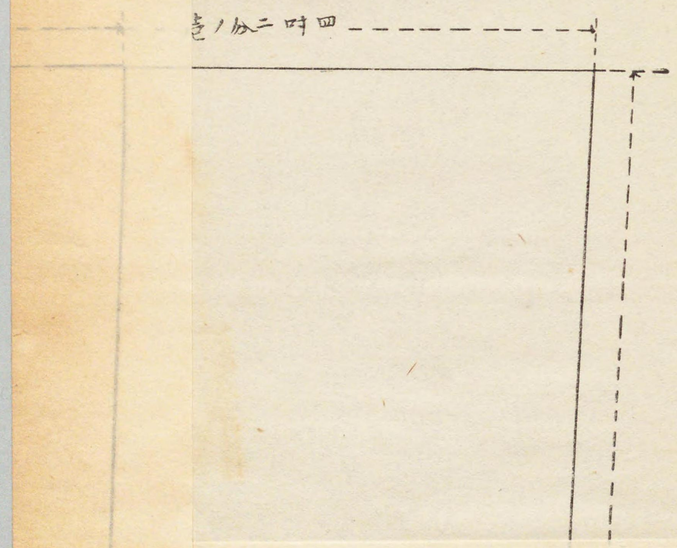


(四)　第十六號　圓形鏃石及煉形異用レンヤク呎二十　徑形圓
(形實)圓形鏃石及煉形異用レンヤク呎二十　徑形圓



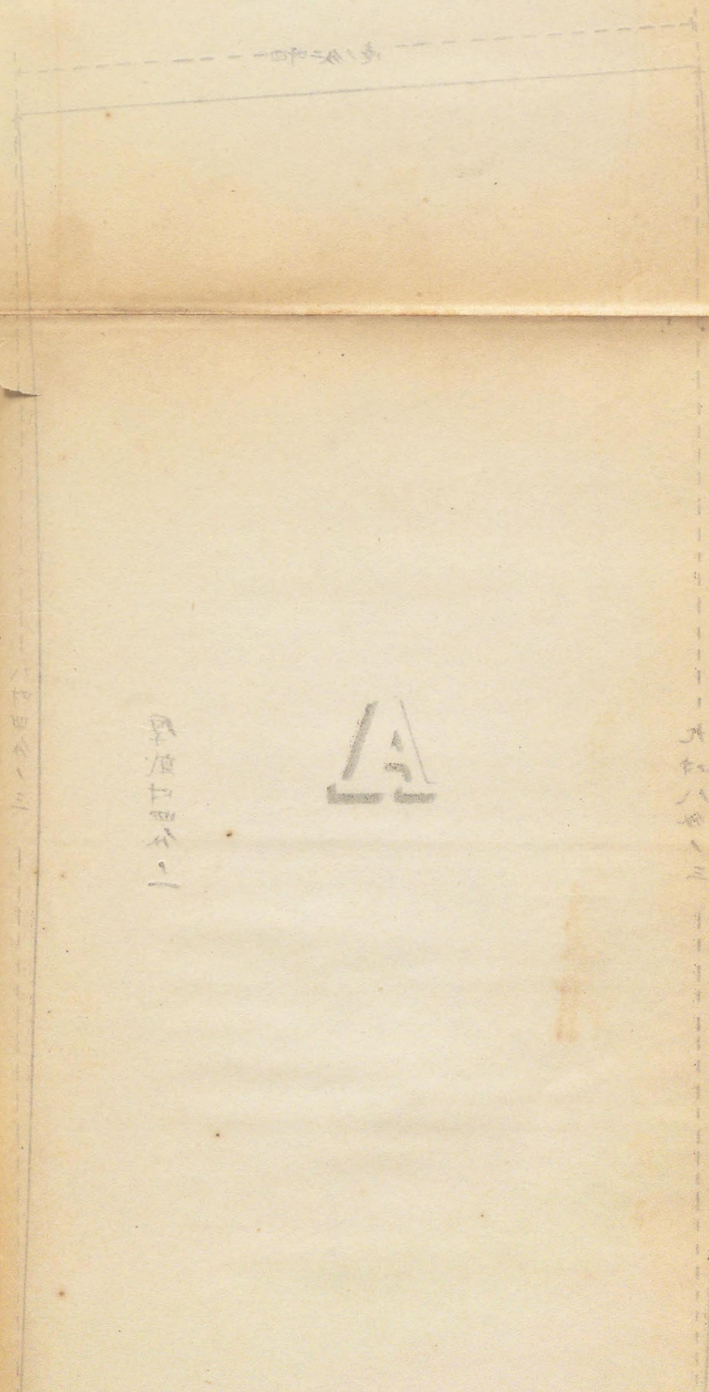
圖第二六號

瓦煉形異用ルエウ呎二十 徑形圓



圖第二六號 (四)

(瓦煉形異用ルエウ呎二十 徑形圓)

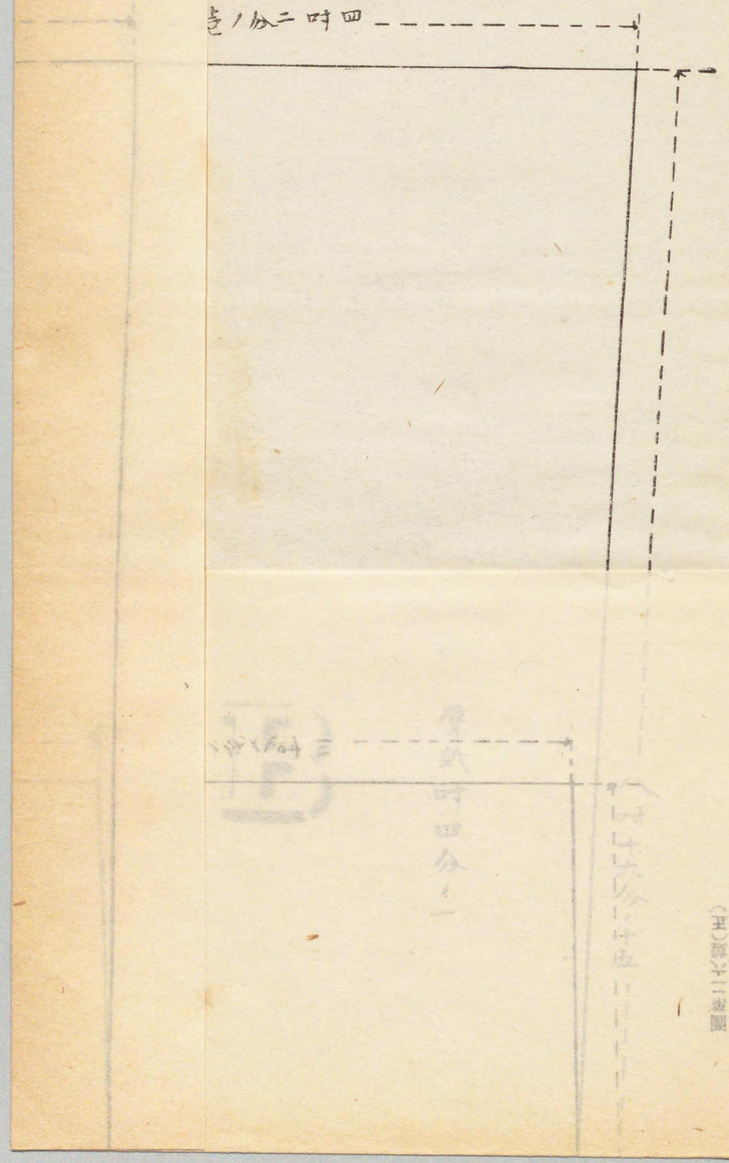


圖第二六號

圓形徑 十二呎「ウエル」用異形煉瓦

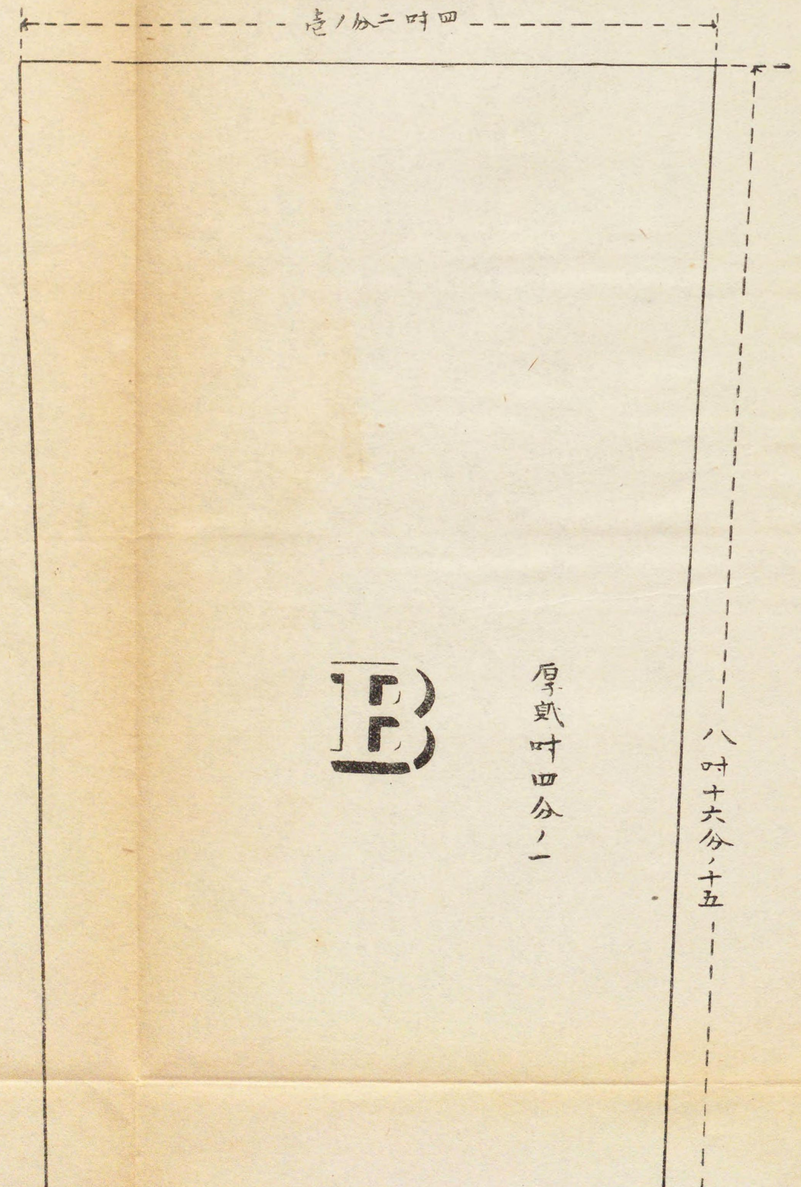
第二六號圖

異形煉瓦用「ウエル」呎二十徑形圓



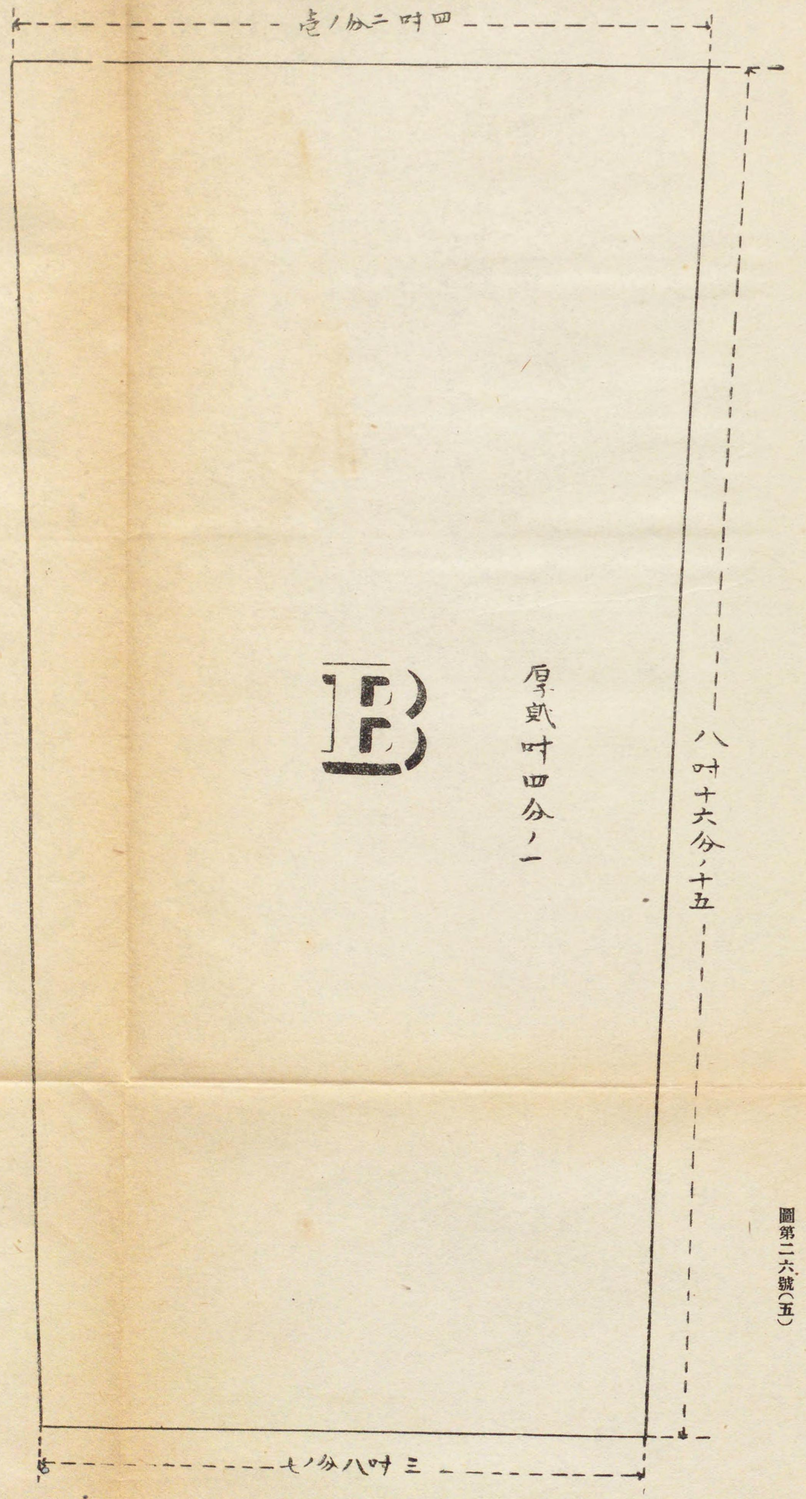
第二六號圖 (五)

(實形)圖形雛石瓦煉形異用ルエウ呎二十徑形圓



第二六號圖（五）

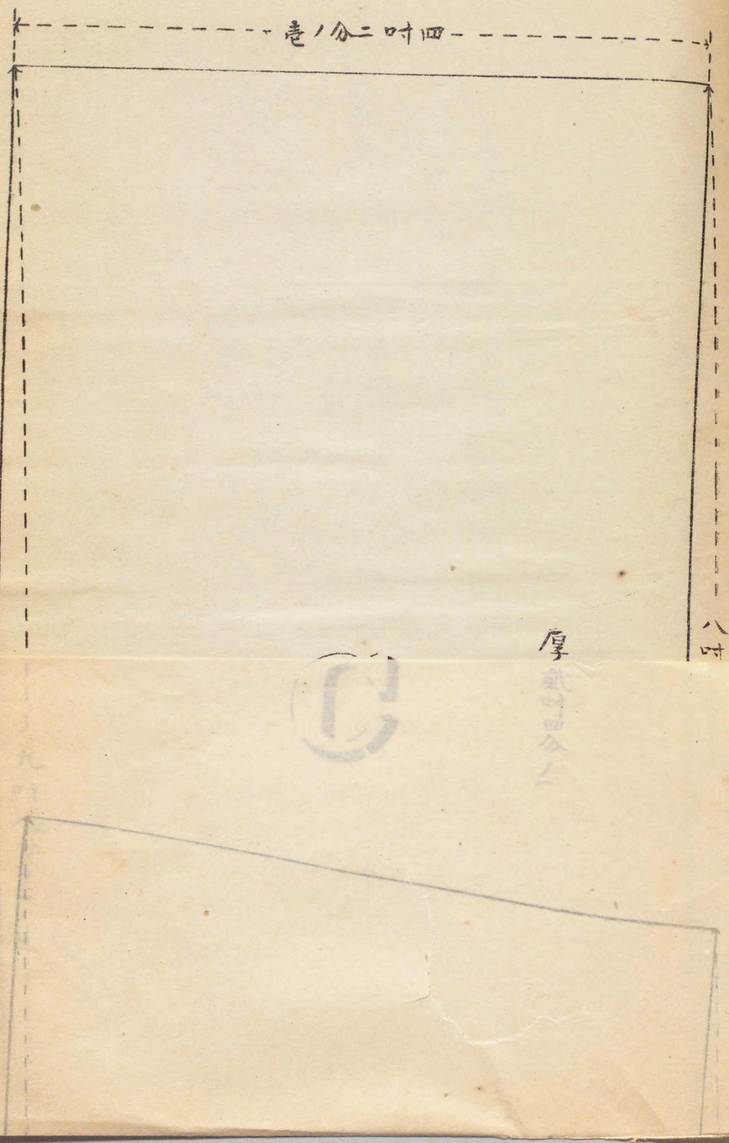
圓形徑十二吋「ウエル」用異形煉瓦石雛形圖（實形）



第二六號圖（五）

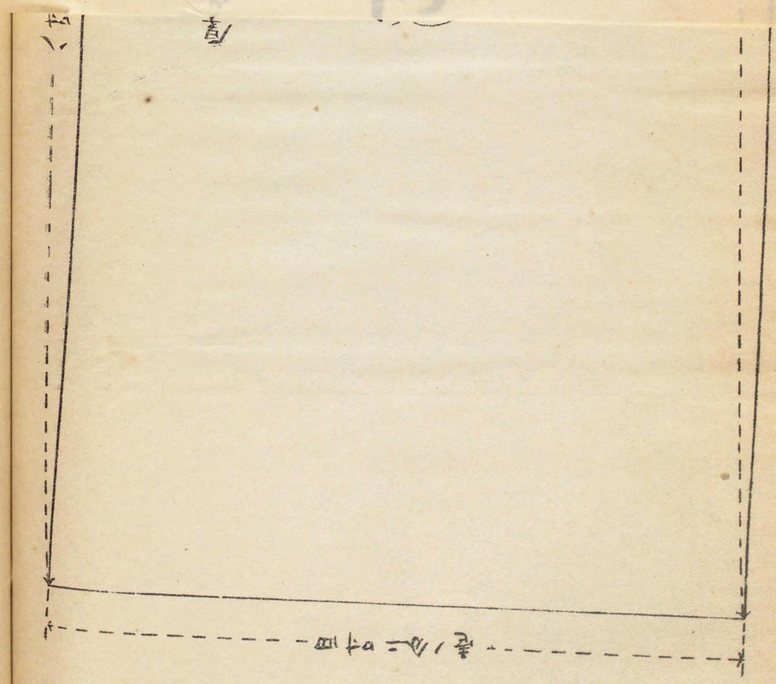
圖第二六號（六）

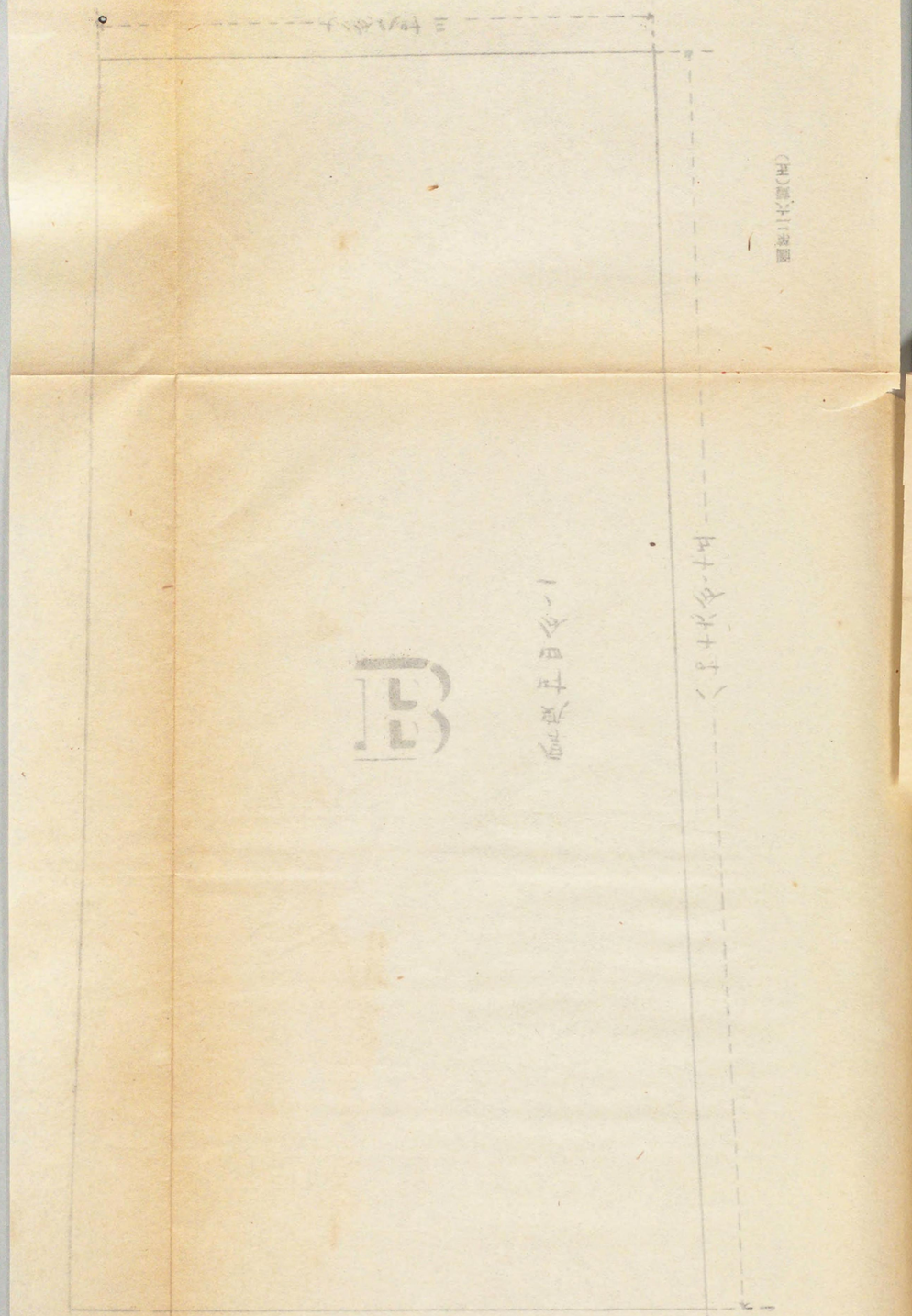
圖形徑　十二呎「ウエル」用異形煉瓦石雛形圖（實形）



(六) 號六二第圖

(形箕)圖形雞石瓦煉形異用レンヌクワ號二十　徑形圓



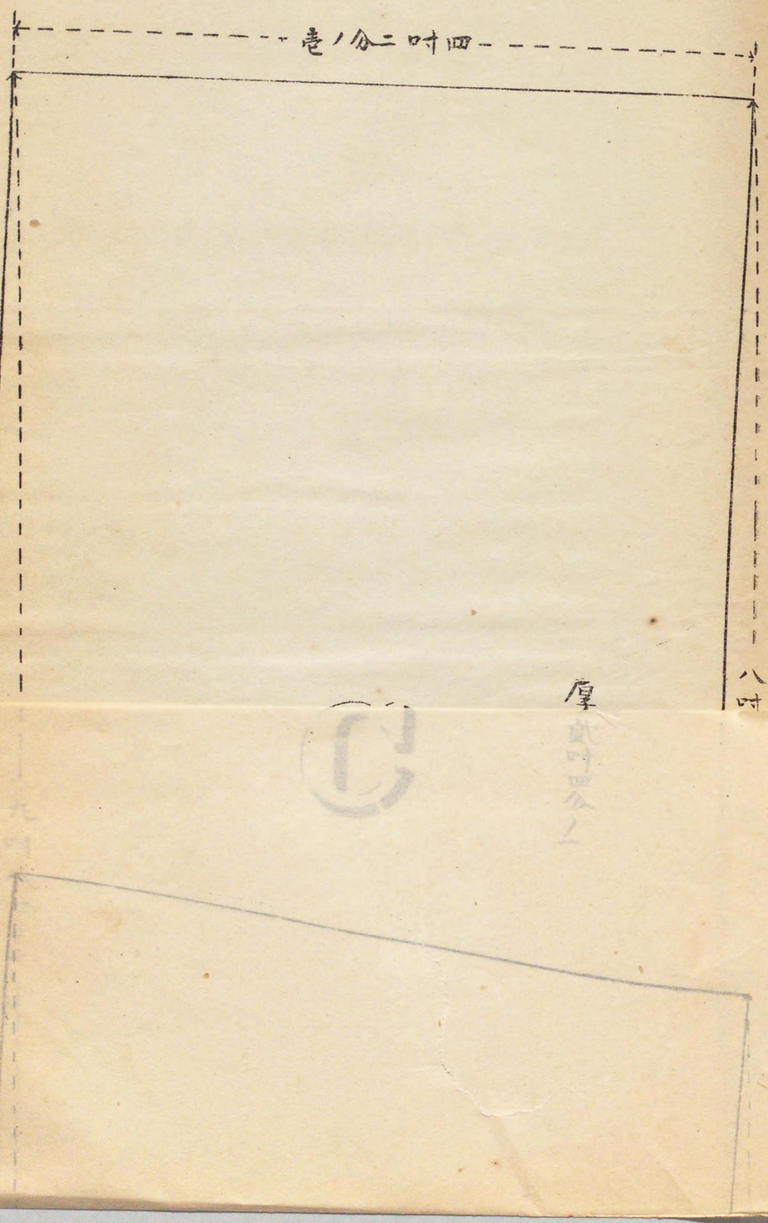


圖第二六號　(五)

圖形雞石瓦煉形異用レンヌクワ號二十　徑形圓

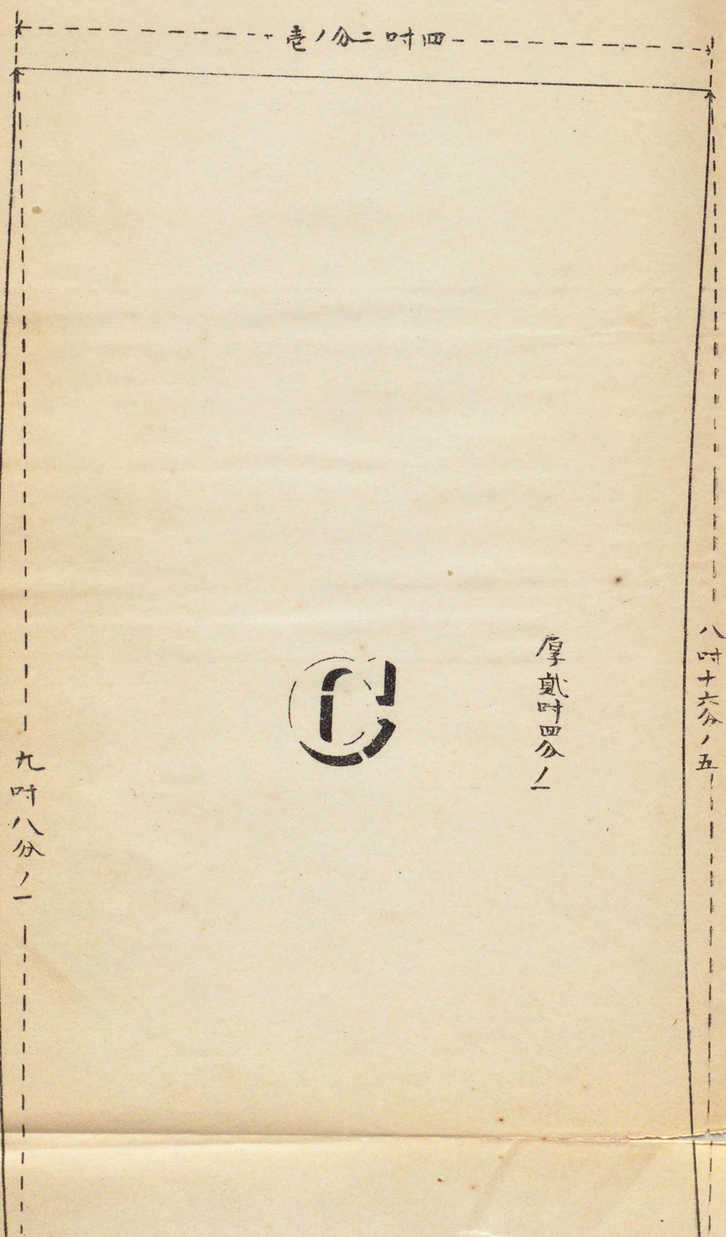
圖第二六號 (六)

圖形徑 十二吋「ウエル」用異形煉瓦石雛形圖(實形)



第二六號圖（六）

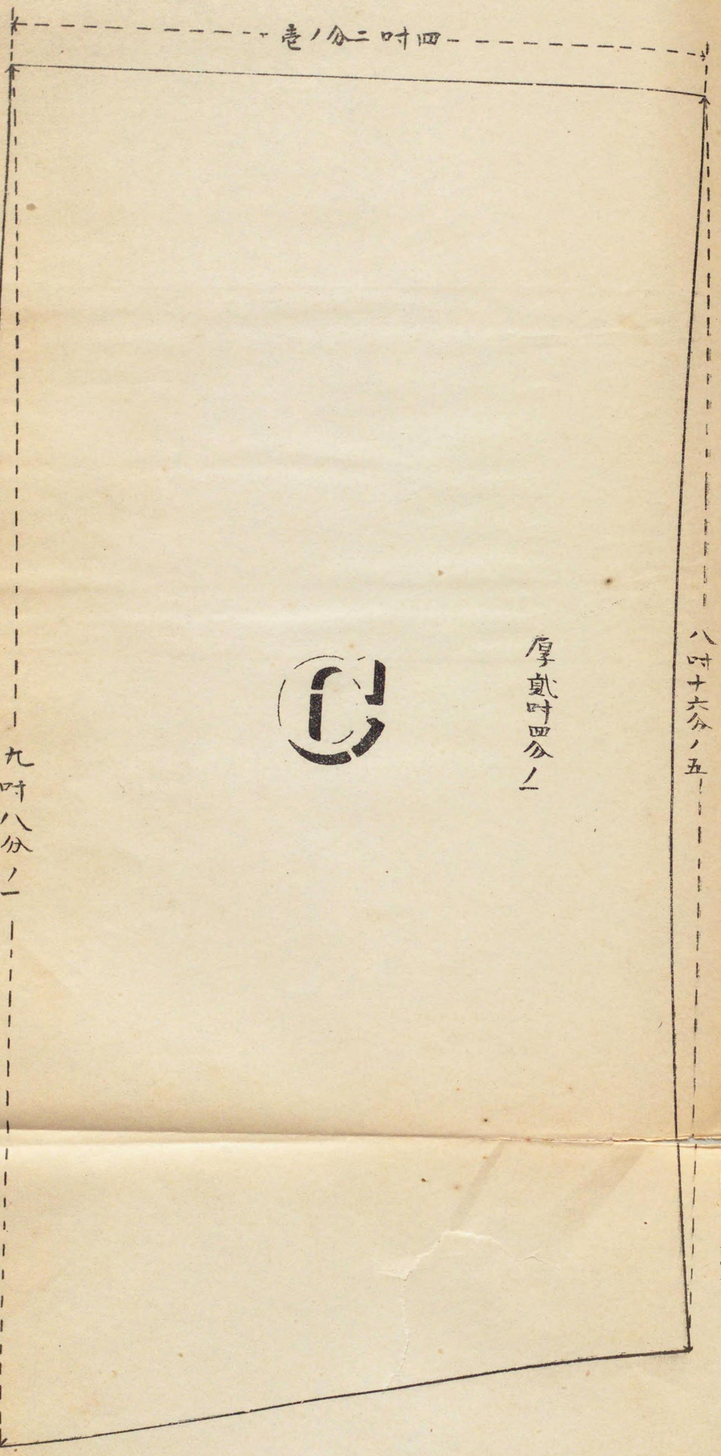
（異形煉瓦石張用「ウエル」呎二十徑形圓）



圖第二六號（五）

圖第二六號（六）

圖形徑　十二吋「ウエル」用異形煉瓦鏃形圖（實形）



圖第二六號（六）

圖第二六號（六）

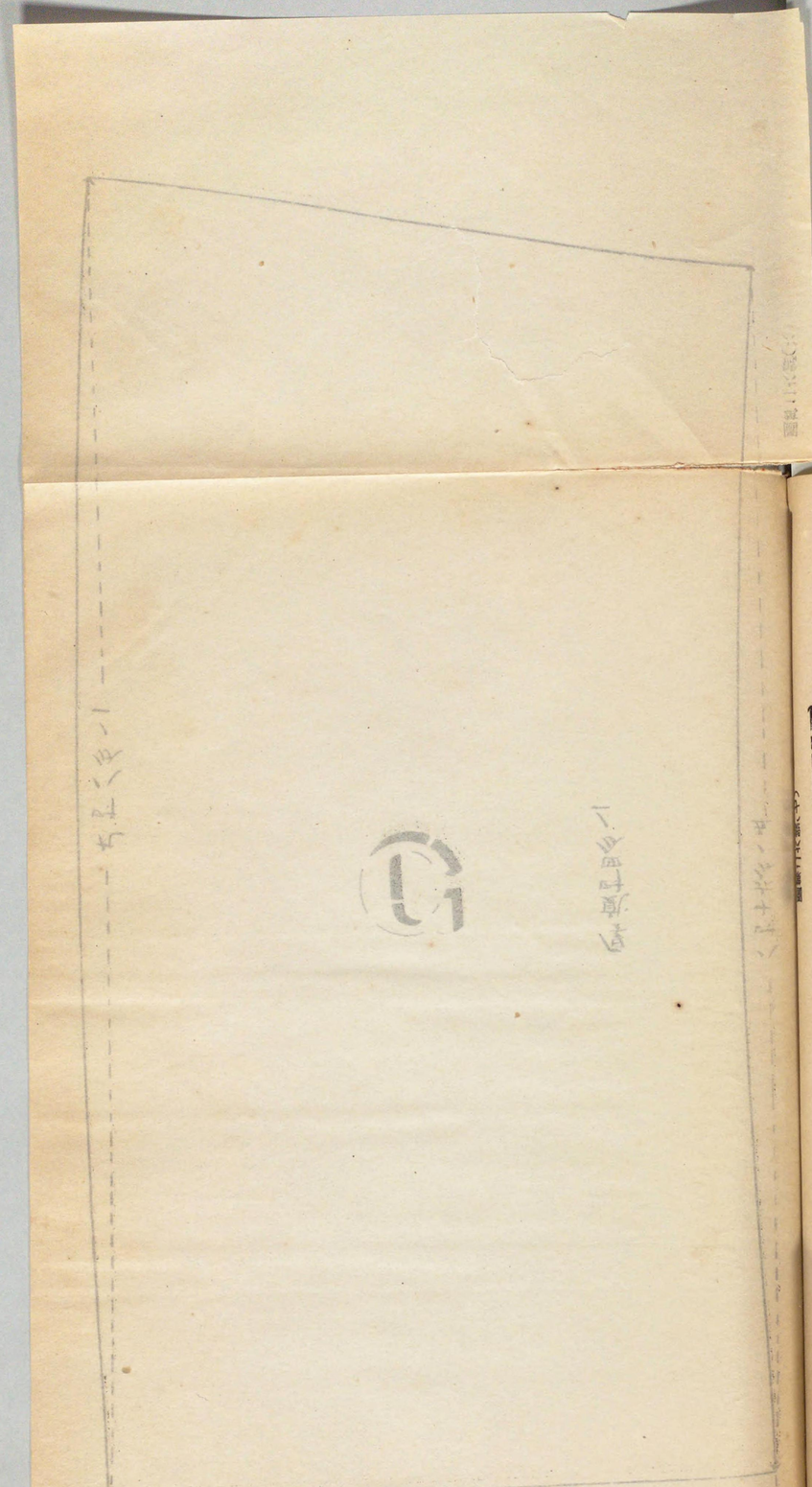
圖第四十二號ノ二

（實測）圖形觀察及實形實用ノ爲メニ作リ大サ縱橫共圖積ノ二萬分ノ一ニ縮ムルヲ適當トス

（イ）圖六二第

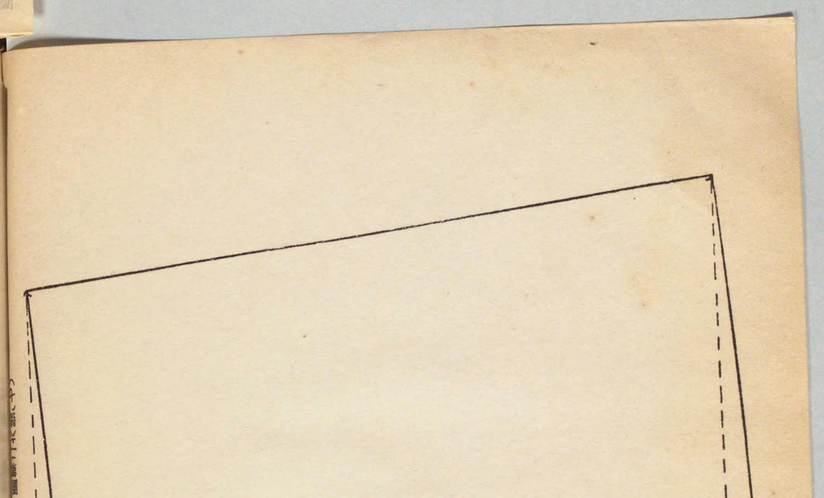
多ク各四寸四方ノ紙

C



圖第二六號（六）

（黃須）圖第十二號「ウエスト」用異形煉瓦各種形圖

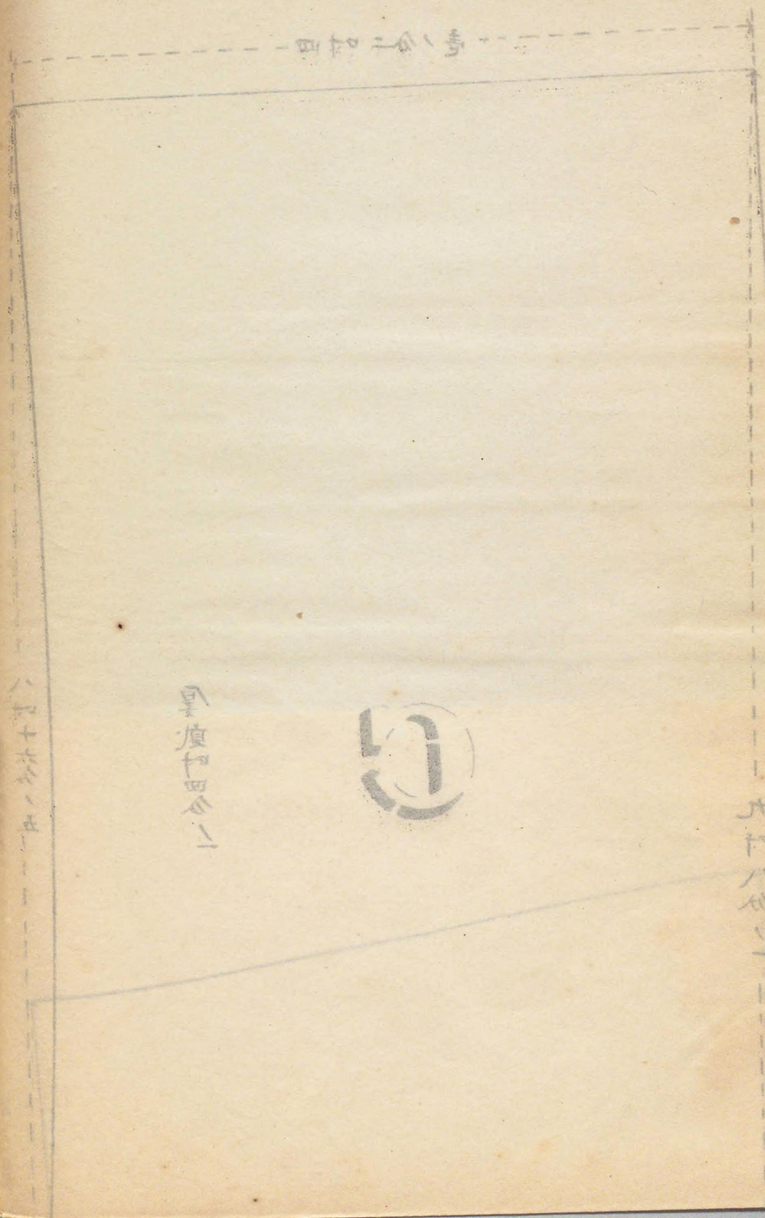


（七）第六二號圖

（黃須）圖第十二號「ウエスト」用異形煉瓦各種形圖

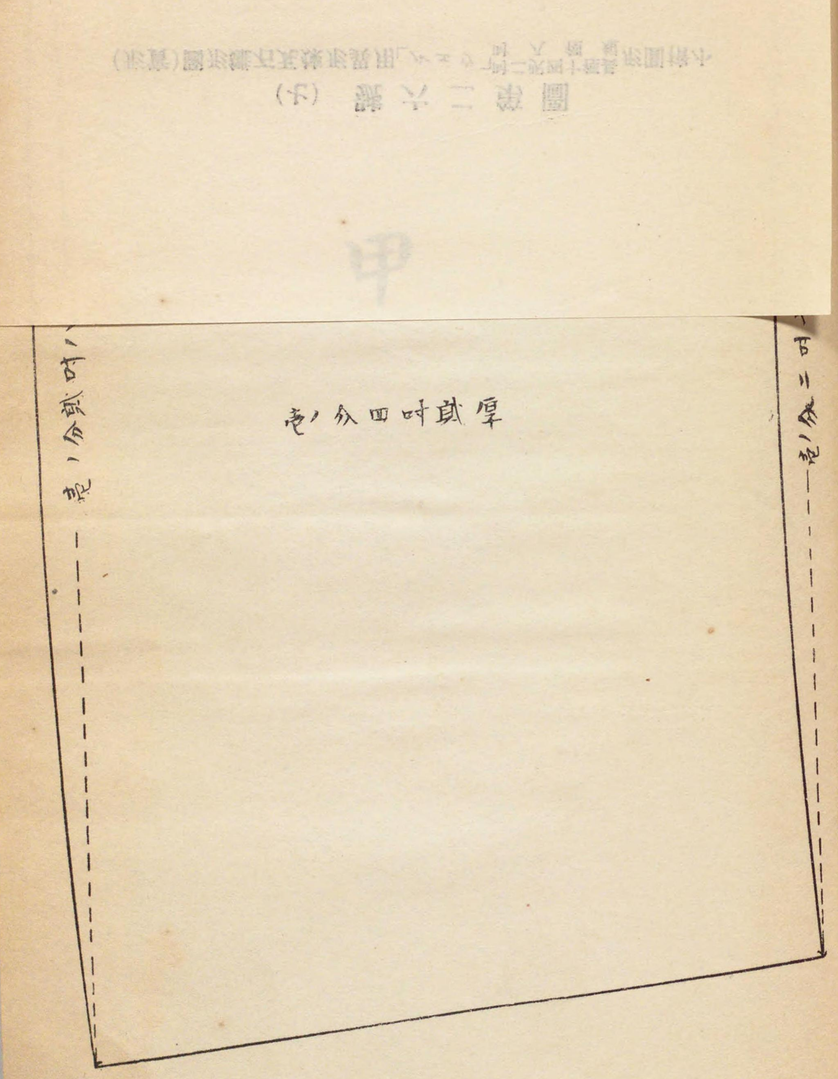
(六) 號六二第圖

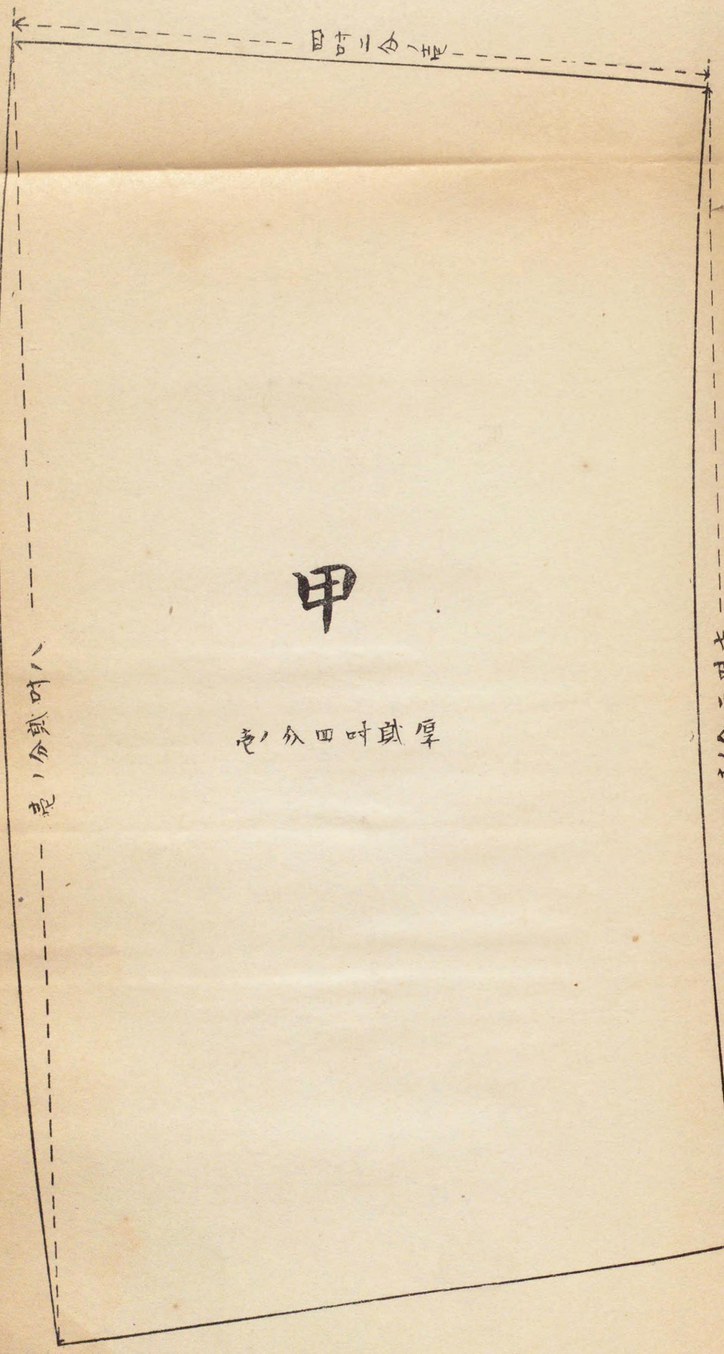
(形異)圖形鐵石瓦燒形菱用ノヤセノ配二十 從形圖



(七) 號七二第圖

(形異)圖形鐵石瓦燒形菱用ノヤセノ配二十 從形圖



第二六號圖（七）

小楕圓形（長徑十四吋二吋 短徑八吋）用異形煉瓦石雜形圖（實形）