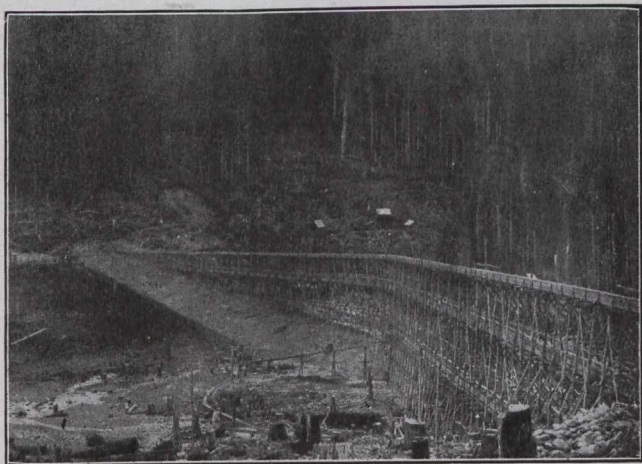


not more than 2,700 feet in elevation. The area possesses features especially calculated to conserve the precipitated waters, more particularly in the dense jungle of forest and underbrush with which it is clothed, the mat of forest floor from 1 foot to 2 feet in depth overlying the soil, the retarded melting of the snow due to the dense shade of the forest, and the moderate transverse slope of the mountain sides. All of these features, however, do not prevent a period of extremely low water, for some 60 to 90 days in the summer and fall of each season.

The stream flow has been systematically observed since 1907, and the results obtained more than sustain the find-



The Bear Creek Dam Nearly Completed.

ings of the original report in which the maximum power production of the watershed, based on a 50 per cent. load factor, was placed at 24,000 horse-power, with the commercially feasible storage available.

It was seen at the beginning of the investigation that a large storage capacity would be required to impound flood waters for use during the dry season. Five favorable reservoir sites were found in the flats and meadows along the upper reaches of the river and its branches. The capacities of these storage basins and the sizes of the impounding dams required have been determined, and the results show that ample storage capacity is available, within reasonable

Alligator Creek	35 ft.	95,000,000
"Y" Creek	35 ft.	110,000,000
Jordan Meadows	35 ft.	179,000,000
Diversion Storage	85 ft.	250,000,000

One impounding dam is now completed at Bear Creek reservoir and the other storage sites can be developed as additional generating units are installed to meet the increasing power requirements.

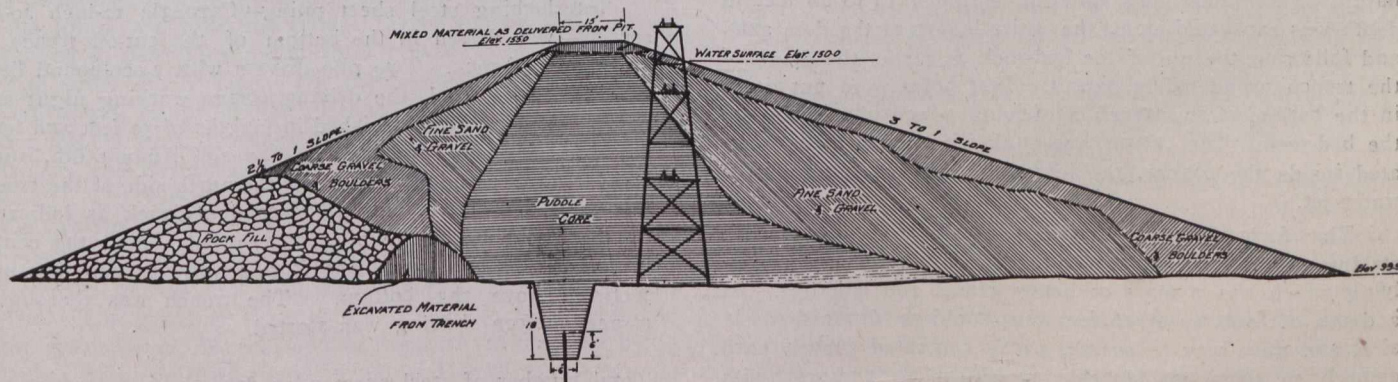
Bear Creek Reservoir.—This reservoir site lies near the head waters of Bear Creek, the dam being about a mile above the junction of that stream with Jordan River, about 4½ miles by wagon road from the diverting dam, and some 13 miles from the power station at the beach.

The impounding basin is formed in the long and comparatively narrow valley of Bear Creek, through which the stream winds in a succession of sluggish pools for a distance of some two miles above the site of the dam. The sloping sides of the valley are chiefly of broken and partially metamorphosed slate, covered with soil to a depth of from three to six feet. As the flat bottom of the valley is approached, the bed rock dips gradually from either side toward the centre of the valley, and is topped with a layer of hard-pan—a semi-cemented glacial gravel mixed with clay. This attains a depth of 87 feet in the ancient bed rock channel, which at the dam site is some 300 feet north of the present stream bed. The entire reservoir area supports a heavy growth of fir, spruce, hemlock, red cedar and yellow cedar timber.

The drainage area above the dam is about 8 square miles in extent, gently sloping, and rising to an altitude of about 2,300 feet.

The average precipitation observed at the site during the past two seasons is about 85 inches. In the winter months this precipitation takes the form of snow, which accumulates at times to a depth of 7 feet in the reservoir area.

Until the preliminary construction work began this site was unexplored, except for the rough preliminary survey which had been made in 1908 to determine the general features of the project. In September, 1910, the construction of a wagon road from the diverting point to the dam site was begun, and it was only after its completion late in November of that year that a permanent camp could be installed, and steps taken to determine with certainty the nature of the material underlying the dam site, and the



Section of Earth Dam on Jordan River Development.

The 12", 40 lb. Carnegie steel sheet piling, shown at the bottom of the dam, goes down to bed rock.

cost, to provide for an ultimate maximum plant output of 24,000 to 36,000 horse-power. These reservoir sites are as follows:

	Height dam.	Capacity, cubic feet.
Bear Creek (initial development)	55 ft.	320,000,000
Bear Creek (ultimate development) ..	75 ft.	608,000,000

quantity and quality of the material available for the construction of the dam.

The winter and spring of 1911 were spent in investigating the dam site, and the sites for borrow pits. A series of test pits were sunk and borings taken, and in May, 1911, complete data was obtained from which the construction details could be planned.