

Wharf.

The wharf at the end of the pile bridge is to be 100 feet long and 60 feet wide. The bents to be 10 feet apart. There are to be eight main piles to each bent; snubbing piles 30 feet apart along the face of the wharf, to project 4 feet above the surface of the wharf, and to be securely fastened with $2'' \times \frac{3}{4}''$ wrought-iron plates, either to a main pile or cap, in such manner as the Engineer may determine. There are to be "fender piles" placed at the end of each bent along the entire front of the wharf, bolted to the outer 12×12 stringers with $\frac{7}{8}'' \times 22''$ drift bolts, and also to be fastened to the caps with $\frac{7}{8}''$ nut bolts. The piles are to be straight and sound, of pine or fir lumber, not less than 14 inches in diameter at the head where cut off when driven, and of such length as the Engineer may determine; each and every pile to be ringed when driven, and are to be driven to the satisfaction of the Engineer as regards depth, movement, line, and grade, and are to be cut off at such elevation as he may direct. (Piles will average about 40 feet in length.)

The caps are to be 12×12 inches in size; each cap to be one piece of timber if obtainable, or of such lengths as to have but one joint in each bent, which must be upon a pile head, and must break joints with others adjoining. They are to be fastened to the piles with $\frac{7}{8}'' \times 24''$ drift bolts—one bolt to each pile, excepting at joints, where two bolts will be necessary. The ends of the caps to be sawed off to conform to the outer line of the sides of the wharf.

There are to be four main stringers, 12×12 inches, and twenty-five stringers, 4×12 inches, each extending the entire length of the wharf, and in lengths of not less than 30 feet. The joints to come upon the centre of the caps. The stringers to be sawed off at the outer end of the wharf to conform to its line. The two outer main stringers to be bolted to the caps with $\frac{7}{8}'' \times 22''$ drift bolts; all the main stringers to have one bolt to each cap, excepting at the joints where two bolts will be required. The 4 by 12 stringers are to be bolted at their ends and to each alternate cap with $\frac{5}{8}'' \times 18''$ drift bolts.

A guard timber, 8×10 inches, to run around the edge of the wharf upon the top of the planking, and fastened to the main stringers with $\frac{3}{4}'' \times 18''$ drift bolts, driven at least every 10 feet.

Blocks of timber, $8'' \times 10''$, to be fitted closely between all the fender piles, and to be fastened with $\frac{3}{4}'' \times 18''$ drift bolts to the stringers at the sides of the wharf, and to the cap at the end of the wharf—two bolts to each piece.

The wharf is to be covered with plank 3 inches in thickness and not less than 8 inches in width there are not to be more than three lengths in the width of the wharf, and these must break joints with each other; they are to be laid at right angles to the centre line of the wharf, and fastened with 6-inch wrought boat spikes for each plank, at least two spikes at each end, and one spike at each and every stringer, driven alternately from side to side of plank.

The wharf is to be securely braced with double diagonal braces 6×10 inches to each bent, fastened with $\frac{7}{8}''$ nut bolts extending through both braces and piles. The lumber to be of the best pine or fir, free from bad knots, sap, warp, wind, or wanes.

Trestle Work.

The trestle work is to be built according to plans to be furnished by the Engineer in charge; the general dimensions of which will be:—Mud sills, $12'' \times 14''$; caps, $12'' \times 12'' \times 8$ feet; posts and brace-posts, $12'' \times 12''$; stringers, $12'' \times 12''$; tie planks, $3'' \times 8'' \times 6$ feet; transverse braces, $3'' \times 10''$; longitudinal braces, $4'' \times 8''$; bents, 14 feet apart.

The mud sills are to be of sound redwood, and of sufficient length to project $2\frac{1}{2}$ feet beyond the brace-post mortice. The mud sills and caps are to be morticed to receive the tenons of the brace-posts and posts, and each and every joint shall be securely fastened with bolts or pins.

The brace-posts are to have a batter of one horizontal to four vertical.

The stringers are to be 12×12 inches, fastened to the caps by $\frac{7}{8}'' \times 22''$ drift bolts, one bolt through each stringer to each cap, except at joints, where two bolts will be necessary.

The brace-planks are only to be used on trestles of 20 feet or more in height, and then are to be notched, and securely bolted to the posts with $\frac{7}{8}''$ nut bolts, as the Engineer may direct.

Culverts.

The culverts are to be constructed of 3-inch redwood planks, securely nailed, according to plans to be furnished by the Engineer.

Structures.

All structures to be made in accordance with detail plans furnished by the Engineer, subject to his direction, and finished to his satisfaction.

Ties.

The ties for the roadway are to be 6×6 inches, and 6 feet long, with the exception of the joint ties, which shall be 6×8 inches and 6 feet long, of sound redwood lumber, well seasoned, and free from bad knots, warp, wind, or wanes, and to have two flat and parallel sides.

Iron.

Thirty-pound iron and fish joints are to be used.

Track Laying.

The ties are to be placed two feet apart, and thoroughly tamped their entire length and width; also spotted, where necessary, to give the iron a true bearing. The iron is to be properly connected by the "fish-bar joints," with bolts and nuts, and spiked on each side of each rail to each tie, at the proper gauge.

Buildings.

There are to be constructed on the line of road:—1 warehouse, 60×100 feet, on wharf; 1 warehouse, 100×200 feet, at Hawke's Slough; 1 warehouse, 100×150 feet, at Eel River; 1 car house and repair shop; 1 engine house; 2 turntables.