Northern Pacific Railway Company. Engineering Department Records.

Copyright Notice:

Version 3
August 20, 2018

N. P. 1757
6-24

OFFICE OF BRIDGE ENGINEER

FILE NO. 861

SUBJECT:

WATER TANKS

ZERO (BENZ), MONT.

JAMESTOWN, N. D.

AUBURN, WASH.

ELLENSBURG, WASH.

861

RRB

Saint Paul,
June 1, 1940.

Mr. F. C. Turner:

I hand you herewith six prints of a portion of Des Moines Bridge & Iron Co. drawing No. 3, our Vault File 778-9, which covers material ordered on Fargo Division Requisition S-170, water tank at Jamestown, N. D.

The prints are to be used in obtaining bids for material shown on the above requisition.

561

ED-32
ED 427

Saint Paul, July 28 38

S. H. Knight, B&B Supervisor, Jamestown, N. D.

1	35	5/8" dia. x 2" Buttonhead Rivets	
2	70	" " 1-7/8" " "	Jamestown, N.D. Replace Roof of Water Tank Fargo Division
3	35	" " 1-3/4" " "	
4	260	" " 1-5/8" " "	
5	1200	3/8" dia. x 5/8" Rivets	For driving cold
6	35	" " 3/4" "	

DELIVERY SOON AS POSSIBLE

cc-SHZ-DSC-HTB-GHL

Chief Engineer Bridge Engineer

N. P. 1019 6-24

NORTHERN PACIFIC RAILWAY CO.

GEN'L STOREKEEPER'S REQN. NO. .....
DIVISION " " 37
SHEET " .....
A. F. E. COMPTROLLER'S " .....

..... 19 ---

TO THE PURCHASING AGENT,

THE FOLLOWING ARTICLES ARE REQUIRED FOR RAILWAY COMPANY'S USE, AND SHOULD BE DELIVERED

TO S. H. Knight Supervisor B&B AT Jamestown N.P.

SUPPLIES WILL BE FURNISHED ONLY UPON THE WRITTEN REQUISITION OF THE HEADS OF DEPARTMENTS, AND THE OFFICER MAKING THE REQUISITION MUST STATE FULLY AND MINUTELY WHERE AND FOR WHAT PURPOSE THE ARTICLES ORDERED ARE TO BE USED. IF THIS IS NOT DONE THE REQUISITION MUST BE RETURNED FOR THE INFORMATION

ITEM NO.	QUANTITY	DESCRIPTION OF ARTICLES	ESTIMATED COST	DELIVERY REQUIRED (DAYS)	FOR WHAT PURPOSE ORDERED	ON HAND AND DUE
		NOTE: THIS FORM MUST BE MADE OUT IN COPYING INK.				
1	35	5/8 dia x 2" Button head rivets				
2	70	do x 1 3/8" do				
3	35	" x 1 3/4 "				
4	260	" x 1 5/8 "			Jamestown N.P.	
5	1200	3/8" dia x 5/8" rivets } For driving cold			Replace Roof of Waterstank	
6	35	do x 3/4" " }			Fargo N.P.	
		Delivery as soon as possible				
		Miss W no insp rqd				

APPROVED.....

" .....

" .....

" .....

FOR THE PRESIDENT

.....
(SIGN HERE)

.....
(TITLE)

.....
GENERAL STOREKEEPER

STRL. 287 PRINTED IN U.S.A.

MINNEAPOLIS STEEL AND MACHINERY DIVISION
OF
MINNEAPOLIS-MOLINE POWER IMPLEMENT COMPANY

SHEET NO. X

ERECTOR'S FIELD BOLT & RIVET LIST

ORDER NO. D69680
MADE BY Sanford
CH. BY
DATE 7-27-39

FOR Tank Roof - N. P. Ry. Co.

AMT.	SIZE	GRIP	LENGTH	BOLT OR RIVET	LOCATION
24	5/8" ϕ	5/8"	2"	Rivs.	Rftrs "RR1" to Ring "RR4"
24	"	9/16"	1 7/8"		" " " Bent Rfs. "RR3"
24	"	1/2"	1 7/8"		" " " Struts "RR2"
8	"	1/2"	1 7/8"		Splices on Ring "RR4"
216	"	5/16"	1 5/8"		Tank Rfs. to Bent Rfs - "RR3"
24	"	7/16"	1 3/4"		" " " (laps)
120	3/8" ϕ	1/4"	5/8"	Cold Drvg.	Tank Rfs "A & B" to Top Rfs "C"
24	"	3/8"	3/4"		" " " " (laps)
936	"	1/4"	5/8"		" " Longit. laps
30	"	1/4"	5/8"		" "C" " "
6	"	1/4"	5/8"		" " Finial
2	"	3/8"	3/4"		" " " (laps)
2	"	3/8"	3/4"		" " laps @ Rf "A"

960

— NOTE —
A.I.S.C. LGTHS. - CHECK THESE WITH
N. P. STD. PRACTICE.

SUMMARY (Act. amts. plus ~~10%~~)

				Wghts.	
~~353~~	5/8" ϕ	5/8"	2"	8#	50%
~~706~~	"	1/2" + 9/16"	1 7/8"	17#	25%
~~353~~	"	7/16"	1 3/4"	1#	50%
~~240~~	"	5/16"	1 5/8"	58#	20%
~~1200~~	3/8" ϕ	1/4"	5/8"	50#	10%
~~135~~	"	3/8"	3/4"	2#	10%

Annealed (?)

~~142~~ # approx.
156

781
771
0

MINNEAPOLIS STEEL AND MACHINERY DIVISION

OF

MINNEAPOLIS-MOLINE POWER IMPLEMENT COMPANY

STRUCTURAL STEEL AND PLATE WORK

MINNEAPOLIS, MINNESOTA

BRANCH OFFICES:
LOS ANGELES, CAL
GREAT FALLS, MONT.
SALT LAKE CITY, UTAH
DENVER, COLO.
SAN FRANCISCO, CAL.

PLEASE REFER YOUR REPLY TO D. L. Larson

July 27, 1939

Northern Pacific Railway Co.
Engineering Department
St. Paul, Minn.

Gentlemen: Attention: Mr. M. W. Beach,
Bridge Engineer

We acknowledge receipt of your letter of July 26 together with your approval on our drawings #1 covering the details of the rafters and roof plates for the wood tank at Jamestown, North Dakota. In accordance with your instructions we are tracing this drawing in ink on tracing cloth and will turn this drawing over to you for your files upon completion of the order.

Referring to your last paragraph, we have prepared a rivet list showing the number of rivets and the location and are enclosing the print herewith. However, these rivets are not in our contract, and if you wish us to furnish them, please send us an authorization, adding $8.00 to the original contract.

Yours very truly,

MINNEAPOLIS STEEL AND MACHINERY DIVISION

Larson

Structural Sales

DLL:AHS
Enc.
O #D69680

RRB

July 26, 1939.

Minneapolis-Moline Power Implement Co.,
Minneapolis Steel & Machinery Division,
Minneapolis, Minnesota.

Gentlemen:

Attention Mr. R. K. Olson

Referring to your letter of July 25 transmitting prints of your drawing No. 1, details of rafters and roof plates for wood tank at Jamestown, North Dakota.

I am returning one print of your sheet No. 1 approved as noted.

You will note Specification E-112 calls for drawings to be made in ink on tracing cloth and to become the property of the Railway Company. Will you please so arrange and also place a small erection plan on the drawing?

I assume you will furnish the necessary rivets for assembling material in the field. I would appreciate a rivet list showing members connected, for field use.

Yours truly,

Bridge Engineer.

MINNEAPOLIS STEEL AND MACHINERY DIVISION

OF

MINNEAPOLIS-MOLINE POWER IMPLEMENT COMPANY

STRUCTURAL STEEL AND PLATE WORK

MINNEAPOLIS, MINNESOTA

BRANCH OFFICES:
LOS ANGELES, CAL
GREAT FALLS, MONT.
SALT LAKE CITY, UTAH
DENVER, COLO.
SAN FRANCISCO, CAL.

PLEASE REFER YOUR REPLY TO R. K. Olson

July 25, 1939

Northern Pacific Railway Company
St. Paul, Minnesota

Attention: Chief Engineer

Gentlemen:

We enclose for your approval two prints of drawing 1, details of rafters and roof plates for wood tank at Jamestown, North Dakota.

Please return one print of the above mentioned drawing approved or with corrections noted thereon at your earliest convenience.

Yours very truly,

MINNEAPOLIS STEEL AND MACHINERY DIVISION

R. K. Olson

Chief Draftsman

RKO:AIT
Enc.
O#B69680

Mr M W Beach
Your Reqn BD 27
BBJ 7/26

861

BD-27
BD-367

Saint Paul, June 30, 39

S. N. Knight, Supervisor B&B Jamestown, N. D.

Jamestown, N. D.
Replace Roof
~~and paint interior~~
of
Water Tank
Fargo Division

1	12	Rafters	Marked	RR1
2	12	Cross Rafters	Marked	RR2
3	12	" "	"	RR3
4	2	Half rings	"	RR4
5	23	Roof Plates	"	A
6	1	" "	"	B
7	2	" "	"	C

Items 1 to 7 incl. detailed on
Vault File 778-9, sheet 5.

N.P.Ry. Spec. W-112, dated
June 12, 1925.

~~8 2 Gallons Biturine Primer~~

~~9 1500 lbs. Biturine Enamel~~

~~10 6 #2 Daubers to be furnished by manufacturer of Biturine~~

~~Paint handled by -~~
~~Jones & Dillingham Co., Spokane~~
or
~~Wailes Dove-Hermiston Corp., Chicago.~~

Inspection by H. G. Burnham,
Engineer of Tests.

cc-SNK-DSC-RFB-HMG-HGB-GHL

Chief Engineer Bridge Engineer

N. P. 1019 6-24

NORTHERN PACIFIC RAILWAY CO.

GEN'L STOREKEEPER'S REQN. NO. .....
DIVISION " " BD 27
SHEET 1 " EP
A. F. E. COMPTROLLER'S " .....

St. Paul June 30 1939

TO THE PURCHASING AGENT,

TO S H Knight Supervisor B+B, ~~H. F. Brown, Dist Engr~~ THE FOLLOWING ARTICLES ARE REQUIRED FOR RAILWAY COMPANY'S USE, AND SHOULD BE DELIVERED AT Jamestown n, N.D.

SUPPLIES WILL BE FURNISHED ONLY UPON THE WRITTEN REQUISITION OF THE HEADS OF DEPARTMENTS, AND THE OFFICER MAKING THE REQUISITION MUST STATE FULLY AND MINUTELY WHERE AND FOR WHAT PURPOSE THE ARTICLES ORDERED ARE TO BE USED. IF THIS IS NOT DONE THE REQUISITION MUST BE RETURNED FOR THE INFORMATION

ITEM NO.	QUANTITY	DESCRIPTION OF ARTICLES	ESTIMATED COST	DELIVERY REQUIRED (DAYS)	FOR WHAT PURPOSE ORDERED	ON HAND AND DUE
		NOTE: THIS FORM MUST BE MADE OUT IN COPYING INK.				
1	12	Rafters - Marks RR1			Replace Roof and repaint interior Water tank Jamestown N.D. Fargo Div	
2	12	Cross rafters - Mark RR2				
3	12	" " " RR3				
4	2	Half Rings - " RR4				
5	23	Roof Plates " A				
6	1	" " " B				
7	2	" " " C				
		Detailed on Vault file 778-9 - sheet 5 N. P. Ry. Co's Spec. E 112 - date June 12, 1925 ~~Inspection by H. G. Burnham Eng. of Tests.~~				
8.	2	gallons Bituminе Primer				
9.	1500	lbs. Bituminе Enamel				
10	6	~~lbs~~ #2 Dauber to be furnished by mfg of Bituminе Paint Handled by Jones & Dillingham Co. Spokane or Wailes Dove-Hermiston Coap. Chicago cc E.M.G. - etc				

APPROVED Insp by H. G. Burnham etc (SIGN HERE)

(TITLE)

FOR THE PRESIDENT GENERAL STOREKEEPER

861

St. Paul, Minn.,
June 26, 1939

Mr. M. W. Beach:

Authority has been given for renewing the steel roof at an estimated cost for labor and material of $800, and repainting the interior of the 100,000 gallon steel water storage tank at Jamestown, to be handled as a maintenance item this summer. Will you please arrange to order the necessary steel and paint for this work.

With reference to the kind of paint for this purpose, Mr. Grime has found that the best kind is Biturine Enamel and Biturine Primer, handled by Jones & Dillingham Co. of Spokane, Wash., or the Wailes Dove-Hermiston Corp., Chicago. I suggest you specify this product when making requisition. The amount required for a 100,000 gallon steel tank is as follows:

Biturine Enamel	1500 pounds
Biturine Primer	2 gallons

The manufacturers furnish what is known as a No. 2 dauber for this class of work and when the tanks at Parkwater were painted six of these daubers were used.

H. F. Brown
District Engineer

ARO-k

cc: Mr. D. S. Colby

F 150-15

St. Paul, Minnesota

October 4th, 1935

Mr. M. F. Clements:

Referring to Mr. Handsaker's report on steel water tank at Jamestown, and referring more particularly to the last paragraph which refers to the exterior paint :

This tank has been painted on the outside with one coat of standard black steel bridge paint.

H.F. Brown

HFB:m

District Engineer.

Copy: E. M. Grime

F

861

St. Paul, August 8, 1935.

Mr. H. F. Brown:

Replying to your letter of June 24 to Mr. Clements, copy to me, concerning painting of the interior of the steel tank at Jamestown:

A joint inspection of the interior of this tank was made on July 29 by Mr. Hansaker of the bridge department and Mr. Kirk of the water department. This report indicates that the bad case of corrosion which previously existed has been gradually decreasing and the condition is noticeably better since we started the use of a small amount of tannin in connection with our lime-soda treatment. Will you therefore advise Mr. Schutt that painting of the interior of the tank is considered unnecessary at this time?

Mr. Hansaker mentions the fact that the paint on the outside of the tank is blistered and peeling, and there is considerable rust showing. This may make it desirable to paint the exterior at this time.

EMG/ACJ

Engineer of Water Service.

Copy-Mr. L. Yager
Mr. H. F. Clements

861

MFC

Saint Paul, August 7, 1935

Mr. E. M. Grime:

I hand you herewith Mr. Handsaker's report on the condition of Jamestown water tank.

Inspection of Jamestown Water Tank.

The Jamestown tank was inspected July 27, 1935 by Nelson Handsaker, representing the Bridge Department, and Lawrence Kirk, representing the Water Treating Department. The purpose of the inspection was to determine the rust conditions at the interior and make recommendation as to painting. The recommendation of the inspectors is that the inside of the tank be left unpainted, but that the outside be painted this season.

Conditions fouhd within the tank are as follows:

Upper belt of main tank has white to reddish scale 1/8" thick or less, a rather brittle coating, with large patches peeled off or loose. Extensive old corrosion of no depth; no deep pits and no sign of active corrosion.

Middle belt of tank has a thinner coat of scale 1/16" thick, stained red, with much of it loose. Under the scale the metal is roughened from old corrosion. No deep pitting observed; no activity seen.

Bowl has practically no scale but is covered with a mushy red sludge up to an inch or more in depth. When this was scrubbed off we found occasional nodules blue-black in color, evidently covering active corrosion, but none had gone to any depth. The lower half of the bowl also showed a large number of small spots of bright metal - about 50 per square foot, 1/8" in diameter. Their depth, about 1/64", did not exceed the thickness of dark surface of adjacent metal.

Water leg - coated with a soft, wet crust about 1/16" thick. This consisted of white encrustation from the treated water and was stained yellow on the surface, probably from the tannin now used in treating. Where the crust was peeled off, black metal was exposed without bright spots. No active corrosion around rivets or elsewhere. Crust is working loose.

This inspection is the fourth in which the Bridge Department has participated, the others being in April 1927, November 1932 and July 1934. The most noticeable change has been the gradual cessation of active rusting and pitting; and in the case of the deep pits observed, the apparent reduction in their number and

depth; but this is partly because the first inspection was made with the whole tank dry and scraped, ready for painting. Since 1927 the tank has been wet and sludge-coated, and inspection has been confined to areas scrubbed off by the inspectors. Also, there has been observed an apparent equalizing of the surface through cessation of corrosion in the deeper spots while it continued on the high spots. In the last two inspections it has appeared quite evident that corrosion has nearly stopped, and the method of water treating now in use is said to have an even better anti-rusting effect than the former method.

The paint on the outside of the tank is blistered and peeling, and there is a good deal of rust.

Nelson Handsaker,
Assistant Engineer.

Office of Bridge Engineer,
Saint Paul, August 7, 1935.

N.P. 1347 6-24

INSPECTION OF JAMESTOWN WATER TANK

The Jamestown tank was inspected July 27, 1935 by Nelson Handsaker, representing the Bridge Dept, and Lawrence Kirk, representing the Water Treating Dept. The purpose of the inspection was to determine the rust conditions of the interior, and make recommendation as to painting. The recommendation of the inspectors is that the inside of the tank be left unpainted, but that the outside be painted this season.

Conditions found within the tank are as follows:

Upper belt of main tank has white to reddish scale ~~to~~ 1/8" thick or less, a rather brittle coating, with large patches peeled off or loose. Extensive old corrosion of no depth; no deep pits and no sign of active corrosion.

Middle belt of tank has a thinner coat of scale, 1/16" thick, stained red, with much of it loose. Under the scale the metal is roughened from old corrosion. No deep pitting observed, no activity seen.

Bowl has practically no scale, but is covered with a mushy red sludge, up to an inch or more in depth. When this was scrubbed off, we found occasional nodules blue-black in color evidently covering active corrosion, but none had gone to any depth. The lower half of the bowl also showed a large number of small spots of bright metal - about 50 per square foot, 1/8 inch in diameter. Their depth, about 1/64 inch, did not exceed the thickness of dark surface of adjacent metal.

Water leg - coated with a soft, wet crust about 1/16 inch thick. This consisted of white encrustation from the treated water and was stained yellow on the surface, probably from the tannin now used in treating. Where the crust was peeled off, black metal was exposed without bright spots. No active corrosion around rivets or elsewhere. Crust is working loose.

This inspection is the fourth in which the Bridge Department has participated, the others being in April 1927, November 1932, and July 1934. The most noticeable change has been the gradual cessation of active rusting and pitting, and in the case of the deep pits observed, the apparent reduction in their number and depth; but this is partly because the first inspection was made with the whole tank dry and scraped ready for painting. Since 1927, the tank has been wet and sludge-coated, and inspection confined to areas scrubbed off by the inspectors. Also, there has been observed an apparent equalizing of the surface through cessation of corrosion in the deeper spots while it continued on the high spots. In the last two inspections it has appeared quite evident that corrosion has nearly stopped; and the method of water-treating now in use is said to have an even better anti-rusting effect than the former method.

The paint on the outside of the tank is blistered and peeling and there is a good deal of rust.

MH

8/8/35

161

St. Paul, Minnesota

June 24th, 1935

Mr. M. F. Clements:

On our program for 1934 was included the painting of the interior of the steel water tank at Jamestown. An inspection of this tank was made July 3rd, 1934 by Mr. Handsaker and very little active corrosion was found. It was recommended at that time that another inspection be made in 1935.

Supervisor Schutt advises that he is now ready to proceed with the painting of the interior of this tank. I believe before this is done another inspection should be made to find whether the corrosion warrants the expense for painting.

Will you please arrange to have Mr. Handsaker make this inspection at some convenient time, advising Mr. Schutt some days in advance so that he can arrange to have the tank emptied and other arrangements made ?

I am sending a copy of this letter to Mr. Grime so that he can arrange for his inspector to get in touch with Mr. Schutt and ascertain when the inspection is to be made.

Mt. get in touch with Schutt and inspect HFB 7/8

Inspection made Mt

H F B Brown Done

HFB:m

District Engineer.

Copy: E. M. Grime
C. H. Schutt

861

JUL 10 1934

St Paul Minn

July 10 1934

Mr H F Brown:

Referring again to your letter of June 2nd with reference to interior coating for the steel tank at Jamestown.

A joint inspection of the interior of this tank was made on July 3rd by Mr Handsaker of the Bridge Department and the Water Inspector, Lawrence Kirk. This report indicates that while some active corrosion is still in progress, for some reason undetermined, the pits formerly existing have not become any deeper and in fact seem to be protected by the thin coating of scale which has been formed.

On the whole, report leads me to believe that in this particular case at least the storage of treated water is not seriously detrimental to the steel.

I think we should plan on another joint inspection next year at about this time and for the present give up the idea of applying any sort of protective coating.

E M Grimm

Engineer of Water Service

EMG J

M F Clements

861

Fargo, July 7, 1934.

Mr. E.M. Grime,
Engineer Water Service,
St. Paul.

On July 3, inspection was made of the interior of the steel wayside tank at Jamestown, for pitting and corrosion, with the following observations:

Upper belt: Rather thickly marked with shallow pits, running close to 1/32" average to few of 1/16" max. Most of area is covered with a thin layer of white scale or sludge, and there are no rust spots or nodules indicating active corrosion. All pits appear to be old and inactive at this time. Sheet thickness 1/4".

Middle belt: Numerous nodules, containing blue-black corrosion products, scattered on this belt; also several scattered rust spots (rsd). Several places cleaned and pit depth measured, many 1/32 to1/16", with few of max. depth 3/32". They range in diameter from size of pin-head to silver dollar. Sheet thickness 1/4". While many active spots were found, pitting is not to any greater maximum depth than at the inspection of November 1932.

Red rust spots very numerous in lower half of this belt

Bowl: Active corrosion spots very thick, all with cap of blue-black material. Several measured, many run 1/64-1/32", several found to 1/16", and a few to not quite 3/32". Severe grooving in sheet near center ring, not possible to clean sludge away for measurement, but depth estimated to be at least 3/32", and active. Sheet thickness 5/16".

Water leg: Coating of nodulated, rather hard, white, scale to average thickness 1/4" over entire surface. Thick pitting, all over surface from top to bottom, all of which are filled and

covered over with the white scale. None found which would be considered active, no red rust spots or black nodules. Several of these pits were cleaned out and measured, and found to be mostly around 4/32" in depth, with maximum of 5/32- 11/64 being noted. The general appearance indicates that active corrosion had been going on in this area at a rapid rate which involved all the pits to about the sam extent; and then the pitting had suddenly been halted, after which the layer of scale was laid down over the pitted area. 1/2" plate.

In spite of the fact that there is quite a bit of active corrosion going on in the bowl at the present time, the general appearance is almost identical with that reported by me as of November 1932. No pitting deeper than noted at the last inspection could be found this time. Apparently corrosion has stopped in the water leg; and in the bowl, where it is still active, there seems to be enough of a protective coating formed to stop or greatly retard corrosion after a maximum of 3/32" depth is reached.

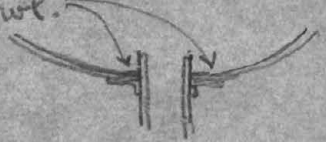
No test holes were drilled in the metal, as accurate measurements of depth of pitting could be made with the depth gage.

cc- Mr. Handsaker.
Mr. C.H. Schutt.
Mr. E.J. Johnson.

Lawrence Kirk.
Water Inspector.

MFC:

Kirk's report agrees substantially with my observations. I would recommend leaving the interior unpainted, but possibly cleaning and applying viscous coating on the corroded ring at bottom of ~~tank~~ bowl. In general, corrosion is slow and can be repaired when bad enough, by welding.



MH 7/9/34

861

UNIFICATION OF THE C.M.ST.P.& P.R.R. AND N.P.RY.

YELLOWSTONE DIVISION

BENZ, MONTANA.

Estimated Cost to Move the Steel Superstructure of the Benz 100,000 Gallon Steel Water Tank to a station four miles west on the C.M.St.P.& P.R.R.

Removing and Re-erecting Tank on New Foundation

		Labor	Material
38½	Tons Structural steel	$2,000	
150	C.Y. Excavation	150	
70	" Concrete	350	$ 350
300	Lbs. Reinforcing Steel	4	10
	Superintendence and Use of Tools	240	
	Engineering	366	
	Freight		550
	Rental		50
	Incidentals	100	100
		3,110	1,060
			3,110
	Total:		$4,170

Office of Bridge Engineer,
Saint Paul, December 30, 1932.

861

St. Paul, November 26, 1932.

Mr. F. J. Taylor:

Replying to your letter of November 25 suggesting that we postpone the application of a protective coating to the steel tank at Jamestown for one year:

The chemist's report shows that active corrosion is in progress in the upper section, the bowl and the water leg of this tank, and I feel that if an effective protective coating can be applied it is advisable to handle the work as soon as practicable. It is, however, a fact that the corrosion seems to have been slowed down to some extent since the use of lime soda treated water, and in this case I am agreeable to postponing the work for a year and that will give us an opportunity to see how the cement coating which has been applied to the north storage tank at Northtown stands up under our severe winter conditions.

I am requesting Supervisor Brown to keep in mind the matter of making an inspection of the Northtown tank sometime when convenient next summer to note how effectively the coating has remained in place.

E M Greene
Engineer of Water Service.

EMG/ACJ

Cy-M F Clements
C H Schutt

861

St. Paul, November 21, 1932.

NOV 22 1932

Mr. F. J. Taylor:

A complete inspection has now been made of the interior of the steel storage tank at Jamestown and in view of the reports made by Mr. Handsaker and also reports from our Water Inspector, Mr. Kirk, who was present on both inspections, it appears that while the pitting has not been as active since we have used treated water as it was prior to 1927, corrosion still continues to an extent which makes it advisable to apply a protective coating. Active corrosion is found at various places in the lower part of the upper vertical section and also on the bowl, as well as in the water leg. The pitting varies from 1/32 to 5/32 inch in depth. The damage to the rivet heads in the water leg does not appear to be sufficiently severe to seriously affect the safety of the tank. The coating of paint which was applied in 1927 has practically all disappeared.

I would recommend that next season the tank be thoroughly cleaned with the sand blast and then coated with cement grout applied by means of an air gun. The cost of this work should not exceed $300.00.

EMG/ACJ

Engineer of Water Service.

Cy-M F Clements
C H Schutt

861

NH

Saint Paul, November 21, 1932.

Mr. F. J. Taylor:

I hand you herewith a supplementary report on inspection of the Jamestown water tank by Mr. Handsaker.

Bridge Engineer.

Encl.

Cy-Mr.E.M.Crime
Mr.C.H.Schutt

Inspection of Riser Pipe of Jamestown Water Tank.

November 16, 1932.

The inspection of Jamestown tank, made on November first, did not include the interior of the riser pipe. On November 16 the riser, or water leg, was emptied and a detailed inspection was made from a boatswain's chair. As before, Assistant Supervisor Johnson, Assistant Engineer Handsaker, of the Bridge Department, and water chemist Kirk made the inspection.

The lower part of the riser is coated with a rather tenacious white sludge deposit 1/8 to 1/4 inch thick, which is pretty uniform although there are some breaks in the coating. Towards the top the coating is much more spotty. The coating was scraped off at various points for examination of the pittings. These were found to be frequent and severe. A large number are from 1/8 to 5/32 inch deep, a few more 3/16 inch and only one was found which was 1/4 inch deep. These measurements were made very accurately with a depth gauge over the well scraped surface. On one area a foot square, which was cleaned off, twelve square inches or one half of the whole area, showed reduction of thickness by pitting.

According to the plans, the riser pipe is composed of 1/4 inch steel plates but a measurement of the thickness at the manhole in the side of the lower plate showed 9/32 inch. It is evident that the riser is nearly perforated in the deepest pits. For this reason no holes were drilled through them for fear there might not be thickness enough to hold a plug.

The most generally pitted portion is about halfway up the 25 foot pipe. The deepest pit was found nine feet above the bottom. The top of the inlet pipe is about three feet above the bottom. The only severe corrosion of rivets found was in the horizontal row five feet above the bottom. There are 100 rivets in this row, or ring, and 20 percent of them had their heads materially reduced in size to a minimum size of 9/16 inch by 3/4 inch (oval) with a projection of 3/16 to 1/4 inch. The rivets are 5/8 inch driven in 11/16 inch holes. Some of the heads were so irregular that part of the shank of the rivet could be seen flush with the surface of the plate, and in all such cases the holes are well filled and the rivets apparently welded to the plate.

The row of rivets at the base of the pipe did not look as bad asthe row five feet up.

Except for a negligible amount of orange rusting around the extreme top of the riser there was no indication of active rust or corrosion. Probably all the corrosion found had occurred before the water treating plant was installed. While the white crust formed on the walls may have helped retard corrosion, the discontinuity of this crust, especially in the upper part of the pipe, suggests that it is a reduced oxygen supply, plus the protective coating of thin hard black scale, which is preventing the rust.

N. Handsaker,
Assistant Engineer.

Saint Paul, November 21, 1932.

Inspection of Riser Pipe of Jamestown Water Tank.

November 16, 1932.

The inspection of Jamestown tank, made on November first, did not include the interior of the riser pipe. On November 16 the riser, or water leg, was emptied and a detailed inspection was made from a boatswain's chair. As before, Assistant Supervisor Johnson, Assistant Engineer Handsaker, of the Bridge Department, and water chemist Kirk made the inspection.

The lower part of the riser is coated with a rather tenacious white sludge deposit 1/8 to 1/4 inch thick, which is pretty uniform although there are some breaks in the coating. Towards the top the coating is much more spotty. The coating was scraped off at various points for examination of the pittings. These were found to be frequent and severe. A large number are from 1/8 to 5/32 inch deep, a few more 3/16 inch and only one was found which was 1/4 inch deep. These measurements were made very accurately with a depth gauge over the well scraped surface. On one area a foot square, which was cleaned off, twelve square inches or one half of the whole area, showed reduction of thickness by pitting.

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N. Handsaker,
Assistant Engineer.

Saint Paul, November 21, 1932.

861

St Paul Minn

Nov 7 1932

Mr C H Schutt:

I have copy of your letter to Asst Supr Johnson relative to preparing water tank at Jamestown for further inspection.

Please advise a day or so in advance of when the tank will be ready for inspection and I will advise Mr Handsaker so that he can make the further examination.

Please see that the portable ladder or other facilities that may be required are furnished.

Noted WH

E. J. TAYLOR

District Engineer

HFB J

N Handsaker

861

M H

M 7 Clements

NOV 7 1932

Fargo, Nov. 5th, 1932.

Mr. E. J. Johnson -

I am in receipt of a letter from Mr. Grime dated November 3rd, about the test made by Mr. Handsaker and yourself at the steel water tank Jamestown on November 1st.

I have a copy of Mr. Handsaker's report furnished me by Mr. Clements and Mr. Grime now states that after reading this report he would like to know if we cannot arrange to drain the tank down to the ground line so that a more satisfactory examination may be possible. He states that the worst corrosion found in types of this tank elsewhere has been near the point where the water is released from the inlet pipe or in other words 4 to 15 ft. above the ground line. In some cases 30 to 75% of the rivets have been found to be almost completely eaten away in some of the seams

Please let me know when you can arrange to empty tank and I take it Mr. Grime will want Mr. Handsaker on the ground again for further examination.

C. H. Schutt
Supervisor.

cc/ MFC:FJT:
EMG:LHR:AKB:

861

St. Paul, November 3, 1932.

Mr. C. H. Schutt,
Supervisor,
Fargo.

Referring to the inspection of Jamestown steel water tank made November 1 by Mr. Handsaker in company with Mr. Johnson and Mr. Kirk:

The worst corrosion found in tanks of this type elsewhere has been near the point where the water is released from the inlet pipe, or in other words 4 to 15 feet above the ground line. In some cases 30 to 75% of the rivets have been found to be almost completely eaten away in some of the seams.

In reading over Mr. Handsaker's report it appears that no opportunity was given for the inspection of the water leg as the tank was not completely drained.

Can you not arrange to drain the tank down to the ground line so that a more satisfactory examination may be possible?

E. M. Grime.

EMG/ACJ

Engineer of Water Service.

Cy-M F Clements
F J Taylor

MFC

Saint Paul, November 2, 1932.

Mr. F. J. Taylor:

I hand you herewith inspection report on the interior of the Jamestown steel water tank, made by Mr. Handsaker on November first.

Bridge Engineer.

Encl.

Cy-Mr.E.M.Crime
Mr.C.H.Schutt

Inspection of Jamestown Water Tank

November 1, 1932.

The Jamestown water tank is a 100,000 gallon, high frame steel tank, erected in 1911. It was fabricated by the Des Moines Bridge and Iron Company. It consists of a cylindrical portion 13'-6" high and 30 feet in diameter, with a hemispherical bottom, and a riser six feet in diameter. It has six legs.

The cylinder is made of 1/4 inch plates; the hemisphere is of 5/16 inch plates.

An inspection was made in April 1927 by Supervisor Stang and Assistant Engineer Handsaker, the tank being dry and thoroughly scraped for painting. It was found pitted every where in a fine grain, with a scattering of deep pits 6 to 12 inches apart; the pits being about 1/2 inch in diameter and 1/8 inch deep, and a few 3/16 inch deep.

The inspection November first was made by Assistant Engineer Handsaker, Assistant Supervisor Johnson and water inspector Kirk. The tank had been just emptied, was wet and not cleaned, and no portable ladder was available, so close inspection was not made all around as on the previous inspection. It was not considered necessary to do so as the surface was clearly visible from the bottom and no variation in appearance was seen. Therefore, the section about 8 feet wide, which could be reached from the fixed inside ladder, was examined closely as typical of the whole tank.

The tank was painted in 1927. No trace of old paint was seen. The upper half of the cylinder is coated with a thin hard, white crust which was not loosened with hammering, though there are some parts of this crust which are loose over large areas. It does not appear that this crust is of much value as a coating against rust because of the uncertainty as to where it will adhere - apart from any consideration of what protection it gives where it adheres. Where the tightly adhering crust was scraped off, no old paint was found and the metal was rough and discolored with brown scale.

The lower half of the cylinder and the hemisphere had no encrustation except spots or carbuncles of rusty sludge and the discolored surface, caused by a thin film of inactive rust or scale. There was, of course, a large volume of the soft white water treating sludge, too liquid to have any quality of adhesion.

The deep pitting noted in 1927 is not as conspicious now as it was then. This is not due to filling up of the pits with scale but rather to the corrosion of adjacent metal after the corrosion had stopped in the pit. In Mr. Kirk's opinion this is a natural process, the pit becoming inert by the formation of a carbuncle of scale over it. The deepest pits measured in this inspection were 5/32 inch deep and the prominent deep pittings are less numerous than five years ago. It is possible that some pits could be found 3/16 inch deep by going over the whole inside, cleaned.

Quite a large number of actively rusting spots showed up by the red or green stain in the soft sludge coating. These spots were all in the bottom two feet of the cylinder or around the hemisphere. Those that could be reached and were cleaned did not show any deep corrosion and the silver bright surface of the attacked metal had the appearance of electrolytic action rather than simple rusting.

Three 1/4 inch holes were drilled through the tank; one about 5 feet above the bottom of cylinder, one about one foot above the bottom of cylinder, and one about five feet down from the bottom of cylinder. They were all drilled in pittings but on account of the difficulty in reaching most of the tank surface they were not the deepest pits. Thickness of metal ranged from 1/8 inch to 5/32 inch; in general, about half the original thickness. The deepest pits may have reduced the thickness in spots to around 1/16 inch but no evidence of this was found. The average thickness of the whole tank is at least three fourths the original thickness.

There has not been very much corrosion in the last 5-1/2 years. Corrosion seems to have a natural tendency to equalize in depth. The paint coat put on in 1927 would have had so much effect in retarding corrosion that the value, if any, of water treating as a rust deterrent, is not proved. Mr. Kirk is of the opinion that experience in reaction tanks proves that there can be very severe rust in such water, but believes the treating reduces the rate of corrosion considerably.

It would not seem advisable to do any experimenting on such a large scale with the tank already much corroded, and it is my recommendation that the tank be painted inside and out. If desired, the inside can be gunited or pressure grouted, as Mr. Johnson says very good results have been obtained this way. I have not seen any of this work on tanks and have some doubt as to the infallibility of the bond. A loosened coat of cement would be worse than no protection.

N. Handsaker.

Office of Bridge Engineer,
November 2, 1932.

Inspection of Jamestown Water Tank

November 1, 1932.

The Jamestown water tank is a 100,000 gallon, high frame steel tank, erected in 1911. It was fabricated by the Des Moines Bridge and Iron Company. It consists of a cylindrical portion 13'-6" high and 30 feet in diameter, with a hemispherical bottom, and a riser six feet in diameter. It has six legs.

The cylinder is made of 1/4 inch plates; the hemisphere is of 5/16 inch plates.

An inspection was made in April 1927 by Supervisor Stang and Assistant Engineer Handsaker, the tank being dry and thoroughly scraped for painting. It was found pitted every where in a fine grain, with a scattering of deep pits 6 to 12 inches apart; the pits being about 1.2 inch in diameter and 1/8 inch deep, and a few 3/16 inch deep.

The inspection November first was made by Assistant Engineer Handsaker, Assistant Supervisor Johnson and water inspector Kirk. The tank had been just emptied, was wet and not cleaned, and no portable ladder was available, so close inspection was not made all around as on the previous inspection. It was not considered necessary to do so as the surface was clearly visible from the bottom and no variation in appearance was seen. Therefore, the section about 8 feet wide, which could be reached from the fixed inside ladder, was examined closely as typical of the whole tank.

The tank was painted in 1927. No trace of old paint was seen. The upper half of the cylinder is coated with a thin hard, white crust which was not loosened with hammering, though there are some parts of this crust which are loose over large areas. It does not appear that this crust is of much value as a coating against rust because of the uncertainty as to where it will adhere - apart from any consideration of what protection it gives where it adheres. Where the tightly adhering crust was scraped off, no old paint was found and the metal was rough and discolored with brown scale.

The lower half of the cylinder and the hemisphere had no encrustation except spots or carbuncles of rusty sludge and the discolored surface, caused by a thin film of inactive rust or scale. There was, of course, a large volume of the soft white water treating sludge, too liquid to have any quality of adhesion.

The deep pitting noted in 1927 is not as conspicious now as it was then. This is not due to filling up of the pits with scale but rather to the corrosion of adjacent metal after the corrosion had stopped in the pit. In Mr. Kirk's opinion this is a natural process, the pit becoming inert by the formation of a carbuncle of scale over it. The deepest pits measured in this inspection were 5/32 inch deep and the prominent deep pittings are less numerous than five years ago. It is possible that some pits could be found 3/16 inch deep by going over the whole inside, cleaned.

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N. Handsaker.

Office of Bridge Engineer,
November 2, 1932.

Inspection of Jamestown Water Tank
Nov. 1, 1932

The Jamestown water tank is a 100 000 gallon high frame steel tank, erected in 1911. It was ~~built~~ fabricated by the Des Moines Bridge & Iron Co. It consists of a cylindrical portion 13'-6" high and 30 feet in diameter, with a hemispherical bottom, and a riser 6 feet in diameter. It has six legs.

The cylinder is made of 1/4 inch plates, the hemisphere is of 5/16" plates.

An inspection was made in April 1927 by Supervisor Stang and Asst Engr Handsaker, the tank being dry and thoroughly scraped for painting. It was found pitted everywhere in a fine grain with a scattering of deep pits 6" to 12" apart, the pits being about 1/2" in diameter and 1/8" deep, and a few 3/16" deep.

The inspection Nov 1. was made by Asst Engr Handsaker, Asst. Supervisor Johnson and water inspector Kirk. The tank had been just emptied, was wet and not cleaned, and no portable ladder was available so close inspection was not made all around as in the previous inspection. It was not considered necessary to do so as the surface was clearly visible from the bottom and no variation in appearance was seen. Therefore the section about 8' wide, which could be reached from the fixed inside ladder, was examined closely as typical of the whole tank.

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white crust which ~~is~~ was not loosened with hammering, though there are some parts of this crust which are loose over large areas. It does not appear that this crust is of much value as a coating against rust because of ~~as~~ the uncertainty as to where it will adhere — apart from any consideration of what protection it gives where it adheres. Where the tightly adhering crust was scraped off, no old paint was found, and the metal was rough and discolored with brown scale.

The lower half of the cylinder, and the hemisphere, had no encrustation except spots or carbuncles of rusty sludge and the discolored surface, caused by a thin film of inactive rust or scale. There was of course a large volume of the soft white water treating sludge, too-liquid to have any quality of adhesion.

The deep pitting noted in 1927 ~~is~~ was not as conspicuous now as it was then. This is not due to filling up of the pits with scale, but rather to the corrosion of adjacent metal after the corrosion had stopped in the pit. In Mr. Kirk's opinion this is a natural process, the pit becoming inert by the formation of a carbuncle of scale over it. The deepest pits measured in this inspection were 5/32" deep and the prominent deep pittings are less numerous than 5 years ago. It is possible that some pits could be found 3/16" deep by going over the whole inside, cleaned.

Quite a large number of actively rusting spots showed up, by the red or green stains in the soft sludge coating. These spots were all in the bottom 2 feet of the cylinder or around the

hemisphere. Those that could be reached and were cleaned did not show any deep corrosion, and the silver bright surface of the attacked metal had the appearance of electrolytic action rather than simple rusting.

Three 1/4" holes were drilled through the tank; one about 5 feet above the bottom of cylinder, one about 1 foot above the bottom of cylinder, and one about 5 feet down from the bottom of cylinder. They were all drilled in pittings, but on account of the difficulty of reaching most of the tank surface they were not the deepest pits. Thickness of metal ranged from 1/8" to 5/32"; in general, about half the original thickness. The deepest pits may have reduced the thickness in spots, to around 1/16" but no evidence of this was found. The average ~~was~~ thickness of the whole tank is at least 3/4 the original thickness

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my recommendation that the tank be painted inside and out. If desired, the inside can be gunited or pressure grouted, as Mr. Johnson says very good results have been obtained this way. I have not seen any of this work in tanks and have some doubt as to the infallibility of the bond. A loosened coat of cement would be worse than no protection.

WH

11/2/32

St Paul Minn

Oct 27 1932

Mr C H Schutt:

Mr Handsaker of the Bridge Dept made an inspection of the steel tank at Jamestown during spring of 1927.

It is now proposed that he make another inspection in order to determine whether the pitting or corrosion is still going on now that the water is being treated.

Please arrange to have the tank drained so that this inspection can be made Tuesday morning Nov 1st.

It will be desirable for you to have your representative on hand and Mr Crime will arrange for a water chemist to be present.

R. J. TAYLOR

District Engineer

FB J

E M Crime

N Handsaker

(COPY)

Saint Paul, April 15, 1927

Mr. Clements:

Mr. Stang and I inspected the Jamestown water tank April 14, 1927. This is a 100,000 gallon steel tank, fabricated by the Des Moines Bridge and Iron Company and erected in 1911. According to Jamestown records it has been painted once inside and out since erection. It was painted on the outside in 1916. The inside was painted before 1916.

The tank was emptied three days before inspection. The inside had been scraped except one gore of the round bottom. Where scraped, the upper part was dry, the hemispherical section was still damp and the unscraped part was wet. Before scraping there was a coating of an eighth to a quarter inch of hard-water scale and rust, mostly the former. The dry and scraped upper part had a whitish color due to deposit left by water. Red and Black rust showed in contact with the steel. There did not seem to be any paint film left. The surface of the metal is everywhere rough or finely pitted and there is a scattering of deep pits, six inches to a foot apart in all directions. These look like the indentations made by bullets but there are no corresponding projections on the outer surface; they are holes eaten by rust. They are an eighth of an inch deep on an average. Some are a good 3/16" deep. Since the cylindrical tank was only a quarter inch thick originally and there has been a little reduction all over by rust, there is less than a sixteenth of an inch of steel left in some of these spots. The deep pittings are only a half inch or so in diameter. The pittings average a little worse in the hemispherical lower part of the tank, but as these plates are 5/16" thick, they are relatively no worse off than the upper part. Rivets are badly rusted; some of them have lost half their heads if they were ever well formed. There seems to be enough scale under the lapped edges of the plates to cause them to bulge a little.

The standpipe is similarly coated; rusted and pitted on the inside. At the bottom, outside, a concrete collar was placed after erection covering the bottom ring of rivets and sloping away from the steel. This concrete did not bond with the steel and became cracked up and served only to hold moisture in contact with the steel. Mr. Stang has removed it. At the upper edge of this collar, all around the standpipe, the steel is rusted away for more than an eighth

of an inch deep.

The framing for the conical roof and the spider at the top of the tub were so badly rusted that they have been scrapped and renewed. The ball finial and center post extending from spider to finial have been removed but not replaced.

The outside of tank is very rusty and badly in need of complete repainting but there has been no material loss of metal on the outside.

N. Handsaker.

Jamestown Water Tank

Mr. Clements:

Mr. Stang and I inspected the Jamestown water tank, April 14, 1927. This is a 100 000 gallon steel tank, fabricated by the Des Moines Bridge and Iron Co. erected in 1911. According to Jamestown records it ~~was~~ has been painted once inside and out, since erection. It was painted on the outside in 1916. The inside was painted before 1916.

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the upper part. Rivets are badly rusted; some of them have lost half their heads if they were ever well formed. There seems to be enough scale under the lapped edges of the plates to cause them to bulge a little.

The standpipe is similarly coated, rusted and pitted on the inside; at the bottom, outside, a concrete collar was placed after erection, covering the bottom ring of rivets and sloping away from the steel. This concrete did not bond with the steel and became cracked up, and served only to hold moisture in contact with the steel. Mr. Stang has removed it. At the upper edge of this collar, all around the standpipe, the steel is rusted away for more than an eighth of an inch deep.

The framing for the conical roof, and the spider at the top of the tank, were so badly rusted that they have been scrapped and ~~op~~ renewed. The ball finial and center post extending from spider to finial have been removed but not replaced.

The outside of tank is very rusty and badly in need of complete repainting, but there has been no material loss of metal on the outside

Not
4/15/27

MFC

~~LA 5~~
LA 6

Saint Paul, March 13, 1926.

Mr. R. J. Elliott:

Referring to your letter of March 8th to Mr. Stevens requesting prints for requisition 2607, repairs to Hamestown steel water tank,

I am sending you one copy each of sheets 3 and 5 which are referred to by the Pittsburgh-DesMoines Steel Co. The material on the requisition will be found on these sheets.

Bridge Engineer.

Encl.

St. Paul, Minnesota.

March 8th, 1926.

Desk 2.

Mr. H. E. Stevens,

Chief Engineer.

Dear Sir:

I wrote the Pittsburgh DesMoines Steel Co. for bid on material as listed on requisition 2607 - repairs to Jamestown 100,000 gal. steel water tank, and they write as follows:

"In reply to your kind inquiry of March 3rd, for rafter angles, etc. for steel water tank, will say that the shop details of this tank; that is, the original tracings are on hand in your Engineering Department andI believe Mr. Tanner knows just where they are and if you could get us a print of sheets 3 and 5, we can quote you on this material. The blueprints are back at Pittsburgh and they would not like to let go of the only set they have."

Will you kindly let me have these prints?

Yours truly,

Purchasing Agent.

LC/MR

RRB Do you know what is wanted 3/12

MFG. Regis 2607 calls for material on these two sheets. RRB 3/12/26

MFC

Saint Paul, October 11, 1921.

Mr. Bernard Blum,

Engineer Maintenance of Way.

I hand you herewith detail estimates covering the construction of a water tower 30 feet in diameter and 71 feet high, to be used as a settling basin in connection with the present tank at Zero, Montana.

The estimate is based on a tank with the top of the foundation on the same level with the present tank foundation. If it is necessary to build the new tower near the river bank in order to take care of the mud which accumulates at the bottom, it may be necessary to increase the height of the steel tower to provide sufficient water to fill the present tank by garvity. The estimates provides $400.00 for pipe and fittings connecting the two tanks. If their locations are widely separated it will be necessary to increase the pipe connections between the two tanks.

The estimate for the steel tower is about $4,000 less than the concrete tower.

Yours truly,

Bridge Engineer.

Encl

N O R T H E R N P A C I F I C R A I L W A Y C O M P A N Y

YELLOWSTONE DIVISION — THIRD SUBDIVISION

MONTANA VALUATION SECTION NO. 1

ZERO, MONTANA

Estimated cost of a reinforced concrete water tower 30 feet in diameter by 71 feet high, for refilling present tank.

ADDITIONS AND BETTERMENTS

Water Stations and Appurtenances	LABOR	MATERIAL
100 cu.yds. Excavation L $1	$ 100	
20 " Filling & surfacing L $1	20	
350 " Concrete L $10 M $10	3500	$3500
Forms	500	1000
91000 lbs. Reinforcing L 2¢ M 4¢	1820	3640
Valves, Fittings & Pipes	100	300
Unloading material	380	
2 days worktrain L $60 M $55	120	110
Superintendence & Use of Tools	655	
Engineering & Incidentals	715	
Freight		2000
Rental of equipment		60
Trackage		60
	$7910	$10670
		7910
TOTAL:-		$18580

Office of Bridge Engineer,
Saint Paul, October 11, 1921.

Oct 10

N.P.Ry.
Yellowstone Div. 3rd Subdiv.
Montana Val Sect. No. 1.
Zero Montana

Estimate & cost of reinforced concrete water towers 30' dia by 71' high for refilling present tank.

Additions & Betterments			
Water stations and Appurtenances			
100 cu yds Ex L 100		100	—
20 " " fill & surf L 100		20	—
350 cu yds concrete L 1000 M 1000		3500	3500
9100 sq ft forms		500	1000
20 tons reinforcing L 29 M 147		1820	3640
Valves, fittings & pipe		100	200
Unloading Matl		380	—
2 days wk train L 60.00 M 55.00		120	110
Supt		655	—
Engineering		715	—
MSlns —		—	—
Freight		—	2000
Rental of Equip		—	60
Trackage		—	60
		7910 ✓	10670
			7910
			18580

NORTHERN PACIFIC RAILWAY COMPANY

YELLOWSTONE DIVISION — THIRD SUBDIVISION

MONTANA VALUATION SECTION NO. 1

ZERO, MONTANA.

Estimated cost of steel water tower 30 feet in diameter by 71 feet high, for refilling present water tank.

ADDITIONS AND BETTERMENTS

	Water Stations and Appurtenances	Labor	Material
100	cu.yds. Excavation L $1.	$ 100	
20	" Filling & surfacing L $1	20	
90	" Concrete L $6 M $7	540	$ 630
30	" " L $8 M $10	240	300
84	Tons Struct. steel L $25 M $90	2100	7560
84	" Painting L $1.20 M $1	101	84
	Valves, Fittings & Pipe	100	300
	Unloading material	390	
2	Days worktrain L $60 M $55	120	110
	Superintendence & Use of tools	370	
	Engineering & Incidentals	410	
	Freight		1100
	Rental of equipment		60
	Trackage		60
		$4491	$10204
			4491
	TOTAL:-		$14695.

Officeof Bridge Engineer,
Saint Paul, October 11, 1921.

N. P. Ry
Yellowstone Div. 3rd Sub.
Montana Val. Deck. No. 1.
Zero montana

Oct 10

Estimated cost of steel water tower 30' dia x 71' high for refilling present water tank

Additions + Betterments		
Water stations + Appurtenances		
100 cu yds Ex. L 1.00	100	—
20 " " fill + Surf L 1.00	20	—
90 cu yds concrete L 6.00 M 7.00	540	630
30 " " " L 8.00 M 10.00	240	300
84 tons struct steel L 25.00 M 90.00	2100	7560
" " painting L 1.20 M 1.00	101	84
Valves fittings + pipe	100	300
Unloading Matl	390	—
2 days Wk train L 60.00 M 55.00	120	110
Supt.	370	—
Engineering	410	—
Miscl'ns	—	—
Freight	—	1100
Rental of Equip.	—	60
Trackage	—	60
	4491	10704
		4491
		14695

62

LA6

July 8, 1913. HES

Des Moines Bridge & Iron Co.,

Des Moines, Iowa. Attention Mr. Pearsall.

Dear Sir:-

Sometime ago you will remember we discussed the question of freezing at the expansion joint of the Zero water tank, and I am attaching copy of letter from Supt. Lantry dated July 3rd regarding this matter.

You will note that in view of the small amount of water taken at this point the Superintendent is inclined to think the tank would freeze anyway unless water leg was boxed in.

I hardly think it would be worth while to go to the trouble and expense of making the change in view of the question as to benefits to be derived from same.

Yours truly,

Bridge Engineer.

St. Paul, July 7, 1913.

Mr. H. E. Stevens,

Bridge Engineer.

Dear Sir:

Referring to your letter of June 10th in reference to the Zero and Jamestown tanks:

On June 25th I sent you copy of letter received from Mr. Strachan in regard to the Jamestown tank. I am this date in receipt of a letter from Mr. Lantry, copy of which I am enclosing, in regard to the Zero tank. You will note that Mr. Lantry's experience is somewhat different from Mr. Strachan and that the freezing takes place at the expansion joint but as stated in my former letter, I think if water was taken from these tanks frequently that possibly the trouble will not maintain. The Supervisor and X-Supervisor, Jack Taylor, seem to think that if the expansion joints were removed that this would remedy the trouble they are having.

Yours truly,

[signature]

AG

Engineer, ~~Maintenance~~ of Way.

Glendive, Montana, July 3, 1913.

Mr. A. Gibson,

Engineer, Maintenance of Way.

Dear Sir:

Your letter of the 12th in regard to steel water tank at Zero:

The trouble that we have had with this tank is, the freezing always starts at the expansion joint. The frost protection furnished by the Des Moines Bridge & Iron Company was placed around this expansion joint last Fall, but this did not prevent the freezing and it was found that the leg at the joint was nearly frozen solid and to avoid further trouble, we boxed in the leg and packed it with straw and cinders. After this was done, no trouble was experienced. There is not a great deal of water taken at this tank, and this fact, of course, has a tendency to cause freezing. I do not know whether or not it would be best to remove the expansion joint and provide a full size opening between the water leg and tank. The Supervisor and Jack Taylor, seem to think this would remedy the condition, but I am doubtful about it and would not like to say one way or the other.

Yours truly,

(Signed) T. H. Lantry,

Superintendent.

146

St. Paul, Minn. June 25, 1913. HES

Mr. W. L. Darling,

Chief Engineer.

Dear Sir:-

As per your memo on the attached letter from Mr. Gibson dated June 6th I have had up with him the question of the freezing of the steel water tanks at Jamestown and Zero, and I am attaching his reply of June 23rd and Mr. Strachan's letter of June 18th, also a memo from Supervisor Ingalls, from which you will note there was no trouble whatever with the Jamestown tank last winter.

It is essential that these steel tanks be kept in fairly constant use in cold weather in order to avoid freezing.

Yours truly,

Bridge Engineer.

LA6

St. Paul, Minnesota. June 10, 1913. HES

Mr. Andrew Gibson,

Engineer Maintenance of Way.

Dear Sir:-

Mr. Darling has referred to me your letter of June 6th about steel water tank at Zero.

This tank, and also the tanks at Jamestown, Ellensburg and Auburn, were built by the Des Moines Bridge & Iron Co. and are provided with expansion joints at the junction between the bottom of the tank and the 6" water leg. The winter before last, this being the first winter these tanks were erected, there was trouble with the tank at Zero account of connections not being properly made, and trouble with the tank at Jamestown account of the tank being connected up so that no water was taken from it for a considerable period of time, during which the water leg froze up solid. This matter was taken up with the Des Moines Bridge & Iron Co. in the summer of 1912 and they furnished us with asbestos and mineral wool packing for the expansion joints of all the tanks, and your letter was the first intimation I have had that there was still trouble from freezing.

A representative of the Des Moines Bridge & Iron Co. called on me yesterday, and I explained to him the difficulty with the Zero tank, and he assures me that if the

difficulty is due to the expansion joint they will repair or replace it in any way we consider best; in fact, the joint can be removed entirely if necessary and a full size opening between water leg and tank provided. It is my understanding, however, from conversation with you this monning that the trouble was not at the expansion joint: I wish, however, you would make sure of this and ascertain definitely if the freezing first started around the expansion joint or if the trouble was due solely to the fact that not enough water was taken from the tank to keep same moving sufficiently to avoid freezing. Also, will you please investigate the results of the last winter at Jamestown and if this tank gave any trouble from freezing try and ascertain if same started around the expansion joint or if the freezing, if any occurred, was general.

It is my opinion that steel water tanks without protection should not be used except in locations where water is taken with sufficient frequency to keep the tank water in circulation. At all such locations there has been no trouble from freezing as far as I have been informed.

Yours truly,

Bridge Engineer.

Cy W.L.D.

LA6

COPY

MEMO June 11, 1913.

Mr. L. Yager,

St. Paul.

Re attached. During winter of 1911-12 the ste l tank was out of commission for some time on account of being frozen up due to there being no circulation of water.

During winter of 1912/13 we had no trouble and tank was in commission every day. We watched this quite closely on account of trouble experienced the previous winter and at no time even during our most severe weather was there even a skim of ice on water in tank.

With proper circulation there should be no trouble from ice in any steel tank.

F. Ingalls.

St. Paul, Minn. June 9, 1913.

F. Ingalls,

Jamestown.

Wish you would set me right on the 100,000 gal. steel tank at Jamestown. It is my recollection that the first winter the water leg froze up solid and the tank was out of service. Last winter on account of the changes in piping there was no trouble from freezing and the tank was in continuous service. It has been reported that the tank was frozen up last winter and consequently out of service.

L. Yager.

LA6

March 1, 1913. HES

Des Moines Bridge & Iron Co.,

Pittsburg, Pa.

Gentlemen:

This will acknowledge receipt of tracings, sheets 1 2, 3, 4 and 5, your contract No. 571, water tanks at Ellensburg, Auburn, Wash., Zero, Mont. and Jamestown, N.D.

Yours truly,

Bridge Engineer.

O

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

LA 6

DES MOINES BRIDGE & IRON COMPANY,

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS,
AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. / PITTSBURG, PA.

CURRY BUILDING

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO

Pittsburg, Pa. Feb. 25, 1913.

IN RE: TRACINGS FOR WATER TOWERS, ELLINSBURG, WASHINGTON, ZERO, MONTANA, JAMESTOWN, NORTH DAKOTA AUBURN, WASHINGTON.Z

Mr. H. E. Smith, Bridge Engineer,
Northern Pacific Railroad Company,
St. Paul, Minnesota.

Dear Sir:

Your letter of November 23rd has just been forwarded to this office. We have completed the drawings by the addition of a sketch as indicated in the letter and mailed the tracings to you to-day under separate cover.

Will you kindly send acknowledgement of their receipt to this office.

Yours very truly,

DES MOINES BRIDGE & IRON CO.
Irving D Gordon

IG/IVH

Rec'd 7/3/13

LAG

Saint Paul, January 9, 1913.

Mr. H. E. Stevens,

Bridge Engineer.

Dear Sir:-

I hand you herewith copy of letter received today from Superintendent of the Dakota Division concerning shortage of air cell blocks and mineral wool for the Jamestown water tank.

Yours truly,

L. Yager

Division Engineer.

BB-w

Encl.

(COPY)

Jamestown 1-8-13

Mr. L. Yager,
Division Engineer.

Dear Sir:-

Concerning the additional air cell blocks and mineral wool for Jamestown Tank, as covered by Des Moines Bridge & Iron Co.'s letter of Dec. 16th, addressed to Mr. Stevens. Supervisor Ingalls writes as follows:

"We received ten air cell blocks and three sacks wool, making a total of 29 air cell blocks and ten sacks wool. There was not enough of either but we have put it in using one inch boards for the nine air cells short and placing the wool to best advantage to protect from freezing."

Yours truly,

(Sgd) W. H. Strachan,
Superintendent.

La 6

St. Paul, Minnesota. Dec. 18, 1912. HES

Mr. L. M. Perkins,

Engineer Maintenance of Way,

Tacoma, Wash.

Dear Sir:-

I am handing you herewith bill of lading and copy of letter from the Des Moines Bridge & Iron Co. covering additional air cell blocks shipped to Auburn and Ellensburg for use in fixing up the expansion joint of the steel water tanks at those points. This material is to make up the shortage occuring in the first shipments.

You have already been furnished with sketches showing how this material is intended to be applied.

Yours truly,

Bridge Engineer.

O

St. Paul, Minnesota. Dec. 18, 1912. HES

Mr. A. Gibson,

Engineer Maintenance of Way.

Dear Sir:-

I am handing you herewith bill of lading and copy of letter from the Des Moines Bridge & Iron Co. covering additional air cell blocks shipped to Jamestown and Zero, for use in fixing up the expansion joint of the steel water tanks at those points. This material is to make up the shortage occurring in the first shipments.

You have already been furnished with sketches showing how this material is intended to be applied.

Yours truly,

Bridge Engineer.

O

W.H.JACKSON. G. A. SMITH MANAGER, DES MOINES OFFICE E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS, AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURGH, PA. DALLAS, TEXAS.
WORKS DES MOINES, IA. PITTSBURGH, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO JL

Des Moines, Iowa, Dec. 16, 1912.

Mr. H. E. Stevens, Bridge Engineer,
Northern Pacific Ry. Co.,
St. Paul, Minn.

Dear Sir:

Herewith B/L and shipping memo covering shipment of additional air cell block and mineral wool to be used on each of the following tanks; Zero, Mont., Jamestown, N Dak., Ellensburg, Wash. and Auburn, Wash.

We trust that these materials will be at hand shortly and that they may be sufficient to fix up the space around the expansion joint.

Yours very truly,

Des Moines Bridge & Iron Co.

By

S

November 30, 1912.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

With reference to my letter of the 23rd about shortage of material for insulating the steel tank at Zero, Montana.

I am in receipt of a complaint about a shortage on the tank at Jamestown. It seems that only half enough material was sent to each place. This applies to the mineral wool as well as the asbestos blocks.

Yours truly,

Bridge Engineer.

Saint Paul, November 30, 1912.

Mr. H. E. Stevens,

Bridge Engineer.

Dear Sir:-

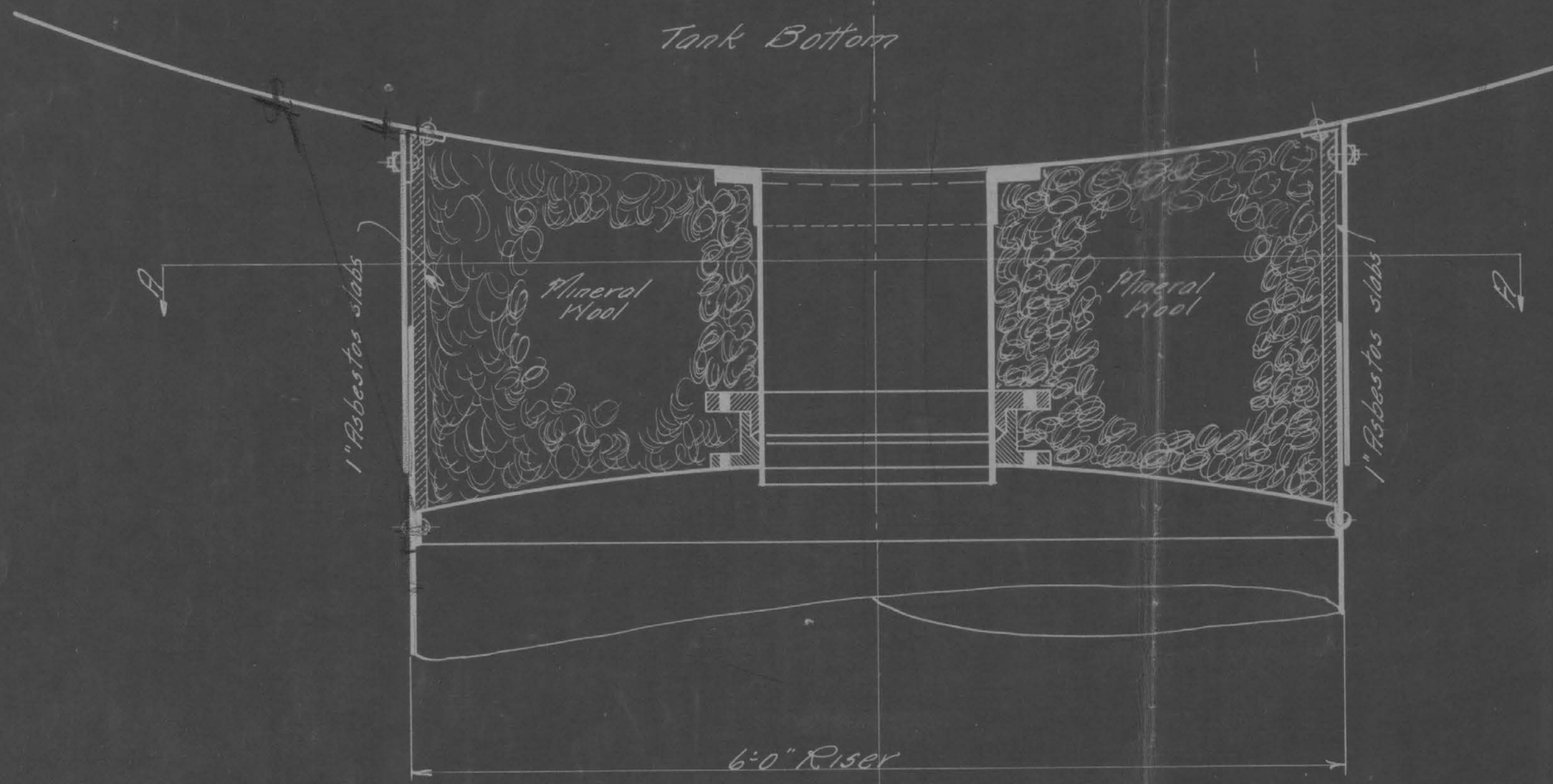
You will recall that the Chicago Bridge & Iron Company furnished the material for packing the expansion boxes for the 100,000 gallon steel tank erected by them for us at Jamestown. They furnished for Jamestown 19 pieces of air cells 1" x 6" x 3' and about 30 cubic feet of mineral wool. This figures about half enough for each of these items. Will you kindly take up with them to furnish sufficient material to provide protection, in accordance with plan.

Yours truly,

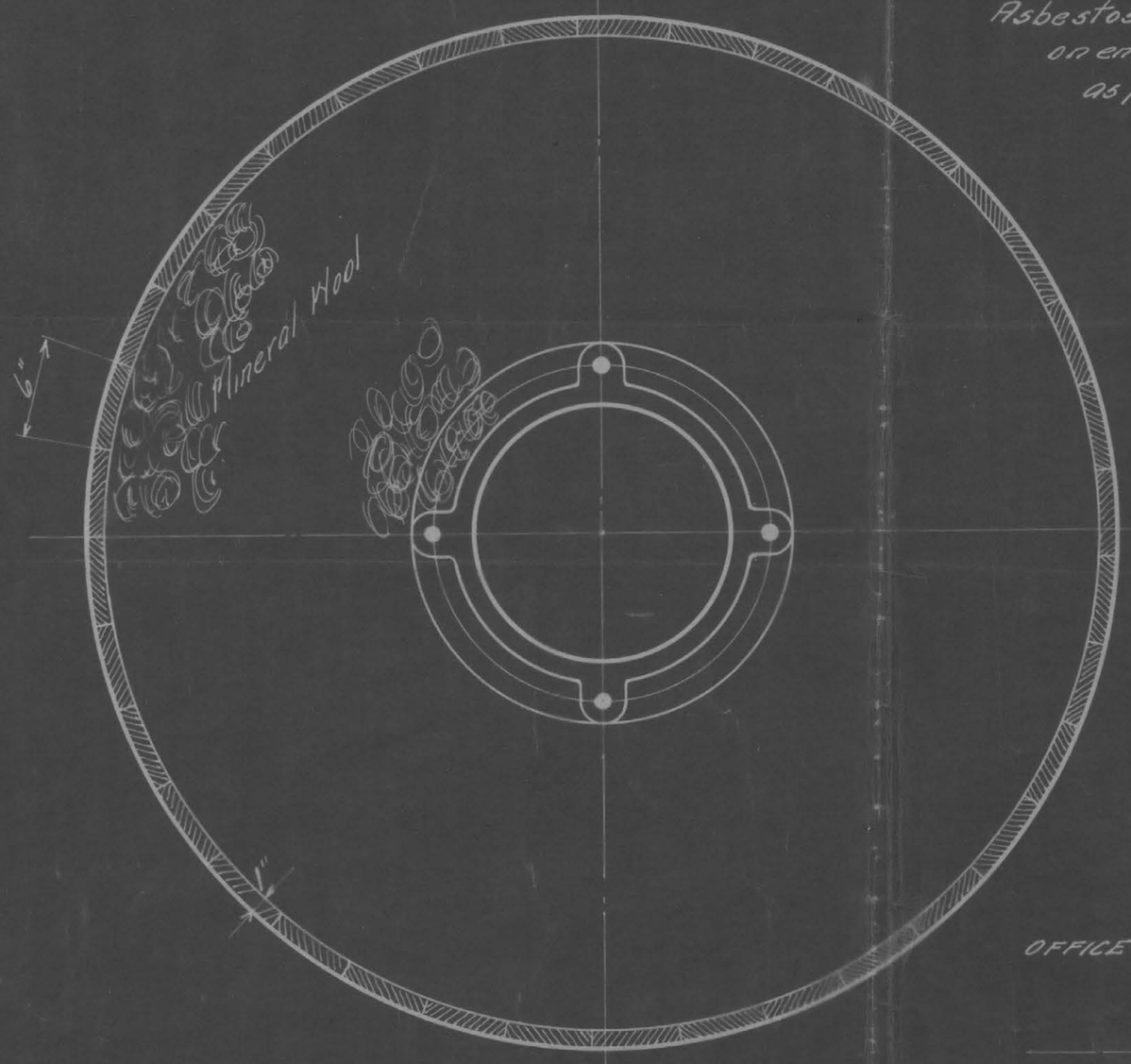
Division Engineer.

LY-w

Encl.



Asbestos blocks cut to proper length, and stand on end around outer edge of packing box as per detail



Section A-A

N.P.R.Ry
YELLOWSTONE DIV. THIRD DISTRICT
ZERO MONT
METHOD OF PACKING EXPANSION BOXES
100,000 Gallon Water Tank
Scale 1" = 1 Ft

OFFICE OF BRIDGE ENGINEER ST PAUL MINN SEPT 30 1912
Approved

BRIDGE ENGINEER CHIEF ENGINEER

Del L.L.
Trc L.L.
Chk
1
1

November 23, 1912. HES

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Dear Sir:-

I have advice from the field that not enough asbestos blocks were received for packing the expansion joint of the Zero tank. 19 pcs. 6" wide by 36" long were received. It is my understanding that you intended the 36" piece to be cut into two equal lengths, and had the pieces been long enough to do this there would have been sufficient material to reach around the circle of the mud drum. It seems however that the distance from the top of the mud drum to the bottom of the tank is approximately 2'4", and an 18" block would of course be too short. Kindly forward the additional material required at your early convenience.

I am attaching a 1" scale layout showing proposed arrangement of the mineral wool and asbestos blocks, The dimensions shown being as nearly as we can determine them from your detail plans which you will observe are not complete in that they do not show any particular dimension proposed

for the distance between the bottom of the tank and top of mud drum. Will you kindly complete your plans by showing a view of the expansion joint assembled complete, and then forward us the tracings for our records.

Yours truly,

O Bridge Engineer.

St. Paul, Minnesota, November 23, 1912.

HES

Mr. Andrew Gibson,

Engineer Maintenance of Way.

Dear Sir:-

I am returning you herewith file received with your letter of the 20th regarding insulation packing for the water tank at Zero, and I am also attaching two prints of sketch plan made up to show how this material should be placed. Six prints of this sketch was sent Mr. Smith Sept. 30th, which I assume he sent to the field.

As nearly as I can determine, the Des Moines Bridge & Iron Co. expected the 36" strips to be long enough to fill the expansion joint after they had been cut in halves. The actual length of this expansion joint is indeterminate, but I do not think a 3' strip would be long enough to effectually insulate when cut in half. I have taken this matter up with the Des Moines Bridge & Iron Co. requesting them to furnish additional material.

Yours truly,

O

Bridge Engineer.

AG

St. Paul, Nov. 20, 1912.

Mr. H. E. Stevens,

Bridge Engineer.

Dear Sir:

Would invite your attention to attached letter to me from Mr. Taylor, under date of Nov. 18, in reference to packing furnished for expansion joints, water tank at Zero.

The plat which you sent me showing packing expansion boxes was forwarded to Mr. Lantry direct on October 14th but Mr. Taylor's letter is the first intimation I had that there is any shortage of material. This matter was handled by you with the Des Moines Bridge & Iron Works and would appreciate it if you would call their attention to this shortage.

Kindly return attached letter as soon as it has served your purpose.

Yours truly,

Engineer of Maintenance of Way.

LA6

St. Paul, Minn. October 23, 1912. HES

Mr. W. C. Smith,

Chief Engineer Maintenance of Way.

Dear Sir:-

I am handing you herewith file and letter dated October 21st, from the Des Moines Bridge & Iron Co. regarding the return shipment on tools used in the erection of the steel water tank at Auburn, Wash. The contract with these people provides for return transportation on tools: It seems however, to have been handled in rather an irregular manner.

Yours truly,

O

Bridge Engineer.

L.96

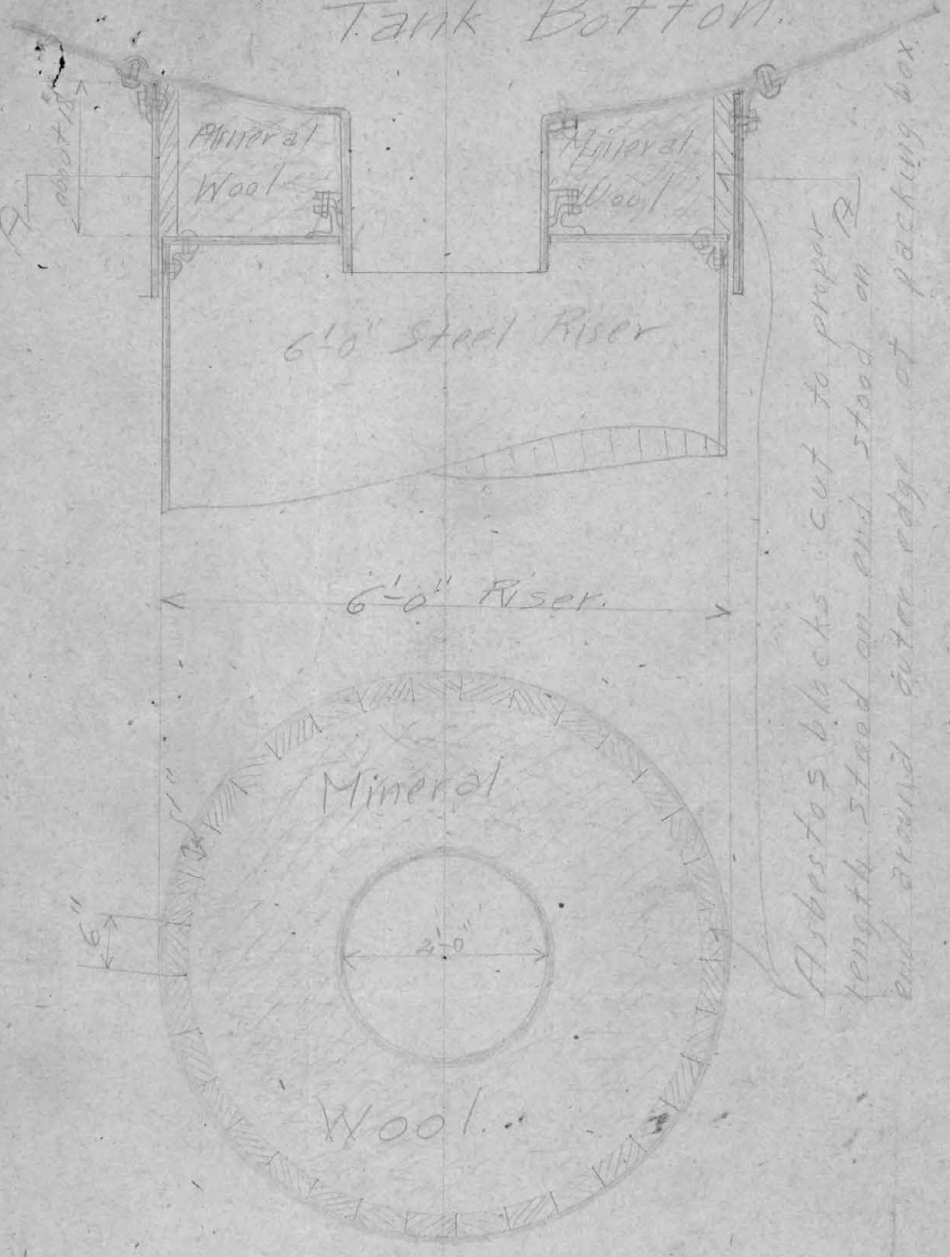
St. Paul, Minn. September 30, 1912. HES

Mr. W. C. Smith:

As per your memo on the attached file, I am handing you herewith six prints of copy of sketch furnished by Des Moines Bridge & Iron Co. for the proposed re-packing of the expansion joint of the three tanks at Zero, Auburn and Ellensburg.

H. E. Stevens.

O



Method of Packing Expansion Boxes at N.P. Steel Risers.

LA6

St. Paull Minn. September 16, 1912. ARO

Mr. W. C. Smith:

Referring to my letter to you of the 3rd inst. I am attaching hereto copy of letter from the Des Moines Bridge & Iron Co., together with sketch showing how the insulating material should be placed around the expansion joint of the tanks at Auburn, Ellensburg, Jamestown and Zero tanks.

H. E. Stevens. (ARO)

W.H.JACKSON. G. A. SMITH MANAGER, DES MOINES OFFICE E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY.

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS, AND WATER WORKS PLANTS.

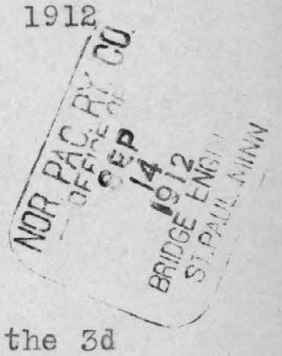
GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURGH, PA. DALLAS, TEXAS.
WORKS DES MOINES, IA. PITTSBURGH, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO JL

Des Moines, Iowa, Sept. 13, 1912



Mr. H. E. Stephens, Bridge Engineer,
Northern Pacific Ry. Co.,
St. Paul, Minn.

Dear Sir:

We beg to acknowledge receipt of yours of the 3d regarding air cell blocks and mineral wool for the tanks at Auburn and Ellensburg.

We are enclosing herewith a sketch showing the manner in which we think this material might be put around the expansion joint. It will be necessary to cut the 36 x 6" air cell blocks in two pieces each being 18" x 6". If we can be o f any further assistance to you in this matter, kindly advise.

Yours very truly,

Des Moines Bridge & Iron Co.

S By J Laga

3.14
6
18.84

September 12, 1912. HES

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Referred to WCS

Dear Sirs:-

I have your favor of the 11th with shipping memos covering mineral wool and air cell blocks to be used at Jamestown and Zero tanks. Will you kindly furnish a little sketch showing how you wish this material placed, as requested in my letter to you of Sept. 3rd?

Yours truly,

Bridge Engineer.

O

St. Paul, Minnesota. September 4, 1912. HES

Mr. A. Gibson,

Engineer Maintenance of Way.

Dear Sir:-

Your memo on the attached letter from Mr. Taylor dated August 28th, regarding pipe connections for the steel tank at Zero.

I am attaching two prints of our foundation plan for steel tanks. The arrangement of the connections in the pipe cellar as indicated on this plan, are the same for all tanks, whether built by the C.R.& I. Co. or the Des Moines Co.

I have asked the Des Moines Co. to furnish a sketch showing how they wish the insulating material placed around the expansion joint.

Yours truly,

Bridge Engineer.

O

St. Paul, Minn. September 3, 1912. HES

Mr. W. C. Smith,

Chief Engineer Maintenance of Way.

Dear Sir:-

I am handing you herewith letter from the Des Moines Bridge & Iron Co. dated August 31st, together with shipping bills covering shipment of air cell blocks and 7 bags of mineral wool, for use in insulating the expansion joint of the steel tanks at Auburn and Ellensburg, Wash.

I have asked the Bridge Co. to furnish a little sketch showing how they desire to have this material placed. Will you kindly see that the material is properly taken care of on its arrival, and as soon as sketch is received I will forward you same for use of the field forces in placing the material.

Yours truly,

Bridge Engineer.

September 3, 1912. HES

Des Moines Bridge & IronCo.,

Des Moines, Iowa. Attention Mr. H. W. Smith.

Gentlemen:-

I have your favor of the 31st ult. regarding shipment of 16 pieces of air cell blocks and 7 bags of mineral wool, for the tanks at Auburn and Ellensburg.

For the benefit of our field forces, will you kindly furnish a little sketch showing how you wish this material placed?

Yours truly,

Bridge Engineer.

COPY.

DES MOINES BRIDGE & IRON COMPANY.

Des Moines, Ia. Aug. 31, 1912.

Mr. W. E. Stephens, Bridge Engineer,
Northern Pacific Ry.,
St. Paul, Minn.

Dear Sir:-

We beg to enclose herewith B/L and shipping statement covering the 16 pieces of air cell blocks and 7 bags of mineral wool to be shipped to Auburn, Washington and Ellensburg, Wash. respectively, this material to be used in insulating the expansion joint that we erected for you at these points within the last year. The shippers of these materials make the mistake of shipping these materials to us at the various points, whereas we had requested that they ship same to the Northern Pacific Ry. Co. We trust however that this manner of shipping these materials will cause no confusion and that they will arrive in due time. The mineral wool etc. for the Zero and Jamestown tanks will be shipped very shortly.

Yours very truly,

DES MOINES BRIDGE & IRON CO.

BY H. W. Smith.

L96

St. Paul, Minnesota. August 9, 1912. HBS

Mr. W. C. Smith,

Chief Engineer Maintenance of Way.

Dear Sir:-

I am returning you herewith correspondence received with your letter of July 5th regarding steel water tank erected at Zero.

I think we should arrange to have the piping installed in this tank in accordance with our plans. Furthermore, the insulating material should be put in around the expansion joint. The Des Moines Bridge & Iron Co. will furnish this material, as per copy of their letter of August 2nd next attached. They should also be billed upon for placing material after same arrives upon the ground.

We could hardly bill them for the expense of making the changes in the water pipe, as it is my understanding from the correspondence that our forces are entirely responsible for these "improvements".

Yours truly,

Bridge Engineer.

6

W.H.JACKSON. G. A. SMITH MANAGER. DES MOINES OFFICE E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY.

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS, AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURGH, PA. DALLAS, TEXAS.
WORKS DES MOINES, IA. PITTSBURGH, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO

Des Moines, Iowa, 8/2/12.

Mr. H. E. Stevens, Bridge Engineer,
Missouri Pacific Railway Co.,
St. Paul, Minn.

Dear Sir:

We have a letter from our Mr. Bailey advising that he has agreed to furnish sufficient installing material to fill the space around expansion joint on four water towers we furnished you last season. We will have this material shipped as soon as possible and hope that when it is installed, it will put the work in first class condition.

Regarding the fuel installations, we are not in position to submit bid on this work promptly and will therefore not ask you to delay matters for us. We thank you for the opportunity of quoting on the work and hope that you will be able to get satisfactory prices from other parties.

Yours very truly,

GAS-RA

DES MOINES BRIDGE & IRON CO.

BY Geo A Smith

July 6, 1912. HES

Des Moines Bridge & Iron Co.,

Des Moines, Iowa. Attention Mr. R. W. Baily.

Dear Sir:-

Referring again to your letter of Feb. 12th regarding freezing up of the stand pipe you erected for this company at Zero, Montana.

I am attaching copy of DivisionEngineer Taylor's letter dated June 26th, stating the changes made in the design of this tank and the reasons for same.

It seems the insulating material was omitted on the advice of your foreman, he having stated that better results were obtained by leaving the insulation out. I was not aware that you had tanks of this type in operation long enough to be able to state definitely that the insulating material should be omitted. If such is the case I think you should have notified this office. If we are to depend upon the air space for preventing freezing, it seems to me a different type of design should be used for the shield. At present this shield is made of light material and has a very loose fit around the top of the water leg: To get effective air insulation this should be air tight.

The improvements made by our field forces have left

this tank without an overflow pipe. We will no doubt succeed in getting the intake and overflow pipe arranged in accordance with the original plan, but I am not certain that such an arrangement will prevent the freezing of the connection between the top of the water leg and the tank. I shall be glad if you would advise me what changes if any you would suggest in the arrangement at this point. The question of freezing at this point was discussed at some length with you at the time the design was adopted, and it was on your assurance that you could make this point satisfactory that the design was finally accepted.

Yours truly,

Bridge Engineer.

O

WCS-r

Saint Paul, July 5, 1912.

Mr. H. E. Stevens,

Bridge Engineer.

Dear Sir:-

I hand you entire file regarding trouble with the steel water tank erected at Zero. I did not see your letter of March 9th, but Mr. Gibson has secured from Mr. Taylor a statement of what was done there. Evidently, the local men were trying to improve upon the design.

Please return the letters when you have noted them.

Yours truly,

W C Smith

La6

St. Paul, Minnesota. March 9, 1912. HES

Mr. W. C Smith,

Chief Engineer Maintenance of Way.

Dear Sir:-

Referring to your letter of the 8th with copy of letter from Division Engineer Taylor, regarding steel water tank erected at Zero.

Evidently the design of tank as furnished was not satisfactory to those having charge of the work in the field, and they therefore proceeded to introduce a few improvements. As nearly as I can make out, this tank is now left without any overflow pipe whatever, as the intake instead of being connected to the 14" pipe was in this instance connected to the 6" overflow pipe, which runs clear to the top of the tank, and when they found this arrangement did not work very well they cut the overflow pipe off 6 ft. above the foundations. They also decided to leave out the insulating material around the 18" expansion joint, which we were very particular to specify must be placed in order to prevent freezing.

I would suggest that you instruct the proper officers to build the tank according to the plans. If they find out then that it does not work satisfactorily, the question of improving it should be taken up in the proper way.

Yours truly,

O

Bridge Engineer.

Saint Paul, March 8,1912.

Mr. H. E. Stevens,

Bridge Engineer.

Dear Sir:-

Referring to your letter of February 14th, enclosing copy of letter from the Des Moines Bridge and Iron Company, in regard to freezing of the large riser pipe in the water tank at Zero:

I attach hereto, copy of Mr. Taylor's letter of February 26th, to Mr. Gibson, in regard to this matter.

Yours truly,

W. E. Smith

Encl.

C-H.

NORTHERN PACIFIC RAILWAY COMPANY

Livingston, Mont., Feb. 26, 1912.

Mr. Andrew Gibson,

Engineer of Maintenance of Way.

Dear Sir:

Replying to your letter of the 23rd instant and returning correspondence in regard to freezing of water in the leg of the steel tank at Zero. This question was partly covered in my letter to you of the 21st instant in which conditions were given under which the water in the tank froze. One of these conditions being that there was a long continued spell of cold weather about that time the water plant was completed and the plant had not been put into service so that there was less circulation and change of water than there would have been under ordinary conditions.

It does not seem to me that the construction of the tank is suitable for cold climates on account of connection between the tank and the riser being constructed so that the section is contracted to 18". It may be that some insulating material could be packed around this section so as to reduce the liability of freezing, but it does not appear that this would be effective in very cold climates.

The party who erected this tank stated we would get better service to leave the air space around the 18" section open than we would if this was packed with some insulating material, as any such material would be liable to become wet and freeze, carrying the frost into the water in the 18" section.

The enclosed correspondence is not correct in stating that the 14" pipe was extended to the bottom of the tank. This was left about 4 feet above the tank foundation as called for on the plans. In order to avoid having the supply pipe from the pump house connect with the stand pipe line, the supply pipe was connected with the overflow pipe and the latter was used for an intake. This pipe was extended to the bottom of the tank as mentioned. One reason for having this pipe extended to the bottom of the tank was to have it placed so that there would be some agitation of the water in the 18" section when water was being pumped into the tank. It was considered that this would be more liable to prevent freezing at that point than if the intake pipe entered near the foundation of tank.

Another reason for extending pipe to the bottom of the tank was to prevent agitation of the tank in the bottom part of the leg so as to prevent stirring up the mud which might settle in the bottom of the leg.

The freezing which took place in the leg of the tank would not have done any harm if it had not been for the freezing up of the 18" section where the leg joins the main part of the tank above referred to. When the tank was opened to be thawed out the Operating Department cut off the intake pipe to about 6 feet above the foundation of the tank so that the condition above referred to does not now exist. This will give a little more movement to water in the leg when water is being pumped into the tank, but it does not appear that this will help to prevent the tendency to freeze in the 18" section during times when the pump is not running.

Yours truly,

D.W. Engineer ~~of Maintenance of Way.~~

Jal

March 1, 1912. HBS

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

Your favor of the 28th.

Foundations for the Auburn tank are complete, and we are ready for you to proceed with the erection work at any time.

Yours truly,

O

Bridge Engineer.

FORM 1386

NORTHERN PACIFIC

TELEGRAM.

All Railway Messages must be written in ink on these blanks, which must not be used for other purposes, and those for parties on trains (except trainmen) enclosed in sealed envelopes. The exact time sent, time received, personal signal of send[illegible] and receiving operators, call of sending office and name of receiving station must be entered on this blank.
[illegible] transmitting telegrams which in their judgment would have served the Company's interest as well if sent by train mail, or which appear unnecessarily long, [illegible]rators are required to attach a copy to Form 238, and forward same to Superintendent of Telegraph.

St. Paul, Minn. ~~Feb~~ Mar. 1, 1912. HES

L M Perkins
Tacoma Wash

Are the foundations for Auburn water tank ready for erectors
They wish to start in about three weeks

H E Stevens 1130 am

FORM 1386

TELEGRAM.

All Railway Messages must be written in ink on these blanks, which must not be used for other purposes, and those for parties on trains (except trainmen) enclosed in sealed envelopes. The exact time sent, time received, personal signal of sending and receiving operators, call of sending office and name of receiving station must be entered on this blank.
After transmitting telegrams which in their judgment would have served the Company's interest as well if sent by train mail, or which appear unnecessarily long, operators are required to attach a copy to Form 238, and forward same to Superintendent of Telegraph.

137 by sc f

Tacoma March 1-12 H.F.Stevens,

StPaul.

Foundations for Auburn tank are one month old and ready for erection.

L.M.Perkins. 1338 pm

W.H.JACKSON. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY.

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS.
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS,
AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURGH, PA.
WORKS { DES MOINES, IA. / PITTSBURGH, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO HWS

Des Moines, Iowa, Feb. 28, 1912.

H. E. Stevens, Bridge Eng., N.P.
St.Paul, Minn.

Dear Sir;-

Relative to the Auburn, Wash. tower and tank, we expect to be able to commence erection of this tower and tank in about three weeks, and would be pleased to have you advise if the foundations are complete, and every thing in readiness for us.

Yours very truly,

D

DES MOINES BRIDGE & IRON CO.
By

NORTHERN PACIFIC RAILWAY COMPANY

Office of Chief Engineer of Maintenance of Way.

St. Paul, November 27, 1911.

Lab

Mr. J. G. Woodworth, Traffic Manager,
Mr. H. A. Gray, Comptroller,
Mr. C. J. Mayer, Auditor Disbursements,
Mr. Wm. Richards, Auditor Freight Receipts,
Mr. Geo. Sherriff, Auditor Passenger Receipts,
Mr. W. S. Tayler, Auditor Agencies,
Mr. E. O. Parks, Auditor Sup. & Mech. Accts.
Mr. O. C. Wakefield, Supply Agent.

Dear Sir:

Under terms of agreement dated May 12th 1911 with the Des Moines Bridge & Iron Company of Des Moines, Iowa, that Company is to furnish material for and erect steel water tanks at Zero, Mont. and Ellensburg, Wash.

The contract contains the following clause in regard to transportation:

"The Railway Company will furnish free transportation over its own lines and its proprietary lines, subject to the review and instructions of the Chief Engineer, as to the necessity for and proper use of same, for all men, tools, outfit, equipment and material actually used in the work."

Shipments on account of this contract are being consigned to the Northern Pacific Railway Company in care of F. J. Taylor, Division Engineer, Zero, Mont., for the Des Moines Bridge & Iron Company, and to the Northern Pacific Railway Company in care of B. L. Crosby, Division Engineer, at Ellensburg, Wash., for the Des Moines Bridge & Iron Company.

Transportation on account of this contract should be charged to the Railway Company at tariff rates on account of Improvements Comptroller's No. 375-10, Ellensburg Water Supply, and Comptrollers No. 178-11, Zero Water Supply.

Yours truly,

W. L. Smith

Copies:
AC, FJT, THL,
LMP, BLC, JEC, HES.

November 21, 1911.

FEB.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

Referring to your letter of November 10th, regarding final shipment of tank material for tank at Auburn, shipped in C.C.C.& St. L. Car No. 27277, via P. & L. E., L.S.&M.S., Care of Western Transit Co. at Buffalo, c/o N.P. Railway at Duluth.

Our agent at Duluth advises that this material has been received at Duluth and forwarded in N.P. car No. 86020 November 19th, W.B. 9564.

Yours truly,

Bridge Engineer.

B

November 18, 1911.

PEB.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

Referring to your letter of the 17th., with further reference to final payment on Jamestown tank.

Our Mr. Yager is to be in Jamestown the coming week and will look over the tank at that point, and if O.K. final voucher will be started through the regular channels.

Yours truly,

Bridge Engineer.

B

GAS

Des Moines, Iowa, Nov. 17, 1911.

H. E. Stevens, Bridge Eng'r,
N. P. Railway Co.,
St. Paul, Minn.

Dear Sir:-

Your letter of the 16th and also voucher on Zero water tower contract received. We thank you for this remittance and trust you will be able to send us payment on the other two jobs in the near future.

We think the steel for both Ellensburg and Auburn is now on the ground, and on this basis, we presume you will allow us first payment.

When may we expect final payment on Jamestown?

Yours very truly,

CH

DES MOINES BRIDGE & IRON CO.
BY Geo A Smith

, November 17, 1911.

FEB.

Des woines Bridge & Iron Co.,

Des woines, Iowa.

Gentlemen:-

Referring to your letter of October 18th, regarding outfit car for Zero, Mont.

I beg to advise that outfit car No. 200948 has been delivered at Jamestown for your Company.

The material for the tank at Zero has now been unloaded at that point.

Yours truly,

ZBridge Engineer.

B

HES

Outfit car 200 948 delivered to W. B. Iles at Jamestown

GG 11/17

, November 16, 1911.

FEB.

14-6

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

Replying to your letter of the 15th regarding payment on water tanks which your company is furnishing the N.P.Ry.

I beg to advise that voucher covering the payment on tank at Zero, amount $2,678.40 is being forwarded your office today. Payment on the tanks at Auburn and Ellensburg will be made at the earliest date consistent with the progress of the work on these two contracts.

Yours truly,

Bridge Engineer.

B

W. H. JACKSON. B. N. MOSS. E. W. CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS.
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS, AND WATER WORKS PLANTS.
OFFICE NINTH & TUTTLE STREET.

BEAMS, ANGLES, CHANNELS AND BUILDERS' SUPPLIES FURNISHED FROM STOCK. ESTIMATES FURNISHED ON APPLICATION.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER CAUSES BEYOND OUR CONTROL.

WORKS { TUTTLE STREET 9TH TO 11TH, DES MOINES. NEVILLE ISLAND, PITTSBURG, PA.

Des Moines, Iowa, Nov. 15, 1911.

GAS

Northern Pacific Ry Co.,
H. E. Stevens, Bridge Eng'r,
St. Paul, Minn.

Gentlemen:-

Sometime ago you advised us that voucher had been passed for payment to us on water tower contracts at Jamestown, N.D., and Zero, Mont. We have received remittance covering Jamestown, but as yet have not received any payment on Zero. We are endeavoring to raise considerable amount of money just at this time and will appreciate the favor if you will kindly arrange for early payment on Zero and also on the other contracts.

2642.40
2678.40
34880

Thanking you in advance for this favor, we remain,

Yours very truly,

DES MOINES BRIDGE & IRON CO.
BY Leo A. Smith

CH

Form 290 TW

Northern Pacific Railway Company

St. Paul , Minn., November 11, 1911.

FEB.

Mr. W. H. Smith,

Agent, Duluth, Minn.

Dear Sir:-

The Des Moines Bridge & Iron Works advise that on October 31st, they forwarded from Pittsburg a shipment of steel for water tank to be erected for the N.P. Railway at Auburn, Wash.

This material was shipped in C.C.C. & St. L. Car No. 27277, via P. & L.E., L.S.&M.S., Care of Western Transit Co. at Buffalo, c/o N.P. at Duluth.

Please advise promptly on receipt of material what car same is transferred into and give forwarding.

Yours truly,

H E Stevens

Bridge Engineer.

B

9564 11/19

St. Paul , Minn., November 11, 1911.

TMB.

Mr. W. H. Smith,

Agent, Duluth, Minn.

Dear Sir:-

The Des Moines Bridge & Iron Works advise that on October 31st, they forwarded from Pittsburg a shipment of steel for water tank to be erected for the N.P. Railway at Auburn, Wash.

This material was shipped in C.C.C. & St. L. Car No. 27277, via P. & L.E., L.S.&M.S., Care of Western Transit Co. at Buffalo, c/o N.P. at Duluth.

Please advise promptly on receipt of material what car same is transferred into and give forwarding.

Yours truly,

Bridge Engineer.

B

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY.

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS,
AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. PITTSBURG, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO JL

Des Moines, Iowa, Nov. 10, 1911.

H. E. Stevens, Bridge Engineer, N. P. R. R. Co.,
St.Paul, Minn.

Dear Sir;--

We are enclosing herewith shipping statement covering last shipment of tank materials for the Auburn tower.

Will you please arrange to advise us when these materials reach Duluth, and also when they reach destination.

Yours very truly,

MD

DES MOINES BRIDGE & IRON CO.,
By John Lage

DM

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. 3rd & Final

Purchaser's No.

Our Order No. 636

Shipped Collect

Shipped Prepaid

Date 10/31-11.

Shipped to Northern Pacific Railway Co., Care of

Destination Auburn, State Wash.

Via P&LE, LS&MS. Care of Western Transit Co. at Buffalo, c/o N.P. at Duluth

Car No. 27277 Initial C.C.C. & ST. L. Checked by

Page 1 of 1 Packed by

No. Pieces	DESCRIPTION	LENGTH		MARK	WEIGHT	Sheet No.
1	Std Spider Ring					
1	Man Hole Cover					
5	Plates 84 x 1/4	11	0-5/8	1 A		4
1	" "	"	"	1 B		"
2	" 83 x 1/4	15	11-1/8	2 A		"
1	" "	"	"	2 B		"
1	" "	"	"	2 C		"
2	" "	"	"	2 D		"
6	Segment Plates for 26'Ø Tank			K 1		"
6	" " " " "			K 2		"
1	Indicator Board	21				"
23	Plates 51 x #10	11	10½	A		5
1	" "	"	"	B		"
2	" 60 x #10	"	"	C		"
2	Half Rings 8"Ø Angle 3 x 3 x ¼			R R 4		"
6	Belt Angles 6 x 3½ x ½	14	3	B A 1		"
1	Brass Sleeve 18"Ø					2

3 copies sent L.M. Perkins 11/11/11

St. Paul, Minn., November 9, 1911.

HES.

Mr. W. C. Smith,

Chief Engineer Maintenance of Way.

Dear Sir:-

Please note the attached letter from the Des Moines Bridge & Iron Co. regarding transportation.

This is the first I have heard from them on this subject and I had supposed that they were obtaining passes through your office.

In regard to their sending foreman to Ellensburg to re-load material. This is due to mixup between material intended for us and material destined to St. Clair, Minn. They recently asked me if we could not sort and reload this material, but I suggested to them that they send their own foreman. I did not think we should take the responsibility of sorting this kind of material as in order to do the work properly the man should be provided with plan and be able to recognize the various members, as sorting from shop marks is not always a reliable method.

I recommend that we furnish them transportation for their foreman as there is some question regarding responsibility of mix-up of material, the Boat Company claiming that it was mixed up in transferring at the Duluth docks.

B

Yours truly,

Form 260

THE WESTERN UNION TELEGRAPH COMPANY

INCORPORATED

25,000 OFFICES IN AMERICA. CABLE SERVICE TO ALL THE WORLD

ROBERT C. CLOWRY, PRESIDENT — BELVIDERE BROOKS, GENERAL MANAGER

RECEIVER'S No.	TIME FILED	CHECK
		D H Pass 14427

SEND the following message subject to the terms on back hereof, which are hereby agreed to

St Paul Minn November 7 1911

Des Moines Bridge & Iron Co

Des Moines Iowa

Your letter 6th Think you had better arrange for your own foreman to reload at Ellensburg material required for St Clair Have sent copy shipping statement care of our agent at Ellensburg

H E Stevens

ALL MESSAGES TAKEN BY THIS COMPANY ARE SUBJECT TO THE FOLLOWING TERMS WHICH ARE HEREBY AGREED TO

To guard against mistakes or delays, the sender of a message should order it REPEATED, that is, telegraphed back to the originating office for comparison. For this, one-half the unrepeated message rate is charged in addition. Unless otherwise indicated on its face, THIS IS AN UNREPEATED MESSAGE AND PAID FOR AS SUCH, in consideration whereof it is agreed between the sender of the message and this Company as follows:

1. The Company shall not be liable for mistakes or delays in the transmission or delivery, or for non-delivery, of any UNREPEATED message, beyond the amount received for sending the same; nor for mistakes or delays in the transmission or delivery, or for non-delivery of any REPEATED message, beyond fifty times the sum received for sending the same, *unless specially valued*; nor in any case for delays arising from unavoidable interruption in the working of its lines; *nor for errors in cipher or obscure messages.*

2. In any event the Company shall not be liable for damages for any mistakes or delay in the transmission or delivery, or for the non-delivery of this message, whether caused by the negligence of its servants or otherwise, beyond the sum of FIFTY DOLLARS, at which amount this message is hereby valued, unless a greater value is stated in writing hereon at the time the message is offered to the Company for transmission, and an additional sum paid or agreed to be paid based on such value equal to one-tenth of one per cent. thereof.

3. The Company is hereby made the agent of the sender, without liability, to forward this message over the lines of any other Company when necessary to reach its destination.

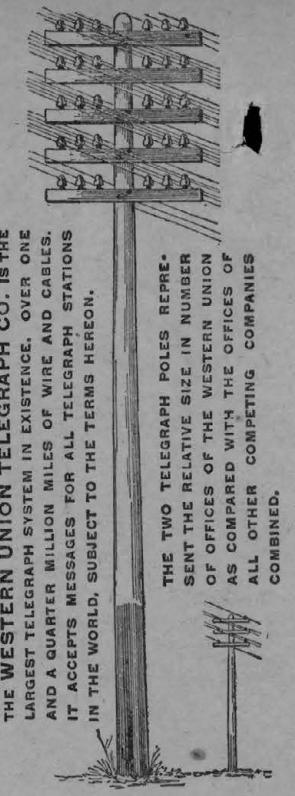
4. Messages will be delivered free within one-half mile of the Company's office in towns of 5,000 population or less, and within one mile of such office in other cities or towns. Beyond these limits the Company does not undertake to make delivery, but will, without liability, at the sender's request, as his agent and at his expense, endeavor to contract for him for such delivery at a reasonable price.

5. No responsibility attaches to this Company concerning messages until the same are accepted at one of its transmitting offices; and if a message is sent to such office by one of the Company's messengers, he acts for that purpose as the agent of the sender.

6. The Company will not be liable for damages or statutory penalties in any case where the claim is not presented in writing within sixty days after the message is filed with the Company for transmission.

7. *No employee of the Company is authorized to vary the foregoing.*

ROBERT C. CLOWRY, PRESIDENT BELVIDERE BROOKS, GENERAL MANAGER



MONEY TRANSFERRED BY TELEGRAPH AND CABLE TO ALL THE WORLD

St. Paul, Minn., November 7, 1911.

HES.

Mr. L. M. Perkins,

Engineer Maintenance of Way,

Tacoma, Wash.

Dear Sir:-

For your information I am handing you herewith copies of all correspondence covering a mix-up in shipment of steel tank material for the Northern Pacific tank at Ellensburg, Wash., and for a tank which the Des Moines Bridge & Iron Co. are building at St. Clair, Minn.

I am also attaching the original bill of lading covering re-shipment of material for the Ellensburg tank which was originally shipped in error to St. Clair.

The Des Moines Bridge & Iron Co. in their letter of the 6th asked us to arrange to re-load the material which is probably now at Ellensburg , but should have gone to St. Clair. But as per my wire I have asked them to attend to this matter themselves, which I am afraid if we attempted to do there might be a still further mix-up.

Yours truly,

Bridge Engineer.

B

, November 7, 1911.

FEB.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

Referring to your letter of October 30th, regarding material for tank at Ellensburg, Wash., shipped in N.C. Car No. 6338, your shipping statement dated 10/18/11.

I beg to advise that this material was transferred into N.P. 86018, and forwarded from Duluth November 6th, Waybill No. 8569. In accordance with your further request, we will advise you when this material arrives at Ellensburg.

Yours truly,

Dickenson 11/10

Bridge Engineer.

B

St. Paul, Min., November 7, 1911.

HES.

Mr. J. Y. Edwards,

Agent, Ellensburg, Wash.

Dear Sir:-

I am handing you herewith copy of shipping statement of Des Moines Bridge & Iron Co. covering material which was shipped to that point in error.

The Des Moines Bridge & Iron Company's foreman will call on you for this statement for use in reloading material to make return shipment.

Yours truly,

Bridge Engineer.

B

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

MANUFACTURERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL, WATER TOWERS, MILL BUILDINGS, TANK AND PLATE WORK.

GENERAL OFFICES, DES MOINES, IA. CONTRACTING OFFICES, PITTSBURG, PA. DENVER, SALT LAKE CITY, OMAHA, LOS ANGELES, SEATTLE, SAN FRANCISCO.

WORKS: DES MOINES, IA. NEVILLE ISLAND, PITTSBURG, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO HWS

Des Moines, Iowa, Nov. 6, 1911.

H. E. Stevens, Bridge Eng'r, N. P.
St. Paul, Minn.

Dear Sir:-

We have had our Mr. I. B. England, foreman on the tank erection at Zero, go to Laurel, Mont., and inspect the cars held there in transit for Auburn, Wash., and find that the St. Clair, Minn,, materials are not on these cars and presume he released the cars and allowed them to move forward. It is more than likely that the materials for St. Clair were loaded on to the N. P. car 63719, leaving Duluth on Oct. 15th. We are enclosing a list of the materials that should be with this shipment for St. Clair and would ask that you arrange to have these materials re-loaded at Ellensburg and re-shipped to St. Clair, Minn., consigned to the Des Moines Bridge & Iron Co. Have the B/L sent to this office. Please arrange to have this done as soon as possible so that the materials can reach St. Clair and not hold that job any longer than is necessary. We are asking you to do this as you are no doubt in touch with the parties who unloaded the other materials at Ellensburg and can save time by sending the information to you.

We are also enclosing B/L covering the shipment of materials re-shipped from St. Clair to Ellensburgh. These materials no doubt will be on theroad a couple of weeks and there is no danger of getting mixed up again with the St. Clair materials. The number of columns on this shipment agrees with the number of columns on the St. Clair list and presume is one of the reasons that these shipments became mixed.

Hoping that this mixup will eventually straighten itself out, we remain,

Yours very truly,

DES MOINES BRIDGE & IRON CO.

By H W Lund

Manager of Erection

CH

Into Ellensburg 10/26 W.B. 9406

Passed Helena 6th

NOR. PAC. RY. CO. OFFICE OF NOV 7 1911 BRIDGE ENGINEER ST. PAUL, MINN.

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. 1st & Final

Purchaser's No. .

Our Order No. 682

Shipped Collect

Shipped Prepaid

Date 9/30/11

Shipped to Des Moines Bridge & Iron Co., Care of

Destination St. Clair State Minn.

Via P&LE LS&MS Care of WT Co. at Buffalo, C/o CM&STP at Duluth.

Car No. 62891 90087 Initial N.P. C.B.&Q. Checked by

Transfd to 41222 CM&STP 47831 "

Page 1 of 3 Packed by

No. Pieces	DESCRIPTION	LENGTH		MARK	WEIGHT	Sheet No.
3	Bottom Sec Cols 2 Channels 12"20½#	37	6-1/16	1A		3
1	" " " " " "	"	"	1 B		"
3	Second " " " " "	33	11½	2A		4
1	" " " " " "	"	"	2 B		"
3	Third " " " " "	30	11¾	3 A		5
1	" " " " " "	"	"	3 B		"
8	Sway Rods 1-1/8" ø	43	3	# 1		8
8	" " "	39	1½	# 2		"
8	" " "	32	11	# 3		"
4	Spider Rods for Riser Pipe 5/8	17	9	# 6		8
4	" " " " " "	13	0	# 7		"
4	Struts 4 Angles 4 x 3 x 5/16 Laced	24	5-5/8	S 1		11
4	" " 3 x 2 x ¼ #	17	9	S 2		12
1	Tower Ladder 2 Bars 1½ x ¼	11	6			13
1	Tank " " "	19	11¼			"
200	Frost Case Bands #14 gauge 1¼ c wedo					

Form 290 TW

Northern Pacific Railway Company

IN YOUR REPLY PLEASE
REFER TO FILE

St. Paul, Minn., November 2, 1911.

FEB.

Mr. W. H. Smith,
Agent, Duluth, Minn.

Dear Sir:-

Referring to my letter of October 28th, regarding material shipped by the Des Moines Bridge & Iron Co. for steel water tanks to be erected at St. Clair, Minn., and Ellensburg and Auburn, Wash.

I am in receipt of letter from them today advising that there is no danger of any further mixup in shipments of material, and that any steel on hand at Duluth at present or any future consignments should be forwarded promptly. Will you please arrange accordingly?

They also advise that material for third & final shipment of tank for Ellensburg, Wash., was forwarded from Pittsburg October 18th, 1911, in M.C. CarNo. 6338, via PLE., L.S.&M.S. Care of W.T. Co. at Buffalo, c/o N.P. at Duluth.

Will you please advise promptly date and number of car in which this shipment is forwarded from Duluth?

Yours truly,

Bridge Engineer.

Feb

St. Paul, Minn., November 2, 1911.

FEB.

Mr. W. H. Smith,

Agent, Duluth, Minn.

Dear Sir:-

Referring to my letter of October 28th, regarding material shipped by the Des Moines Bridge & Iron Co. for steel water tanks to be erected at St. Clair, Minn., and Ellensburg and Auburn, Wash.

I am in receipt of letter from them today advising that there is no danger of any further mixup in shipments of material, and that any steel on hand at Duluth at present or any future consignments should be forwarded promptly. Will you please arrange accordingly?

They also advise that material for third & final shipment of tank for Ellensburg, Wash., was forwarded from Pittsburg October 18th, 1911, in M.C. CarNo. 6338, via PLE., L.S.&M.S. Care of W.T. Co. at Buffalo, c/o N.P. at Duluth.

Will you please advise promptly date and number of car in which this shipment is forwarded from Duluth?

Yours truly,

B Bridge Engineer.

W. H. JACKSON. B. N. MOSS. E. W. CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

MANUFACTURERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL, WATER TOWERS,
MILL BUILDINGS, TANK AND PLATE WORK.

OFFICE NINTH & TUTTLE STREETS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
DENVER, SALT LAKE CITY, OMAHA,
LOS ANGELES, SEATTLE, SAN FRANCISCO.
WORKS { DES MOINES, IA.
NEVILLE ISLAND, PITTSBURG, PA.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO JL

Des Moines, Iowa, Nov. 1, 1911.

H. E. Stevens, Bridge Eng. N. P. R.R.Co.,

St. Paul, Minn.

Dear Sir;--

Replying to yours of the 31st ultimo, regarding balance of shipment of Ellensburg tank, would ask that you arrange to release these materials at Duluth. We do not think there is any more danger of mix up on shipments which are going into Duluth at the present time, as the steel we are shipping along your lines is the only steel which is being routed by water at the present time.

Yours very truly,

DES MOINES BRIDGE & IRON CO.,
By John Lange

MD

FEB
Call up agent and
release hold on all
shipments now there &
advise E 11/2

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS,
AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. / PITTSBURG, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO HWS

Des Moines, Iowa, Oct. 31, 1911

H.E.Stevens, Bridge Eng.,

St .Paul, Minn.

Dear Sir;--

Please find enclosed copy of telegran which we sent to the Western Transit Co. on Oct. 31st, and a copy of their answer.

Now it appears that their is a possibility that this mix up may have been caused by the N.P. R.R.Co at Duluth, and we are wiring our representative at Zero to go to Laurel, Minn.and inspect and reload from the cars now held at that point any materials that belong to the St.Clair job. If it proves that the N. P . was at fault after proper investigation has been made, we will expect the N. P. to reimburse us for the expense we are put to owing to this mix up.

After carefully going over the dates of shipments and car numbers of Ellensburg, Auburn, and St. Clair it appears there might be a possibility that the St. Clair materials are not in the cars held up at Laurel. It is probably much safer to inspect the cars before releasing them, as these materials may have been at the docks four of five days, which would have permitted the mix up to occur in the last shipment. If there is any materials belonging to St.Clair at Laurel, the St. Clair materials must be in N.P.car #63719, ordered from Duluth on Oct. 15th. This car is probably very near destination by this time and there will be no possibility of being able to stop it before it arrives at destiantion, think it better therefore to let it go through and then reload . If this proves to be true we will send you complete shipping papers on the St. Clair materials, and you can instruct the proper parties at Ellensburg to take off all of these materials and then rebill them back to St. Clair. We will instruct our man who is going to investigate the matter, to inspect the cars throughly and if he does not find the St. Clair materials to reload the materials and release same by reporting to the agent at Laurel.

MD

Yours very truly,

DES MOINES BRIDGE & IRON CO.

By

10/31/1911.

Western Transit Co.,

St.Paul,Minn.

Gentlemen;--

Shall we send man from Zero, Montana, your expense to inspect cars held enroute Auburn, Washington, at Laurel ,Montana to investigate and reload material for St. Clair, Minn. if found. If you decide to let these cars go forward to destination, advise Northern Pacific Railway Company. Answer.

Des Moines Bridge & Iron Co.,

St.Paul, Minn.
Des Moines, Bridge & Iron Co.,

Your message date our Duluth agent states that the three cars on steamer Duluth trip seventeen was loaded to steamer at Buffalo in three different locations on the steamer and was kept separate when delivered to the northern pacific railway at Duluth if a nix up has occured it is chargable to that company.

A.P.Wakefiled,

147

, October 31, 1911.

HES.

Des Moines Bridge & Iron Co.,

Attention of Mr. John Page,

Des Moines, Iowa.

Dear Sir:-

Your favor of the 30th enclosing four copies of shipping statement covering final shipment of material for Ellensburg tank.

This shipment will be held at Duluth in accordance with letter to our agent at that point dated October 28th, copy of which was sent you. In case there is no danger of a mixup on this material and you wish it to go along, please wire me and I will ask the agent to release.

Yours truly,

B

Bridge Engineer.

DES MOINES BRIDGE & IRON COMPANY,

MANUFACTURERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL, WATER TOWERS,
MILL BUILDINGS, TANK AND PLATE WORK.

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DENVER, SALT LAKE CITY, OMAHA,
LOS ANGELES, SEATTLE, SAN FRANCISCO.
WORKS { DES MOINES, IA.
NEVILLE ISLAND, PITTSBURG, PA.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO JL

Des Moines, Iowa, Oct. 30, 1911

H. E. Stevens, Bridge Eng., N.P.
St.Paul, Minn.

Dear Sir;--

We are enclosing herewith four copies of shipping statement covering shipment for Ellensburg, Wash. Will you please have your traffic department advise as soon as these materials have left Duluth, and also advise us upon their arrival at Ellensburg.

Yours very truly,

MD

DES MOINES BRIDGE & IRON CO.

John Lee

DM

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. 3rd & Final

Purchaser's No.

Our Order No. 571

Shipped Collect

Shipped Prepaid

Date 10/18-11.

Shipped to Northern Pacific Railway Co., Care of A.R. Cook, Engineer Maintenance of Way

Destination Ellensburg, State Washington.

Via PLE., LS&MS Care of W.T. Co. at Buffalo, c/o U.P. at Duluth.

Car No. 6338 Initial M.C. Checked by

Page 1 of 1 Packed by

No. Pieces	DESCRIPTION	LENGTH		MARK	WEIGHT	Sheet No.
1	Std Spider Ring					
5	Plates 84 x 1/4	11	0-5/8	1 A		4
1	" "	"	"	1 B		"
2	Plates 83 x 1/4	15	11-1/8	2 A		"
1	" "	"	"	2 B		"
1	" "	"	"	2 C		"
2	" "	"	"	2 D		"
6	Segment Plates for 26-0 Tank			K 1		"
6	" " " " "			K 2		"
1	Saucer Plate 8'-0" x 5/16			K B		"
1	Board	21	0			"
23	Plates 51 x #10	11	10 1/2	A		5
1	" "	"	"	B		"
2	" 60 x #10	"	"	C		"
2	Half Ring 8'0" Angle 3 x 3 x 1/4			R R 4		"
6	Belt Angles 6 x 3 1/2 x 1/2	14	3	B A 1		"
1	Brass Sleeve 18"Ø					2
35	Gallons Nobree Paint					

Form 255 TW

Northern Pacific Railway Company

St Paul Minn Oct 30th 1911

File T- 7002.

Mr. H. E. Stevens,

Acknowledging receipt of your letter 28th, and confirming phone conversation with Mr. Blackmoore date. NP cars 69020 and 66961 Mtl for Auburn are now being held at Laurel Montana.

Yours truly

P.H.Mc Cauley.

Form 260

THE WESTERN UNION TELEGRAPH COMPANY

INCORPORATED

25,000 OFFICES IN AMERICA. CABLE SERVICE TO ALL THE WORLD

ROBERT C. CLOWRY, PRESIDENT — BELVIDERE BROOKS, GENERAL MANAGER

RECEIVER'S No.	TIME FILED	CHECK
		D H Pass 14427

SEND the following message subject to the terms on back hereof, which are hereby agreed to

St paul Minn October 30 1911

Des Moines Bridge & Iron Co

Des Moines Iowa

My letter Twenty Eighth Cars Sixty Six Nine Sixty One and Sixty Nine Aught Twenty held at Laurel Montana pending orders from you

H E Stevens

ALL MESSAGES TAKEN BY THIS COMPANY ARE SUBJECT TO THE FOLLOWING TERMS WHICH ARE HEREBY AGREED TO

To guard against mistakes or delays, the sender of a message should order it REPEATED, that is, telegraphed back to the originating office for comparison. For this, one-half the unrepeated message rate is charged in addition. Unless otherwise indicated on its face, THIS IS AN UNREPEATED MESSAGE AND PAID FOR AS SUCH, in consideration whereof it is agreed between the sender of the message and this Company as follows:

1. The Company shall not be liable for mistakes or delays in the transmission or delivery, or for non-delivery, of any UNREPEATED message, beyond the amount received for sending the same; nor for mistakes or delays in the transmission or delivery, or for non-delivery of any REPEATED message, beyond fifty times the sum received for sending the same, *unless specially valued*; nor in any case for delays arising from unavoidable interruption in the working of its lines; *nor for errors in cipher or obscure messages.*

2. In any event the Company shall not be liable for damages for any mistakes or delay in the transmission or delivery, or for the non-delivery of this message, whether caused by the negligence of its servants or otherwise, beyond the sum of FIFTY DOLLARS, at which amount this message is hereby valued, unless a greater value is stated in writing hereon at the time the message is offered to the Company for transmission, and an additional sum paid or agreed to be paid based on such value equal to one-tenth of one per cent. thereof.

3. The Company is hereby made the agent of the sender, without liability, to forward this message over the lines of any other Company when necessary to reach its destination.

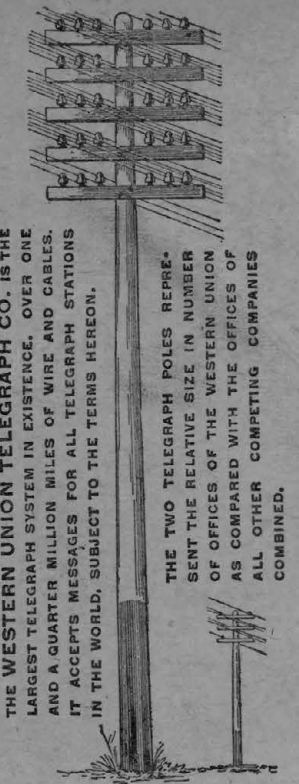
4. Messages will be delivered free within one-half mile of the Company's office in towns of 5,000 population or less, and within one mile of such office in other cities or towns. Beyond these limits the Company does not undertake to make delivery, but will, without liability, at the sender's request, as his agent and at his expense, endeavor to contract for him for such delivery at a reasonable price.

5. No responsibility attaches to this Company concerning messages until the same are accepted at one of its transmitting offices; and if a message is sent to such office by one of the Company's messengers, he acts for that purpose as the agent of the sender.

6. The Company will not be liable for damages or statutory penalties in any case where the claim is not presented in writing within sixty days after the message is filed with the Company for transmission.

7. *No employee of the Company is authorized to vary the foregoing.*

ROBERT C. CLOWRY, PRESIDENT BELVIDERE BROOKS, GENERAL MANAGER



MONEY TRANSFERRED BY TELEGRAPH AND CABLE TO ALL THE WORLD

St. Paul, Minn., October 28, 191 1.

HES.

Mr. W. H. Smith,

Agent, Duluth, Minn.

Dear Sir:-

The Des Moines Bridge & Iron Co. advise that material shipped by them for steel water tanks to be erected at St. Clair , Minn., and Ellensburg and Auburn, Wash., the latter two being for the Northern Pacific Ry. Co. has been mixed up in shipment.

Will you kindly arrange to hold at Duluth, any future shipments of this material until they can arrange to straighten the matter out?

Yours truly,

Bridge Engineer.

B

Cy. Des Moines B. & I. Co.

, October 28, 1911.

WES.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

Your favor of the 26th regarding payment on Jamestown and Zero tanks.

The regular October estimate was made in favor of your company covering contract on these two structures, vouchersbeing for $2,642.40 and $2,678.40 respectively.

These vouchers are now passing through the regular channels and will probably reach you shortly.

Yours truly,

Bridge Engineer.

B

Lab

St, Paul, Minn., October 28, 1911.

HES.

Mr. P. H. McCauley,

Superintendent Transportation.

Dear Sir:-

The Des Moines Bridge & Iron Co. advise me that tank material shipped from Duluth docks October 24th in N.P. cars 69020 & 66961, destination Auburn has been mixed up with material which should have gone to St. Clair, Minn.

I understand from your car tracer that this shipment is now west of Glendive. Please arrange to have same held at first point where sorting and transfer can be readily made.

The Des Moines Bridge & Iron Co. will send a representative to make the transfer.

Yours truly,

Bridge Engineer.

B

Cy. Des Moines B. & I. Co.

, October 28, 1911.

WES.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

I have your favor of the 26th regarding mix-up of material between the water tanks for St. Clair, Ellensburg, and Auburn.

I did not receive the wire which you state was sent.

I called up our Agent at Duluth this morning and instructed him to hold any future shipments of material received at the docks. I am assuming you will send one of your representatives to Duluth to straighten out any material which may be due to arrive there subsequent to this date.

The last shipment received at Duluth of material for Auburn left Duluth on the 24th in N.P. 66961 & 69020. This material was out of Glendive yesterday. Our Superintendent of Transportation is now tracing shipment and will hold same as soon as located.

Our Duluth Agent advises that this shipment was Exch. No. 4296, of which I have not as yet received shipping statements.

Our dock man at Duluth advised me that this shipment had a considerable number of columns, so I assume

it is your St. Clair stuff. Will advise you as soon as possible point at which shipment is stopped so that you may arrange for sorting and transfer.

The second shipment for Ellensburg is already on the ground.

Please keep me posted as to arrangements you make for sorting and transfer of material from the various points and also kindly arrange to have the work done as rapidly as possible in order that cars may not be unduly held.

If there is any further assistance I can render you, please advise.

Yours truly,

Bridge Engineer.

B

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

MANUFACTURERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL, WATER TOWERS, MILL BUILDINGS, TANK AND PLATE WORK.

OFFICE NINTH & TUTTLE STREETS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA. DENVER, SALT LAKE CITY, OMAHA, LOS ANGELES, SEATTLE, SAN FRANCISCO.
WORKS { DES MOINES, IA. NEVILLE ISLAND, PITTSBURG, PA.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO GAS

Des Moines, Iowa, Oct. 26, 1911.

H. E. Stevens, Br. Eng'r,
N. P. Ry Co.,
St. Paul, Minn.

Dear Sir:-

We would be pleased to have you advise when we may expect payments on water tower contracts at Zero, Mont., and Jamestown, N.D. As you no doubt know, the Jamestown structure is about completed and Zero materials have been on the ground for sometime.

Trusting that you will be able to favor us with a liberal payment on these two accounts by return mail, we remain

Yours very truly,

DES MOINES BRIDGE & IRON CO.
Geo A Smith

CH 2642.408-20
2679.40

FEB
As [illegible] vouchers [illegible]

NOR. PAC. RY. CO.
— OFFICE OF —
OCT
28
1911
BRIDGE ENGINEER
ST. PAUL, MINN.

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

MANUFACTURERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL, WATER TOWERS,
MILL BUILDINGS, TANK AND PLATE WORK.

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ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO GAS

Des Moines, Iowa, Oct. 26, 1911.

H. E. Stevens, Bridge Eng'r,
N. P. RY Co.,
St. Paul, Minn.

Dear Sir:-

We have yours of the 24th relative to the erection of the Zero, Auburn, and Ellensburg tanks and would advise that we are sending another crew to Ellensburgh as we had a crew that has just finished a job and it comes more convenient to send them to Ellenburg than another place. The foreman who is going to Ellensburg is a very good man and we expect to get good results from his efforts.

We note your letter of Oct. 24th relative to broken casting at Zero and are advising our Pittsburgh office to ship another one at the earliest possible date.

We have heard nothing new from the mixup at Duluth regarding Ellensburgh and St. Clair, Minn., materials and hope to receive something from you tomorrow or next day;

Yours very truly,

E W Crellin

CH

4296 Ee Nv

Bill Carlson

NP 66961
69020

left on 24th

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS,
AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. / PITTSBURG, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO HWS

Des Moines, Iowa, Oct. 26, 1911.

H. E. Stevens, Bridge Eng'r, N. P.R. R.,
St. Paul, Minnesota.

Dear Sir:-

We Redeived word from our foreman who is at St. Clair, Minn. to erect tower and tank there, that materials just came in and that there is a large amount of materials which are not called for on his shipping statement. We received a detailed report covering this and find that he has four carloads of stuff and that most of the materials are Ellinsburgh, Wash., materials. They are mixed all through four carloads, including the St. Clair material. He reports that he has no columns and we concluded that when these materials were reloaded at Duluth they were all mixed up, and there is a possibility that a part of the St. Clair stuff has gone to Ellensburgh or Auburn. We think the Steam Ship Company should be notified at once and we expect to hold them responsible for all the expense connected with this mixup. Looking over the situation carefully, we decided to wire you as follows:

> "Stop enroute tank shipments for Auburn and Ellensburgh. Both these mixed with tower and tank for St. Clair, Minn., now at St. Clair. Apparently part of St. Clair gone to Ellensburgh or Auburn. Better notify Steamship Co. as mixup must occured at Duluth. See letter."

As soon as you can get the information where the shipments for Auburn and Ellensburgh will be stopped and if the balance of the materials for St. Clair, Minn., do not come in within the next day or two, it is very evident that they are enroute for Auburn or Ellensburg and it will be necessary to send someone to the point where these shipments were stopped to unload and re-ship. This will delay the St. Clair work very much and possibly delay Ellensburgh as we expected to start our foreman there the latter part of this week. Let us know as soon as you get any information regarding points at which these shipments for Auburn and Ellensburg are stopped.

We regret this mixup exceedingly at this time of the year as we are anxious to get all tower work as far alongas possible before cold weather sets in.

Yours very truly,

CH

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

MANUFACTURERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL, WATER TOWERS, MILL BUILDINGS, TANK AND PLATE WORK.

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GENERAL OFFICES, DES MOINES, IA.
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WORKS { DES MOINES, IA. NEVILLE ISLAND, PITTSBURG, PA.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO JL

Des Moines, Iowa, Oct. 26, 1911.

H.E. Stevens, Bridge Engineer, N.P. R.R.Co.,

St.Paul, Minn.

Dear Sir;--

We are enclosing herewith four copies of shipping statements covering first shipment of steel for the tank and tower we are to erect for you at Auburn, Wash.

Will you please arrange to advise regarding the progress of this steel after it reaches your lines?

Yours very truly,

MD

DES MOINES BRIDGE & IRON CO.,
By John Lage

3 copies sent L. M. Perkins, 10/27/11

F E B Follow steel

NOR. PAC. RY. CO.
OFFICE OF
OCT 27 1911
BRIDGE ENGINEER
ST. PAUL, MINN.

DM

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. 2

Purchaser's No.

Our Order No. 636

Shipped Collect

Shipped Prepaid

Date 10/11-11.

Shipped to Northern Pacific Railway Co., Care of

Destination Auburn, State Wash.

Via P.L.E. & M.S. Care of W. T. Co. at Buffalo, c/o M.P. at Duluth

Car No. 42916 Initial P.L.E. Checked by

Page 1 of 3 Packed by

No. Pieces	DESCRIPTION	LENGTH		MARK	WEIGHT	Sheet No.
5	Bottom Sec Cols Channels 12"20½#	20	6¾	1 A		3
1	" " " " "	"	"	1 B		"
5	Top " " " "	19	5¼	2 A		"
1	" " " " "	"	"	2 B		"
6	Struts 4 Angles 4 x 3 x 5/16 Laced	14	6½	S		"
12	Sway Rods 1½"Ø	20	6½	# 1		"
12	" " 1-3/8"Ø	20	8	# 2		"
48	1-15/16"Ø Bolts grip	0	3			"
72	Washers ¼ Plate x ~~XXXX~~ 2"Ø Hole 4"Ø					"
6	Bolts 1"Ø	0	3			"
12	Washers ¼ Plate x 1-1/16x2½"Ø					"
6	Rods 1-1/8"Ø	12	6	# 3		"
24	Spider Rods 5/8"Ø	14	6	# 9		"
6	Rods For Riser Pipe Support	3	7	# 5		"
3	" " " "	14	5	# 6		"
1	Riser Pipe 6"10" Diameter	24	4¾			"
3	Rod Lugs Angle 3½ x 2½ x 1/4	0	4	R L 1		"
8	Clips Angle 4 x 3 x 3/8	0	2½	P S 1		"
2	Plates 26 x 1/4	10	0	P 6		"
3	Rod Lugs Tank 6" Channel			R L 2		"
2	Pulleys					"
	Copper Sash Cord	250				
1	Galvanized float					"

DM

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. .....

Purchaser's No. .....

Our Order No. 636

Shipped Collect .....

Shipped Prepaid .....

Date .....

Shipped to ..... Care of .....

Destination ..... State .....

Via ..... Care of .....

Car No. ..... Initial ..... Checked by .....

Page 2 of 3 Packed by .....

No. Pieces	DESCRIPTION	LENGTH		MARK	WEIGHT	Sheet No.
4	Bracket Bars 2½ x ¼	0	11¾	B		4
1	Plate 9½ x ¼	21	0			"
12	Plates 4 x 1-3/16	14	3	B A 1		5
12	Angles 3 x 2 x ¼	11	10½	B A 2		"
12	Rafters Angles 3 x 2 x ¼	11	9½	R R 1		"
6	Pipe Supports Bars 2½ x 3/8	1	1	R S 1		"
1	Outside Tank Ladder	11	0	L 1		"
1	Inside " "	8	1¼	L 2		"
1	" " "	16	1¼	L 3		"
1	Finial			F 1		"
35	3/4"Ø Rivets 2-7/8					
470	" " 2-5/8					
50	" " 2½					
260	" " 2-5/8					
12	" " 2¼					
1920	" " 2-1/8					
30	" " 2					
60	5/8"Ø/ Rivets 2-1/8					
40	" " 2					
1550	" " 1-7/8					
35	3/8"Ø " 7/8					
45	" " 3/4					
1200	" " 5/8					

DM

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. .....

Purchaser's No. .....

Our Order No. 636

Shipped Collect .....

Shipped Prepaid .....

Date .....

Shipped to ..... Care of .....

Destination ..... State .....

Via ..... Care of .....

Car No. ..... Initial ..... Checked by .....

Page 3 of 3 Packed by .....

No. Pieces	DESCRIPTION	LENGTH	MARK	WEIGHT	Sheet No.
	Field Bolts				
260	5/8"Ø Bolts 1¼				
10	" Cape Screws 1" long 1¼				
5	1/2"Ø Bolts 1¼				
6	1/4"Ø Wood Screws 2" long				
	Erection Bolts				
10	3/4"Ø Bolts 2½				
100	" " 2				
70	" " 1¾				
400	" " 1½				
20	5/8" " 1½				
300	" " 1¼				
10	3/8" " 1⅜				
20	" " 1¾				

, October 24, 1911.

FEB.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

Referring to your letter of the 10th with shipping statements attached.

Our agent at Duluth advises that material for Ellensburg, shipped in P. & L. E. Car No. 42035 was transferred into N.P. 63719 and forwarded on October 15th, W.B. 9405.

Material for Zero, Mont., shipped in S.S. & Mo. Car No. 28620 was transferred intoN.P. Car No. 55443, and forwarded on October 9th, W.B. 8823. This material arrived at Zero on the 12th of this month.

Car of material for Ellensburg passed through Glendive, Mont. on the 22nd.

Yours truly,

Bridge Engineer.

B

W. H. JACKSON. B. N. MOSS. E. W. CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

MANUFACTURERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL, WATER TOWERS, MILL BUILDINGS, TANK AND PLATE WORK.

OFFICE NINTH & TUTTLE STREETS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA. DENVER, SALT LAKE CITY, OMAHA, LOS ANGELES, SEATTLE, SAN FRANCISCO.
WORKS: DES MOINES, IA. NEVILLE ISLAND, PITTSBURG, PA.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO HWS

Des Moines, Iowa, Oct. 18, 1911.

H. E. Stevens, Bridge Eng'r, N. P. Ry Co.,
St. Paul, Minnesota.

Dear Sir:-

Our foreman, Mr. England, who is erecting the tower and tank for your company at Jamestown, requests that we endeavor to arrange with the N. P. for the use of a bunk car to be set on the siding at Zero, as there is no town or hotels at that place, it would be rather difficult for the crew to find lodging. Now, if this car could be set at Jamestown before the job is finished they could ship their erection outfit in it and have it at Zero when they arrive. Please advise us if this arrangement can be made.

In order to save time on the unloading of the Zero materials, we believe it would be best for you to wire our Mr. I. B. England, Jamestown, N.D., as soon as the materials are at Zero and he will arrange to send a man to take care of the unloading. We are writing him that you will advise him direct.

F.J.J. has no ~~is oc~~ unloading

Hoping that we may be able to secure the use of a car while installing the Zero job, we remain,

Yours very truly,

H W Smith

CH

A. Gibson:
If consistent will you pls arrange & advise re. use of car at Zero.
HES 10/19/11

NOR PAC RY CO
OCT 19 1911
BRIDGE ENGINEER
ST. PAUL, MINN.

Hal

Can this be arranged, and if so, how will I go about it.

John 10/19-11

Form 290 TW

Northern Pacific Railway Company

St. Paul, Minn., October 12, 1911.

Mr. W. H. Smith,

Agent, Duluth Freight Depot,

Duluth, Minn.

Dear Sir:-

The Des Moines Bridge & Iron Co. have shipped from their Pittsburg Plant a consignment of material for water tanks as follows:

September 27th, One car , No. S.S. & Mo. 28620, via P. & L.E., L.S.&M.S., Care of W.T. at Buffalo, c/o N.P. at Duluth, consigned to L.M. Perkins, Zero, Mont.

October 6th, One car, P.&L.E. 42035, via P. & L.E. L.S.&M.S., care of W.T. at Buffalo, c/o N.P. at Duluth, consigned to A.R. Cook, Ellensburg, Wash.

Will you please advise this office promptly when this material is received , and into what cars transferred, so that I may advise the Bridge Co. in time for them to have crew on ground to handle material when same arrives?

Yours truly,

Bridge Engineer.

St. Paul, Minn., October 12, 1911.

Mr. W. H. Smith,

Agent, Duluth Freight Depot,

Duluth, Minn.

Dear Sir:-

The Des Moines Bridge & Iron Co. have shipped from their Pittsburg Plant a consignment of material for water tanks as follows:

September 27th, One car , No. S.S. & Mo. 28620, via P. & L.E., L.S.&M.S., Care of W.T. at Buffalo, c/o N.P. at Duluth, consigned to L.M. Perkins, Zero, Mont.

October 6th, One car, P.&L.E. 42035, via P. & L.E. L.S.&M.S., care of W.T. at Buffalo, c/o N.P. at Duluth, consigned to A.R. Cook, Ellensburg, Wash.

Will you please advise this office promptly when this material is received , and into what cars transferred, so that I may advise the Bridge Co. in time for them to have crew on ground to handle material when same arrives?

Yours truly,

Bridge Engineer.

B

W.H.JACKSON B.N.MOSS E.W.CRELLIN

DES MOINES BRIDGE & IRON COMPANY,

MANUFACTURERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL, WATER TOWERS,
MILL BUILDINGS, TANK AND PLATE WORK.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
DENVER, SALT LAKE CITY, OMAHA,
LOS ANGELES, SEATTLE, SAN FRANCISCO.

WORKS { DES MOINES, IA.
NEVILLE ISLAND, PITTSBURG, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO JL

Des Moines, Iowa, Oct. 10,1911.

H.E. Stevens, Bridge Eng.,
St,Paul,Minn.

Dear Sir;--

We are enclosing herewith four copies of shipping statements covering last shipment for Zero, Mont, water tower, and also four copies of shipping statement covering first statement of the Hellensburg, Wash . water tower materials.

You will note that these materials are routed by way of Duluth. We would be pleased to have you advise your traffic department to advise promptly when this shipment leaves Duluth so we can arrange to take care care of the materials when they arrive at their final destination.

Yours very truly,

MD

DES MOINES BRIDGE & IRON CO.,
John Lage

FEB
ask agent to advise us FDL

NOR. PAC. RY. CO.
— OFFICE OF —
OCT 12 1911
BRIDGE ENGINEER
ST. PAUL, MINN.

DM

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. 2

Purchaser's No.

Our Order No. 571

Shipped Collect

Shipped Prepaid

Date 10/6-11.

Shipped to Northern Pacific Railway Co., Care of A. R. Cook, Engineer Maintenance Co.

Destination Ellensburg, State Wash.

Via P&LE., LS&MS Care of W. T. at Buffalo, c/o N. P. at Duluth.

Car No. 42035 Initial P.& L.E. Checked by

Page 1 of 3 Packed by

No. Pieces	DESCRIPTION	LENGTH		MARK	WEIGHT	Sheet No.
5	Botton Sec Cols Channels 12"20¼	20	6½	1 A		3
1	" " " " "	"	"	1 B		"
5	Top " " " "	19	5½	2 A		4
1	" " " " "	"	"	2 B		"
6	Struts 4 Angles 4 x 3 x 5/16 Laced	14	6½	S 1		"
12	Sway Rods 1½"Ø	20	6½	# 1		"
12	" " 1-3/8"Ø	20	8	# 2		"
48	15/16 Bolts	0	3			"
72	Washers ½ Plate x 2"Ø Hole x 4"					"
6	Bolts 1"	0	3			"
12	Washers ½ Plate 1-1/16 x 2½"Ø O.S.					"
6	Rods 1-1/8"Ø	12	6	# 3		"
24	Spider Rods 5/8	14	6	# 4		"
3	Rods for Pipe Supports	3	7	# 5		"
3	" " " "	14	5	# 6		"
1	Riser pipe 6-0 Dia	24	4½			4
3	Rod Lugs Angle 3½ x 2½ x 1/4	0	4	R L 1		"
8	Clips Angles 4 x 3 x 3/8	0	2½	P S 1		"
2	Plates 26 x 1/4	10	0	P 6		"
3	Rod Lugs Tank 6" Channel			R L 2		"
2	Pulleys					
	Copper Sash Cord	25	0			
1	Galvanized Float					

3 Copies sent P.M. 10/12/11

DM

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. .....

Purchaser No. .....

Our Order No. 571

Shipped Collect .....

Shipped Prepaid .....

Date .....

Shipped to ..... Care of .....

Destination ..... State .....

Via ..... Care of .....

Car No. ..... Initial ..... Checked by .....

Page 2 of 3 Packed by .....

No. Pieces	DESCRIPTION	LENGTH		MARK	WEIGHT	Sheet No.
4	Bracket Bars 2½ x 1/4	0	11⅞	B		4
1	Plate 9½ x 1/4	0	10			"
12	Bent Plates 4" x 3/16	7	9½	R R 3		5
12	Angles 3 x 2 x 1/4	4	10½	R R 2		"
12	Rafters Angles 3 x 2 x 1/4	11	9½	R R 1		"
6	Pipe Supports Bars 2½ x 3/8	1	1	P S 1		"
1	Outside Tank Ladder	11	0	L 1		"
1	Inside Ladder	8	1½	L 2		"
1	" "	16	1½	L 3		"
1	Finial			F 1		2
35	3/4 Rivets 2-7/8					
470	" " 2-5/8					
50	" " 2½					
260	" " 2-3/8					
12	" " 2¼					
1920	" " 2-1/8					
30	" " 2					
60	5/8 " 2-1/8					
40	" " 2					
1550	" " 1-7/8					
35	3/8 " 7/8					
45	" " 3/4					
1200	" " 5/8					

DM

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. .....

Purchaser's No. .....

Our Order No. 571

Shipped Collect .....

Shipped Prepaid .....

Date .....

Shipped to ..... Care of .....

Destination ..... State .....

Via ..... Care of .....

Car No. ..... Initial ..... Checked by .....

Page 3 of 3 Packed by .....

No. Pieces	DESCRIPTION	LENGTH	MARK	WEIGHT	Sheet No.
	Field Bolts				
260	5/8" Bolts 1½				
10	" Cap Screws 1" Long				
5	1/2" Bolts 1½				
6	1/4" ø Wood Screws 1" Long				
10	3/4" Bolts 2½				
100	" " 2				
70	" " 1½				
400	" " 1½				
20	5/8 " 1½				
300	" " 1¼				
10	3/8 " 1				
240	" " ¾				
9	Ft Tallowed Navy Hemp				
800	Lbs Coal				
50	Lbs 8d Nails				
20	" 20d Nails				

DM

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. 3 & Final

Purchaser's No. .....

Our Order No. .....

Shipped Collect .....

Shipped Prepaid .....

Duluth Only.

Date 9/27-11.

Shipped to Northern Pacific R. R. Co., Care of S. M. Perkins, Eng.

Destination Zero, State Montana.

Via P.& S.E.S.S.&M.S Care of W.T. at Buffalo, c/oNP at Duluth

Car No. 28620 Initial S.S. & Mo. Checked by .....

Page 1 of Packed by .....

No. Pieces	DESCRIPTION	LENGTH	MARK	WEIGHT	Sheet No.
5	Plates 84 x 1¼	11 0-5/8	1 A		4
1	" "	" "	1 B		"
2	" 83 x ¼	15 11-1/8	2 A		"
1	" "	" "	2 B		"
1	" "	" "	2 C		"
2	" "	" "	2 D		"
6	Segment Plates for 20-0 Tank		K 1		"
6	" " " " "		K 2		"
1	Saucer Plate 8-0 x 3/8		K B		"
1	Plate 8½ x ¼	0 10			"
1	Board	21 10			"
23	Plates 51 x 10	11 10½	A		5
1	1" " "	" "	B		"
2	" " 60 x 10	" "	C		"
2	Half Rings 8-0 Ø Chan 3 x 3 x ¼		R R 4		"
12	Bent Plates 4 x 3/16	7 9½	R R 3		"
6	Belt Angles 6" x 3½" x ½"	14 3	B A 1		"
1	Brass Sleeve 8"Ø # 4				

Scale Weight 38460

3 copies sent.
a. g. 10/3/11 BR

HES

Saint Paul, October 5, 1911.

Mr. W. C. Smith,

Chief Engineer Maintenance of Way.

Dear Sir:-

Please note the attached letter from the Des Moines Bridge & Iron Company stating that they have sent their foreman to Jamestown prepared to start at once the erection of the Jamestown tank.

I do not know that it is necessary to have an inspector devote his entire time to this job, but I think we should have a man look the work over frequently during its progress.

Yours truly,

Encl.

Chief Engineer.

HES

Saint Paul, October 5, 1911.

Mr. Andrew Gibson,

Engineer Maintenance of Way.

Dear Sir:-

Herewith two additional sets of shipping statements covering 100,000 gallon tanks to be erected at Jamestown and Zero. One set of each of these has previously been sent you.

Yours truly,

Bridge Engineer.

Encl.

, October 24, 1911.

HES.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

Division Engineer Taylor reports that in unloading material for the 100,000 gallon tank to be erected at Zero, Mont. a cast iron ring for the 18" stuffing box for brass sleeve was broken.

This ring is given patent No. DB 15 on your sheet No. 2.

Yours truly,

Bridge Engineer.

Cy. F. J. Taylor

Cy. A. Gibson

Form 290 TW

Northern Pacific Railway Company

Saint Paul, Oct. 23, 1911.

Mr. H. E. Stevens,
Bridge Engineer, BUILDING.

Dear Sir:

Division Engineer Taylor reports that in unloading material for Des Moines Bridge & Iron Co. at Zero a cast iron ring was broken, pattern D B 15. This is part of the 18" stuffing box for brass sleeve located between tank riser and the tub.

Will you please take up with the Bridge Company and have same replaced.

Yours truly,

A Gibson

Engineer of Maintenance of Way.

LAM

, October 24, 1911.

WES.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

Your favor of the 20th regarding erection of 100,000 gallon tanks at Zero, Auburn and Ellensburg.

If, as you claim one crew can complete the erection of the Zero tank during the month of November, Ellensburg in December and Auburn in January, the schedule will be satisfactory to us.

We could if necessary give a little more time on the Auburn tank , as our yard and facilities at that point will not be ready before spring. But we want to get the Zero and Ellensburg tanks up as soon as your crews can handle them.

Yours truly,

Bridge Engineer.

B

DES MOINES BRIDGE & IRON COMPANY,

MANUFACTURERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL, WATER TOWERS,
MILL BUILDINGS, TANK AND PLATE WORK.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
DENVER, SALT LAKE CITY, OMAHA,
LOS ANGELES, SEATTLE, SAN FRANCISCO.

WORKS { DES MOINES, IA.
NEVILLE ISLAND, PITTSBURG, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO H W S

Des Moines, Iowa, Oct. 20, 1911.

H. E. Stevens, Bridge Contractor,

St. Paul, Minn.

Dear Sir;--

RELATIVE TO THE TOWER AND TANK ERECTION

AT AUBURN & ELLENSBURG.

As we have such a good crew of men at James - town, we are writing you at this time to inquire if your requirements on these tanks are such that we could erect the four tanks with the one crew. They are equipped with a good outfit, and are a first class crew of men, we thought we would be sure of a good quality of workmanship if the one crew could erect all four tanks.

We understand that Mr, England, our foreman at Jamestown expects to complete by the first of November, and as all of the Zero materials will be on the ground waiting for him, we see no reason why he cannot complete Zero work in the month of November, and would possibly complete Ellensburg and Auburn the two following months.

We have word from our Mr. England that he has made arrangements for a bunk car, and he expects to ship his tools and outfit at an early date to Zero. We are glad these arrangements are made, as it will assist him in taking care of himself in Zero, on account of their being no accomodations hotel at that place.

Kindly advise us regarding Ellensburg and Auburn at your earliest convenience so we can make ~~other~~ our arrangements accordingly.

Yours very truly,

MD

DES MOINES BRIDGE & IRON CO.

By [signature]

NOR. PAC. RY. CO.
OFFICE OF
OCT 23 1911
BRIDGE ENGINEER
ST. PAUL, MINN.

St. Paul, Minn., September 23, 1911.

FEB.

Mr. W. H. Smith,

Agent, Duluth, Minn.

Dear Sir:-

The Des Moines Bridge & Iron Co. have shipped from their Plant at Pittsburg, Pa. material for two water tanks complete, consigned to Jamestown, N.D. and Zero, Mont., routed via P & L E, L.S.&M.S., Wt. Co. at Buffalo, c/o N.P. Ry. at Duluth.

Will you kindly advise me promptly when this material is transferred at Duluth and car numbers into which material is loaded, so that I may advise the Des Moines people to have erection crew on ground when material arrives?

Yours truly,

Bridge Engineer.

B

W.H. JACKSON. B.N. MOSS. E.W. CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS, AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. PITTSBURG, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO HWS Des Moines, Iowa, Sept. 22, 1911.

H. E. Stevens, Bridge Eng'r, N.P. R.R.,
St. Paul,

Dear Sir:-

We enclose four copies of shipping statement covering the final shipment for the Jamestown tank.

Regarding the delivery of these materials, we shall be pleased to have you arrange with your company to notify us when the materials have been reloaded at Duluth, so that we can make any arrangements necessary to get our erection crew on the ground in time.

Yours very truly

DES MOINES BRIDGE & IRON CO.

By H W [signature]
Manager of Erection

CH

Jamestown

FEB
Advise them
HES

NOR. PAC. RY. CO.
OFFICE OF
SEP 23 1911
BRIDGE ENGINEER
ST. PAUL, MINN.

, September 20, 1911.

FEB.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

Referring to your letter of the 18th with regard to tanks for Jamestown, Zero, Ellensburg and Auburn, with statements covering second shipment of steelwork for Jamestown tank.

Will you please be kind enough to forward four copies of statement covering first shipment for this tank, also four copies of statements covering all other shipments of material under your contract?

Yours truly,

Bridge Engineer.

B

DES MOINES BRIDGE & IRON COMPANY,

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS,
AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. / PITTSBURG, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO HWS

Des Moines, Iowa, Sept. 18, 1911.

H. E. Stevens, Bridge Eng'r, N.P. R.R.,
St. Paul, Minn.

Dear Sir:-

Replying to yours of the 16th regarding the Jamestown and Zero, Mont., tanks, we are enclosing four copies of shipping statements covering the Jamestown materials. Our shop schedule on Zero shows that these materials will go out the 20th of September and we will forward you shipping statements as soon as they arrive at this office. We have a crew in readiness to get started at Jamestown just as soon as the materials arrive and hope to push the work through as fast as possible.

Regarding the condition of Auburn and Ellensburg, will say that these are scheduled, Ellensburg to ship about the 15th and Auburn about the 1st of next month. Our erection forces will also be in shape to start the erection work on these two jobs as soon as the material gets on the ground.

Yours very truly,

CH

DES MOINES BRIDGE & IRON CO.
By ..... Manager of Engineering

, September 16, 1911.

FEB.

Des Moines Bridge & Iron Co.,

Des Moines , Iowa.

Gentlemen:-

Referring to your letter of August 5th, in which you state that tank for Jamestown would go forward on the 7th, and the next tank shipped to be sent to Zero.

To date we have received no shipping advisements covering the shipment of these two tanks. Will you please send four copies of same at your early convenience?

Also kindly advise status of work on tanks for Auburn & Ellensburg.

Yours truly,

Bridge Engineer.

B

[redacted]BS

Saint Paul, September 28, 1911.

Mr. Andrew Gibson,

Engineer Maintenance of Way.

Dear Sir:

The agent at Duluth advises that car X41216, material for 100,000 gallon tank at Jamestown, was transferred to N.P. 65846 and left Duluth on the 19th.

I believe all material for the Jamestown tank has now been shipped and probably most of it is now on the ground.

Yours truly,

Bridge Engineer.

HBS

September 28, 1911.

Des Moines Bridge & Iron Company,

Des Moines, Ia.

Dear Sir:-

Material covered by your shipments in cars C.R.R. 84817 and P.& L.E. 41216 for Jamestown tank has all been transferred and sent out from Duluth.

Suggest you get your erection crew on the ground at the earliest possible date.

Yours truly,

Bridge Engineer.

HES

Saint Paul, September 26, 1911.

Mr. Andrew Gibson,

Engineer Maintenance of Way.

Dear Sir:-

With further reference to shipping statements of the Des Moines Bridge & Iron Company covering shipments of steel tanks to Jamestown and Zero:

Our agent at Duluth advises that car X84817 for Jamestown was loaded into N.P. 56689;

Car X42810 for Zero was loaded into N.P. 69120 and 69130, both cars going forward from Duluth on the 24th.

He gives no reference to car X41216.

Yours truly,

Bridge Engineer.

Form 290 TW

Northern Pacific Railway Company

HES

Saint Paul, September 26, 1911.

NORTHERN PACIFIC RAILWAY RECEIVED SEP 27 1911 Agent, DULUTH

Mr. W. H. Smith:-

I have your favor of the 25th giving reference to cars X84817 and X42810, steel water tanks for Jamestown and Zero.

Will you kindly advise if car X41216 billed to Jamestown has been transferred. This car was the first shipment made of this material, being billed out September 6th, a week or ten days earlier than those you have already transferred.

H. E. Stevens.

HES

E 41216 out 9/19 NP 9767 NP 65846

WHD 9/27

HES

Saint Paul, September 26, 1911.

Mr. W. H. Smith:-

I have your favor of the 25th giving reference to cars X84817 and X42810, steel water tanks for Jamestown and Zero.

Will you kindly advise if car X41216 billed to Jamestown has been transferred. This car was the first shipment made of this material, being billed out September 6th, a week or ten days earlier than those you have already transferred.

H. E. Stevens.

Form 290 TW

Northern Pacific Railway Company

Duluth Dock 9/25

H E Stevens
Bridg Engr

Dear Sir

Yours attd

x Car 84817 - for Jamestown
~~loaded~~ into NP 56689
WB 10257 Sep 24 -

x Car 42810 for [illegible] Mont -
loaded into NP 69120
WBill 10255 - NP 69130
WB 10256 9/24 - the 3 cars
forward on 9/24 - Yours truly

W H Smith
[illegible]

Form 290 TW

Northern Pacific Railway Company

St. Paul, Minn., September 23, 1911.

FEB.

Mr. W. H. Smith,

Agent, Duluth, Minn.

Dear Sir:-

The Des Moines Bridge & Iron Co. have shipped from their Plant at Pittsburg, Pa. material for two water tanks complete, consigned to Jamestown, N.D. and Zero, Mont., routed via P & L E, L.S.&M.S., Wt. Co. at Buffalo, c/o N.P. Ry. at Duluth.

Will you kindly advise me promptly when this material is transferred at Duluth and car numbers into which material is loaded, so that I may advise the Des Moines people to have erection crew on ground when material arrives?

Yours truly,

Bridge Engineer.

B

HES

Saint Paul, October 4, 1911.

Mr. W. C. Smith:-

Am attaching a letter and invoice from the Des Moines Bridge & Iron Company covering shipments of steel delivered for water tanks at Jamestown and Zero.

The contract does not provide that they are to be paid full value as soon as steel is delivered, but I presume you will want to make up an estimate for them based on the percentage of work completed to-date.

H. E. Stevens.

Encl.

W. H. JACKSON E. W. CRELLIN

DES MOINES BRIDGE AND IRON COMPANY

CONSTRUCTION DEPARTMENT
ADDRESS ALL LETTERS TO THE COMPANY

JOB FILE

REFER TO H.W.S.

DES MOINES, IOWA. Sept. 20, 1911.

H. E. Stevens, Bridge Eng'r, N. P. Ry Co.,
St. Paul, Minn.

Dear Sir:-

Please find enclosed four copies of shipping statement covering tower and tank materials for Zero, Mont.

Yours very truly,

CH

St. Paul, Minn., September 19, 1911.

HES.

Mr. L. M. Perkins,
Engineer Maintenance of Way,
Tacoma, Wash.

Dear Sir:-

I am handing you herewith two prints of match-marking sketch showing shop match-marking of the tankbottoms for the two steel tanks to be erected at Auburn and Ellensburg, Wash.

The shop advise they expect to complete shipment of Auburn tank about the first of next month and Ellensburg the 15th. Shipping statements will be forwarded you as fast as received.

Yours truly,

Bridge Engineer.

B

St. Paul, Minn., September 19, 1911.
H.S.

Mr. A. Gibson,
Engineer maintenance of Way.

Dear Sir:-

I am handing you herewith two prints of match-marking sketch showing shop match marking of the tank bottoms for the two steel tanks to be erected at Zero, Mont. and Jamestown, N.D.

Two shipments of material for the Jamestown tank have all been made. Copies of shipping statements of the second shipment are attached. Balance will be forwarded as fast as received.

The shop advises they expect to make complete shipment of the Jamestown and Zero tanks about the 20th of this month, and that they have an erection crew in readiness to get started at Jamestown as soon as material arrives, and expect to push the work rapidly.

Yours truly,

Bridge Engineer.

B

St. Paul, Minn., September 7, 1911.

WES.

Mr. L. M. Perkins,

Engineer Maintenance of Way,

Tacoma, Wash.

Dear Sir:-

I am handing you herewith section of print of our typical foundation for 100,000 gallon tank on which I have indicated by dotted line in the pipe cellar the point where superstructure contract ends.

I am sending you this in order that there may be no misunderstanding as to just what fittings are furnished and erected by the superstructure men.

Yours truly,

Bridge Engineer.

B

Lab

St. Paul, Minn., September 6, 1911.

HES.

Mr. L. Yager,

Division Engineer.

Dear Sir:-

As per your verbal request I am handing you herewith two prints of foundation plans for typical 100,000 gallon tank showing by dotted line XX in the pipe cellar the point where the superstructure contractors' work ends.

Yours truly,

Bridge Engineer.

B

1

Pa 6

St. Paul, Minn., August 24, 1911.

HES.

Mr. L. M. Perkins,

Engineer Maintenance of Way,

Tacoma, Wash.

Dear Sir:-

I am handing you herewith for use in the field four complete sets of prints covering 100,000 gallon tanks to be erected at Ellensburg and Auburn, Washington.

Yours truly,

Bridge Engineer.

B

Lab

St. Paul, Minn., August 24, 1911.

HES.

Mr. A. Gibson,

Engineer Maintenance of Way.

Dear Sir:-

I am handing you herewith for use in the field four complete sets of prints covering 100,000 gallon tanks to be erected at Jamestown, N.D. and Zero, Mont.

Yours truly,

Bridge Engineer.

B

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS,
AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. / PITTSBURG, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO ODH

Des Moines, Iowa, Aug. 23, 1911.

Northern Pacific Ry. Co., Att'n H.E.Stevens, Br. Eng'r
St. Paul, Minn.

Gentlemen:-

We desire to acknowledge receipt of your favor of the 22nd nst. enclosing copy of contract properly executed for Auburn, Wash., and Jamestown, N.D.

Yours very truly,

DES MOINES BRIDGE & IRON CO.

CH

BY O D Hart

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

MANUFACTURERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL, WATER TOWERS,
MILL BUILDINGS, TANK AND PLATE WORK.

CURRY BUILDING

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
DENVER, SALT LAKE CITY, OMAHA,
LOS ANGELES, SEATTLE, SAN FRANCISCO.
WORKS { DES MOINES, IA.
NEVILLE ISLAND, PITTSBURG, PA.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO #571. Pittsburg, Pa. August 21, 1911.

Northern Pacific Railway Co.,

H. E. Stevens, Bridge Engineer,

St. Paul, Minn.,

Gentlemen:-

In re Towers and 100,000 Gallon Tanks.

We have yours of the 17th inst. together with approved print of sheet #2.

We mailed today under separate cover for your file, two prints of sheet #2 revised with the required flange for 6" wash-out pipe shown in place.

We forward you today by express for use in field, eight prints each of sheets one to five inclusive.

Yours very truly,

DES MOINES BRIDGE & IRON CO.

By H. M. Speight.

8 sets received Aug 24 1-5 inc.

NOR. PAC. RY. CO.
-- OFFICE OF
AUG
23
1911
BRIDGE ENGINEER
ST. PAUL, MINN.

HMP/MY.

August 12, 1911.

HES.

The Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

I hand you herewith for your file copy of executed contract covering 100,000 gallon steel water tanks to be erected at Auburn, Wash. and Jamestown, North Dakota.

Yours truly,

Bridge Engineer.

.B

Saint Paul, Minn., August 22, 1911.

Mr. H. E. Stevens,

Bridge Engineer.

Dear Sir:-

Herewith for delivery executed contract with Des Moines Bridge & Iron Co. for water tanks at Auburn and Jamestown.

Yours truly,

W. H. Darling

Chief Engineer.

enc.

August 17, 1911.

HES.

The Des Moines Bridge & Iron Co.,

Curry Building,

Pittsburg, Pa.

Gentlemen:-

I am returning you herewith approved and with change noted, sheet #2, your contract 571 & 72 covering 100,000 gallon tanks.

I do not find any flange fittings shown for the connection of the wash-out pipe. This flange fitting should be furnished and drilled to suit the valve seat connection.

Yours truly,

Bridge Engineer.

B

, August 17, 1911.

HES.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

Your favor of the 16th regarding use of compressed air for riveting.

I think your Foreman on the ground had better make arrangements for securing air or steam from the Railway Company when possible, and also price for same. This is a matter which would be handled by the Division Superintendent interested.

The hand riveting of the tanks at Zero and Auburn will be accepted provided it passes a rigid inspection.

Yours truly,

Bridge Engineer.

B

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS,
AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. / PITTSBURG, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO GAS

Des Moines, Iowa, Aug. 16, 1911.

H. E. Stevens, Bridge Eng'r, N. P. R. R.,

St. Paul, Minn.

Dear Sir:-

Your letter of the 14th received.

We note that your company will be able to furnish us compressed air at Jamestown and we will probably be able to secure air or steam at Ellensburg, but that neither air or steam can be secured at Zero and Auburn. Under the conditions, we would therefore ask that you permit us to use hand riveting on Zero and Auburn job and we will arrange to use air on the other two jobs. Our tower gangs are thoroughly experienced in hand riveting water tanks and we can assure you of just as good a job of work with hand riveting as with air. We would snap the rivets the same as with air and the only other necessary feature is to get good tight riveting so as to make a water tight job. We trust that you will kindly favor us on this point as we do not have any riveting outfit furnishing its own power which we could ship on these jobs.

We would be pleased to have you advise what charge would be made us for air and steam by your company.

Yours very truly,

CH

DES MOINES BRIDGE & IRON CO.
BY Geo A Smith

, August 16, 1911.

HRS.

Lab

Des Moines Bridge & Iron Co.,

Attention of Mr. R. W. Bailey,

Des Moines, Iowa.

Dear Sir:-

I have your favor of the 14th regarding fittings to be furnished with 100,000 gallon water tanks.

The pipe and fittings to be furnished and erected complete by your company include the 6" over-flow pipe down to the top of the 45 degree elbow, the 6" wash-out pipe down to the top of the 45 degree elbow, the 14" outlet pipe down to the top of the 90 degree base elbow, this being one Standard length of cast iron pipe.

In other words your contract cuts off at the top of all top fittings shown on our pipe cellar diagram as indicated in yellow on attached sketch.

Yours truly,

B

Bridge Engineer.

St. Paul, Minn., August 15, 1911.

HBS.

Mr. W. C. Smith,

Chief Engineer Maintenance of Way.

Dear Sir:-

I return you herewith letters from Supervisor Grime and Superintendent Lantry regarding inspection of steel water tank at Huntley.

The tanks to be erected this year are provided with inside ladders and with indicator gauges.

The paint used on the inside of the tank is the same as that used heretofore. That is two coats of Nobrac. On some of the tanks which are to be repainted, I have recommended trying Lowe Bros. Tank Coating, a paint especially prepared for this class of service.

It is very difficult to get a paint that will stand, and we will probably have to try several brands before we find a satisfactory article. Red lead and oil would be alright, if we were sure of getting a first class mixture. I think, perhaps it would be well to try red lead and oil for the shop coat and will so specify on future orders.

Yours truly,

B Bridge Engineer.

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY.

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS,
AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. / PITTSBURG, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO RWB

Des Moines, Iowa, Aug. 14, 1911.

H. E. Stevens, Bridge Eng'r N. P. R. R.,
St. Paul, Minn.

Dear Sir:-

Our records are somewhat indefinite in regard to what we are to furnish with the railroad tanks for your company. Our estimate shows 4' of 14" wrought iron pipe and 25' of 6" wrought iron pipe for overflow, with flanges as required in the bottom plate of mud drum.

Please advise what your recollection is of the matter in regard to what other fittings were agreed upon between yourself and the writer.

Hoping that we may have the pleasure of hearing from you in this matter by return mail so that we may get the stuff on the ground, we remain,

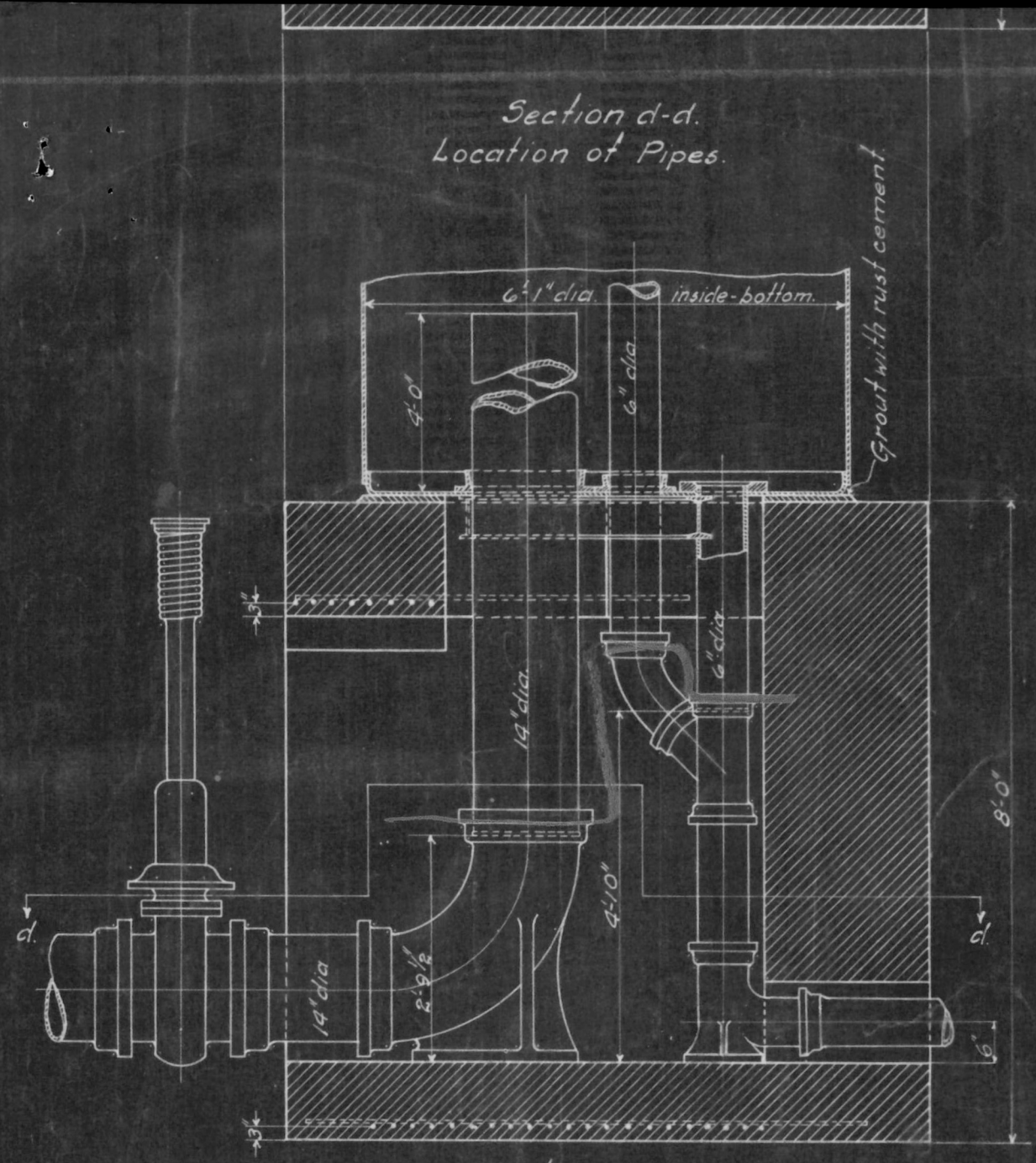
Yours very truly,

DES MOINES BRIDGE & IRON CO.

BY R W Baird

CH

Section d-d.
Location of Pipes.



Section c-c.
Location of Pipes.

WCS-r

Form 290 TW

Northern Pacific Railway Company

Saint Paul, August 14, 1911.

Mr. H. E. Stevens:

I attach Mr. Lantry's letter of the 12th, with copy of letter from Supervisor Grime regarding inspection of the inside of the Huntley steel water tank, which I have requested Mr. Johnson to have Mr. Grime make.

I think that the points raised by the Supervisor are well taken, and that we should have provision made for the ladder on the inside of the tank as he notes, and that we should be sure that the new tanks which are to be erected this year are thoroughly well painted on the inside with the best lasting paint obtainable.

Will be glad if you will look this matter up and give me the benefit of your recommendations.

C. C. Smith

August 14, 1911.

HES.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

As requested in your letter of recent date, I have looked up the question of furnishing your Company with either steam or compressed air for use in rivetting up the water tanks , Jamestown, Zero, Ellensburg and Auburn.

The Superintendent at Jamestown advises that they will be able to furnish compressed air in case you so desire.

It is quite probable that you will be able to get either compressed air or steam at Ellensburg, but at Zero or Auburn, there is no possibility of getting either.

Yours truly,

B

Bridge Engineer.

Form 290 TW

Northern Pacific Railway Company

LY*G Saint Paul, August 14, 1911.

Mr. H. E. Stevens,
Bridge Engineer.

Dear Sir:-

Referring to your letter of the eighth instant relative to the 100,000 gallon steel tank to be erected by the Des Moines Bridge & Iron Company at Jamestown.

Superintendent advises that he will arrange to furnish them with compressed air for rivetting from the roundhouse supply.

Yours truly,

Division Engineer.

2a 6

MEMO

St. Paul, Minn., August 12, 1911.

HES.

Mr. W. L. Darling,

Chief Engineer.

I am handing you herewith in duplicate contract and bond covering erection of the two 100,000 gallon steel tanks for Jamestown and Auburn.

These contracts have been executed by the Des Moines Bridge & Iron Co. and are now ready for execution on the part of the Railway Company.

H. E. Stevens.

B

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

MANUFACTURERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL, WATER TOWERS,
MILL BUILDINGS, TANK AND PLATE WORK.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
DENVER, SALT LAKE CITY, OMAHA,
LOS ANGELES, SEATTLE, SAN FRANCISCO.

WORKS { DES MOINES, IA.
NEVILLE ISLAND, PITTSBURG, PA.

CURRY BUILDING

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO

Pittsburg, Pa. August 11, 1911.

571-572

Tower and Tank, Zero, Mont. & Ellensburg, Wash.

Northern Pacific Railway Company,
H. E. Stevens, Bridge Engr.,
St. Paul, Minn.

Dear Sir:-

We mailed to-day under separate cover for your inspection, and approval, three prints of sheet #2 covering details of Blow-off valve, Manhole, Expansion Joint and Flanges. This drawing is now complete, the former two items having been added.

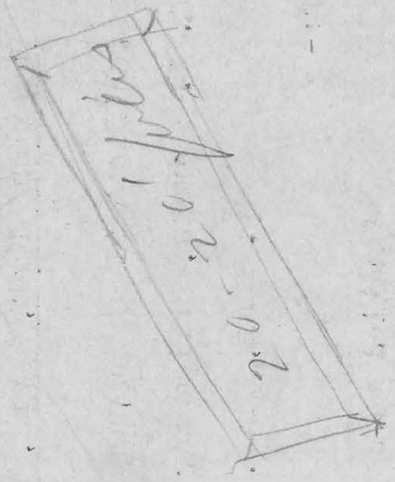
Kindly return us one of these prints with your judgment noted thereon, and upon receipt of which we will forward you complete sets of prints for field, as per yours of the 24th ult.

Very truly,
DES MOINES BRIDGE & IRON CO.
By H. M. Peightel

HMP/E

1085
163
1250

18900



WCS-r

Form 290 TW

Northern Pacific Railway Company

Saint Paul, August 10, 1911.

Mr. H. E. Stevens,

Bridge Engineer.

Dear Sir:-

Acknowledging yours of the 8th sending copy of shipping statement from the Des Moines Bridge & Iron Company regarding shipment of anchor bolts for the steel tank at Auburn.

Will say that at the present time there are no facilities for obtaining compressed air, either at Zero or Auburn. It is quite probable that they can secure either steam or air at Ellensburg.

Yours truly,

O C Smith

Purchaser's No. Prepaid to St. Paul.

SHIPPING STATEMENT

Shipment No. 1

Des Moines Bridge and Iron Works

Date 5/22/11.

Shipped to Northern Pacific Ry., Zero, Montana.

Order No. 572

Via P. & L. E. Erie, c/o C.C.C. & St. L., c/o Iowa Cent. at Peoria c/o N.P.

Car No. Local Page 1 of 1 Checked by J. O'Donovan.

No. Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
12	Anchor Rods 1½ø upset 1⅛ ø	7	0		} 796	
6	" Plates 12 channels @ 25#	2	4			
1	Beam 6" @ 12¼#	5	9			

Twenty-two 1/25

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. 8

Purchaser's No.

Our Order No. 572

Shipped Collect

Shipped Prepaid

Date September 15, 1911

Shipped to Northern Pacific Ry Co Care of L. M. Perkins, Engr M of Way

Destination Zero State Montana

Via P & LE, LS & MS Care of W T at Buffalo C/o N.P. at Duluth

Car No. 42810 Initial P & LE Checked by

Reloaded into NP 69120 and NP 69130 at Duluth. Page 1 of 3 Packed by

No. Pieces	DESCRIPTION	LENGTH		MARK	WEIGHT	Sheet No.
5	Bottom Sec Cols 12" 20½#	20	6-3/4	1 A		3
1	" " "	"	"	1 B		"
5	Top " "	19	5-1/4	2 A		"
1	" " "	"	"	2 B		"
6	Struts 4-ang 4 x 3 x 5/16 laced	14	6-1/2	S 1		"
12	Sway rods 1-1/2" ø	20	6-1/2	ø 1		"
12	" 1-3/8" ø	20	8	ø 2		"
48	1-15/16 cotter bolts	0	3			"
72	Washers 1/4" plt x 2" hole 4" /					"
6	Bolts 1" ø	0	3			"
12	Washers 1/4 plt x 1-1 /16					"
6	Rods 1-1/8" ø			ø 3		"
24	Spider rods 5/8"	14	6	ø 4		"
3	Rods for pipe support	3	7			"
3	" "	14	5	ø 6		"
1	Spider ring standard					"
1	Manhole cover					4
1	Riser pipe 6' diam	24	4-3/4			"
3	Rod lugs ang 3½ x 2½ x ¼	0	4	RB 1		"
8	Clips ang 4 x 3 x 3/8	0	2-1/2	P 51		"
2	Plates 26 x 1/4	10	0	P 6		"
3	Rod lugs Tank 6" chan			RL 2		"
2	Pulleys					

3 Copies to a'g. 9/21/11

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No.

Purchaser's No.

Our Order No. 572

Shipped Collect

Shipped Prepaid

Date 9- 15- 1911

Shipped to Care of

Destination State

Via Care of

Car No. 42810 Initial P & LE Checked by

Page 2 of 5 Packed by

No. Pieces	DESCRIPTION	LENGTH		MARK	WEIGHT	Sheet No.
25	Ft Copper wire					4
1	Galvanized float					"
4	Bracket bars 2-1/2 x 3/4			B		"
12	Angles 3 x 2 x 1/4	4	10-1/4	RR 2		5
12	Rafters angs 3 x 2 x 1/4	11	9-1/2	RR 1		"
6	Pipe supports Bars 2-1/2 x 3/8	1	1	RS 1		"
1	Outside tank ladder	11	0	L 1		"
1	Inside "	8	1-1/4	L 2		"
1	" "	16	1-1/4	L 3		"
1	Special Finial					2
600	Lbs coal					
30	Lbs 8d nails					
20	Lbs 20d nails					
35	Gals Hobrack paint					
9	Ft Tallowed Navy Hemp					
1	Complete set fittings for flusher on riser pipe					
35	Rivets 3/4 x 2-7/8					
470	" 2-5/8					
50	" 2-1/2					
260	" 2-3/8					
12	" 2-1/4					
1920	" 2-1/8					
30	" 2					

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. .....

Purchaser's No. .....

Our Order No. 572

Shipped Collect .....

Shipped Prepaid .....

Date 9-.18- 1911

Shipped to ..... Care of .....

Destination ..... State .....

Via ..... Care of .....

Car No. 42810 Initial P & LS Checked by .....

Page 3 of 3 Packed by .....

No. Pieces	DESCRIPTION	LENGTH	MARK	WEIGHT	Sheet No.
60	Rivets 5/8 x 2-1/2				
40	" " 2				
1580	" " 1-7/8				
35	" 5/8 x 7/8				
45	" " 3/4				
1200	" " 5/8				
260	Bolts 5/8 x 1/4				
10	5/8 cap screws x 1" long				
5	Bolts 1/2 x 1-1/4				
6	1/4" Wood Screws x 2"				
10	Bolts 5/4" x 2-1/4				
100	" " x 2				
70	" " x 1-3/4				
400	" " x 1-1/2				
20	" 5/8 x 1-1/2				
300	" " x 1-1/4				
10	" 5/8 x 1				
240	" " x 3/4				

Purchaser's No. Prepaid to Duluth only.

SHIPPING STATEMENT

Shipment No. 3rd&Final

Des Moines Bridge and Iron Works

Date 9/27/11.

Shipped to Northern Pacific Ry. Co., c/o L. M. Perkins Engr., Maintenance of Ways Zero, Montana.

Order No. 572.

Via P&L.E., LS& MS, c/o W.T. at Buffalo c/o U.P. at Duluth.

Car No. LS& MS. 28620 Page 1 of 1 Checked by R. Barnett.

No. Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
5	Plates 84 X 1/4,	11 05/8	1A		4
1	" " "	11 0-5/8	1B		"
2	" 83 X 1/4,	15 11-1/8	2A		"
1	" " "	15 11-1/8	2B		"
1	" " "	15 11-1/8	2C		"
2	" " "	15 11-1/8	2D		"
6	Segment Plates for 26-0 Tank		K1		"
6	" " " " "		K2		"
1	Saucer Plate 8-0ø X 3/8		KB		"
1	Plate 9½ X 1/4,	0 10			"
1	Board	21 0		70	"
23	Plates 51 X 10,	11 10½	A		5
1	" " "	11 10½	B		"
2	" 60 X 10,	11 10½	C		"
2	Half Rings 8-0ø Angle 3x3x1/4		RR4		"
12	Bent Plates 4 x 3/16,	7 9½	RR3		"
6	Belt Angles 6"x 3½"x 1/2",	14 3	BA1		"
1	Brass Sleeve 8" ø #4			73	

Gross 73520
Tare 34980
Net 38540
Blocking 80
38460

Mexpieha Angie
F.B. Court
3 copies sent 10/1/11 B
A. Gibson
O.K. J.M. Masters Insp.

Purchaser's No. Prepaid

SHIPPING STATEMENT

Shipment No. 1.

Des Moines Bridge and Iron Works

Date 5/20/11.

Shipped to Northern Pacific Ry.,
Ellensburg, Wash.,

Order No. 571

Via P. C. C. & St. L. c/o C. B. & Q. c/o N. P. at Minn. Trans.

Car No. Local

Page 1 of 1

Checked by J. O'Donovan.

No. Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
12	Anchor Rods 1¼ upset 1½	7' 0"		796	
6	Anchor Plates	2' 4"			
1	Beam 6" @ 12½#	7' 0"			

For Chicago

2 copies sent L. V. M. P.
10/19/11 B

Purchaser's No. Prepaid to Duluth only. **SHIPPING STATEMENT** Shipment No. 2

Des Moines Bridge and Iron Works

Date 10/6/11

Shipped to Northern Pacific Railway Co., c/o A. R. Cook, Engr. Maintenance of Way Ellensburg, Wash., Order No. 571.

Via P. & L. E., L. S. & M. S. c/o W. T. Co. at Buffalo c/o W. P. at Duluth

Car No. P. & L. E. 42035 Page 1 of 3 Checked by R. Barnett.

No. Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
5	Bottom Sec. Cols. 12" Channels 20½#,	20' 6⅜"	1A		3
1	" " " "	" "	1B		"
5	Top " " "	19' 5¼"	2A		"
1	" " " "	" "	2B		"
6	Struts 4 Angls. 4 x 3 x 5/16 laced	14' 6½"	S1		"
12	Sway Rods 1½ ø	20' 6½"	#1		"
12	" " 1 3/8" ø	20' 8"	#2		"
48	15/16" Bolts	0' 3"			"
72	Washers 1/4 Pl. x 2" ø hole x 4"ø				"
6	Bolts 1"	0' 3"			"
12	Washers 1/2 Pl.x 1 1/16 x 2½" ø				"
6	Rods 1 1/8"	12' 6"	#3		"
24	Spider Rods 5/8.	14' 6"	#4		"
3	Rods for Ripe Supports	3' 7"	#5		"
3	" " " "	14' 5"	#6		"
1	Riser Pipe 6-0 Dia.	24' 4⅜"			4
3	Rod Lugs Angl 3½ x 2½ x 1/4,	0' 4"	RL-1		4
8	Clips Angl. 4 x 3 x 3/8	0' 2½"	PS-1		"
2	Plates 26 x 1/4	10' 0"	P-6		"
3	Rod Lugs Tank 6" Channel		RL-2		"
2	Pulleys				
	Copper Sashcord	25' 0"			
1	Galvanized Float				

Purchaser's No. Prepaid to Duluth only. **SHIPPING STATEMENT** Shipment No. 2

Des Moines Bridge and Iron Works

Date 10/6/11

Shipped to Northern Pacific Railway Co., c/o A. R. Cook, Engr. Maintenance of Way Order No. 571.
Ellensburg, Wash.,

Via

Car No. Page 2 of 3 Checked by R. Barnett.

No. Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
4	Bracket Bars 2½ x 1/4,	0 1¾"	B		4
1	Plate 9½ x 1/4,	0 10"			"
12	Bent Plates 4" x 3/16",	7' 9½"	RR-3		5
12	Angles 3 x 2 x 1/4,	4' 10¼"	RR-2		"
12	Rafters Angles 3 x 2 x 1/4	11' 9½"	RR-1		"
6	Pipe Supports Bars 2½ x 3/8,	1' 1"	RS-1		"
1	Outside Tank ladder	11' 0"	L-1		"
1	Inside Tank Ladder	8' 1¼"	L-2		"
1	" " "	16' 1¼"	L-3		"
1	Finial		F-1	6	2
35	3/4 Rivets 2 7/8				
470	" " 2 5/8				
50	" " 2 1/2				
260	" " 2 3/8				
12	" " 2 1/4				
1920	" " 2 1/8				
30	" " 2				
60	5/8 Rivets 2 1/8				
40	" " 2				
1550	" " 1 7/8				
35	3/8 " 7/8				
45	" " 3/4				
1200	" " 5/8				

Prepaid to
Duluth only.

Purchaser's No. _____ **SHIPPING STATEMENT** Shipment No. 2

Des Moines Bridge and Iron Works

Date 10/6/11.

Shipped to Northern Pacific Railway Co.,
c/o A. R. Cook, Engr. Maintenance of Way
Ellensburg, Wash.,

Order No. 571

Via _____

Car No. P. & L. E. 42035. Page 3 of 3 Checked by R. Barnett.

No. Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
	Field Bolts				
260	5/8" Bolts 1½				
10	5/8" Cap Screws 1" long.				
5	½" Bolts 1¼"				
6	1/4" ϕ Wood Screws 2" long.				
10	3/4" Bolts 2½"				
100	" " 2"				
70	" " 1¾"				
400	" " 1½"				
20	5/8" Bolts 1½"				
300	" " 1¼"				
10	3/8" " 1"				
240	" " 3/4"				
9	ft. Tallowed Navy Hemp				
800	lbs. Coal				
30	lbs. 8 d. Nails				
20	" 20 d. Nails.				

Gross 82300
Tare 45960
Net 36340
Blocking 630
35710

Purchaser's No. Prepaid to Duluth only.

SHIPPING STATEMENT

Shipment No. 3rd & Final.

Des Moines Bridge and Iron Works

Date 10/18-11

Shipped to Northern Pacific Railway Co., c/o A.R. Cook Engr. Maintenance of Way — Ellensburg, Wash.

Order No. 571

Via P.& L.E.L.S.& M.S. c/o W.T. Co. at Buffalo c/o W. P. at Duluth

Car No. M.C. 6338. Page ____ of ____ Checked by ____

No. Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
1	Std Spider Ring					
5	Plates 84 x ¼	11	0-5/8	1-A		4
1	" "	"	"	1-B		"
2	" 83 x ½	15	11-1/8	2-A		"
1	" " "	"	"	2-B		"
1	" " "	"	"	2-C		"
2	" " "	"	"	2-D		"
6	Segment Plate for 26-0" tank			K-1		"
6	" " " " "			K-2		"
1	Sancer Plate 8'- 0" x 5/16			K-B		"
1	Board	21	0		68#	"
23	Plates 51" x #10	11	10½	A		5
1	" " "	"	"	B		"
2	" 60" x #10	"	"	C		"
2	Hall Ring 8' - 0" angle 3 x 3 x ¼			R.R.4		"
6	Belt Angles 6" x 3½" x ½"	14	3	B.A.1		"
1	Brass Sleeve 18"				205#	2
35	Gallans Nobrac Paint				350#	

Gross 76560

Tare 38500

Net 38060

3 copies sent LMP 11/9/11 B

Purchaser's No. Prepaid.

SHIPPING STATEMENT

Shipment No. 1 st.

Des Moines Bridge and Iron Works

Date July 25, 11.

Shipped to Northern Pacific Ry. Co., Auburn, Wash.

Order No. 636.

Via Pan Hdl. c/o C.B.& O. at Chicago c/o N.P. at Minn. Trans. Local.

Car No. Page of Checked by

No. Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
12	Anchor Rds. $1\frac{1}{4}$ upset $1\frac{1}{2}$	7				
6	" Plates.				742 #	
1	Beam 6" at $12\frac{1}{4}$#	5	9			

3 copies sent
L. M. P. 11/9/11 B

Purchaser's No. Prepaid to Duluth only

SHIPPING STATEMENT

Shipment No. 2

Des Moines Bridge and Iron Works

Date Oct. 11/11

Shipped to Northern Pacific Railway Co., Auburn, Washington

Order No. 636

Via P. & L.E.& M.S. c/o W.T.Co. at Buffalo, c/o N.P. Duluth, Minn.

Car No. P & LE-42916

Page 1 of 3

Checked by R. Barnett

No. Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
5	Bottom Sec. Cols. channels 12" 20½#	20	6¾	1-A		2
1	" " " " " "	"	"	1-B		"
5	Top " " " " "	19	5¼	2-A		"
1	" " " " " "	"	"	2-B		"
6	Struts 4 angles 4 x 3 x 5/16 laced	14	6½	S-1		"
12	Sway Rods 1½ ø	20	6½	#1		"
12	" " 1-3/8 ø	20	8	#2		"
48	1-15/16" ø Bolts Grip	0	3			"
72	Washers ¼ Pl. x 2" ø hole x 4" ø					"
6	Bolts 1" ø	0	3			"
12	Washers ¼ Pl. x 1-1/16 x 2½" o.s ø					"
6	Rods 1-1/8" ø	12	6	#3		"
24	Spider Rods ⅝" ø	14	6	#9		"
3	Rods for Pipe Support	3	7	#5		"
3	" " " "	14	5	#6		"
1	Riser Pipe 6-10 Dia.	24	4¾			3
3	Rod lugs angles 3½ x 2½ x ¼"	0	4	RL-1		"
8	Clips angles 4 x 3 x 3/8	0	2½	PS-1		"
2	Plates 26" x ¼"	10	0	P-6		"
3	Rods lugs tank 6" channel			RL-2		"
2	Pulleys					"
	Copper Sash Cord	25	0			"
1	Galvanized Float					"

3 copies sent C.M.St.P. 10/19/11

For Chicago

Purchaser's No. Prepaid to Duluth only

SHIPPING STATEMENT

Shipment No. 2

Des Moines Bridge and Iron Works

Date Oct. 11/11

Shipped to Northern Pacific Railway Company, Auburn, Washington

Order No. 636

Via P&LE, LS&MS c/o W.T.Co. at Buffalo c/o N.P. at Duluth, Minn.

Car No. P & LE-42916

Page 2 of 3

Checked by R. Barnett

No. Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
4	Brackets Bars 2½ x ¼	0	11¾	B		4
1	Plate 9½ x ¼	21	0			"
12	Bent Plates 4 x 1-3/16	14	3	~~BA-1~~ RR3		5
12	Angles 3 x 2 x ¼	4	10¼	RR-2		"
12	Rafters angles 3 x 2 x ¼	11	9½	RR-1		"
6	Pipe Supports Bars 2½ x 3/8	1	1	RS-1		"
1	Outside Tank Ladder	11	0	L-1		"
1	Inside Tank Ladder	8	1¼	L-2		"
1	" " "	16	1¼	L-3		"
1	Finial			F-1		
35	¾" ø Rivets		2⅞			
470	" "		2⅝			
50	" "		2½			
260	" "		2-3/8			
12	" "		2¼			
1920	" "		2-1/8			
30	" "		2			
60	⅝ Rivets		2-1/8			
40	" "		2			
1550	" "		1⅞			
35	3/8 "		⅞			
45	" "		¾			
1200	" "		⅝			

Purchaser's No. Prepaid to Duluth only

SHIPPING STATEMENT

Shipment No. 2

Des Moines Bridge and Iron Works

Date Oct. 11/11

Shipped to Northern Pacific Railway Company, Auburn, Washington

Order No. 636

Via P & LE, LS&MS c/o W.T. Co. at Buffalo c/o N.P. at Duluth, Minn.

Car No. P & LE-42916

Page 3 of 3

Checked by R. Barnett

No. Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
	Field Bolts				
260	$\frac{5}{8}$" ø Bolts	$1\frac{1}{4}$			
10	$\frac{5}{8}$ " Cap Screws 1" long				
5	$\frac{1}{2}$" " Bolts $1\frac{1}{4}$				
6	$\frac{1}{4}$ " Wood Screws 2" long				
	Erection Bolts				
10	$\frac{3}{4}$" ø Bolts	$2\frac{1}{2}$			
100	" "	2			
70	" "	$1\frac{3}{4}$	Gross	86180	
400	" "	$1\frac{1}{2}$	Tare	46540	
20	$\frac{5}{8}$ "	$1\frac{1}{2}$	Net	39640	
300	" "	$1\frac{1}{4}$	Blocking	626	
10	5/8 "	1		39014	
240	" "	3/4			

Purchaser's No. Prepaid. **SHIPPING STATEMENT** Shipment No. 3rd & Final.

Des Moines Bridge and Iron Works

Date 10/31/11.

Shipped to Northern Pacific Railway Co., Auburn, Wash. Order No. 636.

Via P.& L.E. L.S.& M.S., c/o Western Transit Co., at Buffalo, c/o N.P. at Duluth.

Car No. C.C.C. & St. L. 27277. Page of Checked by

No. Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
1	Std. Spider Ring					
1	Man Hole Cover					
5	Plates 84" x 1/4"	11	0-5/8	1-A		4
1	" " "	"	"	1-B		"
2	" 83" x 1/4"	15	11-1/8	2-A		"
1	" " "	"	"	2-B		"
1	" " "	"	"	2-C		"
2	" " "	"	"	2-D		"
6	Segment Plates for 26' ø tank			K-1		"
6	" " " " "			K-2		"
1	Indicator Board	21				"
23	Plates 51" x #10	11	10 1/2	A		5
1	" " "	"	"	B.		"
2	" 60" x #10	"	"	C		"
2	Half Rings 8' ø angle 3x3x1/4			R.R.-4		"
6	Belt Angles 6" x 3 1/2" x 1/2"	14	3	BA-1		"
1	Brass Sleeve 18" ø					2

Gross 62420#
Tare 24480#
Net 37940#
Blocking 160#
37780#

3 shipments sent L.N.P. 11/9/11

Purchaser's No. ~~Prepaid~~ to Minn. Trans. SHIPPING STATEMENT Shipment No. 1st

Des Moines Bridge and Iron Works

Date July 24th, '11

Shipped to Northern Pacific Ry Co., Jamestown, N.D. Order No. 635

Via Pan Hdl c/o CB& Q at Chgo c/o NP at Minn. Trans.

Car No. Local Page 1 of 1 Checked by J. V. Davis

No.Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
12	Anchor Rods 1¼	7 0		} 928	
6	" Plates				
1	Beam 6 at 12¼	5 9			

2 sets to a bl.
1575

Purchaser's No. Prepaid to Duluth only. SHIPPING STATEMENT Shipment No. 2

Des Moines Bridge and Iron Works

Date 9/6/11

Shipped to Northern Pacific Ry. Co., Jamestown, N. D. Order No. 635

Via P & L.E., LS & MS c/o W.T.Co. at Buffalo c/o U.P. at Duluth

Car No. P & LE-41216 Page 1 of 3 Checked by G.O.Wuth

No.Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
5	Bottom Sec. C. of 2"Chan.12" 20½	20	6¾	1-A		3
1	" " " " " " " "	20	6¾	1-B		"
5	Top " " " " " " "	19	5¼	2-A		"
1	" " " " " " " "	19	5¼	2-B		"
6	Struts 4 angles 4 x 3 x 5/16 Laced	14	8½	S-1		"
12	Sway Rods 1½ ø	20	6½	#1		"
12	" " 1-3/8	20	8	#2		"
48	1-15/16 Bolts Cotters Grip	0	3			"
72	Washers 1/4 x 2 hole 4" ø					"
6	Bolts 1 ø		3			"
12	Washers 1/4" Pl.x1-1/16 hole	2½	ø			"
6	Rods 1-1/8	12	6	#3		"
24	Spider Rods 5/8 ø	14	6	#4		"
3	Rods for Pipe Support	31	7	#5		"
3	" " " "	14	5	#6		"
1	Riser Pipe 6" 0 Dia.	24	4¾			4
3	Rod Lugs angle 3½ x 2½ x ¼	0	4	RB-1		"
8	Clips angle 4 x 3 x 3/8	0	2½	PS-1		"
2	Plates 26 x 1/4	10	0	P-6		"
3	Rods Lugs Tank 6" Chan.			RL-2		"
2	Pulleys					
25	Ft. Copper Wire					
1	Galvanized Float					

Purchaser's No. ~~Prepaid~~ to Duluth only

SHIPPING STATEMENT

Shipment No. 2

Des Moines Bridge and Iron Works

Date 9/6/11

Shipped to Northern Pacific Railway Co., Jamestown, N.D.

Order No. 635

Via

Car No. Page 2 of 3 Checked by G. O. Wurth

No.Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
4	Bracket Bars $2\frac{1}{2}$ x $\frac{1}{4}$	0	$11\frac{3}{4}$	B		4
12	Angles 3 x 2 x $\frac{1}{4}$	4	$10\frac{1}{2}$	RR-2		5
12	Rafters Angles 3 x 2 x $\frac{1}{4}$	11	$9\frac{1}{2}$	RR-1		"
6	Pipe Supports Bars $\frac{1}{2}$ x 3/8	1	1	RS-1		"
1	Outside Tank Ladder	11	0	L-1		"
1	Inside Tank Ladder	8	$1\frac{1}{4}$	L-2		"
1	" " "	16	$1\frac{1}{4}$	L-3		"
1	Finial Special					
800	Lbs. Coal					
30	" 8-c Nails					
20	" 20-c "					
9	Ft. Tallowed Navy Hemp					
1	Set of fittings for flusher box					
35	Rivets $\frac{3}{4}$ x 2-7/8					
470	" " 2-5/8					
50	" " 2-1/2					
260	" " 2-3/8					
12	" " 2-1/4					
1920	" " 2-1/8					
30	" " 2					
60	" $\frac{5}{8}$ x 2-1/8					
40	" " 2					
1550	" " 1-7/8					

Purchaser's No. ~~Prepaid to Duluth only~~ SHIPPING STATEMENT Shipment No. 2

Des Moines Bridge and Iron Works

Date 9/6/11

Shipped to ~~Northern Pacific Ry. Co.,~~ Jamestown, N.D. Order No. 635

Via

Car No. ~~P & L E. 41216~~ Page 3 of 3 Checked by ~~G. O. Wurth~~

No.Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
35	Rivets 3/8 x 7/8				
45'	" " 3/4				
1200	" " 5/8				
260	Bolts 5/8 x 1¼				
10	⅝ Cap Screws 1"				
5	Bolts 1/2 x 1¼				
6	Wood Screws ¼ x 2				
10	Bolts ¾ x 2¼		Gross	82140	
100	" " 2		Tare	44860	
70	" " 1¾		Net	37280	
400	" " 1½		Blocking	1100	
20	" ⅞ x 1½			36180	
300	" " 1¼				
10	" 3/8 x 1				
240	" " ¾				

Purchaser's No. Prepaid to Duluth, only.

SHIPPING STATEMENT

Shipment No. 3 & Final

Des Moines Bridge and Iron Works

Date 9/13/11.

Shipped to Northern Pacific Ry. Co., Jamestown, N. D., Order No. 635

Via P. & L.E., L.S. & M.S., c/o W.T.Co. at Buffalo c/o N.P. at Duluth.

Car No. C.R.R. of N.J. #84817. Page 1 of 1 Checked by G. O. Wirth.

No. Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
1	Standard Spider Ring				3
1	Manhole Cover				
5	Plates 84 x 1/4	11 0 5/8	1A		4
1	" " "	11 0 5/8	1B		"
2	" 83 x 1/4	15 11 1/8	2A		"
2	" " "	15 11 1/8	2B-2C		"
2	" " "	15 11 1/8	2D		"
6	Segment Plates for 26-0 Dia.Tank		K1		"
6	" " " " " "		K2		"
1	Saucer Plate 8-0 x 5/16		KB		"
1	Indicator Plate 9½ x 1/4	0 10			"
1	" Board	21 0			"
23	Plates 51" x 10#	11 0½	A		5
1	" " "	11 0½	B		"
2	" 60" x 10#	11 0½	C		"
2	Half Rings 8-0 Angle 3 x 3 x 1/4		RR4		"
12	Bent Plates 4 x 5/16	7 9½	RR3		"
6	Belt Angles 6 x 3½ x ½	14 3	BA1		"
1	Brass Sleeve 18" Dia.				2
35	Gallons of Nobroc Paint				

Gross 81840
Tare 43180
Net 38660
Blacking 80
38580

Purchaser's No. Prepaid to Duluth only

SHIPPING STATEMENT

Shipment No. 2

Des Moines Bridge and Iron Works

Date 9/6/11

Shipped to Northern Pacific Railway Co., Jamestown, N.D.

Order No. 635

Via

Car No.

Page 2 of 3

Checked by G. O. Wurth

No.Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
4	Bracket Bars 2½ x ¼	0	11¾	B		4
12	Angles 3 x 2 x ¼	4	10¼	RR-2		5
12	Rafters Angles 3 x 2 x ¼	11	9½	RR-1		"
6	Pipe Supports Bars ½ x 3/8	1	1	RS-1		"
1	Outside Tank Ladder	11	0	L-1		"
1	Inside Tank Ladder	8	1¼	L-2		"
1	" " "	16	1¼	L-3		"
1	Finial Special					
800	Lbs. Coal					
30	" 8-c Nails					
20	" 20-c "					
9	Ft. Tallowed Navy Hemp					
1	Set of fittings for flusher box					
35	Rivets ¾ x 2-7/8					
470	" " 2-5/8					
50	" " 2-1/2					
260	" " 2-3/8					
12	" " 2-1/4					
1920	" " 2-1/8					
30	" " 2					
60	" ⅝ x 2-1/8					
40	" " 2					
1550	" " 1-7/8					

Purchaser's No. Prepaid to Duluth only

SHIPPING STATEMENT

Shipment No. 2

Des Moines Bridge and Iron Works

Date 9/6/11

Shipped to Northern Pacific Ry. Co., Jamestown, N.D.

Order No. 635

Via

Car No. P & L E. 41216

Page 3 of 3

Checked by G. O. Wurth

No.Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
35	Rivets 3/8 x 7/8				
45'	" " 3/4				
1200	" " 5/8				
260	Bolts 5/8 x 1¼				
10	⅝ Cap Screws 1"				
5	Bolts 1/2 x 1¼				
6	Wood Screws ¼ x 2		Gross	82140	
10	Bolts ¾ x 2¼		Jake	44860	
100	" " 2		Net	37280	
70	" " 1¾		Blocking	1100	
400	" " 1½			36180	
20	" ⅝ x 1½				
300	" " 1¼				
10	" 3/8 x 1				
240	" " ¾				

Purchaser's No. Prepaid to Duluth only.

SHIPPING STATEMENT

Shipment No. 3 & Final

Des Moines Bridge and Iron Works

Date 9/13/11

Shipped to Northern Pacific Ry. Co., Jamestown, N. D.,

Order No. 635

Via P&LE.,LS & M.S., c/o W.T.Co. at Buffalo c/o N. P. at Duluth

Car No. C.R.R. of N.J84817 Page 1 of 1 Checked by G. O. Wirth.

No. Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
1	Standard Spider Ring				3
1	Manhole Cover				
5	Plates 84 X 1/4	11 0 5/8	1A		4
1	" " "	11 0 5/8	1B		"
2	" 83 X 1/4	15 11 1/8	2A		"
2	" " "	15 11 1/8	2B-2C		"
2	" " "	15 11 1/8	2D		"
6	Segment Plates for 26-0 Dia. Tank		K1		"
6	" " " " " "		K2		"
1	Saucer Plate 8-0 X 5/16,		KB		"
1	Indicator Plate 9½ X 1/4	0 10			"
1	" Board	21 0			"
23	Plates 51" X 10#,	11 0½	A		5
1	" " "	11 0½	B		"
2	" 60" X 10#,	11 0½	C		"
2	Half Rings 8-0 Angles 3"x3" x ¼"		RR4		"
12	Bent Plates 4 x 3/16	7 9½	RR3		"
6	Belt Angles 6 x 3½ x ½	14 3	BA1		"
1	Brass Sleeve 18" Dia.	Gross 81840			2
35	Gallons of Nobroc Paint	Tare 43180			
		Net 38660			
		Blocking 80			
		38580			

Purchaser's No. Prepaid to St. Paul.

SHIPPING STATEMENT

Shipment No. 1

Des Moines Bridge and Iron Works

Date 5/22/11.

Shipped to Northern Pacific Ry., Zero, Montana.

Order No. 572

Via P. & L. E. Erie; c/o C.C.C. & St. L., c/o Iowa Cent. at Peoria c/o N.P.

Car No. Local

Page 1 of 1

Checked by J. O'Donovan.

No. Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
12	Anchor Rods 1¼" upset 1⅛" ø	7	0		796	
6	" Plates 12 channels @ 25#	2	4			
1	Beam 6" @ 12¼#	5	9			

Purchaser's No. Prepaid to Duluth only

SHIPPING STATEMENT

Shipment No. 2

Des Moines Bridge and Iron Works

Date 9/15/11

Shipped to Northern Pacific Ry Co., c/o L. M. Perkins, Engineer, Maintenance of Way Zero, Montana.

Order No. 572

Via P&LE LS&MS c/o W.T.Co. at Buffalo c/o N.P. at Duluth

Car No. P & L E-42810

Page 1 of 3

Checked by G. O. Wurth

No. Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
5	Bottom Sec. Cols 12" 20½#	20	6¾	1-A		3
1	" " " " "	20	6¾	1-B		"
5	Top " " " "	19	5½	2-A		"
1	" " " " "	19	5½	2-B		"
6	Struts 4 angles 4 x 3 x 5/16 Laced	14	6½	S-1		"
12	Sway Rods 1½ ø	20	6½	#1		"
12	" " 1-3/8	20	8	#2		"
48	1-15/16 Cotter Bolts	0	3			"
72	Washers ½ Plate x 2" hole 4 ø					"
6	Bolts 1 ø	0	3			"
12	Washers ½ Plate x 1-1/16					"
6	Rods 1-1/8 ø			#3		
24	Spider Rods ⅝	14	6	#4		"
3	Rods for pipe support	3	7	#5		"
3	" " " "	14	5	#6		"
1	Spider Ring Standard					"
1	Manhole Cover					4
1	Riser Pipe 6'0" Dia.	24	4¾			"
3	Rod Lugs angles 3½ x 2½ x ¼	0	4	RB-1		"
8	Clips angles 4 x 3 x 3/8	0	2½	P-51		"
2	Plates 26 x ¼	10	0	P-6		"
3	Rod Lugs Tank 6" channel			RL-2		"
2	Pulleys					

Prepaid to

Purchaser's No. Duluth only

SHIPPING STATEMENT

Shipment No. 2

Des Moines Bridge and Iron Works

Date 9/15/11

Shipped to Northern Pacific Ry. Co., c/o L. M. Perkins, Engineer

Order No. 572

Maintenance of Way, Zero Montana.

Via

Car No. Page 2 of 3 Checked by G. O. Wirth.

No. Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
25	ft. Copper Wire					4
1	Galvanized Float					"
4	Bracket Bars 2½ X 3/4			B		"
12	Angles 3 X 2 X 1/4	4	10½	RR2		5
12	Rafters, angles 3 X 2X 1/4	11	9½	RR1		"
6	Pipe Supports Bars 2½ X 3/8	1	1	RS1		"
1	Outside Tank Ladder	11	0	L1		"
1	Inside " "	8	1½	L2		"
1	" " "	16	1½	L3		"
1	Special Finial					2
800	lbs. Coal					
30	" 8d Nails					
20	" 20 Nails					
35	Gallons Nobrac Paint					
9	ft. Tallowed Navy Hemp.					
1	Complete set fittings for flusher on riser pipe.					
35	Rivets 3/4 X 2 7/8					
470	" " X 2 5/8					
50	" " X 2 1/2					
260	" " X 2 3/8					
12	" " X 2 1/4					
1920	" " X 2 1/8					

Purchaser's No. Prepaid to Duluth only

SHIPPING STATEMENT

Shipment No. 2

Des Moines Bridge and Iron Works

Date 9/15/11

Shipped to Northern Pacific Ry. Co.
c/o L. M. Perkins, Engineer
Maintenance of Way, Zero, Montana.

Order No. 572

Via

Car No. P. & L. E. #42810

Page 3 of 3

Checked by C. O. Wirth

No. Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
30	Rivets 3/4" X 2"				
60	" 5/8" X 2½"				
40	" " " 2"				
1550	" " " 1 7/8				
35	" 3/8 X 7/8		Brgs 84160		
45	" " " 3/4		Tank 46340		
1200	" " " 5/8		Net 37820		
260	Bolts 5/8 X 1 1/4		Blocking 570		
10	3/8 Cap Screws X 1" long		37250		
5	Bolts 1/2 X 1 1/4,				
6	1/4" Wood screws X 2"				
10	Bolts 3/4" X 2 1/4"				
100	" " X 2"				
70	" " X 1 3/4				
400	" " X 1½				
20	" 5/8 X 1 1/2				
300	" " X 1 1/4				
10	" 3/8 X 1				
240	" " X 3/4				

Purchaser's No. Prepaid to Duluth only

SHIPPING STATEMENT

Shipment No. 2

Des Moines Bridge and Iron Works

Date 9/15/11

Shipped to Northern Pacific Ry Co., c/o L. M. Perkins, Engineer, Maintenance of Way Zero, Montana.

Order No. 572

Via P&LE LS&MS c/o W.T.Co. at Buffalo c/o N.P. at Duluth

Car No. P & L E-42810

Page 1 of 3

Checked by G. O. Wurth

No. Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
5	Bottom Sec. Cols 12" 20½#	20	6¾	1-A		3
1	" " " " "	20	6¾	1-B		"
5	Top " " " "	19	5¼	2-A		"
1	" " " " "	19	5¼	2-B		"
6	Struts 4 angles 4 x 3 x 5/16 Laced	14	6½	S-1		"
12	Sway Rods 1½ ø	20	6½	#1		"
12	" " 1-3/8	20	8	#2		"
48	1-15/16 Cotter Bolts	0	3			"
72	Washers ¼ Plate x 2" hole 4 ø					"
6	Bolts 1 ø	0	3			"
12	Washers ¼ Plate x 1-1/16					"
6	Rods 1-1/8 ø			#3		
24	Spider Rods 5/8	14	6	#4		"
3	Rods for pipe support	3	7	#5		"
3	" " " "	14	5	#6		"
1	Spider Ring Standard					"
1	Manhole Cover					4
1	Riser Pipe 6'0" Dia.	24	4⅝			"
3	Rod Lugs angles 3½ x 2½ x ¼	0	4	RB-1		"
8	Clips angles 4 x 3 x 3/8	0	2½	P-51		"
2	Plates 26 x ¼	10	0	P-6		"
3	Rod Lugs Tank 6" channel			RL-2		"
2	Pulleys					

Prepaid to

Purchaser's No. Duluth only

SHIPPING STATEMENT

Shipment No. 2

Des Moines Bridge and Iron Works

Date 9/15/11

Shipped to Northern Pacific Ry. Co.,
c/o L. M. Perkins, Engineer
Maintenance of Way, Zero Montana.

Order No. 572

Via

Car No.

Page 2 of 3

Checked by G. O. Wirth.

No. Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
25	ft. Copper Wire					4
1	Galvanized Float					"
4	Bracket Bars 2½ X 3/4			B		"
12	Angles 3 X 2 X 1/4	4	10¼	RR2		5
12	Rafters, angles 3 X 2X 1/4	11	9½	RR1		"
6	Pipe Supports Bars 2½ X 3/8	1	1	RS1		"
1	Outside Tank Ladder	11	0	L1		"
1	Inside " "	8	1¼	L2		"
1	" " "	16	1¼	L3		"
1	Special Finial					2
800	lbs. Coal					
30	" 8d Nails					
20	" 20 Nails					
35	Gallons Nobrac Paint					
9	ft. Tallowed Navy Hemp.					
1	Complete set fittings for flusher on riser pipe.					
35	Rivets 3/4 X 2 7/8					
470	" " X 2 5/8					
50	" " X 2 1/2					
260	" " X 2 5/8					
12	" " X 2 1/4					
1920	" " X 2 1/8					

Purchaser's No. Prepaid to Duluth only

SHIPPING STATEMENT

Shipment No. 2

Des Moines Bridge and Iron Works

Date 9/15/11

Shipped to Northern Pacific Ry. Co.
c/o L. M. Perkins, Engineer
Maintenance of Way, Zero, Montana.

Order No. 572

Via

Car No. P. & L. E. #42810

Page 3 of 3

Checked by G. O. Wirth

No. Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
30	Rivets 3/4" X 2"				
60	" 5/8" X 2½"				
40	" " " 2"				
1550	" " " 1 7/8				
35	" 3/8 X 7/8				
45	" " " 3/4				
1200	" " " 5/8				
260	Bolts 5/8 X 1 1/4				
10	3/8 Cap Screws X 1" long				
5	Bolts 1/2 X 1 1/4,				
6	1/4" Wood screws X 2"				
10	Bolts 3/4" X 2 1/4"				
100	" " X 2"				
70	" " X 1 3/4				
400	" " X 1½				
20	" 5/8 X 1 1/2				
300	" " X 1 1/4				
10	" 3/8 X 1				
240	" " X 3/4				

Gross 84160
Tare 46340
Net 37820
Blocking 570
37250

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. 2

Purchaser's Nov 1

Our Order No. 635

Shipped Collect ~~XXXXXX~~

Shipped Prepaid to Duluth only

Date September 6, 1911

Shipped to Northern Pacific Ry Co Care of

Destination Jamestown State North Dakota.

Via P & L E LS & MS Care of WT Co at Buffalo C/o UP at Duluth

Car No. 41216 Initial P & LE Checked by

Page 1 of 3 Packed by

No. Pieces	DESCRIPTION	LENGTH		MARK	WEIGHT	Sheet No.
5	Bottom sec columns 2-chan 12" 20½#	20	6¾	1 A		3
1	" " "	"	"	1 B		"
5	Top " "	19	5¼	2 A		"
1	" " "	"	"	2 B		"
6	Struts 4-ang 4x3x5/16 laced	14	8½	S 1		"
12	Sway rods 1½" ø	20	6½	#1		"
12	" 1-3/8" ø	20	8	#2		"
48	1-15/16 bolts cotters grip	0	3			"
72	Washers 1/4Pl x 2" hole 4" ø					"
6	Bolts 1" ø		3			"
12	Washers 1/4" pl x15/16" hole 2½" ø					"
6	Rods 1-1/8"	12	6	# 3		"
24	Spider rods 5/8" ø	14	6	# 4		"
3	Rods for pipe suppert	31	7	# 5		"
3	" "	14	5	# 6		"
1	Riser pipe 6" dia	24	4¾			4
3	Rod lugs ang 3½ x 2½ x ¼	0	4	R 13 1		"
8	Clips an 4 x 3 x 3/8	0	2½	PS 1		"
2	Plates 26 x 1/4	10	0	P 6		"
3	Rods lugs tank 6" chan			RL 2		"
2	Pulleys					
25	Ft copper wire					
1	galvanized float					

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. 2

Purchaser's No.

Our Order No. 635

Shipped Collect

Shipped Prepaid

Date 9- 6- 1911

Shipped to Care of

Destination State

Via Care of

Car No. 41216 Initial P & LE Checked by

Page 2 of 3 Packed by

No. Pieces	DESCRIPTION	LENGTH		MARK	WEIGHT	Sheet No.
4	Brackets bars 2½ x ½	0	11⅜	13		4
12	Angl es 3 x 2 x ¼	4	10¼	RR 2		5
12	Rafters angs 3 x 2 x ¼	11	9½	RR 1		"
6	Pipe supports bars ½ x 3/8	1	1	RS 1		"
1	Outside tank ladder	11	0	L 1		"
1	Inside ladder	8	1¼	L 2		"
1	" "	16	1¼	L 3		"
1	Finial special					
800	Lbs coal					
30	Lbs 8d nails					
20	Lbs 20d nails					
9	Ft tallowed navy hemp					
1	Set fittings for flusher box					
35	Rivets 3/4" x 2-7/8"					
470	" " 2-5/8					
50	" " 2-1/2					
260	" " 2-3/8					
12	" " 2-1/4					
1920	" " 2-1/8					
30	" " 2					
60	" 5/8" 2-1/8					
40	" " 2					
1550	" " 1-7/8					

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. 2

Purchaser's No.

Our Order No. 635

Shipped Collect

Shipped Prepaid

Date 9- 6- 1911

Shipped to ..... Care of .....

Destination ..... State .....

Via ..... Care of .....

Car No. 41216 Initial P & LE Checked by .....

Page 3 of 3 Packed by .....

No. Pieces	DESCRIPTION	LENGTH	MARK	WEIGHT	Sheet No.
35	Rivets 3/8" x 7/8"				
45	" " 3/4"				
1200	" " 5/8				
260	Bolts 5/8" x 1/4"				
10	5/8" cap screws 1"				
5	Bolts 1/2" x 1-1/4"				
6	Wood screws 1/4" x 2"				
10	Bolts 3/4" x 2-1/4"				
100	" " 2				
70	" " 1-3/4"				
400	" " 1-1/2				
20	" 5/8" x 1-1/2				
300	" " 1-1/4				
10	" 3/8 x 1				
240	" " x 3/4				

SHIPPING STATEMENT

Des Moines Bridge and Iron Works

DES MOINES, IOWA

Shipment No. 3 & Final

Purchaser's No.

Our Order No. 635

Shipped Collect

Shipped Prepaid

Date 9-13-11.

Shipped to Northern Pacific Ry Co., Care of

Destination Jamestown State N. D.

Via P&LE, LS&MS Care of Wt.Co.at Buffalo, c/oNP at Duluth

Car No. 84817 Initial CRR of NJ Checked by

Reloaded into NP 56689 at Duluth

Page 1 of 1 Packed by

No. Pieces	DESCRIPTION	LENGTH		MARK	WEIGHT	Sheet No.
1	Std Spider Ring					3
1	Manhole Cover					
5	Plates 84x 1/4	11	0-5	1 A		4
1	" "	"	"	1 B		"
2	" 83 x 1/4	15	11-1/8	2 A		"
2	" "	"	"	2 B-2C		"
2	" "	"	"	2 D		"
6	Segment Plates for 26-0 Dia Tank			K 1		"
6	" " " " " "			K 2		"
1	Saucer Plate 8-0 x 5/16			K B		"
1	Indicator Plate 9½ x 1/4	0	10			"
1	" Board	21	0			"
23	Plates 51 x #10	11	0½	A		5
1	" "	11	0½	B		5
2	" 60 x #10	11	0½	C		5
2	Half Rings 8-0 3 x 3 x 1/4			R R 4		"
12	Bent Plates 4 x 3/16	7	9½	R R 3		"
6	Belt Angles 6 x 3½ x 1/2	14	3	B A I		"
1	Brass Sleeve 18" Dia					2
35	Gallons of Nobrac Paint					

3 copies sent AG 9/23/11

Purchaser's No. Prepaid to Minn. Trans. SHIPPING STATEMENT Shipment No. 1st

Des Moines Bridge and Iron Works

Date July 24th, '11

Shipped to Northern Pacific Ry Co., Jamestown, N.D. Order No. 635

Via Pen Hdl c/o CB& Q at Chgo c/o NP at Minn. Trans.

Car No. Local Page 1 of 1 Checked by J. V. Davis

No.Pcs.	DESCRIPTION	LENGTH	MARK	WEIGHT	SHEET NO.
12	Anchor Rods 1¼	7 0		928	
6	" Plates				
1	Beam 6 at 12¾	5 9			

Purchaser's No. Prepaid to Duluth only.

SHIPPING STATEMENT

Shipment No. 2

Des Moines Bridge and Iron Works

Date 9/6/11

Shipped to Northern Pacific Ry. Co., Jamestown, N. D.

Order No. 635

Via P & L.E., LS & MS c/o W.T.Co. at Buffalo c/o U.P. at Duluth

Car No. P & LE-41216

Page 1 of 3

Checked by G.O.Wuth

No.Pcs.	DESCRIPTION	LENGTH		MARK	WEIGHT	SHEET NO.
5	Bottom Sec. C. of 2"Chan.12" 20½	20	6¾	1-A		3
1	" " " " " " " "	20	6¾	1-B		"
5	Top " " " " " " "	19	5¼	2-A		"
1	" " " " " " " "	19	5¼	2-B		"
6	Struts 4 angles 4 x 3 x 5/16 Laced	14	8½	S-1		"
12	Sway Rods 1½ ø	20	6½	#1		"
12	" " 1-3/8	20	8	#2		"
48	1-15/16 Bolts Cotters Grip	0	3			"
72	Washers 1/4 x 2 hole 4" ø					"
6	Bolts 1 ø		3			"
12	Washers 1/4" Pl.x1-1/16 hole	2½	ø			"
6	Rods 1-1/8	12	6	#3		"
24	Spider Rods 5/8 ø	14	6	#4		"
3	Rods for Pipe Support	31	7	#5		"
3	" " " "	14	5	#6		"
1	Riser Pipe 6" 0 Dia.	24	4¾			4
3	Rod Lugs angle 3½ x 2½ x ¼	0	4	RB-1		"
8	Clips angle 4 x 3 x 3/8	0	2½	PS-1		"
2	Plates 26 x 1/4	10	0	P-6		"
3	Rods Lugs Tank 6" Chan.			RL-2		"
2	Pulleys					
25	Ft. Copper Wire					
1	Galvanized Float					

DES MOINES BRIDGE & IRON COMPANY,

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS,
AND WATER WORKS PLANTS.
OFFICE NINTH & TUTTLE STREETS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. / PITTSBURG, PA.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO GAS

Des Moines, Iowa, August 10, 1911.

H. E. Stevens, Bridge Eng. N.P.R.R.Co.,
St.Paul, Minn.

Dear Sir;---

We are enclosing herewith contract and bond induplicate covering water towers for Jamestown, N.D. and Auburn, Washington, which papers are properly executed by us.

We will be pleased to receive one copy of the contract with your signature at your convenience.

Yours very truly,

MD

ENCL

DES MOINES BRIDGE & IRON CO.,
By Geo A Smith

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY.

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS,
AND WATER WORKS PLANTS.
CURRY BUILDING

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. / PITTSBURG, PA.

WHEN REPLYING PLEASE REFER TO

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

Pittsburg, Pa. Aug. 10th, 1911.

La 6

H. E. Stevens, Bridge Engineer,
Northern Pacific Railroad Co.,
St. Paul, Minnesota.

Dear Sir:

I find, since writing you yesterday, that you did write us under date of July 19th, approving the use of the 18" outside diameter brass sleeve in connection with your tanks. This will enable us to use the expansion joints made for this purpose.

We thank you for your consideration of this matter.

Yours very truly,

DES MOINES BRIDGE & IRON CO.,
By W. H. Jackson
Pres. & T. M.

WHJ/LW.

, August 11, 1911.

HES.

Des Moines Bridge & Iron Company,

Curry Building,

Pittsburg, Pa.

Gentlemen:-

I have your favor of the 9th regarding use of 18" outside diameter for brass expansion joint and sleeve, your contracts for 100,000 gal. steel tanks.

On returning the balance of the drawings to you on July 19th, I advised that this detail would be approved when received. Sheet #2 showing this and other details has not been received in this office for final approval.

On August 7th, I wrote you requesting you to hurry this sheet.

Yours truly,

Bridge Engineer.

B

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS, AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. PITTSBURG, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO GAS

Des Moines, Iowa, Aug. 9, 1911.

Ja4

H. E. Stevens, Bridge Eng'r, N.P. R. R.,
Chicago, Illinois.

Dear Sir:-

Your letter of the 7th regarding sheet No. 2 of water tower drawings received.

It appears from our correspondence that your letter is in reply to letter from our Pittsburg office and we are therefore forwarding same to that office for attention.

Yours very truly

DES MOINES BRIDGE & IRON CO.

Geo A Smith

CH

FEB
Pls look out for this in future. This is the second time you have forwarded letters to the wrong place.
HES 8/11

NOR. PAC. RY. CO.
OFFICE OF
AUG 11 1911
BRIDGE ENGINEER
ST. PAUL, MINN.

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS,
AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. PITTSBURG, PA.

CURRY BUILDING

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO

Pittsburg, Pa. Aug. 9th, 1911.

Mr. A. T. Stevens,

Bridge Engineer N. P. Railroad,

St. Paul, Minnesota.

Dear Sir:

Our Mr. Smith at Des Moines wrote you relative to using the brass expansion joint 18" outside diameter instead of 18" inside diameter as shown on our bidding drawing for the tanks which we are building for your railroad, but as yet we have not heard from you.

We might explain that owing to a mistake in our drafting room, this expansion joint was detailed outside diameter instead of inside diameter and we have had them made and should be very glad if you would allow this slight change in the diameter. The inside diameter of the brass sleeve is 17-1/8". We are very sorry that this mistake occurred and it was not intentional. Our drafting room is simply following some of our other standards.

We trust that you will let us hear from you at an early date.

Yours very truly,

DES MOINES BRIDGE & IRON CO.

By W. H. Jackson

WHJ/LW.

Mr. Smith's letter & your reply attached. F.E.B. 8/11/11

St. Paul, Minn., August 8, 1911.

HEB.

Mr. W. C. Smith,

Chief Engineer Maintenance of Way.

Dear Sir:-

I hand you herewith copy of shipping statement received from the Des Moines Bridge & Iron Co., covering shipment of anchor bolts for 100,000 gallon tank at Auburn, Wash.

The bridge Company are asking what facilities if any exist for obtaining compressed air for rivetting at Zero, Ellensburg and Auburn. If they cannot get a pipe connection which would furnish air, they ask if they might get a connection which would furnish steam for running the compressor. Will you please ascertain and advise?

They expect to make shipment of the tank for Jamestown today.

Yours truly,

Bridge Engineer.

B

St. Paul, Minn., August 8, 1911.

HES.

Mr. L. Yager,

Division Engineer.

Dear Sir:-

I am handing you herewith copy of shipping statement from the Des Moines Bridge & Iron Co. covering shipment of anchor bolts and anchor plates for the 100,000 gallon tank to be erected at Jamestown.

The Bridge Co. advise that the tank itself will go forward about the 7th of this month. They are also inquiring what the facilities , if any exist at Jamestown for obtaining compressed air for rivetting.

Possibly if air is not obtainable , they might get a connection which would supply steam for running the compressor. Will you please look the matter up and advise?

Yours truly,

Bridge Engineer.

B

, August 7, 1911.

HEE.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Dear Sirs:-

I have not yet received from you Sheet #2 covering details of 100,000 gallon steel water tank which you promised in your letter of July 14th would be forwarded us within a few days.

Will you kindly hurry this sheet so that we may get same checked up and our shop details of the tanks complete as soon as possible?

Yours truly,

Bridge Engineer.

B

W.H.JACKSON. B.N.MOSS. E.W.CRELLIN.

DES MOINES BRIDGE & IRON COMPANY,

NOT INCORPORATED.
ENGINEERS AND CONTRACTORS
BRIDGES, STRUCTURAL STEEL WORK, WATER TOWERS,
AND WATER WORKS PLANTS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
WORKS { DES MOINES, IA. / PITTSBURG, PA.

OFFICE NINTH & TUTTLE STREETS.

ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS, OR OTHER OCCURRENCES BEYOND OUR CONTROL.

WHEN REPLYING PLEASE REFER TO GAS

Des Moines, Iowa, August 5, 1911.

Norther Pacific Railway Co.,

St . Paul, Minn.

Att. H.E.Stevens, Bridging Eng.

Gentlemen;---

Replying to youf favor of the 3rd inst. we beg to advise that we have arranged to ship the Jamestown tower first, and it will go forward about the 7th. We will have the second tower go to Zero as you request, and follow with the other two shipments as soon as possible.

We have changed the date of completion in the contract to Novermber 1st. and are forwarding the contract and bonds to our Pittsburg Office for the signatures of Mr. Jackson and Mr. Crellin, and have requested them to forward these papers direct to you.

Anchor rods and plates for Jamestown, and Auburn tanks were shipped on the 24th and 25th respectively, as per enclosed shipping statements.

Regarding the use of air in riviting these tanks, will say that we will investigate the matter further and advise you later. We would be pleased to have you advise us what the ~~possibilities~~ are for securing steam or compressed air at the different points. We thought possibly you might have pumping plants close by which in all probability could furnish us steam or air for riviting purposes.

Thanking you for the courtesy shown in connection with the contract, and awaiting your reply, we remain

Yours very truly,

MD

DES MOINES BRIDGE & IRON CO.
By Leo C. Smith

NOR. PAC. RY. CO.
BRIDGE ENGINEER
ST. PAUL, MINN.

MODJESKI & ANGIER
MONADNOCK BLOCK
CHICAGO, ILL.

RALPH MODJESKI, M. AM. SOC. C. E.
W. E. ANGIER, M. AM. SOC. C. E.
J. C. REEVES, MANAGER

La 7

Aug. 4th, 1911.

Mr. H. E. Stephens,
Bridge Engineer,
No. Pac Ry. Co.,
St. Paul, Minn.

Dear Sir:-

We have your favor of the 3rd, advising that Des Moines Bridge & Iron Co. have been awarded the contract of two additional 100,000 gallon steel water tanks, making a total of four in all.

Please accept our thanks for this commission.

Yours truly,

MODJESKI & ANGIER

Mgr J C Reeves

JCR*ER

NOR. PAC. RY. CO.
OFFICE OF
AUG
5
1911
BRIDGE ENGINEER
ST PAUL, MINN.

147

, August 3, 1911.

WES.

Mr. L. P. Tolman,

Sales Agent, The Otto Gas Engine Works,

Rooms 722-3-4 Central Building,

Seattle, Wash.

Dear Sir:-

Your favor of the 31st regarding 100,000 gallon tank at Auburn.

This tank was included in contract which was let some time ago. If you are prepared to make figures on tanks of this capacity with elliptical or hemispherical bottoms and large diameter riser pipe or water leg, I shall be pleased to put you on our list of bidders for future work of this nature.

Yours truly,

Bridge Engineer.

B

, August 3, 1911.

HES

La 7

Messrs Modjeski & Angier,

Monadnock Block,

Chicago, Ill.

Gentlemen:-.

The Des Moines Bridge & Iron Co. have been awarded the contract for two additional 100,000 gallon steel water tanks, making a total of four tanks in all.

Will you kindly look after the inspection of all the tanks?

Yours truly,

Bridge Engineer.

B

August 3, 1911.

HES.

Des Moines Bridge & Iron Co.,

Des Moines, Iowa.

Gentlemen:-

I have your favor of the 1st and note that you will make shipment of tanks for Zero and Ellensburg by the 7th or 8th of this month.

As per my letter to you of July 17th, the first tank shipped should be sent to Jamestown, N.D. The second should go to Zero and the other two should go to Ellensburg and Auburn, as the delay in the shipment of these latter tanks will not inconvenience us as much as delay in the shipment of the two first named.

With the understanding that you will make shipment in this way you may change the contract covering the last two tanks ordered, making date of completion November 1st., instead of October 1st as called for.

Will you kindly advise if anchor bolts and anchorage material for the Jamestown tank have been shipped? In my letter of July 17th, Iespecially requested you to hurry this part of the material.

With regard to the rivetting we should very much prefer to have you use air for all four of the tanks as called for by our specifications. Possibly when the time comes for the erection, you will be able to so arrange. If not will you kindly take the matter up with me again?

Yours truly,

Bridge Engineer.

B

DES MOINES BRIDGE & IRON COMPANY.

MANUFACTURERS AND CONTRACTORS.

BRIDGES, STRUCTURAL STEEL, WATER TOWERS,
MILL BUILDINGS, TANK AND PLATE WORK.

OFFICE NINTH & TUTTLE STREETS.

GENERAL OFFICES, DES MOINES, IA.
CONTRACTING OFFICES, PITTSBURG, PA.
DENVER, SALT LAKE CITY, OMAHA,
LOS ANGELES, SEATTLE, SAN FRANCISCO.

WORKS { DES MOINES, IA.
NEVILLE ISLAND, PITTSBURG, PA.

WHEN REPLYING PLEASE REFER TO GAS

Des Moines, Iowa, August 1, 1911.

H. E. Stevens, Bridge Eng'r N. P. R. R.,
St. Paul, Minnesota.

Dear Sir:-

Your letter of the 29th ult. with contracts covering proposed water tanks at Jamestown and Auburn, received.

In looking over the contract, we note that the date specified for completion is Oct. 1st. In view of the fact that the materials for these towers must be ordered from the mills, we consider that Oct. 1st is rather short for completion. We expect shipment of the Zero and Ellinsburg towers by the 7th or 8th of this month and our plan is to put two erection crews on the work, one in the West and one in the East, so as to complete all the jobs as promptly as possible. We would ask that you kindly permit us to change the date of completion of Auburn and Jamestown to November 1st. We understand that you wish to have the Jamestown tower erected as soon as possible and we would expect to erect it immediately following the Zero tank. Kindly let us hear from you promptly so that we may send contracts and bond to our Pittsburg office to be signed by Mr. Jackson and Mr. Crellin.

In looking over the specifications for your water towers, we note that you specify that field riveting is to be done by air hammers where possible. Our usual practice is to rivet our water towers by hand and on account of our erection crews having had extensive experience in hand riveting, we feel that we can get as good or better jobs than by air riveting. We can probably arrange to use air riveting on the Zero and Jamestown tanks, but we would much prefer to use hand riveting on the Ellinsburg and Auburn jobs. We already have our erection tools in the Northwest territory and have a man for the work, who, we can absolutely guarantee, will give you first-class riveting, and we would ask that you kindly permit us to erect these two jobs using hand riveting.

Yours very truly,

CH

DES MOINES BRIDGE & IRON CO.

BY Geo C Smith

F. Salomon
President

E. Krell
Vice President & Treasurer

E. A. Fischer
Secretary

The Otto Gas Engine Works

Engineers and Builders of

GAS AND GASOLINE ENGINES AND GAS PRODUCERS.

HOME OFFICE
PHILADELPHIA, PA.

L.P.TOLMAN
SALES AGENT

ROOMS 722-3-4 CENTRAL BUILDING

SEATTLE WASHINGTON

PHONE MAIN 2989

July 31, 1911

H. E. Stevens, Esq.,
Bridge Engr. N.P.Ry.,
St.Paul,Minn.

Dear Sir:-

I understand that you will require a steel tank on steel sub-structure at Auburn,Wash.,the tank to hold 100,000 gal. I wish you would kindly let me have detail specifications and I shall then be glad to figure on same.

Yours very truly,

L. P. Tolman

the Contractor; he shall be entitled to receive only that proportion of the contract price which the amount or work done and material furnished bears to the total amount covered by the contract.

Insurance.

Damage by fire to buildings or structures during construction will be made good by the Contractor, who will keep all structures fully insured until completion and acceptance by the Company. The cost of insurance will be divided equally between the parties, the policies written in the name of both, loss payable as their interest may appear, and deposited with the Chief Engineer.

Final estimate.

Time of payment of final estimate and retained percentage.

When in the opinion of the Chief Engineer this contract shall have been performed, he shall so certify in writing and give a final estimate and a statement of the balance unpaid; and the Company will within thirty days thereafter pay the full balance. The Contractor will at final payment execute, acknowledge and deliver to the Company under his hand and seal a valid discharge from all claims and demands growing out of or connected with this contract.

Release.

Execution.

IN WITNESS WHEREOF, the Company has caused these presents to be signed by its duly authorized officer and the Contractor has hereunto set his hand and seal.

Witness as to the Company

NORTHERN PACIFIC RAILWAY COMPANY.

_____

_____

By_____

Witness as to the Contractor

_____ _____ (SEAL)

_____ _____ (SEAL)

Price for extra work.

FOR EXTRA WORK, or work done under written orders of the Engineer for which prices are not named herein, the Contractor shall be paid his actual outlay in such work and ten per cent additional.

Estimates.

Approximate estimates of the work done are to be made by the Engineer or his assistants at or about the end of each calendar month; and payment of the amount of each monthly estimate will be made by the Company on or about the twentieth day of the following month, less however all previous payments and less ten per cent of such estimate. Ten per cent upon all monthly estimates shall be retained until and as security for complete performance of this contract.

Payments.

Retained percentage.

Stopping work.

The Company at any time before completion may stop the work or any part thereof, or may reduce the force employed or retard the work or any part thereof. On receiving such direction the contractor shall stop work or diminish the force as directed, and shall have no claim whatsoever for damages by reason thereof, but shall receive payment for the work done in full discharge and satisfaction of all demands against the Company. Any notice given by the Company under this paragraph shall be in writing signed by the Chief Engineer, and shall be delivered to the contractor or some person on the work representing him at least Ten (10) days prior to the required stoppage or reduction.

Accelerating work.

If at any time the Contractor shall not in the opinion of the Chief Engineer be progressing with the work as fast as necessary, or with sufficient force to insure its completion within the contract time, the Chief Engineer may direct the Contractor to put on such additional force and means as in his judgment are necessary, and on the failure of the Contractor to comply with such directions, the said Engineer may declare this contract terminated; and in such case the amount of moneys then remaining unpaid including the percentage retained on all monthly estimates, shall be kept by the Company until the work is completed, and the Company may employ such force and means as in its judgment shall be necessary to complete the work and the cost thereof shall be paid by the Contractor.

Retained percentage forfeited.

Power to cancel contract.

If the Contractor shall at any time fail to perform any agreement herein contained the Company may cancel this contract; in which event the Contractor shall have no claim for damages, or for compensation for work done or material furnished, or for any portion of the percentage retained on monthly estimates; and the Company shall have the right to take possession of and hold the work done and material furnished and to retain all moneys which may then be unpaid.

Contractor to pay all laborers

The Contractor will promptly pay all laborers and others in his employ as their pay falls due, and promptly pay as they fall due all bills for material and supplies going into the work, and in the event of his failure at any time to do so the Company may retain from subsequent estimates such amounts of money as the Chief Engineer may deem requisite to pay the laborers and all others employed on the work and the said supply and material bills. Before final settlement is made the Contractor shall furnish to the Company satisfactory evidence that the work is free and clear from all liens for labor or materials and that no claim exists out of which a lien may grow.

Contractor to pay damages to crops, etc.

The Contractor assumes and agrees to pay for all injury or damage to crops, fences, farm improvements, or any other property caused by the prosecution of the work, and all damages by fire started from the right of way, except damage to real estate made necessary by the work. When the final estimate is made, if there shall be any unsatisfied claim for such damage, the Company may deduct from the moneys owing the Contractor a sum equal to the amount so claimed together with the estimated cost of adjusting the claim. Such moneys shall be retained until all damages are satisfied when the remainder shall be paid over to the Contractor.

Retention of claims from final estimate.

Temporary suspension.

If the work be delayed materially from any act or neglect of any agent or employe of the Company the time for completion shall be extended for a period equal to such delay and the Contractor shall have no further or other claim upon account of such delay. He must make claim to the Chief Engineer in writing for extension at the time of the delay, stating the occasion and nature thereof, and failing to do so his right to extension shall be waived.

Extension of time.

Total suspension.

In case of a total suspension of all work for over ninety days without any fault or procurement of the Contractor, unless such suspension shall have been caused by the winter season or protracted rigor of weather, the Chief Engineer shall make a final estimate and the amount so estimated shall be paid to

No liquors.

The Contractor will not bring or permit to be brought anywhere on or near the work spirituous or other intoxicating liquors; and if any foreman, laborer or other employe of the contractor or of any

Disorderly workmen.

sub-contractor, shall in the opinion of the Engineer be intemperate, disorderly, incompetent, wilfully negligent or dishonest in performance of his duties, he shall on request of the Engineer forthwith be discharged; the Contractor will not employ nor permit to remain about the work any person who from said work or from any other part of the Company's railroad may have been discharged for any of the causes mentioned in this paragraph.

Extra work and bills therefor.

No extra work or material is to be allowed or paid for, excepting that done or furnished in performance of a previous order in writing of the Engineer, and all claims for extra work or material must be presented to the Engineer for allowance at the close of the month in which the work shall have been done or material furnished, otherwise all claim therefor shall be deemed waived.

Work when and where directed.

The Contractor will carry on the work in such a manner and at such times and at such points as the Engineer from time to time shall direct.

Arbitration.

To prevent disputes and misunderstandings between the parties and to provide for the speedy settlement of such as may occur in relation to the provisions of this agreement, or the true intent and meaning hereof, or the manner of performance by either party, the Chief Engineer of the Company is made the umpire to decide all such differences; he shall also decide the amount and quantity, character and kind of work done and materials furnished by the Contractor, including all extra work and material; and his decision shall be final and conclusive on the parties.

Prices for work.

The prices to be paid by the Company for the work are as follows:

For the said two, One Hundred Thousand (100,000) gallon steel water tanks on Thirty Foot (30') towers complete, the sum of Seven Thousand Three Hundred and Forty($7,340.00) Dollars.

The Company will furnish free transportation over its own lines, subject to the review and instructions of its Chief Engineer as to the necessity for and proper use of same, for all men, tools, outfit, equipment and material to the site of the work and for return to original point of shipment, or to any other point on the lines of the Railway Company to which the tariff ratedoes not exceed that to point of origin, including excess material unused in the work. If such return shipments are made to point to which the tariff is higher than to point of origin, the contractor shall pay such excess of rate only. The Company will charge full tariff rates for transportation of boarding and commissary supplies. Nothing herein contained shall be construed to relieve the contractor from payment of demurrage charges under Car Service Association rules.

The Contractor hereby further covenants and agrees to save and keep harmless said Northern Pacific Railway Company from the payment of any royalties, damages, costs or expenses claimed and established against it on behalf of any person or persons or corporations whomsoever, for or growing out of any infringement upon any Letter Patent of the United States in respect to any part of said tanks herein referred to, or any fixtures, appliances, devices, or improvements thereon, so that the said Northern Pacific Railway Company shall and will be fully protected against all claims, suits and actions of any person or persons whomsoever.

Form 109A General Contract 4-28-11 1200 RP

Date. Agreement made the Thirteenth day of July, A. D. 1911

between the NORTHERN PACIFIC RAILWAY COMPANY hereinafter called the "Company" and

Parties. W. H. Jackson and E. W. Crellin, co-partners, comprising the firm known as the Des Moines Bridge & Iron Co. of Des Moines, Iowa.

hereinafter called the "Contractor."

The Contractor agrees to furnish all labor, services and material for, and construct, complete and finish in the most thorough workmanlike and substantial manner in every respect to the satisfaction of the Chief Engineer of the Company, within the time hereinafter specified, and according to the specifications hereto annexed and made part of this contract

Work. Two one hundred thousand gallon capacity steel water tanks on steel towers thirty feet (30') in height; one to be located at Jamestown, North Dakota and one to be located at Auburn, Washington.

Tanks to be erected complete on foundations furnished by the Company.

Plans to conform to the Company's general plans for steel water tanks, except as shown on attached sketches.

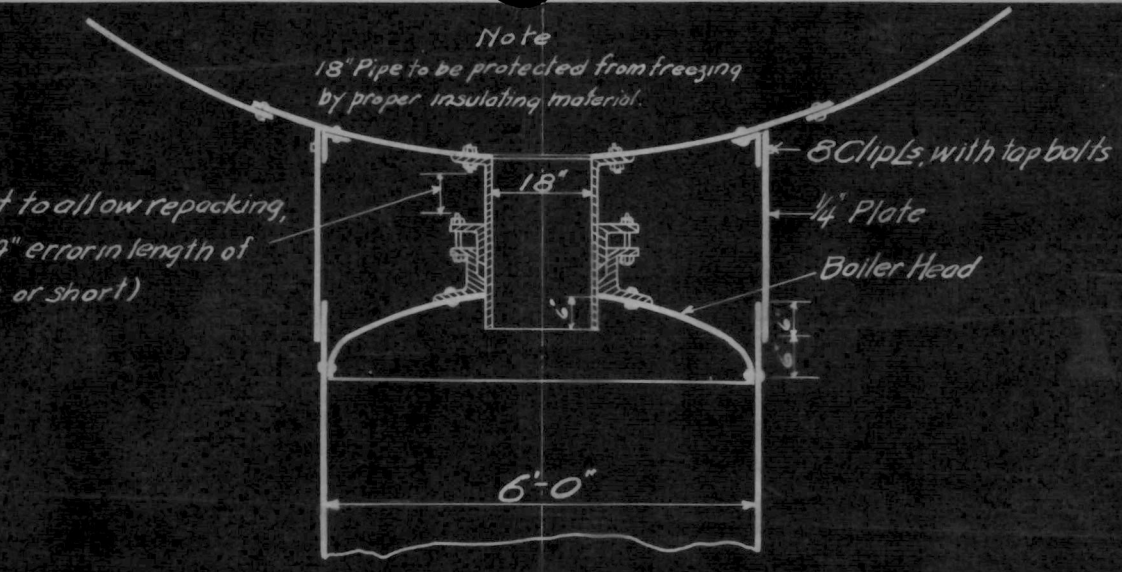
Definition of terms. Where the word "Engineer" occurs in this contract or specifications attached hereto it refers to the Engineer of the Company in charge for the time being of the work of construction; and "Chief Engineer" means the Chief Engineer of the Company from time to time.

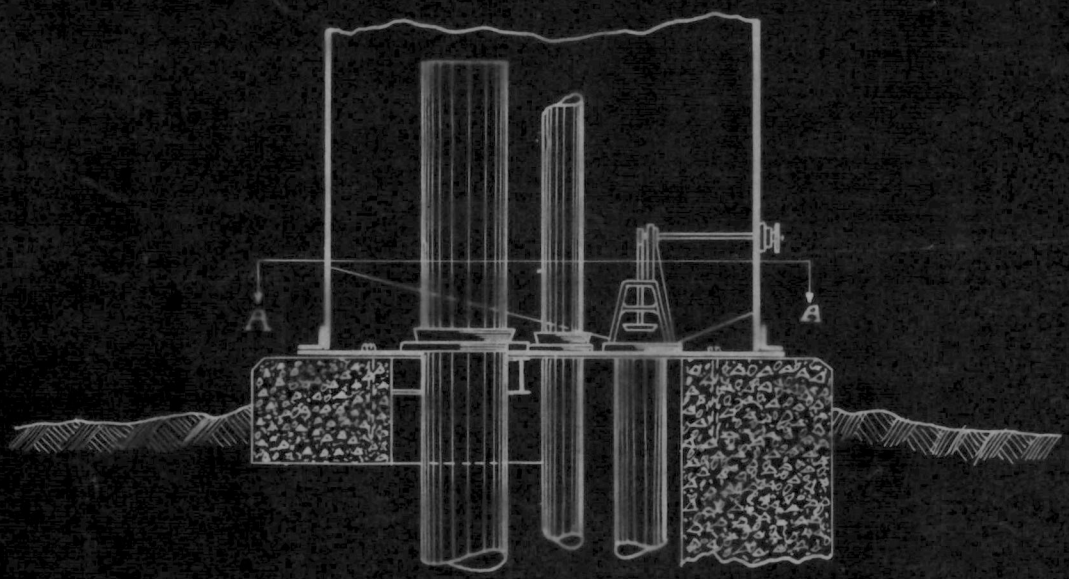
Date of completion. The work is to be commenced immediately and completed on or before the First day of October, Nineteen Hundred Eleven.

Sub-contracts. The work shall be performed under the personal supervision of the Contractor and neither this contract or any interest therein shall be assigned, nor said work or any part thereof sub-contracted without the written consent of the Chief Engineer to every such assignment or sub-contract.

Complying with instructions. The Contractor will in all things conform to the instructions of the Engineer and his duly appointed assistants.

Remedy faulty work. All imperfect or insufficient work or material shall be remedied immediately when pointed out, and shall be made good and sufficient to the satisfaction of the Engineer, and omission by the Engineer to disapprove of or reject insufficient or imperfect work or material at the time of any monthly or other estimate shall not be deemed an acceptance of such work or material; and the Engineer shall have the power at all times to have defective work or material taken out and rebuilt or replaced at the expense of the Contractor.





Section of Foundation & Pipes

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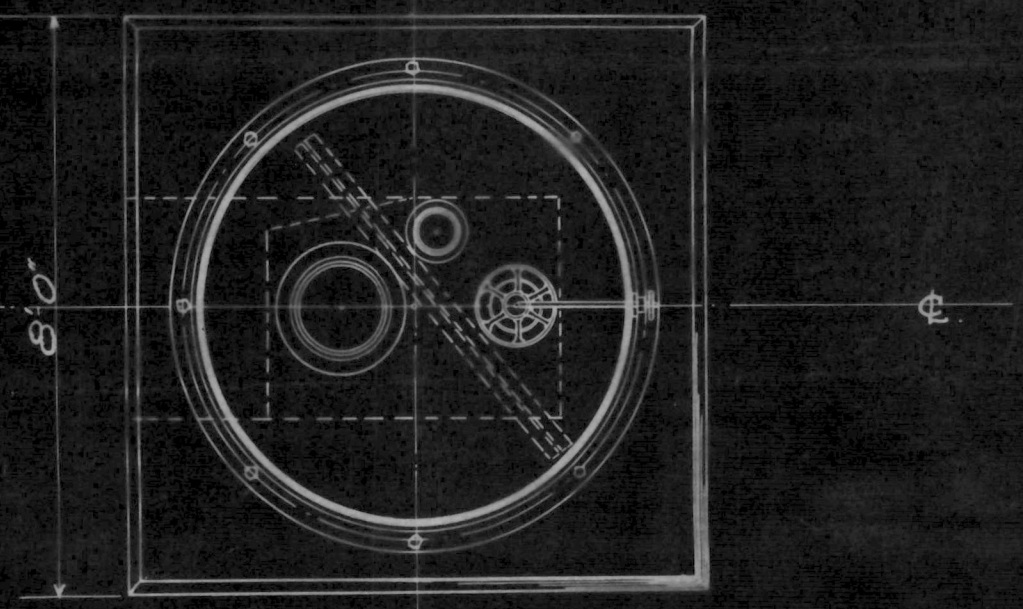
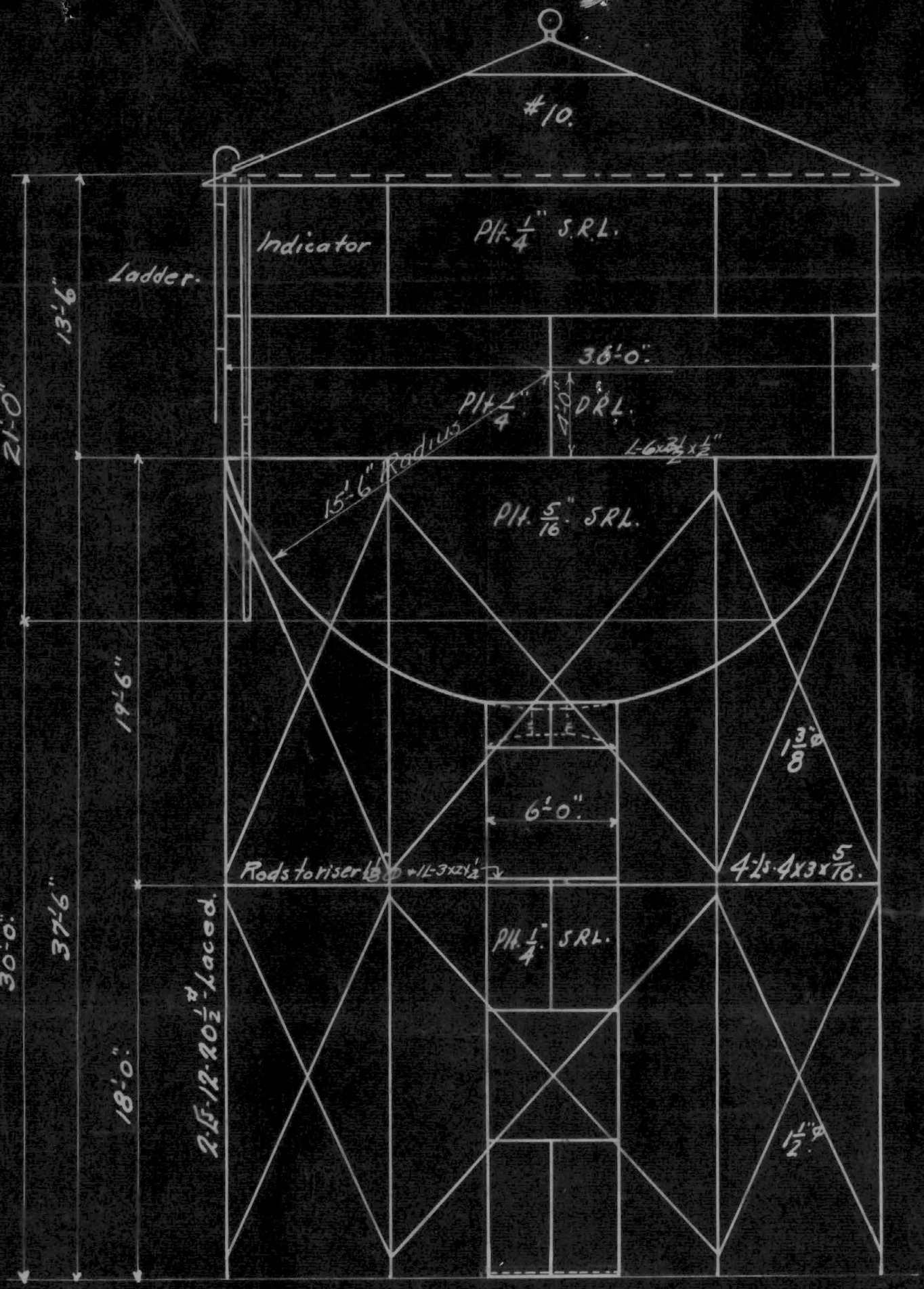
Foundation Plan Section AA



DETAILS of Riser & Pipe Connections for Rail Road Water Tanks

Des Moines Bridge & Iron Co.
Engineers Contractors
Des Moines, Ia. Pittsburg, Pa.

3-30-11 CHK



100000 Gallon Tank on 37'-6" Tower

for

Northern Pacific Railway Company.

Des Moines Bridge and Iron Co

Engineers. Contractors.

Des Moines Iowa Pittsburg Pa.

Equivalent Sections may be used.

3-27-11

N O R T H E R N P A C I F I C R A I L W A Y C O M P A N Y.

ENGINEERING DEPARTMENT.

Specifications for the fabrication and erection of

STEEL WATER TANKS.

---oOo---

PLANS:

1. General plans showing all details will be furnished by the Railway Company, but the Contractor shall make such detailed shop plans as are neccessary for the proper performance of the work in the shop and submit them to the Chief Engineer for approval before begining shop work. Such plans shall be in strict accordance with the plans furnished by the Railway Company.

2. All plans prepared by the Contractor shall measure 24 inches between upper and lower border lines. They shall preferably measure 35 inches between the side border lines, this dimension being considered as a minimum. A margin one inch wide shall be provided outside of the border line on all sides of each sheet, except the left hand side where a margin of three inches shall be provided for binding. A title shall be placed in the lower right hand corner of each sheet similar to the one on the general standard plans. The execution on these plans shall be neat, distinct and workmanlike. The tracings will become the property of the Railway Company after the contract is completed.

3. The Contractor is solely responsible for the correctness of shop plans furnished by himself or the Railway Company in regard to errors in fittings and length.

4. All plans sent to the Chief Engineer for approval may be retained by him for a period of ten (10) days, counting from the date of receipt of the last plan of each set. If retained longer than ten (10) days the Contractor will be allowed a corresponding extension of time.

5. Three complete sets of the approved shop plans must be furnished to the Railway Company free of charge. After Approval of the shop plans by the Chief Engineer, no changes whatever will be made on them without the written consent of the same. The decision of the Chief Engineer shall control in the interpretation of the plans and specifications during the execution of the work thereunder.

6. If original designs or changes suggested by the Contractor involve the use of devices, mechanisms or methods of manufacture which are patented, it is understood that the Contractor assumes all liability for the use of such patents and will pay all claims against the Railway Company on this account.

MATERIAL

7. The various parts of the structure shall be of such material as designated on the plans. When not so designated they shall be of medium steel.

WROUGHT IRON.

8. All wrought iron must be double refined, tough, ductile, fibrous and of uniform quality and must be thoroughly welded in rolling.

9. The finished product shall be perfect in all parts and free from irregularities and surface imperfections of any kind.

10. Variation in cross-section of rolled material of more than 2½ per cent from that shown on plan may be cause for rejection.

11. For determination of tensile strength, limit of elasticity and ductility, test pieces not less than ¾ inch thick with a minimum area of cross-section of ½ square inch, shall be cut from full-sized bar and planed or turned true for a length of at least nine (9) inches for measurement of elongation.

The tests shall show results not less than given in the following tables:

Ultimate strength per square inch in lbs.	48,000 lbs.
Elastic limit,	26,000 lbs.
Elongation in eight (8) inches,	19 per cent.

12. All bars, plates and shapes which are to be bent hot in the manufacture, must, in addition to the above requirement, be capable, in a working heat, of bending sharply to a right angle without sign of fracture.

13. When specimens are nicked on one side and bent by a blow from a sledge, the fracture must be nearly all fibrous.

Wrought Steel.

14. All steel must be made by the Open Hearth Process, except where otherwise specified on plans, and no steel shall be made at work which have not been in successful operation for at least one year; but this provision will not be held to exclude new furnaces erected in connection with old works.

15. All steel shall be of uniform quality for each class; it shall be straight without buckles or kinks and free from injurious seams, flaws, cracks, laminations and other defects.

16. Acid Open Hearth steel shall not contain in the finished product more than .08 of 1% of phosphorus, and the amount of sulphur shall not exceed .05 of 1%.

17. Basic Open Hearth steel shall not contain in the finished product more than .04 of 1% of phosphorus, and the amount of sulphur shall not exceed .05 of 1%.

18. The variation in cross-section or weight of rolled material of more than 2½ per cent from that specified may be cause for rejection. This does not apply to wide sheared plates for which an allowance will be made in accordance with the specifications of the Association of American Steel Manufacturers for Structural Steel, revised February 6th., 1903.

19. The various grades shall be known as soft steel, medium steel and pin steel. Their physical properties shall be in accordance with the following table:

	Soft Steel.	Medium Steel.
Ult. strength, pounds per square inch,	52,000 to 60,000	62,000 to 70,000
Elastic limit, pounds per square inch,	Not less than 30,000	Not less than 37,000
Percentage elongation in eight (8) inches,	26	22
Cold bending without rupture,	180° flat on itself	180° to a diameter equal to thickness of piece tested.

Cast Iron.

20. Except where chilled iron is specified, all castings shall be of tough gray iron free from cracks, cinder pockets, blow holes and other injurious defects. All castings will be true to pattern and of workmanlike finish.

21. Test bars one (1) inch square, loaded in the middle between supports twelve (12) inches apart shall be capable of supporting a load of at least 2,500 lbs., and shall deflect at least 0.15 of an inch before rupture.

SHOP WORK:

22. All workmanship shall be first class in every particular.

23. All material must be carefully straightened before being laid out.

24. All laying out and punching shall be done so accurately that when pieces are assembled the holes will be truly opposite.

25. Drift pins shall only be used in bringing together the several parts forming a built member and must not be drfven with such force as to destroy the metal about the hole.

26. For "punched work" the internal diameter of die used in punching shall not exceed the nominal diameter of the rivet by more than 1/16 of an inch.

27. In "reamed work " the internal diameter of the die used in punching shall be at least 3/16 inch less than the finished hole.

28. No punching will be allowed in material thicker than 15/16 of an inch.

29. All parts of the work shall be reamed unless specified on the drawing to the contrary; single hole lattice bars excepted.

30. In "reamed work" the rivet holes shall be reamed to a diameter 1/16 of an inch larger than the nominal diameter of the rivet.

31. The various parts shall be as accurately assembled as for riveting and the holes enlarged with a twist drill leaving the finished hole perfectly smooth. At least 1/16 of an inch of metal shall be taken out in reaming.

32. During reaming the surfaces of the different pieces shall be held firmly together by sufficient number of bolts, not less than one bolt in every third hole.

33. All burrs and inequalities shall be removed before assembling the pieces of any riveted member, so that the surfaces may come in close contact.

34. All sharp or protuding edges of all rivet holes shall be removed and each reamed hole shall be filleted under each rivet head; the fillet to be approximately 1/16 of an inch measured on the surface of the metal cut by the filleting tool.

35. Guaging, caulking or re-cupping will not be tolerated on any part of the work.

36. Built members when finished must be true and free from twists, kinks, buckles and open joints between component pieces.

37. Rivets must be driven by direct acting power riveter whenever possible; they shall completely fill the holes, have full heads concentric with the holes and in close contact with the surface, heads of rivets of same diameter must be uniform. Counter sinking must be neatly done; counter sunk rivets must completely fill the holes.

38. All chipping shall be done in a neat and workmanlike manner without breaking out of metal.

39. When members are connected by bolts which are subject to shearing stresses, the holes must be reamed to a uniform diameter and the bolts turned to a driving fit.

40. Eyes of laterals, sway rods and counters must be bored.

41. All bends in steel must be made cold wherever possible. Whether such bends are made cold or by heating, the entire piece must be subsequently annealed. Curving of tank plates is excepted.

42 Where metal is chipped or planed out of a plate or shape, all concave corners shall be rounded off to a radius of at least two (2) inches unless distinctly shown otherwise on the plans.

43. Ends of posts and diaphragms taking direct bearing must be faced.

INSPECTION AND TEST

44 It is expressly understood that the inspection will not relieve the Contractor of the responsibility for imperfect work or material of any nature.

45. All facilities for inspection of material and workmanship shall be furnished by the Contractor. He shall furnish without charge the use of a testing machine of sufficient capacity and the services of an operator at all mills and foundries where material under these specifications is being manufactured; but if that is impossible he shall arrange for testing at some other place satisfactory to the Railway Company's inspector.

46. The inspection and testing of material shall be made promptly on its being rolled and the quality determined before it leaves the rolling mill. The inspection of the shop work shall be made as it progresses, and at as early a period as the nature of the work permits.

47. Timely notice shall be given to the Inspector when work is to be commenced on any part, enabling him to be present for inspection. The Inspector shall have access to all establishments where work for the Railway Company is in progress.

48. The contractor shall furnish free of charge two test pieces, one for tensile test and one for bending test representing every melt.

49 The contractor must furnish the Inspector with opportunities to verify the weights of the finished material.

50. The acceptance of any material or finished members by the Inspector shall not prevent subsequent rejection of the same if found defective after delivery, and the contractor shall replace the rejected material or member without extra compensation.

51. The Inspector shall see that every precaution is taken to avoid rust, and material rusted by undue exposure shall not be accepted.

52 No material or finished work shall be shipped without inspection.

53. All parts shall be carefully loaded so as to avoid injury in transportation and shall be at contractor's risk while enroute, excepting damages for which the Railway Company transporting the material may be responsible. Large and heavy pieces must be loaded in a manner satisfactory to the Inspector and at the contractor's expense.

54. The contractor shall route the material as directed and shall make our requisition on the connecting line for Northern Pacific flat cars on which to load the material.

PAINTING

55. All iron and steel work before leaving the shop shall be thoroughly cleaned from all loose scale, shavings, rust, filings, shriveled oil or paint, grease, dirt or any foreign matterby proper and effective means. All painting is to be done in dry weather or under cover.

56. All surfaces in contact shall before assembling receive one heavy coat consisting of red lead mixed with pure boiled linseed oil in proportions satisfactory to the Chief Engineer.

All surfaces not accessible after erection shall receive two heavy coats of Nobrac paint before leaving shop.

57. All finished surfaces shall receive a heavy coat of white lead and tallow before leaving the shop.

58 All other surfaces shall receive one heavy coat of Nobrac paint before leaving shop and a second coat of same after erection is completed in the field.

ERECTION

59 Masonry

The Railway Company will complete all masonry.

60 Delivery

The Railway Company will deliver all material, entering into the permanent structure, on cars at the tank site, and the Contractor shall unload same within 48 hours of its receipt or pay regular demurrage charges.

Any of above material received prior to time specified for contractor to have his outfit on the ground will be unloaded by the Railway Company, as near the tank site as possible and without expense to the contractor. Material unloaded by the Railway Company, also small lots handled by local freight at stations, will be taken from where unloaded and transported to structure by the Contractor.

61 RIVETING

Before riveting is begun and before proceeding with erection, all members shall be connected and drawn tightly together by bolts to the number of at least one-half the open holes. No drifting of holes which would cause initial strain in the members being assembled will be permitted. In case holes do not match, they shall be made fair by reaming or drilling. The reaming or drilling shall be done in a workman-like manner, the tool being held at right angles to the piece being reamed. Enlarging holes by gouging or drifting with backing out punch is positively prohibited.

Rivets shall be heated to a bright heat and slightly hotter in the head than shank. They shall not be permitted

to cool below an orange color before driving. Heads shall be concentric with shank, well up against the metal, and of same size and shape as shop rivets. Rivets shall fill the holes and be absolutely tight. No calking, recupping or burning of rivets will be allowed. Dollies shall be cupped. Wherever possible rivets shall be driven by pneumatic hammer and air pressure must be kept high enough to make good tight rivets at all points. If there are points in connection where it is practically impossible to drive a good rivet, tight fitting bolts may be substituted at the direction of the engineer.

63. CLEANING UP

At the completion of the work the Contractor shall remove his outfit and all staging, tools and rubbish, leaving the tank sites in as good condition as he found them.

Office of Bridge Engineer

St.Paul, Minn., Aug. 31, 1908.

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