VALUATION SECTION WASHINGTON 9.

GENERAL LOCATION:

Valuation Section Washington 9 covers what is commonly known as the Everett Branch, which leaves the main line at Cedar Falls and extends in a general northerly direction about 55 miles to Everett, Washington.

RECONNOISSANCE AND SURVEYS:

Three engineers made separate reconnoiesance trips for this line, all covering approximately the same route. The first trip was made in 1906 on horseback, and required only a few days as the engineer was in the field in connection with the main line surveys, which were then under way, and no special preparations were required. He outlined a railroad to be built on main line standards, and the construction would have been expensive. The two later examinations took place just previous to the location surveys and were very thorough, as search was being made for a typical branch line. All together 200 miles of line was covered in the reconnoissance and complete reports made in regard to gradients, curvature and future traffic.

Location parties were placed in the field in April, 1909, and kept at work almost continuously until construction started in April, 1910. Every prospect was thoroughly investigated. The first 20 miles north from Cedar Falls were covered with heavy timber, which retarded the progress of the parties. The steep slopes in Tokul Creek district offered many difficulties, and required several preliminary lines with extensive topographical surveys. North from Tolt the land traversed was swampy and subject to floods, and the river crossings required careful study and close examination of the features along the banks. The transportation of supplies and camp was not difficult, however, as the Northern Pacific and the Great Northern branch lines were in operation and fair wagon roads were in existence.

Summarizing the surveys, we find that 100 miles of preliminary and 125 miles of location survey were made for about 55 miles of adopted line. Parties averaging about eighteen men each, were in the field nineteen months.

ENGINEERING ORGANIZATION:

The construction engineering organization consisted of one Division Engineer, with offices at Everett, assisted by one District Engineer and seven Resident Engineers. The Division Engineer reported to the Assistant Chief Engineer in Seattle.

CONSTRUCTED LINE:

The line as constructed leaves Cedar Falls on a slight descending gradient for a couple of miles. Thence descends rapidly on a 2.2 percent gradient, with sharp curvature to Tanners, where the valley of the South Fork of the Snoqualmie River is reached. The line descends this river valley with comparatively light gradients and curvature to mile Eleven, where the crossing of the main Snoqualmie River is made on a 200 foot steel truss. Here the grade line reverses and ascent is made on a maximum of one percent to a summit between the South Fork and Tokul Creek in mile Thirteen. From here to mile Twenty-one a steady descent is made on a one percent gradient, first up Tokul Creek for a couple of miles then looping across the Creek to the north bank and down to the Tolt River Valley. In miles Twenty-two and Twenty-three a rise in the grade line is made to obtain the required clearance at Tolt River crossing. From mile Twenty-three to Everett the gradient is practically level with the exception of the rise through Monroe, and Snohomish and for the river crossings. The gradient entering Everett is one percent ascending.

CONTRACTS:

Contract for the clearing, grubbing, grading, bridge and culvert work was let to H. C. Henry, who sublet it to numerous other firms.

Transportation facilities are fairly favorable over the entire line. The C. M. & St. P. Railway served the work close to Cedar Falls. The territory between Tanners City and Tolt was served by the Northern Pacific branch line and between Tolt and Everett by the Great Northern Railway. Wagon roads were built from the Railway stations to the work where necessary, some of which required considerable work. Between Tolt and Everett it was necessary to corduroy the existing wagon roads in many places to prepare them for the heavy loads.

This work was done at the Railway Company's expense.

CLEARING, GRUBBING AND GRADING:

The general characteristics are widely different on the two ends of the line, and for description it might be well to make a dividing point at mile Twenty-five. The work south of or between that point and Cedar Falls was the ordinary cut and fill grading, with some side borrow, and was done with teams or by station men. Clearing was required on this part, some quite heavy, with a corresponding amount of grubbing.

North from Mile twenty-five, or between that point and Everett most of the land traversed was swampy, and subject to frequent floods, necessitating an extraordinary high grade line. Adjacent borrow for the extensive fills could not be obtained, consequently temporary standard trestles were built and the embankments made with train hauled material. About 388,000 lineal feet of piling, 20,000,000 F.B.M. of timber and 75 tons of iron were used in the construction of these temporary trestles. Over a million cubic yards of material was train hauled to fill these trestles, from steam shovel borrow pits located at high spots along the line, or in some cases, quite a distance from the right of way, necessitating considerable construction work to obtain access to them.

Some clearing was required on the north end of the line, although not in such large quantity as on the south half. Grubbing was required in many cases for the pile driving as land was sometimes encountered that had been previously cleared but not stumped.

A spur track about a mile and a quarter long was built along the south bank of Ebey Slough to serve a saw mill and several other proposed industries. Track was laid and ballasted in 1911, but business did not develop as anticipated and the track has been taken up until such time as business will warrant its maintenance.

In Everett a branch line about 4 miles long, called the Riverside Line, was built up the Snohomish River. The storage and switching yards, as well as numerous industrial spurs, are located along this line. Only one cut occurs on the Riverside Line, and the major part of the embankment was made with train hauled material.

BRIDGES, TRESTLES AND CULVERTS:

In general it can be said that an unusual amount of standard bridge construction was required in addition to the temporary trestles for filling purposes. Truss spans were required for the frequent stream crossings, and several high and long trestles were built where cross drainage was encountered, on the south half of the line. Short pile bridges of 3 or 4 spans were built frequently through the swampy land to act as equalizer water ways during flood seasons. Near Everett the crossings of the Ebey Slough and Snohomish River required draw bridges as these are navigable streams.

Pile and frame trestle work was done by contract as also was the falsework for the truss spans. Truss spans were framed and erected by the Company forces.

The material used in the structures erected by contract was furnished by the contractor, a flat price being paid covering the material, its delivery, and erection.

Hewn logs were used for culvert construction where it was possible to obtain them. The sawed culvert timber was furnished and placed by the contractor in the same manner as the bridge material. A small amount of vitrified culvert pipe was used, which was purchased at Renton, Wash., and shipped in by rail.

TRACK LAYING AND BALLASTING:

Track was laid with a Roberts Bros. machine, new 65 pound rail being used. Track laying commenced on January 29th, 1911, and was completed August 4th, of the same year. The material yard for track laying was in Cedar Falls.

The ballast for the first few miles north of Cedar Falls was obtained from Ragnar Pit on the main line, Valuation Section Washington 1. The remainder of the ballast was obtained from pits located along the line. Ballasting was commenced on March 5th, 1911, and finished October 22nd, of the same year.

WATER SUPPLY

Temporary water tanks were erected at North Bend and Tolt for construction purposes. These have since been replaced by permanent structures. At North Bend water is obtained from the city mains, and at Tolt a long pipe line was laid to develop a gravity system. Permanent tanks are also located at Monroe and Everett. In both places the supply is obtained from the city mains.

SPECIAL FEATURES:

Serious subsidence has taken place on the embankments through the swampy region north of mile 25. In some cases this amounts to two or three hundred percent of the original fill quantities.

Erosion from high water and excessive floods has been an item of considerable expense, especially on miles 44 to 46, and 50 to 52.

Riprap for bank and bridges protection was put in, in large quantities, soon after track was laid. The material was obtained from widened cuts and on the main line, Valuation Section Washington 1. Sheer walls and in some cases mattresses have been used for protection at the river crossings.

Frequent highway changes and overhead bridges were necessary and added materially to the construction cost.

Frequent grade crossings with existing lines of railroad required joint survey work and special frogs.

Right of way through the towns of Duval, Snohomish, Monroe and Everett was expensive and required special construction and special methods for carrying on the work.

Serious slides have occurred in Tokul Creek Loop, mile 14, which have necessitated several line changes. A large amount of material has been excavated in caring for these slides.

A line change was also made at Rutherford Springs in mile 18 after an attempt had been made to fill the bridge crossing the draw at that place. It was impossible to hold the fill in place with the material at hand so the alignment was moved into the hill at a heavy expense.

BUILDINGS, TELEGRAPH AND FENCE:

Material for right of way fence, telegraph lines and buildings was delivered by train after the track was laid. Fence with the necessary crossing facilities was built except in inaccessible places.

The buildings were constructed by the Railway Company forces, standard one story frame combination freight and passenger depots being built at North Bend, Tolt, Duval, and Monroe. A large frame freight depot with temporary passenger facilities was built at Everett. Shelters have been built at less important sidings. An oil supply plant, turntable, etc., was built at Everett and some facilities installed at Cedar Falls to care for the branch line engines. Telephones were installed in booths at blind sidings in addition to those in the depots.

OPERATION AND MANAGEMENT:

The Everett Branch is operated as a part of the Coast Division, standard equipment being used as a traffic is quite heavy.