

REPORT IS MADE ON POWER AND ROADS IN CRATER NATIONAL PARK

The following report on proposed hydro-electric power and roads in the Crater Lake national park has been made to the secretary of the interior:

Federal Building, Spokane, Wash. September 17, 1910.

Sir: In accordance with your verbal instructions of August 30, 1910, the following preliminary report on the proposed hydro-electric power development, and roads in the Crater Lake national park, Oregon, is respectfully submitted:

Hydro-Electric Power Developments.

The water supply for the proposed power development will be taken from Anna creek, which has its source in a large spring issuing from a hill which forms the base of the Crater Lake rim, near Camp Arant. The spring is approximately 5 miles from the camp at Crater Lake.

The writer visited Anna creek during, perhaps, the extreme low water (September 3 and 4) and estimates the flow at that time to be approximately 6 second-feet. By going down the stream approximately 1500 feet a head of about 80 feet may be attained. With a flow of 6 second-feet, and an 80-foot head this will produce approximately 54.5 theoretical horsepower. With an efficiency of 70 per cent the output of such a plant is approximately 38.1 horsepower. One electrical horse power is equal to one mechanical horse power, which is equal to 746 watts. As the common 110-volt lamp consumes approximately 56.1 watts, one horse power will furnish light to 13.3 lamps. Therefore a plant of 38.1 horse power will operate 507 110-volt, 16-candle power lamps.

Mr. Alfred L. Parkhurst, manager of the Crater Lake company, informs me that his company will need about 300 110-volt, 16-candle power lamps. Such a plant as described above would operate the 30 lamp and supply in addition approximately 15.5 horse power for power purposes. It will be seen that such a plant would be useful only for light purposes, and this on a very small scale.

If such a plant is constructed it will take all the water from Anna creek, and convert a very pretty little stream, crossed by the main road to the lake proper, into a dry gulch. By throwing an artistic dam across Anna creek a very pretty little lake could be formed in Anna creek canyon, and the small reservoir would be an advantage in the operation of such a plant.

The evil of depriving Anna Creek of its waters at this point can be overcome and a plant of larger capacity can be built at the falls of Anna creek, about five or six miles below Camp Arant. Numerous springs which enter Anna creek between its head and the falls materially increase the discharge of the stream at the falls. I did not gauge the stream at the falls (because I did not have this information until I was leaving the park, not having seen Superintendent Arant before). Superintendent Arant told me that the fall at this point on Anna creek is between 60 and 70 feet, and that the discharge is five or six times that of the spring at the head of Anna creek. This would give a low-water discharge of about 30 or 40 second feet. With a head of 60 feet, and a discharge of 30 second feet, a plant at this point would develop approximately 205 theoretical horsepower; with an efficiency of 70 per cent the output of such a plant would be approximately 145-horse power, or an increase in the output of the plant over the one at Camp Arant of 107 horsepower.

The plant at the falls on Anna creek would require a transmission line five or six miles longer than a plant located at Camp Arant, but the falls or near the falls is the logical point for such a plant, and I recommend that any further investigation of such a project be made at the falls of Anna creek and not at Camp Arant.

Before permission is granted to this company to install such a plant it should submit to the secretary of the interior complete plans and specifications and the report of the engineer who prepared them. During the progress of the work a representative of the department should be on the ground to see that the work is properly done in accordance with plans and specifications, or else occasional inspection trips should be made by the department's representative.

Roads.
At the present time the principal routes to Crater Lake National park are from Medford, Or., on the Southern Pacific railroad, by automobile stage or team (distance from Medford to Crater lake is approximately 84 miles), and by way of Klamath lake. The trip via Klamath is as follows: From Weed, on the Southern Pacific railroad, to Klamath Falls, Or., by rail; from Klamath Falls to Agency Landing by boat from Agency Landing to Crater lake by automobile, stage or team, distance approximately 34 miles. There is also a steam railroad under construction from Medford, Or., to Crater lake.

The road from Medford, Or., to the park boundary has long, steep grades, many chuck holes and in places is much too narrow. Generally speaking, it is a very poor road. At the time I was there (September 3 and 4) the state had grade stakes set for a regrade of the old road to the park boundary. On this part of the road, approximately 7.5 miles from Medford to the lake, is by far the most difficult construction. From the park boundary to a point a short distance beyond Camp Arant, approximately six miles, the present road is narrow and winds among the trees, making transportation by automobile slow, but it is in very good condition and travels practically level, smooth country, through which a good road can be very cheaply constructed. From Camp Arant to the lake, approximately four miles, the country traversed is very steep and hilly, but if the road is carefully graded easy grades can be established and the construction is not difficult.

For about the first five miles of the road material for macadam can not be obtained close to the road, and it will probably have to be hauled some distance. There is plenty of rock for macadam close to the present road, and for the five miles from Camp Arant to the lake. The best available rock for the macadam is the basalt, some of which is very hard and will make very good road metal. By careful selection suitable material can be found for macadam. Little or no money should be expended on these roads until a complete and comprehensive road plan for the entire park is worked out.

The road from Camp Arant to Agency Landing on Klamath lake follows the right side of Anna Creek canyon. At present it is too far from the canyon side to afford a view of the beautiful canyon from the stage. If this road is reconstructed it should be relocated nearer to Anna Creek canyon rim.

Within the park limits this road traverses a smooth, gently sloping country through which a good road could be easily constructed at a reasonable cost. There is rock for macadam very close to the road and careful selection suitable material can probably be found close at hand. The length of this road within the limits of the park—Crater lake to boundary—is approximately ten miles. At the present time it is in very fair condition for travel.

That complete and comprehensive plans and specifications be prepared and approved for a sewer system, water supply and road-sprinkling system before any other work is undertaken and before the park becomes settled. After the plans and specifications are approved the work should be executed under the personal supervision of a competent engineer. The work of the engineer should be inspected occasionally by the department's representative from time to time. No makeshift construction should be allowed in the park. This applies especially to the roads, sewer system, water supply and hydro-electric power development. Whatever work is done should be performed in the best possible, economical manner. I recommend that the highways be constructed in accordance with plans and specifications similar to those of the Massachusetts state highway commission, where a purely macadamized highway is constructed. I also recommend careful consideration of the various forms of oiled macadam roads. By this I do not mean a macadam road merely sprinkled with oil, but one in which the asphalt oil is so incorporated throughout the body of the road that practically an asphalt concrete is formed, which practically overcomes the dust—such a road as that known as the "oil-road" or "petrololithic."

The general plan for the roads in this park should establish a maximum width for the macadamized part of the road. Where the topography will permit I think the width of these roads should not exceed 14 feet for the macadamized part, certainly not to exceed 16 feet for the macadamized part of the roads. Where the roads traverse steep slopes, endangering human life in case of accident, this width, of course, should be increased somewhat. In such cases a width of 20 feet would perhaps be safe.

In estimating the cost of macadam road or oiled macadam roads in this vicinity, I think \$1.25 per square yard can be relied on to cover the macadamized part. The cost of the grading, of course, depends upon the topography.

Very respectfully,
E. A. KEY,
Special Inspector,
The Secretary of the Interior.

REGISTRATION OF LAND TITLE.

In the Circuit Court State of Oregon for the County of Jackson.

In the matter of the application of Roguelands Incorporated to register the title of the following described premises, situated in the county of Jackson, State of Oregon, to-wit:
Lots one (1) to forty (40) inclusive of the Roguelands irrigated orchard tracts excepting that portion of lot six (6) described as follows:
Commencing at the southeast corner of Donation land claim number fifty-five (55), township thirty-six (36), south range two (2) west of the Willamette meridian, and from said point running thence south 1.54 chains; thence west 4.35 chains; thence north 1.54 chains; thence 4.35 chains to the place of beginning.

vs.
All who it may concern, defendants.

TAKE NOTICE.

That on the 16th day of November, 1910, an application was filed by said Roguelands Incorporated in the circuit court of Jackson county for initial registration of the title of the land above described.

Now, unless you appear on or before the 24th day of December, 1910, and show cause why such application should not be granted, the same shall be taken as confessed and a decree will be entered according to the prayer of the application, and you will be forever barred from disputing the same.

W. R. COLEMAN,
Clerk of the Circuit Court.
By M. B. TOWNE, Deputy.
NEFF & MEALEY, Attorneys for applicant.

REGISTRATION OF LAND TITLE.

In the Circuit Court of the State of Oregon for the County of Jackson.

In the matter of the application of the Roguelands Incorporated to register title to the following described premises, situated in the county of Jackson and state of Oregon, to-wit:
Lots 41-70 inclusive; lots 72-102 inclusive; and lots 104-193 inclusive all in the Roguelands irrigated orchard tracts.

vs.
Mr. James W. Coakley, Louisa Coakley, Aaron H. Meagley, Franklin Wertz, M. L. Forbes, K. S. Forbes, Elizabeth McLaughlin, Thomas Stottler, Margaret Holmes, C. R. Ray, Desert Oil company, an Oregon corporation, Mound School District No. 1, and all who it may concern, defendants.

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REGISTRATION OF LAND TITLE.

In the Circuit Court of the State of Oregon for the County of Jackson.

In the matter of the application of the Roguelands Incorporated, to register title to the following described premises, situated in the county of Jackson, state of Oregon, to-wit:
Lots 41-70 inclusive; lots 72-90 inclusive; lots 131-140 inclusive; lots 92-105 inclusive; lots 109-119 inclusive; lots 151-152, all in the Roguelands irrigated orchard tract, Jackson county, Oregon, free and clear from all encumbrances, except a certain mortgage held by the Jackson County Improvement company.

Also for a decree of said court finding the equitable title in and to the following described premises:
Lots 91, 107, 120-150 inclusive; 141-145 inclusive; 153-162 inclusive; and lots 164-193 inclusive, all in said

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JOHN S. ORTH, Cashier. W. B. JACKSON, Ass't Cashier.

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To James W. Coakley, Louisa Coakley, Aaron H. Meagley, Franklin Wertz, Elizabeth McLaughlin, Thomas Stottler and Margaret Holmes, the above named defendants.

In the name of the state of Oregon, you and each of you are hereby required to answer the application of the Roguelands Incorporated, the above named application on file therein against you within six weeks after the date of the first publication of the summons herein. Said period of six weeks being the time fixed by the above entitled court in its order for service of the summons herein by publication, within which time the said defendants are required to answer said application, which order of application bears the date of November 16, 1910.

And you, if you fail to answer said application in the time aforesaid, the applicant will apply to the court for the relief prayed for in said application, a succinct statement of which relief is as follows:
For a decree of the above entitled court finding the title of the applicant in the following described premises, to-wit:
Lots 41-70 inclusive; lots 72-90 inclusive; lots 131-140 inclusive; lots 92-105 inclusive; lots 109-119 inclusive; lots 151-152, all in the Roguelands irrigated orchard tract, Jackson county, Oregon, free and clear from all encumbrances, except a certain mortgage held by the Jackson County Improvement company.

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Roguelands irrigated orchard tracts. In this applicant with the legal title thereof vested in Sophenia J. Ish Gore, free and clear of all encumbrances, except the mortgage thereon, held by the Jackson County Improvement company, and to grant such other and further relief as shall be according to equity.

NEFF & MEALEY,
Attorneys for Applicant.
Date of the first publication of this summons is November 21, 1910.

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