Northern Pacific Railway Company. Engineering Department Records.

Copyright Notice:

Version 3
August 20, 2018

N. P. 1757
6-24

OFFICE OF Chief Engr.

FILE NO. 10774-2

SUBJECT:

Moses Lake, Wash.

Army Airport

Moses Lake Branch

10774-2

From 1-1-50

To Dec 30, 1953

N.P. RY. ST. PAUL
TELEGRAPH OFFICE

[illegible] NOV 30 PM 8 29

NP188SF N SPOKANE 30 330P

H R PETERSON STP

P 273 SUBMITTED EKBERSGS PLANS FOR SIPHONS TO RECLAMATITN

OFFICE AT EPHRATA FOR APPROVAL ON NOV 16 DOWNS ADVISED ON FONE

THIS DATE HE WOULD WRITE AT ONCE

REQN WILL BE FORDD DEC 1

A 302

J A YOUNG.


DEC
1953
DEC

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

St Paul, Nov. 30,1953 J T Derrig - Seattle

D-642 Satisfactory to submit requisition to Myers as you suggest. Assume you will refer to our specifications to assure quality and shell thickness to meet our requirements. P-304

H R Peterson

N.P. RY. ST. PAUL
TELEGRAPH OFFICE

NP57CF EB SEATTLE 30 1157A

1953 NOV 30 PM 2 13

H R PETERSON STP

P-301 YOUNG PREPARING REQUSITION TODAY FOR PIPE AND SIPHON SPUR TRACK SECTION 13 WHEELER IN ACCORDANCE WITH BRIDGE ENGINEER'S PLAN FORWARDED EKBERG'S PLANS TO YOUNG NOVEMBER 12TH TO HANDLE PERSONALLY OR BY MESSENGER WITH CONSTRUCTION ENGINEER RECLAMATION DEPARTMENT DOWNS HAS INFORMALLY PROMISED APPROVAL OF PLANS TODAY OR TOMORROW DO NOT ANTICIPATE ANY CHANGE IN EKBERG'S PLANS AS SUBMITTED WHICH WERE PREPARED IN ACCORDANCE WITH GOVERNMENT'S SPECIFICATIONS ADVISE IF IT WILL BE SATISFACTORY TO SUBMIT REQUISITON TO MYERS FOR OBTAINING COMPETETIVE BIDS FOR PIPE LOCALLY

D-642

J T DERRIG.

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 10774 M.

St Paul, November 30,1953 J T Derrig - Seattle

Urairlet 26th with summary of bids for grading industrial track to Sec. 13 near Moses Lake. You may award contract to low bidder. What is status of requisition for culvert siphons, etc. P-301

H R Peterson

St. Paul, Minn., November 29, 1953.

Mr. H. R. Peterson:

Yours of November 27 about the bids which have been received for grading in connection with the proposed industrial track from Wheeler to Section 13 near Moses Lake on the Washington Central Branch.

You may award the contract to Carbon Bros. of Spokane, who were the low bidders.

St. Paul, November 27, 1953

MR. W. W. JUDSON:

Referring to your letter of October 29 requesting that bids be received for grading in connection with proposed industrial spur track from WHEELER to Sec. 13 near Moses Lake, on the Washington Central Branch:

Mr. Derrig sent out proposal forms on November 12 to sixteen interested contractors. Seven bids were returned to him on Wednesday, the 25th, as follows:

H. A. Degerstrom, of Spokane	$57,720
Morrison-Knudsen Co. Seattle	57,188
Clifton and Applegate, Spokane	55,244
Sather & Sons, "	49,214
Bair-Crick Co. "	44,257
J. A. Tertaling & Sons, Auburn	39,336
Carlon Bros. of Spokane (low)	35,361
Northern Pacific estimate	65,630

I recommend award of the contract to the low bidder, Carlon Bros. of Spokane.

p/s

Saint Paul, November 27, 1953

MR. J. T. DERRIG:

In accordance with your request of November 26, attached are three prints of your bid set-up for grading in connection with the construction of spur track from WHEELER to Section 13 near Moses Lake, on the Washington Central Branch.

Have you submitted requisition for culvert pipe and any other materials to be furnished by the Railway Company?

What is status of Bridge Engineer's plans for proposed siphons in Government waterways which I presume you have previously submitted to the Bureau of Reclamation?

p/s

att. (3)

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

St Paul, Nov. 27, 1953

J A Young - Spokane

Have you submitted reqn. to cover all pipe and other materials to be furnished by Railway in connection with grading for industrial spur to Section 13 Moses Lake. P-273

H R Peterson

Air mail

Seattle, Washington
November 26, 1953

Mr. H. R. Peterson:

I am attaching tracing of bid set-up covering grading work for spur track leading to Section 13 near Wheeler.

Sixteen proposals were forwarded to contractors and seven bids were received. You will note that Carbon Bros. are the low bidders with their quotation of $35,561.26.

The quantities shown on attached sheet were furnished by Mr. Young who was present at the opening of the bids today.

It is my recommendation that the contract be awarded to Carbon Bros. Kindly advise if you approve.

The printing machine has closed down for the day, and I am forwarding you the tracing.

I will thank you to please let me have two prints of the attached bid set-up for my files.

J T Thering
Assistant Chief Engineer

JTD:id
Encl.

SUMMARY OF BIDS

WHEELER, WASH.(NR.)- Construction of railroad grade for track to Section 13.

717-1

ESTIMATE

Item.		Unit	Quantity	Amount	Carbon Bros. Spokane Bid	Carbon Bros. Spokane Amount	N.A. Degerstrom Co. Spokane Bid	N.A. Degerstrom Co. Spokane Amount	J.A. Terteling & Sons Inc Auburn Bid	J.A. Terteling & Sons Inc Auburn Amount	Sather & Sons Spokane Bid	Sather & Sons Spokane Amount	Clifton & Applegate Spokane Bid	Clifton & Applegate Spokane Amount	Bair-Crick Co. Spokane Bid	Bair-Crick Co. Spokane Amount	Morrison-Knudsen Co. Inc Seattle Bid	Morrison-Knudsen Co. Inc Seattle Amount
1.	Roadway excavation, including haul and placing	Cu.Yd.	21,000		03a	6300.00	04a	8400.00	04a	8400.00	04¼	9240.00	03¾	8190.00	03.5	7350.00	04.5	9450.00
2.	Borrow excavation, including haul and placing	Cu.Yd.	28,000		03a	8400.00	08a	22400.00	04a	11200.00	04¼	12320.00	07¾	20440.00	04.5	12600.00	09¼	26320.00
3.	Gravel topping, incl. furnishing, haul & spreading	Cu.Yd.	8,000		1.00	8000.00	1.00	8000.00	0.65	5200.00	1.25	10000.00	0.97	7760.00	1.00	8000.00	1.00	8000.00
4.	For placing of culvert and siphon pipes:																	
4a.	For 48" reinforced concrete pipe	Lin.Ft.	160		5.00	800.00	15.00	2400.00	6.00	960.00	10.00	1600.00	26.45	4232.00	8.00	1280.00	9.00	1440.00
4b.	For 36" " " "	Lin.Ft.	---		4.00	—	7.20	—	5.00	—	8.00	—	8.00	—	7.00	—	4.00	—
4c.	For 24" " " "	Lin.Ft.	---		3.00	—	7.00	—	4.00	—	6.00	—	17.25	—	6.00	—	4.00	—
4d.	For 12" " " "	Lin.Ft.	244		2.00	488.00	2.50	610.00	1.50	366.00	2.00	488.00	3.35	817.40	3.50	854.00	2.00	488.00
4e.	For 48" corrugated metal pipe	Lin.Ft.	182		4.00	728.00	12.00	2184.00	4.00	728.00	10.00	1820.00	6.00	1092.00	7.00	1274.00	4.50	819.00
4f.	For 36" " " "	Lin.Ft.	84		3.00	252.00	6.00	504.00	3.50	294.00	8.00	672.00	4.00	336.00	6.00	504.00	3.50	294.00
4g.	For 24" " " "	Lin.Ft.	140		2.00	280.00	5.00	700.00	3.00	420.00	6.00	840.00	10.90	1526.00	5.00	700.00	3.50	490.00
4h.	For 18" " " "	Lin.Ft.	88		1.50	132.00	4.00	352.00	2.50	220.00	4.00	352.00	3.70	325.60	4.50	396.00	3.50	308.00
5.	For Class A reinforced concrete:																	
5a.	Job-mixed (Company to furnish cement & reinf.) in place.	Cu.Yd.	50		75.00	—	90.00	—	—	—	135.00	—	—	—	—	—	80.00	—
5b.	For ready-mix concrete (Ry. to furnish reinf.) in place	Cu.Yd.	50		70.00	3500.00	95.00	4750.00	115.00	5750.00	138.00	6900.00	85.00	4250.00	110.00	5500.00	74.00	3700.00
6.	Construct right of way fence.	Lin.Ft.	20,000		03a	6000.00	03¼	6400.00	02.5	5000.00	02.0	4000.00	02.6	5200.00	02.5	5000.00	02.5	5000.00
	SUB-TOTAL					34880.00		56700.00		38538.00		48232.00		54169.00		43458.00		56309.00
	Washington State Sales Tax (items 1-2-3 not subject sales tax - Contractor to advise amounts incl. in items 4 & 5 not subj. to sales tax)				(On 11087.00)	332.46	(On 15104.00)	453.12	(On 13788.00)	413.64	(On 16672.00)	500.16	(On 17777.00)	533.31	(On 12179.00)	365.37	(On 10539.00)	316.17
	Premium on Performance Bond					348.80		567.00		385.38		482.32		541.69		434.58		563.09
	TOTAL			65630.00		35861.26		57720.12		39335.52		49214.48		55244.06		44257.95		57188.26

Note
If Job Mix Concrete is used add $2.50

If Job Mix Concrete is used deduct $2.50

If Job Mix Concrete is used deduct $1.50

If Job Mix Concrete is used add $3.00

Recapitulation

Estimate $65630.00

Bids

1. Carbon Bros. $35561.26
2. J.A. Terteling & Sons Inc 39335.52
3. Bair-Crick Co. 44257.95
4. Sather & Sons 49214.48
5. Clifton & Applegate 55244.06
6. Morrison-Knudsen Co Inc 57188.26
7. N.A. Degerstrom Co. 57720.12

Office of Asst. Chief Engineer
Seattle, Wash. Nov 25 1953.

Proposals were sent to following contractors who did not bid:-

Northwest Construction Co	Seattle
Bay Construction Co	✓
Guy F. Atkinson Co	✓
General Construction Co	✓
N. Florita Co.	✓
Thos. Scalzo Co	✓
Emerson Paving Co.	Bellevue
Peter Kiewit Sons Co.	Longview
Grandfellow Bros Inc	Wenatchee

Seattle, Washington
November 19, 1953

717-1

Mr. H. R. Peterson:

Wheeler - Trackage to serve Section 13

Your letter of November 16th in regard to proposed ballast for the spur track leading to Section 13 near Wheeler and with particular reference to 2" lift under the ties.

Possibly I did not make my position clear, but it was my thought all the time that it would probably be cheaper for the Railway Company to provide 3" or 4" spread of sub-ballast, which would not only serve the purpose for covering the light fill, but in the event we did not do an ordinary main line ballast job on the spur track we probably could obtain sufficient material from the shoulders of the fill to fill the cribbing between ties of the track when laid and thus avoid the expense of placing the so-called 2" ballast lift under the ties on this spur track.

When the spur track was constructed to the U&I Sugar Company it appeared there was about 4" of ballast placed under the ties and a full ballast section provided. This spur, of course, is used to a considerable extent but the track structure and ballast section is far in excess of similar construction on the main line of the Connell Branch where we do not have any ballast whatsoever for miles except the local side surface, in the vicinity of the proposed spur.

My only thought was that if we wanted to hold down the cost of constructing this spur, including the cost of ballast, that it might be advisable to cut down on the ballast section for the spur track and spend some of that money on the main line which needs ballast badly.

It is, of course, desirable to have the 2" ballast lift if the money is available for the spur track.

J. T. Herring
Assistant Chief Engineer

JTH:jo

Seattle, Washington
November 16, 1953

717-1

Mr. H. R. Peterson:

Wheeler (nr) - Proposed trackage to serve Section 13

Following is a list of contractors in Seattle area to whom proposals have been forwarded, with my letter of November 12th, copy attached.

Morrison-Knudsen, Seattle	General Construction, Seattle
J. A. Terteling & Sons, Auburn	Peter Kiewit Sons, Longview
Northwest Construction Co., Seattle	N. Fiorito Co., Seattle
Bay Construction Co., Seattle	Erickson Paving Co., Bellevue
Guy F. Atkinson, Seattle	Thos. Scalzo Co., Seattle

Mr. Young forwarded proposals to Spokane Contractors as follows:

Goodfellow Bros., Inc.,
Wenatchee, Washington

Sather & Sons,
Yardley, Washington

Carbon Bros. & Plath
Spokane, Wash.

Roy L. Bair and Co.
Spokane, Washington

Clifton & Applegate
Yardley, Washington

Nels A. Degerstrom,
Spokane, Washington

Assistant Chief Engineer

JTD:jo

November 16, 1953

717-1

Morrison-Knudsen, Seattle
J. A. Terteling & Sons, Auburn
Northwest Construction, Seattle
Bay Construction Co., Seattle
Guy F. Atkinson, Seattle

General Construction, Seattle
Peter Kiewit Sons, Longview
N. Fiorito Co., Seattle
Erickson Paving Co., Bellevue
Thos. Scalzo Co., Seattle

Gentlemen:

In reference to my letter of November 12th and 13th forwarding you copy of proposal and specifications for grading spur track leading to Section 13, near Wheeler.

The field work in connection with this grading will be handled under the direction of our District Engineer, Mr. J. A. Young, Spokane, and he will arrange to have an engineering representative near Moses Lake during the coming week. In the event you wish to contact this man, you can get in touch with him by calling on our Agent at Wheeler and he will be pleased to review the proposed work with you.

Yours very truly,

J. T. DERRIG

Assistant Chief Engineer

JTD:jo
cc: JAY
HRP

P.S. Mr. A. W. Hegland, Instrumentman, can be contacted through our Agent at Wheeler.

J.T.D.

NORTHERN PACIFIC RAILWAY COMPANY

ENGINEERING DEPARTMENT

181 KING STREET

SEATTLE 4, WASH.

J. T. DERRIG,
ASST. CHIEF ENGINEER
LINES WEST OF LIVINGSTON, MONT.

File: 717-1

November 12, 1953

Sent to:

Morrison-Knudsen, Seattle
J. A. Terteling & Sons, Auburn, Wash.
Northwest Construction, Seattle
Bay Construction Co., Seattle
Guy F. Atkinson, Seattle
General Construction, Seattle
Peter Kiewit Sons, Longview
N. Fiorito Company, Seattle
Erickson Paving Company, Bellevue
Thos. Scalzo Company, Seattle

Gentlemen:

I am forwarding you, herewith, proposal and specifications, together with maps and profile as indicated in specifications dated this office November 5, 1953, covering construction of grading work, culverts and siphons under spur track leading to Section 13, near Wheeler, Washington.

Prints of detailed plan covering proposed siphon and culverts, Bridge Engineer's Index Nos. 93355, 93356 and 93357 have not as yet been completed, and these prints will be forwarded to you under separate cover within the next day or two.

Your attention is directed to the fact that it will be necessary to furnish public liability and property damage insurance, as shown on page 8 of these specifications. If this insurance is in the form of endorsement to existing policy, the wording of attached copy of contractual liability endorsement shall be made a part of the insurance requirement specified on page 8 of attached specifications.

Your attention is also directed to the fact that, on the track layout plan there is shown a siphon station 102+70, 24" x 54'; whereas, Bridge Engineer's plan shows R.C.P. culvert 24" x 68'. The price sheet provides price for both types of pipe. The Railway Company will be governed by the Government's wishes as to the type of pipe used at this location.

If you are interested in bidding on this project, I would be pleased to have your quotation in accordance with attached proposal.

Yours very truly,

NORTHERN PACIFIC RAILWAY COMPANY

By

Assistant Chief Engineer

JTD:id
Encl.

10774

St. Paul, Minnesota
November 16, 1953

Mr. H. R. Peterson:

Replying to your letter of November 12 about contracting for the grading of a spur track approximately four miles in length, extending from Wheeler on the Washington Central Branch to the city limits of the town of Moses Lake:

Inasmuch as the grading for this spur track constitutes work in connection with trackage not now being used in the operation of the Railway Company for the performance of common carrier service, this work is not considered as work customarily performed by Maintenance of Way Department employes. Therefore, the grading for this spur track may be let to contract without a prior agreement with the Maintenance of Way Organization.

H W McCauley
Chief of Personnel

K

D. R. SHOEMAKER
P. R. GIBSON
J. D. WORTHING
W. R. BJORKLUND
C. E. EKBERG
S. W. LAW
G. L. SMITH
H. M. SCHUBLION
S. H. KNIGHT
W. H. JAHN
L. B. CURTISS
R. A. SKOGLUND

St. Paul, Minn.
Nov. 16, 1953 W

Mr. W. W. Judson:

Referring to the industrial development of Sec. 13 near Moses Lake, Washington.

The development of such property, owned by the N. P. Ry., was first considered by the Industrial Department some time prior to 1952 and was undoubtedly influenced by growth of Columbia Basin irrigation, construction of U & I Scalley Sugar Factory, etc.

In December, 1952 Mr. Derrig furnished Mr. Moore with sketches and estimates of various projections to reach Sec. 13. In Jan., 1953 Mr. Moore was authorized to obtain options for 2 of the projected alignments to permit running such projections out on the ground to secure estimate data. Such surveys and resultant estimates were made in March and April, 1953.

Following selection of Proposition #1 as the proper alignment to be used estimate of cost in the amount of $236,720. was prepared. Your letter of Sept. 1, 1953 advised that the Board of Directors had authorized construction of the spur track with understanding that such construction would not be undertaken until sufficient industries had been lined up to warrant the construction. In accordance with your instructions all preliminary preparations for construction, such as acquisition of right-of-way, specifications, blank contract forms, requisitions, etc. were progressed.

Your letter of Oct. 29, 1953 advised that since a number of industries desired to locate on the Sec. 13 site arrangements should be made for contracting necessary grading and culvert work at the earliest possible date.

Specifications and contract proposal were reviewed at Spokane and Seattle during my recent trip west. Following completion of contract plans and exhibits, proposals were sent to contractors by Mr. Derrig on Nov. 12 with bids returnable Nov. 25,1953. Contract form provides for completion of grading and drainage structures by March 1, 1954.

Print of the proposed construction dated Office of Division Engineer, Spokane, last revised Office of Assistant Chief Engineer, Seattle, on Nov. 2, 1953 is attached hereto.

H. R. PETERSON

P/o
Attch.

Saint Paul, November 16, 1933

MR. J. T. DERRIG:

Referring to your letter of the 9th, file 717-1, about ballast for spur track to serve Sec. 13, near WHEELER, as referred to in my letter of the 7th:

Apparently you did not read my letter carefully. It is not my thought to change the 3" of gravel to be placed on the roadbed as sub-ballast. I assume that when it is necessary to place the gravel on the surface of the roadbed at time of construction, it will be necessary to leave it in place in the final construction, as otherwise wind erosion will remove the light grading material thereunder.

My reference is to placing 2" of ballast under the tie and on top of the 3" sub-ballast, together with crib fill material. Such arrangement is practical.

p/s

N.P. RY. ST. PAUL
TELEGRAPH OFFICE

1953 NOV 16 PM 4 35

NP123CF EB SEATTLE 16 223P

H R PETERSON STP

W-162 BIDS RETURNABLE TO THIS OFFICE NOON NOVEMBER 25TH

G-140

J T DERRIG.

OFFICE OF
CHIEF ENGINEER
NOV
16
1953
MDR. PAC. RY
ST. PAUL, MINN.

N. P. 1388 12-24

TELEGRAM—BE BRIEF

TIME FILED 10 7-74 M.

St. Paul, Minn.
Nov. 16, 1953

J. T. Derrig
Seattle, Wash.

My P-124 Advise returnable date of Sec. 13 Moses Lake bids. W-162

H. R. Peterson

JDW/wo
2:10PM

Moses Lake Sec. 13 Summary.

Interest in Ind. Development during 1952 following const. of U+I. plant @ Wheeler.

Dec. 1952 STD furnished Moore with sketches + ests. of various projections to reach Sec. 13.

Jan. '53 - Moore auth. to obtain options for routes 1A + 3.

March + April '53 - Props. #1 + # run out + estd.

8/3/52 Est. revd. for Prop. #1 to $236,720 incl. trkge.

Seattle, Washington
November 13, 1953

717-1

Mr. H. R. Peterson:

Wheeler - Trackage to serve Section 13

In accordance with request in your telegram P-131 of even date, I am attaching hereto print of plat showing suggested arrangement of spur tracks at industrial site, Section 13, Moses Lake, as recommended by Mr. Alsip.

This print was revised in this office under date of November 5, 1953.

J. T. Diamond
Assistant Chief Engineer

RSG:dl
Encl.

RAS

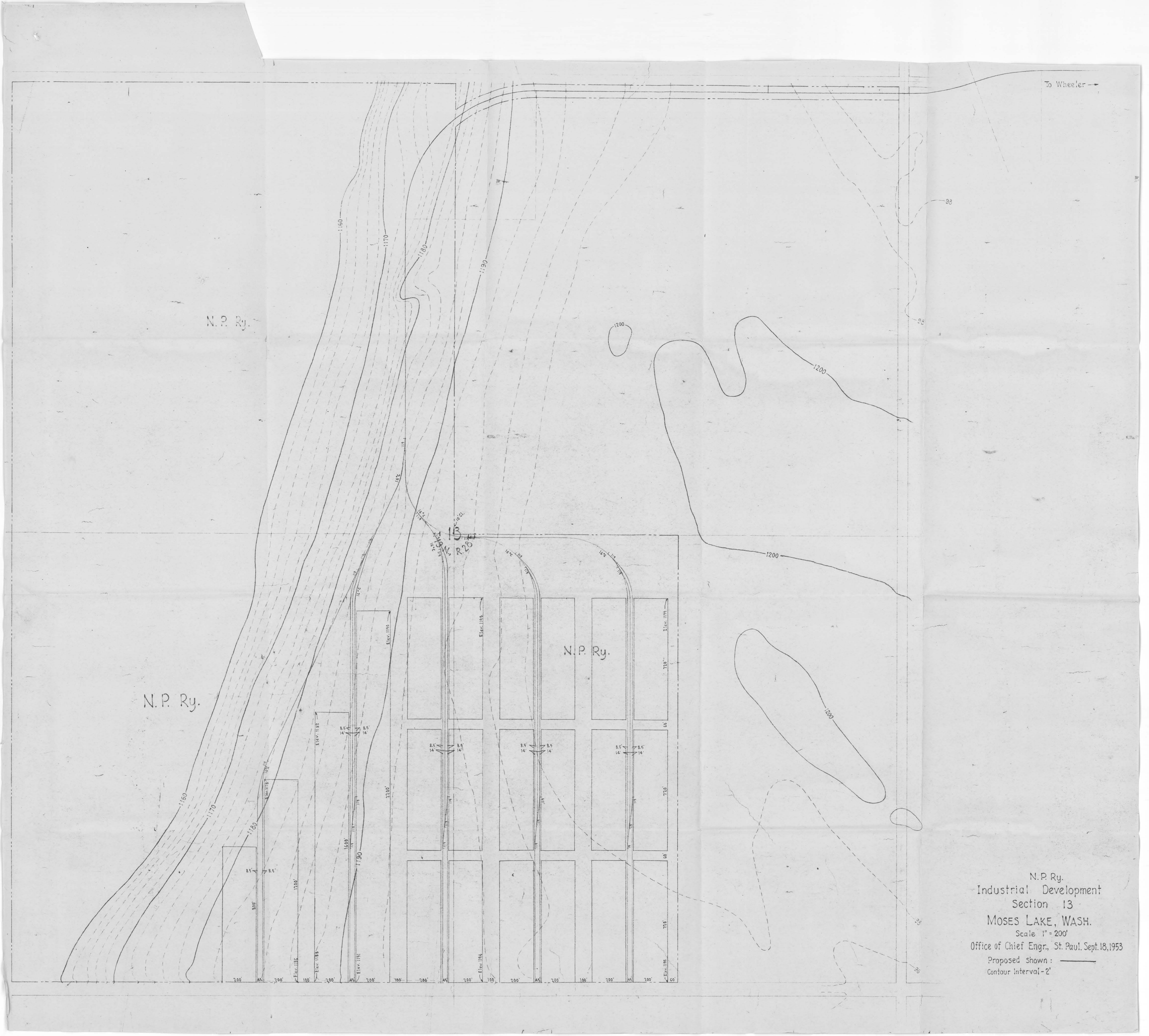
H.R.P. - ✓

Print from J.T.D. attached it similar to plan prepared in this office dated 9/18/53 - Mr. Thamer agreed — Print of our plan is attached for your information

S Lovelace 11/16/53

For your info & revising plans as to layout of tube in sec. 13 - suggest you check with Mr Thamer p.g.

H R P 11/18


To Wheeler
N.P. Ry.
N.P. Ry.
N.P. Ry.
1160
1170
1180
1190
1200
N.P. Ry.
Industrial Development
Section 13
Moses Lake, Wash.
Scale 1" = 200'
Office of Chief Engr., St. Paul. Sept. 18, 1953
Proposed Shown :
Contour Interval - 2'


925-8
P. T. FARM UNITS
FARM UNIT 51
FARM UNIT 53
J. L. Wilson
Fred. S. Bowen
Jessie B. Qualls
Alice M. Sieler
W 70 Ac of W½ SW¼
FARM UNIT 54
FARM UNIT 55
U.S.A.
Mrs. Meta Brockman
Arthur F. Enzler
FARM UNIT 56
FARM UNIT 57
FARM UNIT 65
FARM UNIT 66
FARM UNIT 61
FARM UNIT 68
N.P.
MOSES LAKE
MUNICIPAL AIR PORT
FARM UNIT 69
N.P.
FARM UNIT 70
N.P.
FARM UNIT 71
U.S. BUREAU OF
RECLAMATION
EXPERIMENTAL FARM
Notes:
Future Lead Tracks and Industry Spur Tracks to be Constructed as Required.
Main Lead
DETAIL of Above Irrigation Layout
County Road - Formerly P.S.H. #18 - U.S. #18
To Moses Lake
To Wheeler
WHEELER
N.
N.P.Ry.
IDAHO DIV. 8th. SUB.
Proposed Trackage to serve Sect. 13. T19N. R28E
NEAR MOSES LAKE
SCALE 1" = 400'
Office Div. Eng'r. Spokane: Wn. April 6th 1953
Additional Irrigation Openings Rev'd. Oct. 26th 1953
Rev'd. Office Asst. Chief Eng'r.-Seattle, Wash.-Nov. 5, 1953.
to show Lead Track per Chief Engr's. Plan dated 9-18-53.
Prop'd Fencing not shown
F.Bks 8/12/17 - 53.
#1
925-8

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 10774 M.

Saint Paul, Nov. 13,1953 J T Dorrig - Seattle

Pls send me print of plat showing suggested arrangement of spur tracks at industrial site Section 13 Moses Lake as recommended by Mr. Alsip. P-131

H R Peterson

10774

Saint Paul, November 13, 1953

MR. G. L. SMITH:

Referring to your letter of October 30, file 1010, about rail for the proposed industrial spur from WHEELER to Section 13, at MOSES LAKE:

Mr. Judson's letter of the 12th advised,

> "In view of the rail situation you may use the 100# rail as recommended".

Please let me have your recommendation in regard to the use of defective 100# rail removed from main line track account bolt hole cracks. In view of the light weight motive power, light density of traffic, and nominal train speeds on this line, do you consider a serious hazard would be involved in the use of such defective rail without cropping it?

p/s

St. Paul, Minn., November 12, 1953.

Mr. H. R. Peterson:

Referring to your letter of November 1, my reply of November 2, and our discussion today about the rail to be used in the construction of spur track to Section 3 near Moses Lake on the Washington Central Branch.

In view of the rail situation, you may use the 100# as recommended.

cc- Mr. J. F. Alsip

J D N 11/13

H R P 11/13

N.P. RY. ST. PAUL
TELEGRAPH OFFICE

1953 NOV 12 PM 2 43

NP77CF EB SEATTLE 12 1226P

H R PETERSON STP

P-124 RECEIVED NEGATIVE OF BRIDGE ENGINEER'S PLANS COVERING SIPHONS ON SPUR TRACK LEADING TO SECTION 13 THIS MORNING WILL ARRANGE TO HAVE PRINTS MADE AND FORWARD TO YOUNG FOR HANDLING WITH THE RECLAMATION SERVICE FOR APPROVAL WITH PARTICUL REFERENCE TO MAIN SIPHON STATION 129 PLUS 85 I HAVE ADDED GOVERNMENT'S WORDING ON SPECIFICATIONS FORSIPHONS TO OUR PROPOSAL AND SPECIFICATIONS AS REQUESTED BY EKBERG ASSEMBLING THE PRINTS HOPING TO HAVE THE PROPOSALS TO CONTRACTORS IN MAIL TODAY EKBERG'S PLANS ARE IN ACCORDANCE WITH THE GOVERNMENT'S STANDARD SPECIFICATIONS AND I DO NOT THINK ANY MINOR CHANGE WILL AFFECT CONTRACTOR'S PRICE D-610

J T HORSLEY.

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 10774 M.

St Paul, Nov. 12,1953 J T Derrig - Seattle

Advise date proposals to be returned for Section 13 Wheeler. Are you handling with Bureau for approval of Ekberg's plans for siphon crossings? P-124

H R Peterson

10774

Saint Paul, November 12, 1953

MR. H. W. M'CAULEY:

At the request of the Management we are now securing proposals for contracting the grading for spur track approximately four miles long to extend from our Washington Central Branch near WHEELER to Section 13, adjoining the easterly city limits of the town of MOSES LAKE.

As this is an entirely new development it is my assumption that it will not be necessary for you to secure release from Mr. Keyes for handling the work by contract.

p/s

TOM:

Please check our files for Safeway Stores site at Bellevue, Free 7790 and for industry spur track to Sec. 13, Moses Lake, to determine ~ 10774 if I have notified Mr. Klassen of Mr. McCauley's office that we intend to handle the grading at these two new developments by contract.

If unable to find such letters will you place the files on my desk for handling on my return.

- H R Peterson
11/6/53
Pasco

p/s

CARBON COPY

Seattle, Washington
November 10, 1953

717-1

Mr. J. F. Alsip:

Wheeler: Proposed trackage to serve Section 13

Your letter of November 9th referring to proposed trackage leading to Section 13 near Wheeler.

It is my understanding that Mr. Peterson is originating the AFE for this improvement without the formality of RFA.

JTD:id

Assistant Chief Engineer

cc: HRP - It is my understanding that you will originate AFE for this improvement without the formality of RFA. If so, please confirm.

JTD

By wtd to JTD to advise AFE being prepared

N. P. RY. BILLINGS
TELEGRAPH OFFICE

1953 NOV 10 PM 3 05

BG53NP V STPAUL 10 252P

H R PETERSON CAR 4 BGS

FOLLOWING WIRE FROM J T DERRIG DATE QUOTE P-91 FORWARDING TEN SETS OF PROPOSALS TO YOUNG TODAY FOR FORWARDING TO SPOKANE CONTRACTORS WILL SEND OUT ABOUT SIX SETS TO SEATTLE CONTRACTORS FOR SPUR TRACK SECTION THIRTEEN WHEELER FORWARDING YOU LIST OF CONTRACTORS IN MAIL TODAY D-604 UNQUOTE G-102

T R GIBSON.

NP35CF NI SEATTLE 10 957A

H R PETERSON STP

P-91 FORWARDING TEN SETS OF PROPOSALS TO YOUNG TODAY FOR FORWARDING TO SPOKANE CONTRACTORS. WILL SEND OUT ABOUT SIX SETS TO SEATTLE CONTRACTORS FOR SPUR TRACK SECTION THIRTEEN WHEELER. FORWARDING YOU LIST OF CONTRACTORS IN MAIL TODAY. D-604

J T DERRIG..

Seattle, Washington
November 9, 1953

717-1

Mr. H. R. Peterson:

Wheeler: Proposed trackage to serve Section 13

Your letter of November 7th with regard to placing 3" sub-ballast cover on the grading for spur track leading to Section 13 near Wheeler.

I do not think it would be practical to place a 2" cover on this light material, and it is my thought that, if we place a 3" or 4" spread of ballast, we would have sufficient surfacing material to fill the cribs without going to the expense of placing, loading and hauling ballast from Mesa Pit. I suggest, therefore, that we let 3" cover stand in the specifications, and if we can get suitable ballast material by truck haul at a reasonable price, I think we can save money by hauling a little extra ballast by truck and avoid using train haul ballast from Mesa for this spur track.

JTD:id

Assistant Chief Engineer

N. P. 1398 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

Helena, Nov. 9,1953 C E Ekberg - Saint Paul

Derrig is sending out tomorrow proposal form for grading spur track section 13 out of Wheeler. Can you airmail at once to Derrig transparency of your three plans for siphons, etc. P-92

H R Peterson

N. P. 9306 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

Helena, Nov. 9,1953 J T Derrig - Seattle

D-595:
Will handle review of contract by Saint Paul law department following award to successful bidder. P-91

H R Peterson

Spurits
Sect 13 Moss
Salor

N.P. RY HELENA
TELEGRAPH OFFICE
1953 NOV 9 AM 10 52

HY37MD X SEATTLE 9 916A

H R PETERSON CAR 4 HELENA

P-71 REVISING SPECIFICATIONS FOR COMPLETION DATE MARCH FIRST RECEIVED REVISED PROFILE FROM YOUNG TODAY WILL HAVE TRACING CORRECTED AND FORWARDED YOU AIRMAIL TONIGHT TRANSPARENT OF EXHIBIT PRINTS 1 2 3 AND 5 WILL ARRANGE TO COMPLETE PROPOSAL FORMS EXCEPT THE THREE BRIDGE ENGINEERS PLAN ITEM 4 OF SPECIFICATIONS AND HAVE IN SHAPE TO SEND OUT TO CONTRACTORS TOMORROW SENDING TEN SETS TO YOUNG FOR DISTRIBUTION TO SPOKANE CONTRACTORS SUGGEST THAT FORM OF PROPOSAL WE PREPARED BE FORWARDED TO LAW DEPARTMENT STPAUL FOR REVIEW AND APPROVAL IF SO DO NOT SEE NEEXXX NECESSITY OF FORWARDING TO LAW DEPT HERE ADVISE YOUR WISHES D-595

J T DERRIG.

10774

Train 2, Idaho division, Nov. 7,1953

MR. J. T. DERSIG:

Referring to Mr. Young's letter to you of the 6th with revised information for profile of proposed spur track to serve Sec. 13, near WHEELER:

Your preliminary estimate of cost, submitted by Mr. Tremaine, called for 6" of ballast. I understand the specifications as prepared by you for grading provide three inches of gravel, to be placed on the surface of the roadbed as sub-ballast.

In order that costs may be held to a minimum it seems to me that two inches additional thickness of ballast, plus the crib fill ballast, should be sufficient for this spur track.

Please advise if you agree, and will handle accordingly.

p/s

N. P. 1966 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

Missoulam Nov. 7,1953 J T Derrig - Seattle

Re proposal forms on grading for spur track in section thirteen Wheeler. Understand you propose to call for completion date May 1. Pls revise it to March 1. P-71

H R Peterson

10774

Spokane, Washington
November 6, 1953

Any comments?
HRP 11/10

Mr. J. T. Derrig:

Attached is list of grading contractors which I suggest proposals to be sent for the grading and culvert work for track to serve Section 13, near Wheeler, Washington.

These are from the Spokane area, with the exception of Goodfellow Bros. of Wenatchee.

You have a list of contractors from the Seattle area, such as Tertelings and also contractors from the Portland area.

J. A. YOUNG
District Engineer

Mr. Paterson —
Specs are in accordance with our final draft in Seattle. Rivd. exhibit sketches have not as yet been received.
JAY
11/12

JAY:fl
cc:HRP
Encs.

LIST OF CONTRACTORS:

Goodfellow Bros., Inc.
Contractors and Engineers,
P.O. Box 1337,
Wenatchee, Washington.

Sather and Sons,
N. 1410 Howe Street,
Yardley, Washington.

Carbon Bros. and Plath,
N. 3430 Cook Street,
Spokane, Washington.

Roy L. Bair and Company,
W. 1220 Ide Street,
Spokane, Washington

Clifton and Applegate,
Yardley, Washington.

Nels A. Degerstrom,
E. 15 - 32nd Avenue,
Spokane, Washington.

Office of District Engineer
Spokane, Washington
November 6, 1953

(Copy of spec. as finally revd.)
Use pg. 4 of Contract forms

PRICES FOR WORK:

The prices to be paid by the Company for the work are as follows: ~~as~~ based on attached Specifications dated Nov. 5, 1953

1. Roadway excavation, including haul and placing: per cu.yd..... $

2. Borrow excavation, incl. haul and placing: per c.y..... $

3. Gravel topping, incl. furnishing, hauling, and spreading - per c.y..... $

4. For placing of culvert and siphon pipes:
   a. For 48" reinforced concrete pipe, price per lin.ft. $
   b. For 36" do. $
   c. For 12" do. $
   d. For 48" corrugated metal pipe " $
   e. For 36" do. " $
   f. For 24" do. " $
   g. For 18" do. " $

5. For Class A reinforced concrete in place:
   a. For job-mixed concrete (Company to furnish Portland Cement) price per c.y. ..... $
   b. For Ready-mixed concrete: (Contractor to furnish Portland Cement) price per c.y..... $

6. Construct right of way fence: per lin. ft. fence.. $

For Sales Tax purposes:

Items 1, 2, and 3 are not subject to sales tax. It is mutually agreed that the sum of $_____ represents that portion of the sums of Items 4a,b,c,d,e,f, and g, which is charge for placing special fill and bedding for culverts and not subject to sales tax. It is further agreed that the sum of $_____ represents that portion of the sums stated under Item 5a and b, which is charge for backfill for concrete and not subject to sales tax.

Northern Pacific Railway Co.

SPECIFICATIONS
for
Construction of railroad grade and the placing of culverts, siphons, concrete ~~head and tail walls~~ transitions, and fencing required in connection with the Company's track to serve Sec. 13, T.19N, R.28E, W.M., Grant County, near MOSES LAKE, Washington.

--oo--

These specifications ~~include~~ consist of the following ~~special provisions:~~

Sec. 1 - General	2 pages
Sec. 2 - Clearing, Roadbed, and Earthwork	5 pages
Sec. 3 - Culverts, siphons, and headwalls	pages
Sec. 4 - Fencing	1 page
Sec. 13 - Concrete	pages
Comprising in all.....	pages

~~And~~ The ~~following Exhibits:~~ plans are as follows

1. Plan of Proposed Trackage, dated Office of Division Engineer, Spokane, last rev. O~~ct. 26, 1953~~. Nov. 2, 1953.
2. Profile of Proposed Trackage, dated Office of Division Engineer, Spokane, last rev. Oct. 26, 1953.
3. Plan of Placing culvert pipe, dated Office of Bridge Engineer, St. Paul, May 23, 1947. Index No. 1816-297
4. Plan of Concrete Siphon Transitions, dated Office of Bridge Engineer, Plan No. 93355, ~~Rev.~~ 93356 & 93357
5. Standard Plan 7-1-1 of Right of Way Fence, rev. Feb. 10, 1951.

Office of Asst Chief Engr
N.P. Ry. Seattle Wash
November 5, 1953

N.P. Ry. Co. CONSTRUCTION SPECIFICATIONS
Section Two
CLEARING, ROADBED AND EARTH

2.1 GENERAL

The center of the roadway shall conform in alignment to the center stakes. The grade line on the profile denotes ultimate subgrade on the center line, and this term indicates the top of embankments or the bottom of excavations, ready to receive the ballast. The roadway shall be formed to the section, slope and dimensions as staked by the Engineer, or to such modifications thereof as may be from time to time ~~directed~~ designated.

2.2 WIDTH OF ROADWAY

When completed, the roadway shall conform to the finishing stakes and shall be of the following widths at subgrade for single track, viz.:

Embankment ..... 20 feet
Earth Excavation ..... 28 feet

inclusive of the width necessary for normal ditches.

Grading for additional tracks, station grounds, high fills and deep cuts shall be of such additional widths as may be ~~directed~~ designated.

2.3 SLOPES

The slopes of embankments and excavations shall be of the following inclination, as expressed in the ratio of the horizontal distance to the vertical rise:

Embankments 1-3/4:1

Excavation: Common ... 2:1

Slopes may be varied according to circumstances and shall be made as ~~directed~~ designated in each particular case.

2.4 GRUBBING

All vegetation and ~~roots and stumps~~ embedded in the ground within the areas included between the slope stakes of all excavations, and between the slope stakes of all embankments of 5 feet or less, shall be removed and burned within the right of way. At such times as the State or Government authorities prohibit burning, the refuse from the grubbing shall be piled along the sides of the right of way where its burning will not cause damage, and when such prohibition is removed the piles of refuse shall be burned. Grubbing shall be fully completed at least 500 feet in advance of the grading operations. The cost of grubbing will be included in the various unit costs for grading.

2.5 EXCAVATION

to include Caliche, Hardpan, cemented gravel, loose or solid rock

All excavation, including roadway, ditches, culvert and borrow excavation, shall be classified as common, regardless of the nature or condition of the material excavated. ~~or encountered.~~

wet or dry,

Payment for excavation shall be at the contract unit prices ~~shown on the price sheet~~ and shall include all payment for excavation, hauling, placing in embankment, grubbing, necessary watering and, in the case of borrow off the Railway Company property, royalty charges for the purchase of such borrow material.

or other expenses

2.6 EXCAVATION BELOW SUBGRADE

In excavations or embankment sections, excavation below subgrade, for the removal of rock, unstable soils, silt, or other soils undesirable for subgrades or roadbed construction shall be removed as ~~directed~~ designated by the Engineer and such excavations shall be refilled to subgrade with approved material. The measurement of excavation shall be made to the bottom of the material removed; but no payment shall be made for refilling over and above the contract price for excavation of the material used for that purpose.

2.7 DISPOSITION OF MATERIALS

The materials from excavations incident to the construction of the roadbed, ditches, channels and roadways, shall, so far as they are suitable, be used in forming the embankments. Frozen or other unsuitable material shall not be permitted to enter into the composition of embankments. Where earth and rock are deposited in the same fill, they shall be placed as ~~directed~~ designated by the Engineer. All excavation shall, if required, be taken or hauled into the nearest embankment to the extreme distance required by the Engineer. The surplus beyond what is necessary to form the contiguous embankment shall be disposed of in widening the embankment uniformly along one or both sides of same, or shall be hauled to a suitable waste bank, as the Engineer may ~~direct~~ designate. In no case shall material be deposited above the grade of the new roadbed unless ~~directed~~ designated in writing by the Engineer.

2.8 BORROW

excavation

In cases where the quantity of material taken from the regular ~~cutting~~ will not be sufficient to form the requisite embankment, the deficiency shall be supplied by taking material from ~~cuttings within~~ borrow pits on or ~~without~~ the right of way at such places as the Engineer may approve or from an approved enlargement of the regular ~~cuttings~~ excavations, made uniformly on one or both sides of the same, and the sides of the excavation in all cases shall be dressed to such slopes as the Engineer may require.

Borrow pits shall not be excavated before they have been cross sectioned and shall be of regular form in order to admit of accurate measurement. Borrow pits shall be drained and no depressions left that will hold water. Side slopes of borrow pits shall be 1 vertical to 1½ horizontal, except where otherwise ~~directed.~~ designated.

A berm of original unbroken ground with width of not less than 25 feet shall be left between the slope stakes of embankment and the inner edge of borrow pit. A berm of not less than 5 feet shall be left between the outer edge of borrow pit and the right of way line.

If alternate borrow outside the right of way is desired by the Contractor, it shall be obtained by him at his expense from ~~a~~ sources approved by the Engineer. Before excavating material from such outside borrow pit the Contractor shall secure from the owner thereof and deliver to the Engineer a written release ~~to~~ of the Company from all possible claims of owner damages arising from ~~such~~ use of such property for borrow purposes.

Payment for excavation from borrow pits other than enlargement of roadbed cuts shall be at the contract unit price ~~shown on the price sheet~~ and shall include excavation of material, loading, hauling, placing in embankment, royalties and any costs of any nature whatsoever.

2.9 INTERCEPTOR DIKES OR DITCHES

Where ~~specified~~ designated by the Engineer, interceptor dikes or ditches shall be constructed at the top of cut slopes where the ground falls toward the center line. These interceptors must diverge sufficiently to prevent erosion of the embankments. The cross section and location of such interceptors shall be designated and staked by the Engineer. If necessary, the Engineer may require these interceptors to be formed in advance of the excavation. Where required, ditches shall be cut adjacent to embankments to lead the run-off to water courses.

2.10 METHOD OF MEASUREMENT

The measurement of the material shall be of the original space occupied. Excavation in excess of the authorized cross section shall not be included in the measurement except in removal of unpreventable slides.

2.11 SNOW AND ICE REMOVAL

Whenever the surface of a cut or the site of an embankment is covered with snow or ice sufficiently deep to impair the utility of the work, the snow must be removed and deposited beyond the slope stakes at the Contractor's own expense. Work of this nature shall be at least 200 feet in advance of the excavation and of the placing of the embankment.

2.12 AREAS SUPPORTING EMBANKMENTS

Where embankments are to be placed on sodded areas, which in the opinion of the Engineer require plowing, the ground shall be broken to a minimum depth of 6 inches. Where embankments are to be built on side hill slopes, they shall be deeply plowed and stepped as ~~directed~~ designated by the Engineer. Wherever ~~directed~~, boggy or unsuitable material shall be excavated so that the embankment shall be on a firm foundation. Payment for plowing is included in the contract unit price for excavation.

2.13 SHRINKAGE

Embankments shall be carried to such heights above subgrade and to such increased widths as may be deemed a necessary provision for shrinkage, subsidence and erosion. The subgrade shall be compact and finished to a true slope or crowned surface as called for on the plans and must leave no depression or irregularities which will hold water and prevent proper drainage.

2.14 CONSTRUCTION OF EMBANKMENTS

All embankments shall be constructed by placing material in horizontal layers not to exceed 8 inches in thickness and shall be spread over the full width of the proposed section, and shall be smoothed by means of a suitable blade grader or bulldozer or other approved equipment, with power adequate to do the work involved, and by distributing the hauling over the entire area throughout the work. The outer portion of the embankment shall be kept lower than the middle and the mounds and ridges caused by dumping shall be bladed or leveled out, in order to obtain a uniform settlement. No material which is deemed undesirable by the Engineer shall be used in constructing the embankment. End dumping will be allowed only where the Contractor has suitable equipment for spreading and compacting the material.

Embankments over culverts and at bridge ends shall be constructed in accordance with ~~these and additional~~ plans and specifications attached.

2.15 MOISTURE CONTENT

If the moisture content of material used for filling is insufficient to permit compaction to the density required by the company, the Contractor shall furnish water and apply it to the fill by suitable means of distribution and to the amounts directed by the Engineer. Payment for such watering shall be included in the contract unit price for grading.

If the moisture content of material used for filling is insufficient to readily accomodate grading activities the Contractor shall furnish water and apply it to the fill and if necessary, excavated areas by suitable means of distribution and in the amounts necessary to lay the dust sufficiently to facilitate grading activities. Payment for such watering shall be included in the contract unit prices for grading.

2.16 BASIS OF PAYMENT FOR GRADING

Grading shall be measured per cubic yard of all excavation, and shall include loading, transportation and deposit of the same in the place or places designated and in the manner prescribed, the plowing and benching of slopes, and the finishing of the roadbed, slopes and ditches, and all other work which may be incident to the completion of the grading.

2.17 GRAVEL TOPPING

Following the completion of roadway grading, a uniform 3" gravel blanket of suitable material as approved by the Engineer shall be spread over those surfaces of the roadway section as are designated by the Engineer.

Payment for gravel blanket material shall be at the contract unit price ~~shown on the price sheet~~ and shall include all costs for furnishing, loading, hauling and spreading such material. In the event such material is obtained from borrow pits off the Railway Company property, the conditions of Section 2.8 regarding damage release, etc. shall apply to the gravel borrow pit. ~~Basis of~~ Payment for gravel topping shall be on the ~~same~~ basis ~~as for borrow excavation~~. of measurement in place on the roadway surface.

N.P. Ry. Co. - CONSTRUCTION SPECIFICATIONS
Section Three
CULVERTS, SIPHONS AND TRANSITIONS

3.1 MATERIALS

Culvert and siphon pipes will be of either concrete or corrugated metal and all such pipes and joint material will be furnished by the Company. Such materials will be furnished, F.O.B. on cars, at Wheeler, Washington and the Contractor shall unload and haul such materials to the site of the work. Payment for such unloading and hauling shall be included in the contract unit price for placing of culvert and siphon pipes.

All pipes shall be carefully unloaded and handled into place. ~~It~~ Pipe shall not be dropped from car or wagon decks to ground, and shall not be rolled down slopes or inclines without restraint. Particular care shall be taken to avoid any heavy loading or blows on concrete pipe.

3.2 LAYING CULVERT AND SIPHON PIPES

Culvert and siphon pipes shall be placed and backfilled according to Bridge Engineer's Plan Index No. 1816-297, dated May 23, 1947.

The pipe in such culverts and siphons shall in all cases be well and carefully laid to true line and grade, with proper camber to take care of any future settlement, as staked out and ~~directed~~ established by the Engineer, and when laid, suitable material, free from stones or other hard substances, shall be carefully rammed under and against the sides of the pipes. Pipe shall be laid with the small or "spigot" ends of the pipe down stream and joints must be well and carefully entered and connected.

Wherever ground conditions permit, foundation bed for pipe shall be so prepared as to give pipe a firm bearing on stable natural ground for its entire length. Backfilling depressions to pipe line gradient will not be permitted. When the foundation bed is in rock it shall be excavated one foot below pipe line gradient and backfilled with sand or fine gravel. Hard strata occurring at intervals along the pipe line, but not of sufficient extent to justify lowering the foundation gradient as a whole, shall be cut to fit the contour of the pipe as nearly as possible. Excavation and preparation of foundation beds shall be measured and paid for as roadway grading at the contract grading unit price.

3.3 SIPHON CONSTRUCTION

Where siphons are constructed of pipe material, they shall be constructed as ~~directed~~ established by the Engineer, and shall be paid for at the contract unit prices for placing culverts and siphons.

Concrete inlet and outlet transition sections shall be constructed in accordance with Bridge Engineer's plans and special provisions of

Class "A" concrete. Concrete work shall be in accordance with Section 13, Concrete, of N.P. Ry. Co. Construction Specifications E-114.

3.4 BASIS OF PAYMENT

Payment for laying of culvert and siphon pipe shall be on the basis of contract unit prices ~~as shown on the price sheet~~ for lineal feet in place and shall include the cost of unloading, hauling, storing, placing and backfilling according to Plan 1816-297 attached.

Payment for construction of concrete transition sections shall be on the basis of contract unit price per cubic yard of concrete and shall include unloading, hauling and storage of materials furnished by the Company; construction of form work; cutting, bending and placing of reinforcing steel; furnishing and placing of the concrete; and backfilling of the completed structure. Portland cement and reinforcing steel will be furnished by the Company at no expense to the Contractor, F.O.B. on cars at Wheeler, Washington.

On approval of the Engineer, the Contractor may use ready-mixed concrete conforming to the current ASTM specification C-94, to be paid for at the contract unit price under Item No. ~~10b~~ 5b in which case the Company will not furnish the Portland cement, but will furnish necessary reinforcing steel.

Northern Pacific Railway Co.

CONSTRUCTION SPECIFICATIONS

Section Four

FENCING

4.1 Right of Way Fence:

The right-of-way fence shall be No. 3, Hog-Tight Fence, as per N.P.Ry. Co. Standard Plan 7-1-1 (Rev. Feb. 10,1951). Fencing materials will be furnished by the Company, f.o.b. cars at Wheeler, Wash., and the Contractor shall unload, haul, and store such materials until used.

Payment for fencing shall be at the contract unit price per lineal foot constructed, and shall include all costs of unloading, hauling, storage, and construction of such fence.

FARM UNIT 50
P. T. FARM UNITS
FARM UNIT 51
FARM UNIT 53
53⁴
J. L. Wilson
53⁷
Fred. S. Bowen
53⁸
Jessie B. Qualls
Alice M. Sieler
W 70 Ac of W½ SW¼
U.S.A.
FARM UNIT 54
U.S.A.
54²
54⁵
U.S.A.
FARM UNIT 55
Mrs. Meta Brockman
Arthur F. Enzler
FARM UNIT 56
FARM UNIT 57
FARM UNIT 65
FARM UNIT 66
FARM UNIT 61
FARM UNIT 68
N.P.
MOSES LAKE
MUNICIPAL AIR PORT
FARM UNIT 69
N.P.
N.P.
FARM UNIT 71
U.S. BUREAU OF
RECLAMATION
EXPERIMENTAL FARM
FARM UNIT 70
WHEELER
N.
N.P.Ry.
IDAHO DIV. 8th. SUB.
Proposed Trackage to serve SECT. 13. T19N. R28E
NEAR MOSES LAKE
SCALE 1" = 400'
Office Div. Eng'r. Spokane: Wn. April 6th 1953
Additional Irrigation Openings Rev'd Oct. 26th 1953
Proposition No 1 in Red
" No 2 " Green
Pole Lines moved or raised in Yellow
Prop'd Fencing not shown

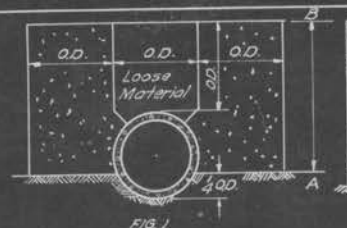


FIG. 1

Pipe laid on firm, original soil

CASE I

Pipe laid on firm, original soil for only part of length (Fig. 1) and on fill for remainder of length (Fig. 2). Adjacent fill to be compacted.

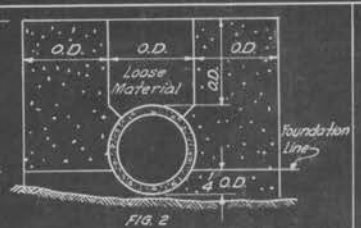
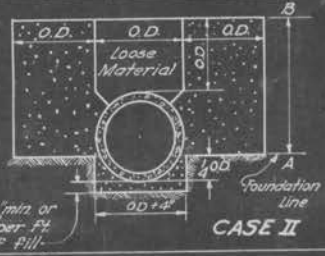


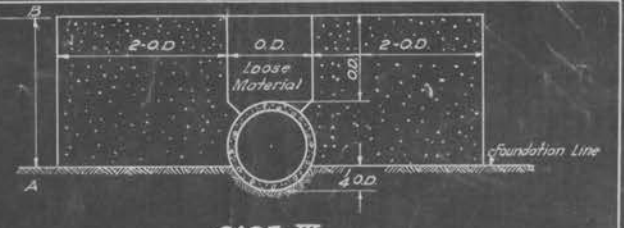
FIG. 2

Pipe laid on fill.
Fill to be placed and compacted for a distance equal to one × O.D. outside of the pipe on each side.
Compaction to give a bearing equal to that of natural soil.



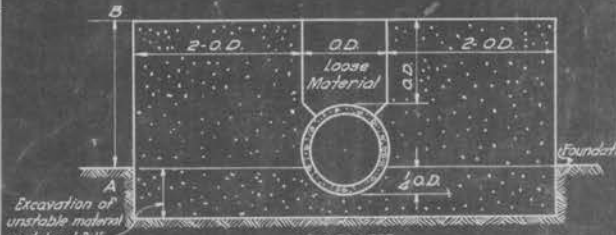
CASE II

CASE II: If pipe is placed over rock ledge, hard clay, where large boulders exist, or on other unyielding foundation, excavation shall be made to a depth of ½" below bottom of pipe for each foot of fill over the top of the pipe and to a width equal to the O.D. of the pipe + 4" and backfilled with suitable material which shall be slightly compacted. In no case shall the excavation and back fill be less than 8" in depth.



CASE III

Pipe laid on firm original soil
If adjacent fill is not to be compacted, the compaction around the pipe should extend at least 2 × O.D. outside of the pipe on each side.



CASE IV

If pipe is to be placed where soil is unstable, existing material shall be removed and backfilled with suitable material to permit compaction for a width of 2 × O.D. outside of pipe on each side.

LAYING

In general, pipe shall be placed by forming a trench to template with a depth equal to ¼ O.D. of the pipe.

CASE I: Firm, original soil for entire length or portion of length. (Adjacent fill to be compacted)
CASE II: Rock ledge, hard clay, rocky soil, or other unyielding foundation.
CASE III: Firm, original soil with adjacent fill not compacted.
CASE IV: Unstable soil

After pipe is laid, fill shall be compacted to a height of one × O.D. above the top of the pipe for a distance of not less than one O.D. outside of the pipe. If compaction is done with road equipment, material under and adjacent to pipe shall be tamped with a mechanical tamper. If material above the pipe is compacted, this shall be removed from above the pipe and backfilled with uncompacted material to a height of one × O.D. above top of pipe. Fill may then be placed over and beyond the pipe in the same manner that the remainder of the embankment is being done.

COMPACTION

In general, it is not desirable to have a pipe foundation more stable than the adjacent soil, unless said soil is soft and yielding.

Compaction between a pt. ¼ O.D. below bottom of the pipe to a pt. one O.D. above top of pipe (pts. A-B) should be done as follows: (1) For a height of 40 Ft. or more above bottom of the pipe, fill shall be placed in 8" layers before compaction. (2) For lesser heights of fill, the layer thickness of fill before compaction may be increased by ½" for each foot decrease in height below 40 Ft., but in no case shall the layer of uncompacted fill exceed 10 inches.
(Compaction shall be done as directed by the Engineer.)

CAMBER

The slope of the culvert shall be at least 1% or shall follow the natural slope of the stream where that exceeds 1%. If there is likely to be yielding of the foundation bed, a camber of not less than ¼ the difference in elevation between the inlet and outlet shall be provided at the center of the culvert.

STRUTTING OF PIPE

All pipe 60" dia. or over shall be strutted at each joint with 8"x8" posts having 8"x8" sills top and bottom. Posts shall be wedged tight at the top.

SPACING

Where two or more lines of pipe are to be laid parallel to each other, they shall be spaced, center line to center line, a minimum distance of three (3) outside diameters of the pipe.

NORTHERN PACIFIC RAILWAY

PLACING REINFORCED CONCRETE PIPE FOR A FILL EXCEEDING 1½ O.D OVER TOP OF PIPE

No Scale

Office of Bf. Engr. St. Paul May 23, 1947

1816-297


PROPOSITION No. 1
N.P.Ry.
Idaho Div.
8TH Subdiv.
MOSES LAKE (Nr.)
Subgrade Profile of Prop'd. Trackage To Serve Sect. 13.
1" = 400' Hor.
1" = 20' Vert.
Office of Div. Engr. Spokane, Wn. Apr. 6, 1953
Grade Rev'd. July 23, 1953
Additional Irrigation Openings
Rev'd. Oct. 26, 1953

List of Culverts for Track to Serre section 13 Near Wheeler, Washington

Station

12+50 36" RCP (CMP) 48' (BK)

22+75 - Road Crossing 2 lines each 12" R.C.P. 28'

31+07 - 12" R.C.P. 30'

36+35 - 48" RCP (CMP) 62'

44+74 - 24" CMP 54' siphon

83+50 - 2 lines each 48" CMP 60'

102+70 - 24" CMP 54' siphon

102+80 - 18" CMP 48' siphon

115+76 - 18" CMP 40'

125+00 - 12" RCP 60'

125+80 - 12" RCP 60'

128+50 - 12" RCP 28'

129+84 - 2 lines 48" RCP 80' siphon { Ekberg design

173+84 - 24" CMP 32'

Spokane, Washington
November 6, 1953

Mr. J. T. Derrig:

Attached is paper tracing of profile of track to serve Section 13, near Wheeler.

The culverts have been shown thereon. Some of these have been changed over what was previously shown and as the tracing of alignment map is in the Seattle office, will you please have the information as regarding culverts put on that map in your office.

We have found it necessary to increase the size of the culverts on the main spur track to serve Section 13, near Wheeler, Washington.

The culvert shown at Station 36+35 as a 36 inch culvert is corrected to be 48 inch culvert, 62 feet long. The drainage area is 800 acres now since the East low canal has been built to the left of the Washington Central (Connell Northern) track. This is a continuation of the drainage which flows through the two lines of 36 inch C.I.P. at Station 1061+87, MP 145+4107, on the Washington Central Branch. The drainage area through this culvert has been considerably reduced due to the construction of the East Low Canal.

The culvert at Station 83+50 on the track to Section 13, originally shown as one line of 36 inch pipe, has been changed to two lines of 48 inch pipe.

The drainage area for this culvert is 3470 acres and is the outlet for the drainage which comes through Bridge #144 of the Washington Central Branch.

There is 2010 acres drainage area leading to Bridge 144, and 1460 acres between Bridge 144 and the culvert at Station 83+50 on the Wheeler track.

There is a low area on both sides of Bridge 144 with the bottom contour around elevation 1178, with the outlet about 1/4 mile West of the section corner common to

Sections 5, 6, 7 and 8 T-19-N, R-29E, W.M. The present outlet contour is about elevation 1188, which in the past has created a lake of 10' to 12' in depth in the vicinity of Bridge 144. However, this pocket may be drained some time in the future.

The former drainage area to the left of Bridge 144 was quite extensive but the larger portion with steep hillsides have been cut off by the construction of the East Low Canal and the Rocky Coulee waste-way and therefore the drainage area is greatly reduced. At present the Bureau of Reclamation have two pumps installed for pumping wasted water from the low area into the Rocky Coulee Wasteway.

I am attaching a print of a small scale map - scale 1" = 10000' on which is outlined in RED the drainage area for culvert at Station 83+50, and in GREEN the drainage area of culvert at Station 36+35.

Data for requisition for culvert pipe will be furnished you promptly, but this may have to be supplemented in your office when data for the siphon at the main canal at the Northeast corner of Section 13 is received from Mr. Ekberg.

J.A YOUNG

District Engineer

JAY:fl
Enc.
cc:HRP
CEE

T. 20. N
T. 19. N
28 E
R. 29. E
EAST
Moses Lake Irrigation District
MOSES LAKE
Wasteway
NAGEL
BANKS
WHEELER
E. Low Canal
Atwood
Raugust
RITEL
1" = 10,000' (2 mi.)
Bridge 144
Pro. Spur
S. P. & P. RY
Weber Wasteway
Bassett
Lind Coulee


PROPOSITION No. 1
N.P.Ry.
Idaho Div.
8th Subdiv.
MOSES LAKE (Nr.)
Subgrade Profile of Prop'd. Trackage To Serve Sect. 13.
1" = 400' Hor.
1" = 20' Vert.
Office of Div. Engr. Spokane, Wn. Apr. 6, 1953
Grade Rev'd. July 23, 1953
Additional Irrigation Openings
Rev'd. Nov. 5, 1953
To Connell
1250
1200
2000' V.C.
-1.50%

Seattle, Washington
November 6, 1953

717-1

Mr. C. E. Ekberg:

Wheeler - Proposed trackage to serve Section 13

Mr. Young's letter of the 5th, transmitting sheets of Government's plans for siphons and specifications applicable for spur track leading to Section 13.

I am forwarding you one set of proposal and specifications prepared by Mr. Young and Mr. Worthing and reviewed by me and Mr. Peterson at Seattle. I suggest you incorporate sufficiant notations on your plans to meet government requirements and specifications for these culverts and siphons and if necessary, to prepare a special provision to accompany standard specifications for concrete E-11h, Section 13.

Please expedite data so that proposals may be forwarded to contractors.

J. T. DERRIG

Assistant Chief Engineer

JTD:jo

cc: HRP - Two sets of proposals and specifications for forwarding to contractors attached. Print exhibits have not as yet been completed, but will forward these prints to you Monday.

N.P. 109A
3-45 General Contract

Date.

Agreement made the day of A .D. 19
between the NORTHERN PACIFIC RAILWAY COMPANY hereinafter called the "Company" and

Parties.

hereinafter called the "Contractor."

The Contractor agrees to furnish all labor, services, appliances and material for, except as may be hereinafter otherwise provided and to construct, install, complete and finish in the most thorough workmanlike and substantial manner in every respect, within the time hereinafter specified, and according to the specifications hereto annexed and made part of this contract for the construction of railroad grade and the placing of culverts, siphons and concrete head and tail walls required in connection with Railway Company's track to serve Section 13, T 19 N, R 28 E, W.M., Grant County, near Wheeler, Washington.

Work.

Date of completion.

The work is to be commenced immediately and completed on or before May 1, 1954.

Definition of terms Engineer Chief Engineer.

Where the word "Engineer" occurs in this contract or specifications attached hereto it refers to the Engineer of the Company representing the Company in connection with this contract; and "Chief Engineer" means the Chief Engineer of the Company from time to time.

Protection of Operated Property.

In the prosecution of work under this contract on or near operated trackage of the Company, or of any other Railway Company, the safe and uninterrupted operation of said trackage shall take precedence over all contract work, and nothing shall be done or suffered to be done by the Contractor, his agents or employees, which will endanger or delay the trains on the said operated tracks.

Keep Crossings Open and Safe.

The Contractor shall keep open and in safe condition all public or private highways, highway crossings and highway approaches that may be affected by his operations hereunder, unless permission to the contrary is given by the Engineer.

Whenever, on the authority of the Engineer highways or road crossings are temporarily closed, disturbed or detoured, the Contractor, at his own expense, shall erect and maintain suitable barriers, warning signs and lights.

Local Regulations.

The Contractor, at his own expense, shall obtain all necessary permits and shall comply in all respects with any ordinances, laws or regulations of the general or local government properly applicable to the work.

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.

Lines, Levels and Marks.

For the guidance of the Contractor in prosecuting the work, lines, levels and marks which the Company decides necessary will be furnished by the Engineer.

The Contractor shall be solely responsible for the construction of the work in accordance with said lines, levels and marks, and for any disturbance or displacements of marks from their position as finally located by the Engineer.

Work when and where directed.

The Contractor shall prosecute and complete the work according to the Contractor's own manner and methods and with and by the Contractor's own means and employees, free from any supervision, inspection or control whatever by the Company, except only such inspection as may be necessary to enable the Company to determine whether the work performed complies with the requirements of this contract and conforms to the plans and specifications, it being the intention of the parties hereto that the Contractor shall be and remain an independent contractor and that nothing herein contained shall be construed as inconsistent with that status.

Remedy faulty work.

All imperfect or insufficient construction or material shall be remedied immediately whenever pointed out and shall be made good and sufficient to comply with contract and specifications. Omission by the Engineer to disapprove of or reject insufficient or imperfect construction or material at the time of any monthly or other estimate shall not be deemed an acceptance of such construction or material. The Engineer shall have the power at all times to have defective construction or material taken out and rebuilt or replaced at the expense of the Contractor.

Patents.

The Contractor shall protect and indemnify the Company against claims, demands, judgments and costs, on account of patented devices or parts used by him on the work.

Extra work and bills therefor.

The term extra work as used in this contract shall be considered as meaning work which is not properly a part of or incidental to the creation of a completed unit of the work for which a unit price has been specified in the contract.

Payment will be made for extra work to cover direct cost for such work and ten percent additional. Direct cost of extra work upon which said additional ten percent shall be computed shall consist of labor, material, field supervision, payroll and sales taxes, and insurance, but shall not include rental of equipment or general office expense. Said additional ten percent covers the Contractor's profit, general office expense and the use of small tools. Extra work performed by a Subcontractor shall be paid for on same basis as heretofore stated for the Contractor, and in addition thereto, the Company will pay the Contractor for extra work performed by the Subcontractor five percent of the Subcontractor's direct cost as herein defined.

If equipment is required in connection with extra work it shall be paid for in accordance with rental rates to be agreed upon by the parties prior to its use.

No extra work or material will 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.

Arbitration.

Should the parties disagree upon any question touching the construction of this agreement or concerning the business or manner of transacting the business to be carried on under its provisions or concerning the observance or performance of any of its covenants, including, among other things, extra work, the amount and quantity, character and kind of work done and materials furnished by the Contractor, such questions shall be submitted to the Chief Engineer of the Company, who is hereby made the arbitrator to decide all such questions, 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, based on attached specifications dated November 5, 1953:

1. Roadway excavation, including haul and placing per cu. yd. . . . . $_____

2. Borrow excavation, incl. haul and placing per cu. yd. . . . . $_____

3. Gravel topping, incl. furnishing, hauling, and spreading - per cu. yd. . . . . $_____

4. For placing of culvert and siphon pipes:

   a. For 48" reinforced concrete pipe, price per lin. ft. $_____

   b. For 36" " " " " " " " $_____

   c. For 12" " " " " " " " $_____

   d. For 48" corrugated metal pipe " " " " $_____

   e. For 36" " " " " " " " $_____

   f. For 24" " " " " " " " $_____

   g. For 18" " " " " " " " $_____

5. For Class A reinforced concrete:

   a. Job-mixed (Company to furnish Portland Cement and reinforcing rods). Price per c.y. in place . . . $_____

   b. For Ready-mixed concrete: (Contractor to furnish Portland Cement - Railway Company to furnish reinforcing rods only). Price per c.y. in place. . . $_____

6. Construct right of way fence: per lin. ft. fence . . $_____

For Sales Tax purposes:

Items 1, 2 and 3 are not subject to sales tax. It is mutually agreed that the sum of $_____ represents that portion of the sums of Items 4a, b, c, d, e, f and g, which is charge for placing special fill and bedding for culverts and not subject to sales tax. It is further agreed that the sum of $_____ represents that portion of the sums stated under Item 5a and b, which is charge for backfill for concrete and not subject to sales tax.

Transportation General

The Company will furnish such free transportation over its lines for use in connection with the work covered by this contract as is provided for hereinafter. Such free transportation will be subject to the review and instructions of the Chief Engineer as to the necessity for and proper use of same, and the Chief Engineer may make exceptions to such provisions and grant additional free transportation if in his judgment it may be found necessary for the proper handling of the work.

Passenger Transportation

Passenger Transportation:
(To be used only when traveling on business in connection with this contract).

1. For one member and one superintendent of the Contractor's firm or corporation, time passes good

System

2. For Sub-contractors trip passes from

None

and intermediate points to the station of the Company nearest the site of the work and return.

3. For foremen and skilled and common laborers from

to points of work.

Livingston and West

4. In addition to the foregoing transportation and subject to such exceptions as the Chief Engineer may make with respect thereto, return transportation will be furnished to such foremen and skilled labor as may remain until completion of the class of work on which employed, but no return transportation will be granted for common laborers.

Freight Transportation

Freight Transportation:

1. For all material to be used in the work, except coal, fuel oil, gasoline, oil fuels for internal combustion engines, boarding and commissary supplies, hay and grain, lumber for camps, powder and explosives, from

Livingston and West

and intermediate points to the station of the Company or spur track nearest the site of the work.

2. For tools, outfit, and equipment used in the work from

Livingston and West

to the station of the Company or spur track nearest the site of the work and return to the point from which same were originally shipped to the work, or to any intermediate point on the line of the Company. The right to such free return transportation must be exercised within ninety (90) days after the date of completion of the work, after which time no free transportation will be furnished.

Express Transportation

Express Transportation:

The Contractor shall pay full tariff rates on all materials, supplies and equipment which he elects to ship by express over Company and Foreign lines.

Demurrage charges.

Nothing herein contained shall be construed to relieve the Contractor of payment of demurrage charges under applicable tariffs. Claims for cancellation or refund of demurrage on account of inclement weather, or for other reasons, shall be presented to the Engineer in charge of the work within fifteen (15) days after presentation of demurrage bills by the Company, and it is hereby agreed that no claim shall be presented after the expiration of the above time limit.

Routing

For all materials for which free transporation is not granted the Contractor shall buy said materials, if possible, at points which will permit the Company to receive the haul on same, routing same via the lines of the Company and its connecting lines designated by the Chief Engineer.

Estimates.
Payments.
Retained percentage.

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 estimates. Ten per cent upon all monthly estimates shall be retained until, and as security for, complete performance of this contract.

Stopping work.

The Company reserves the right at any time before completion to stop the work or any part thereof, or retard the work in whole or in part and upon receipt of notice to such effect, the Contractor shall promptly comply therewith. The Contractor shall have no claim whatsoever for damages by reason of stopping or retarding the work but shall receive payment for the work done in full discharge and satisfaction of all demands against the Company, provided, however, if the Chief Engineer shall deem the stopping or retarding of work pursuant to said notices to have materially affected the cost of doing the work, he shall determine the prices to be paid so as to do substantial justice between the parties. Any notice given by the Company under this paragraph shall be in writing signed by the Engineer, and shall be delivered to the Contractor or to an employee of the Contractor on the work at least five days prior to taking effect.

Power to cancel contract.

If the Contractor at any time shall 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. In the event of cancellation hereunder 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 be then unpaid.

Contractor to pay all laborers.

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 all payroll taxes have been paid, and that no claim exists out of which a lien may grow.

N.P. 109A
8-46

Indemnity.

The Contractor shall indemnify and save harmless the Company from any and all claims, suits, losses, damages or expenses on account of injuries to or death of any and all persons whomsoever, including the Contractor, subcontractors, employees of the Contractor, subcontractors and of the Company, and any and all property damage, arising or growing out of, or in any manner connected with the work performed under this contract, or caused or occasioned in whole or in part by reason of the presence of the person or of the property of the Contractor, subcontractors, their employees or agents, upon or in proximity to the property of the Company.

The Contractor further agrees that it will defend, at its own expense, in the name and on behalf of the Company, all claims or suits for injuries to persons or damage to property arising or growing out of the work carried on under this contract, for which the Company is liable, or is alleged to be liable.

The Contractor will procure and furnish to the Company an insurance policy or endorsement to the Contractor's public liability insurance policy herein provided for, under the terms of which the Insurance Company assumes the liability of the Contractor hereunder.

Workmen's compensation.

The Contractor, at his sole cost and expense, shall comply with all laws of the State where this contract is to be performed, relating to Workmen's Compensation covering all employees of said Contractor or of any sub-contractor employed to perform work under this contract.

Public Liability and Property Damage Insurance.

The Contractor shall carry regular Contractor's Public Liability Insurance providing for a limit of not less than Two Hundred Thousand ($200,000) Dollars for all damages arising out of the bodily injuries to or death of one person, and, subject to that limit for each person, a total limit of Three Hundred Thousand ($300,000) Dollars for all damages arising out of bodily injuries to or death of two or more persons, in any one accident, and regular Contractor's Property Damage Liability Insurance providing for a limit of not less than One Hundred Thousand ($100,000) Dollars for all damages to or destruction of property in any one accident, and subject to that limit, a total (or aggregate) limit of Two Hundred Thousand ($200,000) Dollars for all damages to or destruction of property during the policy period.

Approval of Policies by Company.

All such policies shall be approved by the Company as to the insurance company writing same, the amount and the form.

The Contractor shall deposit with the Company the Public Liability and Property Damage Insurance policy required hereunder, or in lieu thereof shall furnish the Company a certified copy of said policy.

Fire Insurance.

Damage by fire to the work under construction during the construction period shall be made good by the Contractor, who shall keep all structures fully insured until completion and acceptance by the Company. The cost of such insurance will be divided equally between the parties, the policies written in the name of both, loss payable as their interest may appear. The policies shall be deposited with the Chief Engineer.

Sales and other taxes.

The Contractor, at his sole expense, shall pay all sales taxes and other taxes of every kind, nature and description, which may accrue on equipment, material, supplies or fixtures furnished or owned by him or his sub-contractors in connection with the work contemplated by this contract, and the Contractor shall furnish to the Company satisfactory evidence that all such taxes have been paid.

Bond.

If required by the Company, the Contractor shall furnish to the Company a bond in amount, form and substance satisfactory and acceptable to the Company, which shall provide that the Contractor shall well and faithfully keep, perform and carry out each and all of the terms, conditions and provisions of this contract. If a bond is required, the Company will reimburse the Contractor for the cost thereof.

Contractor's base of information.

It is understood and agreed that the Contractor has by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters which can in any way affect the work under this contract. No verbal agreement or conversation with any officer, agent or employee of the Company, either before or after the execution of this contract, shall affect or modify any of the terms or obligations herein contained.

Where borings or soundings for foundation of structures are indicated on the plans, it shall be understood that this data has been obtained for guidance in the design of the structure, and the Company will assume no responsibility contingent upon the accuracy of the borings or soundings.

Right reserved to modify and change the amount of work.

The Company reserves the right at any time to modify or change the plans and specifications covering the details of the work embraced in the contract, including, in cases where the contract covers the construction of new lines of railway, modifications and revisions of the located line. Such modifications or changes shall not affect the prices herein stated, nor shall any bill for extra or other charges or claims be made by reason thereof, but if the Chief Engineer shall deem the change or modification to have materially affected the cost of doing the work, he shall determine the price to be paid, either above or below, as the case may be, the prices herein provided, so as to do substantial justice between the parties. Orders for changes or modifications that may be required under this paragraph shall be given in writing by the Engineer.

Use of Completed or Partially Completed Portions.

The Company shall have the right to take possession of and to use any completed or partially completed portions of the work notwithstanding that the time of completing the entire work, or such portions, may not have expired.

The use of such partially completed portions does not constitute acceptance, nor does it relieve the Contractor of his obligation to complete in accordance with the terms of this contract.

If such prior use of completed or partially completed portions of the work increases the cost of or delays the work, the Contractor shall be entitled to extra compensation, or extension of time, or both. The Engineer shall fix the extension of time and shall determine such extra compensation as will reimburse the Contractor for his increased cost.

Final Estimate.

Time of payment of final estimate.

Release.

When in the opinion of the Chief Engineer this contract shall have been completed, he shall so certify in writing and give a final estimate and statement of the balance unpaid; and the Company within thirty days thereafter shall pay the full balance. The Contractor at final payment will 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.

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

Northern Pacific Railway Co.

SPECIFICATIONS
for

Construction of railroad grade and the placing of culverts, siphons, concrete transitions, and fencing required in connection with the Company's track to serve Sec. 13, T.19N, R.28E, W.M., Grant County, near MOSES LAKE, Washington.

—oo—

These specifications consist of the following:

Sec. 1 - General	2 pages
Sec. 2 - Clearing, Roadbed, and Earthwork	5 pages
Sec. 3 - Culverts, siphons, and headwalls	2 pages
Sec. 4 - Fencing	1 page
Sec. 13 - Concrete	4 pages
Comprising in all. . . .	14 pages

The plans are as follows:

1. Plan of Proposed Trackage, dated Office of Division Engineer, Spokane, last rev. Nov. 5, 1953.
2. Profile of Proposed Trackage, dated Office of Division Engineer, Spokane, last rev. Nov. 5, 1953.
3. Plan of Placing culvert pipe, dated Office of Bridge Engineer, St. Paul, May 23, 1947, Index No. 1816-297.
4. Plan of Concrete Siphon Transitions, dated Office of Bridge Engineer, Plans No. 93355, 93356 and 93357.
5. Standard Plan 7-1-1 of Right of Way Fence, rev. Feb. 10, 1951.

Office of Asst. Chief Engineer
N. P. Ry., Seattle, Wash.
November 5, 1953

GENERAL

CONTRACT WORK:

1.1. The term "contract work" or "work" as used in this contract and specifications shall be considered as meaning all labor, material, equipment, tools, temporary structures, fuel, supplies, and any other items necessary to fulfill the requirements of the contract, plans and specifications. Except as herein specifically provided otherwise, the Contractor shall furnish for the compensation specified, all work covered by the contract, plans and specifications, complete, to the satisfaction of the Engineer.

PRELIMINARY ESTIMATE AND CLASSIFICATION:

1.2. Preliminary estimated quantities, distribution and classification, if shown on plans or profiles, or otherwise furnished the Contractor, are approximate only and shall in no way govern the final estimate. The Company reserves the right to increase or diminish the approximate estimated quantities without affecting the contract unit prices for the various parts of the work except as provided in the contract.

VERIFICATION OF PLANS AND PHYSICAL CONDITIONS:

1.3. If the Contractor, in the course of the work, finds any discrepancy between the instructions, plans and physical conditions of the work, or any errors in plans, or in the layout made from said plans and instructions, it shall be his duty to immediately inform the Engineer. Any work done after such discovery, except on written instructions from the Engineer, shall be done at the Contractor's risk.

UNLOADING, STORING AND HAULING MATERIALS:

1.4(a). The Contractor shall, at his own expense, unload, store and handle, and be responsible for all material whether furnished by the Company or by the Contractor. Material shall be properly stored at least six feet six inches from the nearest rail, on suitable foundations or platforms, and, if necessary to prevent deterioration, it shall be protected from the weather. Any material furnished by the Company, lost or damaged in handling by the Contractor during the progress of the work, shall be replaced at his expense, unless such loss or damage is plainly the fault of the Company. Material furnished by the Company which is delivered before the Contractor is on the ground, will, if necessary to release cars, be unloaded by the Company along the set out track assigned to the work, or the nearest existing spur track to the work, available for such use. All material held on cars, or received after the Contractor is on the ground, shall be unloaded promptly by the Contractor. All material, whether unloaded by the Company or by the Contractor, shall be moved from the point where it is delivered by the Company to the site of the work by the Contractor and at his expense.

(b). The unloading, storing and hauling of all Company or Contractor's material is hereby considered included in the several contract lump sum costs and unit prices.

(c). The Contractor shall reload all surplus and salvaged temporary Company materials at his expense and such work is hereby considered included in the several contract lump sum costs and unit prices.

(d). In the event unloading of Company or Contractor's material is made from operated tracks or Contractor's operations are such as to require work train service, the Company will bill the Contractor for actual costs of work train service to cover train crew wages and taxes plus fuel and supplies consumed.

(e). Contractor may store materials and erect temporary buildings on Company property which is not required for Company use or which is not under lease to other parties, as approved by the Engineer.

INSPECTION OF MATERIAL:

1.5. All material and equipment to be used will be inspected by the Company on the site of the work. If the Contractor sees fit to furnish any or all such material and equipment in such manner as to require inspection away from the site of the work, he shall bear any expense the Company may be put to by reason of such inspection.

CONTRACTOR'S TEMPORARY TRACKS:

1.6. Temporary tracks desired by the Contractor shall be placed and subsequently removed by him at his expense; or if constructed by the Company it shall be done at the sole cost and expense of the Contractor. The Company will furnish, without rental

charge, second hand track metal materials as may be available. The Contractor shall arrange at his expense for all track and switch ties to meet the Company requirements. The Contractor shall reimburse the Company for loading and unloading track metal materials at its storage yard. Company track metal material lost or damaged by Contractor shall be paid for by him.

FLAGMEN:

1.7. Whenever Company Superintendent through the Engineer considers flagmen necessary for the protection of the Company's operated tracks they will be furnished by and at the expense of the Company. The Contractor shall carry on no operation requiring the use of flagmen unless they are on duty. Such flagmen shall not relieve the Contractor from liability.

RAILWAY CARS:

1.8. If available, the Company will, on request, furnish to the Contractor at its established rental rates such standard flat cars, ballast cars, box cars, outfit cars or other types of cars as the Engineer may consider necessary for progressing the work. Cars furnished by the Company shall be returned to it in good condition, less ordinary wear. The value of the cars lost or destroyed or damaged and not repaired while in possession of the Contractor or in his care, custody or control shall be deducted from the Contractor's final estimate.

TEMPORARY ACCESS ROADS AND CROSSINGS:

1.9. No allowance or compensation whatever shall be due or paid to the Contractor for any temporary access roads, trails, bridges or trestles and track crossings or any other construction that he may provide to facilitate his work. Locations and types of temporary crossings shall be subject to the approval of Company Superintendent through the Engineer.

CAMP SITES:

1.10. The Contractor shall bear all costs in connection with location, construction, maintenance, operation and removal of his camps. Sanitation for the camps shall conform to local, state and federal government regulations.

ADJUSTING COMPANY FACILITIES:

1.11. At locations where the Company's wire lines interfere with the Contractor's work, as determined by the Engineer, the Company will, at its expense, make such changes as are necessary. The Contractor shall so conduct his operations as not to damage any wire or pole line in the vicinity. If it is necessary to move or adjust power lines or poles, the Company will arrange to have this done without cost to the Contractor.

PROTECTING PREMISES:

1.12. Previous to, or during the work, the Contractor shall, at his own expense, erect and maintain such temporary fences or take such other action as may be necessary to prevent trespass upon the Company's property or damage to adjoining property. Proper barricades shall be provided by the Contractor to prevent accidents to the Company employees and the public.

CO-ORDINATING WORK:

1.13. Wherever work being done by the Company's forces or by other Contractors is contiguous to work covered by this contract, the respective rights of the various interests involved shall be established by the Engineer, to secure the completion of the various portions of the work in general harmony.

REMOVAL OF EQUIPMENT AND CLEANING UP:

1.14(a). On completion of the contract, or its termination from any cause, the Contractor shall, if so directed by the Engineer, immediately remove from the premises of the Company, all equipment, material, supplies or other property of the Contractor.

(b). The Contractor shall at his sole expense, on completion of the work, or any part thereof, remove from the Company's property and from all public and private property and roads, ditches and stream beds, all temporary structures, rubbish and waste materials, resulting from or incident to his operations. The Contractor shall repair at his sole expense any damage to Company, private, or public property resulting from or incident to his operations.

Office of Chief Engineer,
St. Paul, Minnesota.
April 16, 1951.

N.P. RY. CO. CONSTRUCTION SPECIFICATIONS
Section Two
CLEARING, ROADBED AND EARTH

2.1 GENERAL

The center of the roadway shall conform in alignment to the center stakes. The grade line on the profile denotes ultimate subgrade on the center line, and this term indicates the top of embankments or the bottom of excavations, ready to receive the ballast. The roadway shall be formed to the section, slope and dimensions as staked by the Engineer, or to such modifications thereof as may be from time to time designated.

2.2 WIDTH OF ROADWAY

When completed, the roadway shall conform to the finishing stakes and shall be of the following widths at subgrade for single track, viz.:

Embankment ..... 20 feet
Earth Excavation ..... 28 feet

inclusive of the width necessary for normal ditches.

Grading for additional tracks, station grounds, high fills and deep cuts shall be of such additional widths as may be designated.

2.3 SLOPES

The slopes of embankments and excavations shall be of the following inclination, as expressed in the ratio of the horizontal distance to the vertical rise:

Embankments 1-3/4:1

Excavation: Common ... 2:1

Slopes may be varied according to circumstances and shall be made as designated in each particular case.

2.4 GRUBBING

All vegetation and roots embedded in the ground within the areas included between the slope stakes of all excavations, and between the slope stakes of all embankments of 5 feet or less, shall be removed and burned within the right of way. At such times as the State or Government authorities prohibit burning, the refuse from the grubbing shall be piled along the sides of the right of way where its burning will not cause damage, and when such prohibition is removed the piles of refuse shall be burned. Grubbing shall be fully completed at least 500 feet in advance of the grading operations. The cost of grubbing will be included in the various unit costs for grading.

2.5 EXCAVATION

All excavation, including roadway, ditches, culvert and borrow excavation, shall be classified as common to include caliche, hardpan, loose or solid rock, cemented gravel and regardless of the nature or condition, wet or dry, of the material excavated.

Payment for excavation shall be at the contract unit prices and shall include all payment for excavation, hauling, placing in embankment, grubbing, necessary watering and, in the case of borrow off the Railway Company property, royalty charges, or other expenses, for the purchase of such borrow material.

2.6 EXCAVATION BELOW SUBGRADE

In excavations or embankment sections, excavation below subgrade, for the removal of rock, unstable soils, silt, or other soils undesirable for subgrades or roadbed construction shall be removed as designated by the Engineer and such excavations shall be refilled to subgrade with approved material. The measurement of excavation shall be made to the bottom of the material removed; but no payment shall be made for refilling over and above the contract price for excavation of the material used for that purpose.

2.7 DISPOSITION OF MATERIALS

The materials from excavations incident to the construction of the roadbed, ditches, channels and roadways, shall, so far as they are suitable, be used in forming the embankments. Frozen or other unsuitable material shall not be permitted to enter into the composition of embankments. Where earth and rock are deposited in the same fill, they shall be placed as designated by the Engineer. All excavation shall, if required, be taken or hauled into the nearest embankment to the extreme distance required by the Engineer. The surplus beyond what is necessary to form the contiguous embankment shall be disposed of in widening the embankment uniformly along one or both sides of same or shall be hauled to a suitable waste bank, as the Engineer may designate. In no case shall material be deposited above the grade of the new roadbed unless designated in writing by the Engineer.

2.8 BORROW

In cases where the quantity of material taken from the regular excavation will not be sufficient to form the requisite embankment, the deficiency shall be supplied by taking material from borrow on or outside the right of way at such places as the Engineer may approve or from an approved enlargement of the regular excavation, made uniformly on one or both sides of the same, and the sides of the excavation in all cases shall be dressed to such slopes as the Engineer may require.

Borrow pits shall not be excavated before they have been cross sectioned and shall be of regular form in order to admit of accurate measurement. Borrow pits shall be drained and no depressions left that will hold water. Side slopes of borrow pits shall be 1 vertical to 1-1/2 horizontal, except where otherwise designated.

A berm of original unbroken ground with width of not less than 25 feet shall be left between the slope stakes of embankment and the inner edge of borrow pit. A berm of not less than 5 feet shall be left between the outer edge of borrow pit and the right of way line.

If alternate borrow outside the right of way is desired by the Contractor, it shall be obtained by him at his expense from sources approved by the Engineer. Before excavating material from such outside borrow pits the Contractor shall secure from the owner thereof and deliver to the Engineer a written release of the Company from all possible present or future damages arising from use of such property for borrow purposes.

Payment for excavation from borrow pits other than enlargement of roadbed cuts shall be at the contract unit price shown on the price sheet and shall include excavation of material, loading, hauling, placing in embankment, royalties and any costs of any nature whatsoever.

2.9 INTERCEPTOR DIKES OR DITCHES

Where designated by the Engineer, interceptor dikes or ditches shall be constructed at the top of cut slopes where the ground falls toward the center line. These interceptors must diverge sufficiently to prevent erosion of the embankments. The cross section and location of such interceptors shall be designated and staked by the Engineer. If necessary, the Engineer may require these interceptors to be formed in advance of the excavation. Where required, ditches shall be cut adjacent to embankments to lead the run-off to water courses.

2.10 METHOD OF MEASUREMENT

The measurement of the material shall be of the original space occupied. Excavation in excess of the authorized cross section shall not be included in the measurement except in removal of unpreventable slides.

2.11 SNOW AND ICE REMOVAL

Whenever the surface of a cut or the site of an embankment is covered with snow or ice sufficiently deep to impair the utility of the work, the snow must be removed and deposited beyond the slope stakes at the Contractor's own expense. Work of this nature shall be at least 200 feet in advance of the excavation and of the placing of the embankment.

2.12 AREAS SUPPORTING EMBANKMENTS

Where embankments are to be placed on sodded areas, which in the opinion of the Engineer require plowing, the ground shall be broken to a minimum depth of 6 inches. Where embankments are to be built on side hill slopes, they shall be deeply plowed and stepped as designated by the Engineer. Wherever designated, boggy or unsuitable material shall be excavated so that the embankment shall be on a firm foundation. Payment for plowing is included in the contract unit price for excavation.

2.13 SHRINKAGE

Embankments shall be carried to such heights above subgrade and to such increased widths as may be deemed a necessary provision for shrinkage, subsidence and erosion. The subgrade shall be compact and finished to a true slope or crowned surface as called for on the plans and must leave no depression or irregularities which will hold water and prevent proper drainage.

2.14 CONSTRUCTION OF EMBANKMENTS

All embankments shall be constructed by placing material in horizontal layers not to exceed 8 inches in thickness and shall be spread over the full width of the proposed section, and shall be smoothed by means of a suitable blade grader or bulldozer or other approved equipment, with power adequate to do the work involved, and by distributing the hauling over the entire area throughout the work. The outer portion of the embankment shall be kept lower than the middle and the mounds and ridges caused by dumping shall be bladed or leveled out, in order to obtain a uniform settlement. No material which is deemed undesirable by the Engineer shall be used in constructing the embankment. End dumping will be allowed only where the Contractor has suitable equipment for spreading and compacting the material.

Embankments over culverts and at bridge ends shall be constructed in accordance with plans and specifications attached.

2.15 MOISTURE CONTENT

If the moisture content of material used for filling is insufficient to readily accommodate grading activities, the Contractor shall furnish water and apply it to the fill and, if necessary, excavated areas, by suitable means of distribution and in the amounts necessary to lay the dust sufficiently to facilitate grading activities. Payment for such watering shall be included in the contract unit price for grading.

2.16 BASIS OF PAYMENT FOR GRADING

Grading shall be measured per cubic yard of all excavation, and shall include loading, transportation and deposit of the same in the place or places designated and in the manner prescribed, the plowing and benching of slopes, and the finishing of the roadbed, slopes and ditches, watering and all other work which may be incident to the completion of the grading.

2.17 GRAVEL TOPPING

Following the completion of roadway grading, a uniform 3" gravel blanket of suitable material as approved by the Engineer shall be spread over those surfaces of the roadway section as are designated by the Engineer.

Payment for gravel blanket material shall be at the contract unit price and shall include all costs for furnishing, loading, hauling and spreading such material. In the event such material is obtained from borrow pits off the Railway Company property, the conditions of Section 2.8 regarding damage release, etc. shall apply to the gravel borrow pit. Payment for gravel topping shall be on the basis of measurement in place on the roadway surface.

N.P. RY. CO. - CONSTRUCTION SPECIFICATIONS
Section Three
CULVERTS, SIPHONS AND TRANSITIONS

3.1 MATERIALS

Culverts and siphon pipes will be of either concrete or corrugated metal and all such pipes and joint material will be furnished by the Company. Such materials will be furnished, F.O.B. on cars, at Wheeler, Washington and the Contractor shall unload and haul such materials to the site of the work. Payment for such unloading and hauling shall be included in the contract unit price for placing of culverts and siphon pipes.

All pipes shall be carefully unloaded and handled into place. Pipes shall not be dropped from car or wagon decks to ground, and shall not be rolled down slopes or inclines without restraint. Particular care shall be taken to avoid any heavy loading or blows on concrete pipe.

3.2 LAYING CULVERT AND SIPHON PIPES

Culvert and siphon pipes shall be placed and backfilled according to Bridge Engineer's Plan Index No. 1816-297, dated May 23, 1947.

The pipe in such culverts and siphons shall in all cases be well and carefully laid to true line and grade, with proper camber to take care of any future settlement, as staked out and designated by the Engineer, and when laid, suitable material, free from stones or other hard substances, shall be carefully rammed under and against the sides of the pipes. Pipe shall be laid with the small or "spigot" ends of the pipe down stream and joints must be well and carefully entered and connected.

Wherever ground conditions permit, foundation bed for pipe shall be so prepared as to give pipe a firm bearing on stable natural ground for its entire length. Backfilling depressions to pipe line gradient will not be permitted. When the foundation bed is in rock it shall be excavated one foot below pipe line gradient and backfilled with sand or fine gravel. Hard strata occurring at intervals along the pipe line, but not of sufficient extent to justify lowering the foundation gradient as a whole, shall be cut to fit the contour of the pipe as nearly as possible. Excavation and preparation of foundation beds shall be measured and paid for as roadway grading at the contract grading unit price.

3.3 SIPHON CONSTRUCTION

Where siphons are constructed of pipe material, they shall be constructed as designated by the Engineer, and shall be paid for at the contract unit prices for placing culverts and siphons.

Concrete inlet and outlet transition sections shall be constructed in accordance with Bridge Engineer's plans and special provisions of Class "A" concrete. Concrete work shall be in accordance with Section 13, Concrete, of N.P. Ry. Co. Construction Specifications E-114.

3.4 BASIS OF PAYMENT

Payment for laying of culvert and siphon pipe shall be on the basis of contract unit prices for lineal feet in place and shall include the cost of unloading, hauling, storing, placing and backfilling according to Plan 1816-297 attached.

Payment for construction of concrete transition sections shall be on the basis of contract unit price per cubic yard of concrete and shall include unloading, hauling and storage of materials furnished by the Company; construction of form work; cutting, bending and placing of reinforcing steel; furnishing and placing of the concrete; and backfilling of the completed structure. Portland cement and reinforcing steel will be furnished by the Company at no expense to the Contractor, F.O.B. on cars at Wheeler, Washington.

On approval of the Engineer, the Contractor may use ready-mixed concrete conforming to the current ASTM specification C-94, to be paid for at the contract unit price under Item No. 5b in which case the Company will not furnish the Portland cement, but will furnish necessary reinforcing steel.

Northern Pacific Railway Co.

CONSTRUCTION SPECIFICATIONS

Section Four

FENCING

4.1 Right of Way Fence:

The right of way fence shall be No. 3, Hog-Tight Fence, as per N. P. Ry. Co. Standard Plan 7-1-1 (Rev. Feb. 10, 1951). Fencing materials will be furnished by the Company, f.o.b. cars at Wheeler, Wash., and the Contractor shall unload, haul, and store such materials until used.

Payment for fencing shall be at the contract unit price per lineal foot constructed, and shall include all costs of unloading, hauling, storage, and construction of such fence.

N. P. RY. CO. CONSTRUCTION SPECIFICATIONS, E-114

Section Thirteen
CONCRETE

1. **Work Included.** The Contractor shall build complete all concrete structures as herein specified or as shown or implied by the plans.

2. **Definition.** Concrete is an intimate mixture of Portland cement, water, fine and coarse aggregates, with small additions of other ingredients when required, proportioned, mixed, transported, placed and cured as herein specified.

3. **Furnishing Materials.** Unless otherwise specified in the contract, the Contractor shall furnish all material entering into the completed concrete structures except Portland cement and reinforcing bars. The Contractor shall furnish, erect and remove all forms, falsework and other temporary structures necessary for the concrete work.

4. **Portland Cement.** The quality of cement and the methods of sampling and testing shall conform to the current ASTM specifications C 150, Type I. Other C 150 types may be used by order of the Engineer without change in compensation.

5. **Admixtures.** The Company may elect to furnish an admixture, which the Contractor shall handle and include in the concrete without change in compensation.

6. **Fine Aggregate.** The fine aggregate shall be coarse, sharp, hard, strong, durable particles of natural sand, free from adherent coating, and washed to remove clay, loam, alkali, organic matter or other deleterious substances. Grading of fine aggregate shall conform to the following requirements:

	Per cent by weight passing the following standard ASTM sieves:					Clay or Loam per cent by weight
	⅜ inch	No. 4	No. 16	No. 50	No. 100	
Minimum	100	95	45	10	0	—
Maximum	—	100	80	30	8	1.5

7. **Coarse Aggregate.** The coarse aggregate shall be hard, durable broken rock or gravel of approximately uniform grading as follows:

Maximum Designated Size	Per cent by weight passing the following standard laboratory sieves with square openings.					
	1½"	1¼"	¾"	⅜"	No. 4	No. 8
¾ inch	—	100	90–100	20–55	0–10	0–5
1½ inch	100	90–100	35–70	10–30	0–5	—

Coarse aggregates shall be washed clean and shall be free from adherent coatings or lumps of clay, loam, roots, sticks and other organic matter, alkali or other deleterious material.

8. **Aggregate—General.** The Contractor shall submit samples of the aggregates which he proposes to use. No aggregate shall be used unless it has been approved by the Company's Engineer of Tests. Further samples shall be submitted as necessary to assure continued supply of acceptable aggregates.

In addition to the foregoing gradings and tests, the aggregates will be tested in the field, and shall not be used unless they combine to form an acceptable grading for strength and economy. If the concrete is not of workable character, or when finished it does not exhibit a proper surface, either the fine or coarse aggregate or both shall be rejected or altered as required by the Engineer.

9. **Water.** Water shall be clean and free from injurious amounts of oil, acid, alkali, chemically active salts, organic material or other deleterious substances. If water is not known to be potable, a one gallon sample shall be submitted to the Company's Engineer of Tests for analysis.

10. **Reinforcement.** All reinforcement shall be of the grade, dimensions and form shown on the plans. Bars shall be round, deformed billet steel bars unless otherwise specified. Reinforcing bars shall conform to the current ASTM specifications A 15 for billet steel, intermediate grade. The Contractor shall furnish suitable tie wires and metal fastenings and supports for reinforcement.

11. **Storage of Materials.**

(a) Cement shall be stored in a weather-tight structure with the floor raised not less than one foot above the ground. All cement shall be subject to retest at any time, and, if it fails to meet any of the requirements of the specifications, and particularly if it has hardened or partially set, it shall not be used. The Contractor shall be charged with the cost of any cement furnished by the Company and lost or damaged through neglect of the Contractor.

(b) The Company will furnish cement in paper sacks, and the Contractor shall properly dispose of all empty sacks.

(c) The Contractor shall unload, pile and store fine and coarse aggregates separately and in such manner as to avoid segregation of sizes and prevent contamination.

(d) Metal reinforcement shall be stored in racks off the ground.

12. **Proportioning.** If proportions are shown on the plans they shall be subject to modification by order of the Engineer. Materials shall be measured by weighing. Allowance shall be made for the free water held by the aggregates. Coarse aggregate, fine aggregate and cement shall be weighed separately. The water shall be measured by weight or volume. One sack of cement containing 94 pounds shall be considered one cubic foot in volume. Paper sacks shall be opened at the end and shall be completely emptied.

13. **Classes and Proportions of Concrete.**

(1) When concrete is described by classes, it shall conform to the following several specifications. Proportions are by weight. If no class or identification is given, concrete shall be of the classes suitable for the work, as ordered by the Engineer. The uses shown below are typical and not exclusive.

(2) Class A concrete, for general use for reinforced concrete, shall have coarse aggregate of 1½ inch maximum size and six gallons of water per sack of cement. Trial proportions should be 1:2.2: 3.8 with not less than 5.7 sacks of cement per cubic yard.

(3) Class B concrete, for mass concrete in abutments, piers and retaining walls, shall have coarse aggregate of 1½ inch maximum size and 6½ gallons of water per sack of cement. Trial proportions should be 1:2.5:4.25 with 5.2 sacks of cement per cubic yard.

(4) Class C concrete, for narrow beams and thin slabs, shall have coarse aggregate of ¾ inch maximum size and six gallons of water per sack of cement. Trial proportions should be 1:2.4:3.0 with 6.2 sacks of cement per cubic yard.

(5) Class D concrete, for concrete blocks and other small precast units, shall have coarse aggregate of ¾ inch maximum size and five gallons of water per sack of cement. Trial proportions should be 1:2.0:2.5 with 7.4 sacks of cement per cubic yard.

(6) Class E concrete, for paving, shall have coarse aggregate of 1½ inch maximum size and 5½ gallons of water per sack of cement. Trial proportions should be 1:2.0:3.4 with 6.2 sacks of cement per cubic yard.

(7) If the Engineer finds that the ratios indicated, together with the recommended proportions of aggregates, do not produce workable mixes, he will permit increase of the amount of both cement and water, without change of water-cement ratio. Concrete having a maximum slump of three inches will be considered a workable mix. Whenever water tends to accumulate at the surface of the concrete, the proportion of water shall be reduced until this bleeding is corrected.

(8) Concrete of specified strength, deposited in air, shall have the following quantities of water per sack of cement:

Minimum Compressive Strength (28 days)	Gallons per sack
2700 lbs. per sq. in.	7
3000 lbs. per sq. in.	6½
3300 lbs. per sq. in.	6
3700 lbs. per sq. in.	5½
4250 lbs. per sq. in.	5

14. **Forms.**

(a) Forms shall be of surfaced wood, metal or other approved material and shall conform to the shape, lines and dimensions of the concrete as called for on the plans. They shall be mortar tight and substantial and shall preserve their accurate shape until the concrete has set. Warped or distorted forms shall be immediately replaced. Joints shall be truly horizontal or vertical, neatly fitted with special care to give an even surface.

(b) All forms shall be so constructed that they can be removed without prying or hammering against the concrete. Bolts and rods used for internal ties shall be so coupled that when the forms are removed no metal shall be within one inch of any surface. Any material previously used in forms must be in good repair and thoroughly cleaned before being used again. Any probable deflection in long spans where intermediate support is impossible shall be compensated for, so that the finished work shall be true.

(c) Sheet piling may be used as forms for footing courses of concrete structures if approved by the Company's Bridge Engineer but the volume of concrete to be paid for shall be computed from dimensions given on the plans. The Company reserves the right to charge the Contractor for any additional Company material so used.

(d) Bevel strips 1½ inches on the diagonal face shall be placed in all exposed corners of forms. Abutting edges of expansion joints shall be beveled, or formed with proper tool of one quarter inch radius.

(e) Temporary openings shall be provided wherever necessary to permit thorough cleaning and inspection immediately before depositing concrete.

(f) The inside of forms shall be coated before each use with non-staining mineral oil or other approved material which shall be applied before the reinforcement is placed.

(g) The removal of forms shall not be started until the concrete has attained strength sufficient to support its own weight and construction live loads. Falsework for supporting forms and concrete shall not be removed until authorized by the Engineer. Forms shall not be removed from beams and slabs in less than two weeks nor from columns in less than five days nor from self-supporting concrete in less than forty eight hours unless authorized by the Engineer.

15. **Placing Reinforcement.**

(a) Cleaning. Before being placed in the forms, metal reinforcement shall be thoroughly cleaned of mill and rust scale, dirt, grease and any coating that will tend to reduce the bond.

(b) Forming and Placing. Bars shall be bent cold. Reinforcement shall be accurately formed and placed as shown on the plans, and securely fastened with annealed iron wire ties, suitable clips or spot welding at all intersections and shall be supported by concrete or metal supports. Metal clips or supports shall not be placed in contact with forms for exposed surfaces. Splices shall be made subject to direction of the Engineer. The lap at splices shall not be less than 40 diameters of the bars spliced. Splices will not be permitted at points of maximum stress, and adjacent bars shall have splices staggered.

16. **Inspection of Forms and Reinforcement.** The Contractor shall not place any concrete until the

Company's inspector has examined the forms and reinforcement, and all corrections ordered therein have been made.

17. **Joints.**

(a) Instructions as to the placing of joints shall be strictly followed. If necessary construction joints are not indicated, they shall be located as directed by the Engineer and formed so as not to impair the strength and to least impair the appearance of the structure. Keys equivalent to one-third of the area shall be formed in all joints, including the top of each day's work. If directed by the Engineer, dowels shall be placed. Reinforcement shall continue through the joint.

(b) Joints shall not be made in water-tight construction unless authorized by the Engineer. When such construction joints are authorized, the Contractor shall use all suitable means, including the providing and embedment of a non-corrosive metal seal, to insure that the joint will be fully and permanently tight against water under pressure.

18. **Mixing Concrete.** The Contractor shall mix all concrete in a suitable rotary batch mixer in good working condition, having capacity to handle the largest continuous pouring in eight hours or less. The plant shall include equipment for measuring and weighing all material, including water. Scales shall be of an approved type, made for weighing concrete ingredients, and be accurate within 1%. The Contractor shall keep on hand a suitable set of standard 50 pound test weights. The mixing period shall be not less than one and one-half minutes after all materials including water are in the mixer, and this time shall be increased 15 seconds for each half yard of mixer capacity above one cubic yard. Longer mixing may be required if necessary to produce homogeneous mixes. The drum shall revolve at a speed of 14 to 20 revolutions per minute. The size of batch shall not exceed the rated capacity. The entire batch must be discharged before starting to recharge the mixer. Material which has hardened to any degree shall not be used.

19. **Ready-Mixed Concrete.** On approval by the Engineer, the Contractor may use ready-mixed concrete conforming to the current ASTM specifications C 94.

20. **Depositing in Air.**

(a) Cleaning. Before placing of concrete is begun, the mixing and conveying equipment, forms and reinforcement shall be cleaned of mortar, dirt and debris, and if forms are on rock, all loose rock and other loose material shall be removed. Water shall be removed from the space to be occupied by the concrete. Any flow into an excavation shall be diverted or removed in a way which will eliminate washing of freshly deposited concrete.

(b) Handling and placing. Concrete shall be transported as rapidly as practicable by means which will prevent separation or loss. It shall be deposited continuously for each monolithic section, as nearly as practicable in its final position, and with a surface maintained approximately level. It shall not have a free fall of more than six feet.

(c) Bonding. Before depositing concrete in contact with concrete which has hardened, or with stone, the hard surface shall be roughened, thoroughly cleaned of loose or foreign matter and laitance, and saturated with water. After removal of excess water, the damp surface shall be slushed over with a grout of neat cement, to be followed immediately by the deposit of new concrete.

(d) The first mix deposited in any run of pouring, whether over old concrete or not, shall be of normal proportions except that it shall have no coarse aggregate. Such mortar shall be deposited to a depth equal to the largest size of coarse aggregate.

21. **Conveying Concrete.**

(a) The conveying plant shall be so arranged and operated as to avoid separation of ingredients and to provide as nearly a continuous flow as the type of plant will permit. If flow in a chute is intermittent, the chute shall discharge into a hopper. Chutes shall be on slope not steeper than one vertical to two horizontal.

(b) Compressed air and pumping conveyors will not be permitted without permission of the Engineer. In requesting such permission the Contractor shall submit complete details of all equipment and operation, with information as to any special requirements as to proportioning of concrete. Varying the water-cement ratio on account of conveyors will not be permitted.

(c) All conveying systems shall be thoroughly emptied and cleaned immediately after each use. Water used for cleaning shall not be allowed to reach concrete.

22. **Compacting.**

(a) Concrete, during and immediately after placing, shall be thoroughly compacted. Internal vibrators of approved type shall be used and, in addition, such other tools shall be used as appear necessary to eliminate voids and segregation and bring mortar and fine particles to the surfaces of the forms. On thin and inaccessible sections external vibrating may be required.

(b) Vibration shall be at a frequency of not less than 3600 impulses per minute, of sufficient intensity and duration to produce uniform settlement, plasticity and compaction. Vibration shall extend through full depth of each layer of fresh concrete, consolidating successive batches with each other, but shall not be allowed to penetrate into partly hardened concrete nor to disturb embedded metal. There shall be at least 15 seconds of vibration per square foot of top surface of the layer being vibrated, but vibration shall not continue for more than 30 seconds in one position. If pools of grout, water or laitance form readily during vibration, the mixture shall be modified.

23. **Depositing Under Water.**

(a) Concrete shall not be deposited under water unless the Engineer shall authorize it; and then only when it appears impractical to remove water, and only to the extent of a seal to make de-watering of the remainder practicable. Details shall be subject to approval of the Engineer.

(b) For deposit under water the concrete shall contain not more than five and one-half gallons

of water per sack of cement, and not less than seven sacks of cement per cubic yard of concrete.

(c) Cofferdams, cribs or forms shall be tight enough to prevent any flow of water through the space in which concrete is to be deposited. Pumping will not be permitted while the concrete is being placed, nor until it has attained sufficient strength to withstand the water pressure.

(d) The concrete shall be deposited, by bottom dump bucket or tremie, so that no concrete will be washed by water previous to its placing. Rapid and continuous placing is essential. The mass shall be built up approximately level, by movement of depositing mechanism and use of as many units as are required to avoid flow of the concrete in contact with water after placing.

(e) The bottom dump bucket shall be designed so that its doors cannot be opened until it has rested, with its load, on the surface upon which the concrete is to be deposited, but will then be automatically unlatched and the bottom doors shall open downward and outward as the bucket is raised. The top of the bucket shall be equipped with covers which will effectively protect the contained concrete from wash during lowering.

(f) A tremie shall be a strong water-tight pipe, not less than eight inches in diameter, long enough to reach from its charging hopper above water, to the bottom of the placed concrete. Its top section shall be a hopper large enough to hold an entire mixer batch, or the entire contents of the transporting bucket. There shall be a suitable device for sealing the discharge end during the placement of the tremie, and such device shall be arranged to open fully when the pipe is full of concrete. The tremie may be moved and raised as required to maintain flow of concrete, but at all times the lower end shall be under the top surface of the concrete, and water shall never be allowed to enter above the concrete in the pipe. If charge of concrete is lost, the tremie shall be raised above the surface and refilled.

(g) All requirements under the heading "Depositing in Air" shall be applicable also to concrete deposited under water where they are not in contradiction with the requirements for depositing under water.

24. **Temperature.**

(a) Concrete when deposited shall have temperatures within the limits of the following table of degrees Fahrenheit and shall not include frozen materials;

Temperature of Air	Temp. of heated concrete when placed	
	Minimum	Maximum
Below 30°	70°	90°
30° to 45°	60°	90°
Above 45°	50°	90°

The required temperatures shall be obtained by heating mixing water or aggregates or both to temperatures between 70° F. and 150° F.

(b) In freezing weather or when there is likelihood of freezing temperatures within the specified curing period, suitable and sufficient means shall be provided in advance, for maintaining all concrete surfaces at a temperature of not less than 50° F. for the entire curing period. Small apertures shall be provided in the forms for placing thermometers against the concrete surfaces. Coverings or housings shall be arranged so as to exclude extraneous air currents and permit free circulation of heat. There shall, however, be enough ventilation to carry off salamander gases. Exposed surfaces shall be kept moist during the time of heating.

(c) If concrete is to be deposited in water whose temperature is below 40° F., the water shall be heated to 40° minimum during pour and 96 hours thereafter.

(d) Any concrete which has been frozen or frost bitten shall be promptly removed from the work.

25. **Surfacing Finishing and Curing.**

(a) Where not otherwise specified, the forms for concrete which will show in the finished work shall be removed as soon as the Engineer will permit, and all surface irregularities dressed and pointed to a smooth surface matching in texture the general surface. Any defective concrete shall be removed immediately and replaced as directed by the Engineer. Small openings shall be filled with mortar of the same proportions of cement and sand as used in the concrete, and smoothed with a wooden float. The mortar shall be fresh and plastic. Surfaces shall be saturated with water before pointing. There shall be no general surface plastering.

(b) Top surfaces of concrete shall be filled high enough to permit all excess water and thin mortar to be struck off and the coarse aggregate worked below the surface, which shall then be given a float finish at true grade.

(c) The curing period shall be seven days, and all surfaces of concrete shall be kept continuously moist for that period. In lieu of maintaining moist surfaces, they may be sealed as soon as surface dry by coating with an acceptable non-staining curing sealer.

(d) Wearing surface finish. Walks, and other surfaces where so designated, shall be given a sidewalk finish. For this, particular care shall be taken to have a low enough water cement ratio so that there shall be no excess water or thin mortar on top. The concrete shall be compacted by rolling or tamping, and floated with a wood or mechanical float. It shall then be tested with a straight edge and all surface irregularities eliminated. After the concrete has hardened sufficiently to prevent fine material from working to the surface, it shall be finished with a steel trowel to a smooth surface free from defects and blemishes. After troweling, the surface shall be slightly roughened with a special tool or by sweeping lightly with a broom. It shall be cured as specified for other top surfaces.

26. **Waterproof Paint.** The inner surfaces of all reinforced walls, and tops of concrete slabs, shall be given two heavy coats of a heavy asphalt paint or its equivalent, particular attention being given to the corners. All concrete shall be at least 10 days old and thoroughly dry before the application of waterproofing materials.

8731 E

AIRMAIL

Spokane, Washington
November 5, 1953

Mr. C. E. Ekberg:

With regard to proposed siphon at N. E. corner of Section 13, T. 19 N., R. 28 E. as per drawing dated Office of Division Engineer, October 8, 1953, which was sent you by airmail on November 3rd, I am enclosing herewith some design information, being large map with no date, which was obtained from the Bureau of Reclamation at Ephrata, Washington on November 4th. The notations which have been made thereon; some in red pencil, some in black pencil and also some in ink, were all made by the Bureau of Reclamation Engineers for this particular location, near Moses Lake, Washington.

Also attached are two sheets, which include Pages 17, 18, 19 and 20, of their Standard Specifications, some of which have been noted with purple pencil as applying to this construction.

I am also enclosing one copy each of Bureau of Reclamation Drawings No. 222-D-15807, 222-D-15840 and 222-D-14595; also two prints showing concrete pipe elbows for 48" pipe - one for the inlet end and one for the outlet end of the siphon - which is a Bureau of Reclamation standard. These are marked U.S. Bureau of Reclamation, Ephrata, Washington, 1949, being Sheets 17 and 18 of Chart 13.

I understand you wish this information so as to complete your design for this siphon. If you need any further information, please advise. I am giving one set of the above Bureau of Reclamation drawings to Mr. Derrig, but I do not have an extra set to hand to Mr. Peterson on this trip.

(Signed) J. A. YOUNG
District Engineer

JAY:leb
cc-Mr.H.R.Peterson
Mr.J.T.Derrig(1 set)
Encs.

Seattle, Washington
November 4, 1953

717-1

Mr. H. R. Peterson
Car 4, Seattle

Moses Lake - Trackage to serve Section 13

For your information, I am attaching copy of Mr. Moore's Mailgram of October 30th in reference to proposed track layout Section 13, near Wheeler.

I have revised Division Engineer's sketch to show construction of proposed main lead track to fit in with the future development of this property in accordance with your detailed sketch dated September 18, 1953.

Print of Division Engineer's map as revised November 2nd is attached.

J T Hennessy
Assistant Chief Engineer

JTD:jo

cc: HRP - St. Paul

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

COPY

Seattle October 30 1953

Mr. E. B. Stanton
St.Paul, Minnesota

I have today conferred with Messrs.Alsip, Bone and Derrig with reference to the industrial track layout in Section 13 and we agree that lead track should be located at point A on Thames plat and constructed to the county highway

and policy be that each and every industry must pay for one or more spur tracks as the individual industry may require. Otherwise tentative platting for ultimate, as shown Chief Engineer's print dated St. Paul September 18,1953

appears satisfactory.

J. T. Moore

cc: Mr.D.H.Eastman
Mr.J.F.Alsip
Mr.R.D.Bone
Mr.J.T.Derrig
Mr.J.E.Thames

COPY

Seattle, Washington
November 4, 1953

717-1

Mr. H. R. Peterson
Car 4, Seattle

Moses Lake - Trackage to serve Section 13

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I have revised Division Engineer's sketch to show construction of proposed main lead track to fit in with the future development of this property in accordance with your detailed sketch dated September 18, 1953.

Print of Division Engineer's map as revised November 2nd is attached.

J. T. DERRIG

Assistant Chief Engineer

JTD:jo

cc: HRP - St. Paul

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

COPY

Seattle October 30 1953

Mr. E. B. Stanton
St.Paul, Minnesota

I have today conferred with Messrs.Alsip, Bone and Derrig with reference to the industrial track layout in Section 13 and we agree that lead track should be located at point A on Thames plat and constructed to the county highway

and policy be that each and every industry must pay for one or more spur tracks as the individual industry may require. Otherwise tentative platting for ultimate, as shown Chief Engineer's print dated St. Paul September 18,1953

appears satisfactory.

J. T. Moore

cc: Mr.D.H.Eastman
Mr.J.F.Alsip
Mr.R.D.Bone
Mr.J.T.Derrig
Mr.J.E.Thames

COPY

P. T. FARM UNITS
FARM UNIT 51
FARM UNIT 53
J. I. Wilson
Fred. S. Bowen
Jessie B. Qualls
Alice M. Sieler
W. 70 Ac. of W½ SW¼
FARM UNIT 54
USA
FARM UNIT 55
Mrs Meta Brockman
Arthur F. Enzler
FARM UNIT 56
FARM UNIT 57
FARM UNIT 65
FARM UNIT 66
FARM UNIT 61
FARM UNIT 68
N.P.
MOSES LAKE
MUNICIPAL AIR PORT
DETAIL of Above Irrigation Layout
Notes:
• Future Lead Tracks and Industry Spur Tracks to be Constructed as Required.
Main Lead
FARM UNIT 69
N.P.
FARM UNIT 71
US BUREAU OF RECLAMATION EXPERIMENTAL FARM
FARM UNIT 70
County Road - Formerly P.S.H. #18 - U.S. #10
WHEELER
N.
N.P.Ry.
IDAHO DIV. 8th. SUB.
Proposed Trackage to serve Sect. 13. T19N. R28E
NEAR MOSES LAKE
SCALE 1" = 400'
Office Div. Engr. Spokane: Wn. April 6th 1953
Additional Irrigation Openings Rev'd. Oct. 26th 1953
Rev'd. Office Asst. Chief Engr.-Seattle, Wash.: Nov. 2, 1953.
to show Lead Track per Chief Engr's. Plan dated 9-18-53.
Prop'd Fencing not shown
F.Bks 8/12/17 - 53.

Desk

At Seattle, November 2, 1953.

Mr. H. R. Peterson:

Steel on Car

Referring to your letter of November 1 about construction of spur track to Section 13 near Moses Lake on the Washington Central Branch.

Upon your return to St. Paul, I would like to talk to you about what can best be done for furnishing rail for this trackage.

cc- Mr. J. F. Alsip

N. P. 1388 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

Spokane, Nov. 2, 1953 C E Ekberg - St Paul

Did you receive from Tom letter and prints from Derrig about siphon for irrigation ditch crossing under proposed industry spur to Sec. 13 Moses Lake ?

It is desired that you prepare detailed plans at once for the siphon as you are familiar with the Bureau requirements for siphons. Presume you can complete plan this week. Pls advise.

P-27

H R Peterson

N. P. RY. SPOKANE
TELEGRAPH OFFICE

Nov 2 12 17 PM '53

SF71NP DO STPAUL 2 143P

H R PETERSON BUSINESS CAR 4 SPOKANE

P-11 BEING ~~BEG~~ ASSEMBLED IN RAIL YARDS AND SAWED AND REDRILLED AS YARD CREWS HAVE TIME THINK IT SHOULD BE RESERVED FOR USE THROUGH TURNOUTS WHERE FULL BALL RIAL IS REQUIRED TO AVOID DAMAGE TO FROGS AND SWITCH POINTS S-21

G L SMITH.

At Spokane, November 1, 1953

MR. W. W. JUDSON:

Referring to your letter of October 29 about construction of spur track to Sec. 13 near MOSES LAKE on the Washington Central branch:

Proposals will be sent out next week, to be returned during the last week of November.

Mr. G. L. Smith has considered the matter of rail, as referred to in the last paragraph of your letter. His comments and suggestions are as follows:

"Approximately 44,000 lin. ft. of rail are required. I think both legs of the wye and the 7°30' curve at the Air Port should be a fairly good grade of 100# rail.

For the straight track I would have suggested the use of 3rd Class 131# and 130# rail of which we have sufficient, but I imagine there will be eventually a considerable number of industry tracks built and we would have either to provide 131# turnouts or else relay short stretches thru the turnouts with lighter rail.

Therefore I think we should use 100# on the tangent also and we can furnish it, 3rd B and 3rd C combined (3rd B is rail from the High and 3rd C rail from the low sides of curves).

If this is considered too expensive, then I think we will have to use 72# as we cannot spare either 85# or 90#, as we have only 4 miles and 3 miles of these sections respectively".

In view of the anticipated developments in this area and our current shortage of 85 or 90 lb. rail, it would seem to me that 100# is to be preferred.

p/s

cc-Mr. J. F. Alsip

Hold on car

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

Spokane, Nov. 1,1953 G L Smith - St Paul

Urlet 30th about rail for Moses Lake line. What use is being made of 100-lb rail removed from main line track account bolthole cracks as determined by the audiogage equipment. P-11

H R Peterson

St. Paul, Minnesota
October 30, 1953

File: 1010

Mr. H. R. Peterson:

Referring to Mr. Judson's letter of the 29th about rail for the Moses Lake Line.

Approximately 44,000 Lin. Ft. of rail are required. I think both legs of the wye and the 7°30' curve at the Air Port should be a fairly good grade of 100# rail.

For the straight track I would have suggested the use of 3rd Class 131# and 130# rail of which we have sufficient, but I imagine there will be eventually a considerable number of industry tracks built and we would have either to provide 131# turnouts or else relay short stretches thru the turnouts with lighter rail.

Therefore I think we should use 100# on the tangent also and we can furnish it, 3rd B and 3rd C combined (3rd B is rail from the high and 3rd C rail from the low sides of curves).

If this is considered too expensive, then I think we will have to use 72# as we cannot spare either 85# or 90#, as we have only 4 miles and 3 miles of these sections respectively.

G L Smith

GLS/rsz

Mr Peterson
Do not repeat. Figures
You would get this at Missoula today
MM 10/30

N. P. RY. ST. PAUL
TELEGRAPH OFFICE

1953 OCT 30 AM 11 52

JTCF NI SEATTLE 30 915A

NP25 H R PETERSON STP
MD1 H R IETERSON CJR 4 MISSOULA

FORWARDED YOU ADVANCE COPY OF SPECIFICATIONS AS SUBMITTED BY YOUNG FOR GRADING SPUR TRACK SECTION 13 WHEELER. WISH TO MAKE SOME REVISIONS TO DEFINE CALICHE CLASSIFICATION ALSO DEFINE DIFFERENTIAL AS BETWEEN TRUCK HAUL AND SIDE BORROW. ALSO DEFINE SPECIFICATIONS FOR RIPRAP TO INCLUDE CONTRACTOR FURNISHING MATERIAL AND HAULING AND PLACING. SLOPES FOR THE CUT EXCAVATION IN THIS LIGHT MATERIAL SHOULD BE 2 TO 1. WILL SUBMIT YOU REVISED SPECIFICATIONS WITHIN THE NEXT DAY OR TWO. SUGGEST THAT IN FORWARDING PROPOSALS WE INDICATE DATE OF COMPLETION MAY FIRST AS I AM CERTAIN FROST CONDITIONS WILL NOT PERMIT ENTIRE COMPLETION OF WORK BEFORE SPRING. ALSO REVISING INSURANCE CLAUSE TO MEET STANDARD REQUIREMENTS $200,000-$300,000 PD. ORIG HRP ST PAUL COPY HRP MISSOULA D-573

J T DERRIG.

COPY

Spokane, Washington
October 26, 1953

Mr. J. T. Derrig:

Attached are three copies of proposals and specifications for grading of track to serve Section 13, near Wheeler, Washington.

Also attached are three copies of print, "Proposed Siphon of Main Irrigation Canal in Northeast Corner of Section 13", dated October 18, 1953; also three prints of track profile for the track to serve Section 13 and three prints of map of track to serve Section 13, both dated revised October 26, 1953.

Before requisition for culvert pipe is made, we will have to get cross sections and more definite information as I think some of these lengths may possibly be changed. I think this will be sufficient, however, to get bids from contractors for the work.

/s/ J A Young
District Engineer

JAY:lcb
Encs.

COPY

Form 3175 PROPOSAL 11-8-49 1M RP

NORTHERN PACIFIC RAILWAY COMPANY

You are hereby requested to submit a proposal in accordance with the terms of contract form and specification hereto attached for the

Work to be started immediately after award of contract and be completed on or before

In submitting your bid, return with this proposal the contract form intact after filling in the unit prices left blank for that purpose in the section "Prices for Work", and also show in the blank space left for that purpose in paragraph two of the section "Freight Transportation", the approximate weight of the tools, outfit and equipment you propose to use in connection with the work and for which you desire free freight transportation.

If shipment is to be made from more than one point on the lines of the Company the weight originating at each point shall be specified.

The Company reserves the right to reject any and all bids.

All proposals to be sealed, marked

and addressed to

Bids will be received until Noon

NORTHERN PACIFIC RAILWAY COMPANY

By

PROPOSAL

The undersigned hereby proposes to undertake the above described work, and, if this proposal is accepted, agrees to enter into a contract with the Northern Pacific Railway Company, in the form hereto attached and made a part hereof, and at the unit prices inserted in said form of contract by the undersigned, and returned herewith.

Official Name of Individual ☐, Partnership ☐, or Corporation ☐. (Check appropriate square).....

If a Corporation, State of Incorporation.....

If Partnership, give Name and Address of Partners and State under the laws of which the Partnership was formed.

By.....

Official Position.....

Address.....

Date.....

.....

.....

.....

.....

N.P. 109A
3-45 General Contract

Date.

Agreement made the day of A. D. 19
between the NORTHERN PACIFIC RAILWAY COMPANY hereinafter called the "Company" and

Parties.

hereinafter called the "Contractor."

The Contractor agrees to furnish all labor, services, appliances and material for, except as may be hereinafter otherwise provided and to construct, install, complete and finish in the most thorough workmanlike and substantial manner in every respect, within the time hereinafter specified, and according to the specifications hereto annexed and made part of this contract for the construction of railroad grade and the placing of culverts, siphons and concrete head and tail walls required in connection with Railway Company's track to serve Section 13, T 19 N, R 28 E, W.M., Grant County, Washington

Work.

Date of completion.

The work is to be commenced immediately and completed on or before

Definition of terms Engineer Chief Engineer.

Where the word "Engineer" occurs in this contract or specifications attached hereto it refers to the Engineer of the Company representing the Company in connection with this contract; and "Chief Engineer" means the Chief Engineer of the Company from time to time.

Protection of Operated Property.

In the prosecution of work under this contract on or near operated trackage of the Company, or of any other Railway Company, the safe and uninterrupted operation of said trackage shall take precedence over all contract work, and nothing shall be done or suffered to be done by the Contractor, his agents or employees, which will endanger or delay the trains on the said operated tracks.

Keep Crossings Open and Safe.

The Contractor shall keep open and in safe condition all public or private highways, highway crossings and highway approaches that may be affected by his operations hereunder, unless permission to the contrary is given by the Engineer.

Whenever, on the authority of the Engineer highways or road crossings are temporarily closed, disturbed or detoured, the Contractor, at his own expense, shall erect and maintain suitable barriers, warning signs and lights.

Local Regulations.

The Contractor, at his own expense, shall obtain all necessary permits and shall comply in all respects with any ordinances, laws or regulations of the general or local government properly applicable to the work.

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.

Lines, Levels and Marks.

For the guidance of the Contractor in prosecuting the work, lines, levels and marks which the Company decides necessary will be furnished by the Engineer.

The Contractor shall be solely responsible for the construction of the work in accordance with said lines, levels and marks, and for any disturbance or displacements of marks from their position as finally located by the Engineer.

Work when and where directed.

The Contractor shall prosecute and complete the work according to the Contractor's own manner and methods and with and by the Contractor's own means and employees, free from any supervision, inspection or control whatever by the Company, except only such inspection as may be necessary to enable the Company to determine whether the work performed complies with the requirements of this contract and conforms to the plans and specifications, it being the intention of the parties hereto that the Contractor shall be and remain an independent contractor and that nothing herein contained shall be construed as inconsistent with that status.

Remedy faulty work.

All imperfect or insufficient construction or material shall be remedied immediately whenever pointed out and shall be made good and sufficient to comply with contract and specifications. Omission by the Engineer to disapprove of or reject insufficient or imperfect construction or material at the time of any monthly or other estimate shall not be deemed an acceptance of such construction or material. The Engineer shall have the power at all times to have defective construction or material taken out and rebuilt or replaced at the expense of the Contractor.

Patents.

The Contractor shall protect and indemnify the Company against claims, demands, judgments and costs, on account of patented devices or parts used by him on the work.

Extra work and bills therefor.

The term extra work as used in this contract shall be considered as meaning work which is not properly a part of or incidental to the creation of a completed unit of the work for which a unit price has been specified in the contract.

Payment will be made for extra work to cover direct cost for such work and ten percent additional. Direct cost of extra work upon which said additional ten percent shall be computed shall consist of labor, material, field supervision, payroll and sales taxes, and insurance, but shall not include rental of equipment or general office expense. Said additional ten percent covers the Contractor's profit, general office expense and the use of small tools. Extra work performed by a Subcontractor shall be paid for on same basis as heretofore stated for the Contractor, and in addition thereto, the Company will pay the Contractor for extra work performed by the Subcontractor five percent of the Subcontractor's direct cost as herein defined.

If equipment is required in connection with extra work it shall be paid for in accordance with rental rates to be agreed upon by the parties prior to its use.

No extra work or material will 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.

Arbitration.

Should the parties disagree upon any question touching the construction of this agreement or concerning the business or manner of transacting the business to be carried on under its provisions or concerning the observance or performance of any of its covenants, including, among other things, extra work, the amount and quantity, character and kind of work done and materials furnished by the Contractor, such questions shall be submitted to the Chief Engineer of the Company, who is hereby made the arbitrator to decide all such questions, and his decision shall be final and conclusive on the parties.

N.P. 109A
10-39

Prices for work.

The prices to be paid by the Company for the work are as follows:

1. Common Excavation - Price per cu. yd. measured in place $_____

2. Caliche Excavation - Price per cu.yd. measured in place $_____

3. Borrow in Embankment - Price per cu. yd. measured in place $_____

4. Water for compacting grade - Price per M. Gallons $_____

5. Overhaul - Price per cu. yd. per 100 feet $_____

6. Right of Way Fence - Price per foot of fence, including material $_____

7. For culvert excavation and diversion ditches:

   a. For common excavation - Price per cubic yard $_____
   b. For caliche excavation - Price per cubic yard $_____

8. For placing culverts and siphons, including placing of special fill and bedding for culverts:

   a. For 48" reinf. concrete pipe - Price per lin. ft. $_____
   b. For 36" reinf. concrete pipe - Price per lin. ft. $_____
   c. For 12" reinf. concrete pipe - Price per lin. ft. $_____
   d. For 36" corr. metal pipe - Price per lin. ft. $_____
   e. For 24" corr. metal pipe - Price per lin. ft. $_____
   f. For 18" corr. metal pipe - Price per lin. ft. $_____

9. For hand placed rip rap - Price per cubic yard $_____

10. For concrete in place, including excavation, placing reinforcing steel and forming:

    a. For job mixed concrete - Company to furnish Portland cement - Price per cubic yard $_____
    b. For ready-mixed concrete - Contractor to furnish Portland cement - Price per cubic yard $_____

FOR SALES TAX PURPOSES:
Items 1, 2, 3, 4, 5, 7 and 9 are not subject to sales tax. It is mutually agreed that the sum of $_____ represents that portion of the sums stated under Items 8a, b, c, d, e and f, which is charge for placing special fill and bedding for culverts and not subject to sales tax. It is further mutually agreed that the sum of $_____ represents that portion of the sums stated under Items 10a and b, which is charge for excavation and backfill for concrete and not subject to sales tax.

Transportation General

The Company will furnish such free transportation over its lines for use in connection with the work covered by this contract as is provided for hereinafter. Such free transportation will be subject to the review and instructions of the Chief Engineer as to the necessity for and proper use of same, and the Chief Engineer may make exceptions to such provisions and grant additional free transportation if in his judgment it may be found necessary for the proper handling of the work.

Passenger Transportation

Passenger Transportation:
(To be used only when traveling on business in connection with this contract).

1. For one member and one superintendent of the Contractor's firm or corporation, time passes good

System

2. For Sub-contractors trip passes from

None

and intermediate points to the station of the Company nearest the site of the work and return.

3. For foremen and skilled and common laborers from

to points of work.

Livingston and West

4. In addition to the foregoing transportation and subject to such exceptions as the Chief Engineer may make with respect thereto, return transportation will be furnished to such foremen and skilled labor as may remain until completion of the class of work on which employed, but no return transportation will be granted for common laborers.

Freight Transportation

Freight Transportation:

1. For all material to be used in the work, except coal, fuel oil, gasoline, oil fuels for internal combustion engines, boarding and commissary supplies, hay and grain, lumber for camps, powder and explosives, from

Livingston and West

and intermediate points to the station of the Company or spur track nearest the site of the work.

2. For tools, outfit, and equipment used in the work from

Livingston and West

to the station of the Company or spur track nearest the site of the work and return to the point from which same were originally shipped to the work, or to any intermediate point on the line of the Company. The right to such free return transportation must be exercised within ninety (90) days after the date of completion of the work, after which time no free transportation will be furnished.

Express Transportation

Express Transportation:

The Contractor shall pay full tariff rates on all materials, supplies and equipment which he elects to ship by express over Company and Foreign lines.

Demurrage charges.

Nothing herein contained shall be construed to relieve the Contractor of payment of demurrage charges under applicable tariffs. Claims for cancellation or refund of demurrage on account of inclement weather, or for other reasons, shall be presented to the Engineer in charge of the work within fifteen (15) days after presentation of demurrage bills by the Company, and it is hereby agreed that no claim shall be presented after the expiration of the above time limit.

Routing

For all materials for which free transporation is not granted the Contractor shall buy said materials, if possible, at points which will permit the Company to receive the haul on same, routing same via the lines of the Company and its connecting lines designated by the Chief Engineer.

Estimates.

Payments.

Retained percentage.

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 estimates. Ten per cent upon all monthly estimates shall be retained until, and as security for, complete performance of this contract.

Stopping work.

The Company reserves the right at any time before completion to stop the work or any part thereof, or retard the work in whole or in part and upon receipt of notice to such effect, the Contractor shall promptly comply therewith. The Contractor shall have no claim whatsoever for damages by reason of stopping or retarding the work but shall receive payment for the work done in full discharge and satisfaction of all demands against the Company, provided, however, if the Chief Engineer shall deem the stopping or retarding of work pursuant to said notices to have materially affected the cost of doing the work, he shall determine the prices to be paid so as to do substantial justice between the parties. Any notice given by the Company under this paragraph shall be in writing signed by the Engineer, and shall be delivered to the Contractor or to an employee of the Contractor on the work at least five days prior to taking effect.

Power to cancel contract.

If the Contractor at any time shall 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. In the event of cancellation hereunder 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 be then unpaid.

Contractor to pay all laborers.

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 all payroll taxes have been paid, and that no claim exists out of which a lien may grow.

Indemnity.

The Contractor shall indemnify and save harmless the Company from any and all claims, suits, losses, damages or expenses on account of injuries to or death of any and all persons whomsoever, including the Contractor, subcontractors, employees of the Contractor, subcontractors and of the Company, and any and all property damage, arising or growing out of, or in any manner connected with the work performed under this contract, or caused or occasioned in whole or in part by reason of the presence of the person or of the property of the Contractor, subcontractors, their employees or agents, upon or in proximity to the property of the Company.

The Contractor further agrees that it will defend, at its own expense, in the name and on behalf of the Company, all claims or suits for injuries to persons or damage to property arising or growing out of the work carried on under this contract, for which the Company is liable, or is alleged to be liable.

The Contractor will procure and furnish to the Company an insurance policy or endorsement to the Contractor's public liability insurance policy herein provided for, under the terms of which the Insurance Company assumes the liability of the Contractor hereunder.

Workmen's compensation.

The Contractor, at his sole cost and expense, shall comply with all laws of the State where this contract is to be performed, relating to Workmen's Compensation covering all employees of said Contractor or of any sub-contractor employed to perform work under this contract.

Public Liability and Property Damage Insurance.

The Contractor shall carry regular Contractor's Public Liability Insurance providing for a limit of not less than One Hundred Thousand ($100,000) Dollars for all damages arising out of the bodily injuries to or death of one person, and, subject to that limit for each person, a total limit of Two Hundred Thousand ($200,000) Dollars for all damages arising out of bodily injuries to or death of two or more persons, in any one accident, and regular Contractor's Property Damage Liability Insurance providing for a limit of not less than Fifty Thousand ($50,000) Dollars for all damages to or destruction of property in any one accident, and subject to that limit, a total (or aggregate) limit of One Hundred Thousand ($100,000) Dollars for all damages to or destruction of property during the policy period.

Approval of Policies by Company.

All such policies shall be approved by the Company as to the insurance company writing same, the amount and the form.

The Contractor shall deposit with the Company the Public Liability and Property Damage Insurance policy required hereunder, or in lieu thereof shall furnish the Company a certified copy of said policy.

Fire Insurance.

Damage by fire to the work under construction during the construction period shall be made good by the Contractor, who shall keep all structures fully insured until completion and acceptance by the Company. The cost of such insurance will be divided equally between the parties, the policies written in the name of both, loss payable as their interest may appear. The policies shall be deposited with the Chief Engineer.

Sales and other taxes.

The Contractor, at his sole expense, shall pay all sales taxes, compensating taxes and other taxes of every kind, nature and description, which may accrue on equipment, material, supplies or fixtures furnished or owned by him or his sub-contractors in connection with the work contemplated by this contract, and the Contractor shall furnish to the Company satisfactory evidence that all such taxes have been paid, provided, however, that the Company shall pay to the Contractor the amount of any sales tax due the State of Washington which the Contractor is required to collect as a result of the performance of this contract.

Bond.

If required by the Company, the Contractor shall furnish to the Company a bond in amount, form and substance satisfactory and acceptable to the Company, which shall provide that the Contractor shall well and faithfully keep, perform and carry out each and all of the terms, conditions and provisions of this contract. If a bond is required, the Company will reimburse the Contractor for the cost thereof.

Contractor's base of information.

It is understood and agreed that the Contractor has by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters which can in any way affect the work under this contract. No verbal agreement or conversation with any officer, agent or employee of the Company, either before or after the execution of this contract, shall affect or modify any of the terms or obligations herein contained.

Where borings or soundings for foundation of structures are indicated on the plans, it shall be understood that this data has been obtained for guidance in the design of the structure, and the Company will assume no responsibility contingent upon the accuracy of the borings or soundings.

Right reserved to modify and change the amount of work.

The Company reserves the right at any time to modify or change the plans and specifications covering the details of the work embraced in the contract, including, in cases where the contract covers the construction of new lines of railway, modifications and revisions of the located line. Such modifications or changes shall not affect the prices herein stated, nor shall any bill for extra or other charges or claims be made by reason thereof, but if the Chief Engineer shall deem the change or modification to have materially affected the cost of doing the work, he shall determine the price to be paid, either above or below, as the case may be, the prices herein provided, so as to do substantial justice between the parties. Orders for changes or modifications that may be required under this paragraph shall be given in writing by the Engineer.

Use of Completed or Partially Completed Portions.

The Company shall have the right to take possession of and to use any completed or partially completed portions of the work notwithstanding that the time of completing the entire work, or such portions, may not have expired.

The use of such partially completed portions does not constitute acceptance, nor does it relieve the Contractor of his obligation to complete in accordance with the terms of this contract.

If such prior use of completed or partially completed portions of the work increases the cost of or delays the work, the Contractor shall be entitled to extra compensation, or extension of time, or both. The Engineer shall fix the extension of time and shall determine such extra compensation as will reimburse the Contractor for his increased cost.

Final Estimate.

Time of payment of final estimate.

Release.

When in the opinion of the Chief Engineer this contract shall have been completed, he shall so certify in writing and give a final estimate and statement of the balance unpaid; and the Company within thirty days thereafter shall pay the full balance. The Contractor at final payment will 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.

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)

Form 3175 Spec. No. E-114-Contents 8-10-28 400 RP

NORTHERN PACIFIC RAILWAY COMPANY

CONSTRUCTION SPECIFICATION NO. E-114

OFFICE OF CHIEF ENGINEER

ST. PAUL, MINN., JUNE 1, 1928.

CONTENTS

GENERAL

CONTRACT WORK

1. The term "contract work" or "work" as used in this contract and specifications shall be considered as meaning all labor, material, equipment, tools, temporary structures, fuel, supplies, and any other items necessary to fulfill the requirements of the contract, plans and specifications. Except as herein specifically provided otherwise, the Contractor shall furnish, for the compensation specified, all work covered by the contract, plans and specifications, complete, using suitable materials and satisfactory workmanship.

PLANS FURNISHED BY COMPANY

2. The plans hereinbefore listed furnished by the Company shall be considered as part of and illustrating these specifications. The plans and specifications are the property of the Company and shall be returned when the work is completed and before final payment is made.

The plans show the general character of detail work, but the Company reserves the right to furnish proper scale details of such portions as may require them. The Contractor shall not execute any work requiring such details until these have been furnished, and all work shall conform with these details when executed.

Figures on plans shall take precedence over measurements by scale, detail plans over small scale drawings, and full size details over all other plans. The decision of the Engineer shall be final as to the interpretation of plans and specifications.

VERIFICATION OF PLANS AND PHYSICAL CONDITIONS

3. If the Contractor in the course of the work finds any discrepancy between the instructions, plans and physical conditions of the work, or any errors in plans, or in the layout made from said plans and instructions, it shall be his duty immediately to inform the Engineer. Any work done after such discovery and before these discrepancies or errors have been corrected, shall be done at the Contractor's risk.

PLANS, ETC. TO BE FURNISHED BY CONTRACTOR

4. The Contractor shall submit triplicate copies of all shop drawings and erection diagrams required. All such plans must be approved by the Engineer before work involved is started. The approval of these working plans by the Engineer shall not imply any change in the specifications or relieve the Contractor from responsibility for any errors thereon. The Contractor shall supply additional copies of erection diagrams or working plans on request. Tracings of all shop plans shall become property of the Company and shall be mailed to Chief Engineer at time material is shipped from the manufacturer's plant.

UNLOADING AND STORING MATERIALS

5. The Contractor shall, at his own expense, unload and be responsible for all material whether furnished by the Company or by the Contractor. Material shall be properly stored at least six feet six inches (6'6") from the nearest rail, on suitable foundations or platforms, and, if necessary to prevent deterioration, it shall be protected from the weather. Any material furnished by the Company, lost or damaged in handling by the Contractor during the progress of the work, shall be replaced at his expense, unless such loss or damage is plainly the fault of the Company. Material furnished by the Company which is delivered before the Contractor is on the ground, will, if necessary to release cars, be unloaded by the Company along the set out track constructed for or assigned to the work, or the nearest existing spur track to the work, available for such use. All material held on cars, or received after the Contractor is on the ground, shall be unloaded promptly by the Contractor. All material, whether unloaded by the Company or by the Contractor, shall be moved from the point where it is delivered by the Company to the site of the work by the Contractor.

Contractor may store materials and erect temporary buildings on Company property which is not required for Company use or which is not under lease to other parties, as approved by the Engineer.

PROTECTING PREMISES

6. Previous to, or during the work, the Contractor shall, at his own expense, erect and maintain such temporary fences or take such other action as may be necessary to prevent trespass upon the Company's property or damage to adjoining property. Proper barricades shall be provided by Contractor for excavations and operations to prevent accidents to Company employees and the Public.

FLAGMEN

7. Whenever the Company Division Superintendent considers flagmen necessary for the protection of the Company's operated tracks, they will be furnished by and at the expense of the Company. The Contractor shall carry on no operation requiring the use of flagmen unless they are on duty.

MATERIALS

8. All materials shall be new and of the grades specified, and shall be the best of their respective kinds for the uses intended.

Priced Materials: Where the quality or kind of material cannot be definitely specified, the amount of money the Contractor is to pay for same is given in these specifications. The sum so given is intended to cover the purchase price of the materials and freight charges to the building site or the Company's lines as provided in the contract, but this sum shall not include any cost of hauling, cartage, supervision, preparatory work, profit, or the cost of erection; it being intended that the Contractor

shall include such foregoing items in his contract price. The Engineer will select such materials and notify the Contractor of his selection and the price agreed upon, but the Contractor shall contract for the material and supervise its delivery and erection as fully as other materials entering into the work.

If the required payment for such priced material should be more than the sum herein specified, the difference is to be paid by the Company and if it should be less, the difference is to be deducted from the sum to be paid the Contractor under the contract.

The term "Approved" in this specification signifies that the Engineer shall be consulted as to the source from which the material is to be purchased as well as its general quality and construction, but such approval does not mean the acceptance of the material actually furnished if it should be defective.

Special brands of materials or devices mentioned in these specifications or shown on the plans are named for the purpose of establishing a standard or criterion of quality and character desired. Other materials of equal quality and adaptability to the purpose for which they are intended may be substituted, but only with the written approval of the Engineer. If the Contractor desires to substitute some other brand of material for that called for, he shall submit a statement with his proposal, clearly and fully describing such substitutions as he desires to make. Where a specific make or kind of apparatus is called for and furnished by the Contractor, the furnishing of such apparatus does not relieve the Contractor of liability until he shall make such apparatus or appliance operative so that it will successfully perform the function for which it is intended.

All material and equipment to be used will be inspected by the Company on the site of the work. If the Contractor sees fit to furnish any or all such material and equipment in such manner as to require inspection away from the site of the work, he shall bear any expense the Company may be put to by reason of such inspection.

CO-ORDINATION OF WORK

9. Wherever work being done by the Company's forces or by other contractors is contiguous to work covered by this contract, the respective rights of the various interests involved shall be established by the Engineer, to secure the completion of the various portions of the work in general harmony. Each sub-contractor shall do all necessary cutting, fitting and patching of his work when it engages the work of another contractor or of the Company. Contractor shall plan and carry out his work in such a manner as to result in minimum interference with Company, shop or office operations at all times. Changes to and cutting in new utility services to existing facilities shall be handled at best convenience of Company, and if necessary shall be made during off-shift of Company forces, or on Sunday.

TEMPORARY ENCLOSURES AND HEATING

10. Where enclosures for openings or heat are required temporarily or during construction of building, in the opinion of the Engineer, ~~for drying plaster or paint~~, for the prevention of damage to materials by freezing, or for any other reason, such enclosures and heat shall be provided by the Contractor at his own expense unless otherwise specified hereinafter.

REMOVAL OF EQUIPMENT

11. Upon completion of the contract, or its termination from any cause: the Contractor shall, if so directed by the Engineer, immediately remove from the premises of the Company, all equipment, material, supplies or other property of the Contractor.

REMOVAL OF MATERIAL, RUBBISH, ETC.

12. As soon as the work is completed, the Contractor shall remove all tools, staging, surplus material, rubbish, etc. from the premises, and leave the structures and site in clean and finished condition. All walls, both inside and outside, floors, platforms, roofs, etc. shall be cleaned and freed from dust and dirt and the windows washed. Surplus and salvaged Company material shall be loaded on cars by Contractor for shipment to Company storehouses.

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Section Three

ROADBED

1. **Sub-grade.** The grade line on the profile denotes sub-grade, and this term indicates the tops of the embankments and bottom of excavations ready to receive the ballast.

2. **Finished Roadbed.** When finished, roadbed shall conform to the finishing stakes set for it by the Engineer.

3. **Excavation Cross Section in Earth.** The standard width of the roadbed in earth excavation for Branch Line single track shall be twenty-four (24) feet wide and for Main Line twenty-six (26) feet wide at profile grade, with slopes of one (1) horizontal to one (1) perpendicular, unless otherwise ordered by the Engineer. All cuts shall have side ditches one (1) foot below sub-grade, slopes one (1) to one (1).

4. **Excavation Cross Section in Rock.** The width of the roadbed in solid rock excavation for both Branch and Main Line single track shall be twenty-four (24) feet wide at the profile grade, with slopes of one (1) horizontal to four (4) perpendicular, or otherwise as the Engineer may direct. Solid rock cuts shall be excavated to a depth of one (1) foot below the sub-grade, and backfilled to sub-grade with suitable material. Backfill will be measured and paid for as embankment.

5. **Excavation Cross Section in Composite Earth and Rock Cuts.** Where rock is encountered below the surface, the cut shall immediately be re-cross sectioned to rock slopes as indicated above and a berm of not less than four (4) feet shall be left between edge of rock excavation and toe of slope of overlying earth. Where cut is so shallow it is impossible to leave a four (4) foot berm without changing slopes, the width of berm required may be reduced.

6. **Embankment Cross Section.** The width of roadbed on embankments for Branch Line single track shall be sixteen (16) feet wide and for Main Line twenty (20) feet wide at profile grade. Side slopes shall be one and one-half (1½) horizontal to one (1) perpendicular, unless otherwise ordered by the Engineer.

7. **Widths for Additional Tracks.** For each additional track an additional width of embankment or excavation of fourteen (14) feet, at profile grade, shall be required.

8. **Surface Ditches.** Surface ditches shall be made at the top of the slopes of all earth cuts where the ground falls toward the top of the slopes, and they must diverge from the roadway sufficiently to prevent erosion of the adjoining embankment. The cross-section and location of such ditches shall be designated by the Engineer, and, if required by him, ditches shall be made in advance of opening the cutting.

9. **Berm Ditches Adjacent to Embankments.** Where required by the Engineer, Contractor shall construct ditches along the upper sides of all embankments where no borrow pits have been excavated, in order to carry the surface water to the nearest water course. Material from all ditches shall be deposited in the embankment unless wasting is approved by the Engineer. Excavation of ditches will be paid for at contract grading prices.

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Section Four

GRADING

1. **Work Included.** Grading shall include all excavations and embankments required for the formation of the roadbed, including sidings, yard tracks and spurs, station and shop grounds, cutting all ditches and drains about or contiguous to the roadbed, all borrow pits, changing of streams, other railways, roads and highways on or off the right of way; foundation pits for culverts, and all other excavations or embankments in any way connected with, required for, or incident to the construction of the roadbed.

2. **Sloping Excavation.** Slopes of all excavations shall be cut straight and true to the plane of the specified prisms; and all loose stones, stumps and debris in the slopes must be removed.

3. **Increasing Width of Cuts.** Where necessary to facilitate operation of excavation by so-called "grader machines," Contractor will be permitted to take out roadbed cuts to a 40-foot base and slopes to be specified by the Engineer, and the volume of material in excess of the specified roadbed cross section will be paid for to the extent it economically displaces embankment material available from other sources.

4. **Extra Excavation.** In cases where an increase in width of excavation is made on orders of the Engineer, the actual volume excavated will be paid for at contract unit prices.

5. **Disposition of Excavation.** All material, except waste taken from excavations, shall be deposited within the roadbed embankment cross section, except when directed otherwise by the Engineer.

6. **Disposition of Waste Material.** When a cut contains material in excess of the amount required to make embankments between the limits of specified haul, such excess must be hauled and used to widen the banks equally on both sides of the center line within the limit of free haul, or as snow breaks, or otherwise wasted as directed by the Engineer.

7. **Slips, Slides and Overbreak.** Material in slips, slides and overbreak, extending beyond the slope lines, or more than one foot below the subgrade in rock, or below subgrade in other classes of material, will not be estimated nor paid for, unless in the judgment of the Engineer, such slips, slides or overbreak were beyond the control of the Contractor and not preventable by the exercise of reasonable care and diligence. If allowed, material will be classified in accordance with its condition at the time of removal regardless of prior conditions.

8. **Use of Powder Limited.** The use or amount of powder in large blasts in seams, pot-holes, shaft or drift shots, may be restricted by the Engineer. Blasts shall not be so located as to disturb substantially the material outside of the roadbed cross section of the cuts, especially in clay, hard pan or materials showing a tendency to slide.

9. **Borrow Pits, Slopes and Drainage.** The slopes of borrow pits alongside of roadbed and right of way shall not be steeper than one (1) horizontal to one (1) perpendicular. If required, borrow pits shall be properly drained.

10. **Berms.** Berms shall be left not less than six feet between the foot of the slope of an embankment and the edge of an adjacent borrow pit, four feet between the edge of every borrow pit and the boundary line of the Railway Company's land, and fifteen feet between the edge of any regular cutting and the base of any spoil bank thereon.

11. **Cross Berms.** Where borrow pits are subject to overflow of high water, and where necessary to carry irrigation ditches across borrow pits, cross berms shall be left and spaced as directed by the Engineer, and no additional allowance shall be made because of same.

12. **Borrow Not Permitted.** No material shall be borrowed from between the line of roadbed and an adjacent stream where the natural surface is below high-water mark; and where it is above high-water mark, no borrow pits shall be excavated to a depth below high-water mark without written authority from the Engineer.

13. **Borrow One Side Only.** Engineer may require borrow pits to be taken from one side of the roadbed only.

14. **Borrowing Below Grade.** Borrowing below profile grade, or wasting above profile grade, shall not be done on station, shop grounds or sidings, except on written orders of the Engineer.

15. **Removal of Deck of Temporary Trestles.** Where fills are made from temporary trestles, top of caps must be kept three (3) feet below subgrade, and all stringers and cross ties must be removed before filling is completed.

16. **Embankments at Bridges, Culverts, etc.** Where embankments are constructed over culverts, or where they are to abut against masonry or trestle bridges, the earth forming such embankments shall be tamped or otherwise made as compact as possible as directed by the Engineer. No embankment or fill shall be placed upon or against any culvert, wall or crib in such manner as to endanger its safety, or over or against any structure of masonry or concrete until the mortar or concrete has properly hardened and set as determined by the Engineer. If any structure be in any way injured or displaced in the construction of the roadbed through negligence or improper methods of grading used by the Contractor, he shall bear the loss and shall make the same good at his sole cost and expense.

17. **Perishable Materials.** Logs, stumps, brush or other perishable material will not be allowed in embankments, and sods will not be put in the central part of embankments less than five (5) feet high, except by permission of the Engineer.

18. **Shrinkage.** Where it is necessary in the judgment of the Engineer to make allowance for future settlement of the embankments, either on account of their height, the character of the material of which they are built, the character of the material on which they are founded, or the manner in which the material is placed, the embankments shall be carried to such a height above subgrade and to such increased width of roadbed as the Engineer shall specify.

19. **Removal of Snow and Ice.** The Contractor shall remove snow or ice from any portion of the work in any of its stages, whenever deemed necessary by the Engineer. Snow and ice removed on written orders of the Engineer shall be paid for as extra work.

20. **Corduroy Mat Foundation.** In grading across bogs or swamps of unstable bottom, a corduroy mat of logs and brushwood shall be furnished and laid by the Contractor, if required by the Engineer; the logs forming this foundation to be not less than six (6) inches in diameter at the small end. If necessary, there shall be two or more layers crossing each other at right angles, the logs of each layer being placed closely together, with broken joints and covered closely with brush; the bottom layer shall be placed transversely to the roadway and project at least five (5) feet beyond the slope-stakes of the embankment. Corduroy mat will be measured and paid for per cubic yard in place.

21. **Classification of Grading Material.** Grading will be classified under the following heads: Solid Rock, Solid Rock Borrow, Loose Rock, Hard Pan, and Common Excavation.

22. **Solid Rock.** Solid Rock shall include all rock occurring in masses of one cubic yard or more which both rings sharply when struck with a steel hand hammer and requires continuity of blasting for economical removal.

23. **Solid Rock Borrow.** Solid rock borrow shall consist of solid rock, as above defined, excavated outside of the specified prism by order of the Engineer.

24. **Loose Rock.** Loose rock shall include slate, hard shale, coal, soft sandstones, shell rock, and all other similar rocks, when they do not have the properties required to qualify under solid rock. Also, all detached rock or boulders containing one cubic foot or more, but less than one cubic yard each, and cemented gravel of unusual hardness.

25. **Hard Pan.** Hard pan shall include shales, indurated clay and other hard materials not loose or solid rock, that, in the opinion of the Engineer, cannot be reasonably plowed by six good horses on account of its own inherent hardness.

26. **Common Excavation.** Common excavation shall include all material of every description not included in the foregoing or special classification.

27. **Isolated Strata.** Isolated strata of classified material occurring in a prism of common excavation will be included in the pay quantities only to the extent of the actual volume of such strata excavated.

28. **Special Classification.** Special classification may be established at the option of the Chief Engineer when material in substantial quantities is encountered of such character that it cannot, in his opinion, be properly classified in any of the above defined classes. Unit prices for specially classified material shall be fixed by the Chief Engineer with due regard to cost of excavating such material as compared with cost of excavating and unit prices stipulated in the contract for materials covered by contract classifications.

29. **Classification of Borrow.** Material borrowed for embankments will be classified strictly in accordance with the foregoing specifications, but no classification higher than Loose Rock will be allowed for such material except on written orders of the Engineer.

30. **Excavation Pay Quantities.** The unit of grading measurements shall be a cubic yard of the material measured in its original position. Grading shall be measured and paid for in excavation only, except that at the option of the Engineer, borrow by dredging operations or borrow pits filled with water, or of extremely irregular cross section, may be measured in embankment with proper allowance for swell or shrinkage, if in the judgment of the Engineer the character of the material is such as to require such adjustment, to produce as nearly as possible excavation measurements. Except as hereinbefore noted, the pay quantities shall be only those within the specified roadbed cross section for excavation and embankment as staked out by the Engineer.

31. **Haul Classes.** Haul of grading materials will be divided into three classes as follows:

Free Haul	0 to	500 ft.
Class A Overhaul	500 to	2500 ft.
Class B Overhaul { Zone one	500 to	2500 ft.
Class B Overhaul { Zone two	2500 to	5500 ft.
Class B Overhaul { Zone three	5500 to	12500 ft.

The classification of haul shall in all cases be based solely on the distance limits specified, regardless of the method used in hauling.

Explanatory Note. It will be noted that the distance between 500 and 2500 feet appears in both Class A and Class B Overhaul; this is for the purpose of permitting unit price differentials in bidding between Class A Overhaul and the first distance zone of Class B Overhaul, made possible by the higher maximum limit of Class B Overhaul.

32. **Free Haul.** The contract unit prices per cubic yard for excavation shall in all cases be considered as including the haul of material for any distance not in excess of 500 feet.

33. **Overhaul Class "A".** Whenever the extreme haul of any specified unit of grading material to a single embankment is not in excess of 2500 feet, the Contractor shall be paid per cubic yard for each 100 feet haul in excess of 500 feet free haul at the contract unit price for Class "A" Overhaul.

34. **Overhaul Class "B".** Whenever the extreme haul of any specified unit of grading material to a single embankment is in excess of 2500 feet, the Contractor shall be paid the contract price for Class "B" Overhaul, for the Zone applicable, per cubic yard for each 100 feet hauled in excess of 500 feet free haul. The overhaul shall be estimated for each Zone separately and shall include the overhaul on material deposited within the Zone and on the material moved through the Zone.

35. **Single Embankment.** The term single embankment as used in Class "A" and Class "B" Overhaul, shall be taken to mean the roadbed prism from grade point of cut to grade point of next adjacent cut irrespective of any divisions by openings through the embankment permanent or otherwise.

36. Haul Across Permanent Openings in Embankment. Whenever required by written order of the Engineer, the Contractor shall haul grading material across permanent openings in the embankments, and if temporary bridge is necessary for such purpose, it shall be constructed by the Contractor and shall be paid for as extra work.

37. **Measurement of Haul.** The measurement of haul of material excavated from and deposited within the roadbed prism shall be taken on the center line of profile grade from the point opposite the original location of the unit of material in excavation to the point opposite its location in completed embankment. Where material is obtained from borrow pits other than widened roadbed cuts, the haul shall be measured in horizontal projection along the shortest practical route as determined by the Engineer, from the original location of the unit of material in excavation to its location in completed embankment. In all cases the paid distance on overhaul shall be the total distance hauled, measured as above specified, less 500 feet free haul. Overhaul shall be computed from each cut to each single embankment separately, and for each Zone separately, and the overhaul paid for at the specified contract unit prices for the Class and Zone applicable. No payment will be made for overhaul on material wasted above profile grade except on written orders of the Engineer.

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Section Six

PIPE AND TIMBER CULVERTS

1. **Materials.** Culvert pipe will be of concrete or corrugated iron types, and all pipes and joint material will be furnished by the Company.

2. **Concrete Pipe.** Concrete pipe sections may be either round or oval in shape, eight ft. in length, with bell and spigot ends, as covered by the Standard Plans of the Company. The twenty-four inch diameter sections weigh approximately 3600 lbs. each, and the thirty-six inch sections approximately 5000 lbs. each.

3. **Corrugated Pipe.** Corrugated pipe will be of 12 gauge galvanized metal, riveted or welded into round sections of the specified diameter and cut to convenient lengths for handling. Field joints will be made with bolted collars overlapping approximately two corrugations on each section.

4. **Laying Culvert Pipe.** The pipe in culverts shall in all cases be well and carefully laid to true line and grade, with proper camber to take care of any future settlement, as staked out and directed by the Engineer, and when laid, suitable material, free from stones or other hard substances, shall be carefully rammed under and against the sides of the pipes. Pipe shall be laid with the small or "spigot" ends of the pipe down stream and joints must be well and carefully entered and connected. Oval concrete pipe shall be laid with the long diameter vertical, and round concrete pipe shall be laid with part marked "Top" at top of each section. This is absolutely essential to avoid failure of pipe.

5. **Foundation Pits.** Wherever ground conditions permit, foundation bed for pipe shall be so prepared as to give pipe a firm bearing on stable natural ground for its entire length, rings being cut in the bed to take bell ends. Backfilling depressions to pipe line gradient will not be permitted. When the foundation bed is in rock it shall be excavated one foot below pipe line gradient and backfilled with sand or fine gravel. Hard strata occurring at intervals along the pipe line, but not of sufficient extent to justify lowering the foundation gradient as a whole, shall be cut to fit the contour of the pipe as nearly as possible. ~~Excavation and preparation of foundation beds shall be measured and paid for as grading at the contract grading unit prices applicable to the class of material moved.~~

6. **Special Foundations.** When pipe lines must be located on soft ground, or ground of unstable character, special foundations of mat, corduroy, piling, etc., may be required by the Engineer, and shall be paid for at the contract unit prices applicable to the classes of work done.

7. **Handling Pipe.** All pipes shall be carefully unloaded and handled into place. It shall not be dropped from car or wagon decks to ground, and shall not be rolled down slopes or inclines without restraint. Particular care shall be taken to avoid any heavy loading or blows on the flat side of concrete pipe, or the diameter opposite the diameter marked "Top" of round concrete pipe.

8. **Measurement.** Pipe culverts will be measured and paid for per lineal foot measured in place end to end of culvert.

9. **Headwalls.** Headwalls, if required, will be concrete, rubble masonry or dry walls and will be measured and paid for at the contract unit prices applicable to the class of work done.

~~10. **Timber Culverts.** All material for timber culverts will be furnished by the Company. Timber culverts, if required, shall be built in conformity with the Standard and Special Plans of the Company, and shall be measured and paid for at the contract unit price per thousand feet board measure. The length of timbers paid for shall be the minimum commercial lengths from which the timber in the finished structure can be cut.~~

11. Log Culverts. Log culverts shall conform to the Standard and Special Plans of the Railway Company and shall be made of sound, straight, green logs, cedar if available, not less than twelve inches in diameter at the small end and of approximately uniform diameter throughout each course. All bark shall be removed and logs shall be flatted on two sides. Material in log culverts shall be measured and paid for by the lineal foot, and the length of the logs in the completed structure only will be considered, without regard to varying size or thickness.

12. Syphons. If syphons are required of pipe or other material, they shall be constructed to Special Plans to be furnished by the Company, and shall be paid for at the contract unit prices for syphons of that unit prices for culverts or bridge masonry will not be construed as applicable to syphon construction.

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Section Twelve

FOUNDATIONS FOR PIERS, ABUTMENTS AND WALLS

1. **Work Included.** The Contractor shall make the excavation and complete the foundations in strict accordance with the plans of the Company.

2. **Furnishing Materials.** Unless otherwise specified in the contract, all material for the construction of the foundation pits shall be furnished by the Contractor. The Contractor shall, at his own expense, furnish, erect and, on completion of the work, remove all temporary structures necessary for the work covered by this contract.

3. **Depth of Foundation.** Excavation shall be made to such depths as will, in the judgment of the Engineer, insure a safe and permanent foundation.

4. **Classification.** Excavation shall be classified as Dry Excavation and Wet Excavation.

5. **Dry Excavation Defined.** All material which can be taken out without running a pump in the pit and which has not been included in the wet excavation prism, shall be classified as Dry Excavation.

5. **Measurement of Dry Excavation, Pit Method.** The volume of dry excavation shall be the volume of an area one foot larger all around than the outside dimension of the footing course, times the average depth of the sides of the pit. If wet excavation is made in the same pit, the area defined under wet excavation shall be used in measuring dry excavation.

7. **Measurement of Dry Excavation, Slope Excavation.** All material removed in slope excavation outside of the prism defined by pit method shall be actual material removed.

8. **Wet Excavation Defined.** All material, the removal of which requires the use of a pump in the pit in order to make the excavation in a practical, economical manner, shall be classified as wet excavation.

9. **Measurement of Wet Excavation.** The volume of wet excavation for depths ten (10) feet or less shall be the volume of an area one foot larger all around than the outside dimensions of the footing course, times a depth equal to the average head of water pumped against in the pit during the time work in the pit is being done. For each increase of five feet or fraction thereof in excess of the first ten (10) feet of depth, one (1) foot shall be added to the total length and one (1) foot shall be added to the total width of the base of the wet excavation prism as above specified, and the area of the base so obtained shall be considered as the area of the base of the prism for the total wet and dry excavation.

10. **Backfilling.** All foundation pits shall be properly backfilled to the original ground line, unless otherwise directed by the Engineer.

11. **Surplus Material.** Surplus excavated material, if suitable, shall be used for backfilling foundation pits and the balance shall be disposed of as the Engineer may direct.

12. **Sheet Piling.** Sheet piling may be left in place at the option of the Contractor, but if so left, it shall be cut off at low water mark without extra cost to the Company.

13. **Basis of Payment.** In both dry and wet excavation, the price bid per cubic yard of excavation shall include all material and labor, such as sheeting, cofferdams, pumping, etc., necessary for carrying on the work and shall also include backfilling of foundation pits.

14. **Foundation Piles.** Foundation piles shall be driven to support the structure if, in the judgment of the Engineer, a good foundation cannot be secured in a reasonable depth.

15. **Driving Foundation Piles.** Piles shall be driven to a penetration satisfactory to the Engineer. Where the foundation material causes difficult driving, the Engineer may require the use of metal pile points and cap blocks or rings. Piles shall be driven by a steam or drop hammer. The weight of the drop hammer shall not be less than twenty-five hundred (2,500) pounds.

16. **Cutting Off Foundation Piles.** The Contractor shall cut off piles squarely and true to the elevation given by the Engineer.

17. **Measurement of Piles.** Piles shall be measured and paid for at the contract unit prices per lineal foot above cut off and below cut off. The labor of cutting off and trimming shall be considered as included in the price per lineal foot for driving.

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Section Thirteen

CONCRETE

1. **Work Included.** The Contractor shall build complete all concrete structures as herein specified or as shown or implied by the plans.

2. **Definition.** Concrete is an intimate mixture of Portland cement, water, fine and coarse aggregates, with small additions of other ingredients when required, proportioned, mixed, transported, placed and cured as herein specified.

3. **Furnishing Materials.** Unless otherwise specified in the contract, the Contractor shall furnish all material entering into the completed concrete structures except Portland cement and reinforcing bars. The Contractor shall furnish, erect and remove all forms, falsework and other temporary structures necessary for the concrete work.

4. **Portland Cement.** The quality of cement and the methods of sampling and testing shall conform to the current ASTM specifications C 150, Type I. Other C 150 types may be used by order of the Engineer without change in compensation.

5. **Admixtures.** The Company may elect to furnish an admixture, which the Contractor shall handle and include in the concrete without change in compensation.

6. **Fine Aggregate.** The fine aggregate shall be coarse, sharp, hard, strong, durable particles of natural sand, free from adherent coating, and washed to remove clay, loam, alkali, organic matter or other deleterious substances. Grading of fine aggregate shall conform to the following requirements:

	Per cent by weight passing the following standard ASTM sieves:					Clay or Loam per cent by weight
	⅜ inch	No. 4	No. 16	No. 50	No. 100	
Minimum	100	95	45	10	0	—
Maximum	—	100	80	30	8	1.5

7. **Coarse Aggregate.** The coarse aggregate shall be hard, durable broken rock or gravel of approximately uniform grading as follows:

Maximum Designated Size	Per cent by weight passing the following standard laboratory sieves with square openings.					
	1½″	1¼″	¾″	⅜″	No. 4	No. 8
¾ inch	—	100	90–100	20–55	0–10	0–5
1½ inch	100	90–100	35–70	10–30	0–5	—

Coarse aggregates shall be washed clean and shall be free from adherent coatings or lumps of clay, loam, roots, sticks and other organic matter, alkali or other deleterious material.

8. **Aggregate—General.** The Contractor shall submit samples of the aggregates which he proposes to use. No aggregate shall be used unless it has been approved by the Company's Engineer of Tests. Further samples shall be submitted as necessary to assure continued supply of acceptable aggregates.

In addition to the foregoing gradings and tests, the aggregates will be tested in the field, and shall not be used unless they combine to form an acceptable grading for strength and economy. If the concrete is not of workable character, or when finished it does not exhibit a proper surface, either the fine or coarse aggregate or both shall be rejected or altered as required by the Engineer.

9. **Water.** Water shall be clean and free from injurious amounts of oil, acid, alkali, chemically active salts, organic material or other deleterious substances. If water is not known to be potable, a one gallon sample shall be submitted to the Company's Engineer of Tests for analysis.

10. **Reinforcement.** All reinforcement shall be of the grade, dimensions and form shown on the plans. Bars shall be round, deformed billet steel bars unless otherwise specified. Reinforcing bars shall conform to the current ASTM specifications A 15 for billet steel, intermediate grade. The Contractor shall furnish suitable tie wires and metal fastenings and supports for reinforcement.

11. **Storage of Materials.**

(a) Cement shall be stored in a weather-tight structure with the floor raised not less than one foot above the ground. All cement shall be subject to retest at any time, and, if it fails to meet any of the requirements of the specifications, and particularly if it has hardened or partially set, it shall not be used. The Contractor shall be charged with the cost of any cement furnished by the Company and lost or damaged through neglect of the Contractor.

(b) The Company will furnish cement in paper sacks, and the Contractor shall properly dispose of all empty sacks.

(c) The Contractor shall unload, pile and store fine and coarse aggregates separately and in such manner as to avoid segregation of sizes and prevent contamination.

(d) Metal reinforcement shall be stored in racks off the ground.

12. **Proportioning.** If proportions are shown on the plans they shall be subject to modification by order of the Engineer. Materials shall be measured by weighing. Allowance shall be made for the free water held by the aggregates. Coarse aggregate, fine aggregate and cement shall be weighed separately. The water shall be measured by weight or volume. One sack of cement containing 94 pounds shall be considered one cubic foot in volume. Paper sacks shall be opened at the end and shall be completely emptied.

13. **Classes and Proportions of Concrete.**

(1) When concrete is described by classes, it shall conform to the following several specifications. Proportions are by weight. If no class or identification is given, concrete shall be of the classes suitable for the work, as ordered by the Engineer. The uses shown below are typical and not exclusive.

(2) Class A concrete, for general use for reinforced concrete, shall have coarse aggregate of 1½ inch maximum size and six gallons of water per sack of cement. Trial proportions should be 1:2.2: 3.8 with not less than 5.7 sacks of cement per cubic yard.

(3) Class B concrete, for mass concrete in abutments, piers and retaining walls, shall have coarse aggregate of 1½ inch maximum size and 6½ gallons of water per sack of cement. Trial proportions should be 1:2.5:4.25 with 5.2 sacks of cement per cubic yard.

(4) Class C concrete, for narrow beams and thin slabs, shall have coarse aggregate of ¾ inch maximum size and six gallons of water per sack of cement. Trial proportions should be 1:2.4:3.0 with 6.2 sacks of cement per cubic yard.

(5) Class D concrete, for concrete blocks and other small precast units, shall have coarse aggregate of ¾ inch maximum size and five gallons of water per sack of cement. Trial proportions should be 1:2.0:2.5 with 7.4 sacks of cement per cubic yard.

(6) Class E concrete, for paving, shall have coarse aggregate of 1½ inch maximum size and 5½ gallons of water per sack of cement. Trial proportions should be 1:2.0:3.4 with 6.2 sacks of cement per cubic yard.

(7) If the Engineer finds that the ratios indicated, together with the recommended proportions of aggregates, do not produce workable mixes, he will permit increase of the amount of both cement and water, without change of water-cement ratio. Concrete having a maximum slump of three inches will be considered a workable mix. Whenever water tends to accumulate at the surface of the concrete, the proportion of water shall be reduced until this bleeding is corrected.

(8) Concrete of specified strength, deposited in air, shall have the following quantities of water per sack of cement:

Minimum Compressive Strength (28 days)	Gallons per sack
2700 lbs. per sq. in.	7
3000 lbs. per sq. in.	6½
3300 lbs. per sq. in.	6
3700 lbs. per sq. in.	5½
4250 lbs. per sq. in.	5

14. **Forms.**

(a) Forms shall be of surfaced wood, metal or other approved material and shall conform to the shape, lines and dimensions of the concrete as called for on the plans. They shall be mortar tight and substantial and shall preserve their accurate shape until the concrete has set. Warped or distorted forms shall be immediately replaced. Joints shall be truly horizontal or vertical, neatly fitted with special care to give an even surface.

(b) All forms shall be so constructed that they can be removed without prying or hammering against the concrete. Bolts and rods used for internal ties shall be so coupled that when the forms are removed no metal shall be within one inch of any surface. Any material previously used in forms must be in good repair and thoroughly cleaned before being used again. Any probable deflection in long spans where intermediate support is impossible shall be compensated for, so that the finished work shall be true.

(c) Sheet piling may be used as forms for footing courses of concrete structures if approved by the Company's Bridge Engineer but the volume of concrete to be paid for shall be computed from dimensions given on the plans. The Company reserves the right to charge the Contractor for any additional Company material so used.

(d) Bevel strips 1½ inches on the diagonal face shall be placed in all exposed corners of forms. Abutting edges of expansion joints shall be beveled, or formed with proper tool of one quarter inch radius.

(e) Temporary openings shall be provided wherever necessary to permit thorough cleaning and inspection immediately before depositing concrete.

(f) The inside of forms shall be coated before each use with non-staining mineral oil or other approved material which shall be applied before the reinforcement is placed.

(g) The removal of forms shall not be started until the concrete has attained strength sufficient to support its own weight and construction live loads. Falsework for supporting forms and concrete shall not be removed until authorized by the Engineer. Forms shall not be removed from beams and slabs in less than two weeks nor from columns in less than five days nor from self-supporting concrete in less than forty eight hours unless authorized by the Engineer.

15. **Placing Reinforcement.**

(a) Cleaning. Before being placed in the forms, metal reinforcement shall be thoroughly cleaned of mill and rust scale, dirt, grease and any coating that will tend to reduce the bond.

(b) Forming and Placing. Bars shall be bent cold. Reinforcement shall be accurately formed and placed as shown on the plans, and securely fastened with annealed iron wire ties, suitable clips or spot welding at all intersections and shall be supported by concrete or metal supports. Metal clips or supports shall not be placed in contact with forms for exposed surfaces. Splices shall be made subject to direction of the Engineer. The lap at splices shall not be less than 40 diameters of the bars spliced. Splices will not be permitted at points of maximum stress, and adjacent bars shall have splices staggered.

16. **Inspection of Forms and Reinforcement.** The Contractor shall not place any concrete until the

Company's inspector has examined the forms and reinforcement, and all corrections ordered therein have been made.

17. **Joints.**

(a) Instructions as to the placing of joints shall be strictly followed. If necessary construction joints are not indicated, they shall be located as directed by the Engineer and formed so as not to impair the strength and to least impair the appearance of the structure. Keys equivalent to one-third of the area shall be formed in all joints, including the top of each day's work. If directed by the Engineer, dowels shall be placed. Reinforcement shall continue through the joint.

(b) Joints shall not be made in water-tight construction unless authorized by the Engineer. When such construction joints are authorized, the Contractor shall use all suitable means, including the providing and embedment of a non-corrosive metal seal, to insure that the joint will be fully and permanently tight against water under pressure.

18. **Mixing Concrete.** The Contractor shall mix all concrete in a suitable rotary batch mixer in good working condition, having capacity to handle the largest continuous pouring in eight hours or less. The plant shall include equipment for measuring and weighing all material, including water. Scales shall be of an approved type, made for weighing concrete ingredients, and be accurate within 1%. The Contractor shall keep on hand a suitable set of standard 50 pound test weights. The mixing period shall be not less than one and one-half minutes after all materials including water are in the mixer, and this time shall be increased 15 seconds for each half yard of mixer capacity above one cubic yard. Longer mixing may be required if necessary to produce homogeneous mixes. The drum shall revolve at a speed of 14 to 20 revolutions per minute. The size of batch shall not exceed the rated capacity. The entire batch must be discharged before starting to recharge the mixer. Material which has hardened to any degree shall not be used.

19. **Ready-Mixed Concrete.** On approval by the Engineer, the Contractor may use ready-mixed concrete conforming to the current ASTM specifications C 94.

20. **Depositing in Air.**

(a) Cleaning. Before placing of concrete is begun, the mixing and conveying equipment, forms and reinforcement shall be cleaned of mortar, dirt and debris, and if forms are on rock, all loose rock and other loose material shall be removed. Water shall be removed from the space to be occupied by the concrete. Any flow into an excavation shall be diverted or removed in a way which will eliminate washing of freshly deposited concrete.

(b) Handling and placing. Concrete shall be transported as rapidly as practicable by means which will prevent separation or loss. It shall be deposited continuously for each monolithic section, as nearly as practicable in its final position, and with a surface maintained approximately level. It shall not have a free fall of more than six feet.

(c) Bonding. Before depositing concrete in contact with concrete which has hardened, or with stone, the hard surface shall be roughened, thoroughly cleaned of loose or foreign matter and laitance, and saturated with water. After removal of excess water, the damp surface shall be slushed over with a grout of neat cement, to be followed immediately by the deposit of new concrete.

(d) The first mix deposited in any run of pouring, whether over old concrete or not, shall be of normal proportions except that it shall have no coarse aggregate. Such mortar shall be deposited to a depth equal to the largest size of coarse aggregate.

21. **Conveying Concrete.**

(a) The conveying plant shall be so arranged and operated as to avoid separation of ingredients and to provide as nearly a continuous flow as the type of plant will permit. If flow in a chute is intermittent, the chute shall discharge into a hopper. Chutes shall be on slope not steeper than one vertical to two horizontal.

(b) Compressed air and pumping conveyors will not be permitted without permission of the Engineer. In requesting such permission the Contractor shall submit complete details of all equipment and operation, with information as to any special requirements as to proportioning of concrete. Varying the water-cement ratio on account of conveyors will not be permitted.

(c) All conveying systems shall be thoroughly emptied and cleaned immediately after each use. Water used for cleaning shall not be allowed to reach concrete.

22. **Compacting.**

(a) Concrete, during and immediately after placing, shall be thoroughly compacted. Internal vibrators of approved type shall be used and, in addition, such other tools shall be used as appear necessary to eliminate voids and segregation and bring mortar and fine particles to the surfaces of the forms. On thin and inaccessible sections external vibrating may be required.

(b) Vibration shall be at a frequency of not less than 3600 impulses per minute, of sufficient intensity and duration to produce uniform settlement, plasticity and compaction. Vibration shall extend through full depth of each layer of fresh concrete, consolidating successive batches with each other, but shall not be allowed to penetrate into partly hardened concrete nor to disturb embedded metal. There shall be at least 15 seconds of vibration per square foot of top surface of the layer being vibrated, but vibration shall not continue for more than 30 seconds in one position. If pools of grout, water or laitance form readily during vibration, the mixture shall be modified.

23. **Depositing Under Water.**

(a) Concrete shall not be deposited under water unless the Engineer shall authorize it; and then only when it appears impractical to remove water, and only to the extent of a seal to make de-watering of the remainder practicable. Details shall be subject to approval of the Engineer.

(b) For deposit under water the concrete shall contain not more than five and one-half gallons

of water per sack of cement, and not less than seven sacks of cement per cubic yard of concrete.

(c) Cofferdams, cribs or forms shall be tight enough to prevent any flow of water through the space in which concrete is to be deposited. Pumping will not be permitted while the concrete is being placed, nor until it has attained sufficient strength to withstand the water pressure.

(d) The concrete shall be deposited, by bottom dump bucket or tremie, so that no concrete will be washed by water previous to its placing. Rapid and continuous placing is essential. The mass shall be built up approximately level, by movement of depositing mechanism and use of as many units as are required to avoid flow of the concrete in contact with water after placing.

(e) The bottom dump bucket shall be designed so that its doors cannot be opened until it has rested, with its load, on the surface upon which the concrete is to be deposited, but will then be automatically unlatched and the bottom doors shall open downward and outward as the bucket is raised. The top of the bucket shall be equipped with covers which will effectively protect the contained concrete from wash during lowering.

(f) A tremie shall be a strong water-tight pipe, not less than eight inches in diameter, long enough to reach from its charging hopper above water, to the bottom of the placed concrete. Its top section shall be a hopper large enough to hold an entire mixer batch, or the entire contents of the transporting bucket. There shall be a suitable device for sealing the discharge end during the placement of the tremie, and such device shall be arranged to open fully when the pipe is full of concrete. The tremie may be moved and raised as required to maintain flow of concrete, but at all times the lower end shall be under the top surface of the concrete, and water shall never be allowed to enter above the concrete in the pipe. If charge of concrete is lost, the tremie shall be raised above the surface and refilled.

(g) All requirements under the heading "Depositing in Air" shall be applicable also to concrete deposited under water where they are not in contradiction with the requirements for depositing under water.

24. **Temperature.**

(a) Concrete when deposited shall have temperatures within the limits of the following table of degrees Fahrenheit and shall not include frozen materials;

Temperature of Air	Temp. of heated concrete when placed	
	Minimum	Maximum
Below 30°	70°	90°
30° to 45°	60°	90°
Above 45°	50°	90°

The required temperatures shall be obtained by heating mixing water or aggregates or both to temperatures between 70° F. and 150° F.

(b) In freezing weather or when there is likelihood of freezing temperatures within the specified curing period, suitable and sufficient means shall be provided in advance, for maintaining all concrete surfaces at a temperature of not less than 50° F. for the entire curing period. Small apertures shall be provided in the forms for placing thermometers against the concrete surfaces. Coverings or housings shall be arranged so as to exclude extraneous air currents and permit free circulation of heat. There shall, however, be enough ventilation to carry off salamander gases. Exposed surfaces shall be kept moist during the time of heating.

(c) If concrete is to be deposited in water whose temperature is below 40° F., the water shall be heated to 40° minimum during pour and 96 hours thereafter.

(d) Any concrete which has been frozen or frost bitten shall be promptly removed from the work.

25. **Surfacing Finishing and Curing.**

(a) Where not otherwise specified, the forms for concrete which will show in the finished work shall be removed as soon as the Engineer will permit, and all surface irregularities dressed and pointed to a smooth surface matching in texture the general surface. Any defective concrete shall be removed immediately and replaced as directed by the Engineer. Small openings shall be filled with mortar of the same proportions of cement and sand as used in the concrete, and smoothed with a wooden float. The mortar shall be fresh and plastic. Surfaces shall be saturated with water before pointing. There shall be no general surface plastering.

(b) Top surfaces of concrete shall be filled high enough to permit all excess water and thin mortar to be struck off and the coarse aggregate worked below the surface, which shall then be given a float finish at true grade.

(c) The curing period shall be seven days, and all surfaces of concrete shall be kept continuously moist for that period. In lieu of maintaining moist surfaces, they may be sealed as soon as surface dry by coating with an acceptable non-staining curing sealer.

(d) Wearing surface finish. Walks, and other surfaces where so designated, shall be given a sidewalk finish. For this, particular care shall be taken to have a low enough water cement ratio so that there shall be no excess water or thin mortar on top. The concrete shall be compacted by rolling or tamping, and floated with a wood or mechanical float. It shall then be tested with a straight edge and all surface irregularities eliminated. After the concrete has hardened sufficiently to prevent fine material from working to the surface, it shall be finished with a steel trowel to a smooth surface free from defects and blemishes. After troweling, the surface shall be slightly roughened with a special tool or by sweeping lightly with a broom. It shall be cured as specified for other top surfaces.

26. **Waterproof Paint.** The inner surfaces of all reinforced walls, and tops of concrete slabs, shall be given two heavy coats of a heavy asphalt paint or its equivalent, particular attention being given to the corners. All concrete shall be at least 10 days old and thoroughly dry before the application of waterproofing materials.

N. P. RY. CO. CONSTRUCTION SPECIFICATION E-114

Section Sixteen

APPLYING MEMBRANE WATERPROOFING

1. **Work Included.** The Contractor shall apply the membrane waterproofing to the structure in strict accordance with the plans of the Company.

2. **Furnishing Materials.** The Contractor shall furnish tools, staging and equipment, concrete aggregate and forms necessary to complete the work under the contract. The Company will furnish the waterproofing materials, Portland cement and metal reinforcement.

3. **Preparation of the Surfaces.** The Contractor shall remove any projections on the surface which would injure the waterproofing membrane. The surface shall be cleaned of dust, dirt, grease and loose particles, giving special attention to corners and joints. Slight depressions may be filled with asphalt mastic and the surface made smooth. The surface shall be dry when waterproofing is applied.

4. **Type of Waterproofing Membrane.** Unless otherwise provided in the agreement, the membrane shall consist of a priming coat, three layers of waterproofing asphalt, reinforced with two layers of saturated cotton fabric and protected with a two and one-half inch layer of concrete reinforced with wire mesh or expanded metal.

5. **Priming Coat.** Surfaces of concrete or steel coming in contact with asphalt waterproofing shall be given one coat of asphaltic primer. It shall be applied immediately before the application of waterproofing membrane.

6. **Applying Membrane.** The priming coat shall be dry before the membrane is applied. The fabric shall be laid shingle fashion, beginning at the lowest elevation of the surface to be waterproofed. The first strip of fabric shall be one half the width of a roll, and the second or full width strip shall have its lower edge directly over the lower edge of the first strip. Ends of strips shall be lapped twelve (12) inches. In laying the membrane, a mopping of hot asphalt slightly greater in width than the strip of fabric shall be applied to the concrete or steel surface, on top of the priming coat. The mopping shall be applied in a manner that will eliminate air bubbles and pockets. The surface shall be fully covered and shall be of sufficient thickness to fill the open meshes in the fabric. The fabric shall be placed on the hot asphalt, creases smoothed out and pressed down until the asphalt comes to the surface. The third strip of fabric shall be full width and shall extend over the second strip one half its width and this method of laying continued until the surface is covered with three moppings of asphalt and two layers of fabric. The waterproofing membrane shall be continuous and unbroken except at drainage openings. There shall not be less than 25 square yards of fabric and 13 gallons of waterproofing asphalt per 100 square feet of surface.

7. **Flashings.** All flashings, as against girders, stiffeners, gussets, concrete parapets, etc., shall be done with separate sheets, lapping the main membrane not less than twelve (12) inches. The membrane shall be turned down into the drainage castings without a break. Particular care shall be taken to seal flashings closely to all surfaces. At the ends of the bridge, the membrane shall be carried well down on the abutments and special provision made, as shown on the plans, to take up movement at the free end.

8. **Floating Membrane.** If a bond between the membrane and the surface to be waterproofed is not desired, the surface shall be covered with a paraffin coated insulating paper and the membrane laid on top of the insulating paper.

9. **Workmanship.** The fabric shall be stored in a dry protected place. Care shall be taken to avoid overheating of the asphalt. The temperature of the asphalt in the kettle shall not be above 350 degrees Fahrenheit and not below 250 degrees Fahrenheit, just before the asphalt is placed in the work. Kettles shall be equipped with thermometers. The membrane shall be protected against mechanical injury, high temperature and chemical action as soon as possible after completion. Work shall be done by competent workmen, skilled in the kinds of work specified. Waterproofing shall not be done in wet weather nor at a temperature below 50 degrees Fahrenheit without permission from the Engineer.

10. **Concrete Protection Course.** The waterproofing membrane shall be protected by a reinforced concrete mat, as shown on the plans. Special care shall be taken to prevent damage to the waterproofing membrane while placing the concrete protection course.

11. **Measurement of Quantities.** The waterproofing membrane, including the concrete protection course, shall be measured and paid for per square yard on the finished structure, at the unit prices in the contract.

June 12, 1928.

NORTHERN PACIFIC RAILWAY COMPANY

SPECIAL PROVISIONS

EXHIBIT "A"

The work will consist of furnishing all services, labor, material, tools and equipment, except as otherwise herein provided, for the construction of railroad grade and the placing of culverts, siphons, fencing and concrete head and tail walls required in connection with the Company's track to serve Section 13, T. 19 N., R. 28 E., W.M., Grant County, near Moses Lake, Washington.

The embankment roadbed prism will be twenty (20) feet wide at subgrade, with side slopes of one and one-half to one (1½:1). The cut roadbed prism will be twenty-four (24) feet wide at subgrade, with side slopes of one to one (1:1).

Common excavation shall include all material of every description, except caliche. The contract unit price per cubic yard for excavation shall in all cases be considered as including the haul of material for any distance not in excess of 2500 feet, and overhaul will be paid for hauls greater than 2500 feet at the contract unit price. The measurement of haul of material excavated from and deposited within the roadbed prism shall be taken on the center line of profile grade from the point opposite the original location of the unit of material excavated to the point opposite its location in completed embankment. In all cases the pay distance on overhaul shall be the total distance hauled, measured as above specified, less 2500 feet free haul. Overhaul shall be computed from each cut to each single embankment separately, and the overhaul paid for at the specified contract unit price.

Where material is obtained from borrow pits other than roadbed cuts, there shall not be any overhaul paid, it will be classified as common and the Contractor will furnish all borrow pits and the cost thereof, including all haul, royalties and all costs of any nature whatsoever, will be included in the contract unit prices. No borrow will be permitted on the right of way of the Company's roadbed now being constructed under this contract, account the narrow right of way available, except that with the permission of the Engineer, cuts may be widened to a forty foot base with side slopes as specified by the Engineer. Where borrow is obtained by cut widening, it shall be paid for at the contract unit prices for common excavation and overhaul.

SPECIAL PROVISIONS (Continued)

The Company will furnish, without cost to the Contractor, all culvert material required, F.O.B. on cars at Wheeler, Washington. The Contractor is to unload, haul and place all culverts and siphons as specified, at the contract unit prices bid. Excavation of foundation beds for culverts shall be measured and paid for at the specified contract unit prices, but placing of special fill and bedding for culverts shall be included in the contract unit prices for placing the culverts.

Where siphons are required of pipe material, they shall be constructed as directed by the Engineer, and shall be paid for at the contract unit prices for placing culverts and siphons. The siphons will be constructed with watertight joints and the unit price bid shall include the cost of the dirt transition section between the ditch and the siphon inlet and outlet as directed by the Engineer. The unit prices bid for culvert excavation and diversion ditches shall hold for any ditching required for irrigation ditches. Concrete siphon and transition sections on the main irrigation canal crossing at the northeast corner of Section 13 are to be constructed as per Bridge Engineer's plans and specifications, which are to be a part of these specifications.

The price bid per cubic yard of concrete shall include all excavation, forming, bending and placing of reinforcing steel and the concrete, including both wet and dry excavation. Portland cement and reinforcing steel will be furnished by the Company at no expense to the Contractor, F.O.B. on cars at Wheeler, Washington. The Contractor is to unload, haul to the site and store properly, the cost of which is to be included in the contract unit price bid for concrete in place. The Contractor is also to furnish all aggregates as specified in Section Thirteen of Company's Construction Specifications E-114. On approval by the Engineer, the Contractor may use ready-mixed concrete conforming to the current ASTM specification C-94, to be paid for at the contract unit price under Item No. 10b, in which case the Company will not furnish the Portland cement.

The right of way fence shall be No. 3, Hog-Tight Fence, as per Northern Pacific Railway Company's Standard Plan 7-1-1, revised February 10, 1951, and shall be paid for at the contract unit price per lineal foot. Contractor is to furnish post and fence material. Fencing to be placed at the direction of the Engineer and it is estimated that about four miles of fencing will be required.

SPECIAL PROVISIONS (Continued)

The Company will, at its own expense, do all work required in temporary relocating its telegraph line, but the Contractor will give ample notice of the required changes before entering the area, so that there will be no interruption of the Railway's telegraph service. The Railway will handle with outside parties the raising of power and telephone wires where required, at no expense to the Contractor, but the Contractor will give ample notice to the Company so that proper arrangements can be made with the outside parties for the raising or relocating of their pole lines.

Office of District Engineer
Spokane, Washington
October 20, 1953


PROFILE OF N & S HIGHWAY
SCALE: 1" = 100' Hor. 1" = 10' Vert.
South
NORTH
WEST
EAST
PROFILE OF E & W. COUNTY ROAD
SCALE 1" = 100' Hor. 1" = 10' Vert.
COUNTY BR. RAVINE
1" = 10'
CROSS SECTION OF IRRIGATION DITCH
40 Ft. Left of ℄
1" = 10'
LOCATION SKETCH
1" = 400'
DATA on IRRIGATION CANAL from U.S.B.R. in EPHRATA
124 c.f.s.
.00033 Slope
.0025 = n
2.12 = v fps. (max. v of 3.5 fps. in Pipe)
other Crossings
Dbl. Barrel 42" Upstream
2- " " 48" Downstream
Require transitions for over 20 c.f.s.
over 100 c.f.s. sections designed in DENVER
Apron
Details of Double 42" Syphon Upstream from our Prop'd. Xing.
1" = 10'
N.P.R.Y.
Idaho Div. 8th Sub. Div.
MOSES LAKE, nr., Trackage to serve Sect. 13
Prop'd. Syphon at main Irrigation
Canal in N.E. cor. Sec. 13
Scale as noted
Office Div. Engr., Spokane, Wn. Oct. 8th 1953
17/53