UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Water Resources Division

A BRIEF WATER-RESOURCES RECONNAISSANCE OF BRIDALVEIL AND WHITE WOLF CAMPGROUNDS IN YOSEMITE 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 U.S. Geological Survey, Water Resources Division, made a brief reconnaissance investigation of the water supply at Bridalveil and White Wolf campgrounds in Yosemite National Park. The sites were examined July 26-27, 1965, and additional streamflow measurements were made in succeeding months.

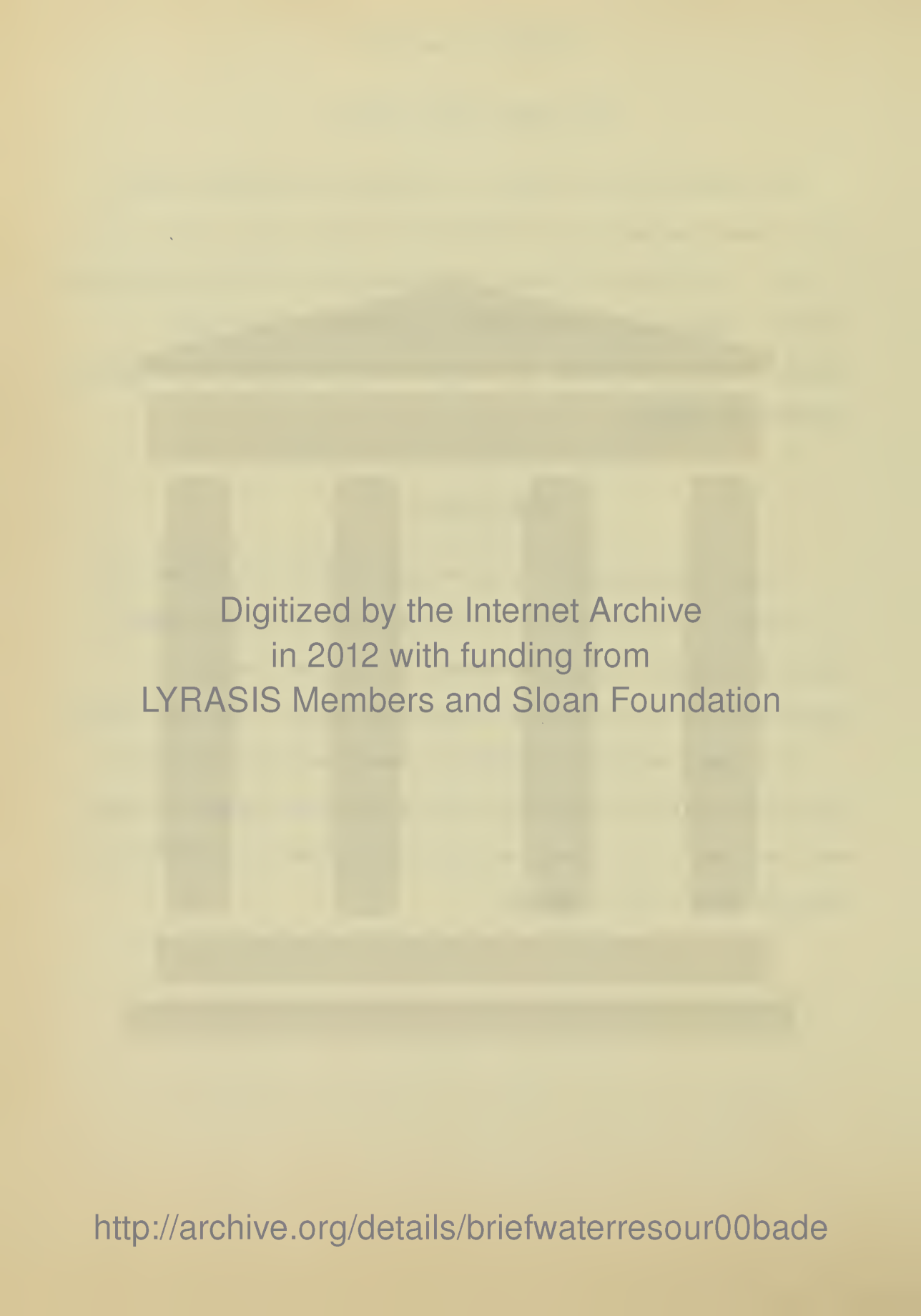
The Present Water Supply

The present source of water at Bridalveil campground (fig. 1) is in a small meadow in the southwestern corner of sec. 24, T. 3 S., R. 21 E. A collector system of perforated pipe is buried in saturated material about 2 to 6 feet beneath the surface of the meadow. A pipeline carries the water to a buried tank from which the campground receives its supply.

The Problem

During short periods of high demand, generally occurring in late summer, the demand for water frequently exceeds the supply. During this time it becomes necessary for the Park Service to discontinue use of the comfort stations and install chemical toilets.

If a small additional quantity of water could be obtained to augment the existing supply for short periods, the comfort stations would not have to be closed, and the inconvenience of installing the chemical units could be avoided.



Possible Solutions to the Problem

Surface Water

Bridalveil Creek could be tapped for a supply of surface water. However, in order to obtain enough pressure for a gravity supply installation of more than a mile of pipeline would be necessary. Furthermore, Bridalveil Creek above the point of probable diversion is crossed several times by hiking trails which would be a source of contamination of the water and would necessitate a filtration and chlorination system. Therefore, development of a ground-water supply, as suggested in the following section, probably will be more practical and economical.

The saturated thickness of permeable deposits in the meadow, in the southwestern corner of sec. 24, from which the present water supply comes is not known, but it probably is greater than the 2- to 6-foot depth of the buried collector pipes. If these pipes could be lowered a few feet, the volume of saturated material from which water could be obtained would probably be increased substantially.

Also, the west-central part of sec. 24 contains a larger meadow which was saturated and swampy July 26, 1965. The thickness of the permeable deposits is not known, but they probably contain some ground water even in dry seasons.

A test hole drilled near the center of the meadow (fig. 1) would supply information about the thickness of saturated material and the feasibility of using a well or infiltration gallery to supply additional water. However, because the meadow is only slightly higher in altitude than the campground, installation of pumping equipment to supply pressure for the system would be necessary. Nevertheless, because the overall cost probably will be less, development of the ground-water supply is suggested in preference to development of the surface-water supply.

The Present Water Supply

At White Wolf (fig. 2) water for both the lodge and the campground is obtained through an underground collector system from a large meadow in the SE¼ of sec. 10 and the NW¼ of sec. 15, T. 1 S., R. 21 E., and a spring at the head of the meadow. The spring was developed when demand for water during a recent dry summer caused sufficient decline in pressure in the collector system to leave part of the lodge facilities without water. The campground, being at a lower altitude than the lodge, was not affected by the decline in pressure. Water from the spring in sec. 15 is piped to a tank in the south-central part of sec. 10. This installation furnished enough pressure to supply water for all the lodge and campground facilities.

The Problem

The problem at White Wolf is similar to that at Bridalveil. Peak demand for water during the late summer at times of low streamflow occasionally overtaxes the existing supply. A small additional supply is needed to prevent curtailment of operations at the lodge during these periods.

The Park Service attempted to utilize water from the meadow bisected by Tioga Road, in the east-central part of sec. 15, by extending the existing collector system. According to Mr. Lester Moe, Assistant Park Engineer, once the water on the surface was drained, there was virtually no additional flow. Therefore, the area now supplying water probably has been fully developed, and water must be supplied from another area.

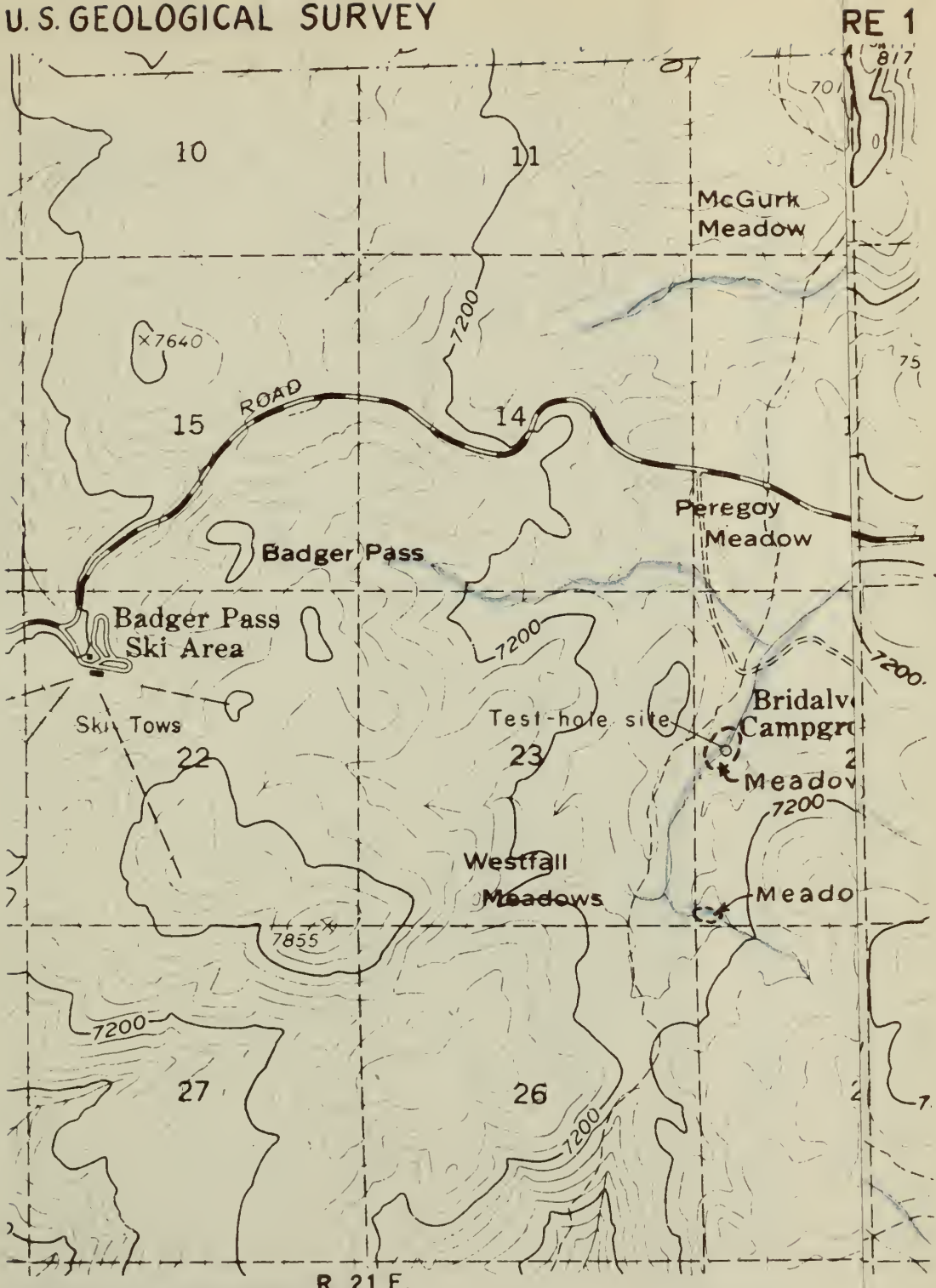
The stream draining McSwain Meadows in sec. 14 was gaged near site A in sec. 11. On July 25, 1965, the flow was 0.7 cfs (cubic feet per second). On August 25 it was 0.24 cfs, and on September 27 it had declined to 0.018 cfs. The water in the stream had a brownish color that was very obvious in deeper pools. The discoloration probably is caused by organic compounds rather than by iron, because the present water supply at White Wolf, originating from a similar source area, does not have an excessive iron concentration. A decline in flow accompanied by warmer temperatures could cause a substantial increase in the organic content of the stream and make it unsuitable for domestic use.

The problem of water quality plus the small quantity of flow in the late summer of 1965, which was a year of above-average precipitation and runoff in the Yosemite region, eliminated the stream from further consideration as a potential source of water for White Wolf.

Possible Solution to the Problem

The meadow at the southern edge of the lodge, near the center of sec. 10, was covered with vegetation, and water was flowing on the surface a few yards west of the road as late as September 17. This meadow contains a thin saturated section of deposits which probably would yield enough water to serve as a supplemental supply. However, a larger supply of ground water probably could be developed in the east-central part of sec. 10 and the west-central part of sec. 11 in the deposits of the meadow and creekbed. The saturated thickness of the deposits is not known, but probably is a few tens of feet. The valley supports lush grass and many trees and, in places, is swampy. Water from the deposits in the meadow probably supports the streamflow in late summer and autumn.

A test hole drilled in sec. 11 at the site shown in figure 2 would furnish information about the thickness of saturated material and the feasibility of using a well or infiltration gallery to supply additional water. If a supply can be developed at this site, installation and maintenance of pumping equipment to deliver the water to White Wolf would be necessary.



Base map from U. S. Geological Survey topographic map, Yosemite quadrangle, 1956 Scale 1:62,500

Map showing Bridalveil campground in Yosemi

1 ½ 0

CONTOUR INTERVAL 80 FE
DATUM IS MEAN SEA LEVE

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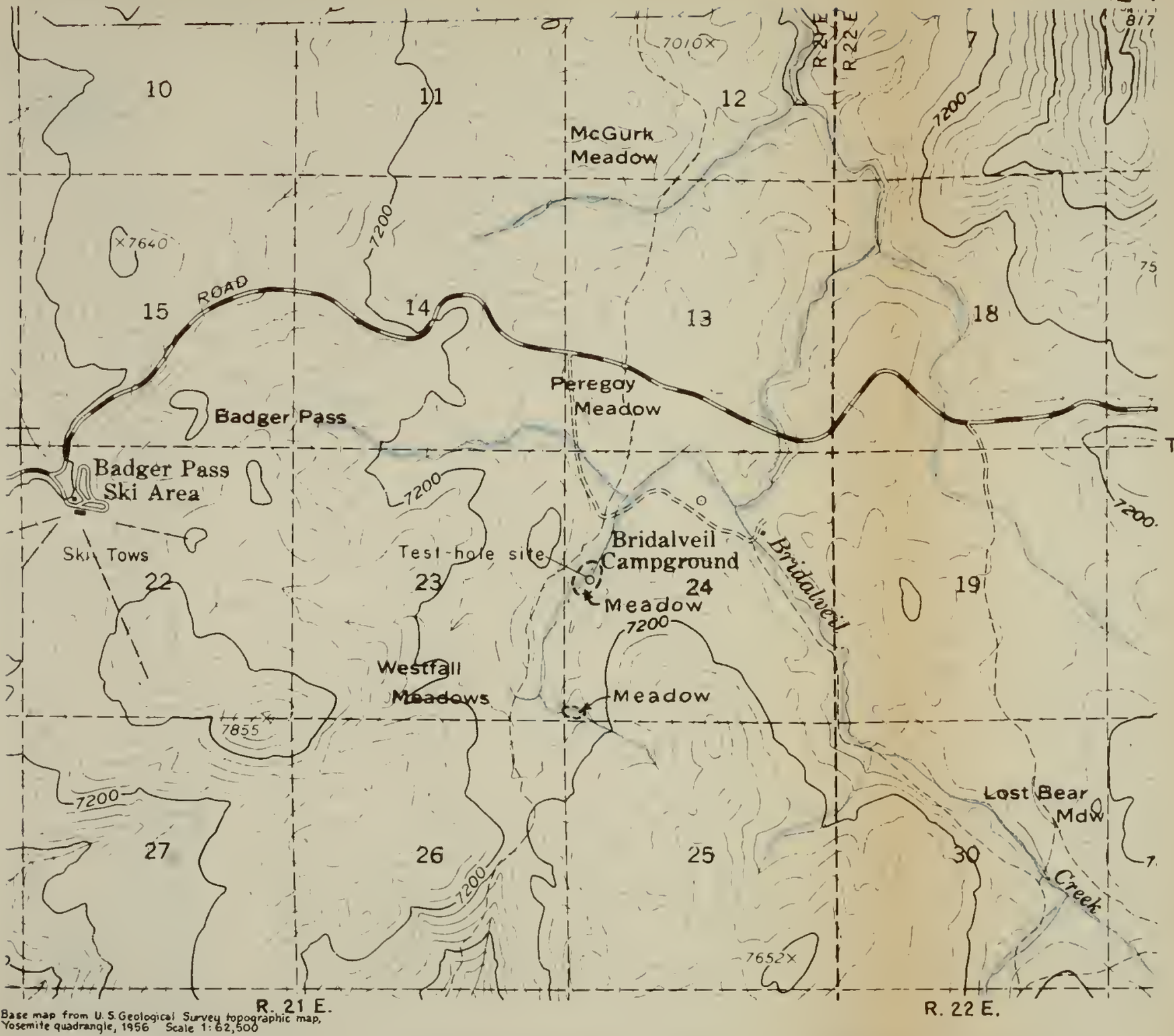
FIGURE 1

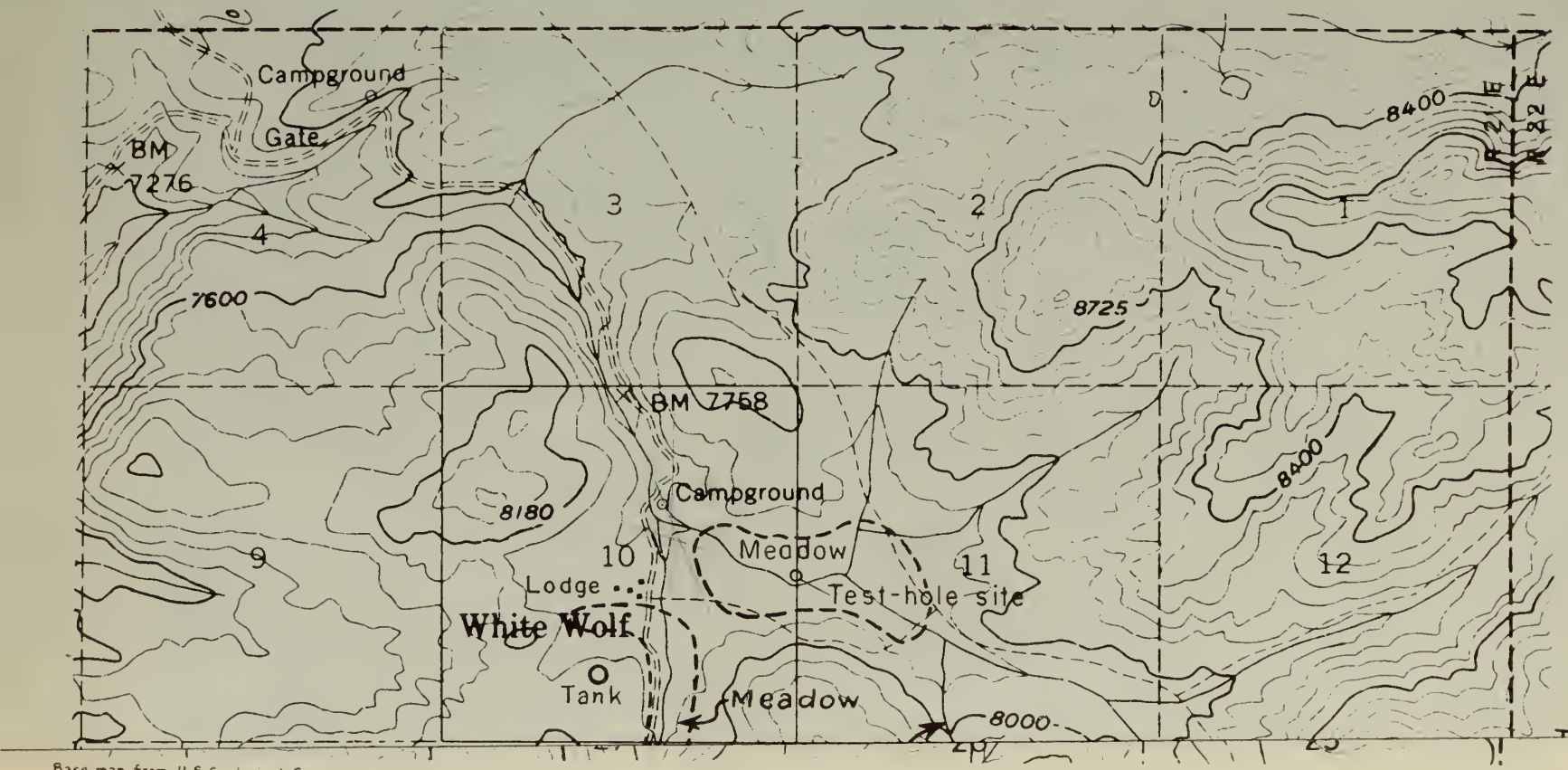


Base map from U. S. Geological Survey topographic map, Yosemite quadrangle, 1956 Scale 1:62,500

Map showing Bridalveil campground in Yosemite National Park, California

1 ½ 0 1 MILE

CONTOUR INTERVAL 80 FEET
DATUM IS MEAN SEA LEVEL



Base map from U.S Geological Survey topographic map, Hetch Hetchy Reservoir quadrangle. Scale 1: 62,500

R. 21 E.

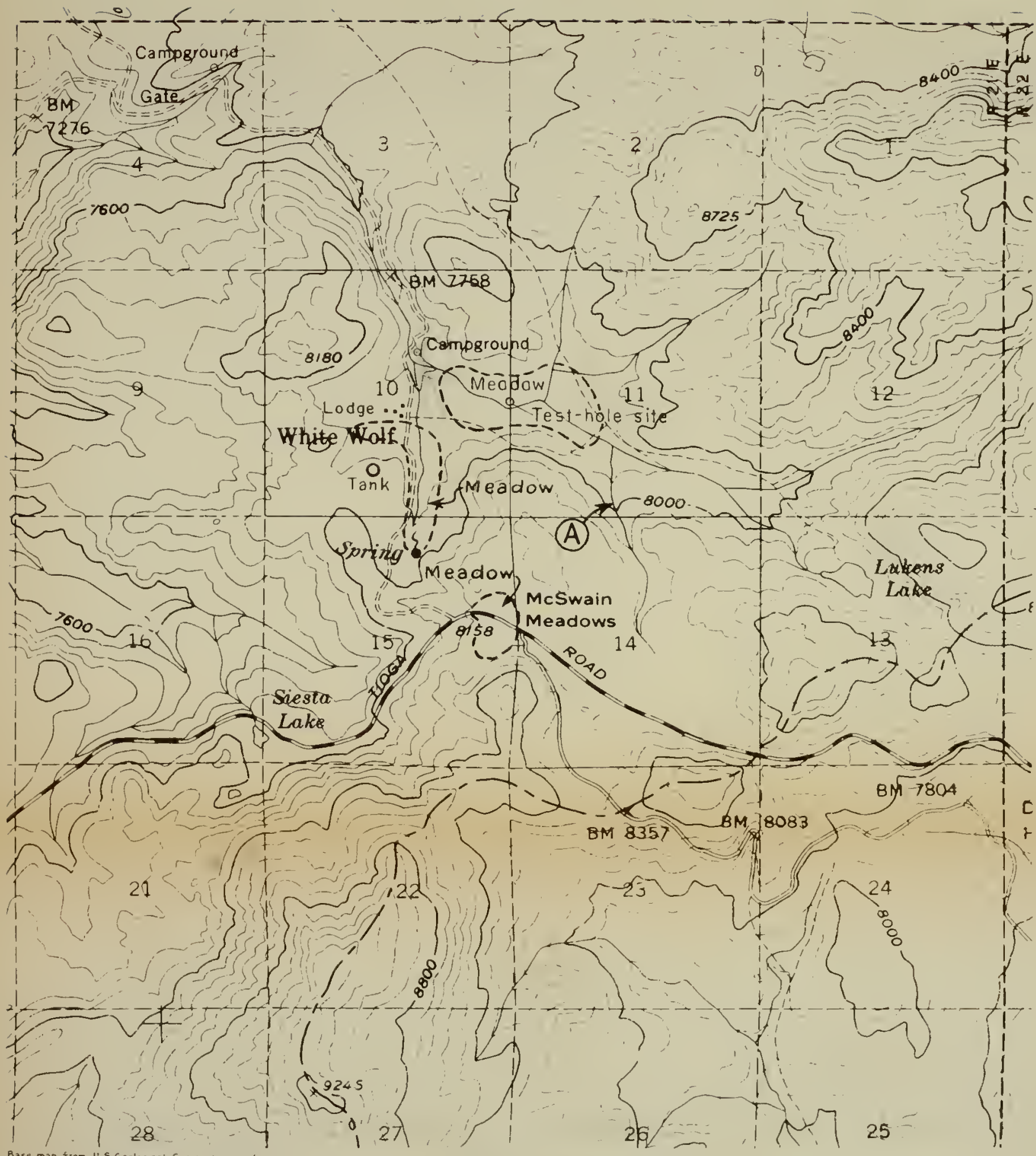
Map of White Wolf area in Yosemite National Park, California

1 ½ 0 1 MILE

CONTOUR INTERVAL 80 FEET
DATUM IS MEAN SEA LEVEL

U.S. GEOLOGICAL SURVEY

FIGURE 2



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Map of White Wolf area in Yosemite National Park, California

1 ½ 0 1 MILE

CONTOUR INTERVAL 80 FEET
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FIGURE 2