UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Water Resources Division

RECONNAISSANCE FOR ADDITIONAL WATER TO SUPPLY LOST GROVE, SEQUOIA NATIONAL PARK, CALIFORNIA

Prepared in cooperation with the
National Park Service

ADMINISTRATIVE REPORT
For U.S. Government use only

Menlo Park, California
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INTRODUCTION

At the request of the National Park Service, the Geological Survey made a reconnaissance in the vicinity of Lost Grove in Sequoia National Park, California (fig. 1). The purpose of the reconnaissance was to locate sources of water in order to supplement an existing public supply. Fieldwork was done on July 12 and 13, 1967. Because the work was done during a year that was wetter than normal, water conditions were at an optimum rather than a minimum.

Lost Grove is in sec. 3, T. 15 S., R. 29 E., Tulare County (fig. 2), about half way between General Grant Grove and Giant Forest on the Generals Highway. The grove is about 6,700 feet above sea level and lies in an area of steep slopes and gullies, and small, intermittent streams.

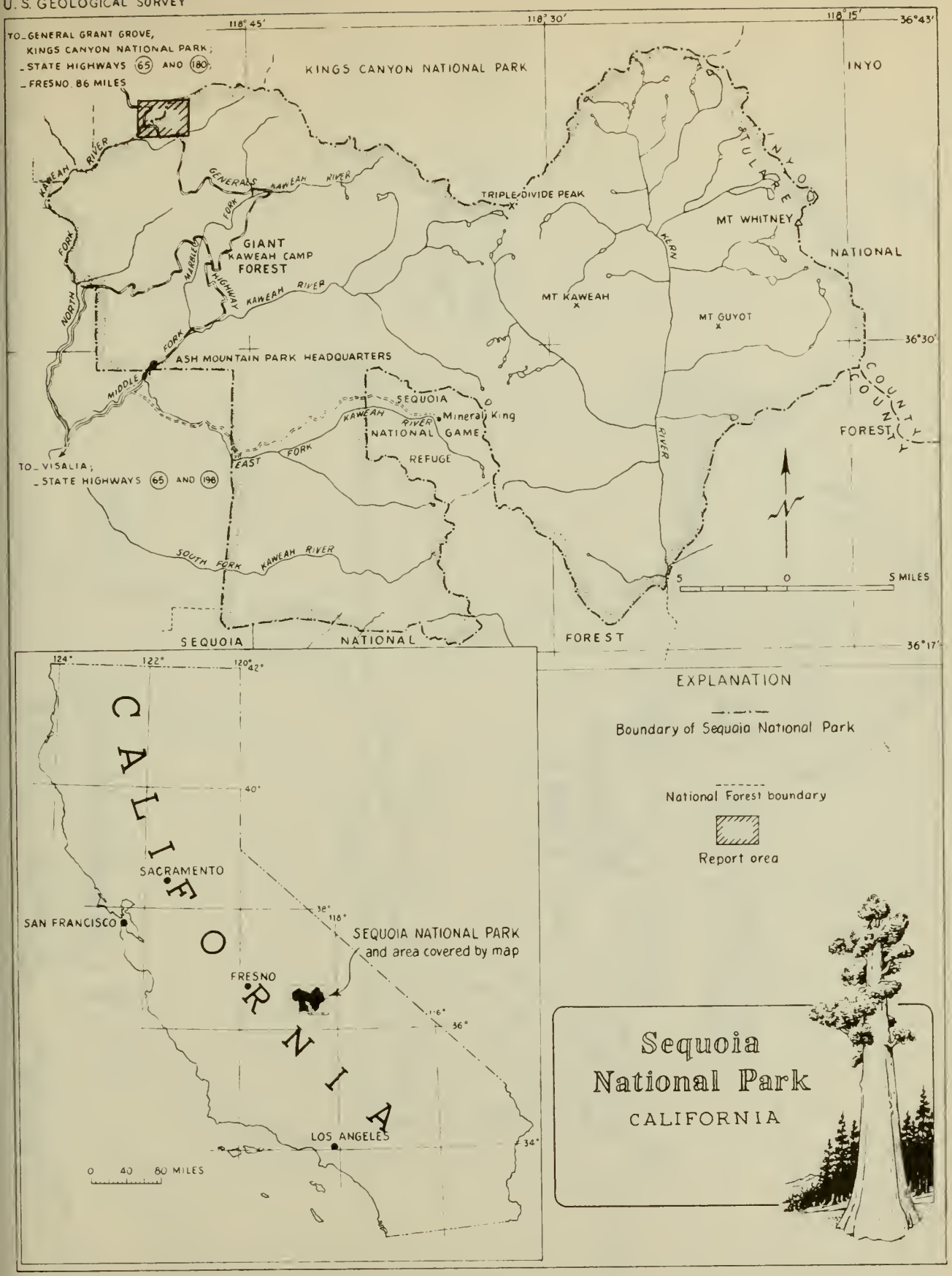

Figure 1.—Index map

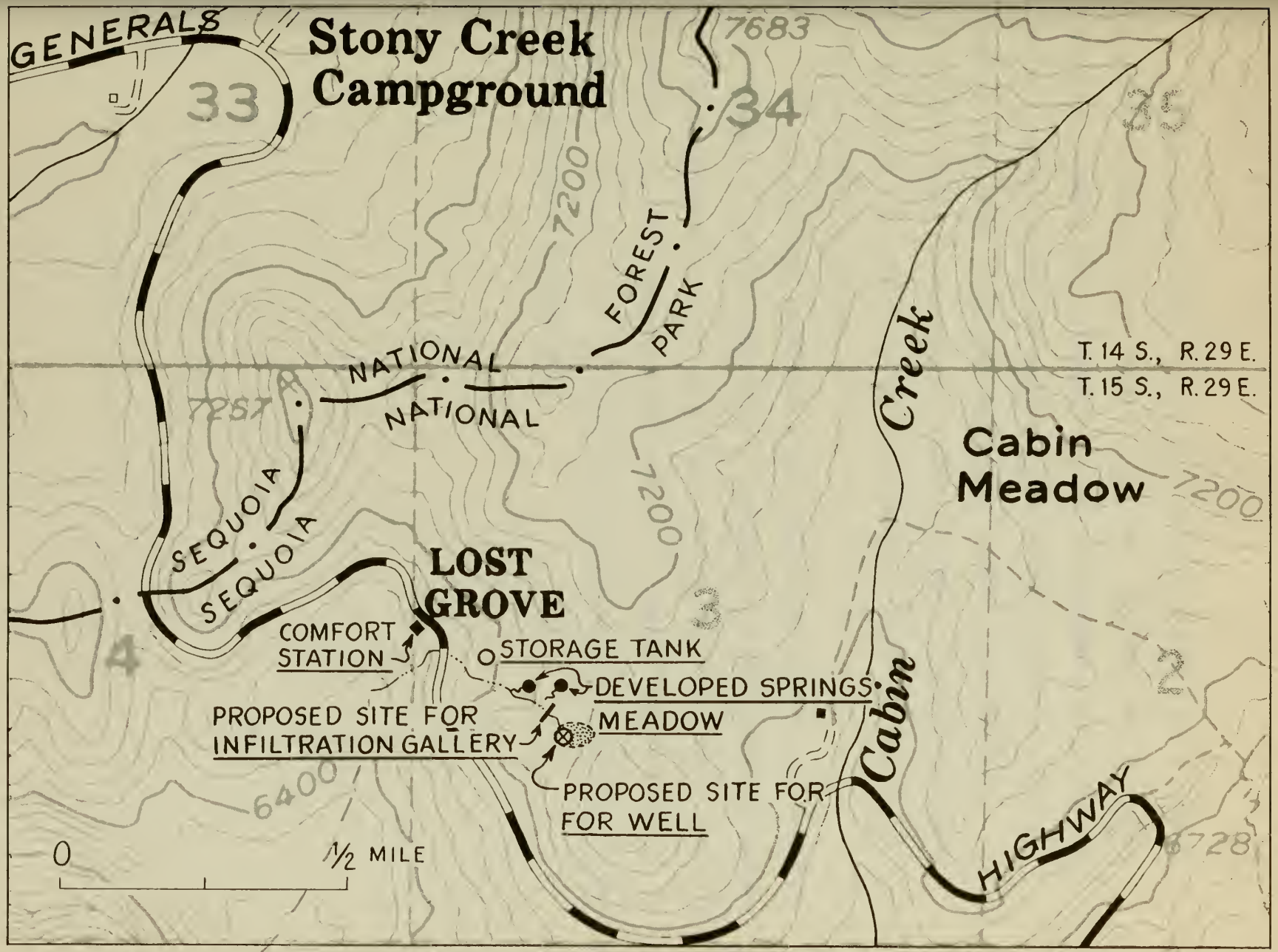

Figure 2.—Map showing existing and proposed improvements at Lost Grove

At Lost Grove, water is used at a drinking fountain and a comfort station. According to Mr. Warren A. Johnson, Assistant Park Engineer, these facilities, which probably will not be expanded, require 1,000 to 1,400 gallons of water per day during the tourist season. In past seasons, the water supply has diminished in late August or early September, often forcing the facilities to close. Supplemental water would enable the comfort station and drinking fountain to remain open from mid-August to October.

Mr. Johnson also provided a guided tour of the area and Mr. Richard C. Riegelhuth, National Park Service biologist, provided aerial photographs. The reconnaissance was made by the U.S. Geological Survey, Water Resources Division, under the general supervision of R. Stanley Lord, Chief, California district, and under the immediate direction of Willard W. Dean, Chief, Sacramento subdistrict.

GEOLOGIC UNITS AND THEIR WATER-BEARING PROPERTIES

Geologic units (not mapped) in the area are the consolidated basement complex and the overlying unconsolidated material. The basement complex is a medium-grained granitic rock which probably underlies the entire area but is not exposed in the vicinity of Lost Grove. Granitic rocks generally are considered to be non-water-bearing; however, if fractured and saturated, they probably would yield water to wells. The unconsolidated material consists of residual sand and alluvium, probably ranges in thickness from 10 to 60 feet, and where saturated would yield water to wells.

SOURCES OF GROUND WATER

Data on the quantity of ground water available in the Lost Grove area are very limited. However, the depth to ground water is not great, for although the total drainage area contributing water to the facilities at Lost Grove is less than a square mile, the area near the grove contains wet ground at several places during most of the summer.

The sources of the present water supply are two small springs, upslope and southeast of the comfort station (fig. 2). Galleries at the springs collect water which is stored in a 1,000-gallon tank for use at the drinking fountain and comfort station. Water collected from the overflow pipe at the tank is of excellent chemical quality as shown in table 1. Additional water probably could be collected at the springs if the galleries were deepened; the depth to bedrock at the springs would be the limiting factor.

If more water is required at Lost Grove, three other sites (in decreasing order of priority) can be considered. First, an infiltration gallery could be installed in a marshy area in the creek at the site shown in figure 2. Second, water probably could be obtained from a proposed well (fig. 2) near the western end of a small meadow, which at the time of this investigation, was nearly saturated with water. The site of the proposed well is inaccessible to heavy drilling equipment but a well point probably could be driven deep enough to obtain water. Third, a well could be drilled through the unconsolidated material and into the basement complex at a site near the comfort station, although drilling into the basement complex is a speculation on encountering water-bearing fractures. The comfort station discharges waste into a septic tank downgradient from the highway, therefore, selection of a site near the station introduces the probability of contamination from the septic tank.

Table 1.--Chemical analysis of water from the storage tank at Lost Grove

(Results in milligrams per liter)

Date of collection	July 13, 1967
Laboratory number:	55964
Silica (SiO_2)	31
Iron (Fe)	.00
Calcium (Ca)	6.4
Magnesium (Mg)	0
Sodium (Na)	5.2
Potassium (K)	.9
Bicarbonate (HCO_3)	32
Carbonate (CO_3)	0
Sulfate (SO_4)	0
Chloride (Cl)	.6
Floride (F)	.1
Nitrate (NO_3)	0
Boron (B)	0
Dissolved solids (sum)	60
Hardness as $CaCO_3$	16
Specific conductance (micromhos at 25°C)	63
pH	6.5