

plate, a quarter inch thick, extending right across the dam and anchored to it.

Besides the dam proper, the contract included two concrete retaining walls and a concrete arched flumeway, so that all the river works are now of a permanent character.

In removing the old dam the timbers were found to be in a splendid condition where under water, but the tops of the piles and the timbers above were considerably decayed.

The bed of the river on which the dam is constructed is a clay hard pan, which gave a good foundation in which there was no danger of failure, except in one place where a vein of fine loose gravel was found, as shown on drawings. Excavation only discovered increasing instability, and it was decided to consolidate it by pounding concrete dry into the wet gravel. This seemed to effect its purpose, and the superstructure was built on this bed. The gravel filling, both in front and rear of dam, was very carefully made at these points. The back filling seemed to compact in such a way as would not be possible with any water working through, and two seasons have justified the conclusion that the dam is water-tight.

The dam is built in sections about fifty feet long, the joints being made of sheet iron covered with a coating of sand and pitch to prevent the concrete forming a perfect junction. The object of this was to allow for any expansion on contraction without cracking.

The centre pier in the dam was built by the Commissioners on the advice of the Engineer, who contemplates the building, at some future date, of a bridge across the river on the substructure thus formed by the piers and abutments of the dam.

In the work two kinds of concrete were specified, namely: First and second class concrete. First class was used where concrete would be exposed to the action of water or the weather, and second class for foundations. The components of the concretes were as follows:—

FIRST CLASS CONCRETE.

One part Portland cement.
Three parts sand.
Four parts screened gravel.
Two parts broken stone.

SECOND CLASS CONCRETE.

One part Portland cement.
Three parts sand.
Five parts screened gravel.
Three parts broken stone. ✓