NPS Form 10-900a OMB No. 1024-0018

(8-86)

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Section _____ Page ___

SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 09000587 Date Listed: 01/14/2015

Hilina Pali Road Historic District | Hawaii | HI
Property Name | County | State

N/A
Multiple Name

This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.

Signature of the Keeper — Date of Action: 1/14/2015

Amended Items in Nomination:

Resource Count
The Resource Count could be revised to add one contributing building—the Picnic Shelter at the Kipuka Nene Campground - Resource #4. [The narrative describes this historic resource in great detail, and while it is modest in scale, the nomination identifies it as "the dominant feature remaining on the site." The shelter's contribution to the character of the contributing site is sufficient to merit individual recording as a contributing building consistent with the categorization of the Hilina Pali Picnic Shelter –Resource #6.] Total contributing building = 2; Total contributing resources = 8.

Significance
Recreation/Entertainment is added as an area of significance. This reflects the road's importance as a direct response to calls for the enhancement of the visitor experience in the park. Park trails and roads, as outlined in the historic park master plans, were seen as an important element of the visitor's recreational experience. The extension of this roadway into formerly inaccessible areas of the park reflected unique aspects of the history of recreational development within this particular park.

The correct Period of Significance is verified as *1928-1963.* [Various area of the narrative offer conflicting information.]

These clarifications were confirmed with the NPS FPO office.

DISTRIBUTION:
National Register property file
Nominating Authority (without nomination attachment)

NPS Form 10-900 OMB No. 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form.* If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

1. Name of Property

Historic name: Hilina Pali Road Historic District
Other names/site number: N/A
Name of related multiple property listing:
N/A
(Enter "N/A" if property is not part of a multiple property listing

2. Location

Street & number: Hilina Pali park road from Chain of Craters Road to its west terminus
City or town: Hawaii Volcanoes National Park State: HI County: Hawaii
Not For Publication: ☐ Vicinity: ☐

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this _X_ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property _X_ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

___national **_X_statewide** **___local**

Applicable National Register Criteria:

_X_A **___B** **_X_C** **___D**

Robert A Mitchell, Deputy F-PO November 25, 2014
Signature of certifying official/Title: **Date**

National Park Service
State or Federal agency/bureau or Tribal Government

In my opinion, the property ___ meets ___ does not meet the National Register criteria.

Signature of commenting official: **Date**

Title : **State or Federal agency/bureau or Tribal Government**

4. National Park Service Certification

I hereby certify that this property is:

X entered in the National Register

___ determined eligible for the National Register

___ determined not eligible for the National Register

___ removed from the National Register

___ other (explain:) _____

Signature of the Keeper — Date of Action: 1/14/2015

5. Classification

Ownership of Property

(Check as many boxes as apply.)

Private:	☐
Public – Local	☐
Public – State	☐
Public – Federal	☐

Category of Property

(Check only **one** box.)

Building(s)	☐
District	☐
Site	☐
Structure	☐
Object	☐

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

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1. NAME OF PROPERTY

historic name Hilina Pali Road

other names/site number N/A

2. LOCATION

street & number Hilina Pali park road from Chain of Craters Road to its west terminus | N/A not for publication

city or town Hawaii National Park | N/A vicinity

state Hawaii code HI county Hawaii code 001 zip code 96718

3. STATE/FEDERAL AGENCY CERTIFICATION

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this ✓ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property ✓ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

___ national ✓ statewide ___ local

Signature of certifying official/Title Date

NPS Hawaii Volcanoes Sup. 7.28.14

State or Federal agency/bureau or Tribal Government

In my opinion, the property ___ meets ___ does not meet the National Register criteria.

Signature of commenting official Date

Title State or Federal agency/bureau or Tribal Government

4. NATIONAL PARK SERVICE CERTIFICATION

I hereby certify that this property is:

___ entered in the National Register

___ determined eligible for the National Register

___ determined not eligible for the National Register

___ removed from the National Register

___ other (explain:) _____

Signature of the Keeper Date of Action

Hilina Pali Road
Name of Property

Hawaii, Hawaii
County and State

5. CLASSIFICATION

Ownership of Property
(Check as many boxes as apply.)

- [ ] private
- [ ] public - Local
- [ ] public - State
- [X] public - Federal

Category of Property
(Check only **one** box.)

- [ ] building(s)
- [X] district
- [ ] site
- [ ] structure
- [ ] object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
1	1	buildings
1	1	sites
5	0	structures
0	0	objects
7	2	**Total**

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing)

N/A

Number of contributing resources previously listed in the National Register

N/A-part of road within Puna Kau Historic District, but not described

6. FUNCTION OR USE

Historic Functions
(Enter categories from instructions.)

Landscape (natural feature, scenic overlook, parking lot)
Recreation (outdoor recreation)
Transportation (road-related)

Current Functions
(Enter categories from instructions.)

Landscape (natural feature, scenic overlook, parking lot)
Recreation (outdoor recreation)
Transportation (road-related)

7. DESCRIPTION

Architectural Classification
(Enter categories from instructions.)

Other/Park Rustic Style
Other/Naturalistic Design

Materials
(Enter categories from instructions.)

foundation: Stone (basalt lava); Concrete)
walls: Stone (basalt lava)
Wood (log, lumber)
roof: Metal (corr. steel)
other: Asphalt; Stone (basalt lava); Earth

Narrative Description & Resource Inventory

Summary

Hilina Pali Road, with a period of significance from 1928 – 1955, is a secondary road in the Hawaii Volcanoes National Park (HAVO) road system, located on the Island of Hawaii. It is a road system that not only reveals distinctive qualities of design and construction, but also enhances the visitor's experience through coordinated views and purposely developed areas. The historic Hilina Pali Road system runs westerly from Chain of Craters Road within HAVO for approximately 8.35 miles in its slow, 1,200-foot descent toward Hilina Pali's edge and an overlook with a historic shelter that overlooks the spectacular coastline and coastal area affected by one of the world's most dynamic natural phenomena – an active volcano. Hilina Pali Road consists of a series of developed areas that are connected to the roadway as part of an overall circulatory system consisting of over 69 total acres. The historic Hilina Pali Road and its seven contributing historic resources reflect a physical history of road development in an area challenged by environmental, social, political, and economic challenges.

Descriptive Overview

The Hilina Pali Road's evolved design followed the general principles and underlying philosophy that national park roads be minimally invasive and harmonize with their surrounding natural environments and resulting landscapes. These design notions were being echoed as part of U.S. national park design from even before the NPS was established in 1916 by Robert E. Marshall who was the Superintendent of U.S. National Parks prior to that time. Later NPS designers would heed this admonition by formalizing Naturalistic design standards from influences generated even further back in time to nineteenth century landscape designers who sought to naturalize designed landscapes by blending human built constructs into them with the use of locally available materials and native vegetation, while softening built forms so that the visitor could experience in a more subtle manner what appeared to be a remote, yet accessible natural environment as its wonder captured the human eye. This resulted in an influential public use design paradigm that also served architectural constructs as evidenced in the Park Rustic Style that began in the 1920s and became solidly established as part of overall master planning effort during the 1930s. The main thrust of naturalizing human constructs in the landscape, as well as, inserting structures using the Park Rustic Style into those landscapes is evident along Hilina Pali Road. The NPS, in collaboration with the Bureau of Public Roads (BPR) in the 1920s and 1930s, "produced a distinctive 'park road' aesthetic...[that] drew heavily on nineteenth-century carriage design techniques but updated these practices to accommodate the demands of automobile traffic and the geographic diversity of the national parks" (Davis, 2004, p. 5).

NPS personnel implemented these principles by aligning park roads to highlight scenic vistas while paying close attention to what the natural topography of the land could impart to human inserts regarding harmonizing the two. For example, unexpected and transitioned turnouts gave motorists the opportunity to stop and gaze at the landscape without necessarily creating unnatural cleared points along routes. The creation of systematic scenic vistas presented opportunistic, rather than required stopping points for observing vast panoramas by prescribing vegetation management, introducing traffic calming measures such as keeping roadways narrow and laying them out in sinuous curving patterns so that drivers could not hurry from one point to another, rounding and smoothing (naturalizing) unsightly cuts and fills in the earth, and utilizing native materials in construction (Davis, 2004; Duensing, 1999). Of course, the basic tenants of these underlying standards continued into the 1960s with the creation of the NPS Park Road Standards and the challenges of Mission 66, through to today's highly technical and interdisciplinary planning and design efforts such as occurred through the process of protecting the historic integrity of the Blue Ridge Parkway (NPS-BLRI, 2010).[1]

Resource Inventory

Since NPS roads were designed to enhance visitors' experiences who traveled along them, associated resources like campgrounds, picnic facilities, interpretive displays, turnouts, parking areas, and scenic lookouts became integral to the roadway as a single combined unit, with the road path being the central connecting structure of the district. The linear roadway within a prescribed right-of-way bounded further by a contextual corridor, along with the associated buildings and structures found within the corridor and in the developed areas all appear as a seamless whole through the use of naturalistic landscape design methods and the NPS Rustic Style of architecture, which incorporate native materials and forms into the built constructs, thereby blending together to a higher degree, the natural and built environments. The Hilina

1 See NPS-BLRI. (2010). *Roadside barrier warranting and assessment of adverse effects screening methodology: A Guide to Assessing the Effects of Roadside Safety*. Asheville: NC.

Pali Road district reflects historically significant sites, buildings, and structures that consist of its primary physical roadway structure, separately counted buildings and structures, and sites. In all, there are seven (7) contributing and two (2) non-contributing resources within a total boundary of 73257 acres.

RESOURCE #1	STATUS	TYPE	YEAR BUILT
Hilina Pali Road Right-of-Way (LCS #101771)	**Contributing**	**Structure**	**1928**

For the purposes of this nomination, the Hilina Pali Road right-of-way structure is a single contributing historic resource consisting of 54.73 acres (2.38 million square feet) that includes its various structural components within the historic physical right-of-way of the roadway such as the defined road path and substructure (pavement is not included as contributing), shoulders, ford crossings, immediate turnouts, trails and trailheads, immediate parking areas, guardrails, and other miscellaneous road infrastructure as may exist – all of which are known to be from the period of significance or later. Some contributing resources such as the group of four historic fords are counted and listed as a single element, but listed separately even though they are also located within the right-of-way corridor; however, their individual significance warrants a separate listing. Of course, contributing sites are also counted separately, and include acreage in addition to **Resource #1**. The separate listing of other individual resources located within the Hilina Pali overlook area reveal historic merit and are counted and described individually, as permitted by national register nomination instructions. Signage, interpretive kiosks, and gate systems are not described or included as contributing resources, individually or cumulatively since they are not historic and are insignificant both individually and as a whole as they currently exist, though they are considered to be mostly part of the road structure for the purposes of this nomination. To better understand the complex features of an irregularly shaped road system such as the Hilina Pali Road, the several paragraphs immediately following provide overall context, followed by the actual descriptive analysis of the right-of-way as a structure, described according to five distinct mileage distance sections. Finally, more specific descriptions of the separately counted contributing resources as referenced according to the applicable ***Resource #***, also follow.

For its entire distance as a continuous secondary roadway, representing 8.35 miles from beginning to terminus, the existing road pavement is generally 11 feet in width with irregularly defined gravel/grassed shoulders of between 1½ - 3 feet in width. The road makes a gentle descent of approximately 1,200 feet from 3,481 feet above sea level at its point of beginning to 2,282 feet at its terminus. The pavement surface is in good condition due to a 2012 resurfacing project meant to preserve the overall integrity of the road's structural history; however, most of the road's history is represented by an extremely rough road consisting of hardened lava rock plagued by ruts and wash-outs from rain. The speed limit on this one-lane asphalt road is 25 mph for its entire distance. While various maintenance projects have been programmed throughout its history, it is important to note that in 2012, a total of 45,091 feet (8.54 miles) of Hilina Pali Road and the spur road to the Kulana'okuaiki Campground were specified to be rehabilitated as part of the Hawaii (HAVO) Pavement Preservation Project.[2] Generally speaking, the project overlaid a coat of emulsified asphalt (slurry seal, Type 3) in applications of approximately 18.5 pounds per square yard of aggregate over the existing course without severe widening of the existing pavement.

While many alterations to the road's surface have taken place over the decades, the historic right-of-way and circulation path, as well as, most of the ditches and shoulder materials still remain, though with slight realignments and widening projects, as contributing factors to its integrity and historicity. The first attempt at providing a sealed surface to the entire length of the road most likely occurred as early as 1957 when the entire road length was seal-coated in sections between February and May.[3] Timothy Davis (2004) recognized the fact that most roads in national parks have been altered to certain degrees as time and culture required ongoing maintenance and responses to technological and cultural changes. Fortunately, these impacts are mainly restricted to Hilina Pali Road's driving surface, in spite of it being subjected to the unique and harsh environmental conditions influenced by an erupting volcano and the often extreme, unpredictable weather patterns. While it can be argued that other national parks also experience harsh environmental conditions, Hilina Pali Road represents an unprecedented condition within U.S. national parks in that it is located within the influence of an active, erupting volcano, and in a constant state of being threatened by a shifting earth and the potential for lava to erupt

2 See SSFM International, U.S. Department of Transportation (FHA), & Department of the Interior (NPS). (March 14, 2011). *Plans for Proposed Hawaii Pavement Preservation: HI PRA/NPS-PWR-PRES-1(11).* Denver: CO.
3 See Feb. – May 1957 Superintendent Reports (J. B. Wosky), HAVO Archives.

from localized fissures and destroy the human-built structure, as evidenced from other roads in the park whose fates bore out such scenarios over time.

While it is recognized that road realignments and reconstructions are common on historic roadways in the national park system, it must be mentioned that only one clearly identifiable major realignment is apparently identifiable along Hilina Pali Road to date. This includes an approximate 1,200-foot section occurring south along the middle two-thirds of the 8.35 mile road where ta formerly used travel surface is cited by some authorities as being part of the "old road." In this case, the roadway, as a jeep-only trail, veers off and away from the existing pavement as far south as a couple hundred feet at one point. The now unused road surface is characterized by a natural roadbed of gray coloration and remnant worn pattern marked by vehicle usage. The notion that this is indeed part of the original designed road has little merit based on a 1948 Superintendent Report reference that suggests this portion of road, as it approached the second ford, was in fact a detour. This is highly suggestive of an alternative but temporary configuration that was used until the damaged road could be repaired. Since the second ford was constructed around 1940, six years prior to the reference, this conclusion makes sense and is more applicable to the frequent washing out of these low spots due to the heavy rains that plagued this section of the park during the late 1930s and 1940s. During some months, well over 20 inches of rain per month was not uncommon, with as much as almost 13 inches falling in one 24-hour period. Needless to say, the lay of the land and the susceptibility for destructive flash flooding caused ongoing challenges to keep the roadway in usable condition.

In addition, historic documentation suggests that this portion of the Hilina Pali Road, i.e., past the Kipuka Nene Campground to the terminus was available only for jeep travel in 1949.[4] Since this road section represents part of an early section of road bed (1940s) that is an example of how the original condition of the Hilina Pali Road right-of-way existed in its original, less improved structure, it is important to include it in the historic district boundary as a historic reference and as part of the overall historic road structure. It is not necessary to include it here as a separate, contributing resource since it is assumed to be part of the historic road structure already. Therefore, its addition to the historic district boundary represents a 4.13-acre extension of the Hilina Pali Road corridor beyond the 50-foot corridor delineation described in the verbal boundary description in Section 10.

To clarify further, it must also be mentioned that previous archeological investigations have identified this trace of the original Hilina Pali Road alignment, as well. From 1998 until 2004 field crews conducted various surveys of CCC erosion control features in the vicinity of Hilina Pali Road (Roper & Nakamura, 2008) before the park embarked on a project to chip seal that portion of the road. This research identifies the old section of road as consisting of *pahoe'hoe* bedrock and cobbles that represented part of the original road path. Again, the newer evidence suggests differently, as mentioned.

Today's motorist can see the detrimental physical effects of the naturally emerging and encompassing vegetation on portions of roadway, even soon after the 2012 pavement preservation, as they are overtaken by encroaching roots systems and overgrowth from the rapidly expanding tree roots and grasses; of course, the effects of age and seismic activity cannot be discounted as evidenced by apparent buckling of the surface at various points. While the vastness of open space is a high mark of much of Hilina Pali Road, along some sections, the roadway seems to be embraced from paved edge to paved edge by tall grasses or walled trees and shrubs creating a clearly defined, partially enclosed pathway.

Although Hilina Pali Road underwent minor reconstructions and realignments during the 1930s and 1940s due to various factors including constant damage from torrential rains, and was constantly being resurfaced (latest being in 2012), it retains a high degree of integrity in its overall layout and travel path and is the primary contributing historic resource to the Hilina Pali Road Historic District. The unique and minimally disturbed path of circulation from its original construction, the natural surroundings that remain fairly undisturbed, the separation of the developed areas from the roadway while still being connected to it, and the sensitive placement of harmonious structures that have been well-maintained enhance the integrity of location, design, materials, association, setting, and feeling for the Hilina Pali Road corridor and the wilderness experiences of its visitors.

4 See April 1949 Superintendent Report (F. R. Oberhansley), HAVO Archives.

Hilina Pali Road Entry Section - Chain of Craters Road to First View of Kulana'okuaiki Pali: Mile 0 (point of beginning) – 0.8

Hilina Pali Road's point of beginning is 25 feet west of its intersection with the centerline of Chain of Craters Road as it occurs approximately 2.2 miles south of Crater Rim Drive. Motorists are introduced to the roadway via typical brown colored park signage presented from both directions along the Chain of Craters roadway. The road generally travels in a westerly direction, and as the motorist enters it from the Chain of Craters road, a movable, unremarkable, metal pipe road barrier presents itself immediately; this barrier is used mostly to restrict public access during wildfire threats or events. The immediately viewable road, as a freshly laid black thread, penetrates in a fairly level manner into a thick green *ohi'a* forest, veering north within the first 75 feet creating an impenetrable horizon of medium growth forest. The directional sign within this section indicates distances for three points of interest including the Kulana'okuaiki Campground at 4.0 miles, the Mauna Iki Trailhead at 4.5 miles, and the overlook area, or terminus at 9.0 miles (the indicated mileages are questionable).

This first section reveals an enclosing forest to each shoulder edge with glimpses of *pahoe'hoe* lava formations revealing themselves sporadically among the vegetation. The narrowness of the roadway is quite noticeable and gives off a feeling of intimacy and remote immersion with the surrounding natural environment. The rather benign forest that surrounds gives off no real indication of the dramatic natural features to come, which is one of the most appealing traits of how the roadway treats its visitors. More specifically, Hilina Pali Road at first travels in this ordinary fashion, as found in this entry section, then opens slowly, revealing an increasingly diverse and dynamic landscape in all directions until its final and full climax at the terminus featuring a full-blown coastal view. This final coastal experience presents perhaps one of the primary viewsheds in the park. So, the entry section's importance lies in its discretion of subtlety as an unremarkable portal that gives way to an unfolding of extreme natural wonders that can only be experienced, and not really described secondhand.

Various turnoffs occur along this entry section, as well as, along the entire road length due to its narrow capacity. These cinder-based turnoffs are vital to opposing vehicles that would not easily (or safely) be able to pass otherwise. The limited line of sight on many of the subsequent curves also renders the frequency of the turnoffs more vital as they allow motorists to aptly dodge sudden oncoming vehicles in a timely manner, which occurs all too frequently on the roadway due not only to the physical character of the road's travel path, but also to the mental gaze that many drivers are subject to as the panorama unfolds.

Kulana'okuaiki Pali Section: Mile 0.81 – 3.5

Hilina Pali Road travels through one of the world's most active fault systems known as the Koa'e Fault. The Koa'e Fault system extends for approximately 10 miles and nearly two miles in width. It features numerous cracks and fissures, including the distorted *pali* that reveals itself along the roadway's south landscape. The first clear view of the suddenly appearing ribbon of cliff wall with its brittle-looking rocky facade, known as the Kulana'okuaiki Pali, suddenly protrudes from the forest on the left. The rising wall creates a one-sided canyon effect and is very dramatic in appearance. The roadway continues as a singular black ribbon as the *pali* face gets closer to the roadway (and the motorist) with each foot of progress. At approximately the 1.0-mile mark, the *pali* seems so close that the alarmed visitor may feel as if it can be touched simply by sticking one's arms out of the vehicle's window. The loose make-up of the rising wall of rock, and the noticeable scree educate the visitor as to the violent manner in which it appeared, as volcanic activity forced the vertical and horizontal separations from the roadway lands now being travelled on. Certainly, there is an element of undetermined danger presented by the unstable formations as one reflects on the ongoing eruption taking place around Kilauea. Several ground cracks of the Koa'e Fault are viewable in this section from the roadway as they tend to run along with it.

At approximately the 1.2-mile mark, the *pali* becomes evident only here and there as it fades away from the roadway, and becomes visible as a forested ride - a strange morphology of itself caused by visual perspective. At this point it begins to pop in and out of view, yet for some reason, the viewer seems to always be keenly aware of its presence-whether hidden or in plain sight. Further, the *pali* fracture lowers and seems to quickly disappear into the ground as it moves away from the road, eventually disappearing completely from view. Because of this constant flux, the *pali* feels as if is alive, undulating with the course of its run, and also as the road itself undulates in apparent synchronized rhythm with the *pali*.

At the 1.9-mile mark, Hilina Pali Road enters an area that opens up to *pahoe'hoe* lava flows on both sides with the *pali* emerging yet again in the distance. The brownish-orange mounds of lava that now surround the roadway give off an eerie feeling of desolation reminiscent of a Martian landscape. The mounds become enlarged and dominant, making the visitor on the road seem insignificant while travelling between them, and on top of the flow, rather than cutting through them, as if in a valley stream created by the lowest points of the encompassing projections that has yet to be worn by constant friction,

which the visitor knows by now happened as part of primeval earthly processes. At the 2.5-mile mark, the *pali* has risen up again and is approximately 150 yards away. It must be mentioned here that the Hilina Pali Road is marked by numerous sections of built-up, retained roadbed that is characteristic of much of the roadway's structural form. This is evidenced by lengthy sections of the road right-of-way, some up to 270 feet in length, constructed between lava stone rubble build-up. This type of construction is reminiscent of Civilian Conservation Corps (CCC)-infused labor and practice evident along other road systems throughout the park, although it can be assumed that post CCC, yet still historic road repairs from the 1940s and 1950s carried this craftsmanship forward. Building up the road in this way compliments the natural hardened forms that surround it and establish its substructure. Further, it is also complimentary to the openness of the lava landscape with its scrubby vegetation floating on an apparent sea of lava. There are many areas immediately adjacent to the road where the smooth lava forms large, natural turnoffs that were likely used as assemblage and staging areas historically; their mere convenience and strategic locations to the roadway underscore this likelihood prior to, during, and after the 1930 construction.

At the 2.9-mile mark, the *pali* diverts off toward the coast as if to say farewell to the visitor of Hilina Pali Road, only to reemerge less than half a mile later; here the *pali* is now, and strikingly so, directly in the road's path ahead, creating an apparent gauntlet on the immediate horizon where it appears to cross the road in full. This is misleading and delightfully surprising to the visitor on the roadway as the *pali* still keeps its distance, and instead, veers away from the roadway, sinking into the ground yet again before its final appearance later near Mile 3.6 where it does indeed cross the road.

While there is evidence of sections where the *pahoe'hoe* lava has been cut though in order to construct portions of the road, the overall rugged landscape seems to be softened at about the 3-mile mark where drivers are cautioned to slow down due to the presence of the endangered Nene, the popular Hawaiian geese, which frequent the area from this point for the next two miles.

Kulana'okuaiki Campground Section: Mile 3.51 – 4.9

At Mile 3.51 is a 14-foot wide spur road constructed of asphalt on the right (north side) leading to the first developed area totaling nearly three acres, the non-historic Kulana'okuaiki Campground. The campground dates to 1999 and while important to the roadway system, it is a non-contributing resource. The overall site features five well-defined camping sites, some with elevated pads of fine gravel, a well-defined parking area for approximately six vehicles, a privy, and an emergency call box. The camping site area consists of a looped asphalt path with lava stone borders that connects to each campsite. The campsites are well-placed to allow adequate spatial confidence. The first views of the Mauna Loa shield dome become available from Hilina Pali Road at this point; the campground sites each have spectacular views of Mauna Loa, as well, and are well-situated within an amphitheater type setting. The lack of dense vegetation here allows campers to experience nighttime glows of the ongoing lava eruptions occurring at both the Halema'uma'u Crater, and the Pu'u O'o Crater. The NPS had the campground built as a replacement to the older Kipuka Nene Campground located approximately 1.4 miles west of this site (described later), which was closed in order to enhance protection of the endangered Nene geese that frequent the grounds.

Returning to Hilina Pali Road and travelling west, it continues to cross over fields of *pahoe'hoe* lava with the natural landform becoming more barren. In fact, at this point near Mile 3.6, the Kulana'okuaiki Pali's location beneath the road path became quite apparent in 1965 when increased earthquake forces occurring along the fault system caused extensive damage to this part of the road as it became broken with a five-foot wide vertical separation reaching up to 10 feet across. It is after this point of the road, after this particular historic natural effect, that the *pali* bids its final farewell. At Mile 3.7, after traversing the dominant crack in the earth, the road intersects with the Mauna Iki Trailhead at 3.8 miles. The Mauna Iki Trailhead, a major of which was constructed by 1929,[5] as contained within the 50-foot Hilina Pali Road corridor is a historic resource that is part of the Hilina Pali Road structure, though the trail beyond the road corridor is not included. Approximately 100 feet west of the trailhead, and within the road corridor is an, irregularly defined, approximate six-car parking area attributable to the trailhead that is also considered to be a historic part of the road structure.

Nearly across Hilina Pali Road from here is a non-historic road barrier that is otherwise unremarkable. However, the barrier seems to represent a portal to the surrounding landscape revealing another sea of lava formations in distinct mounds. Scrubby *ohi'a* dots the landscape at this point. For the next mile, the road structure reveals multiple built-up retaining borders of rubble construction that contribute to the character of the road as a crafted construction, again attributable to CCC era work. The historic built-up retaining walls are again distinctive in that here they are purposely

5 See Sept. 1929 Superintendent Report (T. J. Allen), HAVO Archives.

designed to flow seamlessly with the run of the road and the lava formations that run parallel to it. This creates a construct similar to an integrated bridge that has become one with the landscape. Lava rock fill was used to maintain the grade of the road in this location. These fill areas that resemble bridge spans, similar to one also found near Mile 5.5 consist of stacked lava materials with the larger sizes forming a base, and the smaller sizes forming the upper portions in a sloped manner that enhances their stability.

The lava rock fill material for all of the retaining walls was obtained from cuts into the lava made as part of other roadway sections. Several methods were used for road construction and materials acquisition. Much of the hard *pahoe'hoe* lava was hand chiseled through brute manual labor. Jackhammers were also used in clearing the many high points along the staked route that were seen as obstructions. Also, explosives are referenced as a clearing tool in use by the time official construction of the road began in the late1920s. All of these methods were used on other important roads in the park such as Crater Rim Drive and the Mauna Loa Truck Trail.

At about Mile 4.5, the dominant lava formations disappear temporarily from view as a mixed grassland/forest landscape emerges to control the experience of the viewer. This softened landscape lasts for less than a half-mile before proceeding to a more rolling land form where the underlying lava flows again begin to reveal themselves in a variety of ways that include jutting out between trees, as rolling mounds, and as small islands covered by emergent green vegetation mixed with decaying tree limbs.

Kipuka Nene and the CCC Ford Section: Mile 4.91 – 8.1

This section of Hilina Pali Road contains several historic resources. Because of the severity of the road conditions constantly plaguing visitors, it is to this point that most of the public was able to reach early on, so it is no wonder that a gathering place developed here. This section begins with the historic 1930 Kipuka Nene Campground (see **Resource #4**) located on the south side of the road at Mile 4.91. The location of this former campground and gathering place for hunters is within a slight depression in the landscape that is similar in its amphitheater sense of place that occurs in the newer Kulana'okuaiki Campground that replaced it. This 9.02-acre site contains a historic picnic shelter originally constructed in 1950 of a nominal lumber frame, and altered in 1963 with a 10-foot dimensional lumber extension with a corrugated metal roof; it also features a lava stone chimney barbeque pit added in 1963. The area is fenced off to prohibit use, and the adjoining road shoulder area is cordoned off by large boulders to discourage use; however, the beauty and solitude of this site in a slight depression provide a clear explanation of why it was used as a gathering place. An administrative, rugged truck trail, referred to as the Fire Break Road, whose entry is marked by placed boulders, straddles the west side of the campground area and is accessed approximately 100 feet from the shelter area. Only that portion of this administrative truck trail contained with the 50-foot corridor and the 500-foot site radius is included within the Hilina Pali Road Historic District and considered a contributing component of the overall Hilina Pali Road structure.

Directly across Hilina Pali Road (north) from the Kipuka Nene Campground is the historic Fire Cache #4 (LCS #5847-see **Resource #3**) constructed in 1940 that stores firefighting equipment, a necessity in dry months when a fire can easily start and rapidly spread throughout the dry, grassy surroundings. The structure's location adds an additional 0.038 acres to historic district boundary. In relation to this structure, it is interesting to note that Hilina Pali Road travels through the Ka'u Desert, which despite being a desert still gets nearly 50 inches of rain a year. This amount of rain, coupled with sparse vegetation and deposits of ash and sand, creates erosion and flooding problems that had to be dealt with to keep the road passable. In fact, extreme rains events from 1939, 1945, and 1950 caused extensive erosion of the roadway and its infrastructure that required continual attention and maintenance.

The CCC was tasked with building structures to control the damaging effects of heavy rainfall on the road systems through the entire park. On Hilina Pali Road, identifiable historic structures dealing with these water problems as they relate directly to the road structure are found in four distinct constructions begun in 1940 that are referred to as **fords** historically,[6] but as *wash crossings* in the List of Classified Structures (LCS #101772). These structures, originally started by the CCC and described in more detail under **Resource #5**, are built directly into the road structure at low points that take advantage of the naturally-present drainage dynamics. They occur over the next 2.3 miles of roadway. Extensions of the structures are located to either side of the roadway, and are sometimes built into the natural flow of lava that acts as a flow course. The structures take the form of low points in the road that were strengthened with mortared lava slabs, most of which have been overlaid with an asphaltic concrete mix. This treatment extended to the shoulders, which were then sloped down

6 See Dec. 1940 Superintendent Report (E. G. Wingate), HAVO Archives.

where they meet the natural gullies formed from historic water flows.

Another park-driven project to control erosion from extreme rainfall events during this time using the CCC for labor services was referred to as the CCC Erosion Control Project. The physical construction of this more comprehensive engineered system of check dams, retaining walls, and modified flow courses did not take place within the Hilina Pali Historic District boundary per se, but does indicate a linkage between the two flood control systems in intent. Therefore, a brief description of the larger erosion control system is included under **Resource #5** for added context.

The desert landscape of *pahoe'hoe* lava formations continues until Mile 5.5 where it is briefly interrupted by an *a'a* lava flow; however, the *pahoe'hoe* formations resume less than one tenth of a mile beyond. This section of lava flow is noticeably barren with few trees. This barren section reveals what appear to be dry channels where heavy rainfall likely fills them in immediate flashes creating virtual torrents of destructive water flow. Though typical of desert areas, the occurrence of such different landscape environments, which can change almost immediately, present a dichotomy of experiences to the uneducated visitor to the park and allows for future interpretation along Hilina Pali Road as a dynamic, constantly changing landscape.

At Mile 5.9, another environmental change takes place in that the surrounding land form becomes a grassy oasis beneath a scrubby *ohi'a* forest. In fact, the grass becomes so thick that it encroaches onto the pavement, in spite of its recent application. Needless to say, the shoulders are also identified by distinct grassed ribbons abutting each side of the roadway. Traversing the third CCC ford at Mile 6.4, the first clear view of the Pacific Ocean reveals itself. Here, the Hilina Pali, and the roadway begin to noticeably sink down toward the coast, with its oscillating coastline of sheltered bays, receiving the clearly defined lava flows outlined by their blackened finger flows reaching toward the ocean amid lighter brownish fields. At Mile 7.2 the first clear view of the Ka'u Coast comes into perfect perspective with its white-capped, irregular shoreline moving in and out of the lava-laden reaches to the sea. Also at Mile 7.2, the fourth and final designed ford, at approximately 70 feet in total constructed length appears.

It is important to note that there are areas along the Hilina Pali Road where formally designed fords do not appear to have been constructed, but could have served as additional systems. These un-designed areas are similar in location to the designed fords in that the roadway reaches an obvious low spot in the surrounding landform, a sort of dip in the road so to speak, and is flanked by what appear to be natural gullies shaped either by the natural form of the lava flow, or by movement and erosion of ash and rubble, which created an eroded channel. One such location is visible just beyond the last ford one half mile west at Mile 7.7. Here the Hilina Pali Road offers several of these "pre-design" examples that can be analyzed for modern adaptation, and to assess the challenges faced by the CCC during their installations. Finally, at Mile 7.8, due to the path of travel and the horizon affected by how the road lays upon the land, the motorist may feel as if he/she will eventually drive over the Hilina Pali into the seemingly limitless Pacific Ocean beyond; however, the roadway quickly corrects this mistaken human perspective as it once again reveals a new directional path that now hides the water body, in spite of its enormity.

Hilina Pali Road Overlook Section: Mile 8.11 – 8.35

From this point, Hilina Pali Road continues its final descent toward the edge of the grander Hilina Pali as a winding road around mixed lava forest environments. In fact, there is a quick and sudden emergence of *koa*/grass forest that seems to engulf the road, again repeating the feeling of being in a small canyon - visible evidence on why the road was laid out along this particular line. A quick study of the Hilina Pali Road layout reveals the decisions of the earlier NPS administrators and designers for laying out the road as they did. For example, the formations of the land often dictated suitable road beds attributable to the wide course of smooth lava that mimicked road rights-of-way where surfacing to road standards was the only challenge, and available lava rock materials used for strengthening the more intricate systems such as the lengthy retaining walls that occur along the entire roadway.

The road grades toward this final section are probably at their steepest of the overall road system reaching to just above five-percent in some instances. The Hilina Pali Road ends at the 8.35-mile mark to a parking area as part of a broad historic overlook area, both considered part of the road structure, and consists of multiple additional features including a 1930 shelter (see **Resource #6**), loop trail and trailheads (see **Resource #7**), and a lava stone information pointer (see **Resource #8**). The historic parking area (not including the asphalted surface) of cinder with *ohi'a* log stops can accommodate up to six vehicles. An additional, non-historic, paved accessible space is also provided, as well as, a 13½ - foot long, non-historic equine hitching rail made of peeled *ohi'a* logs located just north of the parking edge at an

approximately 40-foot distance. While there is a documented reference of a hitching rail located near the terminus shelter dating to the 1930s, no additional information has yet to be uncovered suggesting how the significance of the minor structure can be articulated. Therefore, without this needed background information, the existing structure, being of a more recent construction, is determined not to be significant enough to be counted individually, and described further. A non-historic privy (see **Resource #9**) is also located approximately away from the shelter approximately 45 feet north of the parking area accessed by an irregular four-foot wide asphalt trail. The Hilina Pali overlook area, which is delineated as a 200-foot radius drawn from the front center of the nearby shelter building, is added as a 400-foot diameter circle area adding 2.88 acres to the overall historic district boundary. While it is not considered a single contributing site per se, the significance of the resources here justifies the addition of the four individual resource descriptions and counts to the historic district (shelter, loop trail and trail connectors, information pointer, and privy). The parking area, referenced earlier is considered to be part of the Hilina Pali Road structure, and is included in the circle delineation, but is not individually counted as a historic resource. To be consistent with this format, the Hilina Pali Overlook Privy is described and counted individually as a non-contributing resource,[7] though the Kulana'okuaiki Campground privy was not counted since that building is part of the overall contributing site.

Perhaps the most significant historic resource here is the Hilina Pali Shelter (see **Resource #6**) constructed in 1930 and sited and designed by noted NPS Landscape Engineer Thomas Vint. It is accessed by an asphalted 60-foot long walkway leading from the edge of the parking area. The lava stone and wood shelter itself, an excellent example of the NPS Park Rustic Style, is oriented to provide one of the most sweeping views in the park as viewers are able to take in the over 180-degree panorama that includes the enormity of the Ka'u Desert, which is discernible up to 40-miles distant on clear days. Of course, the Hilina Pali itself forms the natural platform from which the viewshed is made available, and also includes other visible *pali* formations such as Holei Pali and Keawe Pali, and of course the top of the Pu'u Kapukapu fault scarp from which the shoreline is blocked from view by this massive dome-shaped landform. The irregular coastline of Hawaii's southern coast reveals the expanse of the park's extent, and includes the easily identifiable areas of Ka'aha, Apua Point, and the park's southwestern boundary near La'ahana. As recently as 2011, the rising steam plumes from lava entering the ocean to the east from the Pu'u O'o cinder cone were also visible and may reappear as the continued lava flow breaks its reprieve, and makes its way to the ocean in the near future. Landward, viewers catch the outlines of various volcanic cones, domes, and hills, overlapping lava flows from 1974 and as recent as 2011 that form a tapestry of textures, all capped by the rising Mauna Loa shield dome as a backdrop.

As part of the Hilina Pali overlook area, the historic Hilina Pali Loop Trail and Trail Connector (see **Resource #7**) is an approximately 275-foot long loop trail located directly in front of the Hilina Pali Picnic Shelter that leads to two separate trail systems including the Ka'u Desert Trail and the Hilina Pali Trail. The loop trail also serves as a connector for placed entertainment points of sorts as it also leads a rocky promontory with a single *koa* tree that seems to draw visitors to it as an inviting place where the spectacular panorama can be experienced from a small, natural lava mound that emotes a certain genius loci for the well-travelled follower of wilderness scenery and perhaps even cultural landscapes. Near this promontory is the historic Hilina Pali Information Pointer (Orientation Disk) constructed in 1937 (see **Resource #8**). This historic resource too, invites visitors to it as a slightly elevated human-made structure that noticeably contrasts itself with the natural promontory just referenced. From here, the loop trail ascends back toward the asphalt walkway where the visitor can choose to rest at the shelter or head back toward the parking area.

RESOURCE #2	STATUS	TYPE	YEAR BUILT
Kulana'okuaiki Campground	**Non-Contributing**	**Site**	**1999**

This non-contributing, five-space campground and spur road totaling 2.76 acres was constructed as an alternative facility to the historic Kipuka Nene Campground that was closed in 1999 due to endangered species protection activities. It is accessed via an asphalted spur road travelling north at Mile 3.5 from Hilina Pali Road; the spur road is quite wide at 14 feet and travels for approximately 450 feet to an asphalted parking area that can accommodate six or more vehicles. The parking area features a lava stone-faced (veneer), single-use vault privy with a corrugated metal roof, and an emergency call box. There are five designed campsites accessed by a 600-foot long asphalted loop trail, bordered in sections by mortared lava stone edging. Each site is designed according to the surrounding land form, with three of the camping pads built up in a sandbox style using heavy timber frames; all are prepared on cleared ground covered with a fine gravel. The campsites are well-placed to allow adequate spatial confidence. The overall grounds are placed within a level area that

7 Good (1938) drew a slight distinction between privy and comfort station in that the former utilizes a non-flush system.

inclines to brownish-orange *pahoe'hoe* lava mounds seemingly piled on top of each other as they rise to an eventual ridge offering splendid views of Mauna Kea, Mauna Loa and the Ka'u Desert. The campground sites are well-situated within an amphitheater type setting. The lack of dense vegetation here allows campers to experience nighttime glows of the ongoing lava eruptions occurring at both the Halema'uma'u Crater, and the Pu'u O'o Crater.

While the Kulana'okuaiki Campground is a well-designed developed area offering visitors a unique camping experience, it has not yet achieved significance according to age, design or association and is therefore a non-contributing site.

RESOURCE #3	STATUS	TYPE	YEAR BUILT
Fire Cache #4 (LCS #5847)	**Contributing**	**Structure**	**1940**

The small 1940 Fire Cache #4, painted a distinctive red, is one of four such structures (this is the only one in the Hilina Pali Road Historic District) built during this time period by the CCC for the park's emergency response team to house its basic firefighting equipment such as shovels and rakes. The threat of wildfires in the driest sections of the park prompted the construction of these structures in strategic locations easily accessible by the park road system, which partly explains why the Hilina Pali Road improvements concentrated mainly up to this point. The structure is located approximately 40 feet from the road pavement edge, and has an area dimension of 4' x 6' constructed of a basic rough sawn wood box frame, and a two-truss with purlins roof design clad in corrugated metal, which match the original specifications from the 1939 drawing.[8] The roof is a side gable design above a single frontal entry door attached by two metal strap hinges. The specified wood gutters leading to a separate water tank do not appear to have been part of this structure's design since no evidence of fastener attachment can be determined. The structure rests on concrete blocks, which are also specified in the original drawings. While there is some deterioration of the structure's metal cladding, its underlying skeleton is in relatively good condition considering its age and the harsh environment in which it is subject to. Its location along the road adds an additional 0.038 acres to the overall historic district boundary.

The Fire Cache #4 is a contributing resource, representing a CCC built structure purposely placed along the Hilina Pali Road corridor to allow ease of access as one of the priorities for establishing roads in the NPS. The basic rustic design is representative of early NPS utilitarian structures. The structure's good condition enhances the integrity of location, design, materials, association, setting, and feeling for it as a contributing historic resource.

RESOURCE #4	STATUS	TYPE	YEAR BUILT
Kipuka Nene Campground	**Contributing**	**Site**	**1930, 1950, 1963**

Although the exact date of its establishment as a meeting area is unknown, the Kipuka Nene Campground site was in use by 1930 when a park photograph shows a group of Hilo businessmen in hunting gear at the site. A basic shelter was constructed there by 1930 (Jackson, 1972). The hunting of goats as both recreation and wildlife management within this area of the park is well documented and some measure of the Hilina Pali Road can be attributed to this historic activity occurring at least as early as the early 1920s. The 1930 shelter was upturned in 1931 by a strong windstorm. Delineated as a 9.02-acre site for the purposes of this nomination, the once widely used amenity area was abandoned for public use in 1999 pursuant to *Nene* (Hawaiian goose) protection as an endangered species and is now cordoned off by a wire fence and access gate. The early site included a picnic area and free range camping system without dedicated sites, two privies, and a picnic shelter. Parking was not defined until 1951 when it was developed for ten cars. Two privies, separate for men and women, were constructed in 1949, but were removed without being replaced. The 1930 shelter was removed from the site in 1949.

The dominant feature remaining on the site is the historic picnic shelter constructed in 1950. In 1963, as part of NPS Mission 66 programming, a 10-foot addition (200 square feet) using redwood materials for the framing and corrugated metal for the extended roof was added to its road-facing elevation (northerly) along with a free-standing, distinctive lava stone fireplace located at its south, central elevation with a 6' x 4' base dimension supporting a chimney. The picnic shelter is open on three sides and has 4x6 nominal lumber posts supporting a frontal, trussed gable roof clad in corrugated metal above a 20' x 24' building footprint. The northerly (frontal) elevation reveals a 32-inch half-wall of 12-inch board and batten siding, which is repeated between the gable area and as part of the siding at the original, southerly elevation. The 10-foot

8 NPS Branch of Plans & Designs. (1939). Fire Prevention Tool Cache: Kilauea and Haleakala Sections, Drawing No. HAW-2013.

addition is clearly discernible in that its structural frame utilizes standard dimensional lumber attached to the nominal framing members of the original structure. Also, there is a clear separation line between asphalt flooring running along the where the addition begins from the original structure. At one time, a water tank constructed in 1957 on a concrete block foundation behind the shelter (east wall) served the site, but it was removed in 2000 and only the circular form of mortared concrete blocks remains.

As a matter of record, the Kipuka Nene Campground Picnic Shelter was evaluated for integrity in 1994 by the Western Region (Pacific Area) LCS team. It was the team's determination at that time that the building had lost sufficient physical integrity to remove it from the LCS. The determination was based on "the major modifications it received in 1963 that altered its original character and overall design. While the extension of a structure that incorporates new structural elements appears to negatively affect its historic integrity, this determination can be re-evaluated here. One of the reasons for disqualifying the structure was due to the addition of the lava stone chimney. This is questionable since the chimney structure is free-standing and does not affect the physical integrity of the shelter itself. The 10-foot extension, while a major addition, is clearly identifiable from the more historic fabric and can be reversed. I ittle historic fabric was removed with this extension, and at least 90-percent of the original structural framing remains. The 32-inch high front wall, likely part of the original 1950 construction, appears to have been simply moved frontward along with the newer section. Regardless, now, 18 years after the LCS team determination, the building's significance, in spite of these modifications can be considered under the scope of the Mission 66 program, which prompted the changes. On page 7 of the Mission 66 for Hawaii National Park Plan, "improvement and modest expansion" of picnic areas in the park are specifically referenced. Therefore, the historic significance of this structure should be restored as part of this nomination.

The Kipuka Nene Campground site's fair to good condition, even though it has been modified from its original construction, and has been discontinued for public use, has achieved a renewed significance due to its age, relationship to the NPS Mission 66 program, and its unchanged location, all of which enhance the integrity of location, design, materials, association, setting, and feeling for it as a contributing historic resource.

RESOURCE #5	STATUS	TYPE	YEAR BUILT
Drainage Fords (LCS #101772)	**Contributing**	**Structure**	**1940, 1948, 1950, 1955**

Constant erosion of the Hilina Pali Road supported special project programming by park administrators prompting the construction of a series of drainage structures through assistance from the CCC. The fords were incorporated into the Hilina Pali Road structure to better control the damaging effects caused by heavy rainfall. A Civil Works Improvement Project involved constructing basic culverts along the road in 1934 to manage rainfall, but they were washed out only a few years later as constant erosion from excessive rainfall continually eroded the road structure. Onsite investigations in 2012, as well as, references on the 1939 Hilina Pali Truck Trail line tracing reveal the likelihood that there were actually five culvert locations occurring to just west of station 440. However, extant physical evidence that includes structural materials beyond just the topography of the road dip at this station does not exist, though a culvert is identified on the tracing there. Park administrators then had CCC crews build what were termed "fords" of mortared lava rock to stabilize the road and limit the damage to them from the heavy rains. Four distinct constructions located between the 4.9 mile and 7.2-Mile marks were installed in 1940, but with the advent of the war and a redirection of CCC initiatives, they were unable to complete them entirely, prompting continual work on them through 1948. These structures are built directly into the road's lowest points and were designed also take advantage of the natural drainage features present. The structures create a widened road surface through each low point, and are sometimes built into the natural flow of lava that acts as a flow course.

The structural design varies for each ford, also referred to as *wash crossings* in various reporting, but they typically take the form of a reinforced road base structure consisting of mortared lava slabs placed into the road bed for approximately 20 feet; this masonry work would have been differentiated from the unpaved surface of the road's adjoining ends, which were relatively unstable from the forces of flowing water action. Retaining walls were constructed at each upslope of the road's edge with a perpendicular extension of the mortared road bed into the shoulders that sloped down to the natural land form, which then served as the water course. Naturally occurring gullies and channeling in the *pahoe'hoe* lava formations were taken advantage of to assist in managing the flow of torrential water points known to be erosive to the roadway. Due to increased visitor use after World War II, most of these original surfaces were later overlaid with an asphalt (1950), and then with a concrete mix (1955). This activity occurred in tandem with other major improvements such as the widening of the road to 10 feet as far as the second ford. References from the Superintendent Reports suggest that

the CCC did not complete the ford structures as park personnel were cited in the July 1948 report as having to finish the structures. While no specific information regarding what the completion consisted of, it is likely that most of the formal structural design was completed by the CCC, while only slight improvements such as extending the lava rubble in certain areas, and grouting various sections. The fords were later overlaid with an asphalt (1950), and then with a concrete mix (1955). In 1955, the layer of concrete was added so that buses from the Kilauea Military Camp could safely drive over them.

Following are more detailed descriptions for each ford as they appear in order along Hilina Pali Road from the point of beginning. Because they were constructed similarly as part of a single project focus occurring within a similar timeframe, all four historic fords are considered to be a single, contributing resource to the historic district rather than counted separately.

Ford #1
The **first historic ford** dates to 1940 and is located just west of the Kipuka Nene Campground at Mile 5.0. It was constructed by the CCC and is now covered with asphalt and concrete, but the original lava rock surfacing is apparent at its outer shoulder edges. The ford systems measures 31 feet in length and 14 feet in width with a one and a half-foot shoulder on both sides also constructed of lava stone masonry.[9] The mortared structure is part of a longer system of retaining walls that extend to 75 feet in length.

Ford #2
The **second historic ford** is located at Mile 5.4, and is the longest of all of the fords described here. Although most of the mortared lava slabs that were originally part of the revealed road surface are now covered with asphalt and concrete, original lava stone remains visible along its outer edges. This ford is approximately 160 feet in total length.[10] At the bottom of the ford on the left side (southerly) of the road is a section of boulders that have been mortared in place. The right side (northerly) of the wash crossing features a 24-foot long masonry lava stone curtain wall that is four feet in height, and ranges from 18 – 20 inches in width. Mortared-in boulders are also found along the bottom of the wash, similar to the construction on the opposite side of the road. The existence of the curtain wall makes this wash crossing more distinctive than the other three. The dual purposes of the wall are fairly straightforward in that they provided added strength and stability to the slope facing the water flow approach, and as an aesthetic addition to the more utilitarian structures as part of a scenic roadway in keeping with the NPS mission of creating harmonious structures in the landscape - hence the term "curtain wall" given to it.[11] The drawings specified a four-inch concrete curtain wall at a minimum two-foot height to be constructed along the approaching stream side of the road. Hilina Pali Road was improved to 10-feet in width up to this ford in 1953.

Ford #3
The **third historic ford** is located at Mile 6.4, and the original lava stone masonry has been mostly covered with asphalt and concrete. Some mortared lava stones are visible along its outer edges of the upper reaches along the road, along with additional revealing at the road-wide approaches. The ford is 63 feet in length.[12] This ford appears to match up with the structure shown in Figure 2, included in the Additional Documentation Continuation Sheet.

Ford #4
The **fourth historic ford** is located at Mile 7.2 and affected by a remarkable natural gully system of steep walls and canyons. In fact, this ford appears to represent the steepest of the fords in its lowering from the adjoining road travel path at each approach end. The original lava stone masonry work is most apparent at this ford, where it is still visible at both parallel road ends, with the remainder of the ford covered with asphalt and concrete. This ford is 78 feet in total length.[13] Erosion of the natural slope base is evident.

1940 CCC Erosion Control Structures

9 Measurements made in summer 2006 by Stacy Day and Jay Wozniak, HAER field team.
10 Ibid.
11 See NP-HAW 5301, Sheet 8A. According to the actual drawings, it appears that they were first produced by Chief Engineer John S. Cross from the Branch of Engineering in 1930, approved by the park Superintendent E. G. Wingate in 1939, and finally by then Associate Director A. E. Demaray six months later in late 1939.
12 Ibid, footnote 11.
13 Ibid, footnote 11.

In the vicinity of Hilina Pali Road, CCC crews were put to work in 1940 on Job Number 327, the Hilina Pali Erosion Control Project. After extreme rainfall events, torrential water flows and subsequent erosion were observed in 1939 by park staff on the Hilina Pali route. Plans were developed to construct a designed erosion control system of structures to better manage and direct certain stream flows in the area to better preserve the natural and artificially-constructed forms in the landscape (Roper & Nakamura, 2008). These features were identified in archaeological surveys made in 1998, 2002, and 2003, and are generally located outside of the historic Hilina Pali Road historic boundary in two sites occurring to the north and west of Hilina Pali Road. As described by Roper and Nakamura, materials for the structures were obtained from localized quarrying. The retaining walls were generally of dry laid lava rock construction of varying heights and lengths, depending on the topography and surrounding vegetation, while the dams were also constructed of dry laid rock, but laid across the channels. Because these structures are located outside of the described boundary of the Hilina Pali Road historic district, they are not considered to contributing historic resources for the purposes of this nomination, though they are worthy of mention.

The **four historic fords**, as a combined unit of multiple structures, and their association with the CCC and the park's efforts to incorporate naturalistic design standards into its physical infrastructure in order to be harmonious with the natural surroundings, as well as, the overall system's fair to good condition enhance the integrity of location, design, materials, association, setting, and feeling for it as a contributing historic resource.

RESOURCE #6	STATUS	TYPE	YEAR BUILT
Hilina Pali Picnic Shelter (LCS #5846)	**Contributing**	**Building**	**1930**

The Hilina Pali Picnic Shelter, referred to as the "Hu'i o Pele Shelter" on the 1928 specification plan[14] rests on a promontory of *pahoe'hoe* lava in an open area with a backdrop of *koa* trees, which have begun to encroach upon the building's rear and frontal areas. It is contained within the 2.88-acre overlook area at the Hilina Pali Road's terminus. The styling of the Hilina Pali Picnic Shelter is a direct design product of Thomas Vint, the influential Landscape Engineer of the NPS during the late 1920s and 1930s who, together with Daniel Hull and others, influenced generations of architects and landscape architects with a distinctive NPS Park Rustic architecture, Naturalistic landscape design, and master planning efforts. The shelter, sponsored by the Hu'i o Pele non-profit group reflects these standards in its use of native stone materials, Hawaiian roof form and unimposing low profile, and orientation toward the sea. Other examples using local materials were constructed in various national parks in the U.S. during the time period. It is located within close proximity to the edge of the Hilina Pali, or cliff, at the terminus of the Hilina Pali Road. It is part of the overall Hilina Pali Road terminus area, within which several historic resources will be described and counted separately. Vint also chose the site for this historic building.[15]

The shelter is a rectangular structure of 17'4" x 18'6" dimensions with the shorter, open elevation overlooking the edge of the cliff and the Pacific Ocean below; there are single, large viewing openings on each side elevation that provide visitors with at least a 180-degree view that includes the enormity of the Ka'u Desert, multiple cliff formations, and the expansive coastal plain and shoreline. It is constructed of mortared lava stone with a front gable wood roofing system clad in corrugated metal panels. The roof system and side gutters were replaced 1994 consistent with historic in-kind replacement. The three barge truss projections, or horizontal finials, at the frontal elevation have been removed. The heavy trusses are inserted directly into the lava masonry. Its battered lava rock walls and low-pitch roof mimic the local environmental forms and follow the NPS design principle of using native materials and forms to create structures that harmonize with the landscape. The corners of the building are distinctive in how mortared lava stones set in two tiers create a de facto seat arrangement, while also serving as a reinforced base - a likely design intent given the nature of the local seismic activity. There is a noticeable difference in the whitened mortar on these components in comparison to the vertical wall structures, which tends to reduce its historic integrity, but not to a significant degree. A mortared, lava stone seat wall is built into each interior side. The rear wall is solid lava rock and is curved to accommodate a cistern, located to its exterior, hidden from view. The original water tap to the inside of the shelter connected to the cistern has been removed and is now highlighted by graffiti. Covered redwood gutters direct water to the redwood cistern, both of which are historically-sensitive reconstructions dating from 1994 and 2002. A 2011 viewshed restoration project cleared approximately 270 trees from the frontal viewshed area, opening up the original, un-obscured vista experience for visitors.

14 Landscape Engineering Division, DOI/NPS. (1928). Hawaii National Park Hui o Pele Shelter, Drawing H-83-C.
15 See June 1930 HAVO Superintendent Report (T. J. Allen), HAVO Archives.

Currently, the Hilina Pali Picnic Shelter retains a high degree of integrity when comparing it to the 1928 plans, and its ultimate construction in 1930, in spite of the missing truss projections, inoperable water tank, and roof replacement, the latter which can be considered ongoing maintenance, and the fact that the replacement was done in a historically-sensitive manner that was well documented. The graffiti and whitened mortar are elements that affect integrity but can be reversed through appropriate historic treatment. The building's naturalistic landscape design and the NPS Rustic Style, and purpose as a visitor destination point at the terminus of Hilina Pali Road circulation system make it a contributing resource. Its original and unchanged placement representing the desire by the NPS to blend functional buildings into the landscape, as well as, its good condition enhance its integrity of location, design, materials, association, setting, and feeling as a historic resource.

RESOURCE #7	STATUS	TYPE	YEAR BUILT
Hilina Pali Loop Trail and Trail Connectors	**Contributing**	**Structure**	**1931**

The importance of the loop trail and its adjoining trailhead connectors are their linkage to Hilina Pali Road as a terminal point for visitors to embark upon a multitude of natural wilderness activities, eventually as a more fully developed automobile system. Extending at its furthest point to just about 175-foot from the fontal elevation of the Hilina Pali Picnic Shelter, the loop trail is approximately 275-foot in length leading from and returning to the shelter, its intersecting with the Ka'u Desert Trail and the Hilina Pali Trail, trail markers and informational kiosks, and the historic Information Pointer along the way. The actual loop trail consists of a rough course over *pahoe'hoe* lave flows mixed with a fine ash and soil. In 2011, thirteen lava stone water breaks were added to the loop trail to treat erosion problems, and their presence indicates a sensitive treatment to the historic feeling of the area consistent with other similar historic treatment actions occurring elsewhere in the park over its history. This is especially noticeable in how the new forms relate sensitively, and compatibly with the visible lava forms that hikers on the trail have historically been required to walk upon. In fact, upon close inspection and interest, the conscientious observer of nature would identify how the lava formation from the east side of the shelter down along the east side of the loop creates an aesthetically appealing, continuous volcanic formation that stretches approximately 70 feet in visible length.

In order to capture the appropriate natural and constructed context of the loop trail and trailhead connectors and its relationship with the historic overlook area, including the shelter building, the overlook area dimension of a 200-foot radius is appropriate (2.88-acre area). It must be noted that this delineation includes approximately a 100-foot section of the historic Ka'u Desert Trail constructed at this point to relate to the shelter (1930) around 1931, as well. It is located approximately 75 feet northerly of the historic Hilina Pali Trail, also completed to align with the shelter and the larger junction in 1931. The trail markers and kiosks within the trailhead structure are minor components that are part of the loop trail structure, but are not considered to be separate contributing resources. The Hilina Pali Loop Trail and Trail Connectors, in serving as a terminal point for Hilina Pali Road, and providing public access to the Ka'u Desert and coastal areas of the park creates a significance for it as a contributing historic resource. Its original and unchanged placement and good condition enhance its integrity of location, design, materials, association, setting, and feeling as a historic resource.

RESOURCE #8	STATUS	TYPE	YEAR BUILT
Hilina Pali Information Pointer (LCS #58396)	**Contributing**	**Structure**	**1937**

This 1937 structure is one of two similar structures in HAVO and has been referenced under different names during its history. Perhaps its earliest name is from the December 1937 Superintendent Report, which refers to it as an "orientation disk."[16] Since the LCS reasonably identifies it as the "Information Pointer at Hilina Pali" the resource will be referenced according to that name for the purposes of the historic district, herein. The Information Pointer is constructed of mortared lava stone rubble tapered from a 60-inch base to an approximate 22-inch top, standing 42-inches high. It is capped by a bronze, half-circle plate with place names and directional arrows to orient the viewer. The structure is placed on a lava rock outcropping and protrudes above it. Its location directly abuts the historic loop trail's southeast corner, and requires a slight interrupted climb a short distance from the loop trail. It is contained within the 2.88-acre overlook area at the Hilina Pali Road's terminus.

16 See Dec. 1937 HAVO Superintendent Report (E. G. Wingate), HAVO Archives.

The structure was restored in 2011 by replacing some of its missing lava stones and shoring up the missing and loosening mortar. In addition, the original bronze plate was replaced with a new one, and the original preserved as part of the HAVO archival collection. Both activities met the in-kind replacement sensitivity suggested by the Secretary of the Interior's Standards for Restoration, specifically with regard to severely deteriorated features. In this regard, replaced lava stones were from the immediate site and were likely part of the original structure. The mortar used is a near exact match in texture and color and will be unnoticeable with age. The bronze plate was recreated as an exact match to the original feature by a local artist specializing in metal sculpture. It must be noted that the new bronze plaque was treated with a sealing finish which will likely help to preserve it for a longer period of time versus the original plate's directional information that became less discernible due to the patina that affected its surface. Of course, the primary reason for restoring this resource is because of the damage done to it as part of military air strafing during World War II training activities when the surrounding area was temporarily transferred to the Army Air Corps. Numerous bullet impacts disfigured the original plaque and the lava stone base though the plaque did remain affixed to the base until it was removed for restoration in 2011. It is the intent of the park to interpret this resource to provide an understanding of its full history.

The basic rustic design and construction of the Hilina Pali Information Pointer is representative of CCC-related NPS utilitarian structures, and its location, design, setting, and association, and feeling have not changed, especially to the visitor. The materials used as part of the lava stone base restoration are the same materials that have been collected from its historic location and construction. The bronze plate also matches the original design in size, shape, and information presented. Therefore, the restored Hilina Pali Information Pointer, and the preservation of its original display retains sufficient integrity of design, materials, association, and feeling for it to be a contributing historic resource.

RESOURCE #9	STATUS	TYPE	YEAR BUILT
Hilina Pali Overlook Privy	**Non-Contributing**	**Building**	**2009**

A single-use privy is located approximately 135 feet northeast of the picnic shelter along a four-foot asphalt path extending from the gravel parking area and is also located within the 2.88- acre overlook area. The modern privy is faced in alternating, horizontal 6"/12" lap boarding and covered by a corrugated metal roof. The recent construction of the privy makes it noncontributing to the district; it replaced a men's and women's privy originally constructed in this location in 1958 that have been removed. The privy is one of a series of recent standardized privy designs now used in HAVO. The subject privy is described as a single-use vault toilet facility. The square structure is approximately10' x 10' in dimension with a front gable roof, above a split plan with the enclosed toilet on the left and the frontal open side atrium on the right. The Hilina Pali Overlook Privy has not yet achieved significance according to age, design or association and is therefore a non-contributing building.

Extended Narrative Description
See Continuation Sheet Section 7...

Hilina Pali Road
Name of Property

Hawaii, Hawaii
County and State

8. STATEMENT OF SIGNIFICANCE

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- [X] A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] B Property is associated with the lives of persons significant in our past.
- [X] C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all the boxes that apply.)

Property is:

- [ ] A Owned by a religious institution or used for religious purposes.
- [ ] B removed from its original location.
- [ ] C a birthplace or grave.
- [ ] D a cemetery.
- [ ] E a reconstructed building, object, or structure.
- [ ] F a commemorative property.
- [ ] G less than 50 years old or achieving significance within the past 50 years.

Areas of Significance
(Enter categories from instructions.)

Transportation
Architecture
Landscape Architecture

Period of Significance

1928-1963

Significant Dates

1928, 1930-1931
1940
1950, 1955, 1963

Significant Person
(Complete only if Criterion B is marked above.)

N/A

Cultural Affiliation

N/A

Architect/Builder

Thomas Vint (Designer);
National Park Service (Designer/Builder);
Civilian Conservation Corps (Builder)

Period of Significance (justification): 1928-1963

The period of significance takes into account the earliest known establishment of Hilina Pali Road as an NPS construction. Since then, the road was more purposely designed by the NPS, and alterations, mostly affecting its 1939 surveyed route, have been undertaken, yet have not significantly changed the historic circulation pattern of the primary roadway structure itself. In the two decades that followed, areas were developed along the roadway, most of which have become historically significant themselves, with some built structures being altered as late as 1963, but achieving significance because of their relationship to the NPS Mission 66 improvement program.

Criteria Considerations (explanation, if necessary): N/A

Statement of Significance-Summary

Hilina Pali Road is part of the planned road system of Hawaii Volcanoes National Park, serving as a secondary road that provides visitors and park personnel with access to the backcountry wilderness areas between the Ka'u coast and the steep cliff and arid desert lands of the park. The Hilina Pali Road is significant for its association with National Park Service (NPS) road design and construction principles including the NPS Park Rustic Style of architecture and Naturalistic design philosophy of landscape architecture. The period of significance for Hilina Pali Road ranges from 1928 - 1955, which encompasses the design, construction, and alterations of the road. The Hilina Pali Road and its associated sites, buildings, and structures were primarily constructed during this time under the unique design standards implemented by the NPS from 1916 – 1942, and as part of alterations prompted by the harsh conditions the roadway is subjected to such as volcanic activity and heavy rainfall. Newer structural elements were constructed to replace older resources and have achieved significance in their own right based on their age, and unique construction and design. The above-referenced standards sought to harmonize built constructs with the surrounding natural environment, and Hilina Pali Road was a direct recipient of thoughtful design carried out under opportunities related to President Franklin D. Roosevelt's New Deal programming and the immediate growth of the NPS in the first two decades after its establishment in 1916. While the roadway was constructed to allow administrative access, its origin back to 1927 as part of the park's early vision was based on providing public access, and almost immediately became a conduit for public recreation use as increased visitation to U.S. national parks resulted from increased automobile usage and ownership as a means of personal travel, in spite of the early auto trail's rustic nature, which limited who could actually use it. The necessity of the Hilina Pali Road circulatory system for assuaging the visitor flux became even more pronounced as volcanic eruptions and activity in turn placed pressure on national park administrators to accommodate the mass desire for outdoor experiences while preserving the natural conditions that national parks were known for sustaining. Thusly, the history of Hilina Pali Road represents a significant example of national park road development during this time and finds merit for historic significance under national Register Criteria A and C.

Extended Statement of Significance

See Continuation Sheet Section 8...

Developmental history/additional historic context information

See Continuation Sheet Section 8...

9. MAJOR BIBLIOGRAPHICAL REFERENCES

Bibliography NOTE: Typically, only works that represent major findings contributing the research herein are included under this section. Lesser works are identified as footnotes.

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Davis, T. (2004). Drawing on the Road. In T. Davis, T. A. Croteau, & C. Marston (Eds.), *America's National Park Roads and Parkways: Drawings from the Historic American Engineering Record (unk. pp.).* Baltimore: The Johns Hopkins Univ. Press.

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McClelland, L. F., & National Register of Historic Places. (1993). *Presenting nature: The historic landscape design of the National Park Service, 1916 to 1942.* Washington, D.C: U.S. Dept. of the Interior, National Park Service, Cultural Resources, Interagency Resources Division, National Register of Historic Places.

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Soulliere, L. E., & NPS. (1995). *Historic Roads in the National Park System—Special Historic Study.* Denver: NPS

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Drawings (available at HAVO)

U.S. Department of the Interior, National Park Service. (1928). *Hui O Pele Shelter, Hawaii National Park.* Prepared by Landscape Engineering Division.

U.S. Department of the Interior, National Park Service. (1930, 1939). *Hilina Pali Truck Trail: Chain of Craters Road to Hilina Pali.* Prepared by Branch of Engineering.

Previous documentation on file (NPS):

___ preliminary determination of individual listing (36 CFR 67 has been requested)
___ previously listed in the National Register
___ previously determined eligible by the National Register
___ designated a National Historic Landmark
___ recorded by Historic American Buildings Survey #_____
X recorded by Historic American Engineering Record # HI-47, HI-51
___ recorded by Historic American Landscape Survey # _____

Primary location of additional data:

___ State Historic Preservation Office
___ Other State agency
X Federal agency
___ Local government
___ University
X Other
Name of repository: Hawaii Volcanoes National Park Archives

Historic Resources Survey Number (if assigned): N/A

10. GEOGRAPHICAL DATA

Acreage of Property 73.57

Latitude/Longitude Coordinates

(Follow similar guidelines for entering the lat/long coordinates as describe on page 55, *How to Complete the National Register Registration Form* for entering UTM references. For properties of 10 or more acres, enter three or more points that correspond to the vertices of a polygon drawn on the map. The polygon should approximately encompass the area to be registered.)

UTM References

NAD 83, Quads: 1) Kau Desert; 2) Makaopuhi Crater; 3) Volcano

A	5	264964	2144028	B	5	264305	2143139
	Zone	Easting	Northing		Zone	Easting	Northing
C	5	263563	2142070	D	5	262420	2140635
	Zone	Easting	Northing		Zone	Easting	Northing
E	5	261227	2140190	F	5	260965	2139271
	Zone	Easting	Northing		Zone	Easting	Northing
G	5	260702	2138287	H	5	260068	2137702
	Zone	Easting	Northing		Zone	Easting	Northing
I	5	258996	2137058	J	5	258486	2136339
	Zone	Easting	Northing		Zone	Easting	Northing
K	5	257983	2136149	L	5	257716	2134900
	Zone	Easting	Northing		Zone	Easting	Northing

Verbal Boundary Description

The boundary of the nominated district is generally delineated by the meandering course of the historic Hilina Pali Road as determined its point of beginning at its centerline point 25 feet west of its intersection with the centerline of Chain of Craters Road, for a distance of 44,088 feet (8.35 miles) southwesterly to its terminal end; all said boundaries being inclusive of a 50-foot wide lineal corridor determined by delineating a 25-foot width distance drawn perpendicular to the centerline of all main and spur road pavements affected to each side, as may be applicable. Please refer to the Sketch Map. The corridor boundary is extended at various points to include identified developed areas and a former detoured alignment. The actual Hilina Pali Road overall right-of-way width contained within the larger 50-foot wide corridor varies slightly along its entire course as it corresponds to the roadway design; however, it is generally defined by an 11-foot wide paved surface abutted by zero to four-foot shoulders, which also vary in size and profile, and which cumulatively result in a typical 15-foot actual, historic right-of-way; it must be noted that this right-of-way is sometimes determined to a degree by the naturally-occurring elements of lava formations and forests occurring along the roadway that have not been significantly altered since their original construction. The 50-foot wide lineal corridor is provided to give a landscape context, and to capture the original road construction based on the five sections defined by certain mileage points, which are described under **Resource #1**.

The Kulana'okuaiki Campground (delineated as a 250-foot radius half-circle drawn from the center of the spur road where it meets the parking area pavement), the Kipuka Nene Campground (delineated as a 500-foot radius drawn from the edge of the road pavement), the Fire Cache #4 (delineated as a 32.5-foot radial half-circle abutting the 50-foot corridor), and the Hilina Pali Overlook (delineated as a 400-foot diameter circle beginning 60 feet from the Hilina Pali pavement terminus edge-or similarly from the frontal center of the picnic shelter) are included herein by their being part of larger developed areas (contributing historic sites or individual resources) that are outside of the prescribed lineal corridor yet connected to, and integral parts of the historic Hilina Pali Road circulatory system according to the natural land forms or designed layout and resulting boundaries that make the sites and resources historically significant. The total acreage contained within the

Hilina Pali Road Historic District is 73.57 acres (3,204,840 square feet-rounded up). While Hilina Pali Road generally declines, the elevations above sea level for the roadway structure are given at its point of beginning at approximately 3,481 feet to 2,282 feet at its end point parking area.

Boundary Justification

The boundaries are generally coterminous with the Hilina Pali Road's historic right-of-way. The beginning and end points signify the current and historic extent of the road not yet included in other established historic districts. Since National Park Service roads were often designed to accommodate developed areas providing visitor amenities or serving administrative functions along their routes, these areas are also included.

11. FORM PREPARED BY

name/title Justine Christianson, Historian//Larry Frey/Historic Landscape Architect

organization Heritage Documentation Programs, NPS//HAVO CRM date July 2007//July 2014

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ADDITIONAL DOCUMENTATION

- **Continuation Sheets** (Enclosed separately).
  - **Section 7-Extended Narrative Description**
  - **Section 8-Extended Statement of Significance**
  - **Additional Information**
    - **List of Figures**
    - **Digital Photographs Log**

- **Maps** (Enclosed separately).
  - A **USGS Maps** (7.5 or 15 minute series) indicating the property's location.
  - A **Sketch Maps** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.

PHOTOGRAPHS

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map.

See Continuation Sheet-Additional Information...

PROPERTY OWNER (Complete this item at the request of the SHPO or FPO.)

name

street & number telephone

city or town state zip code

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Hilina Pali Road
Name of Property
Hawaii, Hawaii
County and State
N/A
Name of multiple listing (if applicable)

Section number 7 Page 1

Extended Narrative Description (Note: Except for proper place names, certain Hawaiian words are *italicized*)

Hilina Pali Road is a secondary road in the Hawaii Volcanoes National Park (HAVO) road system, located on the Island of Hawaii. It leads to a primary *pali* (Hawaiian term for cliff) in the park's boundary, and has been reserved as one of the most "awe-inspiring spots[s]" in HAVO.[1] The paved one-lane road measures approximately 11 feet wide plus varying shoulder widths and travels for approximately 8.35 miles in a slightly southwesterly direction from its point of beginning at the Chain of Craters Road, ending at a historic overlook that provides views of over 50 miles of Pacific coastline, the immediately surrounding volcanic landforms, the Kau Desert, and the coastal plain that lies in a wide expanse as it reaches to the sea in a steep descent from the *pali*. The sparse vegetation encountered along the length of the roadway consists mainly of *a'ali'i* (*Dodonaea vicosa*), molasses grass (*Melinis minutiflora*), beardgrass (*Schizachryium condensatum*), broomsedge (*Andropogon virginicus*), *pukiawe* (*Styphelia tameiameia*), natal redtop (*Rhyncheletrum repens*), *'akia* (*Wikstroemia phillyreifolia*), bracken fern (*Pteridium aquilinum*), *koa* (*Acacia koa*), and *'ohi'a* (*Metrosideros polymorpha*). Much of the vegetation emerges from ancient *pahoe'hoe* lava flows that are dominant physical features and most characteristic of the experience.

Early HAVO administrators authorized the construction of Hilina Pali Road as part of comprehensive park planning efforts directing the development of park infrastructure and access roads. The road was designed primarily from historical use patterns evolving into a limited access trail for park personnel to access the wilderness areas of the Kau Desert, but the popularity of it as an established conduit to one of the most scenic areas in the park, as well as, to the coastal zone immediately captured the attention of the general public who began to orchestrate extended visits within the park prior to and immediately following World War II in order to see more of its natural resources, made available by advances in personal vehicles and modernization of the roadways that enabled them access.

The historical, more purposeful 1930 design of Hilina Pali Road followed the general principles of National Park Service (NPS) road construction, which were developed so that roads and associated structures could be minimally invasive, in essence so that they would be sensitive to the surrounding natural environments in which they were placed. Timothy Davis (2004) wrote that the NPS, in collaboration with the Bureau of Public Roads (BPR) in the 1920s and 1930s "produced a distinctive 'park road' aesthetic...[that] drew heavily on nineteenth-century carriage design techniques but updated these practices to accommodate the demands of automobile traffic and the geographic diversity of the national parks" (p. 5). Davis also cited that NPS personnel accomplished this by aligning park roads to highlight scenic elements, creating varied experiences for the traveler, and following the topography of the land. Other techniques included creating scenic vistas through ongoing vegetation management, introducing traffic calming measures such as narrow roadways and sinuous curves so that drivers could not hurry from one point to another, naturalizing cuts and fills, and utilizing native materials in construction. These characteristics of park roads can be seen along the Hilina Pali Road as it slowly curves its way across the forbidding landforms crafted by an active volcano, but without dominating nature in doing so.

Park visitors are encouraged through the NPS mission of providing access to remote natural areas to experience the amazing natural wonders of the lesser known areas of the park that might not at first come to the minds of those visiting the well-known features immediately surrounding the Kilauea Caldera. What they may find by spending more time as intrepid explorers in the park is that the Hilina Pali Road takes them along multiple fault systems such as the Kulana'okuaiki Pali, as a lesser *pali*, almost as if this natural feature was purposely placed to prepare them for the much more massive Hilina Pali visible and experienced once they reach the road's end. Though official U.S.G.S. quadrangle maps spell the name of this lesser *pali* as K*a*lana..., the K*u*lana... spelling is used herein. Debates are ongoing about the meanings of various spellings as they are applied here, however, the Hawaiian name Kulana'okuaiki, as adapted to a campground located as a developed site along the road, is

[1]See Dec. 1937 HAVO Superintendent Report (E. G. Wingate), HAVO Archives.

indicative of an example of what beholds the visitor to the road, as it is interpreted as the *shaking of the little back*, or cliff face during an earthquake. In addition, Hilina Pali Road travels for nearly its entire length through the Koa'e Fault system, a series of gaping cracks two miles wide that are still active. In fact, as recently as 1973, earthquake activity caused the cracks to move violently, with the most intense episode of cracking on record taking place in 1965.[2] Some of the most scientifically-appreciated examples of geological faulting found in all of the Hawaiian Islands can be experienced here.[3] In addition, the roadway allows visitors to get out and explore *a'a* and *pahoe'hoe* lava flows, scrubby forests of *ohi'a* and *koa* trees, and rubble-strewn grasslands before rewarding them with an expansive view of the Pacific Ocean at the edge of the *pali*, where the road terminates.[4] The road's alignment was primarily designed to follow the un-opposing forms of curving lava that ride the flows rather than punch long, straight corridors through it in a meaningless effort to get to the destination in lesser time. The built structures associated with the road exhibit the characteristics of both Naturalistic Design and the Park Rustic Style, incorporated by the NPS designers and characterized by the use of native materials and forms. This can be seen, for example, in the drainage structures that lay within the road's right-of-way, and the historic picnic shelter at the road's end.

[2] See USGS website, HVO: Forgotten Faults, Feb 7, 1997. Retrieved August 2, 2012 from http://hvo.wr.usgs.gov/volcanowatch/archive/1997/97_02_07.html

[3] See Hazlett, R. W. & Hyndman, D. W. (1996). *Roadside Geology of Hawaii.* Missoula, MT: Mountain Press.

[4] *A'a* lava is one of two main types of lava flow in Hawai'i and is characteristic of uneven, broken, lava rocks and pieces resembling piles of rubble. The other type of lava is known as *pahoe'hoe* lava and is more ribbon-like, and smooth flowing.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Hilina Pali Road
Name of Property
Hawaii, Hawaii
County and State
N/A
Name of multiple listing (if applicable)

Extended Statement of Significance

The Hilina Pali Road is significant for its association with National Park Service (NPS) road design and construction principles including the NPS Park Rustic Style of architecture and Naturalistic design philosophy of landscape architecture. The period of significance for Hilina Pali Road ranges from 1928 – 1955 encompassing the design, construction, and subsequent alterations of the road. Thusly, the history of Hilina Pali Road represents a significant example of national park road development during this time and finds merit for historic significance under national Register Criteria A and C.

The road meets National Register **Criterion A** because of its associations with the widely-influential national park road development system, and the work of the Civilian Conservation Corps (CCC) who helped to implement much of that road system, especially in Hawaii Volcanoes National Park (HAVO) (originally named Hawaii National Park in 1916). From the establishment of the NPS in 1916 until 1942 when World War II stalled development throughout the entire national park system, NPS architects and landscape architects based in the Branch of Plans and Design (divided in 1934 into the Western Division and Eastern Division) developed a vocabulary of design and construction to be utilized at parks throughout the U.S. that fostered localized adaptations to environmental conditions of individual places, often as they were found to be characterized by the regional considerations. Park administrators and NPS design staff, such as those at HAVO, created master park plans to guide future development by detailing park road systems, trails, and development areas for administrative and visitor use. At HAVO, NPS personnel designed a road system to provide access to natural features of the park to visitors and staff via both primary (e.g., Crater Rim Drive) and secondary roads (e.g., Hilina Pali Road). The construction of Hilina Pali Road contributed to the ongoing development of the park, especially as it boomed prior to World War II, opening up the southern desert wilderness area of the park to visitors traveling by automobile or tour bus who had limited time to spend in the park. Throughout the national park system, including Hilina Pali Road in HAVO, the CCC brought forth a cadre of able workers to build the roads, structures, and buildings that make up much of the unique circulatory systems of the U.S. national parks.

Hilina Pali Road meets National Register **Criterion C** because it embodies the tenets of NPS road design and construction techniques such as the NPS Park Rustic Style and Naturalistic landscape design that became the most influential standards of design not only for national parks, but also for state and local parks, as well.[1] From 1916 - 1942, NPS "landscape architects, architects, and engineers forged a cohesive style of landscape design, which fulfilled the demands for park development while preserving the outstanding natural qualities for which each park had been designated" (McClelland, 1998, p. 1). Roads were considered an integral component of landscape design, and the NPS worked with the Bureau of Public Roads (BPR) to develop safe and aesthetically pleasing road systems throughout the national park system. Park roads were to fit sensitively into their natural surroundings, being dictated by what the topography through which they traveled suggested, rather than simply being inserted into it. On the Hilina Pali Road, travelers wind through the remnant debris of volcanic lava flows, areas of arid desert, as well as, grasslands on a sinuous path that presents spectacular views of coast, the tallest shield dome in the world, and unique land formations. In addition, NPS design standards called for the journey through the landscape to be just as important as the destination point, so the road was sighted by following the natural lay of the land, and to best take advantage of landscape features such as the Kulana'okuaiki Pali that straddles the roadway for approximately half of the roadway's length as it seemingly rises out of the ground as if it was going to somehow eventually encroach upon the traveler's path.

NPS design policy also encouraged the planning and construction of structures that harmonized with the landscape through the use of native materials and forms. This was the guiding principle of the NPS Park Rustic

[1]Much work has been done on the history of National Park Service road design and architecture. See for example, McClelland (1998), esp. Chapter 6, *Principles and Practices for Naturalistic Roads and Trails*; Carr, (1998); Davis, Croteau, & Marston (2004); and Soulliere (1995), among others.

style, developed primarily by NPS landscape architects (also referred to as landscape engineers) and architects. On Hilina Pali Road, the Kipuka Nene shelter, wash crossings, and the shelter at the road's terminus were constructed based upon these design standards. Albert Good, an architectural consultant to the NPS during the 1930s, drew plans, elevations and sections for *Park Structures and Facilities*, a 1935 NPS publication that helped standardize park architecture. Later, Good (1938) defined "successfully handled" Park Service Rustic architecture "as a style which, through the use of native materials in proper scale, and through the avoidance of severely straight lines and over-sophistication, gives the feeling of having been executed by pioneer craftsmen with limited hand tools. It thus achieves sympathy with natural surroundings and with the past" (p. 5). Good suggested then that park structures were ultimately subordinate to their surroundings and merely part of a larger, comprehensive park plan.

Hilina Pali Road is therefore significant in the areas of **transportation** as an example of early road construction in the national park system and illustrates how NPS designers along with the BPR developed roads to be unobtrusive elements in the landscape. The road is also significant in **landscape architecture** as NPS designers developed methods of "scenic preservation" while also providing access to visitors. On Hilina Pali Road, this is exhibited by the siting of the road to take advantage of landscape features while naturalizing the effects of human-made cuts and fills. The development of Hilina Pali Road is also associated with influential NPS landscape architect Thomas Vint, as well as, government entities including the BPR and the CCC.

Hilina Pali Road retains a high degree of integrity, which Linda Flint McClelland (1998) further articulated as reflecting "the physical appearance and condition of the landscape during the period of significance" (p. 512). While Hilina Pali Road has undergone some alteration to accommodate natural phenomena (primarily heavy rains) and visitor use (specifically the raising up of the fords with concrete to accommodate buses), the integral characteristics of park road design remain: a narrow roadway, a sinuous alignment, and an association with the surrounding natural environment through the use of natural materials and siting of the road to take advantage of landscape features. In addition, the surround lands remain undeveloped aside from those areas purposely developed pursuant to creating a system of road linkages to natural areas and amenities.

Developmental history/additional historic context information

Historical Background and Significance
Road Development in the Parks

It is important to include the broader NPS program for developing park roads in order to better understand why the construction of Hilina Pali Road is significant. The NPS worked with the BPR to implement a unified road construction program in the parks. The relationship was formalized through an inter-bureau agreement signed on January 18, 1926. The NPS focused on the aesthetics of the road while the BPR supplied daily construction activities and the engineering and technical expertise, resulting in a "distinctive cultural landscape that has become a defining characteristic, not just of national park roads, but the National Park System in general" (Davis, 2005, p. 4). In addition, during the 1920s, Daniel Hull, a landscape engineer, and Thomas Vint, a landscape architect, began working on creating a distinct style of environmentally and contextually-sensitive architecture that utilized the earlier work of landscape architects like Andrew Downing and Frederick Law Olmsted, while also taking into consideration sound elements of "scenic preservation." The influences from consultant Henry Hubbard, the Harvard-educated landscape architect, can also be understood through his early admonishments that parks develop roads that served as circuits between features, but that such development be done gently and in a sensitive manner.

Although Hull left the NPS in 1927, Vint went on to develop the landscape program through the Western Field Office, which began implementing master plans throughout the national park system and developing park infrastructure designs that harmonized with the landscape (Carr, 1998). The result of the leadership and vision of

Vint and the Western Field Office was a set of general principles to guide park road construction. The most important principle was that even during construction, the landscape had to be protected as much as possible. Throughout the 1920s and 1930s, NPS designers worked on creating standards guiding the sloping and naturalization of road banks, drainage structures, parking areas, masonry work, and other structures like guard rails, tunnels, and bridges (McClelland, 1998). In addition, they formulated purposeful architectural elements that would best fit into, and harmonize with the local landscapes they were working with. These standardized designs were published in *Portfolio of Comfort Stations and Privies* (DOI-NPS, 1934), *Portfolio of Park Structures* (DOI-NPS, 1934), *Park Structures and Facilities* (DOI-NPS, 1935), and *Park and Recreation Structures* (Good, 1938).

In May 1968, the NPS published its *Park Road Standards*, outlining the purpose and design of park roads, which reveals that the basic principles developed during the 1920s and 1930s that had survived. George B. Hartzog, NPS Director, described the place of the road in the national parks in the following excerpt

> Park roads are designed with extreme care and located with a sensitive concern for the environment....These roads can take you close to America's most breathtaking places of beauty and history. To experience park at its best, try getting away from your car.... The next best thing, for those who have neither time nor zest for roughing it, is a judicious use of park roads....But park roads are for leisurely driving only. If you are in a hurry, you might do well to take another route now, and come back when you have more time.[2]

The roads in the national parks were to incorporate the experiential aspect of the landscape as well as the visual, rather than simply being paths leading visitors to the most sought after destinations. In addition, the standards suggested that "every segment of every park road should relate to the environment through which it passes in a meaningful way, and should, to the extent possible, constitute an enjoyable and informative experience in itself" (NPS, 1968, p. unk.). To enhance the experience of driving through the park, the roads should be minimally invasive and concealed rather than simply running in highly visible straight runs that appeared unnatural. In addition, NPS designers recommended providing points like parking lots, turnouts, and vistas at which visitors could leave their automobiles and connect with the landscape.
The design standards of road construction in the parks were explicitly stated. Foremost among the principles was that new roads fit to the lay of the land to which they were being applied. To achieve this, designers had to eschew cuts and fills whenever possible, instead choosing to follow the topography of the landscape. The scenic qualities of the landscape had to be used to their best advantage to create a "sense of intimacy with the countryside through which it is passing" (NPS, 1968, p. unk.). Ditches and slopes were to be carefully blended into the roadside by rounding slopes, blending them into existing vegetation, and planting them with native vegetation. For vertical grades, the maximum was seven percent with 8 - 10 percent allowed for short distances. To make sure that visitors were able to experience the landscape, park roads were to be designed for 25 mph speed limits for major and minor roads in areas of natural or cultural resources, 45 mph for parkways and major roads in recreational areas, and 15 mph for special and interpretive roads. These standards and guidelines were applied on the Hilina Pali Road but adapted to the particular environment through which the alignment would run. Yet the adherence to the basic principles of NPS road design and construction create a sense of continuity not only with the other roads and structures located within the park but also within the national park system as a whole

Detailed History of HAVO Roads

The road network in HAVO began prior to it becoming a national park, and prior to the establishment of the NPS, with basic road systems in place during the late nineteenth century. However, as the U.S. national park system became established through congressional authorization, and its leadership began articulating its mission through

[2] Excerpt from George B. Hartzog, see NPS, *Park Road Standards,* p. unk.

a build-up of policy-driven mechanisms, road systems in national parks became an immediate priority. Through interagency agreements such as occurred in 1926 with the BPR, the NPS meshed their design philosophies for road construction with the technical expertise and strategic planning strengths of others. Much of this history is captured succinctly by Dawn Duensing (1999) in the following eleven paragraphs.

> Early park administrators followed many of the classic road-building policies that were used in national parks throughout the nation. Borrow pits were located out of sight of the roads to preserve scenery. Construction crews worked in the rights-of-way to avoid unnecessary scarring of the landscape. The needless cutting of trees was avoided and in one case, on Crater Rim Drive, the primary HAVO roadway, a new alignment was rejected because the proposed project would destroy too many large tree ferns. Trees, however, could be thinned to open vistas and improve scenic features. Roadways were located so that they curved and flowed with the natural contours of the land. Roads were designed with radial curves rather than sharp switchbacks. Gentle grades of no more than five-percent were another goal, although in some cases, steeper grades were unavoidable. Shoulders were sloped to prevent erosion and present a more natural appearance. A classic park design strategy, the circuit road, was employed twice to facilitate more pleasurable travel, including Crater Rim Road and Chain of Craters-Kalapana Road. The use of native stone for walls, curbs, and drainage systems was prevalent throughout the park [(McClelland, 1993)].
>
> Road projects at HAVO involved some of the most prominent names in the National Park Service. Assistant to the Director (later Director) Horace Albright...asserted that HAVO needed roads to fulfill its mission. BPR engineer Frank Kittredge, who became the NPS chief engineer in 1927, investigated HAVO roads and advised the park on surveys and development. Landscape architect Merel Sager was assigned to HAVO during a prolific era of road development projects during the Great Depression. Landscape architect Thomas Vint was involved in a number of park road projects, most notably the Chain of Craters-Kalapana Road. Vint had a forty-year career with the NPS and was appointed chief landscape engineer in 1927. According to historian Ethan Carr, "No individual influenced Park Service planning process and design details in the late 1920s and 1930s more than Thomas Chalmers Vint" [(Carr, 1998, p. 190)]. Another prominent NPS landscape architect, John Wosky, was heavily involved in HAVO road development and also served as superintendent during the 1950s.

Unique Conditions in Hawaii Volcanoes National Park

The Hawaii Volcanoes National Park road system has been affected by a combination of natural phenomena that are unique in the National Park System. Lava flows, volcanic ash, earthquakes, heavy rain, and heavy vegetation created unusual conditions for road building and also damaged and destroyed many miles of HAVO roads. Due to these conditions, numerous sections of road have been realigned during the last fifty years. Lava flows are one of the most prominent landscape features in Hawaii Volcanoes National Park. Throughout the park's history, lava has repeatedly destroyed roads and necessitated reconstruction or realignment. Volcanic activity was unpredictable and new roads and realignments were never guaranteed to be unaffected by future eruptions.

Geological features created by lava have created unusual problems for road surveyors and engineers. Roads in HAVO were likely to be constructed over hollow underground lava tubes. It was difficult to ascertain where lava tubes were or how thick the ceiling of the lava tube might be. Therefore, engineers were uncertain whether the lava tube "roof" would withstand the weight of the road and its traffic. Over the years, there have been several ways of dealing with the problem. HAVO's first superintendent, Thomas Boles, thought that he could "sound

out" the lava surface by driving a heavy truck over a proposed route. This would assure engineers and contractors that the surface would support a road. Decades later, a geologist asserted that lava tubes could be mapped. He disagreed with Boles' theory of "sounding out" the lava's surface and recommended that roads be built at least 75' from known lava tubes.[3]

The presence of underground lava tubes also made it difficult for engineers to estimate how much fill they could get from road excavations. Due to the hollow nature of the numerous lava tubes, there was sometimes less material to excavate than had been estimated. When this happened, there was not enough material to balance cuts and fills and materials had to be trucked in from other locations.

Earth movement has always been a road maintenance problem in HAVO. Earthquakes often sent the roadway into adjacent volcanic craters. Earthquakes also made pavements heave or crack. Cracking in the road could vary from just a few inches to several feet wide and hundreds of feet deep. Heaved pavement could result in a slight hump in the road or a piece of pavement so large that a car could not drive over or around it.

Due to the threatening nature of volcanic eruptions and earthquakes, pipe barrier gates were used extensively at HAVO to control access to different sections of the park. Barrier gates could be drawn across the roads at numerous locations throughout the park in order to close them during an emergency. Barrier gates were also useful for prohibiting entry into areas affected by drought and threatened by fire. In recent years, the gates have also closed a road to protect the endangered *nene* during its nesting season.

Climate also caused road problems in HAVO. In both desert and rain forest, the park received heavy rainfall during storms and in the winter rainy season. For example, in 1929, HAVO recorded 74" of rain. In November 1929, 20" of rain fell in one storm, with 7" recorded in only eight hours. Heavy rains could wash out roads or undermine the road surface.[4] Drainage was a concern on many park roads.

With Hawaii's year-round growing season, vegetation also caused unique conditions for roads in the national park. Tree roots frequently undermined the road pavement and forced it to break. Heavy vegetation often obscured road shoulders. Vegetation also blocked vistas created for motorists to view the park's natural beauty. (pp. 9-12)

The Evolution of A Desert Wilderness Road

After the park's establishment, park personnel had to design the infrastructure for both park and visitor use. A well-planned road system was essential to make the park's features accessible, and Hilina Pali Road was a secondary road within that system, created to provide backcountry access to the park's southern mid-section. At first, the road was intended primarily for NPS personnel use in law enforcement and for goat drives, with the benefit of providing park visitors with a way to access the Hilina Pali, a magnificent place in the park created from a cataclysmic seismic fault dropping approximately 1,500 feet during prehistoric times. Originally, the road was constructed of a six-inch base of crushed *a'a* lava with a two-inch surface of ash/rock on top, and then surfaced with gravel and/or crude oil. As the park developed, personnel looked for ways to entice visitors to spend longer

[3] See May 1922 Superintendent Report (Boles), HAVO Archives; and John Aubuchon, Acting Superintendent, HAVO, Memorandum to Superintendent Fred T. Johnston, 22 May 1962, "Kalapana-Chain of Craters Road, Project 2-C1, June 1956-July 1962" folder, File D30, HAVO Archives.

[4] See Nov. 1929 Superintendent Report (T. J. Allen), HAVO Archives.

periods of time in the park; offering an additional route for experiencing the different types of natural scenic wonders in the park beyond just what could be experienced immediately around the Kilauea Crater was a viable option. Hilina Pali Road's use expanded, therefore, to include motor trips by tourists. The historic evolution of Hilina Pali Road as an important conduit for allowing access to both park personnel and visitors alike is encapsulated in the following ten paragraphs excerpted from Dawn Duensing's detailed 1999 study, as included below. Supplemental information is indicated in brackets.

AN AUTO TRAIL FOR HILINA PALI

The earliest mention of a possible road at Hilina Pali appeared in a March 1927 report in which Superintendent Evans mentioned his visit to the Kau Desert. Evans, accompanied by Dr. Jaggar, traveled by automobile as far as the "Cone-and-Pit Craters" and then hiked three miles south to Hilina Pali. Evans suggested [to Stephen Mather] that the bluff would be a fine objective for an auto trail.[5] [He reported "this bluff, overlooking the coast line at a height of 2,000 feet and a distance of two miles, constitutes a fine objective for an auto trail.][6] Although the Hilina Pali auto trail was not yet constructed, a HAVO "friends" group, Hui O Pele, built an overnight shelter at Hilina Pali in 1930 and donated it to the park. The structure was built of native stone and overlooked the seacoast. NPS landscape architect Thomas Vint chose the site for the shelter and also approved the building plans. Vint may have played a role in the design itself.[7] [Lavelle M. Hewitt, Senior Foreman, Landscape Architect, endorsed "Native Island architecture in isolated locations such as Hilina Pali" rather than using a standardized NPS designs in a letter to the park superintendent, Edward G. Wingate. Hewitt stated, "if we want to enjoy architecture native to certain areas, then let's go to Yosemite and the Adirondacks and enjoy the area themselves as well."[8] His endorsement reflected NPS design principles that advocated adapting designs to their particular location to create a harmonious integration of structure and environment. The resulting shelter, designed by NPS Chief Landscape Architect Thomas Vint, expressed the principles of the Rustic style].

A 1932 park circular described HAVO's auto trails as roads fit for "venturesome motorists." In February 1931, Superintendent Leavitt reported on his trip over the Hilina Pali auto trail, which wound its way for nine miles over the lava flows. The park had made improvements by building toilet facilities at the site.[9] In May, Leavitt reported that the trail to Hilina Pali was improved, although it was only accessible to lightweight cars. He wanted additional improvements so that motorists with larger vehicles could use it without damaging their cars or tires. Leavitt considered his improvements a "worthwhile addition" to the park's secondary road system and emphasized that the road was primarily for patrolling to prevent for illegal hunting and fishing. The park also planned to use the road for goat drives.[10]

In late 1936, the CCC began filling holes, breaking up lava, and leveling the Hilina Pali Road. The enrollees also placed an orientation disk at the end of the road, which identified cardinal

[5] See March 1927 Superintendent Report (R. T. Evans), HAVO Archives.
[6] Ibid.
[7] The shelter cost $825. See June-July 1930 Superintendent Reports (T. J. Allen), HAVO Archives.
[8] Lavelle M. Hewitt, Sr. Foreman, Landscape Architect to Superintendent Edward G. Wingate, "Comments on Hilina Pali and Apua Point Rest Houses," in Folder: Apua Pont Resthouse and Roads, 1938-41, 620-75, HAVO Archives.
[9] Department of the Interior, National Park Service, "Circular of General Information" (Hawaii National Park, 1932), 4, HAVO library; and see Feb. 1931 Superintendent Report (E. P. Leavitt), HAVO Archives.
[10] See May 1931 Superintendent Report (E. P. Leavitt), HAVO Archives.

directions and natural features.[11] By 1939 the road was being called a truck trail and Superintendent Wingate noted that the CCC repairs were unsatisfactory. The road was frequently damaged by rain and Wingate wanted the road improved to a "passable state" so cars could patrol it without being damaged. In July, a camp was established at the shelter and the CCC began a realignment and reconstruction project of the Hilina Pali Road. The project made satisfactory progress and by December approximately 1.75 miles of subgrade was completed. The next month, however, work came to a virtual halt while the park waited for compressor parts to arrive from the mainland. Work resumed in March 1940, and by April was 39 percent completed. After the compressor was repaired, CCC enrollees worked two shifts to make up for lost time.[12]

The superintendent ascertained that rain and erosion were creating major problems on the Hilina Pali Road. To address this issue, enrollees constructed fords of native rock across dry washes. Fills were laid across low areas. Field plans from 1937 showed that the roadbed was to be 12' wide. The average grade was 2 to 3 percent, although there were several grades of 5 to 6 percent.[13] Earthquakes cracked the roadbed in 1938 while construction was still underway.[14]

Progress on the Hilina Pali Road was hampered by a shortage of men when enrollees and potential recruits moved to Oahu for better jobs. In March 1941, the superintendent complained that the Hilina Pali Road project had come to a complete standstill due to low CCC enrollment. He lamented that only eighty-three man-days were spent on the road in March, which was unfortunate as the park needed the road for fire protection and reforestry projects. Work on the truck trail did not resume as enrollees were diverted from the road project to "priority projects" that included the new hotel and a new volcano observatory.[15] CCC work was curtailed after the December 7, 1941 attack on Pearl Harbor when many enrollees were transferred into defense-related jobs.[16]

The U.S. Army had been using land below Hilina Pali for bombing practice as early as 1940. After the war started, Hilina Pali became an observation post. Heavy military traffic took its toll on roads throughout the park, resulting in additional maintenance demands at a time when park staff was reduced due to several employees joining the service. In June 1942, Superintendent Wingate expressed his great disappointment that the U.S. Congress took action to abolish the Civilian Conservation Corps. Since December 7, the CCC crews had been engaged almost exclusively on military-related projects. Wingate believed these projects were important because they gave enrollees useful "organized" training and allowed them to feel that they were contributing to the war effort. He concluded that the cost of park projects would increase significantly and that park operations would be "severely handicapped." In

[11] See Jan. 1936, Dec. 1936 Superintendent Reports (E. G. Wingate), HAVO Archives.
[12] See March 1939, July 1939, Dec. 1939, Jan. 1940, March 1940, April 1940 Superintendent Reports (E. G. Wingate), HAVO Archives.
[13] See Oct. 1939, Dec. 1939, Feb. 1941 Superintendent Reports (E. G. Wingate), HAVO Archives; also, see *Hilina Pali Truck Trail* (1937), microfiche #5301, HAVO Maintenance Division files; and April 1953 Superintendent Report (J. B. Wosky), HAVO Archives. Wosky discussed a project to widen the road to 10 feet in some areas.
[14] See Aug. 1938 Superintendent Report (E. G. Wingate), HAVO Archives. These earthquakes were the same that caused great damage to Chain of Craters Road.
[15] See July 1941 Superintendent Report (E. G. Wingate), HAVO Archives. The Volcano House had burned to the ground in 1940.
[16] See Dec. 1941 Superintendent Report (E. G. Wingate), HAVO Archives.

addition to loss of the CCC, about half the rangers' work time was spent on guard duty.[17]

After the war, road repairs throughout HAVO were a priority. Patches were laid on most roads, although a shortage of bitumuls forced work to stop by mid-November 1946. In June 1948 the park completed the Hilina Pali project started by the CCC prior to the war. Rubble drainages were repaired and grouted so that travel could resume on the road, eliminating a 3000' detour. About 1200' of roadbed was "roughed in" and "brought to grade." The next month, an additional 2000' of the road was realigned and surfaced.[18] In 1949 grading began on the lower three miles of the road, but was suspended when a territorial dockworkers' strike prevented shipments of oil from being delivered. Grading and oiling were finally completed and the road opened to traffic on November 10, 1949. Superintendent Oberhansley reported that the Hilina Pali overlook, with its magnificent panoramic views of the coast, was quickly becoming a "must" for HAVO visitors. By the end of the year, the park naturalist was conducting organized tours or "auto caravans" along the road.[19]

A storm in January 1950 flooded several sections of the Hilina Pali Road, including culverts, retaining walls, and fills. The storm washed out the gravel on the road's steeper portions and made the route impassable. The park allotted $3000 for minimal repairs and requested $5000 to complete the repair project. Most of the storm damage was repaired by April, with the help of an additional $5000 that came from reserve funds. Steep sections of roadway were paved to prevent future washouts, the upper 5.5 miles was "dustcoated," and some repair work remained to be done along the lower 3.5 miles.[20] [Work on the road involved grading, laying down 2" of emulsified asphalt and crushed rock and bitumuls, oiling the surface, and paving the steeper grades to help with the periodic flooding of the road, all on the upper 5-1/2 miles.[21] In addition to the construction of new drainage features, the damage to the road from earlier drainage issues had to be repaired. In addition the steep grades were paved to prevent further damage.][22] In November, torrential rains caused extensive damage to the road again, washing out and undermining the oil surface over almost the entire length of road. This time, the park allotted $9,365 for repairs that included grading and re-treating the road surface. Work on the Hilina Pali Road was completed using surplus asphalt from the Army.[23] By February 1951, the rehabilitation project on this "heavy visitor use road" was finished. A ten-car parking area was provided at the Kipuka Nene picnic area. Speed limit signs were posted along the road, allowing 25 mph from the road's entrance to Kipuka Nene, and 15 mph beyond that point.[24]

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[17] See Annual 1940 Superintendent Report (E. G. Wingate), HAVO Archives; and June, July 1942 Superintendent Reports (E. G. Wingate), HAVO Archives.
[18] See Oct. 1946, June, July 1948 Superintendent Reports (F. R. Oberhansley), HAVO Archives.
[19] See Aug., Nov., Dec. 1949 Superintendent Reports (F. R. Oberhansley), HAVO Archives.
[20] See Jan., Feb., April 1950 Superintendent Reports (F. R. Oberhansley), HAVO Archives.
[21] See June 1950 Superintendent Report (F. R. Oberhansley), HAVO Archives.
[22] See Jan. 1950 Superintendent Report (F. R. Oberhansley), HAVO Archives; 10-742 Justification and Memo from I.J. Castro, Acting Superintendent to Regional Director, Region Four, Subject: Damage to Hilina Pali Road, Nov. 21, 1950, both in Folder: Hilina Pali 1949-50, 640-21.1 in Box Accession: HAVO 270, Catalog: HAVO 4959, File Codes: 610.01 through 660-04.1, HAVO Archives.
[23] See Nov. 1950, Feb. 1951 Superintendent Reports (F. R. Oberhansley), HAVO Archives. Numerous postwar shipping strikes, including a six month strike that ended in Oct. 1950, made asphalt scarce and slowed many road projects in HAVO.
[24] See Feb., March 1951 Superintendent Reports (F. R. Oberhansley), HAVO Archives.

> [Park crews worked on the lower 3-1/2 miles in 1953, blasting *a'a* lava for use in leveling and straightening the road, and seal coating.][25] Routine maintenance on the Hilina Pali Road during 1953 included patching and sealing, as well as widening the road to 10' for 5.2 miles from the Chain of Craters junction. The sealcoat consisted of 0.25 gallon of 100-200 bitumuls and 20 lbs. of field aggregate per square yard of surface. Another 2.3 miles of road was widened and sealcoated five months later. Nine hundred cubic yards of *a'a* cinders were used to level high points and explosives were used to straighten the roadway.[26] By 1957, the lower 5 miles of road were badly deteriorated and required extensive patching to make the surface smooth. Road shoulders were cleaned to improve appearance and to prevent ravelling. Grass along the roadsides was treated with herbicides to prevent further damage to the road.[27]
>
> [Needless to say, during the 1950s and 1960s, heavy rains and earthquakes caused damage and subsequent alteration of the road.] Volcanic activity in the 1960s cracked and pitted the road, making it necessary to close the road for repairs [Jackson, 1972, p. 124]. Over the years, sections of the road have been closed for other reasons as well, including periodic droughts and the summer dry season. During the summer of 1999, the road was closed near Kipuka Nene to protect a sensitive *nene* nesting area. (pp. 70-74).

There was periodic discussion among park staff of adding other amenities to the road. As early as the 1930s, there was interest in extending the road from the overlook down to the coast, giving both tourists and park personnel better access to that section of the park. A trail built for goat drives was in use by hikers and horseback riders, but the chief ranger described it as poor. He argued "when it is considered that Kilauea is a mountain 4,000 feet high rising directly out of the sea, and that the horizontal distance from Kilauea to the ocean is only five miles, it is easy to realize why a trip to the seacoast might be enchanting." Estimated to cost $102,952.72, the project does not seem to have merited further discussion. This is not surprising given the park's difficulty in funding the completion of the Hilina Pali Road as planned.[28] In 1960, park personnel noted the road "is at present a one-way paved road with occasional pullouts for cars to pass. It also passes through a popular *kipuka* where picnic facilities are provided. There is need for a safe two-way road to this magnificent observation point as it is increasing in popularity and would be visited by more large groups if the road were less hazardous." The estimated cost of a road widening project was $215,000, and the funds were simply not available.[29] The road therefore remained one lane and relatively unaltered aside from basic maintenance and upkeep, such as a repaving project undertaken in 2005.

A Note Regarding the Ongoing Threat of Nature

Historically, Hilina Pali Road was constantly impacted by seismic activity and torrential rainfall with its erosive effects of the water movement over a period of time and multiple events. As earthquakes and land shifting weakened areas along the roadway, subsequent erosion of the roadbed and surfaces became even more

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[25] See Aug., Oct. 1953 Superintendent Reports (J. B. Wosky), HAVO Archives.
[26] See May, Sept. 1953 Superintendent Reports (J. B. Wosky), HAVO Archives.
[27] See Feb., March 1957 Superintendent Reports (J. B. Wosky), HAVO Archives.
[28] Joseph H. Christ, Chief Ranger, "Report on Hilina Pali Seacoast Location Survey Island of Hawaii," 1930s?, in Folder: Roads, General 630, Box: Accession HAVO 370, Catalog HAVO 4959, File Codes 610.01 through 660-04.1, HAVO Archives.
[29] Memo from P.E. Smith, Supervisory Engineer, and C.E. Krueger, Supervisory Landscape Architect to Chief, WODC, Subject: Trip Report, Roads, Hawaii National Park, March 18, 1960, in Folder D30 Roads and Trails, March 1960-November 1962 in Box HAVO 371, HAVO 10243, D30, HAVO Archives.

impacted, causing extensive damage to the most topographically vulnerable sections. As within many wilderness areas in our national parks, the maintenance of stable roadways was a constant challenge; however, many could argue that managing roadways under the duress of extreme conditions in an area an active, erupting volcano represents the ultimate challenge when it comes to sheer destruction of the roadway structure, versus temporary blockages or impasses due to extreme events such as snow accumulation or clearable rock slides. The Hilina Pali Road maintenance program over the decades since its initial days of documented usage represents a unique view of those challenges, and the efforts implemented toward developing the appropriate scientific remedies for addressing those challenges.

As stated herein, perhaps the biggest challenge to park personnel for keeping Hilina Pali Road useable was due to the numerous washouts from rainfall caused in part by the lack of adequate soil depths and the non-porous nature of the *pahoe'hoe* lava directly beneath it that dictated such rapid, uncontrollable sheet and gully flows. In addition, the sparse vegetation in the Hilina Pali area was also a contributor, reflective of the lack of lack of soil substrate. The first recorded damage to the road from rain occurred in July 1931 when a 2½-foot deep hole in the road had to be repaired.[30] Serious floods in March 1939, April 1945, and throughout 1950 necessitated recurrent repairs. Of course, repairs along Hilina Pali Road were a common monthly reporting item in the Superintendent Reports, almost amounting to a line item report mechanism. Early in the road's history, a Civil Works Improvement Project was commissioned to address the water flow problems though the construction of culverts with masonry head walls in 1934.[31] After serious flooding from November 1938 through January 1939, when it was clear that the 1934 culverts were ineffectual, Superintendent Wingate recommended that the CCC do emergency repairs. The CCC work, referred to as the "CCC Erosion Control Project" and the installation of reinforced fords across low points in the roadway were more comprehensive and somewhat more effective, as evidenced in a January 1942 report noting "Inspection was made of the erosion control structures built two years ago in the Hilina Pali section. The check dams and retaining walls have withstood the runoff from several heavy rains and they appear to aid considerably in checking the gully erosion."[32] However, the fords were not completed by the CCC due to the advance of World War II and the disbanding of the CCC.

The specification for constructing the reinforced fords at various low points located along Hilina Pali Road was developed in May 1939, and is included as an apparent latent addendum (Sheet 8-A) to the 1936-1939 survey work. In fact, according to the date of the "Vicinity Map" on which the wash detail is drawn, it was completed two months after Superintendent Wingate concurred through signature the recommended survey design work from Acting NPS Chief Engineer John S. Cross of the Branch of Engineering. This additional design for wash crossings strengthened the areas where the original culverts were placed, since those structures, as originally designed, had proven "inadequate to handle the large volume of water" that could drench the area as Park Superintendent Oberhansley noted.[33] The plans specified a four-inch curtain wall at a minimum two-foot width along the side of the road perpendicular to the downslope stream. The width of the ford was to be 12 feet, matching the specified road width. The length of each ford, as noted on the plan, was "various as to size of stream and max. volume of water estimated from previous record." It was not until 1948 that the fords were completed by park personnel. The long completion delay was probably due to the withering of available labor for military activities and a general lack of funding for park needs. In 1955, the grouted ford roadway spans were filled with asphaltic concrete to create a more level driving surface because "all four dips were so sharp that the KMC buses could not negotiate them without catching either the front or rear bumpers."[34] Despite this alteration, some of the original grouted lava

[30] See July 1931 Superintendent Report (E. P. Leavitt), HAVO Archives.
[31] Culverts are indicated on the Hilina Pali Road survey map. See 1934 Annual Superintendent Report. Images of the 1950 washout by Superintendent Oberhansley are available in Accession HAVO-554, S-C1, Binder 2 of 5 at HAVO Archives.
[32] Naturalist Monthly Report of January 1942. See Annual Superintendent Report (E. G. Wingate), HAVO Archives.
[33] February 21, 1950, Request for repair money, in Folder: Hilina Pali 1949-50, 640-21.1 in Box Accession: HAVO 270, Catalog: HAVO 4959, File Codes: 610.01 through 660-04.1, HAVO Archives.
[34] See April 1955 Superintendent Report (J. B. Wosky), HAVO Archives.

stones remain visible at the outer edges of the roadway surface and where they extend into the stream channels.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Hilina Pali Road
Name of Property
Hawaii, Hawaii
County and State
N/A
Name of multiple listing (if applicable)

Section number ADDITIONAL INFORMATION Page 1

List of Figures

Figure 1. 1930 Hilina Pali Picnic Shelter

Name of Property:	Hilina Pali Road
City or Vicinity:	Hawaii Volcanoes National Park
County:	Hawaii
State:	HI
Name of Photographer:	Merel Sager
Date Photographed:	1931
Description of Photograph:	Left oblique (southwest side) of frontal view facing northeast.
Location of Original Digital Files:	Landscape Architect Reports, Accession 370, Catalog #4959 HAVO Archives.

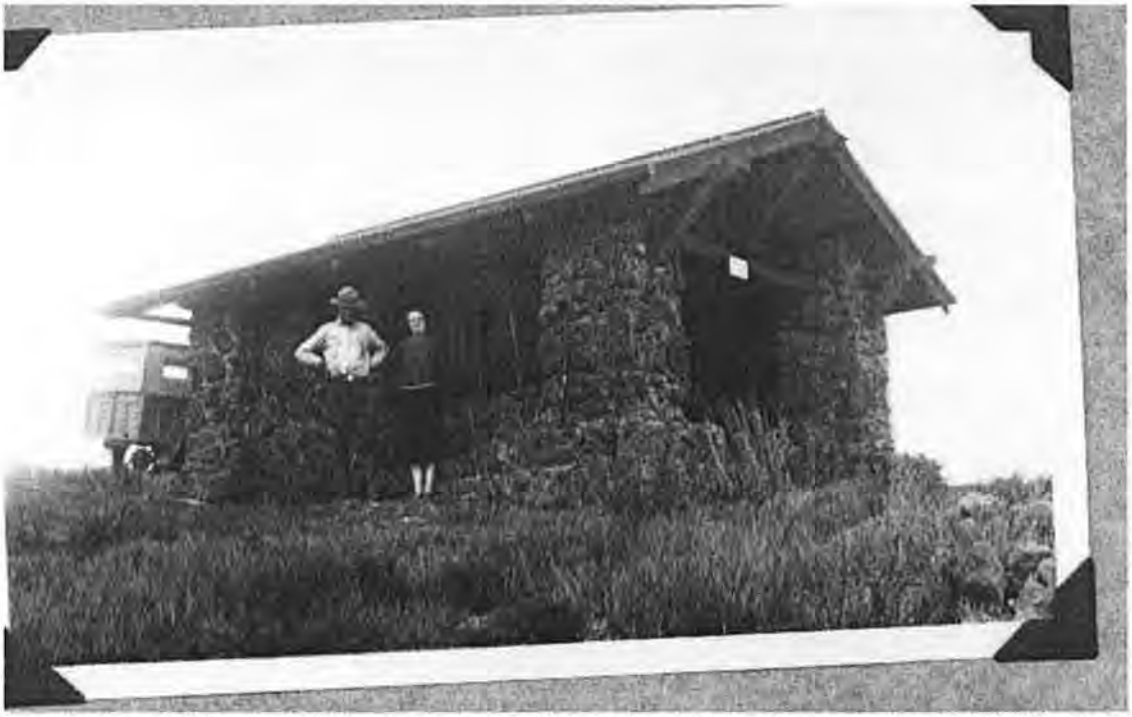


Fig. 1. Hilina Pali Picnic Shelter, 1931. Photographed by Merel Sager. Source: Landscape Architect Reports, Accession 370, Catalog #4959.

Figure 2. Hilina Pali Ford #3.

Name of Property:	Hilina Pali Road
City or Vicinity:	Hawaii Volcanoes National Park
County:	Hawaii
State:	HI
Photographer:	Frank Oberhansley
Date Photographed:	1950
Description of Photograph:	Ford #3 damage looking westerly.
Location of Original Digital Files:	Historic Photo Collection, HAVO 554, Binder 2 of 5, HAVO Archives.

Fig. 2. Hilina Pali Ford #3 damaged from water flow due to heavy rains. Photographed by Frank Oberhansley, Feb. 1950. Source: Historic Photo Collection, HAVO 554, Binder 2 of 5, HAVO Archives.

Digital Photographs Log

Photo #1 of 13 (HI_Hawaii County_Hilina Pali Road_0001.TIFF).
View of entry to Hilina Pali Road from Chain of Craters Road looking westerly.

Name of Property: Hilina Pali Road -Entry
City or Vicinity: Hawaii Volcanoes National Park
County: Hawaii
State: HI
Name of Photographer: Larry Frey
Date Photographed: August 2012
Location of Original Digital Files: CRM Division, HAVO

Photo #2 of 13 (HI_Hawaii County_Hilina Pali Road_0002.TIFF).
Road with view of Kalana'okuaiki Pali (background left) and CCC retaining wall (left) looking westerly.

Name of Property: Hilina Pali Road -Road Description and Structure View 1
City or Vicinity: Hawaii Volcanoes National Park
County: Hawaii
State: HI
Name of Photographer: Larry Frey
Date Photographed: August 2012
Location of Original Digital Files: CRM Division, HAVO

Photo #3 of 13 (HI_Hawaii County_Hilina Pali Road_0003.TIFF).
Partial view of campground site, loop access trail with Mauna Loa shield dome in background looking northwesterly.

Name of Property: Hilina Pali Road -1999 Kulana'okuaiki Campground Site
City or Vicinity: Hawaii Volcanoes National Park
County: Hawaii
State: HI
Name of Photographer: Larry Frey
Date Photographed: August 2012
Location of Original Digital Files: CRM Division, HAVO

Photo #4 of 13 (HI_Hawaii County_Hilina Pali Road_0004.TIFF).
Road as it travels over and through Kalana'okuaiki Pali looking southwesterly.

Name of Property: Hilina Pali Road -Road Description and Structure View 2
City or Vicinity: Hawaii Volcanoes National Park
County: Hawaii
State: HI
Name of Photographer: Larry Frey
Date Photographed: August 2012
Location of Original Digital Files: CRM Division, HAVO

Cont.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Hilina Pali Road
Name of Property
Hawaii, Hawaii
County and State
N/A
Name of multiple listing (if applicable)

Section number ADDITIONAL INFORMATION Page 4

Photo #5 of 13 (HI_Hawaii County_Hilina Pali Road_0005.TIFF).
Right oblique frontal view of fire cache at north side of road looking northwesterly.

Name of Property: Hilina Pali Road -1940 Kipuka Nene Fire Cache #4
City or Vicinity: Hawaii Volcanoes National Park
County: Hawaii
State: HI
Name of Photographer: Larry Frey
Date Photographed: August 2012
Location of Original Digital Files: CRM Division, HAVO

Photo #6 of 13 (HI_Hawaii County_Hilina Pali Road_0006.TIFF).
View of former campground site with 1950 picnic shelter/chimney structure (now closed) looking southeasterly.

Name of Property: Hilina Pali Road -1930 Kipuka Nene Campground Site
City or Vicinity: Hawaii Volcanoes National Park
County: Hawaii
State: HI
Name of Photographer: Larry Frey
Date Photographed: August 2012
Location of Original Digital Files: CRM Division, HAVO

Photo #7 of 13 (HI_Hawaii County_Hilina Pali Road_0007.TIFF).
Road with typical curve reveals many sections with built-up retaining walls (left) between lava formations looking southwesterly.

Name of Property: Hilina Pali Road -Road Description and Structure View 3
City or Vicinity: Hawaii Volcanoes National Park
County: Hawaii
State: HI
Name of Photographer: Larry Frey
Date Photographed: August 2012
Location of Original Digital Files: CRM Division, HAVO

Photo #8 of 13 (HI_Hawaii County_Hilina Pali Road_0008.TIFF).
View of second of four remaining fords across low areas along road path originally constructed of laid lava stones by CCC, now covered with asphalt and concrete; see distinctive curtain wall (upper center). Looking northeasterly.

Name of Property: Hilina Pali Road -1940 CCC Ford #2
City or Vicinity: Hawaii Volcanoes National Park
County: Hawaii
State: HI
Name of Photographer: Larry Frey
Date Photographed: August 2012
Location of Original Digital Files: CRM Division, HAVO

Cont.

Photo #9 of 13 (HI_Hawaii County_Hilina Pali Road_0009.TIFF).
Hilina Pali Overlook site at road terminus with 1930 picnic shelter in background looking southwesterly.

Name of Property: Hilina Pali Road - Hilina Pali Overlook Site
City or Vicinity: Hawaii Volcanoes National Park
County: Hawaii
State: HI
Name of Photographer: Larry Frey
Date Photographed: August 2012
Location of Original Digital Files: CRM Division, HAVO

Photo #10 of 13 (HI_Hawaii County_Hilina Pali Road_0010.TIFF).
Left frontal oblique view (compare with Figure 1) of lava stone and wood picnic shelter at road's terminus looking northeasterly.

Name of Property: Hilina Pali Road -1930 Hilina Pali Picnic Shelter
City or Vicinity: Hawaii Volcanoes National Park
County: Hawaii
State: HI
Name of Photographer: Larry Frey
Date Photographed: August 2012
Location of Original Digital Files: CRM Division, HAVO

Photo #11 of 13 (HI_Hawaii County_Hilina Pali Road_0011.TIFF).
Partial view of loop trail that begins and ends at the historic shelter (background) looking northerly.

Name of Property: Hilina Pali Road -Hilina Pali Loop Trailhead
City or Vicinity: Hawaii Volcanoes National Park
County: Hawaii
State: HI
Name of Photographer: Larry Frey
Date Photographed: August 2012
Location of Original Digital Files: CRM Division, HAVO

Photo #12 of 13 (HI_Hawaii County_Hilina Pali Road_0012.TIFF).
CCC-built structure with 2011 bronze plaque replacement provides name places along Kau coast with directional arrows, looking southeasterly.

Name of Property: Hilina Pali Road -1937 Hilina Pali Overlook Information Pointer
City or Vicinity: Hawaii Volcanoes National Park
County: Hawaii
State: HI
Name of Photographer: Larry Frey
Date Photographed: August 2012
Location of Original Digital Files: CRM Division, HAVO

Cont.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Hilina Pali Road
Name of Property
Hawaii, Hawaii
County and State
N/A
Name of multiple listing (if applicable)

Section number ADDITIONAL INFORMATION Page 6

Photo #13 of 13 (HI_Hawaii County_Hilina Pali Road_0013.TIFF).
View of non-contributing single-use privy installed 2009 just north of terminus parking area (note hitching rail to right), looking northerly.

Name of Property:	Hilina Pali Road -2009 Hilina Pali Overlook Privy/Hitching Rail
City or Vicinity:	Hawaii Volcanoes National Park
County:	Hawaii
State:	HI
Name of Photographer:	Larry Frey
Date Photographed:	August 2012
Location of Original Digital Files:	CRM Division, HAVO

HILINA PALI ROAD

SKETCH MAP
NATIONAL REGISTER NOMINATION

Photo 1
Crater Rim Drive
Crater of Craters Road
Photo 2
50' CORRIDOR LINE
Photo 3
Hilina Pali Road
Kulanaokuaiki Campground
Photo 4
Fault Line
Photo 5
Kipuka Nene
Photo 8
Photo 6
50' CORRIDOR LINE
Photo 7
Photo 13
Photo 10
Photo 11
Hilina Pali Overlook 2280 ft
Photo 12
Photo 9
Mauna Iki Trail
Ka'u Desert Trail
Mamalahoa Highway (11)
to KONA
Proposed Loop Road
Hilina Pali Trail
Halape Trail

LEGEND
Park Boundary
Current Roads
Old Road Alignments
Trails
Proposed Roads

KEY

Scale: 1"= 2,000'
0 4,000 8,000 16,000 24,000 feet

HAWAII VOLCANOES NATIONAL PARK ROADS
HAWAII VOLCANOES
HAWAII COUNTY
HAWAII
SHEET 17 OF 20
HISTORIC AMERICAN ENGINEERING RECORD HI-67

NATIONAL PARK SERVICE ROADS RECORDING PROJECT
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MAKAOPUHI CRATER QUADRANGLE
HAWAII-HAWAII CO.
7.5-MINUTE SERIES (TOPOGRAPHIC)

Produced by the United States Geological Survey

Topography compiled 1954. Planimetry derived from imagery taken 1977 and other sources. Photoinspected using imagery taken 1995; no major culture or drainage changes observed. Survey control current as of 1980. Boundaries revised 1999

North American Datum of 1983 (NAD 83). Projection and 1000-meter grid: Universal Transverse Mercator, zone 5
10 000-foot ticks: Hawaii Coordinate System of 1983 (zone 1)

Old Hawaiian Datum is shown by dashed corner ticks
The values of the shift between NAD 83 and Old Hawaiian Datum for 7.5-minute intersections are obtainable from National Geodetic Survey NADCON software

This map lies within an unstable volcanic area

There may be private inholdings within the boundaries of the National or State reservations shown on this map

UTM GRID AND 1999 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

20% TOTAL RECOVERED FIBER

SCALE 1:24 000

CONTOUR INTIRVAL 20 FEET
DATUM IS MEAN SEA LEVEL
TO CONVERT FROM FEET TO IETERS, MULTIPLY BY 0.3048
SHORELINE SHOWN REPRESENTS THE APROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDES APPROXIMATELY 2 FEET

FOR SALE BY U.S. GEOLOGICAL SURVEY, FO. BOX 25286, DENVER, COLORADO 80225
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

HAWAII

HAWAII

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Kilauea Crater
2 Volcano
3 Kalalua
4 Ka'u Desert
5 Kalapana
6 Nali'ikakani Point
7
8

ADJOINING 7.5' QUADRANGLE NAMES

INTERIOR - GEOLOGICAL SURVEY, RESTON, VIRGINIA - 1999

ROAD CLASSIFICATION

Primary highway hard surface ..... Light-duty road, hard or improved surface .....
Secondary highway hard surface ..... Unimproved road .....
Interstate Route U.S. Route State Route

HILINA PALI ROAD NR NOMINATION
4TM Point B

MAKAOPUHI CRATER, HI
1995
NIMA 5916 I SW-SERIES W833

ISBN 0-607-91840-3
9 780607 918403

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

U.S. DEPARTMENT OF DEFENSE
NATIONAL IMAGERY AND MAPPING AGENCY

VOLCANO QUADRANGLE
HAWAII-HAWAII CO.
7.5-MINUTE SERIES (TOPOGRAPHIC)

155°15′ — 155°07′30″ — 19°30′ — 19°22′30″

1 760 000 FEET — 240 000 FEET — 200 000 FEET — 1 730 000 FEET

PUU MAKAALA NATURAL AREA RESERVE
HAWAII VOLCANOES NATIONAL PARK
OLAA FOREST RESERVE
OLAA RESERVATION LOTS
OLAA FOREST PARK RESERVE
SETTLEMENT LOTS
KILAUEA FOREST RESERVE
OLAA SUMMER LOTS
VOLCANO PARK
Volcano
KEAAU
KAHAUALEA NATURAL AREA RESERVE
KAHAUALEA
KEAUHOU
CHAIN OF CRATERS
EAST RIFT ZONE
PANAU NUI
KAMOAMOA

Glenwood
Quarry
Ranger Station
Kilauea Iki Crater
Twin Craters
Thurston Lava Tube
Lava Flow of 1959
Puhimau Crater
Kokoolau Crater
Devils Throat
Cinder and Spatter Cones
Hiiaka Crater
APUA
Crack
Lava Flow of 1840
Lava Flow of 1868
Lava Flow of 1877
Lava Flow of 1919
Lava Flow of 1920
Lava Flow of 1955
Lava Flow of 1960
Lava Flow of 1965
Lava Flow of 1968
Lava Flow of 1969
Lava Flow of 1970
Lava Flow of 1972
Lava Flow of 1973
Lava Flow of 1974
LAVA FLOW OF 1969

NORTH GLENWOOD ROAD
SOUTH GLENWOOD ROAD
OLAA FOREST PARK RESERVE ROAD
KILAUEA ROAD
CRATER RIM DRIVE
CRATER RIM TRAIL
HAUNANI ROAD
WRIGHT ROAD
ELEPAIO ROAD
LAUKAPU ROAD
HILINA PALI ROAD
PA ALII STREET
AUI KOA STREET
AUI ANELA STREET
MOKUNA STREET
LANUHEA STREET
ALAULA STREET
HUAKAI STREET
PUOLANI STREET
AUI PAPA STREET
ALII STREET
KAAE STREET
LOMA STREET
JADE STREET
RUBY STREET
PEARL STREET
FIRST STREET
SIXTH STREET
TWELFTH STREET
HEONE AVENUE

BM 2203
BM 2225
BM 2293 County Park Water Tank
BM 2359
BM 2475
BM 2687
BM 2612
BM 2681
BM 2751
BM 2893
BM 2998
BM 3157
BM 3417
BM 3522
BM 3566
BM 3641
BM 3722
BM 3747
BM 3796
BM 3816
BM 3874
BM 3974
BM 3917
BM 3762
BM 3833
BM 3519
BM 3429
BM 3266

Produced by the United States Geological Survey in cooperation with National Imagery and Mapping Agency

Topography compiled 1954. Planimetry derived from imagery taken 1997. Survey control current as of 1963. Contours that conflict with updated major features are dashed

North American Datum of 1983 (NAD 83). Projection and 1000-meter grid: Universal Transverse Mercator, zone 5
10 000-foot ticks: Hawaii Coordinate System of 1983 (zone 1)

Old Hawaiian Datum is shown by dashed corner ticks
The values of the shift between NAD 83 and Old Hawaiian Datum for 7.5-minute intersections are obtainable from National Geodetic Survey NADCON software

This map lies within an unstable volcanic area

There may be private inholdings within the boundaries of the National or State reservations shown on this map

MN — GN — 0°44′ 13 MILS — 10° 178 MILS

UTM GRID AND 1998 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1 .5 0 KILOMETERS 1 2
1000 0 METERS 1000 2000
1 .5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL
TO CONVERT FROM FEET TO METERS, MULTIPLY BY 0.3048

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, P.O. BOX 25286, DENVER, COLORADO 80225
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

HAWAII

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Kulani
2 Puu Makaala
3 Mountain View
4 Kilauea Crater
5 Kalalua
6 Kau Desert
7 Makaopuhi Crater
8 Kalapana

ADJOINING 7.5' QUADRANGLE NAMES

INTERIOR - GEOLOGICAL SURVEY, RESTON, VIRGINIA - 1999

ROAD CLASSIFICATION

Primary highway hard surface ..... — Light-duty road, hard or improved surface .....
Secondary highway hard surface ..... — Unimproved road .....
Interstate Route — U.S. Route — State Route

UTM Point A

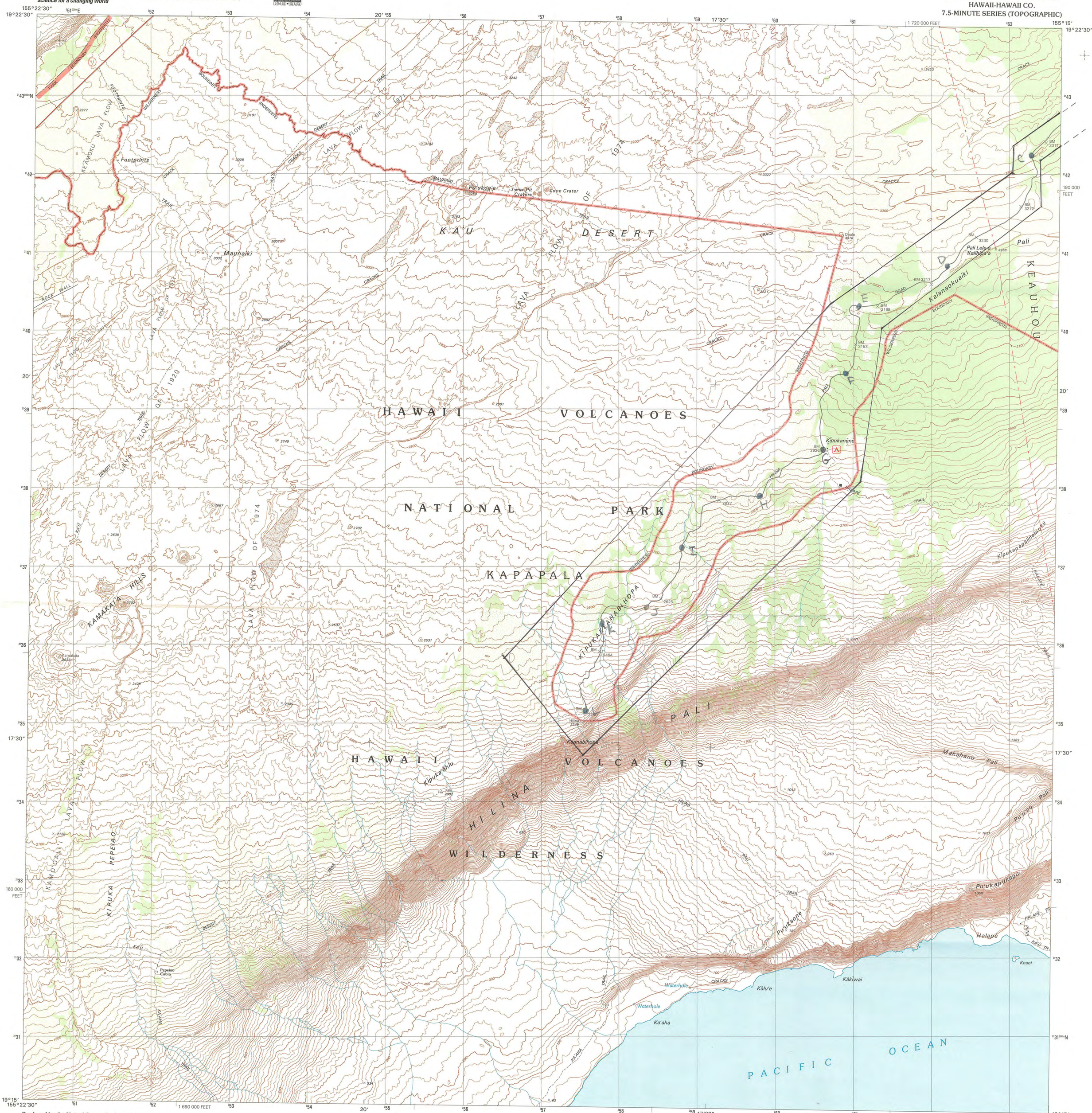
VOLCANO, HI
1997

NIMA 5916 I NW-SERIES W833

ISBN 0-607-90098-9

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

KA'Ū DESERT QUADRANGLE
HAWAII-HAWAII CO.
7.5-MINUTE SERIES (TOPOGRAPHIC)



Produced by the United States Geological Survey

Topography compiled 1954. Planimetry derived from imagery taken 1977 and other sources. Photoinspected using imagery taken 1995; no major culture or drainage changes observed. Survey control current as of 1980. Boundaries revised 1999

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Contour gaps near map edges are due to NAD 83 shift

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MN
GN
0°46′ 14 MILS
10° 178 MILS
UTM GRID AND 1999 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

20% TOTAL RECOVERED FIBER

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 0 METERS 1000 2000
1 .5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL
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QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Kipukapakekaké
2 Kilauea Crater
3 Volcano
4 Wood Valley
5 Makaopuhi Crater
6 Pāhala
7 Nali'ikakani Point
8

ADJOINING 7.5' QUADRANGLE NAMES

ROAD CLASSIFICATION

Primary highway hard surface ..... Light-duty road, hard or improved surface .....
Secondary highway hard surface ..... Unimproved road .....
Interstate Route U.S. Route State Route

HILINA PALI ROAD NR NOMINATION
UTM Points C-L

INTERIOR - GEOLOGICAL SURVEY, RESTON, VIRGINIA - 1999

KA'Ū DESERT, HI

1995

NIMA 5916 IV SE-SERIES W833

ISBN 0-607-91839-7
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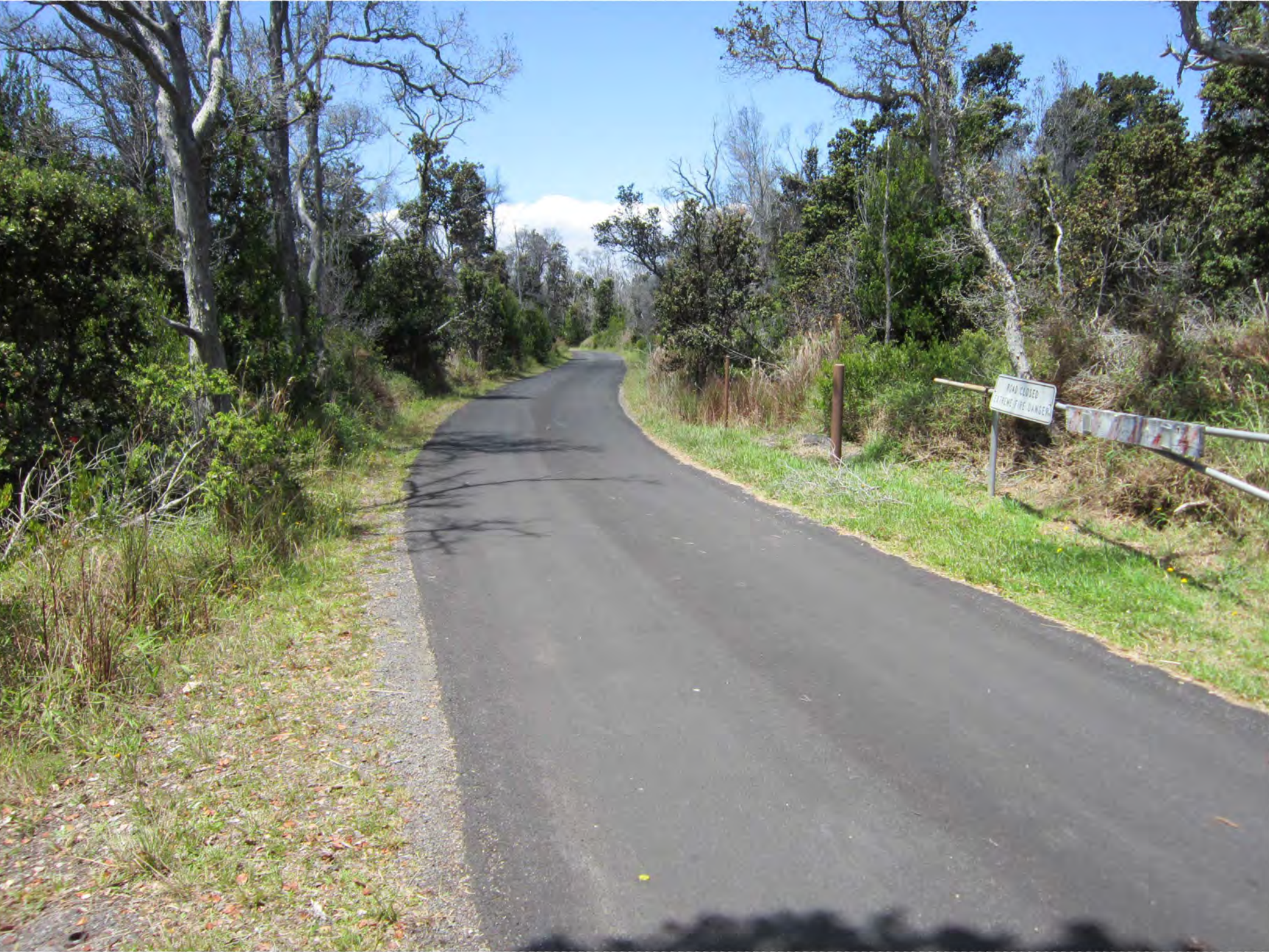
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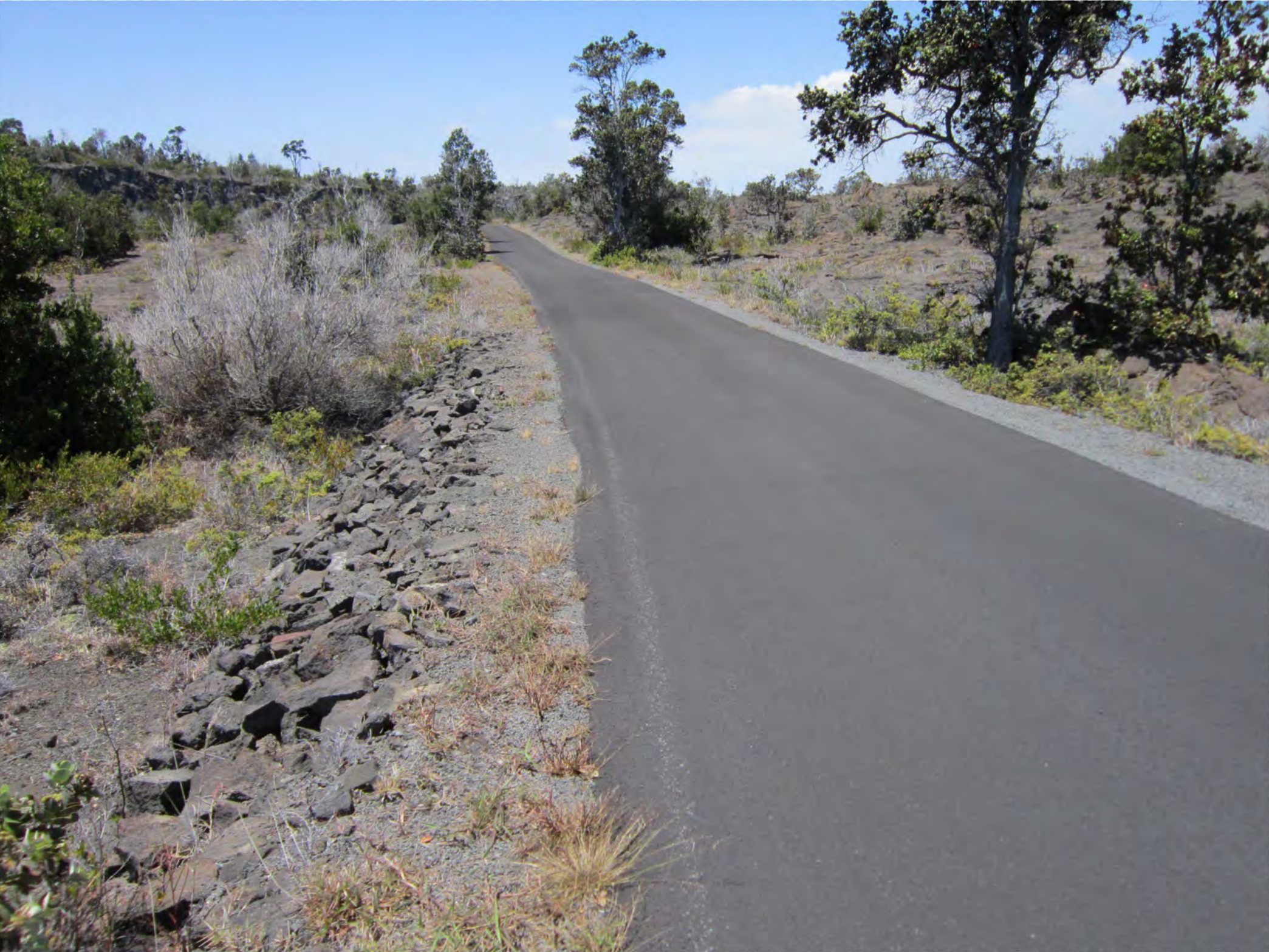
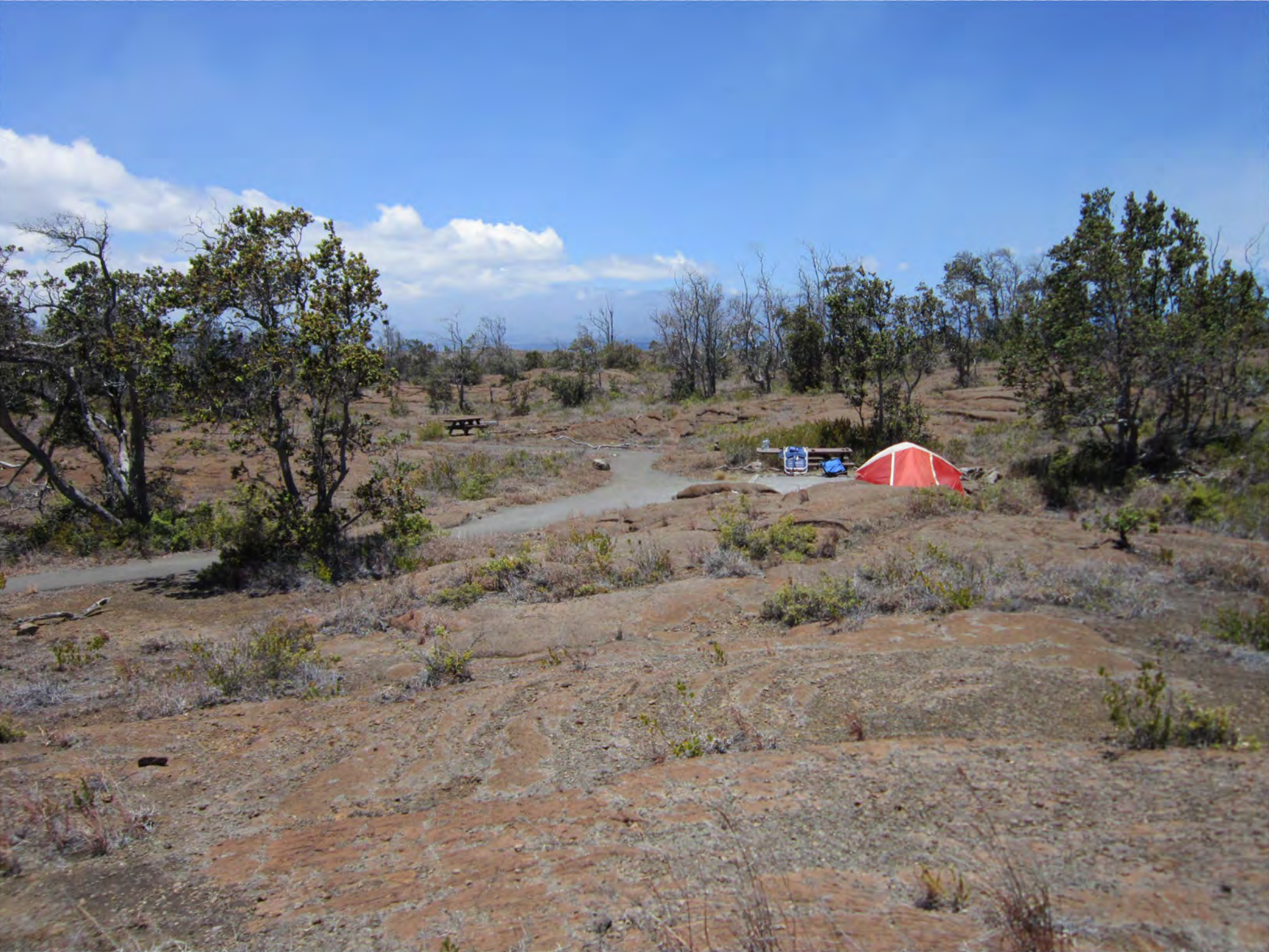
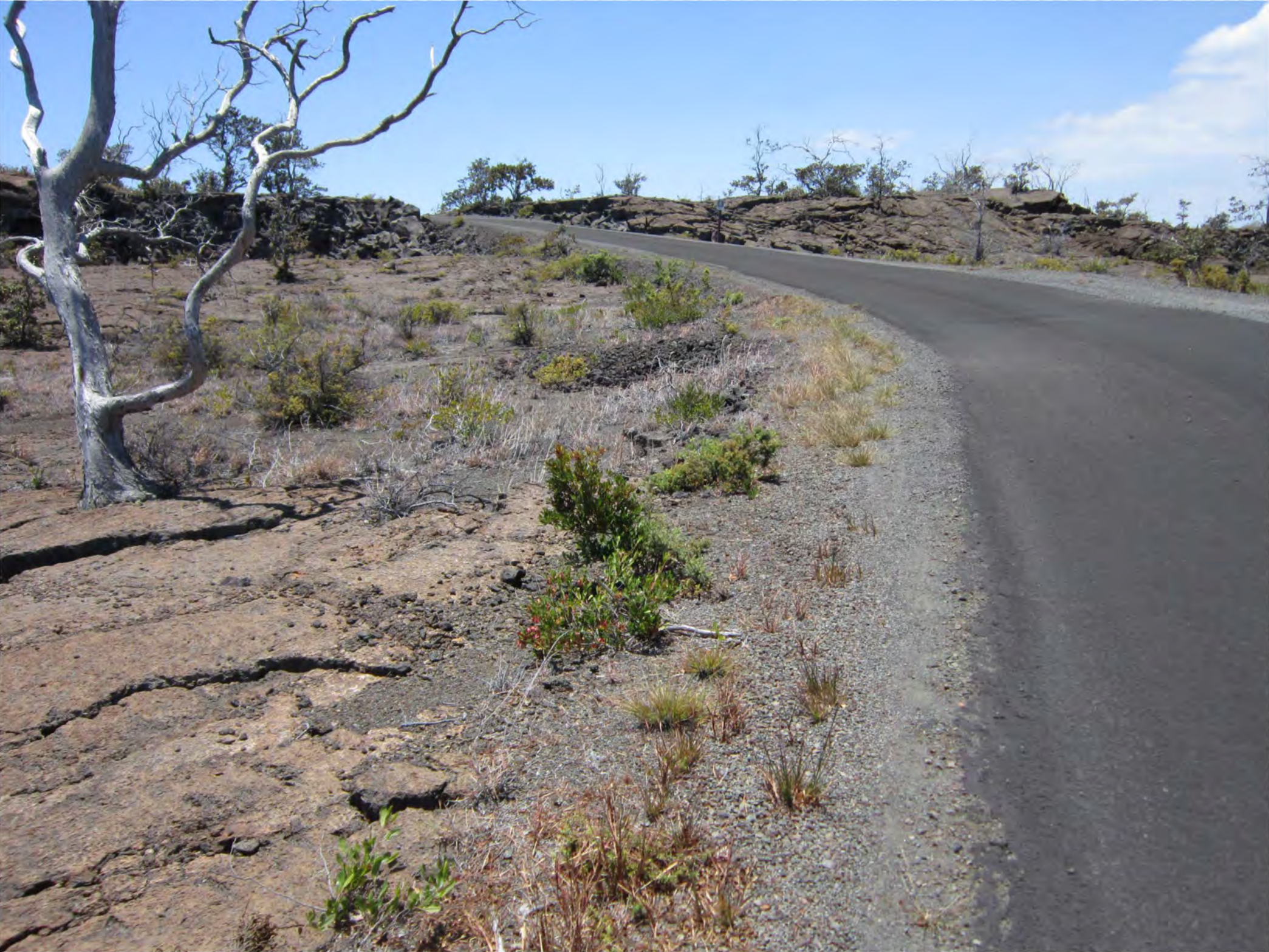
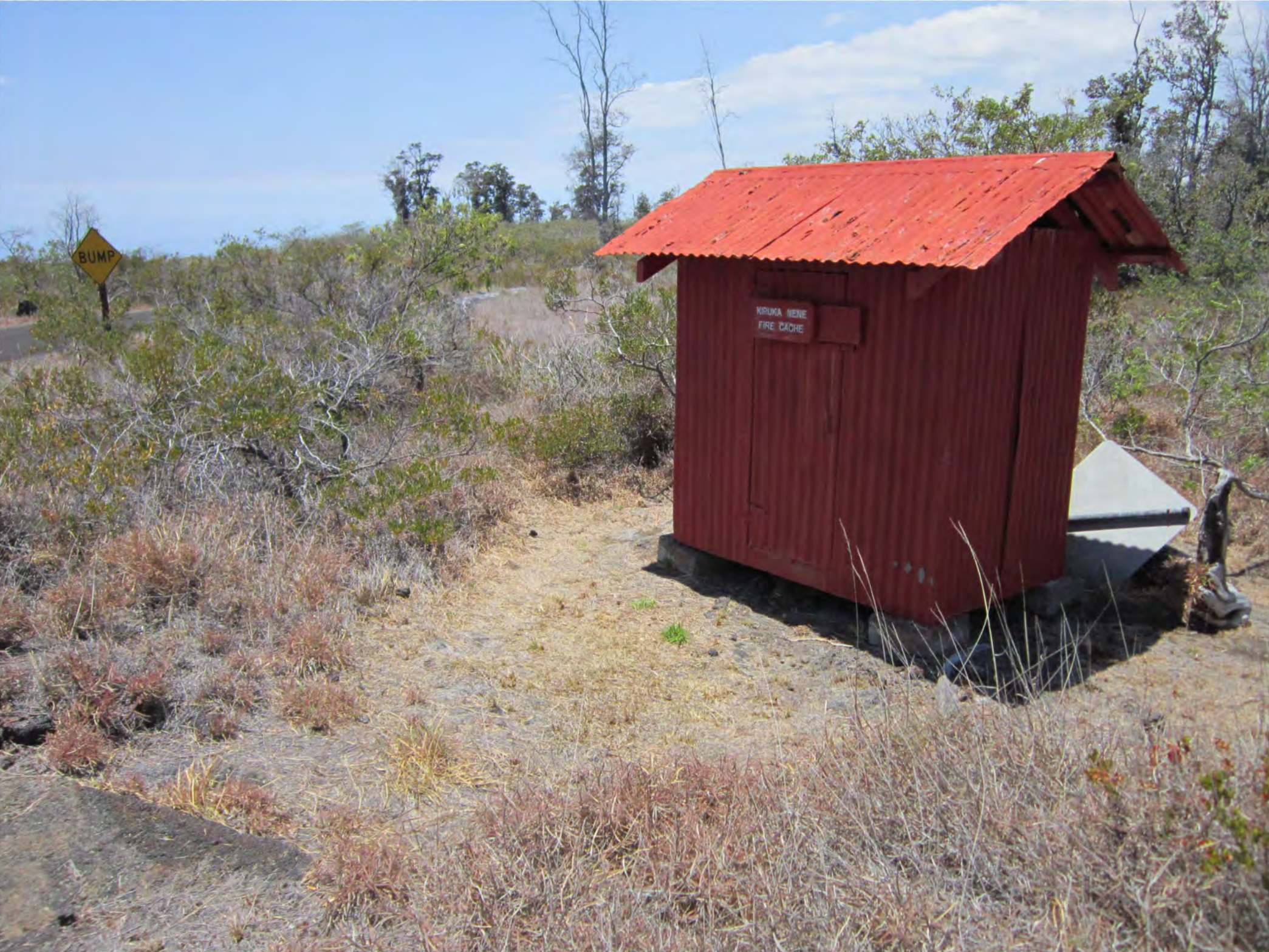
EXTREME FIRE DANGER





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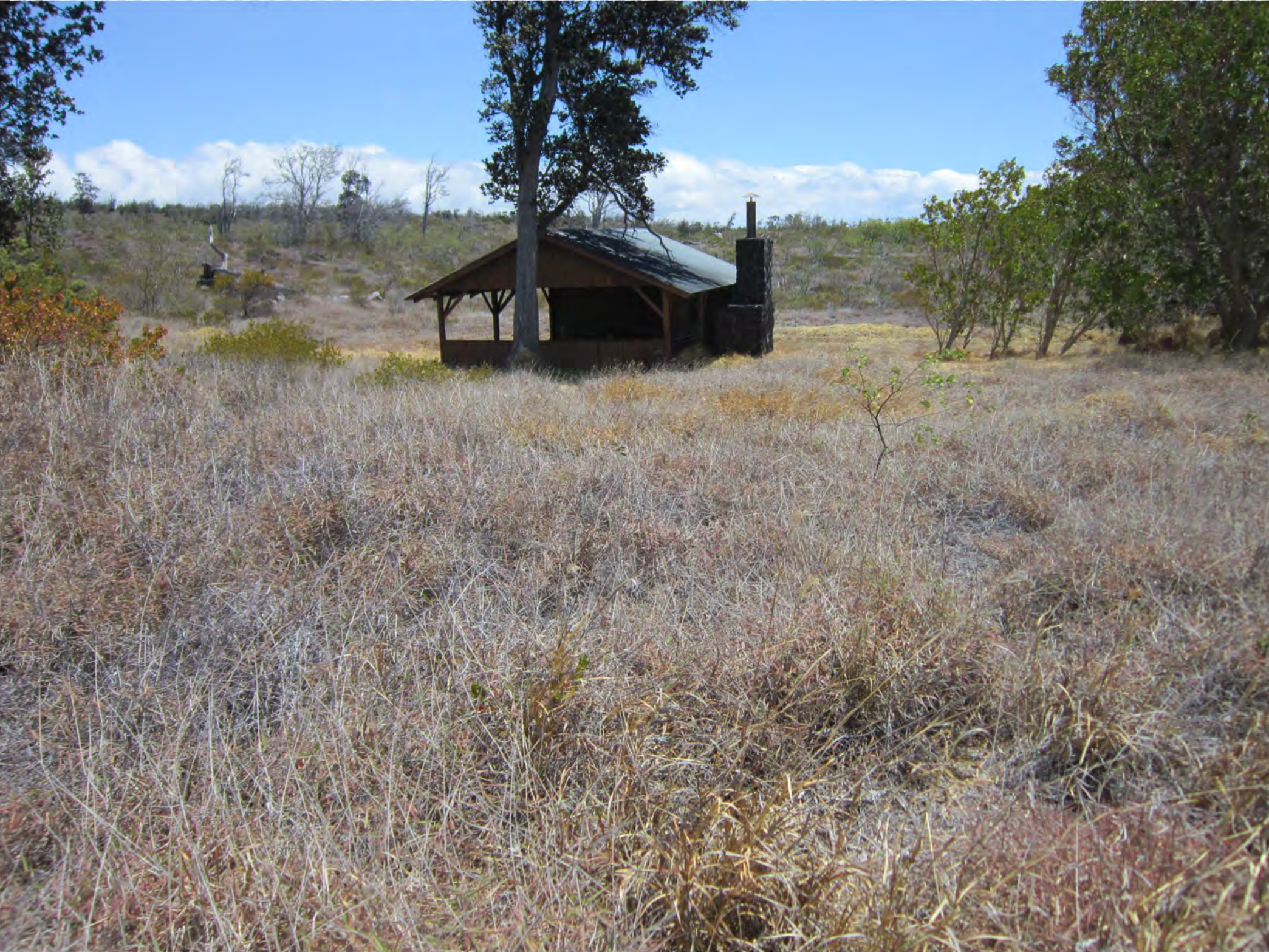

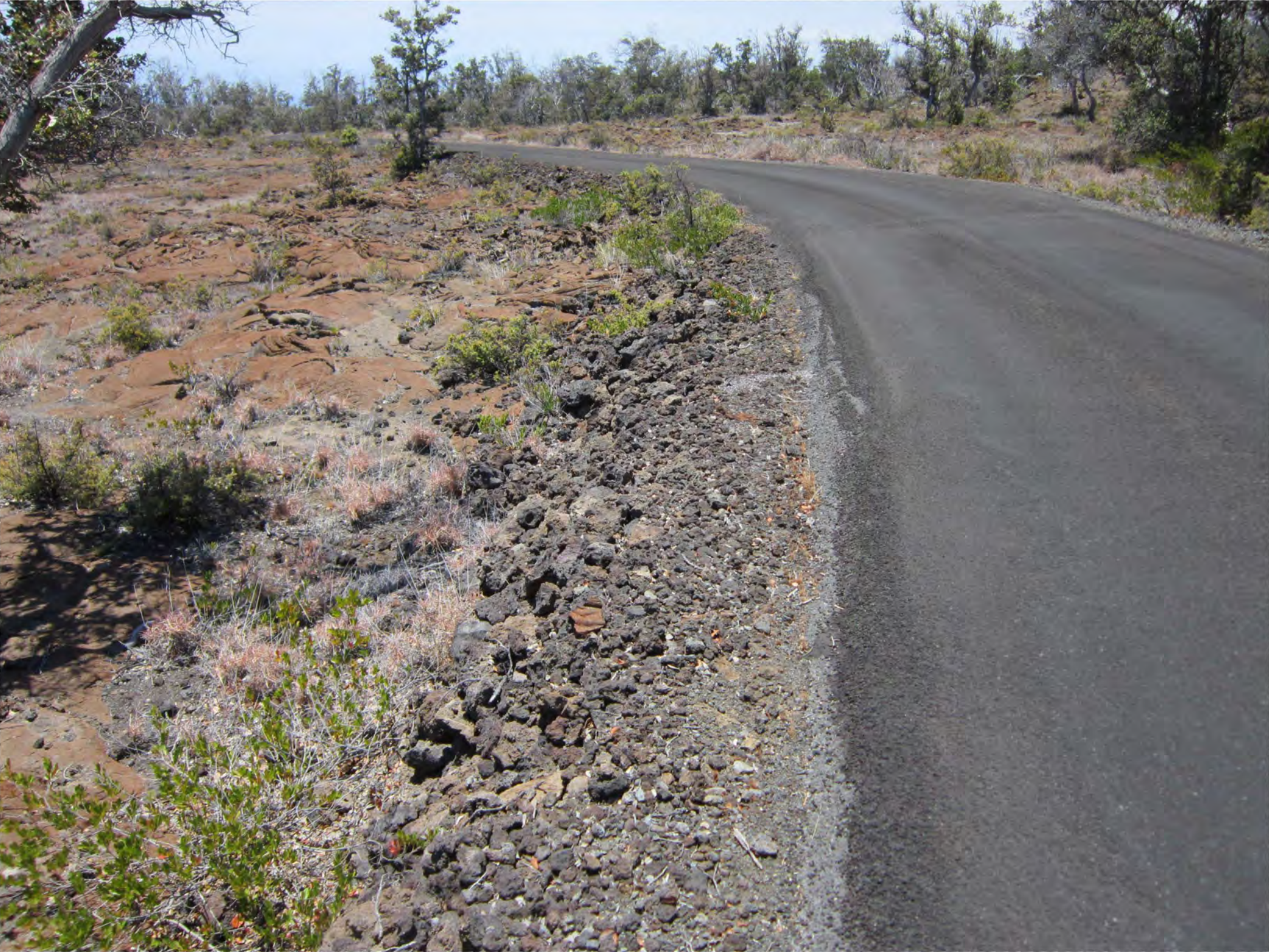

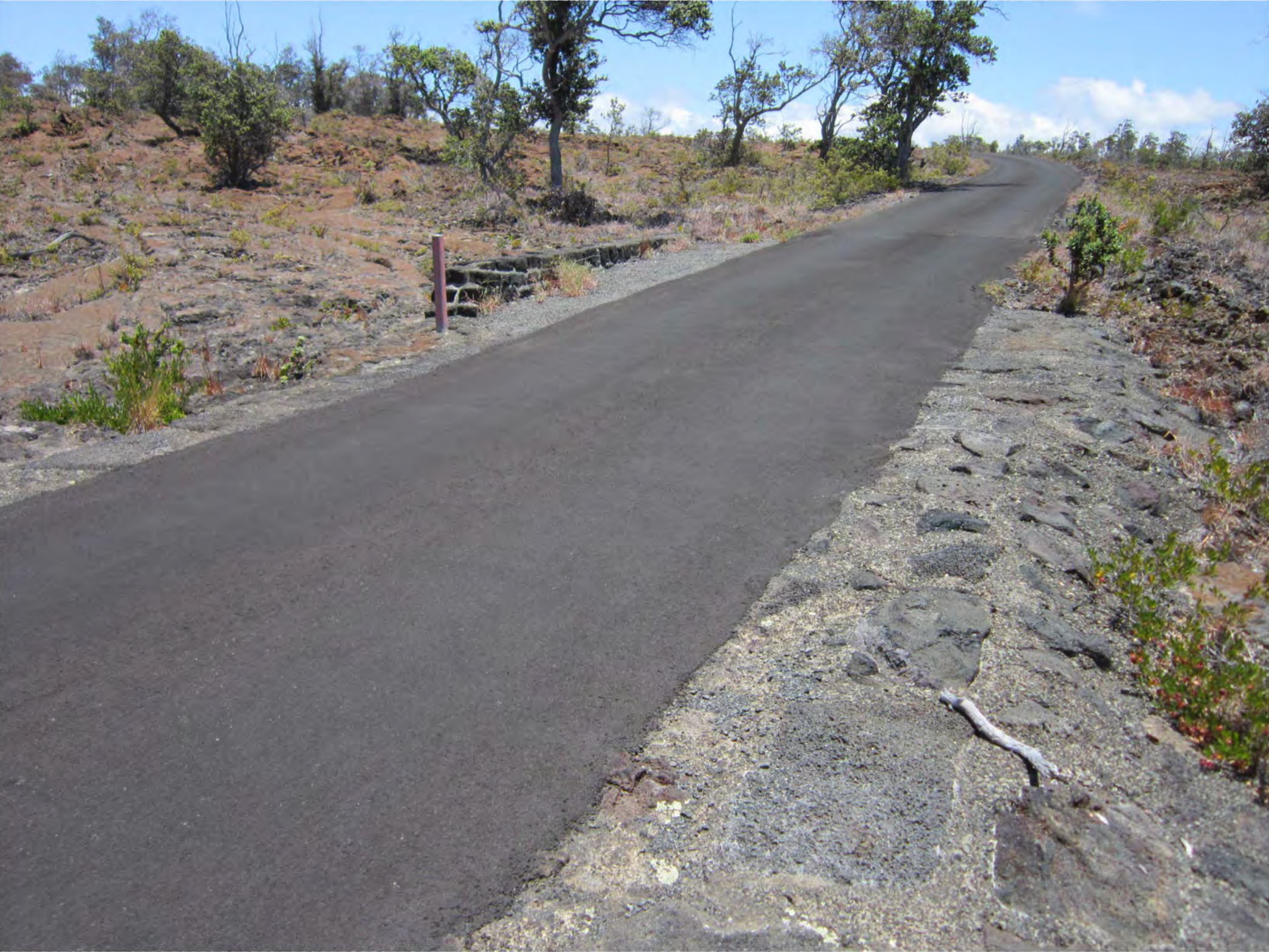

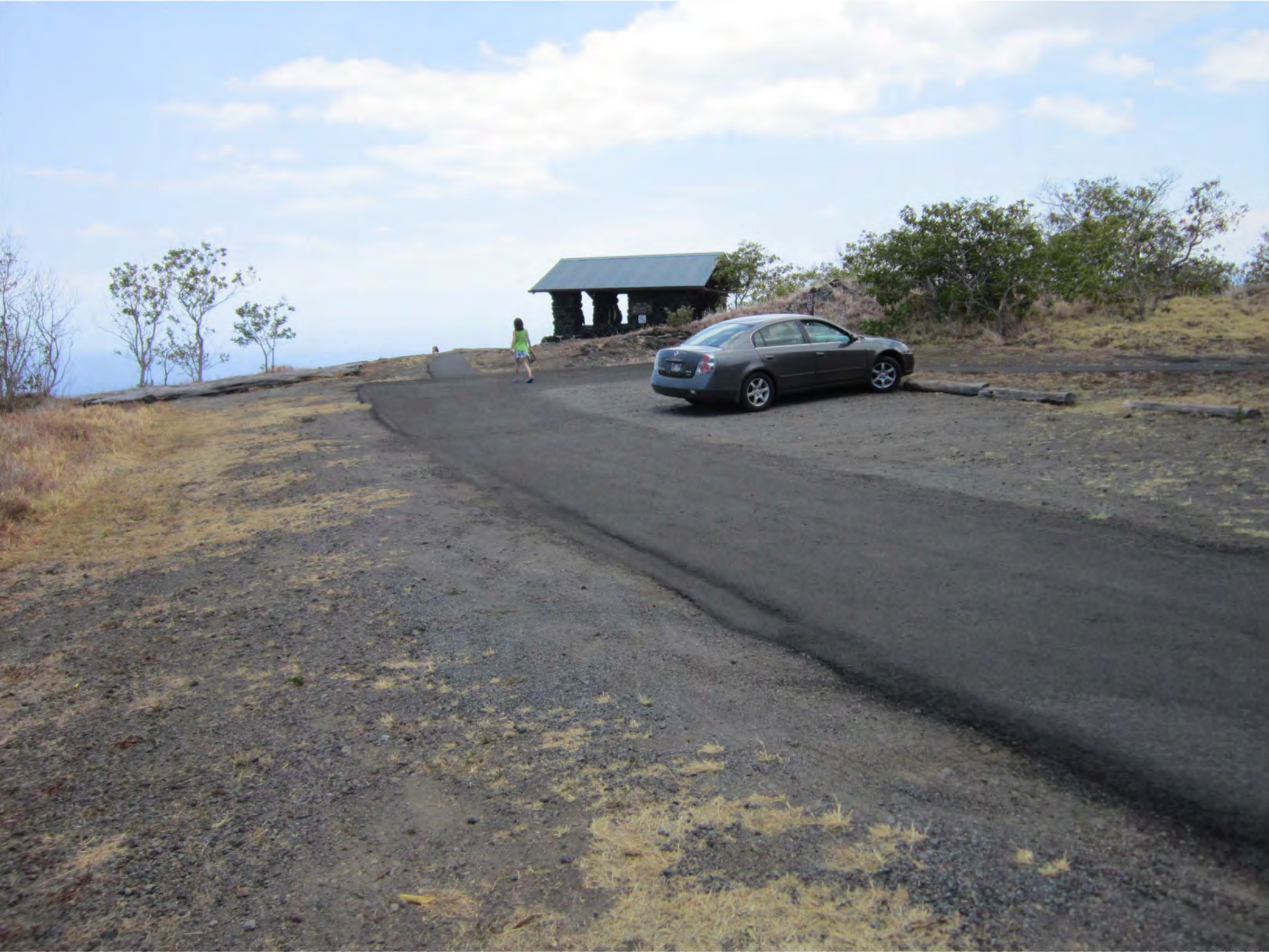

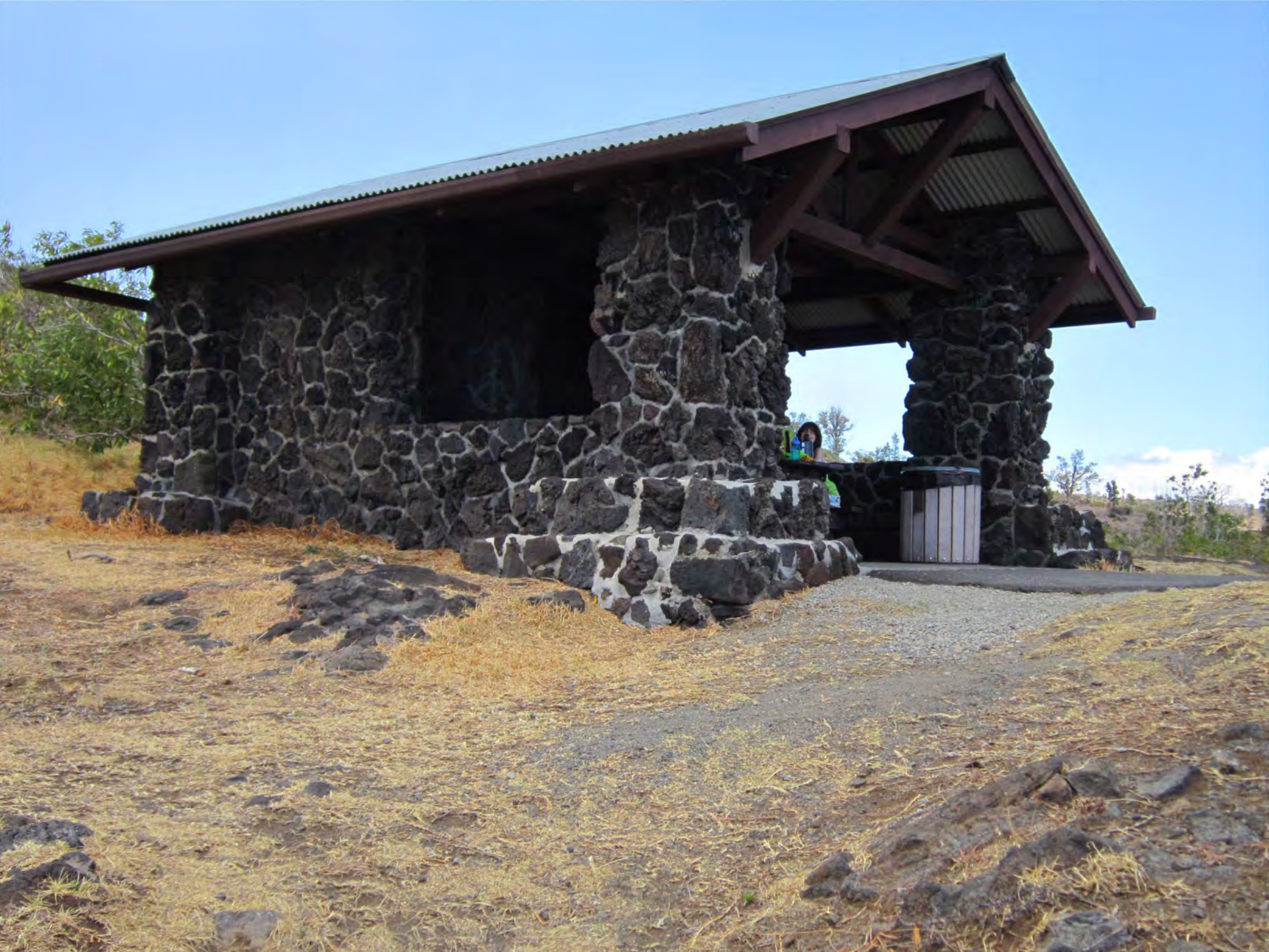

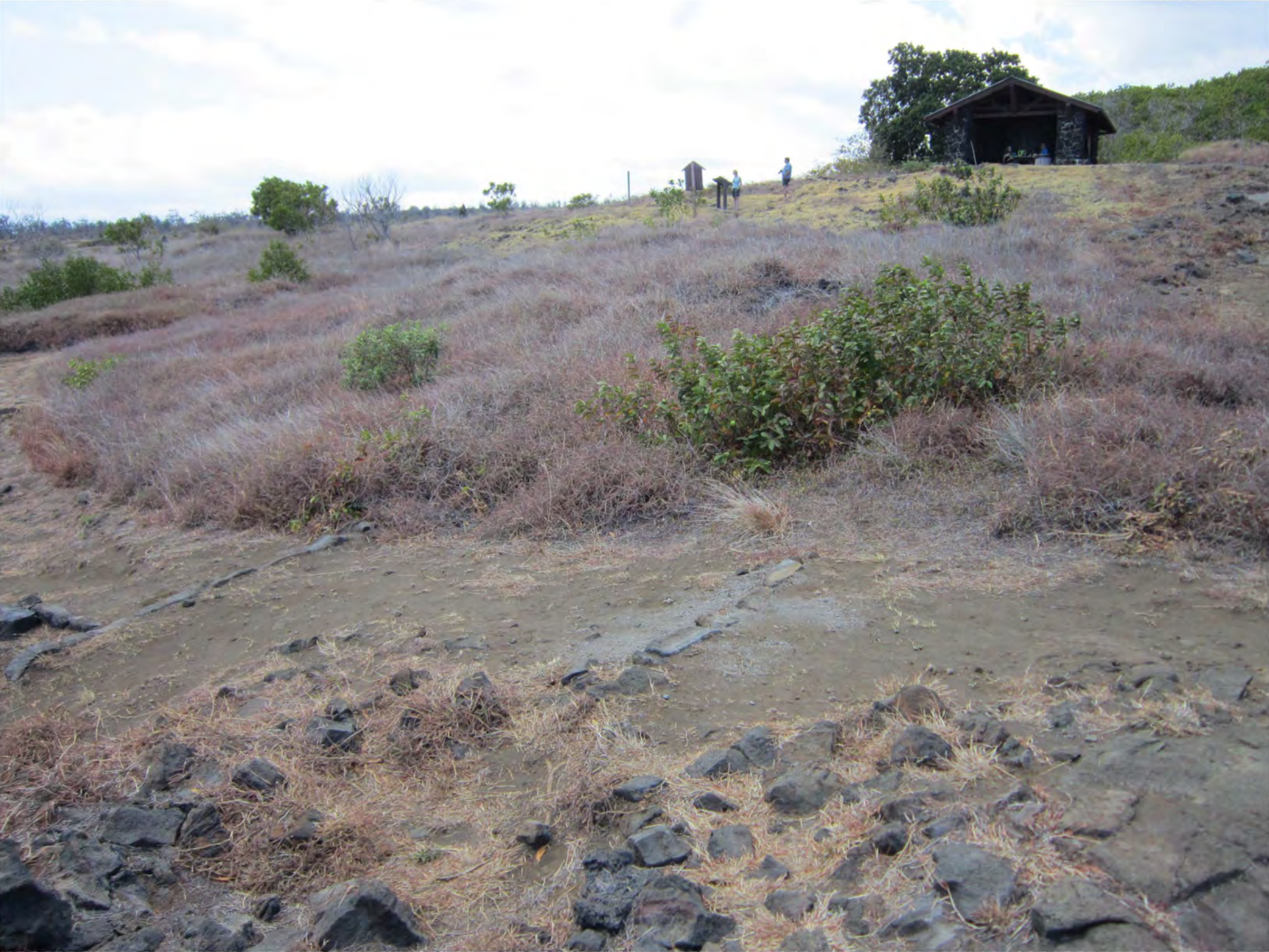

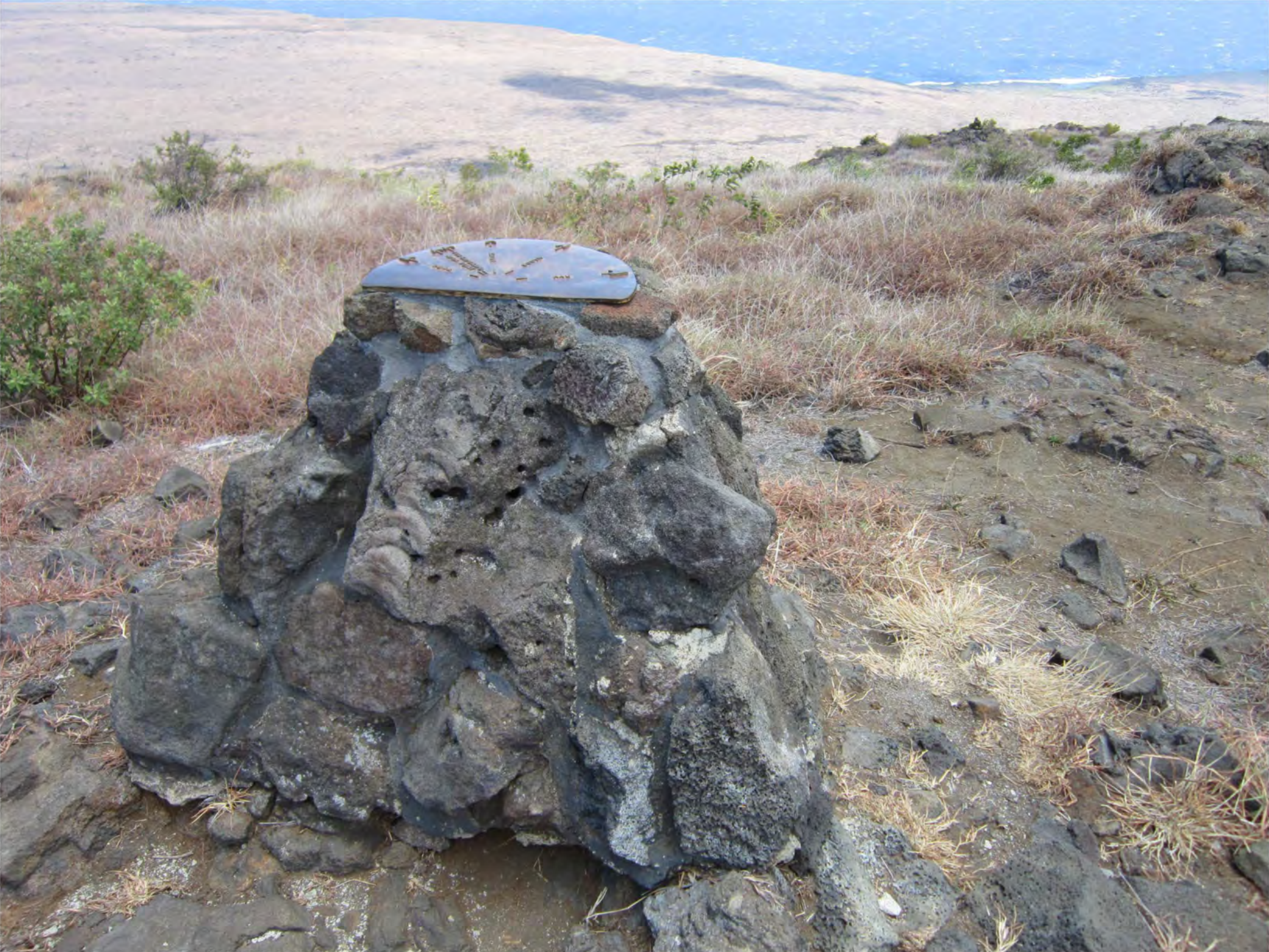

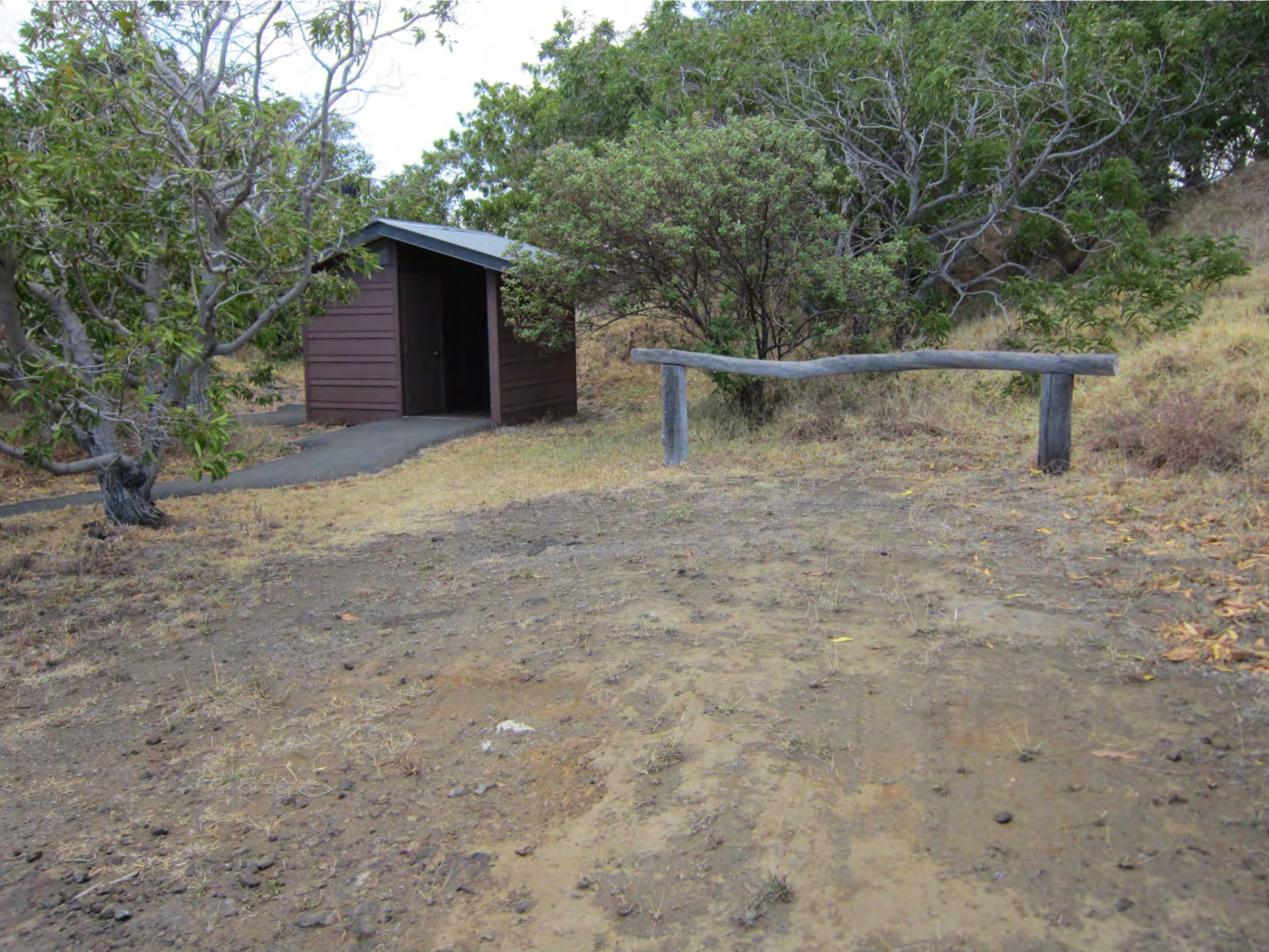

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: RESUBMISSION

PROPERTY NAME: Hilina Pali Road

MULTIPLE NAME:

STATE & COUNTY: HAWAII, Hawaii

DATE RECEIVED: 11/28/14 DATE OF PENDING LIST:
DATE OF 16TH DAY: DATE OF 45TH DAY: 1/14/15
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 09000587

DETAILED EVALUATION:

___ACCEPT ___RETURN ___REJECT _____DATE

ABSTRACT/SUMMARY COMMENTS:

The Hilina Pali Road is significant under National Register criteria A and C in the areas of Transportation, Recreation/Entertainment, Architecture, and Landscape Architecture. Part of Hawaii National Park's comprehensive planning efforts during the early twentieth-century, the 8.35-mile secondary road was an important recreational and administrative amenity for the growing park. The road conforms to the National Park Service's distinctive "park road" aesthetics of the period, incorporating standard construction and design vocabulary such as heightened sensitivity to natural surroundings, following natural topography, the development of scenic vistas, and the incorporation of rustic design elements at trail-side stops and along the roadway itself. The construction of the trail reflected the common patterns of transportation infrastructure development within the national parks during the early twentieth century, from master planning and resource conservation aspects to rustic design forms and recreational opportunities.

RECOM./CRITERIA Accept Criteria A+C

REVIEWER Paul R. Lusignan DISCIPLINE Historian

TELEPHONE 202.354.2229 DATE 1/14/2015

DOCUMENTATION see attached comments Y/N see attached SLR (Y)/N

United States Department of the Interior

NATIONAL PARK SERVICE
1849 C Street, N.W.
Washington, DC 20240

November 25, 2014

Memorandum

To: Acting Keeper of the National Register of Historic Places

From: Deputy Federal Preservation Officer, National Park Service

Subject: Resubmission of National Register Nominations for Mauna Loa Road and Hilina Pali Road Historic District, Hawaii Volcanoes National Park

I am forwarding the resubmitted National Register nominations for two properties within Hawaii Volcanoes National Park: Mauna Loa Road and the Hilina Pali Road Historic District. The nominations were originally submitted in 2007 and returned by the National Register program for revisions. Comments received in 2007 have been incorporated into the revised documents. The revised documents have been reviewed and found to meet the requirements for listing in the National Register at the statewide level of significance, with the addition of minor changes, which will be met through use of Supplementary Listing Records.