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

GENERAL LOCATION:

Valuation Section North Dakota No. 1 covers all of the main line of the Chicago, Milwaukee and St. Paul Railway Company's Puget Sound Extension in North Dakota. Beginning at the most easterly crossing of the North and South Dakota State Line near Thunder Hawk it follows the state line closely, crossing it six times between Thunder Hawk, South Dakota and Haynes, North Dakota, thence it extends in a general northwesterly direction to the crossing of the North Dakota-Montana State Line near Montline. The subsections intercepted by the frequent state line crossings are called, for valuation purposes, Sections North Dakota 1A, 1B, and 1C. The Line passes through Adams, Bowman and Slope Counties, and comprises about 103 miles of railroad.

RECONNOISSANCES AND SURVEYS:

The reconnoissances for this Section were naturally continuances of the routes examined in South Dakota, and are described in the Historical Sketch of Valuation Section South Dakota 1.

In May 1906 a preliminary line was surveyed and location made from a point near Petrel, North Dakota, southwesterly about 20 miles crossing Flat Creek Valley to a connection with a previous location survey that crossed the Little Missouri River in the extreme southwestern corner of the state of North Dakota, and extended on west to Miles City, Mont. A number of other explorations and preliminary surveys were made further to the south through Harding County, South Dakota. In July 1906 a line was located lying about three or four miles north of the present route between Rhame and Marmarth. About 50 miles of located line and many miles of preliminary survey were made in addition to those on the constructed route.

CONSTRUCTED LINE:

The line as constructed descends into Flat Creek Valley about four miles west of Petrel, North Dakota, and follows this valley to a point about midway between Bucyrus and Reeder, or to the divide between the Cannon Ball and Grand Rivers. From here it follows a branch of Buffalo Creek to Bowman where Spring Creek Valley is entered and is from there followed to Rhame. From Rhame the gradient is descending 5/10 percent westbound to Ives. Between Ives and the

Little Missouri River, Hay Creek Valley is followed through the "Bad Lands" and the gradient is one percent descending westbound. Leaving Marmarth at the Little Missouri River, Beaver and Corral Creeks are followed and the gradient is 5/10 percent ascending to the west.

CONSTRUCTION ORGANIZATION:

The construction organization consisted of an Engineer of Construction, a Division Engineer in the field, and the usual residency parties. The office of the Engineer of Construction was in Minneapolis. The Division Engineer maintained an office at a point convenient to his work. Residencies averaged about 16 miles in length and the construction proceeded over the entire line simultaneously.

The construction work was done under the general contract with McIntosh Bros., as described in the Historical Sketch of Valuation Section South Dakota 1. McIntosh Bros. sublet the work to four other contractors, who in turn relet portions to smaller firms.

The material encountered in grading included common earth, hardpan, gumbo, loose and solid rock. The solid rock usually occurred in ledges between other classes of material, or in large boulders, making its removal expensive. The formation in the "Bad Lands" prohibited the use of grading machines and that sort of equipment and was generally handled with teams and scrapers, or in some cases by station men. The material was largely of a shaley nature and required considerable blasting.

The grading outfits were either ferried across the Missouri River at Pontis and hauled by team across country, or were unloaded from the Northern Pacific at Dickinson and hauled south to the point of operation. In either case the haul was long and road work was required for the transporting of the heavy loads. Pile bridges were built during construction, many of which have been replaced since with permanent structures. Bridge timber was hauled ahead of track laying and construction carried on to insure no delay to track work.

The culverts consisted largely of cast iron pipe which was hauled by team from stations on the Northern Pacific Railway.

A cloud-burst occurred in the vicinity of Marmarth in June 1907 causing the loss of two lives, many animals, a large amount of equipment, and considerable grading. The loss to the contractors was so great that liberal treatment was necessary to hold them on the work.

A few of the cuts were not finished before track reached them, in which case the work was completed after track laying, by the Railway Company Forces.

TRACK LAYING AND BALLASTING:

Track was laid on this section between October 9th and December 30th 1907. The work followed the finished grading as rapidly as possible, with an average progress of one and one-half miles per day. The main line was laid with new 85 pound steel delivered to the Company lines at Chicago. Ties were of treated oak, pine and cedar, the former being used on the heavy grades and sharp curves. The oak ties were obtained in Kansas City and the pine and cedar ties in Wisconsin and Michigan. Track was originally laid 15 ties per rail but the present standard is 20 ties per rail. Ballasting has been done at various times since 1907. The first lift was hauled from Bowdle pit and the majority of the gravel used since, from the pit at Rhame, which was opened in 1908, after the expenditure of a large sum of money in surveying, grading and constructing a spur track three miles long, and otherwise preparing for its operation. In 1909 more grading was done and tracks laid to increase the output of this pit.

WATER SUPPLY:

A suitable water supply has been difficult to obtain on this section and during construction was especially so. A number of temporary water stations were built for construction needs. Reservoirs were graded wherever there was a likelihood of impounding water. Wells were dug or driven and temporary stations established at every water hole and used as long as the supply lasted. Expensive wells were drilled at Hettinger, Marmarth, and on Mile 123. Wells were dug on Miles 103, 115, 140, 170, 191. Other wells were dug at Haynes, North Dakota and at Rhame, on the gravel pit spur. A filter galley 185 feet long was constructed in the Little Missouri River at Marmarth, and settling basins were installed at the Marmarth round house. An expensive reservoir and spillway was constructed in Mile 123, and the water in a farmer's reservoir near Flat Creek was purchased and piped 1800 feet to the right of way.

Permanent stations have been installed at Hettinger, Reeder, Bowman, Griffin, Rhame and Marmarth.

BUILDINGS:

Combination freight and passenger depots were built at Haynes, Hettinger, Bucyrus, Reeder, Gascoyne, Scranton, Buffalo Springs, Bowman, Griffin, Rhame and Marmarth. An engine terminal consisting of an 15 stall round house, with the other facilities, has been built at Marmarth. Buildings for section crews were constructed at places convenient to the work.

TELEGRAPH AND TELEPHONE:

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

FENCES, SIGNS AND CROSSINGS:

The entire line has been fenced except through the important station grounds, and necessary crossing facilities have been installed. Portable snow fences were used for temporary protection during construction. These have since been replaced by permanent standard fences.

OPERATION AND MANAGEMENT:

This Section east of Marmarth is operated as a part of the Trans-Missouri Division, the local offices being in Mobridge, South Dakota. West of Marmarth is operated as part of the Musselshell Division with headquarters at Miles City. Heavy main line equipment is used.