CHICAGO, MILWAUKEE & ST. PAUL RAILWAY CO.

HISTORY OF THE LOCATION AND CONSTRUCTION OF THE LINES WEST OF MOBRIDGE, SOUTH DAKOTA, BY VALUATION SECTIONS AND SUBSIDIARY COMPANIES.

Compiled in 1915-1916
Revised in November 1925
Valuation Department
Chicago, Illinois.

CHICAGO, MILWAUKEE & ST. PAUL RAILWAY COMPANY
Engineering Department — Valuation Office
Statement Showing Dates And Periods of
Reconnaissance, Location, And Construction On Various Lines

LINE		Location, by States	Mileage	Reconnaissance Began	Reconnaissance Finished	Surveys Began	Surveys Finished	Date of Contracts	Construction Began Grading	Construction Finish Track-laying	Construction Finish Final Ballasting	Construction Original Program Completed (See Note a)	Date of First Operating Time Card	Period Of Recon. & Sur.	Period Of Construction	Time Elapsing Beginning to Compl.	REMARKS
Cheyenne	3	So.Dak.	106	3-1909	3-1909	3-1909	7-4-09	6-24-09	6-1909	1-10-11	Side Sur.	6-1912	12-25-10	4 Mo.	3 Yrs.24	3 Yrs.5 Mo.	Benefitted from reconn.for main line
Moreau	3	"	62	3-1909	3-1909	3-1909	4-1909	6-26-09	5-1909	5-25-10	" "	4-1911	7-10-10	2 Mo.	1 " 11 "	2 Yrs.1 "	Benefitted from reconn.for main line
Cannon Ball	3	"	133	5-1909	5-1909	5-1909	8-1909	6-22-09	7-1909	11-11-10	" "	8-1912	12-25-10	2 Mo.	3 "	3 " 2 "	
Lewistown Great Falls	3	Montana	157	3-1910	4-1910	5-1910	5-1912	6- 1-12	6-1-12	1-1914	Sept.1914	8-1915	1- 1-14	(2 Yrs. (2 Mo.	2 " 8 "	4 " 11 "	
Lewistown Grass Range	3	"	36	12-1909	1-1910	1-1910	4-1910	(8-15-10 (8-29-12	5-15-10	8-14-13	" 5-13	8-1914	10- 1-13	5 Mo.	4 " 3 "	4 " 9 "	No work Dec.1910 to Aug.1912
Lewistown to Roy	3	"	43	5-1912	6-1912	6-1910	9-1912	(5-15-10 (7-24-11 (5- 9-12 (8-27-12	5-15-10	6-17-14	July 1914	10-1914	(12-20-11 (5- 1-14	7 Mo.	4 " 5 "	4 " 5 "	Built 12 Mi.1910-6 Mi.1911-5 Mi.1912 balance 1913-14
Roy Jct. to Winifred	3		22	4-1912	8-1912	9-1912	10-1912	9-27-12	11-1912	11-18-13		8-1914	1- 1-14	6 Mos.	1 " 11 "	2 " 6 "	
St.Maries Branch	4	Idaho	71	3-1907	11-1908	7-1907	4-1909	4- 1-09	4-1909	6-1910	Oct. 1910	10-1911	7-10-10	(1 Yr. ((6 Mo.	2 " 6 "	4 " 7 "	Benefitted from reconn.for Main line
Plummer to Wenito	1	Ida.& Wash.	20	11-1908	10-1911	12-1909	5-1912	(5-21-12 (6-14-12	6-1912	6-16-13	1913	1-1-14	9-25-13	2 Yrs 6 Mo.)	1 " 6 "	5 " 2 "	Large scope of country covered.reconn.and surveys.
Coeur d'Alene	5	" "	26	11-1908	10-1909	10-1909	12-1909	4-25-10 3-14-10 10-23-11	4-1910	4-1912		8-1912	9-28-13	4 Mo.	2 " 4 "	3 " 9 "	
Wardner Branch	3	Washington	48	11-1908	1-1909	10-1909	2-1910	(8- 6-10 (2- 7-10	3-1910	11-15-10	Dec.25-10	4-1911	12- 4-10	8 Mo.	1 " 1 "	2 " 6 "	
Priest Rapids	3	"	46	10-1907	1-1908	12-1908	3-26-12	3-11-12	3-1909	4- 9-13		3-1914	5-15-13	14 Mo.	2 " 3 "	6 " 6 "	Miles 17-19-20 graded 1 to 3 1909.Final began 3-1912.
Everett Branch	5	"	55	3-1906	3-1909	4-1909	4-1910	(2-25-10 (3-24-10	4-1910	8- 4-11	Oct. 1-11	6-1912	11-12-11	(1 Yr. (5 Mo.	2 " 2 "	6 " 4 "	
Snoqualm Branch	4	"	15½	6-1907	7-1907	8-1908	12-1909	11-28-09	12-1909	11-18-10	" 22-10	6-1911	8-12-11	10 Mo.	1 " 5 "	5 "	
Midland Cate	5	"	33	2-1908	5-1909	5-1909	6-1909	5- 1-09	6-1909	6-15-10	Aug. 1-10	6-1911	8-14-10	4 Mo.	2 " 2 "	3 " 5 "	
New Wood River	4	Flaxselm	17	6-1913	6-1913	6-11-13	8-11-13	10-16-13	10-1913	11-27-14	Nov. 1915	11-1915	5-1916	3 Mo.	2 " 2 "	2 " 6 "	
Crystal Falls Iron River	4	Michigan	21	1900-08 07-10-12	4-1912	4-1907	8-25-12	(2- 1-12 (8-10-12	8-1912	(10- 9-13 3- 1914		12-1914	3-1-14	9 Mo.	2 " 7 "	14 "	Survey in Apr.1907 partially covered adopted Route.Final survey 1912
Madrid Woodward Cutoff	4	Okl.Tre. Iowa	51	1901	1912	1901-11 1904-12	3- 1-12	8-25-12 5-27-12	8-1912	10-1913	Oct. 1913	10-1913	10-16-13	4 Mo.	1 " 5 "	12 "	Survey in 1904 covered adopted Route.Final survey 1912.
Puget Sound Extension	1	So.Dak. No.Dak. Montana Idaho Wash.	1418	1900	1907	10-1905	3-1907	12-15-05 5-31-06	4-1906	3-1909	Nov. 1910	10-1911	(x) 7- 4-09	4 Yrs. 1 Mo.	5 " 10 "	12 "	(x) Date of first through time card.

(1) Main Line
(2) Built according to Main Line Standards
(3) Typical Branch Line- Open Country
(4) Typical Branch Line - Rough Mountain Country
(5) " " - Combination of (1) and (3)

(a) Date Construction Work became reduced to Minimum.
Ascertained from record of Construction Expenditures.
Compiled by C. H. J.,
through [illegible] 1917.

I N D E X

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VALUATION SECTIONS SOUTH DAKOTA 1, 1A, 1B, 1C.

GENERAL LOCATION:

Valuation Section South Dakota No. 1 covers that part of the main line in South Dakota extending from the east abutment of the Missouri River bridge (about four miles west of Mobridge) to the most westerly crossing of the state line between North and South Dakota, a distance of about 95 miles. From the river the line bears northwesterly across the Standing Rock Indian Reservation to near the North and South Dakota state line, which it follows in a general westerly direction and crosses six times previous to the final crossing east of Haynes, North Dakota. The sections intercepted by these crossings are called, for valuation purposes, Sections South Dakota 1A, 1B and 1C.

RECONNOISSANCE:

The first reconnoissance for what may be called the Northern or present route of the Puget Sound Extension was made in 1901-02. This examination began at Evarts, South Dakota, and extended up the valley of the Moreau River to its head, thence descending into the Valley of the Missouri River near Camp Crook, thence northwesterly to Miles City, Mont., a distance of about 225 miles being covered. Another reconnoissance was made in January 1905 through practically the same territory except that the divide between the Moreau and Grand Rivers was followed. This route crossed the Little Missouri River about midway between the present crossing at Marmarth, North Dakota and Camp Crook, and proceeded thence westerly crossing Beaver Creek and Powder River to Tongue River, thence down Tongue River to Miles City.

During the Fall of 1905 and Spring of 1906 several exploration trips were made through territory lying to the north of that just described. One of these reconnoissances followed the Grand River from near the mouth of Oak Creek about 100 miles to Seim; another which was the most northerly extended along Oak Creek northwesterly to the divide between the Cannon Ball and Grand Rivers, thence westerly along the divide to the Little Missouri River near Marmarth, a distance of about 225 miles. Branching from this latter route at a point about 50 miles west of the Missouri River another route was reconnoitered to Seim, on the North Fork of Grand River.

From Selm this reconnoissance was continued in February 1906 northwesterly along the North Fork of Grand River, thence down Five Mile Creek to the Little Missouri River, thence west to Miles City, a distance of about 100 miles.

Altogether about 1000 miles of reconnoissance was made for the 200 miles of adopted and constructed line between Mobridge, South Dakota and Marmarth, North Dakota.

SURVEYS:

Previous to the building of the Pacific Coast Extension the terminus of the Chicago Milwaukee and St.Paul Railway at the Missouri River was in Evarts, South Dakota, about 12 miles down river from Mobridge. In the Fall of 1905 the first survey for the extension started at a point between Glenham and Mobridge, crossing the Missouri River at Blue Blanket Island and reached the divide between the Moreau and Grand Rivers by development along the side hills. This line required heavy work. The distance was great and satisfactory foundations were not found for a crossing of the Missouri River. After a location had been made west along the divide between the Moreau and Grand Rivers for a distance of about 50 miles the parties working in Eastern Montana on this same route encountered difficulties which made it necessary to abandon the route entirely.

Investigations were made up the Grand River and also up Oak Creek, which empties into the Missouri River about a mile or so above the mouth of Grand River, with the result that a survey was made up Oak Creek to the divide between the Grand and Cannon Ball Rivers. This survey followed the state line closely from the site of the present town of McLaughlin, South Dakota, to the site of the present town of Haynes, thence swung northwesterly along Flat Creek crossing Buffalo Creek, and following Spring Creek to the Little Missouri River at Marmarth. Preliminary surveys were made from this line to the North Fork of Grand River but nothing satisfatory was obtained. The preliminary location surveys between the Missouri River and Montline were made in three sections by three parties, the first section being from the river to Tatanka, the second section from Tatanka to Reeder, and the third section from Reeder to Montline.

About 50 miles of location survey and many miles of preliminary line were discarded in favor of the adopted and constructed route between Mobridge and Montline.

CONSTRUCTION ORGANIZATION:

Construction was carried on under the supervision of a Construction Engineer with two Division Engineers in the field. The line was cut up into residencies averaging about 14 miles in length and construction proceeded simultaneously over the entire line. The office of the Engineer of Construction was in Minneapolis. The Division Engineers had offices at convenient points on their work.

CONSTRUCTED LINE:

The present constructed line crosses the Missouri River just below the mouth of Grand River on a single track three span steel truss bridge supported on high concrete piers faced with granite. Leaving the river on the west side the line follows the side hills for a short distance and then descends to Oak Creek Valley which it follows for about 20 miles. About eight miles west of Mahto the Oak Creek Valley develops into a sharp box canyon and about seven miles of very heavy work was necessary between Mahto and McLaughlin. The maximum gradient from the river to Mahto is 4/10 of one percent. Near McLaughlin the line leaves Oak Creek Valley and follows the divide between the Grand and Cannon Ball Rivers to Watauga. Here it descends into Hay Creek Valley which it follows from Morristown to Thunder Hawk. From Thunder Hawk to Petrel no particular drainage is followed, the country being of an open and pot hole character.

CHARACTER OF COUNTRY:

The country in the Standing Rock Indian Reservation is used largely for grazing. Further west and along the North and South Dakota state line the land is used principally for dry farming and raising small grain. During construction the Reservation was inhabited only by a few Indians and Settlers living on small ranches along the creeks and waterways. In this region it was necessary to haul all supplies for surveys over trails or new roads.

CONTRACTS:

A general contract dated December 23rd, 1905 entered into with McIntosh Bros., General Contractors of Milwaukee, Wis., covered work from Evarts, South Dakota in a general westerly direction to a point which was to be determined by the Chief Engineer of the Railway Company. The clearing, grubbing, grading, tunnel, bridge and culvert work, track laying, handling of stores and supplies for the Puget Sound Extension through South Dakota, North Dakota and to Butte, Mont., was done on the basis of cost plus a percentage, under this contract. McIntosh Bros. sublet the work between Mobridge and the North and South Dakota state line to six other contractors, who in turn relet portions of it to other firms.

No rail transportation was available and the location and construction of wagon roads by the contractor was necessary, involving a heavy preliminary expense. Practically all the contractors' outfits were ferried across the Missouri River at Pontis and hauled by team to the work. No supplies were obtainable locally.

The greater portion of the grading was done with grading machines, although wheel scrapers and fresnoes were used to a limited extent. Steam shovels were used on the heavy work in the Oak Creek Canyon between Mahto and McLaughlin. These shovels were brought to the work after the track was laid, being transported about three miles over land from the end of track to point of operations. A temporary line was built, leaving the main track at a point about two miles west of Mahto, bearing up Cottonwood Creek

and returning to the main line about one and one-quarter miles east of McLaughlin. The gradient up Cottonwood Creek was 2-8/10 percent. Coal and other supplies for the steam shovels was brought by rail to the junction about two miles west of Mahto and hauled from there by team.

Grading material in the Oak Creek Valley was principally shale and heavy gumbo and the heavy steam shovel work between Mahto and McLaughlin was largely loose and solid rock. Ledge rock was also found in many of the cuts.

During construction several earth slides occurred on this section, the more important ones being near Stratton and near Wakpala. At the latter place it was necessary to shift the location away from the side hill. Since original construction numerous slides have occurred, one of the most important ones being in 1910 at the west approach to the Missouri River bridge while the bridge was being filled.

Some important grading was also done to deflect the waters of the Missouri River under the main channel spans of the bridge.

As it was necessary to hurry the track laying work on this east end in order to move supplies to the operations further west, track was laid before some of the cuts were finished by the contractors and a large amount of work was done by Company forces after track laying in the way of completing the cuts and widening embankments.

Considerable incidental expense in connection with grading arose from numerous prairie fires in the Indian Reservation and the damage claims resulting therefrom and the reimbursement to contractors for delay while fighting the fire.

BRIDGES, TRESTLES AND CULVERTS:

The Missouri River bridge was constructed by Company Forces and involved the founding of the piers by the pneumatic caisson process at a depth of over 90 feet below mean low water. To facilitate the construction of the bridge and at the same time to forward material and supplies westward to the construction forces, a trestle was built on a comparatively low grade line extending across the river and over the flats of the Grand River. During the construction of the permanent bridge this temporary trestle was washed out entirely three times and at another time 34 bents were lost. Considerable other damage was experienced on the bridge construction resulting from these floods. The pile and framed bridges were built by the contractors in accordance with Chicago, Milwaukee and St. Paul standard plans.

The culverts on this section are of concrete or cast iron pipe. The cast iron pipe was shipped from Birmingham, Ala. and Addyston, Ohio. Material yards were located at Evarts, a point about three miles east of Evarts, a point about two miles east of Glenham, and, after the track was laid, at Cashmere, which was located at the summit of the 2-8/10 percent grade on the temporary line between Mahto and McLaughlin. Bridge and culvert material as a whole, however, was ferried across the river at Pontis and hauled by team to the points where needed.

TRACK LAYING AND BALLASTING:

Track reached the east bank of the Missouri River on September 22nd 1906, and reached the present station of Moreau Junction on the west bank on November 3rd of the same year. Track laying was continuous from that point until Cashmere on the temporary line was reached about January 1, 1907. Work was resumed west of the temporary line on July 11, 1907 and reached Haynes, North Dakota on October 9th of the same year. The track on the permanent line between Mahto and McLaughlin was laid in January and February 1908. The main line was laid with new 85 pound rail and sidings with lighter material, although many of the sidings were originally laid with the 85 pound rail on account of the shortage of other material. Ties were of treated white and red oak, pine, cedar and western fir. The oak ties were obtained at Kansas City and were used on heavy grades and sharp curves. The pine and cedar ties were from Wisconsin and Michigan.

Ballasting has been done at various times since 1907, material being taken from gravel pits located at Bowdle and Keidron, South Dakota, Rhame, North Dakota, and Paragon, Mont. The original ballasting followed track laying as fast as possible and as the track was laid from the east toward the west this made it necessary to take the material from the Bowdle pit, making a long average haul. Test pits for ballast were dug at a number of other places during construction.

SIGNS, FENCES AND CROSSINGS:

The entire line has been fenced, except through the important station grounds, with the standard four wire right of way fence. Portable snow fences were used during the early construction period but these have largely been replaced with standard permanent snow fences. Road crossings were graded during construction and have been planked and protected with signs, cattle guards or gates.

BUILDINGS:

Temporary buildings were erected during construction at Pontis, Cashmere, McIntosh, Keldron and Lemmon. Permanent depots and other engine terminal buildings were built at McIntosh in 1909, and a two stall engine house at McLaughlin in 1910. The round house at McIntosh was enlarged to 13 stalls, and a turn table constructed in 1912.

WATER SUPPLY:

Water in sufficient quantity and of good quality was difficult to obtain. Reservoirs were graded wherever there was any likelihood of impounding water and small water stations were established at every water-hole and used as long as the supply lasted. Altogether about twelve temporary water stations were installed on this section for use during track

laying and construction.

Of the permanent stations, the greatest difficulties were encountered at McIntosh and Lemmon. At Lemmon the railway company contributed a considerable portion of the expense on the construction of a reservoir, about four miles northwest of town which was expected to supply both the railway company and the town, but a satisfactory supply did not develop. A ten inch well was drilled 240 feet deep and a six inch well, 220 feet deep, both of which were failures. Another well was drilled 800 feet deep, in which water bearing strata was passed at a depth of about 200 feet, but this water was cased out as it was thought that a better supply would be obtained at a greater depth. When supply was not obtained at a depth of 800 feet the casing was blown open opposite the water bearing strata. This well furnishes the present supply.

At McIntosh five different water stations were installed. A reservoir was constructed west of town, which did not furnish sufficient supply. Two eight inch wells were drilled to a depth of about 200 feet in one location which were failures. Two other wells were drilled to a depth of about 170 feet, which were failures. A well was drilled about 200 feet deep near the round house, which was also a failure. The present supply is obtained from a reservoir east of town. In this reservoir a 24' x 70' deep well was dug which holds a supply for use during dry weather.

The reservoirs were usually constructed by the utilization of the railway embankment with an added amount of material; riprap being placed to protect against wave wash. The well drilling was usually done by contract, the Railway Company furnishing the material and transportation for men, material and equipment. Notwithstanding the various attempts to obtain water and the extraordinary expense connected with this work, it was necessary to haul water from the Missouri River for a large part of the construction work.

TELEGRAPH AND TELEPHONE:

The material for the telegraph line was distributed by work train and erected by the Railway Company Forces. Telegraph line averages about 35 poles per mile and carries eight wires. Train dispatching is done by telephone. Telephones have been installed in booths at "blind sidings" as well as in the depots.

OPERATION AND MANAGEMENT:

This section is operated as a part of the Trans-Missouri Division, the Division Office being in Mobridge, South Dakota. Heavy main line equipment is used.