

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
DIVISION NO. 8

6-20-01

REPORT
OF
PRELIMINARY INVESTIGATION
OF
STAIRCASE - GRAVES CREEK ROAD
IN
OLYMPIC NATIONAL PARK
JEFFERSON AND MASON COUNTIES
WASHINGTON

By: W. C. Struble
Highway Engineer

Date: September, 1949

June 19, 1950

Mr. Newton B. Drury
Director, National Park Service
Department of the Interior
Washington 25, D. C.

My dear Mr. Drury:

We are forwarding a copy of the "Report of Preliminary Investigation of Staircase - Graves Creek Road in Olympic National Park, Jefferson and Mason Counties, Washington".

The purpose of this report is to discuss the feasibility of a southern route across the Olympics. Two of the possible routes were rejected, while a third possibility merits consideration. This route is sketched on the accompanying map.

Very truly yours,

A. C. CLARK

Acting Commissioner of Public Roads

Enclosure

Mr. Drury ✓

PRELIMINARY INVESTIGATION REPORT
OLYMPIC NATIONAL PARK
STAIRCASE - GRAVES CREEK ROAD

Letter of authorization No. AM6231, dated September 9, 1949, authorized the expenditure of \$1,000.00 for reconnaissance studies of a proposed Highway between Staircase and Graves Creek. The inspection was made in September, 1949, by the following representatives of the National Park Service and the Bureau of Public Roads:

Preston Macy, Superintendent of Olympic National Park
Gunnar Fagerlund, Naturalist, Olympic Park
H. G. Fowler, Park Planner, Regional Office of National Park Service,
San Francisco
Spike Oakes, Assistant Chief Ranger, Olympic Park
Floyd Dickinson, District Ranger, Hoh and Queets District
Ignar Olsen, Packerman, Quinault Washington
W. C. Struble, Highway Engineer, Bureau of Public Roads

The purpose of this report is to discuss the feasibility of a southern route across the Olympics that would have Staircase and Graves Creek as its termini. In effect it would close the gap between approved Park routes Numbers 12 and 13. This unit is not on the Park system of Highways as of this date.

The National Park Service has numerous requests for an expansion of the road system that would make the southern Olympics accessible to motorists. It is a well established fact the Park visitors must have highways if they are to see the Park. From the standpoint of Park administration, such a route across the southern portion of the Park is desirable. The general public has agitated a similar cross-cut over the mountains for many years. It would largely eliminate the circuitous route of U. S. Highway No. 101 around the Olympic Peninsula for those that chose to take a short cut. The principal benefit, however, of the proposed southern crossing, is to permit the National Park Service to display the natural beauties of the Olympics to the Park visitors.

Field investigation discloses some errors in contour marking and trail locations on the accompanying map and there may appear to be some inconsistencies in the projected route although the plan is sound from a geometric standpoint. Mile posts originating at Hoodport have been projected over the entire route. Accordingly, mile posts 19.6 and 52.0 are the eastern and western terminus, respectively. The length of the proposed project is 32.4 miles.

There are several possible routes to connect Graves Creek and Staircase and between Hood Canal and Lake Quinault, any of which involve heavy construction and subsequent maintenance costs. The cost of winter maintenance would be almost prohibitive. A brief resume of the routes considered follows:

Consideration was given to passing through Anderson Pass, supporting up the Quinalt River on the west side and down the Bogachiel River on the east side. This route was abandoned for the following reasons:

- (a) It would pass through the center of the Park and involve greater distances of new construction.
- (b) It is unsatisfactory to the Landscape Division in that it would mar the hillsides of the "Enchanted Valley" which has been designated as a primitive area.
- (c) It does not fully develop the superior panoramic views that are only available above elevation 4000 due to dense forest cover.

Inasmuch as the disadvantages outweigh the advantages, the Anderson Pass Route will not be further considered.

A second route was considered using a saddle on Seven Ridge, about two miles west of the Skokomish River as a summit control. This Summit is about the same elevation as the Six Ridge Control. Getting off the Seven Ridge to the east would be difficult and the 6% support would extend north to approximately Nine Stream where it would be difficult to effect a turnaround. The support on the west side of Seven Ridge would bring back to the head waters of O'Neil Creek and intercept the Quinalt River about 7 miles above Graves Creek. The route has possibilities from an engineering standpoint but is rejected for the following reasons:

- (a) It would not confine construction to the southern limits of the Park. The long supports in either direction from Seven Ridge would reach the bowels of the Olympics and defeat the current desires of Park officials.
- (b) As in the case of the Anderson Pass Route, it would be impossible to hold the line up to elevation 4000 for any appreciable distance and as a consequence the superior views of the Park would not be available. The Summit Control on Seven Ridge is indicated by a red circle on the accompanying map for identification purposes.

A third possibility merits consideration in the final determination of the location. It would use Sundown Lake as a control point on the west side of Six Ridge and develop on a 6% grade in both directions from Sundown Lake. Six Ridge would be crossed at the approximate trail crossing. It would then be impossible to pass near McRavey Lakes, which in the opinion of the undersigned, is one of the outstanding features of the recommended route. Making everything into consideration, we feel that the route sketched on the accompanying map, develops more desirable features than any other crossings of the southern Olympics.

The recommended route has been projected on the accompanying map and is thought to meet most of the requirements of the National Park Service. This plan is favored for the reason that it confines construction to the extreme southern limits of the Park. It will also be noted that the entire 32.4 miles of length falls within a rectangle of 10 miles in length and 4 miles in width. The area traversed by this route is rich in virgin forests, waterfalls, glaciers and wild life. The proposed route fully exploits the scenic values of the southern Olympics. About 7 miles of the proposed route lies above elevation 4000 feet, above which the superb views of the Olympics are available.

Beginning at the west end of Route 12 the line follows the right bank of the Skokomish River for a distance of 2 miles where the River is crossed and spanned by a 150 foot bridge. Small bridges or large culverts are required for Madeline and Donahue Creeks. After crossing the Skokomish River the line reverses direction and the long ascending grade to Six Ridge Summit begins. This support carries up Seven Stream for approximately 1-1/4 miles where the line reverses direction and swings around Six Ridge point. The 2-1/2 miles of construction in the Seven Stream canyon is exceptionally heavy in a particularly difficult and treacherous terrain. Heavy expense is involved here to guard against snow avalanches for protection of traffic and maintenance to the completed Highway. Seven Stream would require a short span bridge. Six Ridge trail would be crossed near mile post 24.8. Between the Six Ridge trail and McGrahey Lake the line traverses reasonable satisfactory ground for road construction. Much of this ground is through an old burn and the exposure is good on the north slope of Six Stream. A natural turnaround is found at McGrahey Lake where the line again reverses direction and the ascending grade is continued to the Six Ridge control point at approximately elevation 4650 feet. Between the Six Ridge Summit and the Mt. Olson Divide, approximately 3 miles, a rolling grade is employed and practically no elevation is gained or lost between these positive control points. The elevation of the Mt. Olson Divide is about 4600 feet.

Leaving Mt. Olson, a descending 6% grade is employed to Graves Creek. This support carries around the point above the lower Graves Creek Shelter, up Graves Creek drainage nearly to the headwaters of Success Creek. A double crossing of Graves Creek is made about 3/4 miles above the upper Graves Creek Shelter. From this point the line would follow the north bank of Graves Creek to mile post No. 49, at which point the line would reverse direction in the Quinalt River Canyon. 100 foot bridges would be required for the three crossings of Graves Creek. It is probable that the turnaround in the Quinalt River Canyon could be made on the south side of the river. If not, there would be a double crossing of the Quinalt River involving major structures of at least 200 foot main spans. Success Creek and other minor streams could be handled with large culverts.

The classification of the entire route is predominantly solid rock and under general classification terms would be called sandstone and shale. The material would require flatter side slopes than the conventional 1/2:1 slopes for solid rock. All clearing below elevation 4,000 is exceptionally heavy.

In the interest of safety to motorists, provisions should be made for Guard Rail for about one-half the length of the project. Some type of snow shed would be required at numerous locations in the interest of safety to traffic and finished highway. Guard Rail and Snow Sheds are major items in estimating the cost of this Highway.

The following estimated construction costs are based upon current unit prices, a 26 foot finished roadway, 36 degree maximum curvature and 6% gradients.

Estimated Cost per mile:

Clearing and Grubbing	\$ 20,000.00
Surfacing	25,000.00
Excavation	120,000.00
Drainage (Minor)	5,000.00
Bridges	12,000.00
Guard Rail	15,000.00
Snow Sheds	13,000.00

\$210,000.00

Engineering & Contingencies 30,000.00

Estimated Cost per mile \$240,000.00

Length of Project - 32.4 miles

Total Estimated Cost \$7,776,000.00

Estimated Cost - Hoodport to Lake Quinalt
Within Park Boundaries

Park Route No. 12	4.5 miles	1,600,000.00
Park Route No. 13	7.0 "	590,000.00
Staircase - Graves Creek	32.4 "	<u>7,776,000.00</u>
	43.9 "	\$8,826,000.00

Park Approach Roads

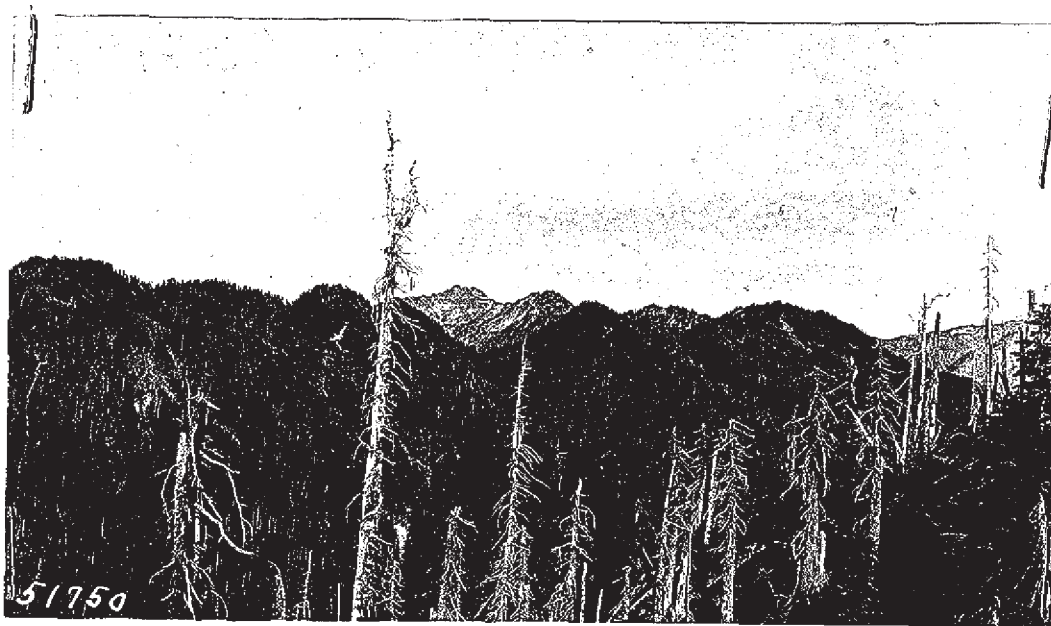
Hoodport to Ferndry	9.2 miles	1,000,000.00
Ferndry. to East Park Boundary	5.8 "	600,000.00
Lake Quinalt to West Park Boundary	<u>7.3 "</u>	<u>350,000.00</u>
	22.3 "	\$1,350,000.00

Total Estimated Cost Hoodport to Lake Quinalt \$10,176,000.00

Prior to the undertaking of a project of this magnitude, more provisions should be made for the firming of the approach roads leading to the Park. They might be set up as Forest Highways or part approach roads and become eligible for Federal appropriations. It is very doubtful if the State of Washington would agree to apply State funds to a project of this nature due to subsequent maintenance costs. It would have little value to the State system of Highways in that its use would be confined principally to the summer months.

When detailed information becomes necessary for a road across the southern Olympics, it is recommended that full use be made of aerial photography. Contour maps on a workable scale should be made of the several alternate routes and the proper location can be selected from these maps. The accuracy of these maps is such that comparable estimates satisfactory for program purposes can be made. Such a procedure would effect a considerable saving in field engineering costs.

As the western Park boundary, rainfall approximately 150 inches per year and snowfall comparable to the Cascade Range may be expected above elevation 1000 feet. On the project inspection in September, 1949, snow banks in depths up to 10 feet in depth, were observed as low as elevation 2500 feet at several locations. This was snowfall from the previous winter and it is very doubtful if they disappeared during the 1949 season. During the summer season the high Olympics are fog-bound quite frequently and the scenic attractions of the Park are lost on such occasions. The merits of the proposed southern crossing of the Olympics should be appraised by the National Park Service. It is recommended that any construction on this route be deferred pending completion of the Hurricane Ridge Route, which is now under construction and will require several years to complete.



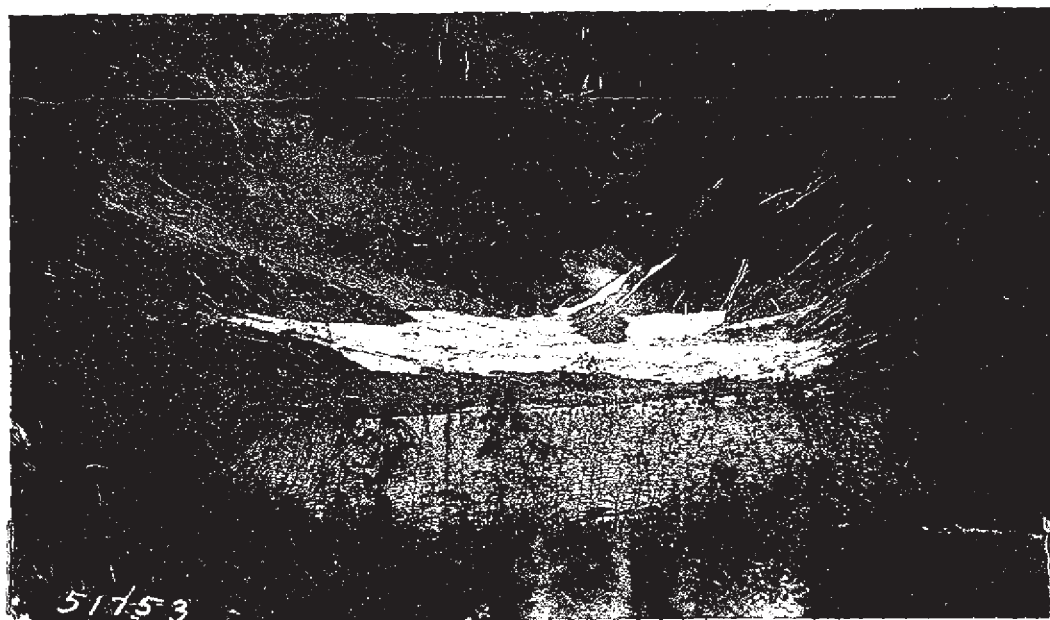
#51750 - September 28, 1949 - Picture taken from near Summit Control on Six Ridge. Canyon in foreground is Seven Stream and first ridge beyond is Seven Ridge. One possible route would be to cross the gap in Seven Ridge and support down O'Neil Creek. This would be second choice for a route across the southern Olympics.



#51751 - September 27, 1949. Picture taken near trail crossing of Six Ridge. High snow capped peak is Mt. Olympus. This is characteristic of the mountain views between mile posts 30 and 38. The proposed route would support about around near the top ridge in center of picture. It would cross many of the deep gullies.



#51752 - Shows meadows at head of Six Stream and Summit between Six Stream and Graves Creek. Six Ridge Trail crosses Ridge near center of picture. September 27, 1949.



#51753 - September 26, 1949. First overnight stop. Shows Sundown Lake and small meadows. Elevation 4000 feet approx.



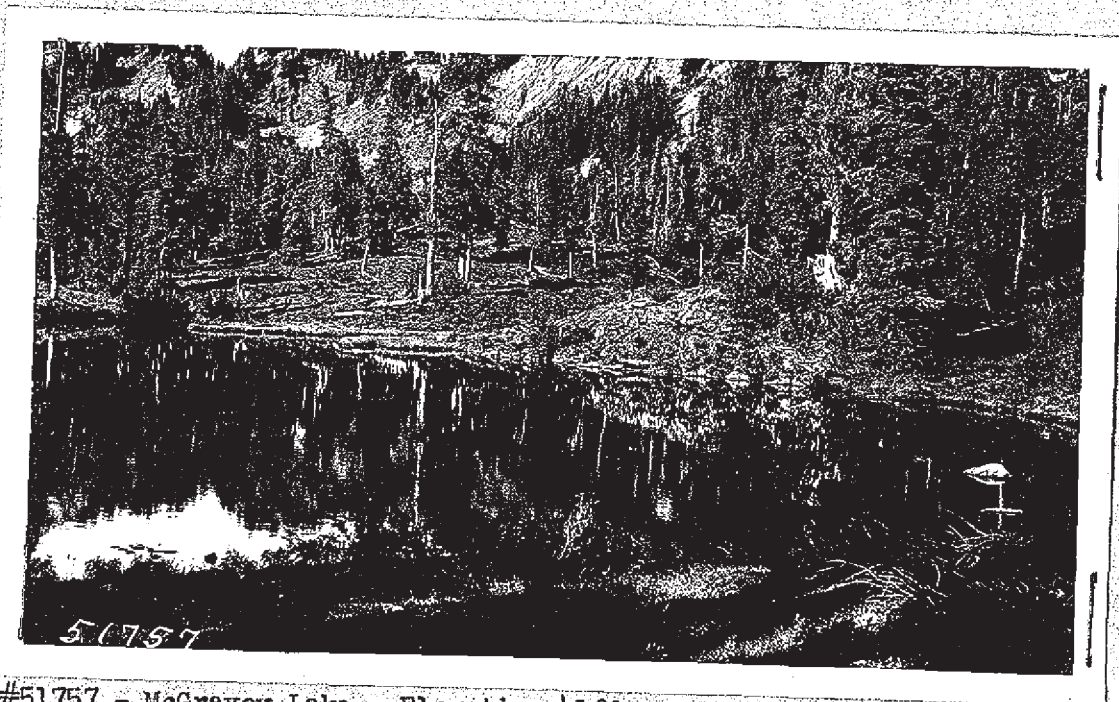
#51754 - September 28, 1949. A close-up of the snow slide immediately above the Belview Shelter. This is characteristic of many of the construction problems. It is estimated that the grade would be 200 feet above the snow. An over-night stop was made at this location.



#51755 - Small Meadows near head of Six Stream. Looking towards Sundown Pass.

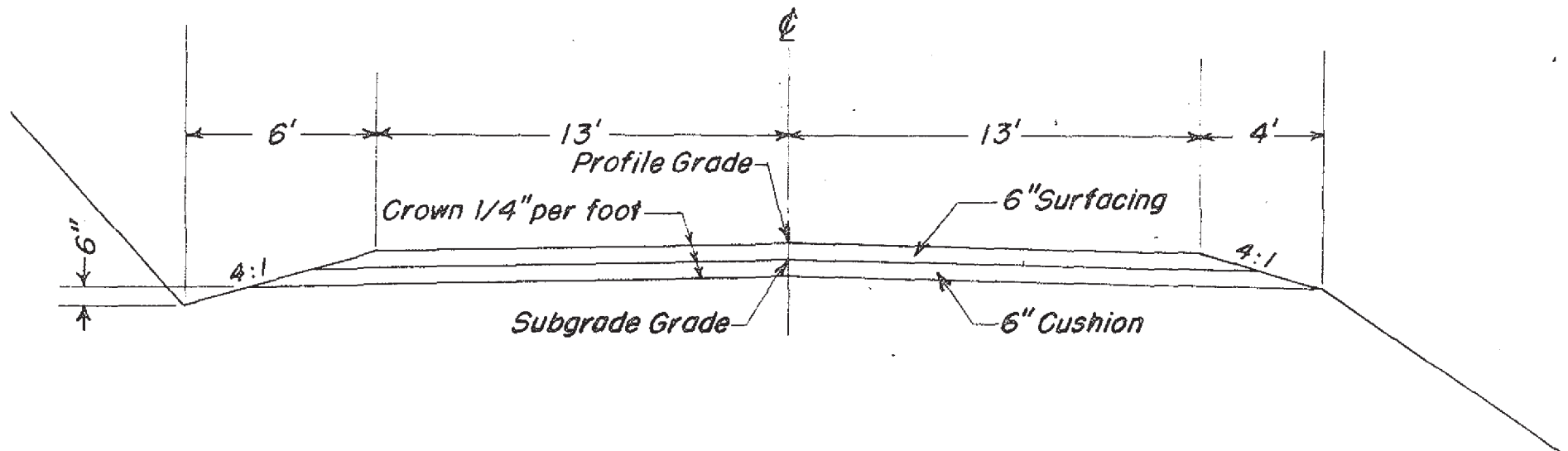


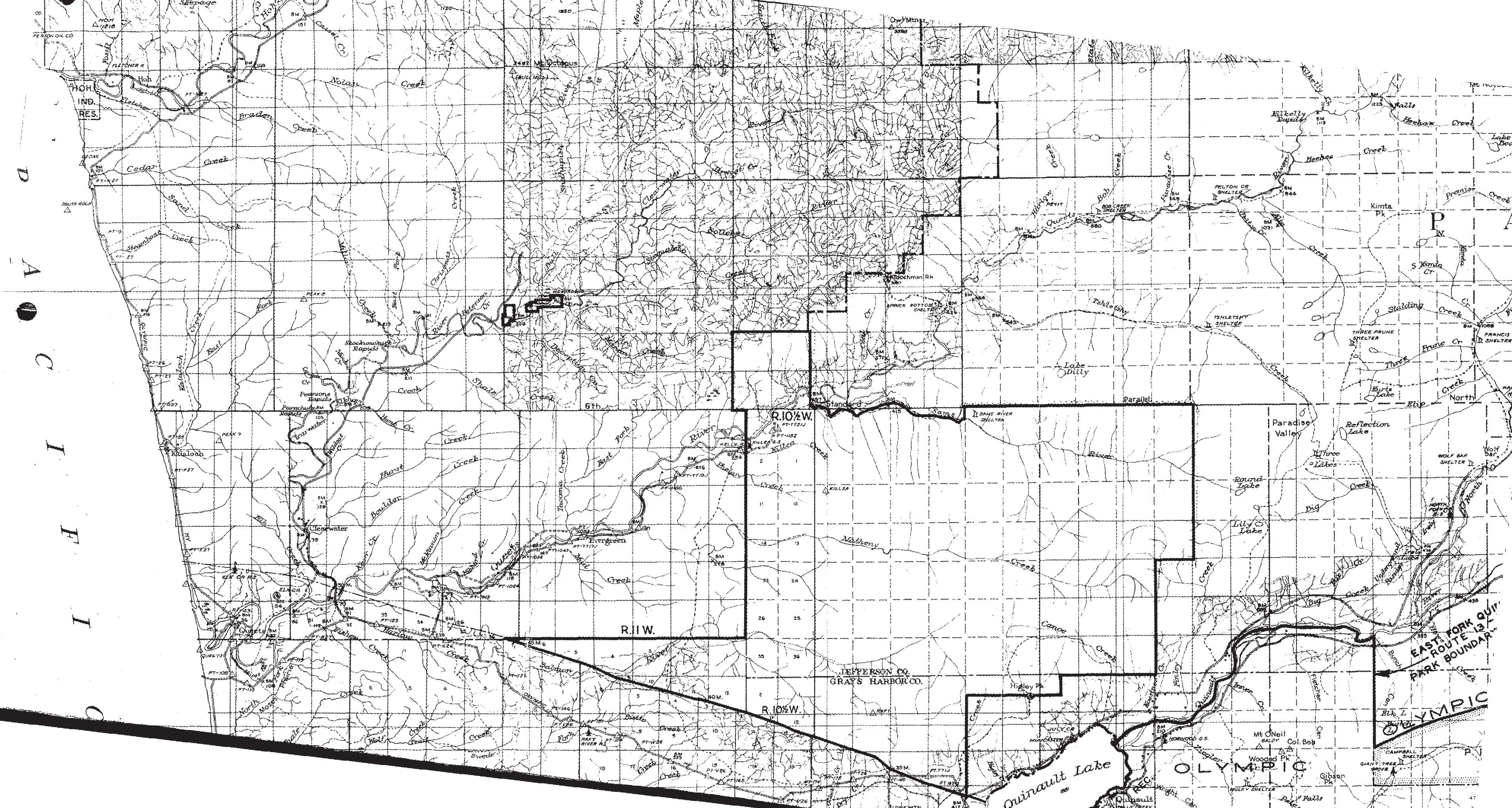
#51756 - Shows rugged range to the east of Skokomish River and down Six Stream Canyon.



#51757 - McGravey Lake - Elevation 4100. Proposed Turnaround on the opposite bank of Lake. Six Ridge in background. September 27, 1949.

OLYMPIC NATIONAL FOREST
TYPICAL SECTION
OF
PROPOSED
STAIR CASE - GRAVES CREEK ROAD





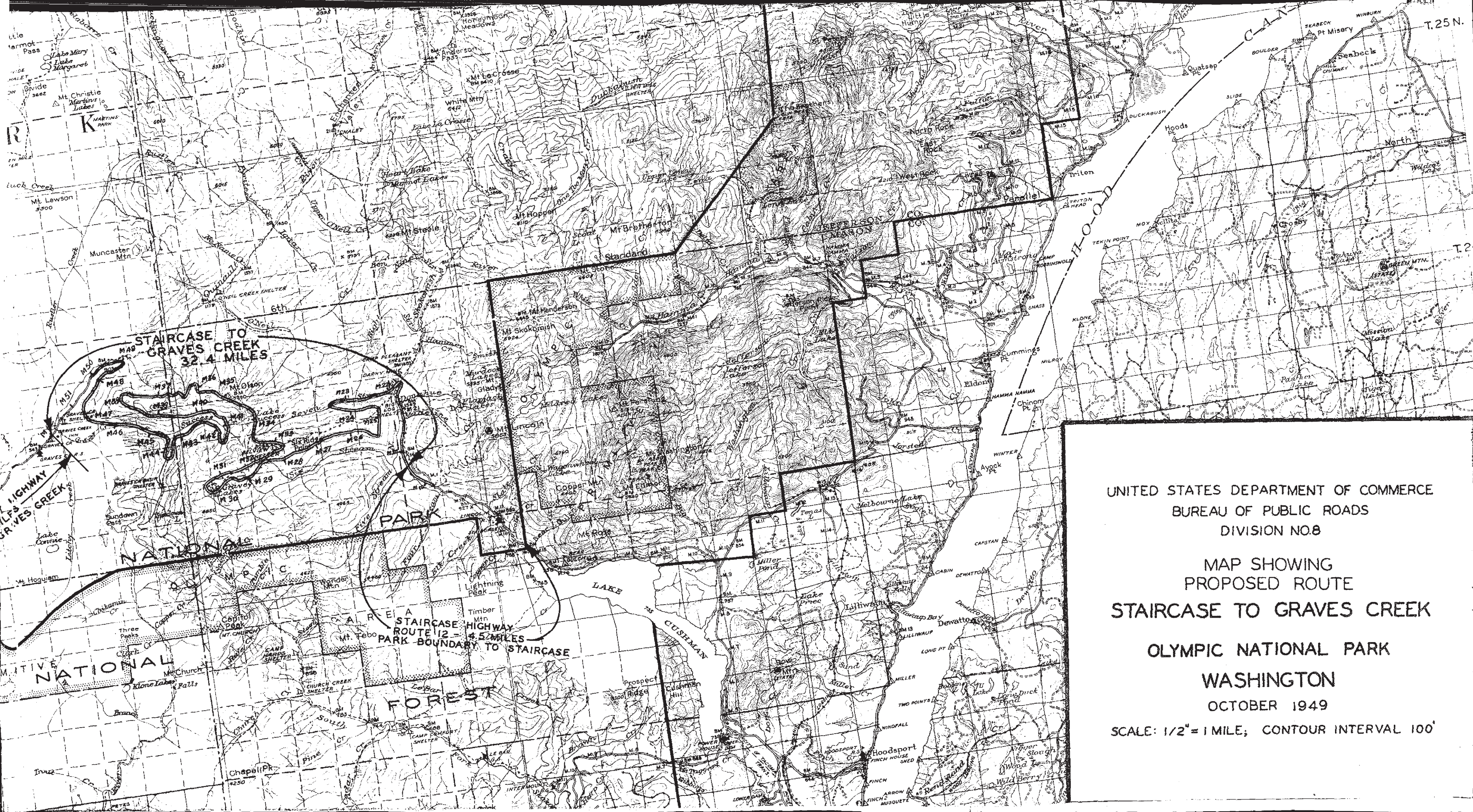


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MAP SHOWING
PROPOSED ROUTE
STAIRCASE TO GRAVES CREEK

OLYMPIC NATIONAL PARK
WASHINGTON
OCTOBER 1949

SCALE: 1/2" = 1 MILE; CONTOUR INTERVAL



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MAP SHOWING
PROPOSED ROUTE
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OLYMPIC NATIONAL PARK

WASHINGTON

OCTOBER 1949

SCALE: 1/2" = 1 MILE; CONTOUR INTERVAL 100'