



# Northern Pacific Railway Drawings

Dean O'Neill

September 2018

# Topics – Part 2

- **Part 1**
  - Overview & Drawing Standards
  - Standard Drawings & Sketches – Mechanical Department
  - Equipment Diagrams – Steam, Diesel, Freight, Passenger, Work Equipment, NPT
- **Part 2**
  - **Standard Plan Book**
  - **Track Standards**
  - **Signal Department Drawings**
  - **Bridge Drawings (includes turntables, signal bridges)**
  - **Specialized Drawing Books**
    - Tools
    - Tin ware
    - Lumber for Buildings & Misc. Structures
    - Others?
  - **Northern Pacific Railway Drawing Repositories as of 2018**
  - **Recent Flurry of Donations**
  - **Drawing Restoration, Scanning, and Sharing with the World**
  - **Call to Action – the power of shared drawings**



# Standard Plan Books

Drawings of Structures, Others

**N.P.R.Y.**  
**STANDARD PLANS**

*Plans 1 to 312*  
**H. R. PETERSON**  
CHIEF ENGINEER

**WAREHOUSES**



**LUMBER**

FOR BUILDINGS AND MISC. STRUCTURES

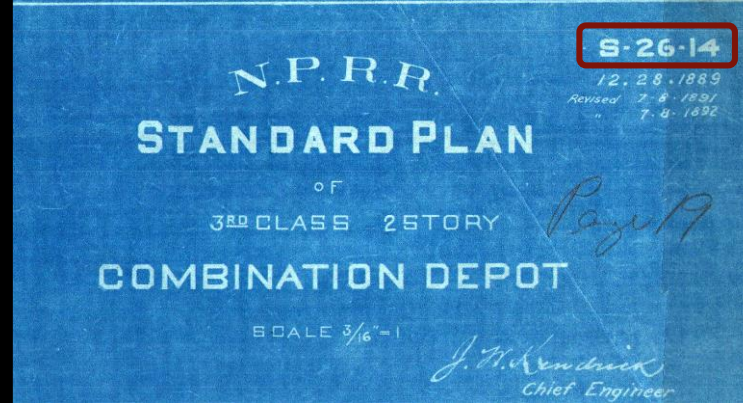
NORTHERN PACIFIC RY. CO.



- Issued by Bridges & Buildings Department
- Many incarnations over the years
- Other than main “structure” Standard Plan books, other smaller books

Lumber, Warehouses, etc.

**Standard Plan Books**

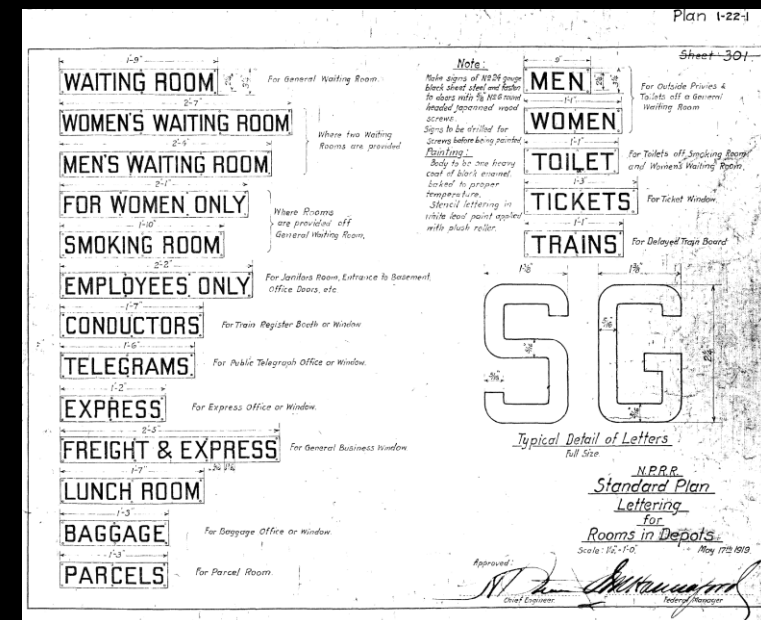
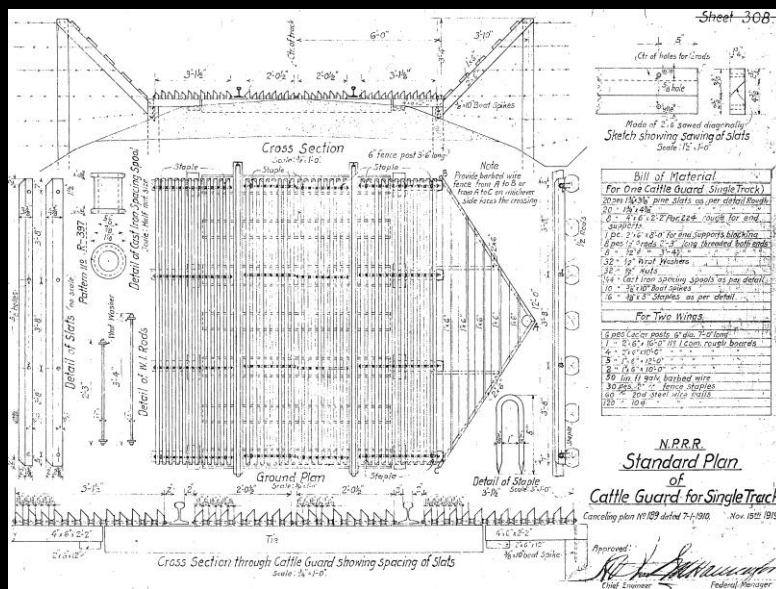
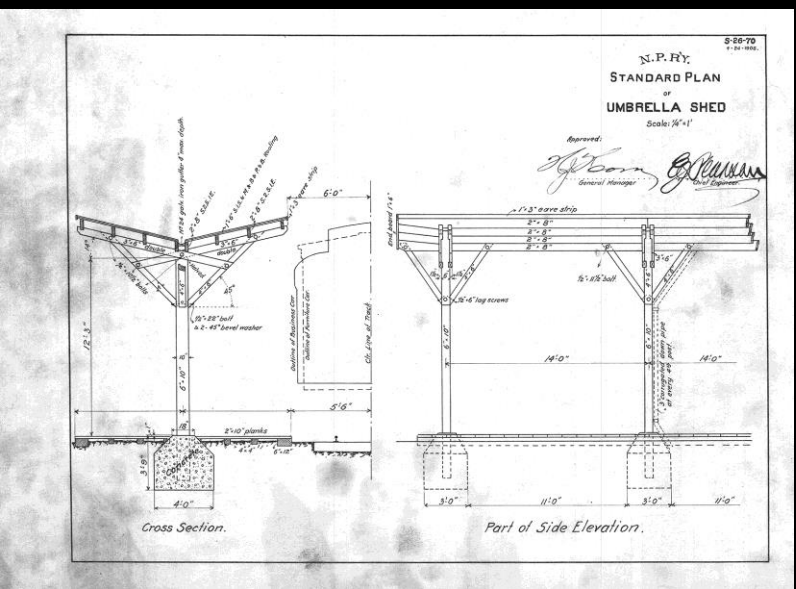
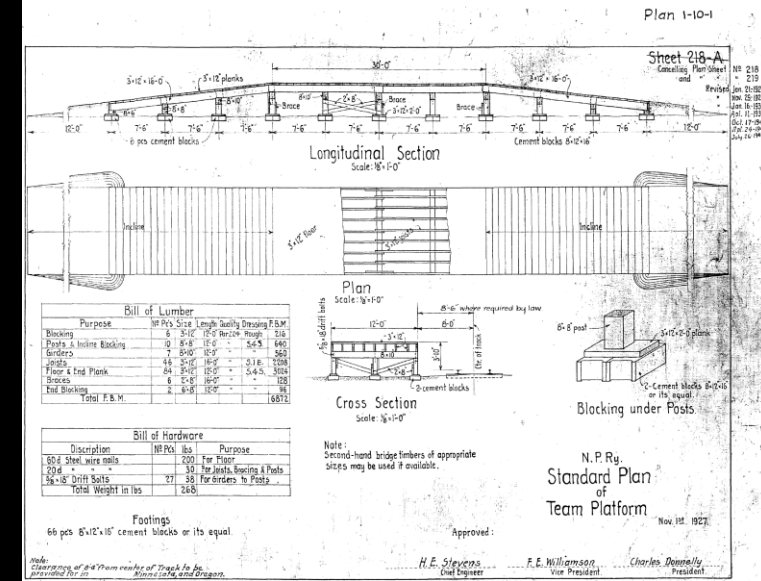
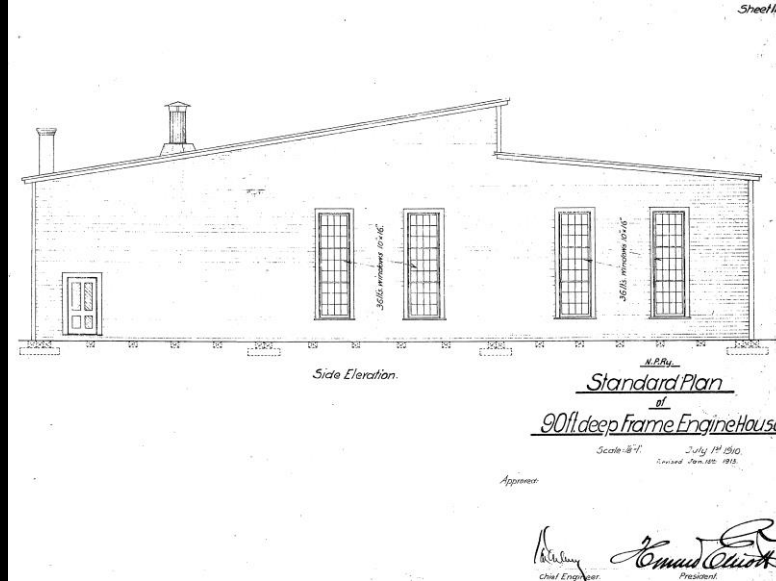
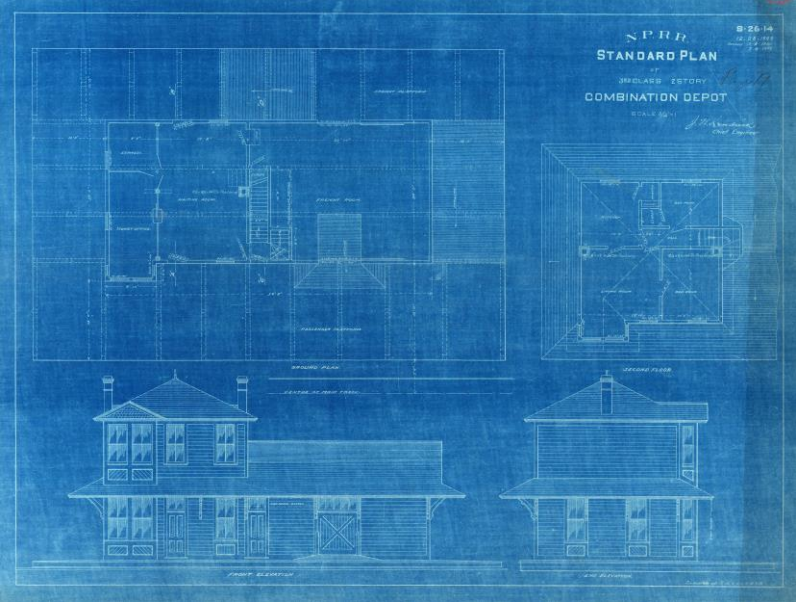


Section 2.

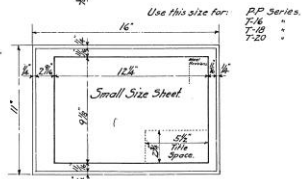
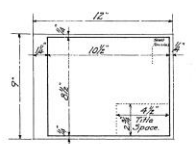
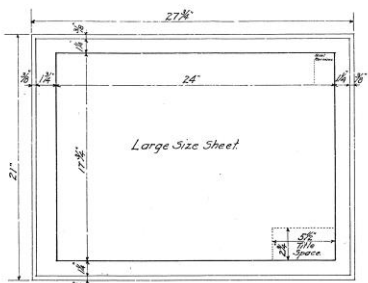
Standard Plan Number.	Description.	Original Date of Plan.	Old Number.	Date of Revisions.			Remarks.
2-1-1	Section House 1/2 Story Plan.	Jan. - 17 - 1918	290.	8-29-18.			
2-1-2	" " 1/2 " Section.	Jan. - 17 - 1918.	291.	10-1-25.			
2-1-3	" " 1/2 " Bill of Material.	Jan. - 17 - 1918.	292.	7-24-24.	4-11-32.		
2-2-1	Privy for Section Houses.	May - 9 - 1911.	193.	1-20-22.	4-11-32.	5-6-35	
2-3-1	Bunk House, Portable 11' x 24'.	Apr. - 23 - 1918.	293.	4-11-32.			
2-4-1	Tool House, Single and Double	July - 1 - 1910	84	9-26-23	4-11-32		
2-4-2	Section Tool House - Wood	July - 29 - 1946					
2-4-3	" " " - Metal	Feb. - 27 - 1953					
2-5-1	Motor Car House for Signal Maintainers, 2 Car House.	June - 21 - 1929.	285-A.		12-4-44		Canc. Plan 285 dated Oct. 1-1917.
2-5-2	" " " " " " " " Bill of Mat.	June - 21 - 1929.	286-A.	4-11-32.	12-4-44		Canc. Plan 286 dated Oct. 1-1918

## Standard Plans: Making sense of the numbers/sheets/etc.

- Originally, no number
- First numbering system started in 1889, plans went by alpha/numeric codes, with Title. e.g. S-26-14
- S- stands for Structures, M- stands for Maintenance, R- Bridges, T- Track related
- Then by a sheet number from the Plan Book, e.g. 290, 291, 292
- Then finally, by Standard Plan Number, e.g. 2-1-1, 2-1-2, 2-1-3



Examples of Numbering

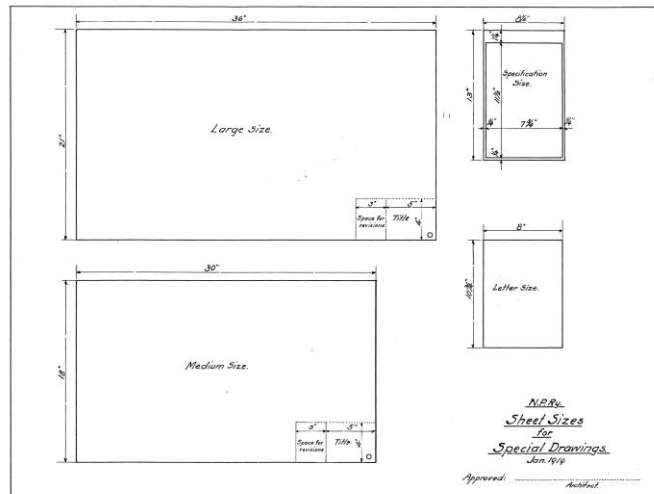


Use this size for: Numerical Series  
 P-10  
 T-16  
 T-18  
 T-20

Use this size for: PP Series  
 T-16  
 T-18  
 T-20

*N.P.Ry.*  
Sheet Sizes  
 for  
Standard Plan Drawings  
 Jan. 1919.

Approved: \_\_\_\_\_  
 Chief Engineer



*N.P.Ry.*  
Sheet Sizes  
 for  
Special Drawings  
 Jan. 1919

Approved: \_\_\_\_\_  
 Assistant

*N.P.Ry.*  
Standard Plan  
of  
30x68 Combination Depot  
with Living Rooms  
 Scale 3/4" = 1"      June 16<sup>th</sup> 1916.

Approved: \_\_\_\_\_  
 Chief Engineer      President

*Use this form for: (Large and Small sizes) Numerical Series; T-16, T-18, T-20*

*N.P.Ry.*  
Standard Plan  
of  
Track Tools  
Lining Bar  
 Scale: 1/2 Size.      Feb. 16<sup>th</sup> 1914.

Approved: \_\_\_\_\_  
 Field Vice President  
 General Manager  
 General Manager  
 Chief Eng. M.W.H.

*Use this form for: Track Tools Series Ice Tools Series*

*N.P.Ry.*  
Standard Plan  
of  
Power Plant Equipment  
Typical arrangement of boilers and breeching  
 Scale 3/8" = 1"      Dec. 1914.

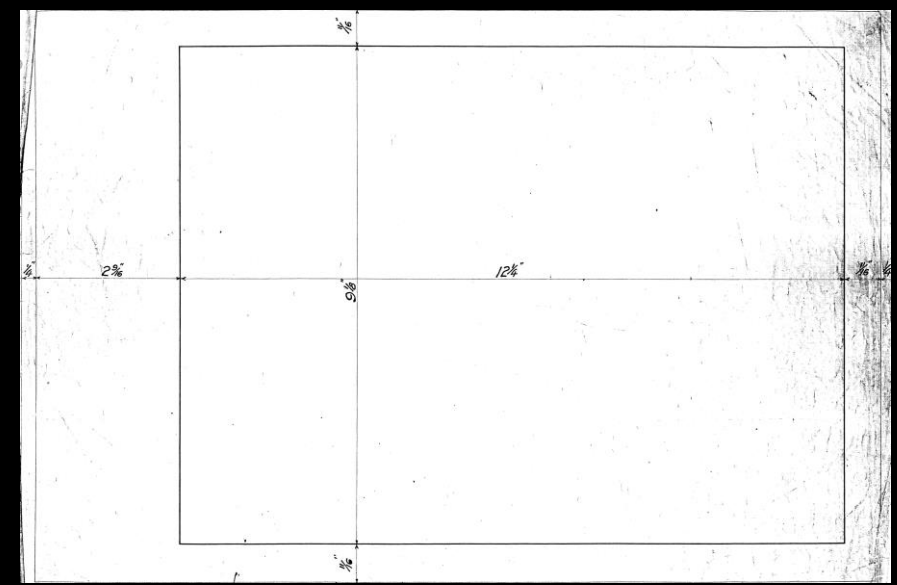
Approved: \_\_\_\_\_  
 Mech. Sup't      Chief Engineer      President

*Use this form for: PP Series*

*NOTE: Titles to be placed in lower right hand corner of sheet*

*N.P.Ry.*  
Typical Titles  
 for  
Standard Plan Drawings  
 Jan. 1919.

Approved: \_\_\_\_\_  
 Chief Engineer

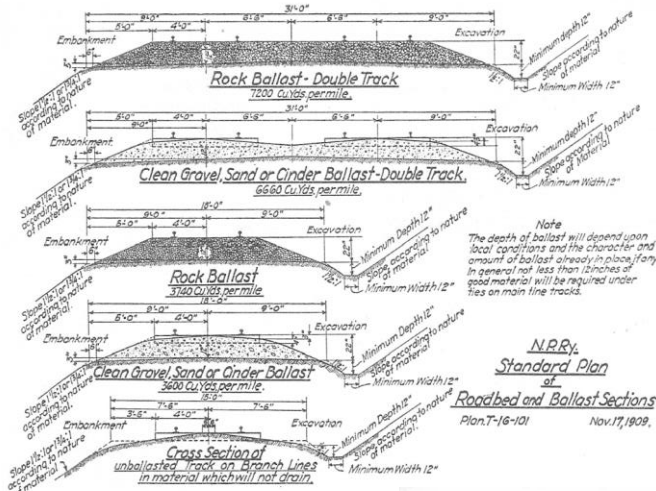


# Standard Plan - Sheet Sizes

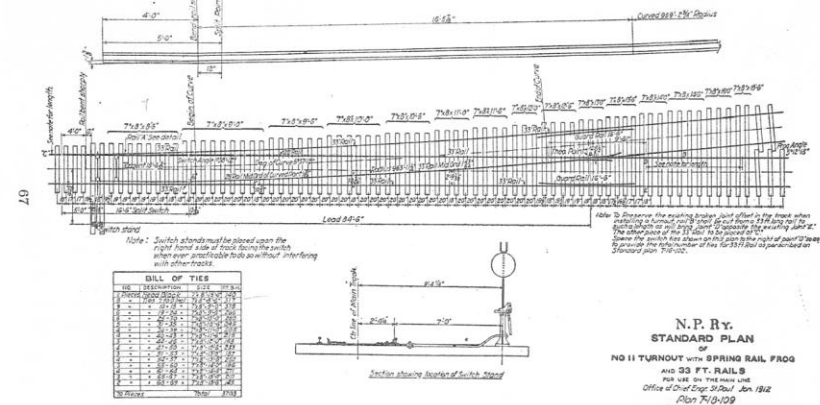


# Track Standards



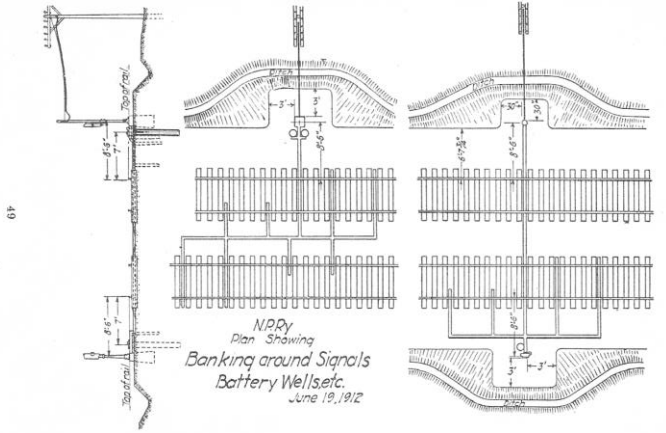


N.P.R.Y.  
Standard Plan  
of  
Roadbed and Ballast Sections  
Plan T-16-101 Nov. 17, 1909



BILL OF TIES	
NO.	QUANTITY
1	10
2	10
3	10
4	10
5	10
6	10
7	10
8	10
9	10
10	10
11	10
12	10
13	10
14	10
15	10
16	10
17	10
18	10
19	10
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21	10
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87	10
88	10
89	10
90	10
91	10
92	10
93	10
94	10
95	10
96	10
97	10
98	10
99	10
100	10

N.P.R.Y.  
STANDARD PLAN  
OF  
NO. 11 TURNOUT WITH SPRING RAIL FROG  
AND 33 FT. RAILS  
FOR USE ON THE MAIN LINE  
Office of Chief Eng. N.P.R.Y. Jan. 1912  
Plan T-16-102



N.P.R.Y.  
Plan Showing  
Banking around Signals,  
Battery Wells, etc.  
June 19, 1912



Note: Where traffic conditions warrant the number of ties in main track of branch lines is subject to change at discretion of the General Manager.  
For yards, storage and passing tracks the number of ties per rail may be varied with the importance of the track at the discretion of the General Superintendent.  
For further details reference may be had to Track Rules in Engineering Department Circular No. 1-A, Oct. 1, 1913

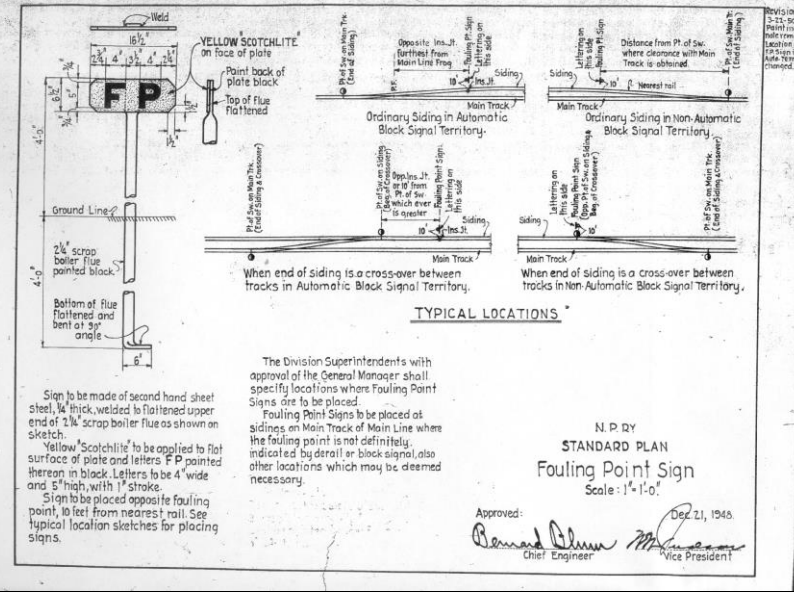
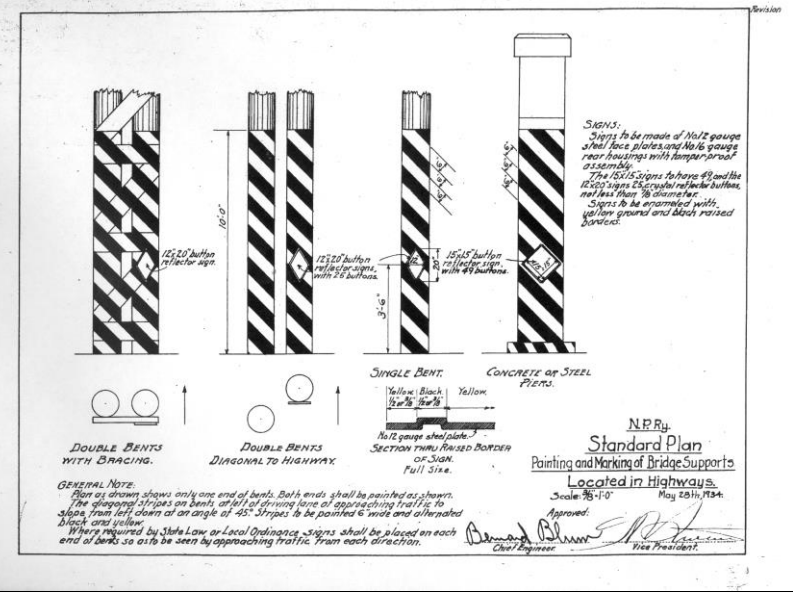
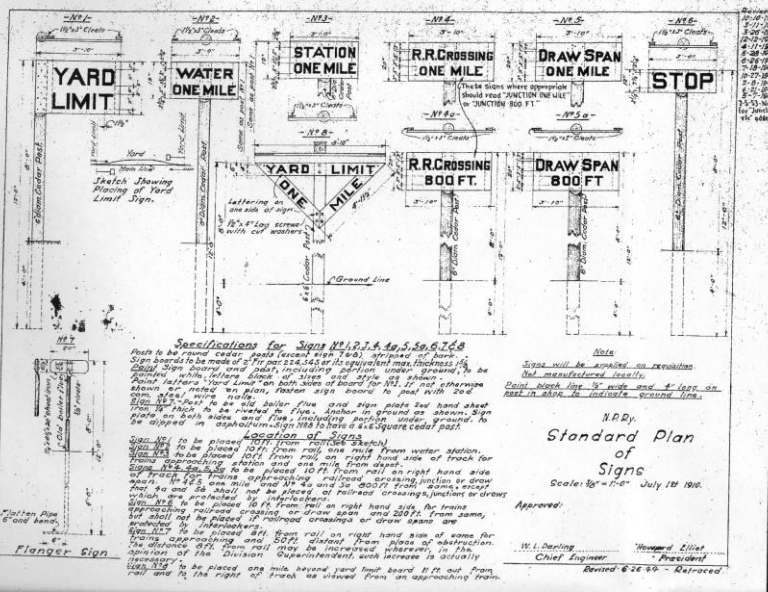
N.P.R.Y.  
Standard Plan  
of  
Tie Spacing  
for Broken Joints  
Plan T-16-102 Nov. 4th 1914

# Standard Plans: Track

- Images above from 1918 NP Maintenance Rules, on NPRHA site
- 11x17 book, at PNRA



**Sign Drawings**



INDEX 5

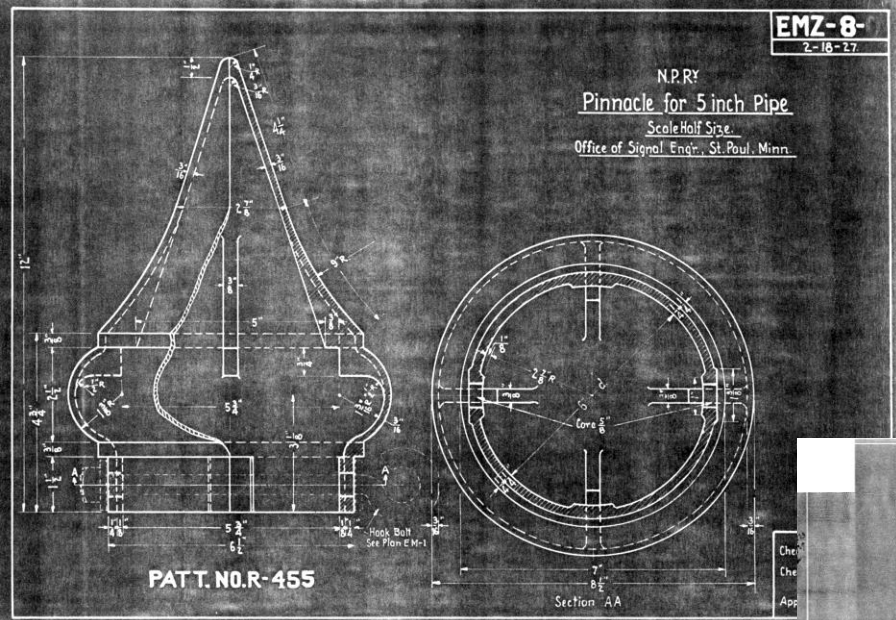
	DESCRIPTION	PLAN NO.	DESCRIPTION	PLAN NO.
S	BRIDGE NUMBERS	6-1-1	MILE	6-13-1
	CAR LIMIT	6-16-1	NO SMOKING	6-20-1
	CONVENTIONAL	6-12-1	PERMISSIVE MARKER FOR AUTO. BLOCK SIGNAL	6-21-1
	"	6-12-2	PRIVATE PROPERTY	6-21-1
	"	6-12-3	R.R. CROSSING ONE MILE	6-26-1
	"	6-12-4	" " 800 FT.	6-26-1
	COUNTY BOUNDARY	6-24-1	REDUCE & RESUME SPEED	6-33-4
	CULVERT MARKER	6-33-2	" " " "	6-33-3
	CURVE MARKER	6-23-1	RIGHT OF WAY MARKER	6-23-1
	DETAILED	6-12-1	ROAD REPAIRS AHEAD	6-1-1
	DISTANT HIGHWAY CROSSING	6-25-1	SCALE	6-24-1
	DRAW SPAN ONE MILE	6-25-1	SECTION LIMIT	6-23-1
	" " 800 FT.	6-25-1	SIDING	6-23-1
	DUMP CINDERS	6-23-1	SIGNAL CLEARING SECTION	6-23-1
	EASTWARD SIDING	6-23-1	STATION ONE MILE	6-26-1
END DOUBLE TRACK	6-23-1	STOP	6-23-1	
ENGINE STOP	6-23-1	TUNNEL	6-23-1	
FLANGER	6-23-1	WARNING AGAINST POLLUTED WATER	6-23-1	
FLANGERS	6-23-1	WATER ONE MILE	6-26-1	
HAND SIGNAL	6-23-1	WESTWARD SIDING	6-23-1	
HIGHWAY CROSSING	6-1-1	WHISTLE POST	6-23-1	
INTERESTING PLACES	6-23-1	YARD LIMIT	6-23-1	
JOINT TERRITORY MARKER	6-23-1	YARD LIMIT ONE MILE	6-23-1	
KEEP ENGINES OFF THE LIVE RAIL OF SCALES	6-23-1	ZONE SPEED	6-23-1	
LETTERING FOR DOOMS IN DEPOTS	6-23-1	SUMMIT SIGN	6-23-1	
LOUD TALKING	6-23-1			
LOW CLEARANCE - Warning Sign for Under Kings	6-23-1			

# Standard Plans: Signs

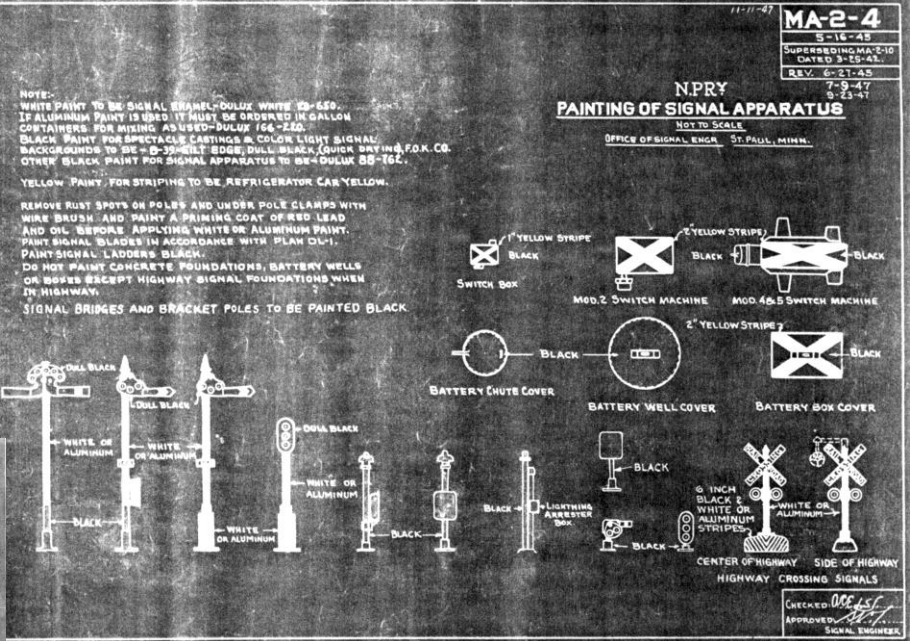
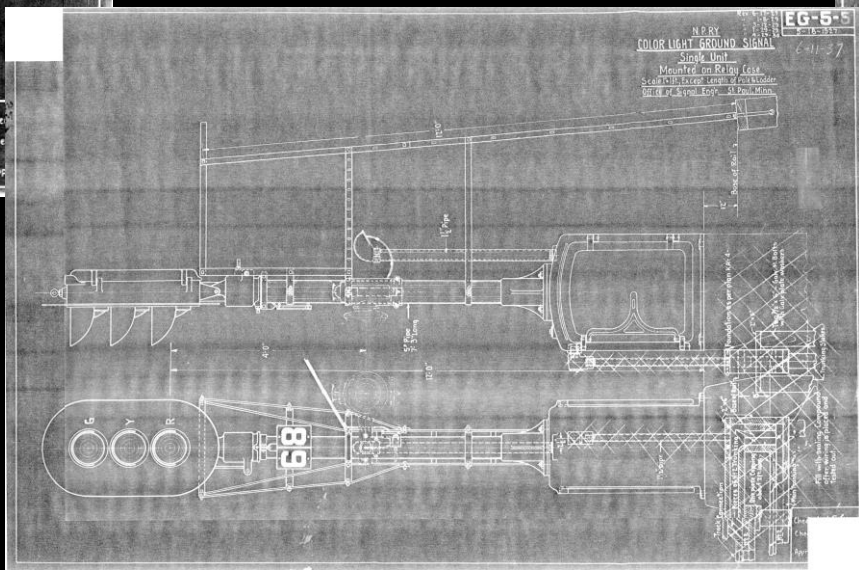
- Often included in Standard Plan book
- But Index seems to indicate that signs also appeared in dedicated book also



# Signal Drawings



EMZ-8  
2-18-27



## Standard Plans: Signals

- Was there a book for these? Just signals?
- What was it called?
- Who issued it?



# Bridge Book

J.R. Masters



# DOCKET BRIDGE LIST

SHOWING ALL BRIDGES  
OWNED OR MAINTAINED  
AND SOME OTHERS USED

BY THE NORTHERN PACIFIC RY....

COMPILED BY THE BRIDGE ENGINEER

Rocky Mtn Div-3 <sup>rd</sup> Sub-M.L.				HELENA TO GARRISON						
NO. PLUS	NAME	KIND	LGTH	HT	DATE	ALIGNMENT	GRADE	LOADS	REMARKS	PLAN
	0.0 HELENA (1120.1)									
0+395	MAIN ST	3 RCT	120	22.4	1935					742-10
	1.7 BROADWATER SPUR - M.P. 0.4 RMINI BRANCH (KASSLER'S 2.1)									
1 4584	STATE BOULEVARD VAN. TBM. 2 Tbx	2 Tbx	120	17	1965	TAN 0.5	E 65	Tbx BALL DECK		1276-9
	2.7 G.N. RY. CROSSING									
3 245	TEN MILE CREEK	2-30 DP6 N.Tbx	61	10	1925	TAN 0.0	E 60	CONC. DECK		1076-69
	" " "	2-30 DP6 S.Tbx	62		1945	" "	" "	OPEN DECK		
	4.2 FORT HARRISON SPUR									
8 1080	SEVEN MILE CR. B.2 BROSSEY	35' S-BM SKEN	41	12	1939	TAN 1.2				440-88
	13.3 WEED									
17 1348	GREENHORN GULCH	STEEL VIA	580	98	1920	TAN 1.7	E 65			1087-10
18 3083	AUSTIN GULCH	STEEL VIA	494	94	1920	TAN 1.7	E 65			1073-34
	18.4 SKYLINE									
MP 18.6	MULLAN TUNNEL		3875						CONTINENTAL DIVIDE	
	20.6 BLOSSBURG									
21 48+5280	BRICKYARD SPUR	6 TT	48	3	1920					
22 4704	N.E. LITTLE BLACKFOOT	2-20' TBM	41	6	1905	TAN 0.5	188.5			441-69
23 1873	" " "	3-20' TBM	91	7	1905	TAN 0.3				421-3
23 3418	CREEK	1 RCT	16	6	1910	TAN 1.2	188.5			427-11
24 7	N.E. LITTLE BLACKFOOT	3-20' TBM	91	6	1905	TAN 0.7				417-5
24 4025	CREEK	1-20' TBM	20	8	1905	TAN 0.8	188.5			441-69
	26.7 CALCIUM SPUR									
26 4316	N.E. LITTLE BLACKFOOT	3-20' TBM + 4 RCT	105	27	1919	TAN 1.4	188.5			442-52
26 4300	COAL DOCK ON SPUR	4 TT	49		1919			MAINT BY INDUSTRY		1099-4
27 5184	S.E. LITTLE BLACKFOOT	3-20' TBM + 2 RCT	73	29	1919	TAN 1.4	188.5			441-19
	29.0 ELLISTON (33.5 BRADLEY)									
35 1482	CREEK	15' TBM	15	8	1904	TAN 0.7	188.5			1102-19
37 146	LITTLE BLACKFOOT	1-2-60' TP6	125	13	1909	TAN 0.3	188.5			441-52
	37.7 AVON									
38 1842	LITTLE BLACKFOOT	2-2-60' TP6	125	12	1909	TAN 0.0	188.5			441-52
41 3164	" " "	3-2-60' TP6	125	15	1909	SP. VC	188.5			441-40
42 4133	" " "	4-2-60' TP6	123	14	1909	TAN 0.2	188.5			441-39
	43.5 BRADLEY									
43 4552	LITTLE BLACKFOOT	5-2-60' TP6	125	11	1909	TAN 0.2	188.5			441-38
043+4843	HVY DGX	8-60' TBM + 1 RCT	462	28	1959			MAINT BY STATE		969-1
044+5170	HVY DGX	87' TBM + 2 RCT	117	13.4	1952			N.P.R.Y. PAID 43.4%		738-22
48 2344	CREEK	1 RCT	16	8	1918	TAN 0.4	188.5			1056-14
50+00	HVY DGX	360R BMS (4-20)	204	23	1949	CONT. CE	11237	STATE MAINT		1264-20
	50.9 GARRISON (1171.0)									

REVISED TO MAR 68

R5

Tacoma Div.-19th Sub-Elma Br. Extension				SHELTON TO BANGOR								
FILE NO.	NO. PLUS	NAME	KIND	LGTH	HT	DATE	ALIGNMENT	GRADE	LOADS	HW	DRY AREA	PLAN
		THIS LINE OWNED BY U.S. NAVY, OPERATED BY N.P.R.Y.										
		0.0 SHELTON (MP 25+575 Elma Br = HB.) (1976.8)										
1 1	0+350	GOLDENROUGH CR	60 TP6	61	9	45	45	TAN 0.0	E 60	4		1261-3
1 2	0+487	PS HWY MA	62-97+62	196	221	39	1945	TAN 1.5	E 60	Clear 22.5'		1261-3
		3.2 Bay Shore.										
1 3	6+172	Moon Ln Rd	777+48T	182	24	45	45	TAN 0.0	E 60	Gravelled	Open	1261-3A
		16.3 Allyn.										
1 4	21+3950	PS HWY MA	49 RCT	161	17	1945	TAN 1.5	E 60				1261-3A
1 5	25+1344	PS HWY MA	51 RCT	161	17	1945	TAN 1.7	E 60				1261-3B
		28.8 Belfair										
		30.5 Twin Lakes.										
2 1	30+4436	Highway	54 RCT	161	17	1945	TAN 1.3	E 60				1261-3B
		32.0 Bremerton Jct. (H.B.) (2008.8)										
2 2	36+1891	Chicago Road	21 RCT	32	57	23	23	5P 14	E 60			1261-3B
		36.7 Pro-Gas Spur 37.4 M.A.D. Jct. (H.B.)										
2 3	41+2832	Highway	45 RCT	161	17	1945	TAN 1.4	E 60				1261-4
		43.1 BANGOR. (2019.9)										
		43+378R End of NP operation.										
		BREMERTON BRANCH:										
		MP 32.0 = MP 0.0 Beginning branch.										
		0.0 Bremerton Jct.										
		1.4 Wesco Spur.										
2 5	1+3981	Highway	2-60' RCTs	120	19		TAN 0.0	E 60				1261-4A
		2.3 Hunt Fuel Co. Spur.										
		4+336 BREMERTON (end of NP op'd track) (2013.4)										
		Turncard direction is west from Bangor to Elma										
		Ⓢ Wracking cranes 45 to 48 incl 15 mph										
		Ⓢ Heavy cars with total weight exceeding 169,000 pounds must be separated from engine and each other with car 40 ft long with total weight not over 169,000 pounds.										

JUN 1965

REVISED TO

132A

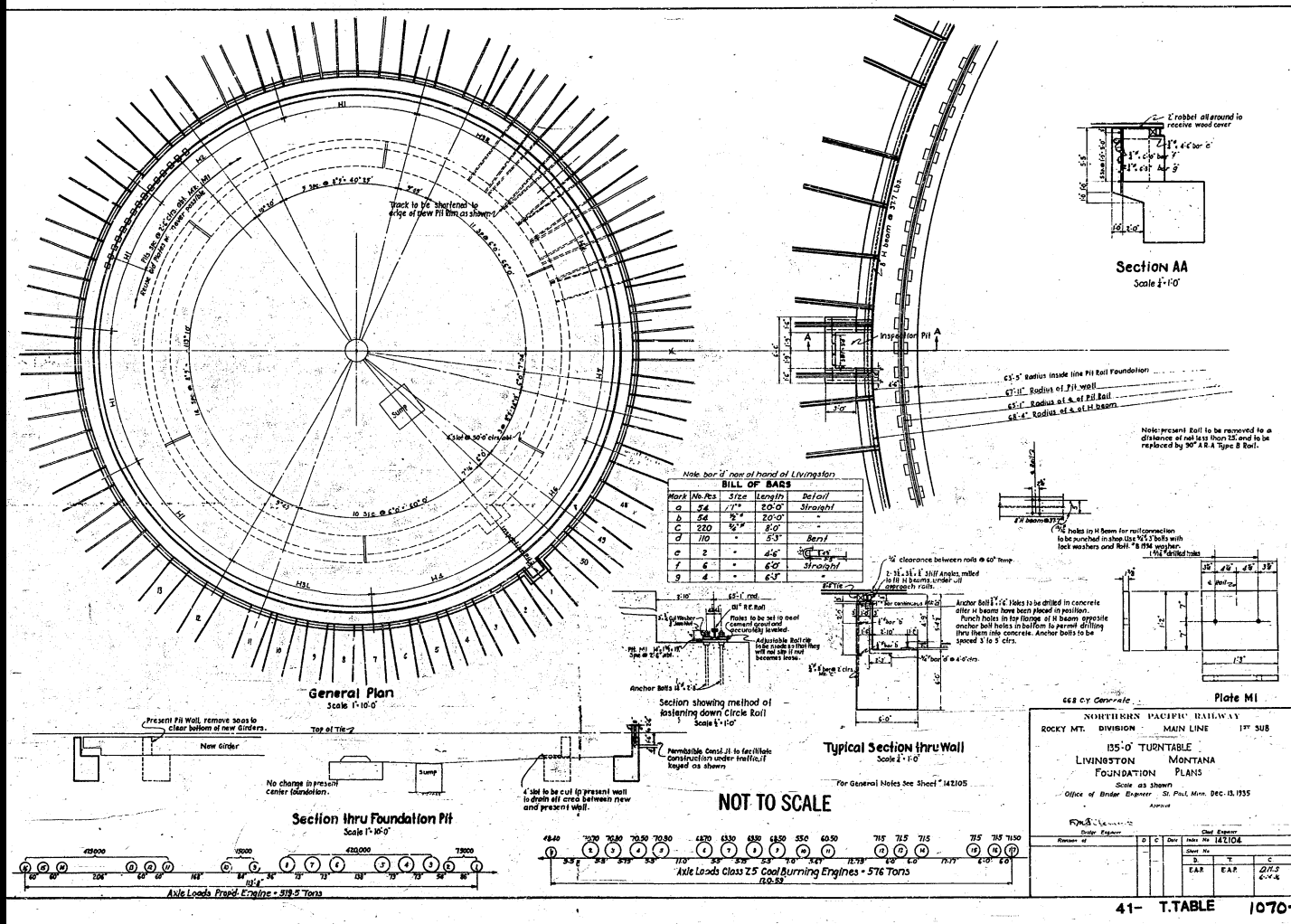
- Pocket Bridge List, aka "The Bridge Book"
- Compiled by Bridge Engineer
- Data: Name, Kind, Length, Height, Date, Alignment & Grade, Loading, Remarks, Plan #



# Bridge Plans

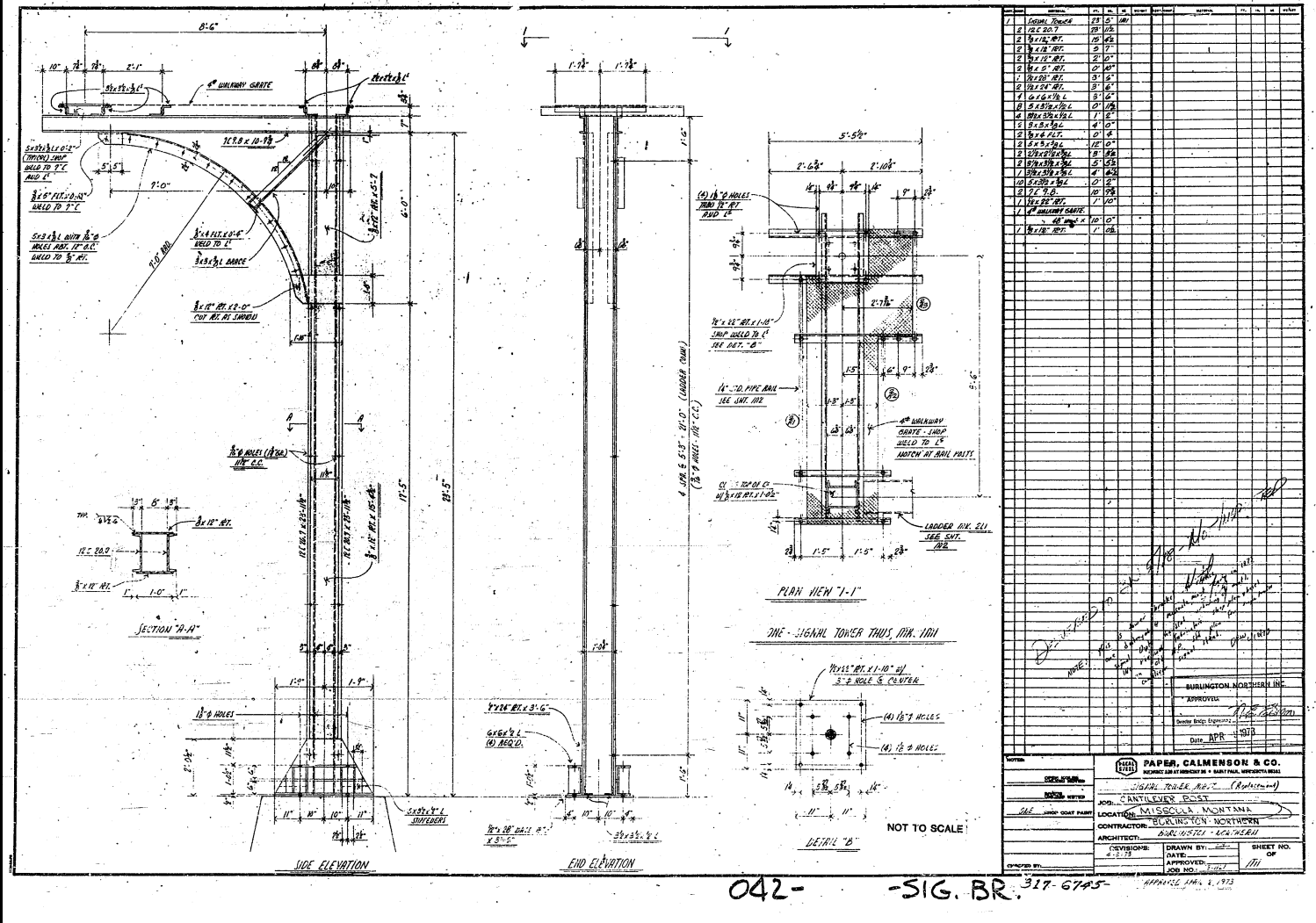






# Standard Plans: Bridges

- Includes Bridges, Turn Tables, and Signal Bridges (e.g. Cantilever Signal Bridge)



# Standard Plans: Bridges

- Includes Bridges, Turn Tables, and Signal Bridges (e.g. Cantilever Signal Bridge)
- Oops, BN drawing



# Specialized Drawing Books



# Northern Pacific Railway Drawing Repositories as of 2018

Repository	City	What	Notes
Minnesota Historical Society	St. Paul	Very large collection of Standard Plans	Donated straight from RR. Being inventoried, wrap up at 2019 convention?!
NPRHA – PNRA	Burien WA	Large collection from various sources	All received from personal collections
NPRHA – Jackson Street Roundhouse	St. Paul	Drawings in several varied collections	Large collection from various sources, some from MHS
The Northern Pacific Railway Museum	Toppenish	Various Drawings	
Lake Superior RR Museum	Duluth	Various Drawings	
Montana Historical Society	Helena	Various Drawings	Includes drawings from Warren McGee

# Recent Flurry of Drawing Donations

- **Marit Marceau Collection to NPRHA at PNRA**
- **Rick Leach Collection to NPRHA at PNRA (just initiated)**
- **Mike Gelhaus Collection to NPRHA at PNRA (just initiated)**
- **Gary Wildung Collection to NPRHA at PNRA**
- **George Simonson Collection to NPRHA at PNRA**
- **Bill McKown Collection to NPRHA at PNRA**

# Call to Action – the power of shared drawings

- **Personal Benefits of donating drawings**
  - Storing and retrieval is a pain
  - Potentially risky to the drawings if storage is sub-par (climate)
  - Electronic versions are much easier to work with, search
  - Tax deduction for assessed value
- **NP “community” benefits of donating drawings**
  - Much easier to share with your fellow NP enthusiasts
  - No manufacturer can develop a model from a drawing that's unknown/buried
  - Shared drawings can inspire plans or referrals that result in someone taking action to develop a model, or restore a piece of NP equipment





**End of Part 2 of 2**