

HAER
ARIZ
3-GRACANY
IC -

GRAND CANYON NATIONAL PARK ROADS,
VILLAGE LOOP DRIVE HEADWALL No. 2
Grand Canyon National Park
Grand Canyon Village
Coconino County
Arizona

HAER No. AZ-35-C

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Western Region
Department of the Interior
San Francisco, California 94107

HAER
ARIZ
3-GRACANY,
IC -

HISTORIC AMERICAN ENGINEERING RECORD

GRAND CANYON NATIONAL PARK ROADS,
VILLAGE LOOP DRIVE HEADWALL NO. 2
HAER No. AZ-35-C

Location: Village Loop Drive is the east-west loop road on both sides of the railroad tracks, running from the Fred Harvey operations building west to just beyond the Bright Angel Lodge. Village Loop Drive Headwall No. 2 is located south of the tracks on the north side of Village Loop at the northwest corner of the intersection with Center Road. It is approximately 50 feet east of Village Loop Drive Retaining Wall No. 1.

UTM: 12/397520/3990510
USGS Quad: Grand Canyon, AZ 1988 1:24,000

Date of Construction: [1936]

Type of Structure: Culvert headwall

Use: Culvert headwall

Designer/Engineer: National Park Service

Builder: [Civilian Conservation Corps]

Owner: National Park Service

Significance: This headwall is representative of rustic style road structures constructed by the Civilian Conservation Corps and other depression-era public works agencies within the western national parks during the period 1933-1942. It is purposely constructed of undressed native sandstone and limestone and rough-mortared to blend with surrounding natural ground features.

Project Information: Documentation of Village Loop Drive Headwall No. 2 is the result of a mitigation study in anticipation of imminent Grand Canyon road work which may bury the structure or require that it be rebuilt. This report was prepared as an NPS Denver Service Center contract assignment in September and December 1993, by Michael F. Anderson, 985 N. Granite Reef #150, Scottsdale, AZ 85257 (602) 423-1602.

INTRODUCTION

Many of the minor roads and associated structures within Grand Canyon National Park's residential and commercial areas were designed in the 1920s/1930s by NPS and Bureau of Public Roads engineers. These men designed roads to federal highway standards of the time, which considered far fewer and smaller vehicles than travel these routes today. Changing traffic patterns have required new alignments, grades, and roadway widening since the 1930s. Such modifications are now being considered which may result in the burial or dismantling and reconstruction of Village Loop Drive Headwall No. 2 and several other masonry walls along Center Road, Apache Street, Boulder Street, and Village Loop Drive within Grand Canyon Village. This report describes the headwall and documents its construction, modifications, and significance.

HISTORY OF THE STRUCTURE

The author found no specific references nor photographs for Village Loop Retaining Wall No. 2 in the various Grand Canyon archives, thus its origin is not certain. Portions of today's Village Loop Drive existed as early as 1901, and by 1918, some form of the road segment above the headwall existed as far west as the stables. At any time during those years the culverts and headwall could have been installed and remained unaffected by road modifications since. Construction of a corrugated metal pipe culvert and masonry headwall during these years is unlikely, however.

The "double road" portion of Village Loop which runs from the area of today's Fred Harvey Ops building to Center Road was constructed in 1928. The final construction report for this project identifies the completion of "drainage structures" in September of that year and the use only of 66' of 24" C.M.P. and 116' of 30" C.M.P. and no masonry materials. The fact that two of the three pipes emanating from the headwall today are 18" C.M.P. confirms that neither the culvert nor the headwall were built during this project. It is possible, however, that the existing 24" C.M.P. slightly to one side of the side-by-side 18" pipes was installed in 1928 without a headwall.¹

Indirect evidence suggests that the culverts and headwall were constructed between late 1935 and late 1936 by the Civilian Conservation Corps. These probable dates are suggested by an engineer's sketch map prepared in 1935 depicting a minor roads project which entailed the realignment of 750' of Village Loop Drive. The road segment to be widened and reconstructed included

that above the headwall, and the map specifically identifies the 12' extension of two 18" and one 30" C.M.P. culverts at the headwall site. The sketch map is signed by all required parties and engineer C.M. Carrel handwrote "completed in Oct. 1936" on the map, suggesting that the project was in fact completed. If so, the headwall was very likely completed between the date the map was produced--September 12, 1935--and October of 1936, and certainly not completed before this minor roads project. Only the absence of a final construction report, the possibility that the headwall could have been added later, and today's 24" pipe (where the map indicates a 30" pipe) prevents definite confirmation.²

Direct evidence is also lacking for any repairs or maintenance to the wall since construction. A visual inspection implies that it has not been altered unless entirely reconstructed. Aging of the rock facing and deterioration of the mortar seems uniform. Doug Brown of Grand Canyon's Professional Services office told the author that a footpath once ran along the road above the headwall west at least as far as Village Loop Drive Retaining Wall No. 1. This footpath has since been buried by widening and asphaltting the roadway and perhaps the accumulation of debris (since the roadway does not extend to the top of the wall and the top of the wall is covered by at least 18" of dirt and gravel). Doug's informant was a road maintenance man who had apparently dug beneath the asphalt and discovered the limestone footpath wall. Widening of the road has not effected the headwall itself, however.

DESCRIPTION

Village Loop Drive Headwall No. 2 is partially buried by silt, gravel, and pine needles. The exposed portion of the wall is approximately 17' long and 2' high at its highest point. It is of undressed, flat, rectangular blocks of sandstone and limestone, collected or quarried locally and crudely mortared. The roadway's asphalt wearing course is approximately 18" above the top of the headwall and several feet south of the headwall. It is in good condition, showing no signs of bulging, buckling nor cracking. The only signs of aging are a uniform darkening of the rock face, lichen growth, some deterioration of the mortar, and its partial burial. The two 18" C.M.P. culverts--side-by-side to the east and apart from the 24" C.M.P.--carry storm water from the west side of Center Road north beneath Village Loop to the large drainage ditch south of the railroad tracks. The 24" C.M.P. culvert carries storm water which runs east along the south side of Village Loop Drive to the large drainage ditch south of the tracks.

GRAND CANYON NATIONAL PARK ROADS,
VILLAGE LOOP DRIVE HEADWALL NO. 2
HAER No. AZ-35-C
(Page 4)

A drainage ditch at one time apparently ran west to east along the south side of Village loop to the intersection of Village Loop and Center Road. A headwall of stacked stone at the southwest corner of the intersection caught the ditch water at this point (and still catches some water which collects at this corner of the intersection) and directed the water under Village Loop through the 24" C.M.P. at Village Loop Drive Headwall No. 2. This stacked stone wall and cachement at the southwest corner is approximately 2' high and is of undressed, rectangular blocks.

The natural landscape surrounding Village Loop Drive Headwall No. 2 is much as it was in 1936. Old photographs indicate the same grass cover and the same preponderance of ponderosa pines. CCC crews that built this wall, probably in 1936, were also engaged in landscaping in the immediate area in the mid-1930s. The nearby built landscape has changed considerably. Prominent structures such as the Fred Harvey mule stable, Babbitts store building, and 1929 administration building appear today much as they did in the 1930s, but other features are radically different. Principally, the area north of Babbitts store has changed several times and once had more parking space where today's spur road to the shuttle stop now exists.

CONCLUSIONS/SIGNIFICANCE

Village Loop Drive Headwall No. 2 is significant for its association with the work of the Civilian Conservation Corps within the western national parks. Built during the peak years of CCC activities, it represents a conscious attempt to conform to the tenets of rustic architecture popular at the parks from the 1920s through the 1940s. Built of native sandstone and limestone from local quarries and purposely rough-mortared, the headwall attracts no attention to itself; rather, it complements the landscape while concealing the corrugated metal pipe culverts within.

GRAND CANYON NATIONAL PARK ROADS,
VILLAGE LOOP DRIVE HEADWALL NO. 2
HAER No. AZ-35-C
(Page 5)

ENDNOTES

1. W.R.F. Wallace, Associate Highway Engineer, "Final Construction Report--Grand Canyon Village Road Route 2 Portion of Section 'A'," report, 10 May 1930, Grand Canyon National Park Construction Reports, 1926-1954, Accession #3594, Box 1 of 2, GCNP Study Collection, GCNP.
2. C.M. Carrel, "Department of the Interior, National Park Service, Grand Canyon National Park, Minor Roads Headquarters Area," engineer's sketch map, 12 September 1935, Microfiche #113/5066, Grand Canyon drawings cabinets, top floor of the Grand Canyon Railway Depot, GCNP.

HISTORIC AMERICAN ENGINEER RECORD

INDEX TO PHOTOGRAPHS

Grand Canyon National Park Roads,
Village Loop Drive Headwall Wall #2
Grand Canyon National Park
Grand Canyon Village
Coconino County
Arizona

HAER No. AZ-35-C

John Kirkaldie, Photographer, August 1993

AZ-35-C-1 DISTANT VIEW OF HEADWALL AS SEEN LOOKING TO THE
SOUTH

AZ-35-C-2 DETAILED VIEW OF MASONRY WORK OF THE HEADWALL
LOOKING TO THE SOUTH



MSR 19A 2-35-C-1



HAER M.-A-3-30-C-2