VALUATION SECTION WASHINGTON 11

The McKenna Gate Line is a branch of the C.M.& St. P. Ry., which extends about 34 miles, in a general westerly direction, from a connection with the Tacoma Eastern R. R. at McKenna, to a connection with the C. M. & St. P. and C. W. R. & N. Companies joint line to Grays Harbor, at Helsing Junction. The line is used, in conjunction with the T. E. R. R. on the east and the jointly owned line on the west, to operate trains between Tacoma and Hoquiam, which is situated on Grays Harbor.

In addition to the main line track on this Valuation Section, several short and three important industrial spurs were built. The three important spurs are the Johnson Creek Spur, which is about three and one-half miles long and leaves the main line in Mile Eight; the Gregory Mill Spur, which is about five miles long and leaves the main line at Gregory in Mile Fifteen, and the Bordeaux Spur, which is about one and one-half miles long and leaves the main line at Mumby. These spurs are all included in the Valuation Section Washington 11.

Surveys for this line were made between May 1908 and May 1909. About 124 miles of preliminary and 65 miles of location survey were made to produce the 34 miles of adopted and constructed line, or 3-7/10 miles of preliminary and 1-9/10 miles of location for each mile of adopted survey.

The construction engineering organization consisted of one District Engineer and six Resident Engineers with the usual parties. The District Engineer reported direct to the Chief Engineer in Seattle.

Contract for the clearing, grading, grubbing, bridge and culvert work was let to H. C. Henry, who sublet it to three other contractors. The proximity of the existing lines of railway aided the contractors in bringing their equipment to the work, although considerable road work was done between the points of unloading and the points of operation.

Leaving McKenna gradients are light and rolling, but generally rising to a summit in Mile Eight, at which point a descent is begun on a maximum 5/10 percent gradient to the

Des Chutes River crossing in Mile Fifteen, from there they are slightly rolling, but generally descending with a maximum of 4/10 percent to the connection at Helsing Junction, the base of rail at the connection, being about 150 feet lower, than at Des Chutes River crossing. Near Maytown in Mile Twenty-two the Beaver Creek and Black River drainage is reached and followed to Mile Twenty-nine.

Clearing on the first twenty miles from McKenna was medium and consisted of second growth fir with heavy underbrush. From Mile Twenty to Twenty-eight heavy timber was encountered. The merchantable timber was saved, some being cut into piles, telephone poles, ties and fence posts, and some being skidded for future loading by work train. Clearing on the last five miles was light.

Grading was commenced in June, 1909 and completed in March, 1910. The work is variant, some miles being quite heavy and other quite light, averaging about 16,000 cubic yards per mile, a large part of which is classified material. The heaviest work occurred in Mile Eight, where about 75,000 cubic yards were moved, and a steam shovel was used. The other work was done with teams and scrapers with the exception of the solid rock excavation, which was done by station men. Quite a large amount of the work was done by force account, due to special conditions, such as wet material and loss of the original roadbed by floods, etc. These conditions were more pronounced in Miles Twenty-one to Twenty-eight inclusive.

The Johnson Creek Spur was built in 1910, and was constructed with steep gradients maximum 2-2/10 percent, but easy curvature. The grading averaged about 2600 cubic yards per mile.

The Gregory Spur was built in 1911 and was constructed on rolling gradients with a maximum of 2 percent and some sharp curvature. The grading averaged about 8,000 cubic yards per mile, about 30 percent of which was classified.

The Bordeaux Spur was built in 1911 and involved the moving of about 47,000 cubic yards. The gradients are steep, about 2,000 feet of 4 percent gradient being used, maximum curvature 10 degrees. This spur crosses under the Northern Pacific Grays Harbor branch, requiring the construction of the overhead bridge, and the consequent difficulty of maintaining traffic on another track while excavating beneath it.

The important bridges are the Nisqually River crossing

in Mile one where two 125 foot deck, timber Howe truss spans were used with long pile trestle approaches; the Northern Pacific crossing in Mile Eight, where a steel girder span is used with pile trestle approaches; the Des Chutes River crossing in Mile Fifteen, consisting of a steel girder span and pile trestle approaches; the Mud Lake bridge in Mile Eighteen, and the Chehalis River crossing in Mile Thirty-four, which consists of two 125 foot through timber Howe truss spans on crib piers with long pile trestle approaches. The other bridge work consists of ordinary pile trestles built in accordance with C. M. & St. P. standard plans. Timber and piles were obtained locally.

Culverts were principally built of hewn logs obtained on the right of way, although some squared timber was used where desirable logs could not be obtained.

Three crossings of the Northern Pacific Railway Company tracks occur on this line, one in Mile Eight, where the C. M. & St. P. track is carried over the Tenino Line of the N. P.; one in Mile Eighteen, where the Northern Pacific double track Point Defiance Line is carried over the C. M. & St. P. and one in the Rochester Station grounds, at grade with the Gate to Centralia Branch of the Northern Pacific.

Track laying began on November 24th, 1909 and was completed on June 15th, 1910. 75# relay and 65# new steel was used. The material yard was established at McKenna. Ballasting was done between April and August, 1910, the material being taken from the pit at Rainier.

Material for the buildings was delivered by train after the track was laid and construction was carried out by the Railway Company's forces. Depots were built at Rainier, Maytown and Rochester, the one at the last named point being used jointly with the Northern Pacific. A permanent water station was built at Offutt, supply being obtained in Offutt Lake and pumped through a long pipe line. Section facilities were built at places convenient to the work. Telegraph material was distributed by a work train and erected by the Railway Company forces, telephones being installed in booths at blind sidings in addition to those in the depots. Right of way fence with the necessary crossing facilities was built except in isolated places.

The line is operated as a part of the Coast Division, standard main line equipment being used.

SPECIAL FEATURES

The falsework at the Nisqually River crossing in Mile One, and the Chehalis River crossing in Mile Thirty-four was

taken out by the high water and was replaced by force account. Protection from log jams was also a matter of large expense at these bridges.

Wagon road changes, especially in Miles Twenty-one, Twenty-four, Twenty-seven, Twenty-eight and Twenty-nine, were expensive. Work was largely done by force account.

A great many of the culverts were washed out during construction, and were replaced by force account.