53D CONGRESS, 3d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 235.

SURVEY OF ALSEA RIVER, OREGON.

# LETTER

FROM

# THE SECRETARY OF WAR,

TRANSMITTING,

*With letter of the Chief of Engineers, report of a survey of Alsea River, Oregon.*

JANUARY 23, 1895.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
*Washington, January 22, 1895.*

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated January 19, 1895, together with a copy of a report from Capt. T. W. Symons, Corps of Engineers, dated January 1, 1895, of a survey made by him in compliance with the provisions of the river and harbor act of August 17, 1894, of Alsea River, Oregon.

Very respectfully,

DANIEL S. LAMONT,
*Secretary of War.*

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
*Washington D. C., January 19, 1895.*

SIR: I have the honor to submit the accompanying copy of report dated January 1, 1895, with map, by Capt. T. W. Symons, Corps of Engineers, of the results of a survey of Alsea River, Oregon, made to comply with the requirements of the river and harbor act of August 17, 1894.

The project submitted by Captain Symons proposes the improvement of the downstream navigation of the river at the higher stages from the forks to the head of tide by the removal of rocks and other obstructions, at an estimated cost of $3,000.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
*Brig. Gen., Chief of Engineers.*

Hon. D. S. LAMONT,
*Secretary of War.*

## SURVEY OF ALSEA RIVER, OREGON.

UNITED STATES ENGINEER OFFICE,
*Portland, Oreg., January 1, 1895.*

GENERAL: I have the honor to submit the following report on the survey of the Alsea River, Oregon, and to submit plans for its improvement, with estimates of cost.

In making this survey and preparing plans and estimates I have been guided by the preliminary report of October 10, 1892, approved by Col. G. H. Mendell, division engineer, under date of October 17, 1892, as regards the character of the improvement to be provided.

For a general description of the Alsea River and valley attention is invited to the report of this preliminary examination published in House Ex. Doc. No. 53, Fifty-second Congress, second session.

Accompanying this report is a map of the Alsea River from the forks to the sea.

The work proposed to be done and covered by the estimate herewith has in view the improvement of the downstream navigation of the river at the higher stages from the forks to the head of tide.

The survey of the river was made by Mr. Holland W. Baker, assistant engineer, whose report is herewith.

A line of levels was run from the forks to the head of tide. The total distance by river between these points is 31 miles, and the total fall is 248.57 feet. This gives an average fall to the river of 8 feet per mile.

The obstructions to the proposed navigation met with are described in Mr. Baker's report, and consist of isolated rocks, about 75 in number, a few pieces of bed rock, and three small wooded islands, which collect drift.

The total amount of work required in the improvement of the river is small, but its isolation will render it somewhat expensive to accomplish. It is probable that when the actual work of improvement is undertaken, if so it be, that there will be changes in the location of the rocks, and others may have been brought in.

The total estimated cost of doing the work required is $3,000.

Mr. Baker's report gives in detail the work which it is proposed to do.

Very respectfully, your obedient servant,

THOMAS W. SYMONS,
*Captain, Corps of Engineers.*

Brig. Gen. THOMAS L. CASEY,
*Chief of Engineers, U. S. A.*

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

UNITED STATES ENGINEER OFFICE,
*San Francisco, Cal., January 8, 1895.*

Respectfully forwarded: Recommended.

G. H. MENDELL,
*Colonel, Corps of Engineers, Division Engineer.*

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### REPORT OF MR. HOLLAND W. BAKER, ASSISTANT ENGINEER.

*Portland, October 10, 1894.*

CAPTAIN: In accordance with your instructions, I left Portland on the 18th of September, 1894, for the Alsea River, to run a line of levels from the upper forks of same to the head of tide, and examine the river en route for the purpose of locating the more serious obstacles to the open boat navigation in vogue thereon, and taking

notes sufficient to base an estimate for the removal of such obstructions as were found to be necessary.

I took a rodman and camp outfit with me, proceeded to Corvallis by rail and from thence across the summit of the Coast Range into the Upper Alsea Valley, by the only available means—viz, private conveyance.

Here a boatman conversant with the river was secured, an open boat 14½ feet by 4 feet constructed, and work proceeded with down the river.

Commencing at the forks of the Upper Alsea River, a bench mark was established upon an ash tree within the forks, and about 50 feet above them, and marked by a tenpenny nail driven into the point of a triangular pyramid cut in the body of the tree, near the root.

The line of levels was continued down to Hoover Rapids or "The Falls," as it is more commonly called, to which point the tides from the bay back up, and here they ended upon a bench mark, marked as above and located upon an alder tree, 20 inches in diameter, situated upon the right bank, abreast of the foot of the rapid, 50 feet from same, and closely adjacent to the wagon road, and between it and the river.

The difference in elevation between these two bench marks as thus shown is 235.20 feet, and the difference in elevation of the water surface at the forks and at the head of Hoover Rapids, at low stage of river, is 248.57 feet.

No attempt was made at measuring distances along the river, the data regarding which is that afforded by the Land Office maps, obtained from the surveyor-general of the State. All of the other figures given, aside from those pertaining to levels, are estimates from inspection.

Without rehearsing in any way the arguments and statements made in previous reports, or traversing the grounds therein gone over, it may be added that the Alsea River, between its upper forks and the head of Hoover Rapids, meanders a length of 31 miles, with a ruling low-water width of 50 feet down to its confluence with Five Rivers, a distance of 21¾ miles, and of 80 feet from thence down.

It is essentially a mountain torrent. Its average low-water slope is 8 feet per mile, and this is quite largely massed in numerous riffles and rapids, with intervening pools of still water. Its bed is very rocky, being largely composed of a sand rock in place throughout the lower two-thirds of the portion leveled, with numerous rocks, both loose and in place, incumbering its course throughout.

In numerous places this bed rock is grooved and channeled quite uniformly in courses parallel with the current to depths of 3 feet and widths of 3 to 5 feet, with the intervening rock ridges averaging 18 inches in width.

The precipitous nature of its watershed renders the river very flashy in its rises and falls, either one quite commonly varying 6 or more feet in twenty-four hours.

With water at the high stage, a boat can be run by two men from the forks to tidewater in six hours.

The usual sizes of boats vary from 28 feet length by 6 feet beam to 36 feet length by 8 feet beam, and will carry loads of from 10,000 to 16,000 pounds, at a total cost of from $16 to $20 for boat (which is abandoned after one trip) and help, or a cost for transportation of 12½ to 16 cents per 100 pounds.

The only alternative for getting out the products of the Upper Alsea Valley is the tedious and costly haul over the rough mountain road to Corvallis, the cost varying with the condition of the road from 50 cents to $1.25 per 100, with an absolute impossibility to get products out by that route for the major part of the late fall and winter seasons.

At low water it is impracticable to get even an empty boat down the river.

At a good high stage, one accustomed to run the river can usually succeed in getting a loaded boat through safely notwithstanding the present serious impediments to navigation, but, as above instanced, the high stage of river is a very ephemeral thing, and the fall which will occur in a very few hours adds greatly to the dangers of the transit although the points of peculiar danger are not very numerous, being mainly concentrated at the various rapids, as will be more particularly designated hereafter, and a few brushy islands which collect drift badly at times of high water.

With these places improved the course could be run with comparative safety at any medium stage of the river. This alone would give immediate and substantial relief. To do more than this would be useless unless a systematic course of clearing the channel throughout its entire length were attempted, which would involve a very much more considerable outlay than the merits of the question would justify. In fact, the parties most in interest would be well satisfied if these especially bad places were improved.

They are as follows:

One-half mile below the forks of the river a chain of loose rocks extends across the channel. About 12 of these should be removed. All of them can be gotten out of the way with crowbars, etc.

At 1¼ miles below the forks, or three-eighths of a mile below the grist and saw

mill, are a dozen loose rocks in the middle of the channel that should be removed. They stand about 2 feet out of water at low stage, and can be removed as above.

*Tobacco Rapids.*—These rapids are located 4 miles below the forks, and are the first very serious obstacles encountered. A sharp turn in the river above, with a rocky island directly in the rapids, narrowing the boat channel to 20 feet in width, with falls therein of 20 inches, and a large basalt rock at the falls and directly in the boat channel at the gorge, make this passage a bad one.

Just above this is a fall of 12 inches at low water, with two rocks in place in the line of the falls, and directly in the boat channel.

These three rocks should be removed, and will require blasting. Their total volume does not exceed 8 cubic yards.

*Wooded Island, No. 1.*—At Garrison's Ranch, 7 miles below the forks, an island 150 feet by 50 feet in dimensions, divides the river, making both channels narrow and catches drift badly, as it is well covered with heavy brush and saplings. This should be cleared off.

Ten miles below the forks, and five-eighths of a mile above "Devils Jump Off," are 5 loose rocks of about one-half cubic yard each in the channel. They stand 2 feet out of low water, and bothersome at medium boating stages. They should be removed.

*"Devils Jump Off."*—This is located 10⅝ miles below the forks and 2½ miles below the mouth of Salmon Creek. The rapids are about 200 feet in length, with the low-water boat channel about 25 feet wide. The low-water fall in the length of the rapids is 6.89 feet. The rock is all a sandstone. The right side of the channel is a flat rock ledge, which toward the lower end extends completely across the river with a channel 14 feet wide worn through it to a considerable depth.

There are about thirty loose rocks scattered along the upper portion of the rapids, mostly of about one-third of a cubic yard contents, with three of the larger ones of about 2 cubic yards contents.

At the lower end of the rapids, and directly in mid-channel, are two sandstone rocks, the upper one measuring 9 cubic yards, and the lower one half that amount. They are well surrounded by deep water and need only to be well shattered.

Just below these are two snags 18 inches in diameter, which have remained there two and four years, respectively, and are a menace as catchers of drift.

The rock in place in this section is smooth-surfaced, and although at medium stage of the river, and, in fact, at almost any stage of the river, boats will ground upon them more or less, the strong current forces them off without any severe shock, and they do not constitute any great menace to boating, but the loose rocks at the upper and lower ends of the reach and the snags are more serious, and need removing. Nearly all of these rocks can be removed readily out of the channel and on to the bank. A few only will require blasting, and with this small amount of work done this place will cease to be formidable.

*Shovel Handle.*—Three-eighths of a mile below "Devils Jump Off" is "Shovel Handle," and in the bend above this are three troublesome rocks, the worst being the smallest, lying directly in the channel between the others, and is further designated by a small willow tree or large twig growing in a crevice in same. All should be removed.

*Wooded Island No. 2.*—Eleven and one-half miles below the forks is a small wooded island, 150 feet by 40 feet in dimensions, similar to the one previously described, and requiring the same treatment for the same reasons.

*Digger Creek Rapids.*—Just above the mouth of Digger Creek, which is 13 miles below the forks, are the Digger Creek Rapids, with an approximate length of 300 feet, width of 50 feet, and fall of surface at low water of 5.16 feet.

This forms a very bad reach of river. To effectually help matters will require (referring to accompanying sketch) the removal of the loose rocks along the left bank, a half dozen of those at the lower end upon the right bank, and about 20 feet of the outer end of the reef marked A, which stands about 3 feet out of low water.

The strong current in the approach to the rapids and the sharp turn required around reef B will almost inevitably throw a boat upon reef C, but with the removal of the obstructions mentioned, reefs B and C will cease to be a menace and will doubtless prove beneficial rather than otherwise, as they will tend to confine the flow to the newly-straightened channel along the left bank.

All of the material is a soft sandstone and the loose rocks are of about one cubic yard volume each.

*Round Mountain Rapids.*—These rapids are located 14 miles below the forks and 1 mile above the mouth of Fall Creek. The low-water surface has a fall of 10.47 feet. At the head the section is wide with a discontinuous rock ledge extending nearly across the channel, standing at low water 3 feet above the surface on the lower side of ledge. Several rock reefs are found throughout the course of the rapids, with the intervening spaces pretty well covered with loose rocks. Most of the latter, however, are found along the middle and lower portions of the reach, where the river

section narrows and a comparatively small rise covers them well. The rock in place is smooth-surfaced, and boats slide over them without serious difficulty. Formidable as it looks at low water, it is not as dangerous in the boating season as some other sections, and with the removal of the few rocks indicated upon the sketch will be rendered comparatively safe.

*Wooded Island No. 3.*—At the first sharp bend in the river, one-fourth of a mile below Fall Creek, an island 200 feet by 30 feet, similar to those previously described, requires the same treatment.

An especially bad approach to this island renders it peculiarly obnoxious when drift lodges upon it.

*Stone Mountain Rapids.*—These rapids are located 20½ miles below the forks, and 1½ miles above the mouth of Five Rivers. They are 200 feet long, and have a low-water slope of 6.5 feet. Half a dozen of the worst rocks should be removed. All of them are loose, and average about one-half of a cubic yard each.

*The Slide.*—This is located one-third of a mile below Stone Mountain Rapids. A medium-sized, sharp-pointed, pyramidal rock, directly in mid-channel at the foot of the rapids, is the only serious obstacle to be removed.

*Hellyan Rapids.*—These are located 5¾ miles below the mouth of Five Rivers. One loose rock and one apparently solid one of about two-thirds cubic-yard volumes are the only serious obstacles.

*McEwing Rapids.*—These rapids are located 1½ miles below Hellyan Rapids. Two loose rocks lying upon the left bank at low water, almost in line with three alders, 10 inches in diameter, are the main obstructions.

The foregoing constitute the principal impediments to navigation in the Alsea River at a medium stage of same, from the forks down to the head of tide. Below this point and down to Waldport, near the mouth of the bay, no obstructions exist to the passage of the boats coming down the river.

A narrow gravel bar one-half mile below the Tidewater post-office, and a wide sand bar about one-half mile across the crest located near the head of Alsea Bay, upon either of which only 12 inches of water are to be found at extreme low tide, obstruct the navigation of this portion of the river for steamboats or any craft requiring any great depth of water.

The present necessity for any such craft in these waters is not very apparent, and should an emergency arise necessitating their occasional appearances, advantage can be taken of high tides for such emergency.

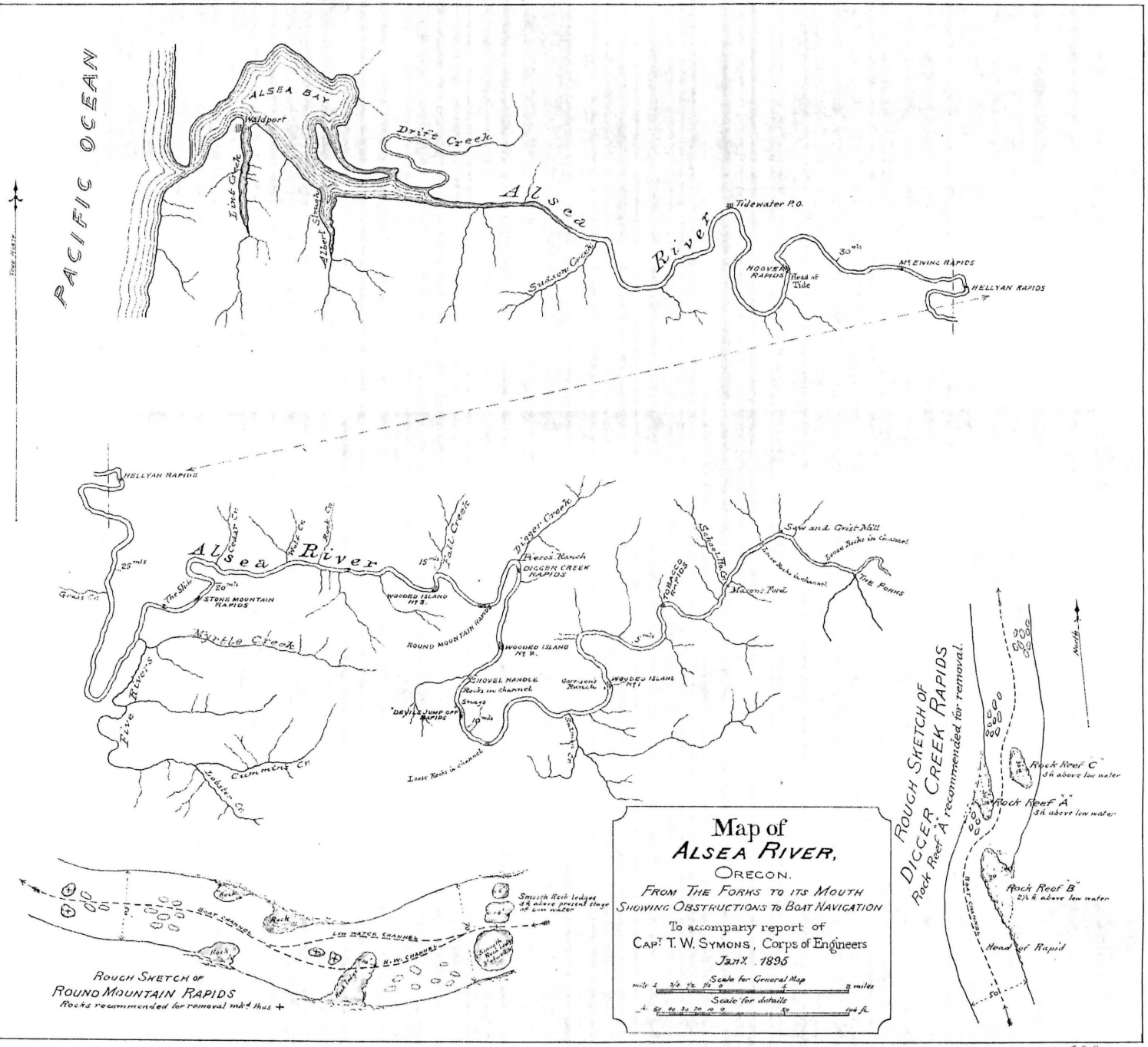
The cost of any adequate and permanent improvement of these places would be considerable, and for the present, with its very limited demand, their improvement would scarcely seem advisable.

The improvement of the river proper, as above outlined, can be done at an estimated cost of $3,000, and with this done a very substantial and permanent relief will be afforded to the upper Alsea country.

I am, Captain, very respectfully, your obedient servant,

HOLLAND W. BAKER, *Assistant Engineer.*

Capt. T. W. SYMONS,
*Corps of Engineers, U. S. A.*


PACIFIC OCEAN
ALSEA BAY
Waldport
Drift Creek
Alsea River
Tidewater P.O.
Head of Tide
HOGUE RAPIDS
McLENING RAPIDS
HELLYAN RAPIDS
Five Rivers
Myrtle Creek
STONE MOUNTAIN RAPIDS
ROUND MOUNTAIN RAPIDS
DIGGER CREEK RAPIDS
TOBACCO RAPIDS
Mason's Ford
THE FORKS
SHOVEL HANDLE
"DEVIL'S JUMP OFF" RAPIDS
Loose Rocks in channel
Saw and Grist Mill
Smooth Rock ledges 3 ft above present stage of low water
LOW WATER CHANNEL
H.W. CHANNEL
ROUGH SKETCH OF ROUND MOUNTAIN RAPIDS
Rocks recommended for removal marked thus +
ROUGH SKETCH OF DIGGER CREEK RAPIDS
Rock Reef A recommended for removal.
Rock Reef C 3 ft above low water
Rock Reef A 3 ft above low water
Rock Reef B 2½ ft above low water
Head of Rapid
North
Map of
ALSEA RIVER,
OREGON.
FROM THE FORKS TO ITS MOUTH
SHOWING OBSTRUCTIONS TO BOAT NAVIGATION
To accompany report of
CAPT T. W. SYMONS, Corps of Engineers
JAN'Y. 1895
Scale for General Map
Scale for details